6 NYCRR Part 360 Permit Application
Eastern Landfill Expansion

City of Albany Rapp Road Solid Waste Management Facility

CHA Project Number: 12206

Prepared for:

The City of Albany, New York

Prepared by:

Clough, Harbour & Associates LLP
III Winners Circle
Albany, New York 12205
(518) 453-4500

July 30, 2007

6 NYCRR Part 360
Permit Application Contents
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Project Introduction
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CLOUGH HARBOUR & ASSOCIATES LLP

July 30, 2007

The proposed project will involve the expansion of the existing City of Albany Rapp Road Landfill onto City-owned lands located east of the existing landfill (Eastern Expansion) in order to continue to meet the solid waste disposal needs of City residents and businesses as well as the communities that make up the Albany New York Solid Waste Energy Recovery System (ANSWERS) Solid Waste Management Planning Unit, and the Capital Region as a whole.

The Eastern Expansion of the landfill will involve an overfill of approximately 22 acres of the existing landfill and a lateral expansion of approximately 14 acres onto the adjacent City-owned property. The City proposes to relocate existing landfill infrastructure including offices, the recycling building, and other accessory uses to several parcels totaling approximately 3.5 acres located directly east of the landfill entrance road off of Rapp Road. An approximately 3-acre portion of State owned land, also located east of the existing landfill, will be needed to accommodate the relocation of the detention pond. An approximately 1-acre remnant parcel of land owned by the State of New York, under the jurisdiction of the Department of Transportation, would be required to access the relocated landfill operations off of Rapp Road. Figure 2-2 illustrates the general layout of the expansion.

The main components of the Rapp Road Landfill Eastern Expansion include a landfill liner system, a leachate collection and removal system, and a landfill gas control system. These components are discussed in detail in the sections that follow.

6 NYCRR Part 360
Permit Application & Variance Forms
Eastern Landfill Expansion

City of Albany Rapp Road Solid Waste Management Facility

CHA Project Number: 12206

Prepared for:

The City of Albany, New York

Prepared by:

Clough, Harbour & Associates LLP
III Winners Circle
Albany, New York 12205
(518) 453-4500

July 30, 2007

47-19-2 (11/89)—10e

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
DIVISION OF SOLID WASTE

APPLICATION FOR A SOLID WASTE MANAGEMENT FACILITY PERMIT

DEPARTMENT USE ONLY
DEC APPLICATION NUMBER
FACILITY CODE

Please read all instructions before completing this application

Please TYPE or PRINT clearly

1. TYPE OF APPLICATION (Check All Applicable Boxes):

- [X] Permit to Construct
- [X] Permit to Operate
- [X] Initial (New)
- [ ] Subsequent Stage (New)
- [ ] Renewal
- [ ] Modification

2. APPLICANT IS THE:

- [X] Facility Owner
- [X] Facility Operator

3. FACILITY OWNER'S NAME	4. FACILITY OPERATOR'S NAME	5. ENGINEER'S NAME AND P.E. LICENSE NO.
City of Albany	City of Albany	Warren A. Harris IV, 077420
Address: One Conners Blvd.	Address: 525 Rapp Road	Firm Name: Clough Harbour & Associates LLP
City: Albany	City: Albany	Address: III Winners Circle
State/Zip Code: New York 12204	State/Zip Code: New York 12205	City/State/Zip Code: Albany, New York 12205
Telephone Number: (518) 432-1144	Telephone Number: (518) 869-3651	Telephone Number: (518) 453-4500

6 FACILITY NAME AND LOCATION (Attach USGS Topo Map showing exact location)

Name: Rapp Road Solid Waste Management Facility

Street: 525 Rapp Road

City, State, Zip Code: Albany, New York 12205

Town: Albany

County: Albany

Coordinates: NYTM—E 603.9 NYTM—N 4740.3

7. SITE OWNER'S NAME

City of Albany

Address: One Conners Blvd.

City: Albany

State/Zip Code: New York 12204

Telephone: (518) 432-1144

8. TYPE OF FACILITY (Check all applicable boxes)

- [X] Landfill (Specify category) Solid Waste
- [ ] Research, Development and Demonstration
- [ ] Land Application
- [ ] Solid Waste Incineration
- [ ] Refuse Derived Fuel Processing
- [ ] Composting
- [ ] Recyclables Handling and Recovery
- [ ] Other (Describe)
- [ ] Transfer Station
- [ ] Medical Waste
- [ ] Waste Tire Storage
- [ ] Landfill Gas Recovery
- [ ] Waste Oil

9. IS APPLICATION BEING FILED BY OR ON BEHALF OF A MUNICIPALITY?

[X] Yes [ ] No If yes, name. City of Albany

10. FEE AMOUNT ENCLOSED

$

11. NAME(S) OF ALL MUNICIPALITIES SERVED

Albany County (except Town of Colonie and City of Cohoes), City of Rensselaer.

12. SOLID WASTE HANDLED

a. List wastes to be accepted: Municipal Solid Waste and PCS

b. Quantity (Specify Units)

(P4) Existing "approved design capacity" 3,134,000 C.Y.

Proposed "approved design capacity" 6,059,000 C.Y.

13. PROVIDE THE FOLLOWING INFORMATION WHERE APPLICABLE

a. Facility area proposed in the application	14	acres
b. Facility area ultimately planned	14	acres
c. Ultimate facility height above existing ground level	174	feet
d. Total site area	140	acres
e. Existing landfill area on this site and adjacent properties	107	acres

14. IS A VARIANCE REQUESTED FROM ANY PROVISION OF 6 NYCRR PART 360?

[X] Yes [ ] No If yes, cite the specific provision(s) 360-2.12(c)(1)(ii) and 360-2.17(d)

15. CERTIFICATION:

I hereby affirm under penalty of perjury that information provided on this form and attached statements and exhibits was prepared by me or under my supervision and direction and is true to the best of my knowledge and belief, and that I have the authority or am authorized as Commissioner (title) of City of Albany Dept. of General Services (Entity) to sign this application pursuant to 6 NYCRR Part 360. I am aware that any false statement made herein is punishable as a Class A misdemeanor pursuant to Section 210.45 of the Penal Law.

Date	Signature	Print Name
		Willard A. Bruce

REGIONAL DRA COPY

NEW YORK STATE
DEPARTMENT OF ENVIRONMENTAL CONSERVATION

APPLICATION FOR VARIANCE FROM 6 NYCRR 360

SEE APPLICATION INSTRUCTIONS ON REVERSE SIDE

FOR STATE USE ONLY	
PROJECT NO.	DATE RECEIVED
DEPARTMENT ACTION ☐ Approved ☐ Disapproved	DATE

1. OWNER'S NAME City of Albany	2. ADDRESS (Street, City, State, Zip Code) One Conners Blvd., Albany, New York 12204	3. Telephone No. 518-432-1144
4. OPERATOR'S NAME City of Albany	5. ADDRESS (Street, City, State, Zip Code) 525 Rapp Road, Albany, New York 12205	6. Telephone No. 518-869-3651
7. ENGINEER'S NAME Clough Harbour & Associates LLP	8. ADDRESS (Street, City, State, Zip Code) III Winners Circle, Albany, New York 12205	9. Telephone No. 518-453-4500

10. PROJECT/FACILITY NAME
Rapp Road Solid Waste Management Facility, Eastern Landfill Expansion

11. PROJECT STATUS ☒ Public ☐ Private ☐ Proposed ☐ Existing	12. COUNTY IN WHICH FACILITY IS LOCATED Albany County	13. ENVIRONMENTAL CONSERVATION REGION Region 4

14. DESCRIBE SPECIFIC LOCATION OF FACILITY

The project site is located at 525 Rapp Road, Albany, New York 12205.

15. TYPE OF PROJECT FACILITIES: ☐ Composting ☐ Transfer ☐ Shredding ☐ Baling ☒ Sanitary Landfill ☐ Incineration ☐ Pyrolysis ☐ Resource Recovery-Energy ☐ Resource Recovery-Materials ☐ Other ____

16. BRIEFLY DESCRIBE THE PROJECT INCLUDING THE BASIC PROCESS AND MAJOR COMPONENTS

The project is a 14 acre expansion of the Albany Interim Landfill. See Section 2 of the 6 NYCRR Part 360 Permit Application for a detailed description of the project.

17. SPECIFIC PROVISION OF 6 NYCRR 360 FROM WHICH A VARIANCE IS REQUESTED: Section	Paragraph	Variance Request No.
360-2.17(d)		2

18. BRIEFLY DESCRIBE PROPOSED VARIANCE

The variance is sought to allow the continued use of a spray-on intermediate material in lieu of soil cover material. The spray-on material is Posi-Shell.

19. IMPACTS OF VARIANCE APPROVAL OR DISAPPROVAL:

a. Environmental Impact:

With approval of this variance, the City will have an environmentally acceptable solution for the safe cover of solid waste during landfill operations. Approval of the variance also allows the conservation of valuable air space at the landfill for solid waste placement, which maximizes the facility life.

b. Economic Impact:

Approval would allow an economically feasible alternative for covering solid waste as opposed to the purchasing of cover soil.

20. CERTIFICATION:

I hereby affirm under penalty of perjury that information provided on this form and attached statements and exhibits is true to the best of my knowledge and belief. False statements made herein are punishable as a Class A misdemeanor pursuant to Section 210.45 of the Penal Law.

Date ____ Signature and Title ____

47-19-5 (6/77)
Formerly SW-23

CENTRAL OFFICE COPY

NEW YORK STATE
DEPARTMENT OF ENVIRONMENTAL CONSERVATION

APPLICATION FOR VARIANCE FROM 6 NYCRR 360

SEE APPLICATION INSTRUCTIONS ON REVERSE SIDE

FOR STATE USE ONLY	
PROJECT NO.	DATE RECEIVED
DEPARTMENT ACTION ☐ Approved ☐ Disapproved	DATE

1. OWNER'S NAME City of Albany	2. ADDRESS (Street, City, State, Zip Code) One Conners Blvd., Albany, New York 12204	3. Telephone No. 518-432-1144
4. OPERATOR'S NAME City of Albany	5. ADDRESS (Street, City, State, Zip Code) 525 Rapp Road, Albany, New York 12205	6. Telephone No. 518-869-3651
7. ENGINEER'S NAME Clough Harbour & Associates LLP	8. ADDRESS (Street, City, State, Zip Code) III Winners Circle, Albany, New York 12205	9. Telephone No. 518-453-4500

10. PROJECT/FACILITY NAME
Rapp Road Solid Waste Management Facility, Eastern Landfill Expansion

11. PROJECT STATUS ☒ Public ☐ Private ☐ Proposed ☐ Existing	12. COUNTY IN WHICH FACILITY IS LOCATED Albany County	13. ENVIRONMENTAL CONSERVATION REGION Region 4

14. DESCRIBE SPECIFIC LOCATION OF FACILITY

The project site is located at 525 Rapp Road, Albany, New York 12205.

15. TYPE OF PROJECT FACILITIES: ☐ Composting ☐ Transfer ☐ Shredding ☐ Baling ☒ Sanitary Landfill ☐ Incineration ☐ Pyrolysis ☐ Resource Recovery-Energy ☐ Resource Recovery-Materials ☐ Other ____

16. BRIEFLY DESCRIBE THE PROJECT INCLUDING THE BASIC PROCESS AND MAJOR COMPONENTS

The project is a 14 acre expansion of the Albany Interim Landfill. See Section 2 of the 6 NYCRR Part 360 Permit Application for a detailed description of the project.

17. SPECIFIC PROVISION OF 6 NYCRR 360 FROM WHICH A VARIANCE IS REQUESTED: Section	Paragraph	Variance Request No.
360-2.12(c)(1)(ii)		1

18. BRIEFLY DESCRIBE PROPOSED VARIANCE

The variance is sought to allow landfilling beyond December 31, 1995 over areas identified as a principal aquifer despite the fact that the City does not believe the area has the distinguishing features of a principal aquifer. Reference the attached Aquifer Variance Report.

19. IMPACTS OF VARIANCE APPROVAL OR DISAPPROVAL:

a. Environmental Impact:

With approval of this variance, the City will have an environmentally acceptable solution for the safe disposal of solid waste for a period of 6.5 years, which will provide time to complete plans for a long disposal alternative. With disapproval, the City would be forced to export waste that would involve long haul distances which is not as safe as local disposal.

b. Economic Impact:

Approval would allow an economically feasible disposal solution to continue while the City completes long range plans for waste disposal. Disapproval of the variance would cause leave the City without a cost effective disposal alternative for solid waste, and would be an unreasonable economic burden on the City.

20. CERTIFICATION:

I hereby affirm under penalty of perjury that information provided on this form and attached statements and exhibits is true to the best of my knowledge and belief. False statements made herein are punishable as a Class A misdemeanor pursuant to Section 210.45 of the Penal Law.

Date ____ Signature and Title ____

47-19-5 (6/77)
Formerly SW-23

CENTRAL OFFICE COPY

APPENDIX A

Aquifer Variance Report

Part 360 Application to Construct and Operate a Solid Waste Management Facility

Proposed Eastern Expansion
City of Albany
County of Albany, New York

CHA Project Number: 12206

Prepared for:

City of Albany on behalf of ANSWERS
Department of General Services
One Conners Boulevard
Albany, New York 12204

Prepared by:

CLOUGH HARBOUR & ASSOCIATES LLP

III Winners Circle
Albany, New York 12205
(518) 453-4500

August 2007

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1.0 INTRODUCTION

The City of Albany has applied to expand its existing landfill located on Rapp Road in the City of Albany. In conjunction with that request, the City has requested a variance from the provisions of 6 NYCRR 360-2.12(c)(1), which prohibits siting a landfill over a primary water supply aquifer or principal aquifer. The purpose of this report is to provide the basis for the City's request for the variance, based upon the unique circumstances associated with the characteristics of the Albany Pine Bush Formation, which underlies the site, and the unique circumstances facing the City and the members of the ANSWERS Solid Waste Management Planning Unit.

2.0 HISTORICAL SOLID WASTE MANAGEMENT BACKGROUND

2.1 General

The proposed project involves the expansion of the existing City of Albany Rapp Road Landfill onto City-owned lands located east of the existing landfill (Eastern Expansion) in order to continue to meet the solid waste disposal needs of City residents and businesses as well as the communities that make up the Albany New York Solid Waste Energy Recovery System (ANSWERS) Solid Waste Management Planning Unit, and the Capital Region as a whole. ANSWERS is comprised of a consortium of communities that include the cities of Albany, Rensselaer and Watervliet, the towns of Berne, Bethlehem, Guilderland, Knox, New Scotland, Rensselaerville, and Westerlo, and the Villages of Green Island and Altamont.

The Eastern Expansion of the landfill involves an overfill of approximately 23 acres of the existing landfill and a lateral expansion of approximately 15 acres that includes 2 acres within the existing landfill operations area (disturbed/developed lands) and 13 acres within undeveloped City-owned property directly to the northeast. Existing landfill infrastructure including offices, the recycling building, and other accessory uses will be relocated to two parcels totaling approximately 3.5 acres located directly east of the landfill entrance road off of Rapp Road. An approximately 1-acre remnant parcel of land owned by the State of New York, under the jurisdiction of the Department of Transportation, would be required to access the relocated landfill operations off of Rapp Road.

An integral part of the Eastern Expansion proposal is a Habitat Plan. There is a significant opportunity to re-establish linkages from west to east in the Albany Pine Bush Preserve through the existing mobile home park property and over portions of the closed landfill. Implementation of the plan would be an ongoing process, beginning with wetland mitigation and stream restoration on the mobile home park property and demonstration plots on the existing landfill; and continuing with habitat restoration efforts on closed portions the existing landfill as well as surrounding areas of currently degraded habitat. It is envisioned that the landfill can be blended

into the Albany Pine Bush Preserve landscape, providing critical habitat for rare ecological communities and threatened and endangered species.

The Habitat Plan is also designed to address other influences on the natural communities within the Pine Bush. These influences include the mobile home park and the grading and sand mining that removed Pine Bush habitat and changed the landscape, the relocation and ditching of natural streams that are tributary to Lake Rensselaer, and the draining and ditching of large wetland areas for past agricultural purposes, all of which contribute to poor water quality and the loss of natural/native Pine Bush communities.

The Habitat Plan and the Eastern Expansion are intertwined in terms of construction phasing, financing, and closure. Restoration, mitigation, and enhancement projects will begin during the first year of the landfill expansion and will be phased over the anticipated 6.6-year life of the project, with the final phase a component of the closure plan. The end result converts the entire Rapp Road Landfill complex and surrounding lands, with the exception of landfill operations structures that will be needed to continue to address gas and leachate collection, odor abatement, and possible transfer station operations, into Pine Bush habitat. This expansion project provides the financial means to restore and enhance approximately 250 acres of land. With limited State and local funding sources, the ability of the Pine Bush Preserve Commission to achieve the goals of the Habitat Plan is significantly diminished if not impossible. The intent of the City is to make this win-win scenario a reality. The Habitat Plan is discussed in greater detail in Section 6.0.

2.2 Purpose and Need

The public need for the proposed Eastern Expansion is best explained by review of the history of solid waste disposal in the region and at the Rapp Road site. The City of Albany currently operates the Rapp Road Landfill on behalf of the Albany New York Solid Waste Energy Recovery System (ANSWERS) Solid Waste Management Planning Unit. Prior to development

of the ANSWERS system, the region was served by approximately 12 separate solid waste landfills.

Beginning in the mid-1970's, however, state environmental requirements applicable to such landfills began to be strengthened significantly, a trend which intensified in the 1980's and continues to date. As a result, by the early 1990s the only solid waste disposal facilities remaining within the municipalities forming the Wasteshed were the facilities located within the City of Albany. From 1981 to 1994, these facilities consisted of the City's landfill located on Rapp Road, the ANSWERS Refuse Derived Fuel processing facility (owned by the City), which processed solid waste into a "refuse-derived fuel," and boiler facilities owned by the New York State Office of General Services, (OGS), in which the refuse-derived fuel was burned to produce steam utilized to meet the thermal energy needs of the Empire State Plaza.

Although the OGS boiler facilities closed in early 1994, the City of Albany continues to serve the Wasteshed through its Rapp Road landfill. Currently, all of the solid waste requiring municipal management within the municipalities which comprise the Wasteshed and a significant portion of the waste stream from those communities that is collected by private haulers, is accepted by the City of Albany at the landfill.

As previously noted, the City began accepting wastes at the Rapp Road site in the 1970's. This initial landfill covers approximately 80 acres and is referred to as the Greater Albany Landfill (GAL), which operated until 1991. It was closed and capped in 1991-92. Landfill operations continued in 1991 with the Albany Interim Landfill (AIL) located north of the GAL. This was an approximately 14-acre expansion. In 1997, the "Wedge" was constructed. This was the third phase of the landfill complex at Rapp Road and was a "piggyback" landfill on the GAL, tying into the AIL. This expansion provided landfill space until 2000.

As a condition of the approval of the AIL in 1990, the City embarked on a study to identify a long term solution for waste disposal in the ANSWERS Wasteshed. The result was a Generic

Environmental Impact Statement/Solid Waste Management Plan ("SWMP") for the Wasteshed. The SWMP included the creation of, and consultation with, an Advisory Committee consisting of representatives of each participating municipality, extensive opportunities for public comment, and numerous stages of review by NYSDEC. The process of creating the SWMP included the preparation of a Draft and Final Generic Environmental Impact Statement ("GEIS") to evaluate the impacts associated with the proposed SWMP. The SWMP, which was approved and adopted in 1992, committed the City of Albany, on behalf of the Wasteshed, to implement plans, projects and programs identified in the SWMP.

After thoroughly reviewing the existing regional solid waste system, solid waste needs for the future, the available options for meeting those needs, the associated environmental impacts, and economics, the SWMP concluded that a new long-term landfill should be developed to serve the Wasteshed. The SWMP determined that roughly 100 to 130 acres of landfill area would be needed to serve the planning unit for a twenty-year period and that approximately 250 acres should be acquired to provide a site size sufficient to support administrative activities and to provide an appropriate buffer area.

The SWMP delineated the process that the Wasteshed would use in identifying a site for its new long-term landfill. The chosen process was an extensive, multi-phased, criteria-based siting study. The criteria were established in the SWMP, after public review, and were largely driven by requirements in the 6 NYCRR Part 360 regulations (Part 360), as well as by environmental and planning guidelines.

In May 1991, the City of Albany, on behalf of the Wasteshed, issued the first phase siting report. The report applied the initial screening criteria and identified 15 potential sites that satisfied those criteria. Of those sites, 3 were located in Guilderland, 9 in Bethlehem, and 3 in Coeymans. The second phase report, which was issued in 1992, recommended 3 of the 15 initial sites for further study (Figure 3). Following a detailed investigation of the 3 sites in accordance with the criteria established in the SWMP, Part 360 and environmental and planning guidelines, a third

report was prepared in August, 1994, selecting Site C-2 in the Town of Coeymans as the preferred site for the landfill. Following extensive negotiations, the City of Albany secured options for the purchase of the property with the landowners of Site C-2.

On September 2, 1994 the City of Albany applied to NYSDEC for a Part 360 permit for the C-2 Site. In November 1994 the NYSDEC issued their intent to have NYSDEC Region 4 act as Lead Agency for the SEQR process. Lead Agency status was challenged by the Town of Coeymans. This dispute and other litigation over process resulted in significant delays. Meanwhile, landfill capacity in the "Wedge" portion of the AIL was diminishing. By 1999, with no solution for Site C-2 available, an expansion option was necessary to allow the City to continue to serve the ANSWERS Wasteshed.

In 2000, the P-4 Expansion was constructed. This phase provided both horizontal and vertical expansion to the AIL in the northeastern portion of the landfill as an overfill of the GAL and AIL. For specific details of the P-4 Expansion, please refer to the "Third Supplemental Draft Environmental Impact Statement P-4 Project Landfill Expansion" (C.T. Male Associates, P.C., 1999).

The P-4 expansion provided the opportunity to continue efforts to permit Site C-2. Site investigations at C-2 resumed in 2004. Wetland delineation of the site revealed that the project could impact over 80 acres of wetland. Preliminary pre-application meetings were held with NYSDEC and the U.S. Army Corps of Engineers (USACE). Based on these initial discussions, it became clear approvals for development of the entire facility could take in the range of 10-20 years as it would be necessary to implement and prove the success of mitigation prior to the regulatory agencies issuing approval for impacts. Therefore, it would not be possible to permit C-2 prior to landfill space running out. It is estimated that the P-4 Expansion has capacity for another 3 years based on the current rate of disposal (approximately 1,050 tons per day).

With Site C-2 mired in permitting issues and dwindling space in the P-4 Expansion combined with an obligation to provide solid waste disposal needs for the Wasteshed, the public need for a new solid waste management solution is well established. Considerable effort has been expended on Site C-2 as the long term solution. However, this is clearly not the solution to address the shorter term need to provide landfill space. Likewise, embarking on a renewed search for a landfill site would be an equally time-consuming task. This leaves the expansion of the existing landfill or the shipping of wastes to a large out-of-Wasteshed landfill as the two potential solutions. The latter may be a valid alternative but will require considerable investigation and reconsideration of costs and revenue streams. Revenue associated with tipping fees at the landfill support many services provided by the City and are also the source of considerable funding (currently $250,000 per year) for the operation and management of the Albany Pine Bush Preserve. A sudden elimination of this funding source would create other areas of public need. Additionally, the City and the ANSWERS communities would be faced with greater costs for solid waste disposal.

Waste reduction through recycling is also an important consideration for the extension of existing landfill life. The City and most of the ANSWERS communities have recycling programs, as do most other communities in the State. Therefore, recycling has already been factored into the waste stream.

Therefore, the only valid short term solution to meet public need is the expansion of the existing landfill, specifically the proposed Eastern Expansion. A number of expansion alternatives associated with the Rapp Road facility have been evaluated and are presented in the Fourth SDEIS for this project. However, the Eastern Expansion is considered the preferred alternative based on a number of factors which are discussed in the SDEIS. At current rates of disposal, the proposed Eastern Expansion will provide 6-7 years of landfill life. However, unlike previous expansion efforts, the option for an additional future expansion will be foreclosed by virtue of both the fact that all surrounding lands are dedicated to the APBPC and the proposed Habitat Plan that will be phased in during construction and operation of this expansion, with the last

phase of the Habitat Plan encompassing the Eastern Expansion after closure. The result would be a landfill transformed into Pine Bush habitat with some remaining landfill infrastructure such as landfill offices, a possible future transfer station, and gas to energy facilities. Therefore, the majority of the landfill, as well as the surrounding lands, will be committed to habitat, leaving no room for further expansion.

Under this proposed scenario, the long term options could involve the pursuit of permits for Site C-2, which remains dubious based on permitting requirements, reopening of the site selection process and pursuit of permits for a site yet to be identified, or the exportation of solid waste to a landfill outside the Wasteshed. The latter may be the most costly solution to the ANSWERS communities but the additional time provided by the proposed Eastern Expansion will provide communities with the opportunity to adjust their budgets and services accordingly.

2.3 Long Term Solid Waste Disposal

The only valid short term solution to meet public need is the expansion of the existing landfill, specifically the proposed Eastern Expansion. At current rates of disposal, this will provide 6-7 years of landfill life. However, unlike previous expansion efforts, the option for an additional future expansion will be foreclosed by virtue of both the fact that all surrounding lands are dedicated to the APBPC and the proposed Habitat Plan that will be phased in during construction and operation of this expansion, with the last phase of the Habitat Plan encompassing the Eastern Expansion after closure. The result would be a landfill transformed into Pine Bush habitat with some remaining landfill infrastructure such as landfill offices, a possible future transfer station, and gas to energy facilities. Therefore, the majority of the landfill, as well as the surrounding lands, will be committed to habitat, leaving no room for further expansion.

The long term solution to solid waste management for Albany and the ANSWERS communities will be the subject of an update to the Solid Waste Management Plan (SWMP) that was initially prepared in 1990-91. This plan laid the framework (criteria) for a new landfill siting study that

would address the long term needs of ANSWERS. The study was completed in 1991 and recommended pursuing Site C-2 in the Town of Coeymans. However, after further evaluation, Site C-2 would involve some extensive wetland mitigation efforts that preclude its consideration for the short term needs and may prove not to be feasible in the long term.

The SWMP update will address several options for long term solid waste management. Some of these options, including long haul of wastes, are discussed in greater detail in Section 5.0. At present, it appears that the most likely solution will involve a combination of several options including more aggressive waste reduction methods/enforcement and the transport of waste to a large regional facility. Section 5.0 provides discussion of the costs of the long haul option and the feasibility as a short term solution.

3.0 THE PINE BUSH FORMATION

The Pine Bush Formation is an unconsolidated (i.e., surficial) sand deposit located within the City of Albany, the Town of Guilderland, and the Town of Colonie. It is located within a 40 square mile urban area between Albany and Schenectady, New York that has been developed for primarily residential and commercial land uses. The name for the Pine Bush is taken from its dominant and unique pitch pine and scrub oak vegetative community. The Pine Bush is part of an extensive sand dune field and swamp area that extends from South Glens Falls to Delmar. This extensive dune field developed on top of a series of interconnected glacial lake sediments that occupied the Hudson River Valley from approximately Glens Falls to Newburgh. The glacial lakes developed in front of the ablating continental ice sheet during and after the Late Wisconsinan deglaciation. The Pine Bush is covered by sand dunes of light yellow-brown to light gray very fine to medium grained sand deposits that are reported to range in thickness from 5 to 150 feet. The thickest sand deposit is located in the northwestern and central parts of the Pine Bush. In some areas, streams have eroded completely through the sand formation and into the underlying clay (C.T. Male, 1999).

As part of the P-4 Expansion Project, C.T. Male prepared a Pine Bush Formation Declassification Study that was intended to support the position that the City's Rapp Road property does not overlay a principal aquifer. This declassification study was prepared in January 1999 and maintains that the Pine Bush Formation: (1.) does not have the distinguishing characteristics of a principal aquifer, (2.) does not represent a viable public water supply source for the future, and (3.) that the development of a potential public water supply source would have an adverse impact to the Pine Bush habitat by lowering of the water table. A copy of the Declassification Study is included as Appendix A of this Aquifer Variance Report.

In general, the declassification study concluded that the Pine Bush Formation in the vicinity of the landfill is not actively utilized as a source of public groundwater supply, nor is the formation considered a feasible source for a future municipal public water supply. A more detailed

summary of the study, as well as additional data collected by CHA to update the study is provided in the following sections.

It is our understanding that the Pine Bush Formation has yet to be declassified by NYSDEC. Therefore, a variance from the provisions of 6 NYCRR 360-2.12(c)(1), which prohibits siting a landfill over a primary water supply aquifer or principal aquifer, will need to be approved by NYSDEC before the Eastern Expansion can be constructed.

3.1 Current and Potential Usage of the Pine Bush Formation

As part of the January 1999 Aquifer Declassification Study, C.T. Male evaluated the current and potential usage of the Pine Bush Formation as a municipal groundwater supply source. This evaluation included an assessment of the areas in the vicinity of the AIL, both upgradient and downgradient of the existing landfill and at that time, the proposed P-4 landfill expansion.

This municipal water supply evaluation included a determination of whether public water is available in areas in the vicinity of the landfill, and also evaluated the potential future development of new water sources by the water districts that service the area in the vicinity of the AIL. Specifically, C.T. Male contacted each of the water districts and obtained information regarding their current production capacity, the amount of growth which could be managed using the existing system, the number of years the existing system is expected to serve the district's needs, and whether there are any existing plans for use of the Pine Bush formation as a water source.

As stated, the C.T. Male Declassification Study was conducted in January 1999. To further evaluate the current and potential usage of the Pine Bush Formation as a municipal water source, CHA updated the information presented by C.T. Male by contacting each of the four water districts that service the area in the vicinity of the landfill. These water districts include the City

of Albany, the Town of Colonie (Latham Water), Village of Colonie, and the Town of Guilderland. This information is provided in the following sections of this report.

3.1.1 Existing Water Supply Districts and Areas Covered

Based on CHA's conversations with each of the water districts that service the areas in the vicinity of the landfill, there are currently no existing sources of public municipal water within one mile of the AIL, either upgradient or downgradient. The nearest source of public water is the Town of Guilderland deep well field located approximately 3 miles west (upgradient) of the AIL, at the intersection of Route 155 and Nott Road (C.T. Male; 1999 and a July 24, 2007 conversation with Bill West of the Town of Guilderland Water Department).

The sources of water for the four districts are located as follows:

- Town of Guilderland: Based on CHA's conversations with Mr. Bill West of the Town of Guilderland, the Town uses three wells located approximately 3 miles west (upgradient) of the landfill, at the intersection of Route 155 and Nott Road. The Town of Guilderland also obtains additional source water from an interconnect with the City of Albany.

- City of Albany: According to Mr. John Kosa with the City of Albany, Department of Water supply, the City's primary source of drinking water is obtained from the Alcove reservoir. A secondary supply of drinking water is also supplied from the Basic reservoir. Both reservoirs are located approximately 20 miles southwest of the landfill.

- Town/Village of Colonie (Latham Water District): Both the Town and Village of Colonie a serviced with water by the Latham Water District (Latham Water). According to Mr. John Frazer of Latham Water, there are no sources located within the vicinity of the landfill. Latham Water currently obtains its water from groundwater wells locarted near the Mohawk River, the Stony Creek River, and the Mohawk River itself.

According to C.T. Male, the Latham Water District owns land on Morris Road that formerly was used for pumping groundwater from two wells. These two wells are reported to have been installed within the Pine Bush Formation and were abandoned in the 1960's due to their low well yields in comparison with new groundwater wells installed proximal to the Mohawk River, thus rendering the Pine Bush Formation wells unnecessary. Additional factors for the abandonment of the two wells included poor water quality and the need to treat groundwater to remove fine particulates (C.T. Male, 1999).

With the exception of two private wells located on Pine Lane in the Guilderland (refer to Section 4.2), according to personnel from each of the water districts, it appears that all areas in the vicinity of the landfill are currently serviced by municipal water.

3.1.2 Existing Water Supply Districts and Areas Covered

According to personnel from each of the contacted water districts, none of the water districts are actively seeking a new water source, or have plans for the development of a public water source within the Pine Bush Formation.

3.2 Private Water Supplies

Within New York State, there are very few historical records pertaining to the location and construction of existing private water supply wells. Historically, well completion reports have not been consistently maintained by any specific regulatory agency. However, recent changes to the water well drilling regulations now require that all well completion reports be submitted to NYSDEC. These records, which generally only include relatively recent information, are maintained within the NYSDEC water supply well database.

Based on a review of the NYSDEC water supply well database, there are no recently completed private wells reported within the vicinity of the site. However, due to the fact that the well

records database is limited, CHA also contacted Mr. Cliff Forando of the Albany County Department of Health (ACDOH) to determine if the ACDOH was aware of any private wells within the vicinity of the landfill. According to Mr. Forando, he is aware of two private water supply wells located in the vicinity of Pine Lane in Guilderland. Pine Lane is located approximately 0.75 miles in a cross-gradient direction of groundwater flow relative to the Rapp Road facility. These wells are reportedly used for individual domestic water supplies for private residences, which are not currently connected to a municipal system. Due to the relatively low yield and limited area of influence associated with domestic residential wells, it is unlikely that potential impacts from the landfill would impact these wells due to their distance from the Rapp Road facility.

In addition to the private wells located on Pine Lane, Mr. John Kosa of the City of Albany Water Department indicated that there are one or more private wells on Karner Road in Colonie. However, these wells are located approximately one mile upgradient of the landfill and would not be impacted by potential impacts from the landfill.

No other areas with private water supplies were identified in the vicinity of the Rapp Road facility.

3.3 Existing Water Quality

The existing water quality of the Pine Bush Formation is known based on previous studies and the historical water quality results from the groundwater monitoring wells which surround the City's landfills at the Rapp Road facility.

The regional groundwater quality of the Pine Bush Formation is commonly characterized as poor with elevated levels of chloride associated with road salting, and relatively high concentrations of nitrogen which is attributed to septic tank effluent. Since the formation is a fine sand water table formation it is susceptible to contamination by various anthropogenic sources (C.T. Male, 1999).

On a site-specific basis, environmental monitoring data from the Rapp Road property shows that the GAL, an unlined landfill that is closed, has had an impact on groundwater quality, and confirms that the AIL is not adversely impacting groundwater. Parameters which have been elevated in groundwater attributed to the GAL are typical leachate constituents (i.e., iron, magnesium, manganese, sodium, turbidity, TDS, lead, total phenols, nitrate, ammonia, chloride, etc.). Volatile organic concentrations for benzene, toluene, methylene chloride, and chlorobenzene are reported to be elevated slightly above their respective maximum contaminant levels (MCLs) in several wells around the GAL. Both upgradient and downgradient wells (relative to the GAL) are reported to be impacted, probably as a result of leachate mounding within the elevated landfill mass (C.T. Male, 1999).

4.0 EFFECTS ON DEVELOPMENT OF A PUBLIC WATER SUPPLY ON THE PINE BUSH HABITAT

As part of the December 10, 1999 Aquifer Variance Report for the P-4 Project Landfill Expansion that was prepared by C.T. Male, a study was conducted on the effects of the development of a public water supply on the Pine Bush Habitat. This study was theoretical in nature since it is not considered feasible to develop a significant public water supply source in the Pine Bush Formation (refer to Section 3.0). The objective of the previously conducted study was to document the potential negative impacts that a public water source would have on the critical habitat within portions of the Pine Bush. This section provides a summary of the previously conducted study, as well as the conclusions generated therefrom.

The direct impact of pumping groundwater on a continuous basis within this unconfined, fine grained sand water table formation would be a permanent lowering of groundwater elevations. Secondary impacts would include altering the distribution of flora and associated fauna within a protected ecological area. In general, the impact of a lowered water table within a wetland area would be more profound over a relatively shorter time frame than for an uplands area. However, due to the deep root zone development of various upland trees, shrubs, and other plants in the Pine Bush, including the food-source of the Karner blue butterfly, the blue lupine plant, and the sensitivity of these flora to water table lowering, it is a plausible theory that continuous groundwater withdrawal, given enough time, could even effect the distribution of uplands plant species in the Pine Bush. This is particularly true for tree and shrub species with lateral root growth at depth that “tap” the water table (C.T. Male; 1999).

Based on a hydrogeologic analysis conducted as part of the study, C.T. Male reports that maximum long-term well yields for wells installed in the Pine Bush formation near the landfill would be on the order of approximately 35 gallons per minute (gpm) per well given the saturated thickness and nature of the surficial deposits. Assuming that a modest municipal groundwater requirement would be on the order of 200 to 400 gpm, C.T. Male concluded that approximately 6 to 14 individual pumping wells would be needed to meet this theoretical municipal requirement.

To accommodate the individual pumping wells, a theoretical well field area would range from 2.8 to 5.2 acres.

Depending on the configuration of the well field, it was estimated that drawdown of the groundwater table by as much as 16 feet at the margin of the well field, and by as much as 11 feet at a distance of 1,000 feet from the wells would occur. This could esult in a lowering of the water table by more than 10 feet over a total area in excess of 77 acres (C.T. Male; 1999).

In general, the depth to groundwater in the Pine Bush Formation ranges from 10 to 15 feet below ground surface and rarely exceeds 20 feet. A critical exception to these groundwater depths emphasized by C.T. Male is the open water and wetland areas where the water table is at or close to the surface for much of the year. Due to the fact that aquatic resources are known to be at a premium within the Pine Bush habitat, lowering the water table by over 10 feet across such a large area, would have a significant negative impact on these open water and wetland resources.

Aquatic resources are scarce in pine barren ecosystems such as the Pine Bush, and therefore, existing open water and wetland resources are a critical habitat for a number of wildlife species. A variety of amphibians and reptiles are known to inhabit the Pine Bush, and rely on open water and wetland areas for their life cycle. Species include several uncommon species, including the eastern spadefoot toad (*Scaphiopus holbrooki*), Fowler's toad (*Bufo woodhousei fowleri*), spotted turtle (*Clemmys guttata*), eastern box turtle (*Terrapene carolina*), wood turtle (*C. Insculpta*), Jefferson and spotted salamanders (*Ambystoma jeffersonianum* and A. *maculatum*) (C.T. Male; 1999). Amphibians rely on open water pools free of fish, such as vernal pools, for breeding. Reptiles such as turtles rely on open water bodies for all segments of their life cycle. A decrease in the elevation of the groundwater table would decrease the duration and extent of open water within the Pine Bush, consequently reducing their critical habitat and adversely impacting their population.

Wetlands in the Pine Bush ecosystem are dependent on groundwater. A number of unique wetland communities are located within the Pine Bush, including State wetlands mapped by the

DEC for their particular habitat value. A reduction in the water table would alter the hydrology of these habitats, likely reducing their overall extent. In addition, the drier environment would facilitate the colonization of the wetland by drought tolerant non-wetland species or less desirable invasive species, therefore shifting the community composition and reducing overall habitat value (C.T. Male; 1999).

Upland Pine Bush plants are known to have various adaptations to xeric conditions including deep root systems to tap into the water table. Plants are adapted to the current water table and are able to thrive despite relatively dry conditions. A drastic permanent reduction in the water table would increase stress to vegetation, and lead to increased plant mortality. The gaps created by the loss of vegetation, particularly trees, would increase the colonization of these areas by undesirable pioneer species, such as black locust (*Robinia pseudoacacia*) and quaking aspen (*Populus tremula*), altering the unique biology of the Pine Bush ecosystem. In addition, losses of critical plants such as the blue lupine, which serves as the sole food source for the endangered Karner blue butterfly, would further impact the diversity of the Pine Bush ecosystem (C.T. Male, 1999).

Due to the significant decrease in groundwater level predicted by C.T. Male across such a wide area, the development of a public source in the Pine Bush has the potential to have significant adverse impacts on the Pine Bush habitat. A decrease in water level could result in dewatering of wetland, streams that could seasonally run dry, the duration and frequency of vernal pools could be diminished, certain species of trees and plants could progressively die off, and rare and protected species unique to the Pine Bush could be lost.

5.0 ECONOMIC BACKGROUND

5.1 General

Without the proposed Eastern Expansion, the City's only viable alternative to landfilling at the Rapp Road facility would include transportation and disposal at an off-site permitted facility. However, there would be a significant economic impact to the City as a result of the transportation and off-site disposal alternative. This section summarizes the economic impact that would be incurred by the City if the eastern landfill expansion is not constructed.

The costs of shipping and off-site disposal would be substantial when compared to landfilling at the Rapp Road facility. In addition, the current revenue from the landfill tipping fees is utilized to pay for a variety of solid waste related services within the City of Albany, including: recycling programs, curbside collections, long term debt service costs for the existing AIL, and personnel costs for solid waste management activities which would be required even for off-site disposal. Funding for these services would be required regardless of whether the Eastern Expansion Project is approved, and would therefore require an alternative revenue source to subsidize these essential public services. The costs of landfilling versus shipping and off-site disposal are further detailed within this section.

5.2 Offsite Disposal Alternatives

5.2.1 Alternative Disposal locations

There are 28 permitted MSW landfills in New York, including the Saratoga County Landfill, which is built but not operating. Of the 27 operating sites, 6 are privately owned and operated, 17 are publicly owned and operated, and 4 are publicly owned but leased to private operators. Privately owned and/or operated landfills are typically not restricted with respect to the origin of the waste that is accepted, but all landfills in New York have defined tonnage limits above which they are not permitted to accept. This is often referred to as the design capacity.

There are also 10 permitted and operating waste-to-energy (WTE) facilities that process MSW while recovering materials and energy. Most of these WTE facilities are operated by private companies on behalf of a municipal entity which in some cases may own the facility. Facilities

that are operated by or on behalf of a municipality typically must service the waste from the sponsoring agency before it can consider accepting additional waste from other areas. For purposes of this analysis, the term "commercially available disposal capacity" was used to define that capacity that is not restricted with respect to waste origin or long-term commitment to a particular community.

Most landfills or WTE facilities that provide commercially available disposal capacity in New York are already operating at or near their design capacity. On a statewide basis, there is an overall shortage of MSW landfill capacity. According to the NYSDEC Solid Waste Information management System (SWIMS) database, approximately 10.4 million tons of waste generated in New York was disposed of at MSW landfills and WTE facilities that are located in New York.

In order to assess potential alternative disposal facilities to the proposed Eastern Expansion, information was compiled on other permitted MSW landfills and WTE facilities with a minimum annual tonnage limit of 250,000 TPY. This threshold for WTE facilities was established to represent a reasonably conservative approximation of the capacity required to be able to potentially accept a significant quantity of the up to 327,000 TPY of waste that would require export under this alternative to the Eastern Expansion. Table 5.1 presents a summary of all the other currently permitted MSW landfills in New York State. Table 5.2 presents a summary of the 6 currently permitted WTE facilities which meet the above-noted size criteria.

Table 5.1
Other Permitted Municipal Solid Waste Landfills in New York

Facility Name	Location (County)	Annual Tonnage Limit (1)	Actual Waste Acceptance(2) 2006 (tons)	Estimated Capacity Available (TPY)	Reported Tipping Fee(2) 2006 ($/ton)
Landfills					
Allegany County	Allegany	56,680	47,113	9,567	$ 30.00
Allied/BFI Niagara Falls Landfill (3)	Niagara	660,000	518,767	141,233	NA/ Not Reported in 2005
Auburn Landfill No. 2	Cayuga	76,000	83,400	-	$72.00
Ava Landfill	Oneida	255,000	54,097	NA (6)	Not reported
Bath Sanitary Landfill	Steuben	152,500	107,080	45,420	$38.00
Bristol Hill SLF	Oswego	100,000	53,568	46,432	$ 45.00
Broome County Landfill	Broome	232,000	214,475	17,525	$ 40.00
Chaffee Landfill (3)(4)	Erie	600,000	277,918	None (3)	$40.00
Chautauqua Landfill	Chautauqua	408,000	382,050	25,950	$24.00
Chemung County Sanitary Landfill	Chemung	120,000	135,913	-	$40.00
Chenango County Landfill	Chenango	45,750	34,550	11,200	Not reported
Clinton County Landfill	Clinton	175,000	172,879	2,121	$54.75
Colonie Sanitary Landfill (8)	Albany	167,750	159,212	8,538	$57.00
Cortland County Landfill	Cortland	44,500	24,570	19,930	$60.00
Delaware County SWMF	Delaware	76,250	35,077	41,173	$ -
DANC Landfill	Jefferson	346,320	349,083	-	$41.00
Franklin County Regional Landfill	Franklin	43,500	42,197	1,303	Not reported
Fulton County Landfill (8)	Fulton	134,000	113,231	20,769	$46.00
High Acres West. Exp. LF	Monroe	1,074,500	987,270	87,230	$40.00
Hyland Landfill	Allegany	232,440	231,868	572	$35.00
Madison County LF	Madison	61,000	53,063	7,937	$62.00
Mill Seat SLF	Monroe	593,225	596,179	-	$45.00
Modern Landfill (3)	Niagara	815,000	804,966	10,034	NA/ Not reported in 2005
Ontario County SLF	Ontario	624,000	619,510	4,490	$28.98
Saratoga County Landfill (5)	Saratoga	106,000		None (5)	NA
Seneca Meadows LF	Seneca	1,842,000	1,853,251	-	Not reported
Sullivan County Landfill	Sullivan	226,000	69,974	NA (7)	$75.00

Notes:
(1) Based on Facility Permit, annualized based on operational days if applicable.
(2) Based on the Facility's annual report to NYSDEC, unless otherwise noted.
(3) waste acceptance is for 2005 based on annual report
(4) 2005 annual report noted that only 1 yr and 2 mo. of capacity remained as of 12/31/05
(5) The Saratoga County Landfill has never been operated and is not presently available for operation
(6) Oneida Herkimer SWA's Ava LF commenced operation in October 2006 and is only available for waste from these counties.
(7) Sullivan County Landfill is not currently accepting out-of-county waste.
(8) Tipping fee is based on telephone communication between CHA and facility operator.

Table 5.2
WTE w/ Disposal Capacity in excess of 250,000 TPY

Facility Name(3)	Location (County)	Annual Tonnage Limit (1)	Actual Waste Acceptance(2) 2006 (tons)	Estimated Capacity Available (TPY)
Hempstead	Nassau	914,325	948,853	-
Babylon	Suffolk	273,750	225,689	48,061
Huntington	Suffolk	350,400	324,413	25,987
Charles Point	Westchester	686,250	675,990	10,260
Onondaga County	Onondaga	361,350	345,235	16,115
American Ref-Fuel Niagara	Niagara	696,675	753,142	-

Notes:
(1) Based on Facility Permit, annualized based on operational days if applicable.
(2) Based on the Facility's annual report to NYSDEC, unless otherwise noted.
(3) waste acceptance is for 2005 based on annual report

The data compiled in these tables is from the most recent annual report (2005 or 2006) for each respective facility that is available from the NYSDEC Division of Solid and Hazardous Materials (DSHM). As can be seen in the tables, most of the facilities are operating at or near their respective annual limits. When tipping fee data was reported by the landfills, it is included in Table 5.1.

In addition to the disposal facility data, information available from the DSHM was used to identify currently permitted transfer stations in the Albany region that might have the capability of accepting a significant quantity of the up to 327,000 TPY of waste that would require export under this alternative to the Eastern Expansion. Table 5.3 presents a summary of information from the 3 existing transfer stations in the region that have the capacity to accept in excess of 100,000 TPY in waste deliveries.

Table 5.3
Large Transfer Station Capacity in Capital District

Facility Name	Location	Annual Tonnage Limit (1)	Actual Waste Acceptance(2) 2006 (tons)	Reported Tipping Fee(2) 2006 ($/ton)
WMNY Port of Albany (3)	Albany	227,696	108,905	$ 75.00
ECO B3 (4)	Canaan	158,080	105,766	Not Reported
City of Schenectady (5)	Schenectady	272,080	167,706	$ 90.00

Notes:
(1) Based on Facility Permit, annualized based on operational days if applicable.
(2) Based on the Facility's annual report to NYSDEC, unless otherwise noted.
(3) Facility tonnage limit is 749 TPD, but is limited to C&D and non-putrescible commercial waste
(4) Facility tonnage limit is 520 TPD, but is limited to 345 TPD of MSW and 175 of C&D.
(5) Facility tonnage limit is 895 TPD based on maximum monthly average.

None of these three facilities has the capacity to accept all the waste that would require export under this alternative. The WMNY Port of Albany transfer station is only permitted to accept non-putrescible commercial MSW and C&D. The ECO-B3 facility has annual permitted capacity of approximately 158,000 TPY, but is limited to accepting no more than 345 TPD of MSW, which would correspond to about 105,000 TPY. Finally, the City of Schenectady Transfer Station is permitted to accept up to 895 TPD on a monthly average, or approximately 272,000 TPY. This facility is already reportedly operating close to its monthly capacity limit (Carl Olsen, Personal communication on July 10, 2007).

Tables 5.1 and 5.2 clearly show that no one landfill or WTE facility has sufficient additional capacity to be able to accept an additional 320,000 TPY that would be required to replace the capacity of the proposed Eastern Expansion. To accommodate such an alternative, an existing permitted site would need to displace one or more of its existing customers to release that capacity for utilization by the Rapp Road Landfill waste stream. This would likely cause economic hardship on the displaced community waste streams, as well as additional environmental impacts associated with transfer to another more distant disposal site. Alternatively, the capacity needed could be split among several existing disposal sites. However,

given the overall shortage of additional disposal capacity in New York, the net effect of waste displacement would likely be the same. Nevertheless, in the following sections of this alternatives analysis, we will assume that disposal capacity will be available at a single site.

Based on the transfer station information presented in Table 5.3, it is clear that there is no existing local transfer station capacity that is available to accept any significant portion of the 320,000 TPY of waste that will require export under this alternative. Therefore, this alternative would require that a new transfer station be developed to accommodate this waste stream, and the following sections of this analysis will reflect that assumption.

5.2.2 Unit costs for shipping and disposal

Tipping fees from other permitted MSW landfills in New York are shown in Table 5.1, and range from $24/ton to $75/ton. However, as noted previously, most of the permitted disposal facilities in New York are operating at or near their approved design capacity, and none have sufficient excess capacity to accept all of the 1,050 TPD of waste that will be managed at the proposed Eastern Expansion.

With the exception of the Colonie Landfill, all of the other permitted disposal facilities are outside of Albany County and would require transfer and long distance transport.
Clough Harbour recently sought to obtain general tipping fee and transport cost data from several private upstate facilities. The results are summarized below:

- High Acres Landfill – Fairport, NY - $46.50/ton (tipping and transport based on information gathered from a recently awarded contract with another municipality located closer to the landfill)
- Ontario County Landfill – Seneca, NY - $45.00/ton (tipping and transport based on information gathered from a recently awarded contract with another municipality located closer to the landfill)

These tipping fee and transport costs are not directly applicable to this alternative because the quotations were not for a site in the Albany region and are for sites closer to those respective landfills.

CHA has also estimated the costs associated with the construction and operation of a new transfer station with sufficient capacity to handle approximately 1,050 tons per day, including transport. The estimate assumed the modification of the tipping floor at the Rapp Road site to create a bi-level facility for efficient waste transfer and the transport of waste to the High Acres Landfill, a round trip of 415 miles. The cost of acquiring and operating the tractor-trailers required to accomplish this alternative is estimated at approximately $45/ton. Applying the $40 per ton tipping fee reported by High Acres, total cost of transport and disposal (T&D) would be $85/ton. Based on the assumption that a volume based discount can be applied at the disposal site, and based upon the range of tipping fees reported at the existing facilities noted above, for purposes of this analysis CHA estimates the cost of T&D to be $83/ton (not including the cost of transfer station construction and operation).

This estimate is generally confirmed by the tipping fee of $90/ton, reported by the City of Schenectady transfer station in its Annual Report to DEC for 2006. This report noted that its waste delivery was primarily to the Seneca Meadows Landfill.

5.2.3 Solid Waste Delivery Rates to Rapp Road Landfill

The Rapp Road Landfill derives its solid waste or re-usable materials from a variety of sources including:

- Residential municipal solid waste collected (MSW) by the City of Albany
- MSW from other ANSWERS communities delivered directly by those communities
- MSW & C&D Debris collected by commercial haulers from generators in the City or other ANSWERS communities.
- MSW & C&D Debris collected by haulers from generators in the City or other local communities that are not part of ANSWERS.
- Sewage treatment plant sludge from the Albany County WWTP and the towns of Bethlehem and Guilderland WWTP plants.
- Petroleum Contaminated Soil (PCS) brokered by the City of Albany Department of General Services.
- Alternative Daily Cover Materials (ADCM).

Based upon information reported in the Landfill's 2005 Annual Report and from the information presented in Appendix C, deliveries from calendar year 2005 are presented below:

- Residential MSW collected by the City of Albany – 32,119 tons

- MSW delivered directly by other ANSWERS communities – 38,522 tons
- Other MSW delivered from ANSWERS or other local sources – 157,518 tons
- C&D delivered from local sources – 6,107 tons
- Sewage treatment plant sludge – 1,866 tons
- PCS – 68,444 tons (used as an ADCM and not counted against approved design capacity)
- ADCM – 56,185 tons (not counted against approved design capacity)

Total waste deliveries to the Rapp Road Landfill in 2005, not including PCS and ADCM, was 236,157 tons.

5.2.4 Estimated Shipping and Off –site Disposal Cost

Currently, City of Albany waste disposal costs are subsidized by tipping fees paid for by other users. Based on the 2005 waste delivery rates and the $83 per ton estimated TTD cost noted earlier, if the Eastern Expansion is not approved and future waste must be exported for disposal at a commercially available site, the estimated cost for the City of Albany to transfer and dispose of its own residential collected MSW would be $**2,666,000** per year.

If the proposed Eastern Expansion is not approved, other members of the ANSWERS community and other local users of the landfill will also need to utilize an alternative disposal site and will incur additional costs to do so. Based on the 2005 waste delivery rates and a $90 per ton cost for TT&D (compared to the existing $52/ton tipping fee at the landfill for the ANSWERS communities), the estimated increase in cost to transfer and dispose this MSW and C&D would be $**7,450,000**.

There will also be cost increases associated with the disposal of PCS, currently at $25/ton, and ADCM. These anticipated cost increases are not quantified here.

There could also be negative economic impacts on communities or waste generators who are displaced from disposal sites in order to accommodate the disposal from the Albany waste shed. These displaced communities will likely need to utilize a more distant disposal site, perhaps outside of New York, along with the attendant increases in cost.

5.2.5 Solid Waste Related Services

The City of Albany provides its residents with a number of solid waste related services, including separate curbside collection of MSW and recyclables, compost facility, special material collection (scrap metal/appliance, yard waste), and household hazardous waste collection days. These services are funded through revenue derived from the operation of the Rapp Road Landfill and would continue to be funded through revenue derived from the operation of the proposed Eastern Expansion. Costs associated with running these programs include the capital cost, labor, tipping fees, and equipment required to run the programs. Based on an estimate prepared by the City, the projected annual cost for fiscal year 2007 to run the recycling program, excluding management costs, is:

- Curbside Recycling Collection $738,900
- Compost Facility and operations $109,600
- Special Collection $338,200
- Household Hazardous Waste $140,000
- Other Recycling Program Costs $55,000

Total Recycling Services Cost is thus $1,381,700.

Based on an estimate prepared by the City, the projected annual cost for fiscal year 2007 for curbside collection of MSW, excluding management costs, is:

- Curbside MSW Collection $1,687,300

In addition, this alternative would require the City to construct and operate a transfer station to process waste for off-site shipping and disposal. CHA has also estimated the costs associated with the construction and operation of a new transfer station with sufficient capacity to handle 1,050 tons per day, including transport. The modification of the tipping floor at the Rapp Road site to create a bi-level facility for efficient waste transfer is estimated to cost approximately $2.9 million. In addition, the City would need to invest in new operating equipment for the transfer station. Total initial capital cost, including the new operating equipment will be approximately $4,825,400. These capital expenses when amortized will represent an annual expense of approximately $520,500.

Annual operating cost for the transfer station is estimated at approximately $2,039,000 including debt service on initial capital cost.

This amount to approximately $7/ton, and when added to the previously noted shipping and disposal cost estimate of $83/ton, would yield a total TT&D cost of approximately $90/ton.

5.2.6 Long Term Debt Service

Long term debt service from the existing operation of the Rapp Road Landfill and other solid waste related projects is funded through revenue derived from the operation of the Rapp Road Landfill and would continue to be funded through revenue derived from the operation of the proposed Eastern Expansion. If the Eastern Expansion Project is not permitted, it would be necessary to pay this debt service using an alternative revenue source or the City of Albany's General Fund. The approximate cost of the debt service for these bonds in fiscal year 2007 is:

- Annual Debt Service **$2,376,100**

5.2.7 Total Estimated Annual Costs

The total estimated annual cost which would be incurred by the City of Albany for Solid Waste Management activities (including transfer, transport and off-site disposal, recycling, composting, curbside collection, transfer station operation, and long term debt service) are summarized below. It would be necessary to pay this cost using an alternative revenue source or the City of Albany's General Fund.

- Offsite transport and Disposal - $ **2,666,000**
- Recycling Related Services – $ **1,381,700**
- Curbside Collection of MSW - **$1,687,300**
- Transfer Station Operating Cost - **$2,039,000**
- Long Term Debt Service - **$2,376,100**

Total Estimated Annual Cost - **$10,150,100**

This does not include the future costs of landfill closure and post closure care that could have been funded out of tipping fee revenues derived from the Eastern Expansion. A portion of this cost could be funded by tipping fees generated from a transfer station operated by the City of Albany. However, without the City's landfill, the revenue generated from tipping fees would be dependent upon the costs at other disposal facilities and the costs of transportation. Therefore, a fixed revenue stream would not be guaranteed to the City of Albany. Furthermore, in the event

other revenue streams are not available to the City to offset these substantial increased costs, the City could be forced to curtail or eliminate recycling services in order to save money.

Put a slightly different way, the operation of the landfill provides revenues sufficient to pay for the City's solid waste and recyclables collection services ($3,069,000) and annual debt service for bonds issued for solid waste related projects ($2,376,100), for a total of $5,445,100. To the extent revenues from the operation of the landfill exceed this amount, those revenues are paid into the general fund to reduce the total tax burden on the residents of the City of Albany. In the event the Eastern Expansion were not approved, the City would not only have to find an alternative source of revenues for these costs, it would incur an additional $4,705,000 per year in transfer and hauling costs and the operation of a transfer station.

In addition, if the proposed Eastern Expansion is not approved, the Albany Pine Bush Preserve Commission will not receive revenue that it would have anticipated to otherwise receive. Also, the habitat enhancement proposed for the Pine Bush as part of the Eastern Expansion will not be undertaken.

This alternative of waste exportation instead of the Eastern Expansion would also likely result in the loss of several jobs at the landfill site which would no longer be necessary upon its closure. There will be additional negative economic multiplier effects, such as the local contractors and subcontractors typically utilized by the City in connection with the construction and operation of the landfill who will experience a business downturn when the landfill stops operating.

Additional adverse environmental impacts can also be anticipated as a result of waste exportation due to increased air emissions associated with increase long distance transport of Albany area waste that is no longer able to be managed locally. It is estimated that nearly 925,000 gallons of diesel fuel will be consumed annually in connection with the long distance waste transport if the Eastern Expansion is not approved.

From every aspect analyzed, the Eastern Expansion is preferable to this alternative. The Eastern Expansion will allow for uninterrupted waste management of waste in an environmentally sound and cost effective manner for the City, the other ANSWERS communities, and other local waste generators who have come to rely on the facility. Without the expansion, residents of the region could expect the annual cost of transport and disposal of MSW and C&D to increase by over $7

million. Moreover, the Eastern Expansion will provide much needed disposal capacity for New York communities, and in this way is consistent with both the most current policy of the New York State Solid Waste Management Board, which recommends that New York State take steps to become more self sufficient for landfill capacity.

6.0 ENVIRONMENTAL BENEFIT

As a result of the design and construction of modern landfill facilities, the proposed Eastern Expansion is not expected to have any negative impacts on groundwater quality at the site. However, as a result of the historical operations of the unlined Greater Albany Landfill (GAL), groundwater quality at the site has previously been impacted.

In early 2002, C.T. Male completed a Feasibility Study to evaluate the feasibility of implementing a remediation program that would remediate all or part of the groundwater contaminant plume associated with the GAL.

The Feasibility Study specifically evaluated the implementation of several remedial alternatives aimed at improving groundwater quality and creating a shallow groundwater flow barrier directly downgradient of the GAL. The remedial alternatives that were assessed as part of the Feasibility Study included the following:

- No Action Alternative;
- Groundwater Pumping – Well Point System
- Groundwater Pumping – Conventional Well System
- Groundwater Pumping – Shallow Interceptor Trench

The Feasibility Study included a series on site investigations that were conducted to evaluate the applicability of each of the above remedial alternatives including test well installations, representative pump testing and aquifer testing, exposure assessment, and implementation cost analysis. The Feasibility Study was designed to evaluate the potential effectiveness, overall human health protection, potential for compliance with groundwater standards, and costs associated with each alternative.

The Feasibility Study concluded that the no further action alternative, which generally consists of natural attenuation and continued groundwater monitoring is the preferred remedial alternative for the GAL. This conclusion is based on the fact that the three groundwater removal

alternatives are no more protective of human health than the no further action alternative. Groundwater downgradient of the GAL is not used for human consumption and there are existing municipal systems that service the entire area downgradient of the landfill. In addition, the Pine Bush Formation, which lies beneath the area of the Rapp Road facility, as well as downgradient of the facility can not realistically be used for a municipal source of water supply (C.T. Male, 1999). Potential human health exposures are limited to contact with potential groundwater discharges to surface water bodies such as the drainage channels located just east of the landfill. However, surface water monitoring data has indicated that the contaminant levels are generally low, and largely absent at a very short distance from the landfill facility.

Although the three groundwater pumping alternatives could result in an improvement of water quality downgradient of the site, none of the pumping systems would result in an improvement of groundwater quality beneath the GAL. Leachate from the GAL would continue to impact groundwater quality beneath the facility.

Proposed Habitat Restoration and Enhancement Plan

Although not specifically designed to directly improve groundwater quality, an integral part of the landfill expansion proposal is a Habitat Mitigation, Restoration & Enhancement Plan (Habitat Plan) that will provide a significant environmental benefit, including a benefit to surficial aquatic resources, as part of the Eastern Expansion Project.

As discussed in Section 2.0, there is a significant opportunity to re-establish linkages from west to east in the Albany Pine Bush Preserve over portions of the closed landfill, as well as through the adjacent mobile home park located to the north of the landfill. Several previous attempts to establish some types of Pine Bush communities at the landfill have met with mixed success. For example, vegetative test plots were located on the landfill clay cap but did not establish well as the soil types were not the more recently understood necessary sand soils found in the Pine Bush. A mitigation pond was also constructed to serve as habitat for amphibians. This has been relatively successful but the depth of the pond has supported fish that have either made their way upstream from Lake Rensselaer or were released into the pond by others. The fish prey on some amphibians and their eggs, which is contrary to the purpose of the mitigation. The mobile home

park to the north of the landfill was dedicated to the APBPC but there never was, nor is there now, a comprehensive plan for how that parcel would be restored.

The current Eastern Expansion proposal presented a unique opportunity to look at the landfill, the mobile home park, and the Pine Bush Preserve as a whole. As a result, the City of Albany retained Applied Ecological Services, Inc. (AES), a nationally recognized ecological restoration firm with specific expertise in pine barren communities. After an initial field visit, AES identified issues and concerns within the landfill and surroundings and developed some restoration concepts that were used to begin dialog with the Albany Pine Bush Preserve Commission (APBPC) technical staff. Next, the project team began detailed investigations of the vegetation, soils and hydrology within project impact areas, degraded areas, and high quality reference areas and used this data to refine concepts and to further engage the APBPC technical staff. This resulted in the Habitat Restoration, Enhancement and Mitigation Plan presented herein.

The sections to follow provide greater detail on the elements of the Plan.

6.1 Plan Recommendations

The overriding purpose of the Mitigation, Restoration & Enhancement Plan is to reclaim the landfill and the mobile home park as a part of the Pine Bush ecology and improve upon the water quality of the Lake Rensselaer watershed. Therefore, with the exception of the obvious topographic difference, the intent is to blend the landfill and vicinity back into Pine Bush habitat, and restore and enhance surrounding lands to create viable Pine Bush and re-establish the habitat connection between viable Pine Bush to the east and west.

The goals of the Plan are as follows:

- Eliminate habitat fragmentation by restoring Pine Bush habitat across both the mobile home park and the closed landfill and enhancing adjacent lands that have not been maintained due to the proximity of development and past private land ownership.
- Restore degraded aquatic resources by reconnecting natural drainage courses and restoring wetland functions.

- Reduce the Landfill "edge effect" by collecting, treating and diverting landfill stormwater runoff and improving landfill operations to address odors and blowing trash.
- Mitigate for wetland impacts associated with the proposed Eastern Expansion of the Landfill by creating new riparian wetlands and bogs.

The following sections provide details on the Habitat Plan elements.

6.2 Habitat Restoration and Enhancement

To begin this discussion, it is important to define the terminology. Restoration refers to the process of re-establishing an ecological community type that once existed in a given area but was previously eliminated in favor of other uses. By this definition, restoration is planned to take place on the landfill and within the mobile home park. Both areas are developed, and successful re-establishment of Pine Bush ecology will require the establishment of the appropriate soils, hydrology, and vegetation.

Enhancement is the process of improving upon the ecological elements already present and involves far less construction and site manipulation than restoration. For degraded Pine Bush, enhancement will involve the removal of invasive and other non-fire tolerant species to re-establish pine barrens. Within the wetland located on State land east of the landfill, enhancement will include the re-establishment of hydrology that was manipulated many years ago through ditching and the installation of drain tiles.

To restore the landfill cap, approximately 2 feet of sand will be placed over the existing surface and roughly graded to provide microtopography as is found in natural conditions. Soils are a critical element for the success of the restoration project. The simplest way to ensure proper soil conditions is to use the existing Pine Bush soils. Some of the soils are expected to come from the expansion area but more soil will be needed. Since the project will be phased over the 6-7 year life of the landfill expansion, it is anticipated that soils can be "collected" from other areas within the Pine Bush Preserve study area as projects occur. These soils would be stockpiled and used as each phase progresses.

The overall intent is to create pine barrens across the landfill cap to provide Karner blue butterfly (*Lycaeides melissa samuelis*) habitat for this federally and State listed endangered species, as well as habitat for other State listed species unique to the pine barrens community. This community type includes dry grasslands punctuated by occasional pitch pine trees and scrub oak (*Quercus ilicifolia* and Q. *prinoides*)

6.3 Repair of Degraded Aquatic Resources

Natural drainage in the project area has been impacted by construction of the landfill and mobile home park, old agricultural activities, and the railroad and other development to the north and south. Specific to the project area, there are two stream corridors, tributary to Lake Rensselaer, that have been significantly manipulated over the years. It is the intent of the Habitat Plan to reconnect the streams in a manner that will improve upon water quality.

Both streams will be reconnected across the existing mobile home park through riparian wetland corridors. This will be part of the overall integration of the mobile home park back into the Pine Bush Preserve. The southern stream currently originates from the mitigation pond located on Preserve lands to the west. Its new channel will meander through a riparian floodplain, relocated to the north of the proposed landfill expansion area. The stream will eventually reconnect to its existing channel within the wetland located on State lands to the east of the landfill. From its reconnection to the culvert at Rapp Road, the stream bed will be partially filled to eliminate the draining effect it is having on the wetland. Weirs will also be installed in selected locations along the stream to further promote and extended hydroperiod. The purpose of this effort is to re-saturate the organic soils comprising the wetland and reduce the accelerated decay of this material that is a primary suspect for nutrient loading and a potential cause of eutrophication in Lake Rensselaer.

The northern stream will reconnect to the forested wetland located on the west side of the mobile home park. Drainage from the wetland area southward to the southern stream will be eliminated in order to separate these two streams. The northern stream will pass through a forested riparian corridor that will improve water quality over the current road and mobile home park runoff

6.4 Reducing the "Edge Effect"

The primary issues associated with the interface between the landfill and the Pine Bush Preserve from an ecological perspective are stormwater runoff and lack of fire maintenance. Other issues such as blowing trash (primarily plastic bags) and odors have an impact on the Preserve as a recreational resource.

Stormwater runoff will be addressed by the design and installation of a stormwater management system that will collect runoff from the landfill slopes and redirect it to a biofilter that will treat the runoff before it enters the Pine Bush Preserve. The current issues with stormwater runoff are associated with earlier phases of the landfill when stormwater and landfill regulations did not require the capture and treatment of runoff.

Lack of maintenance along the landfill edge, particularly to the west of the landfill has resulted in the spread of poplar (*Populus spp.*) and black locust. Fire management has not been used in this area on the belief that methane was migrating from the landfill. This belief has since been shown to be unfounded. Recent conversations between APBPC staff and landfill personnel suggest that controlled burning is possible in the area. Therefore, between the elimination of stormwater runoff impacts and the renewed potential for maintenance by APBPC staff, the "edge effect" could be significantly reduced. Restoration efforts on the landfill cap will further contribute to a blending of existing pine barrens with the created habitat.

Through the development of the Habitat Plan, a more specific analysis of the "edge effect" will be conducted. The protocols for sampling have been established and will use the same methods used in establishing the baseline study of reference natural areas and other areas included in the Habitat Plans. These methods include sampling of soils, hydrology, topography, vegetation, and the development of criteria for minimizing impacts to the Pine Bush with future mitigation plans. The following specific evaluations will be provided by the methods that have been established with the protocols:

- Soil chemistry impact evaluation
- Vegetation and invasive plant impact evaluation
- Fire suppression impact evaluation

- Buffer effectiveness evaluation
- Establish criteria for minimizing impacts

6.5 Mitigating Direct Expansion Impacts

Mitigation is an essential component of the Plan. The project will impact approximately 5.6 acres of forested riparian wetland. This loss can be compensated through the creation of forested riparian corridors associated with the reconnected streams. By integrating new restored wetlands with proposed stream reconnections there will be reduced erosion of stream banks, providing the opportunity to beneficially improve water quality.

Other opportunities for wetland creation and enhancement include the creation of bogs on the disturbed sands located to the west of the mobile home park. Bogs were once a part of the Pine Bush ecosystem but most, if not all, are gone.

In total, it is estimated that approximately 10-15 acres of wetland communities can be created with an additional 25 acres of wetland enhancement. An important point is that all this mitigation is tied into a restoration and enhancement plan addressing the larger issue of large scale habitat connectivity within the Pine Bush Preserve. At the end of 6-7 years, when the landfill is closed, there will be a total of approximately 250 acres of restoration, mitigation and enhancement, all of which will be permanently protected.

6.6 Implementation

Details of the Habitat Plan will be developed following the SEQR process when the best alternative for the landfill has been identified and the layout finalized. The Habitat Plan represents a significant effort to implement and is contemplated by the City only as a component of the landfill expansion project. The expansion will provide the financial capability to undertake this massive effort over time. Since a portion of the landfill would remain active for 6-7 years as a result of the proposed expansion, the restoration will occur in phases over this time period. Detailed cost estimates will be prepared as the plan becomes refined towards construction drawings. Much of the cost will depend on the availability and location of suitable sand.

7.0 DISCUSSION

Part 360, and specifically 6 NYCRR 360-1.7(c), provides that an applicant may request that DEC grant a variance from a specific provision of Part 360. Pursuant to the Part 360 Regulations, every application for a variance must:

(i) identify the specific provisions of this Part from which a variance is sought;

(ii) demonstrate that compliance with the identified provisions would, on the basis of conditions unique to the person's particular situation, tend to impose an unreasonable economic, technological or safety burden on the person or the public; and

(iii) demonstrate that the proposed activity will have no significant adverse impact on the public health, safety or welfare, the environment or natural resources and will be consistent with the provisions of the ECL and the performance expected from application of this Part.

This section is intended to demonstrate that the City is entitled to the requested variance, as more fully set forth below.

7.1 Part 360 Provisions from which a Variance is Sought

The City specifically requests a variance from the provisions of 6 NYCRR 360-2.12(c)(1)(i) and (ii), which prohibits, as relevant herein, siting a landfill over a primary water supply aquifer or principal aquifer.

7.2 Conditions Justifying the Variance

This report, together with the Fourth Draft Supplemental Environmental Impact Statements and the Part 360 application as a whole, thoroughly demonstrates that there are circumstances unique to the City of Albany and the ANSWERS Wasteshed which justify granting a variance from the provisions of 6 NYCRR 360-2.12(c)(1)(i) and (ii). These circumstances generally include the City's diligent pursuit of alternative landfill sites, the significant economic impact that will be incurred by the City and the members of the ANSWERS wasteshed community will face if the variance request is not approved, the lack of any adverse impact associated with the approval of the requested variance, potential impacts on the Pine Bush habitat that would result from the development of a public water source within the Pine Bush Formation, and the City's proposed Habitat Plan/environmental benefit project that would not be undertaken if the requested variance is not approved.

At this time, the only valid short term solution to meet public need is the expansion of the existing landfill, specifically the proposed Eastern Expansion, which is the preferred alternative as presented in the SDEIS. At current rates of disposal, this will provide 6-7 years of landfill life. However, unlike previous expansion efforts, the option for an additional future expansion will be foreclosed by virtue of both the fact that all surrounding lands are dedicated to the APBPC and the proposed Habitat Plan that will be phased in during construction and operation of this expansion, with the last phase of the Habitat Plan encompassing the Eastern Expansion after closure. The result would be a landfill transformed into Pine Bush habitat with some remaining landfill infrastructure such as landfill offices, a possible future transfer station, and gas to energy facilities. Therefore, the majority of the landfill, as well as the surrounding lands, will be committed to habitat, leaving no room for further expansion.

Notably, as demonstrated in Section 5.0, failure to grant the requested variance will result in severe economic consequences, not only for the City of Albany, but for the ANSWERS

Wasteshed as a whole. As noted therein, revenues from the operation of the landfill currently pay for the City's solid waste and recyclables related services ($3,069,000) and annual debt services on bonds issued for solid waste related projects ($2,376,100), for a total of $5,445,100. To the extent that revenues from the operation of the landfill exceed this amount, those revenues are paid into the general fund, to reduce the total tax burden on the residents of the City of Albany. In addition, if the Eastern Expansion were not approved with the requested variance, the City would not only have to find an alternative source of revenues for these costs, it would incur an additional $4,705,000 per year in transfer/haul costs, including the operation of a transfer station. The members of the ANSWERS Wasteshed would incur an additional $7,450,000 per year to dispose of its waste should the Eastern Expansion not be approved. Therefore, the failure to grant the requested variance would impose an unreasonable economic burden on the City of Albany, the members of the ANSWERS Wasteshed, and the Capital Region as a whole.

Moreover, the grant of the requested variance will not have a significant adverse impact. As demonstrated in Section 3.0, the Pine Bush Formation has limited utility as a potential source of groundwater, and the municipalities in the Pine Bush area have focused their efforts to develop public water supplies in more highly productive aquifers or surface waters outside the Pine Bush Formation. The City of Albany utilizes the Alcove and Basic reservoirs, located in the Helderberg Mountains; the Town of Guilderland utilizes a deep well array located approximately 3 miles west (and upgradient) of the landfill, and the Town and Village of Colonie (Latham Water District) utilize the Mohawk River, Stony Creek Reservoir, and wells located adjacent to the Mohawk River, located approximately 7 miles northeast of the landfill. Although the Latham Water District reportedly owns land on Morris Road which had been developed for wells to be used as a groundwater supply, these wells were abandoned in the 1960's due to their low yield, poor water quality, and need for treatment to remove fine particulates. These existing public water supply systems currently have adequate capacity to handle expected growth in the area, and none of the municipalities involved have plans to develop any additional groundwater capacity within the Pine Bush Formation. Finally, the existing water quality of the Pine Bush

Formation, both region-wide, and at the Rapp Road facility, is of poor quality, and therefore, not likely to be used as a public water supply.

Furthermore, as demonstrated in Section 4.0, any development of a public water supply within the Pine Bush Formation could have devastating effects on the Pine Bush ecosystem. As demonstrated therein, development of a public water supply of sufficient quantity to provide approximately 200 to 400 gpm would require 6 to 14 individual pumping wells, resulting in the lowering of static water levels by more than 10 feet across an area in excess of 77 acres. Such a lowering of the water table could have significant adverse impacts such as dewatering of wetlands, streams running seasonally dry, and diminishing the duration and frequency of vernal pools. Since there are many rare and endangered species which rely on these characteristics of the Pine Bush habitat, any development of a public water supply within the Pine Bush Formation could result in the loss of these species.

Finally, the City has proposed, as part of the Eastern Expansion to implement a Habitat Plan. The Habitat Plan and the Eastern Expansion are intertwined in terms of construction phasing, financing, and closure. Restoration, mitigation, and enhancement projects will begin during the first year of the landfill expansion and will be phased over the anticipated 6.6-year life of the project, with the final phase a component of the closure plan. The end result converts the entire Rapp Road Landfill complex and surrounding lands, with the exception of landfill operations structures that will be needed to continue to address gas and leachate collection, odor abatement, and possible transfer station operations, into Pine Bush habitat. This expansion project provides the financial means to restore and enhance approximately 250 acres of land. With limited State and local funding sources, the ability of the Pine Bush Preserve Commission to achieve the goals of the Habitat Plan is significantly diminished if not impossible.

In sum, the City has amply demonstrated that the granting of a variance from the provisions of 6 NYCRR 360-2.12(c)(1)(i) and (ii) meets the requirements of 6 NYCRR 360-1.7(c), due to the unique economic burdens it would impose on the City of Albany and the members of the

ANSWERS Wasteshed, and the lack of any significant impact from the proposed variance request.

8.0 CONCLUSIONS

Under the unique circumstances presented here, a variance from the provisions of 6 NYCRR 360-2.12(c)(1) is warranted. The Pine Bush Formation is not presently, and most likely will never be, used as a public water supply. In addition, any potential development of the aquifer could cause irreparable harm to the Pine Bush habitat. Furthermore, the delays which the City has encountered in siting a long term landfill have been unforeseeable, and the City has an obligation to provide disposal capacity to the member municipalities in the ANSWERS Wasteshed. Providing this variance will ensure that the City continues to provide that critical disposal capacity to the members of the ANSWERS Wasteshed, while not causing any environmental impact to the Pine Bush Formation.

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APPENDIX A

January 7, 1999

PINE BUSH FORMATION DECLASSIFICATION STUDY

City of Albany Landfill
Rapp Road Facility

City of Albany
Albany County, New York

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FIGURES

Figure 1: Pine Bush Formation Area Map

1.0 INTRODUCTION

The City of Albany ("the City"), on behalf of the ANSWERS Solid Waste Management Planning Unit, seeks a determination from the New York State Department of Environmental Conservation (NYSDEC) that the City's Rapp Road property does not overlay a principal aquifer. Moreover the City contends that the Pine Bush Formation, as a whole, is not a principal aquifer. Since the original designation of the Pine Bush Formation as a principal aquifer in 1985 by NYSDEC, the City has maintained the position that the Pine Bush Formation neither possesses the distinguishing characteristics of a principal aquifer, nor does the Pine Bush Formation represent a viable public water supply source for the future. Moreover, the City further believes that even if the Pine Bush Formation were being considered for development as a public water supply, there would be a real potential for adverse impacts (i.e., lowering of water table) to the critical Pine Bush habitat.

The objectives of this report, which is a revision to a prior delisting request (C.T. Male, 1996) not acted upon, are to update and elaborate upon the previous work done concerning the public water supply and hydrogeological characteristics of the Pine Bush Formation, to provide a substantial basis for NYSDEC's declassification of the Pine Bush Formation as a principal aquifer according to 6 NYCRR Part 360 definitional criteria, and to justify the exclusion of the City's Rapp Road property from the area designated as a principal aquifer. It is not the intent of this report to debate the specific hydrogeologic characteristics of the Pine Bush Formation; rather it is the purpose of this report to explore the definitional characteristics (contained in 6 NYCRR Part 360 regulations) of a principal aquifer as they relate to the Pine Bush Formation's specific hydrogeologic characteristics.

1.1 Background

On April 2, 1986 the City of Albany petitioned the Commissioner of NYSDEC for declassification of the Pine Bush Formation. A technical report prepared by Malcolm Pirnie (1986) was submitted with this request. After technical review by NYSDEC and consultation with the City and their technical consultant, the Commissioner on July 9, 1986 made the determination that the Pine Bush Formation had a potential for

significant groundwater development, and that it should remain identified as a principal aquifer and be subject to special consideration and protection. This Commissioner's determination was based on available technical data including: the presence of up to 80 feet of windblown and lacustrine sand, a saturated thickness of 40 to 60 feet within these sands, and an analysis of the sand's grain size distribution.

Again in 1996, as part of a Part 360 application for the AIL Expansion the City submitted to NYSDEC a Pine Bush Formation Declassification Study that petitioned for a delisting of the formation as a principal aquifer (C.T. Male, 1996). NYSDEC did not take any action on this petition.

1.2 Original Classification

The area of the Pine Bush Formation was first listed as a principal aquifer by NYSDEC's Division of Water within the Draft Upstate New York Groundwater Management Program in January, 1985 which later was published as Final in May 1987. The approximate area for the Pine Bush Formation is shown on Figure 1. These Upstate New York Groundwater Management Program reports were done by NYSDEC with funding by a grant from the USEPA under Section 208 of the Clean Water Act. The purpose of this work by NYSDEC was to provide a comprehensive review of groundwater resources within New York State and to recommend a program for managing and protecting these resources, primarily from toxic pollutants.

The classification of the area containing the Pine Bush Formation as a principal aquifer was based upon general, state-wide mapping done by Heath (1964). Figure I-2 (p. I-7) of the Heath report identifies Upstate Principal Aquifers with a gray shading; these general areas were thought to represent locations underlain by deposits of sand and gravel. In some areas, these mapped principal aquifers are known to be productive, and in other areas productivity is unknown. The presence of surficial sand and/or gravel is cited as suggesting the potential for an "abundant" water supply. Thus, vast areas of New York State that are underlain by surficial deposits of either sand and/or gravel have been identified by NYSDEC as potential areas of Upstate Principal Aquifers with very little or no consideration and confirmation given to actual geological or hydrogeological characteristics of these areas or exact formational boundaries.

1.3 Aquifer Definitions

This section of the report provides generally accepted definitions for the following terms which will be used herein: aquifer, primary water supply aquifer, principal aquifer, and sole source aquifer.

Aquifer

There are many different existing definitions for the term, aquifer. However, a common denominator of all such definitions is the ability to store and transmit (or yield) significant quantities of water through earth materials at a useful rate. A number of definitions for the term, aquifer, are given in the following paragraphs, starting with the NYSDEC's 6 NYCRR Part 360 definition.

An aquifer is defined within NYSDEC's 6 NYCRR Part 360 Solid Waste Management Facility regulations (1988, 1993) as follows (6 NYCRR 360-1.2(b)(10)):

> "... a consolidated or unconsolidated geologic formation, group of formations or part of a formation capable of yielding a significant amount of groundwater to wells or springs."

Freeze and Cherry (1979) define an aquifer as:

> "... a saturated permeable geologic unit that can transmit significant quantities of water under ordinary hydraulic gradients."

Driscoll (1986) defines an aquifer as:

> "... a saturated bed, formation, or group of formations which yields water in sufficient quantity to be economically useful. Water-bearing formations and groundwater reservoirs are synonyms for the word aquifer. To be an aquifer, a geologic formation must contain pores or open spaces (both of these are often called interstices) that are filled with water. These interstices must be large enough to transmit water to wells at a useful rate."

The American Geological Institute (1972) defines an aquifer as:

> "A body of rock that contains sufficient saturated permeable material to conduct groundwater and to yield economically significant quantities of groundwater to wells and springs."

Fetter (1994) defines an aquifer as:

> "... a geologic unit that can store and transmit water at rates fast enough to supply reasonable amounts to wells."

Maidment (1993) defines an aquifer as:

> "... a permeable geologic unit that can transmit and store significant quantities of water."

Primary Water Supply and Principal Aquifers

In New York State, the definitions for both primary and principal aquifers are of critical importance in order to properly classify a geologic formation as either a primary aquifer, a principal aquifer, or neither of these two. The following is a factual discussion of the definitions that hereafter will be used as a basis for the proper classification of the Pine Bush Formation.

A primary water supply aquifer (or primary aquifer) is defined as follows by both the New York State Department of Health (NYSDOH) and NYSDEC (NYSDEC, 1985; 1987; 1988; 1993) (6 NYCRR 360-1.2(b)(10)(i)):

> "... a highly productive aquifer presently being utilized as a source of water supply by major municipal water supply systems."

The classification or definition for a primary water supply aquifer was originally developed by NYSDOH in 1981, and has since been adopted by NYSDEC within both its Upstate New York Groundwater Management Program and 6 NYCRR Part 360 Solid Waste Management Facilities regulations. There are nineteen (19) primary water supply aquifers identified in New York State, including the Long Island System (NYSDEC, 1990). These nineteen primary water supply aquifers are universally

recognized as the most highly productive and frequently used groundwater systems in New York State. The Pine Bush Formation is not a primary water supply aquifer.

A principal aquifer is defined as follows by NYSDEC within both its 6 NYCRR Part 360 regulations and Upstate New York Groundwater Management Program (NYSDEC, 1985; 1987; 1988; 1993) as (6 NYCRR 360-1.2(b)(10)(i)):

> "...a formation or formations known to be highly productive or deposits whose geology suggests abundant potential water supply, but which is not intensively used as a source of water supply by major municipal systems at the present time. Some water supply development has taken place in some of these areas but it is generally not as intensive as in the primary aquifer areas."

The stated difference between a primary water supply aquifer and a principal aquifer is that a primary water supply aquifer is presently being intensively used by major municipal systems, whereas a principal aquifer is not currently being used intensively. NYSDEC (1986, 1990) asserts that principal aquifers are the potential primary water supply aquifers of the future. In regard to the ability to yield water to wells, there is intended to be no difference between a primary water supply aquifer and a principal aquifer (NYSDEC, 1986; 1990). There is an inherent assumption contained within the definition of a principal aquifer that based on it's ability to transmit and store groundwater, in the future it may be used extensively as a major municipal water supply.

Sole Source Aquifer

Under provisions of the Safe Drinking Water Act (Section 1424(e)), USEPA can designate aquifers as sole source aquifers upon petition by the locality. A sole source aquifer is the sole or principal source of drinking water for a community, and there is not a direct technical relationship between sole source aquifers and either primary or principal aquifers. The Pine Bush Formation is not a sole source aquifer.

2.0 PRINCIPAL AQUIFER DETERMINATION

According to a December 30, 1997 Memorandum of Understanding (MOU) between the Division of Water (DOW) and Solid & Hazardous Materials (DSHM) regarding principal aquifer determinations, for activities regulated by the DSHM, the DSHM is responsible for making formal determinations as to whether the regulated activity overlays a principal aquifer area. Consistent with this MOU, the City of Albany is making this aquifer determination request to DSHM. The technical criteria for making this determination are unchanged as discussed below.

Prior to this MOU, principal aquifer determinations were made by NYSDEC's Division of Water (DOW), according to Technical and Operational Guidance Series (TOGS) 2.1.3, Primary and Principal Aquifer Determinations. The stated purpose of this NYSDEC internal memorandum is to clarify the meaning of the terms "primary water supply aquifer" and "principal aquifer" as set forth in the Upstate New York Groundwater Management Program, and to establish guidance for determining whether an aquifer is considered a primary water supply aquifer or principal aquifer. To qualify as a principal aquifer, overall yields from the aquifer should be comparable to those of the smaller primary water supply aquifers. According to NYSDEC's internal guidance memorandum, a principal aquifer should be able to yield a minimum of 500,000 to 1,000,000 gallons of water per day or 350 to 700 gallons per minute (gpm). In addition to yield (or productivity) criteria, other general factors, including the role of groundwater productivity, natural water quality, aquifer vulnerability, confined vs. unconfined aquifers, and unconsolidated vs. bedrock aquifers, will be used in the principal aquifer determination process (NYSDEC, 1986; 1990).

The general guidelines developed by NYSDEC for making a principal aquifer determination are based on yield criteria (NYSDEC, 1986; 1990). The following guidelines are neither based on law or regulation, and have been adopted by NYSDEC without the opportunity for formal public comment.

1. <u>Area of Aquifer</u>: Five (5) to ten (10) square miles of contiguous area at a minimum;

2. Thickness of Saturated Deposits: Saturated deposits of highly permeable materials should average at least twenty (20) feet through much of the area, with some locations at least fifty (50) feet thick; and

3. Obtainable Well Yields: Sustained yields to individual wells should be 50 gpm or more from sizable areas (two square miles or greater) throughout the aquifer.

3.0 PINE BUSH FORMATION

The Pine Bush Formation is an unconsolidated (i.e., surficial) sand deposit located within the City of Albany, the Town of Guilderland, and the Town of Colonie (Figure 1). It is located within a 40 square mile urban area between Albany and Schenectady, New York that has been developed for primarily residential and commercial land uses. The name for the Pine Bush is taken from the dominant and unique pitch pine and scrub oak vegetative community, containing an assemblage of various plant species and rare ecological communities adapted to dry conditions and periodic fires, that has developed on top of the Formation.

The Pine Bush is part of an extensive sand dune and swamp area that extends from South Glens Falls to Delmar (Dineen, 1975). This extensive dune field developed on top of a series of interconnected glacial lake sediments that occupied the Hudson River Valley from approximately Glens Falls to Newburgh. The glacial lakes developed in front of the ablating continental ice sheet during and after the Late Wisconsinan deglaciation. The Pine Bush is covered by sand dunes of light yellow-brown to light gray very fine to medium grained sand deposits that range in thickness from 5 to 150 feet (Dineen, 1979). The thickest sand deposit is located in the northwestern and central parts of the Pine Bush. In some areas, streams have eroded completely through the sand formation and into the underlying clay.

The source of the sand is interpreted to be the "Glaciomohawk River," which deposited a large amount of sand into glacial Lake Albany. As glacial Lake Albany drained, water elevations were decreased and the deposited sands formed a land surface subject to subaerial processes. The sand was reworked by wind and stream action, causing the sorting of sand particles. In general, wind-blown or fine grained dune sands are present at the surface of the Pine Bush. These fine grained dune sands constitute an upper unit of the Pine Bush Formation, and sediments grade downward into finer grained deposits. The lower unit of the Pine Bush Formation consists of a silty lacustrine sand which also grades downward into finer grained deposits. A silt and clay glaciolacustrine deposit is present at the base of the Pine Bush Formation. Thin silt and/or clay layers (or lenses) are present within the sand sequence, and these low permeability layers increase in frequency with depth. The sand deposits are underlain

by glacial deposits in preglacial river channels (i.e., "buried channels"); however these underlying deposits are separated from the overlying sands by the glaciolacustrine silt and clay deposits. Thus, these "buried channels" are interpreted to be distinct hydrogeologic units that are separated by a confining layer.

The water table in the Pine Bush Area is generally 10 to 15 feet below the land surface (Snavely, 1983). The average saturated sand thickness is approximately 40 feet. The water table surface is roughly parallel to the land surface, and the direction of groundwater movement is thus primarily controlled by topography. Local variations may alter this general direction of flow; however, groundwater flow directions within the Pine Bush Formation are generally towards stream channels where groundwater discharge occurs, frequently at the base of the sand unit. Within portions of the Pine Bush the water table can be found close to the ground surface, especially in low-lying areas near ponds and wetlands.

The general physiography of the area is characterized as gently rolling terrain with deeply incised stream valleys forming a dendritic drainage pattern. Drainage to the north is controlled by the Lisha Kill and its tributaries which flow into the Mohawk River, and to the south drainage is controlled by the Normans Kill and its tributaries which run into the Hudson River.

4.0 PREVIOUS STUDIES

There have been several geological and/or hydrogeological studies conducted concerning the Pine Bush Formation. This section summarizes the major findings of the most significant studies completed to date with particular emphasis placed on the Pine Bush Formation's water-bearing characteristics.

Groundwater Resources of Albany County (1949)

In 1949, Arnow reported on a survey of groundwater resources in Albany County, New York. This work in Albany County was part of a State-wide survey of the groundwater resources of New York made by the U.S. Geological Survey in cooperation with the New York Water Power and Control Commission. The report provides only general information regarding the geology and hydrogeology for Albany County. All unconsolidated deposits, except for till, are identified as an individual mapped unit: glacial outwash and alluvium. Thus, the entire study area, including all of the City of Albany and the Towns of Colonie and Guilderland, is mapped as one unit, glacial outwash and alluvium. The Arnow report further states that sands yield water readily to dug and driven wells, and that driven wells are used to supply water for domestic and farm purposes. Gravel deposits, particularly those associated with the Mohawk River, are identified as the most prolific aquifers in the county.

Although Arnow's report dealt primarily with groundwater resources, notwithstanding it referenced the fact that the largest developed water supply in the County, the City of Albany, utilized surface water for its municipal water supply. Groundwater is not stated to be highly utilized as a source of public water supply.

Hall Study (1961)

Hall and Company, Inc. (1961) investigated the potential of the Pine Bush Formation as a groundwater source for the Town of Guilderland. Although most of the investigation was targeted at the deep buried channel deposits (i.e., the preglacial sand and gravel deposits located beneath the lacustrine deposits associated with glacial Lake Albany), pump testing was performed at four, shallow test drilling sites within the Pine Bush

Formation area. Well yields of less than 10 gpm were found at three of the four testing sites. A yield of 40 gpm was derived at the fourth testing site. Based on test drilling and pumping test results, the Hall report concluded that the Pine Bush Formation was not a viable groundwater source for the Town of Guilderland.

Water Resources of the Albany-Schenectady-Troy Area (1964)

This report was done in 1964 by the U.S. Geological Survey in cooperation with the State of New York and the U.S. Army Corps of Engineers (Halberg et al, 1964). Its purpose was to summarize existing water resource information for future planning and development. Groundwater resources in the vicinity of the project site area are evaluated and summarized. The report identifies the project site area as being within the Albany-Schenectady Sand Plain. Sands are reported to range in thickness from 10 to 100 feet. Their permeability is characterized as not highly permeable, yielding only enough water for single household or residential use and, in some areas, small industrial supplies. In terms of likely future groundwater development for major public water supply, the report identifies coarse-grained deposits along the main river channels and buried pre-glacial channels. The sands of the Albany-Schenectady Sand Plain are not identified as a likely formation for future development as public water supplies.

Heath Map (1964)

The U.S. Geological Survey (USGS), in cooperation with the New York Water Resources Commission, prepared a map depicting groundwater resources in New York State (Heath, 1964). This map was not intended to summarize all available data on groundwater resources within New York, but rather was to present a basic representation of groundwater availability. This map identified the project site area as an area of sand and gravel. The explanation for the sand and gravel designation is an area either known or believed to be underlain by productive deposits of sand and/or gravel. The map further tabulates the median and range of well yields in Albany County. The median well yield for the Pine Bush Formation is reported to be 4 gpm, and the range of well yields is reported to be 1 to 40 gpm. No substantial technical substantiation for these characterizations are presented as part of the Heath Map.

Geology of the Pine Bush (1975, 1982)

The geology of the Pine Bush was presented by Dineen in 1975 within one report that evaluated the overall resources and potential land uses for the Pine Bush with emphasis on geologic factors (1975), and another report that placed emphasis on the geology of the Pine Bush Formation. The Pine Bush is referenced as a 40 square mile area (defined by the Nature Conservancy) of sand dunes and bogs covered by forests of pitch pine and scrub oak, constituting a small segment of a dune field which extends from South Glens Falls to Delmar. In the Pine Bush, wind-blown sands are generally exposed on the surface and are underlain by lacustrine clay and silt deposits.

Dineen (1975) describes the wind-blown (i.e., dune or eolian) sand, having a thickness ranging up to 150 feet, as a source of shallow subsurface water in the Pine Bush. Well yields are reported to range from 5 to 50 gallons per minute. Dineen describes several factors that serve to reduce the effectiveness of wind-blown sand as a groundwater resource, including diversion of surface water by drainage improvement projects and the susceptibility of the formation to contamination by surface sources (salt storage areas, septic tanks, spills, landfills, oils, etc.). The report suggests that wind-blown sand is of limited value as a groundwater resource and does not recommend the development of either wind-blown or lacustrine sands for municipal water supply development.

Dineen (1982) describes the Pine Bush Formation as being composed of silty sand, lake sand, and dune sand geologic units. Silt and clay deposits are aquicludes that underlie the Formation and serve to impede the vertical movement of groundwater. The silty sand is reported to contain 10 to 50 percent silt, and grades downward into silt and clay. Lake sand overlies the silty sand; it consists of fine to medium grained sands containing thin laminae of silt and grades downward into silty sand. Dune sand overlies the lake sand; it is differentiated from the lake sands based the presence of high-angle foreset beds in contrast to the horizontally laminated lake sands.

Kantrowitz and Snavely (1982)

The U.S. Geological Survey produced a state-wide map depicting potential aquifers in Upstate New York (Kantrowitz and Snavely, 1982). It was the intent of this state-wide

map to provide a conservative estimation of potential aquifer areas, and to provide general data regarding some of the hydrogeological characteristic (e.g., typical well yields, aquifer yields, and specific capacity) of the mapped units. The City's Rapp Road facility is located within a large mapped unit identified as "4a". Unit 4a is reported to be sand and gravel with a typical well yield of 10 to 50 gpm, and specific capacities ranging from 2 to 5 gpm/foot of drawdown. The theoretical yield of this mapped unit is given as 2 to 4 million gallons per day, based on recharge throughout the entire mapped unit. This theoretical yield number assumes that a percentage of precipitation recharges the formation, and no consideration is given to the well spacing or the number of wells that would be needed to theoretically achieve this potential yield. No technical substantiation for these characterizations is given on the map.

Snavely Report (1983)

In cooperation with the City of Albany, the United States Geological Survey (USGS) conducted a groundwater appraisal of the Pine Bush Area within Albany County, New York. This USGS study started in 1979 and culminated in the publication of a report in 1983. The objective of this groundwater appraisal was to quantify the amount of groundwater available from the Pine Bush Formation and to assess the general chemical quality of groundwater and surface water.

Test boring logs for 18 observation wells which were drilled at four locations east and west of New Karner Road indicate that the Pine Bush Formation has a variable thickness ranging from approximately 24 to 74 feet. Sediments of the Pine Bush Formation are primarily layered fine sands with silt which grade downward into silt and clays near the bottom of the formation. The depth to the static water table is reported to range from 8 to 20 feet below grade (Spring of 1980) with seasonal variations of approximately 2 feet.

Using a digital model that simulates drawdown produced by a theoretical pumping well and making several simplifying assumptions, a range of potential pumping rates from a reasonable range of assumed hydraulic conductivity values were generated. Hydraulic conductivity was estimated to range from 65 to 70 feet per day at test wells 6 and 4, respectively. Storativity values were calculated to range from 0.0012 and 0.0008, respectively, which seem to be characteristic of a confined aquifer. These low values for

storativity were attributed to finer grained materials (i.e, presence of silt and clay layers) as a function of depth within the Pine Bush Formation. The theoretical model simulations suggest that a production well could yield from 150 to 600 gallons per minute. The report further concludes that the "...predicted values indicate the range of well yields that can be expected from areas of the Pine Bush that are hydrologically similar to the simulated pump site."

No actual pump test data are presented in the report. However, NYSDEC files indicate that test well 6 (6-inch) was pumped at a rate of 58 gpm for 24 hours with a maximum drawdown of 24.5 feet, and test well 4 (6-inch) was pumped at a rate of 45 gpm for 24 hours with a maximum drawdown of 26.9 feet. Specific capacities for these two wells are very low (approximately 2 gpm/foot of drawdown). The total depth of test well 4 was 60 feet, and the depth to the static water table was 18.89 feet. For test well 6, the total depth was 49 feet, and the depth to the static water table was 12.16 feet. The reported drawdowns during the 24 hour constant rate tests are very significant and approach the bottom of the formational sands. Longer duration constant rate pumping tests which would better approximate long-term pumping effects in the formation were not performed. This large amount of drawdown would restrict potential well yield during continuous pumping conditions, particularly during drought conditions. The locations of these two wells which are located in the central and deepest region of the Pine Bush Formation are shown on Figure 1.

Groundwater was sampled at various locations within the Pine Bush for phosphorus, nitrogen, and chloride. High concentrations of chloride (up to 340 mg/l) in groundwater is attributed to either chloride stratification in the deep wells or road salting in the central site area. These elevated chloride concentrations suggest that groundwater within the Pine Bush Formation is susceptible to potential contamination from the ground surface.

Malcolm Pirnie Declassification Study (1986)

Contemporaneous with both the initial listing of the Pine Bush Formation as a principal aquifer by NYSDEC and the preliminary landfill siting studies for the Rapp Road property by the City of Albany on behalf of the ANSWERS Planning Unit, a principal aquifer declassification study was submitted to NYSDEC. This study relied upon

existing data and reports, and upon subsurface investigation results from the Rapp Road property. It concluded that the Pine Bush Formation should be delisted as a principal aquifer. Technical substantiation for this conclusion included the following:

1. The formation cannot produce "significant" or "practical" amounts of water, and the formation is not now, nor will it probably ever be, economically suitable for a municipal water supply.
2. Other municipal water supplies service the Pine Bush area.
3. Groundwater within the formation is not of high quality.
4. Development as a municipal groundwater supply would harm the critical habitat of the Pine Bush.

Availability of Ground Water in the Unconsolidated Aquifers of the Mid-Hudson River Basin, New York (1987)

This map, which was prepared cooperatively by the U.S. Geological Survey and NYSDEC, delineates unconsolidated aquifers in the mid-Hudson River basin area and the estimated yield of properly constructed wells (6-inch diameter) completed in these aquifers (Bugliosi, 1987). This map identifies the unconsolidated deposits at the project site as having the potential to yield from 10 to 100 gallons per minute from a properly constructed well. It further correlates this range of yields to small commercial, individual and public water supplies. No specific hydrogeologic data is presented within this report.

Potential Yields of Wells in Unconsolidated Aquifers in Upstate New York (1988)

In 1988 the U.S. Geological Survey in cooperation with the NYSDEC compiled maps at a scale of 1:250,000 showing the potential yields of wells in unconsolidated aquifers (Bugliosi et al, 1988). The purpose of these maps was for use in the regional management of groundwater resources. These potential yield maps indicate the general location of unconsolidated aquifers. Surficial mapping from the New York State Geological Survey was used for delineating the boundaries of the mapped aquifers. This map identified the project site area as an unconfined aquifer with yields either between 10 to 100 gpm or greater than 100 gpm where coarser and thicker

deposits are present. General descriptions are given for these two mapped units. No specific hydrogeologic data is presented within this report.

Town of Guilderland Report (1993)

The Town of Guilderland conducted a preliminary groundwater resource assessment to identify potential unconsolidated groundwater aquifers for potential future development (C.T. Male, 1993). Based on historical records and reports, this report concluded that the Pine Bush Formation was not a viable groundwater resource for the Town of Guilderland, since it was not capable of supplying yields in the range of 1 million gallons per day. Ice-contact sand and gravel buried in the Mohawk and Ballston Channels and exposed along the Guilderland Kame were identified as the best potential aquifers in the Town having the capability of supplying 1 million gallons per day. The report recommended that the ice-contact sand and gravel deposits be targeted for future groundwater supply sources.

C.T. Male Declassification Study (1996)

In 1996, as part of a Part 360 application for the AIL Expansion the City submitted to NYSDEC a Pine Bush Formation Declassification Study that petitioned for a delisting of the formation as a principal aquifer (C.T. Male, 1996). NYSDEC did not take any action on this petition.

The New York State Unified Watershed Assessment Draft Report (1998)

This NYSDEC draft report to the U.S. Environmental Protection Agency (USEPA) provides a foundation for a new, cooperative approach to safeguarding and restoring water quality within watersheds and support the setting of watershed protection and restoration priorities (NYSDEC, 1998). This watershed protection approach integrates environmental quality and natural resource concerns and establishes priorities for targeting fiscal resources. The Division of Water (DOW) took the lead in developing this draft report which identifies primary aquifers as a modified Category III, watersheds with pristine or sensitive aquatic system conditions. These primary aquifers are identified by NYSDEC as generally the most highly productive and frequently used groundwater systems in the state, and have been identified as the

highest priority groundwater systems, and as important and sensitive resources of the state. Principal aquifers are not identified in this report, nor is the Pine Bush Formation mentioned.

The omission of principal aquifers from this report suggests that there is a two-tiered classification system, in which primary aquifers are identified for a higher level of protection than principal aquifers. If all principal aquifers were in fact the primary aquifers of the future, then for the benefit of future generations both aquifer types should be similarly identified and protected. This protection inequity, above and beyond the level of current usage, suggests that the two aquifer types are different in terms of their capability to provide an abundant source of groundwater for municipal water supply systems, and further that principal aquifers may not be the primary aquifers of the future as the original definition intended.

5.0 POTENTIAL FOR PUBLIC WATER SUPPLY

This section of the report evaluates the existing and future water supply sources for municipalities located in the Pine Bush. Potential municipalities with existing public water supply systems that could logistically utilize the groundwater resource of the Pine Bush Formation include: City of Albany, Town of Colonie (Latham Water District), and Town of Guilderland. No other municipalities could reasonably attempt to explore and develop the groundwater resources of the Pine Bush Formation, due primarily to the availability of other surface water and groundwater supply sources having more favorable characteristics in the area, the scarcity of available real estate, and their lack of condemnation powers within this geographic area. The existing water supply sources are summarized in the following two sections (5.1, 1984 Inventory and 5.2, 1987 Capital Region Study), and the future water supply sources are addressed in section 5.3, Future Expansion Plans.

5.1 1984 Inventory

The NYSDOH conducted an inventory of community water systems in 1984 (NYSDOH, 1984). The following information regarding the City of Albany, Town of Colonie, and Town of Guilderland has been derived from this NYSDOH inventory.

The City of Albany obtains its water from two surface water sources or reservoirs which are collectively referred to as the Alcove Reservoir. This surface water source is located in the Town of Coeymans in the south part of Albany County. It is a basic creek diversion reservoir and has a storage capacity of 211 million gallons.

The Town of Guilderland is reported to have six (6) water districts within its municipal boundaries. The Guilderland Water District obtains its water from three groundwater sources (not in the Pine Bush Formation) with a storage capacity of 50,000 gallons and an average daily production rate of 54,887 gallons. The Fort Hunter Water District is comprised of one groundwater source with a storage capacity of 62,500 gallons and an average daily production rate of 51,055 gallons. Altamont Village uses two surface water reservoirs and one groundwater source; it has a storage capacity of 500,000 gallons and an average daily production rate of 200,000 gallons. The Lone Pine Water

District uses one groundwater source; it has a storage capacity of 2,500 gallons and an average daily production rate of 13,000 gallons. The McKnownville Water District purchases water from the Westmere Water District. The Westmere Water District is comprised of one surface water (Watervliet Reservoir) and three groundwater sources; it has a storage capacity of 2 million gallons and an average daily production rate of 1.6 million gallons. (Note: since 1984, the Town of Guilderland has consolidated all water districts into the Guilderland Water District.)

The Town of Colonie has three (3) water districts including the Latham Water District, the Village of Colonie, and the Village of Menands. The Village of Colonie purchases its water from the Latham Water District, and the Village of Menands purchases its water from the City of Troy's Public Water Supply. The Latham Water District obtains its water from two (2) surface water sources and five (5) groundwater sources (not in the Pine Bush Formation). The two surface water sources are the Stony Creek Reservoir and the Mohawk River. Storage capacity of the Latham Water District is reported as 8.4 million gallons, and average daily production rate is 10.4 million gallons.

5.2 1987 Capital Region Study

NYSDEC published the 1987 Capital Region Water Management Study as an update to the NYSDOH's 1984 pilot study. The 1987 Capital Region Study report indicated that most of the 125 water supply systems in the region were built in the late 1800's or early 1900's and require some improvements. All of the systems studied, including the City of Albany, Town of Colonie, and the Town of Guilderland were estimated to have enough water for present and future demands to the year 2000. The water resource systems of the City of Albany, Town of Colonie, and the Town of Guilderland were not identified as requiring additional water sources. The report states that this estimate is projected for a minimum of 20 years.

A reservoir operations study conducted by the NYSDEC estimated the safe yield for the Alcove-Basic Reservoir, which supplies the City of Albany, to be 28.6 mgd (million gallons per day). The safe yield estimate is adequate to meet the projected average day demand of 22.4 mgd in the year 2000 and has excess capacity for neighboring communities.

The 1987 report indicates that Latham Water District system has an excess capacity ranging from 3 to 5 mgd. Excess water supply capacities are also cited for the Cities of Troy and Schenectady within the Capitol District area.

5.3 1998 Update

The Albany County Department of Health (DOH) was contacted in November 1998 to determine any significant changes in public water supply use for the City of Albany, Town of Colonie, or Town of Guilderland. Based on this recent correspondence with DOH representatives, there are presently no known municipal water supply wells in the Pine Bush Formation, nor are there any plans to drill new groundwater wells in this formation.

The City of Albany continues to utilize water from the Alcove Reservoir for their municipal water supply. This surface water source has excess capacity, and the City is seeking to sell water.

The Town of Colonie continues to use Stony Creek Reservoir (purchased from Clifton Park) and groundwater wells (depth of approximately 100 feet) located adjacent to the Mohawk River in sand and gravel alluvial deposits. Since 1995, one additional groundwater well has been installed adjacent to the Mohawk River. The Town currently is looking to increase capacity by withdrawing more water from the Mohawk River aquifer.

The Town of Guilderland continues to use the Watervliet Reservoir and two deep groundwater wells. Additionally, the Town of Guilderland purchases water from the City of Albany through an emergency interconnection between their municipal water distribution systems. To further supplement its own sources, the Town is seeking to construct a permanent interconnection with the City of Albany in the Pine Bush area.

5.4 Future Expansion Plans

The previous declassification report (C.T. Male, 1996) characterized future expansion plans by municipalities located in proximity to the Pine Bush Formation. Current research was conducted to verify that these future expansion plans have not changed.

Over a decade has passed since the NYSDEC has identified the Pine Bush Formation as a principal aquifer. During this time there has been no development of the Pine Bush Formation for a public water supply, nor are there any plans to utilize this formation as a public water supply in the future. Alternative municipal water supply sources exist and are being utilized in the area of the Pine Bush Formation.

Based on telephone contacts with each of the three municipalities located in the area of the Pine Bush Formation, it is known that the City of Albany has excess public water capacity and is looking to sell water; the Town of Guilderland investigated and rejected the Pine Bush Formation as a potential source for municipal water, and is seeking to purchase additional water from the Cities of Watervliet and Albany; and the Town of Colonie has no current plans for expansion of its public water supply.

Excess public water supply capacities exist for the City of Albany, Town of Colonie, City of Schenectady, and City of Troy; and more productive sand and gravel aquifers with demonstrated long-term productivity are known to be present in the general area of the Pine Bush Formation. Due to the reported marginal hydrogeologic characteristics of the Pine Bush Formation, and considering the fact that excess capacities and more favorable geological unit exist in the area, it is not feasible that this formation will ever be developed as a major public water supply source that is capable of providing a significant groundwater capacity.

6.0 EXISTING WATER QUALITY

The existing water quality of the Pine Bush Formation is known based on previous studies (notably the Snavely Report) and the historical water quality results from the groundwater monitoring wells which surround the City's landfills at the Rapp Road facility.

Snavely (1983) evaluated the groundwater quality of the Pine Bush Formation based on stream (groundwater discharge points) and groundwater samples for the Pine Bush area. A total of 11 stream locations, 8 private wells, and 17 observation wells were sampled. Chemical constituents of concern analyzed were limited to phosphorus, nitrogen, and chloride because of their association with septic effluent, road salting, and landfill contamination. Stream samples, collected under base flow conditions, had phosphorus concentrations ranging from 0.00 to 0.09 mg/l, nitrogen concentrations ranging from 0.01 to 2.0 mg/l, and chloride concentrations ranging from 26 to 150 mg/l. Groundwater samples had phosphorus concentrations ranging from 0.00 to 0.02 mg/l, and nitrogen concentrations ranging from 0.0 to 7.7 mg/l. The high nitrogen concentrations were attributed to septic tanks and nitrogen-rich groundwater. Chloride values in groundwater ranged from 1.1 to 340 mg/l, and higher chloride concentrations were found in the deeper wells suggesting a stratification of chloride in the groundwater. The highest chloride concentrations in groundwater were found in the central part of the Pine Bush near major highways, and these high chloride concentrations are attributed to road salting. Low chloride concentrations in groundwater were found in one location which was characterized as a remote location away from developments and major roads.

Environmental monitoring for groundwater monitoring well networks surrounding both the Greater Albany Landfill (GAL) and Albany Interim Landfill (AIL) has been conducted by the City since the late 1980's. The following select reports serve to characterize the groundwater quality of the Pine Bush Formation in the vicinity of the GAL.

Smith and Mahoney (1991) performed a hydrogeologic report for the closure of the GAL. This report evaluated the groundwater quality of the Pine Bush Formation which

is referenced in the report as "sand units", and concludes that the GAL has had an impact upon the groundwater quality of the area. Parameters which have been elevated in groundwater are typical leachate constituents (i.e., iron, magnesium, manganese, sodium, turbidity, TDS, lead, total phenols, nitrate, ammonia, chloride, etc.). Volatile organic concentrations for benzene, toluene, methylene chloride, and chlorobenzene are reported to be elevated slightly above their respective maximum contaminant levels (MCLs) in several wells around the GAL. Both upgradient and downgradient wells (relative to the GAL) are reported to be impacted; this is stated to be either typical of the site's natural background water quality or the result of leachate mounding within the elevated landfill mass.

Engineering-Science (1991) conducted a Phase II investigation at the GAL to determine if hazardous waste were present at the site. Although hazardous wastes were not found, this Phase II scope of work was adequate to provide a site contamination assessment. Electromagnetic surveys around the perimeter of the landfill identified several conductive plumes which were confirmed by analytical data. Evidence of groundwater contamination within the Pine Bush Formation was reported to consist of chlorobenzene, benzene, and 16 metals, including arsenic, chromium, iron, lead, magnesium, manganese, and sodium. Releases of the organic compounds and metals into the groundwater were attributed to the GAL. The report states that solid waste leachate constituents are migrating radially outward from the landfill, in the direction of groundwater flow which is chiefly to the east, and to a lesser extent to the south. The potential for off-site migration of leachate constituents in groundwater was identified. Several groundwater users along Rapp Road were identified as potential off-site receptors of contaminated groundwater, however these residents were connected to municipal water as a mitigation measure during the original permit proceedings for the AIL. Thus, this potential off-site pathway via groundwater to residential wells was eliminated.

Smith and Mahoney summarized the 1993 through 1997 groundwater quality results for the AIL. Groundwater cross gradient from the GAL (i.e., MW-5 and MW-6 well clusters) was reported to have consistently shown the most leachate indicator parameters from 1993 to 1996 above their respective MCLs, such as turbidity, TDS, ammonia, iron, and sodium. Groundwater concentrations for chlorobenzene, silver, cadmium, chlorobenzene, p-dichlorobenzene, benzene and dichlorodifluoromethane

were also reported above their MCLs at these same locations. This groundwater contamination is attributed to the GAL. Due to the construction of the AIL Expansion between the AIL and GAL (known as the 'Wedge'), AIL monitoring well clusters 5 and 6 were decommissioned during the first quarter of 1997 and a new well cluster (8) was constructed downgradient of the Wedge. Elevated levels of some parameters in various wells in the vicinity of the AIL and Wedge were recorded during 1997: pH, turbidity, conductivity, color, total dissolved solids, ammonia-N, alkalinity, total phenols, iron, magnesium, manganese, sodium, nickel, sulfate and aluminum. Based on a review of the analytical results, it was determined that the AIL/Wedge groundwater monitoring results are not from operation of the lined AIL or Wedge, but rather from the GAL (Smith and Mahoney, 1997).

The above discussions demonstrate that (1) on a regional basis, groundwater from the Pine Bush Formation is of poor water quality and is susceptible to contamination by various anthropogenic sources, and (2) on a site-specific basis, the groundwater quality has been impacted by the release of solid waste leachate constituents from the GAL, an unlined landfill that is closed.

7.0 DISCUSSION

The Pine Bush Formation is not known to be highly productive. This is demonstrated by the lack of any public water supply development within the formation, and on the basis of numerous studies that are cited herein. The ability of the Pine Bush Formation to yield a minimum of 500,000 to 1,000,000 gallons per day of groundwater has not been demonstrated by any of studies conducted to date. Although a theoretical calculation possibly could be made to demonstrate that the Formation meets this minimum yield, a more practical assessment, taking into account the marginal nature of the formational sands, available land areas, and the large number of wells (with small screen slot size openings) that would be required to make such a demonstration, readily demonstrates that this minimum yield could not reasonably be satisfied by the Pine Bush Formation.

All of the cited reports, with the exception of Snavely (1983), indicate that the range of probable or known well yields from individual wells installed within the Pine Bush Formation is 10 to 100 gpm. This range of well yields is not adequate for a public water supply in the area. Snavely suggests that theoretical well yields of 150 to 600 gpm may be obtained from the Pine Bush Formation; however, the actual field testing data done by Snavely (with 6-inch diameter wells) in no way substantiates this hypothesis. Maximum well yields of 48 to 58 gpm, with considerable drawdown after 24 hours, were obtained by Snavely from two wells optimally sited and designed in the Pine Bush Formation. These actual yields by Snavely (1983) are within the range of probable or known well yields of 10 to 100 gpm, which are concluded to be characteristic of the Pine Bush Formation.

The geology of the Pine Bush Formation does not suggest an abundant source of groundwater. It is characterized as eolian and lacustrine fine to medium sands that grade vertically into finer grained lacustrine sediments (e.g., silt and clay). Based upon extensive experience with the investigation and design of public (and private) water supply systems, the presence of such fine grained sands that lack the potential for connectivity with coarser sediments (e.g., coarse sand, gravel, boulders) would effectively result in the rejection of the formation within the test boring or preliminary phase of a groundwater supply investigation. This is borne out by actual groundwater studies conducted by the Town of Guilderland in the Pine Bush Formation. At best,

due to the relatively low transmissivity of the formation and the resultant high drawdown during pumping conditions, it would be necessary to have many groundwater wells, spaced relatively close together, in order to yield limited amounts of groundwater. These facts do not suggest an abundant source of groundwater within the Pine Bush Formation.

Furthermore, the existing water quality of the Pine Bush Formation is generally poor, as demonstrated by the Snavely (1983) report and the history of environmental monitoring at the City's Rapp Road facility. This is in substantial part due to the fact that the formation is primarily an unconfined or water table formation that is susceptible to contamination from surface sources, such as septic waste and road salting. At the City's Rapp Road facility, and more specifically around the Greater Albany Landfill (GAL), which is a closed 80 acre unlined solid waste landfill, the water quality is of poor quality. Even if the formation was more coarse grained and more highly connected to highly transmissive zones, it would not be possible to develop a public water supply well of any kind on or near this unlined solid waste landfill facility.

Based upon the above, it is not reasonable to assume that the Pine Bush Formation is a primary aquifer of the future. Clearly, the Pine Bush Formation will never become a primary aquifer. The Pine Bush Formation does not meet the threshold criteria applicable to a primary aquifer in that it physically is unable to be highly productive for a major municipal water supply system. Considering the extensive land development and population growth that has already taken place within the Pine Bush, it is reasonable to assume that if the Pine Bush Formation had the distinguishing characteristics of either a primary or principal aquifer, then it already would have been developed as one by now. Neither the City of Albany, Town of Guilderland, or Town of Colonie presently utilize the Pine Bush Formation as a source of groundwater in any way, and, based on contacts with each of the municipalities, no public water supply districts plan to use the Pine Bush Formation in the future. It is a very remote possibility, at best, that a public groundwater supply would be developed as a supplemental source within the Pine Bush Formation. This is due to the presence of other known sources of water in the area, poor water quality and susceptibility to contamination, well yield limitations, the designation of the Pine Bush as a protected preserve and the real potential for an adverse impact due to lowering of the water table during pumping conditions, extensive land development over the Formation, the

presence of existing public water supply systems, and high maintenance and operational costs associated with a marginal groundwater supply system within a fine grained unconsolidated deposit.

The Pine Bush Formation does not meet the definitional criteria for a principal aquifer. The geology of the Pine Bush consists of fine-grained sediments in a lacustrine depositional environment; this geology does not suggest an abundant water supply potential. The available pumping test data from the Pine Bush Formation, which does not include long-term constant rate tests, indicate that only low yield production wells, at best, would be viable, and that these low yield wells would only serve to potentially supplement an already existing water supply system.

Past research efforts regarding the Pine Bush Formation support the conclusion that the Pine Bush Formation is not a principal aquifer. Arnow (1949) recommended the Formation as a shallow groundwater source for domestic and farm purposes. Hall and Company (1961) found that the Pine Bush Formation was not a viable groundwater source. Halberg et al (1964) did not identify the Formation as a likely deposit for future groundwater development. Heath (1964) identified the median well yield for the formation to be 4 gpm, with a range of 1 to 40 gpm. Kantrowitz and Snavely (1982) conservatively identified the aerial extent of the formation and estimated the range of well yields to be 10 to 50 gpm, with very low specific capacities. Dineen (1975) reported well yields in the Pine Bush Formation of 5 to 50 gpm, and did not recommend that the formation (consisting of wind-blown and lacustrine sands) be used for municipal water supply development. Malcolm Pirnie (1986) concluded that the Pine Bush Formation cannot produce "significant" or "practical" amounts of water, and that the formation is not suitable for a municipal water supply.

The notion that the Pine Bush Formation represents a deposit that could possibly provide a source of abundant water supply is embodied only in the one report by Snavely (1983) and within regional or state-wide mapping studies. These regional or state-wide mapping studies are overly conservative or protective of potential aquifer areas. The accuracy of these regional and state-wide studies is questionable, and they cannot be relied upon for groundwater management planning purposes; site specific studies are always needed to assess the accuracy of these regional or state-wide mapping studies. All other site-specific studies draw the conclusion that the geology

and other pertinent data for the Pine Bush Formation do not suggest the potential for abundant water supplies. Other surface water sources, and wells installed within deep buried channels or proximal to either the Mohawk or Hudson River, are mentioned as having the potential to yield significant quantities of water within the area of the Pine Bush Formation.

The Snavely report quantified the potential yields of wells installed within the Pine Bush Formation based on theoretical modeling alone, and based on theoretical numbers Snavely (1983) suggested that a production well could yield from 150 to 600 gpm. This prediction is unsubstantiated by actual production wells and is contradicted by other site specific studies, and more importantly by the lack of any municipal groundwater supply development within the Pine Bush Formation. Moreover, long-term constant rate pump tests, which are commonly done for marginal water-bearing formations, were not performed as part of this study which raises serious skeptism of the theoretical analysis. The Snavely (1983) report's estimated well yields are believed to be inaccurate and overly conservative for the following reasons:

1. The Pine Bush Formation is not one, homogeneous medium throughout its entire thickness (from ground surface to the top of the clay unit); but rather the formation is composed of distinct hydrogeological units or facies. It is stratified, grades downward into finer grained deposits, and contains layers of silt and clay that increase in frequency at depth. Additionally, individual units vary in composition horizontally. It is generally agreed that the Pine Bush Formation consists of an upper fine grained, dune sand unit underlain by a silty lacustrine sand unit.

2. The finite-difference model used by Snavely assumes that the well is fully penetrating. This assumption is not appropriate, since an actual well installed in the formation would not have a screened interval installed to the base of the formation; it would be partially penetrating, and the screened interval would be selected to correspond to the thicker and coarser portions of the formation (not the entire formation). This is particularly true for unconfined aquifers (Freeze and Cherry, 1979).

3. The assigned hydraulic conductivities of 25, 50 and 100 ft./day are not characteristic of the formation. Based upon work conducted by Malcolm Pirnie (1988), hydraulic conductivities in the upper sands average 50 ft./day, while the lower silty sand or glaciolacustrine sand, which tends to form a large portion of the saturated thickness for the formation, averages 0.026 ft./day.

4. The model simulation done by Snavely assumes that a drawdown of 80 percent of the saturated thickness (50 feet) for the entire formation is the maximum allowable drawdown indicative of the maximum allowable pumping rate. This amount of drawdown is not desirable, usually for a water table formation drawdown should not exceed 50 percent of the saturated thickness. Moreover, collectively lumping the lower silty sands with the upper more permeable sands is not appropriate, and 50 feet of available drawdown is not available throughout the entire formation.

5. The model does not take into account well efficiency.

Clearly there are also other factors that contribute to the lack of groundwater supply development within the Pine Bush Formation. These factors include the presence of existing municipal water systems having other sources that are available throughout the Pine Bush, the susceptibility of the unconfined formation to potential sources of surface contamination, the designation of the Pine Bush as a protected nature preserve, and the extensive amount of development that has taken place in the area.

The Pine Bush Formation is not a principal aquifer, and it has been improperly designated by NYSDEC. This improper designation of the Pine Bush Formation as a principal aquifer by NYSDEC occurred in the mid to late 1980's, when NYSDEC and other federal agencies identified possible groundwater resources for protection from potential sources of contamination. These efforts were overly protective and conservative; large areas for protection were identified based on reconnaissance level mapping and limited site specific data. A more recent groundwater protection effort by NYSDEC (1998) identifies primary aquifers as the highest priority groundwater systems in the state, while not mentioning or further protecting principal aquifers.

Pine Bush Preserve

The unique geological history of the Pine Bush Formation is responsible for the development of the Pine Bush habitat which is protected and recognized as an important ecological area. Due to anticipated significant lowering of the groundwater table associated with potential groundwater withdrawal from the formation, and the resultant adverse impact to the critical habitat of the Pine Bush (i.e., lowering the water table and reducing the size and duration of inundation in low lying areas), it is unlikely that a water supply permit application would be granted for a proposed groundwater municipal system within the Pine Bush Formation. There are many wetlands in the Pine Bush that are representative of groundwater recharge/discharge points, and their ecological balance, in substantial part, is dependent upon maintaining the natural water table elevation. Even the vegetation in upland areas could be adversely impacted by a lowered water table. Furthermore, the estimated technical and legal costs alone associated with such a proposal could serve to deter a potential water supply application from being made in the first place.

Partial Declassification

While it is thought that this report substantiates the declassification of the entire Pine Bush Formation as a principal aquifer, it is recognized that there may be a reluctance on the part of NYSDEC to do this. Therefore, and in the absence of a total declassification of the Pine Bush Formation as a principal aquifer, a partial declassification is requested. This partial declassification would exclude the City's Rapp Road property (see Figure 1) from the area designated as a principal aquifer. The Rapp Road property has been used for solid waste management (i.e., landfilling and transfer station) since the mid-1970's, and the City plans to continue to utilize the property for solid waste management plans in the future. This waste management land use is not compatible with water supply development. No groundwater supply development will ever occur on this Rapp Road property.

8.0 SUMMARY

- This report substantiates the declassification of the Pine Bush Formation as a principal aquifer. The Pine Bush Formation does not have the capacity to serve as a future source public water supply source, and it was improperly classified as a principal aquifer by NYDEC.

- In the absence of a total declassification of the Pine Bush Formation as a principal aquifer, this report justifies the exclusion of the City's Rapp Road property (which is surrounded by Pine Bush Preserve lands) from the area designated as a principal aquifer. The City's Rapp Road property does not overlay a principal aquifer area.

Prepared By: _____

John S. Munsey, P.G.
Managing Scientist & Principal

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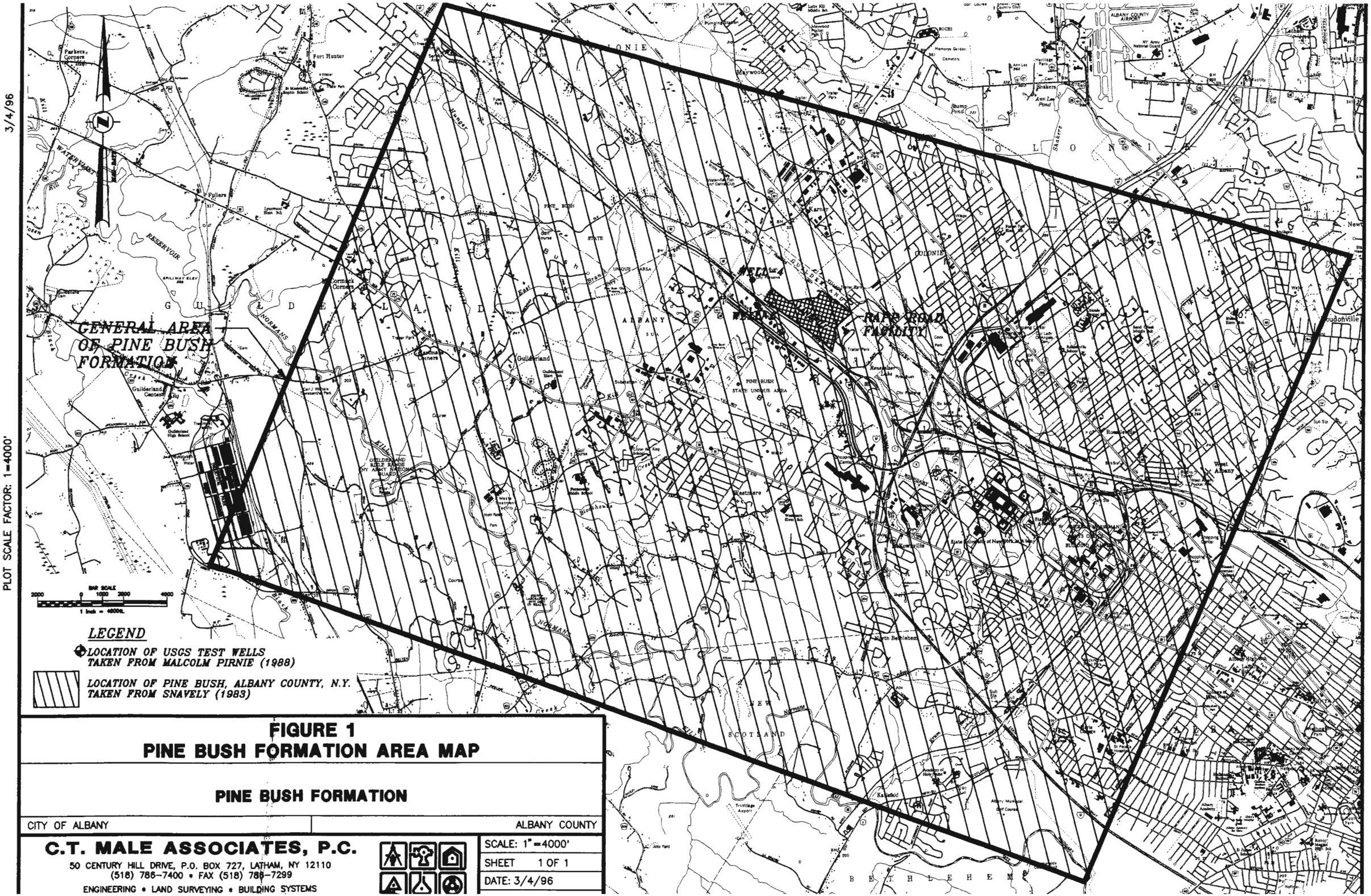

FIGURE 1
PINE BUSH FORMATION AREA MAP

PINE BUSH FORMATION

CITY OF ALBANY	ALBANY COUNTY

C.T. MALE ASSOCIATES, P.C.

50 CENTURY HILL DRIVE, P.O. BOX 727, LATHAM, NY 12110
(518) 786-7400 • FAX (518) 786-7299
ENGINEERING • LAND SURVEYING • BUILDING SYSTEMS

SCALE: 1"=4000'
SHEET 1 OF 1
DATE: 3/4/96

Engineering, Operations & Landscape Plan Drawings Eastern Landfill Expansion

City of Albany Rapp Road Solid Waste Management Facility

CHA Project Number: 12206

Prepared for:

The City of Albany, New York

Prepared by:

Clough, Harbour & Associates LLP
III Winners Circle
Albany, New York 12205
(518) 453-4500

July 30, 2007

Engineering, Operations and Landscape Plan Drawings included as part of this 6 NYCRR Part 360 Solid Waste Management Facility Permit Application have been prepared as a separate set of rolled drawings bearing the title "Rapp Road Landfill Eastern Expansion" and dated April 2007.

Engineering Report
Eastern Landfill Expansion

City of Albany Rapp Road Solid Waste Management Facility

CHA Project Number: 12206

Prepared for:

The City of Albany, New York

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July 30, 2007

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1.0 INTRODUCTION

1.1 History

The Greater Albany Landfill (GAL) operated from the 1970's until 1991 and represents the first phase of landfilling at the Rapp Road Solid Waste Management Facility. It is an unlined 80± acre landfill that was closed (i.e., capped) pursuant to an Order on Consent with DEC. The Albany Interim Landfill (AIL), which represents the second phase of landfilling, is a 14± acre double-composite lined landfill (5 cells) located north of the GAL. It was constructed in 1990-91 and started operation in October 1991. Some perimeter side slopes of the AIL have been capped, and its top portion is still active. The 8.7± acre AIL Expansion (1 cell) is the third phase of landfilling which is tied into the double composite liner system of the AIL. It was constructed in 1997 as a "piggyback" overliner on top of the GAL and provided additional air space in the valley-shaped area between the closed GAL and operating AIL (the Wedge). The P-4 Project consisting of five cells constructed in two phases was completed in the fall of 2003.

Collectively, the AIL and AIL Expansion comprise one connected volumetric space, which is simply referred to herein as the AIL. The AIL has a double composite liner and primary and secondary leachate collection systems.

The AIL has a Part 360 permit (DEC #4-0101-00171/00011) which was granted by the DEC on February 29, 2000, and subsequently modified by the DEC on May 28, 2004. An application for renewal was submitted on April 28, 2005 in accordance with the permitee obligations as stated on Page 2 of the Part 360 permit.

1.2 Purpose

The proposed solid waste landfill expansion, known as the Eastern Landfill Expansion project, is located in the eastern quadrant of the Rapp Road property. The Eastern Landfill Expansion project is a horizontal expansion, and it represents the fifth phase of landfilling at the Rapp Road Solid Waste Management Facility.

The City of Albany, on behalf of the Albany New York Solid Waste Energy Recovery System (ANSWERS) Solid Waste Management Planning Unit, seeks to increase solid waste disposal capacity at the Rapp Road Facility. The intent of this action is to provide additional solid waste disposal capacity for the ANSWERS Planning Unit while a permit for a long range landfill continues to be pursued, consistent with the continuing objective of maximizing solid waste disposal capacity at the Rapp Road solid waste management facility.

1.3 Description

The Eastern Landfill Expansion will involve an overfill of approximately 22 acres of the existing landfill and a lateral expansion of approximately 14 acres onto the adjacent City-owned property. The City proposes to relocate existing landfill infrastructure including offices, the recycling building, and other accessory uses to several parcels totaling approximately 3.5 acres located directly east of the landfill entrance road off of Rapp Road. An approximately 1 acre remnant parcel of land owned by the State of New York, under the jurisdiction of the Department of Transportation, would be required to access the relocated landfill operations off of Rapp Road.

The potential solid waste capacity of the Eastern Landfill Expansion is estimated to be 2,925,000 cubic yards which is currently anticipated to provide 6.5 years of disposal capacity for the ANSWERS Planning Unit.

The proposed expansion project is located in the eastern region of the Rapp Road property, north and east of the AIL cells 10 and 11. A double composite liner and primary and secondary leachate collection systems will be constructed for the horizontal expansion area and tied into the existing liner and leachate collection systems for the AIL. The secondary leachate collection system for the Eastern Landfill Expansion will be monitored independent of the existing leachate collection and detection systems of the AIL. Leachate will be pumped into the existing leachate tanks, tested, and ultimately sent via existing piping to the Albany County Sewer District for treatment.

Upon closure, the Eastern Landfill Expansion will extend the finished height of the landfill to approximately 474 feet above mean sea level.

Phasing of the Rapp Road Landfill Eastern Expansion construction will be necessary to allow continued landfilling operations and continued operation of vital landfill systems including the leachate collection system and the landfill gas control system.

Demolition of existing infrastructure and modification and new construction associated with the leachate collection and gas control systems will take place at the front end of construction to allow continued use of these systems during construction. New landfill cell construction will follow; and may occur in two phases divided with respect to the drainage areas for the proposed leachate sumps.

Construction activities, equipment, and materials will be staged to allow for continuous access for waste haulers to the existing landfill area.

1.3.1 Population Centers

The Eastern Landfill Expansion project will involve the expansion of the existing City of Albany Rapp Road Landfill onto City-owned lands located north and east of the existing landfill in order to continue to meet the solid waste disposal needs of City residents and businesses as well as the communities that make up the Albany New York Solid Waste Energy Recovery System (ANSWERS) Solid Waste Management Planning Unit, and the Capital Region as a whole. ANSWERS is comprised of a consortium of communities that include the cities of Albany, Rensselaer and Watervliet, the Towns of Berne, Bethlehem, Guilderland, Knox, New Scotland, Rensselaerville, and Westerlo, and the Villages of Green Island and Altamont.

1.4 Current Landfill Operations and Capacity

The City currently accepts about 1250 tons of solid waste and cover material per day (permit limit is 1050 tons of solid waste). Calculations based on a topographic survey performed in March 2007 indicate that approximately 765,000 cubic yards of air space was available at the time of the survey. Using a municipal solid waste density of 1,500 pounds per cubic yard and

the current monthly acceptance rate, the remaining air space within the operating facility will be depleted entirely by mid-to-late November 2009.

Calculations based on the March 2007 survey, and all previous volume surveys, indicate consistently achieved waste densities of greater than 1,500 pounds per cubic yard. The increased waste densities are due in part to upgrades in landfill equipment and waste placement procedures.

On March 8, 1999 the DEC modified the existing permit for the facility by removing the requirement for an on-site environmental monitor. Therefore, current operations are without DEC monitoring, as will be future operations, unless otherwise required by DEC at some later date.

1.4.1 Machinery and Equipment

The machinery and equipment used at the Rapp Road Solid Waste Management Facility:

Machinery/ Equipment	Quantity of Equipment	Type
Wheel Loader	2	2000 John Deere Model 744 2002 John Deere Model 544H
Compactor	4	1989 Caterpillar Model 826 1996 Caterpillar Model 836 2000 CMI Model 35C 2006 Caterpillar Model 836
Dozer	2	1995 Caterpillar Model D4 2006 Caterpillar Model D6R
Track Loader	2	1998 Caterpillar Model 973 2005 Caterpillar Model 973
Excavator	2	2001 John Deere Model 220 2006 Caterpillar Model 330
Waste Shredder	1	2004 Diamond Z Model SWG
Posishell Applicator	1	1997 Caterpillar Model D250E
Mower	1	1992 Deweeze
Skid Steer	1	2004 Bobcat
Litter Vac	1	2003 OBD
Tanker Truck (fuel)	1	1987 International

This equipment will continue to receive routine maintenance by the City of Albany mechanics so that few breakdowns occur. In the event of a breakdown that cannot be immediately repaired by the City of Albany Staff, the City of Albany will rent a similar machine. This practice is currently in use and a replacement machine usually arrives on the site in less than one day.

A grader, located at the DGS Facility (One Conners Boulevard, Albany) has also been dedicated for use at the Landfill and will be mobilized to the site on an as-needed basis. Additional DGS equipment such as backhoes and various sizes of trucks are available on an as-needed basis.

1.5 Transportation Systems and Routes

The Rapp Road Solid Waste Management Facility is located off of Rapp Road, approximately 0.25 miles north of Washington Avenue Extension. Entrance to the site is by an existing two lane paved road. All truck traffic must access the site via Washington Avenue Extension to Rapp Road. No truck traffic related to the landfill is permitted on Rapp Road north of the landfill entrance.

Washington Avenue Extension is a four-lane, divided highway with a posted speed limit of 55 miles per hour (mph). Washington Avenue Extension approaches are well suited to handle large truck traffic as they contain two through lanes and separate left and right turn lanes. The signal system provides for protected left turn phases to facilitate movement through the intersection. The right turn lane allows large trucks to decelerate and queue up prior to entering Rapp Road. Rapp Road contains two lanes both north and south of the intersection with a posted speed limit of 30 miles per hour.

Traffic generated by landfill personnel consists of 26 employees working 3 shifts during normal operating hours (M-F 7:00 am to 3:30 pm) and two backshift employees. Other activities at the site such as maintenance of heavy City vehicles not related to landfill operations will continue under current conditions.

The current range of traffic volumes entering the site is 50 to 100 vehicles per day based on City of Albany records for Rapp Road Facility. Traffic to the site depends on the volume or tonnage of municipal solid waste entering the facility and will be consistent with the volume currently experienced due to the landfill operations. The approved capacity of the Albany Interim Landfill is currently 1,050 tons of solid waste per day (based on a rolling 30 day average), and no change or increase to this existing rate is proposed.

All waste haulers will enter the landfill site using the existing site access road. Trucks will proceed to the scales where incoming loads will be weighed before entering the landfill area. The expansion area will be initially accessed by waste haulers from the southeast corner. Haulers will enter the landfill cell, deposit solid waste near the working face, and exit the landfill.

2.0 PROPOSED SITE ANALYSIS

2.1 Facility Layout

The subgrade locations and elevations were selected considering the base liner elevation of AIL cells 1, 10 and 11 and the seasonal high groundwater level at the site. The following criteria, as required by Part 360, were also met:

- Maintain 10 foot buffer between bedrock and bottom of the lining system.
- Maintain 5 foot buffer between maximum groundwater elevation and the bottom of the lining system.
- Provide minimum 2% slope within lined area.
- Provide maximum 3:1 liner and cover system slopes.
- Provide minimum post-settlement slope of 1 % on all piping.

2.2 Subgrade

2.2.1 General

The existing topsoil layer on the east side expansion site will be stripped and stockpiled. Excavated materials will be utilized, as appropriate, for landfill operations.

The top 12 inches of the subgrade in the horizontal expansion will be compacted to 90% modified Proctor maximum dry density. Embankment construction and intermediate grading that is necessary to reach subgrade elevations, must be compacted to 90% modified Proctor maximum dry density. A minimum of nine (9) moisture/density field tests will be performed per acre per lift in order to provide certification of the required compaction.

2.2.2 Subgrade Preparation

The site of the east side expansion will be cut and filled as necessary to achieve the design grades shown on the permit drawings, as well as a 2% minimum slope. A NYS licensed land surveyor will be required to provide certification of subgrade as-built conditions, to a tolerance of 1± inch, to the Project Engineer.

2.3 Liner Components

A double composite liner will be installed over those areas of the footprint which have not been previously landfilled (i.e., the new horizontal expansion area).

The proposed liner system for the horizontal expansion area consists of the following components:

- Secondary Clay Liner;
- Secondary HDPE Geomembrane;
- Secondary Leachate Collection Layer;
- Secondary Leachate Collection Piping;
- Structural Layer;
- Primary Geosynthetic Clay Liner;
- Primary HDPE Geomembrane;
- Primary Leachate Collection Layer; and
- Primary Leachate Collection Piping.

2.3.1 Secondary Clay Liner

The secondary clay layer for the horizontal expansion will consist of 24 inches of low permeability soil. The minimum compaction required will be 90% of the modified Proctor maximum dry density to provide a maximum hydraulic conductivity of 1×10^{-7} cm/sec. The soil will be applied in lifts having a compacted thickness of 6 inches. QA/QC testing will be

performed at the frequencies specified in Section 02208 of the Technical Specifications and in Section 3.7.3 of the Construction Quality Assurance/ Quality Control Plan. The QA/QC testing requirements meet or exceed the requirements of 6 NYCRR Part 360.

2.3.2 Secondary HDPE Geomembrane

The secondary HDPE liner will have a minimum thickness of 60 mils. All of the geomembrane will have a textured finish on both sides in order to provide a higher friction angle for improved slope stability. The liner will be welded by approved methods. The QA/QC program will be followed for the liner installation in accordance with 6 NYCRR Part 360 and as specified in Section 02212 of the Technical Specifications and Section 3.7.4 of the Construction Quality Assurance/ Quality Control Plan.

2.3.3 Secondary Leachate Collection Layer

The secondary leachate collection layer will be installed over the secondary HDPE geomembrane. The layer will be composed of 12 inches of granular soil with a minimum permeability of 1×10^{-2} cm/sec when compacted to 90% modified Proctor maximum dry density. The granular soil will be installed in one 12 inch lift. QA/QC testing will be performed at the frequencies specified in Section 02207 of the Technical Specifications and Section 3.7.5 of the Construction Quality Assurance/ Quality Control Plan.

2.3.4 Secondary Leachate Collection Piping

A network of slotted 4 and 6 inch SDR 17 HDPE pipe wrapped in stone and geotextile will drain the secondary leachate collection layer. Outside the limits of the liner, the leachate from the secondary collection system will be carried to a pump station in 6 inches DR 17 HDPE piping contained within an outer 10 inch DR 17 HDPE pipe. Details for the penetration of the liner system by the leachate collection piping are shown on the permit plans.

2.3.5 Structural Fill Layer

A 12 inch structural fill layer will be constructed below the primary geosynthetic clay liner within the double composite lined area. The layer will consist of 12 inches of granular material at a minimum in place density of 90% modified Proctor maximum dry density. Density testing will be performed at a minimum rate of 9 per acre.

2.3.6 Primary Geosynthetic Clay Liner

A geosynthetic clay liner (GCL) will be used in place of the required 6 inch low permeability soil component in the primary double composite liner system. The GCL will be a shear reinforced geosynthetic clay liner composed of bentonite clay sandwiched between two nonwoven geotextiles, and needle-punched for increased internal shear resistance.

2.3.7 Primary HDPE Geomembrane

The primary HDPE liner will be a minimum of 60 millimeters thickness, and of a textured finish on both sides in order to provide for a higher interface friction angle for improved slope stability. The new HDPE geomembrane will be welded by approved methods. A QA/QC program will be conducted as specified in Section 2.3.2, above.

2.3.8 Primary Leachate Collection Layer

The primary leachate collection layer will be installed over the primary HDPE geomembrane. The layer will be composed of 24 inches of granular soil with a minimum permeability of 1×10^{-2} cm/sec when compacted to 90% modified Proctor maximum dry density. The granular soil will be installed in one 24 inch lift. QA/QC testing will be performed at the frequencies specified in Section 02207 of the Technical Specifications and Section 3.7.5 of the Construction Quality Assurance/ Quality Control Plan.

2.3.9 Primary Leachate Collection Piping

The primary leachate collection piping will be 6 and 8 inch slotted SDR 17 HDPE pipe, as shown on the permit drawings. The design was based on pipe strength and hydraulic calculations contained in Appendix A. The leachate collection pipes will be constructed within a stone trench lined with geotextile. Stone proposed for use is crushed, screened, non-carbonate, NYSDOT No. 2 stone. The stone will exhibit an acid solubility no greater than 25% by ASTM D3042. The geotextile proposed to wrap the stone is a 10 oz/sy non-woven fabric. Pipes will be placed at the locations and slopes as shown on the permit drawings.

Outside the limits of the liner, the leachate from the primary collection system will be carried to a pump station in 8 inch SDR 17 HDPE piping contained within an outer 12 inch SDR 17 HDPE pipe. Details for the penetration of the liner system by the leachate collection piping are shown on the permit plans.

2.3.10 Geotextiles

The geotextiles in the liner design provide separation, filtration, and protection at their various locations. A 10 oz/ sy non-woven geotextile has been selected for use throughout the landfill construction.

2.3.11 Gas Collection Trenches and Piping

Gas collection trenches will be installed within select solid waste lifts, parallel to the slope and 100 feet apart, on center. The trenches will consist of a 6 inch slotted HDPE pipe, embedded in stone. The trenches will be at least 3 feet wide and extend at least 4 feet into the waste.

The gas collection pipes will be connected upon installation to the landfill gas collection system. HDPE gas collection header piping will be installed outside of the lined area to carry the newly collected gas to a as flare system the existing gas to energy system.

2.4 Leachate Collection Systems

2.4.1 General

In order to design the proposed leachate collection systems, and confirm their feasibility, potential leachate generation quantities were estimated and hydraulic calculations were performed. Primary leachate collection system maximum head and efficiencies were completed. Calculations to ensure the integrity of piping in the primary leachate collection system was also performed. These calculations are included in Appendix B.

2.4.2 Leachate Generation

Projected quantities of leachate for the Eastern Landfill Expansion Project were estimated using the Hydrologic Evaluation of Landfill Performance (H.E.L.P.) Model. Projected leachate quantities were estimated for three separate scenarios including the empty landfill, the landfill half full with solid waste, and the landfill closed and capped. The H.E.L.P. Model calculations are contained in Appendix C. The average leachate generation quantities for the three scenarios are as follows:

- Empty Landfill: 1,850 gal./ac./day
- Half Full Landfill: 1,525 gal./ac./day
- Capped Landfill: 0.5 gal./ac./day

The actual leachate generation records for the lined landfill cells at the Rapp Road Site were reviewed to confirm the accuracy of the estimated leachate quantities. Actual records show that a total of 22,037,153 gallons of leachate was collected from the 42 acres of lined landfill area from the beginning of 2006 through the end of April 2007. This translates to an average leachate generation rate of approximately 1,100 gal./ac./day. Given that the existing landfill is approaching final waste elevations, this actual generation rate correlates well with the estimated half full rate of 1,525 gal./ac./day that was calculated for the Eastern Expansion Project. The correlation also validates the empty landfill rate of 1,850 gal./ac./day, as the empty cell rate is

expected to be higher. The calculated empty landfill leachate generation rate also falls in the middle of generation rates, ranging from 1100 to 2700 gal/ac/day, cited by Dr. Robert Koerner at the NYSDEC/EPA Seminar for Advanced Landfill Design in August 1990.

2.4.3 Leachate Conveyance

The capacity of the 8 inch primary leachate gravity carrier pipe from the point of liner penetration to proposed pump station is considered to be the limiting section regarding pipe flow from the primary leachate collection system due to the minimum design slope of this section (0.5 % slope). Maximum flow in this pipe section was calculated to be approximately 330 gallons per minute (gpm) when flowing full. Calculations are included in Appendix D.

Based on a peak daily flow of 4,070 gal./ac./day for the empty landfill scenario as calculated using the H.E.L.P. Model, the peak flows from sump no. 1 and 2 of the Eastern Landfill Expansion were calculated based on cell drainage areas of 3.5 and 10.5 acres, respectively, for the sumps. The highest expected flow rate for sump No. 1 and 2 are approximately 10 gpm and 30 gpm, respectively, which can be handled by the proposed piping system.

2.5 Leachate Storage System

2.5.1 General

Leachate management for the existing landfill cells at the site includes leachate collection, sampling, testing, storage, and disposal. The existing systems consist of the leachate collection pipes, manholes, pump stations and storage tanks. Precipitation which falls on the landfill and reaches the primary liners, flows down the liners to one of the leachate collection pipes and by gravity through the manholes to the leachate pump stations, from where it is pumped via a force main to a single 522,000 gallon leachate storage tank. This same concept is proposed for the Eastern Landfill Expansion. The existing piping and pump stations will be modified as shown on the permit drawings to allow for construction of the proposed landfill cell.

Additional leachate storage capacity due to the additional leachate generation from the proposed Eastern Landfill Expansion will not be required because the City of Albany has developed an alternative to on-site leachate storage. The alternative is that the City of Albany has an executed agreement with the Albany County Sewer District to accept the leachate generated at the facility. Both the North and South Plants of the Albany County Sewer District are individually capable of treating 100% of the daily generation of leachate, and have agreed to accept this quantity of leachate. There is no set limit on the volume of leachate that can be accepted by the County.

The City of Albany has developed a sufficient analytical history of the leachate such that the Albany County Sewer District allows a direct discharge of the leachate to the sanitary sewer system. Currently, the 522,000 gallon storage tank acts as a "pass-through" tank to equalize the flow into the sewer system. If necessary, additional storage volume is available in the 552,000 gallon tank and the second 400,000 gallon tank on the site as a contingency measure.

Since the Albany County Sewer District will be accepting the leachate on a daily basis, the 522,000 gallon storage tank will be able to be maintained at not more than 50% full on a routine basis. If, after one year of operation of the Eastern Landfill Expansion, the NYSDEC determines that the existing leachate storage capacity is insufficient, the City of Albany will construct additional storage.

Features of the proposed leachate collection and storage system are shown on sheet G-16 of the permit drawings.

2.5.2 Monitoring

The volume of leachate in the storage tank will be monitored on a daily basis by recording the leachate as indicated by the level transmitter and converting this number to gallons using a conversion chart. The quantity of rainfall will also be recorded on a daily basis from a rain gauge mounted adjacent to the tank level indicator. The existing and proposed leachate collection systems will be inspected on a regular basis.

The existing and proposed leachate collection systems will be cleaned on an annual basis to prevent clogging and to assess the overall operation and performance of the systems. Access for cleaning will be provided by strategically located clean-outs.

2.5.3 Maximum Flows

Operation of the leachate storage will follow current operations. An agreement is in place with the Albany County Sewer District that will allow for discharge on a daily basis at the North Albany Plant, and if the North Plant cannot receive flow, the South Plant will serve as a contingency. The re-direction of leachate would require storage for, at the worst case, a three day weekend.

Using the average daily leachate generation rate of approximately 1,100 gal./ac./day (based on actual site records) for the existing 42 acres of lined landfill cells at the site, and the predicted empty landfill generation rate of 1,850 gal./ac./day for the 14 acre Eastern Landfill Expansion, a total daily leachate production rate of 72,100 gal./day is realized. This leachate flow is considered a worst case scenario, as leachate production in both the existing landfill cells and the proposed landfill will decrease as additional waste is placed at the site, and portions of the existing landfill are closed as they reach capacity.

Using the worst case leachate production rate of 72,100 gal./day and considering the available on-site storage volume of 952,000 gallons (between the two existing storage tanks), leachate could be stored on-site for a maximum period of approximately 13 days. This is more than sufficient time to allow for re-direction of leachate to the South Albany WWTP if required as a contingency measure.

2.6 Geotechnical Evaluation

2.6.1 Landfill Stability Analysis

A stability analysis was completed for the Eastern Landfill Expansion to ensure integrity of the liner system to provide containment of contaminants and protection of the environment over the operating life and post-closure period. A computer analysis was performed using GSLOPE Version 4 by the Mitre Software Corporation. The stability analysis was completed along a cross section of the proposed landfill cell considered to represent the critical section based on the designed cell geometry and subsurface soil conditions (Cross Section A-A' on the Permit Drawings). The stability analysis considered the following cases:

- Full depth excavation during landfill construction
- Final waste mass and cover system elevations at landfill closure

Geotechnical parameters for the site soils and solid waste were chosen for the analysis based on information from the borings and cone penetrometer testing performed at the site by CHA, site records of solid waste placement, and previous geotechnical investigations performed at the site by others.

Results of the analysis show a factor of safety against a global slope or bearing failure for the full depth excavation case during construction, and for the final waste mass and cover system elevations at landfill closure equal to or greater than 1.5.

Stability of the individual geosynthetic/soil interfaces within the landfill liner system was also analyzed to insure integrity of the containment system. Interface friction angles required to maintain a factor of safety of 1.5 were determined for the critical soil/geosynthetic interfaces in the liner system for incorporation into the technical specifications for the project.

Stability calculations and data are included in Appendix B.

2.6.2 Settlement Analysis

A settlement analysis was completed for the Eastern Landfill Expansion to ensure integrity of the liner and leachate collection systems to provide containment of contaminants effective

collection, conveyance, and disposal of leachate, and protection of the environment over the operating life and post-closure period. The rationale for the settlement analysis was to calculate settlement at strategic points in the proposed landfill cell based on the designed cell geometry, final waste height, and subsurface soil conditions that would result in a worst case effect on the liner with respect to differential settlement. The two points selected were along Cross Section A-A' (shown on the Permit Drawings) at the outer edge of the cell floor (adjacent to the proposed containment berm), and at the inner edge of the cell adjacent to the tie-in with the existing landfill.

The calculations performed show a differential settlement of approximately seven inches between the two points analyzed; with a higher amount of settlement on the inside edge of the landfill (adjacent to the tie-in with the existing landfill). Based on the geometry of the final waste elevations, as they directly correlate with settlement potential, the calculated differential settlement of seven inches would be considered typical between the inside and outside portions of the landfill cell.

Based on the settlement analysis performed, integrity of the liner system will not be compromised. The largest negative impact of differential settlement on the liner and leachate collection systems relates to leachate flow due to potential decrease in liner slope over time. The largest impacts will occur in areas where the floor of the landfill cell slopes most directly toward the outside perimeter berm. Based on the designed cell floor grading and the results of the settlement analysis, it is anticipated that limited portions of the cell floor may decrease in slope from 2.0 percent when the cell is initially constructed, to 1.8 percent when final waste elevations are achieved at landfill closure. Based on these results, the effect on liner and leachate collection system performance is considered negligible.

2.6.3 Seismic Analysis

A seismic stability analysis was performed using GSLOPE along Cross Section A-A', as it was determined to be the most critical geometry regarding slope stability. The program computes a pseudo-static factor of safety after incorporating inertial earthquake forces. The USGS

Earthquake Hazards Program Probabilistic Look-up by Zip Code indicates a peak horizontal bedrock acceleration with 2 % probability of exceedance in 50 years to be 0.11 g at the landfill site. This value was used in the pseudo-static analysis.

Bedrock accelerations are altered based on local soil conditions. It is estimated that the peak free field ground surface acceleration at the landfill site will be altered to approximately 0.11 g, considering the underlying soils. Studies have shown that bedrock accelerations generally remain un-altered by the waste mass, resulting in an estimated peak acceleration of 0.11 g at the top of the landfill.

The peak accelerations at the ground surface and at the top of the waste mass were determined using graphical representations of established relationships between maximum acceleration on bedrock and maximum ground accelerations for local soil conditions. The seismic analysis for is included in Appendix B.

The seismic analysis of the landfill considering the proposed waste mass elevations indicates a yield ground acceleration of approximately 0.09 g. The yield ground acceleration is defined as the acceleration that yields a pseudo-static safety factor of 1.0. The resulting ratio of the maximum acceleration at the top of the waste mass to the calculated yield acceleration is 0.82. Based on statistical correlation, a permanent displacement of up to 0.04 inches is predicted given the value of this ratio. Subsequently, the safety and integrity of the proposed landfill will not be compromised.

2.7 Groundwater Management

Groundwater management is addressed in the Environmental Monitoring Plan appended to the Hydrogeologic Report included in Section 8 of the 6 NYCRR Part 360 Application.

2.8 Storm Water Management Plan

In order to evaluate the potential impacts associated with the proposed development, existing condition and post-development hydrographs were generated for the site, using a type II rainfall distribution. Rainfall amounts were referenced from the "New York State Stormwater Management Design Manual," Chapter 4, August 2003. The 24-hour rainfall amount for the 25-year design storm is 5.0", respectively.

The runoff curve numbers and times of concentration were computed using NRCS TR-55 methodology. Peak stormwater flows and hydrographs for the existing and post development conditions were computed using the Haestad Method's Pondpack Hydrology Program (Version 10.0). Culverts and storm pipes were analyzed for flow capacity using Hasestad Method's CulvertMaster software.

2.8.1 Existing Condition Analysis

For the purposes of the existing condition analysis, four design points (DP-1, 2, 3, 4) were defined to characterize the natural drainage patterns of the site (See Figure 1 - Existing Condition Watershed Map). The design points were selected to assess the hydrology at several culvert and storm pipe crossings. Design points proceed from north to south along the roadway. DP-1 is located at the inlet of a 36" CMP, and contains one subarea (DA-1). DA-1 is located northeast of the landfill, and contains a mix of forested areas and developed area (Fox Run Estates) that discharge runoff to DP-1.

DP-2 is located at the inlet of a silt filled culvert of indeterminable size, and contains one subarea (DA-2). DA-2 is located east of the landfill and south of DA-1, and contains a mix of wetlands and forested area that runoff to DP-2.

DP-3 is located at the inlet of dual 18" culverts, and is contains three subareas (DA-3A, 3B, 3C). DA-3A is further divided into DA-3A1 which contains most of the existing landfill, and DA-3A2 which contains the existing facility and an adjacent 8.6 acre-foot detention basin (DA-3A2).

DA-3A1 contains capped and open landfill areas, and has been modeled as a capped landfill (open space in good condition) on hydrologic soil group C for this analysis. DA-3A2 contains mostly impervious area and open space (detention basin). DA-3B is located north of DA-3A1, and contains a mix of wetlands, forested area, and developed area (Fox Run Estates). DA-3C is located east of DA-3A, and is subdivided into DA-3C1 which contains mostly wetlands and forested area, and DA-3C2 which contains a mix of forested and developed area.

DP-4 is located at the inlet of a 36" storm pipe with a headwall, and contains one subarea (DA-4). DA-4 contains a capped portion of the landfill that drains southeast along the NYS Thruway to DP-4. All runoff from the landfill (DA-3A1 and DA-4) drains overland to respective drainage points.

The results of the existing condition analysis are shown in Table 1 below.

Table 1 - Existing Condition Analysis Summary

Design Point	Watershed	Area (acres)	Tc (hours)	Curve Number	Peak Flow Rate (cfs)
					25-year
DP-1	DA-1	46.8	0.4	57	39.7
DP-2	DA-2	17.9	0.8	71	23.7
DP-3	DA-3A1	64.8	0.6	67	79.7
	DA-3A2	9.4	0.4	79	3.3
	DA-3B	45.4	0.9	71	51.2
	DA-3C1	18.6	0.5	60	17.5
	DA-3C2	14.9	0.5	53	8.3
	Total	153.4	-	66	147.0
DP-4	DA-4	49.1	0.4	66	74.2

2.8.2 Proposed Condition Analysis

The Eastern Expansion of the landfill will result in a reduction of impervious area in watershed (DA-1), due to the conversion of an existing trailer park (Fox Run Estates) to brush and wetlands. A swale will be constructed north of the existing landfill and will reduce the amount of runoff flowing to the dual 18" culverts (DP-3). Flows to DP-2 and DP-4 will not change from existing to post-construction condition. The expansion of the landfill (DA-3A) will improve or maintain hydrologic soil class (modeled as HSG C) and alter existing impervious landcover (formerly DA-3A2) to pervious vegetated land. The project will also include major site grading within the landfill lateral expansion area. To assess the effect of these changes on the drainage patterns of the watershed, landcovers, hydrologic soil groups and drainage areas were altered accordingly and analyzed.

For the purposes of the proposed condition analysis, design points (DP-1, 2, 3, 4) were maintained to characterize the natural drainage patterns of the site (See Figure 2 - Post-Development Watershed Map).

Drainage areas from the existing condition analysis were adjusted as follows. Addition of a restoration stream through DA-1 and DA-3B increased contributing area to DA-1 and reduced the equivalent amount in area DA-3B. Impervious area was removed in DA-1 and replaced with wetland storage areas. DA-1 contains mostly wetlands and forested areas. DA-2 remained unchanged from the existing to proposed condition. DA-3A1 and 3A2 were merged into DA-3A and represent the entire landfill area and lateral expansion area, excluding a portion of the landfill which drains to the south (DA-4). The existing facility and detention basin (formerly DA-3A2) were removed to accommodate the lateral expansion. DA-3C1 remained unchanged from the existing to proposed condition. The overall area in DA-3C2 remained unchanged, however 2.6 acres of forested area was converted to impervious area. DA-4 remained unchanged from the existing to proposed condition. All runoff from the landfill (DA-3A1 and DA-4) drains overland to respective drainage points.

The results of the proposed condition analysis are shown in Table 2 below.

Table 2 - Proposed Condition Analysis Summary

Design Point	Watershed	Area (acres)	Tc (hours)	Curve Number	Peak Flow Rate (cfs)
					25-year
DP-1	DA-1	76.3	0.8	62	59.6
DP-2	DA-2	17.9	0.8	71	23.7
DP-3	DA-3A	73.0	0.4	72	156.6
	DA-3B	14.6	0.9	72	18.0
	DA-3C1	18.6	0.5	60	17.5
	DA-3C2	14.9	0.3	59	18.3
	Total	121.1	-	69	200.9
DP-4	DA-4	49.1	0.4	66	74.2

2.8.3 Proposed Mitigated Condition Analysis

As a result of the project, wetlands and vegetation will be added to DA-1. Addition of wetlands will increase storage within DA-1, and therefore reduce runoff flows to DP-1. Storage may be accounted for through an initial abstraction for storage, which accounts for added storage within a subarea by effectively adjusting (reducing) the subarea curve number. Ponding within wetland storage areas was assumed to occur to a depth of one foot. The results of the adjusted post-development analysis for DP-1 are shown in Table 3 below.

Table 3 – Adjusted Post-Development Analysis Summary

Design Point	Watershed	Area (acres)	Tc (hours)	Curve Number	Peak Flow Rate (cfs)
					25-year
DP-1	DA-1	76.3	0.8	53	28.8

The project will also include reestablishing native vegetation in and around the landfill area. For the purpose of the existing and proposed condition analysis, the landfill and lateral expansion area were considered to be capped, and were modeled as open space in good condition on hydrologic soil group C. Also, overfill of sand will occur within the landfill area. Addition of vegetation and overfill will improve the soil condition within the capped landfill and lateral expansion area. Therefore, the landfill and lateral expansion area were modeled in the proposed mitigated condition analysis as open space in good condition on hydrologic soil group B. Additionally, flows to DP-2 and DP-4 are constant from the existing to proposed condition. The results of the proposed mitigated condition analysis to DP-1 are shown in Table 4 below and detailed computations are included.

Table 4 - Proposed Mitigated Condition Analysis Summary

Design Point	Watershed	Area (acres)	Tc (hours)	Curve Number	Peak Flow Rate (cfs)
					25-year
DP-3	DA-3A	73.0	0.4	61	90.1
	DA-3B	14.6	0.9	72	18.0
	DA-3C1	18.6	0.5	60	17.5
	DA-3C2	14.9	0.3	59	18.3
	Total	121.1	-	69	135.4

As a result of the project, peak flowrates and runoff volumes will not be increased. Therefore, all on site culverts and storm pipes that provide safe conveyance for the 25-year storm in the existing condition will also provide safe conveyance for the proposed mitigated condition. Culverts and storm pipes at drainage points (DP-1, 2, 3, 4) were analyzed for size and capacity in regards to the existing 25-year, 24-hour storm. The 36” CMP at DP-1 is of adequate capacity to pass the 25-year storm. The culvert at DP-2 is silt filled and of indeterminable size. A culvert of 36” is required at DP-2, in order to adequately pass the 25-year storm. The existing dual 18” culverts are currently undersized to safely convey the 25-year storm. These culverts must be

replaced with two 24” CMP in order to safely convey a 25-year storm event. The 36” storm pipe at DP-4 currently provides safe conveyance; as such will remain as is.

2.9 Erosion and Sedimentation Control Plan

Standard methods of erosion and sedimentation control will be practiced during construction. These methods are described in the Technical Specifications and permit drawings. Long term controls will be provided by establishing vegetative cover in as many areas as practical within the project area and are identified on the permit drawings.

2.10 Landscape Plan

Landscaping will be in accordance with the facility's existing landscape management plans. After the Eastern Landfill Expansion construction is completed, all disturbed areas will be topsoiled and seeded, consistent with current existing conditions. At the end of landfilling, the Eatern Landfill Expansion area will be capped, topsoiled, and seeded, in compliance with the closure plan.

A seed mix will be used that contains species native to the Pine Bush. The following mix of species may be used: Indian Grass, Big Bluestem, Wild Blue Lupine, Round-Headed Bush Clover, and Annual Rye Grass. These species were selected in coordination with the Albany Pine Bush Preserve Commission, in a cooperative effort to select those species which were most appropriate to sustained growth on a landfill cap. These species are perennial, mowable, drought tolerant, and adept to growth on side slopes.

The growth of native Pine Bush species fits well into the long range site use plan, which is to support the native wildlife present within the area. No additional plans for future site use, aside from post-closure monitoring and gas to energy conversion are currently in planned.

2.11 Frost Protection

No additional measures for covering or insulating the lined area are proposed as a part of this permit application. The sand blanket, as well as the geosynthetic lining components are not susceptible to frost damage, and are, therefore, not a concern. The only area for the possible concern of frost damage is the secondary clay liner.

The concern for frost damage to the secondary clay liner is minimal for a number of reasons. First, the liner is overlain by 48 inches of drainage sand which will afford it insulation. Secondly, research has shown degradation in permeability after many freeze thaw cycles. However, the vast majority of the landfill liner will be covered with solid waste relatively quickly, leaving little possibility for exposure to many freeze thaw cycles. Research also shows that the permeability degradation repairs itself when the system is loaded (waste is applied to the cell).

2.12 Materials Protection

Daily inspection will be made of installed construction materials to ensure that the materials continue to meet specifications and are in compliance with the requirements of 6 NYCRR Part 360-2.13 from completion of construction to operation of the new landfill cell.

2.13 Gas Recovery System

The City of Albany plans to continue with the practice of active landfill gas collection for the AIL, including the Original AIL, Wedge, P-4 Project and Eastern Landfill Expansion. Details of the plans can be found in the Gas System Design Report.

3.0 CLOSURE AND POST-CLOSURE MAINTENANCE AND OPERATION

3.1 Closure Design

The conceptual closure design, developed in accordance with 6 NYCRR Part 360-2.15, is shown in plan and detail on the permit drawings. An approvable final closure plan will be submitted to the department within 60 days before the last receipt of waste, within 60 days before the last day of operating permit, or in accordance with permit requirements, whichever is earlier. The plan will comply with the requirements of Part 360-2.15(b).

In order to maximize landfill airspace, filling of the landfill will progress with side slopes of 33% (3H to 1V) up to an elevation of 460 feet. The remaining fill will produce a slope of 4% across the top of the landfill up to a maximum elevation of 474 feet. The final grading plan is provided on Drawing G-10 of the permit drawings.

For the side slope areas over 25%, the cap will consist of, from bottom to top, a 12 inch intermediate cover layer, a 40 mil LLDPE geomembrane, a 24 inch barrier protection layer, and a 6 inch topsoil (vegetative) layer.

For the top of the landfill, where final slopes will be less than 25%, a composite cap will be constructed. The composite cap will consist of, from bottom to top, a 12 inch intermediate cover layer, an 18 inch barrier soil layer, a 40 mil LLDPE geomembrane, a 24 inch barrier protection layer, and a 6 inch topsoil (vegetative) layer.

In both of the above cases, the 12 inch gas venting soil layer required by 6 NYCRR Part 360 has been eliminated, as active gas collection will be a part of the operational and post-closure plan for the expansion, and has been approved for the facility as an equivalent design by NYSDEC, upon issuance of the permit for the Wedge.

3.2 Post-Closure Monitoring

Post-closure water quality monitoring is addressed in detail within the Environmental Monitoring Plan appended to the Hydrogeological Report in Section 8 of the 6 NYCRR Part 360 Application.

Landfill gases will be controlled after closure by the active gas recovery system, which will continue to operate after closure. Perimeter gas collection will not be necessary while the recovery system is operational.

Drainage control structures will be maintained after closure, and erosion and/or sedimentation problems will be corrected as soon as possible. Regular weekly inspections by City personnel will identify potential drainage problems.

3.3 Closure of Leachate Collection and Storage

Closure of the system will be completed within 180 days after leachate collection has ceased, or when demonstration can be made by the owner that the leachate no longer poses a threat to human health or the environment, however, in no case will closure be made before the DEC waives the requirement set forth in Part 360-2.15(k)(5).

All solid waste will be removed from the tanks, connecting lines, and all associated secondary containment systems. All solid waste removed will be properly handled and disposed of according to Federal and State requirements, and all connecting lines will be disconnected and securely capped or plugged.

Access ways to the aboveground tanks will be securely fastened in place to prevent unauthorized access. Tanks will be stenciled with the date of permanent closure. The secondary containment system will be breached to provide for drainage with the approval of the DEC.

3.4 Closure of Gas Recovery System

The landfill gas recovery system will be operated and maintained by the City of Albany in accordance with all applicable federal, state and local regulations and permits until the DEC receives and approves, in writing, a request for its shutdown. If subsequent to the approved shutdown of the system, odor or methane problems or landfill gas pressure problems in the waste mass are identified by either the City, its engineering consultant, or by the DEC, the City will immediately either reactivate the existing active system or install and place an operational alternative system with appropriate air pollution controls as proposed to and approved by the DEC.

Upon final termination of operations of the landfill gas recovery system, a long-term gas monitoring program, to be approved by the DEC, will be developed and implemented which evaluates the migration of landfill gases off-site and excessive uplift forces under the landfill cap from gas pressures in the waste mass that may impact the cap's integrity.

APPENDIX A

Leachate/Liner Systems Calculations

Leachate Generation Calculations

```
******************************************************************************
******************************************************************************
**                                                                          **
**                                                                          **
**              HYDROLOGIC EVALUATION OF LANDFILL PERFORMANCE               **
**               HELP MODEL VERSION 3.01   (14 OCTOBER 1994)                **
**                  DEVELOPED BY ENVIRONMENTAL LABORATORY                   **
**                    USAE WATERWAYS EXPERIMENT STATION                     **
**             FOR USEPA RISK REDUCTION ENGINEERING LABORATORY              **
**                                                                          **
**                                                                          **
******************************************************************************
******************************************************************************


PRECIPITATION DATA FILE:     K:\12206\data\help3\DATAR4.D4
TEMPERATURE DATA FILE:       K:\12206\data\help3\DATAR7.D7
SOLAR RADIATION DATA FILE:   K:\12206\data\help3\DATAR13.D13
EVAPOTRANSPIRATION DATA:     K:\12206\data\help3\DATAR11.D11
SOIL AND DESIGN DATA FILE:   K:\12206\data\help3\Rapp01.D10
OUTPUT DATA FILE:            K:\12206\data\help3\Rapp01.OUT


TIME:  10:45     DATE:   5/ 8/2007


******************************************************************************

     TITLE:  Eastern Landfill Expansion - Empty Landfill

******************************************************************************


     NOTE:  INITIAL MOISTURE CONTENT OF THE LAYERS AND SNOW WATER WERE
              COMPUTED AS NEARLY STEADY-STATE VALUES BY THE PROGRAM.


                                  LAYER  1
                                  --------

                     TYPE 1 - VERTICAL PERCOLATION LAYER
                         MATERIAL TEXTURE NUMBER   1
          THICKNESS                  =     12.00   INCHES
          POROSITY                   =      0.4170 VOL/VOL
          FIELD CAPACITY             =      0.0450 VOL/VOL
          WILTING POINT              =      0.0180 VOL/VOL
          INITIAL SOIL WATER CONTENT =      0.1208 VOL/VOL
          EFFECTIVE SAT. HYD. COND.  =  0.999999978000E-02 CM/SEC
```

LAYER 2

TYPE 2 - LATERAL DRAINAGE LAYER
MATERIAL TEXTURE NUMBER 1

THICKNESS	=	12.00	INCHES
POROSITY	=	0.4170	VOL/VOL
FIELD CAPACITY	=	0.0450	VOL/VOL
WILTING POINT	=	0.0180	VOL/VOL
INITIAL SOIL WATER CONTENT	=	0.4082	VOL/VOL
EFFECTIVE SAT. HYD. COND.	=	0.999999978000E-02	CM/SEC
SLOPE	=	2.00	PERCENT
DRAINAGE LENGTH	=	140.0	FEET

LAYER 3

TYPE 4 - FLEXIBLE MEMBRANE LINER
MATERIAL TEXTURE NUMBER 35

THICKNESS	=	0.06	INCHES
POROSITY	=	0.0000	VOL/VOL
FIELD CAPACITY	=	0.0000	VOL/VOL
WILTING POINT	=	0.0000	VOL/VOL
INITIAL SOIL WATER CONTENT	=	0.0000	VOL/VOL
EFFECTIVE SAT. HYD. COND.	=	0.199999996000E-12	CM/SEC
FML PINHOLE DENSITY	=	1.00	HOLES/ACRE
FML INSTALLATION DEFECTS	=	4.00	HOLES/ACRE
FML PLACEMENT QUALITY	=	3 - GOOD	

LAYER 4

TYPE 3 - BARRIER SOIL LINER
MATERIAL TEXTURE NUMBER 17

THICKNESS	=	0.25	INCHES
POROSITY	=	0.7500	VOL/VOL
FIELD CAPACITY	=	0.7470	VOL/VOL
WILTING POINT	=	0.4000	VOL/VOL
INITIAL SOIL WATER CONTENT	=	0.7500	VOL/VOL
EFFECTIVE SAT. HYD. COND.	=	0.300000003000E-08	CM/SEC

LAYER 5

TYPE 1 - VERTICAL PERCOLATION LAYER
MATERIAL TEXTURE NUMBER 1

```
THICKNESS                    =     12.00   INCHES
POROSITY                     =      0.4170 VOL/VOL
FIELD CAPACITY               =      0.0450 VOL/VOL
WILTING POINT                =      0.0180 VOL/VOL
INITIAL SOIL WATER CONTENT   =      0.0452 VOL/VOL
EFFECTIVE SAT. HYD. COND.    =  0.999999978000E-02 CM/SEC
```

LAYER 6

TYPE 2 - LATERAL DRAINAGE LAYER
MATERIAL TEXTURE NUMBER 1

```
THICKNESS                    =     12.00   INCHES
POROSITY                     =      0.4170 VOL/VOL
FIELD CAPACITY               =      0.0450 VOL/VOL
WILTING POINT                =      0.0180 VOL/VOL
INITIAL SOIL WATER CONTENT   =      0.0450 VOL/VOL
EFFECTIVE SAT. HYD. COND.    =  0.999999978000E-02 CM/SEC
SLOPE                        =      2.00   PERCENT
DRAINAGE LENGTH              =    140.0    FEET
```

LAYER 7

TYPE 4 - FLEXIBLE MEMBRANE LINER
MATERIAL TEXTURE NUMBER 35

```
THICKNESS                    =      0.06   INCHES
POROSITY                     =      0.0000 VOL/VOL
FIELD CAPACITY               =      0.0000 VOL/VOL
WILTING POINT                =      0.0000 VOL/VOL
INITIAL SOIL WATER CONTENT   =      0.0000 VOL/VOL
EFFECTIVE SAT. HYD. COND.    =  0.199999996000E-12 CM/SEC
FML PINHOLE DENSITY          =      1.00   HOLES/ACRE
FML INSTALLATION DEFECTS     =      4.00   HOLES/ACRE
FML PLACEMENT QUALITY        =  3 - GOOD
```

LAYER 8

TYPE 3 - BARRIER SOIL LINER
MATERIAL TEXTURE NUMBER 16

```
THICKNESS                    =     24.00   INCHES
POROSITY                     =      0.4270 VOL/VOL
FIELD CAPACITY               =      0.4180 VOL/VOL
WILTING POINT                =      0.3670 VOL/VOL
INITIAL SOIL WATER CONTENT   =      0.4270 VOL/VOL
EFFECTIVE SAT. HYD. COND.    =  0.100000001000E-06 CM/SEC
```

GENERAL DESIGN AND EVAPORATIVE ZONE DATA

NOTE: SCS RUNOFF CURVE NUMBER WAS COMPUTED FROM DEFAULT SOIL DATA BASE USING SOIL TEXTURE # 1 WITH BARE GROUND CONDITIONS, A SURFACE SLOPE OF 2.% AND A SLOPE LENGTH OF 450. FEET.

SCS RUNOFF CURVE NUMBER	=	72.20	
FRACTION OF AREA ALLOWING RUNOFF	=	0.0	PERCENT
AREA PROJECTED ON HORIZONTAL PLANE	=	14.000	ACRES
EVAPORATIVE ZONE DEPTH	=	3.0	INCHES
INITIAL WATER IN EVAPORATIVE ZONE	=	0.536	INCHES
UPPER LIMIT OF EVAPORATIVE STORAGE	=	1.251	INCHES
LOWER LIMIT OF EVAPORATIVE STORAGE	=	0.054	INCHES
INITIAL SNOW WATER	=	0.000	INCHES
INITIAL WATER IN LAYER MATERIALS	=	17.865	INCHES
TOTAL INITIAL WATER	=	17.865	INCHES
TOTAL SUBSURFACE INFLOW	=	0.00	INCHES/YEAR

EVAPOTRANSPIRATION AND WEATHER DATA

NOTE: EVAPOTRANSPIRATION DATA WAS OBTAINED FROM
ALBANY NEW YORK

MAXIMUM LEAF AREA INDEX	=	0.00
START OF GROWING SEASON (JULIAN DATE)	=	123
END OF GROWING SEASON (JULIAN DATE)	=	282
AVERAGE ANNUAL WIND SPEED	=	8.90 MPH
AVERAGE 1ST QUARTER RELATIVE HUMIDITY	=	68.00 %
AVERAGE 2ND QUARTER RELATIVE HUMIDITY	=	66.00 %
AVERAGE 3RD QUARTER RELATIVE HUMIDITY	=	74.00 %
AVERAGE 4TH QUARTER RELATIVE HUMIDITY	=	74.00 %

NOTE: PRECIPITATION DATA FOR ALBANY NEW YORK
WAS ENTERED FROM THE DEFAULT DATA FILE.

NOTE: TEMPERATURE DATA WAS SYNTHETICALLY GENERATED USING
COEFFICIENTS FOR ALBANY NEW YORK

NORMAL MEAN MONTHLY TEMPERATURE (DEGREES FAHRENHEIT)

JAN/JUL	FEB/AUG	MAR/SEP	APR/OCT	MAY/NOV	JUN/DEC
21.10	23.40	33.80	46.60	57.50	66.70

71.40	69.20	61.20	50.50	39.30	26.50

NOTE: SOLAR RADIATION DATA WAS SYNTHETICALLY GENERATED USING
COEFFICIENTS FOR ALBANY NEW YORK

STATION LATITUDE = 42.45 DEGREES

****

ANNUAL TOTALS FOR YEAR 1974

	INCHES	CU. FEET	PERCENT
PRECIPITATION	38.47	1955045.620	100.00
RUNOFF	0.000	0.000	0.00
EVAPOTRANSPIRATION	17.451	886842.000	45.36
DRAINAGE COLLECTED FROM LAYER 2	21.0074	1067597.870	54.61
PERC./LEAKAGE THROUGH LAYER 4	0.003996	203.082	0.01
AVG. HEAD ON TOP OF LAYER 4	12.2723		
DRAINAGE COLLECTED FROM LAYER 6	0.0018	90.624	0.00
PERC./LEAKAGE THROUGH LAYER 8	0.000004	0.188	0.00
AVG. HEAD ON TOP OF LAYER 8	0.0006		
CHANGE IN WATER STORAGE	0.010	515.191	0.03
SOIL WATER AT START OF YEAR	17.865	907880.187	
SOIL WATER AT END OF YEAR	17.875	908395.375	
SNOW WATER AT START OF YEAR	0.000	0.000	0.00
SNOW WATER AT END OF YEAR	0.000	0.000	0.00
ANNUAL WATER BUDGET BALANCE	0.0000	-0.278	0.00

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ANNUAL TOTALS FOR YEAR 1975

	INCHES	CU. FEET	PERCENT
PRECIPITATION	47.05	2391081.250	100.00
RUNOFF	0.000	0.000	0.00
EVAPOTRANSPIRATION	17.026	865247.187	36.19
DRAINAGE COLLECTED FROM LAYER 2	28.7734	1462262.370	61.15
PERC./LEAKAGE THROUGH LAYER 4	0.005708	290.070	0.01
AVG. HEAD ON TOP OF LAYER 4	15.2127		
DRAINAGE COLLECTED FROM LAYER 6	0.0012	59.337	0.00
PERC./LEAKAGE THROUGH LAYER 8	0.000003	0.168	0.00
AVG. HEAD ON TOP OF LAYER 8	0.0004		
CHANGE IN WATER STORAGE	1.250	63512.168	2.66
SOIL WATER AT START OF YEAR	17.875	908395.375	
SOIL WATER AT END OF YEAR	17.277	878041.187	
SNOW WATER AT START OF YEAR	0.000	0.000	0.00
SNOW WATER AT END OF YEAR	1.847	93866.352	3.93
ANNUAL WATER BUDGET BALANCE	0.0000	-0.049	0.00

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ANNUAL TOTALS FOR YEAR 1976

	INCHES	CU. FEET	PERCENT
PRECIPITATION	42.54	2161883.250	100.00
RUNOFF	0.000	0.000	0.00
EVAPOTRANSPIRATION	17.025	865213.562	40.02
DRAINAGE COLLECTED FROM LAYER 2	27.4075	1392847.120	64.43
PERC./LEAKAGE THROUGH LAYER 4	0.005400	274.445	0.01
AVG. HEAD ON TOP OF LAYER 4	14.8543		
DRAINAGE COLLECTED FROM LAYER 6	0.0013	63.534	0.00

PERC./LEAKAGE THROUGH LAYER 8	0.000003	0.171	0.00
AVG. HEAD ON TOP OF LAYER 8	0.0004		
CHANGE IN WATER STORAGE	-1.894	-96241.961	-4.45
SOIL WATER AT START OF YEAR	17.277	878041.187	
SOIL WATER AT END OF YEAR	17.176	872897.562	
SNOW WATER AT START OF YEAR	1.847	93866.352	4.34
SNOW WATER AT END OF YEAR	0.054	2768.057	0.13
ANNUAL WATER BUDGET BALANCE	0.0000	0.732	0.00

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ANNUAL TOTALS FOR YEAR 1977

	INCHES	CU. FEET	PERCENT
PRECIPITATION	44.30	2251326.250	100.00
RUNOFF	0.000	0.000	0.00
EVAPOTRANSPIRATION	16.246	825597.375	36.67
DRAINAGE COLLECTED FROM LAYER 2	24.7375	1257160.000	55.84
PERC./LEAKAGE THROUGH LAYER 4	0.004824	245.181	0.01
AVG. HEAD ON TOP OF LAYER 4	13.5359		
DRAINAGE COLLECTED FROM LAYER 6	0.0026	129.972	0.01
PERC./LEAKAGE THROUGH LAYER 8	0.000004	0.211	0.00
AVG. HEAD ON TOP OF LAYER 8	0.0009		
CHANGE IN WATER STORAGE	3.314	168439.156	7.48
SOIL WATER AT START OF YEAR	17.176	872897.562	
SOIL WATER AT END OF YEAR	20.545	1044104.750	
SNOW WATER AT START OF YEAR	0.054	2768.057	0.12
SNOW WATER AT END OF YEAR	0.000	0.000	0.00
ANNUAL WATER BUDGET BALANCE	0.0000	-0.600	0.00

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ANNUAL TOTALS FOR YEAR 1978

	INCHES	CU. FEET	PERCENT
PRECIPITATION	33.46	1700437.750	100.00
RUNOFF	0.000	0.000	0.00
EVAPOTRANSPIRATION	14.531	738472.625	43.43
DRAINAGE COLLECTED FROM LAYER 2	22.0004	1118058.120	65.75
PERC./LEAKAGE THROUGH LAYER 4	0.004219	214.407	0.01
AVG. HEAD ON TOP OF LAYER 4	12.5568		
DRAINAGE COLLECTED FROM LAYER 6	0.0028	143.934	0.01
PERC./LEAKAGE THROUGH LAYER 8	0.000004	0.219	0.00
AVG. HEAD ON TOP OF LAYER 8	0.0010		
CHANGE IN WATER STORAGE	-3.074	-156238.500	-9.19
SOIL WATER AT START OF YEAR	20.545	1044104.750	
SOIL WATER AT END OF YEAR	17.016	864747.250	
SNOW WATER AT START OF YEAR	0.000	0.000	0.00
SNOW WATER AT END OF YEAR	0.455	23119.010	1.36
ANNUAL WATER BUDGET BALANCE	0.0000	1.357	0.00

****

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AVERAGE MONTHLY VALUES IN INCHES FOR YEARS 1974 THROUGH 1978

	JAN/JUL	FEB/AUG	MAR/SEP	APR/OCT	MAY/NOV	JUN/DEC
PRECIPITATION						

TOTALS	3.35	2.31	3.46	2.74	3.11	3.99
	4.15	4.25	4.22	3.99	2.78	2.81
STD. DEVIATIONS	1.97	0.97	1.48	0.82	1.15	1.00
	1.88	1.21	1.97	1.85	1.64	1.01

RUNOFF

TOTALS	0.000	0.000	0.000	0.000	0.000	0.000
	0.000	0.000	0.000	0.000	0.000	0.000
STD. DEVIATIONS	0.000	0.000	0.000	0.000	0.000	0.000
	0.000	0.000	0.000	0.000	0.000	0.000

EVAPOTRANSPIRATION

TOTALS	0.656	0.849	1.376	1.514	1.642	2.147
	1.863	1.900	1.631	1.312	0.962	0.604
STD. DEVIATIONS	0.089	0.257	0.332	0.483	0.798	0.261
	0.798	0.163	0.410	0.382	0.210	0.110

LATERAL DRAINAGE COLLECTED FROM LAYER 2

TOTALS	1.6826	1.6501	2.1063	2.3468	2.1064	1.6839
	1.9272	2.2159	2.1939	2.6396	2.3241	1.9083
STD. DEVIATIONS	0.9691	1.0406	0.6415	0.7057	0.6463	0.2371
	0.4636	0.5752	0.5381	0.8388	0.7763	0.7440

PERCOLATION/LEAKAGE THROUGH LAYER 4

TOTALS	0.0003	0.0003	0.0004	0.0005	0.0004	0.0003
	0.0004	0.0004	0.0004	0.0005	0.0005	0.0004
STD. DEVIATIONS	0.0002	0.0002	0.0001	0.0002	0.0001	0.0001
	0.0001	0.0001	0.0001	0.0002	0.0002	0.0002

LATERAL DRAINAGE COLLECTED FROM LAYER 6

TOTALS	0.0001	0.0002	0.0002	0.0002	0.0001	0.0002
	0.0002	0.0002	0.0002	0.0001	0.0001	0.0001
STD. DEVIATIONS	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001

PERCOLATION/LEAKAGE THROUGH LAYER 8

TOTALS	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
STD. DEVIATIONS	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

AVERAGES OF MONTHLY AVERAGED DAILY HEADS (INCHES)

DAILY AVERAGE HEAD ACROSS LAYER 4

AVERAGES	11.3987	11.9840	13.5641	15.2808	13.8401	12.1336
	12.9957	14.3924	14.5974	16.1618	15.1348	12.7535
STD. DEVIATIONS	4.6037	5.4846	3.1761	3.3776	3.1310	1.2994
	2.2679	2.6660	2.6185	3.7021	3.7630	3.7550

DAILY AVERAGE HEAD ACROSS LAYER 8

AVERAGES	0.0006	0.0008	0.0008	0.0006	0.0006	0.0007
	0.0008	0.0007	0.0007	0.0006	0.0005	0.0006
STD. DEVIATIONS	0.0003	0.0004	0.0005	0.0003	0.0004	0.0004
	0.0003	0.0004	0.0004	0.0005	0.0005	0.0006

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AVERAGE ANNUAL TOTALS & (STD. DEVIATIONS) FOR YEARS 1974 THROUGH 1978

	INCHES		CU. FEET	PERCENT
PRECIPITATION	41.16	(5.315)	2091954.7	100.00
RUNOFF	0.000	(0.0000)	0.00	0.000
EVAPOTRANSPIRATION	16.456	(1.1605)	836274.62	39.976
LATERAL DRAINAGE COLLECTED FROM LAYER 2	24.78522	(3.34704)	1259585.120	60.21092
PERCOLATION/LEAKAGE THROUGH FROM LAYER 4	0.00483	(0.00074)	245.437	0.01173
AVERAGE HEAD ACROSS TOP OF LAYER 4	13.686	(1.322)		
LATERAL DRAINAGE COLLECTED FROM LAYER 6	0.00192	(0.00075)	97.480	0.00466
PERCOLATION/LEAKAGE THROUGH FROM LAYER 8	0.00000	(0.00000)	0.191	0.00001
AVERAGE HEAD ACROSS TOP OF LAYER 8	0.001	(0.000)		
CHANGE IN WATER STORAGE	-0.079	(2.5276)	-4002.79	-0.191

****

PLCRS Inpingement : 24.79 in/yr. = 2.07 in/mo. = 5.25 cm/mo.

: 5.25 cm/mo. / 30.47 day/mo. / 24 hrs/day / 60 min/hr / 60 sec/min = 1.99×10^{-6} cm/sec.

PLCRS Flow = 1259585 ft^3/14 acres/yr.

= 1,844 Gal/Ac./Day

SLCRS Flow = 97.5 ft^3/14 Ac/yr.

= 0.14 Gal./Ac./day

Total Average Flow ≈ 1,850 Gal./Ac./Day

****

PEAK DAILY VALUES FOR YEARS 1974 THROUGH 1978

	(INCHES)	(CU. FT.)
PRECIPITATION	2.45	124509.000
RUNOFF	0.000	0.0000
DRAINAGE COLLECTED FROM LAYER 2	0.14989	7617.62842
PERCOLATION/LEAKAGE THROUGH LAYER 4	0.000031	1.59765
AVERAGE HEAD ACROSS LAYER 4	24.000	
DRAINAGE COLLECTED FROM LAYER 6	0.00001	0.66638
PERCOLATION/LEAKAGE THROUGH LAYER 8	0.000000	0.00076
AVERAGE HEAD ACROSS LAYER 8	0.002	
SNOW WATER	4.57	232369.9530

MAXIMUM VEG. SOIL WATER (VOL/VOL)	0.4170
MINIMUM VEG. SOIL WATER (VOL/VOL)	-0.0313

****

Peak PLCRS Flow (Daily) = 7617.6 ft^3 / 14 acres / day

= 4070 Gal. / ac. / day

****

FINAL WATER STORAGE AT END OF YEAR 1978

LAYER	(INCHES)	(VOL/VOL)
1	2.1440	0.1787
2	3.3399	0.2783
3	0.0000	0.0000
4	0.1875	0.7500
5	0.5559	0.0463
6	0.5406	0.0451
7	0.0000	0.0000
8	10.2480	0.4270
SNOW WATER	0.000	

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**                                                                          **
**                                                                          **
**              HYDROLOGIC EVALUATION OF LANDFILL PERFORMANCE               **
**               HELP MODEL VERSION 3.01   (14 OCTOBER 1994)                **
**                  DEVELOPED BY ENVIRONMENTAL LABORATORY                   **
**                    USAE WATERWAYS EXPERIMENT STATION                     **
**             FOR USEPA RISK REDUCTION ENGINEERING LABORATORY              **
**                                                                          **
**                                                                          **
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PRECIPITATION DATA FILE:     K:\12206\data\help3\DATAR4.D4
TEMPERATURE DATA FILE:       K:\12206\data\help3\DATAR7.D7
SOLAR RADIATION DATA FILE:   K:\12206\data\help3\DATAR13.D13
EVAPOTRANSPIRATION DATA:     K:\12206\data\help3\DATAR11.D11
SOIL AND DESIGN DATA FILE:   K:\12206\data\help3\Rapp02.D10
OUTPUT DATA FILE:            K:\12206\data\help3\Rapp02.OUT


TIME:  10:48     DATE:   5/ 8/2007


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     TITLE:  Eastern Landfil Expansion - Half Waste Height

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     NOTE:  INITIAL MOISTURE CONTENT OF THE LAYERS AND SNOW WATER WERE
              COMPUTED AS NEARLY STEADY-STATE VALUES BY THE PROGRAM.


                                  LAYER  1
                                  --------

                     TYPE 1 - VERTICAL PERCOLATION LAYER
                         MATERIAL TEXTURE NUMBER  18
          THICKNESS                    =    900.00   INCHES
          POROSITY                     =      0.6710 VOL/VOL
          FIELD CAPACITY               =      0.2920 VOL/VOL
          WILTING POINT                =      0.0770 VOL/VOL
          INITIAL SOIL WATER CONTENT   =      0.2930 VOL/VOL
          EFFECTIVE SAT. HYD. COND.    =  0.100000005000E-02 CM/SEC
```

LAYER 2

TYPE 1 - VERTICAL PERCOLATION LAYER
MATERIAL TEXTURE NUMBER 1

THICKNESS	=	12.00	INCHES
POROSITY	=	0.4170	VOL/VOL
FIELD CAPACITY	=	0.0450	VOL/VOL
WILTING POINT	=	0.0180	VOL/VOL
INITIAL SOIL WATER CONTENT	=	0.1360	VOL/VOL
EFFECTIVE SAT. HYD. COND.	=	0.999999978000E-02	CM/SEC

LAYER 3

TYPE 2 - LATERAL DRAINAGE LAYER
MATERIAL TEXTURE NUMBER 1

THICKNESS	=	12.00	INCHES
POROSITY	=	0.4170	VOL/VOL
FIELD CAPACITY	=	0.0450	VOL/VOL
WILTING POINT	=	0.0180	VOL/VOL
INITIAL SOIL WATER CONTENT	=	0.3896	VOL/VOL
EFFECTIVE SAT. HYD. COND.	=	0.999999978000E-02	CM/SEC
SLOPE	=	2.00	PERCENT
DRAINAGE LENGTH	=	140.0	FEET

LAYER 4

TYPE 4 - FLEXIBLE MEMBRANE LINER
MATERIAL TEXTURE NUMBER 35

THICKNESS	=	0.06	INCHES
POROSITY	=	0.0000	VOL/VOL
FIELD CAPACITY	=	0.0000	VOL/VOL
WILTING POINT	=	0.0000	VOL/VOL
INITIAL SOIL WATER CONTENT	=	0.0000	VOL/VOL
EFFECTIVE SAT. HYD. COND.	=	0.199999996000E-12	CM/SEC
FML PINHOLE DENSITY	=	1.00	HOLES/ACRE
FML INSTALLATION DEFECTS	=	4.00	HOLES/ACRE
FML PLACEMENT QUALITY	=	3 - GOOD	

LAYER 5

TYPE 3 - BARRIER SOIL LINER
MATERIAL TEXTURE NUMBER 17

```
THICKNESS                    =      0.25   INCHES
POROSITY                     =      0.7500 VOL/VOL
FIELD CAPACITY               =      0.7470 VOL/VOL
WILTING POINT                =      0.4000 VOL/VOL
INITIAL SOIL WATER CONTENT   =      0.7500 VOL/VOL
EFFECTIVE SAT. HYD. COND.    =  0.300000003000E-08 CM/SEC
```

LAYER 6

TYPE 1 - VERTICAL PERCOLATION LAYER
MATERIAL TEXTURE NUMBER 1

```
THICKNESS                    =     12.00   INCHES
POROSITY                     =      0.4170 VOL/VOL
FIELD CAPACITY               =      0.0450 VOL/VOL
WILTING POINT                =      0.0180 VOL/VOL
INITIAL SOIL WATER CONTENT   =      0.0450 VOL/VOL
EFFECTIVE SAT. HYD. COND.    =  0.999999978000E-02 CM/SEC
```

LAYER 7

TYPE 2 - LATERAL DRAINAGE LAYER
MATERIAL TEXTURE NUMBER 1

```
THICKNESS                    =     12.00   INCHES
POROSITY                     =      0.4170 VOL/VOL
FIELD CAPACITY               =      0.0450 VOL/VOL
WILTING POINT                =      0.0180 VOL/VOL
INITIAL SOIL WATER CONTENT   =      0.0450 VOL/VOL
EFFECTIVE SAT. HYD. COND.    =  0.999999978000E-02 CM/SEC
SLOPE                        =      2.00   PERCENT
DRAINAGE LENGTH              =    140.0    FEET
```

LAYER 8

TYPE 4 - FLEXIBLE MEMBRANE LINER
MATERIAL TEXTURE NUMBER 35

```
THICKNESS                    =      0.06   INCHES
POROSITY                     =      0.0000 VOL/VOL
FIELD CAPACITY               =      0.0000 VOL/VOL
WILTING POINT                =      0.0000 VOL/VOL
INITIAL SOIL WATER CONTENT   =      0.0000 VOL/VOL
EFFECTIVE SAT. HYD. COND.    =  0.199999996000E-12 CM/SEC
FML PINHOLE DENSITY          =      1.00   HOLES/ACRE
FML INSTALLATION DEFECTS     =      4.00   HOLES/ACRE
FML PLACEMENT QUALITY        =  3 - GOOD
```

LAYER 9

TYPE 3 - BARRIER SOIL LINER
MATERIAL TEXTURE NUMBER 16

THICKNESS	=	24.00	INCHES
POROSITY	=	0.4270	VOL/VOL
FIELD CAPACITY	=	0.4180	VOL/VOL
WILTING POINT	=	0.3670	VOL/VOL
INITIAL SOIL WATER CONTENT	=	0.4270	VOL/VOL
EFFECTIVE SAT. HYD. COND.	=	0.100000001000E-06	CM/SEC

GENERAL DESIGN AND EVAPORATIVE ZONE DATA

NOTE: SCS RUNOFF CURVE NUMBER WAS COMPUTED FROM DEFAULT SOIL DATA BASE USING SOIL TEXTURE #18 WITH BARE GROUND CONDITIONS, A SURFACE SLOPE OF 4.% AND A SLOPE LENGTH OF 450. FEET.

SCS RUNOFF CURVE NUMBER	=	79.80	
FRACTION OF AREA ALLOWING RUNOFF	=	0.0	PERCENT
AREA PROJECTED ON HORIZONTAL PLANE	=	14.000	ACRES
EVAPORATIVE ZONE DEPTH	=	3.0	INCHES
INITIAL WATER IN EVAPORATIVE ZONE	=	1.048	INCHES
UPPER LIMIT OF EVAPORATIVE STORAGE	=	2.013	INCHES
LOWER LIMIT OF EVAPORATIVE STORAGE	=	0.231	INCHES
INITIAL SNOW WATER	=	0.000	INCHES
INITIAL WATER IN LAYER MATERIALS	=	281.493	INCHES
TOTAL INITIAL WATER	=	281.493	INCHES
TOTAL SUBSURFACE INFLOW	=	0.00	INCHES/YEAR

EVAPOTRANSPIRATION AND WEATHER DATA

NOTE: EVAPOTRANSPIRATION DATA WAS OBTAINED FROM
ALBANY NEW YORK

MAXIMUM LEAF AREA INDEX	=	0.00	
START OF GROWING SEASON (JULIAN DATE)	=	123	
END OF GROWING SEASON (JULIAN DATE)	=	282	
AVERAGE ANNUAL WIND SPEED	=	8.90	MPH
AVERAGE 1ST QUARTER RELATIVE HUMIDITY	=	68.00	%
AVERAGE 2ND QUARTER RELATIVE HUMIDITY	=	66.00	%
AVERAGE 3RD QUARTER RELATIVE HUMIDITY	=	74.00	%
AVERAGE 4TH QUARTER RELATIVE HUMIDITY	=	74.00	%

NOTE: PRECIPITATION DATA FOR ALBANY NEW YORK
WAS ENTERED FROM THE DEFAULT DATA FILE.

NOTE: TEMPERATURE DATA WAS SYNTHETICALLY GENERATED USING
COEFFICIENTS FOR ALBANY NEW YORK

NORMAL MEAN MONTHLY TEMPERATURE (DEGREES FAHRENHEIT)

JAN/JUL	FEB/AUG	MAR/SEP	APR/OCT	MAY/NOV	JUN/DEC
21.10	23.40	33.80	46.60	57.50	66.70
71.40	69.20	61.20	50.50	39.30	26.50

NOTE: SOLAR RADIATION DATA WAS SYNTHETICALLY GENERATED USING
COEFFICIENTS FOR ALBANY NEW YORK

STATION LATITUDE = 42.45 DEGREES

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ANNUAL TOTALS FOR YEAR 1974

	INCHES	CU. FEET	PERCENT
PRECIPITATION	38.47	1955045.620	100.00
RUNOFF	0.000	0.000	0.00
EVAPOTRANSPIRATION	21.838	1109809.870	56.77
DRAINAGE COLLECTED FROM LAYER 3	16.6158	844415.187	43.19
PERC./LEAKAGE THROUGH LAYER 5	0.003035	154.231	0.01
AVG. HEAD ON TOP OF LAYER 5	10.3556		
DRAINAGE COLLECTED FROM LAYER 7	0.0025	126.817	0.01
PERC./LEAKAGE THROUGH LAYER 9	0.000004	0.210	0.00
AVG. HEAD ON TOP OF LAYER 9	0.0008		
CHANGE IN WATER STORAGE	0.014	691.703	0.04
SOIL WATER AT START OF YEAR	281.493	14305493.000	
SOIL WATER AT END OF YEAR	281.507	14306185.000	

SNOW WATER AT START OF YEAR	0.000	0.000	0.00
SNOW WATER AT END OF YEAR	0.000	0.000	0.00
ANNUAL WATER BUDGET BALANCE	0.0000	1.892	0.00

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ANNUAL TOTALS FOR YEAR 1975

	INCHES	CU. FEET	PERCENT
PRECIPITATION	47.05	2391081.250	100.00
RUNOFF	0.000	0.000	0.00
EVAPOTRANSPIRATION	20.879	1061092.000	44.38
DRAINAGE COLLECTED FROM LAYER 3	21.8734	1111606.750	46.49
PERC./LEAKAGE THROUGH LAYER 5	0.004188	212.853	0.01
AVG. HEAD ON TOP OF LAYER 5	12.6255		
DRAINAGE COLLECTED FROM LAYER 7	0.0017	86.422	0.00
PERC./LEAKAGE THROUGH LAYER 9	0.000004	0.185	0.00
AVG. HEAD ON TOP OF LAYER 9	0.0006		
CHANGE IN WATER STORAGE	4.295	218293.766	9.13
SOIL WATER AT START OF YEAR	281.507	14306185.000	
SOIL WATER AT END OF YEAR	283.955	14430613.000	
SNOW WATER AT START OF YEAR	0.000	0.000	0.00
SNOW WATER AT END OF YEAR	1.847	93866.352	3.93
ANNUAL WATER BUDGET BALANCE	0.0000	2.024	0.00

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ANNUAL TOTALS FOR YEAR 1976

	INCHES	CU. FEET	PERCENT

PRECIPITATION	42.54	2161883.250	100.00
RUNOFF	0.000	0.000	0.00
EVAPOTRANSPIRATION	22.356	1136156.500	52.55
DRAINAGE COLLECTED FROM LAYER 3	25.4014	1290897.500	59.71
PERC./LEAKAGE THROUGH LAYER 5	0.004959	252.012	0.01
AVG. HEAD ON TOP OF LAYER 5	14.1615		
DRAINAGE COLLECTED FROM LAYER 7	0.0010	51.920	0.00
PERC./LEAKAGE THROUGH LAYER 9	0.000003	0.164	0.00
AVG. HEAD ON TOP OF LAYER 9	0.0003		
CHANGE IN WATER STORAGE	-5.219	-265222.875	-12.27
SOIL WATER AT START OF YEAR	283.955	14430613.000	
SOIL WATER AT END OF YEAR	280.529	14256488.000	
SNOW WATER AT START OF YEAR	1.847	93866.352	4.34
SNOW WATER AT END OF YEAR	0.054	2768.057	0.13
ANNUAL WATER BUDGET BALANCE	0.0000	0.043	0.00

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ANNUAL TOTALS FOR YEAR 1977

	INCHES	CU. FEET	PERCENT
PRECIPITATION	44.30	2251326.250	100.00
RUNOFF	0.000	0.000	0.00
EVAPOTRANSPIRATION	20.383	1035839.190	46.01
DRAINAGE COLLECTED FROM LAYER 3	17.5997	894418.625	39.73
PERC./LEAKAGE THROUGH LAYER 5	0.003260	165.660	0.01
AVG. HEAD ON TOP OF LAYER 5	10.6624		
DRAINAGE COLLECTED FROM LAYER 7	0.0029	148.235	0.01
PERC./LEAKAGE THROUGH LAYER 9	0.000004	0.222	0.00

AVG. HEAD ON TOP OF LAYER 9	0.0010		
CHANGE IN WATER STORAGE	6.315	320921.000	14.25
SOIL WATER AT START OF YEAR	280.529	14256488.000	
SOIL WATER AT END OF YEAR	286.898	14580177.000	
SNOW WATER AT START OF YEAR	0.054	2768.057	0.12
SNOW WATER AT END OF YEAR	0.000	0.000	0.00
ANNUAL WATER BUDGET BALANCE	0.0000	-1.136	0.00

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ANNUAL TOTALS FOR YEAR 1978

	INCHES	CU. FEET	PERCENT
PRECIPITATION	33.46	1700437.750	100.00
RUNOFF	0.000	0.000	0.00
EVAPOTRANSPIRATION	19.871	1009829.870	59.39
DRAINAGE COLLECTED FROM LAYER 3	20.8548	1059840.120	62.33
PERC./LEAKAGE THROUGH LAYER 5	0.003973	201.899	0.01
AVG. HEAD ON TOP OF LAYER 5	12.0538		
DRAINAGE COLLECTED FROM LAYER 7	0.0023	118.407	0.01
PERC./LEAKAGE THROUGH LAYER 9	0.000004	0.204	0.00
AVG. HEAD ON TOP OF LAYER 9	0.0008		
CHANGE IN WATER STORAGE	-7.268	-369349.500	-21.72
SOIL WATER AT START OF YEAR	286.898	14580177.000	
SOIL WATER AT END OF YEAR	279.176	14187709.000	
SNOW WATER AT START OF YEAR	0.000	0.000	0.00
SNOW WATER AT END OF YEAR	0.455	23119.010	1.36
ANNUAL WATER BUDGET BALANCE	0.0000	-1.406	0.00

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AVERAGE MONTHLY VALUES IN INCHES FOR YEARS 1974 THROUGH 1978

	JAN/JUL	FEB/AUG	MAR/SEP	APR/OCT	MAY/NOV	JUN/DEC
PRECIPITATION						
TOTALS	3.35	2.31	3.46	2.74	3.11	3.99
	4.15	4.25	4.22	3.99	2.78	2.81
STD. DEVIATIONS	1.97	0.97	1.48	0.82	1.15	1.00
	1.88	1.21	1.97	1.85	1.64	1.01
RUNOFF						
TOTALS	0.000	0.000	0.000	0.000	0.000	0.000
	0.000	0.000	0.000	0.000	0.000	0.000
STD. DEVIATIONS	0.000	0.000	0.000	0.000	0.000	0.000
	0.000	0.000	0.000	0.000	0.000	0.000
EVAPOTRANSPIRATION						
TOTALS	0.656	0.833	1.557	2.268	2.282	2.667
	2.565	2.427	2.375	1.735	1.100	0.602
STD. DEVIATIONS	0.089	0.249	0.391	0.733	1.009	0.365
	1.237	0.313	0.434	0.286	0.191	0.107
LATERAL DRAINAGE COLLECTED FROM LAYER 3						
TOTALS	1.9280	1.4318	1.5273	1.6205	2.0127	2.0111
	1.8613	1.6177	1.6932	1.5523	1.5360	1.6771
STD. DEVIATIONS	0.6256	0.6108	0.8759	0.7793	0.3689	0.5337
	0.5090	0.3773	0.4586	0.3243	0.4101	0.6143
PERCOLATION/LEAKAGE THROUGH LAYER 5						
TOTALS	0.0004	0.0003	0.0003	0.0003	0.0004	0.0004
	0.0004	0.0003	0.0003	0.0003	0.0003	0.0003
STD. DEVIATIONS	0.0001	0.0001	0.0002	0.0002	0.0001	0.0001
	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
LATERAL DRAINAGE COLLECTED FROM LAYER 7						
TOTALS	0.0002	0.0002	0.0002	0.0002	0.0002	0.0001
	0.0001	0.0002	0.0002	0.0002	0.0002	0.0002

STD. DEVIATIONS	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001

PERCOLATION/LEAKAGE THROUGH LAYER 9

TOTALS	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
STD. DEVIATIONS	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

AVERAGES OF MONTHLY AVERAGED DAILY HEADS (INCHES)

DAILY AVERAGE HEAD ACROSS LAYER 5

AVERAGES	12.9032	11.1081	10.6021	11.5097	13.4830	13.7753
	12.6832	11.4649	12.1389	11.1101	11.2622	11.6204
STD. DEVIATIONS	2.9635	3.6181	4.6591	4.0463	1.8379	2.7483
	2.6216	1.9467	2.4267	1.7859	2.3270	3.4545

DAILY AVERAGE HEAD ACROSS LAYER 9

AVERAGES	0.0006	0.0007	0.0008	0.0008	0.0007	0.0006
	0.0005	0.0007	0.0007	0.0008	0.0008	0.0008
STD. DEVIATIONS	0.0003	0.0004	0.0005	0.0005	0.0005	0.0003
	0.0003	0.0003	0.0003	0.0004	0.0004	0.0004

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AVERAGE ANNUAL TOTALS & (STD. DEVIATIONS) FOR YEARS 1974 THROUGH 1978

	INCHES		CU. FEET	PERCENT
PRECIPITATION	41.16	(5.315)	2091954.7	100.00
RUNOFF	0.000	(0.0000)	0.00	0.000
EVAPOTRANSPIRATION	21.065	(1.0237)	1070545.50	51.174
LATERAL DRAINAGE COLLECTED FROM LAYER 3	20.46902	(3.51886)	1040235.620	49.72553
PERCOLATION/LEAKAGE THROUGH FROM LAYER 5	0.00388	(0.00077)	197.331	0.00943
AVERAGE HEAD ACROSS TOP	11.972	(1.546)		

OF LAYER 5				
LATERAL DRAINAGE COLLECTED FROM LAYER 7	0.00209	(0.00074)	106.360	0.00508
PERCOLATION/LEAKAGE THROUGH FROM LAYER 9	0.00000	(0.00000)	0.197	0.00001
AVERAGE HEAD ACROSS TOP OF LAYER 9	0.001	(0.000)		
CHANGE IN WATER STORAGE	-0.373	(5.8671)	-18933.18	-0.905

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PLCRS Flow = 1040235 ft^3 / 14 acres / yr

= 1,523 Gal / Ac. / day

SLCRS Flow = 106.36 ft^3 / 14 acres / yr

= 0.16 Gal / Ac. / day

Total Average Flow ≈ 1,525 Gal / Ac. / Day

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PEAK DAILY VALUES FOR YEARS 1974 THROUGH 1978

	(INCHES)	(CU. FT.)
PRECIPITATION	2.45	124509.000
RUNOFF	0.000	0.0000
DRAINAGE COLLECTED FROM LAYER 3	0.09976	5069.61133
PERCOLATION/LEAKAGE THROUGH LAYER 5	0.000020	1.02630
AVERAGE HEAD ACROSS LAYER 5	18.320	
DRAINAGE COLLECTED FROM LAYER 7	0.00001	0.64220
PERCOLATION/LEAKAGE THROUGH LAYER 9	0.000000	0.00074
AVERAGE HEAD ACROSS LAYER 9	0.002	
SNOW WATER	4.57	232369.9530

MAXIMUM VEG. SOIL WATER (VOL/VOL)	0.6710
MINIMUM VEG. SOIL WATER (VOL/VOL)	0.0285

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FINAL WATER STORAGE AT END OF YEAR 1978

LAYER	(INCHES)	(VOL/VOL)
1	263.6585	0.2930
2	1.2069	0.1006
3	2.7851	0.2321
4	0.0000	0.0000
5	0.1875	0.7500
6	0.5490	0.0458
7	0.5406	0.0450
8	0.0000	0.0000
9	10.2480	0.4270
SNOW WATER	0.000	

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**                                                                          **
**                                                                          **
**              HYDROLOGIC EVALUATION OF LANDFILL PERFORMANCE               **
**               HELP MODEL VERSION 3.01   (14 OCTOBER 1994)                **
**                  DEVELOPED BY ENVIRONMENTAL LABORATORY                   **
**                    USAE WATERWAYS EXPERIMENT STATION                     **
**             FOR USEPA RISK REDUCTION ENGINEERING LABORATORY              **
**                                                                          **
**                                                                          **
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PRECIPITATION DATA FILE:     K:\12206\data\help3\DATA4.D4
TEMPERATURE DATA FILE:       K:\12206\data\help3\DATA7.D7
SOLAR RADIATION DATA FILE:   K:\12206\data\help3\DATA13.D13
EVAPOTRANSPIRATION DATA:     K:\12206\data\help3\DATA11.D11
SOIL AND DESIGN DATA FILE:   K:\12206\data\help3\Rapp03.D10
OUTPUT DATA FILE:            K:\12206\data\help3\Rapp03.OUT


TIME:  10:50     DATE:   5/ 8/2007


******************************************************************************

     TITLE:  Eastern Landfill Expansion - Capped Landfill

******************************************************************************


     NOTE:  INITIAL MOISTURE CONTENT OF THE LAYERS AND SNOW WATER WERE
              COMPUTED AS NEARLY STEADY-STATE VALUES BY THE PROGRAM.


                                  LAYER  1
                                  --------

                     TYPE 1 - VERTICAL PERCOLATION LAYER
                         MATERIAL TEXTURE NUMBER   7
          THICKNESS                    =      6.00   INCHES
          POROSITY                     =      0.4730 VOL/VOL
          FIELD CAPACITY               =      0.2220 VOL/VOL
          WILTING POINT                =      0.1040 VOL/VOL
          INITIAL SOIL WATER CONTENT   =      0.3197 VOL/VOL
          EFFECTIVE SAT. HYD. COND.    =  0.520000001000E-03 CM/SEC
```

LAYER 2

TYPE 1 - VERTICAL PERCOLATION LAYER
MATERIAL TEXTURE NUMBER 6

THICKNESS	=	24.00	INCHES
POROSITY	=	0.4530	VOL/VOL
FIELD CAPACITY	=	0.1900	VOL/VOL
WILTING POINT	=	0.0850	VOL/VOL
INITIAL SOIL WATER CONTENT	=	0.2344	VOL/VOL
EFFECTIVE SAT. HYD. COND.	=	0.720000011000E-03	CM/SEC

LAYER 3

TYPE 2 - LATERAL DRAINAGE LAYER
MATERIAL TEXTURE NUMBER 20

THICKNESS	=	0.20	INCHES
POROSITY	=	0.8500	VOL/VOL
FIELD CAPACITY	=	0.0100	VOL/VOL
WILTING POINT	=	0.0050	VOL/VOL
INITIAL SOIL WATER CONTENT	=	0.0135	VOL/VOL
EFFECTIVE SAT. HYD. COND.	=	10.0000000000	CM/SEC
SLOPE	=	33.00	PERCENT
DRAINAGE LENGTH	=	400.0	FEET

LAYER 4

TYPE 4 - FLEXIBLE MEMBRANE LINER
MATERIAL TEXTURE NUMBER 35

THICKNESS	=	0.04	INCHES
POROSITY	=	0.0000	VOL/VOL
FIELD CAPACITY	=	0.0000	VOL/VOL
WILTING POINT	=	0.0000	VOL/VOL
INITIAL SOIL WATER CONTENT	=	0.0000	VOL/VOL
EFFECTIVE SAT. HYD. COND.	=	0.199999996000E-12	CM/SEC
FML PINHOLE DENSITY	=	1.00	HOLES/ACRE
FML INSTALLATION DEFECTS	=	4.00	HOLES/ACRE
FML PLACEMENT QUALITY	=	3 - GOOD	

LAYER 5

TYPE 1 - VERTICAL PERCOLATION LAYER
MATERIAL TEXTURE NUMBER 3

```
THICKNESS                    =      6.00   INCHES
POROSITY                     =      0.4570 VOL/VOL
FIELD CAPACITY               =      0.0830 VOL/VOL
WILTING POINT                =      0.0330 VOL/VOL
INITIAL SOIL WATER CONTENT   =      0.0830 VOL/VOL
EFFECTIVE SAT. HYD. COND.    =  0.310000009000E-02 CM/SEC


                        LAYER  6
                        --------

          TYPE 1 - VERTICAL PERCOLATION LAYER
              MATERIAL TEXTURE NUMBER  18
THICKNESS                    =   1200.00   INCHES
POROSITY                     =      0.6710 VOL/VOL
FIELD CAPACITY               =      0.2920 VOL/VOL
WILTING POINT                =      0.0770 VOL/VOL
INITIAL SOIL WATER CONTENT   =      0.2920 VOL/VOL
EFFECTIVE SAT. HYD. COND.    =  0.100000005000E-02 CM/SEC


                        LAYER  7
                        --------

          TYPE 1 - VERTICAL PERCOLATION LAYER
              MATERIAL TEXTURE NUMBER   1
THICKNESS                    =     12.00   INCHES
POROSITY                     =      0.4170 VOL/VOL
FIELD CAPACITY               =      0.0450 VOL/VOL
WILTING POINT                =      0.0180 VOL/VOL
INITIAL SOIL WATER CONTENT   =      0.0452 VOL/VOL
EFFECTIVE SAT. HYD. COND.    =  0.999999978000E-02 CM/SEC


                        LAYER  8
                        --------

            TYPE 2 - LATERAL DRAINAGE LAYER
              MATERIAL TEXTURE NUMBER   1
THICKNESS                    =     12.00   INCHES
POROSITY                     =      0.4170 VOL/VOL
FIELD CAPACITY               =      0.0450 VOL/VOL
WILTING POINT                =      0.0180 VOL/VOL
INITIAL SOIL WATER CONTENT   =      0.0450 VOL/VOL
EFFECTIVE SAT. HYD. COND.    =  0.999999978000E-02 CM/SEC
SLOPE                        =      2.00   PERCENT
DRAINAGE LENGTH              =    140.0    FEET
```

LAYER 9

TYPE 4 - FLEXIBLE MEMBRANE LINER
MATERIAL TEXTURE NUMBER 35

THICKNESS	=	0.06	INCHES
POROSITY	=	0.0000	VOL/VOL
FIELD CAPACITY	=	0.0000	VOL/VOL
WILTING POINT	=	0.0000	VOL/VOL
INITIAL SOIL WATER CONTENT	=	0.0000	VOL/VOL
EFFECTIVE SAT. HYD. COND.	=	0.199999996000E-12	CM/SEC
FML PINHOLE DENSITY	=	1.00	HOLES/ACRE
FML INSTALLATION DEFECTS	=	4.00	HOLES/ACRE
FML PLACEMENT QUALITY	=	3 - GOOD	

LAYER 10

TYPE 3 - BARRIER SOIL LINER
MATERIAL TEXTURE NUMBER 17

THICKNESS	=	0.25	INCHES
POROSITY	=	0.7500	VOL/VOL
FIELD CAPACITY	=	0.7470	VOL/VOL
WILTING POINT	=	0.4000	VOL/VOL
INITIAL SOIL WATER CONTENT	=	0.7500	VOL/VOL
EFFECTIVE SAT. HYD. COND.	=	0.300000003000E-08	CM/SEC

LAYER 11

TYPE 1 - VERTICAL PERCOLATION LAYER
MATERIAL TEXTURE NUMBER 1

THICKNESS	=	12.00	INCHES
POROSITY	=	0.4170	VOL/VOL
FIELD CAPACITY	=	0.0450	VOL/VOL
WILTING POINT	=	0.0180	VOL/VOL
INITIAL SOIL WATER CONTENT	=	0.0450	VOL/VOL
EFFECTIVE SAT. HYD. COND.	=	0.999999978000E-02	CM/SEC

LAYER 12

TYPE 2 - LATERAL DRAINAGE LAYER
MATERIAL TEXTURE NUMBER 1

THICKNESS	=	12.00	INCHES
POROSITY	=	0.4170	VOL/VOL
FIELD CAPACITY	=	0.0450	VOL/VOL
WILTING POINT	=	0.0180	VOL/VOL

```
INITIAL SOIL WATER CONTENT  =      0.0450 VOL/VOL
EFFECTIVE SAT. HYD. COND.   =  0.999999978000E-02 CM/SEC
SLOPE                       =      2.00   PERCENT
DRAINAGE LENGTH             =    140.0    FEET
```

LAYER 13

TYPE 4 - FLEXIBLE MEMBRANE LINER
MATERIAL TEXTURE NUMBER 35

```
THICKNESS                   =      0.06   INCHES
POROSITY                    =      0.0000 VOL/VOL
FIELD CAPACITY              =      0.0000 VOL/VOL
WILTING POINT               =      0.0000 VOL/VOL
INITIAL SOIL WATER CONTENT  =      0.0000 VOL/VOL
EFFECTIVE SAT. HYD. COND.   =  0.199999996000E-12 CM/SEC
FML PINHOLE DENSITY         =      1.00   HOLES/ACRE
FML INSTALLATION DEFECTS    =      4.00   HOLES/ACRE
FML PLACEMENT QUALITY       =  3 - GOOD
```

LAYER 14

TYPE 3 - BARRIER SOIL LINER
MATERIAL TEXTURE NUMBER 16

```
THICKNESS                   =     24.00   INCHES
POROSITY                    =      0.4270 VOL/VOL
FIELD CAPACITY              =      0.4180 VOL/VOL
WILTING POINT               =      0.3670 VOL/VOL
INITIAL SOIL WATER CONTENT  =      0.4270 VOL/VOL
EFFECTIVE SAT. HYD. COND.   =  0.100000001000E-06 CM/SEC
```

GENERAL DESIGN AND EVAPORATIVE ZONE DATA

NOTE: SCS RUNOFF CURVE NUMBER WAS COMPUTED FROM DEFAULT SOIL DATA BASE USING SOIL TEXTURE # 7 WITH A GOOD STAND OF GRASS, A SURFACE SLOPE OF 33.% AND A SLOPE LENGTH OF 400. FEET.

```
SCS RUNOFF CURVE NUMBER             =     69.10
FRACTION OF AREA ALLOWING RUNOFF    =    100.0    PERCENT
AREA PROJECTED ON HORIZONTAL PLANE  =     14.000  ACRES
EVAPORATIVE ZONE DEPTH              =      8.0    INCHES
INITIAL WATER IN EVAPORATIVE ZONE   =      2.476  INCHES
UPPER LIMIT OF EVAPORATIVE STORAGE  =      3.744  INCHES
LOWER LIMIT OF EVAPORATIVE STORAGE  =      0.794  INCHES
```

INITIAL SNOW WATER	=	0.000	INCHES
INITIAL WATER IN LAYER MATERIALS	=	371.043	INCHES
TOTAL INITIAL WATER	=	371.043	INCHES
TOTAL SUBSURFACE INFLOW	=	0.00	INCHES/YEAR

EVAPOTRANSPIRATION AND WEATHER DATA

NOTE: EVAPOTRANSPIRATION DATA WAS OBTAINED FROM
ALBANY NEW YORK

MAXIMUM LEAF AREA INDEX	=	0.00	
START OF GROWING SEASON (JULIAN DATE)	=	123	
END OF GROWING SEASON (JULIAN DATE)	=	282	
AVERAGE ANNUAL WIND SPEED	=	8.90	MPH
AVERAGE 1ST QUARTER RELATIVE HUMIDITY	=	68.00	%
AVERAGE 2ND QUARTER RELATIVE HUMIDITY	=	66.00	%
AVERAGE 3RD QUARTER RELATIVE HUMIDITY	=	74.00	%
AVERAGE 4TH QUARTER RELATIVE HUMIDITY	=	74.00	%

NOTE: PRECIPITATION DATA FOR ALBANY NEW YORK
WAS ENTERED FROM THE DEFAULT DATA FILE.

NOTE: TEMPERATURE DATA WAS SYNTHETICALLY GENERATED USING
COEFFICIENTS FOR ALBANY NEW YORK

NORMAL MEAN MONTHLY TEMPERATURE (DEGREES FAHRENHEIT)

JAN/JUL	FEB/AUG	MAR/SEP	APR/OCT	MAY/NOV	JUN/DEC
21.10	23.40	33.80	46.60	57.50	66.70
71.40	69.20	61.20	50.50	39.30	26.50

NOTE: SOLAR RADIATION DATA WAS SYNTHETICALLY GENERATED USING
COEFFICIENTS FOR ALBANY NEW YORK

STATION LATITUDE = 42.45 DEGREES

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ANNUAL TOTALS FOR YEAR 1974

	INCHES	CU. FEET	PERCENT
PRECIPITATION	38.47	1955045.620	100.00

RUNOFF	3.479	176812.703	9.04
EVAPOTRANSPIRATION	25.299	1285712.750	65.76
DRAINAGE COLLECTED FROM LAYER 3	9.6855	492214.594	25.18
PERC./LEAKAGE THROUGH LAYER 4	0.003815	193.903	0.01
AVG. HEAD ON TOP OF LAYER 4	0.0006		
DRAINAGE COLLECTED FROM LAYER 8	0.0025	126.459	0.01
PERC./LEAKAGE THROUGH LAYER 10	0.000003	0.132	0.00
AVG. HEAD ON TOP OF LAYER 10	0.0008		
DRAINAGE COLLECTED FROM LAYER 12	0.0000	0.006	0.00
PERC./LEAKAGE THROUGH LAYER 14	0.000002	0.126	0.00
AVG. HEAD ON TOP OF LAYER 14	0.0000		
CHANGE IN WATER STORAGE	0.004	178.354	0.01
SOIL WATER AT START OF YEAR	371.541	18881694.000	
SOIL WATER AT END OF YEAR	371.544	18881872.000	
SNOW WATER AT START OF YEAR	0.000	0.000	0.00
SNOW WATER AT END OF YEAR	0.000	0.000	0.00
ANNUAL WATER BUDGET BALANCE	0.0000	0.704	0.00

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ANNUAL TOTALS FOR YEAR 1975

	INCHES	CU. FEET	PERCENT
PRECIPITATION	47.05	2391081.250	100.00
RUNOFF	6.486	329640.781	13.79
EVAPOTRANSPIRATION	25.119	1276541.870	53.39
DRAINAGE COLLECTED FROM LAYER 3	14.5060	737195.812	30.83
PERC./LEAKAGE THROUGH LAYER 4	0.004926	250.345	0.01
AVG. HEAD ON TOP OF LAYER 4	0.0009		

DRAINAGE COLLECTED FROM LAYER 8	0.0024	122.776	0.01
PERC./LEAKAGE THROUGH LAYER 10	0.000003	0.132	0.00
AVG. HEAD ON TOP OF LAYER 10	0.0008		
DRAINAGE COLLECTED FROM LAYER 12	0.0000	0.006	0.00
PERC./LEAKAGE THROUGH LAYER 14	0.000002	0.126	0.00
AVG. HEAD ON TOP OF LAYER 14	0.0000		
CHANGE IN WATER STORAGE	0.936	47579.641	1.99
SOIL WATER AT START OF YEAR	371.544	18881872.000	
SOIL WATER AT END OF YEAR	370.633	18835586.000	
SNOW WATER AT START OF YEAR	0.000	0.000	0.00
SNOW WATER AT END OF YEAR	1.847	93866.352	3.93
ANNUAL WATER BUDGET BALANCE	0.0000	0.182	0.00

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ANNUAL TOTALS FOR YEAR 1976

	INCHES	CU. FEET	PERCENT
PRECIPITATION	42.54	2161883.250	100.00
RUNOFF	9.391	477229.281	22.07
EVAPOTRANSPIRATION	25.687	1305392.370	60.38
DRAINAGE COLLECTED FROM LAYER 3	9.3132	473297.125	21.89
PERC./LEAKAGE THROUGH LAYER 4	0.003627	184.324	0.01
AVG. HEAD ON TOP OF LAYER 4	0.0006		
DRAINAGE COLLECTED FROM LAYER 8	0.0029	146.026	0.01
PERC./LEAKAGE THROUGH LAYER 10	0.000003	0.134	0.00
AVG. HEAD ON TOP OF LAYER 10	0.0010		
DRAINAGE COLLECTED FROM LAYER 12	0.0000	0.007	0.00
PERC./LEAKAGE THROUGH LAYER 14	0.000002	0.127	0.00

AVG. HEAD ON TOP OF LAYER 14	0.0000		
CHANGE IN WATER STORAGE	-1.853	-94181.484	-4.36
SOIL WATER AT START OF YEAR	370.633	18835586.000	
SOIL WATER AT END OF YEAR	370.573	18832502.000	
SNOW WATER AT START OF YEAR	1.847	93866.352	4.34
SNOW WATER AT END OF YEAR	0.054	2768.057	0.13
ANNUAL WATER BUDGET BALANCE	0.0000	-0.155	0.00

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ANNUAL TOTALS FOR YEAR 1977

	INCHES	CU. FEET	PERCENT
PRECIPITATION	44.30	2251326.250	100.00
RUNOFF	9.552	485438.312	21.56
EVAPOTRANSPIRATION	23.390	1188692.120	52.80
DRAINAGE COLLECTED FROM LAYER 3	10.3061	523757.969	23.26
PERC./LEAKAGE THROUGH LAYER 4	0.003683	187.182	0.01
AVG. HEAD ON TOP OF LAYER 4	0.0007		
DRAINAGE COLLECTED FROM LAYER 8	0.0036	182.055	0.01
PERC./LEAKAGE THROUGH LAYER 10	0.000003	0.135	0.00
AVG. HEAD ON TOP OF LAYER 10	0.0012		
DRAINAGE COLLECTED FROM LAYER 12	0.0000	0.009	0.00
PERC./LEAKAGE THROUGH LAYER 14	0.000002	0.126	0.00
AVG. HEAD ON TOP OF LAYER 14	0.0000		
CHANGE IN WATER STORAGE	1.048	53252.121	2.37
SOIL WATER AT START OF YEAR	370.573	18832502.000	
SOIL WATER AT END OF YEAR	371.675	18888522.000	
SNOW WATER AT START OF YEAR	0.054	2768.057	0.12

SNOW WATER AT END OF YEAR	0.000	0.000	0.00
ANNUAL WATER BUDGET BALANCE	0.0001	3.468	0.00

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ANNUAL TOTALS FOR YEAR 1978

	INCHES	CU. FEET	PERCENT
PRECIPITATION	33.46	1700437.750	100.00
RUNOFF	6.936	352482.844	20.73
EVAPOTRANSPIRATION	23.011	1169436.500	68.77
DRAINAGE COLLECTED FROM LAYER 3	3.6490	185440.187	10.91
PERC./LEAKAGE THROUGH LAYER 4	0.001802	91.595	0.01
AVG. HEAD ON TOP OF LAYER 4	0.0002		
DRAINAGE COLLECTED FROM LAYER 8	0.0039	198.928	0.01
PERC./LEAKAGE THROUGH LAYER 10	0.000003	0.136	0.00
AVG. HEAD ON TOP OF LAYER 10	0.0013		
DRAINAGE COLLECTED FROM LAYER 12	0.0000	0.009	0.00
PERC./LEAKAGE THROUGH LAYER 14	0.000002	0.126	0.00
AVG. HEAD ON TOP OF LAYER 14	0.0000		
CHANGE IN WATER STORAGE	-0.140	-7118.952	-0.42
SOIL WATER AT START OF YEAR	371.675	18888522.000	
SOIL WATER AT END OF YEAR	371.080	18858284.000	
SNOW WATER AT START OF YEAR	0.000	0.000	0.00
SNOW WATER AT END OF YEAR	0.455	23119.010	1.36
ANNUAL WATER BUDGET BALANCE	0.0000	-1.853	0.00

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AVERAGE MONTHLY VALUES IN INCHES FOR YEARS 1974 THROUGH 1978

	JAN/JUL	FEB/AUG	MAR/SEP	APR/OCT	MAY/NOV	JUN/DEC
PRECIPITATION						
TOTALS	3.35	2.31	3.46	2.74	3.11	3.99
	4.15	4.25	4.22	3.99	2.78	2.81
STD. DEVIATIONS	1.97	0.97	1.48	0.82	1.15	1.00
	1.88	1.21	1.97	1.85	1.64	1.01
RUNOFF						
TOTALS	1.665	1.008	3.382	0.353	0.000	0.000
	0.002	0.005	0.010	0.081	0.000	0.662
STD. DEVIATIONS	2.216	1.066	2.115	0.472	0.000	0.000
	0.005	0.010	0.022	0.138	0.000	1.137
EVAPOTRANSPIRATION						
TOTALS	0.656	0.834	1.556	2.558	2.793	3.239
	3.061	3.072	2.733	2.055	1.348	0.597
STD. DEVIATIONS	0.090	0.250	0.390	0.517	1.143	0.689
	1.381	0.445	0.516	0.214	0.039	0.101
LATERAL DRAINAGE COLLECTED FROM LAYER 3						
TOTALS	0.4145	0.1914	0.0803	0.5031	0.6950	0.4111
	0.8114	1.0645	1.2422	1.9511	1.0362	1.0912
STD. DEVIATIONS	0.1244	0.0292	0.0494	0.6865	0.4750	0.1860
	0.5437	0.8474	0.7276	1.4868	0.6351	0.6823
PERCOLATION/LEAKAGE THROUGH LAYER 4						
TOTALS	0.0002	0.0001	0.0001	0.0002	0.0003	0.0002
	0.0003	0.0004	0.0004	0.0006	0.0004	0.0004
STD. DEVIATIONS	0.0000	0.0000	0.0000	0.0002	0.0002	0.0001
	0.0002	0.0002	0.0002	0.0004	0.0002	0.0002
LATERAL DRAINAGE COLLECTED FROM LAYER 8						
TOTALS	0.0002	0.0002	0.0003	0.0004	0.0003	0.0003
	0.0003	0.0003	0.0002	0.0002	0.0002	0.0002
STD. DEVIATIONS	0.0000	0.0000	0.0000	0.0001	0.0001	0.0001
	0.0000	0.0001	0.0001	0.0001	0.0001	0.0001

PERCOLATION/LEAKAGE THROUGH LAYER 10

TOTALS	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
STD. DEVIATIONS	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

LATERAL DRAINAGE COLLECTED FROM LAYER 12

TOTALS	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
STD. DEVIATIONS	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

PERCOLATION/LEAKAGE THROUGH LAYER 14

TOTALS	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
STD. DEVIATIONS	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

AVERAGES OF MONTHLY AVERAGED DAILY HEADS (INCHES)

DAILY AVERAGE HEAD ACROSS LAYER 4

AVERAGES	0.0003	0.0002	0.0001	0.0004	0.0005	0.0003
	0.0006	0.0008	0.0010	0.0015	0.0008	0.0008
STD. DEVIATIONS	0.0001	0.0000	0.0000	0.0005	0.0004	0.0001
	0.0004	0.0006	0.0006	0.0011	0.0005	0.0005

DAILY AVERAGE HEAD ACROSS LAYER 10

AVERAGES	0.0007	0.0010	0.0013	0.0015	0.0013	0.0012
	0.0011	0.0010	0.0009	0.0008	0.0007	0.0007
STD. DEVIATIONS	0.0002	0.0002	0.0002	0.0003	0.0004	0.0003
	0.0002	0.0003	0.0003	0.0003	0.0004	0.0004

DAILY AVERAGE HEAD ACROSS LAYER 14

AVERAGES	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
STD. DEVIATIONS	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

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AVERAGE ANNUAL TOTALS & (STD. DEVIATIONS) FOR YEARS 1974 THROUGH 1978

	INCHES		CU. FEET	PERCENT
PRECIPITATION	41.16	(5.315)	2091954.7	100.00
RUNOFF	7.169	(2.4874)	364320.81	17.415
EVAPOTRANSPIRATION	24.501	(1.2122)	1245155.12	59.521
LATERAL DRAINAGE COLLECTED FROM LAYER 3	9.49195	(3.87343)	482381.156	23.05887
PERCOLATION/LEAKAGE THROUGH FROM LAYER 4	0.00357	(0.00112)	181.470	0.00867
AVERAGE HEAD ACROSS TOP OF LAYER 4	0.001	(0.000)		
LATERAL DRAINAGE COLLECTED FROM LAYER 8	0.00305	(0.00067)	155.249	0.00742
PERCOLATION/LEAKAGE THROUGH FROM LAYER 10	0.00000	(0.00000)	0.134	0.00001
AVERAGE HEAD ACROSS TOP OF LAYER 10	0.001	(0.000)		
LATERAL DRAINAGE COLLECTED FROM LAYER 12	0.00000	(0.00000)	0.007	0.00000
PERCOLATION/LEAKAGE THROUGH FROM LAYER 14	0.00000	(0.00000)	0.126	0.00001
AVERAGE HEAD ACROSS TOP OF LAYER 14	0.000	(0.000)		
CHANGE IN WATER STORAGE	-0.001	(1.1650)	-58.06	-0.003

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PLCRS Flow = 155.25 ft^3 / 14 Acres / yr.

= 0.23 Gal. / Ac. / day

SLCRS Flow ≈ 0

Total Average Flow ≈ 0.5 Gal. / Ac. / day

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PEAK DAILY VALUES FOR YEARS 1974 THROUGH 1978

	(INCHES)	(CU. FT.)
PRECIPITATION	2.45	124509.000
RUNOFF	3.397	172640.3590
DRAINAGE COLLECTED FROM LAYER 3	1.00781	51216.76560
PERCOLATION/LEAKAGE THROUGH LAYER 4	0.000175	8.88433
AVERAGE HEAD ACROSS LAYER 4	0.024	
DRAINAGE COLLECTED FROM LAYER 8	0.00002	0.76387
PERCOLATION/LEAKAGE THROUGH LAYER 10	0.000000	0.00038
AVERAGE HEAD ACROSS LAYER 10	0.002	
DRAINAGE COLLECTED FROM LAYER 12	0.00000	0.00003
PERCOLATION/LEAKAGE THROUGH LAYER 14	0.000000	0.00035
AVERAGE HEAD ACROSS LAYER 14	0.000	
SNOW WATER	4.57	232369.9530

MAXIMUM VEG. SOIL WATER (VOL/VOL) 0.4275

MINIMUM VEG. SOIL WATER (VOL/VOL) 0.0513

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FINAL WATER STORAGE AT END OF YEAR 1978

LAYER	(INCHES)	(VOL/VOL)
1	2.0122	0.3354
2	5.0693	0.2112
3	0.0021	0.0107
4	0.0000	0.0000
5	0.4980	0.0830
6	350.4000	0.2920
7	0.5444	0.0454
8	0.5405	0.0450
9	0.0000	0.0000
10	0.1875	0.7500
11	0.5400	0.0450
12	0.5400	0.0450
13	0.0000	0.0000
14	10.2480	0.4270
SNOW WATER	0.000	

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Liner Efficiency/Maximum Head Calculations

CHA COMPUTATION PAD

COMPLETED BY:	DMF	PROJECT	12206
CHECKED BY:	JAK	PHASE	4005
PROJECT NAME:	Eastern Landfill Expansion	ORG	1502
PROJECT LOCATION:	Rapp Road Landfill	SHEET #:	1 OF 1
		DATE:	5/8/07
		SUBJECT:	Max. Head Calc. - Empty Landfill

Maximum Head on Primary Liner:

Use: $$h_{max} = \frac{L\sqrt{c}}{2}\left(\frac{\tan^2\alpha}{c} + 1 - \frac{\tan\alpha}{c}\left(\sqrt{\tan^2\alpha + c}\right)\right)$$

where $c = q/k$, k = permeability of PLCS
q = inpingment rate on PLCS
α = slope of PLCS between pipes in flow direction

Variables = $k = 1\times10^{-2}$ cm/sec (from Design)
$q = 1.99\times10^{-6}$ cm/sec (from HELP Model)
$\alpha = 1.15$
$L = 140'$

Calculation:

$c = 1.99\times10^{-6}$ cm/sec $/ 1\times10^{-2}$ cm/sec $= 1.99\times10^{-4}$ ✓

$$h_{max} = \frac{140'\sqrt{1.99\times10^{-4}}}{2}\left(\frac{\tan^2 1.15^\circ}{1.99\times10^{-4}} + 1 - \frac{\tan 1.15^\circ}{1.99\times10^{-4}}\left(\sqrt{\tan^2 1.15^\circ + 1.99\times10^{-4}}\right)\right)$$

$$= (.9875)(2.025 + 1 - (100.87)(2.45\times10^{-2}))$$

$$= (.9875)(2.025 + 1 - 2.47)$$

$$= 0.55 \text{ in.}$$ ✓

CHA COMPUTATION PAD

COMPLETED BY:	DMF	PROJECT	12206
CHECKED BY:	JAE	PHASE	4005
PROJECT NAME:	Eastern Landfill Expansion	ORG	15:02
PROJECT LOCATION:	Rapp Road Landfill	SHEET #:	1 OF 2
		DATE:	5/8/07
		SUBJECT:	Primary Liner Efficiency Calc.

Efficiency of primary LCS / geomembrane liner

Use: $E = (1+N)/2$ for $N > 0$, $E = (1-N)/2$ for $N < 0$

$$N = \left(1 + \frac{d}{h_o \cos\alpha}\right) \cdot e^{-C} - \frac{d}{h_o \cos\alpha}$$

$$C = \left(\frac{S_o}{d}\right)\left(\frac{k_{s2}}{k_{s1}}\right) \cdot \cot\alpha$$

where: d = thickness of liner
α = slope of liner in flow direction
k_{s1} = saturated perm. of PLCS
k_{s2} = saturated perm of primary liner
n = porosity of primary LCS
L = horizontal col. pipe spacing
S_o = Initial sat. length = $L/2\cos\alpha$
h_o = Initial sat. thickness = $\frac{\text{Inpingment}}{n}$

Variables:

Inpingment rate = 5.25 cm/mo.
$L = 140' = 4{,}267$ cm
$n = 0.417$
$k_{s1} = 1\times10^{-2}$ cm/sec
$k_{s2} = 1\times10^{-12}$ cm/sec
$\alpha = 1.15°$
$d = 0.06$ in $= 0.152$ cm

Calculations:

$S_o = L/2\cos\alpha = 4267\text{ cm}/2\cos 1.15° = 2{,}134$ cm
$h_o = I/n = 5.25\text{ cm/mo.}/0.417 = 12.6$ cm/mo.

$$C = \left(\frac{2{,}134\text{ cm}}{0.152\text{ cm}}\right)\left(\frac{1\times10^{-12}\text{ cm/sec}}{1\times10^{-2}\text{ cm/sec}}\right) \cdot \cot(1.15°)$$

$$C = (1.40\times10^{4})(1\times10^{-10})(48.99)$$

$$C = 6.86\times10^{-5}$$

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		DATE:	5/8/07
		SUBJECT:	Primary Liner Efficiency Calc.

$$N = \left(1 + \frac{0.152\ cm}{12.6\ cm/mo \cdot \cos(1.15^\circ)}\right) \cdot e^{-6.86 \times 10^{-5}} - \left(\frac{0.152\ cm}{12.6\ cm/mo \cdot \cos(1.15^\circ)}\right)$$

$$= (1.0121)(.9999) - (.0121)$$

$$N = 0.9998$$

$$\therefore E = (1+N)/2 = (1+.9998)/2 = 0.9999 \checkmark$$

Leachate Collection Pipes

All components of the leachate collection system must have sufficient strength to support the weight of the overlying waste, cover system, and post-closure loadings, as well as the stresses from operating equipment. The component that is most vulnerable to compressive strength failure is the drainage layer piping. Leachate collection system piping can fail by excessive deflection, which may lead to buckling or collapse (USEPA, 1988). Pipe strength calculations should include resistance to wall crushing, pipe deflection, and critical buckling pressure. Design equations and information for most pipe types can be obtained from the major pipe manufacturers. For more information regarding pipe structural strength, refer to U.S. EPA (1988).

Perforated drainage pipes can provide good long-term performance. These pipes have been shown to transmit fluids rapidly and to maintain good service lives. The depth of the drainage layer around the pipe should be deeper than the diameter of the pipe. The pipes can be placed in trenches to provide the extra depth. In addition, the trench serves as a sump (low point) for leachate collection. Pipes can be susceptible to particulate and biological clogging similar to the drainage layer material. Furthermore, pipes also can be susceptible to deflection. Proper maintenance and design of pipe systems can mitigate these effects and provide systems that function properly. Acceptable pipe deflections should be evaluated for the pipe material to be used (USEPA, 1989).

The design of perforated collection pipes should consider the following factors:

- The required flow using known percolation impingement rates and pipe spacing;
- Pipe size using required flow and maximum slope; and
- The structural strength of the pipe.

The pipe spacing may be determined by the Mound Model. In the Mound Model (see Figure 4-8), the maximum height of fluid between two parallel perforated drainage pipes is equal to (U.S. EPA, 1989):

$$h_{max} = \frac{L\sqrt{c}}{2}\left[\frac{\tan^2\alpha}{c} + 1 - \frac{\tan\alpha}{c}\sqrt{\tan^2\alpha + c}\right]$$

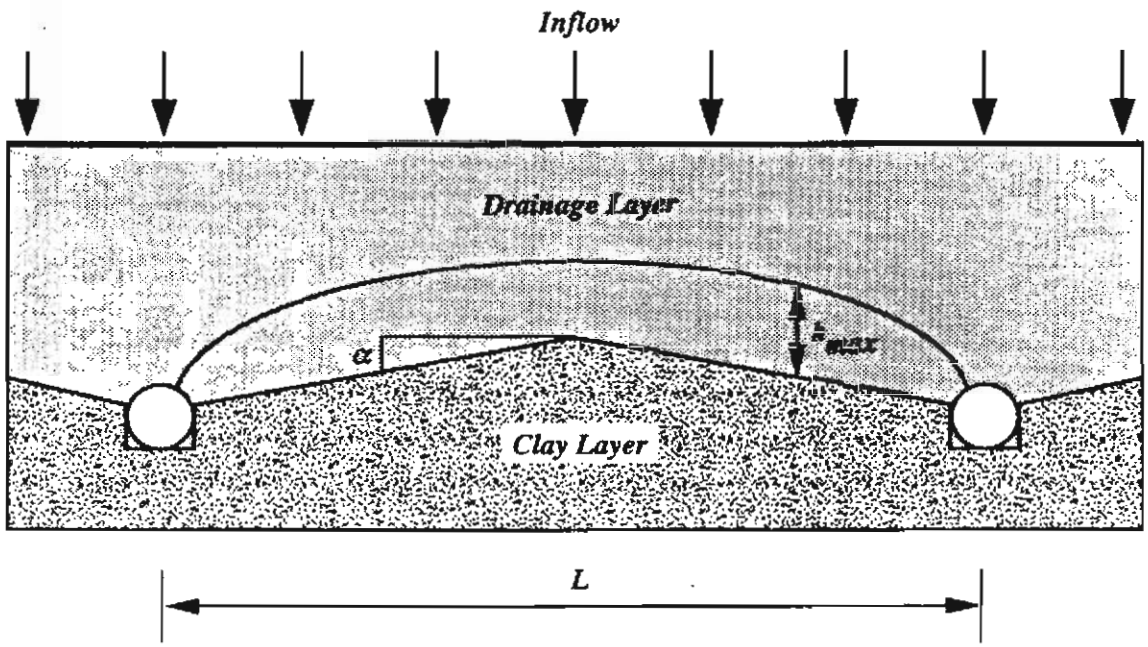
where c = q/k
k = permeability
q = inflow rate
α = slope.

The two unknowns in the equation are:

L = distance between the pipes; and
c = amount of leachate.

Using a maximum allowable head, h_{max}, of 30 cm (12 in), the equation is usually solved for "L" (U.S. EPA, 1989).

The amount of leachate, "c", can be estimated in a variety of ways including the Water Balance Method (U.S. EPA, 1989) and the computer model Hydrologic Evaluation of Landfill Performance (HELP). The HELP Model is a quasi-two-dimensional hydrologic model of water movement across, into, through, and out of landfills. The model uses climatologic, soil, and landfill design data and incorporates a solution technique that accounts for the effects of surface storage, run-off, infiltration, percolation, soil-moisture



Source: U.S. EPA, 1989

Figure 4-8. Definition of Terms for Mound Model Flow Rate Calculations

storage, evapotranspiration, and lateral drainage. The program estimates run-off drainage and leachate that are expected to result from a wide variety of landfill conditions, including open, partially open, and closed landfill cells. The model also may be used to estimate the depth of leachate above the bottom liner of the landfill unit. The results may be used to compare designs or to aid in the design of leachate collection systems (U.S. EPA, 1988).

Once the percolation and pipe spacing are known, the design flow rate can be obtained using the curve in Figure 4-9. The amount of leachate percolation at the particular site is located on the x-axis.

The required flow rate is the point at which this value intersects with the pipe spacing value determined from the Mound Model. Using this value of flow rate and the bottom slope of the site, the required diameter for the pipe can be determined (see Figure 4-10). Finally, the graphs in Figures 4-11 and 4-12 show two ways to determine whether the strength of the pipe is adequate for the landfill design. In Figure 4-11, the vertical soil pressure is located on the y-axis. The density of the backfill material around the pipe is not governed by strength, so it will deform under pressure rather than break. Ten percent is the absolute limiting deflection value for plastic pipe. Using Figure 4-11, the applied pressure on the pipe is located and traced to the trench geometry, and then the pipe deflection value is checked for its adequacy (U.S. EPA, 1989).

The LCS specifications should include (U.S. EPA, 1988):

- Type of piping material;
- Diameter and wall thickness;
- Size and distribution of slots and perforations;
- Type of coatings (if any) used in the pipe manufacturing; and
- Type of pipe bedding material and required compaction used to support the pipes.

The construction drawings and specifications should clearly indicate the type of bedding to be used under the pipes and the dimensions of any trenches. The specifications should indicate how the pipe lengths are joined. The drawings should show how the pipes are placed with respect to the perforations. To maintain the lowest possible leachate head, there should be perforations near the pipe invert, but not directly at the invert. The pipe invert itself should be solid to allow for efficient pipe flow at low volumes (U.S. EPA, 1988).

When drainage pipe systems are embedded in filter and drainage layers, no unplugged ends should be allowed. The filter materials in contact with the pipes should be appropriately sized to prevent migration of the material into the pipe. The filter media, drainage layer, and pipe network should be compatible and should represent an integrated design.

Protection of Leachate Collection Pipes

The long-term performance of the LCS depends on the design used to protect pipes from physical clogging (sedimentation) by the granular drainage materials. Use of a graded material around the pipes is most effective if accompanied by proper sizing of pipe perforations. The Army Corps of

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Pipe Integrity Calculations

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PROJECT LOCATION:	Rapp Road Landfill	SUBJECT:	Pipe Integrity Calcs

Evaluation of Static Loading on Primary Leachate Collection Pipes

From Design Drawings: Max. Waste heigh = 350' — Waste @ 75 lb/cf.
Cap thickness = 3' — Soil @ 120 lb/c.f.
PLCS thickness over pipe = 1.5' — Soil @ 120 lb/c.f.

Total static Load:
$90 \times 75\ lb/ft^3 = 6{,}750$ psf
$3' \times 120\ lb/ft^3 = 360$ psf
$1.5' \times 120\ lb/ft^3 = 180$ psf

$7{,}290$ psf $= 51$ psi $= P_T$ ✓

Wall Crushing:

Use SDR 17 (from Design)
Compressive Strength = 1,600 psi (ISCO Industries)

SA = Actual Compressive Strength $= \left(\frac{SDR-1}{2}\right) P_T$

$SA = \left(\frac{17-1}{2}\right)(51\ psi) = 408$ psi ✓

$SF = 1{,}600\ psi / 408\ psi = \underline{3.9 \approx OK}$ ✓

Wall Buckling:

$P_s = 51$ psi
$E = 23{,}000$ psi (50 year service life)

P_c = Critical Collapse Differential Pressure $= \frac{2.32\,(E)}{(SDR)^3} = \frac{(2.32)(23{,}000\ psi)}{(17)^3} = 10.9$ psi ✓

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		DATE:	5/9/07
		SUBJECT:	Pipe Integrity Calcs.

Soil Modulus (E') : Coarse Grained Soil, Moderate to High Compaction

Use E' = 3,000 psi

Critical Buckling Pressure (P_{cr}) = $0.8\sqrt{E' \cdot P_c}$

$= (0.8)\sqrt{(3000)(10.9)}$

$= (0.8)(181)$

$= 145$

SF = P_{cr}/P_r = 145 psi / 51 psi = 2.8 ≈ OK

Ring Deflection =

% Soil Strain = P_r/E = (51 psi / 3000 psi) · 100 = 1.7%

Allowable Deflection for SDR 17 HDPE ≈ 5%

SF = 5% / 1.7% = 2.9 ✓ OK

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PROJECT NAME:	Eastern Landfill Expansion	DATE:	5/9/07
PROJECT LOCATION:	Rapp Road Landfill	SUBJECT:	Pipe Integrity Calcs.

Check Static Loading on Containment Piping Outside Landfill.

Assume Maximum Soil Cover ≈ 30′ Soil @ 120 lb/ft³

Static Loading = 30′ × 120 lb/ft³ = 3600 psf = 25 psi = P_T ✓

Wall Crushing:

Use SDR 17 (from Design)

Compressive Strength at yeild = 1,600 psi (ISCO Industries)

$$SA = \left(\frac{SDR-1}{2}\right) P_t = \frac{(17-1)}{2}(25\ psi) = 200\ psi$$ ✓

SF = 1,600 psi / 200 psi = 8 ✓ OK

Wall Buckling:

E = 23,000 psi (50 yr. service life)

$$P_c = \frac{2.32\,(E)}{SDR^3} = \frac{2.32(23000)}{17^3} = 10.9\ psi$$ ✓

Use E′ = 3000 PSI (coarse grained soil, moderate to high compaction)

$$P_{ct} = 0.8\sqrt{E' \cdot P_c} = (0.8)\sqrt{3000 \cdot 10.9} = 145$$

SF = P_{ct}/P_T = 145 psi / 25 psi = 5.8 ✓ OK

Ring Deflection:

% Soil Strain = P_T/E = (25 psi / 3000 psi) 100 = .83%

Allowable Deflection for SRD 17 HDPE ≈ 5% ∴ SF = 5%/.83% = 6 ✓ OK

CHA

CHA COMPUTATION PAD

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PROJECT LOCATION:	Rapp Road Landfill	SHEET #	4 OF 5
		DATE:	5/9/07
		SUBJECT:	Pipe Integrity Calcs.

Evaluation of Primary LCRS Piping with Live Loads

- Worst Case is empty cell with minimal cover over pipes ($H = 1.5'$)

Use: $P_L = C_H \dfrac{I_i W_L}{L D}$

where: I_i = impact factor (Assume 1.5)
C_H = load coefficient (Table value)
W_L = wheel load
L = length of pipe*
D = outside pipe diameter (ft)

* If pipe is longer than 3', use 3' as the length (Performance Pipe Design Manual)

Use $I_i = 1.5$

$D = 0.5'$ $\quad D/2H = 0.5/2(1.5) = 0.16$

$L = 3'$ $\quad L/2H = 3/2(1.5) = 1$

$C_H = 0.176$

From Table 7-4 $C_H = 0.176$

Assume H20 loading, 32 kip axle load → 16 kip wheel load ⇒ $W_L = 16{,}000$ lbs

$$P_L = (0.176)\frac{(1.5)(16{,}000\text{ lb})}{(3)(0.5)} = 2{,}816 \text{ psf} = 19.6 \text{ psi} \checkmark$$

Wall Crushing:

Use SDR 17 Pipe (from design)

Compressive Strength = 1,600 psi (ISCO Industries)

S_A = Actual Compressive Strength = $\left(\dfrac{SDR-1}{2}\right) P_L$

$$S_A = \left(\frac{17-1}{2}\right)(19.6 \text{ psi}) = 157 \text{ psi} \checkmark$$

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		DATE:	5/9/07
		SUBJECT:	Pipe Integrity Calcs.

SF = 1,600 psi / 157 psi = 10.2 ✓ OK

Wall Buckling:

P_L = 19.6 psi

E = 23,000 psi (50 year service life)

P_c = Critical Collapse Differential Pressure = $\frac{2.32(E)}{SDR^3}$

$= \frac{2.32(23{,}000 \text{ psi})}{(17)^3}$

= 10.9 psi

Soil Modulus (E') = Coarse Grained Soil, moderate compaction : Use E' = 3,000 psi

Critical Buckling Pressure (P_{cr}) = $0.8\sqrt{E' \cdot P_c}$

$= (0.8)((3000)(10.9))^{1/2}$

= 145 psi

SF = 145 psi / 19.6 psi = 7.4 ✓ OK

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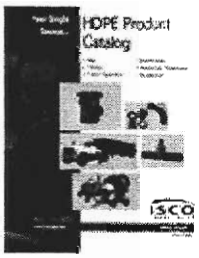

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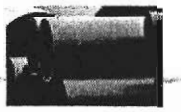

TYPICAL PROPERTIES

HDPE CHARACTERISTICS
TYPICAL PROPERTIES
CHEMICAL RESISTANCE CHAR
SIZE AND DIMENSION CHARTS
APPLICATION
CALCULATION PROGRAMS

HIGH DENSITY POLYETHYLENE PIPE
Typical Physical Properties***

Property	Specification	Unit	Nomina Value
Material Designation	PPI / ASTM		PE 3408
Material Classification	ASTM D-1248		III C 5 F
Cell Classification	ASTM D3350-99		345464(
-Density (3)	ASTM D-1505	gm/cm3	0.955
-Melt Index (4)	ASTM D-1238 (216 kg/190iC)	gm/10 min.	0.11*
-Flex Modulus (5)	ASTM D-790	psi	135,000
-Tensile Strength (4)	ASTM D-638	psi	3,200
PENT (6)	ASTM F-1473	Hours	>100
-HDB @73i F (4)	ASTM D-2837	psi	1,600
-HDB @ 140 Deg F	ASTM D-2837	psi	800
-U-V Stabilizer (C)	ASTM D-1603	% C	2.5
Hardness	ASTM D-2240	Shore "D"	65
Compressive Strength (yield)	ASTM D-695	psi	1,600
Tensile Strength @ Yield (Type IV Spec.)	ASTM D-638 (2"/min.)	psi	3,200
Elongation @ Yield	ASTM D-638	%, minimum	8
Tensile Strength @ Break (Type IV Spec.)	ASTM D-638	psi	5,000
Elongation @ Break	ASTM D-638	%, minimum	750
Modulus of Elasticity	ASTM D-638	psi	130,000
PENT (6)	ASTM F-1473	Hours	>100
(Cond. A, B, C: Mold. Slab)	ASTM D-1693	Fo, Hours	>5,000
(Compressed Ring - pipe)	ASTM F-1248	Fo, Hours	>3,500
Slow Crack Growth	Battelle Method	Days to Failure	>64
Impact Strength (IZOD) (.125Ó Thick)	ASTM D-256 (Method A)	In-lb / in notch	42
Linear Thermal Expansion Coef.	ASTM D-696	In / in/iF	1.2x10--
Thermal Conductivity	ASTM D-177	BTU-in/ft2/ hrs/ degreesF	2.7
Brittleness Temp.	ASTM D-746	degrees F	< -180
Vicat Soft. Temp.	ASTM D-1525	degrees F	257
Heat Fusion Cond.	ASTM D-1525	@ psi degrees F	75 @ 4C

*** This list of typical physical properties is intended for basic characterization of the materi does not represent specific determinations of specifications. The physical properties values re herein were determined on compression molded specimens prepared in accordance with Proc C of ASTM D 1928 and may differ from specimens taken from pipe.
** Tests were discontinued because no failures and no indication of stress crackinitiation.
* Average Melt Index value with a standard deviation of 0.01

The modulus is selected using the same criteria used for determining the stress in the pipe wall due to the thermal change. The applicability of Euler's equation for any specific pipeline calculation must be evaluated. For pipe installed on top of a surface (i.e. the ground, a pipe rack) pipe and fluid weight in the pipe and frictional forces increase the critical thrust force whereas in aerial applications weight and initial curvature due to deflection reduce the critical thrust force.

While the amount of length change experienced by polyethylene pipe during thermal changes is greater than many other materials, the amount of force required to restrain the movement is less because of its lower modulus of elasticity.

Table 1 Typical Elastic Modulus for DriscoPlex® PE 3608

Load Duration	*Elastic Modulus†, 1000 psi (MPa), at Temperature, °F (°C)*							
	-20 (-29)	*0 (-18)*	*40 (4)*	*60 (16)*	*73 (23)*	*100 (38)*	*120 (49)*	*140 (60)*
Short-Term	300.0 (2069)	260.0 (1793)	170.0 (1172)	130.0 (896)	110.0 (758)	100.0 (690)	65.0 (448)	50.0 (345)
10 h	140.8 (971)	122.0 (841)	79.8 (550)	61.0 (421)	57.5 (396)	46.9 (323)	30.5 (210)	23.5 (162)
100 h	125.4 (865)	108.7 (749)	71.0 (490)	54.3 (374)	51.2 (353)	41.8 (288)	27.2 (188)	20.9 (144)
1000 h	107.0 (738)	92.8 (640)	60.7 (419)	46.4 (320)	43.7 (301)	35.7 (246)	23.2 (160)	17.8 (123)
1 y	93.0 (641)	80.6 (556)	52.7 (363)	40.3 (278)	38.0 (262)	31.0 (214)	20.2 (139)	15.5 (107)
10 y	77.4 (534)	67.1 (463)	43.9 (303)	33.5 (231)	31.6 (218)	25.8 (178)	16.8 (116)	12.9 (89)
50 y	69.1 (476)	59.9 (413)	39.1 (270)	29.9 (206)	28.2 (194)	23.0 (159)	15.0 (103)	11.5 (79)

† Typical values based on ASTM D 638 testing of molded plaque material specimens.
Modulus values for PE4710 are under development.

Controlling Expansion and Contraction

Black polyethylene pipe on the surface or above grade and exposed to the sun can absorb solar energy. The resulting pipe temperatures can be greater than the air temperature. To help reduce temperature changes resulting solar heating of a piping system, the pipe may be shaded or placed in a location that receives less direct sunlight.

The effects of thermal expansion and contraction on a piping system can be controlled in several ways, including

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Table 7-7 Bureau of Reclamation Average E' Values for Iowa Formula (Initial Deflection)

Soil type – pipe bedding material (Unified Classification)†	*E' for Degree of Bedding Compaction, lb/in²*			
	Dumped	*Slight (<85% Proctor <40% relative density)*	*Moderate (48%-95% Proctor 40%-70% relative density)*	*High (>95% Proctor >70% relative density)*
Fine-grained soils (LL>50)‡ Soils with medium to high plasticity CH, MH, CH-MH	No data available; consult a competent soils engineer; otherwise, use E' = 0.			
Fine-grained soils (LL<50) Soils with medium to no plasticity CL, ML, CL-ML, with <25% coarse grained particles	50	200	400	1000
Fine-grained soils (LL<50) Soils with medium to no plasticity CL, ML, CL-ML, with >25% coarse grained particles Coarse-grained soils with fines GM, GC, SM, SC◊ contains >12% fines	100	400	1000	2000
Coarse-grained soils with little or no fines GW, GP, SW, SP◊ contains <12% fines	200	1000	2000	3000
Crushed rock	1000	3000	3000	3000
Accuracy in terms of percentage deflection▼	±2%	±2%	±1%	±0.5%

† ASTM D 2487; USBR Designation E-3. ‡ LL = Liquid limit. ◊ Or any borderline soil beginning with one of these symbols, i.e., GM-GC, GC-SC. ▼For ±1% accuracy and predicted deflection of 3%, actual deflection would be between 2% and 4%.

Note – Values applicable only for fills less than 50 ft (15 m). No safety factor included in table values. For use in predicting initial deflections only; appropriate Deflection Lag Factor must be applied for long-term deflections. If bedding falls on the borderline between two compaction categories, select the lower E' value or average the two values. Percentage Proctor based on laboratory maximum dry density from test standards using 12,500 ft-lb/ft³ (598,000 J/m²) (ASTM D 698, AASHTO T-99, USBR Designation E-11). 1 lb/in² = 6.895 kPa.

Table 7-8 Duncan-Hartley Soil Reaction Modulus

Type of Soil	Depth of Cover, ft	E' for Standard AASHTO Relative Compaction, lb.in²			
		85%	90%	95%	100%
Fine-grained soils with <25% sand content (CL, ML, CL-ML)	0-5	500	700	1000	1500
	5-10	600	1000	1400	2000
	10-15	700	1200	1600	2300
	15-20	800	1300	1800	2600
Coarse-grained soils with fines (SM, SC)	0-5	600	1000	1200	1900
	5-10	900	1400	1800	2700
	10-15	1000	1500	2100	3200
	15-20	1100	1600	1400	3700
Coarse-grained soils with little or no fines (SP, SW, GP, GW)	0-5	700	1000	1600	2500
	5-10	1000	1500	2200	3300
	10-15	1050	1600	2400	3600
	15-20	1100	1700	2500	3800

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Table 7-9 Safe Pressure Pipe Deflection

DR	*Safe Deflection as % of Diameter*
32.5	8.5
26	7.0
21	6.0
17	5.0
13.5	4.0
11	3.0
9	2.5

Example 7-13

Find the ring bending strain in the wall of the DriscoPlex™ 2000 SPIROLITE® 36" Class 100 pipe in Example 7-12.

Solution: Use Formula 7-40 and f_D = 6.0. From Bulletin PP-401, h = 2.02 in., and z = 0.58 in.

$$\varepsilon = 6(0.0237)\frac{(2.02-0.58)}{(36+2(0.58))} = 0.0055 = 0.55\%$$

The strain is well below the permissible strain for ASTM F 894 profile pipe.

Design Considerations For Shallow Cover Pipe

Pipe installed under shallow cover does not completely develop a the interaction between pipe and soil structure interaction; therefore, design methods must be modified. The designer should consider the following three cases: (1) flotation due to insufficient soil cover, (2) ring bending due to live load, and (3) upward buckling due to flooding or high groundwater levels.

The exact depth of cover required to fully develop pipe-soil structure interaction depends on the particular installation conditions.

Shallow Cover Surcharge Load

The preceding design methods assume that the pipe behaves primarily as a membrane structure, that is, the pipe is almost perfectly flexible with little ability to resist bending.

At depths of cover less than one pipe diameter, this membrane action may not develop fully, thus a surcharge load or live load places a bending load on the pipe crown. For this reason, flexible pipe manufacturers often recommend that pipe be buried at least one pipe diameter below a live load. If this cannot be accomplished, the designer should perform a special analysis to determine if the pipe has adequate beam bending strength.

R. Watkins in *Minimum Soil Cover Required Over Buried Flexible Cylinders* provides a design equation for determining the pipe cross section for shallow cover live load applications. Watkins' method presumes that a combination of pipe flexural strength and the ring resistance of the soil surrounding the pipe resist the live load at shallow cover. The maximum bending stress

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Off-Highway and Unpaved Road Loads

Off-highway vehicles may be considerably heavier than H20 or HS20 trucks, and these vehicles frequently operate on unpaved roads that may have uneven surfaces. Thus impact factors higher than 1.5 may be reached depending on the vehicle speed. Except for slow traffic, an impact factor of 2.0 to 3.0 should be considered.

During construction, both permanent and temporary underground pipelines may be subjected to heavy vehicle loading from construction equipment. A designated vehicle crossing with special design measures such as temporary pavement or structural sheeting may be prudent, as well as vehicle speed controls to limit impact loading.

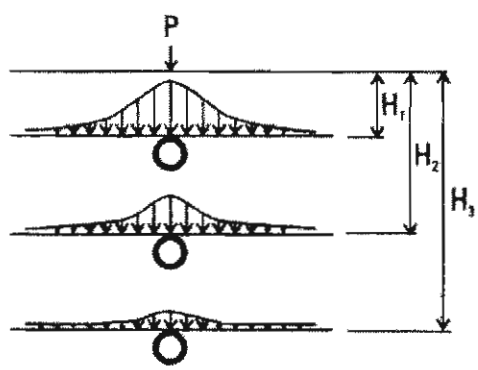
Vehicular Loads As Point Loads

There are generally two approaches for calculating vehicle live load surcharge pressure. The more conservative approach is to treat the wheel load as a concentrated (point) load. The other is to treat it as a distributed load spread over the contact area of the tire with the ground (imprint area). The pressure due to a distributed load and the pressure due to a concentrated load begin to approach the same value at a depth of about twice the square root of the loaded area.

The distributed load method gives more realistic values where the depth equals less than twice the square root of the loaded area, whereas for deeper depths concentrated loads are preferred because the calculations are simpler and typically more conservative.

The pressure distribution under a concentrated load varies with depth as illustrated in Figure 7-9. When the live load is calculated using the point load methods in the following sections, a conservative approach is to assume that the maximum pressure at the pipe crown is distributed across the entire pipe.

Figure 7-9 Concentrated Vehicular Load Pressure Distribution at Various



A key consideration in determining live load pressure on the pipe is the location of vehicle wheels relative to the pipe. A higher pressure may occur below a point between two vehicles passing in adjacent lanes than directly under a single vehicle wheel. This depends on the depth of cover.

When depths are not greater than four or five feet, the combined H20 load for two separate wheels straddling the pipe is greater than that for a single wheel directly over the pipe. Deeper than five feet, H20 loads are not usually significant because the load is attenuated significantly compared loads under one or two feet of cover. However, greater live loads may produce design significant effects at depths greater than five feet. Therefore, the designer should check load conditions for a single wheel directly over the pipe, and for two wheels spaced six feet apart and centered over the pipe.

Single Wheel Load Centered On Pipe

To check a single wheel load centered directly over the pipe, a method based on Holl's integration of Boussinesq's equation assumes that the wheel load is a concentrated (point) load. Holl's integration finds the pressure at the depth of the pipe crown that is distributed over a surface three feet long and the width of the pipe outside diameter.

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Holl's Integration

Holl's equation for the average vertical pressure acting on a pipe due to a concentrated surface load is:

Holl's Equation

$$P_L = C_H \frac{I_I W_L}{L D} \qquad \textbf{(7-12)}$$

Where terms are previously defined and:

I_I	=	impact factor
C_H	=	load coefficient, Table 7-4
W_L	=	wheel load, lb
L	=	pipe length, ft
D	=	pipe outside diameter, ft

If the pipe is longer than 3 ft, the usual practice is to assume a length of 3 ft. Values for C_H are found in Table 7-4 as a function of D/2H and L/2H where H is the depth of cover.

Example 7-4

Find the single H20 rear wheel live load surcharge pressure on a 30" OD pipe buried 4 feet deep. Assume an impact factor of 1.5.

Solution: Use Formula 7-12, Table 7-4, and Figure 7-7. To solve Formula 7-12, the load coefficient, C_H, from Table 7-4 is required. For 4 ft of cover, D/2H = 0.31, and L/2H = 0.38. Interpolating Table 7-4 for C_H yields 0.189. From Figure 7-7, the H20 rear wheel live load is 0.4 x 40,000 = 16,000 lb. Solving Formula 7-12 yields:

$$P_L = (0.189)\frac{(1.5)(16{,}000)}{3\left(\frac{30}{12}\right)}$$

$$P_L = 598\ lb/ft^2$$

Multiple Wheel Loads Along Pipe Length

In many cases, the maximum load on the pipe occurs when a single (or dual) wheel is located directly over the pipe. However, at some depths the combined load due to more than one wheel may be larger than the single wheel load. This usually occurs at a location along the pipe that is not directly beneath a wheel load. This point (Figure 7-10, Case I, Point 2) will usually be centered between two wheel loads.

Point Load on Pipe Crown

The Boussinesq point load equation may be used to find the wheel load pressure on the pipe, neglecting any pavement effects. Pavement effects are covered later using a modified form of Boussinesq's equation, Formula 7-13.

September 2003 Supercedes all previous publications
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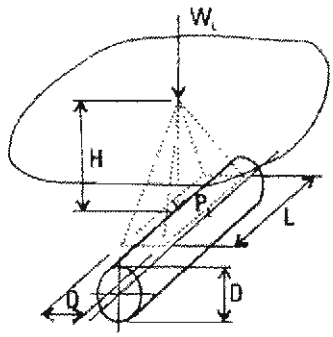
Table 7-4 Load Coefficient, C_H, for Holl's Integration of Boussinesq's Equation



D/2H	L/2H													
	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0	1.2	1.5	2.0	20.0
0.1	0.019	0.037	0.053	0.067	0.079	0.089	0.097	0.103	0.108	0.112	0.117	0.121	0.124	0.127
0.2	0.037	0.072	0.103	0.131	0.155	0.174	0.189	0.202	0.211	0.219	0.229	0.238	0.244	0.248
0.3	0.053	0.103	0.149	0.190	0.224	0.252	0.274	0.292	0.306	0.318	0.333	0.346	0.355	0.361
0.4	0.067	0.131	0.190	0.241	0.284	0.320	0.349	0.373	0.391	0.405	0.425	0.442	0.454	0.462
0.5	0.079	0.155	0.224	0.284	0.336	0.379	0.414	0.441	0.463	0.481	0.505	0.525	0.540	0.550
0.6	0.089	0.174	0.252	0.320	0.379	0.428	0.467	0.499	0.524	0.544	0.572	0.596	0.613	0.625
0.7	0.097	0.189	0.274	0.349	0.414	0.467	0.511	0.546	0.574	0.597	0.628	0.655	0.674	0.688
0.8	0.103	0.202	0.292	0.373	0.441	0.499	0.546	0.584	0.615	0.639	0.674	0.703	0.725	0.740
0.9	0.108	0.211	0.306	0.391	0.463	0.524	0.574	0.615	0.647	0.673	0.711	0.743	0.766	0.783
1.0	0.112	0.219	0.318	0.405	0.481	0.544	0.597	0.639	0.673	0.701	0.740	0.775	0.800	0.818
1.2	0.117	0.229	0.333	0.425	0.505	0.572	0.628	0.674	0.711	0.740	0.783	0.821	0.849	0.871
1.5	0.121	0.238	0.346	0.422	0.525	0.596	0.655	0.703	0.743	0.775	0.821	0.863	0.895	0.920
2.0	0.124	0.244	0.355	0.454	0.540	0.613	0.674	0.725	0.766	0.800	0.849	0.895	0.930	0.960
20.0	0.127	0.248	0.361	0.462	0.550	0.625	0.688	0.740	0.783	0.818	0.871	0.920	0.960	1.000

Boussinesq's Equation

$$P_L = \frac{3 I_l W_L H^3}{2 \pi r^5} \qquad \textbf{(7-13)}$$

Where terms are previously defined and:

H = vertical depth to point on pipe crown, ft
r = distance from the point of load application to the pipe crown, ft

$$r = \sqrt{X^2 + H^2} \qquad \textbf{(7-14)}$$

Where:

X = horizontal distance from the point of load application to the pipe crown, ft

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Hydraulic Calculations

CHA COMPUTATION PAD

COMPLETED BY:	DMF	PROJECT / PHASE / ORG	12206 / 4005 / 1502
CHECKED BY:	JAK	SHEET #:	1 OF 1
PROJECT NAME:	Eastern Landfill Expansion	DATE:	5/5/07
PROJECT LOCATION:	Rapp Road Landfill	SUBJECT:	Primary Conveyance Pipe Check

Peak Daily Flow for East Expansion Landfill = 4070 Gal/Ac./day (Help Model)

Area Contributing to Sump #1 = 3.5 Ac.

- Peak flow Sump #1 = 4070 Gal./Ac./day • 3.5 Ac = 14245 GPD = 9.9 GPM ✓

Area Contributing to Sump #2 = 10.5 Ac.

- Peak flow Sump #2 = 4070 gal./Ac./day • 10.5 Ac = 42735 GPD = 30 GPM ✓

Pipe Flow Check:

- 8" Dia. Primary Carrier Pipe installed at 0.5% slope outside of landfill cell
- Assume no friction losses

$$Q = \frac{1.486}{n} \cdot A \cdot R^{2/3} \cdot S^{1/2}$$

$A = \frac{\pi D^2}{4}$ where D = .63' for 8" SDR 17 HDPE ∴ A = 0.31 SF ✓

$R = A/P = 0.31\ SF / \pi \cdot 0.63' = 0.16$ ✓ $(P = \pi D)$

$S = .5\% = .005$

n (smooth pipe) 0.013

$$Q = \frac{1.486}{0.013}(.31)(.16)^{2/3}(.005)^{1/2}$$

$Q = 0.74\ CFS = 331\ GPM$ ✓

331 GPM > 30 GPM > 9.9 GPM ∴ Conveyance Piping OK

APPENDIX B

Geotechnical Calculations

Settlement Calculations

CHA COMPUTATION PAD

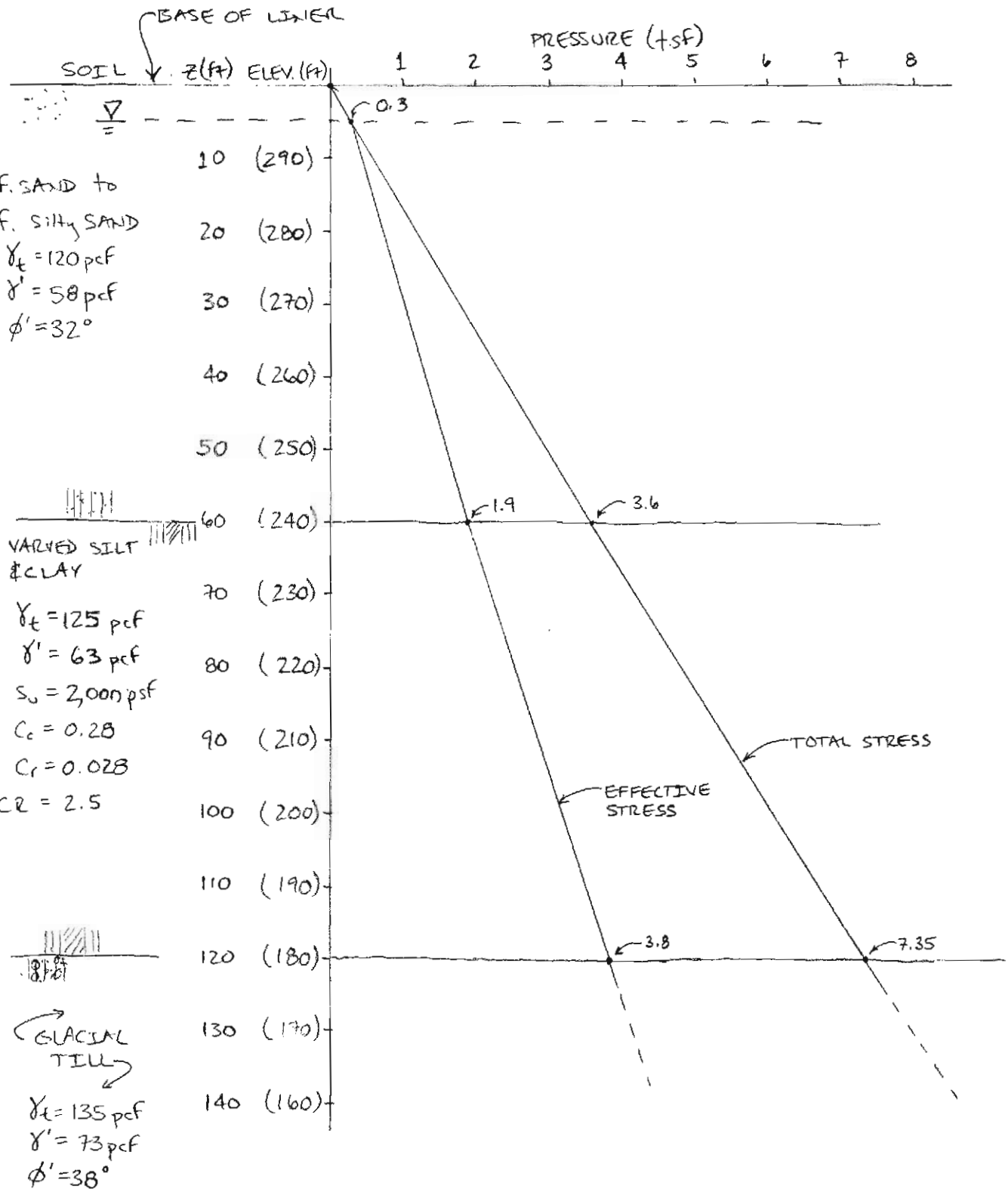
COMPLETED BY:	G. DALE
CHECKED BY:	JAE
PROJECT NAME:	RAPP RD LANDFILL, EAST EXPANSION
PROJECT LOCATION:	ALBANY, NY

PROJECT	PHASE	ORG
12206	4005	1502

SHEET #: ____ OF ____

DATE: 5-15-2007

SUBJECT: SUBSURFACE SOIL STRESSES



CHA COMPUTATION PAD

COMPLETED BY:	G. DALE GM	PROJECT / PHASE / ORG	12206 4500 1502
CHECKED BY:		SHEET #: 1 OF 1	
PROJECT NAME:	ALBANY LANDFILL, EAST EXPANSION	DATE:	6-5-07
PROJECT LOCATION:	ALBANY, NY	SUBJECT:	SOIL PARAMETERS

MW-15D

NOT USED GM

0'-54'
F. SAND, SILT
(SP → SM)
$2 \le N \le 15$

$\gamma_t = 115$ pcf
$\gamma' = 53$ pcf
$\phi' = 30°$ [NAVFAC DM 7.1, pg 7.1-149, 1982]

54'-71'
Silty CLAY
(CL)
$6 \le N \le 13$

$\gamma_t = 120$ pcf
$\gamma' = 58$ pcf
$S_u = 1{,}500$ psf [NAVFAC DM 7.1, pg 7.1-88, 1982]

71'-90'
F. SAND & SILT
(SM/ML)
$19 \le N \le 43$

$\gamma_t = \cancel{115}$ 120 pcf
$\gamma' = \cancel{53}$ pcf
$\phi' = 32°$

$\omega_n = 42.3\%$; LL = 52, PL = 27, PI = 25

90'-96'
Silty CLAY
(CL)
$0 \le N \le 6$

$\gamma_t = \cancel{115}$ 125 pcf
$\gamma' = \cancel{53}$ pcf
$S_u = \cancel{500}$ psf 2000 psf
$\omega_n = 35\%$

USED LAB DATA FROM PA-B-1 FROM 1999 PART 360 APPLICATION

$C_c = 0.28$ [FIG 22.1(c), pg 321, LAMBE & WHITMAN, 1969]
$C_r = 0.028$
OCR = 2.5 TYPICAL FOR LAKE ALBANY SILTS & CLAYS

TERZAGHI & PECK

TILL: $\gamma_t = 135$ pcf
$\phi' = 38°$

WASTE: $\gamma_t = 75$ pcf
$\phi' = 33°$; $C = 300$ psf

$$\frac{C_c}{1+e_0} = 13\%$$

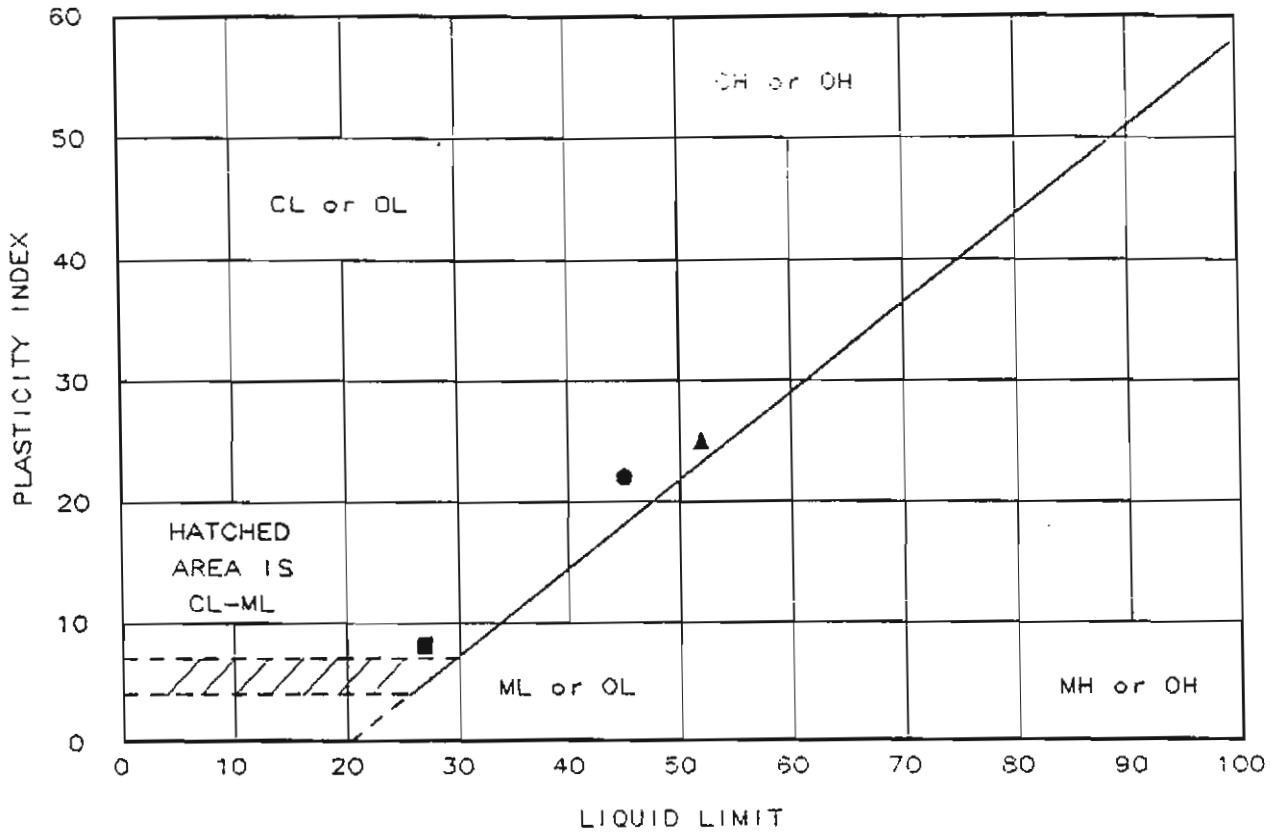
& $S e_0 = G \omega_n$

$$e_0 = \frac{G \cdot \omega}{S} = \frac{2.7(0.423)}{1}$$

$e_0 = 1.14$ ← REASONABLE VALUE

$\Rightarrow C_c = 0.13(1+1.14) = 0.28$

LIQUID AND PLASTIC LIMITS TEST REPORT



	Location + Description	LL	PL	PI	-200	ASTM D 2487-90
●	Boring No. 1 Sample No. 21 102 - 104 ft.	45	23	22	97.4	CL, Lean clay
▲	Shelby Tube 112.5 - 115 ft.	52	27	25	99.8	CH, Fat clay
■	Boring No. 1 Sample No. 19 92 - 94 ft.	27	19	8		

Project No.: 9850038
Project: City of Albany Phase 4 Project
C.T. Male Project No. 974583
Client: C.T. Male Associates, PC
Location:

Date: Feb. 18, 1998

Remarks:

Natural Water Content:

B-1, S-21: 36.4 %

Tube: 42.3 %

B-1, S-19: 26.6 %

LIQUID AND PLASTIC LIMITS TEST REPORT

MAXIM TECHNOLOGIES

Fig. No. _____

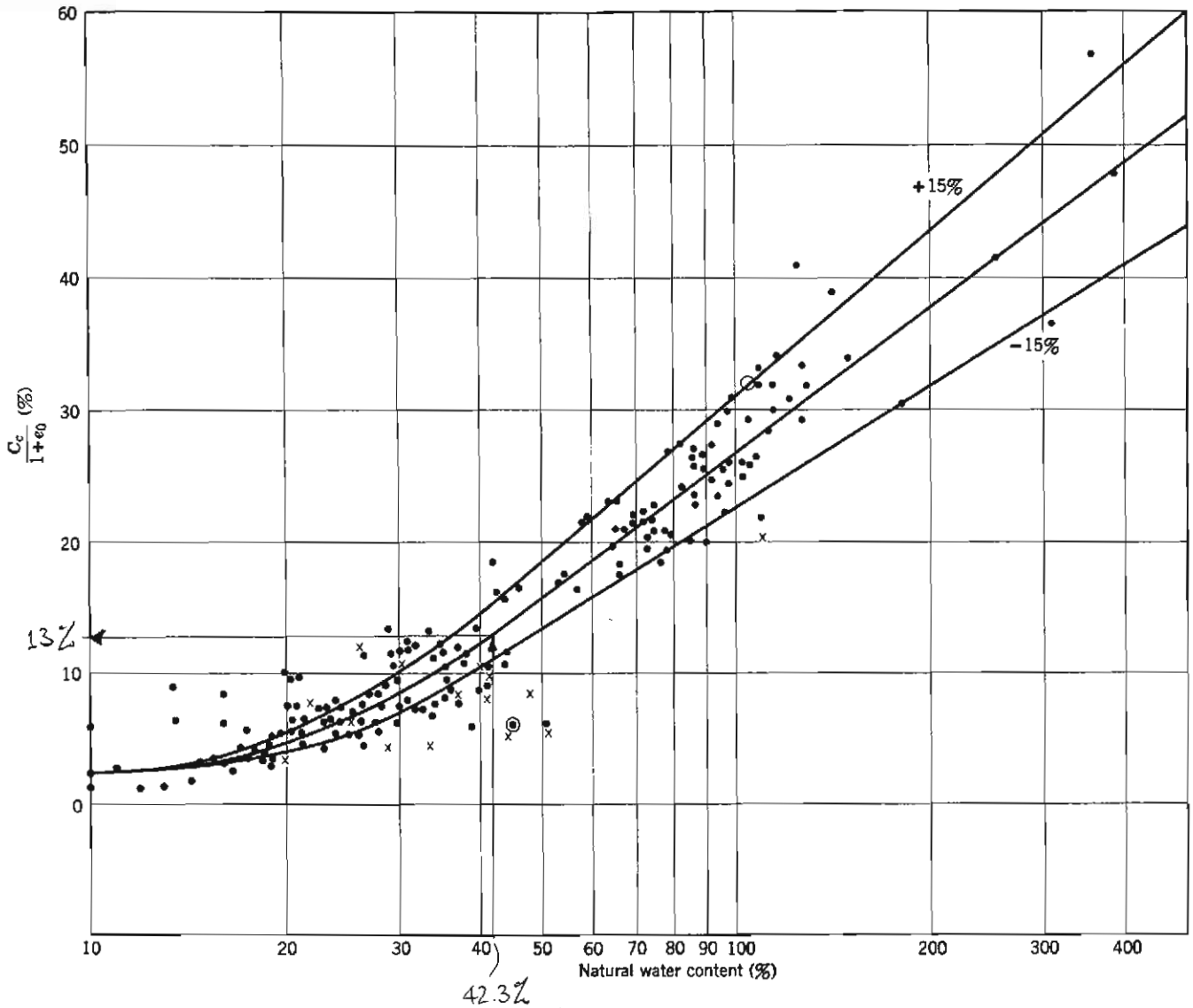


Fig. 22.1(c)

Unloading

Upon unloading a soil sample in confined compression the sample expands, as illustrated in Fig. 20.5. The parameter most commonly used to measure the expansion is

$$C_s = \text{swell index} = \frac{-\Delta e}{\Delta \log \bar{\sigma}_v} \qquad (22.1)$$

C_s is always much smaller than C_c for virgin compression. This is illustrated by the data in Table 22.1. By consolidating a series of specimens to different maximum vertical stresses $\bar{\sigma}_{vm}$ before unloading, a series of expansion curves are obtained. Such expansion curves tend to be parallel. Note, for example, in Fig. 20.5 that the unload portion from the first cycle and that from the second cycle are approximately parallel. Thus C_s is more or less the same for all $\bar{\sigma}_{vm}$.

In Fig. 22.2 values of swell index have been plotted against the corresponding liquid limit. C_s increases with increasing liquid limit, but any relation between C_s and w_l will be only approximate.

Reloading

If a clay is subjected to many cycles of load and unload, the compression and recompression curves tend toward each other, i.e., C_c for recompression approximately equals C_s.

The compressibility of a soil depends very much on the stress level in relation to the stress history. For example, we can see from Fig. 20.5 that the compressibility of the Cambridge clay is much greater in the virgin compression range than it is in the recompression range; this means the compression index above $\bar{\sigma}_{vm}$ is much greater than below $\bar{\sigma}_{vm}$. This important fact presents the engineer

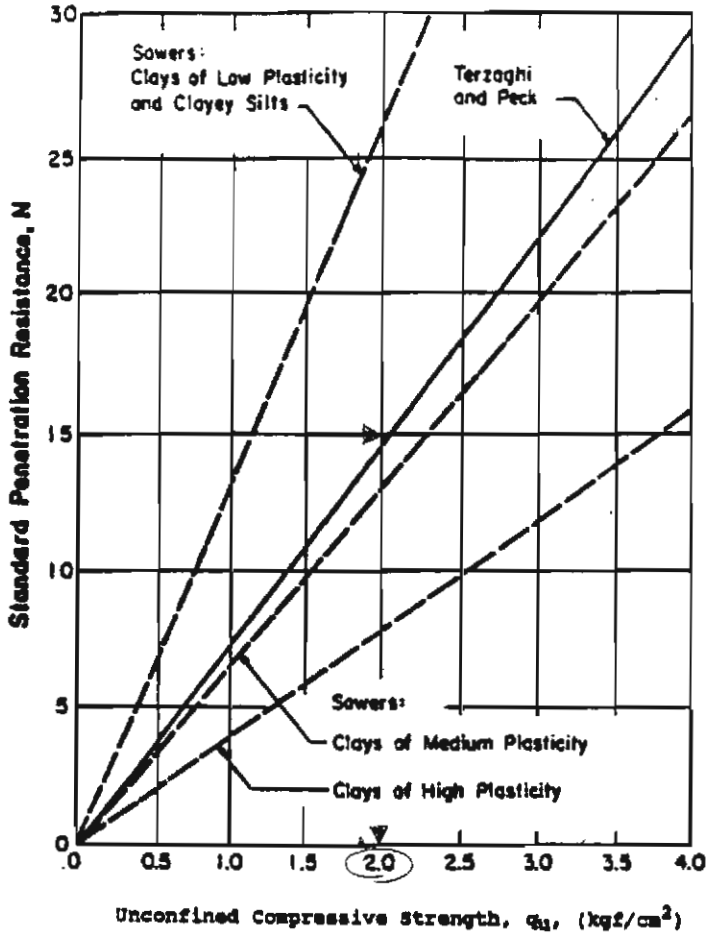


Figure 3.4. Relationship between standard penetration resistance, N, and unconfined compressive strength, q_u. (After NAVFAC, 1982)

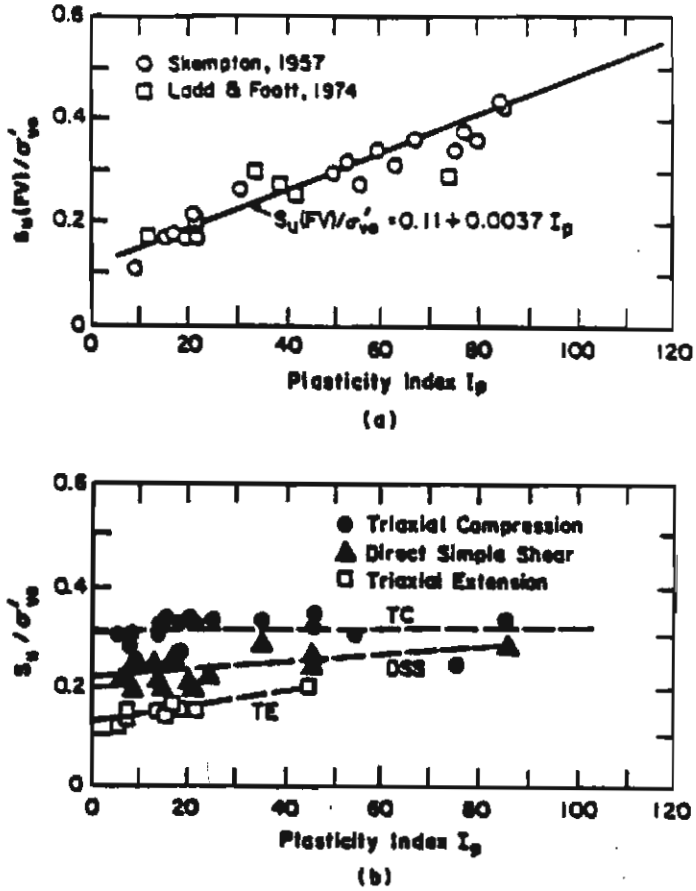


Figure 3.5. Variation of s_u/σ_{vo}' with plasticity index for normally consolidated clays. (After Robertson and Campanella, 1984, and Jamiolkowski, et al., 1985)

$q_u = 2.0 \frac{kgf}{cm^2} = 2\ tsf$

$\Rightarrow S_u = \frac{q_u}{2} = 1\ tsf = 2{,}000\ psf$

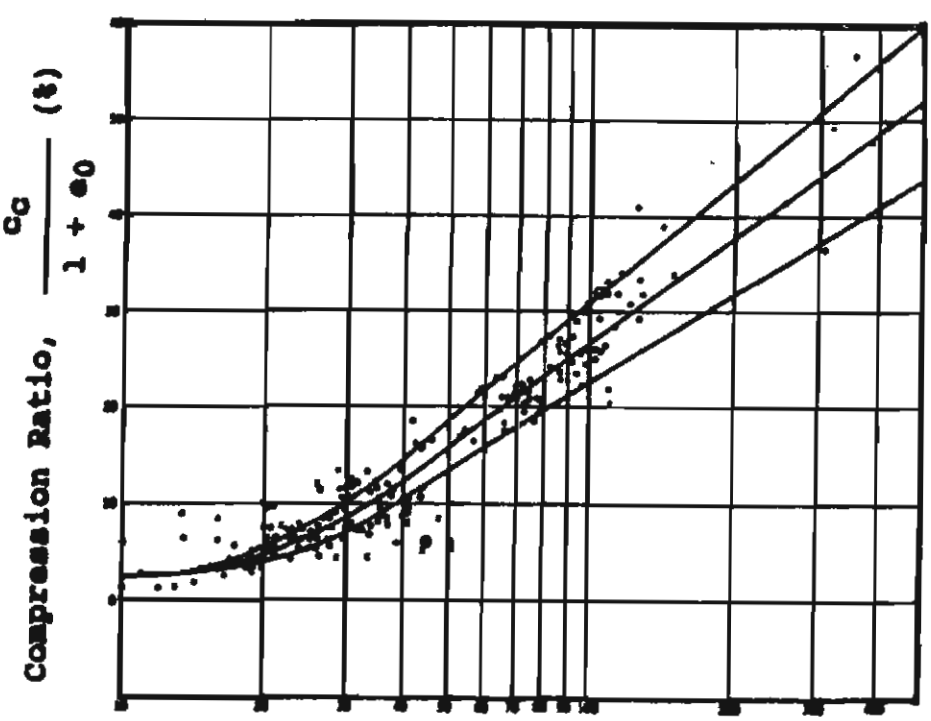
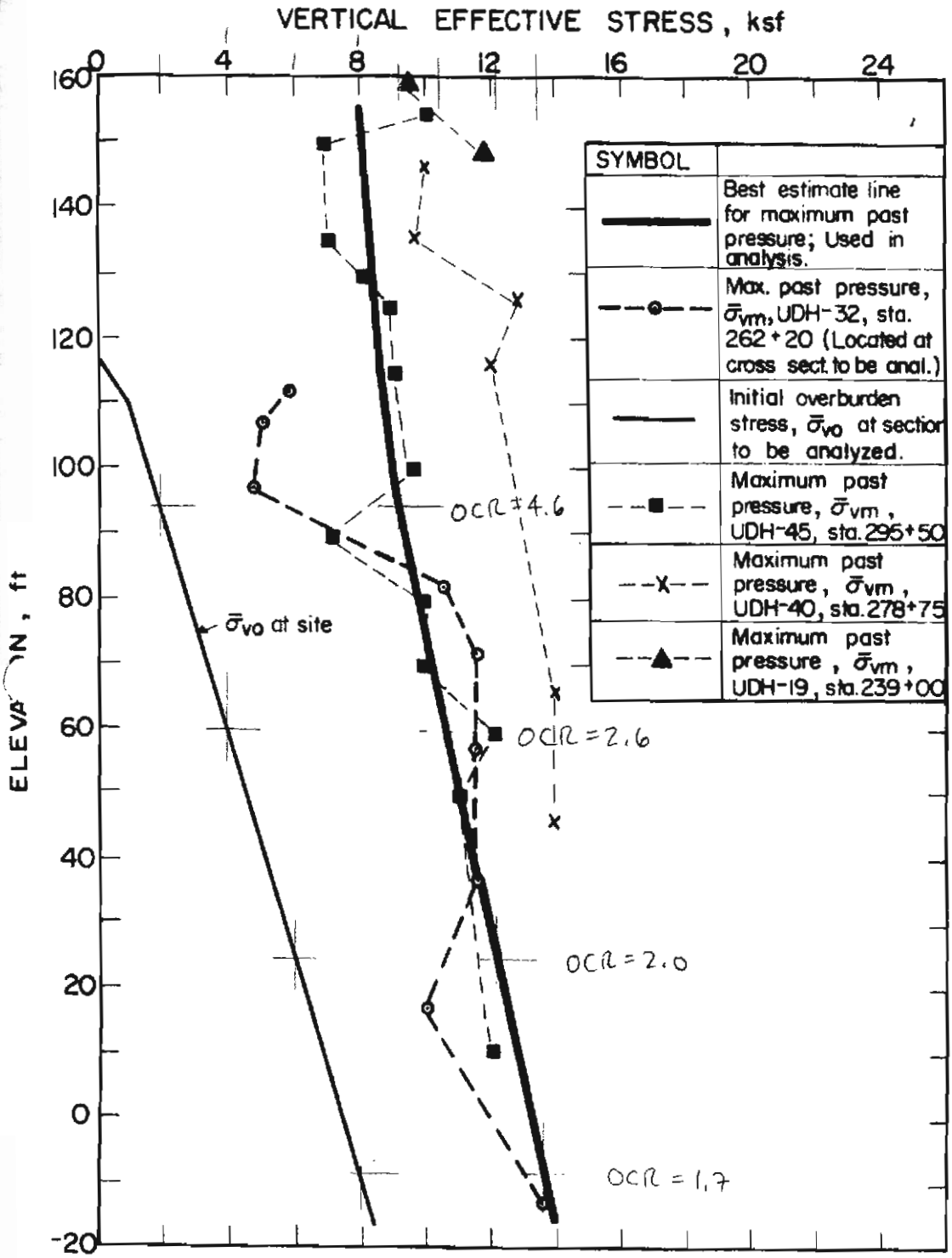


Figure 3.6. Relation between compression ratio and natural water content.



STRESS HISTORY, SLINGERLANDS BY-PASS

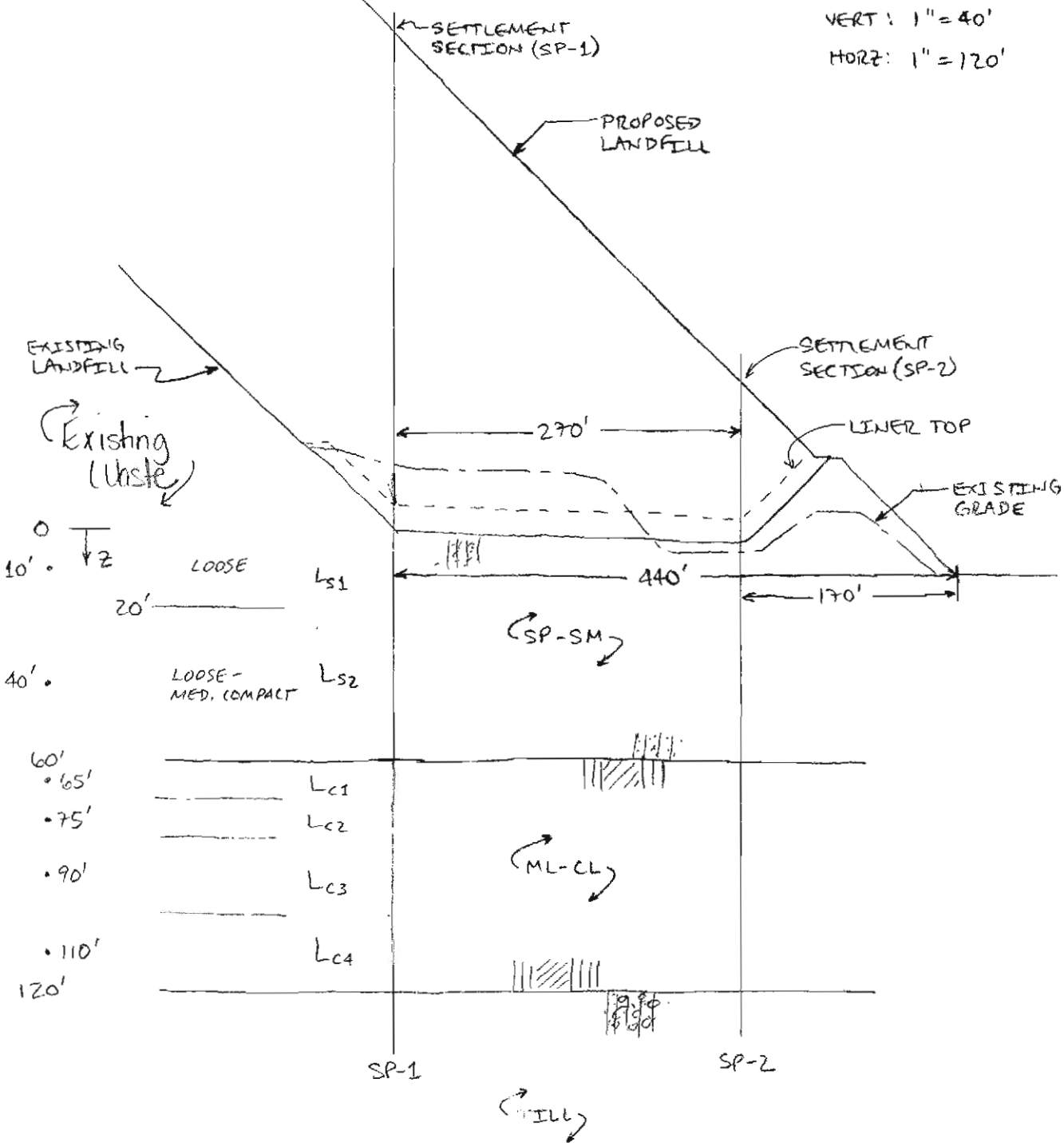
FIGURE 4-7

CHA COMPUTATION PAD

COMPLETED BY:	G. DALE	PROJECT	12206
CHECKED BY:		PHASE	4500
PROJECT NAME:	RAPP RD LANDFILL, EAST EXPANSION	ORG	1502
PROJECT LOCATION:	ALBANY, NY	SHEET #:	1 OF 10
		DATE:	5-15-2007
		SUBJECT:	SETTLEMENT CALC, SUBSURFACE

SECTION A-A'

SCALE:
VERT: 1" = 40'
HORZ: 1" = 120'



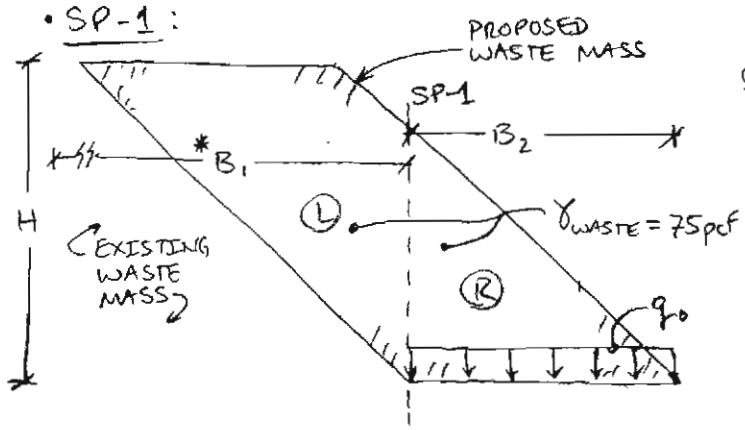
CHA COMPUTATION PAD

COMPLETED BY:	G. DALE	PROJECT	12206
CHECKED BY:	JAE	PHASE	4500
PROJECT NAME:	RAPP RD LANDFILL, EAST EXPANSION	ORG	1502
PROJECT LOCATION:	ALBANY, NY	SHEET #:	2 OF 10
		DATE:	5-15-2007
		SUBJECT:	SETTLEMENT CALC, SUBSURFACE

LOAD DISTRIBUTION BELOW SECTION A-A':

NOTE: AT SP-1, USE NET LOAD INCREASE, WHICH DISCOUNTS 17' OF EXISTING SITE SOIL TO BE REPLACED WITH 6' OF LINER SYSTEM & 11' OF WASTE. THEREFORE, HEIGHT OF WASTE MASS IS 113' VICE 130' ABOVE BASE OF LINER

• SP-1:



COMMENT:

- SINCE WASTE MASS IS NOT A TRUE EMBANKMENT, BUT A HORIZONTAL ADDITION TO THE EXISTING WASTE MASS (AS SHOWN AT LEFT), THE INFLUENCE FACTOR CALCULATED FOR (R) SIDE WILL BE USED FOR (L) SIDE.

- CALCULATION FROM DAS, PRINCIPLES OF FOUNDATION ENGINEERING, 1995 pg 199:

$$\Delta p = \frac{q_o}{\pi}\left[\frac{B_1+B_2}{B_2}(\alpha_1+\alpha_2) - \frac{B_1}{B_2}(\alpha_2)\right] \longrightarrow \text{BECOMES } \Delta p = q_o I' \text{ USING}$$

CHART AFTER OSTERBERG, 1957, USING B_1/z & B_2/z

* B_1 REPRESENTS THE TOP OF A TYPICAL EMBANKMENT, BUT THIS VALUE WILL BE CONSIDERED ZERO AS PER COMMENT ABOVE.

- $B_2 = 440'$

- $\Delta p_z = q_o(I'_{(R)} + I'_{(L)})$ w/ $q_o = \gamma_{WASTE}(H) = (75\text{ pcf})(113') = 8{,}475$ psf $= 4.25$ tsf

CHA COMPUTATION PAD

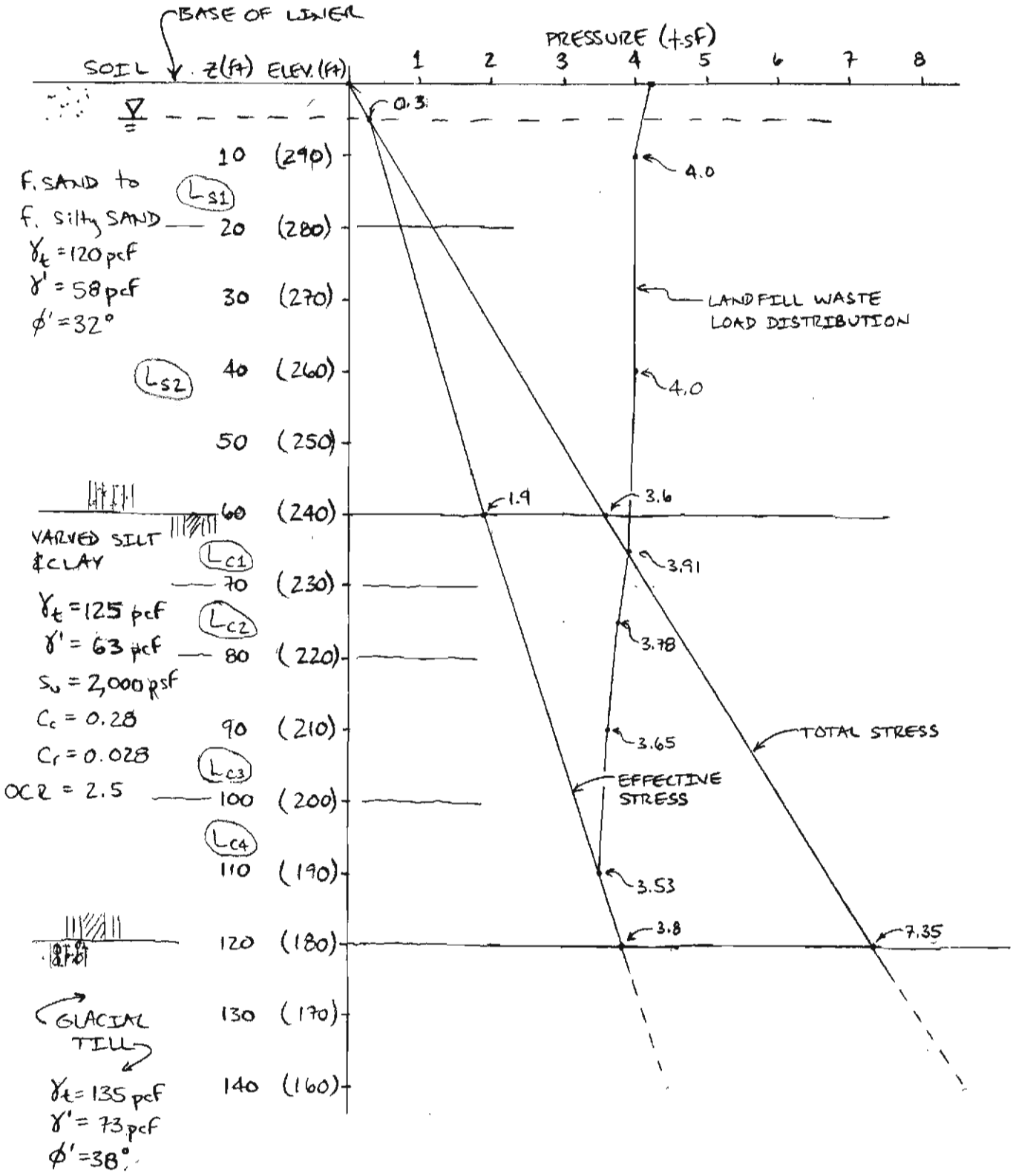
COMPLETED BY:	G. DALE	PROJECT	12206
CHECKED BY:	JAE	PHASE	4500
PROJECT NAME:	RAPP RD LANDFILL, EAST EXPANSION	ORG	1502
PROJECT LOCATION	ALBANY, NY	SHEET #:	3 OF 10
		DATE:	5-15-2007
		SUBJECT:	SETTLEMENT CALC, SUBSURFACE

z (ft)	B_1/z ⑫	B_2/z ⑫	I' ⑫	I' ⑭	Δp_z (tsf)
10'	∅	44	0.47	0.47	4.0 ✓
40'	∅	11	0.47	0.47	4.0 ✓
65'	∅	6.8	0.46	0.46	3.91 ✓
75'	∅	5.9	0.445	0.445	3.78 ✓
90'	∅	4.9	0.43	0.43	3.65 ✓
110'	∅	4.0	0.415	0.415	3.53 ✓

SEE COMMENT ABOVE

CHA COMPUTATION PAD

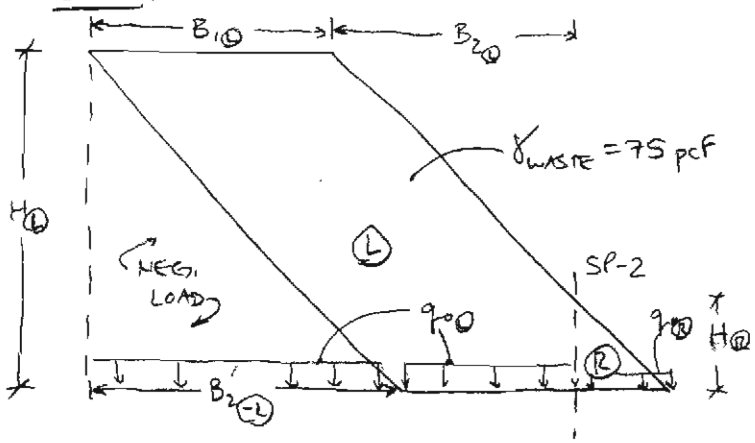
COMPLETED BY:	G. DALE	PROJECT / PHASE / ORG	1 2 2 0 6 4 0 0 5 1 5 0 2
CHECKED BY:		SHEET #:	4 OF 10
PROJECT NAME:	RAPP RD LANDFILL, EAST EXPANSION	DATE:	5-15-2007
PROJECT LOCATION:	ALBANY, NY	SUBJECT:	SUBSURFACE SOIL STRESSES



CHA COMPUTATION PAD

COMPLETED BY:	G. DALE	PROJECT / PHASE / ORG	1 2 2 0 6 4 5 0 0 1 5 0 2
CHECKED BY:	JAE	SHEET #:	5 OF 10
PROJECT NAME:	RAPP RD LANDFILL, EAST EXPANSION	DATE:	5-19-2007
PROJECT LOCATION:	ALBANY, NY	SUBJECT:	SETTLEMENT CALC, SUBSURFACE

• SP-2:



- FOR Ⓡ SIDE, $B_{1Ⓡ} = 0$ & $B_{2Ⓛ} = 170'$

- FOR Ⓛ SIDE, $B_{1Ⓛ} = 420'$ & $B_{2Ⓛ} = 360'$ & $B_{2(-Ⓛ)} = 510'$

- $\Delta p = [q_{oⓇ} \cdot I'_{Ⓡ}] + [q_{oⓁ} \cdot I'_{Ⓛ}] - [q_{oⓁ} \cdot I'_{(-Ⓛ)}]$

$\hookrightarrow q_{oⓇ} = (q_{WASTE})(H_Ⓡ) = (75\text{ pcf})(40') = 3000\text{ psf} = 1.5\text{ tsf}$

$\hookrightarrow q_{oⓁ} = (q_{WASTE})(H_Ⓛ) = (75\text{ pcf})(130') = 9750\text{ psf} = 4.88\text{ tsf}$

z(ft)	$B_1/z_Ⓡ$	$B_2/z_Ⓡ$	$I'_Ⓡ$	$B_1/z_Ⓛ$	$B_2/z_Ⓛ$	$I'_Ⓛ$	$B_1/z_{(-Ⓛ)}$	$B_2/z_{(-Ⓛ)}$	$I'_{(-Ⓛ)}$	Δp_z (tsf)
10	∅	17	0.47 ✓	42	36	0.5 ✓	∅	51	0.47 ✓	0.85 ✓
40	∅	4.25	0.42 ✓	10.5	9	0.5 ✓	∅	12.8	0.47 ✓	0.78 ✓
65	∅	2.62	0.38 ✓	6.5	5.5	0.5 ✓	∅	7.8	0.46 ✓	0.77 ✓
75	∅	2.27	0.36 ✓	5.6	4.8	0.5 ✓	∅	6.8	0.45 ✓	0.78 ✓
90	∅	1.89	0.34 ✓	4.7	4	0.5 ✓	∅	5.7	0.44 ✓	0.80 ✓
110	∅	1.55	0.30 ✓	3.8	3.3	0.5 ✓	∅	4.6	0.425 ✓	0.82 ✓

CHA COMPUTATION PAD

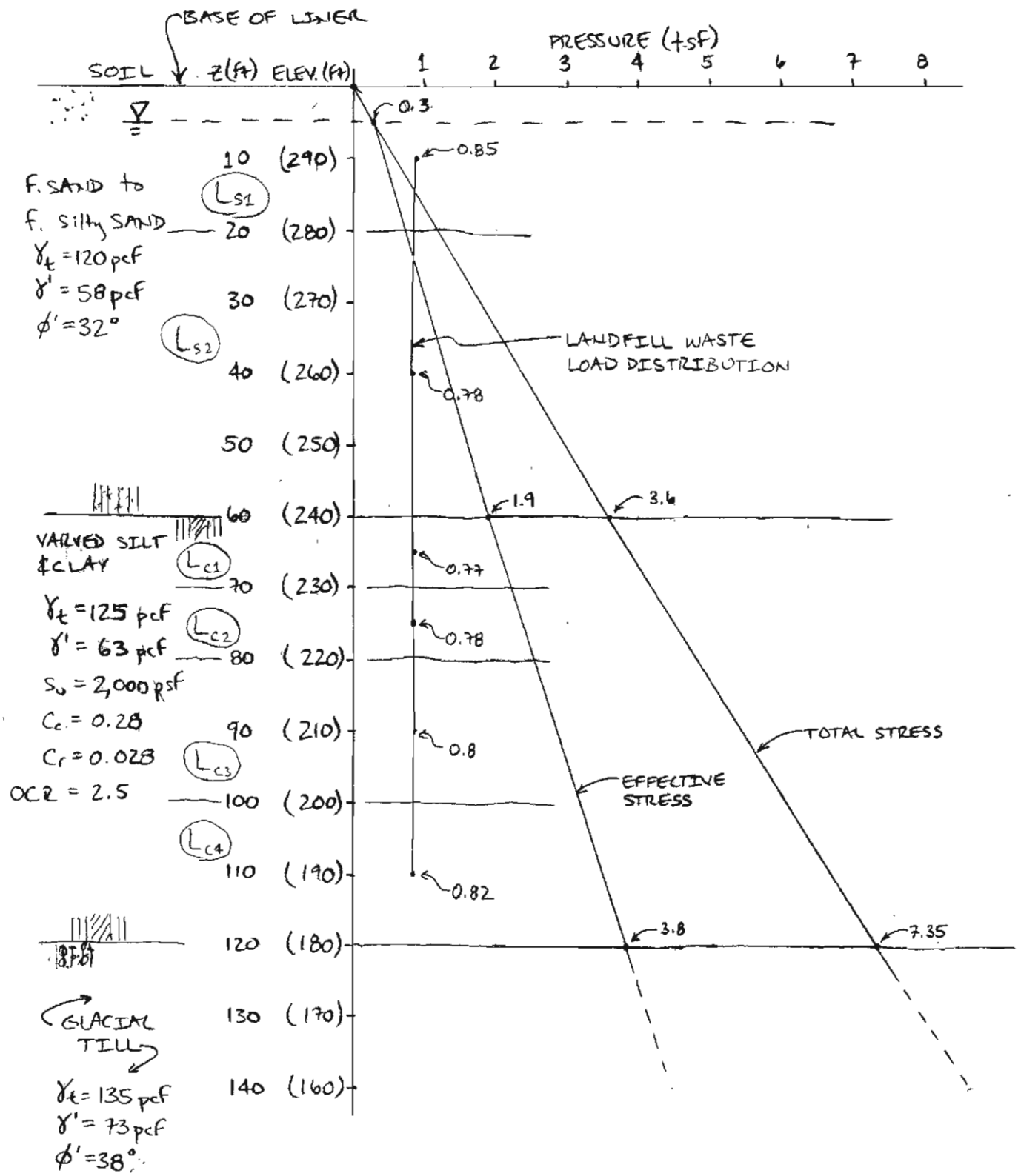
COMPLETED BY:	G. DALE
CHECKED BY:	JAE
PROJECT NAME:	RAPP RD LANDFILL, EAST EXPANSION
PROJECT LOCATION:	ALBANY, NY

PROJECT	PHASE	ORG
12206	4005	1502

SHEET #: 6 OF 10

DATE: 5-15-2007

SUBJECT: SUBSURFACE SOIL STRESSES



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CHECKED BY:	JAE	SHEET #:	7 OF 10
PROJECT NAME:	RAPP RD LANDFILL, EAST EXPANSION	DATE:	5-15-2007
PROJECT LOCATION:	ALBANY, NY	SUBJECT:	SETTLEMENT CALC, SUBSURFACE

1) FOR IMMEDIATE SETTLEMENT OF SANDS, USE APPROACH AFTER MEIGH, 1987:

$$S_i = \frac{(\Delta\sigma'_{vi})(\text{LAYER THICKNESS})}{M_i}$$

$\Delta\sigma'_{vi}$ ≡ INCREASE IN STRESS DUE TO WASTE PLACEMENT

- i REFERS TO EACH INCRIMENTAL WASTE LOADING; WILL ASSUME 3 EQUIVALENT LOADINGS UP TO PROPOSED LANDFILL ELEVATION AT EACH SETTLEMENT POINT, SP-1 & SP-2.

$$M_i = M_o \left[\frac{\left(\sigma'_{vo} + \sum_1^i \Delta\sigma'_{v,i-1} + \frac{\Delta\sigma'_{vi}}{2}\right)}{\sigma'_{vo}} \right]^{1/2}$$

↳ σ'_{vo} ≡ EFFECTIVE STRESS AT MID-POINT OF EACH LAYER

M_i ≡ CONSTRAINED MODULUS OF SOIL

- M_o IS DETERMINED USING EMPIRICAL RELATION TO CPT DATA

$M_o = \alpha_c \cdot q_c$, WHERE α_c DEPENDS ON SOIL TYPE AFTER US ARMY COR EM 1110-1-1904, 30 SEP 90, APP D, TABLE D-4

- SAND w/ $q_c < 50$ tsf ⇒ $2 \le \alpha_c \le 4$
- " " $q_c > 100$ tsf ⇒ $\alpha_c = 1.5$

L_{S1}: FROM 0'-20', $q_{c(AVG)} = 45$ tsf ⇒ $\alpha_c = 4$ ⇒ $M_o = 180$ tsf

L_{S2}: FROM 20'-60', $q_{c(AVG)} = 150$ tsf ⇒ $\alpha_c = 1.5$ ⇒ $M_o = 225$ tsf

- $\Delta\sigma_v' = q_o = 4.25$ tsf ⇒ $\Delta\sigma'_{vi} = 1.42$ tsf ← AT SP-1

$\Delta\sigma_v' = q_o = 1.5$ tsf ⇒ $\Delta\sigma'_{vi} = 0.5$ tsf ← AT SP-2

CHA COMPUTATION PAD

COMPLETED BY:	G. DALE for	PROJECT / PHASE / ORG	12206 4500 1502
CHECKED BY:	JAE	SHEET #: 8 OF 10	
PROJECT NAME:	RAPP RD LANDFILL, EAST EXPANSION	DATE:	5-15-2007
PROJECT LOCATION:	ALBANY, NY	SUBJECT:	SETTLEMENT CALC, SUBSURFACE

	LAYER	SOIL THICKNESS (ft)	σ_{v_0}' (tsf)	$\Delta\sigma_{v_1}'$ (tsf)	$\Delta\sigma_{v_2}'$ (tsf)	$\Delta\sigma_{v_3}'$ (tsf)	M_1 (tsf)	M_2 (tsf)	M_3 (tsf)	S_1 (ft)	S_2 (ft)	S_3 (ft)
SP-1	L_{s1}	20	0.45	1.42	1.42	1.42	289	431	536.7	0.098	0.065	0.053
	L_{s2}	40	1.32	1.42	1.42	1.42	279	363.8	432.2	0.204	0.156	0.131

- FOR SP-1, L_{s1}, $S_{i1} = 0.098 + 0.065 + 0.053 = 0.216$ ft
- FOR SP-1, L_{s2}, $S_{i2} = 0.204 + 0.156 + 0.131 = 0.491$ ft

SP-2	L_{s1}	20	0.45	0.5	0.5	0.5	224.5	293.4	349.9	0.045	0.034	0.029
	L_{s2}	40	1.32	0.5	0.5	0.5	245.4	281.8	314.0	0.081	0.071	0.064

- FOR SP-2, L_{s1}, $S_{i1} = 0.108$ ft
- FOR SP-2, L_{s2}, $S_{i2} = 0.216$ ft

---

2) FOR CONSOLIDATION SETTLEMENT OF CLAYS & SILTS:

(a) $$S_c = \frac{C_r}{1+e_0}(H_{o_i})\log\left(\frac{\sigma_p'}{\sigma_{v_{o_i}}'}\right) + \frac{C_c}{1+e_0}(H_{o_i})\log\left(\frac{\sigma_{v_{o_i}}' + \Delta p_{z_i}}{\sigma_p'}\right) \quad \text{IF } \sigma_{v_{o_i}}' + \Delta p_{z_i} > \sigma_p'$$

-OR-

(b) $$S_c = \frac{C_r}{1+e_0}(H_{o_i})\log\left(\frac{\sigma_{v_{o_i}}' + \Delta p_{z_i}}{\sigma_{v_{o_i}}'}\right) \quad \text{IF } \sigma_{v_{o_i}}' + \Delta p_{z_i} < \sigma_p'$$

- AFTER LAMBE & WHITMAN, 1969, $w_n = 43\%$ FROM PA-B-1, WHICH IS TYPICAL FOR LAKE ALBANY SILTS & CLAYS $\Rightarrow$ $\frac{C_c}{1+e_0} = 0.13$, TAKE $\frac{C_r}{1+e_0} = (0.1)\frac{C_c}{1+e_0} = 0.013$

CHA COMPUTATION PAD

COMPLETED BY:	G. DALE	PROJECT / PHASE / ORG	12206 4500 1502
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PROJECT NAME:	RAPP RD LANDFILL, EAST EXPANSION	DATE:	5-15-2007
PROJECT LOCATION:	ALBANY, NY	SUBJECT:	SETTLEMENT CALC, SUBSURFACE

	LAYER	H_o (ft)	σ_{vo}' MID.PT. (tsf)	† σ_p' (tsf)	$\sigma_{vo}' + \Delta p_z$ (tsf)	FORMULA	S_c (ft)
SP-1	L_{c1}	10	2.05	5.13	5.96	(a)	0.136 ✓
	L_{c2}	10	2.37	5.93	6.15	(a)	0.072 ✓
	L_{c3}	20	2.84	7.10	6.49	(b)	0.093 ✓
	L_{c4}	20	3.47	8.68	7.00	(b)	0.079 ✓

† σ_p' CALCULATED USING TYPICAL OCR = 2.5 OF LAKE ALBANY SILTS & CLAYS: $\sigma_p' = OCR \cdot \sigma_{vo}'$

• FOR SP-1, S_c = 0.38 ft ✓ //

SP-2	L_{c1}	10	2.05	5.13	2.82	(b)	0.018 ✓
	L_{c2}	10	2.37	5.93	3.15	↓	0.016 ✓
	L_{c3}	20	2.84	7.10	3.64		0.028 ✓
	L_{c4}	20	3.47	8.68	4.29		0.024 ✓

• FOR SP-2, S_c = 0.086 ft //

---

3) SECTION A-A'

@ SP-1, $S_{TOTAL} = S_{i1} + S_{i2} + S_c = 0.216' + 0.491' + 0.38' = 1.09$ ft ✓

@ SP-2, $S_{TOTAL} = S_{i1} + S_{i2} + S_c = 0.108' + 0.216' + 0.086' = 0.41$ ft ✓

CHA COMPUTATION PAD

COMPLETED BY:	G. DALE for	PROJECT / PHASE / ORG	12206 4500 1502
CHECKED BY:	JAE	SHEET #:	10 OF 10
PROJECT NAME:	RAPP RD LANDFILL, EAST EXPANSION	DATE:	5-15-2007
PROJECT LOCATION:	ALBANY, NY	SUBJECT:	SETTLEMENT CALC, SUBSURFACE

	INITIAL			FINAL
SETTLEMENT POINT	TOP OF LINER EL.	% GRADE	EST. SETTLEMENT	TOP OF LINER EL.
SP-1	308'	1.5	1.09'	306.91'
SP-2	304'		0.41'	303.59'

PRINCIPLES OF FOUNDATION ENGINEERING

Third Edition

BRAJA M. DAS
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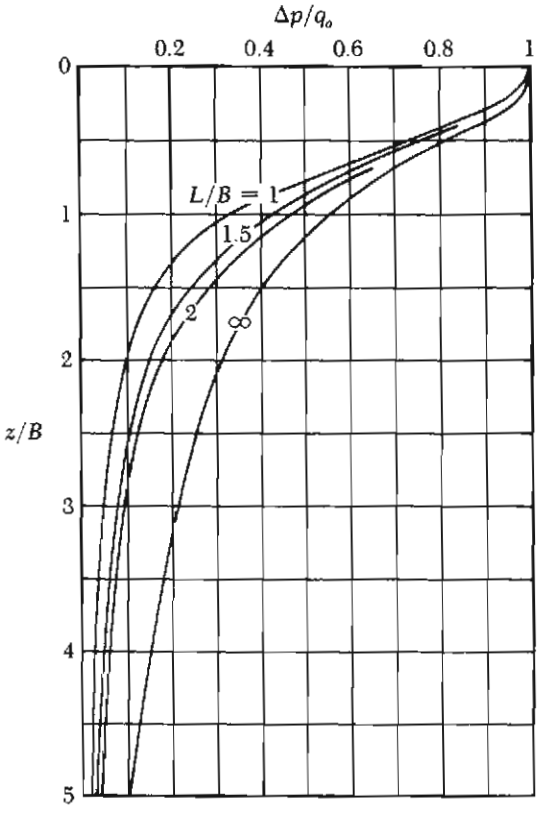


▼ **FIGURE 3.41** Increase of stress under the center of a flexible loaded rectangular area

method (Figure 3.42, page 200). According to this method, the increase of stress at depth z is

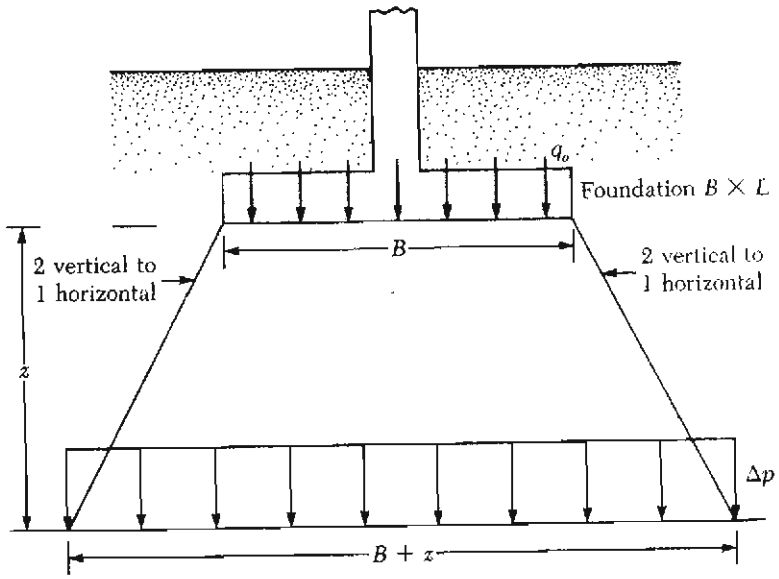
$$\boxed{\Delta p = \frac{q_o \times B \times L}{(B + z)(L + z)}} \tag{3.108}$$

Note that Eq. (3.108) is based on the assumption that the stress from the foundation spreads out along lines with a *2 vertical to 1 horizontal slope.*

Stress Increase Under an Embankment

Figure 3.43 shows the cross section of an embankment of height H. For this two-dimensional loading condition the vertical stress increase may be expressed as

$$\boxed{\Delta p = \frac{q_o}{\pi}\left[\left(\frac{B_1 + B_2}{B_2}\right)(\alpha_1 + \alpha_2) - \frac{B_1}{B_2}(\alpha_2)\right]} \tag{3.109}$$

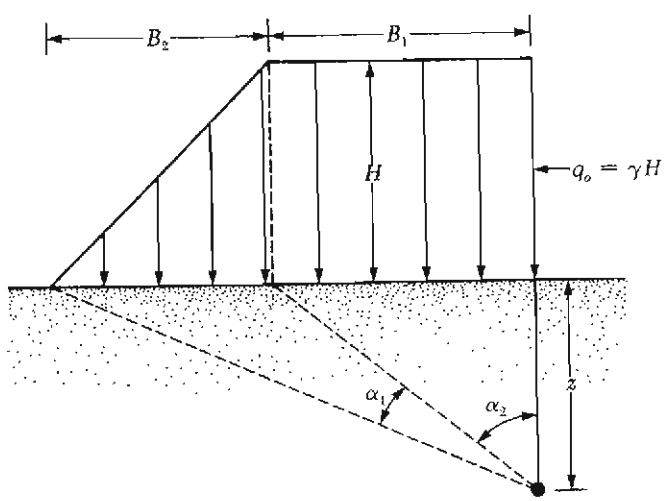


▼ **FIGURE 3.42** 2:1 method of finding stress increase under a foundation

where $q = \gamma H$
γ = unit weight of the embankment soil
H = height of the embankment

$$\alpha_1 \text{ (radians)} = \tan^{-1}\left(\frac{B_1 + B_2}{z}\right) - \tan^{-1}\left(\frac{B_1}{z}\right) \tag{3.110}$$

$$\alpha_2 = \tan^{-1}\left(\frac{B_1}{z}\right) \tag{3.111}$$



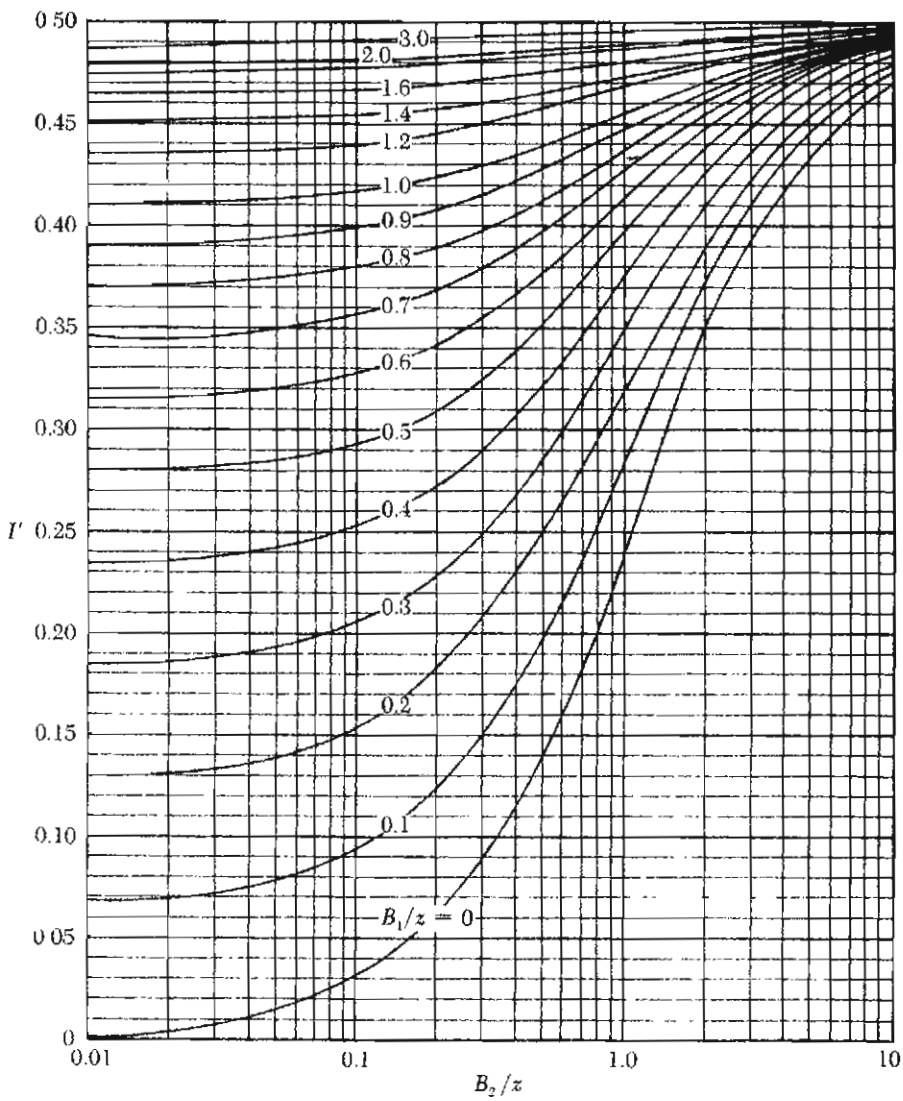
▼ **FIGURE 3.43** Embankment loading

For a detailed derivation of the equation, see Das (1983). A simplified form of Eq. (1.109) is

$$\Delta p = q_o I' \tag{3.112}$$

where I' = a function of B_1/z and B_2/z.

The variation of I' with B_1/z and B_2/z is shown in Figure 3.44. Application of this diagram is shown in Example 3.12 on page 204.



▼ **FIGURE 3.44** Influence value of I' for embankment loading (after Osterberg, 1957)

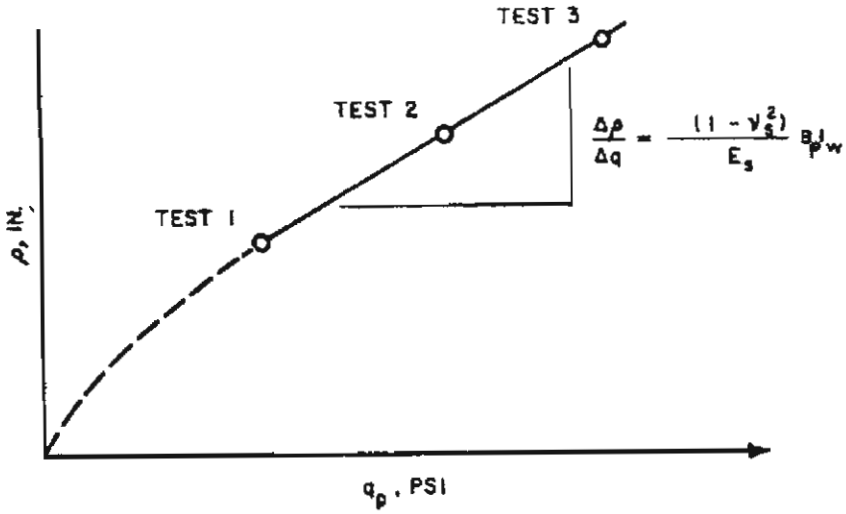


Figure D-5. Graphical solution of soil elastic modulus E_s from the plate load test. $I_w = \pi/4$ for circular rigid plate of diameter B_p. ν_s = Poisson's ratio

This elastic modulus is representative of soil within a depth of $2B_p$ beneath the plate.

(2) Cone penetration test (CPT). The constrained modulus E_d has been empirically related with the cone tip bearing resistance by

$$E_d = \alpha_c \cdot q_c \tag{D-4}$$

where

E_d = Constrained modulus, tsf
α_c = correlation factor depending on soil type and the cone bearing resistance, Table D-4
q_c = cone tip bearing resistance, tsf

A typical value for sands is $\alpha_c = 3$, but can increase substantially for over-consolidated sand. A typical value for clays is $\alpha_c = 10$ when used with the net cone resistance $q_c - \sigma_o$ where σ_o is the total overburden pressure. The undrained shear strength C_u is related to q_c by

$$C_u = \frac{q_c - \sigma_c}{N_k} \tag{D-5}$$

where

C_u = undrained shear strength, tsf
q_c = cone tip resistance, tsf
σ_o = total overburden pressure, tsf
N_k = cone factor

The cone factor often varies from 10 to 20 and can be greater.

Table D-4

Correlation Factor α_c (Data from Item 44)

Soil	Resistance q_c, tsf	Water Content, percent	α_c
Lean clay (CL)	<7		3 to 8
	7 to 20		2 to 5
	>20		1 to 2.5
Silt (ML)	<20		3 to 6
	>20		1 to 3
Plastic silt clay (CH,MH)	<20		2 to 6
Organic silt	<12		2 to 8
Organic clay peat	<7	50 to 100	1.5 to 4
		100 to 200	1 to 1.5
		>200	0.4 to 1
Sand	<50		2 to 4
	>100		1.5
			$1 + D_r^2$
Clayey sand			3 to 6
Silty sand			1 to 2
Chalk	20 to 30		2 to 4

* Note: D_r = relative density, fraction

(3) Standard penetration test (SPT). The elastic modulus in sand may be estimated directly from the blow count by (item 60)

$$E_s = 9.4N^{0.87}\sqrt{B}(1 + 0.4\frac{D}{B}) \qquad \text{(D-6)}$$

where

E_s = Young's soil modulus, tsf
N = average blow count per foot in the stratum, number of blows of a 140 pound hammer falling 30 inches to drive a standard sampler (1.42" ID, 2.00" OD) one foot. Sampler is driven 18 inches and blows counted the last 12 inches.
B = width of footing, ft
D = depth of embedment of footing, ft

Equation D-6 was developed from information in the literature and original settlement observations without consideration of the energy of the hammer. An alternative method of estimating the elastic modulus for footing foundations on clean sand or sand and gravel is (after item 12)

Liner System Stability Calculations

	Gamma pcf	C psf	Phi deg	Piezo Surf.
Landfill Waste	75	300	33	0
Sand	120	0	32	1
Silt & Clay	125	2000	0	1
Glacial Till	135	0	38	1

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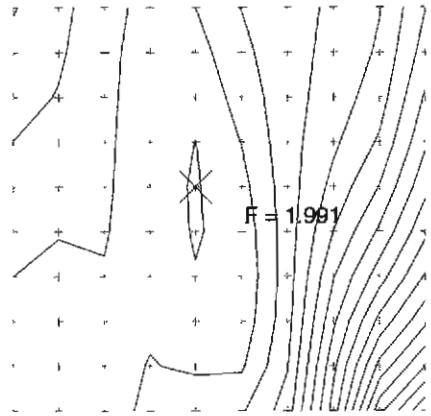
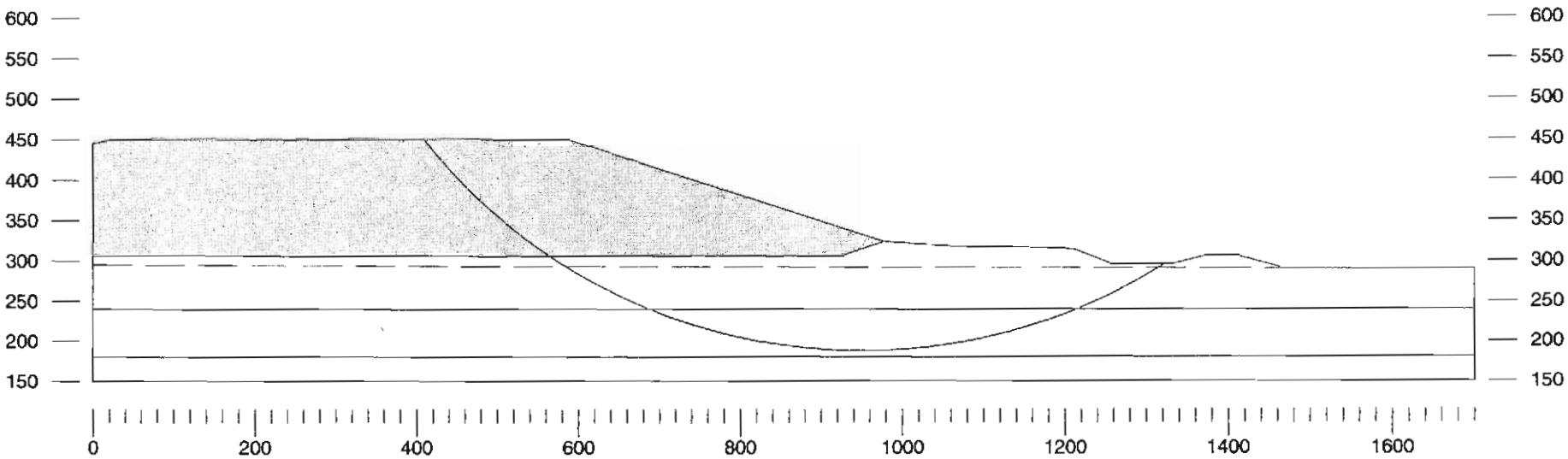
Section A-A' Existing Conditions





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	Gamma pcf	C psf	Phi deg	Piezo Surf.
Landfill Waste	75	300	33	0
Sand	120	0	32	1
Silt & Clay	125	2000	0	1
Glacial Till	135	0	38	1

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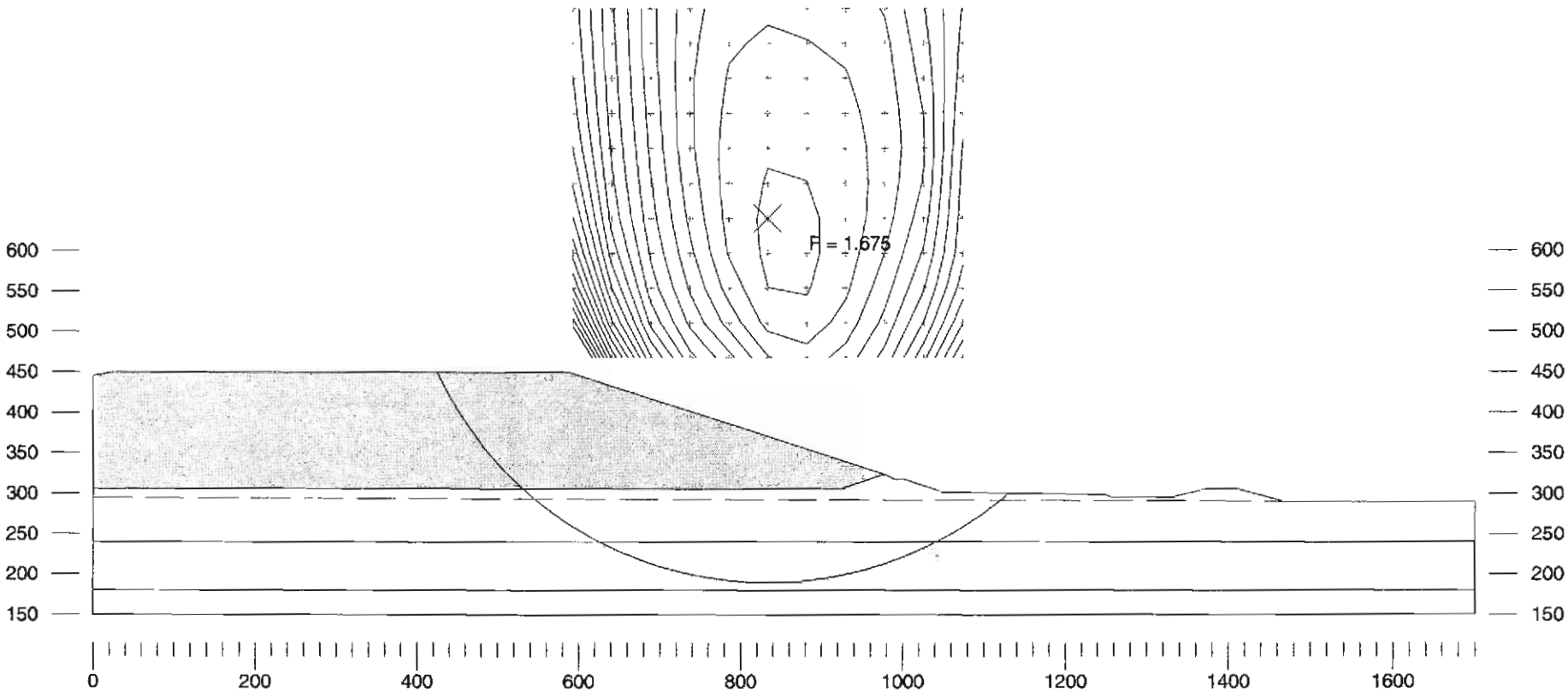
Section A-A' Const'n Scenario 1



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	Gamma pcf	C psf	Phi deg	Piezo Surf.
Landfill Waste	75	300	33	0
Sand	120	0	32	1
Silt & Clay	125	2000	0	1
Glacial Till	135	0	38	1

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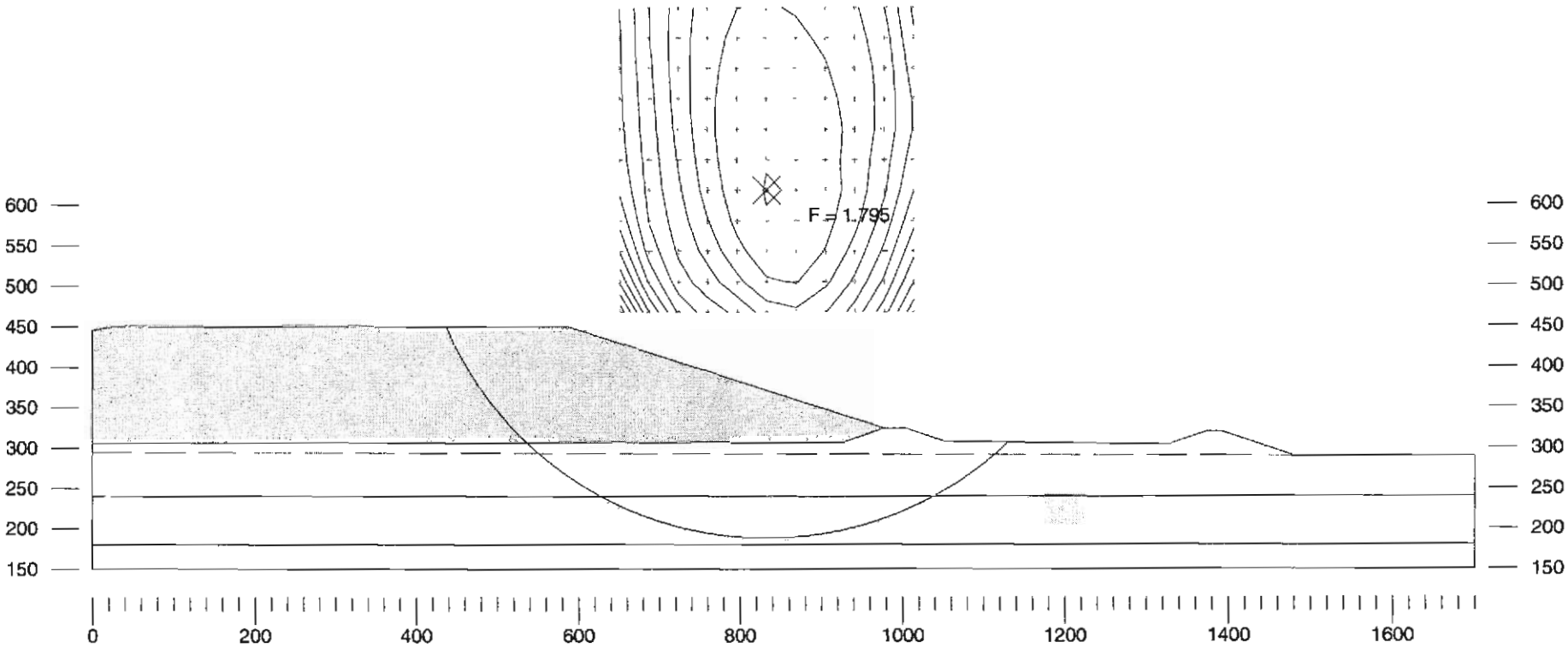
Section A-A' Empty Expansion



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	Gamma pcf	C psf	Phi deg	Piezo Surf.
N Landfill Waste	75	300	33	0
E Landfill Waste	75	300	33	0
Sand	120	0	32	1
Silt & Clay	125	2000	0	1
Glacial Till	135	0	38	1

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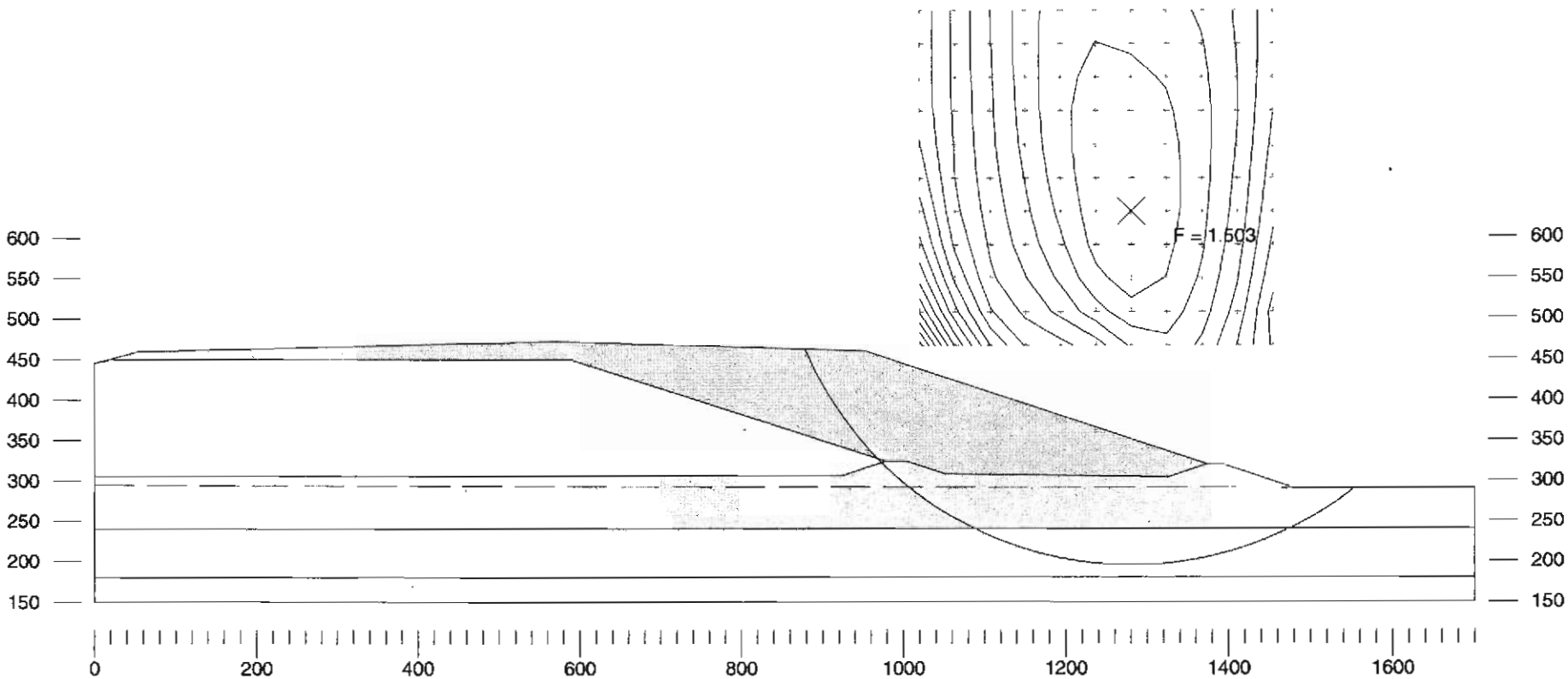
5-15-2007
Section A-A' Full Expansion



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Interface Stability Calculations

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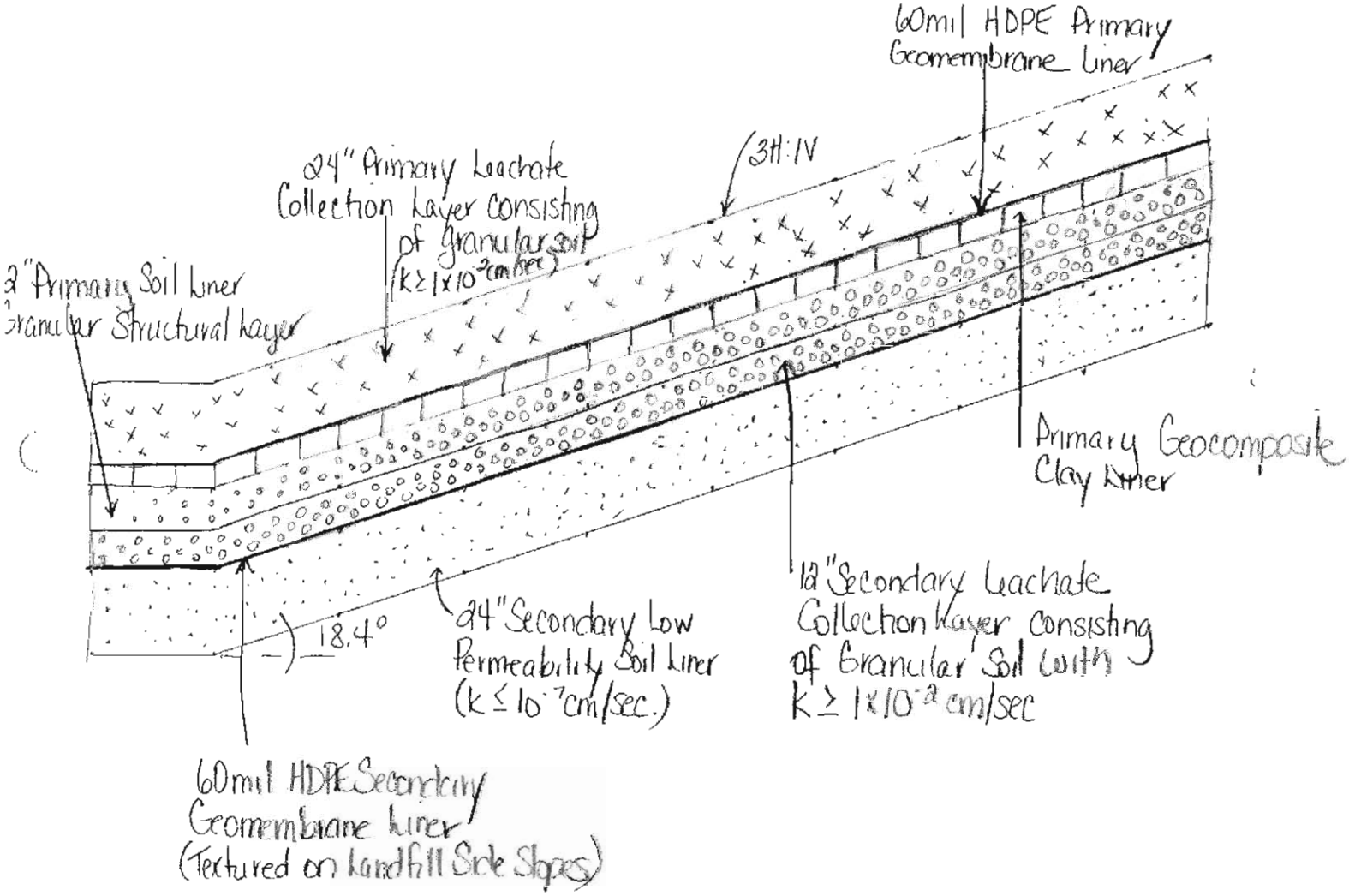
PROJECT NAME:	C/o Albany Rapp Rd LF Eastern Expansion	DATE:	05/23/07
PROJECT LOCATION:	Albany, NY	SUBJECT:	Stability Calculations - Liner System

Liner System Detail (Sheet G-17, Detail 5), NTS



Stability Analysis Method (Giroud & Beech (1990))

$$FS_i = \cancelto{0 \text{ (See assumption 1)}}{\frac{\alpha}{\gamma H D}} + \frac{\tan \phi_i}{\tan \beta} + \cancelto{0 \text{ (see assumption 2)}}{\frac{D}{H}\left[\frac{\tan(\phi_s + \beta) - \tan \phi_i}{2 \sin \beta}\right]} = \frac{\tan \phi_i}{\tan \beta}$$

Assumptions:
1. $\alpha = 0$ (conservative)
2. infinite slope length (conservative)
3. decrease ϕ_i by 2° for analysis (Mitchell et al)[2]
4. no buoyant soil conditions.

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PROJECT NAME:	C/o Albany Rapp Rd. LF Eastern Expansion	DATE:	05/23/07
PROJECT LOCATION:	Albany, NY	SUBJECT:	Stability Calculations

Interface Shear Analysis for: ① Geocomposite cover system drainage layer & 24" Barrier layer, ② 40mil HDPE textured geomembrane barrier & 12" cover system cushion soil layer)

- Choose $\phi_i = 29°$ $\quad FS_i = \frac{\tan \phi_i}{\tan \beta} = \frac{\tan(29° - 2°)}{\tan(18.4°)} = 1.53 > 1.5$ ∴ OK

(see assumption 3)

⟹ $\phi_i = 29°$ is the minimum interface angle for soil/geosynthetic at a slope of 3H:1V for which a factor of safety of 1.5 is maintained against sliding failure.

Internal Shear Analysis for ① & ②

- Choose $\phi_s = 27°$ $\quad FS_s = \frac{\tan \phi_s}{\tan \beta} = \frac{\tan(27°)}{\tan(18.4)} = 1.53 > 1.5$ ∴ OK

⟹ $\phi_s = 27°$ is the minimum internal shear angle for a soil on a slope of 3H:1V for which a factor of safety of 1.5 is maintained against internal failure.

References:

1.) Giroud & Beech (1990) - "Liner Stability and Tension Considerations Regarding Cover Soils on Geomembrane Lined Slopes."

2.) Mitchell, V.K., and Seed, R.B. (1990), "Kettlemen Hills Waste Landfill Slope Failure, I: Liner System Properties."

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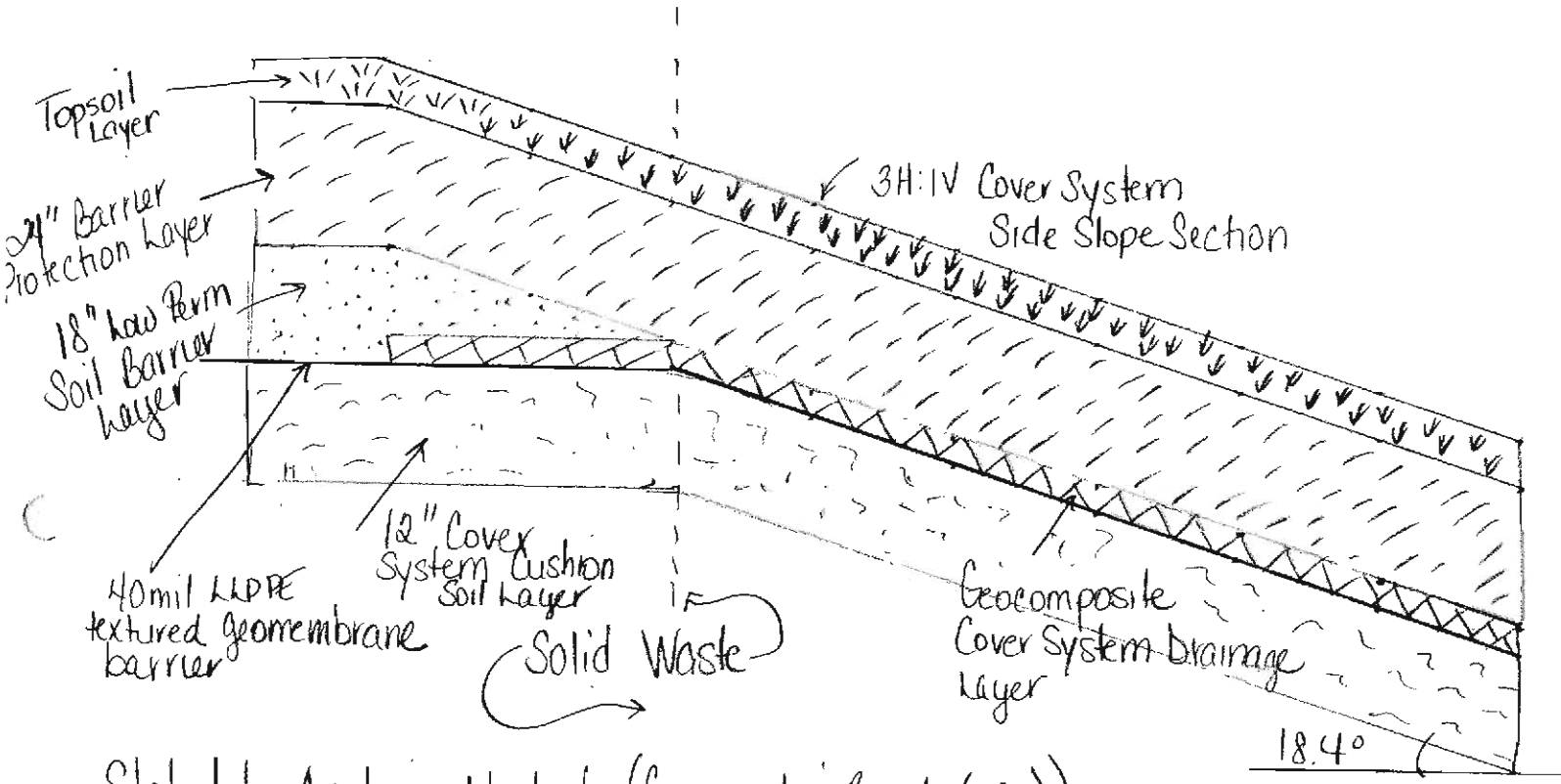
PROJECT NAME:	C/O Albany Rapp Rd LF Eastern Expansion	DATE:	05/23/07
PROJECT LOCATION:	Albany, NY	SUBJECT:	Stability Calculations - Cover System

Cover System Detail (Sheet G-18, Detail 10), NTS



Stability Analysis Method (Giroud & Beech (1990))

$$FS_i = \frac{\alpha}{\gamma HD} + \frac{\tan \phi_i}{\tan \beta} + \frac{D}{H}\left[\frac{\tan(\phi_s + \beta) - \tan \phi_i}{2 \sin \beta}\right] = \frac{\tan \phi_i}{\tan \beta}$$

0 (see assumption 1) 0 (see assumption 2)

$$FS_s = \frac{\tan \phi_s}{\tan \beta}$$

Where α = Tension in Geosynthetic
γ = Unit Weight of Soil
D = Thickness of Soil Layer
H = Height of Slope
β = Slope Angle
ϕ_s = Internal Angle of Soil Friction
ϕ_i = Internal Friction Angle
FS_i = Factor of Safety Against Sliding
FS_s = Factor of Safety Against Internal Failure

Assumptions:
1. $\alpha = 0$ (conservative)
2. infinite slope length (conservative)
3. decrease ϕ_i by 2° for analysis (Mitchell et al)[2]
4. no buoyant soil conditions

CHA COMPUTATION PAD

COMPLETED BY:	J. Everleth	PROJECT / PHASE / ORG	1 2 2 0 6 4 0 0 5 1 5 0 2
CHECKED BY:	DMR	SHEET #: 2 OF 2	
PROJECT NAME:	96 Albany Rapp Rd LF Eastern Expansion	DATE:	05/25/07
PROJECT LOCATION:	Albany, NY	SUBJECT:	Stability Calcs - Cover System

Interface Shear Analysis for: ① 60mil HDPE primary geomembrane liner & 24" Secondary Low Permeability soil liner ($k \leq 10^{-7}$ cm/sec.) & 12" secondary leachate collection layer consisting of granular soil ($k \geq 10^{-2}$ cm/sec); ② primary geocomposite clay liner & 12" primary soil layer granular structural layer; ③ 60 mil HPDE primary geomembrane liner & 24" primary leachate collection layer consisting of granular soil ($k \geq 1 \times 10^{-2}$ cm/sec.)

- Choose $\phi_i = 29°$, $FS_i = \frac{\tan \phi_i}{\tan \beta} = \frac{\tan(29° - 2°)}{\tan 18.4} = 1.53 > 1.5 \therefore OK$

see assumption 2

$\Rightarrow$ $\phi_i = 29°$ is the maximum interface angle for soil/geosynthetic at a slope of 3H:1V for which a factor of safety of 1.5 is maintained against sliding failure.

Interface Shear Analysis for ①, ② and ③:

- Choose $\phi_s = 27°$, $FS_s = \frac{\tan \phi_s}{\tan \beta} = \frac{\tan(27)}{\tan(18.4)} = 1.53 > 1.5 \therefore OK$

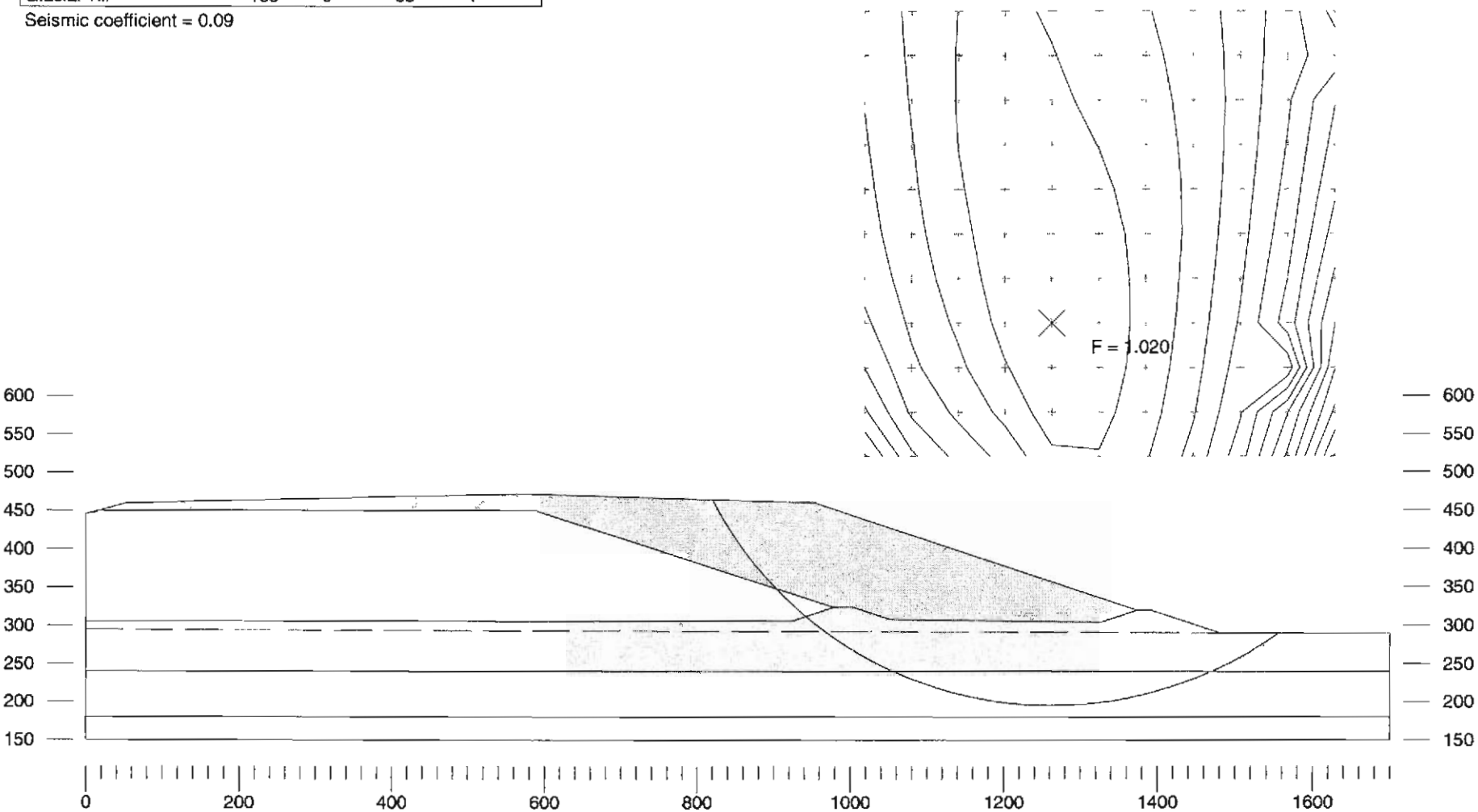
$\Rightarrow$ $\phi_s = 27°$ is the maximum internal shear angle for a soil on a slope of 3H:1V for which a factor of safety of 1.5 is maintained against internal failure.

Seismic Stability Calculations

	Gamma pcf	C psf	Phi deg	Piezo Surf.
N Landfill Waste	75	300	33	0
E Landfill Waste	75	300	33	0
Sand	120	0	32	1
Silt & Clay	125	2000	0	1
Glacial Till	135	0	38	1

Seismic coefficient = 0.09

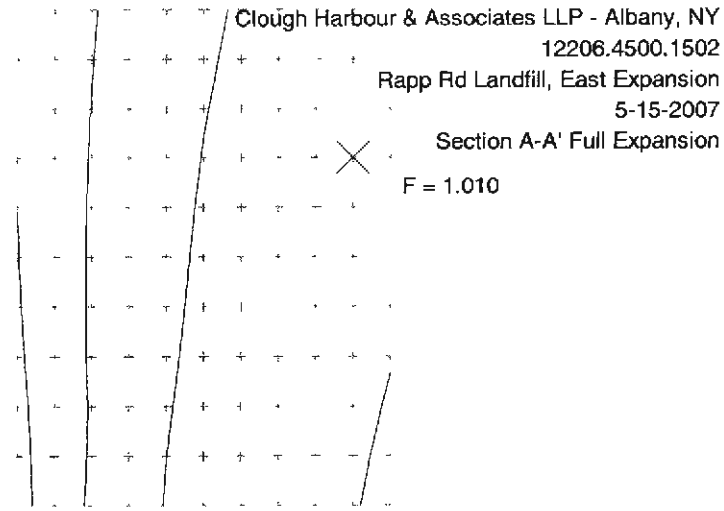
Clough Harbour & Associates LLP - Albany, NY
12206.4500.1502
Rapp Rd Landfill, East Expansion
5-15-2007
. Section A-A' Full Expansion

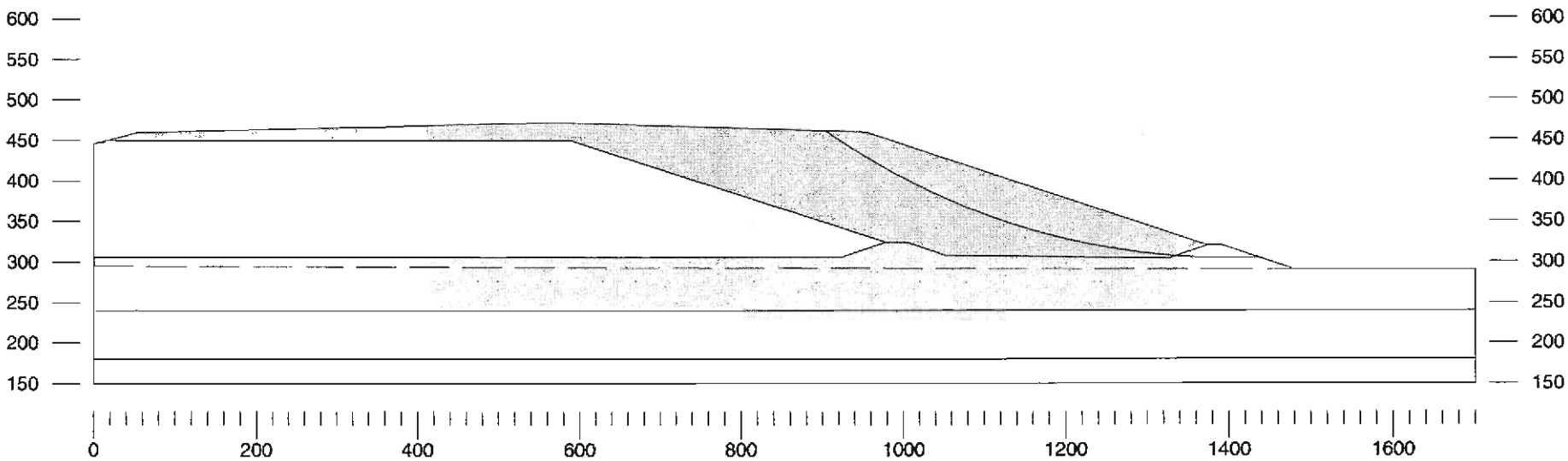


5/21/2007 3:04:18 PM K:\12206\EXPANS~1\PART36~1\SLOPES~1\AA_FULLS.GSL Clough Harbour & Associates LLP - Albany, NY F = 1.020

	Gamma pcf	C psf	Phi deg	Piezo Surf.
N Landfill Waste	75	300	33	0
E Landfill Waste	75	300	33	0
Sand	120	0	32	1
Silt & Clay	125	2000	0	1
Glacial Till	135	0	38	1

Seismic coefficient = 0.39





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CHA COMPUTATION PAD

COMPLETED BY:	B. DALE	PROJECT	12206
CHECKED BY:		PHASE	45001
PROJECT NAME:	RAPP RD LANDFILL, EAST EXP	ORG	502
PROJECT LOCATION:	ALBANY, NY	SHEET #	1 OF 1
		DATE:	5-12-07
		SUBJECT:	GROUND DISPLACEMENT-SEISMIC

1) $a_{rock} = PGA = 0.11$ (USGS Zip Code Look-up)

2) $a_{ground} = a_{rock} = 0.11$, FROM SEED & IDRISS, 1982

3) $k_y = 0.09 \Rightarrow \frac{k_y}{k_{MAX}} = \frac{0.09}{0.11} = 0.82$

4) $\Delta = 0.1$ cm $= \underline{0.04}$ in, FROM MAKDISI & SEED, 1977 < 12 in (OK)

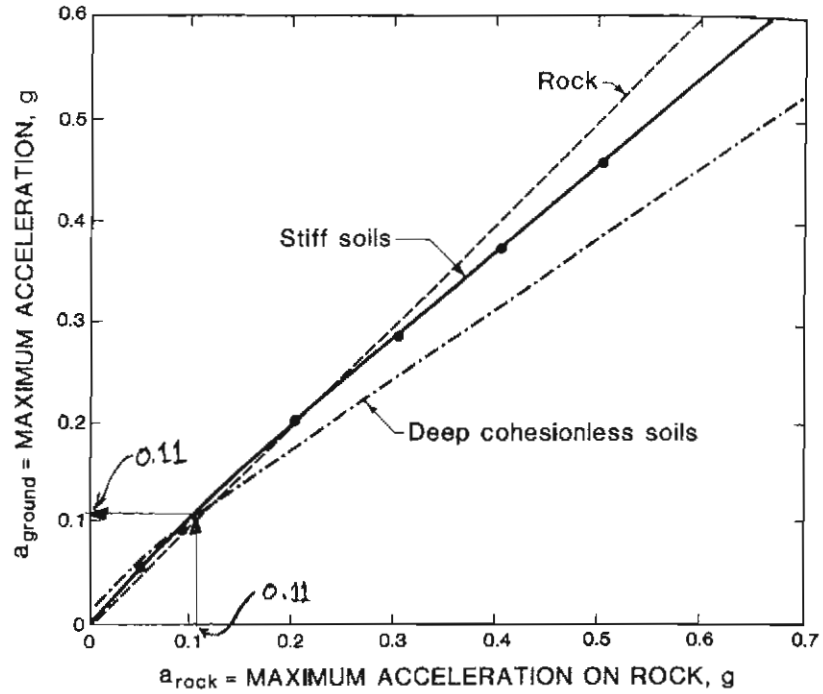


Figure 10.20 Approximate values for ground acceleration. (From Seed and Idriss, 1982. Reproduced by permission of Earthquake Engineering Research Institute.)

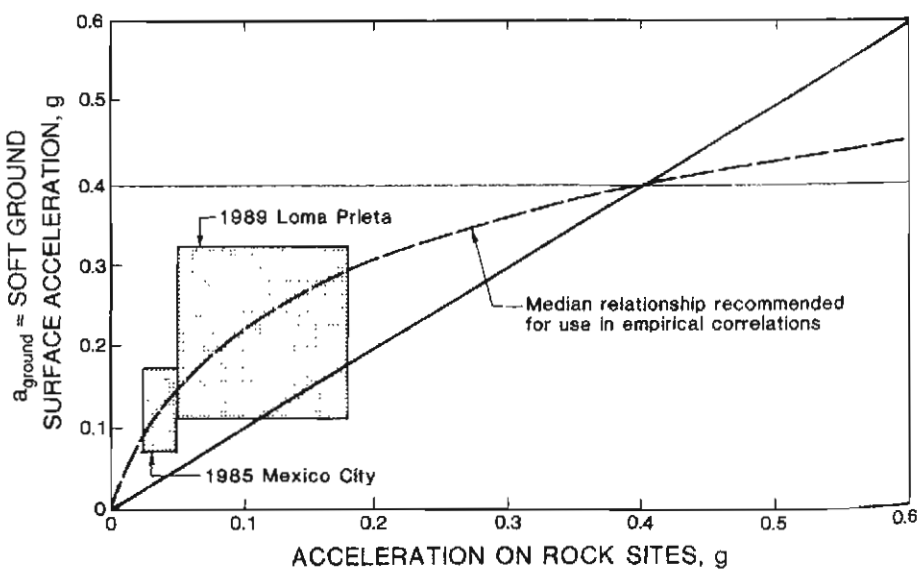


Figure 10.21 Variations of acceleratons on soft soil sites versus rock sites. (From Idriss, 1990.)

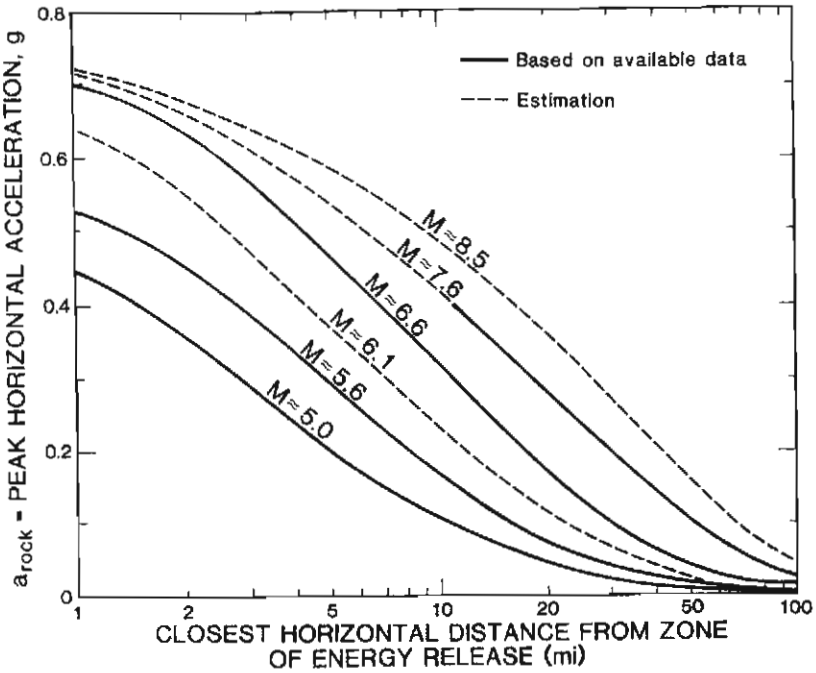


Figure 10.22 Average values of maximum accelerations in rock. (From Seed and Idriss, 1982. Reproduced by permission of Earthquakes Engineering Research Institute.)

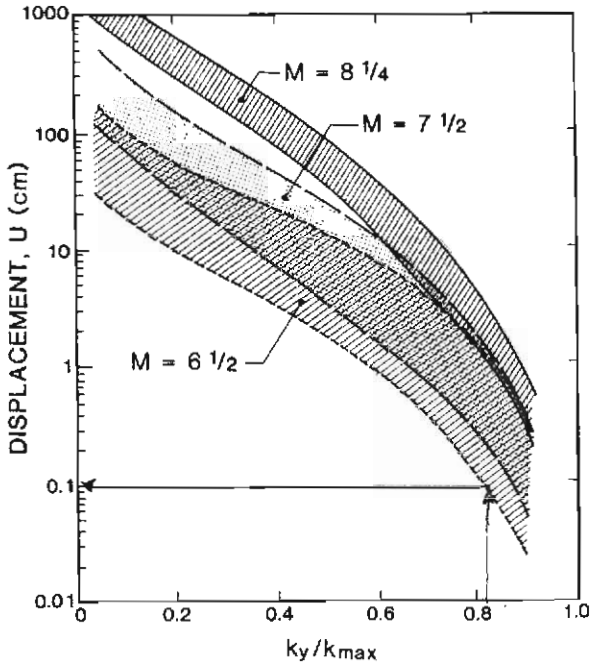
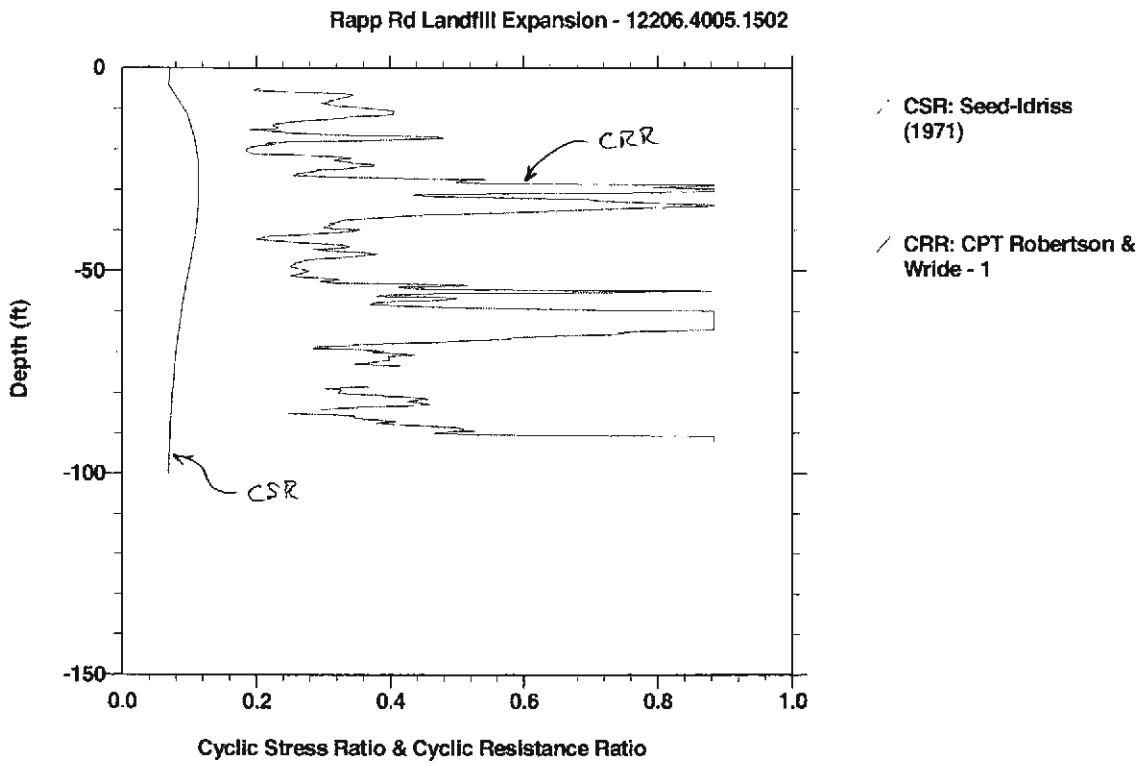
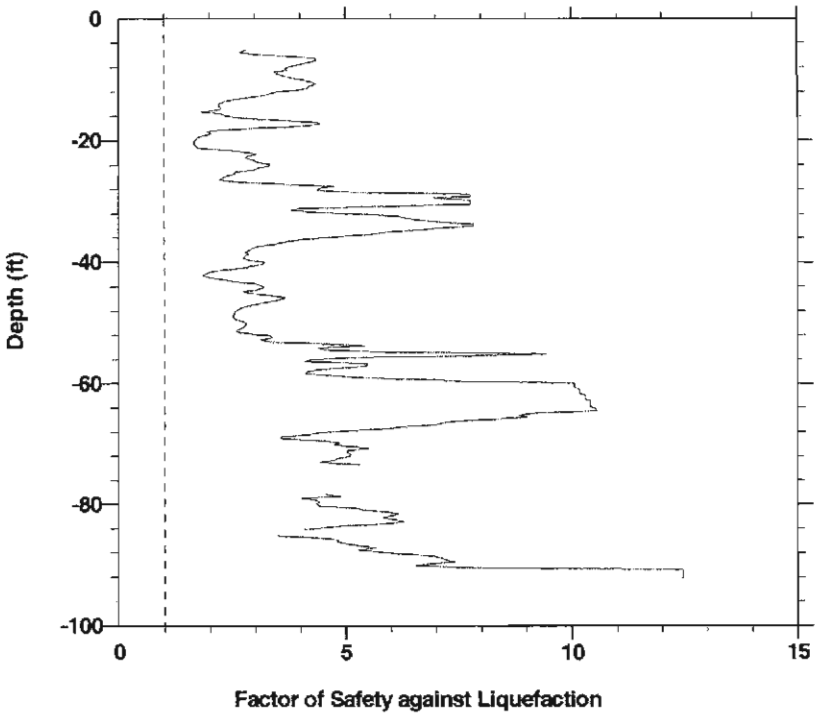


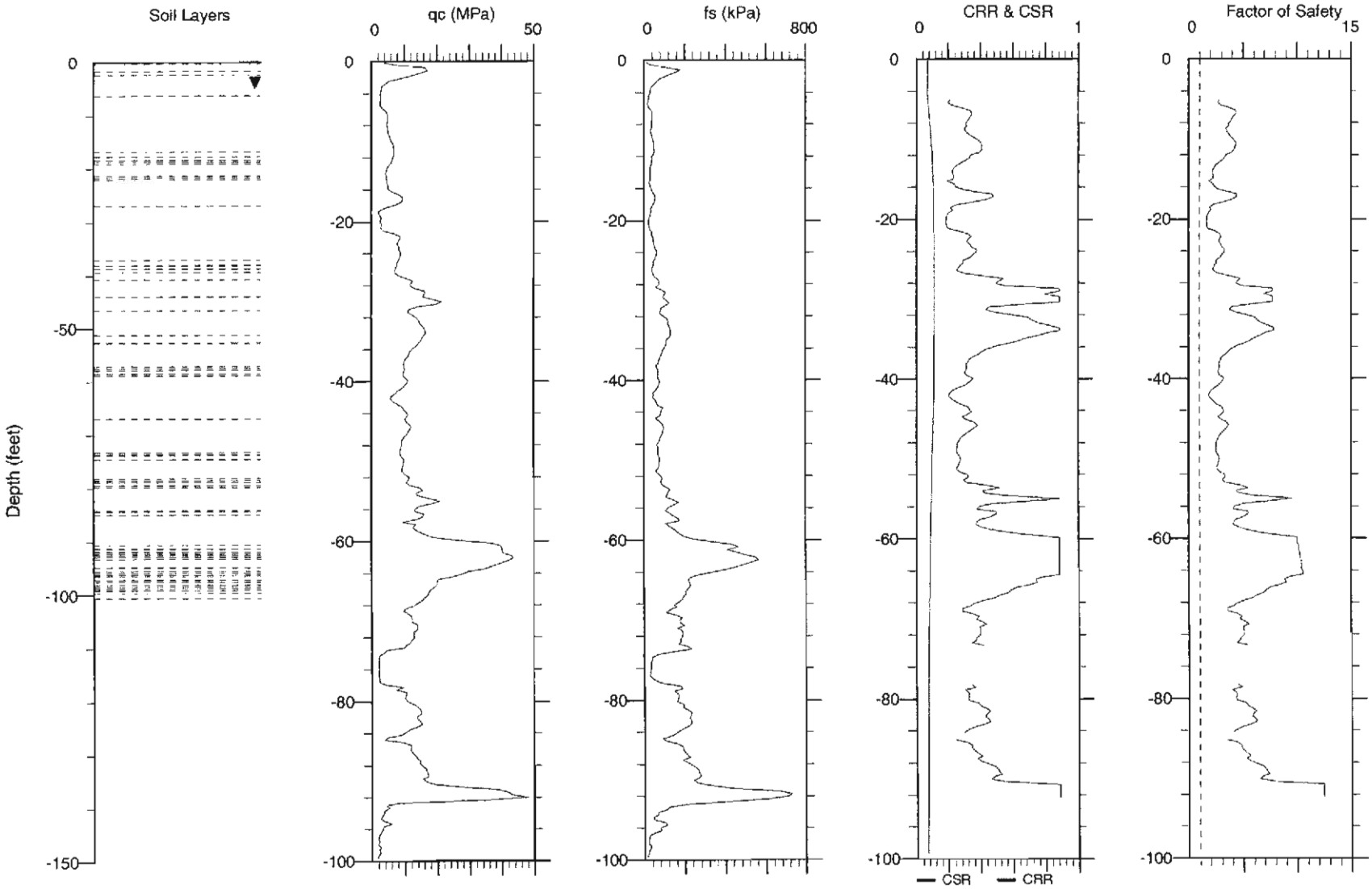
Figure 10.23 Variation of permanent displacement with yield acceleration. (From Makdisi and Seed, 1977.)


Rapp Rd Landfill Expansion - 12206.4005.1502
0
-50
-100
-150
Depth (ft)
0.0
0.2
0.4
0.6
0.8
1.0
Cyclic Stress Ratio & Cyclic Resistance Ratio
CRR
CSR
CSR: Seed-Idriss (1971)
CRR: CPT Robertson & Wride - 1

Rapp Rd Landfill Expansion - 12206.4005.1502



CSR: Seed-Idriss (1971) - CRR: CPT Robertson & Wride - 1



-CPT-1-

Notes:
CSR analysis using Seed & Idriss (1971)
CSR File: K:\12206\EXPANSION\Part 360 Application\Seismic\LiqPot'1_1.CSR
CRR using CPT Data and Robertson & Wride method.
CRR File:
Earthquake used in CSR Analysis: Mean Earhquake for Project Location
Earthquake Magnitude for CRR Analysis: 6
Peak Ground Acceleration for CSR Analysis (g, from User): .11
Magnitude Scaling Factor (MSF): 1.77
Depth to Water Table for CRR Analysis (ft): 5
Depth to Base Layer for CSR Analysis (ft): 100.04

MSF Option: I.M. Idriss (1997)
Cn Option: Kayen, R.E. et al. (1992)
Kalpha Option: No Kalpha Used
Ksigma Option: None
Net area ratio: .85
Cross area bottom (mm^2):
Cross area top (mm^2):
Friction sleeve area (mm^2): 225
Cone diameter (mm): 43.7
CPT data source file: K:\12206\EXPANSION\CPT Data\706CP01-NLIc.txt

CHA COMPUTATION PAD

COMPLETED BY:		PROJECT / PHASE / ORG	
CHECKED BY:	JAK	SHEET #:	OF
PROJECT NAME:		DATE:	
PROJECT LOCATION:		SUBJECT:	PRELIM. LIQ. CALC.

1) $FS_l = \dfrac{(CSR)_{l,FIELD}}{CSR_{eq}}$ (CRR), NO LOAD CONDITION (FREE FIELD)

a) $(CSR)_{l,FIELD} = (CSR)_l \, C_M \, K_\sigma \, K_\alpha$

- $(CSR)_l$ BASED ON $(N_1)_{60}$, AFTER SEED et al., 1984, WHERE
  $(N_1)_{60} = C_{ER} \cdot C_N \cdot N$
  - N: AVERAGE SPT VALUE FOR GIVEN SOIL LAYER
  - C_N: CORRECTION FACTOR FOR OVERBURDEN PRESSURE (NAVY, 1982)
  - C_{ER}: CORRECTION FACTOR FOR 60% ROD ENERGY (SEED et al., 1984)

BORING	P4-B-1	MW-9D	MW-10D	MW-11D	EE-B-1	EE-B-2	MW-14D	MW-15D
N_{AVG} (TOP 30')	8.7	6.7	11.4	9.9	7.1	10.5	9.1	6.9

$N_{AVG}(\text{TOP } 30')_{MEAN} = 8.8$ w/ STD DEVIATION = 1.8 ; USE N = 9 FOR SITE.

- C_N FOR 30' LAYER, USE σ_{vo}' AT MID-POINT, AND TOP OF LAYER AT ELEV. 300' & GROUNDWATER AT ELEV. 295'.

$\sigma_{vo}'(MP) = 5'(115 \text{ pcf}) + 10'(115-62) = 1105 \text{ psf} = 0.55 \text{ tsf}$

$C_N = 1.3$

- C_{ER}; SAFETY HAMMER (U.S.) IS ASSUMED FOR ALL BORINGS ⇒

$C_{ER} = 1.0$

- SO, $(N_1)_{60} = (1.0)(1.3)(9) = 11.7 \Rightarrow (CSR)_l = 0.15$ //

CHA COMPUTATION PAD

COMPLETED BY:		PROJECT	PHASE	ORG
CHECKED BY:	JAE	SHEET #:	OF
PROJECT NAME:		DATE:	
PROJECT LOCATION:		SUBJECT:	

- C_M; ASSUME $M = 5\frac{1}{4} \Rightarrow C_M = 1.5$ //

- K_σ AT σ_{vo}' (MP) $= 0.55$ tsf $\rightarrow K_\sigma = 1.1$ //

- K_α; FLAT GROUND SURFACE $\Rightarrow \alpha = \left|\frac{\tau_{hv}}{\sigma_{vo}'}\right| = 0$ & ALL POINTS CONVERGE TO $K_\alpha = 1$ //

SO, $(CSR)_{l,FIELD} = (0.15)(1.5)(1.1)(1) = 0.248$

TOTAL & EFFECTIVE STRESS AT MID-POINT OF SAND LAYER, ACCOUNTING FOR WASTE MASS WEIGHT.

b) $(CSR)_{eq} = 0.65\,(PGA)\,\frac{\sigma_{vo}}{\sigma_{vo}'}\,r_d$ (AT 15' BELOW ELEV. 300')

STRESS REDUCT'N FACTOR VARYING FROM 1 AT GROUND SURFACE TO 0.9 AT 30' B.G.S.

PEAK GROUND ACCELARATION FOR 10% PROBABILITY IN 250 YEARS

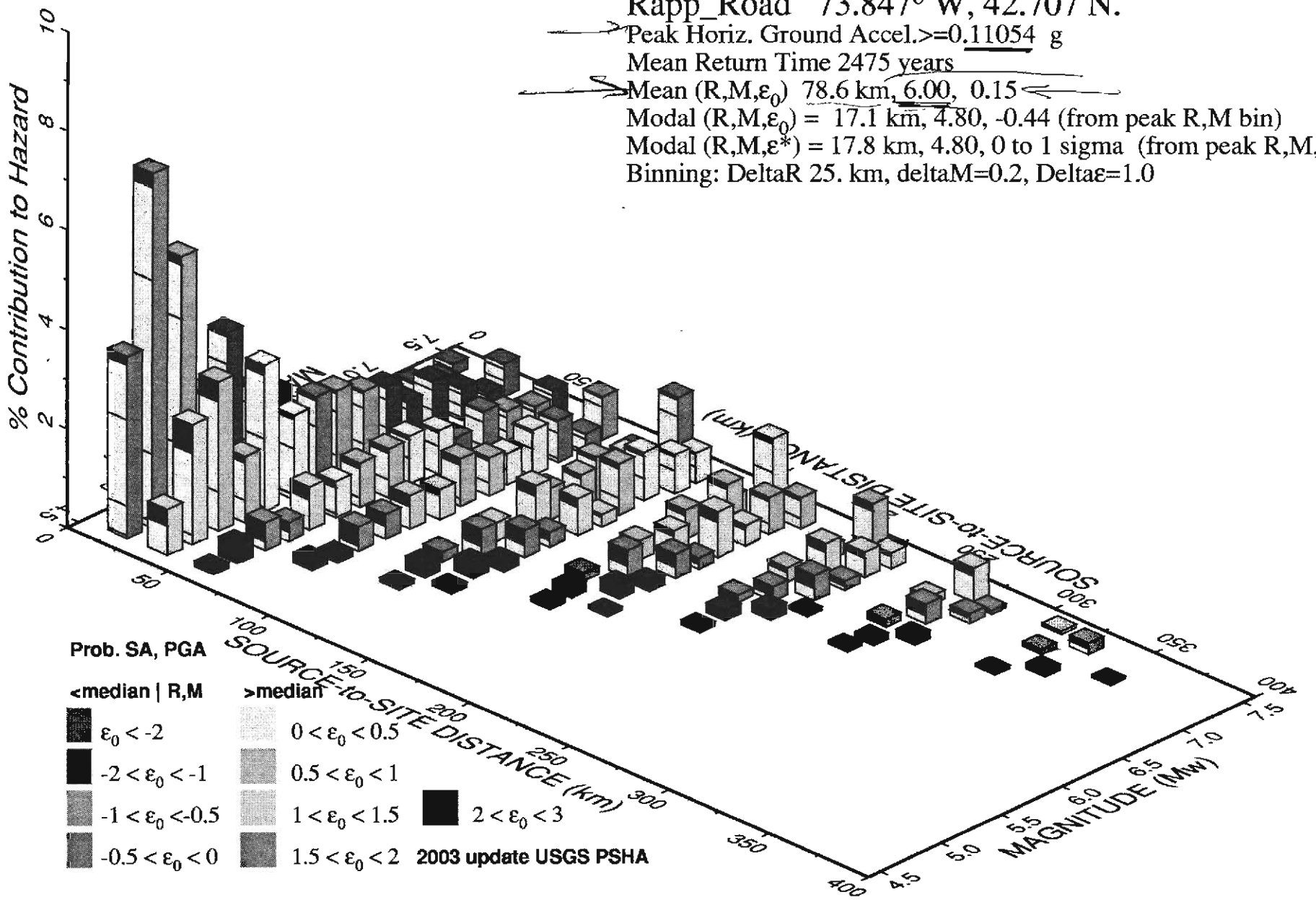
- $\sigma_{vo} = (15\text{ ft})(115\text{ pcf}) = 1725\text{ psf} = 0.86\text{ tsf}$ //

SO, $(CSR)_{eq} = 0.65\,(0.11)\left(\frac{0.86\text{ tsf}}{0.55\text{ tsf}}\right)(0.95) = 0.106$

SO, $FS_l = \frac{0.248}{0.106} = 2.33$

Prob. Seismic Hazard Deaggregation
Rapp_Road 73.847° W, 42.707 N.

Peak Horiz. Ground Accel.>=0.11054 g
Mean Return Time 2475 years
Mean (R,M,ε_0) 78.6 km, 6.00, 0.15
Modal (R,M,ε_0) = 17.1 km, 4.80, -0.44 (from peak R,M bin)
Modal (R,M,ε^*) = 17.8 km, 4.80, 0 to 1 sigma (from peak R,M,ε bin)
Binning: DeltaR 25. km, deltaM=0.2, Deltaε=1.0



GMT May 14 20:21 Distance (R), magnitude (M), epsilon (E0,E) deaggregation for a site on ROCK avg Vs=760 m/s top 30 m USGS CGHT PSHA2002v3 UPDATE Bins with lt 0.05% contrib. omitted

CHA COMPUTATION PAD

COMPLETED BY:	
CHECKED BY:	
PROJECT NAME:	
PROJECT LOCATION:	

PROJECT	PHASE	ORG

SHEET #: ____ OF ____

DATE:

SUBJECT:

$$P = 1 - e^{(-\lambda T)}$$

WE/ $P \equiv$ PROBABILITY OF EXCEEDANCE IN 'T' YEARS
$\lambda \equiv$ RATE OF EXCEEDANCE (YRS)
$T \equiv$ TIME PERIOD (YRS)

$$10\% = 1 - e^{(-\lambda(250\text{ YRS}))}$$

$$-1 + 0.1 = -e^{(-\lambda \cdot 250\text{ YRS})}$$

$$\ln(0.9) = \ln\left[e^{(-\lambda \cdot 250\text{ YRS})}\right]$$

$$-0.105 = -\lambda \cdot 250\text{ YRS}$$

$$\lambda = 0.00042/\text{YR}$$

SO, FOR A RETURN PERIOD OF 50 YRS, THE 'P' IS

$$P = 1 - e^{(-(0.00042)(50\text{ YRS}))} = 0.02 = 2\%$$, OR 2% IN 50 YRS.

Rapp Rd Landfill Expansion
1
12206.4005.1502

Layer No.	Thickness (ft)	Unit Weight (pcf)	Depth (ft)	Total Stress (psf)	Effective Stress (psf)	Reduction Factor	CSR (Seed-Idriss '71)
1	.328	121	.164	19.844	19.844	1	.071
2	1.312	124	.984	121.032	121.032	.999	.071
3	.656	121	1.968	242.064	242.064	.997	.071
4	3.936	118	4.264	513.976	513.976	.991	.07
5	10.498	121	11.481	1381.329	976.9146	.976	.098
6	.983	124	17.221	2077.404	1314.782	.963	.108
7	.656	121	18.041	2178.038	1364.28	.961	.109
8	.328	118	18.533	2237.078	1392.619	.96	.11
9	.328	115	18.861	2275.29	1410.364	.959	.11
10	2.296	118	20.173	2429.614	1482.819	.956	.111
11	.327	121	21.484	2584.862	1556.229	.952	.112
12	.328	124	21.812	2624.981	1575.912	.951	.113
13	4.922	121	24.437	2943.098	1730.229	.943	.114
14	10.17	124	31.983	3871.419	2187.68	.909	.114
15	.984	121	37.56	4561.491	2529.747	.871	.112
16	.656	124	38.38	4661.695	2578.783	.864	.111
17	.657	121	39.036	4742.116	2618.238	.859	.111
18	1.311	124	40.02	4863.146	2677.867	.85	.11
19	3.281	121	42.316	5142.929	2814.379	.829	.108
20	2.624	124	45.268	5504.117	2991.332	.8	.105
21	4.593	121	48.877	5944.682	3206.726	.764	.101
22	1.312	124	51.829	6303.902	3381.71	.734	.097
23	.328	121	52.649	6405.09	3431.73	.726	.096
24	4.265	124	54.946	6689.364	3572.703	.703	.094
25	.328	121	57.242	6973.638	3713.675	.682	.091
26	.327	118	57.57	7012.775	3732.376	.679	.091
27	.656	124	58.062	7072.74	3761.671	.675	.09
28	.327	121	58.553	7133.196	3791.457	.671	.09
29	8.202	124	62.818	7661.503	4053.66	.637	.086
30	6.233	121	70.035	8547.123	4488.908	.591	.08
31	.327	118	73.315	8943.513	4680.625	.575	.078
32	.328	115	73.643	8981.666	4698.342	.573	.078
33	.655	115	74.134	9038.188	4724.195	.571	.078
34	3.609	115	76.266	9283.368	4836.339	.562	.077
35	.327	118	78.234	9510.179	4940.347	.554	.076
36	.328	115	78.561	9548.332	4958.063	.553	.076
37	.656	121	79.053	9606.88	4985.91	.551	.075
38	.327	118	79.545	9665.86	5014.221	.549	.075
39	4.265	121	81.841	9943.186	5148.277	.542	.074
40	.328	118	84.137	10220.57	5282.36	.534	.073
41	.655	115	84.629	10277.58	5308.705	.533	.073
42	5.576	121	87.744	10652.6	5489.309	.524	.072
43	.655	124	90.86	11030.55	5672.859	.517	.071
44	.655	121	91.515	11110.79	5712.225	.515	.071
45	.328	124	92.007	11170.75	5741.518	.514	.071
46	.328	121	92.335	11210.93	5761.231	.513	.071
47	.328	130	92.663	11252.1	5781.928	.513	.071
48	.327	111	92.99	11291.57	5800.96	.512	.071
49	1.639	115	93.973	11403.96	5852.012	.51	.071
50	.656	118	95.121	11536.91	5913.354	.507	.07
51	.327	115	95.612	11594.41	5940.191	.506	.07
52	.328	115	95.94	11632.08	5957.418	.506	.07
53	.328	115	96.268	11669.79	5974.67	.505	.07
54	.656	115	96.76	11726.37	6000.549	.504	.07
55	.327	115	97.251	11782.9	6026.402	.503	.07
56	.656	115	97.743	11839.42	6052.256	.502	.07
57	.327	115	98.234	11895.94	6078.109	.501	.07
58	.328	115	98.562	11933.61	6095.336	.501	.07
59	.328	118	98.89	11971.82	6113.081	.5	.069
60	.491	115	99.299	12019.4	6135.112	.499	.069
61	1	115	100.045	12105.13	6174.325	.5	.07

Notes:
CSR analysis using Seed & Idriss (1971)
CSR File: K:\12206\EXPANSION\Part 360 Application\Seismic\LiqPot'l_1.CSR
Earthquake used in CSR Analysis: Mean Earthquake for Project Location
Peak Ground Acceleration (g, from User): .11
Stress Reduction Factor: Seed & Idriss (1971)
Depth to Water Table (ft): 5

Rapp Rd Landfill Expansion
1
Liquefaction Analysis

CPT No.	Depth (ft)	qc (MPa)	fs (kPa)	U2 (kPa)	Unit Weight (pcf)	Rf (%)	Effective Stress (psf)	Ksigma	Alpha	Kalpha	Ic	qc1N,cs	CRR	CSR	Safety Factor
1	.164	3.952	6.7032	0	121	.16	1.9844E01	1	- - -	- - -	1.64	- - -	- - -	.071	
2	.492	8.1242	22.0248	0	124	.27	6.0024E01	1	- - -	- - -	1.42	- - -	- - -	.071	
3	.82	16.667	78.5232	0	124	.47	1.0070E02	1	- - -	- - -	1.3	- - -	- - -	.071	
4	1.148	17.0366	176.1984	0	124	1.03	1.4137E02	1	- - -	- - -	1.55	- - -	- - -	.071	
5	1.476	14.7144	157.0464	0	124	1.06	1.8204E02	1	- - -	- - -	1.6	- - -	- - -	.071	
6	1.804	11.7545	119.7	0	121	1.01	2.2222E02	1	- - -	- - -	1.65	- - -	- - -	.071	
7	2.1329	8.8032	90.0143	0	121	1.02	2.6202E02	1	- - -	- - -	1.74	- - -	- - -	.07	
8	2.461	5.4927	70.8624	0	118	1.29	3.0122E02	1	- - -	- - -	1.95	- - -	- - -	.07	
9	2.789	4.267	57.456	0	118	1.34	3.3993E02	1	- - -	- - -	2.05	- - -	- - -	.07	
10	3.117	3.1935	44.0496	0	118	1.37	3.7863E02	1	- - -	- - -	2.15	- - -	- - -	.07	
11	3.445	2.9915	34.4736	0	118	1.15	4.1733E02	1	- - -	- - -	2.13	- - -	- - -	.07	
12	3.773	2.7684	29.6856	0	118	1.07	4.5604E02	1	- - -	- - -	2.14	- - -	- - -	.07	
13	4.101	2.7559	26.8128	0	118	.97	4.9474E02	1	- - -	- - -	2.11	- - -	- - -	.07	
14	4.429	2.7866	22.9823	0	118	.82	5.3345E02	1	- - -	- - -	2.07	- - -	- - -	.07	
15	4.757	2.7684	21.0672	0	118	.76	5.7215E02	1	- - -	- - -	2.05	- - -	- - -	.071	
16	5.085	2.597	20.1096	0	118	.77	6.0555E02	1	- - -	- - -	2.08	73.4	.206	.073	2.82
17	5.413	2.6027	16.2792	0	118	.62	6.2379E02	1	- - -	- - -	2.03	69.56	.197	.074	2.66
18	5.741	3.0518	20.1096	0	118	.65	6.4202E02	1	- - -	- - -	1.99	77.56	.218	.075	2.9
19	6.0689	4.1349	28.728	0	118	.69	6.6025E02	1	- - -	- - -	1.89	94.73	.281	.077	3.64
20	6.3979	4.8052	37.3463	0	121	.77	6.7904E02	1	- - -	- - -	1.88	105.99	.337	.078	4.32
21	6.726	4.9584	39.2616	0	121	.79	6.9827E02	1	- - -	- - -	1.88	107.45	.345	.079	4.36
22	7.054	4.967	39.2616	0	121	.79	7.1749E02	1	- - -	- - -	1.88	106.35	.339	.08	4.23
23	7.382	4.9057	39.2616	0	121	.8	7.3671E02	1	- - -	- - -	1.89	104.72	.33	.082	4.02
24	7.71	4.8052	38.304	0	121	.79	7.5593E02	1	- - -	- - -	1.9	103.03	.321	.083	3.86
25	8.038	4.7745	36.3887	0	121	.76	7.7515E02	1	- - -	- - -	1.9	100.53	.308	.084	3.66
26	8.366	4.9641	37.3463	0	121	.75	7.9438E02	1	- - -	- - -	1.89	101.85	.315	.085	3.7
27	8.694	5.0953	31.6008	0	121	.62	8.1360E02	1	- - -	- - -	1.84	98.28	.297	.087	3.41
28	9.022	5.2304	34.4736	0	121	.65	8.3282E02	1	- - -	- - -	1.85	100.47	.308	.088	3.5
29	9.35	5.4717	37.3463	0	121	.68	8.5204E02	1	- - -	- - -	1.85	103.49	.324	.089	3.64
30	9.678	5.8547	41.1768	0	121	.7	8.7126E02	1	- - -	- - -	1.83	108.17	.349	.091	3.83
31	10.0059	6.2789	44.0496	0	121	.7	8.9047E02	1	- - -	- - -	1.82	112.52	.376	.092	4.08
32	10.335	6.6553	45.9647	0	121	.69	9.0976E02	1	- - -	- - -	1.8	115.84	.397	.093	4.26
33	10.663	6.8391	47.88	0	121	.7	9.2898E02	1	- - -	- - -	1.79	117.48	.408	.094	4.34
34	10.991	6.8784	47.88	0	121	.69	9.4820E02	1	- - -	- - -	1.8	116.9	.404	.096	4.2
35	11.319	6.9799	48.8376	0	121	.69	9.6742E02	1	- - -	- - -	1.8	117.33	.407	.097	4.19
36	11.647	6.7874	48.8376	0	121	.71	9.8664E02	1	- - -	- - -	1.82	114.86	.391	.098	3.98
37	11.975	6.6131	37.3463	0	121	.56	1.0059E03	1	- - -	- - -	1.77	106.59	.34	.098	3.46
38	12.303	6.3192	40.2192	0	121	.63	1.0251E03	1	- - -	- - -	1.82	104.94	.331	.099	3.34
39	12.6309	6.007	38.304	0	121	.63	1.0443E03	1	- - -	- - -	1.84	100.65	.309	.1	3.09
40	12.959	5.4286	35.4312	0	121	.65	1.0635E03	1	- - -	- - -	1.88	93.8	.277	.1	2.77
41	13.287	4.9527	31.6008	0	121	.63	1.0827E03	1	- - -	- - -	1.91	87.32	.251	.101	2.48
42	13.615	4.6031	29.6856	0	121	.64	1.1020E03	1	- - -	- - -	1.95	83.06	.235	.101	2.32

CPT No.	Depth (ft)	qc (MPa)	fs (kPa)	U2 (kPa)	Unit Weight (pcf)	Rf (%)	Effective Stress (psf)	Ksigma	Alpha	Kalpha	Ic	qc1N,cs	CRR	CSR	Safety Factor
43	13.943	4.3647	27.7704	0	121	.63	1.1212E03	1	---	---	1.96	79.66	.224	.102	2.19
44	14.271	4.5141	27.7704	0	121	.61	1.1404E03	1	---	---	1.95	80.18	.226	.102	2.21
45	14.6	4.6855	29.6856	.8618	121	.63	1.1597E03	1	---	---	1.95	82.1	.232	.103	2.25
46	14.928	4.7315	30.6432	1.8194	121	.64	1.1789E03	1	---	---	1.95	82.52	.234	.104	2.25
47	15.256	4.8847	23.94	2.777	121	.49	1.1981E03	1	---	---	1.89	66.93	.19	.104	1.82
48	15.584	5.1451	29.6856	3.7346	121	.57	1.2174E03	1	---	---	1.9	83.84	.238	.105	2.26
49	15.912	5.2706	32.5584	4.788	121	.61	1.2366E03	1	---	---	1.91	85.89	.245	.105	2.33
50	16.24	6.3163	37.3463	5.7455	121	.59	1.2558E03	1	---	---	1.84	95.58	.285	.106	2.68
51	16.568	8.0017	44.0496	6.7032	121	.55	1.2750E03	1	---	---	1.75	111	.366	.106	3.45
52	16.896	9.5367	53.6256	7.6608	124	.56	1.2947E03	1	---	---	1.69	125.82	.469	.107	4.38
53	17.224	9.6621	56.4984	8.7141	124	.58	1.3149E03	1	---	---	1.7	127.23	.48	.108	4.44
54	17.552	9.1939	50.7527	9.6717	124	.55	1.3351E03	1	---	---	1.71	120.7	.431	.108	3.99
55	17.8799	7.6311	46.9224	10.6293	121	.61	1.3548E03	1	---	---	1.8	106.86	.342	.108	3.16
56	18.208	4.9766	41.1768	11.5869	121	.82	1.3741E03	1	---	---	2.02	85.79	.245	.109	2.24
57	18.537	2.799	34.4736	12.6403	118	1.23	1.3928E03	1	---	---	2.33	76.33	.214	.11	1.94
58	18.865	2.1287	35.4312	13.5979	115	1.66	1.4106E03	1	---	---	2.5	80.36	.227	.11	2.06
59	19.193	2.6401	30.6432	14.5555	118	1.16	1.4283E03	1	---	---	2.34	72.62	.204	.11	1.85
60	19.521	3.0183	25.8552	15.5131	118	.85	1.4466E03	1	---	---	2.23	67.35	.191	.11	1.73
61	19.849	2.8565	23.94	16.5664	118	.83	1.4648E03	1	---	---	2.25	65.29	.187	.11	1.7
62	20.177	3.0164	22.9823	17.524	118	.76	1.4830E03	1	---	---	2.21	64.26	.185	.111	1.66
63	20.5049	3.0557	23.94	18.4816	118	.78	1.5013E03	1	---	---	2.21	65.01	.186	.111	1.67
64	20.833	2.912	25.8552	19.4392	118	.88	1.5195E03	1	---	---	2.26	66.6	.19	.111	1.71
65	21.161	3.6398	27.7704	20.4926	118	.76	1.5378E03	1	---	---	2.15	68.88	.195	.111	1.75
66	21.489	6.6744	38.304	21.4502	121	.57	1.5565E03	1	---	---	1.86	90.86	.265	.112	2.36
67	21.817	8.9889	37.3463	22.4078	124	.41	1.5762E03	1	---	---	1.68	103.25	.322	.113	2.84
68	22.145	8.7361	45.0071	23.3654	121	.51	1.5959E03	1	---	---	1.74	107.29	.344	.113	3.04
69	22.473	8.1884	45.9647	24.4188	121	.56	1.6151E03	1	---	---	1.79	103.26	.322	.113	2.84
70	22.802	8.0352	46.9224	25.3763	121	.58	1.6344E03	1	---	---	1.81	102.05	.316	.113	2.79
71	23.1299	8.3837	51.7104	26.334	121	.61	1.6536E03	1	---	---	1.81	105.78	.336	.113	2.97
72	23.458	8.537	54.5832	27.2916	121	.63	1.6729E03	1	---	---	1.81	107.39	.345	.113	3.05
73	23.786	8.9985	62.244	28.3449	121	.69	1.6921E03	1	---	---	1.81	112.72	.377	.113	3.33
74	24.114	9.0196	62.244	29.3025	121	.69	1.7113E03	1	---	---	1.82	112.35	.375	.113	3.31
75	24.442	8.7601	57.456	30.2601	121	.65	1.7305E03	1	---	---	1.82	108.29	.35	.114	3.07
76	24.77	8.5398	56.4984	31.2177	121	.66	1.7497E03	1	---	---	1.83	106	.337	.114	2.95
77	25.098	7.9126	44.0496	32.2711	121	.55	1.7690E03	1	---	---	1.82	96.88	.291	.114	2.55
78	25.426	7.8724	45.9647	33.2287	121	.58	1.7882E03	1	---	---	1.83	96.9	.291	.114	2.55
79	25.754	7.5372	43.092	34.1863	121	.57	1.8074E03	1	---	---	1.85	93.19	.274	.114	2.4
80	26.082	7.2576	40.2192	35.1439	121	.55	1.8266E03	1	---	---	1.86	89.86	.261	.114	2.28
81	26.41	7.1666	39.2616	36.1015	121	.54	1.8458E03	1	---	---	1.86	88.53	.255	.114	2.23
82	26.739	8.4019	44.0496	37.1548	121	.52	1.8651E03	1	---	---	1.79	98.22	.297	.114	2.6
83	27.067	10.705	54.5832	38.1124	124	.5	1.8849E03	1	---	---	1.7	116.75	.403	.114	3.53
84	27.395	12.7236	71.82	39.07	124	.56	1.9051E03	1	---	---	1.66	134.63	.543	.114	4.76
85	27.723	12.0418	74.6927	40.0276	124	.62	1.9253E03	1	---	---	1.71	130.77	.509	.114	4.46
86	28.051	12.06	71.82	41.081	124	.59	1.9455E03	1	---	---	1.7	129.49	.499	.114	4.37
87	28.379	13.3144	58.4136	42.0386	124	.43	1.9657E03	1	---	---	1.59	136.34	.558	.114	4.89
88	28.707	16.2839	88.0992	42.9962	124	.54	1.9859E03	1	---	---	1.57	165.9	.885	.114	7.76

CPT No.	Depth (ft)	qc (MPa)	fs (kPa)	U2 (kPa)	Unit Weight (pcf)	Rf (%)	Effective Stress (psf)	Ksigma	Alpha	Kalpha	Ic	qc1N,cs	CRR	CSR	Safety Factor
89	29.035	16.5348	105.336	43.9538	124	.63	2.0061E03	1	- - -	- - -	1.61	167.6	.885	.114	7.76
90	29.363	15.6759	96.7176	45.0071	124	.61	2.0263E03	1	- - -	- - -	1.63	158.1	.792	.114	6.94
91	29.691	18.4405	94.8024	45.9647	124	.51	2.0465E03	1	- - -	- - -	1.52	185.06	.885	.114	7.76
92	30.019	21.5823	112.9968	46.9224	124	.52	2.0667E03	1	- - -	- - -	1.47	215.53	.885	.114	7.76
93	30.347	19.7591	124.488	47.88	124	.63	2.0869E03	1	- - -	- - -	1.56	196.37	.885	.114	7.76
94	30.675	14.4425	105.336	48.9333	124	.72	2.1071E03	1	- - -	- - -	1.71	149.34	.689	.114	6.04
95	31.004	11.4576	83.3112	49.8909	124	.72	2.1274E03	1	- - -	- - -	1.79	124.2	.456	.114	4
96	31.332	11.1426	81.396	50.8485	124	.73	2.1476E03	1	- - -	- - -	1.8	121.19	.434	.114	3.8
97	31.66	12.4057	76.608	51.8061	124	.61	2.1678E03	1	- - -	- - -	1.72	127.55	.483	.114	4.23
98	31.988	13.73	97.6752	52.8595	124	.71	2.1880E03	1	- - -	- - -	1.72	140.76	.6	.113	5.3
99	32.316	14.6598	113.9544	53.8171	124	.77	2.2082E03	1	- - -	- - -	1.73	149.9	.696	.113	6.15
100	32.644	14.8313	119.7	54.7747	124	.8	2.2284E03	1	- - -	- - -	1.74	151.7	.716	.113	6.33
101	32.972	15.4068	118.7424	55.7323	124	.77	2.2486E03	1	- - -	- - -	1.71	154.48	.748	.113	6.61
102	33.3	16.0857	125.4456	56.7856	124	.77	2.2688E03	1	- - -	- - -	1.7	159.57	.81	.113	7.16
103	33.6279	16.4707	129.276	57.7432	124	.78	2.2890E03	1	- - -	- - -	1.7	162.17	.885	.113	7.83
104	33.956	16.7244	131.1912	58.7008	124	.78	2.3092E03	1	- - -	- - -	1.69	163.53	.885	.113	7.83
105	34.284	16.0216	132.1488	59.6584	124	.82	2.3294E03	1	- - -	- - -	1.72	158.9	.802	.113	7.09
106	34.612	15.446	127.3608	60.7118	124	.82	2.3496E03	1	- - -	- - -	1.74	153.77	.74	.113	6.54
107	34.941	15.1923	108.2088	61.6694	124	.71	2.3699E03	1	- - -	- - -	1.7	147.47	.669	.112	5.97
108	35.269	14.5526	111.0816	62.627	124	.76	2.3901E03	1	- - -	- - -	1.74	143.7	.63	.112	5.62
109	35.597	13.8066	108.2088	63.5846	124	.78	2.4103E03	1	- - -	- - -	1.77	137.96	.573	.112	5.11
110	35.925	12.7265	101.5055	64.638	124	.79	2.4305E03	1	- - -	- - -	1.8	129.33	.497	.112	4.43
111	36.2529	11.9441	92.8872	65.5956	124	.77	2.4507E03	1	- - -	- - -	1.82	122.15	.441	.112	3.93
112	36.581	11.5314	87.1416	66.5532	124	.75	2.4709E03	1	- - -	- - -	1.83	117.88	.411	.112	3.66
113	36.909	11.1637	83.3112	67.5107	124	.74	2.4911E03	1	- - -	- - -	1.84	114.35	.387	.112	3.45
114	37.237	10.4052	78.5232	68.5641	121	.75	2.5108E03	1	- - -	- - -	1.87	108.3	.35	.112	3.12
115	37.565	10.0231	72.7775	69.5217	121	.72	2.5300E03	1	- - -	- - -	1.87	104.27	.328	.111	2.95
116	37.893	10.0078	71.82	70.4793	121	.71	2.5493E03	1	- - -	- - -	1.87	103.59	.324	.111	2.91
117	38.221	10.1304	59.3712	71.4369	124	.58	2.5690E03	1	- - -	- - -	1.82	100.79	.31	.111	2.79
118	38.549	10.185	66.0744	72.4903	124	.64	2.5892E03	1	- - -	- - -	1.84	102.48	.318	.111	2.86
119	38.877	9.8182	67.9896	73.4479	121	.69	2.6089E03	1	- - -	- - -	1.88	100.5	.308	.111	2.77
120	39.206	9.6995	67.032	74.4055	121	.69	2.6282E03	1	- - -	- - -	1.88	99.26	.302	.11	2.74
121	39.534	10.1457	65.1168	75.3631	124	.64	2.6479E03	1	- - -	- - -	1.85	101.19	.312	.11	2.83
122	39.862	11.2565	71.82	76.3207	124	.63	2.6681E03	1	- - -	- - -	1.81	109.09	.355	.11	3.22
123	40.19	10.9405	75.6504	77.374	124	.69	2.6883E03	1	- - -	- - -	1.84	107.75	.347	.109	3.18
124	40.518	10.4234	71.82	78.3316	124	.68	2.7085E03	1	- - -	- - -	1.86	103.49	.324	.109	2.97
125	40.846	9.6593	69.9048	79.2892	121	.72	2.7282E03	1	- - -	- - -	1.9	98.41	.298	.109	2.73
126	41.174	8.2276	61.2864	80.2468	121	.74	2.7474E03	1	- - -	- - -	1.97	88.35	.255	.108	2.36
127	41.502	7.2978	45.0071	81.3002	121	.61	2.7666E03	1	- - -	- - -	1.98	78.3	.22	.108	2.03
128	41.83	6.1688	45.9647	82.2578	121	.74	2.7859E03	1	- - -	- - -	2.09	74.03	.208	.108	1.92
129	42.158	5.7743	43.092	83.2154	121	.74	2.8051E03	1	- - -	- - -	2.12	71.43	.201	.108	1.86
130	42.486	6.3345	54.5832	84.173	121	.86	2.8243E03	1	- - -	- - -	2.12	77.93	.219	.107	2.04
131	42.814	7.7412	63.2016	85.2264	121	.81	2.8435E03	1	- - -	- - -	2.03	85.73	.245	.107	2.28
132	43.143	9.2954	65.1168	86.184	121	.7	2.8628E03	1	- - -	- - -	1.92	93.3	.275	.107	2.57
133	43.471	9.8489	91.9295	87.1416	121	.93	2.8820E03	1	- - -	- - -	1.98	102.9	.321	.106	3.02
134	43.799	10.6657	85.2264	88.0992	121	.79	2.9013E03	1	- - -	- - -	1.91	105.02	.332	.106	3.13

CPT No.	Depth (ft)	qc (MPa)	fs (kPa)	U2 (kPa)	Unit Weight (pcf)	Rf (%)	Effective Stress (psf)	Ksigma	Alpha	Kalpha	Ic	qc1N,cs	CRR	CSR	Safety Factor
135	44.127	11.2431	80.4384	89.1525	124	.71	2.9210E03	1	- - -	- - -	1.86	106.79	.342	.106	3.22
136	44.455	10.7117	75.6504	90.1101	124	.7	2.9412E03	1	- - -	- - -	1.87	102.44	.318	.105	3.02
137	44.783	10.3928	56.4984	91.0677	124	.54	2.9614E03	1	- - -	- - -	1.82	95.89	.286	.105	2.72
138	45.111	10.8093	71.82	92.0253	124	.66	2.9816E03	1	- - -	- - -	1.86	101.52	.313	.105	2.98
139	45.439	11.7727	87.1416	93.0787	124	.74	3.0018E03	1	- - -	- - -	1.86	109.94	.36	.104	3.46
140	45.7669	12.1979	95.76	94.0363	124	.78	3.0220E03	1	- - -	- - -	1.86	113.76	.383	.104	3.68
141	46.095	11.6626	96.7176	94.9939	124	.82	3.0422E03	1	- - -	- - -	1.89	110.72	.365	.104	3.5
142	46.423	11.246	91.9295	95.9515	124	.81	3.0624E03	1	- - -	- - -	1.9	107.18	.344	.103	3.33
143	46.751	10.5584	87.1416	97.0048	121	.82	3.0821E03	1	- - -	- - -	1.93	102.3	.317	.103	3.07
144	47.079	9.8154	81.396	97.9624	121	.82	3.1013E03	1	- - -	- - -	1.96	97.05	.292	.102	2.86
145	47.408	9.3835	76.608	98.92	121	.81	3.1206E03	1	- - -	- - -	1.98	93.58	.276	.102	2.7
146	47.736	9.1881	73.7352	99.8776	121	.8	3.1398E03	1	- - -	- - -	1.98	91.7	.268	.102	2.62
147	48.064	9.2006	64.1592	100.931	121	.69	3.1591E03	1	- - -	- - -	1.95	88.92	.257	.101	2.54
148	48.3919	9.0014	69.9048	101.8886	121	.77	3.1783E03	1	- - -	- - -	1.99	89.38	.259	.101	2.56
149	48.72	8.7352	69.9048	102.8462	121	.8	3.1975E03	1	- - -	- - -	2.01	88.04	.253	.101	2.5
150	49.048	8.8214	67.9896	103.8038	121	.77	3.2167E03	1	- - -	- - -	1.99	87.64	.252	.1	2.52
151	49.376	9.2437	68.9472	104.8572	121	.74	3.2359E03	1	- - -	- - -	1.97	89.55	.259	.1	2.59
152	49.704	9.7416	73.7352	105.8148	121	.75	3.2552E03	1	- - -	- - -	1.95	92.89	.273	.099	2.75
153	50.032	9.8824	77.5656	106.7724	121	.78	3.2744E03	1	- - -	- - -	1.96	94.28	.279	.099	2.81
154	50.36	9.7301	74.6927	107.73	121	.76	3.2936E03	1	- - -	- - -	1.96	92.63	.272	.098	2.77
155	50.688	9.6162	73.7352	108.7833	121	.76	3.3128E03	1	- - -	- - -	1.97	91.65	.268	.098	2.73
156	51.016	9.1824	70.8624	109.7409	121	.77	3.3320E03	1	- - -	- - -	1.99	88.77	.256	.098	2.61
157	51.345	9.5884	59.3712	110.6985	124	.61	3.3518E03	1	- - -	- - -	1.92	87.44	.251	.097	2.58
158	51.673	10.5431	71.82	111.6561	124	.68	3.3720E03	1	- - -	- - -	1.9	94.97	.282	.097	2.9
159	52.001	11.6683	83.3112	112.6137	124	.71	3.3922E03	1	- - -	- - -	1.88	102.99	.321	.096	3.34
160	52.329	11.5582	90.972	113.6671	124	.78	3.4124E03	1	- - -	- - -	1.91	103.72	.325	.096	3.38
161	52.657	10.7145	84.2688	114.6247	121	.78	3.4321E03	1	- - -	- - -	1.94	97.91	.296	.095	3.11
162	52.985	11.586	85.2264	115.5823	124	.73	3.4519E03	1	- - -	- - -	1.89	102.18	.317	.095	3.33
163	53.313	14.996	103.4208	116.5399	124	.68	3.4721E03	1	- - -	- - -	1.78	123.61	.452	.095	4.75
164	53.641	15.8013	128.3184	117.5932	124	.81	3.4923E03	1	- - -	- - -	1.8	131.66	.517	.095	5.44
165	53.969	13.663	117.7848	118.5508	124	.86	3.5125E03	1	- - -	- - -	1.88	118.14	.413	.094	4.39
166	54.297	14.1494	115.8696	119.5084	124	.81	3.5327E03	1	- - -	- - -	1.85	120.07	.426	.094	4.53
167	54.625	17.2875	107.2512	120.466	124	.62	3.5529E03	1	- - -	- - -	1.7	135.49	.551	.094	5.86
168	54.953	20.8996	145.5551	121.5194	124	.69	3.5731E03	1	- - -	- - -	1.66	160.34	.885	.093	9.51
169	55.281	18.6856	170.4528	122.477	124	.91	3.5933E03	1	- - -	- - -	1.78	151.72	.716	.093	7.69
170	55.61	14.7183	144.5976	123.4346	124	.98	3.6136E03	1	- - -	- - -	1.89	126.49	.474	.093	5.09
171	55.938	13.2924	117.7848	124.3922	124	.88	3.6338E03	1	- - -	- - -	1.9	114.53	.388	.092	4.21
172	56.266	13.437	106.2936	125 4456	124	.79	3.6540E03	1	- - -	- - -	1.87	112.98	.379	.092	4.11
173	56.594	16.1164	122.5728	126.4032	124	.76	3.6742E03	1	- - -	- - -	1.79	129.58	.499	.091	5.48
174	56.922	15.7515	137.8944	127.3608	124	.87	3.6944E03	1	- - -	- - -	1.84	129.54	.499	.091	5.48
175	57.25	13.9685	164.7072	128.3184	121	1.17	3.7141E03	1	- - -	- - -	1.97	124.91	.462	.091	5.07
176	57.578	9.4687	175.2408	129.3717	118	1.85	3.7328E03	1	- - -	- - -	2.25	115.17	.393	.09	4.36
177	57.906	13.6113	106.2936	130.3293	124	.78	3.7521E03	1	- - -	- - -	1.86	112.56	.376	.09	4.17
178	58.234	12.8433	123.5304	131.2869	124	.96	3.7723E03	1	- - -	- - -	1.95	111.62	.37	.09	4.11
179	58.562	13.5682	144.5976	132.2445	121	1.06	3.7920E03	1	- - -	- - -	1.96	118.47	.415	.089	4.66
180	58.89	14.8073	157.0464	133.2979	124	1.06	3.8117E03	1	- - -	- - -	1.93	125.96	.47	.089	5.28

CPT No.	Depth (ft)	qc (MPa)	fs (kPa)	U2 (kPa)	Unit Weight (pcf)	Rf (%)	Effective Stress (psf)	Ksigma	Alpha	Kalpha	Ic	qc1N,cs	CRR	CSR	Safety Factor
181	59.218	16.7704	174.2832	134.2555	124	1.03	3.8319E03	1	---	---	1.88	137.84	.572	.089	6.42
182	59.547	18.8905	194.3927	135.2131	124	1.02	3.8522E03	1	---	---	1.83	151.11	.709	.089	7.96
183	59.875	25.4051	237.4848	136.1707	124	.93	3.8724E03	1	---	---	1.7	190.5	.885	.088	10.05
184	60.203	36.3552	341.8632	137.224	124	.94	3.8926E03	1	---	---	1.59	264.55	.885	.088	10.05
185	60.531	39.4655	430.92	138.1816	124	1.09	3.9128E03	1	---	---	1.62	286.44	.885	.088	10.05
186	60.859	40.1205	466.3512	139.1392	124	1.16	3.9330E03	1	---	---	1.63	290.31	.885	.087	10.17
187	61.187	40.0746	410.8104	140.0968	124	1.02	3.9532E03	1	---	---	1.59	289.37	.885	.087	10.17
188	61.515	40.4442	447.1992	141.1502	124	1.1	3.9734E03	1	---	---	1.62	291.29	.885	.087	10.17
189	61.843	43.0718	496.0367	142.1078	124	1.15	3.9936E03	1	---	---	1.61	309.43	.885	.086	10.29
190	62.171	43.4913	551.5776	143.0654	124	1.26	4.0138E03	1	---	---	1.65	311.89	.885	.086	10.29
191	62.499	41.5033	564.984	144.023	124	1.36	4.0340E03	1	---	---	1.68	302.7	.885	.086	10.29
192	62.827	39.117	523.8072	145.0764	124	1.33	4.0542E03	1	---	---	1.7	286.04	.885	.085	10.41
193	63.155	36.8896	477.8424	146.034	124	1.29	4.0744E03	1	---	---	1.7	269.73	.885	.085	10.41
194	63.483	34.5042	436.6656	146.9915	124	1.26	4.0946E03	1	---	---	1.71	253	.885	.085	10.41
195	63.812	29.9288	388.7855	147.9492	124	1.29	4.1149E03	1	---	---	1.77	224.05	.885	.085	10.41
196	64.14	27.8211	316.9656	149.0025	124	1.13	4.1351E03	1	---	---	1.75	205.8	.885	.084	10.53
197	64.468	24.5605	251.8488	149.9601	124	1.02	4.1553E03	1	---	---	1.75	181.76	.885	.084	10.53
198	64.796	20.5328	219.2904	150.9177	124	1.06	4.1755E03	1	---	---	1.83	156.87	.777	.084	9.25
199	65.124	19.9793	221.2056	151.8753	124	1.1	4.1957E03	1	---	---	1.85	153.92	.741	.084	8.82
200	65.452	20.0521	226.9511	152.8329	124	1.13	4.2159E03	1	---	---	1.86	154.6	.749	.083	9.02
201	65.78	19.1318	227.9088	153.8863	124	1.19	4.2361E03	1	---	---	1.89	149.87	.695	.083	8.37
202	66.108	18.0402	216.4176	154.8439	124	1.19	4.2563E03	1	---	---	1.92	142.97	.622	.083	7.49
203	66.436	17.5968	206.8416	155.8015	124	1.17	4.2765E03	1	---	---	1.92	139.36	.587	.082	7.15
204	66.764	17.3517	205.884	156.7591	124	1.18	4.2967E03	1	---	---	1.93	137.83	.572	.082	6.97
205	67.092	16.3481	194.3927	157.8124	121	1.18	4.3164E03	1	---	---	1.95	131.53	.516	.082	6.29
206	67.42	15.605	189.6048	158.77	121	1.21	4.3356E03	1	---	---	1.98	127.46	.482	.082	5.87
207	67.749	14.0422	172.368	159.7276	121	1.22	4.3549E03	1	---	---	2.02	118.39	.414	.081	5.11
208	68.077	12.7695	146.5128	160.6852	121	1.14	4.3741E03	1	---	---	2.04	108.93	.354	.081	4.37
209	68.405	10.9779	158.004	161.7386	121	1.43	4.3934E03	1	---	---	2.16	106.54	.34	.081	4.19
210	68.733	9.845	126.4032	162.6962	121	1.28	4.4126E03	1	---	---	2.17	96.4	.289	.081	3.56
211	69.061	11.2345	109.1664	163.6538	121	.97	4.4318E03	1	---	---	2.04	95.52	.285	.08	3.56
212	69.389	12.1883	160.8768	164.6114	121	1.31	4.4510E03	1	---	---	2.1	109.38	.357	.08	4.46
213	69.717	12.3808	185.7744	165.6648	121	1.5	4.4702E03	1	---	---	2.14	114.97	.391	.08	4.88
214	70.045	12.2802	174.2832	166.6224	121	1.41	4.4895E03	1	---	---	2.12	112.11	.373	.079	4.72
215	70.373	13.9723	181.944	167.58	121	1.3	4.5087E03	1	---	---	2.05	118.18	.413	.079	5.22
216	70.7009	14.1887	198.2231	168.5376	121	1.39	4.5279E03	1	---	---	2.07	121.61	.437	.079	5.53
217	71.029	14.2653	165.6648	169.5909	121	1.16	4.5471E03	1	---	---	2.01	115.91	.397	.079	5.02
218	71.357	12.9745	188.6472	170.5485	121	1.45	4.5663E03	1	---	---	2.11	116.03	.398	.079	5.03
219	71.685	12.9228	191.52	171.5061	121	1.48	4.5856E03	1	---	---	2.12	116.3	.4	.078	5.12
220	72.014	13.143	187.6896	172.4637	121	1.42	4.6048E03	1	---	---	2.1	115.89	.397	.078	5.08
221	72.342	12.3635	180.9864	173.5171	121	1.46	4.6241E03	1	---	---	2.14	112.49	.375	.078	4.8
222	72.67	11.855	181.944	174.4747	121	1.53	4.6433E03	1	---	---	2.17	111.53	.37	.078	4.74
223	72.998	10.6657	173.3255	175.4323	121	1.62	4.6625E03	1	---	---	2.23	107.68	.347	.078	4.44
224	73.3259	10.0758	218.3328	176.3899	118	2.16	4.6812E03	1	---	---	2.34	118.58	.416	.078	5.33
225	73.654	4.7161	233.6544	177.4432	115	4.95	4.6989E03	1	---	---	2.9	---	Zone B	.078	
226	73.982	3.4866	135.0215	178.4008	115	3.87	4.7162E03	1	---	---	2.96	---	Zone B	.078	

CPT No.	Depth (ft)	qc (MPa)	fs (kPa)	U2 (kPa)	Unit Weight (pcf)	Rf (%)	Effective Stress (psf)	Ksigma	Alpha	Kalpha	Ic	qc1N,cs	CRR	CSR	Safety Factor
227	74.31	2.2905	66.0744	179.3584	115	2.88	4.7334E03	1	---	---	3.09	---	Zone B	.077	
228	74.638	2.2302	41.1768	180.316	115	1.84	4.7507E03	1	---	---	2.99	---	Zone B	.077	
229	74.966	2.19	38.304	181.3694	115	1.74	4.7679E03	1	---	---	2.99	---	Zone B	.077	
230	75.294	2.2388	36.3887	182.327	115	1.62	4.7852E03	1	---	---	2.96	---	Zone B	.077	
231	75.622	2.2819	36.3887	183.2846	115	1.59	4.8024E03	1	---	---	2.95	---	Zone B	.077	
232	75.9509	2.2484	34.4736	184.2422	115	1.53	4.8197E03	1	---	---	2.95	---	Zone B	.077	
233	76.279	2.2024	30.6432	185.2955	115	1.39	4.8370E03	1	---	---	2.94	---	Zone B	.076	
234	76.607	2.1718	30.6432	186.2532	115	1.41	4.8542E03	1	---	---	2.95	---	Zone B	.076	
235	76.935	2.1718	29.6856	187.2108	115	1.36	4.8715E03	1	---	---	2.95	---	Zone B	.076	
236	77.263	2.4045	38.304	188.1684	115	1.59	4.8888E03	1	---	---	2.93	---	Zone B	.076	
237	77.591	2.5328	63.2016	189.2217	115	2.49	4.9060E03	1	---	---	3.01	---	Zone B	.076	
238	77.919	4.1167	88.0992	190.1793	115	2.14	4.9233E03	1	---	---	2.73	---	Zone B	.076	
239	78.247	9.6526	181.944	191.1369	118	1.88	4.9410E03	1	---	---	2.33	107.5	.346	.076	4.55
240	78.575	7.543	187.6896	192.0945	115	2.48	4.9587E03	1	---	---	2.51	111.06	.367	.075	4.89
241	78.903	10.7787	147.4704	193.0521	121	1.36	4.9771E03	1	---	---	2.19	99.29	.302	.075	4.02
242	79.231	10.4665	169.4951	194.1055	121	1.61	4.9963E03	1	---	---	2.25	104.22	.327	.075	4.35
243	79.559	10.1946	170.4528	195.0631	118	1.67	5.0150E03	1	---	---	2.27	104.17	.327	.074	4.41
244	79.887	10.7844	165.6648	196.0207	121	1.53	5.0337E03	1	---	---	2.23	103.32	.323	.074	4.36
245	80.216	11.8953	162.792	196.9783	121	1.36	5.0530E03	1	---	---	2.15	104.16	.327	.074	4.41
246	80.544	13.5586	194.3927	198.0316	121	1.43	5.0722E03	1	---	---	2.12	113.95	.385	.074	5.2
247	80.872	14.6014	193.4352	198.9892	121	1.32	5.0915E03	1	---	---	2.07	116.35	.4	.074	5.4
248	81.2	15.1616	215.46	199.9468	121	1.42	5.1107E03	1	---	---	2.08	121.5	.436	.074	5.89
249	81.528	15.1434	233.6544	200.9044	121	1.54	5.1299E03	1	---	---	2.1	124.34	.458	.074	6.18
250	81.856	14.0853	231.7392	201.9578	121	1.64	5.1491E03	1	---	---	2.15	121.45	.436	.073	5.97
251	82.184	14.1246	224.0783	202.9154	121	1.58	5.1683E03	1	---	---	2.14	119.93	.425	.073	5.82
252	82.512	14.8648	232.6968	203.873	121	1.56	5.1876E03	1	---	---	2.12	122.95	.447	.073	6.12
253	82.8399	15.5045	233.6544	204.8306	121	1.5	5.2068E03	1	---	---	2.09	124.54	.459	.073	6.28
254	83.168	14.0422	225.036	205.884	121	1.6	5.2260E03	1	---	---	2.15	119.44	.422	.073	5.78
255	83.496	11.788	198.2231	206.8416	121	1.68	5.2452E03	1	---	---	2.23	110.42	.363	.073	4.97
256	83.824	10.6753	175.2408	207.7992	121	1.64	5.2644E03	1	---	---	2.26	104.06	.327	.073	4.47
257	84.153	9.0569	154.1736	208.7568	118	1.7	5.2832E03	1	---	---	2.34	98.2	.297	.073	4.06
258	84.481	4.6797	126.4032	209.8101	115	2.7	5.3009E03	1	---	---	2.77	---	Zone B	.073	
259	84.809	3.8993	87.1416	210.7677	115	2.23	5.3181E03	1	---	---	2.8	---	Zone B	.072	
260	85.137	9.8058	111.0816	211.7253	121	1.13	5.3365E03	1	---	---	2.19	86.62	.248	.072	3.44
261	85.4649	12.0083	165.6648	212.6829	121	1.37	5.3557E03	1	---	---	2.17	102.85	.32	.072	4.44
262	85.793	11.9929	189.6048	213.7363	121	1.58	5.3749E03	1	---	---	2.21	107.87	.348	.072	4.83
263	86.121	12.0016	189.6048	214.6939	121	1.57	5.3941E03	1	---	---	2.21	107.75	.347	.072	4.81
264	86.449	12.421	199.1807	215.6515	121	1.6	5.4134E03	1	---	---	2.21	110.19	.361	.072	5.01
265	86.777	13.4581	211.6296	216.6091	121	1.57	5.4326E03	1	---	---	2.17	114.14	.386	.072	5.36
266	87.105	14.0077	225.9936	217.6624	121	1.61	5.4518E03	1	---	---	2.16	117.69	.409	.072	5.68
267	87.433	14.8858	189.6048	218.62	121	1.27	5.4710E03	1	---	---	2.07	113.17	.38	.072	5.27
268	87.761	14.7795	210.672	219.5776	121	1.42	5.4902E03	1	---	---	2.1	116.28	.4	.071	5.63
269	88.089	15.4891	234.612	220.5352	121	1.51	5.5095E03	1	---	---	2.11	121.87	.439	.071	6.18
270	88.418	16.8192	253.764	221.5886	121	1.5	5.5287E03	1	---	---	2.08	128.17	.488	.071	6.87
271	88.746	16.7647	268.128	222.5462	121	1.59	5.5480E03	1	---	---	2.1	130.01	.503	.071	7.08
272	89.074	17.1592	269.0856	223.5038	121	1.56	5.5672E03	1	---	---	2.08	131.01	.511	.071	7.19

CPT No.	Depth (ft)	qc (MPa)	fs (kPa)	U2 (kPa)	Unit Weight (pcf)	Rf (%)	Effective Stress (psf)	Ksigma	Alpha	Kalpha	Ic	qc1N,cs	CRR	CSR	Safety Factor
273	89.402	17.2904	280.5768	224.4614	121	1.62	5.5864E03	1	- - -	- - -	2.09	132.87	.527	.071	7.42
274	89.73	15.672	273.8736	225.5148	121	1.74	5.6056E03	1	- - -	- - -	2.15	127.94	.486	.071	6.84
275	90.058	16.6995	243.2304	226.4724	121	1.45	5.6248E03	1	- - -	- - -	2.07	125.35	.465	.071	6.54
276	90.386	19.4402	265.2552	227.43	121	1.36	5.6441E03	1	- - -	- - -	1.99	136.88	.563	.071	7.92
277	90.714	26.7879	336.1175	228.3876	124	1.25	5.6638E03	1	- - -	- - -	1.85	173.89	.885	.071	12.46
278	91.042	39.1754	429.9623	229.3452	124	1.09	5.6840E03	1	- - -	- - -	1.68	238.35	.885	.071	12.46
279	91.37	41.8183	662.6592	230.3985	121	1.58	5.7037E03	1	- - -	- - -	1.79	264.42	.885	.071	12.46
280	91.698	43.2059	726.8184	231.3561	121	1.68	5.7229E03	1	- - -	- - -	1.81	274.05	.885	.071	12.46
281	92.026	47.9929	713.412	232.3137	124	1.48	5.7427E03	1	- - -	- - -	1.73	295.87	.885	.071	12.46
282	92.355	35.8745	620.5248	233.2713	121	1.72	5.7624E03	1	- - -	- - -	1.87	232.94	.885	.071	12.46
283	92.683	8.8204	425.1744	234.3247	130	4.82	5.7833E03	1	- - -	- - -	2.72	- - -	Zone B	.071	
284	93.011	4.3187	219.2904	235.2823	111	5.07	5.8020E03	1	- - -	- - -	3.04	- - -	Zone B	.071	
285	93.339	5.2428	123.5304	236.2399	115	2.35	5.8186E03	1	- - -	- - -	2.71	- - -	Zone B	.071	
286	93.667	3.8265	109.1664	237.1975	115	2.85	5.8359E03	1	- - -	- - -	2.92	- - -	Zone B	.071	
287	93.995	3.5603	65.1168	238.2508	115	1.82	5.8531E03	1	- - -	- - -	2.84	- - -	Zone B	.07	
288	94.323	3.1725	65.1168	239.2084	115	2.05	5.8704E03	1	- - -	- - -	2.93	- - -	Zone B	.07	
289	94.651	2.5443	44.0496	240.166	115	1.73	5.8876E03	1	- - -	- - -	3.02	- - -	Zone B	.07	
290	94.9789	3.5699	47.88	241.1236	118	1.34	5.9055E03	1	- - -	- - -	2.76	- - -	Zone B	.07	
291	95.307	6.0434	104.3784	242.177	118	1.72	5.9237E03	1	- - -	- - -	2.56	83.75	.238	.07	3.4
292	95.635	3.5086	109.1664	243.1346	115	3.11	5.9414E03	1	- - -	- - -	3	- - -	Zone B	.07	
293	95.963	3.2232	76.608	244.0922	115	2.37	5.9586E03	1	- - -	- - -	2.97	- - -	Zone B	.07	
294	96.291	2.8076	80.4384	245.0498	115	2.86	5.9759E03	1	- - -	- - -	3.1	- - -	Zone B	.07	
295	96.62	2.2082	43.092	246.1032	115	1.95	5.9932E03	1	- - -	- - -	3.15	- - -	Zone B	.07	
296	96.948	1.9602	23.94	247.0608	115	1.22	6.0104E03	1	- - -	- - -	3.12	- - -	Zone B	.07	
297	97.276	1.9697	21.0672	248.0183	115	1.06	6.0277E03	1	- - -	- - -	3.08	- - -	Zone B	.07	
298	97.6039	2.0406	20.1096	248.976	115	.98	6.0449E03	1	- - -	- - -	3.04	- - -	Zone B	.07	
299	97.932	1.8108	18.1943	250.0293	115	1	6.0622E03	1	- - -	- - -	3.14	- - -	Zone B	.07	
300	98.26	2.6975	30.6432	250.9869	115	1.13	6.0794E03	1	- - -	- - -	2.89	- - -	Zone B	.07	
301	98.588	2.1229	29.6856	251.9445	115	1.39	6.0967E03	1	- - -	- - -	3.1	- - -	Zone B	.069	
302	98.916	2.4591	20.1096	252.9021	118	.81	6.1145E03	1	- - -	- - -	2.88	- - -	Zone B	.069	
303	99.244	2.0004	17.2368	253.9555	115	.86	6.1322E03	1	- - -	- - -	3.04	- - -	Zone B	.069	
304	99.572	1.7217	12.4487	254.9131	115	.72	6.1494E03	1	- - -	- - -	3.12	- - -	Zone B	.069	

Notes:
CSR analysis using Seed & Idriss (1971)
CSR File: K:\12206\EXPANSION\Part 360 Application\Seismic\LiqPot'l_1.CSR
CRR using CPT Data and Robertson & Wride method.
CRR File:
Earthquake used in CSR Analysis: Mean Earhquake for Project Location
Earthquake Magnitude for CRR Analysis: 6
Peak Ground Acceleration for CSR Analysis (g, from User): .11
Magnitude Scaling Factor (MSF): 1.77
Depth to Water Table for CRR Analysis (ft): 5
Depth to Base Layer for CSR Analysis (ft): 100.04
MSF Option: I.M. Idriss (1997)
Cn Option: Kayen, R.E. et al. (1992)
Ksigma Option: None
Net area ratio: .85
Cross area bottom (mm^2):
Cross area top (mm^2):
Friction sleeve area (mm^2): 225
Cone diameter (mm): 43.7
CPT data source file: K:\12206\EXPANSION\CPT Data\706CP01-NLIc.txt

Everleth

Preface

Evaluation of soil liquefaction resistance is an important aspect of geotechnical engineering practice. To update and enhance criteria that are routinely applied in practice, workshops were convened in 1996 and 1998 to gain consensus from 20 experts on updates and augmentations that should be made to standard procedures that have evolved over the past 30 years. At the outset, the goal was to develop this state-of-the-art summary of consensus recommendations. A commitment was also made to those who participated in the workshops that all would be listed as co-authors. Unfortunately, the previous publication of this summary paper (April 2001) listed only the co-chairs of the workshop, Profs. Youd and Idriss, as authors; the remaining workshop participants were acknowledged in a footnote. In order to correct this error and to fully acknowledge and credit those who significantly contributed to the work, this paper is being republished in its entirety, at the request of the journal's editors, with all the participants named as co-authors. All further reference to this paper should be to this republication. The previous publication should no longer be cited. Also, several minor errors are corrected in this republication.

Liquefaction Resistance of Soils: Summary Report from the 1996 NCEER and 1998 NCEER/NSF Workshops on Evaluation of Liquefaction Resistance of Soils[a]

By T. L. Youd,[1] Chair, Member, ASCE, I. M. Idriss,[2] Co-Chair, Fellow, ASCE, Ronald D. Andrus,[3] Ignacio Arango,[4] Gonzalo Castro,[5] John T. Christian,[6] Richardo Dobry,[7] W. D. Liam Finn,[8] Leslie F. Harder Jr.,[9] Mary Ellen Hynes,[10] Kenji Ishihara,[11] Joseph P. Koester,[12] Sam S. C. Liao,[13] William F. Marcuson III,[14] Geoffrey R. Martin,[15] James K. Mitchell,[16] Yoshiharu Moriwaki,[17] Maurice S. Power,[18] Peter K. Robertson,[19] Raymond B. Seed,[20] and Kenneth H. Stokoe II[21]

Abstract: Following disastrous earthquakes in Alaska and in Niigata, Japan in 1964, Professors H. B. Seed and I. M. Idriss developed and published a methodology termed the "simplified procedure" for evaluating liquefaction resistance of soils. This procedure has become a standard of practice throughout North America and much of the world. The methodology which is largely empirical, has evolved over years, primarily through summary papers by H. B. Seed and his colleagues. No general review or update of the procedure has occurred, however, since 1985, the time of the last major paper by Professor Seed and a report from a National Research Council workshop on liquefaction of soils. In 1996 a workshop sponsored by the National Center for Earthquake Engineering Research (NCEER) was convened by Professors T. L. Youd and I. M. Idriss with 20 experts to review developments over the previous 10 years. The purpose was to gain consensus on updates and augmentations to the simplified procedure. The following topics were reviewed and recommendations developed: (1) criteria based on standard penetration tests; (2) criteria based on cone penetration tests; (3) criteria based on shear-wave velocity measurements; (4) use of the Becker penetration test for gravelly soil; (4) magnitude scaling factors; (5) correction factors for overburden pressures and sloping ground; and (6) input values for earthquake magnitude and peak acceleration. Probabilistic and seismic energy analyses were reviewed but no recommendations were formulated.

[a]This Summary Report, originally published in April 2001, is being republished so that the contribution of all workshop participants as authors can be officially recognized. The original version listed only two authors, plus a list of 19 workshop participants. This was incorrect; all 21 individuals should have been identified as authors. ASCE deeply regrets the error.

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Note. Discussion open until March 1, 2002. To extend the closing date one month, a written request must be filed with the ASCE Manager of Journals. The manuscript for this paper was submitted for review and possible publication on January 18, 2000; revised November 14, 2000. This paper is part of the ***Journal of Geotechnical and Geoenvironmental Engineering***, Vol. 127, No. 10, October, 2001. ©ASCE, ISSN 1090-0241/01/0010-0817–0833/$8.00 + $.50 per page. Paper No. 22223.

INTRODUCTION

Over the past 25 years a methodology termed the "simplified procedure" has evolved as a standard of practice for evaluating the liquefaction resistance of soils. Following disastrous earthquakes in Alaska and in Niigata, Japan in 1964, Seed and Idriss (1971) developed and published the basic "simplified procedure." That procedure has been modified and improved periodically since that time, primarily through landmark papers by Seed (1979), Seed and Idriss (1982), and Seed et al. (1985). In 1985, Professor Robert V. Whitman convened a workshop on behalf of the National Research Council (NRC) in which 36 experts and observers thoroughly reviewed the state-of-knowledge and the state-of-the-art for assessing liquefaction hazard. That workshop produced a report (NRC 1985) that has become a widely used standard and reference for liquefaction hazard assessment. In January 1996, T. L. Youd and I. M. Idriss convened a workshop of 20 experts to update the simplified procedure and incorporate research findings from the previous decade. This paper summarizes recommendations from that workshop (Youd and Idriss 1997).

To keep the workshop focused, the scope of the workshop was limited to procedures for evaluating liquefaction resistance of soils under level to gently sloping ground. In this context, liquefaction refers to the phenomena of seismic generation of large pore-water pressures and consequent softening of granular soils. Important postliquefaction phenomena, such as residual shear strength, soil deformation, and ground failure, were beyond the scope of the workshop.

The simplified procedure was developed from empirical evaluations of field observations and field and laboratory test data. Field evidence of liquefaction generally consisted of surficial observations of sand boils, ground fissures, or lateral spreads. Data were collected mostly from sites on level to gently sloping terrain, underlain by Holocene alluvial or fluvial sediment at shallow depths (<15 m). The original procedure was verified for, and is applicable only to, these site conditions. Similar restrictions apply to the implementation of the updated procedures recommended in this report.

Liquefaction is defined as the transformation of a granular material from a solid to a liquefied state as a consequence of increased pore-water pressure and reduced effective stress (Marcuson 1978). Increased pore-water pressure is induced by the tendency of granular materials to compact when subjected to cyclic shear deformations. The change of state occurs most readily in loose to moderately dense granular soils with poor drainage, such as silty sands or sands and gravels capped by or containing seams of impermeable sediment. As liquefaction occurs, the soil stratum softens, allowing large cyclic deformations to occur. In loose materials, the softening is also accompanied by a loss of shear strength that may lead to large shear deformations or even flow failure under moderate to high shear stresses, such as beneath a foundation or sloping ground. In moderately dense to dense materials, liquefaction leads to transient softening and increased cyclic shear strains, but a tendency to dilate during shear inhibits major strength loss and large ground deformations. A condition of cyclic mobility or cyclic liquefaction may develop following liquefaction of moderately dense granular materials. Beneath gently sloping to flat ground, liquefaction may lead to ground oscillation or lateral spread as a consequence of either flow deformation or cyclic mobility. Loose soils also compact during liquefaction and reconsolidation, leading to ground settlement. Sand boils may also erupt as excess pore water pressures dissipate.

CYCLIC STRESS RATIO (CSR) AND CYCLIC RESISTANCE RATIO (CRR)

Calculation, or estimation, of two variables is required for evaluation of liquefaction resistance of soils: (1) the seismic demand on a soil layer, expressed in terms of CSR; and (2) the capacity of the soil to resist liquefaction, expressed in terms of CRR. The latter variable has been termed the cyclic stress ratio or the cyclic stress ratio required to generate liquefaction, and has been given different symbols by different writers. For example, Seed and Harder (1990) used the symbol CSRℓ, Youd (1993) used the symbol CSRL, and Kramer (1996) used the symbol CSR_L to denote this ratio. To reduce confusion and to better distinguish induced cyclic shear stresses from mobilized liquefaction resistance, the capacity of a soil to resist liquefaction is termed the CRR in this report. This term is recommended for engineering practice.

EVALUATION OF CSR

Seed and Idriss (1971) formulated the following equation for calculation of the cyclic stress ratio:

$$\mathrm{CSR} = (\tau_{av}/\sigma'_{vo}) = 0.65(a_{max}/g)(\sigma_{vo}/\sigma'_{vo})r_d \quad (1)$$

where a_{max} = peak horizontal acceleration at the ground surface generated by the earthquake (discussed later); g = acceleration of gravity; σ_{vo} and σ'_{vo} are total and effective vertical overburden stresses, respectively; and r_d = stress reduction coefficient. The latter coefficient accounts for flexibility of the soil profile. The workshop participants recommend the following minor modification to the procedure for calculation of CSR.

For routine practice and noncritical projects, the following equations may be used to estimate average values of r_d (Liao and Whitman 1986b):

$$r_d = 1.0 - 0.00765z \quad \text{for } z \le 9.15 \text{ m} \quad (2a)$$

$$r_d = 1.174 - 0.0267z \quad \text{for } 9.15 \text{ m} < z \le 23 \text{ m} \quad (2b)$$

where z = depth below ground surface in meters. Some investigators have suggested additional equations for estimating r_d at greater depths (Robertson and Wride 1998), but evaluation of liquefaction at these greater depths is beyond the depths where the simplified procedure is verified and where routine applications should be applied. Mean values of r_d calculated from (2) are plotted in Fig. 1, along with the mean and range of values proposed by Seed and Idriss (1971). The workshop participants agreed that for convenience in programming spreadsheets and other electronic aids, and to be consistent with past practice, r_d values determined from (2) are suitable for use in routine engineering practice. The user should understand, however, that there is considerable variability in the

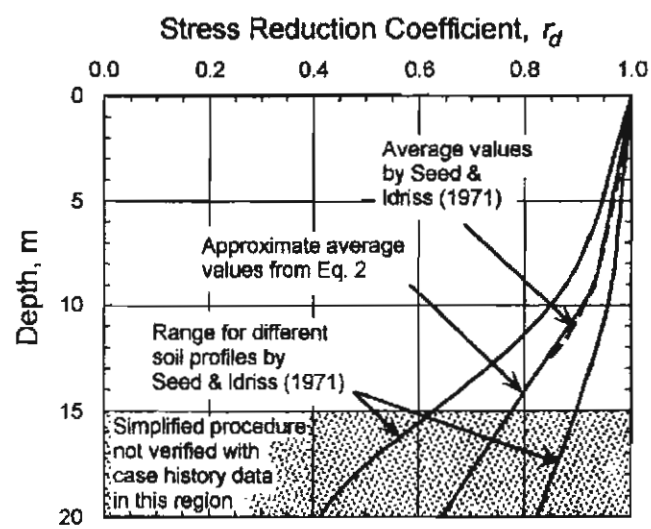


FIG. 1. r_d versus Depth Curves Developed by Seed and Idriss (1971) with Added Mean-Value Lines Plotted from Eq. (2)

flexibility and thus r_d at field sites, that r_d calculated from (2) are the mean of a wide range of possible r_d, and that the range of r_d increases with depth (Golesorkhi 1989).

For ease of computation, T. F. Blake (personal communication, 1996) approximated the mean curve plotted in Fig. 1 by the following equation:

$$r_d = \frac{(1.000 - 0.4113z^{0.5} + 0.04052z + 0.001753z^{1.5})}{(1.000 - 0.4177z^{0.5} + 0.05729z - 0.006205z^{1.5} + 0.001210z^2)} \quad (3)$$

where z = depth beneath ground surface in meters. Eq. (3) yields essentially the same values for r_d as (2), but is easier to program and may be used in routine engineering practice.

I. M. Idriss [Transportation Research Board (TRB) (1999)] suggested a new procedure for determining magnitude-dependent values of r_d. Application of these r_d require use of a corresponding set of magnitude scaling factors that are compatible with the new r_d. Because these r_d were developed after the workshop and have not been independently evaluated by other experts, the workshop participants chose not to recommend the new factors at this time.

EVALUATION OF LIQUEFACTION RESISTANCE (CRR)

A major focus of the workshop was on procedures for evaluating liquefaction resistance. A plausible method for evaluating CRR is to retrieve and test undisturbed soil specimens in the laboratory. Unfortunately, in situ stress states generally cannot be reestablished in the laboratory, and specimens of granular soils retrieved with typical drilling and sampling techniques are too disturbed to yield meaningful results. Only through specialized sampling techniques, such as ground freezing, can sufficiently undisturbed specimens be obtained. The cost of such procedures is generally prohibitive for all but the most critical projects. To avoid the difficulties associated with sampling and laboratory testing, field tests have become the state-of-practice for routine liquefaction investigations.

Several field tests have gained common usage for evaluation of liquefaction resistance, including the standard penetration test (SPT), the cone penetration test (CPT), shear-wave velocity measurements (V_s), and the Becker penetration test (BPT). These tests were discussed at the workshop, along with associated criteria for evaluating liquefaction resistance. The participants made a conscientious attempt to correlate liquefaction resistance criteria from each of the various field tests to provide generally consistent results, no matter which test is applied. SPTs and CPTs are generally preferred because of the more extensive databases and past experience, but the other tests may be applied at sites underlain by gravelly sediment or where access by large equipment is limited. Primary advantages and disadvantages of each test are listed in Table 1.

SPT

Criteria for evaluation of liquefaction resistance based on the SPT have been rather robust over the years. Those criteria are largely embodied in the CSR versus $(N_1)_{60}$ plot reproduced

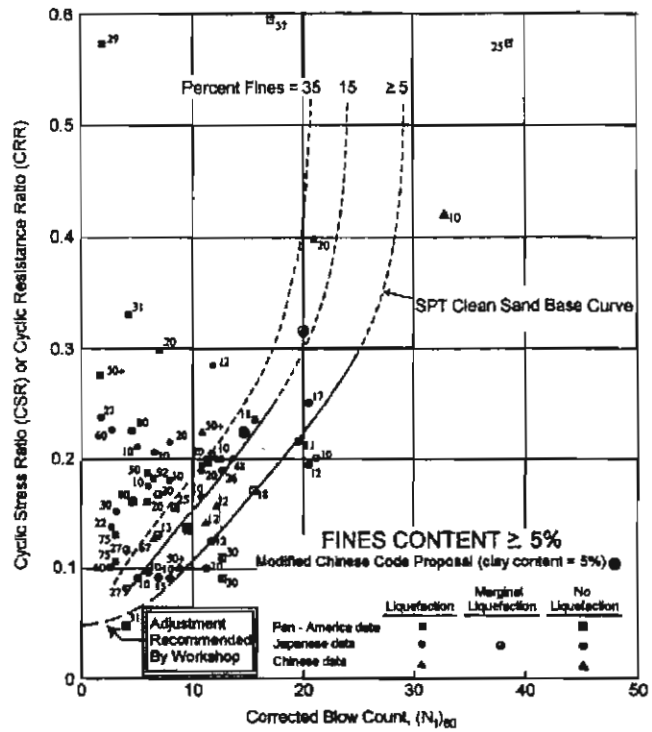


FIG. 2. SPT Clean-Sand Base Curve for Magnitude 7.5 Earthquakes with Data from Liquefaction Case Histories (Modified from Seed et al. 1985)

in Fig. 2. $(N_1)_{60}$ is the SPT blow count normalized to an overburden pressure of approximately 100 kPa (1 ton/sq ft) and a hammer energy ratio or hammer efficiency of 60%. The normalization factors for these corrections are discussed in the section entitled Other Corrections. Fig. 2 is a graph of calculated CSR and corresponding $(N_1)_{60}$ data from sites where liquefaction effects were or were not observed following past earthquakes with magnitudes of approximately 7.5. CRR curves on this graph were conservatively positioned to separate regions with data indicative of liquefaction from regions with data indicative of nonliquefaction. Curves were developed for granular soils with the fines contents of 5% or less, 15%, and 35% as shown on the plot. The CRR curve for fines contents <5% is the basic penetration criterion for the simplified procedure and is referred to hereafter as the "SPT clean-sand base curve." The CRR curves in Fig. 2 are valid only for magnitude 7.5 earthquakes. Scaling factors to adjust CRR curves to other magnitudes are addressed in a later section of this report.

SPT Clean-Sand Base Curve

Several changes to the SPT criteria are recommended by the workshop participants. The first change is to curve the trajec-

TABLE 1. Comparison of Advantages and Disadvantages of Various Field Tests for Assessment of Liquefaction Resistance

Feature	Test Type			
	SPT	CPT	V_s	BPT
Past measurements at liquefaction sites	Abundant	Abundant	Limited	Sparse
Type of stress-strain behavior influencing test	Partially drained, large strain	Drained, large strain	Small strain	Partially drained, large strain
Quality control and repeatability	Poor to good	Very good	Good	Poor
Detection of variability of soil deposits	Good for closely spaced tests	Very good	Fair	Fair
Soil types in which test is recommended	Nongravel	Nongravel	All	Primarily gravel
Soil sample retrieved	Yes	No	No	No
Test measures index or engineering property	Index	Index	Engineering	Index

tory of the clean-sand base curve at low $(N_1)_{60}$ to a projected intercept of about 0.05 (Fig. 2). This adjustment reshapes the clean-sand base curve to achieve greater consistency with CRR curves developed for the CPT and shear-wave velocity procedures. Seed and Idriss (1982) projected the original curve through the origin, but there were few data to constrain the curve in the lower part of the plot. A better fit to the present empirical data is to bow the lower end of the base curve as indicated in Fig. 2.

At the University of Texas, A. F. Rauch (personal communication, 1998), approximated the clean-sand base curve plotted in Fig. 2 by the following equation:

$$\mathrm{CRR}_{7.5} = \frac{1}{34 - (N_1)_{60}} + \frac{(N_1)_{60}}{135} + \frac{50}{[10 \cdot (N_1)_{60} + 45]^2} - \frac{1}{200} \quad (4)$$

This equation is valid for $(N_1)_{60} < 30$. For $(N_1)_{60} \geq 30$, clean granular soils are too dense to liquefy and are classed as nonliquefiable. This equation may be used in spreadsheets and other analytical techniques to approximate the clean-sand base curve for routine engineering calculations.

Influence of Fines Content

In the original development, Seed et al. (1985) noted an apparent increase of CRR with increased fines content. Whether this increase is caused by an increase of liquefaction resistance or a decrease of penetration resistance is not clear. Based on the empirical data available, Seed et al. developed CRR curves for various fines contents reproduced in Fig. 2. A revised correction for fines content was developed by workshop attendees to better fit the empirical database and to better support computations with spreadsheets and other electronic computational aids.

The workshop participants recommend (5) and (6) as approximate corrections for the influence of fines content (FC) on CRR. Other grain characteristics, such as soil plasticity, may affect liquefaction resistance as well as fines content, but widely accepted corrections for these factors have not been developed. Hence corrections based solely on fines content should be used with engineering judgment and caution. The following equations were developed by I. M. Idriss with the assistance of R. B. Seed for correction of $(N_1)_{60}$ to an equivalent clean sand value, $(N_1)_{60cs}$:

$$(N_1)_{60cs} = \alpha + \beta(N_1)_{60} \quad (5)$$

where α and β = coefficients determined from the following relationships:

$$\alpha = 0 \quad \text{for FC} \leq 5\% \quad (6a)$$

$$\alpha = \exp[1.76 - (190/\mathrm{FC}^2)] \quad \text{for } 5\% < \mathrm{FC} < 35\% \quad (6b)$$

$$\alpha = 5.0 \quad \text{for FC} \geq 35\% \quad (6c)$$

$$\beta = 1.0 \quad \text{for FC} \leq 5\% \quad (7a)$$

$$\beta = [0.99 + (\mathrm{FC}^{1.5}/1{,}000)] \quad \text{for } 5\% < \mathrm{FC} < 35\% \quad (7b)$$

$$\beta = 1.2 \quad \text{for FC} \geq 35\% \quad (7c)$$

These equations may be used for routine liquefaction resistance calculations. A back-calculated curve for a fines content of 35% is essentially congruent with the 35% curve plotted in Fig. 2. The back-calculated curve for a fines contents of 15% plots to the right of the original 15% curve.

Other Corrections

Several factors in addition to fines content and grain characteristics influence SPT results, as noted in Table 2. Eq. (8) incorporates these corrections

TABLE 2. Corrections to SPT (Modified from Skempton 1986) as Listed by Robertson and Wride (1998)

Factor	Equipment variable	Term	Correction
Overburden pressure	—	C_N	$(P_a/\sigma'_{vo})^{0.5}$
Overburden pressure	—	C_N	$C_N \leq 1.7$
Energy ratio	Donut hammer	C_E	0.5–1.0
Energy ratio	Safety hammer	C_E	0.7–1.2
Energy ratio	Automatic-trip Donut-type hammer	C_E	0.8–1.3
Borehole diameter	65–115 mm	C_B	1.0
Borehole diameter	150 mm	C_B	1.05
Borehole diameter	200 mm	C_B	1.15
Rod length	<3 m	C_R	0.75
Rod length	3–4 m	C_R	0.8
Rod length	4–6 m	C_R	0.85
Rod length	6–10 m	C_R	0.95
Rod length	10–30 m	C_R	1.0
Sampling method	Standard sampler	C_S	1.0
Sampling method	Sampler without liners	C_S	1.1–1.3

$$(N_1)_{60} = N_m C_N C_E C_B C_R C_S \quad (8)$$

where N_m = measured standard penetration resistance; C_N = factor to normalize N_m to a common reference effective overburden stress; C_E = correction for hammer energy ratio (ER); C_B = correction factor for borehole diameter; C_R = correction factor for rod length; and C_S = correction for samplers with or without liners.

Because SPT N-values increase with increasing effective overburden stress, an overburden stress correction factor is applied (Seed and Idriss 1982). This factor is commonly calculated from the following equation (Liao and Whitman 1986a):

$$C_N = (P_a/\sigma'_{vo})^{0.5} \quad (9)$$

where C_N normalizes N_m to an effective overburden pressure σ'_{vo} of approximately 100 kPa (1 atm) P_a. C_N should not exceed a value of 1.7 [A maximum value of 2.0 was published in the National Center for Earthquake Engineering Research (NCEER) workshop proceedings (Youd and Idriss 1997), but later was reduced to 1.7 by consensus of the workshop participants] Kayen et al. (1992) suggested the following equation, which limits the maximum C_N value to 1.7, and in these writers' opinion, provides a better fit to the original curve specified by Seed and Idriss (1982):

$$C_N = 2.2/(1.2 + \sigma'_{vo}/P_a) \quad (10)$$

Either equation may be used for routine engineering applications.

The effective overburden pressure σ'_{vo} applied in (9) and (10) should be the overburden pressure at the time of drilling and testing. Although a higher ground-water level might be used for conservatism in the liquefaction resistance calculations, the C_N factor must be based on the stresses present at the time of the testing.

The C_N correction factor was derived from SPT performed in test bins with large sand specimens subjected to various confining pressures (Gibbs and Holtz 1957; Marcuson and Bieganousky 1997a,b). The results of several of these tests are reproduced in Fig. 3 in the form of C_N curves versus effective overburden stress (Castro 1995). These curves indicate considerable scatter of results with no apparent correlation of C_N with soil type or gradation. The curves from looser sands, however, lie in the lower part of the C_N range and are reasonably approximated by (9) and (10) for low effective overburden pressures [200 kPa (<2 tsf)]. The workshop participants endorsed the use of (9) for calculation of C_N, but acknowledged that for overburden pressures >200 kPa (2 tsf) the results are uncertain. Eq. (10) provides a better fit for overburden

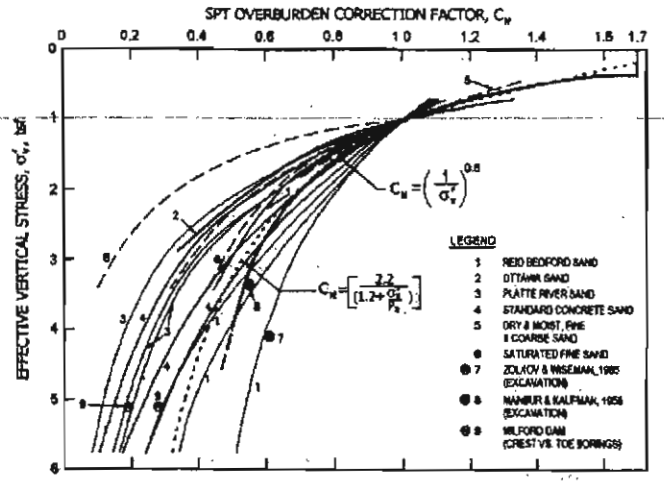


FIG. 3. C_N Curves for Various Sands Based on Field and Laboratory Test Data along with Suggested C_N Curve Determined from Eqs. (9) and (10) (Modified from Castro 1995)

pressures up to 300 kPa (3 tsf). For pressures >300 kPa (3 tsf), the uncertainty is so great that (9) should not be applied. At these high pressures, which are generally below the depth for which the simplified procedure has been verified, C_N should be estimated by other means.

Another important factor is the energy transferred from the falling hammer to the SPT sampler. An ER of 60% is generally accepted as the approximate average for U.S. testing practice and as a reference value for energy corrections. The ER delivered to the sampler depends on the type of hammer, anvil, lifting mechanism, and the method of hammer release. Approximate correction factors (C_E = ER/60) to modify the SPT results to a 60% energy ratio for various types of hammers and anvils are listed in Table 2. Because of variations in drilling and testing equipment and differences in testing procedures, a rather wide range in the energy correction factor C_E has been observed as noted in the table. Even when procedures are carefully monitored to conform to established standards, such as ASTM D 1586-99, some variation in C_E may occur because of minor variations in testing procedures. Measured energies at a single site indicate that variations in energy ratio between blows or between tests in a single borehole typically vary by as much as 10%. The workshop participants recommend measurement of the hammer energy frequently at each site where the SPT is used. Where measurements cannot be made, careful observation and notation of the equipment and procedures are required to estimate a C_E value for use in liquefaction resistance calculations. Use of good-quality testing equipment and carefully controlled testing procedures conforming to ASTM D 1586-99 will generally yield more consistent energy ratios and C_E with values from the upper parts of the ranges listed in Table 2.

Skempton (1986) suggested and Robertson and Wride (1998) updated correction factors for rod lengths <10 m, borehole diameters outside the recommended interval (65–125 mm), and sampling tubes without liners. Range for these correction factors are listed in Table 2. For liquefaction resistance calculations and rod lengths <3 m, a C_R of 0.75 should be applied as was done by Seed et al. (1985) in formulating the simplified procedure. Although application of rod-length correction factors listed in Table 2 will give more precise $(N_1)_{60}$ values, these corrections may be neglected for liquefaction resistance calculations for rod lengths between 3 and 10 m because rod-length corrections were not applied to SPT test data from these depths in compiling the original liquefaction case history databases. Thus rod-length corrections are implicitly incorporated into the empirical SPT procedure.

A final change recommended by workshop participants is the use of revised magnitude scaling factors rather than the original Seed and Idriss (1982) factors to adjust CRR for earthquake magnitudes other than 7.5. Magnitude scaling factors are addressed later in this report.

CPT

A primary advantage of the CPT is that a nearly continuous profile of penetration resistance is developed for stratigraphic interpretation. The CPT results are generally more consistent and repeatable than results from other penetration tests listed in Table 1. The continuous profile also allows a more detailed definition of soil layers than the other tools listed in the table. This stratigraphic capability makes the CPT particularly advantageous for developing liquefaction-resistance profiles. Interpretations based on the CPT, however, must be verified with a few well-placed boreholes preferably with standard penetration tests, to confirm soil types and further verify liquefaction-resistance interpretations.

Fig. 4 provides curves prepared by Robertson and Wride (1998) for direct determination of CRR for clean sands (FC ≤ 5%) from CPT data. This figure was developed from CPT case history data compiled from several investigations, including those by Stark and Olson (1995) and Suzuki et al. (1995). The chart, valid for magnitude 7.5 earthquakes only, shows calculated cyclic resistance ratio plotted as a function of dimensionless, corrected, and normalized CPT resistance q_{c1N} from sites where surface effects of liquefaction were or were not observed following past earthquakes. The CRR curve conservatively separates regions of the plot with data indicative of liquefaction from regions indicative of nonliquefaction.

Based on a few misclassified case histories from the 1989 Loma Prieta earthquake, I. M. Idriss suggested that the clean sand curve in Fig. 4 should be shifted to the right by 10–15%. However, a majority of workshop participants supported a curve in its present position, for three reasons. First, a purpose of the workshop was to recommend criteria that yield roughly equivalent CRR for the field tests listed in Table 1. Shifting the base curve to the right makes the CPT criteria generally more conservative. For example, for $(N_1)_{60} > 5$, q_{c1N}:$(N_1)_{60}$ ra-

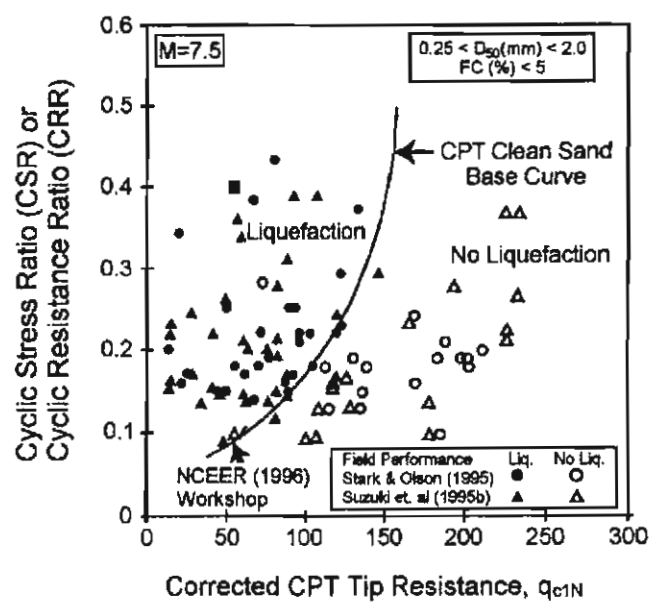


FIG. 4. Curve Recommended for Calculation of CRR from CPT Data along with Empirical Liquefaction Data from Compiled Case Histories (Reproduced from Robertson and Wride 1998)

tios between the two clean-sand base curves, plotted in Figs. 4 and 2, respectively, range from 5 to 8—values that are slightly higher than those expected for clean sands. Shifting the CPT base curve to the right by 10 to 15% would increase those ratios to unusually high values ranging from 6 to 9. Second, base curves, such as those plotted in Figs. 2 and 4, were intended to be conservative, but not necessarily to encompass every data point on the plot. Thus the presence of a few points beyond the base curve should be allowable. Finally, several studies have confirmed that the CPT criteria in Fig. 4 are generally conservative. Robertson and Wride (1998) verified these criteria against SPT and other data from sites they investigated. Gilstrap and Youd (1998) compared calculated liquefaction resistances against field performance at 19 sites and concluded that the CPT criteria correctly predicted the occurrence or nonoccurrence of liquefaction with >85% reliability.

The clean-sand base curve in Fig. 4 may be approximated by the following equation (Robertson and Wride 1998):

$$\text{If } (q_{c1N})_{cs} < 50 \quad \text{CRR}_{7.5} = 0.833[(q_{c1N})_{cs}/1{,}000] + 0.05 \tag{11a}$$

$$\text{If } 50 \le (q_{c1N})_{cs} < 160 \quad \text{CRR}_{7.5} = 93[(q_{c1N})_{cs}/1{,}000]^3 + 0.08 \tag{11b}$$

where $(q_{c1N})_{cs}$ = clean-sand cone penetration resistance normalized to approximately 100 kPa (1 atm).

Normalization of Cone Penetration Resistance

The CPT procedure requires normalization of tip resistance using (12) and (13). This transformation yields normalized, dimensionless cone pentration resistance q_{c1N}

$$q_{c1N} = C_Q(q_c/P_a) \tag{12}$$

where

$$C_Q = (P_a/\sigma'_{vo})^n \tag{13}$$

and where C_Q = normalizing factor for cone penetration resistance; P_a = 1 atm of pressure in the same units used for σ'_{vo}; n = exponent that varies with soil type; and q_c = field cone penetration resistance measured at the tip. At shallow depths C_Q becomes large because of low overburden pressure; however, values >1.7 should not be applied. As noted in the following paragraphs, the value of the exponent n varies from 0.5 to 1.0, depending on the grain characteristics of the soil (Olsen 1997).

The CPT friction ratio (sleeve resistance f_s divided by cone tip resistance q_c) generally increases with increasing fines content and soil plasticity, allowing rough estimates of soil type and fines content to be determined from CPT data. Robertson and Wride (1998) constructed the chart reproduced in Fig. 5 for estimation of soil type. The boundaries between soil types 2–7 can be approximated by concentric circles and can be used to account for effects of soil characteristics on q_{c1N} and CRR. The radius of these circles, termed the soil behavior type index I_c is calculated from the following equation:

$$I_c = [(3.47 - \log Q)^2 + (1.22 + \log F)^2]^{0.5} \tag{14}$$

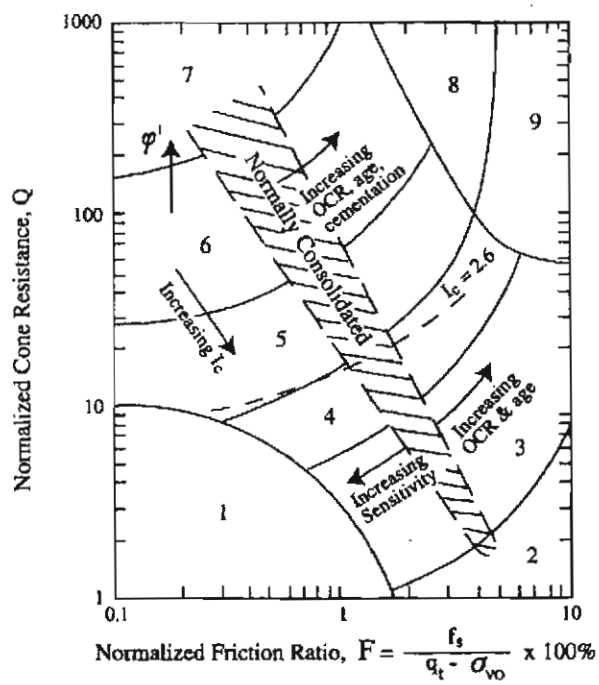
where

$$Q = [(q_c - \sigma_{vo})/P_a][(P_a/\sigma'_{vo})^n] \tag{15}$$

and

$$F = [f_s/(q_c - \sigma_{vo})] \times 100\% \tag{16}$$

The soil behavior chart in Fig. 5 was developed using an exponent n of 1.0, which is the appropriate value for clayey soil types. For clean sands, however, an exponent value of 0.5 is more appropriate, and a value intermediate between 0.5 and



1. Sensitive, fine grained
2. Organic soils - peats
3. Clays - silty clay to clay
4. Silt mixtures - clayey silt to silty clay
5. Sand mixtures - silty sand to sandy silt
6. Sands - clean sand to silty sand
7. Gravelly sand to dense sand
8. Very stiff sand to clayey sand*
9. Very stiff, fine grained*

Heavily overconsolidated or cemented

FIG. 5. CPT-Based Soil Behavior-Type Chart Proposed by Robertson (1990)

1.0 would be appropriate for silts and sandy silts. Robertson and Wride recommended the following procedure for calculating the soil behavior type index I_c. The first step is to differentiate soil types characterized as clays from soil types characterized as sands and silts. This differentiation is performed by assuming an exponent n of 1.0 (characteristic of clays) and calculating the dimensionless CPT tip resistance Q from the following equation:

$$Q = [(q_c - \sigma_{vo})/P_a][P_a/\sigma'_{vo}]^{1.0} = [(q_c - \sigma_{vo})/\sigma'_{vo}] \tag{17}$$

If the I_c calculated with an exponent of 1.0 is >2.6, the soil is classified as clayey and is considered too clay-rich to liquefy, and the analysis is complete. However, soil samples should be retrieved and tested to confirm the soil type and liquefaction resistance. Criteria such as the Chinese criteria might be applied to confirm that the soil is nonliquefiable. The so-called Chinese criteria, as defined by Seed and Idriss (1982), specify that liquefaction can only occur if all three of the following conditions are met:

1. The clay content (particles smaller than 5 μ) is <15% by weight.
2. The liquid limit is <35%.
3. The natural moisture content is >0.9 times the liquid limit.

If the calculated I_c is <2.6, the soil is most likely granular in nature, and therefore C_q and Q should be recalculated using an exponent n of 0.5. I_c should then be recalculated using (14). If the recalculated I_c is <2.6, the soil is classed as nonplastic and granular. This I_c is used to estimate liquefaction resistance, as noted in the next section. However, if the recalculated I_c is

>2.6, the soil is likely to be very silty and possibly plastic. In this instance, q_{c1N} should be recalculated from (12) using an intermediate exponent n of 0.7 in (13). I_c is then recalculated from (14) using the recalculated value for q_{c1N}. This intermediate I_c is then used to calculate liquefaction resistance. In this instance, a soil sample should be retrieved and tested to verify the soil type and whether the soil is liquefiable by other criteria, such as the Chinese criteria.

Because the relationship between I_c and soil type is approximate, the consensus of the workshop participants is that all soils with an I_c of 2.4 or greater should be sampled and tested to confirm the soil type and to test the liquefiability with other criteria. Also, soil layers characterized by an $I_c > 2.6$, but with a normalized friction ratio $F < 1.0\%$ (region 1 of Fig. 5) may be very sensitive and should be sampled and tested. Although not technically liquefiable according to the Chinese criteria, such sensitive soils may suffer softening and strength loss during earthquake shaking.

Calculation of Clean-Sand Equivalent Normalized Cone Penetration Resistance $(q_{c1N})_{cs}$

The normalized penetration resistance (q_{c1N}) for silty sands is corrected to an equivalent clean sand value $(q_{c1N})_{cs}$, by the following relationship:

$$(q_{c1N})_{cs} = K_c q_{c1N} \tag{18}$$

where K_c, the correction factor for grain characteristics, is defined by the following equation (Robertson and Wride 1998):

$$\text{for } I_c \leq 1.64 \quad K_c = 1.0 \tag{19a}$$

$$\text{for } I_c > 1.64 \quad K_c = -0.403I_c^4 + 5.581I_c^3 - 21.63I_c^2 + 33.75I_c - 17.88 \tag{19b}$$

The K_c curve defined by (19) is plotted in Fig. 6. For $I_c > 2.6$, the curve is shown as a dashed line, indicating that soils in this range of I_c are most likely too clay-rich or plastic to liquefy.

With an appropriate I_c and K_c, (11) and (19) can be used to calculate $CRR_{7.5}$. To adjust CRR to magnitudes other than 7.5, the calculated $CRR_{7.5}$ is multiplied by an appropriate magnitude scaling factor. The same magnitude scaling factors are used with CPT data as with SPT data. Magnitude scaling factors are discussed in a later section of this report.

Olsen (1997) and Suzuki et al. (1995) Procedures

Olsen (1997), who pioneered many of the techniques for assessing liquefaction resistance from CPT soundings, suggested a somewhat different procedure for calculating CRR from CPT data. Reasons for recommending the Robertson and Wride (1998) procedure over that of Olsen are the ease of application and the ease with which relationships can be quantified for computer-aided calculations. Results from Olsen's procedure, however, are consistent with results from the procedure proposed here for shallow (<15 m deep) sediment beneath level to gently sloping terrain. Olsen (1997) noted that almost any CPT normalization technique will give results consistent with his normalization procedure for soil layers in the 3–15 m depth range. For deeper layers, significant differences may develop between the two procedures. Those depths are also beyond the depth for which the simplified procedure has been verified. Hence any procedure based on the simplified procedure yields rather uncertain results at depths >15 m.

Suzuki et al. (1995) also developed criteria for evaluating CRR from CPT data. Those criteria are slightly more conservative than those of Robertson and Wride (1998) and were considered by the latter investigators in developing the criteria recommended herein.

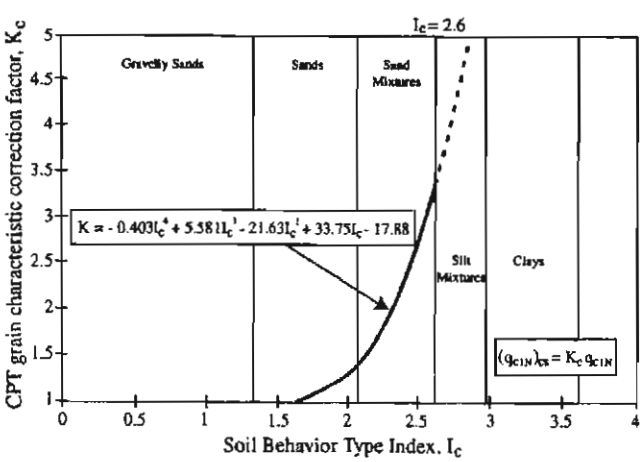


FIG. 6. Grain-Characteristic Correction Factor K_c for Determination of Clean-Sand Equivalent CPT Resistance (Reproduced from Robertson and Wride 1998)

Correction of Cone Penetration Resistance for Thin Soil Layers

Theoretical as well as laboratory studies indicate that CPT tip resistance is influenced by softer soil layers above or below the cone tip. As a result, measured CPT tip resistance is smaller in thin layers of granular soils sandwiched between softer layers than in thicker layers of the same granular soil. The amount of the reduction of penetration resistance in soft layers is a function of the thickness of the softer layer and the stiffness of the stiffer layers.

Using a simplified elastic solution, Vreugdenhil et al. (1994) developed a procedure for estimating the thick-layer equivalent cone penetration resistance of thin stiff layers lying within softer strata. The correction applies only to thin stiff layers embedded within thick soft layers. Because the corrections have a reasonable trend, but appear rather large, Robertson and Fear (1995) recommended conservative corrections from the $q_{cA}/q_{cB} = 2$ curve sketched in Fig. 7.

Further analysis of field data by Gonzalo Castro and Peter Robertson for the NCEER workshop indicates that corrections based on the $q_{cA}/q_{cB} = 2$ curve may still be too large and not adequately conservative. They suggested, and the workshop participants agreed, that the lower bound of the range of field data plotted by G. Castro in Fig. 7 provides more conservative K_H values that should be used until further field studies and analyses indicate that higher values are viable. The equation for the lower bound of the field curve is

$$K_H = 0.25[((H/d_c)/17) - 1.77]^2 + 1.0 \tag{20}$$

where H = thickness of the interbedded layer in mm; q_{cA} and q_{cB} = cone resistances of the stiff and soft layers, respectively; and d_c = diameter of the cone in mm (Fig. 7).

V_s

Andrus and Stokoe (1997, 2000) developed liquefaction resistance criteria from field measurements of shear wave velocity V_s. The use of V_s as a field index of liquefaction resistance is soundly based because both V_s and CRR are similarly, but not proportionally, influenced by void ratio, effective confining stresses, stress history, and geologic age. The advantages of using V_s include the following: (1) V_s measurements are possible in soils that are difficult to penetrate with CPT and SPT or to extract undisturbed samples, such as gravelly soils, and at sites where borings or soundings may not be permitted; (2) V_s is a basic mechanical property of soil materials, directly related to small-strain shear modulus; and (3) the

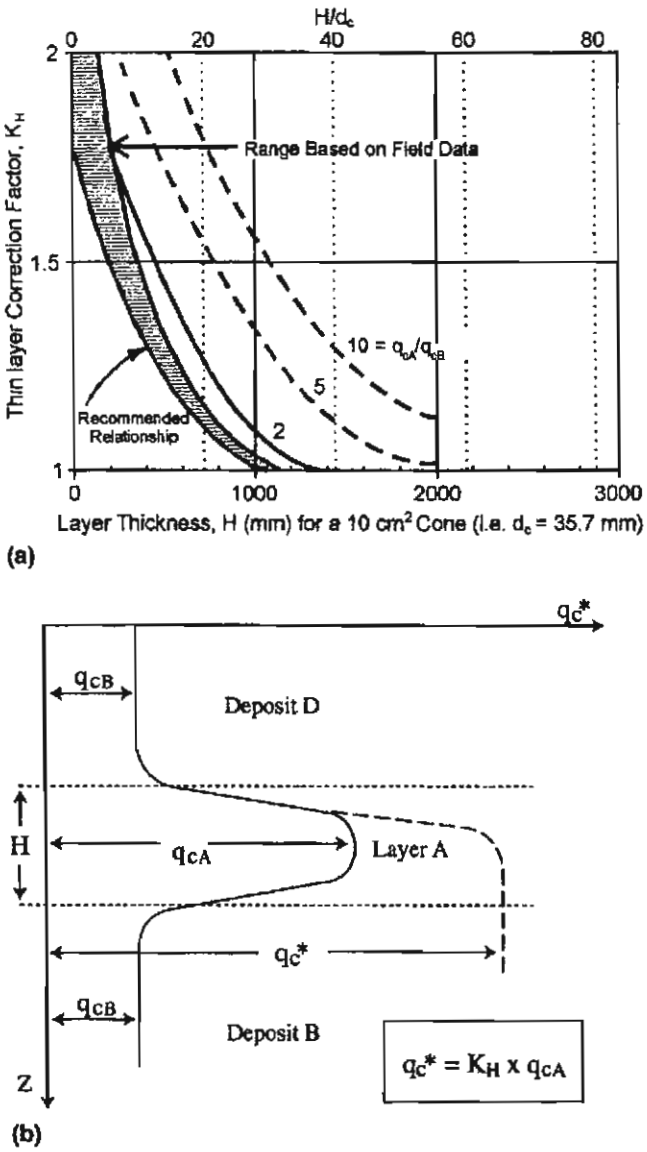


FIG. 7. Thin-Layer Correction Factor K_H for Determination of Equivalent Thick-Layer CPT Resistance (Modified from Robertson and Fear 1995)

small-strain shear modulus is a parameter required in analytical procedures for estimating dynamic soil response and soil-structure interaction analyses.

Three concerns arise when using V_s for liquefaction-resistance evaluations: (1) seismic wave velocity measurements are made at small strains, whereas pore-water pressure buildup and the onset of liquefaction are medium- to high-strain phenomena; (2) seismic testing does not provide samples for classification of soils and identification of nonliquefiable soft clay-rich soils; and (3) thin, low V_s strata may not be detected if the measurement interval is too large. Therefore the preferred practice is to drill sufficient boreholes and conduct in situ tests to detect and delineate thin liquefiable strata, nonliquefiable clay-rich soils, and silty soils above the ground-water table that might become liquefiable should the water table rise. Other tests, such as the SPT or CPT, are needed to detect liquefiable weakly cemented soils that may have high V_s values.

V_s Criteria for Evaluating Liquefaction Resistance

Following the traditional procedures for correcting penetration resistance to account for overburden stress, V_s is also corrected to a reference overburden stress using the following equation (Sykora 1987; Kayen et al. 1992; Robertson et al. 1992):

$$V_{s1} = V_s \left(\frac{P_a}{\sigma'_{vo}}\right)^{0.25} \tag{21}$$

where V_{s1} = overburden-stress corrected shear wave velocity; P_a = atmospheric pressure approximated by 100 kPa (1 TSF); and σ'_{vo} = initial effective vertical stress in the same units as P_a. Eq. (21) implicitly assumes a constant coefficient of earth pressure K'_o which is approximately 0.5 for sites susceptible to liquefaction. Application of (21) also implicitly assumes that V_s is measured with both the directions of particle motion and wave propagation polarized along principal stress directions and that one of those directions is vertical (Stokoe et al. 1985).

Fig. 8 compares seven CRR-V_{s1} curves. The "best fit" curve by Tokimatsu and Uchida (1990) was determined from laboratory cyclic triaxial test results for various sands with <10% fines and 15 cycles of loading. The more conservative "lower bound" curve for Tokimatsu and Uchida's laboratory test results is also shown as a lower bound for liquefaction occurrences. The bounding curve by Robertson et al. (1992) was developed using field performance data from sites in Imperial Valley, Calif., along with data from four other sites. The curves by Kayen et al. (1992) and Lodge (1994) are from sites that did and did not liquefy during the 1989 Loma Prieta earthquake. Andrus and Stokoe's (1997) curve was developed for uncemented, Holocene-age soils with 5% or less fines using field performance data from 20 earthquakes and over 50 measurement sites. Andrus and Stokoe (2000) revised this curve based on new information and an expanded database that includes 26 earthquakes and more than 70 measurement sites.

Andrus and Stokoe (1997) proposed the following relationship between CRR and V_{s1}:

$$\mathrm{CRR} = a\left(\frac{V_{s1}}{100}\right)^2 + b\left(\frac{1}{V^*_{s1} - V_{s1}} - \frac{1}{V^*_{s1}}\right) \tag{22}$$

where V^*_{s1} = limiting upper value of V_{s1} for liquefaction occurrence; and a and b are curve fitting parameters. The first parenthetical term of (22) is based on a modified relationship

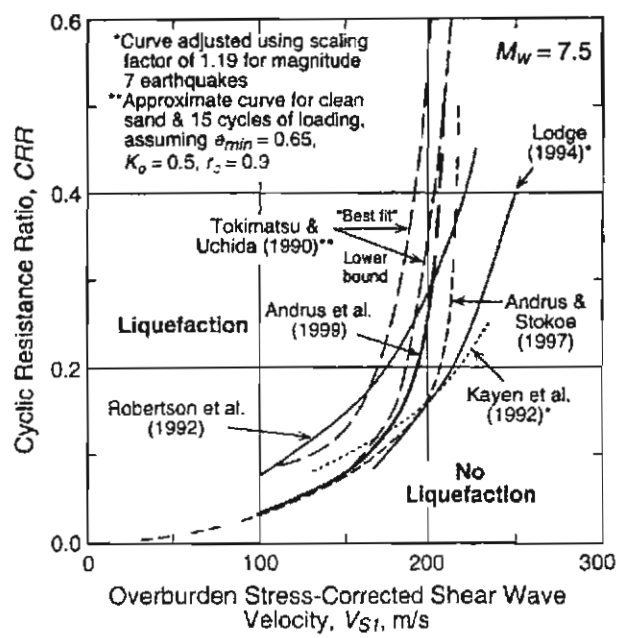


FIG. 8. Comparison of Seven Relationships between Liquefaction Resistance and Overburden Stress-Corrected Shear Wave Velocity for Granular Soils

between V_{s1} and CSR for constant average cyclic shear strain suggested by R. Dobry (personal communication to R. D. Andrus, 1996). The second parenthetical term is a hyperbola with a small value at low V_{s1}, and a very large value as V_{s1} approaches V_{s1}^*, a constant limiting velocity for liquefaction of soils.

CRR versus V_{s1} curves recommended for engineering practice by Andrus and Stokoe (2000) for magnitude 7.5 earthquakes and uncemented Holocene-age soils with various fines contents are reproduced in Fig. 9. Also plotted and presented in Fig. 9 are points calculated from liquefaction case history information for magnitude 5.9–8.3 earthquakes. The three curves shown were determined through an iterative process of varying the values of a and b until nearly all the points indicative of liquefaction were bounded by the curves with the least number of nonliquefaction points plotted in the liquefaction region. The final values of a and b used to draw the curves were 0.022 and 2.8, respectively. Values of V_{s1}^* were assumed to vary linearly from 200 m/s for soils with fines content of 35% to 215 m/s for soils with fines content of 5% or less.

The recommended curves shown in Fig. 9 are dashed above CRR of 0.35 to indicate that field-performance data are limited in that range. Also, they do not extend much below 100 m/s, because there are no field data to support extending them to the origin. The calculated CRR is 0.033 for a V_{s1} of 100 m/s. This minimal CRR value is generally consistent with intercept CRR values assumed for the CPT and SPT procedures. Eq. (22) can be scaled to other magnitude values through use of magnitude scaling factors. These factors are discussed in a later section of this paper.

BPT

Liquefaction resistance of nongravelly soils has been evaluated primarily through CPT and SPT, with occasional V_s measurements. CPT and SPT measurements, however, are not generally reliable in gravelly soils. Large gravel particles may interfere with the normal deformation of soil materials around the penetrometer and misleadingly increase penetration resistance. Several investigators have employed large-diameter penetrometers to surmount these difficulties; the Becker penetration test (BPT) in particular has become one of the more effectively and widely used larger tools. The BPT was developed in Canada in the late 1950s and consists of a 168-mm diameter, 3-m-long double-walled casing driven into the ground with a double-acting diesel-driven pile hammer. The hammer impacts are applied at the top of the casing and peneration is continuous. The Becker penetration resistance is defined as the number of blows required to drive the casing through an increment of 300 mm.

The BPT has not been standardized, and several different types of equipment and procedures have been used. There are currently very few liquefaction sites from which BPT data have been obtained. Thus the BPT cannot be directly correlated with field behavior, but rather through estimating equivalent SPT N-values from BPT data and then applying evaluation procedures based on the SPT. This indirect method introduces substantial additional uncertainty into the calculated CRR.

To provide uniformity, Harder and Seed (1986) recommended newer AP-1000 drill rigs equipped with supercharged diesel hammers, 168-mm outside diameter casing, and a plugged bit. From several sites where both BPT and SPT tests were conducted in parallel soundings, Harder and Seed (1986) developed a preliminary correlation between Becker and standard penetration resistance [Fig. 10(a)]. Additional comparative data compiled since 1986 are plotted in Fig. 10(b). The original Harder and Seed correlation curve (solid line) is drawn in Fig. 10(b) along with dashed curves representing 20% over- and underpredictions of SPT blow counts. These plots indicate that SPT blow counts can be roughly estimated

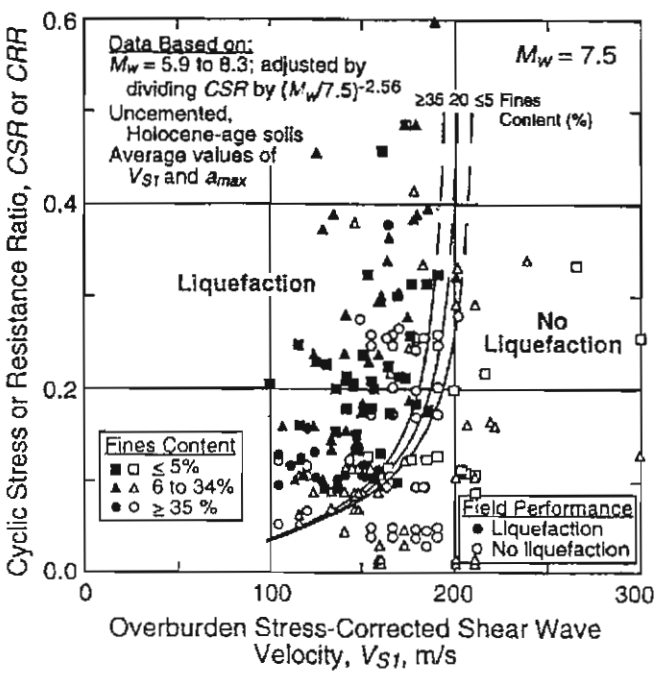


FIG. 9. Liquefaction Relationship Recommended for Clean, Uncemented Soils with Liquefaction Data from Compiled Case Histories (Reproduced from Andrus and Stokoe 2000)

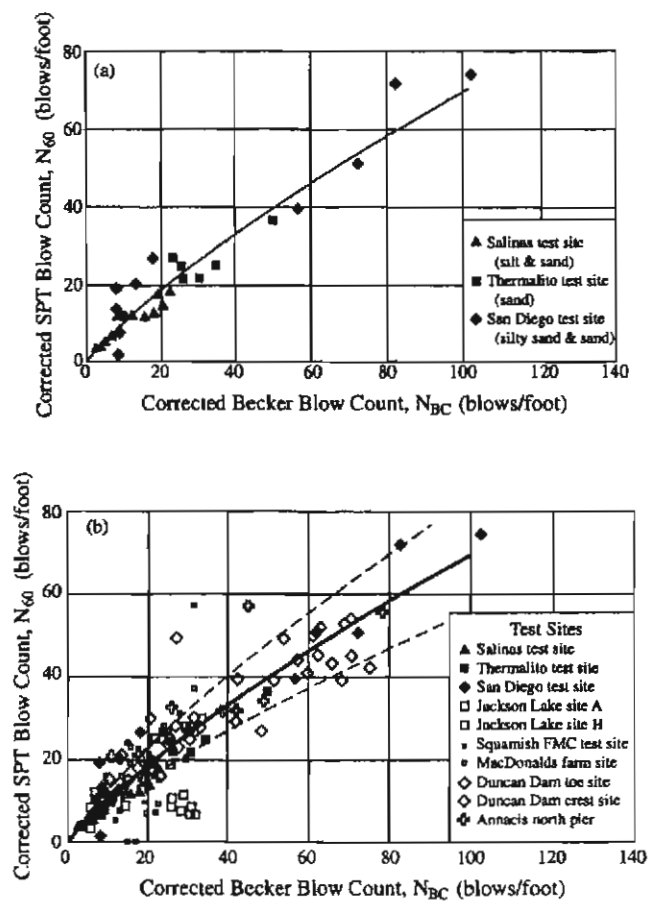


FIG. 10. Correlation between Corrected Becker Penetration Resistance N_{BC} and Corrected SPT Resistance N_{60}: (a) Harder and Seed (1986); (b) Data from Additional Sites (Reproduced from Harder 1997)

from BPT measurements. These plots indicate that although SPT blow counts can be roughly estimated from BPT measurements, there can be considerable uncertainty for calculating liquefaction resistance because the data scatter is greatest in the range of greatest importance [N-values of 0–30 blows/300 mm (ft)].

A major source of variation in BPT blow counts is deviations in hammer energy. Rather than measuring hammer energy directly, Harder and Seed (1986) monitored bounce-chamber pressures and found that uniform combustion conditions (e.g., full throttle with a supercharger) correlated rather well with variations in Becker blow count. From this information, Harder and Seed developed an energy correction procedure based on measured bounce-chamber pressure.

Direct measurement of transmitted hammer energy could provide a more theoretically rigorous correction for Becker hammer efficiency. Sy and Campanella (1994) and Sy et al. (1995) instrumented a small length of Becker casing with strain gauges and accelerometers to measure transferred energy. They analyzed the recorded data with a pile-driving analyzer to determine strain, force, acceleration, and velocity. The transferred energy was determined by time integration of force times velocity. They were able to verify many of the variations in hammer energy previously identified by Harder and Seed (1986), including effects of variable throttle settings and energy transmission efficiencies of various drill rigs. However, they were unable to reduce the amount of scatter and uncertainty in converting BPT blow counts to SPT blow counts. Because the Sy and Campanella procedure requires considerably more effort than monitoring of bounce-chamber pressure without producing greatly improved results, the workshop participants agreed that the bounce-chamber technique is adequate for routine practice.

Friction along the driven casing also influences penetration resistance. Harder and Seed (1986) did not directly evaluate the effect of casing friction; hence, the correlation in Fig. 10(b) intrinsically incorporates an unknown amount of casing friction. However, casing friction remains a concern for depths >30 m and for measurement of penetration resistance in soft soils underlying thick deposits of dense soil. Either of these circumstances could lead to greater casing friction than is intrinsically incorporated in the Harder and Seed correlation.

The following procedures are recommended for routine practice: (1) the BPT should be conducted with newer AP-1000 drill rigs equipped with supercharged diesel hammers to drive plugged 168-mm outside diameter casing; (2) bounce-chamber pressures should be monitored and adjustments made to measured BPT blow counts to account for variations in diesel hammer combustion efficiency—for most routine applications, correlations developed by Harder and Seed (1986) may be used for these adjustments; and (3) the influence of some casing friction is indirectly accounted for in the Harder and Seed BPT-SPT correlation. This correlation, however, has not been verified and should not be used for depths >30 m or for sites with thick dense deposits overlying loose sands or gravels. For these conditions, mudded boreholes may be needed to reduce casing friction, or specially developed local correlations or sophisticated wave-equation analyses may be applied to quantify frictional effects.

MAGNITUDE SCALING FACTORS (MSFs)

The clean-sand base or CRR curves in Figs. 2 (SPT), 4 (CPT), and 10 (V_{s1}) apply only to magnitude 7.5 earthquakes. To adjust the clean-sand curves to magnitudes smaller or larger than 7.5, Seed and Idriss (1982) introduced correction factors termed "magnitude scaling factors (MSFs)." These factors are used to scale the CRR base curves upward or downward on CRR versus $(N_1)_{60}$, q_{c1N}, or V_{s1} plots. Conversely, magnitude weighting factors, which are the inverse of magnitude scaling factors, may be applied to correct CSR for magnitude. Either correcting CRR via magnitude scaling factors, or correcting CSR via magnitude weighting factors, leads to the same final result. Because the original papers by Seed and Idriss were written in terms of magnitude scaling factors, the use of magnitude scaling factors is continued in this report.

To illustrate the influence of magnitude scaling factors on calculated hazard, the equation for factor of safety (FS) against liquefaction is written in terms of CRR, CSR, and MSF as follows:

$$FS = (CRR_{7.5}/CSR)MSF \tag{23}$$

where CSR = calculated cyclic stress ratio generated by the earthquake shaking; and $CRR_{7.5}$ = cyclic resistance ratio for magnitude 7.5 earthquakes. $CRR_{7.5}$ is determined from Fig. 2 or (4) for SPT data, Fig. 4 or (11) for CPT data, or Fig. 9 or (22) for V_{s1} data.

Seed and Idriss (1982) Scaling Factors

Because of the limited amount of field liquefaction data available in the 1970s, Seed and Idriss (1982) were unable to adequately constrain bounds between liquefaction and nonliquefaction regions on CRR plots for magnitudes other than 7.5. Consequently, they developed a set of MSF from average numbers of loading cycles for various earthquake magnitudes and laboratory test results. A representative curve developed by these investigators, showing the number of loading cycles required to generate liquefaction for a given CSR, is reproduced in Fig. 11. The average number of loading cycles for various magnitudes of earthquakes are also noted on the plot. The initial set of magnitude scaling factors was derived by dividing CSR values on the representative curve for the number of loading cycles corresponding to a given earthquake magnitude by the CSR for 15 loading cycles (equivalent to a magnitude 7.5 earthquake). These scaling factors are listed in column 2 of Table 3 and are plotted in Fig. 12. These MSFs have been routinely applied in engineering practice since their introduction in 1982.

Revised Idriss Scaling Factors

In preparing his H. B. Seed Memorial Lecture, I. M. Idriss reevaluated the data that he and the late Professor Seed used to calculate the original (1982) magnitude scaling factors. In so doing, Idriss replotted the data on a log-log plot and suggested that the data should plot as a straight line. He noted, however, that one outlying point had strongly influenced the original analysis, causing the original plot to be nonlinear and characterized by unduly low MSF values for magnitudes <7.5. Based on this reevaluation, Idriss defined a revised set of magnitude scaling factors listed in column 3 of Table 3 and plotted

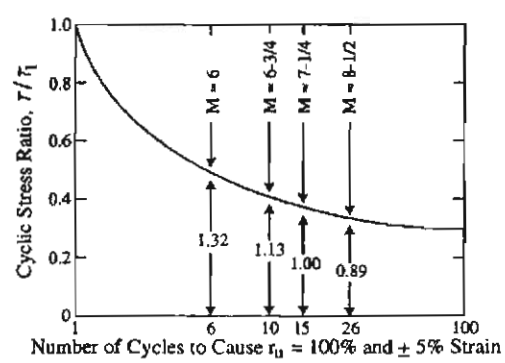


FIG. 11. Representative Relationship between CSR and Number of Cycles to Cause Liquefaction (Reproduced from Seed and Idriss 1982)

TABLE 3. Magnitude Scaling Factor Values Defined by Various Investigators (Youd and Noble 1997a)

Magnitude, M	Seed and Idriss (1982)	Idriss*	Ambraseys (1988)	Arango (1996) Distance based	Arango (1996) Energy based	Andrus and Stokoe (1997)	Youd and Noble (1997b) $P_L < 20\%$	Youd and Noble (1997b) $P_L < 32\%$	Youd and Noble (1997b) $P_L < 50\%$
5.5	1.43	2.20	2.86	3.00	2.20	2.8	2.86	3.42	4.44
6.0	1.32	1.76	2.20	2.00	1.65	2.1	1.93	2.35	2.92
6.5	1.19	1.44	1.69	1.60	1.40	1.6	1.34	1.66	1.99
7.0	1.08	1.19	1.30	1.25	1.10	1.25	1.00	1.20	1.39
7.5	1.00	1.00	1.00	1.00	1.00	1.00	—	—	1.00
8.0	0.94	0.84	0.67	0.75	0.85	0.8?	—	—	0.73?
8.5	0.89	0.72	0.44	—	—	0.65?	—	—	0.56?

Note: ? = Very uncertain values.
*1995 Seed Memorial Lecture, University of California at Berkeley (I. M. Idriss, personal communication to T. L. Youd, 1997).

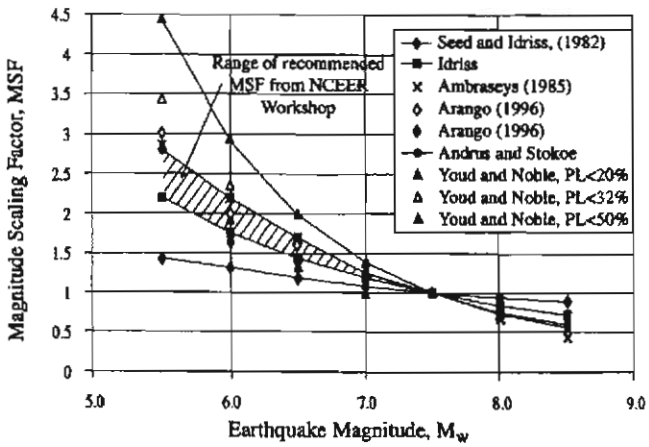


FIG. 12. Magnitude Scaling Factors Derived by Various Investigators (Reproduced from Youd and Noble 1997a)

in Fig. 12. The revised MSFs are defined by the following equation:

$$\mathrm{MSF} = 10^{2.24}/M_w^{2.56} \tag{24}$$

The workshop participants recommend these revised scaling factors as a lower bound for MSF values.

The revised scaling factors are significantly higher than the original scaling factors for magnitudes <7.5 and somewhat lower than the original factors for magnitudes >7.5. Relative to the original scaling factors, the revised factors lead to a reduced calculated liquefaction hazard for magnitudes <7.5, but increase calculated hazard for magnitudes >7.5.

Ambraseys (1988) Scaling Factors

Field performance data collected since the 1970s for magnitudes <7.5 indicate that the original Seed and Idriss (1982) scaling factors are overly conservative. For example, Ambraseys (1988) analyzed liquefaction data compiled through the mid-1980s and plotted calculated cyclic stress ratios for sites that did or did not liquefy versus $(N_1)_{60}$. From these plots, Ambraseys developed empirical exponential equations that define CRR as a function of $(N_1)_{60}$ and moment magnitude M_w. By holding the value of $(N_1)_{60}$ constant in the equations and taking the ratio of CRR determined for various magnitudes of earthquakes to the CRR for magnitude 7.5 earthquakes, Ambraseys derived the magnitude scaling factors listed in column 4 of Table 3 and plotted in Fig. 12. For magnitudes <7.5, the MSFs suggested by Ambraseys are significantly larger than both the original factors developed by Seed and Idriss (column 2, Table 3) and the revised factors suggested by Idriss (column 3). Because they are based on observational data, these factors have validity for estimating liquefaction hazard; however, they have not been widely used in engineering practice.

For magnitudes >7.5, Ambraseys factors are significantly lower and much more conservative than the original (Seed and Idriss 1982) and Idriss's revised scaling factors. Because there are few data to constrain Ambraseys' scaling factors for magnitudes >7.5, they are not recommended for hazard evaluation for large earthquakes.

Arango (1996) Scaling Factors

Arango (1996) developed two sets of magnitude scaling factors. The first set (column 5, Table 3) is based on furthest observed liquefaction effects from the seismic energy source, the estimated average peak accelerations at those distant sites, and the seismic energy required to cause liquefaction. The second set (column 6, Table 3) was developed from energy concepts and the relationship derived by Seed and Idriss (1982) between numbers of significant stress cycles and earthquake magnitude. The MSFs listed in column 5 are similar in value (within about 10%) to the MSFs of Ambraseys (column 4), and the MSFs listed in column 6 are similar in value (within about 10%) to the revised MSFs proposed by Idriss (column 3).

Andrus and Stokoe (1997) Scaling Factors

From their studies of liquefaction resistance as a function of shear wave velocity V_s Andrus and Stokoe (1997) drew bounding curves and developed (22) for calculating CRR from V_s for magnitude 7.5 earthquakes. These investigators drew similar bounding curves for sites where surface effects of liquefaction were or were not observed for earthquakes with magnitudes of 6, 6.5, and 7. The positions of the CRR curves were visually adjusted on each graph until a best-fit bound was obtained. Magnitude scaling factors were then estimated by taking the ratio of CRR for a given magnitude to the CRR for magnitude 7.5 earthquakes. These MSFs are quantified by the following equation:

$$\mathrm{MSF} = (M_w/7.5)^{-2.56} \tag{25}$$

MSFs for magnitudes <6 and >7.5 were extrapolated from this equation. The derived MSFs are listed in column 7 of Table 3, and plotted in Fig. 12. For magnitudes <7.5, the MSFs proposed by Andrus and Stokoe are rather close in value (within about 5%) to the MSFs proposed by Ambraseys. For magnitudes >7.5, the Andrus and Stokoe MSFs are slightly smaller than the revised MSFs proposed by Idriss.

Youd and Noble (1997a) Scaling Factors

Youd and Noble (1997a) used a probabilistic or logistic analysis to analyze case history data from sites where effects of liquefaction were or were not reported following past earthquakes. This analysis yielded the following equation, which

was updated after publication of the NCEER proceedings (Youd and Idriss 1997):

$$\text{Logit}(P_L) = \ln(P_L/(1 - P_L)) = -7.0351 + 2.1738M_w - 0.2678(N_1)_{60cs} + 3.0265 \ln \text{CRR} \quad (26)$$

where P_L = probability that liquefaction occurred; $1 - P_L$ = probability that liquefaction did not occur; and $(N_1)_{60cs}$ = corrected equivalent clean-sand blow count. For magnitudes <7.5, Youd and Noble recommended direct application of this equation to calculate the CRR for a given probability of liquefaction. In lieu of direct application, Youd and Noble defined three sets of MSFs for use with the simplified procedure. These MSFs are for probabilities of liquefaction occurrence <20, 32, and 50%, respectively, and are defined by the following equations:

$$\text{Probability } P_L < 20\% \quad \text{MSF} = 10^{3.81}/M^{4.53} \text{ for } M_w < 7 \quad (27)$$

$$\text{Probability } P_L < 32\% \quad \text{MSF} = 10^{3.74}/M^{4.33} \text{ for } M_w < 7 \quad (28)$$

$$\text{Probability } P_L < 50\% \quad \text{MSF} = 10^{4.21}/M^{4.81} \text{ for } M_w < 7.75 \quad (29)$$

New Recommendation by Idriss

I. M. Idriss (TRB 1999) proposed a new set of MSFs that are compatible with, and are only to be used with, the magnitude-dependent r_d that he also proposed. These new MSFs have lower values than the revised MSFs listed in Table 3, but slightly higher values than the original Seed and Idriss (1982) MSFs. Because the proposed r_d and associated MSFs have not been published and the factors have not been independently verified, the workshop participants chose not to recommend the new r_d or MSFs at this time.

Recommendations for Engineering Practice

The workshop participants reviewed the MSFs listed in Table 3, and all but one (S. S. C. Liao) agree that the original factors were too conservative and that increased MSFs are warranted for engineering practice for magnitudes <7.5. Rather than recommending a single set of factors, the workshop participants suggest a range of MSFs from which the engineer is allowed to choose factors that are requisite with the acceptable risk for any given application. For magnitudes <7.5, the lower bound for the recommended range is the new MSF proposed by Idriss [column 3 in Table 3, or (23)]. The suggested upper bound is the MSF proposed by Andrus and Stokoe [column 7 in Table 3, or (26)]. The upper-bound values are consistent with MSFs suggested by Ambraseys (1988), Arango (1996), and Youd and Noble (1997a) for $P_L < 20\%$.

For magnitudes >7.5, the new factors recommended by Idriss [column 3 in Table 3; (25)] should be used for engineering practice. These new factors are smaller than the original Seed and Idriss (1982) factors, hence their application leads to increased calculated liquefaction hazard compared to the original factors. Because there are only a few well-documented liquefaction case histories for earthquakes with magnitudes >8, MSFs in that range are poorly constrained by field data. Thus the workshop participants agreed that the greater conservatism embodied in the revised MSF by Idriss (column 3, Table 3) should be recommended for engineering practice.

CORRECTIONS FOR HIGH OVERBURDEN STRESSES, STATIC SHEAR STRESSES, AND AGE OF DEPOSIT

Correction factors K_σ and K_α were developed by Seed (1983) to extrapolate the simplified procedure to larger overburden pressure and static shear stress conditions than those embodied in the case history data set from which the simplified procedure was derived. As noted previously, the simplified procedure was developed and validated only for level to gently sloping sites (low static shear stress) and depths less than about 15 m (low overburden pressures). Thus applications using K_σ and K_α are beyond routine practice and require specialized expertise. Because these factors were discussed at the workshop and some new information was developed, recommendations from those discussions are included here. These recommendations, however, apply mostly to liquefaction hazard analyses of embankment dams and other large structures. These factors are applied by extending (23) to include K_σ and K_α as follows:

$$\text{FS} = (\text{CRR}_{7.5}/\text{CSR}) \cdot \text{MSF} \cdot K_\sigma \cdot K_\alpha \quad (30)$$

K_σ Correction Factor

Cyclically loaded laboratory test data indicate that liquefaction resistance increases with increasing confining stress. The rate of increase, however, is nonlinear. To account for the nonlinearity between CRR and effective overburden pressure, Seed (1983) introduced the correction factor K_σ to extrapolate the simplified procedure to soil layers with overburden pressures >100 kPa. Cyclically loaded, isotropically consolidated triaxial compression tests on sand specimens were used to measure CRR for high-stress conditions and develop K_σ values. By taking the ratio of CRR for various confining pressures to the CRR determined for approximately 100 kPa (1 atm) Seed (1983) developed the original K_σ correction curve. Other investigators have added data and suggested modifications to better define K_σ for engineering practice. For example, Seed and Harder (1990) developed the clean-sand curve reproduced in Fig. 13. Hynes and Olsen (1999) compiled and analyzed an enlarged data set to provide guidance and formulate equations for selecting K_σ values (Fig. 14). The equation they derived for calculating K_σ is

$$K_\sigma = (\sigma'_{vo}/P_a)^{(f-1)} \quad (31)$$

where σ'_{vo}, effective overburden pressure; and P_a, atmospheric pressure, are measured in the same units; and f is an exponent that is a function of site conditions, including relative density, stress history, aging, and overconsolidation ratio. The workshop participants considered the work of previous investigators and recommend the following values for f (Fig. 15). For relative densities between 40 and 60%, $f = 0.7–0.8$; for relative densities between 60 and 80%, $f = 0.6–0.7$. Hynes and Olsen recommended these values as minimal or conservative esti-

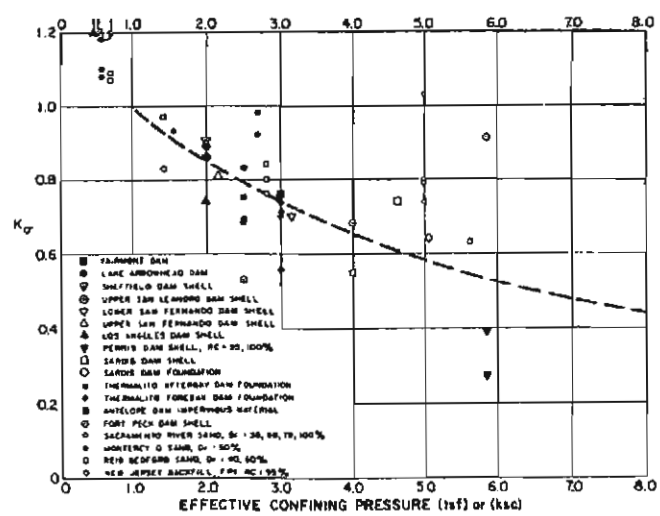


FIG. 13. K_σ-Values Determined by Various Investigators (Reproduced from Seed and Harder 1990)

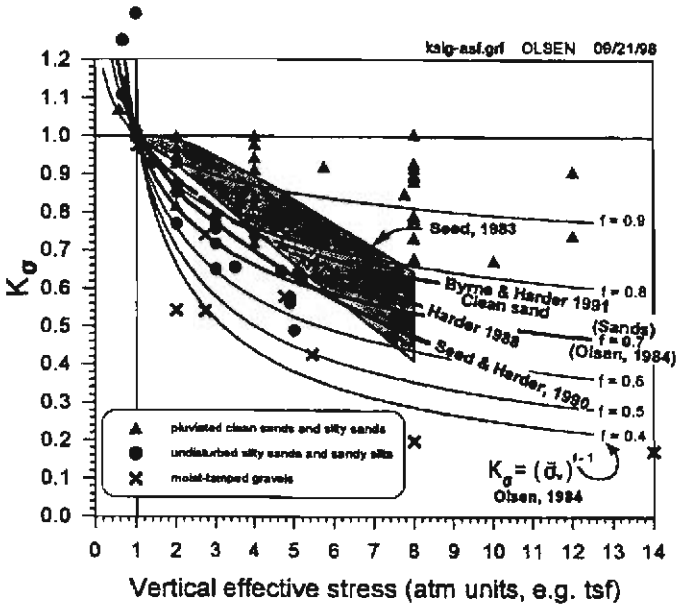


FIG. 14. Laboratory Data and Compiled K_σ Curves (Reproduced from Hynes and Olsen 1999)

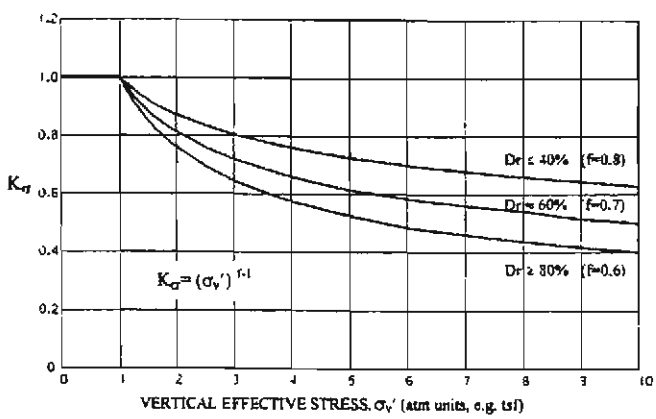


FIG. 15. Recommended Curves for Estimating K_σ for Engineering Practice

mates of K_σ for use in engineering practice for both clean and silty sands, and for gravels. The workshop participants concurred with this recommendation.

K_α Correction Factor for Sloping Ground

The liquefaction resistance of dilative soils (moderately dense to dense granular materials under low confining stress) increases with increased static shear stress. Conversely, the liquefaction resistance of contractive soils (loose soils and moderately dense soils under high confining stress) decreases with increased static shear stresses. To incorporate the effect of static shear stresses on liquefaction resistance, Seed (1983) introduced a correction factor K_α. To generate values for this factor, Seed normalized the static shear stress τ_{yx} acting on a plane with respect to the effective vertical stress σ'_{vo} yielding a parameter α, where

$$\alpha = \tau_{yx}/\sigma'_{vo} \tag{32}$$

Cyclically loaded triaxial compression tests were then used to empirically determine values of the correction factor K_α as a function of α.

For the NCEER workshop, Harder and Boulanger (1997) reviewed past publications, test results, and analyses of K_α. They noted that a wide range of K_α values have been proposed, indicating a lack of convergence and a need for continued research. The workshop participants agreed with this assessment. Although curves relating K_α to α have been published (Harder and Boulanger 1997), these curves should not be used by nonspecialists in geotechnical earthquake engineering or in routine engineering practice.

Influence of Age of Deposit

Several investigators have noted that liquefaction resistance of soils increases with age. For example, Seed (1979) observed significant increases in liquefaction resistance with aging of reconstituted sand specimens tested in the laboratory. Increases of as much as 25% in cyclic resistance ratio were noted between freshly constituted and 100-day-old specimens. Youd and Hoose (1977) and Youd and Perkins (1978) noted that liquefaction resistance increases markedly with geologic age. Sediments deposited within the past few thousand years are generally much more susceptible to liquefaction than older Holocene sediments; Pleistocene sediments are even more resistant; and pre-Pleistocene sediments are generally immune to liquefaction. Although qualitative time-dependent increases have been documented as noted above, few quantitative data have been collected. In addition, the factors causing increased liquefaction resistance with age are poorly understood. Consequently, verified correction factors for age have not been developed.

In the absence of quantitative correction factors, engineering judgment is required to estimate the liquefaction resistance of sediments more than a few thousand years old. For deeply buried sediments dated as more than a few thousand years old, some knowledgeable engineers have omitted application of the K_σ factor as partial compensation for the unquantified, but substantial increase of liquefaction resistance with age. For man-made structures, such as thick fills and embankment dams, aging effects are minimal, and corrections for age should not be applied in calculating liquefaction resistance.

SEISMIC FACTORS

Application of the simplified procedure for evaluating liquefaction resistance requires estimates of two ground motion parameters—earthquake magnitude and peak horizontal ground acceleration. These factors characterize duration and intensity of ground shaking, respectively. The workshop addressed the following questions with respect to selection of magnitude and peak acceleration values for liquefaction resistance analyses.

Earthquake Magnitude

Records from recent earthquakes, such as 1979 Imperial Valley, 1988 Armenia, 1989 Loma Prieta, 1994 Northridge, and 1995 Kobe, indicate that the relationship between duration and magnitude is rather uncertain and that factors other than magnitude also influence duration. For example, unilateral faulting, in which rupture begins at one end of the fault and propagates to the other, usually produces longer shaking duration for a given magnitude than bilateral faulting, in which slip begins near the midpoint on the fault and propagates in both directions simultaneously. Duration also generally increases with distance from the seismic energy source and may vary with tectonic province, site conditions, and bedrock topography (basin effects).

Question: Should correction factors be developed to adjust duration of shaking to account for the influence of earthquake source mechanism, fault rupture mode, distance from the energy source, basin effects, etc.?

Answer: Faulting characteristics and variations in shaking duration are difficult to predict in advance of an earthquake

event. The influence of distance generally is of secondary importance within the range of distances to which damaging liquefaction effects commonly develop. Basin effects are not yet sufficiently predictable to be adequately accounted for in engineering practice. Thus the workshop participants recommend continued use of the generally conservative relationship between magnitude and duration that is embodied in the simplified procedure.

Question: An important difference between eastern U.S. earthquakes and western U.S. earthquakes is that eastern ground motions are generally richer in high-frequency energy and thus could generate more significant stress cycles and equivalently longer durations than western earthquakes of the same magnitude. Is a correction needed to account for higher frequencies of motions generated by eastern U.S. earthquakes?

Answer: The high-frequency motions of eastern earthquakes are generally limited to near-field rock sites. High-frequency motions attenuate or are damped out rather quickly as they propagate through soil layers. This filtering action reduces the high-frequency energy at soil sites and thus reduces differences in numbers of significant loading cycles. Because liquefaction occurs only within soil strata, duration differences on soil sites between eastern and western earthquakes are not likely to be great. Without more instrumentally recorded data from which differences in ground motion characteristics can be quantified, there is little basis for the development of additional correction factors for eastern localities.

Another difference between eastern and western U.S. earthquakes is that strong ground motions generally propagate to greater distances in the east than in the west. By applying present state-of-the-art procedures for estimating peak ground acceleration at eastern sites, differences in amplitudes of ground motions between western and eastern earthquakes are properly taken into account.

Question: Which magnitude scale should be used for selection of earthquake magnitudes for liquefaction resistance analyses?

Answer: Seismologists commonly calculate earthquake magnitudes using five different scales: (1) local or Richter magnitude M_L; (2) surface-wave magnitude M_s; (3) short-period body-wave magnitude m_b; (4) long-period body-wave magnitude m_B; and (5) moment magnitude M_w. Moment magnitude, the scale most commonly used for engineering applications, is the scale preferred for calculation of liquefaction resistance. As Fig. 16 shows, magnitudes from other scales may be substituted directly for M_w within the following limitations—$M_L < 6$, $m_B < 7.5$, and $6 < M_s < 8$—m_b, a scale commonly used for eastern U.S. earthquakes, may be used for magnitudes between 5 and 6, provided m_b values are corrected to equivalent M_w values. The curves plotted in Fig. 16 may be used for this adjustment (Idriss 1985).

Peak Acceleration

In the simplified procedure, peak horizontal acceleration a_{max} is used to characterize the intensity of ground shaking. To provide guidance for estimation of a_{max}, the workshop addressed the following questions.

Question: What procedures are preferred for estimating a_{max} at potentially liquefiable sites?

Answer: The following methods, in order of preference, may be used for estimating a_{max}:

1) The preferred method for estimating a_{max} is through empirical correlations of a_{max} with earthquake magnitude, distance from the seismic energy source, and local site conditions. Several correlations have been published for estimating a_{max} for sites on bedrock or stiff to moderately stiff soils. Preliminary attenuation relationships have also been developed for a limited range of soft soil sites (Idriss 1991). Selection of an attenuation relationship should be based on such factors as region of the country, type of faulting, and site condition.

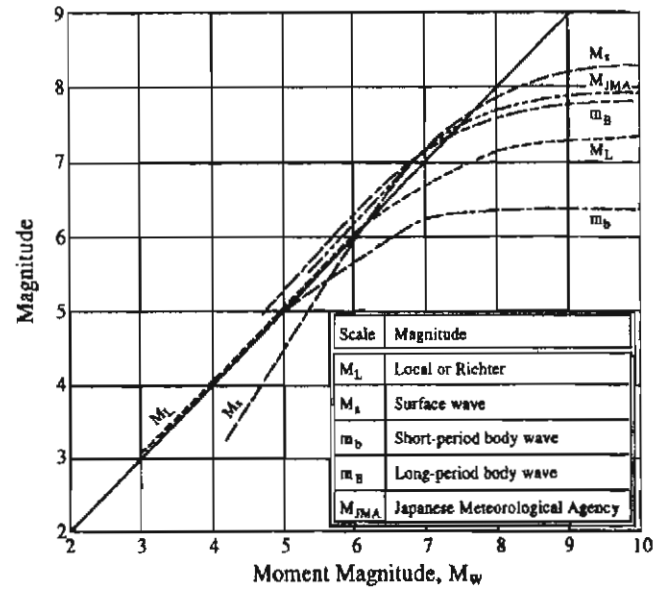


FIG. 16. Relationship between Moment M_w and Other Magnitude Scales (Reproduced from Heaton et al., Unpublished Report, 1982)

2) For soft sites and other soil profiles that are not compatible with available attenuation relationships, a_{max} may be estimated from local site response analyses. Computer programs such as SHAKE and DESRA may be used for these calculations (Schnabel et al. 1972; Finn et al. 1977). Input ground motions in the form of recorded accelerograms are preferable to synthetic records. Accelerograms derived from white noise should be avoided. A suite of plausible earthquake records should be used in the analysis, including as many as feasible from earthquakes with similar magnitudes, source distances, etc.

3) The third and least desirable method for estimating peak ground acceleration is through amplification ratios, such as those developed by Idriss (1990, 1991) and Seed et al. (1994). These factors use a multiplier or ratio by which bedrock outcrop motions are amplified to estimate surface motions at soil sites. Because amplification ratios are influenced by strain level, earthquake magnitude, and frequency content, caution and considerable engineering judgment are required in the application of these relationships.

Question: Which peak acceleration should be used: (1) the largest horizontal acceleration recorded on a three-component accelerogram; (2) the geometric mean (square root of the product) of the two maximum horizontal components; or (3) a vectorial combination of horizontal accelerations?

Answer: According to I. M. Idriss (oral discussion at NCEER workshop, 1996), where recorded motions were available, the larger of the two horizontal peak components of acceleration was used in the compilation of data used to derive the original simplified procedure. Where recorded values were not available, which was the circumstance for most sites, peak acceleration values were estimated from attenuation relationships based on the geometric mean of the two orthogonal peak horizontal accelerations. In nearly all instances where recorded motions were used, the peaks from the two horizontal records were approximately equal. Thus where a single peak was used, the peak and the geometric mean of the two peaks were about the same value. Based on this information, the workshop participants concurred that use of the geometric mean is consistent with the development of the procedure and is preferred for use in engineering practice. However, use of the larger of

the two orthogonal peak accelerations yields a larger estimate of a_{max}, is conservative, and is allowable. Vectorial accelerations are seldom calculated and should not be used. Peak vertical accelerations are generally much smaller than peak horizontal accelerations and are ignored for calculation of liquefaction resistance.

Question: Liquefaction usually develops at soil sites where ground motion amplification may occur and where sediment may soften, reducing motions as excess pore pressure develop. How should investigators account for these factors in estimating peak acceleration?

Answer: The recommended procedure is to calculate or estimate the a_{max} that would occur at the site in the absence of increased pore pressure or the onset of liquefaction. That peak acceleration incorporates the influence of site amplification, but neglects the influence of excess pore-water pressure.

Question: Should high-frequency spikes (periods <0.1 s) in acceleration records be considered or ignored?

Answer: In general, short-duration, high-frequency acceleration spikes are too short in duration to generate significant instability or deformation of granular structures, and should be ignored. By using attenuation relationships for estimation of peak acceleration, as noted above, high-frequency spikes are essentially ignored because few high-frequency peaks are incorporated in databases from which attenuation the relationships were derived. Similarly, ground response analyses programs such as SHAKE and DESRA generally attenuate or filter out high-frequency spikes, reducing their influence. Where amplification ratios are used, engineering judgment should be used to determine which bedrock acceleration is to be amplified.

ENERGY-BASED CRITERIA AND PROBABILISTIC ANALYSES

The workshop considered two additional topics: (1) liquefaction resistance criteria based on seismic energy passing through a liquefiable layer (Kayen and Mitchell 1997; Youd et al. 1997), and probabilistic analyses of case history data (Liao et al. 1988; Youd and Noble 1997b). Although probabilistic or risk analyses have been made for some localities and critical facilities, the workshop participants concluded that probabilistic procedures are still under development and not sufficiently formulated for routine engineering practice. Similarly, new energy-based criteria need to be independently tested before recommendations can be made for general practice. The workshop participants recommend that research and development continue on both of these relatively new and potentially useful procedures.

CONCLUSIONS

The participants in the NCEER workshop reviewed the state-of-the-art for evaluating liquefaction resistance and recommend several augmentations to that procedure. Specific recommendations, including procedures and equations, are listed in each section of this summary paper. Consensus conclusions from the workshop are:

1. Four field tests are recommended for routine evaluation of liquefaction resistance—the cone penetration test (CPT), the standard penetration test (SPT), shear-wave velocity (V_s) measurements, and for gravelly sites the Becker penetration test (BPT). Criteria for each test were reviewed and revised to incorporate recent developments and to achieve consistency between resistances calculated from the various tests. Each test has its advantages and limitations (Table 1). the CPT provides the most detailed soil stratigraphy and robust field-data based liquefaction resistance curves now available. CPT testing should always be accompanied by soil sampling for validation of soil type identification. The SPT has a longer record of application and provides disturbed soil samples from which fines content and other grain characteristics can be determined. Measured shear-wave velocities provide fundamental information on small-strain soil behavior that is useful beyond analyses of liquefaction resistance. V_s is also applicable at sites, such as landfills and gravelly sediments, where CPT and SPT soundings may not be possible or reliable. The BPT test is recommended only for gravelly sites and requires use of rough correlations between BPT and SPT, making the results less certain than other tests. Where possible, two or more test procedures should be applied to assure adequate definition of soil stratigraphy and a consistent evaluation of liquefaction resistance.
2. The magnitude scaling factors originally derived by Seed and Idriss (1982) are overly conservative for earthquakes with magnitudes <7.5. A range of scaling factors is recommended for engineering practice, the lower end of the range being the new MSF recommended by Idriss (column 3, Table 3), and the upper end of the range being the MSF suggested by Andrus and Stokoe (column 7, Table 3). These MSFs are defined by (25) and (26), respectively. For magnitudes >7.5, the new factors by Idriss (column 3, Table 3) should be used. These factors, which are more conservative than the original Seed and Idriss (1982) factors, should be applied.
3. The K_σ factors suggested by Seed and Harder (1990) appear to be overly conservative for some soils and field conditions. The workshop participants recommend K_σ values defined by the curves in Fig. 14 or (31). Because K_σ values are usually applied to depths greater than those verified for the simplified procedure, special expertise is generally required for their application.
4. Procedures for evaluation of liquefaction resistance beneath sloping ground or embankments (slopes greater than about 6%) have not been developed to a level allowable for routine use. Special expertise is required for evaluation of liquefaction resistance beneath sloping ground.
5. Moment magnitude M_w should be used for liquefaction resistance calculations. Magnitude, as used in the simplified procedure, is a measure of the duration of strong ground shaking. The present magnitude criteria are conservative and should not be corrected for source mechanism, style of faulting, distance from the energy source, subsurface bedrock topography (basin effect), or tectonic region (eastern versus western U.S. earthquakes).
6. The peak acceleration a_{max} applied in the procedure is the peak horizontal acceleration that would occur at ground surface in the absence of pore pressure increases or liquefaction. Attenuation relationships compatible with soil conditions at a site should be applied in estimating a_{max}. Relationships based on the geometric mean of the peak horizontal accelerations are preferred, but use of relationships based on peak horizontal acceleration is allowable and conservative. Where site conditions are incompatible with existing attenuation relationships, site-specific response calculations, using programs such as SHAKE or DESRA, should be used. The least preferable technique is application of amplification factors.

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NOTATION

The following symbols are used in this paper:

a, b = curve fitting parameters for use with V_s criteria for evaluating liquefaction resistance;
a_{max} = peak horizontal acceleration at ground surface;
C_B = correction factor for borehole diameter;
C_E = correction factor for hammer energy;
C_N = correction factor for overburden pressure applied to SPT;
C_Q = correction factor for overburden pressure applied to CPT;
C_R = correction factor for drilling rod length;
C_S = correction factor for split spoon sampler without liners;
$CRR_{7.5}$ = cyclic resistance ratio for $M_w = 7.5$ earthquakes;
d_c = diameter of CPT tip;
F = normalized friction ratio;
f = exponent estimated from site conditions used in calculation of K_σ;
f_s = sleeve friction measured with CPT;
g = acceleration of gravity;
H = thickness of thin granular layer between softer sediment layers;
I_c = soil behavior type index for use with CPT liquefaction criteria;
K_c = correction factor for grain characteristics applied to CPT;
K_H = thin-layer correction factor for use with CPT;
K_α = correction factor for soil layers subjected to large static shear stresses;
K_σ = correction factor for soil layers subjected to large static normal stresses;
M_L = local or Richter magnitude of earthquake;
M_s = surface-wave magnitude of earthquake;
M_w = moment magnitude of earthquake;
m_B = long period body-wave magnitude of earthquake;
m_b = short period body-wave magnitude of earthquake;
N_m = measured standard penetration resistance;
$(N_1)_{60}$ = corrected standard penetration resistance;
$(N_1)_{60cs}$ = $(N_1)_{60}$ adjusted to equivalent clean-sand value;
n = exponent used in normalizing CPT resistance for overburden stress;
P_a = atmospheric pressure, approximately 100 kPa;
P_L = probability of liquefaction;
Q = normalized and dimensionless cone penetration resistance;
q_{c1N} = normalized cone penetration resistance;
$(q_{c1N})_{cs}$ = normalized cone penetration resistance adjusted to equivalent clean-sand value;
r_d = stress reduction coefficient to account for flexibility in soil profile;
V_s = measured shear-wave velocity;
V_{s1} = overburden-stress corrected shear-wave velocity;
V_{s1}^* = limiting upper value of V_{s1} for liquefaction occurrences;
z = depth below ground surface (m);
α, β = coefficients, that are functions of fines content, used to correct $(N_1)_{60}$ to $(N_1)_{60cs}$;
σ'_{vo} = effective overburden pressure;
τ_{av} = average horizontal shear stress acting on soil layer during shaking generated by given earthquake; and
τ_{st} = static shear stress acting on soil element due to gravitational forces.

Geotechnical Investigation Data

PRESENTATION OF IN SITU TESTING PROGRAM RESULTS

Rapp Road Landfill
Albany, New York

January 16th, 2007

Prepared for:

Clough, Harbour & Associates
Albany, New York

Prepared by:

ConeTec Inc.
West Berlin, NJ

January 22nd, 2007

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APPENDIX D Dissipation Test Data
APPENDIX E Data CD

1.0 INTRODUCTION

This report presents the results of a piezo cone penetrometer testing (CPTU) program carried out at the Rapp Road Landfill located in Albany, New York. The work was performed under subcontract to Clough, Harbour & Associates of Albany, New York. The CPTU program took place on January 16th, 2007.

While completing the CPT soundings, seismic shear wave velocity testing was conducted in two of the soundings. Seismic testing involved collecting shear wave velocity data at one-meter depth intervals.

A total of four soundings were completed at four sounding locations. The CPT testing was performed to evaluate in situ geotechnical as well as seismic criteria relative to the proposed construction.

CPT sounding locations were selected and numbered under the direction and supervision of Clough Harbour Personnel.

2.0 FIELD EQUIPMENT AND PROCEDURES

2.1 CONE PENETRATION TESTING

The cone penetrometer tests were carried out using an integrated electronic piezo cone manufactured by ConeTec in Vancouver, Canada. The piezo cone used was a compression model cone penetrometer with a 15 cm^2 tip and a 225 cm^2 friction sleeve. The cone is designed with an equal end area friction sleeve and a tip end area ratio of 0.85. The piezo cone dimensions and the operating procedure were in accordance with ASTM Standard D-5778-95. A diagram of the cone penetrometer used for this project is shown as Figure 1.

Pore pressure filter elements, made of porous plastic, were saturated under a vacuum using glycerin as the saturating fluid. The pore pressure element was six millimeters thick and was located immediately behind the tip (the u_2 location) for all soundings.

The cone was advanced using a 25 ton, unitized, truck-mounted cone penetration rig. The following data were recorded onto magnetic media every five centimeters (approximately every two inches) as the cone was advanced into the ground:

- Tip Resistance (qc)
- Sleeve Friction (fs)
- Dynamic Pore Pressure (ut)

The field data recorded is included on the attached CD (appendix E).

Before each sounding a complete set of analog baseline readings are taken with a multi-meter and compared with the digitized value on the computer screen. This provides a check on the analog to digital conversion board.

Evaluation of the analog baselines is key to consistent readings. The baseline data should be stable and should not wander excessively during the course of a sounding. Baseline data can be used to apply corrections to the cone data where necessary. For this project, the baseline shift from sounding to sounding was small, typically less than 0.1% of full scale, and no data corrections were applied.

During seismic testing, the seismic signals were recorded using a geophone mounted in the cone as shown in Figure 1 and an up-hole digital oscilloscope. A sledge hammer hit against a beam was used for the seismic source. Normal reaction for the beam was provided by the dead weight of the rig placed upon the beam. A schematic of the shear wave testing configuration is shown in Figure 2.

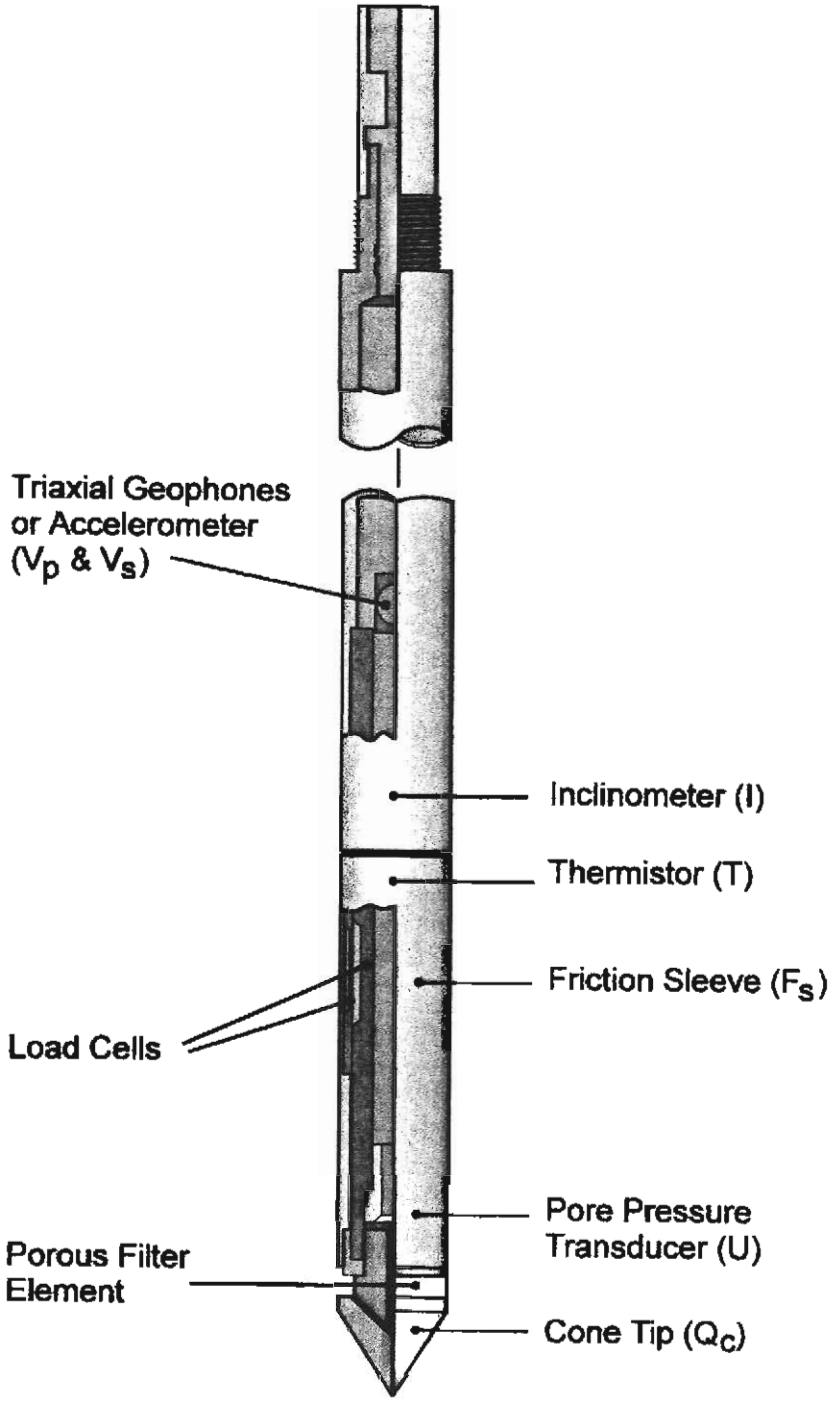


FIGURE 1 - TYPICAL CONE PENETROMETER

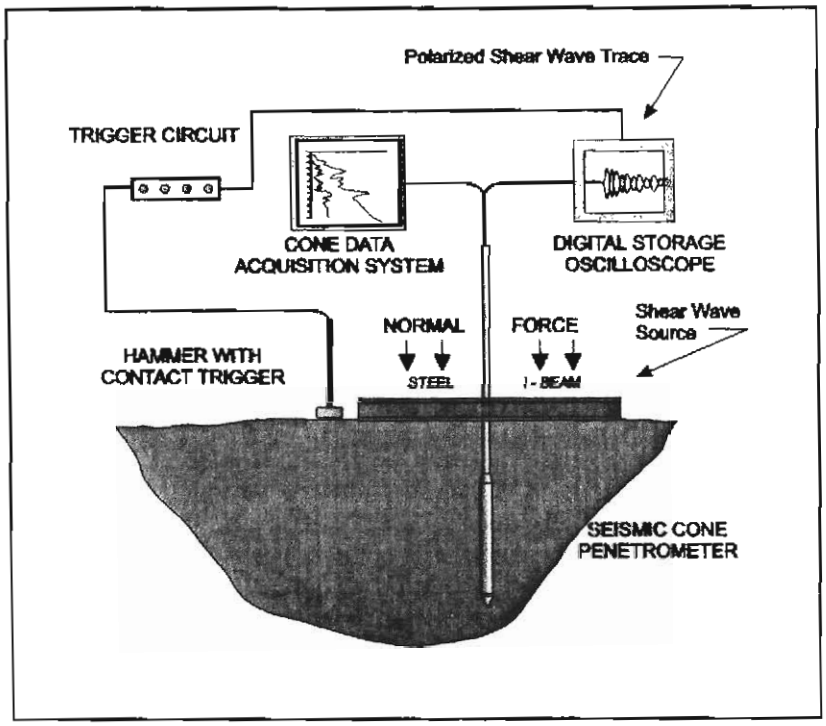


FIGURE 2 - SCHEMATIC OF SHEAR WAVE TESTING CONFIGURATION

2.2 PORE PRESSURE DISSIPATION TESTS

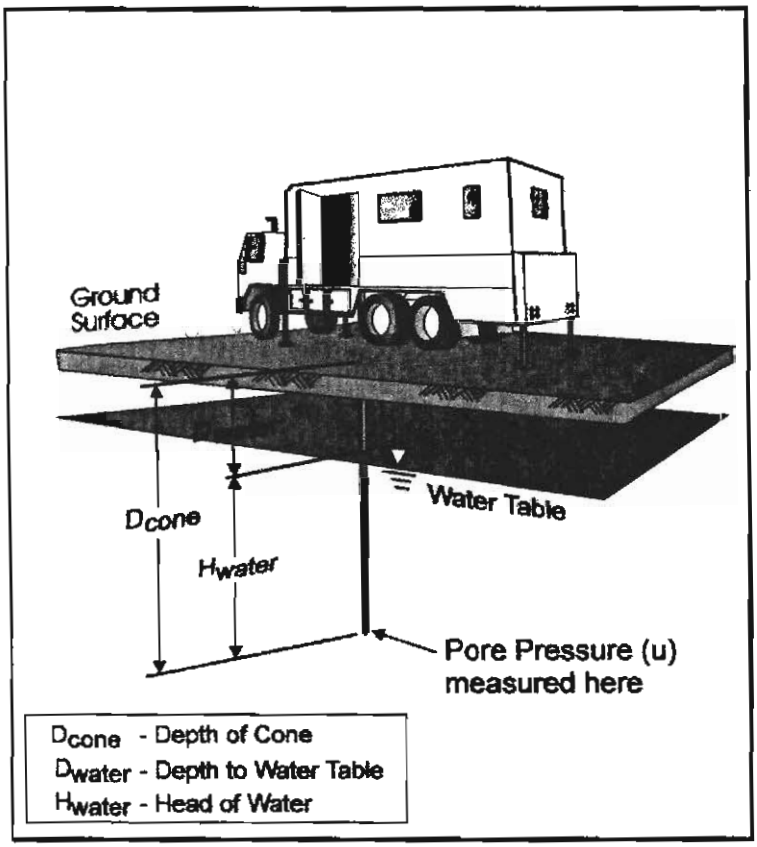
When cone penetration is stopped, the piezo cone essentially becomes a piezometer. While stopped, pore water pressures are automatically recorded at five-second intervals and the readings are stored in a dissipation file (.ppd). Dissipation data can then be plotted onto a dissipation curve consisting of pore water pressure (u) verses time (t). The shapes of dissipation curves are very useful in evaluating soil type, drainage and in situ static water level.

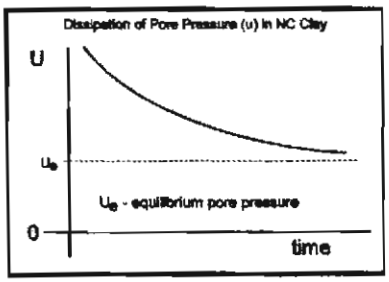
A flat curve that stabilizes quickly (i.e. less than 30 seconds) is typical of a free draining sand. In this case, the final measured pore water pressure is the static in situ water pressure.

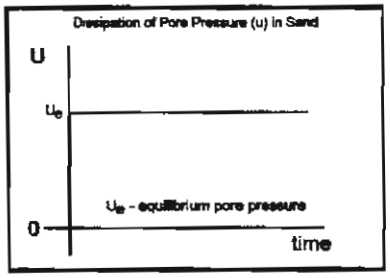
Soils that generate excess dynamic pore water pressure during penetration will dissipate this excess pressure when penetration stops. The shape of the dissipation curve and the time of dissipation can be used to estimate C_h, the coefficient of consolidation that can in turn be used to calculate K_h, the horizontal permeability.

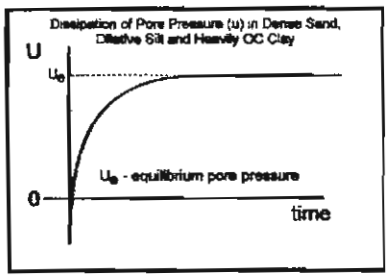
Figure 3 shows some idealized shapes of various pore water pressure dissipation curves. The reader is referred Robertson et. al., 1992 to reference dissipation test data analytical techniques.

Estimation of Ground Water Table from CPT Dissipation Tests









Water Table Calculation

$$D_{water} = D_{cone} - H_{water}$$

where $H_{water} = U_e$ (depth units)

Useful Conversion Factors:
1psi = 0.704m = 2.31 feet (water)
1tsf = 0.958 bar = 13.9 psi
1m = 3.28 feet

FIGURE 3 - TYPICAL DISSIPATION TESTS

3.0 CONE PENETRATION TEST DATA AND INTERPRETATION

3.1 ANALYSIS OF PIEZOCONE DATA - GENERAL

A total of four CPT soundings involving 300.18 feet of testing, were completed.

The interpretation of cone data is based on the relationship between cone bearing, qc, sleeve friction, fs, and penetration pore water pressure, u. The friction ratio, Rf , (sleeve friction divided by cone bearing) is a calculated parameter which is used to infer soil behavior type. Generally, saturated cohesive soils have low tip resistance, high friction ratios and generate large excess pore water pressures. Cohesionless soils have higher tip resistances, lower friction ratios and do not generate significant excess pore water pressure.

The interpretation of soils encountered on this project was carried out using correlations developed by Robertson et al., 1992. It should be noted that it is not always possible to clearly identify a soil type based on qc, fs and ut. Occasionally soils will fall within different soil categories on the classification charts. In these situations, experience and judgment and an assessment of the pore pressure dissipation data should be used to infer the soil behavior type. Computer tabulations of the interpreted soil types along with certain other geotechnical parameters for each cone hole is presented in Appendix B.

Each of the parameters measured in the sounding is discussed briefly below. A detailed explanation of CPTU testing and interpretation of the results can be found in Robertson, 1989.

TIP RESISTANCE (q_c): The resistance to penetration, measured at the cone tip, provides an accurate profile of subsurface strata. The recorded tip resistance is a composite of the penetration resistance of the soils located five to ten cone diameters (7 to 14 inches) in front of and behind the tip. The actual resistance "sensed" by the tip depends on the soil properties and on the relative stiffness of the layers encountered. Tip resistance is often corrected for pore pressure effects when testing in soft saturated cohesive soils.

For this project the correction was made and the tip resistance shown, q_t is the corrected tip resistance.

The correction used is: $q_t = q_c + (1-a)u$

Where:
- q_t = corrected tip resistance
- q_c = measured tip resistance
- a = net area ratio for cone (0.85 for this project)
- u = dynamic pore water pressure measured behind tip

SLEEVE FRICTION (f_s) The resistance recorded on the friction sleeve, is a measure of the remolded strength of the soil. Values of sleeve friction in very soft soils (such as peat) may fluctuate due to the measured force being small relative to the capacity of the measuring load cell.

FRICTION RATIO (R_f) The ratio of sleeve friction to tip resistance expressed as a percentage, is an indicator of soil type. Cohesive soils generally have friction ratios that are greater than two, while sands and non-plastic silts have friction ratios that are lower than two.

PORE PRESSURE (u) Dynamic pore water pressure is measured during penetration. (dynamic pore water pressure data can be found in the .cor, .xls files. Static pore water pressure is measured when cone penetration is stopped (static pore water pressure data can be found in the .ppd files). The measured dynamic pore water pressure changes with the location of the porous filter and negative readings are possible when the filter is located behind the tip.

It is important to note that the CPT classifies soil by physical behavior, not by grain size; therefore, the CPT classification should be verified against samples obtained from a conventional drilling program. While the CPT soil classification may not always be accurate in terms of the actual label it applies to a particular soil, it is very accurate in grouping soils with similar mechanical properties.

Table 1 presents a summary of CPT soundings, including sounding depths.

3.2 CONE PLOTS

The data from each sounding was plotted using the computer program ScreenZ. The plots are included in Appendix A. ScreenZ was developed by ConeTec Inc. and it incorporates soil behavior type (SBT) classification as part of the plot. The soil classification is based on the classification chart reproduced chart in Appendix B.

3.3 PORE PRESSURE DISSIPATION TEST RESULTS

When conducting CPT investigations, pore water pressure dissipations are automatically recorded during pauses in penetration. The pore water pressure data is recorded at five second intervals. Dynamic and static pore pressure dissipation data for each CPT is included on the data CD. A few dissipation tests were completed during this project. Those plots can be found in Appendix D. Water table depths used in the data interpretations were determined from the dissipation data and the CPT data.

3.4 SHEAR WAVE VELOCITY MEASUREMENTS

Shear wave velocity measurements were conducted during two of the CPT soundings. Shear wave velocity measurements were recorded every meter. The shear wave velocity data can be found in Appendix C.

3.5 CPTSUMM DATA PROCESSING

The electronic data files were processed using the program CPTSUMM. CPTSUMM is a program developed by ConeTec to calculate common engineering parameters from CPT data. The data files (xls) can be found on the data CD. The calculations used are summarized in the table found in Appendix B. Each calculation is derived according to the referenced article.

For this project, the depth to ground water was determined from the dissipation data and the CPT data. The exact depth used is noted in the header of each CPTSUMM file.

3.6 DATA CD

One data CD is included in Appendix E. The CD includes all of the CPT, dynamic and static pore water pressure and CPTSUMM data.

5.0 REFERENCES

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CONETEC

TABLE 1 - SUMMARY OF CPTU SOUNDINGS

Job No.: 07-706
Location: Rapp Road Landfill - Albany, New York
Client: Clough Harbour Associates
Date: January 16, 2007

Date	CPTU Sounding	File Name	CPT Total Depth (ft)	Shear wave Velocity Tests	Comments
16-Jan-07	CPT-1	706cp01.cor	100.06	29	
16-Jan-07	CPT-2	706cp02.cor	50.03		
16-Jan-07	CPT-3	706cp03.cor	100.06	29	
16-Jan-07	CPT-4	706cp04.cor	50.03		
Job Totals:		4	300.18	58	

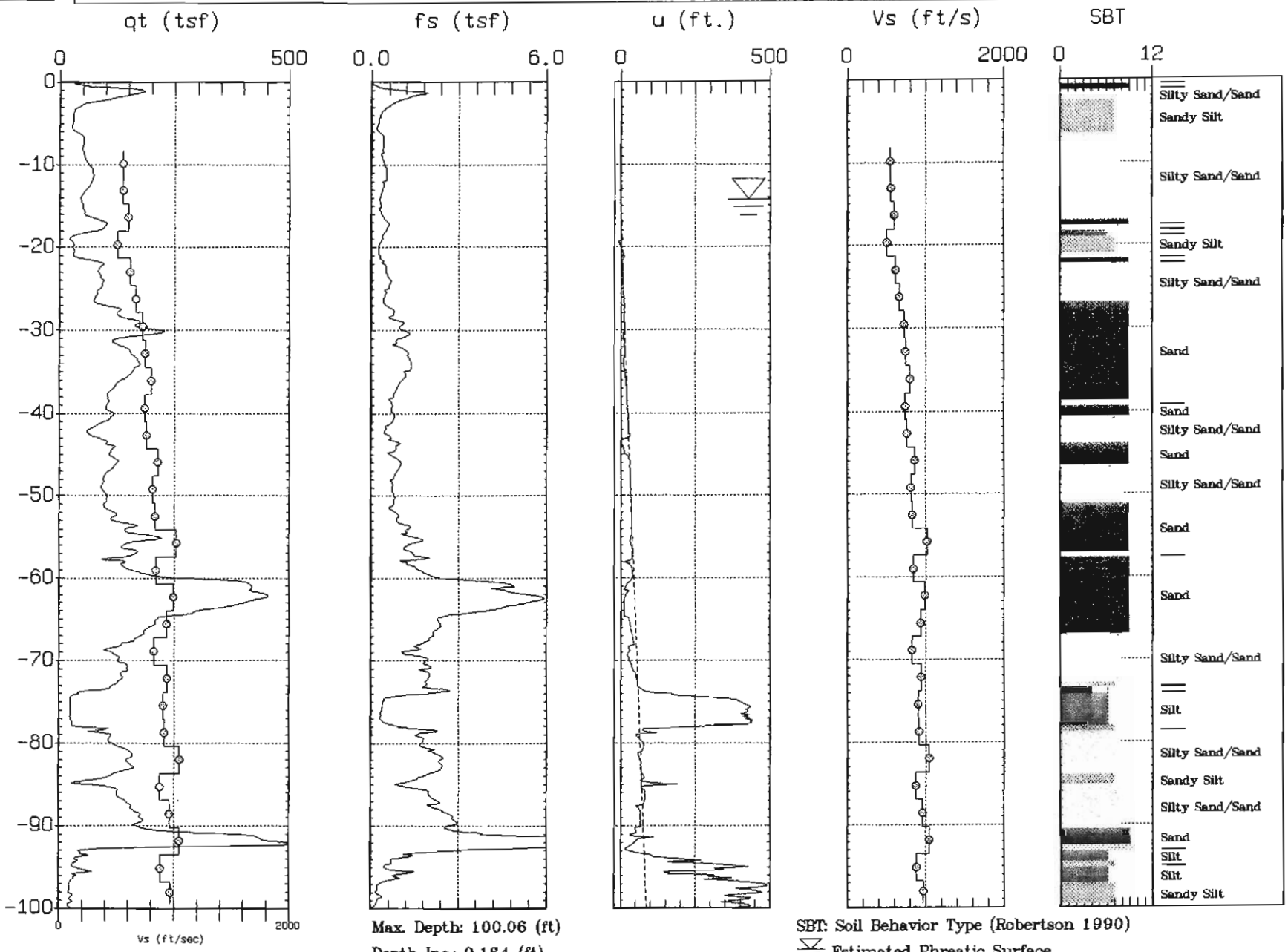
Shearwave CPT plots

CONETEC

Clough Harbour Associates

Sounding:CPT-1
Site:Rapp Rd Landfill

Piezocone:20 Ton AD203
Date:01:16:07 15:23



Max. Depth: 100.06 (ft)
Depth Inc.: 0.164 (ft)

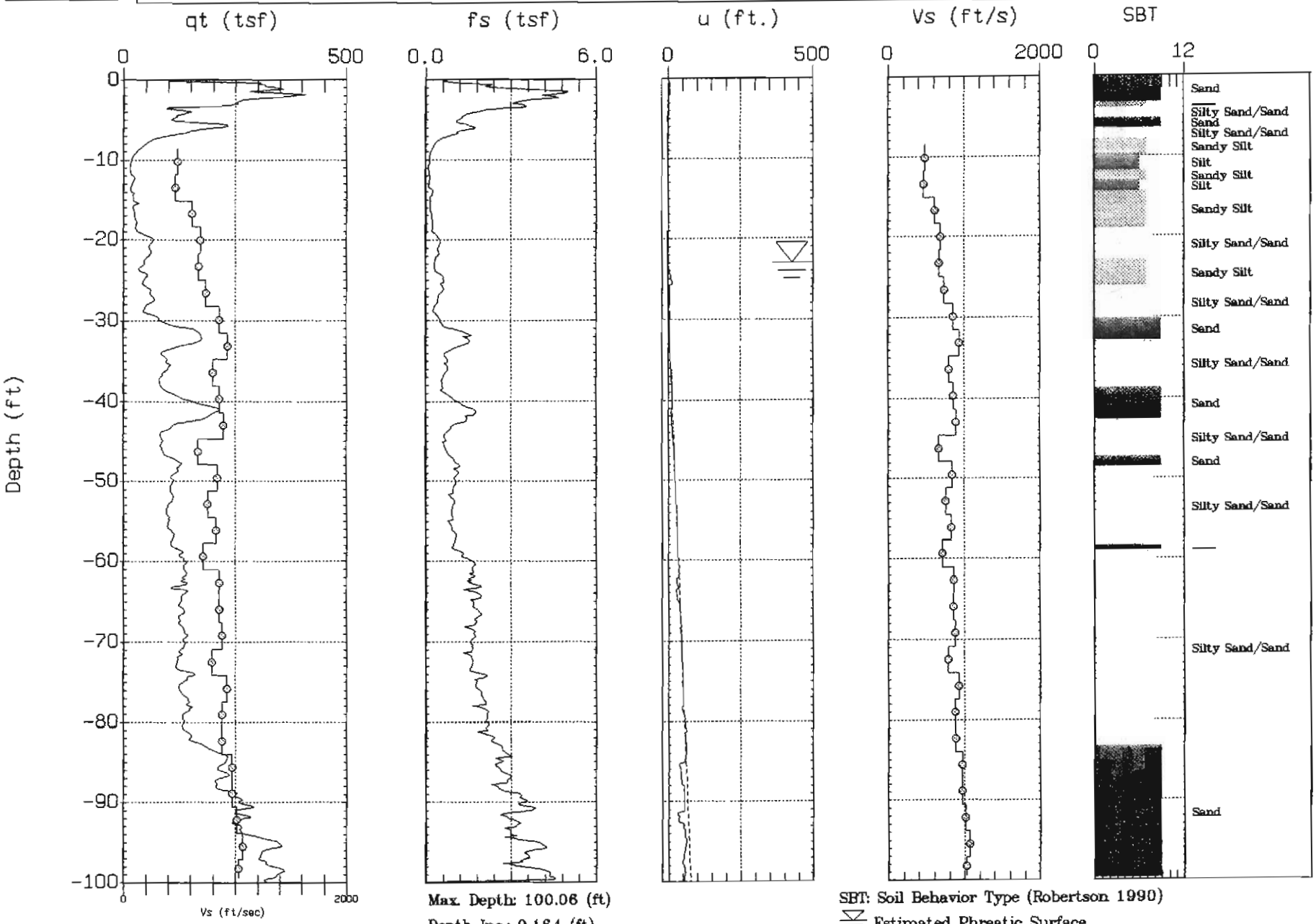
SBT: Soil Behavior Type (Robertson 1990)
Estimated Phreatic Surface

CONETEC

Clough Harbour Associates

Sounding:CPT-3
Site:Rapp Rd Landfill

Piezocone:20 Ton AD203
Date:01:16:07 12:01



Max. Depth: 100.06 (ft)
Depth Inc.: 0.164 (ft)

SBT: Soil Behavior Type (Robertson 1990)
Estimated Phreatic Surface

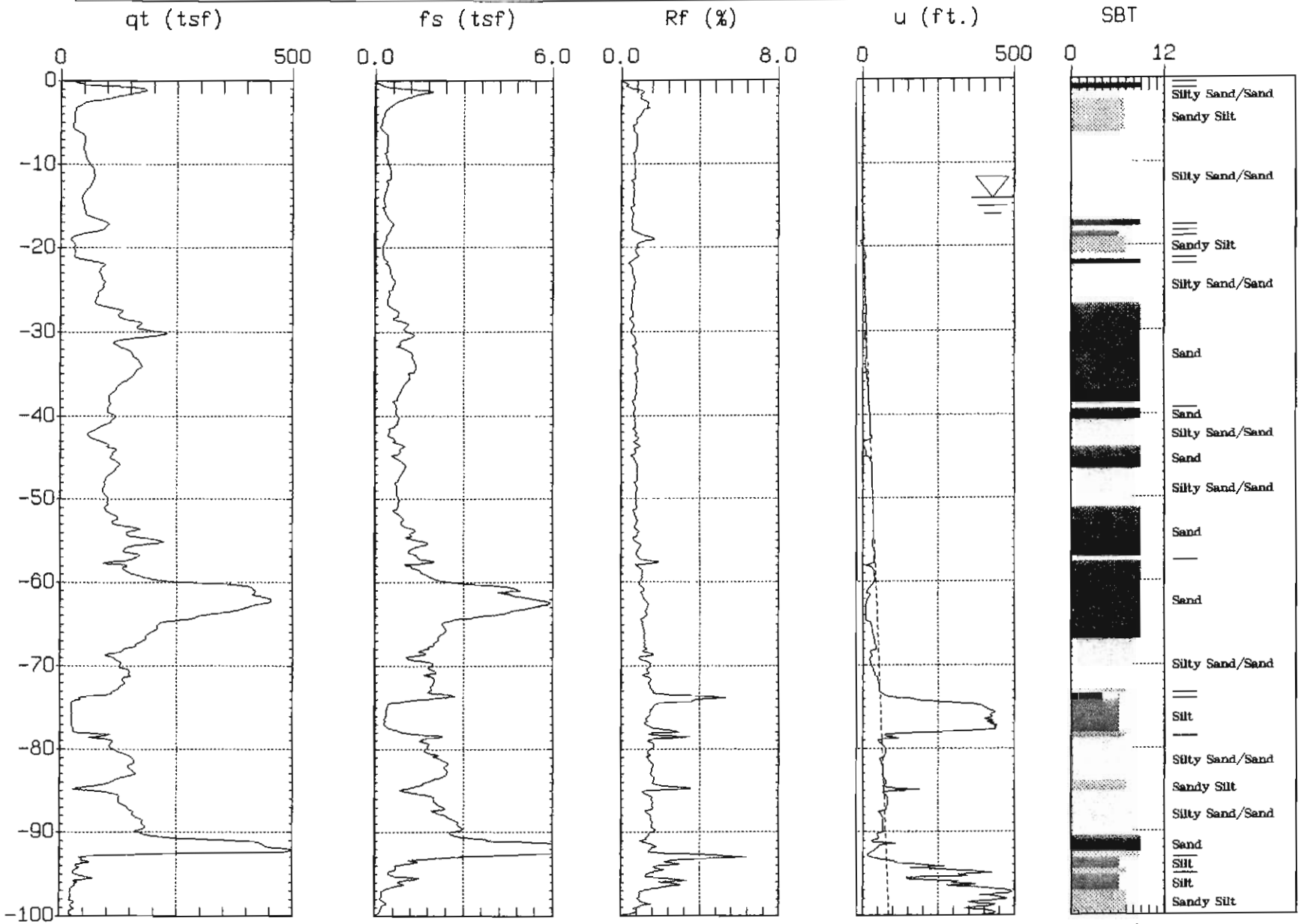
Non-normalized CPT plots

CONETEC

Clough Harbour Associates

Sounding:CPT-1
Site:Rapp Rd Landfill

Piezocone:20 Ton AD203
Date:01:16:07 15:23



Max. Depth: 100.06 (ft)
Depth Inc.: 0.164 (ft)

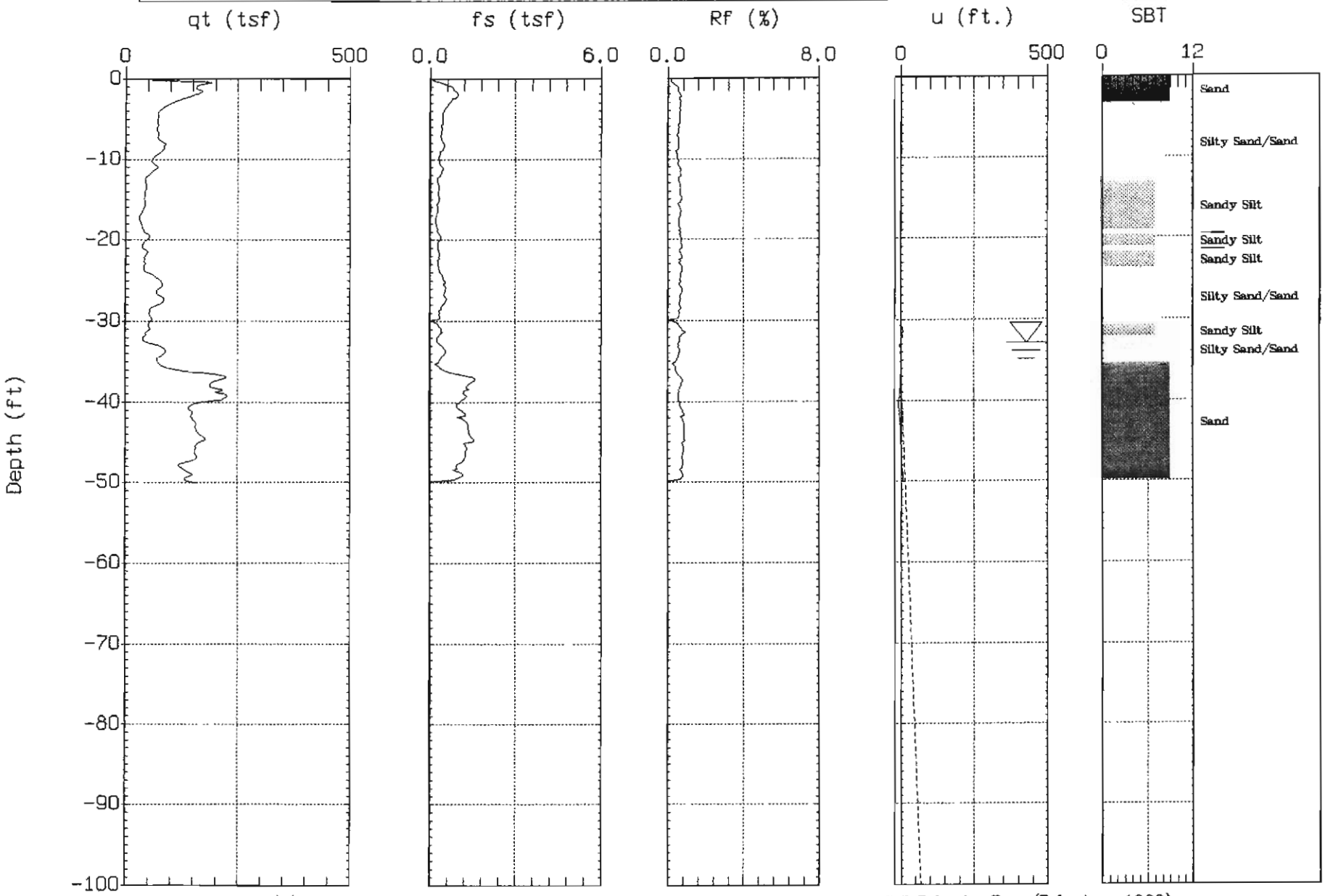
SBT: Soil Behavior Type (Robertson 1990)
Estimated Phreatic Surface

CONETEC

Clough Harbour Associates

Sounding:CPT-2
Site:Rapp Rd Landfill

Piezocone:20 Ton AD203
Date:01:16:07 14:34



Max. Depth: 50.03 (ft)
Depth Inc.: 0.164 (ft)

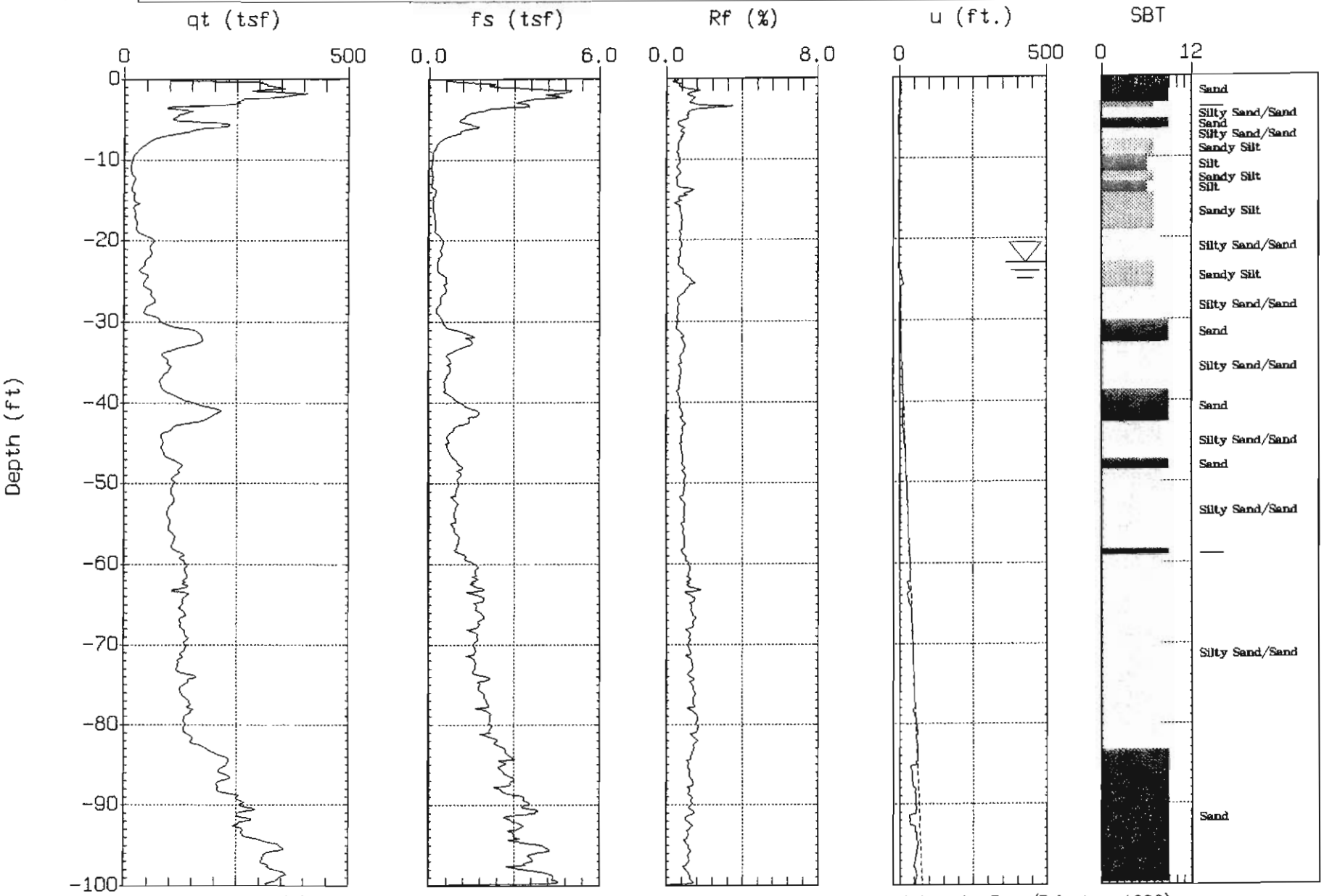
SBT: Soil Behavior Type (Robertson 1990)
Estimated Phreatic Surface

CONETEC

Clough Harbour Associates

Sounding:CPT-3
Site:Rapp Rd Landfill

Piezocone:20 Ton AD203
Date:01:16:07 12:01



Max. Depth: 100.06 (ft)
Depth Inc.: 0.164 (ft)

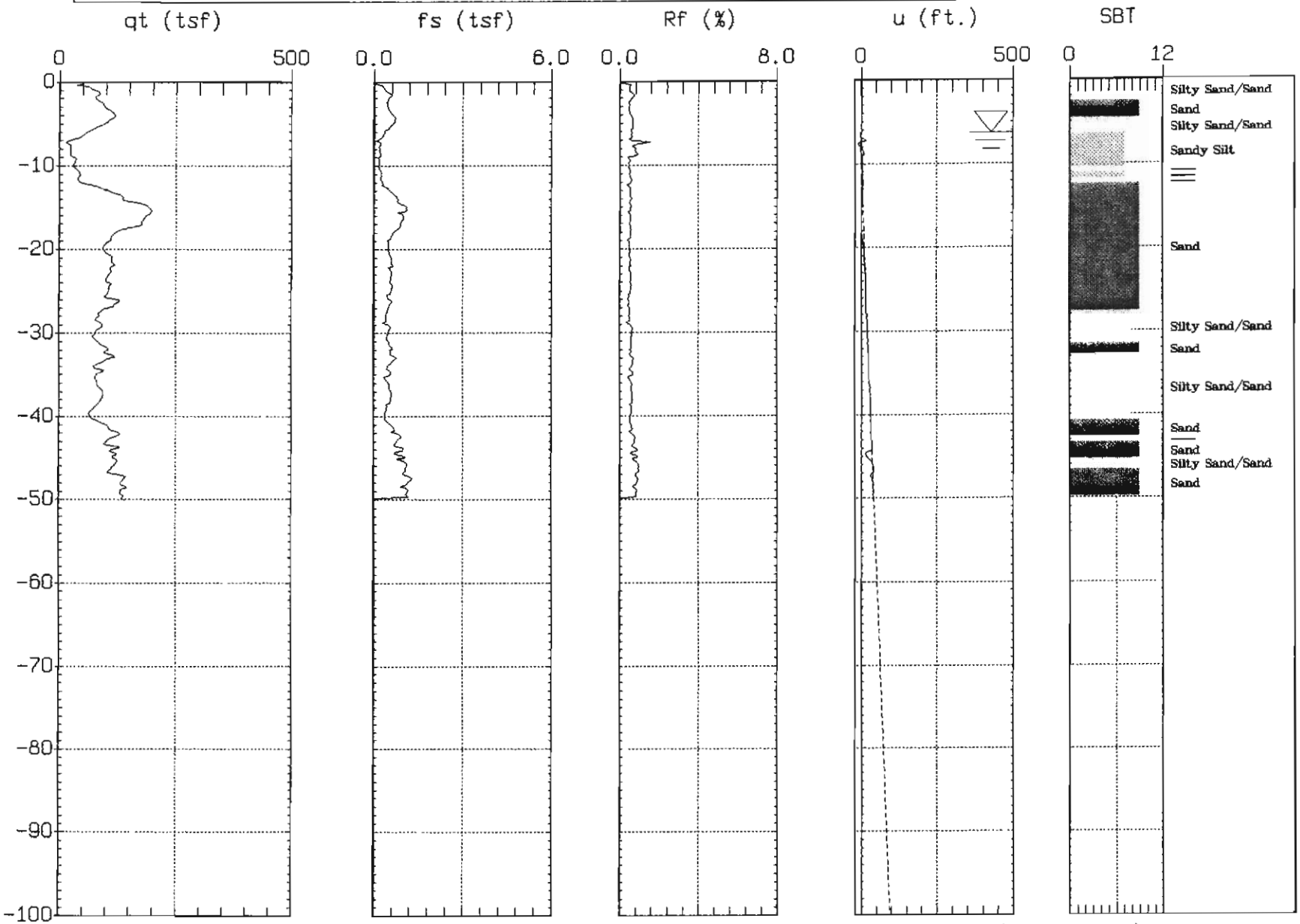
SBT: Soil Behavior Type (Robertson 1990)
Estimated Phreatic Surface

CONETEC

Clough Harbour Associates

Sounding:CPT-4
Site:Rapp Rd Landfill

Piezocone:20 Ton AD203
Date:01:16:07 13:31



Max. Depth: 50.03 (ft)
Depth Inc.: 0.164 (ft)

SBT: Soil Behavior Type (Robertson 1990)
Estimated Phreatic Surface

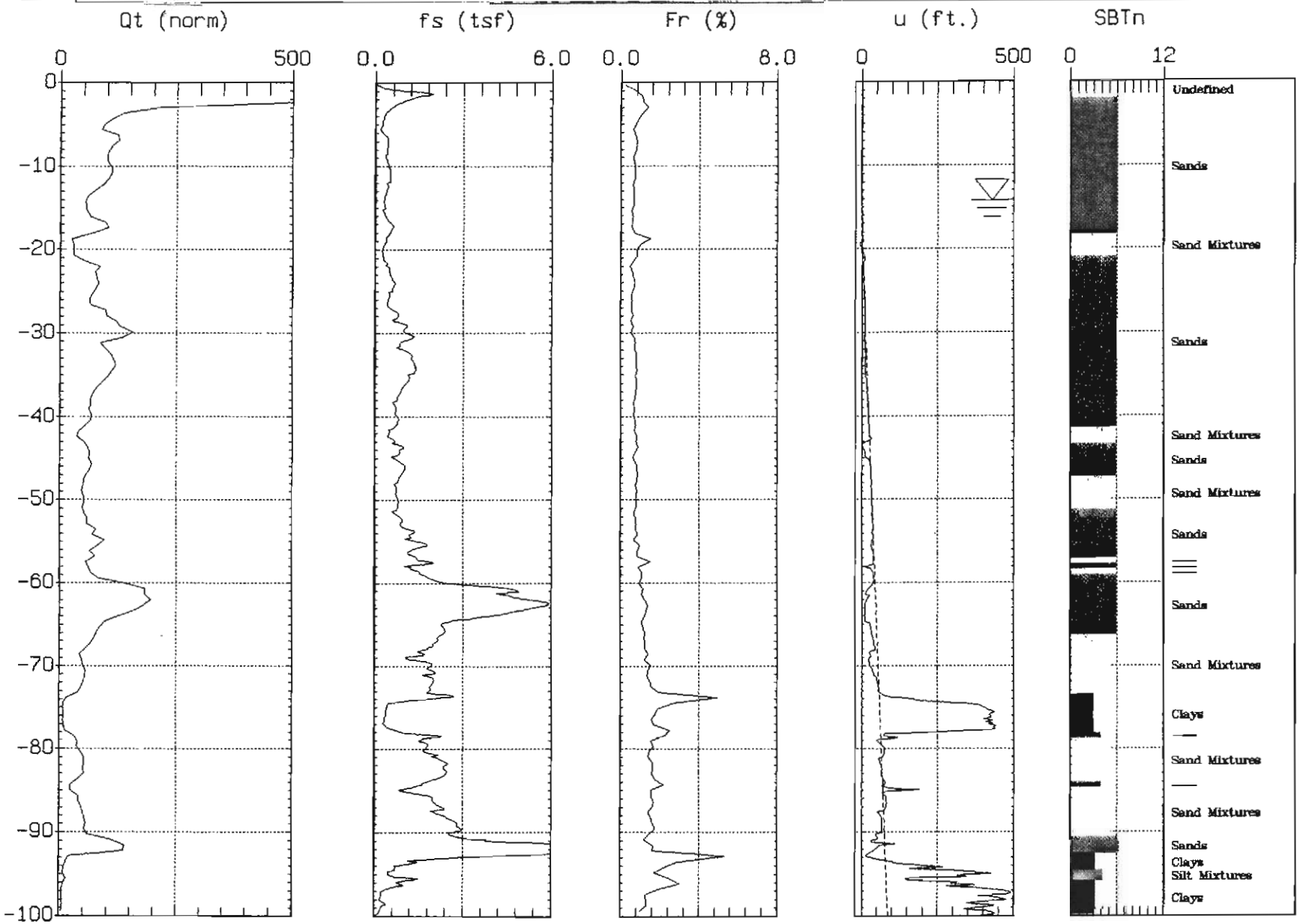
Normalized CPT plots

CONETEC

Clough Harbour Associates

Sounding:CPT-1
Site:Rapp Rd Landfill

Piezocone:20 Ton AD203
Date:01:16:07 15:23



Max. Depth: 100.06 (ft)
Depth Inc.: 0.164 (ft)

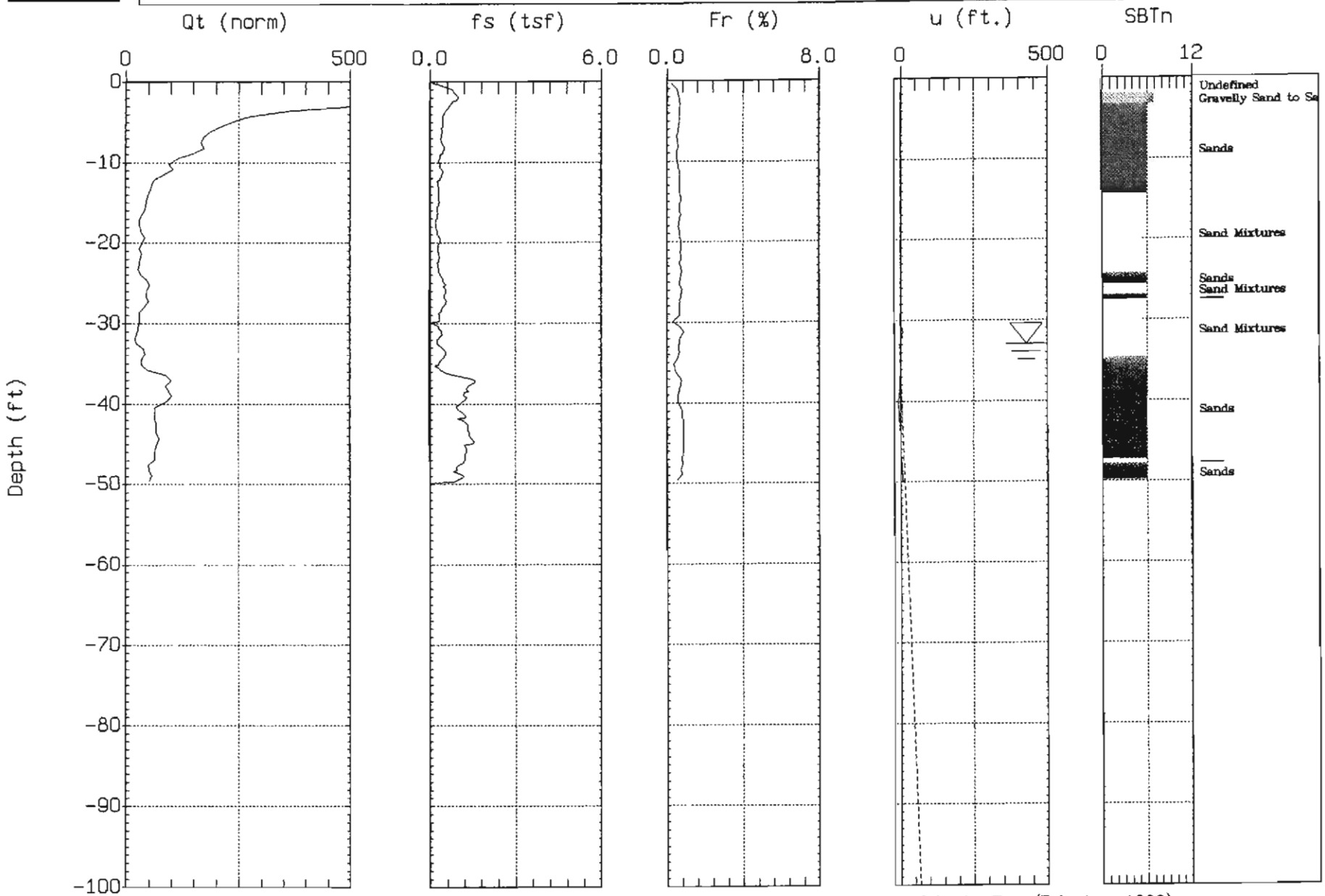
SBT: Soil Behavior Type (Robertson 1990)
Estimated Phreatic Surface

CONETEC

Clough Harbour Associates

Sounding:CPT-2
Site:Rapp Rd Landfill

Piezocone:20 Ton AD203
Date:01:16:07 14:34



Max. Depth: 50.03 (ft)
Depth Inc.: 0.164 (ft)

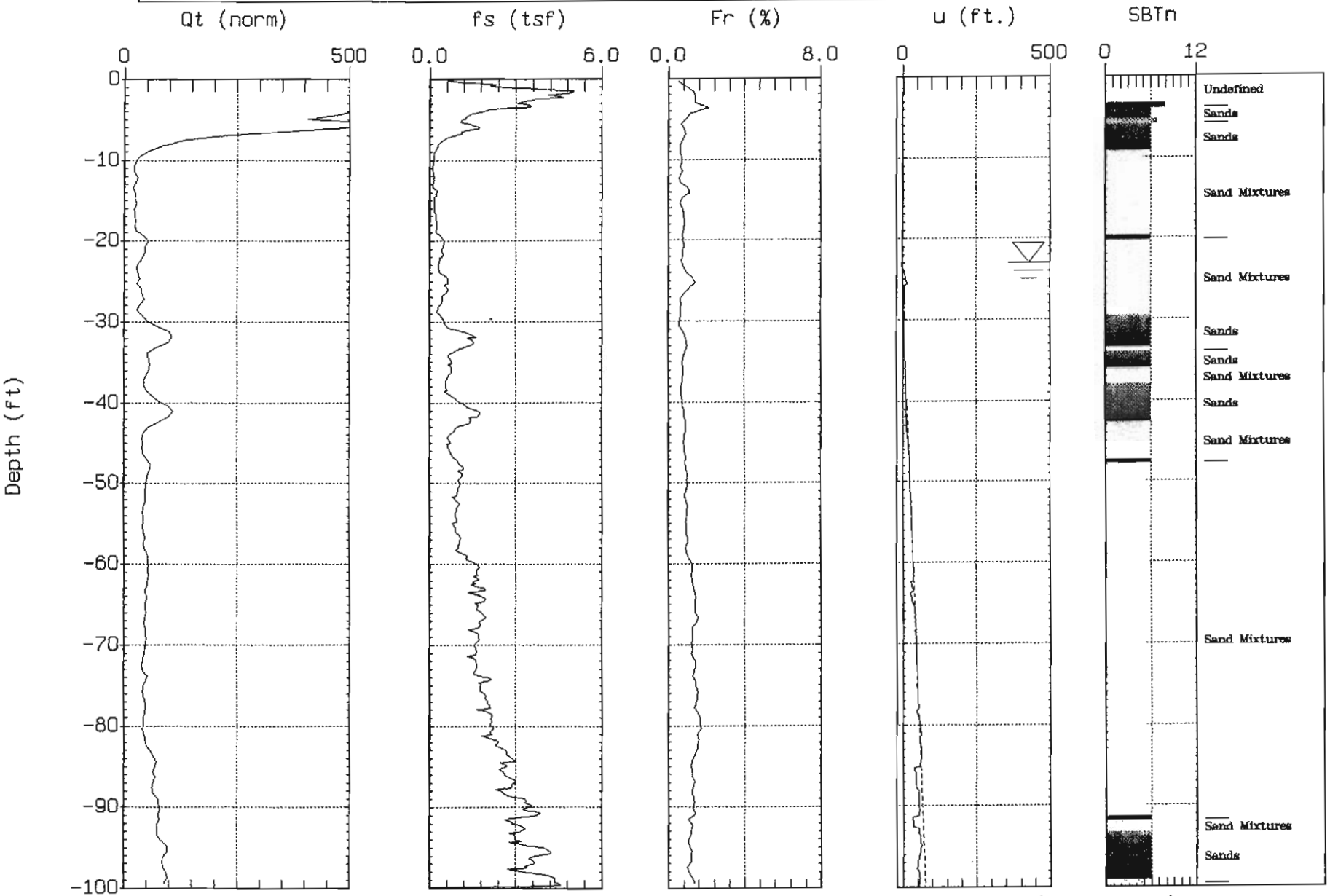
SBT: Soil Behavior Type (Robertson 1990)
Estimated Phreatic Surface

CONETEC

Clough Harbour Associates

Sounding:CPT-3
Site:Rapp Rd Landfill

Piezocone:20 Ton AD203
Date:01:16:07 12:01



Max. Depth: 100.06 (ft)
Depth Inc.: 0.164 (ft)

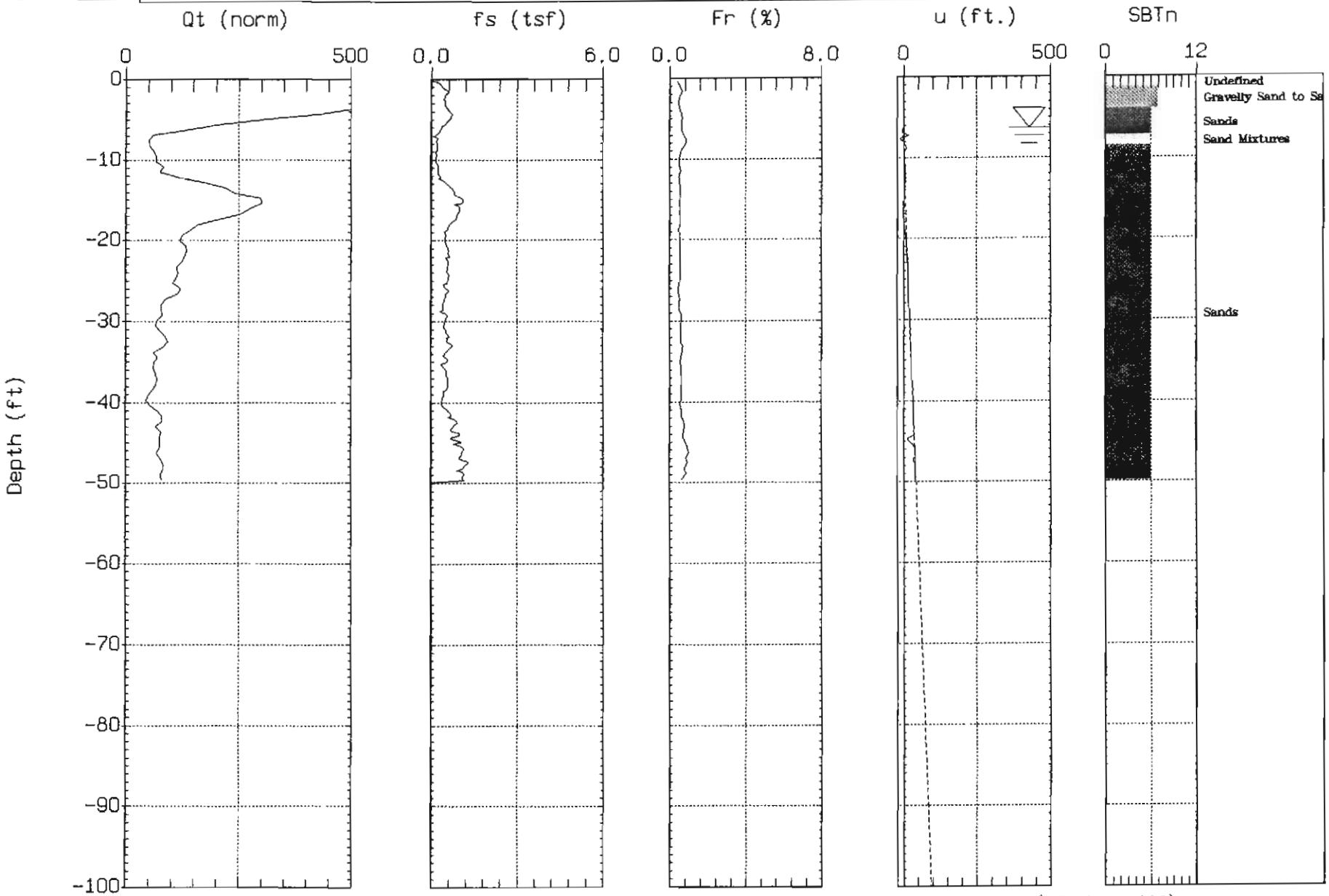
SBT: Soil Behavior Type (Robertson 1990)
Estimated Phreatic Surface

CONETEC

Clough Harbour Associates

Sounding:CPT-4
Site:Rapp Rd Landfill

Piezocone:20 Ton AD203
Date:01:16:07 13:31



Max. Depth: 50.03 (ft)
Depth Inc.: 0.164 (ft)

SBT: Soil Behavior Type (Robertson 1990)
Estimated Phreatic Surface

ConeTec Interpretations as of June 30, 2004 (Release 1.22A)

ConeTec's interpretation routine provides a tabular output of geotechnical parameters based on current published CPT correlations and is subject to change to reflect the current state of practice. The interpreted values are not considered valid for all soil types. The interpretations are presented only as a guide for geotechnical use and should be carefully scrutinized for consideration in any geotechnical design. Reference to current literature is strongly recommended. ConeTec does not warranty the correctness or the applicability of any of the geotechnical parameters interpreted by the program and does not assume liability for any use of the results in any design or review. Representative hand calculations should be made for any parameter that is critical for design purposes. The end user of the interpreted output should also be fully aware of the techniques and the limitations of any method used in this program. The purpose of this document is to inform the user as to which methods were used and what the appropriate papers and/or publications are for further reference.

The CPT interpretations are based on values of tip, sleeve friction and pore pressure averaged over a user specified interval (e.g. 0.20m). Note that q_t is the tip resistance corrected for pore pressure effects and q_c is the recorded tip resistance. Since all ConeTec cones have equal end area friction sleeves, pore pressure corrections to sleeve friction, f_s, are not required.

The tip correction is: $q_t = q_c + (1-a) \bullet u_2$

where: q_t is the corrected tip resistance
q_c is the recorded tip resistance
u_2 is the recorded dynamic pore pressure behind the tip (u_2 position)
a is the Net Area Ratio for the cone (typically 0.85 for ConeTec cones)

The total stress calculations are based on soil unit weights that have been assigned to the Soil Behavior Type zones, from a user defined unit weight profile or by using a single value throughout the profile. Effective vertical overburden stresses are calculated based on a hydrostatic distribution of equilibrium pore pressures below the water table or from a user defined equilibrium pore pressure profile (this can be obtained from CPT dissipation tests). For over water projects the effects of the column of water have been taken into account as has the appropriate unit weight of water. How this is done depends on where the instruments were zeroed (i.e. on deck or at mud line).

Details regarding the interpretation methods for all of the interpreted parameters are provided in Table 1. The appropriate references cited in Table 1 are listed in Table 2. Where methods are based on charts or techniques that are too complex to describe in this summary the user should refer to the cited material.

The estimated Soil Behavior Types (normalized and non-normalized) are based on the charts developed by Robertson and Campanella shown in Figures 1 and 2. The Bq classification charts are not reproduced in this document but can be reviewed in Lunne, Robertson and Powell (1997) or Robertson (1990).

Where the results of a calculation/interpretation are declared *'invalid'* the value will be represented by the text strings "-9999" or "-9999.0". In some cases the value 0 will be used. Invalid results will occur because of (and not limited to) one or a combination of:

1. Invalid or undefined CPT data (e.g. drilled out section or data gap).

2. Where the interpretation method is inappropriate, for example, drained parameters in an undrained material (and vice versa).

3. Where interpretation input values are beyond the range of the referenced charts or specified limitations of the interpretation method.

4. Where pre-requisite or intermediate interpretation calculations are invalid.

The parameters selected for output from the program are often specific to a particular project. As such, not all of the interpreted parameters listed in Table 1 may be included in the output files delivered with this report.

The output files are often delivered in one (or more) of the following three formats:

File Type	Typical Extensions	Description
Printable	IFP, NLP	ASCII files formatted for direct printing either by copying to a printer port, through a text editor or through a dedicated printing routine (such as ConeTec's CTPRINT). Typically formatted for 132 columns wide and 70 lines per page. Any printer would need to be set to have a compressed font (16cpi) as its default.
Importable	IFI, NLI	Tab delimited ASCII files (not for use with text editors) meant for importing into spreadsheet and database applications (e.g. Excel, Lotus, Quattro, Access). Some column and cell formatting maybe required depending on the quality of the application's import utility.
Spreadsheet	XLS	IFI, NLI files exported directly to Excel format. Column and cell formatting has been done. Header information is exported to start in Column C allowing the depth columns A and/or B to be duplicated on each printed page without repetition of part of the header information.

Table 1
CPT Interpretation Methods

Interpreted Parameter	Description	Equation	Ref
Depth	Mid Layer Depth *(where interpretations are done at each point then Mid Layer Depth = Recorded Depth)*	*Depth (Layer Top) + Depth (Layer Bottom) / 2.0*	
Elevation	Elevation of Mid Layer based on sounding collar elevation supplied by client	Elevation = Collar Elevation - Depth	
Avgqc	Averaged recorded tip value (q_c)	$Avgqc = \frac{1}{n}\sum_{i=1}^{n} q_c$ *n=1 when interpretations are done at each point*	
Avgqt	Averaged corrected tip (q_t) where: $q_t = q_c + (1-a) * u$	$Avgqt = \frac{1}{n}\sum_{i=1}^{n} q_t$ *n=1 when interpretations are done at each point*	
Avgfs	Averaged sleeve friction (f_s)	$Avgfs = \frac{1}{n}\sum_{i=1}^{n} fs$ *n=1 when interpretations are done at each point*	
AvgRf	Averaged friction ratio (Rf) where friction ratio is defined as: $Rf = 100\% * \frac{fs}{qt}$	$AvgRf = 100\% * \frac{Avgfs}{Avgqt}$ *n=1 when interpretations are done at each point*	
Avgu	Averaged dynamic pore pressure *(u)*	$Avgu = \frac{1}{n}\sum_{i=1}^{n} u_i$ *n=1 when interpretations are done at each point*	
AvgRes	Averaged Resistivity (this data is not always available since it is a specialized test requiring an additional module)	$Avgu = \frac{1}{n}\sum_{i=1}^{n} RESISTIVITY_i$ *n=1 when interpretations are done at each point*	

Interpreted Parameter	Description	Equation	Ref
AvgUVIF	Averaged UVIF ultra-violet induced fluorescence (this data is not always available since it is a specialized test requiring an additional module)	$Avgu = \frac{1}{n}\sum_{i=1}^{n} UVIF_i$ *n=1 when interpretations are done at each point*	
AvgTemp	Averaged Temperature (this data is not always available since it is a specialized test)	$Avgu = \frac{1}{n}\sum_{i=1}^{n} TEMPERATURE_i$ *n=1 when interpretations are done at each point*	
AvgGamma	Averaged Gamma Counts (this data is not always available since it is a specialized test requiring an additional module)	$Avgu = \frac{1}{n}\sum_{i=1}^{n} GAMMA_i$ *n=1 when interpretations are done at each point*	
SBT	Soil Behavior Type as defined by Robertson and Campanella	See Figure 1	2, 5
U.Wt.	Unit Weight of soil determined from one of the following user selectable options: 1) uniform value 2) value assigned to each SBT zone 3) user supplied unit weight profile	See references	5
T. Stress σ_v	Total vertical overburden stress at Mid Layer Depth. *A layer is defined as the averaging interval specified by the user. For data interpreted at each point the Mid Layer Depth is the same as the recorded depth.*	$TStress = \sum_{i=1}^{n} \gamma_i h_i$ where γ_i is layer unit weight h_i is layer thickness	
E. Stress σ_v'	Effective vertical overburden stress at Mid Layer Depth	$Estress = Tstress - u_{eq}$	
Ueq	Equilibrium pore pressure determined from one of the following user selectable options: 1) hydrostatic from water table depth 2) user supplied profile	For hydrostatic option: $u_{eq} = \gamma_w * (D - D_{wt})$ where u_{eq} is equilibrium pore pressure γ_w is unit weight of water D is the current depth D_{wt} is the depth to the water table	
Cn	SPT N_{60} overburden correction factor	$Cn=(\sigma_v')^{0.5}$ where σ_v' *is in tsf* $0.5 < C_n < 2.0$	
N_{60}	SPT N value at 60% energy calculated from qt/N ratios assigned to each SBT zone. This method has abrupt N value changes at zone boundaries.	*See Figure 1*	4, 5
$(N_1)_{60}$	SPT N_{60} value corrected for overburden pressure	$(N_1)_{60} = Cn * N_{60}$	4
$N_{60}Ic$	SPT N_{60} values based on the Ic parameter	$(qt/pa)/ N_{60} = 8.5 (1 - Ic/4.6)$	5
$(N_1)_{60}Ic$	SPT N_{60} value corrected for overburden pressure (using N_{60} I_c). User has 2 options.	1) $(N_1)_{60}Ic = Cn * (N_{60}\ Ic)$ 2) $q_{c1n}/ (N_1)_{60}Ic = 8.5 (1 - Ic/4.6)$	4 5
$(N_1)_{60cs}Ic$	Clean sand equivalent SPT $(N_1)_{60}Ic$. User has 3 options.	1) $(N_1)_{60cs}Ic = \alpha + \beta((N_1)_{60}Ic)$ 2) $(N_1)_{60cs}Ic = K_{SPT} * ((N_1)_{60}Ic)$ 3) $q_{c1ncs}/ (N_1)_{60cs}Ic = 8.5 (1 - Ic/4.6)$ $FC \le 5\%$: $\alpha = 0$, $\beta=1.0$ $FC \ge 35\%$ $\alpha = 5.0$, $\beta=1.2$ $5\% < FC < 35\%$ $\alpha = \exp[1.76 - (190/FC^2)]$ $\beta = [0.99 + (FC^{1.5}/1000)]$	10 10 5
Su	Undrained shear strength - N_{kt} is user selectable	$Su = \frac{qt - \sigma_v}{N_{kt}}$	1, 5
k	Coefficient of permeability (assigned to each SBT zone)		5

Interpreted Parameter	Description	Equation	Ref
Bq	Pore pressure parameter	$Bq = \frac{\Delta u}{qt - \sigma_v}$ where: $\Delta u = u - u_{eq}$ and u = dynamic pore pressure u_{eq} = equilibrium pore pressure	1, 5
Q_t	Normalized q_t for Soil Behavior Type classification as defined by Robertson, 1990	$Qt = \frac{qt - \sigma_v}{\sigma_v}$	2, 5
F_r	Normalized Friction Ratio for Soil Behavior Type classification as defined by Robertson, 1990	$Fr = 100\% * \frac{fs}{qt - \sigma_v}$	2, 5
SBTn	Normalized Soil Behavior Type as defined by Robertson and Campanella	See Figure 2	2, 5
SBT-BQ	Non-normalized soil behavior type based on the Bq parameter	See Figure 5.7 (reference 5)	2, 5
SBT-BQn	Normalized Soil Behavior base on the Bq parameter	See Figure 5.8 (reference 5) or Figure 3 (reference 2)	2, 5
I_c	Soil index for estimating grain characteristics	$Ic = [(3.47 - \log_{10}Q)^2 + (\log_{10} Fr + 1.22)^2]^{0.5}$ Where: $Q = \left(\frac{qt - \sigma_v}{P_{a2}}\right)\left(\frac{P_a}{\sigma'_v}\right)^n$ And Fr is in percent P_a = atmospheric pressure P_{a2} = atmospheric pressure n varies from 0.5 to 1.0 and is selected in an iterative manner based on the resulting I_c	3, 8
FC	Apparent fines content (%)	$FC=1.75(Ic^{3.25}) - 3.7$ $FC=100$ for $Ic > 3.5$ $FC=0$ for $Ic < 1.26$ $FC = 5\%$ if $1.64 < Ic < 2.6$ AND $F_r<0.5$	3
Ic Zone	This parameter is the Soil Behavior Type zone based on the Ic parameter (valid for zones 2 through 7 on SBTn chart)	Ic < 1.31 Zone = 7 1.31 < Ic < 2.05 Zone = 6 2.05 < Ic < 2.60 Zone = 5 2.60 < Ic < 2.95 Zone = 4 2.95 < Ic < 3.60 Zone = 3 Ic > 3.60 Zone = 2	3
PHI ϕ	Friction Angle determined from one of the following user selectable options: a) Campanella and Robertson b) Durgunoglu and Mitchel c) Janbu	See reference	5
Dr	Relative Density determined from one of the following user selectable options: a) Ticino Sand b) Holksund Sand c) Schmertmann 1976 d) Jamiolkowski - All Sands	See reference	5

Interpreted Parameter	Description	Equation	Ref
OCR	Over Consolidation Ratio	a) Based on Schmertmann's method involving a plot of $S_u/\sigma_v' / (S_u/\sigma_v')_{NC}$ and OCR where the Su/p' ratio for NC clay is user selectable	9
State Parameter	The state parameter is used to describe whether a soil is contractive (SP is positive) or dilative (SP is negative) at large strains based on the work by Been and Jefferies	See reference	8, 6, 5
Es/qt	Intermediate parameter for calculating Youngs Modulus, E, in sands. It is the Y axis of the reference chart.	Based on Figure 5.59 in the reference	5
Youngs Modulus E	Youngs Modulus based on the work by Baldi. There are three types of sands considered in this technique. The user selects the appropriate type for the site from: a) OC Sands b) Aged NC Sands c) Recent NC Sands Each sand type has a family of curves that depend on mean normal stress. The program calculates mean normal stress and linearly interpolates between the two extremes provided in Baldi's chart.	Mean normal stress is evaluated from: $\sigma'_m = \frac{1}{3} \cdot (\sigma'_v + \sigma'_h + \sigma'_h)$ where σ_v' = vertical effective stress σ_h' = horizontal effective stress and $\sigma_h = K_o * \sigma_v'$ with Ko assumed to be 0.5	5
q_{c1}	q_t normalized for overburden stress used for seismic analysis	$q_{c1} = q_t \cdot (Pa/\sigma_v')^{0.5}$ where: Pa = atm. Pressure q_t is in Mpa	3
q_{c1n}	q_{c1} in dimensionless form used for seismic analysis	$q_{c1n} = (q_{c1} / Pa)(Pa/\sigma_v')$ where: Pa = atm. Pressure and n ranges from 0.5 to 0.75 based on Ic.	3
K_{SPT}	Equivalent clean sand factor for $(N_1)60$	$K_{SPT} = 1 + ((0.75/30) * (FC - 5))$	10
K_{CPT}	Equivalent clean sand correction for q_{c1N}	$K_{cpt} = 1.0$ for $I_c \le 1.64$ $K_{cpt} = f(I_c)$ for $I_c > 1.64$ (see reference)	10
q_{c1ncs}	Clean sand equivalent q_{c1n}	$q_{c1ncs} = q_{c1n} \cdot K_{cpt}$	3
CRR	Cyclic Resistance Ratio (for Magnitude 7.5)	$q_{c1ncs} < 50$: $CRR_{7.5} = 0.833 [(q_{c1ncs}/1000)] + 0.05$ $50 \le q_{c1ncs} < 160$: $CRR_{7.5} = 93 [(q_{c1ncs}/1000)]^3 + 0.08$	10
CSR	Cyclic Stress Ratio	$CSR = (\tau_{av}/\sigma_v') = 0.65 (a_{max} / g) (\sigma_v / \sigma_v') r_d$ $r_d = 1.0 - 0.00765 z$ $z \le 9.15m$ $r_d = 1.174 - 0.0267 z$ $9.15 < z \le 23m$ $r_d = 0.744 - 0.008 z$ $23 < z \le 30m$ $r_d = 0.50$ $z > 30m$	10

Interpreted Parameter	Description	Equation	Ref
MSF	Magnitude Scaling Factor	See Reference	10
FofS	Factor of Safety against Liquefaction	$FS = (CRR_{7.5} / CSR)\ MSF$	10
Liquefaction Status	Statement indicating possible liquefaction	Takes into account FofS and limitations based I_c and q_{c1ncs}.	10

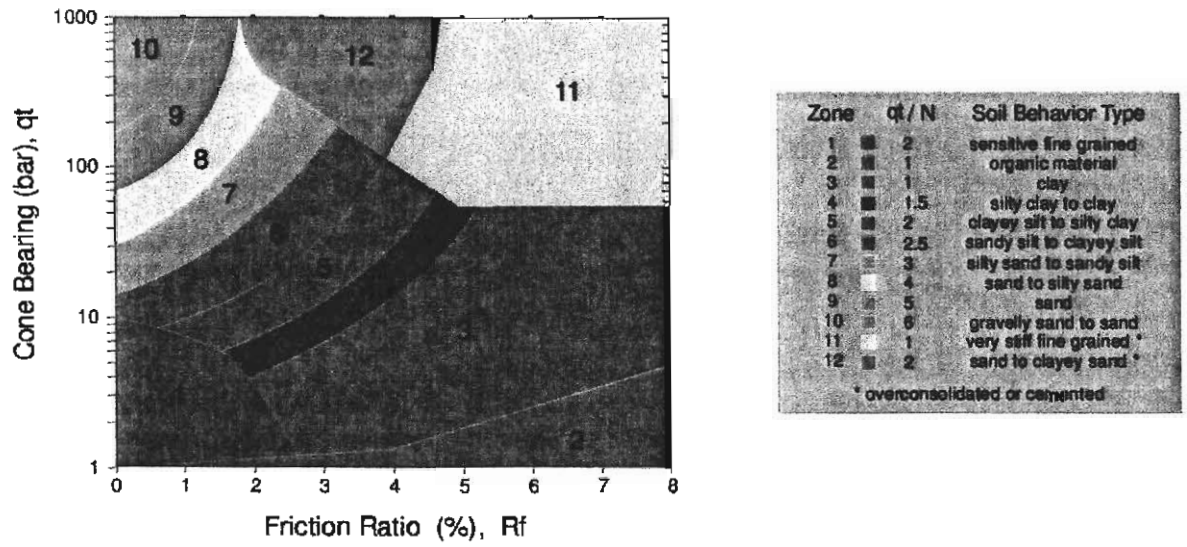


Figure 1 Non-Normalized Behavior Type Classification Chart

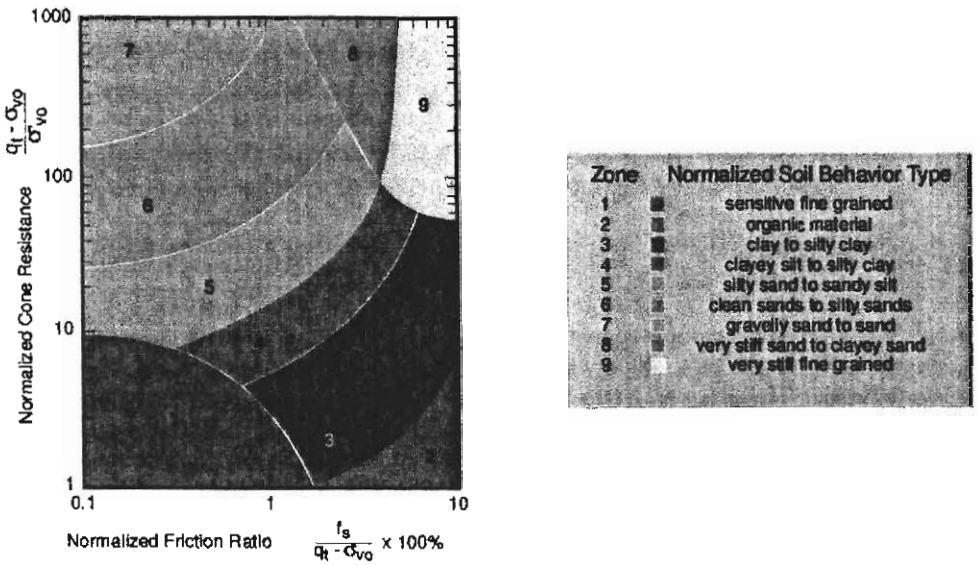


Figure 2 Normalized Behavior Type Classification Chart

Table 2 References

No.	References
1	Robertson, P.K., Campanella, R.G., Gillespie, D. and Greig, J., 1986, "Use of Piezometer Cone Data", Proceedings of InSitu 86, ASCE Specialty Conference, Blacksburg, Virginia.
2	Robertson, P.K., 1990, "Soil Classification Using the Cone Penetration Test", Canadian Geotechnical Journal, Volume 27.
3	Robertson, P.K. and Fear, C.E., 1998, "Evaluating cyclic liquefaction potential using the cone penetration test", Canadian Geotechnical Journal, 35: 442-459.
4	Robertson, P.K. and Wride, C.E., 1998, "Cyclic Liquefaction and its Evaluation Based on SPT and CPT", NCEER Workshop Paper, January 22, 1997
5	Lunne, T., Robertson, P.K. and Powell, J. J. M., 1997, " Cone Penetration Testing in Geotechnical Practice," Blackie Academic and Professional.
6	Plewes, H.D., Davies, M.P. and Jefferies, M.G., 1992, "CPT Based Screening Procedure for Evaluating Liquefaction Susceptibility", 45th Canadian Geotechnical Conference, Toronto, Ontario, October 1992.
7	Jefferies, M.G. and Davies, M.P., 1993. "Use of CPTu to Estimate equivalent N_{60}", Geotechnical Testing Journal, 16(4): 458-467.
8	Been, K. and Jefferies, M.P., 1985, "A state parameter for sands", Geotechnique, 35(2), 99-112.
9	Schmertmann, 1977, "Guidelines for Cone Penetration Test Performance and Design", Federal Highway Administration Report FHWA-TS-78-209, U.S. Department of Transportation
10	Proceedings of theNCEER Workshop on Evaluation of Liquefaction Resistance of Soils, Salt LakeCity, 1996. Chaired by Leslie Youd.

Appendix C

CONETEC

Job No	07-706
Client	Clough Harbour Associates
Project Title	Rapp Road Landfill
Hole	CPT-1
Site	Albany, New York
Date	1/16/2007

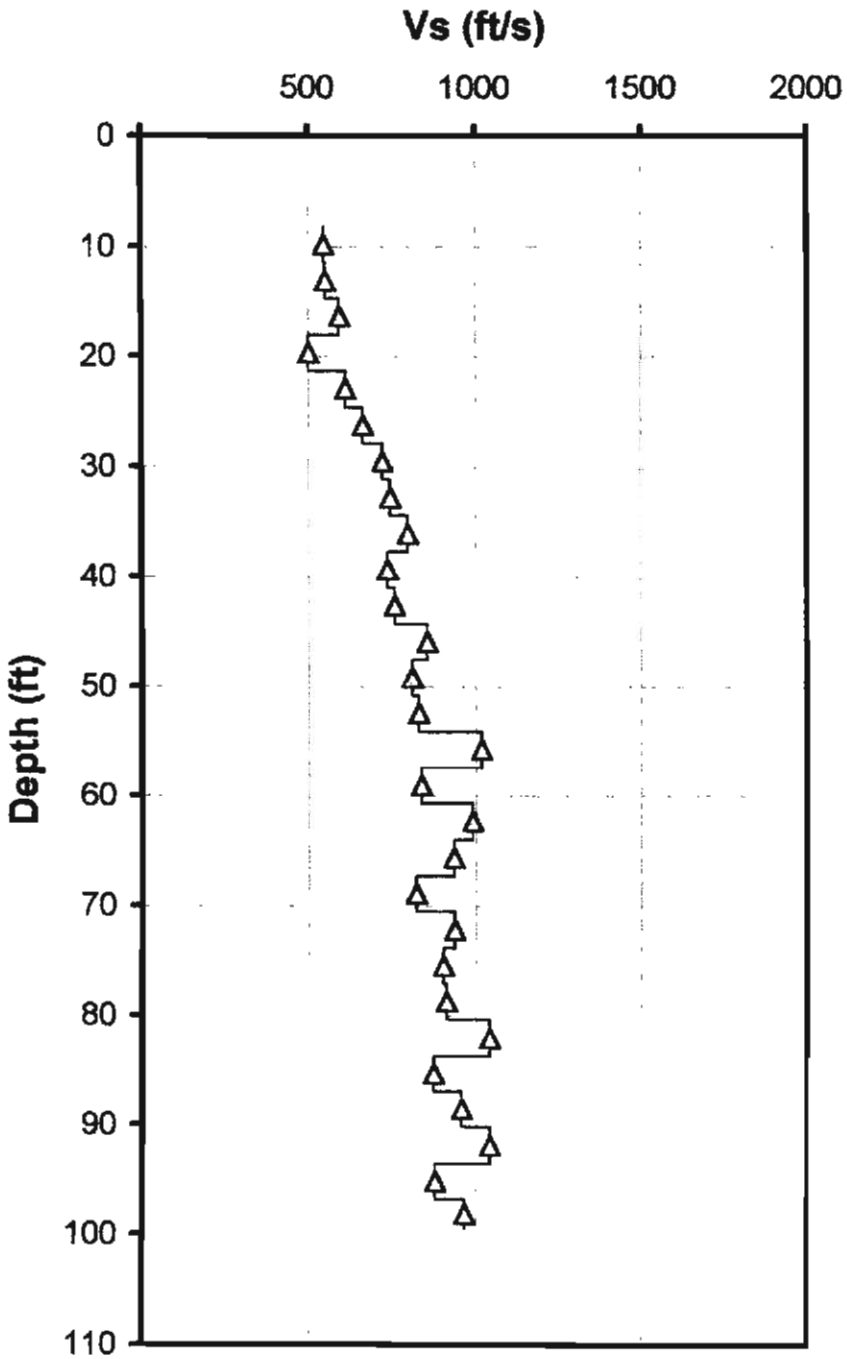
Seismic Source:	Beam	
Source Offset:	1.97	(ft)
Source Depth:	0.00	(ft)
Geophone Offset:	0.66	(ft)

SEISMIC TEST RESULTS - Vs

Tip Depth (ft)	Geophone Depth (ft)	Ray Path (ft)	Depth Interval (ft)	Time Interval (ms)	Mid-layer Depth (ft)	Vs Interval Velocity (ft/s)
8.86	8.20	8.44				
12.14	11.48	11.65	3.21	5.87	9.84	548
15.39	14.73	14.86	3.21	5.83	13.11	551
18.70	18.04	18.15	3.29	5.54	16.39	593
21.96	21.32	21.41	3.26	6.52	19.68	501
25.26	24.60	24.68	3.27	5.34	22.96	612
28.54	27.88	27.95	3.27	4.93	26.24	663
31.82	31.16	31.23	3.27	4.53	29.52	722
35.10	34.44	34.50	3.27	4.40	32.80	744
38.39	37.73	37.79	3.29	4.12	36.09	797
41.67	41.01	41.06	3.28	4.44	39.37	738
44.95	44.29	44.34	3.28	4.32	42.65	758
48.23	47.57	47.61	3.28	3.83	45.93	856
51.51	50.85	50.89	3.28	4.04	49.21	811
54.79	54.13	54.17	3.28	3.95	52.49	830
58.07	57.41	57.45	3.28	3.22	55.77	1018
61.35	60.69	60.73	3.28	3.91	59.05	838
64.63	63.97	64.00	3.28	3.31	62.33	990
67.91	67.25	67.28	3.28	3.51	65.61	934
71.19	70.53	70.56	3.28	3.99	68.89	822
74.48	73.82	73.85	3.29	3.51	72.18	937
77.76	77.10	77.13	3.28	3.63	75.46	903
81.04	80.38	80.41	3.28	3.59	78.74	913
84.32	83.66	83.69	3.28	3.14	82.02	1044
87.60	86.94	86.97	3.28	3.75	85.30	874
90.88	90.22	90.25	3.28	3.42	88.58	959
94.16	93.50	93.52	3.28	3.14	91.86	1044
97.44	96.78	96.80	3.28	3.73	95.14	879
100.07	99.41	99.43	2.63	2.72	98.10	967

CONETEC

Job No: 07-706
Client: Clough Harbour
Project: Rapp Road Landfill
Sounding: CPT-1
Date: January 16, 2007



CONETEC

Job No	07-706
Client	Clough Harbour Associates
Project Title	Rapp Road Landfill
Hole	CPT-3
Site	Albany, New York
Date	1/16/2007

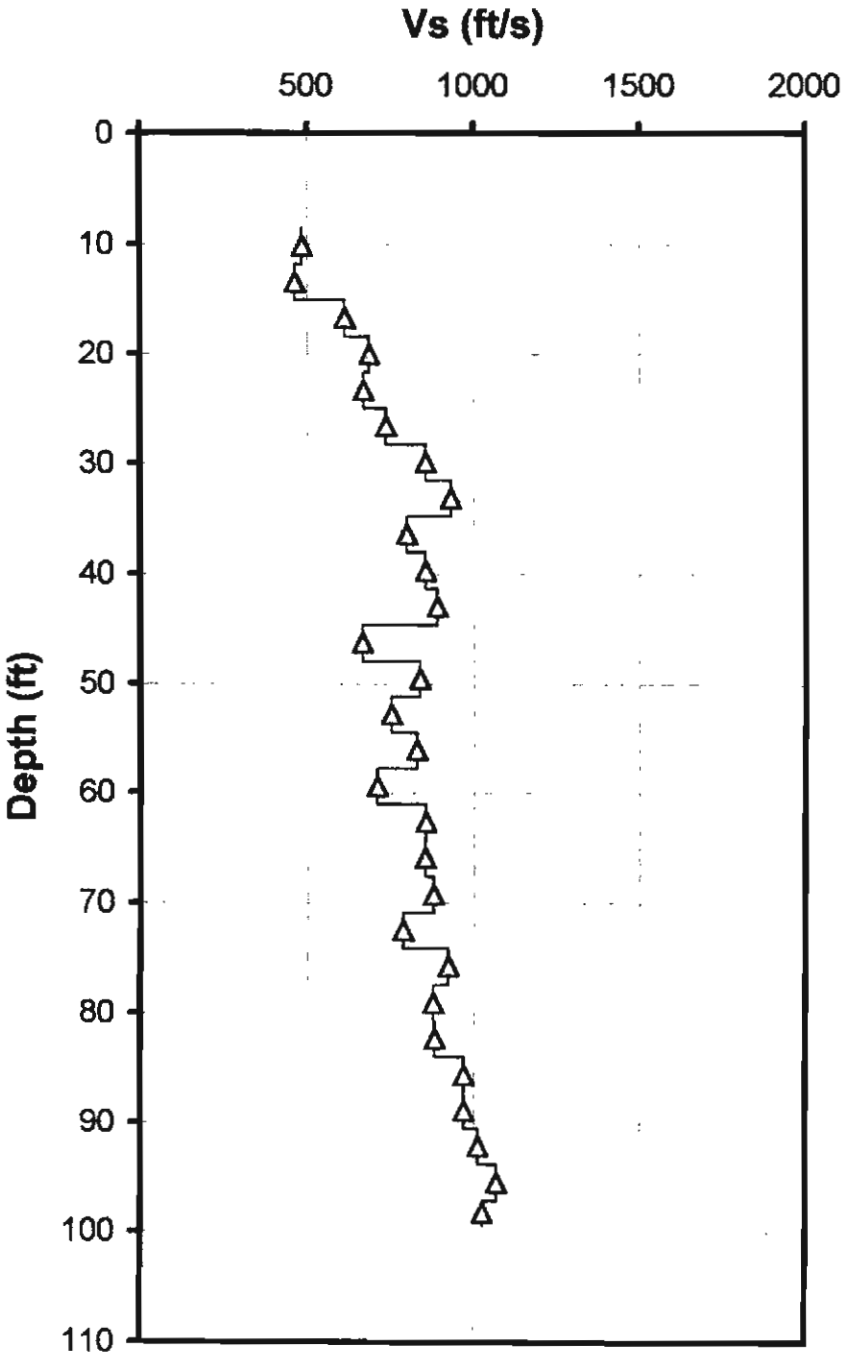
Seismic Source:	Beam	
Source Offset:	1.97	(ft)
Source Depth:	0.00	(ft)
Geophone Offset:	0.66	(ft)

SEISMIC TEST RESULTS - Vs

Tip Depth (ft)	Geophone Depth (ft)	Ray Path (ft)	Depth Interval (ft)	Time Interval (ms)	Mid-layer Depth (ft)	Vs Interval Velocity (ft/s)
9.19	8.53	8.76				
12.47	11.81	11.98	3.22	6.64	10.17	485
15.75	15.09	15.22	3.24	6.99	13.45	464
19.03	18.37	18.48	3.26	5.32	16.73	612
22.31	21.65	21.74	3.26	4.75	20.01	687
25.59	24.93	25.01	3.27	4.88	23.29	670
28.87	28.21	28.28	3.27	4.44	26.57	737
32.15	31.49	31.56	3.27	3.83	29.85	855
35.43	34.77	34.83	3.27	3.52	33.13	930
38.71	38.05	38.10	3.28	4.10	36.41	799
41.99	41.33	41.38	3.28	3.83	39.69	855
45.28	44.62	44.67	3.29	3.69	42.98	891
48.56	47.90	47.94	3.28	4.93	46.26	665
51.84	51.18	51.22	3.28	3.91	49.54	838
55.12	54.46	54.50	3.28	4.35	52.82	753
58.40	57.74	57.78	3.28	3.96	56.10	828
61.68	61.02	61.06	3.28	4.62	59.38	710
64.96	64.30	64.33	3.28	3.83	62.66	856
68.24	67.58	67.61	3.28	3.84	65.94	854
71.52	70.86	70.89	3.28	3.73	69.22	879
74.80	74.14	74.17	3.28	4.16	72.50	788
78.08	77.42	77.45	3.28	3.55	75.78	924
81.36	80.70	80.73	3.28	3.73	79.06	879
84.65	83.99	84.02	3.29	3.73	82.35	882
87.93	87.27	87.30	3.28	3.38	85.63	970
91.21	90.55	90.58	3.28	3.38	88.91	970
94.49	93.83	93.85	3.28	3.24	92.19	1012
97.77	97.11	97.13	3.28	3.07	95.47	1068
100.07	99.41	99.43	2.30	2.24	98.26	1027

CONETEC

Job No: 07-706
Client: Clough Harbour
Project: Rapp Road Landfill
Sounding: CPT-3
Date: January 16, 2007

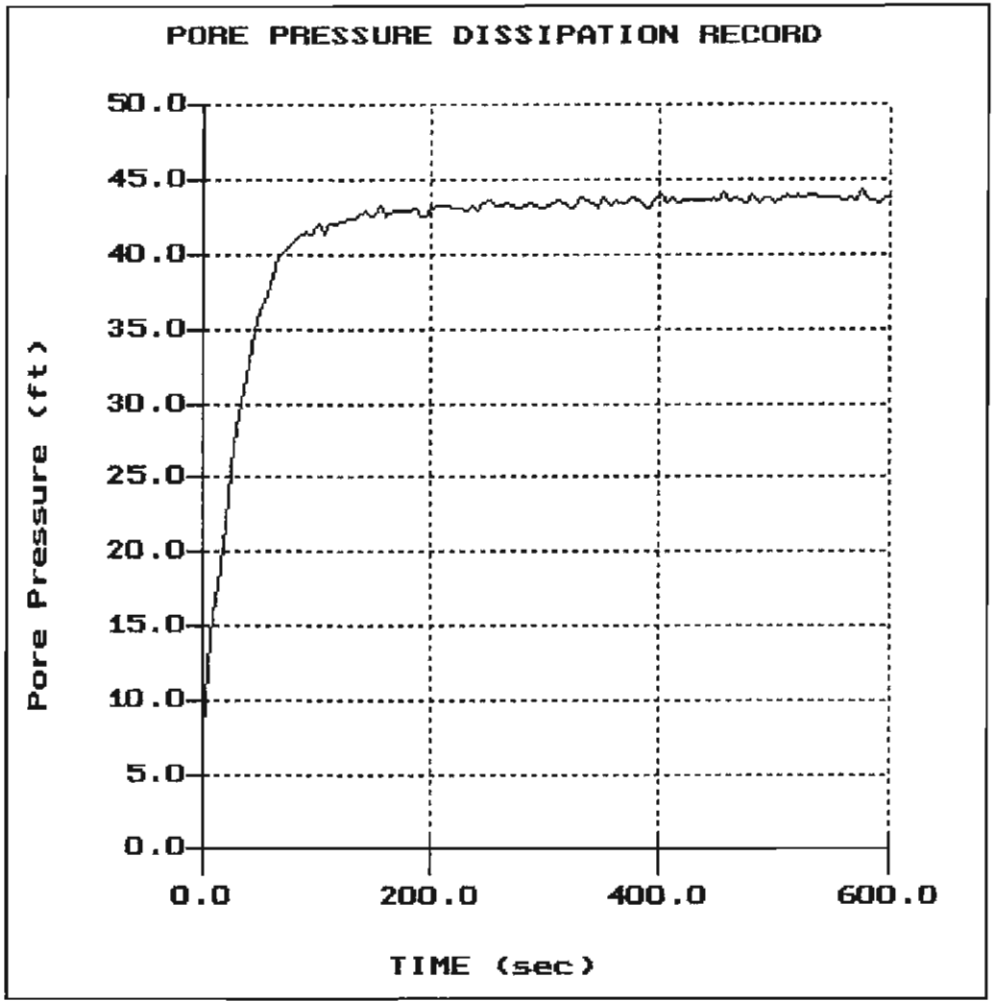


Appendix D

Clough Harbour

Hole:CPT-1
Location:Rapp Rd Landfill

Cone:20 Ton AD203
Date:01:16:07 15:23

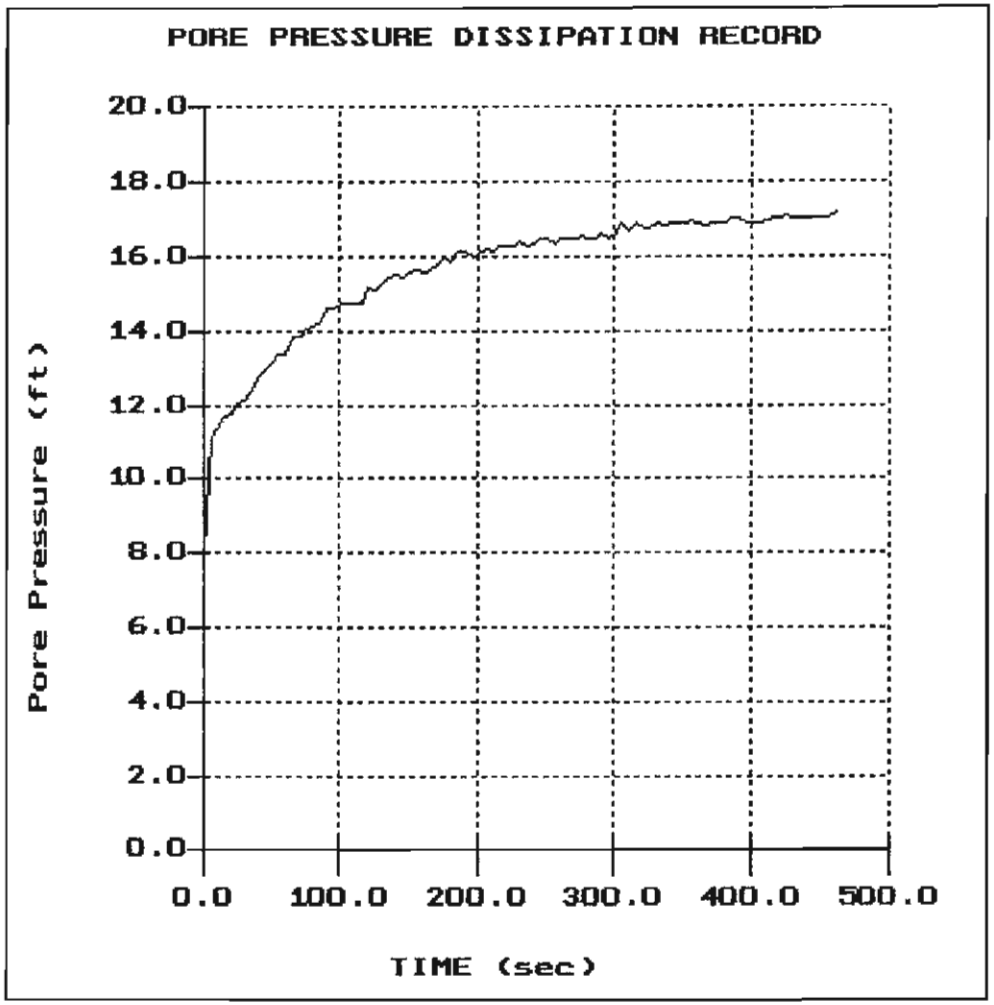


File: 706CP01.PPD
Depth (m): 17.70
(ft): 58.07
Duration : 600.0s
U-min: 7.56 0.0s
U-max: 44.21 575.0s

Clough Harbour

Hole:CPT-2
Location:Rapp Rd Landfill

Cone:20 Ton AD203
Date:01:16:07 14:34

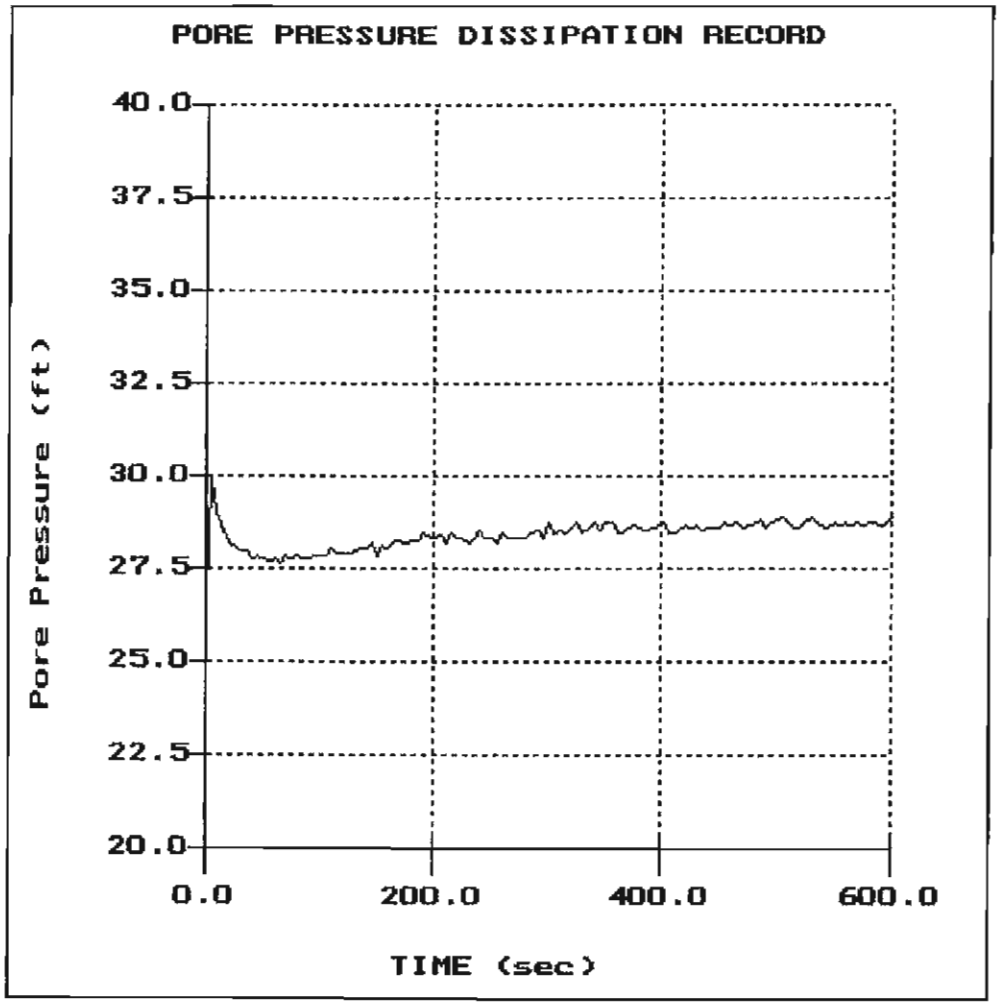


File: 706CP02.PPD
Depth (m): 15.25
(ft): 50.03
Duration : 460.0s
U-min: 7.93 0.0s
U-max: 17.18 460.0s

Clough Harbour

Hole:CPT-3
Location:Rapp Rd Landfill

Cone:20 Ton AD203
Date:01:16:07 12:01

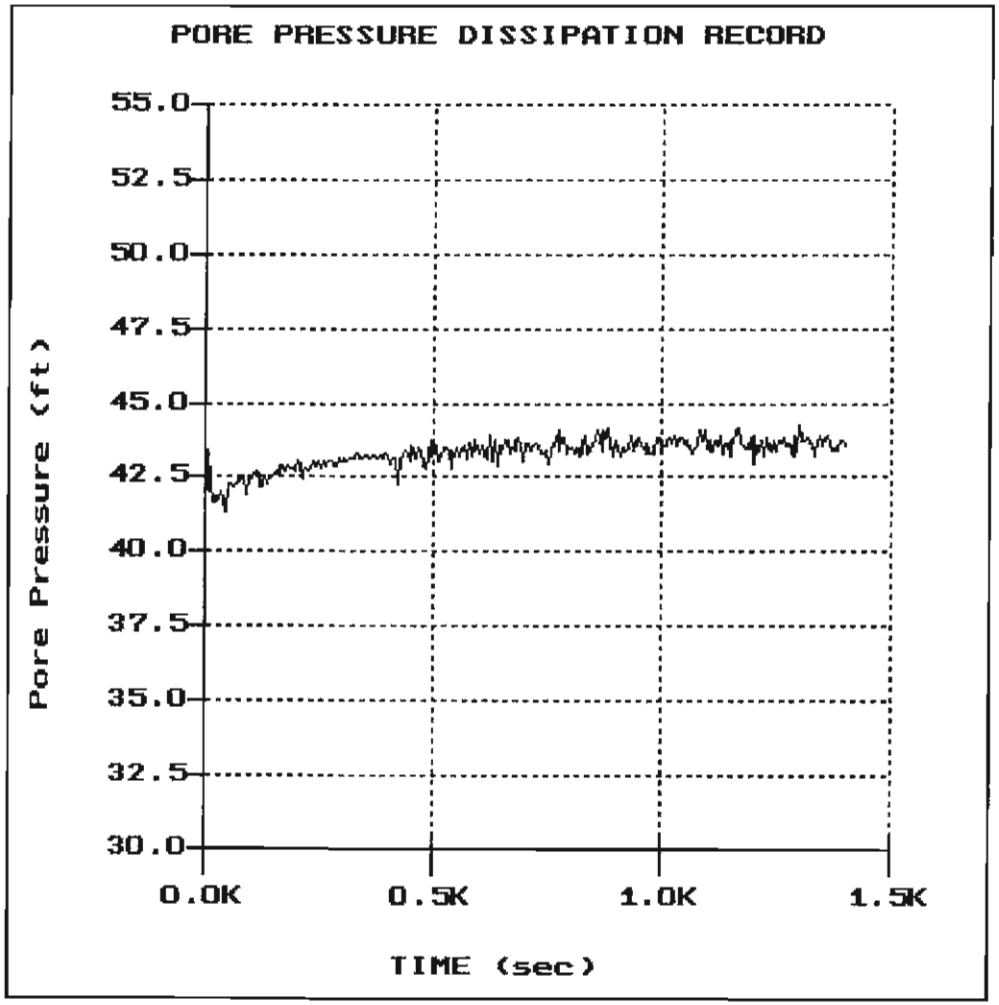


File: 706CP03.PPD
Depth (m): 15.80
(ft): 51.84
Duration : 600.0s
U-min: 26.66 0.0s
U-max: 29.94 5.0s

Clough Harbour

Hole:CPT-4
Location:Rapp Rd Landfill

Cone:20 Ton AD203
Date:01:16:07 13:31



File: 706CP04.PPD
Depth (m): 15.25
(ft): 50.03
Duration : 1400.0s
U-min: 40.59 0.0s
U-max: 44.25 1300.0s

ConeTec Digital File Formats

CPT Data Files (COR Extension)

ConeTec CPT data files are named such that the first 3 characters contain the job number, the next two characters are CP followed by two characters indicating the sounding number. The last DOS character position is reserved for the letters a, b, c, d etc to uniquely identify multiple soundings at the same location. The CPT sounding file has the extensions COR, and pore pressure dissipation files have the extension PPD. As an example, for job number 99-127 the first sounding will have file names 127CP01.COR and 127CP01.PPD.

The CPT (COR) file consists of the following components:

1. Two lines of header information
2. Data records
3. End of data marker
4. Units information

Header Lines

Line 1: Columns 1-6 are blank (future use)
Columns 7-21 contain the sounding Date and Time
Columns 22-36 contain the sounding Operator

Line 2: Columns 1-16 contain the Job Location
Columns 17-31 contain the Cone ID
Columns 32-47 contain the sounding number

Data Records

The data records contain 4 or more columns of data in floating point format. A comma (and spaces) separates each data item:

Column 1:	Sounding Depth (meters)
Column 2:	Tip (q_c) data uncorrected for pore pressure effects. Recorded in units selected by the operator.
Column 3:	Sleeve (f_s) data. Recorded in units selected by the operator
Column 4:	Dynamic pore pressure readings. Recorded in units selected by the operator
Column 5:	UVIF Data. See UVIF section.

End of Data Marker

After the last line of data a line containing ASCII 26 (CTL-Z) and a newline (carriage return/ line feed) character. This is used to mark the end of data.

Units Information

The last section of the file contains information about the units that were selected for the sounding. A separator bar makes up the first line. The second line contains the type of units used for depth, q_c, f_s and u. The third line contains the conversion values required for ConeTec's software to convert the recorded data to an internal set of base units (bar for q_c, bar for f_s and meters for u).

CPT Dissipation Files (PPD Extension)

CPT Dissipation files have the same naming convention as the CPT sounding files and have the extension PPD. PPD files consist of the following components:

1. Two lines of header information
2. Data records

Header Lines (same as COR file):

Line 1: Columns 1-6 are blank (future use)
Columns 7-21 contain the sounding Date and Time
Columns 22-36 contain the sounding Operator

Line 2: Columns 1-16 contain the Job Location
Columns 17-31 contain the Cone ID
Columns 32-47 contain the sounding number

Data Records

The data records immediately follow the header lines. Each data record can occupy several lines in the file and is a complete record of a dissipation test at a particular depth. Each data record starts with a line containing two values separated by spaces; the first value being an index number (not currently used by the Software) and the second being the dissipation test depth in meters. Following this line are the dissipation pore pressure values stored at 5 second intervals with a maximum of 12 entries per line. The last line of the dissipation record may not contain a full 12 entries. The data record is terminated with an ASCII 30 character (appears as a triangle in some editors).

This sequence is repeated for every dissipation test in the sounding. No marker is used to indicate end of file. Units information is not stored in this file. Users would have to check the CPT file for the units that were used.

CPT Basic Interpretations (TBL Extension)

ConeTec's basic CPT interpretation output files are generally delivered in text files with a TBL extension. The root file name is the same as the COR files. A number of calculated geotechnical parameters are presented in these files. The files are stored as ASCII text files that can be viewed using any text editor such as Notepad or Wordpad. The files do not contain any page formatting. These files are not distributed if the enhanced interpretation files are provided.

CPT Enhanced Interpretations (NLI, NLP, XLS Extension)

ConeTec's enhanced CPT interpretation output files are delivered in several formats, each file type containing the exact same information but formatted slightly differently. The files typically have any of the following file extensions:

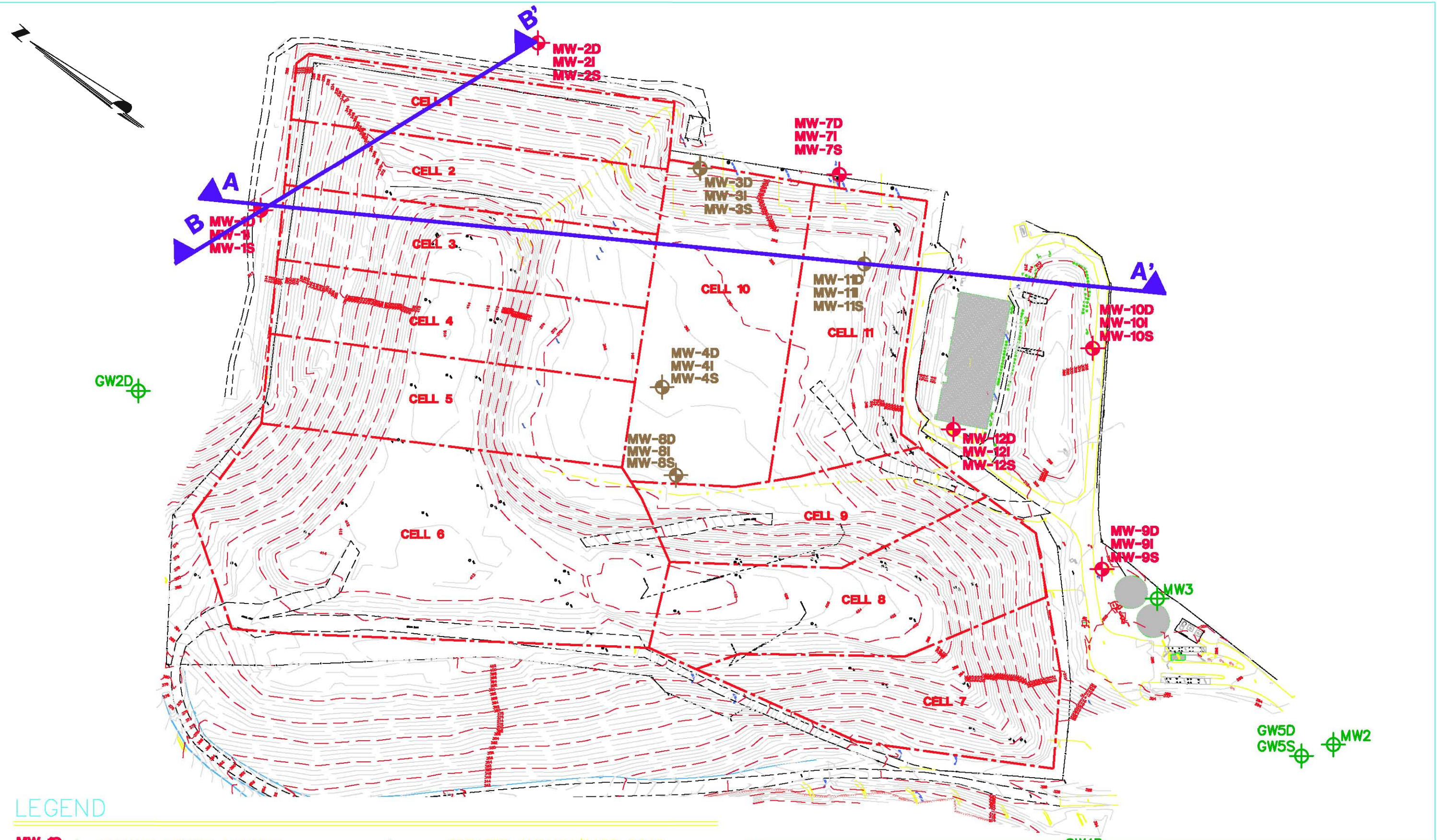
1. NLI — an importable TAB delimited ASCII text file containing approximately 36 data columns of geotechnical interpretations. The file is designed for easy import to Excel. A companion document describes the techniques used for the interpretations (usually reproduced at the beginning of the Interpretation Appendix). Text editors can be used to view the file contents, however, they may remove the tabs or replace the tabs with spaces upon saving the file destroying the feature that makes them easy to import into Excel.

2. NLP — a printable ASCII text file containing the same 36 columns of geotechnical interpretations as the NLI file. This file type has been formatted as a multi-page document with up to 132 characters per line and up to 68 lines per page. Each page has been separated into multiple sections to accommodate all the data fields. Each physical page has a header section and a page/section number. The file is designed for direct printing to laser printers set into compressed font mode. This output is typically provided in the Interpretation Appendix.

3. XLS — an Excel format file that has been generated directly from the corresponding NLI file.

In each case root file name is the same as the COR files.

BORING LOCATION PLAN
AND
BORING LOGS



LEGEND

MW-1D MW-1 MW-1S — ALBANY INTERIM LANDFILL MONITORING WELL CLUSTER

MW-1D MW-1 MW-1S — ABANDONED MONITORING WELL CLUSTER

GW1D — GREATER ALBANY/RAPP ROAD LANDFILL MONITORING WELL CLUSTER

A A' — CROSS SECTION LOCATION

SCALE: 1" = 200'

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Main: (518) 453-4500 · www.cloughharbour.com

12206.3003.1102

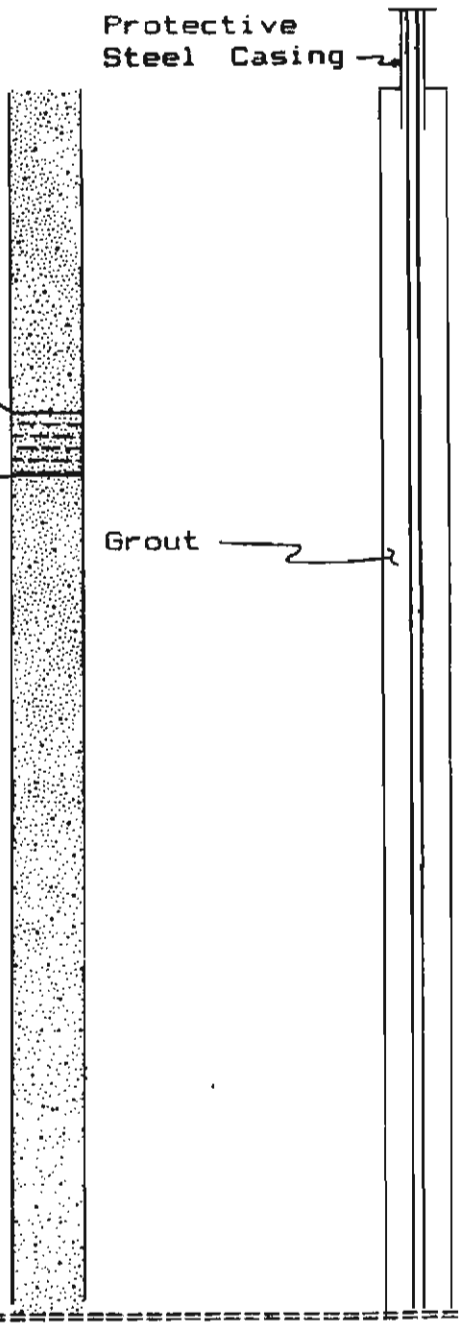
DATE: MAY, 2005

FIGURE 3-1
CROSS SECTION LOCATION PLAN
SITE INVESTIGATION WORK PLAN
FOR THE PROPOSED EXPANSION
RAPP ROAD SOLID WASTE MANAGEMENT FACILITY
CITY OF ALBANY
STATE OF NEW YORK

File: K:\12206\EXPANSION\ACAD\FIG-3-1-SECLOC.dwg User: 330 5/17/2005 04:11 PM

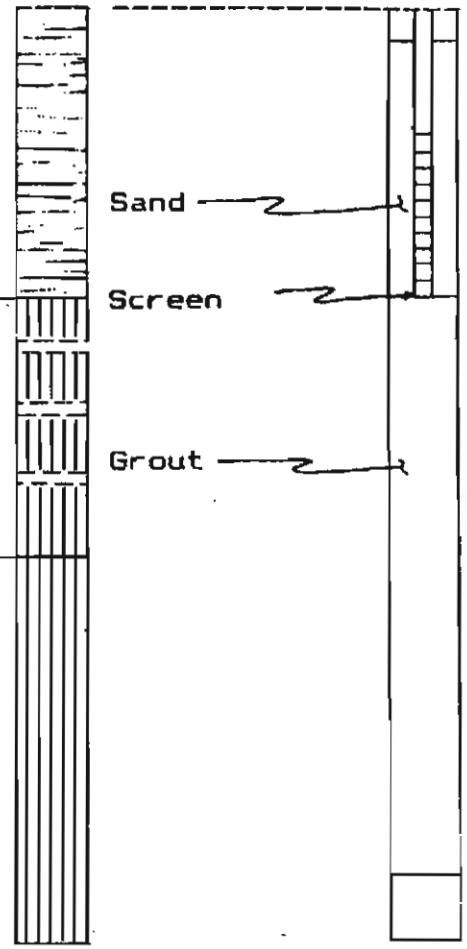
PROJECT NAME	:ALBANY LANDFILL	BORING NUMBER	:MW-2D
DATE	:3/19/87	PROJECT NO.	:0942-08-1
CONTRACTOR	:EMPIRE SOILS	LOCATION	:RAPP ROAD
DRILL. METHOD	:4 IN. FLUSH JOINT CASING	INSPECTOR	:SAMMONS
		SAMP. METHOD	:SPLIT SPOON
SURFACE ELEV.:	310.83	DATUM	:GROUND ELEV

SAMPLE No.	N-Value	Depth (ft.)	SOIL DESCRIPTION: Density, color, SOIL, admixtures moisture, other, CONTAMINATION	STR.	Well Construction
					Protective Steel Casing
1	11	0	Fine to medium brown SAND, moist		
2	20	5	As above, grading down to fine to medium grey SAND, moist		
3	0	10	Fine grey SAND & SILT, some organics and shell fragments		
4	20	15	Fine to medium brown SAND, trace silt, wet		Grout
5	14	20	As above		
6	10	25	As above		
7	7	30	Fine to medium grey-brown SAND, trace silt, wet		
8	16	35	As above		



BORING NUMBER :MW-2D

SAMPLE No.	N-Value	Depth (ft.)	SOIL DESCRIPTION: Density, color, SOIL, admixtures moisture, other notes, ORIGIN	STR.	Well Construction
19	5	85	Grey CLAY grading to grey SILT, some clay		
20	5		Grey SILT,some clay		
21	7		Grey CLAY,some silt		Sand
		90			
22	5		As above		
					Screen
23	6		Grey CLAY,thin silt layers		
24	3	95	As above		
25	7		As above		Grout
		100			
26	3		Stiff grey CLAY		
		105			
27	3		As above		
28	2	110	As above		
			112 Ft. Bottom of Hole		
		115			



BORING NO.: **P4 B-1**

TEST BORING LOG

CLIENT: City of Albany								SHEET 1 OF 5
DRILLING CONTRACTOR: Maxim Technologies Inc.								PROJECT NO.:
PURPOSE: Subsurface Investigation/Geophysical Survey								ELEVATION:
Groundwater					Casing	Sample	Core	DATUM:
Date	Time	Depth	Casing	Type	HAS/FJC	Split Spoon		DATE STARTED: 12/31/97
1/5/98	9:05A	8.60'	from HSA	Diameter	see notes	2"		DATE FINISHED: 1/6/98
				Weight		140lbs		DRILLER: C. Dinovo
				Fall		30"		INSPECTOR: J. Usher

Depth Ft. 300'	Casing Blows	Sample No.	Blows on Sample Spoon per 6"	Unified Classification	Graphic Log	IDENTIFICATION	REMARKS
		S-1	5, 6, 5, 3	11 SM P		Top .9': Dark brown f SAND, trace Silt Bottom .4': Brown f SAND, trace Silt	REC = 1.3' Moist 4.25" HSA driiling to 10 feet. 6"Flush Joint Casing driven to 15' for mud rotary drilling.
5		S-2	4, 7, 9, 9	16 SM P		Brownish gray f SAND	REC = 1.0' Moist
10		S-3	2, 1, 1, 1	2 SM P		Brownish gray f SAND, trace Silt.	REC = 1.0' Wet At 10' began mud rotary drilling w/ 4"API rods & 5.5" hollow drag bit. 6'Sand cleaned from casing: 9-15'.
15		S-4	6, 3, 2, 1	5 SM P		Brown m to f SAND, trace Silt	REC = 0.8' Saturated
				SM P		Brownish gray f to c, rounded SAND, trace Silt.	
20							

C.T. MALE ASSOCIATES, P.C.

C.T. MALE ASSOCIATES, P.C.

BORING NO.: **P4 B-1**

TEST BORING LOG

CLIENT: City of Albany

SHEET 2 OF 5

PROJECT NO.: 97.4583

Depth Ft.	Casing Blows	Sample No.	Blows on Sample Spoon per 6"	Unified Classification	Graphic Log	IDENTIFICATION	REMARKS
		S-5	6, 6, 6, 8	12 SM SP		Brownish gray f SAND, trace Silt.	REC = 1.6' Saturated
25							
		S-6	5, 4, 4, 3	8 SM SP		Brownish gray f SILTY SAND, trace Silt.	REC = 1.3' Saturated
30							
		S-7	3, 3, 5, 6	8 SM		Brownish gray f SAND, little Silt.	REC = 1.9' Saturated
35							
		S-8	8, 8, 10, 9	18 SM SP		Grayish brown f SAND, trace Silt.	REC = 1.0' Saturated
40						300	
		S-9	12, 10, 11, 11	21 SM SP		Brown f SAND, trace Silt.	REC = 1.8' Saturated 257'
				ML		Gray CLAYEY SILT, little Sand.	

MAC-139

C.T. MALE ASSOCIATES. P.C.

C.T. MALE ASSOCIATES, P.C.

BORING NO.: **P4 B-1**

TEST BORING LOG

CLIENT: City of Albany

SHEET 3 OF 5

PROJECT NO.: 97.4583

Depth Ft.	Casing Blows	Sample No.	Blows on Sample Spoon per 6"	Unified Classification	Graphic Log	IDENTIFICATION	REMARKS
45							254'
		S-10	22, 46, 66, 61	112 ~~ML~~ SM		Gray f SILTY SAND	REC = 1.1' Saturated No unusual drilling resistance noted.
50							
		S-11	16, 19, 19, 19	38 ~~ML~~ SM		Gray f SILTY SAND	REC = 1.4' Saturated
55							245
		S-12	9, 22, 22, 23	44 ~~ML~~		Gray SILT and f SAND, trace Clay.	REC = 1.1' Saturated
60							
		S-13	14, 15, 17, 17	32 ML		Gray SILT, some f Sand.	REC = 1.2' Saturated
65							
		S-14	10, 18	48 ML		Gray SILT, little f Sand	REC = 1.3' Saturated

C.T. MALE ASSOCIATES. P.C.

C.T. MALE ASSOCIATES, P.C.

BORING NO.: **P4 B-1**

TEST BORING LOG

CLIENT: City of Albany

SHEET 4 OF 5

PROJECT NO.: 97.4583

Depth Ft.	Casing Blows	Sample No.	Blows on Sample Spoon per 6"	Unified Classification	Graphic Log	IDENTIFICATION	REMARKS
		S-14	30 40			See sample identification on sheet 3.	
70							
		S-15	19 27 26 19	R ML		Gray SILT, little f Sand, trace Clay.	REC = 0.9' Saturated
75							
		S-16	25 40 37 65	R ML		Similar to S-15	REC = 1.3' Saturated
80							
		S-17	19 21 21 27	42 ML		Similar to S-15	REC = 1.0' Saturated
85							
		S-18	19 13 12 10	25		NO SAMPLE OBTAINED. CLAY NOTED ON BOTTOM OF SPOON.	REC = 0
90							

C.T. MALE ASSOCIATES, P.C.

C.T. MALE ASSOCIATES, P.C.

BORING NO.: **P4 B-1**

TEST BORING LOG

CLIENT: City of Albany

SHEET 5 OF 5

PROJECT NO.: 97.4583

Depth Ft.	Casing Blows	Sample No.	Blows on Sample Spoon per 6"	Unified Classification	Graphic Log	IDENTIFICATION	REMARKS
		S-19	3, 4, 5, 7	9 ML-CL		Gray, medium plasticity CLAY and SILT, trace f Sand.	208' REC = 2.0' Saturated
95							
		S-20	2, 6, 12, 11	18 ML-CL	S-20A	Gray SILTY CLAY w/ <1/16" tan Silt varves	REC = 2.0' Saturated
					S-20B	Grayish brown CLAY and SILT w/ <1/16" tan Silt varves	
100							
		S-21	5, 5, 8, 7	13 ML-CL		Gray SILTY, high plasticity CLAY with intermittent varving of brown SILT, varving as frequent as every 3/4" (varving thickness is <1/16")	REC = 2.0' Saturated
105							
		S-22	4, 4, 6, 6	10 ML-CL		Gray SILTY CLAY, no significant varving.	REC = 2.0' Saturated
110						TOTAL DEPTH OF BORING = 112.5'	
115		SHELBY TUBE SAMPLE		CL		SHELBY TUBE OBTAINED FROM 112.5' TO 115'	185'

Boring completed with 4" Flush Joint PVC Casing (cap on bottom) installed to 111.5'. Grouted in place with bentonite/ portland cement slurry injected by tremie method at depth of 55'. Grout may not have reached bottom of boring - drilling mud/ water may be present below 55'.

k:/97.4583/env/B1log.xls

(MW-8D)

TEST BORING LOG

N T: City of Albany AIL Expansion		SHEET 1 OF	4
DRILLING CONTRACTOR: SJB Services, Inc.		PROJECT NO.:	95.6748
PURPOSE: MW Cluster Installation		ELEVATION:	308.60 ft. from grade
		DATUM:	311.28 ft. from top of PVC
		DATE STARTED:	12/16/96
		DATE FINISHED:	12/18/96
		DRILLER:	Mike Lenigan
		INSPECTOR:	Chris Thatcher

Groundwater					Casing	Sample	Core
Date	Time	Depth	Casing	Type	HSA	Split Spoon	2" —
12/16/96	2:04 PM	13.5	From Grade	Diameter	4 1/4" ID	3 15/16" Tri Core	
12/17/96	7:15 AM	13.8	From Grade	Weight	140 lbs	Rotarbit used	
12/19/96	10:00 AM	12.7	From Grade			to clear augers	
12/24/96	8:50 AM	14.3	T/O PVC	Fall	30"		

Depth Ft.	Casing Blows	Sample No.	Blows on Sample Spoon per 6"	Unified Classification	Graphic Log	IDENTIFICATION	REMARKS
		S-1	3 3 3 2	Fill		Clean asphalt fill material.	REC = 0.7' Moist Clean fill placed at boring location for drilling access.
		S-2	8 8 5 4	SM		Top 0.2' fill material. Bottom 1.0' Brown, fine, rounded SAND.	REC = 1.2' Moist-Dry
5		S-3	2 3 3 3	SM		Brown fine SAND, trace Silt.	REC = 1.8' Dry-Moist
		S-4	6 5 4 4	SM		Similar to S-3.	REC = 1.8' Moist
10		S-5	2 4 4 4	SM		Similar to S-3.	REC = 1.10' Moist
		S-6	2 2 2 3	SM		Top 0.25 similar to S-3. 10.5' -11.5': Gray SAND, trace Silt. 11.5'-12.0': Brown SILT, trace f Sand.	REC = 1.5' Moist-Wet
		S-7	2 2 2 1	SM		Brown fine SAND, some Silt.	REC = 2.0' Wet
15		S-8	1 1 1 1	SM		Similar to S-7.	REC = 1.1' Wet
		S-9	1 1 1 1	SM		Brown very fine to fine Sand, trace silt, some gray sand.	REC = 0.65' Wet
		S-10	1 1 1 2	SM		Top 1.0' Brown very fine to medium SAND, trace silt. Bottom .7' Gray fine to medium SAND.	Advanced augers to ~18'. Water put into augers to create head. REC = 1.7' Wet
20							

BORING NO.: B-8D
(MW-8D)

TEST BORING LOG

ENT: City of Albany AIL Expansion

SHEET 2 OF 4
PROJECT NO.: 95.6748

Depth Ft.	Casing Blows	Sample No.	Blows on Sample Spoon per 6"	Unified Classification	Graphic Log	IDENTIFICATION	REMARKS
		S-11	1, 1, 1, 1	SM		Brown fine to medium SAND, trace Silt some gray SAND.	REC = 1.3' Wet Sand in 1'
		S-12	1, 1, 2, 2	SM		Top 1.0' Brown fine to medium SAND, trace Silt. Bottom 11' Gray fine to medium SAND, trace silt.	REC = 2.0' Wet
25		S-13	1, 2, 2, 3	SM		Grayish Brown fine to medium SAND, trace silt.	REC = 1.8' Moist-Wet
		S-14	2, 2, 2, 7	SM		Similar to S-13.	REC = 1.8' Spoon over full Sand in augers.
		S-15	2, 3, 2, 3	SM		Similar to S-13.	REC = 1.5' Moist-Wet
		S-16	2, 3, 3, 3	SM		Similar to S-13.	REC = 1.6' Wet
		S-17	5, 2, 2, 2	SM		Similar to S-13.	REC = 2.0' Wet
35		S-18	8, 11, 12, 17	SM		Similar to S-13.	Augers advanced to 35 feet. 3 feet of sand came back into the hole. REC = 2.0' Wet
		S-19	8, 9, 10, 12	SM		Similar to S-13.	REC = 2.0' Wet
40		S-20	3, 3, 4, 4	SM		Grayish brown fine to coarse SAND, little Silt, with some silt at bottom of spoon.	~100 gallons of water used this far to keep sands from heaving REC = 2.0' Moist
		S-21	8, 12, 16, 16	SM		Grayish brown fine to coarse SAND. Some Silt.	~2' of sand in augers. REC = 1.6' Wet Overfull Spoon 13' of sand in augers. Augered to 45' used roller bit to clean sand out of annulus.

AAC-139

CT/sg 1/23/97

.T. MALE ASSOCIATES, P.C.

BORING NO.: B-8D
(MW-8D)

TEST BORING LOG

NT:	City of Albany AIL Expansion	SHEET 3 OF	4
		PROJECT NO.:	95.6748

Depth ft.	Casing Blows	Sample No.	Blows on Sample Spoon per 6"	Unified Classi-fication	Graphic Log	IDENTIFICATION	REMARKS
45		S-22	3 5 7 7	ML - SM		Gray silty fine to medium SAND.	REC = 1.1' Wet
		S-23	5 7 8 8	ML - SM		Gray silty fine to medium SAND.	REC = 2.0' Wet Auger to 50' 4' sand inside augers. Rollerbit to wash out prior to sampling.
50							
		S-24	5 8 14 19	ML		Gray SILT, little Sand, trace clay.	REC = 2.0' Wet
		S-25	7 7 11 19	ML		Gray SILT and fine to medium Sand.	REC = 0.6' Moist ~5' of sand in augers Auger to 60' Rollerbit to wash out augers.
60							
		S-26	7 1 3 3	ML		Gray sandy SILT (very fine to fine sand), trace Clay.	REC = 2.0' Moist
		S-27	4 7 14 18	ML		Similar to S-26.	REC = 2.0' Moist Auger to 65' Rollerbit to 65'.
65				ML		Similar to S-26.	REC = 1.5' Moist
		S-28	3 3 5 5	ML		Similar to S-26.	REC = 2.0' Moist
		S-29	4 5 7 10				

(MW-8D)

TEST BORING LOG

ENT: City of Albany AIL Expansion

SHEET 4 OF 4

PROJECT NO.: 95.6748

Depth Ft.	Casing Blows	Sample No.	Blows on Sample Spoon per 6"	Unified Classification	Graphic Log	IDENTIFICATION	REMARKS
70		S-30	2	ML		Gray SILT, little very fine to fine Sand.	REC = 1.0' Moist
			6				
			12				
			12				
		S-31	12	ML		Similar to S-30.	REC = 0.5' Moist
			12				
			16				
			19				
75							Advanced augers to 75' cleaning out ~5' of sands w/rollerbit. No return water ~100 gallons water loss.
		S-32	4	ML		Gray SILT, little very fine to fine Sand, trace Clay.	REC = 1.2' Wet ~5' of sand in augers. Auger to 80' Wash out with 3 15/16" roller bit. ~100 gallons water loss.
			3				
			5				
			9				
		S-33	Wt of Rods	ML		Gray SILT, little Clay.	REC = 1.0' Wet
			Wt of Rods				
			3				
			6				
		S-34	5	ML		Gray clayey SILT.	REC = 0.7' Wet Auger to 85'
			7				
			8				
			12				
85							
		S-35	4	ML		All wash sand - not representative of formation.	REC = 0 All wash Sand in spoon.
			3				
			4				
			6				
		S-36	10	ML		Gray clayey SILT.	REC = 0.4' Wet Wash sand above actual sand. Auger to 90'.
			12				
			12				
			19				
90							
		S-37	WOR	ML-CL		Gray silty CLAY 3" spoon used.	~15' of material in augers. Washing out with rollerbit. REC = 0.7' Wet
			WOR				
			5				
			5				
		S-3	WOR	CL		Gray varved CLAY of high plasticity with gray silt seams.	REC = 1.3' Wet 2" Spoon
			WOR				
			WOR				
			WOR				

TOTAL DEPTH OF BORING = 94'

C.T. MALE ASSOCIATES, P.C.

SUBSURFACE EXPLORATION LOG

BORING NO.: B-9D
ELEV.: 300.0' DATUM: MSL
START DATE: 6/24/98 FINISH DATE:7/1/98
SHEET 1 OF 4

PROJECT: P 4 Project CTM PROJECT NO.: 97.4583
LOCATION: Albany Interim Landfill CTM INSPECTOR: J. Cross

DEPTH (FT.)	SAMPLE TYPE	SAMPLE NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	18/24	N	RECOVERY	SAMPLE CLASSIFICATION	NOTES
		S-1	2	5	9	15	14	1.5	Top(0.0-1.0') Brown fine SAND, trace silt. Bottom(1.0-2.0') Light orange-brown fine SAND, trace silt.	Moist
		S-2	15	18	33	35	51	1.4	Light orange-brown fine SAND, trace silt. (SM)	Moist
5		S-3	13	19	12	11	31	1.5	Same as S-2. (SM)	Moist
		S-4	11	12	11	10	23	1.7	Same as S-2. (SM)	Moist
		S-5	2	4	5	5	9	1.5	Light brown fine SAND, trace silt. (SM)	Wet
10		S-6	3	4	3	4	7	1.2	Same as S-5. (SM)	Wet
		S-7	4	3	3	3	6	2.0	Light brown fine SAND, Some Silt. (SM)	Wet
15		S-8	2	1	0	1	1	1.8	Top(0.0-1.0') Gray fine SAND, trace silt. Bottom(1.0-1.8') Light brown fine SAND, trace silt.	Wet 50 gal. of water added w/ hose.
		S-9	0	2	2	2	4	2.0	Top(0.0-1.0') Light brown fine SAND, Some Silt. Bottom(1.0-2.0') Gray fine SAND, Some Silt.	Wet
20		S-10	2	2	1	1	3	2.0	Gray fine SAND, trace silt. (SM)	Wet
		S-11	0	2	1	2	3	2.0	Same as S-10. (SM)	Wet
		S-12	1	2	2	2	4	2.0	Same as S-10. (SM)	Wet 50 gal. of water added w/ hose.
25		S-13	1	0	0	1	0	2.0	Same as S-10. (SM)	Wet
		S-14	6	4	4	3	8	2.0	Same as S-10. (SM)	Wet
30		S-15	6	3	2	1	5	0.6	Same as S-10. (SM)	Wet

N = NO. OF BLOWS TO DRIVE 2" SAMPLER 12" WITH A 140 LB. WT. FALLING 30" PER BLOW
DRILLING CONTRACTOR: Maxim Technologies, Inc. DRILL RIG TYPE: Truck Mounted Drill Rig
METHOD OF INVESTIGATION: 4.25" Hollow Stem Augers

GROUNDWATER LEVEL READINGS

DATE	LEVEL	CASING	STABILIZATION TIME
6/25	6.5	HSA	
6/29	9.1	HSA	

THE SUBSURFACE INFORMATION SHOWN HEREON WAS OBTAINED FOR C.T. MALE DESIGN PURPOSES. IT IS MADE AVAILABLE TO AUTHORIZED USERS ONLY THAT THEY MAY HAVE ACCESS TO THE SAME INFORMATION AVAILABLE TO C.T.MALE. IT IS PRESENTED IN GOOD FAITH, BUT IS NOT INTENDED AS A SUBSTITUTE FOR INVESTIGATIONS, INTERPRETATION OR JUDGMENT OF SUCH AUTHORIZED USERS.

SAMPLE CLASSIFICATION BY: JC

C.T. MALE ASSOCIATES, P.C.

SUBSURFACE EXPLORATION LOG

BORING NO.: B-9D
ELEV.: 300.0' **DATUM: MSL**
START DATE: 6/24/98 **FINISH DATE:7/1/98**
SHEET 2 OF 4

PROJECT: P 4 Project CTM PROJECT NO.: 97.4583

LOCATION: Albany Interim Landfill CTM INSPECTOR: J. Cross

DEPTH (FT.)	SAMPLE TYPE	SAMPLE NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	18/24	N	RECOVERY	SAMPLE CLASSIFICATION	NOTES
		S-16	5	2	3	3	5	1.4	Brown fine SAND, trace silt. (SM)	Wet
		S-17	12	8	4	4	12	0.7	Same as S-10. (SM)	Wet
35		S-18	6	9	16	20	25	2.0	Gray CLAYEY-SILT, trace fine sand. (ML)	Wet
		S-19	2	1	3	2	4	1.4	Same as S-18. (ML)	Wet
		S-20	6	9	9	21	18	2.0	Gray fine SAND, trace silt. (ML)	Wet
40									Bottom (0.2') Same as S-18.	
										Driller advanced auger without taking sample.
										Driller advanced auger without taking sample.
45		S-21	12	12	13	16	25	2.0	Gray SILT, trace fine sand, trace clay. (ML)	Wet
		S-22	6	7	12	14	19	1.7	Gray fine SAND, trace silt. (SM)	Wet
		S-23	5	6	7	6	13	1.7	Same as S-22. (SM)	Wet
50		S-24	1	2	1	1	3	0.6	Gray fine to medium SAND, trace silt.(SM)	Wet/ 100 gal. used to wash out casing with tri-cone.
		S-25	6	13	15	22	28	2.0	Same as S-22. (SM)	Wet/ 50 gal. used to wash out casing with tri-cone.
55		S-26	9	9	11	14	20	1.7	Gray fine SAND, trace to little silt. (SM)	Wet/ 100 gal. used to wash out casing with tri-cone.
		S-27	6	6	5	9	11	2.0	Gray SILT, trace fine sand, trace clay, lens of clay. (SM-ML)	Wet
60		S-28	6	5	6	8	11	2.0	Gray fine SAND, trace to little silt. (SM)	Wet

N = NO. OF BLOWS TO DRIVE 2" SAMPLER 12" WITH A 140 LB. WT. FALLING 30" PER BLOW
DRILLING CONTRACTOR: Maxim Technologies, Inc. DRILL RIG TYPE: Truck Mounted Drill Rig
METHOD OF INVESTIGATION: 4.25" Hollow Stem Augers

GROUNDWATER LEVEL READINGS

DATE	LEVEL	CASING	STABILIZATION TIME

THE SUBSURFACE INFORMATION SHOWN HEREON WAS OBTAINED FOR C.T. MALE DESIGN PURPOSES. IT IS MADE AVAILABLE TO AUTHORIZED USERS ONLY THAT THEY MAY HAVE ACCESS TO THE SAME INFORMATION AVAILABLE TO C.T.MALE. IT IS PRESENTED IN GOOD FAITH, BUT IS NOT INTENDED AS A SUBSTITUTE FOR INVESTIGATIONS, INTERPRETATION OR JUDGMENT OF SUCH AUTHORIZED USERS.

SAMPLE CLASSIFICATION BY: JC

C.T. MALE ASSOCIATES, P.C.

SUBSURFACE EXPLORATION LOG

BORING NO.: B-9D
ELEV.: 300.0' **DATUM: MSL**
START DATE: 6/24/98 **FINISH DATE:7/1/98**
SHEET 3 OF 4

PROJECT: P 4 Project CTM PROJECT NO.: 97.4583

LOCATION: Albany Interim Landfill CTM INSPECTOR: J. Cross

DEPTH (FT.)	SAMPLE TYPE	SAMPLE NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	18/24	N	RECOVERY	SAMPLE CLASSIFICATION	NOTES
		S-29	1	2	1	7	3	1.6	Same as S-22. (SM)	Wet
		S-30	9	11	12	13	23	2.0	Gray SILT, Some fine Sand. (SM-ML)	Wet
65		S-31	2	2	3	4	5	2.0	Gray CLAYEY-SILT, trace fine sand. (ML)	Wet
		S-32	4	6	3	5	9	2.0	Gray SILT, trace fine sand. (ML)	Wet
70		S-33	2	3	2	3	5	2.0	Top(0.0-1.4') Same as S-31. (ML) Bottom(1.4-2.0') Gray SILTY-CLAY.	Wet
		S-34	1	2	4	5	6	2.0	Gray SILTY-CLAY. (ML-CL)	Wet
		S-35	4	4	5	5	9	2.0	Gray SILTY-CLAY, gray clayey-silt varves. (ML-CL)	Wet
75		S-36	7	7	9	9	16	2.0	Gray SILTY-CLAY, gray clayey-silt varves, trace fine sand. (ML-CL)	Wet
		S-37	4	4	7	5	11	2.0	Gray silt, trace fine sand. (ML)	Wet
80		S-38	7	7	10	13	17	2.0	Same as S-37. (ML)	Wet
		S-39	4	3	4	7	7	1.6	Same as S-37. (ML)	Wet
		S-40	7	7	8	9	15	2.0	Same as S-37. (ML)	Wet
85		S-41	9	10	10	20	20	2.0	Same as S-37. (ML)	Wet
		S-42	11	15	27	33	41	2.0	Gray SILT, trace fine sand, trace clay.(ML)	Wet
90		S-43	5	8	10	9	18	1.9	Same as S-42. (ML)	Wet

N = NO. OF BLOWS TO DRIVE 2" SAMPLER 12" WITH A 140 LB. WT. FALLING 30" PER BLOW
DRILLING CONTRACTOR: Maxim Technologies, Inc. DRILL RIG TYPE: Truck Mounted Drill Rig
METHOD OF INVESTIGATION: 4.25" Hollow Stem Augers

GROUNDWATER LEVEL READINGS

DATE	LEVEL	CASING	STABILIZATION TIME

THE SUBSURFACE INFORMATION SHOWN HEREON WAS OBTAINED FOR C.T. MALE DESIGN PURPOSES. IT IS MADE AVAILABLE TO AUTHORIZED USERS ONLY THAT THEY MAY HAVE ACCESS TO THE SAME INFORMATION AVAILABLE TO C.T.MALE. IT IS PRESENTED IN GOOD FAITH, BUT IS NOT INTENDED AS A SUBSTITUTE FOR INVESTIGATIONS, INTERPRETATION OR JUDGMENT OF SUCH AUTHORIZED USERS.

SAMPLE CLASSIFICATION BY: JC

C.T. MALE ASSOCIATES, P.C.

SUBSURFACE EXPLORATION LOG

BORING NO.: B-9D
ELEV.: 300.0' DATUM: MSL
START DATE: 6/24/98 FINISH DATE:7/1/98
SHEET 4 OF 4

PROJECT: P 4 Project CTM PROJECT NO.: 97.4583
LOCATION: Albany Interim Landfill CTM INSPECTOR: J. Cross

DEPTH (FT.)	SAMPLE TYPE	SAMPLE NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	18/24	N	RECOVERY	SAMPLE CLASSIFICATION	NOTES
		S-44	3	3	5	9	8	2.0	Gray SILTY-CLAY, clayey-silt varves (ML-CL)	Wet
		S-45	10	5	8	6	13	2.0	Same as S-44. (ML-CL)	Wet
95		S-46	3	3	5	7	8	2.0	Same as S-44. (ML-CL)	Wet
		S-47	7	7	7	8	14	2.0	Gray SILTY- CLAY, clayey-silt varves, trace fine sand. (ML-CL)	Wet
100									T.D.= 98.0'	

N = NO. OF BLOWS TO DRIVE 2" SAMPLER 12" WITH A 140 LB. WT. FALLING 30" PER BLOW
DRILLING CONTRACTOR: Maxim Technologies, Inc. DRILL RIG TYPE: Truck Mounted Drill Rig
METHOD OF INVESTIGATION: 4.25" Hollow Stem Augers

GROUNDWATER LEVEL READINGS

DATE	LEVEL	CASING	STABILIZATION TIME

THE SUBSURFACE INFORMATION SHOWN HEREON WAS OBTAINED FOR C.T. MALE DESIGN PURPOSES. IT IS MADE AVAILABLE TO AUTHORIZED USERS ONLY THAT THEY MAY HAVE ACCESS TO THE SAME INFORMATION AVAILABLE TO C.T.MALE. IT IS PRESENTED IN GOOD FAITH, BUT IS NOT INTENDED AS A SUBSTITUTE FOR INVESTIGATIONS, INTERPRETATION OR JUDGMENT OF SUCH AUTHORIZED USERS.

SAMPLE CLASSIFICATION BY: JC

C.T. MALE ASSOCIATES, P.C.

SUBSURFACE EXPLORATION LOG

BORING NO.: B-10D
ELEV.: 309.7' DATUM: MSL
START DATE: 7/7/98 FINISH DATE: 7/10/98
SHEET 1 OF 4

PROJECT: P 4 Project CTM PROJECT NO.: 97.4583
LOCATION: Albany Interim Landfill CTM INSPECTOR: J. Cross

DEPTH (FT.)	SAMPLE TYPE	NO.	0/6	6/12	12/18	18/24	N	RECOVERY	SAMPLE CLASSIFICATION	NOTES
		S-1	4	6	7	10	13	1.6	Top(0.0-0.6') Fill material. Bottom(0.6-1.6') Light brown fine SAND.	Dry
		S-2	13	14	15	20	29	1.4	Light brown fine SAND, trace silt. (SM)	Dry
5		S-3	8	10	21	19	31	1.2	Same as S-2. (SM)	Dry
		S-4	30	30	33	33	63	1.9	Same as S-2. (SM)	Dry
		S-5	6	12	44	38	56	1.6	Same as S-2. (SM) Road Embankment Sand Fill	Dry
10		S-6	71	63	51	59	114	1.8	Light brown fine SAND, trace silt. (SM)	Dry
		S-7	4	9	13	13	22	1.1	Same as S-6. (SM)	Dry
15		S-8	4	5	8	9	13	1.0	Same as S-6. (SM)	Dry
		S-9	8	8	9	8	17	1.5	Same as S-6. (SM)	Dry
		S-10	6	6	7	7	13	1.1	Same as S-6. (SM)	Moist
20		S-11	7	8	8	7	16	1.6	Same as S-6. (SM)	Wet
		S-12	2	3	4	5	7	1.6	Top(0.0-0.6') Light orange brown fine SAND. Bottom(0.6-1.6') Same as S-6.	Wet
25		S-13	1	2	2	4	4	1.8	Brown fine to medium SAND, trace silt. (SM)	Wet
		S-14	1	2	4	4	6	2.0	Same as S-13. (SM)	Wet
30		S-15	6	2	3	4	5	2.0	Top(0.0-0.6') Light brown SILT, trace fine sand. Bottom(0.6-2.0') Same as S-13.	Wet

310'

FILL

SP

290'

N = NO. OF BLOWS TO DRIVE 2" SAMPLER 12" WITH A 140 LB. WT. FALLING 30" PER BLOW
DRILLING CONTRACTOR: Maxim Technologies, Inc. DRILL RIG TYPE: Truck Mounted Drill Rig
METHOD OF INVESTIGATION: 4.25' Hollow Stem Augers

GROUNDWATER LEVEL READINGS

DATE	LEVEL	CASING	STABILIZATION TIME
7/8	21.3'	HSA	
7/9	21.0'	HSA	
7/10	21.9'	HSA	

THE SUBSURFACE INFORMATION SHOWN HEREON WAS OBTAINED FOR C.T. MALE DESIGN PURPOSES. IT IS MADE AVAILABLE TO AUTHORIZED USERS ONLY THAT THEY MAY HAVE ACCESS TO THE SAME INFORMATION AVAILABLE TO C.T.MALE. IT IS PRESENTED IN GOOD FAITH, BUT IS NOT INTENDED AS A SUBSTITUTE FOR INVESTIGATIONS, INTERPRETATION OR JUDGMENT OF SUCH AUTHORIZED USERS.

SAMPLE CLASSIFICATION BY: JC

C.T. MALE ASSOCIATES, P.C.

SUBSURFACE EXPLORATION LOG

BORING NO.: B-10D
ELEV.: 309.7' DATUM: MSL
START DATE: 7/7/98 FINISH DATE: 7/10/98
SHEET 2 OF 4

PROJECT: P 4 Project CTM PROJECT NO.: 97.4583
LOCATION: Albany Interim Landfill CTM INSPECTOR: J. Cross

DEPTH (FT.)	SAMPLE TYPE	SAMPLE NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	18/24	N	RECOVERY	SAMPLE CLASSIFICATION	NOTES
		S-16	5	8	8	8	16	1.9	Gray fine SAND, trace silt. (SM)	Wet SP Tri-cone, 50 gal. water added.
		S-17	6	9	13	18	22	1.7	Gray fine to medium SAND, trace silt.(SM)	Wet
35		S-18	6	6	12	13	18	1.5	Gray fine SAND, Some Silt. (SM)	Wet 276
		S-19	4	6	11	13	17	1.1	Same as S-18. (SM)	Wet
		S-20	3	6	7	6	13	1.3	Same as S-18. (SM)	Wet
40										
		S-21	1	2	6	5	8	1.4	Same as S-18. (SM)	Wet
		S-22	8	4	5	8	9	1.7	Top(0.0-0.7') Same as S-18. Bottom(0.7-1.7') Brown fine SAND, trace silt.	Wet
45		S-23	8	5	4	13	9	1.5	Brown fine SAND, Some Silt. (SM)	Wet
		S-24	9	11	15	21	26	2.0	Same as S-23. (SM)	Wet SM
		S-25	12	12	15	15	27	2.0	Same as S-23. (SM)	Wet
50										
		S-26	11	13	12	13	25	1.7	Same as S-23. (SM)	Wet
		S-27	17	10	15	18	25	1.3	Brown-Gray fine SAND, Some Silt (SM.	Wet
55		S-28	6	7	10	14	17	1.1	Same as S-27. (SM)	Wet
		S-29	13	8	9	14	17	1.4	Same as S-27. (SM)	Wet
		S-30	12	10	13	18	23	1.2	Gray fine SAND, Some Silt. (SM)	Wet
60										

310
34
276

N = NO. OF BLOWS TO DRIVE 2" SAMPLER 12" WITH A 140 LB. WT. FALLING 30" PER BLOW
DRILLING CONTRACTOR: Maxim Technologies, Inc. DRILL RIG TYPE: Truck Mounted Drill Rig
METHOD OF INVESTIGATION: 4.25' Hollow Stem Augers

GROUNDWATER LEVEL READINGS

DATE	LEVEL	CASING	STABILIZATION TIME

THE SUBSURFACE INFORMATION SHOWN HEREON WAS OBTAINED FOR C.T. MALE DESIGN PURPOSES. IT IS MADE AVAILABLE TO AUTHORIZED USERS ONLY THAT THEY MAY HAVE ACCESS TO THE SAME INFORMATION AVAILABLE TO C.T.MALE. IT IS PRESENTED IN GOOD FAITH, BUT IS NOT INTENDED AS A SUBSTITUTE FOR INVESTIGATIONS, INTERPRETATION OR JUDGMENT OF SUCH AUTHORIZED USERS.

SAMPLE CLASSIFICATION BY: JC

C.T. MALE ASSOCIATES, P.C.

SUBSURFACE EXPLORATION LOG

BORING NO.: B-10D
ELEV.: 309.7' DATUM: MSL
START DATE: 7/7/98 FINISH DATE: 7/10/98
SHEET 3 OF 4

PROJECT: P 4 Project CTM PROJECT NO.: 97.4583
LOCATION: Albany Interim Landfill CTM INSPECTOR: J. Cross

DEPTH (FT.)	SAMPLE TYPE	SAMPLE NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	18/24	N	RECOVERY	SAMPLE CLASSIFICATION	NOTES
		S-31	13	25	29	40	54	1.7	Gray fine SAND, Some Silt. (SM)	Wet
		S-32	6	22	39	52	61	1.4	Same as S-31. (SM)	Wet
65		S-33	6	1	2	18	3	1.8	Same as S-31, lens of clay(0.1'). (SM)	Wet SM
		S-34	15	30	17	25	47	1.6	Same as S-31. (SM)	Wet
		S-35	19	21	11	22	32	2.0	Top(0.0-1.6') Gray fine SAND, trace silt.	Wet 241'
70									Bottom(1.6-2.0') Gray SILT, Some fine Sand.	
		S-36	2	3	5	7	8	1.5	Gray SILT, Some fine Sand. (SM-ML)	Wet
		S-37	8	8	7	9	15	1.8	Gray SILT, trace fine sand. (ML)	Wet
75		S-38	15	9	12	13	21	2.0	Same as S-37. (ML)	Wet ML
		S-39	9	6	7	6	13	1.6	Gray SILT, trace fine sand, trace clay.(ML)	Wet
		S-40	8	4	2	4	6	2.0	Gray SILTY-CLAY, silt varves with trace fine sand. (ML-CL)	Wet 232'
80		S-41	3	2	3	5	5	1.5	Same as S-40. (ML-CL)	Wet
		S-42	1	3	4	6	7	2.0	Same as S-40. (ML-CL)	Wet CL
85		S-43	2	4	5	10	9	2.0	Top(0.0-1.0') Same as S-40.	Wet
									Bottom(1.0-2.0') Gray CLAYEY-SILT, trace fine sand.	224'
		S-44	3	5	5	6	10	2.0	Gray CLAYEY-SILT, trace fine sand. (ML)	Wet
90		S-45	12	14	14	11	28	2.0	Gray CLAYEY-SILT. (ML)	Wet ML

310
69
241

310
78
232

310
86
224

N = NO. OF BLOWS TO DRIVE 2" SAMPLER 12" WITH A 140 LB. WT. FALLING 30" PER BLOW
DRILLING CONTRACTOR: Maxim Technologies, Inc. DRILL RIG TYPE: Truck Mounted Drill Rig
METHOD OF INVESTIGATION: 4.25' Hollow Stem Augers

GROUNDWATER LEVEL READINGS

DATE	LEVEL	CASING	STABILIZATION TIME

THE SUBSURFACE INFORMATION SHOWN HEREON WAS OBTAINED FOR C.T. MALE DESIGN PURPOSES. IT IS MADE AVAILABLE TO AUTHORIZED USERS ONLY THAT THEY MAY HAVE ACCESS TO THE SAME INFORMATION AVAILABLE TO C.T.MALE. IT IS PRESENTED IN GOOD FAITH, BUT IS NOT INTENDED AS A SUBSTITUTE FOR INVESTIGATIONS, INTERPRETATION OR JUDGMENT OF SUCH AUTHORIZED USERS

SAMPLE CLASSIFICATION BY: JC

C.T. MALE ASSOCIATES, P.C.

SUBSURFACE EXPLORATION LOG

BORING NO.: B-10D
ELEV.: 309.7' DATUM: MSL
START DATE: 7/7/98 FINISH DATE: 7/10/98
SHEET 4 OF 4

PROJECT: P 4 Project CTM PROJECT NO.: 97.4583
LOCATION: Albany Interim Landfill CTM INSPECTOR: J. Cross

DEPTH (FT.)	SAMPLE TYPE	SAMPLE NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	18/24	N	RECOVERY	SAMPLE CLASSIFICATION	NOTES
		S-46	18	10	12	14	22	2.0	Gray CLAYEY-SILT. (ML)	Wet
		S-47	9	18	33	45	51	2.0	Same as S-46. (ML)	Wet (ML)
95		S-48	10	27	40	37	67	2.0	Same as S-46. (ML)	Wet
		S-49	-	9	13	16	22	2.0	Top(0.0-0.9') Same as S-46.	Wet 213'
									Bottom(0.9-2.0') Gray SILTY-CLAY,silty to fine sand layers.	
		S-50	6	3	3	4	6	2.0	Top(0.0-1.5') Gray SILTY-CLAY,silty to fine sand layers.	Wet
100									Bottom(1.5-2.0) Gray SILTY-CLAY, Some fine Gravel.	
		S-51	3	4	7	8	11	1.8	Gray SILTY-CLAY, silty to fine sand layers. (ML-CL)	Wet 208'
									T.D.= 102.0'	

310
99
21-

N = NO. OF BLOWS TO DRIVE 2" SAMPLER 12" WITH A 140 LB. WT. FALLING 30" PER BLOW
DRILLING CONTRACTOR: Maxim Technologies, Inc. DRILL RIG TYPE: Truck Mounted Drill Rig
METHOD OF INVESTIGATION: 4.25' Hollow Stem Augers

GROUNDWATER LEVEL READINGS

DATE	LEVEL	CASING	STABILIZATION TIME

THE SUBSURFACE INFORMATION SHOWN HEREON WAS OBTAINED FOR C.T. MALE DESIGN PURPOSES. IT IS MADE AVAILABLE TO AUTHORIZED USERS ONLY THAT THEY MAY HAVE ACCESS TO THE SAME INFORMATION AVAILABLE TO C.T.MALE. IT IS PRESENTED IN GOOD FAITH, BUT IS NOT INTENDED AS A SUBSTITUTE FOR INVESTIGATIONS, INTERPRETATION OR JUDGMENT OF SUCH AUTHORIZED USERS.

SAMPLE CLASSIFICATION BY: JC

C.T. MALE ASSOCIATES, P.C.

SUBSURFACE EXPLORATION LOG

BORING NO.: B-11D
ELEV.: 304.9 DATUM: MSL
START DATE: 7/16/98 FINISH DATE: 7/20/98
SHEET 1 OF 4

PROJECT: P 4 Project CTM PROJECT NO.: 97.4583
LOCATION: Albany Interim Landfill CTM INSPECTOR: J. Cross

DEPTH (FT.)	SAMPLE TYPE	SAMPLE NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	18/24	N	RECOVERY	SAMPLE CLASSIFICATION	NOTES
		S-1	1	2	2	3	4	1.2	Light brown fine SAND, trace silt. (SM)	Dry
		S-2	5	6	6	6	12	1.3	Same as S-1. (SM)	Dry
5		S-3	6	4	6	8	10	1.3	Same as S-1. (SM)	Dry
		S-4	7	7	10	9	17	1.7	Same as S-1. (SM)	Dry
10		S-5	4	7	8	9	15	1.5	Light orange-brown fine SAND, trace silt. (SM)	Dry FILL 295'
		S-6	3	6	8	7	14	1.5	Light orange-brown fine SAND, Some Silt. (SM)	Moist
		S-7	6	5	6	8	11	2.0	Same as S-6. (SM)	Wet SM 291
15		S-8	2	1	1	1	2	1.8	Top(0.0-1.3') Light brown SILT, trace fine sand. Bottom(1.3-1.8') Gray SILT, trace fine sand, trace clay.	Wet
		S-9	2	1	3	3	4	1.7	Gray SILT, trace fine sand, trace clay. (SM-ML)	Wet
20		S-10	1	4	5	10	9	1.6	Gray fine SAND, trace silt. (SM)	Wet 287'
		S-11	7	5	7	8	12	2.0	Same as S-10. (SM)	Wet
		S-12	5	4	4	3	8	1.8	Same as S-10. (SM)	Wet 200 gal. water added w/ hose.
25		S-13	3	5	4	6	9	1.0	Same as S-10. (SM)	Wet
		S-14	2	5	6	6	11	1.1	Top(0.0-0.7') Same as S-10. Bottom(0.7-1.1') Light brown SILT, trace fine sand, trace clay.	Wet
30		S-15	6	5	6	6	11	1.8	Top(0.0-0.6') Light brown SILT, trace fine sand, trace clay. Bottom(0.6-1.8') Same as S-10.	Wet

N = NO. OF BLOWS TO DRIVE 2" SAMPLER 12" WITH A 140 LB. WT. FALLING 30" PER BLOW
DRILLING CONTRACTOR: Maxim Technologies, Inc. DRILL RIG TYPE: Truck Mounted Drill Rig
METHOD OF INVESTIGATION: 4.25' Hollow Stem Augers

GROUNDWATER LEVEL READINGS

DATE	LEVEL	CASING	STABILIZATION TIME
7/17	11.2'	HSA	
7/20	13.4'	HSA	

THE SUBSURFACE INFORMATION SHOWN HEREON WAS OBTAINED FOR C.T. MALE DESIGN PURPOSES. IT IS MADE AVAILABLE TO AUTHORIZED USERS ONLY THAT THEY MAY HAVE ACCESS TO THE SAME INFORMATION AVAILABLE TO C.T.MALE. IT IS PRESENTED IN GOOD FAITH, BUT IS NOT INTENDED AS A SUBSTITUTE FOR INVESTIGATIONS, INTERPRETATION OR JUDGMENT OF SUCH AUTHORIZED USERS.

SAMPLE CLASSIFICATION BY: JC

C.T. MALE ASSOCIATES, P.C.

SUBSURFACE EXPLORATION LOG

305 56 249

305 - 38 267

BORING NO.: B-11D
ELEV.: 304.9' **DATUM: MSL**
START DATE: 7/16/98 **FINISH DATE: 7/20/98**
SHEET 2 OF 4

PROJECT: P 4 Project — CTM PROJECT NO.: 97.4583

LOCATION: Albany Interim Landfill — CTM INSPECTOR: J. Cross

DEPTH (FT.)	SAMPLE TYPE	SAMPLE NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	18/24	N	RECOVERY	SAMPLE CLASSIFICATION	NOTES
		S-16	5	8	8	11	16	2.0	Gray SILT, trace fine sand. (ML-SM)	Wet
		S-17	3	5	8	10	13	2.0	Light brown fine SAND, trace silt. (SM)	Wet SP
35		S-18	7	6	5	9	11	2.0	Same as S-17. (SM)	Wet 200 gal. water added w/ hose.
		S-19	3	5	10	18	15	2.0	Same as S-17. (SM)	Wet
		S-20	8	11	11	12	22	1.2	Gray fine SAND, some Silt. (SM)	Wet 267' 200 gal. water added w/ hose.
40		S-21	3	5	5	5	10	1.3	Brown fine SAND, some Silt. (SM)	Wet
		S-22	11	7	7	10	14	1.5	Same as S-21. (SM)	Wet
45		S-23	13	9	10	16	19	1.7	Same as S-21. (SM)	Wet
		S-24	10	10	12	16	22	2.0	Same as S-21. (SM)	Wet
		S-25	7	9	14	20	23	2.0	Same as S-21. (SM)	Wet
50		S-26	6	7	13	13	20	1.6	Top(0.0-1.1') Same as S-21. Bottom(1.1-1.6') Gray fine SAND, Some Silt.	Wet
		S-27	4	6	10	13	16	1.3	Same as S-20. (SM)	Wet
55		S-28	6	9	14	19	23	1.4	Same as S-20. (SM)	Wet 249
		S-29	6	18	9	10	27	1.4	Gray SILT, Some fine Sand. (ML-SM)	Wet
60		S-30	2	4	6	6	10	1.5	Gray CLAYEY-SILT, trace fine sand. (ML)	Wet

N = NO. OF BLOWS TO DRIVE 2" SAMPLER 12" WITH A 140 LB. WT. FALLING 30" PER BLOW

DRILLING CONTRACTOR: Maxim Technologies, Inc. — DRILL RIG TYPE: Truck Mounted Drill Rig

METHOD OF INVESTIGATION: 4.25' Hollow Stem Augers

GROUNDWATER LEVEL READINGS

DATE	LEVEL	CASING	STABILIZATION TIME

THE SUBSURFACE INFORMATION SHOWN HEREON WAS OBTAINED FOR C.T. MALE DESIGN PURPOSES. IT IS MADE AVAILABLE TO AUTHORIZED USERS ONLY THAT THEY MAY HAVE ACCESS TO THE SAME INFORMATION AVAILABLE TO C.T.MALE. IT IS PRESENTED IN GOOD FAITH, BUT IS NOT INTENDED AS A SUBSTITUTE FOR INVESTIGATIONS, INTERPRETATION OR JUDGMENT OF SUCH AUTHORIZED USERS.

SAMPLE CLASSIFICATION BY: JC

C.T. MALE ASSOCIATES, P.C.

SUBSURFACE EXPLORATION LOG

BORING NO.: B-11D
ELEV.: 304.9' DATUM: MSL
START DATE: 7/7/98 FINISH DATE: 7/10/98
SHEET 3 OF 4

PROJECT: P 4 Project CTM PROJECT NO.: 97.4583
LOCATION: Albany Interim Landfill CTM INSPECTOR: J. Cross

305
70
235

DEPTH (FT.)	SAMPLE TYPE	SAMPLE NO.	BLOWS ON SAMPLER 6/12	12/18	18/24	N	RECOVERY	SAMPLE CLASSIFICATION	NOTES
	SS	8	8	6	7	14	2.0	Gray CLAYEY-SILT, trace fine sand. (ML)	Wet
	SS	17	20	10	12	30	1.9	Gray SILT, trace fine sand, Some Clay.(ML)	Wet
65	SS	2	5	8	10	13	1.4	Gray SILT, trace fine sand. (ML)	Wet ML
	SS	3	8	7	15	15	1.6	Same as S-33. (ML)	Wet
70	SS	2	4	7	7	11	2.0	Top(0.0-1.0') Same as S-33. Bottom(1.0-2.0) Gray CLAY, clayey-silt layering.	Wet 235'
	SS	3	8	7	12	15	1.6	Gray CLAY, clayey-silt layering. (ML-CL)	Wet
	SS	3	7	7	8	14	1.8	Same as S-36. (ML-CL)	Wet
75	SS	3	12	11	13	23	1.9	Same as S-36. (ML-CL)	Wet
	SS	4	6	6	9	12	2.0	Same as S-36. (ML-CL)	Wet CL
80	SS	4	5	7	10	12	2.0	Same as S-36. (ML-CL)	Wet
	SS	1	3	7	8	10	2.0	Top(0.0-1.1') Same as S-36. Bottom(1.1-2.0') Gray SILTY-CLAY, silty to fine sand layers.	Wet
	SS	1	2	4	6	6	2.0	Top(0.0-1.3') Same as S-36. Bottom(1.3-2.0') Gray SILT, trace fine sand, Some Clay.	Wet 222'
85	SS	3	11	16	19	27	2.0	Gray SILT, trace to some fine Sand. (ML)	Wet
	SS	5	13	31	50	44	2.0	Same as S-43. (ML)	Wet
90	SS	7	21	48	63	67	2.0	Same as S-43. (ML)	Wet ML

305
83
222

N = NO. OF BLOWS TO DRIVE 2" SAMPLER 12" WITH A 140 LB. WT. FALLING 30" PER BLOW
DRILLING CO.: Maxim Technologies, Inc. DRILL RIG TYPE: Truck Mounted Drill Rig
METHOD: 4.25" Hollow Stem Augers

GROUNDWATER LEVEL READINGS

DATE	LEVEL	CASING	STABILIZATION TIME

THE GEOTECHNICAL INFORMATION SHOWN HEREON WAS OBTAINED FOR C.T. MALE DESIGN PURPOSES. IT IS MADE AVAILABLE TO AUTHORIZED USERS ONLY THAT THEY MAY HAVE ACCESS TO THE INFORMATION AVAILABLE TO C.T.MALE. IT IS PRESENTED IN GOOD FAITH, BUT IS NOT INTENDED AS A SUBSTITUTE FOR INVESTIGATIONS, INTERPRETATION OR JUDGMENT OF SUCH AUTHORITIES.

SAMPLE CLASSIFICATION BY: JC

C.T. MALE ASSOCIATES, P.C.

SUBSURFACE EXPLORATION LOG

BORING NO.: B-11D
ELEV.: 304.9' **DATUM: MSL**
START DATE: 7/7/98 **FINISH DATE: 7/10/98**
SHEET 4 OF 4

PROJECT: P 4 Project CTM PROJECT NO.: 97.4583

LOCATION: Albany Interim Landfill CTM INSPECTOR: J. Cross

DEPTH (FT.)	SAMPLE TYPE	SAMPLE NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	18/24	N	RECOVERY	SAMPLE CLASSIFICATION	NOTES
		S-46	3	9	19	28	38	2.0	Gray SILT, trace to Some fine Sand. (ML)	Wet
		S-47	6	9	23	41	32	2.0	Same as S-46. (ML)	Wet
95		S-48	7	12	20	29	32	2.0	Same as S-46. (ML)	Wet
		S-49	6	7	13	21	20	2.0	Same as S-46. (ML)	Wet
		S-50	7	14	23	39	37	2.0	Same as S-46. (ML)	Wet ML
100										
		S-51	3	3	13	21	16	1.6	Same as S-46. (ML)	Wet
		S-52	4	7	11	27	18	2.0	Same as S-46. (ML)	Wet
105		S-53	3	7	9	15	16	2.0	Top(0.0-0.9') Same as S-46.	Wet 200'
									Bottom(0.9-2.0') Gray SILTY-CLAY, silty to fine layers.	
		S-54	5	5	5	12	10	2.0	SILTY-CLAY, silty to fine sand layers. (ML-CL)	Wet CL 197'
110									T.D.= 108.0'	

N = NO. OF BLOWS TO DRIVE 2" SAMPLER 12" WITH A 140 LB. WT. FALLING 30" PER BLOW

DRILLING CONTRACTOR: Maxim Technologies, Inc. DRILL RIG TYPE: Truck Mounted Drill Rig

METHOD OF INVESTIGATION: 4.25' Hollow Stem Augers

GROUNDWATER LEVEL READINGS

DATE	LEVEL	CASING	STABILIZATION TIME

THE SUBSURFACE INFORMATION SHOWN HEREON WAS OBTAINED FOR C.T. MALE DESIGN PURPOSES. IT IS MADE AVAILABLE TO AUTHORIZED USERS ONLY THAT THEY MAY HAVE ACCESS TO THE SAME INFORMATION AVAILABLE TO C.T.MALE. IT IS PRESENTED IN GOOD FAITH, BUT IS NOT INTENDED AS A SUBSTITUTE FOR INVESTIGATIONS, INTERPRETATION OR JUDGMENT OF SUCH AUTHORIZED USERS.

SAMPLE CLASSIFICATION BY: JC

CLOUGH HARBOUR & ASSOCIATES LLP

PROJECT NUMBER: 12206.4008.1502 1/5/2007

Rapp Road East Side Expansion
SUBSURFACE LOG
HOLE NUMBER EE-B-1

LOCATION: Albany, New York

CLIENT: City of Albany

CONTRACTOR: New England Boring Contractors

DRILLER: T. Carpenter INSPECTOR: K. Defayette

START DATE and TIME: 12/11/2006 1:00:00 PM

FINISH DATE and TIME: 12/13/2006 2:00:00 PM

SURFACE ELEV: 296.00 (ft; Estimated) CHECKED BY: W. Harris

DRILL FLUID: Water @ 8' DRILLING METHOD: 4" FJC

WATER LEVEL OBSERVATIONS DURING DRILLING	DATE	TIME	READING TYPE	WATER DEPTH (ft)	CASING BOTTOM (ft)	HOLE BOTTOM (ft)
	12-11-06	1:00 PM	During Drilling	0.8	None	2

SAMP./CORE NUMBER	SAMP. ADV. (ft) LEN. CORE (ft)	RECOVERY (ft)	Blows Per 6" on Split Spoon Sampler	"N" Value or RQD%	SAMPLE	DEPTH (Feet)	GRAPHICS	DESCRIPTION AND CLASSIFICATION	ELEVATION (Feet)	Remarks on Character of Drilling, Water Return, etc.	WATER LEVELS AND/OR WELL DATA
								TOPSOIL		Advances boring with 2.25" SSA to 8' then advances 4" FJC to boring termination.	▽
S-1	2	1	1-WH-2-4					**f. SAND** Some Silt, trace roots, brownish gray, v. loose, saturated **(SM)**			
						2		**f.m. SAND** trace silt, brown, loose, saturated **(SP)**	294		
S-2	2	2	4-4-2-2	6							
						4		**f.m. SAND** little silt, trace roots, grayish black, v. loose, saturated **(SM)**	292		
S-3	2	1.4	1-1-1-3	2							
						6		**f.m. SAND** trace silt, brownish black, loose, saturated **(SP)**	290		
S-4	2	2	2-2-3-3	5							
						8		becomes dark gray, v. loose **(SP)**	288		
S-5	2	2	2-2-2-3	4							
						10		**f.m. SAND** trace silt, dark gray, loose, saturated **(SP)**	286		
S-6	2	1.3	4-2-3-4	5							
						12		**Similar Soil(SP)**	284		
S-7	2	1.7	2-4-4-7	8							
						14		No Recovery	282	Tried to recover split spoon sample S-8 twice.	
S-8	2	0	2-2-3-2	5							
						16		**f.m. SAND** trace silt, gray, v. loose, saturated **(SP)**	280		
S-9	2	1.8	2-2-2-2	4							
						18		becomes m. compact **(SP)**	278		
S-10	2	1.7	4-8-8-9	16							

CLOUGH HARBOUR & ASSOCIATES LLP

PROJECT NUMBER: 12206.4008.1502 1/5/2007

Rapp Road East Side Expansion
SUBSURFACE LOG
HOLE NUMBER EE-B-1

SAMP./CORE. NUMBER	SAMP. ADV. (ft) LEN. CORE (ft)	RECOVERY (ft)	Blows Per 6" on Split Spoon Sampler	"N" Value or RQD%	SAMPLE	DEPTH (Feet)	GRAPHICS	DESCRIPTION AND CLASSIFICATION	ELEVATION (Feet)	Remarks on Character of Drilling, Water Return, etc.	WATER LEVELS AND/OR WELL DATA
								f.m. SAND trace silt, gray, m. compact, saturated **(SP)**			
S-11	2	1.3	4-6-7-8	13							
						22		**Similar Soil(SP)**	274		
S-12	2	2	5-5-7-8	12							
						24		becomes loose **(SP)**	272		
S-13	2	2	4-4-5-6	9							
						26		becomes m. compact **(SP)**	270		
S-14	2	1.1	2-4-7-7	11							
						28		**Similar Soil(SP)**	268		
S-15	2	1.8	3-7-14-21	21							
						30		**Similar Soil(SP)**	266		
S-16	2	2	6-9-10-12	19							
						32		**Similar Soil(SP)**	264		
S-17	2	2	5-9-11-17	20							
						34		**Similar Soil(SP)**	262		
S-18	2	1.5	7-7-9-12	16							
						36		becomes loose **(SP)**	260		
S-19	2	2	2-5-5-7	10							
						38		becomes m. compact **(SP)**	258		
S-20	2	2	2-5-9-13	14							
						40		**Similar Soil(SP)**	256		
S-21	2	2	5-6-8-10	14							
						42		**Similar Soil(SP)**	254		
S-22	2	2	4-6-9-10	15							
						44			252		

CLOUGH HARBOUR & ASSOCIATES LLP

PROJECT NUMBER: 12206.4008.1502 1/5/2007

Rapp Road East Side Expansion
SUBSURFACE LOG
HOLE NUMBER EE-B-1

SAMP./CORE NUMBER	SAMP. ADV. (ft) LEN. CORE (ft)	RECOVERY (ft)	Blows Per 6" on Split Spoon Sampler	"N" Value or RQD%	DEPTH (Feet)	DESCRIPTION AND CLASSIFICATION	ELEVATION (Feet)	Remarks on Character of Drilling, Water Return, etc.	WATER LEVELS AND/OR WELL DATA
						becomes loose **(SP)**			
S-23	2	2	4-4-6-8	10		becomes loose **(SP)** *(continued)*			
					46	**f. SAND**, little silt, gray, loose, saturated **(SM)**	250		
						f. SAND, trace silt, gray, loose, saturated **(SP)**			
S-24	2	1.6	2-3-3-5	6					
					48	becomes m. compact **(SP)**	248		
S-25	2	2	3-5-7-8	12					
					50	**f. SAND**, little silt, gray, loose, saturated **(SM)**	246		
S-26	2	2	3-4-5-8	9					
					52	**f.m. SAND**, trace silt, gray, loose, saturated **(SP)**	244		
S-27	2	2	4-4-6-8	10					
					54	becomes m. compact **(SP)**	242		
S-28	2	2	6-5-7-7	12					
					56	**Clayey SILT** Some f. Sand, gray, stiff, saturated **(ML)**	240	f. Sand seams through out clayey silt layer.	
S-29	2	2	3-5-8-12	13					
					58	becomes hard **(ML)**	238		
S-30	2	2	12-16-17-21	33		**f.m. SAND** Some Silt, gray, m. compact, saturated **(SM)**			
					60	**f. SAND**, little silt, gray, m. compact, saturated **(SM)**	236		
S-31	2	2	1-5-7-9	12					
					62	**Similar Soil(SM)**	234		
S-32	2	2	6-8-13-17	21		**f.m. SAND** trace silt, gray, m. compact, saturated **(SP)**			
					64	**Similar Soil(SP)**	232		
S-33	2	2	11-11-11-11	22		**f. SAND**, Some Silt, gray, m. compact, saturated **(SM)**			
					66	**Similar Soil(SM)**	230		
S-34	2	2	10-9-11-12	20					
					68	**f. SAND**, Some Silt, gray, m. compact,	228		

CLOUGH HARBOUR & ASSOCIATES LLP

PROJECT NUMBER: 12206.4008.1502 1/5/2007

Rapp Road East Side Expansion
SUBSURFACE LOG
HOLE NUMBER EE-B-1

SAMP./CORE NUMBER	SAMP. ADV. (ft) LEN. CORE (ft)	RECOVERY (ft)	Blows Per 6" on Split Spoon Sampler	"N" Value or RQD%	SAMPLE	DEPTH (Feet)	GRAPHICS	DESCRIPTION AND CLASSIFICATION	ELEVATION (Feet)	Remarks on Character of Drilling, Water Return, etc.	WATER LEVELS AND/OR WELL DATA
S-35	2	2	7-8-10-14	18				saturated **(SM)** **f. SAND** Some Silt, gray, m. compact, saturated **(SM)** *(continued)*			
						70		becomes compact **(SM)**	226		
S-36	2	1.6	13-18-15-18	33							
						72		becomes m. compact **(SM)**	224		
S-37	2	2	10-10-10-11	20							
						74		**Clayey SILT**, Some f. Sand, gray, m. compact, saturated **(ML)**	222	f. Sand seams through out clayey silt layer.	
S-38	2	1.2	6-6-6-6	12				**f. SAND**, Some Silt, gray, m. compact, saturated **(SM)**			
						76		becomes v. loose **(SM)**	220		
S-39	2	2	3-2-1-2	3				**Silty CLAY**, Some f.Sand, gray, soft, saturated **(CL)**			
						78		becomes m. stiff **(CL)**	218	f. Sand seams through out silty clay layer.	
S-40	2	2	3-3-5-7	8							
						80		**Similar Soil(CL)**	216		
S-41	2	2	3-4-6-7	10							
						82		**Similar Soil(CL)**	214		
S-42	2	2	3-4-5-6	9							
						84		becomes m. stiff **(CL)**	212		
S-43	2	2	WH-WH-5-5								
						86		becomes stiff **(CL)**	210		
S-44	2	2	5-5-5-5	10							
						88		**Similar Soil(CL)**	208		
S-45	2	2	5-6-6-6	12							
						90		becomes m. stiff **(CL)**	206		
S-46	2	2	1-1-4-9	5							
						92		**Silty CLAY**, Some f. Sand, gray, m. stiff, saturated **(CL)**	204		

CLOUGH HARBOUR & ASSOCIATES LLP

PROJECT NUMBER: 12206.4008.1502 1/5/2007

Rapp Road East Side Expansion
SUBSURFACE LOG
HOLE NUMBER EE-B-1

SAMP./CORE NUMBER	SAMP. ADV. (ft) LEN. CORE (ft)	RECOVERY (ft)	Blows Per 6" on Split Spoon Sampler	"N" Value or RQD%	SAMPLE	DEPTH (Feet)	GRAPHICS	DESCRIPTION AND CLASSIFICATION	ELEVATION (Feet)	Remarks on Character of Drilling, Water Return, etc.	WATER LEVELS AND/OR WELL DATA
S-47	2	2	4-4-4-4	8				**Silty CLAY**, Some f. Sand, gray, m. stiff, saturated **(CL)** *(continued)*			
						94		becomes stiff **(CL)**	202		
S-48	2	2	1-1-10-12	11				**f.m. SAND** trace silt, gray, m. compact, saturated **(SP)**			
						96		**Similar Soil(SP)**	200		
S-49	2	2	14-12-13-14	25				**Silty CLAY**, Some f. Sand, gray, m. compact, saturated **(CL)**			
						98		becomes stiff **(CL)**	198		
S-50	2	2	6-6-6-7	12							
						100		becomes v. stiff **(CL)**	196		
S-51	2	2	6-12-13-33	25							
						102		**Clayey SILT**, Some f.m.c Sand, little f.c gravel, gray, m. compact, wet **(ML-TILL)**	194		
S-52	2	1.3	30-62-40-45	R				becomes v. compact **(ML-TILL)**			
						104		End of Boring at 104 ft	192		
						106			190		
						108			188		
						110			186		
						112			184		
						114			182		
						116			180		

CLOUGH HARBOUR & ASSOCIATES LLP

Albany Landfill East Side Expansion
SUBSURFACE LOG
HOLE NUMBER EE-B-2

PROJECT NUMBER: 12206.4008.1502 December 18, 2006

LOCATION: Albany, New York

CLIENT: City of Albany

CONTRACTOR: New England Boring Contractors

DRILLER: T. Carpenter INSPECTOR: K. Defayette

START DATE and TIME: 12/13/2006 2:40:00 PM

FINISH DATE and TIME: 12/15/2006

SURFACE ELEV: 293' CHECKED BY: W. Harris

DRILL FLUID: Water @ 10' DRILLING METHOD: 2.25" SSA/ 4" FJC

WATER LEVEL OBSERVATIONS DURING DRILLING	DATE	TIME	READING TYPE	WATER DEPTH (ft)	CASING BOTTOM (ft)	HOLE BOTTOM (ft)
	12-13-06	12:00 AM	During Drilling	2	14	16

SAMP./CORE NUMBER	SAMP. ADV. (ft) LEN. CORE (ft)	RECOVERY (ft)	Blows Per 6" on Split Spoon Sampler	"N" Value or RQD%	SAMPLE	DEPTH (Feet)	GRAPHICS	DESCRIPTION AND CLASSIFICATION	ELEVATION (Feet)	Remarks on Character of Drilling, Water Return, etc.	WATER LEVELS AND/OR WELL DATA
								TOPSOIL		Use of water as a drilling fluid precludes an accurate measure of groudwater.	
S-1	2	1.1	1-1-2-2	3				**f.m. SAND**, Some Silt, Some Silt, Some Roots, trace wood, brown/gray, v. loose, saturated **(SM)**			▽
						2		**f.m. SAND**, Some Silt, trace roots, brownish gray, loose saturated **(SM)**			
S-2	2	2	2-3-2-5	5							
						4		**f.m. SAND**, trace silt, trace roots, gray, loose, saturated **(SP)**			
S-3	2	1.8	2-3-3-3	6							
						6		**f.m. SAND**, trace silt, gray, loose, saturated **(SP)**			
S-4	2	2	2-3-4-5	7							
						8		becomes m. compact **(SP)**			
S-5	2	2	8-8-11-10	19							
						10		becomes loose **(SP)**		Switched to 4" FJC @ 10'.	
S-6	2	1.3	3-4-4-5	8							
						12		becomes m. compact **(SP)**		EOD 12/13/2006.	
S-7	2	2	5-7-7-8	14							
						14		becomes loose **(SP)**			
S-8	2	1.2	3-4-5-5	9							
						16		**Similar Soil(SP)**			
S-9	2	1.3	2-3-6-9	9							
						18		becomes m. compact **(SP)**			
S-10	2	2	5-7-9-10	16							

CLOUGH HARBOUR & ASSOCIATES LLP

PROJECT NUMBER: 12206.4008.1502 December 18, 2006

Albany Landfill East Side Expansion
SUBSURFACE LOG
HOLE NUMBER EE-B-2

SAMP./CORE NUMBER	SAMP. ADV. (ft) LEN. CORE (ft)	RECOVERY (ft)	Blows Per 6" on Split Spoon Sampler	"N" Value or RQD%	SAMPLE	DEPTH (Feet)	GRAPHICS	DESCRIPTION AND CLASSIFICATION	ELEVATION (Feet)	Remarks on Character of Drilling, Water Return, etc.	WATER LEVELS AND/OR WELL DATA
								f.m. SAND, trace silt, gray, loose, saturated **(SP)**			
S-11	2	2	4-5-4-6	9							
						22		**Similar Soil (SP)**			
S-12	2	2	4-3-4-4	7							
						24		becomes trace clay **(SP)**		Clump of clay found in sample S-13.	
S-13	2	1.5	4-5-4-6	9							
						26		**f. SAND**, trace silt, gray, m. compact, saturated **(SM)**			
S-14	2	2	4-6-6-6	12							
						28		**f. SAND**, little silt, gray, m. compact, saturated **(SM)**			
S-15	2	2	4-6-8-20	14							
						30		becomes compact **(SM)**			
S-16	2	2	10-15-17-18	32							
						32		becomes m. compact **(SM)**			
S-17	2	2	5-7-7-10	14							
						34		**f.m. SAND**, trace silt, gray, loose, saturated **(SP)**			
S-18	2	1.5	3-3-3-4	6							
						36		**Similar Soil (SP)**			
S-19	2	1.5	2-3-3-5	6							
						38		**Similar Soil (SP)**			
S-20	2	2	3-4-5-6	9							
						40		**Similar Soil (SP)**			
S-21	2	1.6	3-4-3-4	7							
						42		becomes m. compact **(SP)**	-251	293 42 251	
S-22	2	1	4-7-9-9	16							
						44					

CLOUGH HARBOUR & ASSOCIATES LLP

PROJECT NUMBER: 12206.4008.1502 December 18, 2006

Albany Landfill East Side Expansion
SUBSURFACE LOG
HOLE NUMBER EE-B-2

SAMP./CORE NUMBER	SAMP. ADV. (ft) LEN. CORE (ft)	RECOVERY (ft)	Blows Per 6" on Split Spoon Sampler	"N" Value or RQD%	DEPTH (Feet)	DESCRIPTION AND CLASSIFICATION	ELEVATION (Feet)	Remarks on Character of Drilling, Water Return, etc.	WATER LEVELS AND/OR WELL DATA
S-23	2	1.7	5-6-5-6	11		**f. SAND**, little silt, gray, m. compact, saturated **(SM)** *(continued)*			
					46	**f. SAND**, Some Silt, gray, m. compact, saturated **(SM)**			
S-24	2	2	4-7-7-7	14					
					48	becomes loose **(SM)**			
S-25	2	2	2-5-5-6	10					
					50	**Similar Soil (SM)**			
S-26	2	2	3-4-6-8	10					
					52	**f. SAND**, trace silt, gray, loose, saturated **(SP)** **Similar Soil (SP)**			
S-27	2	2	5-5-5-8	10		**f. SAND**, Some Silt, gray. loose, wet **(SM)**			
					54	becomes v. loose **(SM)**			
S-28	2	1.3	6-1-2-2	3		**Silty CLAY**, Some f. Sand, gray, soft, wet **(CL)**	238	793 55 238	
					56	becomes m. stiff **(CL)**			
S-29	2	2	2-2-3-3	5					
					58	becomes stiff **(CL)**			
S-30	2	2	3-3-6-7	9					
					60	becomes m. stiff **(CL)**			
S-31	2	2	2-2-3-5	5					
					62	becomes stiff **(CL)**			
S-32	2	2	3-5-5-7	10					
					64	**Similar Soil (CL)**			
S-33	2	2	3-4-6-6	10					
					66	becomes v. soft **(CL)**			
S-34	2	2	WH-WH-3-3						
					68	becomes m. stiff **(CL)**			

CLOUGH HARBOUR & ASSOCIATES LLP

PROJECT NUMBER: 12206.4008.1502 December 18, 2006

Albany Landfill East Side Expansion
SUBSURFACE LOG
HOLE NUMBER EE-B-2

SAMP./CORE NUMBER	SAMP. ADV. (ft) LEN. CORE (ft)	RECOVERY (ft)	Blows Per 6" on Split Spoon Sampler	"N" Value or RQD%	DEPTH (Feet)	DESCRIPTION AND CLASSIFICATION	ELEVATION (Feet)	Remarks on Character of Drilling, Water Return, etc.	WATER LEVELS AND/OR WELL DATA
S-35	2	2	WH-2-3-3	5		becomes m. stiff **(CL)** *(continued)*			
					70	becomes stiff **(CL)**			
S-36	2	2	5-6-5-9	11					
					72	becomes v. stiff **(CL)**			
S-37	2	2	6-8-8-6	16					
					74	becomes m. stiff **(CL)**			
S-38	2	2	4-4-4-5	8					
					76	becomes v. soft **(CL)**			
S-39	2	0.4	WH-WH-1-WH						
					78	**Clayey SILT**, Some f. Sand, stiff, gray, wet **(ML)**	215	EOD 12/14/2006. 293 78 215	
S-40	2	2	8-6-5-5	11					
					80	**f. SAND**, Some Silt, gray, compact, wet **(SM)**			
S-41	2	1.5	8-15-17-20	32					
					82	**Similar Soil (SM)**			
S-42	2	1.5	11-18-21-27	39					
					84	**f. SAND**, trace silt, gray, v. compact, wet **(SP)**			
S-43	2	1	24-31-46-50	77					
					86	**f. SAND**, little clayey silt, gray, v. compact, wet **(SM)**			
S-44	2	2	10-23-37-41	60					
					88	**f. SAND**, Some Silt, gray, v. compact, wet **(SM)**			
S-45	2	2	27-41-49-62	90					
					90	**f. SAND and SILT**, gray, v. compact, wet **(SM)**			
S-46	2	2	26-40-41-50	81					
					92	**f. SAND and SILT**, gray, v. compact, wet **(SM)**			
			18-47-81/0.5						

CLOUGH HARBOUR & ASSOCIATES LLP

PROJECT NUMBER: 12206.4008.1502 December 18, 2006

Albany Landfill East Side Expansion
SUBSURFACE LOG
HOLE NUMBER EE-B-2

SAMP./CORE NUMBER	SAMP. ADV. (ft) LEN. CORE (ft)	RECOVERY (ft)	Blows Per 6" on Split Spoon Sampler	"N" Value or RQD%	SAMPLE	DEPTH (Feet)	GRAPHICS	DESCRIPTION AND CLASSIFICATION	ELEVATION (Feet)	Remarks on Character of Drilling, Water Return, etc.	WATER LEVELS AND/OR WELL DATA
S-47	1.5	1.5		R				**f. SAND and SILT**, gray, v. compact, wet **(SM)** *(continued)*			
						94		**Similar Soil (SM)**			
S-48	2	2	38-47-55-61	R							
						96		**Similar Soil (SM)**			
S-49	2	2	24-24-33-29	57							
						98		**Similar Soil (SM)**			
S-50	2	2	25-32-35-38	67				**Silty CLAY**, Some f. Sand, gray, hard, wet **(CL)**	194'	293 99 194	
						100		becomes stiff **(CL)**			
S-51	2	2	5-5-7-7	12							
						102		becomes v. stiff **(CL)**			
S-52	2	2	6-10-9-18	19					190'		
						104		**Clayey SILT**, Some f.m.c Sand, little gravel, gray, v. stiff, wet **(ML-TILL)** End of Boring at 104 ft			
						106					
						108					
						110					
						112					
						114					
						116					

CLOUGH HARBOUR & ASSOCIATES LLP

PROJECT NUMBER: 12206.4008.1502 1/5/2007

Rapp Road East Side Expansion
SUBSURFACE LOG
HOLE NUMBER MW-14D

LOCATION: Albany, New York

CLIENT: City of Albany

CONTRACTOR: New England Boring Contractors

DRILLER: T. Carpenter INSPECTOR: K. Defayette

START DATE and TIME: 12/28/2006 7:30:00 AM

FINISH DATE and TIME: 1/2/2007 9:00:00 AM

SURFACE ELEV: 292.10 (ft; Estimated) CHECKED BY: W. Harris

DRILL FLUID: Water @ 10' DRILLING METHOD: 4" FJC

WATER LEVEL OBSERVATIONS DURING DRILLING	DATE	TIME	READING TYPE	WATER DEPTH (ft)	CASING BOTTOM (ft)	HOLE BOTTOM (ft)

SAMP./CORE NUMBER	SAMP. ADV. (ft) LEN. CORE (ft)	RECOVERY (ft)	Blows Per 6" on Split Spoon Sampler	"N" Value or RQD%	SAMPLE	DEPTH (Feet)	GRAPHICS	DESCRIPTION AND CLASSIFICATION	ELEVATION (Feet)	Remarks on Character of Drilling, Water Return, etc.	WATER LEVELS AND/OR WELL DATA
								TOPSOIL			
S-1	2	1.7	1-1-1-1	2				f. SAND and SILT trace clay, trace roots, trace wood, brown, v. loose, saturated (SM)			
						2		f.m. SAND little silt, gray, loose, saturated (SM)	290		
S-2	2	2	3-5-3-5	8							
						4		f. SAND trace silt, trace roots, brownish gray, loose, saturated (SP)	288		
S-3	2	2	4-3-3-4	6							
						6		f. SAND trace silt, gray, v. loose, saturated (SP)	286		
S-4	2	2	1-2-1-2	3							
						8		becomes loose (SP)	284		
S-5	2	2	2-2-3-3	5							
						10		f. SAND little silt, gray, loose, saturated (SM)	282		
S-6	2	1	1-1-3-5	4							
						12		becomes m. compact (SM)	280		
S-7	2	2	11-11-15-19	26							
						14		f. SAND trace silt, gray, m. compact, saturated (SP)	278		
S-8	2	2	5-6-5-6	11							
						16		becomes v. loose (SP)	276		
S-9	2	1.3	1-2-2-3	4							
						18		becomes m. compact (SP)	274		
S-10	2	2	4-8-12-14	20							

CLOUGH HARBOUR & ASSOCIATES LLP

PROJECT NUMBER: 12206.4008.1502 1/5/2007

Rapp Road East Side Expansion
SUBSURFACE LOG
HOLE NUMBER MW-14D

SAMP./CORE NUMBER	SAMP. ADV. (ft) LEN. CORE (ft)	RECOVERY (ft)	Blows Per 6" on Split Spoon Sampler	"N" Value or RQD%	SAMPLE	DEPTH (Feet)	GRAPHICS	DESCRIPTION AND CLASSIFICATION	ELEVATION (Feet)	Remarks on Character of Drilling, Water Return, etc.	WATER LEVELS AND/OR WELL DATA
								Similar Soil(SP)			
S-11	2	2	3-8-12-10	20							
						22		**Similar Soil(SP)**	270		
S-12	2	2	6-6-7-9	13							
						24		becomes loose **(SP)**	268		
S-13	2	1.4	1-2-3-4	5							
						26		becomes v. loose **(SP)**	266		
S-14	2	0.8	2-1-2-2	3							
						28		becomes loose **(SP)**	264		
S-15	2	2	2-3-4-5	7							
						30		f. SAND, little silt, gray, m. compact, saturated **(SM)**	262	1" Silt seam in sample S-16.	
S-16	2	2	5-5-7-7	12							
						32		becomes loose **(SM)**	260	1" Silt seam in sample S-17.	
S-17	2	2	3-5-5-8	10							
						34		**Similar Soil(SM)**	258		
S-18	2	2	4-6-6-6	12							
						36		f. SAND, trace silt, gray, m. compact, saturated **(SP)**	256		
S-19	2	2	3-4-7-8	11							
						38		**Similar Soil(SP)**	254		
S-20	2	2	3-6-9-15	15							
						40		**Similar Soil(SP)**	252		
S-21	2	2	3-9-12-14	21							
						42		**Similar Soil(SP)**	250		
S-22	2	2	5-6-10-12	16							
						44			248		

CLOUGH HARBOUR & ASSOCIATES LLP

PROJECT NUMBER: 12206.4008.1502 1/5/2007

Rapp Road East Side Expansion
SUBSURFACE LOG
HOLE NUMBER MW-14D

SAMP./CORE NUMBER	SAMP. ADV (ft) LEN. CORE (ft)	RECOVERY (ft)	Blows Per 6" on Split Spoon Sampler	"N" Value or RQD%	SAMPLE	DEPTH (Feet)	GRAPHICS	DESCRIPTION AND CLASSIFICATION	ELEVATION (Feet)	Remarks on Character of Drilling, Water Return, etc.	WATER LEVELS AND/OR WELL DATA
S-23	2	2	4-6-7-6	13				**f. SAND and SILT** gray, m. compact, saturated **(SM)** *(continued)*			
						46		**f. SAND and SILT** gray, loose, saturated **(SM)**	246		
S-24	2	2	5-3-5-5	8							
						48		becomes m. compact **(SM)**	244		
S-25	2	2	3-5-6-5	11							
						50		becomes loose **(SM)**	242		
S-26	2	2	6-5-3-9	8							
						52		**Similar Soil(SM)**	240		
S-27	2	2	5-5-5-7	10							
						54		**Silty CLAY**, Some f. Sand, gray, soft, wet **(CL)**	238		
S-28	2	2	2-1-2-3	3							
						56		becomes m. stiff **(CL)**	236		
S-29	2	2	2-3-5-5	8							
						58		becomes stiff **(CL)**	234		
S-30	2	2	4-4-5-5	9							
						60		becomes m. stiff **(CL)**	232		
S-31	2	2	2-3-5-5	8							
						62		becomes stiff **(CL)**	230		
S-32	2	2	5-5-6-7	11							
						64		becomes m. stiff **(CL)**	228		
S-33	2	2	2-3-5-7	8							
						66		becomes stiff **(CL)**	226		
S-34	2	2	4-5-4-5	9							
						68		**Similar Soil(CL)**	224		

CLOUGH HARBOUR & ASSOCIATES LLP

PROJECT NUMBER: 12206.4008.1502 1/5/2007

Rapp Road East Side Expansion
SUBSURFACE LOG
HOLE NUMBER MW-14D

SAMP./CORE NUMBER	SAMP. ADV. (ft) LEN. CORE (ft)	RECOVERY (ft)	Blows Per 6" on Split Spoon Sampler	"N" Value or RQD%	SAMPLE	DEPTH (Feet)	GRAPHICS	DESCRIPTION AND CLASSIFICATION	ELEVATION (Feet)	Remarks on Character of Drilling, Water Return, etc.	WATER LEVELS AND/OR WELL DATA
S-35	2	2	4-5-5-6	10				**Similar Soil(CL)** *(continued)*			
						70		**Similar Soil(CL)**	222		
S-36	2	2	5-5-5-6	10							
						72		**Similar Soil(CL)**	220		
S-37	2	2	3-5-6-6	11							
						74		becomes v. stiff **(CL)**	218		
S-38	2	2	10-14-15-24	29				**f. SAND and SILT** gray, m. compact, saturated **(SM)**			
						76		**Similar Soil(SM)**	216		
S-39	2	1.5	8-9-13-16	22							
						78		becomes compact **(SM)**	214		
S-40	2	2	6-12-20-24	32							
						80		becomes hard **(SM)**	212		
S-41	2	1.5	12-20-24-31	44							
						82		**Similar Soil(SM)**	210		
S-42	2	2	19-17-31-34	48							
						84		**Similar Soil(SM)**	208		
S-43	2	2	18-18-22-29	40							
						86		becomes m. compact **(SM)**	206		
S-44	2	2	8-11-16-24	27							
						88		becomes v. compact **(SM)**	204		
S-45	2	2	11-25-33-41	58							
						90		becomes compact **(SM)**	202		
S-46	2	2	15-26-23-33	49							
						92		becomes v. compact **(SM)**	200		

CLOUGH HARBOUR & ASSOCIATES LLP

PROJECT NUMBER: 12206.4008.1502 1/5/2007

Rapp Road East Side Expansion
SUBSURFACE LOG
HOLE NUMBER MW-14D

SAMP./CORE NUMBER	SAMP. ADV. (ft) LEN. CORE (ft)	RECOVERY (ft)	Blows Per 6" on Split Spoon Sampler	"N" Value or RQD%	SAMPLE	DEPTH (Feet)	GRAPHICS	DESCRIPTION AND CLASSIFICATION	ELEVATION (Feet)	Remarks on Character of Drilling, Water Return, etc.	WATER LEVELS AND/OR WELL DATA
S-47	2	2	14-25-34-46	59				becomes v. compact **(SM)** *(continued)*			
						94		becomes compact **(SM)**	198		
S-48	2	2	17-19-28-33	47							
						96		**Similar Soil(SM)**	196		
S-49	2	2	6-18-31-49	49							
						98			194	Driller advanced casing to far by accident from 98' to 100'.	
						100		**f. SAND and SILT** little m. sand, gray, v. compact, saturated **(SM)**	192	m. Sand seams in sample S-50.	
S-50	2	2	29-34-0.5	34.5							
						102		**f.m. SAND** trace silt, gray, m. compact, saturated **(SP)**	190		
S-51	2	2	5-10-16-15	26				**Silty CLAY**, Some f. Sand, gray, v. stiff, wet **(CL)**			
						104		End of Boring at 104 ft	188		
						106			186		
						108			184		
						110			182		
						112			180		
						114			178		
						116			176		

CLOUGH HARBOUR & ASSOCIATES LLP

Rapp Road East Side Expansion
SUBSURFACE LOG
HOLE NUMBER MW-15D

PROJECT NUMBER: 12206.4008.1502 1/5/2007

LOCATION: Albany, New York

CLIENT: City of Albany

CONTRACTOR: New England Boring Contractors

DRILLER: T. Carpenter INSPECTOR: K. Defayette

START DATE and TIME: 12/18/2006 12:35:00 PM

FINISH DATE and TIME: 12/21/2006 8:00:00 AM

SURFACE ELEV: 294.80 (ft; Estimated) CHECKED BY: W. Harris

DRILL FLUID: Water @ 10' DRILLING METHOD: 4" FJC

WATER LEVEL OBSERVATIONS DURING DRILLING	DATE	TIME	READING TYPE	WATER DEPTH (ft)	CASING BOTTOM (ft)	HOLE BOTTOM (ft)

SAMP./CORE NUMBER	SAMP. ADV. (ft) LEN. CORE (ft)	RECOVERY (ft)	Blows Per 6" on Split Spoon Sampler	"N" Value or RQD%	DEPTH (Feet)	DESCRIPTION AND CLASSIFICATION	ELEVATION (Feet)	Remarks on Character of Drilling, Water Return, etc.
						TOPSOIL		
S-1	2	0.5	2-2-2-3	4		f. SAND and SILT little roots, little c. sand, brown, v. loose, saturated **(SM)**	294	
					2	f. SAND and SILT little roots, brownish gray, loose, wet **(SM)**		
S-2	2	2	2-6-4-5	10			292	
					4	f. SAND little silt, trace roots, brownish gray, v. loose, saturated **(SM)**		
S-3	2	0.9	2-2-1-1	3			290	
					6	f. SAND trace silt, gray, v. loose, saturated **(SP)**		
S-4	2	2	1-1-2-3	3			288	
					8	becomes loose **(SP)**		
S-5	2	2	1-2-4-7	6			286	
					10	**Similar Soil(SP)**		
S-6	2	1	4-2-4-4	6			284	
					12	**Similar Soil(SP)**		
S-7	2	2	3-3-4-4	7			282	
					14	f. SAND trace silt, trace c. sand, gray, v. loose, saturated **(SP)**		Vanes of brown c. sand in sample S-8
S-8	2	1.4	2-1-1-3	2			280	
					16	f. SAND trace silt, gray, loose, saturated **(SP)**		
S-9	2	1.3	2-4-5-7	9			278	
					18	becomes m. compact **(SP)**		
S-10	2	1.3	6-6-8-12	14			276	

WATER LEVELS AND/OR WELL DATA

CLOUGH HARBOUR & ASSOCIATES LLP

PROJECT NUMBER: 12206.4008.1502 1/5/2007

Rapp Road East Side Expansion
SUBSURFACE LOG
HOLE NUMBER MW-15D

SAMP./CORE NUMBER	SAMP. ADV. (ft) LEN. CORE (ft)	RECOVERY (ft)	Blows Per 6" on Split Spoon Sampler	"N" Value or RQD%	SAMPLE	DEPTH (Feet)	GRAPHICS	DESCRIPTION AND CLASSIFICATION	ELEVATION (Feet)	Remarks on Character of Drilling, Water Return, etc.	WATER LEVELS AND/OR WELL DATA
								f. SAND trace silt, gray, m. compact, saturated **(SP)**			
S-11	2	1.2	4-5-6-7	11					274		
						22		**Similar Soil(SP)**			
S-12	2	1.4	6-7-7-8	14					272		
						24		becomes v. loose **(SP)**			
S-13	2	1.3	2-2-2-2	4					270		
						26		**Similar Soil(SP)**			
S-14	2	1.2	2-1-2-4	3					268		
						28		becomes loose **(SP)**			
S-15	2	2	3-3-5-7	8					266		
						30		becomes m. compact **(SP)**			
S-16	2	2	6-7-8-8	15					264		
						32		becomes loose **(SP)**			
S-17	2	2	4-4-5-7	9					262		
						34		becomes v. loose **(SP)**			
S-18	2	1.4	1-1-1-5	2					260		
						36		becomes loose **(SP)**			
S-19	2	2	1-3-5-7	8					258		
						38		becomes m. compact **(SP)**			
S-20	2	2	3-6-7-7	13					256		
						40		becomes loose **(SP)**			
S-21	2	2	4-3-6-6	9					254		
						42		becomes m. compact **(SP)**			
S-22	2	2	6-6-7-9	13					252		
						44					

CLOUGH HARBOUR & ASSOCIATES LLP

PROJECT NUMBER: 12206.4008.1502 1/5/2007

Rapp Road East Side Expansion
SUBSURFACE LOG
HOLE NUMBER MW-15D

SAMP./CORE NUMBER	SAMP. ADV. (ft) LEN. CORE (ft)	RECOVERY (ft)	Blows Per 6" on Split Spoon Sampler	"N" Value or RQD%	SAMPLE	DEPTH (Feet)	GRAPHICS	DESCRIPTION AND CLASSIFICATION	ELEVATION (Feet)	Remarks on Character of Drilling, Water Return, etc.	WATER LEVELS AND/OR WELL DATA
S-23	2	2	3-5-4-6	9				**f. SAND and SILT** gray, loose, saturated **(SM)** *(continued)*	250		
						46		**Similar Soil(SM)**			
S-24	2	2	2-3-6-6	9					248		
						48		becomes m. compact **(SM)**			
S-25	2	2	3-6-9-8	15					246		
						50		**f. SAND**, little silt, gray, m. compact, saturated **(SM)** **f. SAND and SILT** gray, m. compact, saturated **(SM)**			
S-26	2	1.7	6-6-5-5	11					244		
						52		**Similar Soil(SM)**			
S-27	2	2	3-6-7-8	13					242		
						54		becomes loose **(SM)**			
S-28	2	1.2	2-3-2-4	5				**Silty CLAY**, Some f. Sand, gray, soft, wet **(CL)**	240	f. Sand seams throughout silty clay layer.	
						56		becomes stiff **(CL)**			
S-29	2	2	3-5-6-6	11					238		
						58		becomes m. stiff **(CL)**			
S-30	2	2	4-4-4-6	8					236		
						60		**Similar Soil(CL)**			
S-31	2	2	2-3-4-4	7					234		
						62		becomes stiff **(CL)**			
S-32	2	2	5-4-7-7	11					232		
						64		becomes m. stiff **(CL)**			
S-33	2	2	1-1-5-7	6					230		
						66		**Similar Soil(CL)**			
S-34	2	2	3-3-4-4	7					228		
						68		becomes stiff **(CL)**			

CLOUGH HARBOUR & ASSOCIATES LLP

PROJECT NUMBER: 12206.4008.1502 1/5/2007

Rapp Road East Side Expansion
SUBSURFACE LOG
HOLE NUMBER MW-15D

SAMP./CORE NUMBER	SAMP. ADV. (ft) LEN. CORE (ft)	RECOVERY (ft)	Blows Per 6" on Split Spoon Sampler	"N" Value or RQD%	DEPTH (Feet)	DESCRIPTION AND CLASSIFICATION	ELEVATION (Feet)	Remarks on Character of Drilling, Water Return, etc.
S-35	2	2	4-5-8-7	13		becomes stiff **(CL)** *(continued)*	226	
					70	**Similar Soil(CL)**		
S-36	2	2	3-4-5-17	9			224	
						f. SAND and SILT gray, loose, saturated **(SM)**		
					72	becomes m. compact **(SM)**		
S-37	2	2	8-10-12-16	22			222	
					74	**Similar Soil(SM)**		
S-38	2	1.4	5-11-18-20	29			220	
					76	**Similar Soil(SM)**		
S-39	2	2	6-15-14-18	29			218	
					78	**Similar Soil(SM)**		
S-40	2	2	8-13-14-17	27			216	
					80	becomes compact **(SM)**		
S-41	2	2	12-17-17-22	34			214	
					82	becomes v. compact **(SM)**		
S-42	2	2	13-34-25-21	59			212	
					84	becomes m. compact **(SM)**		
S-43	2	2	6-9-11-11	20			210	
					86	**Similar Soil(SM)**		
S-44	2	2	4-7-12-14	19			208	
					88	**SILT and f. SAND** gray, compact, saturated **(ML)**		
S-45	2	2	8-18-25-25	43			206	
					90	**Silty CLAY**, Some f. Sand, gray, m. stiff, wet **(CL)**		
S-46	2	2	4-3-3-5	6			204	
					92	**Silty CLAY**, Some f. Sand, gray, v. soft, wet **(CL)**		

GRAPHICS

WATER LEVELS AND/OR WELL DATA

CLOUGH HARBOUR & ASSOCIATES LLP

PROJECT NUMBER: 12206.4008.1502 1/5/2007

Rapp Road East Side Expansion
SUBSURFACE LOG
HOLE NUMBER MW-15D

SAMP./CORE NUMBER	SAMP. ADV. (ft) LEN. CORE (ft)	RECOVERY (ft)	Blows Per 6" on Split Spoon Sampler	"N" Value or RQD%	SAMPLE	DEPTH (Feet)	GRAPHICS	DESCRIPTION AND CLASSIFICATION	ELEVATION (Feet)	Remarks on Character of Drilling, Water Return, etc.	WATER LEVELS AND/OR WELL DATA
S-47	2	1	WH-1-WH-1					**Silty CLAY**, Some f. Sand, gray, v. soft, wet **(CL)** *(continued)*			
						94		**Silty CLAY**, Some f.m Sand, gray, m. stiff, wet **(CL)**			
S-48	2	2	WH-3-3-3	6					200		
						96		End of Boring at 96 ft			
									198		
						98					
									196		
						100					
									194		
						102					
									192		
						104					
									190		
						106					
									188		
						108					
									186		
						110					
									184		
						112					
									182		
						114					
									180		
						116					
									178		

APPENDIX C

Stormwater Management Calculations

==========
JOB TITLE
==========

Project Date: 5/10/2007
Project Engineer: Seth Erlich
Project Title: Albany Landfill East Expansion
Project Comments:
Landfill assumed to be capped and is modeled as Open Space - Good Condition (HSG C).

Typical roadside swale velocity calculated as 6 ft/s.
Typical grassed swale velocity calculated as 3 ft/s.

Areas previously stated as tributary to existing basin (DA-3A2) by CT Male design report (27.2 Ac) have been redelineated as less (9.5 Ac)

See Existing Condition Watershed figure for explanation of drainage areas.

DA-3 is divided into five subareas. DA-3A1 represents the existing landfill, DA-3B - the area just north of the existing swale to DP-3, DA-3C1 and 2 - the area east of the existing swale to DP-3, and DA-3A2 - the area tributary to the existing detention basin.
Note: DA-3C is to allow for pre to post analysis of the future site of relocated buildings (DA-3C2) and the surrounding area (DA-3C1).

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DA-3A2..... Tc Calcs 2.08

DA-3B..... Tc Calcs 2.12

DA-3C1..... Tc Calcs 2.14

DA-3C2..... Tc Calcs 2.16

DA-4..... Tc Calcs 2.18

********** CN CALCULATIONS **********

DA-1..... Runoff CN-Area 3.01

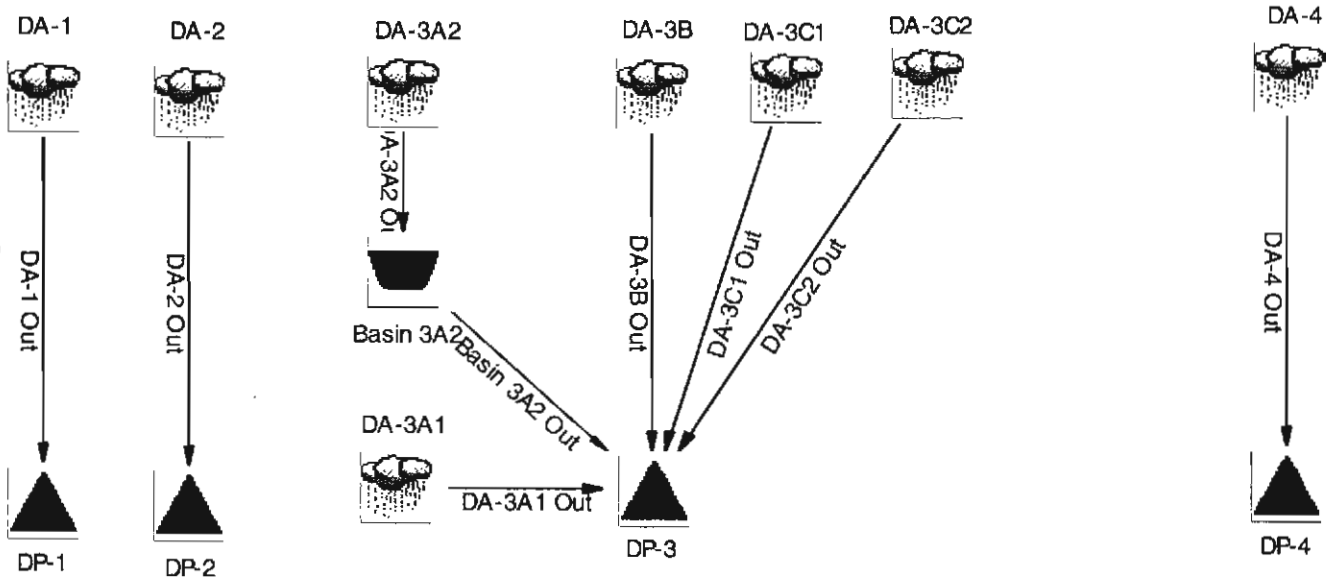
DA-2..... Runoff CN-Area 3.02

DA-3A1..... Runoff CN-Area 3.03

DA-3A2..... Runoff CN-Area 3.04

DA-3B..... Runoff CN-Area 3.05

DA-3C1..... Runoff CN-Area 3.06


DA-1
DA-2
DA-3A2
DA-3B
DA-3C1
DA-3C2
DA-4
DA-1 Out
DA-2 Out
A-3A2 Ou
Basin 3A2
Basin 3A2 Out
DA-3B Out
DA-3C1 Out
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DA-3A1 Out
DP-1
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********** OUTLET STRUCTURES **********

Outlet 1..... Outlet Input Data 5.01
Composite Rating Curve 5.04

MASTER DESIGN STORM SUMMARY

Network Storm Collection: Albany County

Return Event	Total Depth in	Rainfall Type	RNF ID
1	2.4000	Synthetic Curve	TypeII 24hr
10	4.3000	Synthetic Curve	TypeII 24hr
25	5.0000	Synthetic Curve	TypeII 24hr
100	7.0000	Synthetic Curve	TypeII 24hr

MASTER NETWORK SUMMARY
SCS Unit Hydrograph Method

(*Node=Outfall; +Node=Diversion;)
(Trun= HYG Truncation: Blank=None; L=Left; R=Rt; LR=Left&Rt)

Node ID		Type	Return Event	HYG Vol ac-ft	Trun	Qpeak hrs	Qpeak cfs	Max WSEL ft	Max Pond Storage ac-ft
BASIN 3A2	IN	POND	1	.604		12.1500	6.79		
BASIN 3A2	IN	POND	10	1.732		12.1000	20.62		
BASIN 3A2	IN	POND	25	2.196		12.1000	26.24		
BASIN 3A2	IN	POND	100	3.594		12.1000	42.80		
BASIN 3A2	OUT	POND	1	.604		12.5500	2.09	295.00	.181
BASIN 3A2	OUT	POND	10	1.732		12.7500	3.05	296.10	.736
BASIN 3A2	OUT	POND	25	2.196		12.8500	3.27	296.56	.991
BASIN 3A2	OUT	POND	100	3.593		13.0500	3.85	297.86	1.793
DA-1		AREA	1	.367		12.6500	.68		
DA-1		AREA	10	2.939		12.2000	24.43		
DA-1		AREA	25	4.307		12.2000	39.68		
DA-1		AREA	100	9.019		12.1500	93.52		

MASTER NETWORK SUMMARY
SCS Unit Hydrograph Method

(*Node=Outfall; +Node=Diversion;)
(Trun= HYG Truncation: Blank=None; L=Left; R=Rt; LR=Left&Rt)

Node ID	Type	Return Event	HYG Vol ac-ft	Trun	Qpeak hrs	Qpeak cfs	Max WSEL ft	Max Pond Storage ac-ft
DA-2	AREA	1	.660		12.4500	3.81		
DA-2	AREA	10	2.391		12.3500	17.53		
DA-2	AREA	25	3.157		12.3500	23.67		
DA-2	AREA	100	5.554		12.3500	42.68		
DA-3A1	AREA	1	1.705		12.3500	9.13		
DA-3A1	AREA	10	7.201		12.3000	57.00		
DA-3A1	AREA	25	9.736		12.3000	79.72		
DA-3A1	AREA	100	17.856		12.2500	153.09		
DA-3A2	AREA	1	.604		12.1500	6.79		
DA-3A2	AREA	10	1.732		12.1000	20.62		
DA-3A2	AREA	25	2.196		12.1000	26.24		
DA-3A2	AREA	100	3.594		12.1000	42.80		
DA-3B	AREA	1	1.673		12.6000	8.23		
DA-3B	AREA	10	6.065		12.5000	37.98		
DA-3B	AREA	25	8.007		12.5000	51.24		
DA-3B	AREA	100	14.086		12.5000	92.29		
DA-3C1	AREA	1	.228		12.4500	.69		
DA-3C1	AREA	10	1.416		12.2500	11.41		
DA-3C1	AREA	25	2.017		12.2500	17.49		
DA-3C1	AREA	100	4.036		12.2000	38.22		
DA-3C2	AREA	1	.051		15.2500	.06		
DA-3C2	AREA	10	.696		12.2500	4.55		
DA-3C2	AREA	25	1.069		12.2000	8.29		
DA-3C2	AREA	100	2.406		12.2000	22.87		
DA-4	AREA	1	1.177		12.2500	7.58		
DA-4	AREA	10	5.196		12.1500	52.51		
DA-4	AREA	25	7.071		12.1500	74.24		
DA-4	AREA	100	13.115		12.1500	143.53		

MASTER NETWORK SUMMARY
SCS Unit Hydrograph Method

(*Node=Outfall; +Node=Diversion;)
(Trun= HYG Truncation: Blank=None; L=Left; R=Rt; LR=Left&Rt)

Node ID	Type	Return Event	HYG Vol ac-ft	Trun	Qpeak hrs	Qpeak cfs	Max WSEL ft	Max Pond Storage ac-ft
*DP-1	JCT	1	.367		12.6500	.68		
*DP-1	JCT	10	2.939		12.2000	24.43		
*DP-1	JCT	25	4.307		12.2000	39.68		
*DP-1	JCT	100	9.019		12.1500	93.52		
*DP-2	JCT	1	.660		12.4500	3.81		
*DP-2	JCT	10	2.391		12.3500	17.53		
*DP-2	JCT	25	3.157		12.3500	23.67		
*DP-2	JCT	100	5.554		12.3500	42.68		
*DP-3	JCT	1	4.262		12.4500	19.45		
*DP-3	JCT	10	17.109		12.3500	109.25		
*DP-3	JCT	25	23.024		12.3500	152.49		
*DP-3	JCT	100	41.978		12.3000	294.20		
*DP-4	JCT	1	1.177		12.2500	7.58		
*DP-4	JCT	10	5.196		12.1500	52.51		
*DP-4	JCT	25	7.071		12.1500	74.24		
*DP-4	JCT	100	13.115		12.1500	143.53		

::
TIME OF CONCENTRATION CALCULATOR
::

Segment #1: Tc: TR-55 Sheet

Mannings n	.4000	
Hydraulic Length	150.00	ft
2yr, 24hr P	2.9000	in
Slope	.050000	ft/ft
Avg.Velocity	.12	ft/sec

Segment #1 Time: .3604 hrs

Segment #2: Tc: TR-55 Shallow

Hydraulic Length	50.00	ft
Slope	.040000	ft/ft
Unpaved		
Avg.Velocity	3.23	ft/sec

Segment #2 Time: .0043 hrs

Segment #3: Tc: Length & Vel.

Hydraulic Length	740.00	ft
Avg.Velocity	3.00	ft/sec

Segment #3 Time: .0685 hrs

==========
Total Tc: .4333 hrs
==========

Tc Equations used...

==== SCS TR-55 Sheet Flow ==========

```
Tc = (.007 * ((n * Lf)**0.8)) / ((P**.5) * (Sf**.4))

Where:  Tc = Time of concentration, hrs
        n  = Mannings n
        Lf = Flow length, ft
        P  = 2yr, 24hr Rain depth, inches
        Sf = Slope, %
```

==== SCS TR-55 Shallow Concentrated Flow ==========

```
Unpaved surface:
V  = 16.1345 * (Sf**0.5)

Paved surface:
V  = 20.3282 * (Sf**0.5)

Tc = (Lf / V) / (3600sec/hr)

Where:  V  = Velocity, ft/sec
        Sf = Slope, ft/ft
        Tc = Time of concentration, hrs
        Lf = Flow length, ft
```

==== User Defined Length & Velocity ==========

```
Tc = (Lf / V) / (3600sec/hr)

Where:  Tc = Time of concentration, hrs
        Lf = Flow length, ft
        V  = Velocity, ft/sec
```

::
TIME OF CONCENTRATION CALCULATOR
::

Segment #1: Tc: TR-55 Sheet

Mannings n	.4000	
Hydraulic Length	150.00	ft
2yr, 24hr P	2.9000	in
Slope	.012000	ft/ft
Avg.Velocity	.07	ft/sec

Segment #1 Time: .6379 hrs

Segment #2: Tc: TR-55 Shallow

Hydraulic Length	700.00	ft
Slope	.010000	ft/ft
Unpaved		
Avg.Velocity	1.61	ft/sec

Segment #2 Time: .1205 hrs

==========
Total Tc: .7584 hrs
==========

Tc Equations used...

==== SCS TR-55 Sheet Flow ==========

```
Tc = (.007 * ((n * Lf)**0.8)) / ((P**.5) * (Sf**.4))

Where:  Tc = Time of concentration, hrs
        n  = Mannings n
        Lf = Flow length, ft
        P  = 2yr, 24hr Rain depth, inches
        Sf = Slope, %
```

==== SCS TR-55 Shallow Concentrated Flow ==========

```
Unpaved surface:
V  = 16.1345 * (Sf**0.5)

Paved surface:
V  = 20.3282 * (Sf**0.5)

Tc = (Lf / V) / (3600sec/hr)

Where:  V  = Velocity, ft/sec
        Sf = Slope, ft/ft
        Tc = Time of concentration, hrs
        Lf = Flow length, ft
```

TIME OF CONCENTRATION CALCULATOR

Segment #1: Tc: TR-55 Sheet

Mannings n	.1500
Hydraulic Length	150.00 ft
2yr, 24hr P	2.9000 in
Slope	.015000 ft/ft
Avg.Velocity	.16 ft/sec

Segment #1 Time: .2662 hrs

Segment #2: Tc: TR-55 Shallow

Hydraulic Length	160.00 ft
Slope	.015000 ft/ft
Unpaved	
Avg.Velocity	1.98 ft/sec

Segment #2 Time: .0225 hrs

Segment #3: Tc: TR-55 Shallow

Hydraulic Length	350.00 ft
Slope	.250000 ft/ft
Unpaved	
Avg.Velocity	8.07 ft/sec

Segment #3 Time: .0121 hrs

Segment #4: Tc: TR-55 Shallow

Hydraulic Length 85.00 ft
Slope .050000 ft/ft
Unpaved

Avg.Velocity 3.61 ft/sec

Segment #4 Time: .0065 hrs

Segment #5: Tc: TR-55 Shallow

Hydraulic Length 20.00 ft
Slope .250000 ft/ft
Unpaved

Avg.Velocity 8.07 ft/sec

Segment #5 Time: .0007 hrs

Segment #6: Tc: Length & Vel.

Hydraulic Length 3570.00 ft
Avg.Velocity 3.00 ft/sec

Segment #6 Time: .3306 hrs

==========
Total Tc: .6385 hrs
==========

```
-----------------------------------------------------------------------
Tc Equations used...
-----------------------------------------------------------------------


==== SCS TR-55 Sheet Flow ==============================================

     Tc = (.007 * ((n * Lf)**0.8)) / ((P**.5) * (Sf**.4))

     Where:  Tc = Time of concentration, hrs
             n  = Mannings n
             Lf = Flow length, ft
             P  = 2yr, 24hr Rain depth, inches
             Sf = Slope, %


==== SCS TR-55 Shallow Concentrated Flow ===============================

     Unpaved surface:
     V  = 16.1345 * (Sf**0.5)

     Paved surface:
     V  = 20.3282 * (Sf**0.5)

     Tc = (Lf / V) / (3600sec/hr)

     Where:  V  = Velocity, ft/sec
             Sf = Slope, ft/ft
             Tc = Time of concentration, hrs
             Lf = Flow length, ft


==== User Defined Length & Velocity ====================================

     Tc = (Lf / V) / (3600sec/hr)

     Where:  Tc = Time of concentration, hrs
             Lf = Flow length, ft
             V  = Velocity, ft/sec
```

::
TIME OF CONCENTRATION CALCULATOR
::

Segment #1: Tc: TR-55 Sheet

Mannings n	.1500	
Hydraulic Length	150.00	ft
2yr, 24hr P	2.9000	in
Slope	.050000	ft/ft

Avg.Velocity .25 ft/sec

Segment #1 Time: .1645 hrs

Segment #2: Tc: TR-55 Shallow

Hydraulic Length	20.00	ft
Slope	.250000	ft/ft
Unpaved		

Avg.Velocity 8.07 ft/sec

Segment #2 Time: .0007 hrs

Segment #3: Tc: TR-55 Shallow

Hydraulic Length	110.00	ft
Slope	.025000	ft/ft
Unpaved		

Avg.Velocity 2.55 ft/sec

Segment #3 Time: .0120 hrs

Segment #4: Tc: TR-55 Shallow

Hydraulic Length 30.00 ft
Slope .250000 ft/ft
Unpaved

Avg.Velocity 8.07 ft/sec

Segment #4 Time: .0010 hrs

Segment #5: Tc: TR-55 Shallow

Hydraulic Length 90.00 ft
Slope .025000 ft/ft
Unpaved

Avg.Velocity 2.55 ft/sec

Segment #5 Time: .0098 hrs

Segment #6: Tc: TR-55 Shallow

Hydraulic Length 330.00 ft
Slope .250000 ft/ft
Unpaved

Avg.Velocity 8.07 ft/sec

Segment #6 Time: .0114 hrs

Segment #7: Tc: TR-55 Shallow

Hydraulic Length 220.00 ft
Slope .050000 ft/ft
Unpaved

Avg.Velocity 3.61 ft/sec

Segment #7 Time: .0169 hrs

Segment #8: Tc: Length & Vel.

Hydraulic Length 1800.00 ft
Avg.Velocity 3.00 ft/sec

Segment #8 Time: .1667 hrs

Total Tc: .3829 hrs

Tc Equations used...

==== SCS TR-55 Sheet Flow ==========

```
Tc = (.007 * ((n * Lf)**0.8)) / ((P**.5) * (Sf**.4))

Where:  Tc = Time of concentration, hrs
        n  = Mannings n
        Lf = Flow length, ft
        P  = 2yr, 24hr Rain depth, inches
        Sf = Slope, %
```

==== SCS TR-55 Shallow Concentrated Flow ==========

```
Unpaved surface:
V  = 16.1345 * (Sf**0.5)

Paved surface:
V  = 20.3282 * (Sf**0.5)

Tc = (Lf / V) / (3600sec/hr)

Where:  V  = Velocity, ft/sec
        Sf = Slope, ft/ft
        Tc = Time of concentration, hrs
        Lf = Flow length, ft
```

==== User Defined Length & Velocity ==========

```
Tc = (Lf / V) / (3600sec/hr)

Where:  Tc = Time of concentration, hrs
        Lf = Flow length, ft
        V  = Velocity, ft/sec
```

::
TIME OF CONCENTRATION CALCULATOR
::

Segment #1: Tc: TR-55 Sheet

Mannings n	.4000	
Hydraulic Length	150.00	ft
2yr, 24hr P	2.9000	in
Slope	.035000	ft/ft
Avg.Velocity	.10	ft/sec

Segment #1 Time: .4157 hrs

Segment #2: Tc: TR-55 Shallow

Hydraulic Length	450.00	ft
Slope	.010000	ft/ft
Unpaved		
Avg.Velocity	1.61	ft/sec

Segment #2 Time: .0775 hrs

Segment #3: Tc: Length & Vel.

Hydraulic Length	4890.00	ft
Avg.Velocity	3.00	ft/sec

Segment #3 Time: .4528 hrs

==========
Total Tc: .9460 hrs
==========

Tc Equations used...

==== SCS TR-55 Sheet Flow ==========

```
Tc = (.007 * ((n * Lf)**0.8)) / ((P**.5) * (Sf**.4))

Where:  Tc = Time of concentration, hrs
        n  = Mannings n
        Lf = Flow length, ft
        P  = 2yr, 24hr Rain depth, inches
        Sf = Slope, %
```

==== SCS TR-55 Shallow Concentrated Flow ==========

```
Unpaved surface:
V  = 16.1345 * (Sf**0.5)

Paved surface:
V  = 20.3282 * (Sf**0.5)

Tc = (Lf / V) / (3600sec/hr)

Where:  V  = Velocity, ft/sec
        Sf = Slope, ft/ft
        Tc = Time of concentration, hrs
        Lf = Flow length, ft
```

==== User Defined Length & Velocity ==========

```
Tc = (Lf / V) / (3600sec/hr)

Where:  Tc = Time of concentration, hrs
        Lf = Flow length, ft
        V  = Velocity, ft/sec
```

::
TIME OF CONCENTRATION CALCULATOR
::

Segment #1: Tc: TR-55 Sheet

Mannings n	.4000	
Hydraulic Length	110.00	ft
2yr, 24hr P	2.9000	in
Slope	.015000	ft/ft

Avg.Velocity .07 ft/sec

Segment #1 Time: .4552 hrs

Segment #2: Tc: Length & Vel.

Hydraulic Length	650.00	ft
Avg.Velocity	3.00	ft/sec

Segment #2 Time: .0602 hrs

==========
Total Tc: .5154 hrs
==========

Tc Equations used...

==== SCS TR-55 Sheet Flow ==========

```
Tc = (.007 * ((n * Lf)**0.8)) / ((P**.5) * (Sf**.4))

Where:  Tc = Time of concentration, hrs
        n  = Mannings n
        Lf = Flow length, ft
        P  = 2yr, 24hr Rain depth, inches
        Sf = Slope, %
```

==== User Defined Length & Velocity ==========

```
Tc = (Lf / V) / (3600sec/hr)

Where:  Tc = Time of concentration, hrs
        Lf = Flow length, ft
        V  = Velocity, ft/sec
```

::
TIME OF CONCENTRATION CALCULATOR
::

Segment #1: Tc: TR-55 Sheet

Mannings n	.4000	
Hydraulic Length	65.00	ft
2yr, 24hr P	2.9000	in
Slope	.140000	ft/ft

Avg.Velocity .15 ft/sec

Segment #1 Time: .1223 hrs

Segment #2: Tc: TR-55 Sheet

Mannings n	.4000	
Hydraulic Length	85.00	ft
2yr, 24hr P	2.9000	in
Slope	.020000	ft/ft

Avg.Velocity .07 ft/sec

Segment #2 Time: .3301 hrs

Segment #3: Tc: TR-55 Shallow

Hydraulic Length	160.00	ft
Slope	.035000	ft/ft
Unpaved		

Avg.Velocity 3.02 ft/sec

Segment #3 Time: .0147 hrs

==========
Total Tc: .4671 hrs
==========

Tc Equations used...

==== SCS TR-55 Sheet Flow ==========

```
Tc = (.007 * ((n * Lf)**0.8)) / ((P**.5) * (Sf**.4))

Where:  Tc = Time of concentration, hrs
        n  = Mannings n
        Lf = Flow length, ft
        P  = 2yr, 24hr Rain depth, inches
        Sf = Slope, %
```

==== SCS TR-55 Shallow Concentrated Flow ==========

```
Unpaved surface:
V  = 16.1345 * (Sf**0.5)

Paved surface:
V  = 20.3282 * (Sf**0.5)

Tc = (Lf / V) / (3600sec/hr)

Where:  V  = Velocity, ft/sec
        Sf = Slope, ft/ft
        Tc = Time of concentration, hrs
        Lf = Flow length, ft
```

::
TIME OF CONCENTRATION CALCULATOR
::

Segment #1: Tc: TR-55 Sheet

Mannings n	.1500	
Hydraulic Length	125.00	ft
2yr, 24hr P	2.9000	in
Slope	.010000	ft/ft

Avg.Velocity .13 ft/sec

Segment #1 Time: .2706 hrs

Segment #2: Tc: TR-55 Sheet

Mannings n	.1500	
Hydraulic Length	25.00	ft
2yr, 24hr P	2.9000	in
Slope	.250000	ft/ft

Avg.Velocity .34 ft/sec

Segment #2 Time: .0206 hrs

Segment #3: Tc: TR-55 Shallow

Hydraulic Length	40.00	ft
Slope	.250000	ft/ft
Unpaved		

Avg.Velocity 8.07 ft/sec

Segment #3 Time: .0014 hrs

Segment #4: Tc: TR-55 Shallow

Hydraulic Length 90.00 ft
Slope .050000 ft/ft
Unpaved

Avg.Velocity 3.61 ft/sec

Segment #4 Time: .0069 hrs

Segment #5: Tc: TR-55 Shallow

Hydraulic Length 75.00 ft
Slope .100000 ft/ft
Unpaved

Avg.Velocity 5.10 ft/sec

Segment #5 Time: .0041 hrs

Segment #6: Tc: TR-55 Shallow

Hydraulic Length 245.00 ft
Slope .250000 ft/ft
Unpaved

Avg.Velocity 8.07 ft/sec

Segment #6 Time: .0084 hrs

Segment #7: Tc: Length & Vel.

Hydraulic Length 2680.00 ft
Avg.Velocity 6.00 ft/sec

Segment #7 Time: .1241 hrs

==========
Total Tc: .4361 hrs
==========

Tc Equations used...

==== SCS TR-55 Sheet Flow ==========

```
Tc = (.007 * ((n * Lf)**0.8)) / ((P**.5) * (Sf**.4))

Where:  Tc = Time of concentration, hrs
        n  = Mannings n
        Lf = Flow length, ft
        P  = 2yr, 24hr Rain depth, inches
        Sf = Slope, %
```

==== SCS TR-55 Shallow Concentrated Flow ==========

```
Unpaved surface:
V  = 16.1345 * (Sf**0.5)

Paved surface:
V  = 20.3282 * (Sf**0.5)

Tc = (Lf / V) / (3600sec/hr)

Where:  V  = Velocity, ft/sec
        Sf = Slope, ft/ft
        Tc = Time of concentration, hrs
        Lf = Flow length, ft
```

==== User Defined Length & Velocity ==========

```
Tc = (Lf / V) / (3600sec/hr)

Where:  Tc = Time of concentration, hrs
        Lf = Flow length, ft
        V  = Velocity, ft/sec
```

RUNOFF CURVE NUMBER DATA

Soil/Surface Description	CN	Area acres	Impervious Adjustment %C	Impervious Adjustment %UC	Adjusted CN
Brush - Good Cond (HSG A)	30	3.800			30.00
Brush - Good Cond (HSG B)	48	7.500			48.00
Brush - Good Cond (HSG C)	65	3.600			65.00
Impervious (HSG C)	98	1.500			98.00
Open Space - Good Cond (HSG A)	39	1.200			39.00
Open Space - Good Cond (HSG B)	61	2.100			61.00
Open Space - Good Cond (HSG C)	74	2.600			74.00
Wetland (HSG A)	72	.500			72.00
Wetland (HSG B)	80	1.600			80.00
Wetland (HSG C)	85	1.900			85.00
Woods - Good Cond (HSG A)	30	5.300			30.00
Woods - Good Cond (HSG B)	55	6.600			55.00
Woods - Good Cond (HSG C)	70	7.500			70.00
Woods - Good Cond (HSG D)	77	1.100			77.00
COMPOSITE AREA & WEIGHTED CN --->		46.800			57.25 (57)

RUNOFF CURVE NUMBER DATA

Soil/Surface Description	CN	Area acres	Impervious Adjustment %C	Impervious Adjustment %UC	Adjusted CN
Wetland (HSG B)	80	1.900			80.00
Wetland (HSG C)	85	.900			85.00
Wetland (HSG D)	90	2.800			90.00
Woods - Good Cond (HSG A)	30	1.300			30.00
Woods - Good Cond (HSG B)	55	2.100			55.00
Woods - Good Cond (HSG C)	70	7.400			70.00
Woods - Good Cond (HSG D)	77	1.500			77.00
COMPOSITE AREA & WEIGHTED CN --->		17.900			70.87 (71)

RUNOFF CURVE NUMBER DATA
::

Soil/Surface Description	CN	Area acres	Impervious Adjustment %C	%UC	Adjusted CN
Brush - Good Cond (HSG A)	30	1.900			30.00
Brush - Good Cond (HSG C)	65	.700			65.00
Impervious (HSG A)	98	.100			98.00
Impervious (HSG C)	98	1.200			98.00
Open Space - Good Cond (HSG C)	74	39.200			74.00
Wetland (HSG A)	72	.500			72.00
Wetland (HSG C)	85	1.200			85.00
Wetland (HSG D)	90	6.300			90.00
Woods - Good Cond (HSG A)	30	10.400			30.00
Woods - Good Cond (HSG B)	55	1.100			55.00
Woods - Good Cond (HSG C)	70	1.100			70.00
Woods - Good Cond (HSG D)	77	1.100			77.00
COMPOSITE AREA & WEIGHTED CN --->		64.800			67.44 (67)

::

RUNOFF CURVE NUMBER DATA

Soil/Surface Description	CN	Area acres	Impervious Adjustment %C	Impervious Adjustment %UC	Adjusted CN
Impervious (HSG C)	98	2.000			98.00
Open Space - Good Cond (HSG C)	74	7.400			74.00
COMPOSITE AREA & WEIGHTED CN --->		9.400			79.11 (79)

RUNOFF CURVE NUMBER DATA

Soil/Surface Description	CN	Area acres	Impervious Adjustment %C	Impervious Adjustment %UC	Adjusted CN
Brush - Good Cond (HSG A)	30	2.300			30.00
Brush - Good Cond (HSG C)	65	.900			65.00
Brush - Good Cond (HSG D)	73	10.800			73.00
Impervious (HSG A)	98	.300			98.00
Impervious (HSG D)	98	1.500			98.00
Wetland (HSG A)	72	1.000			72.00
Wetland (HSG B)	80	.800			80.00
Wetland (HSG C)	85	3.400			85.00
Wetland (HSG D)	90	9.300			90.00
Woods - Good Cond (HSG A)	30	4.700			30.00
Woods - Good Cond (HSG B)	55	1.800			55.00
Woods - Good Cond (HSG C)	70	1.600			70.00
Woods - Good Cond (HSG D)	77	7.000			77.00
COMPOSITE AREA & WEIGHTED CN --->		45.400			71.48 (71)

RUNOFF CURVE NUMBER DATA

Soil/Surface Description	CN	Area acres	Impervious Adjustment %C	Impervious Adjustment %UC	Adjusted CN
Brush - Good Cond (HSG A)	30	1.200			30.00
Brush - Good Cond (HSG B)	48	2.100			48.00
Impervious (HSG A)	98	.100			98.00
Wetland (HSG B)	80	2.800			80.00
Wetland (HSG D)	90	5.500			90.00
Woods (HSG A)	30	5.000			30.00
Woods (HSG B)	55	1.900			55.00
COMPOSITE AREA & WEIGHTED CN --->		18.600			60.22 (60)

RUNOFF CURVE NUMBER DATA

Soil/Surface Description	CN`	Area acres	Impervious Adjustment %C	%UC	Adjusted CN
Impervious (HSG A)	98	2.600			98.00
Open Space - Good Cond (HSG C)	74	3.900			74.00
Woods (HSG A)	30	8.400			30.00
COMPOSITE AREA & WEIGHTED CN --->		14.900			53.38 (53)

RUNOFF CURVE NUMBER DATA
::

Soil/Surface Description	CN	Area acres	Impervious Adjustment %C	%UC	Adjusted CN
Brush - Good Cond (HSG A)	30	.600			30.00
Brush - Good Cond (HSG B)	48	9.200			48.00
Impervious (HSG A)	98	.300			98.00
Impervious (HSG B)	98	2.600			98.00
Open Space - Good Cond (HSG A)	39	1.300			39.00
Open Space - Good Cond (HSG C)	74	15.100			74.00
Woods (HSG B)	55	4.200			55.00
Woods (HSG C)	70	15.800			70.00
COMPOSITE AREA & WEIGHTED CN --->		49.100			66.17 (66)

::

Elevation (ft)	Planimeter (sq.in)	Area (acres)	A1+A2+sqr(A1*A2) (acres)	Volume (ac-ft)	Volume Sum (ac-ft)
294.00	-----	.0100	.0000	.000	.000
295.00	-----	.4700	.5486	.183	.183
300.00	-----	.8300	1.9246	3.208	3.390
304.00	-----	1.1900	3.0138	4.018	7.409
305.00	-----	1.2600	3.6745	1.225	8.634

POND VOLUME EQUATIONS

* Incremental volume computed by the Conic Method for Reservoir Volumes.

Volume = (1/3) * (EL2-EL1) * (Area1 + Area2 + sq.rt.(Area1*Area2))

where: EL1, EL2 = Lower and upper elevations of the increment
Area1,Area2 = Areas computed for EL1, EL2, respectively
Volume = Incremental volume between EL1 and EL2

REQUESTED POND WS ELEVATIONS:

Min. Elev.= 294.00 ft
Increment = .10 ft
Max. Elev.= 305.00 ft

```
*********************************************
                OUTLET CONNECTIVITY
*********************************************

 ---> Forward Flow Only (UpStream to DnStream)
<---  Reverse Flow Only (DnStream to UpStream)
<---> Forward and Reverse Both Allowed
```

Structure	No.		Outfall	E1, ft	E2, ft
Culvert-Circular	C0	--->	TW	294.000	305.000
Weir-Rectangular	W0	--->	TW	304.500	305.000
TW SETUP, DS Channel					

OUTLET STRUCTURE INPUT DATA

```
Structure ID       = C0
Structure Type     = Culvert-Circular
-----------------------------------
No. Barrels        =         1
Barrel Diameter    =    1.0000 ft
Upstream Invert    =    294.00 ft
Dnstream Invert    =    292.40 ft
Horiz. Length      =    130.00 ft
Barrel Length      =    130.01 ft
Barrel Slope       =    .01231 ft/ft

OUTLET CONTROL DATA...
Mannings n         =     .0210
Ke                 =     .5000  (forward entrance loss)
Kb                 =   .081607  (per ft of full flow)
Kr                 =     .5000  (reverse entrance loss)
HW Convergence     =      .001  +/- ft

INLET CONTROL DATA...
Equation form      =         2
Inlet Control K    =     .5340
Inlet Control M    =     .5550
Inlet Control c    =    .01960
Inlet Control Y    =     .9000
T1 ratio (HW/D)    =     1.070
T2 ratio (HW/D)    =     1.207
Slope Factor       =     -.500

Use unsubmerged inlet control Form 2 equ. below T1 elev.
Use   submerged inlet control Form 2 equ. above T2 elev.

In transition zone between unsubmerged and submerged inlet control,
interpolate between flows at T1 & T2...
At T1 Elev =    295.07 ft  --->  Flow =      2.75 cfs
At T2 Elev =    295.21 ft  --->  Flow =      3.14 cfs
```

OUTLET STRUCTURE INPUT DATA

```
Structure ID      = W0
Structure Type    = Weir-Rectangular
------------------------------------
# of Openings     =         1
Crest Elev.       =    304.50 ft
Weir Length       =     25.00 ft
Weir Coeff.       =  3.000000

Weir TW effects     (Use adjustment equation)
```

```
Structure ID      = TW
Structure Type    = TW SETUP, DS Channel
------------------------------------
FREE OUTFALL CONDITIONS SPECIFIED

CONVERGENCE TOLERANCES...
Maximum Iterations=    40
Min. TW tolerance =    .01 ft
Max. TW tolerance =    .01 ft
Min. HW tolerance =    .01 ft
Max. HW tolerance =    .01 ft
Min.  Q tolerance =    .00 cfs
Max.  Q tolerance =    .00 cfs
```

***** COMPOSITE OUTFLOW SUMMARY ****

WS Elev, Total Q		Notes		
		Converge		
Elev. ft	Q cfs	TW Elev ft	Error +/-ft	Contributing Structures
294.00	.00	Free Outfall		None contributing
294.10	.03	Free Outfall		C0
294.20	.11	Free Outfall		C0
294.30	.24	Free Outfall		C0
294.40	.41	Free Outfall		C0
294.50	.62	Free Outfall		C0
294.60	.87	Free Outfall		C0
294.70	1.15	Free Outfall		C0
294.80	1.45	Free Outfall		C0
294.90	1.77	Free Outfall		C0
295.00	2.10	Free Outfall		C0
295.10	2.41	Free Outfall		C0
295.20	2.64	Free Outfall		C0
295.30	2.71	Free Outfall		C0
295.40	2.73	Free Outfall		C0
295.50	2.77	Free Outfall		C0
295.60	2.81	Free Outfall		C0
295.70	2.86	Free Outfall		C0
295.80	2.91	Free Outfall		C0
295.90	2.95	Free Outfall		C0
296.00	3.00	Free Outfall		C0
296.10	3.05	Free Outfall		C0
296.20	3.10	Free Outfall		C0
296.30	3.15	Free Outfall		C0
296.40	3.20	Free Outfall		C0
296.50	3.24	Free Outfall		C0
296.60	3.30	Free Outfall		C0
296.70	3.35	Free Outfall		C0
296.80	3.40	Free Outfall		C0
296.90	3.44	Free Outfall		C0
297.00	3.49	Free Outfall		C0
297.10	3.53	Free Outfall		C0
297.20	3.58	Free Outfall		C0
297.30	3.62	Free Outfall		C0
297.40	3.66	Free Outfall		C0
297.50	3.71	Free Outfall		C0
297.60	3.75	Free Outfall		C0
297.70	3.79	Free Outfall		C0

***** COMPOSITE OUTFLOW SUMMARY ****

WS Elev, Total Q		Notes		
		Converge		
Elev. ft	Q cfs	TW Elev ft	Error +/-ft	Contributing Structures
297.80	3.83	Free Outfall		C0
297.90	3.88	Free Outfall		C0
298.00	3.92	Free Outfall		C0
298.10	3.96	Free Outfall		C0
298.20	4.00	Free Outfall		C0
298.30	4.04	Free Outfall		C0
298.40	4.08	Free Outfall		C0
298.50	4.12	Free Outfall		C0
298.60	4.15	Free Outfall		C0
298.70	4.19	Free Outfall		C0
298.80	4.23	Free Outfall		C0
298.90	4.27	Free Outfall		C0
299.00	4.31	Free Outfall		C0
299.10	4.34	Free Outfall		C0
299.20	4.38	Free Outfall		C0
299.30	4.41	Free Outfall		C0
299.40	4.45	Free Outfall		C0
299.50	4.49	Free Outfall		C0
299.60	4.52	Free Outfall		C0
299.70	4.56	Free Outfall		C0
299.80	4.59	Free Outfall		C0
299.90	4.63	Free Outfall		C0
300.00	4.66	Free Outfall		C0
300.10	4.70	Free Outfall		C0
300.20	4.73	Free Outfall		C0
300.30	4.77	Free Outfall		C0
300.40	4.80	Free Outfall		C0
300.50	4.84	Free Outfall		C0
300.60	4.87	Free Outfall		C0
300.70	4.90	Free Outfall		C0
300.80	4.94	Free Outfall		C0
300.90	4.97	Free Outfall		C0
301.00	5.00	Free Outfall		C0
301.10	5.03	Free Outfall		C0
301.20	5.07	Free Outfall		C0
301.30	5.10	Free Outfall		C0
301.40	5.13	Free Outfall		C0
301.50	5.16	Free Outfall		C0

***** COMPOSITE OUTFLOW SUMMARY ****

WS Elev, Total Q		Notes		
		Converge		
Elev. ft	Q cfs	TW Elev ft	Error +/-ft	Contributing Structures
301.60	5.19	Free Outfall		C0
301.70	5.22	Free Outfall		C0
301.80	5.26	Free Outfall		C0
301.90	5.29	Free Outfall		C0
302.00	5.32	Free Outfall		C0
302.10	5.35	Free Outfall		C0
302.20	5.38	Free Outfall		C0
302.30	5.41	Free Outfall		C0
302.40	5.44	Free Outfall		C0
302.50	5.47	Free Outfall		C0
302.60	5.50	Free Outfall		C0
302.70	5.53	Free Outfall		C0
302.80	5.56	Free Outfall		C0
302.90	5.59	Free Outfall		C0
303.00	5.62	Free Outfall		C0
303.10	5.65	Free Outfall		C0
303.20	5.67	Free Outfall		C0
303.30	5.70	Free Outfall		C0
303.40	5.73	Free Outfall		C0
303.50	5.76	Free Outfall		C0
303.60	5.79	Free Outfall		C0
303.70	5.81	Free Outfall		C0
303.80	5.84	Free Outfall		C0
303.90	5.87	Free Outfall		C0
304.00	5.90	Free Outfall		C0
304.10	5.93	Free Outfall		C0
304.20	5.95	Free Outfall		C0
304.30	5.98	Free Outfall		C0
304.40	6.01	Free Outfall		C0
304.50	6.04	Free Outfall		C0 +W0
304.60	8.43	Free Outfall		C0 +W0
304.70	12.80	Free Outfall		C0 +W0
304.80	18.44	Free Outfall		C0 +W0
304.90	25.12	Free Outfall		C0 +W0
305.00	32.69	Free Outfall		C0 +W0

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----- D -----
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----- O -----
Outlet 1... 5.01, 5.04

----- W -----
Watershed... 1.01

==========
JOB TITLE
==========

Project Date: 5/10/2007
Project Engineer: Seth Erlich
Project Title: Albany Landfill East Expansion
Project Comments:
Landfill and lateral expansion area assumed to be capped and are modeled as Open Space - Good Condition (HSG C).

Typical roadside swale velocity calculated as 6 ft/s.
Typical grassed swale velocity calculated as 3 ft/s.

Existing basin removed as result of landfill lateral expansion (DA-3D incorporated into DA-3A).

Subareas DA-2 and DA-4 remain unchanged from existing to proposed condition. Refer to existing condition model for existing and proposed flows and subarea data for DA-2, DP-2, DA-4 and DP-4.

See Existing Condition Watershed figure for explanation of drainage areas.

DA-3 is divided into five subareas. DA-3A represents the existing landfill, DA-3B - the area just north of the existing swale to DP-3, and DA-3C1 and 2 - the area east of the existing swale to DP-3.

Note: DA-3C is to allow for pre to post analysis of the future site of relocated buildings (DA-3C2) and the surrounding area (DA-3C1).

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DA-3C1..... Tc Calcs 2.08

DA-3C2..... Tc Calcs 2.10

********** CN CALCULATIONS **********

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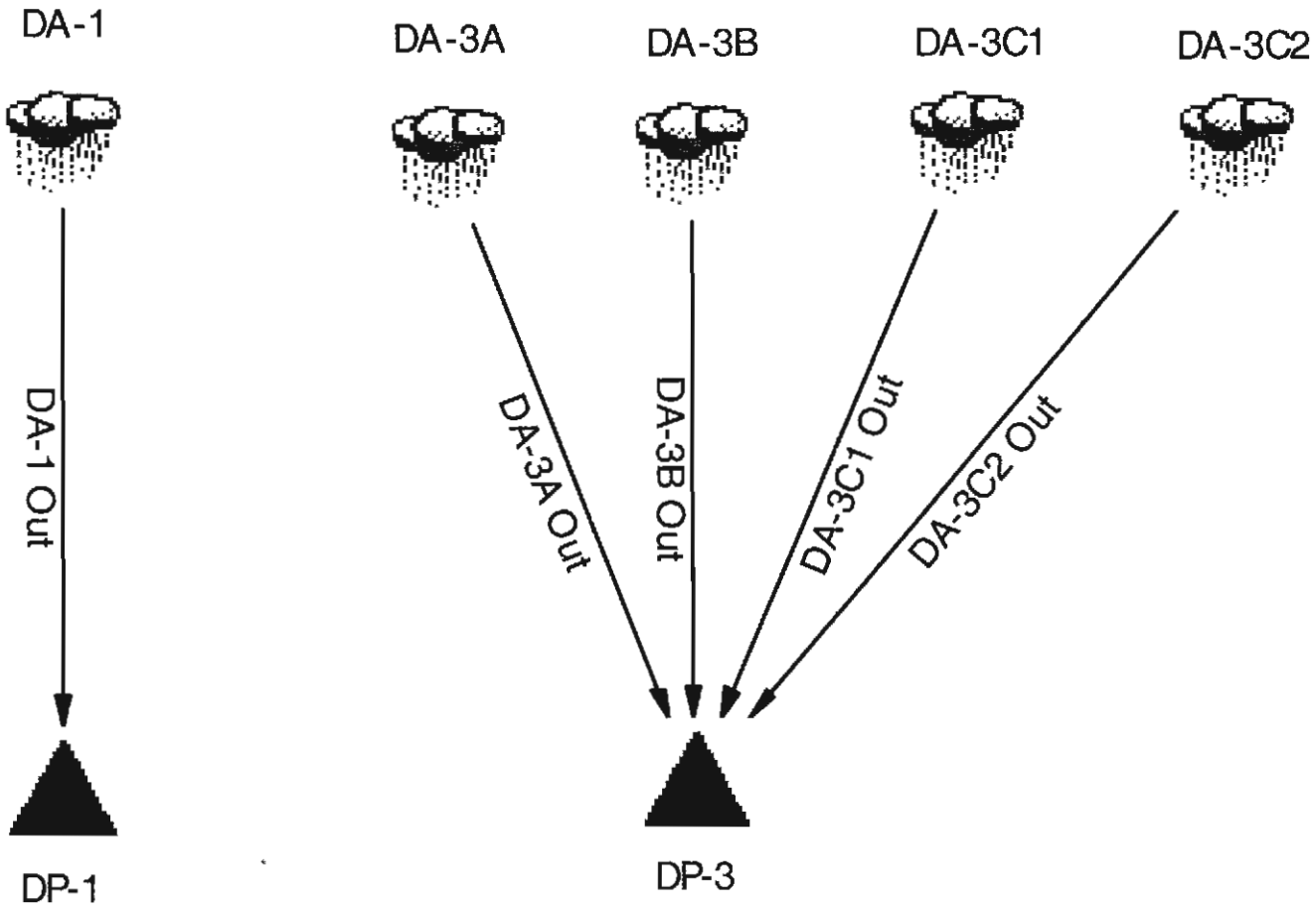
DA-3A..... Runoff CN-Area 3.02

DA-3B..... Runoff CN-Area 3.03

DA-3C1..... Runoff CN-Area 3.04

DA-3C2..... Runoff CN-Area 3.05


DA-1
DA-3A
DA-3B
DA-3C1
DA-3C2
DA-1 Out
DA-3A Out
DA-3B Out
DA-3C1 Out
DA-3C2 Out
DP-1
DP-3

MASTER DESIGN STORM SUMMARY

Network Storm Collection: Albany County

Return Event	Total Depth in	Rainfall Type	RNF ID
1	2.4000	Synthetic Curve	TypeII 24hr
10	4.3000	Synthetic Curve	TypeII 24hr
25	5.0000	Synthetic Curve	TypeII 24hr
100	7.0000	Synthetic Curve	TypeII 24hr

MASTER NETWORK SUMMARY
SCS Unit Hydrograph Method

(*Node=Outfall; +Node=Diversion;)
(Trun= HYG Truncation: Blank=None; L=Left; R=Rt; LR=Left&Rt)

Node ID	Type	Return Event	HYG Vol ac-ft	Trun	Qpeak hrs	Qpeak cfs	Max WSEL ft	Max Pond Storage ac-ft
DA-1	AREA	1	1.200		12.6500	3.74		
DA-1	AREA	10	6.530		12.4500	39.93		
DA-1	AREA	25	9.146		12.4500	59.55		
DA-1	AREA	100	17.811		12.4000	124.82		
DA-3A	AREA	1	1.018		12.2500	4.14		
DA-3A	AREA	10	5.898		12.1500	60.02		
DA-3A	AREA	25	8.328		12.1500	90.09		
DA-3A	AREA	100	16.435		12.1500	189.11		
DA-3B	AREA	1	.581		12.5500	3.11		
DA-3B	AREA	10	2.037		12.4500	13.43		
DA-3B	AREA	25	2.674		12.4500	17.97		
DA-3B	AREA	100	4.659		12.4500	31.96		

MASTER NETWORK SUMMARY
SCS Unit Hydrograph Method

(*Node=Outfall; +Node=Diversion;)
(Trun= HYG Truncation: Blank=None; L=Left; R=Rt; LR=Left&Rt)

Node ID	Type	Return Event	HYG Vol ac-ft	Trun	Qpeak hrs	Qpeak cfs	Max WSEL ft	Max Pond Storage ac-ft
DA-3C1	AREA	1	.228		12.4500	.69		
DA-3C1	AREA	10	1.416		12.2500	11.41		
DA-3C1	AREA	25	2.017		12.2500	17.49		
DA-3C1	AREA	100	4.036		12.2000	38.22		
DA-3C2	AREA	1	.098		12.6500	.15		
DA-3C2	AREA	10	.873		12.1000	8.74		
DA-3C2	AREA	25	1.293		12.1000	14.58		
DA-3C2	AREA	100	2.754		12.1000	34.88		
*DP-1	JCT	1	1.200		12.6500	3.74		
*DP-1	JCT	10	6.530		12.4500	39.93		
*DP-1	JCT	25	9.146		12.4500	59.55		
*DP-1	JCT	100	17.811		12.4000	124.82		
*DP-3	JCT	1	1.925		12.3500	7.31		
*DP-3	JCT	10	10.224		12.1500	87.43		
*DP-3	JCT	25	14.312		12.1500	132.14		
*DP-3	JCT	100	27.884		12.1500	280.24		

```
::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
TIME OF CONCENTRATION CALCULATOR
::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::


----------------------------------------------------------------------


Segment #1:  Tc: TR-55 Sheet

Mannings n          .4000
Hydraulic Length   150.00 ft
2yr, 24hr P        2.9000 in
Slope             .027000 ft/ft

Avg.Velocity          .09 ft/sec

                                        Segment #1 Time:     .4612 hrs
----------------------------------------------------------------------

Segment #2:  Tc: TR-55 Shallow

Hydraulic Length   500.00 ft
Slope             .010000 ft/ft
Unpaved

Avg.Velocity         1.61 ft/sec

                                        Segment #2 Time:     .0861 hrs
----------------------------------------------------------------------

Segment #3:  Tc: Length & Vel.

Hydraulic Length  2945.00 ft
Avg.Velocity         3.00 ft/sec

                                        Segment #3 Time:     .2727 hrs
----------------------------------------------------------------------

                                                 ========================
                                                  Total Tc:     .8200 hrs
                                                 ========================
```

Tc Equations used...

==== SCS TR-55 Sheet Flow ==========

```
Tc = (.007 * ((n * Lf)**0.8)) / ((P**.5) * (Sf**.4))

Where:  Tc = Time of concentration, hrs
        n  = Mannings n
        Lf = Flow length, ft
        P  = 2yr, 24hr Rain depth, inches
        Sf = Slope, %
```

==== SCS TR-55 Shallow Concentrated Flow ==========

```
Unpaved surface:
V  = 16.1345 * (Sf**0.5)

Paved surface:
V  = 20.3282 * (Sf**0.5)

Tc = (Lf / V) / (3600sec/hr)

Where:  V  = Velocity, ft/sec
        Sf = Slope, ft/ft
        Tc = Time of concentration, hrs
        Lf = Flow length, ft
```

==== User Defined Length & Velocity ==========

```
Tc = (Lf / V) / (3600sec/hr)

Where:  Tc = Time of concentration, hrs
        Lf = Flow length, ft
        V  = Velocity, ft/sec
```

::
TIME OF CONCENTRATION CALCULATOR
::

Segment #1: Tc: TR-55 Sheet

Mannings n	.1500	
Hydraulic Length	150.00	ft
2yr, 24hr P	2.9000	in
Slope	.030000	ft/ft

Avg.Velocity .21 ft/sec

Segment #1 Time: .2017 hrs

Segment #2: Tc: TR-55 Shallow

Hydraulic Length	310.00	ft
Slope	.030000	ft/ft
Unpaved		

Avg.Velocity 2.79 ft/sec

Segment #2 Time: .0308 hrs

Segment #3: Tc: TR-55 Shallow

Hydraulic Length	530.00	ft
Slope	.330000	ft/ft
Unpaved		

Avg.Velocity 9.27 ft/sec

Segment #3 Time: .0159 hrs

Segment #4: Tc: TR-55 Shallow

Hydraulic Length 80.00 ft
Slope .060000 ft/ft
Unpaved

Avg.Velocity 3.95 ft/sec

Segment #4 Time: .0056 hrs

Segment #5: Tc: Length & Vel.

Hydraulic Length 1360.00 ft
Avg.Velocity 3.00 ft/sec

Segment #5 Time: .1259 hrs

==========
Total Tc: .3800 hrs
==========

Tc Equations used...

==== SCS TR-55 Sheet Flow ==========

```
Tc = (.007 * ((n * Lf)**0.8)) / ((P**.5) * (Sf**.4))

Where:  Tc = Time of concentration, hrs
        n  = Mannings n
        Lf = Flow length, ft
        P  = 2yr, 24hr Rain depth, inches
        Sf = Slope, %
```

==== SCS TR-55 Shallow Concentrated Flow ==========

```
Unpaved surface:
V  = 16.1345 * (Sf**0.5)

Paved surface:
V  = 20.3282 * (Sf**0.5)

Tc = (Lf / V) / (3600sec/hr)

Where:  V  = Velocity, ft/sec
        Sf = Slope, ft/ft
        Tc = Time of concentration, hrs
        Lf = Flow length, ft
```

==== User Defined Length & Velocity ==========

```
Tc = (Lf / V) / (3600sec/hr)

Where:  Tc = Time of concentration, hrs
        Lf = Flow length, ft
        V  = Velocity, ft/sec
```

::
TIME OF CONCENTRATION CALCULATOR
::

Segment #1: Tc: TR-55 Sheet

Mannings n	.4000
Hydraulic Length	150.00 ft
2yr, 24hr P	2.9000 in
Slope	.035000 ft/ft
Avg.Velocity	.10 ft/sec

Segment #1 Time: .4157 hrs

Segment #2: Tc: TR-55 Shallow

Hydraulic Length	110.00 ft
Slope	.010000 ft/ft
Unpaved	
Avg.Velocity	1.61 ft/sec

Segment #2 Time: .0189 hrs

Segment #3: Tc: Length & Vel.

Hydraulic Length	4890.00 ft
Avg.Velocity	3.00 ft/sec

Segment #3 Time: .4528 hrs

==========
Total Tc: .8874 hrs
==========

Tc Equations used...

==== SCS TR-55 Sheet Flow ==========

```
Tc = (.007 * ((n * Lf)**0.8)) / ((P**.5) * (Sf**.4))

Where:  Tc = Time of concentration, hrs
        n  = Mannings n
        Lf = Flow length, ft
        P  = 2yr, 24hr Rain depth, inches
        Sf = Slope, %
```

==== SCS TR-55 Shallow Concentrated Flow ==========

```
Unpaved surface:
V  = 16.1345 * (Sf**0.5)

Paved surface:
V  = 20.3282 * (Sf**0.5)

Tc = (Lf / V) / (3600sec/hr)

Where:  V  = Velocity, ft/sec
        Sf = Slope, ft/ft
        Tc = Time of concentration, hrs
        Lf = Flow length, ft
```

==== User Defined Length & Velocity ==========

```
Tc = (Lf / V) / (3600sec/hr)

Where:  Tc = Time of concentration, hrs
        Lf = Flow length, ft
        V  = Velocity, ft/sec
```

::
TIME OF CONCENTRATION CALCULATOR
::

Segment #1: Tc: TR-55 Sheet

Mannings n	.4000	
Hydraulic Length	110.00	ft
2yr, 24hr P	2.9000	in
Slope	.015000	ft/ft

Avg.Velocity .07 ft/sec

Segment #1 Time: .4552 hrs

Segment #2: Tc: Length & Vel.

Hydraulic Length	650.00	ft
Avg.Velocity	3.00	ft/sec

Segment #2 Time: .0602 hrs

==========
Total Tc: .5154 hrs
==========

Tc Equations used...

==== SCS TR-55 Sheet Flow ==========

```
Tc = (.007 * ((n * Lf)**0.8)) / ((P**.5) * (Sf**.4))

Where:  Tc = Time of concentration, hrs
        n  = Mannings n
        Lf = Flow length, ft
        P  = 2yr, 24hr Rain depth, inches
        Sf = Slope, %
```

==== User Defined Length & Velocity ==========

```
Tc = (Lf / V) / (3600sec/hr)

Where:  Tc = Time of concentration, hrs
        Lf = Flow length, ft
        V  = Velocity, ft/sec
```

::
TIME OF CONCENTRATION CALCULATOR
::

Segment #1: Tc: TR-55 Sheet

Mannings n	.0110	
Hydraulic Length	60.00	ft
2yr, 24hr P	2.9000	in
Slope	.500000	ft/ft
Avg.Velocity	4.28	ft/sec

Segment #1 Time: .0039 hrs

Segment #2: Tc: TR-55 Sheet

Mannings n	.2400	
Hydraulic Length	90.00	ft
2yr, 24hr P	2.9000	in
Slope	.015000	ft/ft
Avg.Velocity	.10	ft/sec

Segment #2 Time: .2576 hrs

Segment #3: Tc: Length & Vel.

Hydraulic Length	460.00	ft
Avg.Velocity	3.00	ft/sec

Segment #3 Time: .0426 hrs

==========
Total Tc: .3041 hrs
==========

Tc Equations used...

==== SCS TR-55 Sheet Flow ==========

```
Tc = (.007 * ((n * Lf)**0.8)) / ((P**.5) * (Sf**.4))

Where:  Tc = Time of concentration, hrs
        n  = Mannings n
        Lf = Flow length, ft
        P  = 2yr, 24hr Rain depth, inches
        Sf = Slope, %
```

==== User Defined Length & Velocity ==========

```
Tc = (Lf / V) / (3600sec/hr)

Where:  Tc = Time of concentration, hrs
        Lf = Flow length, ft
        V  = Velocity, ft/sec
```

RUNOFF CURVE NUMBER DATA

Soil/Surface Description	CN	Area acres	Impervious Adjustment %C	Impervious Adjustment %UC	Adjusted CN
Brush - Good Cond (HSG A)	30	6.300			30.00
Brush - Good Cond (HSG B)	48	7.500			48.00
Brush - Good Cond (HSG C)	65	9.200			65.00
Brush - Good Cond (HSG D)	73	6.800			73.00
Impervious (HSG C)	98	.300			98.00
Open Space - Good Cond (HSG A)	39	1.200			39.00
Open Space - Good Cond (HSG B)	61	2.100			61.00
Wetland (HSG A)	72	2.700			72.00
Wetland (HSG B)	80	1.600			80.00
Wetland (HSG C)	85	5.600			85.00
Wetland (HSG D)	90	6.500			90.00
Woods - Good Cond (HSG A)	30	6.400			30.00
Woods - Good Cond (HSG B)	55	6.600			55.00
Woods - Good Cond (HSG C)	70	12.400			70.00
Woods - Good Cond (HSG D)	77	1.100			77.00
COMPOSITE AREA & WEIGHTED CN --->		76.300			62.11 (62)

RUNOFF CURVE NUMBER DATA
::

Soil/Surface Description	CN	Area acres	Impervious Adjustment %C	%UC	Adjusted CN
Brush - Good Cond (HSG A)	30	.800			30.00
Brush - Good Cond (HSG C)	65	1.300			65.00
Brush - Good Cond (HSG D)	73	1.200			73.00
Impervious (HSG C)	98	1.500			98.00
Impervious (HSG D)	98	.400			98.00
Open Space - Good Cond (HSG B)	61	62.200			61.00
Wetland (HSG B)	80	.200			80.00
Woods - Good Cond (HSG A)	30	1.800			30.00
Woods - Good Cond (HSG B)	55	2.900			55.00
Woods - Good Cond (HSG D)	77	.700			77.00
COMPOSITE AREA & WEIGHTED CN --->		73.000			61.09 (61)

::

RUNOFF CURVE NUMBER DATA
::

Soil/Surface Description	CN	Area acres	Impervious Adjustment %C	%UC	Adjusted CN
Brush - Good Cond (HSG A)	30	.600			30.00
Brush - Good Cond (HSG C)	65	1.700			65.00
Brush - Good Cond (HSG D)	73	6.500			73.00
Wetland (HSG D)	90	3.900			90.00
Woods - Good Cond (HSG A)	30	1.100			30.00
Woods - Good Cond (HSG D)	77	.800			77.00
COMPOSITE AREA & WEIGHTED CN --->		14.600			71.82 (72)

::

File.... K:\12206\EXPANSION\Stormwater\PondPack\Proposed Condition.ppw

RUNOFF CURVE NUMBER DATA

Soil/Surface Description	CN	Area acres	Impervious Adjustment %C	Impervious Adjustment %UC	Adjusted CN
Brush - Good Cond (HSG A)	30	1.200			30.00
Brush - Good Cond (HSG B)	48	2.100			48.00
Impervious (HSG A)	98	.100			98.00
Wetland (HSG B)	80	2.800			80.00
Wetland (HSG D)	90	5.500			90.00
Woods (HSG A)	30	5.000			30.00
Woods (HSG B)	55	1.900			55.00
COMPOSITE AREA & WEIGHTED CN --->		18.600			60.22 (60)

RUNOFF CURVE NUMBER DATA

Soil/Surface Description	CN	Area acres	Impervious Adjustment %C	Impervious Adjustment %UC	Adjusted CN
Impervious (HSG A)	98	3.900			98.00
Open Space (HSG B)	61	3.900			61.00
Woods (HSG A)	30	7.100			30.00
COMPOSITE AREA & WEIGHTED CN --->		14.900			55.91 (56)

==========
JOB TITLE
==========

Project Date: 5/10/2007
Project Engineer: Seth Erlich
Project Title: Albany Landfill East Expansion
Project Comments:
As a result of the project, landfill and lateral expansion area have improved soil condition and are assumed to be capped and modeled as Open Space - Good Condition (HSG B).

Typical roadside swale velocity calculated as 6 ft/s.
Typical grassed swale velocity calculated as 3 ft/s.

An initial abstraction for storage has adjusted/reduced the Curve Number for DA-1
Therefore, the area for DA-1 is represented in the model by one area and one Curve Number
Refer to Proposed Condition Model for Curve Number and HSG data for subarea DA-1

Table of Contents

********** MASTER SUMMARY **********

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********** TC CALCULATIONS **********

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DA-3C1..... Tc Calcs 2.08

DA-3C2..... Tc Calcs 2.10

********** CN CALCULATIONS **********

DA-1..... Runoff CN-Area 3.01

DA-3A..... Runoff CN-Area 3.02

DA-3B..... Runoff CN-Area 3.03

DA-3C1..... Runoff CN-Area 3.04

DA-3C2..... Runoff CN-Area 3.05

MASTER DESIGN STORM SUMMARY

Network Storm Collection: Albany County

Return Event	Total Depth in	Rainfall Type	RNF ID
1	2.4000	Synthetic Curve	TypeII 24hr
10	4.3000	Synthetic Curve	TypeII 24hr
25	5.0000	Synthetic Curve	TypeII 24hr
100	7.0000	Synthetic Curve	TypeII 24hr

MASTER NETWORK SUMMARY
SCS Unit Hydrograph Method

(*Node=Outfall; +Node=Diversion;)
(Trun= HYG Truncation: Blank=None; L=Left; R=Rt; LR=Left&Rt)

Node ID	Type	Return Event	HYG Vol ac-ft	Trun	Qpeak hrs	Qpeak cfs	Max WSEL ft	Max Pond Storage ac-ft
DA-1	AREA	1	.263	--	15.5500	.32		
DA-1	AREA	10	3.562		12.5500	16.07		
DA-1	AREA	25	5.473		12.5000	28.79		
DA-1	AREA	100	12.324		12.4500	79.32		
DA-3A	AREA	1	1.018		12.2500	4.14		
DA-3A	AREA	10	5.898		12.1500	60.02		
DA-3A	AREA	25	8.328		12.1500	90.09		
DA-3A	AREA	100	16.435		12.1500	189.11		
DA-3B	AREA	1	.581		12.5500	3.11		
DA-3B	AREA	10	2.037		12.4500	13.43		
DA-3B	AREA	25	2.674		12.4500	17.97		
DA-3B	AREA	100	4.659		12.4500	31.96		

MASTER NETWORK SUMMARY
SCS Unit Hydrograph Method

(*Node=Outfall; +Node=Diversion;)
(Trun= HYG Truncation: Blank=None; L=Left; R=Rt; LR=Left&Rt)

Node ID	Type	Return Event	HYG Vol ac-ft	Trun	Qpeak hrs	Qpeak cfs	Max WSEL ft	Max Pond Storage ac-ft
DA-3C1	AREA	1	.228		12.4500	.69		
DA-3C1	AREA	10	1.416		12.2500	11.41		
DA-3C1	AREA	25	2.017		12.2500	17.49		
DA-3C1	AREA	100	4.036		12.2000	38.22		
DA-3C2	AREA	1	.159		12.2500	.47		
DA-3C2	AREA	10	1.067		12.1000	11.82		
DA-3C2	AREA	25	1.533		12.1000	18.33		
DA-3C2	AREA	100	3.112		12.1000	40.11		
*DP-1	JCT	1	.263		15.5500	.32		
*DP-1	JCT	10	3.562		12.5500	16.07		
*DP-1	JCT	25	5.473		12.5000	28.79		
*DP-1	JCT	100	12.324		12.4500	79.32		
*DP-3	JCT	1	1.986		12.3500	7.65		
*DP-3	JCT	10	10.417		12.1500	90.16		
*DP-3	JCT	25	14.551		12.1500	135.42		
*DP-3	JCT	100	28.241		12.1500	284.77		

```
::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
TIME OF CONCENTRATION CALCULATOR
::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::


----------------------------------------------------------------------


Segment #1:  Tc: TR-55 Sheet

Mannings n          .4000
Hydraulic Length   150.00 ft
2yr, 24hr P        2.9000 in
Slope             .027000 ft/ft

Avg.Velocity          .09 ft/sec

                                        Segment #1 Time:     .4612 hrs
----------------------------------------------------------------------

Segment #2:  Tc: TR-55 Shallow

Hydraulic Length   500.00 ft
Slope             .010000 ft/ft
Unpaved

Avg.Velocity         1.61 ft/sec

                                        Segment #2 Time:     .0861 hrs
----------------------------------------------------------------------

Segment #3:  Tc: Length & Vel.

Hydraulic Length  2945.00 ft
Avg.Velocity         3.00 ft/sec

                                        Segment #3 Time:     .2727 hrs
----------------------------------------------------------------------

                                                 ========================
                                                  Total Tc:     .8200 hrs
                                                 ========================
```

Tc Equations used...

==== SCS TR-55 Sheet Flow ==========

```
Tc = (.007 * ((n * Lf)**0.8)) / ((P**.5) * (Sf**.4))

Where:  Tc = Time of concentration, hrs
        n  = Mannings n
        Lf = Flow length, ft
        P  = 2yr, 24hr Rain depth, inches
        Sf = Slope, %
```

==== SCS TR-55 Shallow Concentrated Flow ==========

```
Unpaved surface:
V  = 16.1345 * (Sf**0.5)

Paved surface:
V  = 20.3282 * (Sf**0.5)

Tc = (Lf / V) / (3600sec/hr)

Where:  V  = Velocity, ft/sec
        Sf = Slope, ft/ft
        Tc = Time of concentration, hrs
        Lf = Flow length, ft
```

==== User Defined Length & Velocity ==========

```
Tc = (Lf / V) / (3600sec/hr)

Where:  Tc = Time of concentration, hrs
        Lf = Flow length, ft
        V  = Velocity, ft/sec
```

::
TIME OF CONCENTRATION CALCULATOR
::

Segment #1: Tc: TR-55 Sheet

Mannings n	.1500	
Hydraulic Length	150.00	ft
2yr, 24hr P	2.9000	in
Slope	.030000	ft/ft

Avg.Velocity .21 ft/sec

Segment #1 Time: .2017 hrs

Segment #2: Tc: TR-55 Shallow

Hydraulic Length	310.00	ft
Slope	.030000	ft/ft
Unpaved		

Avg.Velocity 2.79 ft/sec

Segment #2 Time: .0308 hrs

Segment #3: Tc: TR-55 Shallow

Hydraulic Length	530.00	ft
Slope	.330000	ft/ft
Unpaved		

Avg.Velocity 9.27 ft/sec

Segment #3 Time: .0159 hrs

Segment #4: Tc: TR-55 Shallow

Hydraulic Length 80.00 ft
Slope .060000 ft/ft
Unpaved

Avg.Velocity 3.95 ft/sec

Segment #4 Time: .0056 hrs

Segment #5: Tc: Length & Vel.

Hydraulic Length 1360.00 ft
Avg.Velocity 3.00 ft/sec

Segment #5 Time: .1259 hrs

==========
Total Tc: .3800 hrs
==========

Tc Equations used...

==== SCS TR-55 Sheet Flow ==========

```
Tc = (.007 * ((n * Lf)**0.8)) / ((P**.5) * (Sf**.4))

Where:  Tc = Time of concentration, hrs
        n  = Mannings n
        Lf = Flow length, ft
        P  = 2yr, 24hr Rain depth, inches
        Sf = Slope, %
```

==== SCS TR-55 Shallow Concentrated Flow ==========

```
Unpaved surface:
V  = 16.1345 * (Sf**0.5)

Paved surface:
V  = 20.3282 * (Sf**0.5)

Tc = (Lf / V) / (3600sec/hr)

Where:  V  = Velocity, ft/sec
        Sf = Slope, ft/ft
        Tc = Time of concentration, hrs
        Lf = Flow length, ft
```

==== User Defined Length & Velocity ==========

```
Tc = (Lf / V) / (3600sec/hr)

Where:  Tc = Time of concentration, hrs
        Lf = Flow length, ft
        V  = Velocity, ft/sec
```

::
TIME OF CONCENTRATION CALCULATOR
::

Segment #1: Tc: TR-55 Sheet

Mannings n	.4000	
Hydraulic Length	150.00	ft
2yr, 24hr P	2.9000	in
Slope	.035000	ft/ft
Avg.Velocity	.10	ft/sec

Segment #1 Time: .4157 hrs

Segment #2: Tc: TR-55 Shallow

Hydraulic Length	110.00	ft
Slope	.010000	ft/ft
Unpaved		
Avg.Velocity	1.61	ft/sec

Segment #2 Time: .0189 hrs

Segment #3: Tc: Length & Vel.

Hydraulic Length	4890.00	ft
Avg.Velocity	3.00	ft/sec

Segment #3 Time: .4528 hrs

==========
Total Tc: .8874 hrs
==========

Tc Equations used...

==== SCS TR-55 Sheet Flow ==========

```
Tc = (.007 * ((n * Lf)**0.8)) / ((P**.5) * (Sf**.4))

Where:  Tc = Time of concentration, hrs
        n  = Mannings n
        Lf = Flow length, ft
        P  = 2yr, 24hr Rain depth, inches
        Sf = Slope, %
```

==== SCS TR-55 Shallow Concentrated Flow ==========

```
Unpaved surface:
V  = 16.1345 * (Sf**0.5)

Paved surface:
V  = 20.3282 * (Sf**0.5)

Tc = (Lf / V) / (3600sec/hr)

Where:  V  = Velocity, ft/sec
        Sf = Slope, ft/ft
        Tc = Time of concentration, hrs
        Lf = Flow length, ft
```

==== User Defined Length & Velocity ==========

```
Tc = (Lf / V) / (3600sec/hr)

Where:  Tc = Time of concentration, hrs
        Lf = Flow length, ft
        V  = Velocity, ft/sec
```

::
TIME OF CONCENTRATION CALCULATOR
::

Segment #1: Tc: TR-55 Sheet

Mannings n	.4000	
Hydraulic Length	110.00	ft
2yr, 24hr P	2.9000	in
Slope	.015000	ft/ft
Avg.Velocity	.07	ft/sec

Segment #1 Time: .4552 hrs

Segment #2: Tc: Length & Vel.

Hydraulic Length	650.00	ft
Avg.Velocity	3.00	ft/sec

Segment #2 Time: .0602 hrs

==========
Total Tc: .5154 hrs
==========

Tc Equations used...

==== SCS TR-55 Sheet Flow ==========

```
Tc = (.007 * ((n * Lf)**0.8)) / ((P**.5) * (Sf**.4))

Where:  Tc = Time of concentration, hrs
        n  = Mannings n
        Lf = Flow length, ft
        P  = 2yr, 24hr Rain depth, inches
        Sf = Slope, %
```

==== User Defined Length & Velocity ==========

```
Tc = (Lf / V) / (3600sec/hr)

Where:  Tc = Time of concentration, hrs
        Lf = Flow length, ft
        V  = Velocity, ft/sec
```

::
TIME OF CONCENTRATION CALCULATOR
::

Segment #1: Tc: TR-55 Sheet

Mannings n	.0110	
Hydraulic Length	60.00	ft
2yr, 24hr P	2.9000	in
Slope	.500000	ft/ft
Avg.Velocity	4.28	ft/sec

Segment #1 Time: .0039 hrs

Segment #2: Tc: TR-55 Sheet

Mannings n	.2400	
Hydraulic Length	90.00	ft
2yr, 24hr P	2.9000	in
Slope	.015000	ft/ft
Avg.Velocity	.10	ft/sec

Segment #2 Time: .2576 hrs

Segment #3: Tc: Length & Vel.

Hydraulic Length	460.00	ft
Avg.Velocity	3.00	ft/sec

Segment #3 Time: .0426 hrs

==========
Total Tc: .3041 hrs
==========

Tc Equations used...

==== SCS TR-55 Sheet Flow ==========

```
Tc = (.007 * ((n * Lf)**0.8)) / ((P**.5) * (Sf**.4))

Where:  Tc = Time of concentration, hrs
        n  = Mannings n
        Lf = Flow length, ft
        P  = 2yr, 24hr Rain depth, inches
        Sf = Slope, %
```

==== User Defined Length & Velocity ==========

```
Tc = (Lf / V) / (3600sec/hr)

Where:  Tc = Time of concentration, hrs
        Lf = Flow length, ft
        V  = Velocity, ft/sec
```

File.... K:\12206\EXPANSION\Stormwater\PondPack\Proposed Mitigated Condition.ppw

RUNOFF CURVE NUMBER DATA

Soil/Surface Description	CN	Area acres	Impervious Adjustment %C	Impervious Adjustment %UC	Adjusted CN
Adjusted Area	53	76.300			53.00
COMPOSITE AREA & WEIGHTED CN --->		76.300			53.00 (53)

RUNOFF CURVE NUMBER DATA
::

Soil/Surface Description	CN	Area acres	Impervious Adjustment %C	%UC	Adjusted CN
Brush - Good Cond (HSG A)	30	.800			30.00
Brush - Good Cond (HSG C)	65	1.300			65.00
Brush - Good Cond (HSG D)	73	1.200			73.00
Impervious (HSG C)	98	1.500			98.00
Impervious (HSG D)	98	.400			98.00
Open Space - Good Cond (HSG B)	61	62.200			61.00
Wetland (HSG B)	80	.200			80.00
Woods - Good Cond (HSG A)	30	1.800			30.00
Woods - Good Cond (HSG B)	55	2.900			55.00
Woods - Good Cond (HSG D)	77	.700			77.00
COMPOSITE AREA & WEIGHTED CN --->		73.000			61.09 (61)

::

RUNOFF CURVE NUMBER DATA
::

Soil/Surface Description	CN	Area acres	Impervious Adjustment %C	%UC	Adjusted CN
Brush - Good Cond (HSG A)	30	.600			30.00
Brush - Good Cond (HSG C)	65	1.700			65.00
Brush - Good Cond (HSG D)	73	6.500			73.00
Wetland (HSG D)	90	3.900			90.00
Woods - Good Cond (HSG A)	30	1.100			30.00
Woods - Good Cond (HSG D)	77	.800			77.00
COMPOSITE AREA & WEIGHTED CN --->		14.600			71.82 (72)

::

RUNOFF CURVE NUMBER DATA

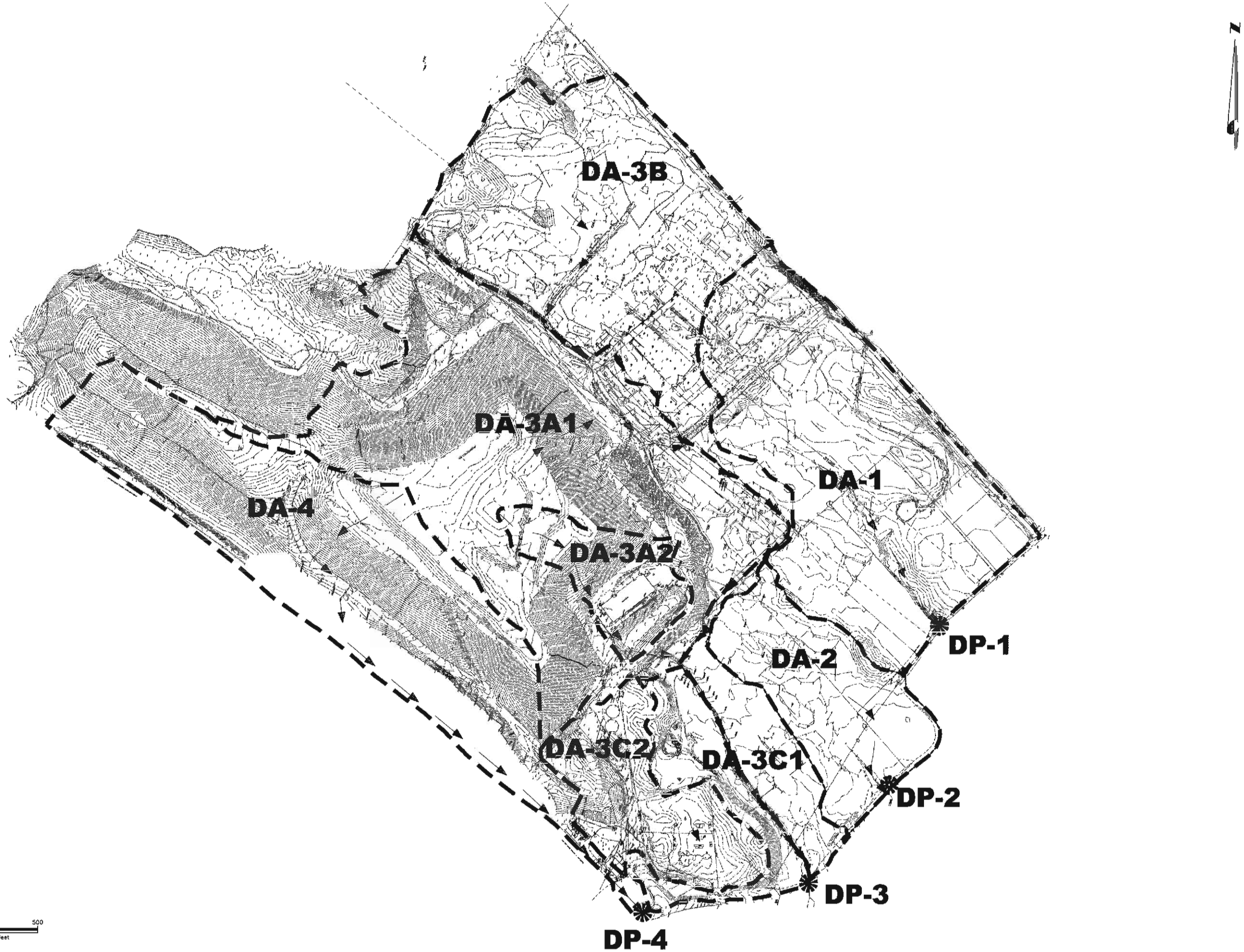
Soil/Surface Description	CN	Area acres	Impervious Adjustment %C	Impervious Adjustment %UC	Adjusted CN
Brush - Good Cond (HSG A)	30	1.200			30.00
Brush - Good Cond (HSG B)	48	2.100			48.00
Impervious (HSG A)	98	.100			98.00
Wetland (HSG B)	80	2.800			80.00
Wetland (HSG D)	90	5.500			90.00
Woods (HSG A)	30	5.000			30.00
Woods (HSG B)	55	1.900			55.00
COMPOSITE AREA & WEIGHTED CN --->		18.600			60.22 (60)

RUNOFF CURVE NUMBER DATA

Soil/Surface Description	CN	Area acres	Impervious Adjustment %C	Impervious Adjustment %UC	Adjusted CN
Impervious (HSG A)	98	3.900			98.00
Open Space (HSG C)	74	3.900			74.00
Woods (HSG A)	30	7.100			30.00
COMPOSITE AREA & WEIGHTED CN --->		14.900			59.32 (59)

INITIAL ABSTRACTION FOR STORAGE

New Storage Wetland Area (ac)	3.5		
New Storage Volume (ac-ft)	3.5	<= Input	Surface Area 16.9 Ac (Assumed 1 ft depth)
Total Subarea (ac)	76.3	<= Input	
Storage Area / Total Subarea (in)	0.550458716		
TR-55 p. 4-1			
Existing CN	62	<= Input	
Ia for Existing CN (in)	1.226	<= see Table 4-1	
New Ia (in)	1.776458716		
CN for New Ia (in)	53	<= see Table 4-1	



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No	Submittal / Revision	Appd	By	Date

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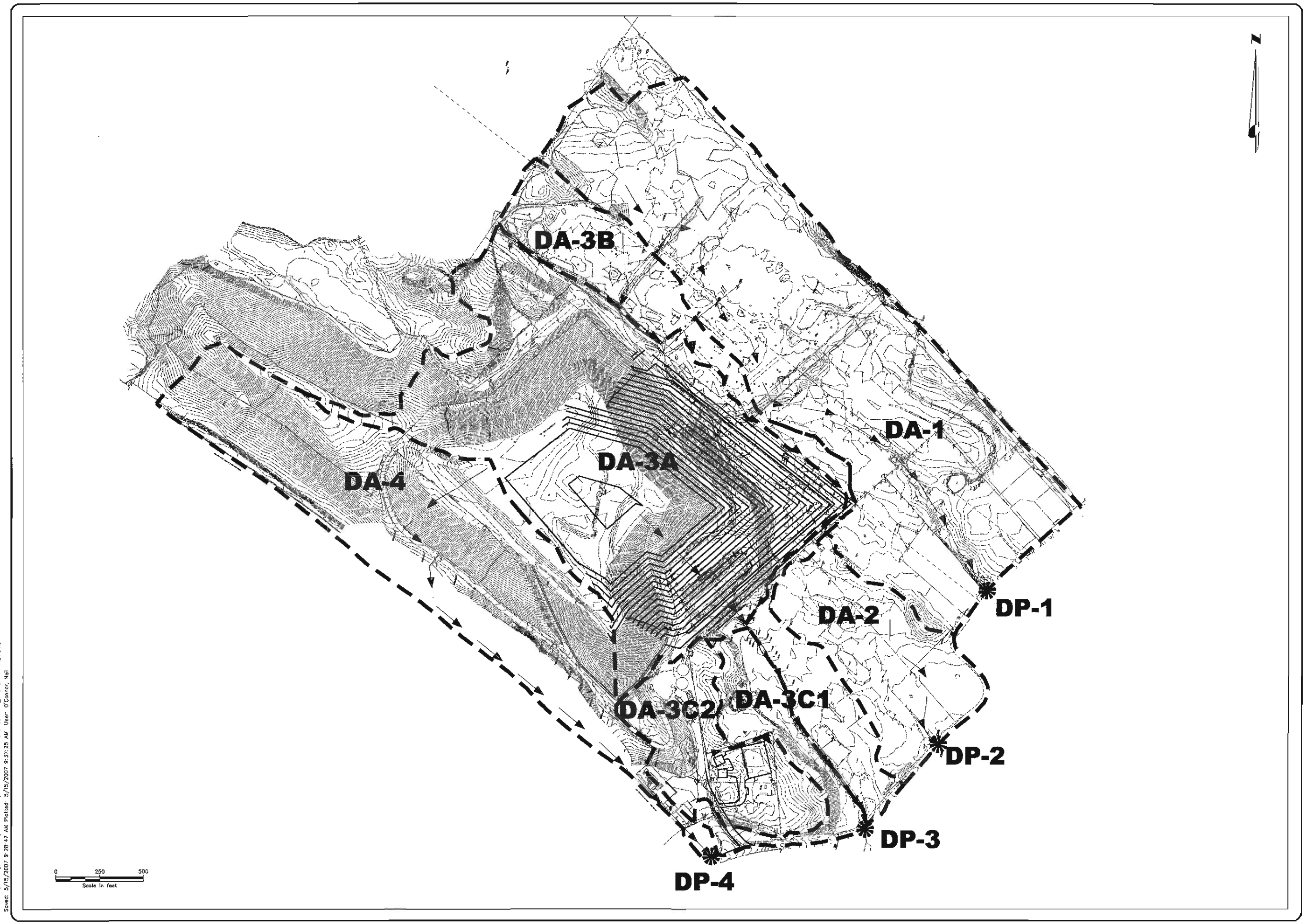
RAPP ROAD SOLID WASTE
MANAGEMENT FACILITY
EASTERN LANDFILL EXPANSION

EXISTING WATERSHED MAP

Issue Date: 05/2007 | Project No.: 12206 | Scale: XXX

FIG 1



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No.	Submittal / Revision	Appd	By	Date

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Designed: SVE | Drawn: SVE | Checked:

RAPP ROAD SOLID WASTE
MANAGMENT FACILITY
EASTERN LANDFILLL EXPANSION

PROPOSED WATERSHED MAP

Issue Date: 05/2007 | Project No.: 12208 | Scale: XXX

FIG 2

APPENDIX D

Technical Specifications

PART 1 - GENERAL

1.1 DESCRIPTION

A. The Contractor shall provide all labor, materials, equipment, and services necessary for, and incidental to, furnishing, placing, compacting and testing the low permeability soil as shown on the Contract Drawings and as specified herein.

B. The Contractor shall accept the site in the condition in which it exists at the time of the award of the Contract.

C. The Engineer shall determine the suitability of materials that are to be used in the work and should any materials encountered be unsatisfactory for the purpose intended, they shall be removed from the site at the Contractor's expense.

1.2 QUALITY ASSURANCE

A. The latest edition of the following standards and regulations, as referenced herein, shall be applicable.

1. American Society for Testing and Materials (ASTM).

2. Standard Specification for Highway Materials and Methods of Sampling and Testing, American Association of State Highway and Transportation Officials (AASHTO).

3. 6 NYCRR Part 360 Solid Waste Management Facilities.

B. The Contractor shall comply with the requirements for soil erosion and sedimentation control, and other requirements of governmental authorities having jurisdiction, including the State of New York.

C. The Contractor shall provide and pay for all costs in connection with an approved independent testing facility to determine conformance of soils with the specifications.

1.3 SUBMITTALS

A. The Contractor shall furnish representative earth materials to the testing laboratory for analysis and report, as directed by the Engineer or as outlined in the specifications.

B. Descriptive information on compaction equipment to be used for construction with low permeability soil, including equipment proposed for use in confined areas.

C. Plan detailing proposed borrow source, borrow source prequalification testing data, and estimated borrow source quantity.

D. Schedule of placement.

E. Test reports for prequalification and construction quality control/quality assurance testing shall be submitted to both the Contractor and Engineer.

1.4 PRODUCT HANDLING

A. Soil materials shall be excavated from the borrow source, transported, conditioned, placed, and stockpiled in such a manner so as to prevent contamination, segregation, and excessive wetting. Materials that have become contaminated, excessively wet, or segregated shall not be used and shall be removed from the site.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Impervious silty clay and clayey silt soils, classified as MH, CL, or CH in the Unified Soil Classification System (ASTM D 2487), with no sizes larger than 3 inches and at least 75 percent by dry weight of fines passing the No. 200 standard sieve size. The plasticity index shall be at least 15 (ASTM D 4318). The coefficient of permeability of the clay shall be less than 1×10^{-7} centimeters per second when compacted to a minimum of 90 percent of standard Proctor maximum dry density at a moisture content wet of optimum.

PART 3 - EXECUTION

3.1 BORROW SOIL MATERIAL QUALIFICATION AND QUALITY CONTROL TESTING

A. General:

1. Sufficient size samples shall be obtained from the potential borrow source to allow completion of tests listed in paragraph B (material tests) below. Samples may be obtained from test borings, test pits, or from borrow pit faces provided that surficial dry or wet soil is removed to expose undisturbed earth. Tests listed below shall be performed on each sample obtained.

a. A minimum of three (3) representative samples from each potential borrow source shall be furnished to the testing laboratory for prequalification testing. Test data shall be submitted to the Engineer a minimum of 2 weeks prior to start of construction for approval of the borrow source.

b. Additional quality control samples shall be obtained during construction at the frequencies specified in paragraph B below to verify that borrow materials meet specification requirements.

B. Material Tests:

1. Particle Size Analysis:

a. Method: ASTM D422

b. Number of Tests:

1.) Prequalification: 1 test per source.
2.) Quality Control: 1 per 2,500 cubic yards placed.

c. Acceptance Criteria: Gradation within specified limits.

2. Atterberg Limits Determinations:

a. Method: ASTM D4318

b. Number of Tests:

1.) Prequalification: 1 test per source.
2.) Quality Control: 1 per 1,000 cubic yards placed.

c. Acceptance Criteria: Plasticity index within specified limits.

3. Moisture Content:

   a. Method: ASTM D2216

   b. Number of Tests:

      1.) Prequalification: 2 tests per source.
      2.) Quality Control: 1 per 1,000 cubic yards placed.

   Test shall be performed on sample specimen preserved at natural (undisturbed) moisture condition.

4. Maximum Density Determination:

   a. Method: ASTM D1557 - Modified Proctor

   b. Number of Tests:

      1.) Prequalification:1 test per source.
      2.) Quality Control:1 per 5,000 cubic yards placed.

5. Permeability of Cohesive Soils:

   a. Method: ASTM D5084

   b. Number of Tests: Minimum two (2) tests per sample performed with sample compacted to 85% and 90% maximum Modified Proctor dry density at optimum moisture content.

      1.) Prequalification: 1 test per source. The intent is to demonstrate that the coefficient of permeability will be less than $1x10^{-7}$ cm/sec for specified density and moisture content requirements.

      2.) Quality Control: 1 sample per 5,000 cubic yards placed. Tests shall be performed using same criteria as for prequalification testing.

   c. Acceptance Criteria: Coefficient of permeability less than $1x10^{-7}$ centimeters per second.

6. Internal angle of soil friction and cohesion:

   a. Method: ASTM 3080 - Direct shear test.

   b. Number of Tests: One (1) prequalification test series per source. Test series shall consist of three (3) identical specimens from each sample subjected to direct shear test using normal (vertical) stresses of approximately 1 pound per square inch (psi), 2 psi and 4 psi. Test specimens shall be compacted to 90% of maximum modified Proctor dry density at a moisture content 2 percent wet of optimum.

7. Interface Friction Angle:

   a. Method: ASTM D5321 – Test Method for Determining the Coefficient of the Soil and Geosynthetic or Geosynthetic and Geosynthetic Friction by the Direct Sear Method.

b. Number of Tests: One (1) prequalification test series per potential borrow source. Test series shall consist of three (3) identical specimens from one of the three borrow source samples subjected to shear test using normal (vertical) stresses of approximately 1 psi, 1 psi, and 4 psi. Test specimens shall be compacted to 90% of maximum modified Proctor dry density at a moisture content 2 percent wet of optimum.

c. Acceptance Criteria: Friction angle greater than or equal to 29°.

d. Geosynthetic to be used for interface:

1.) Proposed geomembrane meeting specifications described in Section 02212.

3.2 PLACEMENT AND COMPACTION

A. General:

1. The ground on which the low permeability soil is to be placed shall be proof rolled until the underlying soil is thoroughly compacted to the satisfaction of the Engineer before any filling is begun. A steel-wheel tandem roller weighing 8 to 10 tons or equipment capable of obtaining the same compactive effort shall be used to obtain a thoroughly compacted subgrade. Remove or recompact any soft or loose soils as determined by the Engineer prior to filling. Particular emphasis shall be placed on obtaining a firm, compacted surface.

2. Do not place fill material on surfaces that are muddy, frozen, or contain frost, ice, ponded water or extraneous debris.

3. When work is suspended during periods of freezing weather, measures shall be taken to prevent fill already in place from freezing. Upon resumption of work after any inclement weather, prepare the exposed surface by proof rolling to identify any zones of soft/loose soils. Soft/loose materials or frozen soils shall be removed and replaced.

4. The distribution of materials throughout the low permeability soil shall be such that the layer will be free from lenses, pockets, streaks, and layers of materials differing substantially from the surrounding materials.

5. The placing of material shall be done so as to obtain a layer of uniform thickness without spaces between successively deposited loads.

6. Compaction of each layer shall proceed in a systematic, orderly, and continuous manner so as to ensure the specified coverages by the compaction equipment.

7. Materials which cannot be compacted by the approved rolling compaction equipment because of interferences shall be compacted with smaller approved compactors to a density at least equal to the density achieved in adjacent areas by the rolling compaction equipment and methods. Single pad vibratory base plate compactors shall weigh not less than 200 lbs. and have a vibration frequency not less than 1600 cycles per minute.

8. Should the fill surface become rutted or uneven subsequent to compaction, it shall be releveled and recompacted before placing the next layer of material.

B. Low Permeability Soil Placement and Compaction:

1. Place fill materials in layers not more than 6" in loose depth. Lift height shall be governed by the ability of the compaction equipment to obtain the required compaction with 6" as a maximum lift height.

2. Moisture content of the material during compaction shall be between 0 and 4 percent wet of optimum moisture content as determined by ASTM D 1557 (Modified Proctor). The average moisture content of the as placed fill shall be 1 to 3 percent wet of optimum.

3. All fill shall be thoroughly and satisfactorily compacted to at least 90 percent of the modified Proctor maximum dry density of the material used (ASTM D-1557).

4. Where fill must be moisture conditioned before compaction, uniformly apply water to the surface of each layer of fill. Prevent ponding or other free water on the surface subsequent to, or during, compaction operations. Any surface exhibiting cracking from excessive drying shall be moisture conditioned and reworked by scarifying, discing, pulverizing, and recompacting prior to placement of successive lifts of earth fill or geosynthetic materials.

5. Remove and replace, or scarify and air dry, soil that is too wet to permit compaction to the specified density. Soil that has been removed because it is too wet to permit compaction may be stockpiled or spread and allowed to dry. Assist drying by discing, harrowing or pulverizing, until moisture content is reduced to a value which will permit compaction to the percentage of maximum density specified.

6. Rolling compaction equipment shall be heavy rubber tired rollers or pad-foot type rollers capable of achieving the intended result. Compaction equipment used for the Work is subject to approval by the Engineer. Any equipment not originally manufactured for compaction purposes and equipment which is not in proper working order will not be approved. Furnish manufacturer's specifications covering data not obvious from a visual inspection of the equipment and necessary to determine its classification and performance characteristics.

7. Compaction equipment shall make a minimum of 4 complete passes over the entire area of each lift.

8. The surface of each compacted layer shall be scarified to a minimum depth of 1 inch before placing the next layer. If the fill surface softens as a result of heavy rains, the surface shall be scarified and allowed to dry until the moisture content is within the range specified herein or the wet material shall be removed. Should the surface become so dry that bond between such surface and the next layer of material will not be adequate, the Contractor shall loosen the embankment surface by discing and shall add moisture and further condition and recompact the exposed surface immediately prior to placement of the next layer.

9. The Contractor shall grade partially completed fill areas for drainage and thoroughly compact and smooth the surface at the end of each workday.

10. For areas not accessible to heavy rolling compaction equipment, fill materials shall be placed in horizontal layers not to exceed 6 inches in loose thickness and compacted with smaller rolling compaction equipment or hand operated equipment, as approved by the Engineer.

11. The final surface of the low permeability soil shall be uniform and suitable for placement of the next subsequent layer.

3.3 FIELD QUALITY ASSURANCE

A. The Contractor's Testing Laboratory shall perform testing of low permeability soil to insure compliance with these Specifications.

B. In-place density and moisture content tests shall be performed on in- place fill material in accordance with ASTM D 1556, D 2167 or D 2922. In-place density shall be determined at a depth of 3 inches below grade. At least 9 tests shall be performed per acre per lift of material placed and at least one test shall be performed each day. Field test locations shall be subject to approval or relocation by the Engineer.

C. Laboratory permeability tests shall be performed on thin wall "Shelby" tube samples of the in-place soil at a frequency of 1 per acre per lift. Shelby tubes shall be advanced by jacking in one continuous smooth thrust into the compacted soil. Use of hammers or similar driving equipment will not be permitted. Use of a backhoe bucket or bulldozer blade to push sampling tubes will not be permitted. Earth moving equipment may be used as a reaction for jacks. Field methods and test locations subject to approval by the Engineer. Void resulting from sample removal shall be backfilled with low permeability soil according to placement specifications. Samples shall only be obtained of the upper lift.

D. Tests for moisture content shall be performed on the in-place fill at a rate of nine tests per acre per lift. If nuclear methods or microwave methods are used to determine field moisture content, one oven-dry moisture content determination (ASTM D2216) shall be performed per acre per lift for calibration. Sample shall be obtained from a location immediately adjacent to an in-place density test location.

E. The Engineer may direct additional tests to establish gradation, Atterberg limits, permeability, maximum density, in-place density, and water content as required by working conditions, or changes in borrow source material at the Contractor's expense.

F. Acceptance Criteria:

1. Acceptance Criteria: The criteria for acceptability of in-place fill shall be in situ dry density and moisture content and in-situ permeability. Minimum dry density for all fill shall be 90 percent of the modified Proctor maximum dry density. The in-place moisture content shall be 0 to 4 percent wet of optimum as determined by the modified Proctor compaction method (ASTM D-1557). In place permeability shall be less than $1x10^{-7}$ cm/sec. If a test fails to qualify, the fill shall be further reworked, compacted and re-tested. Subsequent test failures shall be followed by removal and replacement of the material.

3.4 CLEAN UP

A. Provide and maintain protection of newly filled areas against damage. Upon completion or when directed, correct all damaged and deficient work by building up low spots and remove temporary protections, fencing, shoring and bracing if any.

B. Remove all surplus excavated material not required for filling and backfilling and legally dispose of same away from premises.

C. Leave the premises and work in clean, satisfactory condition, ready to receive subsequent operations.

END OF SECTION 02206

SECTION 02207 LEACHATE COLLECTION SOIL

PART 1 - GENERAL

1.1 DESCRIPTION

A. The Contractor shall provide all labor, materials, equipment, and services necessary for, and incidental to, furnishing, placing, compacting and testing the leachate collection layers as shown on the Contract Drawings and as specified herein.

B. The Contractor shall accept the site in the condition in which it exists at the time of the award of the Contract.

C. The Engineer will determine the suitability of materials that are to be used in the work and should any materials encountered be unsatisfactory for the purpose intended, they shall be removed from the site at the Contractor's expense.

1.2 QUALITY ASSURANCE

A. The latest edition of the following standards and regulations, as referenced herein, shall be applicable.

1. American Society for Testing and Materials (ASTM).

2. Standard Specification for Highway Materials and Methods of Sampling and Testing, American Association of State Highway and Transportation Officials (AASHTO).

3. 6 NYCRR Part 360 Solid Waste Management Facilities.

B. The Contractor shall comply with the requirements for soil erosion and sedimentation control, and other requirements of governmental authorities having jurisdiction, including the State of New York.

C. The Contractor shall provide and pay for all costs in connection with an approved independent testing facility to determine conformance of soils with the specifications.

1.3 SUBMITTALS

A. The Contractor shall furnish representative earth materials to the testing laboratory for analysis and report, as directed by the Engineer or as outlined in the specifications.

B. Descriptive information on compaction equipment to be used for construction, including equipment proposed for use in confined areas.

C. Plan detailing proposed borrow source, borrow source prequalification testing data, and estimated borrow source quantity. A copy of the NYSDEC mining permit for the borrow source shall be included in the plan.

D. Schedule of placement.

E. Test reports for prequalification and construction quality control/quality assurance testing shall be submitted to both the Contractor and Engineer.

1.4 PRODUCT HANDLING

A. Soil materials shall be excavated from the borrow source, transported, conditioned, placed, and stockpiled in such a manner so as to prevent contamination, segregation, and excessive wetting. Materials that have become contaminated, excessively wet, or segregated shall not be used and shall be removed from the site.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Leachate Collection Soil: Sound, durable, sand, gravel, stone or blends of these materials, free from organic, frozen, or other deleterious materials, conforming to the following requirements:

Sieve	Percent Passing
1"	100
1/4"	30 - 65
No. 40	5 - 40
No. 200	0 - 10

1. Fines passing No. 200 sieve shall be non-plastic.

2. Particle size analysis shall show no gap grading.

3. The permeability of the soil shall be greater than $1x10^{-2}$ centimeters per second when compacted to a minimum of 90 percent of modified Proctor maximum dry density.

4. All soil or stone particles shall be classified as rounded or subrounded (ASTM D 2488)

PART 3 - EXECUTION

3.1 PRECONSTRUCTION MATERIAL QUALIFICATION TESTING AND QUALITY CONTROL TESTING

A. General:

1. Sufficient size samples shall be obtained from the potential borrow source to allow completion of tests listed in paragraph B below. Samples may be obtained from test borings, test pits, or from borrow pit faces provided that surficial dry or wet soil is removed to expose undisturbed earth. Tests listed below shall be performed on each sample obtained.

a. A minimum of three (3) representative samples from each potential borrow source shall be furnished to the testing laboratory for prequalification testing. Test data shall be provided to the Engineer a minimum of 2 weeks prior to start of gas venting layer construction for approval of borrow source.

b. Additional quality control samples shall be obtained during construction at the frequencies specified in paragraph B below to verify that borrow materials meet specification requirements.

B. Material Tests:

1. Particle Size Analysis:

   a. Method: ASTM D422
   b. Number of Tests:

      1.) Prequalification: One (1) test per source.
      2.) Quality Control: One (1) test per1,000 CY placed.

   c. Acceptance Criteria: Gradation within specified limits.

2. Atterberg Limits Determinations:

   a. Method: ASTM D4318
   b. Number of Tests: One (1) prequalification test per source.
   c. Acceptance Criteria: Plasticity index within specified limits.

3. Moisture Content:

   a. Method: ASTM D2216

   b. Number of Tests: One (1) prequalification test per source.

4. Maximum Density Determination:

   a. Method: ASTM D1557 - Modified Proctor

   b. Number of Tests: One (1) prequalification test per source.

5. Permeability of Granular Soils:

   a. Method: ASTM D2434 - Constant Head Method

   b. Number of Tests:

      1.) Prequalification: Three tests per source.
      2.) Quality Control: One test per 2,500 Cy placed.

   c. Acceptance Criteria: Coefficient of permeability greater than $1x10^{-2}$ centimeters per second when compacted to 90% of the modified Proctor maximum dry density.

6. Internal angle of soil friction and cohesion:

   a. Method: ASTM 3080 - Direct shear test.

   b. Number of Tests: One (1) prequalification test series per source. Test series shall consist of three (3) identical specimens from each sample subjected to direct shear test using normal (vertical) stresses of approximately 1 pound per square inch (psi), 2 psi and 4 psi. Test specimens shall be compacted to 90% of modified Proctor maximum dry density.

7. Interface Friction Angle:

   a. Method: ASTM 5321 – Test Method for Determining the Coefficient of Soil and Geosynthetic or Geosynthetic Fricton by the Direct Shear Method.

b. Number of Tests: One (1) prequalification test series per potential borrow source for each of the synthetic materials listed in paragraph 7-d below. Test series shall consist of three (3) identical specimens from one of the three borrow source samples subjected to shear test using normal (vertical) stresses of approximately 1 psi, 2 psi, and 4 psi. Test specimens shall be compacted to 90% of modified Proctor maximum dry density.

c. Acceptance Criteria: Friction angle greater than or equal to 29°.

d. Synthetic to be used for interface:

1.) Geomembrane materials meeting specifications described in Section 02212.

3.2 PLACEMENT AND COMPACTION

A. General:

1. Do not place fill material on surfaces that are muddy, frozen, or contain frost, ice, ponded water or extraneous debris.

2. When work is suspended during periods of freezing weather, measures shall be taken to prevent fill already in place from freezing. Upon resumption of work after any inclement weather, prepare the exposed surface by proof rolling to identify any zones of soft/loose soils. Soft/loose materials or frozen soils shall be removed and replaced.

3. The distribution of materials throughout the leachate collection layers shall be such that the layers will be free from lenses, pockets, streaks, and layers of materials differing substantially from the surrounding materials.

4. The placing of material shall be done so as to obtain a layer of uniform thickness without spaces between successively deposited loads.

5. Compaction of each layer shall proceed in a systematic, orderly, and continuous manner so as to ensure the specified coverages by the compaction equipment.

6. Materials which cannot be compacted by the approved rolling compaction equipment because of interferences shall be compacted with smaller approved compactors to a density at least equal to the density achieved in adjacent areas by the rolling compaction equipment and methods. Single pad vibratory base plate compactors shall weigh not less than 200 lbs. and have a vibration frequency not less than 1600 cycles per minute.

7. Should the fill surface become rutted or uneven subsequent to compaction, it shall be releveled and recompacted before placing the next layer of material.

B. Placement and Compaction:

1. Place fill materials in a layer not less than 12" in compacted depth. Lift height shall be governed by the ability of the compaction equipment to obtain the required compaction. The moisture content of the material during compaction shall be between 3 percent wet and 3 percent dry of optimum moisture content as determined by ASTM D1557 (modified Proctor)

2. All fill shall be thoroughly and satisfactorily compacted to at least 90 percent of the modified Proctor maximum dry density of the material used (ASTM D-1557).

3. Where fill must be moisture conditioned before compaction, uniformly apply water to the surface of each layer of fill. Prevent ponding or other free water on the surface subsequent to, or during, compaction operations.

4. Remove and replace, or scarify and air dry, soil that is too wet to permit compaction to the specified density. Soil that has been removed because it is too wet to permit compaction may be stockpiled or spread and allowed to dry. Assist drying by discing, harrowing or pulverizing, until moisture content is reduced to a value which will permit compaction to the percentage of maximum density specified.

5. Rolling compaction equipment shall be heavy smooth drum vibratory equipment capable of achieving the intended result. Compaction equipment used for the Work is subject to approval by the Engineer. Any equipment not originally manufactured for compaction purposes and equipment which is not in proper working order will not be approved. Furnish manufacturer's specifications covering data not obvious from a visual inspection of the equipment and necessary to determine its classification and performance characteristics.

6. Compaction equipment shall make a minimum of 4 complete passes over the entire area of each lift.

7. The Contractor shall grade partially completed fill areas for drainage and thoroughly compact and smooth the surface at the end of each workday.

8. For areas not accessible to heavy rolling compaction equipment, fill materials shall be placed in horizontal layers not to exceed 6 inches in loose thickness and compacted with smaller rolling compaction equipment or hand operated equipment, as approved by the Engineer.

9. The final surface of the layer shall be uniform and suitable for placement of the next subsequent layer.

3.3 FIELD QUALITY ASSURANCE

A. The Contractor's Testing Laboratory shall perform testing of leachate collection layer materials to insure compliance with these specifications.

B. In-place density and moisture content tests shall be performed on in- place fill material in accordance with ASTM D 1556, D 2167 or D 2922. In-place density shall be determined at a depth of 6 inches below grade. At least 9 tests shall be performed per acre per lift of material placed and at least one test shall be performed each day. Field test locations shall be subject to approval or relocation by the Engineer.

C. Tests for moisture content shall be performed on the in-place fill at a rate of nine tests per acre per lift. If nuclear methods or microwave methods are used to determine field moisture content, one oven-dry moisture content determination (ASTM D2216) shall be performed per acre per lift for calibration. Sample shall be obtained from a location immediately adjacent to an in-place density location.

D. The Engineer may direct additional tests to establish gradation, Atterberg limits, permeability, maximum density, in-place density, and water content as required by working conditions, or changes in borrow source material at the Contractor's expense.

E. Acceptance Criteria:

1. Grain size analyses shall show gradation of the soil material placed to be within specified limits.

2. Minimum dry density for all fill shall be 90 percent of the modified Proctor maximum dry density. The in-place moisture content shall be within 3 percent dry or 3 percent wet of optimum as determined by the modified Proctor compaction method (ASTM D-1557). If a test fails to qualify, the fill shall be further reworked, compacted and re-tested. Subsequent test failures shall be followed by removal and replacement of the material.

3.4 CLEAN UP

A. Provide and maintain protection of newly filled areas against damage. Upon completion or when directed, correct all damaged and deficient work by building up low spots and remove temporary protections, fencing, shoring and bracing if any.

B. Remove all surplus excavated material not required for filling and backfilling and legally dispose of same away from premises.

C. Leave the premises and work in clean, satisfactory condition, ready to receive subsequent operations.

END OF SECTION 02207

PART 1 - GENERAL

1.1 DESCRIPTION

A. The Contractor shall provide all labor, materials, equipment, and services necessary for, and incidental to, furnishing, placing, compacting and testing the structural layer as shown on the Contract Drawings and as specified herein.

B. The Contractor shall accept the site in the condition in which it exists at the time of the award of the Contract.

C. The Engineer will determine the suitability of materials that are to be used in the work and should any materials encountered be unsatisfactory for the purpose intended, they shall be removed from the site at the Contractor's expense.

1.2 QUALITY ASSURANCE

A. The latest edition of the following standards and regulations, as referenced herein, shall be applicable.

1. American Society for Testing and Materials (ASTM).

2. Standard Specification for Highway Materials and Methods of Sampling and Testing, American Association of State Highway and Transportation Officials (AASHTO).

3. 6 NYCRR Part 360 Solid Waste Management Facilities.

B. The Contractor shall comply with the requirements for soil erosion and sedimentation control, and other requirements of governmental authorities having jurisdiction, including the State of New York.

C. The Contractor shall provide and pay for all costs in connection with an approved independent testing facility to determine conformance of soils with the specifications.

1.3 SUBMITTALS

A. The Contractor shall furnish representative earth materials to the testing laboratory for analysis and report, as directed by the Engineer or as outlined in the specifications.

B. Descriptive information on compaction equipment to be used for construction including equipment proposed for use in confined areas.

C. Plan detailing proposed borrow source, borrow source prequalification testing data, and estimated borrow source quantity. A copy of the NYSDEC mining permit for the borrow source shall be included in the plan.

D. Schedule of placement.

E. Test reports for prequalification and construction quality control/quality assurance testing shall be submitted to both the Contractor and Engineer.

1.4 PRODUCT HANDLING

A. Soil materials shall be excavated from the borrow source, transported, conditioned, placed, and stockpiled in such a manner so as to prevent contamination, segregation, and excessive wetting. Materials that have become contaminated, excessively wet, or segregated shall not be used and shall be removed from the site.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Structural Layer Soil: Sound, durable, sand, gravel, stone, or blends of these materials, free from organic, frozen or other deleterious materials, conforming to the following gradation requirements:

Sieve	Percent Passing
1"	100
No. 40	5 -40
No. 200	0 - 10

1. Fines passing No. 200 sieve shall be non-plastic.
2. Particle size analysis shall show no gap grading.

*All soil or stone particles shall be classified as sub-rounded to well-rounded.

PART 3 - EXECUTION

3.1 PRECONSTRUCTION MATERIAL QUALIFICATION TESTING AND QUALITY CONTROL TESTING

A. General:

1. Sufficient size samples shall be obtained from the potential borrow source to allow completion of tests listed in paragraph B below. Samples may be obtained from test borings, test pits, or from borrow pit faces provided that surficial dry or wet soil is removed to expose undisturbed earth. Tests listed below shall be performed on each sample obtained.

a. A minimum of three (3) representative samples from each potential borrow source shall be furnished to the testing laboratory for prequalification testing. Test data shall be provided to the Engineer a minimum of 2 weeks prior to start of barrier protection layer construction for approval of borrow source.

b. Additional quality control samples shall be obtained during construction at the frequencies specified in paragraph B below to verify that borrow materials meet specification requirements.

B. Material Tests:

1. Particle Size Analysis:

a. Method: ASTM D422
b. Number of Tests:

1.) Prequalification: One (1) test per source.
2.) Quality Control: One (1) test per 2,000 CY placed.

c. Acceptance Criteria: Gradation within specified limits.

2. Maximum Density Determination:

   a. Method: ASTM D1557 - Modified Proctor
   b. Number of Tests: One (1) per potential source.

3. Internal angle of soil friction and cohesion:

   a. Method: ASTM 3080 - Direct shear test.

   b. Number of Tests: One (1) prequalification test series per source. Test series shall consist of three (3) identical specimens from each sample subjected to direct shear test using normal (vertical) stresses of approximately 1 pounds per square inch (psi), 2 psi and 4 psi. Test specimens shall be compacted to 90% of modified Proctor maximum dry density.

4. Interface Friction Angle:

   a. Method: ASTM 5321 – Test Method for Determining the Coefficient of Soil and Geosynthetic or Geosynthetic and Geosynthetic Friction by the Direct Shear Method.

   b. Number of Tests: One (1) prequalification test series per potential borrow source for each of the synthetic materials listed in paragraph 6-d below. Test series shall consist of three (3) identical specimens from one of the three borrow source samples subjected to direct shear test using normal (vertical) stresses of approximately 1 psi, 2 psi, and 4 psi. Test specimens shall be compacted to 90% of modified Proctor maximum dry density.

   c. Acceptance Criteria: Friction angle greater than or equal to 29°.

   d. Synthetic to be used for interface:

      1.) Geosynthetic Clay Liner materials meeting specification described in Section 02215.

3.2 PLACEMENT AND COMPACTION

A. General:

1. Remove or recompact any soft or loose soils as determined by the Engineer prior to filling. Particular emphasis shall be placed on obtaining a firm, compacted surface on the landfill side slopes.

2. Do not place fill material on surfaces that are muddy, frozen, or contain frost, ice, ponded water or extraneous debris.

3. When work is suspended during periods of freezing weather, measures shall be taken to prevent fill already in place from freezing. Upon resumption of work after any inclement weather, prepare the exposed surface by proof rolling to identify any zones of soft/loose soils. Soft/loose materials or frozen soils shall be removed and replaced.

4. The distribution of materials throughout the structural layer shall be such that the layer will be free from lenses, pockets, streaks, and layers of materials differing substantially from the surrounding materials.

5. The placing of material shall be done so as to obtain a layer of uniform thickness without spaces between successively deposited loads.

6. Compaction shall proceed in a systematic, orderly, and continuous manner so as to ensure the specified coverages by the compaction equipment.

7. Materials which cannot be compacted by the approved rolling compaction equipment because of interferences shall be compacted with smaller approved compactors to a density at least equal to the density achieved in adjacent areas by the rolling compaction equipment and methods. Single pad vibratory base plate compactors shall weigh not less than 200 lbs. and have a vibration frequency not less than 1600 cycles per minute.

8. Should the fill surface become rutted or uneven subsequent to compaction, it shall be releveled and recompacted before placing the next layer of material.

B. Structural Layer Placement and Compaction:

1. Place fill material in layers not less than 12" in depth. Lift height shall be governed by the ability of the compaction equipment to obtain the required compaction with 12" as a maximum lift height.

2. Moisture content of the material during compaction shall be between 3 percent dry and 3 percent wet of optimum moisture content as determined by ASTM D 1557 (Modified Proctor).

3. All fill shall be thoroughly and satisfactorily compacted to at least 90 percent of the Modified Proctor maximum dry density of the material used (ASTM D-1557).

4. Where fill must be moisture conditioned before compaction, uniformly apply water to the surface of each layer of fill. Prevent ponding or other free water on the surface subsequent to, or during, compaction operations.

5. Remove and replace, or scarify and air dry, soil that is too wet to permit compaction to the specified density. Soil that has been removed because it is too wet to permit compaction may be stockpiled or spread and allowed to dry. Assist drying by discing, harrowing or pulverizing, until moisture content is reduced to a value which will permit compaction to the percentage of maximum density specified.

6. Rolling compaction equipment shall be heavy smooth drum in vibratory equipment capable of achieving the intended result. Any equipment not originally manufactured for compaction purposes and equipment which is not in proper working order will not be approved. Furnish manufacturer's specifications covering data not obvious from a visual inspection of the equipment and necessary to determine its classification and performance characteristics.

7. Compaction equipment shall make a minimum of 4 complete passes over the entire area of each lift.

8. The Contractor shall grade partially completed fill areas for drainage and thoroughly compact and smooth the surface at the end of each workday.

9. For areas not accessible to heavy rolling compaction equipment, fill materials shall be placed in horizontal layers not to exceed 6 inches in loose thickness and compacted with smaller rolling compaction equipment or hand operated equipment, as approved by the Engineer.

10. The final surface of the structural layer shall be uniform and suitable for placement of the next subsequent layer.

3.3 FIELD QUALITY CONTROL

A. The Contractor's Testing Laboratory shall perform testing of structural layer fill materials to insure compliance with these specifications.

B. In-place density and moisture content tests shall be performed on in- place fill material in accordance with ASTM D 1556, D 2167 or D 2922. In-place density shall be determined at a depth of 6 inches below grade. At least 9 tests shall be performed per acre per lift of material placed and at least one test shall be performed each day. Field test locations shall be subject to approval or relocation by the Engineer.

C. Tests for moisture content shall be performed on the in-place fill at a rate of nine tests per acre per lift. If nuclear methods or microwave methods are used to determine field moisture content, one oven-dry moisture content determination (ASTM D2216) shall be performed per acre per lift for calibration. Sample shall be obtained from a location immediately adjacent to an in-place density location.

D. The Engineer may direct additional tests to establish gradation, Atterberg limits, permeability, maximum density, in-place density, and water content as required by working conditions, or changes in borrow source material at the Contractor's expense.

E. Acceptance Criteria:

1. Acceptance Criteria: The criteria for acceptability of in-place fill shall be in situ dry density and moisture content. Minimum dry density for all fill shall be 90 percent of the modified Proctor maximum dry density. The in-place moisture content shall be between 3 percent dry and 3 percent wet of optimum as determined by the modified Proctor compaction method (ASTM D-1557). If a test fails to qualify, the fill shall be further reworked, compacted and re-tested. Subsequent test failures shall be followed by removal and replacement of the material.

3.4 CLEAN UP

A. Provide and maintain protection of newly filled areas against damage. Upon completion or when directed, correct all damaged and deficient work by building up low spots and remove temporary protections, fencing, shoring and bracing if any.

B. Remove all surplus excavated material not required for filling and backfilling and legally dispose of same away from premises.

C. Leave the premises and work in clean, satisfactory condition, ready to receive subsequent operations.

END OF SECTION 02208

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes textured synthetic geomembrane.

1.2 REFERENCES

A. American Society for Testing and Materials (ASTM).

B. Federal Testing and Material Standards (FTMS).

C. 6NYCRR Part 360

1.3 SUBMITTALS

A. Submit product data, samples, schedules, and shop drawings describing the work to be performed. Work covered by these submittals shall not proceed until they have been approved by the Engineer.

B. Required submittals include:

1. Manufacturer's qualifications.

2. Liner installer's qualifications.

3. Liner installer's crew foreman, welders and quality assurance/quality control personnel qualifications.

4. Manufacturer's product data and specifications for synthetic geomembrane components.

5. Manufacturer's detailed description of recommended seaming equipment and procedures, including testing.

6. Manufacturer's QA/QC procedures, for both manufacturing and installation.

7. Synthetic geomembrane panel layout detailing seams and sequence of installation.

8. Installation schedule.

9. Material samples of all synthetic geomembrane components, including seams.

10. Manufacturer's recommended maintenance and repair procedures.

11. Details of joints, anchoring, penetrations and other construction details.

C. Submit pertinent record documents including:

1. Manufacturer's quality control certification for all material delivered. Submit certification upon delivery.

2. Results of all destructive and non-destructive seam strength tests performed by the contractor or installer including failed trial welds, test results and subsequent repairs, retests and any imperfection repairs, tests and inspections. Documentation shall include but not be limited to date, location, test unit number, name of tester, type of test and results of each individual test.

3. Record drawings showing panel layout, number, installation sequence and date, locations of destructive seam tests, non-destructive tests, all seam test failures and all repairs and patches.

4. Upon completion of the geomembrane installation and prior to payment for completed work, a complete and comprehensive set of records and record drawings shall be submitted for final review and approval.

1.4 QUALITY ASSURANCE

A. Qualifications

1. Manufacturer's Qualifications:

a. The synthetic geomembrane manufacturer shall have manufactured 25 million square feet of synthetic geomembrane and at least 5 million square feet of the type listed in this specification.

b. The manufacturer shall permit the Owner and Engineer to visit the manufacturing plant.

2. Liner Installer's Qualifications:

a. The liner installer shall submit to the Engineer documented evidence of their ability and sufficient capacity to perform the work by having previously successfully installed a minimum of twenty (20) million square feet of similar type synthetic geomembrane.

b. The liner installer's crew foreman must have documented minimum qualifications of successful installation experience of at least five (5) million square feet on five (5) different projects.

c. Each of the liner installer's welders shall have documented minimum qualifications of successful welding experience of 100,000 linear feet of seam.

d. Liner installer shall have quality assurance/quality control personnel on site at all times. These personnel will be dedicated solely to performing quality assurance/quality control functions. The quality assurance/quality control foreman will have documented minimum qualifications of successful quality assurance/quality control experience of at least three (3) million square feet, on five (5) different projects. No substitution for QA/QC personnel will be allowed during the course of the project unless approved by the Engineer.

3. Sheet Manufacturer:

a. Documentation for the resin shall be checked against the material as received.

b. Contractor shall supply data on each roll of material documenting that the thickness, density, percent carbon black, melt index, elongation at break and tensile strength at yield and break comply with the product specification.

B. Resin used in sheet manufacture shall be specified by the manufacturer.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Deliver, store and handle synthetic geomembrane in accordance with the manufacturer's recommendations. Each roll shall be clearly labeled with the name of the manufacturer, product type, roll number, physical dimensions and date of production.

1.6 WARRANTY

A. Manufacturer shall furnish a material warranty for the synthetic geomembrane material to the Owner. Material warranty shall be for 20 years commencing with the date of final acceptance of the installation.

B. The Contractor shall guarantee the synthetic geomembrane installation against defects in materials, installation and workmanship for 2 years commencing with the date of completion. The guarantee shall include the services of qualified service technicians and all material required for repairs at no expense to the Owner. All welds shall be included in the guarantee. Where the double wedge welding technique is used, both the inner and outer welds along the seam shall be guaranteed.

PART 2 - PRODUCTS

2.1 MATERIAL

A. General:

1. All synthetic geomembrane components shall be new.

2. Synthetic geomembrane material shall be a high density polyethylene geomembrane having a nominal thickness of 60 mils and shall be textured on both sides.

3. The synthetic geomembrane material used must have a maximum coefficient of permeability of 1×10^{-12} centimeters per second.

4. The synthetic geomembrane material shall be free of holes, blisters, undispersed raw materials, and any sign of contamination by foreign matter. Synthetic geomembrane with holes, blisters, undispersed raw material or signs of contamination by foreign material shall be removed from the site and replaced at no additional cost to the Owner.

5. The synthetic geomembrane lining material shall be a minimum 20.0' seamless width. Labels on the roll shall identify the thickness, length, width, manufacturer's mark number, and the direction to unroll the material.

B. Specific:

1. Textured Geomembrane: Textured synthetic geomembrane shall be manufactured from first quality polyethylene resins and meet or exceed the following specifications:

PROPERTY	TEST METHOD	QUALIFIER	REQUIREMENT
Thickness (mils)	ASTM D 5994	Minimum	54
Carbon Black Content (percent)	ASTM D 1603	Range	2-3
Asperity Height	GRI GM12	Minimum	10
Carbon Black Dispersion	ASTM D 5596	Range	A1, A2, B1
Density (g/cc) (minimum)	ASTM D 1505	Minimum	0.94
Minimum Tensile Properties (each direction) 1. Tensile Strength at Yield (pounds/inch width)	ASTM D 6693 Type IV	Minimum	126

PROPERTY	TEST METHOD	QUALIFIER	REQUIREMENT
2. Tensile Strength at Break (pounds/inch width)		Minimum	90
3. Elongation at Yield (percent)		Minimum	12
4. Elongation at Break (percent)		Minimum	100
Tear Resistance Initiation (pounds)	ASTM D 1004 Die C	Minimum	42
Low Temperature Brittleness (°F)	ASTM D 746, Method B	Maximum	-90
Dimensional Stability (each direction, percent change)	ASTM D 1204 212°F, 1 hour	Range	2
Environmental Stress Crack (resistance hours)	ASTM D 5397	Minimum	300
Puncture Resistance (pounds)	ASTM D 4833	Minimum	90

* The value for melt flow index shall be in accordance with manufacturers standard publicized value for the resin utilized in production of the geomembrane.

C. Chemical resistance of the synthetic geomembrane shall be in keeping with typical properties of high quality polyethylene products currently available through commercial sources.

PART 3 - EXECUTION

3.1 EXAMINATION

A. The geomembrane installer shall certify daily in writing that the subgrade surface on which the synthetic geomembrane is to be installed is acceptable.

3.2 PREPARATION

A. Surfaces to be lined shall be smooth and free of rocks, sticks, roots, sharp objects, and all debris that may puncture the synthetic geomembrane. The surface to be lined shall be firm and unyielding, with no sudden changes or breaks in grade.

B. Moisture Content:

1. Allow no standing water or excessive moisture within construction area.

2. Maintain moisture content of the surface soils to receive synthetic geomembrane within three percent low of the optimum moisture until covered by the synthetic geomembrane.

3. Cover all surfaces where moisture content is critical promptly after they have been accepted for synthetic geomembrane installation.

3.3 INSTALLATION

A. The synthetic geomembrane material shall be cleaned of all debris or other materials that may negatively affect the membrane system.

B. Sheet Placement:

1. The first ten (10) feet of material of each roll shall be inspected prior to placement by the Engineer. Material deemed unsuitable for placement by Engineer shall be discarded at no additional cost to the Owner.

2. Sheets shall be placed as directed by the manufacturer's representative on surfaces which have been prepared to conform with these specifications and found acceptable for membrane installation. A subgrade acceptance form provided by the Engineer shall be prepared and signed daily by the Installer, Contractor and Engineer. Copies of these documents shall be included in the final record documents submitted by the Contractor.

3. The overlap between adjacent sheets shall be a minimum of four (4) inches.

4. The synthetic geomembrane shall be placed over the prepared surface in such a manner as to assure minimum handling. Anchor trench excavation and any structure seal preparation shall be completed before the synthetic geomembrane installation begins. The sheets shall be of such lengths and widths and shall be placed in such a manner as to minimize field seaming. Horizontal field seams on the slopes shall be kept to a minimum. Only those sheets of synthetic geomembrane material which can be anchored and sealed together that same day shall be unpackaged and placed in position. Placement methods shall minimize formation of wrinkles. Wrinkles shall be repaired at the direction of the Engineer.

5. In areas where wind is prevalent, synthetic geomembrane installation shall be started at the upwind side of the project and proceed downwind. The leading edge of the synthetic geomembrane shall be secured at all times with sandbags or other means sufficient to hold it down during high winds.

6. Sandbags or rubber tires may be used as required to hold the synthetic geomembrane in position during installation. Tires shall not have exposed steel cords or other sharp edges which may snag or cut the synthetic geomembrane. Materials, equipment or other items shall not be dragged across the surface of the synthetic geomembrane or be allowed to slide down slopes on the synthetic geomembrane. All parties walking or working upon the synthetic geomembrane material shall wear soft-sole shoes.

7. Synthetic geomembrane sheets shall be closely fit and sealed around protrusions through the synthetic geomembrane. All piping, structures and other protrusions through the synthetic geomembrane shall be sealed with approved sealing methods, or as shown on the Drawings.

8. Smoking shall not be permitted by personnel working on the synthetic geomembrane.

9. All areas of the synthetic geomembrane damaged during installation as determined by the Engineer shall be repaired by the Contractor as specified at no additional expense to the Owner.

10. No vehicles of any sort will be allowed to operate directly on the liner.

C. Field Seams:

1. All seams shall be made using either the extrusion welding technique or the double wedge welding technique. Field seaming is prohibited when either ambient air or sheet temperature is below 32°F, when the ambient air temperature is above 120°F, when the sheet temperature is above 158°F, during periods of precipitation, or when winds are in excess of 20 miles per hour.

2. All field welds shall have a minimum test strength of 120 ppi when tested in shear, and 91 and 78 ppi when tested in peel for fusion and extrusion welds, respectively. A test revealing a non-film tear bond seam failure shall be deemed a failed test regardless of seam strength. Shear and peel testing shall be performed in accordance with ASTM D 4437.

3. Welding equipment which exhibits an excessive number of "burn-outs" or failing tests, as determined by the Engineer, shall be removed from the project until proof of repair is shown. The engineer may require continuous monitoring of the welding machine by the installer.

D. Extrusion Welding:

1. Field joints shall be made by overlapping adjacent sheets a minimum of four (4) inches and extruding a ribbon of extrusion joining resin between overlapped sheets or over the seam between the sheets according to procedures recommended by the manufacturer.

2. Prior to extrusion welding of the seams, all areas which are to become seam interfaces shall be cleaned of dust and dirt as directed by the synthetic geomembrane manufacturer's representative. The slick surfaces of the sheet which are to become seam interfaces shall be roughened with a wire brush, grinding wheel or other acceptable means as directed by the synthetic geomembrane manufacturer's representative before extrudate is placed between the overlapping sheets or over a lapped seam.

3. Self-propelled extrusion welders shall be used for welding the lapped seams between sheets.

4. Hand-held extrusion welders shall be used for making repairs and for welding in areas not accessible to the self-propelled welder as directed by the synthetic geomembrane manufacturer's representative.

E. Double Wedge Welding:

1. Field joints shall be made by overlapping adjacent sheets a minimum of four (4) inches or as recommended by the welding machine manufacturer or synthetic geomembrane manufacturer.

2. Prior to double wedge welding of the seams, all areas which are to become seam interfaces shall be cleaned of dust and dirt as directed by the geomembrane manufacturer.

3. Self-propelled double wedge welders shall be used for welding the lapped seams between sheets.

4. Double wedge welding shall not take place unless the sheet is dry.

5. Hand-held extrusion type welders shall be used for making repairs and for welding in areas not accessible to the self-propelled welders as directed by the synthetic geomembrane manufacturer's representative.

F. Defects and Repairs:

1. All seams and non-seam areas of the geomembrane shall be examined by Installer for identification of defects, holes, blisters, excessive scuffing, wrinkles, distress, undispersed raw materials and any sign of contamination by foreign matter.

a. Defective or damaged materials shall be identified via a deficiency report. Actions taken to resolve or correct the problem will also be recorded on the form.

b. Defects, wrinkles, holes, blisters, undispersed raw materials, signs of contamination by foreign matter, unacceptable welds in geomembranes and other unsatisfactory conditions will be identified on the Daily Report Form. The repair or corrective action to "correct" the problem will also be recorded on a Deficiency Correction Form.

c. Both deficiency and daily reports must be received and approved by the Engineer prior to covering the geomembrane.

2. Each suspect location both in seam and non-seam areas shall be non-destructively tested as specified. Each location which fails the non-destructive testing shall be marked by Installer and repaired. Work shall not proceed with any materials which will cover locations which have been repaired until laboratory test results with passing values are available. Owner or Engineer may require Installer to perform conformance tests in areas which appear inadequate or damaged. Owner shall pay for tests which show suspect areas are adequate. Installer shall pay for tests which prove suspect areas are inadequate or deficient.

G. Geomembrane Repair Procedures:

1. Any portion of the Geomembrane failing a destructive or non-destructive test shall be repaired. Several procedures exist for the repair of these areas. The final decision as to the appropriate repair procedure shall be decided by the Engineer. The procedures available include:

a. Patching - used to repair large holes, tears, wrinkles, and contamination by foreign matter;

b. Buffing and re-welding - used to repair small sections of extruded seams;

c. Spot welding or seaming - used to repair small tears, pinholes, or other minor localized flaws;

d. Capping - used to repair large lengths of failed seams or wrinkles;

e. Topping - used to repair areas of inadequate seams which have an exposed edge;

2. In addition, the following provisions shall be satisfied:

a. Surfaces of the geomembrane which are to be repaired shall be abraded no more than one hour prior to the repair;

b. All surfaces must be clean and dry at the time of the repair;

c. All seaming equipment used in repairing procedures must be approved;

d. The repair procedures, materials, and techniques shall be approved in advance of the specific repair by the Engineer.

e. Patches or caps shall extend at least 6 in. beyond the edge of the defect, and all corners of patches shall be rounded with a radius of at least 3 inches.

H. Geomembrane Verification of Repairs:

1. All repairs shall be identified on the as-built drawing. Each repair shall be non-destructively tested using the methods described in Paragraph 3.4 (C) of this Section as appropriate. The Engineer may also require repaired areas to be destructively tested. Failed tests indicate that the repair shall be redone and retested until a passing test result is obtained.

3.4 FIELD QUALITY CONTROL

A. Installation Contractor shall employ on-site physical inspection of installation procedures.

B. Contractor shall notify Engineer in writing when material is delivered to site. Contractor will perform conformance tests on material within three (3) weeks of receiving materials. At a minimum, parent material conformance testing shall be performed every 50,000 square feet of liner material delivered to the site. A two foot wide sample along the entire roll width shall be cut after the first lap on the roll is removed and submitted by the Contractor for testing. The following tests shall be performed:

1. Textured Synthetic Geomembrane:

PROPERTY	TEST METHOD	QUALIFIER	REQUIREMENT
Thickness (mils)	ASTM D 5994	Minimum	54
Minimum Tensile Properties (each direction)	ASTM D6693 Type IV		
1. Tensile Strength at Yield (pounds/inch width)		Minimum	126
2. Tensile Strength at Break (pounds/inch width)		Minimum	100
3. Elongation at Yield (percent)		Minimum	12
4. Elongation at Break (percent)		Minimum	100
Puncture Resistance (pounds)	ASTM D 4833	Minimum	90

C. Installation Contractor shall perform physical nondestructive testing on all welds to document airtight homogeneous seams. Testing shall consist of pressure testing on fused seams and vacuum box testing on extrusion welded seams. Engineer shall observe and document that all non-destructive testing of the geomembrane was performed.

1. Air Pressure Testing (ASTM D5820):

a. Equipment for Air Testing:

1) Air pump capable of generating and sustaining a pressure between 20 to 60 psi.

2) Rubber hose with fittings and connections.

3) Sharp hollow needle, or other approved pressure feed device with a sealed and liquid filled pressure gauge capable of reading and sustaining a pressure between 0 and 60 psi in one pound increments.

b. Procedure for Air Testing:

1) Seal both ends of the seam to be tested.

2) Insert needle or other approved pressure feed device into the sealed channel created by the fusion weld.

3) Inflate the test channel to a pressure of approximately 25 to 30 psi, and allow the pressurized channel to stabilize for two (2) minutes. Re-inflate to a minimum of 25 psi as necessary. The initial pressure reading shall be recorded once stabilization has taken place. Close valve, observe and record the initial pressure.

4) Observe and record the air pressure five (5) minutes after the initial pressure setting is recorded. If loss of pressure exceeds 4 psi or if the pressure does not stabilize, locate the suspect area and repair.

5) At the conclusion of all pressure tests, the end of the air-channel opposite the pressure gauge shall be cut. A decrease in gauge pressure must be observed or the air channel will be considered "blocked" and the tests shall be repeated from the point of blockage. If the point of blockage cannot be found, cut the air channel in the middle of the seam and treat each half as a separate test.

6) Remove the pressure feed needle and seal the resulting hole be extrusion welding.

c. In the event of a Non-Complying Air Pressure Test, the following procedure shall be followed:

1) Check seam and seals and retest seams.

2) If a seam will not maintain the specified pressure, the seam shall be visually inspected to localize the flaw. If this method is unsuccessful, cut one inch (1") samples from each end of the seam.

3) Perform destructive peel tests on the samples using the field tensiometer.

4) If all samples pass destructive testing remove the overlap left by the wedge welder and vacuum test the entire length of seam.

a) If a leak is located by the vacuum test, repair by extrusion fillet welding. Test the repair by vacuum testing.

b) If no leak is discovered by vacuum testing, the seam will be considered to have passed non-destructive testing.

5) If one or more peel specimens are in non-compliance, additional samples shall be taken in accordance with the specifications.

a) When two (2) passing samples are located, the length of seam bounded by the two (2) passing test locations will be considered non-complying. The overlap left by the wedge welder shall be heat tacked in place along the entire length of seam and the non-complying portion of seam will be extrusion fillet welded.

b) Test the entire length of the repaired seam by vacuum testing.

d. General Air Testing Procedures:

1) The opposite end of the air channel will in all cases be pierced to assure that no blockages of the air channel have occurred.

2) Whenever possible, seams should be air-tested prior to completing butt seams to avoid having to cut into liner. All cuts through the liner as a result of testing will be repaired by extrusion welding.

3) All needle holes in air channels remaining after testing shall be circled by testing crew and will be repaired with an extrusion bead.

e. Air Pressure Testing Documentation:

1) All information regarding air-pressure testing, (date, initial time and pressure, final time and pressure, pass/fail designation, and Technician's initials) shall be written at both ends of the seam, or portion of seam tested. All of this information shall be logged on appropriate forms provided by the Engineer. Test locations and unit numbers shall also be logged by the Installer's QA/QC personnel on appropriate forms provided by the Engineer. These forms will be reviewed daily by the Engineer. The Contractor shall include this information in the record document submittal for the geomembrane.

2. Vacuum Testing (ASTM D5641):

This test shall be used on extrusion welds, or when the geometry of a fusion weld makes air pressure testing impossible or impractical, or when attempting to locate the precise location of a defect believed to exist after air pressure testing.

a. Equipment for Vacuum Testing:

1) Vacuum box assembly consisting of a rigid housing with a soft neoprene gasket attached to the bottom, a transparent viewing window, port hole or valve assembly, and a vacuum gauge.

2) Vacuum pump assembly equipped with a pressure controller and pipe connection.

3) A rubber pressure/vacuum hose with fittings and connections.

4) A bucket and means to apply a soapy solution.

5) A soapy solution.

b. Procedure for Vacuum Testing:

1) Trim excess overlap from the seam, if any.

2) Turn on the vacuum pump to reduce the vacuum box to between 3 and 5 psi gauge.

3) Apply a generous amount of a strong solution of liquid detergent and water to the area to be tested.

4) Place the vacuum box over the area to be tested and apply sufficient downward pressure to "seat" the seal strip against the liner.

5) Close the bleed valve and open the vacuum valve.

6) Apply a minimum of 3 psi vacuum to the area as indicated by the gauge on the vacuum box.

7) Ensure that a leak tight seal is created.

8) For a period of approximately 10 to 15 seconds, examine the geomembrane through the viewing window for the presence of soap bubbles.

9) If no bubbles appear after 15 seconds, close the vacuum valve and open the bleed valve, move the box over the next adjoining area with a minimum three inch (3") overlap, and repeat the process.

c. Procedure for Non-Complying Test:

1) Mark all areas where soap bubbles appear and repair the marked areas.
2) Retest repaired areas.

d. General Vacuum Testing Procedures:

1) Vacuum box testing shall be performed by qualified personnel with frequent supervision by the Installers Construction Quality Control Coordinator.

2) Overlap shall be trimmed prior to vacuum boxing all seams.

3) Special attention shall be exercised when vacuum testing "T" seams or patch intersections with seams.

e. Vacuum Testing Documentation:

1) Vacuum testing crew will use permanent markers to write on liner indicating tester's initials, date, and pass/fail designation on all areas tested.

2) All of the above information plus location and test unit number shall be logged by the Installer's QA/QC personnel on appropriate forms provided by the Engineer. The forms will be reviewed daily by the Engineer. The Contractor shall include this information in the record document submittal for the geomembrane.

D. Quality-control technicians, employed by the Installation Contractor, shall inspect each seam. Any area showing a defect shall be marked and repaired by the installation Contractor.

E. Trial Welds: A test weld three feet long from each welding machine and from each operator shall be run twice per day (once in the morning and once in the afternoon) prior to geomembrane welding and under the same conditions as exist for the geomembrane welding. Test welds shall also be run when significant changes in geomembrane sheet temperatures are observed. The test weld shall be marked with date, ambient temperature, and welding machine number. Samples of weld measuring 1 inch x 12 inches shall be cut from the test weld and pulled in peel in the field prior to production welding using a field tensiometer, and recorded as pass or fail regarding the requirements of Section 3.3 - C. If trial test specimens do not pass, then the seaming device and its operator will not perform any seaming operations until the deficiencies are corrected and two successive passing trial seam test specimens are produced. Completed trial seam samples cannot be used as portions of a second sample and must be discarded. Trial weld samples shall be achieved for potential subsequent laboratory strength testing in accordance with applicable ASTM standards (ASTM D 4437). Documentation of all trials welds shall be logged on appropriate forms provided by the Engineer. The data shall be reviewed by the Engineer prior to the commencement of work each day. The Contractor shall include copies of trial weld reports in the record document submittal for the geomembrane.

F. Destructive Testing: Destructive seam tests shall be performed at random locations. Seam strength testing shall be done as the seaming work progresses, not at the completion of all field seaming. The Owner or Engineer shall select locations where seam samples will be cut. Destructive samples shall be pulled at intervals of 1 sample for every 500 linear feet of weld, at a minimum. At least one representative sample shall be taken for each seaming machine being used on any given day. The seaming technician shall not be informed in advance of the locations where the seam samples will be taken. Seam strength and failure mode shall be as specified in Paragraph 3.3-C of this Section.

1. Samples shall be cut by Installer as the seaming progresses.

2. Installer shall assign a number to each sample which is to be based upon seam and sample number and mark it accordingly.

3. Installer shall record sample location and number on "As-Built" record drawing.

4. All holes in the geomembrane resulting from destructive seam sampling shall be repaired in accordance with repair procedures described in Paragraph 3.3-F of this Section at no additional cost to the Owner. The continuity of the new seams in the repaired area shall be tested according to Paragraph 3.4-c of this Section.

G. Samples for Destructive Tests:

1. Installer, under the Engineers direction, shall take two coupon samples. The coupon samples shall be 1 inch x 12 inches, and separated by 36 inches.

2. Installer shall test the two coupon samples in the presence of the Engineer. The installer shall test the coupon samples in peel (inner track weld only) and shear, and the sample shall not fail in the seam (failor shall not be by a non-film tear bond mode). If both coupon samples pass, the Engineer will direct the Installer to collect a sample from between the locations from which the coupon samples were removed. Installer shall cut the sample into three, 12 inch by 12 inch specimens and Engineer will distribute the three specimens as follows:

   a. One specimen will be given to the Owner for archive storage;

   b. One specimen will be retained by the Engineer should further sampling be required; and

   c. One sample will be shipped by overnight mail to the Contractors/Installers independent geosynthetic laboratory for testing in accordance with ASTM D 4437.

3. Contractor/Installer shall direct the selected geosynthetic laboratory to perform five peel (inner track weld only) and five shear tests. If more than one of the tests fail to meet the strength or failure mode requirements, the seam shall be considered inadequate and the Installer shall repair the seam or retest the seam as required by the specifications.

4. The following procedures shall apply whenever a sample fails a destructive test. Installer has two options:

   a. Reconstruct the seam between any two passed test locations;

   b. Trace the welding path to an intermediate location [10 feet minimum from the point of the failed test in each direction] and take a small sample for an additional field test at each location. If these additional samples pass the field test, then full laboratory samples shall be taken in accordance with Paragraph 3.4-G of this Section. If these laboratory samples pass the tests, then the seam is reconstructed between these locations. If either sample fails, then the process is repeated (with testing at the Contractor's expense with no additional cost to Owner) to establish the zone in which the seam shall be reconstructed.

1) All acceptable seams must be bounded by two locations from which samples passing laboratory destructive tests have been taken.

2) Installer shall document all actions taken in conjunction with destructive test failures; e.g., capping of failed seam area.

H. Any tensile testing which indicates a defective weld shall result in the contractor repairing the weld by capping the weld between two locations where successful welds have been documented by tests. Repaired seam strength shall be as specified in Paragraph 3.3-C of this Section.

I. Alternative test methods or quality control procedures and specifications shall be reviewed and approved by the Engineer prior to use.

J. Installation Contractor shall submit to the Engineer a written description of procedures, sample types and locations and results of laboratory testing described above.

K. No materials shall be placed over any area of installed geomembrane until the installed geomembrane has been accepted by the Engineer. In order to gain acceptance by the Engineer, Contractor shall submit all as-built documentation and test results required by this specification including, but not necessarily limited to, as-built geomembrane panel lay-out, all field installation logs, destructive and non-destructive test logs and results showing passing and failing tests, and repair reports. This information shall be reviewed and approved by the Engineer prior to acceptance of any areas of installed geomembrane and installation of cover materials above the geomembrane.

L. Upon the Engineer's acceptance of the geomembrane installation or portions thereof, the geomembrane shall be covered with proposed geosynthetic and or soil materials as soon as possible to prevent damage to the geomembrane that could be caused by weather conditions or construction activities. Any completed geomembrane that is left uncovered prior to acceptance by the Engineer shall be protected from potential wind damage through the use of sandbags and/or tires to prevent uplift, and protected from construction activities by preventing construction personnel and equipment from entering these areas. In no case shall a geomembranes that has been accepted by the Engineer remain uncovered for longer than 14 calendar days.

M. The Contractor shall maintain and prepare at the site, record drawings which detail and delineate all geomembrane panels, deficiencies, seams, repairs, destructive sample locations, penetrations, roll numbers, seam numbers, and other required information to fully and comprehensively document the as-built condition.

END OF SECTION 02212

PART 1 - GENERAL

1.1 DESCRIPTION

A. The Contractor shall provide all labor, materials, equipment, and services necessary for, and incidental to, furnishing, installing and testing the geosynthetic clay liner (GCL) as shown on the Drawings and specified herein.

1.2 QUALITY ASSURANCE

A. Codes and Standards: Perform all work in compliance with applicable requirements of governing authorities having jurisdiction.

B. The latest edition of the following standards, as referenced herein, shall be applicable.

1. American Society for Testing and Materials (ASTM)

C. Manufacturer's Qualifications:

1. The GCL manufacturer shall have manufacturing experience of at least two million square feet of GCL.

2. The manufacturer shall permit the Owner and Engineer to visit the manufacturing plant.

D. Installers Qualifications:

1. The installation Contractor shall submit to the Engineer documented evidence of their ability and sufficient capacity to perform the work by having previously successfully installed a minimum of five hundred thousand square feet of GCL.

E. Sheet Manufacture:

1. Contractor shall supply data on each roll of material documenting that the thickness, bentonite content, elongation at break and tensile strength at yield and break comply with the product specification.

1.3 SUBMITTALS

A. The Contractor shall submit to the Engineer product data, samples, schedules, and Shop Drawings describing the Work to be performed. Work covered by these submittals shall not proceed until they have been approved by the Engineer.

B. Required submittals include:

1. Manufacturer's qualifications.
2. Installer's qualifications.
3. Product data and specifications for GCL components.
4. Description of seaming equipment and procedures.
5. GCL panel layout detailing seams and sequence of installation.
6. Installation schedule.
7. Material samples of all GCL components, including seams.
8. Maintenance and repair procedures.
9. Details of joints, anchoring, penetrations and other construction details.
10. Material Safety Data Sheets (MSDS) for herbicide spray.

C. The Contractor shall provide the Engineer with all pertinent record documents including:

1. Manufacturer's quality control certification for all material delivered. Submit certification upon delivery.

2. Record drawings showing panel layout, installation sequence, and repairs.

1.4 DELIVERY, STORAGE, AND HANDLING

A. Delivery:

1. Deliver sufficient materials to the site to prevent interruption of the work.

2. All materials shall be inspected by Contractor upon delivery. Contractor shall notify Engineer of any damage. Products received at the site torn, de-laminated, partially or fully hydrated or otherwise damaged will not be approved and shall be returned and replaced at no expense to the Owner.

B. Storage:

1. GCL shall be stored in strict accordance with the manufacturer's recommendations and as approved by the Engineer.

2. GCL shall be stored so as not to be exposed to wind, rain, sunlight, or excess moisture.

C. Handling:

1. GCL shall be handled in strict accordance with the manufacturer's recommendations and as approved by the Engineer.

1.5 MATERIALS AND INSTALLATION WARRANTY

A. The Contractor shall guarantee the GCL against defects in materials, fabrication, installation, and workmanship for thirty years commencing with the date of final acceptance.

PART 2 - PRODUCTS

2.1 Materials:

A. Bentonite:

1. All bentonite in GCLs shall be pure premium grade sodium (Wyoming) bentonite comprising a minimum of 90% montmorillonite. Bentonite content shall be a minimum of one pound per square foot.

B. Geotextile:

1. The fabric acting as the backing shall be attached by mechanical connection, to the bentonite and shall be manufactured from polypropylene, either woven or nonwoven.

C. Composite:

1. Materials shall be Bentomat DN manufactured by CETCO Lining Technologies or approved equal.

2. The coefficient of permeability of the GCL shall be less than $1x10^{-7}$ cm/s as determined by triaxial permeability tests.

3. The coefficient of permeability of seams with no additional bentonite placed along the seam shall be less than $1x10^{-7}$ cm/s as determined by triaxial permeability tests.

PART 3 - EXECUTION

3.1 GENERAL

A. The Contractor shall be responsible for the storage, handling, installation, and seaming of GCL's in accordance with the specifications and the conditions of the manufacturer's warranty.

B. The manufacturer's representative shall be on site to supervise initial installation of the GCL.

C. At time of installation, GCL will be rejected if it has defects, ribs, holes, flaws, deterioration, partial or full hydration, or damage incurred during manufacture, transportation, storage, or handling. Damaged material shall be removed and replaced at no additional cost to the Owner.

3.2 SUBBASE PREPARATION

A. Surfaces to be lined shall be smooth and free of rocks, sticks, roots, sharp objects, angular material, and all debris that may puncture the GCL. Material larger than three-quarter inch shall not be allowed at the surface of subbase material. Subbase material shall be free of organic, frozen, or other deleterious materials. The surface to be lined shall be firm and unyielding, with no sudden changes or breaks in grade. There shall be no standing water or excessive moisture on the surface when the GCL is placed. The installation Contractor shall certify daily in writing that the subbase surface on which the GCL is to be installed is acceptable.

B. Spray the surface with a herbicide to prevent growth of vegetation through the GCL.

C. Moisture Content:

1. Allow no standing water or excessive moisture within construction area. The GCL shall not be installed in standing water or during rain.

2. Cover all surfaces where moisture content is critical promptly after they have been accepted for GCL installation.

3. Maintain moisture content of the surface soils to receive GCL within four percent of the optimum moisture until covered by the GCL.

D. The compacted subgrade shall be maintained in a smooth, uniform, and compacted condition during installation of the GCL.

3.3 GCL INSTALLATION

A. The GCL shall be cleaned of all debris or other materials that may negatively affect the liner system.

B. Mechanical equipment shall not be allowed to operate directly on the GCL unless directed to do so by the manufacturer's duly authorized representative.

C. Sheet Placement:

1. Sheets shall be placed as directed by the manufacturer's representative on surfaces which have been prepared to conform with these Specifications and found acceptable for GCL installation.

2. The overlap between adjacent sheets shall be a minimum of ten inches.

3. The GCL shall be placed over the prepared surface in such a manner as to assure minimum handling. Anchor trench excavation and any structure seal preparation shall be completed before GCL installation begins. The sheets shall be of such lengths and widths and shall be placed in such a manner as to minimize field seaming. Horizontal field seams on slopes shall not be permitted. Only those sheets of GCLs which can be anchored, seamed together and covered that same day shall be unpackaged and placed into position. The GCL shall be dry when installed and dry when covered. Work on slopes shall be undertaken before work on the bottom to permit drainage in the event of rainfall. Placement methods shall be such that formation of wrinkles is minimized. The GCL shall be installed so that it is free of tension or stress upon completion of installation. Stretching of the GCL to fit will not be allowed.

4. In areas where wind is prevalent, GCL installation shall be started at the upwind side of the project and proceed downwind. The leading edge of the GCL shall be secured at all times with sandbags or other means sufficient to hold it down during high winds.

5. Sand bags or tires may be used as required to hold down the GCL in position during installation. Tires shall not have exposed cords or other sharp edges which may snag or cut the GCL. Materials, equipment or other items shall not be allowed to slide down slopes on the GCL. All parties walking or working upon the GCL shall wear soft-sole shoes.

6. GCL sheets shall be closely fit and sealed around projections through the GCL. All piping, structures and other projections through the GCL shall be sealed with approved sealing methods as recommended by the manufacturer or as shown on the Drawings.

7. Smoking shall not be permitted by personnel working on the GCL.

8. All areas of the GCL damaged during installation as determined by the Engineer shall be repaired by the Contractor as recommended by the manufacturer or as specified at no additional cost to the Owner.

9. If rainfall commences during installation or while under construction, the uncovered sections of GCL shall be covered with plastic sheeting to provide interim protection.

3.4 FIELD REPAIRS

A. All field repairs shall be authorized by the Engineer.

B. Field repairs shall not be allowed on slopes greater than ten percent.

C. Field repairs to the GCL shall be accomplished by covering the damage with a piece of GCL large enough to provide twelve inch overlap on all sides of the damage.

D. The patch shall be fastened to the damaged sheet with staples or glue. Additional bentonite shall be placed between the patch and the repaired material as specified by the manufacturer or at a rate of one-quarter pound per lineal foot of edge, whichever is greater.

3.5 COVER MATERIAL PLACEMENT

A. All GCL placed shall be covered by a minimum of six inches of backfill the day of installation.

B. Cover material shall be pushed forward onto the liner so that the equipment does not work directly upon the GCL. Cover material placed on slopes shall be pushed up slope from the bottom.

C. All equipment used in spreading or travelling on the cover for any reason shall exert low ground pressures and shall be approved by the GCL manufacturer and Engineer.

D. Dozer blades, etc. shall not make direct contact with the GCL; however, if tears occur in the GCL during the spreading operation, the cover material shall be carefully cleared from the GCL and the damaged area repaired.

E. The cover material shall be spread in the direction of the GCL overlap. Large wrinkles in the GCL which may develop during the spreading operations shall be folded and flattened in the direction of the spreading. Occasionally, large folds may reduce the overlap width. Special care shall be given to maintain proper overlap and continuity. Insufficient overlaps that develop during spreading shall be repaired by patching over the seam.

F. All equipment spreading cover material or traveling on the cover layer shall avoid making sharp turns, quick stops or quick starts.

3.6 FIELD SEAMS

A. All field seams shall be made in strict conformance with the manufacturer's specifications and recommendations.

B. All overlaps hall be a minimum of ten inches.

C. Seam areas or runs shall be flat and clear of large rocks, debris, or ruts. Contacting surfaces shall be clean and clear of dirt or native soil with all edges pulled tight to maximize contact and to smooth out any wrinkles or creases.

3.7 HYDRATION OF GCL

A. Upon completion of installation of GCL, required stabilization geosynthetics, and cover material, the blanket shall be hydrated.

B. Hydration with fresh water void of substances which will either contaminate the GCL or cover material or hinder hydration shall be accomplished by use of a sprinkler system.

C. If natural rain fall occurs prior to hydration of the GCL in quantities which both the manufacturer's representative and Engineer believe to have sufficiently hydrated the liner, sprinkler hydration will not be required.

3.8 DISPOSAL OF SCRAP MATERIALS

A. On completion of installation, the Contractor shall dispose of all scrap material off site or in a location approved by the Owner and Engineer, remove equipment used in connection with the work herein, and shall leave the premises in a neat acceptable manner.

END OF SECTION 02215

PART 1 - GENERAL

1.1 DESCRIPTION

A. The Contractor shall provide all labor, materials, equipment, and services necessary for, and incidental to, furnishing and installing separation/stabilization fabric as shown on the Contract Drawings and as specified herein.

1.2 QUALITY ASSURANCE

A. The latest edition of the following standards, as referenced herein, shall be applicable.

1. American Society for Testing and Materials (ASTM).

1.3 SUBMITTALS

A. Product Data:

1. Submit Manufacturer's catalog cuts, specifications and installation instructions.

B. Samples:

1. Submit a one (1) square yard piece of each type of fabric.

1.4 DELIVERY, STORAGE, AND HANDLING

A. Delivery:

1. Deliver sufficient materials to the site to prevent interruption of the work.

2. All materials shall be inspected by Contractor upon delivery. Contractor shall notify Engineer of any damage. Products received at the site torn, with holes, deteriorated, or otherwise damaged will not be approved and shall be returned and replaced at no expense to the Owner.

B. Storage:

1. All material shall be stored in strict accordance with the manufacturer's recommendations and as approved by the Engineer.

2. All material shall be stored so as to be protected from wind, rain, excess moisture, or sunlight. Material shall be wrapped in an opaque, protective cover until ready for use.

C. Handling:

1. All material shall be handled in strict accordance with the manufacturer's recommendations and as approved by the Engineer.

PART 2 - PRODUCTS

2.1 GENERAL

A. For material separation/filtration, fabric shall be Mirafi 1100N or approved equal.

B. For stabilization, fabric shall be Mirafi 600X or approved equal.

2.2 MATERIAL PROPERTIES

A. Separation/Filtration Fabric: (To be used in drainage ditches, haybale installation, culvert outfall installations, rip-rap outfall installations, cover material separation and methane vent installation).

Property	Design Value	Test Method
Tensile Strength	250 lbs (min)	ASTM D4632
Elongation	50% (max)	ASTM D4632
Burst Strength	500 psi (min)	ASTM D3786
Puncture Strength	155 lbs (min)	ASTM D4833
A.O.S.	100	ASTM D4751
Permittivity	1.0 sec^{-1} (min)	ASTM D4491

B. Stabilization Fabric (To be used beneath access roads)

Property	Design Value	Test Method
Tensile Strength	315 lbs (min)	ASTM D4632
Elongation	15% (max)	ASTM D4632
Burst Strength	600 psi (min)	ASTM D3786
Puncture Strength	145 lbs (min)	ASTM D4833
A.O.S.	40	ASTM D4751
Permittivity	0.05 sec^{-1} (min)	ASTM D4491

PART 3 - EXECUTION

3.1 GENERAL

A. The Contractor shall be responsible for the storage, handling, installation, and seaming of geotextile fabric in accordance with the specifications and the manufacturer's recommendations, as approved by the Engineer.

3.2 SUBBASE PREPARATION

A. Surfaces to be covered with geotextile fabric shall be smooth and free of rocks, sticks, roots, sharp objects, and all debris that may damage the fabric. The surface to be covered shall be firm and unyielding, with no sudden changes or breaks in grade. There shall be no standing water or excessive moisture on the surface when the fabric is placed.

B. The compacted subbase shall be maintained in a smooth, uniform and compacted condition during installation of the fabric.

3.3 GEOTEXTILE INSTALLATION

A. The fabric shall be cleaned of all debris or other materials that may negatively affect the fabric's performance.

B. Mechanical equipment shall not be permitted to operate directly on the fabric unless authorized to do so by the manufacturer and approved by the Engineer.

C. Geotextile Placement:

1. Fabric shall be placed as recommended by the manufacturer and approved by the Engineer on surfaces which have been prepared to conform with these Specifications and found acceptable for fabric installation.

2. The fabric shall be placed as smooth and wrinkle-free as possible. All laps shall be at least 18" in width without tension, stress, folds, or creases.

3. Separation fabric for the bottom of the drainage layers shall be placed so that laps are parallel to the water flow within the layer. If specific site conditions in certain areas do not allow for placement in this manner the upstream fabric shall lap over the downstream fabric.

4. Stabilization fabric shall be laid in the direction of construction traffic.

5. In areas where wind is prevalent, fabric installation shall be started at the upwind side of the project and proceed downwind. The leading edge of the fabric shall be secured at all times with sandbags or other means sufficient to hold it down during high winds.

6. Sandbags or rubber tires may be used as required to hold the fabric in position during installation. Tires shall not have exposed steel cords or other sharp edges which may snag or cut the fabric. Materials, equipment or other items shall not be dragged across the fabric or be allowed to slide down slopes on the fabric.

7. Smoking shall not be permitted by personnel working on the fabric.

8. All areas of fabric damaged during installation as determined by the Engineer shall be repaired by the Contractor as specified at no additional cost to the Owner.

9. At time of installation, fabric will be rejected if it has defects, ribs, holes, flaws, deterioration, or damage incurred during manufacture, transportation, handling, or storage. Damaged materials shall be removed and replaced at no additional cost to the Owner.

10. Fabric shall be placed with long dimension down slope.

11. Fabric shall be protected at all times during construction from contamination by surface run-off and any fabric so contaminated shall be removed and replaced with uncontaminated fabric.

D. Seams and Overlaps of Geotextile:

1. All overlaps shall be a minimum of 18 inches.
2. Joints shall be sewn or bonded unless otherwise noted. Securing pins shall not be used.

3.4 GEOTEXTILE REPAIR

A. Should the fabric be damaged during any step of the installation, the damaged section shall be repaired by covering it with a piece of fabric which extends at least 18 inches in all directions beyond the damaged area. The fabric shall be secured by sewing or bonding as approved by the Engineer.

3.5 COVER MATERIALS OVER GEOTEXTILES

A. During backdumping and spreading, a minimum depth of 12 inches of material shall be maintained at all times between the fabric and wheels of trucks or spreading equipment. All equipment used in spreading or traveling on the cover layer for any reason shall exert low ground pressures and shall be approved by the manufacturer and Engineer. Dozer blades, etc. shall not make direct contact with the fabric; however, if tears occur in the fabric during the spreading operation, the cover material shall be cleared from the fabric and the damaged area repaired as previously described.

B. The cover material shall be spread in the direction of fabric overlap. Large fabric wrinkles which may develop during the spreading operations shall be folded and flattened in the direction of the spreading. Occasionally, large folds may reduce the fabric overlap width. Special care shall be given to maintain proper overlap and fabric continuity.

C. All equipment spreading cover material or traveling on the cover layer shall avoid making sharp turns, quick stops or quick starts.

D. Fabric shall be covered as soon as possible after placement to minimize exposure to sunlight. Fabric shall not be exposed for more than 7 days.

3.6 DISPOSAL OF SCRAP MATERIALS

A. On completion of installation, the Contractor shall dispose of all trash and scrap material off-site or in a location approved by the Owner and Engineer, remove equipment used in connection with the work herein, and shall leave the premises in a neat acceptable manner.

END OF SECTION 02240

SECTION 02614 HIGH DENSITY POLYETHYLENE PIPE

PART 1 - GENERAL

1.1 DESCRIPTION

A. The Contractor shall provide all labor, materials, equipment and services necessary for, and, incidental to the installation of High Density Polyethylene Piping Systems as shown on the drawings and specified herein. All pipe shall be PE 3408 as manufactured by Plexco Piping Systems, a subsidiary of Chevron, or equal.

B. All piping, fittings, and appurtenances shall be new, clean and in accordance with material specifications. In no instance shall secondhand or damaged materials be acceptable.

C. Pipe, fittings and the installation shall meet the applicable requirements of Title 49, Code of Federal Regulations, Part 192.

1.2 QUALITY ASSURANCE

A. Reference Standards:

1. The latest edition of the standards referenced herein, shall be applicable.

a. American Society of Testing and Materials (ASTM).

1. HDPE Cell Classification ASTM D 3350.

B. Product Markings: Each pipe length shall be plainly and permanently marked with the following information:

1. Name of trademark of manufacturer
2. Date of manufacture
3. Diameter and Class

1.3 SUBMITTALS

A. Product Data:

1. Obtain and submit manufacturer's catalog cuts, specifications and installation instructions.

2. Provide data on equipment for providing butt fusion welded joints and all special equipment related to the installation and jointing of HDPE pipe.

B. Shop Drawings:

1. Assembly and installation details for all pipe fittings, pipe specials and appurtenances located within manholes.

C. Certification:

1. Submit fusion training certification for all joint installers.
2. Submit copy of Plexco Bulletin 106.
3. Submit Manufacturers certification of hydraulic testing in accordance with ASTM D-2837.

1.4 PRODUCT DELIVERY, STORAGE, AND HANDLING

A. Delivery:

1. Schedule delivery of materials to the site to prevent interruption of work.

2. All materials shall be inspected by the Contractor upon delivery to the site. Contractor shall notify Engineer of any loss or damage.

B. Handling:

1. Pipe, fittings, specials appurtenances and accessories shall be handled carefully with approved handling devices in strict conformance with the manufacturer's recommendations.

2. Products shall not be dropped or rolled off trucks, nor shall products be otherwise dragged, rolled or skidded.

C. Products received at the site cracked, gouged, chipped, dented or otherwise damaged will not be approved and shall be returned and replaced at the Distributor/Supplier's expense.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Pipe and Fittings:

1. All pipe and fittings shall be high density polyethylene and exhibit the following properties:

Property	**Test Method**	**Unit**	**Value**
Density	ASTM D-1505	gm/cm^3	0.955
Melt Index	ASTM D-1238	gm/10 min.	0.1
Flexural Modulus	ASTM D-790	psi	133,000
Tensile Strength	ASTM D-638	psi	3,500
Environmental Stress Crack Resistance	ASTM D-1693	HRS/Failure %	>5,000
Hydrostatic Design Basis	ASTM D-2387	psi at 140°F psi at 73.4°F	800 1,600
Color & Ultraviolet Stabilizer		Colored	

2. All fittings shall meet the pressure rating of the HDPE pipe. Fitting sizes and types shall be as shown on the Drawings unless otherwise directed by the Engineer.

3. All HDPE pipe shall be of the nominal size and SDR specified on the Drawings.

B. Joints:

1. All joints of HDPE pipe shall be butt fused by the heat fusion method in strict accordance with manufacturer's recommended procedures and specifications. The Contractor shall provide fusion training certification by the local utility company, and all workers involved in joining piping shall have a valid certification card.

PART 3 - EXECUTION

3.1 INSPECTION

A. Inspect all pipe and fittings prior to laying in the trench. Remove defective pipe and fittings from the site.

B. Do not backfill until inspection by the Engineer, unless otherwise approved by the Engineer.

3.2 INSTALLATION

A. Trenching, backfilling and compaction shall conform to Section "Trenching, Backfilling, and Compaction."

B. Pipe installation shall conform to Section "Buried Pipe Installation."

3.3 TESTING

A. Testing of piping shall conform to Section "Buried Pipe Installation."

END OF SECTION 02614

Construction Quality Assurance/ Quality Control Plan Eastern Landfill Expansion

City of Albany Rapp Road Solid Waste Management Facility

CHA Project Number: 12206

Prepared for:

The City of Albany, New York

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1.0 INTRODUCTION

1.1 General

This report presents a Construction Quality Assurance/ Quality Control (QA/QC) Plan for the construction of the Rapp Road Solid Waste Management Facility Eastern Landfill Expansion Project. The plan is presented for compliance with the requirements of New York State Department of Environmental Conservation Sub-Part 6 NYCRR Part 360-2.8, effective March 15, 2002.

1.2 Description of Proposed Landfill Construction Activity

The proposed landfill construction QA/QC plan is for the double composite liner described as follows:

A. Primary Composite Liner System
   - Primary Leachate Collection Layer – This leachate collection layer consists of 24 inches of granular soil ($1x10^{-2}$ cm/sec) with a leachate collection pipe network.
   - Primary Composite Liner – The primary composite liner consists of a textured 60 mil HDPE flexible membrane liner that overlies a geosynthetic clay liner.
   - Structural Layer – The layer will consist of 12-inches of granular soil.

B. Secondary Composite Liner System
   - Secondary Leachate Collection Layer - This layer will include 12 inches of granular soil ($1.0x10^{-2}$ cm/sec) and a leachate collection pipe network.
   - Secondary Composite Liner - This layer will contain a textured 60 mil HDPE flexible membrane liner (1×10^{-12} cm/sec) that directly overlays 24 inches of low permeability soil layer (1×10^{-7} cm/sec).
   - Subgrade - This will consist of the existing in-place soils, after the topsoil has been removed and/ or select fill that will be graded and prepared for construction of containment berms. The existing soils will be reworked if necessary to meet the new line and grade requirements.

1.3 Components of the QA/QC Plan

The following list presents the principal components of a QA/QC Plan as required by 6 NYCRR 360-2.8, along with the location (in parenthesis) of where demonstration of each component can be found in this document:

- All landfill construction requirements set forth in Section 360-2.13 are addressed (throughout the document),
- Pre-construction meeting (Section 2.2 Preconstruction Meeting),
- Responsibilities of the QA/QC management organization (Section 3.0 Responsibilities and qualifications of QA/QC Officers and Staff),
- Chain of command of the QA/QC inspectors and contractors (Section 3.1-D Chain of Command),
- Qualification of the QA/QC officers and inspectors (Section 3.2 Personnel Qualifications),
- Qualifications of installers (Section 1.6 Qualifications of Installers of Liner Components),
- QA/QC testing and monitoring and contingency protocols (Section 3.7 Testing and Monitoring Protocols) including:

  A. Frequency of inspection;
  B. Types and frequency of field tests;
  C. Types and frequency of laboratory tests;
  D. Testing equipment (field and lab) to be utilized and calibrations of each;
  E. Frequency of performance audits;
  F. Sampling sizes;
  G. QA/ QC of laboratory procedures;
  H. Limits for test failure;
  I. Selection of corrective measures and frequency of inspection to insure compliance;
  J. Documentation and reporting requirements.

2.0 CONTRACTOR'S QUALITY CONTROL PLAN

2.1 General

Prior to the initiation of construction, the contractor installing the liner system(s) shall furnish, for approval by the Engineer, the Contractor Quality Control (CQC) Plan with which it is proposed to implement the requirements of the contract. The Plan shall identify personnel, procedures, instructions, records and forms to be used during construction. No construction will begin prior to Engineer's approval of the CQC Plan.

2.2 Preconstruction Meeting

Before the start of construction, the Contractor will meet with the Engineer and discuss the Contractor's quality control plan. Representatives of the facility owner/operator, engineer, CQA/CQC staff, and the contractor will attend this meeting. During the meeting, a mutual understanding for the system details shall be developed, including the forms for recording the CQC operations, control activities, testing, administration of the plan for both on-site and off-site work, and the interrelationship of Contractor's inspection and control with the Engineer's overall construction inspection/certification responsibilities.

The preconstruction meeting will address the following topics, as a minimum:

1. Provide each involved entity with all of the relevant CQA/CQC documents and supporting information.
2. Address the site specific CQA/ CAC plan, and its role relative to the design criteria, plans and specifications.
3. Review the responsibilities, authorities and lines of communication for each of the involved entities.
4. Review the established procedure for observation and testing, including the sampling strategies specified in the CQA/CQC plan.

5. Review the established acceptance and rejection criteria as specified in the CQA/CQC plan and project specifications, along with the methods and means for decision making and/or resolution of problems over data.
6. Review the methods for documenting and reporting all inspection data.
7. Discuss procedures for the storage and protection of landfill construction materials on site.
8. Conduct a site walk-through to review the project site layout, and construction material and equipment storage locations.

The meeting minutes will become a part of the contract file. There may also be occasions when subsequent conferences will be called to reconfirm mutual understanding.

2.3 Quality Control Plan

This plan will include as a minimum the following:

A. The description of the quality control organization, including a chart showing lines of authority and acknowledgment that the CQC staff will be in addition to, and separate from, the contractor's project supervisory staff and will report to the Contractor's management at a level of Vice President or above in the Contractor's organization.

B. The name, qualifications, duties, responsibilities and authorities of each firm or person assigned a QC function.

C. A copy of the letter to the QC manager signed by an authorized official of the firm, which describes the responsibilities and delegates the authorities of the QC manager.

D. Procedures for scheduling and managing submittals, including those of subcontractors, off-site fabricators, suppliers and purchasing agents.

E. Control testing procedures for each specific test included in a Quality Assurance Program Plan or equivalent from the proposed laboratory. Laboratory facilities will be approved by the Project Engineer.

F. Resumes for those licensed Professional Engineers who will be certifying the testing data.

G. Reporting procedures including proposed reporting formats.

H. Procedures for responding to construction deficiencies resulting from circumstances including, but not limited to, inclement weather, defective materials or construction inconsistent with specifications as demonstrated by QC testing, and must include a plan to be utilized in evaluating deficiencies and implementing corrective actions.

I. Construction contingency plan describing in detail the courses of action to be taken in response to events which may occur during all phases of construction, and will at a minimum cover the following: damaged construction materials and/or equipment, unavailability of approved materials and/or subcontractors; on-site personnel injury; excessive dust; excessive noise; equipment breakdown or unavailability of equipment; unusual traffic conditions; and uncontrolled releases of run-off adjacent to surface waters.

2.4 Acceptance of CQC Plan

Acceptance of the Contractor's plan is required prior to the start of construction. Acceptance is conditional and will be predicated on satisfactory performance during the construction. The Engineer reserves the right to require the Contractor to make changes in his CQC Plan and operations as necessary to obtain the quality specified.

2.5 Notification of Changes

After acceptance of the CQC Plan, the Contractor shall notify the Engineer in writing of any proposed changes. Proposed changes are subject to acceptance by Change Order.

3.0 RESPONSIBILITIES AND QUALIFICATIONS OF QA/QC OFFICERS AND STAFF

3.1 Engineer's Role

A. Project Engineer: A New York State licensed professional engineer will be designated as the Project Engineer. This person will be responsible for the oversight and review of the entire engineering team. This person will review and sign the permit and construction documents and drawings, as well as the construction certification report. The Project Engineer will act independently, and without influence from the Contractors, or the City of Albany.

B. Engineer's Project Representation: The Engineer will maintain a full time construction observation staff at the project site. The staff will be headed by a Chief Construction Observer, who will coordinate the staff, interface with the Contractor's QC manager, and traffic information to and from the project Engineer. The number of staff on-site will vary, depending upon the Contractor's workload. The Chief Construction Observer will be on-site for the entire project. The Chief Construction Observer and staff will be fully qualified by experience and technical training to perform their assigned duties.

C. The Project Engineer will conduct regular site visits during the construction phase, and will also attend the coordination meeting as well as weekly progress meetings.

D. Chain of Command

1. Project Engineer: The Project Engineer will reside at the top of the chain of command. The Project Engineer will directly supervise both the design and construction observation engineering teams. This person will also interface directly with the facility owner, and the contractor when necessary. The Project Engineer will also be responsible for the final decision making with regard to construction change orders, and the interpretation or clarification of the project drawings and documents.

2. Chief Construction Observer: The Chief Construction Observer will supervise the Engineer's field staff, and interface directly with the contractor's field supervision on a daily basis. This person will also traffic questions and interpretations to the Project Engineer for decision making.

3. Construction Observation Staff: This staff will observe and provide QA oversight to the Contractor's QC personnel. This staff will report directly to the Chief Construction Observer.

3.2 Personnel Qualifications

A. Project Engineer: The project engineer will be a professional engineer (PE), licensed in New York State, and will have a minimum of five (5) years of experience in landfill design, construction, operation and closure. Additionally, the project engineer will have supervised at least five (5) successfully completed landfill construction and/or closure projects.

B. Chief Construction Observer: The chief construction observer will have at least five (5) years of field construction experience. At least two (2) of those years to have worked on new landfill construction, expansions or closures. The chief construction observer must be certified as a NICET Level III Engineering Technician, or, as a New York State Engineer in Training (ElT).

C. Construction Observation Staff: The construction observation staff will be fully qualified by experience and technical training to perform construction observation of specific components of landfill construction.

3.3 Contractor's CQC Plan Manager

The QC Manager will be responsible for overall management of the CQC and have the authority to act in all CQC matters for the Contractor. This person will demonstrate the ability to perform

correctly the duties required to the satisfaction of the Engineer. This person, or a designated representative, shall be physically present at the project site whenever work is in progress, and will be in charge of the Contractor's Quality Control Program for this project. Submittals will be reviewed and modified, as needed, by the QC Manager, prior to forwarding to the Engineer.

3.4 Contractor's Personnel

A staff will be maintained by the Contractor, under the direction of the QC manager, to perform all CQC activities. The actual strength of the staff during any specific work period may vary to cover work phase needs, shifts, and rates of placement. The personnel of this staff shall be fully qualified by experience and technical training to perform their assigned responsibilities, as follows.

3.5 Contractor's Testing Laboratory

A. The Contractor will employ an independent testing laboratory to perform testing of construction materials prior to their installation, and during installation, as required to meet the provisions of this plan.

B. The testing laboratory will meet the standards as set forth in ASTM D3740, minimum requirements for agencies engaged in the testing and/or inspection of soil and rock as used in engineering design and construction.

3.6 Qualifications of Installers of Liner Components

3.6.1 Qualifications of Installer of Geosynthetic Membrane Liner

The installer of the geosynthetic membrane liner will have the following qualifications:

A. Experience - The Installer must document a minimum of 50 acres of successfully installed polyethylene geomembrane experience. Additionally, the Installer must document either:

1. At least five (5) years continuous experience in the installation of HDPE geomembrane.

2. At least ten (10) successfully completed HDPE installation projects.

B. Installation will be performed under the direction of a single installation supervisor.

1. The Installation Supervisor will be on site, and in responsible charge throughout the liner installation, including subgrade acceptance, liner layout, seaming, testing and repairs, and all other activities contracted for with the Installer.

2. The Installation Supervisor will have the documented qualification of having supervised the installation of at least 50 acres of previous landfill, or comparable geosynthetic systems on a minimum of five different projects.

3. The Installation Supervisor will direct the seaming to be performed under the direction of a Master Seamer.

4. The Master Seamer will have a minimum of 25 acres polyethylene geomembrane seaming experience using the same type of seaming apparatus as that specified in this project.

5. The Installation Supervisor or Master Seamer will be on-site whenever seaming is being performed.

C. The Installer will be approved by the Manufacturer.

3.6.2 Qualifications of Installers Other Than Installers of Geosynthetic Membrane Liner

Work performed on other parts of the liner system will be performed by similarly qualified Installers.

A. Experience - The Installer must have either:

1. At least five (5) years continuous experience in the installation of landfill liner systems.

2. At least three (3) successfully completed projects of all liner system components except the synthetic membrane.

B. Installation will be performed under the direction of a single Installation Supervisor.

1. Installation Supervisor will be on-site and in responsible charge throughout the cover system installation, including drainage layer placement and acceptance, vegetative support layer subgrade preparation, placement, final grading and seeding, and establishment of vegetative cover.

3.7 Testing and Monitoring Protocols - Liner System Components

3.7.1 General

3.7.1.1 Inspection Schedule

Contract Quality Control is the means by which the Engineer and Contractor assure that the construction complies with the requirements of the contract plans and specifications. The controls will be adequate to cover all construction operations, including both on-site and off-site operations, and will be keyed to the proposed construction sequence. The controls will include at least three phases of inspection for all definitive features of work as follows:

A. Preparatory Inspection - This will be performed prior to beginning any work on any definable feature of work. It will include a review of contract requirements; a check to assure that all materials and/or equipment have been tested, submitted and approved; a check to assure that provisions have been made to provide required control testing; examination of the work area to ascertain that all preliminary work has been completed;

and a physical examination of materials, equipment and sample work to assure that they conform to approved shop drawings or submittal data, and that all materials and/or equipment are on hand. The Chief Construction Observer will be notified at least 24 hours in advance of the preparatory inspection, and such inspection will be made a matter of record in the daily quality control documentation as required below. Subsequent to the preparatory inspection and prior to commencement of work, the Contractor will instruct each applicable worker as to the acceptable level of workmanship required in his plan in order to meet contract specifications.

B. Initial Inspection - This will be performed as soon as a representative portion of the particular feature of work has been accomplished, and will include examination of the quality of workmanship, a review of quality control testing for compliance with contract requirements, a check for the use of defective or damaged materials, omissions or errors, and dimensional requirements. Such inspection will be made a matter of record in the CQC documentation as required below.

C. Follow-Up Inspections - These will be performed daily to assure continuing compliance with contract requirements, including control testing, until completion of the particular feature of work. Such inspections shall be made a matter of record in the CQC documentation as required below. Final follow-up inspections will be conducted, and test deficiencies corrected prior to the addition of new features of work.

3.7.1.2 Tests (Other than Chemical Sampling and Analysis)

A. Test Procedure - The Contractor will perform the tests specified or required in order to verify that control measures are adequate, and to provide a product that conforms to contract requirements. The Contractor will procure the services of an industry recognized testing laboratory, or an approved testing laboratory may be established at the project site. This laboratory will be approved by the Engineer. A list and schedule of tests (other than chemical sampling and analysis), which the Contractor understands are to be performed, will be furnished as a part of the CQC plan to the Engineer. The list will give the test name,

specification paragraph containing the test requirements, and the personnel and laboratory responsible for each type of test. The Contractor will perform the following activities, and record and provide the following data:

1. Verify that testing procedures comply with contract requirements.

2. Verify that facilities and testing equipment are available and comply with testing standards.

3. Verify that recording forms, including all of the test documentation requirements, have been prepared.

B. Testing

1. Capability Check - The Engineer will have the right to check laboratory equipment in the proposed laboratory for compliance with the standards set forth in the contract specifications and to check the laboratory technician's testing procedures and techniques.

2. Capability Re-Check - If the selected laboratory fails the capability check, the Contractor will be assessed a charge to reimburse the Owner for each succeeding re-check of the laboratory or the checking of a subsequently-selected laboratory.

3. Project Laboratory - The Engineer will have the right to utilize the Contractor's quality control testing laboratory and equipment in order to make quality assurance tests, and to check the Contractor's testing procedures, techniques, and test results, at no additional cost to the Owner.

4. Transportation of Samples for Testing - Costs incidental to the transportation of samples or materials shall be borne by the Contractor.

C. Quality control tests or certification will be performed on, but not necessarily limited to, the following:

1. Certification of landfill lines and grades.

2. Laboratory and field testing of soils for subbase, liner system and backfill.

3. Laboratory and field testing of geosynthetics materials and installation.

3.7.1.3 Completion Inspection

A. At the completion of all work or any increment thereof, the CQC System Manager and the Chief Construction Observer will conduct a completion inspection of the work, and develop a "punch list" of items which do not conform to the approved plans and specifications. Such a list will be included in the CQC documentation, as required by paragraph 3.7.1.4 below, and will include the date by which the deficiencies will be corrected. The CQC System Manager, or designated staff, will make a second completion inspection in order to ascertain that all deficiencies have been corrected, and so notify the Engineer. The completion inspection and any deficiency corrections required by this paragraph will be accomplished within the time stated for completion of the entire work, or any particular increment thereof if the project is divided into increments by separate completion dates.

3.7.1.4 Documentation

A. The Contractor will maintain current records of quality control operations, activities, and tests performed, including the work of suppliers and subcontractors. These records shall be on an acceptable form, and indicate a description of trades working on the project, the numbers of personnel working, the weather conditions encountered, any delays encountered, and acknowledgment of deficiencies noted along with the corrective actions

taken on current and previous deficiencies. In addition, these records shall include the following:

1. Type and number of control activities and tests involved.
2. Results of control activities or tests.
3. Nature of defects, causes for rejection, etc.
4. Proposed remedial action.
5. Corrective actions taken.

These records will cover both conforming and defective or deficient features, and will include a statement that materials incorporated in the work comply with the contract documents. Legible copies of these records shall be furnished to the Engineer daily.

B. The Engineer's on-site construction observation staff will maintain daily field reports, and records of quality control operations. These reports and records will document daily work status, and will cover work both conforming and deficient.

3.7.1.5 Notification of Noncompliance

The Engineer will notify the Contractor of any noncompliance with the foregoing requirements. The Contractor will, after receipt of such notice, immediately take corrective action. Such notice, when delivered to the Contractor or his representative at the site of the work, will be sufficient for the purpose of notification. If the Contractor fails, or refuses to comply promptly, the Engineer may issue an order stopping all or part of the work until satisfactory corrective action has been taken. No part of the time lost due to any such stop work orders shall be made the subject of a claim for extension to time, or for excess costs or damages by the Contractor.

3.7.1.6 Construction Contingency Protocol

The following contingencies may occur during construction of the Landfill Expansion:

- Inclement weather,

- Defective material installed or proposed for installation, and
- Methods of installation inconsistent with contract documents

For most liner components, the above contingencies are addressed within the QA/QC and technical specifications. Also, it is required that these issues be addressed further within the CQC Plan submitted by the Contractor, prior to the start of construction.

The Owner and/or Engineer may, at their discretion, retain a qualified and approved outside testing firm to perform additional testing for any component of the facility installation as necessary for verification of the on-going testing.

3.7.2 Subgrade Material

3.7.2.1 Material Evaluation Prior to Construction

Material evaluation will be performed on the subgrade material to determine suitability for use as follows for each different soil type:

Test	Standard	Frequency
Particle Size	ASTM D422	1 per soil type
Moisture Density	ASTM D1557	1 per soil type

3.7.3.2 Quality Assurance Testing During Construction

Subgrade material will be reworked and compacted to 90% modified Proctor maximum dry density and at a moisture content within ±3% of optimum. The following tests will be performed prior to placement of any liner component as follows:

Test	Standard	Frequency
a. In Place Soil Density/Nuclear	ASTM D2922	9 tests /acre
In Place Soil Moisture Content	ASTM D3017	9 tests/acre
	or	
b. Moisture Content	ASTM D2216	9 tests /acre

Sand Cone Density	ASTM D1556	9 tests /acre

3.7.2.3 Corrective Actions

Material for which testing reveals to be inconsistent with the specifications or with the pre-tested source borrow material will be removed from the site, and replaced with conforming material. Material for which tests reveal insufficient compaction will be re-compacted and tested in accordance with the above schedule.

3.7.3 Low Permeability Soil

3.7.3.1 Material Evaluation Prior to Construction

Material evaluations will be performed on all clay borrow sources to determine suitability for use in construction. The following tests will be performed on the borrow source prior to construction, and whenever soil material changes are noted:

Test	Standard	Frequency
Particle Size Analysis	ASTM D 422	1 per potential borrow source
Atterberg Limits Determination	ASTM D4318	1 per potential borrow source
Moisture Content	ASTM D2216	2 per potential borrow source
Moisture-Density-Permeability Relationship Method is as specified below.*	ASTM D1557 ASTM D5084 ASTM D854	1 per potential borrow source
Direct Shear Testing of Soils	ASTM D3080	1 test series per potential borrow source
Direct Shear Testing for each Synthetic Material	ASTM D5321	1 test series per potential borrow source

* The testing laboratory will perform the following testing in order to provide sufficient information for the Engineer to develop a moisture-density-permeability relationship:

A. Moisture-Density Relationship. A moisture-density relationship will be determined by using the modified Proctor Method (ASTM D1557) modified as follows: Three proctors will be performed, each at a different compactive effort. The three compactive efforts shall

be 12, 26, and 56 blows per layer as compacted in 5 layers in a standard 6 inch diameter mold. A compaction curve will be developed for each of the three compactive efforts. For each compaction curve, a minimum of five specimens will be prepared, specifically at the following moisture contents: 2% below optimum moisture content (OMC), OMC, 2%, 4%, and 6% above OMC. The testing lab will also determine the specific gravity (ASTM D584) of the soil in order to prepare a zero air voids curve.

B. Permeability Relationship (ASTM D5084). Each one of the compacted moisture-density test specimens from the three proctor curves listed above will be sampled and tested to determine its hydraulic conductivity (ASTM D5084).

3.7.3.2 Quality Control Testing During Construction

Material Evaluation will be performed on all low permeability liner material brought to the site to determine its conformance with approved material. The following tests shall be performed on the material as it is brought from the borrow source, at the following frequencies:

Test	Standard	Frequency
Particle Size & Hydrometer	ASTM D422	1for Each 2,500 CY
Atterberg Limits Determination	ASTM D4318	1 for Each 1,000 CY
Moisture Content	ASTM D2216	1 for Each 1,000 CY
Modified Proctor Compaction Test	ASTM D1557	1 for Each 5,000 CY
Lab Permeability Using Flexible Wall Triaxial Cell with Back Pressure	ASTM D5084	1 for Each 5,000 CY

* A graphic representation of the moisture content/density/hydraulic conductivity relationship will be constructed using all of the qualification testing data. This graphic will be continuously updated as testing data is received. From this graphic, a window (or envelope) of acceptable moisture and density values will be determined. The window of acceptable values will be used to guide soil placement conditions, and ultimately determine the pass/fail parameters for in-place moisture/density testing.

3.7.3.3 Quality Assurance Testing During Construction

Low permeability liner materials will be placed in 6 inch lifts as shown on drawings, and compacted to at least 90% modified Proctor maximum dry density, and a maximum permeability of 1 x 10^{-7} cm/sec. The following tests will be performed in order to evaluate the installed material:

Test	Standard	Frequency
In Place Soil Density By Sand Cone Method and/or by Nuclear Methods	ASTM D1556 ASTMD 2922 ASTM D2167	9/acre/lift
Lab Permeability From Shelby Tube Using Flexible Wall Triaxial Cell With Back Pressure	ASTM D5084	1/acre/lift
In Place Soil Moisture Content	ASTM D2216	1/acre/lift
Moisture Content by Nuclear Methods	ASTM D3017	9/acre/lift

3.7.3.4 Corrective Actions

Material for which testing reveals to be inconsistent with the specifications or with the pre-tested source borrow material will be removed from the site, and replaced with conforming material. Material for which tests reveal insufficient compaction will be re-compacted and tested in accordance with the above schedule.

3.7.4 Geomembrane

3.7.4.1 Quality Control Testing During Manufacture

A. Contractor will provide the textured synthetic geomembrane manufacturer's certification showing that, as a minimum, the following tests were conducted by the geomembrane manufacturer:

Test	Standard
Thickness (mils)	ASTM D5994
Carbon Black Content (percent)	ASTM D1603
Asperity Height	GRI GM12

Carbon Black Dispersion	ASTM D3015
Density (g/cc) (minimum)	ASTM D1505
Minimum Tensile Properties (each direction) 1.) Tensile Strength at Yield (pounds/inch width) 2.) Tensile Strength at Break (pounds/ inch width) 3.)Elongation at Yield (percent) 4.)Elongation at Break (percent)	ASTM D6693 Type IV
Tear Resistance Initiation (pounds)	ASTM D1004 Die C
Low Temperature Brittleness (° F)	ASTM D746, Method B
Dimensional Stability (each direction, percent change)	ASTM D1204, 212°F, 1 hour
Environmental Stress Crack (resistance hours)	ASTM D5937
Puncture Resistance (pounds)	ASTM D4833

B. The resin manufacturer will provide to the geomembrane sheet manufacturer the origin and identification of the raw materials used to manufacture the resin.

C. The resin manufacturer will provide to the geomembrane sheet manufacturer the quality control (QC) certificates for each batch of resin.

D. The resin manufacturer will provide to the geomembrane sheet manufacturer certification that the resin meets or exceeds the specifications for density, specific gravity, melt flow index, and carbon black.

E. Sheet thickness will be a minimum of 60 mils, and monitored continuously during manufacture.

F. The geomembrane sheet manufacturer will provide documentation that quality control testing at the factory was performed in accordance to the following.

1. The geomembrane will be continuously inspected for uniformity, damage, imperfections, holes, cracks, thin spots, and foreign materials. Additionally, the geomembrane liner must be inspected for tears, punctures, and blisters. Any imperfections must be immediately repaired and re-inspected.

2. Nondestructive seam testing will be performed on all fabricated seams over their full length.
3. Destructive seam testing will be performed on a minimum of two samples per roll.

G. Rolls not satisfying the specifications will be rejected. The manufacturer will provide certifications of all testing.

3.7.4.2 Quality Assurance Testing During Installation

A. The contractor will perform conformance tests on geomembrane material within three (3) weeks of receiving materials and at a minimum for every 50,000 square feet of liner material delivered to the site. The following tests will be performed in order to evaluate the textured synthetic geomembrane:

Test	**Standard**
Thickness (mils)	ASTM D5594
Minimum Tensile Properties (each direction)	ASTM D6693 Type IV
1. Tensile Strength at Yield (pounds/ inch width)	
2. Tensile Strength at Break (pounds/ inch width)	
3. Elongation at Yield (percent)	
4. Elongation at Break (percent)	
Puncture Resistance (pounds)	ASTM D4833

B. Site Test Equipment - The Installer will maintain on site, in good working order, the following items.

1. Field Tensiometer:
   a. The tensiometer will be motor-driven and have jaws capable of traveling at a measured rate of 2 inches/minute.
   b. The tensiometer will be equipped with a gauge which measures the force in unit pounds exerted between the jaws.

2. Vacuum Box:

a. The vacuum box will consist of a rigid housing with a transparent viewing window on top and a soft, closed-cell neoprene gasket attached to the bottom of the housing.
b. The housing will be equipped with a bleed valve.
c. A separate vacuum source will be connected to the vacuum box such that a negative pressure can be created and maintained inside the box.
d. A solution consisting of soap and water will be dispensed on the seam immediately ahead of the vacuum box.

3. Air Pressure Test Equipment - This method will apply only when the split hot wedge seaming method is used.

a. Equipment will consist of an air pump capable of generating and maintaining a positive pressure of between 20 and 60 psi.
b. A manometer capable of reading up to 60 psi attached to a needle or nipple will be used to pressurize the air channel in the seam.

C. Non-Destructive Testing:

1. Test Seams:
a. Test seams will be made to verify that adequate conditions exist for field seaming to proceed.
b. Each seamer will produce a test seam at the beginning of each four (4) hour shift.
c. If a seaming operation has been suspended for more than four (4) hours or if a breakdown of the seaming equipment occurs, a test seam will be produced prior to resumption of seaming operations.
d. Every time that the seamer or seaming equipment changes, a new test seam shall be produced.
e. Additional test seams will be required when significant changes in geomembrane or air temperature are observed, or when seaming problems such as burn-throughs are observed.

2. Test seams will be made in the field on pieces of the approved membrane. Each test seam will be at least 4 feet long by 1 foot wide and with sufficient overlap for peel testing in the field tensiometer.

3. Four samples, each 1 inch wide, will be taken across the seam using an approved template. The samples will be tested in the field tensiometer, two in peel and two in shear.

    a. Samples tested for peel adhesion will exhibit a film tear bond (FTB) and have a minimum seam peel strength as required by Specification Section 02212. Both samples must pass and fusion welds will be tested on both sides of the seam.
    b. Samples tested for seam shear strength will exhibit FTB and have a minimum seam strength as required by Specification Section 02212. Both samples must pass to exhibit a passing test seam.

4. If the seam fails to pass, the seaming apparatus will not be used for field seaming until any deficiencies have been corrected. This will be verified by the production and successful testing of two consecutive test seams.

5. Vacuum Testing:

    a. All extrusion welded and solid fusion welded seams will be evaluated using vacuum box testing.
    b. The sudsy solution will be applied to the test section and the vacuum box placed over the section. The bleed valve is then closed and the vacuum valve opened.
    c. Once a tight seal has been established, the test section will be visually examined for a period of not less than ten seconds to determine whether bubbling of the soapy solution is occurring.
    d. The vacuum box is then moved and the process is repeated on the next adjacent section. A minimum 3 inch overlap shall be provided between all test sections.

e. All locations where bubbling of the sudsy solution was observed will be clearly marked for repairs with a high visibility marker and recorded by number on field test reports.
f. Any failed portion of seam will be repaired and retested.

6. Air pressure testing will be performed in accordance with GRI GM6 Pressurized Air Channel Test for Dual Seamed Geomembranes.

7. All holes created during air pressure testing will be sealed on completion of the test and vacuum tested.

8. All seams will be non-destructive tested by the Installer over their full length to verify the integrity of the seam.
   a. Non-destructive testing will be performed concurrently with field seaming.
   b. Prefabricated field seams which will be inaccessible after installation, such as those under structures or fastened to penetrations, shall be tested prior to final installation.
   c. All non-destructive testing will be documented by the installer's QC technician.

9. A double boot will be constructed as shown on the construction drawings, for all pipe penetrations. Boot integrity will be verified by ammonia gas colorimetric testing, conducted in accordance with ASTM E1066.

10. No vehicular traffic of any type, including low ground pressure ATV's, will be permitted directly on the geomembrane.

11. All non-destructive testing will be observed by the Engineer.

D. Destructive Testing:

1. Prior to placement, a fingerprint sample will be taken for each lot number of geomembrane material used at the site. This sample should be nominally 12 inches by

15 inches and indelibly marked with the manufacturer's name, lot number and date sampled. The fingerprint samples will be turned over to the Engineer for archived storage.

2. Destructive testing of field seams will be performed at locations randomly selected and marked by the Engineer, after the welding of the seams. Test samples will be taken at a rate of one sample per 500 feet (or fraction thereof) of seam, per seamer, per day.

    a. Sample locations will be determined by the Engineer with consideration to the difficulty of subsequent repair and testing of the test site.

    b. The Installer will not be informed in advance of the locations where the seam samples will be taken.

3. The Engineer may increase the amount of destructive testing based on the results of previous testing.

    a. Additional samples may also be required when the Owner or Engineer have reason to suspect the presence of excess crystallinity, contamination, faulty seaming or any other reason affecting seam quality.

4. The test sample shall measure approximately 12 inches wide by 50 inches long with seam centered lengthwise along the sample.

    a. Two one inch wide sample strips will be cut using an approved template from either end of the sample.

    b. These strips will be tested by the Installer in the field tensiometer in both peel and shear in accordance with Section 3.5.4.2.B.

    c. The remainder of the sample will be cut into three 15 inch lengths.

d. One sample will be sent by the Installer for independent laboratory testing, one shall be kept by the Installer for his own records or testing, and one will be given to the Engineer for Owner's permanent records. The work done by the independent laboratory will be paid for by the Contractor and the laboratory will be approved by the Engineer.

5. Laboratory Testing:

a. The Contractor will forward destructive seam test samples to an independent laboratory approved by the Engineer. The laboratory will adhere the requirements of the Technical Specifications.

b. The testing lab will cut 10 one inch wide strips from each sample. Five of the strips will be tested for peel adhesion per ASTM D4437. Fusion seams will be tested for peel adhesion on both sides of the weld. In order for a test strip to be deemed acceptable, it must exhibit a film tear bond (FTB) and produce a minimum seam peel strength as required by Specification Section 02212. A passing peel adhesion test is exhibited by a minimum of 4 out of 5 passing test strips. Five of the test strips will be tested for seam shear strength by ASTM D4437. The minimum acceptable seam shear strength shall be as required by Specification Section 02212, and the seam must exhibit FTB. A passing seam shear strength test will be exhibited by a minimum of 4 out of 5 passing test strips.

c. The results of laboratory testing will be made available to the Engineer not more than 48 hours after receipt of the samples by the laboratory. The Engineer will receive six copies of all laboratory test results.

6. Samples will be cut by the Installer under the direction of the Engineer, indelibly numbered and identified, and the location recorded by the QC technician.

7. The area from which the destructive test sample was taken will be repaired without delay, and will be non-destructively tested in accordance with Section 3.5.4.2.B.

E. Inspection and Acceptance:

1. As the work progresses, the Engineer will mark all locations requiring repair work and verify all repairs have been successfully made by the Installer.

2. A field seam will only be considered acceptable when bounded by two destructive test locations which have passed laboratory testing and acceptable non-destructive testing. The following procedures will apply in the event that a seam fails laboratory testing.

    a. The Installer may reconstruct the seam between the previous passing test location and the next passing test location and retest, or

    b. The Installer may elect to trace the extent of an unacceptable seam to some intermediate location. This shall involve taking 1 inch template-cut cross-sections from these seams at a minimum distance of 10 feet in both directions from the failed test location.

        1. These samples shall be tested in the field tensiometer in both shear and peel in accordance with Section 3.5.4.2.B.

        2. If one or both of these samples fail, the field test tracing along the seam shall continue at a minimum 10 foot increments until a passing result is recorded in both directions from the failed test location. At these locations large samples shall be cut for laboratory testing as in Section 3.5.4.2.D.

3. If laboratory testing shows the seam to be unacceptable, the Installer shall further trace the unacceptable seam until acceptable test results are recorded in both directions.

c. If more than one field seaming unit is employed, tracing of a failed weld shall only be done along seams welded by the same equipment used to weld the seam in question.

3. Reconstructed seams less than 150 feet in length will be non-destructively tested in accordance with Section 3.5.4.2.B. Reconstructed seams greater than 150 feet in length shall be destructively tested in accordance with Section 3.5.4.2.D.

4. The entire geomembrane surface will be examined by the Engineer to confirm that it is free of any defects, holes, blisters, undispersed raw materials, or contamination by foreign matter.

5. The geomembrane surface will be cleaned by the Installer, if required, so that it is free of dust, mud, debris or any other material which may inhibit a thorough examination of the surface.

6. Any suspect areas will be clearly marked by the Engineer and nondestructively tested in accordance with Section 3.5.4.2.B.

3.7.5 Leachate Collection Layers

3.7.5.1 Material Evaluation Prior to Construction

Material evaluations will be performed on all granular soil borrow sources to determine suitability for use in construction. The following tests will be performed on the borrow source prior to construction, and whenever soil material changes are noted:

Test	Standard	Number
Particle Size Analysis	ASTM D422	1 per potential borrow source
Atterberg Limits Determination	ASTM D4318	1 per potential borrow source
Moisture Content	ASTM D2216	1 per potential borrow source
Maximum Density Determination	ASTM D1557	1 per potential borrow source
Permeability of Granular Soils	ASTM D2434	3 per potential borrow source
Internal Angle of Soil Friction and Cohesion	ASTM D3080	1 test series per potential borrow source
Interface Friction Angle for each Synthetic Material	ASTM D5321	1 test series per potential borrow source

3.7.5.2 Quality Control Testing During Construction

Material Evaluation will be performed on all leachate collection soil brought to the site to determine its conformance with approved material. The following tests shall be performed on the material as it is brought from the borrow source, at the following frequencies:

Test	Standard	Number
Particle Size Analysis	ASTM D422	1 for Each 1,000 CY
Permeability of Granular Soils	ASTM D2434	1 for Each 2,500 CY

3.7.5.3 Quality Assurance Testing During Construction

Leachate collection soil will be placed in 12 to 24 inch lifts as shown on drawings, and compacted to at least 90% modified Proctor maximum dry density, and a minimum permeability

of 1 x 10^{-2} cm/sec. The following tests will be performed in order to evaluate the installed material:

Test	Standard	Frequency
Density By Nuclear Methods	ASTM D2922	9/acre/lift
Moisture Content by Nuclear Methods	ASTM D3017	9/acre/lift

3.7.5.4 Leachate Collection Soil Installation

1. The Engineer will identify any large wrinkles which may have been built into the underlying geomembrane. Any such wrinkle not built in to accommodate thermal contraction of the geomembrane prior to placement of the soil shall be cut, repaired and tested by the Installer. Determination of the wrinkles to be cut and repaired will be made solely by the Engineer. All repair work shall be made at no cost to Owner.

2. The Engineer will identify any slope toe, declivity, or other surface transitions which might result in bridging of the geomembrane during placement of the sand. Any such area shall be cut, repaired and tested by the Installer, at no cost to the Owner.

3. Equipment used for placing and compacting the soil will not be driven directly on the geomembrane. Such equipment will be closely monitored during placement to ensure that no damage occurs to the geomembrane.

4. A minimum thickness of one foot of cover will be maintained between the geomembrane and tracked light earth moving equipment.

5. Tracked equipment operated on the soil will have a maximum ground pressure of 5 psi. No rubber tired equipment will be allowed to operate on less than three feet of cover above the geomembrane.

6. In all cases, the placement of soil will be done with caution and in a manner which is least likely to cause wrinkles in, or damage to, the geomembrane.

7. Wrinkles which occur during the sand placement operation will be evaluated by the Contractor and Engineer. Wrinkles which are large enough to roll over themselves will be cut and repaired. Smaller wrinkles will be trapped in the soil by backfilling ahead of the wrinkle and then on top of it. In general, any wrinkle which is more than half as tall as it is wide may require corrective action. Approval of the Engineer will be required for the method of handling all wrinkles (either trapping or repairing), and the Contractor will perform the repairs at no cost to the Owner.

8. In such a case where the size and number of wrinkles becomes unwieldy due to very high geomembrane temperature, the soil backfilling will temporarily cease until the temperature decreases.

3.7.5.5 Corrective Actions

Material for which testing reveals to be inconsistent with the specifications or with the pre-tested source borrow material will be removed from the site, and replaced with conforming material. Material for which tests reveal insufficient compaction will be re-compacted and tested in accordance with the above schedule.

3.7.6 Structural Layer

3.7.6.1 Material Evaluation Prior to Construction

Material evaluations will be performed on all granular soil borrow sources to determine suitability for use in construction. The following tests will be performed on the borrow source prior to construction, and whenever soil material changes are noted:

Test	Standard	Number
Particle Size Analysis	ASTM D422	1 per potential borrow source
Maximum Density Determination	ASTM D1557	1 per potential borrow source
Internal Angle of Soil Friction and Cohesion	ASTM D3080	1 test series per potential

		borrow source
Interface Friction Angle for each Synthetic Material	ASTM D5321	1 test series per potential borrow source per

3.7.6.2 Quality Control Testing During Construction

Material Evaluation will be performed on the structural layer soils brought to the site to determine its conformance with approved material. The following tests shall be performed on the material as it is brought from the borrow source, at the following frequencies:

Test	Standard	Number
Particle Size Analysis	ASTM D422	1 for Each 2,000 CY

3.7.6.3 Quality Assurance Testing During Construction

Structural layer soils will be placed in 12 to 24 inch lifts as shown on drawings, and compacted to at least 90% modified Proctor maximum dry density. The following tests will be performed in order to evaluate the installed material:

Test	Standard	Frequency
Density By Nuclear Methods	ASTM D2922	9/acre/lift
Moisture Content by Nuclear Methods	ASTM D3017	9/acre/lift

3.7.6.4 Corrective Actions

Material for which testing reveals to be inconsistent with the specifications or with the pre-tested source borrow material will be removed from the site and replaced with conforming material. Material for which tests reveal insufficient compaction will be re-compacted and tested in accordance with the above schedule.

3.7.7 Geosynthetic Clay Liner

3.7.7.1 Material Evaluation Prior to Construction

A review of manufacturers production testing shall be completed prior to materials being shipped to the project site to determine conformance of the material with the project specification requirements. The following test results will be reviewed:

Test	Method
Direct Shear: Average GCL Internal Friction Angle	ASTM D5321 (@ 500-4000 psf Normal Stress Range)
Permeability	GRI GCL-2
Mass per unit area Thickness	ASTM D5261 ASTM D5199
Grab Tensile	ASTM D4632
Puncture	ASTM D4833
Peel Strength	ASTM D4632

3.7.7.2 Quality Control Testing During Construction

Prior to the placement of the GCL, one sample will be randomly cut from the rolls delivered to the job site for every 100,000 SF of GCL to be deployed. The following tests will be performed:

a. Permeability GRI GCL-2
b. Mass per unit area ASTM D5261
c. Thickness ASTM D5199
d. Peel strength ASTM D4632
e. Puncture ASTM D4833
f. Grab tensile ASTM D4632

3.7.7.3 Corrective Actions

GCL material for which testing reveals to be inconsistent with the specifications or with the manufacturers testing for the material will be removed from the site and replaced with conforming material.

3.7.8 Geotextile Separation Fabric

3.7.8.1 Material Evaluation Prior to Construction

A review of manufacturers production testing shall be completed prior to materials being shipped to the project site to determine conformance of the material with the project specification requirements. The following test results will be reviewed:

Property	Test
Tensile Strength	ASTM D4632
Elongation	ASTM D4632
Burst Strength	ASTM D3786
Puncture Strength	ASTM D4833
Apparent Opening Size	ASTM D4751
Permittivity	ASTM D4491

3.7.8.2 Corrective Actions

Geotextile material that inconsistent with the specifications will be removed from the site and replaced with conforming material.

3.7.9 Leachate Conveyance Pipes

3.7.9.1 Material Evaluation Prior to Construction

Test Procedures/Frequency - Documentation will be provided by the manufacturer which demonstrates the chemical compatibility of the leachate collection pipe material, or chemical compatibility testing using a method acceptable to the Engineer will be used in absence of manufacturer documentation.

3.7.9.2 Corrective Actions

Material for which testing reveals it to be inconsistent with specifications will be removed from the site and replaced with conforming material. All material will be installed in accordance with the requirements of the approved engineering plans, reports, and specifications.

3.8 Testing, Monitoring and Contingency Protocols

Testing and monitoring for all other construction components, other than liner components, will be in accordance with each specific technical specification. Contingencies will be addressed within the CQC Plan to be submitted by the Contractor prior to the start of construction.

3.9 Construction Certification Report

A construction certification report will be submitted by the Engineer to DEC within 45 days after the completion of landfill construction. The construction certification report will be submitted in full compliance with Section 360 - 2.13 (u) of 6NYCRR Part 360.

This report will include, at a minimum, the information prepared in accordance with the application requirements of this QA/QC report, results of all quality assurance and quality control testing required in this report, documentation of any failed test results, descriptions of procedures used to correct the improperly installed material, and statements of all re-testing performed. In addition, the construction certification report will contain as-built drawings noting any deviation from the approved engineering plans, and will also contain a narrative, including but not limited to, daily reports from the project engineer, and a series of color photographs of major project features.

Flow data for secondary leachate will be collected daily for 30 days, prior to facility start-up, in order to verify that the primary liner system will effectively meet the 20 gallon per acre per day leakage rate threshold.

Operation and Maintenance Manual
Eastern Landfill Expansion

City of Albany Rapp Road Solid Waste Management Facility

CHA Project Number: 12206

Prepared for:

The City of Albany, New York

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APPENDICES

APPENDIX A – FORMS

1.0 INTRODUCTION

1.1 GENERAL

This document is the Operation and Maintenance Manual for the Eastern Expansion Project which is an expansion to the Albany Interim Landfill (AIL). The AIL, as referred to within this document, is inclusive of the following landfill phases:

Cells 1-5:	Original AIL
Cell 6:	Wedge
Cells 7-11:	P-4
Cells 12-13:	Eastern Expansion

Where references to individual landfill phases are required, they will be referred to within this document by their cell numbers or common names (i.e., Original AIL, Wedge, P-4, Eastern Expansion). Where references are made to the "AIL", it is inclusive of all phases.

This Operation and Maintenance Manual provides a basis for the day to day facility operations and those activities that are associated with the expansion of the facility (i.e., Eastern Expansion Project). Current operations at the facility are described within the Operations Plan dated January 28, 2000 prepared by C.T. Male Associates P.C., which complies with the 6 NYCRR Part 360 Solid Waste Management Facilities regulations effective October 9, 1993, and has been approved by NYSDEC. In order to provide continuity with the previously approved Operations Plan for the permitted air space of the AIL and P-4, the January 2000 document has been used herein as a substantial basis for describing the overall landfill operations.

The City of Albany owns and operates the AIL and is responsible for groundwater and surface water monitoring, site development, excavation and filling, leachate collection, closure, and post-closure maintenance. Typical wastes entering the landfill will be municipal solid waste (MSW), picked material, processed recycling residuals, petroleum containing soil, construction and demolition debris, and bypassed solid waste. Other types of solid wastes as allowed under 6 NYCRR Part 360 regulations may be accepted at the facility. The procedures described herein for operation are based on NYSDEC Part 360 regulations and guidelines. By following the procedures and protocols established within this plan, the facility will be operated in an environmentally sound and resource conscious manner.

1.2 REPORT ORGANIZATION

The Operation and Maintenance Manual is organized as follows:

Section 1.0 Introduction;
Section 2.0 Landfill Disposal Methods;
Section 3.0 Personnel Requirement;
Section 4.0 Machinery and Equipment;
Section 5.0 Landfill Operational Controls;
Section 6.0 Fill Progression;
Section 7.0 Waste Amounts and Characterizations;
Section 8.0 Solid Waste Receiving Process;
Section 9.0 Cover Material Management;
Section 10.0 Environmental Monitoring Plan;
Section 11.0 Leachate Management Plan;
Section 12.0 Gas Monitoring Plan;
Section 13.0 Winter and Inclement Weather Operations;
Section 14.0 Fire Prevention Plan.

2.0 LANDFILL DISPOSAL METHODS

Daily monitoring of leachate collection system components and the incoming waste characteristics, and periodic inspections of landfill structures are to be performed at the landfill to ensure it is operated in an environmentally sound and resource conscious manner. Monitoring will be important for developing a baseline of normal operations so that unusual conditions can be noted and corrective actions taken. Daily monitoring of leachate detection quantities is vital to the rapid discovery and elimination of problems which could cause groundwater contamination. Scheduled inspections of the landfill are required as part of routine maintenance to assure that hazards, or the potential for hazards, can be identified and the appropriate action(s) taken. The appropriate actions may require minor repairs or the activation of the Contingency Plan. The items to be addressed in each inspection are shown on the attached forms for daily and weekly monitoring, and monthly inspections included in Appendix A.

2.1 MONITORING AND INSPECTIONS

Daily monitoring will include checking the quantity of leachate in the leachate storage tanks (until such time as daily direct discharges are authorized) and the leak detection manholes. Precipitation is also to be monitored daily. This will be very important for determining how leachate production corresponds to rainfall. As outlined in Section 8.0, incoming loads of waste will be randomly inspected for the presence of unacceptable wastes. This will be done on the landfill's working face or recycling building tipping floor in a segregated area large enough for the waste to spread out to a thickness of one foot or less. A waste load inspection form is included in Appendix A. Additional loads will be inspected if there is suspicion that unacceptable wastes are present. In addition, operators at the working face of the landfill will observe the waste as it is being unloaded for the presence of unacceptable waste and segregate any that is found in a separate area for subsequent removal. The source (or hauler) of the waste will be recorded and the supervisor notified so that appropriate action can be taken against the responsible parties.

2.2 REPORTING

Reports summarizing the operation of the landfill must be prepared periodically. Attached are a monthly operations summary form and a semi-annual operations summary form in Appendix A. The semi-annual report will be submitted to the NYSDEC for review every March 1 and September 1, and will cover the status of the facilities operations as shown on the report form.

For the semi-annual reports, leachate and groundwater monitoring data may be summarized in table or chart form, along with a verbal summary of the data and a discussion of any groundwater results which contravene state water quality standards.

2.3 RECORDKEEPING

Included in this operating manual are formats for all of the monitoring forms and reports necessary for operating the landfill. Note that on the daily monitoring form there is a place to record the completion of other reports. It is suggested that each report be kept in a separate file or binder with the daily reports serving as the index to all of the other rep

2.4 ODOR CONTROL PLAN

The active fill area or working face of the landfill is anticipated to be a source of odor emissions. All landfill leachate will be contained in closed areas which will minimize odors due to leachate.

To prevent the occurrence of nuisance odors around the landfill's working face, fill operations will be conducted so that no municipal solid waste is left uncovered for more than eight hours with the application of daily cover at the end of each workday. Should odors be detected, application of daily cover will be reduced to every four hours. The working area of the landfill will not be so large that a full lift cannot be completed and covered within four hours.

Additionally, an active landfill gas collection system within the active waste mass of both the Original AIL, P-4 and the Wedge. A similar landfill gas collection system will be installed during the Eastern Expansion Project as landfilling of the waste occurs.

The active gas collection system consists of a network of horizontal collection lines installed at an approximate spacing of 100 feet horizontal and 30 feet vertical. Spacing will be staggered between individual layers, and the collection pipes will be constructed of a pre-molded HDPE leaching chamber with suitable reinforcement. Once collected, the landfill gas controlled through combustion through the flare or internal combustion engines. The installation of these lines provides a necessary infrastructure for the active control of landfill gases and their resultant odors contemporaneous with the landfilling waste within the facility.

In addition to the application of daily cover, the landfill will disburse an odor neutralizer (Ecosorb®) in three techniques. The neutralizer is fragrance-free. The neutralizer can be applied to surfaces however it is most effectively applied in vapor form. The neutralizer will be mixed into the Posi-shell® cover material and applied to compacted waste, at a ratio of 400:1(water to Ecosorb®) as needed. The second

dispersal technique is via the Posi-shell applicator on an as needed basis; diluted to 300:1, the neutralizer will be directly applied to select areas of the working face as the waste is being compacted. The third dispersal method entails the use of a wide swath sprayers (`foggers') to disperse the diluted product (100:1) as needed. The sprayer will be deployed between the working face and areas that may be impacted by off-site odors. The dispersal techniques will be utilized on an as-needed basis during normal operations.

Special procedures will be used by landfill operators for odiferous non-municipal type solid wastes, such as sludges. These wastes will be immediately covered with Ecosorb®- enhanced Posi-shell, non-odiferous wastes (e.g., petroleum-containing soils) or six inches of daily cover material (e.g. soil). If such actions are unable to control odors emanating from the waste, then the City will consider either the rejection of these wastes in the future or impose prelandfilling treatment to significantly reduce odors from the waste.

2.5 VECTOR CONTROL

Potential adverse bird impacts can occur on and off site. Nuisance conditions due to birds however are generally considered to be limited to off-site areas and can include droppings (which require cleaning and can cause staining), noise (particularly in early morning), and the potential for disease transmission. The City of Albany has and will continue to taken proactive steps to alleviate and mitigate the bird situation at the AIL, and be responsive to complaints with the objective of preventing the facility from being a vector breeding ground.

The primary method for controlling vectors is the placement of sufficient cover material over the waste. The continual supply of cover material to the landfill will assure that the problems can also be prevented by limiting the open working face to an area as small as possible. Landfill equipment operators have been directed to keep the working area to a manageable size and prevent the unloading of solid waste, until they are prepared to manage that load.

Supplemental vector control activities will be initiated seasonally when determined necessary by the City of Albany consistent with protocols developed by the United States Department of Agriculture (USDA), Animal and Plant Health Inspection Service, Wildlife Services, which worked under a cooperative agreement to provide direct operational bird control to reduce the population of gulls, starlings and crows at the AIL from 1996-1999. A Bird Damage Management Program was developed as part of the cooperative agreement. The Bird Management Program uses an Integrated Wildlife Damage Management approach, which is a series of science based methods used to reduce wildlife conflict. Methods employed include the alteration of cultural practices as well as habitat and behavioral

modification to prevent or control adverse impacts. This may require killing or reducing the populations of the offending species to reinforce the non-lethal methods.

Other measures which may be employed, as necessary, include the following:

- Utilize non-lethal control measures such as pyrotechnics (i.e. screamers, noise bombs and caps), propane cannons, repellents, and bird distress tapes.
- Utilize live ammunition for selective removal of a small number of birds at the AIL (no live ammunition is used at Fox Run Estates) to reinforce scare tactics and reduce bird loafing.
- Install decoy traps and euthanize captured birds.
- Plant and maintain dense vegetation on capped portions of landfill.
- Implement a no bird feeding policy at the landfill.
- Install and maintain Allsopp Helekites on the roof of Service Liquor Distributors.
- Encourage thinning or pruning of selected vegetation in and around Fox Run Estates.
- Encourage the implementation of a bird feeding policy at Fox Run Estates that would limit the use of ground feeders and encourage the use of elevated bird feeders.
- Continue the `good neighbor' policy by being responsive to local concerns regarding potential bird damage by providing technical assistance to landowners in the immediate vicinity of the landfill.

2.6 NOISE

Noise attenuation will be accomplished primarily by the noise control wall constructed on the north boundary of the site. Additional noise attenuation can be accomplished by commencing placement of the initial lifts along the north and/ or east side of each cell. Once these lifts are constructed, operations will continue behind the lift. If problems still occur, then the width of the lift can be reduced so that the initial barrier can be completed in less time. All equipment at the site will be equipped with adequate mufflers and exhaust systems.

Fill progression techniques have been and will continue to be employed by landfill personnel to further reduce potential noise impacts to the nearby residents.

2.7 LITTER

The litter control plan is designed to prevent, minimize and contain litter at the facility. The plan addresses litter issues encountered in the past and details future preventive methods.

Litter will be controlled at the site with the use of fencing and waste placement operations. Fences at the working face and along the perimeter of the landfill cell will be used. The fence used at the working face area will consist of seven portable fences developed by Abletech, Inc that can be moved to accommodate changes with wind direction and placement area. These fences measure 13 feet tall by 20 feet long. The fences will be placed directly downwind of the working face area and immediately adjacent each other to prevent "leaks" in the coverage. In addition to the seven fences currently at the site, the City is awaiting the arrival of 10 additional fences that have been ordered. Permanent fences ranging in height from 10 feet to 55 feet will be used along the perimeter of the landfill to capture any litter that has blown past the working area fences. The permanent fences at the site generally consist of five foot chain link mesh at the bottom and nylon mesh on the upper portion. In addition to the chain link/ mesh fence, the sound wall along the north slope of the Albany Interim Landfill also serves as a permanent litter control fence.

Waste placement operations will also be modified to control litter. Placement operations will be directed to provide the best coverage of the portable fences and should severe wind conditions occur, the landfill supervisor will temporary cease waste placement at their discretion.

The litter fences will be inspected on a daily basis to determine if litter removal is required, in addition the fences will be inspected for damage to determine if any repair or replacement is necessary. Litter removal will be accomplished with a vacuum truck and/ or hand picking. Should litter travel off the facility, the landfill supervisor will direct the removal of the litter immediately. During winter months, removal of litter is hindered by the weather conditions and visibility of blown litter is significantly reduced. Therefore following the winter season, removal of blown litter that has accumulated and was not accessible and/ or visible shall be removed within 21 days and no later than May 1st. Should an alternative schedule be required, a request is to be made to the Department and approved.

2.8 DUST CONTROL

Dust will be controlled by applying water to the areas creating the problem. Water shall be supplied to the site by the Department of General Services' equipment, including a 3,500 gallon water truck, and staff.

2.9 SNOW REMOVAL

During winter operations, equipment operators must contend with intermittent snow removal from the working face. At the beginning of each day, or as necessary when snow accumulates during the day, the operator will push snow to a location that has received intermediate cover. The preferred location would be along an exterior side slope. If there are no available areas which have received intermediate cover, or if landfilling is still occurring below the berm elevations, then the operator will push snow to an area that has received daily cover and is not scheduled to receive another lift for approximately two weeks.

3.0 PERSONNEL REQUIREMENTS

The landfill will be staffed by the following City of Albany personnel included in Table 1, below.

Table 1

Landfill Personnel

Name		Title	NYSAWM Landfill Operator	NYSASWM Waste Identification
Last	**First**			
Bruce	Willard	Commissioner		
Costello	Harry	Landfill Superintendent	X	
Costello	Phil	Operating Engineer	X	
Dwyer	Kelly	Recycling Specialist		
Giebelhaus	Joseph	Solid Waste Manager	X	X
Gudz	Andrew	Operating Engineer	X	
Kirker	Christopher	Operating Engineer		
Liddle	Ron	Laborer II		
Loundsbery	Peter	Laborer II		
Loundsbury	David	Operating Engineer	X	
Mastriano	Pasquale	Laborer II		
Mcgraw	John	Laborer II		
Smith	Mark	Laborer II		
Weller	Kelly	Operating Engineer		
Zagata	Richard	Operating Engineer		

The Landfill Superintendent directs the day-to-day operations at the landfill. The superintendent is authorized to reject inbound solid waste loads from any hauler suspected of handling unacceptable solid waste. The superintendent will direct the placement of lifts, inspect the site and oversee maintenance of all components of the landfill. The superintendent will report directly to the Solid Waste Manager and the Commissioner of the Department of General Services who have responsible charge of the facility. The Equipment Operating Engineers and Laborers will operate the required equipment for placement and compaction of the waste at the landfill face and perform required maintenance.

Facility operators and other key personnel for the landfill operation will trained in waste identification and restriction procedures, facility performance monitoring, and reporting of health and safety issues for site personnel and facility users. For new employees, training will occur at the time of hiring and during the hands-on training at the landfill. Existing landfill personnel

have been informed of and trained in these procedures. Additional training will be provided for existing landfill personnel as the superintendent deems necessary.

Any written communications relating to the operation of the facility will be directed to the Solid Waste Manager who will authorize corrective actions, if necessary. Written landfill offenses will originate from the manager's office to the respective haulers with copies forwarded to the on-site supervisor.

In addition to the above staff, there are four night watchmen who provide security at the landfill during non-working hours to prevent unauthorized access.

Weekly inspection reports will be kept on file both at the site and the Commissioners' office. Monthly summary sheets will be forwarded to NYSDEC.

Most information pertaining to the quantity and type of inbound solid waste is currently tracked and reported to the NYSDEC. Quarterly reports shall be submitted to the NYSDEC which consolidates the information contained in the monthly summaries, including any violations that may have occurred at the landfill.

Landfill personnel are provided with adequately heated and lighted shelters, a safe drinking water supply, sanitary toilet facilities, and radio or telephone communication.

4.0 MACHINERY AND EQUIPMENT

All of the landfill equipment is continually updated. Table 2, below, summarizes the equipment current utilized or stored at the facility.

Table 2

Landfill Equipment Summary

Machinery/ Equipment	Quantity of Equipment	Type
Wheel Loader	2	2000 John Deere Model 744 2002 John Deere Model 544H
Compactor	4	1989 Caterpillar Model 826 1996 Caterpillar Model 836 2000 CMI Model 35C 2006 Caterpillar Model 836
Dozer	2	1995 Caterpillar Model D4 2006 Caterpillar Model D6R
Track Loader	2	1998 Caterpillar Model 973 2005 Caterpillar Model 973
Excavator	2	2001 John Deere Model 220 2006 Caterpillar Model 330
Waste Shredder	1	2004 Diamond Z Model SWG
Posi-shell Applicator	1	1997 Caterpillar Model D250E
Mower	1	1992 Deweeze
Skid Steer	1	2004 Bobcat
Litter Vac	1	2003 OBD
Tanker Truck (fuel)	1	1987 International
3,500 Gallon Water Truck	1	1997 Rosco

Two compactors and one dozer are used to spread and compact the deposited waste at the landfill. The track loaders are used for transporting waste and material, as required. The City utilizes a waste shredder to shred a significant portion (about 75 percent) of the in-coming waste to increase the waste density. An excavator is used in conjunction with the shredder to deposit the incoming waste into the shredder hopper. The Posi-shell Applicator machine is used for apply Posi-shell alternative daily cover.

This equipment shall receive routine maintenance by the City of Albany mechanics and manufacturer certified mechanics so that few breakdowns occur. In the event of a breakdown that cannot be immediately repaired by the City or manufacturer, the City of Albany will use an

available back-up machine or rent a similar machine. This practice is currently in use and a replacement machine usually arrives on site in less than one day.

A grader, located at the DGS Facility (One Conners Boulevard, Albany) also has been dedicated for use at the landfill and can be mobilized to the site on an as-needed basis. Additional DGS equipment such as backhoes and various sizes of trucks are available on an as-needed basis.

Equipment at the landfill is currently parked during the off hours at the adjacent to the working area in a designated area. Each piece of equipment at the landfill has a portable fire extinguisher which can be used to attempt to control small fires in the equipment or on the landfill. Each operator has been provided with dust masks which can be used at the operator's discretion or when directed by the on-site supervisor. The landfill supervisor has all of the necessary safety equipment including quad alarms and confined space entry equipment, and is able to maintain radio communication with the scale house, tipping floor, and Department headquarters.

Landfill personnel conduct routine maintenance on all landfill equipment at a frequency of every 250 working hours, or sooner if a problem is identified. Typical maintenance includes oil and filter changes, air filter replacement, greasing and lubing, and replacement of worn parts. Records of the maintenance conducted are maintained on-site as part of the Maintenance Program.

The City has two CES-Landtec GEM 2000 landfill gas analyzers for tuning of the landfill gas collection and control system.

5.0 LANDFILL OPERATIONAL CONTROLS

The hours of operation at the AIL include Mondays through Fridays from 7:00 AM to 4:30 PM. Signs will be provided at all maintained access points indicating hours of operation and the types of solid waste accepted and not accepted, in accordance with Part 360-1.14(e) and 2.9(d). On holidays, which occur during the work week, the City operates the landfill for disposal of residential waste from the City only. The working hours on these days are limited to 8:00 AM to 12:00 PM and a limit of 16 packer trucks only. The waste is to be deposited and covered with daily cover and shredding and compacting activities are performed during regular working days to limit noise impacts.

Landfill operations do not occur on nights during the week or on Saturday or Sunday; however, the City sponsors several Spring Cleanup Days per year which are held on Saturdays. These days are set aside for residents and benefit the community.

Public access to the facilities and receipt of solid waste will occur only when an attendant is on duty. Access to the facility via Rapp Road is continuously controlled through the use of fencing and gates.

The facility currently has, and will continue to maintain, a perimeter access road.

6.0 FILL PROGRESSION

Fill progression in the eastern expansion will progress in accordance with the engineering drawings and Sections 6.1 and 6.2, below. The fill progression plan is depicted in plan and sectional view on the following engineering drawings:

- G13 Solid Waste Progression Plan,
- G14 Solid Waste Progression Cross Section.

6.1 FIRST LIFT PLACEMENT PROCEDURE FOR EASTERN EXPANSION

Placement of the first layer of solid waste is critical to maintaining the integrity of the landfill for both its operating and post-closure phases. The 18-inch granular soil drainage layer covering the liner provides protection to the liner from the operating compaction equipment. However, should large rigid objects become included in the first lift material, then the potential for damage to the liner system by these objects could exist. For this reason the first layer of solid waste deposited will be limited to shredded select municipal solid waste. The select material will contain no large rigid objects, such as bed springs or posts, placed in a manner which could damage the liner system. This layer, which will be a minimum of five feet thick, will provide an extra degree of protection to the liner system. After this layer is in place, then typical daily operating procedures will be implemented.

Once this lift is completed, the operator must still be aware of the components of the inbound waste to assure that rigid materials deposited are compacted in a plane, parallel to the liner surface. This regular observance by the operator must take place until the first 10 foot lift is completed across the bottom of the cell.

6.2 FILLING OF THE EASTERN EXPANSION

The Eastern Expansion has been divided into two sections, each with its own leachate collection and leak detection system. These sections can operate as independent landfill cells, providing

flexibility in landfill operation. The operator can monitor the progression across each cell by controlling depth and width of each waste layer of lift.

A temporary access road constructed over the southeast berm will terminate inside the cell on an unloading pad. Temporary access roads and unloading pads may be constructed of gravel, soil or equivalent. Trucks will discharge their loads off the edge of the pad and exit the landfill via the same access road. Landfill equipment operators will then begin shredding, spreading and compacting the waste in maximum daily lift heights of 10 feet. Daily cover will be installed as outlined in Section 9.0 at the end of each work day. The operator will begin increasing the size of the unloading pad as additional waste is deposited.

The first lift will start from the unloading pad, located on southern portion of the Eastern Expansion, which will be accessed from the existing access road, and will then proceed across the expansion area towards the north berm. The first lift will be placed across the entire expansion area prior to placing the second lift.

Once this first push is completed, the operator will construct an access road across the lift to the northern portion of the expansion area where the second lift will begin. Fill progression for the landfill will progress from the north to the south. Filling will progress in this manner for the entire life of the Eastern Expansion.

All filling above the top of berm elevations will limit outside slopes to 3 horizontal to 1 vertical. The operator will terminate the outside toe of the solid waste a minimum of 6 inches below the top of berm. Intermediate cover then will be placed in this space.

It is important that, as the operator fills the landfill, terraces and drainage swales be maintained in the intermediate cover. Though runoff is not as significant over the intermediate cover as it will be over the final cap, it must still be prevented from accumulating and washing out the intermediate cover. The use of the terraces and swales will direct what runoff occurs and prevent erosion of the cover.

It is anticipated that as the landfill is filled, the access road must increase in grade up to the final grade proposed of 9.5 percent. This grade is only applicable during the final few months of operations of the landfill. Though trucks are capable of ascending or descending this grade, it can become difficult if this occurs during the winter months. It is anticipated that only a limited amount of traffic will ever need to contend with these conditions.

The actual location and construction of the truck unloading pad is left to the discretion of the operator. The initial unloading pad is of special construction so as to prevent any damage to the liner system below. Future pads may be constructed similarly but the operator may also elect to reduce the thickness of one of the components of the pad (e.g., the No. 4 stone). Exactly how durable the pad must be could be based on the time of year in which the landfill is operating and length of time for which it is to be operated. During the winter and spring, operators may choose the type of construction shown, while in the summer the road could be constructed out of a stable, well draining select fill.

The working face will be restricted to the smallest area practicable, based on peak usage traffic conditions at the landfill. Daily cover will be installed as outlined in Section 9.0.

7.0 WASTE AMOUNT AND CHARACTERIZATION

7.1 WASTE RECEIVING AMOUNT

The Eastern Expansion will be permitted to receive 273,000 tons of solid waste per year. This corresponds with an average daily receipt of 1,050 tons per day, five days per week, fifty-two weeks per year.

7.2 WASTE PLACEMENT AND COMPACTION

Incoming waste will be directed to the working face area to be landfilled. Once the waste is unloaded the trucks are directed away from the working area. Prior to departure from the landfill, the driver is to inspect the truck for cleanliness. The working area will be maintained perpendicular to the direction of prevailing winds as much as possible with wind screens placed downwind of unloading operations. It is anticipated that about 70 percent of the waste will be shredded, therefore, unloaded waste will be pushed towards or unloaded adjacent to the shredder where, the dedicated excavator will place the waste in the shredder.

Shredded and unshredded waste will be spread by bulldozers or waste compactors in thin layers less than two foot thick. For most efficient waste compaction, waste will be spread in a number of thin lifts up to a total thickness of 10 feet. Proper waste compaction and placement will reduce the overall volume of daily cover required and allow more room for waste. Waste will be compacted by driving the compactor over the thin waste layer a minimum of four times. The anticipated effective in-place density of the waste is 1,800 lb/CY. Such a density could be realistically achieved through the use of proper compaction equipment and techniques, shredding a significant portion of the waste and operational procedures. The City's goal is to minimize utilization of airspace, therefore, maximum density efficiency is an important part of the landfill's operation.

After compaction the landfill surface will be graded to be smooth as possible.

8.0 SOLID WASTE RECEIVING PROCESS

In order to successfully operate the landfill and maximize the facility's operating life, it is imperative that operators control the quantity and type of inbound solid waste. The City of Albany implements a "Fugitive Waste Program" in an effort to keep control of the waste and to enforce recycling. If violators are found, then they will be subject to landfill use restrictions. The City of Albany currently has a list of materials (Table 3) that will not be accepted at the landfill. The initial enforcement of the list must be made by the haulers when they pick up their loads. Any hauler who does not abide by this list will be subject to a loss of tipping privileges. Operators will quarter each incoming load to check for gross violations of the list. In addition, inspections will be conducted daily on randomly chosen vehicles to check a load for the presence of each of these unacceptable wastes. It is anticipated that up to six inspections for unacceptable waste will be conducted on a daily basis at the working landfill face

All vehicles transporting solid waste to the facility are weighed at the scale house as they enter and exit the facility, thereby determining the tonnage of each solid waste shipment. The tonnage, type (ex., MSW, sludge, etc.) and source (ex., City of Albany, ANSWERS, private, etc.) of each solid waste shipment is recorded within the daily log. The daily logs are summarized at the end of each month in the monthly log.

Table 3:

Unacceptable Materials List

Solid waste must NOT contain the following:

1. Explosives or ammunition
2. Combustible liquid or gas containers, bottles, cylinders or cans
3. Caustic acids, corrosives, hazardous chemicals or other wastes containing radioactivity or other contamination or pollutants prohibited by mandatory and binding laws or
   regulations of the United States Government and New York State
4. Liquid or slurry wastes
5. Unopened containers, except empty household spray cans

6. Tree trunks, stumps, branches, or limbs or lumber over four inches in diameter or over five feet in length
7. Slag, rock, sand, brick, or concrete
8. Thick-walled or solid metallic objects such as castings, forgings, gas cylinders or large motors
9. Steel or nylon rope, cables or slings more than four feet long
10. Case hardened or alloy steel chains over 3/8 inches in diameter or 4 feet long
11. Rolls of carpet or fencing over twelve inches in diameter, or 4 feet long
12. Animal wastes or parts of animals other than normal household garbage
13. Automotive or larger size tires
14. Solid blocks or rubber or plastic in excess of two cubic feet
15. Tied or unbroken bales of paper, cardboard, or textiles. (Ties must be broken for acceptance)
16. Whole truckloads or substantial portions thereof, composed of non combustible materials or materials otherwise unsuitable for conversion to fuel
17. Any material classified as 'Infectious Hazardous Wastes', (Contaminated hypodermic needles, syringes, broken glass, and scalpel blades; isolation wastes, cultures and stocks from hospitals and laboratories; human blood and blood products)
18. Barrels of any kind
19. White goods (washers, dryers, refrigerators, etc.)
20. Lawn or leaf debris including grass, branches, leaves, etc.
21. Tires, newspapers or any other recyclables as determined by the Commissioner of Department of General Services of the City of Albany
22. Asbestos wastes
23. Lead Acid Batteries

Infrequent materials that are accepted at the landfill are digested, dewatered sewage sludge and water treatment plant residues. Sewage sludge is typically in excess of 20 percent solids and presents no special concerns when landfilling. Typically, the landfill receives very small quantities of sewage sludge annually. Petroleum containing soils (PCS) may be used for daily cover at the landfill.

The following steps will be taken upon receipt of unacceptable waste.

l. Out of Town (Contract) Waste

- Identify hauler
- Identify origin of waste
- Contact supervisory personnel
- Notify hauler of offense and landfill restriction
- Complete a Waste Load Inspection Form

2. Receipt of Unacceptable Materials List Waste

- Identify hauler
- Provide temporary cover
- Contact supervisory personnel
- Notify hauler to return to landfill and remove waste
- Complete a Waste Load Inspection Form

3. Receipts of Infectious, Hazardous or Unknown Waste

- Identify hauler
- Stop landfilling in location of material
- Contact supervisory personnel
- Contact NYSDEC HOTLINE 1-800-457-7362
- Contact Commissioner of General Services and NYSDEC to
- determine corrective action
- Complete a Waste Load Inspection Form

9.0 COVER MATERIAL MANAGEMENT PLAN

9.1 DAILY COVER

The following materials are intended for use as daily cover at the landfill:

1) conventional soil cover material;

2) Posi-Shell (or equal) mortar-like fiber-reinforced mixture; and

3) petroleum containing soil (PCS).

A mixture of Posi-She11™ and conventional soil is anticipated to be used as the primary daily cover material. Daily cover will consist of a 6-inch, compacted layer of conventional cover material or PCS, or a 1/4-inch layer of Posi-Shell (or equal) material, placed on all exposed municipal solid waste such that no waste is exposed for more than four hours. Since limited space is available to stockpile cover material the City of Albany will contract with private firms to supply conventional material to the site. Conventional cover material, which has typically been a silty sand, will be delivered and stockpiled within the working landfill cell on an as needed basis. All conventional cover material shall be obtained from a permitted source. PCS received at the facility for use as daily cover will also be stockpiled within the working landfill cell. Because the landfill primarily uses Posi-She11 for the daily cover and the alternative cover materials are used in relatively small quantities, it has not been necessary for the facility to maintain a stockpile area outside of the working landfill cell.

Posi-Shell uses cement kiln dust as a mineral binder, is non-flammable, and it has inert characteristics which sets up and forms a mortar like coating when applied. Lime within the Posi-Shell' acts as an odor suppressant. One coating of Posi-Shell' has an approximate thickness of $^{1}/_{4}$-inch and has been found to be functionally equivalent to daily cover.

The placement of daily cover over the active municipal solid waste disposal areas will occur twice daily. The initial application will occur before 12:00 PM and will be used to minimize the open areas receiving wastes. The final application of daily cover will occur before 4:30 PM and shall cover the entire active area which has received wastes since the last application of daily cover.

9.2 INTERMEDIATE COVER

Intermediate cover consists of one foot of compacted soil with a maximum hydraulic conductivity of $1\times10^{-4}\ {}^{cm}/_{sec}$, placed on all surfaces of the landfill where no additional solid waste will be deposited for 30

days. Cover will be graded so as to direct runoff inside the top of the perimeter berms, and into the landfill's leachate collection system. This runoff will be collected and treated as leachate.

Additionally, any location where the solid waste has reached its final grade will receive a interim cap consisting of a medium weight plastic cover material such as Dura-Skim manufactured by Raven Industries. These locations will typically be the exterior slopes of 3 horizontal to 1 vertical.

10.0 ENVIRNOMENTAL MONITORING PLAN

Reference the Hydrogeologic Report in the 6 NYCRR Part 360 Permit Application.

11.0 LEACHATE MANAGEMENT PLAN

Leachate management includes leachate collection, sampling, testing, storage, and disposal. The leachate system consists of the leachate collection pipes, manholes, pump stations and storage tank.

11.1 MODE OF OPERATION

Leachate is pumped via force main from Pump Station No.'s 1 and 2 to the single 522,000 gallon storage tank then discharged into the sanitary sewer. The leachate is directed through the storage in order to regulate the discharge rate of the leachate into the sewer system and eliminate spikes in discharge flow due to storm events. The storage tank acts a “pass-through” tank.

In the event that discharge to the sewer is not permitted, the contingency plan for disposal of leachate will be implemented and the leachate will be removed as described in Contingency Plan. If necessary, the second 400,000 gallon storage tank may be utilized for leachate storage while disposal is completed.

Additional leachate storage capacity will not be required because the City of Albany has developed an alternative to on-site leachate storage. The alternative is that the City of Albany has executed an agreement with the Albany County Sewer District to accept the leachate generated at the facility. Both the North and South Plants of the Albany County Sewer District are individually capable of treating 100% of the maximum daily generation of leachate, and have agreed to accept this quantity of leachate. Since the Albany County Sewer District will be accepting the leachate on a daily basis, the 522,000 gallon storage tank will be able to be maintained at not more than 50% full on a routine basis.

11.2 MONITORING

The volume of leachate in the storage tank will be monitored on a daily basis by recording the leachate as indicated by the level transmitter and converting this number to gallons using a

conversion chart. The quantity of rainfall will also be recorded on a daily basis from a rain gauge mounted adjacent to the tank level indicator. The leachate collection system is to be inspected on a regular basis as indicated by the inspection plan.

The primary leachate collection system will be flushed on an annual basis to prevent clogging and to assess the overall operation and performance of the system. The monthly total leachate generation is recorded on the Monthly Operations Summary form which is maintained at the facility and made part of the landfill's annual report.

11.3 SAMPLING

Leachate sampling/monitoring will be conducted in accordance with Environmental Monitoring Plan (EMP) on a semi-annual basis.

The leachate collection system for the eastern expansion will serve as environmental monitoring points. The collection locations will be monitored quarterly during the first year of operation of each cell, and analyzed for baseline parameters. The collection locations for the eastern expansion will be monitored semi-annually thereafter and analyzed for routine parameters.

11.4 DISPOSAL

Disposal of the leachate requires that arrangements be made with the Albany County Sewer District. Discharge from the storage tank is accomplished by opening the return valve to the sanitary sewer and emptying the tank on a continuous basis. The leachate storage tank would only be utilized in the event that the leachate was not able to be accepted. Leachate discharge is to be report on the Leachate Discharge Report included in Appendix A.

If the leachate is not accepted by the sewer district, the contingency plan for leachate disposal will be put into effect.

11.5 LEAK DETECTION LAYER

The leak detection system is a drainage layer located below the primary composite liner with its associated collection pipes and manholes. It follows the same contours as the primary liner and is separated into discrete collection areas for the individual cells. Any leak through the primary liner could be isolated into one of these cells, and remedial action taken in that section of the landfill. The appropriate remedial action is outlined in the Contingency Plan.

The Action Leakage Rate for the eastern expansion will be 20 gallons per acre per day (gpad, based on a 30 day average) in accordance with 6 NYCRR Part 360. An exceedance of the Action Leakage Rate would require implementation of the Contingency Plan. Historical flows from the leak detection system from existing cells have been found to be relatively stable, but subject to seasonal fluctuations.

It should be recognized that a small quantity of water will be found in the leak detection system on a regular basis, particularly in the period immediately following construction, due to the drainage of water from the clay in the primary liner and the sand of the leak detection layer.

11.6 PROCEDURES FOR THE EASTERN EXPANSION

Each cell of the eastern expansion includes a dedicated leachate collection and leak detection system. Leachate which is collected within the leachate collection system will flow by gravity to a leachate collection manhole then flow by gravity to Pump Station No. 1.

Fluid which passes through the primary liner and collects within the leak detection system will flow by gravity to a leachate collection manhole then to Leak Detection Monitoring Building No. 1 by gravity. In the leak detection building the fluid will drain into a sump. When the fluid reaches a certain level in the sump, pumps will activate and transfer the fluid from the leak detection sump into the leachate collection lines which flows by gravity to Pump Station No. 1 or and ultimately to the leachate storage tank. The Fluid which collects within the leak detection sump will be metered as it pumped, and quantities will be recorded in the daily operating log.

The various components of the leachate collection and leak detection systems are shown throughout the engineering drawings. T he following drawings are some of those which contain the details of the systems:

- G8 Secondary Liner/ LCRS Plan,
- G9 Primary Liner/ LCRS Plan,
- G16 Leachate Conveyance System Plan.

12.0 GAS MONITORING PLAN

Explosive gas monitoring will be conducted at the facility. The landfill structures (buildings and monitoring wells) and the site perimeter will be checked on a quarterly basis for the presence of explosive gases. This will be accomplished by means of a walking inspection of the site by a person carrying a portable explosive gas meter that indicates the presence of explosive gases as a percentage of the lower explosive limit (LEL). The meter is to have a three foot long (minimum) probe to allow the inspector to check manholes and to check concentrations near the ground from a standing position. Ground surface concentrations will be taken with the tip of the probe from 0 to 2 inches from the ground surface. The inspector will check all of the following locations:

1. All manholes. Probe will be completely inserted into manhole.
2. Ground surface on inside top of landfill berm. (This will be at the tow of the interim cover if fill has proceeded above the top of the berm).
3. Ground surface at outside toe of landfill slope.

As stipulated in 6NYCRR 360.2.17(f), the concentration of methane and other explosive gases generated by the facility must not exceed:

1. 25 % of the LEL in structures located on or off the site;
2. the LEL limit for gases at or beyond the property boundary.

If methane or other explosive gas levels exceed these limits, then the operator will immediately take steps to ensure safety and human health and notify NYSDEC. T he operator will then submit detected gas levels and measures that were taken to correct the situation to NYSDEC. Within 45 days of detection, a plan will be submitted to NYSDEC to implement a remediation plan for the methane gas releases. Within 60 days of detection, a schedule for the implementation of the remediation plan will be provided.

13.0 WINTER AND INCLEMENT WEATHER OPERATIONS

During winter operations, equipment operators must contend with intermittent snow removal from the working face. At the beginning of each day, or as necessary when snow accumulates during the day, the operator will push snow to a location that has received intermediate cover. The preferred location would be along an exterior side slope. If there are no available areas which have received intermediate cover, or if landfilling is still occurring below the berm elevations, then the operator will push snow to an area that has received daily cover and is not scheduled to receive another lift for approximately two weeks.

14.0 FIRE PREVENTATION PLAN

Reference the Contingency Plan in the 6 NYCRR Part 360 Permit Application.

APPENDIX A
FORMS

CITY OF ALBANY
RAPP ROAD SOLID WASTE MANAGEMENT FACILITY
EASTERN EXPANSION

CONTINGENCY PLAN IMPLEMENTATION

Supervisor: _____ Date: _____

Event Requiring Plan Implementation:
Date: _____ Time: _____

Event Location and Description: _____

_____

_____

Action Taken (Emergency Responses Initiated, Authorities contacted, Follow-up actions taken.): _____

_____

_____

_____

_____

_____

Additional Comments: _____

_____

_____

_____

_____

_____

Signed: _____

CITY OF ALBANY
RAPP ROAD SOLID WASTE MANAGEMENT FACILITY
EASTERN EXPANSION

LEACHATE DISCHARGE REPORT

Supervisor: _____ Date: _____

Approval for leachate discharge received from
Albany County Sewer District (attach approval notice): Date: _____

TOTAL PRECIPITATION
(Over period tank was receiving leachate.) _____ inches

LEACHATE QUALITY – Attach Laboratory Results

DISCHARGE DIRECTLY TO ALBANY COUNTY SEWER DISTRACT

Time Discharge Initiated: _____
Time Discharge Completed: _____
Quantity Discharged: _____ gal

DISCHARGE TO OTHER:

Time Discharge Initiated: _____
Time Discharge Completed: _____
Quantity Discharged: _____ gal

Received by:

Name: _____
Unit receiving discharge: _____
(i.e., tanker truck, carbon absorption unit, ect.)
Manifest Number: _____

Ultimate Destination of Leachate: _____

Comments: _____

_____

_____

Signed: _____

(Supervisor)

CITY OF ALBANY
RAPP ROAD SOLID WASTE MANAGEMENT FACILITY
EASTERN EXPANSION

MONTHLY INSPECTION FORM

Inspector: _____ Date: _____

The landfill, leachate collection and leak detection systems will be inspected monthly and immediately following a storm event. The inspection shall consist of a visual assessment of the condition of all berms and structures, and the opening and observation of all leak detection and leachate collection manholes. Manholes shall be inspected from above with a strong flashlight. If it is determined that a manhole requires further examination, a crew from the City of Albany Public Works Department will be obtained to enter the manhole.

Each of the items in the "Items to Check" list should be noted as either okay or deficient with a description of the deficiency. The corrective action required should be noted and once completed; the date of completion should be entered.

A. Landfill Berms, Fill Area, and Leachate Storage Area Berms

Items to Check:

1. Exposed Liner System, Leachate Collection Laterals
2. Erosion of daily and intermediate cover
3. Erosion of berms, external and internal
4. Damp areas at or near toe of slope
5. Animal burrowing
6. Unwanted vegetative growth

Observations: _____
_____
_____
_____
_____

Corrective Action Required: _____
_____
_____
_____
_____

B. Leachate Collection and Leak Detection Manholes

Items to Check:

1. Flow restrictions causing surcharge in collection manholes
2. Sediment build-up in manhole inverts

Observations: _____

_____

_____

_____

_____

Corrective Action Required: _____

_____

_____

_____

_____

C. Leachate Pumping and Storage System

Items to Check:

1. Pump station operation
2. Sediment build-up in pump station
3. Valve operation and settings
4. Water in valve vault sump
5. Proper operation of level sensors (check by comparing readout with manual measurements through roof hatch)
6. Proper operation of air bubbling system for storage tanks, check thermostat for bubbler compressors
7. Pump stations, blower operation
8. Leachate tank condition

Observations: _____

_____

_____

_____

_____

Corrective Action Required: _____

_____

_____

_____

_____

D. Site Drainage

Items to Check:

1. Obstructions in ditches
2. Erosion of drainage ditches
3. Build-up of sediments in ditches or culverts
4. Overtopping of drainage ditches

Observations: _____

_____

_____

_____

_____

Corrective Action Required: _____

_____

_____

_____

_____

E. Ground Water Monitoring Wells

Items to Check:

1. Casing integrity
2. Cap secure and locked

Observations: _____

_____

_____

_____

_____

Corrective Action Required: _____

_____

_____

_____

_____

F. General Site Structures

Items to Check:

1. Noise Control Wall – for shifting, cracks in wall panels or supports
2. Access Roads – erosion, surface condition, potholes
3. Fencing
4. Gates and Locks

Observations: _____
_____
_____
_____
_____

Corrective Action Required: _____
_____
_____
_____
_____

G. Explosive Gas (Methane) Monitoring

No methane detected: _____
Methane detected:

Reading	Location
_____	_____
_____	_____
_____	_____

Additional Comments: _____
_____
_____
_____
_____

Signed:_____ Date:_____

CITY OF ALBANY
RAPP ROAD SOLID WASTE MANAGEMENT FACILITY
EASTERN EXPANSION

OPERATOR'S LOG

WEEKLY MONITORING

LITTER CONTROL FENCING – (Inspect and clean weekly at a minimum)
Police Portable Fencing and both sides of Noise Control Wall

Quantity of Litter: Low/Average/High
Move Portable Fencing: Y/N
Current or New Location: _____

WASTE LOAD INSPECTION – (Also complete Waste Load Inspection Report)

Time: _____
Hauler and Vehicle ID: _____
Unacceptable Items Detected: _____
Waste Load Rejected: _____

LEACHATE STORAGE TANK AREA STORMWATER MANHOLE –
Inspect and empty weekly, at a minimum, and after storm events. Prior to discharge of stormwater from the stormwater manhole, operator shall inspect the exterior surface of each leachate storage tank. In the unlikely event of leakage from the exterior surfaces of the leachate storage tank or overflow of one of the tanks, any liquid in the stormwater manhole must not be discharged to the storm sewer but should be to a non-leaking storage tank, to the sanitary sewer if the discharge is approved by the Albany County Sewer District, or to a tanker truck to be transported off-site to an approved facility. If it is determined that the water is stormwater, the level of water in the manhole should be determined; the value returned to a closed position. The quantity discharged should be determined from the difference in water level before and after discharge.

THE DISCHARGE VALVE SHOULD REMAIN CLOSED AT ALL TIMES EXCEPT WHEN EMPTYING STORMWATER.

Stormwater Discharge: _____ Quantity: _____gal.

Tank Leak or Overflow: _____ Tank No.: _____

Signed: _____

CITY OF ALBANY
RAPP ROAD SOLID WASTE MANAGEMENT FACILITY
EASTERN EXPANSION

OPERATOR'S LOG

DAILY MONITORING

GENERAL DATE:_____

Temperature: AM ___ PM ____ Weather: AM ____ PM ____

Wind Speed: Clam/Breezy/Gusty/High Sustained Winds

Wind Direction: AM ____ PM _____

Precipitation (since last operating day): _____ inches

Employees Present: _____ _____

_____ _____

Visitors: _____ _____

_____ _____

Equipment Operating: _____ _____

_____ _____

Equipment Down For Maintenance: _____

COVER MATERIAL

Quantity Left from Pervious Day: _____ cubic yards/truck loads

Estimated Days of Cover Left: _____

Quantity Delivered: _____ cubic yards/truck loads

Source(s): _____ Contractor(s): _____

_____ _____

_____ _____

LEACHATE COLLECTION

Tank #1: _____ % Depth _____ gallons

Tank #2: _____ % Depth _____ gallons

DAILY MONITORING

LEAK DETECTION

Leak Detection Manhole Number	Water Level (inches)	Daily Pumping (gallons)
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		

REPORTS COMPLETED

Weekly Monitoring: _____

Monthly Inspection: _____

Semi-Annual Reports: _____

Monthly Summary: _____

Number of Reports: _____

Contingency Plan Implementation: _____

Reason(s): _____

Leachate Testing Results: _____

Leachate Discharge: _____

Ground Water Monitoring Results: _____

Additional Comments:_____

_____

_____

Signed: _____

CITY OF ALBANY
RAPP ROAD SOLID WASTE MANAGEMENT FACILITY
EASTERN EXPANSION

WASTE LOAD INSPECTION REPORT

Inspector: _____ Date: _____ Time: _____

VEHICLE INFORMATION:

Owner: _____ Driver: _____

Identification Code: _____
Type of Vehicle: _____
Capacity of Vehicle: _____
Source of Waste: _____
(Determine from waste examination)

Check for the following items:

	Item Present (Y/N) (If Y(es), note quantity)
1. Explosives or ammunitions	_____
2. Combustible liquid or gas containers, bottles, cylinders of cans	_____
3. Caustic acids, corrosives, chemicals, or other hazardous wastes containing radioactivity or other contamination or pollutants prohibited by mandatory and binding laws or regulations of the United States Government and New York State	_____
4. Liquid or slurry wastes	_____
5. Unopened containers, the contents of which cannot be readily identified by visual observation	
6. Tree trunks, stumps, branched, limbs or lumber over four inches in diameter or over five feet in length	_____
7. Slag, rock, sand, brick, or concrete	_____

	Item Present (Y/N) (If Y(es), note quantity)
8. Thick-walled or solid metallic objects such as castings, forgings, gas cylinders or large motors	_____
9. Steel or nylon rope, cables or slings more than four feet long	_____
10. Case hardened or alloy steel chains over 3/8 inches in diameter or 4’ in length	_____
11. Rolls of carpet or fencing over twelve inches in diameter or 4’ in length	_____
12. Animal wastes or parts of animals (excluding normal household garbage)	_____
13. Automotive or large size tires	_____
14. Solid blocks or rubber or plastic in excess of two cubic feet	_____
15. Tied or unbroken bales of paper, Cardboard, or textiles. (Ties must be broken for acceptance)	_____
16. Whole truckloads or substantial portions thereof composed of non-combustible materials or materials otherwise unsuitable for conversion of fuel	_____
17. Any material classified was Infectious Hazardous Wastes, (Contaminated hypodermic needles, syringes, broken glass, and scalpel blades; isolation wastes, cultures and stocks from hospitals and laboratories; human blood and blood products)	_____
18. Demolition or construction debris including roofing materials	_____
19. Barrels of any kind	_____

20. Lawn or leaf debris including grass, branches, leaves, ect. _____

21. Tires, newspapers, or any other recyclables as determined by the City of Albany _____

22. Asbestos waste _____

If "Y" was answered for any of the above items, a decision must be made by the supervisor to accept or reject the load. Of the load is rejected, the waste must be segregated and enforcement actions initiated. The waste is to be removed from the site by the vehicle owner at no cost to the City of Albany.

Additional Comments on Waste Load: _____
_____
_____

DISPOSITION OF WASTE LOAD

Accepted: _____
Rejected: _____

Reason for Rejection: _____
_____

Enforcement Action Initiated: _____
_____
_____

Signed: _____

CITY OF ALBANY
RAPP ROAD SOLID WASTE MANAGEMENT FACILITY
EASTERN EXPANSION

MONTHLY OPERATIONS SUMMARY

Month: _____ Operating Days: _____

A. INBOUND TONNAGE

Solid Waste:	_____	Tons
RDF:	_____	Tons
Residual Ash:	_____	Tons
Ferrous:	_____	Tons
Other (_____):	_____	Tons
Total:	_____	Tons

B. COVER MATERIAL

Quantity Delivered: _____(Identify Tons or Cubic Yards)
Quantity Used: _____ (Identify Tons or Cubic Yards)
Source: _____
_____

C. LEACHATE COLLECTION

Total Precipitation for Month:	_____	Gallons
Quantity Discharge to Albany County Sewer District	_____	Gallons
Quantity Transported Off-Site:	_____	Gallons
Receiving Facility:	_____	
Number of Samples Collected:	_____	(Results Attached)

D. LEAK DETECTION

Total Quantity Pumped:

Manhole #1:	_____	Gallons
Manhole #2:	_____	Gallons
Manhole #3:	_____	Gallons
Manhole #4:	_____	Gallons
Manhole #5:	_____	Gallons
Manhole #6:	_____	Gallons
Manhole #7:	_____	Gallons
Manhole #8:	_____	Gallons
Manhole #9:	_____	Gallons
Manhole #10:	_____	Gallons
Manhole #11:	_____	Gallons

E. QUARTERLY GROUND WATER SAMPLING PROGRAM

Sample Collected: _____ Date: _____

F. CONTINGENCY PLAN ACTIVATION

Not Required: _____ Reason:_____(Report Attached)
Date: _____ Reason: _____ (Report Attached)
Date: _____

G. UNACCEPTABLE WASTE

Number of Violations: _____ (Report Attached)

H. EQUIPMENT

Equipment	Operating Hours	Hours Down for Maintenance or Repair

I. ADDITIONAL COMMENTS

_____
_____
_____
_____
_____
_____
_____

Signed: _____

LEAK DETECTION

Leak Detection Manhole Number	Water Level (inches)	Daily Pumpage (gallons)
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		

REPORTS COMPLETED

Weekly Monitoring: _____

Monthly Inspection: _____

Semi-Annual Reports: _____

Monthly Summary: _____

(# of Reports): _____

Contingency Plan Implementation: _____

Reason(s): _____

Leachate Testing Results: _____

Leachate Discharge: _____

Ground Water Monitoring Results: _____

Additional Comments:_____

_____

_____

_____

_____

Signed: _____

CITY OF ALBANY
RAPP ROAD SOLID WASTE MANAGEMENT FACILITY
EASTERN EXPANSION

SEMI-ANNUAL OPERATIONS SUMMARY

_____ TO _____

Report Prepared By: _____
(Name and Title)

Total Operating Days: _____

Hours Open: _____

A. INBOUND TONNAGE

Solid Waste: _____
RDF: _____
Residual Ash: _____
Picked Material: _____
Ferrous: _____
Other (_____) _____
Total _____ Tons

B. COVER MATERIAL

Total Quantity Used: _____ (Identify Tons or Cubic Yards)
Capacity of Site Remaining (Cubic Yards) _____
Time Estimated to Reach Capacity (Months)_____

C. LEACHATE COLLECTION

(see also attached data summary)
Quantity Discharged to _____ Gallons
Albany County Sewer District
Quantity Transported Off-Site: _____ Gallons
Receiving Facility: _____
Number of Samples Taken _____
(Test results attached)

D. LEAK DETECTION

Total Quantity of leachate removed _____
form Leak Detection System

E. GROUND WATER SAMPLING

(See also attached data summary)

Dates When Samples Obtained	Date When Results Sent to NYSDEC
_____	_____
_____	_____
_____	_____
_____	_____

F. CONTINGENCY PLAN IMPLEMENTATION

Not Required

Date: _____ Reason: _____ (report attached)
Date: _____ Reason: _____ (report attached)
Date: _____ Reason: _____ (report attached)
Date: _____ Reason: _____ (report attached)
Date: _____ Reason: _____ (report attached)

G. UNACCEPTABLE WASTE

Number of Violations:

Hauler	Violation Summary Unacceptable Waste	Action Taken/ Fine Levied
1. _____	_____	_____
2. _____	_____	_____
3. _____	_____	_____
4. _____	_____	_____
5. _____	_____	_____

(see additional sheet for further violations)

H. EQUIPMENT

Describe current available equipment maintained at the site.

Equipment (Function/Identification) (Ex: Bulldozer/Cat DZ)	Hours Operating	Hours Down*	Remaining Life (Years)
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____

*Down = Maintenance, repair, out of service.

I. PERSONNEL

(List in order of responsible charge)

Title	Name	NYSDEC Approval Training
1. Commissioner of Public Works	_____	_____
2. On-Site Supervisor	_____	_____
3. Foreman	_____	_____
4. _____	_____	_____
5. _____	_____	_____
6. _____	_____	_____
7. _____	_____	_____
8. _____	_____	_____
9. _____	_____	_____
10. _____	_____	_____
11. _____	_____	_____
12. _____	_____	_____

J. RECYCLING

List Materials Recycled and Approximate Quantities of Each

Material	Tonnage
Ferrous	_____
Newspaper	_____
Glass	_____
Aluminum	_____
Other_____	_____
_____	_____
_____	_____

K. List any major problems encountered and discuss how each problem was handled (eg., fire, litter, dust, ect.)

(Attached additional discussion if necessary)

_____
_____
_____
_____
_____
_____

L. OTHER COMMENTS

_____
_____
_____
_____
_____
_____
_____

Signed: _____

Contingency Plan
Eastern Landfill Expansion

City of Albany Rapp Road Solid Waste Management Facility

CHA Project Number: 12206

Prepared for:

The City of Albany, New York

Prepared by:

Clough, Harbour & Associates LLP
III Winners Circle
Albany, New York 12205
(518) 453-4500

July 30, 2007

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1.0 GENERAL

This Contingency Plan section applies to both the operation of the Eastern Landfill Expansion project, as well as its post-closure period.

The contingency plan has been designed to minimize hazards to human health or the environment from fires, explosions, or any unplanned sudden or non-sudden release of leachate or waste constituents to air, soil, surface water or groundwater. The provisions of the plan will be carried out immediately whenever there is a fire, explosion, or release of waste constituents that could threaten human health or the environment.

Any accident or emergency requiring the activation of a contingency plan for the purpose of responding to such an event will be followed by a written report of the incident. Reports will include time, date and details preceding and during the incident and a description of the response. Reports of a minor accident or emergency will be submitted to the NYSDEC within two weeks of the event. For a major accident or emergency (such as, but not limited to, large fires, landfill gas migration towards known sensitive targets, explosions, off-site odor impacts, and other incidents as judged by the landfill supervisor), immediate verbal notification (i.e., within 2 hours of incident) will be given to NYSDEC, followed by a written report forwarded within 24 hours. These reports will also be included in the landfill's semi-annual report. Responses required by the plan follow in subsequent subsections.

Telephone numbers to emergency response agencies such as the local police department, fire department, ambulance, and hospital will be conspicuously posted in all areas where telephones are available for use at the facility.

2.0 EVENT/RESPONSE SUMMARY

2.1 Personal Injury

- Call Albany Fire Department at (518)-447-7879,
- Call Emergency Medical and Safety Officer (EMSO) (see Section 1.3 of this document) or other qualified personnel to administer first aid,
- Notify supervisory personnel, and
- Prepare accident report.

2.2 Fire/Explosions

- Call Albany Fire Department at (518)-447-7879,
- Remove operating equipment (if possible),
- Notify supervisory personnel, and
- Note in daily log.

2.3 Action Leachate Rate Exceeded

- Notify supervisory personnel, NYSDEC Region 4 office ((518) 357-2073 general number),
- Identify general location of leak,
- Install intermediate cover over breached location,
- Sample liquid and test with known leachate, and
- Correct identified problem in accordance with Landfill Remediation Alternatives.

2.4 Leachate Sewer Failure

- Notify supervisory personnel,
- Close leachate discharge valves,
- Pump from manholes to tanker truck,
- Haul leachate directly to Albany County Sewer District (ACSD),
- Repair failed sewer and
- Note in daily log.

2.5 Leachate Rejected by Albany County Sewer District

- Notify supervisory personnel,
- Determine constituents within leachate that caused it to be rejected by the ACSD,
- Determine on-site or off-site treatment methods that could be implemented so that approval of discharge could be granted; and implement alternative disposal method.

3.0 EMERGENCY MEDICAL AND SAFETY OFFICER

The City of Albany has designated the Landfill Supervisor as the facility's Emergency Medical and Safety Officer (EMSO). The EMSO has been appropriately trained and equipped to address or respond to minor medical emergencies. In the event of a medical emergency, the EMSO shall be notified immediately and shall be in charge of and responsible for assuring appropriate handling of the emergency situation. The EMSO will conduct monthly safety inspections of the facility and meetings with the employees of the facility to promote the safety of employees and other facility users. The alternate or backup EMSO has been designated as Glenn Lounsbury. In the event that the Landfill Supervisor is not available or not on the landfill site, the alternate EMSO shall carry out the responsibilities of the EMSO.

4.0 PERSONAL INJURY

Prevention of personal injury occurrences can be accomplished by adherence to established safety precautions and standard operating procedures. A personal injury for the purposes of this section will be defined as any injury which cannot be treated with a basic first aid kit. Minor cuts, bruises, first degree burns over a small area and other minor physical problems will be noted on the daily log along with their causes, but they would not require a full accident report. Minor injuries will be given adequate attention; cuts will be thoroughly washed, treated with a bactericidal ointment and bandaged to prevent the occurrence of infection. This is particularly important because of the potential to be exposed to a large variety of infectious agents during the work day.

A more serious personal injury will require off-site treatment and the following procedure is to be followed:

1. Qualified personnel will perform first aid and a call be placed to the Albany Fire Department at (518)-447-7879 for assistance,
2. Notify supervisory personnel and
3. Prepare detailed accident report including:
   - Date, time, and location of accident,
   - Nature and extent of injury,
   - Outside treatment required,
   - Cause of accident and
   - Final disposition of injured person.

A follow-up report will be completed within two weeks outlining the corrective measures taken to prevent a similar accident from occurring.

5.0 FIRE EMERGENCY PLAN

The City will notify the Department immediately in the event of a fire detected in the waste mass. For the purpose of this plan, a "fire" is to mean any event which involves a response at the landfill by an outside Fire Company (i.e., Pine Bush Station).

5.1 Types of Fire Emergency

The inspections of incoming waste will prevent entrance of smoldering embers or flammable chemicals into the landfill, each of which could start fires. These inspections will greatly diminish the likelihood of a fire. A fire emergency at the landfill would be in the form of an aboveground or underground fire of a conventional nature which is fueled by combustible material in the landfill. Another type of emergency would be a vehicle fire on one of the pieces of the landfill operating equipment. Each piece of equipment carries a fire extinguisher and on-board fire-suppression systems so that a vehicle fire may be put out before it spreads to the

waste. There is also the possibility of a brush fire occurring outside of the landfill berms. This will be dealt with by normal fire fighting procedures.

5.2 Fire Emergency Response

Response to a fire emergency at the landfill will be by the Albany Fire Department, whose Pine Bush Station is located less than 1/4 mile from the entrance of the landfill. A detailed procedure for response including response time, equipment, water supply and deployment strategy has been worked out with the City of Albany Fire Department. In the event that a major fire develops at the facility, beyond the control of the Pine Bush Station, backup assistance would be called by the fire chief at the Pine Bush Station. Emergency plans for this coordination with nearby fire stations already exists.

5.3 Protection of Fox Run Estates

Fox Run Estates is located approximately 150 feet north of the eastern landfill expansion limits. In the event of a fire at the landfill, a designated representative of Fox Run Estates will be contacted and advised of the situation and the level of danger to residents in the area. If evacuation is indicated, it will be coordinated through the designated representative.

Arrangements have been made with the City of Albany Fire Department to fight a fire which has spread from the landfill to any portion of Fox Run Estates which is not in the City. The City's fire department will work with other fire departments having jurisdiction to ensure a maximum responses to any fire threat to the area.

6.0 ALTERNATIVE LEACHATE DISPOSAL

In the event that the Albany County Sewer District will not accept leachate from the landfill based on the submitted test results or other factors, an alternative means of disposal must be provided. Two alternatives, on-site treatment and off-site disposal are available and the choice will be determined based upon the reason the leachate was rejected.

6.1 On-Site Treatment

If the contaminant of concern to the Albany County Sewer District is one that can be removed from the leachate (or reduced to an acceptable level) by an on-site treatment method, then treatment and subsequent discharge to the sewer is an option. On-site treatment normally involves using a mobile treatment unit. There are a number of companies that have developed treatment systems mounted on trailers that can be mobilized to a site and set up with minimum effort. These systems often include carbon adsorption units for the removal of organics, and precipitation units for the removal of metals. Air strippers can also be trailer mounted.

If the leachate is suitable for treatment by a mobile treatment unit, this unit could be brought on-site and the leachate treated and discharged upon approval by the Albany County Sewer District. On-site treatment is available to remove most of the contaminants that could be present in municipal landfill leachate.

6.2 Off-Site Disposal

Off-site disposal will require that the leachate be transported by tanker truck (All County Sanitation) to an acceptable disposal facility. The type of facility will be determined by the nature of the leachate. It may be amenable to treatment off-site as a non-hazardous waste or it may need to be disposed of at a hazardous waste facility.

In the event that off-site treatment/disposal is required, the following steps will be taken:

1. Confirmation sampling and testing for hazardous characteristics, if necessary.
2. Retention of a transporter with ability to transport hazardous waste if necessary.
3. Arranging with waste company to treat and/or dispose of the waste.

Off-site disposal must be handled on a case by case basis because it is not known what the chemical constituents of the leachate will be.

7.0 LANDFILL REMEDIATION ALTERNATIVES

In accordance with NYCRR Part 360-2.7(b)(9)(iv), unless otherwise approved by the NYSDEC, the maximum allowable leakage rate measures in the secondary leachate collection system shall not exceed 20 gallons per acre per day based on a 30 day average.

Fluid which enters the secondary leachate collection system of the Eastern Landfill Expansion cell will be collected and conveyed to newly constructed pump stations. The meter will be read and the result converted to a gpad value on a daily basis, as required. If the 20 gallons per day per acre threshold is exceeded, then the Region 4 office of NYSDEC will be contacted, and samples will be taken of the leachate. An analysis will be performed and comparisons made to determine if the leachate is characteristic of leachate from the landfill or possibly uncontaminated water draining from within the leak detection zone (for example water contained within soil layers placed during construction).

If the ALR exceeds 20 gpad during operation, proactive steps will be taken to verify the accuracy of the reading, determine the source of the problem, and take corrective measures, if applicable. Such actions will include the following, except for optional tasks which are noted with an asterisk (*):

<u>20 – 30 gpad</u>

- Notify DEC of the event within seven working days.
- Question landfill staff on recent operations.
- Examine exposed sand layer, if applicable.
- Verify the flows from the secondary leachate collection system and increase monitoring to twice per day.
- Submit a written preliminary assessment to DEC within 14 days of notification of the event.
- Collect a sample of the leachate and analyze for routine parameters*. Compare the results to that of what is typical for the landfill site.
- Inspect the secondary collection lines with closed circuit television*.

- Identify all potential sources of the flow. (e.g., construction water, groundwater).
- Develop a remedial action plan based on results of the investigations, and submit to DEC within 30 days of notification of the event*.
- If the secondary leachate collection levels average greater than 20 gpad on a 30 day rolling average, DEC will be notified within 5 working days.

<u>30 - 40 gpad</u>

- All above responses to be followed.
- Cease accepting waste in the area of the cell that has exceeded the ALR

<u>> 40 gpad</u>

- All above responses to be followed, except that notification to DEC will be made within 24 hours.
- Design remedial construction plan (if applicable), submit to DEC for approval and, implement upon acceptance.
- Submit a report on a monthly basis to DEC summarizing the flows and results of the remediation until flows drop below 20 gpad.

8.0 RELEASE OF HAZARDOUS OR TOXIC MATERIAL

The release of a hazardous or toxic material to surface or groundwater will be handled in the same manner as a release of leachate to the surface or groundwater. For a release to the land or air, the affected area will be evacuated and a company specializing in the cleanup of toxic and hazardous waste will be retained. The following local companies are equipped to rapidly respond to and remediate hazardous and toxic material releases:

1. Jet Line Environmental Services, Inc.
2. Clean Harbors Environmental Services

Any release of a reportable quantity of a hazardous substance will be reported to the NYSDEC regional office and any affected local governmental agencies within two (2) hours.

9.0 GROUNDWATER DEGRADATION

Groundwater quality will be routinely monitored as indicated in the Environmental Monitoring Plan (EMP) which is appended to the Hydogeologic Report. The EMP provides requirements for contingency water quality monitoring to determine if water quality degradation has occurred and to determine appropriate actions based on the results of this determination. Implementation of corrective measures, if necessary, that may take place at the landfill shall be performed in accordance with Part 360-2.20(c).

10.0 GROUNDWATER CORRECTIVE MEASURES

If it is found that a leachate plume is adversely impacting the groundwater, then a corrective measures report will be developed to abate impacts to groundwater and secure the quality of a potable groundwater resource for public and private use in the vicinity of the facility. This report will identify corrective measure alternatives, and evaluate these alternatives against a well defined set of site conditions (i.e., site hydrogeology and plume geometry) to determine the most feasible and cost-effective option. Based upon the known hydrogeology of the site area, a corrective measure that appears to be appropriate would be a "pump and treat system", however the actual selection of a preferred corrective measure would be after an in-depth feasibility study once the problem is well defined.

Hydrogeologic Investigation Report
Proposed East Side Expansion

Volume 1

City of Albany Rapp Road Solid Waste Management Facility

CHA Project Number: 12206

Prepared for:

The City of Albany, New York

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1.0 INTRODUCTION

1.1 General

Clough, Harbour & Associates LLP (CHA) was retained by the City of Albany to provide hydrogeologic services in support of the proposed expansion for the Rapp Road Landfill, which is located in the City of Albany, Albany County, New York (Figure 1-1). These services were provided in accordance with the New York State Department of Environmental Conservation (NYSDEC) 6 NYCRR Part 360 regulations (Part 360 regulations).

As part of this project, the City of Albany is seeking to expand the existing landfill footprint to the area located north and east of the existing area known as the Albany Interim Landfill (AIL). Figure 1-2 illustrates the location of the existing facility and the proposed landfill expansion area. The proposed expansion will result in an additional landfill cell footprint area of approximately 14 acres, and a total disturbance area of approximately 20 acres including the functional landfill and support facilities and infrastructure. As illustrated by Figure 1-2, the area of the proposed expansion minimizes the expansion on previously undisturbed lands by "piggy-backing" the expansion on top of portions of the existing AIL.

This Hydrogeologic Report was prepared to summarize the hydrogeologic conditions at both the existing landfill site, as well as the proposed landfill expansion area. The information presented in this report is based on CHA's review of data collected as part of the numerous historic investigations for the exiting AIL facility and the closed Greater Albany Landfill (GAL), and the recently completed hydrogeologic investigations for the proposed expansion areas. The recently completed hydrogeologic investigations were completed in accordance with CHA's November 17, 2006 *Site Investigation Work Plan for the Proposed East Side Expansion* (the Work Plan). The Work Plan details the site investigation activities and associated methods that were utilized to investigate the hydrogeologic conditions at the site and was specifically prepared to satisfy the requirements of the site investigation plan as outlined in Part 360-2.11(a). A copy of the Work Plan is provided as Appendix A.

As previously mentioned, substantial hydrogeologic data has been accumulated for the Rapp Road facility and the area in the vicinity of the proposed expansion area as part of previous hydrogeologic investigations for the existing AIL and the closed GAL, which is located immediately adjacent to the AIL (Figure 1-2). Groundwater quality data continues to be collected on a quarterly basis for both the AIL and the GAL facilities. As a result, the data

presented in this report is focused primarily on the expansion area, and its hydrogeologic relationship to the existing facilities.

In addition to this Hydrogeologic Report, an Environmental Monitoring Plan (EMP) has been prepared as a stand along document which outlines proposed on-site and off-site monitoring, including the location of all environmental, facility, and other monitoring points, sampling schedule, analyses to be performed, statistical methods, and reporting requirements. The EMP is discussed in more detail in Section 5.4 of this report.

1.2 Report Organization

The Hydrogeologic Report is organized as follows:

Section 1.0 presents the Introduction;
Section 2.0 presents the Project Background;
Section 3.0 presents a summary of the Investigation Activities/Investigation Methods;
Section 4.0 presents the regional and site-specific Geology and Hydrogeology;
Section 5.0 presents a summary of the Existing Water Quality; and
Section 6.0 presents the references used during preparation of this report.

2.0 BACKGROUND

2.1 Site Description

The existing Rapp Road Solid Waste Management Facility, including the AIL and associated Phase 4 expansion project (P-4 Project), is located on Rapp Road, adjacent to the former Greater Albany Sanitary Landfill (a.k.a. GAL and/or the Rapp Road landfill). The Rapp Road landfill facility is located on the northeast side of the Interstate I-90, just west of the Exit 24/I-87 interchange. The proposed expansion area is located to the north and east, immediately adjacent to the AIL. As previously noted, the expansion area will consist of an additional landfill footprint area of approximately 14 acres and a total disturbance of approximately 20 acres (Figure 1-2). The proposed expansion area is bounded by the AIL and GAL to the south-southwest and west, vacant forested lands to the east, and a residential trailer park and vacant forested lands to the north.

At this time, the site is accessible from the south and east via the existing access road for the Rapp Road Landfill, which is located off of Washington Avenue Extension and Rapp Road. It is anticipated that only improvements to the existing access roads and the construction of a perimeter access road for the expansion area will be required to facilitate access to the expansion area. With the exception of relocating the alignment of the existing main entrance to the facility, no additional access roads off of major thoroughfares are proposed for the expansion area.

2.2 Previous Site Investigations

Historically, numerous hydrogeologic investigations have been performed relative to the existing Rapp Road Solid Waste Management Facility including the AIL, the P-4 Project, and the closed Greater Albany Sanitary Landfill, and the area in the vicinity of the proposed expansion. These investigations have been conducted at the site to characterize the geology and hydrogeology for various closure and expansion projects related to the Rapp Road Solid Waste Management Facility. These studies have generated significant hydrogeologic data that is documented in the following reports:

- *Rapp Road Sanitary Landfill Expansion (AIL), 6 NYCRR Part 360 Application and 6 NYCRR Part 617 Draft Environmental Impact Statement*; Malcolm Pirnie, August 1988

- *Engineering Investigations at Inactive Hazardous Waste Sites, Phase II Investigations at the Albany City Landfill (GAL);* Engineering-Science, March 1991
- *Final Hydrogeologic Report, Greater Albany Sanitary Landfill (GAL);* Smith and Mahoney, April 1991
- *Supplemental Draft Environmental Impact Statement (SDEIS), Albany Interim Landfill (AIL Permit Renewal), Volumes 1 and 2, and Response to Comments (FEIS) document;* C.T. Male Associates, P.C., October 1994 and May 1995
- *6 NYCRR Part 360 Application, Albany Interim Landfill Expansion (Wedge);* C.T. Male Associates, P.C.; March 1996.
- *Part 360 Application to Construct and Operate a Solid Waste Management Facility, P-4 Expansion Project Landfill Expansion*; C.T. Male Associates, P.C.; July 1999

Based on the information presented in the July 1999 Part 360 Application to Construct and Operate a Solid Waste Management Facility; P-4 Project Landfill Expansion, a summary of the previous investigations is presented in the following sections of this document.

2.2.1 Greater Albany Sanitary Landfill Investigations

The Greater Albany Landfill was the first operational landfill at the Rapp Road facility. The GAL was originally listed by NYSDEC as an Inactive Hazardous Waste Site. However, in 1991 a Phase II Investigation was conducted to assess the contamination present at the site and determine if the GAL should in fact be included as an Inactive Hazardous Waste Site. The findings were presented in the March 1991 report entitled *Engineering Investigations at Inactive Hazardous Waste Sites, Phase II Investigations at the Albany City Landfill*, which concluded that that there was no documentation that hazardous wastes have been disposed of at the GAL. In addition to the Phase II Report, a Hydrogeologic Report was also prepared in April of 1991 in association with the closure investigation for the GAL. As a result of the Phase II investigation, the GAL was removed from the NYSDEC Registry of Inactive Hazardous Waste Sites (C.T. Male, 1999). The landfill was subsequently closed in accordance with Part 360 regulations.

As part of the post-closure monitoring activities for the GAL, there are currently nine groundwater monitoring wells that are monitored as part of the post-closure activities for the GAL facility. These wells include:

- MW-1
- MW-2
- MW-3
- GW-1D (Upgradient Well)
- GW-2D
- GW-4D
- GW-4S
- GW-5D
- GW-5S

The location of the monitoring wells associated with the GAL are illustrated by Figure 2-1. Groundwater quality monitoring has continued at the GAL facility since the closure of the facility. Laboratory results for the initial water quality monitoring event are contained within the Phase II Investigation Report (Engineering-Science, 1991). Post-closure water quality monitoring data has been and is currently reported to NYSDEC in quarterly monitoring reports.

2.2.2 Albany Interim Landfill Investigations

Prior to construction of the AIL in 1991, detailed geologic and hydrogeologic information relative to the Rapp Road site was presented in the Part 360 Application and Draft Environmental Impact Statement entitled *Rapp Road Sanitary Landfill Expansion (AIL) 6 NYCRR Part 360 Application and 6 NYCRR Part 617 Draft Environmental Impact Statement* prepared by Malcolm Pirnie, August 1988.

Due to the construction of various phases of the AIL expansion and P-4 Project, a number of well clusters have been abandoned, while additional well clusters were installed in support of several landfill expansion areas. Prior to constructing the first AIL expansion between the AIL and GAL (known as the Wedge) the AIL had a total of seven (7) monitoring well clusters (MW-1 through MW-7) located around the perimeter of the AIL. The location of the original AIL and Wedge, and the associated monitoring well locations are illustrated by Figure 2-1. Each well cluster consisted of a shallow intermediate and deep monitoring well. To accommodate the "Wedge" landfill expansion, in December 1996 two AIL well clusters (MW-5 and MW-6) were abandoned in accordance with the 6 NYCRR Part 360 regulations (C.T. Male, 1999). As a result

of the abandonment of these wells, a new well cluster was installed southeast of the Wedge designated MW-8. Monitoring well cluster MW-8 has since been abandoned as part of the P-4 expansion project, which is further discussed in Section 2.2.3. Groundwater quality monitoring including pre-operational and operational monitoring has been conducted since October 1986 for the AIL and Wedge and subsequent expansion with the P-4 Project. (C.T. Male, 1999).

All monitoring well clusters installed as part of the AIL and Wedge are generally consistent in terms of the screened interval. The shallow monitoring well clusters were installed in an upper sand unit, designed to monitor the shallow water table aquifer. The intermediate wells were installed with the screens set to monitor a silty sand/sandy silt formation. The deep monitoring wells were installed to monitor a silty clay/clayey silt unit, which overlies the confining clay unit. A detailed description of the site specific hydrogeology and groundwater quality for the entire Rapp Road site is provided in Section 4.0 of this document.

2.2.3 P-4 Expansion Project Investigations

In 1998, several additional investigations were conducted for the P-4 expansion project to further characterize the hydrogeology for the expansion area. These investigations focused on the P-4 expansion project footprint, which is located to the east of the limits of the AIL and Wedge (Figure 1-2).

The investigations conducted for the P-4 Project included a seismic survey, the installation of test borings, and the installation of additional monitoring well clusters and single shallow well locations. The following description of the P-4 expansion project investigations is taken from the Part 360 Permit Application for the P-4 Project that was prepared by C.T. Male in 1999.

From December 1997 to January 1998, four test borings were installed within the proposed P-4 expansion area. The locations of these borings are presented on Figures 2-2. Boring P4-B1 was advanced to a depth of approximately 112.5 feet. A grouted steel casing was then installed at this location to facilitate a downhole geophysical survey. Results from the geophysical survey indicate that shear wave velocities increase with depth from 450 ft/sec to 1,000 ft/sec. The compressional wave velocity profile was defined as two distinct layers including the upper unsaturated sand and the lower saturated unit having compressional wave velocities of 2,850 ft/sec and 4,800 ft/sec, respectively (C.T. Male, 1999).

Three additional shallow borings (P4-B2 through P4-B4) were installed and converted into shallow monitoring wells designated as P4 MW-1S through P4 MW-3S, respectively. These borings were installed to further assess the shallow site stratigraphy and to define the seasonally high water table in the P-4 footprint. The depths of these monitoring wells ranged from 20 to 37 feet below ground surface. These wells have since been abandoned with the construction of the P-4 project.

In addition to the shallow monitoring wells, three new well clusters (MW-9, MW-10, and MW-11), each consisting of a shallow, intermediate, and deep monitoring well were installed to provide the necessary monitoring network for the P-4 Expansion Area. These wells were installed in July 1998. The screened intervals for these wells were set to monitor the same stratigraphic sections as the wells that were installed for the AIL and Wedge.

As a result of additional expansion activates, monitoring well cluster MW-11 was abandoned in accordance with Part 360 regulations and an additional cluster (MW-12) was installed to provide an additional monitoring location for the expansion area.

Existing AIL and P-4 Project Groundwater Monitoring Network Summary

As outlined in the previous sections of this document, numerous monitoring wells were installed and/or abandoned in accordance with Part 360 regulations as various phases of expansion were completed. The current monitoring network (as of the second quarter of 2005) for the AIL, Wedge, and P-4 project includes the following well locations:

- MW-1S, MW-1I, MW-1D
- MW-2S, MW-2I, MW-2D
- MW-7S, MW-7I, MW-7D
- MW-9S, MW-9I, MW-9D
- MW-10S, MW-10I, MW-10D
- MW-12S, MW-12I, MW-12D

In addition to the existing monitoring wells for the AIL and P-4 Project, six (6) additional monitoring wells were installed as part of the hydrogeologic site investigation for the proposed expansion area. These wells include the following:

- MW-14S, MW-14I, MW-14D
- MW-15S, MW-15I, MW-15D

A summary of the above listed monitoring wells including individual screened intervals and monitored stratigraphic sections is provided in Table 2-1. Table 2-1 also lists the previously installed wells, which have since been abandoned in accordance with Part 360 regulations, and the newly installed monitoring wells that were installed for proposed expansion area. Operational water quality monitoring for the AIL/Wedge and P-4 project has been, and continues to be performed in accordance with Part 360 regulations. An evaluation of the operational water quality for the existing AIL, including a comparison with the data from samples collected from the newly installed monitoring wells is provided in Section 5.0.

3.0 HYDROGEOLOGIC INVESTIGATION METHODS

3.1 Literature Review

Prior to conducting any intrusive on-site investigations, pursuant to Part 360-2.11(a)(2), CHA conducted a literature review of published information and reports relative to the regional and site specific hydrogeology. The objective of the literature review was to obtain as much published information relative to the site and the surrounding area in an effort to develop a preliminary understanding the site's hydrogeologic conditions and it's relation to the regional geology, as well as to maximize the hydrogeologic investigation activities. The list of references presented in Section 7.0 provided the basis for the much of background hydrogeologic description presented in Section 4.0.

3.2 Surficial Geologic Mapping

Surficial geologic mapping, including representative cross sections of the subsurface stratigraphy was completed based on published information obtained from the Albany County Soil Survey, published geologic mapping and reports, both current and historical subsurface site investigation data, and observation during CHA's site reconnaissance. The regional and site specific surficial geology is discussed in detail in Sections 4.1 and 4.2.

3.3 Water Well Survey

Pursuant to Part 360-2.11(a)(5), CHA conducted a survey of water wells located within one mile upgradient and downgradient of the Rapp Road facility. The well survey was conducted by reviewing both state and federal database records, contacting the Albany County Department of Health, and by contacting the four local water districts that service the area in the vicinity of the site. Based on the information obtained from the well inventory database search, no public water supply wells were identified within one mile of the landfill.

To confirm the results of the water well database search, CHA contacted the Albany County Department of Health (DOH) to identify the potential presence of public water supply wells in the vicinity of the Rapp Road facility that may not have been reported by the database search. According to Mr. Cliff Forando of the Albany County DOH, there are no public water supply wells located within one mile of the landfill.

In addition to contacting DOH, CHA also contacted the Town of Colonie/Village of Colonie water departments (Latham Water District), the City of Albany Water Department, and the Town of Guilderland Water Department, each of which service the areas in the vicinity of the Rapp Road facility. Based on CHA's conversations with personnel from each water district, there are no sources of public water supply within one mile of the Rapp Road facility. In addition, none of the water districts currently have plans for developing additional water sources in the vicinity of the landfill.

In addition to evaluating the presence of public water supply sources, CHA also completed a review of potential private water wells in the vicinity of the Rapp Road Solid Waste Management Facility. It should be noted that there are only limited records available relative to the location of private wells within New York State. Except for recently completed private well installations (typically within the last 10 years), both State and County databases do not contain historical private water supply well information.

Based on a review of the NYSDEC water supply well database, there are no recently completed private wells reported within the vicinity of the site. However, based on CHA's conversations with the Albany County DOH, there are several private water supply wells located in the vicinity of Pine Lane in Guilderland. Pine Lane is located approximately 0.75 miles in a cross-gradient direction of groundwater flow relative to the Rapp Road facility. These wells are reportedly used for individual domestic water supplies for private residences. Due to their distance from the landfill facility, it is unlikely that potential impacts from the landfill would impact these wells.

To further evaluate the potential presence of private water wells within the vicinity of the Rapp Road facility, CHA contacted the Town/Village of Colonie, the City of Albany, and the Town of Guilderland water departments to determine if the areas in the vicinity of the landfill are serviced by public water supplies. Based on CHA's conversations with these water departments, the areas in the vicinity of the Rapp Road facility, which the exception of several homes on Pine Lane, are all serviced by municipal water sources. Therefore, it is unlikely that any private wells would be in use within the vicinity of the landfill.

3.4 Soil Boring and Monitoring Well Installations

During the period December 2006 to February 2007, CHA conducted a series of investigation activities to characterize the actual hydrogeologic conditions outside the existing landfill footprint and within the proposed eastern expansion area. All investigation activities were

conducted in accordance with the November 17, 2006 *Site Investigation Work Plan* that was previously submitted to NYSDEC (Appendix A).

From December 11, 2006 to January 4, 2007, eight soil borings were installed within the proposed eastern expansion area. Six of the eight soil borings were completed as monitoring wells. The monitoring wells were installed within two clusters (MW-14, and MW-15), each of which contains a shallow, intermediate, and deep monitoring well. The monitoring wells were installed just beyond the limits of the proposed landfill footprint and have been used to establish pre-operational water quality for the expansion area. The new monitoring well clusters include one cross-gradient cluster (MW-15) and one downgradient monitoring well cluster (MW-14). Existing crossgradient monitoring well cluster MW-2 will continue to be used as a cross-gradient monitoring location for the expansion area as well as the existing AIL facility. The location of cross-gradient well cluster MW-15 was selected to meet the Part 360 regulations, which require that cross-gradient wells be installed at a spacing of 1,500 feet or less. Since it is anticipated that well clusters MW-9 and MW-10 will also remain in place and serve to establish downgradient pre-operational and operational water quality, downgradient well cluster MW-14 was installed along the eastern boundary to satisfy the Part 360 regulations, which require a maximum spacing of 500 feet for all downgradient wells. It is anticipated that the new well clusters will remain in-place during construction of the proposed expansion and will also provide monitoring locations during operation of the proposed facility.

The remaining two soil boring locations (Borings EE-B-1 and EE-B-2) were installed inside the limits of the proposed landfill cell footprint to characterize the actual subsurface hydrogeologic conditions across the site. Upon completion, all soil boring and monitoring well locations were surveyed for location and elevation to the nearest 0.01 feet. The soil boring and monitoring well locations are illustrated by Figure 3-1.

The two deep soil borings, designated as EE-B-1 and EE-B-2, were installed to a depth of 104 feet each. The soil borings were installed by advancing 4” diameter flush joint, driven casing throughout the depth of each borehole. Between drilling locations, all downhole equipment was decontaminated via high pressure potable water rinse. No drilling fluid other than potable water was used during the installation of the soil borings. During the installation of each deep soil boring, soil samples were collected throughout the depth of each boring using a split spoon sampler and classified by CHA’s on-site geologist/scientist. Copies of the subsurface soil boring logs for the deep soil borings are included as Appendix B.

It should be noted that the Hydrogeologic Investigation Work Plan originally specified that the deep soil borings would be converted to shallow monitoring piezometers upon completion. However, as part of the on-going ecological assessment for the proposed expansion, a number of shallow piezometers were installed throughout the expansion area. As a result, the deep soil borings were not completed as shallow piezometers. A discussion of the water level data collected from the shallow piezometers is discussed in Section 4.3.3.

The soil borings associated with the two new monitoring well clusters (MW-14 and MW-15) included a total of three soil borings at each well cluster location. These boring specifically included a shallow, intermediate, and deep soil boring. At each well cluster location, the deep soil boring was installed first, during which soil samples were collected continuously throughout the depth of each boring. Soil samples were collected and characterized at standard intervals during the installation of the shallow and intermediate soil borings. Each monitoring well was constructed of Schedule 40 PVC riser and a ten foot section of 0.010-inch slot well screen. A #0 Morie sand pack was placed in the annulus between the well screen and the borehole and extended approximately 1.5 to 2.0 feet above top of the well screen. An approximately six inch interval of #00 fine sand choke was placed above the sand pack, followed by a three foot thick bentonite seal. Grout consisting of a cement and bentonite mixture was then be tremied to from the top of the bentonite seal to the surface. A concrete pad was then formed at the surface to complete the monitoring well installations. Each monitoring wells was furnished with protective steel casing and locking caps.

The well screens associated with the shallow monitoring wells were set at a depth to straddle the surficial water table. The well screens for the intermediate and deep monitoring wells were set at a depth to monitor the base of the respective stratigraphic unit in which they were installed. Upon completion, each well was developed by pumping and surging until the turbidity level of the discharge was below 50 NTUs. The depth of each monitoring well, including screened interval, and screened stratigraphic section is summarized in Table 2-1. Copies of the soil boring and monitoring well construction logs are also included as Appendix B.

3.5 Groundwater Sampling

To evaluate the pre-operational groundwater quality for the proposed expansion area, two rounds of groundwater samples were collected from the newly installed wells. The first sampling event was conducted two weeks following installation and final well development on January 23-24,

2007. The second sampling event was conducted on April 4-7, 2007. Immediately following collection, all samples were hand delivered to Upstate Laboratories, Inc. (Upstate) of Albany, New York. Upstate is currently certified under the New York State Department of Health's (NYSDOH) Environmental Laboratory Approval Program (ELAP).

The groundwater samples collected during the first monitoring event were analyzed for the expanded list of parameters as required by 6 NYCRR Part 360-2.11(c)(5). Pursuant to the Part 360 regulations, two samples were collected from each monitoring during this first monitoring event. The groundwater samples collected during the second monitoring event were analyzed for the baseline list of parameters. The laboratory analytical data for each sampling event was provided in a Category B deliverables package pursuant to the New York State Analytical Services Protocol (ASP). Upon receipt, the complete laboratory deliverable packages were submitted to Alpha Geoscience of Clifton Park, New York for independent third part data validation. A discussion of the laboratory data, including a summary of the existing water quality for the proposed expansion area is included in Section 5.0.

3.6 Hydraulic Conductivity Testing

To evaluate the hydraulic conductivity of the monitored stratigraphic sections, in-situ conductivity tests (i.e. slug tests) were performed on each of the newly installed monitoring wells. Both rising and falling head slug tests were performed on each well to estimate the hydraulic conductivity of the unit in which they are installed.

The slug test method involves "instantaneously" raising or lowering the water level in a well to a known depth and measuring the time it takes the water bearing unit to recharge the well. Hydraulic conductivity was then calculated for each test by inputting the collected data into a computer software program developed by Geraghty & Miller (AQTESOLV). The Bouwer and Rice (1966) method was used to evaluate slug test data for each well.

4.0 GEOLOGY AND HYDROGEOLOGY

4.1 Regional Geology

4.1.1 Unconsolidated Deposits and Glacial Geology

The site lies within the Hudson-Champlain Lowland physiographic province of New York State, which was once occupied by the Hudson Lobe of the Laurentide ice sheet during the Woodfordian Stage of the Wisconsin Glaciation (Dineen 1982). This last major episode of glaciation occurred during the Pleistocene Age. This most recent ice age is responsible for much of the current surficial geologic features in the Albany area.

As advancing glaciers scoured the preglacial land surface, sediments and debris were entrained in the glacial ice sheet, transported for some distance, and eventually deposited as unconsolidated materials overlying the bedrock surface. Some of these materials were deposited directly by the ice sheet (ice-contact deposits) and some were sorted and deposited in layers by meltwater streams and lakes. As the glaciers retreated and deposited sediment loads into moraines that blocked surface water flow, a series of proglacial lakes were formed, one of which was glacial Lake Albany (C.T. Male 1999).

Eventually, glacial Lake Albany drained completely and the wind action created a dune field on the former lake floor between Schenectady and Albany, and north to Glens Falls. The dunes were built from drifting sands derived from the deltas and the lake floor. The dune fields that were located within the western arm of the former glacial Lake Albany plain is known as the Pine Bush Dune Field (Isachsen and others, 1991). The surficial deposits within the Pine Bush dune field consist primarily of dune sand or Lake Albany sand deposits. The dune sand deposits are characterized as cross-bedded loose, light yellow to brown sand. The Lake Albany surficial sand deposits on the other hand are characterized as laminated, and compact yellow sands. The project site is located within the Pine Bush Dune field and the near surface deposits are consist of either dune sands and/or Lake Albany sands. The surficial geology in the area of the Rapp Road facility is illustrated by Figure 4-1.

4.1.2 Bedrock Geology

According to the *Generalized Bedrock Geology of Albany County, New York* (Fickies, 1982), the bedrock located beneath the project site consists of the Snake Hill Shale. The Snake Hill Shale is described as medium to dark-gray, silty, micaceous, pyretic shales with occasional thin interbeds of siltstones, fine-grained calcareous mudstone, and fine-grained sandstones, intensely folded and well cleaved. Based on the report entitled *Bedrock Topography and Glacial Geology of the Colonie Channel Between Saratoga Lake and Coeymans, New York;* (Dineen & Hanson, 1983), the depth to bedrock is expected to exceed 125 feet below ground surface in the vicinity of the proposed expansion area. The maximum depth of the deep soil borings installed as part of this investigation was 104 feet below ground surface. Bedrock was not encountered in any of the recently completed soil borings for the proposed expansion area.

4.2 Regional Hydrogeology

In the vicinity of the site, the shallow surficial sand deposits are known as the Pine Bush Formation. The Pine Bush Formation is an unconsolidated (i.e., surficial) sand deposit located within the City of Albany, the Town of Guilderland, and the Town of Colonie. It is located within a 40 square mile urban area between Albany and Schenectady, New York that has been developed for primarily residential and commercial land uses. The name for the Pine Bush is taken from its dominant and unique pitch pine and scrub oak vegetative community. The Pine Bush is part of an extensive sand dune field and swamp area that extends from South Glens Falls to Delmar. This extensive dune field developed on top of a series of interconnected glacial lake sediments that occupied the Hudson River Valley from approximately Glens Falls to Newburgh. The glacial lakes developed in front of the ablating continental ice sheet during and after the Late Wisconsinan deglaciation. The Pine Bush is covered by sand dunes of light yellow-brown to light gray very fine to medium grained sand deposits that are reported to range in thickness from 5 to 150 feet. The thickest sand deposit is located in the northwestern and central parts of the Pine Bush. In some areas, streams have eroded completely through the sand formation and into the underlying clay (C.T. Male, 1999).

The water bearing surface and near-surface sand of the Pine Bush Formation is the Pine Bush Aquifer. Recharge o the unconfined Pine Bush Aquifer is derived solely from precipitation, which is distributed uniformely over the area (Snavely, 1983). Groundwater generally occurs within the Pine Bush Aquifer at depths of 10 to 15 feet below ground surface and rarely exceeds

20 feet. The groundwater table intersects the surface in small streams and lakes such as Rensselaer Lake.

Due to it's historically perceived water bearing properties, the Pine Bush Formation is currently classified as a New York State principal aquifer. The Pine Bush Formation was first listed as a principal aquifer by NYSDEC's division of Water in the Draft Upstate New York Groundwater Management Program in January, 1985, which was later published as final in May 1987. The 6 NYCRR Part 360 Regulations define a principal aquifer as follows:

"a formation or formations known to be highly productive or whose geology suggests abundant potential water supply, but which is not intensively used as a source of water supplies by major municipal systems at the present time. Some water supply development has taken place in some of these areas, but it is not generally as intensive as in the primary aquifer areas".

The initial classification of the Pine Bush Formation as a principal aquifer was based upon general, state wide geologic mapping. Many of the mapped principal aquifers were believed to represent locations underlain by deposits of sand and gravel, which suggested the potential for an abundance of available groundwater supply. However, little or no consideration was given to actual site specific hydrogeologic condition of these mapped areas.

Although the Pine Bush Formation in the vicinity of the Rapp Road facility is classified as a principal aquifer, a January 1999 Pine Bush Formation Declassification Study completed by C.T. Male Associated P.C. demonstrates that the Pine Bush Formation: (1.) does not have the distinguishing characteristics of a principal aquifer, (2.) does not represent a viable public water supply source for the future, and (3.) that the development of a potential public water supply source would have an adverse impact to the Pine Bush habitat by lowering of the water table (C.T. Male, 1999). Historical studies and testing activities also support C.T. Males conclusions regarding the Pine Bush Formation.

Due to the fact that the 6 NYCRR Part 360 regulations restrict siting a landfill over a New York State Principal Aquifer, the Permit Application includes an Aquifer Variance Report that specifically requests for variance from the provisions of 6 NYCRR 360-2.12(c)(1), which prohibits siting a landfill over a primary water supply aquifer or principal aquifer. The aquifer variance report further demonstrates that the Pine Bush Formation is not presently, and most likely will never be, used as a public water supply. In addition to its potential use for a public water supply, the Pine Bush Formation is not intensively utilized as a source of private water

supply. As outlined in Section 3.3, based on CHA's conversations with the water district that service the area in the vicinity of the Rapp Road facility, with limited exception, the area within one mile of the landfill is all serviced by municipal water from either the City of Albany, the Town of Guilderland, or the Town/Village of Colonie (Latham Water), water districts.

4.3 Site Geology

The following description of the geology of the site is derived from site-specific stratigrapic data obtained during the recent soil boring and monitoring well installations at the site. Detailed descriptions of the subsurface soils are provided in the Subsurface Logs included as Appendix B.

Both current and historical borehole and well installation data were also employed to provide graphic depictions of the subsurface data. Four cross-sections were prepared to illustrate the stratigraphic setting for the Rapp Road facility, including the proposed expansion area. The locations of the cross-sections are illustrated by Figure 4-2. Representative cross-sections A-A', B-B', C-C', and D-D' are included as Figures 4-3 through 4-6, respectively.

4.3.1 Surficial Geology and Overburden Stratigraphy

Based on the stratigraphic data obtained from the recent investigations, five (5) primary stratigraphic units were identified. These primary units within the overburden, in order of descending depth are listed below:

i. Shallow, Brown/Gray Sand Unit (Shallow Sand Unit);

ii. Silty Sand/ Sand and Silt Unit (Intermediate Unit);

iii. Deep Silty Clay/Sand and Silt Unit;

iv. Deep Clay Unit; and

v. Till Unit.

In general, the surficial geology beneath the proposed expansion area is quite similar to the geology at the entire Rapp Road facility. A more detailed comparison of the subsurface geology

for the expansion area including a comparison with previously collected subsurface data for the Rapp Road facility is provided below.

Shallow Sand Unit

The upper Sand Unit within the proposed expansion area ranges in thickness from approximately 28 feet at soil boring location EE-B-2 to 44 feet at boring locations EE-B-1 and MW-15D. The upper Sand Unit consists primarily of fine to medium sand with trace amounts of silt. The uppermost portion of the shallow Sand Unit consists of brown sand, which transitions to gray in color at a maximum depth of 6 feet bgs at boring location EE-B-1.

Based on a comparison with the data from the soil borings associated with nearby AIL monitoring wells MW-9D and MW-10D, an upper Sand Unit was also identified beneath the Rapp Road/AIL facility. The upper Sand Unit is described in previous soil boring logs as primarily a brown to gray fine Sand Unit with trace amounts of silt. During the recent investigation for the proposed expansion area, the thickness of the uppermost brown sand layer was significantly less than the brown sands identified for the Rapp Road facility. This is not unexpected since the topography slopes steeply downward towards the proposed expansion area and the ground surface elevations in the vicinity of soil borings MW-14D, MW-15D, EE-B-1, and EE-B-2 are on the order of 17 to 20 feet lower in surface elevation than AIL borings MW-9D and MW-10D. The change in surface elevation is illustrated by cross-sections C-C' (Figure 4-5) and D-D' (Figure 4-6).

Silty Sand/Sand and Silt Unit (Intermediate Unit)

The Silty Sand/Sand and Silt Unit, which underlies the shallow sand in the eastern expansion area consists primarily of gray fine sands with varying amounts of silt. This unit is somewhat variable as a result of varying amounts of silt. This unit varies in classification from a Silty Sand to a Sand and Silt Unit within some sample intervals. This unit ranges in thickness from approximately 24 feet at boring location MW-14D to approximately 10 feet at location MW-15D. This unit has been referred to in historical investigation reports as the Intermediate Silty Sand/Sandy Silt. This unit appears to be continuous throughout the existing AIL facility however, the sandy silt component that is referenced in previous investigation reports appears to grade to a Sand and Silt Unit within the expansion area. Regardless, this unit is quite similar for both the AIL and proposed expansion areas.

Silty Clay/Deep Sand and Silt Units (Deep Unit)

The Silty Clay Unit and the Deep Sand and Silt Unit, which underlie the intermediate unit, have been grouped together due to the fact that previous investigation reports have classified this entire interval as the Deep Silty Clay/Clayey Silt Unit. However, CHA has identified a distinct transition from a Silty Clay unit to a Sand and Silt Unit that is generally consistent throughout the expansion area. This represents a subtle difference when compared to the soil boring data from the existing AIL and is a result of either natural changes in gradation moving from the west (existing AIL facility area) to east (proposed expansion area), or slight differences in the classification by current and historical field personnel. With limited exception, CHA's field descriptions correlate with the grain-size analysis performed on selected soil samples, which were collected and analyzed following completion of the field activities. For reference, copies of the grain-size analyses are included as Appendix C. For the existing AIL facility, the silty clay grades to clayey silt with increasing depth, however, in the eastern expansion area, the silty clay grades to a fine Sand and Silt unit. Cross-sections C-C' (Figure 4-5) and D-D' (Figure 4-6) illustrate the transition from the existing AIL facility to the proposed eastern expansion area.

In general, the Silty Clay Unit ranges in thickness from approximately 16.5 feet in boring MW-15D, to 23 feet in boring EE-B-2. The underlying Sand and Silt Unit ranges in thickness from

approximately 2 feet in boring EE-B-1 to 28 feet in boring MW-14D. Combined, both the Silty Clay and Sand and Silt Units range in thickness from 27 to 48.5 feet within the expansion area.

Deep Clay Unit

Similar to the above stratigraphic units, the Deep Clay Unit underlies both the existing Rapp Road facility and the proposed eastern expansion area. This unit is classified as a gray, silty clay with trace to some fine sand. The stratigraphic description of this unit is consistent between the current and historical soil boring logs. This unit appears to be continuous throughout the expansion area and the existing Rapp Road facility.

Till Unit

In deep borings EE-B-1 and EE-B-2, a Till Unit was encountered at depths of approximately 101 and 103 feet below ground surface, respectively. The Till Unit was not encountered in any of the remaining soil borings that were installed as part of the eastern expansion investigation activities. Based on CHA's review of available historical information, the Till Unit was not encountered in any of the borings that have historically been installed as part of previous investigations for the AIL facility.

The Till Unit is characterized as very stiff/very compact Clayey Silt with some fine to coarse sand and little fine to coarse gravel. Till Units, in general, have a low permeability and are often found overlying bedrock in the vicinity of the project site. Cross-sections C-C' and D-D' also illustrate the underlying Till Unit.

4.3.2 Bedrock Geology

Bedrock was not encountered in any of the soil borings that were installed as part of the east side expansion hydrogeologic investigation. Based on CHA's review of available historical soil boring data, bedrock has not been encountered at any of the on-site boring locations that were installed as part of previous investigations for the AIL facility. The bedrock located beneath the

project site is mapped as the Snake Hill Shale. The Snake Hill Shale is described as medium to dark-gray, silty, micaceous, pyretic shales with occasional thin interbeds of siltstones, fine-grained calcareous mudstone, and fine-grained sandstones, intensely folded and well cleaved.

It is reported that bedrock in the GAL, AIL, and P-4 areas lies approximately 100 to 150 feet bgs, which is consistent with regional mapping (Dineen & Hanson, 1983). Again, no soil borings have been drilled to bedrock at the GAL, AIL, or P-4 over the past several years (C.T. Male, 1999).

4.4 Site Hydrogeology

4.4.1 General

The stratigraphic units discussed in Section 4.2.1 can also be classified based on their hydrogeologic properties as hydrostratigraphic units (water-bearing units). Generally, water-bearing units consist of geologic formations that are able to transmit water (e.g. fractured bedrock and permeable overburden units). Confining units consist of geologic media such as silt and clay, which are not able to transmit appreciable amounts of water.

Groundwater in the uppermost shallow Sand Unit occurs under unconfined conditions. The surficial groundwater table within the shallow sand unit (beneath the proposed expansion area) is approximately two (2) feet below ground surface and is recharged predominantly through precipitation and direct infiltration to the shallow Sand Unit. Groundwater recharge to the deeper units, such as the intermediate Silty Sand and the deep Silty Clay/Silt and Sand Unit occurs from infiltration through the upper unit. Locally, the surficial groundwater table often emanates as surface water within small streams and surface water bodies such as the tributary to Rensselaer Lake and the wetlands on the east side of the Rapp Road facility

As outlined previously in this document, the three hydrostratigraphic units currently monitored at the AIL, Wedge, and P-4 project include the shallow water bearing Sand Unit, the intermediate Silty Sand/Sandy Silt Unit, and the Silty Clay/Sand and Silt Unit that overlies the confining clay. As stated in Section 4.2, the stratigraphic units beneath the proposed expansion areas were similar in nature with the exception of the changes noted in the gradation within the deep Silty Clay/Clayey Silt Unit. For the proposed expansion area, CHA characterized the upper portion of

this unit as silty clay, however, a transition to an underlying fine Sand and Silt Unit is noted, rather than the clayey silt.

Based on a review of the subsurface conditions for the proposed expansion area and the existing Rapp Road facility, a total of two monitoring well clusters (MW-14 and MW-15) were installed to facilitate the collection of groundwater samples, as well as pertinent hydrogeologic data from the critical subsurface stratigraphic units.

In keeping with the monitored stratigraphic sections for the existing AIL, Wedge, and P-4 project, each of the two well clusters included the installation of a shallow, intermediate and deep monitoring well. The shallow monitoring wells at each cluster were installed in the upper Sand Unit with the well screen set to straddle the surficial groundwater table. The intermediate monitoring wells were installed to monitor the base of intermediate Silty Sand/Sand and Silt Unit. More specifically, the bottom of the well screen associated with the intermediate wells were set just above the interface between the Silty Sand/Sand and Silt Unit, and the underlying Silty Clay Unit. The deep monitoring wells were installed to monitor the base of the deep Silty Clay/Sand and Silt Unit with the bottom of the well screen set at the top of the deep Clay Unit. These monitored stratigraphic units are considered to form the critical stratigraphic section, which is defined by the 6 NYCRR Part 360 regulations as:

> *…all stratigraphic units, both unconsolidated deposits and bedrock, including, but not limited to the unsaturated zone, uppermost aquifer and first water bearing unit into which facility derived contaminants that escape from a solid waste management facility might reasonably be expected to enter and cause contamination during the active life or within 30 years following closure of the facility.*

Based on data presented in historical investigation reports, the deep clay unit at the base of the monitored stratigraphic section is considered a confining layer (C.T. Male 1999). This deep Clay Unit is continuous across the site, and due to its relatively low conductivity/permeability is expected to provide hydraulic separation between the underlying hydrogeologic units that will serve as a hydraulic barrier to the downward migration of potential site contaminants.

4.4.2 Hydraulic Conductivity

To evaluate the hydraulic conductivity of the monitored stratigraphic sections, CHA conducted a series of slug tests relative to each of the newly installed monitoring wells in accordance with the methods outlined in Section 3.3 and the Work Plan. The slug test data was evaluated with the aid of the computer program Aqtesov using the Bouwer and Rice Method. A summary of the hydraulic conductivity data is presented in Table 4-1. The results from the AQTESOLV™. program are includes as Appendix D. The average hydraulic conductivity for each stratigraphic interval is summarized below:

Stratigraphic Unit	**Average Hydraulic Conductivity**	
	Existing AIL Wells[1]	**Expansion Area Wells[2]**
Shallow Sand Unit	1.76×10^{-2} cm/sec	4.0×10^{-3} cm/sec
Intermediate Silty Sand/Sand and Silt Unit	9.17×10^{-6} cm/sec	1.4×10^{-3} cm/sec
Deep Silty Clay/Sand and Silt Unit	2.36×10^{-5} cm/sec	3.0×10^{-4} cm/sec

Note:

1. Average hydraulic conductivity presented in the Part 360 Application to Construct and Operate a Solid Waste Management Facility; P-4 Project Landfill Expansion (C.T. Male; July 1999).
2. Average hydraulic conductivity for expansion area is based on geometric mean of February 2007 in-situ hydraulic conductivity testing.

As indicated by the above data, the geometric mean of the hydraulic conductivity values for the stratigraphic intervals within the proposed expansion area differ by at least an order of magnitude from that of the existing AIL facility. However, this difference is generally consistent with the variability noted for the stratigraphic units based on the visual soil classification within the expansion area. With the exception of the shallow unit, the intermediate and deep units appear to grade to slightly coarser sediments when compared to the existing AIL facility. The shallow monitoring wells within the existing AIL facility were installed within the upper sand unit, which based on the soil boring logs consisted of fine, brown sand with trace amounts of silt. Due to the ground surface elevation difference within the proposed eastern expansion area, the brown, fine sands were almost non-existent with the exception of the upper two to four feet of soils. Within the proposed expansion area, the upper sand unit consisted of a gray, fine sand unit with varying amounts of silt, which accounts for the slightly lower permeability of the upper Sand Unit.

Similarly, the intermediate Silty Sand/Sand and Silt Unit within the expansion area is classified as containing a larger component of sand rather than silt, which again accounts for the relatively higher permeability within this unit.

The deep Silty Clay/Sand and Silt Unit within the expansion area has been characterized as a Silty Clay/Clayey Silt within the area of the existing AIL facility. As a result, there appears to be a slight gradation change in which the Clayey Silt Unit grades to a fine Sand and Silt Unit moving from the west to the east. This would account for the higher permeability of the deep interval within the proposed expansion area.

4.4.3 Groundwater Elevation and Flow Direction

Groundwater Elevations

Groundwater elevation data has been collected on a quarterly basis for the Rapp Road facility (GAL, AIL, Wedge, and P-4 project) since the early 1990's and reported to NYSDEC with the quarterly operational water quality monitoring reports. Following the installation of the newly installed monitoring wells for the proposed expansion area, a complete round of groundwater elevation data was collected from all of the monitoring wells associated with the AIL and the expansion area on February 2, 2007. In addition, water elevation data has also been collected on a routine basis from the shallow monitoring piezometers within the proposed expansion area. Historical groundwater elevation data, as well as the recently collected water levels for the proposed expansion area wells are presented in Table 4-2. The groundwater elevation data for the recently installed piezometers is presented in Table 4-3. Prior to the final design and construction of the eastern expansion, at least one year of water level monitoring data will be collected to evaluate the seasonal water level variations.

At newly installed monitoring well clusters MW-14 and MW-15, there is a predominant upward gradient relative to each of the subsurface hydrostratigrapic units. During the February 2007 groundwater monitoring event, water levels in the expansion area ranged from 289.46 ft. above mean sea level (AMSL) in monitoring well MW-14S to 293.11 ft. AMSL in well MW-15D. The individual water levels for each well cluster are summarized below:

	Groundwater Elevation (ft. AMSL)	
Well Location	MW-14	MW-15
Shallow	289.46	292.58
Intermediate	289.50	292.73
Deep	290.69	293.11

Notes:

1. Groundwater elevations based on February 2007 monitoring event.

Again, the above data illustrates the predominant upward gradient of groundwater flow at each well cluster location for the proposed expansion area.

Based on the average quarterly elevation data for the previous year for the AIL facility, an upward gradient is generally noted at most monitoring well cluster locations when the shallow and intermediate elevations are compared to deep monitoring wells. Of note is the fact that at monitoring well cluster MW-1, a downward component of flow has been noted during almost all historical monitoring events, and at well cluster location MW-2, there is no significant gradient observed.

Groundwater Flow

Groundwater elevation data for the existing AIL facility has been collected on a quarterly basis since the early 1990's. Quarterly Groundwater Potentiometric Surface Contour Maps are also prepared and submitted to NYSDEC with each quarterly monitoring report. The recently collected groundwater elevation data for the proposed expansion area, as well as data from the existing AIL monitoring well network was used to prepare groundwater potentiometric surface contours for each of the monitored straitigraphic units at the site. The Water Table/Potentiometric Surface Contours for the Shallow, Intermediate, and Deep stratigraphic units for the February and April 2007 monitoring events are included in Appendix E.

In general, groundwater within each stratigraphic flow regime flows to the southeast towards nearby Rensselaer Lake. The component of groundwater flow within the proposed expansion area (based on elevation data from monitoring well clusters MW-14 and MW-15) is consistent with the historical monitoring data and the expected direction of groundwater flow at the site.

Based on the groundwater surface contours for each flow regime generated from the February 2007 monitoring event, a hydraulic gradient of 0.0062, 0.0060, and 0.0057 was calculated for the shallow, intermediate, and deep monitored stratigraphic units, respectively. This is generally consistent with historical data, which indicates that the average hydraulic gradients for the three units ranged from 0.0060 to 0.0071 (C.T. Male 1999). The slightly lower gradient for the February 2007 water level monitoring event is likely a result of seasonal variability or slight variation in topography relative to the eastern expansion area. After an initial decrease of 20 feet in ground surface elevation between the existing AIL facility and the proposed expansion area, the topography associated with the eastern expansion area is generally flat.

5.0 GROUNDWATER QUALITY

As stated previously, groundwater quality data has been collected for the Rapp Road facility throughout the operation of the AIL, Wedge, and P-4 project. This data, including a quarterly evaluation of water quality, is submitted to NYSDEC on a regular basis in Quarterly Water Quality Monitoring Reports.

Water quality data collected to date and from previous site investigations have indicated that groundwater quality at the Rapp Road facility has been impacted by the unlined, closed Greater Albany Landfill. Existing water quality has not, however, exhibited any impacts attributable directly to the existing AIL, Wedge, and/or P-4 project. As part of the recently completed investigation activities for the proposed eastern expansion area, additional crossgradient/downgradient monitoring wells were installed to evaluate the water quality for the proposed expansion area. Analytical results from water quality samples collected from the newly installed wells for the eastern expansion area were utilized to characterize the existing water quality within the expansion area as well as establish preliminary pre-operation water quality. Existing water quality for the existing GAL, AIL, and the proposed eastern expansion area is summarized in the following sections. It should be noted that prior to deposition of waste within the expansion area, a minimum of four rounds of water quality data will be collected from the existing monitoring wells to establish the pre-operational water quality for the eastern expansion area.

5.1 Existing GAL Water Quality

Water quality within the unlined GAL has been monitored on a quarterly basis since 1991. More specifically, groundwater samples are collected on a quarterly basis from one upgradient and eight downgradient monitoring wells that are located around the perimeter of the GAL (Figure 2-1). During each calendar year, groundwater samples are analyzed for the Routine list of parameters for three quarters and the Baseline parameter list during the remaining quarter in accordance with 6 NYCRR Part 360 (effective 1988). A tabulated summary of the groundwater monitoring results for the previous three years is provided in Appendix F.

Similar to the existing AIL and much of the Rapp Road facility, there are three hydrogeologic regimes associated with the GAL which include the shallow sand, the intermediate silty

sand/sandy silt, and the deep silty clay/clayey silt. Upgradient monitoring well GW-1D is installed within the intermediate silty/sand/sandy silt unit. Downgradient monitoring wells MW-1, MW-2, MW-3, GW-4S, and GW-5S are installed in the shallow sand unit, and monitoring wells GW-4D and GW-5D are installed in the deep silty/clay/clayey silt.

Water quality at upgradient monitoring well location GW-1D exhibits little to no impact from the GAL. Over the past 16 monitoring events, the parameters pH, turbidity, total dissolved solids (TDS), chloride, ammonia, total phenols, aluminum, antimony, iron, nickel, potassium, and thallium have been detected at levels in excess of groundwater standards during one or more monitoring event. With the exception of turbidity and iron, the remaining parameters have only been detected at levels above the groundwater standard on a sporadic basis in this well.

With the exception of deep monitoring well GW-4D, the majority of the downgradient monitoring well locations associated with the GAL have been impacted by the historical operations of the GAL. The highest parameter concentrations indicative of landfill leachate have been identified in downgradient monitoring wells MW-1, MW-2, GW-4S, and GW-5S. Parameter concentrations are significantly lower in monitoring wells MW-3, GW-5D, and GW-2D. Parameter concentrations in monitoring well GW-4D do not appear are not significantly elevated when compared to the upgradient well.

5.2 Existing AIL/Wedge/P-4 Water Quality

Background

Groundwater monitoring for the existing AIL has been conducted on a quarterly basis in accordance with the initial October 1995 Part 360 permit to operate the AIL, as well conditions outlined in subsequent permit modifications for the Wedge and P-4 Project. As the landfill has expanded, various monitoring wells have been abandoned and others installed to accommodate the various landfill expansions in accordance with the NYSDEC approved Environmental Monitoring Plan (EMP).

The current operational water quality monitoring program consists of the collection and analysis of groundwater samples from 18 monitoring wells located around the perimeter of the AIL (Figure 2-1). The monitoring wells are located within six well clusters, each of which includes a shallow, intermediate, and deep monitoring well. These monitoring well clusters include the following:

- MW-1S, MW-1I, MW-1D
- MW-2S, MW-2I, MW-2D
- MW-7S, MW-7I, MW-7D
- MW-9S, MW-9I, MW-9D
- MW-10S, MW-10I, MW-10D
- MW-12S, MW-12I, MW-12D

The shallow ("S" wells), intermediate ("I" wells), and the deep ("D" wells), correspond with the shallow Sand Unit, the intermediate Silty Sand/Sandy Silt Unit, and the deep Silty Clay/Clayey Silt Unit, respectively. Monitoring well cluster MW-1 is located upgradient of the AIL, and clusters MW-2 and MW-7 are considered cross-gradient well clusters. The remaining monitoring wells are located downgradient of the AIL.

Operational groundwater quality for the AIL is evaluated by comparing the quarterly monitoring data with Existing Water Quality Values (EWQVs) that were established in the original 1994 EMP for the AIL, as well as subsequent revisions for the various expansion projects. In addition, trends in individual parameter concentrations and a comparison with New York State Ambient Groundwater Quality Standards is also used to evaluate the operational water quality for the AIL facility.

In accordance with Part 360-2.11(c), the calculated EWQV is the mean of the pre-operational analytical results for each well. The analytical monitoring results obtained during each quarterly monitoring event are compared to the EWQVs and regulatory guidance values (groundwater standard) as a basis to determine if a statistically significant increase has occurred. Specifically, a significant increase is defined by Part 360 regulations as a parameter concentration which exceeds the EWQV by three standard deviations <u>or</u> exceeds both the EWQV and regulatory guidance value for that parameter. Regulatory guidance values (GVs) for the protection of groundwater are called maximum contaminant levels (MCLs) and are established by the Safe Drinking Water Act under 40 CFR Part 141 or guidance values as established pursuant to 6 NYCRR Parts 701, 702, 703, and Division of Water Technical and Operational Guidance Series 1.1.1., June 1998. Again, the evaluation of operational water quality is currently conducted on a quarterly basis.

Based on the quarterly monitoring data collected to date, significant increases have been identified for a number of parameters in each of the downgraidient monitoring wells. However,

these significant increases are not attributed to impacts from the AIL, but rather a number of factors that include the following:

(1) impacts from the unlined, closed GAL;
(2) potential errors due to matrix interference affects or variability in the laboratory analysis;
(3) natural variation;
(4) the size of the sample population for statistical analysis of the existing water quality value database;
(5) construction/expansion of the landfill cells; with impervious composite liner systems, which reduce recharge; and
(6) impacts from road salt.

As a result of the above factors, it is not uncommon that significant increases are often identified. However, trends in parameter concentrations are also evaluated during each quarterly monitoring event to determine if the significant increases are in fact an indication of significant changes in water quality.

AIL Water Quality Summary

Historical quarterly monitoring data for the AIL is summarized in the tables included as Appendix G. Graphical depictions of trends in the concentration of key water quality parameters are illustrated by the graphs included as Appendix H.

Given the close proximity to the adjacent, unlined GAL, historical water quality monitoring data has indicated that leachate from the GAL has impacted groundwater quality in downgradient AIL well clusters MW-9 and MW-12, and to a lesser extent MW-10 and MW-7. Upgradient monitoring well cluster MW-1 and cross-gradient cluster MW-2 have exhibited little to no impact from the GAL. In general, the degree of impact increases with closer proximity to the GAL.

At monitoring well cluster MW-9, elevated levels of common leachate indicator parameters, including ammonia, iron, manganese, sodium, chloride, total dissolved solids, and total hardness have been identified in the shallow, deep, and intermediate monitoring wells. In general the results for these compounds are elevated when compared to the upgradient well. The elevated levels of these parameters are attributed to the GAL rather than the operational AIL. This is supported by the fact that these parameters were elevated at the time the wells were first

installed, prior to placement of waste in the AIL and because there have been no considerable increasing trends in key leachate indicator concentrations over time in these wells.

One exception is a recent increasing trend in the levels of sodium and chloride in shallow monitoring well MW-9S. This well would be particularly susceptible to road salt impacts due to its shallow nature and close proximity to the primary site access road. Similar increasing trends in the level of sodium and chloride have also been noted in monitoring wells MW-7S, MW-10S, and to a lesser extent MW-2S. These wells are also located immediately adjacent to the site access roads. The road salt impacts are further supported by the monitoring data from well cluster MW-12. There have been no recent increasing trends in the concentration of these parameters in well MW-12S, which is located much closer to the AIL waste mass than well clusters MW-9 and 10. In addition, there are no increasing trends in concentration for typical leachate indicator parameters including iron and manganese and ammonia in wells MW-9S and MW-10S. In fact, rather significant decreasing trends are noted for a number of key leachate indicator parameters (e.g. iron, manganese, ammonia) in downgradient/cross-gradient well clusters MW-7, MW-9, MW-10, and MW-12.

In addition to the above road salt impacts, calcium, magnesium, hardness, alkalinity, and sulfate have also exhibited moderate variability since 2003 in a number of wells adjacent to the site access roads. Similar to the elevated sodium and chloride concentrations, the variability in the concentration of these parameters can be attributable to a number of factors including road salt mixtures and the tracking of synthetic cover material on the site access roads. The road salt utilized by the City can include a mixture of calcium chloride and trace levels of magnesium salts. The presence of both calcium and magnesium ions will directly influence both hardness and alkalinity. In addition to de-icing salt use, the City also applies a synthetic cover to the waste known as Posi-Shell®. Posi-Shell® is an aqueous alkaline slurry/cement mortar coating that is spray applied as a daily cover. The major constituent of the Posi-Shell® is a mineral binder that contains varying proportions of mineral compounds including, but not limited to calcium carbonate, and potassium and sodium sulfates. Due to the nature of the landfill operations, this material often gets tracked onto and/or over-sprayed on the site access roads during application. Run-off from the roads is generally directed towards the nearby monitoring well clusters. Run-off from the Posi-Shell® could have similar impacts to the effects of de-icing salts, however, the Posi-Shell® would also result in an increase in alkalinity levels and sulfate concentrations.

With the exception of an anomalous increase in ammonia concentration during the second quarter of 2005 monitoring event, ammonia levels in downgradient well MW-9S have also decreased to levels that are consistently below laboratory method detection limits. Other common leachate indicators have also remained at levels consistent with the historical database or at levels below method detection limits in well MW-12S and the remaining downgradient well network. With the exception of the deicing salt impacts, these decreasing trends actually suggest an improvement in water quality over time in these well clusters since the inception of the monitoring program for the AIL. The graphical presentations included in Appendix H illustrate both the increasing trends in the typical compounds associated with road salt impacts as well as the observed decreasing trends for a number of leachate indicator parameters.

The decreasing trend in parameter concentrations in many of the downgradient and cross-gradient wells can be attributable to a number of factors including natural improvement in water quality beneath the unlined GAL and potentially the various expansion phases of the AIL. As new landfill cells are constructed, especially those that have been installed immediately adjacent to or "piggy-backed" on top of the GAL, the nature of the new double lined landfill system reduces the groundwater recharge at the GAL or a component of flow beneath the facility. This reduction in recharge within the GAL can often result in both increases and decreases in parameter concentrations. Similar to landfill closure and capping, new landfill construction reduces the amount of infiltration of precipitation at the site. In some instances, the decreased infiltration can reduce the dilution of the leachate within the unlined portion of the landfill, which increases individual parameter concentrations. However, over time, the decrease in infiltration will also inhibits the additional generation of landfill leachate. Initial increases in parameter concentrations generally stabilize and subsequently decrease over time. This trend is observed in a number of the graphical trends for the AIL, which potentially indicates that the various expansions have resulted in an improvement in groundwater quality at the Rapp Road facility or that water quality at the Rapp Road facility. It is also presumed that water quality has exhibited a natural improvement in water quality following closure of the GAL.

With limited exception, volatile organic compounds (VOCs) have not been detected in samples collected from the AIL monitoring network. Of note is the fact that chloroform has been detected in a number of wells on an intermittent basis including monitoring wells MW-12S, MW-12D, MW-9S, and MW-9D. Chloromethane was also detected in monitoring well MW-9D during one monitoring event at a relatively low concentration. Based on the monitoring data collected to date, the source of the chloroform and chloromethane have not been identified, however, these compounds are not considered to be landfill derived contaminants since these

compounds are not typical indicators of AIL or GAL leachate. There are several other VOCs that would be expected to be detected in these wells (in addition to chloroform) if there was in fact an impact from the AIL and/or GAL. These compounds include acetone and 2-butanone from the AIL and benzene from the GAL.

As stated previously, the source of the chloroform and chloromethane has not been identified, however, there are several potential sources that may have resulted in the presence of these compounds. Both chloroform and chloromethane are disinfection byproducts that are often produced from the chlorination of drinking water sources. The addition of chlorine reacts with available organics within the water supply, which results in the formation of these compounds. The City routinely applies potable water to the roadways to minimize dust as a result of vehicle traffic. The potable water is spray applied via water truck or directly from on-site hydrants. Two of the hydrants are located immediately adjacent to well clusters MW-9 and MW-12. Both of these clusters are also located adjacent to site access roads. With the exception of monitoring well MW-12S, both chloroform and chloromethane have only been detected on a sporadic basis and at relatively low levels. The level of chloroform observed in well MW-12S has increased slightly over the past several monitoring events and the level is close to the upper limit of the level that would typically be observed in drinking water, however, the presence of residual chlorine could continue to react with available organics in the site soils to generate slightly higher levels of chloroform.

A second potential source of the elevated chloroform, especially in well MW-12S can also be a result of runoff from the recycling building. The recycling building is used for the storage of appliances containing refrigerants (e.g. refrigerators, air conditioners, etc.), which are also a source of chloroform. Washwaters from the building operations, combined with the application of potable water for dust suppression could have a cumulative effect on the level of chloroform in this well. With the exception of well MW-12S, chloroform has only been detected on a sporadic basis and at very low levels. It is only in well MW-12S where slightly higher levels of chloroform have been detected.

In addition to the chloroform and chloromethane levels discussed above, the parameters benzene and 1,1-dichloroethene were detected in one sample collected from monitoring well MW-9I in September 2003. Additionally, the compounds acetone and 2-butanone were detected only in well MW-7I during one sampling event in December 2004. This was the only time in which these compounds were detected in these wells, or any of the remaining wells associated with the AIL. Due to the presence of benzene, and the fact that the MW-9 well cluster is located closest

to the GAL, it is likely that the presence of both benzene and 1,1-dichloroethene in well MW-9I were a result of impacts associated with the GAL. The presence of benzene is a common indicator of GAL-derived impacts.

As stated above, acetone and 2-butanone were detected in monitoring well MW-7I during the December 2004 monitoring event. Both acetone and 2-butanone were detected in this well at levels below New York State groundwater standards during this monitoring event. Although both acetone and 2-butanone can be considered indicators of AIL leachate, these compounds are also two of the most common laboratory contaminants. These compounds have not been detected in this well, or any other AIL monitoring well during any previous or subsequent monitoring events. Since there is no increasing trend in concentration or consistent pattern of detections, the results are considered anomalous and their presence is likely attributable to laboratory or field contamination during the December 2004 sampling event.

5.3 Proposed Eastern Expansion Area Water Quality

5.3.1 General

A preliminary evaluation of water quality for the proposed expansion area was conducted based on the results of the January 23-24, 2007 sampling event. Samples collected during this monitoring event were analyzed for Expanded Parameters pursuant to 6 NYCRR Part 360 2.11(c)(5). Since this was the first round of sampling, two samples were collected from each well during the January 2007 monitoring event and analyzed for expanded parameters. A second sampling event was conducted on April 4-5, 2007. Pursuant to the Part 360 regulations, samples collected during second sampling event were analyzed for Baseline Parameters. All laboratory deliverables were provided in a Category B deliverables package in accordance with NYSDEC Analytical Services Protocol (ASP). The laboratory analytical results are summarized in Table 5-1. Due to the size of the Category B laboratory deliverables package only the Laboratory Sample Data Summary Packages have been included in this report (Appendix I).

5.3.2 Data Quality Assessment

Upon receipt of the laboratory results, the complete Category B deliverable packages from the January 2007 and April 2007 sampling events were submitted to Alpha Environmental Consultants of Clifton Park, New York for independent validation. Copies of the data validation reports are included as Appendix J.

As indicated by the validation report for the January 2007 sample deliverable package, the data was generally acceptable with the exception of some issues noted in the validation report. Of note is the fact that the validation report indicates that the "not detected" results for several volatile organic compounds (VOCs) including acetonitrile, acrylonitrile, propionitrile, and isobutyl alcohol were flagged as unusable "R" in all groundwater samples due to the fact that the response factors for these compounds were below the allowable minimum in the initial and continuing calibrations. Although the non-detect results for the above parameters were flagged as rejected, there is no reason to suspect that these compounds would be present in the groundwater. Similarly, these compounds are not typical indicators of landfill derived contaminants. These compounds will continue to be evaluated during future monitoring events as part of future baseline parameter analyses.

Based on the validation report for the April 2007 sampling event, the data were mostly acceptable with some issues that were identified in the data usability summary report. Of note is the fact that "not detected" results for acrylonitrile were flagged as unusable (R). In addition, positive results for 2-hexanone were flagged as "not detected" for the sample collected from well MW-14S due to the fact that the level reported in the sample was not significantly greater than the associated method blank level.

5.3.3 Preliminary Water Quality Evaluation

A preliminary evaluation of the groundwater quality within the proposed eastern expansion area has been conducted based on the results of water samples collected from newly installed monitoring well clusters MW-14 and MW-15 (Figure 3-1). Similar to the AIL monitoring well network, the newly installed well clusters within the expansion area each consist of a shallow, intermediate, and deep monitoring well that correlate with the critical water bearing stratigraphic units. Samples were collected from these monitoring wells during two separate monitoring events. The first monitoring event was conducted in January 2007 and the second in April 2007.

In general, water quality within the proposed expansion area is most similar to water quality up-gradient of the AIL. The distance of the newly installed wells from the closed, unlined GAL is sufficient in that impacts from the GAL are not observed. Based on a review of the water quality data collected from the newly installed wells, a number of parameters were detected at levels above the New York State Ambient Water Quality Standards in one or more wells. These

parameters include turbidity, total phenols, ammonia, total dissolved solids (TDS), color, aluminum, arsenic, cobalt, iron, lead, manganese, nickel, sodium, thallium, and vanadium.

The elevated levels of most of these parameters is a result of both naturally elevated background concentrations and elevated turbidity levels at the time of sample collection. During the second monitoring event, CHA modified the well sampling activities to include a modified low-flow purging technique to minimize turbidity levels. Samples containing elevated turbidity levels can influence the concentration of metals parameters, as metallic ions are often sorbed to the particulates in the sample. During the second monitoring event, the wells were purged using a peristaltic pump rather than a Watterra inertia pump, which significantly reduced the turbidity levels. With the exception of monitoring well MW-15D, the turbidity level in all monitoring wells was below 50 nepholometric turbidity units (NTUs). In well MW-15D, the turbidity level after purging was measured at 142 NTUs, and therefore, a portion of the sample from well MW-15D was filtered in the field using a 0.45 micron filter and analyzed for both total and dissolved metals. In general, the lower turbidity levels results in fewer parameters in excess of NYSDEC groundwater standards. More specifically, only the parameters turbidity, color, TDS, aluminum, iron, manganese, sodium, thallium, and ammonia were detected at levels above groundwater standards during the second monitoring event. Based on the dissolved metals analysis, the only metal compound in excess of groundwater standards in the sample collected from well MW-15D was thallium. With the exception of ammonia, the elevated level of these compounds is a result of naturally elevated background concentrations. No other leachate inducator parameters have been identified.

Based on the investigations performed to date, the source of the elevated ammonia level in wells 14S and 15S has not been identified. However, the elevated ammonia level in these wells is not considered to be derived from the existing Rapp Road landfill operations. Based on the quarterly monitoring data from the AIL, with limited exception, ammonia has not been detected in downgradient/crossgradient monitoring wells MW-7S and MW-10S. Since 1998, the only exception is a one time detection of ammonia in well MW-10S. In June 2003, ammonia was detected in well MW-10S at a level of 0.5 mg/L, which at the time was equal to the method detection limit. The level of ammonia in newly installed wells MW-14S and MW-15S was 0.751 mg/L and 2.15 mg/L, respectively. The level of ammonia would not be expected to increase with increasing distance from the landfill. In existing AIL wells MW-9S and MW-12S, which are located in close proximity to the GAL, ammonia has been sporadically detected in

these wells as a result of impacts from the GAL. However, given the fact that the newly installed expansion wells are located cross-gradient of wells MW-9S and MW-12S, the presence of ammonia in the eastern expansion wells is not considered to be a result of impacts to the GAL.

Although the source of the ammonia has not been identified, the levels of ammonia in these wells have been characterized to establish the pre-operational baseline water quality. CHA is in the process of reviewing other potential sources of the ammonia, which may include natural degradation of organics in the muck type soils associated with the expansion area, run-off from an adjacent horse farm, as well as potentially failing septic systems in the vicinity of the adjacent mobile home park located just west of the newly installed wells.

5.4 Environmental Monitoring Plan

Pursuant to 6 NYCRR Part 360-2.11(c), an Environmental Monitoring Plan (EMP) has been prepared to outline the proposed on-site and off-site monitoring for the Expansion Area, as well as the existing AIL. Specifically, the EMP describes the location of all environmental, facility, and other monitoring points, sampling schedule, analyses to be performed, statistical methods, and reporting requirements. Following approval of the Part 360 Permit Application, it is intended that this newly prepared EMP will serve as a stand alone document that will supersede the existing EMP for the AIL facility. A copy of the EMP is included as Appendix K.

6.0 SUMMARY

Based on the data generated from the current and historical hydrogeologic investigations conducted at the Rapp Road facility the following conclusions are presented in support of the proposed Easter Expansion application:

- The uppermost portion of the site is underlain by the Pine Bush Formation, which is an unconsolidated (surficial) sand deposit. located within the City of Albany, the Town of Guilderland, and the Town of Colonie. The Pine Bush is part of an extensive sand dune field and swamp area that extends from South Glens Falls to Delmar.

- Below the surficial Pine Bush Formation are the Lake Albany deposits, which consist of a relatively thick sequence of fine sands and silt/clays. The base of the formation consists of a relatively impermeable clay unit that is continuous across the entire Rapp Road site.

- The surficial water bearing sequence of fine sand, silt, and silty clay units that overly the impermeable clay unit make up the critical stratigraphic section at the site.

- The depth to bedrock in the vicinity of the Rapp Road facility is in excess of 100 feet below ground surface as evidence by historical soil boring data and the results of recently completed borings for the proposed eastern expansion.

- Groundwater occurs within the unconsolidated upper sand unit. Groundwater within each stratigraphic flow regime flows to the southeast towards nearby Rensselaer Lake. The component of groundwater flow throughout the proposed expansion area (based on elevation data from monitoring well clusters MW-14 and MW-15) is consistent with the historical monitoring data and the expected direction of groundwater flow at the site.

- Groundwater recharge to the surficial Sand Unit occurs from precipitation and direct infiltration.

- The Rapp Road facility overlies the Pine Bush Aquifer, which is classified as a principal aquifer as defined by Part 360-1.2(b)(10)(i) or Part 360-1.2(b)(10)(ii). However, current and historical data, and available published reports demonstrate that the Pine Bush Formation is not presently, and most likely will never be, used as a public water supply.

In addition to its potential use for a public water supply, the Pine Bush Formation is not intensively utilized as a source of private water supply. An Aquifer Variance Report has been prepared and is included with the permit document package, which specifically requests a variance from the provisions of 6 NYCRR 360-2.12(c)(1), which prohibits siting a landfill over a primary water supply aquifer or principal aquifer.

- The groundwater quality at the Rapp Road facility has been characterized based on the extensive water quality monitoring data that has been and continues to be collected on a quarterly basis. The existing water quality monitoring database and the newly collected water quality information for the expansion area provides the basis for the pre-operation water quality for the proposed expansion area.

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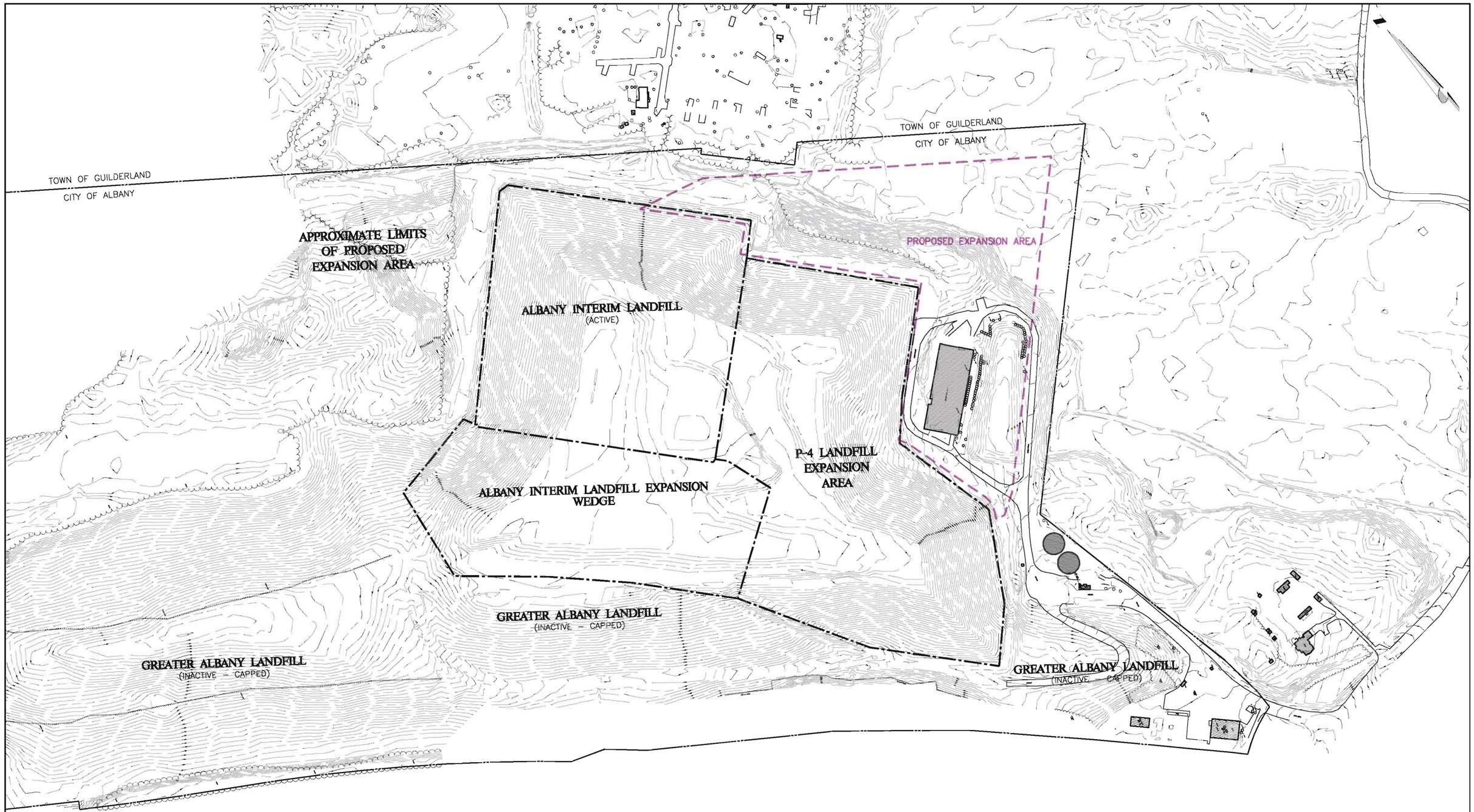
FIGURES



LEGEND

APPROXIMATE LIMITS OF PROPOSED EASTERN LANDFILL EXPANSION

SCALE: 1" = 300'

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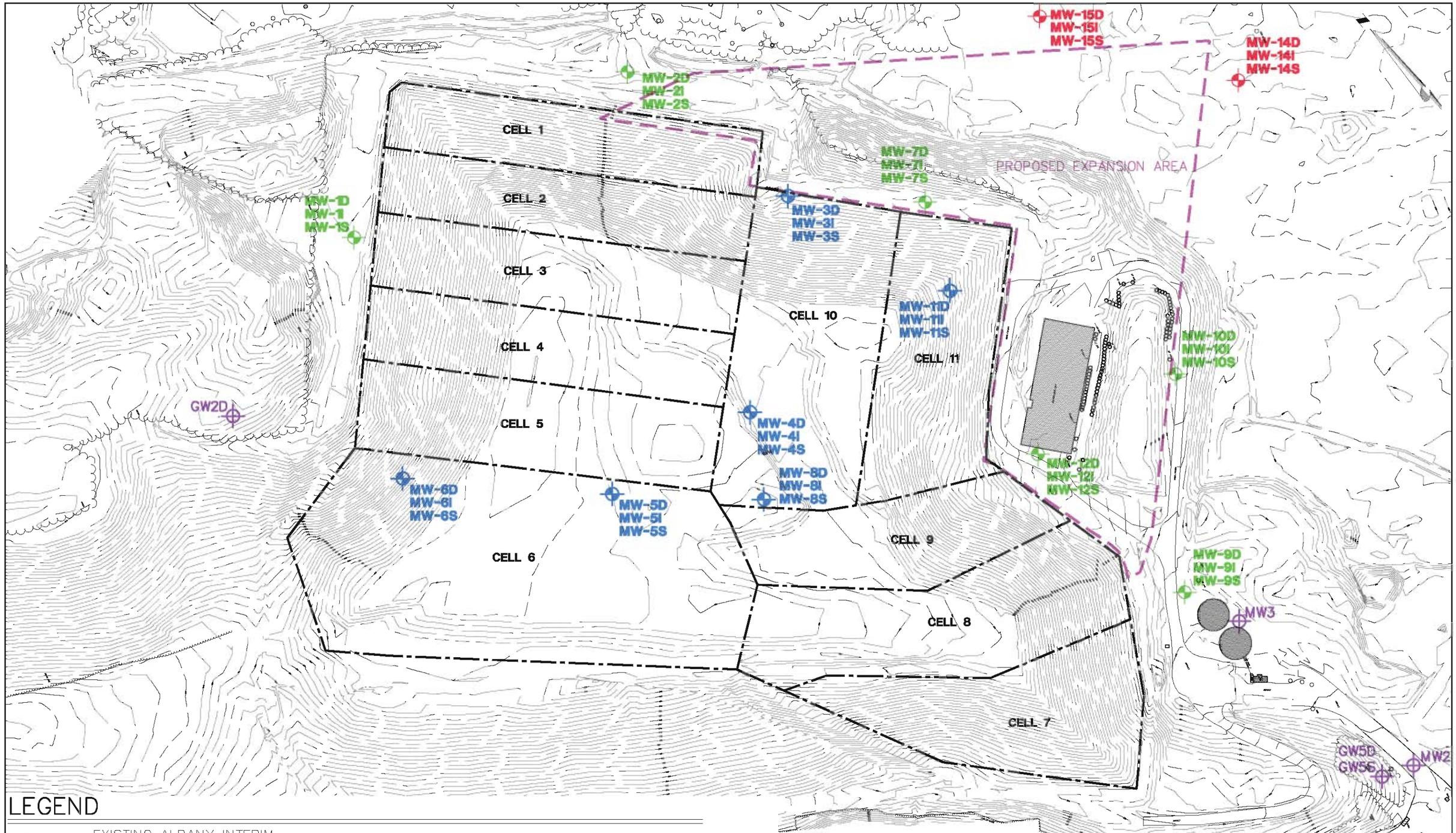
FIGURE 1–2
SITE PLAN
PROPOSED EXPANSION AREA
RAPP ROAD SOLID WASTE MANAGEMENT FACILITY
CITY OF ALBANY
STATE OF NEW YORK

File: K:\12206\EXPANSION\HYDRO INVESTIGATION\HYDRO REPORT\ACAD\3-28-07\FIGURE 1.2 - SITE PLAN.DWG Saved: 7/31/2007 8:31:03 AM Plotted: 7/31/2007 8:46:09 AM User: Stuart, Jeff



LEGEND

MW-1D MW-1I MW-1S — EXISTING ALBANY INTERIM LANDFILL MONITORING WELL CLUSTER

GW1D — GREATER ALBANY/RAPP ROAD LANDFILL MONITORING WELL CLUSTER

MW-1D MW-1I MW-1S — ABANDONED MONITORING WELL CLUSTER

MW-1D MW-1I MW-1S — NEWLY INSTALLED EASTERN EXPANSION MONITORING WELLS

SCALE: 1" = 200'

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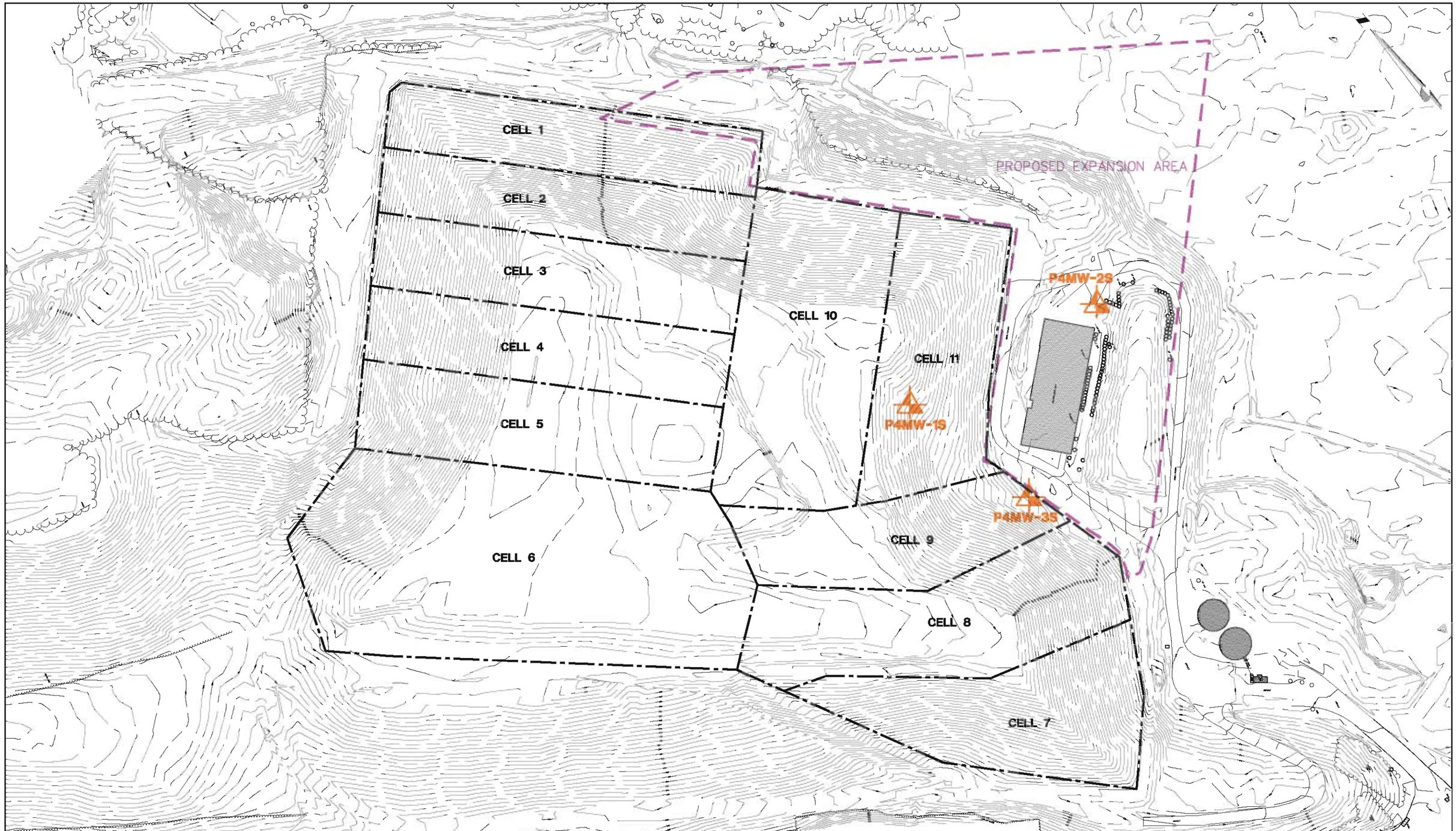
FIGURE 2-1
EXISTING MONITORING WELL LOCATION MAP
RAPP ROAD SOLID WASTE MANAGEMENT FACILITY
CITY OF ALBANY
STATE OF NEW YORK

File: K:\12206\EXPANSION\HYDRO INVESTIGATION\HYDRO REPORT\ACAD\3-28-07\FIGURE 2.1 - EXMONITORING WELL LOCATION MAP.DWG Saved: 7/31/2007 8:32:21 AM Plotted: 7/31/2007 8:47:14 AM User: Stuart, Jeff



LEGEND

P4MW-1S
P4MW-2S
P4MW-3S

P-4 SOIL BORING LOCATIONS

SCALE: 1" = 200'

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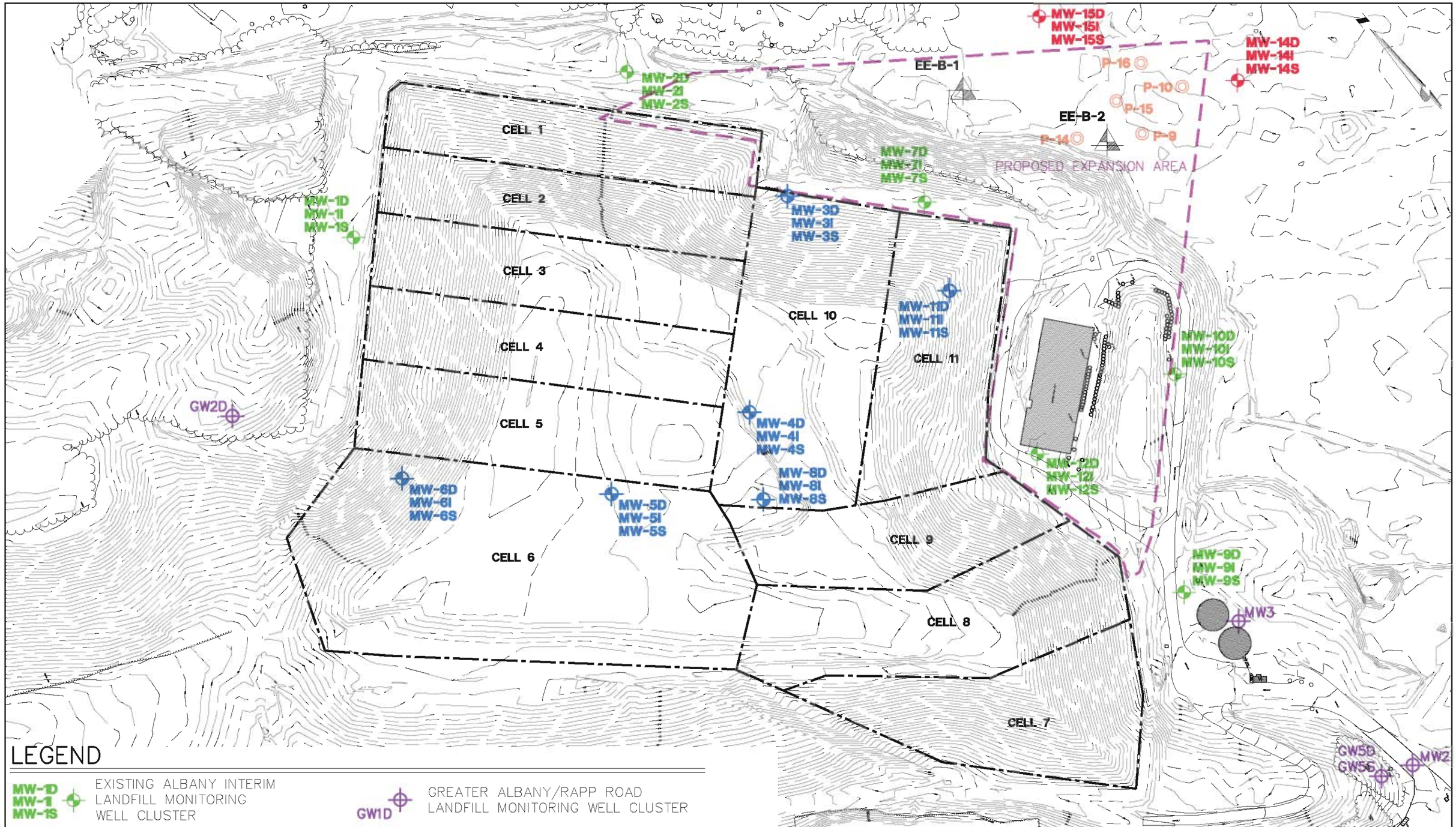
FIGURE 2-2

P-4 PROJECT SOIL BORING LOCATIONS

RAPP ROAD SOLID WASTE MANAGEMENT FACILITY
CITY OF ALBANY
STATE OF NEW YORK

File: K:\12206\EXPANSION\HYDRO INVESTIGATION\HYDRO REPORT\ACAD\3-28-07\FIGURE 2.2 - P-4 PROJECT SOIL BORING LOCATIONS.DWG Saved: 7/31/2007 8:33:32 AM Plotted: 7/31/2007 8:48:38 AM User: Stuart, Jeff



LEGEND

MW-1D MW-1I MW-1S	EXISTING ALBANY INTERIM LANDFILL MONITORING WELL CLUSTER
GW1D	GREATER ALBANY/RAPP ROAD LANDFILL MONITORING WELL CLUSTER
MW-1D MW-1I MW-1S	ABANDONED MONITORING WELL CLUSTER
MW-1D MW-1I MW-1S	NEWLY INSTALLED EASTERN EXPANSION MONITORING WELLS
EE-B-1	DEEP SOIL BORING LOCATION EASTERN EXPANSION AREA
P-11	SHALLOW MONITORING PIEZOMETER LOCATION

SCALE: 1" = 200'

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FIGURE 3-1
EAST EXPANSION SOIL BORING & SHALLOW PIEZOMETER LOCATION MAP
RAPP ROAD SOLID WASTE MANAGEMENT FACILITY
CITY OF ALBANY
STATE OF NEW YORK

File: K:\12206\EXPANSION\HYDRO INVESTIGATION\HYDRO REPORT\ACAD\3-28-07\FIGURE 3.1 - SOIL BORING LOCATION MAP.DWG Saved: 7/31/2007 8:34:44 AM Plotted: 7/31/2007 8:49:18 AM User: Stuart, Jeff

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Legend

Surficial Geology

- Dune Sands
- Lacustrine Sand

FIGURE 4-1

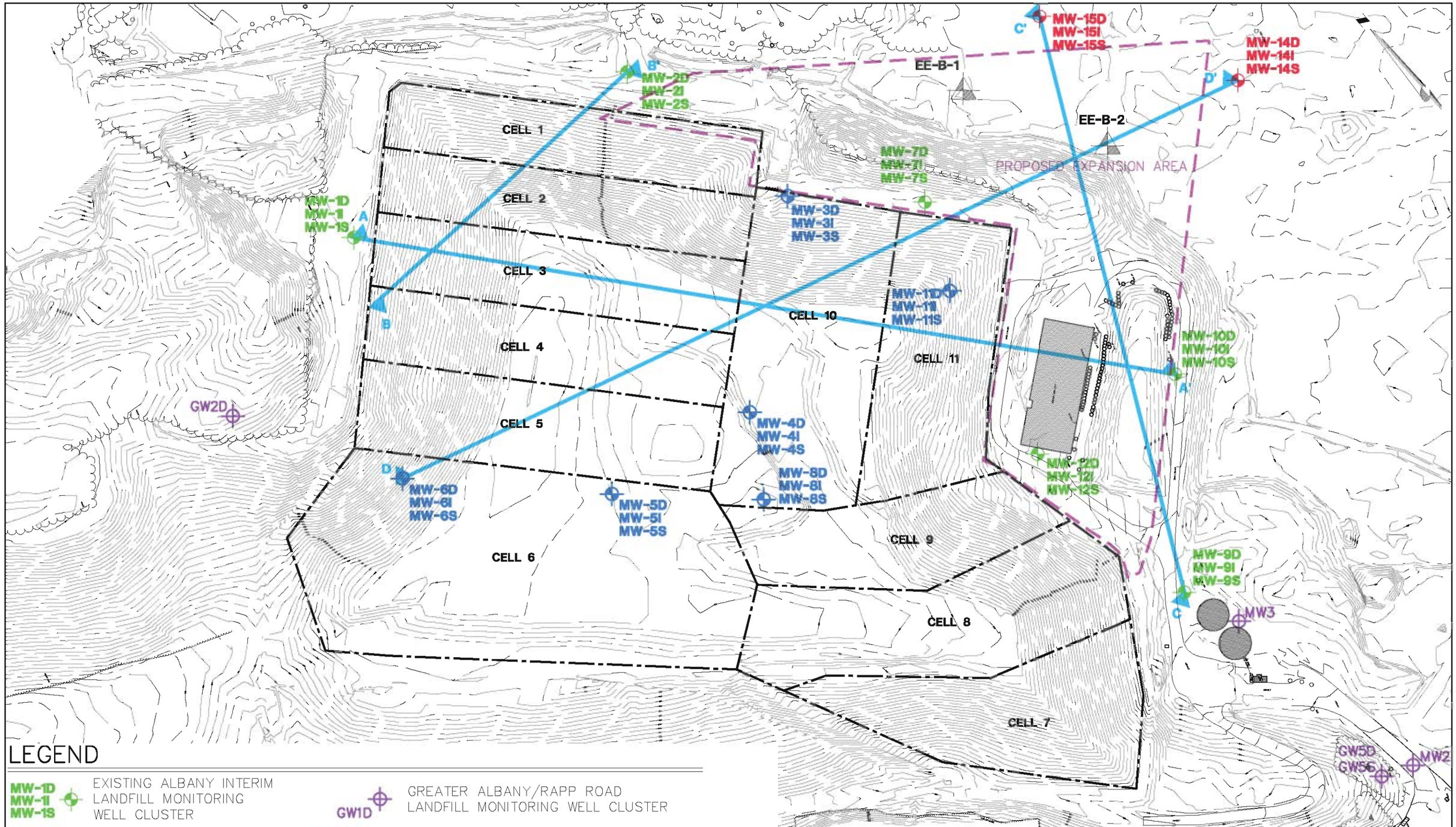
SURFICIAL GEOLOGY MAP

RAPP ROAD SOLID WASTE MANAGEMENT FACILITY

CITY OF ALBANY
STATE OF NEW YORK

DATE: JULY, 2007

12206.4008.1102



LEGEND

MW-1D, MW-1I, MW-1S — EXISTING ALBANY INTERIM LANDFILL MONITORING WELL CLUSTER

GW1D — GREATER ALBANY/RAPP ROAD LANDFILL MONITORING WELL CLUSTER

MW-1D, MW-1I, MW-1S — ABANDONED MONITORING WELL CLUSTER

MW-1D, MW-1I, MW-1S — NEWLY INSTALLED EASTERN EXPANSION MONITORING WELLS

EE-B-2 — DEEP SOIL BORING LOCATION EASTERN EXPANSION AREA

A A' — CROSS SECTION LOCATION

SCALE: 1" = 200'

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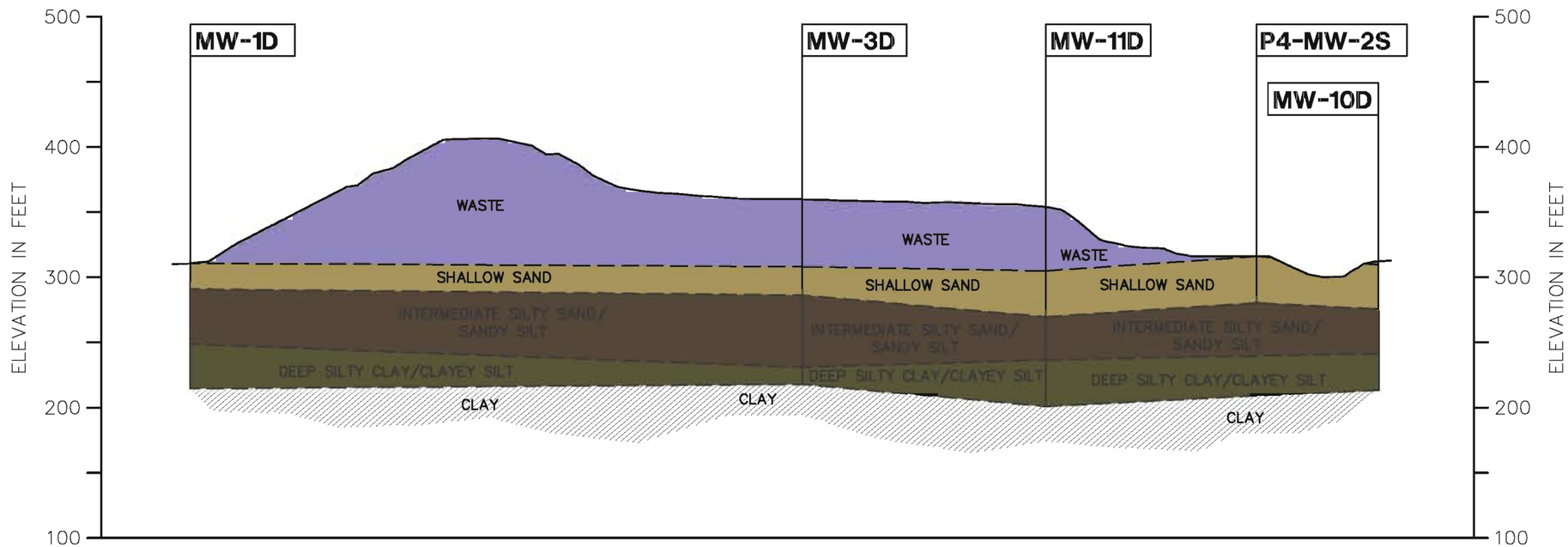
FIGURE 4-2

CROSS SECTION LOCATION PLAN

HYDROGEOLOGIC INVESTIGATION
RAPP ROAD SOLID WASTE MANAGEMENT FACILITY
CITY OF ALBANY
STATE OF NEW YORK

File: K:\12206\EXPANSION\HYDRO INVESTIGATION\HYDRO REPORT\ACAD\3-28-07\FIGURE 4-2 - CROSS SECTION LOCATION PLAN.DWG Saved 7/31/2007 8:23:19 AM Plotted 7/31/2007 8:50:06 AM User: Stuart, Jeff



SECTION A–A'

HORIZTONTAL SCALE: 1" = 200'
VERTICAL SCALE: 1" = 100'

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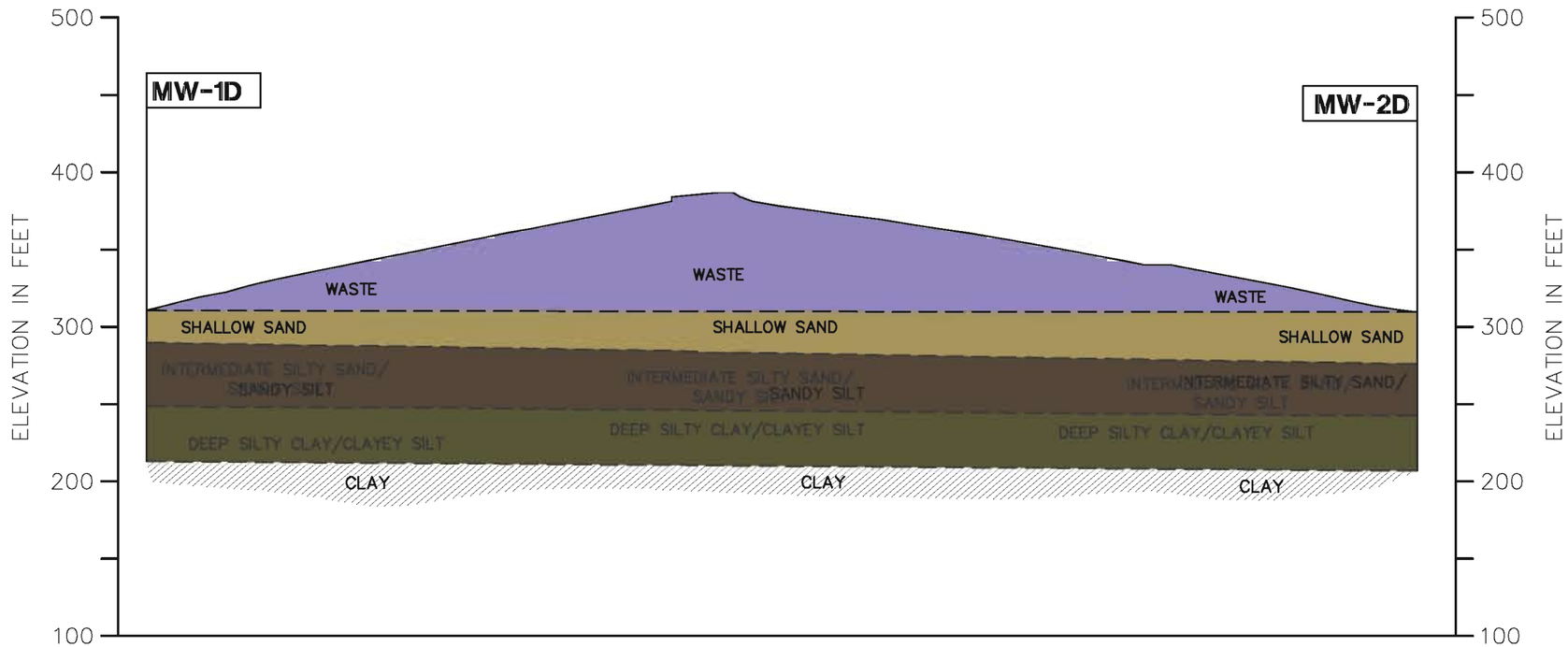
FIGURE 4–3

GEOLOGIC SECTION A–A'
HYDROGEOLOGIC INVESTIGATION
RAPP ROAD SOLID WASTE MANAGEMENT FACILITY
CITY OF ALBANY
STATE OF NEW YORK

File: K:\12206\EXPANSION\HYDRO INVESTIGATION\HYDRO REPORT\ACAD\3-28-07\FIGURE 4-3 - SECTION A-A'.DWG Saved: 7/31/2007 8:24:48 AM Plotted: 7/31/2007 8:51:00 AM User: Stuart, Jeff



SECTION B–B'

HORIZTONTAL SCALE: 1" = 100'
VERTICAL SCALE: 1" = 100'

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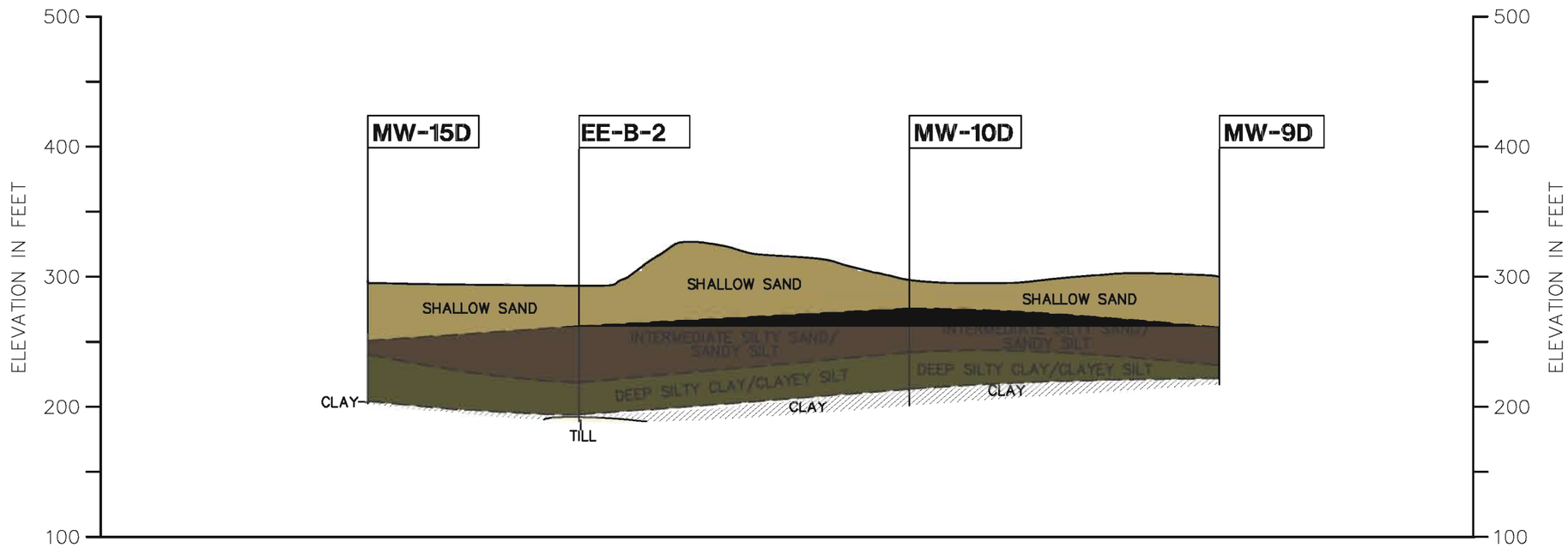
12206.4009.1102 | DATE: 03/27/07

FIGURE 4–4

GEOLOGIC SECTION B–B'
HYDROGEOLOGIC INVESTIGATION
RAPP ROAD SOLID WASTE MANAGEMENT FACILITY
CITY OF ALBANY
STATE OF NEW YORK

File: K:\12206\EXPANSION\HYDRO INVESTIGATION\HYDRO REPORT\ACAD\3-28-07\FIGURE 4-4 - SECTION B-B'.DWG Saved: 7/31/2007 8:26:11 AM Plotted: 7/31/2007 8:51:23 AM User: Stuart, Jeff



SECTION C–C'

HORIZTONTAL SCALE: 1" = 200'
VERTICAL SCALE: 1" = 100'

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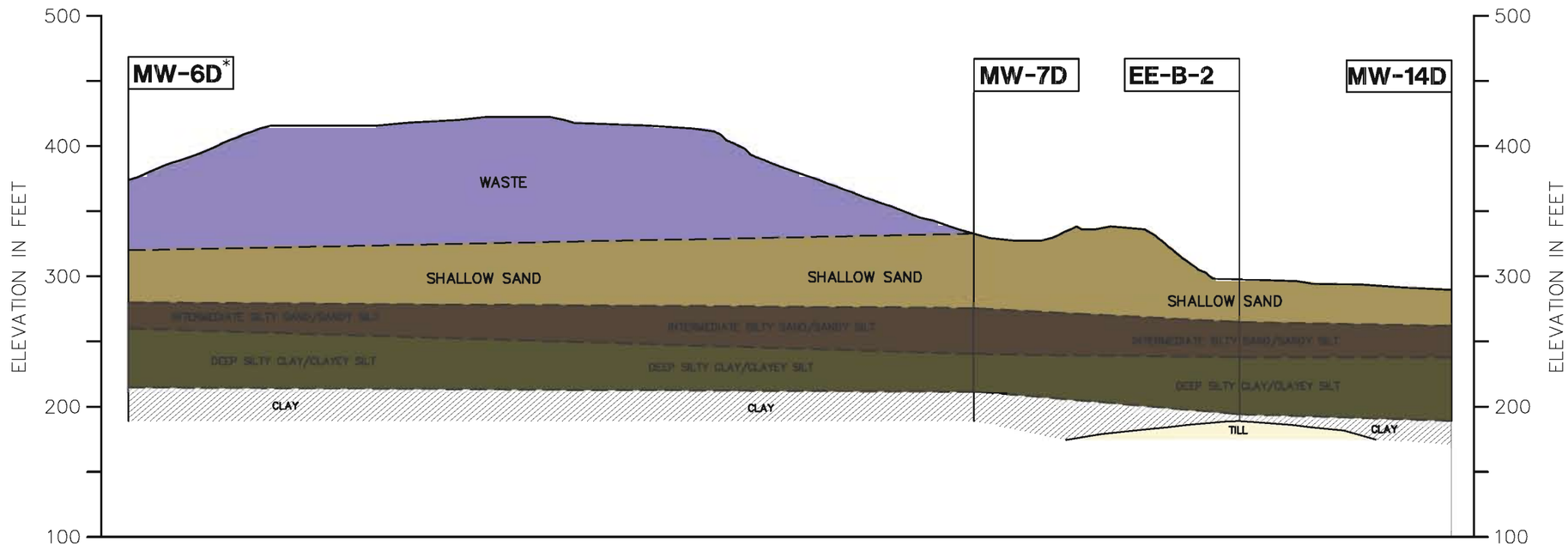
FIGURE 4–5

GEOLOGIC SECTION C–C'
HYDROGEOLOGIC INVESTIGATION
RAPP ROAD SOLID WASTE MANAGEMENT FACILITY
CITY OF ALBANY
STATE OF NEW YORK

File: K:\12206\EXPANSION\HYDRO INVESTIGATION\HYDRO REPORT\ACAD\3-28-07\FIGURE 4-5 - SECTION C-C'.DWG Saved: 7/31/2007 8:28:12 AM Plotted: 7/31/2007 8:51:44 AM User: Stuart, Jeff



SECTION D–D'

* ORIGINAL SURFACE ELEVATION FOR "6D" ESTIMATED BY CLOSEST ORIGINAL TOPOLOGICAL FEATURE

HORIZTONTAL SCALE: 1" = 200'
VERTICAL SCALE: 1" = 100'

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FIGURE 4–6

GEOLOGIC SECTION D–D'
HYDROGEOLOGIC INVESTIGATION
RAPP ROAD SOLID WASTE MANAGEMENT FACILITY
CITY OF ALBANY
STATE OF NEW YORK

File: K:\12206\EXPANSION\HYDRO INVESTIGATION\HYDRO REPORT\ACAD\3-28-07\FIGURE 4-6 - SECTION D-D'.DWG Saved: 7/31/2007 8:29:49 AM Plotted: 7/31/2007 8:52:07 AM User: Stuart, Jeff

TABLES

Table 2-1
Monitoring Well Data Summary
City of Albany Landfill
Proposed Eastern Expansion
Rapp Road, Albany, New York
CHA Project No. 12206

Monitoring Well ID	Date Installed	Top of Riser Elevation (ft. AMSL)	Ground Elevation (ft. AMSL)	Depth to Bottom of Sand Pack (ft. bgs)	Screened Interval (ft. bgs)	Elevation of Screened Interval (ft. AMSL)	Depth (ft. btor)	Bottom Elevation (ft. btor)	Shallow/Intermediate Contact Elevation (ft. AMSL)	Shallow/Intermediate Contact Depth (ft. bgs)	Intermediate/Deep Contact Elevation (ft. AMSL)	Intermediate/Deep Contact Depth (ft. bgs)	Top of Clay Elevation (ft. AMSL)	Depth to Top of Clay (ft. bgs)
EXISTING AIL/WEDGE/P4 WELLS														
MW-1S	10/25/1990	312.84	310.34	19.5	8.5 - 18.5	301.84 - 291.84	20.80	292.04	NI	NI	NI	NI	NA	NI
MW-1I	10/26/1990	313.08	310.58	61.5	50.5 - 60.5	260.08 - 250.08	63.20	249.88	290.58	20 - 22	NI	NI	NA	NI
MW-1D	10/24/1990	312.89	310.89	91.0	80.0 - 90.0	230.89 - 220.89	92.60	220.29	290.89	20 - 22	248.89	62- 65	214.89	96.00
MW-2S	10/18/1990	311.05	308.55	20.0	9.5 - 19.5	299.05 - 289.05	21.10	289.95	NI	NI	NI	NI	NA	NI
MW-2I	10/22/1990	311.61	308.61	60.0	49.0 - 59.0	259.61 - 249.61	60.90	250.71	271.61	37 - 40	NI	NI	NA	NI
MW-2D	10/17/1990	311.08	309.08	94.0	83.0 - 93.0	226.08 - 216.08	90.60	220.48	272.08	37 - 40	242.08	67 - 70	217.08	92 - 96
MW-7S	11/6/1990	324.50 [1]	308.26	24.0 [2]	12.0 - 22.00 [2]	296.26 - 286.26	39.00	285.50	NI	NI	NI	NI	NA	NI
MW-7I	11/6/1990	324.00 [1]	308.06	57.0 [2]	46.5 - 56.50 [2]	261.56 - 251.56	73.50	250.50	276.06	32 - 35	NI	NI	NA	NI
MW-7D	11/5/1990	324.60 [1]	307.61	97.0 [2]	83.5 - 93.50 [2]	224.11 - 214.11	109.80	214.80	275.61	32 - 35	240.61	67 - 70	211.61	96 - 98
MW-9S	7/8/1998	302.41	300.2	20.0	10.0 - 20.0	290.20 - 280.20	20.83	281.58	NI	NI	NI	NI	NA	NI
MW-9I	7/7/1998	302.57	300.3	60.0	50.0 - 60.0	250.30 - 240.30	57.55	245.02	366.3	34 - 36	231.3	69 - 72	NA	NI
MW-9D	7/2/1998	302.90	300.0	88.0	78.0 - 88.0	222.00 - 212.00	82.70	220.20	266.0	34 - 36	231.0	69 - 72	211.0	89 - 92
MW-10S	7/15/1998	312.18	309.9	28.0	18.0 - 28.0	291.90 - 281.90	28.66	283.52	NI	NI	NI	NI	NA	NI
MW-10I	7/14/1998	311.77	309.7	65.5	55.5 - 65.5	254.20 - 244.20	66.22	245.55	275.7	34 - 36	241.7	68 - 70	NA	NI
MW-10D	7/13/1998	311.70	309.7	94.0	84.0 - 94.0	225.70 - 215.70	96.38	215.32	275.7	34 - 36	241.7	68 - 70	213.7	96 - 98
MW-12S	NA	318.62	NA	NA	NA	NA	37.60	281.02	NA	NA	NA	NA	NA	NA
MW-12I	NA	318.69	NA	NA	NA	NA	72.55	246.14	NA	NA	NA	NA	NA	NA
MW-12D	NA	318.72	NA	NA	NA	NA	97.60	221.12	NA	NA	NA	NA	NA	NA
MW-14S	1/4/2007	294.75	292.10	13.0	3.0-13.0	289.1 - 279.1	15.65	279.10	NI	NI	NI	NI	NI	NI
MW-14I	1/4/2007	294.26	292.10	55.0	45.0 - 55.0	247.1 - 237.1	57.16	237.10	263.6	28 - 30	238.6	53 - 55	NI	NI
MW-14D	1/2/2007	294.23	292.10	102.0	92.0-102.0	200.1 - 190.10	104.13	190.10	262.1	28 - 30	238.1	53 - 55	189.6	102 - 104
MW-15S	12/26/2006	296.58	294.80	91.0	3.0-13.0	291.80-281.8.0	14.70	281.88	NI	NI	NI	NI	NI	NI
MW-15I	12/26/2006	296.60	294.80	55.0	45.0 - 55.0	249.80 - 239.80	56.80	239.80	251.3	42 - 44	241.3	52 - 54	NI	NI
MW-15D	12/21/2006	296.50	294.80	13.0	81.0 - 91.0	213.80 - 203.80	92.78	203.72	250.8	42 - 44	240.3	54 - 56	204.8	89 - 90
EASTERN EXPANSION SOIL BORINGS														
EE-B-1	12/11/2006	NA	296 (est.)	NA	NA	NA	104.00	192.00	250.5	45 - 46	219.0	76 - 78	199.0	96 - 98
EE-B-2	12/13/2006	NA	293 (est.)	NA	NA	NA	104.00	189.00	265.0	27 - 29	238.0	54 - 56	194.0	98 - 100
GREATER ALBANY LANDFILL (GAL) EXISTING MONITORING WELL														
GW-1D	4/18/1990	351.00	NA	NA	41.0 - 51.0	NA	53.70	297.30	NA	NA	NA	NA	NA	NA
GW-2D	4/17/1990	323.53	NA	NA	25.0 - 45.0	NA	48.20	275.33	NA	26 - 28	NA	NA	NA	NA
GW-4S	4/24/1990	301.57	NA	NA	22.0 - 42.0	NA	43.00	258.57	NA	NA	NA	NA	NA	NA
GW-4D	4/20/1990	302.00	NA	NA	61.0 - 81.0	NA	81.70	220.30	NA	NA	NA	NA	NA	NA
GW-5S	4/20/1990	294.24	NA	NA	14.0 - 34.0	NA	33.50	260.74	NA	NA	NA	NA	NA	NA
GW-5D	4/19/1990	294.29	NA	NA	31.0 - 81.0	NA	81.10	213.19	NA	23 - 25	NA	NA	NA	83 - 85
MW-1	NA	295.18	NA	NA	NA	NA	22.70	272.48	NA	NA	NA	NA	NA	NA
MW-2	3/3/1992	296.04	NA	NA	8.4 - 18.8	NA	22.25	273.79	NA	NA	NA	NA	NA	NA
MW-3	3/3/1992	300.06	NA	NA	2.8 - 13.2	NA	22.40	277.66	NA	NA	NA	NA	NA	NA

Notes:
Data presented above obtained from July 1999 Part 360 Application to Construct and Operate a Solid Waste Management Facility; P-4 Project Landfill Expansion; C.T. Male, 1999.
1. Monitoring wells re-surveyed in 2003 after well casings were extended with construction of new cell.
2. Depth based on original ground surface elevation at the time of installation.
NA - Data not available.
NI - Not installed to interval depth.

Table 4-1
Hydraulic Condictivity Data
City of Albany Landfill - Proposed Eastern Expansion
CHA Project No. 12206

Statigraphic Interval	Slug Test ID	Hydraulic Conductivity (cm/sec)	
		MW-14	**MW-15**
Shallow Sand Unit	Rising Test 1	3.4E-03	4.0E-03
	Rising Test 2	3.4E-03	5.3E-03
	Falling Test 1	5.3E-03	4.3E-03
	Falling Test 2	2.8E-03	4.6E-03
	Average:	**3.7E-03**	**4.6E-03**
Intermediate Silty Sand/Sand and Silt Unit	Rising Test 1	1.5E-03	1.4E-03
	Rising Test 2	1.4E-03	1.3E-03
	Falling Test 1	1.4E-03	1.3E-03
	Falling Test 2	1.3E-03	1.3E-03
	Average:	**1.4E-03**	**1.3E-03**
Deep Silty Clay/Sand and Silt Unit	Rising Test 1	4.8E-04	2.6E-04
	Rising Test 2	3.9E-04	2.5E-04
	Falling Test 1	NC	2.5E-04
	Falling Test 2	NC	2.3E-04
	Average:	**4.4E-04**	**2.5E-04**

Notes:
NC = Not Conducted

Table 4-2

Current and Historical Water Table Elevations (Feet above MSL)

City of Albany Landfill - Proposed Eastern Expansion

Rapp Road, Albany, New York

CHA Project No. 12206

Well ID	MW-1S	MW-1I	MW-1D	MW-2S	MW-2I	MW-2D	MW-7S	MW-7I	MW-7D	MW-9S	MW-9I	MW-9D	MW-10S	MW-10I	MW-10D	MW-12S	MW-12I	MW-12D	MW-14S	MW-14I	MW-14D	MW-15S	MW-15I	MW-15D
TOC:	312.84	313.08	312.89	311.05	311.61	311.08	324.50	324.00	324.60	302.41	302.57	302.90	312.18	311.77	311.70	318.62	318.69	318.72	294.75	294.26	294.23	296.58	296.60	296.50
03/24/03	300.28	300.13	299.79	297.45	297.51	297.58	293.20	293.77	294.95	290.41	289.92	290.42	289.66	289.59	290.10	292.04	292.07	291.62	NI	NI	NI	NI	NI	NI
06/09/03	299.58	299.81	296.71	296.01	296.34	295.44	291.98	294.34	294.91	289.78	289.52	284.19	288.68	289.42	289.12	291.60	291.45	287.43	NI	NI	NI	NI	NI	NI
09/22/03	299.60	299.66	299.54	296.61	296.53	296.88	292.09	292.68	293.85	288.87	289.12	286.43	288.73	288.68	289.17	291.44	291.46	291.62	NI	NI	NI	NI	NI	NI
12/16/03	299.70	300.50	300.28	297.27	297.43	297.54	293.28	293.82	289.29	289.76	290.19	290.73	289.80	289.68	290.26	291.62	291.24	292.19	NI	NI	NI	NI	NI	NI
03/22/04	300.28	300.34	300.13	296.89	297.03	297.20	291.74	293.54	294.80	290.10	289.89	290.40	289.42	289.29	289.94	292.17	292.19	292.34	NI	NI	NI	NI	NI	NI
06/15/04	300.29	300.31	300.13	296.85	296.99	297.10	291.60	293.19	294.38	290.03	289.73	290.15	289.10	289.06	289.66	292.07	292.03	292.19	NI	NI	NI	NI	NI	NI
09/27/04	300.16	300.17	299.65	296.96	297.00	296.59	292.79	293.29	294.25	290.24	289.89	289.35	289.27	289.22	289.12	292.17	292.19	292.27	NI	NI	NI	NI	NI	NI
12/14/04	300.24	300.25	300.01	297.21	297.29	297.42	293.00	293.56	294.76	290.21	289.90	290.36	289.48	289.43	290.00	292.22	292.16	292.32	NI	NI	NI	NI	NI	NI
03/28/05	300.39	300.51	300.32	297.33	297.43	297.26	293.36	293.95	295.18	290.49	290.29	290.80	289.90	289.89	290.39	292.58	292.54	292.67	NI	NI	NI	NI	NI	NI
06/13/05	300.40	300.45	300.28	296.84	296.79	297.13	292.62	293.15	294.33	289.97	289.75	290.18	289.13	289.09	289.66	292.12	292.11	292.22	NI	NI	NI	NI	NI	NI
09/19/05	299.64	299.68	299.54	296.55	296.58	296.68	291.90	292.43	293.62	289.26	289.07	289.57	288.60	288.67	289.12	291.48	291.45	291.53	NI	NI	NI	NI	NI	NI
12/19/05	300.56	300.64	300.47	297.14	297.09	297.14	293.15	293.72	294.87	290.60	290.27	290.76	289.68	289.53	290.18	292.62	292.59	292.72	NI	NI	NI	NI	NI	NI
03/20/06	300.79	300.34	300.64	297.07	297.16	297.28	293.23	293.72	294.92	290.12	291.12	290.44	289.50	289.55	290.17	292.59	292.60	292.69	NI	NI	NI	NI	NI	NI
06/26/06	300.86	301.03	300.87	297.20	297.13	296.46	293.20	293.78	294.97	290.61	290.32	290.70	289.83	289.76	290.24	292.72	292.19	292.80	NI	NI	NI	NI	NI	NI
09/25/06	300.22	300.24	300.09	296.75	296.89	297.06	292.45	292.99	294.18	289.96	289.62	290.12	289.17	289.12	289.65	292.10	292.00	292.12	NI	NI	NI	NI	NI	NI
12/18/06	300.42	300.48	300.36	297.05	297.16	297.35	292.91	293.47	294.71	289.76	290.22	290.50	289.46	289.45	290.00	292.52	292.40	292.48	NI	NI	NI	NI	NI	NI
02/02/07	300.39	300.45	300.31	297.00	297.13	297.31	292.76	293.95	293.92	290.19	289.91	290.29	289.31	289.27	289.88	292.22	292.32	292.20	289.46	289.50	290.69	292.58	292.73	293.11
03/26/07	300.59	300.62	300.49	297.55	297.56	297.84	293.55	294.05	295.30	291.28	290.67	291.10	290.08	290.02	290.60	292.72	292.89	292.82	291.75	291.59	291.56	294.46	294.42	294.35

Notes:

TOC = Elevation of the reference point, the top of the PVC casing, in feet above mean sea level (MSL).

NI = Data not available. Well not yet installed.

NA = Information not available.

NM = No measurement collected for this date.

Table 4-3
Recent Piezometer Groundwater Elevation Data
City of Albany Landfill
Proposed Eastern Expansion
Rapp Road, Albany, New York
CHA Project No. 12206

Piezometer ID	TOC Elevation (ft. AMSL)	Elevation (ft. AMSL)	Groundwater Elevation (ft. AMSL) 3/26/07	
			Depth to Water	Elevation
P-9	294.16	292.56	2.3	291.86
P-10	294.78	293.13	1.73	293.05
P-14	294.54	293.19	1.35	293.19
P-15	294.4	292.9	1.8	292.6
P-16	293.98	292.38	1.5	292.48

Notes
TOC = Top of Casing
AMSL = Above Mean Sea Level

TABLE 5-1
Groundwater Analytical Monitoring Data
Eastern Expansion Area Monitoring Wells
City of Albany Landfill
Rapp Road, Albany, New York
CHA Project No. 12206

Monitoring Well MW-14S

TEST PARAMETER (mg/l unless otherwise noted)	Unit	TOGS Guidance Value	Jan-07A Expanded	Jan-07B Expanded	Apr-07 Baseline
Temperature	C°		6.6	6.6	4.04
Conductivity	uS		226	226	288
pH	SU	6.5-8.5	6.71	6.71	6.6
Eh	mV		15.5	15.5	-25.8
Turbidity (after purging well)	N.T.U	5	505	464	28.2
LEACHATE INDICATORS:					
Ammonia Nitrogen	mg/l	2	<0.5	<0.5	0.751
BOD 5	mg/l		6	<4	43
Bromide	mg/l	2	<2	<2	<20
COD	mg/l		<20	<20	180
Chloride	mg/l	250	7.26	6.35	6.86
Nitrate	mg/l	10	<0.2	<0.2	<0.2
Sulfate	mg/l	250	<5	6.71	9.82
Total Alkalinity	mg/l		130	140	130
Total Disolved Solids	mg/l	500	162	250	440
Total Hardness	mg/l		226	231	129
Total Kjed. Nitrogen	mg/l		<0.50	<0.05	1.47
Total Organic Carbon	mg/l	500	11	11	33.8
Total Phenols	mg/l	0.001	<0.005	<0.005	<0.005
Color	P.C.U.	15	100	80	100
Boron	mg/l	1	<0.5	<0.5	<0.5
Sulfide	mg/l	1	<0.1	<0.1	
INORGANIC PARAMETERS:					
Aluminum	mg/l	0.1	31.2	28.7	1.19
Antimony	mg/l	0.003	<0.015	<0.015	<0.015
Arsenic	mg/l	0.025	0.0184	0.0209	<0.010
Barium	mg/l	1	0.199	0.198	<0.05
Beryllium	mg/l	0.003	<0.003	<0.003	<0.003
Cadmium	mg/l	0.01	0.00642	0.00669	<0.005
Calcium	mg/l		60.7	63.6	39.2
Chromium	mg/l		0.0451	0.0426	<0.005
Hexavalent Chromium	mg/l	0.05	<0.010	<0.010	<0.010
Cobalt	mg/l	0.005	0.0445	0.0435	<0.020
Copper	mg/l	0.2	0.122	0.121	0.0201
Total Cyanide	mg/l	0.1	<0.010	<0.010	<0.010
Iron	mg/l	0.3	50.9	48.3	7.12
Lead	mg/l	0.025	0.0377	0.0408	<0.003
Magnesium	mg/l	35	17.9	17.5	7.65
Manganese	mg/l	0.3	0.732	0.731	0.323
Mercury	mg/l	0.002	<0.0002	<0.0002	<0.0002
Nickel	mg/l	0.007	0.0763	0.0736	<0.030
Potassium	mg/l		4.31	3.85	<1
Selenium	mg/l	0.01	<0.005	<0.005	<0.005
Silver	mg/l	0.05	<0.010	<0.010	<0.010
Sodium	mg/l	20	4.24	3.75	3.68
Thallium	mg/l	0.004	<0.01	<0.010	0.0144
Vanadium	mg/l	0.014	0.0639	0.0626	<0.030
Zinc	mg/l		0.217	0.207	0.115
ASP PEST/PCB WATERS	ug/l	Varies	<MDL	<MDL	NA
CHLORINATED HERBICIDES	ug/l	Varies	<MDL	<MDL	NA
ORGANIC PARAMETERS:	ug/l	Varies	<MDL	<MDL	<MDL

Notes:

1. Parameters listed are Part 360 Baseline or Routine Parameters Effective 1993.
2. Blanks indicate no analysis performed
3. "<" indicates not detected at the specified method detection limit (MDL)

TABLE 5-1
Groundwater Analytical Monitoring Data
Eastern Expansion Area Monitoring Wells
City of Albany Landfill
Rapp Road, Albany, New York
CHA Project No. 12206

Monitoring Well MW-14I

TEST PARAMETER (mg/l unless otherwise noted)	Unit	TOGS Guidance Value	Jan-07A Routine	Jan-07B Expanded	Apr-07 Baseline
Temperature	C°		7.52	7.52	7.9
Conductivity	uS		302	302	441
pH	SU	6.5-8.5	7.96	7.96	7.85
Eh	mV		-42.9	-42.9	-88.1
Turbidity (after purging well)	N.T.U	5	98.7	76	1.34
LEACHATE INDICATORS:					
Ammonia Nitrogen	mg/l	2	<0.5	<0.5	<0.5
BOD 5	mg/l		<4	<4	<4
Bromide	mg/l	2	<2	<2	<0.2
COD	mg/l		<20	<20	<20
Chloride	mg/l	250	15	15.5	26.2
Nitrate	mg/l	10	<0.2	<0.2	<0.2
Sulfate	mg/l	250	29.5	25.4	52.6
Total Alkalinity	mg/l		110	120	130
Total Disolved Solids	mg/l	500	277	190	423
Total Hardness	mg/l		176	215	197
Total Kjed. Nitrogen	mg/l		<0.5	<0.5	1.47
Total Organic Carbon	mg/l	500	<3	<3	<3
Total Phenols	mg/l	0.001	<0.005	<0.005	<0.005
Color	P.C.U.	15	15	12	8
Boron	mg/l	1	<0.5	<0.5	<0.5
Sulfide	mg/l		<0.1	<0.1	
INORGANIC PARAMETERS:					
Aluminum	mg/l	0.1	3.18	3.61	<0.1
Antimony	mg/l	0.003	<0.015	<0.015	<0.015
Arsenic	mg/l	0.025	<0.010	0.0121	<0.10
Barium	mg/l	1	0.0848	0.113	0.0692
Beryllium	mg/l	0.003	<0.003	<0.003	<0.003
Cadmium	mg/l	0.01	<0.005	<0.005	<0.005
Calcium	mg/l		56.2	68.5	64.3
Chromium	mg/l		<0.005	<0.005	<0.005
Hexavalent Chromium	mg/l	0.05	<0.010	<0.010	<0.010
Cobalt	mg/l	0.005	<0.02	<0.02	<0.020
Copper	mg/l	0.2	0.0155	0.0202	<0.010
Total Cyanide	mg/l	0.1	<0.010	<0.010	<0.010
Iron	mg/l	0.3	6.89	8.04	0.535
Lead	mg/l	0.025	0.00782	0.00863	<0.003
Magnesium	mg/l	35	8.72	10.6	8.76
Manganese	mg/l	0.3	0.232	0.275	0.153
Mercury	mg/l	0.002	<0.0002	<0.0002	<0.0002
Nickel	mg/l	0.007	<0.030	<0.030	<0.030
Potassium	mg/l		1.09	1.28	<1
Selenium	mg/l	0.01	<0.005	<0.005	<0.005
Silver	mg/l	0.05	<0.010	<0.010	<0.010
Sodium	mg/l	20	4.73	5.77	4.44
Thallium	mg/l	0.004	<0.010	<0.010	0.0228
Vanadium	mg/l	0.014	<0.030	<0.030	<0.030
Zinc	mg/l	0.3	0.0297	0.034	0.0665
ASP PEST/PCB WATERS	ug/l	Varies	<MDL	<MDL	NA
CHLORINATED HERBICIDES	ug/l	Varies	<MDL	<MDL	NA
ORGANIC PARAMETERS:	ug/l	Varies			
Bis 2(ethylhexyl)phthlate			10	<MDL	<MDL

Notes:

1. Parameters listed are Part 360 Baseline or Routine Parameters Effective 1993.
2. Blanks indicate no analysis performed
3. "<" indicates not detected at the specified method detection limit (MDL)

TABLE 5-1
Groundwater Analytical Monitoring Data
Eastern Expansion Area Monitoring Wells
City of Albany Landfill
Rapp Road, Albany, New York
CHA Project No. 12206

Monitoring Well MW-14D

TEST PARAMETER (mg/l unless otherwise noted)	Unit	TOGS Guidance Value	Jan-07A Expanded	Jan-07B Expanded	Apr-07 Baseline
Temperature	C°		7.53	7.53	8.57
Conductivity	uS		188	188	205
pH	SU	6.5-8.5	8.32	8.32	8.39
Eh	mV		-4.9	-4.9	-14.1
Turbidity (after purging well)	N.T.U	5	101	90	2.68
LEACHATE INDICATORS:					
Ammonia Nitrogen	mg/l	2	<0.5	<0.5	<0.5
BOD 5	mg/l		<4	<4	<4
Bromide	mg/l	2	<20	<2	<0.2
COD	mg/l		<20	<20	<20
Chloride	mg/l	250	7.38	1.76	4.51
Nitrate	mg/l	10	<0.2	<0.2	<0.2
Sulfate	mg/l	250	<5	<5	<5
Total Alkalinity	mg/l		100	110	110
Total Disolved Solids	mg/l	500	160	88	402
Total Hardness	mg/l		119	111	66.8
Total Kjed. Nitrogen	mg/l		<0.5	<0.5	2.86
Total Organic Carbon	mg/l	500	<3	<3	<3
Total Phenols	mg/l	0.001	<0.005	0.006	<0.005
Color	P.C.U.	15	18	15	7
Boron	mg/l	1	<0.5	<0.5	<0.5
Sulfide	mg/l		<0.1	<0.1	
INORGANIC PARAMETERS:					
Aluminum	mg/l	0.1	2.87	3.42	<0.1
Antimony	mg/l	0.003	<0.015	<0.015	<0.015
Arsenic	mg/l	0.025	<0.010	0.0121	<0.010
Barium	mg/l	1	0.0692	0.067	<0.05
Beryllium	mg/l	0.003	<0.003	<0.003	<0.003
Cadmium	mg/l	0.01	<0.005	<0.005	<0.005
Calcium	mg/l		35.4	32.6	20.3
Chromium	mg/l		<0.005	<0.005	<0.005
Hexavalent Chromium	mg/l	0.05	<0.01	<0.010	<0.010
Cobalt	mg/l	0.005	<0.020	<0.020	<0.020
Copper	mg/l	0.2	0.0211	0.0119	<0.010
Total Cyanide	mg/l	0.1	<0.010	<0.010	<0.010
Iron	mg/l	0.3	5.66	6.53	0.149
Lead	mg/l	0.025	0.00387	<0.003	<0.003
Magnesium	mg/l	35	7.4	7.1	3.94
Manganese	mg/l	0.3	0.203	0.193	0.0234
Mercury	mg/l	0.002	<0.0002	<0.0002	<0.0002
Nickel	mg/l	0.007	<0.030	<0.030	<0.030
Potassium	mg/l		1.16	1.22	<1
Selenium	mg/l	0.01	<0.005	<0.005	<0.005
Silver	mg/l	0.05	<0.010	<0.010	<0.010
Sodium	mg/l	20	16	15	16.3
Thallium	mg/l	0.004	<0.010	<0.010	<0.010
Vanadium	mg/l	0.014	<0.030	<0.030	<0.030
Zinc	mg/l	0.3	0.0378	0.0454	0.0572
ASP PEST/PCB WATERS	ug/l	Varies	<MDL	<MDL	NA
CHLORINATED HERBICIDES	ug/l	Varies	<MDL	<MDL	NA
ORGANIC PARAMETERS:	ug/l	Varies	<MDL	<MDL	<MDL

Notes:

1. Parameters listed are Part 360 Baseline or Routine Parameters Effective 1993.
2. Blanks indicate no analysis performed
3. "<" indicates not detected at the specified method detection limit (MDL)

TABLE 5-1
Groundwater Analytical Monitoring Data
Eastern Expansion Area Monitoring Wells
City of Albany Landfill
Rapp Road, Albany, New York
CHA Project No. 12206

Monitoring Well MW-15S

TEST PARAMETER (mg/l unless otherwise noted)	Unit	TOGS Guidance Value	Jan-07A Expanded	Jan-07B Expanded	Apr-07 Baseline
Temperature	C°		8.99	8.99	6.34
Conductivity	uS		565	565	570
pH	SU	6.5-8.5	6.86	6.86	7.03
Eh	mV		-17.1	-17.1	-59.2
Turbidity (after purging well)	N.T.U	5	464	331	38.1
LEACHATE INDICATORS:					
Ammonia Nitrogen	mg/l	2	2.14	1.99	2.15
BOD 5	mg/l		5	6	4
Bromide	mg/l	2	<2	<2	<20
COD	mg/l		22	32	31
Chloride	mg/l	250	65.2	65.5	50.2
Nitrate	mg/l	10	<0.2	<0.2	<0.20
Sulfate	mg/l	250	40.1	46.7	35.5
Total Alkalinity	mg/l		180	170	150
Total Disolved Solids	mg/l	500	275	322	680
Total Hardness	mg/l		448	452	195
Total Kjed. Nitrogen	mg/l		1.47	2.2	3.6
Total Organic Carbon	mg/l	500	9	26	7.1
Total Phenols	mg/l	0.001	<0.005	<0.005	<0.005
Color	P.C.U.	15	80	70	125
Boron	mg/l	1	<0.005	<0.005	<0.5
Sulfide	mg/l		<0.1	<0.1	
INORGANIC PARAMETERS:					
Aluminum	mg/l	0.1	15.8	19	0.292
Antimony	mg/l	0.003	<0.015	<0.015	<0.015
Arsenic	mg/l	0.025	0.0207	0.0382	<0.010
Barium	mg/l	1	0.139	0.149	0.0636
Beryllium	mg/l	0.003	<0.003	<0.003	<0.003
Cadmium	mg/l	0.01	0.00786	0.0099	<0.005
Calcium	mg/l		139	139	55.9
Chromium	mg/l		0.0284	0.0316	<0.005
Hexavalent Chromium	mg/l	0.05	<0.01	<0.01	<0.01
Cobalt	mg/l	0.005	0.0265	0.0252	<0.020
Copper	mg/l	0.2	0.156	0.135	<0.010
Total Cyanide	mg/l	0.1	<0.01	<0.01	<0.01
Iron	mg/l	0.3	58.1	77.1	9.59
Lead	mg/l	0.025	0.0526	0.0453	<0.003
Magnesium	mg/l	35	24.5	1.25	13.4
Manganese	mg/l	0.3	1.24	1.25	0.658
Mercury	mg/l	0.002	<0.0002	<0.0002	<0.0002
Nickel	mg/l	0.007	0.0539	0.0509	<0.030
Potassium	mg/l		4.65	6.45	3.29
Selenium	mg/l	0.01	<0.005	<0.005	0.00585
Silver	mg/l	0.05	<0.01	<0.010	<0.010
Sodium	mg/l	20	40.1	39.2	36.5
Thallium	mg/l	0.004	<0.01	<0.010	0.018
Vanadium	mg/l	0.014	0.0791	0.0775	<0.030
Zinc	mg/l	0.3	0.147	0.145	0.0561
ASP PEST/PCB WATERS	ug/l	Varies	<MDL	<MDL	NA
CHLORINATED HERBICIDES	ug/l	Varies	<MDL	<MDL	NA
ORGANIC PARAMETERS:	ug/l	Varies	<MDL	<MDL	<MDL

Notes:

1. Parameters listed are Part 360 Baseline or Routine Parameters Effective 1993.
2. Blanks indicate no analysis performed
3. "<" indicates not detected at the specified method detection limit (MDL)

TABLE 5-1
Groundwater Analytical Monitoring Data
Eastern Expansion Area Monitoring Wells
City of Albany Landfill
Rapp Road, Albany, New York
CHA Project No. 12206

Monitoring Well MW-15I

TEST PARAMETER (mg/l unless otherwise noted)	Unit	TOGS Guidance Value	JAN-07A Expanded	JAN-07B Expanded	Apr-07 Baseline
Temperature	C°		8.64	8.64	7.48
Conductivity	uS		406	406	4.44
pH	SU	6.5-8.5	7.9	7.9	7.82
Eh	mV		-129.6	-129.6	-96
Turbidity (after purging well)	N.T.U	5	35.5	18.4	3.64
LEACHATE INDICATORS:					
Ammonia Nitrogen	mg/l	2	<0.5	<0.5	<0.5
BOD 5	mg/l		4	5	7
Bromide	mg/l	2	<2	<2	<0.2
COD	mg/l		<20	<20	<20
Chloride	mg/l	250	30	29.7	29.9
Nitrate	mg/l	10	<0.2	<0.2	<0.2
Sulfate	mg/l	250	37.2	33.1	39.4
Total Alkalinity	mg/l		140	140	140
Total Disolved Solids	mg/l	500	225	160	387
Total Hardness	mg/l		246	320	197
Total Kjed. Nitrogen	mg/l		<0.5	<0.5	1.76
Total Organic Carbon	mg/l	500	3	3	<3
Total Phenols	mg/l	0.001	<0.005	<0.005	<0.005
Color	P.C.U.	15	20	18	10
Boron	mg/l	1	<0.5	<0.5	<0.5
Sulfide	mg/l		<0.1	<0.1	
INORGANIC PARAMETERS:					
Aluminum	mg/l	0.1	5.24	6.52	0.207
Antimony	mg/l	0.003	<0.015	<0.015	<0.015
Arsenic	mg/l	0.025	<0.010	<0.010	<0.010
Barium	mg/l	1	0.138	0.159	0.126
Beryllium	mg/l	0.003	<0.003	<0.003	<0.003
Cadmium	mg/l	0.01	<0.005	<0.005	<0.005
Calcium	mg/l		75.4	96.9	64.5
Chromium	mg/l		0.00684	0.00888	<0.005
Hexavalent Chromium	mg/l	0.05	<0.010	<0.010	<0.010
Cobalt	mg/l	0.005	<0.02	<0.020	<0.020
Copper	mg/l	0.2	0.0157	0.0162	<0.010
Total Cyanide	mg/l	0.1	<0.01	<0.01	<0.010
Iron	mg/l	0.3	11.2	15.4	1.07
Lead	mg/l	0.025	0.00575	0.0062	<0.003
Magnesium	mg/l	35	14.1	18.8	8.82
Manganese	mg/l	0.3	0.452	0.63	0.187
Mercury	mg/l	0.002	<0.0002	<0.0002	<0.0002
Nickel	mg/l	0.007	<0.030	<0.030	<0.030
Potassium	mg/l		1.62	1.59	<1
Selenium	mg/l	0.01	<0.005	<0.005	<0.005
Silver	mg/l	0.05	<0.010	<0.010	<0.010
Sodium	mg/l	20	7.97	9.11	9.44
Thallium	mg/l	0.004	<0.010	<0.010	0.0227
Vanadium	mg/l	0.014	<0.030	<0.030	<0.030
Zinc	mg/l	0.3	0.0542	0.0705	0.231
ASP PEST/PCB WATERS	ug/l	Varies	<MDL	<MDL	NA
CHLORINATED HERBICIDES	ug/l	Varies	<MDL	<MDL	NA
ORGANIC PARAMETERS:	ug/l	Varies	<MDL	<MDL	<MDL

Notes:

1. Parameters listed are Part 360 Baseline or Routine Parameters Effective 1993.
2. Blanks indicate no analysis performed
3. "<" indicates not detected at the specified method detection limit (MDL)

TABLE 5-1
Groundwater Analytical Monitoring Data
Eastern Expansion Area Monitoring Wells
City of Albany Landfill
Rapp Road, Albany, New York
CHA Project No. 12206

Monitoring Well MW-15D

TEST PARAMETER (mg/l unless otherwise noted)	Unit	TOGS Guidance Value	JAN-07A Expanded	JAN-07B Expanded	Apr-07 Baseline
Temperature	C°		8.47	8.47	8.79
Conductivity	uS		208	208	221
pH	SU	6.5-8.5	8.38	8.38	8.26
Eh	mV		29.5	29.5	2
Turbidity (after purging well)	N.T.U	5	840	1290	142
LEACHATE INDICATORS:					
Ammonia Nitrogen	mg/l	2	<0.5	<0.5	<0.5
BOD 5	mg/l		6	<4	<4
Bromide	mg/l	2	<2	<2	0.25
COD	mg/l		<20	<20	<20
Chloride	mg/l	250	3.39	3.14	5.71
Nitrate	mg/l	10	<0.2	<0.2	<0.2
Sulfate	mg/l	250	<5	<5	<5
Total Alkalinity	mg/l		110	110	110
Total Disolved Solids	mg/l	500	157	150	232
Total Hardness	mg/l		5270	2220	181
Total Kjed. Nitrogen	mg/l		<0.5	<0.5	<0.5
Total Organic Carbon	mg/l	500	17	32	10.5
Total Phenols	mg/l	0.001	<0.005	<0.005	<0.005
Color	P.C.U.	15	120	100	10
Boron	mg/l	1	<0.5	<0.50	<0.50
Sulfide	mg/l		<0.1	<0.1	
INORGANIC PARAMETERS:					
Aluminum	mg/l	0.1	139	99.2	6.09
Antimony	mg/l	0.003	<0.015	<0.015	<0.015
Arsenic	mg/l	0.025	0.0952	0.0598	0.0138
Barium	mg/l	1	0.951	0.822	0.0918
Beryllium	mg/l	0.003	0.00659	0.00502	<0.003
Cadmium	mg/l	0.01	0.0446	0.0298	<0.005
Calcium	mg/l		1460	629	53.2
Chromium	mg/l		0.176	0.129	0.00838
Hexavalent Chromium	mg/l	0.05	<0.010	<0.010	<0.010
Cobalt	mg/l	0.005	0.141	0.1	<0.020
Copper	mg/l	0.2	0.406	0.302	0.016
Total Cyanide	mg/l	0.1	<0.010	<0.010	<0.010
Iron	mg/l	0.3	303	220	12.4
Lead	mg/l	0.025	0.105	0.0767	0.00502
Magnesium	mg/l	35	246	158	11.7
Manganese	mg/l	0.3	9.54	6.83	0.416
Mercury	mg/l	0.002	<0.0002	<0.0002	<0.0002
Nickel	mg/l	0.007	0.281	0.198	<0.030
Potassium	mg/l		17.1	12	13.9
Selenium	mg/l	0.01	<0.005	<0.005	<0.005
Silver	mg/l	0.05	<0.010	<0.010	<0.010
Sodium	mg/l	20	10.8	12.3	13.9
Thallium	mg/l	0.004	<0.010	<0.010	<0.0238
Vanadium	mg/l	0.014	0.289	0.206	<0.030
Zinc	mg/l	0.3	0.842	0.628	0.144
Aluminum (Dissolved)	mg/l	0.1			<0.1
Antimony (Dissolved)	mg/l	0.003			<0.015
Arsenic (Dissolved)	mg/l	0.025			0.0185
Barium (Dissolved)	mg/l	1			<0.05
Beryllium (Dissolved)	mg/l	0.003			<0.003
Cadmium (Dissolved)	mg/l	0.01			<0.005
Calcium (Dissolved)	mg/l				23.9
Chromium (Dissolved)	mg/l				<0.005
Cobalt (Dissolved)	mg/l	0.005			<0.020
Copper (Dissolved)	mg/l	0.2			<0.010
Iron (Dissolved)	mg/l	0.3			0.105
Lead (Dissolved)	mg/l	0.025			<0.003
Magnesium (Dissolved)	mg/l	35			3.77
Manganese (Dissolved)	mg/l	0.3			0.0607
Mercury (dissolved)	mg/l	0.002			<0.0002
Nickel (Dissolved)	mg/l	0.007			<0.030
Potassium (Dissolved)	mg/l				<1
Selenium (Dissolved)	mg/l	0.01			<0.005
Silver (Dissolved)	mg/l	0.05			<0.010
Sodium (Dissolved)	mg/l	20			13.4
Thallium (Dissolved)	mg/l	0.004			0.0157
Vanadium (Dissolved)	mg/l	0.014			<0.030
Zinc (Dissolved)	mg/l	0.3			0.051
ASP PEST/PCB WATERS	ug/l	Varies	<MDL	<MDL	NA
CHLORINATED HERBICIDES	ug/l	Varies	<MDL	<MDL	NA
ORGANIC PARAMETERS:	ug/l	Varies	<MDL	<MDL	<MDL

Notes:

1. Parameters listed are Part 360 Baseline or Routine Parameters Effective 1993.
2. Blanks indicate no analysis performed
3. "<" indicates not detected at the specified method detection limit (MDL)

APPENDIX A

Site Investigation Work Plan – Proposed Eastern Expansion Area

Draft Hydrogeologic Investigation Work Plan

Proposed East Side Expansion

City of Albany Rapp Road Solid Waste Management Facility

CHA Project Number: 12206

Prepared for:

The City of Albany, New York

Prepared by:

Clough, Harbour & Associates LLP
III Winners Circle
Albany, New York 12205
(518) 453-4500

CLOUGH HARBOUR & ASSOCIATES LLP

November 17, 2006

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1.0 INTRODUCTION

1.1 General

Clough, Harbour & Associates LLP (CHA) was retained by the City of Albany to provide hydrogeologic and geotechnical engineering services in support of the proposed expansion for the Rapp Road Landfill, which is located in the City of Albany, Albany County, New York (Figure 1-1). All aspects of these services are being provided in accordance with the New York State Department of Environmental Conservation (NYSDEC) 6 NYCRR Part 360 regulations (Part 360 regulations).

As part of this project, the City of Albany is seeking to expand the existing landfill footprint to the area located north and east of the existing area known as the Albany Interim Landfill (AIL) and to the north of the area known as the closed Greater Albany Landfill (GAL). Figure 1-1 illustrates the location of the existing facility and the proposed landfill expansion area. The proposed expansion will result in an additional landfill cell footprint area of approximately 16 acres, and a total disturbance area of approximately 19 acres including the functional landfill and support facilities and infrastructure. As illustrated by Figure 1-1, the area of the proposed expansion minimizes the expansion on previously undisturbed lands by "piggy-backing" the expansion on top of portions of the existing AIL.

This Site Investigation Work Plan (the Work Plan) was specifically prepared to satisfy the requirements of the site investigation plan as outlined in Part 360-2.11(a). This report details the site investigation activities and associated methods that will be used to investigate the hydrogeologic conditions at the site. It is anticipated that the investigation activities presented in this document will generate the technical information necessary to prepare the Hydrogeologic Report that will be submitted with the City's application for a Part 360 Permit modification.

It should be noted that substantial hydrogeologic data has been accumulated for the Rapp Road facility and the area in the vicinity of the proposed expansion area as part of previous hydrogeologic investigations for the existing AIL and the closed GAL, which is located

immediately adjacent to the AIL. Groundwater quality data continues to be collected on a quarterly basis for both the AIL and the GAL facilities. As a result, the objective of this Work Plan is to summarize the data collected to date and to present the supplemental investigation activities, including methodologies that will be conducted at the site to further define the hydrogeologic conditions relative to the expansion area. Again, in accordance with Part 360 regulations, a final Hydrogeologic Report will be submitted as part of the permit application along with the final version of the Site Investigation Work Plan.

1.2 Report Organization

The Hydrogeologic Investigation Work Plan is organized as follows:

Section 1.0 presents the Introduction;
Section 2.0 presents the Project Background;
Section 3.0 presents the Site Setting;
Section 4.0 presents the Investigation Activities/Investigation Methods;
Section 5.0 presents the Project Schedule; and
Section 6.0 presents a summary of the references used in preparation of this Work Plan.

1.3 Personnel

The key personnel for CHA will be the Project Manager, Frank LaVardera, the Design Engineer, Warren Harris, P.E., and the Project Geologist, Keith Cowan, C.P.G. All formal communication for the project will be made directly between the City of Albany, and the NYSDEC. The table on the following page indicates the people that will be involved in the project and their respective responsibilities:

Project Team and Responsibilities

Name	Affiliation	Telephone No.	Responsibility
Mr. Willard Bruce	City of Albany	(518) 427-7484	Client/City of Albany
Ms. Ruth Leistensnider	Nixon Peabody	(518) 427-2650	Attorney for the City
Theodore J. Robak	NYSDEC	(518) 357-2045	NYSDEC Geologist
Mr. Thomas Reynolds, P.E.	NYSDEC	(518) 357-2071	NYSDEC Engineer
Richard Forgea, P.E.	NYSDEC	(518) 357-2243	NYSDEC Engineer
William Clarke	NYSDEC	(518) 357-2455	NYSDEC Permit Administrator
Frank LaVardera	CHA	(518) 453-3936	CHA Project Manager
Warren Harris, P.E.	CHA	(518) 453-4571	Design Engineer
Keith Cowan, C.P.G.	CHA	(518) 453-2899	Project Geologist

2.0 BACKGROUND

2.1 Site Description

The existing Rapp Road Solid Waste Management Facility, including the AIL and associated Phase 4 expansion project (P-4 Project), is located on Rapp Road, adjacent to the former Greater Albany Sanitary Landfill (a.k.a. GAL and/or the Rapp Road landfill). The Rapp Road landfill facility is located on the northeast side of the Interstate I-90, just west of the Exit 24/I-87 interchange. The proposed expansion area is located to the north and east, immediately adjacent to the AIL. As previously noted, the expansion area will consist of an additional landfill footprint area of approximately 16 acres and a total disturbance of approximately 19 acres (Figure 2-1). The proposed expansion area is bounded by the AIL and GAL to the south-southwest and west, vacant forested lands to the east, and a residential trailer park and vacant forested lands to the north.

At this time, the site is accessible from the south and east via the existing access road for the Rapp Road Landfill, which is located off of Washington Avenue Extension and Rapp Road. It is anticipated that only improvements to the existing access roads and the construction of a perimeter access road for the expansion area will be required to facilitate access to the expansion area. With the exception of relocating the alignment of the existing main entrance to the facility, no additional access roads off of major thoroughfares are proposed for the expansion area.

2.2 Previous Site Investigations

Historically, numerous hydrogeologic investigations have been performed relative to the existing Rapp Road Solid Waste Management Facility including the AIL, the P-4 Project, and the closed Greater Albany Sanitary Landfill, and the area in the vicinity of the proposed expansion. These investigations have been conducted at the site to characterize the geology and hydrogeology for various closure and expansion projects related to the Rapp Road Solid Waste Management

Facility. These studies have generated significant hydrogeologic data that is documented in the following reports:

- *Rapp Road Sanitary Landfill Expansion (AIL), 6 NYCRR Part 360 Application and 6 NYCRR Part 617 Draft Environmental Impact Statement*; Malcolm Pirnie, August 1988
- *Engineering Investigations at Inactive Hazardous Waste Sites, Phase II Investigations at the Albany City Landfill (GAL);* Engineering-Science, March 1991
- *Final Hydrogeologic Report, Greater Albany Sanitary Landfill (GAL);* Smith and Mahoney, April 1991
- *Supplemental Draft Environmental Impact Statement (SDEIS), Albany Interim Landfill (AIL Permit Renewal), Volumes 1 and 2, and Response to Comments (FEIS) document;* C.T. Male Associates, P.C., October 1994 and May 1995
- *6 NYCRR Part 360 Application, Albany Interim Landfill Expansion (Wedge);* C.T. Male Associates, P.C.; March 1996.
- *Part 360 Application to Construct and Operate a Solid Waste Management Facility, P-4 Expansion Project Landfill Expansion*; C.T. Male Associates, P.C.; July 1999

Based on the information presented in the July 1999 Part 360 Application to Construct and Operate a Solid Waste Management Facility; P-4 Project Landfill Expansion, a summary of the previous investigations is presented in the following sections of this document.

2.2.1 Greater Albany Sanitary Landfill Investigations

The Greater Albany Landfill was the first operational landfill at the Rapp Road facility. The GAL was originally listed by NYSDEC as an Inactive Hazardous Waste Site. In 1991, however, a Phase II Investigation was conducted to assess the contamination present at the site and determine if the GAL should in fact be included as an Inactive Hazardous Waste Site. The findings were presented in the March 1991 report entitled *Engineering Investigations at Inactive Hazardous Waste Sites, Phase II Investigations at the Albany City Landfill*, which concluded that that there was no documentation that hazardous wastes have been disposed of at the GAL. In addition to the Phase II Report, a Hydrogeologic Report was also prepared in April of 1991 in

association with the closure investigation for the GAL. As a result of the Phase II investigation, the GAL was removed from the NYSDEC Registry of Inactive Hazardous Waste Sites (C.T. Male, 1999). The landfill was subsequently closed in accordance with Part 360 regulations.

As part of the post-closure monitoring activities for the GAL, there is currently nine groundwater monitoring wells for the GAL facility. These wells include:

- MW-1
- MW-2
- MW-3
- GW-1D (Upgradient Well)
- GW-2D
- GW-4D
- GW-4S
- GW-5D
- GW-5S

The location of these wells is illustrated by Figure 2-2. Groundwater quality monitoring has continued at the GAL facility since the closure of the facility. Laboratory results for the initial water quality monitoring event are contained within the Phase II Investigation Report (Engineering-Science, 1991). Post-closure water quality monitoring data has been and is currently reported to NYSDEC in quarterly monitoring reports. For reference, the most recent water quality monitoring data for the GAL from March 2003 to present is included as Appendix A.

2.2.2 Albany Interim Landfill Investigations

Prior to construction of the AIL in 1991, detailed geologic and hydrogeologic information relative to the Rapp Road site was presented in the Part 360 Application and Draft Environmental Impact Statement entitled *Rapp Road Sanitary Landfill Expansion (AIL) 6 NYCRR Part 360 Application and 6 NYCRR Part 617 Draft Environmental Impact Statement* prepared by Malcolm Pirnie, August 1988.

Due to the construction of various phases of the AIL expansion and P-4 Project, a number of well clusters have been abandoned, while additional well clusters were installed in support of

several landfill expansion areas. Prior to constructing the first AIL expansion between the AIL and GAL (known as the Wedge) the AIL had a total of seven (7) monitoring well clusters (MW-1 through MW-7) located around the perimeter of the AIL. The location of the original AIL and Wedge, and the associated monitoring well locations are illustrated by Figure 2-2. Each well cluster consisted of a shallow intermediate and deep monitoring well. To accommodate the landfill expansion, in December 1996 two AIL well clusters (MW-5 and MW-6) were abandoned in accordance with the 6 NYCRR Part 360 regulations (C.T. Male, 1999). As a result of the abandonment of these wells, a new well cluster was installed southeast of the Wedge designated MW-8. Monitoring well cluster MW-8 has since been abandoned as part of the P-4 expansion project, which is further discussed in Section 2.2.3. Groundwater quality monitoring including pre-operational and operational monitoring has been conducted since October 1986 for the AIL and Wedge and subsequent expansion with the P-4 Project. (C.T. Male, 1999).

All monitoring well clusters installed as part of the AIL and Wedge are generally consistent in terms of the screened interval. The shallow monitoring well clusters were installed in an upper sand unit and designed to monitor the shallow water table aquifer. The intermediate wells were installed with the screens set to monitor a silty sand/sandy silt formation. The deep monitoring wells were installed to monitor a silty clay/clayey silt unit, which overlies the confining clay unit. A detailed description of the site specific hydrogeology and groundwater quality for the entire Rapp Road site is provided in Section 3.0 of this document.

2.2.3 P-4 Expansion Project Investigations

In 1998, several additional investigations were conducted for the P-4 expansion project to further characterize the hydrogeology for the expansion area. These investigations focused on the P-4 expansion project footprint, which is located to the east of the limits of the AIL and Wedge (Figure 2-1).

The investigations conducted for the P-4 Project included a seismic survey, the installation of test borings, and the installation of additional monitoring well clusters and single shallow well

locations. The following description of the P-4 expansion project investigations is taken from the Part 360 Permit Application for the P-4 Project that was prepared by C.T. Male in 1999.

From December 1997 to January 1998, four test borings were installed within the proposed P-4 expansion area. The locations of the borings are presented on Figures 2-2 and 2-3. Boring P4-B1 was advanced to a depth of approximately 112.5 feet. A grouted steel casing was then installed at this location to facilitate a downhole geophysical survey. Results from the geophysical survey indicate that shear wave velocities increase with depth from 450 ft/sec to 1,000 ft/sec. The compressional wave velocity profile was defined as two distinct layers including the upper unsaturated sand and the lower saturated unit having compressional wave velocities of 2,850 ft/sec and 4,800 ft/sec, respectively (C.T. Male, 1999).

Three additional shallow borings (P4-B2 through P4-B4) were installed and converted into shallow monitoring wells designated as P4 MW-1S through P4 MW-3S, respectively (Figure 2-3). These borings were installed to further assess the shallow site stratigraphy and to define the seasonally high water table in the P-4 footprint. The depths of these monitoring wells ranged from 20 to 37 feet below ground surface. These wells have since been abandoned with the construction of the P-4 project.

In addition to the shallow monitoring wells, three new well clusters (MW-9, MW-10, and MW-11), each consisting of a shallow, intermediate, and deep monitoring well were installed to increase the monitoring network to include the P-4 project expansion area. These wells were installed in July 1998. The screened intervals for these wells were set to monitor the same stratigraphic sections as the wells that were installed for the AIL and Wedge.

As a result of additional expansion activites, monitoring well cluster MW-11 was abandoned in accordance with Part 360 regulations and an additional cluster (MW-12) was installed to provide an additional monitoring location for the expansion area.

Existing AIL and P-4 Project Groundwater Monitoring Network Summary

As outlined in the previous sections of this document, numerous monitoring wells were installed and/or abandoned in accordance with Part 360 regulations as various phases of expansion were completed. The current monitoring network (as of the second quarter of 2005) for the AIL, Wedge, and P-4 project includes the following well locations:

- MW-1S, MW-1I, MW-1D
- MW-2S, MW-2I, MW-2D
- MW-7S, MW-7I, MW-7D
- MW-9S, MW-9I, MW-9D
- MW-10S, MW-10I, MW-10D
- MW-12S, MW-12I, MW-12D

A summary of the above wells including individual screened intervals and monitored stratigraphic sections is provided in Table 2-1. Table 2-1 also lists the previously installed wells, which have since been abandoned in accordance with Part 360 regulations. Operational water quality monitoring for the AIL/Wedge and P-4 project has been, and continues to be, performed in accordance with Part 360 regulations. Current water quality monitoring data for the existing monitoring well network is provided as Appendix B. A detailed evaluation of the operational water quality including a comparison with the data that will be collected from the proposed expansion area will be provided in the Hydrogeologic Report.

3.0 SITE SETTING

3.1 Site Topography and Surface Water Drainage

The majority of the proposed expansion area (herein referred to as the site) is comprised of relatively flat and/or low to moderate-relief areas. According to recent topographic mapping, the elevation across the expansion area varies from approximately 300 to 340 ft. above mean sea level (AMSL). The most significant topographic feature is a moderate slope located along the northeast boundary of the proposed expansion area. This slope trends to the north by northeast and extends to a generally flat are at the northwest extent of the proposed expansion area.

The project site lies approximately one-half mile northwest of Rensselaer Lake. Surface water from the eastern portion of the existing AIL is directed to the north and east towards a small tributary to Rensselaer Lake. The proposed expansion area is located to the east of the existing AIL. Surface water in this area is expected to drain into the same unnamed tributary to Rensselaer Lake. The entire site is classified as a zone of minimal flooding and is located outside the 100-year floodplain.

3.2 Regional Geology

3.2.1 Unconsolidated Deposits and Glacial Geology

The site lies within the Hudson-Champlain Lowland physiographic province of New York State, which was once occupied by the Hudson Lobe of the Laurentide ice sheet during the Woodfordian State of the Wisconsin Glaciation (Dineen 1982). This last major episode of glaciation occurred during the Pleistocene Age. This most recent most recent ice age is responsible for much of the current surficial geologic features in the Albany area.

As advancing glaciers scoured the preglacial land surface, sediments and debris were entrained in the glacial ice sheet, transported for some distance, and eventually deposited as unconsolidated materials overlying the bedrock surface. Some of these materials were deposited directly by the ice sheet (ice-contact deposits) and some were sorted and deposited in layers by meltwater streams and lakes. As the glaciers retreated and deposited sediment loads into

moraines that blocked surface water flow, a series of proglacial lakes were formed, one of which was glacial Lake Albany (C.T. Male 1999).

Eventually, glacial Lake Albany drained completely and the wind action created a dune field on the former lake floor between Schenectady and Albany north to Glens Falls. The dunes were built from drifting sands derived from the deltas and the lake floor. The dune fields that were located within the western arm of the former glacial Lake Albany plain is known as the Pine Bush Dune Field (Isachsen and others, 1991). The surficial deposits within the Pine Bush dune field consist primarily of dune sand or Lake Albany sand deposits. The dune sand deposits are characterized as cross-bedded loose, light yellow to brown sand. The Lake Albany surficial sand deposits on the other hand are characterized as laminated, and compact yellow sands. The project site is located within the Pine Bush Dune field and the near surface deposits are expected to consist of either dune sands and/or Lake Albany sands.

3.2.2 Bedrock Geology

According to the *Generalized Bedrock Geology of Albany County, New York* (Fickies, 1982), the bedrock located beneath the project site consists of the Snake Hill Shale. The Snake Hill Shale is described as medium to dark-gray, silty, micaceous, pyretic shales with occasional thin interbeds of siltstones, fine-grained calcareous mudstone, and fine-grained sandstones, intensely folded and well cleaved. Based on the report entitled *Bedrock Topography and Glacial Geology of the Colonie Channel Between Saratoga Lake and Coeymans, New York;* (Dineen & Hanson, 1983), the depth to bedrock is expected to exceed 125 feet below ground surface in the vicinity of the proposed expansion area.

3.3 Site Geology

3.3.1 Surficial Geology and Overburden Stratigraphy

The objective of this Work Plan is to provide a description of the activities that will be conducted to define the subsurface stratigraphy for the proposed expansion area. However, it is not

anticipated, based on regional geologic conditions, that the conditions will vary significantly when compared to the existing AIL and P-4 project. The geologic description described herein is based on the previous investigation data collected for the AIL and P-4 project, which was summarized in the July 1999 *Part 360 Application to Construct and Operate a Solid Waste Management Facility; P-4 Project Landfill Expansion*, prepared by C.T. Male.

Based on subsurface boring logs prepared during previous investigations, the subsurface geology for the existing AIL and P-4 project generally consists of fine sand deposits overlying a sandy silt/silty sand unit, followed by a clayey silt/silty clay unit that overlies a confining clay unit. To illustrate the subsurface geology in the vicinity of the Rapp Road facility, three cross-sections have been developed based on existing subsurface soil boring data for the facility. These cross sections are illustrated in plan view by Figure 3-1. Cross-section A-A', B-B', and C-C' are illustrated by Figures 3-2, 3-3, and 3-4. With the exception of the clay confining unit, the above hydrostratigraphic units make up the monitored stratigraphic section for the AIL, Wedge, and P4 project. A tabulated summary of the subsurface stratigraphy observed at each monitoring well cluster location is provided in Table 3-1.

Based on a review of existing subsurface logs, the shallow, surficial sand unit ranges in thickness across the existing landfill facilities from approximately 20 feet at well cluster MW-1, to 40 feet at well cluster MW-2. The fine sand unit is generally described as brownish gray, fine sand with trace to little amounts of silt. The intermediate silty sand/sandy silt unit was encountered at depths ranging in depth from approximately 20 to 40 feet and varied in thickness from 33 to 58 feet at well cluster locations MW-4 and MW-3, respectively. The intermediate stratigraphic unit has been characterized as a gray fine sand with trace silt to a gray clayey silt with trace fine sand.

The deep stratigraphic section, located above the clay confining unit has been characterized as an often varved gray silty-clay or gray silt with trace sand and clay. The thickness of this unit ranges in thickness from 15 feet at well cluster MW-3 to 38 feet at well cluster MW-11.

The above stratigraphic sections are consistent with the expected geology considering the depositional environment and regional geology. The brown fine sands are consistent with the pine bush sand dune deposits, while the deeper silty sand/sandy silt units and confining clays are consistent with deposition associated with glacial Lake Albany.

3.3.2 Bedrock Geology

The bedrock located beneath the project site consists of the Snake Hill Shale. The Snake Hill Shale is described as medium to dark-gray, silty, micaceous, pyretic shales with occasional thin interbeds of siltstones, fine-grained calcareous mudstone, and fine-grained sandstones, intensely folded and well cleaved.

It is reported that bedrock in the GAL, AIL, and P-4 areas lies approximately 100 to 150 feet bgs, which is consistent with regional mapping (Dineen & Hanson, 1983). However, no soil borings have been drilled to bedrock at the GAL, AIL, or P-4 over the past several years (C.T. Male, 1999).

3.4 Hydrogeology

3.4.1 General

The stratigraphic units discussed in Section 3.3 can also be classified based on their hydrogeologic properties as hydrostratigraphic units (water-bearing units). Generally, water-bearing units consist of geologic formations that are able to transmit water (e.g. fractured bedrock and permeable overburden units). Confining units consist of geologic media such as silt and clay, which are not able to transmit appreciable amounts of water.

As outlined previously in this document, the three hydrostratigraphic units currently monitored at the AIL, Wedge, and P-4 project include the shallow water bearing sand unit, the intermediate silty sand/sandy silt unit, and the silty clay/clayey silt unit that overlies the confining clay.

It is reported that hydraulic conductivity values for the underlying clay confining unit range from 0.019 to 0.105 ft/day ($6.7x10^{-6}$ to $3.7x10^{-5}$ cm/sec). The silty clay unit located directly above the confining clay unit has a reported conductivity of 0.067 ft/day ($2.36x10^{-5}$ cm/sec), while the silty sand (intermediate interval) has a conductivity of 0.026 ft/day ($9.17x10^{-6}$ cm/sec). Hydraulic conductivity values for the upper sand unit (shallow interval) average 50 ft/day ($1.76x10^{-2}$ cm/sec) (C.T. Male, 1999).

3.4.2 Groundwater Elevation and Flow Direction

Groundwater elevation data has been collected on a quarterly basis for the Rapp Road facility (GAL, AIL, Wedge, and P-4 project) since the early 1990's and reported to NYSDEC with the quarterly operational water quality monitoring reports. Groundwater elevation data for the previous three years for both the AIL and GAL is included as Tables 3-2 and 3-3, respectively. Graphical illustrations for the groundwater elevations in the shallow, intermediate, and deep monitoring wells for the AIL is provided in Figures 3-5, 3-6, and 3-7, respectively. Groundwater potentiometric surface contours for the shallow, intermediate, and deep hydrostratigraphic sections for the most recent monitoring year (first quarter 2005 through fourth quarter 2005) are presented as Appendix C.

As illustrated by the groundwater potentiometric surface contour maps, groundwater generally flows in a southeasterly direction for all three flow regimes. This is consistent with historical monitoring data and the information presented in previous investigation reports for the Rapp Road facility. As part of the supplemental investigations for the proposed landfill expansion, additional hydraulic monitoring data will be collected for the expansion area and compared with current data for the existing Rapp Road facility.

It is anticipated that based on the southeast direction of groundwater flow relative to the AIL and GAL, the proposed expansion area is located in a cross-gradient/downgradient direction relative to the local groundwater flow and the location of the GAL and AIL. This condition has the potential to enhance the monitorability of the expansion area as the existing downgradient monitoring wells have been the subject of continued operational monitoring for the AIL. As a result, a comprehensive water quality database has been established, which documents existing water quality. Changes in water quality as a result of future impacts (if any) from the proposed expansion area will be more easily identified given the extensive water quality monitoring database for which to compare future results. As outlined in Section 4.0 of this report two additional well clusters are proposed to be installed to monitor the groundwater quality both downgradient and cross-gradient of the proposed expansion area. However, three existing downgradient and cross-gradient well clusters for the AIL will remain in place and serve as monitoring points for the expansion area. The existing database for these wells will aid in evaluating trends in groundwater both downgradient and cross-gradient of the proposed expansion area. Although two of the well clusters will be abandoned as part of the expansion, the existing water quality data from these well clusters will also provide a significant benefit when evaluating future groundwater quality in the vicinity of the expansion area.

3.4.3 Groundwater Quality

As stated previously, groundwater quality data has been collected for the Rapp Road facility throughout the operation of the AIL, Wedge, and P-4 project. This data is submitted to NYSDEC on a regular basis in Quarterly Water Quality Monitoring Reports.

Water quality data collected to date and previous site investigations have indicated that groundwater quality at the Rapp Road facility has been impacted by the unlined, closed Greater Albany Landfill. Existing water quality has not, however, exhibited any impacts attributable directly to the existing AIL, Wedge, and/or P-4 project. As part of the proposed investigation activities outlined in Section 4.0, additional crossgradient/downgradient monitoring wells will be

installed to evaluate the water quality for the proposed expansion area. No additional upgradient monitoring wells are proposed at this time since the existing upgradient well network is sufficient to monitor the entire AIL, including the proposed expansion area. The data from the proposed additional wells will be compared to the existing water quality data for the AIL, Wedge, and P-4 project to further characterize groundwater quality at the Rapp Road facility and in particular, the proposed expansion area. The monitoring data will also serve as the basis for establishing pre-operational water quality for the expansion area.

4.0 SCOPE OF WORK - HYDROGEOLOGIC INVESTIGATION

4.1 General

The objective of the hydrogeologic investigation is to define the site geology and hydrogeology for the proposed expansion area and its relation to local characteristics and the regional geology/hydrogeology to establish an environmental monitoring system capable of detecting the potential release of contaminants from the proposed landfill. The purpose of the investigation activities is also to collect an initial round(s) of groundwater samples from the proposed monitoring well network that will be used to evaluate the existing water quality at the site.

As discussed in Section 2.0, previous investigations conducted at the GAL and AIL have generated significant data relative to the areas of geology and hydrogeology. As a result, the objective of this hydrogeologic investigation is to characterize the site specific geology and hydrogeology and critical stratigraphic section relative to the proposed expansion area and determine if the hydrogeologic conditions are consistent with the data presented in the previous investigation reports for the GAL and AIL. In addition, it is also anticipated that the necessary groundwater monitoring wells will be installed and sampled during the investigation program to evaluate pre-operational water quality and establish the operational monitoring network for the expansion area. It is anticipated that due to construction of the proposed expansion, monitoring well clusters MW-7 and MW-12 will need to be abandoned. Well clusters MW-2, MW-9, and MW-10 will remain and will be utilized for monitoring of the existing AIL and the propsed expansion area. There is a potential that monitoring wells MW-2 and MW-10 may have to be relocated during the construction of the proposed landfill cell. If these wells will need to be relocated, the existing wells will be re-installed in close proximity to their existing locations and established EWQVs are expected to be able to be reused. It should be noted, that for permitting purposes these monitoring wells are intended to be used as part of the proposed landfill monitoring network. Any proposed changes will be discussed further in the requisite Environmental Monitoring Plan (EMP) that will accompany the Part 360 permit application.

The following subsections provide a detailed discussion of the activities and tasks that will be completed to adequately define the expansion area's hydrogeologic conditions, and meet the objectives outlined above.

4.2 Health and Safety Program

Prior to conducting any on-site intrusive supplemental investigation activities, CHA will prepare a Site Specific Health and Safety Plan (SSHSP). In general, the plan will include, but will not be limited to the following:

1. Identification of potential hazards during the field activities;
2. Hazard communication;
3. Training;
4. Personal protective equipment;
5. Heat/Cold stress monitoring;
6. Emergency communication;
7. Safety meetings; and
8. Site security.

A copy of the SSHSP will be maintained on-site at all times during the investigation activities. On-site contractors, including subsurface boring/drilling contractors, will be required to provide their own health and safety plan that at a minimum, meets the requirements put forth by the SSHSP

4.3 Comprehensive Literature Search

A comprehensive literature search has been conducted for the site, the results of which were presented in Sections 2.0 and 3.0 of this Work Plan. A supplemental literature search will be conducted as needed to better define the regional and local geology and hydrogeology of the site. As available, the literature search will include reports of the New York State Geological Survey, the United States Geological Survey, the NYSDEC, the New York State Department of Health, the New York State Department of Transportation, the United States Environmental Protection Agency, the Geologic Society of America, the New York State Geologic Association, and pertinent college and university reports. The literature search will be used to supplement the

existing regional and site specific hydrogeologic data presented in Sections 2.0 and 3.0 of this report and the results will be presented in the final Hydrogeologic Report for the site.

4.4 Wetland Delineation

Prior to conducting any on-site intrusive investigation activities, CHA will conduct a wetland survey at the site and identify and delineate wetland areas in the field. The locations of wetlands will be surveyed during the supplemental topographic site survey activities discussed in Section 4.6. The purpose of the wetland delineation is to limit the amount of intrusive activities conducted in these sensitive areas and minimize the potential impacts. This work will be completed in concert with the hydrogeologic investigation activities and submitted to NYSDEC with the Part 360 Permit Application.

4.5 Subsurface Investigation

4.5.1 Soil Borings

To evaluate the hydrogeology in the expansion area, two soil borings (EE-B-1, EE-B-2) will be installed within the proposed landfill expansion area footprint to evaluate the subsurface conditions and characterize the critical stratigraphic section. As previously noted, the proposed expansion minimizes the expansion of the existing footprint to previously undisturbed areas by "piggy-backing" existing landfill areas. The locations of the proposed soil borings are illustrated by Figure 4-1. All soil borings will be installed by a qualified drilling contractor in accordance with Part 360 regulations.

The soil borings will be installed using hollow stem auger (HSA) drilling techniques or by using flush-joint driven casing. During the drilling operations, soil samples will be collected continuously throughout the depth of each boring using split spoon sampling techniques. For each sample, the split spoon sampler will be advanced ahead of the augers or casing by a 140 (±) pound hammer free falling 30 (±) inches. "Blow counts" will be recorded on the boring logs, and indicate the penetration resistance for a six inch advancement of the split spoon. Initially,

the spoon is driven six inches to seat the sampler in undisturbed material. The number of blows required to drive the sampler the next 12 inches is taken as the standard penetration resistance or "N" value. This value is indicative of the soil's in-place compactness or consistency. The final six inch increment that the spoon is driven is not included in the determination of "N". Sampler refusal will be defined as a resistance of greater than 50 blows per six inches of penetration.

All soil samples will be screened in the field by a qualified geologist or engineer. Observations including soil descriptions, texture, color, moisture content, sample recovery, blow counts, and stratigraphic changes will be documented by on-site personnel on subsurface field logs.

Upon completion of each boring, all down-hole equipment will be decontaminated using a high pressure, steam cleaner (i.e. pressure wash) between boring locations.

Prior to completion, the above soil borings will be converted to shallow monitoring piezometers for the purpose of evaluating groundwater levels within the proposed landfill footprint. Each piezometer will be installed in accordance with the procedures outlined in Section 4.4.2; Monitoring Well Installation and Development.

4.5.2 Monitoring Well Installation and Development

To further evaluate the hydrogeologic conditions for the proposed landfill expansion area, a total of 6 additional monitoring wells will be installed adjacent to the proposed expansion area. It is anticipated that the monitoring wells will be installed within two (2) well clusters, each consisting of a shallow, intermediate, and deep monitoring well. Due to the configuration of the proposed expansion area, no additional upgradient monitoring well clusters are proposed. The proposed expansion area is located crossgradient/downgradient of the AIL and therefore, the existing upgradient monitoring well network for the AIL will be sufficient to adequately monitor the upgradient water quality of the AIL and the proposed expansion area. Again, the comprehensive water quality database that has been established for the existing downgradient and crossgradient monitoring well network will enhance the monitor ability of the proposed expansion area as the existing/pre-operational water quality is defined by the existing data.

The proposed new monitoring well clusters include one cross-gradient and one downgradient monitoring well cluster. It is anticipated that existing crossgradient monitoring well cluster MW-2 will be used as a cross-gradient monitoring location to evaluate pre-operational water quality. Since the Part 360 regulations require that cross-gradient wells be installed at a spacing of 1,500 feet or less, one additional well cluster will need to be installed for the expansion area. Similarly, it is anticipated that well clusters MW-9 and MW-10 will also remain in place and serve to establish pre-operational water quality. Due to the Part 360 requirements for downgradient well spacing, one additional downgradient well cluster will also need to be installed along the eastern boundary at the proposed expansion area. It is anticipated that the existing and proposed monitoring well locations will also establish the operational monitoring network for the proposed landfill expansion area. The proposed monitoring well locations are illustrated by Figure 4-2.

Similar to the soil borings, the monitoring wells will be installed using hollow stem auger (HSA) drilling techniques or by the installation of temporary flush joint driven casing. At each well cluster, the deep monitoring well will be installed first. During the installation of the deep monitoring well, soil samples will be collected continuously throughout the depth of the soil boring via split spoon soil sampler and screened in the field by a qualified geologist or engineer. Observations including soil descriptions, texture, color, moisture content, sample recovery, blow counts, and stratigraphic changes will be documented by on-site personnel on subsurface field logs. The subsurface data obtained during the well installation activities will be used to supplement the information obtained from the soil borings that will be installed within the footprint of the expansion area.

Based on existing subsurface boring logs (Appendix D), we anticipate that the deep monitoring wells will be installed to depths on the order of 100 feet bgs, which corresponds to the approximate depth of the clay confining layer. It is anticipated that the actual well depth will be determined based on field conditions and the depth at which the clay confining unit is encountered.

After installation of the deep monitoring well at each well cluster, the intermediate and shallow monitoring wells will be installed using the above described drilling techniques. However, the borings associated with these well locations will be sampled at standard (5-foot) intervals throughout the depth of each boring. The intermediate well will be completed in the silty sand/sandy silt unit. The approximate depth of this unit is anticipated to be on the order of 60 feet bgs. The shallow well will be installed to monitor the shallow, surficial water table. The screen for the shallow well will be set to straddle the water table.

Each monitoring well will be constructed of Schedule 40 PVC riser and a ten foot section of 0.010-inch slot well screen. A #0 Morie sand pack will be placed in the annulus between the well screen and the borehole and extended approximately 1.5 to 2.0 feet above top of the well screen. An approximately six inch interval of #00 fine sand choke will then be placed above the sand pack, followed by a three foot thick bentonite seal. Grout consisting of a cement and bentonite mixture will then be tremied to the surface. A concrete pad will be formed at the surface to complete the monitoring well installations. The monitoring wells will be completed with protective steel casings and locking caps.

After each well is completed, and after the well seal and grout has set, the monitoring wells will be developed to improve the hydraulic efficiency, and provide sediment free groundwater (where possible). In accordance with Part 360 regulations, all of the monitoring wells will be surveyed for location and elevation. The vertical location of the ground surface, a reference mark made on the top of each casing, and the top of the protective casing will be surveyed to the nearest 0.01 foot for each monitoring well. The survey data, including the elevation of the critical stratigraphic section and the screened interval at each well location will be provided in tabular form in the hydrogeologic report.

4.5.3 Monitoring Well Abandonment

As a result of the proposed expansion area several monitoring wells will need to be abandoned to facilitate the construction of the landfill expansion area. These monitoring wells include:

MW-7S	MW-12S
MW-7I	MW-12I
MW-7D	MW-12D

Since the above monitoring wells are currently part of the monitoring network for the AIL, these monitoring wells will not be abandoned as part of the hydrogeologic investigation activities. The abandonment of these wells will be completed as part of the construction activities for the proposed expansion area. Changes in the proposed monitoring network will be further described in the Environmental Monitoring Plan (EMP) for the AIL, which will be submitted as part of the Part 360 Permit Application document package.

The above monitoring wells will be abandoned by overboring and removal of the casing to the extent possible. All casing within the upper five feet of the boring will be removed. The overdrilled borehole will then be sealed by pressure/tremie grouting from the bottom of the boring to a minimum of five feet below the ground surface. The upper five feet of the boring will be backfilled with native soils and compacted to avoid settlement.

4.5.4 Hydraulic Conductivity Testing

To evaluate the in-situ conductivity of the site sediments, in-situ conductivity tests (i.e. slug tests) will be performed for each of the newly installed monitoring wells. Rising and/or falling head slug testing will be performed on each well to estimate the hydraulic conductivity of the unit in which they are installed.

The slug test method involves "instantaneously" raising or lowering the water level in a well to a known depth and measuring the time it takes the water bearing unit to recharge the well. Hydraulic conductivity will then calculated for each test by inputting the collected data into a microcomputer program developed by Geraghty & Miller (AQTESOLV). Methods from Bouwer and Rice (1966) or Hvorslev (1951) will be used to evaluate slug test data for unconfined aquifers.

The hydraulic conductivity measurements will be used to determine the rate of groundwater movement within the unit around the point of measurement. The data collected from this round of testing will be compared to the data collected during previous investigations for the AIL.

4.6 Goundwater Sampling and Water Level Monitoring

4.6.1 Water Level Monitoring

After the monitoring wells are installed, water level measurements will be collected with an electronic water level meter and referenced to the surveyed mark on the top of the PVC riser.

The groundwater elevation data will be used to prepare a groundwater piezometric map and compare the groundwater flow patterns across the proposed expansion area with the existing AIL. Groundwater elevations will be collected on a quarterly basis to evaluate any seasonal trends in groundwater elevations at the site and changes in groundwater flow. The groundwater elevation data, along with observations collected during the soil boring installation program will also be utilized to determine the seasonally high water table for the expansion area.

4.6.2 Groundwater Sampling

Approximately two weeks after the well development activities have been completed, groundwater samples will be collected and analyzed from each of the newly installed monitoring wells, with a minimum of two samples collected from each well during the first sampling event. Pursuant to Part 360 regulations, all groundwater samples collected during the first sampling event will be analyzed for Part 360 expanded parameters.

Prior to sampling, the water level in each well will be measured to the nearest 0.01-foot using an electronic water level indicator and recorded on a Water Level Monitoring Log. After calculating the amount of groundwater in the well casing, approximately three times the volume of stored water in the well casing will be purged prior to obtaining a representative groundwater sample. Care will be taken during the purging process to minimize any disturbance to the water

column in the well. In the event that the well is pumped or bailed dry during the purging process, the well will be allowed to recharge and a representative sample will then be collected. A submersible pump and/or bailer will be utilized to purge the wells and dedicated disposable bailers will be used to collect representative groundwater samples from each well.

During the purging process, CHA will measure field water quality parameters, including pH, temperature, turbidity, specific conductance, and the oxidation-reduction potential (ORP) of the groundwater. A final round of water quality measurements will be taken immediately after collection of the groundwater sample. All groundwater sampling activities will be documented in the field on monitoring well sampling logs that will be used to document the field analyses and sampling effort. In addition, CHA will document the calibration of the water quality instrument on a daily basis.

In accordance with Part 360-2.11(c)(5)(i), the groundwater samples will be submitted to a qualified laboratory certified under the New York State Department of Health Environmental Laboratory Approval Program (ELAP). All samples will be analyzed for the Part 360 expanded parameter listing. For Quality Assurance/Quality Control (QA/QC) purposes, CHA will also submit a field duplicate sample, a trip blank, and a matrix spike/matrix spike duplicate (MS/MSD) sample to the laboratory for analysis. All samples will be packed in ice immediately following sampling and transported to the laboratory with a completed chain of custody.

4.7 Supplemental Topographic Survey

During the hydrogeologic investigation activities, a topographic survey will be completed for the proposed landfill expansion area. All supplemental sampling locations (i.e. monitoring well locations) will be surveyed for both elevation and location. The existing and supplemental survey data will be utilized to develop geologic cross-sections, groundwater piezometric maps, and surficial geologic mapping during the preparation of the Hydrogeologic Report. The updated survey will also include the limits of any wetland boundaries and significant topographic features identified during the hydrogeologic investigation.

5.0 SCHEDULE

The schedule for implementing the supplemental hydrogeologic investigation activities is presented below.

November 27, 2006:	Submit Site Investigation Work Plan to NYSDEC
December 4, 2006:	Initiate Field Activities (Field Activities Completed by May 17, 2006)
January, 2007:	Complete Field Activities
March, 2007:	Submit Hydrogeologic Report to NYSDEC with the Part 360 Permit Application Documents for review and approval.

8.0 REFERENCES

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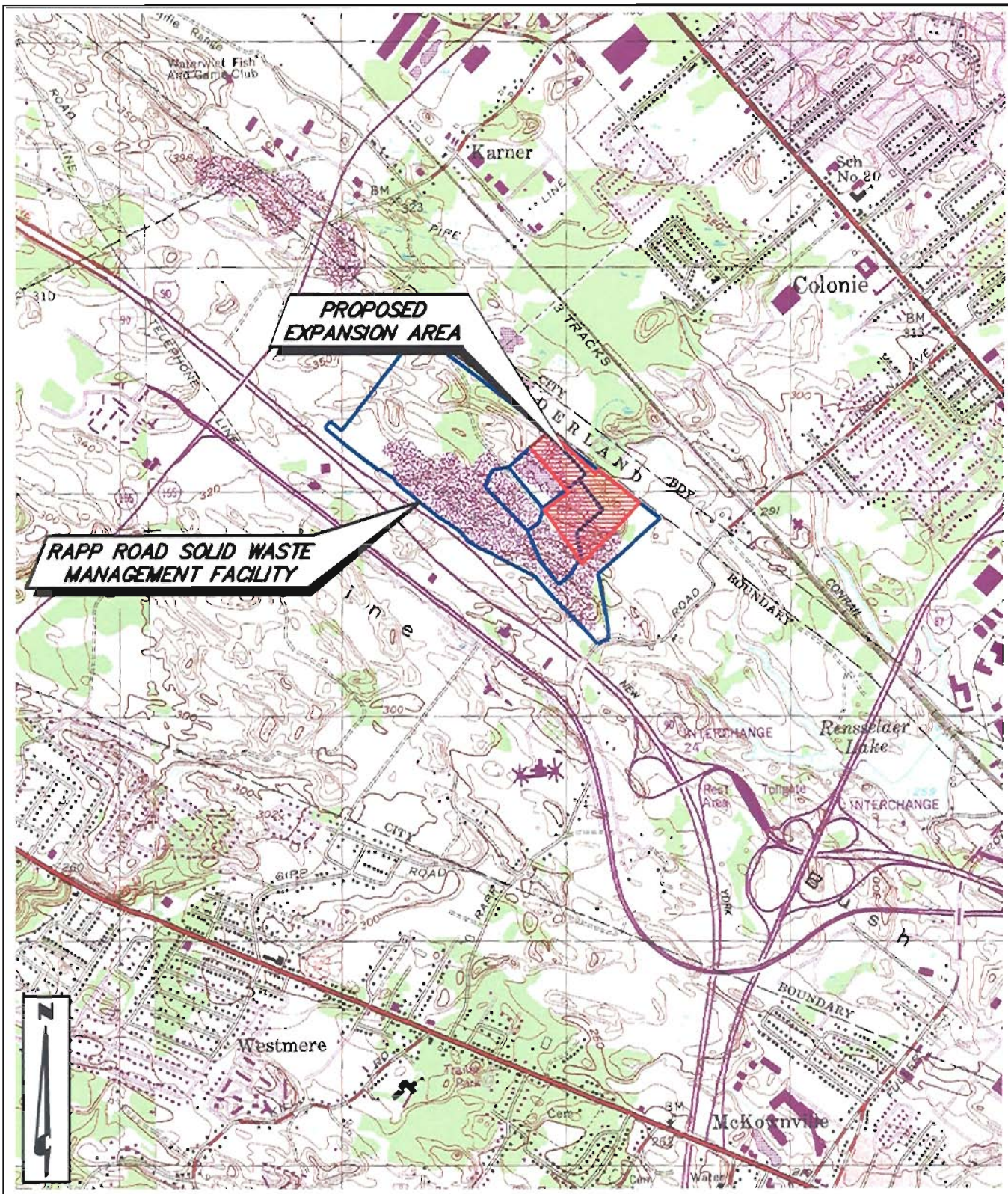
[1] To the best of our knowledge, this document was never submitted to NYSDEC nor was it ever available for public review. CHA obtained this document from the City of Albany.

Waller, R.M., 1983, Ground-Water Potential of the Capital District Buried-Valley Deposits, New York State Museum Map and Chart Series, Number 37.

FIGURES



SOURCE: U.S.G.S. 7.5' Topographic
QUADRANGLE: ALBANY, and VOORHEESVILLE, NY

SCALE: 1"=2000'

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FIGURE 1-1

PROJECT LOCATION MAP

RAPP ROAD SOLID WASTE MANAGEMENT FACILITY
CITY OF ALBANY
STATE OF NEW YORK

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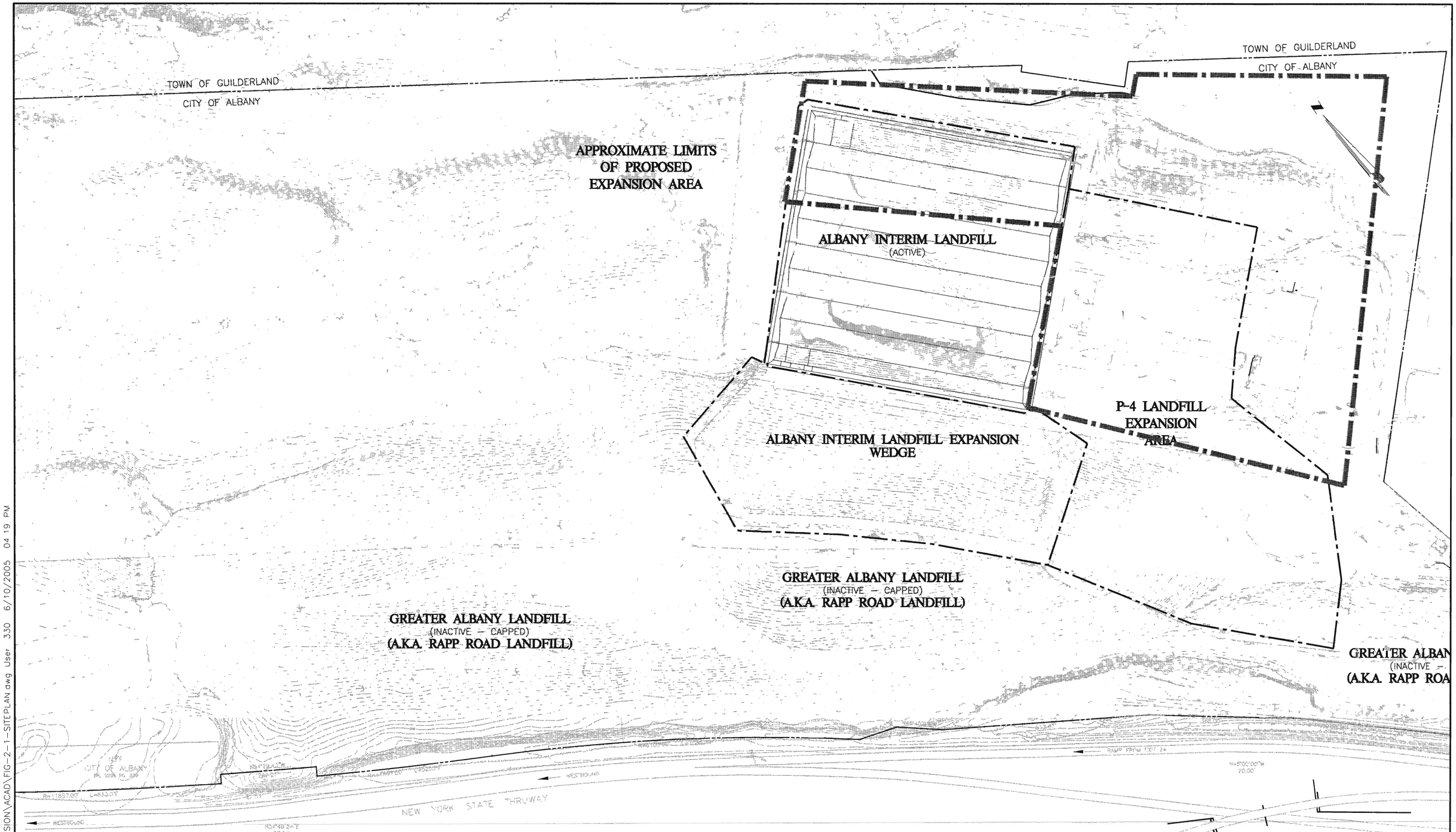

File: K:\12206\EXPANSION\ACAD\FIG-2-1-SITEPLAN.dwg User 330 6/10/2005 04:19 PM

SCALE: 1" = 300'

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FIGURE 2-1
SITE PLAN
PROPOSED EXPANSION AREA
RAPP ROAD SOLID WASTE MANAGEMENT FACILITY
CITY OF ALBANY
STATE OF NEW YORK

LEGEND

MW-1D, MW-1I, MW-1S — ALBANY INTERIM LANDFILL MONITORING WELL CLUSTER

GW1D — GREATER ALBANY/RAPP ROAD LANDFILL MONITORING WELL CLUSTER

MW-1D, MW-1I, MW-1S — ABANDONED MONITORING WELL CLUSTER

MW-1D, MW-1I, MW-1S — MONITORING WELL CLUSTER TO BE ABANDONED

SCALE: 1" = 200'

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FIGURE 2-2
EXISTING MONITORING WELL LOCATION MAP
RAPP ROAD SOLID WASTE MANAGEMENT FACILITY
CITY OF ALBANY
STATE OF NEW YORK

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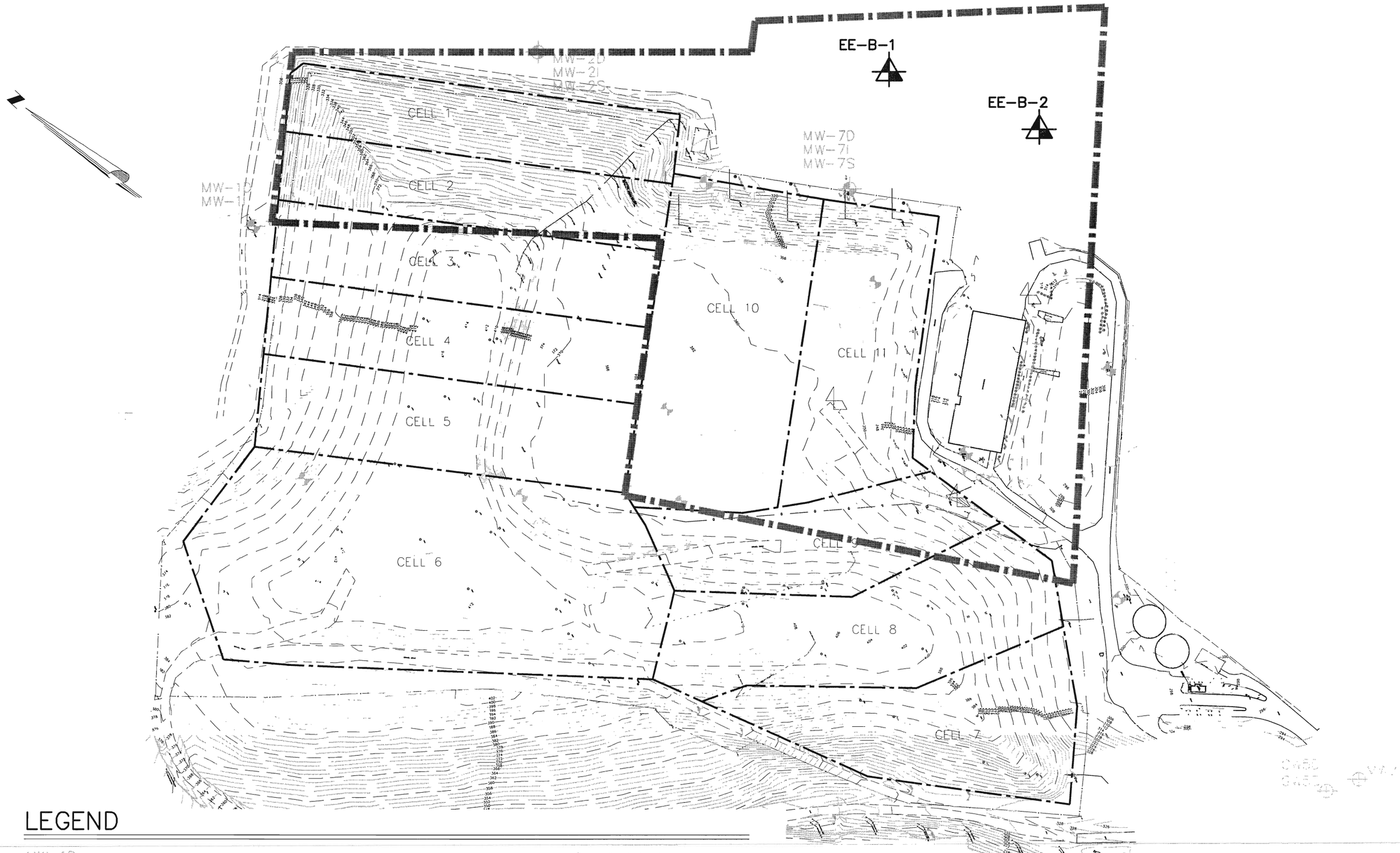

LEGEND

MW-1D MW-1I MW-1S — ALBANY INTERIM LANDFILL MONITORING WELL CLUSTER

MW-1D MW-1I MW-1S — ABANDONED MONITORING WELL CLUSTER

GW1D — GREATER ALBANY/RAPP ROAD LANDFILL MONITORING WELL CLUSTER

P4MW-1S — SUPPLEMENTAL BORING AND SHALLOW MONITORING WELL LOCATION

SCALE: 1" = 200'

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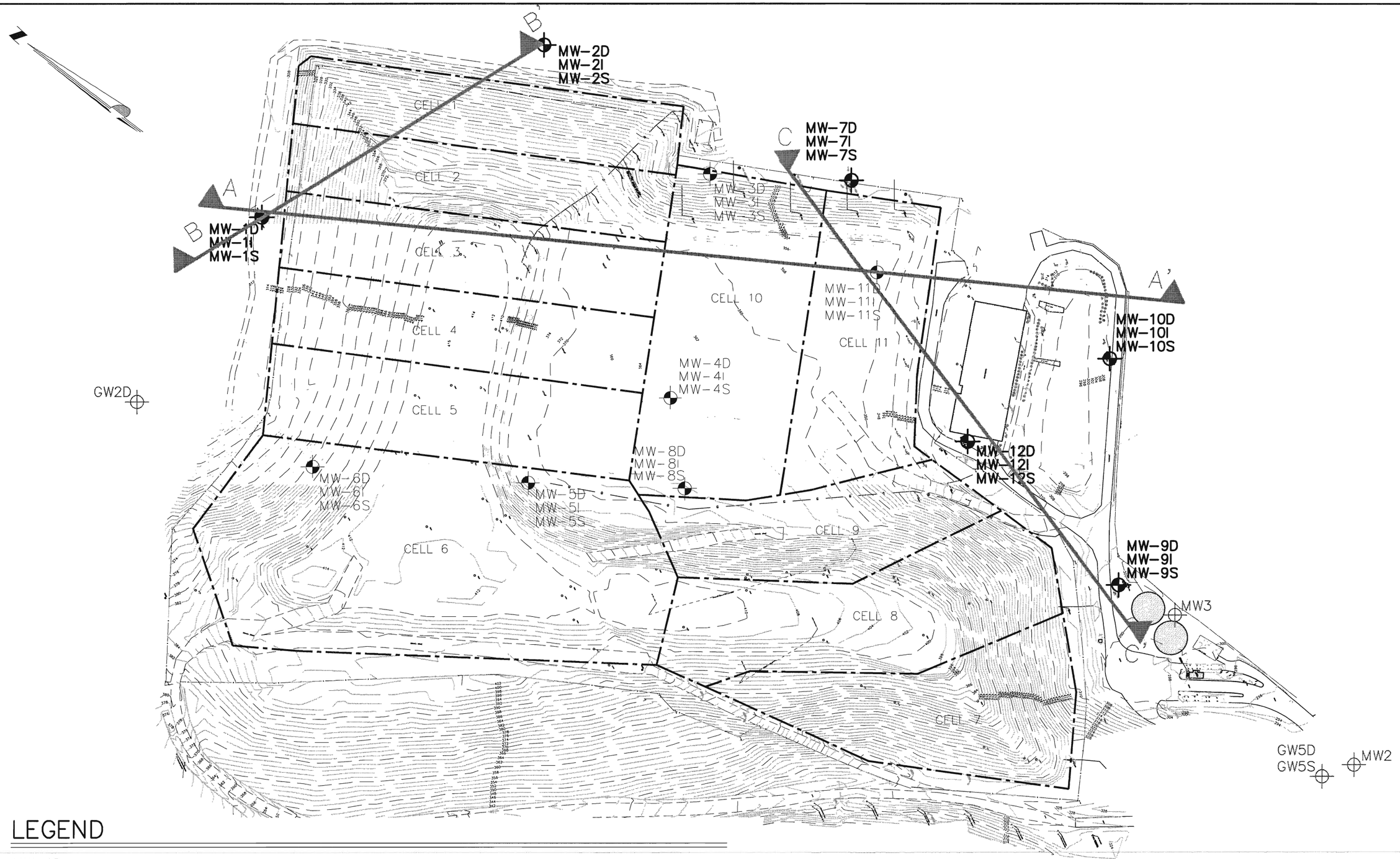
FIGURE 2-3
EAST EXPANSION SOIL BORING LOCATION MAP
RAPP ROAD SOLID WASTE MANAGEMENT FACILITY
CITY OF ALBANY
STATE OF NEW YORK

File: K:\12206\EXPANSION\ACAD\FIG-2-3-P-4-SOIL-BOR.dwg User: 330 5/27/2005 03:36 PM



LEGEND

MW-1D MW-1I MW-1S — ALBANY INTERIM LANDFILL MONITORING WELL CLUSTER

MW-1D MW-1I MW-1S — ABANDONED MONITORING WELL CLUSTER

GW1D — GREATER ALBANY/RAPP ROAD LANDFILL MONITORING WELL CLUSTER

A A' — CROSS SECTION LOCATION

SCALE: 1" = 200'

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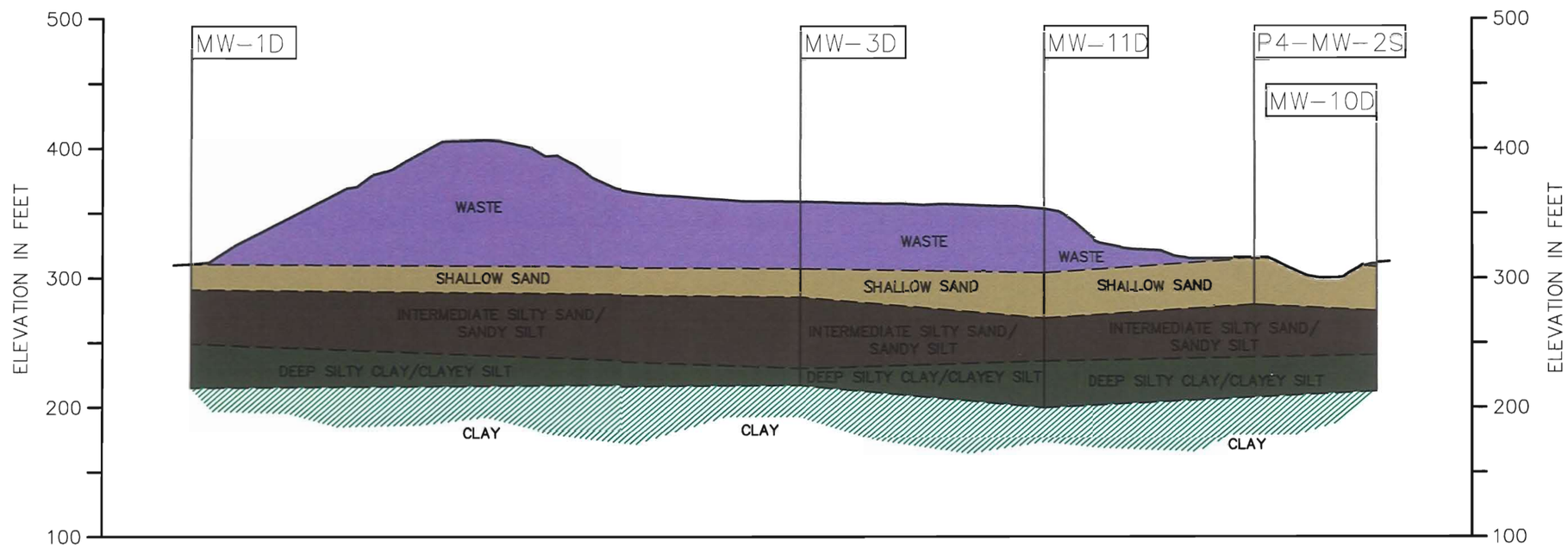
FIGURE 3-1
CROSS SECTION LOCATION PLAN
SITE INVESTIGATION WORK PLAN
FOR THE PROPOSED EXPANSION
RAPP ROAD SOLID WASTE MANAGEMENT FACILITY
CITY OF ALBANY
STATE OF NEW YORK

File: K:\12206\EXPANSION\ACAD\FIG-3-1-SECLOC.dwg User: 330 5/17/2005 04:11 PM



SECTION A–A'

HORIZTONTAL SCALE: 1" = 200'
VERTICAL SCALE: 1" = 100'

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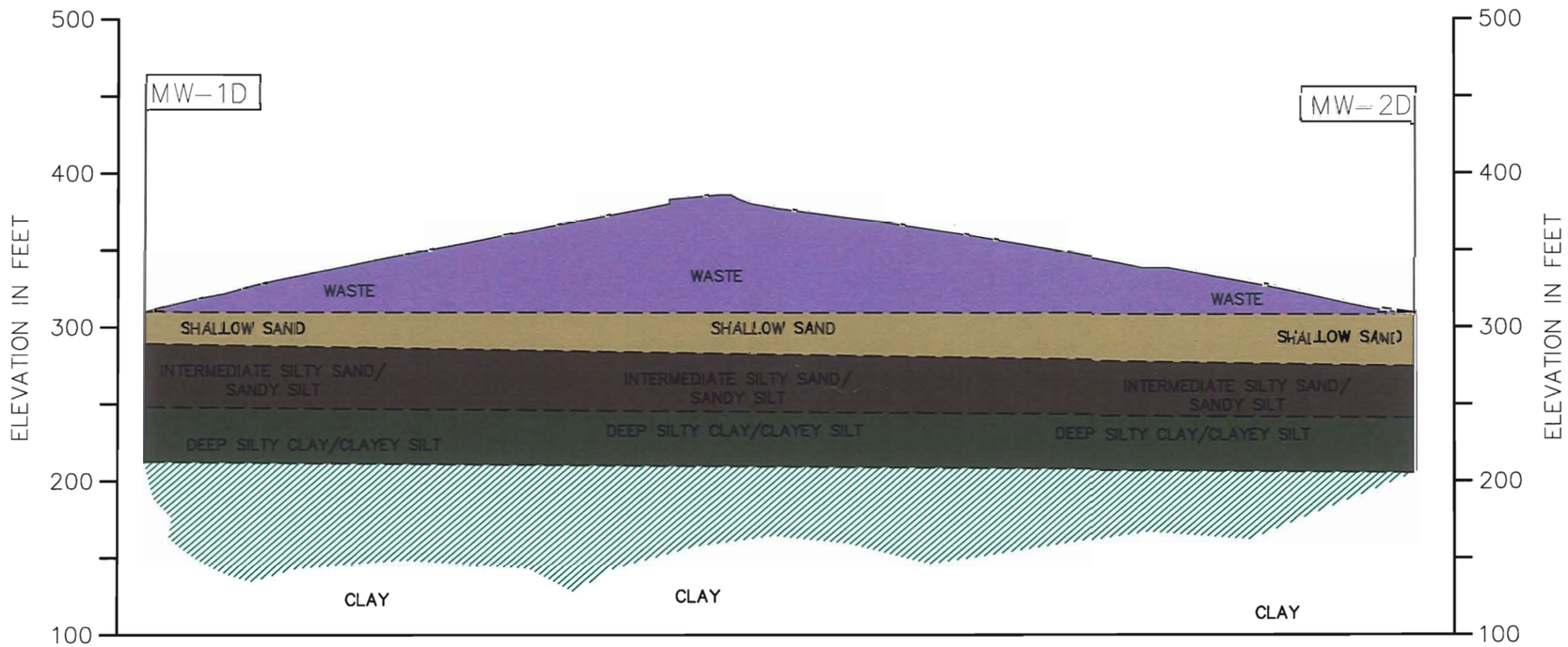
FIGURE 3–2
GEOLOGIC SECTIONS
SITE INVESTIGATION WORK PLAN
FOR THE PROPOSED EXPANSION
RAPP ROAD SOLID WASTE MANAGEMENT FACILITY
CITY OF ALBANY
STATE OF NEW YORK

File: K:\12206\EXPANSION\ACAD\FIG-3-2-SECTIONS.dwg User: 330 6/10/2005 04:18 PM



SECTION B–B'

HORIZTONTAL SCALE: 1" = 100'
VERTICAL SCALE: 1" = 100'

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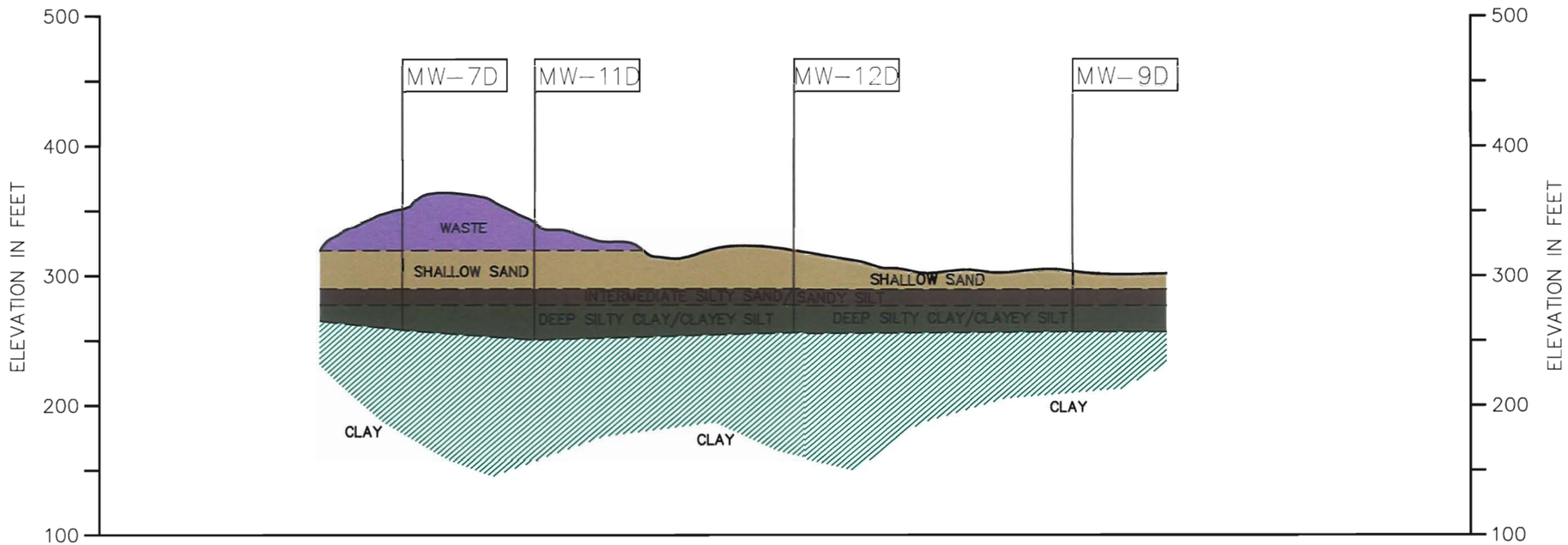
FIGURE 3–3
GEOLOGIC SECTIONS
SITE INVESTIGATION WORK PLAN
FOR THE PROPOSED EXPANSION
RAPP ROAD SOLID WASTE MANAGEMENT FACILITY
CITY OF ALBANY
STATE OF NEW YORK



SECTION C–C'

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VERTICAL SCALE: 1" = 100'

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FIGURE 3–4
GEOLOGIC SECTIONS
SITE INVESTIGATION WORK PLAN
FOR THE PROPOSED EXPANSION
RAPP ROAD SOLID WASTE MANAGEMENT FACILITY
CITY OF ALBANY
STATE OF NEW YORK

FIGURE 3-5
Shallow Groundwater Elevations

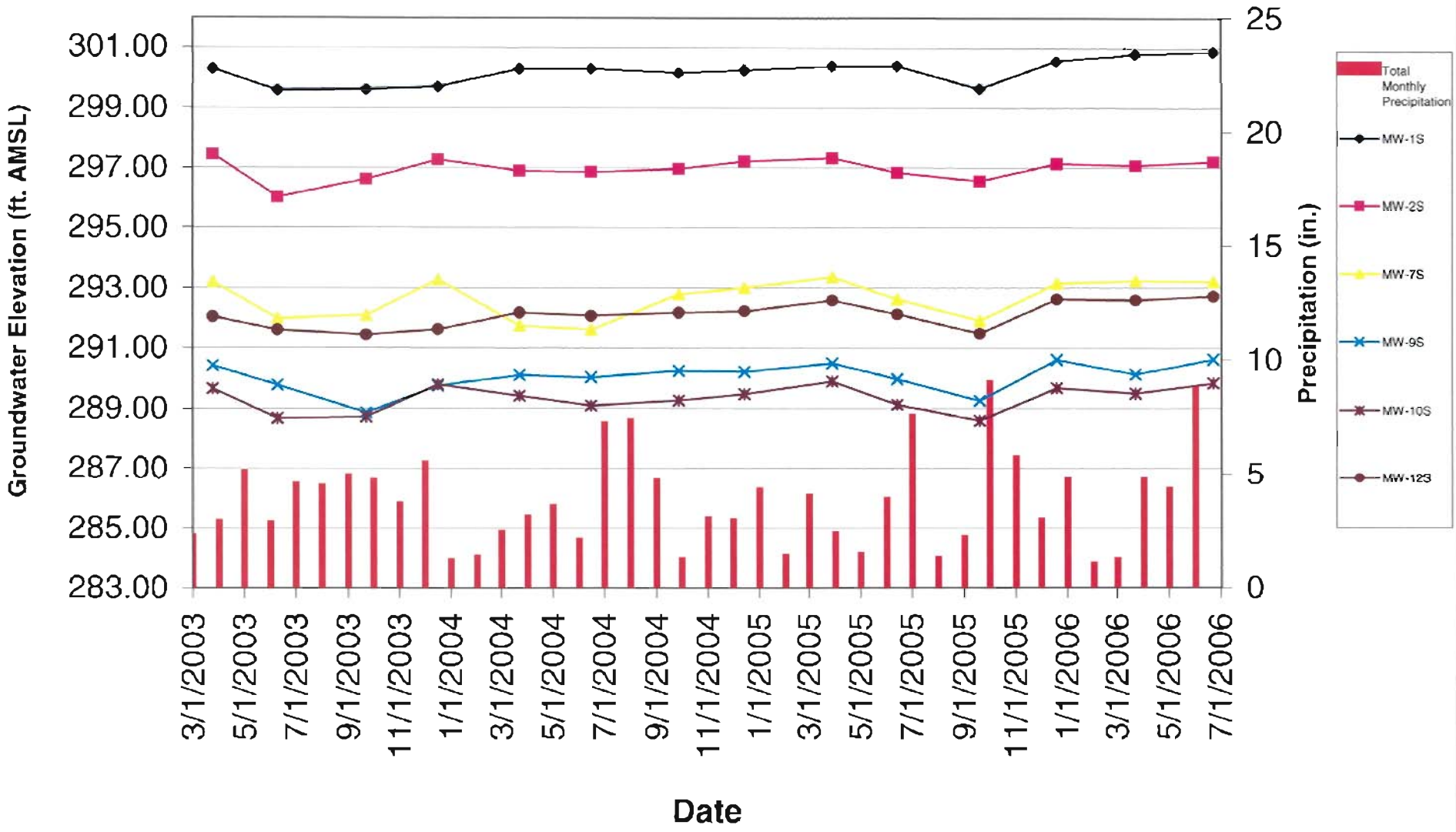


FIGURE 3-6
Intermediate Groundwater Elevations

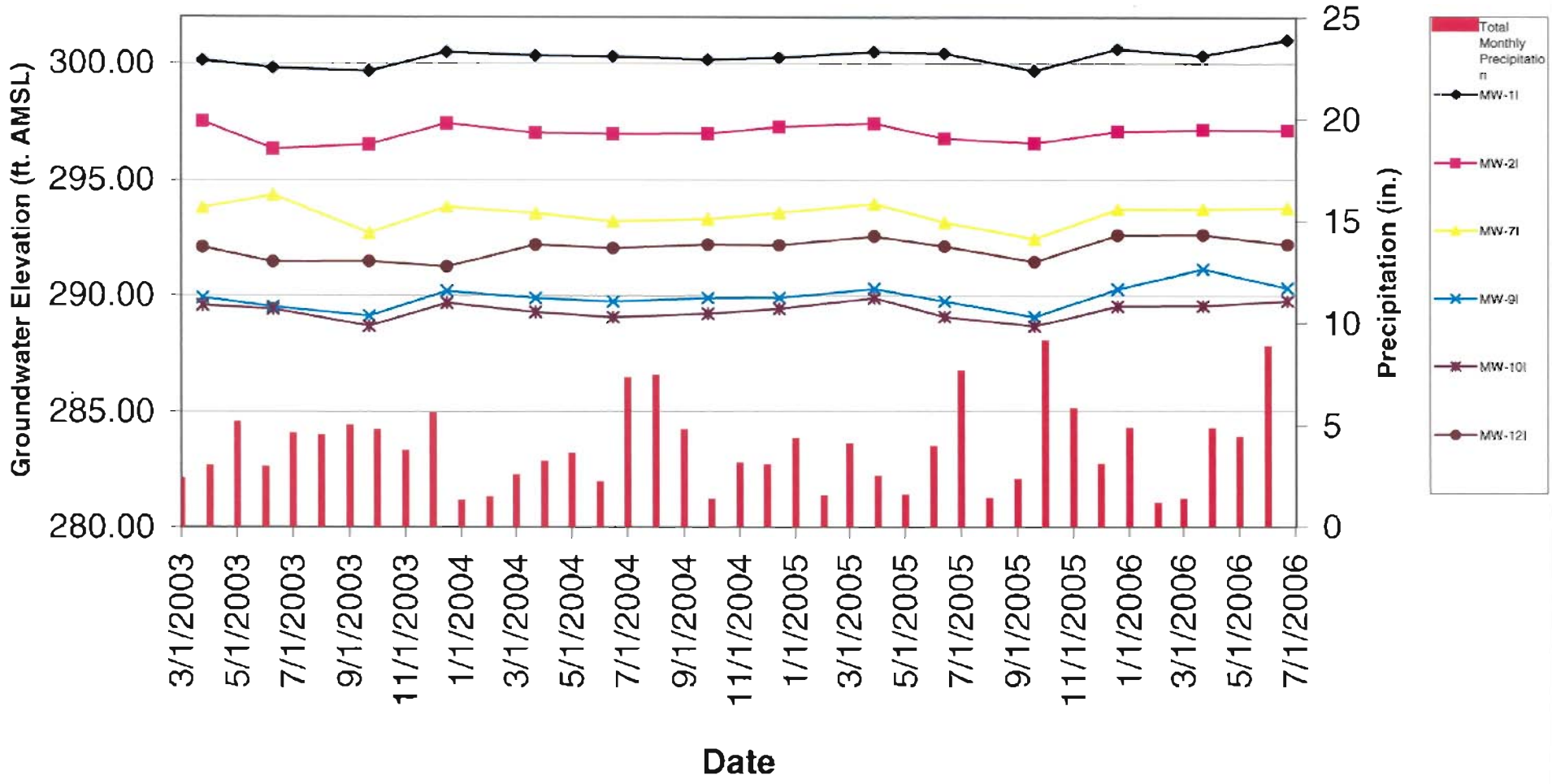
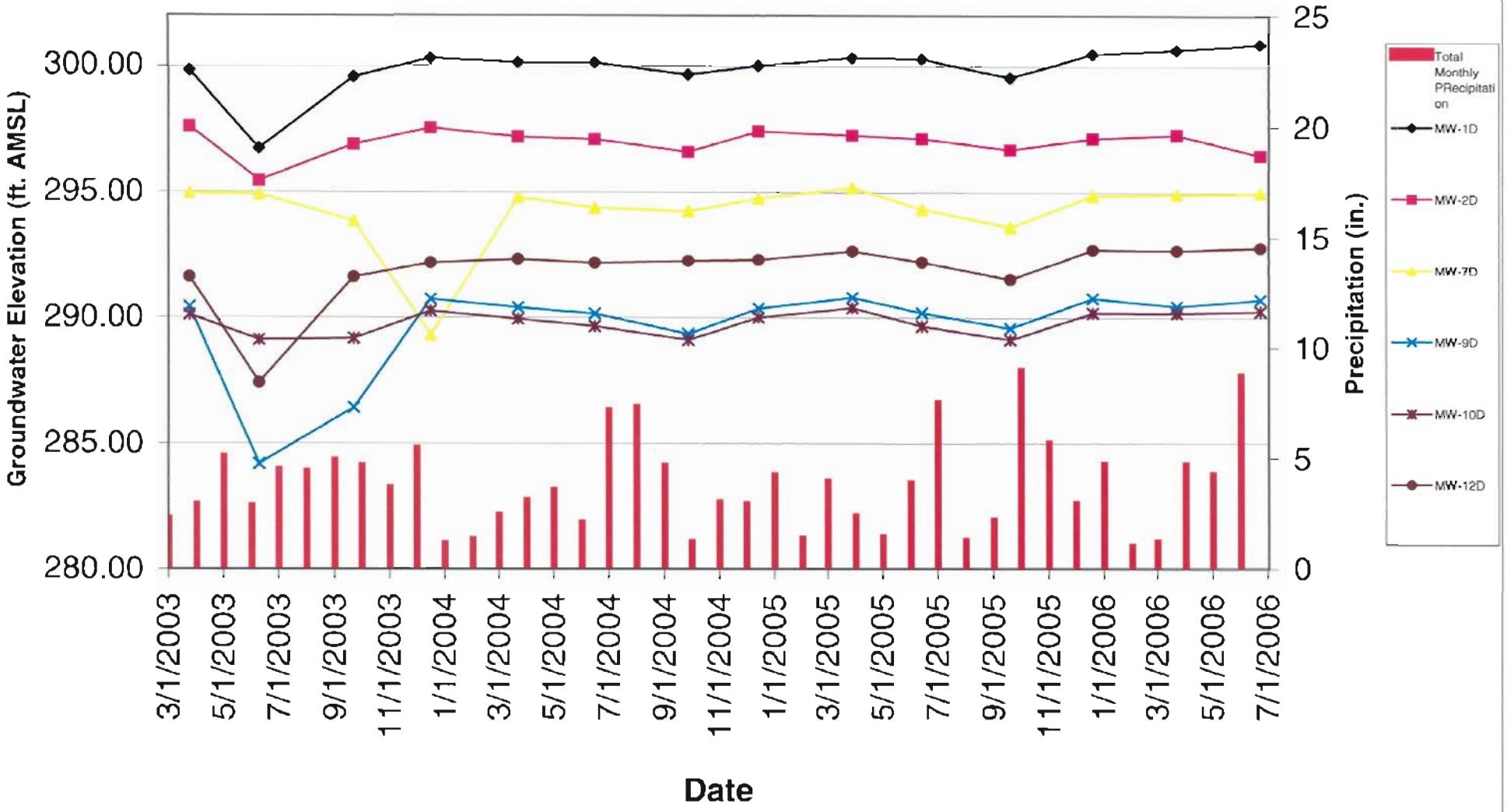
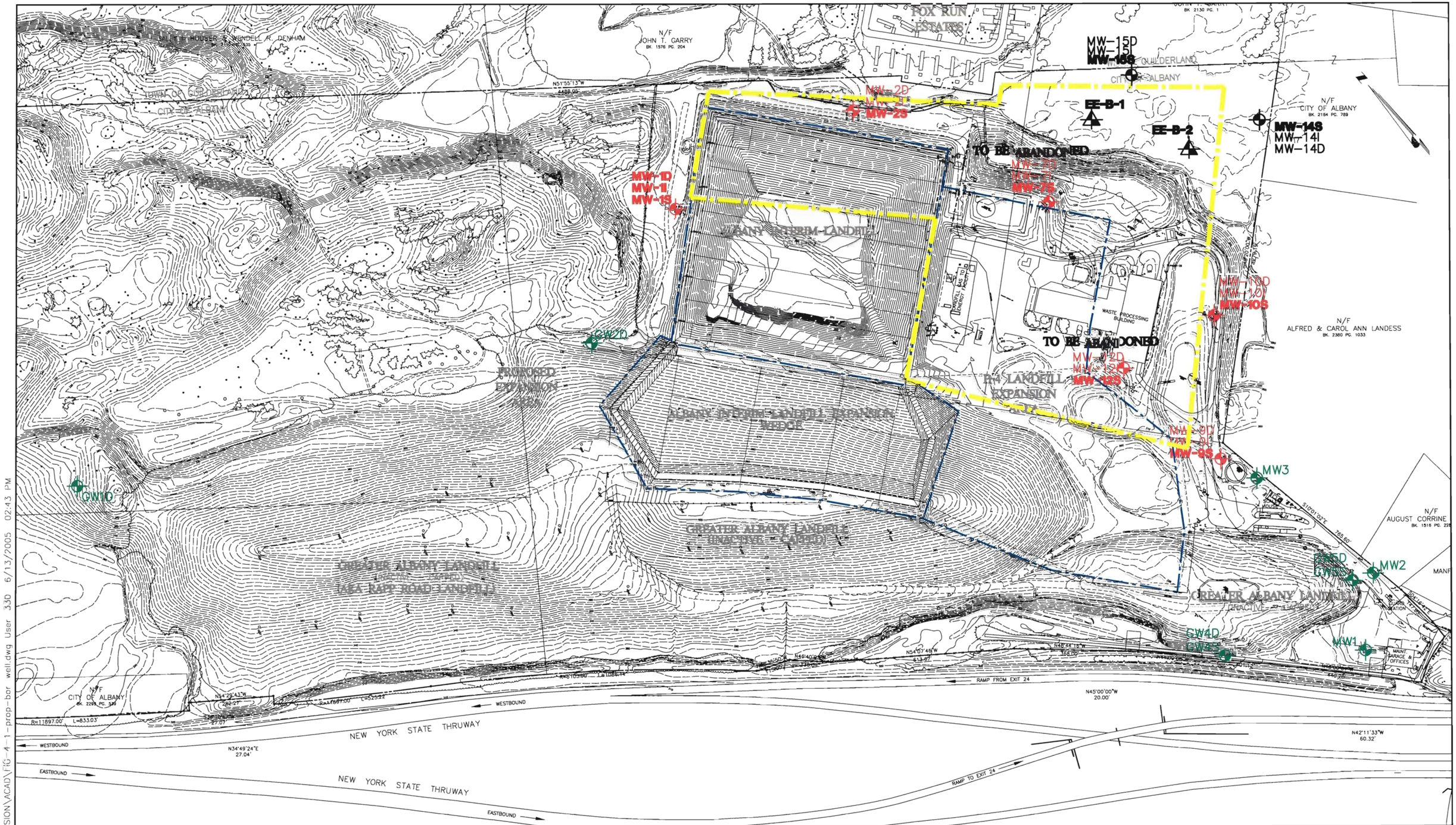


FIGURE 3-7
Deep Groundwater Elevations





LEGEND

MW-1D MW-1I MW-1S	PROPOSED MONITORING WELL LOCATION	BH1-05	PROPOSED SOIL BORING/ SHALLOW PIEZOMETER LOCATION	MW-1S	EXISTING GAL WELL CLUSTER LOCATION AND NUMBER
	PROPOSED LIMITS		EXISTING LIMITS	MW-1S	EXISTING AIL WELL CLUSTER LOCATION AND NUMBER

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FIGURE 4–1
PROPOSED SOIL BORING AND MONITORING WELL LOCATION PLAN
PROPOSED EXPANSION AREA
RAPP ROAD SOLID WASTE MANAGEMENT FACILITY
CITY OF ALBANY
STATE OF NEW YORK

File K:\12206\EXPANSION\ACAD\FIG-4-1-prop-bor well.dwg User 330 6/13/2005 02:43 PM

TABLES

Table 2-1
Monitoring Well Data Summary
City of Albany Solid Waste Managment Facility
City of Albany, New York
CHA Project No. 12206

Monitoring Well ID	Date Installed	Top of Riser Elevation (ft. AMSL)	Ground Elevation (ft. AMSL)	Depth to Bottom of Sand Pack (ft. bgs)	Screened Interval (ft. bgs)	Elevation of Screened Interval (ft. AMSL)	Depth [3] (ft. btor)	Bottom Elevation (ft. btor) (ft. btor)
EXISTING AIL/WEDGE/P4 WELLS								
MW-1S	10/25/1990	312.84	310.34	19.5	8.5 - 18.5	301.84 - 291.84	20.80	292.04
MW-1I	10/26/1990	313.08	310.58	61.5	50.5 - 60.5	260.08 - 250.08	63.20	249.88
MW-1D	10/24/1990	312.89	310.89	91.0	80.0 - 90.0	230.89 - 220.89	92.60	220.29
MW-2S	10/18/1990	311.05	308.55	20.0	9.5 - 19.5	299.05 - 289.05	21.10	289.95
MW-2I	10/22/1990	311.61	308.61	60.0	49.0 - 59.0	259.61 - 249.61	60.90	250.71
MW-2D	10/17/1990	311.08	309.08	94.0	83.0 - 93.0	226.08 - 216.08	90.60	220.48
MW-7S	11/6/1990	324.50 [1]	308.26	24.0 [2]	12.0 - 22.00 [2]	296.26 - 286.26	39.00	285.50
MW-7I	11/6/1990	324.00 [1]	308.06	57.0 [2]	46.5 - 56.50 [2]	261.56 - 251.56	73.50	250.50
MW-7D	11/5/1990	324.60 [1]	307.61	97.0 [2]	83.5 - 93.50 [2]	224.11 - 214.11	109.80	214.80
MW-9S	7/8/1998	302.41	300.2	20.0	10.0 - 20.0	290.20 - 280.20	20.83	281.58
MW-9I	7/7/1998	302.57	300.3	60.0	50.0 - 60.0	250.30 - 240.30	57.55	245.02
MW-9D	7/2/1998	302.90	300.0	88.0	78.0 - 88.0	222.00 - 212.00	82.70	220.20
MW-10S	7/15/1998	312.18	309.9	28.0	18.0 - 28.0	291.90 - 281.90	28.66	283.52
MW-10I	7/14/1998	311.77	309.7	65.5	55.5 - 65.5	254.20 - 244.20	66.22	245.55
MW-10D	7/13/1998	311.70	309.7	94.0	84.0 - 94.0	225.70 - 215.70	96.38	215.32
MW-12S	NA	318.62	NA	NA	NA	NA	37.60	281.02
MW-12I	NA	318.69	NA	NA	NA	NA	72.55	246.14
MW-12D	NA	318.72	NA	NA	NA	NA	97.60	221.12
ABANDONED AIL/WEDGE/P4 WELLS								
MW-3S	Abandoned							
MW-3I	Abandoned							
MW-3D	Abandoned							
MW-4S	Abandoned							
MW-4I	Abandoned							
MW-4D	Abandoned							
MW-5S	Abandoned							
MW-5I	Abandoned							
MW-5D	Abandoned							
MW-6S	Abandoned							
MW-6I	Abandoned							
MW-6D	Abandoned							
MW-8S	Abandoned							
MW-8I	Abandoned							
MW-8D	Abandoned							
MW-11S	Abandoned							
MW-11I	Abandoned							
MW-11D	Abandoned							
GREATER ALBANY LANDFILL (GAL) EXISTING MONITORING WELLS								
GW-1D	4/18/1990	351.00	NA	NA	41.0 - 51.0	NA	53.70	297.30
GW-2D	4/17/1990	323.53	NA	NA	25.0 - 45.0	NA	48.20	275.33
GW-4S	4/24/1990	301.57	NA	NA	22.0 - 42.0	NA	43.00	258.57
GW-4D	4/20/1990	302.00	NA	NA	61.0 - 81.0	NA	81.70	220.30
GW-5S	4/20/1990	294.24	NA	NA	14.0 - 34.0	NA	33.50	260.74
GW-5D	4/19/1990	294.29	NA	NA	31.0 - 81.0	NA	81.10	213.19
MW-1	NA	295.18	NA	NA	NA	NA	22.70	272.48
MW-2	3/3/1992	296.04	NA	NA	8.4 - 18.8	NA	22.25	273.79
MW-3	3/3/1992	300.06	NA	NA	2.8 - 13.2	NA	22.40	277.66

Notes:
Data presented above obtained from July 1999 Part 360 Application to Construct and Operate a Solid Waste Management Facility; P-4 Project Landfill Expansion; C.T. Male, 1999.
1. Monitoring wells re-surveyed in 2003 after well casings were extended with construction of new cell.
2. Depth based on original ground surface elevation at the time of installation.

Table 3-1
Monitoring Well Data Summary
City of Albany Landfill
Rapp Road, Albany, New York
CHA Project No. 12206

Monitoring Well ID	Date Installed	Top of Riser Elevation (ft. AMSL)	Ground Elevation (ft. AMSL)	Depth to Bottom of Sand Pack (ft. bgs)	Screened Interval (ft. bgs)	Elevation of Screened Interval (ft. AMSL)	Depth [3] (ft. btor)	Bottom Elevation (ft. btor)	Shallow/Intermediate Contact Elevation (ft. AMSL)	Shallow/Intermediate Contact Depth (ft. bgs)	Intermediate/Deep Contact Elevation (ft. AMSL)	Intermediate/Deep Contact Depth (ft. bgs)	Top of Clay Elevation (ft. AMSL)	Depth to Top of Clay (ft. bgs)
EXISTING AIL/WEDGE/P4 WELLS														
MW-1S	10/25/1990	312.84	310.34	19.5	8.5 - 18.5	301.84 - 291.84	20.80	292.04	NI	NI	NI	NI	NA	NI
MW-1I	10/26/1990	313.08	310.58	61.5	50.5 - 60.5	260.08 - 250.08	63.20	249.88	290.58	20 - 22	NI	NI	NA	NI
MW-1D	10/24/1990	312.89	310.89	91.0	80.0 - 90.0	230.89 - 220.89	92.60	220.29	290.89	20 - 22	248.89	62- 65	214.89	96.00
MW-2S	10/18/1990	311.05	308.55	20.0	9.5 - 19.5	299.05 - 289.05	21.10	289.95	NI	NI	NI	NI	NA	NI
MW-2I	10/22/1990	311.61	308.61	60.0	49.0 - 59.0	259.61 - 249.61	60.90	250.71	271.61	37 - 40	NI	NI	NA	NI
MW-2D	10/17/1990	311.08	309.08	94.0	83.0 - 93.0	226.08 - 216.08	90.60	220.48	272.08	37 - 40	242.08	67 - 70	217.08	92 - 96
MW-7S	11/6/1990	324.50 [1]	308.26	24.0 [2]	12.0 - 22.00 [2]	296.26 - 286.26	39.00	285.50	NI	NI	NI	NI	NA	NI
MW-7I	11/6/1990	324.00 [1]	308.06	57.0 [2]	46.5 - 56.50 [2]	261.56 - 251.56	73.50	250.50	276.06	32 - 35	NI	NI	NA	NI
MW-7D	11/5/1990	324.60 [1]	307.61	97.0 [2]	83.5 - 93.50 [2]	224.11 - 214.11	109.80	214.80	275.61	32 - 35	240.61	67 - 70	211.61	96 - 98
MW-9S	7/8/1998	302.41	300.2	20.0	10.0 - 20.0	290.20 - 280.20	20.83	281.58	NI	NI	NI	NI	NA	NI
MW-9I	7/7/1998	302.57	300.3	60.0	50.0 - 60.0	250.30 - 240.30	57.55	245.02	366.3	34 - 36	231.3	69 - 72	NA	NI
MW-9D	7/2/1998	302.90	300.0	88.0	78.0 - 88.0	222.00 - 212.00	82.70	220.20	266.0	34 - 36	231.0	69 - 72	211.0	89 - 92
MW-10S	7/15/1998	312.18	309.9	28.0	18.0 - 28.0	291.90 - 281.90	28.66	283.52	NI	NI	NI	NI	NA	NI
MW-10I	7/14/1998	311.77	309.7	65.5	55.5 - 65.5	254.20 - 244.20	66.22	245.55	275.7	34 - 36	241.7	68 - 70	NA	NI
MW-10D	7/13/1998	311.70	309.7	94.0	84.0 - 94.0	225.70 - 215.70	96.38	215.32	275.7	34 - 36	241.7	68 - 70	213.7	96 - 98
MW-12S	NA	318.62	NA	NA	NA	NA	37.60	281.02	NA	NA	NA	NA	NA	NA
MW-12I	NA	318.69	NA	NA	NA	NA	72.55	246.14	NA	NA	NA	NA	NA	NA
MW-12D	NA	318.72	NA	NA	NA	NA	97.60	221.12	NA	NA	NA	NA	NA	NA

Notes:
Data presented above obtained from July 1999 Part 360 Application to Construct and Operate a Solid Waste Management Facility; P-4 Project Landfill Expansion; C.T. Male, 1999.
1. Monitoring wells re-surveyed in 2003 after well casings were extended with construction of new cell.
2. Depth based on original ground surface elevation at the time of installation.
NA - Data not available.
NI - Not installed to interval depth.

Table 3-3
Site Investigation Work Plan - Proposed Landfill Expansion
April 2006
Historical Groundwater Elevation Data
City of Albany, Rapp Road Sanitary Landfill, Albany, NY
Historical Groundwater Elevations

Well ID:	**MW-1**		**MW-2**		**MW-3**		**GW-1D**		**GW-2D**		**GW-4D**		**GW-4S**		**GW-5D**		**GW-5S**	
TOC (ft):	295.18		296.04		300.06		351.00		323.53		302.00		301.57		294.29		294.24	
	DTW	Elev	DTW	Elev	DTW	Elev	DTW	Elev	DTW	Elev	DTW	Elev	DTW	Elev	DTW	Elev	DTW	Elev
3/26/03	9.84	**285.34**	9.91	**286.13**	11.54	**288.52**	44.30	**306.70**	21.70	**301.83**	11.92	**290.08**	12.06	**289.51**	6.88	**287.41**	7.65	**286.59**
6/10/03	10.95	**284.23**	10.97	**285.07**	12.17	**287.89**	42.93	**308.07**	21.63	**301.90**	12.29	**289.71**	12.83	**288.74**	7.36	**286.93**	8.55	**285.69**
09/23/03	10.54	**284.64**	11.03	**285.01**	12.50	**287.56**	43.14	**307.86**	21.69	**301.84**	12.51	**289.49**	12.68	**288.89**	7.62	**286.67**	8.71	**285.53**
12/14/04	10.86	**284.32**	10.69	**285.35**	11.74	**288.32**	42.36	**308.64**	20.79	**302.74**	11.52	**290.48**	12.69	**288.88**	7.35	**286.94**	7.53	**286.71**
03/22/04	10.14	**285.04**	10.20	**285.84**	11.65	**288.41**	41.73	**309.27**	20.80	**302.73**	11.86	**290.14**	12.06	**289.51**	6.98	**287.31**	7.96	**286.28**
6/17/04	10.47	**284.71**	10.86	**285.18**	11.90	**288.16**	41.42	**309.58**	20.04	**303.49**	12.14	**289.86**	12.44	**289.13**	7.32	**286.97**	8.35	**285.89**
9/27/04	10.18	**285.00**	10.39	**285.65**	11.81	**288.25**	44.20	**306.80**	21.85	**301.68**	11.91	**290.09**	12.13	**289.44**	7.12	**287.17**	8.10	**286.14**
12/14/04	10.10	**285.08**	10.14	**285.90**	11.70	**288.36**	42.22	**308.78**	21.10	**302.43**	11.82	**290.18**	12.03	**289.54**	6.92	**287.37**	7.90	**286.34**
3/28/05	9.82	**285.36**	10.05	**285.99**	11.38	**288.68**	41.44	**309.56**	20.55	**302.98**	11.70	**290.30**	11.68	**289.89**	6.88	**287.41**	7.71	**286.53**
6/13/05	10.46	**284.72**	10.61	**285.43**	11.87	**288.19**	40.92	**310.08**	20.40	**303.13**	12.14	**289.86**	12.42	**289.15**	7.31	**286.98**	8.29	**285.95**
9/19/05	11.00	**284.18**	11.32	**284.72**	12.79	**287.27**	42.35	**308.65**	21.55	**301.98**	12.90	**289.10**	13.14	**288.43**	8.00	**286.29**	9.00	**285.24**
12/21/05	9.98	**285.20**	9.96	**286.08**	11.12	**288.94**	40.97	**310.03**	20.28	**303.25**	11.54	**290.46**	12.86	**288.71**	6.63	**287.66**	5.71	**288.53**
3/20/06	9.80	**285.38**	9.04	**287.00**	11.34	**288.72**	40.25	**310.75**	19.93	**303.60**	11.70	**290.30**	11.96	**289.61**	8.07	**286.22**	8.54	**285.70**
6/26/06	9.62	**285.56**	10.08	**285.96**	11.34	**288.72**	39.94	**311.06**	19.64	**303.89**	11.50	**290.50**	11.76	**289.81**	6.68	**287.61**	7.78	**286.46**
9/25/06	10.58	**284.60**	10.78	**285.26**	12.13	**287.93**	41.18	**309.82**	20.83	**302.70**	12.24	**289.76**	12.45	**289.12**	7.40	**286.89**	8.50	**285.74**

Notes:

TOC = Elevation of reference point (top of PVC casing); feet above mean sea level (MSL).

DTW = Depth to Water (measured from top of PVC casing).

Table 3-2

Historical Water Table Elevations (Feet above MSL)
Albany Interim Landfill
Albany, New York
CHA Project No. 12244

Well ID	MW-1S	MW-1I	MW-1D	MW-2S	MW-2I	MW-2D	MW-7S	MW-7I	MW-7D	MW-9S	MW-9I	MW-9D	MW-10S	MW-10I	MW-10D	MW-12S	MW-12I	MW-12D
TOC:	312.84	313.08	312.89	311.05	311.61	311.08	324.50	324.00	324.60	302.41	302.57	302.90	312.18	311.77	311.70	318.62	318.69	318.72
03/24/03	300.28	300.13	299.79	297.45	297.51	297.58	293.20	293.77	294.95	290.41	289.92	290.42	289.66	289.59	290.10	292.04	292.07	291.62
06/09/03	299.58	299.81	296.71	296.01	296.34	295.44	291.98	294.34	294.91	289.78	289.52	284.19	288.68	289.42	289.12	291.60	291.45	287.43
09/22/03	299.60	299.66	299.54	296.61	296.53	296.88	292.09	292.68	293.85	288.87	289.12	286.43	288.73	288.68	289.17	291.44	291.46	291.62
12/16/03	299.70	300.50	300.28	297.27	297.43	297.54	293.28	293.82	289.29	289.76	290.19	290.73	289.80	289.68	290.26	291.62	291.24	292.19
03/22/04	300.28	300.34	300.13	296.89	297.03	297.20	291.74	293.54	294.80	290.10	289.89	290.40	289.42	289.29	289.94	292.17	292.19	292.34
06/15/04	300.29	300.31	300.13	296.85	296.99	297.10	291.60	293.19	294.38	290.03	289.73	290.15	289.10	289.06	289.66	292.07	292.03	292.19
09/27/04	300.16	300.17	299.65	296.96	297.00	296.59	292.79	293.29	294.25	290.24	289.89	289.35	289.27	289.22	289.12	292.17	292.19	292.27
12/14/04	300.24	300.25	300.01	297.21	297.29	297.42	293.00	293.56	294.76	290.21	289.90	290.36	289.48	289.43	290.00	292.22	292.16	292.32
03/28/05	300.39	300.51	300.32	297.33	297.43	297.26	293.36	293.95	295.18	290.49	290.29	290.80	289.90	289.89	290.39	292.58	292.54	292.67
06/13/05	300.40	300.45	300.28	296.84	296.79	297.13	292.62	293.15	294.33	289.97	289.75	290.18	289.13	289.09	289.66	292.12	292.11	292.22
09/19/05	299.64	299.68	299.54	296.55	296.58	296.68	291.90	292.43	293.62	289.26	289.07	289.57	288.60	288.67	289.12	291.48	291.45	291.53
12/19/05	300.56	300.64	300.47	297.14	297.09	297.14	293.15	293.72	294.87	290.60	290.27	290.76	289.68	289.53	290.18	292.62	292.59	292.72
03/20/06	300.79	300.34	300.64	297.07	297.16	297.28	293.23	293.72	294.92	290.12	291.12	290.44	289.50	289.55	290.17	292.59	292.60	292.69
06/26/06	300.86	301.03	300.87	297.20	297.13	296.46	293.20	293.78	294.97	290.61	290.32	290.70	289.83	289.76	290.24	292.72	292.19	292.80
09/25/06	300.22	300.24	300.09	296.75	296.89	297.06	292.45	292.99	294.18	289.96	289.62	290.12	289.17	289.12	289.65	292.10	292.00	292.12

Notes:
TOC = Elevation of the reference point, the top of the PVC casing, in feet above mean sea level (MSL).
NI = Data not available. Well not yet installed.
NA = Information not available.
NM = No measurement collected for this date.

APPENDIX A

Greater Albany Landfill Historical Water Quality Monitoring Data
March 2003 - Present

TABLE A-1

City of Albany, Rapp Road Sanitary Landfill, Albany, NY
Historical Groundwater Analytical Data -- GW-1D
CHA Project No. 12206

TEST PARAMETER	Unit	NYSDEC TOGS Standard	3/26/03 Routine	6/10/03 Routine	9/24/03 Baseline	12/17/03 Routine	3/23/04 Routine	6/17/04 Routine	9/27/04 Routine	12/14/04 Baseline	3/28/05 Baseline	6/13/05 Routine	9/19/05 Routine	12/19/05 Routine	3/20/06 Routine	6/26/06 Baseline
pH	SU	6.5-8.5	8.24	7.95	6.85	8.18	n/a	7.85	7.79	7.65	7.83	7.62	7.95	8.16	7.01	7.37
Eh	mV	NA	4.3	15	-60.7	-17.2	n/a	-23.2	92	-156.4	-167.8	-15.2	-60.5	79	205.3	-22.8
Turbidity	N.T.U.	5	1.8	6.96	16.4	12.8	3.8	6.95	1.81	6.91	15.3	14	15.1	8.6	8.33	9.03
Color	mg/l	15	n/a	n/a	n/a	n/a	n/a	n/a	n/a	5.0	n/a	n/a	n/a	n/a	n/a	13
Specific Conductance	mg/l	NA	163	256	202	160	n/a	221	308	228	214	252	206	350	207	149
Total Dissolved Solids	mg/l	500	85	85	360	120	1700	118	127	565	60	160	607	88	178	170
Chemical Oxygen Demand	mg/l	NA	<20	<20	<20	<20	<20	<20	<20	33	200	<20	<20	< 20	<20	52
Biochemical Oxygen Demand	mg/l	NA	n/a	n/a	n/a	n/a	n/a	n/a	n/a	<4	<4	n/a	n/a	n/a	n/a	8
Total Organic Carbon	mg/l	NA	<3	<3	<3	<3	<3.0	<3.0	<3.0	<3.0	<3	<3.0	<3.0	< 3.0	<3.0	<3.0
Sulfate	mg/l	250	10	12	13	13	11	9.72	12.6	16.7	9.48	7.85	9.02	17.8	11.5	9.3
Total Alkalinity ($CaCO_3$)	mg/l	NA	67	71	79	79	100	94	100	480	120	110	110	100	<10	96
Chloride	mg/l	250	1	3	2	3	890	3.01	1.79	12.0	5.62	801	3.62	2.38	2.75	5.84
Total Hardness ($CaCO_3$)	mg/l	NA	65	82	98	85	89	99	95	99	86	110	94	100	83	100
Chromium, Hexavalent	mg/l	0.050	n/a	n/a	<0.01	n/a	n/a	n/a	n/a	<0.010	<0.01	n/a	n/a	n/a	n/a	<0.010
Total Kjeldahl Nitrogen	mg/l	NA	n/a	n/a	<0.5	n/a	n/a	n/a	n/a	<0.500	<0.5	n/a	n/a	n/a	n/a	<0.5
Ammonia - Nitrogen	mg/l	2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.500	<0.5	<0.5	2.63	< 0.5	<0.5	<0.5
Nitrate - Nitrogen	mg/l	10	<0.2	<0.2	<0.2	<0.2	<0.2	n/a	<0.20	<0.20	<0.2	<0.20	<0.20	< 0.2	<0.2	<0.2
Total Phenols	mg/l	0.001*	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.005	<0.005	<0.005
Total Cyanide	mg/l	0.1	n/a	n/a	<0.01	n/a	n/a	n/a	n/a	<0.010	<0.01	n/a	n/a	n/a	n/a	<0.01
INORGANIC PARAMETERS:																
Aluminum	mg/l	0.1	n/a	n/a	0.21	n/a	n/a	n/a	n/a	0.095	0.25	n/a	n/a	n/a	n/a	0.092
Antimony	mg/l	0.003	n/a	n/a	<0.003	n/a	n/a	n/a	n/a	0.014	<0.003	n/a	n/a	n/a	n/a	<0.003
Arsenic	mg/l	0.025	n/a	n/a	<0.01	n/a	n/a	n/a	n/a	0.012	0.007	n/a	n/a	n/a	n/a	<0.010
Barium	mg/l	1	n/a	n/a	<0.3	n/a	n/a	n/a	n/a	<0.30	<0.3	n/a	n/a	n/a	n/a	<0.3
Beryllium	mg/l	0.003*	n/a	n/a	<0.005	n/a	n/a	n/a	n/a	<0.005	<0.005	n/a	n/a	n/a	n/a	<0.005
Boron	mg/l	1	n/a	n/a	<0.5	n/a	n/a	n/a	n/a	<0.50	<0.5	n/a	n/a	n/a	n/a	<0.5
Cadmium	mg/l	0.01	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	< 0.005	<0.005	<0.005
Calcium	mg/l	NA	20	26	31	27	28	31	30	31	27	34	29	31	26	31
Chromium	mg/l	0.050	n/a	n/a	<0.05	n/a	n/a	n/a	n/a	<0.050	<0.05	n/a	n/a	n/a	n/a	<0.050
Copper	mg/l	0.2	n/a	n/a	<0.02	n/a	n/a	n/a	n/a	0.026	0.021	n/a	n/a	n/a	n/a	<0.020
Iron	mg/l	0.3	0.11	0.43	0.47	0.42	0.12	0.16	0.2	0.28	0.58	0.37	0.19	0.61	0.15	0.18
Lead	mg/l	0.025	<0.001	<0.001	0.002	0.001	<0.001	0.001	0.002	0.003	<0.001	0.001	<0.001	< 0.001	0.001	0.004
Magnesium	mg/l	35	3.4	4.3	5.2	4.5	4.9	5.3	5	5.1	4.5	5.8	5	5.5	4.5	5.4
Manganese	mg/l	0.3	<0.02	0.03	0.04	0.03	<0.02	<0.02	<0.02	<0.020	0.035	0.022	0.025	0.044	<0.02	0.022
Mercury	mg/l	0.002	n/a	n/a	<0.0004	n/a	n/a	n/a	n/a	<0.0004	<0.0004	n/a	n/a	n/a	n/a	<0.0004
Nickel	mg/l	0.007*	n/a	n/a	<0.03	n/a	n/a	n/a	n/a	<0.030	0.035	n/a	n/a	n/a	n/a	<0.03
Potassium	mg/l	NA	0.8	0.9	0.7	<0.5	1.9	0.62	<0.50	2.3	1.7	0.92	0.64	0.61	0.71	<0.5
Selenium	mg/l	0.01	n/a	n/a	<0.005	n/a	n/a	n/a	n/a	<0.005	0.014	n/a	n/a	n/a	n/a	<0.005
Silver	mg/l	0.05	n/a	n/a	<0.05	n/a	n/a	n/a	n/a	<0.050	<0.05	n/a	n/a	n/a	n/a	<0.050
Sodium	mg/l	20	3.3	4.6	4.3	3.7	4.6	3.8	4.2	3.3	2.3	2.3	1.6	2	1.9	1.1
Thallium	mg/l	0.004	n/a	n/a	<0.003	n/a	n/a	n/a	n/a	0.066	<0.003	n/a	n/a	n/a	n/a	0.005
Zinc	mg/l	0.3	n/a	n/a	0.03	n/a	n/a	n/a	n/a	0.047	0.033	n/a	n/a	n/a	n/a	<0.01

Notes:
1. Shaded values indicate detection above Standard.
2. *Standard is below laboratory Method Detection Limit (MDL).
3. n/a = not applicable; analysis not performed.
4. "<" = not detected at specified MDL.
5. NA = Standard not available.

TABLE A-1

City of Albany, Rapp Road Sanitary Landfill, Albany, NY
Historical Groundwater Analytical Data -- GW-2D
CHA Project No. 12206

TEST PARAMETER	Unit	NYSDEC TOGS Standard	3/26/03 Routine	6/10/03 Routine	9/24/03 Baseline	12/17/03 Routine	3/23/04 Routine	6/17/04 Routine	9/27/04 Routine	12/14/04 Baseline	3/28/05 Baseline	6/13/05 Routine	9/19/05 Routine	12/19/05 Routine	3/20/06 Routine	6/26/06 Baseline
pH	SU	6.5-8.5	6.71	6.95	6.71	6.89		7.34	7.13	7.03	6.55	6.68	7.33	7.06	5.96	7.33
Eh	mV	NA	-67.2	-30	-45.3	-71.3		-58.7	20	-229.5	-164.5	-70.6	-69.9	13	111.1	-62
Turbidity	N.T.U.	5	12	35.9	79.6	35.2	55	19.2	22.4	21.2	11.1	21.8	16.3	12.2	10.6	11.9
Color	mg/l	15	n/a	n/a	n/a	n/a	n/a	n/a	n/a	150	n/a	n/a	n/a	n/a	n/a	75
Specific Conductance	mg/l	NA	569	641	469	943		552	773	898	853	865	684	897	872	430
Total Dissolved Solids	mg/l	500	300	210	270	480	280	205	340	552	505	442	380	305	490	437
Chemical Oxygen Demand	mg/l	NA	<20	<20	<20	23	21	<20	<20	36	18	37	<20	< 20	<20	32
Biochemical Oxygen Demand	mg/l	NA	n/a	n/a	n/a	n/a	n/a	n/a	n/a	6	<4	n/a	n/a	n/a	n/a	<8
Total Organic Carbon	mg/l	NA	4	<3	3	<3	<3.0	<3.0	4	17.0	39.0	6	3	3	4	3
Sulfate	mg/l	250	49	36	35	110	26	17.9	61.8	108	51.6	36.1	30.4	94.2	55	33.5
Total Alkalinity ($CaCO_3$)	mg/l	NA	230	200	210	370	140	230	270	380	430	450	380	250	330	250
Chloride	mg/l	250	4	4	3	6	3	4.13	3.83	12.3	7.66	873	6.51	4.04	6.16	7.19
Total Hardness ($CaCO_3$)	mg/l	NA	230	200	140	380	200	220	240	430	380	330	310	270	360	240
Chromium, Hexavalent	mg/l	0.050	n/a	n/a	<0.01	n/a	n/a	n/a	n/a	<0.010	<0.01	n/a	n/a	n/a	n/a	<0.01
Total Kjeldahl Nitrogen	mg/l	NA	n/a	n/a	4	n/a	n/a	n/a	n/a	3.62	9.22	n/a	n/a	n/a	n/a	3.13
Ammonia - Nitrogen	mg/l	2.0	3.1	4	3.4	3.3	4	52.2	3.63	2.80	13.2	9.71	38.5	4.44	1.65	1.86
Nitrate - Nitrogen	mg/l	10	<0.2	<0.2	<0.2	<0.2	<0.2		<0.20	<0.20	<0.2	<0.20	<0.2	< 0.2	0.74	<0.2
Total Phenols	mg/l	0.001*	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	< 0.005	n/a	<0.005
Total Cyanide	mg/l	0.1	n/a	n/a	<0.01	n/a	n/a	n/a	n/a	<0.010	<0.01	n/a	n/a	n/a	n/a	<0.010
INORGANIC PARAMETERS:																
Aluminum	mg/l	0.1	n/a	n/a	0.06	n/a	n/a	n/a	n/a	0.11	0.05	n/a	n/a	n/a	n/a	0.1
Antimony	mg/l	0.003	n/a	n/a	<0.003	n/a	n/a	n/a	n/a	0.034	<0.003	n/a	n/a	n/a	n/a	<0.003
Arsenic	mg/l	0.025	n/a	n/a	<0.01	n/a	n/a	n/a	n/a	0.016	0.015	n/a	n/a	n/a	n/a	<0.01
Barium	mg/l	1	n/a	n/a	<0.3	n/a	n/a	n/a	n/a	<0.30	<0.3	n/a	n/a	n/a	n/a	<0.3
Beryllium	mg/l	0.003*	n/a	n/a	<0.005	n/a	n/a	n/a	n/a	<0.005	<0.005	n/a	n/a	n/a	n/a	<0.005
Boron	mg/l	1	n/a	n/a	<0.5	n/a	n/a	n/a	n/a	<0.50	<0.5	n/a	n/a	n/a	n/a	<0.5
Cadmium	mg/l	0.01	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	< 0.005	<0.005	<0.005
Calcium	mg/l	NA	80	70	45	130	67	73	79	140	130	110	100	87	120	76
Chromium	mg/l	0.050	n/a	n/a	<0.05	n/a	n/a	n/a	n/a	<0.050	<0.05	n/a	n/a	n/a	n/a	<0.05
Copper	mg/l	0.2	<0.001	n/a	<0.02	n/a	n/a	n/a	n/a	0.041	0.02	n/a	n/a	n/a	n/a	<0.02
Iron	mg/l	0.3	18	17	7.2	23	10	5.1	8.2	20	13	13	6.3	5.4	9.1	5.2
Lead	mg/l	0.025	<0.001	0.002	0.001	<0.001	<0.001	0.001	0.001	0.003	<0.001	0.002	0.001	0.004	0.001	0.004
Magnesium	mg/l	35	7.5	6.7	6.5	15	9.3	10	11	19	15	15	12	11	15	11
Manganese	mg/l	0.3	0.95	0.66	0.44	1.9	1	0.58	0.59	1.2	1.1	0.94	0.69	0.54	0.78	0.49
Mercury	mg/l	0.002	n/a	n/a	<0.0004	n/a	n/a	n/a	n/a	<0.0004	<0.0004	n/a	n/a	n/a	n/a	<0.0004
Nickel	mg/l	0.007*	n/a	n/a	<0.03	n/a	n/a	n/a	n/a	<0.030	0.037	n/a	n/a	n/a	n/a	<0.03
Potassium	mg/l	NA	2.1	3.4	2.5	3.9	6.4	6.5	7.6	11	5.6	7.3	6.4	4.1	3.3	2.7
Selenium	mg/l	0.01	n/a	n/a	<0.0005	n/a	n/a	n/a	n/a	<0.005	0.007	n/a	n/a	n/a	n/a	<0.005
Silver	mg/l	0.05	n/a	n/a	<0.05	n/a	n/a	n/a	n/a	<0.050	<0.05	n/a	n/a	n/a	n/a	<0.050
Sodium	mg/l	20	6.7	7.6	5.7	8.8	7.3	7.3	8.5	13	7.2	7.6	6.9	5	6.7	4.9
Thallium	mg/l	0.004	n/a	n/a	<0.003	n/a	n/a	n/a	n/a	0.092	<0.003	n/a	n/a	n/a	n/a	0.007
Zinc	mg/l	0.3	n/a	n/a	0.04	n/a	n/a	n/a	n/a	0.015	0.034	n/a	n/a	n/a	n/a	<0.01

Notes:
1. Shaded values indicate detection above Standard.
2. *Standard is below laboratory Method Detection Limit (MDL).
3. n/a = not applicable; analysis not performed.
4. "<" = not detected at specified MDL.
5. NA = Standard not available.

TABLE A-1

City of Albany, Rapp Road Sanitary Landfill, Albany, NY
Historical Groundwater Analytical Data -- MW-1
CHA Project No. 12206

TEST PARAMETER	Unit	NYSDEC TOGS Standard	3/27/03 Routine	6/11/03 Routine	9/24/03 Baseline	12/15/03 Routine	3/22/04 Routine	6/17/04 Routine	9/27/04 Routine	12/14/04 Baseline	3/28/05 Baseline	6/13/05 Routine	9/19/05 Routine	12/19/05 Routine	3/20/06 Routine	6/26/06 Baseline
pH	SU	6.5-8.5	7.18	7.1	7.33	7.37	n/a	7.44	7.5	7.89	7.76	7.11	7.62	7.21	6.32	7.89
Eh	mV	NA	-133.2	-93	-129.9	-155.2	n/a	-144.4	-75	-245.6	-282.5	-121.1	-132.7	-23	-50.1	-133.1
Turbidity	N.T.U.	5	160	108.5	75.8	175	310	98.7	28	>50	87.5	49	57.3	46.5	81.5	150
Color	mg/l	15	n/a	n/a	n/a	n/a	n/a	n/a	n/a	150	n/a	n/a	n/a	n/a	n/a	450
Specific Conductance	mg/l	NA	4977	648	5345	5320	n/a	5233	5550	4889	5250	5005	5205	5890	4759	2956
Total Dissolved Solids	mg/l	500	1800	2100	2200	2100	2300	1720	2120	1870	2080	2000	2140	2080	1910	1710
Chemical Oxygen Demand	mg/l	NA	410	430	320	260	330	248	284	278	20	27	341	< 20	206	151
Biochemical Oxygen Demand	mg/l	NA	n/a	n/a	n/a	n/a	n/a	n/a	n/a	19	<4	n/a	n/a	n/a	n/a	19
Total Organic Carbon	mg/l	NA	320	340	360	99	340	290	300	320	300	285	280	245	200	150
Sulfate	mg/l	250	< 5	<5	< 5	6	<5.0	<5.0	13.7	6.97	<5.0	<5.0	<5	44.8	<5	<5
Total Alkalinity ($CaCO_3$)	mg/l	NA	1300	1400	1500	1600	1600	1600	1400	870	1500	1600	1800	1400	1200	1100
Chloride	mg/l	250	770	830	760	790	750	750	459	1990	807	5.87	535	727	681	533
Total Hardness ($CaCO_3$)	mg/l	NA	420	420	290	340	350	400	280	300	310	280	280	300	340	350
Chromium, Hexavalent	mg/l	NA	n/a	n/a	<0.01	n/a	n/a	n/a	n/a	<0.010	<0.010	n/a	n/a	n/a	n/a	<0.010
Total Kjeldahl Nitrogen	mg/l	NA	n/a	n/a	230	n/a	n/a	n/a	n/a	180	10.2	n/a	n/a	n/a	n/a	175
Ammonia - Nitrogen	mg/l	2.0	190	230	210	170	230	13.9	228	236	13.2	387	76.2	235	205	193
Nitrate - Nitrogen	mg/l	10	< 0.2	<0.2	0.4	< 0.2	<0.2	n/a	<0.20	<0.20	<0.20	<0.20	<0.2	< 0.2	<0.2	<0.20
Total Phenols	mg/l	0.001*	0.007	0.009	0.007	0.006	0.018	0.014	0.00558	<0.005	0.021	0.13	<0.005	0.018	<0.005	0.031
Total Cyanide	mg/l	0.1	n/a	n/a	<0.01	n/a	n/a	n/a	n/a	<0.010	<0.010	n/a	n/a	n/a	n/a	<0.010
INORGANIC PARAMETERS:																
Aluminum	mg/l	0.1	n/a	n/a	0.66	n/a	n/a	n/a	n/a	0.9	0.77	n/a	n/a	n/a	n/a	1.2
Antimony	mg/l	0.003	n/a	n/a	< 0.003	n/a	n/a	n/a	n/a	0.027	<0.003	n/a	n/a	n/a	n/a	0.007
Arsenic	mg/l	0.025	n/a	n/a	0.038	n/a	n/a	n/a	n/a	0.017	0.038	n/a	n/a	n/a	n/a	0.031
Barium	mg/l	1	n/a	n/a	< 0.3	n/a	n/a	n/a	n/a	<0.30	0.2	n/a	n/a	n/a	n/a	<0.3
Beryllium	mg/l	0.003*	n/a	n/a	< 0.005	n/a	n/a	n/a	n/a	<0.005	<0.005	n/a	n/a	n/a	n/a	<0.005
Boron	mg/l	1	n/a	n/a	2.7	n/a	n/a	n/a	n/a	2.1	2.9	n/a	n/a	n/a	n/a	2.2
Cadmium	mg/l	0.01	<0.005	<0.005	< 0.005	< 0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	< 0.005	0.006	<0.005
Calcium	mg/l	NA	64	80	43	61	56	60	53	52	41	38	38	40	50	58
Chromium	mg/l	0.050	n/a	n/a	< 0.05	n/a	n/a	n/a	n/a	<0.050	0.01	n/a	n/a	n/a	n/a	0.091
Copper	mg/l	0.2	n/a	n/a	< 0.02	n/a	n/a	n/a	n/a	0.046	0.040	n/a	n/a	n/a	n/a	0.027
Iron	mg/l	0.3	31	27	15	26	21	22	15	18	21	16	14	19	18	21
Lead	mg/l	0.025	0.009	0.011	0.004	0.014	0.012	0.009	0.008	0.007	0.003	0.004	0.003	0.003	0.008	0.02
Magnesium	mg/l	35	64	53	44	45	52	60	35	42	50	46	45	49	51	49
Manganese	mg/l	0.3	0.49	0.39	0.15	0.39	0.23	0.27	0.14	0.18	0.17	0.013	0.097	0.16	0.19	0.25
Mercury	mg/l	0.002	n/a	n/a	< 0.0004	n/a	n/a	n/a	n/a	<0.0004	<0.0004	n/a	n/a	n/a	n/a	<0.0004
Nickel	mg/l	0.007	n/a	n/a	0.06	n/a	n/a	n/a	n/a	0.055	0.084	n/a	n/a	n/a	n/a	0.38
Potassium	mg/l	NA	150	170	150	130	150	140	150	160	150	130	150	150	150	17
Selenium	mg/l	0.01	n/a	n/a	< 0.005	n/a	n/a	n/a	n/a	<0.005	<0.005	n/a	n/a	n/a	n/a	<0.005
Silver	mg/l	0.05	n/a	n/a	< 0.05	n/a	n/a	n/a	n/a	<0.050	<0.05	n/a	n/a	n/a	n/a	<0.050
Sodium	mg/l	20	460	510	440	440	460	480	450	500	410	430	420	440	450	490
Thallium	mg/l	0.004	n/a	n/a	< 0.003	n/a	n/a	n/a	n/a	0.070	<0.003	n/a	n/a	n/a	n/a	0.006
Zinc	mg/l	0.3	n/a	n/a	0.08	n/a	n/a	n/a	n/a	0.039	0.052	n/a	n/a	n/a	n/a	0.078

Notes:

1. Shaded values indicate detection above Standard.
2. *Standard is below laboratory Method Detection Limit (MDL).
3. n/a = not applicable; analysis not performed.
4. "<" = not detected at specified MDL.
5. NA = Standard not available.

TABLE A-1

City of Albany, Rapp Road Sanitary Landfill, Albany, NY
Historical Groundwater Analytical Data -- MW-2
CHA Project No. 12206

TEST PARAMETER	Unit	NYSDEC TOGS Standard	3/27/03 Routine	6/11/03 Routine	9/24/03 Baseline	12/15/03 Routine	3/22/04 Routine	6/17/04 Routine	9/27/04 Routine	12/14/04 Baseline	3/28/05 Baseline	6/13/05 Routine	9/19/05 Routine	12/19/05 Routine	3/20/06 Routine	6/26/06 Baseline
pH	SU	6.5-8.5	6.94	7.05	6.95	7.2	n/a	7.1	7.26	7.68	7.27	6.82	7.48	6.87	6.16	7.47
Eh	mV	NA	-105.2	-66	-114.9	-116.3	n/a	-103.6	-48	-243	-257.7	-91.5	-109.8	5	59.6	-124.8
Turbidity	N.T.U.	5	45	73	29.4	56.6	450	55.5	26.5	32	39.8	22.7	33.2	44.7	114	55
Color	mg/l	15	n/a	n/a	n/a	n/a	n/a	n/a	n/a	170	n/a	n/a	n/a	n/a	n/a	600
Specific Conductance	mg/l	NA	2010	249	3453	2330	n/a	2946	3930	3771	2840	3388	3551	3100	2506	2013
Total Dissolved Solids	mg/l	500	1100	1200	1900	1300	1400	1380	2010	845	1860	1830	2200	1380	1340	1340
Chemical Oxygen Demand	mg/l	NA	96	120	81	98	88	96	111	99	259	26	112	107	115	186
Biochemical Oxygen Demand	mg/l	NA	n/a	n/a	n/a	n/a	n/a	n/a	n/a	5	10	n/a	n/a	n/a	n/a	14
Total Organic Carbon	mg/l	NA	74	69	66	27	27	73	180	170	95.0	48.0	55.0	32	36	34
Sulfate	mg/l	250	<5	13	21	<5	<5.0	15.3	<5	28.2	37.4	18.5	12.1	42.8	<5	<5
Total Alkalinity ($CaCO_3$)	mg/l	NA	480	570	540	630	560	620	650	320	700	120	760	700	680	660
Chloride	mg/l	250	300	330	610	400	450	364	704	2710	531	3.57	824	532	437	455
Total Hardness ($CaCO_3$)	mg/l	NA	430	530	550	270	490	540	350	200	200	420	340	250	330	300
Chromium, Hexavalent	mg/l	0.050	n/a	n/a	<0.01	n/a	n/a	n/a	n/a	<0.010	<0.01	n/a	n/a	n/a	n/a	<0.01
Total Kjeldahl Nitrogen	mg/l	NA	n/a	n/a	15	n/a	n/a	n/a	n/a	15.8	<0.5	n/a	n/a	n/a	n/a	70.8
Ammonia - Nitrogen	mg/l	2.0	12	14	11	17	34	49.9	37.6	17.1	<0.5	53.7	18.8	21.7	69.8	59.6
Nitrate - Nitrogen	mg/l	10	<0.2	<0.2	<0.2	<0.2	<0.2	n/a	0.2	<0.20	<0.2	<0.2	<0.20	< 0.20	<0.20	<0.2
Total Phenols	mg/l	0.001*	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.00576	<0.005	<0.005	<0.005	<0.005	0.006	<0.005	0.008
Total Cyanide	mg/l	0.1	n/a	n/a	<0.01	n/a	n/a	n/a	n/a	<0.010	<0.01	n/a	n/a	n/a	n/a	<0.01
INORGANIC PARAMETERS:																
Aluminum	mg/l	0.1	n/a	n/a	0.42	n/a	n/a	n/a	n/a	0.40	0.40	n/a	n/a	n/a	n/a	0.83
Antimony	mg/l	0.003	n/a	n/a	<0.003	n/a	n/a	n/a	n/a	0.039	<0.003	n/a	n/a	n/a	n/a	<0.003
Arsenic	mg/l	0.025	n/a	n/a	<0.01	n/a	n/a	n/a	n/a	0.021	0.018	n/a	n/a	n/a	n/a	<0.010
Barium	mg/l	1	n/a	n/a	<0.3	n/a	n/a	n/a	n/a	<0.30	<0.3	n/a	n/a	n/a	n/a	<0.30
Beryllium	mg/l	0.003*	n/a	n/a	<0.005	n/a	n/a	n/a	n/a	<0.005	<0.005	n/a	n/a	n/a	n/a	<0.005
Boron	mg/l	1	n/a	n/a	<0.5	n/a	n/a	n/a	n/a	0.59	0.60	n/a	n/a	n/a	n/a	0.89
Cadmium	mg/l	0.01	<0.005	<0.005	<0.005	<0.005	0.007	<0.005	<0.005	<0.005	<0.005	0.008	<0.005	< 0.005	0.009	<0.005
Calcium	mg/l	NA	150	180	190	89	170	180	120	66	65	140	110	84	110	100
Chromium	mg/l	0.050	n/a	n/a	<0.05	n/a	n/a	n/a	n/a	<0.050	<0.05	n/a	n/a	n/a	n/a	<0.05
Copper	mg/l	0.2	n/a	n/a	<0.02	n/a	n/a	n/a	n/a	0.031	0.054	n/a	n/a	n/a	n/a	<0.020
Iron	mg/l	0.3	44	46	44	24	44	43	24	14	19	40	25	20	28	24
Lead	mg/l	0.025	0.004	0.004	0.003	0.005	0.003	0.005	<0.004	0.002	0.002	0.002	0.003	0.002	0.003	0.005
Magnesium	mg/l	35	17	21	20	11	19	20	13	8.1	8.3	15	14	11	13	11
Manganese	mg/l	0.3	1.5	1.5	1.5	0.77	1.2	1.2	0.71	0.37	0.46	1.2	1	0.65	0.75	0.79
Mercury	mg/l	0.002	n/a	n/a	<0.0004	n/a	n/a	n/a	n/a	<0.0004	0.0002	n/a	n/a	n/a	n/a	<0.0004
Nickel	mg/l	0.007	n/a	n/a	0.04	n/a	n/a	n/a	n/a	<0.030	0.033	n/a	n/a	n/a	n/a	<0.03
Potassium	mg/l	NA	32	46	43	23	43	61	34	24	21	40	51	36	46	70
Selenium	mg/l	0.01	n/a	n/a	<0.005	n/a	n/a	n/a	n/a	<0.005	0.004	n/a	n/a	n/a	n/a	<0.005
Silver	mg/l	0.05	n/a	n/a	<0.05	n/a	n/a	n/a	n/a	<0.050	<0.05	n/a	n/a	n/a	n/a	<0.050
Sodium	mg/l	20	150	200	450	300	230	240	390	620	470	270	380	350	240	240
Thallium	mg/l	0.004	n/a	n/a	<0.003	n/a	n/a	n/a	n/a	0.093	<0.003	n/a	n/a	n/a	n/a	<0.005
Zinc	mg/l	0.3	n/a	n/a	0.03	n/a	n/a	n/a	n/a	0.016	0.034	n/a	n/a	n/a	n/a	<0.01

Notes:
1. Shaded values indicate detection above Standard.
2. *Standard is below laboratory Method Detection Limit (MDL).
3. n/a = not applicable; analysis not performed.
4. "<" = not detected at specified MDL.
5. NA = Standard not available.

TABLE A-1

City of Albany, Rapp Road Sanitary Landfill, Albany, NY
Historical Groundwater Analytical Data -- MW-3
CHA Project No. 12206

TEST PARAMETER	Unit	NYSDEC TOGS Standard	3/26/03 Routine	6/11/03 Routine	9/24/03 Baseline	12/15/03 Routine	3/22/04 Routine	6/17/04 Routine	9/27/04 Routine	12/14/04 Baseline	3/28/05 Baseline	6/13/05 Routine	9/19/05 Routine	12/19/05 Routine	3/20/06 Routine	6/26/06 Baseline
pH	SU	6.5-8.5	6.38	6.77	6.03	6.67	n/a	6.64	6.64	6.61	6.52	6.43	7.1	6.48	5.49	6.59
Eh	mV	NA	45.4	57	-9.8	-41.2	n/a	-9	58	-226.3	-253.7	-26.2	-20.5	16	207.4	-31.8
Turbidity	N.T.U.	5	11	9	14.5	19.5	50	8.61	6.33	4.82	10.2	11	10.5	4.52	8.5	6
Color	mg/l	15	n/a	n/a	n/a	n/a	n/a	n/a	n/a	200	n/a	n/a	n/a	n/a	n/a	120
Specific Conductance	mg/l	NA	1031	1252	930	1004	n/a	1380	1315	1349	1566	1546	1462	1779	1501	1145
Total Dissolved Solids	mg/l	500	600	590	620	590	830	798	645	700	622	985	1050	900	1070	1040
Chemical Oxygen Demand	mg/l	NA	78	80	88	61	63	60	55	66	200	40	46	< 20	61	113
Biochemical Oxygen Demand	mg/l	NA	n/a	n/a	n/a	n/a	n/a	n/a	n/a	<4	4	n/a	n/a	n/a	n/a	<4
Total Organic Carbon	mg/l	NA	32	27	38	27	26	20	20	22.0	50.0	22	21	19	25	24
Sulfate	mg/l	250	69	140	84	110	190	120	108	171	152	88.5	159	183	187	134
Total Alkalinity ($CaCO_3$)	mg/l	NA	180	180	200	220	180	160	160	280	200	28	200	330	200	310
Chloride	mg/l	250	140	160	120	130	170	226	138	970	322	388	166	314	424	361
Total Hardness ($CaCO_3$)	mg/l	NA	150	150	120	190	210	270	270	280	280	260	300	320	330	280
Chromium, Hexavalent	mg/l	0.050	n/a	n/a	<0.01	n/a	n/a	n/a	n/a	<0.010	<0.01	n/a	n/a	n/a	n/a	<0.010
Total Kjeldahl Nitrogen	mg/l	NA	n/a	n/a	3	n/a	n/a	n/a	n/a	1.97	9.87	n/a	n/a	n/a	n/a	3.62
Ammonia - Nitrogen	mg/l	2.0	2.5	3.7	1.1	1.9	2.5	3.32	1.74	<0.500	6.91	3.46	<0.50	2.3	2.47	13.6
Nitrate - Nitrogen	mg/l	10	2.2	1.4	1.4	3.5	0.8	n/a	0.6	<0.20	<0.2	<0.2	<0.2	0.53	0.56	0.64
Total Phenols	mg/l	0.001*	0.006	<0.005	<0.005	<0.005	<0.005	0	<0.005	<0.005	<0.005	0.012	<0.005	< 0.005	<0.005	<0.005
Total Cyanide	mg/l	0.1	n/a	n/a	<0.01	n/a	n/a	n/a	n/a	<0.010	<0.01	n/a	n/a	n/a	n/a	<0.010
INORGANIC PARAMETERS:																
Aluminum	mg/l	0.1	n/a	n/a	1.8	n/a	n/a	n/a	n/a	0.27	0.50	n/a	n/a	n/a	n/a	0.41
Antimony	mg/l	0.003	n/a	n/a	<0.003	n/a	n/a	n/a	n/a	0.035	<0.003	n/a	n/a	n/a	n/a	<0.003
Arsenic	mg/l	0.025	n/a	n/a	<0.01	n/a	n/a	n/a	n/a	<0.010	0.020	n/a	n/a	n/a	n/a	<0.010
Barium	mg/l	1	n/a	n/a	<0.3	n/a	n/a	n/a	n/a	<0.30	<0.3	n/a	n/a	n/a	n/a	<0.3
Beryllium	mg/l	0.003*	n/a	n/a	<0.005	n/a	n/a	n/a	n/a	<0.005	<0.005	n/a	n/a	n/a	n/a	<0.005
Boron	mg/l	1	n/a	n/a	<0.5	n/a	n/a	n/a	n/a	<0.50	<0.5	n/a	n/a	n/a	n/a	<0.5
Cadmium	mg/l	0.01	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	< 0.005	<0.005	<0.005
Calcium	mg/l	NA	49	48	39	61	65	86	86	92	91	84	97	100	110	90
Chromium	mg/l	0.050	n/a	n/a	<0.05	n/a	n/a	n/a	n/a	<0.050	<0.05	n/a	n/a	n/a	n/a	<0.05
Copper	mg/l	0.2	n/a	n/a	<0.02	n/a	n/a	n/a	n/a	0.049	0.047	n/a	n/a	n/a	n/a	<0.02
Iron	mg/l	0.3	4.5	2.6	6.8	7.5	8.4	11	5.3	6.3	8.6	6.4	6.5	4.4	4.7	5.6
Lead	mg/l	0.025	0.002	<0.001	0.003	0.002	0.001	0.003	0.001	0.002	<0.001	0.004	0.001	< 0.001	0.003	0.004
Magnesium	mg/l	35	6.7	6.1	6.4	9.6	12	14	12	13	13	12	14	15	16	12
Manganese	mg/l	0.3	0.35	0.32	0.52	0.51	0.78	1	0.6	0.49	0.47	0.4	0.52	0.39	0.48	0.33
Mercury	mg/l	0.002	n/a	n/a	<0.0004	n/a	n/a	n/a	n/a	<0.0004	<0.0004	n/a	n/a	n/a	n/a	<0.0004
Nickel	mg/l	0.007*	n/a	n/a	<0.03	n/a	n/a	n/a	n/a	<0.030	0.03	n/a	n/a	n/a	n/a	<0.03
Potassium	mg/l	NA	4.4	2.8	3.8	3.8	7	4	3.4	4.2	3.8	3.7	4.6	3.4	3.5	4.7
Selenium	mg/l	0.01	n/a	n/a	<0.005	n/a	n/a	n/a	n/a	<0.005	0.010	n/a	n/a	n/a	n/a	<0.005
Silver	mg/l	0.05	n/a	n/a	<0.05	n/a	n/a	n/a	n/a	<0.050	<0.05	n/a	n/a	n/a	n/a	<0.05
Sodium	mg/l	20	130	130	140	100	140	160	100	130	160	150	160	120	150	150
Thallium	mg/l	0.004	n/a	n/a	<0.003	n/a	n/a	n/a	n/a	0.093	<0.003	n/a	n/a	n/a	n/a	0.007
Zinc	mg/l	0.3	n/a	n/a	0.07	n/a	n/a	n/a	n/a	0.015	0.035	n/a	n/a	n/a	n/a	0.037

Notes:

1. Shaded values indicate detection above Standard.
2. *Standard is below laboratory Method Detection Limit (MDL).
3. n/a = not applicable; analysis not performed.
4. "<" = not detected at specified MDL.
5. NA = Standard not available.

TABLE A-1

City of Albany, Rapp Road Sanitary Landfill, Albany, NY
Historical Groundwater Analytical Data -- GW-4D
CHA Project No. 12206

TEST PARAMETER	Unit	NYSDEC TOGS Standard	3/26/03 Routine	6/10/03 Routine	9/24/03 Baseline	12/16/03 Routine	3/24/04 Routine	6/17/04 Routine	9/27/04 Routine	12/15/04 Baseline	3/28/05 Baseline	6/13/05 Routine	9/19/05 Routine	12/19/05 Routine	3/20/06 Routine	6/26/06 Baseline
pH	SU	6.5-8.5	8.22	8.15	8.22	7.24	n/a	8.03	8.86	7.77	8.28	7.44	8.29	8.54	7.48	8.03
Eh	mV	NA	-142.2	-50	-84.2	-76.1	n/a	-65.8	0	-152.2	-232.3	-134.7	-88.6	-98	71.7	-112.6
Turbidity	N.T.U.	5	0.9	0.6	29	2.62	0.05	0.9	0.5	3.66	2.3	3.26	8.99	0.28	0.86	1.88
Color	mg/l	15	n/a	n/a	n/a	n/a	n/a	n/a	n/a	5.0	n/a	n/a	n/a	n/a	n/a	7
Specific Conductance	mg/l	NA	387	269	207	1209	n/a	195	273	231	200	210	194	259	188	140
Total Dissolved Solids	mg/l	500	170	75	130	120	120	85	112	157	60	175	223	70	203	168
Chemical Oxygen Demand	mg/l	NA	<20	<20	<20	<20	21	<20	<20	<20	<20	<20	<20	< 20	<20	<20
Biochemical Oxygen Demand	mg/l	NA	n/a	n/a	n/a	n/a	n/a	n/a	n/a	<4	<4	n/a	n/a	n/a	n/a	<8
Total Organic Carbon	mg/l	NA	<3	<3	<3	<3	<3.0	<3.0	<3.0	<3.0	<3	<3.0	<3.0	< 3	<3	<3
Sulfate	mg/l	250	5	<5	<5	5	<5.0	5.49	12.6	6.59	<5	<5	<5.0	< 5	<5	<5
Total Alkalinity ($CaCO_3$)	mg/l	NA	120	96	100	110	100	96	110	310	99	68	130	220	110	100
Chloride	mg/l	250	53	7	3	8	8	3.72	5.36	9.19	9.19	5.1	4.1	2.14	2.37	9.6
Total Hardness ($CaCO_3$)	mg/l	NA	110	63	71	60	64	56	57	63	63	68	60	66	54	63
Chromium, Hexavalent	mg/l	0.050	n/a	n/a	<0.01	n/a	n/a	n/a	n/a	<0.10	<0.01	n/a	n/a	n/a	n/a	<0.010
Total Kjeldahl Nitrogen	mg/l	NA	n/a	n/a	<0.5	n/a	n/a	n/a	n/a	<0.500	<0.5	n/a	n/a	n/a	n/a	<0.5
Ammonia - Nitrogen	mg/l	2.0	1.1	<0.5	<0.5	<0.5	<0.5	1.11	0.79	<0.500	<0.5	2.3	<0.50	1.32	2.3	<0.5
Nitrate - Nitrogen	mg/l	10	<0	<0.2	<0.2	<0.2	<0.2	n/a	<0.20	<0.20	<0.2	<.2	<0.20	< 0.20	<0.20	<0.2
Total Phenols	mg/l	0.001*	<0.2	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	< 0.005	<0.005	<0.005
Total Cyanide	mg/l	0.1	<0.005	n/a	<0.01	n/a	n/a	n/a	n/a	<0.010	<0.01	n/a	n/a	n/a	n/a	<0.010
INORGANIC PARAMETERS:																
Aluminum	mg/l	0.1	n/a	n/a	1.2	n/a	n/a	n/a	n/a	0.086	0.071	n/a	n/a	n/a	n/a	0.061
Antimony	mg/l	0.003	n/a	n/a	<0.003	n/a	n/a	n/a	n/a	0.029	<0.003	n/a	n/a	n/a	n/a	0.006
Arsenic	mg/l	0.025	n/a	n/a	<0.01	n/a	n/a	n/a	n/a	0.025	0.016	n/a	n/a	n/a	n/a	0.014
Barium	mg/l	1	n/a	n/a	<0.3	n/a	n/a	n/a	n/a	<0.30	<0.3	n/a	n/a	n/a	n/a	<0.30
Beryllium	mg/l	0.003*	n/a	n/a	<0.005	n/a	n/a	n/a	n/a	<0.005	<0.005	n/a	n/a	n/a	n/a	<0.005
Boron	mg/l	1	n/a	n/a	<0.5	n/a	n/a	n/a	n/a	<0.50	<0.5	n/a	n/a	n/a	n/a	<0.5
Cadmium	mg/l	0.01	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	< 0.005	<0.005	<0.005
Calcium	mg/l	NA	33	19	21	18	19	17	17	19	19	21	18	20	16	19
Chromium	mg/l	0.050	n/a	n/a	<0.05	n/a	n/a	n/a	n/a	<0.050	<0.05	n/a	n/a	n/a	n/a	<0.05
Copper	mg/l	0.2	n/a	n/a	<0.02	n/a	n/a	n/a	n/a	0.034	0.02	n/a	n/a	n/a	n/a	<0.020
Iron	mg/l	0.3	0.11	0.11	2.2	0.12	0.08	0.22	0.15	0.22	0.21	0.28	0.11	0.28	0.07	0.12
Lead	mg/l	0.025	<0.001	<0.001	0.002	<0.001	<0.001	0.001	0.002	0.003	<0.001	0.002	<0.001	< 0.001	<0.001	<0.003
Magnesium	mg/l	35	6.2	3.6	4.2	3.4	4.2	3.3	3.3	3.7	3.6	4.1	3.5	4.1	3.3	3.8
Manganese	mg/l	0.3	0.05	0.03	0.11	0.02	0.03	0.026	0.023	0.03	0.027	0.028	0.025	0.028	0.023	0.031
Mercury	mg/l	0.002	n/a	n/a	<0.0004	n/a	n/a	n/a	n/a	<0.0004	<0.0004	n/a	n/a	n/a	n/a	<0.0004
Nickel	mg/l	0.007*	n/a	n/a	<0.03	n/a	n/a	n/a	n/a	<0.030	<0.03	n/a	n/a	n/a	n/a	<0.030
Potassium	mg/l	NA	<0.5	1.1	1.7	1.2	3	0.87	0.72	0.63	1.5	1.4	0.84	1.1	<0.5	0.69
Selenium	mg/l	0.01	n/a	n/a	<0.005	n/a	n/a	n/a	n/a	<0.005	<0.005	n/a	n/a	n/a	n/a	<0.005
Silver	mg/l	0.05	n/a	n/a	<0.05	n/a	n/a	n/a	n/a	<0.050	<0.05	n/a	n/a	n/a	n/a	<0.050
Sodium	mg/l	20	30	20	19	18	19	17	18	18	15	14	15	16	13	13
Thallium	mg/l	0.004	n/a	n/a	<0.003	n/a	n/a	n/a	n/a	0.043	<0.003	n/a	n/a	n/a	n/a	0.003
Zinc	mg/l	0.3	n/a	n/a	0.04	n/a	n/a	n/a	n/a	0.016	0.040	n/a	n/a	n/a	n/a	0.026

Notes:
1. Shaded values indicate detection above Standard.
2. *Standard is below laboratory Method Detection Limit (MDL).
3. n/a = not applicable; analysis not performed.
4. "<" = not detected at specified MDL.
5. NA = Standard not available.

TABLE A-1

City of Albany, Rapp Road Sanitary Landfill, Albany, NY
Historical Groundwater Analytical Data -- GW-4S
CHA Project No. 12206

TEST PARAMETER	Unit	NYSDEC TOGS Standard	3/26/03 Routine	6/10/03 Routine	9/24/03 Baseline	12/16/03 Routine	3/24/04 Routine	6/17/04 Routine	9/27/04 Routine	12/15/04 Baseline	3/28/05 Baseline	6/13/05 Routine	9/19/05 Routine	12/19/05 Routine	3/20/06 Routine	6/26/06 Baseline
pH	SU	6.5-8.5	6.83	6.91	6.95	6.99	n/a	7	7.19	6.91	7.01	6.6	7.28	6.87	6.11	7.73
Eh	mV	NA	-98.3	-59	-97	-106.9	n/a	-90.6	-34	-156.7	-246.8	-91.7	-94.3	-5	2.1	-97.9
Turbidity	N.T.U.	5	5.6	6	21	5.73	350	5.75	25.6	3.49	24.1	16.2	18.1	9.5	6.58	11.9
Color	mg/l	15	n/a	n/a	n/a	n/a	n/a	n/a	n/a	150	n/a	n/a	n/a	n/a	n/a	180
Specific Conductance	mg/l	NA	2090	234	2020	2094	n/a	2383	2350	2098	1935	2010	1970	2520	1947	1365
Total Dissolved Solids	mg/l	500	830	910	930	940	1000	1130	1060	908	928	1020	1080	1020	938	962
Chemical Oxygen Demand	mg/l	NA	69	72	63	66	83	52	66	87	49	58	48	< 20	56	85
Biochemical Oxygen Demand	mg/l	NA	n/a	n/a	n/a	n/a	n/a	n/a	n/a	16	10	n/a	n/a	n/a	n/a	14
Total Organic Carbon	mg/l	NA	29	120	42	59	21	100	96	140	36.0	28	41	175	26	19
Sulfate	mg/l	250	<5	<5	6	7	6	15.2	8.49	27.5	24.4	35.1	<5	52.8	19.7	25.4
Total Alkalinity ($CaCO_3$)	mg/l	NA	710	620	690	730	770	700	670	850	680	400	760	420	670	660
Chloride	mg/l	250	170	230	210	260	230	288	199	248	347	276	113	242	283	235
Total Hardness ($CaCO_3$)	mg/l	NA	460	140	480	450	510	470	420	460	450	430	430	480	480	430
Chromium, Hexavalent	mg/l	0.050	n/a	n/a	<0.01	n/a	n/a	n/a	n/a	<0.010	<0.01	n/a	n/a	n/a	n/a	<0.010
Total Kjeldahl Nitrogen	mg/l	NA	n/a	n/a	51	n/a	n/a	n/a	n/a	40.8	48.1	n/a	n/a	n/a	n/a	42.8
Ammonia - Nitrogen	mg/l	2.0	56	53	42	47	50	51	46.9	54.0	46.1	47.9	4.11	43.8	29.3	30.9
Nitrate - Nitrogen	mg/l	10	<0.2	<0.2	<0.2	<0.2	<0.2	n/a	<0.20	<0.20	<0.2	<0.20	<0.20	< 0.20	<0.20	<0.20
Total Phenols	mg/l	0.001*	0.005	0.005	0.01	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	< 0.005	<0.005	<0.005
Total Cyanide	mg/l	0.1	n/a	n/a	<0.01	n/a	n/a	n/a	n/a	<0.10	<0.01	n/a	n/a	n/a	n/a	<0.010
INORGANIC PARAMETERS:																
Aluminum	mg/l	0.1	n/a	n/a	0.24	n/a	n/a	n/a	n/a	0.12	0.12	n/a	n/a	n/a	n/a	0.22
Antimony	mg/l	0.003	n/a	n/a	<0.003	n/a	n/a	n/a	n/a	0.032	<0.003	n/a	n/a	n/a	n/a	<0.003
Arsenic	mg/l	0.025	n/a	n/a	0.026	n/a	n/a	n/a	n/a	0.027	0.040	n/a	n/a	n/a	n/a	0.02
Barium	mg/l	1	n/a	n/a	0.5	n/a	n/a	n/a	n/a	0.44	0.40	n/a	n/a	n/a	n/a	0.4
Beryllium	mg/l	0.003*	n/a	n/a	<0.005	n/a	n/a	n/a	n/a	<0.005	<0.005	n/a	n/a	n/a	n/a	<0.005
Boron	mg/l	1	n/a	n/a	0.7	n/a	n/a	n/a	n/a	0.63	0.59	n/a	n/a	n/a	n/a	0.6
Cadmium	mg/l	0.01	<0.005	<0.005	<0.005	<0.005	0.006	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	< 0.005	0.01	<0.005
Calcium	mg/l	NA	110	47	120	110	130	110	110	120	120	110	110	120	120	110
Chromium	mg/l	0.050	n/a	n/a	<0.05	n/a	n/a	n/a	n/a	<0.050	<0.05	n/a	n/a	n/a	n/a	<0.050
Copper	mg/l	0.2	n/a	n/a	<0.02	n/a	n/a	n/a	n/a	0.057	0.032	n/a	n/a	n/a	n/a	<0.020
Iron	mg/l	0.3	34	3.9	34	28	35	28	31	33	29	26	26	27	29	26
Lead	mg/l	0.025	<0.001	<0.001	0.001	0.001	0.003	0.002	0.001	0.003	<0.001	0.002	0.001	< 0.001	0.001	0.004
Magnesium	mg/l	35	46	6.2	43	43	47	45	38	40	37	38	38	45	44	40
Manganese	mg/l	0.3	0.16	0.33	0.16	0.13	0.18	0.15	0.15	0.16	0.14	0.12	0.12	0.13	0.14	0.12
Mercury	mg/l	0.002	n/a	n/a	<0.0004	n/a	n/a	n/a	n/a	<0.0004	<0.0004	n/a	n/a	n/a	n/a	<0.0004
Nickel	mg/l	0.007*	n/a	n/a	0.04	n/a	n/a	n/a	n/a	0.045	0.065	n/a	n/a	n/a	n/a	<0.030
Potassium	mg/l	NA	48	3.3	49	44	46	34	34	43	35	34	36	32	34	35
Selenium	mg/l	0.01	n/a	n/a	<0.005	n/a	n/a	n/a	n/a	<0.005	0.012	n/a	n/a	n/a	n/a	<0.005
Silver	mg/l	0.05	n/a	n/a	<0.05	n/a	n/a	n/a	n/a	<0.050	<0.05	n/a	n/a	n/a	n/a	<0.050
Sodium	mg/l	20	130	130	140	140	140	120	130	140	110	110	120	130	120	110
Thallium	mg/l	0.004	n/a	n/a	<0.003	n/a	n/a	n/a	n/a	0.097	<0.003	n/a	n/a	n/a	n/a	0.005
Zinc	mg/l	0.3	n/a	n/a	0.03	n/a	n/a	n/a	n/a	0.019	0.048	n/a	n/a	n/a	n/a	0.01

Notes:
1. Shaded values indicate detection above Standard.
2. *Standard is below laboratory Method Detection Limit (MDL).
3. n/a = not applicable; analysis not performed.
4. "<" = not detected at specified MDL.
5. NA = Standard not available.

TABLE A-1

City of Albany, Rapp Road Sanitary Landfill, Albany, NY
Historical Groundwater Analytical Data -- GW-5D
CHA Project No. 12206

TEST PARAMETER	Unit	NYSDEC TOGS Standard	3/27/03 Routine	6/11/03 Routine	9/25/03 Baseline	12/15/03 Routine	3/23/04 Routine	6/17/04 Routine	9/27/04 Routine	12/14/04 Baseline	3/28/05 Baseline	6/13/05 Routine	9/19/05 Routine	12/19/05 Routine	3/20/06 Routine	6/26/06 Baseline
pH	SU	6.5-8.5	7.7	7.77	8.34	7.93	n/a	8.05	8.29	8.32	8.2	7.67	8.33	7.95	7.26	8
Eh	mV	NA	-144.5	-82	-120.3	-137.4	n/a	-134.1	-58	-243	-247.8	-105.1	-103.1	-69	28.1	-135.6
Turbidity	N.T.U.	5	220	104	297	178	230	304	4.49	489	204	268	227	130	202	>1000
Color	mg/l	15	n/a	n/a	n/a	n/a	n/a	n/a	n/a	35	n/a	n/a	n/a	n/a	n/a	60
Specific Conductance	mg/l	NA	681	698	470	545	n/a	485	544	457	495	483	428	575	5481	3696
Total Dissolved Solids	mg/l	500	370	310	270	280	320	268	277	357	207	260	392	275	375	332
Chemical Oxygen Demand	mg/l	NA	31	26	23	20	36	24	21	<20	90	<20	<20	< 20	<20	41
Biochemical Oxygen Demand	mg/l	NA	n/a	n/a	n/a	n/a	n/a	n/a	n/a	4	<4	n/a	n/a	n/a	n/a	<8
Total Organic Carbon	mg/l	NA	4	5	4	<3	<3.0	7	<3	18.0	5.0	3	<3	3	3	3
Sulfate	mg/l	250	<5	<5	5	<5	<5.0	<5.0	6.2	5.18	<5	<5	<5	11.9	<5	<5
Total Alkalinity ($CaCO_3$)	mg/l	NA	180	150	140	160	150	130	360	290	140	310	180	330	190	320
Chloride	mg/l	250	110	85	65	75	79	73.3	58.2	71.5	65.3	66.4	53	39	74.7	1670
Total Hardness ($CaCO_3$)	mg/l	NA	590	440	500	360	450	520	270	610	300	370	400	340	250	720
Chromium, Hexavalent	mg/l	0.050	n/a	n/a	<0.01	n/a	n/a	n/a	n/a	<0.010	<0.01	n/a	n/a	n/a	n/a	<0.010
Total Kjeldahl Nitrogen	mg/l	NA	n/a	n/a	1.2	n/a	n/a	n/a	n/a	1.48	1.32	n/a	n/a	n/a	n/a	1.65
Ammonia - Nitrogen	mg/l	2.0	1.4	1.4	<0.5	0.9	2.2	1.74	1.74	0.823	1.81	<0.5	1.97	< 0.5	2.3	21.1
Nitrate - Nitrogen	mg/l	10	<0.2	<0.2	<0.2	<0.2	<0.2	n/a	0.9	<0.20	<0.2	<0.2	<0.2	< 0.2	<0.2	<0.2
Total Phenols	mg/l	0.001*	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	< 0.005	<0.005	<0.005
Total Cyanide	mg/l	0.1	n/a	n/a	0.01	n/a	n/a	n/a	n/a	<0.010	<0.01	n/a	n/a	n/a	n/a	<0.010
INORGANIC PARAMETERS:																
Aluminum	mg/l	0.1	n/a	n/a	13	n/a	n/a	n/a	n/a	13	6.8	n/a	n/a	n/a	n/a	21
Antimony	mg/l	0.003	n/a	n/a	<0.003	n/a	n/a	n/a	n/a	0.035	<0.003	n/a	n/a	n/a	n/a	<0.003
Arsenic	mg/l	0.025	n/a	n/a	0.022	n/a	n/a	n/a	n/a	0.038	0.027	n/a	n/a	n/a	n/a	0.04
Barium	mg/l	1	n/a	n/a	<0.3	n/a	n/a	n/a	n/a	<0.30	0.2	n/a	n/a	n/a	n/a	0.33
Beryllium	mg/l	0.003*	n/a	n/a	<0.005	n/a	n/a	n/a	n/a	<0.005	<0.005	n/a	n/a	n/a	n/a	<0.005
Boron	mg/l	1	n/a	n/a	<0.5	n/a	n/a	n/a	n/a	<0.50	<0.5	n/a	n/a	n/a	n/a	<0.50
Cadmium	mg/l	0.01	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.012	0.005	0.007	<0.005	< 0.005	<0.005	<0.005
Calcium	mg/l	NA	170	130	140	99	120	140	140	170	85	100	120	96	73	210
Chromium	mg/l	0.050	n/a	n/a	<0.05	n/a	n/a	n/a	n/a	<0.050	0.02	n/a	n/a	n/a	n/a	<0.050
Copper	mg/l	0.2	n/a	n/a	0.05	n/a	n/a	n/a	n/a	0.011	0.060	n/a	n/a	n/a	n/a	0.058
Iron	mg/l	0.3	32	21	33	22	27	27	27	36	20	24	5.3	22	3.2	55
Lead	mg/l	0.025	0.012	0.008	0.009	0.008	0.012	0.011	0.011	0.015	0.007	0.01	0.006	0.008	0.008	0.028
Magnesium	mg/l	35	43	29	37	27	34	39	39	43	21	28	23	26	17	48
Manganese	mg/l	0.3	1.3	0.93	1.3	0.8	1	1.2	1.2	1.5	0.68	0.89	0.82	0.74	0.44	2
Mercury	mg/l	0.002	n/a	n/a	<0.0004	n/a	n/a	n/a	n/a	<0.0004	<0.0004	n/a	n/a	n/a	n/a	<0.0004
Nickel	mg/l	0.007*	n/a	n/a	0.06	n/a	n/a	n/a	n/a	0.073	0.043	n/a	n/a	n/a	n/a	0.049
Potassium	mg/l	NA	4.1	3.6	3.9	2.5	4.5	3.6	3.6	3.8	2.8	4.8	1.3	3.3	0.86	5.4
Selenium	mg/l	0.01	n/a	n/a	<0.005	n/a	n/a	n/a	n/a	<0.005	<0.005	n/a	n/a	n/a	n/a	<0.005
Silver	mg/l	0.05	n/a	n/a	<0.05	n/a	n/a	n/a	n/a	<0.050	<0.05	n/a	n/a	n/a	n/a	<0.050
Sodium	mg/l	20	61	66	47	43	47	45	45	40	32	39	33	39	36	37
Thallium	mg/l	0.004	n/a	n/a	<0.003	n/a	n/a	n/a	n/a	0.11	<0.003	n/a	n/a	n/a	n/a	0.006
Zinc	mg/l	0.3	n/a	n/a	0.12	n/a	n/a	n/a	n/a	0.14	0.094	n/a	n/a	n/a	n/a	0.13

Notes:
1. Shaded values indicate detection above Standard.
2. *Standard is below laboratory Method Detection Limit (MDL).
3. n/a = not applicable; analysis not performed.
4. "<" = not detected at specified MDL.
5. NA = Standard not available.

TABLE A-1

City of Albany, Rapp Road Sanitary Landfill, Albany, NY
Historical Groundwater Analytical Data -- GW-5S
CHA Project No. 12206

TEST PARAMETER	Unit	NYSDEC TOGS Standard	3/27/03 Routine	6/11/03 Routine	9/23/03 Baseline	12/15/03 Routine	3/23/04 Routine	6/17/04 Routine	9/27/04 Routine	12/14/04 Baseline	3/28/05 Baseline	6/13/05 Routine	9/19/05 Routine	12/19/05 Routine	3/20/06 Routine	6/26/06 Baseline
pH	SU	6.5-8.5	7.06	7.04	7.33	7.28	n/a	7.49	7.48	7.87	7.57	7.11	7.65	7.16	6.42	7.63
Eh	mV	NA	-112.3	-74	-134.6	-123	n/a	-122.9	-71	-252.8	-249.9	-105.7	-116.4	-24	68.9	-133
Turbidity	N.T.U.	5	140	5	62.8	191	120	82	25	144	44	92.3	316	255	118	342
Color	mg/l	15	n/a	n/a	n/a	n/a	n/a	n/a	n/a	130	n/a	n/a	n/a	n/a	n/a	180
Specific Conductance	mg/l	NA	3917	408	3579	3662	n/a	3622	3630	3305	3174	3220	3447	3830	3269	2405
Total Dissolved Solids	mg/l	500	2000	1800	1900	1700	1900	1780	1690	1560	1500	1540	2380	1580	1580	1680
Chemical Oxygen Demand	mg/l	NA	190	170	120	150	280	110	120	171	111	117	<100	122	105	143
Biochemical Oxygen Demand	mg/l	NA	n/a	n/a	n/a	n/a	n/a	n/a	n/a	14	14	n/a	n/a	n/a	n/a	12
Total Organic Carbon	mg/l	NA	160	130	37	45	34	63	104	100	102	72	54	128	47	40
Sulfate	mg/l	250	<5	<5	<5	<5	9	<5	<5	5.18	<5	<5	<5	< 5.0	<5.0	<5
Total Alkalinity ($CaCO_3$)	mg/l	NA	700	620	680	730	730	730	410	850	700	600	850	570	220	740
Chloride	mg/l	250	850	720	730	740	740	707	500	919	883	602	651	622	681	664
Total Hardness ($CaCO_3$)	mg/l	NA	270	210	250	270	240	250	270	280	330	280	250	380	250	290
Chromium, Hexavalent	mg/l	0.050	n/a	n/a	<0.01	n/a	n/a	n/a	n/a	<0.010	<0.01	n/a	n/a	n/a	n/a	<0.01
Total Kjeldahl Nitrogen	mg/l	NA	n/a	n/a	54	n/a	n/a	n/a	n/a	42.8	41.1	n/a	n/a	n/a	n/a	76.4
Ammonia - Nitrogen	mg/l	2.0	55	51	44	50	66	55.2	218	56.0	40.2	15.8	2.47	54.3	69.8	77.9
Nitrate - Nitrogen	mg/l	10	<0.2	<0.2	<0.2	<0.2	<0.2	n/a	<0.20	<0.20	<0.2	<0.2	<0.20	< 0.20	<0.20	<0.2
Total Phenols	mg/l	0.001*	0.006	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	< 0.005	<0.005	0.016
Total Cyanide	mg/l	0.1	n/a	n/a	<0.01	n/a	n/a	n/a	n/a	<0.010	<0.01	n/a	n/a	n/a	n/a	<0.01
INORGANIC PARAMETERS:																
Aluminum	mg/l	0.1	n/a	n/a	0.63	n/a	n/a	n/a	n/a	0.89	0.34	n/a	n/a	n/a	n/a	2.4
Antimony	mg/l	0.003	n/a	n/a	0.007	n/a	n/a	n/a	n/a	0.03	<0.003	n/a	n/a	n/a	n/a	0.011
Arsenic	mg/l	0.025	n/a	n/a	0.02	n/a	n/a	n/a	n/a	0.014	0.026	n/a	n/a	n/a	n/a	0.026
Barium	mg/l	1	n/a	n/a	<0.3	n/a	n/a	n/a	n/a	<0.30	0.2	n/a	n/a	n/a	n/a	<0.3
Beryllium	mg/l	0.003*	n/a	n/a	<0.005	n/a	n/a	n/a	n/a	<0.005	<0.005	n/a	n/a	n/a	n/a	<0.005
Boron	mg/l	1	n/a	n/a	1.2	n/a	n/a	n/a	n/a	1.2	0.97	n/a	n/a	n/a	n/a	1.1
Cadmium	mg/l	0.01	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	< 0.005	0.005	<0.005
Calcium	mg/l	NA	66	52	63	70	58	60	79	63	68	62	62	85	56	69
Chromium	mg/l	0.050	n/a	n/a	<0.05	n/a	n/a	n/a	n/a	<0.050	0.01	n/a	n/a	n/a	n/a	<0.050
Copper	mg/l	0.2	n/a	n/a	<0.02	n/a	n/a	n/a	n/a	0.049	0.040	n/a	n/a	n/a	n/a	0.034
Iron	mg/l	0.3	21	16	19	26	20	20	5.9	16	13	17	21	35	13	19
Lead	mg/l	0.025	0.002	<0.001	0.002	0.003	0.003	0.003	0.006	0.003	0.001	0.001	0.002	0.005	0.002	0.008
Magnesium	mg/l	35	26	20	23	24	22	23	19	30	40	30	24	40	28	29
Manganese	mg/l	0.3	0.28	0.18	0.26	0.37	0.26	0.26	0.52	0.22	0.18	0.38	0.32	0.5	0.2	0.39
Mercury	mg/l	0.002	n/a	n/a	<0.0004	n/a	n/a	n/a	n/a	<0.0004	<0.0004	n/a	n/a	n/a	n/a	<0.0004
Nickel	mg/l	0.007*	n/a	n/a	0.04	n/a	n/a	n/a	n/a	0.051	0.035	n/a	n/a	n/a	n/a	<0.030
Potassium	mg/l	NA	56	75	79	76	92	91	1.2	63	51	76	77	55	69	75
Selenium	mg/l	0.01	n/a	n/a	<0.005	n/a	n/a	n/a	n/a	<0.005	0.018	n/a	n/a	n/a	n/a	<0.005
Silver	mg/l	0.05	n/a	n/a	<0.05	n/a	n/a	n/a	n/a	<0.050	<0.05	n/a	n/a	n/a	n/a	<0.05
Sodium	mg/l	20	450	580	510	400	440	470	41	490	350	370	320	360	380	350
Thallium	mg/l	0.004	n/a	n/a	<0.003	n/a	n/a	n/a	n/a	0.064	<0.003	n/a	n/a	n/a	n/a	0.01
Zinc	mg/l	0.3	n/a	n/a	0.11	n/a	n/a	n/a	n/a	0.034	0.050	n/a	n/a	n/a	n/a	0.041

Notes:
1. Shaded values indicate detection above Standard.
2. *Standard is below laboratory Method Detection Limit (MDL).
3. n/a = not applicable; analysis not performed.
4. "<" = not detected at specified MDL.
5. NA = Standard not available.

APPENDIX B

Albany Interim Landfill/Wedge/P4 Historical Water Quality Monitoring Data

TABLE B-1
Groundwater Analytical Monitoring Data
MW-1S
Albany Interim Landfill/P-4 Project
CHA Project No. 12244

TEST PARAMETER (mg/l unless otherwise noted)	Unit	TOGS Guidance Value	Mean (EWQV)	Mean (EWQV) Plus 3 Std. Dev.	2Q97 Bsln	3Q97 Rtne	4Q97 Rtne	1Q98 Rtne	2Q98 Rtne	3Q98 Bsln	4Q98 Rtne	1Q99 Rtne	2Q99 Rtne	3Q99 Rtne
Temperature	C°													
Conductivity	uS		592.13	3372.89	2880	307	319	331	443	275	240	279'	325	346
pH	SU	6.5-8.5	7.21	7.79	7.07	7.89	7.42	7.85	7.28	8.28	9.3	8.3	9.08	8.85
Eh	mV		-155	458.46	-1	-53	-17	-43	-6	-68	-118	-67	-119	-85
Turbidity (after purging well)	N.T.U	5	322.75	943.18	NA	48	135	78	39	39	38	85	17	17
LEACHATE INDICATORS:														
Ammonia Nitrogen	mg/l	2	0.16	0.7	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.5	<0.05	<0.05
BOD 5	mg/l		1.5	1.5	<2	<2	<2	<2	2	<2	<2	<2	<2	<2
Bromide	mg/l	2	0.41	1.84	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
COD	mg/l		50.03	408.54	<5	<5	<5	<5	14.9	<5	<5	<5	<5	<5
Chloride	mg/l	250	3.51	10.93	4.21	3.54	3.2	3.86	5.39	3.14	3.58	2.95	3.42	3.32
Nitrate	mg/l	10	0.06	0.29	<0.05	<0.05	<0.05	<0.05	1.67	<0.05	<0.5	<0.5	<0.5	<0.5
Sulfate	mg/l	250	13.39	24.57	6.79	8.31	4.82	16	26.9	16.3	10.2	14.8	16	16.5
Total Alkalinity	mg/l		224.63	796.17	150	157	142	140	251	146	110	146	140	153
Total Dissolved Solids	mg/l	500	144.19	322.24	194	202	169	187	304	198	141	190	222	193
Total Hardness	mg/l		352.55	1154.99	164	166	157	176	291	184	128	201	174	182
Total Kjed. Nitrogen	mg/l		0.78	1.64	-	0.402	0.458	0.281	0.605	0.279	<0.2	0.261	<0.2	0.3
Total Organic Carbon	mg/l	500	1.93	7.07	<1	<1	<1	<1	4.9	<1	<1	<1	<1	<1
Total Phenols	mg/l	0.001	0.01	0.04	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Color	P.C.U	15	7.5	20.31	<5					<5				
Boron	mg/l	1	0.08	0.28	<0.2					<02				
INORGANIC PARAMETERS														
Aluminum	mg/l	0.1	8.15	64.13	2.33					2.16				
Antimony	mg/l	0.003	0.95	8.18	<0.06					<0.06				
Arsenic	mg/l	0.025	0.01	0.01	<0.01					<0.01				
Barium	mg/l	1	0.12	0.68	<0.02					<0.02				
Beryllium	mg/l	0.003	0.01	0.06	<0.005					<0.005				
Cadmium	mg/l	0.01	0.003	0.006	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Calcium	mg/l		83.75	340.07	49.1	48.8	41.9	56.5	87	50.8	35	47.5	50.7	53.5
Chromium	mg/l		7.96	75.29	<0.01					<0.01				
Hexavalent Chromium	mg/l	0.05	0.01	0.02	<0.01					<0.01				
Cobalt	mg/l	0.005	0.03	0.08	<0.05					<0.05				
Copper	mg/l	0.2	0.08	0.35	<0.02					<0.02				
Total Cyanide	mg/l	0.1	0.01	0.01	<0.01					<0.01				
Iron	mg/l	0.3	35.96	222.94	3.13	4.93	8.41	7.5	4.89	3.74	3.56	6.59	3.64	1.78
Lead	mg/l	0.025	3.59	23.51	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Magnesium	mg/l	35	15.72	56.87	9.51	9.76	9.28	9.93	14.2	10.3	7.11	10.5	10.4	9.17
Manganese	mg/l	0.3	2.81	15.33	0.133	0.204	0.569	0.662	1.92	0.353	0.221	0.443	0.34	0.623
Mercury	mg/l	0.002	0.09	0.81	<0.0003					<0.0003				
Nickel	mg/l	0.007	0.06	0.21	<0.04					<0.04				
Potassium	mg/l		1.91	8.69	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Selenium	mg/l	0.01	0.004	0.005	<0.005					<0.005				
Silver	mg/l	0.05	0.01	0.03	<0.01					<0.01				
Sodium	mg/l	20	1.83	5.45	1.6	1.67	1.93	1.61	2.74	1.72	1.5	1.66	1.62	1.86
Thallium	mg/l	0.004	0.01	0.01	<0.01					<0.01				
Vanadium	mg/l	0.014	0.03	0.08	<0.05					<0.05				
Zinc	mg/l	0.3	0.65		0.034					0.0298				

TEST PARAMETER (mg/l unless otherwise noted)	4Q99 Bsln	1Q00 Rtne	2Q00 Rtne	3Q00 Rtne	4Q00 Rtne	1Q01 Rtne	2Q01 Rtne	3Q01 Bsln	4Q01 Rtne	1Q02 Rtne
Temperature										
Conductivity	542	36.6	685	29'	585	349	331	579	287	265
pH	9.27	6.86	7.22	7.8	8.15	6.9	7.23	7.2	7.03	7.27
Eh	-112	-6	0.5	48(	-61	335	80	65	30	N/A
Turbidity (after purging well)	28	33	28	52	31.6	52.4	90.3	34.4	23.7	27.9
LEACHATE INDICATORS:										
Ammonia Nitrogen	<0.05	<0.05	<0.05	<0.1	<0.05	0.412	<0.05	<0.05	<0.05	<0.005
BOD 5	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2.0
Bromide	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1.0
COD	<5	13.1	7.5	<5	<5	<5	<5	<5	<5	<5.0
Chloride	3.44	2.63	3.51	3.4	3.35	2.98	3.31	2.74	2.59	2.88
Nitrate	<0.5	<0.5	2.02	0.05	0.785	<0.5	<0.5	<0.5	<0.5	<0.5
Sulfate	13.4	15.4	29.8	16	16.6	16.3	14.7	14.2	12.5	14.6
Total Alkalinity	123	133	268	130	172	207	153	192	141	156
Total Dissolved Solids	159	157	344	190	221	237	186	189	173	180
Total Hardness	134	145	302	1444	199	200	181	370	157	165
Total Kjed. Nitrogen	<0.2	0.642	0.38	<1	0.31	0.627	<0.2	<0.2	<02	<0.2
Total Organic Carbon	<1	1.73	4.65	<1	1.59	1.8	<1	<1	1.13	<1.0
Total Phenols	<0.005	<0.005	<0.005	<0.002	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Color	10		5					10		
Boron	<0.2		<0.2					<02		
INORGANIC PARAMETERS										
Aluminum	REJECT		REJECT					1.67		
Antimony	<0.06		<0.06					<0.06		
Arsenic	<0.01		<0.01					<0.01		
Barium	<0.02		0.0301					<0.02		
Beryllium	<0.005		<0.005					<0.005		
Cadmium	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Calcium	41.5	42.6	91.2	45	62.2	60.9	56.5	56.6	46	52.7
Chromium	<0.01		<0.01					<0.01		
Hexavalent Chromium	<0.01		<0.01					<0.01		
Cobalt	<0.05		<0.05					<0.05		
Copper	<0.02		<0.02					<0.02		
Total Cyanide	<0.01		<0.01					<0.01		
Iron	3.16	3.85	5.58	0.2	2.08	4.48	5.12	1.87	1.32	1.84
Lead	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Magnesium	8.02	8.35	16.7	7.7	11.6	10.5	10.6	10.8	8.65	8.43
Manganese	0.601	0.682	2.89	0.14	0.314	1.42	1.2	0.472	0.309	1.19
Mercury	<0.0003		<0.0003					<0.0002		
Nickel	<0.04		<0.04					<0.04		
Potassium	<2	<2	<2	0.7	<2	<2	<2	<5	<5	<2.0
Selenium	<0.005		<0.005					<0.005		
Silver	<0.01							0.05		
Sodium	1.64	1.92	2.78	2.2	2.33	2.34	2.02	2.11	1.95	1.99
Thallium	<0.01		<0.01					<0.01		
Vanadium	<0.05		<0.05					<0.05		
Zinc	0.0211		0.0314					0.0221		

TEST PARAMETER (mg/l unless otherwise noted)	April-03 Routine	June-03 Routine	Sep-03 Baseline	Dec-03 Routine	Mar-04 Routine	Jun-04 Routine	Sep-04 Routine	Dec-04 Baseline	Mar-05 Baseline	Jun-05 Routine	Sep-05 Routine	Dec-05 Routine	March Routine	June Baseline
Temperature	8.45	10	13.01	9.63	7.72	10.77	11.36	9.91	7.68	9.19	11.51	9.3	8.23	10.63
Conductivity	525	424	318	334	316	334	320	341	562	299	307	380	273	269
pH	6.97	7.71	8.18	7.06	7.61	7.63	7.85	7.48	6.57	7.84	8.28	7.94	7.31	7.94
Eh	129.5	23	-70.5	-30.4	-32.2	-73.4	-125.1	-146.9	-115.4	-83	-32.3	-66	201.5	-74.4
Turbidity (after purging well)	6.7	71.1	48.8	91.4	60	41.4	63.8	66.6	29.8	15	184	14.6	61.4	107
LEACHATE INDICATORS:														
Ammonia Nitrogen	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	< 0.5	< 0.5	<0.5
BOD 5	<4	<4	<4	<4	<4	<4	<4	<4	4		<4	< 4	<4	<8
Bromide		<2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.20		<2	< 0.2	< 0.2	<0.2
COD	<0.2	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	< 20	< 20	23
Chloride	3	3	4	3	3	4	4.08	3.83	15.3	4.85	9.9	<1	5.4	13.8
Nitrate	1.9	<0.2	<0.2	0.3	<0.2	<0.2	0.3	<0.2	3.1	<0.2	<0.2	< 0.2	< 0.2	0.28
Sulfate	15	15	13	22	14	19.2	18.2	20.8	16.9	<250	10.3	7.31	10.2	13.7
Total Alkalinity	260	150	160	180	150	170	160	290	270	260	130	270	130	120
Total Dissolved Solids	320	150	180	200	230	185	230	632	360	<25	265	232	293	265
Total Hardness	260	140	130	180	150	168	158	162	298	140	144	99.5	141	160
Total Kjed. Nitrogen	<0.5	<0.5	0.9	<0.5	<0.5	<0.5	<0.5	<0.5	3.46		<0.5	< 0.5	< 0.5	<0.5
Total Organic Carbon	<3	<3	5	<3	<3	<3	<3	<3	4	<3	<3	< 3	< 3	<3
Total Phenols	<0.005	<0.005	0.007	<0.5	<0.005	<0.005	<0.005	<0.005	0.02	0.007	<0.005	< 0.005	<0.005	<0.005
Color			12					15	50					12
Boron			<0.5					<0.5	<0.5					<0.5
INORGANIC PARAMETERS														
Aluminum			0.642					1.81	0.702					2.66
Antimony			<0.015					0.0195	<0.015					<0.015
Arsenic			<0.01					<0.010	<0.010					<0.01
Barium			<0.05					<0.050	<0.050					<0.05
Beryllium			<0.003					<0.003	<0.003					<0.003
Cadmium	<0.005	0.0101	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	< 0.005	< 0.005	<0.005
Calcium	81.7	41.5	39.6	55.9	46	50.3	47.6	49.1	94.7	44	43.2	29.9	42.0	47.7
Chromium			<0.005					<0.005	<0.005					0.0664
Hexavalent Chromium			<0.01					<0.010	<0.010					<0.010
Cobalt			<0.02					<0.020	<0.020					<0.020
Copper			0.0322					0.012	0.017					0.011
Total Cyanide			<0.1					<0.010	<0.010					<0.010
Iron	0.525	3.42	1.17	2.16	3.34	1.9	3.21	3.17	1.93	2	4.57	0.544	3.72	5.39
Lead	<0.003	0.0041	<0.003	<0.003	0.00376	0.0059	<0.003	<0.003	<0.003	0.001	<0.003	< 0.003	0.0026	<0.003
Magnesium	12.9	8.68	7.8	10	9.5	10.3	9.5	9.67	15	8.7	8.77	6.02	8.70	10.00
Manganese	0.203	1.17	0.426	1.67	0.739	0.453	0.857	0.89	4.97	0.46	1	0.222	0.684	1.5
Mercury			<0.0002					<0.0002	<0.0002					<0.0002
Nickel			<0.03					<0.030	<0.030					<0.030
Potassium	<1	2.08	<1	<1.0	1.04	<1	1.02	<1	2.65	1.3	1.03	< 1	0.86	1.23
Selenium			<0.005					<0.005	<0.005					0.00607
Silver			<0.01					<0.010	<0.010					<0.010
Sodium	2.18	2.11	1.56	2.34	1.81	2.17	1.86	1.65	3.79	2.8	2.27	1.4	2.5	2.49
Thallium			<0.01					<0.010	<0.010					<0.010
Vanadium			<0.03					<0.030	<0.030					<0.030
Zinc			0.0218					0.0504	0.0938					0.0945

Notes:

1 Parameters listed are Part 360 Baseline or Routine Parameters Effective 1993
2. Blanks indicate no analysis performed
3 "<" indicates not detected at the specified method detection limit (MDL)
4 Shaded values indicate detection above Standard.

TABLE B-1
Groundwater Analytical Monitoring Data
MW-1I
Albany Interim Landfill/P-4 Project
CHA Project No. 12244

TEST PARAMETER (mg/l unless otherwise noted)	Unit	TOGS Guidance Value	Mean (EWQV)	Mean (EWQV) Plus 3 Std. Dev.	2Q97 Bsln	3Q97 Rtne	4Q97 Rtne	1Q98 Rtne	2Q98 Rtne	3Q98 Bsln	4Q98 Rtne	1Q99 Rtne	2Q99 Rtne	3Q99 Rtne	4Q99 Bsln	1Q00 Rtne	2Q00 Rtne	3Q00 Rtne	4Q00 Rtne	1Q01 Rtne	2Q01 Rtne	3Q01 Bsln	4Q01 Rtne	1Q02 Rtne
Temperature	C*																							
Conductivity	uS		406.88	2115.14	1808	239	258	268	192	229	247	243	257	257	36.8	20.4	-1.24	227	0.33	243	239	237	236	1843
pH	SU	6.5-8.5	7.46	8.95	6.96	7.84	7.48	8.08	8.4	8.26	8.94	8.39	9.09	8.6	8.5	7.23	8.49	7.8	8.34	7.47	7.37	7.64	7.18	7.31
Eh	mV		188.71	-76 502.68	14	-50	-21	-56	-62	-66	-103	-73	-119	-91	-85	-12	-76	213	-67	300	-35	OR	-10	N/A
Turbidity (after purging well)	N.T.U	5	16.47	57.27	NA	2.4	2	2.5	2.9	3	2.4	11	1.1	6.3	5.3	3.3	5	3.2	22.9	3.18	2.32	2.77	3.91	2.94
LEACHATE INDICATORS:																								
Ammonia Nitrogen	mg/l	2	0.09	0.23	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.05	<0.1	<0.05	<0.5	<0.05	<0.05
BOD 5	mg/l		1.5	1.5	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	4.23	<2	<2.0
Bromide	mg/l	2	0.41	1.84	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1.0
COD	mg/l		12.53	87.04	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	6.47
Chloride	mg/l	250	1.8	4.07	2.07	1.93	1.75	1.96	1.86	1.08	2.14	1.35	2.05	1.76	1.52	1.32	1.95	2.3	2	1.8	2.04	2.14	2.5	2.99
Nitrate	mg/l	10	0.03	0.07	<0.05	<0.05	<0.05	<0.05	<0.5	<0.05	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.04	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Sulfate	mg/l	250	21.28	33.34	15.7	17.4	12.4	23.4	25.3	23.8	17.9	21.5	19.9	20.2	20.4	22.5	20.7	22	20.6	21.1	19.4	17.9	20.6	20.4
Total Alkalinity	mg/l		94.31	210.85	105	105	107	105	105	102	106	106	106	107	107	111	112	110	109	106	106	123	106	105
Total Disolved Solids	mg/l	500	137.71	179.2	157	149	146	152	146	152	170	157	177	156	150	142	158	150	150	147	148	151	151	155
Total Hardness	mg/l		157.38	245.34	146	125	130	127	144	134	127	140	154	202	128	120	130	148	125	122	124	126	136	111
Total Kjed. Nitrogen	mg/l		0.72	0.96	0.83	0.273	0.365	<0.2	0.353	<0.2	<02	<0.2	<0.2	0.341	22	<0.2	<0.3	<1	0.231	<02	<0.2	<0.2	<0.2	<0.2
Total Organic Carbon	mg/l	500	2.29	6.82	3.9	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	1.04	<1	<1	<1	<1	<1	<1	1.12	<1.0
Total Phenols	mg/l	0.001	0.004	0.016	0.011	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Color	P C U	15	7.68	20.01	<5					<5					10		5					5		
Boron	mg/l	1	0.05	0.17	<0.2					<02					<0.2		<02					<0.2		
INORGANIC PARAMETERS:																								
Aluminum	mg/l	0.1	1.42	8.76	0.252					<0.1					REJECT		REJECT					<0.1		
Antimony	mg/l	0.003	0.04	0.07	<0.06					<0.06					<0.06		<0.06					<0.06		
Arsenic	mg/l	0.025	0.01	0.02	<0.01					<0.01					<0.01		<0.01					<0.01		
Barium	mg/l	1	0.03	0.08	0.0301					0.0246					0.0256		0.0304					0.0248		
Beryllium	mg/l	0.003	0.003	0.007	<0.005					<0.005					<0.005		<0.005					<0.005		
Cadmium	mg/l	0.01	0.003	0.006	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Calcium	mg/l		50.56	80.51	43.4	37.8	36.1	40.6	38.3	36.5	36.9	36.1	40.1	43.6	42.8	39.5	53.9	50	39.5	37.8	40	40	40.6	39.6
Chromium	mg/l		0.01	0.03	<0.01					<0.01					<0.01		<0.01					<0.01		
Hexavalent Chromium	mg/l	0.05	0.01	0.02	<0.01					<0.01					<0.01		<0.01					0.0249		
Cobalt	mg/l	0.005	0.02	0.09	<0.05					<0.05					<0.05		<0.05					<0.05		
Copper	mg/l	0.2	0.03	0.07	<0.02					<0.02					<0.02		<0.02					<0.02		
Total Cyanide	mg/l	0.1	0.01	0.01	<0.01					<0.01					<0.01		<0.01					0.0133		
Iron	mg/l	0.3	3.09	18.7	1.07	0.458	0.685	0.458	0.536	0.702	0.456	0.384	0.622	0.654	0.521	0.552	REJECT	0.5	0.511	0.36	0.342	0.513	0.83	0.565
Lead	mg/l	0.025	0.01	0.02	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Magnesium	mg/l	35	16.51	97.21	5.96	5.74	6.03	6.08	5.81	5.8	5.64	5.91	5.95	6.76	6.28	5.9	6.14	5.7	5.95	5.32	5.7	5.88	5.72	6.78
Manganese	mg/l	0.3	0.22	0.5	0.198	0.14	0.178	0.139	0.141	0.173	0.128	0.124	0.148	0.154	0.15	0.159	0.164	0.13	0.128	0.109	0.136	0.132	0.161	0.14
Mercury	mg/l	0.002	0.0003	0.0005	<0.0003					<0.003					<0.0003		<0.0003					<0.0002		
Nickel	mg/l	0.007	0.03	0.06	<0.04					<0.04					<0.04		<0.04					<0.04		
Potassium	mg/l		1.32	4.31	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	4.47	0.5	<2	<2	<2	<5	<5	<2.0
Selenium	mg/l	0.01	0.004	0.005	<0.005					<0.005					<0.005		<0.005					<0.005		
Silver	mg/l	0.05	1.29	12.09	<0.01					<0.01					<0.01		<0.01					<0.01		
Sodium	mg/l	20	3.16	9.36	2.17	1.9	2.29	1.88	2.12	1.85	1.77	1.89	1.91	2.24	1.88	2.07	3.01	2.2	2.04	1.97	1.98	1.86	0.204	2.05
Thallium	mg/l	0.004	0.01	0.01	<0.01					<0.01					<0.01		<0.01					<0.01		
Vanadium	mg/l	0.014	0.02	0.09	<0.05					<0.05					<0.05		<0.05					<0.05		
Zinc	mg/l	0.3	0.05	0.18	0.0628					0.063					0.0368		<0.02					<0.02		

TEST PARAMETER (mg/l unless otherwise noted)	April-03 Routine	June-03 Routine	Sep-03 Baseline	Dec-03 Routine	Mar-04 Routine	Jun-04 Routine	Sep-04 Routine	Dec-04 Baseline	Mar-05 Baseline	Jun-05 Routine	Sep-05 Routine	Dec-05 Routine	Mar-06 Routine	Jun-06 Baseline
Temperature	9.75	10.5	11.1	8.85	8.48	11.63	10.94	8.40	9.41	10.46	10.60	7.9	8.67	10.69
Conductivity	253	325	243	195	280	253	251	252	253	253	252	384	248	185
pH	8.04	7.74	8.35	7.93	7.75	8.05	7.95	7.70	7.66	7.97	8.33	8.09	7.12	7.89
Eh	-123.1	-48	-129	-83.3	-34	-106.1	-138.4	-224.1	-150.2	-91	-44.9	-76	206.1	-74.5
Turbidity (after purging well)	3.4	4.1	6.38	21.7	3.2		3.71	1.13	8.7	5.91	19.5	0.42	8.21	6.4
LEACHATE INDICATORS:														
Ammonia Nitrogen	<0.5	<0.5	0.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.500	<0.5	<0.5	< 0.5	< 0.5	<0.5
BOD 5	<4	<4	<4	<4	<4	<4	4	4	<4		<4	< 4	<4	<8
Bromide	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.20		<0.2	< 0.2	< 0.2	<0.20
COD	23	<20	<20	<20	<20	<20	<20	<20	<20	<20	26	< 20	< 20	31
Chloride	3	3	3	3	4	5	3.83	5.36	6.89	5.36	6.75	6.65	8.22	5.77
Nitrate	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.20	<0.20	<0.20	<0.20	< 0.2		<0.20
Sulfate	19	17	17	16	21	<5	28.8	27.9	<5	21	13.9	10.8		16.7
Total Alkalinity	110	100	100	110	110	120	130	230	100	100	99	110	100	670
Total Disolved Solids	170	160	140	160	210	135	127	667	180	55	232	190	215	170
Total Hardness	110	110	93	120	120	122	121	127	117	120	126	122	117	105
Total Kjed. Nitrogen	<0.5	<0.5	1.4	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5		<0.5	< 0.5	< 0.5	<0.50
Total Organic Carbon	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	< 3	< 3	<3
Total Phenols	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.01	<0.005	<0.005	< 0.005	< 0.005	<0.005
Color			6					7	12					13
Boron			<0.5					<0.5	<0.5					<0.5
INORGANIC PARAMETERS:														
Aluminum			<0.1					<0.1	<0.1					<0.1
Antimony			<0.015					0.0151	<0.015					<0.015
Arsenic			<0.01					<0.010	<0.010					<0.010
Barium			<0.05					<0.050	<0.050					<0.050
Beryllium			<0.003					<0.003	<0.003					<0.003
Cadmium	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	< 0.005	<0.005	<0.005
Calcium	34.9	34.3	29.9	38	37.5	39	38.5	40.7	37.5	39	40.4	38.4	36.9	32.7
Chromium			<0.005					<0.005	<0.005					<0.005
Hexavalent Chromium			<0.01					<0.010	<0.010					<0.010
Cobalt			<0.02					<0.020	<0.020					<0.020
Copper			0.0284					<0.010	0.0111					<0.01
Total Cyanide			<0.01					<0.010	<0.010					<0.010
Iron	0.321	0.541	0.383	0.531	0.517	0.482	0.751	0.542	0.53	0.48	0.58	0.506	0.524	0.512
Lead	<0.003	<0.003	<0.003	<0.003	<0.003	0.00379	<0.003	0.00498	<0.003	0.004	<0.003	< 0.003	< 0.003	<0.003
Magnesium	5.52	5.44	4.44	6.04	5.88	6	5.97	6.07	5.57	5.9	6.19	6.32	6.13	5.71
Manganese	0.111	0.134	0.1	0.135	0.138	0.138	0.201	0.137	0.132	0.13	0.148	0.140	0.132	0.121
Mercury			<0.0002					<0.0002	<0.0002					<0.0002
Nickel			<0.03					<0.030	<0.030					<0.030
Potassium	<1	1.33	<1.0	<1.0	<1.0	<1	<1	<1	6.91	1	1.45	< 1.0	< 1.0	<1.0
Selenium			<0.005					0.0147	<0.005					<0.005
Silver			<0.01					<0.010	<0.010					<0.010
Sodium	1.7	2.17	1.51	2.23	1.83	2.15	1.73	1.5	2.42	2.4	2.3	1.66	2.228	1.88
Thallium			<0.01					<0.010	<0.010					<0.010
Vanadium			<0.03					<0.030	<0.030					<0.030
Zinc			0.093					0.0347	0.0203					0.0521

Notes:
1. Parameters listed are Part 360 Baseline or Routine Parameters Effective 1993.
2. Blanks indicate no analysis performed
3. "<" indicates not detected at the specified method detection limit (MDL)
4. Shaded values indicate detection above Standard

TABLE B-1
Groundwater Analytical Monitoring Data
MW-1D
Albany Interim Landfill/P-4 Project
CHA Project No. 12244

TEST PARAMETER (mg/l unless otherwise noted)	Unit	TOGS Guidance Value	Mean (EWQV)	Mean (EWQV) Plus 3 Std. Dev.	2Q97 Bsln	3Q97 Rtne	4Q97 Rtne	1Q98 Rtne	2Q98 Rtne	3Q98 Bsln	4Q98 Rtne	1Q99 Rtne	2Q99 Rtne	3Q99 Rtne	4Q99 Bsln	2Q00 Rtne	3Q00 Rtne	4Q00 Rtne	1Q01 Rtne	2Q01 Rtne	3Q01 Bsln	4Q01 Rtne
Temperature	C°																					
Conductivity	uS		365.25	1932.98	1657	1857	185.4	195.4	171	175.7	178.6	174.5	194.7	195.2	24.5	19.99	167	455	180	198.6	291	181.5
pH	SU	6.5-8.5	8.21	9.9	7	8.39	8.15	8.69	8.95	8.42	8.94	8.34	9.27	8.94	8.67	8.56	8.2	8.8	8.13	7.3	7.94	7.41
Eh	mV		167.33	534.26	1	-78	-58	87	-83	-77	-104	-71	-116	-108	-95	-97	183	-87	295	25	35	-60
Turbidity (after purging well)	N.T.U	5	48.3	93.92	NA	5.2	5.5	12	6	9.1	9.8	22	13	54	135	190	94	268	80.2	142	28	8.62
LEACHATE INDICATORS:																						
Ammonia Nitrogen	mg/l	2	0.15	0.5	0.0653	0.0654	0.0789	<0.05	0.0619	0.0502	0.0652	0.0536	<0.05	<0.05	0.0564	0.0517	<0.1	0.108	0.106	<0.05	0.0758	0.0961
BOD 5	mg/l		1.5	1.5	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	21	<2
Bromide	mg/l	2	0.41	1.84	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
COD	mg/l		12.75	79.36	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5		5.93	7.5	<5	5.89	<5		<5
Chloride	mg/l	250	1.33	4.78	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1		<1
Nitrate	mg/l	10	0.03	0.13	<0.05	<0.05	<0.05	<0.05	<0.5	<0.05	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.11	<0.5	<0.5	<0.5		<0.5
Sulfate	mg/l	250	6.05	33.99	<2	<2	<2	2.54	3.07	2.94	<2	<2	2.45	3.02	2.4	3.56	2.7	3.1	2.45	2.53	3.32	3.27
Total Alkalinity	mg/l		114.28	214.67	92.2	96.8	113	97.2	96.8	93.9	95.5	95.1	93.5	94.5	105	119	100	96	96.1	96.8	106	94
Total Dissolved Solids	mg/l	500	107.07	172.57	111	120	104	113	115	119	120	121	133	112	133	138	120	141	122	121	114	111
Total Hardness	mg/l		114.45	279.49	76.7	74	75.7	79.7	91.2	95.6	77.1	88.4	80.6	97.2	120	161	87	152	83.3	104	76	80
Total Kjed. Nitrogen	mg/l		0.97	2.61		0.521	0.279	0.283	0.294	0.293	<0.2	0.226	<0.2	<0.2	0.223	0.32	<1	0.363	<0.2	0.209	<0.2	<0.2
Total Organic Carbon	mg/l	500	1.54	5.14	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	1.17	<1	<1	<1	1.23
Total Phenols	mg/l	0.001	0	0.01	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.005	<0.005	<0.005	<0.005	<0.005
Color	P.C.U.	15	8.28	26.86	<5					<5					5	10					<5	
Boron	mg/l	1	0.06	0.19	<0.2					<0.2					<0.2	<0.2					<0.2	
INORGANIC PARAMETERS:																						
Aluminum	mg/l	0.1	3.35	20.68	0.392					1.05					REJECT	REJECT					1.45	
Antimony	mg/l	0.003	0.04	0.07	<0.06					<0.06					<0.06	<0.06					<0.06	
Arsenic	mg/l	0.025	0.01	0.02	<0.01					<0.01					<0.01	0.0106					0.0112	
Barium	mg/l	1	0.04	0.16	0.028					0.0319					0.0673	0.0812					0.0382	
Beryllium	mg/l	0.003	0	0.01	<0.005					<0.005					<0.005	<0.005					<0.005	
Cadmium	mg/l	0.01	0	0.01	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Calcium	mg/l		35.5	85.43	22.2	22.7	20.9	25	68.2	25.6	22.6	23.6	25.2	29.6	39.9	49.3	27	44.1	24.4	32.4	24.7	23.7
Chromium	mg/l		0.01	0.03	<0.01					<0.01					0.0131	0.0174					<0.01	
Hexavalent Chromium	mg/l	0.05	0.01	0.02	<0.01					<0.01					<0.01	<0.01						
Cobalt	mg/l	0.005	0.03	0.07	<0.05					<0.05					<0.05	<0.05					<0.05	
Copper	mg/l	0.2	0.03	0.08	<0.02					<0.02					<0.02	<0.02					<0.02	
Total Cyanide	mg/l	0.1	0.01	0.01	<0.01					<0.01					<0.01	<0.01					0.0133	
Iron	mg/l	0.3	6.45	41.84	0.573	0.757	1.14	1.44	7.06	1.85	1.04	1.58	1.27	3.39	9.22	13.6	0.9	13.7	3.02	6.6	1.23	0.806
Lead	mg/l	0.025	0.01	0.08	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.0062	0.0098	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Magnesium	mg/l	35	5.61	17.43	3.55	3.73	3.84	3.87	10.4	4.47	3.82	4.29	4.16	5.39	8	10.1	4.8	10	4.4	6.43	4.28	3.92
Manganese	mg/l	0.3	0.18	0.93	0.0256	0.0407	0.0465	0.0524	0.0814	0.0687	0.0402	0.0562	0.0439	0.103	0.233	0.364	0.1	0.367	0.0912	0.18	0.0514	0.0446
Mercury	mg/l	0.002	0	0	<0.0003					<0.003					<0.0003	<0.0003					<0.0002	
Nickel	mg/l	0.007	0.03	0.06	<0.04					<0.04					<0.04	<0.04					<0.04	
Potassium	mg/l		1.86	8.76	<2	<2	<2	<2	4.51	<2	<2	<2	<2	<2	2.05	2.54	0.6	2.32	<2	2.07	<5	<5
Selenium	mg/l	0.01	0	0.01	<0.005					<0.005					<0.005	<0.005					<0.005	
Silver	mg/l	0.05	0.01	0.02	<0.01					<0.01					<0.01	<0.01					<0.01	
Sodium	mg/l	20	16.53	45.8	10.2	10.8	11.6	9.85	5.71	8.83	9.84	9.97	9.59	9.8	16.4	17.5	13	17.5	13.2	12.8	10.4	9.58
Thallium	mg/l	0.004	0.01	0.01	<0.01					<0.01					<0.01	<0.01					<0.01	
Vanadium	mg/l	0.014	0.03	0.07	<0.05					<0.05					<0.05	<0.05					<0.05	
Zinc	mg/l	0.3	0.04	0.18	0.0152					0.0119					0.0339	0.0648					<0.02	

TEST PARAMETER (mg/l unless otherwise noted)	April-03 Routine	June-03 Routine	Sep-03 Baseline	Dec-03 Routine	Mar-04 Routine	Jun-04 Routine	Sep-04 Routine	Dec-04 Baseline	Mar-05 Baseline	Jun-05 Routine	Sep-05 Routine	Dec-05 Routine	Mar-06 Routine	Jun-06 Baseline
Temperature	9.92	12.1	10.48	87.4	9.12	11.41	10.38	8.75	10.16	10.65	10.52	8.9	9.14	10.88
Conductivity	199	251	186	166	183	184	183	185	185	186	180	263	173	128
pH	7.92	8.2	8.59	8.12	7.96	7.92	8.42	8.04	8.05	8.15	8.5	8.38	7.59	8.22
Eh	95.4	-8	-137.2	-70.5	-56	-99.2	-132.8	-185.3	-244.8	-99	-67.1	-89	175.6	-10.7
Turbidity (after purging well)	3.6	112.8	12.8	77	65	14	7.08	8.75	25.4	15.3	21.9	3.35	5.28	9.03
LEACHATE INDICATORS:														
Ammonia Nitrogen	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.658	<0.5	< 0.5	< 0.5	<0.5
BOD 5	<4	<4	6	<4	<4	<4	<4	<4	<4		<4	< 4	<4	<8
Bromide	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2		<0.2	< 0.2	< 0.2	<0.2
COD	<20	21	<20	<20	<20	<20	<20	<20	<20	<20	<20	< 20	< 20	<20
Chloride	<1	<1	<1	1	<1	<1	<1	1.02	1.79	<1	1.8	1.23	<1	1.67
Nitrate	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	0.6	<0.2	<0.2	<0.2	<0.2	< 0.2	< 0.2	<0.2
Sulfate	<5	16	5	10	5	11.3	9.83	5.18	<5	<5	<5	< 5	<5	5.06
Total Alkalinity	100	92	92	92	94	110	110	320	94	85	87	99	180	210
Total Dissolved Solids	110	120	130	140	170	108	110	573	132	<25	188	132	152	105
Total Hardness	70	96	61	190	72	70.8	68.1	71.6	78.4	75	69.4	64.4	76.4	61.6
Total Kjed. Nitrogen	<0.5	<0.5	0.9	<0.5	<0.5	<0.5	5.37	<0.5	<0.5		<0.5	< 0.5	< 0.5	<0.5
Total Organic Carbon	<3	<3	<3	<3	<3	<3	<3	14	<3	<3	<3	< 3	< 3	<3
Total Phenols	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.009	<0.005	<0.005	< 0.005	< 0.005	<0.005
Color			5					7	25					7
Boron			<0.5					<0.5	<0.5					<0.5
INORGANIC PARAMETERS:														
Aluminum			0.195					0.144	0.884					0.265
Antimony			<0.015					<0.015	<0.015					<0.015
Arsenic			0.0167					<0.010	0.0103					<0.011
Barium			<0.05					<0.050	<0.050					<0.05
Beryllium			<0.003					<0.003	<0.003					<0.003
Cadmium	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.5	< 0.005	< 0.005	<0.005
Calcium	21.9	29	19.1	55.5	22.2	22.2	21.4	22.5	24.2	24	21.7	19.9	23.8	19
Chromium			<0.005					<0.005	<0.005					<0.005
Hexavalent Chromium			<0.01						<0.010					<0.010
Cobalt			<0.02					<0.020	<0.020					<0.020
Copper			0.0299					<0.010	<0.010					<0.010
Total Cyanide			<0.01						<0.010					<0.010
Iron	0.505	5.37	0.379	14.2	1.48	0.526	0.283	0.248	1.29	0.27	0.528	0.163	0.196	0.372
Lead	<0.003	0.00349	<0.003	0.00962	<0.003	<0.003	<0.003	0.00433	<0.003	<0.001	<0.003	< 0.003	<0.003	<0.003
Magnesium	3.82	5.74	3.18	12.5	4.06	3.72	3.57	3.73	4.39	3.9	3.7	3.55	4.13	3.43
Manganese	0.0421	0.173	0.0356	0.492	0.0646	0.0428	0.0363	0.0337	0.0659	0.04	0.0453	0.0376	0.0342	0.0299
Mercury			0.0002					<0.0002	0.000594					<0.0002
Nickel			<0.03					<0.030	<0.030					<0.03
Potassium	<1	1.99	<1	2.15	1..13	<1	<1	1.2	1.17	0.95	<1	< 1	3.89	<1
Selenium			<0.005					<0.005	<0.005					0.00628
Silver			<0.01					<0.010	<0.010					<0.010
Sodium	10.2	8.65	7	10.3	9.4	10.4	9.26	8.73	9.74	11	11.4	11.4	12.1	9.01
Thallium			<0.01					<0.010	<0.010					<0.010
Vanadium			<0.03					<0.030	<0.030					<0.030
Zinc			0.0112					0.0199	<0.010					0.0252

Notes:

1. Parameters listed are Part 360 Baseline or Routine Parameters Effective 1993.
2. Blanks indicate no analysis performed
3. "<" indicates not detected at the specified method detection limit (MDL)
4. Shaded values indicate detection above Standard.

TABLE B-1
Groundwater Analytical Monitoring Data
MW-2S
Albany Interim Landfill/P-4 Project
CHA Project No. 12244

TEST PARAMETER (mg/l unless otherwise noted)	Unit	TOGS Guidance Value	Mean (EWQV)	Mean (EWQV) Plus 3 Std. Dev.	2Q97 Bsln	3Q97 Rtne	4Q97 Rtne	1Q98 Rtne	2Q98 Rtne	3Q98 Bsln	4Q98 Rtne	1Q99 Rtne	2Q99 Rtne	3Q99 Rtne	4Q99 Bsln	1Q00 Rtne	2Q00 Rtne	3Q00 Rtne	4Q00 Rtne	1Q01 Rtne	2Q01 Rtne	3Q01 Bsln	4Q01 Rtne	1Q02 Rtne
Temperature	C*																							
Conductivity	uS		450.63	1512.75	1312	943	341	531	338	421	582	476	428	480	18.8	369	672	313	554	424	354	491	505	412
pH	SU	6.5-8.5	7.07	7.92	7.09	6.26	6.83	7.37	7.32	7.01	8.01	7.86	8.58	8.42	8.76	6.82	7.53	6.6	7.78	7.05	7.12	7	7.08	7.25
Eh	mV		192.67	521.16	7	36	11	-18	-7	0	53	-45	-171	-78	-88	12	-27	200	-36	NA	195	115	70	NA
Turbidity (after purging well)	N.T.U	5	540	1302.1	NA	39	165	57	81	57	150	240	330	270	345	400	120	460	243	340	392	540	435	45.7
LEACHATE INDICATORS																								
Ammonia Nitrogen	mg/l	2	0.45	2.72	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.5	<0.0	<0.05	<0.0	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
BOD 5	mg/l		3.19	11.01	<2	<2	<2	<2	<2	2.33	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<6	<2	<2.0
Bromide	mg/l	2	0.41	1.84	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	16.2	<1.0
COD	mg/l		33.48	199.68	<5	<5	<5	<5	<5	<5	<5	5.09	<5	5.41	6.5	6.86	5.62	7.5	<5	<5	0.33	6.24	9.21	6.47
Chloride	mg/l	250	6.8	24.26	4.71	12	10.6	4.92	2.98	2.88	3.93	4.67	2.79	2.72	2.44	3.3	12	5.3	6.16	5.01	0.37	51	30.3	15.2
Nitrate	mg/l	10	3.43	14.52	0.784	7.36	8	1.98	1.35	0.25	<0.5	1.47	1.4	1.47	2.06	1.47	2.68	2.7	3.4	3.35	0.41	3.22	<0.5	1.52
Sulfate	mg/l	250	48.19	111.61	29.5	25	19.1	24.8	34.1	24.2	21	26.9	25.1	29	20	20.4	35.2	26	21.3	22.5	0.46	78.1	48.3	54.5
Total Alkalinity	mg/l		119.75	269.56	164	347	307	174	166	304	293	268	172	201	146	168	141	140	205	168	0.50	134	190	224
Total Disolved Solids	mg/l	500	215.75	386.74	251	483	370	241	239	413	366	346	264	234	204	296	235	228	273	235	0.54	399	337	361
Total Hardness	mg/l		198.09	385.9	239	372	366	168	238	367	3350	3316	198	268	200	194	177	166	215	192	0.58	250	250	260
Total Kjed. Nitrogen	mg/l		1.23	4.02	-	0.588	0.86	0.725	0.41	0.958	1.04	1.25	0.228	0.979	<0.2	1.35	1.15	2.5	0.852	0.416	0.62	0.81	0.724	0.582
Total Organic Carbon	mg/l	500	3.44	10	3	1.5	1.2	1.65	1.25	2.25	2.09	1.97	1.93	1.865	1.83	2.37	2.2	1.3	1.54	1.58	0.66	2.2	2.63	1.5
Total Phenols	mg/l	0.001	0.003	0.012	0.00991	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.005	<0.005	0.71	<0.005	<0.005	<0.005
Color	P.C.U	15	11.25	40.05	<5					<5					10		5					100		
Boron	mg/l	1	0.1	0.27	<0.2					<0.2					<0.2		<0.2					<0.21		
INORGANIC PARAMETERS.																								
Aluminum	mg/l	0.1	2.56	14.8	2.8					7.77					REJECT		REJECT					23.3		
Antimony	mg/l	0.003	0.47	3.86	<0.06					<0.06					<0.06		<0.06					<0.06		
Arsenic	mg/l	0.025	0.01	0.01	<0.01					0.0184					<0.01		<0.01					<0.01		
Barium	mg/l	1	0.04	0.13	0.0323					0.0665					0.0721		0.0542					0.119		
Beryllium	mg/l	0.003	0.01	0.04	<0.005					<0.005					<0.005		<0.005					<0.005		
Cadmium	mg/l	0.01	0.003	0.006	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.0051	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Calcium	mg/l		52.62	139.46	62.1	117	106	55.4	25.1	108	90.2	87.8	61.9	71.8	58.9	54.9	61.5	55	67.3	66.5	52.1	83.4	80.3	88.2
Chromium	mg/l		7.27	68.77	<0.01					0.0152					0.027		0.0193					0.0573		
Hexavalent Chromium	mg/l	0.05	0.01	0.02	<0.01					<0.01					<0.01		<0.01					<0.01		
Cobalt	mg/l	0.005	0.02	0.07	<0.05					<0.05					<0.05		<0.05					<0.05		
Copper	mg/l	0.2	0.05	0.17	<0.02					0.0234					0.035		0.0256					0.0274		
Total Cyanide	mg/l	0.1	0.01	0.01	<0.01					<0.01					<0.01		<0.01					0.0125		
Iron	mg/l	0.3	50.18	418.01	3.95	5.74	5.62	10.2	0.576	12.3	20.4	20.1	36	17.1	23.9	25.7	17.8	0.73	17.6	17.2	27.5	24.5	20.6	23.2
Lead	mg/l	0.025	8.73	75.56	<0.005	<0.005	<0.005	<0.005	<0.005	0.0232	0.0119	0.00929	0.0172	0.0154	0.0145	0.0137	0.0067	<0.005	0.00712	<0.005	0.0095	0.0093	0.0069	0.00894
Magnesium	mg/l	35	9.29	23.04	10.2	17.6	16.6	9.65	3.8	15.8	15.1	15.3	13.9	12.6	11.8	11.3	10.5	6.7	11.4	11.1	10.8	14.7	13.1	16.6
Manganese	mg/l	0.3	1.07	8.58	0.0457	0.0672	0.0733	0.12	0.0343	0.418	0.213	0.229	0.319	0.187	0.221	0.236	0.198	0.06	0.18	0.164	0.304	205	0.377	0.264
Mercury	mg/l	0.002	0.01	0.1	<0.0003					<0.0003					<0.0003		<0.0003					<0.0002		
Nickel	mg/l	0.007	0.04	0.06	<0.04					<0.04					<0.04		<0.04					<0.04		
Potassium	mg/l		2.53	11.23	4.28	5.23	5.02	6.17	<2	7.42	6.64	7.5	7.82	6.75	8.85	6.98	6.38	5	6.33	8.86	10.8	12.2	13.1	11.4
Selenium	mg/l	0.01	0.004	0.009	<0.005					<0.005					<0.005		<0.005					<0.005		
Silver	mg/l	0.05	0.01	0.03	<0.01					<0.01					<0.01		<0.01					<0.01		
Sodium	mg/l	20	8.56	25.85	7.49	6.04	5.28	8	11.1	6.18	5.41	6.72	6.92	6.84	8.82	5.85	9.18	7.1	7.96	6.2	10.2	12.5	13	8.73
Thallium	mg/l	0.004	0.92	8.68	<0.01					0.0103					<0.01		<0.01					<0.01		
Vanadium	mg/l	0.014	0.03	0.07	<0.05					<0.05					<0.05		<0.05					0.0638		
Zinc	mg/l	0.3	0.12	0.76	0.0483					0.171					0.085		0.137					0.0827		

TEST PARAMETER (mg/l unless otherwise noted)	April-03 Routine	June-03 Routine	Sep-03 Baseline	Dec-03 Routine	Mar-04 Routine	Jun-04 Routine	Sep-04 Routine	Dec-04 Baseline	Mar-05 Baseline	Jun-05 Routine	Sep-05 Routine	Dec-05 Routine	Mar-06 Routine	Jun-06 Baseline
Temperature	10.28	9.5	12.6	10.9	7.93	11.08	11.86	11.02	8.5	9.36	11.74	9.8	9.37	10.26
Conductivity	705	376	451	554	778	469	796	1162	596	591	925	667	700	437
pH	7.03	7.53	7.5	7.4	7.36	6.82	7	7.30	7.63	7.68	7.78	7.18	6.61	7.89
Eh	98.2	52	-64.9	-41	-24.7	-42.7	-102.9	-211.5	-16.5	-5	-12.2	-22	191.5	-73.4
Turbidity (after purging well)	220	448	389	111	600	512	443	367	>1000	945	409	468	253	872
LEACHATE INDICATORS														
Ammonia Nitrogen	<0.5	<0.5	1.4	<0.5	0.8	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	< 0.5	< 0.5	<0.5
BOD 5	<4	<4	5	<4	<4	<4	<4	4	<4		<4	< 6	<4	<4
Bromide	<0.2	<0.2	<0.2	<0.2	<2	<0.2	<0.2	<0.2	<0.020		<0.2	< 2	< 0.20	<0.2
COD	<20	26	27	<20	23	22	<20	<20	<20	<20	27	< 20	23	<20
Chloride	42	21	75	79	180	64	137	80.1	42.1	40.8	42.8	35.5	32.9	33.5
Nitrate	7.1	1.5	7.9	<0.05	13	5.7	<0.2	20	2	5.5	7.2	5.4	3.8	3.4
Sulfate	120	33	55	60	35	209	65.6	166	83.3	61.9	46.2	61	43.4	89.9
Total Alkalinity	180	70	180	190	240	210	210	460	260	250	250	120	92	210
Total Disolved Solids	420	210	440	490	670	310	530	1100	528	502	442	122	392	408
Total Hardness	280	110	240	260	290	135	273	298	280	210	242	212	181	199
Total Kjed. Nitrogen	1.2	<0.5	0.9	<0.5	1.4	<0.5	<0.5	<0.5	<0.5		<0.5	< 0.5	< 0.5	<0.5
Total Organic Carbon	<3	<3	5	6	5	<3	6	7	30	4	3	3	3	4
Total Phenols	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.005	< 0.005	<0.005
Color			15					15	2000					110
Boron			<0.5					0.687	0.749					<0.5
INORGANIC PARAMETERS.														
Aluminum			2.69					6.1	8					9.37
Antimony			<0.15					0.0276	<0.015					<0.015
Arsenic			<0.01					<0.010	<0.010					<0.010
Barium			<0.05					0.0706	0.0736					0.0604
Beryllium			<0.003					<0.003	<0.003					<0.003
Cadmium	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	< 0.005	< 0.005	<0.005
Calcium	84.9	32.1	75.9	81.2	91.2	38.9	85.3	95.2	89.1	67	74.3	66.7	55.3	60.1
Chromium			0.0689					0.484	0.318					0.261
Hexavalent Chromium			<0.01					<0.010	<0.010					<0.010
Cobalt			<0.02					<0.020	<0.020					<0.02
Copper			0.0476					0.036	0.0502					0.0328
Total Cyanide			<0.01					<0.010	<0.010					<0.010
Iron	13.8	14.7	5.01	4.7	16	18.2	16.9	12.9	15	13	23	17.4	18.1	19.2
Lead	0.00465	0.00839	<0.003	<0.003	0.00657	0.0123	0.00779	0.00615	0.00747	0.008	0.00976	< 0.01	0.014	0.00854
Magnesium	15.9	7.73	11.1	12.8	15	9.13	14.7	14.6	13.9	11	13.6	11.2	10.5	11.8
Manganese	0.157	0.146	0.108	0.179	0.241	0.161	0.15	0.123	0.159	0.13	0.194	0.164	0.168	0.18
Mercury			<0.0002					<0.0002	<0.0002					<0.0002
Nickel			0.0593					0.103	0.0888					0.0525
Potassium	6.42	7.91	5.11	6.01	7.91	7.3	8.87	9.22	9.59	7.3	10.6	7.78	7.18	7.82
Selenium			<0.005					<0.005	<0.005					0.00902
Silver			<0.01					<0.010	<0.010					<0.010
Sodium	15.1	18.9	21.3	50.4	47.8	25.4	55.9	115	77.6	76	66.8	35.1	54.3	57.8
Thallium			<0.01					<0.010	<0.010					<0.010
Vanadium			<0.03					<0.030	<0.030					<0.030
Zinc			0.0294					0.0487	0.0283					0.0721

Notes.

1. Parameters listed are Part 360 Baseline or Routine Parameters Effective 1993.
2. Blanks indicate no analysis performed
3. "<" indicates not detected at the specified method detection limit (MDL)
4. Shaded values indicate detection above Standard.

TABLE B-1
Groundwater Analytical Monitoring Data
MW-2S
Albany Interim Landfill/P-4 Project
CHA Project No. 12244

TEST PARAMETER (mg/l unless otherwise noted)	Unit	TOGS Guidance Value	Mean (EWQV)	Mean (EWQV) Plus 3 Std. Dev.	2Q97 Bsln	3Q97 Rtne	4Q97 Rtne	1Q98 Rtne	2Q98 Rtne	3Q98 Bsln	4Q98 Rtne	1Q99 Rtne	2Q99 Rtne	3Q99 Rtne	4Q99 Bsln	1Q00 Rtne	2Q00 Rtne	3Q00 Rtne	4Q00 Rtne	1Q01 Rtne	2Q01 Rtne	3Q01 Bsln	4Q01 Rtne	1Q02 Rtne
Temperature	C*																							
Conductivity	uS		450.63	1512.75	1312	943	341	531	338	421	582	476	428	480	18.8	369	672	313	554	424	354	491	505	412
pH	SU	6.5-8.5	7.07	7.92	7.09	6.26	6.83	7.37	7.32	7.01	8.01	7.86	8.58	8.42	8.76	6.82	7.53	6.6	7.78	7.05	7.12	7	7.08	7.25
Eh	mV		192.67	521.16	7	36	11	-18	-7	0	53	-45	-171	-78	-88	12	-27	200	-36	NA	195	115	70	N/A
Turbidity (after purging well)	N T U	5	540	1302.1	NA	39	165	57	81	57	150	240	330	270	345	400	120	460	243	340	392	540	435	45.7
LEACHATE INDICATORS:																								
Ammonia Nitrogen	mg/l	2	0.45	2.72	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.5	<0.0	<0.05	<0.0	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
BOD 5	mg/l		3.19	11.01	<2	<2	<2	<2	<2	2.33	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<6	<2	<2.0
Bromide	mg/l	2	0.41	1.84	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	16.2	<1.0
COD	mg/l		33.48	199.68	<5	<5	<5	<5	<5	<5	<5	5.09	<5	5.41	6.5	6.86	5.62	7.5	<5	<5	0.33	6.24	9.21	6.47
Chloride	mg/l	250	6.8	24.26	4.71	12	10.6	4.92	2.98	2.88	3.93	4.67	2.79	2.72	2.44	3.3	12	5.3	6.16	5.01	0.37	51	30.3	15.2
Nitrate	mg/l	10	3.43	14.52	0.784	7.36	8	1.98	1.35	0.25	<0.5	1.47	1.4	1.47	2.06	1.47	2.68	2.7	3.4	3.35	0.41	3.22	<0.5	1.52
Sulfate	mg/l	250	48.19	111.61	29.5	25	19.1	24.8	34.1	24.2	21	26.9	25.1	29	20	20.4	35.2	26	21.3	22.5	0.46	78.1	48.3	54.5
Total Alkalinity	mg/l		119.75	269.56	164	347	307	174	166	304	293	268	172	201	146	168	141	140	205	168	0.50	134	190	224
Total Disolved Solids	mg/l	500	215.75	386.74	251	483	370	241	239	413	366	346	264	234	204	296	235	228	273	235	0.54	399	337	361
Total Hardness	mg/l		198.09	385.9	239	372	366	168	238	367	3350	3316	198	268	200	194	177	166	215	192	0.58	250	250	260
Total Kjed. Nitrogen	mg/l		1.23	4.02	-	0.588	0.86	0.725	0.41	0.958	1.04	1.25	0.228	0.979	<0.2	1.35	1.15	2.5	0.852	0.416	0.62	0.81	0.724	0.582
Total Organic Carbon	mg/l	500	3.44	10	3	1.5	1.2	1.65	1.25	2.25	2.09	1.97	1.93	1.865	1.83	2.37	2.2	1.3	1.54	1.58	0.66	2.2	2.63	1.5
Total Phenols	mg/l	0.001	0.003	0.012	0.00991	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.005	<0.005	0.71	<0.005	<0.005	<0.005
Color	P C U	15	11.25	40.05	<5					<5					10		5					100		
Boron	mg/l	1	0.1	0.27	<0.2					<0.2					<0.2		<0.2					<0.21		
INORGANIC PARAMETERS:																								
Aluminum	mg/l	0.1	2.56	14.8	2.8					7.77					REJECT		REJECT					23.3		
Antimony	mg/l	0.003	0.47	3.86	<0.06					<0.06					<0.06		<0.06					<0.06		
Arsenic	mg/l	0.025	0.01	0.01	<0.01					0.0184					<0.01		<0.01					<0.01		
Barium	mg/l	1	0.04	0.13	0.0323					0.0665					0.0721		0.0542					0.119		
Beryllium	mg/l	0.003	0.01	0.04	<0.005					<0.005					<0.005		<0.005					<0.005		
Cadmium	mg/l	0.01	0.003	0.006	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.0051	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Calcium	mg/l		52.62	139.46	62.1	117	106	55.4	25.1	108	90.2	87.8	61.9	71.8	58.9	54.9	61.5	55	67.3	66.5	52.1	83.4	80.3	88.2
Chromium	mg/l		7.27	68.77	<0.01					0.0152					0.027		0.0193					0.0573		
Hexavalent Chromium	mg/l	0.05	0.01	0.02	<0.01					<0.01					<0.01		<0.01					<0.01		
Cobalt	mg/l	0.005	0.02	0.07	<0.05					<0.05					<0.05		<0.05					<0.05		
Copper	mg/l	0.2	0.05	0.17	<0.02					0.0234					0.035		0.0256					0.0274		
Total Cyanide	mg/l	0.1	0.01	0.01	<0.01					<0.01					<0.01		<0.01					0.0125		
Iron	mg/l	0.3	50.18	418.01	3.95	5.74	5.62	10.2	0.576	12.3	20.4	20.1	36	17.1	23.9	25.7	17.8	0.73	17.6	17.2	27.5	24.5	20.6	23.2
Lead	mg/l	0.025	8.73	75.56	<0.005	<0.005	<0.005	<0.005	<0.005	0.0232	0.0119	0.00929	0.0172	0.0154	0.0145	0.0137	0.0067	<0.005	0.00712	<0.005	0.0095	0.0093	0.0069	0.00894
Magnesium	mg/l	35	9.29	23.04	10.2	17.6	16.6	9.65	3.8	15.8	15.1	15.3	13.9	12.6	11.8	11.3	10.5	6.7	11.4	11.1	10.8	14.7	13.1	16.6
Manganese	mg/l	0.3	1.07	8.58	0.0457	0.0672	0.0733	0.12	0.0343	0.418	0.213	0.229	0.319	0.187	0.221	0.236	0.198	0.06	0.18	0.164	0.304	205	0.377	0.264
Mercury	mg/l	0.002	0.01	0.1	<0.0003					<0.0003					<0.0003		<0.0003					<0.0002		
Nickel	mg/l	0.007	0.04	0.06	<0.04					<0.04					<0.04		<0.04					<0.04		
Potassium	mg/l		2.53	11.23	4.28	5.23	5.02	6.17	<2	7.42	6.64	7.5	7.82	6.75	8.85	6.98	6.38	5	6.33	8.86	10.8	12.2	13.1	11.4
Selenium	mg/l	0.01	0.004	0.009	<0.005					<0.005					<0.005		<0.005					<0.005		
Silver	mg/l	0.05	0.01	0.03	<0.01					<0.01					<0.01		<0.01					<0.01		
Sodium	mg/l	20	8.56	25.85	7.49	6.04	5.28	8	11.1	6.18	5.41	6.72	6.92	6.84	8.82	5.85	9.18	7.1	7.96	6.2	10.2	12.5	13	8.73
Thallium	mg/l	0.004	0.92	8.68	<0.01					0.0103					<0.01		<0.01					<0.01		
Vanadium	mg/l	0.014	0.03	0.07	<0.05					<0.05					<0.05		<0.05					0.0638		
Zinc	mg/l	0.3	0.12	0.76	0.0483					0.171					0.085		0.137					0.0827		

TEST PARAMETER (mg/l unless otherwise noted)	April-03 Routine	June-03 Routine	Sep-03 Baseline	Dec-03 Routine	Mar-04 Routine	Jun-04 Routine	Sep-04 Routine	Dec-04 Baseline	Mar-05 Baseline	Jun-05 Routine	Sep-05 Routine	Dec-05 Routine	Mar-06 Routine	Jun-06 Baseline
Temperature	10.28	9.5	12.6	10.9	7.93	11.08	11.86	11.02	8.5	9.36	11.74	9.8	9.37	10.26
Conductivity	705	376	451	554	778	469	796	1162	596	591	925	667	700	437
pH	7.03	7.53	7.5	7.4	7.36	6.82	7	7.30	7.63	7.68	7.78	7.18	6.61	7.89
Eh	98.2	52	-64.9	-41	-24.7	-42.7	-102.9	-211.5	-16.5	-5	-12.2	-22	191.5	-73.4
Turbidity (after purging well)	220	448	389	111	600	512	443	367	>1000	945	409	468	253	872
LEACHATE INDICATORS:														
Ammonia Nitrogen	<0.5	<0.5	1.4	<0.5	0.8	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	< 0.5	< 0.5	<0.5
BOD 5	<4	<4	5	<4	<4	<4	<4	4	<4		<4	< 6	<4	<4
Bromide	<0.2	<0.2	<0.2	<0.2	<2	<0.2	<0.2	<0.2	<0.020		<0.2	< 2	< 0.20	<0.2
COD	<20	26	27	<20	23	22	<20	<20	<20	<20	27	< 20	23	<20
Chloride	42	21	75	79	180	64	137	80.1	42.1	40.8	42.8	35.5	32.9	33.5
Nitrate	7.1	1.5	7.9	<0.05	13	5.7	<0.2	20	2	5.5	7.2	5.4	3.8	3.4
Sulfate	120	33	55	60	35	209	65.6	166	83.3	61.9	46.2	61	43.4	89.9
Total Alkalinity	180	70	180	190	240	210	210	460	260	250	250	120	92	210
Total Disolved Solids	420	210	440	490	670	310	530	1100	528	502	442	122	392	408
Total Hardness	280	110	240	260	290	135	273	298	280	210	242	212	181	199
Total Kjed. Nitrogen	1.2	<0.5	0.9	<0.5	1.4	<0.5	<0.5	<0.5	<0.5		<0.5	< 0.5	< 0.5	<0.5
Total Organic Carbon	<3	<3	5	6	5	<3	6	7	30	4	3	3	3	4
Total Phenols	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.005	< 0.005	<0.005
Color			15					15	2000					110
Boron			<0.5					0.687	0.749					<0.5
INORGANIC PARAMETERS:														
Aluminum			2.69					6.1	8					9.37
Antimony			<0.15					0.0276	<0.015					<0.015
Arsenic			<0.01					<0.010	<0.010					<0.010
Barium			<0.05					0.0706	0.0736					0.0604
Beryllium			<0.003					<0.003	<0.003					<0.003
Cadmium	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	< 0.005	< 0.005	<0.005
Calcium	84.9	32.1	75.9	81.2	91.2	38.9	85.3	95.2	89.1	67	74.3	66.7	55.3	60.1
Chromium			0.0689					0.484	0.318					0.261
Hexavalent Chromium			<0.01					<0.010	<0.010					<0.010
Cobalt			<0.02					<0.020	<0.020					<0.02
Copper			0.0476					0.036	0.0502					0.0328
Total Cyanide			<0.01					<0.010	<0.010					<0.010
Iron	13.8	14.7	5.5	4.7	16	18.2	16.9	12.9	15	13	23	17.4	18.1	19.2
Lead	0.00465	0.00839	<0.003	<0.003	0.00657	0.0123	0.00779	0.00615	0.00747	0.008	0.00976	< 0.01	0.014	0.00854
Magnesium	15.9	7.73	11.1	12.8	15	9.13	14.7	14.6	13.9	11	13.6	11.2	10.5	11.8
Manganese	0.157	0.146	0.108	0.179	0.241	0.161	0.15	0.123	0.159	0.13	0.194	0.164	0.168	0.18
Mercury			<0.0002					<0.0002	<0.0002					<0.0002
Nickel			0.0593					0.103	0.0888					0.0525
Potassium	6.42	7.91	5.11	6.01	7.91	7.3	8.87	9.22	9.59	7.3	10.6	7.78	7.18	7.82
Selenium			<0.005					<0.005	<0.005					0.00902
Silver			<0.01					<0.010	<0.010					<0.010
Sodium	15.1	18.9	21.3	50.4	47.8	25.4	55.9	115	77.6	76	66.8	35.1	54.3	57.8
Thallium			<0.01					<0.010	<0.010					<0.010
Vanadium			<0.03					<0.030	<0.030					<0.030
Zinc			0.0294					0.0487	0.0283					0.0721

Notes:

1. Parameters listed are Part 360 Baseline or Routine Parameters Effective 1993.
2. Blanks indicate no analysis performed
3. "<" indicates not detected at the specified method detection limit (MDL)
4. Shaded values indicate detection above Standard.

TABLE B-1
Groundwater Analytical Monitoring Data
MW-2I
Albany Interim Landfill/P-4 Project
CHA Project No. 12244

TEST PARAMETER (mg/l unless otherwise noted)	Unit	TOGS Guidance Value	Mean (EWQV)	Mean (EQWV) Plus 3 Std. Dev.	2Q97 Bsln	3Q97 Rtne	4Q97 Rtne	1Q98 Rtne	2Q98 Rtne	3Q98 Bsln	4Q98 Rtne	1Q99 Rtne	2Q99 Rtne	3Q99 Rtne	4Q99 Bsln	1Q00 Rtne	2Q00 Rtne	3Q00 Rtne	4Q00 Rtne	1Q01 Rtne	2Q01 Rtne	3Q01 Bsln	1Q02 Rtne	April-03 Routine	June-03 Routine	Sep-03 Baseline	Dec-03 Routine	Mar-04 Routine	Jun-04 Routine	Sep-04 Routine	Dec-04 Baseline	Mar-05 Baseline	Jun-05 Routine	Sep-05 Routine	Dec-05 Routine	Mar-06 Routine	Jun-06 Baseline
Temperature	C°																							11.81	11.6	11.77	10.7	9.31	11.87	11.58	10.45	10.5	11.7	11.67	9.6	10.26	11.79
Conductivity	uS		468	2764.67	2360	246	236	260	208	217	232	214	252	251	320	185.1	1.03	225	0.31	258	228	218	195.9	267	303	242	187	242	235	230	229	220	221	217	301	216	157
pH	SU	6.5-8.5	7.6	8.22	7.19	8	7.69	8.14	8.18	7.72	8.92	8.22	10.55	9.02	8.92	7.29	8.45	7.1	8.48	7.2	7.45	7.41	7.82	7.71	7.66	8.02	8.13	7.79	7.39	8.03	7.74	8.35	8.15	8.28	7.96	6.35	8.12
Eh	mV		161.57	518.21	-3	-58	-36	-60	53	-37	-101	-65	-205	-111	-107	-16	-75	153	-92	305	40	40		25.8	21	-104	-70	-52.5	-14.3	-99.8	-176.8	-70.7	-52	-38.1	-64	206.5	-92.3
Turbidity (after purging well)	N.T.U	5	14.05	48.45	NA	4.6	1.5	2.9	2.9	1.4	2.1	4.2	1	2.6	3	2.3	7.1	3.6	2.14	3.22	6.39	2.23	6.34	2.7	5.7	12.5	9.16	6.9	1.49	18	4.56	10.2	8.43	7.51	1.85	12.9	3.09
LEACHATE INDICATORS:																																					
Ammonia Nitrogen	mg/l	2	0.1	0.29	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.5	<0.5	0.8	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
BOD 5	mg/l		2.07	5.12	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2.0	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4
Bromide	mg/l	2	0.38	1.95	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<11	<1	<1	<1	<1	<1	<1.0	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.20	<0.20	<0.2	<0.2
COD	mg/l		7.07	24.67	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	5	6.85	<5	<5	10.7	<5	<5	<5.0	<20	23	<20	<20	<20	<20	<20	<20	<20	<20	28	<20	<20	<20
Chloride	mg/l	250	1.52	3.12	1.77	1.55	1.71	1.52	1.48	<1	1.35	<1	1.51	1.53	1.15	<1	1.29	1.3	<1	<1	1.02	1.07	<2.0	<1	2	2	2	2	2	<1	5.1	<1	2.3	4.73	1.97	2.31	20.1
Nitrate	mg/l	10	0.04	0.09	<0.05	<0.05	<0.05	<0.05	<0.5	<0.05	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.03	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	1.3	0.2	0.53
Sulfate	mg/l	250	17.46	41.35	11	13.8	10.6	21.6	24.3	22.2	16.6	21.3	19.5	19.7	20.8	17.2	20.2	22	21.2	21.6	20.2	19	20.4	18	16	21	21	18	<5	29.1	26.7	15.1	18.6	13.3	17.5	12.3	14.5
Total Alkalinity	mg/l		97.25	119.57	101	106	106	102	101	96.3	97.6	98	98	99.5	102	105	105	110	103	105	106	113	106	120	95	110	110	110	110	100	170	94	91	110	110	92	120
Total Disolved Solids	mg/l	500	131.88	184.24	144	153	140	142	143	302	144	148	140	146	142	138	145	155	147	145	145	150	151	160	140	150	130	240	227	135	632	157	<25	147	370	190	140
Total Hardness	mg/l		118.23	143.28	124	117	122	120	136	124	116	141	114	124	120	112	124	127	124	120	120	120	115	110	96	91	97	110	108	107	110	103	96	105	108	90.2	88.7
Total Kjed Nitrogen	mg/l		0.67	1.52		0.271	0.596	0.203	<02	<0.2	<0.2	<02	<0.2	<0.2	1.14	<0.2	0.336	<1	0.244	<0.2	<02	<0.2	<0.2	<0.5	<0.5	0.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5		<0.5	<0.5	<0.5	<0.5
Total Organic Carbon	mg/l	500	2.71	10.75	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	1.41	<1	<1	<1	<1	<1	<1	<1.0	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3
Total Phenols	mg/l	0.001	0.003	0.007	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.006	<0.005	<0.005	0.008	<0.005	<0.005	<0.005	0.015	<0.005	<0.005	<0.005	<0.005	<0.005
Color	P.C.U	15	11.25	38.72	<5					<5					5		5					<5				6					7	7					6
Boron	mg/l	1	0.05	0.17	<02					<0.2					<0.2		<0.2					<0.2				<0.5					<0.5	<0.5					<0.5
INORGANIC PARAMETERS																																					
Aluminum	mg/l	0.1	0.3	1.43	<0.1					<0.1					REJECT		REJECT					<0.1				<0.1					<0.1	<0.1					<0.1
Antimony	mg/l	0.003	0.04	0.07	<0.06					<0.06					<0.06		<0.06					<0.06				<0.015					<0.015	0.0284					<0.015
Arsenic	mg/l	0.025	0.01	0.01	<0.01					<0.01					<0.01		<0.01					<0.01				<0.01					<0.010	<0.010					<0.010
Barium	mg/l	1	0.05	0.06	0.0512					0.05					0.0502		0.0525					0.0531				<0.05					0.0546	0.0517					<0.05
Beryllium	mg/l	0.003	0.003	0.007	<0.005					<0.005					<0.005		<0.005					<0.005				<0.003					<0.003	<0.003					<0.003
Cadmium	mg/l	0.01	0.01	0.02	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Calcium	mg/l		39.33	48.39	37.8	38.4	35.1	40.7	37.8	36.5	33.9	33.8	37	38.2	40.4	38.4	39.7	43	39.6	41.2	40.7	41.1	40.3	35.6	32.1	30.2	32	36.3	35.9	35.5	36.5	34.2	32	34.6	35.6	29.7	29.2
Chromium	mg/l		0.01	0.02	<0.01					<0.01					<0.01		<0.01					<0.01				<0.005					<0.005	<0.005					<0.005
Hexavalent Chromium	mg/l	0.05	0.000694444	0.02	<0.01					<0.01					<0.01		<0.01					<0.01				<0.01					<0.010	<0.010					<0.010
Cobalt	mg/l	0.005	0.02	0.09	<0.05					<0.05					<0.05		<0.05					<0.05				<0.02					<0.020	<0.020					<0.020
Copper	mg/l	0.2	0.03	0.07	<0.02					<0.02					<0.02		<0.02					<0.02				0.0285					<0.010	0.0125					<0.010
Total Cyanide	mg/l	0.1	0.01	0.01						<0.01					<0.01		<0.01					0.0125				<0.01					<0.010	<0.010					<0.010
Iron	mg/l	0.3	0.83	3.51	0.327	0.566	0.607	0.576	0.304	0.359	0.361	0.268	0.289	0.266	261	0.233	0.266	0.24	0.231	0.306	0.325	0.243	0.981	0.237	0.332	0.339	0.363	0.399	0.201	0.359	0.601	0.348	0.62	0.37	0.452	0.33	0.263
Lead	mg/l	0.025	0.01	0.02	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.003	<0.003	<0.003	0.00568	<0.003	0.00347	<0.003	<0.003	<0.003	<0.001	0.00366	<0.003	0.00325	<0.003
Magnesium	mg/l	35	3.51	9.34	4.6	5.01	4.91	4.71	4.69	4.99	4.6	4.65	4.65	4.76	5.09	4.8	4.79	4.8	4.79	4.78	4.66	4.97	4.79	4.46	3.91	3.72	4.17	4.65	4.48	4.5	4.52	4.32	4.1	4.4	4.5	3.88	3.86
Manganese	mg/l	0.3	0.15	0.23	0.124	0.224	0.152	0.19	0.124	0.142	0.148	0.12	0.115	0.151	0.135	0.12	0.105	0.15	0.134	0.146	0.107	0.14	0.362	0.118	0.0909	0.105	0.119	0.132	0.122	0.123	0.181	0.106	0.14	0.132	0.158	0.0873	0.152
Mercury	mg/l	0.002	0.0003	0.0005	0.124					<0.0003					<0.0003		<0.0003					<0.0002				<0.0002					<0.0002	<0.0002					<0.0002
Nickel	mg/l	0.007	0.03	0.06	<0.04					<0.04					<0.04		<0.04					<0.04				<0.03					<0.030	<0.030					<0.030
Potassium	mg/l		1.2	3.56	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<0.5	<2	<2	<2	<5	<2.0	<1	<1	<1	<1	<1	<1	<1	<1	<1	1.2	<1	<1	<1.0	<1.0
Selenium	mg/l	0.01	0.004	0.005	<0.005					<0.005					<0.005		<0.005					<0.005				<0.005					<0.005	<0.005					0.00868
Silver	mg/l	0.05	0.01	0.03	<0.01					<0.01					<0.01		<0.01					<0.01				<0.01					<0.010	<0.010					<0.010
Sodium	mg/l	20	2.75	7.25	2.48	2.71	3.13	1.8	2.26	1.94	1.94	1.92	2.28	2.26	2.1	2.41	2.39	2.4	2.4	2.42	2.3	2.25	2.3	1.9	2.17	1.77	1.87	1.95	2.4	1.99	1.79	2	2.3	2.27	2.11	2.14	2.03
Thallium	mg/l	0.004	0.01	0.01	<0.01					<0.01					<0.01		<0.01					<0.01				<0.01					<0.010	<0.010					<0.010
Vanadium	mg/l	0.014	0.02	0.09	<0.05					<0.05					<0.05		<0.05					<0.05				<0.03					<0.030	<0.030					<0.030
Zinc	mg/l	0.3	0.06	0.24	0.0214					0.0158					<0.02		<0.02					<0.02				0.0129					0.0221	0.0119					0.0116

Notes:

1. Parameters listed are Part 360 Baseline or Routine Parameters Effective 1993
2. Blanks indicate no analysis performed
3. "<" indicates not detected at the specified method detection limit (MDL)
4. Shaded values indicate detection above Standard.

TABLE B-1
Groundwater Analytical Monitoring Data
MW-2D
Albany Interim Landfill/P-4 Project
CHA Project No 12244

TEST PARAMETER (mg/l unless otherwise noted)	Unit	TOGS Guidance Value	Mean (EWQV)	Mean (EWQV) Plus 3 Std Dev.	2Q97 Bsln	3Q97 Rtne	4Q97	1Q98 Rtne	2Q98 Rtne	3Q98 Bsln	4Q98 Rtne	1Q99 Rtne	2Q99 Rtne	3Q99 Rtne
Temperature	C°													
Conductivity	uS		334.88	1695.31	1454	190.4	190.5	196.5	173.5	173.2	181.3	176.9	200	200
pH	SU	6.5-8.5	8	9.57	7.11	8.68	8.38	8.69	8.71	8.02	8.11	8.18	10.6	9.05
Eh	mV		127.75	494.8	-9	-98	-73	-90	-76	-56	-72	-63	-207	-118
Turbidity (after purging well)	N.T.U	5	577.5	1046.99	NA	105	145	54	28	45	125	70	65	150
LEACHATE INDICATORS														
Ammonia Nitrogen	mg/l	2	0.17	0.53	0.124	0.132	0.138	<0.05	0.0934	0.102	0.144	0.0991	0.0935	0.112
BOD 5	mg/l		1.94	3.97	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Bromide	mg/l	2	0.41	1.84	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
COD	mg/l		31.09	173.27	<5	<5	12.9	<5	<5	<5	<5	<5	<5	<5
Chloride	mg/l	250	1.51	4.28	<1	1.21	<1	1.06	1.19	<1	<1	<1	<1	<1
Nitrate	mg/l	10	0.12	0.68	<0.05	<0.05	<0.05	<0.05	<0.5	<0.2	<0.5	<0.5	<0.5	<0.5
Sulfate	mg/l	250	3.24	12.41	<2	<2	<2	2.22	2.89	2.02	<2	<2	<2	2.37
Total Alkalinity	mg/l		159.13	446.65	97	97.6	99.8	98	97.2	91.5	96.7	97.2	97.6	100
Total Disolved Solids	mg/l	500	157.5	342.79	162	134	139	145	132	121	128	129	93.9	131
Total Hardness	mg/l		341.21	1326.38	87	83.3	110	80	70	70.2	50	128	62.5	86.8
Total Kled Nitrogen	mg/l		0.9	2.47	0.406	0.381	0.382	0.349	0.382	0.378	0.292	0.377	<0.2	0.454
Total Organic Carbon	mg/l	500	4.14	14.18	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Total Phenols	mg/l	0.001	0.003	0.008	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Color	P.C.U	15	10.31	36.96	<5					<5				
Boron	mg/l	1	0.08	0.3	<0.2					<0.2				
INORGANIC PARAMETERS														
Aluminum	mg/l	0.1	16.65	95.97	6.14					3.61				
Antimony	mg/l	0.003	0.04	0.07	<0.06					<0.06				
Arsenic	mg/l	0.025	0.01	0.03	0.013					<0.01				
Barium	mg/l	1	0.16	0.76	0.0648					0.039				
Beryllium	mg/l	0.003	0.003	0.007	<0.005					<0.005				
Cadmium	mg/l	0.01	0.005	0.011	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Calcium	mg/l		101.48	418.22	22.4	23.4	20.2	23	17	18.8	13.5	20.6	18.7	21.2
Chromium	mg/l		0.03	0.16	0.012					0.0213				
Hexavalent Chromium	mg/l	0.05	0.01	0.02	<0.01					<0.01				
Cobalt	mg/l	0.005	0.03	0.07	<0.05					<0.05				
Copper	mg/l	0.2	0.08	0.4	<0.02					<0.02				
Total Cyanide	mg/l	0.1	0.01	0.01	<0.01					<0.01				
Iron	mg/l	0.3	37.92	235.45	8.35	7.52	7.63	7.4	2.44	5.55	3.01	4.86	5.25	7.64
Lead	mg/l	0.025	0.02	0.11	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.00597
Magnesium	mg/l	35	17.96	81.59	5.52	5.77	5.45	5.46	3.68	4.72	3.37	4.99	4.5	5.19
Manganese	mg/l	0.3	1.22	6.13	0.198	0.193	0.185	0.188	0.0978	0.146	0.0748	0.145	0.128	0.192
Mercury	mg/l	0.002	0.0003	0.0009	<0.0003					<0.0003				
Nickel	mg/l	0.007	0.06	0.23	<0.04					<0.04				
Potassium	mg/l		3.2	15.1	2.3	2.02	2.37	2.27	<2	<2	<2	<2	<2	3.25
Selenium	mg/l	0.01	0.01	0.01	<0.005					<0.005				
Silver	mg/l	0.05	0.01	0.03	<0.01					<0.01				
Sodium	mg/l	20	25	55.19	26.8	22.2	23.3	21.7	25.8	21.3	21.4	23.5	22.6	23.8
Thallium	mg/l	0.004	0.01	0.01	<0.01					<0.01				
Vanadium	mg/l	0.014	0.03	0.07	<0.05					<0.05				
Zinc	mg/l	0.3	0.15	0.83	0.0351					0.0201				

TEST PARAMETER (mg/l unless otherwise noted)	4Q99 Bsln	1Q00 Rtne	2Q00 Rtne	3Q00 Rtne	4Q00 Rtne	1Q01 Rtne	2Q01 Rtne	3Q01 Bsln	4Q01 Rtne	1Q02 Rtne
Temperature										
Conductivity	42.8	198	231	173	214	190	200	187.3	175.8	174.1
pH	NA	7.65	8.89	7.6	8.88	7.97	8.05	7.96	7.88	7.92
Eh	-190	-30	102	186	-92	275	55	-50	-40	-60
Turbidity (after purging well)	43	200	240	410	512	505	168	53.7	108	28.4
LEACHATE INDICATORS										
Ammonia Nitrogen	0.108	0.0663	0.103	<0.1	0.16	0.138	<0.05	0.111	0.129	0.0977
BOD 5	<2	<2	<2	<2	<2	<6	<2	<2	<2	<2.0
Bromide	<5	<1	<1	<1	<1	<1	<1	<1	<1	<1.0
COD	<5	<5	<5	7.5	<5	10.4	<5	<5	<5	<5.0
Chloride	<1	<1	<1	<1	<1	<1	<1	<1	1.02	<2.0
Nitrate	<0.5	<0.5	<0.5	0.04	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Sulfate	<2	3.06	2.75	2.3	2.46	<2	2	3.12	2.4	2.74
Total Alkalinity	990	100	110	100	100	98.3	100	108	96	100
Total Disolved Solids	172	155	141	185	220	178	142	122	142	119
Total Hardness	107	99.6	100	91	125	105	74	56.2	70	50
Total Kled Nitrogen	<0.2	0.426	0.33	2.5	0.609	0.388	<0.2	0.262	0.254	21
Total Organic Carbon	<1	1.21	1.08	<1	<1	<1	<1	<1	1.46	<1
Total Phenols	<0.005	<0.005	<0.005	<0.002	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Color	5		30					5		
Boron	<02		<0.2					<0.2		
INORGANIC PARAMETERS										
Aluminum	REJECT		REJECT					3.32		
Antimony	<0.06		<0.06					<0.06		
Arsenic	0.013		0.0169					0.0136		
Barium	0.0738		0.0758					0.0347		
Beryllium	<0.005		<0.005					<0.005		
Cadmium	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Calcium	34.8	25.9	28.1	29	141	31.1	22.1	16.4	20.6	15.4
Chromium	0.0323		0.0198					0.0261		
Hexavalent Chromium	<0.01		<0.01					<0.01		
Cobalt	<0.05		<0.05					<0.05		
Copper	<0.02		<0.02					<0.02		
Total Cyanide	<0.01		<0.01					0.0136		
Iron	14.8	11.3	14	1.52	25.7	17.3	7.67	3	5.66	0.757
Lead	0.0099	0.0078	0.0202	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Magnesium	8.8	6.76	7.36	4.4	32.4	8.02	5.28	3.84	4.87	3.17
Manganese	0.346	0.255	0.329	0.19	0.511	0.373	0.179	0.0865	0.15	0.0405
Mercury	<0.0003		<0.0003					<0.0002		
Nickel	<0.04		<0.04					<0.04		
Potassium	3.77	3.1	2.48	0.5	4.3	3.92	2.6	<5	<5	<2.0
Selenium	<0.005		<0.005					<0.005		
Silver	<0.01		<0.01					<0.01		
Sodium	25.2	25.4	29.2	22	407	23.9	26.2	24.1	24.2	21.4
Thallium	<0.01		<0.01					<0.01		
Vanadium	<0.05		<0.05					<0.05		
Zinc	0.053		0.0714					<0.02		

TEST PARAMETER (mg/l unless otherwise noted)	April-03 Routine	June-03 Routine	Sep-03 Baseline	Dec-03 Routine	Mar-04 Routine	Jun-04 Routine	Sep-04 Routine	Dec-04 Baseline	Mar-05 Baseline	Jun-05 Routine	Sep-05 Routine	Dec-05 Routine	Mar-06 Routine	Jun-06 Baseline
Temperature	11.86	12.3	11.95	11	10.09	12.5	11.78	10.69	10.87	11.67	12.1	9.7	10.71	11.69
Conductivity	187	251	184	155	192	184	189	185	189	186	186	266	175	132
pH	8.63	8.21	8.76	8.62	8.08	7.86	8.29	8.42	8.47	8.04	8.51	8.47	7.76	8.06
Eh	-60.1	12	-107.6	-74.7	-50.9	-84.2	-114.4	-187.2	-49	-20	-13.6	-98	182	-90.7
Turbidity (after purging well)	110	63.9	120	438	170	84.6	104	61.5	80.3	36.1	77	98.5	73.4	30.8
LEACHATE INDICATORS														
Ammonia Nitrogen	<0.5	<0.5	0.9	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.50	< 0.5	< 0.5	<0.5
BOD 5	<4	<4	<4	<4	<4	<4	<4	<4	<4		<4	< 4		<4
Bromide	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.20		<0.2	< 0.2	< 0.2	<0.2
COD	24	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	< 20		<20
Chloride	<1	2	2	2	<1	2	<1	4.08	2.04	1.53	4.05	< 1	1.54	1.2
Nitrate	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	0.3	<0.2	<0.2	<0.2	<0.2	< 0.2		<0.2
Sulfate	<5	<5	<5	<5	14	12.5	8.18	5.18	<5	5.92	<5	< 5		<5
Total Alkalinity	110	92	99	99	93	110	100	190	94	74	87	96	290	100
Total Disolved Solids	140	120	140	160	150	100	120	607	135	<25	85	135	185	102
Total Hardness	43	90	61	50.6	52.5	50.6	50.7	45	44.6	50.6	42.1			35.9
Total Kled Nitrogen	0.9	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5		<0.5	< 0.5	< 0.5	<0.5
Total Organic Carbon	<3	<3	<3	11	<3	<3	<3	<3	<3	3	<3	< 3	< 3	<3
Total Phenols	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.016	<0.005	<0.005	0.007	< 0.005	<0.005
Color			9					7	40					18
Boron			<0.5					<0.5	<0.5					<0.5
INORGANIC PARAMETERS														
Aluminum			1.56					1.32	1.57					0.639
Antimony			<0.015					<0.015	<0.015					<0.015
Arsenic			0.0155					0.0131	0.0159					0.012
Barium			<0.05					<0.050	<0.050					<0.050
Beryllium			<0.003					<0.003	<0.003					<0.003
Cadmium	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	< 0.005	< 0.005	<0.005
Calcium	16.8	13.8	12.4	24.8	17.2	14.6	15.3	14.6	14.6	13	12.8	14.2	12	10.3
Chromium			<0.005					<0.005	0.00553					<0.005
Hexavalent Chromium			<0.01					<0.010	<0.010					<0.010
Cobalt			<0.02					<0.020	<0.020					<0.020
Copper			0.032					<0.010	0.0134					<0.010
Total Cyanide			<0.01					<0.010	<0.01					<0.01
Iron	3.95	2.81	2.62	11.8	5.17	22.8	1.96	1.96	2.07	0.56	2.16	4.29	1.64	1.08
Lead	<0.003	<0.003	<0.003	<0.003	<0.003	0.0103	<0.003	0.00388	<0.003	<0.001	<0.003	< 0.003	<0.003	<0.003
Magnesium	4.19	3.3	3	6.79	4.45	3.41	3.48	3.41	3.43	3	3.08	3.7	2.95	2.48
Manganese	0.106	0.126	0.074	0.3	0.133	0.0763	0.0703	0.0593	0.0673	0.03	0.0673	0.119	0.05	0.0349
Mercury			0.0004					<0.0002	<0.0002					<0.0002
Nickel			<0.03					<0.030	<0.030					<0.030
Potassium		1.35	<1	2.26	1.35	1.34	2.29	1.88	2.78	1.7	<1	1.32	< 1.0	<1
Selenium			<0.005					<0.005	<0.005					0.00526
Silver			<0.01					<0.010	<0.010					<0.010
Sodium	20.6	24.5	17.3	22.6	22.4	23.3	23.4	21.3	22.4	28	23.9	21.8	22.3	19
Thallium			<0.01					<0.010	<0.010					<0.010
Vanadium			<0.03					<0.030	<0.030					<0.030
Zinc			0.0202					0.0217	<0.010					0.0124

Notes:

1. Parameters listed are Part 360 Baseline or Routine Parameters Effective 1993.
2. Blanks indicate no analysis performed
3. "<" indicates not detected at the specified method detection limit (MDL)
4. Shaded values indicate detection above Standard

TABLE B-1
Groundwater Analytical Monitoring Data
MW-7S
Albany Interim Landfill/P-4 Project
CHA Project No. 12244

TEST PARAMETER (mg/l unless otherwise noted)	Unit	TOGS Guidance Value	Mean (EWQV)	Mean (EWQV) Plus 3 Std Dev	2Q97 Bsln	3Q97 Rtne	4Q97 Rtne	1Q98 Rtne	2Q98 Rtne	3Q98 Bsln	4Q98 Rtne	1Q99 Rtne	2Q99 Rtne	3Q99 Rtne	4Q99 Bsln	1Q00 Rtne	2Q00 Rtne	3Q00 Rtne	4Q00 Rtne	1Q01 Rtne	2Q01 Rtne	3Q01 Bsln	4Q01 Rtne	1Q02 Rtne
Temperature	C*																							
Conductivity	uS		585.63	2418.12	2040	738	744	574	403	685	795	531	486	584	934	748	684	556	931	802	520	654	516	502
pH	SU	6.5-8.5	7.54	9.4	7.15	7.17	7.28	7.62	9.25	7.54	8.28	8.04	8.1	8.3	7.86	6.82	6.82	6.6	7.84	6.95	7.09	7.17	7.18	7.07
Eh	mV		173.29	548.37	-6	-10	-11	-29	-45	-28	-64	-41	-63	-73	-42	10	13	266	-38	320	195	55	165	190
Turbidity (after purging well)	N.T.U	5	441.43	1675.01	NA	85	320	66	250	75	40	155	55	86	93	73	230	94	245	195	106	55	60	93.8
LEACHATE INDICATORS:																								
Ammonia Nitrogen	mg/l	2	0.12	0.38	<0.05	<0.05	<0.05	<0.05	<0.05	<0.5	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
BOD 5	mg/l		2.44	7.44	5.57	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2.0
Bromide	mg/l	2	0.48	1.64	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	9.23	<1.0
COD	mg/l		25.65	147.63	<5	<5	21.8	<5	<5	<5	<5	<5	<5	5.73	<5	<5	6.23	7.5	<5	<5	<5	<5	<5	<5.0
Chloride	mg/l	250	18.24	43.87	20.9	36.5	21.9	18.6	16.5	49	16	5.28	5.97	6.29	6.85	3.69	6.14	17	6.57	8.5	5.76	8.85	9.54	12.4
Nitrate	mg/l	10	2.13	9.42	0.426	0.771	0.675	0.546	1.08	0.573	0.858	0.522	0.89	1	0.521	0.908	1.27	0.36	1.36	2.74	1.41	3.38	<0.5	4.7
Sulfate	mg/l	250	27.73	48.7	28.5	62	36.8	0.546	42.7	109	42.4	26.3	23.6	29.6	51.5	31	35.8	58	30.7	44.9	30.9	46	31.4	29.5
Total Alkalinity	mg/l		482.38	2069.46	229	284	273	229	190	277	279	266	225	256	306	371	418	275	312	356	335	364	268	323
Total Disolved Solids	mg/l	500	252.75	478.04	352	545	409	325	307	541	416	339	268	331	491	348	412	465	352	445	391	460	332	368
Total Hardness	mg/l		495.38	2091.54	338	458	310	280	296	400	343	290	299	440	330	308	410	297	400	380	319	405	325	291
Total Kjed. Nitrogen	mg/l		1.24	3.74	0.609	0.743	0.561	0.358	1.14	0.761	0.447	0.444	0.201	0.587	0.437	0.421	0.45	<1	0.354	0.219	<0.2	0.268	<0.2	0.204
Total Organic Carbon	mg/l	500	4.04	21.23	1.7	<1	<1	<1	1.1	1.4	1.44	1.09	<1	1.32	1.25	1.51	1.72	1.2	1.69	1.74	1.12	1.57	1.7	<1.0
Total Phenols	mg/l	0.001	0.003	0.01	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.005	<0.005	<0.005	<0.005		<0.005
Color	P.C.U.	15	15.54	53.28	<5					<5				<5	10		10					<5		
Boron	mg/l	1	0.22	1.21	<0.2					<0.2					<0.2		<0.2					<0.2		
INORGANIC PARAMETERS:																								
Aluminum	mg/l	0.1	22.19	171.92	9.78					5.22					REJECT		REJECT					3.64		
Antimony	mg/l	0.003	1.78	15.56	<0.06					<0.06					<0.06		<0.06					<0.06		
Arsenic	mg/l	0.025	0.01	0.01	<0.01					0.0216					<0.01		<0.01					<0.01		
Barium	mg/l	1	0.11	0.69	0.0497					0.0351					0.0353		0.0637					0.0272		
Beryllium	mg/l	0.003	0.01	0.1	<0.005					<0.005					<0.005		<0.005					<0.005		
Cadmium	mg/l	0.01	0.004	0.006	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Calcium	mg/l		146.53	701.81	100	132	89.3	90.7	93.6	114	98.6	76.5	80.1	79.2	105	76.9	126	99	114	122	96.1	126	96.6	91.6
Chromium	mg/l		14.71	132.72	0.506					0.517					0.19		0.117					0.0363		
Hexavalent Chromium	mg/l	0.05	0.02	0.08	<0.01					<0.01					<0.01		<0.01					<0.01		
Cobalt	mg/l	0.005	0.03	0.07	<0.05					<0.05					<0.05		<0.05					<0.05		
Copper	mg/l	0.2	0.14	0.75	0.0338					0.0378					0.0233		0.0205					<0.02		
Total Cyanide	mg/l	0.1	0.01	0.01	<0.01					<0.01					<0.01		<0.01					<0.01		
Iron	mg/l	0.3	58.95	440.42	20.3	9.55	9.54	8.44	21.6	15.9	6.61	11.7	9.38	9.22	12.5	11.4	11.4	0.82	6.76	9.73	8.48	4.16	5.21	6.43
Lead	mg/l	0.025	4.79	39.09	0.00629	<0.005	<0.005	<0.005	0.00776	<0.005	<0.005	<0.005	<0.005	0.00908	0.0066	0.0055	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Magnesium	mg/l	35	20.97	91.98	18.7	25	17.8	15	15.8	21	18.2	14.7	14.3	15.2	18.7	14.9	22.9	12	20.4	23.5	18.4	24.1	19.1	18.9
Manganese	mg/l	0.3	3.47	19.38	0.392	0.158	0.172	0.166	0.41	0.245	0.103	0.223	0.152	0.193	0.23	0.218	0.284	0.07	0.137	0.209	0.177	0.0969	0.101	0.131
Mercury	mg/l	0.002	0.23	2.04	<0.0003					<0.0003					<0.0003		<0.0003					<0.0002		
Nickel	mg/l	0.007	0.18	0.84	0.0931					0.0673					<0.04		<0.04					<0.04		
Potassium	mg/l		3.22	14.1	3.97	2.3	2.85	3.48	6.57	3.91	2.01	2.6	2.17	2.12	3.61	2.73	3.09	1.3	2.84	3.35	2.94	<5	5.98	3.12
Selenium	mg/l	0.01	0.01	0.01	<0.005					<0.005					<0.005		0.0188					<0.005		
Silver	mg/l	0.05	0.01	0.03	<0.01					<0.01					<0.01		<0.01					<0.01		
Sodium	mg/l	20	16.42	70.53	13.2	30.6	10.8	14.8	11.4	19.9	22.8	16.2	16.6	12.3	13	22.4	17.9	16	20.2	17.8	15.3	18.5	8.37	9.8
Thallium	mg/l	0.004	0.87	8.13	<0.01					0.0141					<0.01		0.0271					<0.01		
Vanadium	mg/l	0.014	1.27	7.72	<0.05					<0.05					<0.05		<0.05					<0.05		
Zinc	mg/l	0.3	0.19	1.26	0.0683					0.0809					0.0416		0.0458					0.02		

TEST PARAMETER (mg/l unless otherwise noted)	April-03 Routine	June-03 Routine	Sep-03 Baseline	Dec-03 Routine	Mar-04 Routine	Jun-04 Routine	Sep-04 Routine	Dec-04 Baseline	Mar-05 Baseline	Jun-05 Routine	Sep-05 Routine	Dec-05 Routine	Mar-06 Routine	Jun-06 Baseline
Temperature	15.21	15.7	15.6	13.36	14.02	15.81	15.42	14.54	15.76	16.57	16.57	14.5	15.55	16.99
Conductivity	832	835	747	617	582	603	808	853	519	689	951	1213	735	762
pH	7.01	7.19	7.44	7.23	7.43	7.47	7.56	7.44	7.18	7.27	7.68	7.14	6.62	7.62
Eh	95.3	23	-26.3	-39.3	-30.4	-49.5	-117.2	-128.6	110.6	2	-20.4	-19	150.3	-70.7
Turbidity (after purging well)	23	84.3	121	410	160	116	105	110	102	152	81.2	32.3	32.9	196
LEACHATE INDICATORS:														
Ammonia Nitrogen	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.50	<0.5	<0.5	< 0.5	< 0.5	<0.5
BOD 5	4	<4	<4	<4	<4	<4	<4	<4	<4		<4	< 4	<4	<4
Bromide	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2		<0.2	< 0.4	<0.2	<0.2
COD	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	78	< 20	<20	<20
Chloride	13	9	12	23	7	8	22.5	18.4	2.55	15.1	19.1	27.1	24.4	25
Nitrate	2.8	1.3	2.4	7.2	1	1.5	2.1	7.5	0.24	0.32	6	8.1	3.6	4.7
Sulfate	29	28	38	<5	32	34.9	109	102	17.8	271	56	109	33.6	57.5
Total Alkalinity	430	350	380	370	290	280	320	590	270	300	390	400	130	390
Total Disolved Solids	530	410	480	620	410	345	482	970	360	340	520	638	498	605
Total Hardness		340	340	420	300	284	422	490	329	380	440	515	372	457
Total Kjed. Nitrogen	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5		<0.5	< 0.5	< 0.5	<0.5
Total Organic Carbon	13	<3	10	<3	<3	<3	<3	<3	8	<3	<3	< 3	43	<3
Total Phenols	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.011	<0.005	<0.005	0.009	<0.005	<0.005
Color			12					7	30					8
Boron			<0.5					<0.5	<0.5					<0.5
INORGANIC PARAMETERS:														
Aluminum			1.38					1.48	5.22					2.35
Antimony			<0.015					0.0402	<0.015					<0.015
Arsenic			<0.01					<0.010	<0.010					<0.010
Barium			<0.05					<0.050	<0.050					<0.050
Beryllium			<0.003					<0.003	<0.003					<0.003
Cadmium	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	< 0.005	< 0.005	<0.005
Calcium	126	99.2	98.1	121	90	84	130	147	98.6	110	131	151	109	137
Chromium			0.0504					0.0228	0.0449					0.0348
Hexavalent Chromium			<0.01					<0.010	<0.010					<0.010
Cobalt			<0.02					<0.020	<0.020					<0.020
Copper			0.039					0.0134	0.0228					0.0105
Total Cyanide			<0.01					<0.010	<0.010					<0.010
Iron	3.31	3.86	3.33	8.59	5.69	0.95	4.72	2.96	8.9	2	1.53	0.728	3.61	4.2
Lead	<0.003	<0.003	<0.003	<0.003	<0.003	0.00319	0.00511	<0.003	0.00637	<0.001	<0.003	< 0.003	<0.003	<0.00602
Magnesium	29.6	22.8	22.6	28	19.5	18.1	23.5	29.6	20	26	27.7	33.5	24.1	27.9
Manganese	0.0969	0.111	0.089	0.254	0.184	0.0318	0.128	0.0804	0.218	0.064	0.0416	0.0448	0.0998	0.105
Mercury			0.0006					<0.0002	<0.0002					<0.0002
Nickel			<0.03					<0.030	<0.030					<0.030
Potassium	2.09	2.24	1.96	2.45	2.11	1.37	2.87	2.49	2.87	2.3	2.43	1.84	1.86	2.21
Selenium			<0.005					<0.005	<0.005					0.0077
Silver			<0.01					<0.010	<0.010					<0.010
Sodium	5.79	5.69	6.49	7.02	5.56	5.45	11.6	9.17	5.73	7	17.3	27.1	16.6	18.8
Thallium			<0.01					<0.010	<0.010					<0.010
Vanadium			<0.03					<0.030	<0.030					<0.030
Zinc			0.0444					<0.0504	0.0664					0.0444

Notes:

1. Parameters listed are Part 360 Baseline or Routine Parameters Effective 1993.
2. Blanks indicate no analysis performed
3. "<" indicates not detected at the specified method detection limit (MDL)
4. Shaded values indicate detection above Standard.

TABLE B-1
Groundwater Analytical Monitoring Data
MW-7I
Albany Interim Landfill/P-4 Project
CHA Project No. 12244

TEST PARAMETER (mg/l unless otherwise noted)	Unit	TOGS Guidance Value	Mean (EWQV)	Mean (EWQV) Plus 3 Std. Dev.	2Q97 Bsln	3Q97 Rtne	4Q97 Rtne	1Q98 Rtne	2Q98 Rtne	3Q98 Bsln	4Q98 Rtne	1Q99 Rtne	2Q99 Rtne	3Q99 Rtne
Temperature	C*													
Conductivity	uS		643.25	2698.41	2330	363	369	353	307	309	322	300	327	316
pH	SU	6.5-8.5	7.63	8.36	7.3	7.71	7.74	8.18	7.94	8.07	8.31	8.21	8.27	8.67
Eh	mV		162.14	538.19	-16	-43	-40	-60	-45	-58	-67	-63	-69	-83
Turbidity (after purging well)	N.T.U	5	20.22	57.07	NA	4	20	18	5.5	2.7	3.8	13	1	3.6
LEACHATE INDICATORS														
Ammonia Nitrogen	mg/l	2	0.14	0.7	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.086	<0.05	<0.05
BOD 5	mg/l		2.52	9.81	2.17	<2	<2	<2	<2	<2	<2	<2	<2	<2
Bromide	mg/l	2	0.43	1.8	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
COD	mg/l		12.06	74.28	<5	<5	<5	<5	<5	<5	<5	<5	<5	6.05
Chloride	mg/l	250	26.28	47.64	15.2	15.7	14.2	13.6	14.2	12.8	10.6	9.15	8.77	8.05
Nitrate	mg/l	10	0.07	0.21	<0.05	<0.05	<0.05	<0.05	<0.5	<0.05	<0.5	<0.5	<0.5	<0.5
Sulfate	mg/l	250	12.37	19.99	8.68	10.5	7.18	17.4	18.5	17.8	12.7	16.6	16.8	16.6
Total Alkalinity	mg/l		178.5	215.8	155	152	151	146	145	142	140	136	129	133
Total Disolved Solids	mg/l	500	236.88	308.2	207	219	197	188	206	186	186	189	178	175
Total Hardness	mg/l		205.25	347.46	161	164	160	154	160	165	151	151	150	158
Total Kjed. Nitrogen	mg/l		1.47	5.56		0.345	0.353	0.204	<0.2	<0.2	<0.2	<0.2	<0.2	0.325
Total Organic Carbon	mg/l	500	3.63	10	2.3	1.25	1.1	<1	<1	1.2	1.32	1.02	1.05	1.34
Total Phenols	mg/l	0.001	0.002	0.006	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Color	P.C.U.	15	20.71	63.52	35					<5				
Boron	mg/l	1	0.12	0.21	<0.2					<02				
INORGANIC PARAMETERS														
Aluminum	mg/l	0.1	0.9	5.48	0.142					<0.1				
Antimony	mg/l	0.003	0.04	0.07	<0.06					<0.06				
Arsenic	mg/l	0.025	0.01	0.01	<0.01					<0.01				
Barium	mg/l	1	0.06	0.09	0.0617					0.0564				
Beryllium	mg/l	0.003	0.003	0.007	<0.005					<0.005				
Cadmium	mg/l	0.01	0.004	0.012	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Calcium	mg/l		63.79	112.67	49.7	49	47.4	49.6	50.5	45.5	43.6	41.4	48.6	47.4
Chromium	mg/l		0.01	0.02	<0.01					<0.01				
Hexavalent Chromium	mg/l	0.05	0.01	0.02	<0.01					<0.01				
Cobalt	mg/l	0.005	0.02	0.09	<0.05					<0.05				
Copper	mg/l	0.2	0.12	0.97	<0.02					<0.02				
Total Cyanide	mg/l	0.1	0.01	0.01	<0.01					<0.01				
Iron	mg/l	0.3	2.34	13.89	0.48	0.499	0.603	0.476	0.383	0.465	0.452	0.338	0.282	0.503
Lead	mg/l	0.025	0.01	0.02	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Magnesium	mg/l	35	11.07	16.92	8.24	8.41	8.41	7.6	7.6	8	7.35	7.41	7.46	7.88
Manganese	mg/l	0.3	0.25	0.65	0.167	0.156	0.151	0.153	0.153	0.154	0.144	0.151	0.175	0.211
Mercury	mg/l	0.002	0.0003	0.0005	<0.0003					<0.0003				
Nickel	mg/l	0.007	0.03	0.06	<0.04					<0.04				
Potassium	mg/l		1.65	6.34	<2	<2	2	<2	<2	<2	<2	<2	<2	<2
Selenium	mg/l	0.01	0.004	0.005	<0.005					<0.005				
Silver	mg/l	0.05	0.01	0.03	<0.01					<0.01				
Sodium	mg/l	20	18.81	28.06	14.4	12.4	12.2	9.88	11.8	10.3	9.14	8.57	8.1	8.33
Thallium	mg/l	0.004	0.01	0.01	<0.01					<0.01				
Vanadium	mg/l	0.014	0.02	0.09	<0.05					<0.05				
Zinc	mg/l	0.3	0.03	0.12	0.0224					0.037				

TEST PARAMETER (mg/l unless otherwise noted)	4Q99 Bsln	1Q00 Rtne	2Q00 Rtne	3Q00 Rtne	4Q00 Rtne	1Q01 Rtne	2Q01 Rtne	3Q01 Bsln	4Q01 Rtne	1Q02 Rtne
Temperature										
Conductivity	445	400	300	289	472	316	281	287	266	270
pH	7.77	7.57	7.91	7.2	8.42	7.76	7.81	7.44	7.55	7.41
Eh	-44	-30	-47	205	-72	150	100	-40	-5	110
Turbidity (after purging well)	3.3	6	2	2.5	4.45	3.65	3.09	2.86	12.2	2.82
LEACHATE INDICATORS										
Ammonia Nitrogen	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
BOD 5	<2	<2	2.04	<2	<2	<2	<2	<2	<2	<2.0
Bromide	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1.0
COD	<5	<5	5.31	7.5	<5	<5	<5	<5	<5	<5.0
Chloride	7.82	7.42	7.25	9.1	7.67	7.6	7.45	5.69	8.17	6.37
Nitrate	<0.5	<0.5	<0.5	0.07	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Sulfate	19	20.3	19	19	17.6	18.6	17.9	16.6	19	17.8
Total Alkalinity	133	132	134	130	130	130	129	136	125	120
Total Disolved Solids	171	175	177	188	176	177		174	169	165
Total Hardness	145	156	143	132	129	133		348	144	126
Total Kjed. Nitrogen	<0.2	<0.2	REJECT	<1	<0.2	<0.2		<0.2	<0.2	<0.2
Total Organic Carbon	1.15	1.35	1.28	1.1	1.41	1.15		<1	1.65	<1.0
Total Phenols	<0.005	<0.005	<0.005	<0.002	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Color	5		5					<5		
Boron	<0.2		<02					<0.2		
INORGANIC PARAMETERS										
Aluminum	REJECT		REJECT					<0.1		
Antimony	<0.06		<0.06					<0.06		
Arsenic	<0.01		<0.01					<0.01		
Barium	0.0498		0.0464					0.0493		
Beryllium	<0.005		<0.005					<0.005		
Cadmium	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Calcium	46.3	42.6	42.9	42	39.5	45.3	43.6	45	43.2	43.5
Chromium	<0.01		<0.01					<0.01		
Hexavalent Chromium	<0.01		<0.01					<0.01		
Cobalt	<0.05		<0.05					<0.05		
Copper	<0.02		<0.02					<0.02		
Total Cyanide	<0.01		<0.01					<0.01		
Iron	0.514	0.358	0.276	0.38	0.458	0.384	0.26	0.576	0.622	0.546
Lead	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Magnesium	7.65	7.17	7.23	6.7	7.26	7.34	6.98	7.46	7.02	7.36
Manganese	0.153	0.152	0.158	0.15	0.163	0.16	0.148	0.201	0.192	0.158
Mercury	<0.0003		<0.0003					<0.0002		
Nickel	<0.04		<0.04					<0.04		
Potassium	<2	<2	<2	0.6	<2	<2	<2	5	<5	<2.0
Selenium	<0.005		<0.005					<0.005		
Silver	<0.01		<0.01					<0.01		
Sodium	7.55	8.27	7.77	8.6	5.74	7.78	8.26	7.96	7.4	6.57
Thallium	<0.01		<0.01					<0.01		
Vanadium	<0.05		<0.05					<0.05		
Zinc	<0.02		<0.02					0.0265		

TEST PARAMETER (mg/l unless otherwise noted)	April-03 Routine	June-03 Routine	Sep-03 Baseline	Dec-03 Routine	Mar-04 Routine	Jun-04 Routine	Sep-04 Routine	Dec-04 Baseline	Mar-05 Baseline	Jun-05 Routine	Sep-05 Routine	Dec-05 Routine	Mar-06 Routine	Jun-06 Baseline
Temperature	14.53	15.7	15.47	13.4	13.64	15.78	15.14	13.75	15.34	16.12	15.55	13.6	14.51	16.35
Conductivity	279	341	294	236	297	300	304	301	290	295	282	342	270	198
pH	8	7.97	8.36	8.27	7.93	8.14	8.11	8.10	8.06	7.98	8.21	8.05	7.31	8.22
Eh	-134	-32	-100.7	-96	-53.7	-110.6	-120.9	-139.5	-41.6	-11	-49.6	-74	146.5	-98.5
Turbidity (after purging well)	1.5	16.1	10.3	19.6	17	7.9	29.9	8.04	11.6	7.95	15	9.4	15.9	7.73
LEACHATE INDICATORS														
Ammonia Nitrogen	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	< 0.5	< 0.5	<0.5
BOD 5	<4	<4	<4	<4	<4	<4	4	<4	<4		<4	< 4	<4	<4
Bromide	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2		<0.2	< 0.2	< 0.2	<0.2
COD	30	20	<20	<20	<20	<20	<20	<20	<20	<20	<20	< 20	< 20	<20
Chloride	5	6	7	7	<1	7	5.87	8.42	14.5	6.89	5.18	4.19	5.91	7.81
Nitrate	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	< 0.2	< 0.2	0.99
Sulfate	18	12	16	21	<5	<5	26.7	25.6	14.9	18.8	15.2	20.8	12.3	16.2
Total Alkalinity	130	120	140	140	100	140	130	240	120	120	140	110	96	210
Total Disolved Solids	190	180	200	240	490	172	172	648	168	60	160	182	230	160
Total Hardness	120	110	110	130	58	119	137	141	130	130	117	147	129	108
Total Kjed. Nitrogen	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	11.2		<0.5	< 0.5	< 0.5	<0.5
Total Organic Carbon	<3	<3	<3	<3	<3	<3	<3	<3	6	<3	<3	< 3	< 3	<3
Total Phenols	<0.005	<0.005	<0.005	<0.005	0.01	<0.005	<0.005	<0.005	0.033	<0.005	<0.005	0.008	<0.005	<0.005
Color			9					5	17					12
Boron			<0.5					<0.5	<0.5					<0.5
INORGANIC PARAMETERS														
Aluminum			<0.1					0.146	0.125					0.19
Antimony			<0.015					<0.015	<0.015					<0.015
Arsenic			<0.01					<0.010	<0.010					<0.010
Barium			<0.05					0.0515	<0.0515					<0.05
Beryllium			<0.003					<0.003	<0.003					<0.003
Cadmium	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	< 0.005	<0.005	<0.005
Calcium	37.4	35	33.1	38.5	17.2	36.8	42.7	44.2	40.8	40	36.4	48.3	40.5	34.1
Chromium			<0.005					<0.005	<0.005					<0.005
Hexavalent Chromium			<0.01					<0.010	<0.010					<0.010
Cobalt			<0.02					<0.020	<0.020					<0.02
Copper			0.0289					<0.010	0.0152					<0.010
Total Cyanide			<0.01					<0.010	<0.010					<0.010
Iron	0.398	0.452	0.491	0.487	0.239	0.486	0.837	0.55	0.545	0.61	0.478	0.348	0.734	0.901
Lead	<0.003	0.00302	<0.003	<0.003	<0.003	0.00333	<0.003	<0.003	<0.003	<0.001	0.00362	< 0.003	0.00639	<0.003
Magnesium	6.9	6.48	5.8	7.19	3.64	6.61	7.43	7.52	6.92	6.8	6.32	6.46	6.78	5.53
Manganese	0.129	0.139	0.299	0.14	0.0559	0.132	0.143	0.131	0.137	0.16	0.159	0.0801	0.137	0.19
Mercury			0.0008					<0.0002	<0.0002					<0.0002
Nickel			<0.03					<0.030	<0.030					<0.030
Potassium	<1	<1	<1 000	<1.000	1.05	<1	<1	1.9	<1	1.8	<1	1.25	0.98	<1
Selenium			<0.005					0.00748	<0.005					0.00749
Silver			<0.01					<0.010	<0.010					<0.010
Sodium	7.22	5.58	7.93	15.9	7.31	7.59		7.62	7.82	9.8	8.06	6.72	8.65	6.97
Thallium			<0.010					<0.010	<0.010					<0.010
Vanadium			<0.030					<0.030	<0.030					<0.030
Zinc			0.0154					0.0373	0.0151					0.0399

Notes:

1. Parameters listed are Part 360 Baseline or Routine Parameters Effective 1993.
2. Blanks indicate no analysis performed
3. "<" Indicates not detected at the specified method detection limit (MDL)
4. Shaded values indicate detection above Standard.

TABLE B-1
Groundwater Analytical Monitoring Data
MW-7D
Albany Interim Landfill/P-4 Project
CHA Project No. 12244

TEST PARAMETER (mg/l unless otherwise noted)	Unit	TOGS Guidance Value	Mean (EWQV)	Mean (EWQV) Plus 3 Std. Dev.	2Q97 Bsln	3Q97 Rtne	4Q97 Rtne	1Q98 Rtne	2Q98 Rtne	3Q98 Bsln	4Q98 Rtne	1Q99 Rtne	2Q99 Rtne	3Q99 Rtne	4Q99 Bsln	1Q00 Rtne	2Q00 Rtne	3Q00 Rtne	4Q00 Rtne	1Q01 Rtne	2Q01 Rtne	3Q01 Bsln	4Q01 Rtne	1Q02 Rtne
Temperature	C*																							
Conductivity	uS		405.38	1964.83	1671	189.8	193.9	208	174.7	179.4	180.8	186.6	201	201	289	281	207	177	274	192	185.4	194	266	183
pH	SU	6.5-8.5	8.47	11.28	7.18	8.46	8.55	9.15	9.02	8.84	8.4	9.02	8.91	8.65	8.12	8.04	8.31	7.8	8.91	8.27	8.27	7.17	7.81	7.97
Eh	mV		136	544.95	-10	-82	-81	-111	-88	-95	-7	-97	-106	-134	50	-57	-70	200	-95	250	125	55	-30	50
Turbidity (after purging well)	N.T.U	5	59.57	205.59	NA	2.5	15	9.5	11	2.8	1.8	12	2	6.5	8.6	5.6	1.9	3.4	31.9	9.79	6.13	5.78	5.14	8.65
LEACHATE INDICATORS																								
Ammonia Nitrogen	mg/l	2	15.76	148.18	0.119	0.119	0.127	<0.05	0.128	0.0704	0.103	0.0938	0.102	0.116	0.123	0.0878	0.0873	<0.1	0.0737	0.0859	<0.05	0.0749	0.0858	0.103
BOD 5	mg/l		1.69	3.28	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2.0
Bromide	mg/l	2	0.41	1.84	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1.0
COD	mg/l		7.31	23.89	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	6.23	<5	<5	<5	<5	<5	<5	<5.0
Chloride	mg/l	250	1.69	5.33	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	1.02	<2.0
Nitrate	mg/l	10	0.08	0.35	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.02	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Sulfate	mg/l	250	3.41	13.22	<2	<2	<2	2.07	2.3	2.45	<2	<2	<2	2.16	<2	2.8	2.51	2.2	2.11	<2	2.1	2.66	2.65	2.33
Total Alkalinity	mg/l		120.53	232.53	98.2	101	105	103	97.8	96.3	97.6	94.7	96.3	95.7	101	102	101	95	104	100	104	106	98	96.7
Total Disolved Solids	mg/l	500	161.75	437.31	125	0.118	87	103	126	117	120	118	105	111	114	112	113	115	112	113	112	113	115	108
Total Hardness	mg/l		81.48	184.49	55.2	56.2	60.3	55	83	59.6	54.2	55.8	67.3	58.5	60.6	71.7	57.8	71	88.4	80.8	60.5	59.7	62	56
Total Kjed. Nitrogen	mg/l		1.34	4.84		1.31	0.4	0.21	0.43	0.22	0.23	<0.2	0.35	0.34	<0.2	0.26	<0.3	<1	0.2	<0.2	<02	<0.2	<0.2	<0.2
Total Organic Carbon	mg/l	500	2.66	10.06	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	1.18	1.21	<1	<1	1.16	<1	<1	<1	1.24	<1.0
Total Phenols	mg/l	0.001	0.003	0.007	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.002	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Color	P.C.U.	15	11.41	48.17	<5					<5					5		<5					<5		
Boron	mg/l	1	0.1	0.27	<0.2					<0.2					<0.2		<0.2					<0.2		
INORGANIC PARAMETERS.																								
Aluminum	mg/l	0.1	2.77	18.68	0.155					0.225					REJECT		REJECT					0.324		
Antimony	mg/l	0.003	0.04	0.07	<0.06					<0.06					<0.06		<0.06					<0.06		
Arsenic	mg/l	0.025	0.01	0.02	<0.01					0.0116					0.0125		0.0147					0.0128		
Barium	mg/l	1	0.02	0.09	<0.02					<0.02					<0.02		<0.02					<0.02		
Beryllium	mg/l	0.003	0.003	0.007	<0.005					<0.005					<0.005		<0.005					<0.005		
Cadmium	mg/l	0.01	0.003	0.006	<0.005		<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Calcium	mg/l		18.28	47.08	16	16.2	15.8	17.3	24.1	15.5	14.8	13.6	16.5	17.9	18.3	15.6	16.6	22	25.5	18.2	17.3	17.7	17.3	17.1
Chromium	mg/l		0.01	0.01	<0.01					<0.01					<0.01		<0.01					<0.01		
Hexavalent Chromium	mg/l	0.05	0.01	0.02	<0.01					<0.01					<0.01		<0.01					<0.01		
Cobalt	mg/l	0.005	0.03	0.07	<0.05					<0.05					<0.05		<0.05					<0.05		
Copper	mg/l	0.2	0.03	0.09	<0.02					<0.02					<0.02		<0.02					<0.02		
Total Cyanide	mg/l	0.1	0.01	0.01	<0.01					<0.01					<0.01		<0.01					<0.01		
Iron	mg/l	0.3	3.56	23.62	0.288	0.213	0.578	0.601	1.52	0.352	0.155	0.18	0.3	0.221	0.673	0.308	0.187	0.11	2.72	0.357	0.495	0.4	0.402	0.225
Lead	mg/l	0.025	0.01	0.02	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Magnesium	mg/l	35	4.21	10.94	3.5	3.61	3.68	3.31	4.27	3.61	3.43	3.35	3.49	3.86	3.99	3.48	3.63	3.8	5.52	3.71	3.51	3.86	3.6	3.61
Manganese	mg/l	0.3	0.09	0.48	0.0288	0.0295	0.0327	0.0305	0.0668	0.0288	0.0235	0.0186	0.0242	0.0302	0.0413	0.0255	0.0231	0.02	0.109	0.0244	0.0249	0.0245	0.0279	0.0281
Mercury	mg/l	0.002	0.0003	0.0005	<0.0003					<0.0003					<0.0003		<0.0003					<0.0002		
Nickel	mg/l	0.007	0.57	5.18	<0.04					<0.04					<0.04		<0.04					<0.04		
Potassium	mg/l		2.08	9.04	2.25	<2	<2	4.98	<2	<2	<2	2.18	<2	<2	<2	<2	<2	1.1	<2	<2	<2	5	<5	<2.0
Selenium	mg/l	0.01	0.004	0.005	<0.005					<0.005					<0.005		<0.005					<0.005		
Silver	mg/l	0.05	0.01	0.03	<0.01					<0.01					<0.01		<0.01					<0.01		
Sodium	mg/l	20	19.88	55.53	22.6	17.6	18.2	18.5	20.8	21	17.1	17.8	17.8	17.7	17	19.6	18.9	17	19.5	19.8	18.6	18.2	16.7	16.7
Thallium	mg/l	0.004	0.01	0.01	<0.01					<0.01					<0.01		<0.01					<0.01		
Vanadium	mg/l	0.014	2.26	8.38	<0.05					<0.05					<0.05		<0.05					<0.05		
Zinc	mg/l	0.3	0.03	0.1	0.0162					<0.04					<0.02		<0.02					<0.02		

TEST PARAMETER (mg/l unless otherwise noted)	April-03 Routine	June-03 Routine	Sep-03 Baseline	Dec-03 Routine	Mar-04 Routine	Jun-04 Routine	Sep-04 Routine	Dec-04 Baseline	Mar-05 Baseline	Jun-05 Routine	Sep-05 Routine	Dec-05 Routine	Mar-06 Routine	Jun-06 Baseline
Temperature	13.61	14.8	13.89	12.6	11.88	14.54	13.36	12.43	13.93	14.5	14.09	12.6	12.15	14.44
Conductivity	201	264	191	144	188	205	200	232	187	205	205	327	176	131
pH	8.31	7.97	9.01	8.55	8.1	8.13	8.74	8.40	8.32	8.08	8.46	7.99	7.73	8.3
Eh	106.8	-6	-37.1	-110	-53.1	-59.3	-122.8	-135.1	36.7	-30	-59.5	-63	120.5	-106.3
Turbidity (after purging well)	9.3	7.2	32.5	42.2	21	36.1	10.7	8.22	27.5	14.5	15.1	1.46	2.42	2.76
LEACHATE INDICATORS														
Ammonia Nitrogen	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	5.66	< 0.5	<0.5
BOD 5	<4	<4	<4	<4	<4	<4	17	<4	<4		<4	< 4	<4	<4
Bromide	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.20		<0.2	< 0.2	< 0.2	<0.2
COD	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	< 20	< 20	<20
Chloride	<1	1	<1	<1	6	<1	1.28	2.55	7.4	2.3	3.15	1.23	1.03	1.43
Nitrate	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	0.4	<0.2	<0.2	<0.2	<0.2	2.5	< 0.2	<0.2
Sulfate	<5	<5	<5	<5	18	<5	11.4	5.18	<5	24.9	<5	< 5	<5	<5
Total Alkalinity	110	99	110	110	130	110	100	160	99	80	88	190	91	110
Total Disolved Solids	130	110	140	95	210	100	80	615	120	<25	65	165	162	95
Total Hardness	53	48	48	52	120	58.6	55.6	54	56	51	52	50.3	54.5	48.5
Total Kjed. Nitrogen	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5		<0.5	< 0.5	< 0.5	<0.5
Total Organic Carbon	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	< 3	< 3	<3
Total Phenols	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.012	<0.005	<0.005	0.006	<0.005	<0.005
Color			11					5	10					<5
Boron			<0.5					<0.5	<0.5					<0.5
INORGANIC PARAMETERS.														
Aluminum			0.1					<0.1	0.112					<0.1
Antimony			0.015					<0.015	<0.015					<0.015
Arsenic			0.0118					<0.010	<0.010					0.01
Barium			0.05					<0.050	<0.050					<0.050
Beryllium			0.003					<0.003	<0.003					<0.003
Cadmium	<0.005	<0.005	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	< 0.005	<0.005	<0.005
Calcium	15.5	14.1	14.3	15.3	38.6	17.5	16.4	16	16.6	15	15.3	14.8	15.9	14.2
Chromium			0.005					<0.005	<0.005					<0.005
Hexavalent Chromium			<0.01					<0.010	<0.010					<0.010
Cobalt			0.02					<0.020	<0.020					<0.020
Copper			0.028					<0.010	0.0105					<0.010
Total Cyanide			<0.01					<0.010	<0.010					<0.010
Iron	<0.06	0.0991	0.209	0.127	0.627	0.33	0.232	0.141	0.161	0.1	0.0894	< 0.06	0.052	0.0842
Lead	<0.003	<0.003	0.003	<0.003	<0.003	0.00701	<0.003	<0.003	<0.003	<0.001	<0.003	< 0.003	< 0.003	<0.003
Magnesium	3.41	3.12	2.93	3.42	6.84	3.63	3.56	3.43	3.51	3.2	3.32	3.23	3.59	3.17
Manganese	0.0147	0.0357	0.053	0.0556	0.139	0.0562	0.0474	0.0447	0.0503	0.042	0.0434	0.0434	0.0446	0.042
Mercury			0.0029					<0.0002	<0.0002					<0.0002
Nickel			0.03					<0.030	<0.030					<0.030
Potassium	<1	1.33	1	<1.0	<1	<1	<1	<1	<1	1	<1	< 1	< 1	<1
Selenium			0.005					<0.005	<0.005					<0.005
Silver			0.481					<0.010	<0.010					<0.010
Sodium	15.7	18.2	12.7	15.1	7.02	17.1	15.6	14.5	16.1	18	17.5	16.5	17.7	15
Thallium			0.01					<0.010	<0.010					<0.010
Vanadium			0.03					<0.030	<0.030					<0.030
Zinc			0.0224					0.0296	<0.010					0.0117

Notes:

1. Parameters listed are Part 360 Baseline or Routine Parameters Effective 1993.
2. Blanks indicate no analysis performed
3. "<" indicates not detected at the specified method detection limit (MDL)
4. Shaded values indicate detection above Standard.

TABLE B-1
Groundwater Analytical Monitoring Data
MW-9S
Albany Interim Landfill/P-4 Project
CHA Project No. 12244

TEST PARAMETER (mg/l unless otherwise noted)	Unit	TOGS Guidance Value	Mean (EWQV)	Mean (EWQV) Plus 3 Std. Dev.	3Q98 Expnd	3Q98 Bsln	1Q99 Bsln	4Q99 Bsln	2Q00 Bsln	3Q00 Rtne	4Q00 Rtne	1Q01 Rtne	2Q01 Rtne	3Q01 Bsln	4Q01 Rtne	1Q02 Rtne	April-03 Routine	June-03 Routine	Sep-03 Baseline	Dec-03 Routine	Mar-04 Routine	Jun-04 Routine	Sep-04 Routine	Dec-04	Mar-05 Baseline	Jun-05 Routine	Sep-05 Routine	Dec-05 Routine	Mar-06 Routine	Jun-06 Baseline
Temperature	C*		15.13	29.39	20	15	8.7	16.8	13.8		5.3	8.9	22.5	17.8	12.5	10.1	9.81	12.2	15.73	12.59	10.21	14.14	16.35	12.83	11.63	14.4	18.34	14.9	10.49	16.04
Conductivity	uS		938.75	1987.78	600	680	1295	1180	951	1151	20.2	1886	1336	966	818	706	1698	213	3403	2834	4357	3341	5590	5721	3082	4550	4150	340	1725	1392
pH	SU	6.5-8.5	7.73	8.85	8	7.8	7.19	7.94	6.92	6.4	7.22	6.35	6.35	6.29	6.95	6.87	6.03	6.57	6.26	6.41	6.41	6.42	7.13	6.53	6.73	6.42	6.96	6.61	6.24	7.2
Eh	mV		-44.75	23.28	-80	-80	-12	-47	11	275	-8	125	20	OR	455	-60	100.9	20	-7	16.5	-9.8	-18.3	-135.6	-200.5	-105.2	23	18.4	9	165.6	-106.3
Turbidity (after purging well)	N.T.U	5	405.2	1253.24	188.8	282	330	820	240	>1000	3780	502	1350	856		453	17	633	NR	1000	130	249	288	260	235	44.8	147	4.8	73	122
LEACHATE INDICATORS:																														
Ammonia Nitrogen	mg/l	2	1.05	2.32	1.5	1.3	0.575	0.833	0.483	0.04	0.299	0.334	0.345	0.581	0.561	0.336	<0.5	0.6	0.6	0.9	<0.5	<0.5	<0.5	<0.5	<0.5	12.8	0.823	< 0.5	< 0.5	0.977
BOD 5	mg/l		3	9.36	6	<4	<2	<2	<2	3	2.83	<2	<2	<2	<2	<0.05	<4	<4	6	<4	<4	4.8	<4	<4	<4	14	4	4	6	9
Bromide	mg/l	2	0.45	1.49	<0.2	<0.2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<2.0	<0.2	<0.2	<2	<2	<0.2	<0.2	<0.2	<2.0	<2.0	<2	<2	< 2	< 0.2	<0.20
COD	mg/l		79.5	208.06	140	41	60.6	76.4	66.4	112	169	155	87.3	84.9	63.2	49.5	36	<20	140	<20	<20	68	79	64	205	67	<40	48	42	43
Chloride	mg/l	250	236	439.07	330	170	231	213	180	316	416	508	385	234	192	164	280	370	870	1200	1300	833	1220	3110	995	715	1710	700	427	340
Nitrate	mg/l	10	0.52	10	0.4	0.6	<0.5	0.704	1	0.98	2.19	1.94	1.55	<0.5	0.595	1.09	5.6	5	3.7	2.7	3.3	1.5	0.7	0.69	0.24	0.55	<0.2	1.1	3.3	3.3
Sulfate	mg/l	250	83.38	120.82	96	67	81.2	89.3	58.3	114	91	94.8	150	95.8	101	80.3	62	83	190	310	140	122.4	73.4	232	107	86.2	245	85.6	150	108
Total Alkalinity	mg/l		147	352.84	230	62	150	146	126	90	100	76.3	71	83	89.6	112	150	180	170	180	110	310	430	440	340	85	320	290	250	120
Total Disolved Solids	mg/l	500	702.25	1219.44	950	550	659	650	526	745	1010	1070	849	645	588	507	850	990	2200	2500	2600	2030	2850	3230	1950	1250	3630	1740	1070	1040
Total Hardness	mg/l		220.13	732.51	379	132	346	23.5	204	238	440	248	163	193	225	170	200	250	310	260	260	186	270	510	462	462	630	223	317	215
Total Kjed. Nitrogen	mg/l		2.77	7.24	4.9	1.8	1.68	2.68	2.05	3.9	3.16	2.91	2.37	10.7	1.76	1.59	1.7	1.2	3.4	2.5	1.6	1.58	1.26	<0.5	4.61	27.8	1.32	< 0.5	< 0.5	1.97
Total Organic Carbon	mg/l	500	1910	47.92	16	9	19.45	31.95	29	117	61.83	15.68	32.95	38.23	21.2	21.5	43	10	15	15	25	20.7	28	18	21	22	21	20	14	13
Total Phenols	mg/l	0.001	0.004	0.004	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.031	0.009	<0.005	<0.005	< 0.005	< 0.005	0.006
Color	P.C.U.	15	63.5	218.78	140	29	35	50	120					80					650					150	300					28
Boron	mg/l	1	0.14	0.33	0.1	0.1	<0.2	0.228	<0.2					<0.4					0.6					<0.5	<0.5					<0.5
INORGANIC PARAMETERS:																														
Aluminum	mg/l	0.1	12.28	39.86	25.7	4.81	9.38	9.24	REJECT					8.23					4.43					6.08	3.21					3.01
Antimony	mg/l	0.003	0.03	0.09	<0.015	<0.015	<0.06	<0.06	<0.06					<0.12					<0.015					0.0251	<0.015					<0.015
Arsenic	mg/l	0.025	0.03	0.07	0.0446	0.0112	0.0231	0.0333	0.0279					0.0284					0.016					<0.010	<0.010					<0.010
Barium	mg/l	1	0.18	0.5	0.337	0.093	0.151	0.151	0.106					0.137					0.187					0.187	0.176					0.0861
Beryllium	mg/l	0.003	0.01	0.02	0.0107	<0.003	<0.005	<0.005	<0.005					<0.01					<0.003					<0.003	<0.003					<0.003
Cadmium	mg/l	0.01	0.01	0.01	0.0094	<0.005	<0.005	<0.005	<0.005	<0.005	0.0147	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	0.0153	0.00562	0.00572	<0.005	<0.005	0.00649	0.0058	<0.005	<0.005	<0.005	< 0.005	< 0.005	<0.005
Calcium	mg/l		78.33	174.4	116	40.1	88.5	68.7	70.6	79	112	77.4	54.2	60.3	57.4	51.7	64.6	78.8	102	86.2	85.9	59.2	87.1	167	151	152	206	72.5	104	70.5
Chromium	mg/l		0.04	0.12	0.072	0.0166	0.0218	0.0464	0.0653					0.0275					0.0126					0.0542	0.0231					<0.005
Hexavalent Chromium	mg/l	0.05	0.01	0.01	<0.01	<0.01		<0.01	<0.01					<0.01					<0.01					<0.010	<0.010					<0.010
Cobalt	mg/l	0.005	0.03	0.06	0.0216	<0.02	<0.05	<0.05	<0.05					<0.1					0.02					<0.020	<0.020					<0.020
Copper	mg/l	0.2	0.04	0.14	0.0902	0.03	<0.02	<0.02	<0.02					<0.04					0.01					0.0146	0.0314					0.0125
Total Cyanide	mg/l	0.1	0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01					0.011					<0.01					<0.010	<0.010					<0.010
Iron	mg/l	0.3	76.1	177.35	49.8	46	93.6	115	95.2	99.5	2890	43.7	73.2	110	44.1	60.6	19.5	53.2	105	96.4	15.6	19.9	31.5	22.5	22.1	5.35	6.23	6.84	4.52	8.4
Lead	mg/l	0.025	0.01	0.07	0.0438	0.0047	<0.005	0.0072	0.0066	0.009	0.0315	<0.005	<0.005	<0.01	<0.005	0.00556	<0.003	<0.003	<0.003	<0.003	<0.003	0.00955	0.00795	0.0101	0.00316	<0.003	0.00596	< 0.003	<0.003	<0.003
Magnesium	mg/l	35	13.96	31.61	21.8	7.64	14	12.4	13.8	10	13.9	13.9	9.94	11.4	10.7	9.8	10.5	13.3	13.8	10.6	11.9	9.35	12.7	22.7	20.5	20.1	28.2	10.1	14.1	9.51
Manganese	mg/l	0.3	1.15	2.5	1.64	0.585	1.34	1.04	0.771	0.67	0.658	0.6	0.466	0.552	0.475	0.39	0.334	0.617	0.382	0.202	0.177	0.137	0.163	0.244	0.281	0.232	0.363	0.192	0.322	0.255
Mercury	mg/l	0.002	0.0002	0.0003	<0.0002	<0.0002	<0.0003	<0.0003	<0.0003					<0.0002					0.0014					<0.0002	<0.0002					<0.0002
Nickel	mg/l	0.007	0.04	0.07	0.0497	0.0421	<0.04	<0.04	<0.04					<0.08					<0.03					<0.030	<0.030					<0.030
Potassium	mg/l		16.98	36.1	25.4	10.2	17.5	14.8	13.6	21	9.34	10.9	10.9	15.1	12.2	9.51	10.8	9.92	15.4	14.1	14.3	9.75	12.1	12.8	16	37.1	36	20.3	13.4	9.83
Selenium	mg/l	0.01	4	0.004	<0.005	<0.005	<0.005	<0.005	<0.005					<0.01					<0.005					<0.005	<0.005					0.0106
Silver	mg/l	0.05	0.01	0.01	REJECT	<0.01	<0.01	<0.01	<0.01					<0.02					<0.01					<0.010	<0.010					<0.010
Sodium	mg/l	20	98.53	176.36	112	60.1	116	106	99.5	77	223	270	224	115	113	104	209	179	230	245	628	483	593	692	568	601	799	500	262	219
Thallium	mg/l	0.004	0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01					<0.02					<0.010					<0.010	0.0108					<0.010
Vanadium	mg/l	0.014	0.11	0.28	0.185	0.0466	0.0841	0.108	0.0888					<0.1					0.0332					0.058	0.0366					<0.030
Zinc	mg/l	0.3	0.11	0.37	0.236	0.0797	0.0529	0.0552	0.0506					0.0484					0.0323					0.0714	0.0363					<0.0381

Notes:

1. Parameters listed are Part 360 Baseline or Routine Parameters Effective 1993.
2. Blanks indicate no analysis performed
3. "<" indicates not detected at the specified method detection limit (MDL)
4. Shaded values indicate detection above Standard.

TABLE B-1
Groundwater Analytical Monitoring Data
MW-9I
Albany Interim Landfill/P-4 Project
CHA Project No. 12244

TEST PARAMETER (mg/l unless otherwise noted)	Unit	TOGS Guidance Value	Mean (EWQV)	Mean (EWQV) Plus 3 Std. Dev.	3Q98 Expnd	4Q98 Bsln	1Q99 Bsln	4Q99 Bsln	2Q00 Bsln	3Q00 Rtne	4Q00 Rtne	1Q01 Rtne	2Q01 Rtne	3Q01 Bsln	4Q01 Rtne	April-03 Routine	June-03 Routine	Sep-03 Baseline	Dec-03 Routine	Mar-04 Routine	Jun-04 Routine	Sep-04 Routine	Dec-04 Baseline	Mar-05 Baseline	Jun-05 Routine	Sep-05 Routine	Dec-05 Routine	Mar-06 Routine	Jun-06 Baseline
Temperature	C°		14.73	26.31	20	13	11	14.9	15.5		-31	11	20.1	17.1	12.5	14.12	15.1	15.37	12.96	14.03	16.4	16.27	13.74	15.59	17.4	17.62	16.2	15.67	18.67
Conductivity	uS		426.8	1825.46	800	860	22.7	24.5	23.9	2160	26.3	26.4	24	233	1818	2414	277	2212	1564	1973	1916	1891	1818	1834	2080	2011	228	1917	1346
pH	SU	6.5-8.5	7.51	8.3	7.4	7.2	7.65	7.79	7.49	7.2	7.62	7.32	7.22	7.27	7.27	7.28	7.19	7.51	7.53	7.36	7.34	7.86	7.63	7.51	7.35	7.67	7.17	6.51	7.87
Eh	mV		-10.25	96.11	25	15	-35	-46	-24	213	-31	-45	OR	OR	OR	-104.1	-71	-132.9	-111.1	-96.6	-136.6	-155.2	-219.3	-107.8	64	-106	-22	125.6	-132.8
Turbidity (after purging well)	N.T.U	5	118.4	469.35	293	74.6	60	46	68	96	107	114	133	134	98.3	0	15	9.06	12.4	9.2	10.3	7.64	21.6	6.67	9.23	38.7	0.8	27.3	11.1
LEACHATE INDICATORS:																													
Ammonia Nitrogen	mg/l	2	57.37	158.96	70	19		83.1	80.9	65	68.2	65.4	69.2	82	91.2	43	53	55	31	42	41.2	34.5	13.7	<0.5	10.4	13.7	< 0.5	29.1	24.9
BOD 5	mg/l		7.34	23.46	<4	15	4.34	7.02	4.78	17	11.3	. 4.27	3.77	>18	9.45	10	7	12	8	6	4	14	12	9	8	11	7	8	<8
Bromide	mg/l	2	1.5	6.2	<0.2	<0.2	3.01	2.7	3.44	3.2	2.77	3.07	3.38	2.28	2.65	0.3	2.4	<0.2	<0.2	2.1	<0.2	0.23	2.2	<0.2	<2	<2	< 2	< 2.0	<2
COD	mg/l		147.5	212.88	140	120	165	165	150	126	149	155	148	162	193	130	110	130	100	96	89	86	80	61	112	74	84	94	115
Chloride	mg/l	250	479.75	766.17	620	450	443	406	432	449	380	438	463	448	418	390	400	460	330	320	319	209	1070	347	368	207	318	297	321
Nitrate	mg/l	10	0.26	0.65	<0.2	<0.2	<0.5	<0.5	<0.5	<0.02	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2	<0.2	<0.2	<0.2	<0.2	1.6	<0.2	<0.2	<0.20	<0.2	<0.2	0.26	<0.2	0.66
Sulfate	mg/l	250	2.94	8.15	5	<5	<2	<2	58.3	<2	<2	94.8	<2	<2	<2	<5	<5	<5	6	<5	<5	5.18	5.18	<5	6.67	<5	< 5	8.01	<5
Total Alkalinity	mg/l		683.25	955.39	770	750	585	628	755	590	616	607	677	710	705	660	620	570	570	510	490	510	480	480	260	490	600	520	100
Total Disolved Solids	mg/l	500	1210	1607.24	1400	1200	1110	1130	1260	1140	1150	1190	1270	1240	1220	1200	1200	1100	900	1000	938	925	872	875	862	1190	1220	1100	1020
Total Hardness	mg/l		303.5	477.23	344	361	267	242	372	321	350	322	401	370	340	390	350		280	280	291	332	351	307	416	423	468	409	341
Total Kjed. Nitrogen	mg/l		50.86	159.79	79	32	83.4	9.04	85.6	67	71.8	66.4	63.1	87.8	90.7	47	55	52	49	44	39.5	32.4	27.8	29.6	15.8	29	26.8	28.1	36.7
Total Organic Carbon	mg/l	500	48.03	65.62	51	54	46.6	40.5	45.1	45	42.2	38.44	38.65	48.4	43.4	190	55	41	43	72	65.7	47	37	36	27	27	29	30	28
Total Phenols	mg/l	0.001	0.004	0.004	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	0.00579	<0.005	0.00704	<0.005	<0.005	<0.005	0.005	<0.005	<0.005	<0.005	0.0063	<0.005	<0.005	0.008	<0.005	<0.005	< 0.005	< 0.005	<0.005
Color	P.C.U.	15	97	323.02	210	58	60	60	70					90				170					150	120					90
Boron	mg/l	1	1.12	1.47	1.2	12	1.12	0.948	1.11									0.9					0.739	0.732					<0.5
INORGANIC PARAMETERS:																													
Aluminum	mg/l	0.1	4.3	13.09	6.45	7.19	1.62	1.94	REJECT					0.495				<0.1					0.259	0.109					<0.1
Antimony	mg/l	0.003	0.03	0.09	<0.015	<0.015	<0.06	<0.06	<0.06					<0.06				<0.015					0.0216	<0.015					<0.015
Arsenic	mg/l	0.025	0.09	0.11	0.0948	0.101	0.0901	0.0928	0.11					0.12				0.088					0.124	0.11					0.114
Barium	mg/l	1	0.26	0.53	0.383	0.282	0.201	0.192	0.208					0.208				0.133					0.107	0.104					0.0879
Beryllium	mg/l	0.003	0.003	0.006	<0.003	<0.003	<0.005	<0.005	<0.005					<0.005				<0.003					<0.003	<0.003					<0.003
Cadmium	mg/l	0.01	0.004	0.004	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.00604	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	< 0.005	<0.005	<0.005
Calcium	mg/l		53	102.96	62.1	71.9	38.8	39.2	52.4	50	46.7	52.5	62.9	59.8	53.7	70.3	62.5	46	52.8	52.9	52.7	62.8	66.1	60.5	82.5	81.8	90.4	79.1	68.6
Chromium	mg/l		0.07	0.43	0.251	0.021	<0.01	<0.01	<0.01					<0.01				<0.005					<0.005	<0.005					<0.005
Hexavalent Chromium	mg/l	0.05	0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01					<0.01				<0.01					<0.010	<0.010					<0.010
Cobalt	mg/l	0.005	0.03	0.07	<0.02	<0.02.	<0.05	<0.05	<0.05					<0.05				<0.020					<0.020	<0.020					<0.020
Copper	mg/l	0.2	0.03	0.08	0.0436	0.0409	<0.02	<0.02	<0.02					<0.02				0.032					0.011	0.0182					<0.010
Total Cyanide	mg/l	0.1	0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01					<0.01				<0.01					<0.010	<0.010					<0.010
Iron	mg/l	0.3	16.07	41.68	21.7	25	9.5	8.06	10.6	7.46	9.4	10.8	10.6	10.2	9.11	8.28	8.32	4.99	6.05	5.81	5.87	6.65	6.54	6.18	6.87	7.41	7.74	6.35	5.24
Lead	mg/l	0.025	0.01	0.06	0.0344	0.0099	0.00546	0.0061	<0.005	<0.005	<0.005	<0.005	0.0055	<0.005	<0.005	<0.003	<0.003	<0.003	0.00383	<0.003	0.00497	<0.003	<0.003	<0.003	<0.003	<0.003	< 0.003	< 0.003	<0.003
Magnesium	mg/l	35	39.35	58.86	45.8	44.1	33.8	33.7	54.5	47	44.3	45.4	56.1	51.2	44.9	51.6	46.2	31.1	36.5	36.8	38.7	42.5	45	38	51	53.2	58.8	51.3	44.2
Manganese	mg/l	0.3	0.25	0.74	0.33	0.434	0.124	0.0953	0.124	0.07	0.0814	0.0963	0.11	0.0831	0.0736	0.0882	0.0859	0.0458	0.0597	0.063	0.0683	0.0757	0.0798	0.0697	0.0806	0.0737	0.0821	0.0633	0.0525
Mercury	mg/l	0.002	0.0002	0.0003	<0.0002	<0.0002	<0.0003	<0.0003	<0.0003					<0.0002				<0.002					<0.0002	<0.0002					<0.0002
Nickel	mg/l	0.007	0.08	0.22	0.15	0.0793	0.0482	0.0497	0.061					0.0526				0.0352					0.0314	<0.030					<0.030
Potassium	mg/l		97.68	131.63	113	99.1	91.2	87.4	86.8	82	73.4	80	81.6	67	95.5	62.4	57.3	46.7	63	44.2	50.3	40.5	46.5	36.3	45.6	38.7	40.9	40.7	40.5
Selenium	mg/l	0.01	0.004	0.004	<0.005	<0.005	<0.005	<0.005	<0.005					<0.005				<0.005					0.0342	<0.005					<0.005
Silver	mg/l	0.05	0.01	0.01	REJECT	<0.01	<0.01	<0.01	<0.01					<0.01				<0.01					<0.010	0.01					<0.010
Sodium	mg/l	20	290	451.68	263	370	254	273	258	216	227	252	254	221	271	264	199	202	231	220	201	202	200	184	212	186	207	196	162
Thallium	mg/l	0.004	0.01	0.03	0.0194	<0.01	<0.01	<0.01	<0.01					<0.01				<0.01					<0.010	<0.010					<0.010
Vanadium	mg/l	0.014	0.03	0.06	<0.03	<0.03	<0.05	<0.05	<0.05					<0.05				<0.03					<0.030	<0.030					<0.030
Zinc	mg/l	0.3	0.06	0.22	0.0695	0.131	0.0163	0.0308	0.0289					0.0275				0.0252					0.0404	0.0686					0.0121

Notes:

1. Parameters listed are Part 360 Baseline or Routine Parameters Effective 1993.
2. Blanks indicate no analysis performed
3. "<" indicates not detected at the specified method detection limit (MDL)
4. Shaded values indicate detection above Standard.

TABLE B-1
Groundwater Analytical Monitoring Data
MW-9D
Albany Interim Landfill/P-4 Project
CHA Project No. 12244

TEST PARAMETER (mg/l unless otherwise noted)	Unit	TOGS Guidance Value	Mean (EWQV)	Mean (EWQV) Plus 3 Std. Dev.	3Q98 Expnd	3Q98 Bsln	1Q99 Bsln	4Q99 Bsln	2Q00 Bsln	3Q00 Rtne	4Q00 Rtne	1Q01 Rtne	2Q01 Rtne	3Q01 Bsln	4Q01 Rtne	April-03 Routine	June-03 Routine	Sep-03 Baseline	Dec-03 Routine	Mar-04 Routine	Jun-04 Routine	Sep-04 Routine	Dec-04 Baseline	Mar-05 Baseline	Jun-05 Routine	Sep-05 Routine	Dec-05 Routine	Mar-06 Routine	Jun-06 Baseline
Temperature	C°		15.5	32.62	24	12	12.4	13.6	15.5		6	11.1	14.8	16.5		12.97	14.5	14.22	12.49	12.9	14.8	14.25	11.45	13.35	15	14.86	13.1	13.36	15.65
Conductivity	uS		322.43	818.92	550	340	196.7	203	359	194	390	202	191	187	NA	194	345	206	173	194	214	222	256	197	260	208	386	248	145
pH	SU	6.5-8.5	8.81	9.89	8.6	8.4	9.14	9.08	8.4	8.5	9.06	8.47	7.9	8.31		8.45	7.54	8.56	8.16	7.75	7.84	8.52	7.86	8.42	8.72	8.27	8.01	7.46	8.14
Eh	mV		-32	262.44	65	40	-113	-120	-74	187	-97	105	35	10		-48.6	-39	-21.7	-109.1	-5.9	-139.2	-115	-219.9	-154.8	99	-82	-70	100.2	-108.9
Turbidity (after purging well)	N.T.U	5	1656.98	8509.34	191.9	186	1250	5000	2400	>1000	3000	8860	12400	11800		800	312	1000	458	150	186	160	69.5	65.7	15	139	9.8	51.8	40.9
LEACHATE INDICATORS:																													
Ammonia Nitrogen	mg/l	2	0.62	1.63	1.1	0.6	0.357	0.418	0.186	0.3	0.144	0.146	0.115	0.286		<0.5	<0.5	0.8	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	1.48	<0.5	< 0.5	< 0.5	<0.5
BOD 5	mg/l		2.25	4.85	<4	<4	<2	<2	3.01	2	3.66	5.79	<2	<2		<4	<4	4	<4	<4	<4	<4	<4	<4	<4	<4	< 4	4	<8
Bromide	mg/l	2	0.45	1.49	<0.2	<0.2	<1	<1	<1	<1	<1	<1	<1	<1		<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.20	<0.2	<2	< 0.2	<2	<0.2
COD	mg/l		19.26	53.11	29	26	<5	18.3	11.1	359	<5	<5	21.7	19.3		38	<20	59	<20	21	<20	23	<20	<20	<20	40	< 20	< 20	<20
Chloride	mg/l	250	3.74	16.59	<0	3	<1	1.21	1.17	1.1	<1	<1	<1	1.11		2	3	<1	2	<1	<1	1.53	7.4	6.89	91.9	1.58	8.38	17.5	46.4
Nitrate	mg/l	10	0.26	0.65	<0.2	<0.2	<0.5	<0.5	<0.5	<0.02	<0.5	<0.5	<0.5	<0.5		<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	0.3	<0.20	<0.2	1.2	<0.2	< 0.2	< 0.2	<0.2
Sulfate	mg/l	250	3.96	<0.40	7	<5	2.02	3.07	3.61	2.9	2.93	2.21	2.97	2.96		<5	<5	<5	<5	<5	3.73	5.69	8.43	11.3	6.11	<5	< 5	< 5	<5
Total Alkalinity	mg/l		129.25	310.87	96	100	220	101	107	420	110	105	104	312		110	96	100	110	500	110	110	170	110	110	100	250	150	210
Total Disolved Solids	mg/l	500	161.5	225.82	160	190	158	138	173	128	239	180	208	136		150	160	180	50	130	122	128	582	135	52	340	212	193	112
Total Hardness	mg/l		817	2890.68	260	188	1300	1520	5340	1644	2900	1700	9150	9500		850	700	410	930	430	314	324	145	152	320	324	100	143	91.2
Total Kjed. Nitrogen	mg/l		0.92	2.23	0.8	1	0.429	1.47	3.9	9.8	4.73	0.482	14.7	37.7		1.1	1.7	2.6	<0.5	<0.5	<0.5	<0.5	<0.5	1.32	31.3	<0.5	< 0.5	< 0.5	<0.5
Total Organic Carbon	mg/l	500	2.04	6.17	4	2	1.16	1.02	1.61	1.9	0.98	1.29	1.28	1.66		<3	6	15	<3	<3	<3	<3	<3	<3	<3	<3	< 3	< 3	<3
Total Phenols	mg/l	0.001	0.004	0.004	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.005		<0.005	<0.005		<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	< 0.005	< 0.005	<0.005
Color	P.C.U.	15	44.88	256.7	150	22	<5	<5	10					30				200					10	30					45
Boron	mg/l	1	0.22	0.72	<0.1	<0.1	0.377	0.348	0.441					1.09				<0.5					<0.5	<0.5					<0.5
INORGANIC PARAMETERS:																													
Aluminum	mg/l	0.1	61.19	247.67	12.5	3.26	<05	124	REJECT					573				11.1					3.91	4.77					1.45
Antimony	mg/l	0.003	0.03	0.09	<0.015	<0.015	<0.06	<0.06	<0.06					0.12				<0.015					<0.015	<0.015					<0.015
Arsenic	mg/l	0.025	0.05	0.2	0.0189	0.0147	REJECT	0.107	0.119					0.36				0.0173					0.0212	0.0127					0.0149
Barium	mg/l	1	0.47	2.01	0.0525	0.0508	0.678	1.1	1.27					4.09				0.151					0.0569	0.0632					<0.05
Beryllium	mg/l	0.003	4	0.009	<0.003	<0.003	<0.005	0.0058	0.0087					0.0135				<0.003					<0.003	<0.003					<0.003
Cadmium	mg/l	0.01	0.004	0.004	<0.005	<0.005	<0.005	<0.005	0.008	<0.005	0.0064	<0.005	0.0085	0.0122		<0.005	0.00956	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	< 0.005	< 0.005	<0.005
Calcium	mg/l		731.83	3357.48	76.6	55.7	885	1910	1870	610	2850	609	2990	5440		254	240	120	274	126	90	92.9	40.8	42.8	91.3	92.3	28.9	40.3	25.7
Chromium	mg/l		6.14	0.38	0.184	0.0267	0.204	0.159	0.211					0.715				0.0139					<0.005	0.00646					<0.005
Hexavalent Chromium	mg/l	0.05	0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01					<0.01				<0.01					<0.010	<0.010					<0.010
Cobalt	mg/l	0.005	0.06	0.22	<0.02	<0.02	0.0868	0.125	0.174					0.498				<0.02					<0.020	<0.020					<0.02
Copper	mg/l	0.2	0.2	0.83	0.0347	0.0193	0.269	0.464	0.483					1.34				0.0756					0.0127	0.0227					<0.010
Total Cyanide	mg/l	0.1	0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01					<0.05				<0.01					<0.010	<0.010					<0.010
Iron	mg/l	0.3	220.18	962.31	24.1	8.63	331	517	487	11	1000	372	801	1650		59.8	18.4	29.3	29.4	12.4	11.4	18.1	8.46	9.82	23.7	22.4	1.85	8	3.4
Lead	mg/l	0.025	0.07	0.27	0.0302	0.0072	0.104	0.149	0.115	<0.005	0.319	0.153	0.211	0.45		0.013	<0.003	0.0121	<0.003	0.00383	0.0115	0.01	0.00489	0.00417	0.0134	0.00755	0.0043	0.00498	<0.003
Magnesium	mg/l	35	115.45	476.78	16.8	12	180	253	318	29	732	163	596	1170		53.3	24.6	27.6	59	28	21.6	22.4	10.4	10.9	22.3	22.8	6.82	10.4	6.54
Manganese	mg/l	0.3	5.25	21.91	0.659	0.405	8.62	11.3	17.1	3.87	30.1	7.96	24.4	53.4		2.25	1.88	1.2	2.4	1.03	0.8	0.793	0.289	0.332	0.894	0.83	0.21	0.307	0.163
Mercury	mg/l	0.002	0.0002	0.0003	<0.0002	<0.0002	<0.0003	<0.0003	0.00043					0.00079				0.007					<0.0002	<0.0002					<0.0002
Nickel	mg/l	0.007	0.16	6.49	0.123	<0.03	0.219	0.273	0.339					1.01				<0.03					<0.030	<0.030					<0.030
Potassium	mg/l		12.51	40.06	5.84	3.49	21.8	18.9	19.5	2	42.9	33.9	49.2	75.3		6.4	3.44	3.48	3.46	2.39	1.78	2.53	1.86	4.94	3.71	3.23	< 1	1.71	<1
Selenium	mg/l	0.01	0.01	0.02	<0.005	<0.005	0.0115	0.0052	0.0477					0.0217				<0.005					<0.005	<0.005					0.00671
Silver	mg/l	0.05	0.01	0.01	REJECT	<0.01	<0.01	<0.01	<0.01					<0.02				<0.010					<0.010	<0.010					<0.01
Sodium	mg/l	20	23.1	35.92	18.3	20.9	25.5	27.7	28.8	22	35.3	26.4	29.2	27		17.9	18.3	12.8	17.2	16.9	16.7	15.9	16.3	16.3	19.5	18.9	13.7	18.7	16.7
Thallium	mg/l	0.004	0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.05					0.3				<0.01					<0.010	<0.010					<0.010
Vanadium	mg/l	0.014	0.17	0.67	<0.03	<0.03	0.329	0.291	0.43					1.7				<0.03					<0.030	<0.030					<0.030
Zinc	mg/l	0.3	0.39	1.27	0.163	0.144	0.518	0.745	0.924					2.79				0.0886					0.0419	0.0684					0.0179

Notes:

1. Parameters listed are Part 360 Baseline or Routine Parameters Effective 1993.
2. Blanks indicate no analysis performed
3. "<" indicates not detected at the specified method detection limit (MDL)
4. Shaded values indicate detection above Standard.

TABLE B-1
Groundwater Analytical Monitoring Data
MW-10S
Albany Interim Landfill/P-4 Project
CHA Project No. 12244

TEST PARAMETER (mg/l unless otherwise noted)	Unit	TOGS Guidance Value	Mean (EWQV)	Mean (EWQV) Plus 3 Std. Dev.	08/98 Expnd	10/98 Bsln	3/99 Bsln	10/99 Bsn	2Q00 Bsln	3Q00 Rtne	4Q00 Rtne	1Q01 Rtne	2Q01 Rtne	3Q01 Bsln	4Q01 Rtne	1Q02 Rtne	April-03 Routine	June-03 Routine	Sep-03 Baseline	Dec-03 Routine	Mar-04 Routine	Jun-04 Routine	Sep-04 Routine	Dec-04 Baseline	Mar-05 Baseline	Jun-05 Routine	Sep-05 Routine	Dec-05 Routine	Mar-06 Routine	Jun-06 Baseline
Temperature	C°		13.23	27.53	20	12	12.1	S.Bl	15.5		6	8.8	18.9	14.9	8.3	9	11.14	9.7	11.99	12.55	10.47	10.29	12.49	11.99	10.76	10.4	12.17	13.2	9.99	10.7
Conductivity	uS		591.75	1279.13	600	900	355	512	633	431	728	408	349	361	409	302	401	701	566	597	510	568	835	809	761	1013	873	1727	871	605
pH	SU	6.5-8.5	8.33	10.45	9	8.6	7.34	8.37	7.28	7.3	8.34	6.98	7.02	7.41	7.28	7.39	7.17	7.64	7.39	7.45	7.24	7.05	7.09	7.21	7.06	7.6	7.68	7.37	6.51	7.77
Eh	mV		4	190.82	60	45	-12	-77	-10	300	-60	245	200	160	125	90	109.1	38	-30.8	-25.5	-5.9	-19.1	-121.4	-197.5	10.8	66	0	-29	193.4	-68
Turbidity (after purging well)	N.T.U	5	511.75	1397.39	133	854	540	520	520	550	587	370	267	550	24.2	178	23	384	198	162	650	353	615	722	>1000	10.4	789	53.5	483	502
LEACHATE INDICATORS:																														
Ammonia Nitrogen	mg/l	2	0.21	0.79	<0.5	<0.5	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	NA	<0.05	<0.05	<0.05	<0.5	0.5	<0.5	<0.5	0.9	<0.5	<0.5	<0.500	<0.50	<0.5	<0.5	< 0.5	< 0.5	<0.5
BOD 5	mg/l		2.25	4.85	<4	<4	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2.0	<4	4	<4	<4	<4	<4	<4	<8	<4	<4	<4	< 4	< 4	<8
Bromide	mg/l	2	0.45	1.49	<0.2	<0.2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1.0	<0.2	0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.20	<0.2	<2	< 2	<0.2	<2
COD	mg/l		15.46	62.99	38	<20	5.09	<5	<5	19	<5	<5	NA	<5	<5	<5.0	<20	20	<20	<20	<20	<20	27	<20	102	23	<20	< 20		<20
Chloride	mg/l	250	19.4	34.24	19	18	14.4	26.2	29.3	24	25.3	16.1	10.4	15.2	11.1	18.3	26	36	59	100	30	77	139	133	90.9	117	113	308	122	155
Nitrate	mg/l	10	1.28	2.52	1.2	1.6	0.733	1.6	2.26	1.1	0.714	0.717	0.849	<0.5	0.89	<0.5	2.3	1.9	1.9	3.8	2.7	1.9	4	2.8	1	0.35	0.74	1.7	< 0.2	0.87
Sulfate	mg/l	250	26.48	74.75	50	14	19.1	22.8	30.3	21	28.3	24.5	25.9	23.7	27.1	25.5	23	40	43	68	47	23.5	59.9	78.3	93.4	47.5	95.7	85.6	29.7	34.3
Total Alkalinity	mg/l		198.75	300.79	240	210	161	184	178	196	176	310	NA	177	180	139	140	170	160	160	180	180	140	200	130	57	100	140	210	520
Total Disolved Solids	mg/l	500	285	484.37	370	300	215	255	282	260	265	223	216	224	241	207	270	300	380	480	300	320	592	892	442	367	685	910	550	488
Total Hardness	mg/l		342.25	968.64	653	274	212	230	210	185	220	255	167	178	218	144	160	190	180	270	190	191	292	251	243	247	244	332	224	178
Total Kjed. Nitrogen	mg/l		1.8	6.79	4	2.1	0.211	0.875	1.19	<1	0.984	0.391	NA	0.702	<0.2	0.259	0.9	0.6	<0.5	<0.5	1.6	<0.5	<0.5	<0.5	0.658	<0.5	<0.5	< 0.5	< 0.5	<0.5
Total Organic Carbon	mg/l	500	1.65	3.05	2	1	1.64	1.97	2.37	2	1.77	1.4	1.45	1.5	1.69	1.06	<3	3	<3	<3	<3	<3	<3	<3	<3	<3	<3	< 3	< 3	<3
Total Phenols	mg/l	0.001	0.004	0.004	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.017	<0.005	<0.005	< 0.005	< 0.005	<0.005
Color	P.C.U.	15	10.19	24.46	12	15	10	<5	<5					200					48					10	70					16
Boron	mg/l	1	0.11	0.24	<0.1	<0.1	<0.2	<0.2	<0.2										<0.5					<0.50	<0.5					<0.5
INORGANIC PARAMETERS:																														
Aluminum	mg/l	0.1	44.15	150.45	96.8	33.1	25.2	21.5	REJECT					25.1					2.29					6.38	4.04					5.05
Antimony	mg/l	0.003	0.03	0.09	<0.015	<0.015	<0.06	<0.06	<0.06					<0.06					<0.015					0.0376	<0.015					0.0183
Arsenic	mg/l	0.025	0.03	0.16	0.0977	0.0122	<0.01	<0.01	<0.01					<0.01					<0.01					<0.010	<0.010					<0.010
Barium	mg/l	1	0.19	0.62	0.406	0.155	0.114	0.103	0.0891					0.115					<0.05					<0.050	<0.050					<0.050
Beryllium	mg/l	0.003	0.01	0.02	0.0105	<0.003	<0.005	<0.005	<0.005					<0.005					<0.003					<0.003	<0.003					<0.003
Cadmium	mg/l	0.01	0.005	0.012	0.0086	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.00727	<0.005	<0.005	<0.005	<0.005	0.00757	<0.005	<0.005	<0.005	<0.005	< 0.005	< 0.005	<0.005
Calcium	mg/l		97.33	280.63	188	79.4	58.7	63.2	74.6	62	72.2	57.8	53.2	56.9	63.5	46.8	50.1	60.4	57.7	88.8	60.5	63.8	94.3	81.7	78	76.8	72.8	111	73	55
Chromium	mg/l		0.13	0.24	0.167	0.156	0.112	0.0899	0.328					0.413					0.052					2.77	4.27					3.89
Hexavalent Chromium	mg/l	0.05	0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01					<0.01					<0.01					<0.010	<0.010					<0.010
Cobalt	mg/l	0.005	0.04	0.1	0.074	0.0294	<0.05	<0.05	<0.05					<0.05					<0.02					<0.020	<0.020					<0.020
Copper	mg/l	0.2	0.13	0.41	0.262	0.115	0.0685	0.0584	0.0494					0.0324					0.037					0.0275	0.0526					0.0309
Total Cyanide	mg/l	0.1	0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01					<0.01					<0.01					<0.010	<0.010					<0.010
Iron	mg/l	0.3	90.73	259.86	173	81.6	56.1	52.2	52.5	6.96	41.9	20.5	16.5	39.1	2.53	13.4	7.22	25.3	6.81	8.11	23.2	1.31	36.6	24.9	24.9	17.9	38.3	18.5	32.3	29.4
Lead	mg/l	0.025	0.05	0.19	0.118	0.0347	0.0217	0.0218	0.0267	<0.005	0.00724	<0.005	<0.005	0.0112	<0.005	<0.005	<0.003	0.0107	0.003	<0.003	0.00781	0.0154	0.0188	0.00399	0.00484	0.00471	0.00851	0.00605	0.00725	0.00556
Magnesium	mg/l	35	22.2	67.44	44.5	18.3	12.5	13.5	14.8	7.4	14	8.53	8.27	14	10.9	8.51	7.53	10.1	7.92	12.2	9.52	7.74	13.8	1.14	11.8	13.5	15.1	13.6	10.1	9.89
Manganese	mg/l	0.3	2.77	8.21	5.48	1.87	1.69	2.03	1.83	0.46	1.44	0.869	0.811	1.42	0.652	0.727	0.422	1.31	0.417	0.367	0.952	0.0545	1.26	0.67	0.616	0.571	0.895	0.353	0.669	0.791
Mercury	mg/l	0.002	0.0002	0.0003	<0.0002	<0.0002	<0.0003	<0.0003	<0.0003					<0.0002					<0.0002					<0.0002	<0.0002					<0.0002
Nickel	mg/l	0.007	0.08	0.2	0.138	0.0763	0.0531	0.0534	109					0.0649					<0.03					0.12	0.208					0.135
Potassium	mg/l		6.78	12.46	9.35	6.28	6.68	4.81	6.57	3.4	7.45	4.61	4.71	7.08	2.01	3.88	2.63	5.61	2.7	3.3	3.34	2.47	4.82	3.92	3.72	4.02	4.74	4.42	4.36	3.21
Selenium	mg/l	0.01	0.004	0.008	<0.005	<0.005	<0.005	0.0062	<0.005					<0.005					<0.005					<0.005	<0.005					<0.00554
Silver	mg/l	0.05	0.01	0.01	REJECT	<0.01	<0.01	<0.01	<0.01					<0.01					<0.01					<0.010	<0.010					0.0125
Sodium	mg/l	20	26.1	41.28	31.6	29	20.7	23.1	28.5	18	14.3	14.4	14.2	13.6	10.7	16.3	15.3	23.3	18.4	35.8	27.7	28.4	31.9	35.7	47.8	46.9	61.9	154	80.5	63.2
Thallium	mg/l	0.004	0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01					<0.01					<0.01					<0.010	<0.010					<0.010
Vanadium	mg/l	0.014	0.12	0.32	0.22	0.113	0.0815	0.0759	0.0728					0.0734					<0.03					<0.030	<0.030					<0.030
Zinc	mg/l	0.3	0.25	0.88	0.558	0.213	0.116	0.11	0.286					0.0901					0.0232					0.0248	0.0262					0.0379

Notes:

1. Parameters listed are Part 360 Baseline or Routine Parameters Effective 1993.
2. Blanks indicate no analysis performed
3. "<" indicates not detected at the specified method detection limit (MDL)
4. Shaded values indicate detection above Standard.

TABLE B-1
Groundwater Analytical Monitoring Data
MW-10i
Albany Interim Landfill/P-4 Project
CHA Project No. 12244

TEST PARAMETER (mg/l unless otherwise noted)	Unit	TOGS Guidance Value	Mean (EWQV)	Mean (EWQV) Plus 3 Std. Dev.	08/98 Expnd	10/98 Bsln	3/99 Bsln	10/99 Bsn	2Q00 Bsln	3Q00 Rtne	4Q00 Rtne	1Q01 Rtne	2Q01 Rtne	3Q01 Bsln	4Q01 Rtne	1Q02 Rtne	April-03 Routine	June-03 Routine	Sep-03 Baseline	Dec-03 Routine	Mar-04 Routine	Jun-04 Routine	Sep-04 Routine	Dec-04 Baseline	Mar-05 Baseline	Jun-05 Routine	Sep-05 Routine	Dec-05 Routine	Mar-06 Routine	Jun-06 Baseline
Temperature	C*		13.08	25.46	19	12	11.9	9.4	15.5		7.9	9.71	18.91	14.6	8.8	9.2	11.99	12.4	12.6	11.76	11.17	12.64	12.62	10.62	11.3	13.3	12.67	9.5	10.78	13.47
Conductivity	uS		846	1809.27	400	840	1008	1136	-3.43	999	1291	1107	953	854	827	782	1106	944	942	767	916	954	1000	936	1052	1172	982	473	754	498
pH	SU	6.5-8.5	8.04	9.14	8.4	7.6	7.89	8.28	7.24	7	7.8	7.2	7.2	7.2	7.2	7.3	7.05	7.33	7.31	7.42	7.22	6.39	7.33	7.53	7.25	7.59	7.78	7.08	7.01	7.83
Eh	mV		-17.75	221.7	-80	100	-38	-73	-10	179	-40	100	25	40	-10	30	-36.3	7	-77.1	-51.1	-34.7	-31.5	-139.2	-227.6	-12.8	65	-20.2	-17	163.5	-73.6
Turbidity (after purging well)	N.T.U	5	218	862.92	516	232	84	40	29	45	35.6	41.6	64.1	51.9	62.1	68.4	100	79.5	94.1	73.5	130	170	277	92.1	93.9	61.7	131	48	144	134
LEACHATE INDICATORS:																														
Ammonia Nitrogen	mg/l	2	1.44	9.18	<0.5	5.3	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.005	<0.05	<0.05	2.5	3.4	3.1	6.1	9.5	10.7	14.9	14.2	<0.50	<0.5	<0.5	8.9	5.76	5.31
BOD 5	mg/l		2.25	4.85	<4	<4	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2.0	<4	<4	<4	<4	<4	4.8	8	4	<4	<4	<4	< 4	< 4	<8
Bromide	mg/l	2	0.45	1.49	<0.2	<0.2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1.0	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.20	<0.20	<0.2	<0.2	< 0.2	< 0.2	<2
COD	mg/l		24.4	53.35	-31	34	18.8	13.8	13.1	11	9.87	12.4	11.8	8.9	10.8	9.24	<20	23	<20	21	21	24	29	<20	<20	65	<20	< 20	22	<20
Chloride	mg/l	250	49.23	104.49	-75	34	49.7	38.2	17.5	24	20.9	23	17.5	7.14	16	16.1	14	19	15	15	17	17.1	18.4	20.9	45.9	91.9	56.3	764	20.6	15.9
Nitrate	mg/l	10	0.26	0.65	<0.2	<0.2	<0.5	<0.5	<0.5	0.02	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.20	<0.20	0.56	<0.2	< 0.2	< 0.2	<0.2
Sulfate	mg/l	250	36	52.14	28	39	37.7	39.3	35.6	39	36	32.6	31.3	22	27.4	25.5	25	23	24	35	26	25.9	38.5	38.1	95.7	31	30.2	150	21.8	25
Total Alkalinity	mg/l		472.75	791.01	450	570	333	538	670	485	556	589	635	620	598	636	600	380	510	520	500	450	510	520	510	460	370	380	350	210
Total Disolved Solids	mg/l	500	644.5	907.37	650	730	675	523	687	644	631	662	686	636	641	643	660	430	550	600	510	505	515	995	550	450	922	1900	520	390
Total Hardness	mg/l		326.5	990.91	352	730	449	498	600	581	565	595	650	590	50	655	560	340	440	500	450	478	507	498	485	544	437	636	213	289
Total Kjed. Nitrogen	mg/l		0.8	2.26	<0.5	1.5	0.6888	0.634	0.569	<1	0.526	0.262	<02	0.201	0.228	0.266	2.6	3.1	4.7	6.1	9.5	11.1	13.1	16.6	18.1	<0.5	3.95	10.2	4.77	6.75
Total Organic Carbon	mg/l	500	7.26	11.08	9	7	7.08	5.94	4.98	5.4	3.97	3.73	3.67	3.88	3.82	3.15	110	30	<6	62	<6	61.5	80	98	35	32	21	26	< 3	<3
Total Phenols	mg/l	0.001	0.004	0.004	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.005	<0.005	<0.005		<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.007	<0.005	<0.005	0.012	<0.005	<0.005	< 0.005	< 0.005	<0.005
Color	P.C.U.	15	192.19	1268.01	20	11	15	<5	15					15					14					12	100					6
Boron	mg/l	1	10.14	67.86	0.6	0.6	0.452	0.509	0.41					0.27					<0.5					<0.5	<0.5					<0.5
INORGANIC PARAMETERS:																														
Aluminum	mg/l	0.1	6.98	32.07	224	19.5	2.66	3.53	REJECT					1.63					0.801					1.12	1.12					1.04
Antimony	mg/l	0.003	0.03	0.09	<0.015	<0.015	<0.06	<0.06	<0.06					<0.06					0.0154					0.0292	<0.015					<0.015
Arsenic	mg/l	0.025	1.76	12.24	<0.01	0.0245	<0.01	<0.01	<0.01					<0.01					<0.01					<0.010	<0.010					<0.010
Barium	mg/l	1	182.54	1277.46	<0.05	0.123	0.0507	0.0629	0.0533					0.0476					<0.05					0.139	0.167					0.0593
Beryllium	mg/l	0.003	9.75	68.25	<0.003	<0.003	<0.005	<0.005	<0.005					<0.005					<0.003					<0.003	<0.003					<0.003
Cadmium	mg/l	0.01	142.5	997.5	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.00644	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	< 0.005	< 0.005	<0.005
Calcium	mg/l		135.78	293.6	97.1	211	102	133	150	154	147	157	165	162	155	172	148	91.2	120	136	127	133	141	139	134	151	120	172	57.1	78.2
Chromium	mg/l		0.02	0.08	0.0123	0.0498	<0.01	<0.01	<0.01					<0.01					<0.005					<0.005	<0.005					0.00579
Hexavalent Chromium	mg/l	0.05	0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01					<0.01					<0.01					<0.010	<0.010					<0.010
Cobalt	mg/l	0.005	0.03	0.06	0.02	0.024	<0.05	<0.05	<0.05					<0.05					<0.02					<0.020	<0.020					<0.020
Copper	mg/l	0.2	0.04	0.17	0.021	0.104	0.025	0.0206	<0.02					<0.02					0.0402					0.0237	0.0225					0.0113
Total Cyanide	mg/l	0.1	0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01					<0.01					<0.01					<0.010	<0.010					<0.010
Iron	mg/l	0.3	15.55	79.87	4.97	47.7	5.36	4.16	3.4	0.97	1.88	3.37	2.58	2.69	3.3	4.24	3.51	3.58	2.35	2.3	3.8	5.12	3.6	2.9	3.33	3.33	3.98	0.911	2.98	2.83
Lead	mg/l	0.025	0.01	0.03	0.0072	0.018	<0.005	0.0066	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.003	<0.003	<0.003	<0.003	<0.003	0.0103	<0.003	0.00365	0.00394	0.00328	0.00386	< 0.003	0.00434	<0.003
Magnesium	mg/l	35	36.75	67.38	26.6	49.2	30.5	40.7	48.2	48	46.3	48.9	50.6	52.3	50.6	55	46.6	27.8	34.6	39.6	32.4	35.5	37.8	36.6	36.4	40.8	33.5	50	17	22.7
Manganese	mg/l	0.3	0.97	2.78	0.459	1.83	0.678	0.917	0.957	0.81	0.853	0.939	0.998	0.954	0.927	1.11	1.29	0.934	1.08	1.29	1.18	1.34	1.33	1.2	1.26	1.37	1.15	1.63	0.545	0.783
Mercury	mg/l	0.002	0.0002	0.0003	<0.0002	<0.0002	<0.0003	<0.0003	<0.0003					<0.0002					<0.0002					<0.0002	<0.0002					<0.0002
Nickel	mg/l	0.007	0.08	0.38	<0.03	0.231	<0.04	<0.04	<0.04					<0.04					<0.03					<0.030	<0.030					<0.030
Potassium	mg/l		3.48	8.92	3.64	5.98	2.08	2.2	2.04	1.4	<2	<2	<2	<5	2.1	2.36	2.58	3.02	3.12	3.7	6.01	8.15	8.68	10.2	11	11.3	8.38	15.3	7.89	7.45
Selenium	mg/l	0.01	0.004	0.004	<0.005	<0.005	<0.005	<0.005	<0.005					<0.005					<0.005					<0.005	<0.005					0.00932
Silver	mg/l	0.05	0.01	0.01	REJECT	<0.01	<0.01	0.0106	<0.01					<0.01					0.01					<0.010	<0.010					<0.010
Sodium	mg/l	20	107.33	186.21	112	142	93.8	81.5	51.4	30	30.5	27.6	24.6	22.9	18.3	13.4	7.14	7.06	6.57	8.83	7.36	7.74	6.62	5.5	6.61	10.3	9.18	469	89.9	5.79
Thallium	mg/l	0.004	0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01					<0.01					<0.01					<0.010	<0.010					<0.010
Vanadium	mg/l	0.014	0.03	0.06	<0.03	0.0422	<0.05	<0.05	<0.05					<0.05					<0.03					<0.030	<0.030					<0.030
Zinc	mg/l	0.3	0.07	0.3	0.0688	0.179	0.0215	<0.02	0.0211					<0.02					0.0215					0.0346	0.0476					0.0163

Notes:

1. Parameters listed are Part 360 Baseline or Routine Parameters Effective 1993.
2. Blanks indicate no analysis performed
3. "<" indicates not detected at the specified method detection limit (MDL)
4. Shaded values indicate detection above Standard.

TABLE B-1
Groundwater Analytical Monitoring Data
MW-10D
Albany Interim Landfill/P-4 Project
CHA Project No. 12244

TEST PARAMETER (mg/l unless otherwise noted)	Unit	TOGS Guidance Value	Mean (EWQV)	Mean (EWQV) Plus 3 Std. Dev.	08/98 Expnd	10/98 Bsln	3/99 Bsln	10/99 Bsln	2Q00 Bsln	3Q00 Rtne	4Q00 Rtne	1Q01 Rtne	2Q01 Rtne	3Q01 Bsln	4Q01 Rtne	1Q02 Rtne	April-03 Routine	June-03 Routine	Sep-03 Baseline	Dec-03 Routine	Mar-04 Routine	Jun-04 Routine	Sep-04 Routine	Dec-04 Baseline	Mar-05 Baseline	Jun-05 Routine	Sep-05 Routine	Dec-05 Routine	Mar-06 Routine	Jun-06 Baseline
Temperature	C*		13.48	24.56	19	12	11.3	11.6	13.9		6.1	9.2	20.81	13.3	9.2	9.9	11.66	12.1	12	10.48	10.94	13.11	12.42	10.1	11.28	12.5	12	10	10.38	12.6
Conductivity	uS		203.28	240.59	200	220	190.1	203	195.2	191	442	196	192.2	202	191.4	184	190	266	192	165	190	196	190	193	192	243	194	254	182	131
pH	SU	6.5-8.5	8.9	9.8	8.8	8.6	8.9	9.31	9.22	8.8	8.63	8.79	8.55	8.05	8.23	8.26	8.63	8.04	8.82	8.11	8.04	7.62	8.77	8.00	8.56	8.90	8.72	8.49	7.36	8.24
Eh	mV		-87	17.47	-80	-80	-95	-133	-106	204	-82	155	80	-25	-35	-20	116	-42	-60.2	-58.2	-67.1	-44.4	-158.1	-215.9	-136.7	102	-62.9	-92	117	-99.3
Turbidity (after purging well)	N.T.U	5	4373.5	18289.51	414	480	9500	7100	22000	>1000	5040	30500	20100	5680	24.3	137	>1000	212	816	462	400	457	347	269	134	216	257	46	187	134
LEACHATE INDICATORS:																														
Ammonia Nitrogen	mg/l	2	0.35	0.5	<0.5	<0.5	0.373	0.272	0.14	0.04	0.16	0.151	<0.05	0.133	<0.05	0.158	<0.5	1.2	<0.5	<0.5	0.9	<0.5	<0.5	<0.500	<0.50	1.15	<0.5	< 0.5	< 0.5	<0.5
BOD 5	mg/l		2.93	6.27	<4	<4	4.22	<2	4.83	8	5.13	7.14	4	<2	<2	<2.0	<4	<4	<4	<4	<4	<4	<4	8	<4	<4	<4	< 4	< 4	<8
Bromide	mg/l	2	0.45	1.49	<0.2	<0.2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1.0	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.20	<0.20	<0.2	<2	< 0.2	< 0.2	<0.2
COD	mg/l		17.83	52.72	35	<20	10.8	10.5	12.5	121	11.4	<5	<5	<5	<5	<5.0	43	40	35	<20	29	44	<20	<20	<20	<20	<20	55	< 20	< 20	<20
Chloride	mg/l	250	2.88	10.63	4	6	<1	<1	<1	<1	<1	<1	7.79	2.38	4.5	<2.0	2	2	2	2	2	<1	1.53	6.64	3.32	5.36	24.3	1.72	4.11	1.03
Nitrate	mg/l	10	0.26	0.65	<0.2	<0.2	<0.5	<0.5	<0.5	0.07	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	0.3	0.21	<0.2	0.53	<0.2	< 0.2	< 0.2	<0.2
Sulfate	mg/l	250	3.05	6.24	<5	<5	<2	3.19	3.47	3.1	3.71	2.74	4.49	3.66	3.58	4	<5	7	<5	6	<5	3.66	10.2	9.13	<5	6.54	<5	6.65	<5	5.15
Total Alkalinity	mg/l		325.28	1694.73	95	98	1010	98.1	112	870	102	114	93.3	99.6	84.8	100	94	90	100	98	110	100	100	190	94	57	100	180	110	360
Total Dissolved Solids	mg/l	500	281.5	519.88	200	390	277	259	336	180	403	372	337	175	109	163	240	150	180	130	68	143	125	610	112	70	258	260	182	112
Total Hardness	mg/l		1379.75	5637.92	222	107	2850	2340	5500	2331	3110	4000	723	2150	545	494	1100	590	770	970	830	1000	470	520	502	172	578	301	268	308
Total Kjed. Nitrogen	mg/l		0.93	3.31	<0.5	<0.5	0.899	2.06	10.1	13	13	0.567	6.86	8	<0.2	0.869	3.3	1.1	1.7	<0.5	1.3	0.79	0.632	<0.5	1.32	17.4	<0.5	< 0.5	< 0.5	<0.5
Total Organic Carbon	mg/l	500	1.61	2.99	1	2	1.93	1.5	2.23	<1	1.39	1.58	1.71	1.42	1.14	<1.0	<3	<3	<3	<3	<3	5.5	<3	<3	7	<3	<3	< 3	< 3	<3
Total Phenols	mg/l	0.001	0.004	0.004	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.00582	0.013	<0.005	<0.005	<0.005	<0.005	0.092	<0.005	<0.005
Color	P.C.U.	15	15.88	62.22	36	20	<5	<5	300					800					18					12	325					40
Boron	mg/l	1	0.24	0.89	<0.1	<0.1	0.274	0.53	0.81					0.969					<0.5					<0.5	<0.5					<0.5
INORGANIC PARAMETERS:																														
Aluminum	mg/l	0.1	81.84	377.58	16.2	9.77	79.4	222	REJECT					417					127					18.2	13.9					7.11
Antimony	mg/l	0.003	0.03	0.08	<0.015	0.0392	<0.06	0.0064	<0.06					<0.0169					<0.015					0.0311	<0.015					<0.015
Arsenic	mg/l	0.025	0.06	0.26	0.0288	0.015	0.0493	0.16	0.222					0.189					0.0109					<0.010	0.0192					0.0164
Barium	mg/l	1	0.89	3.84	0.191	0.138	1	2.24	2.49					2.38					0.205					0.15	0.141					0.0869
Beryllium	mg/l	0.003	0.01	0.02	<0.003	<0.003	<0.005	0.0139	0.0192					0.0066					<0.003					<0.003	<0.003					<0.003
Cadmium	mg/l	0.01	0.004	0.004	<0.005	<0.005	<0.005	0.0034	0.0347	<0.005	0.0122	0.007	0.0063	<0.0012	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.00506	0.00603	<0.005	<0.005	<0.005	< 0.005	<0.005	<0.005
Calcium	mg/l		630.98	3046.51	59.7	28.2	686	1750	3430	895	4070	1360	2850	1290	15.1	154	321	187	236	283	251	312	132	146	143	48.3	168	85.2	75.7	86.9
Chromium	mg/l		0.12	0.47	0.0297	0.0481	0.142	0.28	0.448					0.555					0.022					0.0204	0.0172					0.02
Hexavalent Chromium	mg/l	0.05	0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01					<0.01					<0.01					<0.010	<0.010					<0.010
Cobalt	mg/l	0.005	0.08	0.39	<0.02	<0.02	0.0644	0.229	0.352					0.327					<0.02					<0.020	<0.020					<0.020
Copper	mg/l	0.2	0.42	1.41	0.0604	0.446	0.308	0.854	0.987					0.881					0.061					0.0415	<0.0557					0.0209
Total Cyanide	mg/l	0.1	0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01					<0.01					<0.01					<0.010	<0.0169					<0.010
Iron	mg/l	0.3	210.43	1025.67	31.3	19.4	190	601	1300	6.7	1540	982	1180	780	0.842	81.7	78.8	22.5	30	45.9	29	35.4	37.2	37.6	30.6	14.3	21.8	21.2	16.4	16.1
Lead	mg/l	0.025	0.11	0.52	0.0248	0.0121	0.0872	0.307	0.368	<0.005	0.54	0.358	0.393	0.308	<0.005	0.0295	0.0144	0.00394	<0.003	0.00718	0.00944	0.0209	0.0126	0.0131	0.0146	0.00704	0.0113	0.00842	0.00761	0.00691
Magnesium	mg/l	35	137.17	703.67	17.8	8.89	110	412	517	23	1110	383	726	460	3.07	46.4	65.7	29.4	45.2	64.3	49.8	54.7	34	38	35.3	12.4	38.2	21.5	19.1	22
Manganese	mg/l	0.3	6.42	31.55	0.663	0.394	6.32	18.3	33.6	5.46	45.1	20.7	28.3	18.9	0.023	1.86	2.84	1.53	1.9	2.55	2.06	2.53	1.29	1.28	1.27	0.44	1.44	0.857	0.687	0.78
Mercury	mg/l	0.002	0.0003	0.0009	<0.0002	<0.0002	0.00051	0.00042	0.0011					<0.0002					<0.0002					<0.0002	<0.0002					<0.0002
Nickel	mg/l	0.007	0.18	0.83	0.035	0.0372	0.16	0.495	0.678					0.616					0.034					0.0397	<0.030					<0.030
Potassium	mg/l		16.68	54.75	13	3.53	16.3	33.9	44.6	3.4	77.5	111	116	105	<2	18.1	8.54	6.43	4.19	4.25	4.4	4.94	4.31	5.06	4.28	2.99	5.93	3.09	2.39	2.31
Selenium	mg/l	0.01	0.01	0.02	<0.005	<0.005	0.00982	0.0113	<0.025					0.0176					<0.005					<0.005	<0.005					0.00871
Silver	mg/l	0.05	0.01	0.02	REJECT	<0.01	<0.01	<0.0033	<0.01					0.0199					<0.01					<0.010	<0.010					<0.010
Sodium	mg/l	20	85.63	430.65	258	26.3	23.7	34.5	42.2	28	49	41.4	38.6	32.2	19.2	29.3	22.1	24.3	19.1	22.1	21.8	24.1	20.3	21.6	20	23.3	24.1	22.5	23	20.6
Thallium	mg/l	0.004	0.01	0.03	<0.01	<0.01	<0.01	<0.0253	<0.05					<0.024					<0.01					<0.010	<0.010					<0.010
Vanadium	mg/l	0.014	0.2	0.96	<0.03	<0.03	0.212	0.558	0.842					1.21					<0.03					0.0346	<0.030					<0.030
Zinc	mg/l	0.3	0.51	2.36	0.121	0.106	398	1.41	1.86					1.86					0.0979					0.131	0.0733					0.0591

Notes:

1. Parameters listed are Part 360 Baseline or Routine Parameters Effective 1993.
2. Blanks indicate no analysis performed
3. "<" indicates not detected at the specified method detection limit (MDL)
4. Shaded values indicate detection above Standard.

TABLE B-1
Groundwater Analytical Monitoring Data
MW-12S
Albany Interim Landfill/P-4 Project
CHA Project No. 12244

TEST PARAMETER (mg/l unless otherwise noted)	Unit	TOGS Guidance Value	Mean (EWQV)	Mean (EWQV) Plus 3 Std. Dev.	07/00 Expnd	07/00 Expnd	08/00 Bsln	08/00 Bsln	09/00 Bsln	4Q00 Rtne	1Q01 Rtne	2Q01 Rtne	3Q01 Rtne	4Q01 Rtne	1Q02 Rtne	April-03 Routine	June-03 Routine	Sep-03 Baseline	Dec-03 Routine	Mar-04 Routine	Jun-04 Routine	Sep-04 Routine	Dec-04 Baseline	Mar-05 Baseline	Jun-05 Routine	Sep-05 Routine	Dec-05 Routine	Mar-06 Routine	Jun-06 Baseline
Temperature	C°		16.34	21.16	17.9	17.9	15.4	16.3	14.2	4.7	11	19.9	18.1	11.3	10.4	12.8	12.5	12.94	13.25	10.73	11.84	16.04	14.78	10.54	12	17.73	14.9	11.09	12.56
Conductivity	uS		1176	2889.61	1256	1256	1448	210	1710	6.89	28.1	1809	279	1855	1418	2105	240	2427	306	273	269	410	282	231	325	266	273	210	160
pH	SU	6.5-8.5	6.83	6.96	6.8	6.8	6.84	6.86	6.75	7.8	6.63	6.73	6.72	7.05	6.9	6.64	6.9	7.01	7.64	8.03	7	7.83	7.87	7.72	9.18	8.04	7.53	7.41	7.86
Eh	mV		15.6	20.15	15	15	14	18	16	-33	40	-25	-55	15	-40	4.5	-4	-52.7	-51.5	-72	-65.6	-101	-214.7	-48.2	111	-72.3	-46	123	-85.1
Turbidity (after purging well)	N.T.U	5	792	2528.04	1700	920	430	190	720	436	575	294	414	390	304	600	230	117	447	500	>1000	546	350	470	197	533	93	529	419
LEACHATE INDICATORS:															0.231														
Ammonia Nitrogen	mg/l	2	0.1	0.13	0.0988	0.111	0.0863	0.0886	0.<08	0.271	0.973	0.0834	0.154	0.131	<0.05	<0.5	<0.5	0.9	<0.5	1.1	<0.5	<0.5	<0.5	2520	<0.5	<0.5	< 0.5	< 0.5	<0.5
BOD 5	mg/l		15.74	68.7	14.8	15.3	<2	2.08	45	<2	<2	<2	<2	<2	12	5	<4	<4	<4	<4	<4	<4	<4	<4	13	<4	< 6	< 8	22
Bromide	mg/l	2	0.75	0.75	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	40.7	<0.2	<2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.20	<0.20	<2	<2	< 2	< 0.2	<2
COD	mg/l		24.38	50.46	28	35.8	13.7	18	26.4	30	33	27.2	24.1	24.6	749	77	53	<20	<20	<20	28	37	<20	<20	<20	<20	< 20	< 20	27
Chloride	mg/l	250	383.2	582.12	384	452	295	442	343	747	448	504	720	708	<2.0	540	560	550	42	40	43	36.2	48	34.5	31.6	34.2	27.1	36.5	25.7
Nitrate	mg/l	10	0.87	1.36	0.725	0.66	1.02	1.01	0.913	0.665	<0.5	0.623	<0.5	<0.5	117	0.7	1	0.9	<0.2	<0.2	0.35	0.3	<0.2	<0.20	<0.2	<0.2	< 0.2	< 0.2	<0.2
Sulfate	mg/l	250	86.46	112.61	87.1	98.8	74.5	84	87.9	119	90.8	88.7	88.5	93.2	320	130	86	80	15	14	25.6	20.1	7.03	7.9	13.1	7.9	12.5	10.9	11.3
Total Alkalinity	mg/l		279.8	342.96	280	309	264	256	290	358	315	283	278	262	1650	280	310	270	110	61	56	77	110	45	40	60	60	47	60
Total Disolved Solids	mg/l	500	1014.2	1409.86	<040	1190	839	1060	942	1680	1170	1220	1610	1570	391	1400	1300	1300	190	190	180	150	457	147	102	265	168	218	140
Total Hardness	mg/l		380.6	493.8	415	418	328	380	362	520	311	409	469	540	0.991	370	480	330	100	89	88.6	103	93.2	73.1	79.6	82.7	63.1	67.3	64.8
Total Kjed. Nitrogen	mg/l		2.82	6.13	4.2	2.58	2.32	1.38	3.6	1.41	1.7	0.979	1.24	1.02	11	1.4	0.8	0.9	<0.5	0.9	<0.5	0.948	<0.5	<0.5	<0.5	<0.5	< 0.5	< 0.5	<0.5
Total Organic Carbon	mg/l	500	8.23	13.17	7.69	9.23	6.97	6.66	<0.58	<0.14	9.98	8.16	8.21	8.47	<1.0	13	8	9	<3	<3	<3	<3	<3	<3	<3	<3	< 3	< 3	<3
Total Phenols	mg/l	0.001	0.004	0.004	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.014	<0.005	<0.005	0.006	<0.005	<0.005
Color	P.C.U.	15	41	95.5	35	60	20	30	60				60					400					10	100					130
Boron	mg/l	1	0.15	0.15	<0.2	<0.2	<0.2	<0.2	<0.2				<0.2					<0.5					<0.5	<0.5					<0.5
INORGANIC PARAMETERS:																													
Aluminum	mg/l	0.1	34.34	82.52	56.4	35.6	33	11.1	35.6				<0.2					3.67					8.97	8.05					9.62
Antimony	mg/l	0.003	0.05	0.05	<0.06	<0.06	REJECT	<0.06	REJECT				<0.06					<0.015					0.025	0.0186					<0.015
Arsenic	mg/l	0.025	0.02	0.04	0.0302	0.0154	<0.01	<0.01	0.0187				<0.01					<0.01					<0.010	0.0133					0.0126
Barium	mg/l	1	0.2	0.38	0.281		0.19	0.113	0.205				0.154					0.09					0.0505	<0.050					0.0528
Beryllium	mg/l	0.003	0	0	<0.005	<0.005	<0.005	<0.005	<0.005				<0.005					<0.003					<0.003	<0.003					<0.003
Cadmium	mg/l	0.01	0.004	0.004	<0.005	<0.005	0.0057	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.00538	<0.005	<0.005	<0.5	<0.005	< 0.005	< 0.005	<0.005
Calcium	mg/l		104.44	131.22	117	<09	96.8	<04	95.4	112	156	123	125	152	112	113	156	105	32.5	28.4	27.1	32.5	29.6	22.9	25.7	25.9	20.6	20.7	19.5
Chromium	mg/l		0.07	0.16	0.113	0.0701	0.0524	0.0229	0.0697				0.0212					0.00599					0.0129	0.0111					0.0161
Hexavalent Chromium	mg/l	0.05	0.01	0.01	REJECT	REJECT	<0.01	REJECT	<0.01				<0.01					<0.01					<0.010	<0.010					<0.020
Cobalt	mg/l	0.005	0.04	0.04	<0.05	<0.05	<0.05	<0.05	<0.05				<0.05					<0.02					<0.020	<0.020					<0.020
Copper	mg/l	0.2	0.09	0.23	0.161	0.102	0.0621	0.0388	0.101				<0.02					0.0396					0.0197	0.0246					0.0194
Total Cyanide	mg/l	0.1	0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01				0.011					<0.01					<0.010	<0.010					<0.010
Iron	mg/l	0.3	55.02	133.97	87.2	59.1	37.8	20.6	70.4	5.7	38	15.6	21	25.4	28.9	13.8	8.96	7.7	15.2	16.4	24.3	24	17	18.4	16.7	22.8	10.9	23.9	18.1
Lead	mg/l	0.025	0.03	0.07	0.0454	0.0333	0.0171	0.0068	0.0281	<0.005	<0.005	<0.005	0.0069	0.00589	0.00821	<0.003	<0.003	<0.003	0.009	0.00598	0.0112	0.0115	0.00391	0.00614	0.00809	0.00746	0.00447	0.0104	0.00674
Magnesium	mg/l	35	28.76	39.48	33.6	29.5	25.7	24.8	30.2	25.2	32.8	24.3	28	35.2	27.1	20.6	21.5	17.5	4.63	4.42	5.06	5.21	4.67	3.87	3.74	4.38	2.82	3.82	3.92
Manganese	mg/l	0.3	0.86	1.53	1.17	0.97	0.743	0.584	0.842	0.532	0.519	0.532	0.504	0.523	0.734	0.283	0.365	0.262	0.104	0.0921	0.161	0.22	0.127	0.389	0.313	0.455	0.208	0.36	0.212
Mercury	mg/l	0.002	0.0002	0.0002	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003				<0.0002					0.0006					<0.0002	<0.0002					<0.0002
Nickel	mg/l	0.007	0.06	0.14	0.0964	0.0677	<0.04	<0.04	0.0644				<0.04					<0.03					<0.030	<0.030					<0.030
Potassium	mg/l		7.36	13.42	9.77	7.09	7.7	4.86	REJECT	8.74	6.64	4.94	5.72	6.62	8.58	5.53	8.17	6.55	3.91	3.22	4.01	3.58	3.59	3.14	2.67	3.07	2	2.59	2.78
Selenium	mg/l	0.01	0.02	0.14	0.006	0.008	<0.005	<0.005	0.095				<0.005					<0.005					<0.005	<0.005					0.00609
Silver	mg/l	0.05	0.01	0.01	<0.01	<0.01	REJECT	<0.01	<0.01				<0.01					<0.01					<0.010	<0.010					<0.01
Sodium	mg/l	20	204.6	278.89	224	234	179	181	205	107	320	283	332	469	401	442	245	253	23.9	13.5	16.2	16.7	12.8	12.1	15.7	16.5	12.8	12.8	13.8
Thallium	mg/l	0.004	0.02	0.07	<0.05	<0.05	<0.01	<0.01	<0.01				<0.01					<0.01					<0.010	<0.010					<0.010
Vanadium	mg/l	0.014	0.19	0.47	0.309	0.2	0.158	0.0798	REJECT				0.0791					<0.03					0.0748	0.0936					0.0714
Zinc	mg/l	0.3	0.19	0.37	0.272	0.177	0.147	0.124	0.227				0.0557					0.0402					0.0635	0.0402					0.0831

Notes:

1. Parameters listed are Part 360 Baseline or Routine Parameters Effective 1993.
2. Blanks indicate no analysis performed
3. "<" indicates not detected at the specified method detection limit (MDL)
4. Shaded values indicate detection above Standard.
5. Alkalinity results for the MW-12 cluster during the June 2006 sampling event were delivered in incorrect order

TABLE B-1
Groundwater Analytical Monitoring Data
MW-12I
Albany Interim Landfill/P-4 Project
CHA Project No. 12244

TEST PARAMETER (mg/l unless otherwise noted)	Unit	TOGS Guidance Value	Mean (EWQV)	Mean (EWQV) Plus 3 Std. Dev.	07/00 Expnd	07/00 Expnd	08/00 Bsln	08/00 Bsln	09/00 Bsln	4Q00 Rtne	1Q01 Rtne	2Q01 Rtne	3Q01 Rtne	4Q01 Rtne	1Q02 Rtne	April-03 Routine	June-03 Routine	Sep-03 Baseline	Dec-03 Routine	Mar-04 Routine	Jun-04 Routine	Sep-04 Routine	Dec-04 Baseline	Mar-05 Baseline	Jun-05 Routine	Sep-05 Routine	Dec-05 Routine	Mar-06 Routine	Jun-06 Baseline
Temperature	C°		17.06	23.18	18.3	18.3	18.3	16.8	13.6	7.8	10.9	191	16.21	11.61	10.2	12.27	12.7	13.34	11.69	11.75	13.52	12.81	11.99	12.77	13.8	14.73	11.2	12.07	14.64
Conductivity	uS		1448.6	2246.56	1264	1264	1368	1905	1442	0.54	1265	1151	279	828	845	1382	1697	1039	885	939	974	1272	1028	1216	1434	1265	1557	1027	899
pH	SU	6.5-8.5	7.33	7.55	7.4	7.4	7.3	7.34	7.23	7.8	7.39	7.37	6.72	7.41	7.26	7.37	7.16	7.7	7.48	7.56	6.74	7.82	7.12	7.4	8.22	7.83	7.34	6.82	7.68
Eh	mV		-17.6	-3.92	-21	-21	-19	-17	-10	-38	30	-55	-55	OR	-60	-81.7	-32	-108.8	-79.7	-73.5	-70.1	-123.5	-207.2	7.4	83	-68.6	-27	176.2	-96.2
Turbidity (after purging well)	N.T.U	5	206.2	661.35	230	240	430	84	47	98.8	93.7	97.3	77.3	64.3	69.1	350	304	394	380	360	236	289	308	594	210	182	29.6	433	205
LEACHATE INDICATORS:																													
Ammonia Nitrogen	mg/l	2	13.68	16.32	12.7	13.1	15	13.7	13.9	14.8	10.8	11.4	9.71	5.86	12	14	15	9.3	5	5.2	3.95	4.42	4.94	<0.5	8.23	0.987	11.4	6.75	7
BOD 5	mg/l		20.36	107.89	19.8	5.43	2.93	2.64	71	2.29	2.97	2.39	<2	2.41	2.55	<4	<4	<4	<4	<4	<4	14	<4	<4	14	<4	< 4	< 4	<8
Bromide	mg/l	2	1.34	1.69	1.34	1.18	1.43	1.47	1.29	1.05	1.04	<1	<1	<1	1.35	<0.2	<0.2	<0.2	<0.2	0.5	0.9	0.98	1	<0.2	0.8	<2	< 2	< 0.2	<2
COD	mg/l		51.54	106.7	53.2	76.4	53.4	50.1	24.6	41.1	51.1	53.1	51.2	36.4	57.2	87	67	38	40	36	46	58	23	106	43	45	34	42	33
Chloride	mg/l	250	186.8	216.3	178	177	186	200	193	179	175	186	176	152	210	150	170	130	150	100	116	140	260	141	184	120	56.7	118	142
Nitrate	mg/l	10	0.38	0.38	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	< 0.2	< 0.2	<0.2
Sulfate	mg/l	250	20.94	25.61	19.4	19.4	22	21	22.9	18.5	13.4	15.1	15.3	12.3	14.9	14	10	10	22	13	14.1	20.8	22.4	15.2	15	13.8	13.9	11.6	16.2
Total Alkalinity	mg/l		485.2	510.16	482	482	500	480	482	425	367	403	440	309	485	470	470	320	400	290	330	400	340	400	360	420	350	350	390
Total Disolved Solids	mg/l	500	790	806.43	782	794	790	796	788	687	664	722	733	597	820	770	660	550	610	520	95	698	1050	618	570	995	648	628	718
Total Hardness	mg/l		487.8	653.5	485	498	575	443	438	388	512	399	370	312	414	460	510	270	430	300	343	382	547	489	447	382	414	364	389
Total Kjed. Nitrogen	mg/l		17.64	21.68	17.3	17.2	20	17.1	16.6	14.8	11.2	12	10	6.42	12.5	15	15	12	9.5	5.8	4.27	6.48	5.76	10.2	8.56	2.47	7.9	6.25	8.23
Total Organic Carbon	mg/l	500	18	19.9	18.75	18.45	17.6	18.03	17.18	16.33	15.83	17.7	20.73	12.48	19.9	73	61	11	15	14	14	20	27	40	17	14	13	12	15
Total Phenols	mg/l	0.001	0.004	0.004	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.013	<0.005	<0.005	< 0.005	<0.005	<0.005
Color	P.C.U.	15	27	47.12	35	30	20	30	20				20					130					7	250					24
Boron	mg/l	1	0.46	0.54	0.47	0.472	0.491	0.445	0.422				0.354					<0.5					<0.5	<0.5					<0.5
INORGANIC PARAMETERS:																													
Aluminum	mg/l	0.1	8.28	27.44	8.74	8.6	18.3	4.28	1.46				0.987					2.99					11.8	9.39					2.73
Antimony	mg/l	0.003	0.05	0.05	<0.06	<0.06	REJECT	<0.06	REJECT				<0.06					<0.015					0.0302	<0.015					<0.015
Arsenic	mg/l	0.025	0.01	0.01	<0.01	<0.01	<0.01	0.0103	<0.01				<0.01					<0.01					<0.010	<0.010					<0.010
Barium	mg/l	1	0.37	0.49	0.347	0.342	0.439	0.358	0.349				0.286					0.228					0.268	0.29					0.292
Beryllium	mg/l	0.003	0	0	<0.005	<0.005	<0.005	<0.005	<0.005				<0.005					<0.003					<0.003	<0.003					<0.003
Cadmium	mg/l	0.01	0.001	0.008	<0.005	<0.005	6.0056	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.00519	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.00512	<0.005	<0.005	<0.005	< 0.005	< 0.005	<0.005
Calcium	mg/l		138.6	206.07	140	138	174	128	113	108	95.4	115	101	85.9	115	137	151	76.6	125	84.3	97.2	107	159	141	126	104	113	100	106
Chromium	mg/l		0.02	0.04	0.0168	0.0155	0.0287	<0.01	<0.01				<0.01					<0.005					0.0144	0.0146					0.00584
Hexavalent Chromium	mg/l	0.05	0.01	0.01	REJECT	REJECT	<0.01	REJECT	<0.01				<0.01					<0.01					<0.010	<0.010					<0.010
Cobalt	mg/l	0.005	0.04	0.04	<0.05	<0.05	<0.05	<0.05	<0.05				<0.05					<0.02					<0.020	<0.020					<0.020
Copper	mg/l	0.2	0.04	0.1	0.0463	0.0462	0.0687	0.023	<0.02				<0.02					0.0501					0.0669	0.0542					<0.0199
Total Cyanide	mg/l	0.1	0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01				0.011					<0.01					<0.010	0.0207					<0.010
Iron	mg/l	0.3	19.96	54.75	22.9	21.8	36.6	12.4	6.11	5.58	4.75	6.81	5.24	4.18	4.45	16.7	19.6	8.6	12.2	9.47	9.46	8.49	28	22.9	11.9	7.47	10.4	12.1	8.98
Lead	mg/l	0.025	0.01	0.02	0.0099	0.0105	0.015	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.00562	0.00389	<0.003	<0.003	0.00433	0.0103	0.00306	0.011	0.00984	0.00716	0.00395	0.00524	0.006	<0.003
Magnesium	mg/l	35	30.56	42.75	30.4	30	37.3	28.6	26.5	24.5	19.6	24.8	24.8	20.8	28	29.8	31.2	18.2	29.5	20.5	24.2	27.6	36.5	33.1	32.2	29.3	31.8	27.7	30.5
Manganese	mg/l	0.3	0.91	1.67	0.975	0.966	1.27	0.746	0.607	0.517	0.451	0.612	0.531	0.455	0.555	0.921	1.25	0.514	0.946	0.642	0.682	0.654	1.11	1.05	0.788	0.649	0.792	0.72	0.676
Mercury	mg/l	0.002	0.0002	0.0002	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003				<0.0002					0.002					<0.0002	<0.0002					<0.002
Nickel	mg/l	0.007	0.03	0.07	<0.04	<0.04	0.0543	<0.04	<0.04				<0.04					<0.03					0.0384	<0.030					<0.030
Potassium	mg/l		9.39	14.16	9.06	8.11	11.7	8.69	REJECT	8.46	6.99	7.72	7.63	5.45	7.36	11.7	11	7.91	8.31	5.55	5.39	6.69	6.89	7.03	8.56	7.98	8.27	7.42	8.39
Selenium	mg/l	0.01	0	0.01	<0.005	<0.005	0.0062	<0.005	<0.005				<0.005					<0.005					0.0145	<0.005					0.0085
Silver	mg/l	0.05	0.01	0.01	<0.01	<0.01	REJECT	<0.01	<0.01				<0.01					<0.010					<0.010	<0.010					<0.010
Sodium	mg/l	20	129.6	148.17	133	133	136	122	124	104	126	121	107	99.9	146	135	125	76.4	105	71.3	81	114	84.1	82.8	120	117	118	95.9	99.4
Thallium	mg/l	0.004	0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01				<0.01					<0.01					<0.010	<0.010					<0.010
Vanadium	mg/l	0.014	0.04	0.04	<0.05	<0.05	<0.05	<0.05	REJECT				<0.05					<0.03					<0.030	<0.030					<0.030
Zinc	mg/l	0.3	0.08	16	0.073	77	0.119	6.0625	0.04621				0.0229					0.0401					0.104	0.0436					0.0364

Notes:

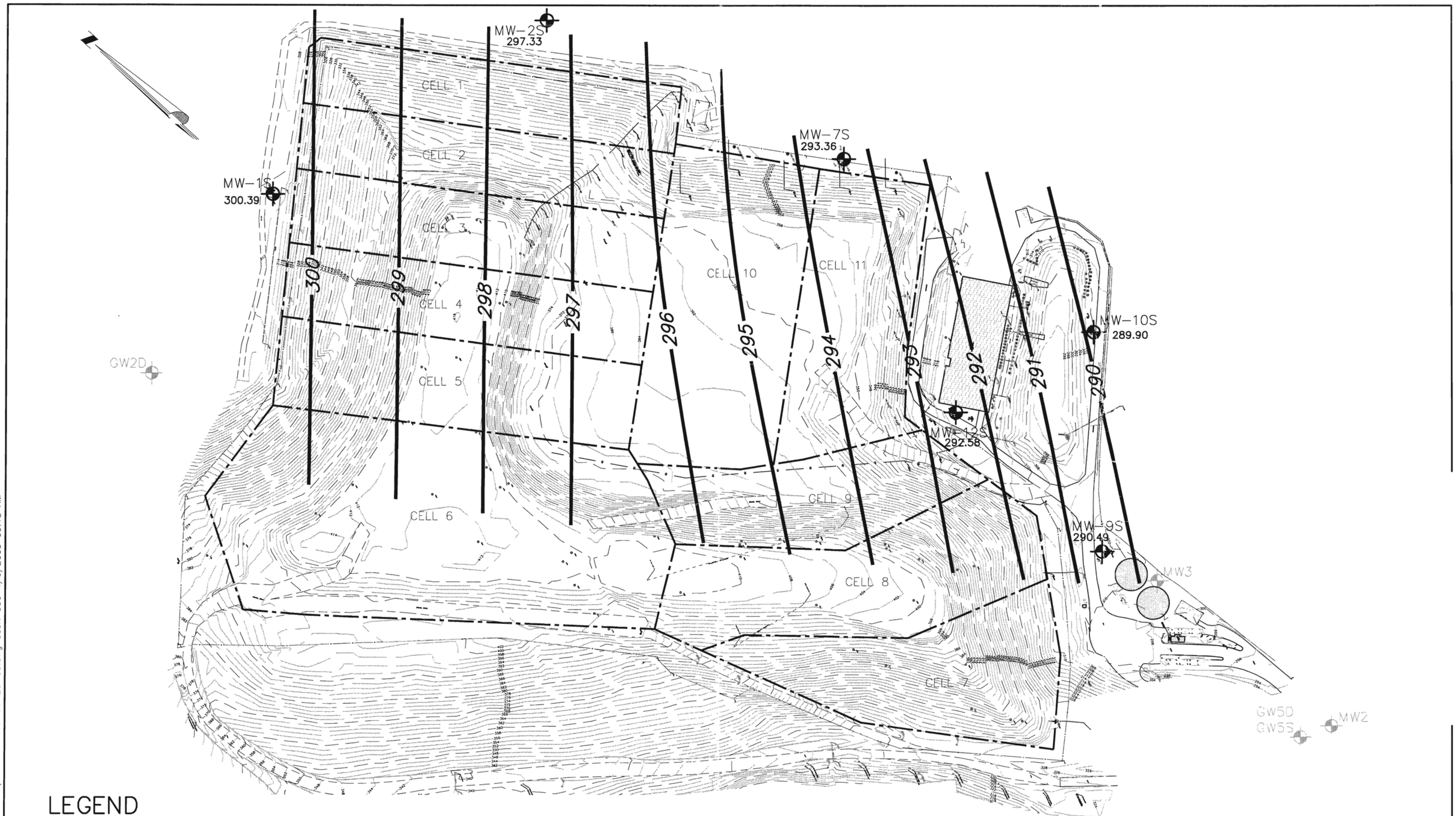
1. Parameters listed are Part 360 Baseline or Routine Parameters Effective 1993.
2. Blanks indicate no analysis performed
3. "<" indicates not detected at the specified method detection limit (MDL)
4. Shaded values indicate detection above Standard.
5. Alkalinity results for the MW-12 cluster during the June 2006 sampling event were delivered in incorrect order

TABLE B-1
Groundwater Analytical Monitoring Data
MW-12D
Albany Interim Landfill/P-4 Project
CHA Project No. 12244

TEST PARAMETER (mg/l unless otherwise noted)	Unit	TOGS Guidance Value	Mean (EWQV)	Mean (EWQV) Plus 3 Std. Dev.	07/00 Expnd	07/00 Expnd	08/00 Bsln	08/00 Bsln	09/00 Bsln	4Q00 Rtne	1Q01 Rtne	2Q01 Rtne	3Q01 Rtne	4Q01 Rtne	1Q02 Rtne	April-03 Routine	June-03 Routine	Sep-03 Baseline	Dec-03 Routine	Mar-04 Routine	Jun-04 Routine	Sep-04 Routine	Dec-04 Baseline	Mar-05 Baseline	Jun-05 Routine	Sep-05 Routine	Dec-05 Routine	Mar-06 Routine	Jun-06 Baseline
Temperature	C°		17.88	21.29	18.2	18.2	19.4	17.2	16.4	6.3	11.1	16.9	15.4	<0.7	12.4	11.75	13.2	12.57	11.2	11.73	13.06	12.9	11.69	12.27	13	13.09	10.4	11.8	13.54
Conductivity	uS		335.56	717.28	199.9	199.9	420	470	388	2.94	202	202	191.5	58.3	186.3	193	280	193	158	197	199	220	208	194	288	222	272	185	140
pH	SU	6.5-8.5	8.48	9	8.4	8.4	8.4	8.34	8.78	8.95	8.5	8.38	8.13	8.14	8.11	8.49	7.96	8.78	8.27	7.97	7.43	8.66	8.22	8.66	8.89	8.34	8.41	7.7	8.25
Eh	mV		-80.6	-57.5	-79	-79	-76	-75	-94	-97	125	170	85	-35	-60	-98.5	-36	-133.1	-25	-59.9	-52.2	113.4	-222.8	-111.5	99	-91.6	-88	85.7	-116
Turbidity (after purging well)	N.T.U	5	6920	12981.19	8300	9500	6300	4300	6200	18900	19300	43300	268	13200	3200	>1000	270	>1000	1000	850	>1000	743	285	593	257	401	70	394	270
LEACHATE INDICATORS:																													
Ammonia Nitrogen	mg/l	2	0.33	0.76	0.37	0.44	0.469	0.214	0.142	0.381	0.162	0.0743	0.0629	0.151	0.136	<0.5	<0.5	0.6	0.6	1.4	<0.5	<0.5	<0.5	10.9	<0.5	<0.5	< 0.5	< 0.5	<0.5
BOD 5	mg/l		4.85	14.7	<6	<6	<2	3.47	<0.3	5.92	7.22	2.7	<2	<2	4.67	<4	<4	<4	<4	<4	<4	4	<4	<4	<5	<4	< 6	<4	<8
Bromide	mg/l	2	0.75	0.75	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	11	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<2	< 2	< 0.2	<0.2
COD	mg/l		11.11	19.65	13.7	11.1	13.7	6.85	<0.2	21.6	<5	<5	<5	<5	8.21	110	35	31	<20	54	76	61	<20	47	25	24	< 20	< 20	<20
Chloride	mg/l	250	1.04	2.06	1.14	1	<1	<1	1.57	<1	<1	<1	1.19	<1	12	<1	1	1	<1	<1	<1	<1	5.36	8.17	102	5.85	< 1	2.57	35.2
Nitrate	mg/l	10	0.38	0.38	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	0.8	0.22	<0.2	0.4	<0.2	< 0.2	< 0.2	<0.2
Sulfate	mg/l	250	12637	30.39	7.75	7.32	12.1	14.4	21.8	4.16	2.9	2.56	4.55	2.9	2.6	<5	8	<5	6	<5	<5	7.6	7.09	<5	6.61	<5	8.49	<5	<5
Total Alkalinity	mg/l		108.4	112.95	109	109	110	106	<08	108	103	104	99.5	104	107	100	99	110	110	110	110	110	210	100	88	150	190	120	110
Total Disolved Solids	mg/l	500	176.4	279.53	195	226	149	143	169	170	184	174	139	125	125	160	75	170	130	140	110	115	573	122	82	232	165	207	127
Total Hardness	mg/l		5774	13475.4	3260	2750	7040	8200	7620	5610	4020	9670	96.7	1820	1260	2200	410	800	1300	980	891	1160	834	1290	1110	1020	449	443	622
Total Kjed. Nitrogen	mg/l		20.12	53.14	37.9	18.2	15.4	8.21	20.9	8.29	0.615	19.1	0.426	20.6	3.48	4.7	<0.5	2.8	2	1.6	1.11	1.9	<0.5	1.97	<0.5	<0.5	< 0.5	< 0.5	<0.5
Total Organic Carbon	mg/l	500	1.78	2.23	1.93	1.81	1.54	1.77	1.86	1.43	1.75	1.91	<1	1.71	11	<6	<3	11	<3	6	16.8	<3	9	11	18	8	< 3	< 3	<3
Total Phenols	mg/l	0.001	0.004	0.004	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.011	<0.005	<0.005	< 0.005	<0.005	<0.005
Color	P.C.U.	15	98	378.74	200	200	15	35	40				30					17					7	250					45
Boron	mg/l	1	0.82	1.99	0.523	0.568	<1	0.762	1.49				0.0439					<0.5					<0.5	0.627					<0.5
INORGANIC PARAMETERS:																													
Aluminum	mg/l	0.1	322.8	676.74	211	236	339	318	510				7.7					10.5					30	39.7					16.2
Antimony	mg/l	0.003	0.11	0.42	<0.06	<0.06	REJECT	<0.3	REJECT				<0.0034					<0.015					0.0339	<0.015					<0.015
Arsenic	mg/l	0.025	0.26	0.65	0.162	0.184	0.227	0.243	0.488				0.0089					0.0125					<0.010	0.0323					0.024
Barium	mg/l	1	2.61	6.14	1.45	1.42	2.74	3.35	4.1				0.14					0.305					0.285	0.396					0.209
Beryllium	mg/l	0.003	0.02	0.04	0.0129	0.0141	<0.025	0.0216	0.0292				<0.00016					<0.003					<0.003	<0.003					<0.003
Cadmium	mg/l	0.01	0.025	0.048	0.0178	0.0196	0.0301	0.021	0.0359	0.018	0.0162	0.0458	0.001	0.0348	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.0083	0.0101	0.00583	0.00859	0.00865	< 0.005	< 0.005	<0.005
Calcium	mg/l		3062	6377.94	2190	1950	2750	3930	4490	6440	3840	9810	28.1	3890	701	648	118	272	442	330	254	359	235	369	323	294	127	127	177
Chromium	mg/l		0.44	0.98	0.282	0.313	0.427	0.441	0.736				0.009					0.0123					0.0307	0.0505					0.0213
Hexavalent Chromium	mg/l	0.05	0.01	0.01	REJECT	REJECT	<0.01	<0.01	<0.01				<0.01					<0.01					<0.010	<0.010					<0.010
Cobalt	mg/l	0.005	0.38	0.91	0.243	0.263	0.334	0.382	0.677				0.005					<0.02					0.0249	0.0384					<0.020
Copper	mg/l	0.2	1.24	2.28	0.915	1.01	1.3	1.12	1.79				0.021					0.0533					0.0705	0.115					0.0443
Total Cyanide	mg/l	0.1	0.01	0.02	<0.01	<0.01	<0.01	<0.01	<0.02				<0.01					<0.01					<0.010	<0.010					<0.010
Iron	mg/l	0.3	96120	1920.01	803	875	719	889	1520	1530	1470	3030	<0.6	1790	368	175	20.7	26.4	18.1	19.6	50.9	58.7	65.5	88.4	60.7	69.5	33.8	27.1	39.9
Lead	mg/l	0.025	0.38	1.08	0.208	0.231	0.195	0.598	0.672	0.56	0.524	1	0.0076	1.02	0.135	0.0301	0.00485	<0.003	<0.003	<0.003	0.0264	0.0243	0.0232	0.036	0.0273	0.0223	0.0153	0.0141	0.0164
Magnesium	mg/l	35	645.6	1612.07	457	483	462	616	1210	1660	913	2230	7.6	1020	216	147	27	28.5	56	37.5	62.2	64.1	60.2	88.7	73.4	70	32.1	30.8	43.7
Manganese	mg/l	0.3	32.68	68.12	25.8	25.5	25.4	33.9	52.8	62.4	42.7	<06	0.228	47.6	9.26	6.11	1.17	1.86	3.06	2.25	2.61	2.89	2.1	3.37	2.68	2.75	1.3	1.17	1.63
Mercury	mg/l	0.002	0.0008	0.0011	0.00072	0.00063	0.00094	0.00078	0.00079				<0.00002					0.0002					<0.0002	<0.0002					<0.0002
Nickel	mg/l	0.007	0.71	1.76	0.45	0.491	0.658	0.695	1.28				0.0094					<0.03					0.0584	0.0696					0.0359
Potassium	mg/l		37.13	73.55	27.3	30	54.3	36.9	REJECT	36.2	112	121	9.21	168	51.4	13.8	3.91	3.82	2.53	3.88	6.11	7.62	7.9	11.8	8.1	7.27	4.58	3.41	4.93
Selenium	mg/l	0.01	0.01	0.03	<0.005	0.0069	<0.025	<0.01	<0.025				<0.0035					<0.005					<0.005	<0.005					0.0129
Silver	mg/l	0.05	0.02	0.06	<0.01	<0.01	REJECT	<0.05	<0.01				<0.0009					<0.01					<0.010	<0.010					<0.010
Sodium	mg/l	20	33.9	47.95	28.2	32.6	35.1	32.6	41	25.1	32	39.4	14.9	33.2	19.1	12.8	14.3	10.4	14.2	12.5	12.7	12.6	12	12.5	13.5	13.5	12.8	13.1	<0.010
Thallium	mg/l	0.004	0.02	0.05	<0.01	<0.01	<0.01	<0.02	<0.05				<0.0024					<0.01					<0.010	<0.010					<0.010
Vanadium	mg/l	0.014	0.78	1.44	0.577	0.636	0.823	1.07	REJECT				0.0174					<0.03					0.0619	0.0869					0.0335
Zinc	mg/l	0.3	2.06	496	1.21	1.34	2.14	2	3.63		1		0.0357					0.0802					0.174	0.173					0.123

Notes:

1. Parameters listed are Part 360 Baseline or Routine Parameters Effective 1993.
2. Blanks indicate no analysis performed
3. "<" indicates not detected at the specified method detection limit (MDL)
4. Shaded values indicate detection above Standard.
5. Alkalinity results for the MW-12 cluster during the June 2006 sampling event were delivered in incorrect order



LEGEND

200 — GROUNDWATER CONTOUR ELEVATION

MW-1S 300.00 — A.I.L. MONITORING WELL CLUSTER LOCATION AND NUMBER

WELL WATER LEVEL MEASURED: 03-28-2005

GW1D — GREATER ALBANY/RAPP ROAD LANDFILL MONITORING WELL CLUSTER

SCALE: 1" = 200'

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12244.2004.1102

DATE: 04-04-2005

FIGURE 3

GROUNDWATER PIEZOMETRIC MAP

SHALLOW GROUNDWATER FLOW REGIME

ALBANY INTERIM LANDFILL
ALBANY
STATE OF NEW YORK

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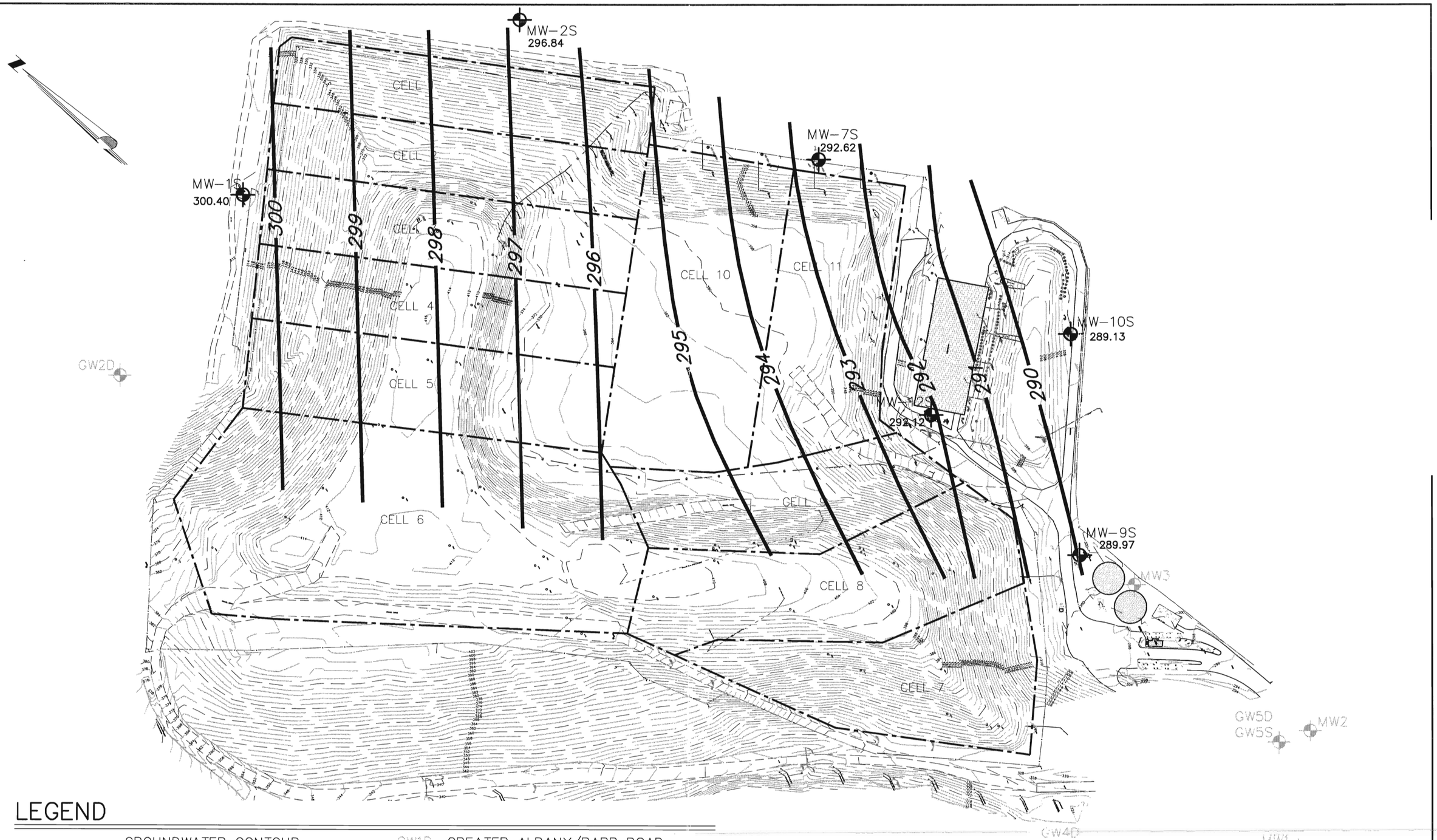

LEGEND

200 — GROUNDWATER CONTOUR ELEVATION

MW-1S 300.00 — A.I.L. MONITORING WELL CLUSTER LOCATION AND NUMBER

WELL WATER LEVEL MEASURED: 06-13-2005

GW1D — GREATER ALBANY/RAPP ROAD LANDFILL MONITORING WELL CLUSTER

SCALE: 1" = 200'

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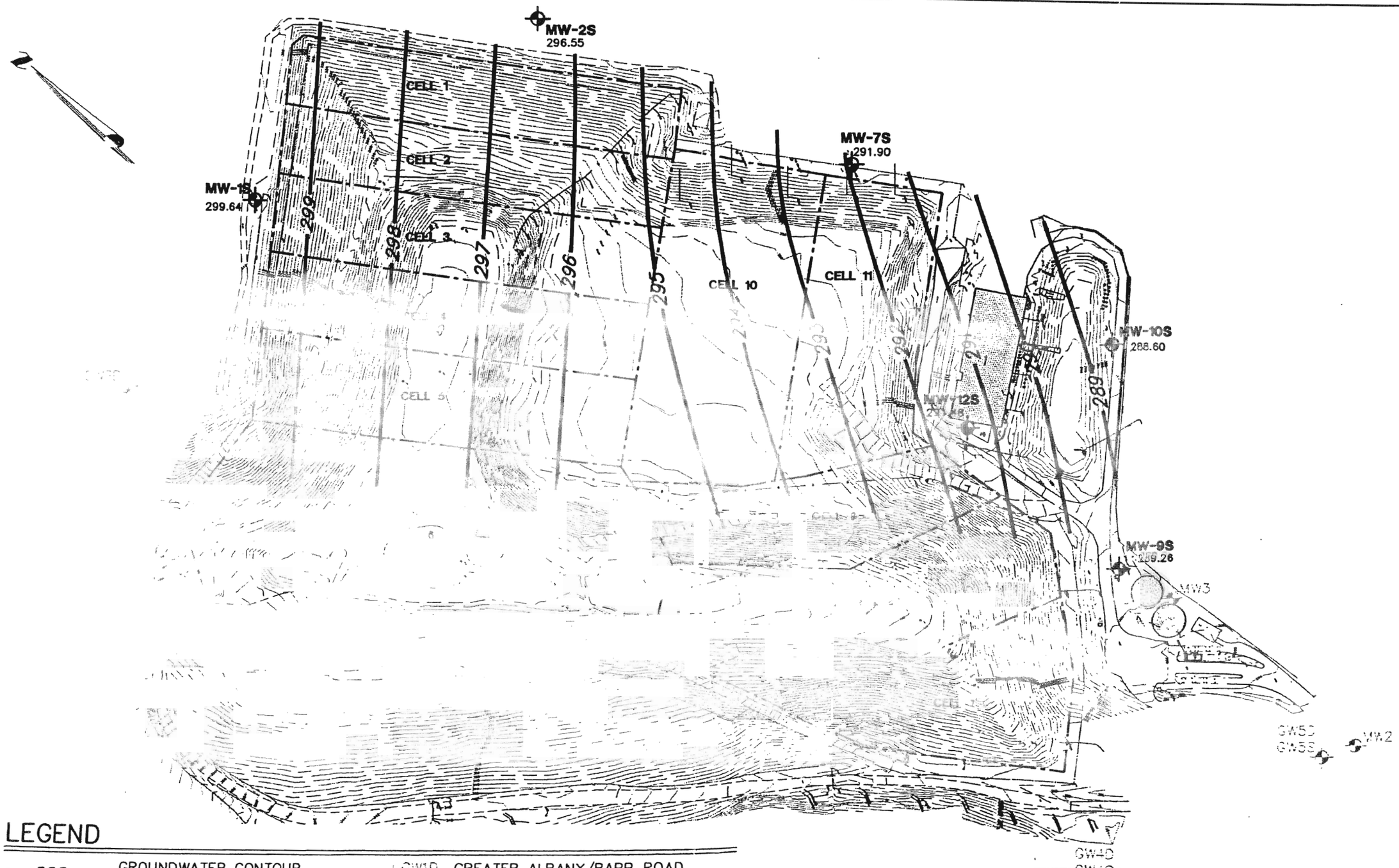
GROUNDWATER PIEZOMETRIC MAP
SHALLOW GROUNDWATER FLOW REGIME
ALBANY INTERIM LANDFILL
ALBANY
STATE OF NEW YORK

PROJECT NO. 12244

DATE: 09/15/05

FIGURE 3

File: K:\12244\ACAD\ALBINTERIM\GW-S-6-13-05.DWG Saved: 3/28/2006 2:19:58 PM Plotted: 10/19/2006 3:44:07 PM User: Stevens, Tom



LEGEND

— 200 — GROUNDWATER CONTOUR ELEVATION

MW-1S 300.00 — A.I.L. MONITORING WELL CLUSTER LOCATION AND NUMBER — WELL WATER LEVEL MEASURED: 09-19-2005

GW1D — GREATER ALBANY/RAPP ROAD LANDFILL MONITORING WELL CLUSTER

SCALE: 1" = 200'

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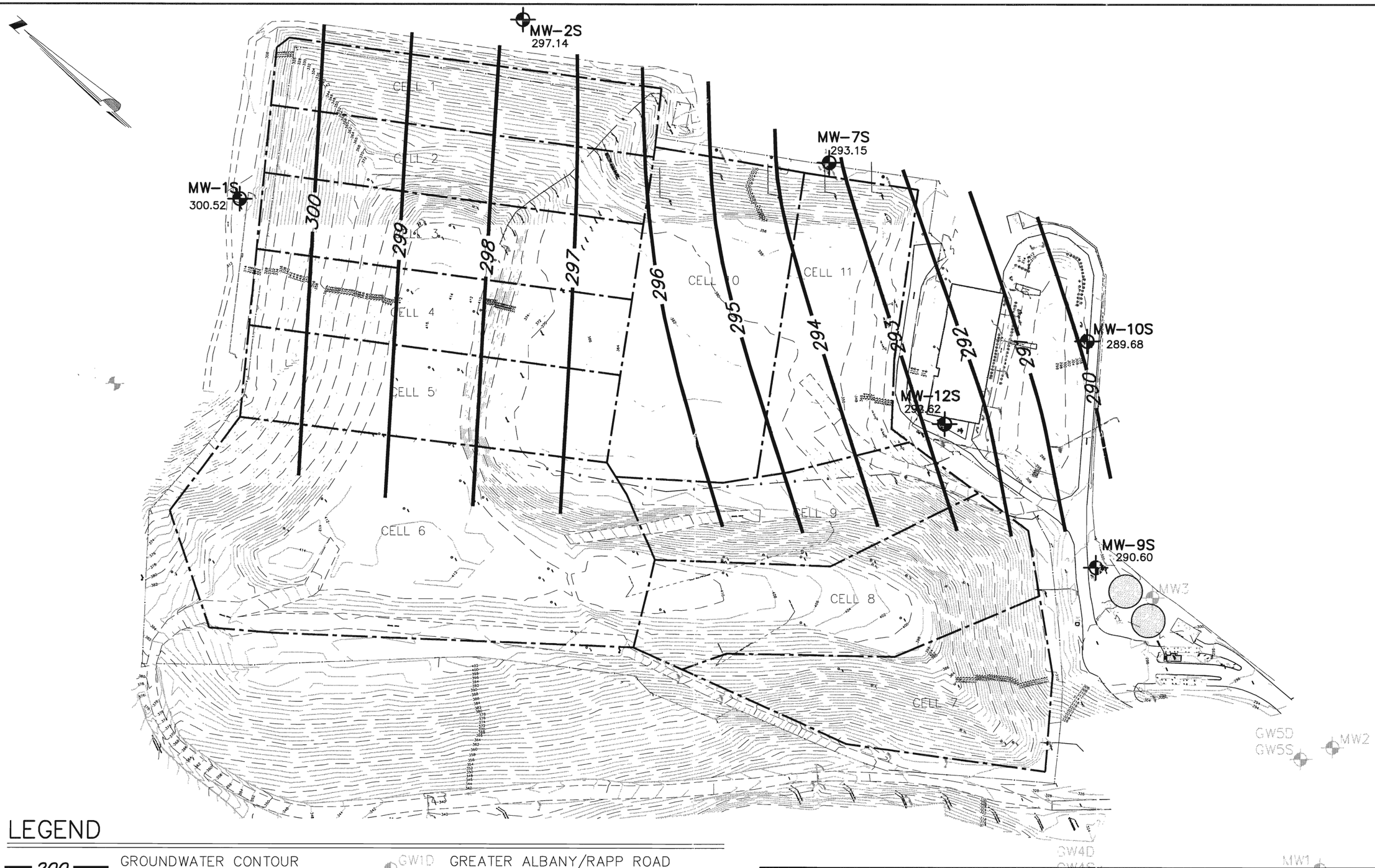
GROUNDWATER PIEZOMETRIC MAP
SHALLOW GROUNDWATER FLOW REGIME
ALBANY INTERIM LANDFILL
ALBANY
STATE OF NEW YORK

PROJECT NO. 12244

DATE: 11/10/06

FIGURE 3

File: K:\12244\ACAD\ALBINTERIM\PIEZOME II



LEGEND

200 — GROUNDWATER CONTOUR ELEVATION

MW-1S 300.00 — A.I.L. MONITORING WELL CLUSTER LOCATION AND NUMBER

WELL WATER LEVEL MEASURED: 12-19-2005

GW1D — GREATER ALBANY/RAPP ROAD LANDFILL MONITORING WELL CLUSTER

SCALE: 1" = 200'

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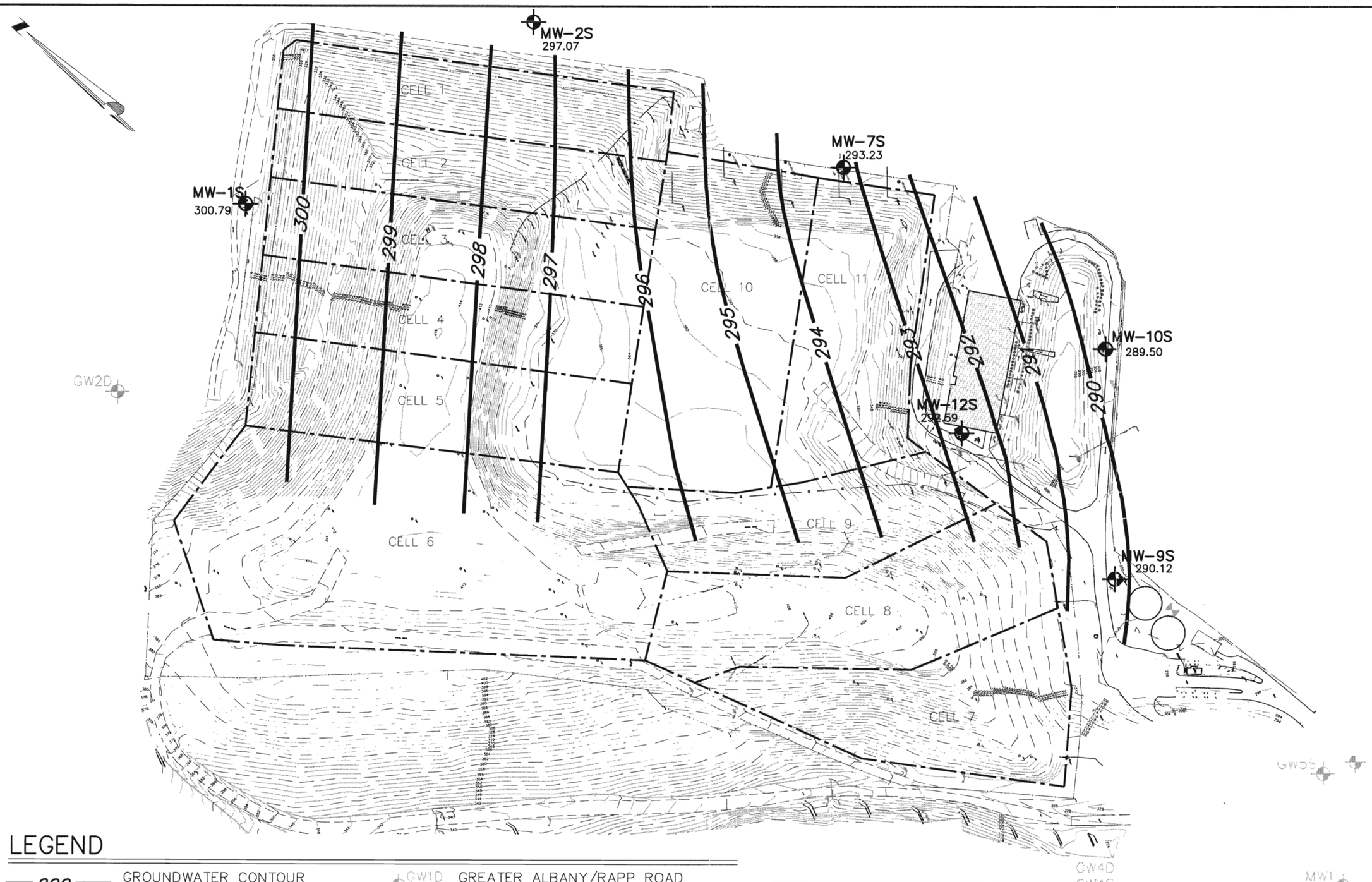
GROUNDWATER PIEZOMETRIC MAP
SHALLOW GROUNDWATER FLOW REGIME
ALBANY INTERIM LANDFILL
ALBANY
STATE OF NEW YORK

PROJECT NO. 12244

DATE: 03/14/06

FIGURE 3

File: K:\12244\ACAD\ALBINTERIM\GW-S-9-19-05.DWG Saved: 3/28/2006 5:31:23 PM Plotted: 10/19/2006 3:43:43 PM User Stevens, Tom



LEGEND

200 — GROUNDWATER CONTOUR ELEVATION

MW-1S — A.I.L. MONITORING WELL CLUSTER LOCATION AND NUMBER

300.00 — WELL WATER LEVEL MEASURED: 03-20-2006

GW1D — GREATER ALBANY/RAPP ROAD LANDFILL MONITORING WELL CLUSTER

SCALE: 1" = 200'

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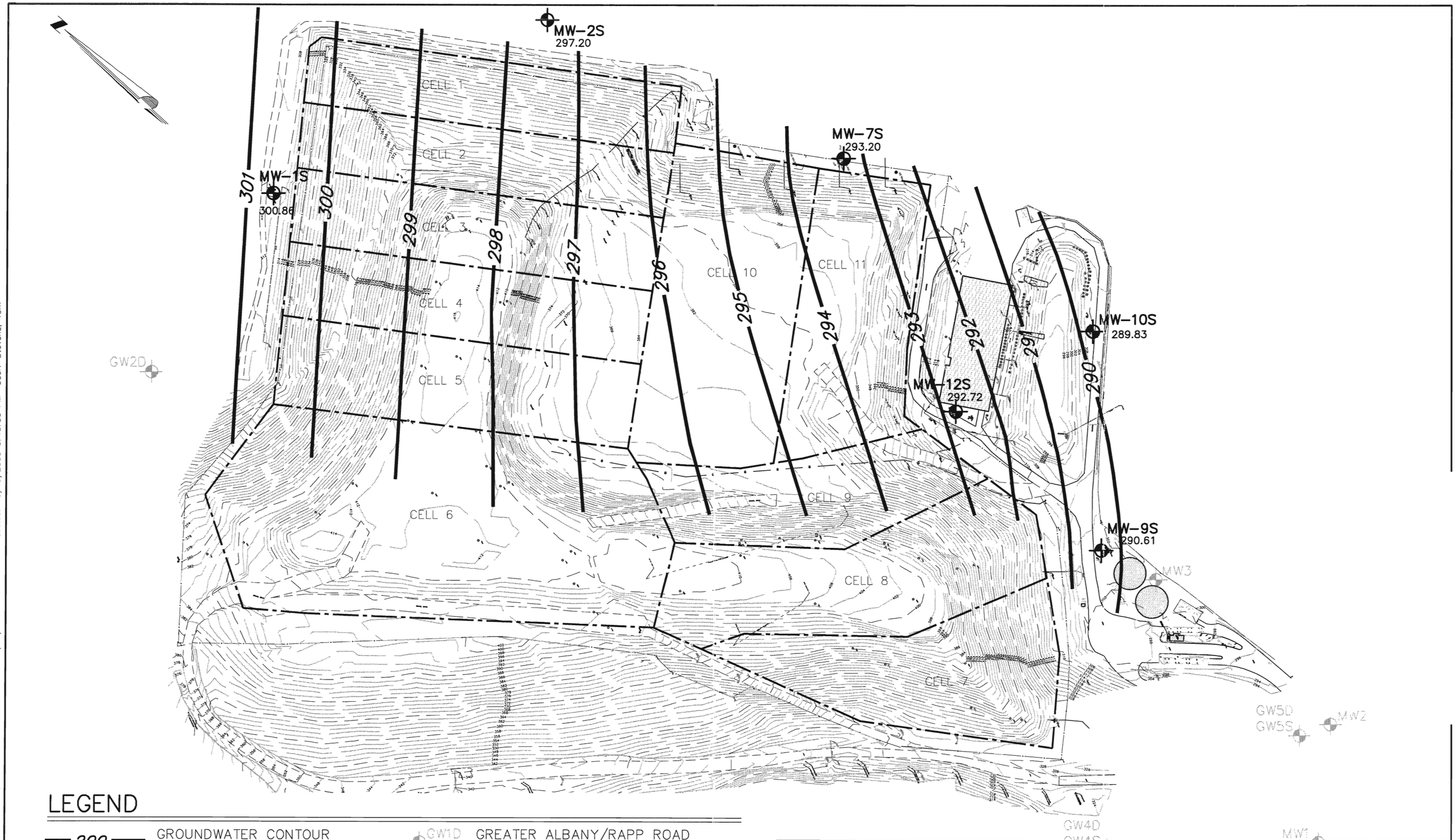
GROUNDWATER PIEZOMETRIC MAP
SHALLOW GROUNDWATER FLOW REGIME
ALBANY INTERIM LANDFILL
ALBANY
STATE OF NEW YORK

PROJECT NO. 12244

DATE: 06/09/06

FIGURE 3

File: K:\12244\ACAD\ALBINTERIM\GW-S-3-20-06.DWG Saved 6/15/2006 3:48:02 PM Plotted: 10/19/2006 3:38:11 PM User: Stevens, Tom



LEGEND

200 — GROUNDWATER CONTOUR ELEVATION

MW-1S 300.00 — A.I.L. MONITORING WELL CLUSTER LOCATION AND NUMBER

WELL WATER LEVEL MEASURED: 06-25-2006

GW1D — GREATER ALBANY/RAPP ROAD LANDFILL MONITORING WELL CLUSTER

SCALE: 1" = 200'

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GROUNDWATER PIEZOMETRIC MAP
SHALLOW GROUNDWATER FLOW REGIME
ALBANY INTERIM LANDFILL
ALBANY
STATE OF NEW YORK

PROJECT NO. 12244

DATE: 09/18/06

FIGURE 3

File: K:\12244\ACAD\ALBINTERIM\GW-S-6-25-06.DWG Saved: 9/18/2006 1:58:44 PM Plotted: 10/19/2006 3:43:55 PM User: Stevens, Tom

LEGEND

200 — GROUNDWATER CONTOUR ELEVATION

MW-1I / 300.00 — A.I.L. MONITORING WELL CLUSTER LOCATION AND NUMBER

WELL WATER LEVEL MEASURED: 03-28-2005

GW1D — GREATER ALBANY/RAPP ROAD LANDFILL MONITORING WELL CLUSTER

SCALE: 1" = 200'

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12244.2004.1102

DATE: 04-04-2005

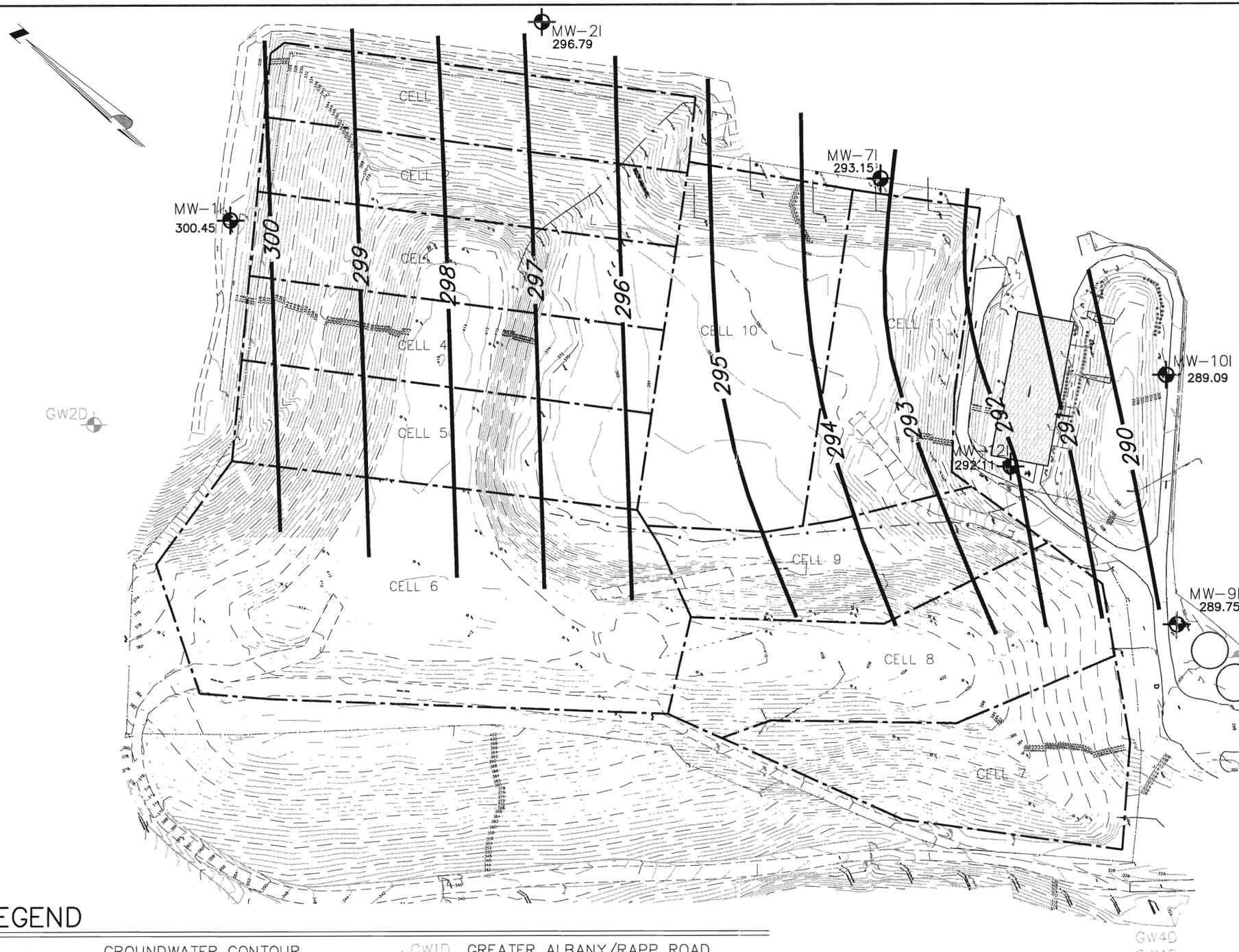
FIGURE 4

GROUNDWATER PIEZOMETRIC MAP

INTERMEDIATE GROUNDWATER FLOW REGIME

ALBANY INTERIM LANDFILL
ALBANY
STATE OF NEW YORK

File: K:\12244\ACAD\ALBINTERIM\GW-I-04-05-03-28-05.dwg User: 330 4/6/2005 09:17 AM



LEGEND

200 — GROUNDWATER CONTOUR ELEVATION

MW-1I 300.00 — A.I.L. MONITORING WELL CLUSTER LOCATION AND NUMBER

WELL WATER LEVEL MEASURED: 06-13-2005

GW1D — GREATER ALBANY/RAPP ROAD LANDFILL MONITORING WELL CLUSTER

SCALE: 1" = 200'

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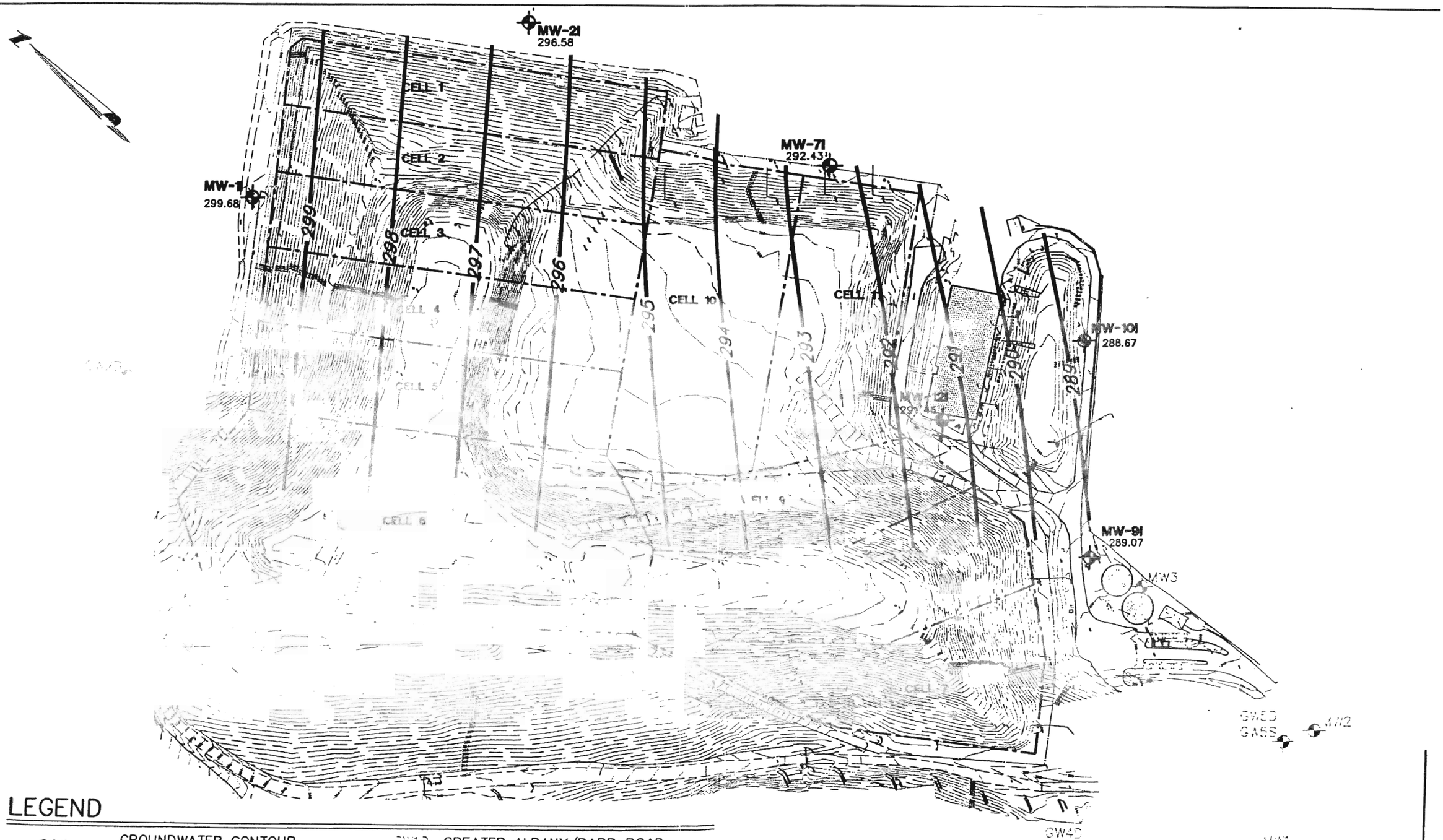
GROUNDWATER PIEZOMETRIC MAP
INTERMEDIATE GROUNDWATER FLOW REGIME
ALBANY INTERIM LANDFILL
ALBANY
STATE OF NEW YORK

PROJECT NO. 12244

DATE: 09/15/05

FIGURE 4

File: K:\12244\ACAD\ALBINTERIM\GW-I-6-13-05.DWG Saved 3/28/2006 2:20:02 PM Plotted 10/19/2006 3:39:42 PM User: Stevens, Tom



LEGEND

200 — GROUNDWATER CONTOUR ELEVATION

MW-1 300.00 — A.I.L. MONITORING WELL CLUSTER LOCATION AND NUMBER

WELL WATER LEVEL MEASURED: 09-19-2005

GW1D — GREATER ALBANY/RAPP ROAD LANDFILL MONITORING WELL CLUSTER

SCALE: 1" = 200'

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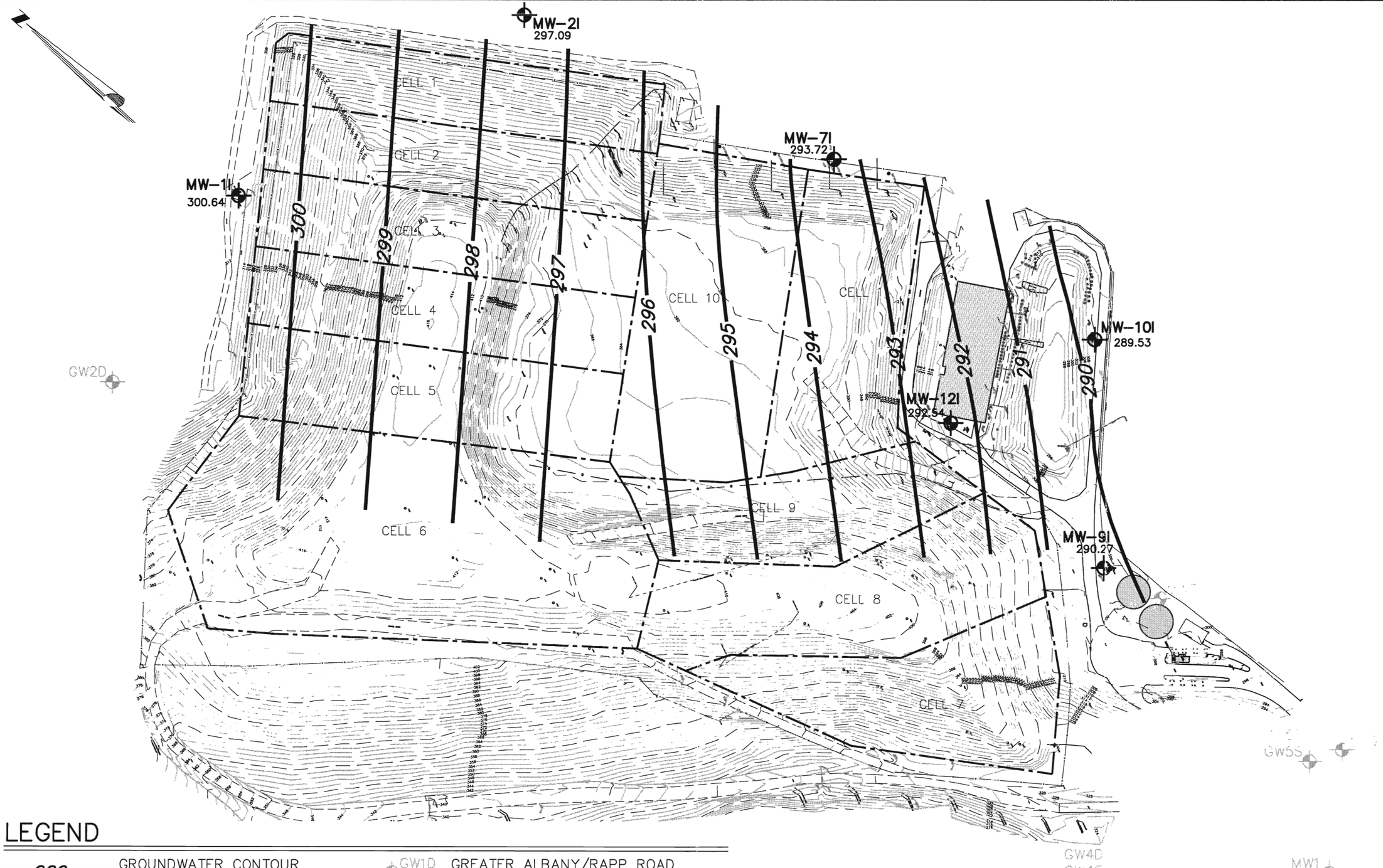
GROUNDWATER PIEZOMETRIC MAP
INTERMEDIATE GROUNDWATER FLOW REGIME
ALBANY INTERIM LANDFILL
ALBANY
STATE OF NEW YORK

PROJECT NO. 12244

DATE: 11/10/05

FIGURE 4

File: K:\12244\ACAD\ALBINTERIM\PIEZOMETRIC M
17:33 PM User: Stevens, Tom



LEGEND

200 — GROUNDWATER CONTOUR ELEVATION

MW-1I 300.00 — A.I.L. MONITORING WELL CLUSTER LOCATION AND NUMBER

WELL WATER LEVEL MEASURED: 12-19-2005

GW1D — GREATER ALBANY/RAPP ROAD LANDFILL MONITORING WELL CLUSTER

SCALE: 1" = 200'

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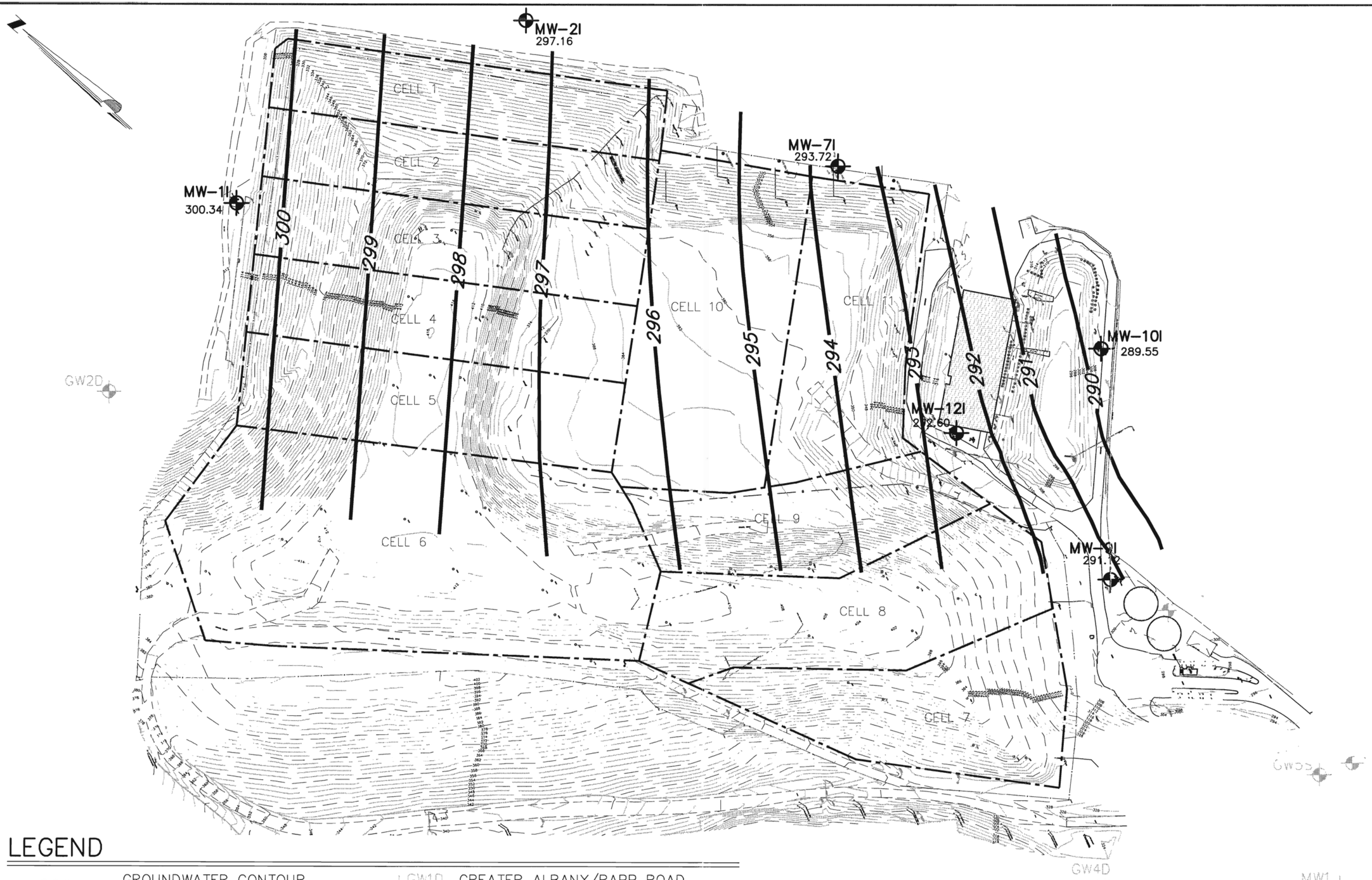
GROUNDWATER PIEZOMETRIC MAP
INTERMEDIATE GROUNDWATER FLOW REGIME
ALBANY INTERIM LANDFILL
ALBANY
STATE OF NEW YORK

PROJECT NO. 12244

DATE: 03/14/06

FIGURE 4

File: K:\12244\ACAD\ALBINTERIM\GW-I-9-19-05.DWG Saved: 3/28/2006 2:21:41 PM Plotted: 10/19/2006 3:39:18 PM User: Stevens, Tom



LEGEND

200 — GROUNDWATER CONTOUR ELEVATION

MW-1I 300.00 — A.I.L. MONITORING WELL CLUSTER LOCATION AND NUMBER

WELL WATER LEVEL MEASURED: 03-20-2006

GW1D — GREATER ALBANY/RAPP ROAD LANDFILL MONITORING WELL CLUSTER

SCALE: 1" = 200'

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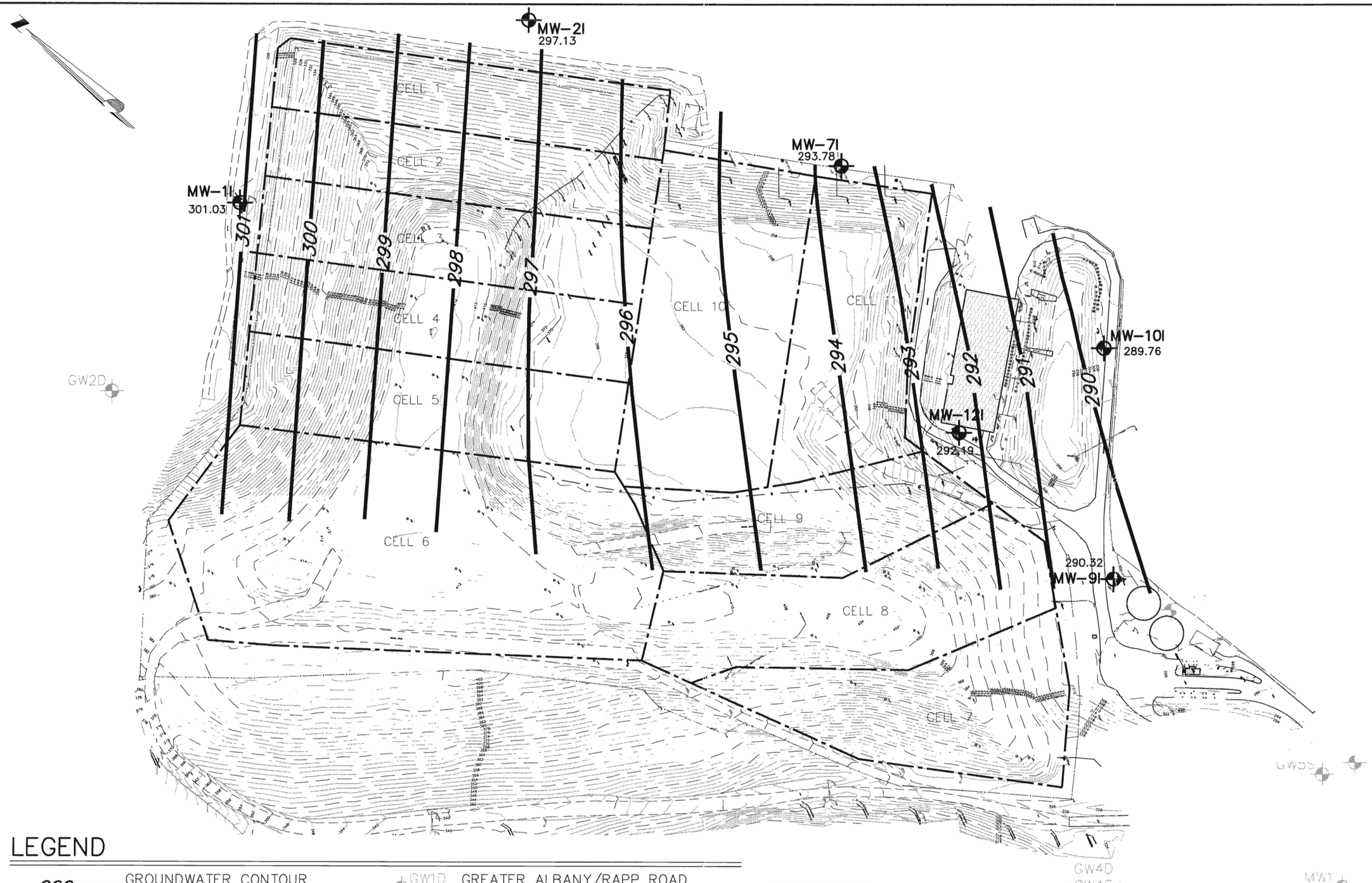
GROUNDWATER PIEZOMETRIC MAP
INTERMEDIATE GROUNDWATER FLOW REGIME
ALBANY INTERIM LANDFILL
ALBANY
STATE OF NEW YORK

PROJECT NO. 12244

DATE: 06/09/06

FIGURE 4

File: K:\12244\ACAD\ALBINTERIM\GW-I-3-20-06.DWG Saved: 6/16/2006 9:31:11 AM Plotted: 10/19/2006 3:40:33 PM User: Stevens, Tom



LEGEND

—200—	GROUNDWATER CONTOUR ELEVATION
MW-1I 300.00	A.I.L. MONITORING WELL CLUSTER LOCATION AND NUMBER WELL WATER LEVEL MEASURED: 06-25-2006
GW1D	GREATER ALBANY/RAPP ROAD LANDFILL MONITORING WELL CLUSTER

SCALE: 1" = 200'

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GROUNDWATER PIEZOMETRIC MAP
INTERMEDIATE GROUNDWATER FLOW REGIME
ALBANY INTERIM LANDFILL
ALBANY
STATE OF NEW YORK

PROJECT NO. 12244

DATE: 09/18/06

FIGURE 4

File: K:\12244\ACAD\ALBINTERIM\GW-I-6-25-06.DWG Saved: 9/18/2006 12:38:11 PM Plotted: 10/19/2006 3:39:28 PM User: Stevens, Tom

LEGEND

200 — GROUNDWATER CONTOUR ELEVATION

MW-1D 300.00 — A.I.L. MONITORING WELL CLUSTER LOCATION AND NUMBER

WELL WATER LEVEL MEASURED: 03-28-2005

GW1D — GREATER ALBANY/RAPP ROAD LANDFILL MONITORING WELL CLUSTER

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12244.2004.1102 | DATE: 04-04-2005

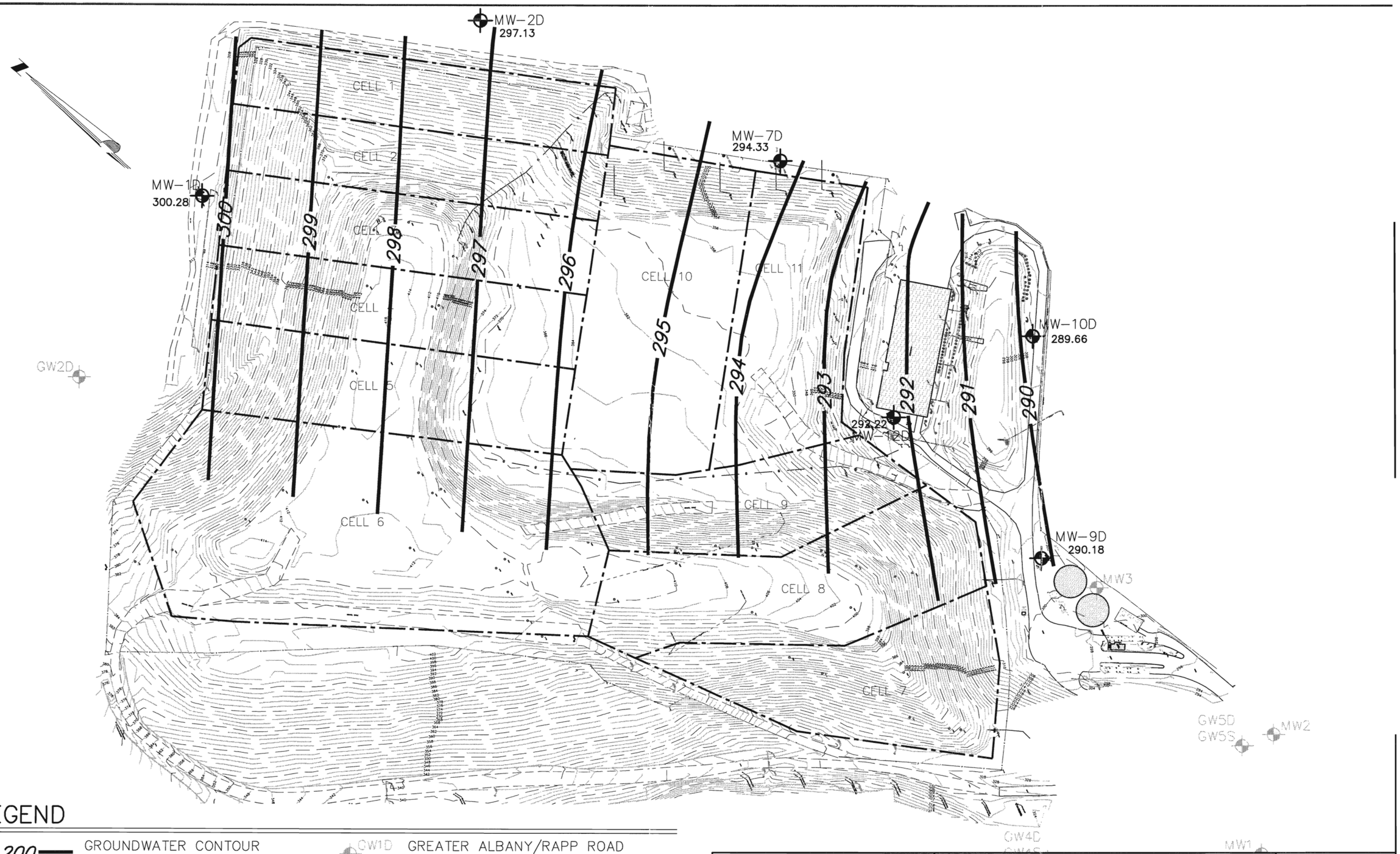
FIGURE 5

GROUNDWATER PIEZOMETRIC MAP

DEEP GROUNDWATER FLOW REGIME

ALBANY INTERIM LANDFILL
ALBANY
STATE OF NEW YORK

File: K:\12244\ACAD\ALBINTERIM\GW-D-4-05-03-28-05.dwg User: 330 4/6/2005 09:20 AM



LEGEND

200 — GROUNDWATER CONTOUR ELEVATION

MW-1D 300.00 — A.I.L. MONITORING WELL CLUSTER LOCATION AND NUMBER

WELL WATER LEVEL MEASURED: 06-13-2005

GW1D — GREATER ALBANY/RAPP ROAD LANDFILL MONITORING WELL CLUSTER

SCALE: 1" = 200'

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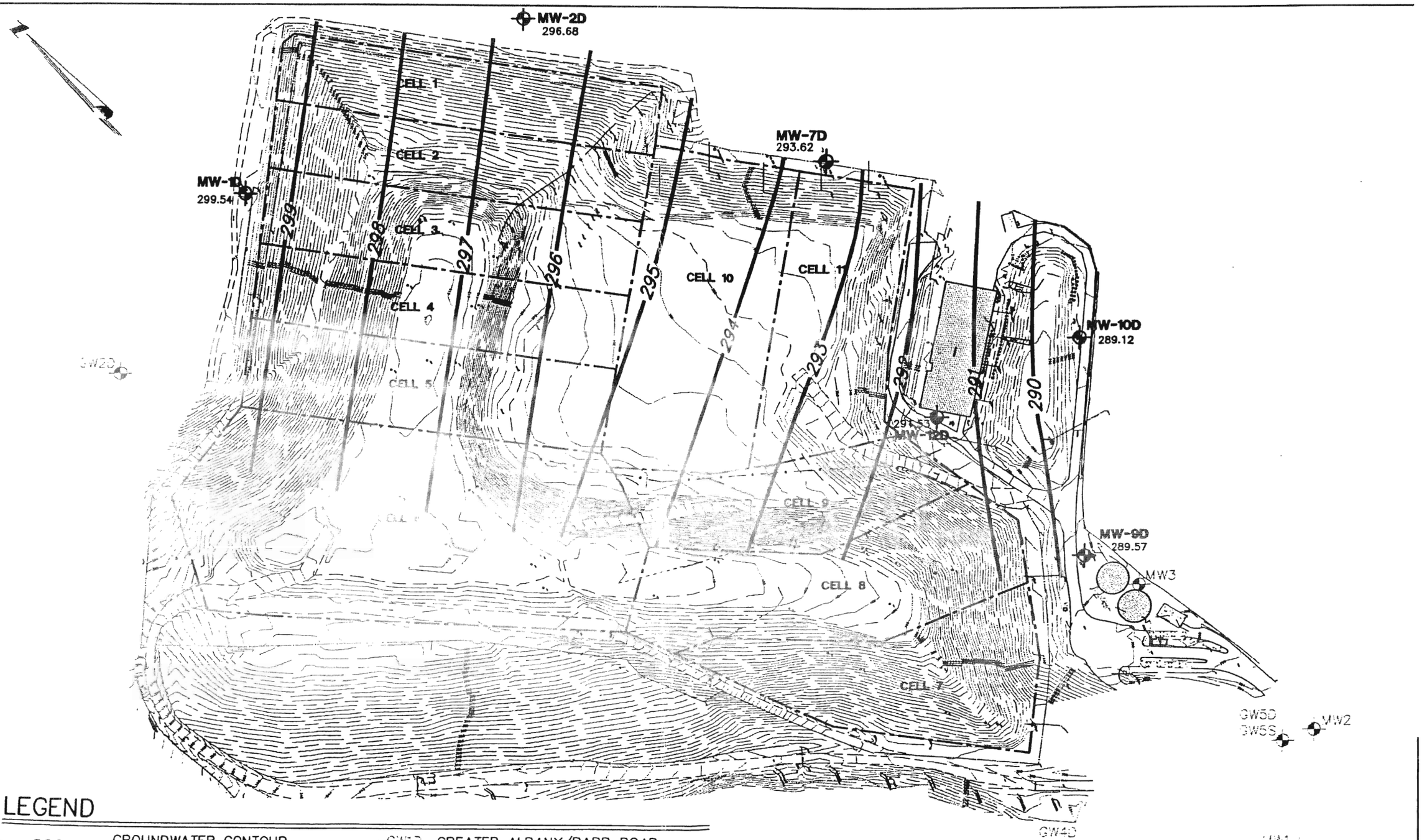
GROUNDWATER PIEZOMETRIC MAP
DEEP GROUNDWATER FLOW REGIME
ALBANY INTERIM LANDFILL
ALBANY
STATE OF NEW YORK

PROJECT NO. 12244

DATE: 09/15/05

FIGURE 5

File: K:\12244\ACAD\ALBINTERIM\GW-D-6-13-05.DWG Saved: 3/28/2006 2:19:53 PM Plotted: 10/19/2006 3:42:53 PM User: Stevens, Tom



LEGEND

200 — GROUNDWATER CONTOUR ELEVATION

MW-1D — A.I.L. MONITORING WELL CLUSTER LOCATION AND NUMBER

300.00 — WELL WATER LEVEL MEASURED: 09-19-2005

GW1D — GREATER ALBANY/RAPP ROAD LANDFILL MONITORING WELL CLUSTER

SCALE: 1" = 200

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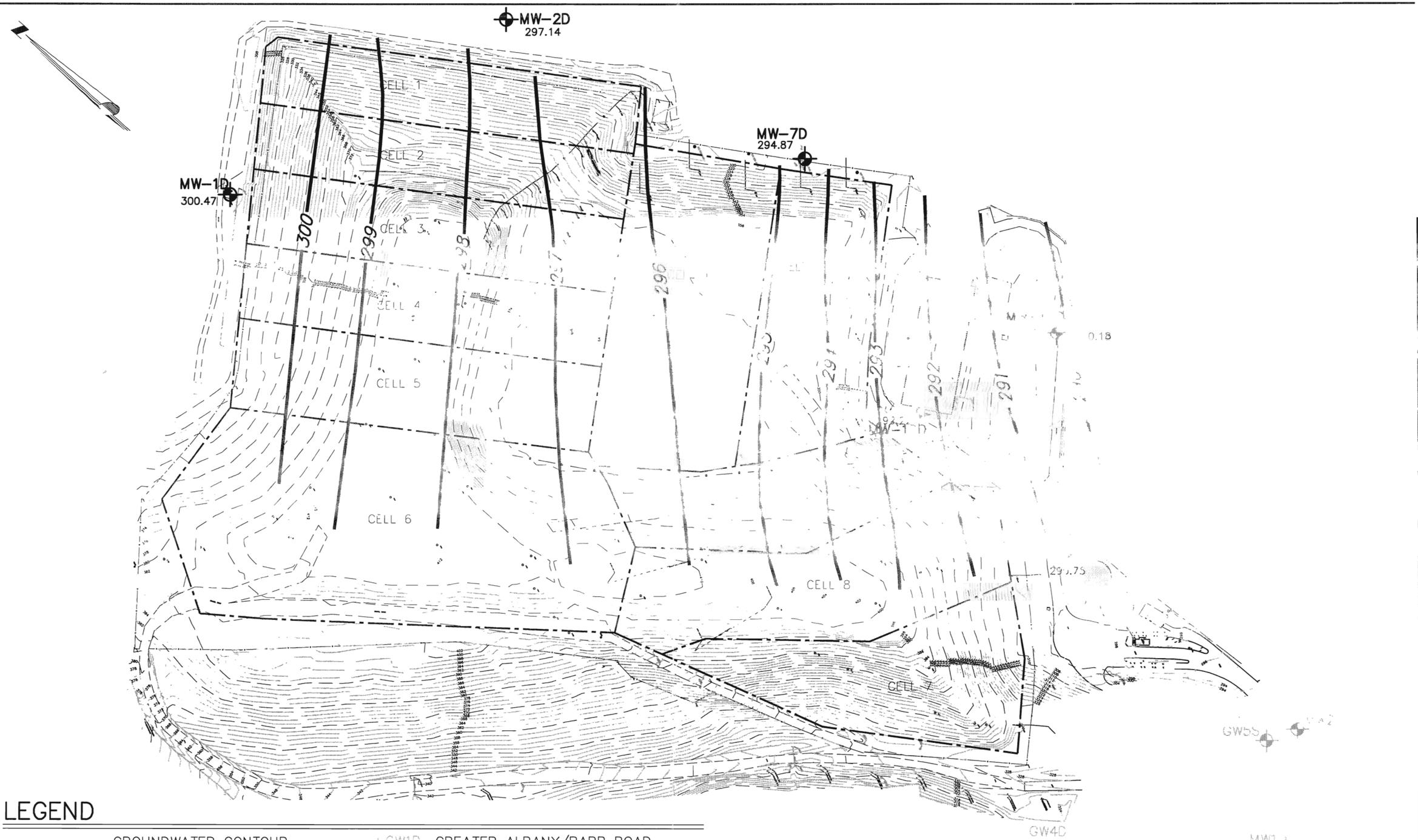
GROUNDWATER PIEZOMETRIC MAP
DEEP GROUNDWATER FLOW REGIME
ALBANY INTERIM LANDFILL
ALBANY
STATE OF NEW YORK

PROJECT NO. 12244

DATE: 11/10/05

FIGURE 5

File: K:\12244\ACAD\ALBINTERIM\PIEZOMETRIC MAPS\DEEP



LEGEND

—200—	GROUNDWATER CONTOUR ELEVATION
MW-1D 300.00	A.I.L. MONITORING WELL CLUSTER LOCATION AND NUMBER WELL WATER LEVEL MEASURED: 12-19-2005
GW1D	GREATER ALBANY/RAPP ROAD LANDFILL MONITORING WELL CLUSTER

SCALE: 1" = 200'

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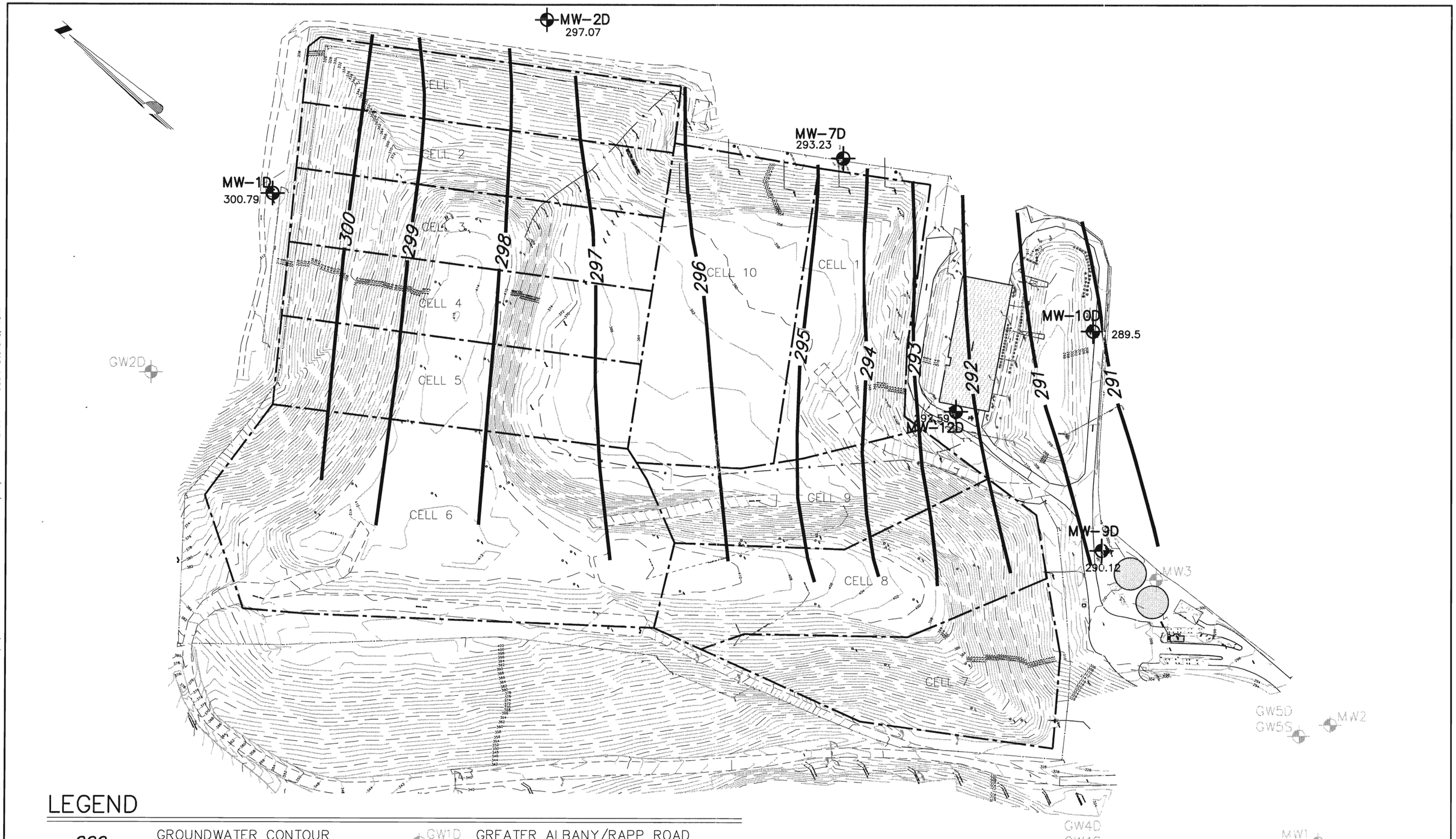
GROUNDWATER PIEZOMETRIC MAP
DEEP GROUNDWATER FLOW REGIME
ALBANY INTERIM LANDFILL
ALBANY
STATE OF NEW YORK

PROJECT NO. 12244

DATE: 03/14/06

FIGURE 5

File: K:\12244\ACAD\ALBINTERIM\PIEZOMETRIC MAPS\DEEP\2005\GW-D-12-19-05.DWG Saved: 10/24/2006 1:03:27 PM Plotted: 10/24/2006 3:46:10 PM User: Stevens, Tom



LEGEND

200 — GROUNDWATER CONTOUR ELEVATION

MW-1D 300.00 — A.I.L. MONITORING WELL CLUSTER LOCATION AND NUMBER

WELL WATER LEVEL MEASURED: 03-20-2005

GW1D — GREATER ALBANY/RAPP ROAD LANDFILL MONITORING WELL CLUSTER

SCALE: 1" = 200'

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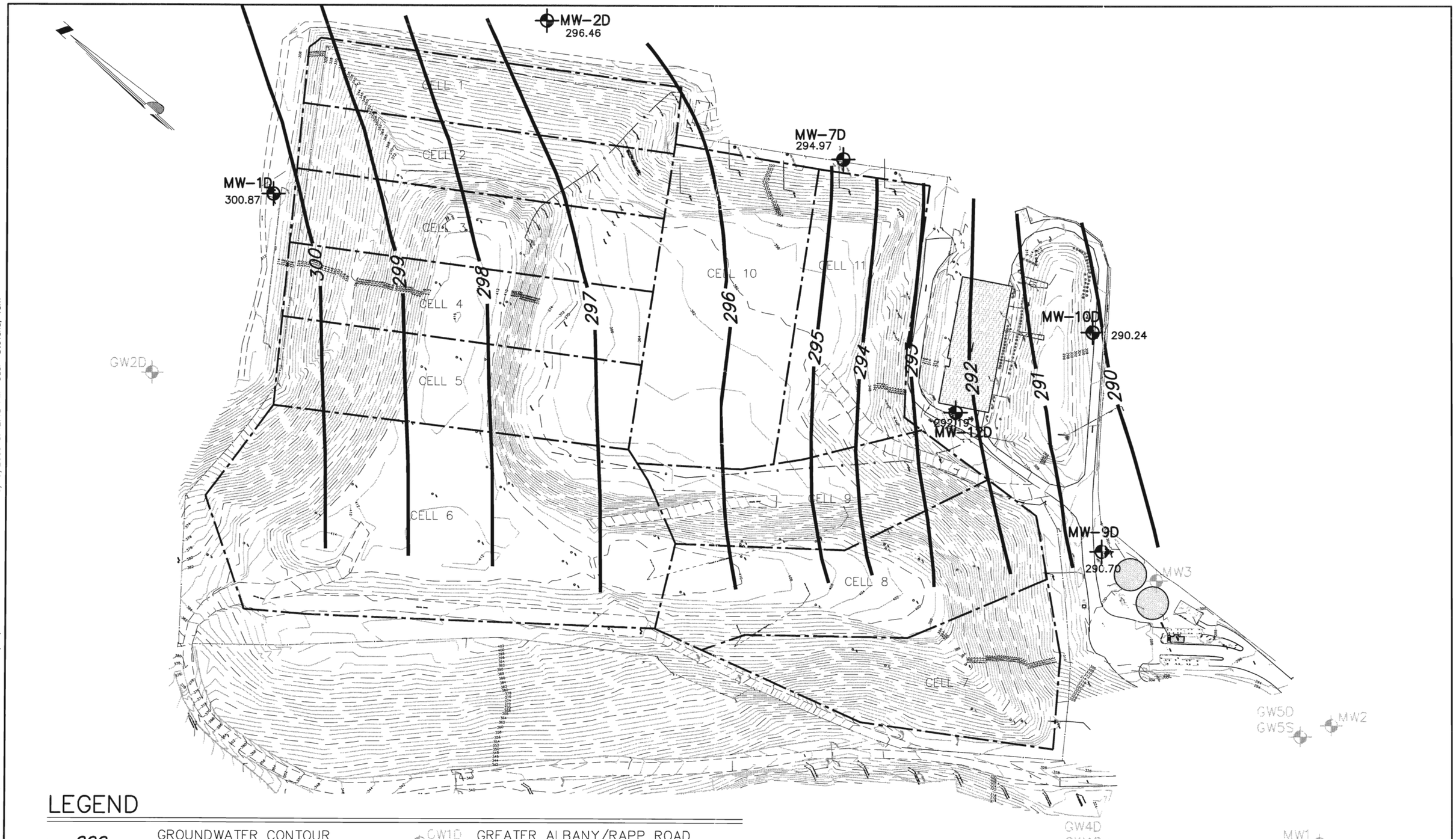
GROUNDWATER PIEZOMETRIC MAP
DEEP GROUNDWATER FLOW REGIME
ALBANY INTERIM LANDFILL
ALBANY
STATE OF NEW YORK

PROJECT NO. 12244

DATE: 06/07/06

FIGURE 5

File: K:\12244\ACAD\ALBINTERIM\GW-D-9-19-05.DWG Saved: 6/9/2006 2:33:11 PM Plotted: 10/19/2006 3:42:03 PM User: Stevens, Tom



LEGEND

200 — GROUNDWATER CONTOUR ELEVATION

MW-1D 300.00 — A.I.L. MONITORING WELL CLUSTER LOCATION AND NUMBER; WELL WATER LEVEL MEASURED: 06-25-2006

GW1D — GREATER ALBANY/RAPP ROAD LANDFILL MONITORING WELL CLUSTER

SCALE: 1" = 200'

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GROUNDWATER PIEZOMETRIC MAP
DEEP GROUNDWATER FLOW REGIME
ALBANY INTERIM LANDFILL
ALBANY
STATE OF NEW YORK

PROJECT NO. 12244

DATE: 09/18/06

FIGURE 5

File: K:\12244\ACAD\ALBINTERIM\GW-D-6-25-06.DWG Saved: 9/18/2006 12:36:29 PM PLotted: 10/19/2006 3:42:18 PM User: Stevens, Tom

APPENDIX D

Existing Soil Boring and Monitoring Well Construction Logs

DATE
STARTED 12-12-85
FINISHED 12-16-85
SHEET 1 OF 3

EMPIRE SOILS INVESTIGATIONS INC.

SUBSURFACE LOG

HOLE NO. B-1
SURF. ELEV.
G. W. DEPTH See Note #1

PROJECT Albany Landfill Expansion
LOCATION Albany, NY

DEPTH-FT	SAMPLES	SAMPLE NO	BLOWS ON SAMPLER 0/6	6/12	12/18	N	BLOW ON CASING C	SOIL OR ROCK CLASSIFICATION
0		1	2	4		10		Brown fine SAND
			6	7				
5		2	17	10		21		
			11	13				
10		3	3	4		14		-grades gray
			10	13				
15		4	7	9		21		-grades brown
			12	11				
20		5	19	8		18		-grades gray
			10	13				
25		6	21	13		25		
			12	12				
30		7	12	11		26		
			15	12				
35		8	9	10		22		
			12	15				
40								

NOTES

Note #1:
With augers advanced to 10.0', groundwater level at 5.7' after 30 minutes.
With augers advanced to 35.0', groundwater level at 4.4' after approximately 14 hrs.
With augers advanced to 75.0', groundwater level @ 2.8' after approximately 14 hrs.

N = No blows to drive 2 " spoon 12 " with 140 lb. pin wt falling 30 "per blow
C = No blows to drive _____ " casing _____ " with _____ lb weight falling _____ "per blow.

CLASSIFICATION Visual by Driller

METHOD OF INVESTIGATION 3¼" I.D. Hollow Stem Auger

DATE
STARTED 12-12-85
FINISHED 12-16-85
SHEET 3 OF 3

EMPIRE SOILS INVESTIGATIONS INC.

SUBSURFACE LOG

HOLE NO. B-1
SURF. ELEV.
G. W. DEPTH

PROJECT Albany Landfill Expansion
LOCATION Albany, NY

DEPTH-FT	SAMPLES	SAMPLE NO	BLOWS ON SAMPLER 0/6	6/12	12/18	N	BLOW ON CASING C	SOIL OR ROCK CLASSIFICATION	NOTES
80		17	10	8		19		Gray SILT & CLAY	
			11	35					
85		18	11	11		26			
			15	30					
90		19	14	8		21			
			13	16					
95		20	7	6		15			
			9	14					
100		21	5	7		17			
			10	12					
105		22	8	8		24			
			16	24				(Moist to Wet-Stiff to Medium)	
								END OF BORING @ 107.0'	
110									

N = No. blows to drive 2 " spoon 12 " with 140 lb. pin wt falling 30 "per blow
C = No. blows to drive _____ " casing _____ " with _____ lb. weight falling _____ "per blow

CLASSIFICATION Visual by Driller

METHOD OF INVESTIGATION 3½" I.D. Hollow Stem Auger

NOTE:

"B-1" = B - 1

"B-2" = Installed at location MW-1; no well installed.

"B-2A" = MW - 1

"B-3" = MW - 2S

"B-4" = MW - 3

"B-5" = MW - 4

"B-6" = MW - 5

DATE
STARTED 12-27-85
FINISHED 12-27-85
SHEET 1 OF 1

EMPIRE SOILS INVESTIGATIONS INC.

SUBSURFACE LOG

HOLE NO. B-2A
SURF. ELEV.
G. W. DEPTH

PROJECT Albany Landfill Expansion
LOCATION Albany, NY

DEPTH-FT	SAMPLES	SAMPLE NO	BLOWS ON SAMPLER 0/6	6/12	12/18	N	BLOW ON CASING C	SOIL OR ROCK CLASSIFICATION	NOTES
0									Note #1: No soil samples taken at this boring location.
5									Note #2: At completion of boring, a 2" PVC groundwater monitoring well was installed to a depth of 37.5'. Locking protective casing installed.
10									
15									
20									
25									
30									
35									
40								END OF BORING @ 40.0'	

N = No blows to drive 2 " spoon 12 " with 140 lb. pin wt falling 30 "per blow
C = No blows to drive ____ " casing ____ " with ____ lb weight falling ____ "per blow

CLASSIFICATION Visual by Driller

METHOD OF INVESTIGATION 4¼" I.D. Hollow Stem Auger Casing

DATE
STARTED 12-18-85
FINISHED 12-18-85
SHEET 1 OF 1

EMPIRE SOILS INVESTIGATIONS INC.

SUBSURFACE LOG

HOLE NO. B-4
SURF. ELEV.
G. W. DEPTH See Note #1

PROJECT Albany Landfill Expansion
LOCATION Albany, NY

DEPTH-FT	SAMPLES	SAMPLE NO	BLOWS ON SAMPLER 0/6	6/12	12/18	N	BLOW ON CASING C	SOIL OR ROCK CLASSIFICATION	NOTES
0		1	1	3		11		Brown fine SAND, trace silt	Note #1: At completion of boring, a 2" PVC groundwater monitoring well was installed as specified at a depth of 14.0'. Locking protective casing installed.
			8	6					
5		2	3	7		14			
			7	7					
10		3	1	3		5		-becomes WET	
			2	2					
15		4	4	5		10			
			5	7					
20								END OF BORING @ 17.0'	

N = No blows to drive 2 " spoon 12 " with 140 lb pin wt falling 30 "per blow
C = No blows to drive _____ " casing _____ " with _____ lb. weight falling _____ "per blow

CLASSIFICATION Visual by Driller

METHOD OF INVESTIGATION 3¼" I.D. Hollow Stem Auger

A/T Form H

DATE
STARTED 12-27-85
FINISHED 12-27-85
SHEET 1 OF 1

EMPIRE SOILS INVESTIGATIONS INC.

SUBSURFACE LOG

HOLE NO. B-6
SURF. ELEV.
G. W. DEPTH

PROJECT Albany Landfill Expansion
LOCATION Albany, NY

DEPTH-FT	SAMPLES	SAMPLE NO	BLOWS ON SAMPLER 0/6	6/12	12/18	N	BLOW ON CASING C	SOIL OR ROCK CLASSIFICATION	NOTES
0									Note #1: No samples taken at this boring location.
5									Note #2: At completion of boring, a 2" PVC groundwater monitoring well was installed to a depth of 14.0'. Locking protective casing installed.
10									
15								END OF BORING @ 15.0'	
20									

N = No. blows to drive 2 " spoon 12 " with 140 lb pin wt falling 30 "per blow
C = No. blows to drive ____ " casing ____ " with ____ lb weight falling ____ "per blow

CLASSIFICATION Visual by Driller

METHOD OF INVESTIGATION 4¼" I.D. Hollow Stem Auger Casing

B/T Form H

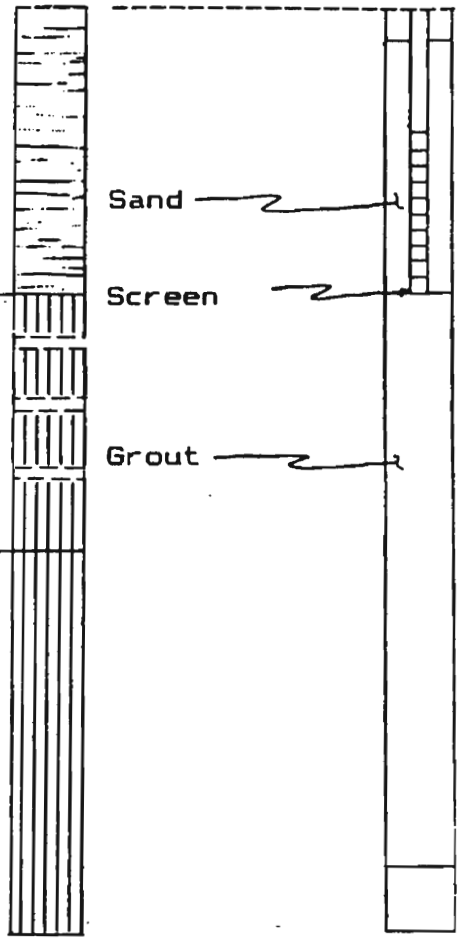
BORING NUMBER: MW-2D

PROJECT NAME : ALBANY LANDFILL
PROJECT NO. : 0942-08-1
DATE : 3/19/87
LOCATION : RAPP ROAD
CONTRACTOR : EMPIRE SOILS
INSPECTOR : SAMMONS
DRILL. METHOD: 4 IN. FLUSH JOINT CASING
SAMP. METHOD : SPLIT SPOON
SURFACE ELEV.: 310.83
DATUM : GROUND ELEV

SAMPLE No.	N-Value	Depth (ft.)	SOIL DESCRIPTION: Density, color, SOIL, admixtures moisture, other, CONTAMINATION	STR.	Well Construction
					Protective Steel Casing
		0			
1	11		Fine to medium brown SAND, moist		
		5			
2	20		As above, grading down to fine to medium grey SAND, moist		
		10			
3	0		Fine grey SAND & SILT, some organics and shell fragments		
		15			Grout
4	20		Fine to medium brown SAND, trace silt, wet		
		20			
5	14		As above		
		25			
6	10		As above		
		30			
7	7		Fine to medium grey-brown SAND, trace silt, wet		
		35			
8	16		As above		

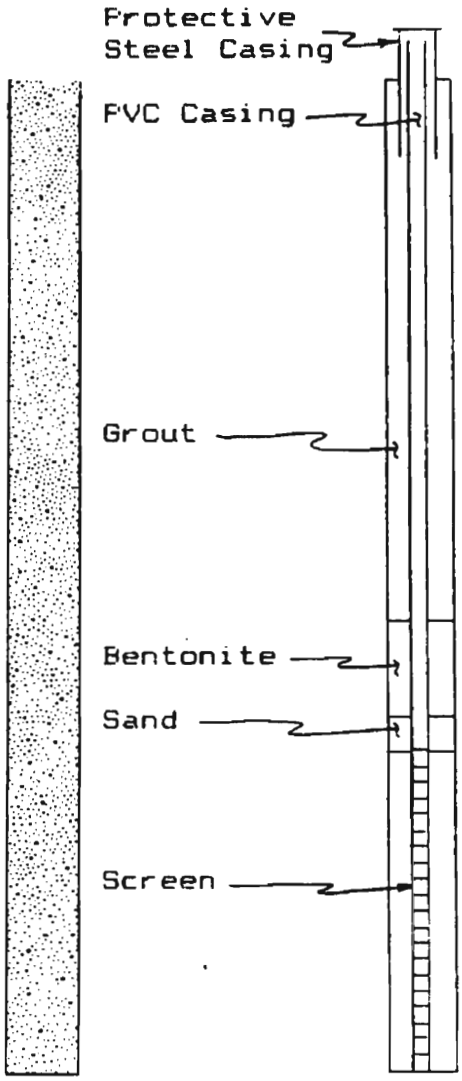
BORING NUMBER :MW-2D

SAMPLE No.	N-Value	Depth (ft.)	SOIL DESCRIPTION: Density, color, SOIL, admixtures moisture, other notes, ORIGIN	STR.	Well Construction
		85	Grey CLAY grading to grey SILT, some clay		
19	5				
20	5		Grey SILT,some clay		
21	7		Grey CLAY,some silt		Sand
		90			
22	5		As above		
					Screen
23	6		Grey CLAY,thin silt layers		
24	3	95	As above		
25	7		As above		Grout
		100			
26	3		Stiff grey CLAY		
		105			
27	3		As above		
28	2	110	As above		
			112 Ft. Bottom of Hole		
		115			



		BORING NUMBER:	MW-6S
PROJECT NAME	:ALBANY LANDFILL	PROJECT NO.	:0942-08-1
DATE	:3/16/87	LOCATION	:RAPP ROAD
CONTRACTOR	:EMPIRE SOILS	INSPECTOR	:SAMMONS
DRILL. METHOD	:4 IN. FLUSH JOINT CASING	SAMP. METHOD	:SPLIT SPOON
SURFACE ELEV.:	315.16	DATUM	:GROUND ELEV

SAMPLE No.	N-Value	Depth (ft.)	SOIL DESCRIPTION: Density, color, SOIL, admixtures moisture, other, CONTAMINATION	STR.
		0		
		5		
		10		
		15		
		20		
1	27	25	Fine to medium brown SAND, trace silt, wet	
2	39	30	Fine to medium brown SAND, trace silt, wet 31 Ft. Bottom of Hole	
		35		



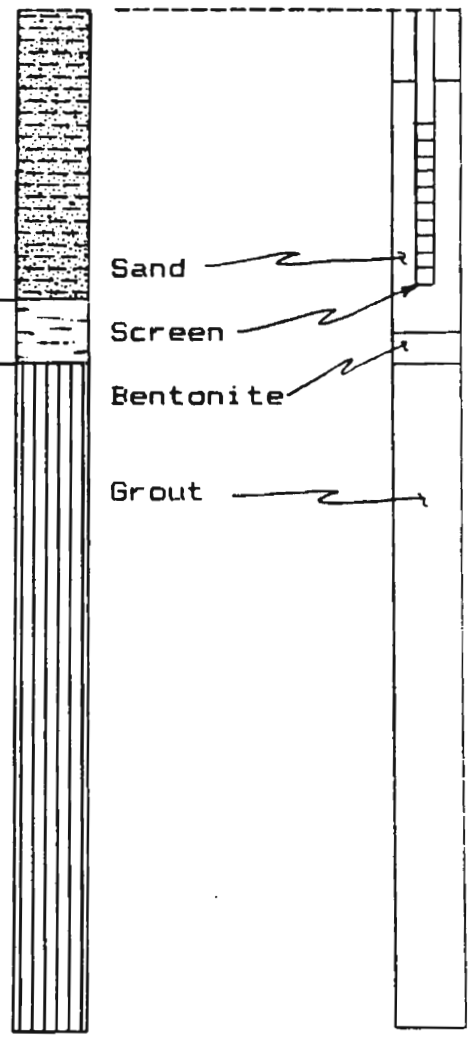
BORING NUMBER: MW-6D

PROJECT NAME : ALBANY LANDFILL
PROJECT NO. : 0942-08-1
DATE : 3/11/87
LOCATION : RAPP ROAD
CONTRACTOR : EMPIRE SOILS
INSPECTOR : SAMMONS
DRILL. METHOD: 4 IN. FLUSH JOINT CASING
SAMP. METHOD : SPLIT SPOON
SURFACE ELEV.: 315.54
DATUM : GROUND ELEV

SAMPLE No.	N-Value	Depth (ft.)	SOIL DESCRIPTION: Density, color, SOIL, admixtures moisture, other, CONTAMINATION	STR.	Well Construction
					Protective Steel Casing
		0			PVC Casing
1	7		Loose fine tan SAND, trace silt & roots, dry		
		5			
2	4		As above, no roots		
		10			
3	5		Loose fine to medium tan to brown SAND, trace silt, moist to wet		
		15			
4	13		As above, some silt		
		20			
5	3		Fine to medium tan SAND, grading down to fine grey-brown SAND, some silt, trace roots & wood, wet		Grout
		25			
6	21		Fine to medium brown SAND, trace silt, wet		
		30			
7	26		As above		
		35			

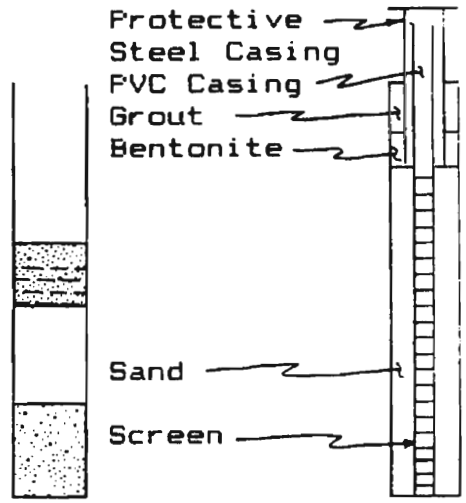
BORING NUMBER :MW-6D

SAMPLE No.	N-Value	Depth (ft.)	SOIL DESCRIPTION: Density, color, SOIL, admixtures moisture, other notes, ORIGIN	STR.	Well Construction
19	32		As above		
20	16		As above		
		85			
21	10		As above		
22	4		Grey SILT,some sand,wet		Sand
23	8	90	Grey CLAY,some silt,wet		Screen
24	5		Firm grey CLAY,damp		Bentonite
25	4		Firm grey CLAY,brown silt varves,		
		95	damp		Grout
26	7		As above		
		100			
27	1		As above		
		105			
28	3		As above		
29	3	110	Grey CLAY,no silt varves,drier than above		
			112 Ft. Bottom of Hole		



		BORING NUMBER:	MW-7S
PROJECT NAME :	ALBANY LANDFILL	PROJECT NO. :	0942-08-1
DATE :	3/19/87	LOCATION :	RAPP ROAD
CONTRACTOR :	EMPIRE SOILS	INSPECTOR :	SAMMONS
DRILL. METHOD:	4 IN. FLUSH JOINT CASING	SAMP. METHOD :	SPLIT SPOON
SURFACE ELEV.:	303.92	DATUM :	GROUND ELEV

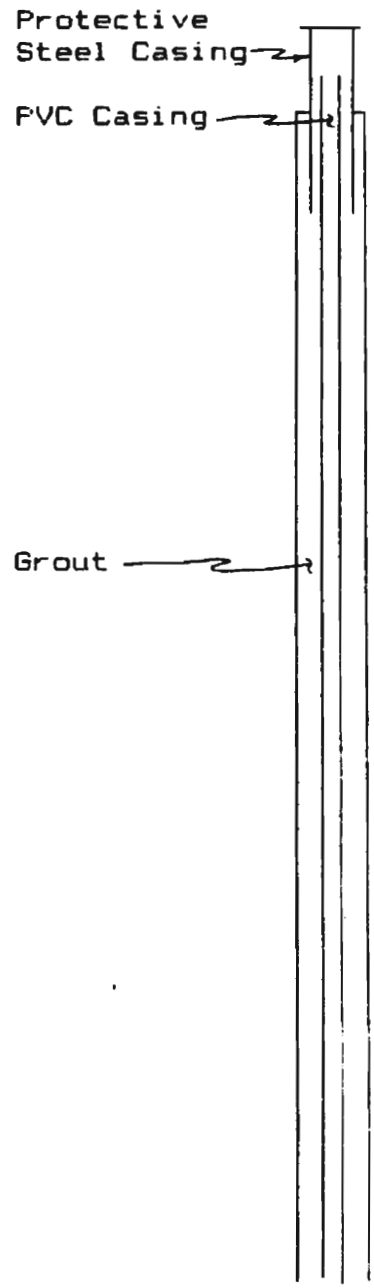
SAMPLE No.	N-Value	Depth (ft.)	SOIL DESCRIPTION: Density, color, SOIL, admixtures moisture, other, CONTAMINATION	STR.	Well Construction
		0			Protective Steel Casing
					PVC Casing
					Grout
					Bentonite
		5			
1	8		Fine to medium brown SAND, trace silt, moist; grading down to grey SILT & fine SAND, wet		
					Sand
		10			
2	5		Fine to medium brown SAND, trace silt, wet		Screen
			13 Ft. Bottom of Hole		
		15			
		20			
		25			
		30			
		35			



		BORING NUMBER:	MW-7D
PROJECT NAME	:ALBANY LANDFILL	PROJECT NO.	:0942-08-1
DATE	:3/17/87	LOCATION	:RAPP ROAD
CONTRACTOR	:EMPIRE SOILS	INSPECTOR	:SAMMONS
DRILL. METHOD	:4 IN. FLUSH JOINT CASING	SAMP. METHOD	:SPLIT SPOON
SURFACE ELEV.:	303.91	DATUM	:GROUND ELEV

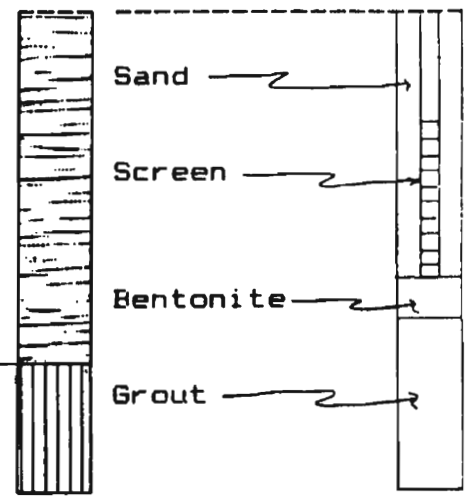
SAMPLE No.	N-Value	Depth (ft.)	SOIL DESCRIPTION: Density, color, SOIL, admixtures moisture, other, CONTAMINATION	STR.
1	5	0	Fine grey SAND & SILT, grading down to fine to medium brown SAND, some silt	
2	8	5	Fine to medium brown SAND, grading down to fine grey SAND & SILT, moist	
3	9	10	Fine to medium brown SAND, trace silt, wet	
4	11	15	Fine grey SAND & SILT, small lense grey clay, wet	
5	39	20	Fine grey SAND & SILT, wet	
6	18		As above, small piece of clay	
7	17	25	As above, no clay	
8	17		As above	
9	11		As above	
10	19	30	As above	
		35		

Well Construction



BORING NUMBER :MW-7D

SAMPLE No.	N-Value	Depth (ft.)	SOIL DESCRIPTION: Density, color, SOIL, admixtures moisture, other notes, ORIGIN	STR.	Well Construction
25	10		As above		Sand
26	12		As above,with silty clay layer		
		85-			Screen
27	8		As above,no silty clay layers		
28	7		As above		
					Bentonite
29	10	90-	As above		
30	1		Firm grey CLAY with grey,red & green silt varves,damp		Grout
31	7		As above,fewer silt varves		
		95-	95 Ft. Bottom of Hole		



C.T. MALE ASSOCIATES. P.C.

BORING NO.: **P4 B-1**

TEST BORING LOG

CLIENT: City of Albany								SHEET 1 OF 5
DRILLING CONTRACTOR: Maxim Technologies Inc.								PROJECT NO.: 97.4583
PURPOSE: Subsurface Investigation/Geophysical Survey								ELEVATION: 301.8 feet
Groundwater					Casing	Sample	Core	DATUM: MSL
Date	Time	Depth	Casing	Type	HAS/FJC	Split Spoon		DATE STARTED: 12/31/97
1/5/98	9:05A	8.60'	from HSA	Diameter	see notes	2"		DATE FINISHED: 1/6/98
				Weight		140lbs		DRILLER: C. Dinovo
				Fall		30"		INSPECTOR: J. Usher

Depth Ft.	Casing Blows	Sample No.	Blows on Sample Spoon per 6"	Unified Classi-fication	Graphic Log	IDENTIFICATION	REMARKS
		S-1	5, 6, 5, 3	SM		Top .9': Dark brown f SAND, trace Silt Bottom .4': Brown f SAND, trace Silt	REC = 1.3' Moist 4.25" HSA drilling to 10 feet. 6"Flush Joint Casing driven to 15' for mud rotary drilling.
5		S-2	4, 7, 9, 9	SM		Brownish gray f SAND	REC = 1.0' Moist
10		S-3	2, 1, 1, 1	SM		Brownish gray f SAND, trace Silt.	REC = 1.0' Wet At 10' began mud rotary drilling w/ 4"API rods & 5.5" hollow drag bit. 6'Sand cleaned from casing: 9-15'.
15		S-4	6, 3, 2, 1	SM SM		Brown m to f SAND, trace Silt Brownish gray f to c, rounded SAND, trace Silt.	REC = 0.8' Saturated
20							

C.T. MALE ASSOCIATES. P.C.

C.T. MALE ASSOCIATES, P.C.

BORING NO.: **P4 B-1**

TEST BORING LOG

CLIENT: City of Albany

SHEET 2 OF 5

PROJECT NO.: 97.4583

Depth Ft.	Casing Blows	Sample No.	Blows on Sample Spoon per 6"	Unified Classi-fication	Graphic Log	IDENTIFICATION	REMARKS
			6			Brownish gray f SAND, trace Silt.	REC = 1.6'
		S-5	6	SM			Saturated
			6				
			8				
25							
			5			Brownish gray f SILTY SAND, trace Silt.	REC = 1.3'
		S-6	4	SM			Saturated
			4				
			3				
30							
			3			Brownish gray f SAND, little Silt.	REC = 1.9'
		S-7	3	SM			Saturated
			5				
			6				
35							
			8			Grayish brown f SAND, trace Silt.	REC = 1.0'
		S-8	8	SM			Saturated
			10				
			9				
40							
			12	SM		Brown f SAND, trace Silt.	REC = 1.8'
		S-9	10				Saturated
			11	ML		Gray CLAYEY SILT, little Sand.	
			11				

C.T. MALE ASSOCIATES. P.C.

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BORING NO.: **P4 B-1**

TEST BORING LOG

CLIENT: City of Albany

SHEET 3 OF 5

PROJECT NO.: 97.4583

Depth Ft.	Casing Blows	Sample No.	Blows on Sample Spoon per 6"	Unified Classi-fication	Graphic Log	IDENTIFICATION	REMARKS
45							
		S-10	22, 46, 66, 61	ML		Gray f SILTY SAND	REC = 1.1' Saturated No unusual drilling resistance noted.
50							
		S-11	16, 19, 19, 19	ML		Gray f SILTY SAND	REC = 1.4' Saturated
55							
		S-12	9, 22, 22, 23	ML		Gray SILT and f SAND, trace Clay.	REC = 1.1' Saturated
60							
		S-13	14, 15, 17, 17	ML		Gray SILT, some f Sand.	REC = 1.2' Saturated
65							
		S-14	10, 18	ML		Gray SILT, little f Sand	REC = 1.3' Saturated

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BORING NO.: **P4 B-1**

TEST BORING LOG

CLIENT: City of Albany

SHEET 4 OF 5

PROJECT NO.: 97.4583

Depth Ft.	Casing Blows	Sample No.	Blows on Sample Spoon per 6"	Unified Classification	Graphic Log	IDENTIFICATION	REMARKS
		S-14	30			See sample identification on sheet 3.	
			40				
70							
		S-15	19	ML		Gray SILT, little f Sand, trace Clay.	REC = 0.9' Saturated
			27				
			26				
			19				
75							
		S-16	25	ML		Similar to S-15	REC = 1.3' Saturated
			40				
			37				
			65				
80							
		S-17	19	ML		Similar to S-15	REC = 1.0' Saturated
			21				
			21				
			27				
85							
		S-18	19			NO SAMPLE OBTAINED. CLAY NOTED ON BOTTOM OF SPOON.	REC = 0
			13				
			12				
			10				
90							

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C.T. MALE ASSOCIATES, P.C.

BORING NO.: **P4 B-1**

TEST BORING LOG

CLIENT: City of Albany

SHEET 5 OF 5

PROJECT NO.: 97.4583

Depth Ft.	Casing Blows	Sample No.	Blows on Sample Spoon per 6"	Unified Classification	Graphic Log	IDENTIFICATION	REMARKS
		S-19	3, 4, 5, 7	ML-CL		Gray, medium plasticity CLAY and SILT, trace f Sand.	REC = 2.0' Saturated
95							
		S-20	2, 6, 12, 11	ML-CL	S-20A	Gray SILTY CLAY w/ <1/16" tan Silt varves	REC = 2.0' Saturated
					S-20B	Grayish brown CLAY and SILT w/ <1/16" tan Silt varves	
100							
		S-21	5, 5, 8, 7	ML-CL		Gray SILTY, high plasticity CLAY with intermittent varving of brown SILT, varving as frequent as every 3/4" (varving thickness is <1/16")	REC = 2.0' Saturated
105							
		S-22	4, 4, 6, 6	ML-CL		Gray SILTY CLAY, no significant varving.	REC = 2.0' Saturated
110							
						TOTAL DEPTH OF BORING = 112.5'	
		SHELBY TUBE SAMPLE				SHELBY TUBE OBTAINED FROM 112.5' TO 115'	
115							

Boring completed with 4" Flush Joint PVC Casing (cap on bottom) installed to 111.5'. Grouted in place with bentonite/portland cement slurry injected by tremie method at depth of 55'. Grout may not have reached bottom of boring - drilling mud/water may be present below 55'.

k:/97.4583/env/B1log.xls

C.T. MALE ASSOCIATES. P.C.

BORING NO.: **P4 B-2**

TEST BORING LOG

CLIENT:	City of Albany							SHEET 1 OF 2
DRILLING CONTRACTOR:	Maxim Technologies Inc.							PROJECT NO.: 97.4583
PURPOSE:	Subsurface Investigation/Monitoring Well Installation							ELEVATION: 301.7 feet
Groundwater					Casing	Sample	Core	DATUM: MSL
Date	Time	Depth	Casing	Type	HSA	Split Spoon		DATE STARTED: 1/7/98
1/8/98	9:30A	10.0'		Diameter	4-1/4"	2"		DATE FINISHED: 1/8/98
				Weight		140lbs		DRILLER: C. Dinovo
				Fall		30"		INSPECTOR: J. Usher

Depth Ft.	Casing Blows	Sample No.	Blows on Sample Spoon per 6"	Unified Classi-fication	Graphic Log	IDENTIFICATION	REMARKS
		S-1	4, 5, 5, 6	SM		Top 1.0': Brownish orange f to m SAND Bottom 0.5': Very light gray f SAND.	REC = 1.5' Dry
		S-2	7, 5, 6, 4	SM		Very light gray f SAND	REC = 1.3' Dry
5		S-3	5, 4, 4, 5	SM		Brownish gray f to m SAND, little Silt.	REC = 1.0 Moist
		S-4	4, 5, 10, 10	SM		Similar to S-3	REC = 1.5' Moist
		S-5	7, 4, 5, 4	SM		Brown and gray f to m SAND	REC = 2.0' Moist - Wet
10		S-6	2, 1, 1, 1	SM		Brownish gray f SAND, trace Silt.	REC = 1.6' Wet - Saturated
		S-7	2, 1, 2, 1	SM		Similar to S-6	REC = 1.4' Wet - Saturated
15		S-8	1, 1, 1, 1	SM		Brownish gray f to m SAND, trace Silt.	REC = 0.5' Wet
		S-9	1, 1, 1, 1	SM		Gray f SAND, trace Silt.	REC = 1.3' Wet
		S-10	4, 2, 1, 1	SM		Similar to S-9.	REC = 1.8' Wet
20							

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BORING NO.: **P4 B-2**

TEST BORING LOG

CLIENT: City of Albany

SHEET 2 OF 2

PROJECT NO.: 97.4583

Depth Ft.	Casing Blows	Sample No.	Blows on Sample Spoon per 6"	Unified Classi-fication	Graphic Log	IDENTIFICATION	REMARKS
		S-11	6 5 3 3	SM		Brownish gray f SAND, trace Silt.	REC = 2.0' Wet
						TOTAL DEPTH OF BORING = 22.0'	
25							
30							
35							
40							

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C.T. MALE ASSOCIATES. P.C.

BORING NO.: **P4 B-3**

TEST BORING LOG

CLIENT: City of Albany								SHEET 1 OF 2
DRILLING CONTRACTOR: Maxim Technologies Inc.								PROJECT NO.: 97.4583
PURPOSE: Subsurface Investigation/Monitoring Well Installation								ELEVATION: 316.5 feet
Groundwater					Casing	Sample	Core	DATUM: MSL
Date	Time	Depth	Casing	Type	HSA	Split Spoon		DATE STARTED: 1/9/98
1/9/98	12:50P	29.4'	from grade	Diameter	4-1/4"	2"		DATE FINISHED: 1/9/98
1/12/98	11:20A	25.3'	from grade	Weight		140lbs		DRILLER: C. Dinovo
				Fall		30"		INSPECTOR: J. Usher

Depth Ft.	Casing Blows	Sample No.	Blows on Sample Spoon per 6"	Unified Classification	Graphic Log	IDENTIFICATION	REMARKS
			17			FILL - BLUE-GRAY CRUSHED STONE	REC = 1.0'
		S-1	13	SM		Brown f SAND, trace Silt.	Moist
			16				
			17				
			17			Brown-orange f SAND, trace Silt.	REC = 1.5'
		S-2	23	SM			Moist
			27				
			28				
			6			Orange brown f SAND, trace Silt.	REC = 1.5'
5		S-3	15	SM			Moist
			23				
			28				
			35			Similar to S-3	REC = 1.5'
		S-4	36	SM			Moist
			57				
			40				
			4			Brown f SAND, trace Silt.	REC = 1.6'
		S-5	17	SM			Moist
			26				
10			29				
			9			Brown - gray f SAND, trace Silt.	REC = 1.1'
		S-6	21	SM			Moist
			40				
			68				
			18			Brown f SAND, trace Silt, orange and gray	REC = 1.5'
		S-7	28	SM		streaking (1/4")	Moist
			50				
			65				
			18			Brown f SAND, trace Silt.	REC = 2.0'
15		S-8	27	SM			Moist
			52				
			67				
			8			Orange - brown f SAND, trace Silt.	REC = 1.4'
		S-9	15	SM			Moist
			15				
			11				
			4			Light brown f SAND, trace Silt.	REC = 1.4'
		S-10	5	SM			Moist
			5				
20			4				

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BORING NO.: **P4 B-3**

TEST BORING LOG

CLIENT: City of Albany

SHEET 2 OF 2

PROJECT NO.: 97.4583

Depth Ft.	Casing Blows	Sample No.	Blows on Sample Spoon per 6"	Unified Classification	Graphic Log	IDENTIFICATION	REMARKS
		S-11	4 5 6 6	SM		Similar to S-10	REC = 1.6' Moist
		S-12	4 6 6 5	SM		Similar to S-10	REC = 1.6' Moist
25		S-13	5 6 6 7	SM		Brown f to m SAND, trace Silt.	REC = 2.0' Wet
		S-14	5 5 4 4	SM		Brown f to m SAND, little Silt.	REC = 1.8' Wet
		S-15	1 2 2 2	SM		Brownish gray f to m SAND, some Silt.	REC = 1.5' Saturated
30		S-16	2 2 3 4	SM		Brownish-gray f to m SAND, trace Silt.	REC = 2.0' Saturated
		S-17	2 3 3 5	SM		Similar to S-16	REC = 2.0' Wet
35		S-18	2 3 2 2	SM		Similar to S-16	REC = 2.0' Wet
		S-19	4 5	SM	S-19A	Brownish-gray f to m SAND, trace Silt.	REC = 2.0' Wet
			8 11	SM	S-19B	Gray f SAND, little Silt.	
		S-20	3 3 4 4	SM		Gray f SAND, little Silt Gray f SAND, some Silt.	REC = 1.0' Wet
40						TOTAL DEPTH OF BORING = 40 FEET	

k:/97.4583/env/B3log.xls

C.T. MALE ASSOCIATES. P.C.

BORING NO.: **P4 B-4**

TEST BORING LOG

CLIENT:	City of Albany							SHEET 1 OF 2
DRILLING CONTRACTOR:	Maxim Technologies Inc.							PROJECT NO.: 97.4583
PURPOSE:	Subsurface Investigation/Monitoring Well Installation							ELEVATION: 314.0 feet
Groundwater					Casing	Sample	Core	DATUM: MSL
Date	Time	Depth	Casing	Type	HSA	Split Spoon		DATE STARTED: 1/12/98
1/13/98	12:40P	21.4'	from grade	Diameter	4-1/4"	2"		DATE FINISHED: 1/13/98
1/13/98	2:30P	21.74'	from grade	Weight		140lbs		DRILLER: C.Rondeau 1/12: C. Dinovo 1/13
				Fall		30"		INSPECTOR: J. Usher

Depth Ft.	Casing Blows	Sample No.	Blows on Sample Spoon per 6"	Unified Classi-fication	Graphic Log	IDENTIFICATION	REMARKS
			12			FILL - BLUE-GRAY CRUSHED STONE	REC = 1.3'
		S-1	13	SM		Dark brown f to c SAND, little Silt, organic matter.	Dry - Moist
			16				
			18				
			13			Brown f SAND, trace Silt	REC = 0.8'
		S-2	7	SM			Moist
			5				
			4				
			3			Brown f SAND, trace Silt.	REC = 0.3'
5		S-3	3	SM			Moist
			7				
			11				
			15			Brown f SAND, trace Silt.	REC = 1.4'
		S-4	11	SM			Moist
			11				
			12				
			4			Similar to S-4	REC = 1.5'
		S-5	6	SM			Moist
			6				
10			7				
			4			Similar to S-4	REC = 1.4'
		S-6	4	SM			Moist
			5				
			7				
			5			Similar to S-4	REC = 1.5'
		S-7	6	SM			Moist
			6				
			5				
			4			Similar to S-4	REC = 1.3'
15		S-8	3	SM			Moist
			4				
			4				
			4			Similar to S-4	REC = 1.3'
		S-9	5	SM			Moist
			5				
			8				
			4			Similar to S-4	REC = 1.3'
		S-10	5	SM			Moist
			6				
20			7				

C.T. MALE ASSOCIATES. P.C.

C.T. MALE ASSOCIATES, P.C.

BORING NO.: **P4 B-4**

TEST BORING LOG

CLIENT: City of Albany

SHEET 2 OF 2

PROJECT NO.: 97.4583

Depth Ft.	Casing Blows	Sample No.	Blows on Sample Spoon per 6"	Unified Classification	Graphic Log	IDENTIFICATION	REMARKS
		S-11	3, 4, 7, 8	SM		Brown f to m SAND, trace Silt.	REC = 1.5' Moist
		S-12	9, 7, 8, 7	SM		Brown f to m SAND, little Silt.	REC = 1.8' Wet
25		S-13	Accidentally dropped into bore hole.	SM		Similar to S-12	REC = 1.0' Wet Water in Spoon
		S-14	3, 2, 2, 2	SM		Brown f to c SAND, little Silt, trace Clay.	REC = 1.7' Wet
		S-15	3, 2, 1, 1	SM		Brown f to m SAND, trace Silt, trace Clay.	REC = 0.7' Wet
30		S-16	2, 3, 7, 10	SM	S-16A S-16B	Brown f to c SAND, trace Clay. Brownish gray f to m SAND, trace Silt.	REC = 1.3' Wet
		S-17	7, 10, 12, 14	SM		Brownish gray f to m SAND, trace Silt.	REC = 1.8' Wet
35		S-18	5, 4, 3, 7	SM		Similar to S-17	REC = 1.8' Wet
		S-19	2, 3, 3, 7	SM		Similar to S-17	REC = 1.4' Wet
40		S-20	8, 13, 14, 14	SM		Gray f SAND, trace Silt	REC = 2.0' Wet
						TOTAL DEPTH OF BORING = 40 FEET	

k:/97.4583/env/B4log.xls

C.T. MALE ASSOCIATES, P.C.

BORING NO.: B-8S (MW-8S)

TEST BORING LOG

CLIENT:	City of Albany AIL Expansion	SHEET 1 OF	2
DRILLING CONTRACTOR:	SJB Services, Inc.	PROJECT NO.:	95.6748
PURPOSE:	MW Cluster Installation	ELEVATION:	308.40 ft. from grade
		DATUM:	311.09 ft. from top ov PVC
		DATE STARTED:	12/23/96
		DATE FINISHED:	12/23/96
		DRILLER:	Jim Lamm
		INSPECTOR:	Brian Decatur

Groundwater					Casing	Sample	Core
Date	Time	Depth	Casing	Type	HSA	Split Spoon	
12/24/96	8:15 AM	14.34	T/O PVC	Diameter	4 1/4" ID	2"	
				Weight		140 lbs.	
				Fall		30"	

Depth Ft.	Casing Blows	Sample No.	Blows on Sample Spoon per 6"	Unified Classification	Graphic Log	IDENTIFICATION	REMARKS
		S-1	37			Clean asphalt fill material.	REC = 1.3'
			5			Brown fine to medium SAND, trace silt.	Dry -- Moist
			6				Augered to 5'.
			15				
5		S-2	4			Brown fine to medium SAND, trace silt.	REC = 1.4'
			3				Moist
			3				Augered to 10'.
			3				
10		S-3	4			Brown changing to grey fine to medium SAND, trace silt.	REC = 1.7'
			4				Moist
			4				Augered to 15'.
			4				
15		S-4	4			Grey fine to medium SAND, trace silt.	REC = 1.2'
			2				Wet
			2				Augered to 20'.
			2				
20							

C.T. MALE ASSOCIATES, P.C.

TEST BORING LOG

BORING NO.: B-8S
(MW-8S)

CLIENT: City of Albany AIL Expansion

SHEET 2 OF 2

PROJECT NO.: 95.6748

Depth Ft.	Casing Blows	Sample No.	Blows on Sample Spoon per 6"	Unified Classification	Graphic Log	IDENTIFICATION	REMARKS
		S-5	5 5 5 4			Grey fine to medium SAND, trace silt.	REC = 1.9' Wet Augered to 22'.
						TOTAL DEPTH OF BORING = 22.0'	
25							
35							
40							

C.T. MALE ASSOCIATES, P.C.

TEST BORING LOG

BORING NO.: B-8I (MW-8I)

CLIENT: City of Albany AIL Expansion		SHEET 1 OF	3
DRILLING CONTRACTOR: SJB Services, Inc.		PROJECT NO.:	95.6748
PURPOSE: MW Cluster Installation		ELEVATION:	308.40 ft. from grade
		DATUM:	311.07 ft. from top of PVC
		DATE STARTED:	12/19/96
		DATE FINISHED:	12/20/96
		DRILLER:	M. Lenigan
		INSPECTOR:	C. Thatcher

Groundwater					Casing	Sample	Core
Date	Time	Depth	Casing	Type	HSA	Split Spoon	
12/19	11:00 AM	14.2	From Grade	Diameter	4 1/4" ID	2"	
12/24	8:55 AM	14.08	T/O PVC	Weight	140 lbs	3 15/16" Tri-Cone	
				Fall	30"	Roller bit used to clean augers.	

Depth Ft.	Casing Blows	Sample No.	Blows on Sample Spoon per 6"	Unified Classification	Graphic Log	IDENTIFICATION	REMARKS
				Fill		Clean asphalt fill material.	Augered to 5 feet. Standard Sampling
5		S1	1, 3, 4, 3	SM		Light Brown fine to medium SAND, trace Silt.	REC = 1.5' Dry Augered to 10'.
10		S-2	3, 3, 3, 2	SM		Top 1.3' Brown fine to medium SAND, little silt. Grayish brown very fine to medium SAND, little Silt.	REC = 1.7' Moist - Wet at bottom of spoon.
15		S-3	1, 1, 1, 1	SM		Brown very fine to fine SAND, little silt.	REC = 1.2' Wet
20							

C.T. MALE ASSOCIATES, P.C.

TEST BORING LOG

BORING NO.: B-8I (MW-8I)

ENT: City of Albany AIL Expansion

SHEET 2 OF 3

PROJECT NO.: 95.6748

Depth Ft.	Casing Blows	Sample No.	Blows on Sample Spoon per 6"	Unified Classification	Graphic Log	IDENTIFICATION	REMARKS
20		S4	1, 1, 1, 1	SM		Gray and brown very fine to medium SAND rounded, trace Silt. Trace fine Gravel.	REC = 1.7' Wet
25		S5	1, 1, 2, 3	SM		Gray and brown fine to medium SAND, trace silt.	REC = 1.1' Wet
		S6	2, 1, 1, 2	SM		Grayish brown very fine to fine SAND, little silt.	REC = 0.2' Wet
35		S7	2, 6, 12, 14	SM		Grayish brown very fine to medium silty SAND.	REC = 0.9' Wet
40		S8	2, 10, 22, 22	SM		Similar to S7.	REC = 0.4' Overfull spoon. Auger to 45' Wash ~5' sand w/3 15/16" roller bit.

MAC-139 CT/ag 1/23/97

C.T. MALE ASSOCIATES, P.C.

BORING NO.: B-8I
(MW-8I)

TEST BORING LOG

NT: City of Albany AIL Expansion	SHEET 3 OF 3
	PROJECT NO.: 95.6748

Depth Ft.	Casing Blows	Sample No.	Blows on Sample Spoon per 6"	Unified Classification	Graphic Log	IDENTIFICATION	REMARKS
45		S9	3			Gray silty fine to medium SAND.	REC = 2.0'
			5				Overfull spoon
			17				Auger to 50.
			17				Washout with rollerbit.
50		S10	1			Gray sandy SILT.	REC = 0.8'
			1				Wet
			4				
			7				
		S11	1			Gray sandy SILT.	REC = 0.6'
			1				Wet
			4				
			9				
60		S12	1			Gray very fine to fine sandy SILT, trace clay.	REC = 0.8'
			3				Wet
			4				
			6				Augering to 67'
							Washout with tri-cone rollerbit.
65							
						TOTAL DEPTH OF BORING = 67'	

CT/sg 1/23/97

BORING NO.: B-8D
(MW-8D)

TEST BORING LOG

CLIENT:	City of Albany AIL Expansion	SHEET 1 OF	4
DRILLING CONTRACTOR:	SJB Services, Inc.	PROJECT NO.:	95.6748
PURPOSE:	MW Cluster Installation	ELEVATION:	308.60 ft. from grade
		DATUM:	311.28 ft. from top of PVC
		DATE STARTED:	12/16/96
		DATE FINISHED:	12/18/96
		DRILLER:	Mike Lenigan
		INSPECTOR:	Chris Thatcher

Groundwater					Casing	Sample	Core
Date	Time	Depth	Casing	Type	HSA	Split Spoon	2" —
12/16/96	2:04 PM	13.5	From Grade	Diameter	4 1/4" ID	3 15/16" Tri Cone	
12/17/96	7:15 AM	13.8	From Grade	Weight	140 lbs	Rollerbit used	
12/19/96	10:00 AM	12.7	From Grade			to clear augers	
12/24/96	8:50 AM	14.3	T/O PVC	Fall	30"		

Depth Ft.	Casing Blows	Sample No.	Blows on Sample Spoon per 6"	Unified Classification	Graphic Log	IDENTIFICATION	REMARKS
		S-1	3, 3, 3, 2	Fill		Clean asphalt fill material.	REC = 0.7' Moist Clean fill placed at boring location for drilling access.
		S-2	8, 8, 5, 4	SM		Top 0.2' fill material. Bottom 1.0' Brown, fine, rounded SAND.	REC = 1.2' Moist-Dry
5		S-3	2, 3, 3, 3	SM		Brown fine SAND, trace Silt.	REC = 1.8' Dry-Moist
		S-4	6, 5, 4, 4	SM		Similar to S-3.	REC = 1.8' Moist
		S-5	2, 4, 4, 4	SM		Similar to S-3.	REC = 1.10' Moist
10		S-6	2, 2, 2, 3	SM		Top 0.25 similar to S-3. 10.5'-11.5': Gray SAND, trace Silt. 11.5'-12.0': Brown SILT, trace f Sand.	REC = 1.5' Moist-Wet
		S-7	2, 2, 2, 1	SM		Brown fine SAND, some Silt.	REC = 2.0' Wet
15		S-8	1, 1, 1, 1	SM		Similar to S-7.	REC = 1.1' Wet
		S-9	1, 1, 1, 1	SM		Brown very fine to fine Sand, trace silt, some gray sand.	REC = 0.65' Wet
		S-10	1, 1, 1, 2	SM		Top 1.0' Brown very fine to medium SAND, trace silt. Bottom .7' Gray fine to medium SAND.	Advanced augers to ~18'. Water put into augers to create head. REC = 1.7' Wet
20							

BORING NO.: B-8D
(MW-8D)

TEST BORING LOG

ENT: City of Albany AIL Expansion

SHEET 2 OF 4
PROJECT NO.: 95.6748

Depth Ft.	Casing Blows	Sample No.	Blows on Sample Spoon per 6"	Unified Classification	Graphic Log	IDENTIFICATION	REMARKS
		S-11	1, 1, 1, 1	SM		Brown fine to medium SAND, trace Silt some gray SAND.	REC = 1.3' Wet Sand in 1'
		S-12	1, 1, 2, 2	SM		Top 1.0' Brown fine to medium SAND, trace Silt. Bottom 11' Gray fine to medium SAND, trace silt.	REC = 2.0' Wet
25		S-13	1, 2, 2, 3	SM		Grayish Brown fine to medium SAND, trace silt.	REC = 1.8' Moist-Wet
		S-14	2, 2, 2, 7	SM		Similar to S-13.	REC = 1.8' Spoon over full Sand in augers.
		S-15	2, 3, 2, 3	SM		Similar to S-13.	REC = 1.5' Moist-Wet
		S-16	2, 3, 3, 3	SM		Similar to S-13.	REC = 1.6' Wet
		S-17	5, 2, 2, 2	SM		Similar to S-13.	REC = 2.0' Wet
35		S-18	8, 11, 12, 17	SM		Similar to S-13.	Augers advanced to 35 feet. 3 feet of sand came back into the hole. REC = 2.0' Wet
		S-19	8, 9, 10, 12	SM		Similar to S-13.	REC = 2.0' Wet
40		S-20	3, 3, 4, 4	SM		Grayish brown fine to coarse SAND, little Silt, with some silt at bottom of spoon.	~100 gallons of water used this far to keep sands from heaving REC = 2.0' Moist
		S-21	8, 12, 16, 16	SM		Grayish brown fine to coarse SAND. Some Silt.	~2' of sand in augers. REC = 1.6' Wet Overfull Spoon 13' of sand in augers. Augered to 45' used roller bit to clean sand out of annulus.

C-139 CT/sg 1/23/97

C.T. MALE ASSOCIATES, P.C.

BORING NO.: B-8D
(MW-8D)

TEST BORING LOG

ENT: City of Albany AIL Expansion

SHEET 3 OF 4
PROJECT NO.: 95.6748

Depth ft.	Casing Blows	Sample No.	Blows on Sample Spoon per 6"	Unified Classification	Graphic Log	IDENTIFICATION	REMARKS
45		S-22	3, 5, 7, 7	ML - SM		Gray silty fine to medium SAND.	REC = 1.1' Wet
		S-23	5, 7, 8, 8	ML - SM		Gray silty fine to medium SAND.	REC = 2.0' Wet Auger to 50' 4' sand inside augers. Rollerbit to wash out prior to sampling.
50							
		S-24	5, 8, 14, 19	ML		Gray SILT, little Sand, trace clay.	REC = 2.0' Wet
		S-25	7, 7, 11, 19	ML		Gray SILT and fine to medium Sand.	REC = 0.6' Moist ~5' of sand in augers Auger to 60' Rollerbit to wash out augers.
60							
		S-26	7, 1, 3, 3	ML		Gray sandy SILT (very fine to fine sand), trace Clay.	REC = 2.0' Moist
		S-27	4, 7, 14, 18	ML		Similar to S-26.	REC = 2.0' Moist Auger to 65' Rollerbit to 65'.
65				ML		Similar to S-26.	REC = 1.5' Moist
		S-28	3, 3, 5, 5	ML		Similar to S-26.	REC = 2.0' Moist
		S-29	4, 5, 7, 10				

LAC-139 CT/sg 1/23/97

T. MALE ASSOCIATES, P.C.

TEST BORING LOG

BORING NO.: B-8D (MW-8D)

ENT: City of Albany AIL Expansion

SHEET 4 OF 4

PROJECT NO.: 95.6748

Depth Ft.	Casing Blows	Sample No.	Blows on Sample Spoon per 6"	Unified Classification	Graphic Log	IDENTIFICATION	REMARKS
70		S-30	2	ML		Gray SILT, little very fine to fine Sand.	REC = 1.0'
			6				Moist
			12				
			12				
		S-31	12	ML		Similar to S-30.	REC = 0.5'
			12				Moist
			16				
			19				
75							Advanced augers to 75' cleaning out ~5' of sands w/rollerbit. No return water ~100 gallons water loss.
		S-32	4	ML		Gray SILT, little very fine to fine Sand, trace Clay.	REC = 1.2'
			3				Wet
			5				~5' of sand in augers.
			9				Auger to 80'
							Wash out with 3 15/16" roller bit.
							~100 gallons water loss.
		S-33	Wt of Rods	ML		Gray SILT, little Clay.	REC = 1.0'
			Wt of Rods				Wet
			3				
			6				
		S-34	5	ML		Gray clayey SILT.	REC = 0.7'
			7				Wet
			8				Auger to 85'
			12				
85							
		S-35	4	ML		All wash sand - not representative of formation.	REC = 0
			3				All wash Sand in spoon.
			4				
			6				
		S-36	10	ML		Gray clayey SILT.	REC = 0.4'
			12				Wet
			12				Wash sand above actual sand. Auger to 90'.
			19				
90							
		S-37	WOR	ML-CL		Gray silty CLAY 3" spoon used.	~15' of material in augers. Washing out with rollerbit.
			WOR				REC = 0.7'
			5				Wet
			5				
		S-3	WOR	CL		Gray varved CLAY of high plasticity with gray silt seams.	REC = 1.3'
			WOR				Wet
			WOR				
			WOR				2" Spoon

TOTAL DEPTH OF BORING = 94'

C.T. MALE ASSOCIATES, P.C.

SUBSURFACE EXPLORATION LOG

BORING NO.: B-9S
ELEV.: 300.2' **DATUM: MSL**
START DATE: 7/7/98 **FINISH DATE:7/7/98**
SHEET 1 OF 1

PROJECT: P 4 Project CTM PROJECT NO.: 97.4583

LOCATION: Albany Interim Landfill CTM INSPECTOR: J. Cross

DEPTH (FT.)	SAMPLE TYPE	SAMPLE NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	18/24	N	RECOVERY	SAMPLE CLASSIFICATION	NOTES
		S-1	3	8	6	8	14	1.4	Top(0.0-1.0') Dark brown fine SAND, some gravel. Bottom(1.0-1.4') Light brown fine SAND. (SM)	Dry
5		S-2	5	10	9	6	19	1.7	Light orange brown fine SAND, trace silt. (SM)	Dry
10		S-3	5	4	3	4	7	1.6	Light orange-brown to light brown fine SAND, trace silt. (SM)	Wet
15		S-4	22	1	0	1	1	1.9	Gray fine SAND, trace silt. (SM)	Wet
20		S-5	5	3	2	2	5	1.8	Gray SILT, trace fine sand. (ML)	Wet
									T.D.= 21.0'	

N = NO. OF BLOWS TO DRIVE 2" SAMPLER 12" WITH A 140 LB. WT. FALLING 30" PER BLOW
DRILLING CONTRACTOR: Maxim Technologies, Inc. DRILL RIG TYPE: Truck Mounted Drill Rig
METHOD OF INVESTIGATION: 4.25" Hollow Stem Augers

GROUNDWATER LEVEL READINGS

DATE	LEVEL	CASING	STABILIZATION TIME

THE SUBSURFACE INFORMATION SHOWN HEREON WAS OBTAINED FOR C.T. MALE DESIGN PURPOSES. IT IS MADE AVAILABLE TO AUTHORIZED USERS ONLY THAT THEY MAY HAVE ACCESS TO THE SAME INFORMATION AVAILABLE TO C.T.MALE. IT IS PRESENTED IN GOOD FAITH, BUT IS NOT INTENDED AS A SUBSTITUTE FOR INVESTIGATIONS, INTERPRETATION OR JUDGMENT OF SUCH AUTHORIZED USERS.

SAMPLE CLASSIFICATION BY: JC

C.T. MALE ASSOCIATES, P.C.

SUBSURFACE EXPLORATION LOG

BORING NO.: B-9I
ELEV.: 300.3' **DATUM: MSL**
START DATE: 7/6/98 **FINISH DATE:7/6/98**
SHEET 1 OF 3

PROJECT: P 4 Project CTM PROJECT NO.: 97.4583

LOCATION: Albany Interim Landfill CTM INSPECTOR: J. Cross

DEPTH (FT.)	SAMPLE TYPE	SAMPLE NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	18/24	N	RECOVERY	SAMPLE CLASSIFICATION	NOTES
		S-1	2	5	8	11	13	1.7	Top(0.0-0.8') Dark brown fine SAND. Bottom(0.8-1.7') Light orange-brown fine SAND. (SM)	Dry
5		S-2	11	7	7	6	14	1.8	Light orange-brown fine SAND. (SM)	Dry
10		S-3	2	2	2	1	4	1.4	Same as S-2. (SM)	Wet
15		S-4	1	1	1	1	2	1.2	Light brown fine SAND. (SM)	Wet
20		S-5	2	1	1	2	2	1.3	Top(0.0-0.6') Same as S-4. Bottom(0.6-1.3') Gray fine SAND, Some Silt. (SM)	Wet
25		S-6	2	0	0	1	0	1.8	Gray fine SAND, trace silt. (SM)	Wet
30		S-7	4	1	0	1	1	1.8	Same as S-6. (SM)	Wet

N = NO. OF BLOWS TO DRIVE 2" SAMPLER 12" WITH A 140 LB. WT. FALLING 30" PER BLOW

DRILLING CONTRACTOR: Maxim Technologies, Inc. DRILL RIG TYPE: Truck Mounted Drill Rig

METHOD OF INVESTIGATION: 4.25" Hollow Stem Augers

GROUNDWATER LEVEL READINGS

DATE	LEVEL	CASING	STABILIZATION TIME

THE SUBSURFACE INFORMATION SHOWN HEREON WAS OBTAINED FOR C.T. MALE DESIGN PURPOSES. IT IS MADE AVAILABLE TO AUTHORIZED USERS ONLY THAT THEY MAY HAVE ACCESS TO THE SAME INFORMATION AVAILABLE TO C.T.MALE. IT IS PRESENTED IN GOOD FAITH, BUT IS NOT INTENDED AS A SUBSTITUTE FOR INVESTIGATIONS, INTERPRETATION OR JUDGMENT OF SUCH AUTHORIZED USERS.

SAMPLE CLASSIFICATION BY: JC

C.T. MALE ASSOCIATES, P.C.

SUBSURFACE EXPLORATION LOG

BORING NO.: B-9I
ELEV.: 300.3' **DATUM: MSL**
START DATE: 7/6/98 **FINISH DATE:7/6/98**
SHEET 2 OF 3

PROJECT: P 4 Project CTM PROJECT NO.: 97.4583

LOCATION: Albany Interim Landfill CTM INSPECTOR: J. Cross

DEPTH (FT.)	SAMPLE TYPE	SAMPLE NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	18/24	N	RECOVERY	SAMPLE CLASSIFICATION	NOTES
		S-7							See previous page for description.	
35		S-8	12	7	6	8	13	1.3	Gray SILT, Some fine Sand. (ML)	Wet
40		S-9a	8	14	9	7	23	0	Gray CLAYEY-SILT, trace fine sand. (ML)	Wet Two spoons taken with running sands. Third spoon contained 0.5' of native material.
45		S-9b	11	3	4	5	7	0.8	Gray fine SAND, Some Silt. (SM)	Wet
50		S-10	10	8	8	10	16	0.8	Same as S-9b. (SM)	Wet
55		S-11	4	5	4	7	9	1.2	Same as S-9b. (SM)	Wet
60		S-12	12	10	11	9	21	1.6	Same as S-9b. (SM)	Wet

N = NO. OF BLOWS TO DRIVE 2" SAMPLER 12" WITH A 140 LB. WT. FALLING 30" PER BLOW
DRILLING CONTRACTOR: Maxim Technologies, Inc. DRILL RIG TYPE: Truck Mounted Drill Rig
METHOD OF INVESTIGATION: 4.25" Hollow Stem Augers

GROUNDWATER LEVEL READINGS

DATE	LEVEL	CASING	STABILIZATION TIME

THE SUBSURFACE INFORMATION SHOWN HEREON WAS OBTAINED FOR C.T. MALE DESIGN PURPOSES. IT IS MADE AVAILABLE TO AUTHORIZED USERS ONLY THAT THEY MAY HAVE ACCESS TO THE SAME INFORMATION AVAILABLE TO C.T.MALE. IT IS PRESENTED IN GOOD FAITH, BUT IS NOT INTENDED AS A SUBSTITUTE FOR INVESTIGATIONS, INTERPRETATION OR JUDGMENT OF SUCH AUTHORIZED USERS.

SAMPLE CLASSIFICATION BY: JC

C.T. MALE ASSOCIATES, P.C.

SUBSURFACE EXPLORATION LOG

BORING NO.: B-9I
ELEV.: 300.3' DATUM: MSL
START DATE: 7/6/98 FINISH DATE:7/6/98
SHEET 3 OF 3

PROJECT: P 4 Project CTM PROJECT NO.: 97.4583
LOCATION: Albany Interim Landfill CTM INSPECTOR: J. Cross

DEPTH (FT.)	SAMPLE TYPE	SAMPLE NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	18/24	N	RECOVERY	SAMPLE CLASSIFICATION	NOTES
		S-12							See previous page for description.	Wet
65		S-13	12	9	14	17	23	1.9	Same as S-9b. (SM)	Wet
70		S-14	17	10	7	6	17	1.6	Gray CLAYEY-SILT, trace fine sand. (ML)	Wet Four feet of running sands entered auger and was washed out with the tri-cone.
75		S-15	3	3	5	8	8	2.0	Gray SILTY-CLAY. (ML-CL)	
									T.D.= 76.0'	

N = NO. OF BLOWS TO DRIVE 2" SAMPLER 12" WITH A 140 LB. WT. FALLING 30" PER BLOW
DRILLING CONTRACTOR: Maxim Technologies, Inc. DRILL RIG TYPE: Truck Mounted Drill Rig
METHOD OF INVESTIGATION: 4.25" Hollow Stem Augers

GROUNDWATER LEVEL READINGS

DATE	LEVEL	CASING	STABILIZATION TIME

THE SUBSURFACE INFORMATION SHOWN HEREON WAS OBTAINED FOR C.T. MALE DESIGN PURPOSES. IT IS MADE AVAILABLE TO AUTHORIZED USERS ONLY THAT THEY MAY HAVE ACCESS TO THE SAME INFORMATION AVAILABLE TO C.T.MALE. IT IS PRESENTED IN GOOD FAITH, BUT IS NOT INTENDED AS A SUBSTITUTE FOR INVESTIGATIONS, INTERPRETATION OR JUDGMENT OF SUCH AUTHORIZED USERS.

SAMPLE CLASSIFICATION BY: JC

C.T. MALE ASSOCIATES, P.C.

SUBSURFACE EXPLORATION LOG

BORING NO.: B-9D
ELEV.: 300.0' **DATUM: MSL**
START DATE: 6/24/98 **FINISH DATE:7/1/98**
SHEET 1 OF 4

PROJECT: P 4 Project CTM PROJECT NO.: 97.4583

LOCATION: Albany Interim Landfill CTM INSPECTOR: J. Cross

DEPTH (FT.)	SAMPLE TYPE	SAMPLE NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	18/24	N	RECOVERY	SAMPLE CLASSIFICATION	NOTES
		S-1	2	5	9	15	14	1.5	Top(0.0-1.0') Brown fine SAND, trace silt. Bottom(1.0-2.0') Light orange-brown fine SAND, trace silt.	Moist
		S-2	15	18	33	35	51	1.4	Light orange-brown fine SAND, trace silt. (SM)	Moist
5		S-3	13	19	12	11	31	1.5	Same as S-2. (SM)	Moist
		S-4	11	12	11	10	23	1.7	Same as S-2. (SM)	Moist
		S-5	2	4	5	5	9	1.5	Light brown fine SAND, trace silt. (SM)	Wet
10		S-6	3	4	3	4	7	1.2	Same as S-5. (SM)	Wet
		S-7	4	3	3	3	6	2.0	Light brown fine SAND, Some Silt. (SM)	Wet
15		S-8	2	1	0	1	1	1.8	Top(0.0-1.0') Gray fine SAND, trace silt. Bottom(1.0-1.8') Light brown fine SAND, trace silt.	Wet 50 gal. of water added w/ hose.
		S-9	0	2	2	2	4	2.0	Top(0.0-1.0') Light brown fine SAND, Some Silt. Bottom(1.0-2.0') Gray fine SAND, Some Silt.	Wet
20		S-10	2	2	1	1	3	2.0	Gray fine SAND, trace silt. (SM)	Wet
		S-11	0	2	1	2	3	2.0	Same as S-10. (SM)	Wet
		S-12	1	2	2	2	4	2.0	Same as S-10. (SM)	Wet 50 gal. of water added w/ hose.
25		S-13	1	0	0	1	0	2.0	Same as S-10. (SM)	Wet
		S-14	6	4	4	3	8	2.0	Same as S-10. (SM)	Wet
30		S-15	6	3	2	1	5	0.6	Same as S-10. (SM)	Wet

N = NO. OF BLOWS TO DRIVE 2" SAMPLER 12" WITH A 140 LB. WT. FALLING 30" PER BLOW
DRILLING CONTRACTOR: Maxim Technologies, Inc. DRILL RIG TYPE: Truck Mounted Drill Rig
METHOD OF INVESTIGATION: 4.25" Hollow Stem Augers

GROUNDWATER LEVEL READINGS

DATE	LEVEL	CASING	STABILIZATION TIME
6/25	6.5	HSA	
6/29	9.1	HSA	

THE SUBSURFACE INFORMATION SHOWN HEREON WAS OBTAINED FOR C.T. MALE DESIGN PURPOSES. IT IS MADE AVAILABLE TO AUTHORIZED USERS ONLY THAT THEY MAY HAVE ACCESS TO THE SAME INFORMATION AVAILABLE TO C.T.MALE. IT IS PRESENTED IN GOOD FAITH, BUT IS NOT INTENDED AS A SUBSTITUTE FOR INVESTIGATIONS, INTERPRETATION OR JUDGMENT OF SUCH AUTHORIZED USERS.

SAMPLE CLASSIFICATION BY: JC

C.T. MALE ASSOCIATES, P.C.

SUBSURFACE EXPLORATION LOG

BORING NO.: B-9D
ELEV.: 300.0' **DATUM: MSL**
START DATE: 6/24/98 **FINISH DATE:7/1/98**
SHEET 2 OF 4

PROJECT: P 4 Project CTM PROJECT NO.: 97.4583

LOCATION: Albany Interim Landfill CTM INSPECTOR: J. Cross

DEPTH (FT.)	SAMPLE TYPE	SAMPLE NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	18/24	N	RECOVERY	SAMPLE CLASSIFICATION	NOTES
		S-16	5	2	3	3	5	1.4	Brown fine SAND, trace silt. (SM)	Wet
		S-17	12	8	4	4	12	0.7	Same as S-10. (SM)	Wet
35		S-18	6	9	16	20	25	2.0	Gray CLAYEY-SILT, trace fine sand. (ML)	Wet
		S-19	2	1	3	2	4	1.4	Same as S-18. (ML)	Wet
40		S-20	6	9	9	21	18	2.0	Gray fine SAND, trace silt. (ML) Bottom (0.2') Same as S-18.	Wet
										Driller advanced auger without taking sample.
										Driller advanced auger without taking sample.
45		S-21	12	12	13	16	25	2.0	Gray SILT, trace fine sand, trace clay. (ML)	Wet
		S-22	6	7	12	14	19	1.7	Gray fine SAND, trace silt. (SM)	Wet
50		S-23	5	6	7	6	13	1.7	Same as S-22. (SM)	Wet
		S-24	1	2	1	1	3	0.6	Gray fine to medium SAND, trace silt.(SM)	Wet/ 100 gal. used to wash out casing with tri-cone.
		S-25	6	13	15	22	28	2.0	Same as S-22. (SM)	Wet/ 50 gal. used to wash out casing with tri-cone.
55		S-26	9	9	11	14	20	1.7	Gray fine SAND, trace to little silt. (SM)	Wet/ 100 gal. used to wash out casing with tri-cone.
		S-27	6	6	5	9	11	2.0	Gray SILT, trace fine sand, trace clay, lens of clay. (SM-ML)	Wet
60		S-28	6	5	6	8	11	2.0	Gray fine SAND, trace to little silt. (SM)	Wet

N = NO. OF BLOWS TO DRIVE 2" SAMPLER 12" WITH A 140 LB. WT. FALLING 30" PER BLOW
DRILLING CONTRACTOR: Maxim Technologies, Inc. DRILL RIG TYPE: Truck Mounted Drill Rig
METHOD OF INVESTIGATION: 4.25" Hollow Stem Augers

GROUNDWATER LEVEL READINGS

DATE	LEVEL	CASING	STABILIZATION TIME

THE SUBSURFACE INFORMATION SHOWN HEREON WAS OBTAINED FOR C.T. MALE DESIGN PURPOSES. IT IS MADE AVAILABLE TO AUTHORIZED USERS ONLY THAT THEY MAY HAVE ACCESS TO THE SAME INFORMATION AVAILABLE TO C.T.MALE. IT IS PRESENTED IN GOOD FAITH, BUT IS NOT INTENDED AS A SUBSTITUTE FOR INVESTIGATIONS, INTERPRETATION OR JUDGMENT OF SUCH AUTHORIZED USERS.

SAMPLE CLASSIFICATION BY: JC

C.T. MALE ASSOCIATES, P.C.

SUBSURFACE EXPLORATION LOG

BORING NO.: B-9D
ELEV.: 300.0' DATUM: MSL
START DATE: 6/24/98 FINISH DATE:7/1/98
SHEET 3 OF 4

PROJECT: P 4 Project CTM PROJECT NO.: 97.4583
LOCATION: Albany Interim Landfill CTM INSPECTOR: J. Cross

DEPTH (FT.)	SAMPLE TYPE	SAMPLE NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	18/24	N	RECOVERY	SAMPLE CLASSIFICATION	NOTES
		S-29	1	2	1	7	3	1.6	Same as S-22. (SM)	Wet
		S-30	9	11	12	13	23	2.0	Gray SILT, Some fine Sand. (SM-ML)	Wet
65		S-31	2	2	3	4	5	2.0	Gray CLAYEY-SILT, trace fine sand. (ML)	Wet
		S-32	4	6	3	5	9	2.0	Gray SILT, trace fine sand. (ML)	Wet
70		S-33	2	3	2	3	5	2.0	Top(0.0-1.4') Same as S-31. (ML) Bottom(1.4-2.0') Gray SILTY-CLAY.	Wet
		S-34	1	2	4	5	6	2.0	Gray SILTY-CLAY. (ML-CL)	Wet
		S-35	4	4	5	5	9	2.0	Gray SILTY-CLAY, gray clayey-silt varves. (ML-CL)	Wet
75		S-36	7	7	9	9	16	2.0	Gray SILTY-CLAY, gray clayey-silt varves, trace fine sand. (ML-CL)	Wet
		S-37	4	4	7	5	11	2.0	Gray silt, trace fine sand. (ML)	Wet
80		S-38	7	7	10	13	17	2.0	Same as S-37. (ML)	Wet
		S-39	4	3	4	7	7	1.6	Same as S-37. (ML)	Wet
		S-40	7	7	8	9	15	2.0	Same as S-37. (ML)	Wet
85		S-41	9	10	10	20	20	2.0	Same as S-37. (ML)	Wet
		S-42	11	15	27	33	41	2.0	Gray SILT, trace fine sand, trace clay.(ML)	Wet
90		S-43	5	8	10	9	18	1.9	Same as S-42. (ML)	Wet

N = NO. OF BLOWS TO DRIVE 2" SAMPLER 12" WITH A 140 LB. WT. FALLING 30" PER BLOW
DRILLING CONTRACTOR: Maxim Technologies, Inc. DRILL RIG TYPE: Truck Mounted Drill Rig
METHOD OF INVESTIGATION: 4.25" Hollow Stem Augers

GROUNDWATER LEVEL READINGS

DATE	LEVEL	CASING	STABILIZATION TIME

THE SUBSURFACE INFORMATION SHOWN HEREON WAS OBTAINED FOR C.T. MALE DESIGN PURPOSES. IT IS MADE AVAILABLE TO AUTHORIZED USERS ONLY THAT THEY MAY HAVE ACCESS TO THE SAME INFORMATION AVAILABLE TO C.T.MALE. IT IS PRESENTED IN GOOD FAITH, BUT IS NOT INTENDED AS A SUBSTITUTE FOR INVESTIGATIONS, INTERPRETATION OR JUDGMENT OF SUCH AUTHORIZED USERS.

SAMPLE CLASSIFICATION BY: JC

C.T. MALE ASSOCIATES, P.C.

SUBSURFACE EXPLORATION LOG

BORING NO.: B-9D
ELEV.: 300.0' **DATUM: MSL**
START DATE: 6/24/98 **FINISH DATE:7/1/98**
SHEET 4 OF 4

PROJECT: P 4 Project CTM PROJECT NO.: 97.4583

LOCATION: Albany Interim Landfill CTM INSPECTOR: J. Cross

DEPTH (FT.)	SAMPLE TYPE	SAMPLE NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	18/24	N	RECOVERY	SAMPLE CLASSIFICATION	NOTES
		S-44	3	3	5	9	8	2.0	Gray SILTY-CLAY, clayey-silt varves (ML-CL)	Wet
		S-45	10	5	8	6	13	2.0	Same as S-44. (ML-CL)	Wet
95		S-46	3	3	5	7	8	2.0	Same as S-44. (ML-CL)	Wet
		S-47	7	7	7	8	14	2.0	Gray SILTY- CLAY, clayey-silt varves, trace fine sand. (ML-CL)	Wet
100									T.D.= 98.0'	

N = NO. OF BLOWS TO DRIVE 2" SAMPLER 12" WITH A 140 LB. WT. FALLING 30" PER BLOW
DRILLING CONTRACTOR: Maxim Technologies, Inc. DRILL RIG TYPE: Truck Mounted Drill Rig
METHOD OF INVESTIGATION: 4.25" Hollow Stem Augers

GROUNDWATER LEVEL READINGS

DATE	LEVEL	CASING	STABILIZATION TIME

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SAMPLE CLASSIFICATION BY: JC

C.T. MALE ASSOCIATES, P.C.

SUBSURFACE EXPLORATION LOG

BORING NO.: B-10S
ELEV.: 309.9' DATUM: MSL
START DATE: 7/15/98 FINISH DATE: 7/15/98
SHEET 1 OF 2

PROJECT: P 4 Project CTM PROJECT NO.: 97.4583
LOCATION: Albany Interim Landfill CTM INSPECTOR: J. Cross

DEPTH (FT.)	SAMPLE TYPE	SAMPLE NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	18/24	N	RECOVERY	SAMPLE CLASSIFICATION	NOTES
		S-1	4	8	11	11	19	1.6	Top(0.0-0.6') Dark brown fine SAND, Little medium Gravel. Bottom(0.6-1.6') Light brown fine SAND, trace silt.	Dry
5		S-2	6	17	24	37	41	1.8	Light brown fine SAND, trace silt.	Dry
									Road Embankment Sand Fill	
10		S-3	7	17	25	29	42	1.6	Same as S-2.	Dry
15		S-4	5	8	8	7	16	1.6	Light brown fine SAND, trace silt. (SM)	Dry
20		S-5	4	4	3	4	7	1.4	Light orange-brown fine SAND, Some Silt. (SM)	Wet
25		S-6	1	1	1	1	2	1.5	Light brown fine SAND, Some Silt. (SM)	Wet
30		S-7	4	5	11	15	16	2.0	Top(0.0-1.1') Same as S-6. (SM)	Wet

N = NO. OF BLOWS TO DRIVE 2" SAMPLER 12" WITH A 140 LB. WT. FALLING 30" PER BLOW
DRILLING CONTRACTOR: Maxim Technologies, Inc. DRILL RIG TYPE: Truck Mounted Drill Rig
METHOD OF INVESTIGATION: 4.25' Hollow Stem Augers

GROUNDWATER LEVEL READINGS

DATE	LEVEL	CASING	STABILIZATION TIME

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SAMPLE CLASSIFICATION BY: JC

C.T. MALE ASSOCIATES, P.C.

SUBSURFACE EXPLORATION LOG

BORING NO.: B-10S
ELEV.: 309.9' **DATUM: MSL**
START DATE: 7/15/98 **FINISH DATE: 7/15/98**
SHEET 2 OF 2

PROJECT: P 4 Project CTM PROJECT NO.: 97.4583

LOCATION: Albany Interim Landfill CTM INSPECTOR: J. Cross

DEPTH (FT.)	SAMPLE TYPE	SAMPLE NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	18/24	N	RECOVERY	SAMPLE CLASSIFICATION	NOTES
									Bottom(1.1-2.0) Gray fine SAND, Some Silt. (SM)	
									T.D.= 31.0'	
35										

N = NO. OF BLOWS TO DRIVE 2" SAMPLER 12" WITH A 140 LB. WT. FALLING 30" PER BLOW
DRILLING CONTRACTOR: Maxim Technologies, Inc. DRILL RIG TYPE: Truck Mounted Drill Rig
METHOD OF INVESTIGATION: 4.25' Hollow Stem Augers

GROUNDWATER LEVEL READINGS

DATE	LEVEL	CASING	STABILIZATION TIME

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SAMPLE CLASSIFICATION BY: JC

C.T. MALE ASSOCIATES, P.C.

SUBSURFACE EXPLORATION LOG

BORING NO.: B-10I
ELEV.: 309.7' DATUM: MSL
START DATE: 7/14/98 FINISH DATE: 7/14/98
SHEET 1 OF 3

PROJECT: P 4 Project CTM PROJECT NO.: 97.4583
LOCATION: Albany Interim Landfill CTM INSPECTOR: J. Cross

DEPTH (FT.)	SAMPLE TYPE	SAMPLE NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	18/24	N	RECOVERY	SAMPLE CLASSIFICATION	NOTES
		S-1	5	7	10	16	17	1.7	Light brown fine SAND, some medium gravel. (SM)	Dry
5		S-2	9	14	25	31	39	1.8	Light brown fine SAND, trace silt. (SM)	Dry
									Road Embankment Sand Fill	
10		S-3	6	18	27	33	35	1.9	Same as S-2. (SM)	Dry
15		S-4	4	7	8	8	15	1.5	Light brown fine SAND, trace silt (SM)	Dry
20		S-5	3	4	3	3	7	1.5	Same as S-4.	Wet
25		S-6	1	0	3	3	3	1.4	Same as S-4.	Wet
30		S-7	5	6	7	12	13	1.2	Top(0.0-0.6') Same as S-4.	Wet

N = NO. OF BLOWS TO DRIVE 2" SAMPLER 12" WITH A 140 LB. WT. FALLING 30" PER BLOW
DRILLING CONTRACTOR: Maxim Technologies, Inc. DRILL RIG TYPE: Truck Mounted Drill Rig
METHOD OF INVESTIGATION: 4.25' Hollow Stem Augers

GROUNDWATER LEVEL READINGS

DATE	LEVEL	CASING	STABILIZATION TIME

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SAMPLE CLASSIFICATION BY: JC

C.T. MALE ASSOCIATES, P.C.

SUBSURFACE EXPLORATION LOG

BORING NO.: B-10I
ELEV.: 309.7' DATUM: MSL
START DATE: 7/14/98 FINISH DATE: 7/14/98
SHEET 2 OF 3

PROJECT: P 4 Project CTM PROJECT NO.: 97.4583
LOCATION: Albany Interim Landfill CTM INSPECTOR: J. Cross

DEPTH (FT.)	SAMPLE TYPE	SAMPLE NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	18/24	N	RECOVERY	SAMPLE CLASSIFICATION	NOTES
		S-7							Bottom(0.6-1.2') Light gray fine SAND, trace silt. (SM)	Wet
35		S-8	8	7	9	15	16	2.0	Light gray fine SAND, trace silt. (SM)	Wet 50 gal. water added w/ hose.
40		S-9	1	2	6	11	8	1.6	Same as S-8. (SM)	Wet
45		S-10	5	11	14	19	25	1.5	Top(0.0-1.1') Same as S-8. Bottom(1.1-1.5') Light brown fine SAND, trace silt. (SM)	Wet
50		S-11	16	10	10	10	20	1.9	Light brown fine SAND, Some Silt. (SM)	Wet 200 gal. water added w/ hose.
55		S-12	2	7	8	9	15	1.3	Same as S-11. (SM)	Wet
60		S-13	0	1	4	10	5	1.7	Same as S-11, lens of silty-clay (0.1').(SM)	Wet

N = NO. OF BLOWS TO DRIVE 2" SAMPLER 12" WITH A 140 LB. WT. FALLING 30" PER BLOW
DRILLING CONTRACTOR: Maxim Technologies, Inc. DRILL RIG TYPE: Truck Mounted Drill Rig
METHOD OF INVESTIGATION: 4.25' Hollow Stem Augers

GROUNDWATER LEVEL READINGS

DATE	LEVEL	CASING	STABILIZATION TIME

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SAMPLE CLASSIFICATION BY: JC

C.T. MALE ASSOCIATES, P.C.

SUBSURFACE EXPLORATION LOG

BORING NO.: B-10I
ELEV.: 309.7' **DATUM: MSL**
START DATE: 7/14/98 **FINISH DATE: 7/14/98**
SHEET 3 OF 3

PROJECT: P 4 Project CTM PROJECT NO.: 97.4583

LOCATION: Albany Interim Landfill CTM INSPECTOR: J. Cross

DEPTH (FT.)	SAMPLE TYPE	SAMPLE NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	18/24	N	RECOVERY	SAMPLE CLASSIFICATION	NOTES
										Wet
65		S-14	11	5	6	11	11	1.6	Light gray fine SAND, Some Silt. (SM)	Wet
70		S-15	8	15	15	16	30	1.8	Gray SILT, Some fine Sand. (ML)	Wet
75									T.D.= 71.0'	

N = NO. OF BLOWS TO DRIVE 2" SAMPLER 12" WITH A 140 LB. WT. FALLING 30" PER BLOW
DRILLING CONTRACTOR: Maxim Technologies, Inc. DRILL RIG TYPE: Truck Mounted Drill Rig
METHOD OF INVESTIGATION: 4.25' Hollow Stem Augers

GROUNDWATER LEVEL READINGS

DATE	LEVEL	CASING	STABILIZATION TIME

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SAMPLE CLASSIFICATION BY: JC

C.T. MALE ASSOCIATES, P.C.

SUBSURFACE EXPLORATION LOG

BORING NO.: B-10D
ELEV.: 309.7' DATUM: MSL
START DATE: 7/7/98 FINISH DATE: 7/10/98
SHEET 1 OF 4

PROJECT: P 4 Project CTM PROJECT NO.: 97.4583
LOCATION: Albany Interim Landfill CTM INSPECTOR: J. Cross

DEPTH (FT.)	SAMPLE TYPE	SAMPLE NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	18/24	N	RECOVERY	SAMPLE CLASSIFICATION	NOTES
		S-1	4	6	7	10	13	1.6	Top(0.0-0.6') Fill material.	Dry
									Bottom(0.6-1.6') Light brown fine SAND.	
		S-2	13	14	15	20	29	1.4	Light brown fine SAND, trace silt. (SM)	Dry
5		S-3	8	10	21	19	31	1.2	Same as S-2. (SM)	Dry
		S-4	30	30	33	33	63	1.9	Same as S-2. (SM)	Dry
		S-5	6	12	44	38	56	1.6	Same as S-2. (SM)	Dry
10									Road Embankment Sand Fill	
		S-6	71	63	51	59	114	1.8	Light brown fine SAND, trace silt. (SM)	Dry
		S-7	4	9	13	13	22	1.1	Same as S-6. (SM)	Dry
15		S-8	4	5	8	9	13	1.0	Same as S-6. (SM)	Dry
		S-9	8	8	9	8	17	1.5	Same as S-6. (SM)	Dry
		S-10	6	6	7	7	13	1.1	Same as S-6. (SM)	Moist
20		S-11	7	8	8	7	16	1.6	Same as S-6. (SM)	Wet
		S-12	2	3	4	5	7	1.6	Top(0.0-0.6') Light orange brown fine SAND.	Wet
									Bottom(0.6-1.6') Same as S-6.	
25		S-13	1	2	2	4	4	1.8	Brown fine to medium SAND, trace silt.	Wet
									(SM)	
		S-14	1	2	4	4	6	2.0	Same as S-13. (SM)	Wet
		S-15	6	2	3	4	5	2.0	Top(0.0-0.6') Light brown SILT, trace fine sand.	Wet
30									Bottom(0.6-2.0') Same as S-13.	

N = NO. OF BLOWS TO DRIVE 2" SAMPLER 12" WITH A 140 LB. WT. FALLING 30" PER BLOW
DRILLING CONTRACTOR: Maxim Technologies, Inc. DRILL RIG TYPE: Truck Mounted Drill Rig
METHOD OF INVESTIGATION: 4.25' Hollow Stem Augers

GROUNDWATER LEVEL READINGS

DATE	LEVEL	CASING	STABILIZATION TIME
7/8	21.3'	HSA	
7/9	21.0'	HSA	
7/10	21.9'	HSA	

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SAMPLE CLASSIFICATION BY: JC

C.T. MALE ASSOCIATES, P.C.

SUBSURFACE EXPLORATION LOG

BORING NO.: B-10D
ELEV.: 309.7' DATUM: MSL
START DATE: 7/7/98 FINISH DATE: 7/10/98
SHEET 2 OF 4

PROJECT: P 4 Project CTM PROJECT NO.: 97.4583
LOCATION: Albany Interim Landfill CTM INSPECTOR: J. Cross

DEPTH (FT.)	SAMPLE TYPE	SAMPLE NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	18/24	N	RECOVERY	SAMPLE CLASSIFICATION	NOTES
		S-16	5	8	8	8	16	1.9	Gray fine SAND, trace silt. (SM)	Wet Tri-cone, 50 gal. water added.
		S-17	6	9	13	18	22	1.7	Gray fine to medium SAND, trace silt.(SM)	Wet
35		S-18	6	6	12	13	18	1.5	Gray fine SAND, Some Silt. (SM)	Wet
		S-19	4	6	11	13	17	1.1	Same as S-18. (SM)	Wet
		S-20	3	6	7	6	13	1.3	Same as S-18. (SM)	Wet
40		S-21	1	2	6	5	8	1.4	Same as S-18. (SM)	Wet
		S-22	8	4	5	8	9	1.7	Top(0.0-0.7') Same as S-18. Bottom(0.7-1.7') Brown fine SAND, trace silt.	Wet
45		S-23	8	5	4	13	9	1.5	Brown fine SAND, Some Silt. (SM)	Wet
		S-24	9	11	15	21	26	2.0	Same as S-23. (SM)	Wet
		S-25	12	12	15	15	27	2.0	Same as S-23. (SM)	Wet
50		S-26	11	13	12	13	25	1.7	Same as S-23. (SM)	Wet
		S-27	17	10	15	18	25	1.3	Brown-Gray fine SAND, Some Silt (SM.	Wet
55		S-28	6	7	10	14	17	1.1	Same as S-27. (SM)	Wet
		S-29	13	8	9	14	17	1.4	Same as S-27. (SM)	Wet
60		S-30	12	10	13	18	23	1.2	Gray fine SAND, Some Silt. (SM)	Wet

N = NO. OF BLOWS TO DRIVE 2" SAMPLER 12" WITH A 140 LB. WT. FALLING 30" PER BLOW
DRILLING CONTRACTOR: Maxim Technologies, Inc. DRILL RIG TYPE: Truck Mounted Drill Rig
METHOD OF INVESTIGATION: 4.25' Hollow Stem Augers

GROUNDWATER LEVEL READINGS

DATE	LEVEL	CASING	STABILIZATION TIME

THE SUBSURFACE INFORMATION SHOWN HEREON WAS OBTAINED FOR C.T. MALE DESIGN PURPOSES. IT IS MADE AVAILABLE TO AUTHORIZED USERS ONLY THAT THEY MAY HAVE ACCESS TO THE SAME INFORMATION AVAILABLE TO C.T.MALE. IT IS PRESENTED IN GOOD FAITH, BUT IS NOT INTENDED AS A SUBSTITUTE FOR INVESTIGATIONS, INTERPRETATION OR JUDGMENT OF SUCH AUTHORIZED USERS.

SAMPLE CLASSIFICATION BY: JC

C.T. MALE ASSOCIATES, P.C.

SUBSURFACE EXPLORATION LOG

BORING NO.: B-10D
ELEV.: 309.7' DATUM: MSL
START DATE: 7/7/98 FINISH DATE: 7/10/98
SHEET 3 OF 4

PROJECT: P 4 Project CTM PROJECT NO.: 97.4583
LOCATION: Albany Interim Landfill CTM INSPECTOR: J. Cross

DEPTH (FT.)	SAMPLE TYPE	SAMPLE NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	18/24	N	RECOVERY	SAMPLE CLASSIFICATION	NOTES
		S-31	13	25	29	40	54	1.7	Gray fine SAND, Some Silt. (SM)	Wet
		S-32	6	22	39	52	61	1.4	Same as S-31. (SM)	Wet
65		S-33	6	1	2	18	3	1.8	Same as S-31, lens of clay(0.1'). (SM)	Wet
		S-34	15	30	17	25	47	1.6	Same as S-31. (SM)	Wet
		S-35	19	21	11	22	32	2.0	Top(0.0-1.6') Gray fine SAND, trace silt.	Wet
70									Bottom(1.6-2.0') Gray SILT, Some fine Sand.	
		S-36	1	3	5	7	8	1.5	Gray SILT, Some fine Sand. (SM-ML)	Wet
		S-37	8	8	7	9	15	1.8	Gray SILT, trace fine sand. (ML)	Wet
75		S-38	15	9	12	13	21	2.0	Same as S-37. (ML)	Wet
		S-39	9	6	7	6	13	1.6	Gray SILT, trace fine sand, trace clay.(ML)	Wet
		S-40	3	4	2	4	6	2.0	Gray SILTY-CLAY, silt varves with trace fine sand. (ML-CL)	Wet
80		S-41	3	2	3	5	5	1.5	Same as S-40. (ML-CL)	Wet
		S-42	1	3	4	6	7	2.0	Same as S-40. (ML-CL)	Wet
85		S-43	2	4	5	10	9	2.0	Top(0.0-1.0') Same as S-40.	Wet
									Bottom(1.0-2.0') Gray CLAYEY-SILT, trace fine sand.	
		S-44	3	5	5	6	10	2.0	Gray CLAYEY-SILT, trace fine sand. (ML)	Wet
90		S-45	12	14	14	11	28	2.0	Gray CLAYEY-SILT. (ML)	Wet

N = NO. OF BLOWS TO DRIVE 2" SAMPLER 12" WITH A 140 LB. WT. FALLING 30" PER BLOW
DRILLING CONTRACTOR: Maxim Technologies, Inc. DRILL RIG TYPE: Truck Mounted Drill Rig
METHOD OF INVESTIGATION: 4.25' Hollow Stem Augers

GROUNDWATER LEVEL READINGS

DATE	LEVEL	CASING	STABILIZATION TIME

THE SUBSURFACE INFORMATION SHOWN HEREON WAS OBTAINED FOR C.T. MALE DESIGN PURPOSES. IT IS MADE AVAILABLE TO AUTHORIZED USERS ONLY THAT THEY MAY HAVE ACCESS TO THE SAME INFORMATION AVAILABLE TO C.T.MALE. IT IS PRESENTED IN GOOD FAITH, BUT IS NOT INTENDED AS A SUBSTITUTE FOR INVESTIGATIONS, INTERPRETATION OR JUDGMENT OF SUCH AUTHORIZED USERS

SAMPLE CLASSIFICATION BY: JC

C.T. MALE ASSOCIATES, P.C.

SUBSURFACE EXPLORATION LOG

BORING NO.: B-10D
ELEV.: 309.7' **DATUM: MSL**
START DATE: 7/7/98 **FINISH DATE: 7/10/98**
SHEET 4 OF 4

PROJECT: P 4 Project CTM PROJECT NO.: 97.4583

LOCATION: Albany Interim Landfill CTM INSPECTOR: J. Cross

DEPTH (FT.)	SAMPLE TYPE	SAMPLE NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	18/24	N	RECOVERY	SAMPLE CLASSIFICATION	NOTES
		S-46	18	10	12	14	22	2.0	Gray CLAYEY-SILT. (ML)	Wet
		S-47	9	18	33	45	51	2.0	Same as S-46. (ML)	Wet
95		S-48	10	27	40	37	67	2.0	Same as S-46. (ML)	Wet
		S-49	-	9	13	16	22	2.0	Top(0.0-0.9') Same as S-46.	Wet
									Bottom(0.9-2.0') Gray SILTY-CLAY,silty to fine sand layers.	
		S-50	6	3	3	4	6	2.0	Top(0.0-1.5') Gray SILTY-CLAY,silty to fine sand layers.	Wet
100									Bottom(1.5-2.0) Gray SILTY-CLAY, Some fine Gravel.	
		S-51	3	4	7	8	11	1.8	Gray SILTY-CLAY, silty to fine sand layers. (ML-CL)	Wet
									T.D.= 102.0'	

N = NO. OF BLOWS TO DRIVE 2" SAMPLER 12" WITH A 140 LB. WT. FALLING 30" PER BLOW

DRILLING CONTRACTOR: Maxim Technologies, Inc. DRILL RIG TYPE: Truck Mounted Drill Rig

METHOD OF INVESTIGATION: 4.25' Hollow Stem Augers

GROUNDWATER LEVEL READINGS

DATE	LEVEL	CASING	STABILIZATION TIME

THE SUBSURFACE INFORMATION SHOWN HEREON WAS OBTAINED FOR C.T. MALE DESIGN PURPOSES. IT IS MADE AVAILABLE TO AUTHORIZED USERS ONLY THAT THEY MAY HAVE ACCESS TO THE SAME INFORMATION AVAILABLE TO C.T.MALE. IT IS PRESENTED IN GOOD FAITH, BUT IS NOT INTENDED AS A SUBSTITUTE FOR INVESTIGATIONS, INTERPRETATION OR JUDGMENT OF SUCH AUTHORIZED USERS.

SAMPLE CLASSIFICATION BY: JC

C.T. MALE ASSOCIATES, P.C.

SUBSURFACE EXPLORATION LOG

BORING NO.: B-11S
ELEV.: 304.5' **DATUM: MSL**
START DATE: 7/23/98 **FINISH DATE: 7/23/98**
SHEET 1 OF 1

PROJECT: P 4 Project — CTM PROJECT NO.: 97.4583

LOCATION: Albany Interim Landfill — CTM INSPECTOR: J. Cross

DEPTH (FT.)	SAMPLE TYPE	SAMPLE NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	18/24	N	RECOVERY	SAMPLE CLASSIFICATION	NOTES
		S-1	4	5	4	4	9	1.5	Light brown fine SAND, trace silt. (SM)	Dry
5		S-2	5	6	5	6	11	1.7	Same as S-1. (SM)	Dry
10		S-3	2	3	4	3	7	1.5	Same as S-1. (SM)	Moist
15		S-4	1	1	1	1	2	1.4	Top(0.0-1.0') Same as S-1. Bottom(1.0-1.4') Light orange-brown fine SAND, trace silt. (SM)	Wet
20		S-5	0	0	0	1	0	1.7	Top(0.0-0.7) Same as S-1. (SM) Bottom(0.7-1.7) Gray SILT, Some Clay, trace fine sand.	Wet Weight of rods drove spoon.
									T.D.= 21.0'	

N = NO. OF BLOWS TO DRIVE 2" SAMPLER 12" WITH A 140 LB. WT. FALLING 30" PER BLOW

DRILLING CONTRACTOR: Maxim Technologies, Inc. DRILL RIG TYPE: Truck Mounted Drill Rig

METHOD OF INVESTIGATION: 4.25' Hollow Stem Augers

GROUNDWATER LEVEL READINGS

DATE	LEVEL	CASING	STABILIZATION TIME

THE SUBSURFACE INFORMATION SHOWN HEREON WAS OBTAINED FOR C.T. MALE DESIGN PURPOSES. IT IS MADE AVAILABLE TO AUTHORIZED USERS ONLY THAT THEY MAY HAVE ACCESS TO THE SAME INFORMATION AVAILABLE TO C.T.MALE. IT IS PRESENTED IN GOOD FAITH, BUT IS NOT INTENDED AS A SUBSTITUTE FOR INVESTIGATIONS, INTERPRETATION OR JUDGMENT OF SUCH AUTHORIZED USERS.

SAMPLE CLASSIFICATION BY: JC

C.T. MALE ASSOCIATES, P.C.

SUBSURFACE EXPLORATION LOG

BORING NO.: B-11I
ELEV.: 304.6' **DATUM: MSL**
START DATE: 7/22/98 **FINISH DATE: 7/22/98**
SHEET 1 OF 3

PROJECT: P 4 Project CTM PROJECT NO.: 97.4583

LOCATION: Albany Interim Landfill CTM INSPECTOR: J. Cross

DEPTH (FT.)	SAMPLE TYPE	SAMPLE NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	18/24	N	RECOVERY	SAMPLE CLASSIFICATION	NOTES
		S-1	5	4	3	5	7	1.6	Light brown fine SAND, trace silt. (SM)	Dry
5		S-2	5	5	7	8	12	1.6	Same as S-1. (SM)	Dry
10		S-3	2	4	4	4	8	1.7	Light orange-brown fine SAND, trace silt. (SM)	Moist
15		S-4	2	3	3	2	6	1.7	Top(0.0-1.5') Same as S-3. Bottom(1.5-1.7') Light brown SILT, trace fine sand. (SM)	Wet
20		S-5	2	4	4	5	8	1.6	Top(0.0-0.6') Same as S-3. Bottom(0.6-1.6') Gray fine SAND, trace silt. (SM)	Wet
25		S-6	6	3	3	1	6	2.0	Gray fine SAND, trace silt. (SM)	Wet
30		S-7	0	1	3	8	4	2.0	Gray fine SAND, Some Silt. (SM)	Wet

N = NO. OF BLOWS TO DRIVE 2" SAMPLER 12" WITH A 140 LB. WT. FALLING 30" PER BLOW

DRILLING CONTRACTOR: Maxim Technologies, Inc. DRILL RIG TYPE: Truck Mounted Drill Rig

METHOD OF INVESTIGATION: 4.25' Hollow Stem Augers

GROUNDWATER LEVEL READINGS

DATE	LEVEL	CASING	STABILIZATION TIME

THE SUBSURFACE INFORMATION SHOWN HEREON WAS OBTAINED FOR C.T. MALE DESIGN PURPOSES. IT IS MADE AVAILABLE TO AUTHORIZED USERS ONLY THAT THEY MAY HAVE ACCESS TO THE SAME INFORMATION AVAILABLE TO C.T.MALE. IT IS PRESENTED IN GOOD FAITH, BUT IS NOT INTENDED AS A SUBSTITUTE FOR INVESTIGATIONS, INTERPRETATION OR JUDGMENT OF SUCH AUTHORIZED USERS.

SAMPLE CLASSIFICATION BY: JC

C.T. MALE ASSOCIATES, P.C.

SUBSURFACE EXPLORATION LOG

BORING NO.: B-11I
ELEV.: 304.6' DATUM: MSL
START DATE: 7/22/98 FINISH DATE: 7/22/98
SHEET 2 OF 3

PROJECT: P 4 Project CTM PROJECT NO.: 97.4583
LOCATION: Albany Interim Landfill CTM INSPECTOR: J. Cross

DEPTH (FT.)	SAMPLE TYPE	SAMPLE NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	18/24	N	RECOVERY	SAMPLE CLASSIFICATION	NOTES
		S-7							See previous page for descriptions.	50 gal. water added w/ hose.
35		S-8	4	7	11	12	18	1.3	Light brown fine SAND, trace silt. (SM)	Wet
40		S-9	9	26	26	26	52	1.2	Gray fine SAND, trace silt. (SM)	Wet 50 gal. water added w/ hose.
45		S-10	4	9	7	8	16	1.8	Same as S-9. (SM)	Wet
50		S-11	9	11	12	20	23	1.9	Gray fine SAND, Some Silt. (SM)	Wet
55		S-12	8	9	16	21	25	2.0	Same as S-11. (SM)	Wet/ Nose of spoon contained gray silt, trace fine sand.
60									No Sample taken.	Driller mistakenly washed out below the auger with 100 gallons of water.

N = NO. OF BLOWS TO DRIVE 2" SAMPLER 12" WITH A 140 LB. WT. FALLING 30" PER BLOW
DRILLING CONTRACTOR: Maxim Technologies, Inc. DRILL RIG TYPE: Truck Mounted Drill Rig
METHOD OF INVESTIGATION: 4.25' Hollow Stem Augers

GROUNDWATER LEVEL READINGS

DATE	LEVEL	CASING	STABILIZATION TIME

THE SUBSURFACE INFORMATION SHOWN HEREON WAS OBTAINED FOR C.T. MALE DESIGN PURPOSES. IT IS MADE AVAILABLE TO AUTHORIZED USERS ONLY THAT THEY MAY HAVE ACCESS TO THE SAME INFORMATION AVAILABLE TO C.T.MALE. IT IS PRESENTED IN GOOD FAITH, BUT IS NOT INTENDED AS A SUBSTITUTE FOR INVESTIGATIONS, INTERPRETATION OR JUDGMENT OF SUCH AUTHORIZED USERS.

SAMPLE CLASSIFICATION BY: JC

C.T. MALE ASSOCIATES, P.C.

SUBSURFACE EXPLORATION LOG

BORING NO.: B-11I
ELEV.: 304.6' **DATUM: MSL**
START DATE: 7/22/98 **FINISH DATE: 7/22/98**
SHEET 3 OF 3

PROJECT: P 4 Project — CTM PROJECT NO.: 97.4583

LOCATION: Albany Interim Landfill — CTM INSPECTOR: J. Cross

DEPTH (FT.)	SAMPLE TYPE	SAMPLE NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	18/24	N	RECOVERY	SAMPLE CLASSIFICATION	NOTES
									See previous page for description.	
65		S-13	6	4	8	7	12	1.8	Gray SILT, trace fine sand, trace clay. (ML)	Wet
									T.D.= 66.0'	
70										

N = NO. OF BLOWS TO DRIVE 2" SAMPLER 12" WITH A 140 LB. WT. FALLING 30" PER BLOW
DRILLING CONTRACTOR: Maxim Technologies, Inc. DRILL RIG TYPE: Truck Mounted Drill Rig
METHOD OF INVESTIGATION: 4.25' Hollow Stem Augers

GROUNDWATER LEVEL READINGS

DATE	LEVEL	CASING	STABILIZATION TIME

THE SUBSURFACE INFORMATION SHOWN HEREON WAS OBTAINED FOR C.T. MALE DESIGN PURPOSES. IT IS MADE AVAILABLE TO AUTHORIZED USERS ONLY THAT THEY MAY HAVE ACCESS TO THE SAME INFORMATION AVAILABLE TO C.T.MALE. IT IS PRESENTED IN GOOD FAITH, BUT IS NOT INTENDED AS A SUBSTITUTE FOR INVESTIGATIONS, INTERPRETATION OR JUDGMENT OF SUCH AUTHORIZED USERS.

SAMPLE CLASSIFICATION BY: JC

C.T. MALE ASSOCIATES, P.C.

SUBSURFACE EXPLORATION LOG

BORING NO.: B-11D
ELEV.: 304.9 DATUM: MSL
START DATE: 7/16/98 FINISH DATE: 7/20/98
SHEET 1 OF 4

PROJECT: P 4 Project CTM PROJECT NO.: 97.4583
LOCATION: Albany Interim Landfill CTM INSPECTOR: J. Cross

DEPTH (FT.)	SAMPLE TYPE	SAMPLE NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	18/24	N	RECOVERY	SAMPLE CLASSIFICATION	NOTES
		S-1	1	2	2	3	4	1.2	Light brown fine SAND, trace silt. (SM)	Dry
		S-2	5	6	6	6	12	1.3	Same as S-1. (SM)	Dry
5		S-3	6	4	6	8	10	1.3	Same as S-1. (SM)	Dry
		S-4	7	7	10	9	17	1.7	Same as S-1. (SM)	Dry
10		S-5	4	7	8	9	15	1.5	Light orange-brown fine SAND, trace silt. (SM)	Dry
		S-6	3	6	8	7	14	1.5	Light orange-brown fine SAND, Some Silt. (SM)	Moist
		S-7	6	5	6	8	11	2.0	Same as S-6. (SM)	Wet
15		S-8	2	1	1	1	2	1.8	Top(0.0-1.3') Light brown SILT, trace fine sand. Bottom(1.3-1.8') Gray SILT, trace fine sand, trace clay.	Wet
		S-9	2	1	3	3	4	1.7	Gray SILT, trace fine sand, trace clay. (SM-ML)	Wet
20		S-10	1	4	5	10	9	1.6	Gray fine SAND, trace silt. (SM)	Wet
		S-11	7	5	7	8	12	2.0	Same as S-10. (SM)	Wet
		S-12	5	4	4	3	8	1.8	Same as S-10. (SM)	Wet 200 gal. water added w/ hose.
25		S-13	3	5	4	6	9	1.0	Same as S-10. (SM)	Wet
		S-14	2	5	6	6	11	1.1	Top(0.0-0.7') Same as S-10. Bottom(0.7-1.1') Light brown SILT, trace fine sand, trace clay.	Wet
30		S-15	6	5	6	6	11	1.8	Top(0.0-0.6') Light brown SILT, trace fine sand, trace clay. Bottom(0.6-1.8') Same as S-10.	Wet

N = NO. OF BLOWS TO DRIVE 2" SAMPLER 12" WITH A 140 LB. WT. FALLING 30" PER BLOW
DRILLING CONTRACTOR: Maxim Technologies, Inc. DRILL RIG TYPE: Truck Mounted Drill Rig
METHOD OF INVESTIGATION: 4.25' Hollow Stem Augers

GROUNDWATER LEVEL READINGS

DATE	LEVEL	CASING	STABILIZATION TIME
7/17	11.2'	HSA	
7/20	13.4'	HSA	

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SAMPLE CLASSIFICATION BY: JC

C.T. MALE ASSOCIATES, P.C.

SUBSURFACE EXPLORATION LOG

BORING NO.: B-11D
ELEV.: 304.9' **DATUM: MSL**
START DATE: 7/16/98 **FINISH DATE: 7/20/98**
SHEET 2 OF 4

PROJECT: P 4 Project CTM PROJECT NO.: 97.4583

LOCATION: Albany Interim Landfill CTM INSPECTOR: J. Cross

DEPTH (FT.)	SAMPLE TYPE	SAMPLE NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	18/24	N	RECOVERY	SAMPLE CLASSIFICATION	NOTES
		S-16	5	8	8	11	16	2.0	Gray SILT, trace fine sand. (ML-SM)	Wet
		S-17	3	5	8	10	13	2.0	Light brown fine SAND, trace silt. (SM)	Wet
35		S-18	7	6	5	9	11	2.0	Same as S-17. (SM)	Wet 200 gal. water added w/ hose.
		S-19	3	5	10	18	15	2.0	Same as S-17. (SM)	Wet
		S-20	8	11	11	12	22	1.2	Gray fine SAND, some Silt. (SM)	Wet
40										200 gal. water added w/ hose.
		S-21	3	5	5	5	10	1.3	Brown fine SAND, some Silt. (SM)	Wet
		S-22	11	7	7	10	14	1.5	Same as S-21. (SM)	Wet
45		S-23	13	9	10	16	19	1.7	Same as S-21. (SM)	Wet
		S-24	10	10	12	16	22	2.0	Same as S-21. (SM)	Wet
		S-25	7	9	14	20	23	2.0	Same as S-21. (SM)	Wet
50		S-26	6	7	13	13	20	1.6	Top(0.0-1.1') Same as S-21. Bottom(1.1-1.6') Gray fine SAND, Some Silt.	Wet
		S-27	4	6	10	13	16	1.3	Same as S-20. (SM)	Wet
55		S-28	6	9	14	19	23	1.4	Same as S-20. (SM)	Wet
		S-29	6	18	9	10	27	1.4	Gray SILT, Some fine Sand. (ML-SM)	Wet
60		S-30	2	4	6	6	10	1.5	Gray CLAYEY-SILT, trace fine sand. (ML)	Wet

N = NO. OF BLOWS TO DRIVE 2" SAMPLER 12" WITH A 140 LB. WT. FALLING 30" PER BLOW

DRILLING CONTRACTOR: Maxim Technologies, Inc. DRILL RIG TYPE: Truck Mounted Drill Rig

METHOD OF INVESTIGATION: 4.25' Hollow Stem Augers

GROUNDWATER LEVEL READINGS

DATE	LEVEL	CASING	STABILIZATION TIME

THE SUBSURFACE INFORMATION SHOWN HEREON WAS OBTAINED FOR C.T. MALE DESIGN PURPOSES. IT IS MADE AVAILABLE TO AUTHORIZED USERS ONLY THAT THEY MAY HAVE ACCESS TO THE SAME INFORMATION AVAILABLE TO C.T.MALE. IT IS PRESENTED IN GOOD FAITH, BUT IS NOT INTENDED AS A SUBSTITUTE FOR INVESTIGATIONS, INTERPRETATION OR JUDGMENT OF SUCH AUTHORIZED USERS.

SAMPLE CLASSIFICATION BY: JC

C.T. MALE ASSOCIATES, P.C.

SUBSURFACE EXPLORATION LOG

BORING NO.: B-11D
ELEV.: 304.9' DATUM: MSL
START DATE: 7/7/98 FINISH DATE: 7/10/98
SHEET 3 OF 4

PROJECT: P 4 Project CTM PROJECT NO.: 97.4583
LOCATION: Albany Interim Landfill CTM INSPECTOR: J. Cross

DEPTH (FT.)	SAMPLE TYPE	SAMPLE NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	18/24	N	RECOVERY	SAMPLE CLASSIFICATION	NOTES
		S-32	8	6	7	14		2.0	Gray CLAYEY-SILT, trace fine sand. (ML)	Wet
		S-33	17	20	10	12	30	1.9	Gray SILT, trace fine sand, Some Clay.(ML)	Wet
65		S-34	2	5	8	10	13	1.4	Gray SILT, trace fine sand. (ML)	Wet
		S-35	8	7	15	15		1.6	Same as S-33. (ML)	Wet
70		S-36	2	4	7	7	11	2.0	Top(0.0-1.0') Same as S-33. Bottom(1.0-2.0) Gray CLAY, clayey-silt layering.	Wet
		S-37	8	7	12	15		1.6	Gray CLAY, clayey-silt layering. (ML-CL)	Wet
		S-38	5	7	7	8	14	1.8	Same as S-36. (ML-CL)	Wet
75		S-39	12	11	13	23		1.9	Same as S-36. (ML-CL)	Wet
		S-40	4	6	6	9	12	2.0	Same as S-36. (ML-CL)	Wet
80		S-41	4	5	7	10	12	2.0	Same as S-36. (ML-CL)	Wet
		S-42	1	3	7	8	10	2.0	Top(0.0-1.1') Same as S-36. Bottom(1.1-2.0) Gray SILTY-CLAY, silty to fine sand layers.	Wet
		S-43	1	2	4	6	6	2.0	Top(0.0-1.3') Same as S-36. Bottom(1.3-2.0) Gray SILT, trace fine sand, Some Clay.	Wet
85		S-44	3	11	16	19	27	2.0	Gray SILT, trace to some fine Sand. (ML)	Wet
		S-45	5	13	31	50	44	2.0	Same as S-43. (ML)	Wet
90		S-46	7	21	48	63	67	2.0	Same as S-43. (ML)	Wet

N = NO. OF BLOWS 2" SAMPLER 12" WITH A 140 LB. WT. FALLING 30" PER BLOW
DRILLING CO. Maxim Technologies, Inc. DRILL RIG TYPE: Truck Mounted Drill Rig
METHOD 4.25' Hollow Stem Augers

THE SUBSURFACE INFORMATION SHOWN HEREON WAS OBTAINED FOR C.T. MALE DESIGN PURPOSES. IT IS AVAILABLE TO AUTHORIZED USERS ONLY THAT THEY MAY HAVE ACCESS TO THE INFORMATION AVAILABLE TO C.T.MALE. IT IS PRESENTED IN GOOD FAITH, BUT IS NOT INTENDED AS A SUBSTITUTE FOR INVESTIGATIONS, INTERPRETATION OR JUDGMENT OF SUCH AUTHORITIES.

GROUNDWATER LEVEL READINGS

DATE	LEVEL	CASING	STABILIZATION TIME

SAMPLE CLASSIFICATION BY: JC

Rev. 4/1/97

C.T. MALE ASSOCIATES, P.C.

SUBSURFACE EXPLORATION LOG

BORING NO.: B-11D
ELEV.: 304.9' **DATUM: MSL**
START DATE: 7/7/98 **FINISH DATE: 7/10/98**
SHEET 4 OF 4

PROJECT: P 4 Project CTM PROJECT NO.: 97.4583

LOCATION: Albany Interim Landfill CTM INSPECTOR: J. Cross

DEPTH (FT.)	SAMPLE TYPE	SAMPLE NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	18/24	N	RECOVERY	SAMPLE CLASSIFICATION	NOTES
		S-46	3	9	19	28	38	2.0	Gray SILT, trace to Some fine Sand. (ML)	Wet
		S-47	6	9	23	41	32	2.0	Same as S-46. (ML)	Wet
95		S-48	7	12	20	29	32	2.0	Same as S-46. (ML)	Wet
		S-49	6	7	13	21	20	2.0	Same as S-46. (ML)	Wet
		S-50	7	14	23	39	37	2.0	Same as S-46. (ML)	Wet
100										
		S-51	3	3	13	21	16	1.6	Same as S-46. (ML)	Wet
		S-52	4	7	11	27	18	2.0	Same as S-46. (ML)	Wet
105		S-53	3	7	9	15	16	2.0	Top(0.0-0.9') Same as S-46.	Wet
									Bottom(0.9-2.0') Gray SILTY-CLAY, silty to fine layers.	
		S-54	5	5	5	12	10	2.0	SILTY-CLAY, sity to fine sand layers. (ML-CL)	Wet
110									T.D.= 108.0'	

N = NO. OF BLOWS TO DRIVE 2" SAMPLER 12" WITH A 140 LB. WT. FALLING 30" PER BLOW
DRILLING CONTRACTOR: Maxim Technologies, Inc. DRILL RIG TYPE: Truck Mounted Drill Rig
METHOD OF INVESTIGATION: 4.25' Hollow Stem Augers

GROUNDWATER LEVEL READINGS

DATE	LEVEL	CASING	STABILIZATION TIME

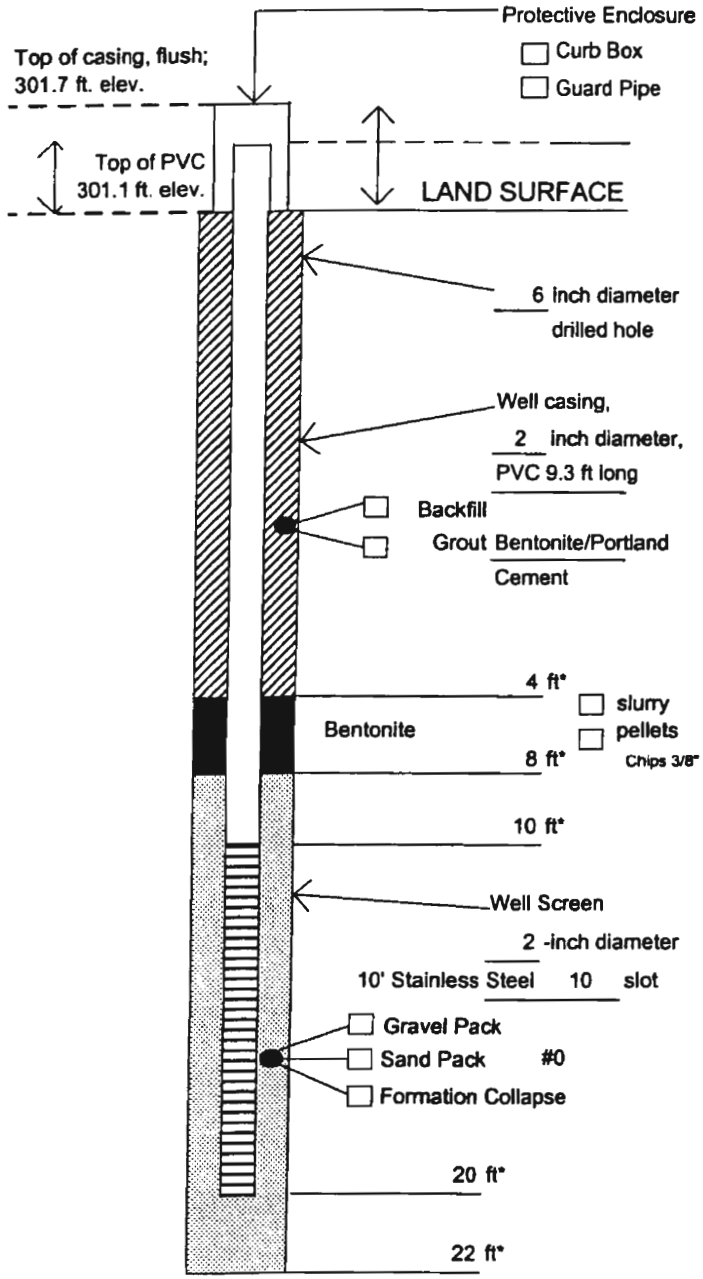
THE SUBSURFACE INFORMATION SHOWN HEREON WAS OBTAINED FOR C.T. MALE DESIGN PURPOSES. IT IS MADE AVAILABLE TO AUTHORIZED USERS ONLY THAT THEY MAY HAVE ACCESS TO THE SAME INFORMATION AVAILABLE TO C.T.MALE. IT IS PRESENTED IN GOOD FAITH, BUT IS NOT INTENDED AS A SUBSTITUTE FOR INVESTIGATIONS, INTERPRETATION OR JUDGMENT OF SUCH AUTHORIZED USERS.

SAMPLE CLASSIFICATION BY: JC

Well No. P4 MW-1S
(P4 B-2)

MONITORING WELL CONSTRUCTION LOG

C.T. MALE ASSOCIATES, P.C.



Overdrilled to compensate for sand flowing up augers.

* Depth below land surface.

Project Number	97.4583
Project Name	City of Albany AIL P4 Test Drilling
Well No.	P4 MW-1S
Boring No.	B-2
Town/City	City of Albany
County	Albany
State	New York
Installation Date(s)	1/8/98
Drilling Contractor	Maxim Technologies Inc.
Drilling Method	4.25" Hollow Stem Auger
Water Depth From Top of Riser	6.9 ft — 1/8/98 (Date)
Drilling Inspector Present	J. Usher

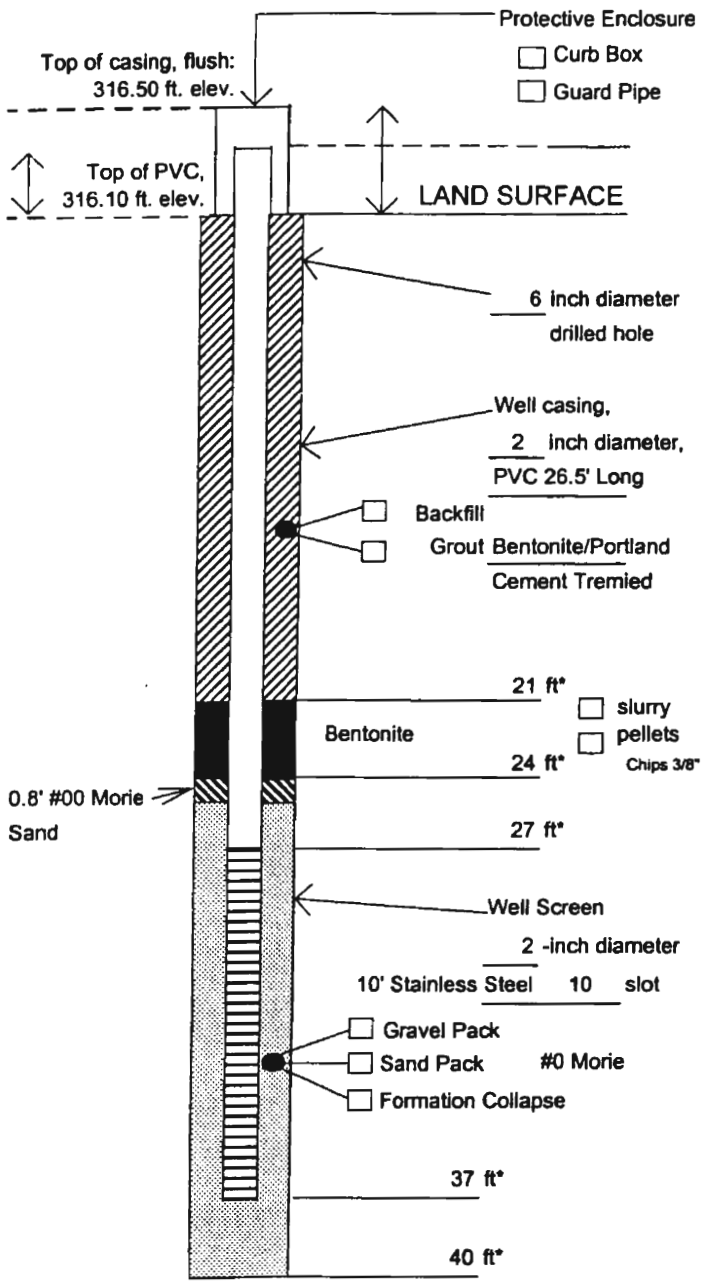
Notes:
Materials used:
(2.5) 100lb. bages of sand. Filtersil #0 WG Industrial Quart
(ANSI/NSF 61)
(1.5) bags of bentonite chips for seal (3/8")
10 gallons portland/bentonite mix for grout.

k:/97.4583/env/P4MW1Slog.xls

Well No. P4 MW-2S
(P4 B-3)

MONITORING WELL CONSTRUCTION LOG

C.T. MALE ASSOCIATES, P.C.



3/8" bentonite chips and formation collapse between 37 and 40 feet below grade.

* Depth below land surface.

Project Number 97.4583

Project Name City of Albany AIL P4 Test Drilling

Well No. P4 MW-2S Boring No. B-3

Town/City City of Albany

County Albany State New York

Installation Date(s) 1/9/98

Drilling Contractor Maxim Technologies Inc.

Drilling Method 4.25" Hollow Stem Auger

Water Depth From Top of Riser _____ ft _____ Date

Drilling Inspector Present J. Usher

Notes:

Materials used:

(3) 100 lb bags of quartz sand

(1) 1/4 50lb bag of bentonite chips (3/8" hole plug)

1/4 bag #00 sand

Grout:

(1/2) 50lb bag "Quik-Gel" Bentonite Powder

(2) 94lb bags Portland Cement

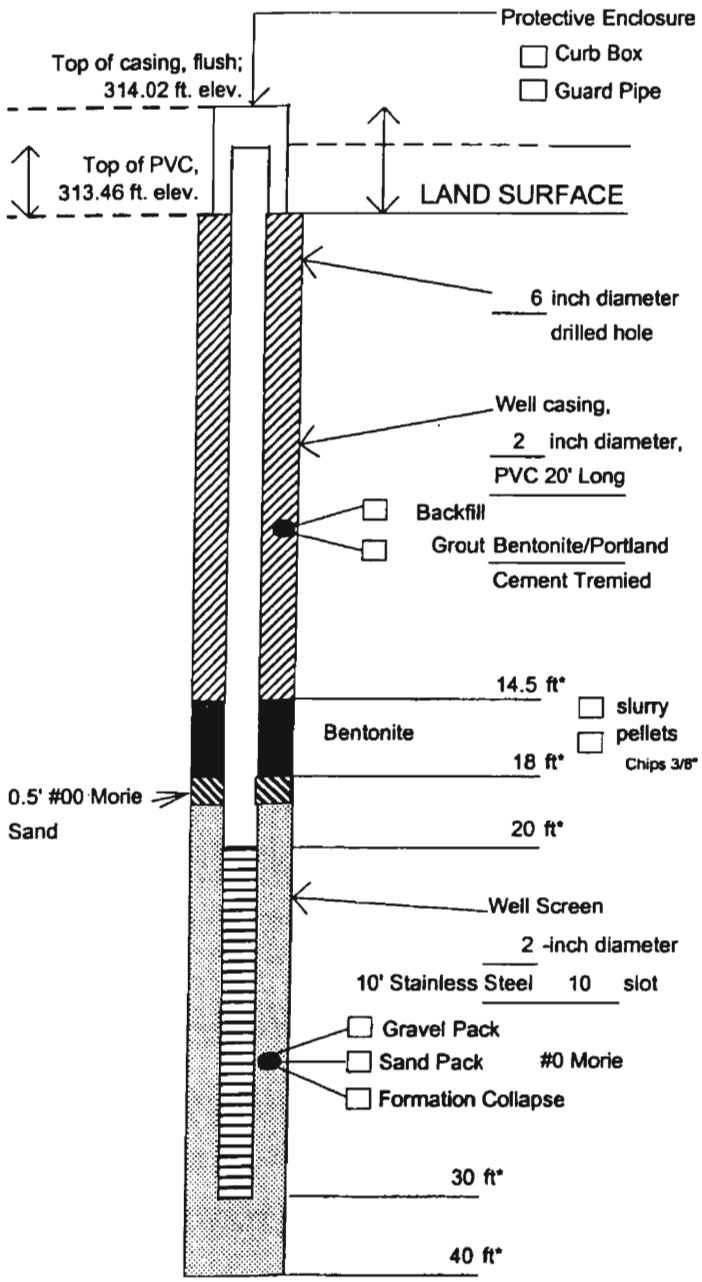
Approximately 50 gallons of water.

k:/97.4583/env/P4MW2Slog.xls

Well No. P4 MW-3S
(P4 B-4)

MONITORING WELL CONSTRUCTION LOG

C.T. MALE ASSOCIATES, P.C.



Formation collapse, top 30 to 30.5' filled with #00 Sand.

* Depth below land surface.

Project Number 97.4583

Project Name City of Albany AIL P4 Test Drilling

Well No. P4 MW-3S Boring No. B-4

Town/City City of Albany

County Albany State New York

Installation Date(s) 1/13/98

Drilling Contractor Maxim Technologies Inc.

Drilling Method 4.25" Hollow Stem Auger

Water Depth From Top of Riser _____ ft _____ Date

Drilling Inspector Present J. Usher

Notes:

Materials used:

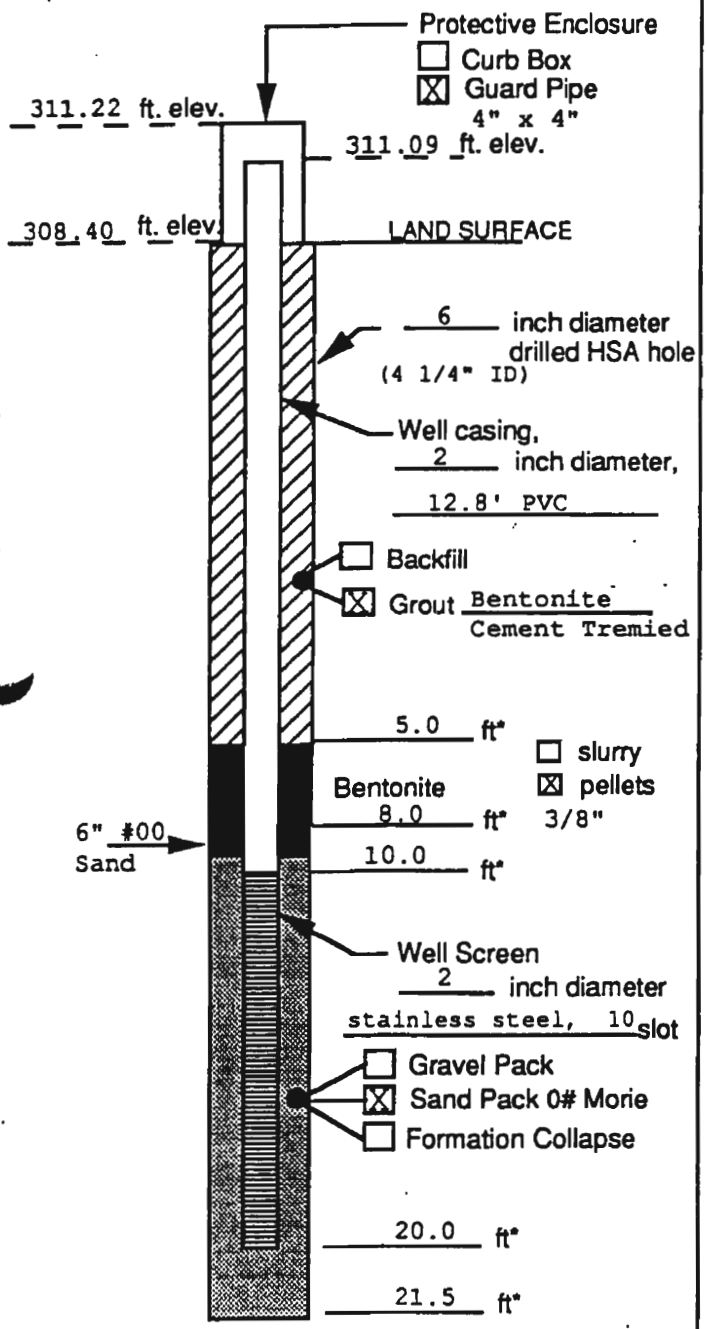
(3) 100 lb bags of #0 quartz sand
(1/4) 50lb bag of #00 morie sand
(2) 94lb bags of Portland Cement
(1 1/4) 50lb bag of Bentonite Chips 3/8"
(1/2) 50lb bag of Bentonite Powder
Approximately 50 gallons of water.

k:/97.4583/env/P4MW3Slog.xls

Well No. MW-8S

MONITOR WELL CONSTRUCTION LOG

C.T. Male Associates, P.C.



*Depth below land surface.

Project Number 95.6748

Project Name City of Albany Landfill Expansion

Well No. MW-8S Boring No. 8S

Town/City Albany

County Albany State New York

Installation Date(s) 12/23/96 & 12/24/96

Drilling Contractor SJB Services, Inc.

Drilling Method HSA

Water Depth From Top of Riser 14.34 ft 12/24/96 Date

Drilling Inspector Present Brian Decatur

Notes:

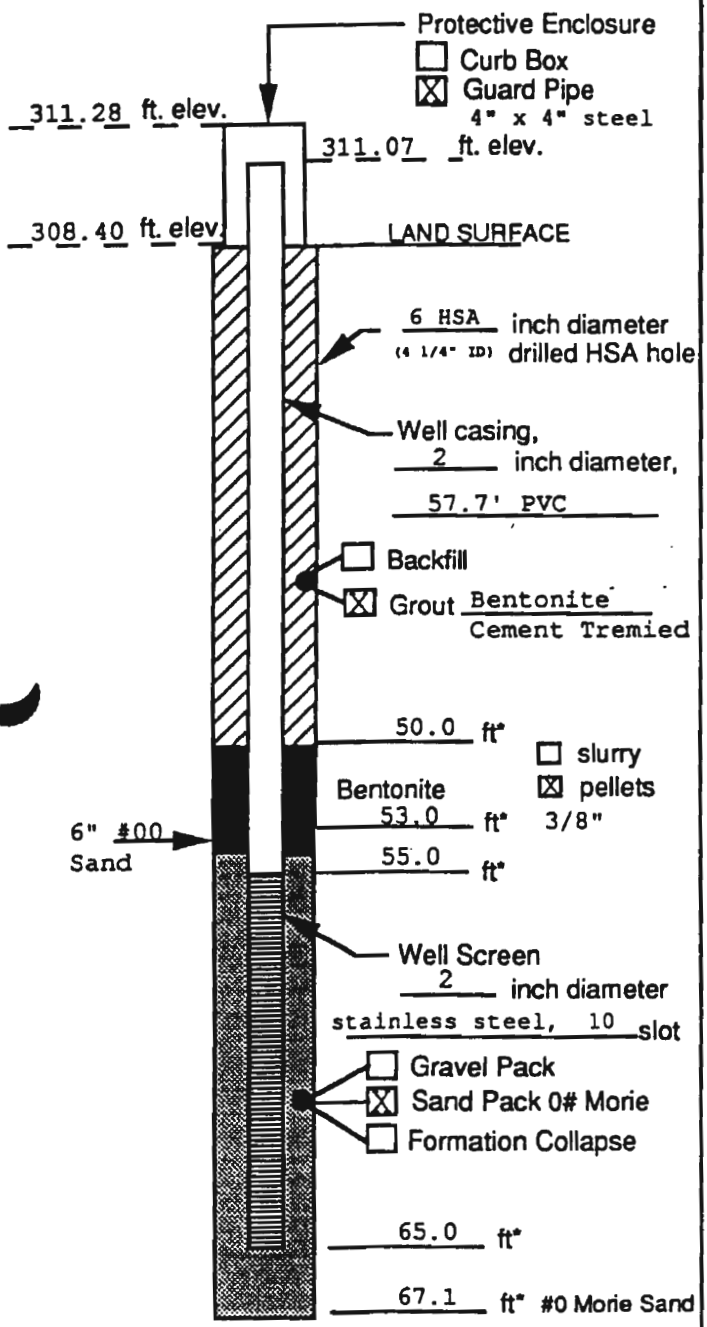
Materials Used:

3 Bags Sand
3/4 Bag Bentonite Pellets
2 Bags Portland Cement
1/2 Bags Bentonite "Benseal"

Well No. MW-8I

MONITOR WELL CONSTRUCTION LOG

C.T. Male Associates, P.C.



*Depth below land surface.

Project Number 95.6748

Project Name City of Albany Landfill Expansion

Well No. MW-8I Boring No. 8I

Town/City Albany

County Albany State New York

Installation Date(s) 12/23/96

Drilling Contractor SJB Services, Inc.

Drilling Method HSA

Water Depth From Top of Riser 14.29 ft 12/23/96 Date

Drilling Inspector Present Brian Decatur

Notes:

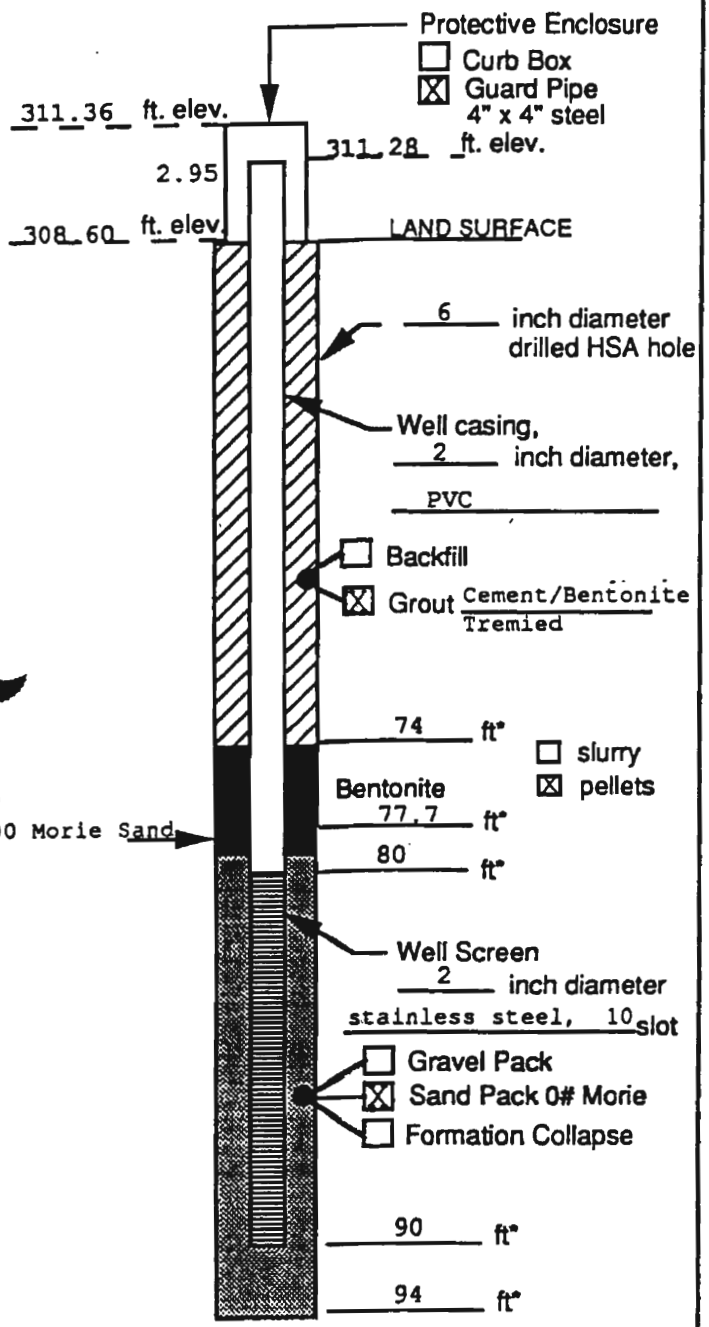
Materials Used:

2 1/2 Bags Sand
1/2 Bag Bentonite Pellets
4 Bags Portland Cement
1 1/2 Bags Bentonite "Benseal"

Well No. MW-8D

MONITOR WELL CONSTRUCTION LOG

C.T. Male Associates, P.C.



*Depth below land surface.

Project Number 95.6748

Project Name City of Albany Landfill Expansion

Well No. MW-8D Boring No. 8D

Town/City Albany

County Albany State New York

Installation Date(s) 12/18/96

Drilling Contractor SJB Services, Inc.

Drilling Method Hollow Stem Auger

Water Depth From Top of Riser 14.8 ft 12/20/96 8:00 AM
2.6' Stickup Date

Drilling Inspector Present C. Thatcher

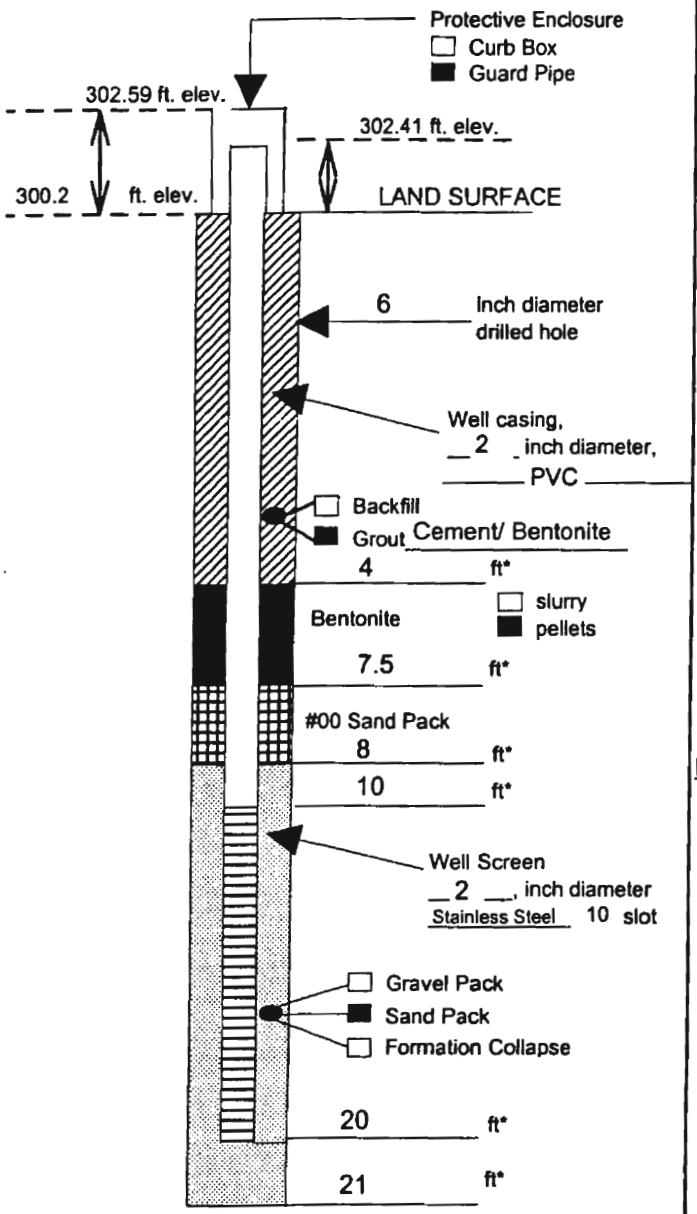
Notes:

Continuous wire wrap stainless steel screen installed from 80 to 90 feet below grade. ~1/2' point placed at bottom. #0 Morie Sand from 77.7 to 90.5 feet. #00 Morie Sand from 77 to 77.7 feet. Bentonite chips 3 bags (94 lbs.) Portland Cement. 2 1/2 bags Sand used for screen. 1/2 bag Bentonite for seal and grout.

Well No. MW-9S

MONITOR WELL CONSTRUCTION LOG

C.T. MALE ASSOCIATES, P.C.



* Depth below land surface.

Project Number	97.4583
Project Name	P 4 Project
Well No.	MW-9S
Boring No.	B-9S
Town/City	City of Albany
County	Albany
State	New York
Installation Date(s)	7/8/98
Drilling Contractor	Maxim Technologies, Inc.
Drilling Method	4.25" Hollow Stem Auger
Water Depth From Top of Riser	11.99 ft 7/20/98 (Date)
Drilling Inspector Present	J. Cross

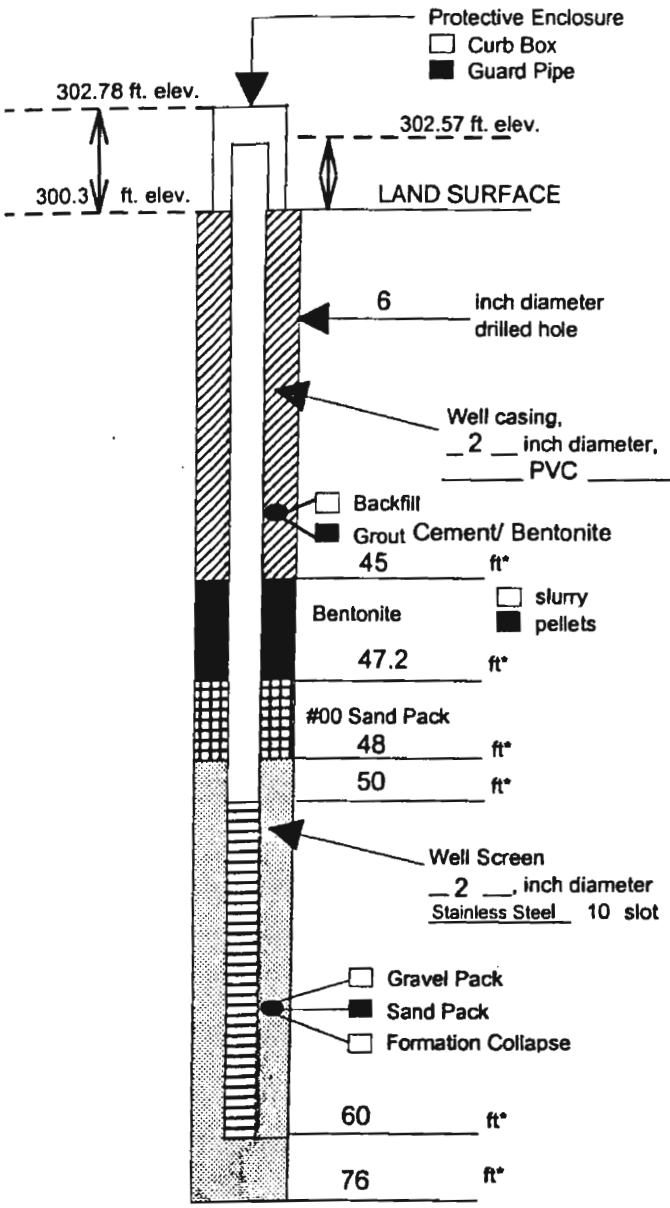
Notes:

Continuous wire wrap stainless steel screen installed from 10 to 20 feet below grade. #0 FilterSil from 8 to 21 feet. #00 Morie sand from 7.5 to 8 feet. Bentonite pellets 1/2 bag (25 lbs.). Two bags of Portland cement and 1/2 bag Bentonte for grout.

Well No. MW-9I

MONITOR WELL CONSTRUCTION LOG

C.T. MALE ASSOCIATES, P.C.



* Depth below land surface.

Project Number	97.4583
Project Name	P 4 Project
Well No.	MW-9I
Boring No.	B-9I
Town/City	City of Albany
County	Albany
State	New York
Installation Date(s)	7/7/98
Drilling Contractor	Maxim Technologies, Inc.
Drilling Method	4.25" Hollow Stem Auger
Water Depth From Top of Riser	12.59 ft 7/20/98 (Date)
Drilling Inspector Present	J. Cross

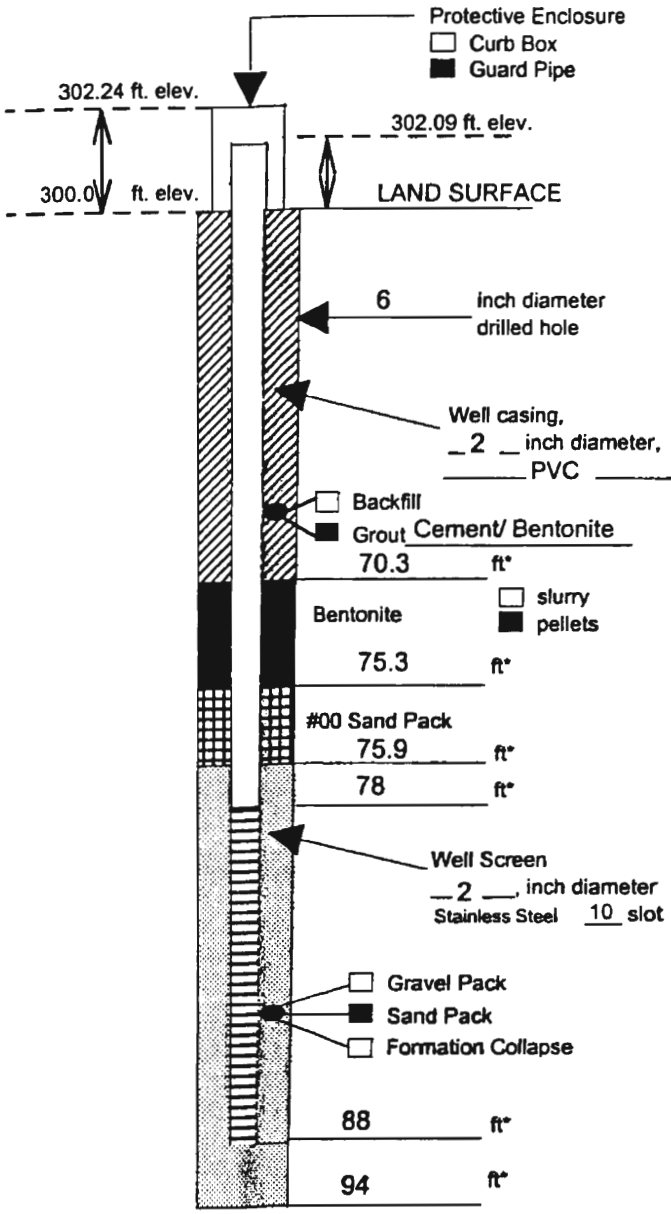
Notes:

Continuous wire wrap stainless steel screen installed from 50 to 60 feet below grade. #0 FilterSil from 48 to 62 feet. #00 Morie sand from 47.2 to 48 feet. Bentonite pellets 1/2 bag (25 lbs.). Three bags of Portland cement and one bag Bentonite for grout.

Well No. MW-9D

MONITOR WELL CONSTRUCTION LOG

C.T. MALE ASSOCIATES, P.C.



* Depth below land surface.

Project Number	97.4583
Project Name	P 4 Project
Well No.	MW-9D
Boring No.	B-9D
Town/City	City of Albany
County	Albany
State	New York
Installation Date(s)	7/2/98
Drilling Contractor	Maxim Technologies, Inc.
Drilling Method	4.25" Hollow Stem Auger
Water Depth From Top of Riser	12.18 ft 7/20/98 (Date)
Drilling Inspector Present	J. Cross

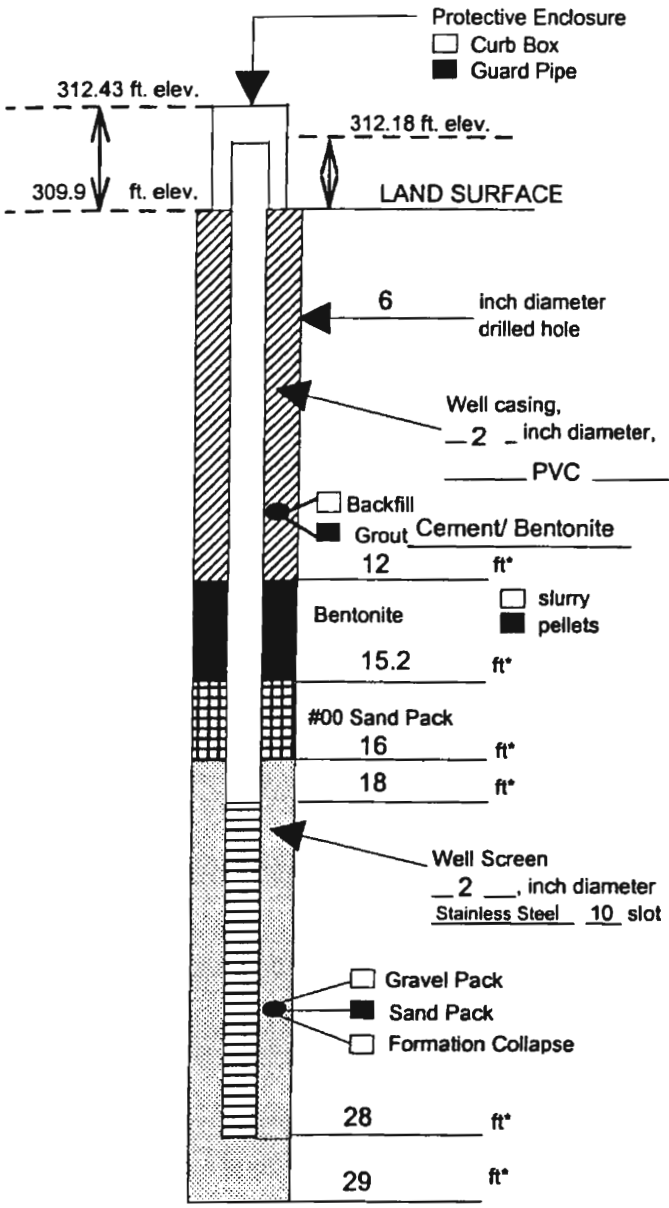
Notes:

Continuous wire wrap stainless steel screen installed from 78 to 88 feet below grade. #0 FilterSil from 75.9 to 88 feet. #00 Morie sand from 75.3 to 75.9 feet. Bentonite pellets 1/2 bag (25 lbs.). Four bags of Portland cement and one bag Bentonite for grout.

Well No. MW-10S

MONITOR WELL CONSTRUCTION LOG

C.T. MALE ASSOCIATES, P.C.



* Depth below land surface.

Project Number	97.4583
Project Name	P 4 Project
Well No.	MW-10S
Boring No.	B-10S
Town/City	City of Albany
County	Albany
State	New York
Installation Date(s)	7/15/98
Drilling Contractor	Maxim Technologies, Inc.
Drilling Method	4.25" Hollow Stem Auger
Water Depth From Top of Riser	22.94 ft 7/20/98 (Date)
Drilling Inspector Present	J. Cross

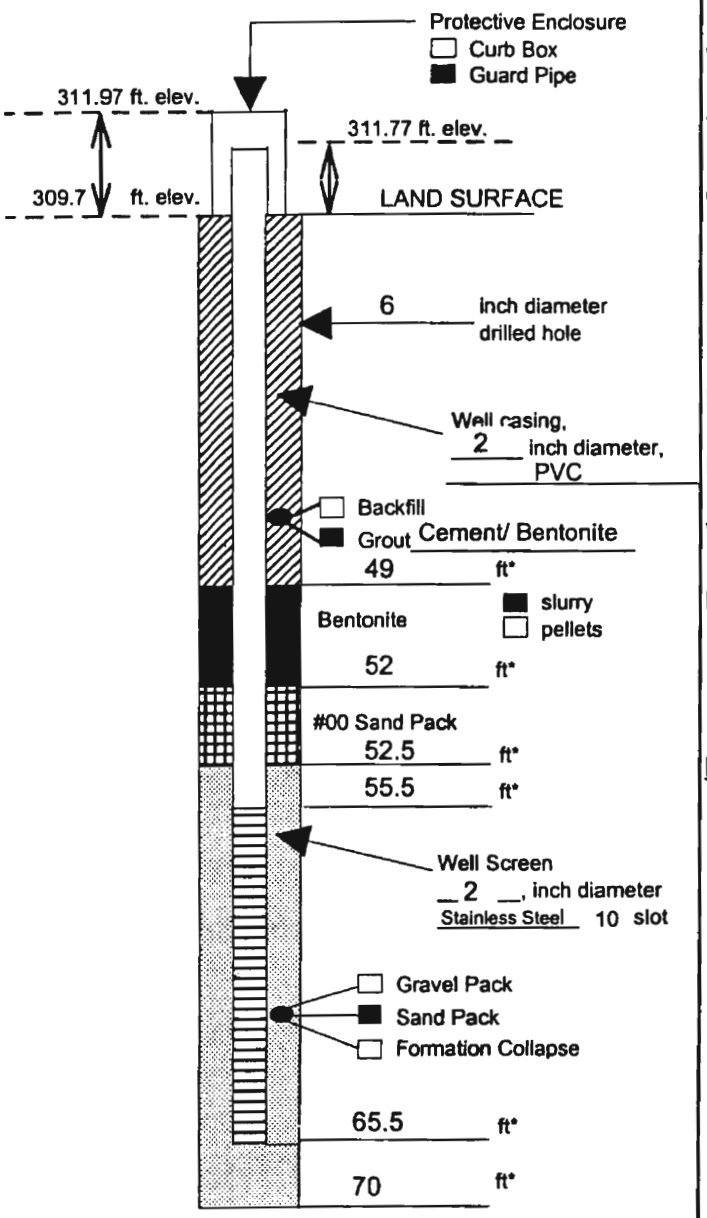
Notes:

Continuous wire wrap stainless steel screen installed from 18 to 28 feet below grade. #0 FilterSil from 16 to 28.5 feet. #00 Morie sand from 15.2 to 16 feet. Bentonite pellets 1/4 bag (15 lbs.). One bag of Portland cement and 1/4 bag Bentonite for grout.

Well No. MW-10I

MONITOR WELL CONSTRUCTION LOG

C.T. MALE ASSOCIATES, P.C.



* Depth below land surface.

Project Number	97.4583
Project Name	P 4 Project
Well No.	MW-10I
Boring No.	B-10I
Town/City	City of Albany
County	Albany
State	New York
Installation Date(s)	7/14/98
Drilling Contractor	Maxim Technologies, Inc.
Drilling Method	4.25" Hollow Stem Auger
Water Depth From Top of Riser	23.34 ft 7/20/98 (Date)
Drilling Inspector Present	J. Cross

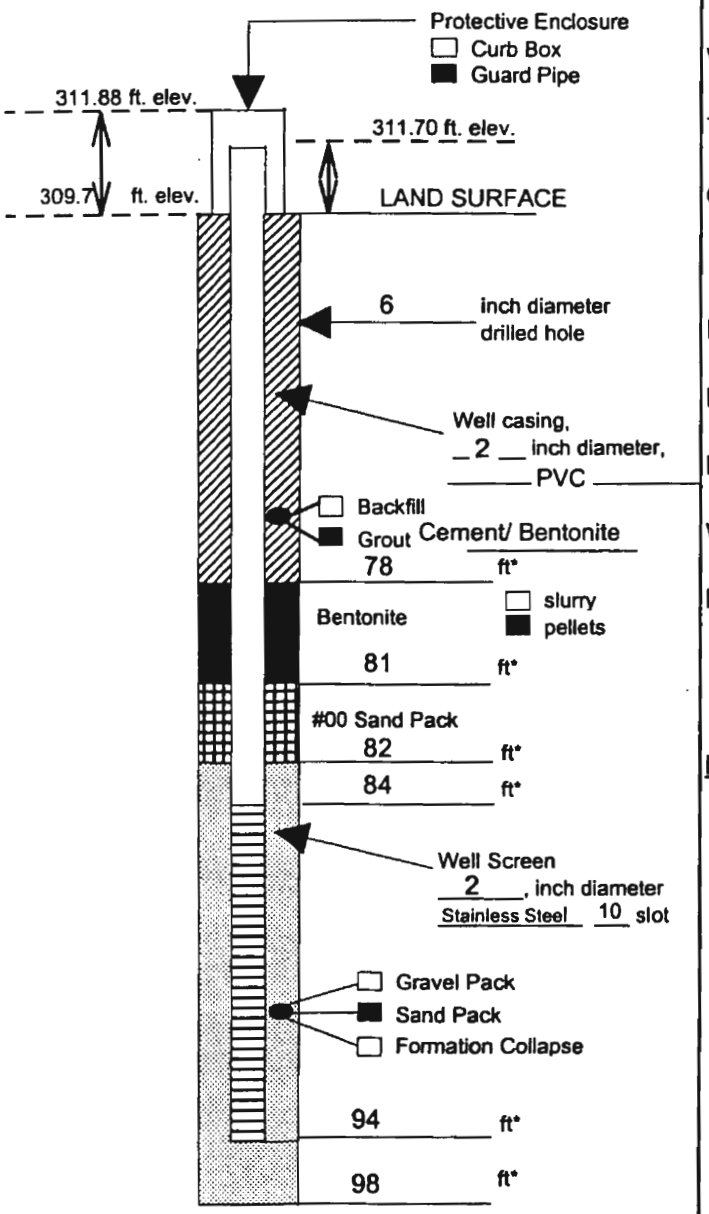
Notes:

Continuous wire wrap stainless steel screen installed from 55.5 to 65.5 feet below grade. #0 FilterSil from 52.5 to 65.5 feet. #00 Moire sand from 52 to 55.5 feet. Five gallons bentonite Hole Plug slurry. Four bags of Portland cement and 1/2 bag Bentonite for grout. Hole Plug was used because the basket in the drill bit did not break up enough to allow bentonite chips to fall through properly.

Well No. MW-10D

MONITOR WELL CONSTRUCTION LOG

C.T. MALE ASSOCIATES, P.C.



* Depth below land surface.

Project Number	97.4583
Project Name	P 4 Project
Well No.	MW-10D
Boring No.	B-10D
Town/City	City of Albany
County	Albany
State	New York
Installation Date(s)	7/13/98
Drilling Contractor	Maxim Technologies, Inc.
Drilling Method	4.25" Hollow Stem Auger
Water Depth From Top of Riser	22.03 ft 7/20/98 (Date)
Drilling Inspector Present	J. Cross

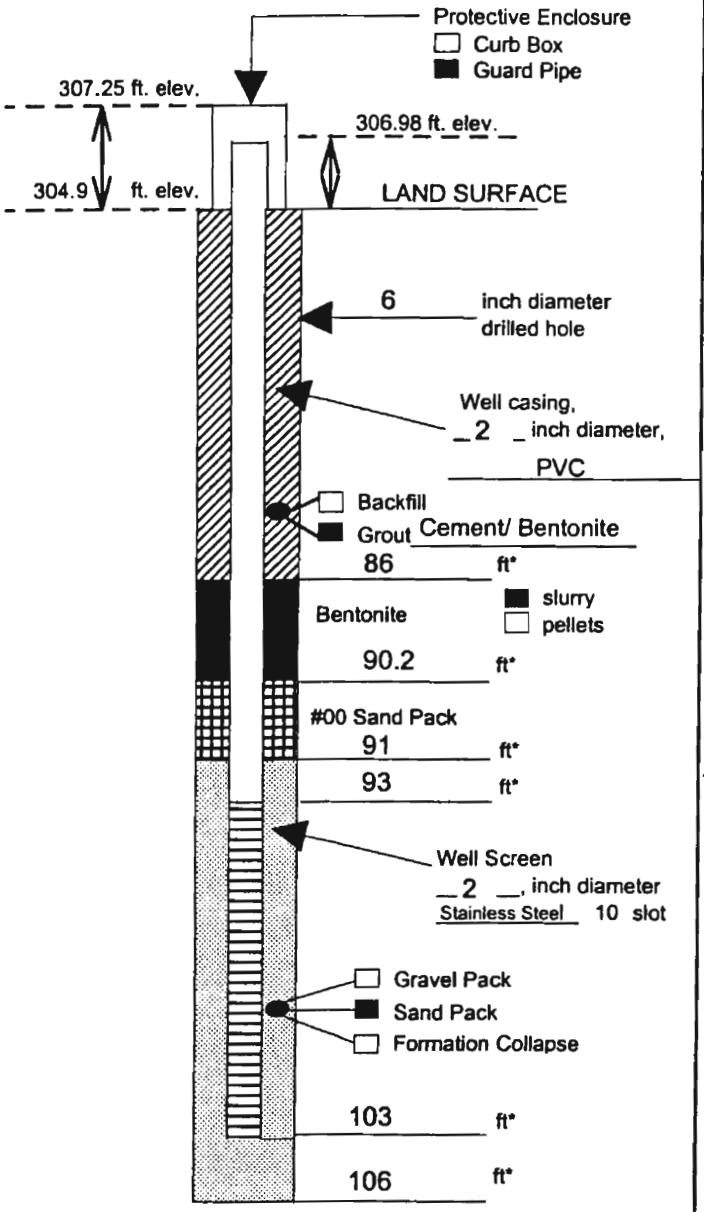
Notes:

Continuous wire wrap stainless steel screen installed from 84 to 94 feet below grade. #0 FilterSil from 82 to 95 feet. #00 Moire sand from 82 to 84 feet. Bentonite pellets 3/4 bag (35 lbs.). Eight bags of Portland cement and two bag Bentonite for grout.

Well No. MW-11D

MONITOR WELL CONSTRUCTION LOG

C.T. MALE ASSOCIATES, P.C.



* Depth below land surface.

Project Number	97.4583
Project Name	P 4 Project
Well No.	MW-11D
Boring No.	B-11D
Town/City	City of Albany
County	Albany
State	New York
Installation Date(s)	7/21/98
Drilling Contractor	Maxim Technologies, Inc.
Drilling Method	4.25" Hollow Stem Auger
Water Depth From Top of Riser	12.06 ft 7/23/98 (Date)
Drilling Inspector Present	J. Cross

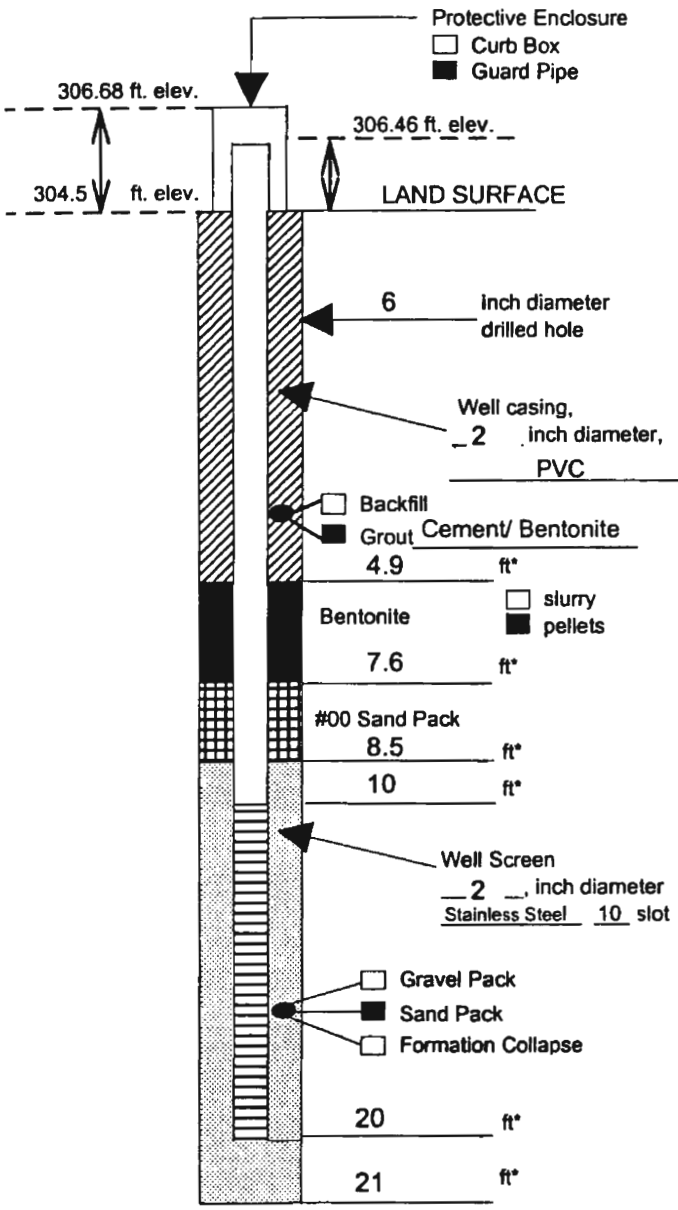
Notes:

Continuous wire wrap stainless steel screen installed from 93 to 103 feet below grade. #0 FilterSil from 91 to 104.5 feet. #00 Morie sand from 90.2 to 91 feet. One half bag Hole Plug bentonite powder used for bentonite seal. Six bags of Portland cement and one bag Bentonite for grout. Slurry was used because the basket in the drill bit did not break up enough to allow bentonite chips to fall through properly.

Well No. MW-11S

MONITOR WELL CONSTRUCTION LOG

C.T. MALE ASSOCIATES, P.C.



* Depth below land surface.

Project Number	97.4583
Project Name	P 4 Project
Well No.	MW-11S
Boring No.	B-11S
Town/City	City of Albany
County	Albany
State	New York
Installation Date(s)	7/23/98
Drilling Contractor	Maxim Technologies, Inc.
Drilling Method	4.25" Hollow Stem Auger
Water Depth From Top of Riser	12.98 ft 7/30/98 (Date)
Drilling Inspector Present	J. Cross

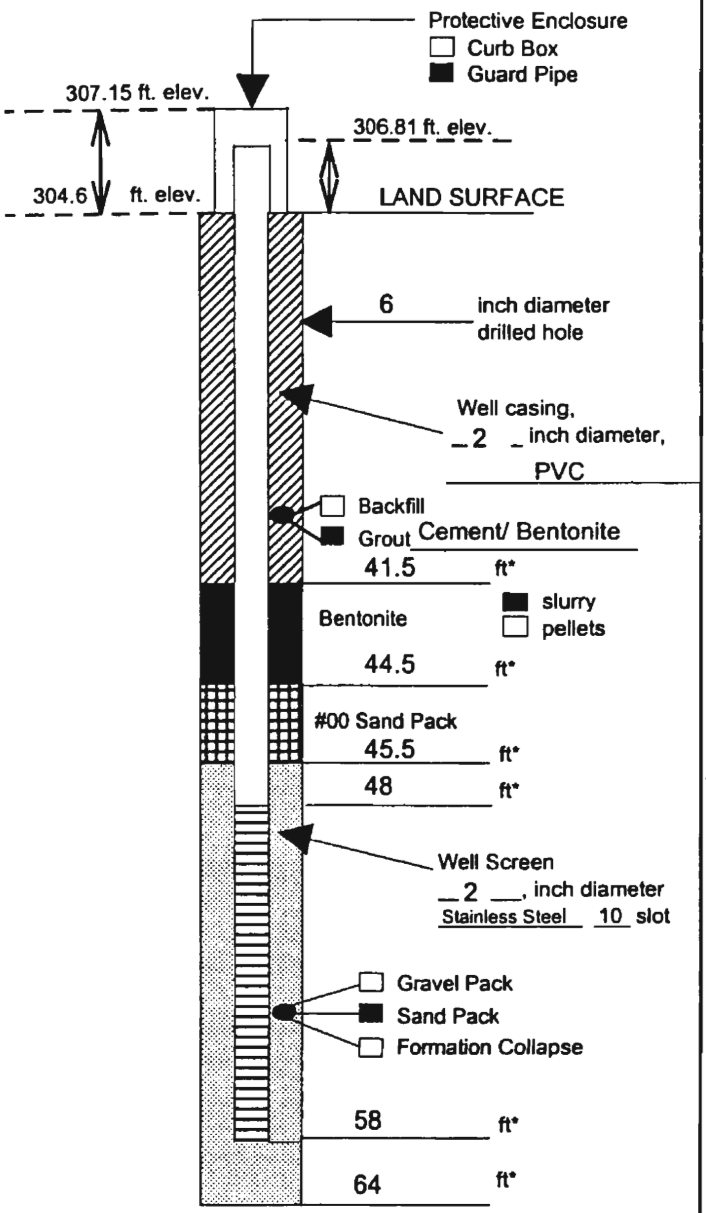
Notes:

Continuous wire wrap stainless steel screen installed from 10 to 20 feet below grade. #0 FilterSil from 8.5 to 21 feet. #00 Morie sand from 7.6 to 8.5 feet. Bentonite pellets 1/4 bag (15 lbs.). One bag of Portland cement and 1/4 bag Bentonite for grout.

Well No. MW-11I

MONITOR WELL CONSTRUCTION LOG

C.T. MALE ASSOCIATES, P.C.



* Depth below land surface.

Project Number	97.4583
Project Name	P 4 Project
Well No.	MW-11I
Boring No.	B-11I
Town/City	City of Albany
County	Albany
State	New York
Installation Date(s)	7/22/98
Drilling Contractor	Maxim Technologies, Inc.
Drilling Method	4.25" Hollow Stem Auger
Water Depth From Top of Riser	13.36 ft 7/23/98 (Date)
Drilling Inspector Present	J. Cross

Notes:

Continuous wire wrap stainless steel screen installed from 48 to 58 feet below grade. #0 FilterSil from 45.5 to 59 feet. #00 Morie sand from 44.5 to 45.5 feet. One quarter bag Hole Plug bentonite powder used for bentonite seal. Three bags of Portland cement and one half bag Bentonite for grout. Slurry was used because the basket in the drill bit did not break up enough to allow bentonite chips to fall through properly.

APPENDIX B

Soil Boring and Monitoring Well Construction Logs

CLOUGH HARBOUR & ASSOCIATES LLP

PROJECT NUMBER: 12206-4008-1102 7/9/2007

Rapp Road Eastern Expansion
SUBSURFACE LOG
HOLE NUMBER EE-B-1

LOCATION: Albany, New York

CLIENT: City of Albany DGS

CONTRACTOR: New England Boring Contractors

DRILLER: T. Carpenter INSPECTOR: K. Defayette

START DATE and TIME: 12/11/2006 1:00:00 PM

FINISH DATE and TIME: 12/13/2006 2:00:00 PM

SURFACE ELEV: 296.00 (ft; Estimated) CHECKED BY: W. Harris

DRILL FLUID: Water @ 8' DRILLING METHOD: 4" FJC

WATER LEVEL OBSERVATIONS DURING DRILLING	DATE	TIME	READING TYPE	WATER DEPTH (ft)	CASING BOTTOM (ft)	HOLE BOTTOM (ft)
	12-11-06	1:00 PM	During Drilling	0.8	None	2

SAMP./CORE NUMBER	SAMP. ADV. (ft) LEN. CORE (ft)	RECOVERY (ft)	Blows Per 6" on Split Spoon Sampler	"N" Value or RQD%	DEPTH (Feet)	DESCRIPTION AND CLASSIFICATION	ELEVATION (Feet)	Remarks on Character of Drilling, Water Return, etc.	WATER LEVELS AND/OR WELL DATA
						TOPSOIL		Advances boring with 2.25" SSA to 8' then advances 4" FJC to boring termination.	▽
S-1	2	1	1-WH-2-4			**f. SAND**, Some Silt, trace roots, brownish gray, v. loose, saturated **(SM)**			
					2	**f.m. SAND**, trace silt, brown, loose, saturated **(SP)**	294		
S-2	2	2	4-4-2-2	6					
					4	**f.m. SAND**, little silt, trace roots, grayish black, v. loose, saturated **(SM)**	292		
S-3	2	1.4	1-1-1-3	2					
					6	**f.m. SAND**, trace silt, brownish black, loose, saturated **(SP)**	290		
S-4	2	2	2-2-3-3	5					
					8	becomes dark gray, v. loose **(SP)**	288		
S-5	2	2	2-2-2-3	4					
					10	**f.m. SAND**, trace silt, dark gray, loose, saturated **(SP)**	286		
S-6	2	1.3	4-2-3-4	5					
					12	**Similar Soil (SP)**	284		
S-7	2	1.7	2-4-4-7	8					
					14	No Recovery	282	Tried to recover split spoon sample S-8 twice.	
S-8	2	0	2-2-3-2	5					
					16	**f.m. SAND**, trace silt, gray, v. loose, saturated **(SP)**	280		
S-9	2	1.8	2-2-2-2	4					
					18	becomes m. compact **(SP)**	278		
S-10	2	1.7	4-8-8-9	16					

CLOUGH HARBOUR & ASSOCIATES LLP

PROJECT NUMBER: 12206-4008-1102 7/9/2007

Rapp Road Eastern Expansion
SUBSURFACE LOG
HOLE NUMBER EE-B-1

SAMP./CORE NUMBER	SAMP. ADV. (ft) LEN. CORE (ft)	RECOVERY (ft)	Blows Per 6" on Split Spoon Sampler	"N" Value or RQD%	SAMPLE	DEPTH (Feet)	GRAPHICS	DESCRIPTION AND CLASSIFICATION	ELEVATION (Feet)	Remarks on Character of Drilling, Water Return, etc.	WATER LEVELS AND/OR WELL DATA
								f.m. SAND, trace silt, gray, m. compact, saturated **(SP)**			
S-11	2	1.3	4-6-7-8	13							
						22		**Similar Soil (SP)**	274		
S-12	2	2	5-5-7-8	12							
						24		becomes loose **(SP)**	272		
S-13	2	2	4-4-5-6	9							
						26		becomes m. compact **(SP)**	270		
S-14	2	1.1	2-4-7-7	11							
						28		**Similar Soil (SP)**	268		
S-15	2	1.8	3-7-14-21	21							
						30		**Similar Soil (SP)**	266		
S-16	2	2	6-9-10-12	19							
						32		**Similar Soil (SP)**	264		
S-17	2	2	5-9-11-17	20							
						34		**Similar Soil (SP)**	262		
S-18	2	1.5	7-7-9-12	16							
						36		becomes loose **(SP)**	260		
S-19	2	2	2-5-5-7	10							
						38		becomes m. compact **(SP)**	258		
S-20	2	2	2-5-9-13	14							
						40		**Similar Soil (SP)**	256		
S-21	2	2	5-6-8-10	14							
						42		**Similar Soil (SP)**	254		
S-22	2	2	4-6-9-10	15							
						44			252		

CLOUGH HARBOUR & ASSOCIATES LLP

PROJECT NUMBER: 12206-4008-1102 7/9/2007

Rapp Road Eastern Expansion
SUBSURFACE LOG
HOLE NUMBER EE-B-1

SAMP./CORE NUMBER	SAMP. ADV. (ft) LEN. CORE (ft)	RECOVERY (ft)	Blows Per 6" on Split Spoon Sampler	"N" Value or RQD%	SAMPLE	DEPTH (Feet)	GRAPHICS	DESCRIPTION AND CLASSIFICATION	ELEVATION (Feet)	Remarks on Character of Drilling, Water Return, etc.	WATER LEVELS AND/OR WELL DATA
								becomes loose **(SP)** *(continued)*			
S-23	2	2	4-4-6-8	10							
						46		**f. SAND**, little silt, gray, loose, saturated **(SM)**	250		
								f. SAND, trace silt, gray, loose, saturated **(SP)**			
S-24	2	1.6	2-3-3-5	6							
						48		becomes m. compact **(SP)**	248		
S-25	2	2	3-5-7-8	12							
						50		**f. SAND**, little silt, gray, loose, saturated **(SM)**	246		
S-26	2	2	3-4-5-8	9							
						52		**f.m. SAND**, trace silt, gray, loose, saturated **(SP)**	244		
S-27	2	2	4-4-6-8	10							
						54		becomes m. compact **(SP)**	242		
S-28	2	2	6-5-7-7	12							
						56		**Clayey SILT**, Some f. Sand, gray, stiff, saturated **(ML)**	240	f. Sand seams through out clayey silt layer.	
S-29	2	2	3-5-8-12	13							
						58		becomes hard **(ML)**	238		
S-30	2	2	12-16-17-21	33				**f.m. SAND**, Some Silt, gray, m. compact, saturated **(SM)**			
						60		**f. SAND**, little silt, gray, m. compact, saturated **(SM)**	236		
S-31	2	2	1-5-7-9	12							
						62		**Similar Soil (SM)**	234		
S-32	2	2	6-8-13-17	21				**f.m. SAND**, trace silt, gray, m. compact, saturated **(SP)**			
						64		**Similar Soil (SP)**	232		
S-33	2	2	11-11-11-11	22				**f. SAND**, Some Silt, gray, m. compact, saturated **(SM)**			
						66		**Similar Soil (SM)**	230		
S-34	2	2	10-9-11-12	20							
						68			228		

CLOUGH HARBOUR & ASSOCIATES LLP

PROJECT NUMBER: 12206-4008-1102 7/9/2007

Rapp Road Eastern Expansion
SUBSURFACE LOG
HOLE NUMBER EE-B-1

SAMP./CORE NUMBER	SAMP. ADV. (ft) LEN. CORE (ft)	RECOVERY (ft)	Blows Per 6" on Split Spoon Sampler	"N" Value or RQD%	SAMPLE	DEPTH (Feet)	GRAPHICS	DESCRIPTION AND CLASSIFICATION	ELEVATION (Feet)	Remarks on Character of Drilling, Water Return, etc.	WATER LEVELS AND/OR WELL DATA
S-35	2	2	7-8-10-14	18				**f. SAND**, Some Silt, gray, m. compact, saturated **(SM)** *(continued)*			
						70		becomes compact **(SM)**	226		
S-36	2	1.6	13-18-15-18	33							
						72		becomes m. compact **(SM)**	224		
S-37	2	2	10-10-10-11	20							
						74		**Clayey SILT**, Some f. Sand, gray, m. compact, saturated **(ML)**	222	f. Sand seams through out clayey silt layer.	
S-38	2	1.2	6-6-6-6	12				**f. SAND**, Some Silt, gray, m. compact, saturated **(SM)**			
						76		becomes v. loose **(SM)**	220		
S-39	2	2	3-2-1-2	3				**Silty CLAY**, Some f.Sand, gray, soft, saturated **(CL)**			
						78		becomes m. stiff **(CL)**	218	f. Sand seams through out silty clay layer.	
S-40	2	2	3-3-5-7	8							
						80		**Similar Soil (CL)**	216		
S-41	2	2	3-4-6-7	10							
						82		**Similar Soil (CL)**	214		
S-42	2	2	3-4-5-6	9							
						84		becomes m. stiff **(CL)**	212		
S-43	2	2	WH-WH-5-5								
						86		becomes stiff **(CL)**	210		
S-44	2	2	5-5-5-5	10							
						88		**Similar Soil (CL)**	208		
S-45	2	2	5-6-6-6	12							
						90		becomes m. stiff **(CL)**	206		
S-46	2	2	1-1-4-9	5							
						92		**Silty CLAY**, Some f. Sand, gray, m. stiff, saturated **(CL)**	204		

CLOUGH HARBOUR & ASSOCIATES LLP

PROJECT NUMBER: 12206-4008-1102 7/9/2007

Rapp Road Eastern Expansion
SUBSURFACE LOG
HOLE NUMBER EE-B-1

SAMP./CORE NUMBER	SAMP. ADV. (ft) LEN. CORE (ft)	RECOVERY (ft)	Blows Per 6" on Split Spoon Sampler	"N" Value or RQD%	SAMPLE	DEPTH (Feet)	GRAPHICS	DESCRIPTION AND CLASSIFICATION	ELEVATION (Feet)	Remarks on Character of Drilling, Water Return, etc.	WATER LEVELS AND/OR WELL DATA
S-47	2	2	4-4-4-4	8				**Silty CLAY**, Some f. Sand, gray, m. stiff, saturated **(CL)** *(continued)*			
						94		becomes stiff **(CL)**	202		
S-48	2	2	1-1-10-12	11				**f.m. SAND**, trace silt, gray, m. compact, saturated **(SP)**			
						96		**Similar Soil (SP)**	200		
S-49	2	2	14-12-13-14	25				**Silty CLAY**, Some f. Sand, gray, m. compact, saturated **(CL)**			
						98		becomes stiff **(CL)**	198		
S-50	2	2	6-6-6-7	12							
						100		becomes v. stiff **(CL)**	196		
S-51	2	2	6-12-13-33	25							
						102		**Clayey SILT**, Some f.m.c Sand, little f.c gravel, gray, m. compact, wet **(ML-TILL)**	194		
S-52	2	1.3	30-62-40-45	R				becomes v. compact **(ML-TILL)**			
						104		End of Boring at 104 ft	192		
						106			190		
						108			188		
						110			186		
						112			184		
						114			182		
						116			180		

CLOUGH HARBOUR & ASSOCIATES LLP

PROJECT NUMBER: 12206-4008-1102 7/9/2007

Rapp Road Eastern Expansion
SUBSURFACE LOG
HOLE NUMBER EE-B-2

LOCATION: Albany, New York

CLIENT: City of Albany DGS

CONTRACTOR: New England Boring Contractors

DRILLER: T. Carpenter INSPECTOR: K. Defayette

START DATE and TIME: 12/13/2006 2:40:00 PM

FINISH DATE and TIME: 12/15/2006 4:30:00 PM

SURFACE ELEV: 293.00 (ft; Estimated) CHECKED BY: W. Harris

DRILL FLUID: Water @ 10' DRILLING METHOD: 4" FJC

WATER LEVEL OBSERVATIONS DURING DRILLING	DATE	TIME	READING TYPE	WATER DEPTH (ft)	CASING BOTTOM (ft)	HOLE BOTTOM (ft)
	12-13-06	2:50 PM	During Drilling	1	None	2

SAMP./CORE NUMBER	SAMP. ADV. (ft) LEN. CORE (ft)	RECOVERY (ft)	Blows Per 6" on Split Spoon Sampler	"N" Value or RQD%	DEPTH (Feet)	DESCRIPTION AND CLASSIFICATION	ELEVATION (Feet)	Remarks on Character of Drilling, Water Return, etc.	WATER LEVELS AND/OR WELL DATA
						TOPSOIL		Advances boring with 2.25" SSA to 10' then advances 4" FJC to boring termination.	
S-1	2	1.1	1-1-2-2	3		**f.m. SAND**, Some Silt, some roots, trace wood, brown/gray, v. loose, saturated **(SM)**	292		
					2	**f.m. SAND**, Some Silt, trace roots, brownish gray, loose, saturated **(SM)**			
S-2	2	2	2-3-2-5	5			290		
					4	**f.m. SAND**, trace silt, trace roots, gray, loose, saturated **(SP)**			
S-3	2	1.8	2-3-3-3	6			288		
					6	**f.m. SAND**, trace silt, gray, loose, saturated **(SP)**			
S-4	2	2	2-3-4-5	7			286		
					8	becomes m. compact **(SP)**			
S-5	2	2	8-8-11-10	19			284		
					10	becomes loose **(SP)**			
S-6	2	1.3	3-4-4-5	8			282		
					12	becomes m. compact **(SP)**			
S-7	2	2	5-7-7-8	14			280		
					14	becomes loose **(SP)**			
S-8	2	1.2	3-4-5-5	9			278		
					16	**Similar Soil (SP)**			
S-9	2	1.3	2-3-6-9	9			276		
					18	becomes m. compact **(SP)**			
S-10	2	2	5-7-9-10	16			274		

CLOUGH HARBOUR & ASSOCIATES LLP

PROJECT NUMBER: 12206-4008-1102 7/9/2007

Rapp Road Eastern Expansion
SUBSURFACE LOG
HOLE NUMBER EE-B-2

SAMP./CORE NUMBER	SAMP. ADV. (ft) LEN. CORE (ft)	RECOVERY (ft)	Blows Per 6" on Split Spoon Sampler	"N" Value or RQD%	SAMPLE	DEPTH (Feet)	GRAPHICS	DESCRIPTION AND CLASSIFICATION	ELEVATION (Feet)	Remarks on Character of Drilling, Water Return, etc.	WATER LEVELS AND/OR WELL DATA
								f.m. SAND, trace silt, gray, loose, saturated **(SP)**			
S-11	2	2	4-5-4-6	9					272		
						22		**Similar Soil (SP)**			
S-12	2	2	4-3-4-4	7					270		
						24		becomes trace clay **(SP)**			
S-13	2	1.5	4-5-4-6	9					268		
						26		**f. SAND and SILT**, gray, m. compact, saturated **(SM)**			
S-14	2	2	4-6-6-6	12					266		
						28		**f. SAND**, Some silt, gray, m. compact, saturated **(SM)**			
S-15	2	2	4-6-8-20	14					264		
						30		becomes compact **(SM)**			
S-16	2	2	10-15-17-18	32					262		
						32		becomes m. compact **(SM)**			
S-17	2	2	5-7-7-10	14					260		
						34		**f.m. SAND**, trace silt, gray, loose, saturated **(SP)**			
S-18	2	1.5	3-3-3-4	6					258		
						36		**Similar Soil (SP)**			
S-19	2	1.5	2-3-3-5	6					256		
						38		**Similar Soil (SP)**			
S-20	2	2	3-4-5-6	9					254		
						40		**Similar Soil (SP)**			
S-21	2	1.6	3-4-3-4	7					252		
						42		becomes m. compact **(SP)**			
S-22	2	2	4-7-9-9	16					250		
						44					

CLOUGH HARBOUR & ASSOCIATES LLP

PROJECT NUMBER: 12206-4008-1102 7/9/2007

Rapp Road Eastern Expansion
SUBSURFACE LOG
HOLE NUMBER EE-B-2

SAMP./CORE NUMBER	SAMP. ADV. (ft) LEN. CORE (ft)	RECOVERY (ft)	Blows Per 6" on Split Spoon Sampler	"N" Value or RQD%	SAMPLE	DEPTH (Feet)	GRAPHICS	DESCRIPTION AND CLASSIFICATION	ELEVATION (Feet)	Remarks on Character of Drilling, Water Return, etc.	WATER LEVELS AND/OR WELL DATA
S-23	2	1.7	5-6-5-6	11				**f. SAND**, little silt, gray, m. compact, saturated **(SM)** *(continued)*	248		
						46		**f. SAND**, Some Silt, gray, m. compact, saturated **(SM)**			
S-24	2	2	4-7-7-7	14					246		
						48		becomes loose **(SM)**			
S-25	2	2	2-5-5-6	10					244		
						50		**Similar Soil (SM)**			
S-26	2	2	3-4-6-8	10					242		
						52		**f. SAND**, trace silt, gray, loose, saturated **(SP)** **Similar Soil (SP)**			
S-27	2	2	5-5-5-8	10					240		
						54		**f. SAND**, Some SIlt, gray, loose, wet **(SM)** becomes v. loose **(SM)**			
S-28	2	1.3	6-1-2-2	3				**Silty CLAY**, Some f. Sand, gray, soft, wet **(CL)**	238		
						56		becomes m. stiff **(CL)**			
S-29	2	2	2-2-3-3	5					236		
						58		becomes stiff **(CL)**			
S-30	2	2	3-3-6-7	9					234		
						60		becomes m. stiff **(CL)**			
S-31	2	2	2-2-3-5	5					232		
						62		becomes stiff **(CL)**			
S-32	2	2	3-5-5-7	10					230		
						64		**Similar Soil (CL)**			
S-33	2	2	3-4-6-6	10					228		
						66		**Similar Soil (CL)**			
S-34	2	2	WH-WH-3-3						226		
						68		becomes m. stiff **(CL)**			

CLOUGH HARBOUR & ASSOCIATES LLP

PROJECT NUMBER: 12206-4008-1102 7/9/2007

Rapp Road Eastern Expansion
SUBSURFACE LOG
HOLE NUMBER EE-B-2

SAMP./CORE NUMBER	SAMP. ADV. (ft) LEN. CORE (ft)	RECOVERY (ft)	Blows Per 6" on Split Spoon Sampler	"N" Value or RQD%	SAMPLE	DEPTH (Feet)	GRAPHICS	DESCRIPTION AND CLASSIFICATION	ELEVATION (Feet)	Remarks on Character of Drilling, Water Return, etc.	WATER LEVELS AND/OR WELL DATA
S-35	2	2	WH-2-3-3	5				becomes m. stiff **(CL)** *(continued)*	224		
						70		becomes stiff **(CL)**			
S-36	2	2	5-6-5-9	11					222		
						72		becomes v. stiff **(CL)**			
S-37	2	2	6-8-8-6	16					220		
						74		becomes m. stiff **(CL)**			
S-38	2	2	4-4-4-5	8					218		
						76		becomes v. soft **(CL)**			
S-39	2	0.4	WH-WH-1-WH						216		
						78		**Clayey SILT**, Some f. Sand, stiff, gray, wet **(ML)**			
S-40	2	2	8-6-5-5	11					214		
						80		**f. SAND**, Some Silt, gray, compact, wet **(SM)**			
S-41	2	1.5	8-15-17-20	32					212		
						82		**Similar Soil (SM)**			
S-42	2	1.5	11-18-21-27	39					210		
						84		**f. SAND**, trace silt, gray, v. compact, wet **(SP)**			
S-43	2	1	24-31-46-50	77					208		
						86		**f. SAND**, little clayey silt, gray, v. compact, wet **(SM)**			
S-44	2	1	10-23-37-41	60					206		
						88		**f. SAND**, Some Silt, gray, v. compact, wet **(SM)**			
S-45	2	2	27-41-49-62	90					204		
						90		**f. SAND and SILT**, gray, v. compact, wet **(SM)**			
S-46	2	2	26-40-41-50	81					202		
						92		**SILT**, Some f. sand, gray, v. compact, wet **(ML)**			
			18-47-81/0.5								

CLOUGH HARBOUR & ASSOCIATES LLP

PROJECT NUMBER: 12206-4008-1102 7/9/2007

Rapp Road Eastern Expansion
SUBSURFACE LOG
HOLE NUMBER EE-B-2

SAMP./CORE NUMBER	SAMP. ADV. (ft) LEN. CORE (ft)	RECOVERY (ft)	Blows Per 6" on Split Spoon Sampler	"N" Value or RQD%	SAMPLE	DEPTH (Feet)	GRAPHICS	DESCRIPTION AND CLASSIFICATION	ELEVATION (Feet)	Remarks on Character of Drilling, Water Return, etc.	WATER LEVELS AND/OR WELL DATA
S-47	1.5	1.5		R				**SILT**, Some f. sand, gray, v. compact, wet **(ML)** *(continued)*	200		
						94		**Similar Soil (ML)**			
S-48	2	2	38-47-55-61	R					198		
						96		**Similar Soil (ML)**			
S-49	2	2	24-24-33-29	57					196		
						98		**Similar Soil (ML)**			
S-50	2	2	25-32-35-38	67				**Silty CLAY**, Some f. Sand, gray, hard, wet **(CL)**	194		
						100		becomes stiff **(CL)**			
S-51	2	2	5-5-7-7	12					192		
						102		becomes v. stiff **(CL)**			
S-52	2	2	6-10-9-18	19					190		
						104		**Clayey SILT**, Some f.m.c Sand, little f.c gravel, gray, v. stiff, wet **(ML-TILL)**			
								End of Boring at 104 ft			
									188		
						106					
									186		
						108					
									184		
						110					
									182		
						112					
									180		
						114					
									178		
						116					
									176		

CLOUGH HARBOUR & ASSOCIATES LLP

PROJECT NUMBER: 12206-4008-1102 7/9/2007

Rapp Road Eastern Expansion
SUBSURFACE LOG
HOLE NUMBER MW-14S

LOCATION: Albany, New York

CLIENT: City of Albany DGS

CONTRACTOR: New England Boring Contractors

DRILLER: T. Carpenter INSPECTOR: K. Defayette

START DATE and TIME: 1/4/2007 9:00:00 AM

FINISH DATE and TIME: 1/4/2007 11:45:00 AM

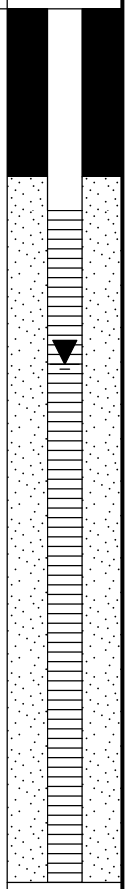
SURFACE ELEV: 292.10 (ft; Estimated) CHECKED BY: W. Harris

DRILL FLUID: Water @ 8'

DRILLING METHOD: 4" FJC

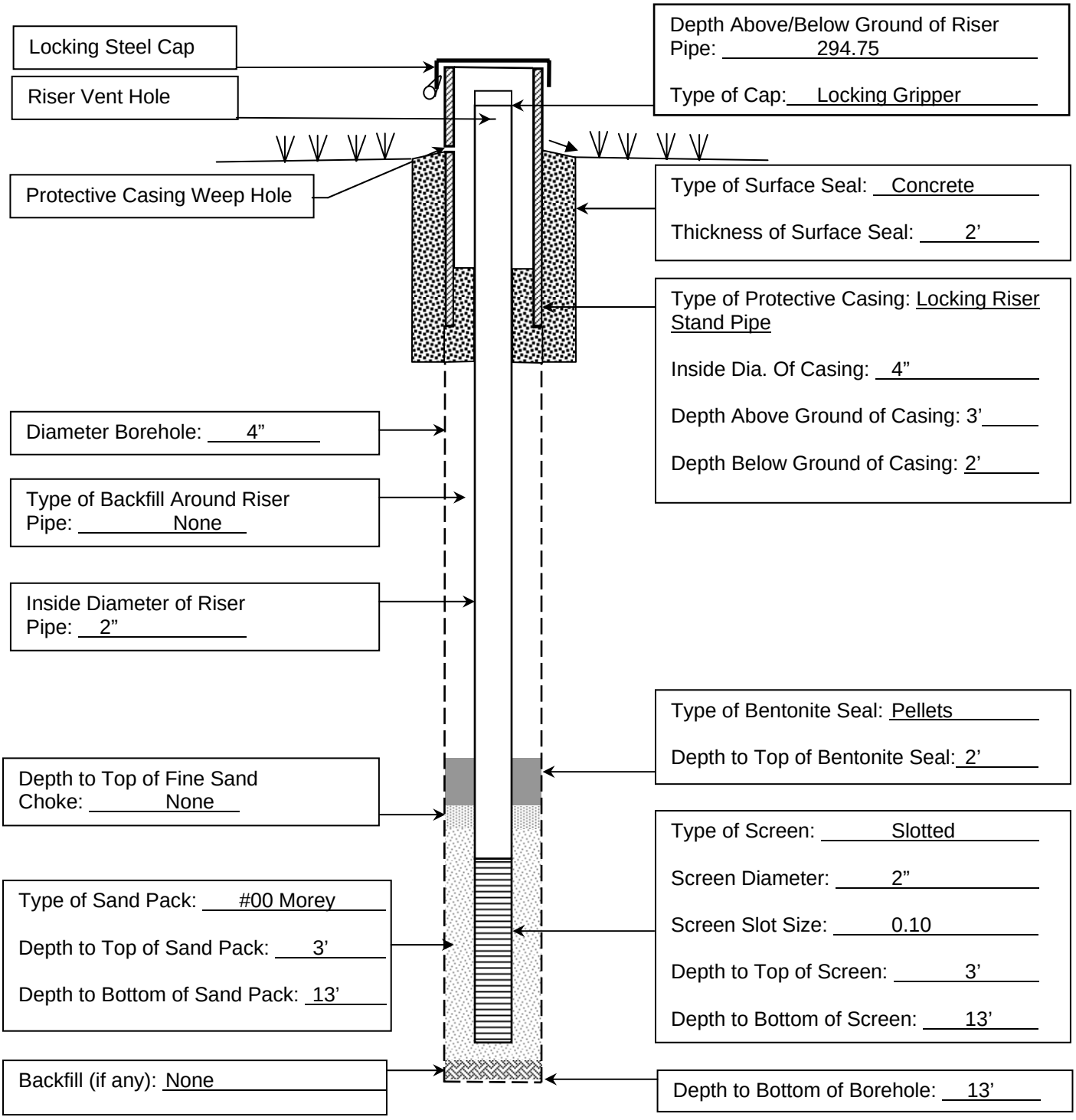
WATER LEVEL OBSERVATIONS DURING DRILLING	DATE	TIME	READING TYPE	WATER DEPTH (ft)	CASING BOTTOM (ft)	HOLE BOTTOM (ft)

SAMP./CORE NUMBER	SAMP. ADV. (ft) LEN. CORE (ft)	RECOVERY (ft)	Blows Per 6" on Split Spoon Sampler	"N" Value or RQD%	SAMPLE	DEPTH (Feet)	GRAPHICS	DESCRIPTION AND CLASSIFICATION	ELEVATION (Feet)	Remarks on Character of Drilling, Water Return, etc.	WATER LEVELS AND/OR WELL DATA
								TOPSOIL			
S-1	2	2	2-3-3-4	6				**f. SAND and SILT**, trace clay, brown, loose, wet **(SM)**			
						2		becomes gray **(SM)**	290		
						4			288		
S-2	2	2	1-1-2-2	3		6		**f. SAND**, trace silt, trace roots, gray, v. loose, saturated **(SP)**	286		
						8			284		
S-3	2	0.8	1-WH-2-2			10		**f. SAND**, trace silt, gray, v. loose, saturated **(SP)**	282		
						12			280		
								End of Boring at 13 ft			
						14			278		
						16			276		
						18			274		



WELL CONSTRUCTION LOG

PROJECT & LOCATION: Albany Landfill Expansion, Rapp Road, Albany, NY	BORING NO. MW-14S
	WELL NO. MW-14S
CLIENT: City of Albany	PROJECT NO.: 12206.4008.1102
CONTRACTOR: New England Boring	SHEET NO.: 1 OF 1
	ELEVATION: 292.10
	START DATE: 1/4/2007 TIME: 9:00:00
	FINISH DATE: 1/4/2007 TIME: 11:45:00
	DRILLER: T. Carpenter
	INSPECTOR: Kate Defayette



CLOUGH HARBOUR & ASSOCIATES LLP

PROJECT NUMBER: 12206-4008-1102 7/9/2007

Rapp Road Eastern Expansion
SUBSURFACE LOG
HOLE NUMBER MW-14I

LOCATION: Albany, New York

CLIENT: City of Albany DGS

CONTRACTOR: New England Boring Contractors

DRILLER: T. Carpenter INSPECTOR: K. Defayette

START DATE and TIME: 1/3/2007 9:30:00 AM

FINISH DATE and TIME: 1/4/2007 8:00:00 AM

SURFACE ELEV: 292.10 (ft; Estimated) CHECKED BY: W. Harris

DRILL FLUID: Water @ 8' DRILLING METHOD: 4" FJC

WATER LEVEL OBSERVATIONS DURING DRILLING	DATE	TIME	READING TYPE	WATER DEPTH (ft)	CASING BOTTOM (ft)	HOLE BOTTOM (ft)

SAMP./CORE NUMBER	SAMP. ADV. (ft) LEN. CORE (ft)	RECOVERY (ft)	Blows Per 6" on Split Spoon Sampler	"N" Value or RQD%	SAMPLE	DEPTH (Feet)	GRAPHICS	DESCRIPTION AND CLASSIFICATION	ELEVATION (Feet)	Remarks on Character of Drilling, Water Return, etc.	WATER LEVELS AND/OR WELL DATA
								TOPSOIL			
S-1	2	2	2-2-2-4	4		2		**f. SAND**, Some Silt, gray, v. loose, wet **(SM)**	290		
						4			288		
S-2	2	2	2-2-2-2	4		6		**f. SAND**, little silt, trace roots, gray, v. loose, saturated **(SM)**	286		
						8			284		
S-3	2	1.8	3-5-5-6	10		10		**f. SAND**, Some Silt, gray, loose, saturated **(SM)**	282		
						12			280		
						14			278		
S-4	2	1.2	4-4-5-6	9		16		**f. SAND**, trace silt, gray, loose, saturated **(SP)**	276		
						18			274		

CLOUGH HARBOUR & ASSOCIATES LLP

PROJECT NUMBER: 12206-4008-1102 7/9/2007

Rapp Road Eastern Expansion
SUBSURFACE LOG
HOLE NUMBER MW-14I

SAMP./CORE NUMBER	SAMP. ADV. (ft) LEN. CORE (ft)	RECOVERY (ft)	Blows Per 6" on Split Spoon Sampler	"N" Value or RQD%	SAMPLE	DEPTH (Feet)	GRAPHICS	DESCRIPTION AND CLASSIFICATION	ELEVATION (Feet)	Remarks on Character of Drilling, Water Return, etc.	WATER LEVELS AND/OR WELL DATA
								f. SAND, trace silt, gray, loose, saturated **(SP)**			
S-5	2	1.5	3-6-4-6	10							
						22			270		
						24			268		
								Similar Soil (SP)			
S-6	2	1.5	3-2-3-3	5		26			266		
						28			264		
						30		**f. SAND**, Some Silt, gray, m. compact, saturated **(SM)**	262		
S-7	2	1.6	4-6-6-6	12							
						32			260		
						34			258		
								f. SAND, trace silt, gray, loose, saturated **(SP)**			
S-8	2	1.6	5-6-4-6	10		36			256		
						38			254		
						40		becomes m. compact **(SP)**	252		
S-9	2	2	7-10-15-13	25							
						42			250		
						44			248		

CLOUGH HARBOUR & ASSOCIATES LLP

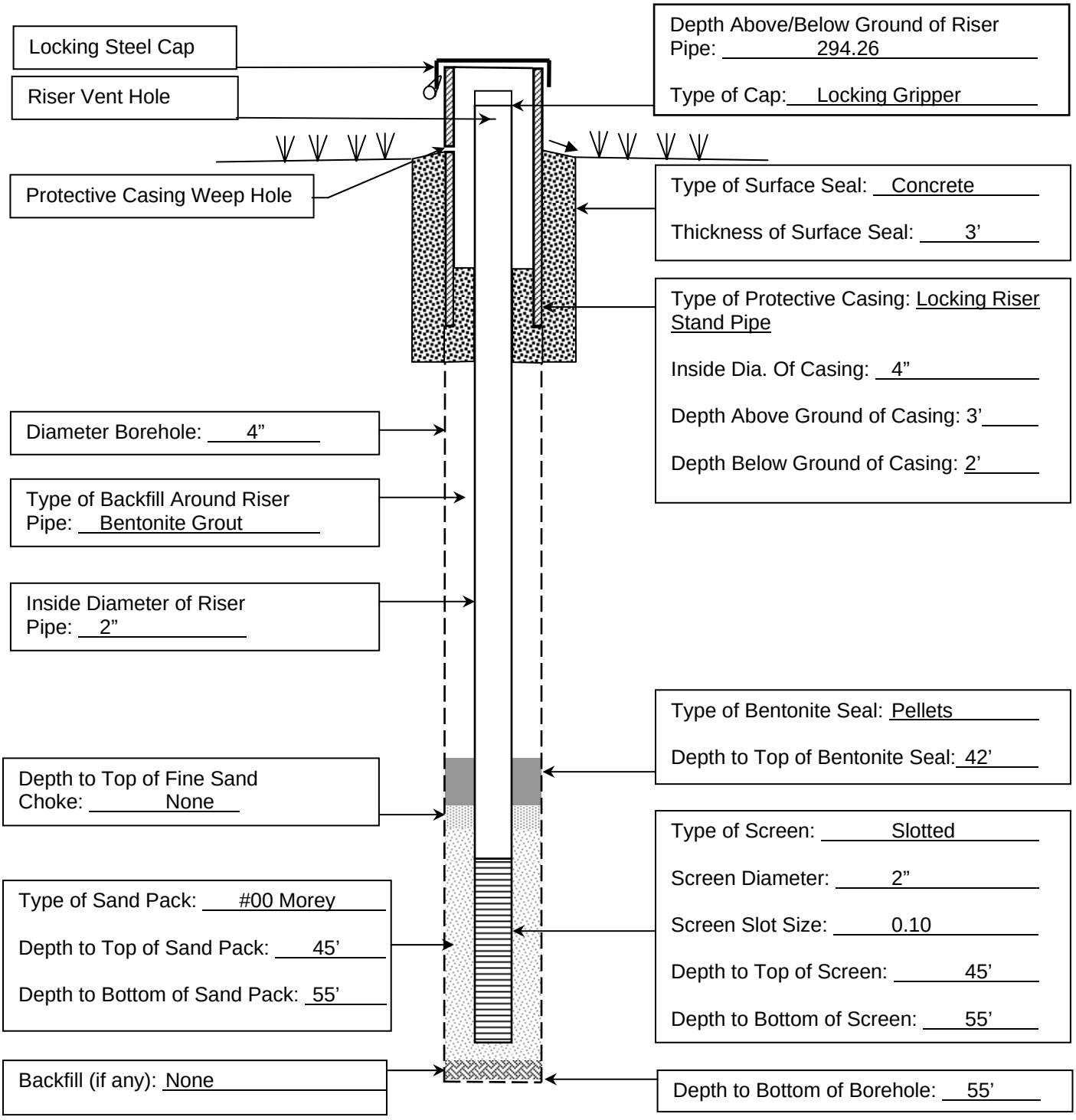
PROJECT NUMBER: 12206-4008-1102 7/9/2007

Rapp Road Eastern Expansion
SUBSURFACE LOG
HOLE NUMBER MW-14I

SAMP./CORE NUMBER	SAMP. ADV. (ft) LEN. CORE (ft)	RECOVERY (ft)	Blows Per 6" on Split Spoon Sampler	"N" Value or RQD%	SAMPLE	DEPTH (Feet)	GRAPHICS	DESCRIPTION AND CLASSIFICATION	ELEVATION (Feet)	Remarks on Character of Drilling, Water Return, etc.	WATER LEVELS AND/OR WELL DATA
S-10	2	1.7	4-4-4-4	8		46		**f. SAND**, Some Silt, gray, loose, saturated **(SM)**	246		
						48			244		
S-11	2	1.5	3-4-3-5	7		50		**f. SAND and SILT**, gray, loose, saturated **(SM)**	242		
						52			240		
						54			238		
S-12	2	2	2-2-3-3	5		56		**Silty CLAY**, Some f. Sand, gray, m. stiff, wet **(CL)**	236		
								End of Boring at 57 ft			
						58			234		
						60			232		
						62			230		
						64			228		
						66			226		
						68			224		

WELL CONSTRUCTION LOG

PROJECT & LOCATION: Albany Landfill Expansion, Rapp Road, Albany, NY	BORING NO. MW-14I
	WELL NO. MW-14I
CLIENT: City of Albany	PROJECT NO.: 12206.4008.1102
CONTRACTOR: New England Boring	SHEET NO.: 1 OF 1
	ELEVATION:292.10
	START DATE: 1/3/2007 TIME: 9:30:00
	FINISH DATE: 1/4/2007 TIME: 8:00:00
	DRILLER: T. Carpenter
	INSPECTOR: Kate Defayette



CLOUGH HARBOUR & ASSOCIATES LLP

PROJECT NUMBER: 12206-4008-1102 7/9/2007

Rapp Road Eastern Expansion
SUBSURFACE LOG
HOLE NUMBER MW-14D

LOCATION: Albany, New York

CLIENT: City of Albany DGS

CONTRACTOR: New England Boring Contractors

DRILLER: T. Carpenter INSPECTOR: K. Defayette

START DATE and TIME: 12/28/2006 7:30:00 AM

FINISH DATE and TIME: 1/2/2007 9:00:00 AM

SURFACE ELEV: 292.10 (ft; Estimated) CHECKED BY: W. Harris

DRILL FLUID: Water @ 10' DRILLING METHOD: 4" FJC

WATER LEVEL OBSERVATIONS DURING DRILLING	DATE	TIME	READING TYPE	WATER DEPTH (ft)	CASING BOTTOM (ft)	HOLE BOTTOM (ft)

SAMP./CORE NUMBER	SAMP. ADV. (ft) LEN. CORE (ft)	RECOVERY (ft)	Blows Per 6" on Split Spoon Sampler	"N" Value or RQD%	DEPTH (Feet)	DESCRIPTION AND CLASSIFICATION	ELEVATION (Feet)
						TOPSOIL	
S-1	2	1.7	1-1-1-1	2		**f. SAND and SILT**, trace clay, trace roots, trace wood, brown, v. loose, saturated **(SM)**	
					2	**f.m. SAND**, little silt, gray, loose, saturated **(SM)**	290
S-2	2	2	3-5-3-5	8			
					4	**f. SAND**, trace silt, trace roots, brownish gray, loose, saturated **(SP)**	288
S-3	2	2	4-3-3-4	6			
					6	**f. SAND**, trace silt, gray, v. loose, saturated **(SP)**	286
S-4	2	2	1-2-1-2	3			
					8	becomes loose **(SP)**	284
S-5	2	2	2-2-3-3	5			
					10	**f. SAND**, little silt, gray, loose, saturated **(SM)**	282
S-6	2	1	1-1-3-5	4			
					12	becomes m. compact **(SM)**	280
S-7	2	2	11-11-15-19	26			
					14	**f. SAND**, trace silt, gray, m. compact, saturated **(SP)**	278
S-8	2	2	5-6-5-6	11			
					16	becomes v. loose **(SP)**	276
S-9	2	1.3	1-2-2-3	4			
					18	becomes m. compact **(SP)**	274
S-10	2	2	4-8-12-14	20			

Remarks on Character of Drilling, Water Return, etc.

WATER LEVELS AND/OR WELL DATA

CLOUGH HARBOUR & ASSOCIATES LLP

PROJECT NUMBER: 12206-4008-1102 7/9/2007

Rapp Road Eastern Expansion
SUBSURFACE LOG
HOLE NUMBER MW-14D

SAMP./CORE NUMBER	SAMP. ADV. (ft) LEN. CORE (ft)	RECOVERY (ft)	Blows Per 6" on Split Spoon Sampler	"N" Value or RQD%	SAMPLE	DEPTH (Feet)	GRAPHICS	DESCRIPTION AND CLASSIFICATION	ELEVATION (Feet)	Remarks on Character of Drilling, Water Return, etc.	WATER LEVELS AND/OR WELL DATA
								Similar Soil (SP)			
S-11	2	2	3-8-12-10	20							
						22		**Similar Soil (SP)**	270		
S-12	2	2	6-6-7-9	13							
						24		becomes loose **(SP)**	268		
S-13	2	1.4	1-2-3-4	5							
						26		becomes v. loose **(SP)**	266		
S-14	2	0.8	2-1-2-2	3							
						28		becomes loose **(SP)**	264		
S-15	2	2	2-3-4-5	7							
						30		**f. SAND**, little silt, gray, m. compact, saturated **(SM)**	262	1" Silt seam in sample S-16.	
S-16	2	2	5-5-7-7	12							
						32		becomes loose **(SM)**	260	1" Silt seam in sample S-17.	
S-17	2	2	3-5-5-8	10							
						34		**Similar Soil (SM)**	258		
S-18	2	2	4-6-6-6	12							
						36		**f. SAND**, trace silt, gray, m. compact, saturated **(SP)**	256		
S-19	2	2	3-4-7-8	11							
						38		**Similar Soil (SP)**	254		
S-20	2	2	3-6-9-15	15							
						40		**Similar Soil (SP)**	252		
S-21	2	2	3-9-12-14	21							
						42		**Similar Soil (SP)**	250		
S-22	2	2	5-6-10-12	16							
						44			248		

CLOUGH HARBOUR & ASSOCIATES LLP

PROJECT NUMBER: 12206-4008-1102 7/9/2007

Rapp Road Eastern Expansion
SUBSURFACE LOG
HOLE NUMBER MW-14D

SAMP./CORE NUMBER	SAMP. ADV. (ft) LEN. CORE (ft)	RECOVERY (ft)	Blows Per 6" on Split Spoon Sampler	"N" Value or RQD%	SAMPLE	DEPTH (Feet)	GRAPHICS	DESCRIPTION AND CLASSIFICATION	ELEVATION (Feet)	Remarks on Character of Drilling, Water Return, etc.	WATER LEVELS AND/OR WELL DATA
S-23	2	2	4-6-7-6	13				**f. SAND and SILT**, gray, m. compact, saturated **(SM)** *(continued)*			
						46		**f. SAND and SILT**, gray, loose, saturated **(SM)**	246		
S-24	2	2	5-3-5-5	8							
						48		becomes m. compact **(SM)**	244		
S-25	2	2	3-5-6-5	11							
						50		becomes loose **(SM)**	242		
S-26	2	2	6-5-3-9	8							
						52		**Similar Soil (SM)**	240		
S-27	2	2	5-5-5-7	10							
						54		**Silty CLAY**, Some f. Sand, gray, soft, wet **(CL)**	238		
S-28	2	2	2-1-2-3	3							
						56		becomes m. stiff **(CL)**	236		
S-29	2	2	2-3-5-5	8							
						58		becomes stiff **(CL)**	234		
S-30	2	2	4-4-5-5	9							
						60		becomes m. stiff **(CL)**	232		
S-31	2	2	2-3-5-5	8							
						62		becomes stiff **(CL)**	230		
S-32	2	2	5-5-6-7	11							
						64		becomes m. stiff **(CL)**	228		
S-33	2	2	2-3-5-7	8							
						66		becomes stiff **(CL)**	226		
S-34	2	2	4-5-4-5	9							
						68		**Similar Soil (CL)**	224		

CLOUGH HARBOUR & ASSOCIATES LLP

PROJECT NUMBER: 12206-4008-1102 7/9/2007

Rapp Road Eastern Expansion
SUBSURFACE LOG
HOLE NUMBER MW-14D

SAMP./CORE NUMBER	SAMP. ADV. (ft) LEN. CORE (ft)	RECOVERY (ft)	Blows Per 6" on Split Spoon Sampler	"N" Value or RQD%	SAMPLE	DEPTH (Feet)	GRAPHICS	DESCRIPTION AND CLASSIFICATION	ELEVATION (Feet)	Remarks on Character of Drilling, Water Return, etc.	WATER LEVELS AND/OR WELL DATA
S-35	2	2	4-5-5-6	10				**Similar Soil (CL)** *(continued)*			
						70		**Similar Soil (CL)**	222		
S-36	2	2	5-5-5-6	10							
						72		**Similar Soil (CL)**	220		
S-37	2	2	3-5-6-6	11							
						74		becomes v. stiff **(CL)**	218		
S-38	2	2	10-14-15-24	29				**f. SAND and SILT**, gray, m. compact, saturated **(SM)**			
						76		**Similar Soil (SM)**	216		
S-39	2	1.5	8-9-13-16	22							
						78		becomes compact **(SM)**	214		
S-40	2	2	6-12-20-24	32							
						80		becomes hard **(SM)**	212		
S-41	2	1.5	12-20-24-31	44							
						82		**Similar Soil (SM)**	210		
S-42	2	2	19-17-31-34	48							
						84		**Similar Soil (SM)**	208		
S-43	2	2	18-18-22-29	40							
						86		becomes m. compact **(SM)**	206		
S-44	2	2	8-11-16-24	27							
						88		becomes v. compact **(SM)**	204		
S-45	2	2	11-25-33-41	58							
						90		becomes compact **(SM)**	202		
S-46	2	2	15-26-23-33	49							
						92		becomes v. compact **(SM)**	200		

CLOUGH HARBOUR & ASSOCIATES LLP

PROJECT NUMBER: 12206-4008-1102 7/9/2007

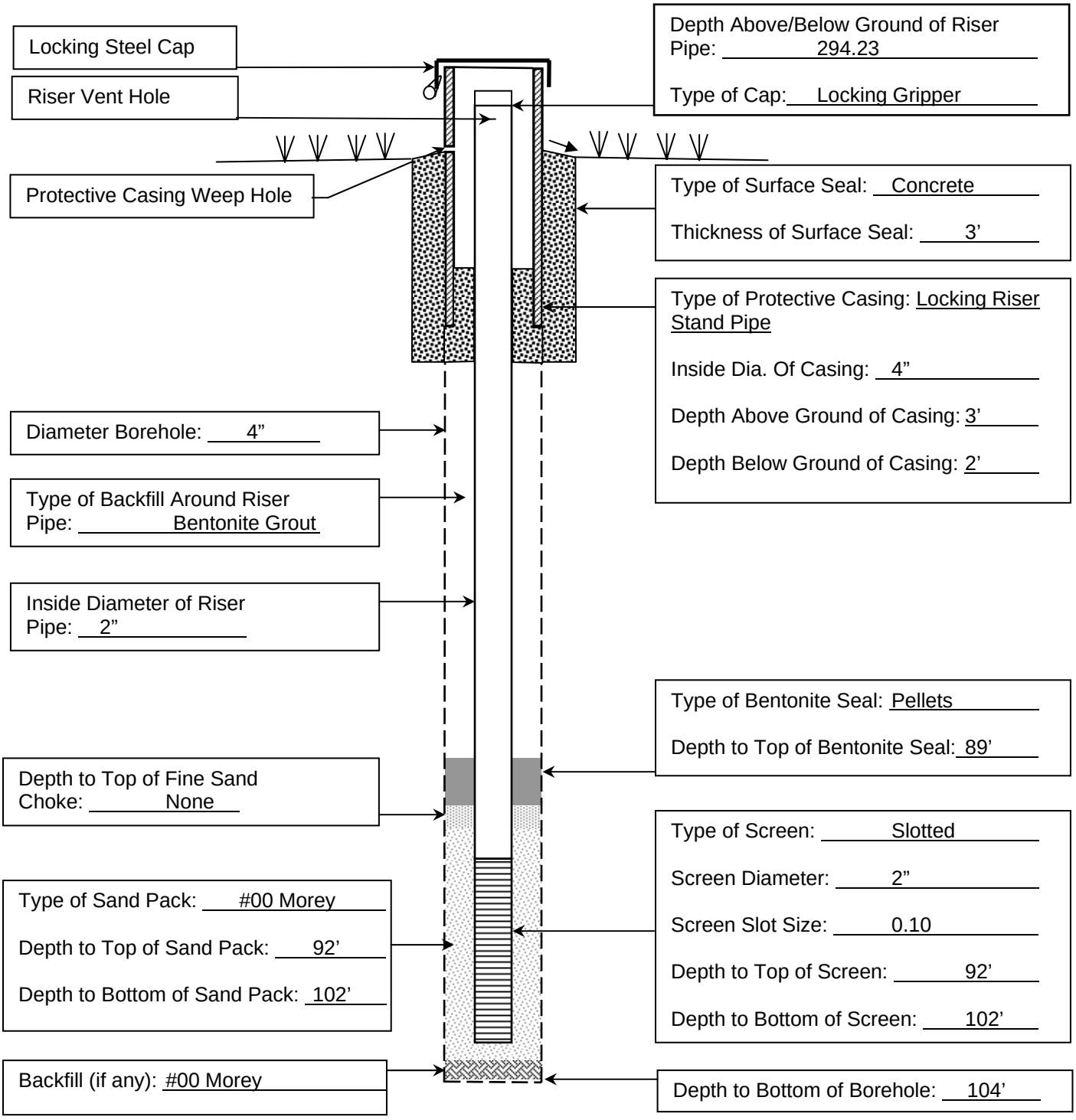
Rapp Road Eastern Expansion
SUBSURFACE LOG
HOLE NUMBER MW-14D

SAMP./CORE NUMBER	SAMP. ADV. (ft) LEN. CORE (ft)	RECOVERY (ft)	Blows Per 6" on Split Spoon Sampler	"N" Value or RQD%	SAMPLE	DEPTH (Feet)	GRAPHICS	DESCRIPTION AND CLASSIFICATION	ELEVATION (Feet)	Remarks on Character of Drilling, Water Return, etc.	WATER LEVELS AND/OR WELL DATA
S-47	2	2	14-25-34-46	59				becomes v. compact **(SM)** *(continued)*			
						94		becomes compact **(SM)**	198		
S-48	2	2	17-19-28-33	47							
						96		**Similar Soil (SM)**	196		
S-49	2	2	6-18-31-49	49							
						98			194	Driller advanced casing to far by accident from 98' to 100'.	
						100		**f. SAND and SILT**, little m. sand, gray, v. compact, saturated **(SM)**	192	m. Sand seams in sample S-50.	
S-50	2	2	29-34-0.5	34.5							
						102		**f.m. SAND**, trace silt, gray, m. compact, saturated **(SP)**	190		
S-51	2	2	5-10-16-15	26				**Silty CLAY**, Some f. Sand, gray, v. stiff, wet **(CL)**			
						104		End of Boring at 104 ft	188		
						106			186		
						108			184		
						110			182		
						112			180		
						114			178		
						116			176		

WELL CONSTRUCTION LOG

CLOUGH HARBOUR & ASSOCIATES LLP

PROJECT & LOCATION: Albany Landfill Expansion, Rapp Road, Albany, NY	BORING NO. MW-14D
CLIENT: City of Albany	WELL NO. MW-14D
CONTRACTOR: New England Boring	PROJECT NO.: 12206.4008.1102
	SHEET NO.: 1 OF 1
	ELEVATION:292.10
	START DATE: 12/28/2006 TIME: 7:30:00
	FINISH DATE: 1/2/2007 TIME: 9:00:00
	DRILLER: T. Carpenter
	INSPECTOR: Kate Defayette



CLOUGH HARBOUR & ASSOCIATES LLP

Rapp Road Eastern Expansion
SUBSURFACE LOG
HOLE NUMBER MW-15S

PROJECT NUMBER: 12206-4008-1102 7/9/2007

LOCATION: Albany, New York

CLIENT: City of Albany DGS

CONTRACTOR: New England Boring Contractors

DRILLER: T. Carpenter INSPECTOR: K. Defayette

START DATE and TIME: 12/26/2006 8:30:00 AM

FINISH DATE and TIME: 12/16/2006 3:00:00 PM

SURFACE ELEV: 294.80 (ft; Estimated) CHECKED BY: W. Harris

DRILL FLUID: Water @ 8'

DRILLING METHOD: 4" FJC

WATER LEVEL OBSERVATIONS DURING DRILLING	DATE	TIME	READING TYPE	WATER DEPTH (ft)	CASING BOTTOM (ft)	HOLE BOTTOM (ft)

SAMP./CORE NUMBER	SAMP. ADV. (ft) LEN. CORE (ft)	RECOVERY (ft)	Blows Per 6" on Split Spoon Sampler	"N" Value or RQD%	SAMPLE	DEPTH (Feet)	GRAPHICS	DESCRIPTION AND CLASSIFICATION	ELEVATION (Feet)	Remarks on Character of Drilling, Water Return, etc.	WATER LEVELS AND/OR WELL DATA
S-1	2	0.5	1-0-0-1	0		2		**TOPSOIL** **f. SAND and SILT**, trace clay, little c. sand, little roots, brownish gray, v. loose, saturated **(SM)**	294 292		
S-2	2	0.6	2-2-2-2	4		4 6		**f. SAND and SILT**, gray, v. loose, saturated **(SM)**	290 288		
S-3	2	2	2-1-2-2	3		8 10 12		**f. SAND**, trace silt, gray, v. loose, saturated **(SP)**	286 284 282		
						14 16 18		End of Boring at 13 ft	280 278 276		

WELL CONSTRUCTION LOG

CLOUGH HARBOUR & ASSOCIATES LLP

BORING NO. MW-15S

WELL NO. MW-15S

PROJECT & LOCATION: Albany Landfill Expansion, Rapp Road, Albany, NY

CLIENT: City of Albany

CONTRACTOR: New England Boring

PROJECT NO.: 12206.4008.1102

SHEET NO.: 1 OF 1

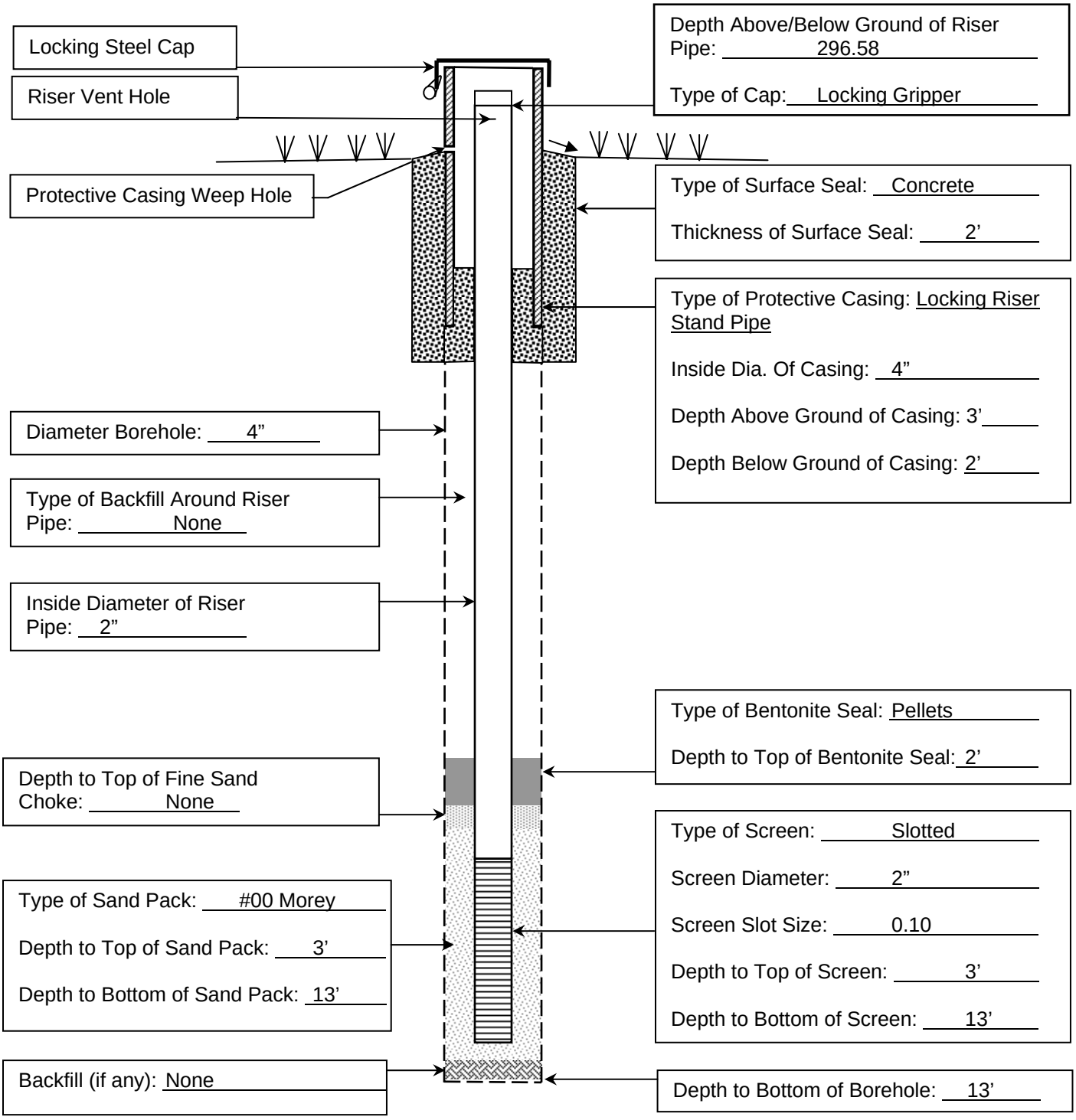
ELEVATION: 294.80

START DATE: 12/26/2006 TIME: 8:30:00

FINISH DATE: 12/26/2006 TIME: 3:00:00

DRILLER: T. Carpenter

INSPECTOR: Kate Defayette



CLOUGH HARBOUR & ASSOCIATES LLP

PROJECT NUMBER: 12206-4008-1102 7/9/2007

Rapp Road Eastern Expansion
SUBSURFACE LOG
HOLE NUMBER MW-15I

LOCATION: Albany, New York

CLIENT: City of Albany DGS

CONTRACTOR: New England Boring Contractors

DRILLER: T. Carpenter INSPECTOR: K. Defayette

START DATE and TIME: 12/21/2006 9:00:00 AM

FINISH DATE and TIME: 12/26/2006 8:00:00 AM

SURFACE ELEV: 294.80 (ft; Estimated) CHECKED BY: W. Harris

DRILL FLUID: Water @ 8' DRILLING METHOD: 4" FJC

WATER LEVEL OBSERVATIONS DURING DRILLING	DATE	TIME	READING TYPE	WATER DEPTH (ft)	CASING BOTTOM (ft)	HOLE BOTTOM (ft)

SAMP./CORE NUMBER	SAMP. ADV. (ft) LEN. CORE (ft)	RECOVERY (ft)	Blows Per 6" on Split Spoon Sampler	"N" Value or RQD%	SAMPLE	DEPTH (Feet)	GRAPHICS	DESCRIPTION AND CLASSIFICATION	ELEVATION (Feet)	Remarks on Character of Drilling, Water Return, etc.	WATER LEVELS AND/OR WELL DATA
								TOPSOIL			
S-1	2	0.4	1-1-WH-1			2		**f. SAND and SILT**, little roots, little c. sand, brown, v. loose, saturated **(SM)**	294		
						4			292		
S-2	2	2	1-2-3-4	5		6		**f.m. SAND**, trace silt, brownish gray, loose, saturated **(SP)**	290		
						8			288		
S-3	2	1	1-1-4-4	5		10		**Similar Soil (SP)**	286		
						12			284		
						14			282		
S-4	2	0.7	1-2-1-3	3		16		becomes v. loose **(SP)**	280		
						18			278		
									276		

CLOUGH HARBOUR & ASSOCIATES LLP

PROJECT NUMBER: 12206-4008-1102 7/9/2007

Rapp Road Eastern Expansion
SUBSURFACE LOG
HOLE NUMBER MW-15I

SAMP./CORE NUMBER	SAMP. ADV. (ft) LEN. CORE (ft)	RECOVERY (ft)	Blows Per 6" on Split Spoon Sampler	"N" Value or RQD%	SAMPLE	DEPTH (Feet)	GRAPHICS	DESCRIPTION AND CLASSIFICATION	ELEVATION (Feet)	Remarks on Character of Drilling, Water Return, etc.	WATER LEVELS AND/OR WELL DATA
								f.m. SAND, trace silt, gray, loose, saturated **(SP)**			
S-5	2	1.4	3-3-4-4	7					274		
						22					
									272		
						24					
									270		
								Similar Soil (SP)			
S-6	2	1.6	2-3-4-4	7		26					
									268		
						28					
									266		
						30		**f. SAND**, trace silt, gray, m. compact, saturated **(SP)**			
S-7	2	1.6	6-7-8-12	15					264		
						32					
									262		
						34					
									260		
								becomes v. loose **(SP)**			
S-8	2	2	WH-1-3-3	4		36					
									258		
						38					
									256		
						40		becomes m. compact **(SP)**			
S-9	2	2	6-6-5-7	11					254		
						42					
									252		
						44					

CLOUGH HARBOUR & ASSOCIATES LLP

PROJECT NUMBER: 12206-4008-1102 7/9/2007

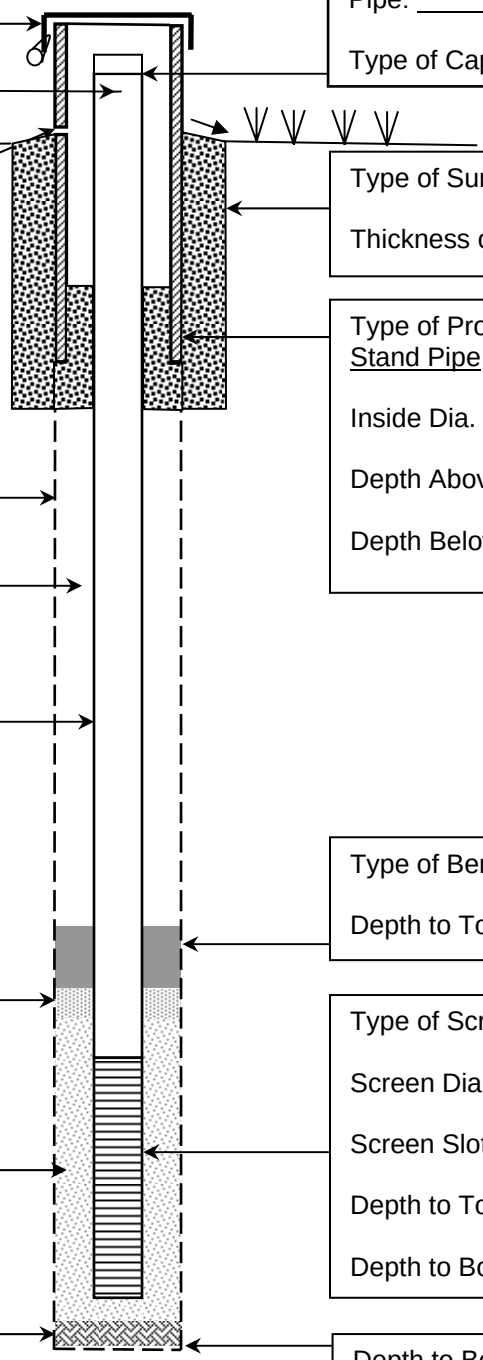
Rapp Road Eastern Expansion
SUBSURFACE LOG
HOLE NUMBER MW-15I

SAMP./CORE NUMBER	SAMP. ADV. (ft) LEN. CORE (ft)	RECOVERY (ft)	Blows Per 6" on Split Spoon Sampler	"N" Value or RQD%	SAMPLE	DEPTH (Feet)	GRAPHICS	DESCRIPTION AND CLASSIFICATION	ELEVATION (Feet)	Remarks on Character of Drilling, Water Return, etc.	WATER LEVELS AND/OR WELL DATA
								f. SAND and SILT, gray, loose, saturated **(SM)**	250		
S-10	2	1.8	5-4-5-6	9		46					
									248		
						48					
									246		
						50		**Similar Soil (SM)**			
S-11	2	2	4-4-4-4	8					244		
						52					
									242		
						54					
									240		
								Silty CLAY, Some f. Sand, gray, m. stiff, wet **(CL)**			
S-12	2	2	1-3-3-5	6		56					
									238		
								End of Boring at 57 ft			
						58					
									236		
						60					
									234		
						62					
									232		
						64					
									230		
						66					
									228		
						68					

WELL CONSTRUCTION LOG

CLOUGH HARBOUR & ASSOCIATES LLP

PROJECT & LOCATION: Albany Landfill Expansion, Rapp Road, Albany, NY	BORING NO. MW-15I
	WELL NO. MW-15I
CLIENT: City of Albany	PROJECT NO.: 12206.4008.1102
CONTRACTOR: New England Boring	SHEET NO.: 1 OF 1
	ELEVATION: 294.80
	START DATE: 12/21/2006 TIME: 9:00:00
	FINISH DATE: 12/26/2006 TIME: 8:00:00
	DRILLER: T. Carpenter
	INSPECTOR: Kate Defayette



Locking Steel Cap

Riser Vent Hole

Protective Casing Weep Hole

Diameter Borehole: 4”

Type of Backfill Around Riser Pipe: Bentonite Grout

Inside Diameter of Riser Pipe: 2”

Depth to Top of Fine Sand Choke: None

Type of Sand Pack: #00 Morey

Depth to Top of Sand Pack: 45’

Depth to Bottom of Sand Pack: 55’

Backfill (if any): #00 Morey

Depth Above/Below Ground of Riser Pipe: 296.60

Type of Cap: Locking Gripper

Type of Surface Seal: Concrete

Thickness of Surface Seal: 3’

Type of Protective Casing: Locking Riser Stand Pipe

Inside Dia. Of Casing: 4”

Depth Above Ground of Casing: 3’

Depth Below Ground of Casing: 2’

Type of Bentonite Seal: Pellets

Depth to Top of Bentonite Seal: 42’

Type of Screen: Slotted

Screen Diameter: 2”

Screen Slot Size: 0.10

Depth to Top of Screen: 45’

Depth to Bottom of Screen: 55’

Depth to Bottom of Borehole: 57’

CLOUGH HARBOUR & ASSOCIATES LLP

PROJECT NUMBER: 12206-4008-1102 7/9/2007

Rapp Road Eastern Expansion
SUBSURFACE LOG
HOLE NUMBER MW-15D

LOCATION: Albany, New York

CLIENT: City of Albany DGS

CONTRACTOR: New England Boring Contractors

DRILLER: T. Carpenter INSPECTOR: K. Defayette

START DATE and TIME: 12/18/2006 12:35:00 PM

FINISH DATE and TIME: 12/21/2006 8:00:00 AM

SURFACE ELEV: 294.80 (ft; Estimated) CHECKED BY: W. Harris

DRILL FLUID: Water @ 10' DRILLING METHOD: 4" FJC

WATER LEVEL OBSERVATIONS DURING DRILLING	DATE	TIME	READING TYPE	WATER DEPTH (ft)	CASING BOTTOM (ft)	HOLE BOTTOM (ft)

SAMP./CORE NUMBER	SAMP. ADV. (ft) LEN. CORE (ft)	RECOVERY (ft)	Blows Per 6" on Split Spoon Sampler	"N" Value or RQD%	DEPTH (Feet)	DESCRIPTION AND CLASSIFICATION	ELEVATION (Feet)	Remarks on Character of Drilling, Water Return, etc.
						TOPSOIL		
S-1	2	0.5	2-2-2-3	4		**f. SAND and SILT**, little roots, little c. sand, brown, v. loose, saturated **(SM)**	294	
					2	**f. SAND and SILT**, little roots, brownish gray, loose, wet **(SM)**		
S-2	2	2	2-6-4-5	10			292	
					4	**f. SAND**, little silt, trace roots, brownish gray, v. loose, saturated **(SM)**		
S-3	2	0.9	2-2-1-1	3			290	
					6	**f. SAND**, trace silt, gray, v. loose, saturated **(SP)**		
S-4	2	2	1-1-2-3	3			288	
					8	becomes loose **(SP)**		
S-5	2	2	1-2-4-7	6			286	
					10	**Similar Soil (SP)**		
S-6	2	1	4-2-4-4	6			284	
					12	**Similar Soil (SP)**		
S-7	2	2	3-3-4-4	7			282	
					14	**f. SAND**, trace silt, trace c. sand, gray, v. loose, saturated **(SP)**		Vanes of brown c. sand in sample S-8
S-8	2	1.4	2-1-1-3	2			280	
					16	**f. SAND**, trace silt, gray, loose, saturated **(SP)**		
S-9	2	1.3	2-4-5-7	9			278	
					18	becomes m. compact **(SP)**		
S-10	2	1.3	6-6-8-12	14			276	

WATER LEVELS AND/OR WELL DATA

CLOUGH HARBOUR & ASSOCIATES LLP

PROJECT NUMBER: 12206-4008-1102 7/9/2007

Rapp Road Eastern Expansion
SUBSURFACE LOG
HOLE NUMBER MW-15D

SAMP./CORE NUMBER	SAMP. ADV. (ft) LEN. CORE (ft)	RECOVERY (ft)	Blows Per 6" on Split Spoon Sampler	"N" Value or RQD%	SAMPLE	DEPTH (Feet)	GRAPHICS	DESCRIPTION AND CLASSIFICATION	ELEVATION (Feet)	Remarks on Character of Drilling, Water Return, etc.	WATER LEVELS AND/OR WELL DATA
								f. SAND, trace silt, gray, m. compact, saturated **(SP)**			
S-11	2	1.2	4-5-6-7	11					274		
						22		**Similar Soil (SP)**			
S-12	2	1.4	6-7-7-8	14					272		
						24		becomes v. loose **(SP)**			
S-13	2	1.3	2-2-2-2	4					270		
						26		**Similar Soil (SP)**			
S-14	2	1.2	2-1-2-4	3					268		
						28		becomes loose **(SP)**			
S-15	2	2	3-3-5-7	8					266		
						30		becomes m. compact **(SP)**			
S-16	2	2	6-7-8-8	15					264		
						32		becomes loose **(SP)**			
S-17	2	2	4-4-5-7	9					262		
						34		becomes v. loose **(SP)**			
S-18	2	1.4	1-1-1-5	2					260		
						36		becomes loose **(SP)**			
S-19	2	2	1-3-5-7	8					258		
						38		becomes m. compact **(SP)**			
S-20	2	2	3-6-7-7	13					256		
						40		becomes loose **(SP)**			
S-21	2	2	4-3-6-6	9					254		
						42		becomes m. compact **(SP)**			
S-22	2	2	6-6-7-9	13					252		
						44					

CLOUGH HARBOUR & ASSOCIATES LLP

PROJECT NUMBER: 12206-4008-1102 7/9/2007

Rapp Road Eastern Expansion
SUBSURFACE LOG
HOLE NUMBER MW-15D

SAMP./CORE NUMBER	SAMP. ADV. (ft) LEN. CORE (ft)	RECOVERY (ft)	Blows Per 6" on Split Spoon Sampler	"N" Value or RQD%	SAMPLE	DEPTH (Feet)	GRAPHICS	DESCRIPTION AND CLASSIFICATION	ELEVATION (Feet)	Remarks on Character of Drilling, Water Return, etc.	WATER LEVELS AND/OR WELL DATA
S-23	2	2	3-5-4-6	9				**f. SAND and SILT**, gray, loose, saturated **(SM)** *(continued)*	250		
						46		**Similar Soil (SM)**			
S-24	2	2	2-3-6-6	9					248		
						48		becomes m. compact **(SM)**			
S-25	2	2	3-6-9-8	15					246		
						50		**f. SAND**, little silt, gray, m. compact, saturated **(SM)**			
S-26	2	1.7	6-6-5-5	11				**f. SAND and SILT**, gray, m. compact, saturated **(SM)**	244		
						52		**Similar Soil (SM)**			
S-27	2	2	3-6-7-8	13					242		
						54		becomes loose **(SM)**			
S-28	2	1.2	2-3-2-4	5				**Silty CLAY**, Some f. Sand, gray, soft, wet **(CL)**	240	f. Sand seams throughout silty clay layer.	
						56		becomes stiff **(CL)**			
S-29	2	2	3-5-6-6	11					238		
						58		becomes m. stiff **(CL)**			
S-30	2	2	4-4-4-6	8					236		
						60		**Similar Soil (CL)**			
S-31	2	2	2-3-4-4	7					234		
						62		becomes stiff **(CL)**			
S-32	2	2	5-4-7-7	11					232		
						64		becomes m. stiff **(CL)**			
S-33	2	2	1-1-5-7	6					230		
						66		**Similar Soil (CL)**			
S-34	2	2	3-3-4-4	7					228		
						68		becomes stiff **(CL)**			

CLOUGH HARBOUR & ASSOCIATES LLP

PROJECT NUMBER: 12206-4008-1102 7/9/2007

Rapp Road Eastern Expansion
SUBSURFACE LOG
HOLE NUMBER MW-15D

SAMP./CORE NUMBER	SAMP. ADV. (ft) LEN. CORE (ft)	RECOVERY (ft)	Blows Per 6" on Split Spoon Sampler	"N" Value or RQD%	SAMPLE	DEPTH (Feet)	GRAPHICS	DESCRIPTION AND CLASSIFICATION	ELEVATION (Feet)	Remarks on Character of Drilling, Water Return, etc.	WATER LEVELS AND/OR WELL DATA
S-35	2	2	4-5-8-7	13				becomes stiff **(CL)** *(continued)*	226		
						70		**Similar Soil (CL)**			
S-36	2	2	3-4-5-17	9				**f. SAND and SILT**, gray, loose, saturated **(SM)**	224		
						72		becomes m. compact **(SM)**			
S-37	2	2	8-10-12-16	22					222		
						74		**Similar Soil (SM)**			
S-38	2	1.4	5-11-18-20	29					220		
						76		**Similar Soil (SM)**			
S-39	2	2	6-15-14-18	29					218		
						78		**Similar Soil (SM)**			
S-40	2	2	8-13-14-17	27					216		
						80		becomes compact **(SM)**			
S-41	2	2	12-17-17-22	34					214		
						82		becomes v. compact **(SM)**			
S-42	2	2	13-34-25-21	59					212		
						84		becomes m. compact **(SM)**			
S-43	2	2	6-9-11-11	20					210		
						86		**Similar Soil (SM)**			
S-44	2	2	4-7-12-14	19					208		
						88		**SILT and f. SAND**, gray, compact, saturated **(ML)**			
S-45	2	2	8-18-25-25	43					206		
						90		**Silty CLAY**, Some f. Sand, gray, m. stiff, wet **(CL)**			
S-46	2	2	4-3-3-5	6					204		
						92		**Silty CLAY**, Some f. Sand, gray, v. soft, wet **(CL)**			

CLOUGH HARBOUR & ASSOCIATES LLP

PROJECT NUMBER: 12206-4008-1102 7/9/2007

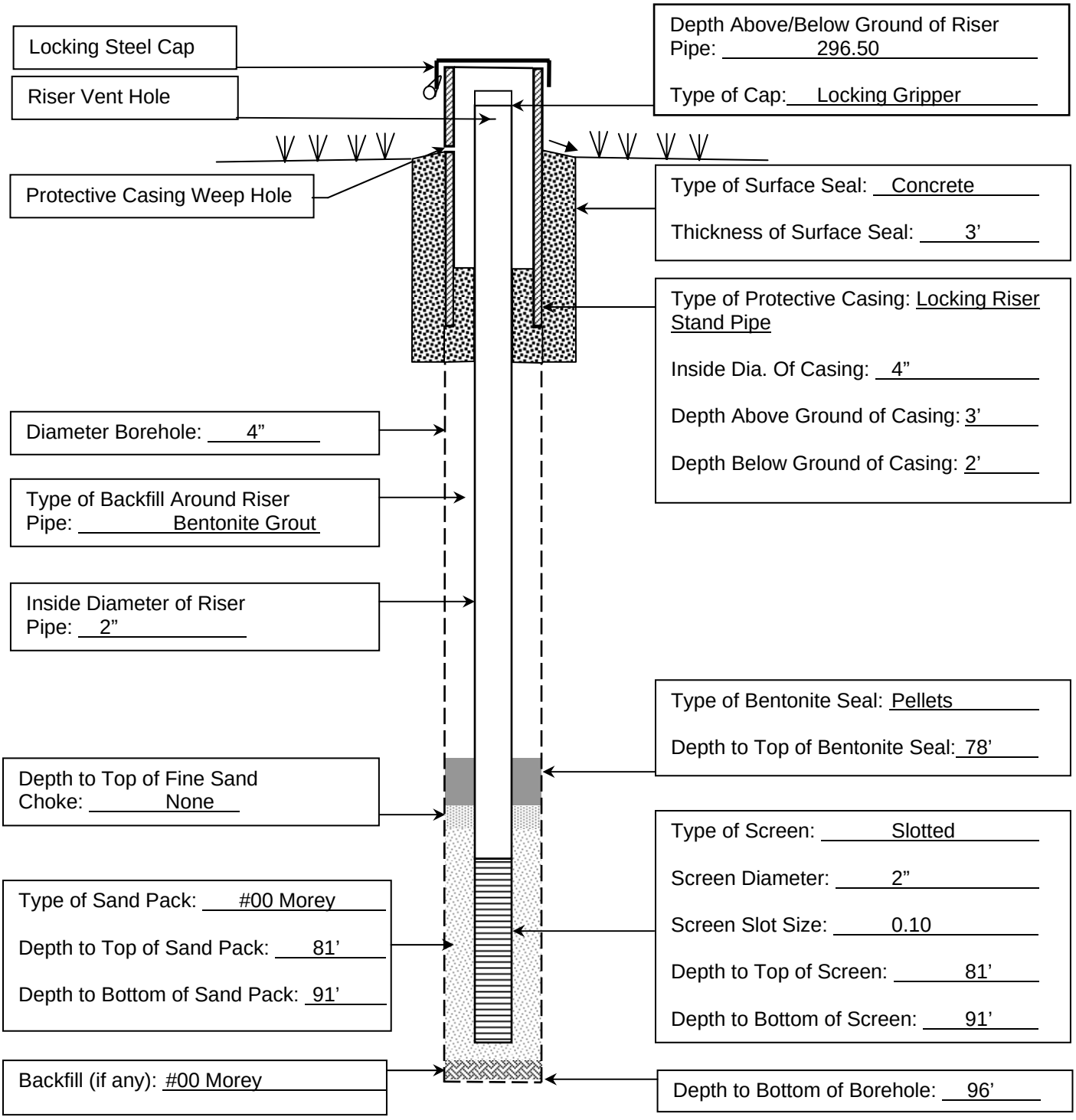
Rapp Road Eastern Expansion
SUBSURFACE LOG
HOLE NUMBER MW-15D

SAMP./CORE NUMBER	SAMP. ADV. (ft) LEN. CORE (ft)	RECOVERY (ft)	Blows Per 6" on Split Spoon Sampler	"N" Value or RQD%	SAMPLE	DEPTH (Feet)	GRAPHICS	DESCRIPTION AND CLASSIFICATION	ELEVATION (Feet)	Remarks on Character of Drilling, Water Return, etc.	WATER LEVELS AND/OR WELL DATA
S-47	2	1	WH-1-WH-1					**Silty CLAY**, Some f. Sand, gray, v. soft, wet **(CL)** *(continued)*			
						94		**Silty CLAY**, Some f.m Sand, gray, m. stiff, wet **(CL)**			
S-48	2	2	WH-3-3-3	6					200		
						96		End of Boring at 96 ft			
									198		
						98					
									196		
						100					
									194		
						102					
									192		
						104					
									190		
						106					
									188		
						108					
									186		
						110					
									184		
						112					
									182		
						114					
									180		
						116					
									178		

WELL CONSTRUCTION LOG

CLOUGH HARBOUR & ASSOCIATES LLP

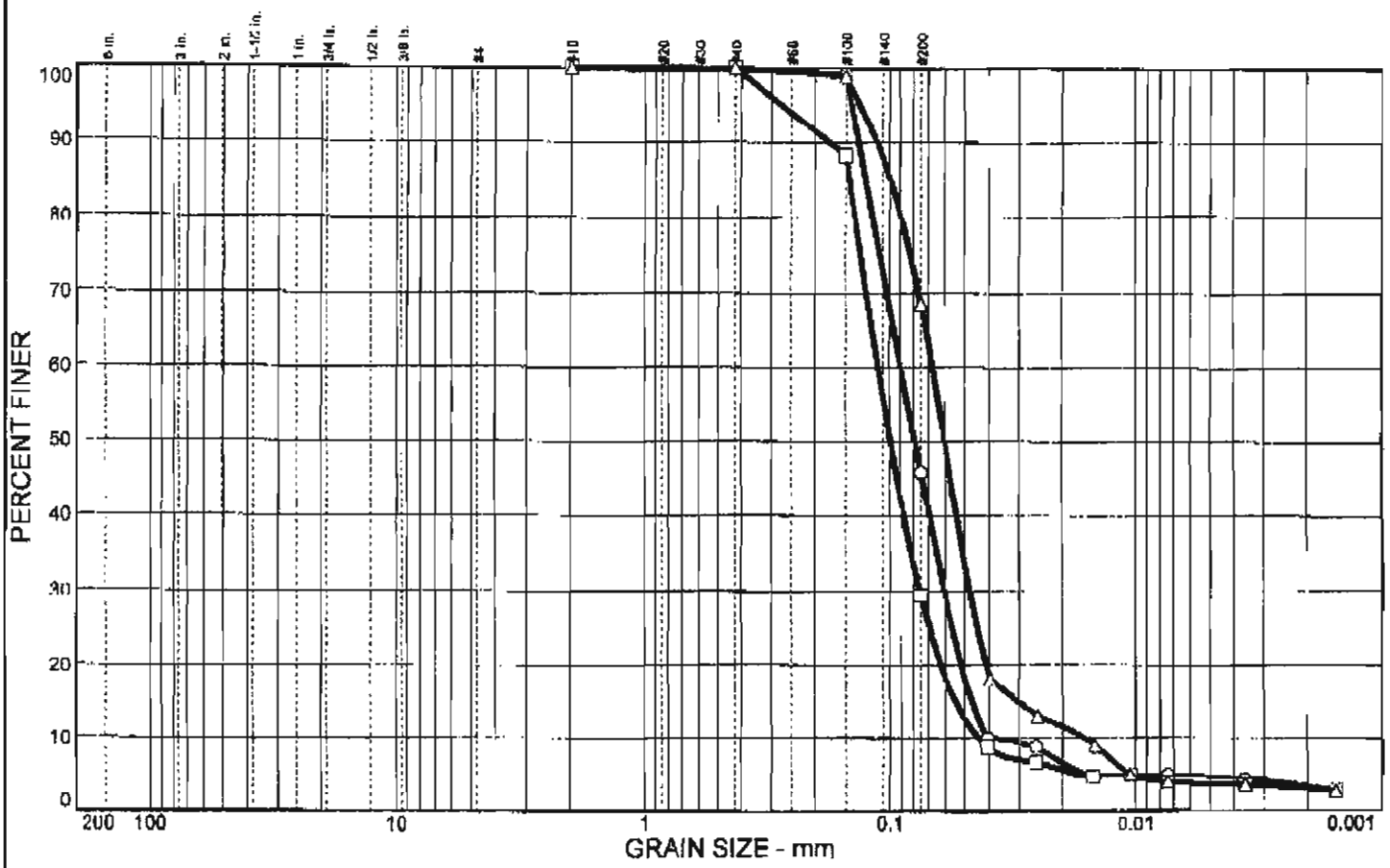
PROJECT & LOCATION: Albany Landfill Expansion, Rapp Road, Albany, NY	BORING NO. MW-15D
CLIENT: City of Albany	WELL NO. MW-15D
CONTRACTOR: New England Boring	PROJECT NO.: 12206.4008.1102
	SHEET NO.: 1 OF 1
	ELEVATION:294.80
	START DATE: 12/18/2006 TIME: 12:35:00
	FINISH DATE: 12/21/2006 TIME: 8:00:00
	DRILLER: T. Carpenter
	INSPECTOR: Kate Defayette



APPENDIX C

Grain Size Distributions

Particle Size Distribution Report



	% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY	USCS	AASHTO	PL	LL
○			54.1	41.2	4.7	SM	A-4(0)	NP	NP
□			70.6	25.8	3.6	SM	A-2-4(0)	NP	NP
△			31.4	64.9	3.7	ML	A-4(0)	NP	NP

SIEVE inches size	PERCENT FINER ○	□	△
	GRAIN SIZE		
D_{60}	0.0902	0.111	0.0674
D_{30}	0.0605	0.0757	0.0478
D_{10}	0.0406	0.0442	0.0163
	COEFFICIENTS		
C_c	1.00	1.17	2.08
C_u	2.22	2.52	4.15

SIEVE number size	PERCENT FINER ○	□	△
#10	100.0	100.0	100.0
#40	99.8	100.0	100.0
#100	99.2	88.3	99.0
#200	45.9	29.4	68.6

SOIL DESCRIPTION

○ fine SAND and SILT

□ fine SAND, some Silt

△ SILT some, fine Sand

REMARKS:

○ Tested By: MM Checked By: GB
Per ASTM D422 Washed

□ Tested By: MM Checked By: GB
Per ASTM D422 Washed

△ Tested By: MM Checked By: GB
Per ASTM D422 Washed

○ Source: Landfill Soils - Albany Sample No.: 403: EE-B-2 Elev./Depth: S-14

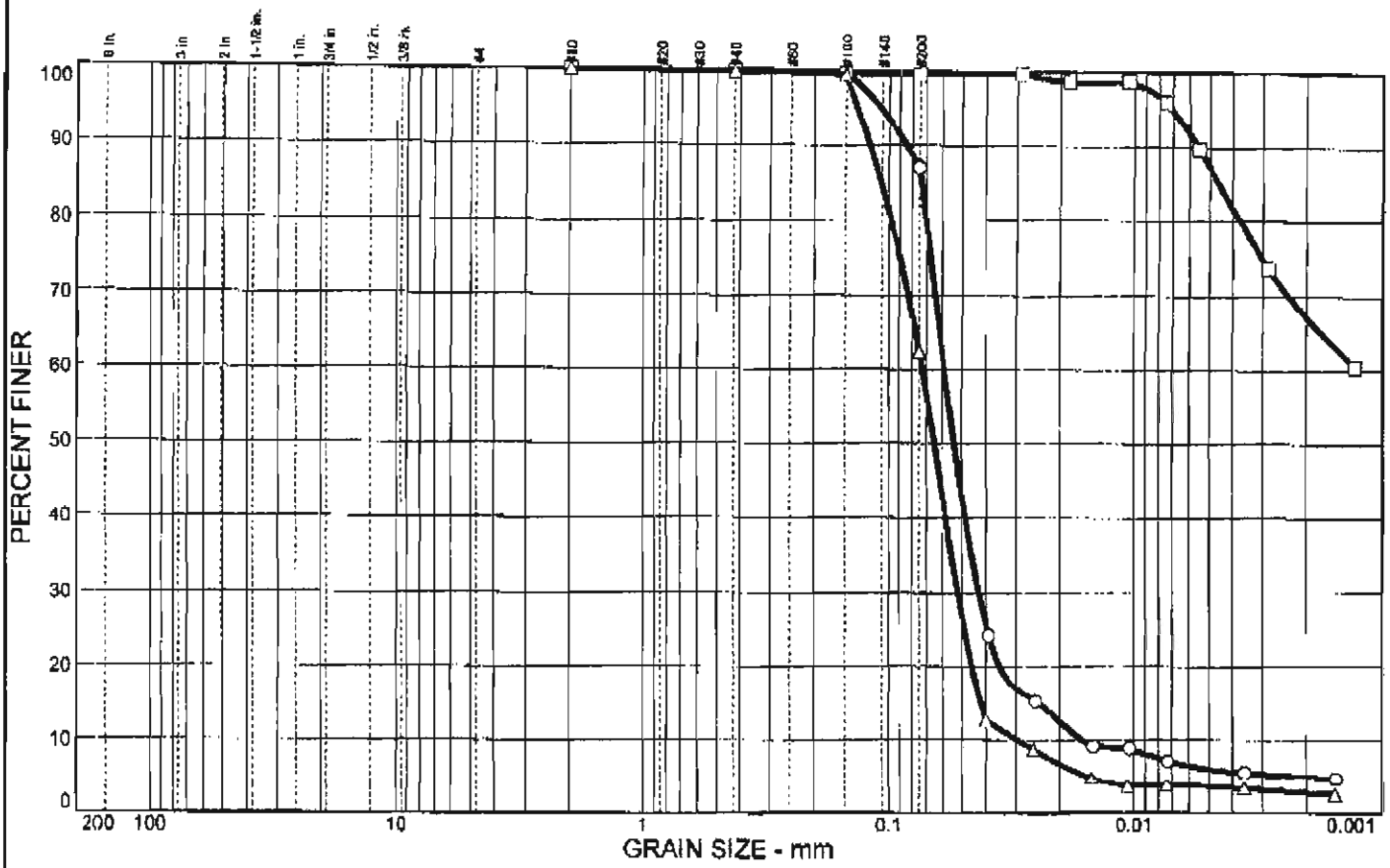
□ Source: Landfill Soils - Albany Sample No.: 404: EE-B-2 Elev./Depth: S-15

△ Source: Landfill Soils - Albany Sample No.: 405: EE-B-2 Elev./Depth: S-47

EVERGREEN TESTING, INC.
Watervliet, NY

Client: Clough Harbour Associates
Project: Various Projects
Project No.: ETE 07 13 Figure 403-405

Particle Size Distribution Report



	% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY	USCS	AASHTO	PL	LL
○			12.9	81.0	6.1	ML	A-4(0)	NP	NP
□			0.4	12.2	87.4	CL	A-4(0)		
△			37.7	58.6	3.7	ML	A-4(0)	NP	NP

SIEVE inches size	PERCENT FINER ○	□	△
	GRAIN SIZE		
D_{60}	0.0592		0.0729
D_{30}	0.0429		0.0521
D_{10}	0.0163		0.0299
	COEFFICIENTS		
C_c	1.91		1.25
C_u	3.63		2.44

SIEVE number size	PERCENT FINER ○	□	△
#10	100.0	100.0	100.0
#40	100.0	99.9	99.9
#100	99.8	99.6	99.5
#200	87.1	99.6	62.3

SOIL DESCRIPTION

○ SILT, little fine Sand

□ CLAYEY SILT

△ SILT and fine SAND

REMARKS:

○ Tested By: MM Checked By: GB
Per ASTM D422 Washed

□ Tested By: MM Checked By: GB
Per ASTM D422 Washed

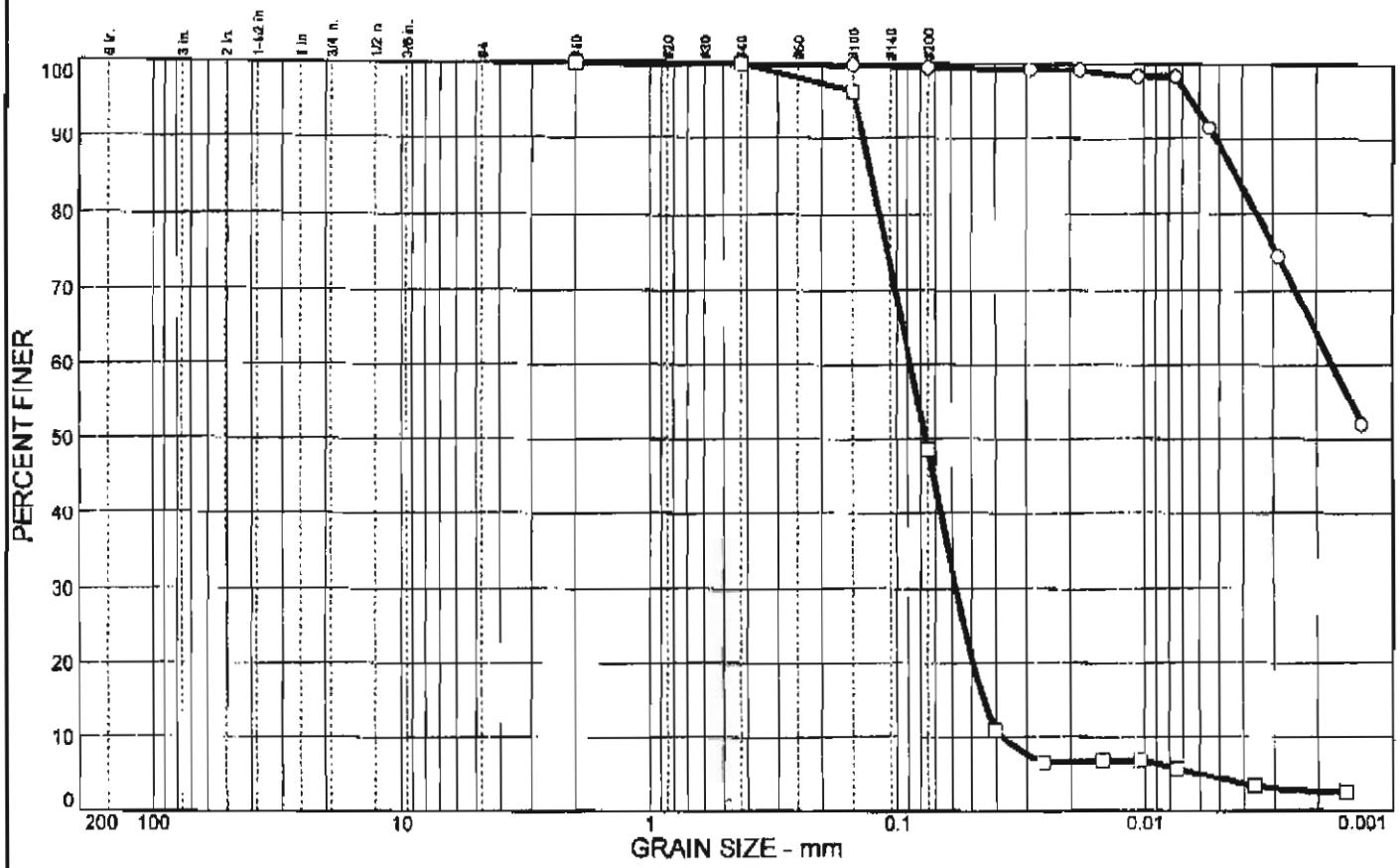
△ Tested By: MM Checked By: GB
Per ASTM D422 Washed

○ Source: Landfill Soils - Albany Sample No.: 406: EE-B-2 Elev./Depth: S-26
□ Source: Landfill Soils - Albany Sample No.: 407: EE-B-2 Elev./Depth: S-51
△ Source: Landfill Soils - Albany Sample No.: 408: MW-15D Elev./Depth: S-45

EVERGREEN TESTING, INC.
Watervliet, NY

Client: Clough Harbour Associates
Project: Various Projects
Project No.: ETE-07-13 Figure 406-408

Particle Size Distribution Report



	% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY	USCS	AASHTO	PL	LL
○			0.5	10.2	89.3	CL	A-4(0)		
□			51.4	44.3	4.3	SM	A-4(0)	NP	NP

SIEVE inches size	PERCENT FINER ○	PERCENT FINER □

	GRAIN SIZE	
D_{60}	0.0017	0.0879
D_{30}		0.0579
D_{10}		0.0376
	COEFFICIENTS	
C_c		1.01
C_u		2.34

SIEVE number size	PERCENT FINER ○	PERCENT FINER □
#10	100.0	100.0
#40	99.9	100.0
#100	99.8	96.4
#200	99.5	48.6

SOIL DESCRIPTION

○ CLAYEY SILT

□ fine SAND and SILT

REMARKS:

○ Tested By: MM Checked By: GB
Per ASTM D422 Washed

□ Tested By: MM Checked By: GB
Per ASTM D422 Washed

○ Source: Landfill Soils - Albany Sample No.: 409: MW-15D Elev./Depth: S-46

□ Source: Landfill Soils - Albany Sample No.: 410: MW-14D Elev./Depth: S-38

EVERGREEN TESTING, INC.
Watervliet, NY

Client: Clough Harbour Associates
Project: Various Projects
Project No.: ETE-07-13 Figure 409 410

CHAIN OF CUSTODY SHEET

evergreen

TESTING & ENVIRONMENTAL SERVICES, INC.
594 Broadway, Watervliet, NY 12189
(518) 266-0310 phone, (518) 266-9238 fax

Project Number: client # 12206.4008.1102
Project Name: Landfill Soils – Albany Landfill
Date Sampled: N/A
Number Collected: 8

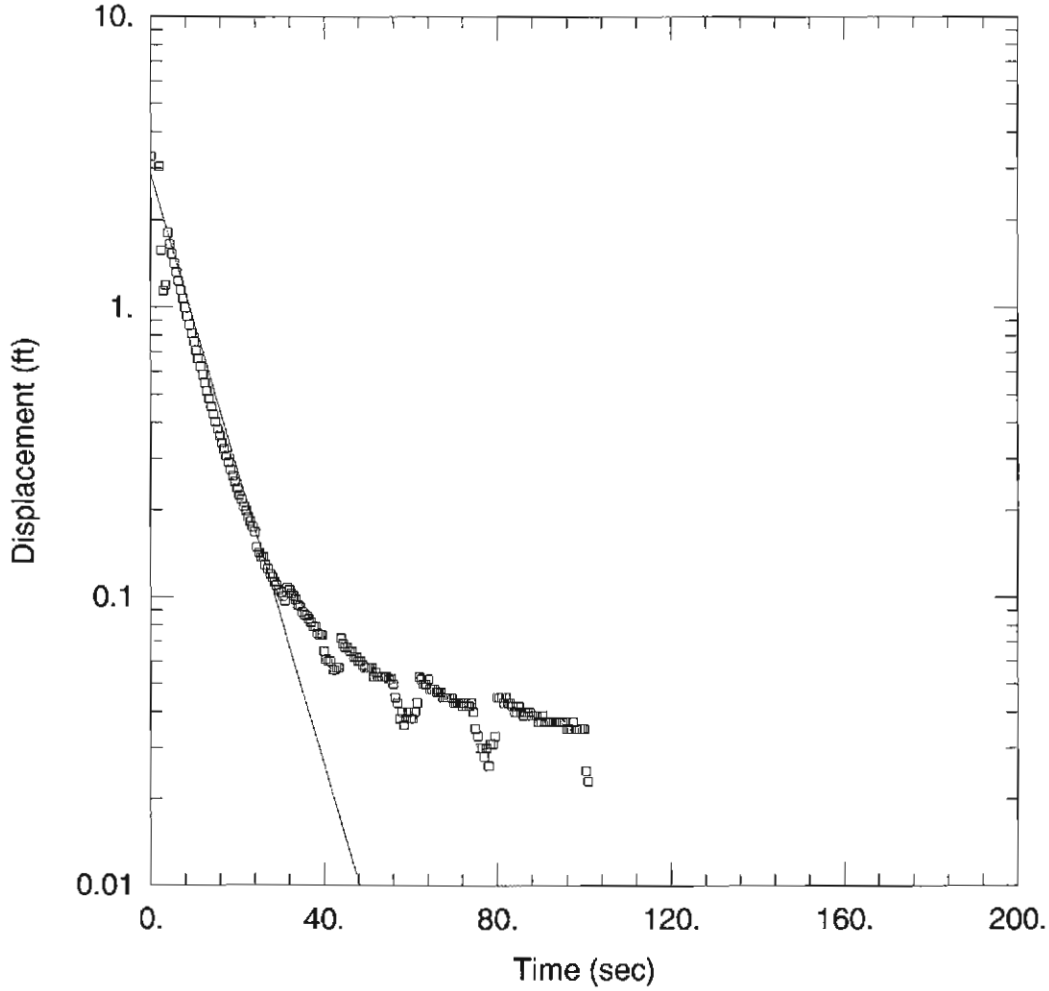
Sample No.	Location / Description / Comments	Color	Material	Lab ID No
EE-B-2 S-14	4-6-6-6 2/2	gray	Soil	
EE-B-2 S-15	4-6-8-20 2/2	gray	Soil	
EE-B-2 S-26	3-4-6-8 2/2	gray	Soil	
EE-B-2 S-47	18-47-81/5 1.5/1.5	gray	Soil	
EE-B-2 S-51	5-5-7-7 /2	gray	Soil	
MW-15D S-45	8-18-25-25 2/2	gray	Soil	
MW-15D S-46	4-3-3-5 2/2	gray	Soil	
MW-14D S-38	10-14-15-24 2/2	gray	Soil	

Sampled By: K. Defayette
Relinquish Signature Chain of Custody: Robert McHall Date: 3/12/07
Received Chain of Custody: Curtis Capulumo/Evergreen Date: 3/12/7
Relinquish Signature Chain of Custody: Date:
Received Chain of Custody: Date:
Relinquish Signature Chain of Custody: Date:
Received Chain of Custody: Date:
Disposal of Samples: Save/Dispose ~~Per ELAP Requirements~~ for 60 days
NOTES: Turnaround Time: , Fax results to Curtis at (518) 266-9238

Grain size analysis w/ hydrometer testing

APPENDIX D

Slug Test Analysis - AQTESOLV Results/Output



WELL TEST ANALYSIS

Data Set: K:\12206\EXPANSION\Hydro Investigation\Slug test data text\MW-14S Rising 1.aqt
Date: 03/12/07 Time: 14:32:59

PROJECT INFORMATION

Company: CHA
Client: City of Albany
Project: 12206
Location: Albany, NY
Test Well: MW-14S
Test Date: 2/02/2007

AQUIFER DATA

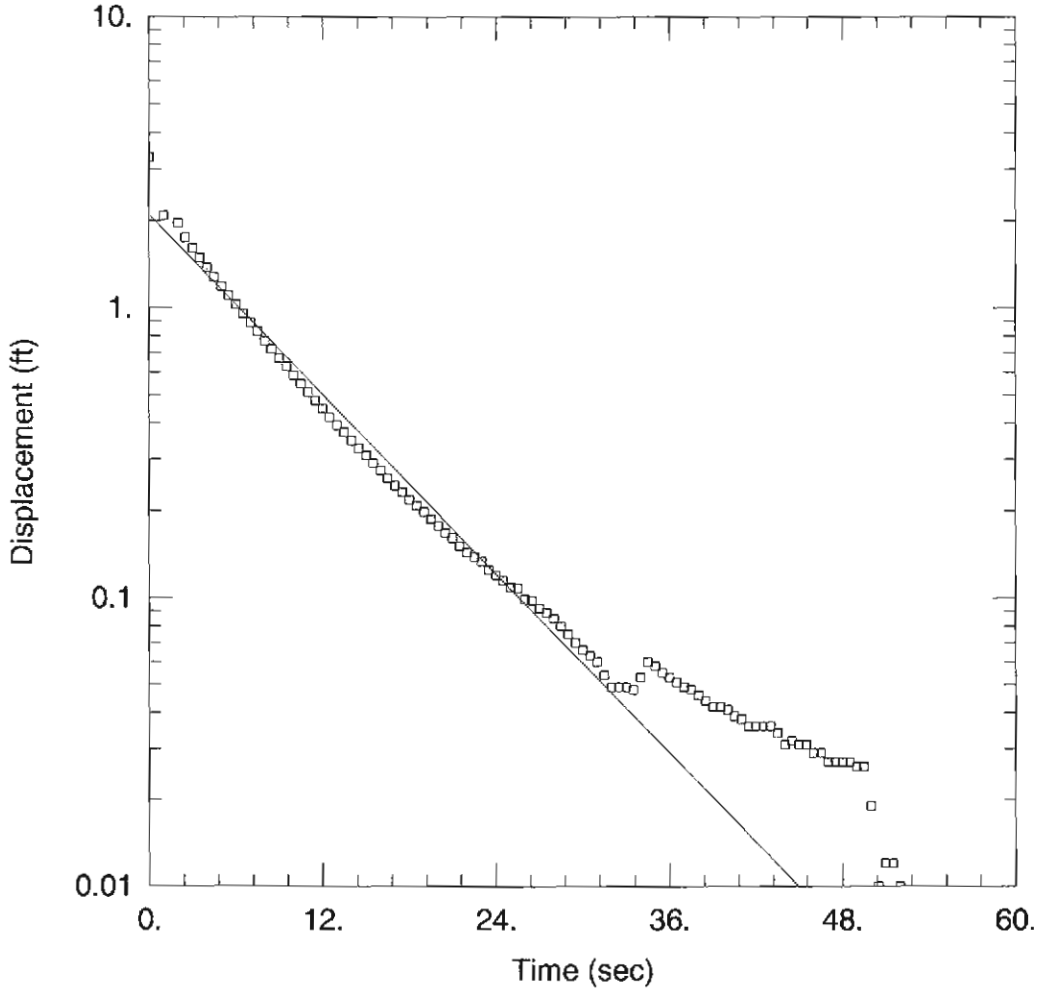
Saturated Thickness: 10. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (New Well)

Initial Displacement: 3.3 ft
Total Well Penetration Depth: 13. ft
Casing Radius: 0.083 ft
Static Water Column Height: 10. ft
Screen Length: 10. ft
Well Radius: 0.333 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.003363 cm/sec
y0 = 2.875 ft



WELL TEST ANALYSIS

Data Set: K:\12206\EXPANSION\Hydro Investigation\Slug test data text\MW-14S Rising 2.aqt
Date: 03/12/07 Time: 14:35:05

PROJECT INFORMATION

Company: CHA
Client: City of Albany
Project: 12206
Location: Albany, NY
Test Well: MW-14S
Test Date: 2/02/2007

AQUIFER DATA

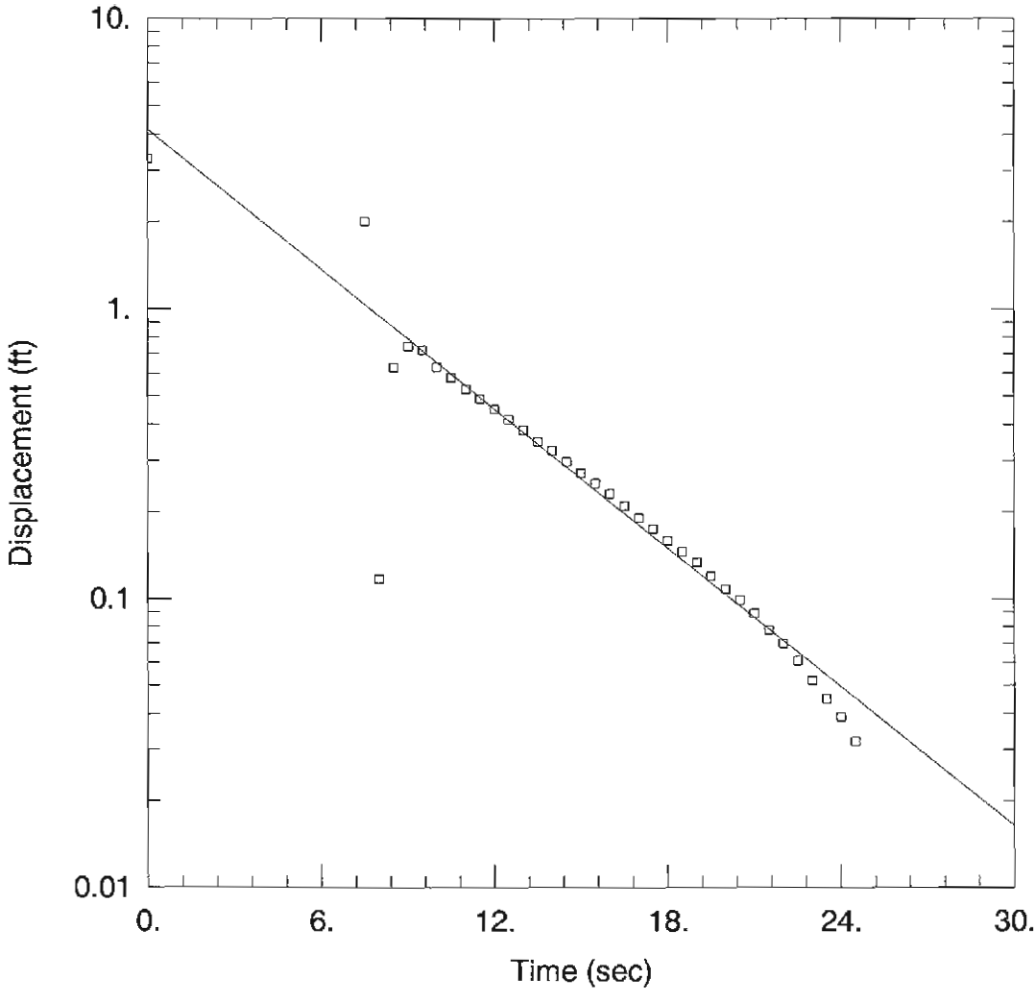
Saturated Thickness: 10. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (New Well)

Initial Displacement: 3.3 ft
Total Well Penetration Depth: 13. ft
Casing Radius: 0.083 ft
Static Water Column Height: 10. ft
Screen Length: 10. ft
Well Radius: 0.333 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.003412 cm/sec
y0 = 2.101 ft



WELL TEST ANALYSIS

Data Set: K:\12206\EXPANSION\Hydro Investigation\Slug test data text\MW-14S Falling 1.aqt
Date: 03/12/07 Time: 14:33:37

PROJECT INFORMATION

Company: CHA
Client: City of Albany
Project: 12206
Location: Albany, NY
Test Well: MW-14S
Test Date: 2/02/2007

AQUIFER DATA

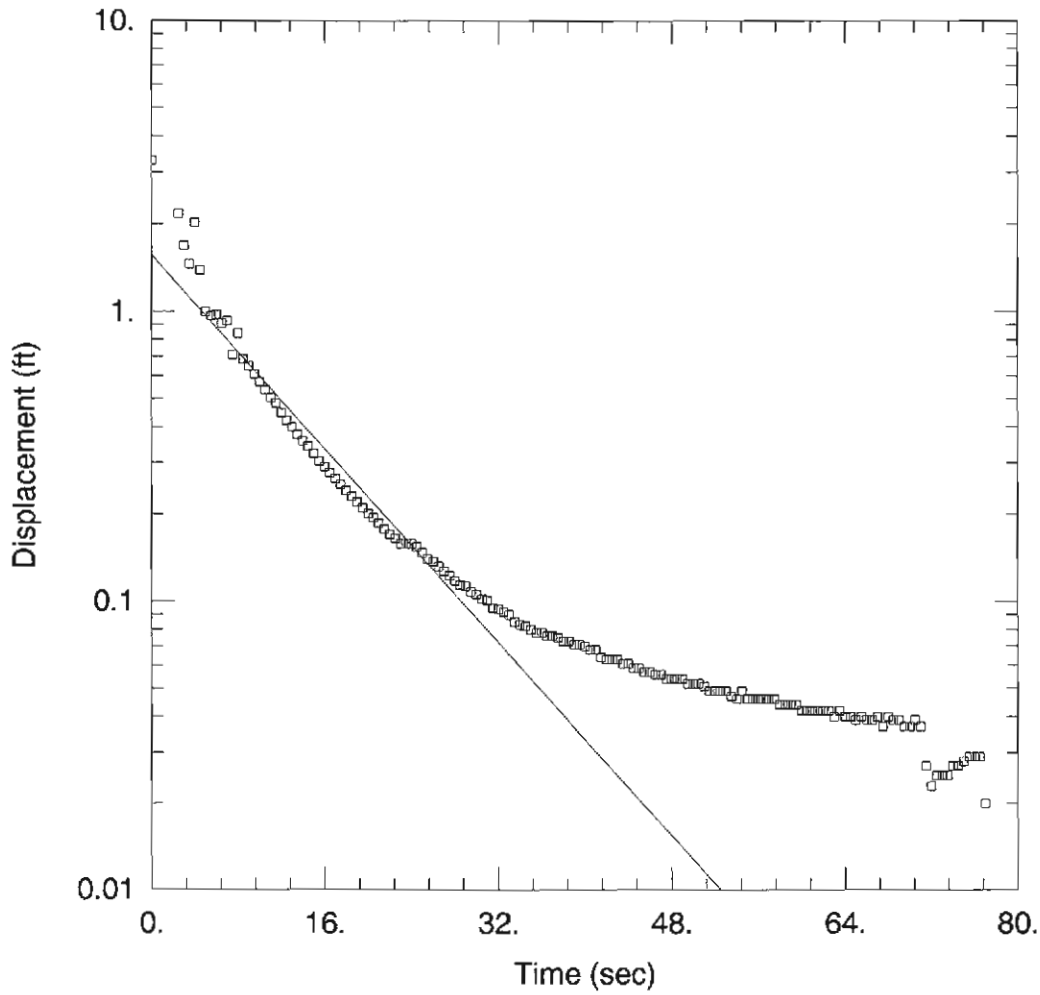
Saturated Thickness: 10. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (New Well)

Initial Displacement: 3.3 ft
Total Well Penetration Depth: 13. ft
Casing Radius: 0.083 ft
Static Water Column Height: 10. ft
Screen Length: 10. ft
Well Radius: 0.333 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.005295 cm/sec
y0 = 4.148 ft



WELL TEST ANALYSIS

Data Set: K:\12206\EXPANSION\Hydro Investigation\Slug test data text\MW-14S Falling 2.aqt
Date: 03/12/07 Time: 14:33:51

PROJECT INFORMATION

Company: CHA
Client: City of Albany
Project: 12206
Location: Albany, NY
Test Well: MW-14S
Test Date: 2/02/2007

AQUIFER DATA

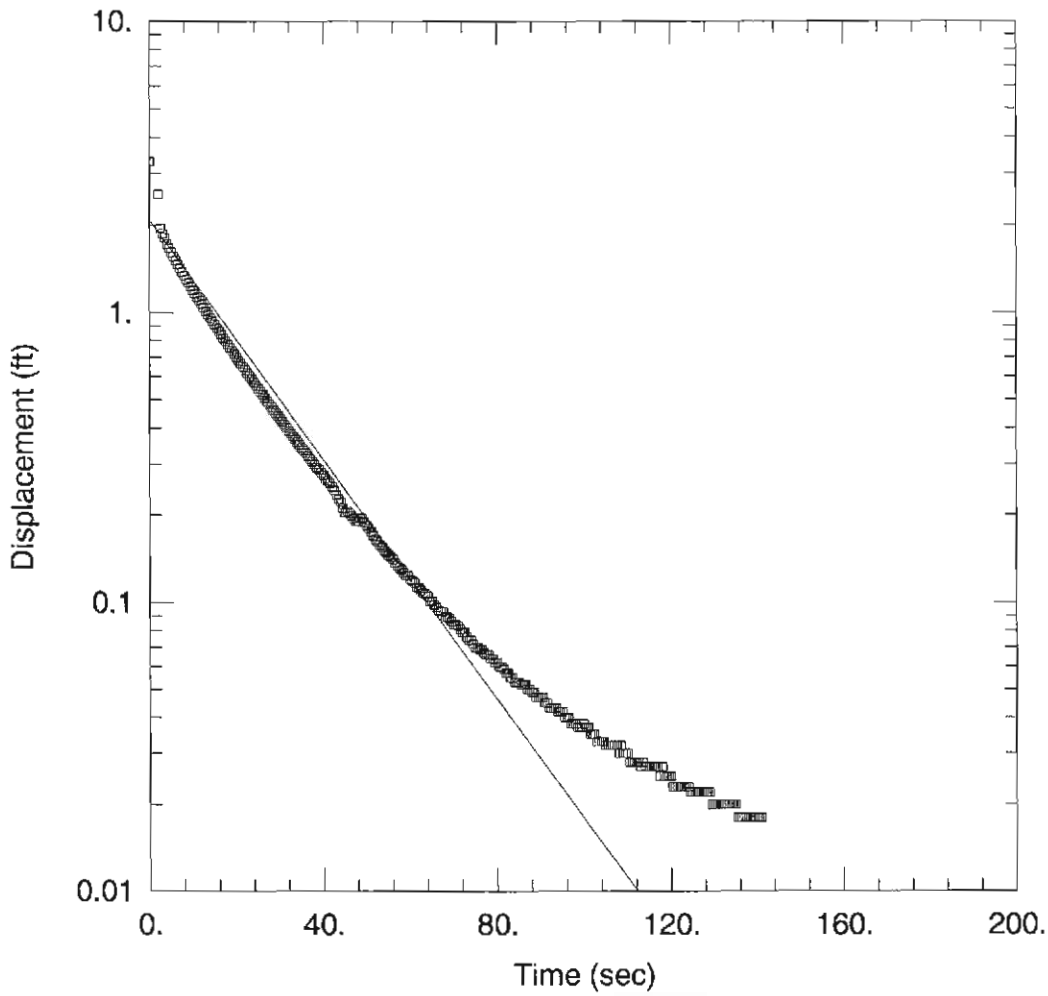
Saturated Thickness: 10. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (New Well)

Initial Displacement: 3.3 ft
Total Well Penetration Depth: 13. ft
Casing Radius: 0.083 ft
Static Water Column Height: 10. ft
Screen Length: 10. ft
Well Radius: 0.333 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.002759 cm/sec
y0 = 1.564 ft



WELL TEST ANALYSIS

Data Set: K:\12206\EXPANSION\Hydro Investigation\Slug test data text\MW-14I Rising 1.aqt
Date: 03/12/07 Time: 13:36:11

PROJECT INFORMATION

Company: CHA
Client: City of Albany
Project: 12206
Location: Albany, NY
Test Well: MW-14I
Test Date: 2/02/2007

AQUIFER DATA

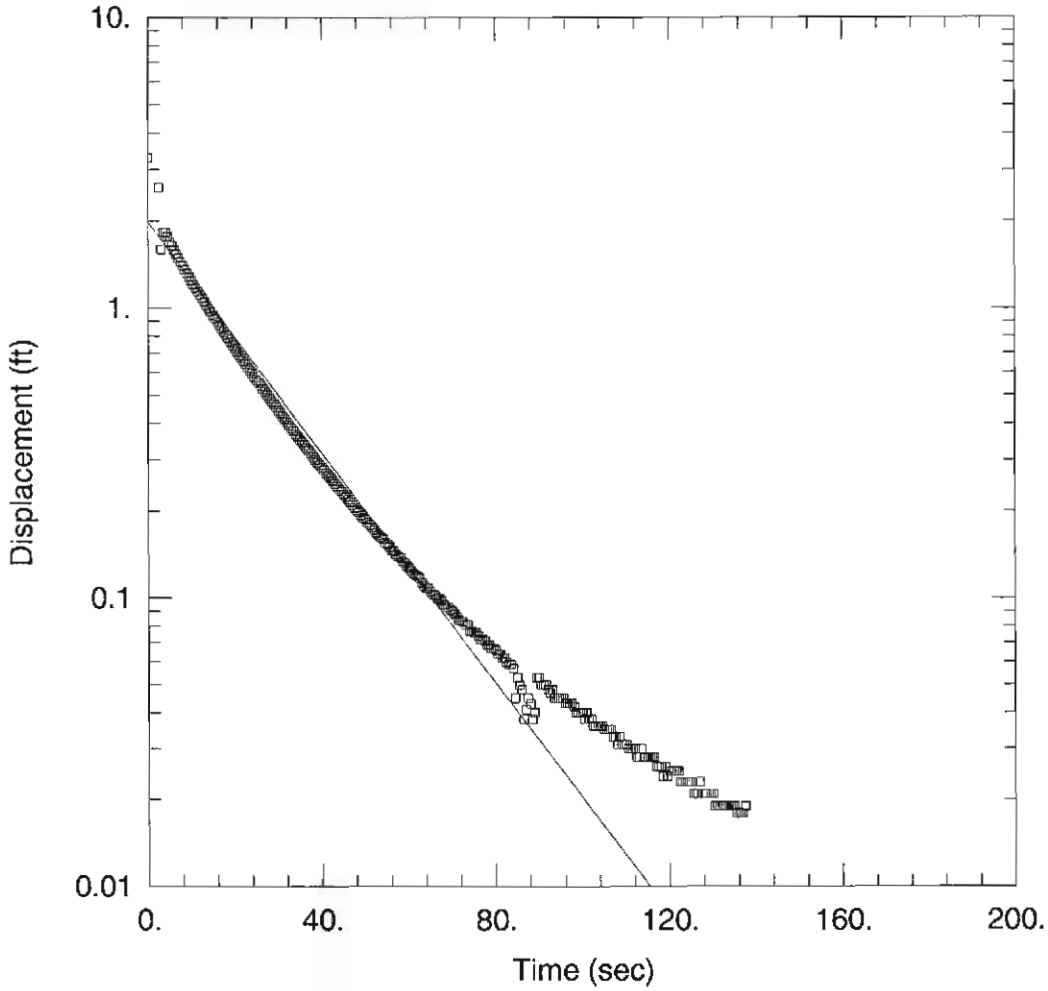
Saturated Thickness: 65. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (New Well)

Initial Displacement: 3.3 ft
Static Water Column Height: 53. ft
Total Well Penetration Depth: 55. ft
Screen Length: 10. ft
Casing Radius: 0.083 ft
Well Radius: 0.333 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.00146 cm/sec
y0 = 2.082 ft



WELL TEST ANALYSIS

Data Set: K:\12206\EXPANSION\Hydro Investigation\Slug test data text\MW-14I Rising 2.aqt
Date: 03/12/07 Time: 13:34:54

PROJECT INFORMATION

Company: CHA
Client: City of Albany
Project: 12206
Location: Albany, NY
Test Well: MW-14I
Test Date: 2/02/2007

AQUIFER DATA

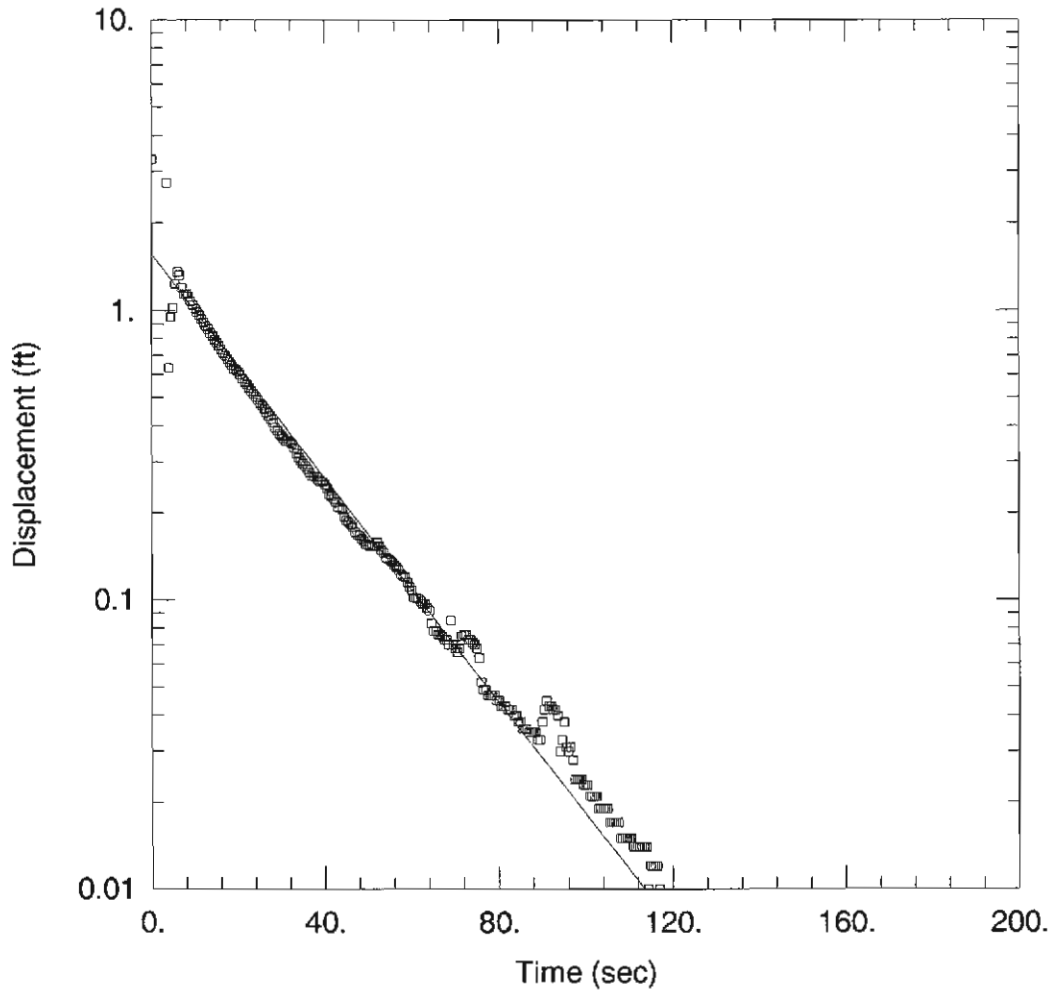
Saturated Thickness: 65. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (New Well)

Initial Displacement: 3.3 ft
Static Water Column Height: 53. ft
Total Well Penetration Depth: 55. ft
Screen Length: 10. ft
Casing Radius: 0.083 ft
Well Radius: 0.333 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.001405 cm/sec
y0 = 1.975 ft



WELL TEST ANALYSIS

Data Set: K:\12206\EXPANSION\Hydro Investigation\Slug test data text\MW-14I Falling 1.aqt
Date: 03/12/07 Time: 13:20:37

PROJECT INFORMATION

Company: CHA
Client: City of Albany
Project: 12206
Location: Albany, NY
Test Well: MW-14I
Test Date: 2/02/2007

AQUIFER DATA

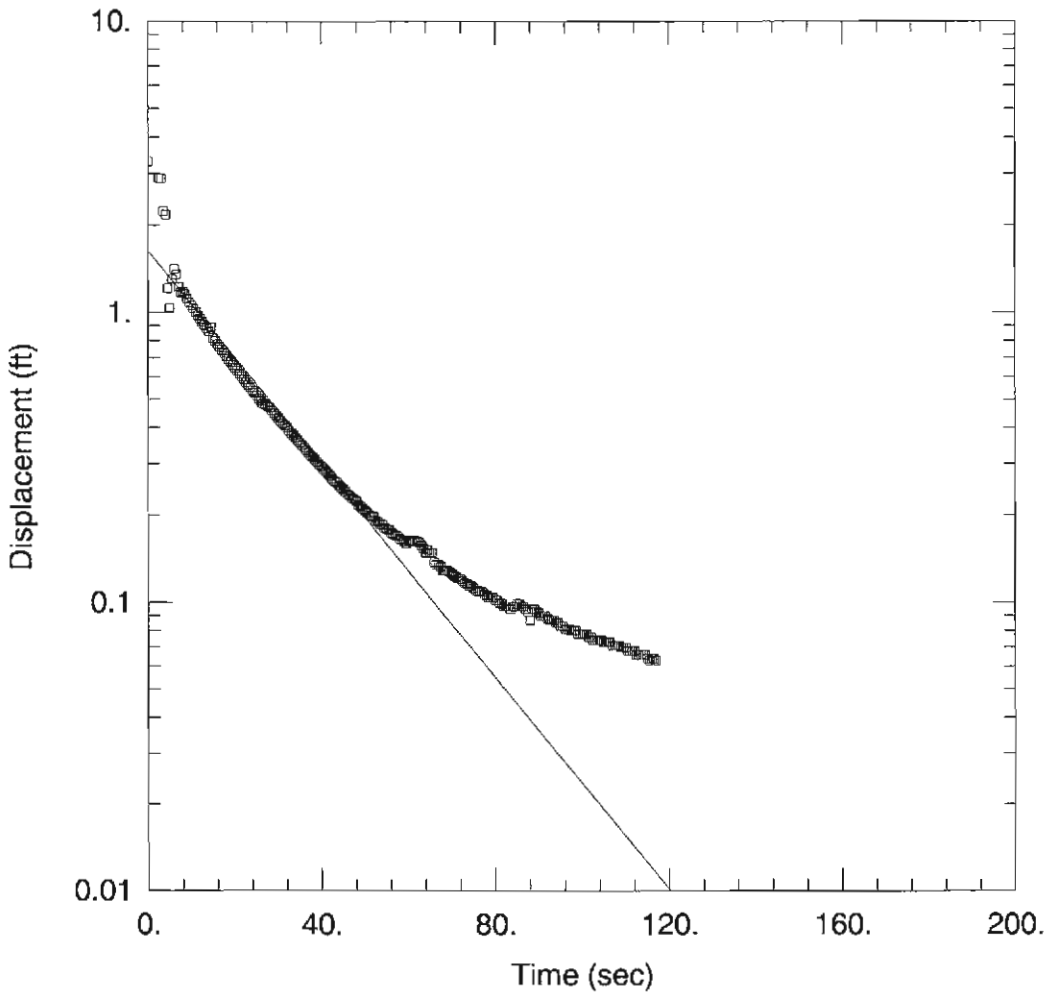
Saturated Thickness: 65. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (New Well)

Initial Displacement: 3.3 ft
Total Well Penetration Depth: 55. ft
Casing Radius: 0.083 ft
Static Water Column Height: 53. ft
Screen Length: 10. ft
Well Radius: 0.333 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.001366 cm/sec
y0 = 1.56 ft



WELL TEST ANALYSIS

Data Set: K:\12206\EXPANSION\Hydro Investigation\Slug test data text\MW-14I Falling 2.aqt
Date: 03/12/07 Time: 13:31:05

PROJECT INFORMATION

Company: CHA
Client: City of Albany
Project: 12206
Location: Albany, NY
Test Well: MW-14I
Test Date: 2/02/2007

AQUIFER DATA

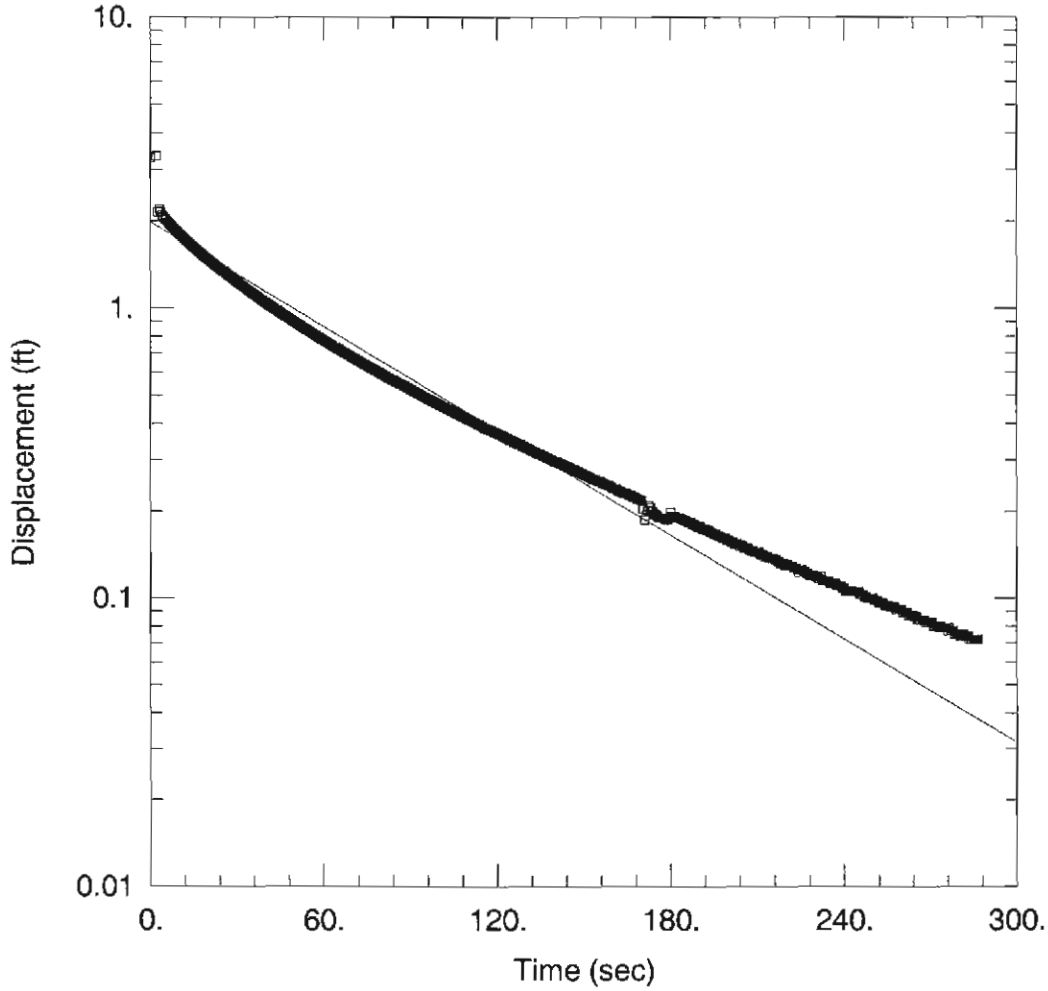
Saturated Thickness: 65. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (New Well)

Initial Displacement: 3.3 ft
Static Water Column Height: 53. ft
Total Well Penetration Depth: 55. ft
Screen Length: 10. ft
Casing Radius: 0.083 ft
Well Radius: 0.333 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.0013 cm/sec
y0 = 1.628 ft



WELL TEST ANALYSIS

Data Set: K:\12206\EXPANSION\Hydro Investigation\Slug test data text\MW-14D Rising 1.aqt
Date: 03/12/07 Time: 14:07:32

PROJECT INFORMATION

Company: CHA
Client: City of Albany
Project: 12206
Location: Albany, NY
Test Well: MW-14D
Test Date: 2/02/2007

AQUIFER DATA

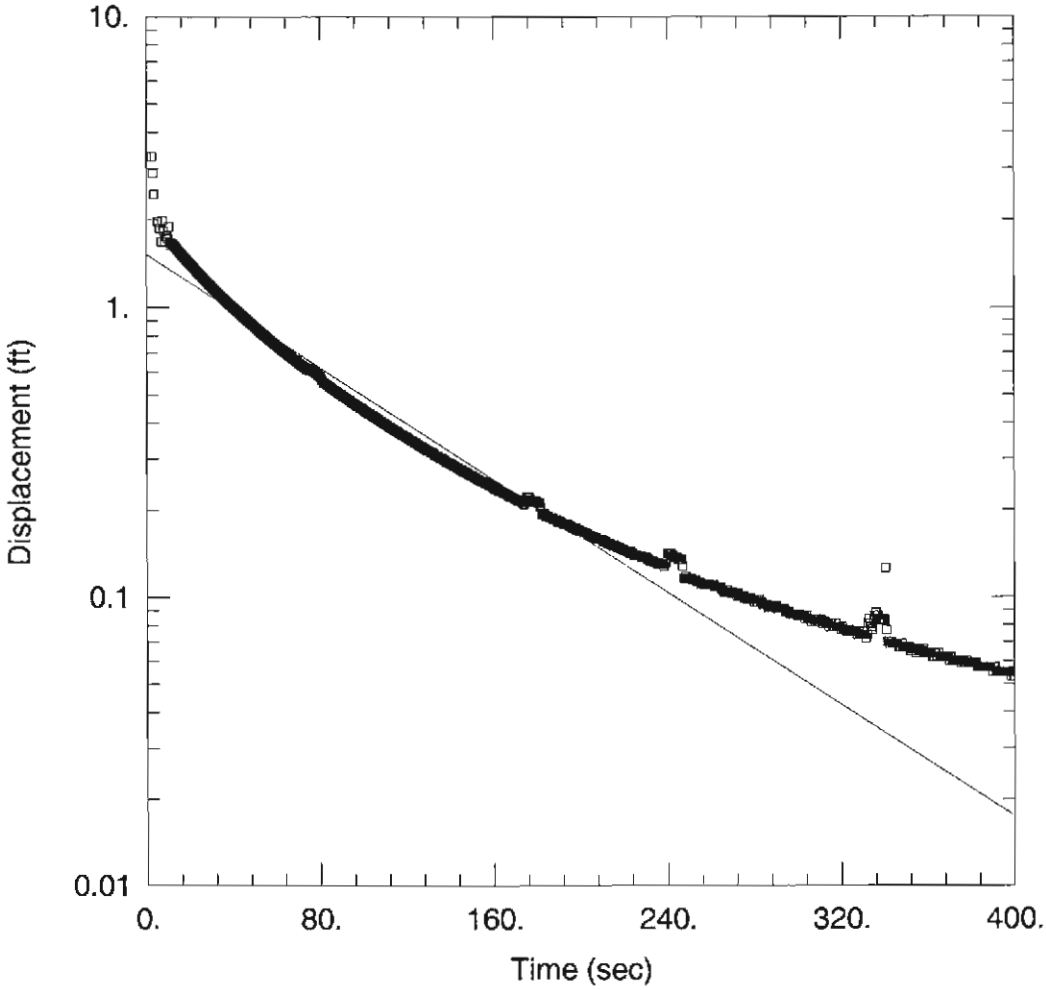
Saturated Thickness: 105. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (New Well)

Initial Displacement: 3.3 ft
Static Water Column Height: 101. ft
Total Well Penetration Depth: 102. ft
Screen Length: 10. ft
Casing Radius: 0.083 ft
Well Radius: 0.333 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.0004784 cm/sec
y0 = 1.981 ft



WELL TEST ANALYSIS

Data Set: K:\12206\EXPANSION\Hydro Investigation\Slug test data text\MW-14D Falling 1.aqt
Date: 03/12/07 Time: 14:06:05

PROJECT INFORMATION

Company: CHA
Client: City of Albany
Project: 12206
Location: Albany, NY
Test Well: MW-14D
Test Date: 2/02/2007

AQUIFER DATA

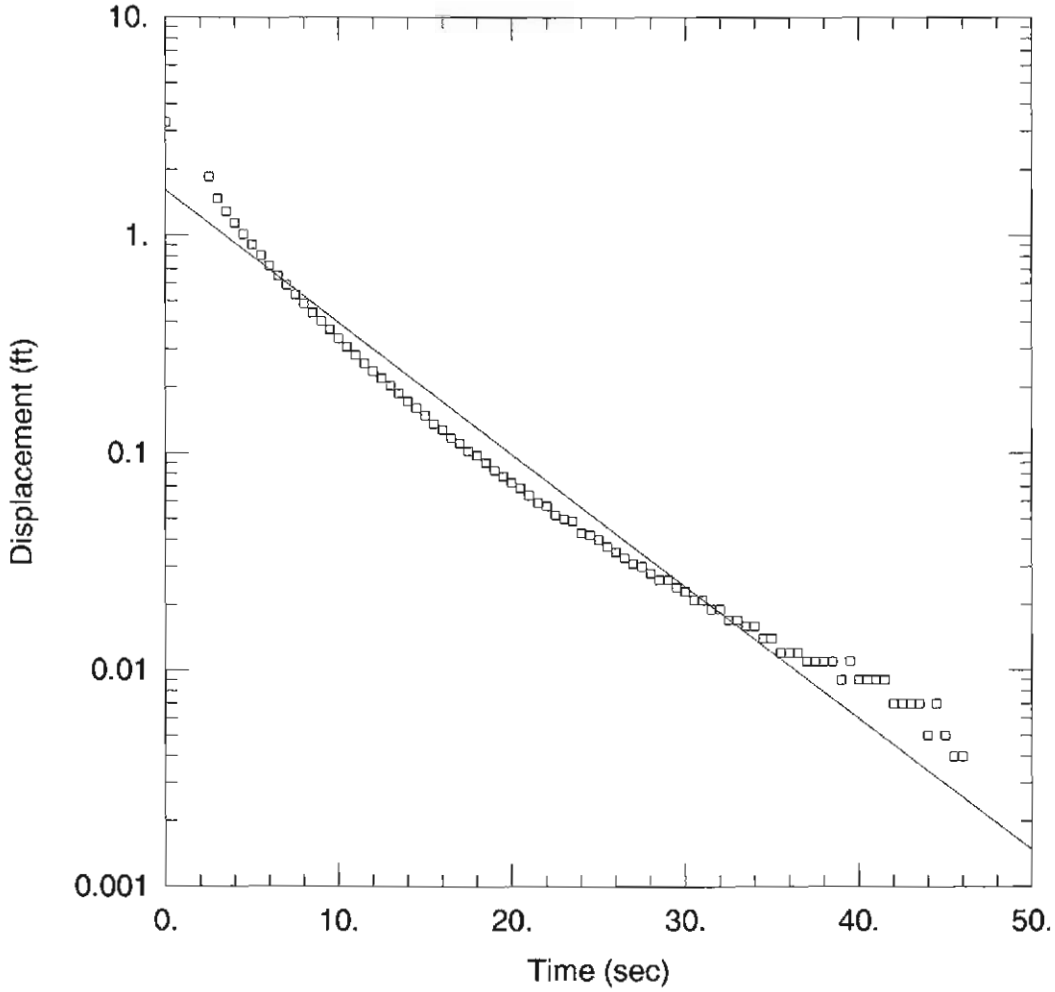
Saturated Thickness: 105. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (New Well)

Initial Displacement: 3.3 ft
Static Water Column Height: 101. ft
Total Well Penetration Depth: 102. ft
Screen Length: 10. ft
Casing Radius: 0.083 ft
Well Radius: 0.333 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.0003876 cm/sec
y0 = 1.522 ft



WELL TEST ANALYSIS

Data Set: K:\12206\EXPANSION\Hydro Investigation\Slug test data text\MW-15S Rising 2.aqt
Date: 03/12/07 Time: 14:45:00

PROJECT INFORMATION

Company: CHA
Client: City of Albany
Project: 12206
Location: Albany, NY
Test Well: MW-15S
Test Date: 2/02/2007

AQUIFER DATA

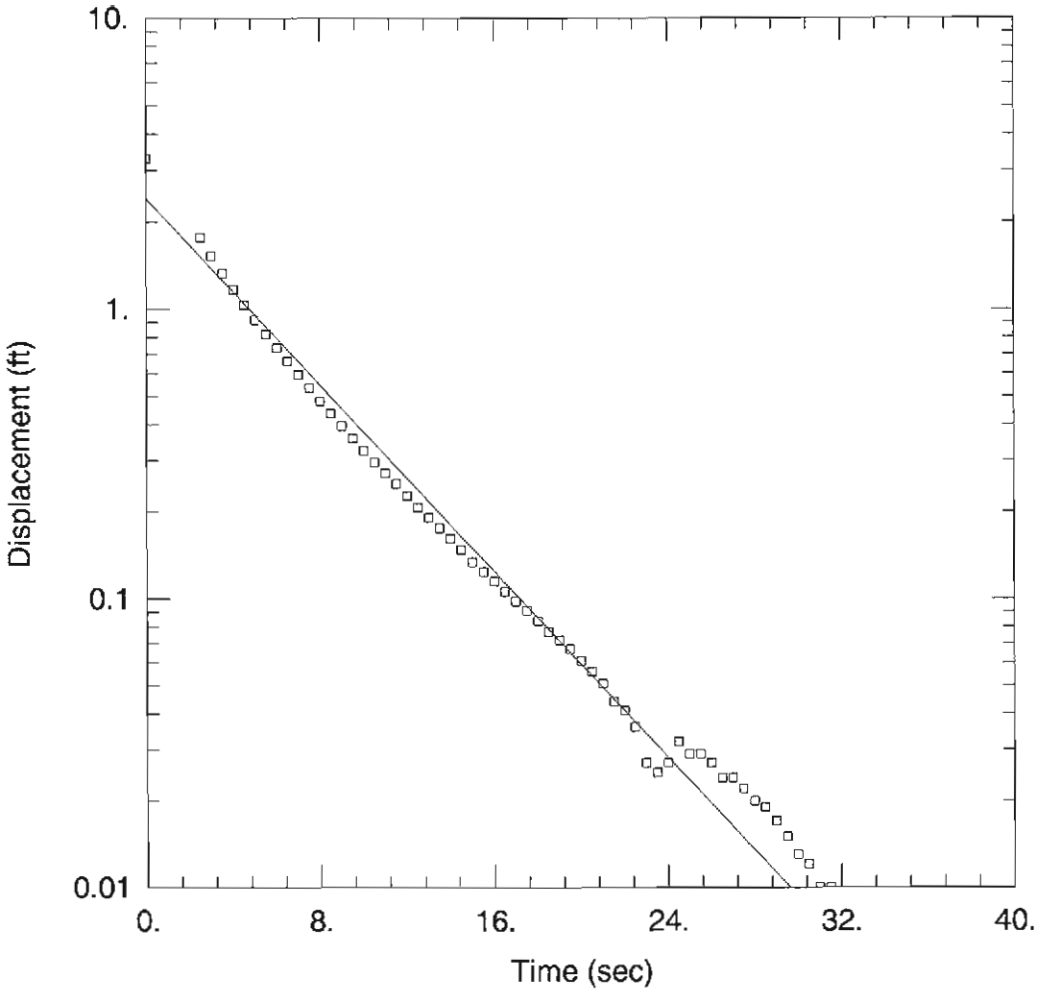
Saturated Thickness: 10. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (New Well)

Initial Displacement: 3.3 ft
Static Water Column Height: 10. ft
Total Well Penetration Depth: 13. ft
Screen Length: 10. ft
Casing Radius: 0.083 ft
Well Radius: 0.333 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.004016 cm/sec
y0 = 1.617 ft



WELL TEST ANALYSIS

Data Set: K:\12206\EXPANSION\Hydro Investigation\Slug test data text\MW-15S Rising 1.aqt
Date: 03/12/07 Time: 14:43:41

PROJECT INFORMATION

Company: CHA
Client: City of Albany
Project: 12206
Location: Albany, NY
Test Well: MW-15S
Test Date: 2/02/2007

AQUIFER DATA

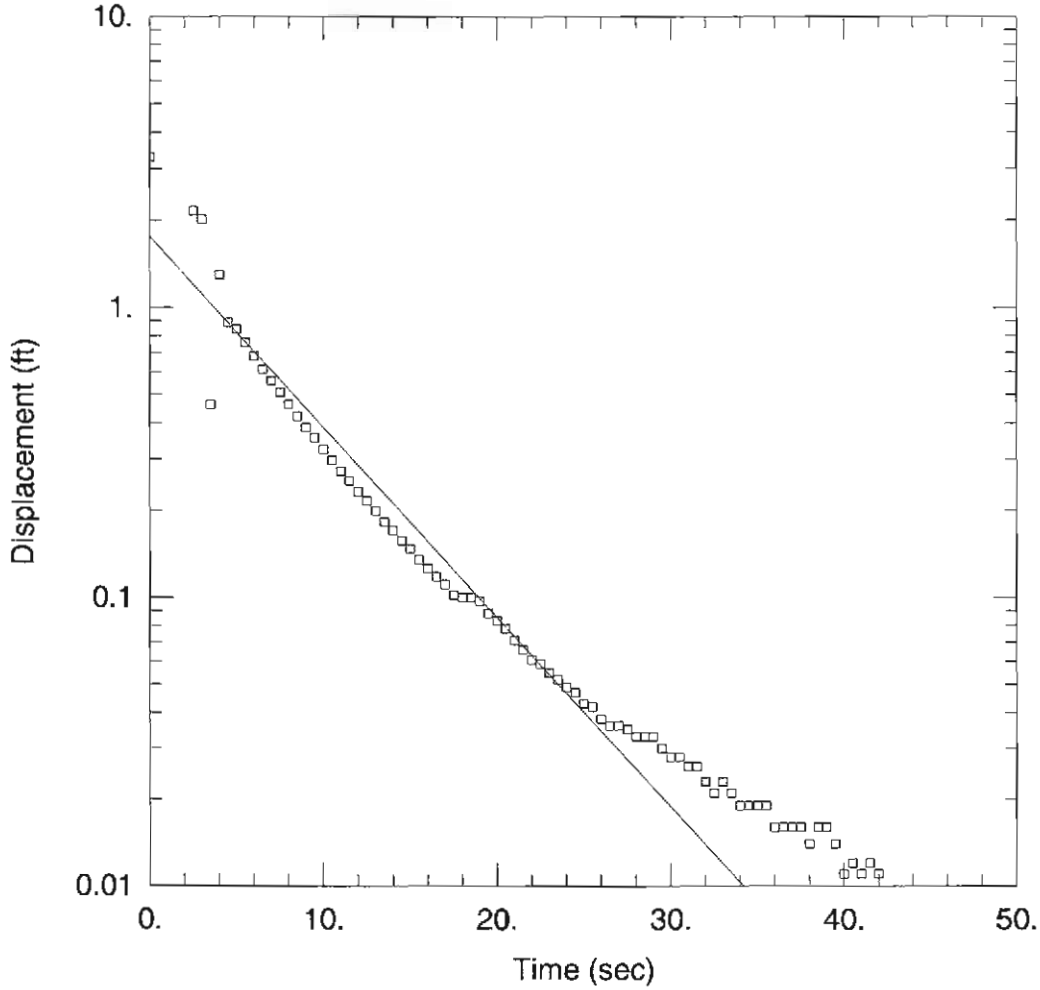
Saturated Thickness: 10. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (New Well)

Initial Displacement: 3.3 ft
Static Water Column Height: 10. ft
Total Well Penetration Depth: 13. ft
Screen Length: 10. ft
Casing Radius: 0.083 ft
Well Radius: 0.333 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.005308 cm/sec
y0 = 2.404 ft



WELL TEST ANALYSIS

Data Set: K:\12206\EXPANSION\Hydro Investigation\Slug test data text\MW-15S Falling 2.aqt
Date: 03/12/07 Time: 14:41:57

PROJECT INFORMATION

Company: CHA
Client: City of Albany
Project: 12206
Location: Albany, NY
Test Well: MW-15S
Test Date: 2/02/2007

AQUIFER DATA

Saturated Thickness: 10. ft
Anisotropy Ratio (Kz/Kr): 1.

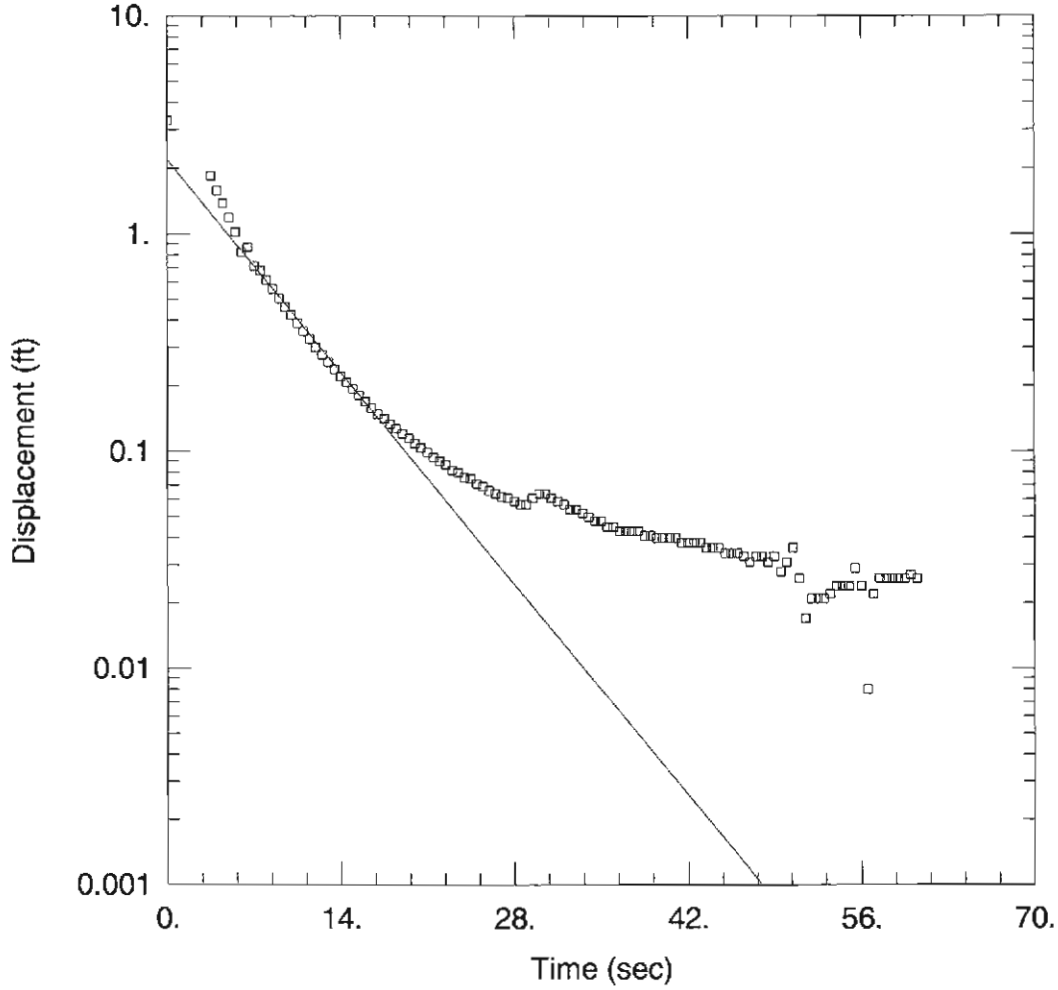
WELL DATA (New Well)

Initial Displacement: 3.3 ft
Total Well Penetration Depth: 13. ft
Casing Radius: 0.083 ft
Static Water Column Height: 10. ft
Screen Length: 10. ft
Well Radius: 0.333 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice

K = 0.004335 cm/sec
y0 = 1.752 ft



WELL TEST ANALYSIS

Data Set: K:\12206\EXPANSION\Hydro Investigation\Slug test data text\MW-15S Falling 1.aqt
Date: 03/12/07 Time: 14:40:32

PROJECT INFORMATION

Company: CHA
Client: City of Albany
Project: 12206
Location: Albany, NY
Test Well: MW-15S
Test Date: 2/02/2007

AQUIFER DATA

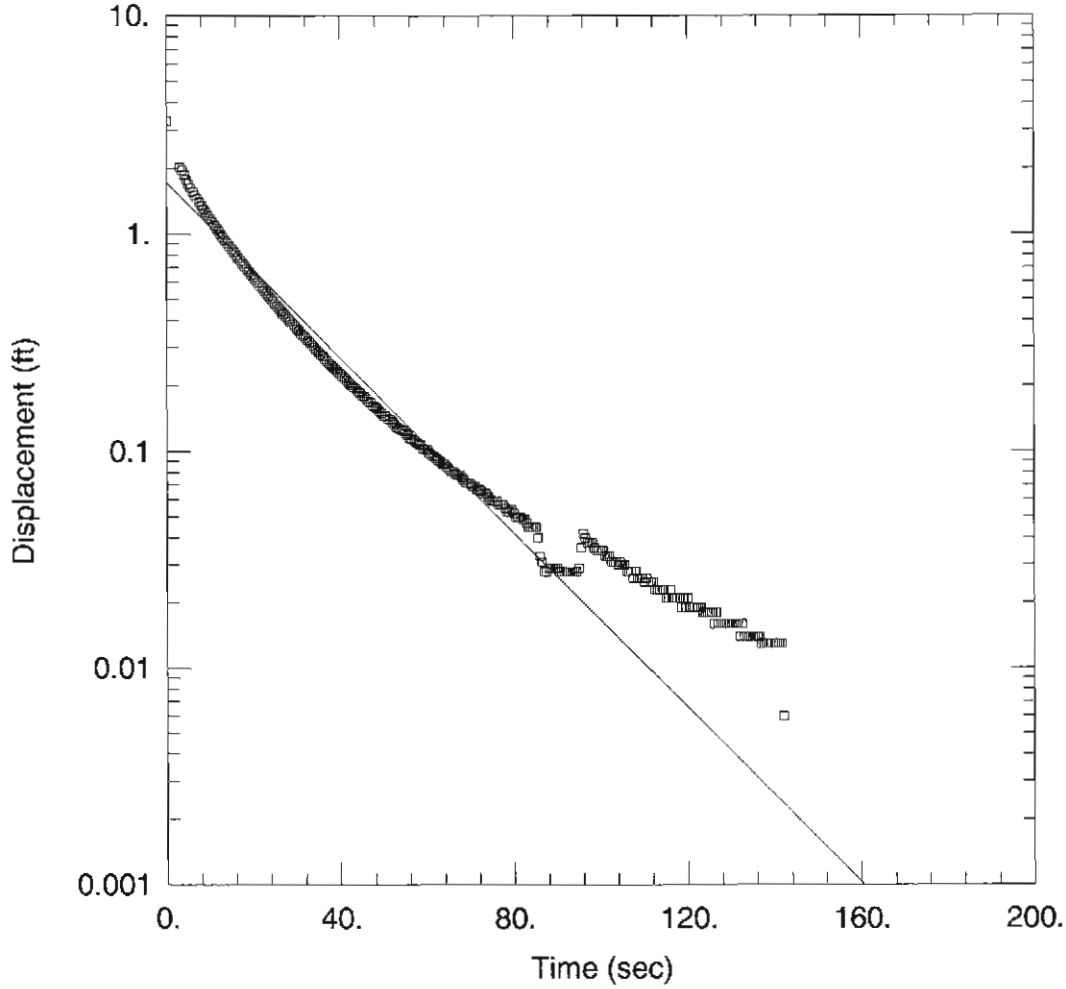
Saturated Thickness: 10. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (New Well)

Initial Displacement: 3.3 ft
Total Well Penetration Depth: 13. ft
Casing Radius: 0.083 ft
Static Water Column Height: 10. ft
Screen Length: 10. ft
Well Radius: 0.333 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.004602 cm/sec
y0 = 2.193 ft



WELL TEST ANALYSIS

Data Set: K:\12206\EXPANSION\Hydro Investigation\Slug test data text\MW-15I Rising 1.aqt
Date: 03/12/07 Time: 14:24:54

PROJECT INFORMATION

Company: CHA
Client: City of Albany
Project: 12206
Location: Albany, NY
Test Well: MW-15I
Test Date: 2/02/2007

AQUIFER DATA

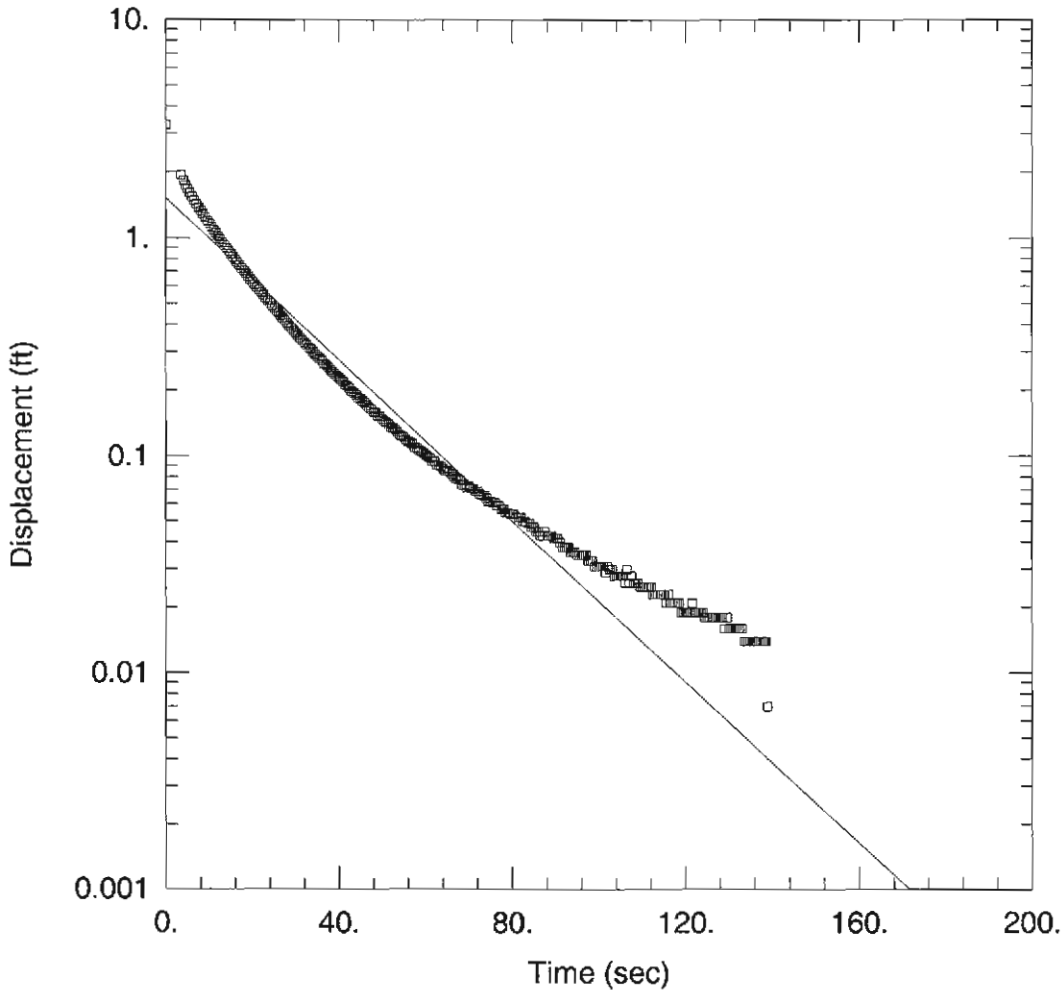
Saturated Thickness: 65. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (New Well)

Initial Displacement: 3.3 ft
Total Well Penetration Depth: 55. ft
Casing Radius: 0.083 ft
Static Water Column Height: 54. ft
Screen Length: 10. ft
Well Radius: 0.333 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.001424 cm/sec
y0 = 1.717 ft



WELL TEST ANALYSIS

Data Set: K:\12206\EXPANSION\Hydro Investigation\Slug test data text\MW-15I Rising 2.aqt
Date: 03/12/07 Time: 14:25:58

PROJECT INFORMATION

Company: CHA
Client: City of Albany
Project: 12206
Location: Albany, NY
Test Well: MW-15I
Test Date: 2/02/2007

AQUIFER DATA

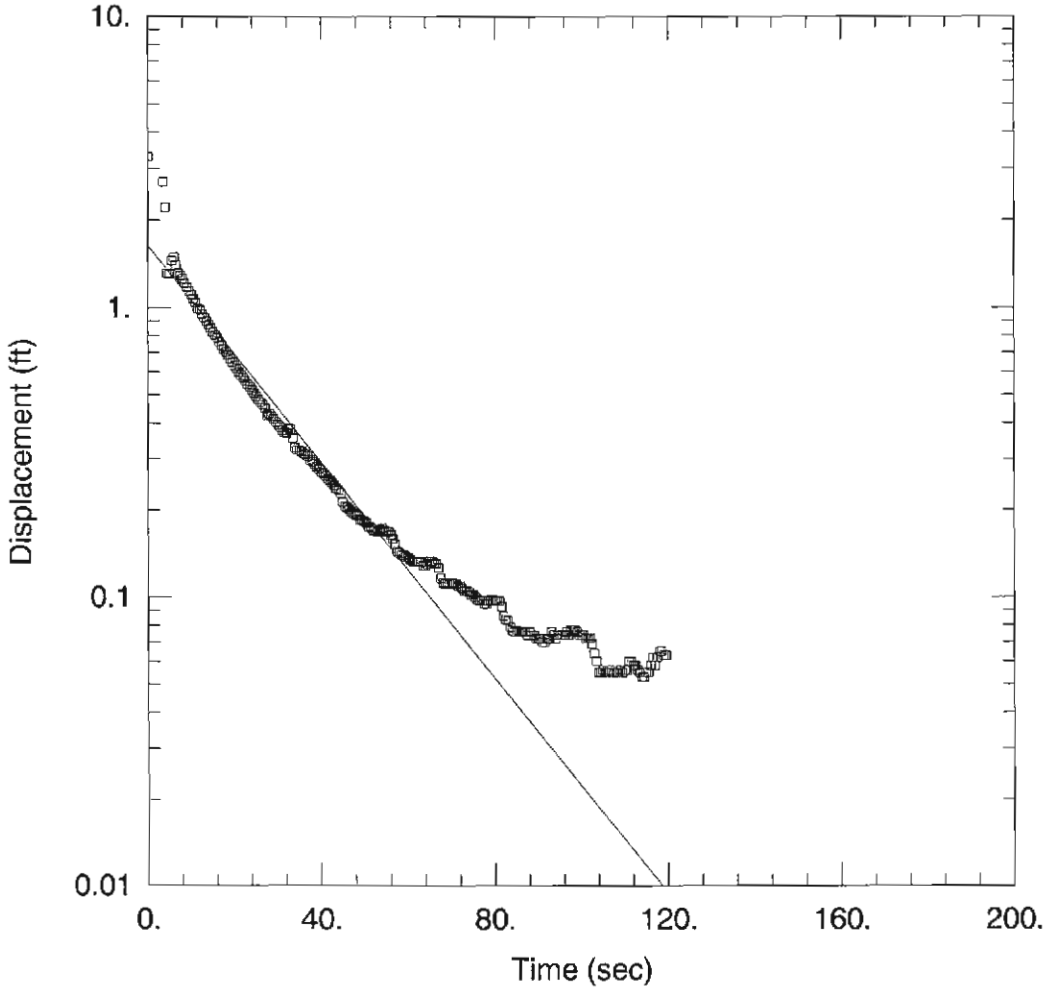
Saturated Thickness: 65. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (New Well)

Initial Displacement: 3.3 ft
Total Well Penetration Depth: 55. ft
Casing Radius: 0.083 ft
Static Water Column Height: 54. ft
Screen Length: 10. ft
Well Radius: 0.333 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.001311 cm/sec
y0 = 1.52 ft



WELL TEST ANALYSIS

Data Set: K:\12206\EXPANSION\Hydro Investigation\Slug test data text\MW-15I Falling 1.aqt
Date: 03/12/07 Time: 14:23:32

PROJECT INFORMATION

Company: CHA
Client: City of Albany
Project: 12206
Location: Albany, NY
Test Well: MW-15I
Test Date: 2/02/2007

AQUIFER DATA

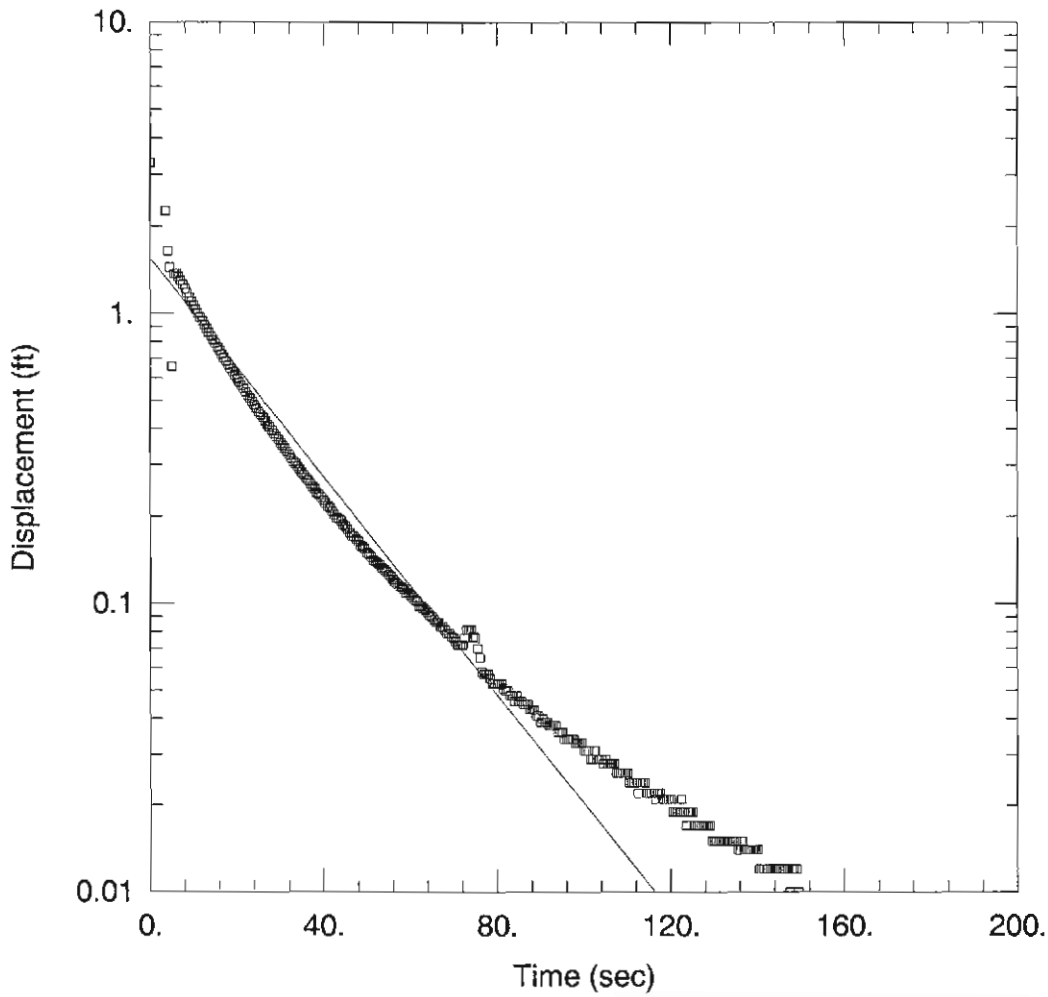
Saturated Thickness: 65. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (New Well)

Initial Displacement: 3.3 ft
Total Well Penetration Depth: 55. ft
Casing Radius: 0.083 ft
Static Water Column Height: 54. ft
Screen Length: 10. ft
Well Radius: 0.333 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.001319 cm/sec
y0 = 1.631 ft



WELL TEST ANALYSIS

Data Set: K:\12206\EXPANSION\Hydro Investigation\Slug test data text\MW-15I Falling 2.aqt
Date: 03/12/07 Time: 14:21:44

PROJECT INFORMATION

Company: CHA
Client: City of Albany
Project: 12206
Location: Albany, NY
Test Well: MW-15I
Test Date: 2/02/2007

AQUIFER DATA

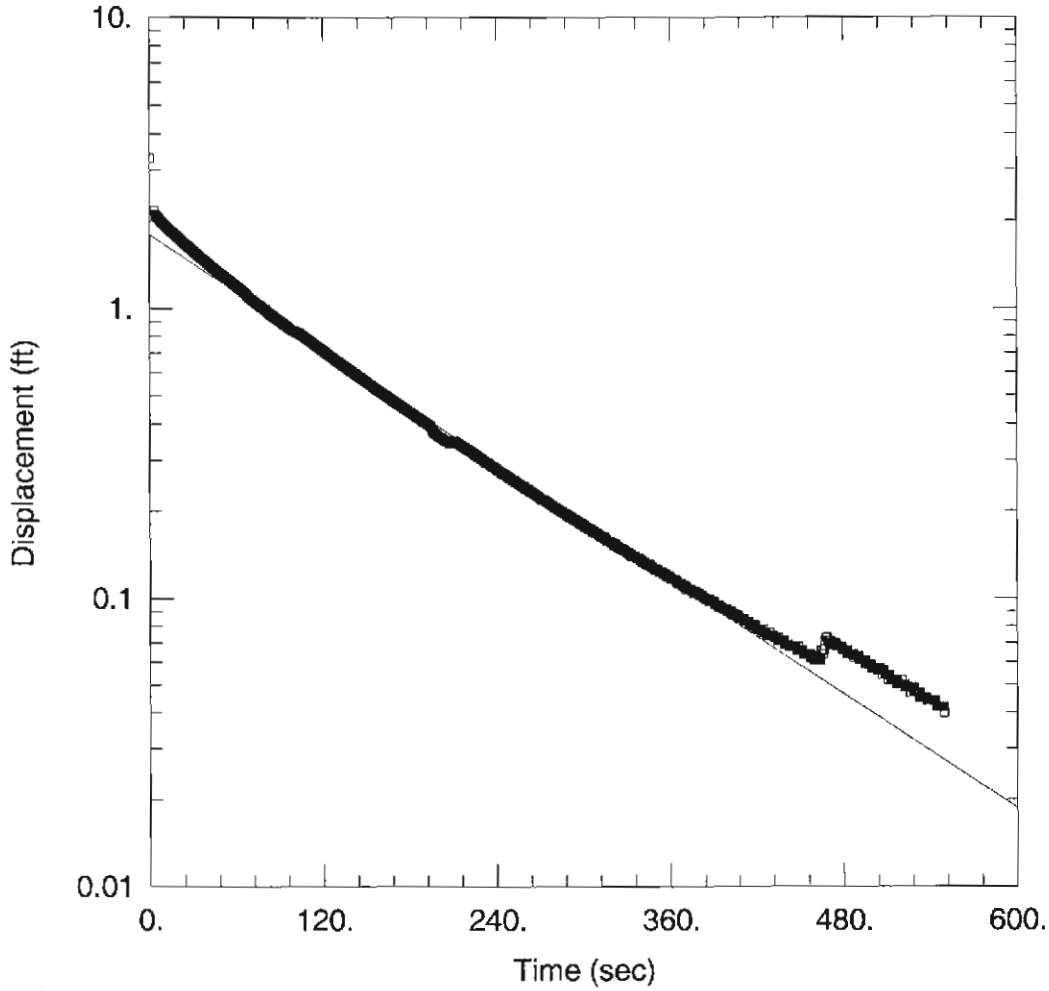
Saturated Thickness: 65. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (New Well)

Initial Displacement: 3.3 ft
Total Well Penetration Depth: 55. ft
Casing Radius: 0.083 ft
Static Water Column Height: 54. ft
Screen Length: 10. ft
Well Radius: 0.333 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.00133 cm/sec
y0 = 1.549 ft



WELL TEST ANALYSIS

Data Set: K:\12206\EXPANSION\Hydro Investigation\Slug test data text\MW-15D Rising 1.aqt
Date: 03/12/07 Time: 13:54:49

PROJECT INFORMATION

Company: CHA
Client: City of Albany
Project: 12206
Location: Albany, NY
Test Well: MW-15D
Test Date: 2/02/2007

AQUIFER DATA

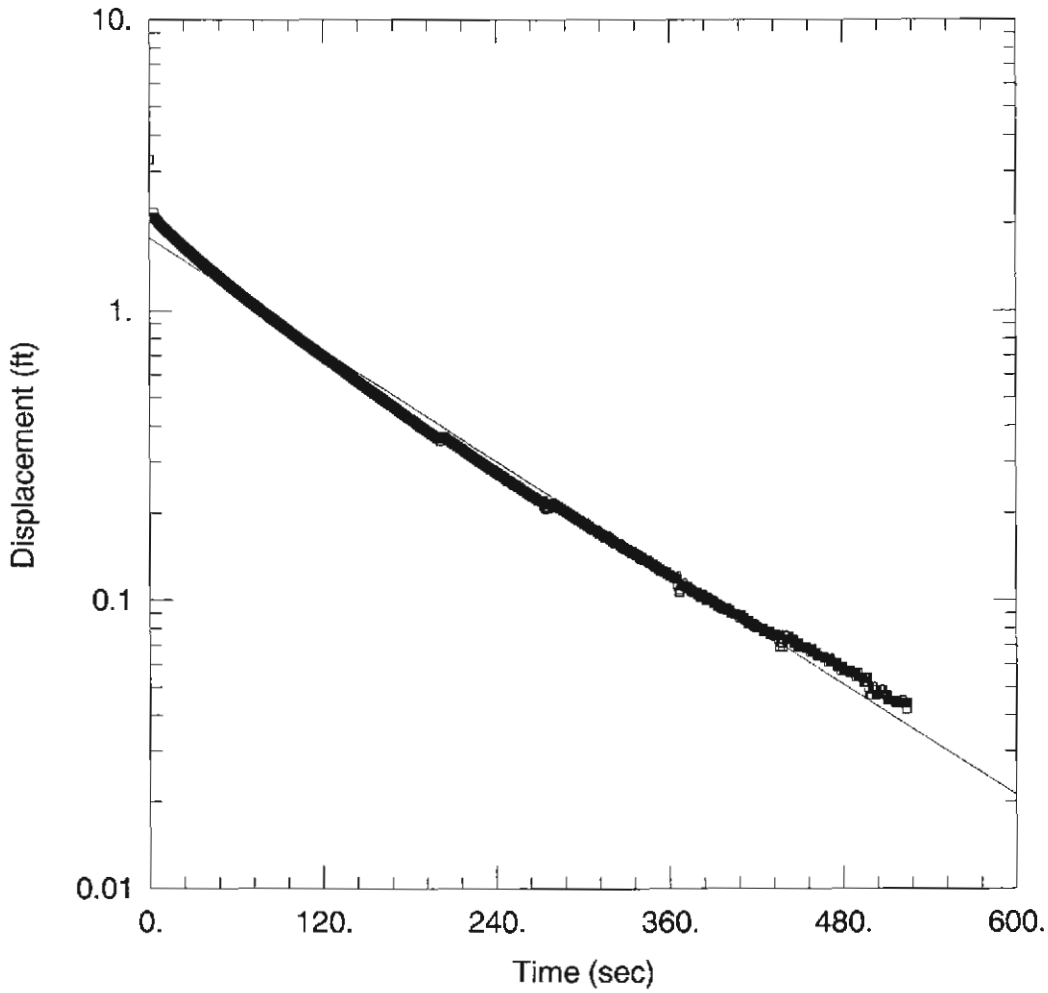
Saturated Thickness: 95. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (New Well)

Initial Displacement: 3.3 ft
Static Water Column Height: 90. ft
Total Well Penetration Depth: 91. ft
Screen Length: 10. ft
Casing Radius: 0.083 ft
Well Radius: 0.333 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.0002575 cm/sec
y0 = 1.796 ft



WELL TEST ANALYSIS

Data Set: K:\12206\EXPANSION\Hydro Investigation\Slug test data text\MW-15D Rising 2.aqt
Date: 03/12/07 Time: 13:57:49

PROJECT INFORMATION

Company: CHA
Client: City of Albany
Project: 12206
Location: Albany, NY
Test Well: MW-15D
Test Date: 2/02/2007

AQUIFER DATA

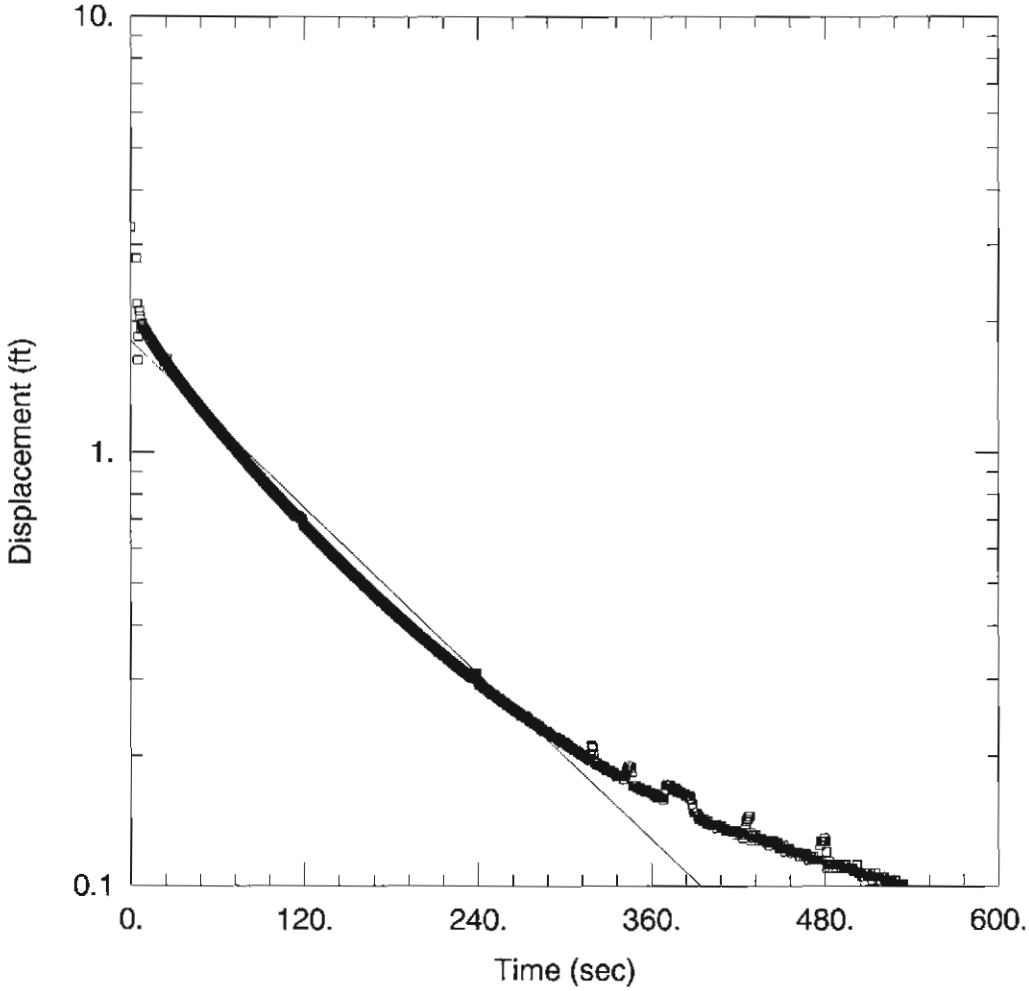
Saturated Thickness: 95. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (New Well)

Initial Displacement: 3.3 ft
Static Water Column Height: 90. ft
Total Well Penetration Depth: 91. ft
Screen Length: 10. ft
Casing Radius: 0.083 ft
Well Radius: 0.333 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.0002497 cm/sec
y0 = 1.776 ft



WELL TEST ANALYSIS

Data Set: K:\12206\EXPANSION\Hydro Investigation\Slug test data text\MW-15D Falling 1.aqt
Date: 03/12/07 Time: 13:50:07

PROJECT INFORMATION

Company: CHA
Client: City of Albany
Project: 12206
Location: Albany, NY
Test Well: MW-15D
Test Date: 2/02/2007

AQUIFER DATA

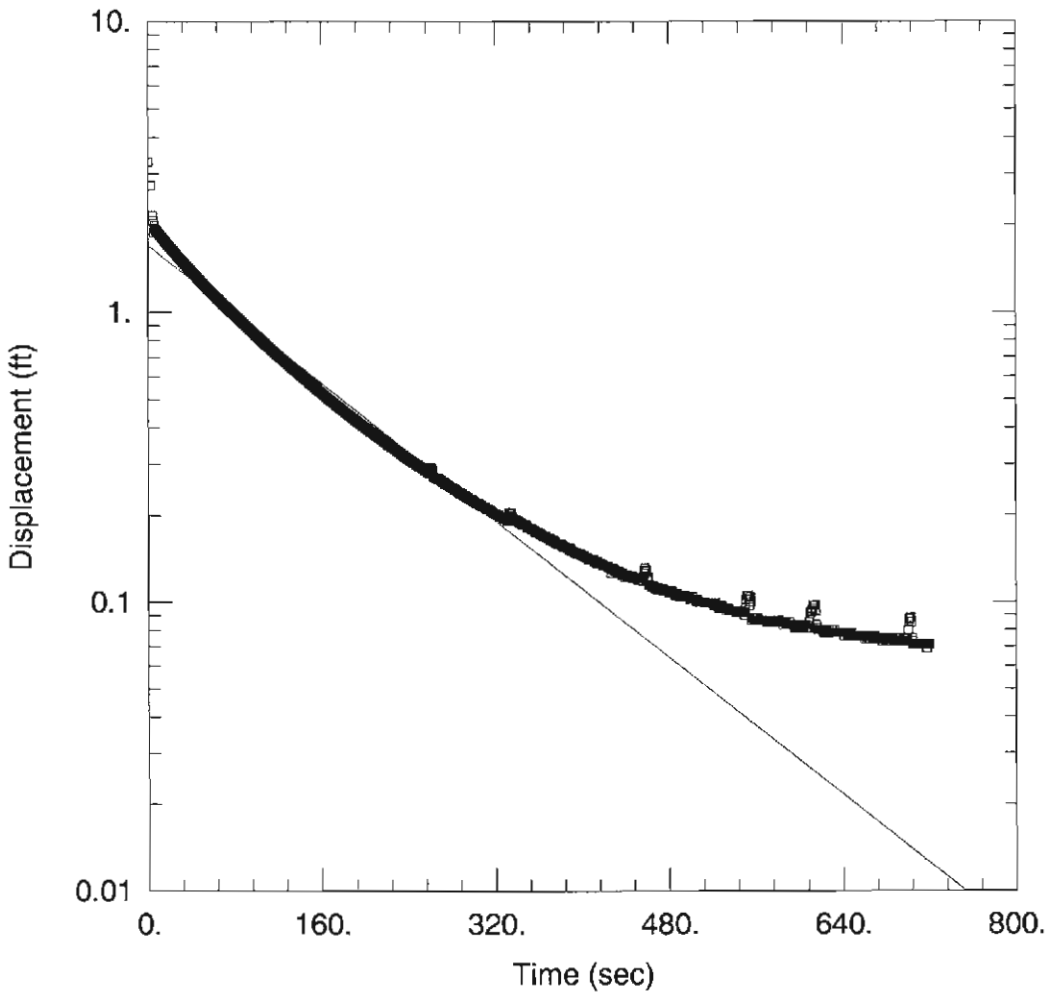
Saturated Thickness: 95. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (New Well)

Initial Displacement: 3.3 ft
Static Water Column Height: 90. ft
Total Well Penetration Depth: 91. ft
Screen Length: 10. ft
Casing Radius: 0.083 ft
Well Radius: 0.333 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.0002482 cm/sec
y0 = 1.804 ft



WELL TEST ANALYSIS

Data Set: K:\12206\EXPANSION\Hydro Investigation\Slug test data text\MW-15D Falling 2.aqt
Date: 03/12/07 Time: 13:52:55

PROJECT INFORMATION

Company: CHA
Client: City of Albany
Project: 12206
Location: Albany, NY
Test Well: MW-15D
Test Date: 2/02/2007

AQUIFER DATA

Saturated Thickness: 95. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (New Well)

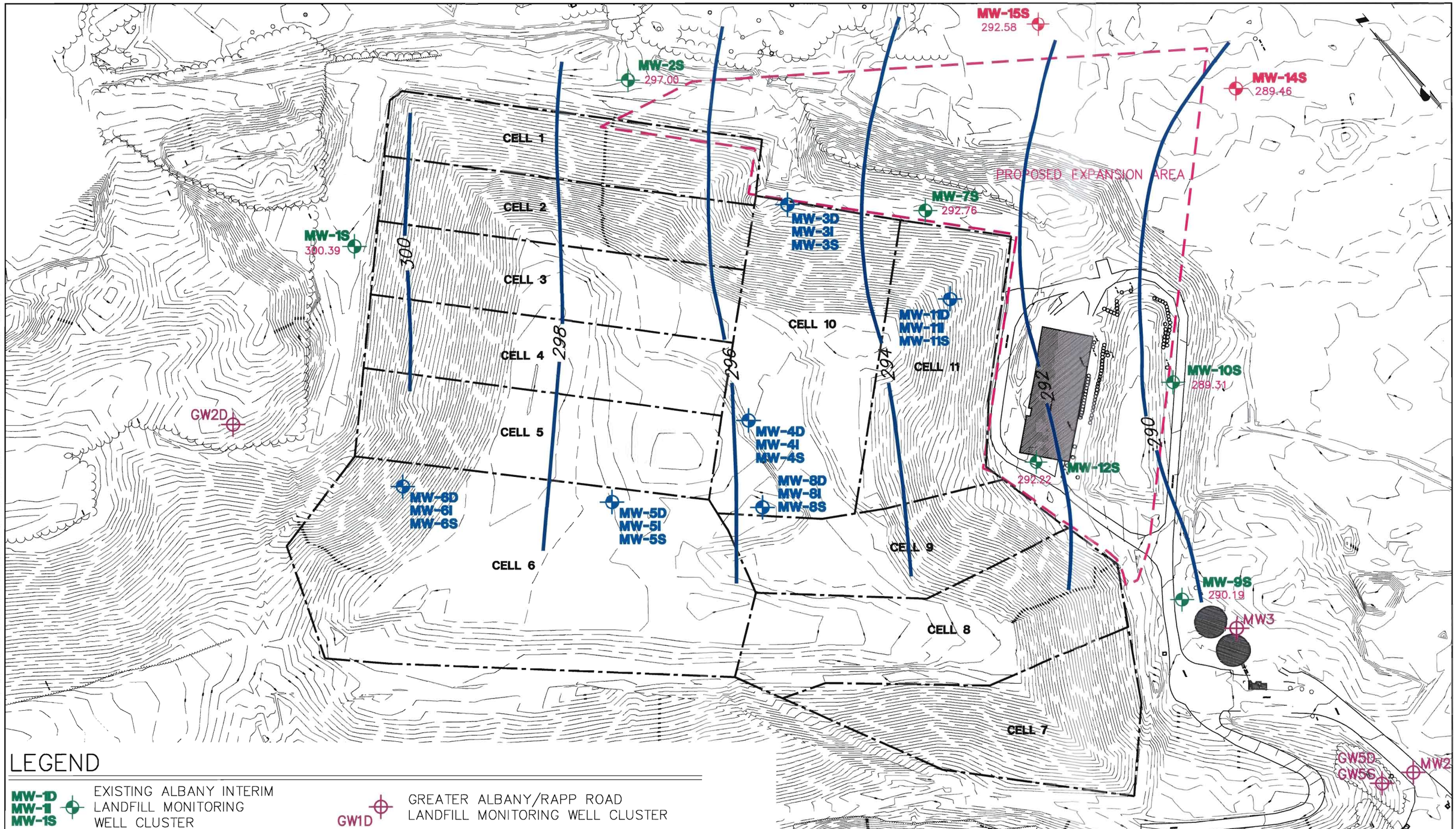
Initial Displacement: 3.3 ft
Total Well Penetration Depth: 91. ft
Casing Radius: 0.083 ft
Static Water Column Height: 90. ft
Screen Length: 10. ft
Well Radius: 0.333 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.0002307 cm/sec
y0 = 1.7 ft

APPENDIX E

AIL Shallow, Intermediate, and Deep Groundwater Contours



LEGEND

MW-1D / MW-1 / MW-1S	EXISTING ALBANY INTERIM LANDFILL MONITORING WELL CLUSTER
GW1D	GREATER ALBANY/RAPP ROAD LANDFILL MONITORING WELL CLUSTER
MW-1D / MW-1 / MW-1S	ABANDONED MONITORING WELL CLUSTER
MW-15S	NEWLY INSTALLED EASTERN EXPANSION MONITORING WELLS
300.39	WELL WATER LEVEL MEASURED ON FEBRUARY 2, 2007
—290—	GROUNDWATER CONTOUR/ ELEVATION

SCALE: 1" = 200'

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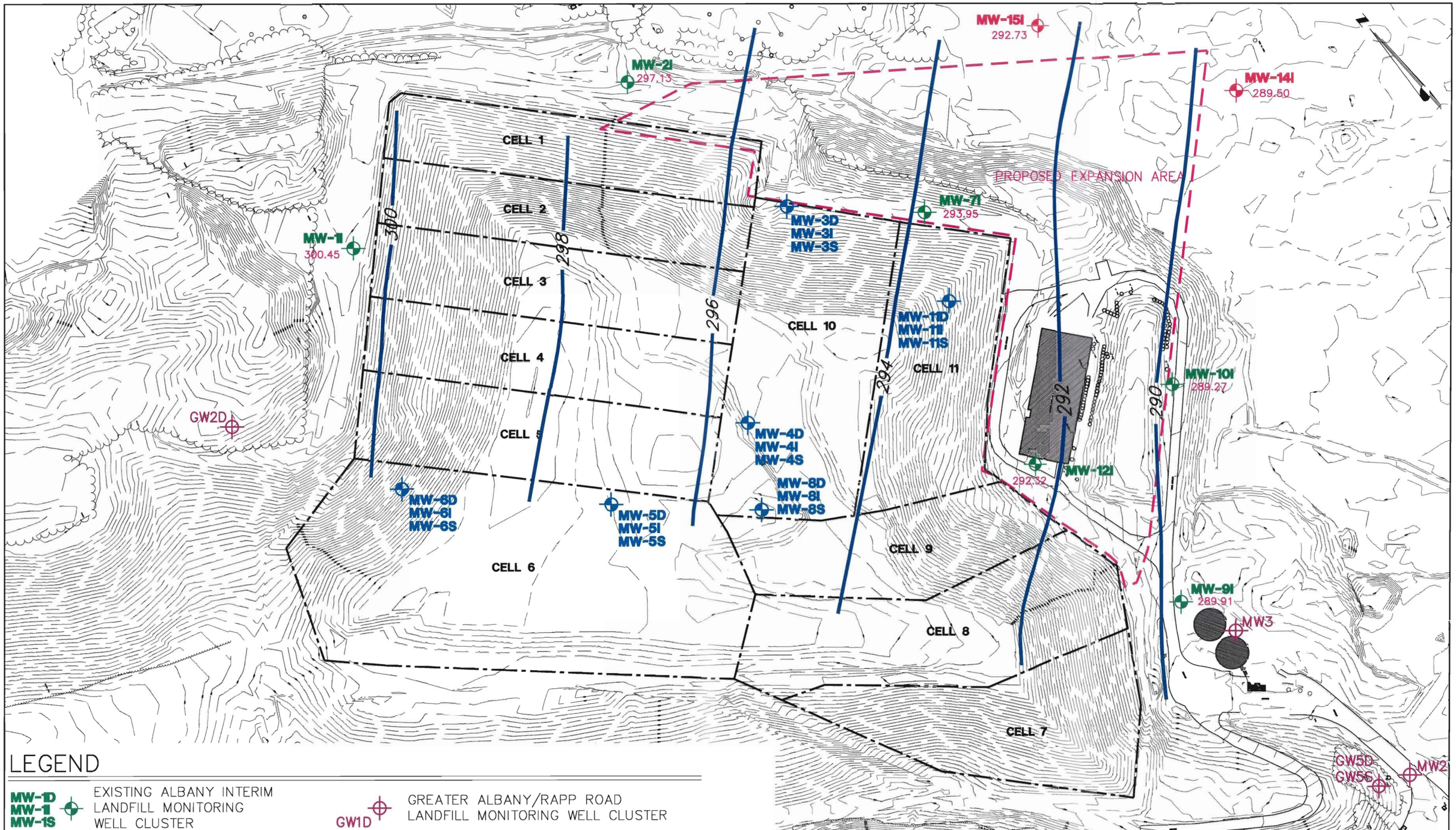
12206.4009.1102 | DATE: 03/27/07

FIGURE E-1
SHALLOW GROUNDWATER PIEZOMETRIC MAP
RAPP ROAD SOLID WASTE MANAGEMENT FACILITY
CITY OF ALBANY
STATE OF NEW YORK

File: K:\12206\EXPANSION\HYDRO INVESTIGATION\HYDRO REPORT\ACAD\3-28-07\FIGURE E-1_SHALLOW GROUNDWATER PIEZOMETRIC MAP.DWG Saved: 4/18/2007 4:13:53 PM Plotted: 5/3/2007 2:44:40 PM User Stuart, Jeff



LEGEND

MW-1D, MW-1, MW-1S	EXISTING ALBANY INTERIM LANDFILL MONITORING WELL CLUSTER
GW1D	GREATER ALBANY/RAPP ROAD LANDFILL MONITORING WELL CLUSTER
MW-1D, MW-1, MW-1S	ABANDONED MONITORING WELL CLUSTER
MW-14I	NEWLY INSTALLED EASTERN EXPANSION MONITORING WELLS
300.39	WELL WATER LEVEL MEASURED ON FEBRUARY 2, 2007
290	GROUNDWATER CONTOUR/ ELEVATION

SCALE: 1" = 200'

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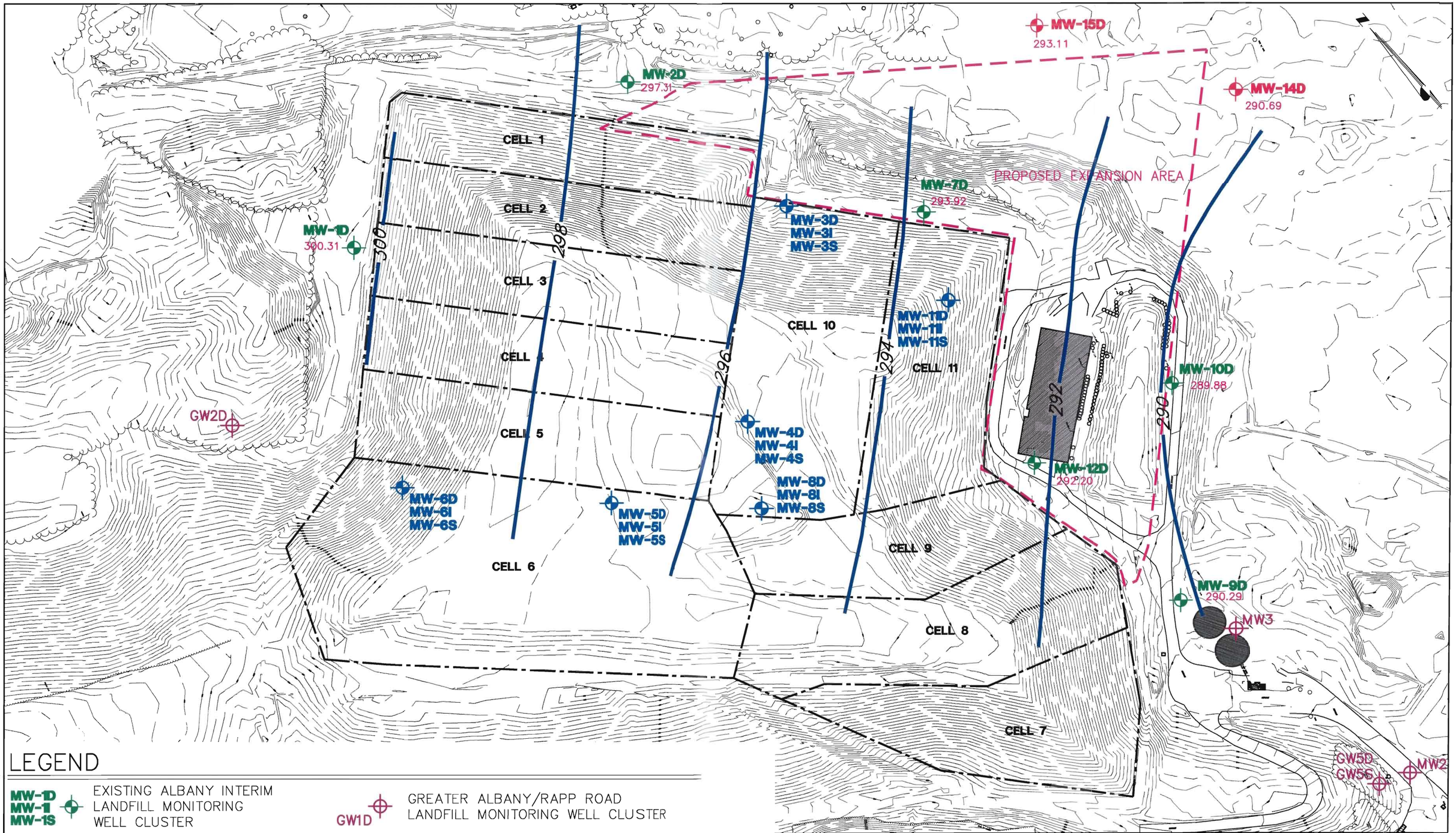
12206.4009.1102 | DATE: 03/27/07

FIGURE E-2
INTERMEDIATE GROUNDWATER PIEZOMETRIC MAP
RAPP ROAD SOLID WASTE MANAGEMENT FACILITY
CITY OF ALBANY
STATE OF NEW YORK

File: K:\12206\EXPANSION\HYDRO INVESTIGATION\HYDRO REPORT\ACAD\3-28-07\FIGURE E-2 INTERMEDIATE GROUNDWATER PIEZOMETRIC MAP.DWG Saved: 4/18/2007 4:03:48 PM Plotted: 5/3/2007 2:45:22 PM User: Stuart, Jeff



LEGEND

MW-1D, MW-1, MW-1S	EXISTING ALBANY INTERIM LANDFILL MONITORING WELL CLUSTER
GW1D	GREATER ALBANY/RAPP ROAD LANDFILL MONITORING WELL CLUSTER
MW-1D, MW-1, MW-1S	ABANDONED MONITORING WELL CLUSTER
MW-14I	NEWLY INSTALLED EASTERN EXPANSION MONITORING WELLS
300.39	WELL WATER LEVEL MEASURED ON FEBRUARY 2, 2007
—290—	GROUNDWATER CONTOUR/ ELEVATION

SCALE: 1" = 200'

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12206.4009.1102 | DATE: 03/27/07

FIGURE E-3
DEEP GROUNDWATER PIEZOMETRIC MAP
RAPP ROAD SOLID WASTE MANAGEMENT FACILITY
CITY OF ALBANY
STATE OF NEW YORK

File: K:\12206\EXPANSION\HYDRO INVESTIGATION\HYDRO REPORT\ACAD\5-28-07\FIGURE E-3_DEEP GROUNDWATER PIEZOMETRIC MAP.DWG Saved: 4/18/2007 3:54:11 PM Plotted: 5/3/2007 2:46:01 PM User: Stuart, Jeff

APPENDIX F

GAL Historical Groundwater Quality Monitoring Data

Table F-1
Greater Albany Landfill (GAL)
Historical Groundwater Quality Monitoring Data
City of Albany Landfill - Proposed Eastern Expansion Project
Albany, NY
Monitoring Well GW-1D

TEST PARAMETER	Unit	NYSDEC TOGS Standard	3/26/03	6/10/03	9/24/03	12/17/03	3/23/04	6/17/04	9/27/04	12/14/04	3/28/05	6/13/05	9/19/05	12/19/05	3/20/06	6/26/06	9/25/06	12/18/06
			Routine	Routine	Baseline	Routine	Routine	Routine	Routine	Baseline	Baseline	Routine	Routine	Routine	Routine	Baseline	Routine	Routine
pH	SU	6.5-8.5	8.24	7.95	6.85	8.18	n/a	7.85	7.79	7.65	7.83	7.62	7.95	8.16	7.01	7.37	9.24	8.26
Eh	mV	NA	4.3	15	-60.7	-17.2	n/a	-23.2	92	-156.4	-167.8	-15.2	-60.5	79	205.3	-22.8	-1.7	15.5
Turbidity	N.T.U.	5	1.8	6.96	16.4	12.8	3.8	6.95	1.81	6.91	15.3	14	15.1	8.6	8.33	9.03	19	10.6
Color	unit	15	n/a	n/a	n/a	n/a	n/a	n/a	n/a	5.0	n/a	n/a	n/a	n/a	n/a	13	n/a	n/a
Specific Conductance	uS/cm	NA	163	256	202	160	n/a	221	308	228	214	252	206	350	207	149	155.9	201
Total Dissolved Solids	mg/l	500	85	85	360	120	1700	118	127	565	60	160	607	88	178	170	167	185
Chemical Oxygen Demand	mg/l	NA	<20	<20	<20	<20	<20	<20	<20	33	200	<20	<20	< 20	<20	52	<20	<20
Biochemical Oxygen Demand	mg/l	NA	n/a	n/a	n/a	n/a	n/a	n/a	n/a	<4	<4	n/a	n/a	n/a	n/a	8	n/a	n/a
Total Organic Carbon	mg/l	NA	<3	<3	<3	<3	<3.0	<3.0	<3.0	<3.0	<3	<3.0	<3.0	< 3.0	<3.0	<3.0	<3	<3
Sulfate	mg/l	250	10	12	13	13	11	9.72	12.6	16.7	9.48	7.85	9.02	17.8	11.5	9.3	7.79	<5
Total Alkalinity ($CaCO_3$)	mg/l	NA	67	71	79	79	100	94	100	480	120	110	110	100	<10	96	110	150
Chloride	mg/l	250	1	3	2	3	890	3.01	1.79	12.0	5.62	801	3.62	2.38	2.75	5.84	4.05	80.1
Total Hardness ($CaCO_3$)	mg/l	NA	65	82	98	85	89	99	95	99	86	110	94	100	83	100	110	99
Chromium, Hexavalent	mg/l	0.050	n/a	n/a	<0.01	n/a	n/a	n/a	n/a	<0.010	<0.01	n/a	n/a	n/a	n/a	<0.010	n/a	n/a
Total Kjeldahl Nitrogen	mg/l	NA	n/a	n/a	<0.5	n/a	n/a	n/a	n/a	<0.500	<0.5	n/a	n/a	n/a	n/a	<0.5	n/a	n/a
Ammonia - Nitrogen	mg/l	2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.500	<0.5	<0.5	2.63	< 0.5	<0.5	<0.5	<0.5	<0.5
Nitrate - Nitrogen	mg/l	10	<0.2	<0.2	<0.2	<0.2	<0.2	n/a	<0.20	<0.20	<0.2	<0.20	<0.20	< 0.2	<0.2	<0.2	<0.2	0.338
Total Phenols	mg/l	0.001*	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.005	<0.005	<0.005	<0.005	<0.005
Total Cyanide	mg/l	0.1	n/a	n/a	<0.01	n/a	n/a	n/a	n/a	<0.010	<0.01	n/a	n/a	n/a	n/a	<0.01	n/a	n/a
INORGANIC PARAMETERS:																		
Aluminum	mg/l	0.1	n/a	n/a	0.21	n/a	n/a	n/a	n/a	0.095	0.25	n/a	n/a	n/a	n/a	0.092	n/a	n/a
Antimony	mg/l	0.003	n/a	n/a	<0.003	n/a	n/a	n/a	n/a	0.014	<0.003	n/a	n/a	n/a	n/a	<0.003	n/a	n/a
Arsenic	mg/l	0.025	n/a	n/a	<0.01	n/a	n/a	n/a	n/a	0.012	0.007	n/a	n/a	n/a	n/a	<0.010	n/a	n/a
Barium	mg/l	1	n/a	n/a	<0.3	n/a	n/a	n/a	n/a	<0.30	<0.3	n/a	n/a	n/a	n/a	<0.3	n/a	n/a
Beryllium	mg/l	0.003*	n/a	n/a	<0.005	n/a	n/a	n/a	n/a	<0.005	<0.005	n/a	n/a	n/a	n/a	<0.005	n/a	n/a
Boron	mg/l	1	n/a	n/a	<0.5	n/a	n/a	n/a	n/a	<0.50	<0.5	n/a	n/a	n/a	n/a	<0.5	n/a	n/a
Cadmium	mg/l	0.01	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	< 0.005	<0.005	<0.005	<0.005	<0.005
Calcium	mg/l	NA	20	26	31	27	28	31	30	31	27	34	29	31	26	31	35	31
Chromium	mg/l	0.050	n/a	n/a	<0.05	n/a	n/a	n/a	n/a	<0.050	<0.05	n/a	n/a	n/a	n/a	<0.050	n/a	n/a
Copper	mg/l	0.2	n/a	n/a	<0.02	n/a	n/a	n/a	n/a	0.026	0.021	n/a	n/a	n/a	n/a	<0.020	n/a	n/a
Iron	mg/l	0.3	0.11	0.43	0.47	0.42	0.12	0.16	0.2	0.28	0.58	0.37	0.19	0.61	0.15	0.18	0.21	0.44
Lead	mg/l	0.025	<0.001	<0.001	0.002	0.001	<0.001	0.001	0.002	0.003	<0.001	0.001	<0.001	< 0.001	0.001	0.004	<0.003	<0.003
Magnesium	mg/l	35	3.4	4.3	5.2	4.5	4.9	5.3	5	5.1	4.5	5.8	5	5.5	4.5	5.4	6.2	5.5
Manganese	mg/l	0.3	<0.02	0.03	0.04	0.03	<0.02	<0.02	<0.02	<0.020	0.035	0.022	0.025	0.044	<0.02	0.022	0.052	0.03
Mercury	mg/l	0.002	n/a	n/a	<0.0004	n/a	n/a	n/a	n/a	<0.0004	<0.0004	n/a	n/a	n/a	n/a	<0.0004	n/a	n/a
Nickel	mg/l	0.007*	n/a	n/a	<0.03	n/a	n/a	n/a	n/a	<0.030	0.035	n/a	n/a	n/a	n/a	<0.03	n/a	n/a
Potassium	mg/l	NA	0.8	0.9	0.7	<0.5	1.9	0.62	<0.50	2.3	1.7	0.92	0.64	0.61	0.71	<0.5	<0.5	<0.5
Selenium	mg/l	0.01	n/a	n/a	<0.005	n/a	n/a	n/a	n/a	<0.005	0.014	n/a	n/a	n/a	n/a	<0.005	n/a	n/a
Silver	mg/l	0.05	n/a	n/a	<0.05	n/a	n/a	n/a	n/a	<0.050	<0.05	n/a	n/a	n/a	n/a	<0.050	n/a	n/a
Sodium	mg/l	20	3.3	4.6	4.3	3.7	4.6	3.8	4.2	3.3	2.3	2.3	1.6	2	1.9	1.1	3.4	2.5
Thallium	mg/l	0.004	n/a	n/a	<0.003	n/a	n/a	n/a	n/a	0.066	<0.003	n/a	n/a	n/a	n/a	0.005	n/a	n/a
Zinc	mg/l	0.3	n/a	n/a	0.03	n/a	n/a	n/a	n/a	0.047	0.033	n/a	n/a	n/a	n/a	<0.01	n/a	n/a
VOLATILE ORGANIC COMPOUNDS																<MDL	n/a	n/a
Toluene	mg/l	5	n/a	n/a	2	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a			

Notes:
1. Shaded values indicate detection above Standard.
2. *Standard is below laboratory Method Detection Limit (MDL).
3. n/a = not applicable; analysis not performed.
4. "<" = not detected at specified MDL.
5. NA = Standard not available.

Table F-1
Greater Albany Landfill (GAL)
Historical Groundwater Quality Monitoring Data
City of Albany Landfill - Proposed Eastern Expansion Project
Albany, NY
Monitoring Well GW-2D

TEST PARAMETER	Unit	NYSDEC TOGS Standard	3/26/03	6/10/03	9/24/03	12/17/03	3/23/04	6/17/04	9/27/04	12/14/04	3/28/05	6/13/05	9/19/05	12/19/05	3/20/06	6/26/06	9/25/06	12/18/06
			Routine	Routine	Baseline	Routine	Routine	Routine	Routine	Baseline	Baseline	Routine	Routine	Routine	Routine	Baseline	Routine	Routine
pH	SU	6.5-8.5	6.71	6.95	6.71	6.89		7.34	7.13	7.03	6.55	6.68	7.33	7.06	5.96	7.33	8.68	7.15
Eh	mV	NA	-67.2	-30	-45.3	-71.3		-58.7	20	-229.5	-164.5	-70.6	-69.9	13	111.1	-62	-49.4	-19.2
Turbidity	N.T.U.	5	12	35.9	79.6	35.2	55	19.2	22.4	21.2	11.1	21.8	16.3	12.2	10.6	11.9	6.96	6.67
Color	unit	15	n/a	n/a	n/a	n/a	n/a	n/a	n/a	150	n/a	n/a	n/a	n/a	n/a	75	n/a	n/a
Specific Conductance	uS/cm	NA	569	641	469	943		552	773	898	853	865	684	897	872	430	403.8	589
Total Dissolved Solids	mg/l	500	300	210	270	480	280	205	340	552	505	442	380	305	490	437	277	302
Chemical Oxygen Demand	mg/l	NA	<20	<20	<20	23	21	<20	<20	36	18	37	<20	< 20	<20	32	<20	<20
Biochemical Oxygen Demand	mg/l	NA	n/a	n/a	n/a	n/a	n/a	n/a	n/a	6	<4	n/a	n/a	n/a	n/a	<8	n/a	n/a
Total Organic Carbon	mg/l	NA	4	<3	3	<3	<3.0	<3.0	4	17.0	39.0	6	3	3	4	3	3	4
Sulfate	mg/l	250	49	36	35	110	26	17.9	61.8	108	51.6	36.1	30.4	94.2	55	33.5	28	18.3
Total Alkalinity ($CaCO_3$)	mg/l	NA	230	200	210	370	140	230	270	380	430	450	380	250	330	250	230	250
Chloride	mg/l	250	4	4	3	6	3	4.13	3.83	12.3	7.66	873	6.51	4.04	6.16	7.19	5.89	8.16
Total Hardness ($CaCO_3$)	mg/l	NA	230	200	140	380	200	220	240	430	380	330	310	270	360	240	220	290
Chromium, Hexavalent	mg/l	0.050	n/a	n/a	<0.01	n/a	n/a	n/a	n/a	<0.010	<0.01	n/a	n/a	n/a	n/a	<0.01	n/a	n/a
Total Kjeldahl Nitrogen	mg/l	NA	n/a	n/a	4	n/a	n/a	n/a	n/a	3.62	9.22	n/a	n/a	n/a	n/a	3.13	n/a	n/a
Ammonia - Nitrogen	mg/l	2.0	3.1	4	3.4	3.3	4	52.2	3.63	2.80	13.2	9.71	38.5	4.44	1.65	1.86	1.16	5.25
Nitrate - Nitrogen	mg/l	10	<0.2	<0.2	<0.2	<0.2	<0.2		<0.20	<0.20	<0.2	<0.20	<0.2	< 0.2	0.74	<0.2	<0.2	0.305
Total Phenols	mg/l	0.001*	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	< 0.005	n/a	<0.005	0.006	0.005
Total Cyanide	mg/l	0.1	n/a	n/a	<0.01	n/a	n/a	n/a	n/a	<0.010	<0.01	n/a	n/a	n/a	n/a	<0.010	n/a	n/a
INORGANIC PARAMETERS:																		
Aluminum	mg/l	0.1	n/a	n/a	0.06	n/a	n/a	n/a	n/a	0.11	0.05	n/a	n/a	n/a	n/a	0.1	n/a	n/a
Antimony	mg/l	0.003	n/a	n/a	<0.003	n/a	n/a	n/a	n/a	0.034	<0.003	n/a	n/a	n/a	n/a	<0.003	n/a	n/a
Arsenic	mg/l	0.025	n/a	n/a	<0.01	n/a	n/a	n/a	n/a	0.016	0.015	n/a	n/a	n/a	n/a	<0.01	n/a	n/a
Barium	mg/l	1	n/a	n/a	<0.3	n/a	n/a	n/a	n/a	<0.30	<0.3	n/a	n/a	n/a	n/a	<0.3	n/a	n/a
Beryllium	mg/l	0.003*	n/a	n/a	<0.005	n/a	n/a	n/a	n/a	<0.005	<0.005	n/a	n/a	n/a	n/a	<0.005	n/a	n/a
Boron	mg/l	1	n/a	n/a	<0.5	n/a	n/a	n/a	n/a	<0.50	<0.5	n/a	n/a	n/a	n/a	<0.5	n/a	n/a
Cadmium	mg/l	0.01	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	< 0.005	<0.005	<0.005	<0.005	<0.005
Calcium	mg/l	NA	80	70	45	130	67	73	79	140	130	110	100	87	120	76	76	99
Chromium	mg/l	0.050	n/a	n/a	<0.05	n/a	n/a	n/a	n/a	<0.050	<0.05	n/a	n/a	n/a	n/a	<0.05	n/a	n/a
Copper	mg/l	0.2	<0.001	n/a	<0.02	n/a	n/a	n/a	n/a	0.041	0.02	n/a	n/a	n/a	n/a	<0.02	n/a	n/a
Iron	mg/l	0.3	18	17	7.2	23	10	5.1	8.2	20	13	13	6.3	5.4	9.1	5.2	2.9	3.8
Lead	mg/l	0.025	<0.001	0.002	0.001	<0.001	<0.001	0.001	0.001	0.003	<0.001	0.002	0.001	0.004	0.001	0.004	<0.003	<0.003
Magnesium	mg/l	35	7.5	6.7	6.5	15	9.3	10	11	19	15	15	12	11	15	11	8.5	11
Manganese	mg/l	0.3	0.95	0.66	0.44	1.9	1	0.58	0.59	1.2	1.1	0.94	0.69	0.54	0.78	0.49	0.44	0.71
Mercury	mg/l	0.002	n/a	n/a	<0.0004	n/a	n/a	n/a	n/a	<0.0004	<0.0004	n/a	n/a	n/a	n/a	<0.0004	n/a	n/a
Nickel	mg/l	0.007*	n/a	n/a	<0.03	n/a	n/a	n/a	n/a	<0.030	0.037	n/a	n/a	n/a	n/a	<0.03	n/a	n/a
Potassium	mg/l	NA	2.1	3.4	2.5	3.9	6.4	6.5	7.6	11	5.6	7.3	6.4	4.1	3.3	2.7	1.6	1.7
Selenium	mg/l	0.01	n/a	n/a	<0.0005	n/a	n/a	n/a	n/a	<0.005	0.007	n/a	n/a	n/a	n/a	<0.005	n/a	n/a
Silver	mg/l	0.05	n/a	n/a	<0.05	n/a	n/a	n/a	n/a	<0.050	<0.05	n/a	n/a	n/a	n/a	<0.050	n/a	n/a
Sodium	mg/l	20	6.7	7.6	5.7	8.8	7.3	7.3	8.5	13	7.2	7.6	6.9	5	6.7	4.9	5.6	7.4
Thallium	mg/l	0.004	n/a	n/a	<0.003	n/a	n/a	n/a	n/a	0.092	<0.003	n/a	n/a	n/a	n/a	0.007	n/a	n/a
Zinc	mg/l	0.3	n/a	n/a	0.04	n/a	n/a	n/a	n/a	0.015	0.034	n/a	n/a	n/a	n/a	<0.01	n/a	n/a
VOLATILE ORGANIC COMPOUNDS			n/a	n/a		n/a	n/a	n/a	n/a			n/a	n/a	n/a	n/a		n/a	n/a
Chlorobenzene	mg/l	5			18					41	25					26		
1,4-Dichlorobenzene	mg/l	3			3					5	4					4		
Methyl Chloride	mg/l	5			10					<10	<10					<5		

Notes:
1. Shaded values indicate detection above Standard.
2. *Standard is below laboratory Method Detection Limit (MDL).
3. n/a = not applicable; analysis not performed.
4. "<" = not detected at specified MDL.
5. NA = Standard not available.

Table F-1
Greater Albany Landfill (GAL)
Historical Groundwater Quality Monitoring Data
City of Albany Landfill - Proposed Eastern Expansion Project
Albany, NY
Monitoring Well MW-1

TEST PARAMETER	Unit	NYSDEC TOGS Standard	3/27/03 Routine	6/11/03 Routine	9/24/03 Baseline	12/15/03 Routine	3/22/04 Routine	6/17/04 Routine	9/27/04 Routine	12/14/04 Baseline	3/28/05 Baseline	6/13/05 Routine	9/19/05 Routine	12/19/05 Routine	3/20/06 Routine	6/26/06 Baseline	9/25/06 Routine	12/18/06 Routine
pH	SU	6.5-8.5	7.18	7.1	7.33	7.37	n/a	7.44	7.5	7.89	7.76	7.11	7.62	7.21	6.32	7.89	7.53	7.14
Eh	mV	NA	-133.2	-93	-129.9	-155.2	n/a	-144.4	-75	-245.6	-282.5	-121.1	-132.7	-23	-50.1	-133.1	-113.6	-100.6
Turbidity	N.T.U.	5	160	108.5	75.8	175	310	98.7	28	>50	87.5	49	57.3	46.5	81.5	150	47.4	73.1
Color	unit	15	n/a	n/a	n/a	n/a	n/a	n/a	n/a	150	n/a	n/a	n/a	n/a	n/a	450	n/a	n/a
Specific Conductance	uS/cm	NA	4977	648	5345	5320	n/a	5233	5550	4889	5250	5005	5205	5890	4759	2956	3352.7	3911
Total Dissolved Solids	mg/l	500	1800	2100	2200	2100	2300	1720	2120	1870	2080	2000	2140	2080	1910	1710	1860	1720
Chemical Oxygen Demand	mg/l	NA	410	430	320	260	330	248	284	278	20	27	341	< 20	206	151	236	211
Biochemical Oxygen Demand	mg/l	NA	n/a	n/a	n/a	n/a	n/a	n/a	n/a	19	<4	n/a	n/a	n/a	n/a	19	n/a	n/a
Total Organic Carbon	mg/l	NA	320	340	360	99	340	290	300	320	300	285	280	245	200	150	325	260
Sulfate	mg/l	250	< 5	<5	< 5	6	<5.0	<5.0	13.7	6.97	<5.0	<5.0	<5	44.8	<5	<5	<5	<5
Total Alkalinity ($CaCO_3$)	mg/l	NA	1300	1400	1500	1600	1600	1600	1400	870	1500	1600	1800	1400	1200	1100	1300	1100
Chloride	mg/l	250	770	830	760	790	750	750	459	1990	807	5.87	535	727	681	533	572	565
Total Hardness ($CaCO_3$)	mg/l	NA	420	420	290	340	350	400	280	300	310	280	280	300	340	350	310	290
Chromium, Hexavalent	mg/l	NA	n/a	n/a	<0.01	n/a	n/a	n/a	n/a	<0.010	<0.010	n/a	n/a	n/a	n/a	<0.010	n/a	n/a
Total Kjeldahl Nitrogen	mg/l	NA	n/a	n/a	230	n/a	n/a	n/a	n/a	180	10.2	n/a	n/a	n/a	n/a	175	n/a	n/a
Ammonia - Nitrogen	mg/l	2.0	190	230	210	170	230	13.9	228	236	13.2	387	76.2	235	205	193	217	198
Nitrate - Nitrogen	mg/l	10	< 0.2	<0.2	0.4	< 0.2	<0.2	n/a	<0.20	<0.20	<0.20	<0.20	<0.2	< 0.2	<0.2	<0.20	<0.2	0.218
Total Phenols	mg/l	0.001*	0.007	0.009	0.007	0.006	0.018	0.014	0.00558	<0.005	0.021	0.13	<0.005	0.018	<0.005	0.031	0.016	0.013
Total Cyanide	mg/l	0.1	n/a	n/a	<0.01	n/a	n/a	n/a	n/a	<0.010	<0.010	n/a	n/a	n/a	n/a	<0.010	n/a	n/a
INORGANIC PARAMETERS:																		
Aluminum	mg/l	0.1	n/a	n/a	0.66	n/a	n/a	n/a	n/a	0.9	0.77	n/a	n/a	n/a	n/a	1.2	n/a	n/a
Antimony	mg/l	0.003	n/a	n/a	< 0.003	n/a	n/a	n/a	n/a	0.027	<0.003	n/a	n/a	n/a	n/a	0.007	n/a	n/a
Arsenic	mg/l	0.025	n/a	n/a	0.038	n/a	n/a	n/a	n/a	0.017	0.038	n/a	n/a	n/a	n/a	0.031	n/a	n/a
Barium	mg/l	1	n/a	n/a	< 0.3	n/a	n/a	n/a	n/a	<0.30	0.2	n/a	n/a	n/a	n/a	<0.3	n/a	n/a
Beryllium	mg/l	0.003*	n/a	n/a	< 0.005	n/a	n/a	n/a	n/a	<0.005	<0.005	n/a	n/a	n/a	n/a	<0.005	n/a	n/a
Boron	mg/l	1	n/a	n/a	2.7	n/a	n/a	n/a	n/a	2.1	2.9	n/a	n/a	n/a	n/a	2.2	n/a	n/a
Cadmium	mg/l	0.01	<0.005	<0.005	< 0.005	< 0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	< 0.005	0.006	<0.005	<0.005	<0.005
Calcium	mg/l	NA	64	80	43	61	56	60	53	52	41	38	38	40	50	58	48	37
Chromium	mg/l	0.050	n/a	n/a	< 0.05	n/a	n/a	n/a	n/a	<0.050	0.01	n/a	n/a	n/a	n/a	0.091	n/a	n/a
Copper	mg/l	0.2	n/a	n/a	< 0.02	n/a	n/a	n/a	n/a	0.046	0.040	n/a	n/a	n/a	n/a	0.027	n/a	n/a
Iron	mg/l	0.3	31	27	15	26	21	22	15	18	21	16	14	19	18	21	19	18
Lead	mg/l	0.025	0.009	0.011	0.004	0.014	0.012	0.009	0.008	0.007	0.003	0.004	0.003	0.003	0.008	0.02	<0.003	0.004
Magnesium	mg/l	35	64	53	44	45	52	60	35	42	50	46	45	49	51	49	47	48
Manganese	mg/l	0.3	0.49	0.39	0.15	0.39	0.23	0.27	0.14	0.18	0.17	0.013	0.097	0.16	0.19	0.25	0.12	0.15
Mercury	mg/l	0.002	n/a	n/a	< 0.0004	n/a	n/a	n/a	n/a	<0.0004	<0.0004	n/a	n/a	n/a	n/a	<0.0004	n/a	n/a
Nickel	mg/l	0.007	n/a	n/a	0.06	n/a	n/a	n/a	n/a	0.055	0.084	n/a	n/a	n/a	n/a	0.38	n/a	n/a
Potassium	mg/l	NA	150	170	150	130	150	140	150	160	150	130	150	150	150	17	170	140
Selenium	mg/l	0.01	n/a	n/a	< 0.005	n/a	n/a	n/a	n/a	<0.005	<0.005	n/a	n/a	n/a	n/a	<0.005	n/a	n/a
Silver	mg/l	0.05	n/a	n/a	< 0.05	n/a	n/a	n/a	n/a	<0.050	<0.05	n/a	n/a	n/a	n/a	<0.050	n/a	n/a
Sodium	mg/l	20	460	510	440	440	460	480	450	500	410	430	420	440	450	490	490	470
Thallium	mg/l	0.004	n/a	n/a	< 0.003	n/a	n/a	n/a	n/a	0.070	<0.003	n/a	n/a	n/a	n/a	0.006	n/a	n/a
Zinc	mg/l	0.3	n/a	n/a	0.08	n/a	n/a	n/a	n/a	0.039	0.052	n/a	n/a	n/a	n/a	0.078	n/a	n/a
VOLATILE ORGANIC COMPOUNDS			n/a	n/a		n/a	n/a	n/a	n/a			n/a	n/a	n/a	n/a		n/a	n/a
Chlorobenzene	mg/l	5			41					43	27					49		
Benzene	mg/l	1			12					13	8					10		
Dichlorodifluoromethane	mg/l	5			3					<2	<2					<2		
1,4-Dichlorobenzene	mg/l	3			8					4	2					3		
Ethylbenzene	mg/l	5			n/a					2	<2					<2		
Xylene m+p	mg/l	5			3					3	<2					<2		

Notes:
1. Shaded values indicate detection above Standard.
2. *Standard is below laboratory Method Detection Limit (MDL).
3. n/a = not applicable; analysis not performed.
4. "<" = not detected at specified MDL.
5. NA = Standard not available.

Table F-1
Greater Albany Landfill (GAL)
Historical Groundwater Quality Monitoring Data
City of Albany Landfill - Proposed Eastern Expansion Project
Albany, NY
Monitoring Well MW-2

TEST PARAMETER	Unit	NYSDEC TOGS Standard	3/27/03	6/11/03	9/24/03	12/15/03	3/22/04	6/17/04	9/27/04	12/14/04	3/28/05	6/13/05	9/19/05	12/19/05	3/20/06	6/26/06	9/25/06	12/18/06
			Routine	Routine	Baseline	Routine	Routine	Routine	Routine	Baseline	Baseline	Routine	Routine	Routine	Routine	Baseline	Routine	Routine
pH	SU	6.5-8.5	6.94	7.05	6.95	7.2	n/a	7.1	7.26	7.68	7.27	6.82	7.48	6.87	6.16	7.47	7.48	6.87
Eh	mV	NA	-105.2	-66	-114.9	-116.3	n/a	-103.6	-48	-243	-257.7	-91.5	-109.8	5	59.6	-124.8	-99.4	-74.7
Turbidity	N.T.U.	5	45	73	29.4	56.6	450	55.5	26.5	32	39.8	22.7	33.2	44.7	114	55	32.8	64.7
Color	unit	15	n/a	n/a	n/a	n/a	n/a	n/a	n/a	170	n/a	n/a	n/a	n/a	n/a	600	n/a	n/a
Specific Conductance	uS/cm	NA	2010	249	3453	2330	n/a	2946	3930	3771	2840	3388	3551	3100	2506	2013	2309.9	3499
Total Dissolved Solids	mg/l	500	1100	1200	1900	1300	1400	1380	2010	845	1860	1830	2200	1380	1340	1340	1650	1980
Chemical Oxygen Demand	mg/l	NA	96	120	81	98	88	96	111	99	259	26	112	107	115	186	112	97
Biochemical Oxygen Demand	mg/l	NA	n/a	n/a	n/a	n/a	n/a	n/a	n/a	5	10	n/a	n/a	n/a	n/a	14	n/a	n/a
Total Organic Carbon	mg/l	NA	74	69	66	27	27	73	180	170	95.0	48.0	55.0	32	36	34	120	49
Sulfate	mg/l	250	<5	13	21	<5	<5.0	15.3	<5	28.2	37.4	18.5	12.1	42.8	<5	<5	10.7	17.7
Total Alkalinity ($CaCO_3$)	mg/l	NA	480	570	540	630	560	620	650	320	700	120	760	700	680	660	710	730
Chloride	mg/l	250	300	330	610	400	450	364	704	2710	531	3.57	824	532	437	455	667	910
Total Hardness ($CaCO_3$)	mg/l	NA	430	530	550	270	490	540	350	200	200	420	340	250	330	300	310	450
Chromium, Hexavalent	mg/l	0.050	n/a	n/a	<0.01	n/a	n/a	n/a	n/a	<0.010	<0.01	n/a	n/a	n/a	n/a	<0.01	n/a	n/a
Total Kjeldahl Nitrogen	mg/l	NA	n/a	n/a	15	n/a	n/a	n/a	n/a	15.8	<0.5	n/a	n/a	n/a	n/a	70.8	n/a	n/a
Ammonia - Nitrogen	mg/l	2.0	12	14	11	17	34	49.9	37.6	17.1	<0.5	53.7	18.8	21.7	69.8	59.6	66.4	46
Nitrate - Nitrogen	mg/l	10	<0.2	<0.2	<0.2	<0.2	<0.2	n/a	0.2	<0.20	<0.2	<0.2	<0.20	< 0.20	<0.20	<0.2	<0.2	<0.2
Total Phenols	mg/l	0.001*	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.00576	<0.005	<0.005	<0.005	<0.005	0.006	<0.005	0.008	0.007	<0.005
Total Cyanide	mg/l	0.1	n/a	n/a	<0.01	n/a	n/a	n/a	n/a	<0.010	<0.01	n/a	n/a	n/a	n/a	<0.01	n/a	n/a
INORGANIC PARAMETERS:																		
Aluminum	mg/l	0.1	n/a	n/a	0.42	n/a	n/a	n/a	n/a	0.40	0.40	n/a	n/a	n/a	n/a	0.83	n/a	n/a
Antimony	mg/l	0.003	n/a	n/a	<0.003	n/a	n/a	n/a	n/a	0.039	<0.003	n/a	n/a	n/a	n/a	<0.003	n/a	n/a
Arsenic	mg/l	0.025	n/a	n/a	<0.01	n/a	n/a	n/a	n/a	0.021	0.018	n/a	n/a	n/a	n/a	<0.010	n/a	n/a
Barium	mg/l	1	n/a	n/a	<0.3	n/a	n/a	n/a	n/a	<0.30	<0.3	n/a	n/a	n/a	n/a	<0.30	n/a	n/a
Beryllium	mg/l	0.003*	n/a	n/a	<0.005	n/a	n/a	n/a	n/a	<0.005	<0.005	n/a	n/a	n/a	n/a	<0.005	n/a	n/a
Boron	mg/l	1	n/a	n/a	<0.5	n/a	n/a	n/a	n/a	0.59	0.60	n/a	n/a	n/a	n/a	0.89	n/a	n/a
Cadmium	mg/l	0.01	<0.005	<0.005	<0.005	<0.005	0.007	<0.005	<0.005	<0.005	<0.005	0.008	<0.005	< 0.005	0.009	<0.005	<0.005	<0.005
Calcium	mg/l	NA	150	180	190	89	170	180	120	66	65	140	110	84	110	100	96	140
Chromium	mg/l	0.050	n/a	n/a	<0.05	n/a	n/a	n/a	n/a	<0.050	<0.05	n/a	n/a	n/a	n/a	<0.05	n/a	n/a
Copper	mg/l	0.2	n/a	n/a	<0.02	n/a	n/a	n/a	n/a	0.031	0.054	n/a	n/a	n/a	n/a	<0.020	n/a	n/a
Iron	mg/l	0.3	44	46	44	24	44	43	24	14	19	40	25	20	28	24	23	34
Lead	mg/l	0.025	0.004	0.004	0.003	0.005	0.003	0.005	<0.004	0.002	0.002	0.002	0.003	0.002	0.003	0.005	0.039	<0.003
Magnesium	mg/l	35	17	21	20	11	19	20	13	8.1	8.3	15	14	11	13	11	16	24
Manganese	mg/l	0.3	1.5	1.5	1.5	0.77	1.2	1.2	0.71	0.37	0.46	1.2	1	0.65	0.75	0.79	0.65	1.1
Mercury	mg/l	0.002	n/a	n/a	<0.0004	n/a	n/a	n/a	n/a	<0.0004	0.0002	n/a	n/a	n/a	n/a	<0.0004	n/a	n/a
Nickel	mg/l	0.007	n/a	n/a	0.04	n/a	n/a	n/a	n/a	<0.030	0.033	n/a	n/a	n/a	n/a	<0.03	n/a	n/a
Potassium	mg/l	NA	32	46	43	23	43	61	34	24	21	40	51	36	46	70	73	95
Selenium	mg/l	0.01	n/a	n/a	<0.005	n/a	n/a	n/a	n/a	<0.005	0.004	n/a	n/a	n/a	n/a	<0.005	n/a	n/a
Silver	mg/l	0.05	n/a	n/a	<0.05	n/a	n/a	n/a	n/a	<0.050	<0.05	n/a	n/a	n/a	n/a	<0.050	n/a	n/a
Sodium	mg/l	20	150	200	450	300	230	240	390	620	470	270	380	350	240	240	450	520
Thallium	mg/l	0.004	n/a	n/a	<0.003	n/a	n/a	n/a	n/a	0.093	<0.003	n/a	n/a	n/a	n/a	<0.005	n/a	n/a
Zinc	mg/l	0.3	n/a	n/a	0.03	n/a	n/a	n/a	n/a	0.016	0.034	n/a	n/a	n/a	n/a	<0.01	n/a	n/a
VOLATILE ORGANIC COMPOUNDS			n/a	n/a		n/a	n/a	n/a	n/a	n/a		n/a	n/a	n/a	n/a	<MDL	n/a	n/a
Chlorobenzene	mg/l	5									3							
Benzene	mg/l	1			2						<2							
Dichlorodifluoromethane	mg/l	5			4						<2							

Notes:
1. Shaded values indicate detection above Standard.
2. *Standard is below laboratory Method Detection Limit (MDL).
3. n/a = not applicable; analysis not performed.
4. "<" = not detected at specified MDL.
5. NA = Standard not available.

Table F-1
Greater Albany Landfill (GAL)
Historical Groundwater Quality Monitoring Data
City of Albany Landfill - Proposed Eastern Expansion Project
Albany, NY
Monitoring Well MW-3

TEST PARAMETER	Unit	NYSDEC TOGS Standard	3/26/03	6/11/03	9/24/03	12/15/03	3/22/04	6/17/04	9/27/04	12/14/04	3/28/05	6/13/05	9/19/05	12/19/05	3/20/06	6/26/06	9/25/06	12/18/06
			Routine	Routine	Baseline	Routine	Routine	Routine	Routine	Baseline	Baseline	Routine	Routine	Routine	Routine	Baseline	Routine	Routine
pH	SU	6.5-8.5	6.38	6.77	6.03	6.67	n/a	6.64	6.64	6.61	6.52	6.43	7.1	6.48	5.49	6.59	6.87	6.28
Eh	mV	NA	45.4	57	-9.8	-41.2	n/a	-9	58	-226.3	-253.7	-26.2	-20.5	16	207.4	-31.8	-1.3	31.4
Turbidity	N.T.U.	5	11	9	14.5	19.5	50	8.61	6.33	4.82	10.2	11	10.5	4.52	8.5	6	33.5	10.7
Color	unit	15	n/a	n/a	n/a	n/a	n/a	n/a	n/a	200	n/a	n/a	n/a	n/a	n/a	120	n/a	n/a
Specific Conductance	uS/cm	NA	1031	1252	930	1004	n/a	1380	1315	1349	1566	1546	1462	1779	1501	1145	947.2	1488
Total Dissolved Solids	mg/l	500	600	590	620	590	830	798	645	700	622	985	1050	900	1070	1040	900	1080
Chemical Oxygen Demand	mg/l	NA	78	80	88	61	63	60	55	66	200	40	46	< 20	61	113	88	62
Biochemical Oxygen Demand	mg/l	NA	n/a	n/a	n/a	n/a	n/a	n/a	n/a	<4	4	n/a	n/a	n/a	n/a	<4	n/a	n/a
Total Organic Carbon	mg/l	NA	32	27	38	27	26	20	20	22.0	50.0	22	21	19	25	24	28	31
Sulfate	mg/l	250	69	140	84	110	190	120	108	171	152	88.5	159	183	187	134	91.9	78.2
Total Alkalinity ($CaCO_3$)	mg/l	NA	180	180	200	220	180	160	160	280	200	28	200	330	200	310	290	290
Chloride	mg/l	250	140	160	120	130	170	226	138	970	322	388	166	314	424	361	301	550
Total Hardness ($CaCO_3$)	mg/l	NA	150	150	120	190	210	270	270	280	280	260	300	320	330	280	270	370
Chromium, Hexavalent	mg/l	0.050	n/a	n/a	<0.01	n/a	n/a	n/a	n/a	<0.010	<0.01	n/a	n/a	n/a	n/a	<0.010	n/a	n/a
Total Kjeldahl Nitrogen	mg/l	NA	n/a	n/a	3	n/a	n/a	n/a	n/a	1.97	9.87	n/a	n/a	n/a	n/a	3.62	n/a	n/a
Ammonia - Nitrogen	mg/l	2.0	2.5	3.7	1.1	1.9	2.5	3.32	1.74	<0.500	6.91	3.46	<0.50	2.3	2.47	13.6	3.09	2.04
Nitrate - Nitrogen	mg/l	10	2.2	1.4	1.4	3.5	0.8	n/a	0.6	<0.20	<0.2	<0.2	<0.2	0.53	0.56	0.64	0.74	1.22
Total Phenols	mg/l	0.001*	0.006	<0.005	<0.005	<0.005	<0.005	0	<0.005	<0.005	<0.005	0.012	<0.005	< 0.005	<0.005	<0.005	0.006	0.007
Total Cyanide	mg/l	0.1	n/a	n/a	<0.01	n/a	n/a	n/a	n/a	<0.010	<0.01	n/a	n/a	n/a	n/a	<0.010	n/a	n/a
INORGANIC PARAMETERS:																		
Aluminum	mg/l	0.1	n/a	n/a	1.8	n/a	n/a	n/a	n/a	0.27	0.50	n/a	n/a	n/a	n/a	0.41	n/a	n/a
Antimony	mg/l	0.003	n/a	n/a	<0.003	n/a	n/a	n/a	n/a	0.035	<0.003	n/a	n/a	n/a	n/a	<0.003	n/a	n/a
Arsenic	mg/l	0.025	n/a	n/a	<0.01	n/a	n/a	n/a	n/a	<0.010	0.020	n/a	n/a	n/a	n/a	<0.010	n/a	n/a
Barium	mg/l	1	n/a	n/a	<0.3	n/a	n/a	n/a	n/a	<0.30	<0.3	n/a	n/a	n/a	n/a	<0.3	n/a	n/a
Beryllium	mg/l	0.003*	n/a	n/a	<0.005	n/a	n/a	n/a	n/a	<0.005	<0.005	n/a	n/a	n/a	n/a	<0.005	n/a	n/a
Boron	mg/l	1	n/a	n/a	<0.5	n/a	n/a	n/a	n/a	<0.50	<0.5	n/a	n/a	n/a	n/a	<0.5	n/a	n/a
Cadmium	mg/l	0.01	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	< 0.005	<0.005	<0.005	<0.005	<0.005
Calcium	mg/l	NA	49	48	39	61	65	86	86	92	91	84	97	100	110	90	87	120
Chromium	mg/l	0.050	n/a	n/a	<0.05	n/a	n/a	n/a	n/a	<0.050	<0.05	n/a	n/a	n/a	n/a	<0.05	n/a	n/a
Copper	mg/l	0.2	n/a	n/a	<0.02	n/a	n/a	n/a	n/a	0.049	0.047	n/a	n/a	n/a	n/a	<0.02	n/a	n/a
Iron	mg/l	0.3	4.5	2.6	6.8	7.5	8.4	11	5.3	6.3	8.6	6.4	6.5	4.4	4.7	5.6	3.2	3.4
Lead	mg/l	0.025	0.002	<0.001	0.003	0.002	0.001	0.003	0.001	0.002	<0.001	0.004	0.001	< 0.001	0.003	0.004	<0.003	<0.003
Magnesium	mg/l	35	6.7	6.1	6.4	9.6	12	14	12	13	13	12	14	15	16	12	12	17
Manganese	mg/l	0.3	0.35	0.32	0.52	0.51	0.78	1	0.6	0.49	0.47	0.4	0.52	0.39	0.48	0.33	0.26	0.37
Mercury	mg/l	0.002	n/a	n/a	<0.0004	n/a	n/a	n/a	n/a	<0.0004	<0.0004	n/a	n/a	n/a	n/a	<0.0004	n/a	n/a
Nickel	mg/l	0.007*	n/a	n/a	<0.03	n/a	n/a	n/a	n/a	<0.030	0.03	n/a	n/a	n/a	n/a	<0.03	n/a	n/a
Potassium	mg/l	NA	4.4	2.8	3.8	3.8	7	4	3.4	4.2	3.8	3.7	4.6	3.4	3.5	4.7	4	5.7
Selenium	mg/l	0.01	n/a	n/a	<0.005	n/a	n/a	n/a	n/a	<0.005	0.010	n/a	n/a	n/a	n/a	<0.005	n/a	n/a
Silver	mg/l	0.05	n/a	n/a	<0.05	n/a	n/a	n/a	n/a	<0.050	<0.05	n/a	n/a	n/a	n/a	<0.05	n/a	n/a
Sodium	mg/l	20	130	130	140	100	140	160	100	130	160	150	160	120	150	150	170	200
Thallium	mg/l	0.004	n/a	n/a	<0.003	n/a	n/a	n/a	n/a	0.093	<0.003	n/a	n/a	n/a	n/a	0.007	n/a	n/a
Zinc	mg/l	0.3	n/a	n/a	0.07	n/a	n/a	n/a	n/a	0.015	0.035	n/a	n/a	n/a	n/a	0.037	n/a	n/a
VOLATILE ORGANIC COMPOUNDS			n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	<MDL	n/a	n/a

Notes:
1. Shaded values indicate detection above Standard.
2. *Standard is below laboratory Method Detection Limit (MDL).
3. n/a = not applicable; analysis not performed.
4. "<" = not detected at specified MDL.
5. NA = Standard not available.

Table F-1
Greater Albany Landfill (GAL)
Historical Groundwater Quality Monitoring Data
City of Albany Landfill - Proposed Eastern Expansion Project
Albany, NY
Monitoring Well GW-4D

TEST PARAMETER	Unit	NYSDEC TOGS Standard	3/26/03	6/10/03	9/24/03	12/16/03	3/24/04	6/17/04	9/27/04	12/15/04	3/28/05	6/13/05	9/19/05	12/19/05	3/20/06	6/26/06	9/25/06	12/18/06
			Routine	Routine	Baseline	Routine	Routine	Routine	Routine	Baseline	Baseline	Routine	Routine	Routine	Routine	Baseline	Routine	Routine
pH	SU	6.5-8.5	8.22	8.15	8.22	7.24	n/a	8.03	8.86	7.77	8.28	7.44	8.29	8.54	7.48	8.03	9.81	8.33
Eh	mV	NA	-142.2	-50	-84.2	-76.1	n/a	-65.8	0	-152.2	-232.3	-134.7	-88.6	-98	71.7	-112.6	-50.1	-84.7
Turbidity	N.T.U.	5	0.9	0.6	29	2.62	0.05	0.9	0.5	3.66	2.3	3.26	8.99	0.28	0.86	1.88	1.18	2.59
Color	unit	15	n/a	n/a	n/a	n/a	n/a	n/a	n/a	5.0	n/a	n/a	n/a	n/a	n/a	7	n/a	n/a
Specific Conductance	uS/cm	NA	387	269	207	1209	n/a	195	273	231	200	210	194	259	188	140	138	107
Total Dissolved Solids	mg/l	500	170	75	130	120	120	85	112	157	60	175	223	70	203	168	158	160
Chemical Oxygen Demand	mg/l	NA	<20	<20	<20	<20	21	<20	<20	<20	<20	<20	<20	< 20	<20	<20	<20	<20
Biochemical Oxygen Demand	mg/l	NA	n/a	n/a	n/a	n/a	n/a	n/a	n/a	<4	<4	n/a	n/a	n/a	n/a	<8	n/a	n/a
Total Organic Carbon	mg/l	NA	<3	<3	<3	<3	<3.0	<3.0	<3.0	<3.0	<3	<3.0	<3.0	< 3	<3	<3	<3	<3
Sulfate	mg/l	250	5	<5	<5	5	<5.0	5.49	12.6	6.59	<5	<5	<5.0	< 5	<5	<5	<5	<5
Total Alkalinity ($CaCO_3$)	mg/l	NA	120	96	100	110	100	96	110	310	99	68	130	220	110	100	100	130
Chloride	mg/l	250	53	7	3	8	8	3.72	5.36	9.19	9.19	5.1	4.1	2.14	2.37	9.6	3.78	10.1
Total Hardness ($CaCO_3$)	mg/l	NA	110	63	71	60	64	56	57	63	63	68	60	66	54	63	65	63
Chromium, Hexavalent	mg/l	0.050	n/a	n/a	<0.01	n/a	n/a	n/a	n/a	<0.10	<0.01	n/a	n/a	n/a	n/a	<0.010	n/a	n/a
Total Kjeldahl Nitrogen	mg/l	NA	n/a	n/a	<0.5	n/a	n/a	n/a	n/a	<0.500	<0.5	n/a	n/a	n/a	n/a	<0.5	n/a	n/a
Ammonia - Nitrogen	mg/l	2.0	1.1	<0.5	<0.5	<0.5	<0.5	1.11	0.79	<0.500	<0.5	2.3	<0.50	1.32	2.3	<0.5	0.526	<0.5
Nitrate - Nitrogen	mg/l	10	<0	<0.2	<0.2	<0.2	<0.2	n/a	<0.20	<0.20	<0.2	<0.2	<0.20	< 0.20	<0.20	<0.2	<0.2	<0.2
Total Phenols	mg/l	0.001*	<0.2	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	< 0.005	<0.005	<0.005	<0.005	<0.005
Total Cyanide	mg/l	0.1	<0.005	n/a	<0.01	n/a	n/a	n/a	n/a	<0.010	<0.01	n/a	n/a	n/a	n/a	<0.010	n/a	n/a
INORGANIC PARAMETERS:																		
Aluminum	mg/l	0.1	n/a	n/a	1.2	n/a	n/a	n/a	n/a	0.086	0.071	n/a	n/a	n/a	n/a	0.061	n/a	n/a
Antimony	mg/l	0.003	n/a	n/a	<0.003	n/a	n/a	n/a	n/a	0.029	<0.003	n/a	n/a	n/a	n/a	0.006	n/a	n/a
Arsenic	mg/l	0.025	n/a	n/a	<0.01	n/a	n/a	n/a	n/a	0.025	0.016	n/a	n/a	n/a	n/a	0.014	n/a	n/a
Barium	mg/l	1	n/a	n/a	<0.3	n/a	n/a	n/a	n/a	<0.30	<0.3	n/a	n/a	n/a	n/a	<0.30	n/a	n/a
Beryllium	mg/l	0.003*	n/a	n/a	<0.005	n/a	n/a	n/a	n/a	<0.005	<0.005	n/a	n/a	n/a	n/a	<0.005	n/a	n/a
Boron	mg/l	1	n/a	n/a	<0.5	n/a	n/a	n/a	n/a	<0.50	<0.5	n/a	n/a	n/a	n/a	<0.5	n/a	n/a
Cadmium	mg/l	0.01	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	< 0.005	<0.005	<0.005	<0.005	<0.005
Calcium	mg/l	NA	33	19	21	18	19	17	17	19	19	21	18	20	16	19	19	19
Chromium	mg/l	0.050	n/a	n/a	<0.05	n/a	n/a	n/a	n/a	<0.050	<0.05	n/a	n/a	n/a	n/a	<0.05	n/a	n/a
Copper	mg/l	0.2	n/a	n/a	<0.02	n/a	n/a	n/a	n/a	0.034	0.02	n/a	n/a	n/a	n/a	<0.020	n/a	n/a
Iron	mg/l	0.3	0.11	0.11	2.2	0.12	0.08	0.22	0.15	0.22	0.21	0.28	0.11	0.28	0.07	0.12	0.089	0.85
Lead	mg/l	0.025	<0.001	<0.001	0.002	<0.001	<0.001	0.001	0.002	0.003	<0.001	0.002	<0.001	< 0.001	<0.001	<0.003	<0.003	<0.003
Magnesium	mg/l	35	6.2	3.6	4.2	3.4	4.2	3.3	3.3	3.7	3.6	4.1	3.5	4.1	3.3	3.8	3.9	3.9
Manganese	mg/l	0.3	0.05	0.03	0.11	0.02	0.03	0.026	0.023	0.03	0.027	0.028	0.025	0.028	0.023	0.031	0.025	0.061
Mercury	mg/l	0.002	n/a	n/a	<0.0004	n/a	n/a	n/a	n/a	<0.0004	<0.0004	n/a	n/a	n/a	n/a	<0.0004	n/a	n/a
Nickel	mg/l	0.007*	n/a	n/a	<0.03	n/a	n/a	n/a	n/a	<0.030	<0.03	n/a	n/a	n/a	n/a	<0.030	n/a	n/a
Potassium	mg/l	NA	<0.5	1.1	1.7	1.2	3	0.87	0.72	0.63	1.5	1.4	0.84	1.1	<0.5	0.69	<0.5	<0.5
Selenium	mg/l	0.01	n/a	n/a	<0.005	n/a	n/a	n/a	n/a	<0.005	<0.005	n/a	n/a	n/a	n/a	<0.005	n/a	n/a
Silver	mg/l	0.05	n/a	n/a	<0.05	n/a	n/a	n/a	n/a	<0.050	<0.05	n/a	n/a	n/a	n/a	<0.050	n/a	n/a
Sodium	mg/l	20	30	20	19	18	19	17	18	18	15	14	15	16	13	13	16	15
Thallium	mg/l	0.004	n/a	n/a	<0.003	n/a	n/a	n/a	n/a	0.043	<0.003	n/a	n/a	n/a	n/a	0.003	n/a	n/a
Zinc	mg/l	0.3	n/a	n/a	0.04	n/a	n/a	n/a	n/a	0.016	0.040	n/a	n/a	n/a	n/a	0.026	n/a	n/a
VOLATILE ORGANIC COMPOUNDS			n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	<MDL	n/a	n/a

Notes:
1. Shaded values indicate detection above Standard.
2. *Standard is below laboratory Method Detection Limit (MDL).
3. n/a = not applicable; analysis not performed.
4. "<" = not detected at specified MDL.
5. NA = Standard not available.

Table F-1
Greater Albany Landfill (GAL)
Historical Groundwater Quality Monitoring Data
City of Albany Landfill - Proposed Eastern Expansion Project
Albany, NY
Monitoring Well GW-4S

TEST PARAMETER	Unit	NYSDEC TOGS Standard	3/26/03	6/10/03	9/24/03	12/16/03	3/24/04	6/17/04	9/27/04	12/15/04	3/28/05	6/13/05	9/19/05	12/19/05	3/20/06	6/26/06	9/25/06	12/18/06
			Routine	Routine	Baseline	Routine	Routine	Routine	Routine	Baseline	Baseline	Routine	Routine	Routine	Routine	Baseline	Routine	Routine
pH	SU	6.5-8.5	6.83	6.91	6.95	6.99	n/a	7	7.19	6.91	7.01	6.6	7.28	6.87	6.11	7.73	8.29	6.75
Eh	mV	NA	-98.3	-59	-97	-106.9	n/a	-90.6	-34	-156.7	-246.8	-91.7	-94.3	-5	2.1	-97.9	-81.2	-58.5
Turbidity	N.T.U.	5	5.6	6	21	5.73	350	5.75	25.6	3.49	24.1	16.2	18.1	9.5	6.58	11.9	6.41	10.9
Color	unit	15	n/a	n/a	n/a	n/a	n/a	n/a	n/a	150	n/a	n/a	n/a	n/a	n/a	180	n/a	n/a
Specific Conductance	uS/cm	NA	2090	234	2020	2094	n/a	2383	2350	2098	1935	2010	1970	2520	1947	1365	1346.3	1783
Total Dissolved Solids	mg/l	500	830	910	930	940	1000	1130	1060	908	928	1020	1080	1020	938	962	1050	945
Chemical Oxygen Demand	mg/l	NA	69	72	63	66	83	52	66	87	49	58	48	< 20	56	85	53	49
Biochemical Oxygen Demand	mg/l	NA	n/a	n/a	n/a	n/a	n/a	n/a	n/a	16	10	n/a	n/a	n/a	n/a	14	n/a	n/a
Total Organic Carbon	mg/l	NA	29	120	42	59	21	100	96	140	36.0	28	41	175	26	19	90	47
Sulfate	mg/l	250	<5	<5	6	7	6	15.2	8.49	27.5	24.4	35.1	<5	52.8	19.7	25.4	13.4	16.7
Total Alkalinity ($CaCO_3$)	mg/l	NA	710	620	690	730	770	700	670	850	680	400	760	420	670	660	660	630
Chloride	mg/l	250	170	230	210	260	230	288	199	248	347	276	113	242	283	235	209	186
Total Hardness ($CaCO_3$)	mg/l	NA	460	140	480	450	510	470	420	460	450	430	430	480	480	430	520	500
Chromium, Hexavalent	mg/l	0.050	n/a	n/a	<0.01	n/a	n/a	n/a	n/a	<0.010	<0.01	n/a	n/a	n/a	n/a	<0.010	n/a	n/a
Total Kjeldahl Nitrogen	mg/l	NA	n/a	n/a	51	n/a	n/a	n/a	n/a	40.8	48.1	n/a	n/a	n/a	n/a	42.8	n/a	n/a
Ammonia - Nitrogen	mg/l	2.0	56	53	42	47	50	51	46.9	54.0	46.1	47.9	4.11	43.8	29.3	30.9	34.3	29
Nitrate - Nitrogen	mg/l	10	<0.2	<0.2	<0.2	<0.2	<0.2	n/a	<0.20	<0.20	<0.2	<0.20	<0.20	< 0.20	<0.20	<0.20	<0.2	<0.2
Total Phenols	mg/l	0.001*	0.005	0.005	0.01	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	< 0.005	<0.005	<0.005	0.007	<0.005
Total Cyanide	mg/l	0.1	n/a	n/a	<0.01	n/a	n/a	n/a	n/a	<0.10	<0.01	n/a	n/a	n/a	n/a	<0.010	n/a	n/a
INORGANIC PARAMETERS:																		
Aluminum	mg/l	0.1	n/a	n/a	0.24	n/a	n/a	n/a	n/a	0.12	0.12	n/a	n/a	n/a	n/a	0.22	n/a	n/a
Antimony	mg/l	0.003	n/a	n/a	<0.003	n/a	n/a	n/a	n/a	0.032	<0.003	n/a	n/a	n/a	n/a	<0.003	n/a	n/a
Arsenic	mg/l	0.025	n/a	n/a	0.026	n/a	n/a	n/a	n/a	0.027	0.040	n/a	n/a	n/a	n/a	0.02	n/a	n/a
Barium	mg/l	1	n/a	n/a	0.5	n/a	n/a	n/a	n/a	0.44	0.40	n/a	n/a	n/a	n/a	0.4	n/a	n/a
Beryllium	mg/l	0.003*	n/a	n/a	<0.005	n/a	n/a	n/a	n/a	<0.005	<0.005	n/a	n/a	n/a	n/a	<0.005	n/a	n/a
Boron	mg/l	1	n/a	n/a	0.7	n/a	n/a	n/a	n/a	0.63	0.59	n/a	n/a	n/a	n/a	0.6	n/a	n/a
Cadmium	mg/l	0.01	<0.005	<0.005	<0.005	<0.005	0.006	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	< 0.005	0.01	<0.005	<0.005	<0.005
Calcium	mg/l	NA	110	47	120	110	130	110	110	120	120	110	110	120	120	110	130	120
Chromium	mg/l	0.050	n/a	n/a	<0.05	n/a	n/a	n/a	n/a	<0.050	<0.05	n/a	n/a	n/a	n/a	<0.050	n/a	n/a
Copper	mg/l	0.2	n/a	n/a	<0.02	n/a	n/a	n/a	n/a	0.057	0.032	n/a	n/a	n/a	n/a	<0.020	n/a	n/a
Iron	mg/l	0.3	34	3.9	34	28	35	28	31	33	29	26	26	27	29	26	32	29
Lead	mg/l	0.025	<0.001	<0.001	0.001	0.001	0.003	0.002	0.001	0.003	<0.001	0.002	0.001	< 0.001	0.001	0.004	<0.003	<0.003
Magnesium	mg/l	35	46	6.2	43	43	47	45	38	40	37	38	38	45	44	40	48	47
Manganese	mg/l	0.3	0.16	0.33	0.16	0.13	0.18	0.15	0.15	0.16	0.14	0.12	0.12	0.13	0.14	0.12	0.13	0.14
Mercury	mg/l	0.002	n/a	n/a	<0.0004	n/a	n/a	n/a	n/a	<0.0004	<0.0004	n/a	n/a	n/a	n/a	<0.0004	n/a	n/a
Nickel	mg/l	0.007*	n/a	n/a	0.04	n/a	n/a	n/a	n/a	0.045	0.065	n/a	n/a	n/a	n/a	<0.030	n/a	n/a
Potassium	mg/l	NA	48	3.3	49	44	46	34	34	43	35	34	36	32	34	35	36	35
Selenium	mg/l	0.01	n/a	n/a	<0.005	n/a	n/a	n/a	n/a	<0.005	0.012	n/a	n/a	n/a	n/a	<0.005	n/a	n/a
Silver	mg/l	0.05	n/a	n/a	<0.05	n/a	n/a	n/a	n/a	<0.050	<0.05	n/a	n/a	n/a	n/a	<0.050	n/a	n/a
Sodium	mg/l	20	130	130	140	140	140	120	130	140	110	110	120	130	120	110	130	110
Thallium	mg/l	0.004	n/a	n/a	<0.003	n/a	n/a	n/a	n/a	0.097	<0.003	n/a	n/a	n/a	n/a	0.005	n/a	n/a
Zinc	mg/l	0.3	n/a	n/a	0.03	n/a	n/a	n/a	n/a	0.019	0.048	n/a	n/a	n/a	n/a	0.01	n/a	n/a
VOLATILE ORGANIC COMPOUNDS			n/a	n/a		n/a	n/a	n/a	n/a			n/a	n/a	n/a	n/a		n/a	n/a
Benzene	mg/l	1			5					6	5					7		

Notes:
1. Shaded values indicate detection above Standard.
2. *Standard is below laboratory Method Detection Limit (MDL).
3. n/a = not applicable; analysis not performed.
4. "<" = not detected at specified MDL.
5. NA = Standard not available.

Table F-1
Greater Albany Landfill (GAL)
Historical Groundwater Quality Monitoring Data
City of Albany Landfill - Proposed Eastern Expansion Project
Albany, NY
Monitoring Well GW-5D

TEST PARAMETER	Unit	NYSDEC TOGS Standard	3/27/03	6/11/03	9/25/03	12/15/03	3/23/04	6/17/04	9/27/04	12/14/04	3/28/05	6/13/05	9/19/05	12/19/05	3/20/06	6/26/06	9/25/06	12/18/06
			Routine	Routine	Baseline	Routine	Routine	Routine	Routine	Baseline	Baseline	Routine	Routine	Routine	Routine	Baseline	Routine	Routine
pH	SU	6.5-8.5	7.7	7.77	8.34	7.93	n/a	8.05	8.29	8.32	8.2	7.67	8.33	7.95	7.26	8	8.65	8.31
Eh	mV	NA	-144.5	-82	-120.3	-137.4	n/a	-134.1	-58	-243	-247.8	-105.1	-103.1	-69	28.1	-135.6	-107	-116.5
Turbidity	N.T.U.	5	220	104	297	178	230	304	4.49	489	204	268	227	130	202	>1000	182	189
Color	unit	15	n/a	n/a	n/a	n/a	n/a	n/a	n/a	35	n/a	n/a	n/a	n/a	n/a	60	n/a	n/a
Specific Conductance	uS/cm	NA	681	698	470	545	n/a	485	544	457	495	483	428	575	5481	3696	328.6	435
Total Dissolved Solids	mg/l	500	370	310	270	280	320	268	277	357	207	260	392	275	375	332	308	332
Chemical Oxygen Demand	mg/l	NA	31	26	23	20	36	24	21	<20	90	<20	<20	< 20	<20	41	<20	26
Biochemical Oxygen Demand	mg/l	NA	n/a	n/a	n/a	n/a	n/a	n/a	n/a	4	<4	n/a	n/a	n/a	n/a	<8	n/a	n/a
Total Organic Carbon	mg/l	NA	4	5	4	<3	<3.0	7	<3	18.0	5.0	3	<3	3	3	3	3	3
Sulfate	mg/l	250	<5	<5	5	<5	<5.0	<5.0	6.2	5.18	<5	<5	<5	11.9	<5	<5	<5	<5
Total Alkalinity ($CaCO_3$)	mg/l	NA	180	150	140	160	150	130	360	290	140	310	180	330	190	320	300	240
Chloride	mg/l	250	110	85	65	75	79	73.3	58.2	71.5	65.3	66.4	53	39	74.7	1670	196	176
Total Hardness ($CaCO_3$)	mg/l	NA	590	440	500	360	450	520	270	610	300	370	400	340	250	720	260	450
Chromium, Hexavalent	mg/l	0.050	n/a	n/a	<0.01	n/a	n/a	n/a	n/a	<0.010	<0.01	n/a	n/a	n/a	n/a	<0.010	n/a	n/a
Total Kjeldahl Nitrogen	mg/l	NA	n/a	n/a	1.2	n/a	n/a	n/a	n/a	1.48	1.32	n/a	n/a	n/a	n/a	1.65	n/a	n/a
Ammonia - Nitrogen	mg/l	2.0	1.4	1.4	<0.5	0.9	2.2	1.74	1.74	0.823	1.81	<0.5	1.97	< 0.5	2.3	21.1	1.93	0.912
Nitrate - Nitrogen	mg/l	10	<0.2	<0.2	<0.2	<0.2	<0.2	n/a	0.9	<0.20	<0.2	<0.2	<0.2	< 0.2	<0.2	<0.2	<0.2	<0.2
Total Phenols	mg/l	0.001*	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	< 0.005	<0.005	<0.005	<0.005	<0.005
Total Cyanide	mg/l	0.1	n/a	n/a	0.01	n/a	n/a	n/a	n/a	<0.010	<0.01	n/a	n/a	n/a	n/a	<0.010	n/a	n/a
INORGANIC PARAMETERS:																		
Aluminum	mg/l	0.1	n/a	n/a	13	n/a	n/a	n/a	n/a	13	6.8	n/a	n/a	n/a	n/a	21	n/a	n/a
Antimony	mg/l	0.003	n/a	n/a	<0.003	n/a	n/a	n/a	n/a	0.035	<0.003	n/a	n/a	n/a	n/a	<0.003	n/a	n/a
Arsenic	mg/l	0.025	n/a	n/a	0.022	n/a	n/a	n/a	n/a	0.038	0.027	n/a	n/a	n/a	n/a	0.04	n/a	n/a
Barium	mg/l	1	n/a	n/a	<0.3	n/a	n/a	n/a	n/a	<0.30	0.2	n/a	n/a	n/a	n/a	0.33	n/a	n/a
Beryllium	mg/l	0.003*	n/a	n/a	<0.005	n/a	n/a	n/a	n/a	<0.005	<0.005	n/a	n/a	n/a	n/a	<0.005	n/a	n/a
Boron	mg/l	1	n/a	n/a	<0.5	n/a	n/a	n/a	n/a	<0.50	<0.5	n/a	n/a	n/a	n/a	<0.50	n/a	n/a
Cadmium	mg/l	0.01	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.012	0.005	0.007	<0.005	< 0.005	<0.005	<0.005	<0.005	<0.005
Calcium	mg/l	NA	170	130	140	99	120	140	140	170	85	100	120	96	73	210	74	130
Chromium	mg/l	0.050	n/a	n/a	<0.05	n/a	n/a	n/a	n/a	<0.050	0.02	n/a	n/a	n/a	n/a	<0.050	n/a	n/a
Copper	mg/l	0.2	n/a	n/a	0.05	n/a	n/a	n/a	n/a	0.011	0.060	n/a	n/a	n/a	n/a	0.058	n/a	n/a
Iron	mg/l	0.3	32	21	33	22	27	27	27	36	20	24	5.3	22	3.2	55	5.4	23
Lead	mg/l	0.025	0.012	0.008	0.009	0.008	0.012	0.011	0.011	0.015	0.007	0.01	0.006	0.008	0.008	0.028	<0.003	<0.003
Magnesium	mg/l	35	43	29	37	27	34	39	39	43	21	28	23	26	17	48	18	33
Manganese	mg/l	0.3	1.3	0.93	1.3	0.8	1	1.2	1.2	1.5	0.68	0.89	0.82	0.74	0.44	2	0.43	1
Mercury	mg/l	0.002	n/a	n/a	<0.0004	n/a	n/a	n/a	n/a	<0.0004	<0.0004	n/a	n/a	n/a	n/a	<0.0004	n/a	n/a
Nickel	mg/l	0.007*	n/a	n/a	0.06	n/a	n/a	n/a	n/a	0.073	0.043	n/a	n/a	n/a	n/a	0.049	n/a	n/a
Potassium	mg/l	NA	4.1	3.6	3.9	2.5	4.5	3.6	3.6	3.8	2.8	4.8	1.3	3.3	0.86	5.4	1	3
Selenium	mg/l	0.01	n/a	n/a	<0.005	n/a	n/a	n/a	n/a	<0.005	<0.005	n/a	n/a	n/a	n/a	<0.005	n/a	n/a
Silver	mg/l	0.05	n/a	n/a	<0.05	n/a	n/a	n/a	n/a	<0.050	<0.05	n/a	n/a	n/a	n/a	<0.050	n/a	n/a
Sodium	mg/l	20	61	66	47	43	47	45	45	40	32	39	33	39	36	37	45	47
Thallium	mg/l	0.004	n/a	n/a	<0.003	n/a	n/a	n/a	n/a	0.11	<0.003	n/a	n/a	n/a	n/a	0.006	n/a	n/a
Zinc	mg/l	0.3	n/a	n/a	0.12	n/a	n/a	n/a	n/a	0.14	0.094	n/a	n/a	n/a	n/a	0.13	n/a	n/a
VOLATILE ORGANIC COMPOUNDS			n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	<MDL	n/a	n/a

Notes:
1. Shaded values indicate detection above Standard.
2. *Standard is below laboratory Method Detection Limit (MDL).
3. n/a = not applicable; analysis not performed.
4. "<" = not detected at specified MDL.
5. NA = Standard not available.

Table F-1
Greater Albany Landfill (GAL)
Historical Groundwater Quality Monitoring Data
City of Albany Landfill - Proposed Eastern Expansion Project
Albany, NY
Monitoring Well GW-5S

TEST PARAMETER	Unit	NYSDEC TOGS Standard	3/27/03	6/11/03	9/23/03	12/15/03	3/23/04	6/17/04	9/27/04	12/14/04	3/28/05	6/13/05	9/19/05	12/19/05	3/20/06	6/26/06	9/25/06	12/18/06
			Routine	Routine	Baseline	Routine	Routine	Routine	Routine	Baseline	Baseline	Routine	Routine	Routine	Routine	Baseline	Routine	Routine
pH	SU	6.5-8.5	7.06	7.04	7.33	7.28	n/a	7.49	7.48	7.87	7.57	7.11	7.65	7.16	6.42	7.63	7.44	7.2
Eh	mV	NA	-112.3	-74	-134.6	-123	n/a	-122.9	-71	-252.8	-249.9	-105.7	-116.4	-24	68.9	-133	-90.9	-101.8
Turbidity	N.T.U.	5	140	5	62.8	191	120	82	25	144	44	92.3	316	255	118	342	161	129
Color	unit	15	n/a	n/a	n/a	n/a	n/a	n/a	n/a	130	n/a	n/a	n/a	n/a	n/a	180	n/a	n/a
Specific Conductance	uS/cm	NA	3917	408	3579	3662	n/a	3622	3630	3305	3174	3220	3447	3830	3269	2405	2281	3267
Total Dissolved Solids	mg/l	500	2000	1800	1900	1700	1900	1780	1690	1560	1500	1540	2380	1580	1580	1680	1680	1630
Chemical Oxygen Demand	mg/l	NA	190	170	120	150	280	110	120	171	111	117	<100	122	105	143	116	126
Biochemical Oxygen Demand	mg/l	NA	n/a	n/a	n/a	n/a	n/a	n/a	n/a	14	14	n/a	n/a	n/a	n/a	12	n/a	n/a
Total Organic Carbon	mg/l	NA	160	130	37	45	34	63	104	100	102	72	54	128	47	40	140	130
Sulfate	mg/l	250	<5	<5	<5	<5	9	<5	<5	5.18	<5	<5	<5	< 5.0	<5.0	<5	<5	<5
Total Alkalinity ($CaCO_3$)	mg/l	NA	700	620	680	730	730	730	410	850	700	600	850	570	220	740	660	660
Chloride	mg/l	250	850	720	730	740	740	707	500	919	883	602	651	622	681	664	635	695
Total Hardness ($CaCO_3$)	mg/l	NA	270	210	250	270	240	250	270	280	330	280	250	380	250	290	300	310
Chromium, Hexavalent	mg/l	0.050	n/a	n/a	<0.01	n/a	n/a	n/a	n/a	<0.010	<0.01	n/a	n/a	n/a	n/a	<0.01	n/a	n/a
Total Kjeldahl Nitrogen	mg/l	NA	n/a	n/a	54	n/a	n/a	n/a	n/a	42.8	41.1	n/a	n/a	n/a	n/a	76.4	n/a	n/a
Ammonia - Nitrogen	mg/l	2.0	55	51	44	50	66	55.2	218	56.0	40.2	15.8	2.47	54.3	69.8	77.9	64.2	16.2
Nitrate - Nitrogen	mg/l	10	<0.2	<0.2	<0.2	<0.2	<0.2	n/a	<0.20	<0.20	<0.2	<0.2	<0.20	< 0.20	<0.20	<0.2	<0.2	<0.2
Total Phenols	mg/l	0.001*	0.006	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	< 0.005	<0.005	0.016	0.005	<0.005
Total Cyanide	mg/l	0.1	n/a	n/a	<0.01	n/a	n/a	n/a	n/a	<0.010	<0.01	n/a	n/a	n/a	n/a	<0.01	n/a	n/a
INORGANIC PARAMETERS:																		
Aluminum	mg/l	0.1	n/a	n/a	0.63	n/a	n/a	n/a	n/a	0.89	0.34	n/a	n/a	n/a	n/a	2.4	n/a	n/a
Antimony	mg/l	0.003	n/a	n/a	0.007	n/a	n/a	n/a	n/a	0.03	<0.003	n/a	n/a	n/a	n/a	0.011	n/a	n/a
Arsenic	mg/l	0.025	n/a	n/a	0.02	n/a	n/a	n/a	n/a	0.014	0.026	n/a	n/a	n/a	n/a	0.026	n/a	n/a
Barium	mg/l	1	n/a	n/a	<0.3	n/a	n/a	n/a	n/a	<0.30	0.2	n/a	n/a	n/a	n/a	<0.3	n/a	n/a
Beryllium	mg/l	0.003*	n/a	n/a	<0.005	n/a	n/a	n/a	n/a	<0.005	<0.005	n/a	n/a	n/a	n/a	<0.005	n/a	n/a
Boron	mg/l	1	n/a	n/a	1.2	n/a	n/a	n/a	n/a	1.2	0.97	n/a	n/a	n/a	n/a	1.1	n/a	n/a
Cadmium	mg/l	0.01	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	< 0.005	0.005	<0.005	<0.005	<0.005
Calcium	mg/l	NA	66	52	63	70	58	60	79	63	68	62	62	85	56	69	66	69
Chromium	mg/l	0.050	n/a	n/a	<0.05	n/a	n/a	n/a	n/a	<0.050	0.01	n/a	n/a	n/a	n/a	<0.050	n/a	n/a
Copper	mg/l	0.2	n/a	n/a	<0.02	n/a	n/a	n/a	n/a	0.049	0.040	n/a	n/a	n/a	n/a	0.034	n/a	n/a
Iron	mg/l	0.3	21	16	19	26	20	20	5.9	16	13	17	21	35	13	19	17	17
Lead	mg/l	0.025	0.002	<0.001	0.002	0.003	0.003	0.003	0.006	0.003	0.001	0.001	0.002	0.005	0.002	0.008	<0.003	<0.003
Magnesium	mg/l	35	26	20	23	24	22	23	19	30	40	30	24	40	28	29	32	34
Manganese	mg/l	0.3	0.28	0.18	0.26	0.37	0.26	0.26	0.52	0.22	0.18	0.38	0.32	0.5	0.2	0.39	0.23	0.26
Mercury	mg/l	0.002	n/a	n/a	<0.0004	n/a	n/a	n/a	n/a	<0.0004	<0.0004	n/a	n/a	n/a	n/a	<0.0004	n/a	n/a
Nickel	mg/l	0.007*	n/a	n/a	0.04	n/a	n/a	n/a	n/a	0.051	0.035	n/a	n/a	n/a	n/a	<0.030	n/a	n/a
Potassium	mg/l	NA	56	75	79	76	92	91	1.2	63	51	76	77	55	69	75	86	86
Selenium	mg/l	0.01	n/a	n/a	<0.005	n/a	n/a	n/a	n/a	<0.005	0.018	n/a	n/a	n/a	n/a	<0.005	n/a	n/a
Silver	mg/l	0.05	n/a	n/a	<0.05	n/a	n/a	n/a	n/a	<0.050	<0.05	n/a	n/a	n/a	n/a	<0.05	n/a	n/a
Sodium	mg/l	20	450	580	510	400	440	470	41	490	350	370	320	360	380	350	430	480
Thallium	mg/l	0.004	n/a	n/a	<0.003	n/a	n/a	n/a	n/a	0.064	<0.003	n/a	n/a	n/a	n/a	0.01	n/a	n/a
Zinc	mg/l	0.3	n/a	n/a	0.11	n/a	n/a	n/a	n/a	0.034	0.050	n/a	n/a	n/a	n/a	0.041	n/a	n/a
VOLATILE ORGANIC COMPOUNDS			n/a	n/a	n/a	n/a	n/a	n/a	n/a			n/a	n/a	n/a	n/a		n/a	n/a
Chlorobenzene	mg/l	5								49	29					43		
Benzene	mg/l	1								4	3					5		

Notes:
1. Shaded values indicate detection above Standard.
2. *Standard is below laboratory Method Detection Limit (MDL).
3. n/a = not applicable; analysis not performed.
4. "<" = not detected at specified MDL.
5. NA = Standard not available.

APPENDIX G

AIL Historical Groundwater Quality Monitoring Data

Table G-1
Albany Interim Landfill Groundwater Analytical Monitoring Data
City of Albany Landfill - Proposed Eastern Expansion Project
Albany, New York
CHA Project No. 12206
MW-1S

TEST PARAMETER (mg/l unless otherwise noted)	Unit	TOGS Guidance Value	Mean (EWQV)	Mean (EWQV) Plus 3 Std. Dev.	2Q97 Bsln	3Q97 Rtne	4Q97 Rtne	1Q98 Rtne	2Q98 Rtne	3Q98 Bsln	4Q98 Rtne	1Q99 Rtne	2Q99 Rtne	3Q99 Rtne	4Q99 Bsln	1Q00 Rtne	2Q00 Rtne	3Q00 Rtne	4Q00 Rtne	1Q01 Rtne	2Q01 Rtne	3Q01 Bsln	4Q01 Rtne	1Q02 Rtne
Temperature	C°																							
Conductivity	uS		592.13	3372.89	2880	307	319	331	443	275	240	279'	325	346	542	36.6	685	292	585	349	331	579	287	265
pH	SU	6.5-8.5	7.21	7.79	7.07	7.89	7.42	7.85	7.28	8.28	9.3	8.3	9.08	8.85	9.27	6.86	7.22	7.8	8.15	6.9	7.23	7.2	7.03	7.27
Eh	mV		155	458.46	-1	-53	-17	-43	-6	-68	-118	-67	-119	-85	-112	-6	0.5	480	-61	335	80	65	30	N/A
Turbidity (after purging well)	N.T.U	5	322.75	943.18	NA	48	135	78	39	39	38	85	17	17	28	33	28	52	31.6	52.4	90.3	34.4	23.7	27.9
LEACHATE INDICATORS:																								
Ammonia Nitrogen	mg/l	2	0.16	0.7	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.5	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.05	0.412	<0.05	<0.05	<0.05	<0.005
BOD 5	mg/l		1.5	1.5	<2	<2	<2	<2	2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2.0
Bromide	mg/l	2	0.41	1.84	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1.0
COD	mg/l		50.03	408.54	<5	<5	<5	<5	14.9	<5	<5	<5	<5	<5	<5	<5	13.1	7.5	<5	<5	<5	<5	<5	<5.0
Chloride	mg/l	250	3.51	10.93	4.21	3.54	3.2	3.86	5.39	3.14	3.58	2.95	3.42	3.32	3.44	2.63	3.51	3.4	3.35	2.98	3.31	2.74	2.59	2.88
Nitrate	mg/l	10	0.06	0.29	<0.05	<0.05	<0.05	<0.05	1.67	<0.05	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	2.02	0.05	0.785	<0.5	<0.5	<0.5	<0.5	<0.5
Sulfate	mg/l	250	13.39	24.57	6.79	8.31	4.82	16	26.9	16.3	10.2	14.8	16	16.5	13.4	15.4	29.8	16	16.6	16.3	14.7	14.2	12.5	14.6
Total Alkalinity	mg/l		224.63	796.17	150	157	142	140	251	146	110	146	140	153	123	133	268	130	172	207	153	192	141	156
Total Dissolved Solids	mg/l	500	144.19	322.24	194	202	169	187	304	198	141	190	222	193	159	157	344	190	221	237	186	189	173	180
Total Hardness	mg/l		352.55	1154.99	164	166	157	176	291	184	128	201	174	182	134	145	302	1444	199	200	181	370	157	165
Total Kjed. Nitrogen	mg/l		0.78	1.64	-	0.402	0.458	0.281	0.605	0.279	<0.2	0.261	<0.2	0.3	<0.2	0.642	0.38	<1	0.31	0.627	<0.2	<0.2	<02	<0.2
Total Organic Carbon	mg/l	500	1.93	7.07	<1	<1	<1	<1	4.9	<1	<1	<1	<1	<1	<1	1.73	4.65	<1	1.59	1.8	<1	<1	1.13	<1.0
Total Phenols	mg/l	0.001	0.01	0.04	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Color	P.C.U.	15	7.5	20.31	<5					<5					10		5					10		
Boron	mg/l	1	0.08	0.28	<0.2					<02					<0.2		<0.2					<02		
INORGANIC PARAMETERS:																								
Aluminum	mg/l	0.1	8.15	64.13	2.33					2.16					REJECT		REJECT					1.67		
Antimony	mg/l	0.003	0.95	8.18	<0.06					<0.06					<0.06		<0.06					<0.06		
Arsenic	mg/l	0.025	0.01	0.01	<0.01					<0.01					<0.01		<0.01					<0.01		
Barium	mg/l	1	0.12	0.68	<0.02					<0.02					<0.02		0.0301					<0.02		
Beryllium	mg/l	0.003	0..01	0.06	<0.005					<0.005					<0.005		<0.005					<0.005		
Cadmium	mg/l	0.01	0.003	0.006	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Calcium	mg/l		83.75	340.07	49.1	48.8	41.9	56.5	87	50.8	35	47.5	50.7	53.5	41.5	42.6	91.2	45	62.2	60.9	56.5	56.6	46	52.7
Chromium	mg/l		7.96	75.29	<0.01					<0.01					<0.01		<0.01					<0.01		
Hexavalent Chromium	mg/l	0.05	0.01	0.02	<0.01					<0.01					<0.01		<0.01					<0.01		
Cobalt	mg/l	0.005	0.03	0.08	<0.05					<0.05					<0.05		<0.05					<0.05		
Copper	mg/l	0.2	0.08	0.35	<0.02					<0.02					<0.02		<0.02					<0.02		
Total Cyanide	mg/l	0.1	0.01	0.01	<0.01					<0.01					<0.01		<0.01					<0.01		
Iron	mg/l	0.3	35.96	222.94	3.13	4.93	8.41	7.5	4.89	3.74	3.56	6.59	3.64	1.78	3.16	3.85	5.58	0.2	2.08	4.48	5.12	1.87	1.32	1.84
Lead	mg/l	0.025	3.59	23.51	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Magnesium	mg/l	35	15.72	56.87	9.51	9.76	9.28	9.93	14.2	10.3	7.11	10.5	10.4	9.17	8.02	8.35	16.7	7.7	11.6	10.5	10.6	10.8	8.65	8.43
Manganese	mg/l	0.3	2.81	15.33	0.133	0.204	0.569	0.662	1.92	0.353	0.221	0.443	0.34	0.623	0.601	0.682	2.89	0.14	0.314	1.42	1.2	0.472	0.309	1.19
Mercury	mg/l	0.002	0.09	0.81	<0.0003					<0.0003					<0.0003		<0.0003					<0.0002		
Nickel	mg/l	0.007	0.06	0.21	<0.04					<0.04					<0.04		<0.04					<0.04		
Potassium	mg/l		1.91	8.69	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	0.7	<2	<2	<2	<5	<5	<2.0
Selenium	mg/l	0.01	0.004	0.005	<0.005					<0.005					<0.005		<0.005					<0.005		
Silver	mg/l	0.05	0.01	0.03	<0.01					<0.01					<0.01							0.05		
Sodium	mg/l	20	1.83	5.45	1.6	1.67	1.93	1.61	2.74	1.72	1.5	1.66	1.62	1.86	1.64	1.92	2.78	2.2	2.33	2.34	2.02	2.11	1.95	1.99
Thallium	mg/l	0.004	0.01	0.01	<0.01					<0.01					<0.01		<0.01					<0.01		
Vanadium	mg/l	0.014	0.03	0.08	<0.05					<0.05					<0.05		<0.05					<0.05		
Zinc	mg/l	0.3	0.65		0.034					0.0298					0.0211		0.0314					0.0221		

Notes:

1. Parameters listed are Part 360 Baseline or Routine Parameters Effective 1993.
2. Blanks indicate no analysis performed
3. "<" indicates not detected at the specified method detection limit (MDL)
4. Shaded values indicate detection above Standard.

Table G-1
Albany Interim Landfill Groundwater Analytical Monitoring Data
City of Albany Landfill - Proposed Eastern Expansion Project
Albany, New York
CHA Project No. 12206
MW-1S

TEST PARAMETER (mg/l unless otherwise noted)	Unit	TOGS Guidance Value	Mean (EWQV)	Mean (EWQV) Plus 3 Std. Dev.	April-03 Routine	June-03 Routine	Sep-03 Baseline	Dec-03 Routine	Mar-04 Routine	Jun-04 Routine	Sep-04 Routine	Dec-04 Baseline	Mar-05 Baseline	Jun-05 Routine	Sep-05 Routine	Dec-05 Routine	Mar-06 Routine	Jun-06 Baseline	Sep-06 Routine	Dec-06 Routine
Temperature	C°				8.45	10	13.01	9.63	7.72	10.77	11.36	9.91	7.68	9.19	11.51	9.3	8.23	10.63	11.72	9.32
Conductivity	uS		592.13	3372.89	525	424	318	334	316	334	320	341	562	299	307	380	273	269	226	276
pH	SU	6.5-8.5	7.21	7.79	6.97	7.71	8.18	7.06	7.61	7.63	7.85	7.48	6.57	7.84	8.28	7.94	7.31	7.94	9.35	8.04
Eh	mV		155	458.46	129.5	23	-70.5	-30.4	-32.2	-73.4	-125.1	-146.9	-115.4	-83	-32.3	-66	201.5	-74.4	-1.5	-18.1
Turbidity (after purging well)	N.T.U	5	322.75	943.18	6.7	71.1	48.8	91.4	60	41.4	63.8	66.6	29.8	15	184	14.6	61.4	107	69.3	49.4
LEACHATE INDICATORS:																				
Ammonia Nitrogen	mg/l	2	0.16	0.7	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	< 0.5	< 0.5	<0.5	<0.5	<0.5
BOD 5	mg/l		1.5	1.5	<4	<4	<4	<4	<4	<4	<4	<4	4		<4	< 4	<4	<8	10	<4
Bromide	mg/l	2	0.41	1.84		<2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.20		<2	< 0.2	< 0.2	<0.2	<0.2	< 0.2
COD	mg/l		50.03	408.54	<0.2	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	< 20	< 20	23	<20	<20
Chloride	mg/l	250	3.51	10.93	3	3	4	3	3	4	4.08	3.83	15.3	4.85	9.9	<1	5.4	13.8	5.44	4.98
Nitrate	mg/l	10	0.06	0.29	1.9	<0.2	<0.2	0.3	<0.2	<0.2	0.3	<0.2	3.1	<0.2	<0.2	< 0.2	< 0.2	0.28	<0.2	<0.2
Sulfate	mg/l	250	13.39	24.57	15	15	13	22	14	19.2	18.2	20.8	16.9	<250	10.3	7.31	10.2	13.7	9.84	5.16
Total Alkalinity	mg/l		224.63	796.17	260	150	160	180	150	170	160	290	270	260	130	270	130	120	160	150
Total Dissolved Solids	mg/l	500	144.19	322.24	320	150	180	200	230	185	230	632	360	<25	265	232	293	265	210	232
Total Hardness	mg/l		352.55	1154.99	260	140	130	180	150	168	158	162	298	140	144	99.5	141	160	147	126
Total Kjed. Nitrogen	mg/l		0.78	1.64	<0.5	<0.5	0.9	<0.5	<0.5	<0.5	<0.5	<0.5	3.46		<0.5	< 0.5	< 0.5	<0.5	<0.5	<0.5
Total Organic Carbon	mg/l	500	1.93	7.07	<3	<3	5	<3	<3	<3	<3	<3	4	<3	<3	< 3	< 3	<3	<3	<3
Total Phenols	mg/l	0.001	0.01	0.04	<0.005	<0.005	0.007	<0.5	<0.005	<0.005	<0.005	<0.005	0.02	0.007	<0.005	< 0.005	<0.005	<0.005	<0.005	<0.005
Color	P.C.U.	15	7.5	20.31			12					15	50					12		
Boron	mg/l	1	0.08	0.28			<0.5					<0.5	<0.5					<0.5		
INORGANIC PARAMETERS:																				
Aluminum	mg/l	0.1	8.15	64.13			0.642					1.81	0.702					2.66		
Antimony	mg/l	0.003	0.95	8.18			<0.015					0.0195	<0.015					<0.015		
Arsenic	mg/l	0.025	0.01	0.01			<0.01					<0.010	<0.010					<0.01		
Barium	mg/l	1	0.12	0.68			<0.05					<0.050	<0.050					<0.05		
Beryllium	mg/l	0.003	0..01	0.06			<0.003					<0.003	<0.003					<0.003		
Cadmium	mg/l	0.01	0.003	0.006	<0.005	0.0101	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	< 0.005	< 0.005	<0.005	<0.005	<0.005
Calcium	mg/l		83.75	340.07	81.7	41.5	39.6	55.9	46	50.3	47.6	49.1	94.7	44	43.2	29.9	42.0	47.7	44.5	38.7
Chromium	mg/l		7.96	75.29			<0.005					<0.005	<0.005					0.0664		
Hexavalent Chromium	mg/l	0.05	0.01	0.02			<0.01					<0.010	<0.010					<0.010		
Cobalt	mg/l	0.005	0.03	0.08			<0.02					<0.020	<0.020					<0.020		
Copper	mg/l	0.2	0.08	0.35			0.0322					0.012	0.017					0.011		
Total Cyanide	mg/l	0.1	0.01	0.01			<0.1					<0.010	<0.010					<0.010		
Iron	mg/l	0.3	35.96	222.94	0.525	3.42	1.17	2.16	3.34	1.9	3.21	3.17	1.93	2	4.57	0.544	3.72	5.39	4.14	2.35
Lead	mg/l	0.025	3.59	23.51	<0.003	0.0041	<0.003	<0.003	0.00376	0.0059	<0.003	<0.003	<0.003	0.001	<0.003	< 0.003	0.0026	<0.003	<0.003	<0.003
Magnesium	mg/l	35	15.72	56.87	12.9	8.68	7.8	10	9.5	10.3	9.5	9.67	15	8.7	8.77	6.02	8.70	10.00	8.74	7.14
Manganese	mg/l	0.3	2.81	15.33	0.203	1.17	0.426	1.67	0.739	0.453	0.857	0.89	4.97	0.46	1	0.222	0.684	1.5	0.7	0.465
Mercury	mg/l	0.002	0.09	0.81			<0.0002					<0.0002	<0.0002					<0.0002		
Nickel	mg/l	0.007	0.06	0.21			<0.03					<0.030	<0.030					<0.030		
Potassium	mg/l		1.91	8.69	<1	2.08	<1	<1.0	1.04	<1	1.02	<1	2.65	1.3	1.03	< 1	0.86	1.23	1.02	<1
Selenium	mg/l	0.01	0.004	0.005			<0.005					<0.005	<0.005					0.00607		
Silver	mg/l	0.05	0.01	0.03			<0.01					<0.010	<0.010					<0.010		
Sodium	mg/l	20	1.83	5.45	2.18	2.11	1.56	2.34	1.81	2.17	1.86	1.65	3.79	2.8	2.27	1.4	2.5	2.49	2.8	1.71
Thallium	mg/l	0.004	0.01	0.01			<0.01					<0.010	<0.010					<0.010		
Vanadium	mg/l	0.014	0.03	0.08			<0.03					<0.030	<0.030					<0.030		
Zinc	mg/l	0.3	0.65				0.0218					0.0504	0.0938					0.0945		

Notes:

1. Parameters listed are Part 360 Baseline or Routine Parameters Effective 1993.
2. Blanks indicate no analysis performed
3. "<" indicates not detected at the specified method detection limit (MDL)
4. Shaded values indicate detection above Standard.

Table G-1
Albany Interim Landfill
Groundwater Analytical Data -Volatile Organic Compounds
City of Albany Landfill - Proposed Eastern Expansion Project
Albany, New York
CHA Project No. 12206
MW-1S

TEST PARAMETER (µg/l unless otherwise noted)	Unit	TOGS Guidance Value	Mean (EWQV)	Mean (EWQV) Plus 3 Std. Dev.	2Q97	3Q98	4Q99	2Q00	Sep-03	Dec-04	Mar-05	Jun-06
Organic Parameters												
Acetone	µg/l	50	13.5	23.56	<MDL	<MDL	<MDL	<MDL	<10	<10	<10	<10
Acrylonitrile	µg/l	5	46.88	166.2	<MDL	<MDL	<MDL	<MDL	Rejected	<100	<100	<100
Benzene	µg/l	0.7	2.56	7.44	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Bromochloromethane	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Bromodichloromethane	µg/l	50	2.63	7.28	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Bromoform	µg/l	50	2.63	7.28	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Carbon disulfide	µg/l	5	5.63	13.58	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Carbon tetrachloride	µg/l	5	2.63	7.28	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Chlorobenzene	µg/l	5	2.63	7.28	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Chloroethane	µg/l	5	3.09	10.05	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Chloroform	µg/l	7	2.63	7.28	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Dibromochloromethane	µg/l	50	2.63	7.28	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
1,2 Dibromo-3-chloropropane	µg/l	5	5.63	13.58	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
1,2 Dibromomethane	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
1,2 Dichlorobenzene (o)	µg/l		2.63	7.28	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
1,4 Dichlorobenzene (p)	µg/l	4.7	2.63	7.28	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
trans-1,2 Dichloro-2-butene	µg/l	5	5.63	13.58	<MDL	Reject	<MDL	<MDL	<10	<10	<10	<10
1,1 Dichloroethane	µg/l	5	2.63	7.28	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
1,2 Dichloroethane	µg/l	5	2.63	7.28	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
1,1 Dichloroethene	µg/l	5	2.63	7.28	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
cis-1,3 Dichloroethene	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
trans-1,3 Dichloroethene	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
1,2 Dichloropropane	µg/l	5	2.63	7.28	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
cis-1,3 Dichloropropene	µg/l	5	2.63	7.28	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
trans-1,3 Dichloropropene	µg/l	5	2.63	7.28	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Ethylbenzene	µg/l	5	2.63	7.28	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
2-Hexanone	µg/l	50	7.5	7.5	<MDL	<MDL	<MDL	<MDL	<10	<10	<10	<10
Bromomethane	µg/l	5	3.09	10.05	<MDL	<MDL	<MDL	Reject	<5	<5	<5	<5
Chloromethane	µg/l	5	3.09	10.05	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Dibromomethane	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Methylene chloride	µg/l	5	2.27	7.02	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
2-Butanone	µg/l	50	7.5	7.5	<MDL	<MDL	<MDL	<MDL	<10	<10	<10	<10
Methyl Iodide (Iodomethane)	µg/l	5	5.63	13.58	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
4-methyl-2-pentanone	µg/l	5	7.5	7.5	<MDL	<MDL	<MDL	<MDL	<10	<10	<10	<10
Styrene	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
1,1,1,2-Tetrachloroethane	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	Reject	<5	<5	<5	<5
1,1,2,2-Tetrachloroethane	µg/l	5	2.63	7.26	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Tetrachloroethene	µg/l	5	2.63	7.28	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Toluene	µg/l	5	2.63	7.28	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
1,1,1-Trichloroethene	µg/l	5	2.63	7.28	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
1,1,2-Trichloropropane	µg/l	5	2.63	7.28	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Trichloroethene	µg/l	5	2.63	7.28	<MDL	<MDL	<MDL	Reject	<5	<5	<5	<5
Trichlorofluoromethane	µg/l	5	2.63	7.28	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
1,2,3-Trichloropropane	µg/l	5	3.75	7.28	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Vinyl acetate	µg/l		7.5	7.5	<MDL	Reject	<MDL	<MDL	<50	<50	<50	<50
Vinyl chloride	µg/l	2	3.09	10.05	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
M+P Xylene	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
o - Xylene	µg/l	5			<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5

Notes:

1. Parameters listed are Part 360 Baseline Volatile Organic Compounds Parameters Effective 1993.
2. Blanks indicate no analysis performed
3. "<" indicates not detected at the specified method detection limit (MDL)

Table G-1
Albany Interim Landfill Groundwater Analytical Monitoring Data
City of Albany Landfill - Proposed Eastern Expansion Project
Albany, New York
CHA Project No. 12206
MW-1I

TEST PARAMETER (mg/l unless otherwise noted)	Unit	TOGS Guidance Value	Mean (EWQV)	Mean (EWQV) Plus 3 Std. Dev.	2Q97 Bsln	3Q97 Rtne	4Q97 Rtne	1Q98 Rtne	2Q98 Rtne	3Q98 Bsln	4Q98 Rtne	1Q99 Rtne	2Q99 Rtne	3Q99 Rtne	4Q99 Bsln	1Q00 Rtne	2Q00 Rtne	3Q00 Rtne	4Q00 Rtne	1Q01 Rtne	2Q01 Rtne	3Q01 Bsln	4Q01 Rtne	1Q02 Rtne	April-03 Routine	June-03 Routine
Temperature	C°																								9.75	10.5
Conductivity	uS		406.88	2115.14	1808	239	258	268	192	229	247	243	257	257	36.8	20.4	-1.24	227	0.33	243	239	237	236	1843	253	325
pH	SU	6.5-8.5	7.46	8.95	6.96	7.84	7.48	8.08	8.4	8.26	8.94	8.39	9.09	8.6	8.5	7.23	8.49	7.8	8.34	7.47	7.37	7.64	7.18	7.31	8.04	7.74
Eh	mV		188.71	502.68	14	-50	-21	-56	-62	-66	-103	-73	-119	-91	-85	-12	-76	213	-67	300	-35	OR	-10	N/A	-123.1	-48
Turbidity (after purging well)	N.T.U	5	16.47	57.27	NA	2.4	2	2.5	2.9	3	2.4	11	1.1	6.3	5.3	3.3	5	3.2	22.9	3.18	2.32	2.77	3.91	2.94	3.4	4.1
LEACHATE INDICATORS:																										
Ammonia Nitrogen	mg/l	2	0.09	0.23	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.05	<0.1	<0.05	<0.5	<0.05	<0.05	<0.5	<0.5
BOD 5	mg/l		1.5	1.5	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	4.23	<2	<2.0	<4	<4
Bromide	mg/l	2	0.41	1.84	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1.0	<0.2	<0.2
COD	mg/l		12.53	87.04	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	6.47	23	<20
Chloride	mg/l	250	1.8	4.07	2.07	1.93	1.75	1.96	1.86	1.08	2.14	1.35	2.05	1.76	1.52	1.32	1,95	2.3	2	1.8	2.04	2.14	2.5	2.99	3	3
Nitrate	mg/l	10	0.03	0.07	<0.05	<0.05	<0.05	<0.05	<0.5	<0.05	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.04	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2	<0.2
Sulfate	mg/l	250	21.28	33.34	15.7	17.4	12.4	23.4	25.3	23.8	17.9	21.5	19.9	20.2	20.4	22.5	20.7	22	20.6	21.1	19.4	17.9	20.6	20.4	19	17
Total Alkalinity	mg/l		94.31	210.85	105	105	107	105	105	102	106	106	106	107	107	111	112	110	109	106	106	123	106	105	110	100
Total Disolved Solids	mg/l	500	137.71	179.2	157	149	146	152	146	152	170	157	177	156	150	142	158	150	150	147	148	151	151	155	170	160
Total Hardness	mg/l		157.38	245.34	146	125	130	127	144	134	127	140	154	202	128	120	130	148	125	122	124	126	136	111	110	110
Total Kjed. Nitrogen	mg/l		0.72	0.96	0.83	0.273	0.365	<0.2	0.353	<0.2	<02	<0.2	<0.2	0.341	22	<0.2	<0.3	<1	0.231	<02	<0.2	<0.2	<0.2	<0.2	<0.5	<0.5
Total Organic Carbon	mg/l	500	2.29	6.82	3.9	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	1.04	<1	<1	<1	<1	<1	<1	1.12	<1.0	<3	<3
Total Phenols	mg/l	0.001	0.004	0.016	0.011	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Color	P.C.U.	15	7.68	20.01	<5					<5					10		5					5				
Boron	mg/l	1	0.05	0.17	<0.2					<02					<0.2		<02					<0,2				
INORGANIC PARAMETERS:																										
Aluminum	mg/l	0.1	1.42	8.76	0.252					<0.1					REJECT		REJECT					<0.1				
Antimony	mg/l	0.003	0.04	0.07	<0.06					<0.06					<0.06		<0.06					<0.06				
Arsenic	mg/l	0.025	0.01	0.02	<0.01					<0.01					<0.01		<0.01					<0.01				
Barium	mg/l	1	0.03	0.08	0.0301					0.0246					0.0256		0.0304					0.0248				
Beryllium	mg/l	0.003	0.003	0.007	<0.005					<0.005					<0.005		<0.005					<0.005				
Cadmium	mg/l	0.01	0.003	0.006	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Calcium	mg/l		50.56	80.51	43.4	37.8	36.1	40.6	38.3	36.5	36.9	36.1	40.1	43.6	42.8	39.5	53.9	50	39.5	37.8	40	40	40.6	39.6	34.9	34.3
Chromium	mg/l		0.01	0.03	<0.01					<0.01					<0.01		<0.01					<0.01				
Hexavalent Chromium	mg/l	0.05	0.01	0.02	<0.01					<0.01					<0.01		<0.01					0.0249				
Cobalt	mg/l	0.005	0.02	0.09	<0.05					<0.05					<0.05		<0.05					<0.05				
Copper	mg/l	0.2	0.03	0.07	<0.02					<0.02					<0.02		<0.02					<0.02				
Total Cyanide	mg/l	0.1	0.01	0.01	<0.01					<0.01					<0.01		<0.01					0.0133				
Iron	mg/l	0.3	3.09	18.7	1.07	0.458	0.685	0.458	0.536	0.702	0.456	0.384	0.622	0.654	0.521	0.552	REJECT	0.5	0.511	0.36	0.342	0.513	0.83	0.565	0.321	0.541
Lead	mg/l	0.025	0.01	0.02	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.003	<0.003
Magnesium	mg/l	35	16.51	97.21	5.96	5.74	6.03	6.08	5.81	5.8	5.64	5.91	5.95	6.76	6.28	5.9	6.14	5.7	5.95	5.32	5.7	5.88	5.72	6.78	5.52	5.44
Manganese	mg/l	0.3	0.22	0.5	0.198	0.14	0.178	0.139	0.141	0.173	0.128	0.124	0.148	0.154	0.15	0.159	0.164	0.13	0.128	0.109	0.136	0.132	0.161	0.14	0.111	0.134
Mercury	mg/l	0.002	0.0003	0.0005	<0.0003					<0.003					<0.0003		<0.0003					<0.0002				
Nickel	mg/l	0.007	0.03	0.06	<0.04					<0.04					<0.04		<0.04					<0,04				
Potassium	mg/l		1.32	4.31	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	4.47	0.5	<2	<2	<2	<5	<5	<2.0	<1	1.33
Selenium	mg/l	0.01	0.004	0.005	<0.005					<0.005					<0.005		<0.005					<0.005				
Silver	mg/l	0.05	1.29	12.09	<0.01					<0.01					<0.01		<0.01					<0.01				
Sodium	mg/l	20	3.16	9.36	2.17	1.9	2.29	1.88	2.12	1.85	1.77	1.89	1.91	2.24	1.88	2.07	3.01	2.2	2.04	1.97	1.98	1.86	0.204	2.05	1.7	2.17
Thallium	mg/l	0.004	0.01	0.01	<0.01					<0.01					<0.01		<0.01					<0.01				
Vanadium	mg/l	0.014	0.02	0.09	<0.05					<0.05					<0.05		<0.05					<0.05				
Zinc	mg/l	0.3	0.05	0.18	0.0628					0.063					0.0368		<0.02					<0.02				

Notes:

1. Parameters listed are Part 360 Baseline or Routine Parameters Effective 1993.
2. Blanks indicate no analysis performed
3. "<" indicates not detected at the specified method detection limit (MDL)
4. Shaded values indicate detection above Standard.

Table G-1
Albany Interim Landfill Groundwater Analytical Monitoring Data
City of Albany Landfill - Proposed Eastern Expansion Project
Albany, New York
CHA Project No. 12206
MW-1I

TEST PARAMETER (mg/l unless otherwise noted)	Unit	TOGS Guidance Value	Mean (EWQV)	Mean (EWQV) Plus 3 Std. Dev.	Sep-03 Baseline	Dec-03 Routine	Mar-04 Routine	Jun-04 Routine	Sep-04 Routine	Dec-04 Baseline	Mar-05 Baseline	Jun-05 Routine	Sep-05 Routine	Dec-05 Routine	Mar-06 Routine	Jun-06 Baseline	Sep-06 Routine	Dec-06 Routine
Temperature	C°				11.1	8.85	8.48	11.63	10.94	8.40	9.41	10.46	10.60	7.9	8.67	10.69	10.66	8.93
Conductivity	uS		406.88	2115.14	243	195	280	253	251	252	253	253	252	384	248	185	174.6	241
pH	SU	6.5-8.5	7.46	8.95	8.35	7.93	7.75	8.05	7.95	7.70	7.66	7.97	8.33	8.09	7.12	7.89	9.96	8.35
Eh	mV		188.71	502.68	-129	-83.3	-34	-106.1	-138.4	-224.1	-150.2	-91	-44.9	-76	206.1	-74.5	-66.8	-39.4
Turbidity (after purging well)	N.T.U	5	16.47	57.27	6.38	21.7	3.2		3.71	1.13	8.7	5.91	13.5	0.42	8.21	6.4	3.51	6.48
LEACHATE INDICATORS:																		
Ammonia Nitrogen	mg/l	2	0.09	0.23	0.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.500	<0.5	<0.5	< 0.5	< 0.5	<0.5	<0.5	<0.5
BOD 5	mg/l		1.5	1.5	<4	<4	<4	<4	4	4	<4		<4	< 4	<4	<8	13	<4
Bromide	mg/l	2	0.41	1.84	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.20		<0.2	< 0.2	< 0.2	<0.20	<0.2	<0.20
COD	mg/l		12.53	87.04	<20	<20	<20	<20	<20	<20	<20	<20	26	< 20	< 20	31	<20	<20
Chloride	mg/l	250	1.8	4.07	3	3	4	5	3.83	5.36	6.89	5.36	6.75	6.65	8.22	5.77	9.77	6.64
Nitrate	mg/l	10	0.03	0.07	<0.2	<0.2	<0.2	<0.2	<0.2	<0.20	<0.20	<0.20	<0.20	< 0.2		<0.20	<0.2	<0.20
Sulfate	mg/l	250	21.28	33.34	17	16	21	<5	28.8	27.9	<5	21	13.9	10.8		16.7	16.3	8.42
Total Alkalinity	mg/l		94.31	210.85	100	110	110	120	130	230	100	100	99	110	100	670	110	120
Total Disolved Solids	mg/l	500	137.71	179.2	140	160	210	135	127	667	180	55	232	190	215	170	160	188
Total Hardness	mg/l		157.38	245.34	93	120	120	122	121	127	117	120	126	122	117	105	103	54.3
Total Kjed. Nitrogen	mg/l		0.72	0.96	1.4	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5		<0.5	< 0.5	< 0.5	<0.50	<0.5	<0.50
Total Organic Carbon	mg/l	500	2.29	6.82	<3	<3	<3	<3	<3	<3	<3	<3	<3	< 3	< 3	<3	<3	<3
Total Phenols	mg/l	0.001	0.004	0.016	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.01	<0.005	<0.005	< 0.005	< 0.005	<0.005	<0.005	<0.005
Color	P.C.U.	15	7.68	20.01	6					7	12					13		
Boron	mg/l	1	0.05	0.17	<0.5					<0.5	<0.5					<0.5		
INORGANIC PARAMETERS:																		
Aluminum	mg/l	0.1	1.42	8.76	<0.1					<0.1	<0.1					<0.1		
Antimony	mg/l	0.003	0.04	0.07	<0.015					0.0151	<0.015					<0.015		
Arsenic	mg/l	0.025	0.01	0.02	<0.01					<0.010	<0.010					<0.010		
Barium	mg/l	1	0.03	0.08	<0.05					<0.050	<0.050					<0.050		
Beryllium	mg/l	0.003	0.003	0.007	<0.003					<0.003	<0.003					<0.003		
Cadmium	mg/l	0.01	0.003	0.006	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	< 0.005	<0.005	<0.005	<0.005	<.005
Calcium	mg/l		50.56	80.51	29.9	38	37.5	39	38.5	40.7	37.5	39	40.4	38.4	36.9	32.7	32.6	15.9
Chromium	mg/l		0.01	0.03	<0.005					<0.005	<0.005					<0.005		
Hexavalent Chromium	mg/l	0.05	0.01	0.02	<0.01					<0.010	<0.010					<0.010		
Cobalt	mg/l	0.005	0.02	0.09	<0.02					<0.020	<0.020					<0.020		
Copper	mg/l	0.2	0.03	0.07	0.0284					<0.010	0.0111					<0.01		
Total Cyanide	mg/l	0.1	0.01	0.01	<0.01					<0.010	<0.010					<0.010		
Iron	mg/l	0.3	3.09	18.7	0.383	0.531	0.517	0.482	0.751	0.542	0.53	0.48	0.58	0.506	0.524	0.512	0.423	2.61
Lead	mg/l	0.025	0.01	0.02	<0.003	<0.003	<0.003	0.00379	<0.003	0.00498	<0.003	0.004	<0.003	< 0.003	< 0.003	<0.003	<0.003	<0.003
Magnesium	mg/l	35	16.51	97.21	4.44	6.04	5.88	6	5.97	6.07	5.57	5.9	6.19	6.32	6.13	5.71	5.26	3.58
Manganese	mg/l	0.3	0.22	0.5	0.1	0.135	0.138	0.138	0.201	0.137	0.132	0.13	0.148	0.140	0.132	0.121	0.129	0.114
Mercury	mg/l	0.002	0.0003	0.0005	<0.0002					<0.0002	<0.0002					<0.0002		
Nickel	mg/l	0.007	0.03	0.06	<0.03					<0.030	<0.030					<0.030		
Potassium	mg/l		1.32	4.31	<1.0	<1.0	<1.0	<1	<1	<1	6.91	1	1.45	< 1.0	< 1.0	<1.0	<1.0	<1
Selenium	mg/l	0.01	0.004	0.005	<0.005					0.0147	<0.005					<0.005		
Silver	mg/l	0.05	1.29	12.09	<0.01					<0.010	<0.010					<0.010		
Sodium	mg/l	20	3.16	9.36	1.51	2.23	1.83	2.15	1.73	1.5	2.42	2.4	2.3	1.66	2.228	1.88	2.39	20.8
Thallium	mg/l	0.004	0.01	0.01	<0.01					<0.010	<0.010					<0.010		
Vanadium	mg/l	0.014	0.02	0.09	<0.03					<0.030	<0.030					<0.030		
Zinc	mg/l	0.3	0.05	0.18	0.093					0.0347	0.0203					0.0521		

Notes:

1. Parameters listed are Part 360 Baseline or Routine Parameters Effective 1993.
2. Blanks indicate no analysis performed
3. "<" indicates not detected at the specified method detection limit (MDL)
4. Shaded values indicate detection above Standard.

Table G-1
Albany Interim Landfill
Groundwater Analytical Data -Volatile Organic Compounds
City of Albany Landfill - Proposed Eastern Expansion Project
Albany, New York
CHA Project No. 12206
MW-1I

TEST PARAMETER (µg/l unless otherwise noted)	Unit	TOGS Guidance Value	Mean (EWQV)	Mean (EWQV) Plus 3 Std. Dev.	2Q97	3Q98	4Q99	2Q00	Sep-03	Dec-04	Mar-05	Jun-06
Organic Parameters												
Acetone	µg/l	50	38.5	209	<MDL	<MDL	<MDL	<MDL	<10 J	<10	<10	<10
Acrylonitrile	µg/l	5	46.88	166.2	<MDL	<MDL	<MDL	<MDL	Rejected	<100	<100	<100
Benzene	µg/l	0.7	2.58	7.44	<MDL	<MDL	<MDL	<MDL	<5 J	<5	<5	<5
Bromochloromethane	µg/l	5	4.4	8.76	<MDL	<MDL	<MDL	<MDL	<5 J	<5	<5	<5
Bromodichloromethane	µg/l	50	2.63	7.26	<MDL	<MDL	<MDL	<MDL	<5 J	<5	<5	<5
Bromoform	µg/l	50	2.63	7.26	<MDL	<MDL	<MDL	<MDL	<5 J	<5	<5	<5
Carbon disulfide	µg/l	5	5.63	13.86	<MDL	<MDL	<MDL	<MDL	<5 J	<5	<5	<5
Carbon tetrachloride	µg/l	5	2.63	7.26	<MDL	<MDL	<MDL	<MDL	<5 J	<5	<5	<5
Chlorobenzene	µg/l	5	2.63	7.26	<MDL	<MDL	<MDL	<MDL	<5 J	<5	<5	<5
Chloroethane	µg/l	5	3.09	10.05	<MDL	<MDL	<MDL	<MDL	<5 J	<5	<5	<5
Chloroform	µg/l	7	2.63	7.26	<MDL	<MDL	<MDL	<MDL	<5 J	<5	<5	<5
Dibromochloromethane	µg/l	50	2.63	7.26	<MDL	<MDL	<MDL	<MDL	<5 J	<5	<5	<5
1,2 Dibromo-3-chloropropane	µg/l	5	5.63	13.58	<MDL	<MDL	<MDL	<MDL	<5 J	<5	<5	<5
1,2 Dibromomethane	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5 J	<5	<5	<5
1,2 Dichlorobenzene (o)	µg/l		2.63	7.26	<MDL	<MDL	<MDL	<MDL	<5 J	<5	<5	<5
1,4 Dichlorobenzene (p)	µg/l	4.7	2.63	7.26	<MDL	<MDL	<MDL	<MDL	<5 J	<5	<5	<5
trans-1,2 Dichloro-2-butene	µg/l	5	5.63	13.58	<MDL	<MDL	<MDL	<MDL	<10 J	<10	<10	<10
1,1 Dichloroethane	µg/l	5	2.63	7.26	<MDL	<MDL	<MDL	<MDL	<5 J	<5	<5	<5
1,2 Dichloroethane	µg/l	5	2.63	7.26	<MDL	<MDL	<MDL	<MDL	<5 J	<5	<5	<5
1,1 Dichloroethene	µg/l	5	2.63	7.26	<MDL	<MDL	<MDL	<MDL	<5 J	<5	<5	<5
cis-1,3 Dichloroethene	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5 J	<5	<5	<5
trans-1,3 Dichloroethene	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5 J	<5	<5	<5
1,2 Dichloropropane	µg/l	5	2.63	7.26	<MDL	<MDL	<MDL	<MDL	<5 J	<5	<5	<5
cis-1,3 Dichloropropene	µg/l	5	2.63	7.26	<MDL	<MDL	<MDL	<MDL	<5 J	<5	<5	<5
trans-1,3 Dichloropropene	µg/l	5	2.63	7.26	<MDL	<MDL	<MDL	<MDL	<5 J	<5	<5	<5
Ethylbenzene	µg/l	5	2.63	7.26	<MDL	<MDL	<MDL	<MDL	<5 J	<5	<5	<5
2-Hexanone	µg/l	50	7.5	7.5	<MDL	<MDL	<MDL	<MDL	<10 J	<10	<10	<10
Bromomethane	µg/l	5	3.09	10.05	<MDL	<MDL	<MDL	Reject	<5 J	<5	<5	<5
Chloromethane	µg/l	5	3.09	10.05	<MDL	<MDL	<MDL	<MDL	<5 J	<5	<5	<5
Dibromomethane	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5 J	<5	<5	<5
Methylene chloride	µg/l	5	2.63	7.26	<MDL	<MDL	<MDL	<MDL	<5 J	<5	<5	<5
2-Butanone	µg/l	50	7.5	7.5	<MDL	<MDL	<MDL	<MDL	<10 J	<10	<10	<10
Methyl Iodide (Iodomethane)	µg/l	5	5.63	13.58	<MDL	<MDL	<MDL	<MDL	<5 J	<5	<5	<5
4-methyl-2-pentanone	µg/l	5	7.5	7.5	<MDL	<MDL	<MDL	<MDL	<10 J	<10	<10	<10
Styrene	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5 J	<5	<5	<5
1,1,1,2-Tetrachloroethane	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5 J	<5	<5	<5
1,1,2,2-Tetrachloroethane	µg/l	5	2.63	7.26	<MDL	<MDL	<MDL	<MDL	<5 J	<5	<5	<5
Tetrachloroethene	µg/l	5	2.63	7.26	<MDL	<MDL	<MDL	Reject	<5 J	<5	<5	<5
Toluene	µg/l	5	2.63	7.26	<MDL	<MDL	<MDL	<MDL	<5 J	<5	<5	<5
1,1,1-Trichloroethene	µg/l	5	2.63	7.26	<MDL	<MDL	<MDL	<MDL	<5 J	<5	<5	<5
1,1,2-Trichloropropane	µg/l	5	1.95	6.96	<MDL	<MDL	<MDL	<MDL	<5 J	<5	<5	<5
Trichloroethene	µg/l	5	2.63	7.26	<MDL	<MDL	<MDL	Reject	<5 J	<5	<5	<5
Trichlorofluoromethane	µg/l	5	2.63	7.26	<MDL	<MDL	<MDL	<MDL	<5 J	<5	<5	<5
1,2,3-Trichloropropane	µg/l	5	3.75	7.26	<MDL	<MDL	<MDL	<MDL	<5 J	<5	<5	<5
Vinyl acetate	µg/l		7.5	7.5	<MDL	<MDL	<MDL	<MDL	<50 J	<50	<50	<50
Vinyl chloride	µg/l	2	3.09	10.05	<MDL	Reject	<MDL	<MDL	<5 J	<5	<5	<5
M+P Xylene	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5 J	<5	<5	<5
o - Xylene	µg/l	5			<MDL	<MDL	<MDL	<MDL	<5 J	<5	<5	<5

Notes:

1. Parameters listed are Part 360 Baseline Volatile Organic Compounds Parameters Effective 1993.
2. Blanks indicate no analysis performed
3. "<" indicates not detected at the specified method detection limit (MDL)

Table G-1
Albany Interim Landfill Groundwater Analytical Monitoring Data
City of Albany Landfill - Proposed Eastern Expansion Project
Albany, New York
CHA Project No. 12206
MW-1D

TEST PARAMETER (mg/l unless otherwise noted)	Unit	TOGS Guidance Value	Mean (EWQV)	Mean (EWQV) Plus 3 Std. Dev.	2Q97 Bsln	3Q97 Rtne	4Q97 Rtne	1Q98 Rtne	2Q98 Rtne	3Q98 Bsln	4Q98 Rtne	1Q99 Rtne	2Q99 Rtne	3Q99 Rtne	4Q99 Bsln	2Q00 Rtne	3Q00 Rtne	4Q00 Rtne	1Q01 Rtne	2Q01 Rtne	3Q01 Bsln	4Q01 Rtne	April-03 Routine	June-03 Routine
Temperature	C°																						9.92	12.1
Conductivity	uS		365.25	1932.98	1657	1857	185.4	195.4	171	175.7	178.6	174.5	194.7	195.2	24.5	19.99	167	455	180	198.6	291	181.5	199	251
pH	SU	6.5-8.5	8.21	9.9	7	8.39	8.15	8.69	8.95	8.42	8.94	8.34	9.27	8.94	8.67	8.56	8.2	8.8	8.13	7.3	7.94	7.41	7.92	8.2
Eh	mV		167.33	534.26	1	-78	-58	87	-83	-77	-104	-71	-116	-108	-95	-97	183	-87	295	25	35	-60	95.4	-8
Turbidity (after purging well)	N.T.U	5	48.3	93.92	NA	5.2	5.5	12	6	9.1	9.8	22	13	54	135	190	94	268	80.2	142	28	8.62	3.6	112.8
LEACHATE INDICATORS:																								
Ammonia Nitrogen	mg/l	2	0.15	0.5	0.0653	0.0654	0.0789	<0.05	0.0619	0.0502	0.0652	0.0536	<0.05	<0.05	0.0564	0.0517	<0.1	0.108	0.106	<0.05	0.0758	0.0961	<0.5	<0.5
BOD 5	mg/l		1.5	1.5	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	21	<2	<4	<4
Bromide	mg/l	2	0.41	1.84	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.2	<0.2
COD	mg/l		12.75	79.36	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5		5.93	7.5	<5	5.89	<5		<5	<20	21
Chloride	mg/l	250	1.33	4.78	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1		<1	<1	<1
Nitrate	mg/l	10	0.03	0.13	<0.05	<0.05	<0.05	<0.05	<0.5	<0.05	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.11	<0.5	<0.5	<0.5		<0.5	<0.2	<0.2
Sulfate	mg/l	250	6.05	33.99	<2	<2	<2	2.54	3.07	2.94	<2	<2	2.45	3.02	2.4	3.56	2.7	3.1	2.45	2.53	3.32	3.27	<5	16
Total Alkalinity	mg/l		114.28	214.67	92.2	96.8	113	97.2	96.8	93.9	95.5	95.1	93.5	94.5	105	119	100	96	96.1	96.8	106	94	100	92
Total Dissolved Solids	mg/l	500	107.07	172.57	111	120	104	113	115	119	120	121	133	112	133	138	120	141	122	121	114	111	110	120
Total Hardness	mg/l		114.45	279.49	76.7	74	75.7	79.7	91.2	95.6	77.1	88.4	80.6	97.2	120	161	87	152	83.3	104	76	80	70	96
Total Kjed. Nitrogen	mg/l		0.97	2.61		0.521	0.279	0.283	0.294	0.293	<0.2	0.226	<0.2	<0.2	0.223	0.32	<1	0.363	<0.2	0.209	<0.2	<0.2	<0.5	<0.5
Total Organic Carbon	mg/l	500	1.54	5.14	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	1.17	<1	<1	<1	1.23	<3	<3
Total Phenols	mg/l	0.001	0	0.01	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Color	P.C.U.	15	8.28	26.86	<5					<5					5	10					<5			
Boron	mg/l	1	0.06	0.19	<0.2					<0.2					<0.2	<0.2					<0.2			
INORGANIC PARAMETERS:																								
Aluminum	mg/l	0.1	3.35	20.68	0.392					1.05					REJECT	REJECT					1.45			
Antimony	mg/l	0.003	0.04	0.07	<0.06					<0.06					<0.06	<0.06					<0.06			
Arsenic	mg/l	0.025	0.01	0.02	<0.01					<0.01					<0.01	0.0106					0.0112			
Barium	mg/l	1	0.04	0.16	0.026					0.0319					0.0673	0.0812					0.0382			
Beryllium	mg/l	0.003	0	0.01	<0.005					<0.005					<0.005	<0.005					<0.005			
Cadmium	mg/l	0.01	0	0.01	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Calcium	mg/l		35.5	85.43	22.2	22.7	20.9	25	68.2	25.6	22.6	23.6	25.2	29.6	39.9	49.3	27	44.1	24.4	32.4	24.7	23.7	21.9	29
Chromium	mg/l		0.01	0.03	<0.01					<0.01					0.0131	0.0174					<0.01			
Hexavalent Chromium	mg/l	0.05	0.01	0.02	<0.01					<0.01					<0.01	<0.01								
Cobalt	mg/l	0.005	0.03	0.07	<0:05					<0.05					<0.05	<0.05					<0.05			
Copper	mg/l	0.2	0.03	0.08	<0.02					<0.02					<0.02	<0.02					<0.02			
Total Cyanide	mg/l	0.1	0.01	0.01	<0.01					<0.01					<0.01	<0,01					0.0133			
Iron	mg/l	0.3	6.45	41.84	0.573	0.757	1.14	1.44	7.06	1.85	1.04	1.58	1.27	3.39	9.22	13.6	0.9	13.7	3.02	6.6	1.23	0.806	0.505	5.37
Lead	mg/l	0.025	0.01	0.08	<0.005	<0.005	<0,005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.0062	0.0098	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.003	0.00349
Magnesium	mg/l	35	5.61	17.43	3.55	3.73	3.84	3.87	10.4	4.47	3.82	4.29	4.16	5.39	8	10.1	4.8	10	4.4	6.43	4.28	3.92	3.82	5.74
Manganese	mg/l	0.3	0.18	0.93	0.0256	0.0407	0.0465	0.0524	0.0814	0.0687	0.0402	0.0562	0.0439	0.103	0.233	0.364	0.1	0.367	0.0912	0.18	0.0514	0.0446	0.0421	0.173
Mercury	mg/l	0.002	0	0	<0.0003					<0.003					<0.0003	<0.0003					<0.0002			
Nickel	mg/l	0.007	0.03	0.06	<0.04					<0.04					<0.04	<0.04					<0.04			
Potassium	mg/l		1.86	8.76	<2	<2	<2	<2	4.51	<2	<2	<2	<2	<2	2.05	2.54	0.6	2.32	<2	2.07	<5	<5	<1	1.99
Selenium	mg/l	0.01	0	0.01	<0.005					<0,005					<0.005	<0.005					<0.005			
Silver	mg/l	0.05	0.01	0.02	<0.01					<0.01					<0.01	<0.01					<0.01			
Sodium	mg/l	20	16.53	45.8	10.2	10.8	11.6	9.85	5.71	8.83	9.84	9.97	9.59	9.8	16.4	17.5	13	17.5	13.2	12.8	10.4	9.58	10.2	8.65
Thallium	mg/l	0.004	0.01	0.01	<0.01					<0.01					<0.01	<0.01					<0.01			
Vanadium	mg/l	0.014	0.03	0.07	<0.05					<0.05					<0.05	<0.05					<0.05			
Zinc	mg/l	0.3	0.04	0.18	0.0152					0.0119					0.0339	0.0648					<0.02			

Notes:

1. Parameters listed are Part 360 Baseline or Routine Parameters Effective 1993.
2. Blanks indicate no analysis performed
3. "<" indicates not detected at the specified method detection limit (MDL)
4. Shaded values indicate detection above Standard.

Table G-1
Albany Interim Landfill Groundwater Analytical Monitoring Data
City of Albany Landfill - Proposed Eastern Expansion Project
Albany, New York
CHA Project No. 12206
MW-1D

TEST PARAMETER (mg/l unless otherwise noted)	Unit	TOGS Guidance Value	Mean (EWQV)	Mean (EWQV) Plus 3 Std. Dev.	Sep-03 Baseline	Dec-03 Routine	Mar-04 Routine	Jun-04 Routine	Sep-04 Routine	Dec-04 Baseline	Mar-05 Baseline	Jun-05 Routine	Sep-05 Routine	Dec-05 Routine	Mar-06 Routine	Jun-06 Baseline	Sep-06 Routine	Dec-06 Routine
Temperature	C°				10.48	8.74	9.12	11.41	10.38	8.75	10.16	10.65	10.52	8.9	9.14	10.88	10.67	8.29
Conductivity	uS		365.25	1932.98	186	166	183	184	183	185	185	186	180	263	173	128	129.6	170
pH	SU	6.5-8.5	8.21	9.9	8.59	8.12	7.96	7.92	8.42	8.04	8.05	8.15	8.5	8.38	7.59	8.22	10.02	8.59
Eh	mV		167.33	534.26	-137.2	-70.5	-56	-99.2	-132.8	-185.3	-244.8	-99	-67.1	-89	175.6	-10.7	-37.9	16.4
Turbidity (after purging well)	N.T.U	5	48.3	93.92	12.8	77	65	14	7.08	8.75	25.4	15.3	21.9	3.35	5.28	9.03	3.66	8.29
LEACHATE INDICATORS:																		
Ammonia Nitrogen	mg/l	2	0.15	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.658	<0.5	< 0.5	< 0.5	<0.5	<0.5	<0.5
BOD 5	mg/l		1.5	1.5	6	<4	<4	<4	<4	<4	<4		<4	< 4	<4	<8	10	<4
Bromide	mg/l	2	0.41	1.84	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2		<0.2	< 0.2	< 0.2	<0.2	<0.2	<0.2
COD	mg/l		12.75	79.36	<20	<20	<20	<20	<20	<20	<20	<20	<20	< 20	< 20	<20	<20	<20
Chloride	mg/l	250	1.33	4.78	<1	1	<1	<1	<1	1.02	1.79	<1	1.8	1.23	<1	1.67	1.79	2.22
Nitrate	mg/l	10	0.03	0.13	<0.2	<0.2	<0.2	<0.2	0.6	<0.2	<0.2	<0.2	<0.2	< 0.2	< 0.2	<0.2	<0.2	<0.2
Sulfate	mg/l	250	6.05	33.99	5	10	5	11.3	9.83	5.18	<5	<5	<5	< 5	<5	5.06	3.5	<5
Total Alkalinity	mg/l		114.28	214.67	92	92	94	110	110	320	94	85	87	99	180	210	97	100
Total Dissolved Solids	mg/l	500	107.07	172.57	130	140	170	108	110	573	132	<25	188	132	152	105	105	125
Total Hardness	mg/l		114.45	279.49	61	190	72	70.8	68.1	71.6	78.4	75	69.4	64.4	76.4	61.6	59.2	58.5
Total Kjed. Nitrogen	mg/l		0.97	2.61	0.9	<0.5	<0.5	<0.5	5.37	<0.5	<0.5		<0.5	< 0.5	< 0.5	<0.5	<0.5	<0.5
Total Organic Carbon	mg/l	500	1.54	5.14	<3	<3	<3	<3	<3	14	<3	<3	<3	< 3	< 3	<3	<3	<3
Total Phenols	mg/l	0.001	0	0.01	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.009	<0.005	<0.005	< 0.005	< 0.005	<0.005	<0.005	<0.005
Color	P.C.U.	15	8.28	26.86	5					7	25					7		
Boron	mg/l	1	0.06	0.19	<0.5					<0.5	<0.5					<0.5		
INORGANIC PARAMETERS:																		
Aluminum	mg/l	0.1	3.35	20.68	0.195					0.144	0.884					0.265		
Antimony	mg/l	0.003	0.04	0.07	<0.015					<0.015	<0.015					<0.015		
Arsenic	mg/l	0.025	0.01	0.02	0.0167					<0.010	0.0103					<0.011		
Barium	mg/l	1	0.04	0.16	<0.05					<0.050	<0.050					<0.05		
Beryllium	mg/l	0.003	0	0.01	<0.003					<0.003	<0.003					<0.003		
Cadmium	mg/l	0.01	0	0.01	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.5	< 0.005	< 0.005	<0.005	<0.005	<0.005
Calcium	mg/l		35.5	85.43	19.1	55.5	22.2	22.2	21.4	22.5	24.2	24	21.7	19.9	23.8	19	18.3	17.9
Chromium	mg/l		0.01	0.03	<0.005					<0.005	<0.005					<0.005		
Hexavalent Chromium	mg/l	0.05	0.01	0.02	<0.01						<0.010					<0.010		
Cobalt	mg/l	0.005	0.03	0.07	<0.02					<0.020	<0.020					<0.020		
Copper	mg/l	0.2	0.03	0.08	0.0299					<0.010	<0.010					<0.010		
Total Cyanide	mg/l	0.1	0.01	0.01	<0.01						<0.010					<0.010		
Iron	mg/l	0.3	6.45	41.84	0.379	14.2	1.48	0.526	0.283	0.248	1.29	0.27	0.528	0.163	0.196	0.372	0.176	0.822
Lead	mg/l	0.025	0.01	0.08	<0.003	0.00962	<0.003	<0.003	<0.003	0.00433	<0.003	<0.001	<0.003	< 0.003	<0.003	<0.003	<0.003	<0.003
Magnesium	mg/l	35	5.61	17.43	3.18	12.5	4.06	3.72	3.57	3.73	4.39	3.9	3.7	3.55	4.13	3.43	3.27	3.38
Manganese	mg/l	0.3	0.18	0.93	0.0356	0.492	0.0646	0.0428	0.0363	0.0337	0.0659	0.04	0.0453	0.0376	0.0342	0.0299	0.0303	0.0721
Mercury	mg/l	0.002	0	0	0.0002					<0.0002	0.000594					<0.0002		
Nickel	mg/l	0.007	0.03	0.06	<0.03					<0.030	<0.030					<0.03		
Potassium	mg/l		1.86	8.76	<1	2.15	1..13	<1	<1	1.2	1.17	0.95	<1	< 1	3.89	<1	<1	<1
Selenium	mg/l	0.01	0	0.01	<0.005					<0.005	<0.005					0.00628		
Silver	mg/l	0.05	0.01	0.02	<0.01					<0.010	<0.010					<0.010		
Sodium	mg/l	20	16.53	45.8	7	10.3	9.4	10.4	9.26	8.73	9.74	11	11.4	11.4	12.1	9.01	12.2	10.2
Thallium	mg/l	0.004	0.01	0.01	<0.01					<0.010	<0.010					<0.010		
Vanadium	mg/l	0.014	0.03	0.07	<0.03					<0.030	<0.030					<0.030		
Zinc	mg/l	0.3	0.04	0.18	0.0112					0.0199	<0.010					0.0252		

Notes:

1. Parameters listed are Part 360 Baseline or Routine Parameters Effective 1993.
2. Blanks indicate no analysis performed
3. "<" indicates not detected at the specified method detection limit (MDL)
4. Shaded values indicate detection above Standard.

Table G-1
Albany Interim Landfill
Groundwater Analytical Data -Volatile Organic Compounds
City of Albany Landfill - Proposed Eastern Expansion Project
Albany, New York
CHA Project No. 12206
MW-1D

TEST PARAMETER (µg/l unless otherwise noted)	Unit	TOGS Guidance Value	Mean (EWQV)	Mean (EWQV) Plus 3 Std. Dev.	2Q97	3Q98	4Q99	2Q00	Sep-03	Dec-04	Mar-05	Jun-06
Organic Parameters												
Acetone	µg/l	50	92.5	625.05	<MDL	<MDL	<MDL	<MDL	<10	<10	<10	<10
Acrylonitrile	µg/l	5	46.88	166.2	<MDL	<MDL	<MDL	<MDL	Rejected	<100	<100	<100
Benzene	µg/l	0.7	2.58	7.44	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Bromochloromethane	µg/l	5	2.63	4.14	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Bromodichloromethane	µg/l	50	2.63	7.28	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Bromoform	µg/l	50	2.63	7.28	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Carbon disulfide	µg/l	5	5.63	13.58	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Carbon tetrachloride	µg/l	5	2.63	7.28	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Chlorobenzene	µg/l	5	2.63	7.28	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Chloroethane	µg/l	5	3.09	10.05	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Chloroform	µg/l	7	2.66	7.4	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Dibromochloromethane	µg/l	50	2.63	7.28	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
1,2 Dibromo-3-chloropropane	µg/l	5	5.63	13.58	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
1,2 Dibromomethane	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
1,2 Dichlorobenzene (o)	µg/l		2.63	7.26	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
1,4 Dichlorobenzene (p)	µg/l	4.7	2.63	7.26	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
trans-1,2 Dichloro-2-butene	µg/l	5	5.63	13.58	<MDL	<MDL	<MDL	<MDL	<10	<10	<10	<10
1,1 Dichloroethane	µg/l	5	2.63	7.26	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
1,2 Dichloroethane	µg/l	5	2.63	7.26	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
1,1 Dichloroethene	µg/l	5	2.63	7.26	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
cis-1,3 Dichloroethene	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
trans-1,3 Dichloroethene	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
1,2 Dichloropropane	µg/l	5	2.63	7.26	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
cis-1,3 Dichloropropene	µg/l	5	2.63	7.26	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
trans-1,3 Dichloropropene	µg/l	5	2.63	7.26	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Ethylbenzene	µg/l	5	2.63	7.26	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
2-Hexanone	µg/l	50	7.5	7.5	<MDL	<MDL	<MDL	<MDL	<10	<10	<10	<10
Bromomethane	µg/l	5	3.09	10.05	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Chloromethane	µg/l	5	3.09	10.05	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Dibromomethane	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Methylene chloride	µg/l	5	3.05	12.55	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
2-Butanone	µg/l	50	7.5	7.5	<MDL	<MDL	<MDL	<MDL	<10	<10	<10	<10
Methyl Iodide (Iodomethane)	µg/l	5	5.63	13.58	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
4-methyl-2-pentanone	µg/l	5	7.5	7.5	<MDL	<MDL	<MDL	<MDL	<10	<10	<10	<10
Styrene	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
1,1,1,2-Tetrachloroethane	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
1,1,2,2-Tetrachloroethane	µg/l	5	2.63	7.26	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Tetrachloroethene	µg/l	5	2.63	7.26	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Toluene	µg/l	5	2.63	7.26	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
1,1,1-Trichloroethene	µg/l	5	2.63	7.26	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
1,1,2-Trichloropropane	µg/l	5	2.63	7.26	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Trichloroethene	µg/l	5	2.63	7.26	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Trichlorofluoromethane	µg/l	5	2.63	7.26	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
1,2,3-Trichloropropane	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Vinyl acetate	µg/l		7.5	7.5	<MDL	<MDL	<MDL	<MDL	<50	<50	<50	<50
Vinyl chloride	µg/l	2	3.09	10.05	<MDL	Reject	<MDL	<MDL	<5	<5	<5	<5
M+P Xylene	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
o - Xylene	µg/l	5			<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5

Notes:

1. Parameters listed are Part 360 Baseline Volatile Organic Compounds Parameters Effective 1993.
2. Blanks indicate no analysis performed
3. "<" indicates not detected at the specified method detection limit (MDL)

Table G-1
Albany Interim Landfill Groundwater Analytical Monitoring Data
City of Albany Landfill - Proposed Eastern Expansion Project
Albany, New York
CHA Project No. 12206
MW-2S

TEST PARAMETER (mg/l unless otherwise noted)	Unit	TOGS Guidance Value	Mean (EWQV)	Mean (EWQV) Plus 3 Std. Dev.	2Q97 Bsln	3Q97 Rtne	4Q97 Rtne	1Q98 Rtne	2Q98 Rtne	3Q98 Bsln	4Q98 Rtne	1Q99 Rtne	2Q99 Rtne	3Q99 Rtne	4Q99 Bsln	1Q00 Rtne	2Q00 Rtne	3Q00 Rtne	4Q00 Rtne	1Q01 Rtne	2Q01 Rtne	3Q01 Bsln	4Q01 Rtne	1Q02 Rtne	April-03 Routine	June-03 Routine
Temperature	C°																								10.28	9.5
Conductivity	uS		450.63	1512.75	1312	943	341	531	338	421	582	476	428	480	18.8	369	672	313	554	424	354	491	505	412	705	376
pH	SU	6.5-8.5	7.07	7.92	7.09	6.26	6.83	7.37	7.32	7.01	8.01	7.86	8.58	8.42	8.76	6.82	7.53	6.6	7.78	7.05	7.12	7	7.08	7.25	7.03	7.53
Eh	mV		192.67	521.16	7	36	11	-18	-7	0	53	-45	-171	-78	-88	12	-27	200	-36	NA	195	115	70	NIA	98.2	52
Turbidity (after purging well)	N.T.U	5	540	1302.1	NA	39	165	57	81	57	150	240	330	270	345	400	120	460	243	340	392	540	435	45.7	220	448
LEACHATE INDICATORS:																										
Ammonia Nitrogen	mg/l	2	0.45	2.72	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.5	<0.0	<0.05	<0.0	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.5	<0.5
BOD 5	mg/l		3.19	11.01	<2	<2	<2	<2	<2	2.33	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<6	<2	<2.0	<4	<4
Bromide	mg/l	2	0.41	1.84	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	16.2	<1.0	<0.2	<0.2
COD	mg/l		33.48	199.68	<5	<5	<5	<5	<5	<5	<5	5.09	<5	5.41	6.5	6.86	5.62	7.5	<5	<5	0.33	6.24	9.21	6.47	<20	26
Chloride	mg/l	250	6.8	24.26	4.71	12	10.6	4.92	2.98	2.88	3.93	4.67	2.79	2.72	2.44	3.3	12	5.3	6.16	5.01	0.37	51	30.3	15.2	42	21
Nitrate	mg/l	10	3.43	14.52	0.784	7.36	8	1.98	1.35	0.25	<0.5	1.47	1.4	1.47	2.06	1.47	2.68	2.7	3.4	3.35	0.41	3.22	<0.5	1.52	7.1	1.5
Sulfate	mg/l	250	48.19	111.61	29.5	25	19.1	24.8	34.1	24.2	21	26.9	25.1	29	20	20.4	35.2	26	21.3	22.5	0.46	78.1	48.3	54.5	120	33
Total Alkalinity	mg/l		119.75	269.56	164	347	307	174	166	304	293	268	172	201	146	168	141	140	205	168	0.50	134	190	224	180	70
Total Disolved Solids	mg/l	500	215.75	386.74	251	483	370	241	239	413	366	346	264	234	204	296	235	228	273	235	0.54	399	337	361	420	210
Total Hardness	mg/l		198.09	385.9	239	372	366	168	238	367	3350	3316	198	268	200	194	177	166	215	192	0.58	250	250	260	280	110
Total Kjed. Nitrogen	mg/l		1.23	4.02	-	0.588	0.86	0.725	0.41	0.958	1.04	1.25	0.228	0.979	<0.2	1.35	1.15	2.5	0.852	0.416	0.62	0.81	0.724	0.582	1.2	<0.5
Total Organic Carbon	mg/l	500	3.44	10	3	1.5	1.2	1.65	1.25	2.25	2.09	1.97	1.93	1.865	1.83	2.37	2.2	1.3	1.54	1.58	0.66	2.2	2.63	1.5	<3	<3
Total Phenols	mg/l	0.001	0.003	0.012	0.00991	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.005	<0.005	0.71	<0.005	<0.005	<0.005	<0.005	<0.005
Color	P.C.U.	15	11.25	40.05	<5					<5					10		5					100,				
Boron	mg/l	1	0.1	0.27	<0.2					<0.2					<0.2		<0.2					<0.21				
INORGANIC PARAMETERS:																										
Aluminum	mg/l	0.1	2.56	14.8	2.8					7.77					REJECT		REJECT					23.3				
Antimony	mg/l	0.003	0.47	3.86	<0.06					<0.06					<0.06		<0.06					<0.06				
Arsenic	mg/l	0.025	0.01	0.01	<0.01					0.0184					<0.01		<0.01					<0.01				
Barium	mg/l	1	0.04	0.13	0.0323					0.0665					0.0721		0.0542					0.119				
Beryllium	mg/l	0.003	0.01	0.04	<0.005					<0.005					<0.005		<0.005					<0.005				
Cadmium	mg/l	0.01	0.003	0.006	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.0051	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Calcium	mg/l		52.62	139.46	62.1	117	106	55.4	25.1	108	90.2	87.8	61.9	71.8	58.9	54.9	61.5	55	67.3	66.5	52.1	83.4	80.3	88.2	84.9	32.1
Chromium	mg/l		7.27	68.77	<0.01					0.0152					0.027		0.0193					0.0573				
Hexavalent Chromium	mg/l	0.05	0.01	0.02	<0.01					<0.01					<0.01		<0.01					<0.01				
Cobalt	mg/l	0.005	0.02	0.07	<0.05					<0.05					<0.05		<0.05					<0.05				
Copper	mg/l	0.2	0.05	0.17	<0.02					0.0234					0.035		0.0256					0.0274				
Total Cyanide	mg/l	0.1	0.01	0.01	<0.01					<0.01					<0.01		<0.01					0.0125				
Iron	mg/l	0.3	50.18	418.01	3.95	5.74	5.62	10.2	0.576	12.3	20.4	20.1	36	17.1	23.9	25.7	17.8	0.73	17.6	17.2	27.5	24.5	20.6	23.2	13.8	14.7
Lead	mg/l	0.025	8.73	75.56	<0.005	<0.005	<0.005	<0.005	<0.005	0.0232	0.0119	0.00929	0.0172	0.0154	0.0145	0.0137	0.0067	<0.005	0.00712	<0.005	0.0095	0.0093	0.0069	0.00894	0.00465	0.00839
Magnesium	mg/l	35	9.29	23.04	10.2	17.6	16.6	9.65	3.8	15.8	15.1	15.3	13.9	12.6	11.8	11.3	10.5	6.7	11.4	11.1	10.8	14.7	13.1	16.6	15.9	7.73
Manganese	mg/l	0.3	1.07	8.58	0.0457	0.0672	0.0733	0.12	0.0343	0.418	0.213	0.229	0.319	0.187	0.221	0.236	0.198	0.06	0.18	0.164	0.304	205	0.377	0.264	0.157	0.146
Mercury	mg/l	0.002	0.01	0.1	<0.0003					<0.0003					<0.0003		<0.0003					<0.0002				
Nickel	mg/l	0.007	0.04	0.06	<0.04					<0.04					<0.04		<0.04					<0.04				
Potassium	mg/l		2.53	11.23	4.28	5.23	5.02	6.17	<2	7.42	6.64	7.5	7.82	6.75	8.85	6.98	6.38	5	6.33	8.86	10.8	12.2	13.1	11.4	6.42	7.91
Selenium	mg/l	0.01	0.004	0.009	<0.005					<0.005					<0.005		<0.005					<0.005				
Silver	mg/l	0.05	0.01	0.03	<0.01					<0.01					<0.01		<0.01					<0.01				
Sodium	mg/l	20	8.56	25.85	7.49	6.04	5.28	8	11.1	6.18	5.41	6.72	6.92	6.84	8.82	5.85	9.18	7.1	7.96	6.2	10.2	12.5	13	8.73	15.1	18.9
Thallium	mg/l	0.004	0.92	8.68	<0.01					0.0103					<0.01		<0.01					<0.01				
Vanadium	mg/l	0.014	0.03	0.07	<0.05					<0.05					<0.05		<0.05					0.0638				
Zinc	mg/l	0.3	0.12	0.76	0.0483					0.171					0.085		0.137					0.0827				

Notes:

1. Parameters listed are Part 360 Baseline or Routine Parameters Effective 1993.
2. Blanks indicate no analysis performed
3. "<" indicates not detected at the specified method detection limit (MDL)
4. Shaded values indicate detection above Standard.

Table G-1
Albany Interim Landfill Groundwater Analytical Monitoring Data
City of Albany Landfill - Proposed Eastern Expansion Project
Albany, New York
CHA Project No. 12206
MW-2S

TEST PARAMETER (mg/l unless otherwise noted)	Unit	TOGS Guidance Value	Mean (EWQV)	Mean (EWQV) Plus 3 Std. Dev.	Sep-03 Baseline	Dec-03 Routine	Mar-04 Routine	Jun-04 Routine	Sep-04 Routine	Dec-04 Baseline	Mar-05 Baseline	Jun-05 Routine	Sep-05 Routine	Dec-05 Routine	Mar-06 Routine	Jun-06 Baseline	Sep-06 Routine	Dec-06 Routine
Temperature	C°				12.6	10.9	7.93	11.08	11.86	11.02	8.5	9.36	11.74	9.8	9.37	10.26	11.4	10.55
Conductivity	uS		450.63	1512.75	451	554	778	469	796	1162	596	591	925	667	700	437	648.6	829
pH	SU	6.5-8.5	7.07	7.92	7.5	7.4	7.36	6.82	7	7.30	7.63	7.68	7.78	7.18	6.61	7.89	7.82	7.33
Eh	mV		192.67	521.16	-64.9	-41	-24.7	-42.7	-102.9	-211.5	-16.5	-5	-12.2	-22	191.5	-73.4	72	35.6
Turbidity (after purging well)	N.T.U	5	540	1302.1	389	111	600	512	443	367	>1000	945	409	468	253	872	497	10.55
LEACHATE INDICATORS:																		
Ammonia Nitrogen	mg/l	2	0.45	2.72	1.4	<0.5	0.8	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	< 0.5	< 0.5	<0.5	<0.5	<0.5
BOD 5	mg/l		3.19	11.01	5	<4	<4	<4	<4	4	<4		<4	< 6	<4	<4	9	<4
Bromide	mg/l	2	0.41	1.84	<0.2	<0.2	<2	<0.2	<0.2	<0.2	<0.020		<0.2	< 2	< 0.20	<0.2	<0.2	<20df
COD	mg/l		33.48	199.68	27	<20	23	22	<20	<20	<20	<20	27	< 20	23	<20	<20	32
Chloride	mg/l	250	6.8	24.26	75	79	180	64	137	80.1	42.1	40.8	42.8	35.5	32.9	33.5	16.8	121
Nitrate	mg/l	10	3.43	14.52	7.9	<0.05	13	5.7	<0.2	20	2	5.5	7.2	5.4	3.8	3.4	4.6	5.17
Sulfate	mg/l	250	48.19	111.61	55	60	35	209	65.6	166	83.3	61.9	46.2	61	43.4	89.9	55.5	52.8
Total Alkalinity	mg/l		119.75	269.56	180	190	240	210	210	460	260	250	250	120	92	210	380	340
Total Disolved Solids	mg/l	500	215.75	386.74	440	490	670	310	530	1100	528	502	442	122	392	408	577	597
Total Hardness	mg/l		198.09	385.9	240	260	290	135	273	298	280	210	242	212	181	199	256	284
Total Kjed. Nitrogen	mg/l		1.23	4.02	0.9	<0.5	1.4	<0.5	<0.5	<0.5	<0.5		<0.5	< 0.5	< 0.5	<0.5	<0.5	<0.5
Total Organic Carbon	mg/l	500	3.44	10	5	6	5	<3	6	7	30	4	3	3	3	4	7	9
Total Phenols	mg/l	0.001	0.003	0.012	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.005	< 0.005	<0.005	<0.005	<0.005
Color	P.C.U.	15	11.25	40.05	15					15	2000					110		
Boron	mg/l	1	0.1	0.27	<0.5					0.687	0.749					<0.5		
INORGANIC PARAMETERS:																		
Aluminum	mg/l	0.1	2.56	14.8	2.69					6.1	8					9.37		
Antimony	mg/l	0.003	0.47	3.86	<0.15					0.0276	<0.015					<0.015		
Arsenic	mg/l	0.025	0.01	0.01	<0.01					<0.010	<0.010					<0.010		
Barium	mg/l	1	0.04	0.13	<0.05					0.0706	0.0736					0.0604		
Beryllium	mg/l	0.003	0.01	0.04	<0.003					<0.003	<0.003					<0.003		
Cadmium	mg/l	0.01	0.003	0.006	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	< 0.005	< 0.005	<0.005	<0.005	<0.005
Calcium	mg/l		52.62	139.46	75.9	81.2	91.2	38.9	85.3	95.2	89.1	67	74.3	66.7	55.3	60.1	76.6	90.6
Chromium	mg/l		7.27	68.77	0.0689					0.484	0.318					0.261		
Hexavalent Chromium	mg/l	0.05	0.01	0.02	<0.01					<0.010	<0.010					<0.010		
Cobalt	mg/l	0.005	0.02	0.07	<0.02					<0.020	<0.020					<0.02		
Copper	mg/l	0.2	0.05	0.17	0.0476					0.036	0.0502					0.0328		
Total Cyanide	mg/l	0.1	0.01	0.01	<0.01					<0.010	<0.010					<0.010		
Iron	mg/l	0.3	50.18	418.01	5.01	4.7	16	18.2	16.9	12.9	15	13	23	17.4	18.1	19.2	23.8	4.03
Lead	mg/l	0.025	8.73	75.56	<0.003	<0.003	0.00657	0.0123	0.00779	0.00615	0.00747	0.008	0.00976	< 0.01	0.014	0.00854	0.0109	0.00656
Magnesium	mg/l	35	9.29	23.04	11.1	12.8	15	9.13	14.7	14.6	13.9	11	13.6	11.2	10.5	11.8	15.6	14.1
Manganese	mg/l	0.3	1.07	8.58	0.108	0.179	0.241	0.161	0.15	0.123	0.159	0.13	0.194	0.164	0.168	0.18	0.227	0.0862
Mercury	mg/l	0.002	0.01	0.1	<0.0002					<0.0002	<0.0002					<0.0002		
Nickel	mg/l	0.007	0.04	0.06	0.0593					0.103	0.0888					0.0525		
Potassium	mg/l		2.53	11.23	5.11	6.01	7.91	7.3	8.87	9.22	9.59	7.3	10.6	7.78	7.18	7.82	7.71	8.00
Selenium	mg/l	0.01	0.004	0.009	<0.005					<0.005	<0.005					0.00902		
Silver	mg/l	0.05	0.01	0.03	<0.01					<0.010	<0.010					<0.010		
Sodium	mg/l	20	8.56	25.85	21.3	50.4	47.8	25.4	55.9	115	77.6	76	66.8	35.1	54.3	57.8	57.8	47.0
Thallium	mg/l	0.004	0.92	8.68	<0.01					<0.010	<0.010					<0.010		
Vanadium	mg/l	0.014	0.03	0.07	<0.03					<0.030	<0.030					<0.030		
Zinc	mg/l	0.3	0.12	0.76	0.0294					0.0487	0.0283					0.0721		

Notes:

1. Parameters listed are Part 360 Baseline or Routine Parameters Effective 1993.
2. Blanks indicate no analysis performed
3. "<" indicates not detected at the specified method detection limit (MDL)
4. Shaded values indicate detection above Standard.

Table G-1
Albany Interim Landfill
Groundwater Analytical Data -Volatile Organic Compounds
City of Albany Landfill - Proposed Eastern Expansion Project
Albany, New York
CHA Project No. 12206
MW-2S

TEST PARAMETER (µg/l unless otherwise noted)	Unit	TOGS Guidance Value	Mean (EWQV)	Mean (EWQV) Plus 3 Std. Dev.	2Q97	3Q98	4Q99	2Q00	Sep-03	Dec-04	Mar-05	Jun-06
Organic Parameters												
Acetone	µg/l	50	13.5	23.56	<MDL	<MDL	<MDL	<MDL	<10	<10	<10	<10
Acrylonitrile	µg/l	5	46.88	166.2	<MDL	<MDL	<MDL	<MDL	Rejected	<100	<100	<100
Benzene	µg/l	0.7	2.58	7.44	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Bromochloromethane	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Bromodichloromethane	µg/l	50	2.63	7.28	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Bromoform	µg/l	50	2.63	7.28	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Carbon disulfide	µg/l	5	5.63	13.58	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Carbon tetrachloride	µg/l	5	2.63	7.28	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Chlorobenzene	µg/l	5	2.63	7.28	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Chloroethane	µg/l	5	3.09	10.05	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Chloroform	µg/l	7	2.41	6.89	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Dibromochloromethane	µg/l	50	2.63	7.28	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
1,2 Dibromo-3-chloropropane	µg/l	5	5.63	13.58	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
1,2 Dibromomethane	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
1,2 Dichlorobenzene (o)	µg/l		2.63	7.28	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
1,4 Dichlorobenzene (p)	µg/l	4.7	2.63	7.28	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
trans-1,2 Dichloro-2-butene	µg/l	5	5.63	13.58	<MDL	<MDL	<MDL	<MDL	<10	<10	<10	<10
1,1 Dichloroethane	µg/l	5	2.63	7.28	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
1,2 Dichloroethane	µg/l	5	2.63	7.28	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
1,1 Dichloroethene	µg/l	5	3.75	7.28	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
cis-1,3 Dichloroethene	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
trans-1,3 Dichloroethene	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
1,2 Dichloropropane	µg/l	5	2.63	7.28	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
cis-1,3 Dichloropropene	µg/l	5	2.63	7.26	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
trans-1,3 Dichloropropene	µg/l	5	2.63	7.26	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Ethylbenzene	µg/l	5	2.63	7.28	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
2-Hexanone	µg/l	50	7.5	7.5	<MDL	<MDL	<MDL	<MDL	<10	<10	<10	<10
Bromomethane	µg/l	5	3.09	10.05	<MDL	<MDL	<MDL	Reject	<5	<5	<5	<5
Chloromethane	µg/l	5	3.09	10.05	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Dibromomethane	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Methylene chloride	µg/l	5	2.63	7.3	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
2-Butanone	µg/l	50	7.5	7.5	<MDL	<MDL	<MDL	<MDL	<10	<10	<10	<10
Methyl Iodide (Iodomethane)	µg/l	5	5.63	13.58	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
4-methyl-2-pentanone	µg/l	5	7.5	7.5	<MDL	<MDL	<MDL	<MDL	<10	<10	<10	<10
Styrene	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
1,1,1,2-Tetrachloroethane	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
1,1,2,2-Tetrachloroethane	µg/l	5	2.63	7.28	<MDL	<MDL	<MDL	Reject	<5	<5	<5	<5
Tetrachloroethene	µg/l	5	2.63	7.28	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Toluene	µg/l	5	2.63	7.28	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
1,1,1-Trichloroethene	µg/l	5	2.63	7.28	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
1,1,2-Trichloropropane	µg/l	5	2.63	7.28	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Trichloroethene	µg/l	5	2.63	7.28	<MDL	<MDL	<MDL	Reject	<5	<5	<5	<5
Trichlorofluoromethane	µg/l	5	2.63	7.28	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
1,2,3-Trichloropropane	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Vinyl acetate	µg/l		7.5	7.5	<MDL	Reject	<MDL	<MDL	<50	<50	<50	<50
Vinyl chloride	µg/l	2	3.09	10.05	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
M+P Xylene	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
o - Xylene	µg/l	5			<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5

Notes:

1. Parameters listed are Part 360 Baseline Volatile Organic Compounds Parameters Effective 1993.
2. Blanks indicate no analysis performed
3. "<" indicates not detected at the specified method detection limit (MDL)

Table G-1
Albany Interim Landfill Groundwater Analytical Monitoring Data
City of Albany Landfill - Proposed Eastern Expansion Project
Albany, New York
CHA Project No. 12206
MW-2I

TEST PARAMETER (mg/l unless otherwise noted)	Unit	TOGS Guidance Value	Mean (EWQV)	Mean (EQWV) Plus 3 Std. Dev.	2Q97 Bsln	3Q97 Rtne	4Q97 Rtne	1Q98 Rtne	2Q98 Rtne	3Q98 Bsln	4Q98 Rtne	1Q99 Rtne	2Q99 Rtne	3Q99 Rtne	4Q99 Bsln	1Q00 Rtne	2Q00 Rtne	3Q00 Rtne	4Q00 Rtne	1Q01 Rtne	2Q01 Rtne	3Q01 Bsln		1Q02 Rtne	April-03 Routine	June-03 Routine
Temperature	C°																								11.81	11.6
Conductivity	uS		468	2764.67	2360	246	236	260	208	217	232	214	252	251	320	185.1	1.03	225	0.31	258	228	218		195.9	267	303
pH	SU	6.5-8.5	7.6	8.22	7.19	8	7.69	8.14	8.18	7.72	8.92	8.22	10.55	9.02	8.92	7.29	8.45	7.1	8.48	7.2	7.45	7.41		7.82	7.71	7.66
Eh	mV		161.57	518.21	-3	-58	-36	-60	53	-37	-101	-65	-205	-111	-107	-16	-75	153	-92	305	40	40			25.8	21
Turbidity (after purging well)	N.T.U	5	14.05	48.45	NA	4.6	1.5	2.9	2.9	1.4	2.1	4.2	1	2.6	3	2.3	7.1	3.6	2.14	3.22	6.39	2.23		6.34	2.7	5.7
LEACHATE INDICATORS:																										
Ammonia Nitrogen	mg/l	2	0.1	0.29	<0.05	<0.05	<0,05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05		<0.05	<0.5	<0.5
BOD 5	mg/l		2.07	5.12	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2		<2.0	<4	<4
Bromide	mg/l	2	0.38	1.95	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<11	<1	<1	<1	<1	<1		<1.0	<0.2	<0.2
COD	mg/l		7.07	24.67	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	5	6.85	<5	<5	10.7	<5	<5		<5.0	<20	23
Chloride	mg/l	250	1.52	3.12	1.77	1.55	1.71	1.52	1.48	<1	1.35	<1	1.51	1.53	1.15	<1	1.29	1.3	<1	<1	1.02	1.07		<2.0	<1	2
Nitrate	mg/l	10	0.04	0.09	<0.05	<0.05	<0.05	<0.05	<0.5	<0.05	<0.5	<0.5	<0.5	<0.5	<0.5	<0:5	<0.5	0.03	<0.5	<0.5	<0.5	<0.5		<0.5	<0.2	<0.2
Sulfate	mg/l	250	17.46	41.35	11	13.8	10.6	21.6	24.3	22.2	16.6	21.3	19.5	19.7	20.8	17.2	20.2	22	21.2	21.6	20.2	19		20.4	18	16
Total Alkalinity	mg/l		97.25	119.57	101	106	106	102	101	96.3	97.6	98	98	99.5	102	105	105	110	103	105	106	113		106	120	95
Total Disolved Solids	mg/l	500	131.88	184.24	144	153	140	142	143	302	144	148	140	146	142	138	145	155	147	145	145	150		151	160	140
Total Hardness	mg/l		118.23	143.28	124	117	122	120	136	124	116	141	114	124	120	112	124	127	124	120	120	120		115	110	96
Total Kjed. Nitrogen	mg/l		0.67	1.52		0.271	0.596	0.203	<02	<0.2	<0.2	<02	<0.2	<0.2	1.14	<0.2	0.336	<1	0.244	<0.2	<02	<0.2		<0.2	<0.5	<0.5
Total Organic Carbon	mg/l	500	2.71	10.75	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	1.41	<1	<1	<1	<1	<1	<1		<1.0	<3	<3
Total Phenols	mg/l	0.001	0.003	0.007	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.005	<0.005	<0.005	<0.005		<0.005	<0.005	0.006
Color	P.C.U.	15	11.25	38.72	<5					<5					5		5					<5				
Boron	mg/l	1	0.05	0.17	<02					<0.2					<0.2		<0.2					<0.2				
INORGANIC PARAMETERS:																										
Aluminum	mg/l	0.1	0.3	1.43	<0.1					<0.1					REJECT		REJECT					<0.1				
Antimony	mg/l	0.003	0.04	0.07	<0.06					<0.06					<0.06		<0.06					<0.06				
Arsenic	mg/l	0.025	0.01	0.01	<0.01					<0.01					<0.01		<0.01					<0.01				
Barium	mg/l	1	0.05	0.06	0.0512					0.05					0.0502		0.0525					0.0531				
Beryllium	mg/l	0.003	0.003	0.007	<0.005					<0.005					<0.005		<0.005					<0.005				
Cadmium	mg/l	0.01	0.01	0.02	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005		<0.005	<0.005	<0.005
Calcium	mg/l		39.33	48.39	37.8	38.4	35.1	40.7	37.8	36.5	33.9	33.8	37	38.2	40.4	38.4	39.7	43	39.6	41.2	40.7	41.1		40.3	35.6	32.1
Chromium	mg/l		0.01	0.02	<0.01					<0.01					<0.01		<0.01					<0.01				
Hexavalent Chromium	mg/l	0.05	0.000694444	0.02	<0.01					<0.01					<0.01		<0.01					<0.01				
Cobalt	mg/l	0.005	0.02	0.09	<0.05					<0.05					<0.05		<0.05					<0.05				
Copper	mg/l	0.2	0.03	0.07	<0.02					<0.02					<0.02		<0.02					<0.02				
Total Cyanide	mg/l	0.1	0.01	0.01						<0.01					<0.01		<0.01					0.0125				
Iron	mg/l	0.3	0.83	3.51	0.327	0.566	0.607	0.576	0.304	0.359	0.361	0.268	0.289	0.266	261	0.233	0.266	0.24	0.231	0.306	0.325	0.243		0.981	0.237	0.332
Lead	mg/l	0.025	0.01	0.02	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005		<0.005	<0.003	<0.003
Magnesium	mg/l	35	3.51	9.34	4.6	5.01	4.91	4.71	4.69	4.99	4.6	4.65	4.65	4.76	5.09	4.8	4.79	4.8	4.79	4.78	4.66	4.97		4.79	4.46	3.91
Manganese	mg/l	0.3	0.15	0.23	0.124	0.224	0.152	0.19	0.124	0.142	0.148	0.12	0.115	0.151	0.135	0.12	0.105	0.15	0.134	0.146	0.107	0.14		0.362	0.118	0.0909
Mercury	mg/l	0.002	0.0003	0.0005	0.124					<0.0003					<0.0003		<0.0003					<0.0002				
Nickel	mg/l	0.007	0.03	0.06	<0.04					<0.04					<0.04		<0.04					<0.04				
Potassium	mg/l		1.2	3.56	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<0.5	<2	<2	<2	<5		<2.0	<1	<1
Selenium	mg/l	0.01	0.004	0.005	<0.005					<0.005					<0.005		<0.005					<0.005				
Silver	mg/l	0.05	0.01	0.03	<0.01					<0.01					<0.01		<0.01					<0.01				
Sodium	mg/l	20	2.75	7.25	2.48	2.71	3.13	1.8	2.26	1.94	1.94	1.92	2.28	2.26	2.1	2.41	2.39	2.4	2.4	2.42	2.3	2.25		2.3	1.9	2.17
Thallium	mg/l	0.004	0.01	0.01	<0.01					<0.01					<0.01		<0.01					<0.01				
Vanadium	mg/l	0.014	0.02	0.09	<0.05					<0.05					<0.05		<0.05					<0.05				
Zinc	mg/l	0.3	0.06	0.24	0.0214					0.0158					<0.02		<0.02					<0.02				

Notes:

1. Parameters listed are Part 360 Baseline or Routine Parameters Effective 1993.
2. Blanks indicate no analysis performed
3. "<" indicates not detected at the specified method detection limit (MDL)
4. Shaded values indicate detection above Standard.

Table G-1
Albany Interim Landfill Groundwater Analytical Monitoring Data
City of Albany Landfill - Proposed Eastern Expansion Project
Albany, New York
CHA Project No. 12206
MW-2I

TEST PARAMETER (mg/l unless otherwise noted)	Unit	TOGS Guidance Value	Mean (EWQV)	Mean (EQWV) Plus 3 Std. Dev.	Sep-03 Baseline	Dec-03 Routine	Mar-04 Routine	Jun-04 Routine	Sep-04 Routine	Dec-04 Baseline	Mar-05 Baseline	Jun-05 Routine	Sep-05 Routine	Dec-05 Routine	Mar-06 Routine	Jun-06 Baseline	Sep-06 Routine	Dec-06 Routine
Temperature	C°				11.77	10.7	9.31	11.87	11.58	10.45	10.5	11.7	11.67	9.6	10.26	11.79	10.87	9.61
Conductivity	uS		468	2764.67	242	187	242	235	230	229	220	221	217	301	216	157	155.9	214
pH	SU	6.5-8.5	7.6	8.22	8.02	8.13	7.79	7.39	8.03	7.74	8.35	8.15	8.28	7.96	6.35	8.12	9.09	8.27
Eh	mV		161.57	518.21	-104	-70	-52.5	-14.3	-99.8	-176.8	-70.7	-52	-38.1	-64	206.5	-92.3	10.2	-50.7
Turbidity (after purging well)	N.T.U	5	14.05	48.45	12.5	9.16	6.9	1.49	18	4.56	10.2	8.43	7.51	1.85	12.9	3.09	4.13	4.59
LEACHATE INDICATORS:																		
Ammonia Nitrogen	mg/l	2	0.1	0.29	0.8	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	< 0.5	< 0.5	<0.5	<0.5	<0.5
BOD 5	mg/l		2.07	5.12	<4	<4	<4	<4	<4	<4	<4		<4	< 4	<4	<4	8	<4
Bromide	mg/l	2	0.38	1.95	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2		<0.20	< 0.20	< 0.2	<0.2	<0.2	<0.2
COD	mg/l		7.07	24.67	<20	<20	<20	<20	<20	<20	<20	<20	28	< 20	< 20	<20	<20	<20
Chloride	mg/l	250	1.52	3.12	2	2	2	2	<1	5.1	<1	2.3	4.73	1.97	2.31	20.1	6.75	34.4
Nitrate	mg/l	10	0.04	0.09	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	1.3	0.2	0.53	<0.2	0.999
Sulfate	mg/l	250	17.46	41.35	21	21	18	<5	29.1	26.7	15.1	18.6	13.3	17.5	12.3	14.5	14	7.52
Total Alkalinity	mg/l		97.25	119.57	110	110	110	110	100	170	94	91	110	110	92	120	130	160
Total Disolved Solids	mg/l	500	131.88	184.24	150	130	240	227	135	632	157	<25	147	370	190	140	155	182
Total Hardness	mg/l		118.23	143.28	91	97	110	108	107	110	103	96	105	108	90.2	88.7	109	88.4
Total Kjed. Nitrogen	mg/l		0.67	1.52	0.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5		<0.5	< 0.5	< 0.5	<0.5	<0.5	<0.5
Total Organic Carbon	mg/l	500	2.71	10.75	<3	<3	<3	<3	<3	<3	<3	<3	<3	< 3	< 3	<3	<3	<3
Total Phenols	mg/l	0.001	0.003	0.007	<0.005	<0.005	0.008	<0.005	<0.005	<0.005	0.015	<0.005	<0.005	< 0.005	< 0.005	<0.005	<0.005	<0.005
Color	P.C.U.	15	11.25	38.72	6					7	7					6		
Boron	mg/l	1	0.05	0.17	<0.5					<0.5	<0.5					<0.5		
INORGANIC PARAMETERS:																		
Aluminum	mg/l	0.1	0.3	1.43	<0.1					<0.1	<0.1					<0.1		
Antimony	mg/l	0.003	0.04	0.07	<0.015					<0.015	0.0284					<0.015		
Arsenic	mg/l	0.025	0.01	0.01	<0.01					<0.010	<0.010					<0.010		
Barium	mg/l	1	0.05	0.06	<0.05					0.0546	0.0517					<0.05		
Beryllium	mg/l	0.003	0.003	0.007	<0.003					<0.003	<0.003					<0.003		
Cadmium	mg/l	0.01	0.01	0.02	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	< 0.005	< 0.005	<0.005	<0.005	<0.005
Calcium	mg/l		39.33	48.39	30.2	32	36.3	35.9	35.5	36.5	34.2	32	34.6	35.6	29.7	29.2	35.8	29.2
Chromium	mg/l		0.01	0.02	<0.005					<0.005	<0.005					<0.005		
Hexavalent Chromium	mg/l	0.05	0.000694444	0.02	<0.01					<0.010	<0.010					<0.010		
Cobalt	mg/l	0.005	0.02	0.09	<0.02					<0.020	<0.020					<0.020		
Copper	mg/l	0.2	0.03	0.07	0.0285					<0.010	0.0125					<0.010		
Total Cyanide	mg/l	0.1	0.01	0.01	<0.01					<0.010	<0.010					<0.010		
Iron	mg/l	0.3	0.83	3.51	0.339	0.363	0.399	0.201	0.359	0.601	0.348	0.62	0.37	0.452	0.33	0.263	0.288	0.328
Lead	mg/l	0.025	0.01	0.02	<0.003	0.00568	<0.003	0.00347	<0.003	<0.003	<0.003	<0.001	0.00366	< 0.003	0.00325	<0.003	<0.003	<0.003
Magnesium	mg/l	35	3.51	9.34	3.72	4.17	4.65	4.48	4.5	4.52	4.32	4.1	4.4	4.5	3.88	3.86	4.72	3.78
Manganese	mg/l	0.3	0.15	0.23	0.105	0.119	0.132	0.122	0.123	0.181	0.106	0.14	0.132	0.158	0.0873	0.152	0.133	0.148
Mercury	mg/l	0.002	0.0003	0.0005	<0.0002					<0.0002	<0.0002					<0.0002		
Nickel	mg/l	0.007	0.03	0.06	<0.03					<0.030	<0.030					<0.030		
Potassium	mg/l		1.2	3.56	<1	<1	<1	<1	<1	<1	<1	1.2	<1	< 1	< 1.0	<1.0	<1	<1
Selenium	mg/l	0.01	0.004	0.005	<0.005					<0.005	<0.005					0.00868		
Silver	mg/l	0.05	0.01	0.03	<0.01					<0.010	<0.010					<0.010		
Sodium	mg/l	20	2.75	7.25	1.77	1.87	1.95	2.4	1.99	1.79	2	2.3	2.27	2.11	2.14	2.03	2.77	1.59
Thallium	mg/l	0.004	0.01	0.01	<0.01					<0.010	<0.010					<0.010		
Vanadium	mg/l	0.014	0.02	0.09	<0.03					<0.030	<0.030					<0.030		
Zinc	mg/l	0.3	0.06	0.24	0.0129					0.0221	0.0119					0.0116		

Notes:

1. Parameters listed are Part 360 Baseline or Routine Parameters Effective 1993.
2. Blanks indicate no analysis performed
3. "<" indicates not detected at the specified method detection limit (MDL)
4. Shaded values indicate detection above Standard.

Table G-1
Albany Interim Landfill
Groundwater Analytical Data -Volatile Organic Compounds
City of Albany Landfill - Proposed Eastern Expansion Project
Albany, New York
CHA Project No. 12206
MW-2I

TEST PARAMETER (µg/l unless otherwise noted)	Unit	TOGS Guidance Value	Mean (EWQV)	Mean (EQWV) Plus 3 Std. Dev.	2Q97	3Q98	4Q99	2Q00	Sep-03	Dec-04	Mar-05	Jun-06
Organic Parameters												
Acetone	µg/l	50	13.5	23.56	<MDL	<MDL	<MDL	<MDL	<10	<10	<10	<10
Acrylonitrile	µg/l	5	46.88	166.2	<MDL	<MDL	<MDL	<MDL	Rejected	<100	<100	<100
Benzene	µg/l	0.7	2.58	7.44	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Bromochloromethane	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Bromodichloromethane	µg/l	50	2.63	7.28	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Bromoform	µg/l	50	2.63	7.28	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Carbon disulfide	µg/l	5	5.63	13.58	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Carbon tetrachloride	µg/l	5	2.63	7.28	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Chlorobenzene	µg/l	5	2.63	7.28	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Chloroethane	µg/l	5	3.09	10.05	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Chloroform	µg/l	7	2.63	7.28	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Dibromochloromethane	µg/l	50	2.63	7.28	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
1,2 Dibromo-3-chloropropane	µg/l	5	5.63	13.58	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
1,2 Dibromomethane	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
1,2 Dichlorobenzene (o)	µg/l		2.63	7.28	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
1,4 Dichlorobenzene (p)	µg/l	4.7	2.63	7.28	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
trans-1,2 Dichloro-2-butene	µg/l	5	5.63	13.58	<MDL	<MDL	<MDL	<MDL	<10	<10	<10	<10
1,1 Dichloroethane	µg/l	5	2.63	7.28	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
1,2 Dichloroethane	µg/l	5	2.63	7.28	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
1,1 Dichloroethene	µg/l	5	2.63	7.28	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
cis-1,3 Dichloroethene	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
trans-1,3 Dichloroethene	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
1,2 Dichloropropane	µg/l	5	2.63	7.28	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
cis-1,3 Dichloropropene	µg/l	5	2.63	7.26	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
trans-1,3 Dichloropropene	µg/l	5	2.63	7.26	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Ethylbenzene	µg/l	5	2.63	7.28	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
2-Hexanone	µg/l	50	7.5	7.5	<MDL	<MDL	<MDL	<MDL	<10	<10	<10	<10
Bromomethane	µg/l	5	3.09	10.05	<MDL	<MDL	<MDL	Reject	<5	<5	<5	<5
Chloromethane	µg/l	5	3.09	10.05	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Dibromomethane	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Methylene chloride	µg/l	5	2.63	7.02	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
2-Butanone	µg/l	50	7.5	7.5	<MDL	<MDL	<MDL	<MDL	<10	<10	<10	<10
Methyl Iodide (Iodomethane)	µg/l	5	5.63	13.58	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
4-methyl-2-pentanone	µg/l	5	7.5	7.5	<MDL	<MDL	<MDL	<MDL	<10	<10	<10	<10
Styrene	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
1,1,1,2-Tetrachloroethane	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
1,1,2,2-Tetrachloroethane	µg/l	5	2.63	7.26	<MDL	<MDL	<MDL	Reject	<5	<5	<5	<5
Tetrachloroethene	µg/l	5	2.63	7.28	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Toluene	µg/l	5	2.63	7.28	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
1,1,1-Trichloroethene	µg/l	5	2.63	7.28	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
1,1,2-Trichloropropane	µg/l	5	1.95	6.88	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Trichloroethene	µg/l	5	2.63	7.28	<MDL	<MDL	<MDL	Reject	<5	<5	<5	<5
Trichlorofluoromethane	µg/l	5	2.63	7.28	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
1,2,3-Trichloropropane	µg/l	5	3.75	7.28	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Vinyl acetate	µg/l		7.5	7.5	<MDL	Reject	<MDL	<MDL	<50	<50	<50	<50
Vinyl chloride	µg/l	2	3.09	10.05	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
M+P Xylene	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
o - Xylene	µg/l	5			<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5

Notes:

1. Parameters listed are Part 360 Baseline Volatile Organic Compounds Parameters Effective 1993.
2. Blanks indicate no analysis performed
3. "<" indicates not detected at the specified method detection limit (MDL)

Table G-1
Albany Interim Landfill Groundwater Analytical Monitoring Data
City of Albany Landfill - Proposed Eastern Expansion Project
Albany, New York
CHA Project No. 12206
MW-2D

TEST PARAMETER (mg/l unless otherwise noted)	Unit	TOGS Guidance Value	Mean (EWQV)	Mean (EWQV) Plus 3 Std. Dev.	2Q97 Bsln	3Q97 Rtne	4Q97	1Q98 Rtne	2Q98 Rtne	3Q98 Bsln	4Q98 Rtne	1Q99 Rtne	2Q99 Rtne	3Q99 Rtne	4Q99 Bsln	1Q00 Rtne	2Q00 Rtne	3Q00 Rtne	4Q00 Rtne	1Q01 Rtne	2Q01 Rtne	3Q01 Bsln	4Q01 Rtne	1Q02 Rtne	April-03 Routine	June-03 Routine
Temperature	C°																								11.86	12.3
Conductivity	uS		334.88	1695.31	1454	190.4	190.5	196.5	173.5	173.2	181.3	176.9	200	200	42.8	198	231	173	214	190	200	187.3	175.8	174.1	187	251
pH	SU	6.5-8.5	8	9.57	7.11	8.68	8.38	8.69	8.71	8.02	8.11	8.18	10.6	9.05	NA	7.65	8.89	7.6	8.88	7.97	8.05	7.96	7.88	7.92	8.63	8.21
Eh	mV		127.75	494.8	-9	-98	-73	-90	-76	-56	-72	-63	-207	-118	-190	-30	102	186	-92	275	55	-50	-40	-60	-60.1	12
Turbidity (after purging well)	N.T.U	5	577.5	1046.99	NA	105	145	54	28	45	125	70	65	150	43	200	240	410	512	505	168	53.7	108	28.4	110	63.9
LEACHATE INDICATORS:																										
Ammonia Nitrogen	mg/l	2	0.17	0.53	0.124	0.132	0.138	<0.05	0.0934	0.102	0.144	0.0991	0.0935	0.112	0.108	0.0663	0.103	<0.1	0.16	0.138	<0.05	0.111	0.129	0.0977	<0.5	<0.5
BOD 5	mg/l		1.94	3.97	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<6	<2	<2	<2	<2.0	<4	<4
Bromide	mg/l	2	0.41	1.84	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<1	<1	<1	<1	<1	<1	<1	<1	<1.0	<0.2	<0.2
COD	mg/l		31.09	173.27	<5	<5	12.9	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	7.5	<5	10.4	<5	<5	<5	<5.0	24	<20
Chloride	mg/l	250	1.51	4.28	<1	1.21	<1	1.06	1.19	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	1.02	<2.0	<1	2
Nitrate	mg/l	10	0.12	0.68	<0.05	<0.05	<0.05	<0.05	<0.5	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.04	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2	<0.2
Sulfate	mg/l	250	3.24	12.41	<2	<2	<2	2.22	2.89	2.02	<2	<2	<2	2.37	<2	3.06	2.75	2.3	2.46	<2	2	3.12	2.4	2.74	<5	<5
Total Alkalinity	mg/l		159.13	446.65	97	97.6	99.8	98	97.2	91.5	96.7	97.2	97.6	100	990	100	110	100	100	98.3	100	108	96	100	110	92
Total Disolved Solids	mg/l	500	157.5	342.79	162	134	139	145	132	121	128	129	93.9	131	172	155	141	185	220	178	142	122	142	119	140	120
Total Hardness	mg/l		341.21	1326.38	87	83.3	110	80	70	70.2	50	128	62.5	86.8	107	99.6	100	91	125	105	74	56.2	70	50	59	48
Total Kjed. Nitrogen	mg/l		0.9	2.47	0.406	0.381	0.382	0.349	0.382	0.378	0.292	0.377	<0.2	0.454	<0.2	0.426	0.33	2.5	0.609	0.388	<0.2	0.262	0.254	21	<0.5	<0.5
Total Organic Carbon	mg/l	500	4.14	14.18	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	1.21	1.08	<1	<1	<1	<1	<1	1.46	<1	<3	<3
Total Phenols	mg/l	0.001	0.003	0.008	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Color	P.C.U.	15	10.31	36.96	<5					<5					5		30					5				
Boron	mg/l	1	0.08	0.3	<0.2					<0.2					<02		<0.2					<0.2				
INORGANIC PARAMETERS:																										
Aluminum	mg/l	0.1	16.65	95.97	6.14					3.61					REJECT		REJECT					3.32				
Antimony	mg/l	0.003	0.04	0.07	<0.06					<0.06					<0.06		<0.06					<0.06				
Arsenic	mg/l	0.025	0.01	0.03	0.013					<0.01					0.013		0.0169					0.0136				
Barium	mg/l	1	0.16	0.76	0.0648					0.039					0.0738		0.0758					0.0347				
Beryllium	mg/l	0.003	0.003	0.007	<0.005					<0.005					<0.005		<0.005					<0.005				
Cadmium	mg/l	0.01	0.005	0.011	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Calcium	mg/l		101.48	418.22	22.4	23.4	20.2	23	17	18.8	13.5	20.6	18.7	21.2	34.8	25.9	28.1	29	141	31.1	22.1	16.4	20.6	15.4	16.8	13.8
Chromium	mg/l		0.03	0.16	0.012					0.0213					0.0323		0.0198					0.0261				
Hexavalent Chromium	mg/l	0.05	0.01	0.02	<0.01					<0.01					<0.01		<0.01					<0.01				
Cobalt	mg/l	0.005	0.03	0.07	<0.05					<0.05					<0.05		<0.05					<0.05				
Copper	mg/l	0.2	0.08	0.4	<0.02					<0.02					<0.02		<0.02					<0.02				
Total Cyanide	mg/l	0.1	0.01	0.01	<0.01					<0.01					<0.01		<0.01					0.0136				
Iron	mg/l	0.3	37.92	235.45	8.35	7.52	7.63	7.4	2.44	5.55	3.01	4.86	5.25	7.64	14.8	11.3	14	1.52	25.7	17.3	7.67	3	5.66	0.757	3.95	2.81
Lead	mg/l	0.025	0.02	0.11	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.00597	0.0099	0.0078	0.0202	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.003	<0.003
Magnesium	mg/l	35	17.96	81.59	5.52	5.77	5.45	5.46	3.68	4.72	3.37	4.99	4.5	5.19	8.8	6.76	7.36	4.4	32.4	8.02	5.28	3.84	4.87	3.17	4.19	3.3
Manganese	mg/l	0.3	1.22	6.13	0.198	0.193	0.185	0.188	0.0978	0.146	0.0748	0.145	0.128	0.192	0.346	0.255	0.329	0.19	0.511	0.373	0.179	0.0865	0.15	0.0405	0.106	0.126
Mercury	mg/l	0.002	0.0003	0.0009	<0.0003					<0.0003					<0.0003		<0.0003					<0.0002				
Nickel	mg/l	0.007	0.06	0.23	<0.04					<0.04					<0.04		<0.04					<0.04				
Potassium	mg/l		3.2	15.1	2.3	2.02	2.37	2.27	<2	<2	<2	<2	<2	3.25	3.77	3.1	2.48	0.5	4.3	3.92	2.6	<5	<5	<2.0		1.35
Selenium	mg/l	0.01	0.01	0.01	<0.005					<0.005					<0.005		<0.005					<0.005				
Silver	mg/l	0.05	0.01	0.03	<0.01					<0.01					<0.01		<0.01					<0.01				
Sodium	mg/l	20	25	55.19	26.8	22.2	23.3	21.7	25.8	21.3	21.4	23.5	22.6	23.8	25.2	25.4	29.2	22	407	23.9	26.2	24.1	24.2	21.4	20.6	24.5
Thallium	mg/l	0.004	0.01	0.01	<0.01					<0.01					<0.01		<0.01					<0.01				
Vanadium	mg/l	0.014	0.03	0.07	<0.05					<0.05					<0.05		<0.05					<0.05				
Zinc	mg/l	0.3	0.15	0.83	0.0351					0.0201					0.053		0.0714					<0.02				

Notes:

1. Parameters listed are Part 360 Baseline or Routine Parameters Effective 1993.
2. Blanks indicate no analysis performed
3. "<" indicates not detected at the specified method detection limit (MDL)
4. Shaded values indicate detection above Standard.

Table G-1
Albany Interim Landfill Groundwater Analytical Monitoring Data
City of Albany Landfill - Proposed Eastern Expansion Project
Albany, New York
CHA Project No. 12206
MW-2D

TEST PARAMETER (mg/l unless otherwise noted)	Unit	TOGS Guidance Value	Mean (EWQV)	Mean (EWQV) Plus 3 Std. Dev.	Sep-03 Baseline	Dec-03 Routine	Mar-04 Routine	Jun-04 Routine	Sep-04 Routine	Dec-04 Baseline	Mar-05 Baseline	Jun-05 Routine	Sep-05 Routine	Dec-05 Routine	Mar-06 Routine	Jun-06 Baseline	Sep-06 Routine	Dec-06 Routine
Temperature	C°				11.95	11	10.09	12.5	11.78	10.69	10.87	11.67	12.1	9.7	10.71	11.69	10.67	8.75
Conductivity	uS		334.88	1695.31	184	155	192	184	189	185	189	186	186	266	175	132	126.1	174
pH	SU	6.5-8.5	8	9.57	8.76	8.62	8.08	7.86	8.29	8.42	8.47	8.04	8.51	8.47	7.76	8.06	9.37	8.52
Eh	mV		127.75	494.8	-107.6	-74.7	-50.9	-84.2	-114.4	-187.2	-49	-20	-13.6	-98	182	-90.7	29.2	-2.8
Turbidity (after purging well)	N.T.U	5	577.5	1046.99	120	438	170	84.6	104	61.5	80.3	36.1	77	98.5	73.4	30.8	31.9	65.2
LEACHATE INDICATORS:																		
Ammonia Nitrogen	mg/l	2	0.17	0.53	0.9	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.50	< 0.5	< 0.5	<0.5	<0.5	<0.5
BOD 5	mg/l		1.94	3.97	<4	<4	<4	<4	<4	<4	<4		<4	< 4		<4	9	<4
Bromide	mg/l	2	0.41	1.84	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.20		<0.2	< 0.2	< 0.2	<0.2	<0.2	<0.2
COD	mg/l		31.09	173.27	<20	<20	<20	<20	<20	<20	<20	<20	<20	< 20		<20	<20	<20
Chloride	mg/l	250	1.51	4.28	2	2	<1	2	<1	4.08	2.04	1.53	4.05	< 1	1.54	1.2	1.2	1.98
Nitrate	mg/l	10	0.12	0.68	<0.2	<0.2	<0.2	<0.2	0.3	<0.2	<0.2	<0.2	<0.2	< 0.2		<0.2	<0.2	<0.2
Sulfate	mg/l	250	3.24	12.41	<5	<5	14	12.5	8.18	5.18	<5	5.92	<5	< 5		<5	2.4	<5
Total Alkalinity	mg/l		159.13	446.65	99	99	93	110	100	190	94	74	87	96	290	100	100	100
Total Disolved Solids	mg/l	500	157.5	342.79	140	160	150	100	120	607	135	<25	85	135	185	102	125	115
Total Hardness	mg/l		341.21	1326.38	43	90	61	50.6	52.5	50.6	50.7	45	44.6	50.6	42.1	35.9	42.7	105
Total Kjed. Nitrogen	mg/l		0.9	2.47	0.9	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5		<0.5	< 0.5	< 0.5	<0.5	<0.5	<0.5
Total Organic Carbon	mg/l	500	4.14	14.18	<3	11	<3	<3	<3	<3	<3	3	<3	< 3	< 3	<3	<3	<3
Total Phenols	mg/l	0.001	0.003	0.008	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.016	<0.005	<0.005	0.007	< 0.005	<0.005	<0.005	<0.005
Color	P.C.U.	15	10.31	36.96	9					7	40					18		
Boron	mg/l	1	0.08	0.3	<0.5					<0.5	<0.5					<0.5		
INORGANIC PARAMETERS:																		
Aluminum	mg/l	0.1	16.65	95.97	1.56					1.32	1.57					0.639		
Antimony	mg/l	0.003	0.04	0.07	<0.015					<0.015	<0.015					<0.015		
Arsenic	mg/l	0.025	0.01	0.03	0.0155					0.0131	0.0159					0.012		
Barium	mg/l	1	0.16	0.76	<0.05					<0.050	<0.050					<0.050		
Beryllium	mg/l	0.003	0.003	0.007	<0.003					<0.003	<0.003					<0.003		
Cadmium	mg/l	0.01	0.005	0.011	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	< 0.005	< 0.005	<0.005	<0.005	<0.005
Calcium	mg/l		101.48	418.22	12.4	24.8	17.2	14.6	15.3	14.6	14.6	13	12.8	14.2	12	10.3	12.5	32.9
Chromium	mg/l		0.03	0.16	<0.005					<0.005	0.00553					<0.005		
Hexavalent Chromium	mg/l	0.05	0.01	0.02	<0.01					<0.010	<0.010					<0.010		
Cobalt	mg/l	0.005	0.03	0.07	<0.02					<0.020	<0.020					<0.020		
Copper	mg/l	0.2	0.08	0.4	0.032					<0.010	0.0134					<0.010		
Total Cyanide	mg/l	0.1	0.01	0.01	<0.01					<0.010	<0.01					<0.01		
Iron	mg/l	0.3	37.92	235.45	2.62	11.8	5.17	22.8	1.96	1.96	2.07	0.56	2.16	4.29	1.64	1.08	0.982	0.489
Lead	mg/l	0.025	0.02	0.11	<0.003	<0.003	<0.003	0.0103	<0.003	0.00388	<0.003	<0.001	<0.003	< 0.003	<0.003	<0.003	<0.003	<0.003
Magnesium	mg/l	35	17.96	81.59	3	6.79	4.45	3.41	3.48	3.41	3.43	3	3.08	3.7	2.95	2.48	2.81	5.44
Manganese	mg/l	0.3	1.22	6.13	0.074	0.3	0.133	0.0763	0.0703	0.0593	0.0673	0.03	0.0673	0.119	0.05	0.0349	0.0499	0.138
Mercury	mg/l	0.002	0.0003	0.0009	0.0004					<0.0002	<0.0002					<0.0002		
Nickel	mg/l	0.007	0.06	0.23	<0.03					<0.030	<0.030					<0.030		
Potassium	mg/l		3.2	15.1	<1	2.26	1.35	1.34	2.29	1.88	2.78	1.7	<1	1.32	< 1.0	<1	<1	<1
Selenium	mg/l	0.01	0.01	0.01	<0.005					<0.005	<0.005					0.00526		
Silver	mg/l	0.05	0.01	0.03	<0.01					<0.010	<0.010					<0.010		
Sodium	mg/l	20	25	55.19	17.3	22.6	22.4	23.3	23.4	21.3	22.4	28	23.9	21.8	22.3	19	24.2	1.63
Thallium	mg/l	0.004	0.01	0.01	<0.01					<0.010	<0.010					<0.010		
Vanadium	mg/l	0.014	0.03	0.07	<0.03					<0.030	<0.030					<0.030		
Zinc	mg/l	0.3	0.15	0.83	0.0202					0.0217	<0.010					0.0124		

Notes:

1. Parameters listed are Part 360 Baseline or Routine Parameters Effective 1993.
2. Blanks indicate no analysis performed
3. "<" indicates not detected at the specified method detection limit (MDL)
4. Shaded values indicate detection above Standard.

Table G-1
Albany Interim Landfill
Groundwater Analytical Data -Volatile Organic Compounds
City of Albany Landfill - Proposed Eastern Expansion Project
Albany, New York
CHA Project No. 12206
MW-2D

TEST PARAMETER (µg/l unless otherwise noted)	Unit	TOGS Guidance Value	Mean (EWQV)	Mean (EWQV) Plus 3 Std. Dev.	2Q97	3Q98	4Q99	2Q00	Sep-03	Dec-04	Mar-05	Jun-06
Organic Parameters												
Acetone	µg/l	50	13.5	23.56	<MDL	<MDL	<MDL	<MDL	<10	<10	<10	<10
Acrylonitrile	µg/l	5	46.88	166.2	<MDL	<MDL	<MDL	<MDL	Rejected	<100	<100	<100
Benzene	µg/l	0.7	2.58	7.44	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Bromochloromethane	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Bromodichloromethane	µg/l	50	2.63	7.28	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Bromoform	µg/l	50	2.63	7.28	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Carbon disulfide	µg/l	5	5.63	13.58	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Carbon tetrachloride	µg/l	5	2.63	7.28	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Chlorobenzene	µg/l	5	2.63	7.28	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Chloroethane	µg/l	5	3.09	10.05	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Chloroform	µg/l	7	2.63	7.28	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Dibromochloromethane	µg/l	50	2.63	7.28	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
1,2 Dibromo-3-chloropropane	µg/l	5	5.63	13.58	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
1,2 Dibromomethane	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
1,2 Dichlorobenzene (o)	µg/l		2.63	7.28	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
1,4 Dichlorobenzene (p)	µg/l	4.7	2.63	7.28	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
trans-1,2 Dichloro-2-butene	µg/l	5	5.63	13.58	<MDL	<MDL	<MDL	<MDL	<10	<10	<10	<10
1,1 Dichloroethane	µg/l	5	2.63	7.28	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
1,2 Dichloroethane	µg/l	5	2.63	7.28	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
1,1 Dichloroethene	µg/l	5	2.63	7.28	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
cis-1,3 Dichloroethene	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
trans-1,3 Dichloroethene	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
1,2 Dichloropropane	µg/l	5	2.63	7.28	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
cis-1,3 Dichloropropene	µg/l	5	2.63	7.26	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
trans-1,3 Dichloropropene	µg/l	5	2.63	7.26	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Ethylbenzene	µg/l	5	2.63	7.28	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
2-Hexanone	µg/l	50	7.5	7.5	<MDL	<MDL	<MDL	<MDL	<10	<10	<10	<10
Bromomethane	µg/l	5	3.09	10.05	<MDL	<MDL	<MDL	Reject	<5	<5	<5	<5
Chloromethane	µg/l	5	3.09	10.05	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Dibromomethane	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Methylene chloride	µg/l	5	2.63	7.02	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
2-Butanone	µg/l	50	7.5	7.5	<MDL	<MDL	<MDL	<MDL	<10	<10	<10	<10
Methyl Iodide (Iodomethane)	µg/l	5	5.63	13.58	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
4-methyl-2-pentanone	µg/l	5	7.5	7.5	<MDL	<MDL	<MDL	<MDL	<10	<10	<10	<10
Styrene	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
1,1,1,2-Tetrachloroethane	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
1,1,2,2-Tetrachloroethane	µg/l	5	2.63	7.26	<MDL	<MDL	<MDL	Reject	<5	<5	<5	<5
Tetrachloroethene	µg/l	5	2.63	7.28	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Toluene	µg/l	5	2.63	7.28	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
1,1,1-Trichloroethene	µg/l	5	2.63	7.28	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
1,1,2-Trichloropropane	µg/l	5	1.95	6.88	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Trichloroethene	µg/l	5	2.63	7.28	<MDL	<MDL	<MDL	Reject	<5	<5	<5	<5
Trichlorofluoromethane	µg/l	5	2.63	7.28	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
1,2,3-Trichloropropane	µg/l	5	3.75	7.28	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Vinyl acetate	µg/l		7.5	7.5	<MDL	<MDL	<MDL	<MDL	<50	<50	<50	<50
Vinyl chloride	µg/l	2	3.09	10.05	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
M+P Xylene	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
o - Xylene	µg/l	5			<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5

Notes:

1. Parameters listed are Part 360 Baseline Volatile Organic Compounds Parameters Effective 1993.
2. Blanks indicate no analysis performed
3. "<" indicates not detected at the specified method detection limit (MDL)

Table G-1
Albany Interim Landfill Groundwater Analytical Monitoring Data
City of Albany Landfill - Proposed Eastern Expansion Project
Albany, New York
CHA Project No. 12206
MW-7S

TEST PARAMETER (mg/l unless otherwise noted)	Unit	TOGS Guidance Value	Mean (EWQV)	Mean (EWQV) Plus 3 Std. Dev.	2Q97 Bsln	3Q97 Rtne	4Q97 Rtne	1Q98 Rtne	2Q98 Rtne	3Q98 Bsln	4Q98 Rtne	1Q99 Rtne	2Q99 Rtne	3Q99 Rtne	4Q99 Bsln	1Q00 Rtne	2Q00 Rtne	3Q00 Rtne	4Q00 Rtne	1Q01 Rtne	2Q01 Rtne	3Q01 Bsln	4Q01 Rtne	1Q02 Rtne	April-03 Routine	June-03 Routine
Temperature	C°																								15.21	15.7
Conductivity	uS		585.63	2418.12	2040	738	744	574	403	685	795	531	486	584	934	748	684	556	931	802	520	654	516	502	832	835
pH	SU	6.5-8.5	7.54	9.4	7.15	7.17	7.28	7.62	9.25	7.54	8.28	8.04	8.1	8.3	7.86	6.82	6.82	6.6	7.84	6.95	7.09	7.17	7.18	7.07	7.01	7.19
Eh	mV		173.29	548.37	-6	-10	-11	-29	-45	-28	-64	-41	-63	-73	-42	10	13	266	-38	320	195	55	165	190	95.3	23
Turbidity (after purging well)	N.T.U	5	441.43	1675.01	NA	85	320	66	250	75	40	155	55	86	93	73	230	94	245	195	106	55	60	93.8	23	84.3
LEACHATE INDICATORS:																										
Ammonia Nitrogen	mg/l	2	0.12	0.38	<0.05	<0.05	<0.05	<0.05	<0.05	<0.5	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.5	<0.5
BOD 5	mg/l		2.44	7.44	5.57	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2.0	4	<4
Bromide	mg/l	2	0.48	1.64	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	9.23	<1.0	<0.2	<0.2
COD	mg/l		25.65	147.63	<5	<5	21.8	<5	<5	<5	<5	<5	<5	5.73	<5	<5	6.23	7.5	<5	<5	<5	<5	<5	<5.0	<20	<20
Chloride	mg/l	250	18.24	43.87	20.9	36.5	21.9	18.6	16.5	49	16	5.28	5.97	6.29	6.85	3.69	6.14	17	6.57	8.5	5.76	8.85	9.54	12.4	13	9
Nitrate	mg/l	10	2.13	9.42	0.426	0.771	0.675	0.546	1.08	0.573	0.858	0.522	0.89	1	0.521	0.908	1.27	0.36	1.36	2.74	1.41	3.38	<0.5	4.7	2.8	1.3
Sulfate	mg/l	250	27.73	48.7	28.5	62	36.8	0.546	42.7	109	42.4	26.3	23.6	29.6	51.5	31	35.8	58	30.7	44.9	30.9	46	31.4	29.5	29	28
Total Alkalinity	mg/l		482.38	2069.46	229	284	273	229	190	277	279	266	225	256	306	371	418	275	312	356	335	364	268	323	430	350
Total Disolved Solids	mg/l	500	252.75	478.04	352	545	409	325	307	541	416	339	268	331	491	348	412	465	352	445	391	460	332	368	530	410
Total Hardness	mg/l		495.38	2091.54	338	458	310	280	296	400	343	290	299	440	330	308	410	297	400	380	319	405	325	291		340
Total Kjed. Nitrogen	mg/l		1.24	3.74	0.609	0.743	0.561	0.358	1.14	0.761	0.447	0.444	0.201	0.587	0.437	0.421	0.45	<1	0.354	0.219	<0.2	0.268	<0.2	0.204	<0.5	<0.5
Total Organic Carbon	mg/l	500	4.04	21.23	1.7	<1	<1	<1	1.1	1.4	1.44	1.09	<1	1.32	1.25	1.51	1.72	1.2	1.69	1.74	1.12	1.57	1.7	<1.0	13	<3
Total Phenols	mg/l	0.001	0.003	0.01	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.005	<0.005	<0.005	<0.005		<0.005	<0.005	<0.005
Color	P.C.U.	15	15.54	53.28	<5					<5					10		10					<5				
Boron	mg/l	1	0.22	1.21	<0.2					<0.2					<0.2		<0.2					<0.2				
INORGANIC PARAMETERS:																										
Aluminum	mg/l	0.1	22.19	171.92	9.78					5.22					REJECT		REJECT					3.64				
Antimony	mg/l	0.003	1.78	15.56	<0.06					<0.06					<0.06		<0.06					<0.06				
Arsenic	mg/l	0.025	0.01	0.01	<0.01					0.0216					<0.01		<0.01					<0.01				
Barium	mg/l	1	0.11	0.69	0.0497					0.0351					0.0353		0.0637					0.0272				
Beryllium	mg/l	0.003	0.01	0.1	<0.005					<0.005					<0.005		<0.005					<0.005				
Cadmium	mg/l	0.01	0.004	0.006	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Calcium	mg/l		146.53	701.81	100	132	89.3	90.7	93.6	114	98.6	76.5	80.1	79.2	105	76.9	126	99	114	122	96.1	126	96.6	91.6	126	99.2
Chromium	mg/l		14.71	132.72	0.506					0.517					0.19		0.117					0.0363				
Hexavalent Chromium	mg/l	0.05	0.02	0.08	<0.01					<0.01					<0.01		<0.01					<0.01				
Cobalt	mg/l	0.005	0.03	0.07	<0.05					<0.05					<0.05		<0.05					<0.05				
Copper	mg/l	0.2	0.14	0.75	0.0338					0.0378					0.0233		0.0205					<0.02				
Total Cyanide	mg/l	0.1	0.01	0.01	<0.01					<0.01					<0.01		<0.01					<0.01				
Iron	mg/l	0.3	58.95	440.42	20.3	9.55	9.54	8.44	21.6	15.9	6.61	11.7	9.38	9.22	12.5	11.4	11.4	0.82	6.76	9.73	8.48	4.16	5.21	6.43	3.31	3.86
Lead	mg/l	0.025	4.79	39.09	0.00629	<0.005	<0.005	<0.005	0.00776	<0.005	<0.005	<0.005	<0.005	0.00908	0.0066	0.0055	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.003	<0.003
Magnesium	mg/l	35	20.97	91.98	18.7	25	17.8	15	15.8	21	18.2	14.7	14.3	15.2	18.7	14.9	22.9	12	20.4	23.5	18.4	24.1	19.1	18.9	29.6	22.8
Manganese	mg/l	0.3	3.47	19.38	0.392	0.158	0.172	0.166	0.41	0.245	0.103	0.223	0.152	0.193	0.23	0.218	0.284	0.07	0.137	0.209	0.177	0.0969	0.101	0.131	0.0969	0.111
Mercury	mg/l	0.002	0.23	2.04	<0.0003					<0.0003					<0.0003		<0.0003					<0.0002				
Nickel	mg/l	0.007	0.18	0.84	0.0931					0.0673					<0.04		<0.04					<0.04				
Potassium	mg/l		3.22	14.1	3.97	2.3	2.85	3.48	6.57	3.91	2.01	2.6	2.17	2.12	3.61	2.73	3.09	1.3	2.84	3.35	2.94	<5	5.98	3.12	2.09	2.24
Selenium	mg/l	0.01	0.01	0.01	<0.005					<0.005					<0.005		0.0188					<0.005				
Silver	mg/l	0.05	0.01	0.03	<0.01					<0.01					<0.01		<0.01					<0.01				
Sodium	mg/l	20	16.42	70.53	13.2	30.6	10.8	14.8	11.4	19.9	22.8	16.2	16.6	12.3	13	22.4	17.9	16	20.2	17.8	15.3	18.5	8.37	9.8	5.79	5.69
Thallium	mg/l	0.004	0.87	8.13	<0.01					0.0141					<0.01		0.0271					<0.01				
Vanadium	mg/l	0.014	1.27	7.72	<0.05					<0.05					<0.05		<0.05					<0.05				
Zinc	mg/l	0.3	0.19	1.26	0.0683					0.0809					0.0416		0.0458					0.02				

Notes:

1. Parameters listed are Part 360 Baseline or Routine Parameters Effective 1993.
2. Blanks indicate no analysis performed
3. "<" indicates not detected at the specified method detection limit (MDL)
4. Shaded values indicate detection above Standard.

Table G-1
Albany Interim Landfill Groundwater Analytical Monitoring Data
City of Albany Landfill - Proposed Eastern Expansion Project
Albany, New York
CHA Project No. 12206
MW-7S

TEST PARAMETER (mg/l unless otherwise noted)	Unit	TOGS Guidance Value	Mean (EWQV)	Mean (EWQV) Plus 3 Std. Dev.	Sep-03 Baseline	Dec-03 Routine	Mar-04 Routine	Jun-04 Routine	Sep-04 Routine	Dec-04 Baseline	Mar-05 Baseline	Jun-05 Routine	Sep-05 Routine	Dec-05 Routine	Mar-06 Routine	Jun-06 Baseline	Sep-06 Routine	Dec-06 Routine
Temperature	C°				15.6	13.36	14.02	15.81	15.42	14.54	15.76	16.57	16.57	14.5	15.55	16.99	17.08	16.07
Conductivity	uS		585.63	2418.12	747	617	582	603	808	853	519	689	951	1213	735	762	636.6	1245
pH	SU	6.5-8.5	7.54	9.4	7.44	7.23	7.43	7.47	7.56	7.44	7.18	7.27	7.68	7.14	6.62	7.62	7.61	6.9
Eh	mV		173.29	548.37	-26.3	-39.3	-30.4	-49.5	-117.2	-128.6	110.6	2	-20.4	-19	150.3	-70.7	50.3	47.2
Turbidity (after purging well)	N.T.U	5	441.43	1675.01	121	410	160	116	105	110	102	152	81.2	32.3	32.9	196	22	67.4
LEACHATE INDICATORS:																		
Ammonia Nitrogen	mg/l	2	0.12	0.38	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.50	<0.5	<0.5	< 0.5	< 0.5	<0.5	<0.5	<0.5
BOD 5	mg/l		2.44	7.44	<4	<4	<4	<4	<4	<4	<4		<4	< 4	<4	<4	5	<4
Bromide	mg/l	2	0.48	1.64	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2		<0.2	< 0.4	<0.2	<0.2	<0.2	<20df
COD	mg/l		25.65	147.63	<20	<20	<20	<20	<20	<20	<20	<20	78	< 20	<20	<20	<20	24
Chloride	mg/l	250	18.24	43.87	12	23	7	8	22.5	18.4	2.55	15.1	19.1	27.1	24.4	25	38.5	65.2
Nitrate	mg/l	10	2.13	9.42	2.4	7.2	1	1.5	2.1	7.5	0.24	0.32	6	8.1	3.6	4.7	4.4	9.02
Sulfate	mg/l	250	27.73	48.7	38	<5	32	34.9	109	102	17.8	271	56	109	33.6	57.5	80.4	140
Total Alkalinity	mg/l		482.38	2069.46	380	370	290	280	320	590	270	300	390	400	130	390	400	500
Total Disolved Solids	mg/l	500	252.75	478.04	480	620	410	345	482	970	360	340	520	638	498	605	650	932
Total Hardness	mg/l		495.38	2091.54	340	420	300	284	422	490	329	380	440	515	372	457	425	531
Total Kjed. Nitrogen	mg/l		1.24	3.74	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5		<0.5	< 0.5	< 0.5	<0.5	<0.5	<0.5
Total Organic Carbon	mg/l	500	4.04	21.23	10	<3	<3	<3	<3	<3	8	<3	<3	< 3	43	<3	8	5
Total Phenols	mg/l	0.001	0.003	0.01	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.011	<0.005	<0.005	0.009	<0.005	<0.005	<0.005	<0.005
Color	P.C.U.	15	15.54	53.28	12					7	30					8		
Boron	mg/l	1	0.22	1.21	<0.5					<0.5	<0.5					<0.5		
INORGANIC PARAMETERS:																		
Aluminum	mg/l	0.1	22.19	171.92	1.38					1.48	5.22					2.35		
Antimony	mg/l	0.003	1.78	15.56	<0.015					0.0402	<0.015					<0.015		
Arsenic	mg/l	0.025	0.01	0.01	<0.01					<0.010	<0.010					<0.010		
Barium	mg/l	1	0.11	0.69	<0.05					<0.050	<0.050					<0.050		
Beryllium	mg/l	0.003	0.01	0.1	<0.003					<0.003	<0.003					<0.003		
Cadmium	mg/l	0.01	0.004	0.006	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	< 0.005	< 0.005	<0.005	<0.005	<0.005
Calcium	mg/l		146.53	701.81	98.1	121	90	84	130	147	98.6	110	131	151	109	137	130	161
Chromium	mg/l		14.71	132.72	0.0504					0.0228	0.0449					0.0348		
Hexavalent Chromium	mg/l	0.05	0.02	0.08	<0.01					<0.010	<0.010					<0.010		
Cobalt	mg/l	0.005	0.03	0.07	<0.02					<0.020	<0.020					<0.020		
Copper	mg/l	0.2	0.14	0.75	0.039					0.0134	0.0228					0.0105		
Total Cyanide	mg/l	0.1	0.01	0.01	<0.01					<0.010	<0.010					<0.010		
Iron	mg/l	0.3	58.95	440.42	3.33	8.59	5.69	0.95	4.72	2.96	8.9	2	1.53	0.728	3.61	4.2	3.42	1.54
Lead	mg/l	0.025	4.79	39.09	<0.003	<0.003	<0.003	0.00319	0.00511	<0.003	0.00637	<0.001	<0.003	< 0.003	<0.003	<0.00602	<0.003	<0.003
Magnesium	mg/l	35	20.97	91.98	22.6	28	19.5	18.1	23.5	29.6	20	26	27.7	33.5	24.1	27.9	24.1	31.2
Manganese	mg/l	0.3	3.47	19.38	0.089	0.254	0.184	0.0318	0.128	0.0804	0.218	0.064	0.0416	0.0448	0.0998	0.105	0.105	0.0623
Mercury	mg/l	0.002	0.23	2.04	0.0006					<0.0002	<0.0002					<0.0002		
Nickel	mg/l	0.007	0.18	0.84	<0.03					<0.030	<0.030					<0.030		
Potassium	mg/l		3.22	14.1	1.96	2.45	2.11	1.37	2.87	2.49	2.87	2.3	2.43	1.84	1.86	2.21	2.1	1.98
Selenium	mg/l	0.01	0.01	0.01	<0.005					<0.005	<0.005					0.0077		
Silver	mg/l	0.05	0.01	0.03	<0.01					<0.010	<0.010					<0.010		
Sodium	mg/l	20	16.42	70.53	6.49	7.02	5.56	5.45	11.6	9.17	5.73	7	17.3	27.1	16.6	18.8	23.9	39.3
Thallium	mg/l	0.004	0.87	8.13	<0.01					<0.010	<0.010					<0.010		
Vanadium	mg/l	0.014	1.27	7.72	<0.03					<0.030	<0.030					<0.030		
Zinc	mg/l	0.3	0.19	1.26	0.0444					<0.0504	0.0664					0.0444		

Notes:

1. Parameters listed are Part 360 Baseline or Routine Parameters Effective 1993.
2. Blanks indicate no analysis performed
3. "<" indicates not detected at the specified method detection limit (MDL)
4. Shaded values indicate detection above Standard.

Table G-1
Albany Interim Landfill
Groundwater Analytical Data -Volatile Organic Compounds
City of Albany Landfill - Proposed Eastern Expansion Project
Albany, New York
CHA Project No. 12206
MW-7S

TEST PARAMETER (µg/l unless otherwise noted)	Unit	TOGS Guidance Value	Mean (EWQV)	Mean (EWQV) Plus 3 Std. Dev.	2Q97	3Q98	4Q99	2Q00	Sep-03	Dec-04	Mar-05	Jun-06
Organic Parameters												
Acetone	µg/l	50	13.5	23.56	<MDL	<MDL	<MDL	<MDL	<11 U	<10	<10	<10
Acrylonitrile	µg/l	5	46.88	166.2	<MDL	<MDL	<MDL	<MDL	Rejected	<100	<100	<100
Benzene	µg/l	0.7	2.58	7.44	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Bromochloromethane	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Bromodichloromethane	µg/l	50	2.63	7.28	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Bromoform	µg/l	50	2.63	7.28	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Carbon disulfide	µg/l	5	5.63	13.58	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Carbon tetrachloride	µg/l	5	2.63	7.28	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Chlorobenzene	µg/l	5	2.63	7.28	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Chloroethane	µg/l	5	3.09	10.05	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Chloroform	µg/l	7	2.63	7.28	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Dibromochloromethane	µg/l	50	2.63	7.28	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
1,2 Dibromo-3-chloropropane	µg/l	5	5.63	13.58	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
1,2 Dibromomethane	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
1,2 Dichlorobenzene (o)	µg/l		2.63	7.28	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
1,4 Dichlorobenzene (p)	µg/l	4.7	2.63	7.28	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
trans-1,2 Dichloro-2-butene	µg/l	5	5.63	13.58	<MDL	<MDL	<MDL	<MDL	<10	<10	<10	<10
1,1 Dichloroethane	µg/l	5	2.63	7.28	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
1,2 Dichloroethane	µg/l	5	2.63	7.28	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
1,1 Dichloroethene	µg/l	5	2.63	7.28	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
cis-1,3 Dichloroethene	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
trans-1,3 Dichloroethene	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
1,2 Dichloropropane	µg/l	5	2.63	7.28	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
cis-1,3 Dichloropropene	µg/l	5	2.63	7.26	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
trans-1,3 Dichloropropene	µg/l	5	2.63	7.26	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Ethylbenzene	µg/l	5	2.63	7.28	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
2-Hexanone	µg/l	50	7.5	7.5	<MDL	<MDL	<MDL	<MDL	<10	<10	<10	<10
Bromomethane	µg/l	5	3.09	10.05	<MDL	<MDL	<MDL	Reject	<5	<5	<5	<5
Chloromethane	µg/l	5	3.09	10.05	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Dibromomethane	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Methylene chloride	µg/l	5	2.63	7.02	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
2-Butanone	µg/l	50	7.5	7.5	<MDL	<MDL	<MDL	<MDL	<10	<10	<10	<10
Methyl Iodide (Iodomethane)	µg/l	5	5.63	13.58	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
4-methyl-2-pentanone	µg/l	5	7.5	7.5	<MDL	<MDL	<MDL	<MDL	<10	<10	<10	<10
Styrene	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
1,1,1,2-Tetrachloroethane	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
1,1,2,2-Tetrachloroethane	µg/l	5	2.63	7.26	<MDL	<MDL	<MDL	Reject	<5	<5	<5	<5
Tetrachloroethene	µg/l	5	2.63	7.28	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Toluene	µg/l	5	2.63	7.28	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
1,1,1-Trichloroethene	µg/l	5	2.63	7.28	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
1,1,2-Trichloropropane	µg/l	5	1.95	6.88	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Trichloroethene	µg/l	5	2.63	7.28	<MDL	<MDL	<MDL	Reject	<5	<5	<5	<5
Trichlorofluoromethane	µg/l	5	2.63	7.28	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
1,2,3-Trichloropropane	µg/l	5	3.75	7.28	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Vinyl acetate	µg/l		7.5	7.5	<MDL	<MDL	<MDL	<MDL	<50	<50	<50	<50
Vinyl chloride	µg/l	2	3.09	10.05	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
M+P Xylene	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
o - Xylene	µg/l	5			<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5

Notes:

1. Parameters listed are Part 360 Baseline Volatile Organic Compounds Parameters Effective 1993.
2. Blanks indicate no analysis performed
3. "<" indicates not detected at the specified method detection limit (MDL)

Table G-1
Albany Interim Landfill Groundwater Analytical Monitoring Data
City of Albany Landfill - Proposed Eastern Expansion Project
Albany, New York
CHA Project No. 12206
MW-7I

TEST PARAMETER (mg/l unless otherwise noted)	Unit	TOGS Guidance Value	Mean (EWQV)	Mean (EWQV) Plus 3 Std. Dev.	2Q97 Bsln	3Q97 Rtne	4Q97 Rtne	1Q98 Rtne	2Q98 Rtne	3Q98 Bsln	4Q98 Rtne	1Q99 Rtne	2Q99 Rtne	3Q99 Rtne	4Q99 Bsln	1Q00 Rtne	2Q00 Rtne	3Q00 Rtne	4Q00 Rtne	1Q01 Rtne	2Q01 Rtne	3Q01 Bsln	4Q01 Rtne	1Q02 Rtne	April-03 Routine	June-03 Routine
Temperature	C°																								14.53	15.7
Conductivity	uS		643.25	2698.41	2330	363	369	353	307	309	322	300	327	316	445	400	300	289	472	316	281	287	266	270	279	341
pH	SU	6.5-8.5	7.63	8.36	7.3	7.71	7.74	8.18	7.94	8.07	8.31	8.21	8.27	8.67	7.77	7.57	7.91	7.2	8.42	7.76	7.81	7.44	7.55	7.41	8	7.97
Eh	mV		162.14	538.19	-16	-43	-40	-60	-45	-58	-67	-63	-69	-83	-44	-30	-47	205	-72	150	100	-40	-5	110	-134	-32
Turbidity (after purging well)	N.T.U	5	20.22	57.07	NA	4	20	18	5.5	2.7	3.8	13	1	3.6	3.3	6	2	2.5	4.45	3.65	3.09	2.86	12.2	2.82	1.5	16.1
LEACHATE INDICATORS:																										
Ammonia Nitrogen	mg/l	2	0.14	0.7	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.086	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.5	<0.5
BOD 5	mg/l		2.52	9.81	2.17	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	2.04	<2	<2	<2.0	<4	<4
Bromide	mg/l	2	0.43	1.8	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1.0	<0.2	<0.2
COD	mg/l		12.06	74.28	<5	<5	<5	<5	<5	<5	<5	<5	<5	6.05	<5	<5	5.31	7.5	<5	<5	<5	<5	<5	<5.0	30	20
Chloride	mg/l	250	26.28	47.64	15.2	15.7	14.2	13.6	14.2	12.8	10.6	9.15	8.77	8.05	7.82	7.42	7.25	9.1	7.67	7.6	7.45	5.69	8.17	6.37	5	6
Nitrate	mg/l	10	0.07	0.21	<0.05	<0.05	<0.05	<0.05	<0.5	<0.05	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.07	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2	<0.2
Sulfate	mg/l	250	12.37	19.99	8.68	10.5	7.18	17.4	18.5	17.8	12.7	16.6	16.8	16.6	19	20.3	19	19	17.6	18.6	17.9	16.6	19	17.8	18	12
Total Alkalinity	mg/l		178.5	215.8	155	152	151	146	145	142	140	136	129	133	133	132	134	130	130	130	129	136	125	120	130	120
Total Dissolved Solids	mg/l	500	236.88	308.2	207	219	197	188	206	186	186	189	178	175	171	175	177	188	176	177		174	169	165	190	180
Total Hardness	mg/l		205.25	347.46	161	164	160	154	160	165	151	151	150	158	145	156	143	132	129	133		348	144	126	120	110
Total Kjed. Nitrogen	mg/l		1.47	5.56		0.345	0.353	0.204	<0.2	<0.2	<0.2	<0.2	<0.2	0.325	<0.2	<0.2	REJECT	<1	<0.2	<0.2		<0.2	<0.2	<0.2	<0.5	<0.5
Total Organic Carbon	mg/l	500	3.63	10	2.3	1.25	1.1	<1	<1	1.2	1.32	1.02	1.05	1.34	1.15	1.35	1.28	1.1	1.41	1.15		<1	1.65	<1.0	<3	<3
Total Phenols	mg/l	0.001	0.002	0.006	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Color	P.C.U.	15	20.71	63.52	35					<5					5		5					<5				
Boron	mg/l	1	0.12	0.21	<0.2					<02					<0.2		<02					<0.2				
INORGANIC PARAMETERS:																										
Aluminum	mg/l	0.1	0.9	5.48	0.142					<0.1					REJECT		REJECT					<0.1				
Antimony	mg/l	0.003	0.04	0.07	<0.06					<0.06					<0.06		<0.06					<0.06				
Arsenic	mg/l	0.025	0.01	0.01	<0.01					<0.01					<0.01		<0.01					<0.01				
Barium	mg/l	1	0.06	0.09	0.0617					0.0564					0.0498		0.0464					0.0493				
Beryllium	mg/l	0.003	0.003	0.007	<0.005					<0.005					<0.005		<0.005					<0.005				
Cadmium	mg/l	0.01	0.004	0.012	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Calcium	mg/l		63.79	112.67	49.7	49	47.4	49.6	50.5	45.5	43.6	41.4	48.6	47.4	46.3	42.6	42.9	42	39.5	45.3	43.6	45	43.2	43.5	37.4	35
Chromium	mg/l		0.01	0.02	<0.01					<0.01					<0.01		<0.01					<0.01				
Hexavalent Chromium	mg/l	0.05	0.01	0.02	<0.01					<0.01					<0.01		<0.01					<0.01				
Cobalt	mg/l	0.005	0.02	0.09	<0.05					<0.05					<0.05		<0.05					<0.05				
Copper	mg/l	0.2	0.12	0.97	<0.02					<0.02					<0.02		<0.02					<0.02				
Total Cyanide	mg/l	0.1	0.01	0.01	<0.01					<0.01					<0.01		<0.01					<0.01				
Iron	mg/l	0.3	2.34	13.89	0.48	0.499	0.603	0.476	0.383	0.465	0.452	0.338	0.282	0.503	0.514	0.358	0.276	0.38	0.458	0.384	0.26	0.576	0.622	0.546	0.398	0.452
Lead	mg/l	0.025	0.01	0.02	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.003	0.00302
Magnesium	mg/l	35	11.07	16.92	8.24	8.41	8.41	7.6	7.6	8	7.35	7.41	7.46	7.88	7.65	7.17	7.23	6.7	726	7.34	6.98	7.46	7.02	7.36	6.9	6.48
Manganese	mg/l	0.3	0.25	0.65	0.167	0.156	0.151	0.153	0.153	0.154	0.144	0.151	0.175	0.211	0.153	0.152	0.158	0.15	0.163	0.16	0.148	0.201	0.192	0.158	0.129	0.139
Mercury	mg/l	0.002	0.0003	0.0005	<0.0003					<0.0003					<0.0003		<0.0003					<0.0002				
Nickel	mg/l	0.007	0.03	0.06	<0.04					<0.04					<0.04		<0.04					<0.04				
Potassium	mg/l		1.65	6.34	<2	<2	2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	0.6	<2	<2	<2	5	<5	<2.0	<1	<1
Selenium	mg/l	0.01	0.004	0.005	<0.005					<0.005					<0.005		<0.005					<0.005				
Silver	mg/l	0.05	0.01	0.03	<0.01					<0.01					<0.01		<0.01					<0.01				
Sodium	mg/l	20	18.81	28.06	14.4	12.4	12.2	9.88	11.8	10.3	9.14	8.57	8.1	8.33	7.55	8.27	7.77	8.6	5.74	7.78	8.26	7.96	7'.4	6.57	5.79	7.22
Thallium	mg/l	0.004	0.01	0.01	<0.01					<0.01					<0.01		<0.01					<0.01				
Vanadium	mg/l	0.014	0.02	0.09	<0.05					<0.05					<0.05		<0.05					<0.05				
Zinc	mg/l	0.3	0.03	0.12	0.0224					0.037					<0.02		<0.02					0.0265				

Notes:

1. Parameters listed are Part 360 Baseline or Routine Parameters Effective 1993.
2. Blanks indicate no analysis performed
3. "<" indicates not detected at the specified method detection limit (MDL)
4. Shaded values indicate detection above Standard.

Table G-1
Albany Interim Landfill Groundwater Analytical Monitoring Data
City of Albany Landfill - Proposed Eastern Expansion Project
Albany, New York
CHA Project No. 12206
MW-7I

TEST PARAMETER (mg/l unless otherwise noted)	Unit	TOGS Guidance Value	Mean (EWQV)	Mean (EWQV) Plus 3 Std. Dev.	Sep-03 Baseline	Dec-03 Routine	Mar-04 Routine	Jun-04 Routine	Sep-04 Routine	Dec-04 Baseline	Mar-05 Baseline	Jun-05 Routine	Sep-05 Routine	Dec-05 Routine	Mar-06 Routine	Jun-06 Baseline	Sep-06 Routine	Dec-06 Routine
Temperature	C°				15.47	13.4	13.64	15.78	15.14	13.75	15.34	16.12	15.55	13.6	14.51	16.35	16.42	14.91
Conductivity	uS		643.25	2698.41	294	236	297	300	304	301	290	295	282	342	270	198	194	253
pH	SU	6.5-8.5	7.63	8.36	8.36	8.27	7.93	8.14	8.11	8.10	8.06	7.98	8.21	8.05	7.31	8.22	8.22	8.1
Eh	mV		162.14	538.19	-100.7	-96	-53.7	-110.6	-120.9	-139.5	-41.6	-11	-49.6	-74	146.5	-98.5	-23.4	-78.7
Turbidity (after purging well)	N.T.U	5	20.22	57.07	10.3	19.6	17	7.9	29.9	8.04	11.6	7.95	15	9.4	15.9	7.73	3.41	13.3
LEACHATE INDICATORS:																		
Ammonia Nitrogen	mg/l	2	0.14	0.7	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	< 0.5	< 0.5	<0.5	<0.5	<0.5
BOD 5	mg/l		2.52	9.81	<4	<4	<4	<4	4	<4	<4		<4	< 4	<4	<4	6	<4
Bromide	mg/l	2	0.43	1.8	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2		<0.2	< 0.2	< 0.2	<0.2	<0.2	<0.2
COD	mg/l		12.06	74.28	<20	<20	<20	<20	<20	<20	<20	<20	<20	< 20	< 20	<20	<20	<0.2
Chloride	mg/l	250	26.28	47.64	7	7	<1	7	5.87	8.42	14.5	6.89	5.18	4.19	5.91	7.81	4.44	10.3
Nitrate	mg/l	10	0.07	0.21	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	< 0.2	< 0.2	0.99	<0.2	2.13
Sulfate	mg/l	250	12.37	19.99	16	21	<5	<5	26.7	25.6	14.9	18.8	15.2	20.8	12.3	16.2	14.5	9.63
Total Alkalinity	mg/l		178.5	215.8	140	140	100	140	130	240	120	120	140	110	96	210	140	190
Total Dissolved Solids	mg/l	500	236.88	308.2	200	240	490	172	172	648	168	60	160	182	230	160	197	235
Total Hardness	mg/l		205.25	347.46	110	130	58	119	137	141	130	130	117	147	129	108	102	108
Total Kjed. Nitrogen	mg/l		1.47	5.56	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	11.2		<0.5	< 0.5	< 0.5	<0.5	<0.5	<0.5
Total Organic Carbon	mg/l	500	3.63	10	<3	<3	<3	<3	<3	<3	6	<3	<3	< 3	< 3	<3	<3	3
Total Phenols	mg/l	0.001	0.002	0.006	<0.005	<0.005	0.01	<0.005	<0.005	<0.005	0.033	<0.005	<0.005	0.008	<0.005	<0.005	<0.005	<0.005
Color	P.C.U.	15	20.71	63.52	9					5	17					12		
Boron	mg/l	1	0.12	0.21	<0.5					<0.5	<0.5					<0.5		
INORGANIC PARAMETERS:																		
Aluminum	mg/l	0.1	0.9	5.48	<0.1					0.146	0.125					0.19		
Antimony	mg/l	0.003	0.04	0.07	<0.015					<0.015	<0.015					<0.015		
Arsenic	mg/l	0.025	0.01	0.01	<0.01					<0.010	<0.010					<0.010		
Barium	mg/l	1	0.06	0.09	<0.05					0.0515	<0.0515					<0.05		
Beryllium	mg/l	0.003	0.003	0.007	<0.003					<0.003	<0.003					<0.003		
Cadmium	mg/l	0.01	0.004	0.012	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	< 0.005	<0.005	<0.005	<0.005	<0.005
Calcium	mg/l		63.79	112.67	33.1	38.5	17.2	36.8	42.7	44.2	40.8	40	36.4	48.3	40.5	34.1	31.7	33.9
Chromium	mg/l		0.01	0.02	<0.005					<0.005	<0.005					<0.005		
Hexavalent Chromium	mg/l	0.05	0.01	0.02	<0.01					<0.010	<0.010					<0.010		
Cobalt	mg/l	0.005	0.02	0.09	<0.02					<0.020	<0.020					<0.02		
Copper	mg/l	0.2	0.12	0.97	0.0289					<0.010	0.0152					<0.010		
Total Cyanide	mg/l	0.1	0.01	0.01	<0.01					<0.010	<0.010					<0.010		
Iron	mg/l	0.3	2.34	13.89	0.491	0.487	0.239	0.486	0.837	0.55	0.545	0.61	0.478	0.348	0.734	0.901	0.378	0.426
Lead	mg/l	0.025	0.01	0.02	<0.003	<0.003	<0.003	0.00333	<0.003	<0.003	<0.003	<0.001	0.00362	< 0.003	0.00639	<0.003	<0.003	<0.003
Magnesium	mg/l	35	11.07	16.92	5.8	7.19	3.64	6.61	7.43	7.52	6.92	6.8	6.32	6.46	6.78	5.53	5.5	5.69
Manganese	mg/l	0.3	0.25	0.65	0.299	0.14	0.0559	0.132	0.143	0.131	0.137	0.16	0.159	0.0801	0.137	0.19	0.119	0.17
Mercury	mg/l	0.002	0.0003	0.0005	0.0008					<0.0002	<0.0002					<0.0002		
Nickel	mg/l	0.007	0.03	0.06	<0.03					<0.030	<0.030					<0.030		
Potassium	mg/l		1.65	6.34	<1.000	<1.000	1.05	<1	<1	1.9	<1	1.8	<1	1.25	0.98	<1	<1	<1
Selenium	mg/l	0.01	0.004	0.005	<0.005					0.00748	<0.005					0.00749		
Silver	mg/l	0.05	0.01	0.03	<0.01					<0.010	<0.010					<0.010		
Sodium	mg/l	20	18.81	28.06	5.58	7.93	15.9	7.31	7.59	7.62	7.82	9.8	8.06	6.72	8.65	6.97	7.71	6.39
Thallium	mg/l	0.004	0.01	0.01	<0.010					<0.010	<0.010					<0.010		
Vanadium	mg/l	0.014	0.02	0.09	<0.030					<0.030	<0.030					<0.030		
Zinc	mg/l	0.3	0.03	0.12	0.0154					0.0373	0.0151					0.0399		

Notes:

1. Parameters listed are Part 360 Baseline or Routine Parameters Effective 1993.
2. Blanks indicate no analysis performed
3. "<" indicates not detected at the specified method detection limit (MDL)
4. Shaded values indicate detection above Standard.

Table G-1
Albany Interim Landfill
Groundwater Analytical Data -Volatile Organic Compounds
City of Albany Landfill - Proposed Eastern Expansion Project
Albany, New York
CHA Project No. 12206
MW-7I

TEST PARAMETER (µg/l unless otherwise noted)	Unit	TOGS Guidance Value	Mean (EWQV)	Mean (EWQV) Plus 3 Std. Dev.	2Q97	3Q98	4Q99	2Q00	Sep-03	Dec-04	Mar-05	Jun-06
Organic Parameters												
Acetone	µg/l	50	13.5	23.56	<MDL	<MDL	<MDL	<MDL	<10	43	<10	<10
Acrylonitrile	µg/l	5	46.88	166.2	<MDL	<MDL	<MDL	<MDL	Reject	<100	<100	<100
Benzene	µg/l	0.7	2.58	7.44	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Bromochloromethane	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Bromodichloromethane	µg/l	50	2.63	7.28	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Bromoform	µg/l	50	2.63	7.28	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Carbon disulfide	µg/l	5	5.63	13.58	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Carbon tetrachloride	µg/l	5	2.63	7.28	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Chlorobenzene	µg/l	5	2.63	7.28	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Chloroethane	µg/l	5	3.09	10.05	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Chloroform	µg/l	7	2.63	7.28	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Dibromochloromethane	µg/l	50	2.63	7.28	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
1,2 Dibromo-3-chloropropane	µg/l	5	5.63	13.58	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
1,2 Dibromomethane	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
1,2 Dichlorobenzene (o)	µg/l		2.63	7.28	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
1,4 Dichlorobenzene (p)	µg/l	4.7	2.63	7.28	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
trans-1,2 Dichloro-2-butene	µg/l	5	5.63	13.58	<MDL	<MDL	<MDL	<MDL	<10	<10	<10	<10
1,1 Dichloroethane	µg/l	5	2.63	7.28	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
1,2 Dichloroethane	µg/l	5	2.63	7.28	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
1,1 Dichloroethene	µg/l	5	2.63	7.28	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
cis-1,3 Dichloroethene	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
trans-1,3 Dichloroethene	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
1,2 Dichloropropane	µg/l	5	2.63	7.28	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
cis-1,3 Dichloropropene	µg/l	5	2.63	7.26	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
trans-1,3 Dichloropropene	µg/l	5	2.63	7.26	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Ethylbenzene	µg/l	5	2.63	7.28	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
2-Hexanone	µg/l	50	7.5	7.5	<MDL	<MDL	<MDL	<MDL	<10	<10	<10	<10
Bromomethane	µg/l	5	3.09	10.05	<MDL	<MDL	<MDL	Reject	<5	<5	<5	<5
Chloromethane	µg/l	5	3.09	10.05	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Dibromomethane	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Methylene chloride	µg/l	5	2.63	7.02	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
2-Butanone	µg/l	50	7.5	7.5	<MDL	<MDL	<MDL	<MDL	<10	27	<10	<10
Methyl Iodide (Iodomethane)	µg/l	5	5.63	13.58	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
4-methyl-2-pentanone	µg/l	5	7.5	7.5	<MDL	<MDL	<MDL	<MDL	<10	<10	<10	<10
Styrene	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
1,1,1,2-Tetrachloroethane	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
1,1,2,2-Tetrachloroethane	µg/l	5	2.63	7.26	<MDL	<MDL	<MDL	Reject	<5	<5	<5	<5
Tetrachloroethene	µg/l	5	2.63	7.28	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Toluene	µg/l	5	2.63	7.28	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
1,1,1-Trichloroethene	µg/l	5	2.63	7.28	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
1,1,2-Trichloropropane	µg/l	5	1.95	6.88	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Trichloroethene	µg/l	5	2.63	7.28	<MDL	<MDL	<MDL	Reject	<5	<5	<5	<5
Trichlorofluoromethane	µg/l	5	2.63	7.28	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
1,2,3-Trichloropropane	µg/l	5	3.75	7.28	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Vinyl acetate	µg/l		7.5	7.5	<MDL	<MDL	<MDL	<MDL	<50	<50	<50	<50
Vinyl chloride	µg/l	2	3.09	10.05	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
M+P Xylene	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
o - Xylene	µg/l	5			<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5

Notes:

1. Parameters listed are Part 360 Baseline Volatile Organic Compounds Parameters Effective 1993.
2. Blanks indicate no analysis performed
3. "<" indicates not detected at the specified method detection limit (MDL)

Table G-1
Albany Interim Landfill Groundwater Analytical Monitoring Data
City of Albany Landfill - Proposed Eastern Expansion Project
Albany, New York
CHA Project No. 12206
MW-7D

TEST PARAMETER (mg/l unless otherwise noted)	Unit	TOGS Guidance Value	Mean (EWQV)	Mean (EWQV) Plus 3 Std. Dev.	2Q97 Bsln	3Q97 Rtne	4Q97 Rtne	1Q98 Rtne	2Q98 Rtne	3Q98 Bsln	4Q98 Rtne	1Q99 Rtne	2Q99 Rtne	3Q99 Rtne	4Q99 Bsln	1Q00 Rtne	2Q00 Rtne	3Q00 Rtne	4Q00 Rtne	1Q01 Rtne	2Q01 Rtne	3Q01 Bsln	4Q01 Rtne	1Q02 Rtne	April-03 Routine	June-03 Routine
Temperature	C°																								13.61	14.8
Conductivity	uS		405.38	1964.83	1671	189.8	193.9	208	174.7	179.4	180.8	186.6	201	201	289	281	207	177	274	192	185.4	194	266	183	201	264
pH	SU	6.5-8.5	8.47	11.28	7.18	8.46	8.55	9.15	9.02	8.84	8.4	9.02	8.91	8.65	8.12	8.04	8.31	7.8	8.91	8.27	8.27	7.17	7.81	7.97	8.31	7.97
Eh	mV		136	544.95	-10	-82	-81	-111	-88	-95	-7	-97	-106	-134	50	-57	-70	200	-95	250	125	55	-30	50	106.8	-6
Turbidity (after purging well)	N.T.U	5	59.57	205.59	NA	2.5	15	9.5	11	2.8	1.8	12	2	6.5	8.6	5.6	1.9	3.4	31.9	9.79	6.13	5.78	5.14	8.65	9.3	7.2
LEACHATE INDICATORS:																										
Ammonia Nitrogen	mg/l	2	15.76	148.18	0.119	0.119	0.127	<0.05	0.128	0.0704	0.103	0.0938	0.102	0.116	0.123	0.0878	0.0873	<0.1	0.0737	0.0859	<0.05	0.0749	0.0858	0.103	<0.5	<0.5
BOD 5	mg/l		1.69	3.28	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2.0	<4	<4
Bromide	mg/l	2	0.41	1.84	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1.0	<0.2	<0.2
COD	mg/l		7.31	23.89	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	6.23	<5	<5	<5	<5	<5	<5	<5.0	<20	<20
Chloride	mg/l	250	1.69	5.33	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	1.02	<2.0	<1	1
Nitrate	mg/l	10	0.08	0.35	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.02	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2	<0.2
Sulfate	mg/l	250	3.41	13.22	<2	<2	<2	2.07	2.3	2.45	<2	<2	<2	2.16	<2	2.8	2.51	2.2	2.11	<2	2.1	2.66	2.65	2.33	<5	<5
Total Alkalinity	mg/l		120.53	232.53	98.2	101	105	103	97.8	96.3	97.6	94.7	96.3	95.7	101	102	101	95	104	100	104	106	98	96.7	110	99
Total Disolved Solids	mg/l	500	161.75	437.31	125	0.118	87	103	126	117	120	118	105	111	114	112	113	115	112	113	112	113	115	108	130	110
Total Hardness	mg/l		81.48	184.49	55.2	56.2	60.3	55	83	59.6	54.2	55.8	67.3	58.5	60.6	71.7	57.8	71	88.4	80.8	60.5	59.7	62	56	53	48
Total Kjed. Nitrogen	mg/l		1.34	4.84		1.31	0.4	0.21	0.43	0.22	0.23	<0.2	0.35	0.34	<0.2	0.26	<0.3	<1	0.2	<0.2	<02	<0.2	<0.2	<0.2	<0.5	<0.5
Total Organic Carbon	mg/l	500	2.66	10.06	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	1.18	1.21	<1	<1	1.16	<1	<1	<1	1.24	<1.0	<3	<3
Total Phenols	mg/l	0.001	0.003	0.007	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.002	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Color	P.C.U.	15	11.41	48.17	<5					<5					5		<5					<5				
Boron	mg/l	1	0.1	0.27	<0.2					<0.2					<0.2		<0.2					<0.2				
INORGANIC PARAMETERS:																										
Aluminum	mg/l	0.1	2.77	18.68	0.155					0.225					REJECT		REJECT					0.324				
Antimony	mg/l	0.003	0.04	0.07	<0.06					<0.06					<0.06		<0.06					<0.06				
Arsenic	mg/l	0.025	0.01	0.02	<0.01					0.0116					0.0125		0.0147					0.0128				
Barium	mg/l	1	0.02	0.09	<0.02					<0.02					<0.02		<0.02					<0.02				
Beryllium	mg/l	0.003	0.003	0.007	<0.005					<0.005					<0.005		<0.005					<0.005				
Cadmium	mg/l	0.01	0.003	0.006	<0.005		<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Calcium	mg/l		18.28	47.08	16	16.2	15.8	17.3	24.1	15.5	14.8	13.6	16.5	17.9	18.3	15.6	16.6	22	25.5	18.2	17.3	17.7	17.3	17.1	15.5	14.1
Chromium	mg/l		0.01	0.01	<0.01					<0.01					<0.01		<0.01					<0.01				
Hexavalent Chromium	mg/l	0.05	0.01	0.02	<0.01					<0.01					<0.01		<0.01					<0.01				
Cobalt	mg/l	0.005	0.03	0.07	<0.05					<0.05					<0.05		<0.05					<0.05				
Copper	mg/l	0.2	0.03	0.09	<0.02					<0.02					<0.02		<0.02					<0.02				
Total Cyanide	mg/l	0.1	0.01	0.01	<0.01					<0.01					<0.01		<0.01					<0.01				
Iron	mg/l	0.3	3.56	23.62	0.288	0.213	0.578	0.601	1.52	0.352	0.155	0.18	0.3	0.221	0.673	0.308	0.187	0.11	2.72	0.357	0.495	0.4	0.402	0.225	<0.06	0.0991
Lead	mg/l	0.025	0.01	0.02	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.003	<0.003
Magnesium	mg/l	35	4.21	10.94	3.5	3.61	3.68	3.31	4.27	3.61	3.43	3.35	3.49	3.86	3.99	3.48	3.63	3.8	5.52	3.71	3.51	3.86	3.6	3.61	3.41	3.12
Manganese	mg/l	0.3	0.09	0.48	0.0288	0.0295	0.0327	0.0305	0.0668	0.0288	0.0235	0.0186	0.0242	0.0302	0.0413	0.0255	0.0231	0.02	0.109	0.0244	0.0249	0.0245	0.0279	0.0281	0.0147	0.0357
Mercury	mg/l	0.002	0.0003	0.0005	<0.0003					<0.0003					<0.0003		<0.0003					<0.0002				
Nickel	mg/l	0.007	0.57	5.18	<0.04					<0.04					<0.04		<0.04					<0:04				
Potassium	mg/l		2.08	9.04	2.25	<2	<2	4.98	<2	<2	<2	2.18	<2	<2	<2	<2	<2	1.1	<2	<2	<2	5	<5	<2.0	<1	1.33
Selenium	mg/l	0.01	0.004	0.005	<0.005					<0.005					<0.005		<0.005					<0.005				
Silver	mg/l	0.05	0.01	0.03	<0.01					<0.01					<0.01		<0.01					<0.01				
Sodium	mg/l	20	19.88	55.53	22.6	17.6	18.2	18.5	20.8	21	17.1	17.8	17.8	17.7	17	19.6	18.9	17	19.5	19.8	18.6	18.2	16.7	16.7	15.7	18.2
Thallium	mg/l	0.004	0.01	0.01	<0.01					<0.01					<0.01		<0.01					<0.01				
Vanadium	mg/l	0.014	2.26	8.38	<0.05					<0.05					<0.05		<0.05					<0.05				
Zinc	mg/l	0.3	0.03	0.1	0.0162					<0.04					<0.02		<0.02					<0.02				

Notes:

1. Parameters listed are Part 360 Baseline or Routine Parameters Effective 1993.
2. Blanks indicate no analysis performed
3. "<" indicates not detected at the specified method detection limit (MDL)
4. Shaded values indicate detection above Standard.

Table G-1
Albany Interim Landfill Groundwater Analytical Monitoring Data
City of Albany Landfill - Proposed Eastern Expansion Project
Albany, New York
CHA Project No. 12206
MW-7D

TEST PARAMETER (mg/l unless otherwise noted)	Unit	TOGS Guidance Value	Mean (EWQV)	Mean (EWQV) Plus 3 Std. Dev.	Sep-03 Baseline	Dec-03 Routine	Mar-04 Routine	Jun-04 Routine	Sep-04 Routine	Dec-04 Baseline	Mar-05 Baseline	Jun-05 Routine	Sep-05 Routine	Dec-05 Routine	Mar-06 Routine	Jun-06 Baseline	Sep-06 Routine	Dec-06 Routine
Temperature	C°				13.89	12.6	11.88	14.54	13.36	12.43	13.93	14.5	14.09	12.6	12.15	14.44	14.28	12.72
Conductivity	uS		405.38	1964.83	191	144	188	205	200	232	187	205	205	327	176	131	131	178
pH	SU	6.5-8.5	8.47	11.28	9.01	8.55	8.1	8.13	8.74	8.40	8.32	8.08	8.46	7.99	7.73	8.3	8.95	8.29
Eh	mV		136	544.95	-37.1	-110	-53.1	-59.3	-122.8	-135.1	36.7	-30	-59.5	-63	120.5	-106.3	23.3	-50.5
Turbidity (after purging well)	N.T.U	5	59.57	205.59	32.5	42.2	21	36.1	10.7	8.22	27.5	14.5	15.1	1.46	2.42	2.76	1.57	12.8
LEACHATE INDICATORS:																		
Ammonia Nitrogen	mg/l	2	15.76	148.18	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	5.66	< 0.5	<0.5	<0.5	<0.5
BOD 5	mg/l		1.69	3.28	<4	<4	<4	<4	17	<4	<4		<4	< 4	<4	<4	<6	<4
Bromide	mg/l	2	0.41	1.84	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.20		<0.2	< 0.2	< 0.2	<0.2	<0.2	<0.2
COD	mg/l		7.31	23.89	<20	<20	<20	<20	<20	<20	<20	<20	<20	< 20	< 20	<20	<20	<20
Chloride	mg/l	250	1.69	5.33	<1	<1	6	<1	1.28	2.55	7.4	2.3	3.15	1.23	1.03	1.43	1.03	1.81
Nitrate	mg/l	10	0.08	0.35	<0.2	<0.2	<0.2	<0.2	0.4	<0.2	<0.2	<0.2	<0.2	2.5	< 0.2	<0.2	<0.2	<0.2
Sulfate	mg/l	250	3.41	13.22	<5	<5	18	<5	11.4	5.18	<5	24.9	<5	< 5	<5	<5	<5	<5
Total Alkalinity	mg/l		120.53	232.53	110	110	130	110	100	160	99	80	88	190	91	110	100	110
Total Disolved Solids	mg/l	500	161.75	437.31	140	95	210	100	80	615	120	<25	65	165	162	95	72	115
Total Hardness	mg/l		81.48	184.49	48	52	120	58.6	55.6	54	56	51	52	50.3	54.5	48.5	52.9	47.6
Total Kjed. Nitrogen	mg/l		1.34	4.84	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5		<0.5	< 0.5	< 0.5	<0.5	<0.5	<0.5
Total Organic Carbon	mg/l	500	2.66	10.06	<3	<3	<3	<3	<3	<3	<3	<3	<3	< 3	< 3	<3	<3	<3
Total Phenols	mg/l	0.001	0.003	0.007	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.012	<0.005	<0.005	0.006	<0.005	<0.005	<0.005	<0.005
Color	P.C.U.	15	11.41	48.17	11					5	10					<5		
Boron	mg/l	1	0.1	0.27	<0.5					<0.5	<0.5					<0.5		
INORGANIC PARAMETERS:																		
Aluminum	mg/l	0.1	2.77	18.68	0.1					<0.1	0.112					<0.1		
Antimony	mg/l	0.003	0.04	0.07	0.015					<0.015	<0.015					<0.015		
Arsenic	mg/l	0.025	0.01	0.02	0.0118					<0.010	<0.010					0.01		
Barium	mg/l	1	0.02	0.09	0.05					<0.050	<0.050					<0.050		
Beryllium	mg/l	0.003	0.003	0.007	0.003					<0.003	<0.003					<0.003		
Cadmium	mg/l	0.01	0.003	0.006	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	< 0.005	<0.005	<0.005	<0.005	<0.005
Calcium	mg/l		18.28	47.08	14.3	15.3	38.6	17.5	16.4	16	16.6	15	15.3	14.8	15.9	14.2	15.6	14
Chromium	mg/l		0.01	0.01	0.005					<0.005	<0.005					<0.005		
Hexavalent Chromium	mg/l	0.05	0.01	0.02	<0.01					<0.010	<0.010					<0.010		
Cobalt	mg/l	0.005	0.03	0.07	0.02					<0.020	<0.020					<0.020		
Copper	mg/l	0.2	0.03	0.09	0.028					<0.010	0.0105					<0.010		
Total Cyanide	mg/l	0.1	0.01	0.01	<0.01					<0.010	<0.010					<0.010		
Iron	mg/l	0.3	3.56	23.62	0.209	0.127	0.627	0.33	0.232	0.141	0.161	0.1	0.0894	< 0.06	0.052	0.0842	0.072	<0.06
Lead	mg/l	0.025	0.01	0.02	0.003	<0.003	<0.003	0.00701	<0.003	<0.003	<0.003	<0.001	<0.003	< 0.003	< 0.003	<0.003	<0.003	<0.003
Magnesium	mg/l	35	4.21	10.94	2.93	3.42	6.84	3.63	3.56	3.43	3.51	3.2	3.32	3.23	3.59	3.17	3.42	3.07
Manganese	mg/l	0.3	0.09	0.48	0.053	0.0556	0.139	0.0562	0.0474	0.0447	0.0503	0.042	0.0434	0.0434	0.0446	0.042	0.0497	0.0416
Mercury	mg/l	0.002	0.0003	0.0005	0.0029					<0.0002	<0.0002					<0.0002		
Nickel	mg/l	0.007	0.57	5.18	0.03					<0.030	<0.030					<0.030		
Potassium	mg/l		2.08	9.04	1	<1.0	<1	<1	<1	<1	<1	1	<1	< 1	< 1	<1	<1	<1
Selenium	mg/l	0.01	0.004	0.005	0.005					<0.005	<0.005					<0.005		
Silver	mg/l	0.05	0.01	0.03	0.481					<0.010	<0.010					<0.010		
Sodium	mg/l	20	19.88	55.53	12.7	15.1	7.02	17.1	15.6	14.5	16.1	18	17.5	16.5	17.7	15	17.3	14.1
Thallium	mg/l	0.004	0.01	0.01	0.01					<0.010	<0.010					<0.010		
Vanadium	mg/l	0.014	2.26	8.38	0.03					<0.030	<0.030					<0.030		
Zinc	mg/l	0.3	0.03	0.1	0.0224					0.0296	<0.010					0.0117		

Notes:

1. Parameters listed are Part 360 Baseline or Routine Parameters Effective 1993.
2. Blanks indicate no analysis performed
3. "<" indicates not detected at the specified method detection limit (MDL)
4. Shaded values indicate detection above Standard.

Table G-1
Albany Interim Landfill
Groundwater Analytical Data -Volatile Organic Compounds
City of Albany Landfill - Proposed Eastern Expansion Project
Albany, New York
CHA Project No. 12206
MW-7D

TEST PARAMETER (µg/l unless otherwise noted)	Unit	TOGS Guidance Value	Mean (EWQV)	Mean (EWQV) Plus 3 Std. Dev.	2Q97	3Q98	4Q99	2Q00	Sep-03	Dec-04	Mar-05	Jun-06
Organic Parameters									<11 U			
Acetone	µg/l	50	13.5	23.56	<MDL	<MDL	<MDL	<MDL	<11 U	<10	<10	<10
Acrylonitrile	µg/l	5	46.88	166.2	<MDL	<MDL	<MDL	<MDL	Rejected	<100	<100	<100
Benzene	µg/l	0.7	2.58	7.44	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Bromochloromethane	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Bromodichloromethane	µg/l	50	2.63	7.28	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Bromoform	µg/l	50	2.63	7.28	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Carbon disulfide	µg/l	5	5.63	13.58	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Carbon tetrachloride	µg/l	5	2.63	7.28	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Chlorobenzene	µg/l	5	2.63	7.28	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Chloroethane	µg/l	5	3.09	10.05	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Chloroform	µg/l	7	2.63	7.28	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Dibromochloromethane	µg/l	50	2.63	7.28	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
1,2 Dibromo-3-chloropropane	µg/l	5	5.63	13.58	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
1,2 Dibromomethane	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
1,2 Dichlorobenzene (o)	µg/l		2.63	7.28	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
1,4 Dichlorobenzene (p)	µg/l	4.7	2.63	7.28	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
trans-1,2 Dichloro-2-butene	µg/l	5	5.63	13.58	<MDL	<MDL	<MDL	<MDL	<10	<10	<10	<10
1,1 Dichloroethane	µg/l	5	2.63	7.28	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
1,2 Dichloroethane	µg/l	5	2.63	7.28	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
1,1 Dichloroethene	µg/l	5	2.63	7.28	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
cis-1,3 Dichloroethene	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
trans-1,3 Dichloroethene	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
1,2 Dichloropropane	µg/l	5	2.63	7.28	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
cis-1,3 Dichloropropene	µg/l	5	2.63	7.26	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
trans-1,3 Dichloropropene	µg/l	5	2.63	7.26	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Ethylbenzene	µg/l	5	2.63	7.28	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
2-Hexanone	µg/l	50	7.5	7.5	<MDL	<MDL	<MDL	<MDL	<10	<10	<10	<10
Bromomethane	µg/l	5	3.09	10.05	<MDL	<MDL	<MDL	Reject	<5	<5	<5	<5
Chloromethane	µg/l	5	3.09	10.05	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Dibromomethane	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Methylene chloride	µg/l	5	2.63	7.02	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
2-Butanone	µg/l	50	7.5	7.5	<MDL	<MDL	<MDL	<MDL	<10	<10	<10	<10
Methyl Iodide (Iodomethane)	µg/l	5	5.63	13.58	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
4-methyl-2-pentanone	µg/l	5	7.5	7.5	<MDL	<MDL	<MDL	<MDL	<10	<10	<10	<10
Styrene	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
1,1,1,2-Tetrachloroethane	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
1,1,2,2-Tetrachloroethane	µg/l	5	2.63	7.26	<MDL	<MDL	<MDL	Reject	<5	<5	<5	<5
Tetrachloroethene	µg/l	5	2.63	7.28	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Toluene	µg/l	5	2.63	7.28	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
1,1,1-Trichloroethene	µg/l	5	2.63	7.28	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
1,1,2-Trichloropropane	µg/l	5	1.95	6.88	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Trichloroethene	µg/l	5	2.63	7.28	<MDL	<MDL	<MDL	Reject	<5	<5	<5	<5
Trichlorofluoromethane	µg/l	5	2.63	7.28	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
1,2,3-Trichloropropane	µg/l	5	3.75	7.28	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Vinyl acetate	µg/l		7.5	7.5	<MDL	<MDL	<MDL	<MDL	<50	<50	<50	<50
Vinyl chloride	µg/l	2	3.09	10.05	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
M+P Xylene	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
o - Xylene	µg/l	5			<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5

Notes:

1. Parameters listed are Part 360 Baseline Volatile Organic Compounds Parameters Effective 1993.
2. Blanks indicate no analysis performed
3. "<" indicates not detected at the specified method detection limit (MDL)

Table G-1
Albany Interim Landfill Groundwater Analytical Monitoring Data
City of Albany Landfill - Proposed Eastern Expansion Project
Albany, New York
CHA Project No. 12206
MW-9S

TEST PARAMETER (mg/l unless otherwise noted)	Unit	TOGS Guidance Value	Mean (EWQV)	Mean (EWQV) Plus 3 Std. Dev.	3Q98 Expnd	3Q98 Bsln	1Q99 Bsln	4Q99 Bsln	2Q00 Bsln	3Q00 Rtne	4Q00 Rtne	1Q01 Rtne	2Q01 Rtne	3Q01 Bsln	4Q01 Rtne	1Q02 Rtne	April-03 Routine	June-03 Routine	Sep-03 Baseline	Dec-03 Routine	Mar-04 Routine	Jun-04 Routine
Temperature	C°		15.13	29.39	20	15	8.7	16.8	13.8		5.3	8.9	22.5	17.8	12.5	10.1	9.81	12.2	15.73	12.59	10.21	14.14
Conductivity	uS		938.75	1987.78	600	680	1295	1180	951	1151	20.2	1886	1336	966	818	706	1698	213	3403	2834	4357	3341
pH	SU	6.5-8.5	7.73	8.85	8	7.8	7.19	7.94	6.92	6.4	7.22	6.35	6.35	6.29	6.95	6.87	6.03	6.57	6.26	6.41	6.41	6.42
Eh	mV		-44.75	23.28	-80	-80	-12	-47	11	275	-8	125	20	OR	455	-60	100.9	20	-7	16.5	-9.8	-18.3
Turbidity (after purging well)	N.T.U	5	405.2	1253.24	188.8	282	330	820	240	>1000	3780	502	1350	856		453	17	633	NR	1000	130	249
LEACHATE INDICATORS:																						
Ammonia Nitrogen	mg/l	2	1.05	2.32	1.5	1.3	0.575	0.833	0.483	0.04	0.299	0.334	0.345	0.581	0.561	0.336	<0.5	0.6	0.6	0.9	<0.5	<0.5
BOD 5	mg/l		3	9.36	6	<4	<2	<2	<2	3	2.83	<2	<2	<2	<2	<0.05	<4	<4	6	<4	<4	4.8
Bromide	mg/l	2	0.45	1.49	<0.2	<0.2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<2.0	<0.2	<0.2	<2	<2	<0.2	<0.2
COD	mg/l		79.5	208.06	140	41	60.6	76.4	66.4	112	169	155	87.3	84.9	63.2	49.5	36	<20	140	<20	<20	68
Chloride	mg/l	250	236	439.07	330	170	231	213	180	316	416	508	385	234	192	164	280	370	870	1200	1300	833
Nitrate	mg/l	10	0.52	10	0.4	0.6	<0.5	0.704	1	0.98	2.19	1.94	1.55	<0.5	0.595	1.09	5.6	5	3.7	2.7	3.3	1.5
Sulfate	mg/l	250	83.38	120.82	96	67	81.2	89.3	58.3	114	91	94.8	150	95.8	101	80.3	62	83	190	310	140	122.4
Total Alkalinity	mg/l		147	352.84	230	62	150	146	126	90	100	76.3	71	88	89.6	112	150	180	170	180	110	310
Total Dissolved Solids	mg/l	500	702.25	1219.44	950	550	659	650	526	745	1010	1070	849	645	588	507	850	990	2200	2500	2600	2030
Total Hardness	mg/l		220.13	732.51	379	132	346	23.5	204	238	440	248	163	193	225	170	200	250	310	260	260	186
Total Kjed. Nitrogen	mg/l		2.77	7.24	4.9	1.8	1.68	2.68	2.05	3.9	3.16	2.91	2.37	10.7	1.76	1.59	1.7	1.2	3.4	2.5	1.6	1.58
Total Organic Carbon	mg/l	500	1910	47.92	16	9	19.45	31.95	29	117	61.83	15.68	32.95	38.23	21.2	21.5	43	10	15	15	25	20.7
Total Phenols	mg/l	0.001	0.004	0.004	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Color	P.C.U.	15	63.5	218.78	140	29	35	50	120					80					650			
Boron	mg/l	1	0.14	0.33	0.1	0.1	<0.2	0.228	<0.2					<0.4					0.6			
INORGANIC PARAMETERS:																						
Aluminum	mg/l	0.1	12.28	39.86	25.7	4.81	9.38	9.24	REJECT					8.23					4.43			
Antimony	mg/l	0.003	0.03	0.09	<0.015	<0.015	<0.06	<0.06	<0.06					<0.12					<0.015			
Arsenic	mg/l	0.025	0.03	0.07	0.0446	0.0112	0.0231	0.0333	0.0279					0.0284					0.016			
Barium	mg/l	1	0.18	0.5	0.337	0.093	0.151	0.151	0.106					0.137					0.187			
Beryllium	mg/l	0.003	0.01	0.02	0.0107	<0.003	<0.005	<0.005	<0.005					<0.01					<0.003			
Cadmium	mg/l	0.01	0.01	0.01	0.0094	<0.005	<0.005	<0.005	<0.005	<0.005	0.0147	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	0.0153	0.00562	0.00572	<0.005	<0.005
Calcium	mg/l		78.33	174.4	116	40.1	88.5	68.7	70.6	79	112	77.4	54.2	60.3	57.4	51.7	64.6	78.8	102	86.2	85.9	59.2
Chromium	mg/l		0.04	0.12	0.072	0.0166	0.0218	0.0464	0.0653					0.0275					0.0126			
Hexavalent Chromium	mg/l	0.05	0.01	0.01	<0.01	<0.01		<0.01	<0.01					<0.01					<0.01			
Cobalt	mg/l	0.005	0.03	0.06	0.0216	<0.02	<0.05	<0.05	<0.05					<0.1					0.02			
Copper	mg/l	0.2	0.04	0.14	0.0902	0.03	<0.02	<0.02	<0.02					<0.04					0.01			
Total Cyanide	mg/l	0.1	0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01					0.011					<0.01			
Iron	mg/l	0.3	76.1	177.35	49.8	46	93.6	115	95.2	99.5	2890	43.7	73.2	110	44.1	60.6	19.5	53.2	105	96.4	15.6	19.9
Lead	mg/l	0.025	0.01	0.07	0.0438	0.0047	<0.005	0.0072	0.0066	0.009	0.0315	<0.005	<0.005	<0.01	<0.005	0.00556	<0.003	<0.003	<0.003	<0.003	<0.003	0.00955
Magnesium	mg/l	35	13.96	31.61	21.8	7.64	14	12.4	13.8	10	13.9	13.9	9.94	11.4	10.7	9.8	10.5	13.3	13.8	10.6	11.9	9.35
Manganese	mg/l	0.3	1.15	2.5	1.64	0.585	1.34	1.04	0.771	0.67	0.658	0.6	0.466	0.552	0.475	0.39	0.334	0.617	0.382	0.202	0.177	0.137
Mercury	mg/l	0.002	0.0002	0.0003	<0.0002	<0.0002	<0.0003	<0.0003	<0.0003					<0.0002					0.0014			
Nickel	mg/l	0.007	0.04	0.07	0.0497	0.0421	<0.04	<0.04	<0.04					<0.08					<0.03			
Potassium	mg/l		16.98	36.1	25.4	10.2	17.5	14.8	13.6	21	9.34	10.9	10.9	15.1	12.2	9.51	10.8	9.92	15.4	14.1	14.3	9.75
Selenium	mg/l	0.01	4	0.004	<0.005	<0.005	<0.005	<0.005	<0.005					<0.01					<0.005			
Silver	mg/l	0.05	0.01	0.01	REJECT	<0.01	<0.01	<0.01	<0.01					<0.02					<0.01			
Sodium	mg/l	20	98.53	176.36	112	60.1	116	106	99.5	77	223	270	224	115	113	104	209	179	230	245	628	483
Thallium	mg/l	0.004	0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01					<0.02					<0.010			
Vanadium	mg/l	0.014	0.11	0.28	0.185	0.0466	0.0841	0.108	0.0888					<0.1					0.0332			
Zinc	mg/l	0.3	0.11	0.37	0.236	0.0797	0.0529	0.0552	0.0506					0.0484					0.0323			

Notes:

1. Parameters listed are Part 360 Baseline or Routine Parameters Effective 1993.
2. Blanks indicate no analysis performed
3. "<" indicates not detected at the specified method detection limit (MDL)
4. Shaded values indicate detection above Standard.

Table G-1
Albany Interim Landfill Groundwater Analytical Monitoring Data
City of Albany Landfill - Proposed Eastern Expansion Project
Albany, New York
CHA Project No. 12206
MW-9S

TEST PARAMETER (mg/l unless otherwise noted)	Unit	TOGS Guidance Value	Mean (EWQV)	Mean (EWQV) Plus 3 Std. Dev.	Sep-04 Routine	Dec-04	Mar-05 Baseline	Jun-05 Routine	Sep-05 Routine	Dec-05 Routine	Mar-06 Routine	Jun-06 Baseline	Sep-06 Routine	Dec-06 Routine
Temperature	C°		15.13	29.39	16.35	12.83	11.63	14.4	18.34	14.9	10.49	16.04	18.5	15.62
Conductivity	uS		938.75	1987.78	5590	5721	3082	4550	4150	340	1725	1392	1215.6	1660
pH	SU	6.5-8.5	7.73	8.85	7.13	6.53	6.73	6.42	6.96	6.61	6.24	7.2	5.85	6.7
Eh	mV		-44.75	23.28	-135.6	-200.5	-105.2	23	18.4	9	165.6	-106.3	11.3	67.8
Turbidity (after purging well)	N.T.U	5	405.2	1253.24	288	260	235	44.8	147	4.8	73	122	129	102
LEACHATE INDICATORS:														
Ammonia Nitrogen	mg/l	2	1.05	2.32	<0.5	<0.5	<0.5	12.8	0.823	< 0.5	< 0.5	0.977	0.758	<0.5
BOD 5	mg/l		3	9.36	<4	<4	<4	14	4	4	6	9	5	<4
Bromide	mg/l	2	0.45	1.49	<0.2	<2.0	<2.0	<2	<2	< 2	< 0.2	<0.20	<2	<2df
COD	mg/l		79.5	208.06	79	64	205	67	<40	48	42	43	33	43
Chloride	mg/l	250	236	439.07	1220	3110	995	715	1710	700	427	340	354	281
Nitrate	mg/l	10	0.52	10	0.7	0.69	0.24	0.55	<0.2	1.1	3.3	3.3	3	3.74
Sulfate	mg/l	250	83.38	120.82	73.4	232	107	86.2	245	85.6	150	108	112	132
Total Alkalinity	mg/l		147	352.84	430	440	340	85	320	290	250	120	220	200
Total Dissolved Solids	mg/l	500	702.25	1219.44	2850	3230	1950	1250	3630	1740	1070	1040	1080	998
Total Hardness	mg/l		220.13	732.51	270	510	462	462	630	223	317	215	281	339
Total Kjed. Nitrogen	mg/l		2.77	7.24	1.26	<0.5	4.61	27.8	1.32	< 0.5	< 0.5	1.97	18.1	<0.5
Total Organic Carbon	mg/l	500	1910	47.92	28	18	21	22	21	20	14	13	16	13
Total Phenols	mg/l	0.001	0.004	0.004	<0.005	0.031	0.009	<0.005	<0.005	< 0.005	< 0.005	0.006	<0.005	<0.005
Color	P.C.U.	15	63.5	218.78		150	300					28		
Boron	mg/l	1	0.14	0.33		<0.5	<0.5					<0.5		
INORGANIC PARAMETERS:														
Aluminum	mg/l	0.1	12.28	39.86		6.08	3.21					3.01		
Antimony	mg/l	0.003	0.03	0.09		0.0251	<0.015					<0.015		
Arsenic	mg/l	0.025	0.03	0.07		<0.010	<0.010					<0.010		
Barium	mg/l	1	0.18	0.5		0.187	0.176					0.0861		
Beryllium	mg/l	0.003	0.01	0.02		<0.003	<0.003					<0.003		
Cadmium	mg/l	0.01	0.01	0.01	0.00649	0.0058	<0.005	<0.005	<0.005	< 0.005	< 0.005	<0.005	<0.005	<0.005
Calcium	mg/l		78.33	174.4	87.1	167	151	152	206	72.5	104	70.5	89.8	109
Chromium	mg/l		0.04	0.12		0.0542	0.0231					<0.005		
Hexavalent Chromium	mg/l	0.05	0.01	0.01		<0.010	<0.010					<0.010		
Cobalt	mg/l	0.005	0.03	0.06		<0.020	<0.020					<0.020		
Copper	mg/l	0.2	0.04	0.14		0.0146	0.0314					0.0125		
Total Cyanide	mg/l	0.1	0.01	0.01		<0.010	<0.010					<0.010		
Iron	mg/l	0.3	76.1	177.35	31.5	22.5	22.1	5.35	6.23	6.84	4.52	8.4	5.24	4.96
Lead	mg/l	0.025	0.01	0.07	0.00795	0.0101	0.00316	<0.003	0.00596	< 0.003	<0.003	<0.003	<0.003	<0.003
Magnesium	mg/l	35	13.96	31.61	12.7	22.7	20.5	20.1	28.2	10.1	14.1	9.51	13.9	16.4
Manganese	mg/l	0.3	1.15	2.5	0.163	0.244	0.281	0.232	0.363	0.192	0.322	0.255	0.323	0.351
Mercury	mg/l	0.002	0.0002	0.0003		<0.0002	<0.0002					<0.0002		
Nickel	mg/l	0.007	0.04	0.07		<0.030	<0.030					<0.030		
Potassium	mg/l		16.98	36.1	12.1	12.8	16	37.1	36	20.3	13.4	9.83	15.3	11.8
Selenium	mg/l	0.01	4	0.004		<0.005	<0.005					0.0106		
Silver	mg/l	0.05	0.01	0.01		<0.010	<0.010					<0.010		
Sodium	mg/l	20	98.53	176.36	593	692	568	601	799	500	262	219	250	215
Thallium	mg/l	0.004	0.01	0.01		<0.010	0.0108					<0.010		
Vanadium	mg/l	0.014	0.11	0.28		0.058	0.0366					<0.030		
Zinc	mg/l	0.3	0.11	0.37		0.0714	0.0363					<0.0381		

Notes:

1. Parameters listed are Part 360 Baseline or Routine Parameters Effective 1993.
2. Blanks indicate no analysis performed
3. "<" indicates not detected at the specified method detection limit (MDL)
4. Shaded values indicate detection above Standard.

Table G-1
Albany Interim Landfill
Groundwater Analytical Data -Volatile Organic Compounds
City of Albany Landfill - Proposed Eastern Expansion Project
Albany, New York
CHA Project No. 12206
MW-9S

TEST PARAMETER (µg/l unless otherwise noted)	Unit	TOGS Guidance Value	Mean (EWQV)	Mean (EWQV) Plus 3 Std. Dev.	Aug-98	Oct-98	Mar-99	Oct-99	Sep-03	Dec-04	Mar-05	Jun-06
Organic Parameters												
Acetone	µg/l	50	11.25	24.24	<MDL	<MDL	<MDL	<MDL	<17	<10	<10	<10
Acrylonitrile	µg/l	5	75	75	<MDL	<MDL	<MDL	<MDL	Rejected	<100	<100	<100
Benzene	µg/l	0.7	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Bromochloromethane	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Bromodichloromethane	µg/l	50	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Bromoform	µg/l	50	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Carbon disulfide	µg/l	5	5.63	12.12	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Carbon tetrachloride	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Chlorobenzene	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Chloroethane	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Chloroform	µg/l	7	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	2 J
Dibromochloromethane	µg/l	50	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
1,2 Dibromo-3-chloropropane	µg/l	5	4.69	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
1,2 Dibromomethane	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
1,2 Dichlorobenzene (o)	µg/l		3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
1,4 Dichlorobenzene (p)	µg/l	4.7	3.75	12.12	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
trans-1,2 Dichloro-2-butene	µg/l	5	5.63	3.75	<MDL	<MDL	<MDL	Reject	<10	<10	<10	<10
1,1 Dichloroethane	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
1,2 Dichloroethane	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
1,1 Dichloroethene	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
cis-1,3 Dichloroethene	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
trans-1,3 Dichloroethene	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
1,2 Dichloropropane	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
cis-1,3 Dichloropropene	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
trans-1,3 Dichloropropene	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Ethylbenzene	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
2-Hexanone	µg/l	50	7.5	7.5	<MDL	<MDL	<MDL	<MDL	<10	<10	<10	<10
Bromomethane	µg/l	5	3.75	3.75	<MDL	<MDL	Reject	<MDL	<5	<5	<5	<5
Chloromethane	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Dibromomethane	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Methylene chloride	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
2-Butanone	µg/l	50	7.5	7.5	<MDL	<MDL	<MDL	<MDL	<10	<10	<10	<10
Methyl Iodide (Iodomethane)	µg/l	5	5.63	12.12	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
4-methyl-2-pentanone	µg/l	5	7.5	7.5	<MDL	<MDL	<MDL	<MDL	<10	<10	<10	<10
Styrene	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
1,1,1,2-Tetrachloroethane	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
1,1,2,2-Tetrachloroethane	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Tetrachloroethene	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Toluene	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
1,1,1-Trichloroethene	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
1,1,2-Trichloropropane	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Trichloroethene	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Trichlorofluoromethane	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
1,2,3-Trichloropropane	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Vinyl acetate	µg/l		22.5	74.46	<MDL	<MDL	<MDL	<MDL	<50	<50	<50	<50
Vinyl chloride	µg/l	2	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
M+P Xylene	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
o - Xylene	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5

Notes:

1. Parameters listed are Part 360 Baseline Volatile Organic Compounds Parameters Effective 1993.
2. Blanks indicate no analysis performed
3. "<" indicates not detected at the specified method detection limit (MDL)

Table G-1
Albany Interim Landfill Groundwater Analytical Monitoring Data
City of Albany Landfill - Proposed Eastern Expansion Project
Albany, New York
CHA Project No. 12206
MW-9I

TEST PARAMETER (mg/l unless otherwise noted)	Unit	TOGS Guidance Value	Mean (EWQV)	Mean (EWQV) Plus 3 Std. Dev.	3Q98 Expnd	4Q98 Bsln	1Q99 Bsln	4Q99 Bsln	2Q00 Bsln	3Q00 Rtne	4Q00 Rtne	1Q01 Rtne	2Q01 Rtne	3Q01 Bsln	4Q01 Rtne	April-03 Routine	June-03 Routine	Sep-03 Baseline	Dec-03 Routine	Mar-04 Routine	Jun-04 Routine
Temperature	C°		14.73	26.31	20	13	11	14.9	15.5		-31	11	20.1	17.1	12.5	14.12	15.1	15.37	12.96	14.03	16.4
Conductivity	uS		426.8	1825.46	800	860	22.7	24.5	23.9	2160	26.3	26.4	24	233	1818	2414	277	2212	1564	1973	1916
pH	SU	6.5-8.5	7.51	8.3	7.4	7.2	7.65	7.79	7.49	7.2	7.62	7.32	7.22	7.27	7.27	7.28	7.19	7.51	7.53	7.36	7.34
Eh	mV		-10.25	96.11	25	15	-35	-46	-24	213	-31	-45	OR	OR	OR	-104.1	-71	-132.9	-111.1	-96.6	-136.6
Turbidity (after purging well)	N.T.U	5	118.4	469.35	293	74.6	60	46	68	96	107	114	133	134	98.3	0	15	9.06	12.4	9.2	10.3
LEACHATE INDICATORS:																					
Ammonia Nitrogen	mg/l	2	57.37	158.96	70	19		83.1	80.9	65	68.2	65.4	69.2	82	91.2	43	53	55	31	42	41.2
BOD 5	mg/l		7.34	23.46	<4	15	4.34	7.02	4.78	17	11.3	. 4.27	3.77	>18	9.45	10	7	12	8	6	4
Bromide	mg/l	2	1.5	6.2	<0.2	<0.2	3.01	2.7	3.44	3.2	2.77	3.07	3.38	2.28	2.65	0.3	2.4	<0.2	<0.2	2.1	<0.2
COD	mg/l		147.5	212.88	140	120	165	165	150	126	149	155	148	162	193	130	110	130	100	96	89
Chloride	mg/l	250	479.75	766.17	620	450	443	406	432	449	380	438	463	448	418	390	400	460	330	320	319
Nitrate	mg/l	10	0.26	0.65	<0.2	<0.2	<0.5	<0.5	<0.5	<0.02	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2	<0.2	<0.2	<0.2	<0.2	1.6
Sulfate	mg/l	250	2.94	8.15	5	<5	<2	<2	58.3	<2	<2	94.8	<2	<2	<2	<5	<5	<5	6	<5	<5
Total Alkalinity	mg/l		683.25	955.39	770	750	585	628	755	590	616	607	677	710	705	660	620	570	570	510	490
Total Disolved Solids	mg/l	500	1210	1607.24	1400	1200	1110	1130	1260	1140	1150	1190	1270	1240	1220	1200	1200	1100	900	1000	938
Total Hardness	mg/l		303.5	477.23	344	361	267	242	372	321	350	322	401	370	340	390	350		280	280	291
Total Kjed. Nitrogen	mg/l		50.86	159.79	79	32	83.4	9.04	85.6	67	71.8	66.4	63.1	87.8	90.7	47	55	52	49	44	39.5
Total Organic Carbon	mg/l	500	48.03	65.62	51	54	46.6	40.5	45.1	45	42.2	38.44	38.65	48.4	43.4	190	55	41	43	72	65.7
Total Phenols	mg/l	0.001	0.004	0.004	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	0.00579	<0.005	0.00704	<0.005	<0.005	<0.005	0.005	<0.005	<0.005	<0.005	0.0063
Color	P.C.U.	15	97	323.02	210	58	60	60	70					90				170			
Boron	mg/l	1	1.12	1.47	1.2	12	1.12	0.948	1.11									0.9			
INORGANIC PARAMETERS:																					
Aluminum	mg/l	0.1	4.3	13.09	6.45	7.19	1.62	1.94	REJECT					0.495				<0.1			
Antimony	mg/l	0.003	0.03	0.09	<0.015	<0.015	<0.06	<0.06	<0.06					<0.06				<0.015			
Arsenic	mg/l	0.025	0.09	0.11	0.0948	0.101	0.0901	0.0928	0.11					0.12				0.088			
Barium	mg/l	1	0.26	0.53	0.383	0.282	0.201	0.192	0.208					0.208				0.133			
Beryllium	mg/l	0.003	0.003	0.006	<0.003	<0.003	<0.005	<0.005	<0.005					<0.005				<0.003			
Cadmium	mg/l	0.01	0.004	0.004	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.00604	<0.005	<0.005	<0.005	<0.005
Calcium	mg/l		53	102.96	62.1	71.9	38.8	39.2	52.4	50	46.7	52.5	62.9	59.8	53.7	70.3	62.5	46	52.8	52.9	52.7
Chromium	mg/l		0.07	0.43	0.251	0.021	<0.01	<0.01	<0.01					<0.01				<0.005			
Hexavalent Chromium	mg/l	0.05	0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01					<0.01				<0.01			
Cobalt	mg/l	0.005	0.03	0.07	<0.02	<0.02.	<0.05	<0.05	<0.05					<0.05				<0.020			
Copper	mg/l	0.2	0.03	0.08	0.0436	0.0409	<0.02	<0.02	<0.02					<0.02				0.032			
Total Cyanide	mg/l	0.1	0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01					<0.01				<0.01			
Iron	mg/l	0.3	16.07	41.68	21.7	25	9.5	8.06	10.6	7.46	9.4	10.8	10.6	10.2	9.11	8.28	8.32	4.99	6.05	5.81	5.87
Lead	mg/l	0.025	0.01	0.06	0.0344	0.0099	0.00546	0.0061	<0.005	<0.005	<0.005	<0.005	0.0055	<0.005	<0.005	<0.003	<0.003	<0.003	0.00383	<0.003	0.00497
Magnesium	mg/l	35	39.35	58.86	45.8	44.1	33.8	33.7	54.5	47	44.3	45.4	56.1	51.2	44.9	51.6	46.2	31.1	36.5	36.8	38.7
Manganese	mg/l	0.3	0.25	0.74	0.33	0.434	0.124	0.0953	0.124	0.07	0.0814	0.0963	0.11	0.0831	0.0736	0.0882	0.0859	0.0458	0.0597	0.063	0.0683
Mercury	mg/l	0.002	0.0002	0.0003	<0.0002	<0.0002	<0.0003	<0.0003	<0.0003					<0.0002				<0.002			
Nickel	mg/l	0.007	0.08	0.22	0.15	0.0793	0.0482	0.0497	0.061					0.0526				0.0352			
Potassium	mg/l		97.68	131.63	113	99.1	91.2	87.4	86.8	82	73.4	80	81.6	67	95.5	62.4	57.3	46.7	63	44.2	50.3
Selenium	mg/l	0.01	0.004	0.004	<0.005	<0.005	<0.005	<0.005	<0.005					<0.005				<0.005			
Silver	mg/l	0.05	0.01	0.01	REJECT	<0.01	<0.01	<0.01	<0.01					<0.01				<0.01			
Sodium	mg/l	20	290	451.68	263	370	254	273	258	216	227	252	254	221	271	264	199	202	231	220	201
Thallium	mg/l	0.004	0.01	0.03	0.0194	<0.01	<0.01	<0.01	<0.01					<0.01				<0.01			
Vanadium	mg/l	0.014	0.03	0.06	<0.03	<0.03	<0.05	<0.05	<0.05					<0.05				<0.03			
Zinc	mg/l	0.3	0.06	0.22	0.0695	0.131	0.0163	0.0308	0.0289					0.0275				0.0252			

Notes:

1. Parameters listed are Part 360 Baseline or Routine Parameters Effective 1993.
2. Blanks indicate no analysis performed
3. "<" indicates not detected at the specified method detection limit (MDL)
4. Shaded values indicate detection above Standard.

Table G-1
Albany Interim Landfill Groundwater Analytical Monitoring Data
City of Albany Landfill - Proposed Eastern Expansion Project
Albany, New York
CHA Project No. 12206
MW-9I

TEST PARAMETER (mg/l unless otherwise noted)	Unit	TOGS Guidance Value	Mean (EWQV)	Mean (EWQV) Plus 3 Std. Dev.	Sep-04 Routine	Dec-04 Baseline	Mar-05 Baseline	Jun-05 Routine	Sep-05 Routine	Dec-05 Routine	Mar-06 Routine	Jun-06 Baseline	Sep-06 Routine	Dec-06 Routine
Temperature	C°		14.73	26.31	16.27	13.74	15.59	17.4	17.62	16.2	15.67	18.67	17.87	17.74
Conductivity	uS		426.8	1825.46	1891	1818	1834	2080	2011	228	1917	1346	1541.9	1772
pH	SU	6.5-8.5	7.51	8.3	7.86	7.63	7.51	7.35	7.67	7.17	6.51	7.87	6.82	7.27
Eh	mV		-10.25	96.11	-155.2	-219.3	-107.8	64	-106	-22	125.6	-132.8	-98	-76.5
Turbidity (after purging well)	N.T.U	5	118.4	469.35	7.64	21.6	6.67	9.23	38.7	0.8	27.3	11.1	21.4	27.4
LEACHATE INDICATORS:														
Ammonia Nitrogen	mg/l	2	57.37	158.96	34.5	13.7	<0.5	10.4	13.7	< 0.5	29.1	24.9	31.6	22.2
BOD 5	mg/l		7.34	23.46	14	12	9	8	11	7	8	<8	7	9
Bromide	mg/l	2	1.5	6.2	0.23	2.2	<0.2	<2	<2	< 2	< 2.0	<2	<2	<2.0
COD	mg/l		147.5	212.88	86	80	61	112	74	84	94	115	93	78
Chloride	mg/l	250	479.75	766.17	209	1070	347	368	207	318	297	321	362	310
Nitrate	mg/l	10	0.26	0.65	<0.2	<0.2	<0.20	<0.2	<0.2	0.26	<0.2	0.66	<0.2	0.736
Sulfate	mg/l	250	2.94	8.15	5.18	5.18	<5	6.67	<5	< 5	8.01	<5	<5	<5
Total Alkalinity	mg/l		683.25	955.39	510	480	480	260	490	600	520	100	580	500
Total Disolved Solids	mg/l	500	1210	1607.24	925	872	875	862	1190	1220	1100	1020	1160	1020
Total Hardness	mg/l		303.5	477.23	332	351	307	416	423	468	409	341	460	338
Total Kjed. Nitrogen	mg/l		50.86	159.79	32.4	27.8	29.6	15.8	29	26.8	28.1	36.7	43.1	30.4
Total Organic Carbon	mg/l	500	48.03	65.62	47	37	36	27	27	29	30	28	75	29
Total Phenols	mg/l	0.001	0.004	0.004	<0.005	<0.005	0.008	<0.005	<0.005	< 0.005	< 0.005	<0.005	<0.005	<0.005
Color	P.C.U.	15	97	323.02		150	120					90		
Boron	mg/l	1	1.12	1.47		0.739	0.732					<0.5		
INORGANIC PARAMETERS:														
Aluminum	mg/l	0.1	4.3	13.09		0.259	0.109					<0.1		
Antimony	mg/l	0.003	0.03	0.09		0.0216	<0.015					<0.015		
Arsenic	mg/l	0.025	0.09	0.11		0.124	0.11					0.114		
Barium	mg/l	1	0.26	0.53		0.107	0.104					0.0879		
Beryllium	mg/l	0.003	0.003	0.006		<0.003	<0.003					<0.003		
Cadmium	mg/l	0.01	0.004	0.004	<0.005	<0.005	<0.005	<0.005	<0.005	< 0.005	<0.005	<0.005	<0.005	<0.005
Calcium	mg/l		53	102.96	62.8	66.1	60.5	82.5	81.8	90.4	79.1	68.6	88.8	66
Chromium	mg/l		0.07	0.43		<0.005	<0.005					<0.005		
Hexavalent Chromium	mg/l	0.05	0.01	0.01		<0.010	<0.010					<0.010		
Cobalt	mg/l	0.005	0.03	0.07		<0.020	<0.020					<0.020		
Copper	mg/l	0.2	0.03	0.08		0.011	0.0182					<0.010		
Total Cyanide	mg/l	0.1	0.01	0.01		<0.010	<0.010					<0.010		
Iron	mg/l	0.3	16.07	41.68	6.65	6.54	6.18	6.87	7.41	7.74	6.35	5.24	7.28	5.15
Lead	mg/l	0.025	0.01	0.06	<0.003	<0.003	<0.003	<0.003	<0.003	< 0.003	< 0.003	<0.003	<0.003	<0.003
Magnesium	mg/l	35	39.35	58.86	42.5	45	38	51	53.2	58.8	51.3	41.2	57.8	42.1
Manganese	mg/l	0.3	0.25	0.74	0.0757	0.0798	0.0697	0.0806	0.0737	0.0821	0.0633	0.0525	0.0684	0.0903
Mercury	mg/l	0.002	0.0002	0.0003		<0.0002	<0.0002					<0.0002		
Nickel	mg/l	0.007	0.08	0.22		0.0314	<0.030					<0.030		
Potassium	mg/l		97.68	131.63	40.5	46.5	36.3	45.6	38.7	40.9	40.7	40.5	46.8	31.3
Selenium	mg/l	0.01	0.004	0.004		0.0342	<0.005					<0.005		
Silver	mg/l	0.05	0.01	0.01		<0.010	0.01					<0.010		
Sodium	mg/l	20	290	451.68	202	200	184	212	186	207	196	162	223	185
Thallium	mg/l	0.004	0.01	0.03		<0.010	<0.010					<0.010		
Vanadium	mg/l	0.014	0.03	0.06		<0.030	<0.030					<0.030		
Zinc	mg/l	0.3	0.06	0.22		0.0404	0.0686					0.0121		

Notes:

1. Parameters listed are Part 360 Baseline or Routine Parameters Effective 1993.
2. Blanks indicate no analysis performed
3. "<" indicates not detected at the specified method detection limit (MDL)
4. Shaded values indicate detection above Standard.

Table G-1
Albany Interim Landfill
Groundwater Analytical Data -Volatile Organic Compounds
City of Albany Landfill - Proposed Eastern Expansion Project
Albany, New York
CHA Project No. 12206
MW-9I

TEST PARAMETER (µg/l unless otherwise noted)	Unit	TOGS Guidance Value	Mean (EWQV)	Mean (EWQV) Plus 3 Std. Dev.	Aug-98	Oct-98	Mar-99	Oct-99	Sep-03	Dec-04	Mar-05	Jun-06
Organic Parameters												
Acetone	µg/l	50	11.25	24.24	<MDL	<MDL	<MDL	<MDL	<10	<10	<10	<10
Acrylonitrile	µg/l	5	75	75	<MDL	<MDL	<MDL	<MDL	Rejected	<100	<100	<100
Benzene	µg/l	0.7	3.75	3.75	<MDL	<MDL	<MDL	<MDL	3 J	<5	<5	<5
Bromochloromethane	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Bromodichloromethane	µg/l	50	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Bromoform	µg/l	50	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Carbon disulfide	µg/l	5	5.63	12.12	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Carbon tetrachloride	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Chlorobenzene	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Chloroethane	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Chloroform	µg/l	7	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Dibromochloromethane	µg/l	50	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
1,2 Dibromo-3-chloropropane	µg/l	5	4.69	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
1,2 Dibromomethane	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
1,2 Dichlorobenzene (o)	µg/l		3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
1,4 Dichlorobenzene (p)	µg/l	4.7	3.75	12.12	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
trans-1,2 Dichloro-2-butene	µg/l	5	5.63	3.75	<MDL	<MDL	<MDL	Reject	<10	<10	<10	<10
1,1 Dichloroethane	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	1 J	<5	<5	<5
1,2 Dichloroethane	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
1,1 Dichloroethene	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
cis-1,3 Dichloroethene	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
trans-1,3 Dichloroethene	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
1,2 Dichloropropane	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
cis-1,3 Dichloropropene	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
trans-1,3 Dichloropropene	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Ethylbenzene	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
2-Hexanone	µg/l	50	7.5	7.5	<MDL	<MDL	<MDL	<MDL	<10	<10	<10	<10
Bromomethane	µg/l	5	3.75	3.75	<MDL	<MDL	Reject	<MDL	<5	<5	<5	<5
Chloromethane	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Dibromomethane	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Methylene chloride	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
2-Butanone	µg/l	50	7.5	7.5	<MDL	<MDL	<MDL	<MDL	<10	<10	<10	<10
Methyl Iodide (Iodomethane)	µg/l	5	5.63	12.12	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
4-methyl-2-pentanone	µg/l	5	7.5	7.5	<MDL	<MDL	<MDL	<MDL	<10	<10	<10	<10
Styrene	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
1,1,1,2-Tetrachloroethane	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
1,1,2,2-Tetrachloroethane	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Tetrachloroethene	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Toluene	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
1,1,1-Trichloroethene	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
1,1,2-Trichloropropane	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Trichloroethene	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Trichlorofluoromethane	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
1,2,3-Trichloropropane	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Vinyl acetate	µg/l		22.5	74.46	<MDL	<MDL	<MDL	<MDL	<50	<50	<50	<50
Vinyl chloride	µg/l	2	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
M+P Xylene	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
o - Xylene	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5

Notes:

1. Parameters listed are Part 360 Baseline Volatile Organic Compounds Parameters Effective 1993.
2. Blanks indicate no analysis performed
3. "<" indicates not detected at the specified method detection limit (MDL)

Table G-1
Albany Interim Landfill Groundwater Analytical Monitoring Data
City of Albany Landfill - Proposed Eastern Expansion Project
Albany, New York
CHA Project No. 12206
MW-9D

TEST PARAMETER (mg/l unless otherwise noted)	Unit	TOGS Guidance Value	Mean (EWQV)	Mean (EWQV) Plus 3 Std. Dev.	3Q98 Expnd	3Q98 Bsln	1Q99 Bsln	4Q99 Bsln	2Q00 Bsln	3Q00 Rtne	4Q00 Rtne	1Q01 Rtne	2Q01 Rtne	3Q01 Bsln	4Q01 Rtne	April-03 Routine	June-03 Routine	Sep-03 Baseline	Dec-03 Routine	Mar-04 Routine	Jun-04 Routine
Temperature	C°		15.5	32.62	24	12	12.4	13.6	15.5		6	11.1	14.8	16.5		12.97	14.5	14.22	12.49	12.9	14.8
Conductivity	uS		322.43	818.92	550	340	196.7	203	359	194	390	202	191	187	NA	194	345	206	173	194	214
pH	SU	6.5-8.5	8.81	9.89	8.6	8.4	9.14	9.08	8.4	8.5	9.06	8.47	7.9	8.31		8.45	7.54	8.56	8.16	7.75	7.84
Eh	mV		-32	262.44	65	40	-113	-120	-74	187	-97	105	35	10		-48.6	-39	-21.7	-109.1	-5.9	-139.2
Turbidity (after purging well)	N.T.U	5	1656.98	8509.34	191.9	186	1250	5000	2400	>1000	3000	8860	12400	11800		800	312	1000	458	150	186
LEACHATE INDICATORS:																					
Ammonia Nitrogen	mg/l	2	0.62	1.63	1.1	0.6	0.357	0.418	0.186	0.3	0.144	0.146	0.115	0.286		<0.5	<0.5	0.8	<0.5	<0.5	<0.5
BOD 5	mg/l		2.25	4.85	<4	<4	<2	<2	3.01	2	3.66	5.79	<2	<2		<4	<4	4	<4	<4	<4
Bromide	mg/l	2	0.45	1.49	<0.2	<0.2	<1	<1	<1	<1	<1	<1	<1	<1		<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
COD	mg/l		19.26	53.11	29	26	<5	18.3	11.1	359	<5	<5	21.7	19.3		38	<20	59	<20	21	<20
Chloride	mg/l	250	3.74	16.59	<0	3	<1	1.21	1.17	1.1	<1	<1	<1	1.11		2	3	<1	2	<1	<1
Nitrate	mg/l	10	0.26	0.65	<0.2	<0.2	<0.5	<0.5	<0.5	<0.02	<0.5	<0.5	<0.5	<0.5		<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Sulfate	mg/l	250	3.96	<0.40	7	<5	2.02	3.07	3.61	2.9	2.93	2.21	2.97	2.96		<5	<5	<5	<5	<5	3.73
Total Alkalinity	mg/l		129.25	310.87	96	100	220	101	107	420	110	105	104	312		110	96	100	110	500	110
Total Dissolved Solids	mg/l	500	161.5	225.82	160	190	158	138	173	128	239	180	208	136		150	160	180	50	130	122
Total Hardness	mg/l		817	2890.68	260	188	1300	1520	5340	1644	2900	1700	9150	9500		850	700	410	930	430	314
Total Kjed. Nitrogen	mg/l		0.92	2.23	0.8	1	0.429	1.47	3.9	9.8	4.73	0.482	14.7	37.7		1.1	1.7	2.6	<0.5	<0.5	<0.5
Total Organic Carbon	mg/l	500	2.04	6.17	4	2	1.16	1.02	1.61	1.9	0.98	1.29	1.28	1.66		<3	6	15	<3	<3	<3
Total Phenols	mg/l	0.001	0.004	0.004	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.005		<0.005	<0.005		<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Color	P.C.U.	15	44.88	256.7	150	22	<5	<5	10					30				200			
Boron	mg/l	1	0.22	0.72	<0.1	<0.1	0.377	0.348	0.441					1.09				<0.5			
INORGANIC PARAMETERS:																					
Aluminum	mg/l	0.1	61.19	247.67	12.5	3.26	<05	124	REJECT					573				11.1			
Antimony	mg/l	0.003	0.03	0.09	<0.015	<0.015	<0.06	<0.06	<0.06					0.12				<0.015			
Arsenic	mg/l	0.025	0.05	0.2	0.0189	0.0147	REJECT	0.107	0.119					0.36				0.0173			
Barium	mg/l	1	0.47	2.01	0.0525	0.0508	0.678	1.1	1.27					4.09				0.151			
Beryllium	mg/l	0.003	4	0.009	<0.003	<0.003	<0.005	0.0058	0.0087					0.0135				<0.003			
Cadmium	mg/l	0.01	0.004	0.004	<0.005	<0.005	<0.005	<0.005	0.008	<0.005	0.0064	<0.005	0.0085	0.0122		<0.005	0.00956	<0.005	<0.005	<0.005	<0.005
Calcium	mg/l		731.83	3357.48	76.6	55.7	885	1910	1870	610	2850	609	2990	5440		254	240	120	274	126	90
Chromium	mg/l		6.14	0.38	0.184	0.0267	0.204	0.159	0.211					0.715				0.0139			
Hexavalent Chromium	mg/l	0.05	0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01					<0.01				<0.01			
Cobalt	mg/l	0.005	0.06	0.22	<0.02	<0.02	0.0868	0.125	0.174					0.498				<0.02			
Copper	mg/l	0.2	0.2	0.83	0.0347	0.0193	0.269	0.464	0.483					1.34				0.0756			
Total Cyanide	mg/l	0.1	0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01					<0.05				<0.01			
Iron	mg/l	0.3	220.18	962.31	24.1	8.63	331	517	487	11	1000	372	801	1650		59.8	18.4	29.3	29.4	12.4	11.4
Lead	mg/l	0.025	0.07	0.27	0.0302	0.0072	0.104	0.149	0.115	<0.005	0.319	0.153	0.211	0.45		0.013	<0.003	0.0121	<0.003	0.00383	0.0115
Magnesium	mg/l	35	115.45	476.78	16.8	12	180	253	318	29	732	163	596	1170		53.3	24.6	27.6	59	28	21.6
Manganese	mg/l	0.3	5.25	21.91	0.659	0.405	8.62	11.3	17.1	3.87	30.1	7.96	24.4	53.4		2.25	1.88	1.2	2.4	1.03	0.8
Mercury	mg/l	0.002	0.0002	0.0003	<0.0002	<0.0002	<0.0003	<0.0003	0.00043					0.00079				0.007			
Nickel	mg/l	0.007	0.16	6.49	0.123	<0.03	0.219	0.273	0.339					1.01				<0.03			
Potassium	mg/l		12.51	40.06	5.84	3.49	21.8	18.9	19.5	2	42.9	33.9	49.2	75.3		6.4	3.44	3.48	3.46	2.39	1.78
Selenium	mg/l	0.01	0.01	0.02	<0.005	<0.005	0.0115	0.0052	0.0477					0.0217				<0.005			
Silver	mg/l	0.05	0.01	0.01	REJECT	<0.01	<0.01	<0.01	<0.01					<0.02				<0.010			
Sodium	mg/l	20	23.1	35.92	18.3	20.9	25.5	27.7	28.8	22	35.3	26.4	29.2	27		17.9	18.3	12.8	17.2	16.9	16.7
Thallium	mg/l	0.004	0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.05					0.3				<0.01			
Vanadium	mg/l	0.014	0.17	0.67	<0.03	<0.03	0.329	0.291	0.43					1.7				<0.03			
Zinc	mg/l	0.3	0.39	1.27	0.163	0.144	0.518	0.745	0.924					2.79				0.0886			

Notes:

1. Parameters listed are Part 360 Baseline or Routine Parameters Effective 1993.
2. Blanks indicate no analysis performed
3. "<" indicates not detected at the specified method detection limit (MDL)
4. Shaded values indicate detection above Standard.

Table G-1
Albany Interim Landfill Groundwater Analytical Monitoring Data
City of Albany Landfill - Proposed Eastern Expansion Project
Albany, New York
CHA Project No. 12206
MW-9D

TEST PARAMETER (mg/l unless otherwise noted)	Unit	TOGS Guidance Value	Mean (EWQV)	Mean (EWQV) Plus 3 Std. Dev.	Sep-04 Routine	Dec-04 Baseline	Mar-05 Baseline	Jun-05 Routine	Sep-05 Routine	Dec-05 Routine	Mar-06 Routine	Jun-06 Baseline	Sep-06 Routine	Dec-06 Routine
Temperature	C°		15.5	32.62	14.25	11.45	13.35	15	14.86	13.1	13.36	15.65	15.15	14.82
Conductivity	uS		322.43	818.92	222	256	197	260	208	386	248	145	148.7	222
pH	SU	6.5-8.5	8.81	9.89	8.52	7.86	8.42	8.72	8.27	8.01	7.46	8.14	8.59	8.16
Eh	mV		-32	262.44	-115	-219.9	-154.8	99	-82	-70	100.2	-108.9	-156.8	-119.7
Turbidity (after purging well)	N.T.U	5	1656.98	8509.34	160	69.5	65.7	15	139	9.8	51.8	40.9	79.2	51.4
LEACHATE INDICATORS:														
Ammonia Nitrogen	mg/l	2	0.62	1.63	<0.5	<0.5	<0.5	1.48	<0.5	< 0.5	< 0.5	<0.5	1.15	<0.5
BOD 5	mg/l		2.25	4.85	<4	<4	<4	<4	<4	< 4	4	<8	<4	<4
Bromide	mg/l	2	0.45	1.49	<0.2	<0.2	<0.20	<0.2	<2	< 0.2	<2	<0.2	<0.2	<0.2
COD	mg/l		19.26	53.11	23	<20	<20	<20	40	< 20	< 20	<20	<20	<20
Chloride	mg/l	250	3.74	16.59	1.53	7.4	6.89	91.9	1.58	8.38	17.5	46.4	26.2	58.3
Nitrate	mg/l	10	0.26	0.65	0.3	<0.20	<0.2	1.2	<0.2	< 0.2	< 0.2	<0.2	<0.2	<0.2
Sulfate	mg/l	250	3.96	<0.40	5.69	8.43	11.3	6.11	<5	< 5	< 5	<5	3.3	<5
Total Alkalinity	mg/l		129.25	310.87	110	170	110	110	100	250	150	210	140	180
Total Dissolved Solids	mg/l	500	161.5	225.82	128	582	135	52	340	212	193	112	190	182
Total Hardness	mg/l		817	2890.68	324	145	152	320	324	100	143	91.2	191	95.9
Total Kjed. Nitrogen	mg/l		0.92	2.23	<0.5	<0.5	1.32	31.3	<0.5	< 0.5	< 0.5	<0.5	2.47	<0.5
Total Organic Carbon	mg/l	500	2.04	6.17	<3	<3	<3	<3	<3	< 3	< 3	<3	<3	<3
Total Phenols	mg/l	0.001	0.004	0.004	<0.005	<0.005	<0.005	<0.005	<0.005	< 0.005	< 0.005	<0.005	<0.005	<0.005
Color	P.C.U.	15	44.88	256.7		10	30					45		
Boron	mg/l	1	0.22	0.72		<0.5	<0.5					<0.5		
INORGANIC PARAMETERS:														
Aluminum	mg/l	0.1	61.19	247.67		3.91	4.77					1.45		
Antimony	mg/l	0.003	0.03	0.09		<0.015	<0.015					<0.015		
Arsenic	mg/l	0.025	0.05	0.2		0.0212	0.0127					0.0149		
Barium	mg/l	1	0.47	2.01		0.0569	0.0632					<0.05		
Beryllium	mg/l	0.003	4	0.009		<0.003	<0.003					<0.003		
Cadmium	mg/l	0.01	0.004	0.004	<0.005	<0.005	<0.005	<0.005	<0.005	< 0.005	< 0.005	<0.005	<0.005	<0.005
Calcium	mg/l		731.83	3357.48	92.9	40.8	42.8	91.3	92.3	28.9	40.3	25.7	53.4	27.8
Chromium	mg/l		6.14	0.38		<0.005	0.00646					<0.005		
Hexavalent Chromium	mg/l	0.05	0.01	0.01		<0.010	<0.010					<0.010		
Cobalt	mg/l	0.005	0.06	0.22		<0.020	<0.020					<0.02		
Copper	mg/l	0.2	0.2	0.83		0.0127	0.0227					<0.010		
Total Cyanide	mg/l	0.1	0.01	0.01		<0.010	<0.010					<0.010		
Iron	mg/l	0.3	220.18	962.31	18.1	8.46	9.82	23.7	22.4	1.85	8	3.4	12.4	1.82
Lead	mg/l	0.025	0.07	0.27	0.01	0.00489	0.00417	0.0134	0.00755	0.0043	0.00498	<0.003	0.00548	<0.003
Magnesium	mg/l	35	115.45	476.78	22.4	10.4	10.9	22.3	22.8	6.82	10.4	6.54	14	6.43
Manganese	mg/l	0.3	5.25	21.91	0.793	0.289	0.332	0.894	0.83	0.21	0.307	0.163	0.487	0.186
Mercury	mg/l	0.002	0.0002	0.0003		<0.0002	<0.0002					<0.0002		
Nickel	mg/l	0.007	0.16	6.49		<0.030	<0.030					<0.030		
Potassium	mg/l		12.51	40.06	2.53	1.86	4.94	3.71	3.23	< 1	1.71	<1	1.97	<1
Selenium	mg/l	0.01	0.01	0.02		<0.005	<0.005					0.00671		
Silver	mg/l	0.05	0.01	0.01		<0.010	<0.010					<0.01		
Sodium	mg/l	20	23.1	35.92	15.9	16.3	16.3	19.5	18.9	13.7	18.7	16.7	18.4	14.9
Thallium	mg/l	0.004	0.01	0.01		<0.010	<0.010					<0.010		
Vanadium	mg/l	0.014	0.17	0.67		<0.030	<0.030					<0.030		
Zinc	mg/l	0.3	0.39	1.27		0.0419	0.0684					0.0179		

Notes:

1. Parameters listed are Part 360 Baseline or Routine Parameters Effective 1993.
2. Blanks indicate no analysis performed
3. "<" indicates not detected at the specified method detection limit (MDL)
4. Shaded values indicate detection above Standard.

Table G-1
Albany Interim Landfill
Groundwater Analytical Data -Volatile Organic Compounds
City of Albany Landfill - Proposed Eastern Expansion Project
Albany, New York
CHA Project No. 12206
MW-9D

TEST PARAMETER (µg/l unless otherwise noted)	Unit	TOGS Guidance Value	Mean (EWQV)	Mean (EWQV) Plus 3 Std. Dev.	Aug-98	Oct-98	Mar-99	Oct-99	Sep-03	Dec-04	Mar-05	Jun-06
Organic Parameters												
Acetone	µg/l	50	11.25	24.24	<MDL	<MDL	<MDL	<MDL	<10	<10	<10	<10
Acrylonitrile	µg/l	5	75	75	<MDL	<MDL	<MDL	<MDL	Rejected	<100	<100	<100
Benzene	µg/l	0.7	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Bromochloromethane	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Bromodichloromethane	µg/l	50	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Bromoform	µg/l	50	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Carbon disulfide	µg/l	5	5.63	12.12	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Carbon tetrachloride	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Chlorobenzene	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Chloroethane	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Chloroform	µg/l	7	3.75	3.75	11	9	2.7	<5	<5	<5	<5	<5
Dibromochloromethane	µg/l	50	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
1,2 Dibromo-3-chloropropane	µg/l	5	4.69	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
1,2 Dibromomethane	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
1,2 Dichlorobenzene (o)	µg/l		3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
1,4 Dichlorobenzene (p)	µg/l	4.7	3.75	12.12	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
trans-1,2 Dichloro-2-butene	µg/l	5	5.63	3.75	<MDL	<MDL	<MDL	Rejected	<10	<10	<10	<10
1,1 Dichloroethane	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
1,2 Dichloroethane	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
1,1 Dichloroethene	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
cis-1,3 Dichloroethene	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
trans-1,3 Dichloroethene	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
1,2 Dichloropropane	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
cis-1,3 Dichloropropene	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
trans-1,3 Dichloropropene	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Ethylbenzene	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
2-Hexanone	µg/l	50	7.5	7.5	<MDL	<MDL	<MDL	<MDL	<10	<10	<10	<10
Bromomethane	µg/l	5	3.75	3.75	<MDL	<MDL	Rejected	<MDL	<5	<5	<5	<5
Chloromethane	µg/l	5	3.75	3.75	<5	<5	2.7	<5	<5	<5	<5	<5
Dibromomethane	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Methylene chloride	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
2-Butanone	µg/l	50	7.5	7.5	<MDL	<MDL	<MDL	<MDL	<10	<10	<10	<10
Methyl Iodide (Iodomethane)	µg/l	5	5.63	12.12	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
4-methyl-2-pentanone	µg/l	5	7.5	7.5	<MDL	<MDL	<MDL	<MDL	<10	<10	<10	<10
Styrene	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
1,1,1,2-Tetrachloroethane	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
1,1,2,2-Tetrachloroethane	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Tetrachloroethene	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Toluene	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
1,1,1-Trichloroethene	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
1,1,2-Trichloropropane	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Trichloroethene	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Trichlorofluoromethane	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
1,2,3-Trichloropropane	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Vinyl acetate	µg/l		22.5	74.46	<MDL	<MDL	<MDL	<MDL	<50	<50	<50	<50
Vinyl chloride	µg/l	2	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
M+P Xylene	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
o - Xylene	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5

Notes:

1. Parameters listed are Part 360 Baseline Volatile Organic Compounds Parameters Effective 1993.
2. Blanks indicate no analysis performed
3. "<" indicates not detected at the specified method detection limit (MDL)

Table G-1
Albany Interim Landfill Groundwater Analytical Monitoring Data
City of Albany Landfill - Proposed Eastern Expansion Project
Albany, New York
CHA Project No. 12206
MW-10S

TEST PARAMETER (mg/l unless otherwise noted)	Unit	TOGS Guidance Value	Mean (EWQV)	Mean (EWQV) Plus 3 Std. Dev.	08/98 Expnd	10/98 Bsln	3/99 Bsln	10/99 Bsn	2Q00 Bsln	3Q00 Rtne	4Q00 Rtne	1Q01 Rtne	2Q01 Rtne	3Q01 Bsln	4Q01 Rtne	1Q02 Rtne	April-03 Routine	June-03 Routine	Sep-03 Baseline	Dec-03 Routine	Mar-04 Routine	Jun-04 Routine
Temperature	C°		13.23	27.53	20	12	12.1	S.BI	15.5		6	8.8	18.9	14.9	8.3	9	11.14	9.7	11.99	12.55	10.47	10.29
Conductivity	uS		591.75	1279.13	600	900	355	512	633	431	728	408	349	361	409	302	401	701	566	597	510	568
pH	SU	6.5-8.5	8.33	10.45	9	8.6	7.34	8.37	7.28	7.3	8.34	6.98	7.02	7.41	7.28	7.39	7.17	7.64	7.39	7.45	7.24	7.05
Eh	mV		4	190.82	60	45	-12	-77	-10	300	-60	245	200	180	125	90	109.1	38	-30.8	-25.5	-5.9	-19.1
Turbidity (after purging well)	N.T.U	5	511.75	1397.39	133	854	540	520	520	550	587	370	267	550	24.2	178	23	384	198	162	650	353
LEACHATE INDICATORS:																						
Ammonia Nitrogen	mg/l	2	0.21	0.79	<0.5	<0.5	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	NA	<0.05	<0.05	<0.05	<0.5	0.5	<0.5	<0.5	0.9	<0.5
BOD 5	mg/l		2.25	4.85	<4	<4	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2.0	<4	4	<4	<4	<4	<4
Bromide	mg/l	2	0.45	1.49	<0.2	<0.2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1.0	<0.2	0.2	<0.2	<0.2	<0.2	<0.2
COD	mg/l		15.46	62.99	38	<20	5.09	<5	<5	19	<5	<5	NA	<5	<5	<5.0	<20	20	<20	<20	<20	<20
Chloride	mg/l	250	19.4	34.24	19	18	14.4	26.2	29.3	24	25.3	16.1	10.4	15.2	11.1	18.3	26	36	59	100	30	77
Nitrate	mg/l	10	1.28	2.52	1.2	1.6	0.733	1.6	2.26	1.1	0.714	0.717	0.849	<0.5	0.89	<0.5	2.3	1.9	1.9	3.8	2.7	1.9
Sulfate	mg/l	250	26.48	74.75	50	14	19.1	22.8	30.3	21	28.3	24.5	25.9	23.7	27.1	25.5	23	40	43	68	47	23.5
Total Alkalinity	mg/l		198.75	300.79	240	210	161	184	178	196	176	310	NA	177	180	139	140	170	160	160	180	180
Total Dissolved Solids	mg/l	500	285	484.37	370	300	215	255	282	260	265	223	216	224	241	207	270	300	380	480	300	320
Total Hardness	mg/l		342.25	968.64	653	274	212	230	210	185	220	255	167	178	218	144	160	190	180	270	190	191
Total Kjed. Nitrogen	mg/l		1.8	6.79	4	2.1	0.211	0.875	1.19	<1	0.984	0.391	NA	0.702	<0.2	0.259	0.9	0.6	<0.5	<0.5	1.6	<0.5
Total Organic Carbon	mg/l	500	1.65	3.05	2	1	1.64	1.97	2.37	2	1.77	1.4	1.45	1.5	1.69	1.06	<3	3	<3	<3	<3	<3
Total Phenols	mg/l	0.001	0.004	0.004	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.005	<0.005	<0.005	<0.005	<0.005
Color	P.C.U.	15	10.19	24.46	12	15	10	<5	<5					200					48			
Boron	mg/l	1	0.11	0.24	<0.1	<0.1	<0.2	<0.2	<0.2										<0.5			
INORGANIC PARAMETERS:																						
Aluminum	mg/l	0.1	44.15	150.45	96.8	33.1	25.2	21.5	REJECT					25.1					2.29			
Antimony	mg/l	0.003	0.03	0.09	<0.015	<0.015	<0.06	<0.06	<0.06					<0.06					<0.015			
Arsenic	mg/l	0.025	0.03	0.16	0.0977	0.0122	<0.01	<0.01	<0.01					<0.01					<0.01			
Barium	mg/l	1	0.19	0.62	0.406	0.155	0.114	0.103	0.0891					0.115					<0.05			
Beryllium	mg/l	0.003	0.01	0.02	0.0105	<0.003	<0.005	<0.005	<0.005					<0.005					<0.003			
Cadmium	mg/l	0.01	0.005	0.012	0.0086	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.00727	<0.005	<0.005	<0.005	<0.005
Calcium	mg/l		97.33	280.63	188	79.4	58.7	63.2	74.6	62	72.2	57.8	53.2	56.9	63.5	46.8	50.1	60.4	57.7	88.8	60.5	63.8
Chromium	mg/l		0.13	0.24	0.167	0.156	0.112	0.0899	0.328					0.413					0.052			
Hexavalent Chromium	mg/l	0.05	0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01					<0.01					<0.01			
Cobalt	mg/l	0.005	0.04	0.1	0.074	0.0294	<0.05	<0.05	<0.05					<0.05					<0.02			
Copper	mg/l	0.2	0.13	0.41	0.262	0.115	0.0685	0.0584	0.0494					0.0324					0.037			
Total Cyanide	mg/l	0.1	0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01					<0.01					<0.01			
Iron	mg/l	0.3	90.73	259.86	173	81.6	56.1	52.2	52.5	6.96	41.9	20.5	16.5	39.1	2.53	13.4	7.22	25.3	6.81	8.11	23.2	1.31
Lead	mg/l	0.025	0.05	0.19	0.118	0.0347	0.0217	0.0218	0.0267	<0.005	0.00724	<0.005	<0.005	0.0112	<0.005	<0.005	<0.003	0.0107	0.003	<0.003	0.00781	0.0154
Magnesium	mg/l	35	22.2	67.44	44.5	18.3	12.5	13.5	14.8	7.4	14	8.53	8.27	14	10.9	8.51	7.53	10.1	7.92	12.2	9.52	7.74
Manganese	mg/l	0.3	2.77	8.21	5.48	1.87	1.69	2.03	1.83	0.46	1.44	0.869	0.811	1.42	0.652	0.727	0.422	1.31	0.417	0.367	0.952	0.0545
Mercury	mg/l	0.002	0.0002	0.0003	<0.0002	<0.0002	<0.0003	<0.0003	<0.0003					<0.0002					<0.0002			
Nickel	mg/l	0.007	0.08	0.2	0.138	0.0763	0.0531	0.0534	109					0.0649					<0.03			
Potassium	mg/l		6.78	12.46	9.35	6.28	6.68	4.81	6.57	3.4	7.45	4.61	4.71	7.08	2.01	3.88	2.63	5.61	2.7	3.3	3.34	2.47
Selenium	mg/l	0.01	0.004	0.008	<0.005	<0.005	<0.005	0.0062	<0.005					<0.005					<0.005			
Silver	mg/l	0.05	0.01	0.01	REJECT	<0.01	<0.01	<0.01	<0.01					<0.01					<0.01			
Sodium	mg/l	20	26.1	41.28	31.6	29	20.7	23.1	28.5	18	14.3	14.4	14.2	13.6	10.7	16.3	15.3	23.3	18.4	35.8	27.7	28.4
Thallium	mg/l	0.004	0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01					<0.01					<0.01			
Vanadium	mg/l	0.014	0.12	0.32	0.22	0.113	0.0815	0.0759	0.0728					0.0734					<0.03			
Zinc	mg/l	0.3	0.25	0.88	0.558	0.213	0.116	0.11	0.286					0.0901					0.0232			

Notes:

1. Parameters listed are Part 360 Baseline or Routine Parameters Effective 1993.
2. Blanks indicate no analysis performed
3. "<" indicates not detected at the specified method detection limit (MDL)
4. Shaded values indicate detection above Standard.

Table G-1
Albany Interim Landfill Groundwater Analytical Monitoring Data
City of Albany Landfill - Proposed Eastern Expansion Project
Albany, New York
CHA Project No. 12206
MW-10S

TEST PARAMETER (mg/l unless otherwise noted)	Unit	TOGS Guidance Value	Mean (EWQV)	Mean (EWQV) Plus 3 Std. Dev.	Sep-04 Routine	Dec-04 Baseline	Mar-05 Baseline	Jun-05 Routine	Sep-05 Routine	Dec-05 Routine	Mar-06 Routine	Jun-06 Baseline	Sep-06 Routine	Dec-06 Routine
Temperature	C°		13.23	27.53	12.49	11.99	10.76	10.4	12.17	13.2	9.99	10.7	12.53	12.88
Conductivity	uS		591.75	1279.13	835	809	761	1013	873	1727	871	605	486.8	356
pH	SU	6.5-8.5	8.33	10.45	7.09	7.21	7.06	7.6	7.68	7.37	6.51	7.77	7.93	7.44
Eh	mV		4	190.82	-121.4	-197.5	10.8	66	0	-29	193.4	-68	-7	32.2
Turbidity (after purging well)	N.T.U	5	511.75	1397.39	615	722	>1000	10.4	789	53.5	483	502	741	496
LEACHATE INDICATORS:														
Ammonia Nitrogen	mg/l	2	0.21	0.79	<0.5	<0.500	<0.50	<0.5	<0.5	< 0.5	< 0.5	<0.5	<0.5	<0.5
BOD 5	mg/l		2.25	4.85	<4	<8	<4	<4	<4	< 4	< 4	<8	<4	<4
Bromide	mg/l	2	0.45	1.49	<0.2	<0.2	<0.20	<0.2	<2	< 2	<0.2	<2	<0.2	<0.2
COD	mg/l		15.46	62.99	27	<20	102	23	<20	< 20		<20	<20	<20
Chloride	mg/l	250	19.4	34.24	139	133	90.9	117	113	308	122	155	97.3	64.8
Nitrate	mg/l	10	1.28	2.52	4	2.8	1	0.35	0.74	1.7	< 0.2	0.87	1.7	1.37
Sulfate	mg/l	250	26.48	74.75	59.9	78.3	93.4	47.5	95.7	85.6	29.7	34.3	43.5	43.7
Total Alkalinity	mg/l		198.75	300.79	140	200	130	57	100	140	210	520	140	170
Total Dissolved Solids	mg/l	500	285	484.37	592	892	442	367	685	910	550	488	415	360
Total Hardness	mg/l		342.25	968.64	292	251	243	247	244	332	224	178	148	153
Total Kjed. Nitrogen	mg/l		1.8	6.79	<0.5	<0.5	0.658	<0.5	<0.5	< 0.5	< 0.5	<0.5	<0.5	<0.5
Total Organic Carbon	mg/l	500	1.65	3.05	<3	<3	<3	<3	<3	< 3	< 3	<3	<3	<3
Total Phenols	mg/l	0.001	0.004	0.004	<0.005	<0.005	0.017	<0.005	<0.005	< 0.005	< 0.005	<0.005	<0.005	<0.005
Color	P.C.U.	15	10.19	24.46		10	70					16		
Boron	mg/l	1	0.11	0.24		<0.50	<0.5					<0.5		
INORGANIC PARAMETERS:														
Aluminum	mg/l	0.1	44.15	150.45		6.38	4.04					5.05		
Antimony	mg/l	0.003	0.03	0.09		0.0376	<0.015					0.0183		
Arsenic	mg/l	0.025	0.03	0.16		<0.010	<0.010					<0.010		
Barium	mg/l	1	0.19	0.62		<0.050	<0.050					<0.050		
Beryllium	mg/l	0.003	0.01	0.02		<0.003	<0.003					<0.003		
Cadmium	mg/l	0.01	0.005	0.012	0.00757	<0.005	<0.005	<0.005	<0.005	< 0.005	< 0.005	<0.005	<0.005	<0.005
Calcium	mg/l		97.33	280.63	94.3	81.7	78	76.8	72.8	111	73	55	46.3	49.4
Chromium	mg/l		0.13	0.24		2.77	4.27					3.89		
Hexavalent Chromium	mg/l	0.05	0.01	0.01		<0.010	<0.010					<0.010		
Cobalt	mg/l	0.005	0.04	0.1		<0.020	<0.020					<0.020		
Copper	mg/l	0.2	0.13	0.41		0.0275	0.0526					0.0309		
Total Cyanide	mg/l	0.1	0.01	0.01		<0.010	<0.010					<0.010		
Iron	mg/l	0.3	90.73	259.86	36.6	24.9	24.9	17.9	38.3	18.5	32.3	29.4	34.8	25.3
Lead	mg/l	0.025	0.05	0.19	0.0188	0.00399	0.00484	0.00471	0.00851	0.00605	0.00725	0.00556	0.0076	0.00332
Magnesium	mg/l	35	22.2	67.44	13.8	1.14	11.8	13.5	15.1	13.6	10.1	9.89	7.88	7.25
Manganese	mg/l	0.3	2.77	8.21	1.26	0.67	0.616	0.571	0.895	0.353	0.669	0.791	1.05	0.772
Mercury	mg/l	0.002	0.0002	0.0003		<0.0002	<0.0002					<0.0002		
Nickel	mg/l	0.007	0.08	0.2		0.12	0.208					0.135		
Potassium	mg/l		6.78	12.46	4.82	3.92	3.72	4.02	4.74	4.42	4.36	3.21	3.86	3.52
Selenium	mg/l	0.01	0.004	0.008		<0.005	<0.005					<0.00554		
Silver	mg/l	0.05	0.01	0.01		<0.010	<0.010					0.0125		
Sodium	mg/l	20	26.1	41.28	31.9	35.7	47.8	46.9	61.9	154	80.5	63.2	56.3	70.4
Thallium	mg/l	0.004	0.01	0.01		<0.010	<0.010					<0.010		
Vanadium	mg/l	0.014	0.12	0.32		<0.030	<0.030					<0.030		
Zinc	mg/l	0.3	0.25	0.88		0.0248	0.0262					0.0379		

Notes:

1. Parameters listed are Part 360 Baseline or Routine Parameters Effective 1993.
2. Blanks indicate no analysis performed
3. "<" indicates not detected at the specified method detection limit (MDL)
4. Shaded values indicate detection above Standard.

Table G-1
Albany Interim Landfill
Groundwater Analytical Data -Volatile Organic Compounds
City of Albany Landfill - Proposed Eastern Expansion Project
Albany, New York
CHA Project No. 12206
MW-10S

TEST PARAMETER (µg/l unless otherwise noted)	Unit	TOGS Guidance Value	Mean (EWQV)	Mean (EWQV) Plus 3 Std. Dev.	Aug-98	Oct-98	Mar-99	Oct-99	Sep-03	Dec-04	Mar-05	Jun-06
Organic Parameters												
Acetone	mg/l	50	11.25	24.24	<MDL	<MDL	<MDL	<MDL	<10	<10	<10	<10
Acrylonitrile	mg/l	5	75	75	<MDL	<MDL	<MDL	<MDL	Rejected	<100	<100	<100
Benzene	mg/l	0.7	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Bromochloromethane	mg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Bromodichloromethane	µg/l	50	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Bromoform	µg/l	50	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Carbon disulfide	µg/l	5	5.63	12.12	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Carbon tetrachloride	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Chlorobenzene	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Chloroethane	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Chloroform	µg/l	7	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Dibromochloromethane	µg/l	50	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
1,2 Dibromo-3-chloropropane	µg/l	5	4.69	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
1,2 Dibromomethane	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
1,2 Dichlorobenzene (o)	µg/l		3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
1,4 Dichlorobenzene (p)	µg/l	4.7	3.75	12.12	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
trans-1,2 Dichloro-2-butene	µg/l	5	5.63	3.75	<MDL	<MDL	Reject	<MDL	<10	<10	<10	<10
1,1 Dichloroethane	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
1,2 Dichloroethane	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
1,1 Dichloroethene	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
cis-1,3 Dichloroethene	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
trans-1,3 Dichloroethene	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
1,2 Dichloropropane	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
cis-1,3 Dichloropropene	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
trans-1,3 Dichloropropene	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Ethylbenzene	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
2-Hexanone	µg/l	50	7.5	7.5	<MDL	<MDL	<MDL	<MDL	<10	<10	<10	<10
Bromomethane	µg/l	5	3.75	3.75	<MDL	Reject	<MDL	<MDL	<5	<5	<5	<5
Chloromethane	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Dibromomethane	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Methylene chloride	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
2-Butanone	µg/l	50	7.5	7.5	<MDL	<MDL	<MDL	<MDL	<10	<10	<10	<10
Methyl Iodide (Iodomethane)	µg/l	5	5.63	12.12	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
4-methyl-2-pentanone	µg/l	5	7.5	7.5	<MDL	<MDL	<MDL	<MDL	<10	<10	<10	<10
Styrene	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
1,1,1,2-Tetrachloroethane	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
1,1,2,2-Tetrachloroethane	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Tetrachloroethene	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Toluene	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
1,1,1-Trichloroethene	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
1,1,2-Trichloropropane	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Trichloroethene	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Trichlorofluoromethane	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
1,2,3-Trichloropropane	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Vinyl acetate	µg/l		22.5	74.46	<MDL	<MDL	<MDL	<MDL	<50	<50	<50	<50
Vinyl chloride	µg/l	2	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
M+P Xylene	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
o - Xylene	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5

Notes:

1. Parameters listed are Part 360 Baseline Volatile Organic Compounds Parameters Effective 1993.
2. Blanks indicate no analysis performed
3. "<" indicates not detected at the specified method detection limit (MDL)

Table G-1
Albany Interim Landfill Groundwater Analytical Monitoring Data
City of Albany Landfill - Proposed Eastern Expansion Project
Albany, New York
CHA Project No. 12206
MW-10I

TEST PARAMETER (mg/l unless otherwise noted)	Unit	TOGS Guidance Value	Mean (EWQV)	Mean (EWQV) Plus 3 Std. Dev.	08/98 Expnd	10/98 Bsln	3/99 Bsln	10/99 Bsn	2Q00 Bsln	3Q00 Rtne	4Q00 Rtne	1Q01 Rtne	2Q01 Rtne	3Q01 Bsln	4Q01 Rtne	1Q02 Rtne	April-03 Routine	June-03 Routine	Sep-03 Baseline	Dec-03 Routine	Mar-04 Routine	Jun-04 Routine
Temperature	C°		13.08	25.46	19	12	11.9	9.4	15.5		7.9	9.71	18.91	14.6	8.8	9.2	11.99	12.4	12.6	11.76	11.17	12.64
Conductivity	uS		846	1809.27	400	840	1008	1136	-3.43	999	1291	1107	953	854	827	782	1106	944	942	767	916	954
pH	SU	6.5-8.5	8.04	9.14	8.4	7.6	7.89	8.28	7.24	7	7.8	7.2	7.2	7.2	7.2	7.3	7.05	7.33	7.31	7.42	7.22	6.39
Eh	mV		-17.75	221.7	-80	100	-38	-73	-10	179	-40	100	25	40	-10	30	-36.3	7	-77.1	-51.1	-34.7	-31.5
Turbidity (after purging well)	N.T.U	5	218	862.92	516	232	84	40	29	45	35.6	41.6	64.1	51.9	62.1	68.4	100	79.5	94.1	73.5	130	170
LEACHATE INDICATORS:																						
Ammonia Nitrogen	mg/l	2	1.44	9.18	<0.5	5.3	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.005	<0.05	<0.05	2.5	3.4	3.1	6.1	9.5	10.7
BOD 5	mg/l		2.25	4.85	<4	<4	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2.0	<4	<4	<4	<4	<4	4.8
Bromide	mg/l	2	0.45	1.49	<0.2	<0.2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1.0	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
COD	mg/l		24.4	53.35	-31	34	18.8	13.8	13.1	11	9.87	12.4	11.8	8.9	10.8	9.24	<20	23	<20	21	21	24
Chloride	mg/l	250	49.23	104.49	-75	34	49.7	38.2	17.5	24	20.9	23	17.5	7.14	16	16.1	14	19	15	15	17	17.1
Nitrate	mg/l	10	0.26	0.65	<0.2	<0.2	<0.5	<0.5	<0.5	0.02	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Sulfate	mg/l	250	36	52.14	28	39	37.7	39.3	35.6	39	36	32.6	31.3	22	27.4	25.5	25	23	24	35	26	25.9
Total Alkalinity	mg/l		472.75	791.01	450	570	333	538	670	485	556	589	635	620	598	636	600	380	510	520	500	450
Total Disolved Solids	mg/l	500	644.5	907.37	650	730	675	523	687	644	631	662	686	636	641	643	660	430	550	600	510	505
Total Hardness	mg/l		326.5	990.91	352	730	449	498	600	581	565	595	650	590	50	655	560	340	440	500	450	478
Total Kjed. Nitrogen	mg/l		0.8	2.26	<0.5	1.5	0.6888	0.634	0.569	<1	0.526	0.262	<02	0.201	0.228	0.266	2.6	3.1	4.7	6.1	9.5	11.1
Total Organic Carbon	mg/l	500	7.26	11.08	9	7	7.08	5.94	4.98	5.4	3.97	3.73	3.67	3.88	3.82	3.15	110	30	<6	62	<6	61.5
Total Phenols	mg/l	0.001	0.004	0.004	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.005	<0.005	<0.005		<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.007
Color	P.C.U.	15	192.19	1268.01	20	11	15	<5	15					15					14			
Boron	mg/l	1	10.14	67.86	0.6	0.6	0.452	0.509	0.41					0.27					<0.5			
INORGANIC PARAMETERS:																						
Aluminum	mg/l	0.1	6.98	32.07	224	19.5	2.66	3.53	REJECT					1.63					0.801			
Antimony	mg/l	0.003	0.03	0.09	<0.015	<0.015	<0.06	<0.06	<0.06					<0.06					0.0154			
Arsenic	mg/l	0.025	1.76	12.24	<0.01	0.0245	<0.01	<0.01	<0.01					<0.01					<0.01			
Barium	mg/l	1	182.54	1277.46	<0.05	0.123	0.0507	0.0629	0.0533					0.0476					<0.05			
Beryllium	mg/l	0.003	9.75	68.25	<0.003	<0.003	<0.005	<0.005	<0.005					<0.005					<0.003			
Cadmium	mg/l	0.01	142.5	997.5	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.00644	<0.005	<0.005
Calcium	mg/l		135.78	293.6	97.1	211	102	133	150	154	147	157	165	162	155	172	148	91.2	120	136	127	133
Chromium	mg/l		0.02	0.08	0.0123	0.0498	<0.01	<0.01	<0.01					<0.01					<0.005			
Hexavalent Chromium	mg/l	0.05	0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01					<0.01					<0.01			
Cobalt	mg/l	0.005	0.03	0.06	0.02	0.024	<0.05	<0.05	<0.05					<0.05					<0.02			
Copper	mg/l	0.2	0.04	0.17	0.021	0.104	0.025	0.0206	<0.02					<0.02					0.0402			
Total Cyanide	mg/l	0.1	0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01					<0.01					<0.01			
Iron	mg/l	0.3	15.55	79.87	4.97	47.7	5.36	4.16	3.4	0.97	1.88	3.37	2.58	2.69	3.3	4.24	3.51	3.58	2.35	2.3	3.8	5.12
Lead	mg/l	0.025	0.01	0.03	0.0072	0.018	<0.005	0.0066	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.003	<0.003	<0.003	<0.003	<0.003	0.0103
Magnesium	mg/l	35	36.75	67.38	26.6	49.2	30.5	40.7	48.2	48	46.3	48.9	50.6	52.3	50.6	55	46.6	27.8	34.6	39.6	32.4	35.5
Manganese	mg/l	0.3	0.97	2.78	0.459	1.83	0.678	0.917	0.957	0.81	0.853	0.939	0.998	0.954	0.927	1.11	1.29	0.934	1.08	1.29	1.18	1.34
Mercury	mg/l	0.002	0.0002	0.0003	<0.0002	<0.0002	<0.0003	<0.0003	<0.0003					<0.0002					<0.0002			
Nickel	mg/l	0.007	0.08	0.38	<0.03	0.231	<0.04	<0.04	<0.04					<0.04					<0.03			
Potassium	mg/l		3.48	8.92	3.64	5.98	2.08	2.2	2.04	1.4	<2	<2	<2	<5	2.1	2.36	2.58	3.02	3.12	3.7	6.01	8.15
Selenium	mg/l	0.01	0.004	0.004	<0.005	<0.005	<0.005	<0.005	<0.005					<0.005					<0.005			
Silver	mg/l	0.05	0.01	0.01	REJECT	<0.01	<0.01	0.0106	<0.01					<0.01					0.01			
Sodium	mg/l	20	107.33	186.21	112	142	93.8	81.5	51.4	30	30.5	27.6	24.6	22.9	18.3	13.4	7.14	7.06	6.57	8.83	7.36	7.74
Thallium	mg/l	0.004	0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01					<0.01					<0.01			
Vanadium	mg/l	0.014	0.03	0.06	<0.03	0.0422	<0.05	<0.05	<0.05					<0.05					<0.03			
Zinc	mg/l	0.3	0.07	0.3	0.0688	0.179	0.0215	<0.02	0.0211					<0.02					0.0215			

Notes:

1. Parameters listed are Part 360 Baseline or Routine Parameters Effective 1993.
2. Blanks indicate no analysis performed
3. "<" indicates not detected at the specified method detection limit (MDL)
4. Shaded values indicate detection above Standard.

Table G-1
Albany Interim Landfill Groundwater Analytical Monitoring Data
City of Albany Landfill - Proposed Eastern Expansion Project
Albany, New York
CHA Project No. 12206
MW-10I

TEST PARAMETER (mg/l unless otherwise noted)	Unit	TOGS Guidance Value	Mean (EWQV)	Mean (EWQV) Plus 3 Std. Dev.	Sep-04 Routine	Dec-04 Baseline	Mar-05 Baseline	Jun-05 Routine	Sep-05 Routine	Dec-05 Routine	Mar-06 Routine	Jun-06 Baseline	Sep-06 Routine	Dec-06 Routine
Temperature	C°		13.08	25.46	12.62	10.62	11.3	13.3	12.67	9.5	10.78	13.47	12.38	11.94
Conductivity	uS		846	1809.27	1000	936	1052	1172	982	473	754	498	516.9	785
pH	SU	6.5-8.5	8.04	9.14	7.33	7.53	7.25	7.59	7.78	7.08	7.01	7.83	8.52	7.44
Eh	mV		-17.75	221.7	-139.2	-227.6	-12.8	65	-20.2	-17	163.5	-73.6	-17	11.3
Turbidity (after purging well)	N.T.U	5	218	862.92	277	92.1	93.9	61.7	131	48	144	134	90.7	146
LEACHATE INDICATORS:														
Ammonia Nitrogen	mg/l	2	1.44	9.18	14.9	14.2	<0.50	<0.5	<0.5	8.9	5.76	5.31	5.05	5.67
BOD 5	mg/l		2.25	4.85	8	4	<4	<4	<4	< 4	< 4	<8	<4	<4
Bromide	mg/l	2	0.45	1.49	<0.2	<0.20	<0.20	<0.2	<0.2	< 0.2	< 0.2	<2	<0.2	<0.2
COD	mg/l		24.4	53.35	29	<20	<20	65	<20	< 20	22	<20	<20	<20
Chloride	mg/l	250	49.23	104.49	18.4	20.9	45.9	91.9	56.3	764	20.6	15.9	15.4	23.2
Nitrate	mg/l	10	0.26	0.65	<0.2	<0.20	<0.20	0.56	<0.2	< 0.2	< 0.2	<0.2	<0.2	0.285
Sulfate	mg/l	250	36	52.14	38.5	38.1	95.7	31	30.2	150	21.8	25	34.4	20.8
Total Alkalinity	mg/l		472.75	791.01	510	520	510	460	370	380	350	210	380	390
Total Disolved Solids	mg/l	500	644.5	907.37	515	995	550	450	922	1900	520	390	458	535
Total Hardness	mg/l		326.5	990.91	507	498	485	544	437	636	213	289	357	411
Total Kjed. Nitrogen	mg/l		0.8	2.26	13.1	16.6	18.1	<0.5	3.95	10.2	4.77	6.75	4.94	6.58
Total Organic Carbon	mg/l	500	7.26	11.08	80	98	35	32	21	26	< 3	<3	41	40
Total Phenols	mg/l	0.001	0.004	0.004	<0.005	<0.005	0.012	<0.005	<0.005	< 0.005	< 0.005	<0.005	<0.005	<0.005
Color	P.C.U.	15	192.19	1268.01		12	100					6		
Boron	mg/l	1	10.14	67.86		<0.5	<0.5					<0.5		
INORGANIC PARAMETERS:														
Aluminum	mg/l	0.1	6.98	32.07		1.12	1.12					1.04		
Antimony	mg/l	0.003	0.03	0.09		0.0292	<0.015					<0.015		
Arsenic	mg/l	0.025	1.76	12.24		<0.010	<0.010					<0.010		
Barium	mg/l	1	182.54	1277.46		0.139	0.167					0.0593		
Beryllium	mg/l	0.003	9.75	68.25		<0.003	<0.003					<0.003		
Cadmium	mg/l	0.01	142.5	997.5	<0.005	<0.005	<0.005	<0.005	<0.005	< 0.005	< 0.005	<0.005	<0.005	<0.005
Calcium	mg/l		135.78	293.6	141	139	134	151	120	172	57.1	78.2	96.8	113
Chromium	mg/l		0.02	0.08		<0.005	<0.005					0.00579		
Hexavalent Chromium	mg/l	0.05	0.01	0.01		<0.010	<0.010					<0.010		
Cobalt	mg/l	0.005	0.03	0.06		<0.020	<0.020					<0.020		
Copper	mg/l	0.2	0.04	0.17		0.0237	0.0225					0.0113		
Total Cyanide	mg/l	0.1	0.01	0.01		<0.010	<0.010					<0.010		
Iron	mg/l	0.3	15.55	79.87	3.6	2.9	3.33	3.33	3.98	0.911	2.98	2.83	1.7	1.49
Lead	mg/l	0.025	0.01	0.03	<0.003	0.00365	0.00394	0.00328	0.00386	< 0.003	0.00434	<0.003	<0.003	<0.003
Magnesium	mg/l	35	36.75	67.38	37.8	36.6	36.4	40.8	33.5	50	17	22.7	27.9	31.4
Manganese	mg/l	0.3	0.97	2.78	1.33	1.2	1.26	1.37	1.15	1.63	0.545	0.783	0.967	1.08
Mercury	mg/l	0.002	0.0002	0.0003		<0.0002	<0.0002					<0.0002		
Nickel	mg/l	0.007	0.08	0.38		<0.030	<0.030					<0.030		
Potassium	mg/l		3.48	8.92	8.68	10.2	11	11.3	8.38	15.3	7.89	7.45	6.95	6.35
Selenium	mg/l	0.01	0.004	0.004		<0.005	<0.005					0.00932		
Silver	mg/l	0.05	0.01	0.01		<0.010	<0.010					<0.010		
Sodium	mg/l	20	107.33	186.21	6.62	5.5	6.61	10.3	9.18	469	89.9	5.79	7.9	7.47
Thallium	mg/l	0.004	0.01	0.01		<0.010	<0.010					<0.010		
Vanadium	mg/l	0.014	0.03	0.06		<0.030	<0.030					<0.030		
Zinc	mg/l	0.3	0.07	0.3		0.0346	0.0476					0.0163		

Notes:

1. Parameters listed are Part 360 Baseline or Routine Parameters Effective 1993.
2. Blanks indicate no analysis performed
3. "<" indicates not detected at the specified method detection limit (MDL)
4. Shaded values indicate detection above Standard.

Table G-1
Albany Interim Landfill
Groundwater Analytical Data -Volatile Organic Compounds
City of Albany Landfill - Proposed Eastern Expansion Project
Albany, New York
CHA Project No. 12206
MW-10I

TEST PARAMETER (g/l unless otherwise noted)	Unit	TOGS Guidance Value	Mean (EWQV)	Mean (EWQV) Plus 3 Std. Dev.	Aug-98	Oct-98	Mar-99	Oct-99	Sep-03	Dec-04	Mar-05	Jun-06
Organic Parameters												
Acetone	µg/l	50	11.25	24.24	<MDL	<MDL	<MDL	<MDL	<10	<10	<10	<10
Acrylonitrile	µg/l	5	75	75	<MDL	<MDL	<MDL	<MDL	Rejected	<100	<100	<100
Benzene	µg/l	0.7	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Bromochloromethane	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Bromodichloromethane	µg/l	50	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Bromoform	µg/l	50	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Carbon disulfide	µg/l	5	5.63	12.12	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Carbon tetrachloride	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Chlorobenzene	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Chloroethane	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Chloroform	µg/l	7	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Dibromochloromethane	µg/l	50	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
1,2 Dibromo-3-chloropropane	µg/l	5	4.69	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
1,2 Dibromomethane	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
1,2 Dichlorobenzene (o)	µg/l		3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
1,4 Dichlorobenzene (p)	µg/l	4.7	3.75	12.12	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
trans-1,2 Dichloro-2-butene	µg/l	5	5.63	3.75	<MDL	<MDL	<MDL	Reject	<10	<10	<10	<10
1,1 Dichloroethane	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
1,2 Dichloroethane	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
1,1 Dichloroethene	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
cis-1,3 Dichloroethene	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
trans-1,3 Dichloroethene	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
1,2 Dichloropropane	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
cis-1,3 Dichloropropene	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
trans-1,3 Dichloropropene	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Ethylbenzene	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
2-Hexanone	µg/l	50	7.5	7.5	<MDL	<MDL	<MDL	<MDL	<10	<10	<10	<10
Bromomethane	µg/l	5	3.75	3.75	<MDL	<MDL	Reject	<MDL	<5	<5	<5	<5
Chloromethane	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Dibromomethane	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Methylene chloride	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
2-Butanone	µg/l	50	7.5	7.5	<MDL	<MDL	<MDL	<MDL	<10	<10	<10	<10
Methyl Iodide (Iodomethane)	µg/l	5	5.63	12.12	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
4-methyl-2-pentanone	µg/l	5	7.5	7.5	<MDL	<MDL	<MDL	<MDL	<10	<10	<10	<10
Styrene	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
1,1,1,2-Tetrachloroethane	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
1,1,2,2-Tetrachloroethane	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Tetrachloroethene	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Toluene	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
1,1,1-Trichloroethene	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
1,1,2-Trichloropropane	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Trichloroethene	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Trichlorofluoromethane	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
1,2,3-Trichloropropane	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Vinyl acetate	µg/l		22.5	74.46	<MDL	<MDL	<MDL	<MDL	<50	<50	<50	<50
Vinyl chloride	µg/l	2	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
M+P Xylene	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
o - Xylene	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5

Notes:

1. Parameters listed are Part 360 Baseline Volatile Organic Compounds Parameters Effective 1993.
2. Blanks indicate no analysis performed
3. "<" indicates not detected at the specified method detection limit (MDL)

Table G-1
Albany Interim Landfill Groundwater Analytical Monitoring Data
City of Albany Landfill - Proposed Eastern Expansion Project
Albany, New York
CHA Project No. 12206
MW-10D

TEST PARAMETER (mg/l unless otherwise noted)	Unit	TOGS Guidance Value	Mean (EWQV)	Mean (EWQV) Plus 3 Std. Dev.	08/98 Expnd	10/98 Bsln	3/99 Bsln	10/99 Bsln	2Q00 Bsln	3Q00 Rtne	4Q00 Rtne	1Q01 Rtne	2Q01 Rtne	3Q01 Bsln	4Q01 Rtne	1Q02 Rtne	April-03 Routine	June-03 Routine	Sep-03 Baseline	Dec-03 Routine	Mar-04 Routine	Jun-04 Routine
Temperature	C°		13.48	24.56	19	12	11.3	11.6	13.9		6.1	9.2	20.81	13.3	9.2	9.9	11.66	12.1	12	10.48	10.94	13.11
Conductivity	uS		203.28	240.59	200	220	190.1	203	195.2	191	442	196	192.2	202	191.4	184	190	266	192	165	190	196
pH	SU	6.5-8.5	8.9	9.8	8.8	8.6	8.9	9.31	9.22	8.8	8.63	8.79	8.55	8.05	8.23	8.26	8.63	8.04	8.82	8.11	8.04	7.62
Eh	mV		-87	17.47	-80	-80	-95	-133	-106	204	-82	155	80	-25	-35	-20	116	-42	-60.2	-58.2	-67.1	-44.4
Turbidity (after purging well)	N.T.U	5	4373.5	18289.51	414	480	9500	7100	22000	>1000	5040	30500	20100	5680	24.3	137	>1000	212	816	462	400	457
LEACHATE INDICATORS:																						
Ammonia Nitrogen	mg/l	2	0.35	0.5	<0.5	<0.5	0.373	0.272	0.14	0.04	0.16	0.151	<0.05	0.133	<0.05	0.158	<0.5	1.2	<0.5	<0.5	0.9	<0.5
BOD 5	mg/l		2.93	6.27	<4	<4	4.22	<2	4.83	8	5.13	7.14	4	<2	<2	<2.0	<4	<4	<4	<4	<4	<4
Bromide	mg/l	2	0.45	1.49	<0.2	<0.2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1.0	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
COD	mg/l		17.83	52.72	35	<20	10.8	10.5	12.5	121	11.4	<5	<5	<5	<5	<5.0	43	40	35	<20	29	44
Chloride	mg/l	250	2.88	10.63	4	6	<1	<1	<1	<1	<1	<1	7.79	2.38	4.5	<2.0	2	2	2	2	2	<1
Nitrate	mg/l	10	0.26	0.65	<0.2	<0.2	<0.5	<0.5	<0.5	0.07	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Sulfate	mg/l	250	3.05	6.24	<5	<5	<2	3.19	3.47	3.1	3.71	2.74	4.49	3.66	3.58	4	<5	7	<5	6	<5	3.66
Total Alkalinity	mg/l		325.28	1694.73	95	98	1010	98.1	112	870	102	114	93.3	99.6	84.8	100	94	90	100	98	110	100
Total Dissolved Solids	mg/l	500	281.5	519.88	200	390	277	259	336	180	403	372	337	175	109	163	240	150	180	130	68	143
Total Hardness	mg/l		1379.75	5637.92	222	107	2850	2340	5500	2331	3110	4000	723	2150	545	494	1100	590	770	970	830	1000
Total Kjed. Nitrogen	mg/l		0.93	3.31	<0.5	<0.5	0.899	2.06	10.1	13	13	0.567	6.86	8	<0.2	0.869	3.3	1.1	1.7	<0.5	1.3	0.79
Total Organic Carbon	mg/l	500	1.61	2.99	1	2	1.93	1.5	2.23	<1	1.39	1.58	1.71	1.42	1.14	<1.0	<3	<3	<3	<3	<3	5.5
Total Phenols	mg/l	0.001	0.004	0.004	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.00582
Color	P.C.U.	15	15.88	62.22	36	20	<5	<5	300					800					18			
Boron	mg/l	1	0.24	0.89	<0.1	<0.1	0.274	0.53	0.81					0.969					<0.5			
INORGANIC PARAMETERS:																						
Aluminum	mg/l	0.1	81.84	377.58	16.2	9.77	79.4	222	REJECT					417					127			
Antimony	mg/l	0.003	0.03	0.08	<0.015	0.0392	<0.06	0.0064	<0.06					<0.0169					<0.015			
Arsenic	mg/l	0.025	0.06	0.26	0.0288	0.015	0.0493	0.16	0.222					0.189					0.0109			
Barium	mg/l	1	0.89	3.84	0.191	0.138	1	2.24	2.49					2.38					0.205			
Beryllium	mg/l	0.003	0.01	0.02	<0.003	<0.003	<0.005	0.0139	0.0192					0.0066					<0.003			
Cadmium	mg/l	0.01	0.004	0.004	<0.005	<0.005	<0.005	0.0034	0.0347	<0.005	0.0122	0.007	0.0063	<0.0012	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Calcium	mg/l		630.98	3046.51	59.7	28.2	686	1750	3430	895	4070	1360	2850	1290	15.1	154	321	187	236	283	251	312
Chromium	mg/l		0.12	0.47	0.0297	0.0481	0.142	0.28	0.448					0.555					0.022			
Hexavalent Chromium	mg/l	0.05	0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01					<0.01					<0.01			
Cobalt	mg/l	0.005	0.08	0.39	<0.02	<0.02	0.0644	0.229	0.352					0.327					<0.02			
Copper	mg/l	0.2	0.42	1.41	0.0604	0.446	0.308	0.854	0.987					0.881					0.061			
Total Cyanide	mg/l	0.1	0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01					<0.01					<0.01			
Iron	mg/l	0.3	210.43	1025.67	31.3	19.4	190	601	1300	6.7	1540	982	1180	780	0.842	81.7	78.8	22.5	30	45.9	29	35.4
Lead	mg/l	0.025	0.11	0.52	0.0248	0.0121	0.0872	0.307	0.368	<0.005	0.54	0.358	0.393	0.308	<0.005	0.0295	0.0144	0.00394	<0.003	0.00718	0.00944	0.0209
Magnesium	mg/l	35	137.17	703:67	17.8	8.89	110	412	517	23	1110	383	726	460	3.07	46.4	65.7	29.4	45.2	64.3	49.8	54.7
Manganese	mg/l	0.3	6.42	31.55	0.663	0.394	6.32	18.3	33.6	5.46	45.1	20.7	28.3	18.9	0.023	1.86	2.84	1.53	1.9	2.55	2.06	2.53
Mercury	mg/l	0.002	0.0003	0.0009	<0.0002	<0.0002	0.00051	0.00042	0.0011					<0.0002					<0.0002			
Nickel	mg/l	0.007	0.18	0.83	0.035	0.0372	0.16	0.495	0.678					0.616					0.034			
Potassium	mg/l		16.68	54.75	13	3.53	16.3	33.9	44.6	3.4	77.5	111	116	105	<2	18.1	8.54	6.43	4.19	4.25	4.4	4.94
Selenium	mg/l	0.01	0.01	0.02	<0.005	<0.005	0.00982	0.0113	<0.025					0.0176					<0.005			
Silver	mg/l	0.05	0.01	0.02	REJECT	<0.01	<0.01	<0.0033	<0.01					0.0199					<0.01			
Sodium	mg/l	20	85.63	430.65	258	26.3	23.7	34.5	42.2	28	49	41.4	38.6	32.2	19.2	29.3	22.1	24.3	19.1	22.1	21.8	24.1
Thallium	mg/l	0.004	0.01	0.03	<0.01	<0.01	<0.01	<0.0253	<0.05					<0.024					<0.01			
Vanadium	mg/l	0.014	0.2	0.96	<0.03	<0.03	0.212	0.558	0.842					1.21					<0.03			
Zinc	mg/l	0.3	0.51	2.36	0.121	0.106	398	1.41	1.86					1.86					0.0979			

Notes:

1. Parameters listed are Part 360 Baseline or Routine Parameters Effective 1993.
2. Blanks indicate no analysis performed
3. "<" indicates not detected at the specified method detection limit (MDL)
4. Shaded values indicate detection above Standard.

Table G-1
Albany Interim Landfill Groundwater Analytical Monitoring Data
City of Albany Landfill - Proposed Eastern Expansion Project
Albany, New York
CHA Project No. 12206
MW-10D

TEST PARAMETER (mg/l unless otherwise noted)	Unit	TOGS Guidance Value	Mean (EWQV)	Mean (EWQV) Plus 3 Std. Dev.	Sep-04 Routine	Dec-04 Baseline	Mar-05 Baseline	Jun-05 Routine	Sep-05 Routine	Dec-05 Routine	Mar-06 Routine	Jun-06 Baseline	Sep-06 Routine	Dec-06 Routine
Temperature	C°		13.48	24.56	12.42	10.1	11.28	12.5	12	10	10.38	12.6	11.72	11.22
Conductivity	uS		203.28	240.59	190	193	192	243	194	254	182	131	132.7	178
pH	SU	6.5-8.5	8.9	9.8	8.77	8.00	8.56	8.90	8.72	8.49	7.36	8.24	9.38	8.24
Eh	mV		-87	17.47	-158.1	-215.9	-136.7	102	-62.9	-92	117	-99.3	-46.4	-35.4
Turbidity (after purging well)	N.T.U	5	4373.5	18289.51	347	269	134	216	257	46	187	134	319	300
LEACHATE INDICATORS:														
Ammonia Nitrogen	mg/l	2	0.35	0.5	<0.5	<0.500	<0.50	1.15	<0.5	< 0.5	< 0.5	<0.5	<0.5	<0.5
BOD 5	mg/l		2.93	6.27	<4	8	<4	<4	<4	< 4	< 4	<8	<4	<4
Bromide	mg/l	2	0.45	1.49	<0.2	<0.20	<0.20	<0.2	<2	< 0.2	< 0.2	<0.2	<2	<2df
COD	mg/l		17.83	52.72	<20	<20	<20	<20	55	< 20	< 20	<20	24	<20
Chloride	mg/l	250	2.88	10.63	1.53	6.64	3.32	5.36	24.3	1.72	4.11	1.03	1.35	3.39
Nitrate	mg/l	10	0.26	0.65	0.3	0.21	<0.2	0.53	<0.2	< 0.2	< 0.2	<0.2	0.3	<0.2
Sulfate	mg/l	250	3.05	6.24	10.2	9.13	<5	6.54	<5	6.65	<5	5.15	<5	<5
Total Alkalinity	mg/l		325.28	1694.73	100	190	94	57	100	180	110	360	100	160
Total Dissolved Solids	mg/l	500	281.5	519.88	125	610	112	70	258	260	182	112	142	132
Total Hardness	mg/l		1379.75	5637.92	470	520	502	172	578	301	268	308	411	415
Total Kjed. Nitrogen	mg/l		0.93	3.31	0.632	<0.5	1.32	17.4	<0.5	< 0.5	< 0.5	<0.5	<0.5	<0.5
Total Organic Carbon	mg/l	500	1.61	2.99	<3	<3	7	<3	<3	< 3	< 3	<3	4	<3
Total Phenols	mg/l	0.001	0.004	0.004	0.013	<0.005	<0.005	<0.005	<0.005	0.092	<0.005	<0.005	<0.005	<0.005
Color	P.C.U.	15	15.88	62.22		12	325					40		
Boron	mg/l	1	0.24	0.89		<0.5	<0.5					<0.5		
INORGANIC PARAMETERS:														
Aluminum	mg/l	0.1	81.84	377.58		18.2	13.9					7.11		
Antimony	mg/l	0.003	0.03	0.08		0.0311	<0.015					<0.015		
Arsenic	mg/l	0.025	0.06	0.26		<0.010	0.0192					0.0164		
Barium	mg/l	1	0.89	3.84		0.15	0.141					0.0869		
Beryllium	mg/l	0.003	0.01	0.02		<0.003	<0.003					<0.003		
Cadmium	mg/l	0.01	0.004	0.004	0.00506	0.00603	<0.005	<0.005	<0.005	< 0.005	<0.005	<0.005	<0.005	<0.005
Calcium	mg/l		630.98	3046.51	132	146	143	48.3	168	85.2	75.7	86.9	115	117
Chromium	mg/l		0.12	0.47		0.0204	0.0172					0.02		
Hexavalent Chromium	mg/l	0.05	0.01	0.01		<0.010	<0.010					<0.010		
Cobalt	mg/l	0.005	0.08	0.39		<0.020	<0.020					<0.020		
Copper	mg/l	0.2	0.42	1.41		0.0415	<0.0557					0.0209		
Total Cyanide	mg/l	0.1	0.01	0.01		<0.010	<0.0169					<0.010		
Iron	mg/l	0.3	210.43	1025.67	37.2	37.6	30.6	14.3	21.8	21.2	16.4	16.1	29.4	26.3
Lead	mg/l	0.025	0.11	0.52	0.0126	0.0131	0.0146	0.00704	0.0113	0.00842	0.00761	0.00691	0.0104	0.0129
Magnesium	mg/l	35	137.17	703:67	34	38	35.3	12.4	38.2	21.5	19.1	22	30.3	29.7
Manganese	mg/l	0.3	6.42	31.55	1.29	1.28	1.27	0.44	1.44	0.857	0.687	0.78	1.21	1.17
Mercury	mg/l	0.002	0.0003	0.0009		<0.0002	<0.0002					<0.0002		
Nickel	mg/l	0.007	0.18	0.83		0.0397	<0.030					<0.030		
Potassium	mg/l		16.68	54.75	4.31	5.06	4.28	2.99	5.93	3.09	2.39	2.31	3.35	3.07
Selenium	mg/l	0.01	0.01	0.02		<0.005	<0.005					0.00871		
Silver	mg/l	0.05	0.01	0.02		<0.010	<0.010					<0.010		
Sodium	mg/l	20	85.63	430.65	20.3	21.6	20	23.3	24.1	22.5	23	20.6	20.4	19.2
Thallium	mg/l	0.004	0.01	0.03		<0.010	<0.010					<0.010		
Vanadium	mg/l	0.014	0.2	0.96		0.0346	<0.030					<0.030		
Zinc	mg/l	0.3	0.51	2.36		0.131	0.0733					0.0591		

Notes:

1. Parameters listed are Part 360 Baseline or Routine Parameters Effective 1993.
2. Blanks indicate no analysis performed
3. "<" indicates not detected at the specified method detection limit (MDL)
4. Shaded values indicate detection above Standard.

Table G-1
Albany Interim Landfill
Groundwater Analytical Data -Volatile Organic Compounds
City of Albany Landfill - Proposed Eastern Expansion Project
Albany, New York
CHA Project No. 12206
MW-10D

TEST PARAMETER (µg/l unless otherwise noted)	Unit	TOGS Guidance Value	Mean (EWQV)	Mean (EWQV) Plus 3 Std. Dev.	Aug-98	Oct-98	Mar-99	Oct-99	Sep-03	Dec-04	Mar-05	Jun-06
Organic Parameters												
Acetone	µg/l	50	11.25	24.24	<MDL	<MDL	<MDL	<MDL	<10	<10	<10	<10
Acrylonitrile	µg/l	5	75	75	<MDL	<MDL	<MDL	<MDL	Rejected	<100	<100	<100
Benzene	µg/l	0.7	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Bromochloromethane	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Bromodichloromethane	µg/l	50	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Bromoform	µg/l	50	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Carbon disulfide	µg/l	5	5.63	12.12	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Carbon tetrachloride	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Chlorobenzene	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Chloroethane	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Chloroform	µg/l	7	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Dibromochloromethane	µg/l	50	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
1,2 Dibromo-3-chloropropane	µg/l	5	4.69	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
1,2 Dibromomethane	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
1,2 Dichlorobenzene (o)	µg/l		3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
1,4 Dichlorobenzene (p)	µg/l	4.7	3.75	12.12	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
trans-1,2 Dichloro-2-butene	µg/l	5	5.63	3.75	<MDL	<MDL	<MDL	reject	<10	<10	<10	<10
1,1 Dichloroethane	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
1,2 Dichloroethane	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
1,1 Dichloroethene	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
cis-1,3 Dichloroethene	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
trans-1,3 Dichloroethene	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
1,2 Dichloropropane	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
cis-1,3 Dichloropropene	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
trans-1,3 Dichloropropene	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Ethylbenzene	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
2-Hexanone	µg/l	50	7.5	7.5	<MDL	<MDL	<MDL	<MDL	<10	<10	<10	<10
Bromomethane	µg/l	5	3.75	3.75	<MDL	<MDL	Reject	<MDL	<5	<5	<5	<5
Chloromethane	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Dibromomethane	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Methylene chloride	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
2-Butanone	µg/l	50	7.5	7.5	<MDL	<MDL	<MDL	<MDL	<10	<10	<10	<10
Methyl Iodide (Iodomethane)	µg/l	5	5.63	12.12	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
4-methyl-2-pentanone	µg/l	5	7.5	7.5	<MDL	<MDL	<MDL	<MDL	<10	<10	<10	<10
Styrene	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
1,1,1,2-Tetrachloroethane	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
1,1,2,2-Tetrachloroethane	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Tetrachloroethene	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Toluene	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
1,1,1-Trichloroethene	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
1,1,2-Trichloropropane	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Trichloroethene	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Trichlorofluoromethane	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
1,2,3-Trichloropropane	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Vinyl acetate	µg/l		22.5	74.46	<MDL	<MDL	<MDL	<MDL	<50	<50	<50	<50
Vinyl chloride	µg/l	2	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
M+P Xylene	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
o - Xylene	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5

Notes:

1. Parameters listed are Part 360 Baseline Volatile Organic Compounds Parameters Effective 1993.
2. Blanks indicate no analysis performed
3. "<" indicates not detected at the specified method detection limit (MDL)

Table G-1
Albany Interim Landfill Groundwater Analytical Monitoring Data
City of Albany Landfill - Proposed Eastern Expansion Project
Albany, New York
CHA Project No. 12206
MW-12S

TEST PARAMETER (mg/l unless otherwise noted)	Unit	TOGS Guidance Value	Mean (EWQV)	Mean (EWQV) Plus 3 Std. Dev.	07/00 Expnd	07/00 Expnd	08/00 Bsln	08/00 Bsln	09/00 Bsln	4Q00 Rtne	1Q01 Rtne	2Q01 Rtne	3Q01 Rtne	4Q01 Rtne	1Q02 Rtne	April-03 Routine	June-03 Routine	Sep-03 Baseline	Dec-03 Routine	Mar-04 Routine	Jun-04 Routine
Temperature	C°		16.34	21.16	17.9	17.9	15.4	16.3	14.2	4.7	11	19.9	18.1	11.3	10.4	12.8	12.5	12.94	13.25	10.73	11.84
Conductivity	uS		1176	2889.61	1256	1256	1448	210	1710	6.89	28.1	1809	279	1855	1418	2105	240	2427	306	273	269
pH	SU	6.5-8.5	6.83	6.96	6.8	6.8	6.84	6.86	6.75	7.8	6.63	6.73	6.72	7.05	6.9	6.64	6.9	7.01	7.64	8.03	7
Eh	mV		15.6	20.15	15	15	14	18	16	-33	40	-25	-55	15	-40	4.5	-4	-52.7	-51.5	-72	-65.6
Turbidity (after purging well)	N.T.U	5	792	2528.04	1700	920	430	190	720	436	575	294	414	390	304	600	230	117	447	500	>1000
LEACHATE INDICATORS:															0.231						
Ammonia Nitrogen	mg/l	2	0.1	0.13	0.0988	0.111	0.0863	0.0886	0.<08	0.271	0.973	0.0834	0.154	0.131	<0.05	<0.5	<0.5	0.9	<0.5	1.1	<0.5
BOD 5	mg/l		15.74	68.7	14.8	15.3	<2	2.08	45	<2	<2	<2	<2	<2	12	5	<4	<4	<4	<4	<4
Bromide	mg/l	2	0.75	0.75	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	40.7	<0.2	<2	<0.2	<0.2	<0.2	<0.2
COD	mg/l		24.38	50.46	28	35.8	13.7	18	26.4	30	33	27.2	24.1	24.6	749	77	53	<20	<20	<20	28
Chloride	mg/l	250	383.2	582.12	384	452	295	442	343	747	448	504	720	708	<2.0	540	560	550	42	40	43
Nitrate	mg/l	10	0.87	1.36	0.725	0.66	1.02	1.01	0.913	0.665	<0.5	0.623	<0.5	<0.5	117	0.7	1	0.9	<0.2	<0.2	0.35
Sulfate	mg/l	250	86.46	112.61	87.1	98.8	74.5	84	87.9	119	90.8	88.7	88.5	93.2	320	130	86	80	15	14	25.6
Total Alkalinity	mg/l		279.8	342.96	280	309	264	256	290	358	315	283	278	262	1650	280	310	270	110	61	56
Total Dissolved Solids	mg/l	500	1014.2	1409.86	<040	1190	839	1060	942	1680	1170	1220	1610	1570	391	1400	1300	1300	190	190	180
Total Hardness	mg/l		380.6	493.8	415	418	328	380	362	520	311	409	469	540	0.991	370	480	330	100	89	88.6
Total Kjed. Nitrogen	mg/l		2.82	6.13	4.2	2.58	2.32	1.38	3.6	1.41	1.7	0.979	1.24	1.02	11	1.4	0.8	0.9	<0.5	0.9	<0.5
Total Organic Carbon	mg/l	500	8.23	13.17	7.69	9.23	6.97	6.66	<0.58	<0.14	9.98	8.16	8.21	8.47	<1.0	13	8	9	<3	<3	<3
Total Phenols	mg/l	0.001	0.004	0.004	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Color	P.C.U.	15	41	95.5	35	60	20	30	60				60					400			
Boron	mg/l	1	0.15	0.15	<0.2	<0.2	<0.2	<0.2	<0.2				<0.2					<0.5			
INORGANIC PARAMETERS:																					
Aluminum	mg/l	0.1	34.34	82.52	56.4	35.6	33	11.1	35.6				<0.2					3.67			
Antimony	mg/l	0.003	0.05	0.05	<0.06	<0.06	REJECT	<0.06	REJECT				<0.06					<0.015			
Arsenic	mg/l	0.025	0.02	0.04	0.0302	0.0154	<0.01	<0.01	0.0187				<0.01					<0.01			
Barium	mg/l	1	0.2	0.38	0.281		0.19	0.113	0.205				0.154					0.09			
Beryllium	mg/l	0.003	0	0	<0.005	<0.005	<0.005	<0.005	<0.005				<0.005					<0.003			
Cadmium	mg/l	0.01	0.004	0.004	<0.005	<0.005	0.0057	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Calcium	mg/l		104.44	131.22	117	<09	96.8	<04	95.4	112	156	123	125	152	112	113	156	105	32.5	28.4	27.1
Chromium	mg/l		0.07	0.16	0.113	0.0701	0.0524	0.0229	0.0697				0.0212					0.00599			
Hexavalent Chromium	mg/l	0.05	0.01	0.01	REJECT	REJECT	<0.01	REJECT	<0.01				<0.01					<0.01			
Cobalt	mg/l	0.005	0.04	0.04	<0.05	<0.05	<0.05	<0.05	<0.05				<0.05					<0.02			
Copper	mg/l	0.2	0.09	0.23	0.161	0.102	0.0621	0.0388	0.101				<0.02					0.0396			
Total Cyanide	mg/l	0.1	0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01				0.011					<0.01			
Iron	mg/l	0.3	55.02	133.97	87.2	59.1	37.8	20.6	70.4	5.7	38	15.6	21	25.4	28.9	13.8	8.96	7.7	15.2	16.4	24.3
Lead	mg/l	0.025	0.03	0.07	0.0454	0.0333	0.0171	0.0068	0.0281	<0.005	<0.005	<0.005	0.0069	0.00589	0.00821	<0.003	<0.003	<0.003	0.009	0.00598	0.0112
Magnesium	mg/l	35	28.76	39.48	33.6	29.5	25.7	24.8	30.2	25.2	32.8	24.3	28	35.2	27.1	20.6	21.5	17.5	4.63	4.42	5.06
Manganese	mg/l	0.3	0.86	1.53	1.17	0.97	0.743	0.584	0.842	0.532	0.519	0.532	0.504	0.523	0.734	0.283	0.365	0.262	0.104	0.0921	0.161
Mercury	mg/l	0.002	0.0002	0.0002	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003				<0.0002					0.0006			
Nickel	mg/l	0.007	0.06	0.14	0.0964	0.0677	<0.04	<0.04	0.0644				<0.04					<0.03			
Potassium	mg/l		7.36	13.42	9.77	7.09	7.7	4.86	REJECT	8.74	6.64	4.94	5.72	6.62	8.58	5.53	8.17	6.55	3.91	3.22	4.01
Selenium	mg/l	0.01	0.02	0.14	0.006	0.008	<0.005	<0.005	0.095				<0.005					<0.005			
Silver	mg/l	0.05	0.01	0.01	<0.01	<0.01	REJECT	<0.01	<0.01				<0.01					<0.01			
Sodium	mg/l	20	204.6	278.89	224	234	179	181	205	107	320	283	332	469	401	442	245	253	23.9	13.5	16.2
Thallium	mg/l	0.004	0.02	0.07	<0.05	<0.05	<0.01	<0.01	<0.01				<0.01					<0.01			
Vanadium	mg/l	0.014	0.19	0.47	0.309	0.2	0.158	0.0798	REJECT				0.0791					<0.03			
Zinc	mg/l	0.3	0.19	0.37	0.272	0.177	0.147	0.124	0.227				0.0557					0.0402			

Notes:

1. Parameters listed are Part 360 Baseline or Routine Parameters Effective 1993.
2. Blanks indicate no analysis performed
3. "<" indicates not detected at the specified method detection limit (MDL)
4. Shaded values indicate detection above Standard.
5. Alkalinity results for the MW-12 cluster during the June 2006 sampling event were delivered in incorrect order

Table G-1
Albany Interim Landfill Groundwater Analytical Monitoring Data
City of Albany Landfill - Proposed Eastern Expansion Project
Albany, New York
CHA Project No. 12206
MW-12S

TEST PARAMETER (mg/l unless otherwise noted)	Unit	TOGS Guidance Value	Mean (EWQV)	Mean (EWQV) Plus 3 Std. Dev.	Sep-04 Routine	Dec-04 Baseline	Mar-05 Baseline	Jun-05 Routine	Sep-05 Routine	Dec-05 Routine	Mar-06 Routine	Jun-06 Baseline	Sep-06 Routine	Dec-06 Routine
Temperature	C°		16.34	21.16	16.04	14.78	10.54	12	17.73	14.9	11.09	12.56	17.17	13.69
Conductivity	uS		1176	2889.61	410	282	231	325	266	273	210	160	166.2	197
pH	SU	6.5-8.5	6.83	6.96	7.83	7.87	7.72	9.18	8.04	7.53	7.41	7.86	7.73	8.2
Eh	mV		15.6	20.15	-101	-214.7	-48.2	111	-72.3	-46	123	-85.1	-66.8	-61.6
Turbidity (after purging well)	N.T.U	5	792	2528.04	546	350	470	197	533	93	529	419	501	381
LEACHATE INDICATORS:														
Ammonia Nitrogen	mg/l	2	0.1	0.13	<0.5	<0.5	2520	<0.5	<0.5	< 0.5	< 0.5	<0.5	<0.5	<0.5
BOD 5	mg/l		15.74	68.7	<4	<4	<4	13	<4	< 6	< 8	22	<4	<4
Bromide	mg/l	2	0.75	0.75	<0.2	<0.20	<0.20	<2	<2	< 2	< 0.2	<2	<2	<2df
COD	mg/l		24.38	50.46	37	<20	<20	<20	<20	< 20	< 20	27	22	25
Chloride	mg/l	250	383.2	582.12	36.2	48	34.5	31.6	34.2	27.1	36.5	25.7	31.8	25.8
Nitrate	mg/l	10	0.87	1.36	0.3	<0.2	<0.20	<0.2	<0.2	< 0.2	< 0.2	<0.2	<0.2	<0.2
Sulfate	mg/l	250	86.46	112.61	20.1	7.03	7.9	13.1	7.9	12.5	10.9	11.3	6.34	5.79
Total Alkalinity	mg/l		279.8	342.96	77	110	45	40	60	60	47	60	60	61
Total Dissolved Solids	mg/l	500	1014.2	1409.86	150	457	147	102	265	168	218	140	160	127
Total Hardness	mg/l		380.6	493.8	103	93.2	73.1	79.6	82.7	63.1	67.3	64.8	65.3	60.6
Total Kjed. Nitrogen	mg/l		2.82	6.13	0.948	<0.5	<0.5	<0.5	<0.5	< 0.5	< 0.5	<0.5	<0.5	<0.5
Total Organic Carbon	mg/l	500	8.23	13.17	<3	<3	<3	<3	<3	< 3	< 3	<3	<3	<3
Total Phenols	mg/l	0.001	0.004	0.004	<0.005	<0.005	0.014	<0.005	<0.005	0.006	<0.005	<0.005	<0.005	<0.005
Color	P.C.U.	15	41	95.5		10	100					130		
Boron	mg/l	1	0.15	0.15		<0.5	<0.5					<0.5		
INORGANIC PARAMETERS:														
Aluminum	mg/l	0.1	34.34	82.52		8.97	8.05					9.62		
Antimony	mg/l	0.003	0.05	0.05		0.025	0.0186					<0.015		
Arsenic	mg/l	0.025	0.02	0.04		<0.010	0.0133					0.0126		
Barium	mg/l	1	0.2	0.38		0.0505	<0.050					0.0528		
Beryllium	mg/l	0.003	0	0		<0.003	<0.003					<0.003		
Cadmium	mg/l	0.01	0.004	0.004	0.00538	<0.005	<0.005	<0.5	<0.005	< 0.005	< 0.005	<0.005	<0.005	<0.005
Calcium	mg/l		104.44	131.22	32.5	29.6	22.9	25.7	25.9	20.6	20.7	19.5	20.1	19.6
Chromium	mg/l		0.07	0.16		0.0129	0.0111					0.0161		
Hexavalent Chromium	mg/l	0.05	0.01	0.01		<0.010	<0.010					<0.020		
Cobalt	mg/l	0.005	0.04	0.04		<0.020	<0.020					<0.020		
Copper	mg/l	0.2	0.09	0.23		0.0197	0.0246					0.0194		
Total Cyanide	mg/l	0.1	0.01	0.01		<0.010	<0.010					<0.010		
Iron	mg/l	0.3	55.02	133.97	24	17	18.4	16.7	22.8	10.9	23.9	18.1	17.7	10.1
Lead	mg/l	0.025	0.03	0.07	0.0115	0.00391	0.00614	0.00809	0.00746	0.00447	0.0104	0.00674	0.00703	0.00541
Magnesium	mg/l	35	28.76	39.48	5.21	4.67	3.87	3.74	4.38	2.82	3.82	3.92	3.66	2.84
Manganese	mg/l	0.3	0.86	1.53	0.22	0.127	0.389	0.313	0.455	0.208	0.36	0.212	0.307	0.267
Mercury	mg/l	0.002	0.0002	0.0002		<0.0002	<0.0002					<0.0002		
Nickel	mg/l	0.007	0.06	0.14		<0.030	<0.030					<0.030		
Potassium	mg/l		7.36	13.42	3.58	3.59	3.14	2.67	3.07	2	2.59	2.78	2.55	1.3
Selenium	mg/l	0.01	0.02	0.14		<0.005	<0.005					0.00609		
Silver	mg/l	0.05	0.01	0.01		<0.010	<0.010					<0.01		
Sodium	mg/l	20	204.6	278.89	16.7	12.8	12.1	15.7	16.5	12.8	12.8	13.8	15.7	10.8
Thallium	mg/l	0.004	0.02	0.07		<0.010	<0.010					<0.010		
Vanadium	mg/l	0.014	0.19	0.47		0.0748	0.0936					0.0714		
Zinc	mg/l	0.3	0.19	0.37		0.0635	0.0402					0.0831		

Notes:

1. Parameters listed are Part 360 Baseline or Routine Parameters Effective 1993.
2. Blanks indicate no analysis performed
3. "<" indicates not detected at the specified method detection limit (MDL)
4. Shaded values indicate detection above Standard.
5. Alkalinity results for the MW-12 cluster during the June 2006 sampling event were delivered in incorrect

Table G-1
Albany Interim Landfill
Groundwater Analytical Data -Volatile Organic Compounds
City of Albany Landfill - Proposed Eastern Expansion Project
Albany, New York
CHA Project No. 12206
MW-12S

TEST PARAMETER (µg/l unless otherwise noted)	Unit	TOGS Guidance Value	Mean (EWQV)	Mean (EWQV) Plus 3 Std. Dev.	Jul-00	Jul-00	Aug-00	Aug-00	Sep-00	Sep-03	Dec-04	Mar-05	Jun-06
Organic Parameters													
Acetone	µg/l	50	15	15	<MDL	<MDL	<MDL	<MDL	<MDL	<10	<10	<10	<10
Acrylonitrile	µg/l	5	75	75	<MDL	<MDL	<MDL	<MDL	<MDL	Rejected	<100	<100	<100
Benzene	µg/l	0.7	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Bromochloromethane	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Bromodichloromethane	µg/l	50	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Bromoform	µg/l	50	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Carbon disulfide	µg/l	5	7.5	7.5	<MDL	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Carbon tetrachloride	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Chlorobenzene	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Chloroethane	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Chloroform	µg/l	7	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<MDL	<5	7.5	37	54
Dibromochloromethane	µg/l	50	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
1,2 Dibromo-3-chloropropane	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
1,2 Dibromomethane	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
1,2 Dichlorobenzene (o)	µg/l		5.25	11.41	<MDL	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
1,4 Dichlorobenzene (p)	µg/l	4.7	5.25	11.41	<MDL	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
trans-1,2 Dichloro-2-butene	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<MDL	<10	<10	<10	<10
1,1 Dichloroethane	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
1,2 Dichloroethane	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
1,1 Dichloroethene	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
cis-1,3 Dichloroethene	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
trans-1,3 Dichloroethene	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
1,2 Dichloropropane	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
cis-1,3 Dichloropropene	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
trans-1,3 Dichloropropene	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Ethylbenzene	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
2-Hexanone	µg/l	50	7.5	7.5	<MDL	<MDL	<MDL	<MDL	<MDL	<10	<10	<10	<10
Bromomethane	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Chloromethane	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Dibromomethane	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Methylene chloride	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
2-Butanone	µg/l	50	7.5	7.5	<MDL	<MDL	<MDL	<MDL	<MDL	<10	<10	<10	<10
Methyl Iodide (Iodomethane)	µg/l	5	7.5	7.5	<MDL	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
4-methyl-2-pentanone	µg/l	5	7.5	7.5	<MDL	<MDL	<MDL	<MDL	<MDL	<10	<10	<10	<10
Styrene	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
1,1,1,2-Tetrachloroethane	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
1,1,2,2-Tetrachloroethane	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Tetrachloroethene	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Toluene	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
1,1,1-Trichloroethene	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
1,1,2-Trichloropropane	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Trichloroethene	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Trichlorofluoromethane	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
1,2,3-Trichloropropane	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Vinyl acetate	µg/l		7.5	7.5	<MDL	<MDL	<MDL	<MDL	<MDL	<50	<50	<50	<50
Vinyl chloride	µg/l	2	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
M+P Xylene	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
o - Xylene	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5

Notes:

1. Parameters listed are Part 360 Baseline Volatile Organic Compounds Parameters Effective 1993.
2. Blanks indicate no analysis performed
3. "<" indicates not detected at the specified method detection limit (MDL)

Table G-1
Albany Interim Landfill Groundwater Analytical Monitoring Data
City of Albany Landfill - Proposed Eastern Expansion Project
Albany, New York
CHA Project No. 12206
MW-12I

TEST PARAMETER (mg/l unless otherwise noted)	Unit	TOGS Guidance Value	Mean (EWQV)	Mean (EWQV) Plus 3 Std. Dev.	07/00 Expnd	07/00 Expnd	08/00 Bsln	08/00 Bsln	09/00 Bsln	4Q00 Rtne	1Q01 Rtne	2Q01 Rtne	3Q01 Rtne	4Q01 Rtne	1Q02 Rtne	April-03 Routine	June-03 Routine	Sep-03 Baseline	Dec-03 Routine	Mar-04 Routine	Jun-04 Routine
Temperature	C°		17.06	23.18	18.3	18.3	18.3	16.8	13.6	7.8	10.9	191	16.21	11.61	10.2	12.27	12.7	13.34	11.69	11.75	13.52
Conductivity	uS		1448.6	2246.56	1264	1264	1368	1905	1442	0.54	1265	1151	279	828	845	1382	1697	1039	885	939	974
pH	SU	6.5-8.5	7.33	7.55	7.4	7.4	7.3	7.34	7.23	7.8	7.39	7.37	6.72	7.41	7.26	7.37	7.16	7.7	7.48	7.56	6.74
Eh	mV		-17.6	-3.92	-21	-21	-19	-17	-10	-38	30	-55	-55	OR	-60	-81.7	-32	-108.8	-79.7	-73.5	-70.1
Turbidity (after purging well)	N.T.U	5	206.2	661.35	230	240	430	84	47	98.8	93.7	97.3	77.3	64.3	69.1	350	304	394	380	360	236
LEACHATE INDICATORS:																					
Ammonia Nitrogen	mg/l	2	13.68	16.32	12.7	13.1	15	13.7	13.9	14.8	10.8	11.4	9.71	5.86	12	14	15	9.3	5	5.2	3.95
BOD 5	mg/l		20.36	107.89	19.8	5.43	2.93	2.64	71	2.29	2.97	2.39	<2	2.41	2.55	<4	<4	<4	<4	<4	<4
Bromide	mg/l	2	1.34	1.69	1.34	1.18	1.43	1.47	1.29	1.05	1.04	<1	<1	<1	1.35	<0.2	<0.2	<0.2	<0.2	0.5	0.9
COD	mg/l		51.54	106.7	53.2	76.4	53.4	50.1	24.6	41.1	51.1	53.1	51.2	36.4	57.2	87	67	38	40	36	46
Chloride	mg/l	250	186.8	216.3	178	177	186	200	193	179	175	186	176	152	210	150	170	130	150	100	116
Nitrate	mg/l	10	0.38	0.38	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Sulfate	mg/l	250	20.94	25.61	19.4	19.4	22	21	22.9	18.5	13.4	15.1	15.3	12.3	14.9	14	10	10	22	13	14.1
Total Alkalinity	mg/l		485.2	510.16	482	482	500	480	482	425	367	403	440	309	485	470	470	320	400	290	330
Total Dissolved Solids	mg/l	500	790	806.43	782	794	790	796	788	687	664	722	733	597	820	770	660	550	610	520	95
Total Hardness	mg/l		487.8	653.5	485	498	575	443	438	388	512	399	370	312	414	460	510	270	430	300	343
Total Kjed. Nitrogen	mg/l		17.64	21.68	17.3	17.2	20	17.1	16.6	14.8	11.2	12	10	6.42	12.5	15	15	12	9.5	5.8	4.27
Total Organic Carbon	mg/l	500	18	19.9	18.75	18.45	17.6	18.03	17.18	16.33	15.83	17.7	20.73	12.48	19.9	73	61	11	15	14	14
Total Phenols	mg/l	0.001	0.004	0.004	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Color	P.C.U.	15	27	47.12	35	30	20	30	20				20					130			
Boron	mg/l	1	0.46	0.54	0.47	0.472	0.491	0.445	0.422				0.354					<0.5			
INORGANIC PARAMETERS:																					
Aluminum	mg/l	0.1	8.28	27.44	8.74	8.6	18.3	4.28	1.46				0.987					2.99			
Antimony	mg/l	0.003	0.05	0.05	<0.06	<0.06	REJECT	<0.06	REJECT				<0.06					<0.015			
Arsenic	mg/l	0.025	0.01	0.01	<0.01	<0.01	<0.01	0.0103	<0.01				<0.01					<0.01			
Barium	mg/l	1	0.37	0.49	0.347	0.342	0.439	0.358	0.349				0.286					0.228			
Beryllium	mg/l	0.003	0	0	<0.005	<0.005	<0.005	<0.005	<0.005				<0.005					<0.003			
Cadmium	mg/l	0.01	0.001	0.008	<0.005	<0.005	6.0056	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.00519	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Calcium	mg/l		138.6	206.07	140	138	174	128	113	108	95.4	115	101	85.9	115	137	151	76.6	125	84.3	97.2
Chromium	mg/l		0.02	0.04	0.0168	0.0155	0.0287	<0.01	<0.01				<0.01					<0.005			
Hexavalent Chromium	mg/l	0.05	0.01	0.01	REJECT	REJECT	<0.01	REJECT	<0.01				<0.01					<0.01			
Cobalt	mg/l	0.005	0.04	0.04	<0.05	<0.05	<0.05	<0.05	<0.05				<0.05					<0.02			
Copper	mg/l	0.2	0.04	0.1	0.0463	0.0462	0.0687	0.023	<0.02				<0.02					0.0501			
Total Cyanide	mg/l	0.1	0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01				0.011					<0.01			
Iron	mg/l	0.3	19.96	54.75	22.9	21.8	36.6	12.4	6.11	5.58	4.75	6.81	5.24	4.18	4.45	16.7	19.6	8.6	12.2	9.47	9.46
Lead	mg/l	0.025	0.01	0.02	0.0099	0.0105	0.015	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.00562	0.00389	<0.003	<0.003	0.00433	0.0103
Magnesium	mg/l	35	30.56	42.75	30.4	30	37.3	28.6	26.5	24.5	19.6	24.8	24.8	20.8	28	29.8	31.2	18.2	29.5	20.5	24.2
Manganese	mg/l	0.3	0.91	1.67	0.975	0.966	1.27	0.746	0.607	0.517	0.451	0.612	0.531	0.455	0.555	0.921	1.25	0.514	0.946	0.642	0.682
Mercury	mg/l	0.002	0.0002	0.0002	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003				<0.0002					0.002			
Nickel	mg/l	0.007	0.03	0.07	<0.04	<0.04	0.0543	<0.04	<0.04				<0.04					<0.03			
Potassium	mg/l		9.39	14.16	9.06	8.11	11.7	8.69	REJECT	8.46	6.99	7.72	7.63	5.45	7.36	11.7	11	7.91	8.31	5.55	5.39
Selenium	mg/l	0.01	0	0.01	<0.005	<0.005	0.0062	<0.005	<0.005				<0.005					<0.005			
Silver	mg/l	0.05	0.01	0.01	<0.01	<0.01	REJECT	<0.01	<0.01				<0.01					<0.010			
Sodium	mg/l	20	129.6	148.17	133	133	136	122	124	104	126	121	107	99.9	146	135	125	76.4	105	71.3	81
Thallium	mg/l	0.004	0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01				<0.01					<0.01			
Vanadium	mg/l	0.014	0.04	0.04	<0.05	<0.05	<0.05	<0.05	REJECT				<0.05					<0.03			
Zinc	mg/l	0.3	0.08	16	0.073	77	0.119	6.0625	0.04621				0.0229					0.0401			

Notes:

1. Parameters listed are Part 360 Baseline or Routine Parameters Effective 1993.
2. Blanks indicate no analysis performed
3. "<" indicates not detected at the specified method detection limit (MDL)
4. Shaded values indicate detection above Standard.
5. Alkalinity results for the MW-12 cluster during the June 2006 sampling event were delivered in incorrect order

Table G-1
Albany Interim Landfill Groundwater Analytical Monitoring Data
City of Albany Landfill - Proposed Eastern Expansion Project
Albany, New York
CHA Project No. 12206
MW-12I

TEST PARAMETER (mg/l unless otherwise noted)	Unit	TOGS Guidance Value	Mean (EWQV)	Mean (EWQV) Plus 3 Std. Dev.	Sep-04 Routine	Dec-04 Baseline	Mar-05 Baseline	Jun-05 Routine	Sep-05 Routine	Dec-05 Routine	Mar-06 Routine	Jun-06 Baseline	Sep-06 Routine	Dec-06 Routine
Temperature	C°		17.06	23.18	12.81	11.99	12.77	13.8	14.73	11.2	12.07	14.64	15.04	13.24
Conductivity	uS		1448.6	2246.56	1272	1028	1216	1434	1265	1557	1027	899	888	1174
pH	SU	6.5-8.5	7.33	7.55	7.82	7.12	7.4	8.22	7.83	7.34	6.82	7.68	8.08	7.32
Eh	mV		-17.6	-3.92	-123.5	-207.2	7.4	83	-68.6	-27	176.2	-96.2	-54.3	-42.2
Turbidity (after purging well)	N.T.U	5	206.2	661.35	289	308	594	210	182	29.6	433	205	209	270
LEACHATE INDICATORS:														
Ammonia Nitrogen	mg/l	2	13.68	16.32	4.42	4.94	<0.5	8.23	0.987	11.4	6.75	7	8.01	7.64
BOD 5	mg/l		20.36	107.89	14	<4	<4	14	<4	< 4	< 4	<8	4	<4
Bromide	mg/l	2	1.34	1.69	0.98	1	<0.2	0.8	<2	< 2	< 0.2	<2	<0.2	0.75
COD	mg/l		51.54	106.7	58	23	106	43	45	34	42	33	38	68
Chloride	mg/l	250	186.8	216.3	140	260	141	184	120	56.7	118	142	161	153
Nitrate	mg/l	10	0.38	0.38	<0.2	<0.2	<0.2	<0.2	<0.2	< 0.2	< 0.2	<0.2	<0.2	<0.2
Sulfate	mg/l	250	20.94	25.61	20.8	22.4	15.2	15	13.8	13.9	11.6	16.2	15.8	10.1
Total Alkalinity	mg/l		485.2	510.16	400	340	400	360	420	350	350	390	460	390
Total Dissolved Solids	mg/l	500	790	806.43	698	1050	618	570	995	648	628	718	712	690
Total Hardness	mg/l		487.8	653.5	382	547	489	447	382	414	364	389	388	428
Total Kjed. Nitrogen	mg/l		17.64	21.68	6.48	5.76	10.2	8.56	2.47	7.9	6.25	8.23	8.89	16
Total Organic Carbon	mg/l	500	18	19.9	20	27	40	17	14	13	12	15	39	16
Total Phenols	mg/l	0.001	0.004	0.004	<0.005	<0.005	0.013	<0.005	<0.005	< 0.005	<0.005	<0.005	<0.005	<0.005
Color	P.C.U.	15	27	47.12		7	250					24		
Boron	mg/l	1	0.46	0.54		<0.5	<0.5					<0.5		
INORGANIC PARAMETERS:														
Aluminum	mg/l	0.1	8.28	27.44		11.8	9.39					2.73		
Antimony	mg/l	0.003	0.05	0.05		0.0302	<0.015					<0.015		
Arsenic	mg/l	0.025	0.01	0.01		<0.010	<0.010					<0.010		
Barium	mg/l	1	0.37	0.49		0.268	0.29					0.292		
Beryllium	mg/l	0.003	0	0		<0.003	<0.003					<0.003		
Cadmium	mg/l	0.01	0.001	0.008	<0.005	<0.00512	<0.005	<0.005	<0.005	< 0.005	< 0.005	<0.005	<0.005	<0.005
Calcium	mg/l		138.6	206.07	107	159	141	126	104	113	100	106	102	115
Chromium	mg/l		0.02	0.04		0.0144	0.0146					0.00584		
Hexavalent Chromium	mg/l	0.05	0.01	0.01		<0.010	<0.010					<0.010		
Cobalt	mg/l	0.005	0.04	0.04		<0.020	<0.020					<0.020		
Copper	mg/l	0.2	0.04	0.1		0.0669	0.0542					<0.0199		
Total Cyanide	mg/l	0.1	0.01	0.01		<0.010	0.0207					<0.010		
Iron	mg/l	0.3	19.96	54.75	8.49	28	22.9	11.9	7.47	10.4	12.1	8.98	5.9	15
Lead	mg/l	0.025	0.01	0.02	0.00306	0.011	0.00984	0.00716	0.00395	0.00524	0.006	<0.003	<0.003	0.0187
Magnesium	mg/l	35	30.56	42.75	27.6	36.5	33.1	32.2	29.3	31.8	27.7	30.5	32.1	34.4
Manganese	mg/l	0.3	0.91	1.67	0.654	1.11	1.05	0.788	0.649	0.792	0.72	0.676	0.645	1.08
Mercury	mg/l	0.002	0.0002	0.0002		<0.0002	<0.0002					<0.002		
Nickel	mg/l	0.007	0.03	0.07		0.0384	<0.030					<0.030		
Potassium	mg/l		9.39	14.16	6.69	6.89	7.03	8.56	7.98	8.27	7.42	8.39	9.37	9.59
Selenium	mg/l	0.01	0	0.01		0.0145	<0.005					0.0085		
Silver	mg/l	0.05	0.01	0.01		<0.010	<0.010					<0.010		
Sodium	mg/l	20	129.6	148.17	114	84.1	82.8	120	117	118	95.9	99.4	112	99.4
Thallium	mg/l	0.004	0.01	0.01		<0.010	<0.010					<0.010		
Vanadium	mg/l	0.014	0.04	0.04		<0.030	<0.030					<0.030		
Zinc	mg/l	0.3	0.08	16		0.104	0.0436					0.0364		

Notes:

1. Parameters listed are Part 360 Baseline or Routine Parameters Effective 1993.
2. Blanks indicate no analysis performed
3. "<" indicates not detected at the specified method detection limit (MDL)
4. Shaded values indicate detection above Standard.
5. Alkalinity results for the MW-12 cluster during the June 2006 sampling event were delivered in incorrec

Table G-1
Albany Interim Landfill
Groundwater Analytical Data -Volatile Organic Compounds
City of Albany Landfill - Proposed Eastern Expansion Project
Albany, New York
CHA Project No. 12206
MW-12I

TEST PARAMETER (µg/l unless otherwise noted)	Unit	TOGS Guidance Value	Mean (EWQV)	Mean (EWQV) Plus 3 Std. Dev.	Jul-00	Jul-00	Aug-00	Aug-00	Sep-00	Sep-03	Dec-04	Mar-05	Jun-06
Organic Parameters													
Acetone	µg/l	50	15	15	<MDL	<MDL	<MDL	<MDL	<MDL	<10	<10	<10	<10
Acrylonitrile	µg/l	5	75	75	<MDL	<MDL	<MDL	<MDL	<MDL	Rejected	<100	<100	<100
Benzene	µg/l	0.7	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Bromochloromethane	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Bromodichloromethane	µg/l	50	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Bromoform	µg/l	50	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Carbon disulfide	µg/l	5	7.5	7.5	<MDL	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Carbon tetrachloride	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Chlorobenzene	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Chloroethane	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Chloroform	µg/l	7	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Dibromochloromethane	µg/l	50	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
1,2 Dibromo-3-chloropropane	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
1,2 Dibromomethane	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
1,2 Dichlorobenzene (o)	µg/l		5.25	11.41	<MDL	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
1,4 Dichlorobenzene (p)	µg/l	4.7	5.25	11.41	<MDL	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
trans-1,2 Dichloro-2-butene	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<MDL	<10	<10	<10	<10
1,1 Dichloroethane	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
1,2 Dichloroethane	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
1,1 Dichloroethene	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
cis-1,3 Dichloroethene	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
trans-1,3 Dichloroethene	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
1,2 Dichloropropane	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
cis-1,3 Dichloropropene	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
trans-1,3 Dichloropropene	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Ethylbenzene	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
2-Hexanone	µg/l	50	7.5	7.5	<MDL	<MDL	<MDL	<MDL	<MDL	<10	<10	<10	<10
Bromomethane	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Chloromethane	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Dibromomethane	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Methylene chloride	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
2-Butanone	µg/l	50	7.5	7.5	<MDL	<MDL	<MDL	<MDL	<MDL	<10	<10	<10	<10
Methyl Iodide (Iodomethane)	µg/l	5	7.5	7.5	<MDL	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
4-methyl-2-pentanone	µg/l	5	7.5	7.5	<MDL	<MDL	<MDL	<MDL	<MDL	<10	<10	<10	<10
Styrene	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
1,1,1,2-Tetrachloroethane	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
1,1,2,2-Tetrachloroethane	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Tetrachloroethene	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Toluene	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
1,1,1-Trichloroethene	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
1,1,2-Trichloropropane	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Trichloroethene	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Trichlorofluoromethane	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
1,2,3-Trichloropropane	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Vinyl acetate	µg/l		7.5	7.5	<MDL	<MDL	<MDL	<MDL	<MDL	<50	<50	<50	<50
Vinyl chloride	µg/l	2	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
M+P Xylene	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
o - Xylene	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5

Notes:

1. Parameters listed are Part 360 Baseline Volatile Organic Compounds Parameters Effective 1993.
2. Blanks indicate no analysis performed
3. "<" indicates not detected at the specified method detection limit (MDL)

Table G-1
Albany Interim Landfill Groundwater Analytical Monitoring Data
City of Albany Landfill - Proposed Eastern Expansion Project
Albany, New York
CHA Project No. 12206
MW-12D

TEST PARAMETER (mg/l unless otherwise noted)	Unit	TOGS Guidance Value	Mean (EWQV)	Mean (EWQV) Plus 3 Std. Dev.	07/00 Expnd	07/00 Expnd	08/00 Bsln	08/00 Bsln	09/00 Bsln	4Q00 Rtne	1Q01 Rtne	2Q01 Rtne	3Q01 Rtne	4Q01 Rtne	1Q02 Rtne	April-03 Routine	June-03 Routine	Sep-03 Baseline	Dec-03 Routine	Mar-04 Routine	Jun-04 Routine
Temperature	C°		17.88	21.29	18.2	18.2	19.4	17.2	16.4	6.3	11.1	16.9	15.4	<0.7	12.4	11.75	13.2	12.57	11.2	11.73	13.06
Conductivity	uS		335.56	717.28	199.9	199.9	420	470	388	2.94	202	202	191.5	58.3	186.3	193	280	193	158	197	199
pH	SU	6.5-8.5	8.48	9	8.4	8.4	8.4	8.34	8.78	8.95	8.5	8.38	8.13	8.14	8.11	8.49	7.96	8.78	8.27	7.97	7.43
Eh	mV		-80.6	-57.5	-79	-79	-76	-75	-94	-97	125	170	85	-35	-60	-98.5	-36	-133.1	-25	-59.9	-52.2
Turbidity (after purging well)	N.T.U	5	6920	12981.19	8300	9500	6300	4300	6200	18900	19300	43300	268	13200	3200	>1000	270	>1000	1000	850	>1000
LEACHATE INDICATORS:																					
Ammonia Nitrogen	mg/l	2	0.33	0.76	0.37	0.44	0.469	0.214	0.142	0.381	0.162	0.0743	0.0629	0.151	0.136	<0.5	<0.5	0.6	0.6	1.4	<0.5
BOD 5	mg/l		4.85	14.7	<6	<6	<2	3.47	<0.3	5.92	7.22	2.7	<2	<2	4.67	<4	<4	<4	<4	<4	<4
Bromide	mg/l	2	0.75	0.75	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	11	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
COD	mg/l		11.11	19.65	13.7	11.1	13.7	6.85	<0.2	21.6	<5	<5	<5	<5	8.21	110	35	31	<20	54	76
Chloride	mg/l	250	1.04	2.06	1.14	1	<1	<1	1.57	<1	<1	<1	1.19	<1	12	<1	1	1	<1	<1	<1
Nitrate	mg/l	10	0.38	0.38	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Sulfate	mg/l	250	12637	30.39	7.75	7.32	12.1	14.4	21.8	4.16	2.9	2.56	4.55	2.9	2.6	<5	8	<5	6	<5	<5
Total Alkalinity	mg/l		108.4	112.95	109	109	110	106	<08	108	103	104	99.5	104	107	100	99	110	110	110	110
Total Disolved Solids	mg/l	500	176.4	279.53	195	226	149	143	169	170	184	174	139	125	125	160	75	170	130	140	110
Total Hardness	mg/l		5774	13475.4	3260	2750	7040	8200	7620	5610	4020	9670	96.7	1820	1260	2200	410	800	1300	980	891
Total Kjed. Nitrogen	mg/l		20.12	53.14	37.9	18.2	15.4	8.21	20.9	8.29	0.615	19.1	0.426	20.6	3.48	4.7	<0.5	2.8	2	1.6	1.11
Total Organic Carbon	mg/l	500	1.78	2.23	1.93	1.81	1.54	1.77	1.86	1.43	1.75	1.91	<1	1.71	11	<6	<3	11	<3	6	16.8
Total Phenols	mg/l	0.001	0.004	0.004	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Color	P.C.U.	15	98	378.74	200	200	15	35	40				30					17			
Boron	mg/l	1	0.82	1.99	0.523	0.568	<1	0.762	1.49				0.0439					<0.5			
INORGANIC PARAMETERS:																					
Aluminum	mg/l	0.1	322.8	676.74	211	236	339	318	510				7.7					10.5			
Antimony	mg/l	0.003	0.11	0.42	<0.06	<0.06	REJECT	<0.3	REJECT				<0.0034					<0.015			
Arsenic	mg/l	0.025	0.26	0.65	0.162	0.184	0.227	0.243	0.488				0.0089					0.0125			
Barium	mg/l	1	2.61	6.14	1.45	1.42	2.74	3.35	4.1				0.14					0.305			
Beryllium	mg/l	0.003	0.02	0.04	0.0129	0.0141	<0.025	0.0216	0.0292				<0.00016					<0.003			
Cadmium	mg/l	0.01	0.025	0.048	0.0178	0.0196	0.0301	0.021	0.0359	0.018	0.0162	0.0458	0.001	0.0348	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Calcium	mg/l		3062	6377.94	2190	1950	2750	3930	4490	6440	3840	9810	28.1	3890	701	648	118	272	442	330	254
Chromium	mg/l		0.44	0.98	0.282	0.313	0.427	0.441	0.736				0.009					0.0123			
Hexavalent Chromium	mg/l	0.05	0.01	0.01	REJECT	REJECT	<0.01	<0.01	<0.01				<0.01					<0.01			
Cobalt	mg/l	0.005	0.38	0.91	0.243	0.263	0.334	0.382	0.677				0.005					<0.02			
Copper	mg/l	0.2	1.24	2.28	0.915	1.01	1.3	1.12	1.79				0.021					0.0533			
Total Cyanide	mg/l	0.1	0.01	0.02	<0.01	<0.01	<0.01	<0.01	<0.02				<0.01					<0.01			
Iron	mg/l	0.3	96120	1920.01	803	875	719	889	1520	1530	1470	3030	<0.6	1790	368	175	20.7	26.4	18.1	19.6	50.9
Lead	mg/l	0.025	0.38	1.08	0.208	0.231	0.195	0.598	0.672	0.56	0.524	1	0.0078	1.02	0.135	0.0301	0.00485	<0.003	<0.003	<0.003	0.0264
Magnesium	mg/l	35	645.6	1612.07	457	483	462	616	1210	1660	913	2230	7.6	1020	216	147	27	28.5	56	37.5	62.2
Manganese	mg/l	0.3	32.68	68.12	25.8	25.5	25.4	33.9	52.8	62.4	42.7	<06	0.228	47.6	9.26	6.11	1.17	1.86	3.06	2.25	2.61
Mercury	mg/l	0.002	0.0008	0.0011	0.00072	0.00063	0.00094	0.00078	0.00079				<0.00002					0.0002			
Nickel	mg/l	0.007	0.71	1.76	0.45	0.491	0.658	0.695	1.28				0.0094					<0.03			
Potassium	mg/l		37.13	73.55	27.3	30	54.3	36.9	REJECT	36.2	112	121	9.21	168	51.4	13.8	3.91	3.82	2.53	3.88	6.11
Selenium	mg/l	0.01	0.01	0.03	<0.005	0.0069	<0.025	<0.01	<0.025				<0.0035					<0.005			
Silver	mg/l	0.05	0.02	0.06	<0.01	<0.01	REJECT	<0.05	<0.01				<0.0009					<0.01			
Sodium	mg/l	20	33.9	47.95	28.2	32.6	35.1	32.6	41	25.1	32	39.4	14.9	33.2	19.1	12.8	14.3	10.4	14.2	12.5	12.7
Thallium	mg/l	0.004	0.02	0.05	<0.01	<0.01	<0.01	<0.02	<0.05				<0.0024					<0.01			
Vanadium	mg/l	0.014	0.78	1.44	0.577	0.636	0.823	1.07	REJECT				0.0174					<0.03			
Zinc	mg/l	0.3	2.06	496	1.21	1.34	2.14	2	3.63		1		0.0357					0.0802			

Notes:

1. Parameters listed are Part 360 Baseline or Routine Parameters Effective 1993.
2. Blanks indicate no analysis performed
3. "<" indicates not detected at the specified method detection limit (MDL)
4. Shaded values indicate detection above Standard.
5. Alkalinity results for the MW-12 cluster during the June 2006 sampling event were delivered in incorrect order

Table G-1
Albany Interim Landfill Groundwater Analytical Monitoring Data
City of Albany Landfill - Proposed Eastern Expansion Project
Albany, New York
CHA Project No. 12206
MW-12D

TEST PARAMETER (mg/l unless otherwise noted)	Unit	TOGS Guidance Value	Mean (EWQV)	Mean (EWQV) Plus 3 Std. Dev.	Sep-04 Routine	Dec-04 Baseline	Mar-05 Baseline	Jun-05 Routine	Sep-05 Routine	Dec-05 Routine	Mar-06 Routine	Jun-06 Baseline	Sep-06 Routine	Dec-06 Routine
Temperature	C°		17.88	21.29	12.9	11.69	12.27	13	13.09	10.4	11.8	13.54	12.81	11.48
Conductivity	uS		335.56	717.28	220	208	194	288	222	272	185	140	142.2	210
pH	SU	6.5-8.5	8.48	9	8.66	8.22	8.66	8.89	8.34	8.41	7.7	8.25	9.69	8.34
Eh	mV		-80.6	-57.5	113.4	-222.8	-111.5	99	-91.6	-88	85.7	-116	-75.3	-102.4
Turbidity (after purging well)	N.T.U	5	6920	12981.19	743	285	593	257	401	70	394	270	535	297
LEACHATE INDICATORS:														
Ammonia Nitrogen	mg/l	2	0.33	0.76	<0.5	<0.5	10.9	<0.5	<0.5	< 0.5	< 0.5	<0.5	<0.5	<0.5
BOD 5	mg/l		4.85	14.7	4	<4	<4	<5	<4	< 6	<4	<8	<4	<4
Bromide	mg/l	2	0.75	0.75	<0.2	<0.2	<0.2	<0.2	<2	< 2	< 0.2	<0.2	<0.2	<0.2
COD	mg/l		11.11	19.65	61	<20	47	25	24	< 20	< 20	<20	<20	25
Chloride	mg/l	250	1.04	2.06	<1	5.36	8.17	102	5.85	< 1	2.57	35.2	5.95	25
Nitrate	mg/l	10	0.38	0.38	0.8	0.22	<0.2	0.4	<0.2	< 0.2	< 0.2	<0.2	<0.2	<0.2
Sulfate	mg/l	250	12637	30.39	7.6	7.09	<5	6.61	<5	8.49	<5	<5	2.4	<5
Total Alkalinity	mg/l		108.4	112.95	110	210	100	88	150	190	120	110	120	170
Total Disolved Solids	mg/l	500	176.4	279.53	115	573	122	82	232	165	207	127	145	188
Total Hardness	mg/l		5774	13475.4	1160	834	1290	1110	1020	449	443	622	710	403
Total Kjed. Nitrogen	mg/l		20.12	53.14	1.9	<0.5	1.97	<0.5	<0.5	< 0.5	< 0.5	<0.5	<0.5	<0.5
Total Organic Carbon	mg/l	500	1.78	2.23	<3	9	11	18	8	< 3	< 3	<3	<3	<3
Total Phenols	mg/l	0.001	0.004	0.004	<0.005	<0.005	0.011	<0.005	<0.005	< 0.005	<0.005	<0.005	<0.005	<0.005
Color	P.C.U.	15	98	378.74		7	250					45		
Boron	mg/l	1	0.82	1.99		<0.5	0.627					<0.5		
INORGANIC PARAMETERS:														
Aluminum	mg/l	0.1	322.8	676.74		30	39.7					16.2		
Antimony	mg/l	0.003	0.11	0.42		0.0339	<0.015					<0.015		
Arsenic	mg/l	0.025	0.26	0.65		<0.010	0.0323					0.024		
Barium	mg/l	1	2.61	6.14		0.285	0.396					0.209		
Beryllium	mg/l	0.003	0.02	0.04		<0.003	<0.003					<0.003		
Cadmium	mg/l	0.01	0.025	0.048	0.0083	0.0101	0.00583	0.00859	0.00865	< 0.005	< 0.005	<0.005	0.00587	<0.005
Calcium	mg/l		3062	6377.94	359	235	369	323	294	127	127	177	199	112
Chromium	mg/l		0.44	0.98		0.0307	0.0505					0.0213		
Hexavalent Chromium	mg/l	0.05	0.01	0.01		<0.010	<0.010					<0.010		
Cobalt	mg/l	0.005	0.38	0.91		0.0249	0.0384					<0.020		
Copper	mg/l	0.2	1.24	2.28		0.0705	0.115					0.0443		
Total Cyanide	mg/l	0.1	0.01	0.02		<0.010	<0.010					<0.010		
Iron	mg/l	0.3	96120	1920.01	58.7	65.5	88.4	60.7	69.5	33.8	27.1	39.9	53	30.3
Lead	mg/l	0.025	0.38	1.08	0.0243	0.0232	0.036	0.0273	0.0223	0.0153	0.0141	0.0164	0.0175	0.00756
Magnesium	mg/l	35	645.6	1612.07	64.1	60.2	88.7	73.4	70	32.1	30.8	43.7	51.5	29.6
Manganese	mg/l	0.3	32.68	68.12	2.89	2.1	3.37	2.68	2.75	1.3	1.17	1.63	2.12	1.18
Mercury	mg/l	0.002	0.0008	0.0011		<0.0002	<0.0002					<0.0002		
Nickel	mg/l	0.007	0.71	1.76		0.0584	0.0696					0.0359		
Potassium	mg/l		37.13	73.55	7.62	7.9	11.8	8.1	7.27	4.58	3.41	4.93	4.96	3.41
Selenium	mg/l	0.01	0.01	0.03		<0.005	<0.005					0.0129		
Silver	mg/l	0.05	0.02	0.06		<0.010	<0.010					<0.010		
Sodium	mg/l	20	33.9	47.95	12.6	12	12.5	13.5	13.5	12.8	13.1	<0.010	11.1	10.6
Thallium	mg/l	0.004	0.02	0.05		<0.010	<0.010					<0.010		
Vanadium	mg/l	0.014	0.78	1.44		0.0619	0.0869					0.0335		
Zinc	mg/l	0.3	2.06	496		0.174	0.173					0.123		

Notes:

1. Parameters listed are Part 360 Baseline or Routine Parameters Effective 1993.
2. Blanks indicate no analysis performed
3. "<" indicates not detected at the specified method detection limit (MDL)
4. Shaded values indicate detection above Standard.
5. Alkalinity results for the MW-12 cluster during the June 2006 sampling event were delivered in incorrec

Table G-1
Albany Interim Landfill
Groundwater Analytical Data -Volatile Organic Compounds
City of Albany Landfill - Proposed Eastern Expansion Project
Albany, New York
CHA Project No. 12206
MW-12D

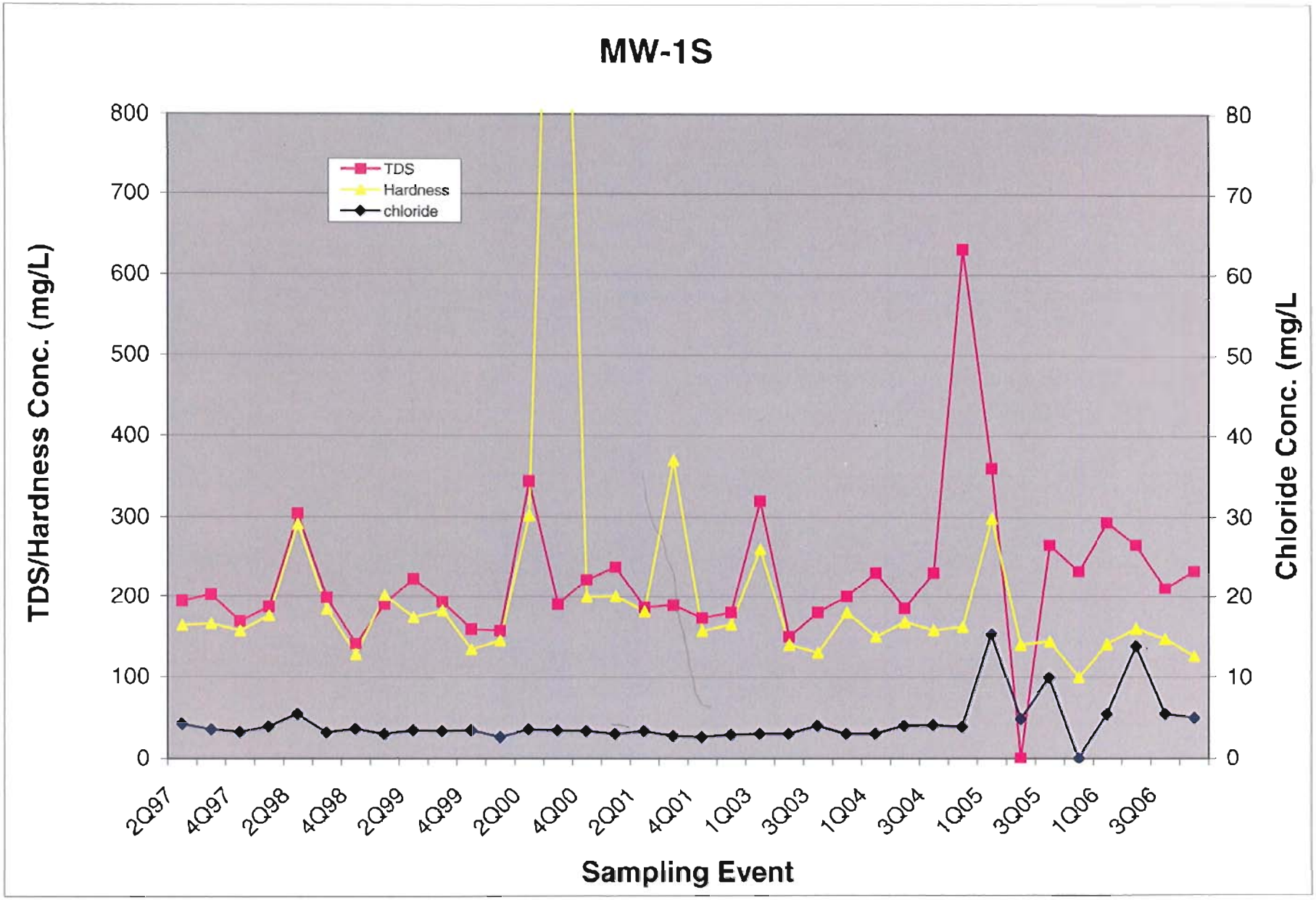
TEST PARAMETER (µg/l unless otherwise noted)	Unit	TOGS Guidance Value	Mean (EWQV)	Mean (EWQV) Plus 3 Std. Dev.	Jul-00	Jul-00	Aug-00	Aug-00	Sep-00	Sep-03	Dec-04	Mar-05	Jun-06
Organic Parameters													
Acetone	µg/l	50	15	15	<MDL	<MDL	<MDL	<MDL	<MDL	<10	<10	<10	<10
Acrylonitrile	µg/l	5	75	75	<MDL	<MDL	<MDL	<MDL	<MDL	Rejected	<100	<100	<100
Benzene	µg/l	0.7	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Bromochloromethane	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Bromodichloromethane	µg/l	50	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Bromoform	µg/l	50	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Carbon disulfide	µg/l	5	7.5	7.5	<MDL	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Carbon tetrachloride	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Chlorobenzene	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Chloroethane	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Chloroform	µg/l	7	3.75	3.75	1.4	1.5	<MDL	<MDL	<MDL	<5	<5	<5	<5
Dibromochloromethane	µg/l	50	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
1,2 Dibromo-3-chloropropane	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
1,2 Dibromomethane	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
1,2 Dichlorobenzene (o)	µg/l		5.25	11.41	<MDL	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
1,4 Dichlorobenzene (p)	µg/l	4.7	5.25	11.41	<MDL	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
trans-1,2 Dichloro-2-butene	µg/l	5	3.75	3.75	<MDL	<MDL	Reject	<MDL	<MDL	<5	<10	<10	<10
1,1 Dichloroethane	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
1,2 Dichloroethane	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
1,1 Dichloroethene	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
cis-1,3 Dichloroethene	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
trans-1,3 Dichloroethene	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
1,2 Dichloropropane	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
cis-1,3 Dichloropropene	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
trans-1,3 Dichloropropene	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Ethylbenzene	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
2-Hexanone	µg/l	50	7.5	7.5	<MDL	<MDL	<MDL	<MDL	<MDL	<10	<10	<10	<10
Bromomethane	µg/l	5	3.75	3.75	<MDL	Reject	<MDL	<MDL	<MDL	<5	<5	<5	<5
Chloromethane	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Dibromomethane	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Methylene chloride	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
2-Butanone	µg/l	50	7.5	7.5	<MDL	<MDL	<MDL	<MDL	<MDL	<10	<10	<10	<10
Methyl Iodide (Iodomethane)	µg/l	5	7.5	7.5	<MDL	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
4-methyl-2-pentanone	µg/l	5	7.5	7.5	<MDL	<MDL	<MDL	<MDL	<MDL	<10	<10	<10	<10
Styrene	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
1,1,1,2-Tetrachloroethane	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
1,1,2,2-Tetrachloroethane	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Tetrachloroethene	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Toluene	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
1,1,1-Trichloroethene	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
1,1,2-Trichloropropane	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Trichloroethene	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Trichlorofluoromethane	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
1,2,3-Trichloropropane	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
Vinyl acetate	µg/l		7.5	7.5	<MDL	<MDL	<MDL	<MDL	<MDL	<50	<50	<50	<50
Vinyl chloride	µg/l	2	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
M+P Xylene	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5
o - Xylene	µg/l	5	3.75	3.75	<MDL	<MDL	<MDL	<MDL	<MDL	<5	<5	<5	<5

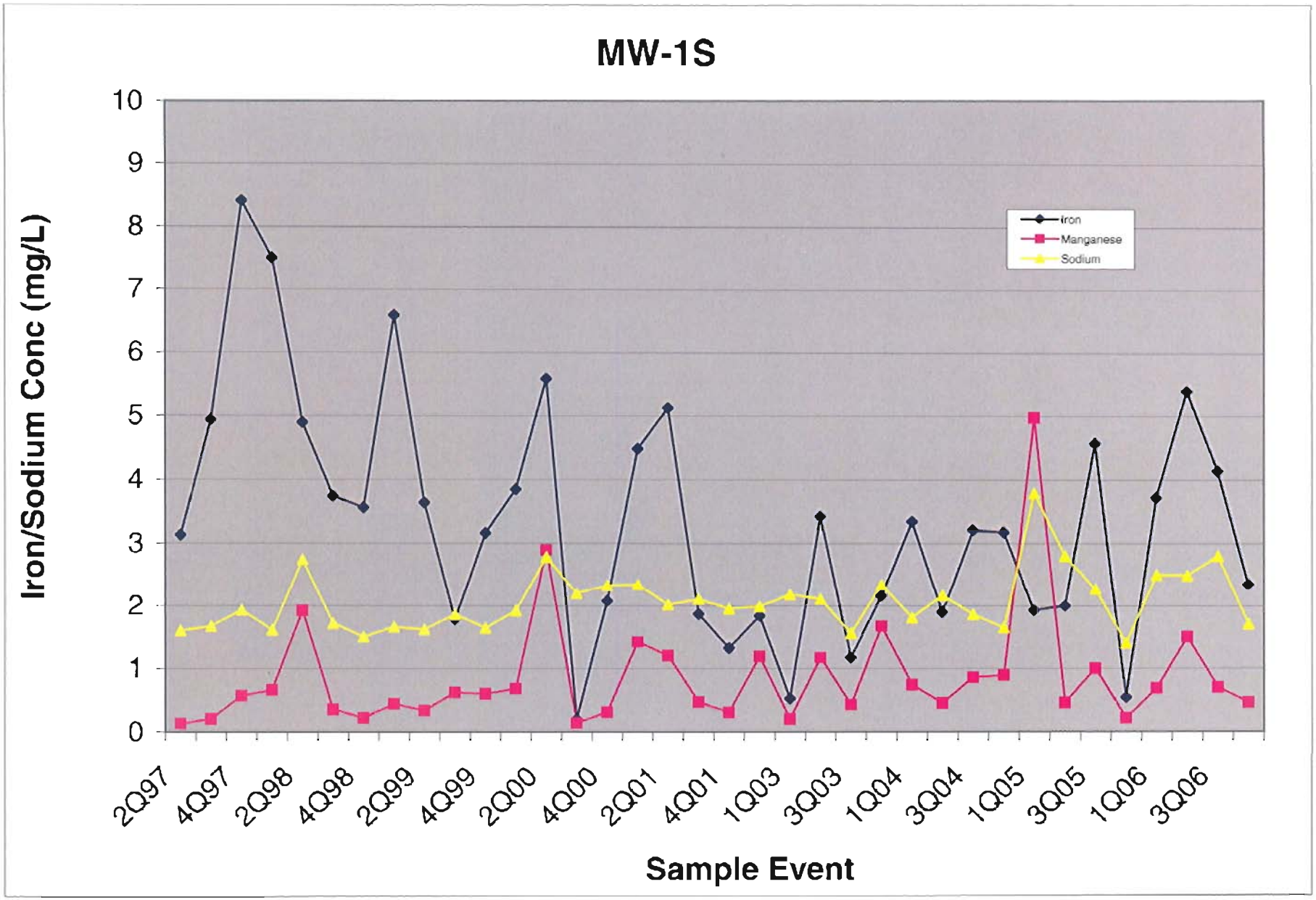
Notes:

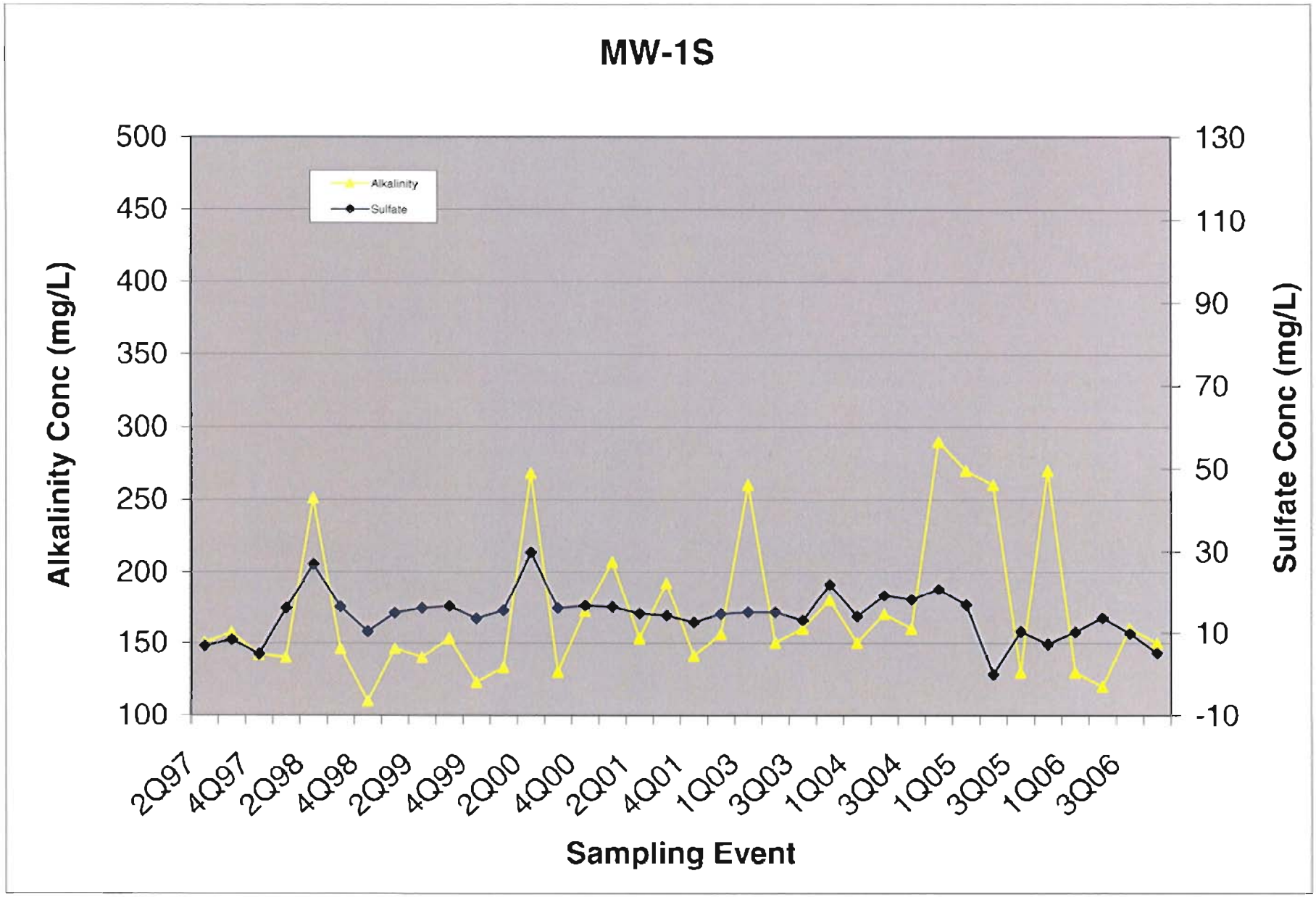
1. Parameters listed are Part 360 Baseline Volatile Organic Compounds Parameters Effective 1993.
2. Blanks indicate no analysis performed
3. "<" indicates not detected at the specified method detection limit (MDL)

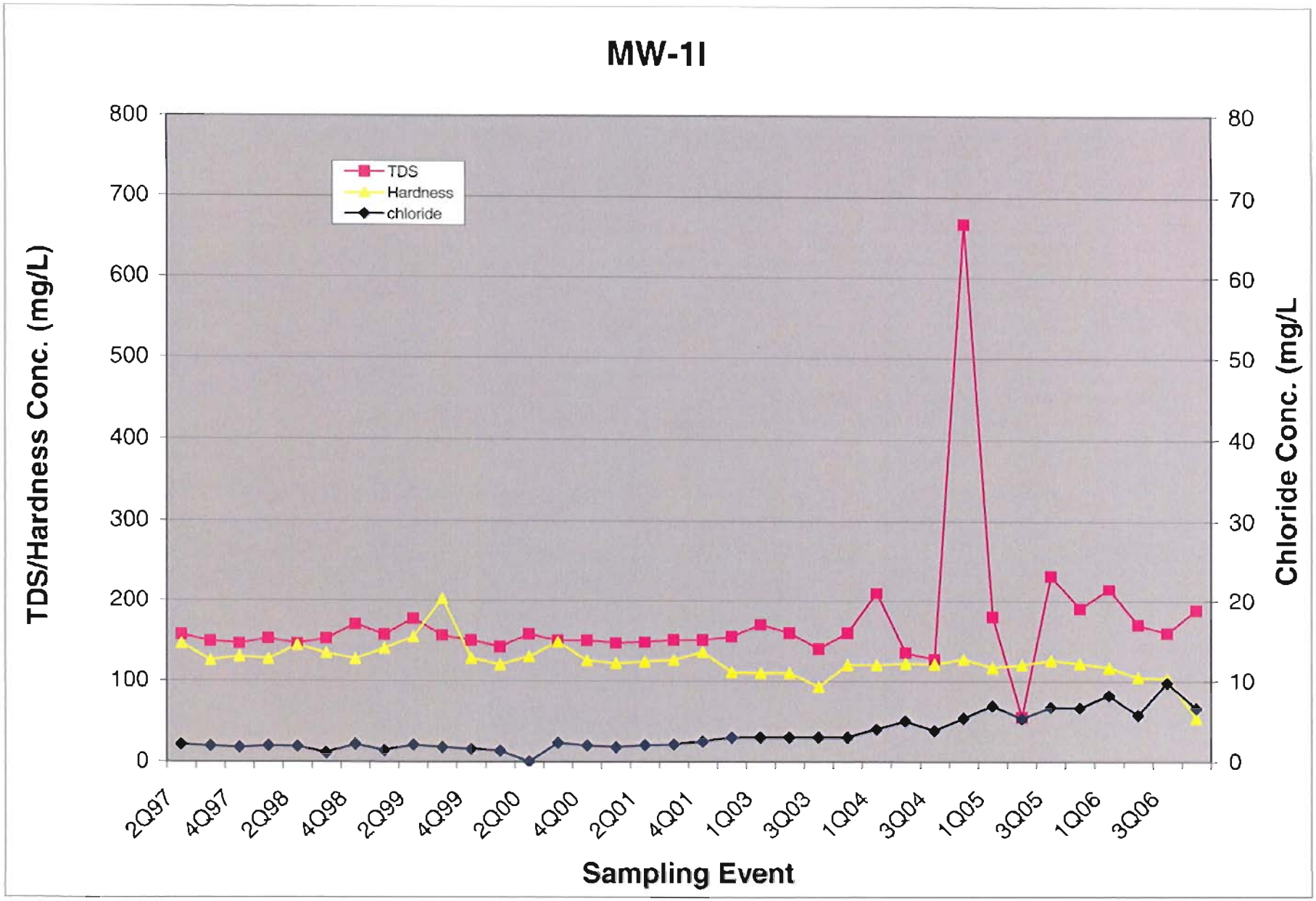
APPENDIX H

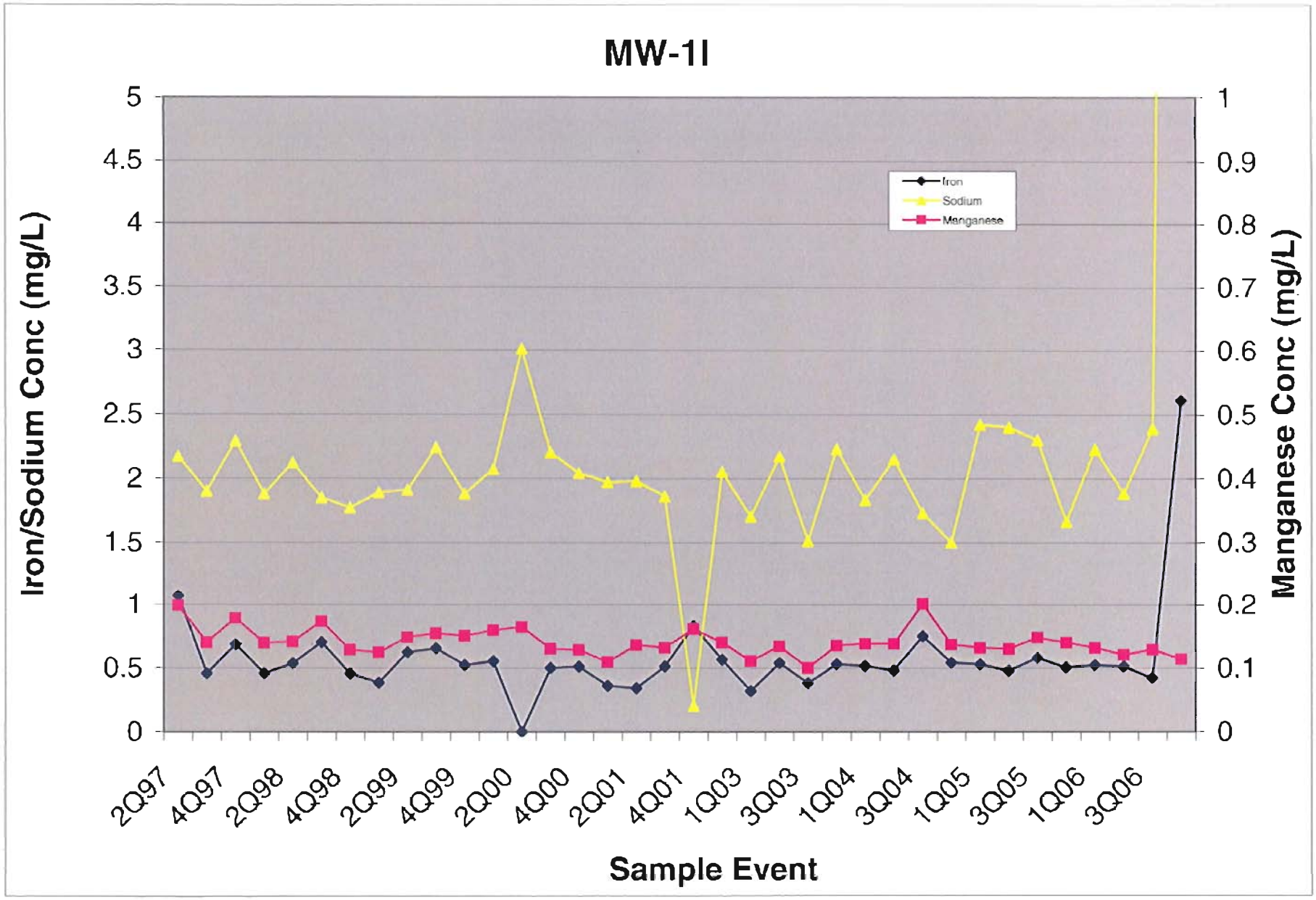
AIL Water Quality Graphical Trends

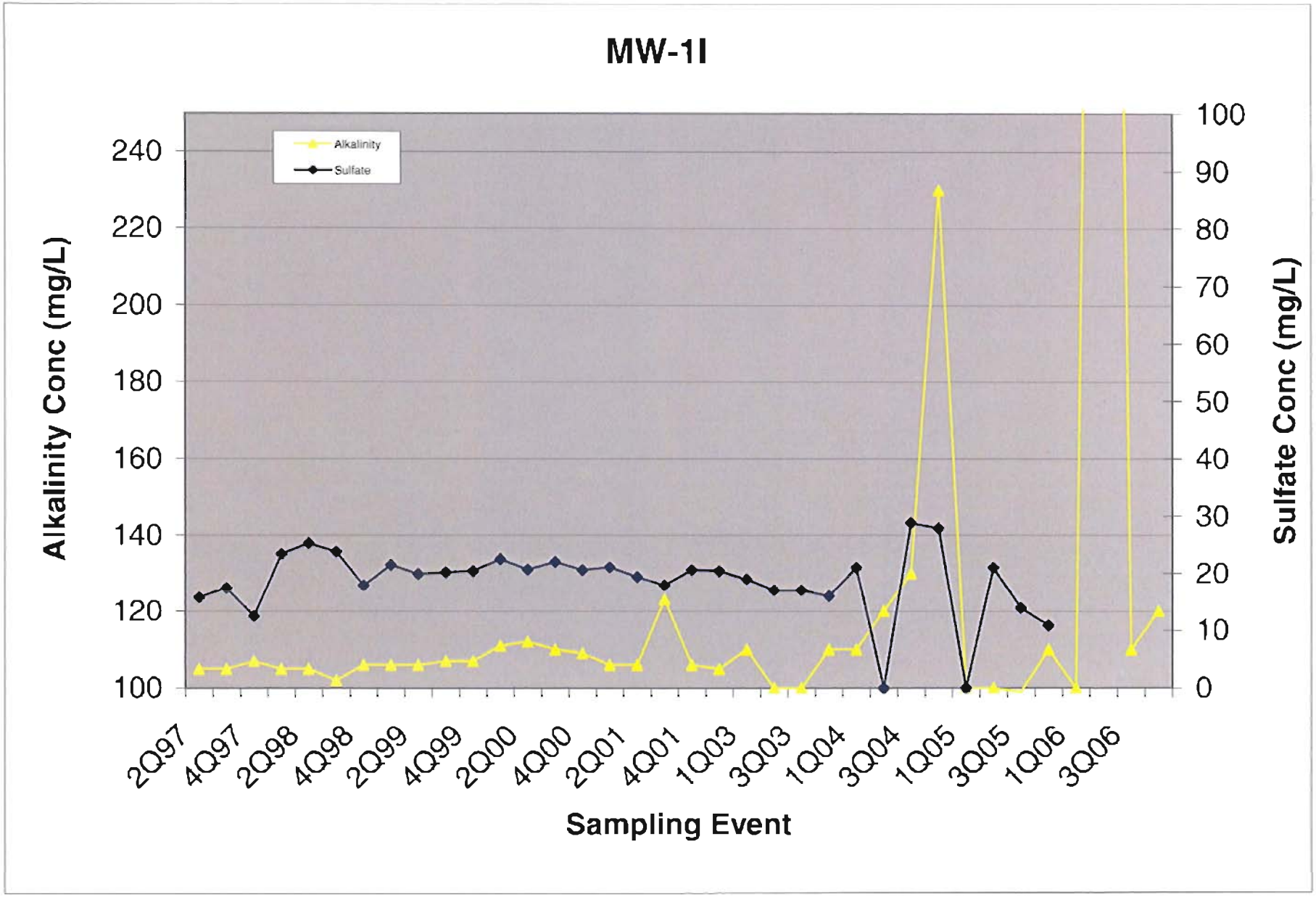

MW-1S
TDS
Hardness
chloride
TDS/Hardness Conc. (mg/L)
Chloride Conc. (mg/L
Sampling Event
800
700
600
500
400
300
200
100
0
80
70
60
50
40
30
20
10
0
2Q97
4Q97
2Q98
4Q98
2Q99
4Q99
2Q00
4Q00
2Q01
4Q01
1Q03
3Q03
1Q04
3Q04
1Q05
3Q05
1Q06
3Q06

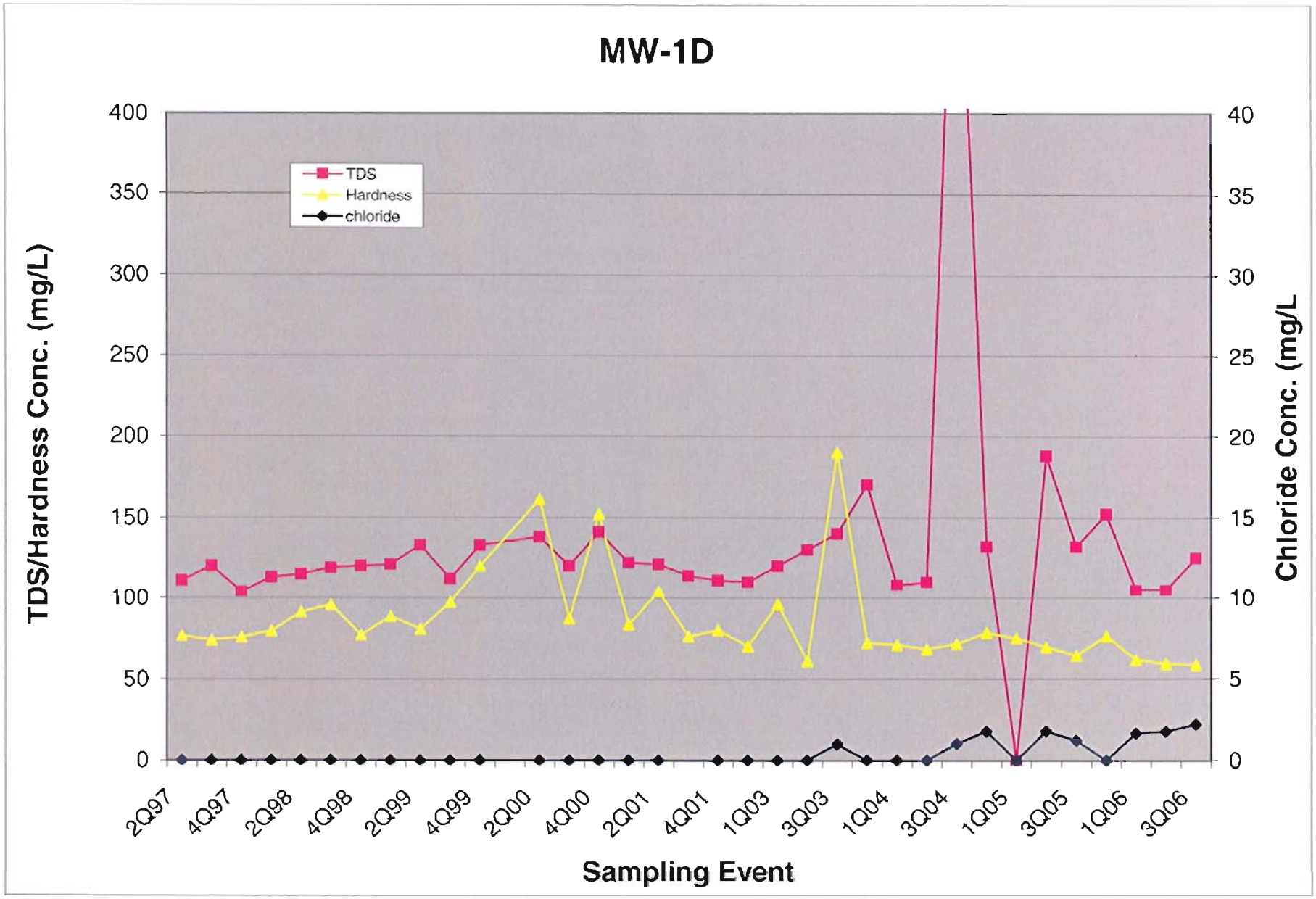

MW-1S
Iron/Sodium Conc (mg/L)
10
9
8
7
6
5
4
3
2
1
0
Iron
Manganese
Sodium
2Q97
4Q97
2Q98
4Q98
2Q99
4Q99
2Q00
4Q00
2Q01
4Q01
1Q03
3Q03
1Q04
3Q04
1Q05
3Q05
1Q06
3Q06
Sample Event

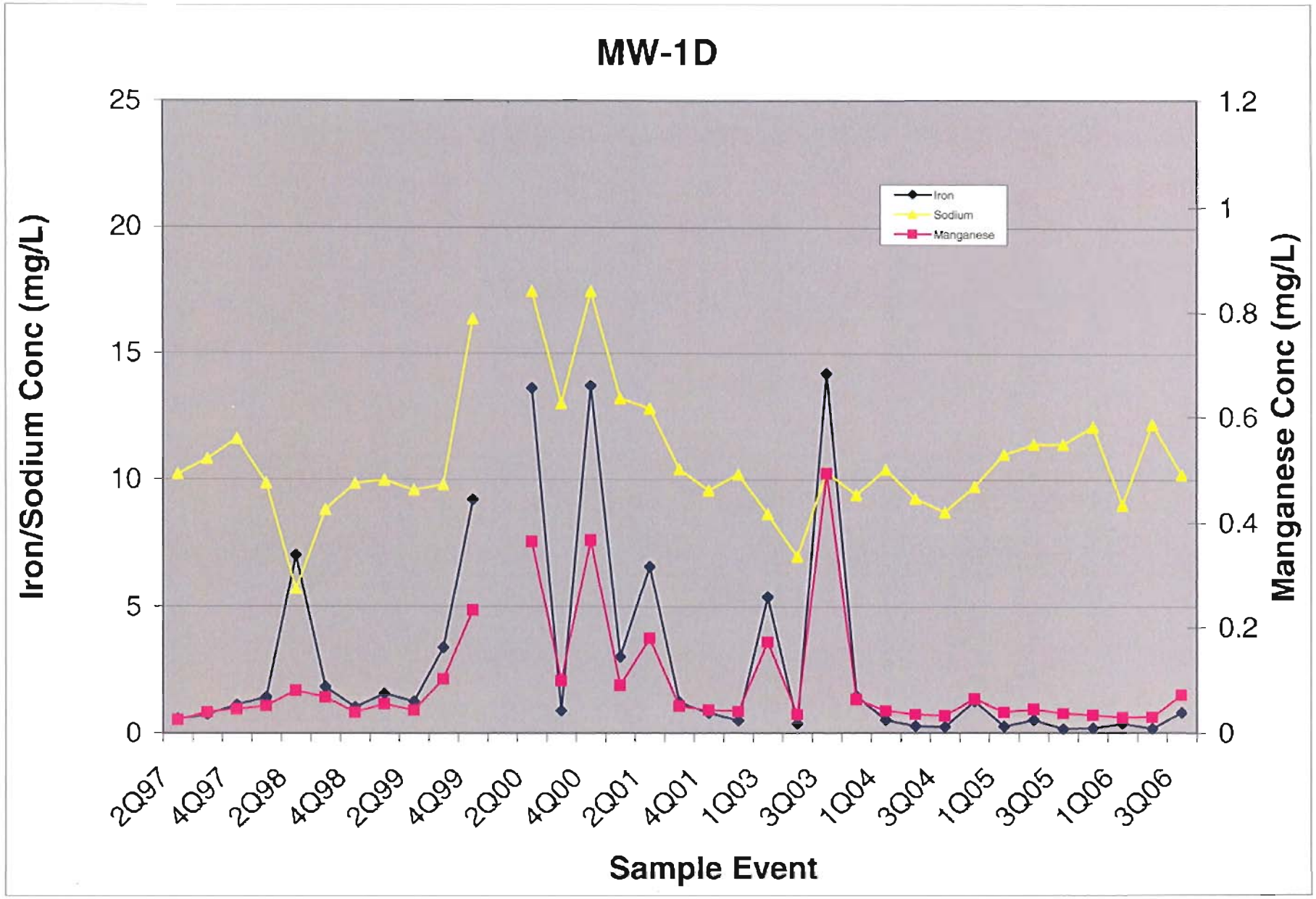

MW-1S
Alkalinity
Sulfate
Alkalinity Conc (mg/L)
Sulfate Conc (mg/L)
500
450
400
350
300
250
200
150
100
130
110
90
70
50
30
10
-10
2Q97
4Q97
2Q98
4Q98
2Q99
4Q99
2Q00
4Q00
2Q01
4Q01
1Q03
3Q03
1Q04
3Q04
1Q05
3Q05
1Q06
3Q06
Sampling Event

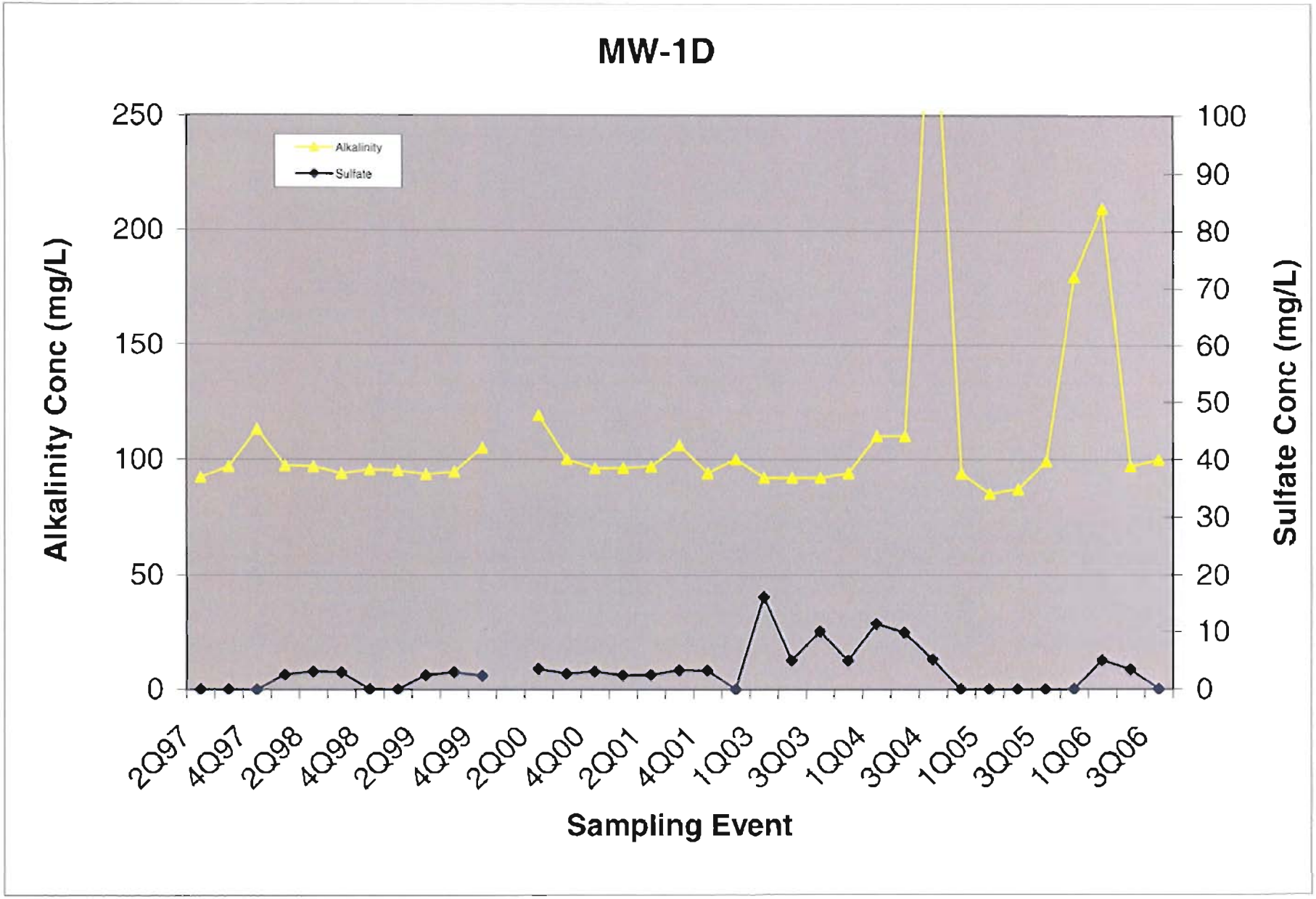

MW-1I
TDS
Hardness
chloride
TDS/Hardness Conc. (mg/L)
Chloride Conc. (mg/L
Sampling Event
800
700
600
500
400
300
200
100
0
80
70
60
50
40
30
20
10
0
2Q97
4Q97
2Q98
4Q98
2Q99
4Q99
2Q00
4Q00
2Q01
4Q01
1Q03
3Q03
1Q04
3Q04
1Q05
3Q05
1Q06
3Q06

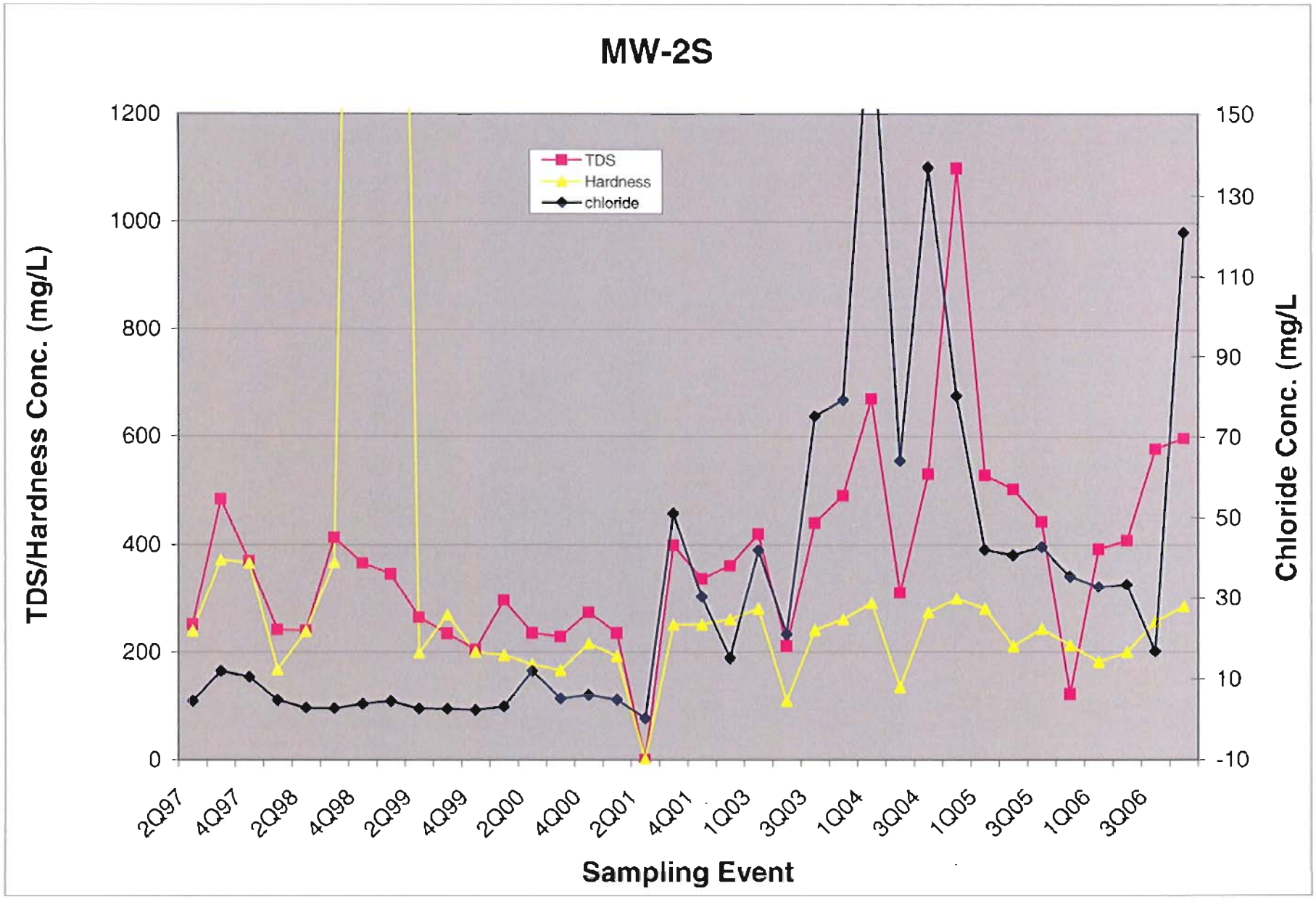

MW-1I
Iron/Sodium Conc (mg/L)
Manganese Conc (mg/L)
Sample Event
Iron
Sodium
Manganese
5
4.5
4
3.5
3
2.5
2
1.5
1
0.5
0
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
2Q97
4Q97
2Q98
4Q98
2Q99
4Q99
2Q00
4Q00
2Q01
4Q01
1Q03
3Q03
1Q04
3Q04
1Q05
3Q05
1Q06
3Q06

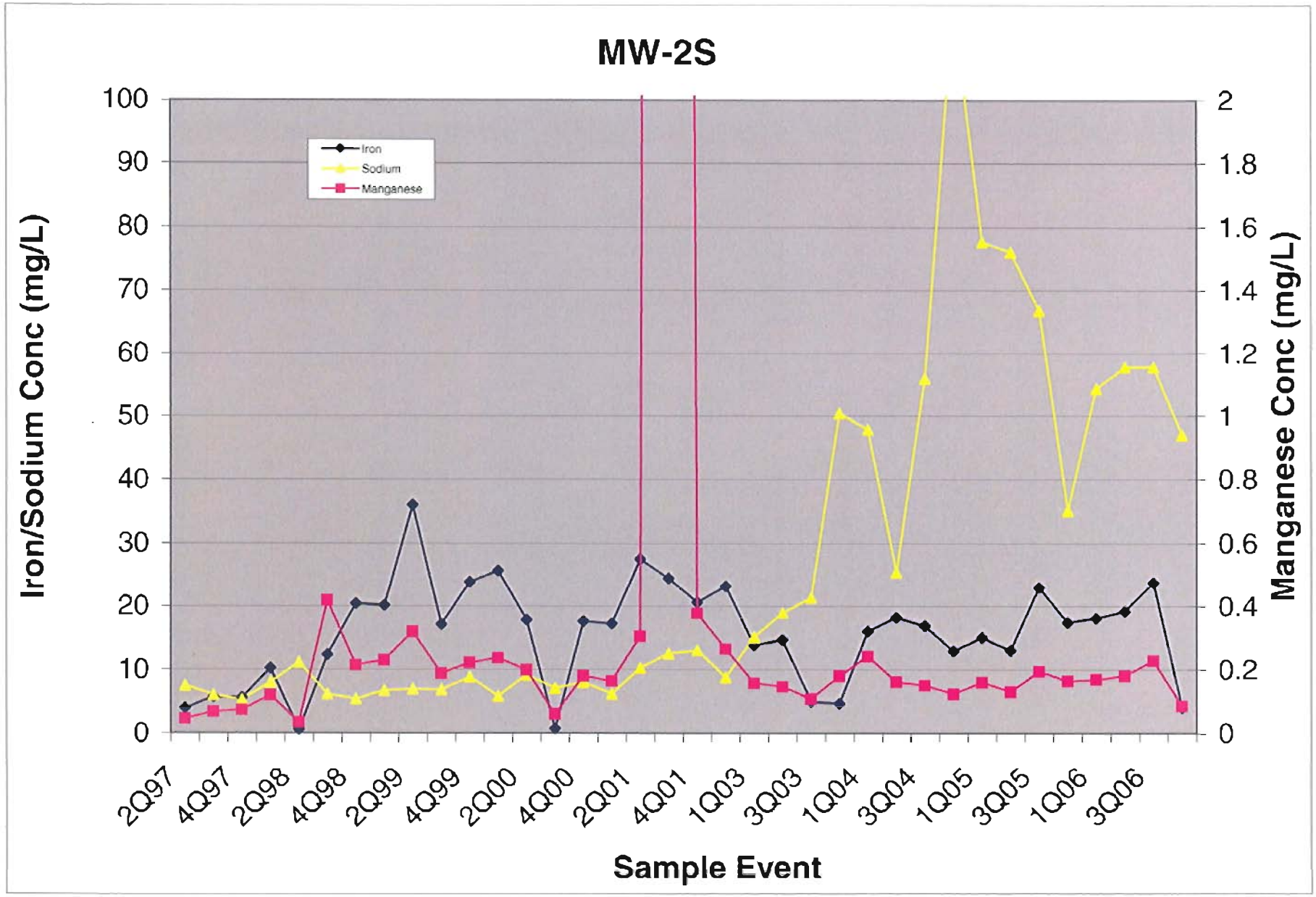

MW-1I
Alkalinity
Sulfate
Alkalinity Conc (mg/L)
Sulfate Conc (mg/L)
240
220
200
180
160
140
120
100
100
90
80
70
60
50
40
30
20
10
0
2Q97
4Q97
2Q98
4Q98
2Q99
4Q99
2Q00
4Q00
2Q01
4Q01
1Q03
3Q03
1Q04
3Q04
1Q05
3Q05
1Q06
3Q06
Sampling Event

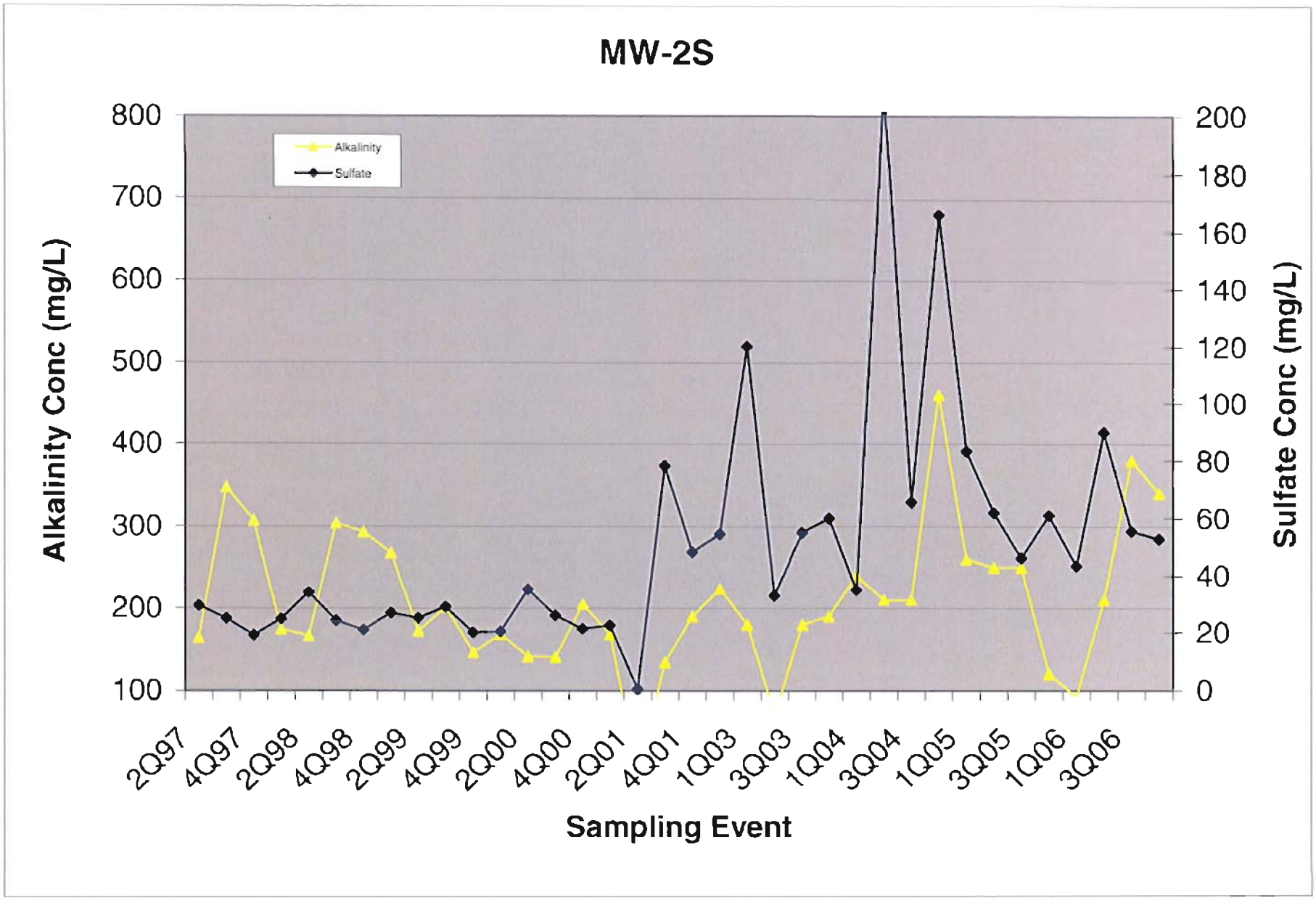

MW-1D
TDS
Hardness
chloride
TDS/Hardness Conc. (mg/L)
Chloride Conc. (mg/L
Sampling Event
400
350
300
250
200
150
100
50
0
40
35
30
25
20
15
10
5
0
2Q97
4Q97
2Q98
4Q98
2Q99
4Q99
2Q00
4Q00
2Q01
4Q01
1Q03
3Q03
1Q04
3Q04
1Q05
3Q05
1Q06
3Q06

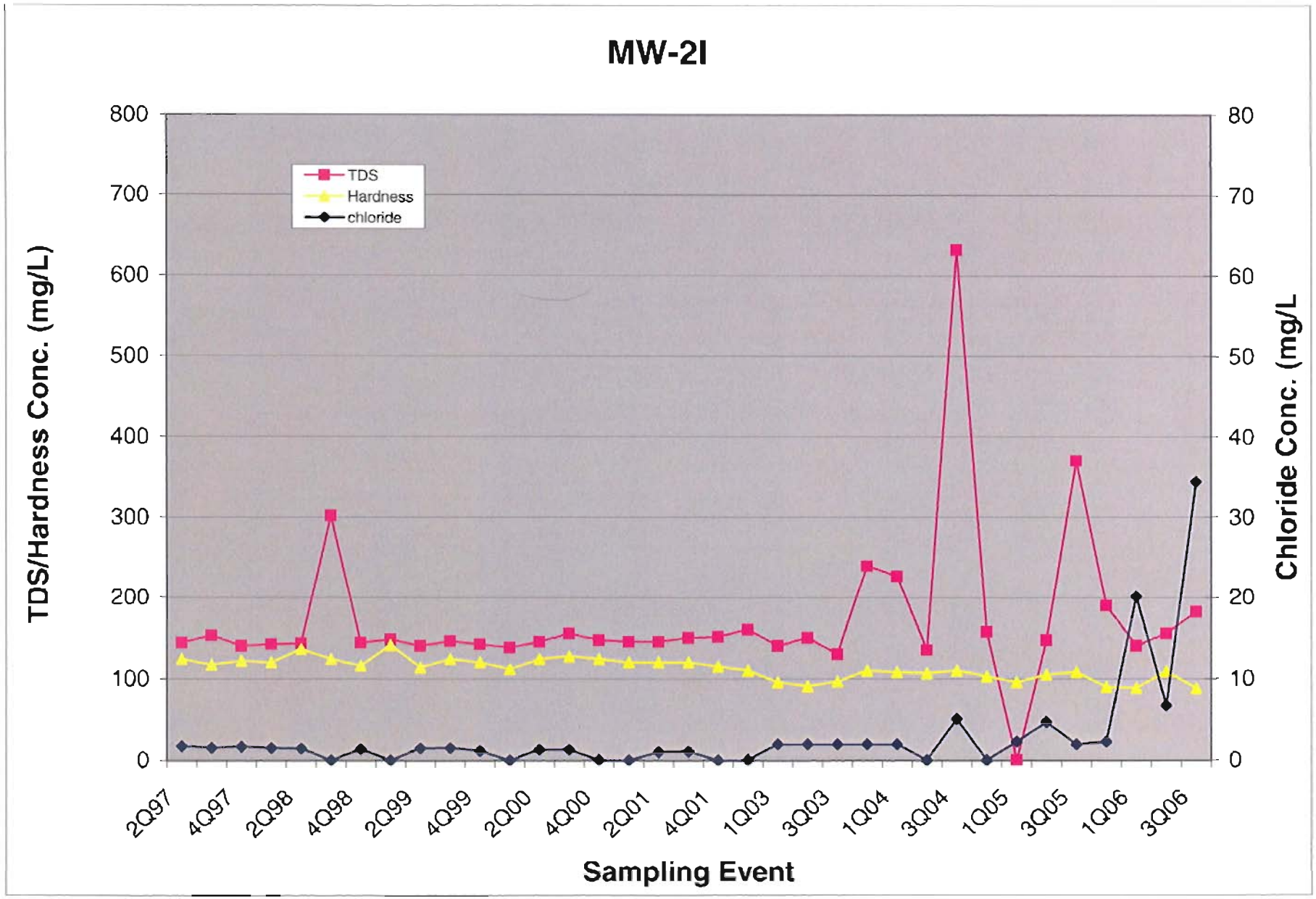

MW-1D
Iron/Sodium Conc (mg/L)
Manganese Conc (mg/L)
Sample Event
Iron
Sodium
Manganese
25
20
15
10
5
0
1.2
1
0.8
0.6
0.4
0.2
0
2Q97
4Q97
2Q98
4Q98
2Q99
4Q99
2Q00
4Q00
2Q01
4Q01
1Q03
3Q03
1Q04
3Q04
1Q05
3Q05
1Q06
3Q06

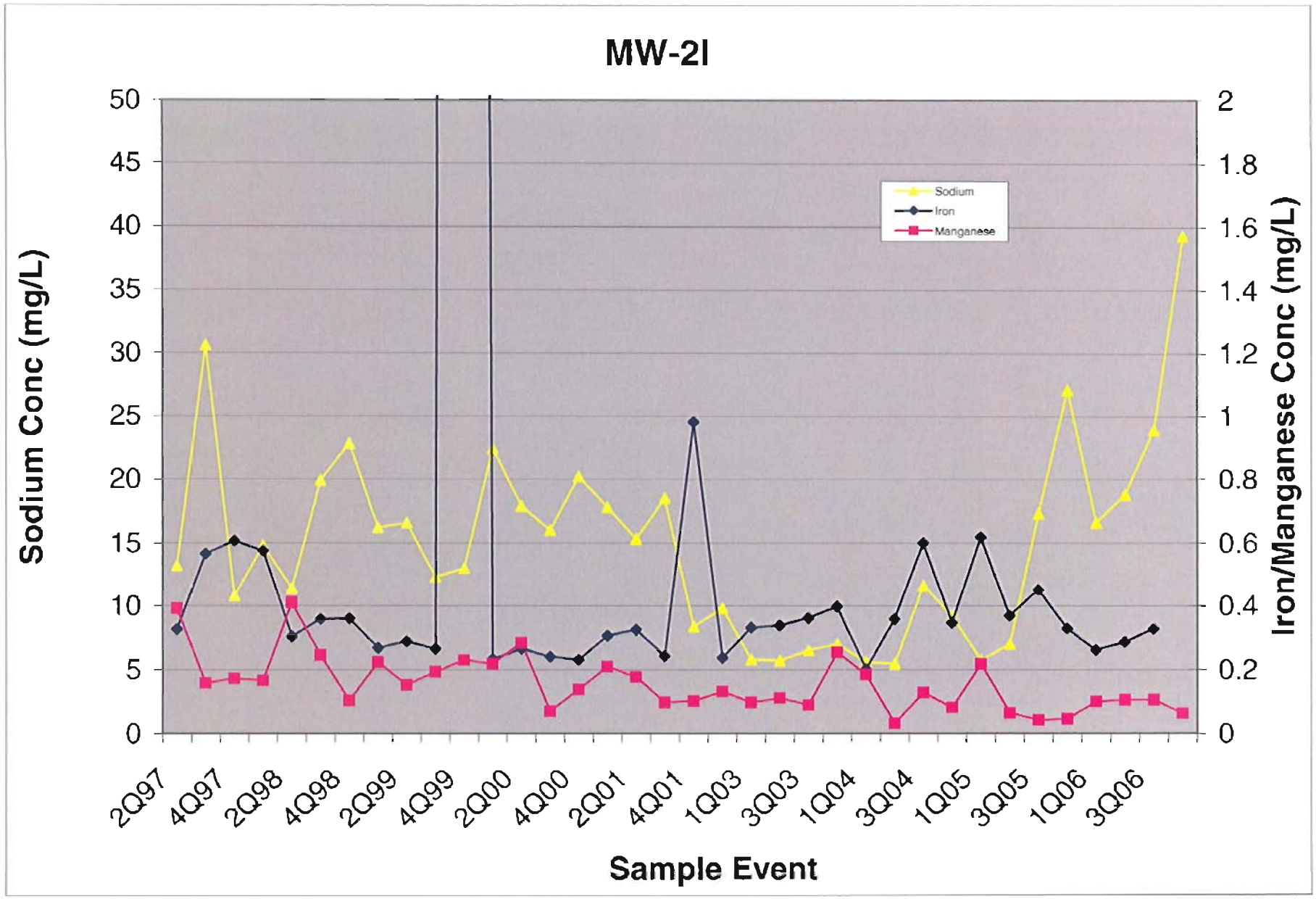

MW-1D
Alkalinity
Sulfate
Alkalinity Conc (mg/L)
Sulfate Conc (mg/L)
250
200
150
100
50
0
100
90
80
70
60
50
40
30
20
10
0
2Q97
4Q97
2Q98
4Q98
2Q99
4Q99
2Q00
4Q00
2Q01
4Q01
1Q03
3Q03
1Q04
3Q04
1Q05
3Q05
1Q06
3Q06
Sampling Event

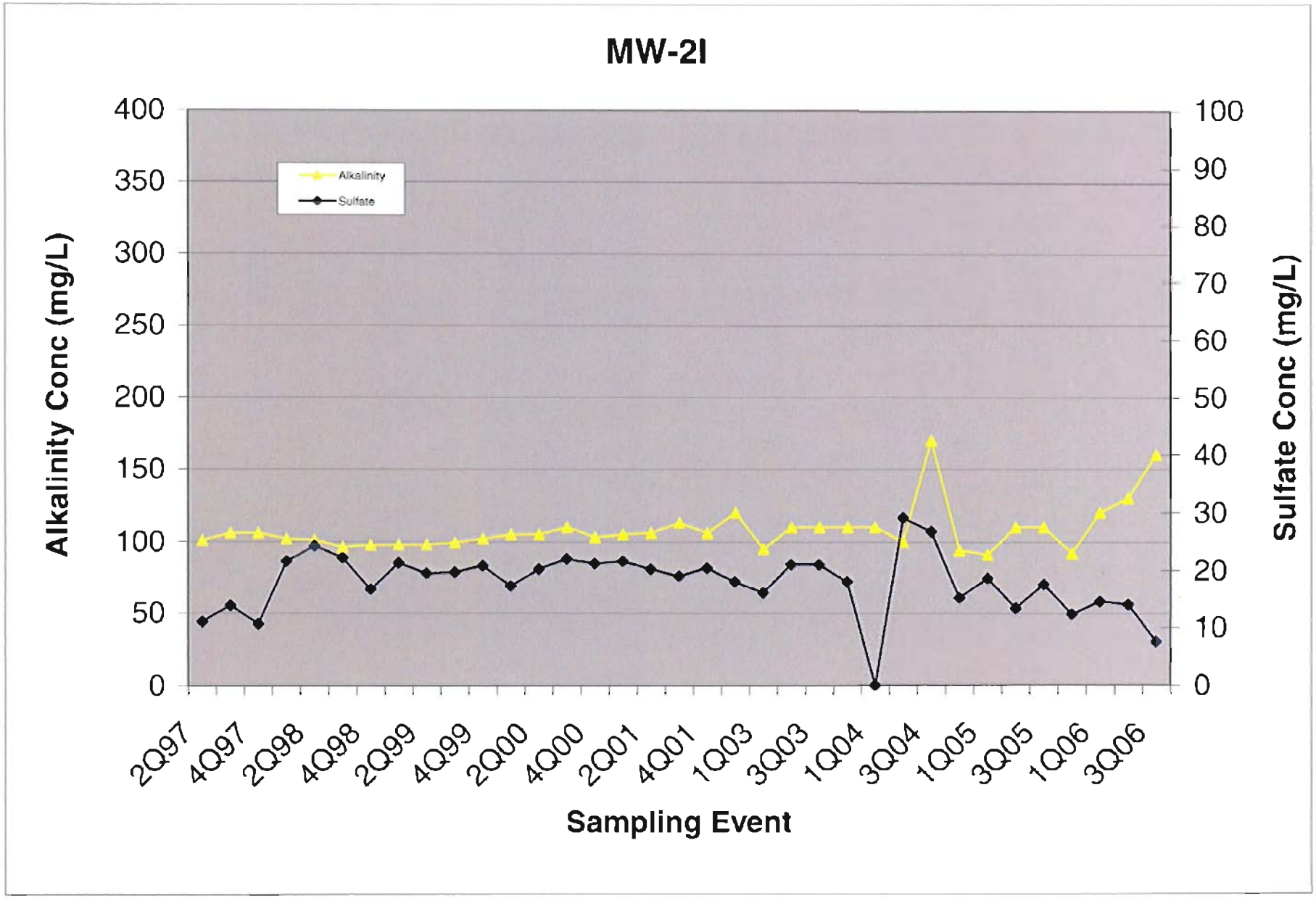

MW-2S
TDS
Hardness
chloride
TDS/Hardness Conc. (mg/L)
Chloride Conc. (mg/L
Sampling Event
1200
1000
800
600
400
200
0
150
130
110
90
70
50
30
10
-10
2Q97
4Q97
2Q98
4Q98
2Q99
4Q99
2Q00
4Q00
2Q01
4Q01
1Q03
3Q03
1Q04
3Q04
1Q05
3Q05
1Q06
3Q06

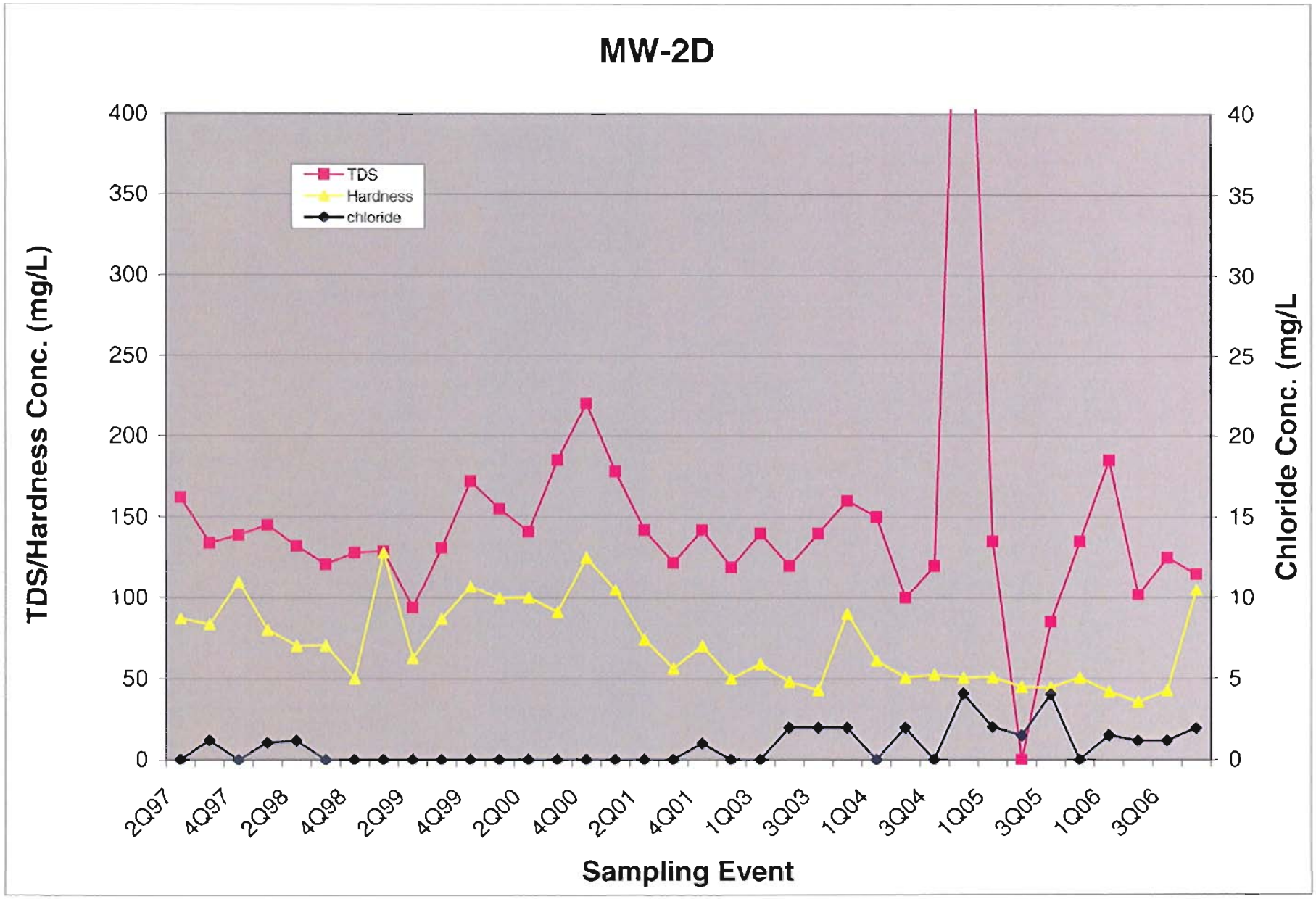

MW-2S
Iron
Sodium
Manganese
Iron/Sodium Conc (mg/L)
Manganese Conc (mg/L)
Sample Event
100
90
80
70
60
50
40
30
20
10
0
2
1.8
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
2Q97
4Q97
2Q98
4Q98
2Q99
4Q99
2Q00
4Q00
2Q01
4Q01
1Q03
3Q03
1Q04
3Q04
1Q05
3Q05
1Q06
3Q06

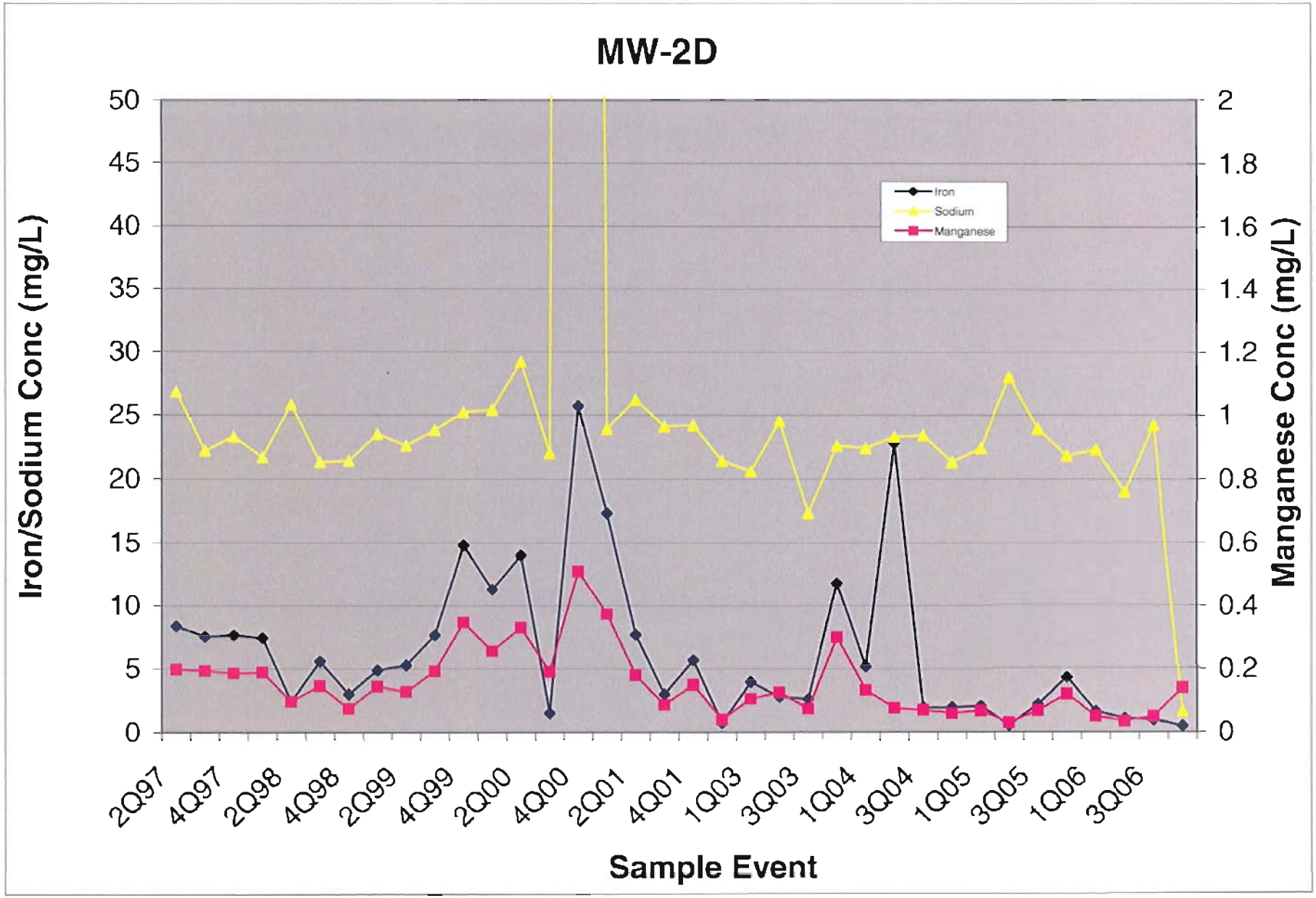

MW-2S
Alkalinity
Sulfate
Alkalinity Conc (mg/L)
Sulfate Conc (mg/L)
800
700
600
500
400
300
200
100
200
180
160
140
120
100
80
60
40
20
0
2Q97
4Q97
2Q98
4Q98
2Q99
4Q99
2Q00
4Q00
2Q01
4Q01
1Q03
3Q03
1Q04
3Q04
1Q05
3Q05
1Q06
3Q06
Sampling Event

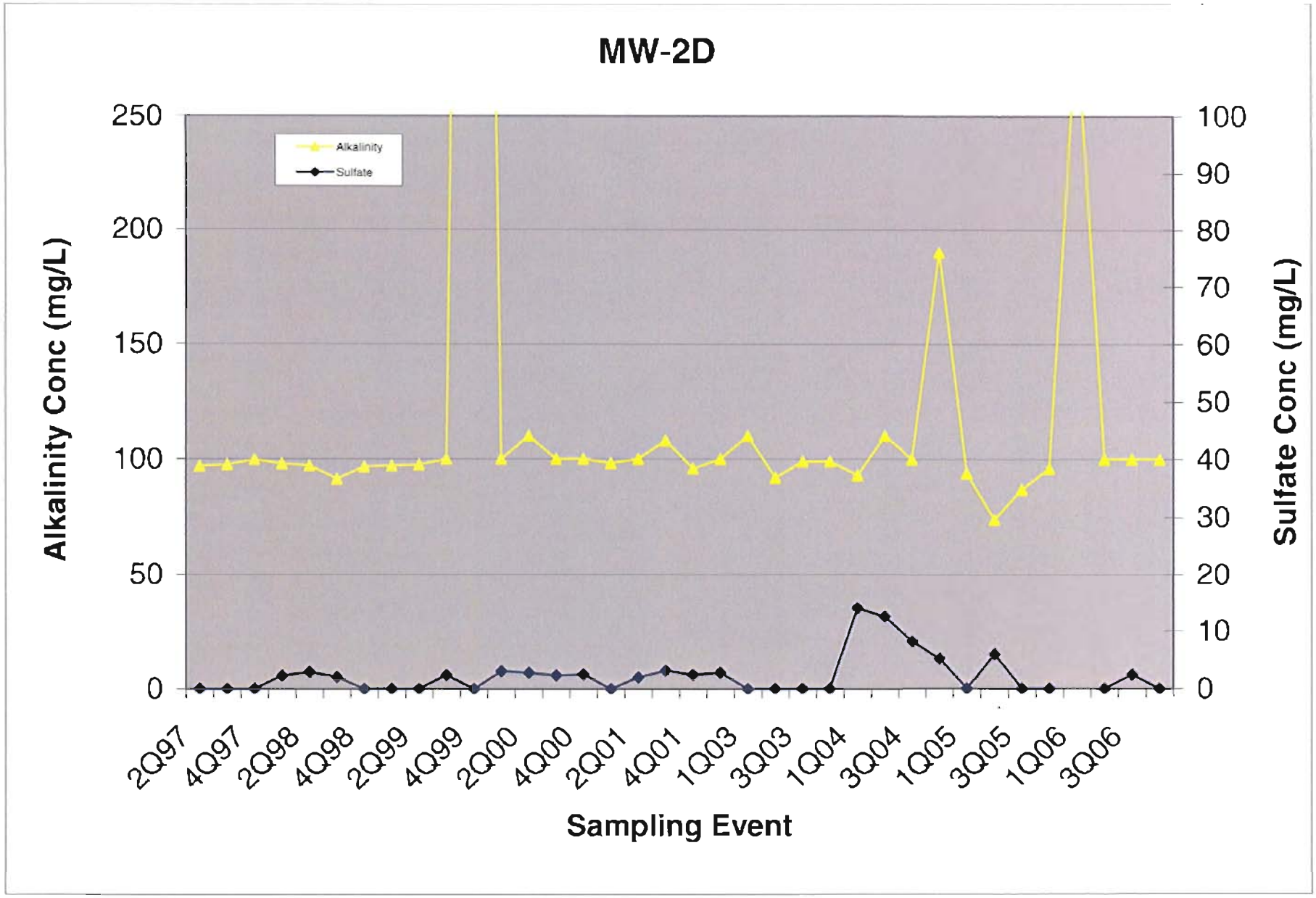

MW-2I
TDS
Hardness
chloride
TDS/Hardness Conc. (mg/L)
Chloride Conc. (mg/L
Sampling Event
800
700
600
500
400
300
200
100
0
80
70
60
50
40
30
20
10
0
2Q97
4Q97
2Q98
4Q98
2Q99
4Q99
2Q00
4Q00
2Q01
4Q01
1Q03
3Q03
1Q04
3Q04
1Q05
3Q05
1Q06
3Q06

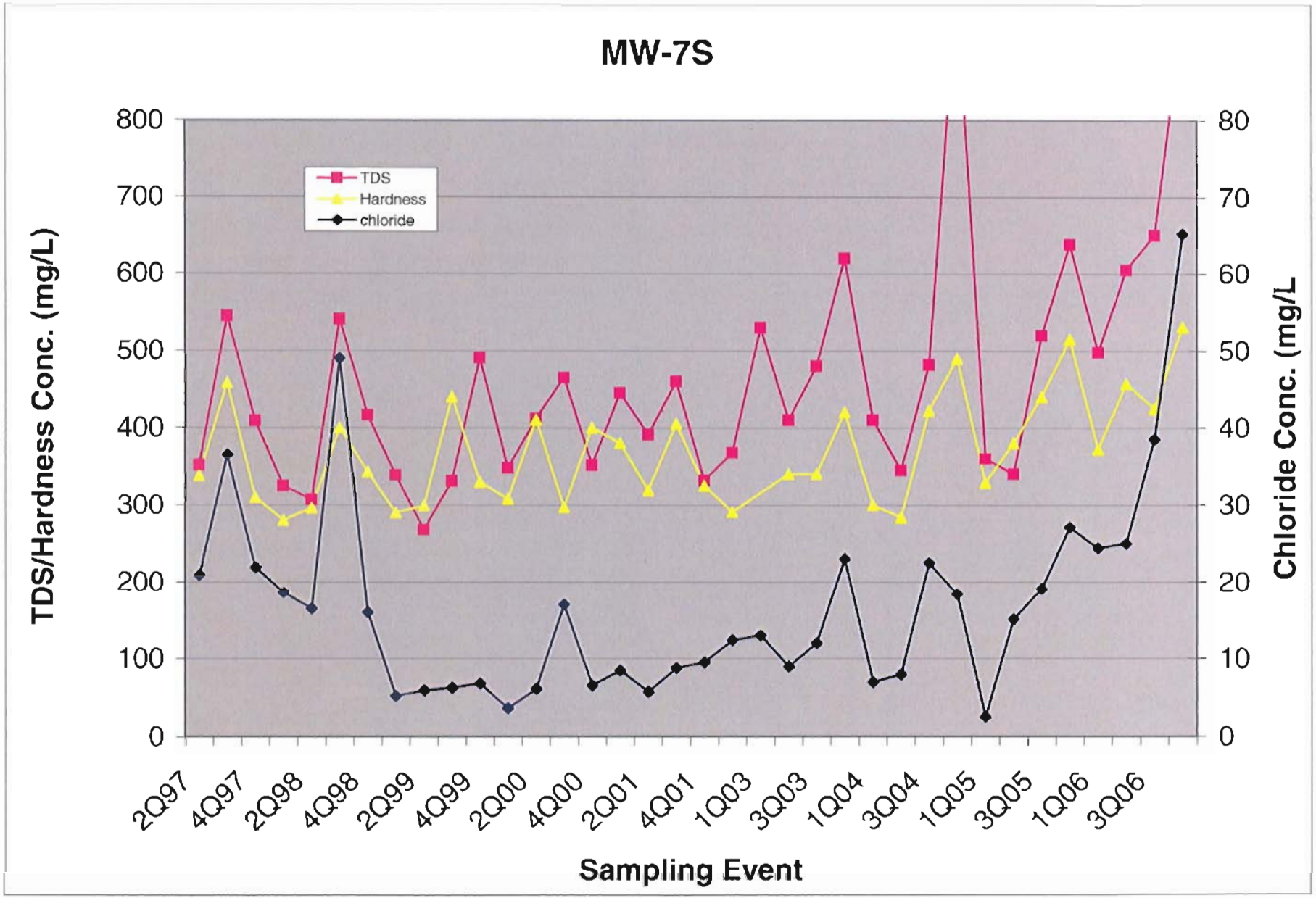

MW-2I
Sodium Conc (mg/L)
Iron/Manganese Conc (mg/L)
Sample Event
Sodium
Iron
Manganese
50
45
40
35
30
25
20
15
10
5
0
2
1.8
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
2Q97
4Q97
2Q98
4Q98
2Q99
4Q99
2Q00
4Q00
2Q01
4Q01
1Q03
3Q03
1Q04
3Q04
1Q05
3Q05
1Q06
3Q06

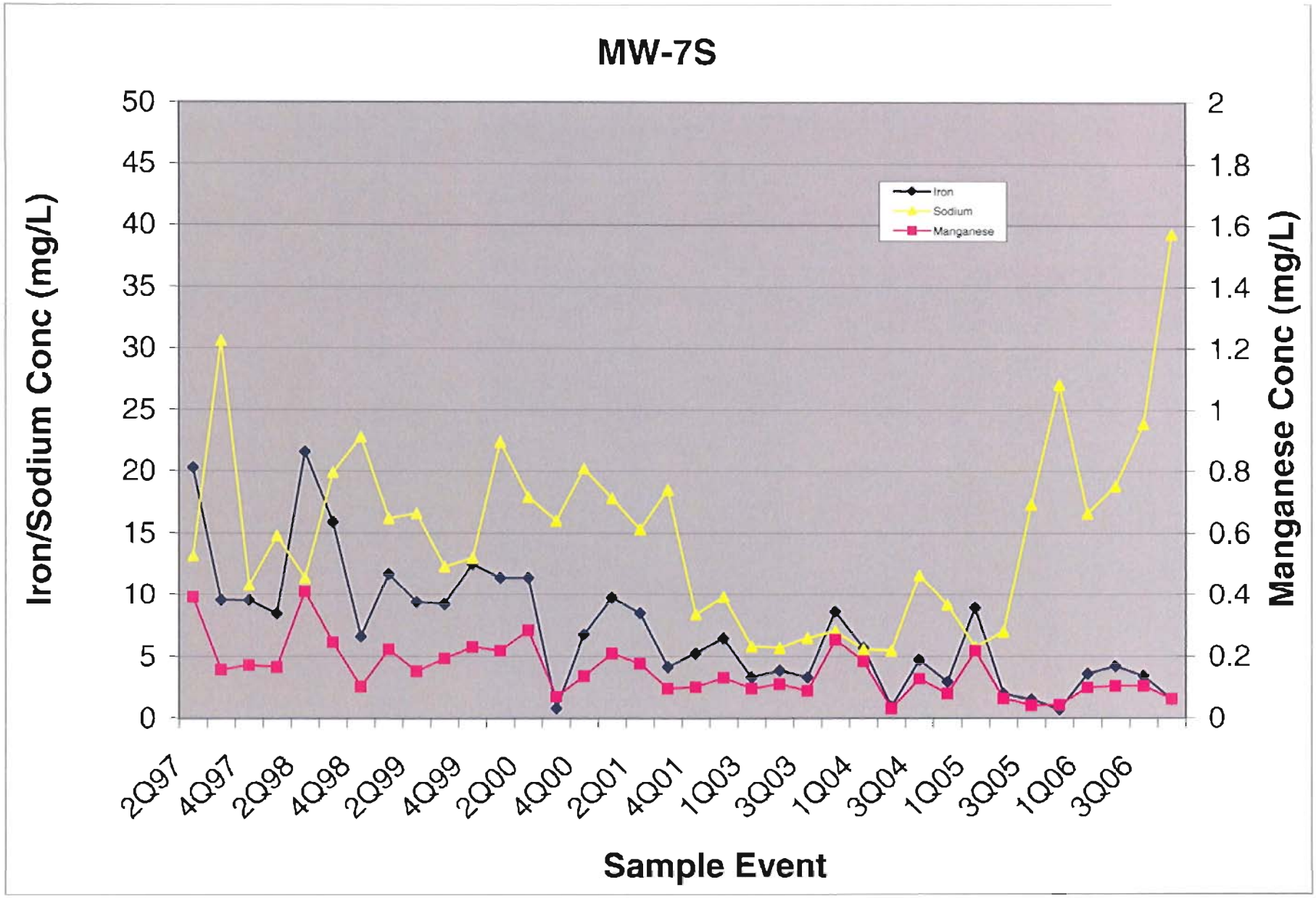

MW-2I
Alkalinity
Sulfate
Alkalinity Conc (mg/L)
Sulfate Conc (mg/L)
400
350
300
250
200
150
100
50
0
100
90
80
70
60
50
40
30
20
10
0
2Q97
4Q97
2Q98
4Q98
2Q99
4Q99
2Q00
4Q00
2Q01
4Q01
1Q03
3Q03
1Q04
3Q04
1Q05
3Q05
1Q06
3Q06
Sampling Event

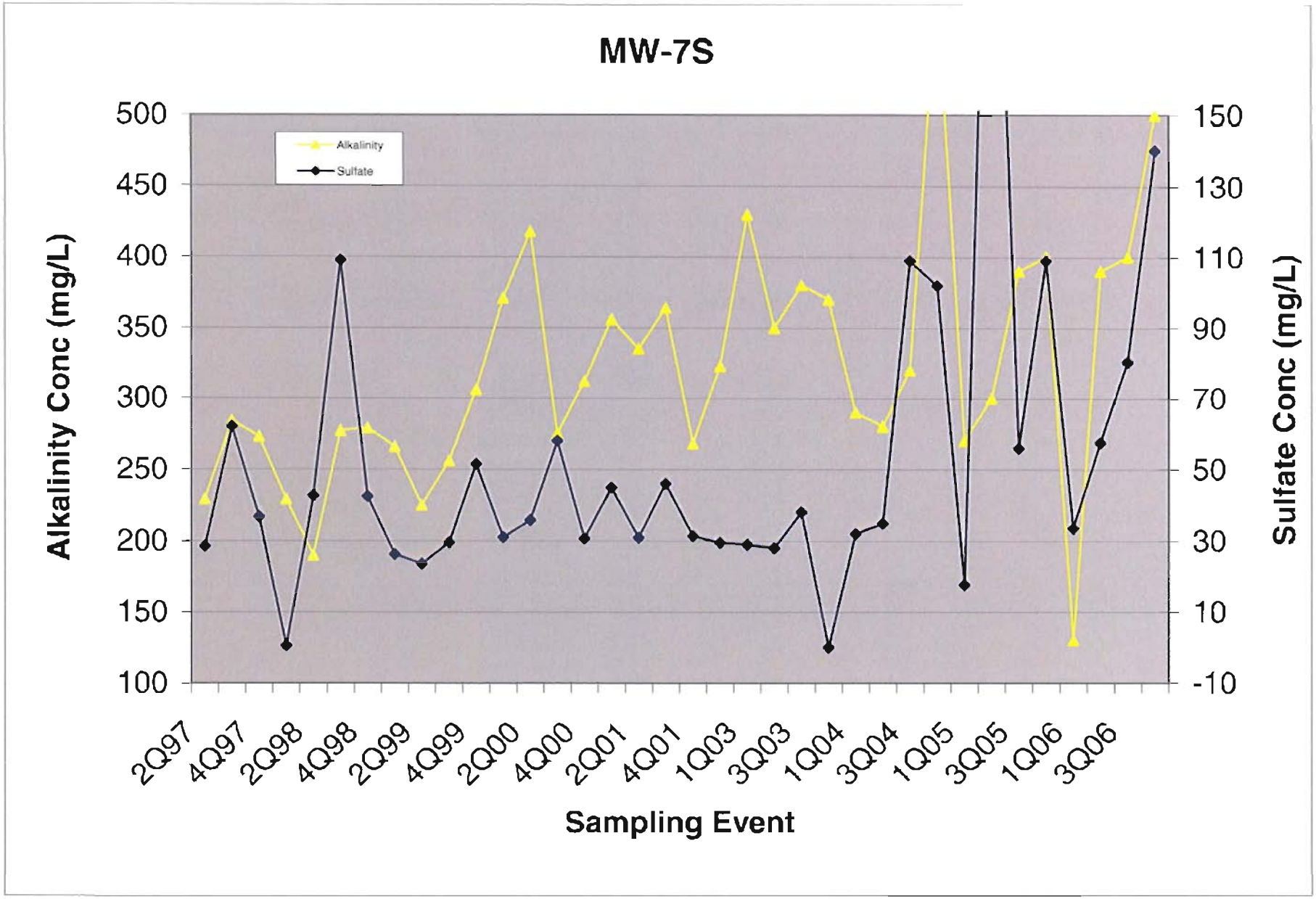

MW-2D
TDS
Hardness
chloride
TDS/Hardness Conc. (mg/L)
Chloride Conc. (mg/L
Sampling Event
400
350
300
250
200
150
100
50
0
40
35
30
25
20
15
10
5
0
2Q97
4Q97
2Q98
4Q98
2Q99
4Q99
2Q00
4Q00
2Q01
4Q01
1Q03
3Q03
1Q04
3Q04
1Q05
3Q05
1Q06
3Q06

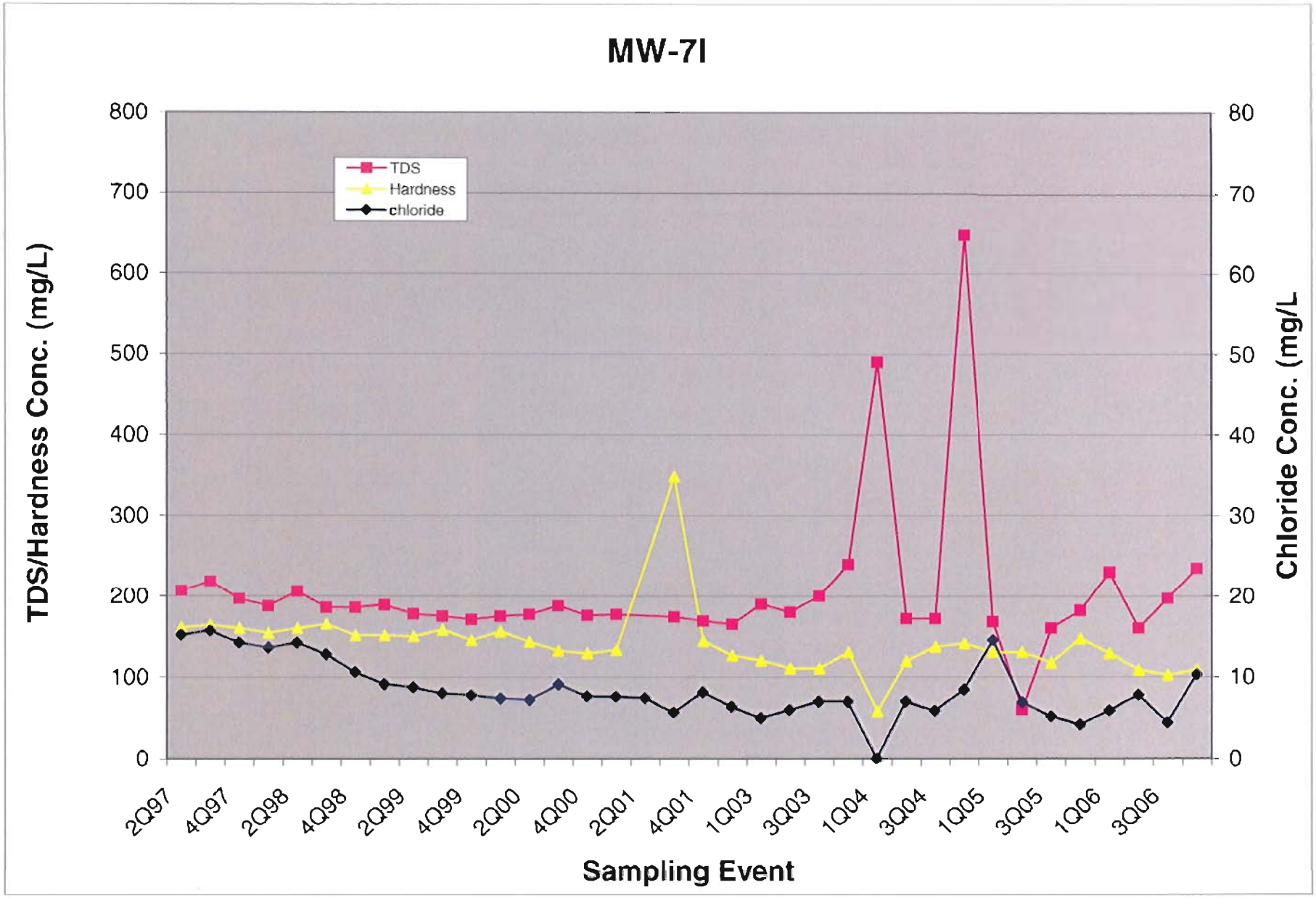

MW-2D
Iron/Sodium Conc (mg/L)
Manganese Conc (mg/L)
Sample Event
Iron
Sodium
Manganese
50
45
40
35
30
25
20
15
10
5
0
2
1.8
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
2Q97
4Q97
2Q98
4Q98
2Q99
4Q99
2Q00
4Q00
2Q01
4Q01
1Q03
3Q03
1Q04
3Q04
1Q05
3Q05
1Q06
3Q06

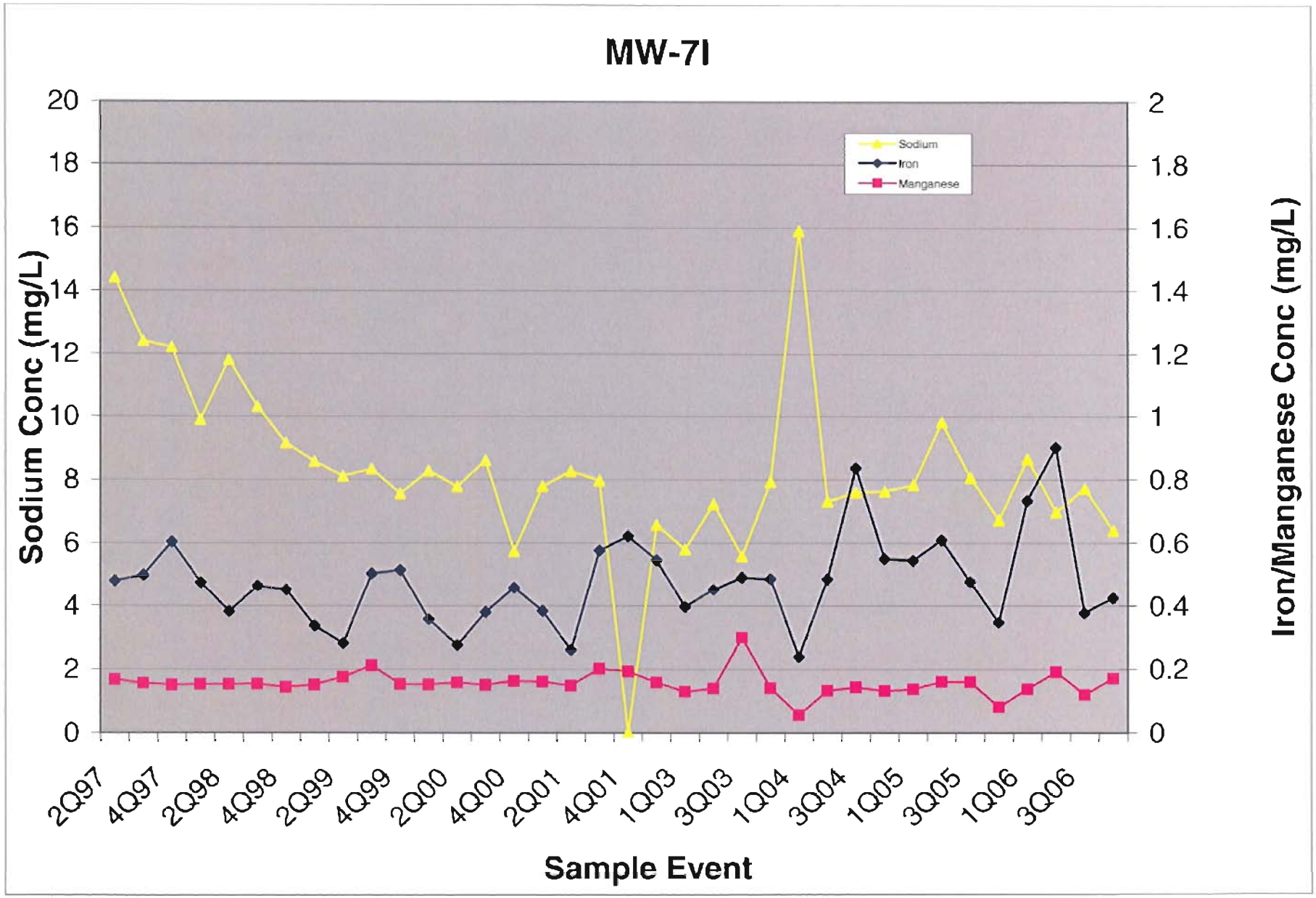

MW-2D
Alkalinity
Sulfate
Alkalinity Conc (mg/L)
Sulfate Conc (mg/L)
250
200
150
100
50
0
100
90
80
70
60
50
40
30
20
10
0
2Q97
4Q97
2Q98
4Q98
2Q99
4Q99
2Q00
4Q00
2Q01
4Q01
1Q03
3Q03
1Q04
3Q04
1Q05
3Q05
1Q06
3Q06
Sampling Event

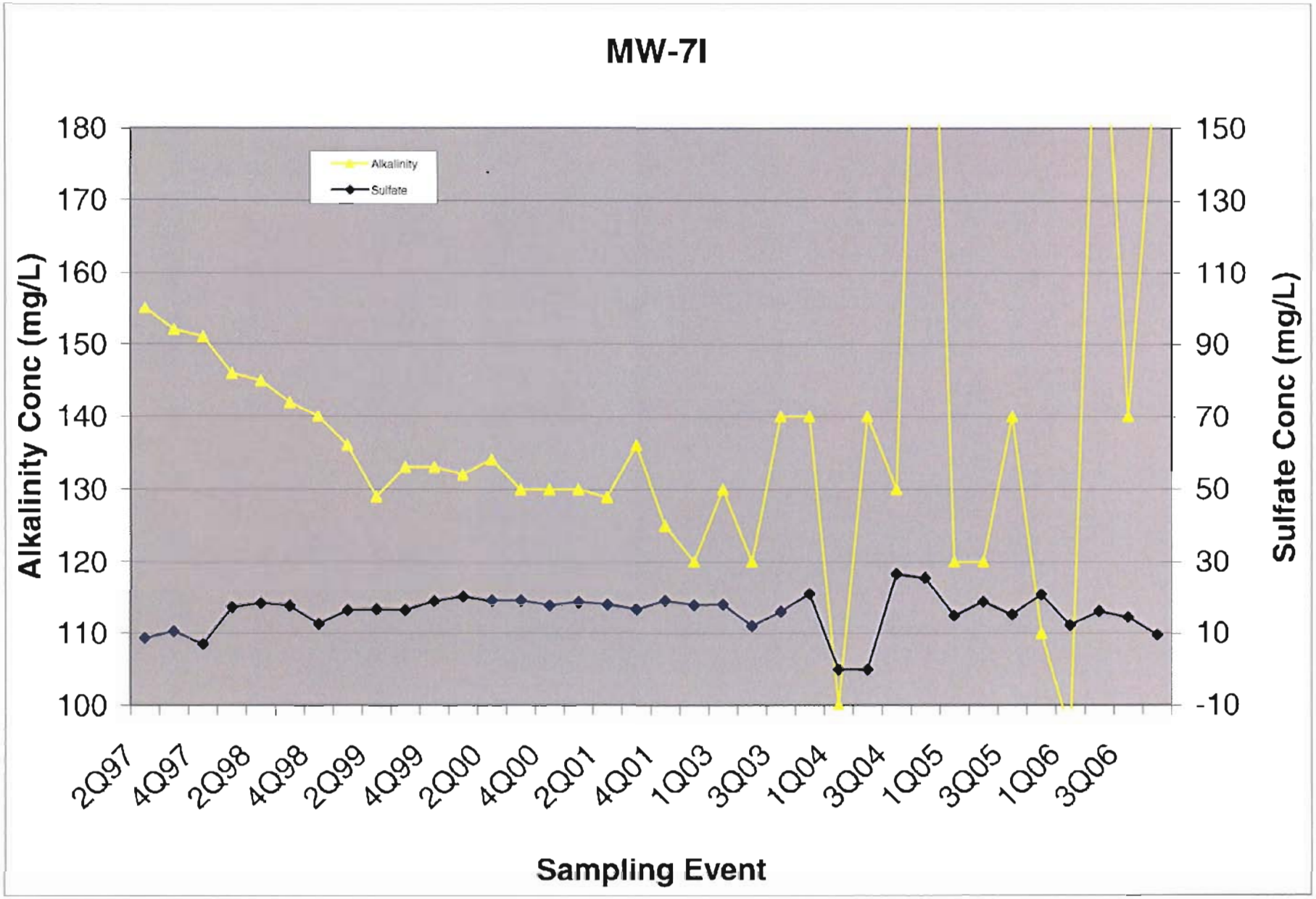

MW-7S
TDS
Hardness
chloride
TDS/Hardness Conc. (mg/L)
Chloride Conc. (mg/L
Sampling Event
0
100
200
300
400
500
600
700
800
0
10
20
30
40
50
60
70
80
2Q97
4Q97
2Q98
4Q98
2Q99
4Q99
2Q00
4Q00
2Q01
4Q01
1Q03
3Q03
1Q04
3Q04
1Q05
3Q05
1Q06
3Q06

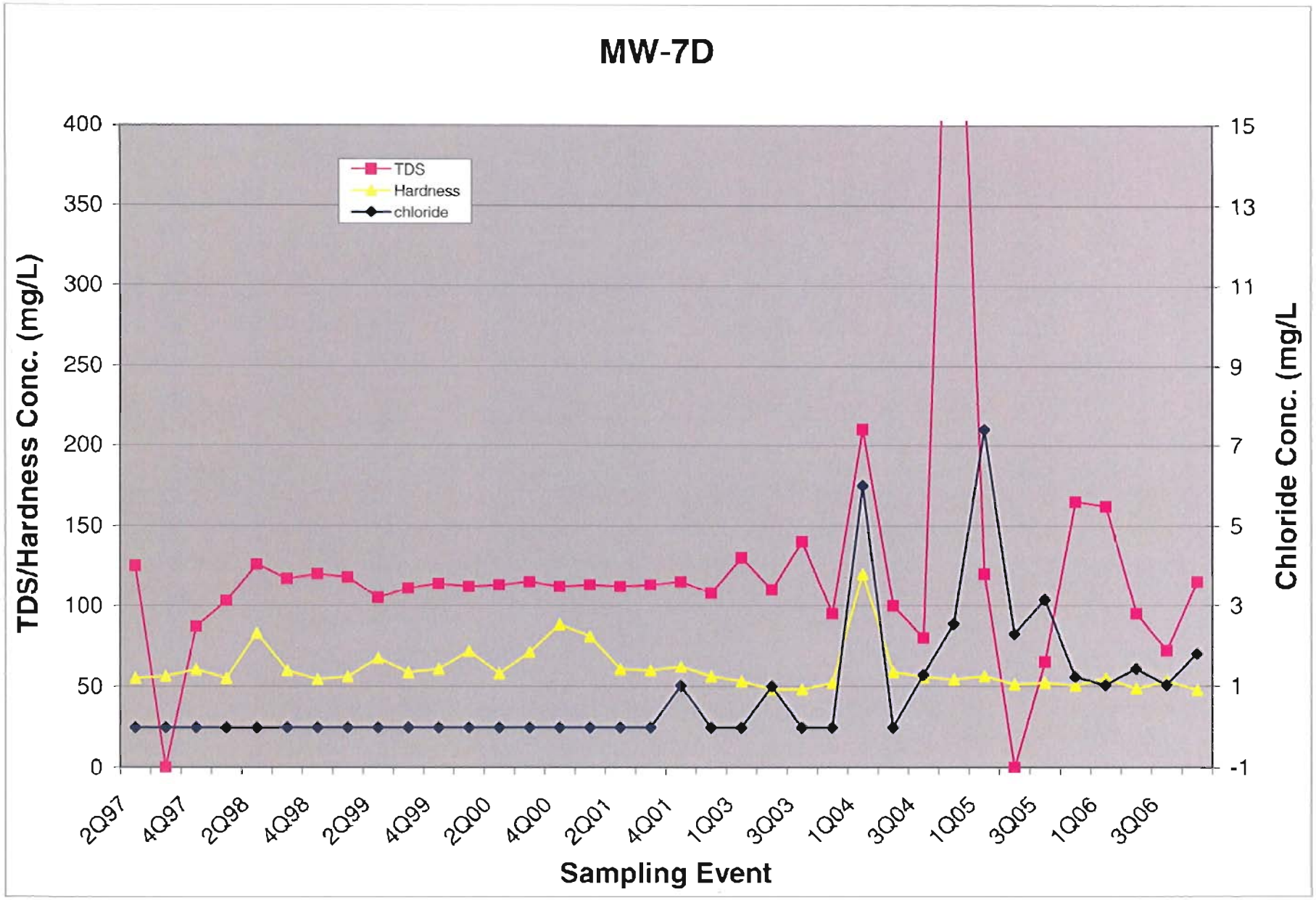

MW-7S
Iron/Sodium Conc (mg/L)
Manganese Conc (mg/L)
Sample Event
Iron
Sodium
Manganese
50
45
40
35
30
25
20
15
10
5
0
2
1.8
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
2Q97
4Q97
2Q98
4Q98
2Q99
4Q99
2Q00
4Q00
2Q01
4Q01
1Q03
3Q03
1Q04
3Q04
1Q05
3Q05
1Q06
3Q06

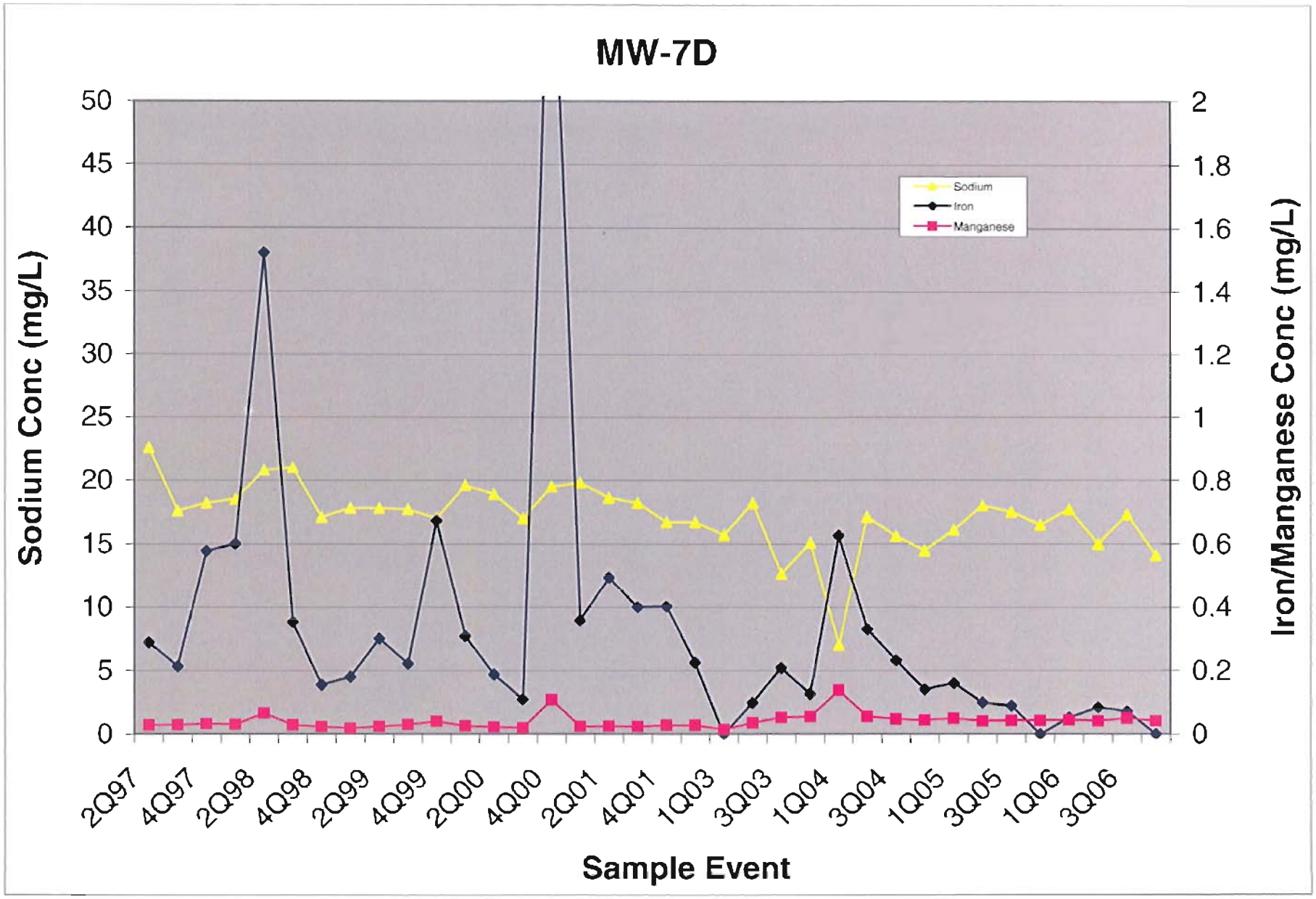

MW-7S
Alkalinity
Sulfate
Alkalinity Conc (mg/L)
Sulfate Conc (mg/L)
500
450
400
350
300
250
200
150
100
150
130
110
90
70
50
30
10
-10
2Q97
4Q97
2Q98
4Q98
2Q99
4Q99
2Q00
4Q00
2Q01
4Q01
1Q03
3Q03
1Q04
3Q04
1Q05
3Q05
1Q06
3Q06
Sampling Event

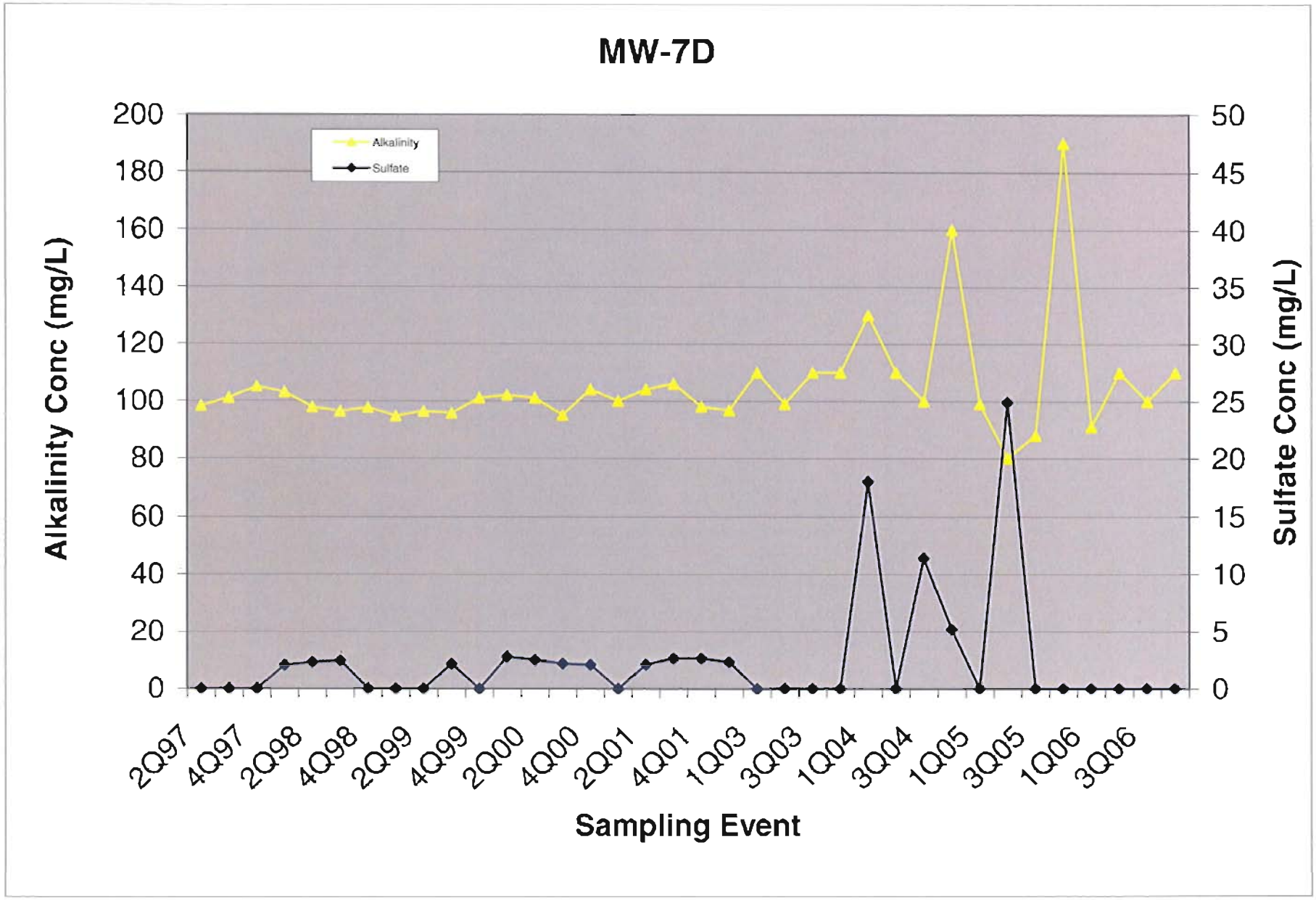

MW-7I
TDS
Hardness
chloride
TDS/Hardness Conc. (mg/L)
Chloride Conc. (mg/L
Sampling Event
800
700
600
500
400
300
200
100
0
80
70
60
50
40
30
20
10
0
2Q97
4Q97
2Q98
4Q98
2Q99
4Q99
2Q00
4Q00
2Q01
4Q01
1Q03
3Q03
1Q04
3Q04
1Q05
3Q05
1Q06
3Q06

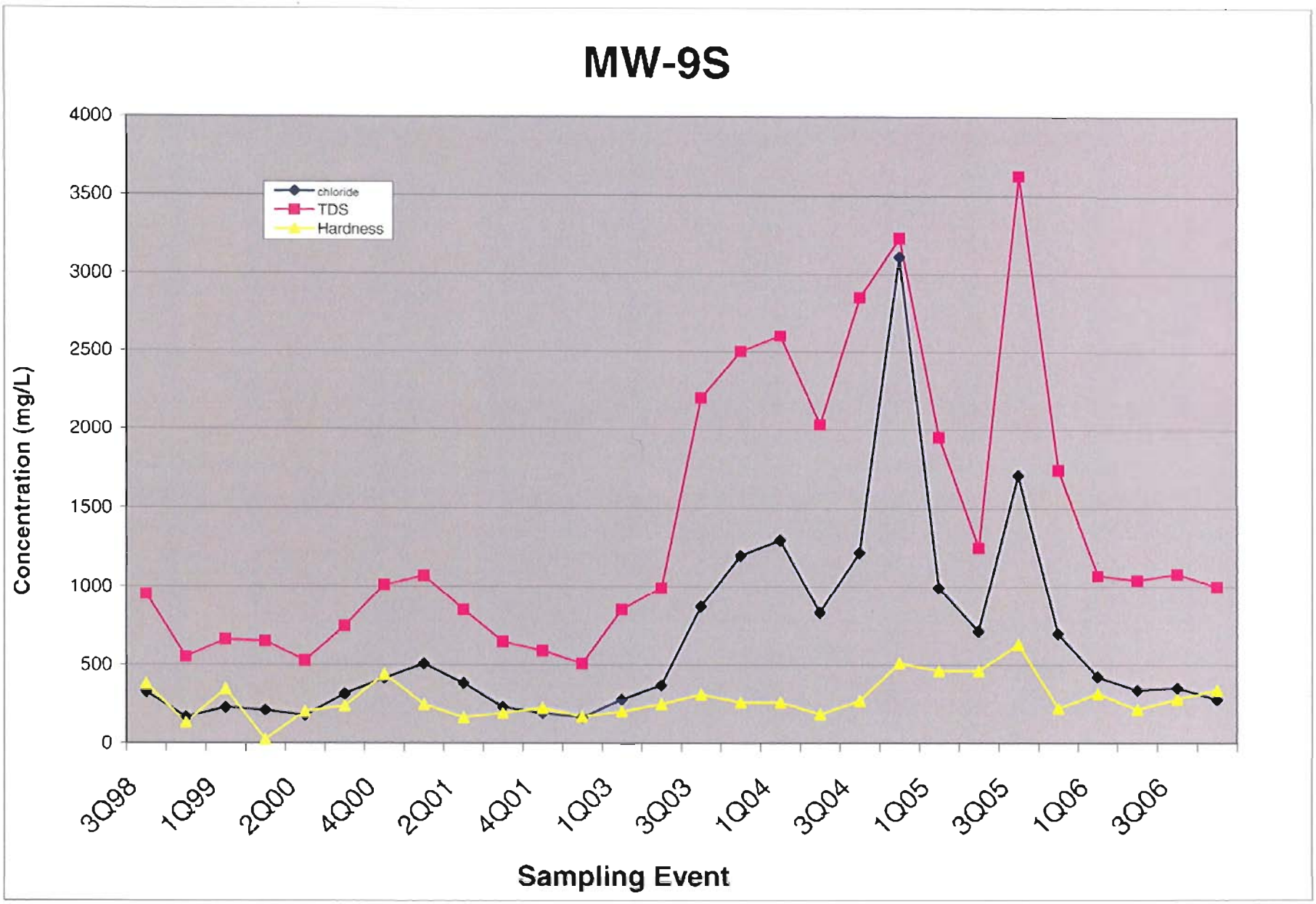

MW-7I
Sodium
Iron
Manganese
Sodium Conc (mg/L)
Iron/Manganese Conc (mg/L)
Sample Event
0
2
4
6
8
10
12
14
16
18
20
0
0.2
0.4
0.6
0.8
1
1.2
1.4
1.6
1.8
2
2Q97
4Q97
2Q98
4Q98
2Q99
4Q99
2Q00
4Q00
2Q01
4Q01
1Q03
3Q03
1Q04
3Q04
1Q05
3Q05
1Q06
3Q06

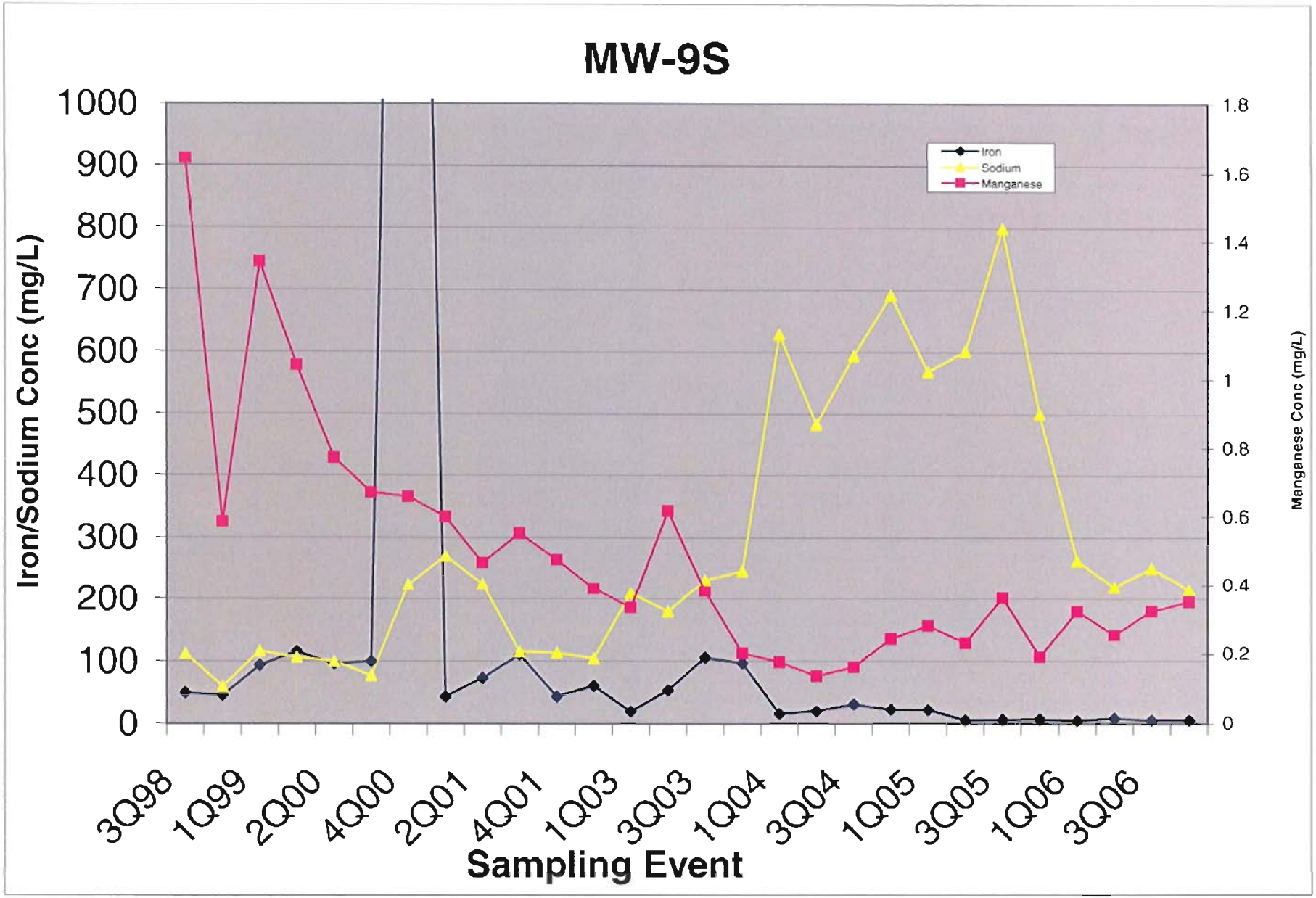

MW-7I
Alkalinity
Sulfate
Alkalinity Conc (mg/L)
Sulfate Conc (mg/L)
180
170
160
150
140
130
120
110
100
150
130
110
90
70
50
30
10
-10
2Q97
4Q97
2Q98
4Q98
2Q99
4Q99
2Q00
4Q00
2Q01
4Q01
1Q03
3Q03
1Q04
3Q04
1Q05
3Q05
1Q06
3Q06
Sampling Event

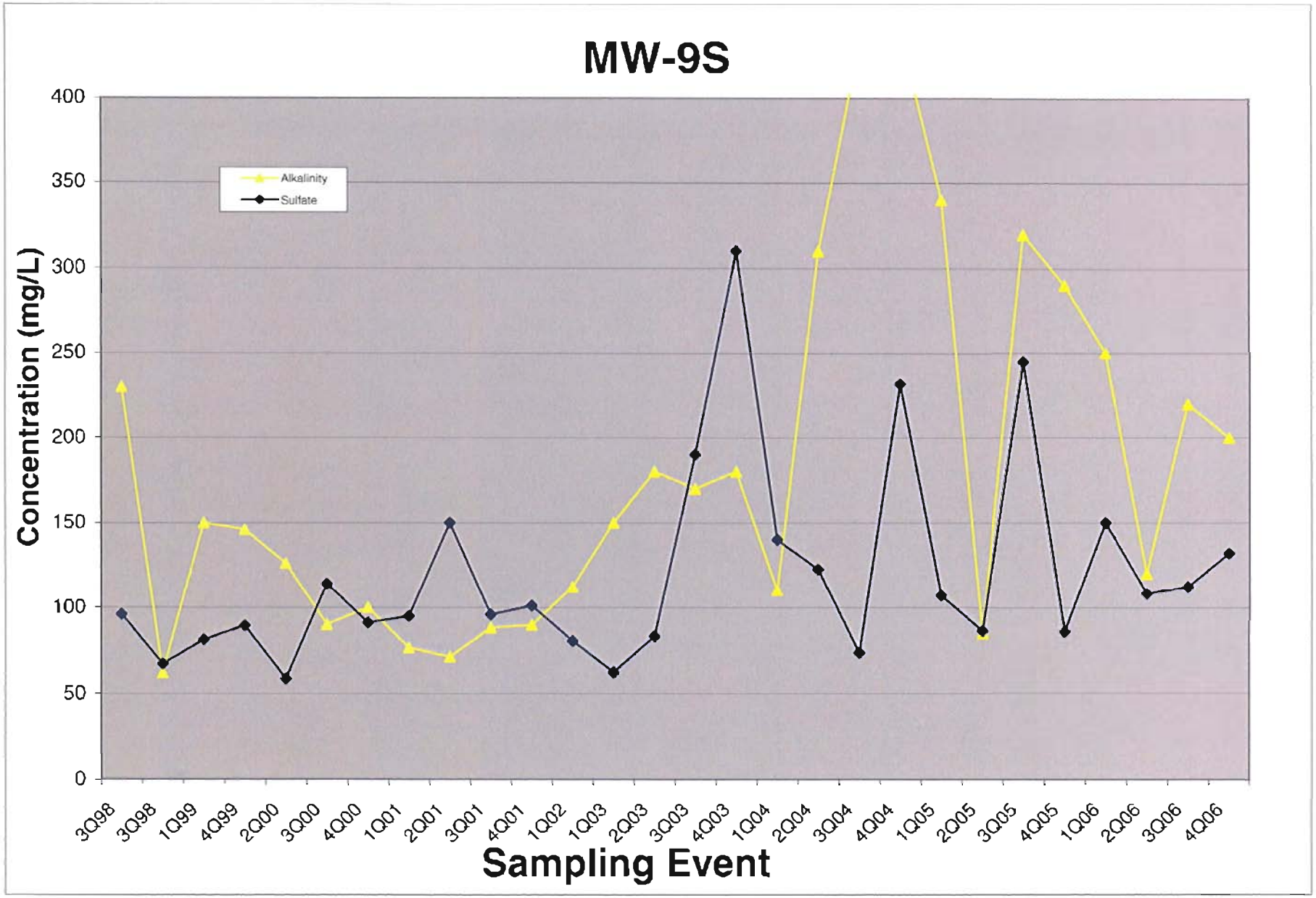

MW-7D
TDS
Hardness
chloride
TDS/Hardness Conc. (mg/L)
Chloride Conc. (mg/L
Sampling Event
400
350
300
250
200
150
100
50
0
15
13
11
9
7
5
3
1
-1
2Q97
4Q97
2Q98
4Q98
2Q99
4Q99
2Q00
4Q00
2Q01
4Q01
1Q03
3Q03
1Q04
3Q04
1Q05
3Q05
1Q06
3Q06

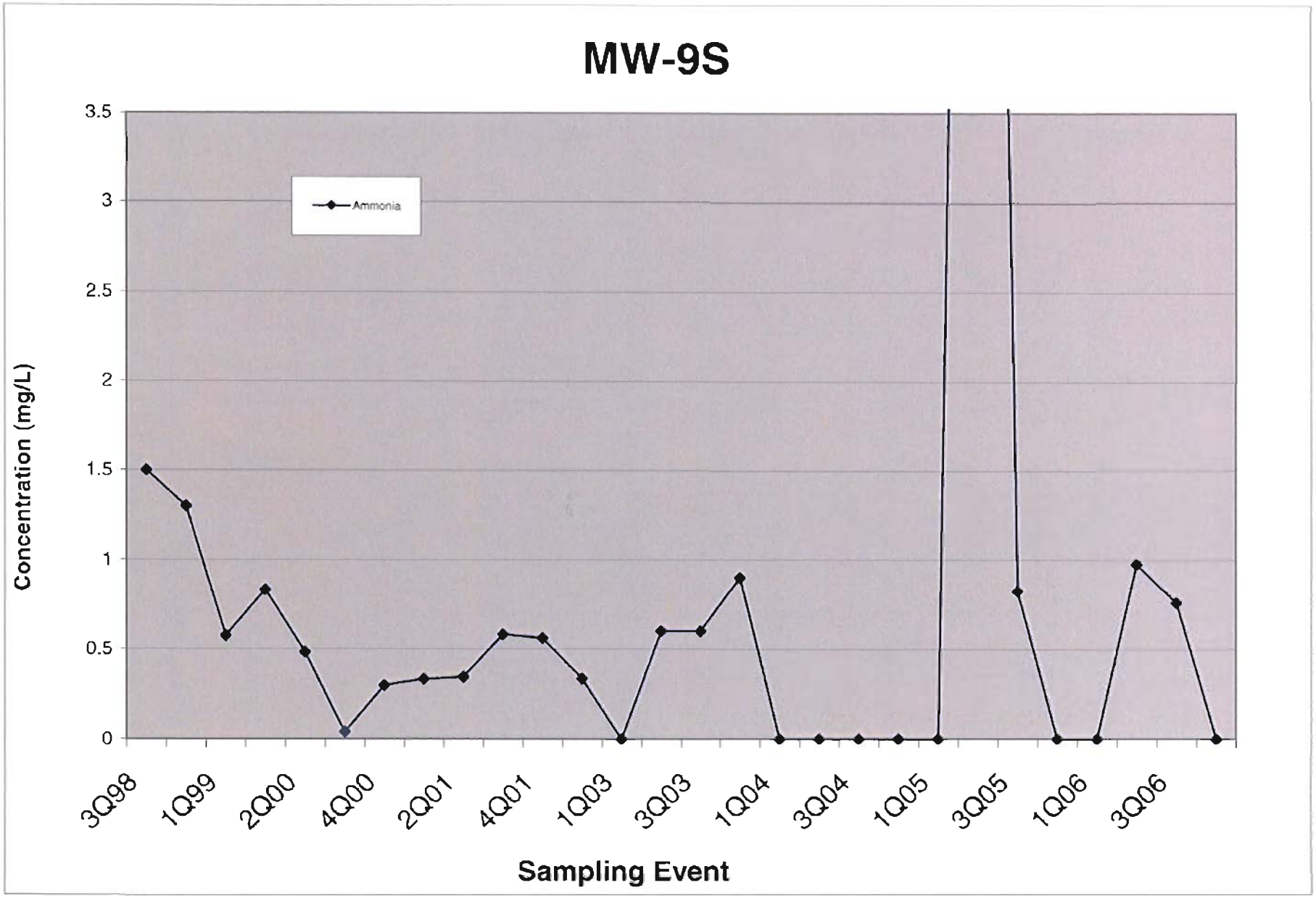

MW-7D
Sodium Conc (mg/L)
Iron/Manganese Conc (mg/L)
Sample Event
Sodium
Iron
Manganese
50
45
40
35
30
25
20
15
10
5
0
2
1.8
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
2Q97
4Q97
2Q98
4Q98
2Q99
4Q99
2Q00
4Q00
2Q01
4Q01
1Q03
3Q03
1Q04
3Q04
1Q05
3Q05
1Q06
3Q06

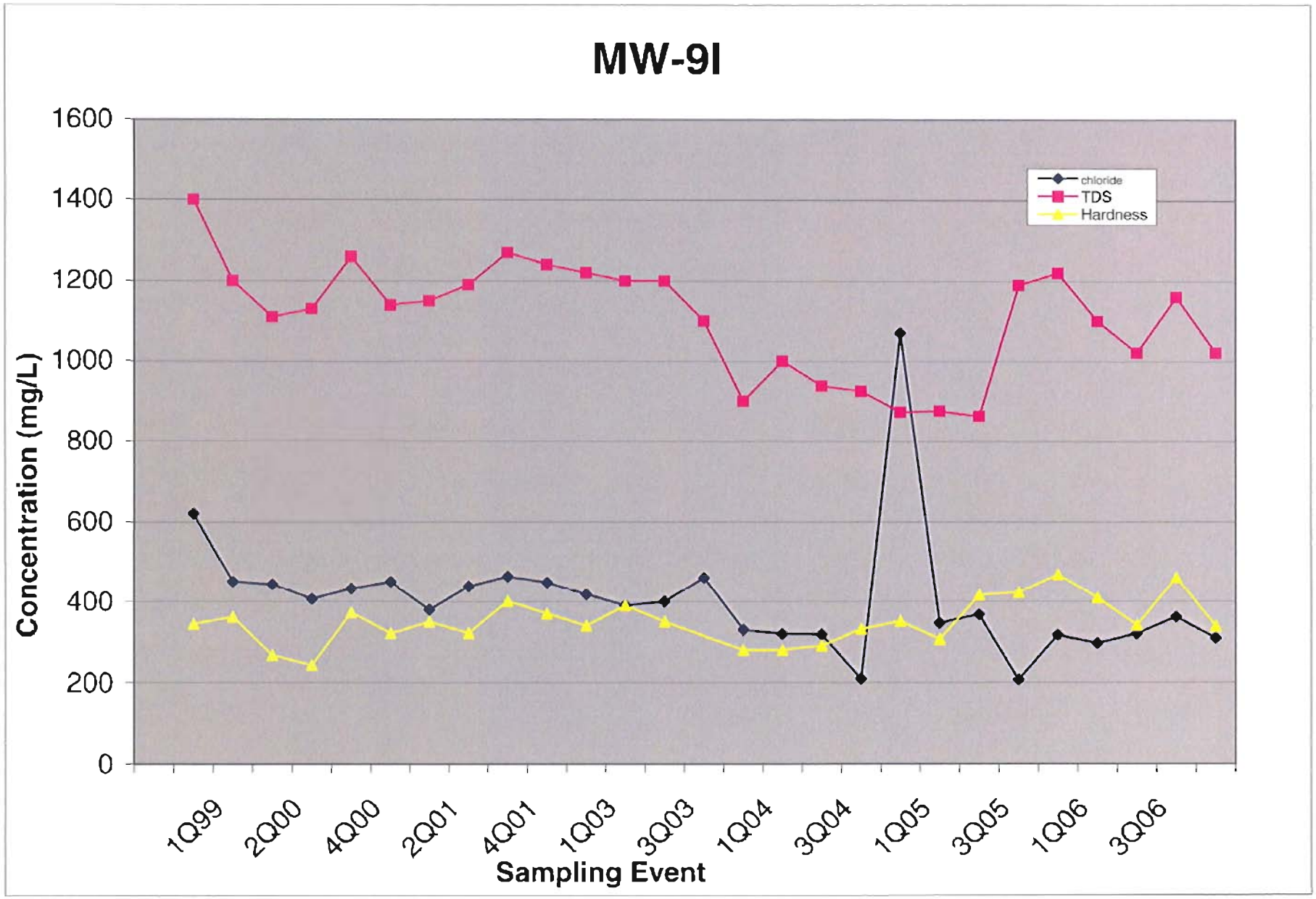

MW-7D
Alkalinity
Sulfate
Alkalinity Conc (mg/L)
Sulfate Conc (mg/L)
200
180
160
140
120
100
80
60
40
20
0
50
45
40
35
30
25
20
15
10
5
0
2Q97
4Q97
2Q98
4Q98
2Q99
4Q99
2Q00
4Q00
2Q01
4Q01
1Q03
3Q03
1Q04
3Q04
1Q05
3Q05
1Q06
3Q06
Sampling Event

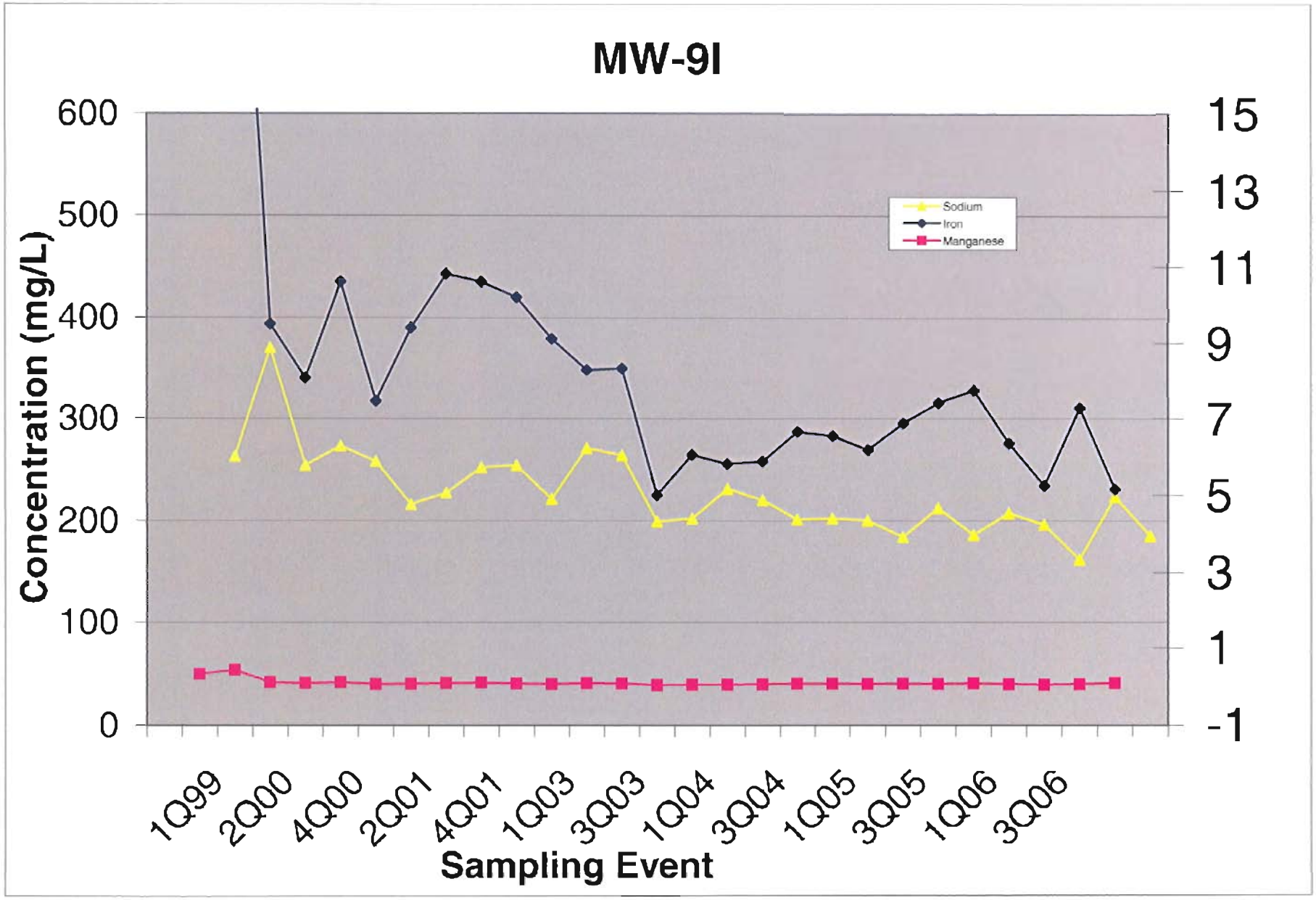

MW-9S
chloride
TDS
Hardness
Concentration (mg/L)
4000
3500
3000
2500
2000
1500
1000
500
0
3Q98
1Q99
2Q00
4Q00
2Q01
4Q01
1Q03
3Q03
1Q04
3Q04
1Q05
3Q05
1Q06
3Q06
Sampling Event

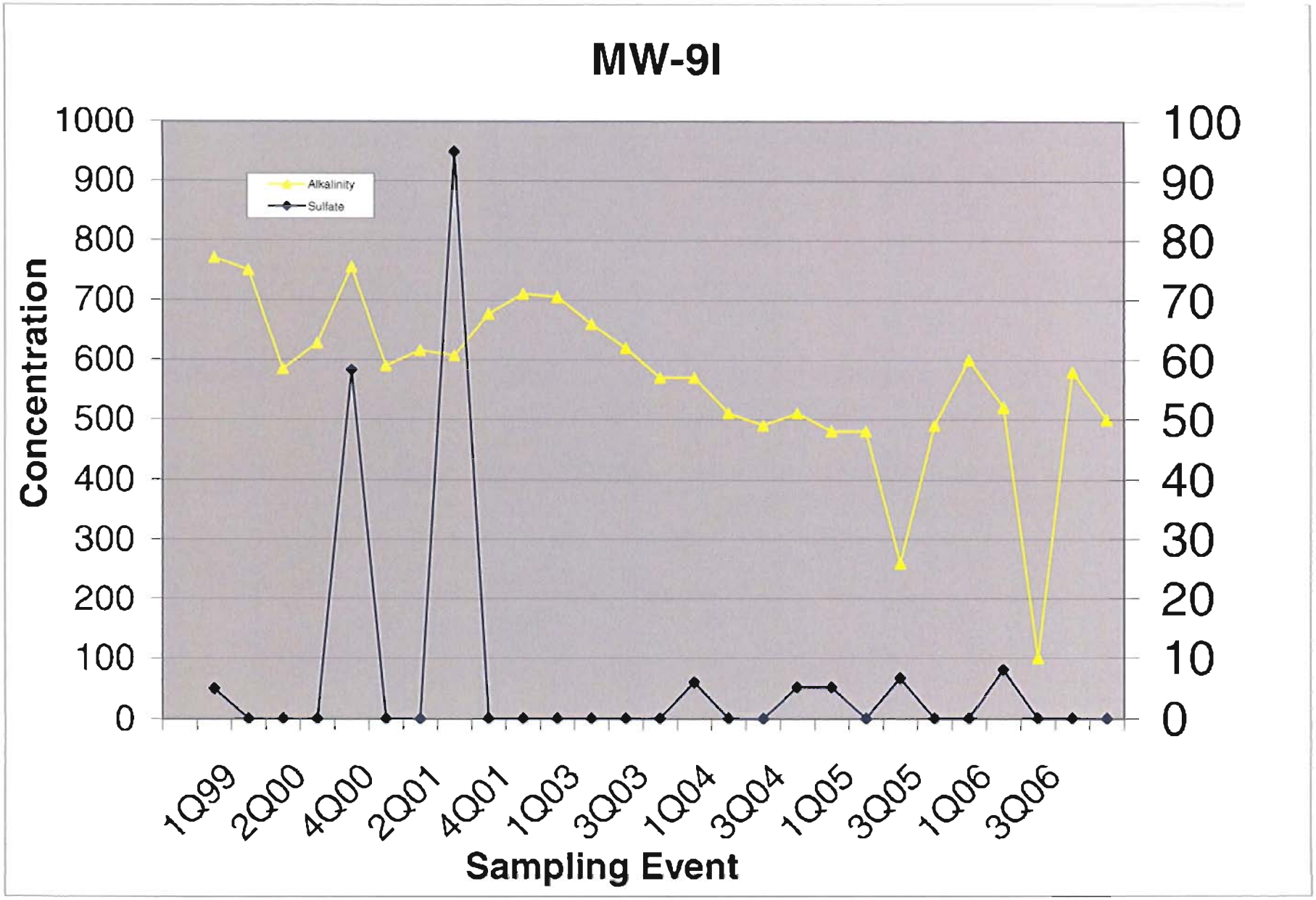

MW-9S
Iron/Sodium Conc (mg/L)
1000
900
800
700
600
500
400
300
200
100
0
Manganese Conc (mg/L)
1.8
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
Iron
Sodium
Manganese
3Q98
1Q99
2Q00
4Q00
2Q01
4Q01
1Q03
3Q03
1Q04
3Q04
1Q05
3Q05
1Q06
3Q06
Sampling Event

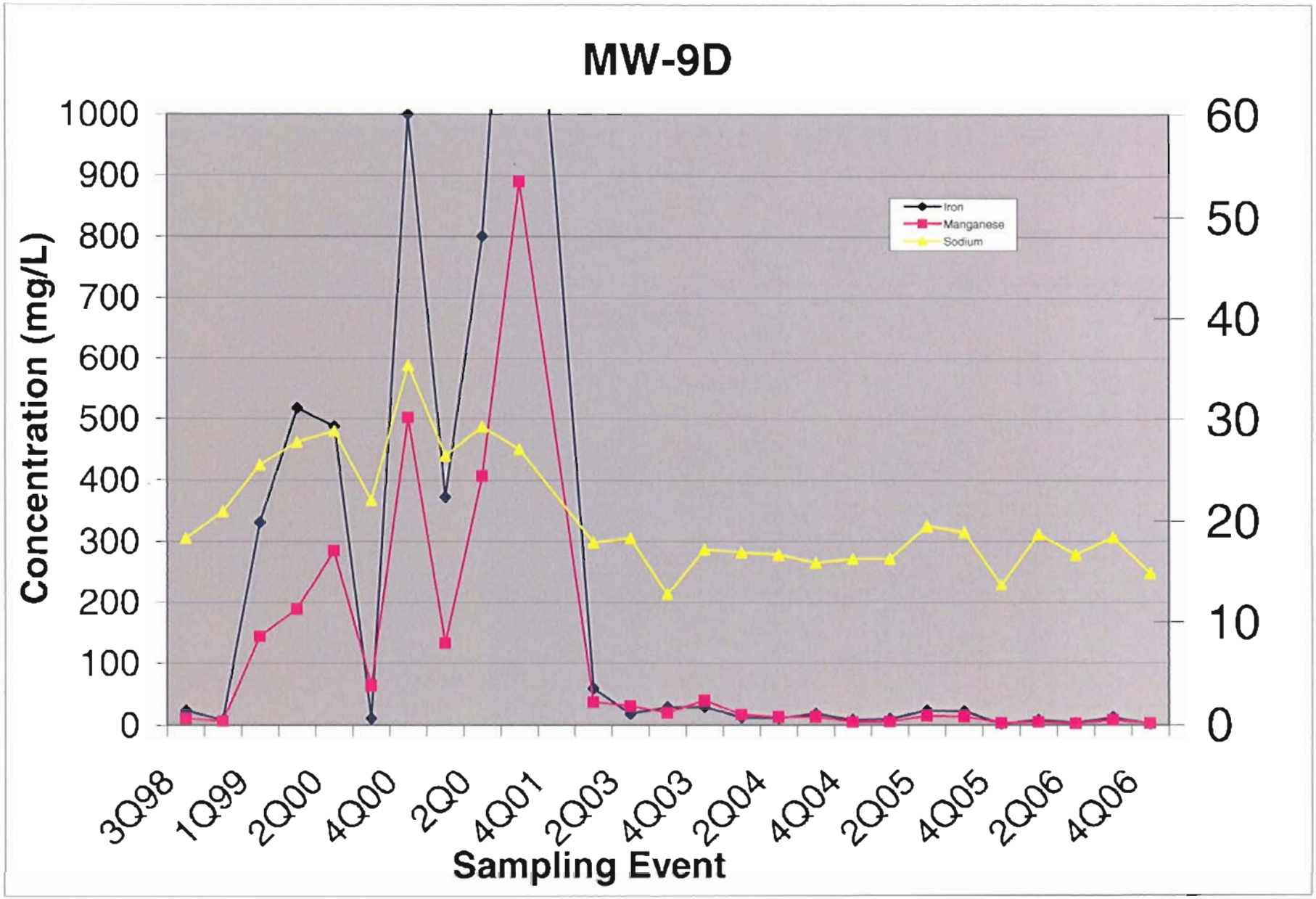

MW-9S
Alkalinity
Sulfate
Concentration (mg/L)
400
350
300
250
200
150
100
50
0
3Q98
3Q98
1Q99
4Q99
2Q00
3Q00
4Q00
1Q01
2Q01
3Q01
4Q01
1Q02
1Q03
2Q03
3Q03
4Q03
1Q04
2Q04
3Q04
4Q04
1Q05
2Q05
3Q05
4Q05
1Q06
2Q06
3Q06
4Q06
Sampling Event

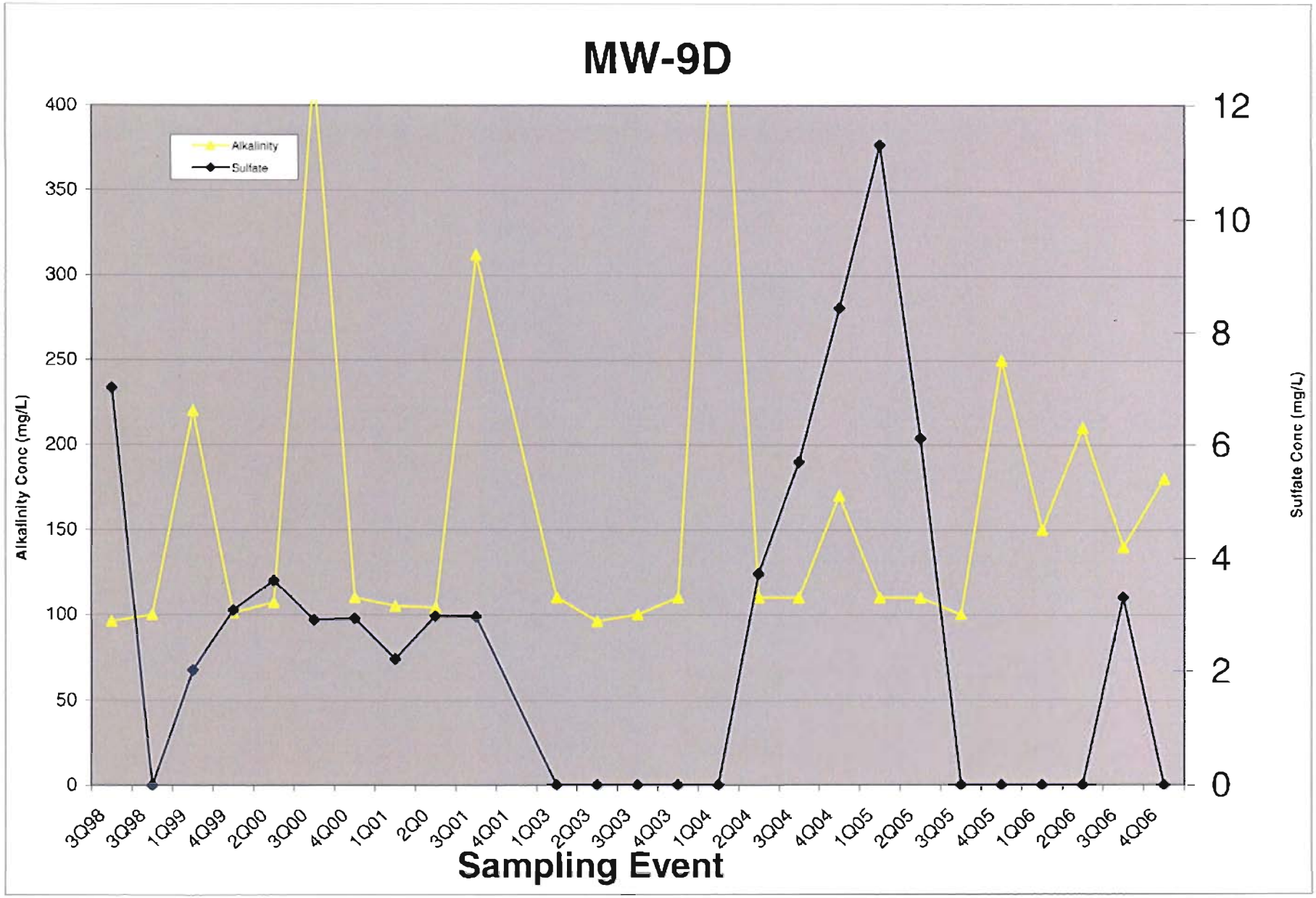

MW-9S
Ammonia
Concentration (mg/L)
3.5
3
2.5
2
1.5
1
0.5
0
3Q98
1Q99
2Q00
4Q00
2Q01
4Q01
1Q03
3Q03
1Q04
3Q04
1Q05
3Q05
1Q06
3Q06
Sampling Event

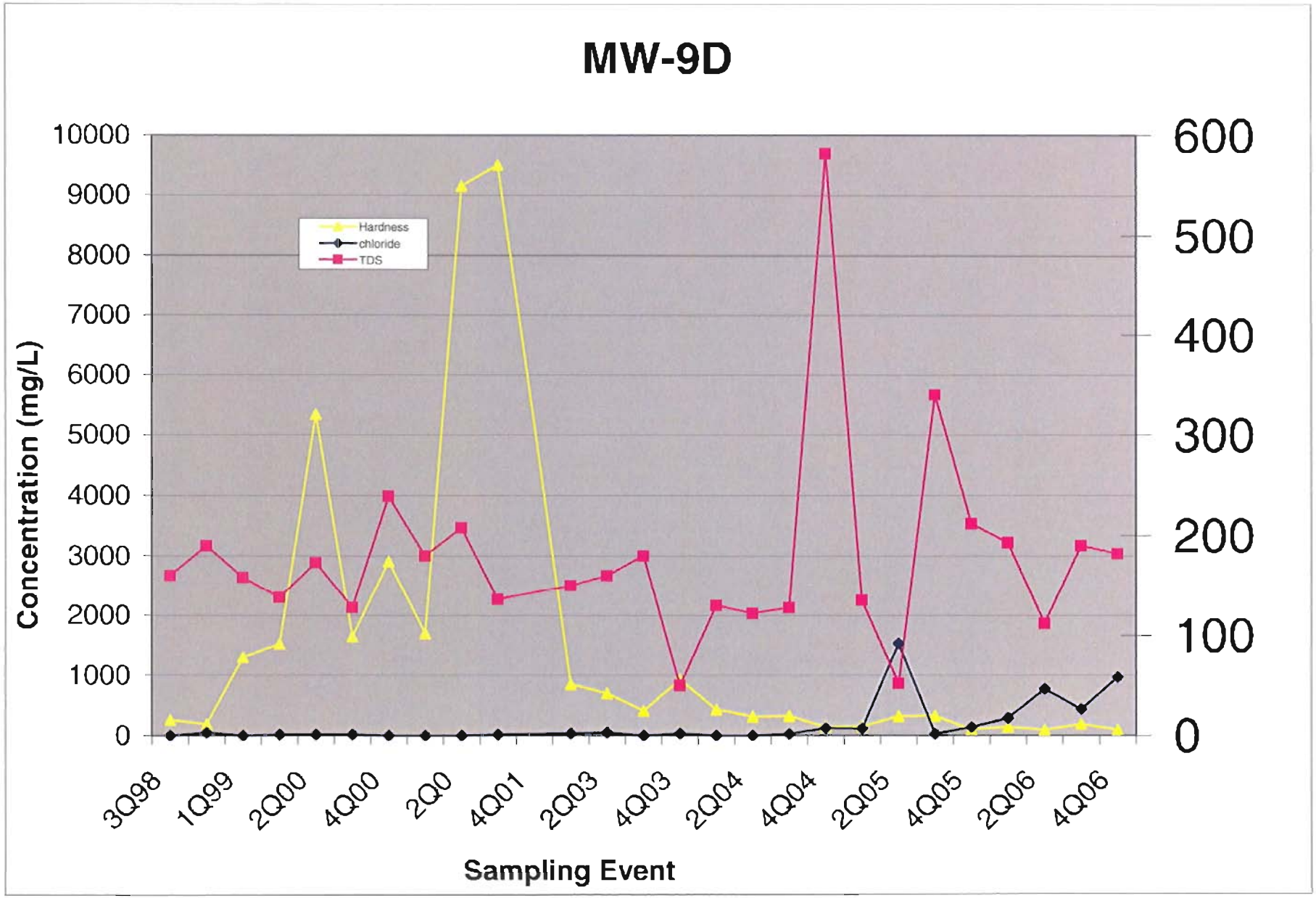

MW-9I
Concentration (mg/L)
1600
1400
1200
1000
800
600
400
200
0
chloride
TDS
Hardness
1Q99
2Q00
4Q00
2Q01
4Q01
1Q03
3Q03
1Q04
3Q04
1Q05
3Q05
1Q06
3Q06
Sampling Event

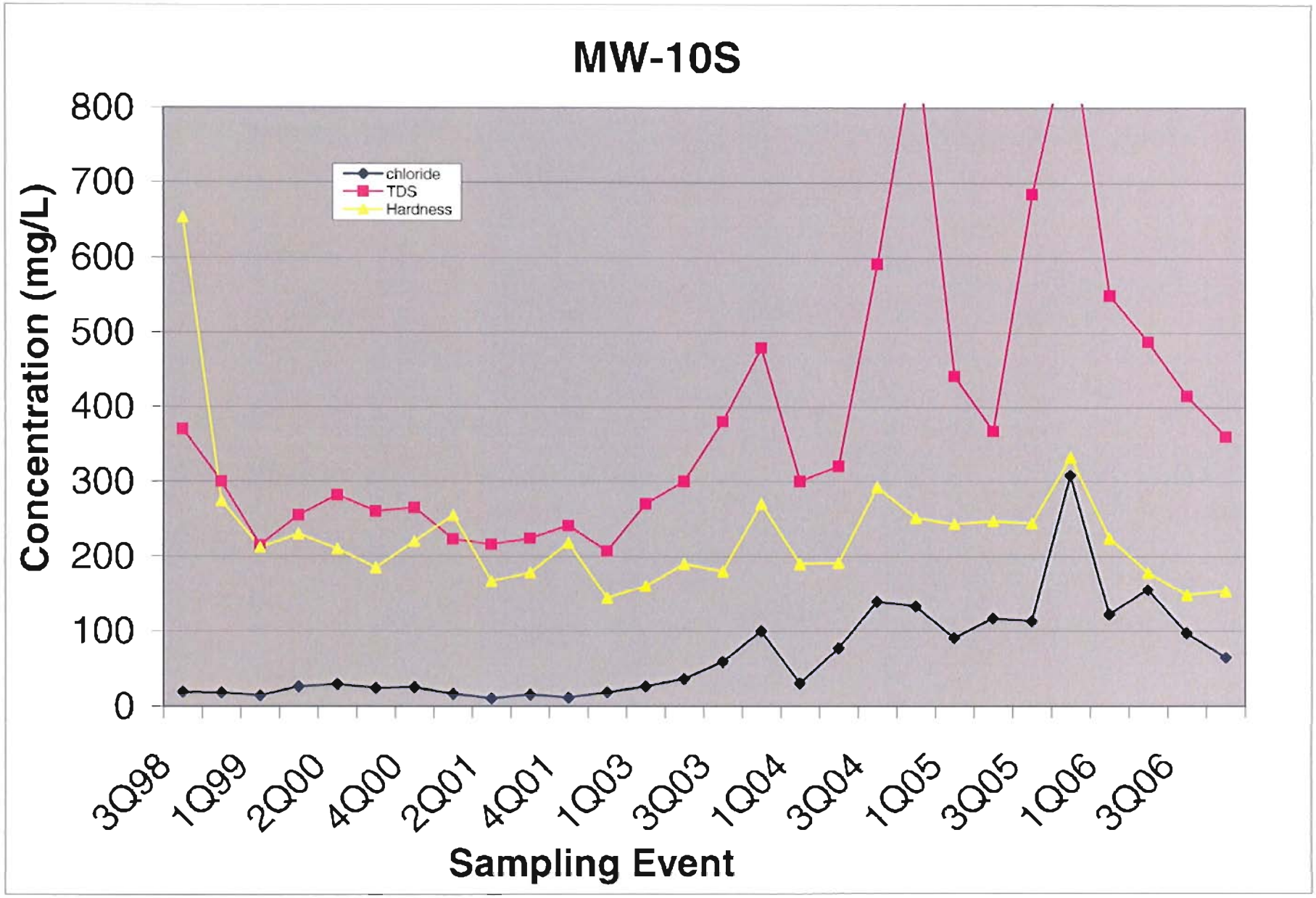

MW-9I
Concentration (mg/L)
600
500
400
300
200
100
0
15
13
11
9
7
5
3
1
-1
Sodium
Iron
Manganese
1Q99
2Q00
4Q00
2Q01
4Q01
1Q03
3Q03
1Q04
3Q04
1Q05
3Q05
1Q06
3Q06
Sampling Event

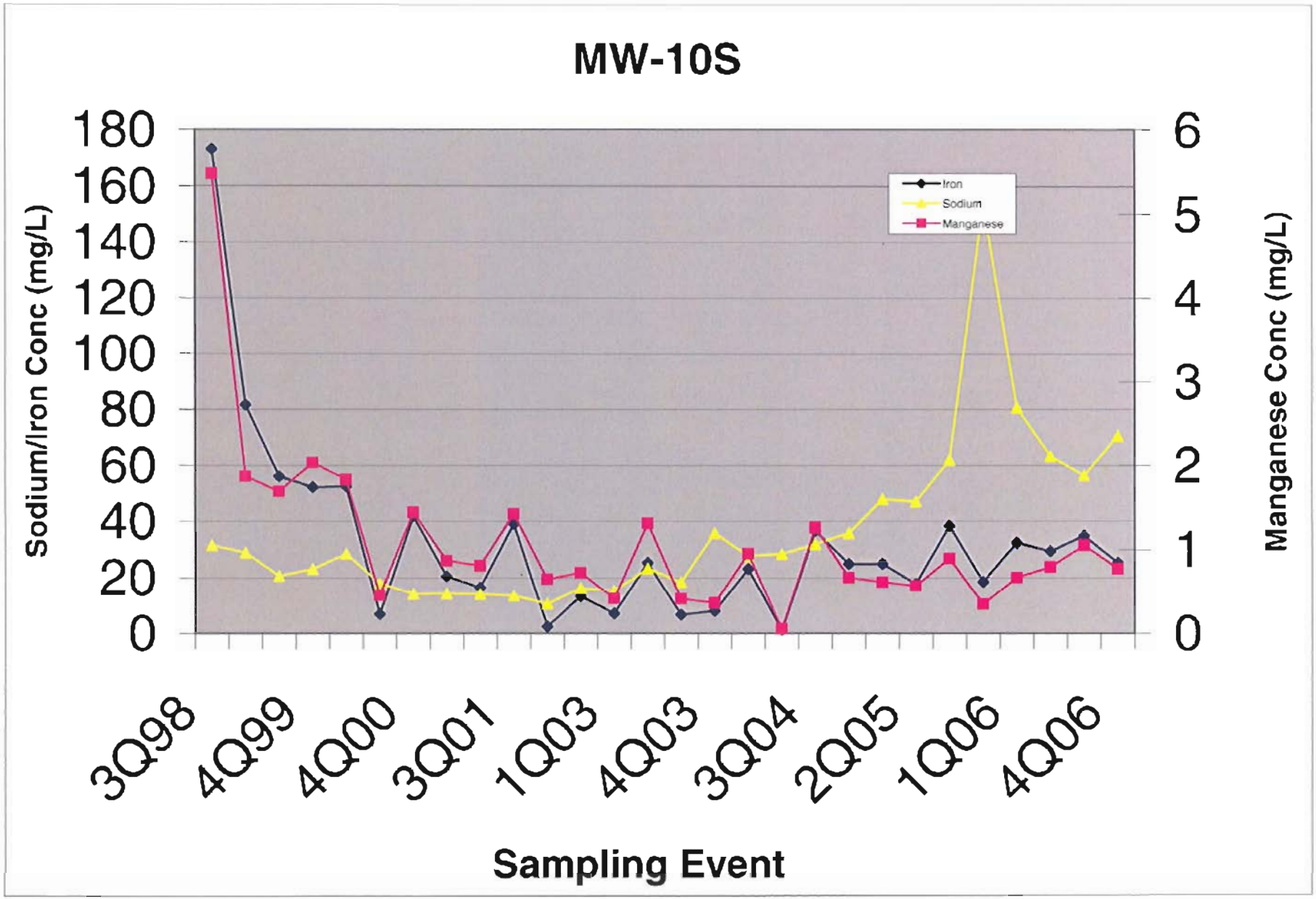

MW-9I
Alkalinity
Sulfate
Concentration
1000
900
800
700
600
500
400
300
200
100
0
100
90
80
70
60
50
40
30
20
10
0
1Q99
2Q00
4Q00
2Q01
4Q01
1Q03
3Q03
1Q04
3Q04
1Q05
3Q05
1Q06
3Q06
Sampling Event

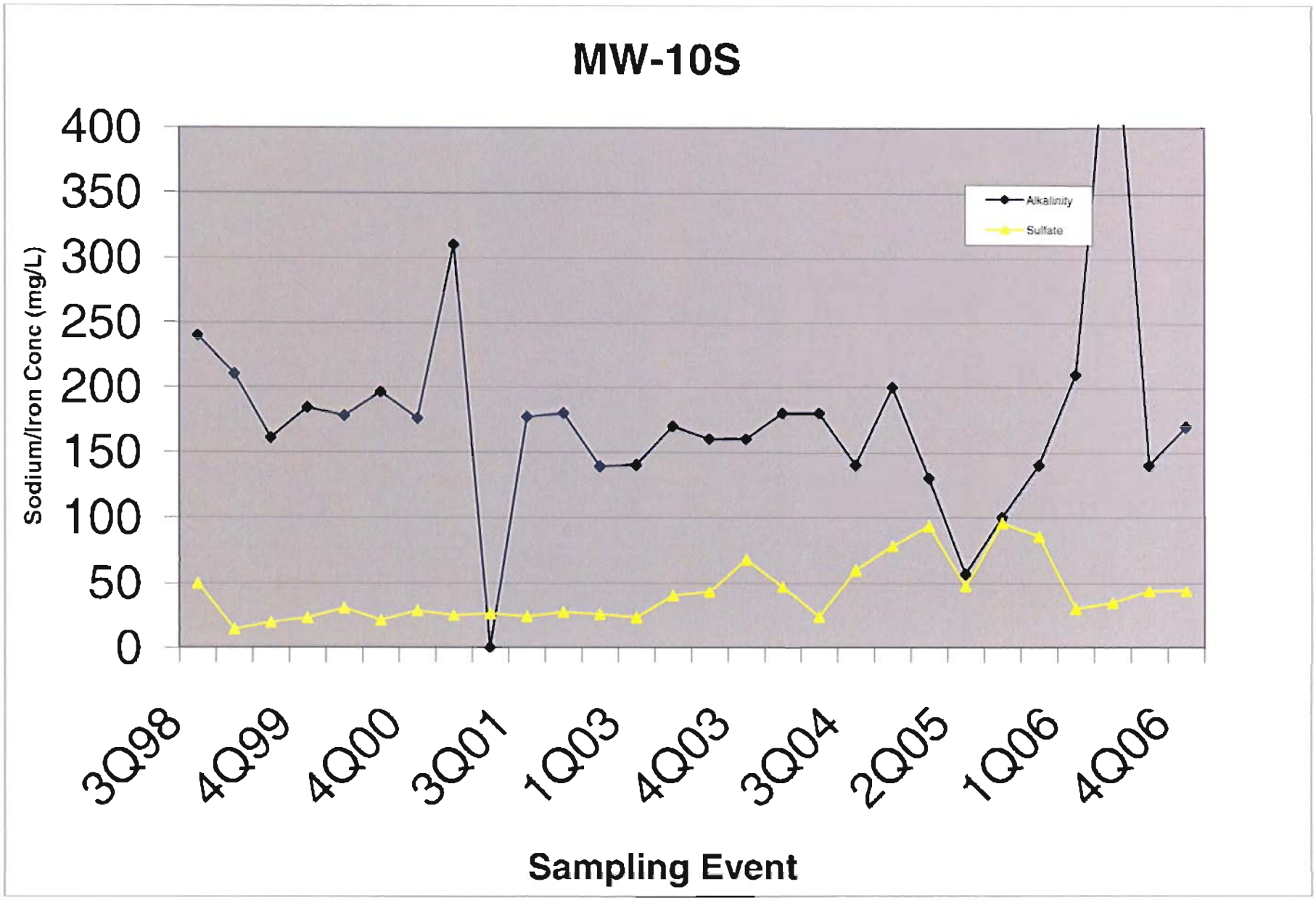

MW-9D
Concentration (mg/L)
1000
900
800
700
600
500
400
300
200
100
0
60
50
40
30
20
10
0
Iron
Manganese
Sodium
3Q98
1Q99
2Q00
4Q00
2Q0
4Q01
2Q03
4Q03
2Q04
4Q04
2Q05
4Q05
2Q06
4Q06
Sampling Event

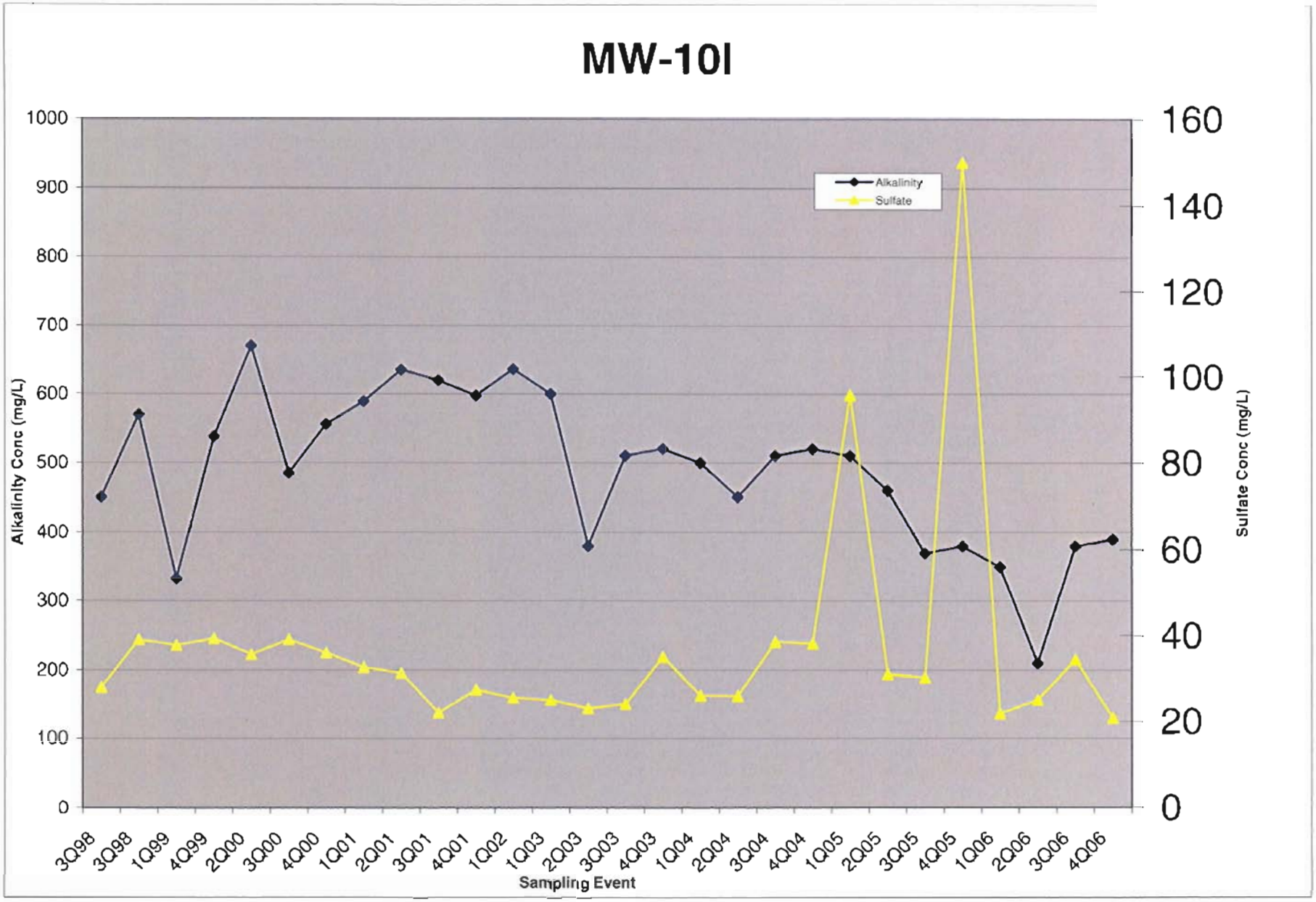

MW-9D
Alkalinity
Sulfate
Alkalinity Conc (mg/L)
Sulfate Conc (mg/L)
400
350
300
250
200
150
100
50
0
12
10
8
6
4
2
0
3Q98
3Q98
1Q99
4Q99
2Q00
3Q00
4Q00
1Q01
2Q0
3Q01
4Q01
1Q03
2Q03
3Q03
4Q03
1Q04
2Q04
3Q04
4Q04
1Q05
2Q05
3Q05
4Q05
1Q06
2Q06
3Q06
4Q06
Sampling Event

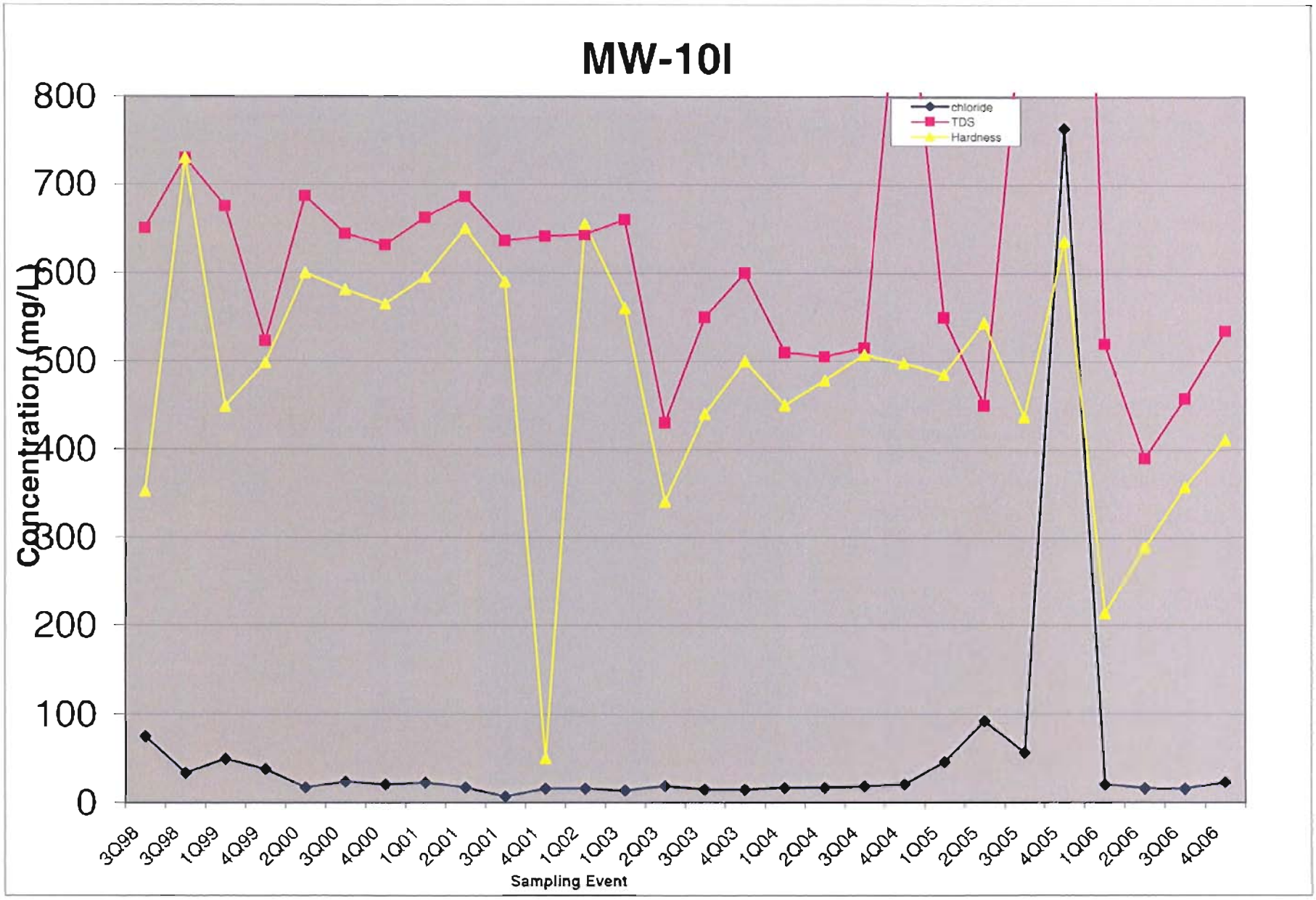

MW-9D
Hardness
chloride
TDS
Concentration (mg/L)
10000
9000
8000
7000
6000
5000
4000
3000
2000
1000
0
600
500
400
300
200
100
0
3Q98
1Q99
2Q00
4Q00
2Q0
4Q01
2Q03
4Q03
2Q04
4Q04
2Q05
4Q05
2Q06
4Q06
Sampling Event

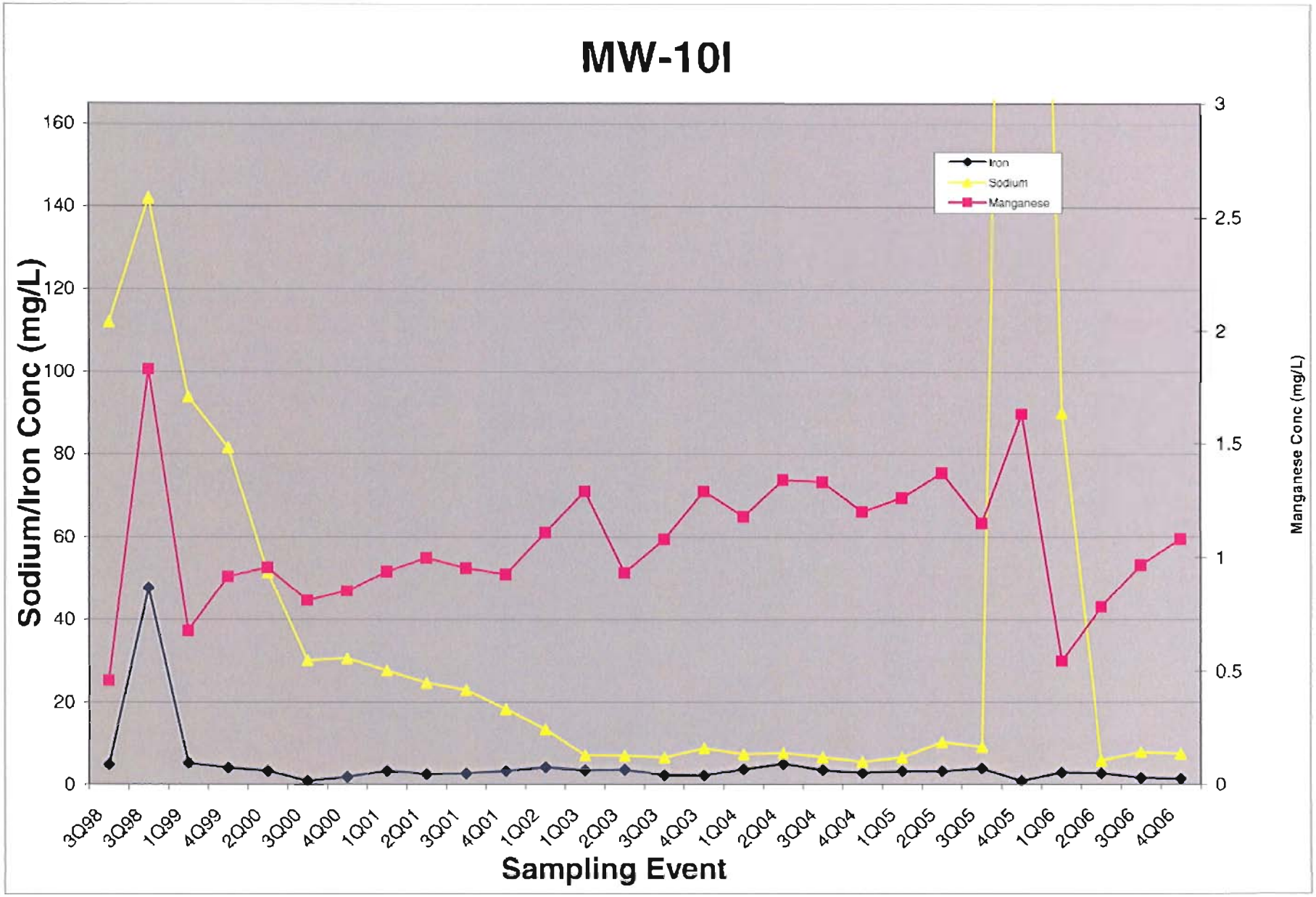

MW-10S
Concentration (mg/L)
800
700
600
500
400
300
200
100
0
chloride
TDS
Hardness
3Q98
1Q99
2Q00
4Q00
2Q01
4Q01
1Q03
3Q03
1Q04
3Q04
1Q05
3Q05
1Q06
3Q06
Sampling Event


MW-10S
Sodium/Iron Conc (mg/L)
180
160
140
120
100
80
60
40
20
0
Manganese Conc (mg/L)
6
5
4
3
2
1
0
Iron
Sodium
Manganese
3Q98
4Q99
4Q00
3Q01
1Q03
4Q03
3Q04
2Q05
1Q06
4Q06
Sampling Event


MW-10S
Sodium/Iron Conc (mg/L)
400
350
300
250
200
150
100
50
0
Alkalinity
Sulfate
3Q98
4Q99
4Q00
3Q01
1Q03
4Q03
3Q04
2Q05
1Q06
4Q06
Sampling Event


MW-10I
Alkalinity
Sulfate
Alkalinity Conc (mg/L)
Sulfate Conc (mg/L)
Sampling Event
1000
900
800
700
600
500
400
300
200
100
0
160
140
120
100
80
60
40
20
0
3Q98
3Q98
1Q99
4Q99
2Q00
3Q00
4Q00
1Q01
2Q01
3Q01
4Q01
1Q02
1Q03
2Q03
3Q03
4Q03
1Q04
2Q04
3Q04
4Q04
1Q05
2Q05
3Q05
4Q05
1Q06
2Q06
3Q06
4Q06


MW-10I
chloride
TDS
Hardness
Concentration (mg/L)
800
700
600
500
400
300
200
100
0
3Q98
3Q98
1Q99
4Q99
2Q00
3Q00
4Q00
1Q01
2Q01
3Q01
4Q01
1Q02
1Q03
2Q03
3Q03
4Q03
1Q04
2Q04
3Q04
4Q04
1Q05
2Q05
3Q05
4Q05
1Q06
2Q06
3Q06
4Q06
Sampling Event


MW-10I
Sodium/Iron Conc (mg/L)
Manganese Conc (mg/L)
Sampling Event
Iron
Sodium
Manganese
0
20
40
60
80
100
120
140
160
0
0.5
1
1.5
2
2.5
3
3Q98
3Q98
1Q99
4Q99
2Q00
3Q00
4Q00
1Q01
2Q01
3Q01
4Q01
1Q02
1Q03
2Q03
3Q03
4Q03
1Q04
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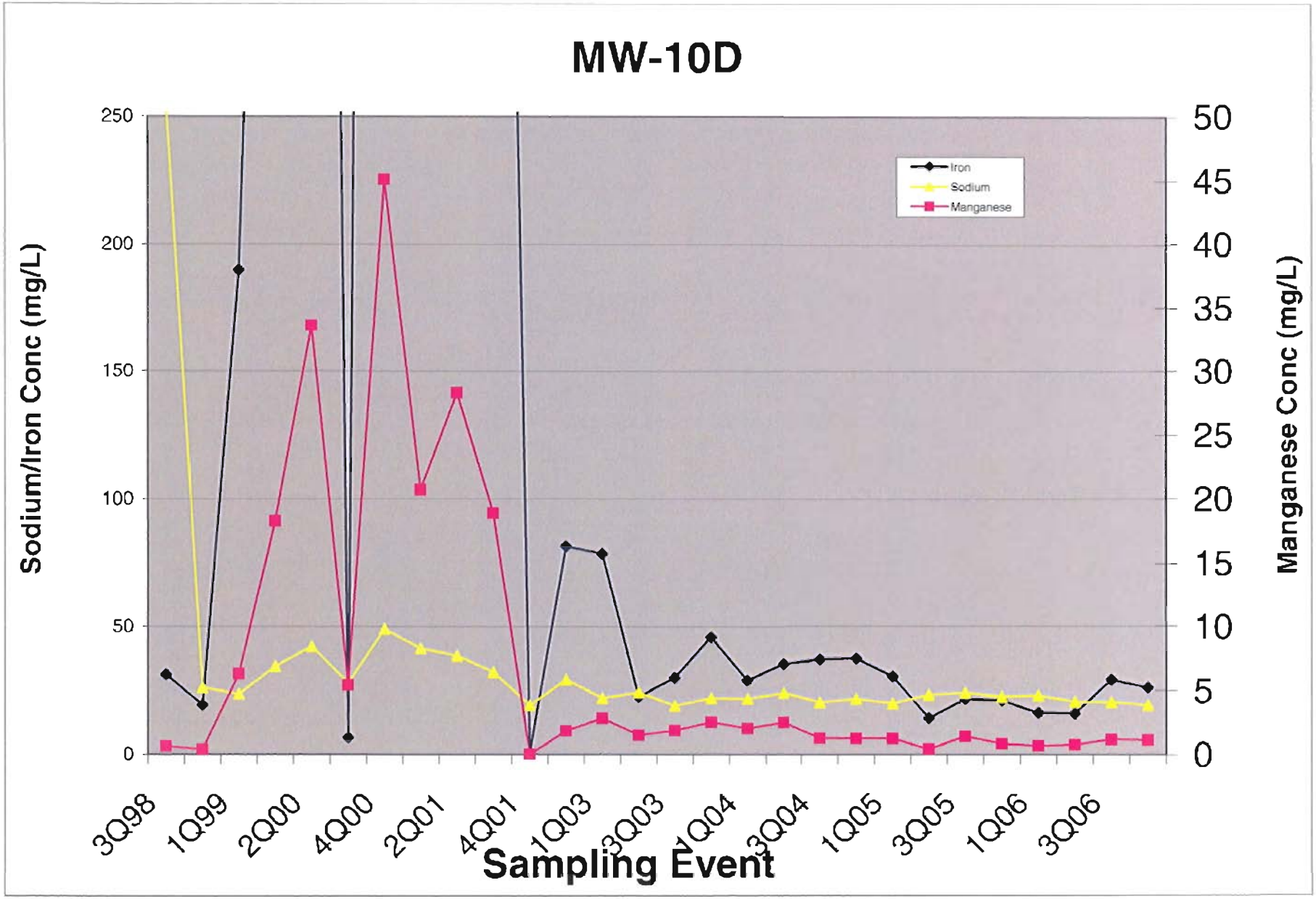
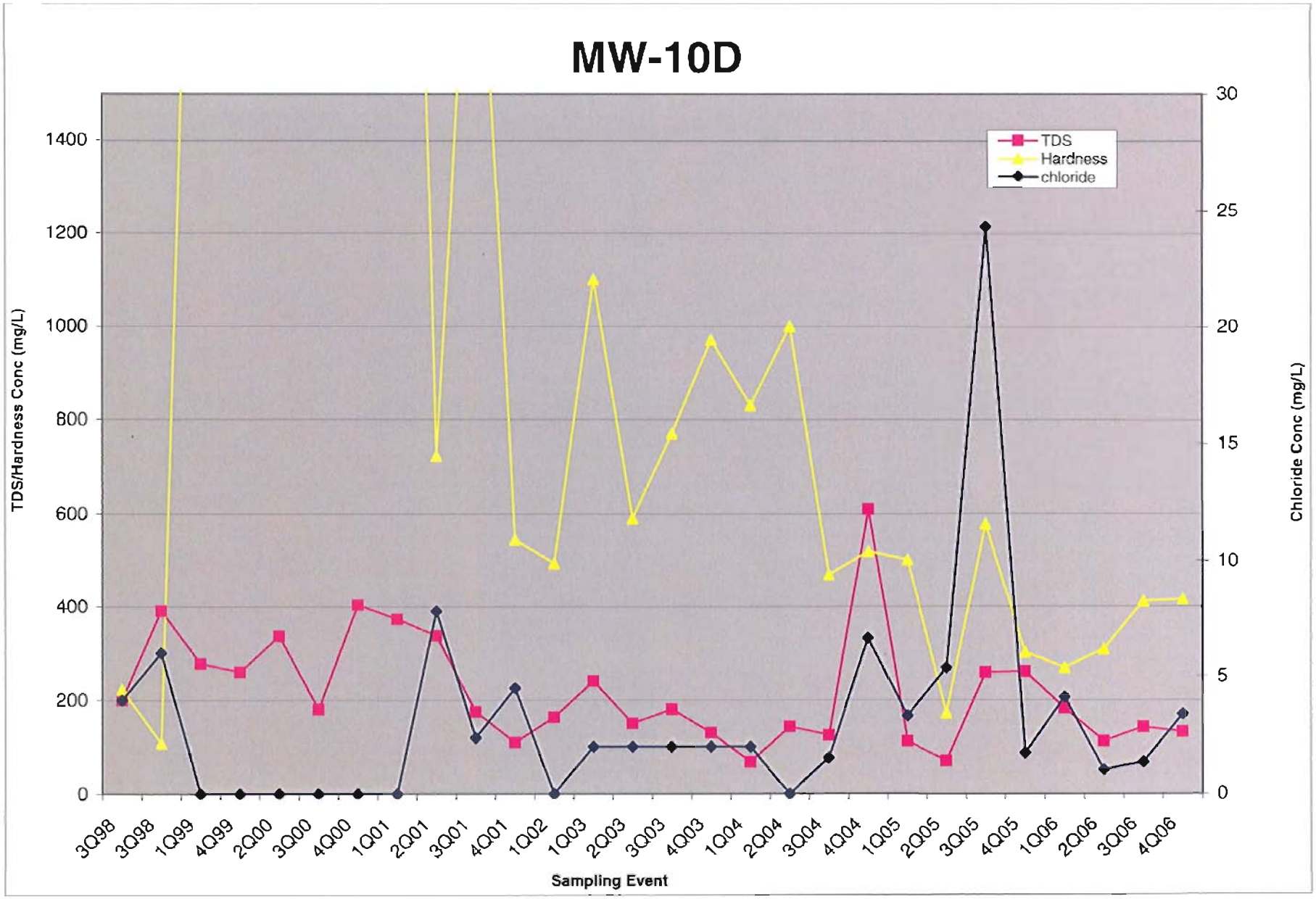
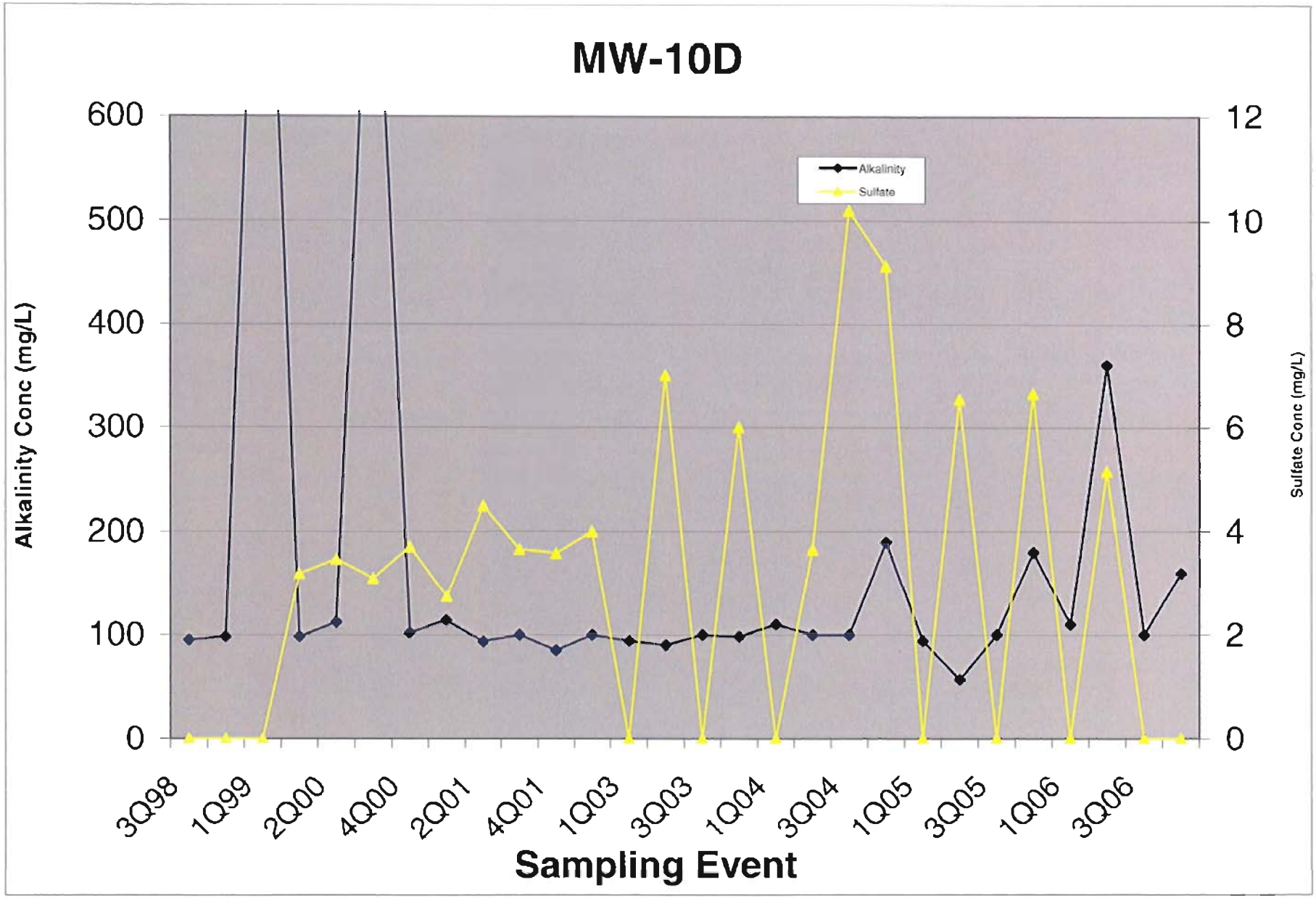
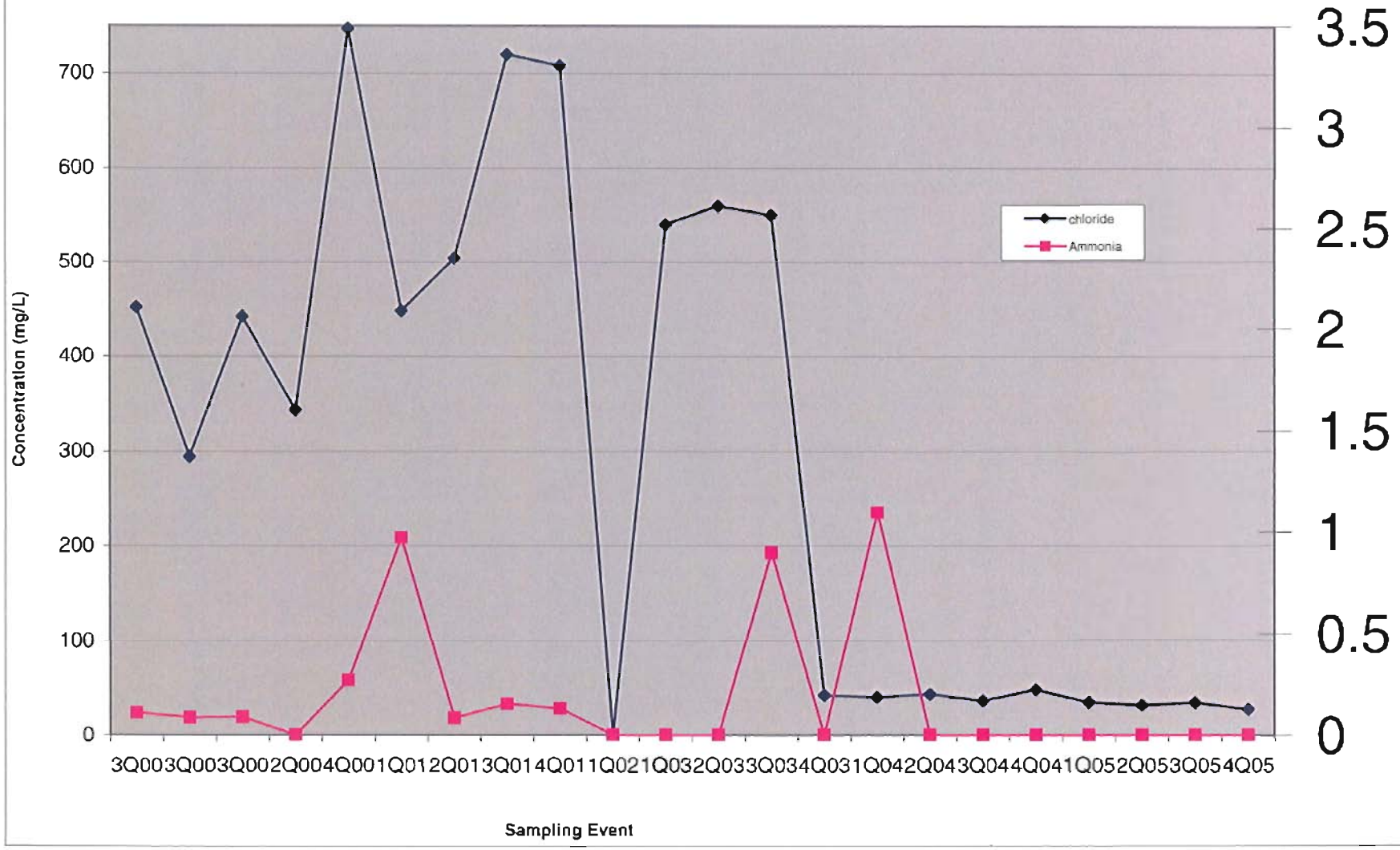
1Q05
2Q05
3Q05
4Q05
1Q06
2Q06
3Q06
4Q06

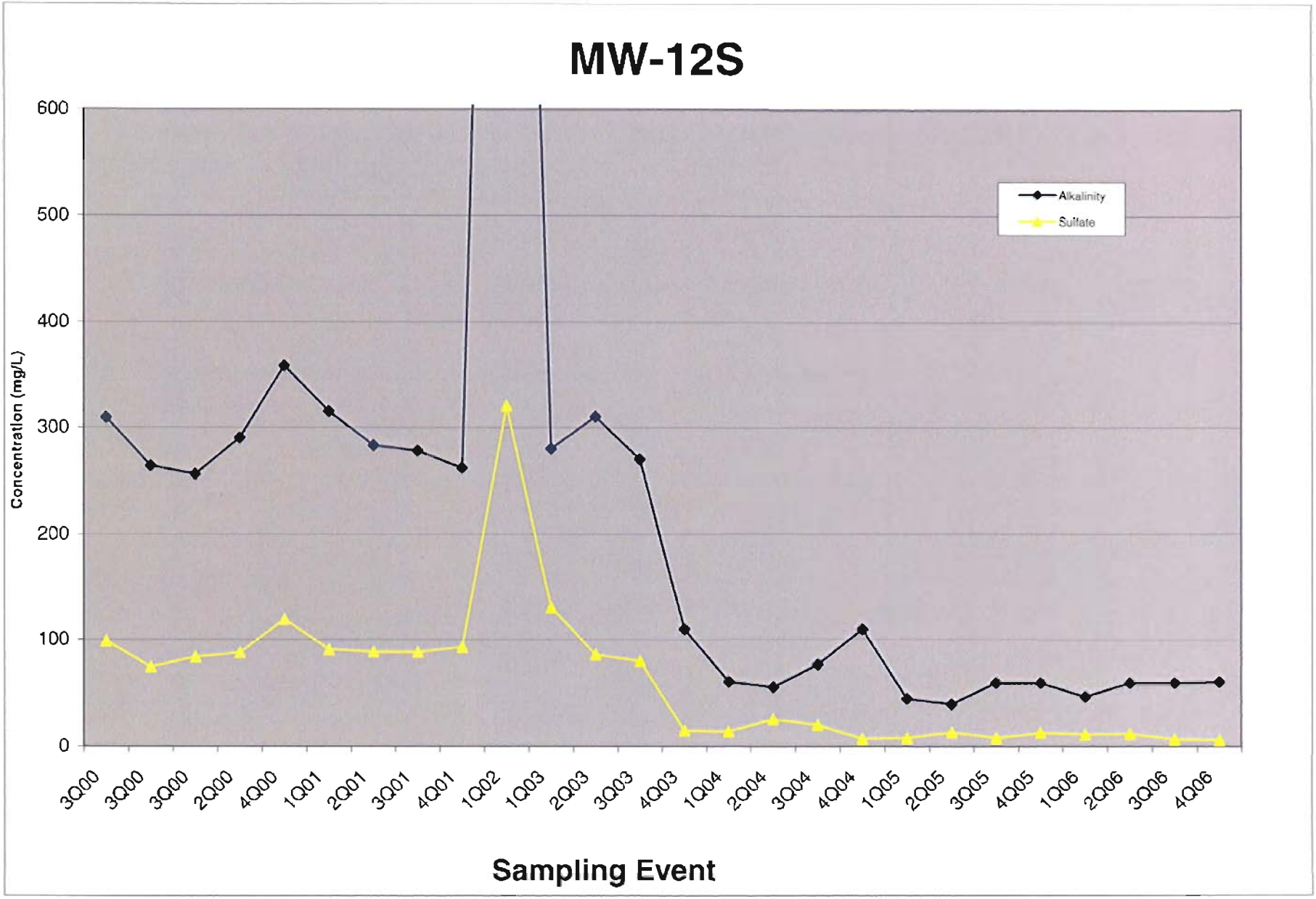

MW-10D
Sodium/Iron Conc (mg/L)
Manganese Conc (mg/L)
Sampling Event
Iron
Sodium
Manganese
250
200
150
100
50
0
50
45
40
35
30
25
20
15
10
5
0
3Q98
1Q99
2Q00
4Q00
2Q01
4Q01
1Q03
3Q03
1Q04
3Q04
1Q05
3Q05
1Q06
3Q06

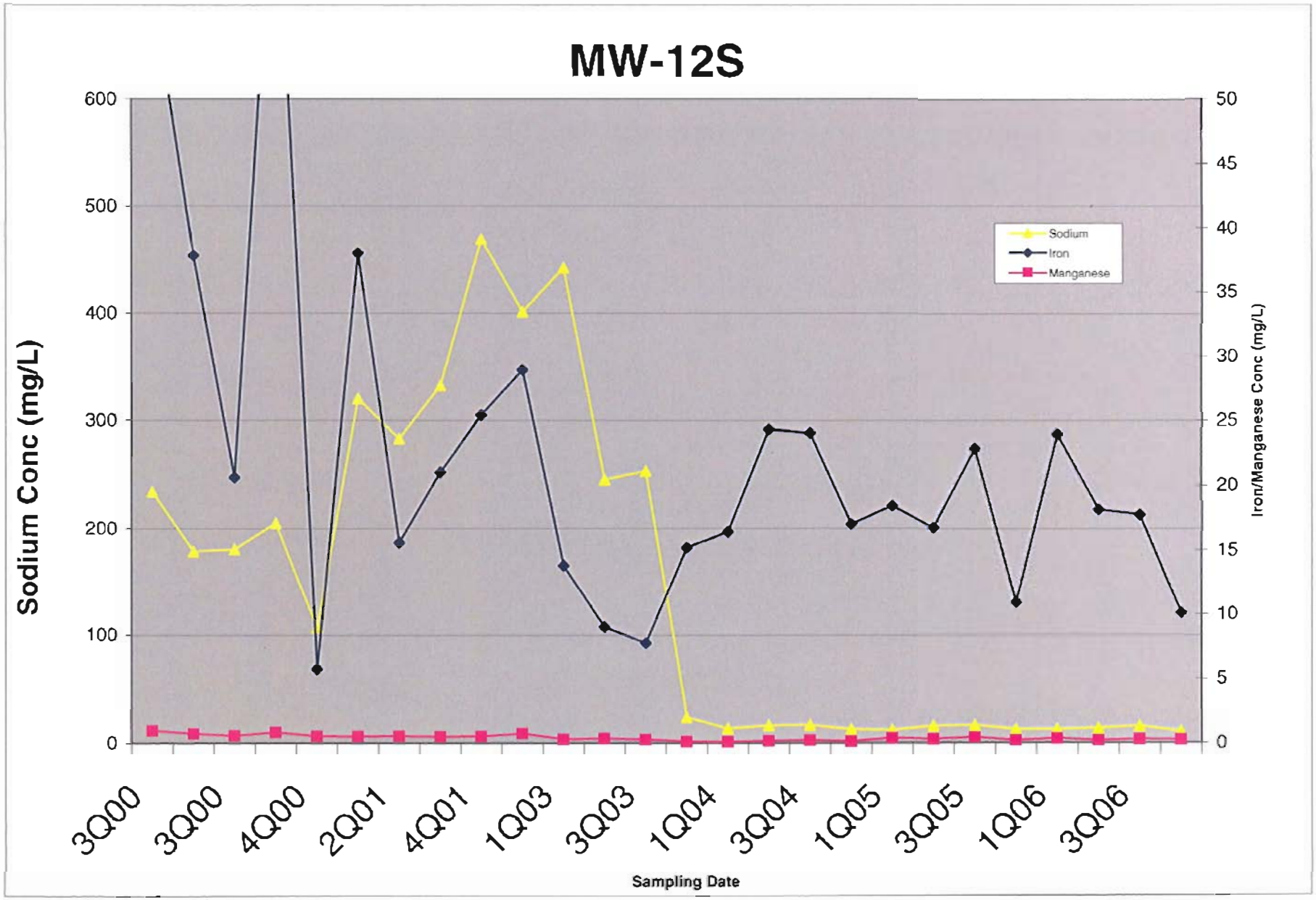

MW-10D
TDS
Hardness
chloride
TDS/Hardness Conc (mg/L)
Chloride Conc (mg/L)
Sampling Event
0
200
400
600
800
1000
1200
1400
0
5
10
15
20
25
30
3Q98
3Q98
1Q99
4Q99
2Q00
3Q00
4Q00
1Q01
2Q01
3Q01
4Q01
1Q02
1Q03
2Q03
3Q03
4Q03
1Q04
2Q04
3Q04
4Q04
1Q05
2Q05
3Q05
4Q05
1Q06
2Q06
3Q06
4Q06


MW-10D
Alkalinity
Sulfate
Alkalinity Conc (mg/L)
Sulfate Conc (mg/L)
600
500
400
300
200
100
0
12
10
8
6
4
2
0
3Q98
1Q99
2Q00
4Q00
2Q01
4Q01
1Q03
3Q03
1Q04
3Q04
1Q05
3Q05
1Q06
3Q06
Sampling Event

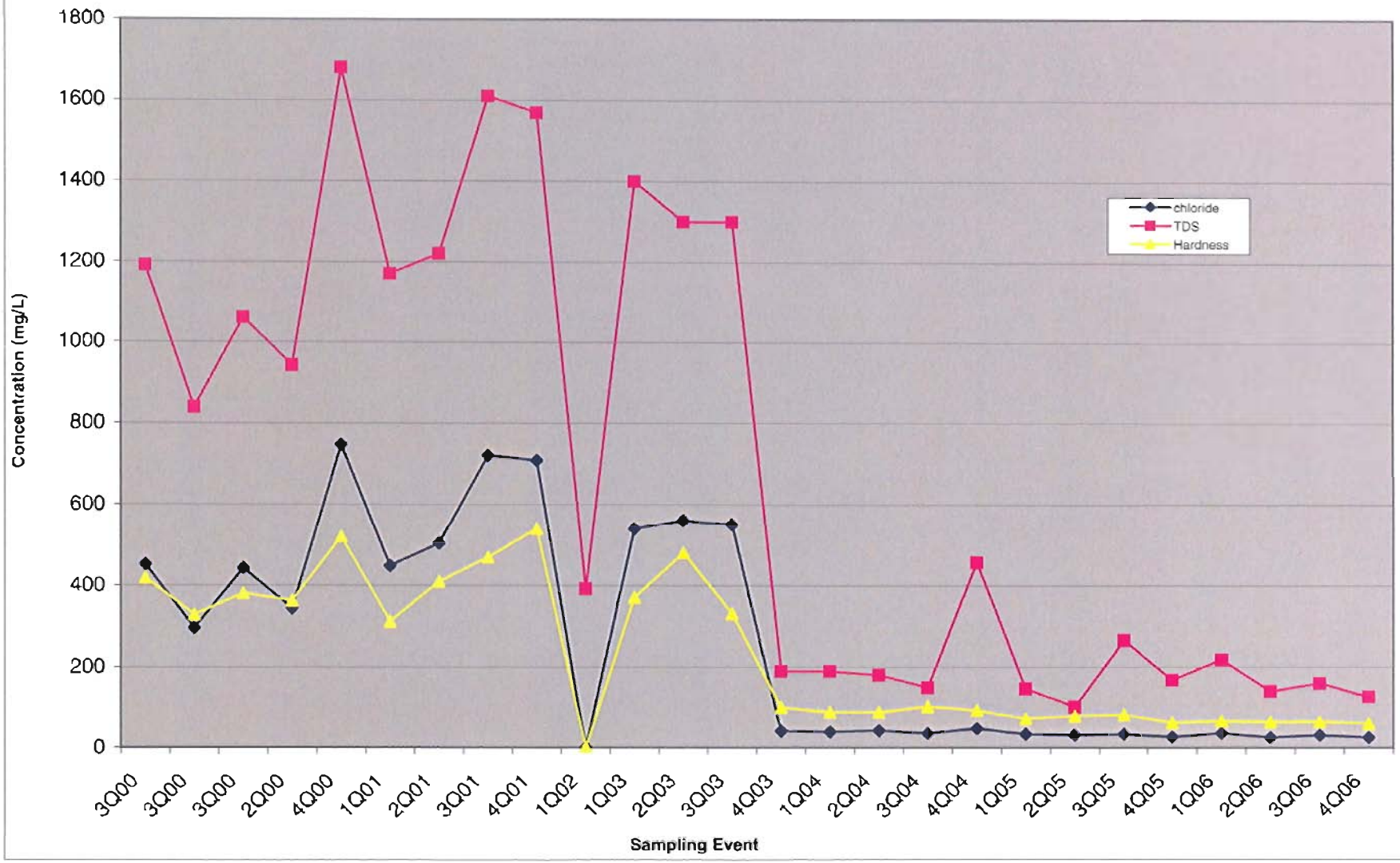
MW-12S

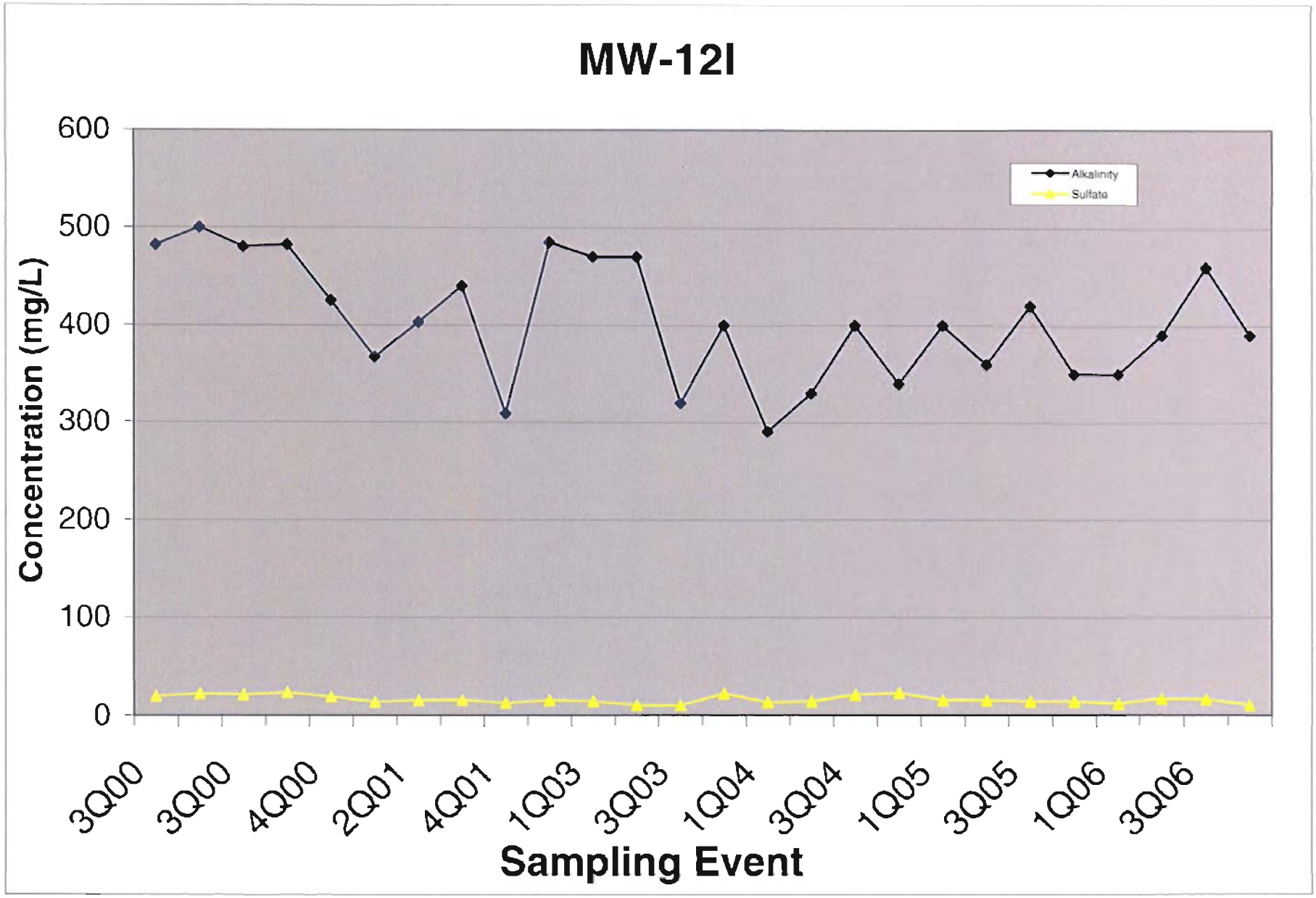

Concentration (mg/L)
700
600
500
400
300
200
100
0
3.5
3
2.5
2
1.5
1
0.5
0
chloride
Ammonia
3Q003Q003Q002Q004Q001Q012Q013Q014Q011Q021Q032Q033Q034Q031Q042Q043Q044Q041Q052Q053Q054Q05
Sampling Event

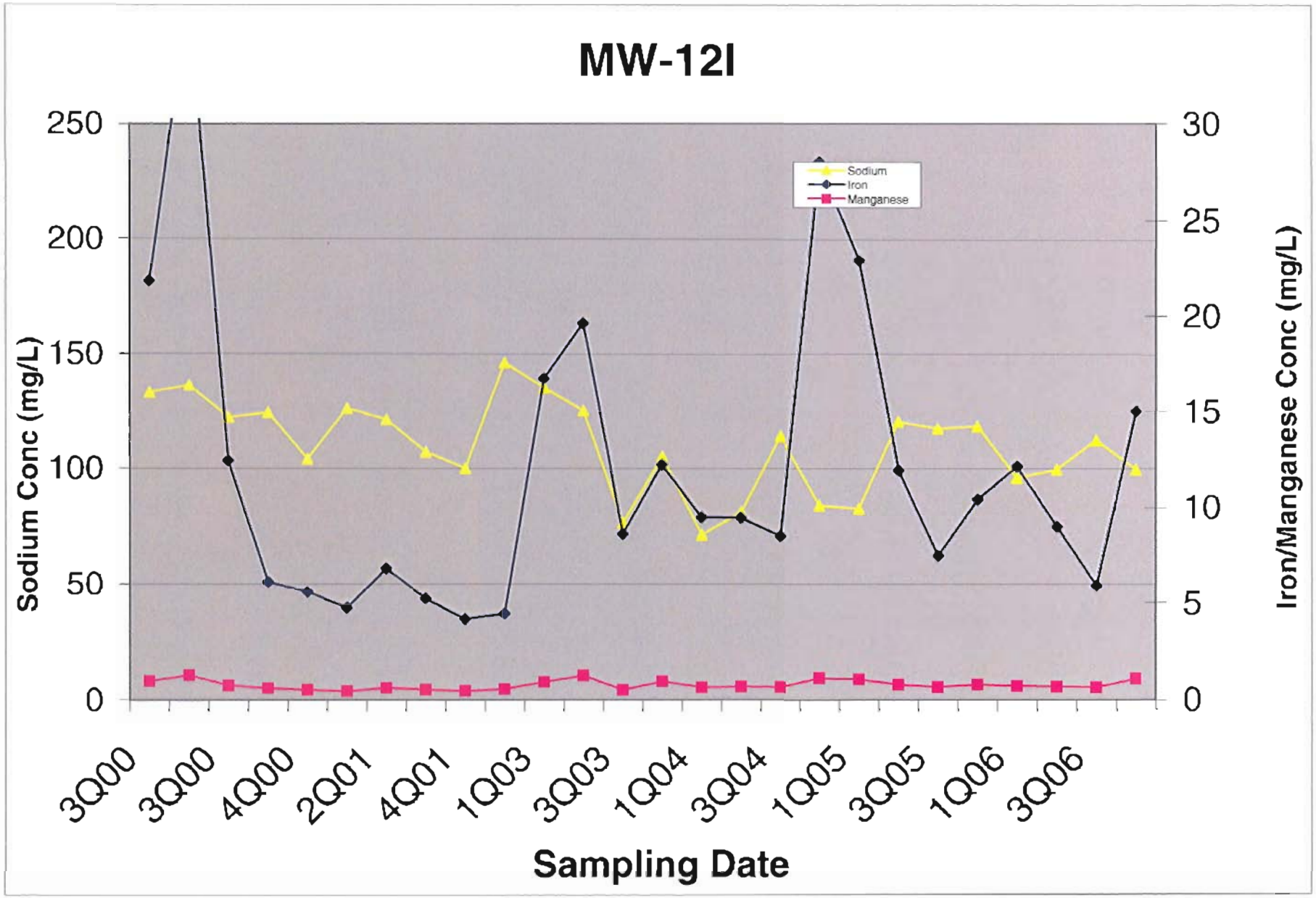

MW-12S
Concentration (mg/L)
600
500
400
300
200
100
0
Alkalinity
Sulfate
3Q00
3Q00
3Q00
2Q00
4Q00
1Q01
2Q01
3Q01
4Q01
1Q02
1Q03
2Q03
3Q03
4Q03
1Q04
2Q04
3Q04
4Q04
1Q05
2Q05
3Q05
4Q05
1Q06
2Q06
3Q06
4Q06
Sampling Event

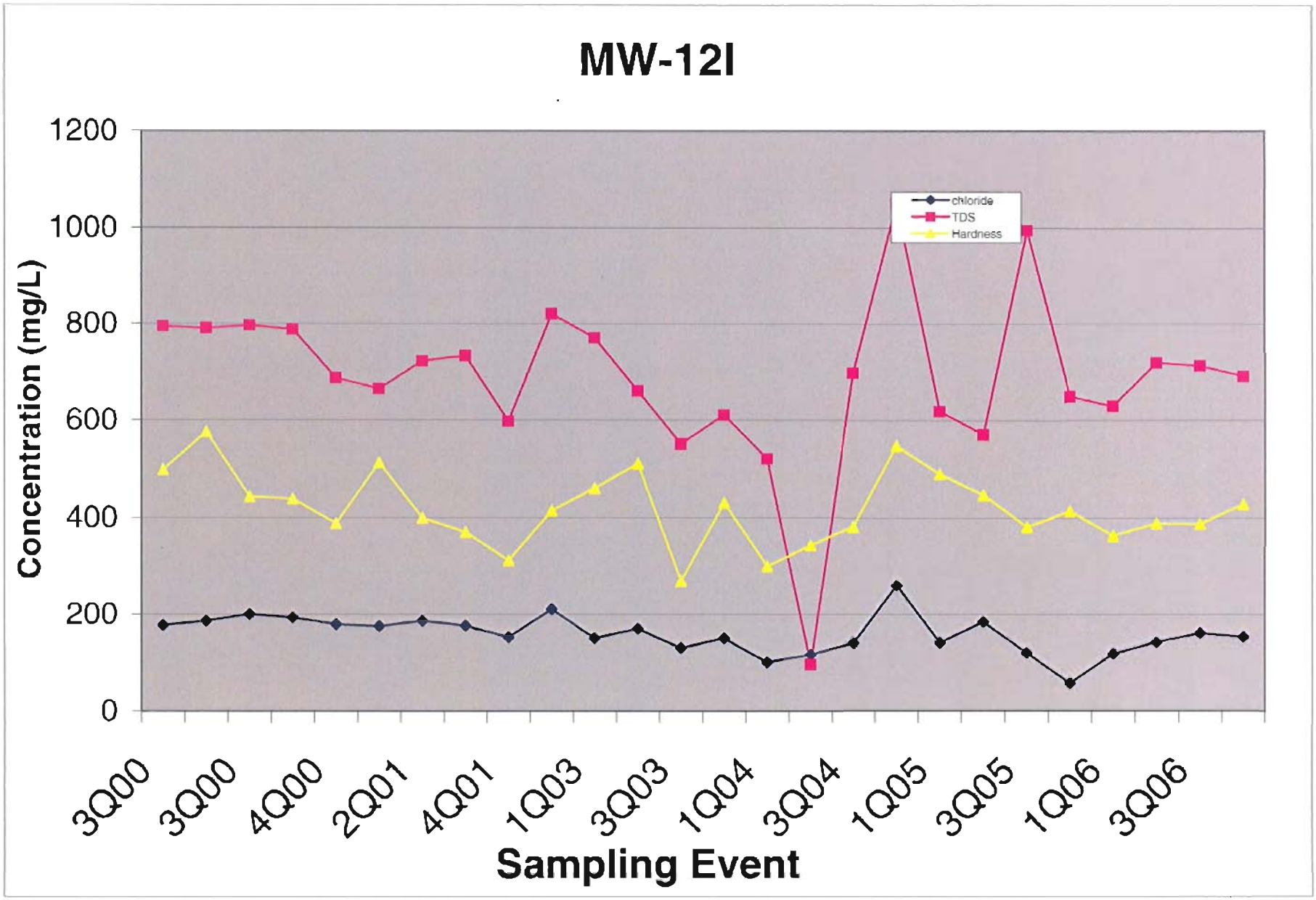

MW-12S
Sodium Conc (mg/L)
Iron/Manganese Conc (mg/L)
Sampling Date
Sodium
Iron
Manganese
600
500
400
300
200
100
0
50
45
40
35
30
25
20
15
10
5
0
3Q00
3Q00
4Q00
2Q01
4Q01
1Q03
3Q03
1Q04
3Q04
1Q05
3Q05
1Q06
3Q06

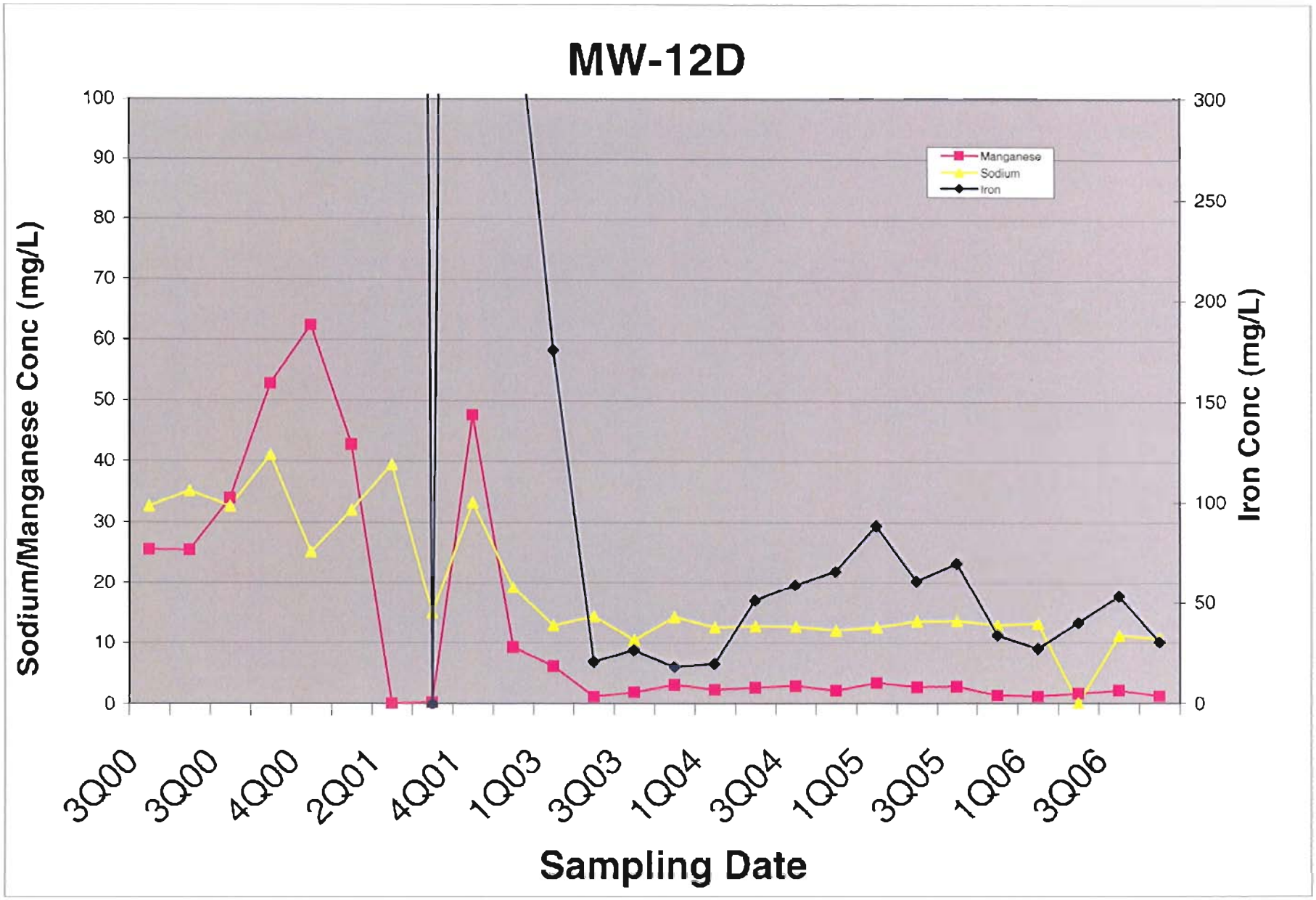
MW-12S

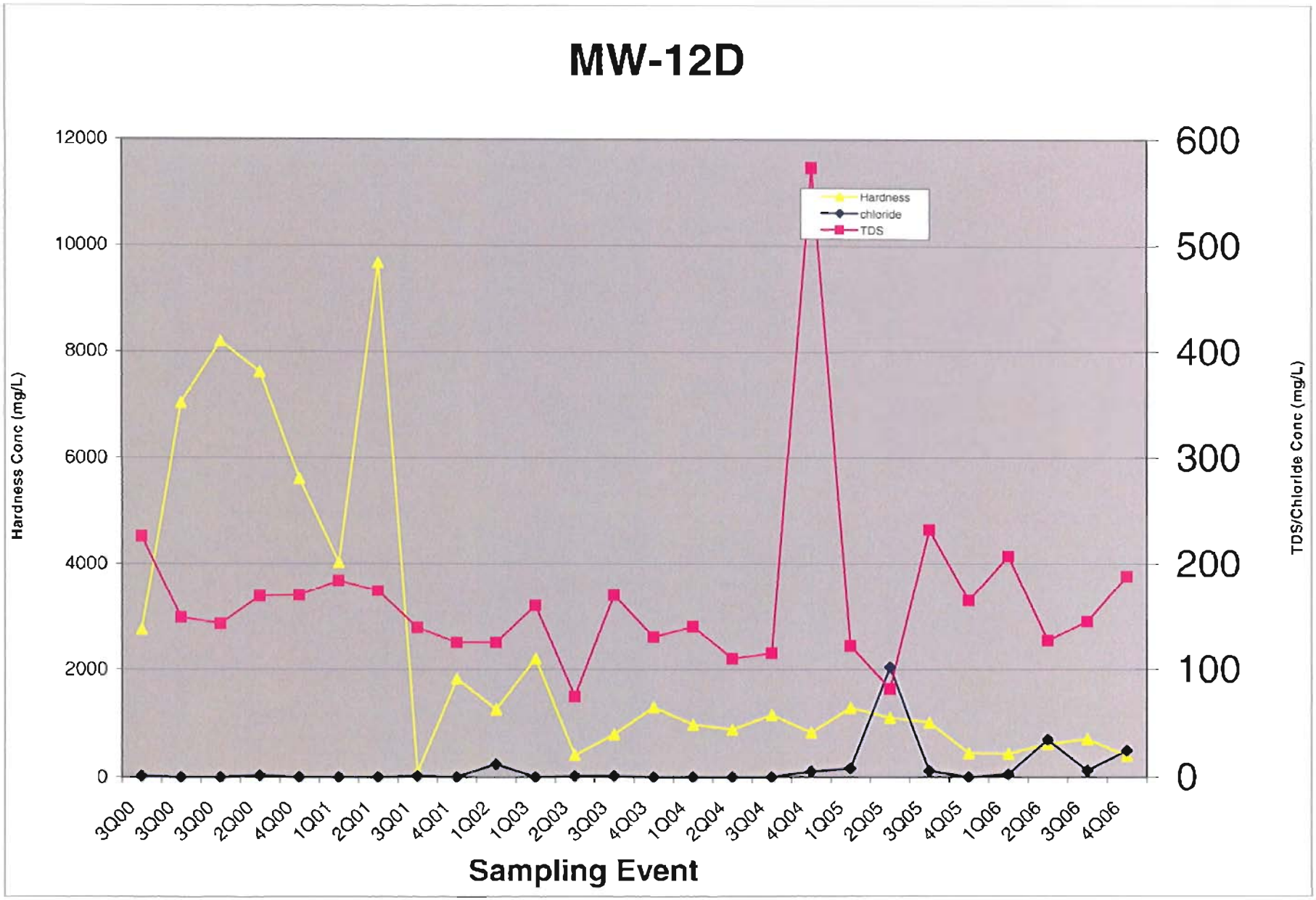

1800
1600
1400
1200
1000
800
600
400
200
0
Concentration (mg/L)
chloride
TDS
Hardness
3Q00
3Q00
3Q00
2Q00
4Q00
1Q01
2Q01
3Q01
4Q01
1Q02
1Q03
2Q03
3Q03
4Q03
1Q04
2Q04
3Q04
4Q04
1Q05
2Q05
3Q05
4Q05
1Q06
2Q06
3Q06
4Q06
Sampling Event

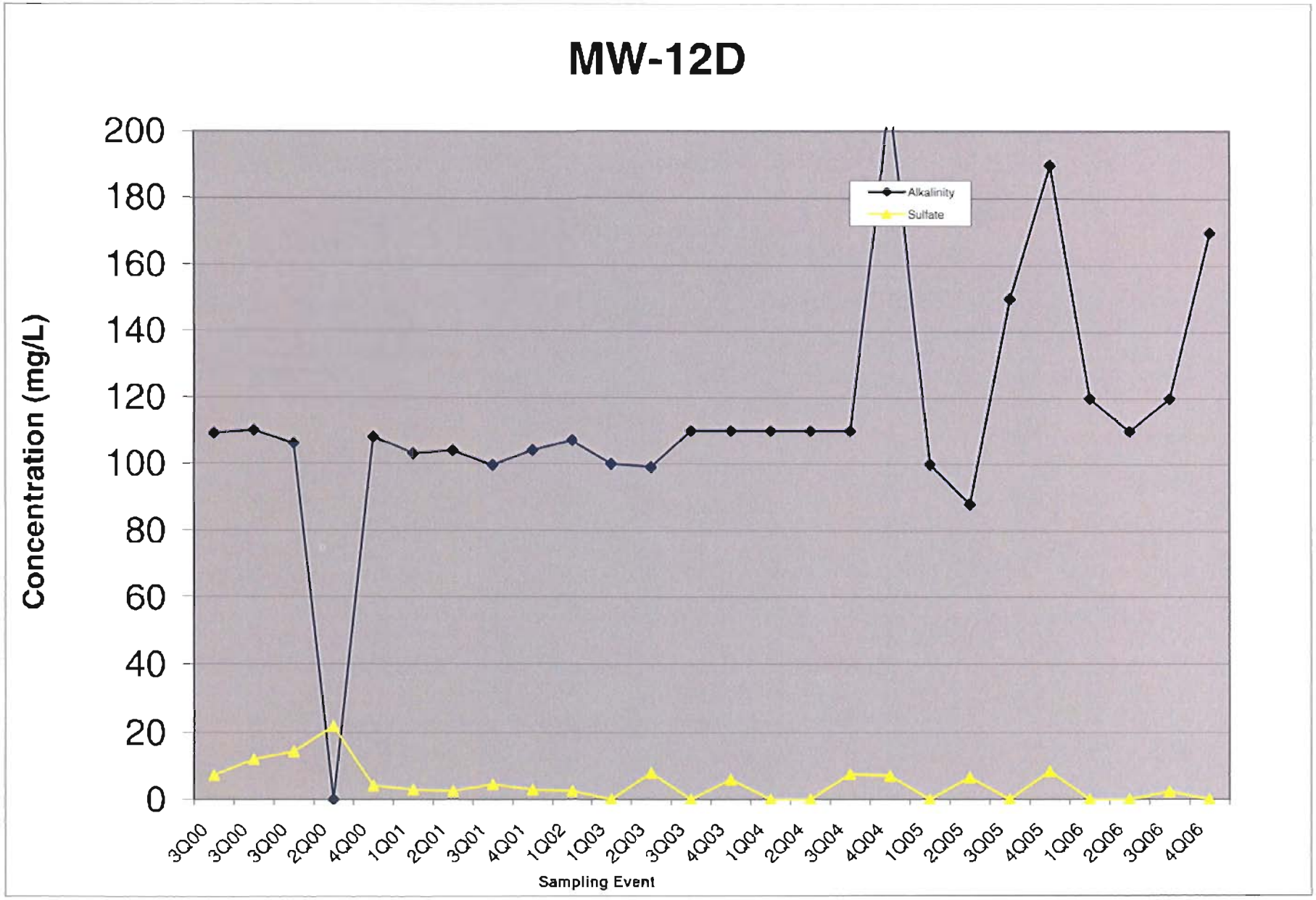

MW-12I
Alkalinity
Sulfate
Concentration (mg/L)
600
500
400
300
200
100
0
3Q00
3Q00
4Q00
2Q01
4Q01
1Q03
3Q03
1Q04
3Q04
1Q05
3Q05
1Q06
3Q06
Sampling Event


MW-12I
Sodium
Iron
Manganese
Sodium Conc (mg/L)
Iron/Manganese Conc (mg/L)
250
200
150
100
50
0
30
25
20
15
10
5
0
3Q00
3Q00
4Q00
2Q01
4Q01
1Q03
3Q03
1Q04
3Q04
1Q05
3Q05
1Q06
3Q06
Sampling Date


MW-12I
Concentration (mg/L)
1200
1000
800
600
400
200
0
chloride
TDS
Hardness
3Q00
3Q00
4Q00
2Q01
4Q01
1Q03
3Q03
1Q04
3Q04
1Q05
3Q05
1Q06
3Q06
Sampling Event


MW-12D
Sodium/Manganese Conc (mg/L)
Iron Conc (mg/L)
Sampling Date
Manganese
Sodium
Iron
100
90
80
70
60
50
40
30
20
10
0
300
250
200
150
100
50
0
3Q00
3Q00
4Q00
2Q01
4Q01
1Q03
3Q03
1Q04
3Q04
1Q05
3Q05
1Q06
3Q06


MW-12D
Hardness
chloride
TDS
Hardness Conc (mg/L)
TDS/Chloride Conc (mg/L)
12000
10000
8000
6000
4000
2000
0
600
500
400
300
200
100
0
3Q00
3Q00
3Q00
2Q00
4Q00
1Q01
2Q01
3Q01
4Q01
1Q02
1Q03
2Q03
3Q03
4Q03
1Q04
2Q04
3Q04
4Q04
1Q05
2Q05
3Q05
4Q05
1Q06
2Q06
3Q06
4Q06
Sampling Event


MW-12D
Concentration (mg/L)
200
180
160
140
120
100
80
60
40
20
0
Alkalinity
Sulfate
3Q00
3Q00
3Q00
2Q00
4Q00
1Q01
2Q01
3Q01
4Q01
1Q02
1Q03
2Q03
3Q03
4Q03
1Q04
2Q04
3Q04
4Q04
1Q05
2Q05
3Q05
4Q05
1Q06
2Q06
3Q06
4Q06
Sampling Event

APPENDIX I

Laboratory Analytical Deliverables Package

Upstate Laboratories, Inc.

6034 Corporate Drive
East Syracuse, New York 13057-1017

Sample Data Summary Package

Case Narrative, Summary of Test Results, Summary of QC Results and Chain of Custody Documentation
Volume 1 of 7

SDG No. CHA 78

Project:

C/O Albany Interim Landfill New
Albany, New York

Prepared for:

Clough, Harbour & Associates LLP
3 Winners Circle
P.O. Box 5269
Albany, New York 12205-5269

Samples Collected:

January 23, 2007
January 24, 2007

New York Lab Code 10170

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SAMPLE IDENTIFICATION AND
ANALYTICAL REQUIREMENT SUMMARY

Upstate Laboratories, Inc
6034 Corporate Drive
East Syracuse, New York 13057

Customer Sample Code	Laboratory Sample Code	Analytical Requirements					
		VOA GC/MS Method #	BNA GC/MS Method #	Pest PCBs Method #	Herb Method #	Metals	Wet Chemistry and Other
ULI Trip Blank	U0701392-001	8260 EXP	-	-	-	-	-
MW-15SA	U0701392-002	8260 EXP	8270 EXP	8081/8082	8151	Expanded (1995)	Expanded (1995)
MW-15SB	U0701392-003	8260 EXP	8270 EXP	8081/8082	8151	Expanded (1995)	Expanded (1995)
MW-15IA	U0701392-004	8260 EXP	8270 EXP	8081/8082	8151	Expanded (1995)	Expanded (1995)
MW-15-IB	U0701392-005	8260 EXP	8270 EXP	8081/8082	8151	Expanded (1995)	Expanded (1995)
MW-15-IB MS	U0701392-005MS	8260 EXP	8270 EXP	8081/8082	8151	Expanded (1995)	Expanded (1995)
MW-15-IB MSD	U0701392-005MSD	8260 EXP	8270 EXP	8081/8082	8151	-	-
MW-15-IB Dupe	U0701392-005DP	-	-	-	-	Expanded (1995)	Expanded (1995)
MW-15DA	U0701392-006	8260 EXP	8270 EXP	8081/8082	8151	Expanded (1995)	Expanded (1995)
MW-15DB	U0701392-007	8260 EXP	8270 EXP	8081/8082	8151	Expanded (1995)	Expanded (1995)
Holding Blank	U0701392-008	8260 EXP	-	-	-	-	-
MW-14SA	U0701392-009	8260 EXP	8270 EXP	8081/8082	8151	Expanded (1995)	Expanded (1995)
MW-14SB	U0701392-010	8260 EXP	8270 EXP	8081/8082	8151	Expanded (1995)	Expanded (1995)
MW-14IA	U0701392-011	8260 EXP	8270 EXP	8081/8082	8151	Expanded (1995)	Expanded (1995)
MW-14IB	U0701392-012	8260 EXP	8270 EXP	8081/8082	8151	Expanded (1995)	Expanded (1995)
MW-14DA	U0701392-013	8260 EXP	8270 EXP	8081/8082	8151	Expanded (1995)	Expanded (1995)
MW-14DB	U0701392-014	8260 EXP	8270 EXP	8081/8082	8151	Expanded (1995)	Expanded (1995)
ULI Trip Blank	U0701392-015	8260 EXP	-	-	-	-	-
Holding Blank	U0701392-016	8260 EXP	-	-	-	-	-

-2-

Narrative

1.0 Summary

This report presents the sample test results and quality control results for twelve water sample locations for the City of Albany Interim Landfill New Project, Albany, New York. The samples were analyzed for the parameters listed in Section 3.0, below.

This report is divided into two packages and seven volumes. The Sample Data Summary Package (Volume 1) presents a summary of the test results and quality control data. This abbreviated format is useful to engineers and environmental scientists. The Sample Data Package (Volumes 2-7) is a comprehensive report containing instrument raw data. It is formatted for validation by an independent third party.

2.0 Chain of Custody

The samples were collected by Clough, Harbour & Associates personnel on January 23 and 24, 2007, and were then delivered to Upstate Laboratories, Inc., Syracuse, New York, via FED EX and ULI personnel; respectively. The Chain of Custody documentation is copied in Volumes 1 & 2.

3.0 Methodology

The analyses were performed using test methods developed by the USEPA and reorganized by the NYSDEC in the Analytical Services Protocol (ASP). The specific method numbers are:

Parameter	Method	Reference
Volatile Organics	8260	(1)
Semivolatile Organics	8270	(1)
Pesticides/PCB (Aroclors)	8081/8082	(1)
Herbicides	8151	(1)
Aluminum	200.7	(1)
Antimony	200.7	(1)
Arsenic	200.7	(1)
Barium	200.7	(1)
Beryllium	200.7	(1)
Boron	200.7	(1)
Cadmium	200.7	(1)
Calcium	200.7	(1)
Chromium	200.7	(1)
Cobalt	200.7	(1)
Copper	200.7	(1)
Iron	200.7	(1)
Lead	200.7	(1)
Magnesium	200.7	(1)
Manganese	200.7	(1)
Mercury	245.2	(1)
Nickel	200.7	(1)
Potassium	200.7	(1)
Selenium	200.7	(1)
Silver	200.7	(1)
Sodium	200.7	(1)
Thallium	200.7	(1)
Tin	200.7	(1)
Vanadium	200.7	(1)
Zinc	200.7	(1)

The total number of pages in this Data Package is: 2423

Total Alkalinity	310.2	(1)
Ammonia-Nitrogen	350.2	(1)
BOD	405.1	(1)
Chloride	325.2	(1)
COD	410.4	(1)
Color	110.2	(1)
Cyanide	335.2	(1)
Hexavalent Chromium	SM3500	(1)
Nitrate-Nitrogen	353.1	(1)
Phenols	420.1	(1)
Sulfate	375.4	(1)
Sulfide	376.2	(1)
TDS	160.1	(1)
TKN	351.3	(1)
TOC	415.1	(1)
Turbidity	180.1	(1)
Bromide	300.0	(1)

(1) New York State Department of Environmental Conservation Analytical Services Protocol (NYSDEC ASP), 10/95 Revision

4.0 Quality Control

Quality control data includes method blanks, reference samples, matrix spikes, matrix spike duplicates, duplicates, and surrogate recoveries. For wet chemistry, the association of QC data with sample data is made through the use of the "File No." found on both the final report pages and the QC summary pages.

5.0 Internal Validation

The following observations are offered:

Volatiles by GC/MS

Holding Time : Criteria were satisfied.

Calibration : The IC and CC Standard recoveries for Isobutyl Alcohol were outside QC acceptance limits. Acrolein exhibited low CC Standard recoveries and RFF values outside QC acceptance limits. Several target compounds had CC %D values outside QC acceptance limits in CC lab files C.16654.D and C.16656.D. Several target compounds were manually integrated in the IC and CC. All other criteria were satisfied.

Method Blank : Methylene Chloride was detected above the PQL but below the CRDL in VBLK01 and VBLK02. All other criteria were satisfied.

MSB : The LCS %recovery for Toluene was greater than QC acceptance limits for VMBS02. All other criteria were satisfied.

MS/MSD : The MS/MSD %recoveries were greater than QC acceptance limits. All other criteria were satisfied.

Surrogates : Criteria were satisfied.

Internal Stds : Criteria were satisfied.

Semivolatiles by GC/MS

Holding Time	: Criteria were satisfied.
Calibration	: Famfur and Kepone exhibited erratic IC and CC Standard recoveries resulting in RRF, %RSD and %D values outside QC acceptance limits. Several target compounds, in addition to Kepone and Famfur had IC %RSD values outside QC acceptance limits. Several target compounds in the CCs were outside QC acceptance limits. The erratic IC and CC standard recoveries for the expanded compounds such as Famfur and Kepone may be attributed to the presence of organic acids, alcohols and/or ketones which may cause interferences or breakdown of the IC/CC standard for the associated compound. All other criteria were satisfied.
Method Blank	: Bis(2-Ethylhexyl)phthalate was detected in SVBLK above the PQL but below the CRDL. The detected concentrations of Bis(2-Ethylhexyl)phthalate in the associated sample locations should be attributed to laboratory contamination. All other criteria were satisfied.
MSB	: LCS-9299 exhibited LCS Standard recoveries greater than QC acceptance limits. The LCS was reanalyzed with similar recoveries. All other criteria were satisfied.
MS/MSD	: The MSD %recoveries for 2,4-Dinitrotoluene and 4-Nitrophenol were outside QC acceptance limits. All other criteria were satisfied.
Surrogates	: Several sample locations exhibited Surrogate recoveries greater than QC acceptance limits. ASP Category B Protocol allows one Base/Neutral and one Acid Surrogate to be outside QC acceptance limits; therefore, no corrective action was taken. All other criteria were satisfied.
Internal Stds	: Criteria were satisfied.

Pesticides/PCBs (Aroclors) Data

Holding Time	: Criteria were satisfied.
Calibration	: The PEM %RPD values for GC column DB-35MS were outside QC acceptance limits. All other criteria were satisfied.
Method Blanks	: Criteria were satisfied.
MSB	: Criteria were satisfied.
MS/MSD	: Criteria were satisfied.
Surrogates	: The Surrogate recovery for Tetrachloro-m-xylene in sample location MW-14DA was outside QC acceptance limits due to matrix interference. All other criteria were satisfied.

Herbicides Data

Holding Time	: Criteria were satisfied.
Calibration	: The closing CC Standard recoveries on GC column DB-35MS exhibited a slight positive bias. All other criteria were satisfied.
Method Blanks	: Criteria were satisfied.
MSB	: Criteria were satisfied.
MS/MSD	: The MSD %recovery for 2,4,5-TP and 2,4,5-T were greater than QC acceptance limits. All other criteria were satisfied.
Surrogates	: The Surrogate %recoveries for sample locations MW-15SA and MW-15DB on GC column DB-XLB were greater than QC acceptance limits. All other criteria were satisfied.

Trace Metals and Cyanide Data

Holding Time	: Criteria were satisfied.
Calibration	: The CCV3 and CCV5 %recoveries for Mercury were below QC acceptance limits. The CRA Standard recovery for Mercury was greater than QC acceptance limits. All other criteria were satisfied.
Method Blanks	: The closing CCBs for R22462 ran above the PQL for Mercury due to possible laboratory contamination. All other criteria were satisfied.
Ref. Samples	: Criteria were satisfied.
Matrix Spikes	: The MS %recovery for Zinc was greater than QC acceptance limits. All other criteria were satisfied.
Duplicates	: The Duplicate %RPD values for Aluminum and Zinc were outside QC acceptance limits. All other criteria were satisfied.

Wet Chemistry Data

Holding Time	: Criteria were satisfied.
Calibration	: The ICV01 %recovery for Bromide in R22909 was below QC acceptance limits. The CCV02 %recovery for Total Phenol was outside QC acceptance limits in R22767 due to an instrumentation error.
Method Blanks	: Criteria were satisfied.
Ref. Samples	: Criteria were satisfied.
Matrix Spikes	: The MS %recovery for Chloride was slightly greater than QC acceptance limits. All other criteria were satisfied.
Duplicates	: The Duplicate %RPD for BOD analysis performed on sample location MW-15-IB was outside QC acceptance limits. The sample concentration was less than 5x the CRDL for BOD. no corrective action was taken. All other criteria were satisfied.

I certify that this data package is in compliance with the terms and conditions of the Contract. both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package and/or in the computer-readable data submitted on floppy diskette has been authorized by the Laboratory Manager or his designee, as verified by the following signature.

Approved Anthony J. Scala

Anthony J. Scala. Director

CHA78BALB.INT.NEW.doc

Sample Data

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

ULI TRIP BLANK

Lab Name: Upstate Labs Inc. Contract: CHA

Lab Code: 10170 Case No.: SAS No.: SDG No.: CHA78

Matrix: (soil/water) WATER Lab Sample ID: U0701392-001A

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: C16643.D

Level: (low/med) LOW Date Received: 1/24/07

% Moisture: not dec. Date Analyzed: 2/3/07

GC Column: RTX-VO ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND	(ug/L or ug/Kg) UG/L	Q
75-71-8	Dichlorodifluoromethane	5	U
74-87-3	Chloromethane	5	U
75-1-4	Vinyl Chloride	5	U
74-83-9	Bromomethane	5	U
75-00-3	Chloroethane	5	U
75-69-4	Trichlorofluoromethane	5	U
107-02-8	Acrolein	100	U R
67-64-1	Acetone	10	U
75-35-4	1,1-Dichloroethene	5	U
75-05-8	Acetonitrile	100	U R
74-88-4	Iodomethane	5	U
107-05-1	Allyl Chloride	5	U
75-15-0	Carbon Disulfide	2	J
75-09-2	Methylene Chloride	5	U
107-13-1	Acrylonitrile	100	U R
156-60-5	trans-1,2-Dichloroethene	5	U
75-34-33	1,1-Dichloroethane	5	U
108-5-4	Vinyl Acetate	50	U
126-99-8	Chloroprene	10	U
78-93-3	2-Butanone	10	U
107-12-0	Propionitrile	100	U R
594-20-7	2,2-Dichloropropane	5	U
156-59-2	cis-1,2-Dichloroethene	5	U
126-98-7	Methacrylonitrile	10	U
67-66-3	Chloroform	5	U
74-97-5	Bromochloromethane	5	U
78-83-1	Isobutyl Alcohol	1000	U R
71-55-6	1,1,1-Trichloroethane	5	U
563-58-6	1,1-Dichloropropene	5	U
56-23-5	Carbon Tetrachloride	5	U
71-43-2	Benzene	5	U
107-06-2	1,2-Dichloroethane	5	U
97-01-6	Trichloroethene	5	U
78-87-5	1,2-Dichloropropane	5	U
80-62-6	Methyl Methacrylate	10	U
75-27-4	Bromodichloromethane	5	U
74-95-3	Dibromomethane	5	U
108-10-1	4-Methyl-2-pentanone	10	U
10061-1-5	cis-1,3-Dichloropropene	5	U

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

ULI TRIP BLANK

Lab Name: Upstate Labs Inc. Contract: CHA

Lab Code: 10170 Case No.: SAS No.: SDG No.: CHA78

Matrix: (soil/water) WATER Lab Sample ID: U0701392-001A

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: C16643.D

Level: (low/med) LOW Date Received: 1/24/07

% Moisture: not dec. Date Analyzed: 2/3/07

GC Column: RTX-VO ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND	(ug/L or ug/Kg) UG/L	Q
108-88-3	Toluene	5	U
10061-2-6	trans-1,3-Dichloropropene	5	U
97-63-2	Ethyl Methacrylate	10	U
79-00-5	1,1,2-Trichloroethane	5	U
591-78-6	2-Hexanone	10	U
142-28-9	1,3-Dichloropropane	5	U
127-18-4	Tetrachloroethene	5	U
124-48-1	Dibromochloromethane	5	U
106-93-4	1,2-Dibromoethane	5	U
108-90-7	Chlorobenzene	5	U
630-20-6	1,1,1,2-Tetrachloroethane	5	U
100-41-4	Ethylbenzene	5	U
108-38-3	m,p-Xylene	5	U
95-47-6	o-Xylene	5	U
100-42-5	Styrene	5	U
75-25-2	Bromoform	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
96-18-4	1,2,3-Trichloropropane	5	U
110-57-6	1,4-Dichloro-2-butene	10	U
541-73-1	1,3-Dichlorobenzene	5	U
106-46-7	1,4-Dichlorobenzene	5	U
95-50-1	1,2-Dichlorobenzene	5	U
96-12-8	1,2-Dibromo-3-chloro-propane	10	U

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

ULI TRIP BLANK

Lab Name: Upstate Labs Inc. Contract: CHA

Lab Code: 10170 Case No.: _____ SAS No.: _____ SDG No.: CHA78

Matrix: (soil/water) WATER Lab Sample ID: U0701392-001A

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: C16643.D

Level: (low/med) LOW Date Received: 1/24/07

% Moisture: not dec. _____ Date Analyzed: 2/3/07

GC Column: RTX-VO ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

Number TICs found: 0

CAS NO.	COMPOUND NAME	RT	EST. CONC.	Q

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW-15SA

Lab Name: Upstate Labs Inc. Contract: CHA

Lab Code: 10170 Case No.: SAS No.: SDG No.: CHA78

Matrix: (soil/water) WATER Lab Sample ID: U0701392-002L

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: C16644.D

Level: (low/med) LOW Date Received: 1/24/07

% Moisture: not dec. Date Analyzed: 2/3/07

GC Column: RTX-VO ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L

CAS NO.	COMPOUND		Q
75-71-8	Dichlorodifluoromethane	5	U
74-87-3	Chloromethane	5	U
75-1-4	Vinyl Chloride	5	U
74-83-9	Bromomethane	5	U
75-00-3	Chloroethane	5	U
75-69-4	Trichlorofluoromethane	5	U
107-02-8	Acrolein	100	U R
67-64-1	Acetone	10	U
75-35-4	1,1-Dichloroethene	5	U
75-05-8	Acetonitrile	100	U R
74-88-4	Iodomethane	5	U
107-05-1	Allyl Chloride	5	U
75-15-0	Carbon Disulfide	5	U
75-09-2	Methylene Chloride	5	U
107-13-1	Acrylonitrile	100	U R
156-60-5	trans-1,2-Dichloroethene	5	U
75-34-33	1,1-Dichloroethane	5	U
108-5-4	Vinyl Acetate	50	U
126-99-8	Chloroprene	10	U
78-93-3	2-Butanone	10	U
107-12-0	Propionitrile	100	U R
594-20-7	2,2-Dichloropropane	5	U
156-59-2	cis-1,2-Dichloroethene	5	U
126-98-7	Methacrylonitrile	10	U
67-66-3	Chloroform	5	U
74-97-5	Bromochloromethane	5	U
78-83-1	Isobutyl Alcohol	1000	U R
71-55-6	1,1,1-Trichloroethane	5	U
563-58-6	1,1-Dichloropropene	5	U
56-23-5	Carbon Tetrachloride	5	U
71-43-2	Benzene	5	U
107-06-2	1,2-Dichloroethane	5	U
97-01-6	Trichloroethene	5	U
78-87-5	1,2-Dichloropropane	5	U
80-62-6	Methyl Methacrylate	10	U
75-27-4	Bromodichloromethane	5	U
74-95-3	Dibromomethane	5	U
108-10-1	4-Methyl-2-pentanone	10	U
10061-1-5	cis-1,3-Dichloropropene	5	U

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW-15SA

Lab Name: Upstate Labs Inc. Contract: CHA

Lab Code: 10170 Case No.: _____ SAS No.: _____ SDG No.: CHA78

Matrix: (soil/water) WATER Lab Sample ID: U0701392-002L

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: C16644.D

Level: (low/med) LOW Date Received: 1/24/07

% Moisture: not dec. _____ Date Analyzed: 2/3/07

GC Column: RTX-VO ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND (ug/L or ug/Kg) UG/L		Q
108-88-3	Toluene	5	U
10061-2-6	trans-1,3-Dichloropropene	5	U
97-63-2	Ethyl Methacrylate	10	U
79-00-5	1,1,2-Trichloroethane	5	U
591-78-6	2-Hexanone	10	U
142-28-9	1,3-Dichloropropane	5	U
127-18-4	Tetrachloroethene	5	U
124-48-1	Dibromochloromethane	5	U
106-93-4	1,2-Dibromoethane	5	U
108-90-7	Chlorobenzene	5	U
630-20-6	1,1,1,2-Tetrachloroethane	5	U
100-41-4	Ethylbenzene	5	U
108-38-3	m,p-Xylene	5	U
95-47-6	o-Xylene	5	U
100-42-5	Styrene	5	U
75-25-2	Bromoform	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
96-18-4	1,2,3-Trichloropropane	5	U
110-57-6	1,4-Dichloro-2-butene	10	U
541-73-1	1,3-Dichlorobenzene	5	U
106-46-7	1,4-Dichlorobenzene	5	U
95-50-1	1,2-Dichlorobenzene	5	U
96-12-8	1,2-Dibromo-3-chloro-propane	10	U

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

MW-15SA

Lab Name: Upstate Labs Inc. Contract: CHA

Lab Code: 10170 Case No.: _____ SAS No.: _____ SDG No.: CHA78

Matrix: (soil/water) WATER Lab Sample ID: U0701392-002L

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: C16644.D

Level: (low/med) LOW Date Received: 1/24/07

% Moisture: not dec. _____ Date Analyzed: 2/3/07

GC Column: RTX-VO ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

Number TICs found: 0

CAS NO.	COMPOUND NAME	RT	EST. CONC.	Q

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW-15SA

Lab Name: UPSTATE LABS INC. Contract: CHA

Lab Code: 10170 Case No.: _____ SAS No.: _____ SDG No.: CHA78

Matrix: (soil/water) WATER Lab Sample ID: U0701392-002K

Sample wt/vol: 1000 (g/ml) ML Lab File ID: AE3299.D

Level: (low/med) LOW Date Received: 1/24/07

% Moisture: _____ decanted:(Y/N) N Date Extracted: 1/25/07

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 2/20/07

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: _____

CONCENTRATION UNITS:

CAS NO.	COMPOUND	(ug/L or ug/Kg) UG/L	Q
10595-95-6	N-Nitrosomethethylamine	10	U
66-27-3	Methyl methanesulfonate	10	U
111-44-4	Bis(2-chloroethyl)ether	10	U
55-18-5	N-Nitrosodiethylamine	20	U
62-50-0	Ethyl methanesulfonate	20	U
108-95-2	Phenol	10	U
95-53-4	o-Toluidine	10	U
930-55-2	N-Nitrosopyrrolidine	40	U
95-57-8	2-Chlorophenol	10	U
98-86-2	Acetophenone	10	U
100-75-4	N-Nitrosopiperdine	20	U
126-68-1	O,O,O-Triethylphosphorothioate	10	U
1888-71-7	Hexachloropropene	10	U
87-65-0	2,6-Dichlorophenol	10	U
95-48-7	2-Methylphenol	10	U
67-72-1	Hexachloroethane	10	U
924-16-3	N-Nitroso-di-n-butylamine	10	U
621-64-7	N-Nitrosodi-n-propylamine	10	U
106-50-3	p-Phenylenediamine	10	U
106-44-5	(3+4)-Methylphenol	10	U
94-59-7	Safrole	10	U
95-94-3	1,2,4,5-Tetrachlorobenzene	10	U
98-95-3	Nitrobenzene	10	U
120-58-1	Isosafrole	10	U
78-59-1	Isophorone	10	U
130-15-4	1,4-Naphthoquinone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethylphenol	10	U
58-90-2	2,3,4,6-Tetrachlorophenol	10	U
111-91-1	Bis(2-chloroethoxy)methane	10	U
134-32-7	1-Naphthylamine	10	U
120-83-2	2,4-Dichlorophenol	10	U
608-93-5	Pentachlorobenzene	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U
91-20-3	Naphthalene	10	U
99-55-8	5-Nitro-o-toluidine	10	U
106-47-8	4-Chloroaniline	10	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW-15SA

Lab Name: UPSTATE LABS INC. Contract: CHA

Lab Code: 10170 Case No.: _____ SAS No.: _____ SDG No.: CHA78

Matrix: (soil/water) WATER Lab Sample ID: U0701392-002K

Sample wt/vol: 1000 (g/ml) ML Lab File ID: AE3299.D

Level: (low/med) LOW Date Received: 1/24/07

% Moisture: _____ decanted:(Y/N) N Date Extracted: 1/25/07

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 2/20/07

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: _____

CONCENTRATION UNITS:

CAS NO.	COMPOUND	(ug/L or ug/Kg) UG/L	Q
297-97-2	Thionazin	20	U
87-68-3	Hexachlorobutadiene	10	U
122-39-4	Diphenylamine	10	U
59-50-7	4-Chloro-3-methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
99-35-4	1,3,5-Trinitrobenzene	10	U R
62-44-2	Phenacetin	20	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
60-51-5	Dimethoate	10	U
95-95-4	2,4,5-Trichlorophenol	25	U
92-67-1	4-Aminobiphenyl	20	U
82-68-8	Pentachloronitrobenzene	20	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	25	U
298-04-4	Disulfoton	10	U
208-96-8	Acenaphthylene	10	U
	Diallate	20	U
23950-58-5	Pronamide	10	U
131-11-3	Dimethyl phthalate	10	U
298-0-0	Methyl parathion	10	U
606-20-2	2,6-Dinitrotoluene	10	U
83-32-9	Acenaphthene	10	U
99-09-2	3-Nitroaniline	25	U
298-02-2	Phorate	10	U
51-28-5	2,4-Dinitrophenol	25	U R
91-80-5	Methapyrilene	100	U
465-73-6	Isodrin	20	U
132-64-9	Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene	10	U
100-02-7	4-Nitrophenol	25	U
510-15-6	Chlorobenzilate	10	U
60-11-7	Dimethylaminoazobenzene	10	U
86-73-7	Fluorene	10	U
7005-72-3	4-Chlorophenyl phenyl ether	10	U
119-93-7	3,3'-Dimethylbenzidine	10	U
52-85-7	Famphur	20	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW-15SA

Lab Name: UPSTATE LABS INC. Contract: CHA

Lab Code: 10170 Case No.: SAS No.: SDG No.: CHA78

Matrix: (soil/water) WATER Lab Sample ID: U0701392-002K

Sample wt/vol: 1000 (g/ml) ML Lab File ID: AE3299.D

Level: (low/med) LOW Date Received: 1/24/07

% Moisture: decanted:(Y/N) N Date Extracted: 1/25/07

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 2/20/07

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH:

CONCENTRATION UNITS:

CAS NO.	COMPOUND	(ug/L or ug/Kg) UG/L	Q
84-66-2	Diethyl phthalate	10	U
100-01-6	4-Nitroaniline	25	U
53-96-3	2-Acetylaminofluorene	20	U
57-97-6	7,12-Dimethylbenz(a)anthracene	10	U
534-52-1	4,6-Dinitro-2-methylphenol	25	U R
56-49-3	3-Methylcholanthrene	10	U
86-30-6	N-Nitrosodiphenylamine	10	U
101-55-3	4-Bromophenyl phenyl ether	10	U
118-74-1	Hexachlorobenzene	10	U
87-86-5	Pentachlorophenol	25	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
84-74-2	Di-n-butyl phthalate	10	U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
85-68-7	Butyl benzyl phthalate	10	U
91-94-1	3,3'-Dichlorobenzidine	10	U
218-01-9	Chrysene	10	U
117-81-7	Bis(2-ethylhexyl)phthalate	2	~~JB~~ U
117-84-0	Di-n-octyl phthalate	10	U
205-99-2	Benzo(b)fluoranthene	10	U
207-08-9	Benzo(k)fluoranthene	10	U
50-32-8	Benzo(a)pyrene	10	U
193-39-5	Indeno(1,2,3-cd)pyrene	10	U
53-70-3	Dibenz(a,h)anthracene	10	U
191-24-2	Benzo(ghi)perylene	10	U
100-51-6	Benzyl alcohol	10	U
	Bis(2-chloroisopropyl)ether	10	U
	Kepone	25	U R
62-75-9	N-nitrosodimethylamine	10	U

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

MW-15SA

Lab Name: UPSTATE LABS INC. Contract: CHA

Lab Code: 10170 Case No.: _____ SAS No.: _____ SDG No.: CHA78

Matrix: (soil/water) WATER Lab Sample ID: U0701392-002K

Sample wt/vol: 1000 (g/ml) ML Lab File ID: AE3299.D

Level: (low/med) LOW Date Received: 1/24/07

% Moisture: _____ decanted: (Y/N) N Date Extracted: 1/25/07

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 2/20/07

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: _____

CONCENTRATION UNITS:

Number TICs found: 12 (ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	unknown	18.38	5	J
2.	unknown	18.44	7	J
3. 000104-40-5	4-Nonylphenol	18.50	6	JN
4.	unknown	18.62	3	J
5.	unknown	18.71	4	J
6.	unknown	18.78	4	J
7.	unknown	18.86	2	J
8. 000629-54-9	Hexadecanamide	22.00	18	JN
9. 000301-02-0	9-Octadecenamide, (Z)-	23.26	100	JN
10. 000638-58-4	Tetradecanamide	23.39	36	JN
11. 000112-84-5	Erucylamide	25.76	130	JN
12. 007683-64-9	Squalene	25.92	19	JN

1 D
PESTICIDE ANALYSIS DATA SHEET

NYSDEC SAMPLE NO.
MW-15SA

Lab Name:	Upsate Labs Inc.		Contract: CHA		
Lab Code:	10170	Case No:		SAS No:	SDG No. CHA-78
Matrix: (soil/water)	Water			Lab Sample ID:	701392-2
Sample wt/vol:	1000 (g/mL)	ml		Lab File ID:	GA-3760
% Solids				Date Recieved:	1/24/07
Extraction: (SepF/Cont/Sonc)	SepF.			Date Extracted:	1/26/07
Concentrated Extract Volume:	10			Date Analyzed:	2/8/07
Injection Volume:	1			Time Analyzed:	6:00 PM
GPC Cleanup: (Y/N)	N			Dilution Factor:	1
				Sulfur Cleanup:	Y

CONCENTRATION UNITS:

CAS NO.	COMPOUND	ug/kg	Q
319-84-6	Alpha-BHC	0.05	U
319-85-7	Beta-BHC	0.05	U
319-86-8	Delta-BHC	0.05	U
58-89-9	Lindane	0.05	U
76-44-8	Heptachlor	0.05	U
309-00-2	Aldrin	0.05	U
1024-57-3	Heptachlor epoxide	0.05	U
959-98-8	Endosulfan I	0.05	U
60-57-1	Dieldrin	0.1	U
72-55-9	4,4'-DDE	0.1	U
72-20-8	Endrin	0.1	U
33213-65-9	Endosulfan II	0.1	U
72-54-8	4,4'-DDD	0.1	U
1031-07-8	Endosulfan sulfate	0.1	U
50-29-3	4,4'-DDT	0.1	U
72-43-5	Methoxychlor	0.5	U
53494-70-5	Endrin Ketone	0.1	U
7421-36-3	Endrin Aldehyde	0.1	U
5103-71-9	Alpha-chlordane	0.05	U
5103-74-2	Gamma-chlordane	0.05	U
8001-35-2	Toxaphene	5	U
12674-11-2	Aroclor 1016	1	U
11104-28-2	Aroclor 1221	1	U
11141-16-5	Aroclor 1232	1	U
53469-21-9	Aroclor 1242	1	U
12672-29-6	Aroclor 1248	1	U
11097-69-1	Aroclor 1254	1	U
11096-82-5	Aroclor 1260	1	U

FORM I-CLP-PEST

-18-

1A

HERBICIDE ANALYSIS DATA SHEET

NYSDEC SAMPLE NO

MW-15SA

Lab Name:	Upsate Labs Inc.		Contract: CHA		
Lab Code:	10170	Case No:		SAS No:	SDG No. CHA-78
Matrix: (soil/water)	Water			Lab Sample ID:	701392-2
Sample wt/vol:	1000 (g/mL)	ML		Lab File ID:	GA-3758
% Solids				Date Recieved:	1/24/07
Extraction: (SepF/Cont/Sonc)	Sep. F			Date Extracted:	2/2/07
Concentrated Extract Volume:	10			Date Analyzed:	2/5/07
Injection Volume:	1			Time Analyzed:	6:53 PM
GPC Cleanup: (Y/N)	N			Dilution Factor:	10
				Sulfur Cleanup:	Y

CAS NO.	COMPOUND	CONCENTRATION UNITS: ug/L	Q
94-75-7	2,4-D	1.0	U J
93-72-1	2,4,5-TP (Silvex)	1.0	U J
	2,4 5-T (Silvex)	1.0	U J
	Dinoseb	1.0	U J
	Dicamba	1.0	U J

FORM I-HERB

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

CLIENT SAMP ID

MW-15SA

Lab Name: Upstate Laboratories, Inc. Contract:

Lab Code: 10170 Case No. SAS No.: SDG No.: CHA78

Matrix (soil/water): WATER Lab Sample ID: U0701392-002

Level (low/med): LOW Date Received: 1/24/07

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	15800		J *	P
7440-36-0	Antimony	15.0	U		P
7440-38-2	Arsenic	20.7			P
7440-39-3	Barium	139	B		P
7440-41-7	Beryllium	3.0	U		P
7440-42-8	Boron	500	U		P
7440-43-9	Cadmium	7.9			P
7440-70-2	Calcium	139000			P
7440-47-3	Chromium	28.4			P
7440-48-4	Cobalt	26.5	B		P
7440-50-8	Copper	156			P
57-12-5	Cyanide	10.0	U		C
471-34-1	Hardness, T	448000			P
7439-89-6	Iron	58100			P
7439-92-1	Lead	52.6			P
7439-95-4	Magnesium	24500			P
7439-96-5	Manganese	1240			P
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel	53.9			P
7440-09-7	Potassium	4650	B		P
7782-49-2	Selenium	5.0	U		P
7440-22-4	Silver	10.0	U		P
7440-23-5	Sodium	40100			P
7440-28-0	Thallium	10.0	U		P
7440-31-5	Tin	300	U		P
7440-62-2	Vanadium	79.1			P
7440-66-6	Zinc	147		J N*	P

Color Before: BROWN Clarity Before: OPAQUE Texture:

Color After: YELLOW Clarity After: CLEAR Artifacts: YES

Comments:

Brown Sediment

Upstate Laboratories, Inc.

Date: *26-Feb-07*

CLIENT:	Clough, Harbour & Assoc. LLP	**Client Sample ID:**	MW-15SA
Lab Order:	U0701392	**Collection Date:**	1/23/2007 12:35:00 PM
Project:	C/O Albany Interim Landfill New		
Lab ID:	U0701392-002	**Matrix:**	GROUNDWATER

Analyses	Result		Limit	Qual	Units	DF	Date Analyzed
INORGANIC ANIONS BY IC FOR WATERS			E300.1				Analyst: DD
Bromide	ND		2.0		mg/L	10	2/16/2007
NOTES: The reporting limits were raised due to matrix interference.							
COLOR			E110.2				Analyst: MG
Color	80.0		50.0		UNITS	10	1/24/2007 8:00:00 AM
RESIDUE, DISSOLVED (TDS)			E160.1				Analyst: NJS
Residue, Dissolved (TDS)	275	J	25		mg/L	1	1/28/2007
TURBIDITY			E180.1				Analyst: NJS
Turbidity	464		0.250		NTU	5	1/24/2007 12:15:00 PM
ALKALINITY ON AQUEOUS SAMPLES BY LACHA			E310.2				Analyst: SAR
Alkalinity, Total (As CaCO3)	180		10		mg/LCaCO3	1	1/26/2007
CHLORIDE WATERS BY LACHAT			E325.2				Analyst: SAR
Chloride	65.2		1.00		mg/L	1	1/26/2007
CYANIDE, TOTAL ASP			E335.2		(E335.2)		Analyst: BY
Cyanide	ND		10.0		µg/L	1	1/30/2007
NITROGEN, AMMONIA (AS N)			E350.2				Analyst: BY
Nitrogen, Ammonia (As N)	2.14		0.500		mg/L	1	2/7/2007
TKN FOR WATERS			E351.3				Analyst: MG
Nitrogen, Kjeldahl, Total	1.47		0.500		mg/L	1	2/2/2007
NITROGEN, NITRATE (AS N)			E353.2				Analyst: BY
Nitrogen, Nitrate (as N)	ND		0.200		mg/L	1	1/24/2007 3:56:00 PM
SULFATE			E375.4				Analyst: NJS
Sulfate	40.1		5.00		mg/L	1	2/1/2007
SULFIDE, WATERS			E376.2				Analyst: BY
Sulfide	ND		0.100		mg/L	1	1/26/2007
BIOCHEMICAL OXYGEN DEMAND (5 DAY BOD)			E405.1				Analyst: BS
Biochemical Oxygen Demand	5	J	4		mg/L	1	1/24/2007 6:00:00 AM
CHEMICAL OXYGEN DEMAND (COD)			E410.4				Analyst: BS
Chemical Oxygen Demand	22		20		mg/L	1	2/9/2007
TOTAL ORGANIC CARBON (TOC)			E415.1				Analyst: BS
Organic Carbon, Total	9.0		3.0		mg/L	1	2/9/2007

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Approved By: _____ **Date:** _____

Qualifiers:

*	Low Level	**	Value exceeds Maximum Contaminant Value
B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	S	Spike Recovery outside accepted recovery limits

Upstate Laboratories, Inc.

Date: *26-Feb-07*

CLIENT:	Clough, Harbour & Assoc. LLP	**Client Sample ID:**	MW-15SA
Lab Order:	U0701392	**Collection Date:**	1/23/2007 12:35:00 PM
Project:	C/O Albany Interim Landfill New		
Lab ID:	U0701392-002	**Matrix:**	GROUNDWATER

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
PHENOLICS, TOTAL REC. FOR WATERS		**E420.1**		**(E420.1)**		Analyst: **SAR**
Phenolics, Total Recoverable	ND	0.005		mg/L	1	1/31/2007
HEXAVALENT CHROMIUM BY ASP 2005		**SM3500**				Analyst: **MG**
Hexavalent chromium	ND	0.010		mg/L	1	1/24/2007 8:00:00 AM

-22-

Approved By: _____ **Date:** _____

Qualifiers:

*	Low Level	**	Value exceeds Maximum Contaminant Value
B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	S	Spike Recovery outside accepted recovery limits

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW-15SB

Lab Name: Upstate Labs Inc. Contract: CHA

Lab Code: 10170 Case No.: SAS No.: SDG No.: CHA78

Matrix: (soil/water) WATER Lab Sample ID: U0701392-003L

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: C16645.D

Level: (low/med) LOW Date Received: 1/24/07

% Moisture: not dec. Date Analyzed: 2/3/07

GC Column: RTX-VO ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L

CAS NO.	COMPOUND		Q
75-71-8	Dichlorodifluoromethane	5	U
74-87-3	Chloromethane	5	U
75-1-4	Vinyl Chloride	5	U
74-83-9	Bromomethane	5	U
75-00-3	Chloroethane	5	U
75-69-4	Trichlorofluoromethane	5	U
107-02-8	Acrolein	100	U R
67-64-1	Acetone	10	U
75-35-4	1,1-Dichloroethene	5	U
75-05-8	Acetonitrile	100	U R
74-88-4	Iodomethane	5	U
107-05-1	Allyl Chloride	5	U
75-15-0	Carbon Disulfide	5	U
75-09-2	Methylene Chloride	5	U
107-13-1	Acrylonitrile	100	U R
156-60-5	trans-1,2-Dichloroethene	5	U
75-34-33	1,1-Dichloroethane	5	U
108-5-4	Vinyl Acetate	50	U
126-99-8	Chloroprene	10	U
78-93-3	2-Butanone	10	U
107-12-0	Propionitrile	100	U R
594-20-7	2,2-Dichloropropane	5	U
156-59-2	cis-1,2-Dichloroethene	5	U
126-98-7	Methacrylonitrile	10	U
67-66-3	Chloroform	5	U
74-97-5	Bromochloromethane	5	U
78-83-1	Isobutyl Alcohol	1000	U R
71-55-6	1,1,1-Trichloroethane	5	U
563-58-6	1,1-Dichloropropene	5	U
56-23-5	Carbon Tetrachloride	5	U
71-43-2	Benzene	5	U
107-06-2	1,2-Dichloroethane	5	U
97-01-6	Trichloroethene	5	U
78-87-5	1,2-Dichloropropane	5	U
80-62-6	Methyl Methacrylate	10	U
75-27-4	Bromodichloromethane	5	U
74-95-3	Dibromomethane	5	U
108-10-1	4-Methyl-2-pentanone	10	U
10061-1-5	cis-1,3-Dichloropropene	5	U

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW-15SB

Lab Name: Upstate Labs Inc. Contract: CHA

Lab Code: 10170 Case No.: _____ SAS No.: _____ SDG No.: CHA78

Matrix: (soil/water) WATER Lab Sample ID: U0701392-003L

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: C16645.D

Level: (low/med) LOW Date Received: 1/24/07

% Moisture: not dec. _____ Date Analyzed: 2/3/07

GC Column: RTX-VO ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND (ug/L or ug/Kg) UG/L		Q
108-88-3	Toluene	5	U
10061-2-6	trans-1,3-Dichloropropene	5	U
97-63-2	Ethyl Methacrylate	10	U
79-00-5	1,1,2-Trichloroethane	5	U
591-78-6	2-Hexanone	10	U
142-28-9	1,3-Dichloropropane	5	U
127-18-4	Tetrachloroethene	5	U
124-48-1	Dibromochloromethane	5	U
106-93-4	1,2-Dibromoethane	5	U
108-90-7	Chlorobenzene	5	U
630-20-6	1,1,1,2-Tetrachloroethane	5	U
100-41-4	Ethylbenzene	5	U
108-38-3	m,p-Xylene	5	U
95-47-6	o-Xylene	5	U
100-42-5	Styrene	5	U
75-25-2	Bromoform	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
96-18-4	1,2,3-Trichloropropane	5	U
110-57-6	1,4-Dichloro-2-butene	10	U
541-73-1	1,3-Dichlorobenzene	5	U
106-46-7	1,4-Dichlorobenzene	5	U
95-50-1	1,2-Dichlorobenzene	5	U
96-12-8	1,2-Dibromo-3-chloro-propane	10	U

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

MW-15SB

Lab Name: Upstate Labs Inc. Contract: CHA

Lab Code: 10170 Case No.: _____ SAS No.: _____ SDG No.: CHA78

Matrix: (soil/water) WATER Lab Sample ID: U0701392-003L

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: C16645.D

Level: (low/med) LOW Date Received: 1/24/07

% Moisture: not dec. _____ Date Analyzed: 2/3/07

GC Column: RTX-VO ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

Number TICs found: 0

CAS NO.	COMPOUND NAME	RT	EST. CONC.	Q

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW-15SB

Lab Name: UPSTATE LABS INC. Contract: CHA

Lab Code: 10170 Case No.: SAS No.: SDG No.: CHA78

Matrix: (soil/water) WATER Lab Sample ID: U0701392-003K

Sample wt/vol: 1000 (g/ml) ML Lab File ID: AE3300.D

Level: (low/med) LOW Date Received: 1/24/07

% Moisture: decanted:(Y/N) N Date Extracted: 1/25/07

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 2/20/07

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH:

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
10595-95-6	N-Nitrosomethethylamine	10	U
66-27-3	Methyl methanesulfonate	10	U
111-44-4	Bis(2-chloroethyl)ether	10	U
55-18-5	N-Nitrosodiethylamine	20	U
62-50-0	Ethyl methanesulfonate	20	U
108-95-2	Phenol	10	U
95-53-4	o-Toluidine	10	U
930-55-2	N-Nitrosopyrrolidine	40	U
95-57-8	2-Chlorophenol	10	U
98-86-2	Acetophenone	10	U
100-75-4	N-Nitrosopiperdine	20	U
126-68-1	O,O,O-Triethylphosphorothioate	10	U
1888-71-7	Hexachloropropene	10	U
87-65-0	2,6-Dichlorophenol	10	U
95-48-7	2-Methylphenol	10	U
67-72-1	Hexachloroethane	10	U
924-16-3	N-Nitroso-di-n-butylamine	10	U
621-64-7	N-Nitrosodi-n-propylamine	10	U
106-50-3	p-Phenylenediamine	10	U
106-44-5	(3+4)-Methylphenol	10	U
94-59-7	Safrole	10	U
95-94-3	1,2,4,5-Tetrachlorobenzene	10	U
98-95-3	Nitrobenzene	10	U
120-58-1	Isosafrole	10	U
78-59-1	Isophorone	10	U
130-15-4	1,4-Naphthoquinone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethylphenol	10	U
58-90-2	2,3,4,6-Tetrachlorophenol	10	U
111-91-1	Bis(2-chloroethoxy)methane	10	U
134-32-7	1-Naphthylamine	10	U
120-83-2	2,4-Dichlorophenol	10	U
608-93-5	Pentachlorobenzene	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U
91-20-3	Naphthalene	10	U
99-55-8	5-Nitro-o-toluidine	10	U
106-47-8	4-Chloroaniline	10	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW-15SB

Lab Name: UPSTATE LABS INC. Contract: CHA

Lab Code: 10170 Case No.: _____ SAS No.: _____ SDG No.: CHA78

Matrix: (soil/water) WATER Lab Sample ID: U0701392-003K

Sample wt/vol: 1000 (g/ml) ML Lab File ID: AE3300.D

Level: (low/med) LOW Date Received: 1/24/07

% Moisture: _____ decanted:(Y/N) N Date Extracted: 1/25/07

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 2/20/07

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: _____

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
297-97-2	Thionazin	20	U
87-68-3	Hexachlorobutadiene	10	U
122-39-4	Diphenylamine	10	U
59-50-7	4-Chloro-3-methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
99-35-4	1,3,5-Trinitrobenzene	10	U R
62-44-2	Phenacetin	20	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
60-51-5	Dimethoate	10	U
95-95-4	2,4,5-Trichlorophenol	25	U
92-67-1	4-Aminobiphenyl	20	U
82-68-8	Pentachloronitrobenzene	20	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	25	U
298-04-4	Disulfoton	10	U
208-96-8	Acenaphthylene	10	U
	Diallate	20	U
23950-58-5	Pronamide	10	U
131-11-3	Dimethyl phthalate	10	U
298-0-0	Methyl parathion	10	U
606-20-2	2,6-Dinitrotoluene	10	U
83-32-9	Acenaphthene	10	U
99-09-2	3-Nitroaniline	25	U
298-02-2	Phorate	10	U
51-28-5	2,4-Dinitrophenol	25	U R
91-80-5	Methapyrilene	100	U
465-73-6	Isodrin	20	U
132-64-9	Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene	10	U
100-02-7	4-Nitrophenol	25	U
510-15-6	Chlorobenzilate	10	U
60-11-7	Dimethylaminoazobenzene	10	U
86-73-7	Fluorene	10	U
7005-72-3	4-Chlorophenyl phenyl ether	10	U
119-93-7	3,3'-Dimethylbenzidine	10	U
52-85-7	Famphur	20	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW-15SB

Lab Name: UPSTATE LABS INC. Contract: CHA

Lab Code: 10170 Case No.: _____ SAS No.: _____ SDG No.: CHA78

Matrix: (soil/water) WATER Lab Sample ID: U0701392-003K

Sample wt/vol: 1000 (g/ml) ML Lab File ID: AE3300.D

Level: (low/med) LOW Date Received: 1/24/07

% Moisture: _____ decanted:(Y/N) N Date Extracted: 1/25/07

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 2/20/07

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: _____

CONCENTRATION UNITS:

CAS NO.	COMPOUND	(ug/L or ug/Kg) UG/L	Q
84-66-2	Diethyl phthalate	10	U
100-01-6	4-Nitroaniline	25	U
53-96-3	2-Acetylaminofluorene	20	U
57-97-6	7,12-Dimethylbenz(a)anthracene	10	U
534-52-1	4,6-Dinitro-2-methylphenol	25	U R
56-49-3	3-Methylcholanthrene	10	U
86-30-6	N-Nitrosodiphenylamine	10	U
101-55-3	4-Bromophenyl phenyl ether	10	U
118-74-1	Hexachlorobenzene	10	U
87-86-5	Pentachlorophenol	25	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
84-74-2	Di-n-butyl phthalate	10	U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
85-68-7	Butyl benzyl phthalate	10	U
91-94-1	3,3'-Dichlorobenzidine	10	U
218-01-9	Chrysene	10	U
117-81-7	Bis(2-ethylhexyl)phthalate	6	~~JB~~ U
117-84-0	Di-n-octyl phthalate	10	U
205-99-2	Benzo(b)fluoranthene	10	U
207-08-9	Benzo(k)fluoranthene	10	U
50-32-8	Benzo(a)pyrene	10	U
193-39-5	Indeno(1,2,3-cd)pyrene	10	U
53-70-3	Dibenz(a,h)anthracene	10	U
191-24-2	Benzo(ghi)perylene	10	U
100-51-6	Benzyl alcohol	10	U
	Bis(2-chloroisopropyl)ether	10	U
	Kepone	25	U R
62-75-9	N-nitrosodimethylamine	10	U

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

MW-15SB

Lab Name: UPSTATE LABS INC. Contract: CHA

Lab Code: 10170 Case No.: _____ SAS No.: _____ SDG No.: CHA78

Matrix: (soil/water) WATER Lab Sample ID: U0701392-003K

Sample wt/vol: 1000 (g/ml) ML Lab File ID: AE3300.D

Level: (low/med) LOW Date Received: 1/24/07

% Moisture: _____ decanted: (Y/N) N Date Extracted: 1/25/07

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 2/20/07

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: _____

Number TICs found: 15

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	unknown	18.38	4	J
2.	unknown	18.44	6	J
3. 025154-52-3	Phenol, nonyl-	18.50	5	JN
4.	unknown	18.62	3	J
5.	unknown	18.71	3	J
6.	unknown	18.78	4	J
7.	unknown	18.86	2	J
8.	unknown	21.69	4	J
9.	unknown	21.75	2	J
10. 000629-54-9	Hexadecanamide	22.00	13	JN
11. 000301-02-0	9-Octadecenamide, (Z)-	23.26	70	JN
12. 000629-54-9	Hexadecanamide	23.39	9	JN
13.	unknown	24.78	2	J
14. 000112-84-5	Erucylamide	25.76	100	JN
15. 007683-64-9	Squalene	25.92	9	JN

1 D

PESTICIDE ANALYSIS DATA SHEET

NYSDEC SAMPLE NO.

MW-15S6

Lab Name:	Upsate Labs Inc.	Contract:	CHA
Lab Code:	10170	Case No:	
SAS No:		SDG No.	CHA-78
Matrix: (soil/water)	Water	Lab Sample ID:	701392-3
Sample wt/vol:	1000 (g/mL) ml	Lab File ID:	GA-3760
% Solids		Date Recieved:	1/24/07
Extraction: (SepF/Cont/Sonc)	SepF.	Date Extracted:	1/26/07
Concentrated Extract Volume:	10	Date Analyzed:	2/8/07
Injection Volume:	1	Time Analyzed:	6:22 PM
GPC Cleanup: (Y/N)	N	Dilution Factor:	1
		Sulfur Cleanup:	Y

CONCENTRATION UNITS:

CAS NO.	COMPOUND	ug/kg	Q
319-84-6	Alpha-BHC	0.05	U
319-85-7	Beta-BHC	0.05	U
319-86-8	Delta-BHC	0.05	U
58-89-9	Lindane	0.05	U
76-44-8	Heptachlor	0.05	U
309-00-2	Aldrin	0.05	U
1024-57-3	Heptachlor epoxide	0.05	U
959-98-8	Endosulfan I	0.05	U
60-57-1	Dieldrin	0.1	U
72-55-9	4,4'-DDE	0.1	U
72-20-8	Endrin	0.1	U
33213-65-9	Endosulfan II	0.1	U
72-54-8	4,4'-DDD	0.1	U
1031-07-8	Endosulfan sulfate	0.1	U
50-29-3	4,4'-DDT	0.1	U
72-43-5	Methoxychlor	0.5	U
53494-70-5	Endrin Ketone	0.1	U
7421-36-3	Endrin Aldehyde	0.1	U
5103-71-9	Alpha-chlordane	0.05	U
5103-74-2	Gamma-chlordane	0.05	U
8001-35-2	Toxaphene	5	U
12674-11-2	Aroclor 1016	1	U
11104-28-2	Aroclor 1221	1	U
11141-16-5	Aroclor 1232	1	U
53469-21-9	Aroclor 1242	1	U
12672-29-6	Aroclor 1248	1	U
11097-69-1	Aroclor 1254	1	U
11096-82-5	Aroclor 1260	1	U

FORM I-CLP-PEST

1A

HERBICIDE ANALYSIS DATA SHEET

NYSDEC SAMPLE NO.
MW-15SB

Lab Name:	Upsate Labs Inc.	Contract:	CHA
Lab Code:	10170	Case No:	
SAS No:		SDG No.	CHA-78
Matrix: (soil/water)	Water	Lab Sample ID.	701392-3
Sample wt/vol:	1000 (g/mL) ML	Lab File ID:	GA-3758
% Solids		Date Recieved:	1/24/07
Extraction: (SepF/Cont/Sonc)	Sep. F	Date Extracted:	2/2/07
Concentrated Extract Volume:	10	Date Analyzed:	2/5/07
Injection Volume:	1	Time Analyzed:	7:21 PM
GPC Cleanup: (Y/N)	N	Dilution Factor:	10
		Sulfur Cleanup:	Y

CONCENTRATION UNITS:

CAS NO.	COMPOUND	ug/L	Q
94-75-7	2,4-D	1.0	U J
93-72-1	2,4,5-TP (Silvex)	1.0	U J
	2,4,5-T (Silvex)	1.0	U J
	Dinoseb	1.0	U J
	Dicamba	1.0	U J

FORM I-HERB

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

CLIENT SAMP ID

MW-15SB

Lab Name: Upstate Laboratories, Inc. Contract:

Lab Code: 10170 Case No. SAS No.: SDG No.: CHA78

Matrix (soil/water): WATER Lab Sample ID: U0701392-003

Level (low/med): LOW Date Received: 1/24/07

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	19000		* J	P
7440-36-0	Antimony	15.0	U		P
7440-38-2	Arsenic	38.2			P
7440-39-3	Barium	149	B		P
7440-41-7	Beryllium	3.0	U		P
7440-42-8	Boron	500	U		P
7440-43-9	Cadmium	9.9			P
7440-70-2	Calcium	139000			P
7440-47-3	Chromium	31.6			P
7440-48-4	Cobalt	25.2	B		P
7440-50-8	Copper	135			P
57-12-5	Cyanide	10.0	U		C
471-34-1	Hardness, T	452000			P
7439-89-6	Iron	77100			P
7439-92-1	Lead	45.3			P
7439-95-4	Magnesium	25200			P
7439-96-5	Manganese	1250			P
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel	50.9			P
7440-09-7	Potassium	6450			P
7782-49-2	Selenium	5.0	U		P
7440-22-4	Silver	10.0	U		P
7440-23-5	Sodium	39200			P
7440-28-0	Thallium	10.0	U		P
7440-31-5	Tin	300	U		P
7440-62-2	Vanadium	77.5			P
7440-66-6	Zinc	145		N* J	P

Color Before: BROWN Clarity Before: OPAQUE Texture:

Color After: YELLOW Clarity After: CLEAR Artifacts: YES

Comments:

Brown Sediment

Upstate Laboratories, Inc.

Date: *26-Feb-07*

CLIENT:	Clough, Harbour & Assoc. LLP	**Client Sample ID:**	MW-15SB
Lab Order:	U0701392	**Collection Date:**	1/23/2007 12:45:00 PM
Project:	C/O Albany Interim Landfill New		
Lab ID:	U0701392-003	**Matrix:**	GROUNDWATER

Analyses	Result		Limit	Qual	Units	DF	Date Analyzed
INORGANIC ANIONS BY IC FOR WATERS			E300.1				Analyst: DD
Bromide	ND		2.0		mg/L	10	2/16/2007
NOTES: The reporting limits were raised due to matrix interference.							
COLOR			E110.2				Analyst: MG
Color	70.0		50.0		UNITS	10	1/24/2007 8:00:00 AM
RESIDUE, DISSOLVED (TDS)			E160.1				Analyst: NJS
Residue, Dissolved (TDS)	322	J	25		mg/L	1	1/28/2007
TURBIDITY			E180.1				Analyst: NJS
Turbidity	331		0.250		NTU	5	1/24/2007 12:15:00 PM
ALKALINITY ON AQUEOUS SAMPLES BY LACHA			E310.2				Analyst: SAR
Alkalinity, Total (As CaCO3)	170		10		mg/LCaCO3	1	1/26/2007
CHLORIDE WATERS BY LACHAT			E325.2				Analyst: SAR
Chloride	65.5		1.00		mg/L	1	1/26/2007
CYANIDE, TOTAL ASP			E335.2		(E335.2)		Analyst: BY
Cyanide	ND		10.0		µg/L	1	1/30/2007
NITROGEN, AMMONIA (AS N)			E350.2				Analyst: BY
Nitrogen, Ammonia (As N)	1.99		0.500		mg/L	1	2/7/2007
TKN FOR WATERS			E351.3				Analyst: MG
Nitrogen, Kjeldahl, Total	2.20		0.500		mg/L	1	2/2/2007
NITROGEN, NITRATE (AS N)			E353.2				Analyst: BY
Nitrogen, Nitrate (as N)	ND		0.200		mg/L	1	1/24/2007 3:56:00 PM
SULFATE			E375.4				Analyst: NJS
Sulfate	46.7		5.00		mg/L	1	2/1/2007
SULFIDE, WATERS			E376.2				Analyst: BY
Sulfide	ND		0.100		mg/L	1	1/26/2007
BIOCHEMICAL OXYGEN DEMAND (5 DAY BOD)			E405.1				Analyst: BS
Biochemical Oxygen Demand	6	J	4		mg/L	1	1/24/2007 6:00:00 AM
CHEMICAL OXYGEN DEMAND (COD)			E410.4				Analyst: BS
Chemical Oxygen Demand	32		20		mg/L	1	2/9/2007
TOTAL ORGANIC CARBON (TOC)			E415.1				Analyst: BS
Organic Carbon, Total	26.0		3.0		mg/L	1	2/9/2007

-33-

Approved By: _____ **Date:** _____

Qualifiers:

*	Low Level	**	Value exceeds Maximum Contaminant Value
B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	S	Spike Recovery outside accepted recovery limits

Upstate Laboratories, Inc.

Date: *26-Feb-07*

CLIENT:	Clough, Harbour & Assoc. LLP	**Client Sample ID:**	MW-15SB
Lab Order:	U0701392	**Collection Date:**	1/23/2007 12:45:00 PM
Project:	C/O Albany Interim Landfill New		
Lab ID:	U0701392-003	**Matrix:**	GROUNDWATER

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
PHENOLICS, TOTAL REC. FOR WATERS		**E420.1**		**(E420.1)**		Analyst: **SAR**
Phenolics, Total Recoverable	ND	0.005		mg/L	1	2/5/2007
HEXAVALENT CHROMIUM BY ASP 2005		**SM3500**				Analyst: **MG**
Hexavalent chromium	ND	0.010		mg/L	1	1/24/2007 8:00:00 AM

-34-

Approved By: _____ **Date:** _____

Qualifiers:

*	Low Level	**	Value exceeds Maximum Contaminant Value
B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	S	Spike Recovery outside accepted recovery limits

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW-15IA

Lab Name: Upstate Labs Inc. Contract: CHA

Lab Code: 10170 Case No.: _____ SAS No.: _____ SDG No.: CHA78

Matrix: (soil/water) WATER Lab Sample ID: U0701392-004L

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: C16646.D

Level: (low/med) LOW Date Received: 1/24/07

% Moisture: not dec. _____ Date Analyzed: 2/3/07

GC Column: RTX-VO ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND (ug/L or ug/Kg) UG/L		Q
75-71-8	Dichlorodifluoromethane	5	U
74-87-3	Chloromethane	5	U
75-1-4	Vinyl Chloride	5	U
74-83-9	Bromomethane	5	U
75-00-3	Chloroethane	5	U
75-69-4	Trichlorofluoromethane	5	U
107-02-8	Acrolein	100	U R
67-64-1	Acetone	10	U
75-35-4	1,1-Dichloroethene	5	U
75-05-8	Acetonitrile	100	U R
74-88-4	Iodomethane	5	U
107-05-1	Allyl Chloride	5	U
75-15-0	Carbon Disulfide	5	U
75-09-2	Methylene Chloride	5	U
107-13-1	Acrylonitrile	100	U R
156-60-5	trans-1,2-Dichloroethene	5	U
75-34-33	1,1-Dichloroethane	5	U
108-5-4	Vinyl Acetate	50	U
126-99-8	Chloroprene	10	U
78-93-3	2-Butanone	10	U
107-12-0	Propionitrile	100	U R
594-20-7	2,2-Dichloropropane	5	U
156-59-2	cis-1,2-Dichloroethene	5	U
126-98-7	Methacrylonitrile	10	U
67-66-3	Chloroform	5	U
74-97-5	Bromochloromethane	5	U
78-83-1	Isobutyl Alcohol	1000	U R
71-55-6	1,1,1-Trichloroethane	5	U
563-58-6	1,1-Dichloropropene	5	U
56-23-5	Carbon Tetrachloride	5	U
71-43-2	Benzene	5	U
107-06-2	1,2-Dichloroethane	5	U
97-01-6	Trichloroethene	5	U
78-87-5	1,2-Dichloropropane	5	U
80-62-6	Methyl Methacrylate	10	U
75-27-4	Bromodichloromethane	5	U
74-95-3	Dibromomethane	5	U
108-10-1	4-Methyl-2-pentanone	10	U
10061-1-5	cis-1,3-Dichloropropene	5	U

1A

EPA SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

MW-15IA

Lab Name: Upstate Labs Inc. Contract: CHA

Lab Code: 10170 Case No.: SAS No.: SDG No.: CHA78

Matrix: (soil/water) WATER Lab Sample ID: U0701392-004L

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: C16646.D

Level: (low/med) LOW Date Received: 1/24/07

% Moisture: not dec. Date Analyzed: 2/3/07

GC Column: RTX-VO ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND	(ug/L or ug/Kg) UG/L	Q
108-88-3	Toluene	5	U
10061-2-6	trans-1,3-Dichloropropene	5	U
97-63-2	Ethyl Methacrylate	10	U
79-00-5	1,1,2-Trichloroethane	5	U
591-78-6	2-Hexanone	10	U
142-28-9	1,3-Dichloropropane	5	U
127-18-4	Tetrachloroethene	5	U
124-48-1	Dibromochloromethane	5	U
106-93-4	1,2-Dibromoethane	5	U
108-90-7	Chlorobenzene	5	U
630-20-6	1,1,1,2-Tetrachloroethane	5	U
100-41-4	Ethylbenzene	5	U
108-38-3	m,p-Xylene	5	U
95-47-6	o-Xylene	5	U
100-42-5	Styrene	5	U
75-25-2	Bromoform	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
96-18-4	1,2,3-Trichloropropane	5	U
110-57-6	1,4-Dichloro-2-butene	10	U
541-73-1	1,3-Dichlorobenzene	5	U
106-46-7	1,4-Dichlorobenzene	5	U
95-50-1	1,2-Dichlorobenzene	5	U
96-12-8	1,2-Dibromo-3-chloro-propane	10	U

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

MW-15IA

Lab Name: Upstate Labs Inc. Contract: CHA

Lab Code: 10170 Case No.: _____ SAS No.: _____ SDG No.: CHA78

Matrix: (soil/water) WATER Lab Sample ID: U0701392-004L

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: C16646.D

Level: (low/med) LOW Date Received: 1/24/07

% Moisture: not dec. _____ Date Analyzed: 2/3/07

GC Column: RTX-VO ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

Number TICs found: 0

CAS NO.	COMPOUND NAME	RT	EST. CONC.	Q

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW-15IA

Lab Name: UPSTATE LABS INC. Contract: CHA

Lab Code: 10170 Case No.: _____ SAS No.: _____ SDG No.: CHA78

Matrix: (soil/water) WATER Lab Sample ID: U0701392-004K

Sample wt/vol: 1000 (g/ml) ML Lab File ID: AE3301.D

Level: (low/med) LOW Date Received: 1/24/07

% Moisture: _____ decanted:(Y/N) N Date Extracted: 1/25/07

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 2/20/07

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: _____

CONCENTRATION UNITS:

CAS NO.	COMPOUND	(ug/L or ug/Kg) UG/L	Q
10595-95-6	N-Nitrosomethethylamine	10	U
66-27-3	Methyl methanesulfonate	10	U
111-44-4	Bis(2-chloroethyl)ether	10	U
55-18-5	N-Nitrosodiethylamine	20	U
62-50-0	Ethyl methanesulfonate	20	U
108-95-2	Phenol	10	U
95-53-4	o-Toluidine	10	U
930-55-2	N-Nitrosopyrrolidine	40	U
95-57-8	2-Chlorophenol	10	U
98-86-2	Acetophenone	10	U
100-75-4	N-Nitrosopiperdine	20	U
126-68-1	O,O,O-Triethylphosphorothioate	10	U
1888-71-7	Hexachloropropene	10	U
87-65-0	2,6-Dichlorophenol	10	U
95-48-7	2-Methylphenol	10	U
67-72-1	Hexachloroethane	10	U
924-16-3	N-Nitroso-di-n-butylamine	10	U
621-64-7	N-Nitrosodi-n-propylamine	10	U
106-50-3	p-Phenylenediamine	10	U
106-44-5	(3+4)-Methylphenol	10	U
94-59-7	Safrole	10	U
95-94-3	1,2,4,5-Tetrachlorobenzene	10	U
98-95-3	Nitrobenzene	10	U
120-58-1	Isosafrole	10	U
78-59-1	Isophorone	10	U
130-15-4	1,4-Naphthoquinone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethylphenol	10	U
58-90-2	2,3,4,6-Tetrachlorophenol	10	U
111-91-1	Bis(2-chloroethoxy)methane	10	U
134-32-7	1-Naphthylamine	10	U
120-83-2	2,4-Dichlorophenol	10	U
608-93-5	Pentachlorobenzene	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U
91-20-3	Naphthalene	10	U
99-55-8	5-Nitro-o-toluidine	10	U
106-47-8	4-Chloroaniline	10	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW-15IA

Lab Name: UPSTATE LABS INC. Contract: CHA

Lab Code: 10170 Case No.: SAS No.: SDG No.: CHA78

Matrix: (soil/water) WATER Lab Sample ID: U0701392-004K

Sample wt/vol: 1000 (g/ml) ML Lab File ID: AE3301.D

Level: (low/med) LOW Date Received: 1/24/07

% Moisture: decanted:(Y/N) N Date Extracted: 1/25/07

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 2/20/07

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH:

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
297-97-2	Thionazin	20	U
87-68-3	Hexachlorobutadiene	10	U
122-39-4	Diphenylamine	10	U
59-50-7	4-Chloro-3-methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
99-35-4	1,3,5-Trinitrobenzene	10	U R
62-44-2	Phenacetin	20	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
60-51-5	Dimethoate	10	U
95-95-4	2,4,5-Trichlorophenol	25	U
92-67-1	4-Aminobiphenyl	20	U
82-68-8	Pentachloronitrobenzene	20	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	25	U
298-04-4	Disulfoton	10	U
208-96-8	Acenaphthylene	10	U
	Diallate	20	U
23950-58-5	Pronamide	10	U
131-11-3	Dimethyl phthalate	10	U
298-0-0	Methyl parathion	10	U
606-20-2	2,6-Dinitrotoluene	10	U
83-32-9	Acenaphthene	10	U
99-09-2	3-Nitroaniline	25	U
298-02-2	Phorate	10	U
51-28-5	2,4-Dinitrophenol	25	U R
91-80-5	Methapyrilene	100	U
465-73-6	Isodrin	20	U
132-64-9	Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene	10	U
100-02-7	4-Nitrophenol	25	U
510-15-6	Chlorobenzilate	10	U
60-11-7	Dimethylaminoazobenzene	10	U
86-73-7	Fluorene	10	U
7005-72-3	4-Chlorophenyl phenyl ether	10	U
119-93-7	3,3'-Dimethylbenzidine	10	U
52-85-7	Famphur	20	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW-15IA

Lab Name: UPSTATE LABS INC. Contract: CHA

Lab Code: 10170 Case No.: SAS No.: SDG No.: CHA78

Matrix: (soil/water) WATER Lab Sample ID: U0701392-004K

Sample wt/vol: 1000 (g/ml) ML Lab File ID: AE3301.D

Level: (low/med) LOW Date Received: 1/24/07

% Moisture: decanted:(Y/N) N Date Extracted: 1/25/07

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 2/20/07

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH:

CONCENTRATION UNITS:

CAS NO.	COMPOUND	(ug/L or ug/Kg) UG/L	Q
84-66-2	Diethyl phthalate	10	U
100-01-6	4-Nitroaniline	25	U
53-96-3	2-Acetylaminofluorene	20	U
57-97-6	7,12-Dimethylbenz(a)anthracene	10	U
534-52-1	4,6-Dinitro-2-methylphenol	25	U R
56-49-3	3-Methylcholanthrene	10	U
86-30-6	N-Nitrosodiphenylamine	10	U
101-55-3	4-Bromophenyl phenyl ether	10	U
118-74-1	Hexachlorobenzene	10	U
87-86-5	Pentachlorophenol	25	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
84-74-2	Di-n-butyl phthalate	10	U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
85-68-7	Butyl benzyl phthalate	10	U
91-94-1	3,3'-Dichlorobenzidine	10	U
218-01-9	Chrysene	10	U
117-81-7	Bis(2-ethylhexyl)phthalate	4	JB U
117-84-0	Di-n-octyl phthalate	10	U
205-99-2	Benzo(b)fluoranthene	10	U
207-08-9	Benzo(k)fluoranthene	10	U
50-32-8	Benzo(a)pyrene	10	U
193-39-5	Indeno(1,2,3-cd)pyrene	10	U
53-70-3	Dibenz(a,h)anthracene	10	U
191-24-2	Benzo(ghi)perylene	10	U
100-51-6	Benzyl alcohol	10	U
	Bis(2-chloroisopropyl)ether	10	U
	Kepone	25	U R
62-75-9	N-nitrosodimethylamine	10	U

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

MW-15IA

Lab Name: UPSTATE LABS INC. Contract: CHA

Lab Code: 10170 Case No.: _____ SAS No.: _____ SDG No.: CHA78

Matrix: (soil/water) WATER Lab Sample ID: U0701392-004K

Sample wt/vol: 1000 (g/ml) ML Lab File ID: AE3301.D

Level: (low/med) LOW Date Received: 1/24/07

% Moisture: _____ decanted: (Y/N) N Date Extracted: 1/25/07

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 2/20/07

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: _____

Number TICs found: 15

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 027193-28-8	Phenol, (1,1,3,3-tetramethylbutyl)	18.37	5	JN
2.	unknown	18.44	7	J
3. 000104-40-5	4-Nonylphenol	18.51	5	JN
4.	unknown	18.55	2	J
5.	unknown	18.62	3	J
6.	unknown	18.71	4	J
7.	unknown	18.78	4	J
8.	unknown	21.77	50	J
9. 000629-54-9	Hexadecanamide	22.01	18	JN
10.	unknown	23.00	3	J
11. 000301-02-0	9-Octadecenamide, (Z)-	23.27	91	JN
12. 000638-58-4	Tetradecanamide	23.41	13	JN
13.	unknown	24.78	3	J
14. 000112-84-5	Erucylamide	25.76	150	JN
15. 007683-64-9	Squalene	25.91	8	JN

1 D

PESTICIDE ANALYSIS DATA SHEET

NYSDEC SAMPLE NO.

MW-15IA

Lab Name:	Upsate Labs Inc.	Contract:	CHA
Lab Code:	10170	Case No:	
SAS No:		SDG No.	CHA-78
Matrix: (soil/water)	Water	Lab Sample ID:	701392-4
Sample wt/vol:	1000 (g/mL) ml	Lab File ID:	GA-3760
% Solids		Date Recieved:	1/24/07
Extraction: (SepF/Cont/Sonc)	SepF.	Date Extracted:	1/26/07
Concentrated Extract Volume:	10	Date Analyzed:	2/8/07
Injection Volume:	1	Time Analyzed:	6:45 PM
GPC Cleanup: (Y/N)	N	Dilution Factor:	1
		Sulfur Cleanup:	Y

CONCENTRATION UNITS:

CAS NO.	COMPOUND	ug/kg	Q
319-84-6	Alpha-BHC	0.05	U
319-85-7	Beta-BHC	0.05	U
319-86-8	Delta-BHC	0.05	U
58-89-9	Lindane	0.05	U
76-44-8	Heptachlor	0.05	U
309-00-2	Aldrin	0.05	U
1024-57-3	Heptachlor epoxide	0.05	U
959-98-8	Endosulfan I	0.05	U
60-57-1	Dieldrin	0.1	U
72-55-9	4,4'-DDE	0.1	U
72-20-8	Endrin	0.1	U
33213-65-9	Endosulfan II	0.1	U
72-54-8	4,4'-DDD	0.1	U
1031-07-8	Endosulfan sulfate	0.1	U
50-29-3	4,4'-DDT	0.1	U
72-43-5	Methoxychlor	0.5	U
53494-70-5	Endrin Ketone	0.1	U
7421-36-3	Endrin Aldehyde	0.1	U
5103-71-9	Alpha-chlordane	0.05	U
5103-74-2	Gamma-chlordane	0.05	U
8001-35-2	Toxaphene	5	U
12674-11-2	Aroclor 1016	1	U
11104-28-2	Aroclor 1221	1	U
11141-16-5	Aroclor 1232	1	U
53469-21-9	Aroclor 1242	1	U
12672-29-6	Aroclor 1248	1	U
11097-69-1	Aroclor 1254	1	U
11096-82-5	Aroclor 1260	1	U

FORM I-CLP-PEST

1A

HERBICIDE ANALYSIS DATA SHEET

NYSDEC SAMPLE NO

MW-15IA

Lab Name	Upsate Labs Inc.	Contract:	CHA
Lab Code:	10170	Case No:	
SAS No:		SDG No.	CHA-78
Matrix: (soil/water)	Water	Lab Sample ID:	701392-4
Sample wt/vol:	1000 (g/mL) ML	Lab File ID:	GA-3758
% Solids		Date Recieved:	1/24/07
Extraction: (SepF/Cont/Sonc)	Sep. F	Date Extracted:	2/2/07
Concentrated Extract Volume:	10	Date Analyzed:	2/5/07
Injection Volume:	1	Time Analyzed:	7:49 PM
GPC Cleanup: (Y/N)	N	Dilution Factor:	10
		Sulfur Cleanup:	Y

CONCENTRATION UNITS:

CAS NO.	COMPOUND	ug/L	Q
94-75-7	2,4-D	1.0	U J
93-72-1	2,4,5-TP (Silvex)	1.0	U J
	2,4,5-T (Silvex)	1.0	U J
	Dinoseb	1.0	U J
	Dicamba	1.0	U J

FORM I-HERB

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

CLIENT SAMP ID

MW-15IA

Lab Name: Upstate Laboratories, Inc. Contract:

Lab Code: 10170 Case No. SAS No.: SDG No.: CHA78

Matrix (soil/water): WATER Lab Sample ID: U0701392-004

Level (low/med): LOW Date Received: 1/24/07

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	5240		*J	P
7440-36-0	Antimony	15.0	U		P
7440-38-2	Arsenic	10.0	U		P
7440-39-3	Barium	138	B		P
7440-41-7	Beryllium	3.0	U		P
7440-42-8	Boron	500	U		P
7440-43-9	Cadmium	5.0	U		P
7440-70-2	Calcium	75400			P
7440-47-3	Chromium	6.8	B		P
7440-48-4	Cobalt	20.0	U		P
7440-50-8	Copper	15.7	B		P
57-12-5	Cyanide	10.0	U		C
471-34-1	Hardness, T	246000			P
7439-89-6	Iron	11200			P
7439-92-1	Lead	5.7			P
7439-95-4	Magnesium	14100			P
7439-96-5	Manganese	452			P
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel	30.0	U		P
7440-09-7	Potassium	1620	B		P
7782-49-2	Selenium	5.0	U		P
7440-22-4	Silver	10.0	U		P
7440-23-5	Sodium	7970			P
7440-28-0	Thallium	10.0	U		P
7440-31-5	Tin	300	U		P
7440-62-2	Vanadium	30.0	U		P
7440-66-6	Zinc	54.2		N*J	P

Color Before: GREY Clarity Before: CLOUDY Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts: YES

Comments:

Brown Sediment

Upstate Laboratories, Inc.

Date: *26-Feb-07*

CLIENT:	Clough, Harbour & Assoc. LLP	**Client Sample ID:**	MW-15IA
Lab Order:	U0701392	**Collection Date:**	1/23/2007 3:00:00 PM
Project:	C/O Albany Interim Landfill New		
Lab ID:	U0701392-004	**Matrix:**	GROUNDWATER

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
INORGANIC ANIONS BY IC FOR WATERS		E300.1				Analyst: DD
Bromide	ND	2.0		mg/L	10	2/16/2007
NOTES: The reporting limits were raised due to matrix interference.						
COLOR		E110.2				Analyst: MG
Color	20.0	5.00		UNITS	1	1/24/2007 8:00:00 AM
RESIDUE, DISSOLVED (TDS)		E160.1				Analyst: NJS
Residue, Dissolved (TDS)	225	25	J	mg/L	1	1/28/2007
TURBIDITY		E180.1				Analyst: NJS
Turbidity	35.5	0.050		NTU	1	1/24/2007 12:15:00 PM
ALKALINITY ON AQUEOUS SAMPLES BY LACHA		E310.2				Analyst: SAR
Alkalinity, Total (As CaCO3)	140	10		mg/LCaCO3	1	1/26/2007
CHLORIDE WATERS BY LACHAT		E325.2				Analyst: SAR
Chloride	30.0	1.00		mg/L	1	1/26/2007
CYANIDE, TOTAL ASP		E335.2		(E335.2)		Analyst: BY
Cyanide	ND	10.0		µg/L	1	1/30/2007
NITROGEN, AMMONIA (AS N)		E350.2				Analyst: MG
Nitrogen, Ammonia (As N)	ND	0.500		mg/L	1	2/2/2007
TKN FOR WATERS		E351.3				Analyst: MG
Nitrogen, Kjeldahl, Total	ND	0.500		mg/L	1	2/2/2007
NITROGEN, NITRATE (AS N)		E353.2				Analyst: BY
Nitrogen, Nitrate (as N)	ND	0.200		mg/L	1	1/24/2007 3:56:00 PM
SULFATE		E375.4				Analyst: NJS
Sulfate	37.2	5.00		mg/L	1	2/1/2007
SULFIDE, WATERS		E376.2				Analyst: BY
Sulfide	ND	0.100		mg/L	1	1/26/2007
BIOCHEMICAL OXYGEN DEMAND (5 DAY BOD)		E405.1				Analyst: BS
Biochemical Oxygen Demand	4	4	J	mg/L	1	1/24/2007 6:00:00 AM
CHEMICAL OXYGEN DEMAND (COD)		E410.4				Analyst: BS
Chemical Oxygen Demand	ND	20		mg/L	1	2/9/2007
TOTAL ORGANIC CARBON (TOC)		E415.1				Analyst: BS
Organic Carbon, Total	3.0	3.0		mg/L	1	2/9/2007

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Approved By: _____ **Date:** _____

Qualifiers:

*	Low Level	**	Value exceeds Maximum Contaminant Value
B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	S	Spike Recovery outside accepted recovery limits

Upstate Laboratories, Inc.

Date: *26-Feb-07*

CLIENT:	Clough, Harbour & Assoc. LLP	**Client Sample ID:**	MW-15IA
Lab Order:	U0701392	**Collection Date:**	1/23/2007 3:00:00 PM
Project:	C/O Albany Interim Landfill New		
Lab ID:	U0701392-004	**Matrix:**	GROUNDWATER

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
PHENOLICS, TOTAL REC. FOR WATERS		**E420.1**		**(E420.1)**		Analyst: **SAR**
Phenolics, Total Recoverable	ND	0.005		mg/L	1	2/5/2007
HEXAVALENT CHROMIUM BY ASP 2005		**SM3500**				Analyst: **MG**
Hexavalent chromium	ND	0.010		mg/L	1	1/24/2007 8:00:00 AM

-46-

Approved By: _____ **Date:** _____

Qualifiers:

*	Low Level	**	Value exceeds Maximum Contaminant Value
B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	S	Spike Recovery outside accepted recovery limits

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW-15IB

Lab Name: Upstate Labs Inc. Contract: CHA

Lab Code: 10170 Case No.: SAS No.: SDG No.: CHA78

Matrix: (soil/water) WATER Lab Sample ID: U0701392-005L

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: C16649.D

Level: (low/med) LOW Date Received: 1/24/07

% Moisture: not dec. Date Analyzed: 2/3/07

GC Column: RTX-VO ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND	(ug/L or ug/Kg) UG/L	Q
75-71-8	Dichlorodifluoromethane	5	U
74-87-3	Chloromethane	5	U
75-1-4	Vinyl Chloride	5	U
74-83-9	Bromomethane	5	U
75-00-3	Chloroethane	5	U
75-69-4	Trichlorofluoromethane	5	U
107-02-8	Acrolein	100	U R
67-64-1	Acetone	10	U
75-35-4	1,1-Dichloroethene	5	U
75-05-8	Acetonitrile	100	U R
74-88-4	Iodomethane	5	U
107-05-1	Allyl Chloride	5	U
75-15-0	Carbon Disulfide	5	U
75-09-2	Methylene Chloride	5	U
107-13-1	Acrylonitrile	100	U R
156-60-5	trans-1,2-Dichloroethene	5	U
75-34-33	1,1-Dichloroethane	5	U
108-5-4	Vinyl Acetate	50	U
126-99-8	Chloroprene	10	U
78-93-3	2-Butanone	10	U
107-12-0	Propionitrile	100	U R
594-20-7	2,2-Dichloropropane	5	U
156-59-2	cis-1,2-Dichloroethene	5	U
126-98-7	Methacrylonitrile	10	U
67-66-3	Chloroform	5	U
74-97-5	Bromochloromethane	5	U
78-83-1	Isobutyl Alcohol	1000	U R
71-55-6	1,1,1-Trichloroethane	5	U
563-58-6	1,1-Dichloropropene	5	U
56-23-5	Carbon Tetrachloride	5	U
71-43-2	Benzene	5	U
107-06-2	1,2-Dichloroethane	5	U
97-01-6	Trichloroethene	5	U
78-87-5	1,2-Dichloropropane	5	U
80-62-6	Methyl Methacrylate	10	U
75-27-4	Bromodichloromethane	5	U
74-95-3	Dibromomethane	5	U
108-10-1	4-Methyl-2-pentanone	10	U
10061-1-5	cis-1,3-Dichloropropene	5	U

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW-15IB

Lab Name: Upstate Labs Inc. Contract: CHA

Lab Code: 10170 Case No.: _____ SAS No.: _____ SDG No.: CHA78

Matrix: (soil/water) WATER Lab Sample ID: U0701392-005L

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: C16649.D

Level: (low/med) LOW Date Received: 1/24/07

% Moisture: not dec. _____ Date Analyzed: 2/3/07

GC Column: RTX-VO ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND	(ug/L or ug/Kg) UG/L	Q
108-88-3	Toluene	5	U
10061-2-6	trans-1,3-Dichloropropene	5	U
97-63-2	Ethyl Methacrylate	10	U
79-00-5	1,1,2-Trichloroethane	5	U
591-78-6	2-Hexanone	10	U
142-28-9	1,3-Dichloropropane	5	U
127-18-4	Tetrachloroethene	5	U
124-48-1	Dibromochloromethane	5	U
106-93-4	1,2-Dibromoethane	5	U
108-90-7	Chlorobenzene	5	U
630-20-6	1,1,1,2-Tetrachloroethane	5	U
100-41-4	Ethylbenzene	5	U
108-38-3	m,p-Xylene	5	U
95-47-6	o-Xylene	5	U
100-42-5	Styrene	5	U
75-25-2	Bromoform	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
96-18-4	1,2,3-Trichloropropane	5	U
110-57-6	1,4-Dichloro-2-butene	10	U
541-73-1	1,3-Dichlorobenzene	5	U
106-46-7	1,4-Dichlorobenzene	5	U
95-50-1	1,2-Dichlorobenzene	5	U
96-12-8	1,2-Dibromo-3-chloro-propane	10	U

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

MW-15IB

Lab Name: Upstate Labs Inc. Contract: CHA

Lab Code: 10170 Case No.: _____ SAS No.: _____ SDG No.: CHA78

Matrix: (soil/water) WATER Lab Sample ID: U0701392-005L

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: C16649.D

Level: (low/med) LOW Date Received: 1/24/07

% Moisture: not dec. _____ Date Analyzed: 2/3/07

GC Column: RTX-VO ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

Number TICs found: 0

CAS NO.	COMPOUND NAME	RT	EST. CONC.	Q

1B

EPA SAMPLE NO.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

MW-15IB

Lab Name: UPSTATE LABS INC. Contract: CHA

Lab Code: 10170 Case No.: _____ SAS No.: _____ SDG No.: CHA78

Matrix: (soil/water) WATER Lab Sample ID: U0701392-005K

Sample wt/vol: 1000 (g/ml) ML Lab File ID: AE3302.D

Level: (low/med) LOW Date Received: 1/24/07

% Moisture: _____ decanted:(Y/N) N Date Extracted: 1/25/07

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 2/20/07

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: _____

CONCENTRATION UNITS:

CAS NO.	COMPOUND	(ug/L or ug/Kg) UG/L	Q
10595-95-6	N-Nitrosomethethylamine	10	U
66-27-3	Methyl methanesulfonate	10	U
111-44-4	Bis(2-chloroethyl)ether	10	U
55-18-5	N-Nitrosodiethylamine	20	U
62-50-0	Ethyl methanesulfonate	20	U
108-95-2	Phenol	10	U
95-53-4	o-Toluidine	10	U
930-55-2	N-Nitrosopyrrolidine	40	U
95-57-8	2-Chlorophenol	10	U
98-86-2	Acetophenone	10	U
100-75-4	N-Nitrosopiperdine	20	U
126-68-1	O,O,O-Triethylphosphorothioate	10	U
1888-71-7	Hexachloropropene	10	U
87-65-0	2,6-Dichlorophenol	10	U
95-48-7	2-Methylphenol	10	U
67-72-1	Hexachloroethane	10	U
924-16-3	N-Nitroso-di-n-butylamine	10	U
621-64-7	N-Nitrosodi-n-propylamine	10	U
106-50-3	p-Phenylenediamine	10	U
106-44-5	(3+4)-Methylphenol	10	U
94-59-7	Safrole	10	U
95-94-3	1,2,4,5-Tetrachlorobenzene	10	U
98-95-3	Nitrobenzene	10	U
120-58-1	Isosafrole	10	U
78-59-1	Isophorone	10	U
130-15-4	1,4-Naphthoquinone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethylphenol	10	U
58-90-2	2,3,4,6-Tetrachlorophenol	10	U
111-91-1	Bis(2-chloroethoxy)methane	10	U
134-32-7	1-Naphthylamine	10	U
120-83-2	2,4-Dichlorophenol	10	U
608-93-5	Pentachlorobenzene	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U
91-20-3	Naphthalene	10	U
99-55-8	5-Nitro-o-toluidine	10	U
106-47-8	4-Chloroaniline	10	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW-15IB

Lab Name: UPSTATE LABS INC. Contract: CHA

Lab Code: 10170 Case No.: SAS No.: SDG No.: CHA78

Matrix: (soil/water) WATER Lab Sample ID: U0701392-005K

Sample wt/vol: 1000 (g/ml) ML Lab File ID: AE3302.D

Level: (low/med) LOW Date Received: 1/24/07

% Moisture: decanted:(Y/N) N Date Extracted: 1/25/07

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 2/20/07

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH:

CONCENTRATION UNITS:

CAS NO.	COMPOUND	(ug/L or ug/Kg) UG/L	Q
297-97-2	Thionazin	20	U
87-68-3	Hexachlorobutadiene	10	U
122-39-4	Diphenylamine	10	U
59-50-7	4-Chloro-3-methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
99-35-4	1,3,5-Trinitrobenzene	10	U R
62-44-2	Phenacetin	20	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
60-51-5	Dimethoate	10	U
95-95-4	2,4,5-Trichlorophenol	25	U
92-67-1	4-Aminobiphenyl	20	U
82-68-8	Pentachloronitrobenzene	20	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	25	U
298-04-4	Disulfoton	10	U
208-96-8	Acenaphthylene	10	U
	Diallate	20	U
23950-58-5	Pronamide	10	U
131-11-3	Dimethyl phthalate	10	U
298-0-0	Methyl parathion	10	U
606-20-2	2,6-Dinitrotoluene	10	U
83-32-9	Acenaphthene	10	U
99-09-2	3-Nitroaniline	25	U
298-02-2	Phorate	10	U
51-28-5	2,4-Dinitrophenol	25	U R
91-80-5	Methapyrilene	100	U
465-73-6	Isodrin	20	U
132-64-9	Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene	10	U
100-02-7	4-Nitrophenol	25	U
510-15-6	Chlorobenzilate	10	U
60-11-7	Dimethylaminoazobenzene	10	U
86-73-7	Fluorene	10	U
7005-72-3	4-Chlorophenyl phenyl ether	10	U
119-93-7	3,3'-Dimethylbenzidine	10	U
52-85-7	Famphur	20	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW-15IB

Lab Name: UPSTATE LABS INC. Contract: CHA

Lab Code: 10170 Case No.: _____ SAS No.: _____ SDG No.: CHA78

Matrix: (soil/water) WATER Lab Sample ID: U0701392-005K

Sample wt/vol: 1000 (g/ml) ML Lab File ID: AE3302.D

Level: (low/med) LOW Date Received: 1/24/07

% Moisture: _____ decanted:(Y/N) N Date Extracted: 1/25/07

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 2/20/07

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: _____

CONCENTRATION UNITS:

CAS NO.	COMPOUND	(ug/L or ug/Kg) UG/L	Q
84-66-2	Diethyl phthalate	10	U
100-01-6	4-Nitroaniline	25	U
53-96-3	2-Acetylaminofluorene	20	U
57-97-6	7,12-Dimethylbenz(a)anthracene	10	U
534-52-1	4,6-Dinitro-2-methylphenol	25	U R
56-49-3	3-Methylcholanthrene	10	U
86-30-6	N-Nitrosodiphenylamine	10	U
101-55-3	4-Bromophenyl phenyl ether	10	U
118-74-1	Hexachlorobenzene	10	U
87-86-5	Pentachlorophenol	25	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
84-74-2	Di-n-butyl phthalate	10	U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
85-68-7	Butyl benzyl phthalate	10	U
91-94-1	3,3'-Dichlorobenzidine	10	U
218-01-9	Chrysene	10	U
117-81-7	Bis(2-ethylhexyl)phthalate	3	~~JB~~ U
117-84-0	Di-n-octyl phthalate	10	U
205-99-2	Benzo(b)fluoranthene	10	U
207-08-9	Benzo(k)fluoranthene	10	U
50-32-8	Benzo(a)pyrene	10	U
193-39-5	Indeno(1,2,3-cd)pyrene	10	U
53-70-3	Dibenz(a,h)anthracene	10	U
191-24-2	Benzo(ghi)perylene	10	U
100-51-6	Benzyl alcohol	10	U
	Bis(2-chloroisopropyl)ether	10	U
	Kepone	25	U R
62-75-9	N-nitrosodimethylamine	10	U

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

MW-15IB

Lab Name: UPSTATE LABS INC. Contract: CHA

Lab Code: 10170 Case No.: _____ SAS No.: _____ SDG No.: CHA78

Matrix: (soil/water) WATER Lab Sample ID: U0701392-005K

Sample wt/vol: 1000 (g/ml) ML Lab File ID: AE3302.D

Level: (low/med) LOW Date Received: 1/24/07

% Moisture: _____ decanted: (Y/N) N Date Extracted: 1/25/07

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 2/20/07

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: _____

CONCENTRATION UNITS:

Number TICs found: 15 (ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 000112-34-5	Ethanol, 2-(2-butoxyethoxy)-	13.11	21	JN
2. 025154-52-3	Phenol, nonyl-	18.45	2	JN
3.	unknown	21.41	2	J
4.	unknown	21.69	8	J
5.	unknown	22.00	4	J
6.	unknown	23.10	2	J
7.	unknown	23.15	6	J
8. 000301-02-0	9-Octadecenamide, (Z)-	23.25	25	JN
9.	unknown	23.43	8	J
10.	unknown	24.73	4	J
11.	unknown	24.78	5	J
12.	unknown	24.83	2	J
13. 000112-84-5	Erucylamide	25.75	49	JN
14. 007683-64-9	Squalene	25.91	36	JN
15.	unknown	26.29	15	J

1 D

PESTICIDE ANALYSIS DATA SHEET

NYSDEC SAMPLE NO.

MW-15IB

Lab Name:	Upsate Labs Inc.	Contract:	CHA
Lab Code:	10170	Case No:	
SAS No:		SDG No	CHA-78
Matrix: (soil/water)	Water	Lab Sample ID:	701392-5
Sample wt/vol:	1000 (g/mL) ml	Lab File ID:	GA-3760
% Solids		Date Recieved:	1/24/07
Extraction: (SepF/Cont/Sonc)	SepF.	Date Extracted:	1/26/07
Concentrated Extract Volume:	10	Date Analyzed:	2/8/07
Injection Volume:	1	Time Analyzed:	7:07 PM
GPC Cleanup: (Y/N)	N	Dilution Factor:	1
		Sulfur Cleanup:	Y

CONCENTRATION UNITS:

CAS NO.	COMPOUND	ug/kg	Q
319-84-6	Alpha-BHC	0.05	U
319-85-7	Beta-BHC	0.05	U
319-86-8	Delta-BHC	0.05	U
58-89-9	Lindane	0.05	U
76-44-8	Heptachlor	0.05	U
309-00-2	Aldrin	0.05	U
1024-57-3	Heptachlor epoxide	0.05	U
959-98-8	Endosulfan I	0.05	U
60-57-1	Dieldrin	0.1	U
72-55-9	4,4'-DDE	0.1	U
72-20-8	Endrin	0.1	U
33213-65-9	Endosulfan II	0.1	U
72-54-8	4,4'-DDD	0.1	U
1031-07-8	Endosulfan sulfate	0.1	U
50-29-3	4,4'-DDT	0.1	U
72-43-5	Methoxychlor	0.5	U
53494-70-5	Endrin Ketone	0.1	U
7421-36-3	Endrin Aldehyde	0.1	U
5103-71-9	Alpha-chlordane	0.05	U
5103-74-2	Gamma-chlordane	0.05	U
8001-35-2	Toxaphene	5	U
12674-11-2	Aroclor 1016	1	U
11104-28-2	Aroclor 1221	1	U
11141-16-5	Aroclor 1232	1	U
53469-21-9	Aroclor 1242	1	U
12672-29-6	Aroclor 1248	1	U
11097-69-1	Aroclor 1254	1	U
11096-82-5	Aroclor 1260	1	U

FORM I-CLP-PEST

1A

HERBICIDE ANALYSIS DATA SHEET

NYSDEC SAMPLE NO

MW-15IB

Lab Name:	Upsate Labs Inc.	Contract:	CHA		
Lab Code:	10170	Case No:		SAS No:	SDG No. CHA-78
Matrix: (soil/water)	Water			Lab Sample ID:	701392-5
Sample wt/vol:	1000 (g/mL) ML			Lab File ID:	GA-3758
% Solids				Date Recieved:	1/24/07
Extraction. (SepF/Cont/Sonc)	Sep. F			Date Extracted:	2/2/07
Concentrated Extract Volume.	10			Date Analyzed:	2/5/07
Injection Volume.	1			Time Analyzed:	8:17 PM
GPC Cleanup: (Y/N)	N			Dilution Factor:	10
				Sulfur Cleanup.	Y

CONCENTRATION UNITS:

CAS NO	COMPOUND	ug/L	Q
94-75-7	2,4-D	1.0	U J
93-72-1	2 4,5-TP (Silvex)	1 0	U J
	2 4,5-T (Silvex)	1.0	U J
	Dinoseb	1.0	U J
	Dicamba	1.0	U J

FORM I-HERB

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

CLIENT SAMP ID

MW-15-IB

Lab Name: Upstate Laboratories, Inc. Contract:

Lab Code: 10170 Case No. SAS No.: SDG No.: CHA78

Matrix (soil/water): WATER Lab Sample ID: U0701392-005

Level (low/med): LOW Date Received: 1/24/07

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	6520		*J	P
7440-36-0	Antimony	15.0	U		P
7440-38-2	Arsenic	10.0	U		P
7440-39-3	Barium	159	B		P
7440-41-7	Beryllium	3.0	U		P
7440-42-8	Boron	500	U		P
7440-43-9	Cadmium	5.0	U		P
7440-70-2	Calcium	96900			P
7440-47-3	Chromium	8.9	B		P
7440-48-4	Cobalt	20.0	U		P
7440-50-8	Copper	16.2	B		P
57-12-5	Cyanide	10.0	U		C
471-34-1	Hardness, T	320000			P
7439-89-6	Iron	15400			P
7439-92-1	Lead	6.2			P
7439-95-4	Magnesium	18800			P
7439-96-5	Manganese	630			P
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel	30.0	U		P
7440-09-7	Potassium	1590	B		P
7782-49-2	Selenium	5.0	U		P
7440-22-4	Silver	10.0	U		P
7440-23-5	Sodium	9110			P
7440-28-0	Thallium	10.0	U		P
7440-31-5	Tin	300	U		P
7440-62-2	Vanadium	30.0	U		P
7440-66-6	Zinc	70.5		N*J	P

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Color Before: BROWN Clarity Before: CLOUDY Texture:

Color After: YELLOW Clarity After: CLEAR Artifacts: YES

Comments:

Brown Sediment

Upstate Laboratories, Inc.

Date: *26-Feb-07*

CLIENT:	Clough, Harbour & Assoc. LLP	**Client Sample ID:**	MW-15-IB
Lab Order:	U0701392	**Collection Date:**	1/23/2007 3:15:00 PM
Project:	C/O Albany Interim Landfill New		
Lab ID:	U0701392-005	**Matrix:**	GROUNDWATER

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
INORGANIC ANIONS BY IC FOR WATERS		E300.1				Analyst: DD
Bromide	ND	2.0		mg/L	10	2/16/2007
NOTES: The reporting limits were raised due to matrix interference.						
COLOR		E110.2				Analyst: MG
Color	18.0	5.00		UNITS	1	1/24/2007 8:00:00 AM
RESIDUE, DISSOLVED (TDS)		E160.1				Analyst: NJS
Residue, Dissolved (TDS)	160	25	J	mg/L	1	1/29/2007
TURBIDITY		E180.1				Analyst: NJS
Turbidity	18.4	0.050		NTU	1	1/24/2007 12:15:00 PM
ALKALINITY ON AQUEOUS SAMPLES BY LACHA		E310.2				Analyst: SAR
Alkalinity, Total (As CaCO3)	140	10		mg/LCaCO3	1	1/26/2007
CHLORIDE WATERS BY LACHAT		E325.2				Analyst: SAR
Chloride	29.7	1.00		mg/L	1	1/26/2007
CYANIDE, TOTAL ASP		E335.2		(E335.2)		Analyst: BY
Cyanide	ND	10.0		µg/L	1	1/30/2007
NITROGEN, AMMONIA (AS N)		E350.2				Analyst: MG
Nitrogen, Ammonia (As N)	ND	0.500		mg/L	1	2/2/2007
TKN FOR WATERS		E351.3				Analyst: MG
Nitrogen, Kjeldahl, Total	ND	0.500		mg/L	1	2/2/2007
NITROGEN, NITRATE (AS N)		E353.2				Analyst: BY
Nitrogen, Nitrate (as N)	ND	0.200		mg/L	1	1/24/2007 3:56:00 PM
SULFATE		E375.4				Analyst: NJS
Sulfate	33.1	5.00		mg/L	1	2/1/2007
SULFIDE, WATERS		E376.2				Analyst: BY
Sulfide	ND	0.100		mg/L	1	1/26/2007
BIOCHEMICAL OXYGEN DEMAND (5 DAY BOD)		E405.1				Analyst: BS
Biochemical Oxygen Demand	5	4	J	mg/L	1	1/24/2007 6:00:00 AM
CHEMICAL OXYGEN DEMAND (COD)		E410.4				Analyst: BS
Chemical Oxygen Demand	ND	20		mg/L	1	2/9/2007
TOTAL ORGANIC CARBON (TOC)		E415.1				Analyst: BS
Organic Carbon, Total	3.0	3.0		mg/L	1	2/9/2007

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Approved By: _____ **Date:** _____

Qualifiers:

*	Low Level	**	Value exceeds Maximum Contaminant Value
B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	S	Spike Recovery outside accepted recovery limits

Upstate Laboratories, Inc.

Date: *26-Feb-07*

CLIENT:	Clough, Harbour & Assoc. LLP	**Client Sample ID:**	MW-15-IB
Lab Order:	U0701392	**Collection Date:**	1/23/2007 3:15:00 PM
Project:	C/O Albany Interim Landfill New		
Lab ID:	U0701392-005	**Matrix:**	GROUNDWATER

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
PHENOLICS, TOTAL REC. FOR WATERS		E420.1		(E420.1)		Analyst: SAR
Phenolics, Total Recoverable	ND	0.005		mg/L	1	2/5/2007
HEXAVALENT CHROMIUM BY ASP 2005		SM3500				Analyst: MG
Hexavalent chromium	ND	0.010		mg/L	1	1/24/2007 8:00:00 AM

Approved By: _____ **Date:** _____

Qualifiers:

*	Low Level	**	Value exceeds Maximum Contaminant Value
B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	S	Spike Recovery outside accepted recovery limits

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW-15DA

Lab Name: Upstate Labs Inc. Contract: CHA

Lab Code: 10170 Case No.: _____ SAS No.: _____ SDG No.: CHA78

Matrix: (soil/water) WATER Lab Sample ID: U0701392-006L

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: C16650.D

Level: (low/med) LOW Date Received: 1/24/07

% Moisture: not dec. _____ Date Analyzed: 2/3/07

GC Column: RTX-VO ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L

CAS NO.	COMPOUND		Q
75-71-8	Dichlorodifluoromethane	5	U
74-87-3	Chloromethane	5	U
75-1-4	Vinyl Chloride	5	U
74-83-9	Bromomethane	5	U
75-00-3	Chloroethane	5	U
75-69-4	Trichlorofluoromethane	5	U
107-02-8	Acrolein	100	U R
67-64-1	Acetone	10	U
75-35-4	1,1-Dichloroethene	5	U
75-05-8	Acetonitrile	100	U R
74-88-4	Iodomethane	5	U
107-05-1	Allyl Chloride	5	U
75-15-0	Carbon Disulfide	5	U
75-09-2	Methylene Chloride	5	U
107-13-1	Acrylonitrile	100	U R
156-60-5	trans-1,2-Dichloroethene	5	U
75-34-33	1,1-Dichloroethane	5	U
108-5-4	Vinyl Acetate	50	U
126-99-8	Chloroprene	10	U
78-93-3	2-Butanone	10	U
107-12-0	Propionitrile	100	U R
594-20-7	2,2-Dichloropropane	5	U
156-59-2	cis-1,2-Dichloroethene	5	U
126-98-7	Methacrylonitrile	10	U
67-66-3	Chloroform	5	U
74-97-5	Bromochloromethane	5	U
78-83-1	Isobutyl Alcohol	1000	U R
71-55-6	1,1,1-Trichloroethane	5	U
563-58-6	1,1-Dichloropropene	5	U
56-23-5	Carbon Tetrachloride	5	U
71-43-2	Benzene	5	U
107-06-2	1,2-Dichloroethane	5	U
97-01-6	Trichloroethene	5	U
78-87-5	1,2-Dichloropropane	5	U
80-62-6	Methyl Methacrylate	10	U
75-27-4	Bromodichloromethane	5	U
74-95-3	Dibromomethane	5	U
108-10-1	4-Methyl-2-pentanone	10	U
10061-1-5	cis-1,3-Dichloropropene	5	U

1A

EPA SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

MW-15DA

Lab Name: Upstate Labs Inc. Contract: CHA

Lab Code: 10170 Case No.: _____ SAS No.: _____ SDG No.: CHA78

Matrix: (soil/water) WATER Lab Sample ID: U0701392-006L

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: C16650.D

Level: (low/med) LOW Date Received: 1/24/07

% Moisture: not dec. _____ Date Analyzed: 2/3/07

GC Column: RTX-VO ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND (ug/L or ug/Kg) UG/L		Q
108-88-3	Toluene	5	U
10061-2-6	trans-1,3-Dichloropropene	5	U
97-63-2	Ethyl Methacrylate	10	U
79-00-5	1,1,2-Trichloroethane	5	U
591-78-6	2-Hexanone	10	U
142-28-9	1,3-Dichloropropane	5	U
127-18-4	Tetrachloroethene	5	U
124-48-1	Dibromochloromethane	5	U
106-93-4	1,2-Dibromoethane	5	U
108-90-7	Chlorobenzene	5	U
630-20-6	1,1,1,2-Tetrachloroethane	5	U
100-41-4	Ethylbenzene	5	U
108-38-3	m,p-Xylene	5	U
95-47-6	o-Xylene	5	U
100-42-5	Styrene	5	U
75-25-2	Bromoform	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
96-18-4	1,2,3-Trichloropropane	5	U
110-57-6	1,4-Dichloro-2-butene	10	U
541-73-1	1,3-Dichlorobenzene	5	U
106-46-7	1,4-Dichlorobenzene	5	U
95-50-1	1,2-Dichlorobenzene	5	U
96-12-8	1,2-Dibromo-3-chloro-propane	10	U

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

MW-15DA

Lab Name: Upstate Labs Inc. Contract: CHA

Lab Code: 10170 Case No.: _____ SAS No.: _____ SDG No.: CHA78

Matrix: (soil/water) WATER Lab Sample ID: U0701392-006L

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: C16650.D

Level: (low/med) LOW Date Received: 1/24/07

% Moisture: not dec. _____ Date Analyzed: 2/3/07

GC Column: RTX-VO ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

Number TICs found: 0

CAS NO.	COMPOUND NAME	RT	EST. CONC.	Q

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW-15DA

Lab Name: UPSTATE LABS INC. Contract: CHA

Lab Code: 10170 Case No.: _____ SAS No.: _____ SDG No.: CHA78

Matrix: (soil/water) WATER Lab Sample ID: U0701392-006K

Sample wt/vol: 1000 (g/ml) ML Lab File ID: AE3303.D

Level: (low/med) LOW Date Received: 1/24/07

% Moisture: _____ decanted:(Y/N) N Date Extracted: 1/25/07

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 2/20/07

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: _____

CONCENTRATION UNITS:

CAS NO.	COMPOUND	(ug/L or ug/Kg) UG/L	Q
10595-95-6	N-Nitrosomethethylamine	10	U
66-27-3	Methyl methanesulfonate	10	U
111-44-4	Bis(2-chloroethyl)ether	10	U
55-18-5	N-Nitrosodiethylamine	20	U
62-50-0	Ethyl methanesulfonate	20	U
108-95-2	Phenol	10	U
95-53-4	o-Toluidine	10	U
930-55-2	N-Nitrosopyrrolidine	40	U
95-57-8	2-Chlorophenol	10	U
98-86-2	Acetophenone	10	U
100-75-4	N-Nitrosopiperdine	20	U
126-68-1	O,O,O-Triethylphosphorothioate	10	U
1888-71-7	Hexachloropropene	10	U
87-65-0	2,6-Dichlorophenol	10	U
95-48-7	2-Methylphenol	10	U
67-72-1	Hexachloroethane	10	U
924-16-3	N-Nitroso-di-n-butylamine	10	U
621-64-7	N-Nitrosodi-n-propylamine	10	U
106-50-3	p-Phenylenediamine	10	U
106-44-5	(3+4)-Methylphenol	10	U
94-59-7	Safrole	10	U
95-94-3	1,2,4,5-Tetrachlorobenzene	10	U
98-95-3	Nitrobenzene	10	U
120-58-1	Isosafrole	10	U
78-59-1	Isophorone	10	U
130-15-4	1,4-Naphthoquinone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethylphenol	10	U
58-90-2	2,3,4,6-Tetrachlorophenol	10	U
111-91-1	Bis(2-chloroethoxy)methane	10	U
134-32-7	1-Naphthylamine	10	U
120-83-2	2,4-Dichlorophenol	10	U
608-93-5	Pentachlorobenzene	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U
91-20-3	Naphthalene	10	U
99-55-8	5-Nitro-o-toluidine	10	U
106-47-8	4-Chloroaniline	10	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW-15DA

Lab Name: UPSTATE LABS INC. Contract: CHA

Lab Code: 10170 Case No.: _____ SAS No.: _____ SDG No.: CHA78

Matrix: (soil/water) WATER Lab Sample ID: U0701392-006K

Sample wt/vol: 1000 (g/ml) ML Lab File ID: AE3303.D

Level: (low/med) LOW Date Received: 1/24/07

% Moisture: _____ decanted:(Y/N) N Date Extracted: 1/25/07

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 2/20/07

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: _____

CONCENTRATION UNITS:

CAS NO.	COMPOUND	(ug/L or ug/Kg) UG/L	Q
297-97-2	Thionazin	20	U
87-68-3	Hexachlorobutadiene	10	U
122-39-4	Diphenylamine	10	U
59-50-7	4-Chloro-3-methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
99-35-4	1,3,5-Trinitrobenzene	10	U R
62-44-2	Phenacetin	20	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
60-51-5	Dimethoate	10	U
95-95-4	2,4,5-Trichlorophenol	25	U
92-67-1	4-Aminobiphenyl	20	U
82-68-8	Pentachloronitrobenzene	20	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	25	U
298-04-4	Disulfoton	10	U
208-96-8	Acenaphthylene	10	U
	Diallate	20	U
23950-58-5	Pronamide	10	U
131-11-3	Dimethyl phthalate	10	U
298-0-0	Methyl parathion	10	U
606-20-2	2,6-Dinitrotoluene	10	U
83-32-9	Acenaphthene	10	U
99-09-2	3-Nitroaniline	25	U
298-02-2	Phorate	10	U
51-28-5	2,4-Dinitrophenol	25	U R
91-80-5	Methapyrilene	100	U
465-73-6	Isodrin	20	U
132-64-9	Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene	10	U
100-02-7	4-Nitrophenol	25	U
510-15-6	Chlorobenzilate	10	U
60-11-7	Dimethylaminoazobenzene	10	U
86-73-7	Fluorene	10	U
7005-72-3	4-Chlorophenyl phenyl ether	10	U
119-93-7	3,3'-Dimethylbenzidine	10	U
52-85-7	Famphur	20	U

1C

EPA SAMPLE NO.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

MW-15DA

Lab Name: UPSTATE LABS INC. Contract: CHA

Lab Code: 10170 Case No.: _____ SAS No.: _____ SDG No.: CHA78

Matrix: (soil/water) WATER Lab Sample ID: U0701392-006K

Sample wt/vol: 1000 (g/ml) ML Lab File ID: AE3303.D

Level: (low/med) LOW Date Received: 1/24/07

% Moisture: _____ decanted:(Y/N) N Date Extracted: 1/25/07

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 2/20/07

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: _____

CONCENTRATION UNITS:

CAS NO.	COMPOUND	(ug/L or ug/Kg) UG/L	Q
84-66-2	Diethyl phthalate	10	U
100-01-6	4-Nitroaniline	25	U
53-96-3	2-Acetylaminofluorene	20	U
57-97-6	7,12-Dimethylbenz(a)anthracene	10	U
534-52-1	4,6-Dinitro-2-methylphenol	25	U R
56-49-3	3-Methylcholanthrene	10	U
86-30-6	N-Nitrosodiphenylamine	10	U
101-55-3	4-Bromophenyl phenyl ether	10	U
118-74-1	Hexachlorobenzene	10	U
87-86-5	Pentachlorophenol	25	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
84-74-2	Di-n-butyl phthalate	10	U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
85-68-7	Butyl benzyl phthalate	10	U
91-94-1	3,3'-Dichlorobenzidine	10	U
218-01-9	Chrysene	10	U
117-81-7	Bis(2-ethylhexyl)phthalate	5	~~JB~~ U
117-84-0	Di-n-octyl phthalate	10	U
205-99-2	Benzo(b)fluoranthene	10	U
207-08-9	Benzo(k)fluoranthene	10	U
50-32-8	Benzo(a)pyrene	10	U
193-39-5	Indeno(1,2,3-cd)pyrene	10	U
53-70-3	Dibenz(a,h)anthracene	10	U
191-24-2	Benzo(ghi)perylene	10	U
100-51-6	Benzyl alcohol	10	U
	Bis(2-chloroisopropyl)ether	10	U
	Kepone	25	U R
62-75-9	N-nitrosodimethylamine	10	U

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1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

MW-15DA

Lab Name: UPSTATE LABS INC. Contract: CHA

Lab Code: 10170 Case No.: _____ SAS No.: _____ SDG No.: CHA78

Matrix: (soil/water) WATER Lab Sample ID: U0701392-006K

Sample wt/vol: 1000 (g/ml) ML Lab File ID: AE3303.D

Level: (low/med) LOW Date Received: 1/24/07

% Moisture: _____ decanted: (Y/N) N Date Extracted: 1/25/07

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 2/20/07

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: _____

Number TICs found: 20

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	unknown	18.38	5	J
2. 025154-52-3	Phenol, nonyl-	18.45	8	JN
3. 025154-52-3	Phenol, nonyl-	18.50	6	JN
4.	unknown	18.71	4	J
5.	unknown	18.78	4	J
6.	unknown	21.40	4	J
7.	unknown	21.62	4	J
8.	unknown	21.69	7	J
9.	unknown	21.74	6	J
10. 000629-54-9	Hexadecanamide	22.01	19	JN
11.	unknown	23.10	4	J
12.	unknown	23.15	6	J
13. 000301-02-0	9-Octadecenamide, (Z)-	23.27	150	JN
14. 000629-54-9	Hexadecanamide	23.40	20	JN
15.	unknown	24.73	7	J
16.	unknown	24.77	9	J
17.	unknown	24.83	4	J
18. 000112-84-5	Erucylamide	25.75	150	JN
19. 007683-64-9	Squalene	25.91	18	JN
20.	unknown	26.29	27	J

1 D

PESTICIDE ANALYSIS DATA SHEET

NYSDEC SAMPLE NO.

MW-15DA

Lab Name:	Upsate Labs Inc.	Contract:	CHA
Lab Code:	10170	Case No:	
SAS No:		SDG No	CHA-78
Matrix: (soil/water)	Water	Lab Sample ID:	701392-6
Sample wt/vol:	1000 (g/mL) ml	Lab File ID:	GA-3760
% Solids		Date Recieved:	1/24/07
Extraction: (SepF/Cont/Sonc)	SepF.	Date Extracted:	1/26/07
Concentrated Extract Volume:	10	Date Analyzed:	2/8/07
Injection Volume:	1	Time Analyzed:	8:14 PM
GPC Cleanup: (Y/N)	N	Dilution Factor:	1
		Sulfur Cleanup:	Y

CONCENTRATION UNITS:

CAS NO	COMPOUND	ug/L	Q
319-84-6	Alpha-BHC	0.05	U
319-85-7	Beta-BHC	0.05	U
319-86-8	Delta-BHC	0.05	U
58-89-9	Lindane	0.05	U
76-44-8	Heptachlor	0.05	U
309-00-2	Aldrin	0.05	U
1024-57-3	Heptachlor epoxide	0.05	U
959-98-8	Endosulfan I	0.05	U
60-57-1	Dieldrin	0.1	U
72-55-9	4,4'-DDE	0.1	U
72-20-8	Endrin	0.1	U
33213-65-9	Endosulfan II	0.1	U
72-54-8	4 4'-DDD	0.1	U
1031-07-8	Endosulfan sulfate	0.1	U
50-29-3	4,4'-DDT	0.1	U
72-43-5	Methoxychlor	0.5	U
53494-70-5	Endrin Ketone	0.1	U
7421-36-3	Endrin Aldehyde	0.1	U
5103-71-9	Alpha-chlordane	0.05	U
5103-74-2	Gamma-chlordane	0.05	U
8001-35-2	Toxaphene	5	U
12674-11-2	Aroclor 1016	1	U
11104-28-2	Aroclor 1221	1	U
11141-16-5	Aroclor 1232	1	U
53469-21-9	Aroclor 1242	1	U
12672-29-6	Aroclor 1248	1	U
11097-69-1	Aroclor 1254	1	U
11096-82-5	Aroclor 1260	1	U

FORM I-CLP-PEST

1A

HERBICIDE ANALYSIS DATA SHEET

NYSDEC SAMPLE NO.

MW-15DA

Lab Name	Upsate Labs Inc.		Contract: CHA		
Lab Code:	10170	Case No:		SAS No:	SDG No. CHA-78
Matrix: (soil/water)	Water			Lab Sample ID:	701392-6
Sample wt/vol:	1000 (g/mL)	ML		Lab File ID:	GA-3758
% Solids				Date Recieved:	1/24/07
Extraction: (SepF/Cont/Sonc)	Sep. F			Date Extracted:	2/2/07
Concentrated Extract Volume:	10			Date Analyzed:	2/5/07
Injection Volume:	1			Time Analyzed:	9:41 PM
GPC Cleanup: (Y/N)	N			Dilution Factor:	10
				Sulfur Cleanup:	Y

CONCENTRATION UNITS:

CAS NO.	COMPOUND	ug/L	Q
94-75-7	2,4-D	1.0	U J
93-72-1	2,4,5-TP (Silvex)	1.0	U J
	2,4,5-T (Silvex)	1.0	U J
	Dinoseb	1.0	U J
	Dicamba	1.0	U J

FORM I-HERB

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

CLIENT SAMP ID

MW-15DA

Lab Name: Upstate Laboratories, Inc. Contract:

Lab Code: 10170 Case No. SAS No.: SDG No.: CHA78

Matrix (soil/water): WATER Lab Sample ID: U0701392-006

Level (low/med): LOW Date Received: 1/24/07

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	139000		* J	P
7440-36-0	Antimony	15.0	U		P
7440-38-2	Arsenic	95.2			P
7440-39-3	Barium	951			P
7440-41-7	Beryllium	6.6			P
7440-42-8	Boron	500	U		P
7440-43-9	Cadmium	44.6			P
7440-70-2	Calcium	1460000		D	P
7440-47-3	Chromium	176			P
7440-48-4	Cobalt	141			P
7440-50-8	Copper	406			P
57-12-5	Cyanide	10.0	U		C
471-34-1	Hardness, T	5270000		D	P
7439-89-6	Iron	303000			P
7439-92-1	Lead	105			P
7439-95-4	Magnesium	246000			P
7439-96-5	Manganese	9540			P
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel	281			P
7440-09-7	Potassium	17100			P
7782-49-2	Selenium	5.0	U		P
7440-22-4	Silver	10.0	U		P
7440-23-5	Sodium	10800			P
7440-28-0	Thallium	10.0	U		P
7440-31-5	Tin	300	U		P
7440-62-2	Vanadium	289			P
7440-66-6	Zinc	842		N* J	P

Color Before: BROWN Clarity Before: OPAQUE Texture:

Color After: YELLOW Clarity After: CLEAR Artifacts: YES

Comments:

Brown Sediment

Upstate Laboratories, Inc.

Date: *26-Feb-07*

CLIENT:	Clough, Harbour & Assoc. LLP	**Client Sample ID:**	MW-15DA
Lab Order:	U0701392	**Collection Date:**	1/23/2007 1:15:00 PM
Project:	C/O Albany Interim Landfill New		
Lab ID:	U0701392-006	**Matrix:**	GROUNDWATER

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
INORGANIC ANIONS BY IC FOR WATERS		E300.1				Analyst: DD
Bromide	ND	2.0		mg/L	10	2/16/2007
NOTES: The reporting limits were raised due to matrix interference.						
COLOR		E110.2				Analyst: MG
Color	120	50.0		UNITS	10	1/24/2007 8:00:00 AM
RESIDUE, DISSOLVED (TDS)		E160.1				Analyst: NJS
Residue, Dissolved (TDS)	157	25	J	mg/L	1	1/29/2007
TURBIDITY		E180.1				Analyst: NJS
Turbidity	840	1.25		NTU	25	1/24/2007 12:15:00 PM
ALKALINITY ON AQUEOUS SAMPLES BY LACHA		E310.2				Analyst: SAR
Alkalinity, Total (As CaCO3)	110	10		mg/LCaCO3	1	1/26/2007
CHLORIDE WATERS BY LACHAT		E325.2				Analyst: SAR
Chloride	3.39	1.00		mg/L	1	1/26/2007
CYANIDE, TOTAL ASP		E335.2		(E335.2)		Analyst: BY
Cyanide	ND	10.0		µg/L	1	1/30/2007
NITROGEN, AMMONIA (AS N)		E350.2				Analyst: MG
Nitrogen, Ammonia (As N)	ND	0.500		mg/L	1	2/2/2007
TKN FOR WATERS		E351.3				Analyst: MG
Nitrogen, Kjeldahl, Total	ND	0.500		mg/L	1	2/2/2007
NITROGEN, NITRATE (AS N)		E353.2				Analyst: BY
Nitrogen, Nitrate (as N)	ND	0.200		mg/L	1	1/24/2007 3:56:00 PM
SULFATE		E375.4				Analyst: NJS
Sulfate	ND	5.00		mg/L	1	2/1/2007
SULFIDE, WATERS		E376.2				Analyst: BY
Sulfide	ND	0.100		mg/L	1	1/26/2007
BIOCHEMICAL OXYGEN DEMAND (5 DAY BOD)		E405.1				Analyst: BS
Biochemical Oxygen Demand	6	4	J	mg/L	1	1/24/2007 6:00:00 AM
CHEMICAL OXYGEN DEMAND (COD)		E410.4				Analyst: BS
Chemical Oxygen Demand	ND	20		mg/L	1	2/9/2007
TOTAL ORGANIC CARBON (TOC)		E415.1				Analyst: BS
Organic Carbon, Total	17.0	3.0		mg/L	1	2/9/2007

-69-

Approved By: _____ **Date:** _____

Qualifiers:

*	Low Level	**	Value exceeds Maximum Contaminant Value
B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	S	Spike Recovery outside accepted recovery limits

Upstate Laboratories, Inc.

Date: *26-Feb-07*

CLIENT:	Clough, Harbour & Assoc. LLP	**Client Sample ID:**	MW-15DA
Lab Order:	U0701392	**Collection Date:**	1/23/2007 1:15:00 PM
Project:	C/O Albany Interim Landfill New		
Lab ID:	U0701392-006	**Matrix:**	GROUNDWATER

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
PHENOLICS, TOTAL REC. FOR WATERS		E420.1		(E420.1)		Analyst: SAR
Phenolics, Total Recoverable	ND	0.005		mg/L	1	2/5/2007
HEXAVALENT CHROMIUM BY ASP 2005		SM3500				Analyst: MG
Hexavalent chromium	ND	0.010		mg/L	1	1/24/2007 8:00:00 AM

Approved By: _____ **Date:** _____

Qualifiers:	*	Low Level	**	Value exceeds Maximum Contaminant Value
	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	S	Spike Recovery outside accepted recovery limits

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW-15DB

Lab Name: Upstate Labs Inc. Contract: CHA

Lab Code: 10170 Case No.: _____ SAS No.: _____ SDG No.: CHA78

Matrix: (soil/water) WATER Lab Sample ID: U0701392-007L

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: C16651.D

Level: (low/med) LOW Date Received: 1/24/07

% Moisture: not dec. _____ Date Analyzed: 2/4/07

GC Column: RTX-VO ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND (ug/L or ug/Kg) UG/L		Q
75-71-8	Dichlorodifluoromethane	5	U J
74-87-3	Chloromethane	5	U J
75-1-4	Vinyl Chloride	5	U J
74-83-9	Bromomethane	5	U J
75-00-3	Chloroethane	5	U J
75-69-4	Trichlorofluoromethane	5	U J
107-02-8	Acrolein	100	U R
67-64-1	Acetone	10	U J
75-35-4	1,1-Dichloroethene	5	U J
75-05-8	Acetonitrile	100	U R
74-88-4	Iodomethane	5	U J
107-05-1	Allyl Chloride	5	U J
75-15-0	Carbon Disulfide	5	U J
75-09-2	Methylene Chloride	5	U J
107-13-1	Acrylonitrile	100	U R
156-60-5	trans-1,2-Dichloroethene	5	U J
75-34-33	1,1-Dichloroethane	5	U J
108-5-4	Vinyl Acetate	50	U J
126-99-8	Chloroprene	10	U J
78-93-3	2-Butanone	10	U J
107-12-0	Propionitrile	100	U R
594-20-7	2,2-Dichloropropane	5	U J
156-59-2	cis-1,2-Dichloroethene	5	U J
126-98-7	Methacrylonitrile	10	U J
67-66-3	Chloroform	5	U J
74-97-5	Bromochloromethane	5	U J
78-83-1	Isobutyl Alcohol	1000	U R
71-55-6	1,1,1-Trichloroethane	5	U J
563-58-6	1,1-Dichloropropene	5	U J
56-23-5	Carbon Tetrachloride	5	U J
71-43-2	Benzene	5	U J
107-06-2	1,2-Dichloroethane	5	U J
97-01-6	Trichloroethene	5	U J
78-87-5	1,2-Dichloropropane	5	U J
80-62-6	Methyl Methacrylate	10	U J
75-27-4	Bromodichloromethane	5	U J
74-95-3	Dibromomethane	5	U J
108-10-1	4-Methyl-2-pentanone	10	U J
10061-1-5	cis-1,3-Dichloropropene	5	U J

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW-15DB

Lab Name: Upstate Labs Inc. Contract: CHA

Lab Code: 10170 Case No.: SAS No.: SDG No.: CHA78

Matrix: (soil/water) WATER Lab Sample ID: U0701392-007L

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: C16651.D

Level: (low/med) LOW Date Received: 1/24/07

% Moisture: not dec. Date Analyzed: 2/4/07

GC Column: RTX-VO ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND	(ug/L or ug/Kg) UG/L	Q
108-88-3	Toluene	5	U J
10061-2-6	trans-1,3-Dichloropropene	5	U J
97-63-2	Ethyl Methacrylate	10	U J
79-00-5	1,1,2-Trichloroethane	5	U J
591-78-6	2-Hexanone	10	U J
142-28-9	1,3-Dichloropropane	5	U J
127-18-4	Tetrachloroethene	5	U J
124-48-1	Dibromochloromethane	5	U J
106-93-4	1,2-Dibromoethane	5	U J
108-90-7	Chlorobenzene	5	U J
630-20-6	1,1,1,2-Tetrachloroethane	5	U J
100-41-4	Ethylbenzene	5	U J
108-38-3	m,p-Xylene	5	U J
95-47-6	o-Xylene	5	U J
100-42-5	Styrene	5	U J
75-25-2	Bromoform	5	U J
79-34-5	1,1,2,2-Tetrachloroethane	5	U J
96-18-4	1,2,3-Trichloropropane	5	U J
110-57-6	1,4-Dichloro-2-butene	10	U J
541-73-1	1,3-Dichlorobenzene	5	U J
106-46-7	1,4-Dichlorobenzene	5	U J
95-50-1	1,2-Dichlorobenzene	5	U J
96-12-8	1,2-Dibromo-3-chloro-propane	10	U J

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

MW-15DB

Lab Name: Upstate Labs Inc. Contract: CHA

Lab Code: 10170 Case No.: _____ SAS No.: _____ SDG No.: CHA78

Matrix: (soil/water) WATER Lab Sample ID: U0701392-007L

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: C16651.D

Level: (low/med) LOW Date Received: 1/24/07

% Moisture: not dec. _____ Date Analyzed: 2/4/07

GC Column: RTX-VO ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

Number TICs found: 0

CAS NO.	COMPOUND NAME	RT	EST. CONC.	Q

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW-15DB

Lab Name: UPSTATE LABS INC. Contract: CHA

Lab Code: 10170 Case No.: SAS No.: SDG No.: CHA78

Matrix: (soil/water) WATER Lab Sample ID: U0701392-007K

Sample wt/vol: 1000 (g/ml) ML Lab File ID: AE3304.D

Level: (low/med) LOW Date Received: 1/24/07

% Moisture: decanted:(Y/N) N Date Extracted: 1/25/07

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 2/20/07

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH:

CONCENTRATION UNITS:

CAS NO.	COMPOUND	(ug/L or ug/Kg) UG/L	Q
10595-95-6	N-Nitrosomethethylamine	10	U
66-27-3	Methyl methanesulfonate	10	U
111-44-4	Bis(2-chloroethyl)ether	10	U
55-18-5	N-Nitrosodiethylamine	20	U
62-50-0	Ethyl methanesulfonate	20	U
108-95-2	Phenol	10	U
95-53-4	o-Toluidine	10	U
930-55-2	N-Nitrosopyrrolidine	40	U
95-57-8	2-Chlorophenol	10	U
98-86-2	Acetophenone	10	U
100-75-4	N-Nitrosopiperdine	20	U
126-68-1	O,O,O-Triethylphosphorothioate	10	U
1888-71-7	Hexachloropropene	10	U
87-65-0	2,6-Dichlorophenol	10	U
95-48-7	2-Methylphenol	10	U
67-72-1	Hexachloroethane	10	U
924-16-3	N-Nitroso-di-n-butylamine	10	U
621-64-7	N-Nitrosodi-n-propylamine	10	U
106-50-3	p-Phenylenediamine	10	U
106-44-5	(3+4)-Methylphenol	10	U
94-59-7	Safrole	10	U
95-94-3	1,2,4,5-Tetrachlorobenzene	10	U
98-95-3	Nitrobenzene	10	U
120-58-1	Isosafrole	10	U
78-59-1	Isophorone	10	U
130-15-4	1,4-Naphthoquinone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethylphenol	10	U
58-90-2	2,3,4,6-Tetrachlorophenol	10	U
111-91-1	Bis(2-chloroethoxy)methane	10	U
134-32-7	1-Naphthylamine	10	U
120-83-2	2,4-Dichlorophenol	10	U
608-93-5	Pentachlorobenzene	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U
91-20-3	Naphthalene	10	U
99-55-8	5-Nitro-o-toluidine	10	U
106-47-8	4-Chloroaniline	10	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW-15DB

Lab Name: UPSTATE LABS INC. Contract: CHA

Lab Code: 10170 Case No.: _____ SAS No.: _____ SDG No.: CHA78

Matrix: (soil/water) WATER Lab Sample ID: U0701392-007K

Sample wt/vol: 1000 (g/ml) ML Lab File ID: AE3304.D

Level: (low/med) LOW Date Received: 1/24/07

% Moisture: _____ decanted:(Y/N) N Date Extracted: 1/25/07

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 2/20/07

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: _____

CONCENTRATION UNITS:

CAS NO.	COMPOUND	(ug/L or ug/Kg) UG/L	Q
297-97-2	Thionazin	20	U
87-68-3	Hexachlorobutadiene	10	U
122-39-4	Diphenylamine	10	U
59-50-7	4-Chloro-3-methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
99-35-4	1,3,5-Trinitrobenzene	10	U R
62-44-2	Phenacetin	20	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
60-51-5	Dimethoate	10	U
95-95-4	2,4,5-Trichlorophenol	25	U
92-67-1	4-Aminobiphenyl	20	U
82-68-8	Pentachloronitrobenzene	20	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	25	U
298-04-4	Disulfoton	10	U
208-96-8	Acenaphthylene	10	U
	Diallate	20	U
23950-58-5	Pronamide	10	U
131-11-3	Dimethyl phthalate	10	U
298-0-0	Methyl parathion	10	U
606-20-2	2,6-Dinitrotoluene	10	U
83-32-9	Acenaphthene	10	U
99-09-2	3-Nitroaniline	25	U
298-02-2	Phorate	10	U
51-28-5	2,4-Dinitrophenol	25	U R
91-80-5	Methapyrilene	100	U
465-73-6	Isodrin	20	U
132-64-9	Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene	10	U
100-02-7	4-Nitrophenol	25	U
510-15-6	Chlorobenzilate	10	U
60-11-7	Dimethylaminoazobenzene	10	U
86-73-7	Fluorene	10	U
7005-72-3	4-Chlorophenyl phenyl ether	10	U
119-93-7	3,3'-Dimethylbenzidine	10	U
52-85-7	Famphur	20	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW-15DB

Lab Name: UPSTATE LABS INC. Contract: CHA

Lab Code: 10170 Case No.: _____ SAS No.: _____ SDG No.: CHA78

Matrix: (soil/water) WATER Lab Sample ID: U0701392-007K

Sample wt/vol: 1000 (g/ml) ML Lab File ID: AE3304.D

Level: (low/med) LOW Date Received: 1/24/07

% Moisture: _____ decanted:(Y/N) N Date Extracted: 1/25/07

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 2/20/07

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: _____

CONCENTRATION UNITS:

CAS NO.	COMPOUND	(ug/L or ug/Kg) UG/L	Q
84-66-2	Diethyl phthalate	10	U
100-01-6	4-Nitroaniline	25	U
53-96-3	2-Acetylaminofluorene	20	U
57-97-6	7,12-Dimethylbenz(a)anthracene	10	U
534-52-1	4,6-Dinitro-2-methylphenol	25	U R
56-49-3	3-Methylcholanthrene	10	U
86-30-6	N-Nitrosodiphenylamine	10	U
101-55-3	4-Bromophenyl phenyl ether	10	U
118-74-1	Hexachlorobenzene	10	U
87-86-5	Pentachlorophenol	25	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
84-74-2	Di-n-butyl phthalate	10	U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
85-68-7	Butyl benzyl phthalate	10	U
91-94-1	3,3'-Dichlorobenzidine	10	U
218-01-9	Chrysene	10	U
117-81-7	Bis(2-ethylhexyl)phthalate	3	~~JB~~ U
117-84-0	Di-n-octyl phthalate	10	U
205-99-2	Benzo(b)fluoranthene	10	U
207-08-9	Benzo(k)fluoranthene	10	U
50-32-8	Benzo(a)pyrene	10	U
193-39-5	Indeno(1,2,3-cd)pyrene	10	U
53-70-3	Dibenz(a,h)anthracene	10	U
191-24-2	Benzo(ghi)perylene	10	U
100-51-6	Benzyl alcohol	10	U
	Bis(2-chloroisopropyl)ether	10	U
	Kepone	25	U R
62-75-9	N-nitrosodimethylamine	10	U

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

MW-15DB

Lab Name: UPSTATE LABS INC. Contract: CHA

Lab Code: 10170 Case No.: _____ SAS No.: _____ SDG No.: CHA78

Matrix: (soil/water) WATER Lab Sample ID: U0701392-007K

Sample wt/vol: 1000 (g/ml) ML Lab File ID: AE3304.D

Level: (low/med) LOW Date Received: 1/24/07

% Moisture: _____ decanted: (Y/N) N Date Extracted: 1/25/07

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 2/20/07

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: _____

CONCENTRATION UNITS:

Number TICs found: 19 (ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 027193-28-8	Phenol, (1,1,3,3-tetramethylbutyl)	18.38	4	JN
2.	unknown	18.44	6	J
3. 025154-52-3	Phenol, nonyl-	18.50	4	JN
4.	unknown	18.61	2	J
5.	unknown	18.70	3	J
6.	unknown	18.78	3	J
7.	unknown	21.68	2	J
8.	unknown	21.74	3	J
9. 000629-54-9	Hexadecanamide	22.00	14	JN
10.	unknown	23.14	3	J
11. 000301-02-0	9-Octadecenamide, (Z)-	23.25	66	JN
12. 000629-54-9	Hexadecanamide	23.39	12	JN
13.	unknown	24.03	2	J
14.	unknown	24.72	3	J
15.	unknown	24.77	5	J
16.	unknown	24.82	3	J
17.	unknown	25.02	9	J
18.	unknown	25.74	120	J
19. 007683-64-9	Squalene	25.92	8	JN

1 D
PESTICIDE ANALYSIS DATA SHEET

NYSDEC SAMPLE NO.
MW-15DB

Lab Name:	Upsate Labs Inc.	Contract:	CHA
Lab Code:	10170	Case No:	
SAS No:		SDG No.	CHA-78
Matrix: (soil/water)	Water	Lab Sample ID:	701392-7
Sample wt/vol:	1000 (g/mL) ml	Lab File ID:	GA-3760
% Solids		Date Recieved:	1/24/07
Extraction: (SepF/Cont/Sonc)	SepF.	Date Extracted:	1/26/07
Concentrated Extract Volume:	10	Date Analyzed:	2/8/07
Injection Volume:	1	Time Analyzed:	8:36 PM
GPC Cleanup: (Y/N)	N	Dilution Factor.	1
		Sulfur Cleanup:	Y

CONCENTRATION UNITS:

CAS NO.	COMPOUND	ug/L	Q
319-84-6	Alpha-BHC	0.05	U
319-85-7	Beta-BHC	0.05	U
319-86-8	Delta-BHC	0.05	U
58-89-9	Lindane	0.05	U
76-44-8	Heptachlor	0.05	U
309-00-2	Aldrin	0.05	U
1024-57-3	Heptachlor epoxide	0.05	U
959-98-8	Endosulfan I	0.05	U
60-57-1	Dieldrin	0.1	U
72-55-9	4,4'-DDE	0.1	U
72-20-8	Endrin	0.1	U
33213-65-9	Endosulfan II	0.1	U
72-54-8	4,4'-DDD	0.1	U
1031-07-8	Endosulfan sulfate	0.1	U
50-29-3	4,4'-DDT	0.1	U
72-43-5	Methoxychlor	0.5	U
53494-70-5	Endrin Ketone	0.1	U
7421-36-3	Endrin Aldehyde	0.1	U
5103-71-9	Alpha-chlordane	0.05	U
5103-74-2	Gamma-chlordane	0.05	U
8001-35-2	Toxaphene	5	U
12674-11-2	Aroclor 1016	1	U
11104-28-2	Aroclor 1221	1	U
11141-16-5	Aroclor 1232	1	U
53469-21-9	Aroclor 1242	1	U
12672-29-6	Aroclor 1248	1	U
11097-69-1	Aroclor 1254	1	U
11096-82-5	Aroclor 1260	1	U

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FORM I-CLP-PEST

1A

HERBICIDE ANALYSIS DATA SHEET

NYSDEC SAMPLE NO.

MW-15DB

Lab Name:	Upsate Labs Inc		Contract: CHA		
Lab Code:	10170	Case No:		SAS No:	SDG No. CHA-78
Matrix: (soil/water)	Water			Lab Sample ID:	701392-7
Sample wt/vol:	1000 (g/mL)	ML		Lab File ID:	GA-3758
% Solids				Date Recieved:	1/24/07
Extraction. (SepF/Cont/Sonc)	Sep. F			Date Extracted:	2/2/07
Concentrated Extract Volume:	10			Date Analyzed:	2/5/07
Injection Volume:	1			Time Analyzed:	10:09 PM
GPC Cleanup: (Y/N)	N			Dilution Factor:	10
				Sulfur Cleanup:	Y

CONCENTRATION UNITS:

CAS NO.	COMPOUND	ug/L	Q
94-75-7	2 4-D	1.0	U J
93-72-1	2,4,5-TP (Silvex)	1.0	U J
	2,4,5-T (Silvex)	1.0	U J
	Dinoseb	1.0	U J
	Dicamba	1 0	U J

FORM I-HERB

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

CLIENT SAMP ID

MW-15DB

Lab Name: Upstate Laboratories, Inc. Contract:

Lab Code: 10170 Case No. SAS No.: SDG No.: CHA78

Matrix (soil/water): WATER Lab Sample ID: U0701392-007

Level (low/med): LOW Date Received: 1/24/07

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	99200		* J	P
7440-36-0	Antimony	15.0	U		P
7440-38-2	Arsenic	59.8			P
7440-39-3	Barium	822			P
7440-41-7	Beryllium	5.0			P
7440-42-8	Boron	500	U		P
7440-43-9	Cadmium	29.8			P
7440-70-2	Calcium	629000			P
7440-47-3	Chromium	129			P
7440-48-4	Cobalt	100			P
7440-50-8	Copper	302			P
57-12-5	Cyanide	10.0	U		C
471-34-1	Hardness, T	2220000			P
7439-89-6	Iron	220000			P
7439-92-1	Lead	76.7			P
7439-95-4	Magnesium	158000			P
7439-96-5	Manganese	6830			P
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel	198			P
7440-09-7	Potassium	12000			P
7782-49-2	Selenium	5.0	U		P
7440-22-4	Silver	10.0	U		P
7440-23-5	Sodium	12300			P
7440-28-0	Thallium	10.0	U		P
7440-31-5	Tin	300	U		P
7440-62-2	Vanadium	206			P
7440-66-6	Zinc	628		N* J	P

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Color Before: BROWN Clarity Before: OPAQUE Texture:

Color After: YELLOW Clarity After: CLEAR Artifacts: YES

Comments:

Brown Sediment

Upstate Laboratories, Inc.

Date: *26-Feb-07*

CLIENT:	Clough, Harbour & Assoc. LLP	Client Sample ID:	MW-15DB
Lab Order:	U0701392	Collection Date:	1/23/2007 1:30:00 PM
Project:	C/O Albany Interim Landfill New		
Lab ID:	U0701392-007	Matrix:	GROUNDWATER

Analyses	Result		Limit	Qual	Units	DF	Date Analyzed
INORGANIC ANIONS BY IC FOR WATERS			E300.1				Analyst: DD
Bromide	ND		2.0		mg/L	10	2/16/2007
NOTES: The reporting limits were raised due to matrix interference.							
COLOR			E110.2				Analyst: MG
Color	100		50.0		UNITS	10	1/24/2007 8:00:00 AM
RESIDUE, DISSOLVED (TDS)			E160.1				Analyst: NJS
Residue, Dissolved (TDS)	150	J	25		mg/L	1	1/29/2007
TURBIDITY			E180.1				Analyst: NJS
Turbidity	1290		1.25		NTU	25	1/24/2007 12:15:00 PM
ALKALINITY ON AQUEOUS SAMPLES BY LACHA			E310.2				Analyst: SAR
Alkalinity, Total (As CaCO3)	110		10		mg/LCaCO3	1	1/26/2007
CHLORIDE WATERS BY LACHAT			E325.2				Analyst: SAR
Chloride	3.14		1.00		mg/L	1	1/26/2007
CYANIDE, TOTAL ASP			E335.2		(E335.2)		Analyst: BY
Cyanide	ND		10.0		µg/L	1	1/30/2007
NITROGEN, AMMONIA (AS N)			E350.2				Analyst: MG
Nitrogen, Ammonia (As N)	ND		0.500		mg/L	1	2/2/2007
TKN FOR WATERS			E351.3				Analyst: MG
Nitrogen, Kjeldahl, Total	ND		0.500		mg/L	1	2/2/2007
NITROGEN, NITRATE (AS N)			E353.2				Analyst: BY
Nitrogen, Nitrate (as N)	ND		0.200		mg/L	1	1/24/2007 3:56:00 PM
SULFATE			E375.4				Analyst: NJS
Sulfate	ND		5.00		mg/L	1	2/1/2007
SULFIDE, WATERS			E376.2				Analyst: BY
Sulfide	ND		0.100		mg/L	1	1/26/2007
BIOCHEMICAL OXYGEN DEMAND (5 DAY BOD)			E405.1				Analyst: BS
Biochemical Oxygen Demand	ND		4		mg/L	1	1/24/2007 6:00:00 AM
CHEMICAL OXYGEN DEMAND (COD)			E410.4				Analyst: BS
Chemical Oxygen Demand	ND		20		mg/L	1	2/9/2007
TOTAL ORGANIC CARBON (TOC)			E415.1				Analyst: BS
Organic Carbon, Total	32.0		3.0		mg/L	1	2/9/2007

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Approved By: _____ Date: _____

Qualifiers:

*	Low Level	**	Value exceeds Maximum Contaminant Value
B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	S	Spike Recovery outside accepted recovery limits

Upstate Laboratories, Inc.

Date: *26-Feb-07*

CLIENT:	Clough, Harbour & Assoc. LLP	**Client Sample ID:**	MW-15DB
Lab Order:	U0701392	**Collection Date:**	1/23/2007 1:30:00 PM
Project:	C/O Albany Interim Landfill New		
Lab ID:	U0701392-007	**Matrix:**	GROUNDWATER

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
PHENOLICS, TOTAL REC. FOR WATERS		E420.1		(E420.1)		Analyst: SAR
Phenolics, Total Recoverable	ND	0.005		mg/L	1	2/13/2007
HEXAVALENT CHROMIUM BY ASP 2005		SM3500				Analyst: MG
Hexavalent chromium	ND	0.010		mg/L	1	1/24/2007 8:00:00 AM

Approved By: _____ **Date:** _____

Qualifiers:

*	Low Level	**	Value exceeds Maximum Contaminant Value
B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	S	Spike Recovery outside accepted recovery limits

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HOLDING BLANK 1/23

Lab Name: Upstate Labs Inc. Contract: CHA

Lab Code: 10170 Case No.: SAS No.: SDG No.: CHA78

Matrix: (soil/water) WATER Lab Sample ID: U0701392-008A

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: C16652.D

Level: (low/med) LOW Date Received: 1/24/07

% Moisture: not dec. Date Analyzed: 2/4/07

GC Column: RTX-VO ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L

CAS NO.	COMPOUND		Q
75-71-8	Dichlorodifluoromethane	5	U J
74-87-3	Chloromethane	5	U J
75-1-4	Vinyl Chloride	5	U J
74-83-9	Bromomethane	5	U J
75-00-3	Chloroethane	5	U J
75-69-4	Trichlorofluoromethane	5	U J
107-02-8	Acrolein	100	U R
67-64-1	Acetone	110	J
75-35-4	1,1-Dichloroethene	5	U J
75-05-8	Acetonitrile	100	U R
74-88-4	Iodomethane	5	U J
107-05-1	Allyl Chloride	5	U J
75-15-0	Carbon Disulfide	5	U J
75-09-2	Methylene Chloride	10	~~B~~ U J
107-13-1	Acrylonitrile	100	U R
156-60-5	trans-1,2-Dichloroethene	5	U J
75-34-33	1,1-Dichloroethane	5	U J
108-5-4	Vinyl Acetate	50	U J
126-99-8	Chloroprene	10	U J
78-93-3	2-Butanone	10	U J
107-12-0	Propionitrile	100	U R
594-20-7	2,2-Dichloropropane	5	U J
156-59-2	cis-1,2-Dichloroethene	5	U J
126-98-7	Methacrylonitrile	10	U J
67-66-3	Chloroform	2	J J
74-97-5	Bromochloromethane	5	U J
78-83-1	Isobutyl Alcohol	1000	U R
71-55-6	1,1,1-Trichloroethane	5	U J
563-58-6	1,1-Dichloropropene	5	U J
56-23-5	Carbon Tetrachloride	5	U J
71-43-2	Benzene	5	U J
107-06-2	1,2-Dichloroethane	5	U J
97-01-6	Trichloroethene	5	U J
78-87-5	1,2-Dichloropropane	5	U J
80-62-6	Methyl Methacrylate	10	U J
75-27-4	Bromodichloromethane	5	U J
74-95-3	Dibromomethane	5	U J
108-10-1	4-Methyl-2-pentanone	10	U J
10061-1-5	cis-1,3-Dichloropropene	5	U J

1A

EPA SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

HOLDING BLANK
1/23

Lab Name: Upstate Labs Inc. Contract: CHA

Lab Code: 10170 Case No.: _____ SAS No.: _____ SDG No.: CHA78

Matrix: (soil/water) WATER Lab Sample ID: U0701392-008A

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: C16652.D

Level: (low/med) LOW Date Received: 1/24/07

% Moisture: not dec. _____ Date Analyzed: 2/4/07

GC Column: RTX-VO ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND (ug/L or ug/Kg) UG/L		Q
108-88-3	Toluene	5	U J
10061-2-6	trans-1,3-Dichloropropene	5	U J
97-63-2	Ethyl Methacrylate	10	U J
79-00-5	1,1,2-Trichloroethane	5	U J
591-78-6	2-Hexanone	10	U J
142-28-9	1,3-Dichloropropane	5	U J
127-18-4	Tetrachloroethene	5	U J
124-48-1	Dibromochloromethane	5	U J
106-93-4	1,2-Dibromoethane	5	U J
108-90-7	Chlorobenzene	5	U J
630-20-6	1,1,1,2-Tetrachloroethane	5	U J
100-41-4	Ethylbenzene	5	U J
108-38-3	m,p-Xylene	5	U J
95-47-6	o-Xylene	5	U J
100-42-5	Styrene	5	U J
75-25-2	Bromoform	5	U J
79-34-5	1,1,2,2-Tetrachloroethane	5	U J
96-18-4	1,2,3-Trichloropropane	5	U J
110-57-6	1,4-Dichloro-2-butene	10	U J
541-73-1	1,3-Dichlorobenzene	5	U J
106-46-7	1,4-Dichlorobenzene	5	U J
95-50-1	1,2-Dichlorobenzene	5	U J
96-12-8	1,2-Dibromo-3-chloro-propane	10	U J

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

HOLDING BLANK
1/23

Lab Name: Upstate Labs Inc. Contract: CHA

Lab Code: 10170 Case No.: _____ SAS No.: _____ SDG No.: CHA78

Matrix: (soil/water) WATER Lab Sample ID: U0701392-008A

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: C16652.D

Level: (low/med) LOW Date Received: 1/24/07

% Moisture: not dec. _____ Date Analyzed: 2/4/07

GC Column: RTX-VO ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

Number TICs found: 0

CAS NO.	COMPOUND NAME	RT	EST. CONC.	Q

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW-14SA

Lab Name: Upstate Labs Inc. Contract: CHA

Lab Code: 10170 Case No.: SAS No.: SDG No.: CHA78

Matrix: (soil/water) WATER Lab Sample ID: U0701392-009L

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: C16666.D

Level: (low/med) LOW Date Received: 1/24/07

% Moisture: not dec. Date Analyzed: 2/5/07

GC Column: RTX-VO ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND (ug/L or ug/Kg) UG/L		Q
75-71-8	Dichlorodifluoromethane	5	U J
74-87-3	Chloromethane	5	U J
75-1-4	Vinyl Chloride	5	U J
74-83-9	Bromomethane	5	U J
75-00-3	Chloroethane	5	U J
75-69-4	Trichlorofluoromethane	5	U J
107-02-8	Acrolein	100	U R
67-64-1	Acetone	10	U J
75-35-4	1,1-Dichloroethene	5	U J
75-05-8	Acetonitrile	100	U R
74-88-4	Iodomethane	5	U J
107-05-1	Allyl Chloride	5	U J
75-15-0	Carbon Disulfide	5	U J
75-09-2	Methylene Chloride	5	U J
107-13-1	Acrylonitrile	100	U R
156-60-5	trans-1,2-Dichloroethene	5	U J
75-34-33	1,1-Dichloroethane	5	U J
108-5-4	Vinyl Acetate	50	U J
126-99-8	Chloroprene	10	U J
78-93-3	2-Butanone	10	U J
107-12-0	Propionitrile	100	U R
594-20-7	2,2-Dichloropropane	5	U J
156-59-2	cis-1,2-Dichloroethene	5	U J
126-98-7	Methacrylonitrile	10	U J
67-66-3	Chloroform	5	U J
74-97-5	Bromochloromethane	5	U J
78-83-1	Isobutyl Alcohol	1000	U R
71-55-6	1,1,1-Trichloroethane	5	U J
563-58-6	1,1-Dichloropropene	5	U J
56-23-5	Carbon Tetrachloride	5	U J
71-43-2	Benzene	5	U J
107-06-2	1,2-Dichloroethane	5	U J
97-01-6	Trichloroethene	5	U J
78-87-5	1,2-Dichloropropane	5	U J
80-62-6	Methyl Methacrylate	10	U J
75-27-4	Bromodichloromethane	5	U J
74-95-3	Dibromomethane	5	U J
108-10-1	4-Methyl-2-pentanone	10	U J
10061-1-5	cis-1,3-Dichloropropene	5	U J

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW-14SA

Lab Name: Upstate Labs Inc. Contract: CHA

Lab Code: 10170 Case No.: _____ SAS No.: _____ SDG No.: CHA78

Matrix: (soil/water) WATER Lab Sample ID: U0701392-009L

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: C16666.D

Level: (low/med) LOW Date Received: 1/24/07

% Moisture: not dec. _____ Date Analyzed: 2/5/07

GC Column: RTX-VO ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND (ug/L or ug/Kg) UG/L		Q
108-88-3	Toluene	5	U J
10061-2-6	trans-1,3-Dichloropropene	5	U J
97-63-2	Ethyl Methacrylate	10	U J
79-00-5	1,1,2-Trichloroethane	5	U J
591-78-6	2-Hexanone	10	U J
142-28-9	1,3-Dichloropropane	5	U J
127-18-4	Tetrachloroethene	5	U J
124-48-1	Dibromochloromethane	5	U J
106-93-4	1,2-Dibromoethane	5	U J
108-90-7	Chlorobenzene	5	U J
630-20-6	1,1,1,2-Tetrachloroethane	5	U J
100-41-4	Ethylbenzene	5	U J
108-38-3	m,p-Xylene	5	U J
95-47-6	o-Xylene	5	U J
100-42-5	Styrene	5	U J
75-25-2	Bromoform	5	U J
79-34-5	1,1,2,2-Tetrachloroethane	5	U J
96-18-4	1,2,3-Trichloropropane	5	U J
110-57-6	1,4-Dichloro-2-butene	10	U J
541-73-1	1,3-Dichlorobenzene	5	U J
106-46-7	1,4-Dichlorobenzene	5	U J
95-50-1	1,2-Dichlorobenzene	5	U J
96-12-8	1,2-Dibromo-3-chloro-propane	10	U J

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

MW-14SA

Lab Name: Upstate Labs Inc. Contract: CHA

Lab Code: 10170 Case No.: _____ SAS No.: _____ SDG No.: CHA78

Matrix: (soil/water) WATER Lab Sample ID: U0701392-009L

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: C16666.D

Level: (low/med) LOW Date Received: 1/24/07

% Moisture: not dec. _____ Date Analyzed: 2/5/07

GC Column: RTX-VO ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

Number TICs found: 0

CAS NO.	COMPOUND NAME	RT	EST. CONC.	Q

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW-14SA

Lab Name: UPSTATE LABS INC. Contract: CHA

Lab Code: 10170 Case No.: _____ SAS No.: _____ SDG No.: CHA78

Matrix: (soil/water) WATER Lab Sample ID: U0701392-009K

Sample wt/vol: 1000 (g/ml) ML Lab File ID: AE3305.D

Level: (low/med) LOW Date Received: 1/24/07

% Moisture: _____ decanted:(Y/N) N Date Extracted: 1/25/07

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 2/20/07

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: _____

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
10595-95-6	N-Nitrosomethethylamine	10	U
66-27-3	Methyl methanesulfonate	10	U
111-44-4	Bis(2-chloroethyl)ether	10	U
55-18-5	N-Nitrosodiethylamine	20	U
62-50-0	Ethyl methanesulfonate	20	U
108-95-2	Phenol	10	U
95-53-4	o-Toluidine	10	U
930-55-2	N-Nitrosopyrrolidine	40	U
95-57-8	2-Chlorophenol	10	U
98-86-2	Acetophenone	10	U
100-75-4	N-Nitrosopiperdine	20	U
126-68-1	O,O,O-Triethylphosphorothioate	10	U
1888-71-7	Hexachloropropene	10	U
87-65-0	2,6-Dichlorophenol	10	U
95-48-7	2-Methylphenol	10	U
67-72-1	Hexachloroethane	10	U
924-16-3	N-Nitroso-di-n-butylamine	10	U
621-64-7	N-Nitrosodi-n-propylamine	10	U
106-50-3	p-Phenylenediamine	10	U
106-44-5	(3+4)-Methylphenol	10	U
94-59-7	Safrole	10	U
95-94-3	1,2,4,5-Tetrachlorobenzene	10	U
98-95-3	Nitrobenzene	10	U
120-58-1	Isosafrole	10	U
78-59-1	Isophorone	10	U
130-15-4	1,4-Naphthoquinone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethylphenol	10	U
58-90-2	2,3,4,6-Tetrachlorophenol	10	U
111-91-1	Bis(2-chloroethoxy)methane	10	U
134-32-7	1-Naphthylamine	10	U
120-83-2	2,4-Dichlorophenol	10	U
608-93-5	Pentachlorobenzene	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U
91-20-3	Naphthalene	10	U
99-55-8	5-Nitro-o-toluidine	10	U
106-47-8	4-Chloroaniline	10	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW-14SA

Lab Name: UPSTATE LABS INC. Contract: CHA

Lab Code: 10170 Case No.: SAS No.: SDG No.: CHA78

Matrix: (soil/water) WATER Lab Sample ID: U0701392-009K

Sample wt/vol: 1000 (g/ml) ML Lab File ID: AE3305.D

Level: (low/med) LOW Date Received: 1/24/07

% Moisture: decanted:(Y/N) N Date Extracted: 1/25/07

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 2/20/07

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH:

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
297-97-2	Thionazin	20	U
87-68-3	Hexachlorobutadiene	10	U
122-39-4	Diphenylamine	10	U
59-50-7	4-Chloro-3-methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
99-35-4	1,3,5-Trinitrobenzene	10	U R
62-44-2	Phenacetin	20	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
60-51-5	Dimethoate	10	U
95-95-4	2,4,5-Trichlorophenol	25	U
92-67-1	4-Aminobiphenyl	20	U
82-68-8	Pentachloronitrobenzene	20	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	25	U
298-04-4	Disulfoton	10	U
208-96-8	Acenaphthylene	10	U
	Diallate	20	U
23950-58-5	Pronamide	10	U
131-11-3	Dimethyl phthalate	10	U
298-0-0	Methyl parathion	10	U
606-20-2	2,6-Dinitrotoluene	10	U
83-32-9	Acenaphthene	10	U
99-09-2	3-Nitroaniline	25	U
298-02-2	Phorate	10	U
51-28-5	2,4-Dinitrophenol	25	U R
91-80-5	Methapyrilene	100	U
465-73-6	Isodrin	20	U
132-64-9	Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene	10	U
100-02-7	4-Nitrophenol	25	U
510-15-6	Chlorobenzilate	10	U
60-11-7	Dimethylaminoazobenzene	10	U
86-73-7	Fluorene	10	U
7005-72-3	4-Chlorophenyl phenyl ether	10	U
119-93-7	3,3'-Dimethylbenzidine	10	U
52-85-7	Famphur	20	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW-14SA

Lab Name: UPSTATE LABS INC. Contract: CHA

Lab Code: 10170 Case No.: _____ SAS No.: _____ SDG No.: CHA78

Matrix: (soil/water) WATER Lab Sample ID: U0701392-009K

Sample wt/vol: 1000 (g/ml) ML Lab File ID: AE3305.D

Level: (low/med) LOW Date Received: 1/24/07

% Moisture: _____ decanted:(Y/N) N Date Extracted: 1/25/07

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 2/20/07

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: _____

CONCENTRATION UNITS:

CAS NO.	COMPOUND	(ug/L or ug/Kg) UG/L	Q
84-66-2	Diethyl phthalate	10	U
100-01-6	4-Nitroaniline	25	U
53-96-3	2-Acetylaminofluorene	20	U
57-97-6	7,12-Dimethylbenz(a)anthracene	10	U
534-52-1	4,6-Dinitro-2-methylphenol	25	U R
56-49-3	3-Methylcholanthrene	10	U
86-30-6	N-Nitrosodiphenylamine	10	U
101-55-3	4-Bromophenyl phenyl ether	10	U
118-74-1	Hexachlorobenzene	10	U
87-86-5	Pentachlorophenol	25	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
84-74-2	Di-n-butyl phthalate	10	U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
85-68-7	Butyl benzyl phthalate	10	U
91-94-1	3,3'-Dichlorobenzidine	10	U
218-01-9	Chrysene	10	U
117-81-7	Bis(2-ethylhexyl)phthalate	4	JB U
117-84-0	Di-n-octyl phthalate	10	U
205-99-2	Benzo(b)fluoranthene	10	U
207-08-9	Benzo(k)fluoranthene	10	U
50-32-8	Benzo(a)pyrene	10	U
193-39-5	Indeno(1,2,3-cd)pyrene	10	U
53-70-3	Dibenz(a,h)anthracene	10	U
191-24-2	Benzo(ghi)perylene	10	U
100-51-6	Benzyl alcohol	10	U
	Bis(2-chloroisopropyl)ether	10	U
	Kepone	25	U R
62-75-9	N-nitrosodimethylamine	10	U

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

MW-14SA

Lab Name: UPSTATE LABS INC. Contract: CHA

Lab Code: 10170 Case No.: _____ SAS No.: _____ SDG No.: CHA78

Matrix: (soil/water) WATER Lab Sample ID: U0701392-009K

Sample wt/vol: 1000 (g/ml) ML Lab File ID: AE3305.D

Level: (low/med) LOW Date Received: 1/24/07

% Moisture: _____ decanted: (Y/N) N Date Extracted: 1/25/07

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 2/20/07

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: _____

Number TICs found: 18

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 027193-28-8	Phenol, (1,1,3,3-tetramethylbutyl)	18.37	3	JN
2. 025154-52-3	Phenol, nonyl-	18.44	4	JN
3. 025154-52-3	Phenol, nonyl-	18.49	3	JN
4.	unknown	18.71	2	J
5.	unknown	18.78	2	J
6.	unknown	21.40	2	J
7.	unknown	21.69	6	J
8.	unknown	21.75	3	J
9. 000629-54-9	Hexadecanamide	22.00	12	JN
10.	unknown	23.17	6	J
11. 000301-02-0	9-Octadecenamide, (Z)-	23.25	56	JN
12. 000629-54-9	Hexadecanamide	23.38	11	JN
13.	unknown	24.72	3	J
14.	unknown	24.76	4	J
15.	unknown	25.02	9	J
16. 000112-84-5	Erucylamide	25.75	90	JN
17. 000111-02-4	2,6,10,14,18,22-Tetracosahexae	25.91	28	JN
18.	unknown	26.31	11	J

1 D

PESTICIDE ANALYSIS DATA SHEET

NYSDEC SAMPLE NO.

MW-14SA

Lab Name:	Upsate Labs Inc	Contract:	CHA
Lab Code:	10170	Case No:	
SAS No:		SDG No.	CHA-78
Matrix: (soil/water)	Water	Lab Sample ID:	701392-9
Sample wt/vol:	1000 (g/mL) ml	Lab File ID:	GA-3760
% Solids		Date Recieved:	1/24/07
Extraction: (SepF/Cont/Sonc)	SepF.	Date Extracted:	1/26/07
Concentrated Extract Volume:	10	Date Analyzed:	2/8/07
Injection Volume:	1	Time Analyzed:	8:58 PM
GPC Cleanup: (Y/N)	N	Dilution Factor:	1
		Sulfur Cleanup:	Y

CONCENTRATION UNITS:

CAS NO	COMPOUND	ug/L	Q
319-84-6	Alpha-BHC	0.05	U
319-85-7	Beta-BHC	0.05	U
319-86-8	Delta-BHC	0.05	U
58-89-9	Lindane	0.05	U
76-44-8	Heptachlor	0.05	U
309-00-2	Aldrin	0.05	U
1024-57-3	Heptachlor epoxide	0.05	U
959-98-8	Endosulfan I	0.05	U
60-57-1	Dieldrin	0.1	U
72-55-9	4,4'-DDE	0.1	U
72-20-8	Endrin	0.1	U
33213-65-9	Endosulfan II	0.1	U
72-54-8	4,4'-DDD	0.1	U
1031-07-8	Endosulfan sulfate	0.1	U
50-29-3	4,4'-DDT	0.1	U
72-43-5	Methoxychlor	0.5	U
53494-70-5	Endrin Ketone	0.1	U
7421-36-3	Endrin Aldehyde	0.1	U
5103-71-9	Alpha-chlordane	0.05	U
5103-74-2	Gamma-chlordane	0.05	U
8001-35-2	Toxaphene	5	U
12674-11-2	Aroclor 1016	1	U
11104-28-2	Aroclor 1221	1	U
11141-16-5	Aroclor 1232	1	U
53469-21-9	Aroclor 1242	1	U
12672-29-6	Aroclor 1248	1	U
11097-69-1	Aroclor 1254	1	U
11096-82-5	Aroclor 1260	1	U

FORM I-CLP-PEST

1A

HERBICIDE ANALYSIS DATA SHEET

NYSDEC SAMPLE NO.

MW-14SA

Lab Name:	Upsate Labs Inc.	Contract:	CHA		
Lab Code:	10170	Case No:		SAS No:	SDG No. CHA-78
Matrix: (soil/water)	Water			Lab Sample ID:	701392-9
Sample wt/vol:	1000 (g/mL)	ML		Lab File ID:	GA-3758
% Solids				Date Recieved	1/24/07
Extraction. (SepF/Cont/Sonc)	Sep F			Date Extracted.	2/2/07
Concentrated Extract Volume.	10			Date Analyzed:	2/5/07
Injection Volume:	1			Time Analyzed:	10:37 PM
GPC Cleanup: (Y/N)	N			Dilution Factor:	10
				Sulfur Cleanup:	Y

CONCENTRATION UNITS:

CAS NO.	COMPOUND	ug/L	Q
94-75-7	2,4-D	1.0	U J
93-72-1	2,4,5-TP (Silvex)	1.0	U J
	2,4,5-T (Silvex)	1.0	U J
	Dinoseb	1.0	U J
	Dicamba	1.0	U J

FORM I-HERB

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

CLIENT SAMP ID

MW-14SA

Lab Name: Upstate Laboratories, Inc. Contract:

Lab Code: 10170 Case No. SAS No.: SDG No.: CHA78

Matrix (soil/water): WATER Lab Sample ID: U0701392-009

Level (low/med): LOW Date Received: 1/25/07

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	31200		* J	P
7440-36-0	Antimony	15.0	U		P
7440-38-2	Arsenic	18.4			P
7440-39-3	Barium	199	B		P
7440-41-7	Beryllium	3.0	U		P
7440-42-8	Boron	500	U		P
7440-43-9	Cadmium	6.4			P
7440-70-2	Calcium	60700			P
7440-47-3	Chromium	45.1			P
7440-48-4	Cobalt	44.5	B		P
7440-50-8	Copper	122			P
57-12-5	Cyanide	10.0	U		C
471-34-1	Hardness, T	226000			P
7439-89-6	Iron	50900			P
7439-92-1	Lead	37.7			P
7439-95-4	Magnesium	17900			P
7439-96-5	Manganese	732			P
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel	76.3			P
7440-09-7	Potassium	4310	B		P
7782-49-2	Selenium	5.0	U		P
7440-22-4	Silver	10.0	U		P
7440-23-5	Sodium	4240	B		P
7440-28-0	Thallium	10.0	U		P
7440-31-5	Tin	300	U		P
7440-62-2	Vanadium	63.9			P
7440-66-6	Zinc	217		N* J	P

Color Before: BROWN Clarity Before: OPAQUE Texture:

Color After: YELLOW Clarity After: CLEAR Artifacts: YES

Comments:

Brown Sediment

Upstate Laboratories, Inc.

Date: *26-Feb-07*

CLIENT:	Clough, Harbour & Assoc. LLP	Client Sample ID:	MW-14SA
Lab Order:	U0701392	Collection Date:	1/24/2007 10:15:00 AM
Project:	C/O Albany Interim Landfill New		
Lab ID:	U0701392-009	Matrix:	GROUNDWATER

Analyses	Result		Limit	Qual	Units	DF	Date Analyzed
INORGANIC ANIONS BY IC FOR WATERS			E300.1				Analyst: DD
Bromide	ND		2.0		mg/L	10	2/16/2007
NOTES: The reporting limits were raised due to matrix interference							
COLOR			E110.2				Analyst: MG
Color	100		50.0		UNITS	10	1/25/2007 8:00:00 AM
RESIDUE, DISSOLVED (TDS)			E160.1				Analyst: NJS
Residue, Dissolved (TDS)	162	J	25		mg/L	1	1/29/2007
TURBIDITY			E180.1				Analyst: NJS
Turbidity	505		0.500		NTU	10	1/25/2007
ALKALINITY ON AQUEOUS SAMPLES BY LACHA			E310.2				Analyst: SAR
Alkalinity, Total (As CaCO3)	130		10		mg/LCaCO3	1	1/26/2007
CHLORIDE WATERS BY LACHAT			E325.2				Analyst: SAR
Chloride	7.26		1.00		mg/L	1	1/26/2007
CYANIDE, TOTAL ASP			E335.2		(E335.2)		Analyst: BY
Cyanide	ND		10.0		µg/L	1	1/31/2007
NITROGEN, AMMONIA (AS N)			E350.2				Analyst: MG
Nitrogen, Ammonia (As N)	ND		0.500		mg/L	1	2/2/2007
TKN FOR WATERS			E351.3				Analyst: MG
Nitrogen, Kjeldahl, Total	ND		0.500		mg/L	1	2/2/2007
NITROGEN, NITRATE (AS N)			E353.2				Analyst: BY
Nitrogen, Nitrate (as N)	ND		0.200		mg/L	1	1/25/2007 4:02:00 PM
SULFATE			E375.4				Analyst: NJS
Sulfate	ND		5.00		mg/L	1	2/1/2007
SULFIDE, WATERS			E376.2				Analyst: BY
Sulfide	ND		0.100		mg/L	1	1/26/2007
BIOCHEMICAL OXYGEN DEMAND (5 DAY BOD)			E405.1				Analyst: DD
Biochemical Oxygen Demand	6	J	4		mg/L	1	1/26/2007 8:00:00 AM
CHEMICAL OXYGEN DEMAND (COD)			E410.4				Analyst: BS
Chemical Oxygen Demand	ND		20		mg/L	1	2/9/2007
TOTAL ORGANIC CARBON (TOC)			E415.1				Analyst: BS
Organic Carbon, Total	11.0		3.0		mg/L	1	2/9/2007

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Approved By: _____ Date: _____

Qualifiers:

*	Low Level	**	Value exceeds Maximum Contaminant Value
B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	S	Spike Recovery outside accepted recovery limits

Upstate Laboratories, Inc.

Date: *26-Feb-07*

CLIENT:	Clough, Harbour & Assoc. LLP	**Client Sample ID:**	MW-14SA
Lab Order:	U0701392	**Collection Date:**	1/24/2007 10:15:00 AM
Project:	C/O Albany Interim Landfill New		
Lab ID:	U0701392-009	**Matrix:**	GROUNDWATER

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
PHENOLICS, TOTAL REC. FOR WATERS		**E420.1**		**(E420.1)**		Analyst: **SAR**
Phenolics, Total Recoverable	ND	0.005		mg/L	1	2/13/2007
HEXAVALENT CHROMIUM BY ASP 2005		**SM3500**				Analyst: **MG**
Hexavalent chromium	ND	0.010		mg/L	1	1/25/2007 8:00:00 AM

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Approved By: _____ **Date:** _____

Qualifiers:

*	Low Level	**	Value exceeds Maximum Contaminant Value
B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	S	Spike Recovery outside accepted recovery limits

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW-14SB

Lab Name: Upstate Labs Inc. Contract: CHA

Lab Code: 10170 Case No.: _____ SAS No.: _____ SDG No.: CHA78

Matrix: (soil/water) WATER Lab Sample ID: U0701392-010L

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: C16667.D

Level: (low/med) LOW Date Received: 1/24/07

% Moisture: not dec. _____ Date Analyzed: 2/5/07

GC Column: RTX-VO ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND	(ug/L or ug/Kg) UG/L	Q
75-71-8	Dichlorodifluoromethane	5	U J
74-87-3	Chloromethane	5	U J
75-1-4	Vinyl Chloride	5	U J
74-83-9	Bromomethane	5	U J
75-00-3	Chloroethane	5	U J
75-69-4	Trichlorofluoromethane	5	U J
107-02-8	Acrolein	100	U R
67-64-1	Acetone	10	U J
75-35-4	1,1-Dichloroethene	5	U J
75-05-8	Acetonitrile	100	U R
74-88-4	Iodomethane	5	U J
107-05-1	Allyl Chloride	5	U J
75-15-0	Carbon Disulfide	5	U J
75-09-2	Methylene Chloride	5	U J
107-13-1	Acrylonitrile	100	U R
156-60-5	trans-1,2-Dichloroethene	5	U J
75-34-33	1,1-Dichloroethane	5	U J
108-5-4	Vinyl Acetate	50	U J
126-99-8	Chloroprene	10	U J
78-93-3	2-Butanone	10	U J
107-12-0	Propionitrile	100	U R
594-20-7	2,2-Dichloropropane	5	U J
156-59-2	cis-1,2-Dichloroethene	5	U J
126-98-7	Methacrylonitrile	10	U J
67-66-3	Chloroform	5	U J
74-97-5	Bromochloromethane	5	U J
78-83-1	Isobutyl Alcohol	1000	U R
71-55-6	1,1,1-Trichloroethane	5	U J
563-58-6	1,1-Dichloropropene	5	U J
56-23-5	Carbon Tetrachloride	5	U J
71-43-2	Benzene	5	U J
107-06-2	1,2-Dichloroethane	5	U J
97-01-6	Trichloroethene	5	U J
78-87-5	1,2-Dichloropropane	5	U J
80-62-6	Methyl Methacrylate	10	U J
75-27-4	Bromodichloromethane	5	U J
74-95-3	Dibromomethane	5	U J
108-10-1	4-Methyl-2-pentanone	10	U J
10061-1-5	cis-1,3-Dichloropropene	5	U J

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW-14SB

Lab Name: Upstate Labs Inc. Contract: CHA

Lab Code: 10170 Case No.: _____ SAS No.: _____ SDG No.: CHA78

Matrix: (soil/water) WATER Lab Sample ID: U0701392-010L

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: C16667.D

Level: (low/med) LOW Date Received: 1/24/07

% Moisture: not dec. _____ Date Analyzed: 2/5/07

GC Column: RTX-VO ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND (ug/L or ug/Kg) UG/L		Q
108-88-3	Toluene	5	U J
10061-2-6	trans-1,3-Dichloropropene	5	U J
97-63-2	Ethyl Methacrylate	10	U J
79-00-5	1,1,2-Trichloroethane	5	U J
591-78-6	2-Hexanone	10	U J
142-28-9	1,3-Dichloropropane	5	U J
127-18-4	Tetrachloroethene	5	U J
124-48-1	Dibromochloromethane	5	U J
106-93-4	1,2-Dibromoethane	5	U J
108-90-7	Chlorobenzene	5	U J
630-20-6	1,1,1,2-Tetrachloroethane	5	U J
100-41-4	Ethylbenzene	5	U J
108-38-3	m,p-Xylene	5	U J
95-47-6	o-Xylene	5	U J
100-42-5	Styrene	5	U J
75-25-2	Bromoform	5	U J
79-34-5	1,1,2,2-Tetrachloroethane	5	U J
96-18-4	1,2,3-Trichloropropane	5	U J
110-57-6	1,4-Dichloro-2-butene	10	U J
541-73-1	1,3-Dichlorobenzene	5	U J
106-46-7	1,4-Dichlorobenzene	5	U J
95-50-1	1,2-Dichlorobenzene	5	U J
96-12-8	1,2-Dibromo-3-chloro-propane	10	U J

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

MW-14SB

Lab Name: Upstate Labs Inc. Contract: CHA

Lab Code: 10170 Case No.: _____ SAS No.: _____ SDG No.: CHA78

Matrix: (soil/water) WATER Lab Sample ID: U0701392-010L

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: C16667.D

Level: (low/med) LOW Date Received: 1/24/07

% Moisture: not dec. _____ Date Analyzed: 2/5/07

GC Column: RTX-VO ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

Number TICs found: 0

CAS NO.	COMPOUND NAME	RT	EST. CONC.	Q

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW-14SB

Lab Name: UPSTATE LABS INC. Contract: CHA

Lab Code: 10170 Case No.: SAS No.: SDG No.: CHA78

Matrix: (soil/water) WATER Lab Sample ID: U0701392-010K

Sample wt/vol: 1000 (g/ml) ML Lab File ID: AE3306.D

Level: (low/med) LOW Date Received: 1/24/07

% Moisture: decanted:(Y/N) N Date Extracted: 1/25/07

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 2/20/07

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH:

CONCENTRATION UNITS:

CAS NO.	COMPOUND	(ug/L or ug/Kg) UG/L	Q
10595-95-6	N-Nitrosomethethylamine	10	U
66-27-3	Methyl methanesulfonate	10	U
111-44-4	Bis(2-chloroethyl)ether	10	U
55-18-5	N-Nitrosodiethylamine	20	U
62-50-0	Ethyl methanesulfonate	20	U
108-95-2	Phenol	10	U
95-53-4	o-Toluidine	10	U
930-55-2	N-Nitrosopyrrolidine	40	U
95-57-8	2-Chlorophenol	10	U
98-86-2	Acetophenone	10	U
100-75-4	N-Nitrosopiperdine	20	U
126-68-1	O,O,O-Triethylphosphorothioate	10	U
1888-71-7	Hexachloropropene	10	U
87-65-0	2,6-Dichlorophenol	10	U
95-48-7	2-Methylphenol	10	U
67-72-1	Hexachloroethane	10	U
924-16-3	N-Nitroso-di-n-butylamine	10	U
621-64-7	N-Nitrosodi-n-propylamine	10	U
106-50-3	p-Phenylenediamine	10	U
106-44-5	(3+4)-Methylphenol	10	U
94-59-7	Safrole	10	U
95-94-3	1,2,4,5-Tetrachlorobenzene	10	U
98-95-3	Nitrobenzene	10	U
120-58-1	Isosafrole	10	U
78-59-1	Isophorone	10	U
130-15-4	1,4-Naphthoquinone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethylphenol	10	U
58-90-2	2,3,4,6-Tetrachlorophenol	10	U
111-91-1	Bis(2-chloroethoxy)methane	10	U
134-32-7	1-Naphthylamine	10	U
120-83-2	2,4-Dichlorophenol	10	U
608-93-5	Pentachlorobenzene	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U
91-20-3	Naphthalene	10	U
99-55-8	5-Nitro-o-toluidine	10	U
106-47-8	4-Chloroaniline	10	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW-14SB

Lab Name: UPSTATE LABS INC. Contract: CHA

Lab Code: 10170 Case No.: _____ SAS No.: _____ SDG No.: CHA78

Matrix: (soil/water) WATER Lab Sample ID: U0701392-010K

Sample wt/vol: 1000 (g/ml) ML Lab File ID: AE3306.D

Level: (low/med) LOW Date Received: 1/24/07

% Moisture: _____ decanted:(Y/N) N Date Extracted: 1/25/07

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 2/20/07

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: _____

CONCENTRATION UNITS:

CAS NO.	COMPOUND	(ug/L or ug/Kg) UG/L	Q
297-97-2	Thionazin	20	U
87-68-3	Hexachlorobutadiene	10	U
122-39-4	Diphenylamine	10	U
59-50-7	4-Chloro-3-methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
99-35-4	1,3,5-Trinitrobenzene	10	U R
62-44-2	Phenacetin	20	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
60-51-5	Dimethoate	10	U
95-95-4	2,4,5-Trichlorophenol	25	U
92-67-1	4-Aminobiphenyl	20	U
82-68-8	Pentachloronitrobenzene	20	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	25	U
298-04-4	Disulfoton	10	U
208-96-8	Acenaphthylene	10	U
	Diallate	20	U
23950-58-5	Pronamide	10	U
131-11-3	Dimethyl phthalate	10	U
298-0-0	Methyl parathion	10	U
606-20-2	2,6-Dinitrotoluene	10	U
83-32-9	Acenaphthene	10	U
99-09-2	3-Nitroaniline	25	U
298-02-2	Phorate	10	U
51-28-5	2,4-Dinitrophenol	25	U R
91-80-5	Methapyrilene	100	U
465-73-6	Isodrin	20	U
132-64-9	Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene	10	U
100-02-7	4-Nitrophenol	25	U
510-15-6	Chlorobenzilate	10	U
60-11-7	Dimethylaminoazobenzene	10	U
86-73-7	Fluorene	10	U
7005-72-3	4-Chlorophenyl phenyl ether	10	U
119-93-7	3,3'-Dimethylbenzidine	10	U
52-85-7	Famphur	20	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW-14SB

Lab Name: UPSTATE LABS INC. Contract: CHA

Lab Code: 10170 Case No.: _____ SAS No.: _____ SDG No.: CHA78

Matrix: (soil/water) WATER Lab Sample ID: U0701392-010K

Sample wt/vol: 1000 (g/ml) ML Lab File ID: AE3306.D

Level: (low/med) LOW Date Received: 1/24/07

% Moisture: _____ decanted:(Y/N) N Date Extracted: 1/25/07

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 2/20/07

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: _____

CONCENTRATION UNITS:

CAS NO.	COMPOUND	(ug/L or ug/Kg) UG/L	Q
84-66-2	Diethyl phthalate	10	U
100-01-6	4-Nitroaniline	25	U
53-96-3	2-Acetylaminofluorene	20	U
57-97-6	7,12-Dimethylbenz(a)anthracene	10	U
534-52-1	4,6-Dinitro-2-methylphenol	25	U R
56-49-3	3-Methylcholanthrene	10	U
86-30-6	N-Nitrosodiphenylamine	10	U
101-55-3	4-Bromophenyl phenyl ether	10	U
118-74-1	Hexachlorobenzene	10	U
87-86-5	Pentachlorophenol	25	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
84-74-2	Di-n-butyl phthalate	10	U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
85-68-7	Butyl benzyl phthalate	10	U
91-94-1	3,3'-Dichlorobenzidine	10	U
218-01-9	Chrysene	10	U
117-81-7	Bis(2-ethylhexyl)phthalate	4	~~JB~~ U
117-84-0	Di-n-octyl phthalate	10	U
205-99-2	Benzo(b)fluoranthene	10	U
207-08-9	Benzo(k)fluoranthene	10	U
50-32-8	Benzo(a)pyrene	10	U
193-39-5	Indeno(1,2,3-cd)pyrene	10	U
53-70-3	Dibenz(a,h)anthracene	10	U
191-24-2	Benzo(ghi)perylene	10	U
100-51-6	Benzyl alcohol	10	U
	Bis(2-chloroisopropyl)ether	10	U
	Kepone	25	U R
62-75-9	N-nitrosodimethylamine	10	U

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

MW-14SB

Lab Name: UPSTATE LABS INC. Contract: CHA

Lab Code: 10170 Case No.: _____ SAS No.: _____ SDG No.: CHA78

Matrix: (soil/water) WATER Lab Sample ID: U0701392-010K

Sample wt/vol: 1000 (g/ml) ML Lab File ID: AE3306.D

Level: (low/med) LOW Date Received: 1/24/07

% Moisture: _____ decanted: (Y/N) N Date Extracted: 1/25/07

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 2/20/07

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: _____

Number TICs found: 14

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 027193-28-8	Phenol, (1,1,3,3-tetramethylbutyl)	18.37	3	JN
2. 025154-52-3	Phenol, nonyl-	18.44	5	JN
3.	unknown	18.50	3	J
4.	unknown	18.71	2	J
5.	unknown	18.78	3	J
6.	unknown	21.69	3	J
7.	unknown	21.74	2	J
8. 000629-54-9	Hexadecanamide	22.00	15	JN
9. 000301-02-0	9-Octadecenamide, (Z)-	23.25	66	JN
10. 000638-58-4	Tetradecanamide	23.39	9	JN
11.	unknown	25.02	2	J
12. 000112-84-5	Erucylamide	25.75	110	JN
13. 1000163-04-7	Docosa-2,6,10,14,18-pentaen-22	25.91	9	JN
14.	unknown	26.30	5	J

1 D
PESTICIDE ANALYSIS DATA SHEET

NYSDEC SAMPLE NO.
MW-14SB

Lab Name:	Upsate Labs Inc	Contract:	CHA
Lab Code:	10170	Case No:	
SAS No:		SDG No.	CHA-78
Matrix: (soil/water)	Water	Lab Sample ID:	701392-10
Sample wt/vol:	1000 (g/mL) ml	Lab File ID:	GA-3760
% Solids		Date Recieved:	1/24/07
Extraction: (SepF/Cont/Sonc)	SepF.	Date Extracted:	1/26/07
Concentrated Extract Volume:	10	Date Analyzed:	2/8/07
Injection Volume:	1	Time Analyzed:	9:21 PM
GPC Cleanup: (Y/N)	N	Dilution Factor:	1
		Sulfur Cleanup:	Y

CONCENTRATION UNITS:

CAS NO.	COMPOUND	ug/L	Q
319-84-6	Alpha-BHC	0.05	U
319-85-7	Beta-BHC	0.05	U
319-86-8	Delta-BHC	0.05	U
58-89-9	Lindane	0.05	U
76-44-8	Heptachlor	0.05	U
309-00-2	Aldrin	0.05	U
1024-57-3	Heptachlor epoxide	0.05	U
959-98-8	Endosulfan I	0.05	U
60-57-1	Dieldrin	0.1	U
72-55-9	4,4'-DDE	0.1	U
72-20-8	Endrin	0.1	U
33213-65-9	Endosulfan II	0.1	U
72-54-8	4,4'-DDD	0.1	U
1031-07-8	Endosulfan sulfate	0.1	U
50-29-3	4,4'-DDT	0.1	U
72-43-5	Methoxychlor	0.5	U
53494-70-5	Endrin Ketone	0.1	U
7421-36-3	Endrin Aldehyde	0.1	U
5103-71-9	Alpha-chlordane	0.05	U
5103-74-2	Gamma-chlordane	0.05	U
8001-35-2	Toxaphene	5	U
12674-11-2	Aroclor 1016	1	U
11104-28-2	Aroclor 1221	1	U
11141-16-5	Aroclor 1232	1	U
53469-21-9	Aroclor 1242	1	U
12672-29-6	Aroclor 1248	1	U
11097-69-1	Aroclor 1254	1	U
11096-82-5	Aroclor 1260	1	U

FORM I-CLP-PEST

1A

HERBICIDE ANALYSIS DATA SHEET

NYSDEC SAMPLE NO.

MW-14SB

Lab Name:	Upsate Labs Inc		Contract: CHA		
Lab Code:	10170	Case No:		SAS No:	SDG No. CHA-78
Matrix: (soil/water)	Water			Lab Sample ID:	701392-10
Sample wt/vol.	1000 (g/mL)	ML		Lab File ID.	GA-3758
% Solids				Date Recieved:	1/24/07
Extraction: (SepF/Cont/Sonc)	Sep. F			Date Extracted:	2/2/07
Concentrated Extract Volume:	10			Date Analyzed:	2/5/07
Injection Volume:	1			Time Analyzed:	11:05 PM
GPC Cleanup: (Y/N)	N			Dilution Factor:	10
				Sulfur Cleanup:	Y

CONCENTRATION UNITS:

CAS NO.	COMPOUND	ug/L	Q
94-75-7	2,4-D	1.0	U J
93-72-1	2,4,5-TP (Silvex)	1.0	U J
	2,4,5-T (Silvex)	1.0	U J
	Dinoseb	1.0	U J
	Dicamba	1.0	U J

FORM I-HERB

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

CLIENT SAMP ID

MW-14SB

Lab Name: Upstate Laboratories, Inc. Contract:

Lab Code: 10170 Case No. SAS No.: SDG No.: CHA78

Matrix (soil/water): WATER Lab Sample ID: U0701392-010

Level (low/med): LOW Date Received: 1/25/07

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	28700		* J	P
7440-36-0	Antimony	15.0	U		P
7440-38-2	Arsenic	20.9			P
7440-39-3	Barium	198	B		P
7440-41-7	Beryllium	3.0	U		P
7440-42-8	Boron	500	U		P
7440-43-9	Cadmium	6.7			P
7440-70-2	Calcium	63600			P
7440-47-3	Chromium	42.6			P
7440-48-4	Cobalt	43.5	B		P
7440-50-8	Copper	121			P
57-12-5	Cyanide	10.0	U		C
471-34-1	Hardness, T	231000			P
7439-89-6	Iron	48300			P
7439-92-1	Lead	40.8			P
7439-95-4	Magnesium	17500			P
7439-96-5	Manganese	731			P
7439-97-6	Mercury	0.20	U	J	CV
7440-02-0	Nickel	73.6			P
7440-09-7	Potassium	3850	B		P
7782-49-2	Selenium	5.0	U		P
7440-22-4	Silver	10.0	U		P
7440-23-5	Sodium	3750	B		P
7440-28-0	Thallium	10.0	U		P
7440-31-5	Tin	300	U		P
7440-62-2	Vanadium	62.6			P
7440-66-6	Zinc	207		N* J	P

Color Before: BROWN Clarity Before: OPAQUE Texture:

Color After: YELLOW Clarity After: CLEAR Artifacts: YES

Comments:

Brown Sediment

Upstate Laboratories, Inc.

Date: *26-Feb-07*

CLIENT:	Clough, Harbour & Assoc. LLP	Client Sample ID:	MW-14SB
Lab Order:	U0701392	Collection Date:	1/24/2007 10:30:00 AM
Project:	C/O Albany Interim Landfill New		
Lab ID:	U0701392-010	Matrix:	GROUNDWATER

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
INORGANIC ANIONS BY IC FOR WATERS		E300.1				Analyst: DD
Bromide	ND	2.0		mg/L	10	2/16/2007
NOTES: The reporting limits were raised due to matrix interference.						
COLOR		E110.2				Analyst: MG
Color	80.0	50.0		UNITS	10	1/25/2007 8:00:00 AM
RESIDUE, DISSOLVED (TDS)		E160.1				Analyst: NJS
Residue, Dissolved (TDS)	250 J	25		mg/L	1	1/29/2007
TURBIDITY		E180.1				Analyst: NJS
Turbidity	464	0.250		NTU	5	1/25/2007
ALKALINITY ON AQUEOUS SAMPLES BY LACHA		E310.2				Analyst: SAR
Alkalinity, Total (As CaCO3)	140	10		mg/LCaCO3	1	1/26/2007
CHLORIDE WATERS BY LACHAT		E325.2				Analyst: SAR
Chloride	6.35	1.00		mg/L	1	1/26/2007
CYANIDE, TOTAL ASP		E335.2		(E335.2)		Analyst: BY
Cyanide	ND	10.0		µg/L	1	1/31/2007
NITROGEN, AMMONIA (AS N)		E350.2				Analyst: MG
Nitrogen, Ammonia (As N)	ND	0.500		mg/L	1	2/2/2007
TKN FOR WATERS		E351.3				Analyst: MG
Nitrogen, Kjeldahl, Total	ND	0.500		mg/L	1	2/2/2007
NITROGEN, NITRATE (AS N)		E353.2				Analyst: BY
Nitrogen, Nitrate (as N)	ND	0.200		mg/L	1	1/25/2007 4:02:00 PM
SULFATE		E375.4				Analyst: NJS
Sulfate	6.71	5.00		mg/L	1	2/5/2007
SULFIDE, WATERS		E376.2				Analyst: BY
Sulfide	ND	0.100		mg/L	1	1/26/2007
BIOCHEMICAL OXYGEN DEMAND (5 DAY BOD)		E405.1				Analyst: DD
Biochemical Oxygen Demand	ND J	4		mg/L	1	1/26/2007 8:00:00 AM
CHEMICAL OXYGEN DEMAND (COD)		E410.4				Analyst: BS
Chemical Oxygen Demand	14	20	J	mg/L	1	2/9/2007
TOTAL ORGANIC CARBON (TOC)		E415.1				Analyst: BS
Organic Carbon, Total	11.0	3.0		mg/L	1	2/9/2007

-108-

Approved By: _____ Date: _____

Qualifiers:				
	*	Low Level	**	Value exceeds Maximum Contaminant Value
	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	S	Spike Recovery outside accepted recovery limits

Upstate Laboratories, Inc.

Date: *26-Feb-07*

CLIENT:	Clough, Harbour & Assoc. LLP	Client Sample ID:	MW-14SB
Lab Order:	U0701392	Collection Date:	1/24/2007 10:30:00 AM
Project:	C/O Albany Interim Landfill New		
Lab ID:	U0701392-010	Matrix:	GROUNDWATER

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
PHENOLICS, TOTAL REC. FOR WATERS		E420.1		(E420.1)		Analyst: **SAR**
Phenolics, Total Recoverable	ND	0.005		mg/L	1	2/13/2007
HEXAVALENT CHROMIUM BY ASP 2005		SM3500				Analyst: **MG**
Hexavalent chromium	ND	0.010		mg/L	1	1/25/2007 8:00:00 AM

Approved By: _____ Date: _____ Page 16 of 24

Qualifiers:				
	*	Low Level	**	Value exceeds Maximum Contaminant Value
	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	S	Spike Recovery outside accepted recovery limits

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW-14IA

Lab Name: Upstate Labs Inc. Contract: CHA

Lab Code: 10170 Case No.: SAS No.: SDG No.: CHA78

Matrix: (soil/water) WATER Lab Sample ID: U0701392-011L

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: C16668.D

Level: (low/med) LOW Date Received: 1/24/07

% Moisture: not dec. Date Analyzed: 2/5/07

GC Column: RTX-VO ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L

CAS NO.	COMPOUND		Q
75-71-8	Dichlorodifluoromethane	5	U J
74-87-3	Chloromethane	5	U J
75-1-4	Vinyl Chloride	5	U J
74-83-9	Bromomethane	5	U J
75-00-3	Chloroethane	5	U J
75-69-4	Trichlorofluoromethane	5	U J
107-02-8	Acrolein	100	U R
67-64-1	Acetone	10	U J
75-35-4	1,1-Dichloroethene	5	U J
75-05-8	Acetonitrile	100	U R
74-88-4	Iodomethane	5	U J
107-05-1	Allyl Chloride	5	U J
75-15-0	Carbon Disulfide	5	U J
75-09-2	Methylene Chloride	5	U J
107-13-1	Acrylonitrile	100	U R
156-60-5	trans-1,2-Dichloroethene	5	U J
75-34-33	1,1-Dichloroethane	5	U J
108-5-4	Vinyl Acetate	50	U J
126-99-8	Chloroprene	10	U J
78-93-3	2-Butanone	10	U J
107-12-0	Propionitrile	100	U R
594-20-7	2,2-Dichloropropane	5	U J
156-59-2	cis-1,2-Dichloroethene	5	U J
126-98-7	Methacrylonitrile	10	U J
67-66-3	Chloroform	5	U J
74-97-5	Bromochloromethane	5	U J
78-83-1	Isobutyl Alcohol	1000	U R
71-55-6	1,1,1-Trichloroethane	5	U J
563-58-6	1,1-Dichloropropene	5	U J
56-23-5	Carbon Tetrachloride	5	U J
71-43-2	Benzene	5	U J
107-06-2	1,2-Dichloroethane	5	U J
97-01-6	Trichloroethene	5	U J
78-87-5	1,2-Dichloropropane	5	U J
80-62-6	Methyl Methacrylate	10	U J
75-27-4	Bromodichloromethane	5	U J
74-95-3	Dibromomethane	5	U J
108-10-1	4-Methyl-2-pentanone	10	U J
10061-1-5	cis-1,3-Dichloropropene	5	U J

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW-14IA

Lab Name: Upstate Labs Inc. Contract: CHA

Lab Code: 10170 Case No.: _____ SAS No.: _____ SDG No.: CHA78

Matrix: (soil/water) WATER Lab Sample ID: U0701392-011L

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: C16668.D

Level: (low/med) LOW Date Received: 1/24/07

% Moisture: not dec. _____ Date Analyzed: 2/5/07

GC Column: RTX-VO ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND (ug/L or ug/Kg) UG/L		Q
108-88-3	Toluene	5	U J
10061-2-6	trans-1,3-Dichloropropene	5	U J
97-63-2	Ethyl Methacrylate	10	U J
79-00-5	1,1,2-Trichloroethane	5	U J
591-78-6	2-Hexanone	10	U J
142-28-9	1,3-Dichloropropane	5	U J
127-18-4	Tetrachloroethene	5	U J
124-48-1	Dibromochloromethane	5	U J
106-93-4	1,2-Dibromoethane	5	U J
108-90-7	Chlorobenzene	5	U J
630-20-6	1,1,1,2-Tetrachloroethane	5	U J
100-41-4	Ethylbenzene	5	U J
108-38-3	m,p-Xylene	5	U J
95-47-6	o-Xylene	5	U J
100-42-5	Styrene	5	U J
75-25-2	Bromoform	5	U J
79-34-5	1,1,2,2-Tetrachloroethane	5	U J
96-18-4	1,2,3-Trichloropropane	5	U J
110-57-6	1,4-Dichloro-2-butene	10	U J
541-73-1	1,3-Dichlorobenzene	5	U J
106-46-7	1,4-Dichlorobenzene	5	U J
95-50-1	1,2-Dichlorobenzene	5	U J
96-12-8	1,2-Dibromo-3-chloro-propane	10	U J

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

MW-14IA

Lab Name: Upstate Labs Inc. Contract: CHA

Lab Code: 10170 Case No.: _____ SAS No.: _____ SDG No.: CHA78

Matrix: (soil/water) WATER Lab Sample ID: U0701392-011L

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: C16668.D

Level: (low/med) LOW Date Received: 1/24/07

% Moisture: not dec. _____ Date Analyzed: 2/5/07

GC Column: RTX-VO ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

Number TICs found: 0

CAS NO.	COMPOUND NAME	RT	EST. CONC.	Q

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW-14IA

Lab Name: UPSTATE LABS INC. Contract: CHA

Lab Code: 10170 Case No.: SAS No.: SDG No.: CHA78

Matrix: (soil/water) WATER Lab Sample ID: U0701392-011K

Sample wt/vol: 1000 (g/ml) ML Lab File ID: AE3307.D

Level: (low/med) LOW Date Received: 1/24/07

% Moisture: decanted:(Y/N) N Date Extracted: 1/25/07

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 2/21/07

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH:

CONCENTRATION UNITS:

CAS NO.	COMPOUND	(ug/L or ug/Kg) UG/L	Q
10595-95-6	N-Nitrosomethethylamine	10	U
66-27-3	Methyl methanesulfonate	10	U
111-44-4	Bis(2-chloroethyl)ether	10	U
55-18-5	N-Nitrosodiethylamine	20	U
62-50-0	Ethyl methanesulfonate	20	U
108-95-2	Phenol	10	U
95-53-4	o-Toluidine	10	U
930-55-2	N-Nitrosopyrrolidine	40	U
95-57-8	2-Chlorophenol	10	U
98-86-2	Acetophenone	10	U
100-75-4	N-Nitrosopiperdine	20	U
126-68-1	O,O,O-Triethylphosphorothioate	10	U
1888-71-7	Hexachloropropene	10	U
87-65-0	2,6-Dichlorophenol	10	U
95-48-7	2-Methylphenol	10	U
67-72-1	Hexachloroethane	10	U
924-16-3	N-Nitroso-di-n-butylamine	10	U
621-64-7	N-Nitrosodi-n-propylamine	10	U
106-50-3	p-Phenylenediamine	10	U
106-44-5	(3+4)-Methylphenol	10	U
94-59-7	Safrole	10	U
95-94-3	1,2,4,5-Tetrachlorobenzene	10	U
98-95-3	Nitrobenzene	10	U
120-58-1	Isosafrole	10	U
78-59-1	Isophorone	10	U
130-15-4	1,4-Naphthoquinone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethylphenol	10	U
58-90-2	2,3,4,6-Tetrachlorophenol	10	U
111-91-1	Bis(2-chloroethoxy)methane	10	U
134-32-7	1-Naphthylamine	10	U
120-83-2	2,4-Dichlorophenol	10	U
608-93-5	Pentachlorobenzene	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U
91-20-3	Naphthalene	10	U
99-55-8	5-Nitro-o-toluidine	10	U
106-47-8	4-Chloroaniline	10	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW-14IA

Lab Name: UPSTATE LABS INC. Contract: CHA

Lab Code: 10170 Case No.: _____ SAS No.: _____ SDG No.: CHA78

Matrix: (soil/water) WATER Lab Sample ID: U0701392-011K

Sample wt/vol: 1000 (g/ml) ML Lab File ID: AE3307.D

Level: (low/med) LOW Date Received: 1/24/07

% Moisture: _____ decanted:(Y/N) N Date Extracted: 1/25/07

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 2/21/07

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: _____

CONCENTRATION UNITS:

CAS NO.	COMPOUND	(ug/L or ug/Kg) UG/L	Q
297-97-2	Thionazin	20	U
87-68-3	Hexachlorobutadiene	10	U
122-39-4	Diphenylamine	10	U
59-50-7	4-Chloro-3-methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
99-35-4	1,3,5-Trinitrobenzene	10	U R
62-44-2	Phenacetin	20	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
60-51-5	Dimethoate	10	U
95-95-4	2,4,5-Trichlorophenol	25	U
92-67-1	4-Aminobiphenyl	20	U
82-68-8	Pentachloronitrobenzene	20	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	25	U
298-04-4	Disulfoton	10	U
208-96-8	Acenaphthylene	10	U
	Diallate	20	U
23950-58-5	Pronamide	10	U
131-11-3	Dimethyl phthalate	10	U
298-0-0	Methyl parathion	10	U
606-20-2	2,6-Dinitrotoluene	10	U
83-32-9	Acenaphthene	10	U
99-09-2	3-Nitroaniline	25	U
298-02-2	Phorate	10	U
51-28-5	2,4-Dinitrophenol	25	U R
91-80-5	Methapyrilene	100	U
465-73-6	Isodrin	20	U
132-64-9	Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene	10	U
100-02-7	4-Nitrophenol	25	U
510-15-6	Chlorobenzilate	10	U
60-11-7	Dimethylaminoazobenzene	10	U
86-73-7	Fluorene	10	U
7005-72-3	4-Chlorophenyl phenyl ether	10	U
119-93-7	3,3'-Dimethylbenzidine	10	U
52-85-7	Famphur	20	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW-14IA

Lab Name: UPSTATE LABS INC. Contract: CHA

Lab Code: 10170 Case No.: SAS No.: SDG No.: CHA78

Matrix: (soil/water) WATER Lab Sample ID: U0701392-011K

Sample wt/vol: 1000 (g/ml) ML Lab File ID: AE3307.D

Level: (low/med) LOW Date Received: 1/24/07

% Moisture: decanted:(Y/N) N Date Extracted: 1/25/07

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 2/21/07

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH:

CONCENTRATION UNITS:

CAS NO.	COMPOUND	(ug/L or ug/Kg) UG/L	Q
84-66-2	Diethyl phthalate	10	U
100-01-6	4-Nitroaniline	25	U
53-96-3	2-Acetylaminofluorene	20	U
57-97-6	7,12-Dimethylbenz(a)anthracene	10	U
534-52-1	4,6-Dinitro-2-methylphenol	25	U R
56-49-3	3-Methylcholanthrene	10	U
86-30-6	N-Nitrosodiphenylamine	10	U
101-55-3	4-Bromophenyl phenyl ether	10	U
118-74-1	Hexachlorobenzene	10	U
87-86-5	Pentachlorophenol	25	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
84-74-2	Di-n-butyl phthalate	10	U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
85-68-7	Butyl benzyl phthalate	10	U
91-94-1	3,3'-Dichlorobenzidine	10	U
218-01-9	Chrysene	10	U
117-81-7	Bis(2-ethylhexyl)phthalate	10	~~B~~ U
117-84-0	Di-n-octyl phthalate	10	U
205-99-2	Benzo(b)fluoranthene	10	U
207-08-9	Benzo(k)fluoranthene	10	U
50-32-8	Benzo(a)pyrene	10	U
193-39-5	Indeno(1,2,3-cd)pyrene	10	U
53-70-3	Dibenz(a,h)anthracene	10	U
191-24-2	Benzo(ghi)perylene	10	U
100-51-6	Benzyl alcohol	10	U
	Bis(2-chloroisopropyl)ether	10	U
	Kepone	25	U R
62-75-9	N-nitrosodimethylamine	10	U

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

MW-14IA

Lab Name: UPSTATE LABS INC. Contract: CHA

Lab Code: 10170 Case No.: _____ SAS No.: _____ SDG No.: CHA78

Matrix: (soil/water) WATER Lab Sample ID: U0701392-011K

Sample wt/vol: 1000 (g/ml) ML Lab File ID: AE3307.D

Level: (low/med) LOW Date Received: 1/24/07

% Moisture: _____ decanted: (Y/N) N Date Extracted: 1/25/07

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 2/21/07

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: _____

CONCENTRATION UNITS:

Number TICs found: 20 (ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 000112-34-5	Ethanol, 2-(2-butoxyethoxy)-	13.12	69	JN
2. 027193-28-8	Phenol, (1,1,3,3-tetramethylbutyl)	18.37	3	JN
3. 000104-40-5	4-Nonylphenol	18.44	5	JN
4.	unknown	18.50	4	J
5.	unknown	21.69	6	J
6.	unknown	21.74	4	J
7. 000629-54-9	Hexadecanamide	22.00	19	JN
8.	unknown	23.15	6	J
9. 000301-02-0	9-Octadecenamide, (Z)-	23.25	150	JN
10. 000638-58-4	Tetradecanamide	23.38	15	JN
11.	unknown	24.03	3	J
12.	unknown	24.72	6	J
13.	unknown	24.76	11	J
14.	unknown	24.82	9	J
15.	unknown	24.88	5	J
16.	unknown	25.02	13	J
17.	unknown	25.08	10	J
18. 000112-84-5	Erucylamide	25.75	110	JN
19. 000111-02-4	2,6,10,14,18,22-Tetracosahexae	25.91	14	JN
20.	unknown	26.31	10	J

1 D
PESTICIDE ANALYSIS DATA SHEET

NYSDEC SAMPLE NO.
MW-14IA

Lab Name: Upsate Labs Inc. Contract: CHA

Lab Code: 10170 Case No: SAS No: SDG No. CHA-78

Matrix: (soil/water) Water Lab Sample ID: 701392-11

Sample wt/vol: 1000 (g/mL) ml Lab File ID: GA-3760

% Solids Date Recieved: 1/24/07

Extraction: (SepF/Cont/Sonc) SepF. Date Extracted: 1/26/07

Concentrated Extract Volume: 10 Date Analyzed: 2/8/07

Injection Volume: 1 Time Analyzed: 9:43 PM

GPC Cleanup: (Y/N) N Dilution Factor: 1

Sulfur Cleanup: Y

CONCENTRATION UNITS:

CAS NO.	COMPOUND	ug/L	Q
319-84-6	Alpha-BHC	0.05	U
319-85-7	Beta-BHC	0.05	U
319-86-8	Delta-BHC	0.05	U
58-89-9	Lindane	0.05	U
76-44-8	Heptachlor	0.05	U
309-00-2	Aldrin	0.05	U
1024-57-3	Heptachlor epoxide	0.05	U
959-98-8	Endosulfan I	0.05	U
60-57-1	Dieldrin	0.1	U
72-55-9	4 4'-DDE	0.1	U
72-20-8	Endrin	0.1	U
33213-65-9	Endosulfan II	0.1	U
72-54-8	4 4'-DDD	0.1	U
1031-07-8	Endosulfan sulfate	0.1	U
50-29-3	4,4'-DDT	0.1	U
72-43-5	Methoxychlor	0.5	U
53494-70-5	Endrin Ketone	0.1	U
7421-36-3	Endrin Aldehyde	0.1	U
5103-71-9	Alpha-chlordane	0.05	U
5103-74-2	Gamma-chlordane	0.05	U
8001-35-2	Toxaphene	5	U
12674-11-2	Aroclor 1016	1	U
11104-28-2	Aroclor 1221	1	U
11141-16-5	Aroclor 1232	1	U
53469-21-9	Aroclor 1242	1	U
12672-29-6	Aroclor 1248	1	U
11097-69-1	Aroclor 1254	1	U
11096-82-5	Aroclor 1260	1	U

FORM I-CLP-PEST

1A

HERBICIDE ANALYSIS DATA SHEET

NYSDEC SAMPLE NO.

MW-14IA

Lab Name:	Upsate Labs Inc.	Contract:	CHA		
Lab Code:	10170	Case No:		SAS No.		SDG No.	CHA-78
Matrix: (soil/water)	Water			Lab Sample ID:	701392-11
Sample wt/vol:	1000 (g/mL) ML			Lab File ID:	GA-3758
% Solids				Date Recieved:	1/24/07
Extraction: (SepF/Cont/Sonc)	Sep F			Date Extracted:	2/2/07
Concentrated Extract Volume:	10			Date Analyzed:	2/5/07
Injection Volume:	1			Time Analyzed:	11:33 PM
GPC Cleanup: (Y/N)	N			Dilution Factor:	10
				Sulfur Cleanup:	Y

CONCENTRATION UNITS:

CAS NO	COMPOUND	ug/L	Q
94-75-7	2,4-D	1.0	U J
93-72-1	2,4,5-TP (Silvex)	1.0	U J
	2,4,5-T (Silvex)	1.0	U J
	Dinoseb	1.0	U J
	Dicamba	1.0	U J

FORM I-HERB

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

CLIENT SAMP ID

MW-14IA

Lab Name: Upstate Laboratories, Inc. Contract:

Lab Code: 10170 Case No. SAS No.: SDG No.: CHA78

Matrix (soil/water): WATER Lab Sample ID: U0701392-011

Level (low/med): LOW Date Received: 1/25/07

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	3180		* J	P
7440-36-0	Antimony	15.0	U		P
7440-38-2	Arsenic	10.0	U		P
7440-39-3	Barium	84.8	B		P
7440-41-7	Beryllium	3.0	U		P
7440-42-8	Boron	500	U		P
7440-43-9	Cadmium	5.0	U		P
7440-70-2	Calcium	56200			P
7440-47-3	Chromium	5.0	U		P
7440-48-4	Cobalt	20.0	U		P
7440-50-8	Copper	15.5	B		P
57-12-5	Cyanide	10.0	U		C
471-34-1	Hardness, T	176000			P
7439-89-6	Iron	6890			P
7439-92-1	Lead	7.8			P
7439-95-4	Magnesium	8720			P
7439-96-5	Manganese	232			P
7439-97-6	Mercury	0.20	U	J	CV
7440-02-0	Nickel	30.0	U		P
7440-09-7	Potassium	1090	B		P
7782-49-2	Selenium	5.0	U		P
7440-22-4	Silver	10.0	U		P
7440-23-5	Sodium	4730	B		P
7440-28-0	Thallium	10.0	U		P
7440-31-5	Tin	300	U		P
7440-62-2	Vanadium	30.0	U		P
7440-66-6	Zinc	29.7		N* J	P

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Color Before: GREY Clarity Before: CLOUDY Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts: YES

Comments:

Brown Sediment

Upstate Laboratories, Inc.

Date: *26-Feb-07*

CLIENT:	Clough, Harbour & Assoc. LLP	**Client Sample ID:**	MW-14IA
Lab Order:	U0701392	**Collection Date:**	1/24/2007 3:00:00 PM
Project:	C/O Albany Interim Landfill New		
Lab ID:	U0701392-011	**Matrix:**	GROUNDWATER

Analyses	Result		Limit	Qual	Units	DF	Date Analyzed
INORGANIC ANIONS BY IC FOR WATERS			E300.1				Analyst: DD
Bromide	ND		2.0		mg/L	10	2/16/2007
NOTES: The reporting limits were raised due to matrix interference.							
COLOR			E110.2				Analyst: MG
Color	15.0		5.00		UNITS	1	1/25/2007 8:00:00 AM
RESIDUE, DISSOLVED (TDS)			E160.1				Analyst: NJS
Residue, Dissolved (TDS)	277	J	25		mg/L	1	1/29/2007
TURBIDITY			E180.1				Analyst: NJS
Turbidity	98.7		0.050		NTU	1	1/25/2007
ALKALINITY ON AQUEOUS SAMPLES BY LACHA			E310.2				Analyst: SAR
Alkalinity, Total (As CaCO3)	110		10		mg/LCaCO3	1	1/26/2007
CHLORIDE WATERS BY LACHAT			E325.2				Analyst: SAR
Chloride	15.0		1.00		mg/L	1	1/26/2007
CYANIDE, TOTAL ASP			E335.2		(E335.2)		Analyst: BY
Cyanide	ND		10.0		µg/L	1	1/31/2007
NITROGEN, AMMONIA (AS N)			E350.2				Analyst: MG
Nitrogen, Ammonia (As N)	ND		0.500		mg/L	1	2/2/2007
TKN FOR WATERS			E351.3				Analyst: MG
Nitrogen, Kjeldahl, Total	ND		0.500		mg/L	1	2/2/2007
NITROGEN, NITRATE (AS N)			E353.2				Analyst: BY
Nitrogen, Nitrate (as N)	ND		0.200		mg/L	1	1/25/2007 4:02:00 PM
SULFATE			E375.4				Analyst: NJS
Sulfate	29.5		5.00		mg/L	1	2/5/2007
SULFIDE, WATERS			E376.2				Analyst: BY
Sulfide	ND		0.100		mg/L	1	1/26/2007
BIOCHEMICAL OXYGEN DEMAND (5 DAY BOD)			E405.1				Analyst: DD
Biochemical Oxygen Demand	ND	J	4		mg/L	1	1/26/2007 8:00:00 AM
CHEMICAL OXYGEN DEMAND (COD)			E410.4				Analyst: BS
Chemical Oxygen Demand	ND		20		mg/L	1	2/9/2007
TOTAL ORGANIC CARBON (TOC)			E415.1				Analyst: BS
Organic Carbon, Total	ND		3.0		mg/L	1	2/9/2007

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Approved By: _____ **Date:** _____

Qualifiers:

*	Low Level	**	Value exceeds Maximum Contaminant Value
B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	S	Spike Recovery outside accepted recovery limits

Upstate Laboratories, Inc.

Date: *26-Feb-07*

CLIENT:	Clough, Harbour & Assoc. LLP	Client Sample ID:	MW-14IA
Lab Order:	U0701392	Collection Date:	1/24/2007 3:00:00 PM
Project:	C/O Albany Interim Landfill New		
Lab ID:	U0701392-011	Matrix:	GROUNDWATER

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
PHENOLICS, TOTAL REC. FOR WATERS		**E420.1**		**(E420.1)**		Analyst: **SAR**
Phenolics, Total Recoverable	ND	0.005		mg/L	1	2/13/2007
HEXAVALENT CHROMIUM BY ASP 2005		**SM3500**				Analyst: **MG**
Hexavalent chromium	ND	0.010		mg/L	1	1/25/2007 8:00:00 AM

Approved By: _____ **Date:** _____

Qualifiers:				
	*	Low Level	**	Value exceeds Maximum Contaminant Value
	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	S	Spike Recovery outside accepted recovery limits

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW-14IB

Lab Name: Upstate Labs Inc. Contract: CHA

Lab Code: 10170 Case No.: _____ SAS No.: _____ SDG No.: CHA78

Matrix: (soil/water) WATER Lab Sample ID: U0701392-012L

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: C16669.D

Level: (low/med) LOW Date Received: 1/24/07

% Moisture: not dec. _____ Date Analyzed: 2/5/07

GC Column: RTX-VO ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND	(ug/L or ug/Kg) UG/L	Q
75-71-8	Dichlorodifluoromethane	5	U J
74-87-3	Chloromethane	5	U J
75-1-4	Vinyl Chloride	5	U J
74-83-9	Bromomethane	5	U J
75-00-3	Chloroethane	5	U J
75-69-4	Trichlorofluoromethane	5	U J
107-02-8	Acrolein	100	U R
67-64-1	Acetone	10	U J
75-35-4	1,1-Dichloroethene	5	U J
75-05-8	Acetonitrile	100	U R
74-88-4	Iodomethane	5	U J
107-05-1	Allyl Chloride	5	U J
75-15-0	Carbon Disulfide	5	U J
75-09-2	Methylene Chloride	5	U J
107-13-1	Acrylonitrile	100	U R
156-60-5	trans-1,2-Dichloroethene	5	U J
75-34-33	1,1-Dichloroethane	5	U J
108-5-4	Vinyl Acetate	50	U J
126-99-8	Chloroprene	10	U J
78-93-3	2-Butanone	10	U J
107-12-0	Propionitrile	100	U R
594-20-7	2,2-Dichloropropane	5	U J
156-59-2	cis-1,2-Dichloroethene	5	U J
126-98-7	Methacrylonitrile	10	U J
67-66-3	Chloroform	5	U J
74-97-5	Bromochloromethane	5	U J
78-83-1	Isobutyl Alcohol	1000	U R
71-55-6	1,1,1-Trichloroethane	5	U J
563-58-6	1,1-Dichloropropene	5	U J
56-23-5	Carbon Tetrachloride	5	U J
71-43-2	Benzene	5	U J
107-06-2	1,2-Dichloroethane	5	U J
97-01-6	Trichloroethene	5	U J
78-87-5	1,2-Dichloropropane	5	U J
80-62-6	Methyl Methacrylate	10	U J
75-27-4	Bromodichloromethane	5	U J
74-95-3	Dibromomethane	5	U J
108-10-1	4-Methyl-2-pentanone	10	U J
10061-1-5	cis-1,3-Dichloropropene	5	U J

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW-14IB

Lab Name: Upstate Labs Inc. Contract: CHA

Lab Code: 10170 Case No.: _____ SAS No.: _____ SDG No.: CHA78

Matrix: (soil/water) WATER Lab Sample ID: U0701392-012L

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: C16669.D

Level: (low/med) LOW Date Received: 1/24/07

% Moisture: not dec. _____ Date Analyzed: 2/5/07

GC Column: RTX-VO ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND (ug/L or ug/Kg) UG/L		Q
108-88-3	Toluene	5	U J
10061-2-6	trans-1,3-Dichloropropene	5	U J
97-63-2	Ethyl Methacrylate	10	U J
79-00-5	1,1,2-Trichloroethane	5	U J
591-78-6	2-Hexanone	10	U J
142-28-9	1,3-Dichloropropane	5	U J
127-18-4	Tetrachloroethene	5	U J
124-48-1	Dibromochloromethane	5	U J
106-93-4	1,2-Dibromoethane	5	U J
108-90-7	Chlorobenzene	5	U J
630-20-6	1,1,1,2-Tetrachloroethane	5	U J
100-41-4	Ethylbenzene	5	U J
108-38-3	m,p-Xylene	5	U J
95-47-6	o-Xylene	5	U J
100-42-5	Styrene	5	U J
75-25-2	Bromoform	5	U J
79-34-5	1,1,2,2-Tetrachloroethane	5	U J
96-18-4	1,2,3-Trichloropropane	5	U J
110-57-6	1,4-Dichloro-2-butene	10	U J
541-73-1	1,3-Dichlorobenzene	5	U J
106-46-7	1,4-Dichlorobenzene	5	U J
95-50-1	1,2-Dichlorobenzene	5	U J
96-12-8	1,2-Dibromo-3-chloro-propane	10	U J

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

MW-14IB

Lab Name: Upstate Labs Inc. Contract: CHA

Lab Code: 10170 Case No.: _____ SAS No.: _____ SDG No.: CHA78

Matrix: (soil/water) WATER Lab Sample ID: U0701392-012L

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: C16669.D

Level: (low/med) LOW Date Received: 1/24/07

% Moisture: not dec. _____ Date Analyzed: 2/5/07

GC Column: RTX-VO ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

Number TICs found: 0

CAS NO.	COMPOUND NAME	RT	EST. CONC.	Q

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW-14IB

Lab Name: UPSTATE LABS INC. Contract: CHA

Lab Code: 10170 Case No.: _____ SAS No.: _____ SDG No.: CHA78

Matrix: (soil/water) WATER Lab Sample ID: U0701392-012K

Sample wt/vol: 1000 (g/ml) ML Lab File ID: AE3308.D

Level: (low/med) LOW Date Received: 1/24/07

% Moisture: _____ decanted:(Y/N) N Date Extracted: 1/25/07

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 2/21/07

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: _____

CONCENTRATION UNITS:

CAS NO.	COMPOUND	(ug/L or ug/Kg) UG/L	Q
10595-95-6	N-Nitrosomethethylamine	10	U
66-27-3	Methyl methanesulfonate	10	U
111-44-4	Bis(2-chloroethyl)ether	10	U
55-18-5	N-Nitrosodiethylamine	20	U
62-50-0	Ethyl methanesulfonate	20	U
108-95-2	Phenol	10	U
95-53-4	o-Toluidine	10	U
930-55-2	N-Nitrosopyrrolidine	40	U
95-57-8	2-Chlorophenol	10	U
98-86-2	Acetophenone	10	U
100-75-4	N-Nitrosopiperdine	20	U
126-68-1	O,O,O-Triethylphosphorothioate	10	U
1888-71-7	Hexachloropropene	10	U
87-65-0	2,6-Dichlorophenol	10	U
95-48-7	2-Methylphenol	10	U
67-72-1	Hexachloroethane	10	U
924-16-3	N-Nitroso-di-n-butylamine	10	U
621-64-7	N-Nitrosodi-n-propylamine	10	U
106-50-3	p-Phenylenediamine	10	U
106-44-5	(3+4)-Methylphenol	10	U
94-59-7	Safrole	10	U
95-94-3	1,2,4,5-Tetrachlorobenzene	10	U
98-95-3	Nitrobenzene	10	U
120-58-1	Isosafrole	10	U
78-59-1	Isophorone	10	U
130-15-4	1,4-Naphthoquinone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethylphenol	10	U
58-90-2	2,3,4,6-Tetrachlorophenol	10	U
111-91-1	Bis(2-chloroethoxy)methane	10	U
134-32-7	1-Naphthylamine	10	U
120-83-2	2,4-Dichlorophenol	10	U
608-93-5	Pentachlorobenzene	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U
91-20-3	Naphthalene	10	U
99-55-8	5-Nitro-o-toluidine	10	U
106-47-8	4-Chloroaniline	10	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW-14IB

Lab Name: UPSTATE LABS INC. Contract: CHA

Lab Code: 10170 Case No.: SAS No.: SDG No.: CHA78

Matrix: (soil/water) WATER Lab Sample ID: U0701392-012K

Sample wt/vol: 1000 (g/ml) ML Lab File ID: AE3308.D

Level: (low/med) LOW Date Received: 1/24/07

% Moisture: decanted:(Y/N) N Date Extracted: 1/25/07

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 2/21/07

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH:

CONCENTRATION UNITS:

CAS NO.	COMPOUND	(ug/L or ug/Kg) UG/L	Q
297-97-2	Thionazin	20	U
87-68-3	Hexachlorobutadiene	10	U
122-39-4	Diphenylamine	10	U
59-50-7	4-Chloro-3-methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
99-35-4	1,3,5-Trinitrobenzene	10	U R
62-44-2	Phenacetin	20	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
60-51-5	Dimethoate	10	U
95-95-4	2,4,5-Trichlorophenol	25	U
92-67-1	4-Aminobiphenyl	20	U
82-68-8	Pentachloronitrobenzene	20	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	25	U
298-04-4	Disulfoton	10	U
208-96-8	Acenaphthylene	10	U
	Diallate	20	U
23950-58-5	Pronamide	10	U
131-11-3	Dimethyl phthalate	10	U
298-0-0	Methyl parathion	10	U
606-20-2	2,6-Dinitrotoluene	10	U
83-32-9	Acenaphthene	10	U
99-09-2	3-Nitroaniline	25	U
298-02-2	Phorate	10	U
51-28-5	2,4-Dinitrophenol	25	U R
91-80-5	Methapyrilene	100	U
465-73-6	Isodrin	20	U
132-64-9	Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene	10	U
100-02-7	4-Nitrophenol	25	U
510-15-6	Chlorobenzilate	10	U
60-11-7	Dimethylaminoazobenzene	10	U
86-73-7	Fluorene	10	U
7005-72-3	4-Chlorophenyl phenyl ether	10	U
119-93-7	3,3'-Dimethylbenzidine	10	U
52-85-7	Famphur	20	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW-14IB

Lab Name: UPSTATE LABS INC. Contract: CHA

Lab Code: 10170 Case No.: _____ SAS No.: _____ SDG No.: CHA78

Matrix: (soil/water) WATER Lab Sample ID: U0701392-012K

Sample wt/vol: 1000 (g/ml) ML Lab File ID: AE3308.D

Level: (low/med) LOW Date Received: 1/24/07

% Moisture: _____ decanted:(Y/N) N Date Extracted: 1/25/07

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 2/21/07

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: _____

CONCENTRATION UNITS:

CAS NO.	COMPOUND (ug/L or ug/Kg) UG/L		Q
84-66-2	Diethyl phthalate	10	U
100-01-6	4-Nitroaniline	25	U
53-96-3	2-Acetylaminofluorene	20	U
57-97-6	7,12-Dimethylbenz(a)anthracene	10	U
534-52-1	4,6-Dinitro-2-methylphenol	25	U R
56-49-3	3-Methylcholanthrene	10	U
86-30-6	N-Nitrosodiphenylamine	10	U
101-55-3	4-Bromophenyl phenyl ether	10	U
118-74-1	Hexachlorobenzene	10	U
87-86-5	Pentachlorophenol	25	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
84-74-2	Di-n-butyl phthalate	10	U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
85-68-7	Butyl benzyl phthalate	10	U
91-94-1	3,3'-Dichlorobenzidine	10	U
218-01-9	Chrysene	10	U
117-81-7	Bis(2-ethylhexyl)phthalate	4	JB U
117-84-0	Di-n-octyl phthalate	10	U
205-99-2	Benzo(b)fluoranthene	10	U
207-08-9	Benzo(k)fluoranthene	10	U
50-32-8	Benzo(a)pyrene	10	U
193-39-5	Indeno(1,2,3-cd)pyrene	10	U
53-70-3	Dibenz(a,h)anthracene	10	U
191-24-2	Benzo(ghi)perylene	10	U
100-51-6	Benzyl alcohol	10	U
	Bis(2-chloroisopropyl)ether	10	U
	Kepone	25	U R
62-75-9	N-nitrosodimethylamine	10	U

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

MW-14IB

Lab Name: UPSTATE LABS INC. Contract: CHA

Lab Code: 10170 Case No.: SAS No.: SDG No.: CHA78

Matrix: (soil/water) WATER Lab Sample ID: U0701392-012K

Sample wt/vol: 1000 (g/ml) ML Lab File ID: AE3308.D

Level: (low/med) LOW Date Received: 1/24/07

% Moisture: decanted: (Y/N) N Date Extracted: 1/25/07

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 2/21/07

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH:

Number TICs found: 9

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 000112-34-5	Ethanol, 2-(2-butoxyethoxy)-	13.13	58	JN
2.	unknown	18.43	3	J
3.	unknown	21.69	4	J
4. 000629-54-9	Hexadecanamide	21.99	7	JN
5. 000301-02-0	9-Octadecenamide, (Z)-	23.24	25	JN
6. 000629-54-9	Hexadecanamide	23.38	4	JN
7.	unknown	25.08	2	J
8. 000112-84-5	Erucylamide	25.74	47	JN
9. 000111-02-4	2,6,10,14,18,22-Tetracosahexae	25.91	8	JN

1 D

PESTICIDE ANALYSIS DATA SHEET

NYSDEC SAMPLE NO.

MW-14IB

Lab Name:	Upsate Labs Inc.	Contract:	CHA
Lab Code:	10170	Case No:	
SAS No:		SDG No.	CHA-78
Matrix: (soil/water)	Water	Lab Sample ID:	701392-12
Sample wt/vol:	1000 (g/mL) ml	Lab File ID:	GA-3760
% Solids		Date Recieved:	1/24/07
Extraction: (SepF/Cont/Sonc)	SepF	Date Extracted:	1/26/07
Concentrated Extract Volume:	10	Date Analyzed:	2/8/07
Injection Volume:	1	Time Analyzed:	10:05 PM
GPC Cleanup: (Y/N)	N	Dilution Factor:	1
		Sulfur Cleanup:	Y

CONCENTRATION UNITS:

CAS NO.	COMPOUND	ug/L	Q
319-84-6	Alpha-BHC	0.05	U
319-85-7	Beta-BHC	0.05	U
319-86-8	Delta-BHC	0.05	U
58-89-9	Lindane	0.05	U
76-44-8	Heptachlor	0.05	U
309-00-2	Aldrin	0.05	U
1024-57-3	Heptachlor epoxide	0.05	U
959-98-8	Endosulfan I	0.05	U
60-57-1	Dieldrin	0.1	U
72-55-9	4,4'-DDE	0.1	U
72-20-8	Endrin	0.1	U
33213-65-9	Endosulfan II	0.1	U
72-54-8	4,4'-DDD	0.1	U
1031-07-8	Endosulfan sulfate	0.1	U
50-29-3	4,4'-DDT	0.1	U
72-43-5	Methoxychlor	0.5	U
53494-70-5	Endrin Ketone	0.1	U
7421-36-3	Endrin Aldehyde	0.1	U
5103-71-9	Alpha-chlordane	0.05	U
5103-74-2	Gamma-chlordane	0.05	U
8001-35-2	Toxaphene	5	U
12674-11-2	Aroclor 1016	1	U
11104-28-2	Aroclor 1221	1	U
11141-16-5	Aroclor 1232	1	U
53469-21-9	Aroclor 1242	1	U
12672-29-6	Aroclor 1248	1	U
11097-69-1	Aroclor 1254	1	U
11096-82-5	Aroclor 1260	1	U

FORM I-CLP-PEST

1A

HERBICIDE ANALYSIS DATA SHEET

NYSDEC SAMPLE NO.

MW-14IB

Lab Name:	Upsate Labs Inc.	Contract:	CHA
Lab Code:	10170	Case No:	
SAS No:		SDG No.	CHA-78
Matrix: (soil/water)	Water	Lab Sample ID:	701392-12
Sample wt/vol:	1000 (g/mL) ML	Lab File ID:	GA-3758
% Solids		Date Recieved:	1/24/07
Extraction: (SepF/Cont/Sonc)	Sep F	Date Extracted:	2/2/07
Concentrated Extract Volume:	10	Date Analyzed:	2/6/07
Injection Volume:	1	Time Analyzed:	12:01 AM
GPC Cleanup: (Y/N)	N	Dilution Factor:	10
		Sulfur Cleanup:	Y

CONCENTRATION UNITS:

CAS NO.	COMPOUND	ug/L	Q
94-75-7	2,4-D	1.0	U J
93-72-1	2,4,5-TP (Silvex)	1.0	U J
	2,4,5-T (Silvex)	1.0	U J
	Dinoseb	1.0	U J
	Dicamba	1.0	U J

FORM I-HERB

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

CLIENT SAMP ID

MW-14IB

Lab Name: Upstate Laboratories, Inc. Contract:

Lab Code: 10170 Case No. SAS No.: SDG No.: CHA78

Matrix (soil/water): WATER Lab Sample ID: U0701392-012

Level (low/med): LOW Date Received: 1/25/07

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	3610		*J	P
7440-36-0	Antimony	15.0	U		P
7440-38-2	Arsenic	12.1			P
7440-39-3	Barium	113	B		P
7440-41-7	Beryllium	3.0	U		P
7440-42-8	Boron	500	U		P
7440-43-9	Cadmium	5.0	U		P
7440-70-2	Calcium	68500			P
7440-47-3	Chromium	5.0	U		P
7440-48-4	Cobalt	20.0	U		P
7440-50-8	Copper	20.2	B		P
57-12-5	Cyanide	10.0	U		C
471-34-1	Hardness, T	215000			P
7439-89-6	Iron	8040			P
7439-92-1	Lead	8.6			P
7439-95-4	Magnesium	10600			P
7439-96-5	Manganese	275			P
7439-97-6	Mercury	0.20	U	J	CV
7440-02-0	Nickel	30.0	U		P
7440-09-7	Potassium	1280	B		P
7782-49-2	Selenium	5.0	U		P
7440-22-4	Silver	10.0	U		P
7440-23-5	Sodium	5770			P
7440-28-0	Thallium	10.0	U		P
7440-31-5	Tin	300	U		P
7440-62-2	Vanadium	30.0	U		P
7440-66-6	Zinc	34.0		N*J	P

Color Before: GREY Clarity Before: CLOUDY Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts: YES

Comments:

Brown Sediment

Upstate Laboratories, Inc.

Date: *26-Feb-07*

CLIENT:	Clough, Harbour & Assoc. LLP	Client Sample ID:	MW-14IB
Lab Order:	U0701392	Collection Date:	1/24/2007 3:15:00 PM
Project:	C/O Albany Interim Landfill New		
Lab ID:	U0701392-012	Matrix:	GROUNDWATER

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
INORGANIC ANIONS BY IC FOR WATERS		E300.1				Analyst: DD
Bromide	ND	2.0		mg/L	10	2/16/2007
NOTES: The reporting limits were raised due to matrix interference.						
COLOR		E110.2				Analyst: MG
Color	12.0	5.00		UNITS	1	1/25/2007 8:00:00 AM
RESIDUE, DISSOLVED (TDS)		E160.1				Analyst: NJS
Residue, Dissolved (TDS)	190	25	J	mg/L	1	1/29/2007
TURBIDITY		E180.1				Analyst: NJS
Turbidity	76.0	0.250		NTU	5	1/25/2007
ALKALINITY ON AQUEOUS SAMPLES BY LACHA		E310.2				Analyst: SAR
Alkalinity, Total (As CaCO3)	120	10		mg/LCaCO3	1	1/26/2007
CHLORIDE WATERS BY LACHAT		E325.2				Analyst: SAR
Chloride	15.5	1.00		mg/L	1	1/26/2007
CYANIDE, TOTAL ASP		E335.2		(E335.2)		Analyst: BY
Cyanide	ND	10.0		µg/L	1	1/31/2007
NITROGEN, AMMONIA (AS N)		E350.2				Analyst: MG
Nitrogen, Ammonia (As N)	ND	0.500		mg/L	1	2/2/2007
TKN FOR WATERS		E351.3				Analyst: MG
Nitrogen, Kjeldahl, Total	ND	0.500		mg/L	1	2/2/2007
NITROGEN, NITRATE (AS N)		E353.2				Analyst: BY
Nitrogen, Nitrate (as N)	ND	0.200		mg/L	1	1/25/2007 4:02:00 PM
SULFATE		E375.4				Analyst: NJS
Sulfate	25.4	5.00		mg/L	1	2/5/2007
SULFIDE, WATERS		E376.2				Analyst: BY
Sulfide	ND	0.100		mg/L	1	1/26/2007
BIOCHEMICAL OXYGEN DEMAND (5 DAY BOD)		E405.1				Analyst: DD
Biochemical Oxygen Demand	ND	4	J	mg/L	1	1/26/2007 8:00:00 AM
CHEMICAL OXYGEN DEMAND (COD)		E410.4				Analyst: BS
Chemical Oxygen Demand	ND	20		mg/L	1	2/9/2007
TOTAL ORGANIC CARBON (TOC)		E415.1				Analyst: BS
Organic Carbon, Total	ND	3.0		mg/L	1	2/9/2007

-132-

Approved By: _____ Date: _____

Qualifiers:				
	*	Low Level	**	Value exceeds Maximum Contaminant Value
	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	S	Spike Recovery outside accepted recovery limits

Upstate Laboratories, Inc.

Date: *26-Feb-07*

CLIENT:	Clough, Harbour & Assoc. LLP	**Client Sample ID:**	MW-14IB
Lab Order:	U0701392	**Collection Date:**	1/24/2007 3:15:00 PM
Project:	C/O Albany Interim Landfill New		
Lab ID:	U0701392-012	**Matrix:**	GROUNDWATER

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
PHENOLICS, TOTAL REC. FOR WATERS		**E420.1**		**(E420.1)**		Analyst: **SAR**
Phenolics, Total Recoverable	ND	0.005		mg/L	1	2/13/2007
HEXAVALENT CHROMIUM BY ASP 2005		**SM3500**				Analyst: **MG**
Hexavalent chromium	ND	0.010		mg/L	1	1/25/2007 8:00:00 AM

-133-

Approved By: _____ **Date:** _____

Qualifiers:	*	Low Level	**	Value exceeds Maximum Contaminant Value
	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	S	Spike Recovery outside accepted recovery limits

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW-14DA

Lab Name: Upstate Labs Inc. Contract: CHA

Lab Code: 10170 Case No.: _____ SAS No.: _____ SDG No.: CHA78

Matrix: (soil/water) WATER Lab Sample ID: U0701392-013L

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: C16670.D

Level: (low/med) LOW Date Received: 1/24/07

% Moisture: not dec. _____ Date Analyzed: 2/5/07

GC Column: RTX-VO ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND	(ug/L or ug/Kg) UG/L	Q
75-71-8	Dichlorodifluoromethane	5	U J
74-87-3	Chloromethane	5	U J
75-1-4	Vinyl Chloride	5	U J
74-83-9	Bromomethane	5	U J
75-00-3	Chloroethane	5	U J
75-69-4	Trichlorofluoromethane	5	U J
107-02-8	Acrolein	100	U R
67-64-1	Acetone	10	U J
75-35-4	1,1-Dichloroethene	5	U J
75-05-8	Acetonitrile	100	U R
74-88-4	Iodomethane	5	U J
107-05-1	Allyl Chloride	5	U J
75-15-0	Carbon Disulfide	5	U J
75-09-2	Methylene Chloride	5	U J
107-13-1	Acrylonitrile	100	U R
156-60-5	trans-1,2-Dichloroethene	5	U J
75-34-33	1,1-Dichloroethane	5	U J
108-5-4	Vinyl Acetate	50	U J
126-99-8	Chloroprene	10	U J
78-93-3	2-Butanone	10	U J
107-12-0	Propionitrile	100	U R
594-20-7	2,2-Dichloropropane	5	U J
156-59-2	cis-1,2-Dichloroethene	5	U J
126-98-7	Methacrylonitrile	10	U J
67-66-3	Chloroform	5	U J
74-97-5	Bromochloromethane	5	U J
78-83-1	Isobutyl Alcohol	1000	U R
71-55-6	1,1,1-Trichloroethane	5	U J
563-58-6	1,1-Dichloropropene	5	U J
56-23-5	Carbon Tetrachloride	5	U J
71-43-2	Benzene	5	U J
107-06-2	1,2-Dichloroethane	5	U J
97-01-6	Trichloroethene	5	U J
78-87-5	1,2-Dichloropropane	5	U J
80-62-6	Methyl Methacrylate	10	U J
75-27-4	Bromodichloromethane	5	U J
74-95-3	Dibromomethane	5	U J
108-10-1	4-Methyl-2-pentanone	10	U J
10061-1-5	cis-1,3-Dichloropropene	5	U J

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW-14DA

Lab Name: Upstate Labs Inc. Contract: CHA

Lab Code: 10170 Case No.: _____ SAS No.: _____ SDG No.: CHA78

Matrix: (soil/water) WATER Lab Sample ID: U0701392-013L

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: C16670.D

Level: (low/med) LOW Date Received: 1/24/07

% Moisture: not dec. _____ Date Analyzed: 2/5/07

GC Column: RTX-VO ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND (ug/L or ug/Kg) UG/L		Q
108-88-3	Toluene	5	U J
10061-2-6	trans-1,3-Dichloropropene	5	U J
97-63-2	Ethyl Methacrylate	10	U J
79-00-5	1,1,2-Trichloroethane	5	U J
591-78-6	2-Hexanone	10	U J
142-28-9	1,3-Dichloropropane	5	U J
127-18-4	Tetrachloroethene	5	U J
124-48-1	Dibromochloromethane	5	U J
106-93-4	1,2-Dibromoethane	5	U J
108-90-7	Chlorobenzene	5	U J
630-20-6	1,1,1,2-Tetrachloroethane	5	U J
100-41-4	Ethylbenzene	5	U J
108-38-3	m,p-Xylene	5	U J
95-47-6	o-Xylene	5	U J
100-42-5	Styrene	5	U J
75-25-2	Bromoform	5	U J
79-34-5	1,1,2,2-Tetrachloroethane	5	U J
96-18-4	1,2,3-Trichloropropane	5	U J
110-57-6	1,4-Dichloro-2-butene	10	U J
541-73-1	1,3-Dichlorobenzene	5	U J
106-46-7	1,4-Dichlorobenzene	5	U J
95-50-1	1,2-Dichlorobenzene	5	U J
96-12-8	1,2-Dibromo-3-chloro-propane	10	U J

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

MW-14DA

Lab Name: Upstate Labs Inc. Contract: CHA

Lab Code: 10170 Case No.: _____ SAS No.: _____ SDG No.: CHA78

Matrix: (soil/water) WATER Lab Sample ID: U0701392-013L

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: C16670.D

Level: (low/med) LOW Date Received: 1/24/07

% Moisture: not dec. _____ Date Analyzed: 2/5/07

GC Column: RTX-VO ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

Number TICs found: 0

CAS NO.	COMPOUND NAME	RT	EST. CONC.	Q

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW-14DA

Lab Name: UPSTATE LABS INC. Contract: CHA

Lab Code: 10170 Case No.: _____ SAS No.: _____ SDG No.: CHA78

Matrix: (soil/water) WATER Lab Sample ID: U0701392-013K

Sample wt/vol: 1000 (g/ml) ML Lab File ID: AE3315.D

Level: (low/med) LOW Date Received: 1/24/07

% Moisture: _____ decanted:(Y/N) N Date Extracted: 1/25/07

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 2/21/07

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: _____

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
10595-95-6	N-Nitrosomethethylamine	10	U
66-27-3	Methyl methanesulfonate	10	U
111-44-4	Bis(2-chloroethyl)ether	10	U
55-18-5	N-Nitrosodiethylamine	20	U
62-50-0	Ethyl methanesulfonate	20	U
108-95-2	Phenol	10	U
95-53-4	o-Toluidine	10	U
930-55-2	N-Nitrosopyrrolidine	40	U
95-57-8	2-Chlorophenol	10	U
98-86-2	Acetophenone	10	U
100-75-4	N-Nitrosopiperdine	20	U
126-68-1	O,O,O-Triethylphosphorothioate	10	U
1888-71-7	Hexachloropropene	10	U
87-65-0	2,6-Dichlorophenol	10	U
95-48-7	2-Methylphenol	10	U
67-72-1	Hexachloroethane	10	U
924-16-3	N-Nitroso-di-n-butylamine	10	U
621-64-7	N-Nitrosodi-n-propylamine	10	U
106-50-3	p-Phenylenediamine	10	U
106-44-5	(3+4)-Methylphenol	10	U
94-59-7	Safrole	10	U
95-94-3	1,2,4,5-Tetrachlorobenzene	10	U
98-95-3	Nitrobenzene	10	U
120-58-1	Isosafrole	10	U
78-59-1	Isophorone	10	U
130-15-4	1,4-Naphthoquinone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethylphenol	10	U
58-90-2	2,3,4,6-Tetrachlorophenol	10	U
111-91-1	Bis(2-chloroethoxy)methane	10	U
134-32-7	1-Naphthylamine	10	U
120-83-2	2,4-Dichlorophenol	10	U
608-93-5	Pentachlorobenzene	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U
91-20-3	Naphthalene	10	U
99-55-8	5-Nitro-o-toluidine	10	U
106-47-8	4-Chloroaniline	10	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW-14DA

Lab Name: UPSTATE LABS INC. Contract: CHA

Lab Code: 10170 Case No.: SAS No.: SDG No.: CHA78

Matrix: (soil/water) WATER Lab Sample ID: U0701392-013K

Sample wt/vol: 1000 (g/ml) ML Lab File ID: AE3315.D

Level: (low/med) LOW Date Received: 1/24/07

% Moisture: decanted:(Y/N) N Date Extracted: 1/25/07

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 2/21/07

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH:

CONCENTRATION UNITS:

CAS NO.	COMPOUND	(ug/L or ug/Kg) UG/L	Q
297-97-2	Thionazin	20	U
87-68-3	Hexachlorobutadiene	10	U
122-39-4	Diphenylamine	10	U
59-50-7	4-Chloro-3-methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
99-35-4	1,3,5-Trinitrobenzene	10	U R
62-44-2	Phenacetin	20	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
60-51-5	Dimethoate	10	U
95-95-4	2,4,5-Trichlorophenol	25	U
92-67-1	4-Aminobiphenyl	20	U
82-68-8	Pentachloronitrobenzene	20	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	25	U
298-04-4	Disulfoton	10	U
208-96-8	Acenaphthylene	10	U
	Diallate	20	U
23950-58-5	Pronamide	10	U
131-11-3	Dimethyl phthalate	10	U
298-0-0	Methyl parathion	10	U
606-20-2	2,6-Dinitrotoluene	10	U
83-32-9	Acenaphthene	10	U
99-09-2	3-Nitroaniline	25	U
298-02-2	Phorate	10	U
51-28-5	2,4-Dinitrophenol	25	U R
91-80-5	Methapyrilene	100	U
465-73-6	Isodrin	20	U
132-64-9	Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene	10	U
100-02-7	4-Nitrophenol	25	U
510-15-6	Chlorobenzilate	10	U
60-11-7	Dimethylaminoazobenzene	10	U
86-73-7	Fluorene	10	U
7005-72-3	4-Chlorophenyl phenyl ether	10	U
119-93-7	3,3'-Dimethylbenzidine	10	U
52-85-7	Famphur	20	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW-14DA

Lab Name: UPSTATE LABS INC. Contract: CHA

Lab Code: 10170 Case No.: _____ SAS No.: _____ SDG No.: CHA78

Matrix: (soil/water) WATER Lab Sample ID: U0701392-013K

Sample wt/vol: 1000 (g/ml) ML Lab File ID: AE3315.D

Level: (low/med) LOW Date Received: 1/24/07

% Moisture: _____ decanted:(Y/N) N Date Extracted: 1/25/07

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 2/21/07

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: _____

CONCENTRATION UNITS:

CAS NO.	COMPOUND	(ug/L or ug/Kg) UG/L	Q
84-66-2	Diethyl phthalate	10	U
100-01-6	4-Nitroaniline	25	U
53-96-3	2-Acetylaminofluorene	20	U
57-97-6	7,12-Dimethylbenz(a)anthracene	10	U
534-52-1	4,6-Dinitro-2-methylphenol	25	U R
56-49-3	3-Methylcholanthrene	10	U
86-30-6	N-Nitrosodiphenylamine	10	U
101-55-3	4-Bromophenyl phenyl ether	10	U
118-74-1	Hexachlorobenzene	10	U
87-86-5	Pentachlorophenol	25	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
84-74-2	Di-n-butyl phthalate	10	U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
85-68-7	Butyl benzyl phthalate	10	U
91-94-1	3,3'-Dichlorobenzidine	10	U
218-01-9	Chrysene	10	U
117-81-7	Bis(2-ethylhexyl)phthalate	4	~~JB~~ U
117-84-0	Di-n-octyl phthalate	10	U
205-99-2	Benzo(b)fluoranthene	10	U
207-08-9	Benzo(k)fluoranthene	10	U
50-32-8	Benzo(a)pyrene	10	U
193-39-5	Indeno(1,2,3-cd)pyrene	10	U
53-70-3	Dibenz(a,h)anthracene	10	U
191-24-2	Benzo(ghi)perylene	10	U
100-51-6	Benzyl alcohol	10	U
	Bis(2-chloroisopropyl)ether	10	U
	Kepone	25	U R
62-75-9	N-nitrosodimethylamine	10	U

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

MW-14DA

Lab Name: UPSTATE LABS INC. Contract: CHA

Lab Code: 10170 Case No.: SAS No.: SDG No.: CHA78

Matrix: (soil/water) WATER Lab Sample ID: U0701392-013K

Sample wt/vol: 1000 (g/ml) ML Lab File ID: AE3315.D

Level: (low/med) LOW Date Received: 1/24/07

% Moisture: decanted: (Y/N) N Date Extracted: 1/25/07

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 2/21/07

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH:

CONCENTRATION UNITS:

Number TICs found: 10 (ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	unknown	21.67	3	J
2.	unknown	21.97	2	J
3.	unknown	23.14	4	J
4. 000301-02-0	9-Octadecenamide, (Z)-	23.21	19	JN
5.	unknown	23.38	4	J
6.	unknown	24.75	3	J
7.	unknown	24.99	2	J
8. 000112-84-5	Erucylamide	25.72	28	JN
9. 000111-02-4	2,6,10,14,18,22-Tetracosahexae	25.88	26	JN
10.	unknown	26.27	3	J

1 D
PESTICIDE ANALYSIS DATA SHEET

NYSDEC SAMPLE NO.
MW-14DA

Lab Name: Upsate Labs Inc
Contract: CHA
Lab Code: 10170
Case No:
SAS No:
SDG No. CHA-78
Matrix: (soil/water) Water
Lab Sample ID: 701392-13
Sample wt/vol: 1000 (g/mL) ml
Lab File ID: GA-3760
% Solids
Date Recieved: 1/24/07
Extraction: (SepF/Cont/Sonc) SepF.
Date Extracted: 1/26/07
Concentrated Extract Volume: 10
Date Analyzed: 2/8/07
Injection Volume: 1
Time Analyzed: 10:27 PM
GPC Cleanup: (Y/N) N
Dilution Factor: 1
Sulfur Cleanup: Y

CONCENTRATION UNITS:

CAS NO.	COMPOUND	ug/L	Q
319-84-6	Alpha-BHC	0.05	U
319-85-7	Beta-BHC	0.05	U
319-86-8	Delta-BHC	0.05	U
58-89-9	Lindane	0.05	U
76-44-8	Heptachlor	0.05	U
309-00-2	Aldrin	0.05	U
1024-57-3	Heptachlor epoxide	0.05	U
959-98-8	Endosulfan I	0.05	U
60-57-1	Dieldrin	0.1	U
72-55-9	4,4'-DDE	0.1	U
72-20-8	Endrin	0.1	U
33213-65-9	Endosulfan II	0.1	U
72-54-8	4,4'-DDD	0.1	U
1031-07-8	Endosulfan sulfate	0.1	U
50-29-3	4,4'-DDT	0.1	U
72-43-5	Methoxychlor	0.5	U
53494-70-5	Endrin Ketone	0.1	U
7421-36-3	Endrin Aldehyde	0.1	U
5103-71-9	Alpha-chlordane	0.05	U
5103-74-2	Gamma-chlordane	0.05	U
8001-35-2	Toxaphene	5	U
12674-11-2	Aroclor 1016	1	U
11104-28-2	Aroclor 1221	1	U
11141-16-5	Aroclor 1232	1	U
53469-21-9	Aroclor 1242	1	U
12672-29-6	Aroclor 1248	1	U
11097-69-1	Aroclor 1254	1	U
11096-82-5	Aroclor 1260	1	U

FORM I-CLP-PEST

1A

HERBICIDE ANALYSIS DATA SHEET

NYSDEC SAMPLE NO.

MW-14DA

Lab Name:	Upsate Labs Inc.	Contract:	CHA		
Lab Code:	10170	Case No:		SAS No:	SDG No. CHA-78
Matrix: (soil/water)	Water			Lab Sample ID.	701392-13
Sample wt/vol:	1000 (g/mL) ML			Lab File ID:	GA-3758
% Solids				Date Recieved:	1/24/07
Extraction: (SepF/Cont/Sonc)	Sep F			Date Extracted:	2/2/07
Concentrated Extract Volume:	10			Date Analyzed:	2/6/07
Injection Volume:	1			Time Analyzed:	12.29 AM
GPC Cleanup. (Y/N)	N			Dilution Factor:	10
				Sulfur Cleanup.	Y

CONCENTRATION UNITS:

CAS NO.	COMPOUND	ug/L	Q
94-75-7	2,4-D	1.0	U J
93-72-1	2,4,5-TP (Silvex)	1.0	U J
	2,4,5-T (Silvex)	1.0	U J
	Dinoseb	1.0	U J
	Dicamba	1.0	U J

FORM I-HERB

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

CLIENT SAMP ID

MW-14DA

Lab Name: Upstate Laboratories, Inc. Contract:

Lab Code: 10170 Case No. SAS No.: SDG No.: CHA78

Matrix (soil/water): WATER Lab Sample ID: U0701392-013

Level (low/med): LOW Date Received: 1/25/07

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	2870		* J	P
7440-36-0	Antimony	15.0	U		P
7440-38-2	Arsenic	10.0			P
7440-39-3	Barium	69.2	B		P
7440-41-7	Beryllium	3.0	U		P
7440-42-8	Boron	500	U		P
7440-43-9	Cadmium	5.0	U		P
7440-70-2	Calcium	35400			P
7440-47-3	Chromium	5.0	U		P
7440-48-4	Cobalt	20.0	U		P
7440-50-8	Copper	21.1	B		P
57-12-5	Cyanide	10.0	U		C
471-34-1	Hardness, T	119000			P
7439-89-6	Iron	5660			P
7439-92-1	Lead	3.9			P
7439-95-4	Magnesium	7400			P
7439-96-5	Manganese	203			P
7439-97-6	Mercury	0.20	U	J	CV
7440-02-0	Nickel	30.0	U		P
7440-09-7	Potassium	1160	B		P
7782-49-2	Selenium	5.0	U		P
7440-22-4	Silver	10.0	U		P
7440-23-5	Sodium	16000			P
7440-28-0	Thallium	10.0	U		P
7440-31-5	Tin	300	U		P
7440-62-2	Vanadium	30.0	U		P
7440-66-6	Zinc	37.8		N* J	P

-143-

Color Before: GREY Clarity Before: CLOUDY Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts: YES

Comments:

Brown Sediment

Upstate Laboratories, Inc.

Date: *26-Feb-07*

CLIENT:	Clough, Harbour & Assoc. LLP	**Client Sample ID:**	MW-14DA
Lab Order:	U0701392	**Collection Date:**	1/24/2007 12:00:00 PM
Project:	C/O Albany Interim Landfill New		
Lab ID:	U0701392-013	**Matrix:**	GROUNDWATER

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
INORGANIC ANIONS BY IC FOR WATERS		E300.1				Analyst: DD
Bromide	ND	20		mg/L	100	2/17/2007
NOTES: The reporting limits were raised due to matrix interference.						
COLOR		E110.2				Analyst: MG
Color	18.0	5.00		UNITS	1	1/25/2007 8:00:00 AM
RESIDUE, DISSOLVED (TDS)		E160.1				Analyst: NJS
Residue, Dissolved (TDS)	160	25	J	mg/L	1	1/29/2007
TURBIDITY		E180.1				Analyst: NJS
Turbidity	101	0.250		NTU	5	1/25/2007
ALKALINITY ON AQUEOUS SAMPLES BY LACHA		E310.2				Analyst: SAR
Alkalinity, Total (As CaCO3)	100	10		mg/LCaCO3	1	1/26/2007
CHLORIDE WATERS BY LACHAT		E325.2				Analyst: SAR
Chloride	7.38	1.00		mg/L	1	1/26/2007
CYANIDE, TOTAL ASP		E335.2		(E335.2)		Analyst: BY
Cyanide	ND	10.0		µg/L	1	1/31/2007
NITROGEN, AMMONIA (AS N)		E350.2				Analyst: MG
Nitrogen, Ammonia (As N)	ND	0.500		mg/L	1	2/2/2007
TKN FOR WATERS		E351.3				Analyst: MG
Nitrogen, Kjeldahl, Total	ND	0.500		mg/L	1	2/2/2007
NITROGEN, NITRATE (AS N)		E353.2				Analyst: BY
Nitrogen, Nitrate (as N)	ND	0.200		mg/L	1	1/25/2007 4:02:00 PM
SULFATE		E375.4				Analyst: NJS
Sulfate	ND	5.00		mg/L	1	2/5/2007
SULFIDE, WATERS		E376.2				Analyst: BY
Sulfide	ND	0.100		mg/L	1	1/26/2007
BIOCHEMICAL OXYGEN DEMAND (5 DAY BOD)		E405.1				Analyst: DD
Biochemical Oxygen Demand	ND	4	J	mg/L	1	1/26/2007 8:00:00 AM
CHEMICAL OXYGEN DEMAND (COD)		E410.4				Analyst: BS
Chemical Oxygen Demand	ND	20		mg/L	1	2/9/2007
TOTAL ORGANIC CARBON (TOC)		E415.1				Analyst: BS
Organic Carbon, Total	ND	3.0		mg/L	1	2/9/2007

-144-

Approved By: _____ **Date:** _____

Qualifiers:

*	Low Level	**	Value exceeds Maximum Contaminant Value
B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	S	Spike Recovery outside accepted recovery limits

Upstate Laboratories, Inc.

Date: *26-Feb-07*

CLIENT:	Clough, Harbour & Assoc. LLP	**Client Sample ID:**	MW-14DA
Lab Order:	U0701392	**Collection Date:**	1/24/2007 12:00:00 PM
Project:	C/O Albany Interim Landfill New		
Lab ID:	U0701392-013	**Matrix:**	GROUNDWATER

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
PHENOLICS, TOTAL REC. FOR WATERS		**E420.1**		**(E420.1)**		Analyst: **SAR**
Phenolics, Total Recoverable	ND	0.005		mg/L	1	2/13/2007
HEXAVALENT CHROMIUM BY ASP 2005		**SM3500**				Analyst: **MG**
Hexavalent chromium	ND	0.010		mg/L	1	1/25/2007 8:00:00 AM

Approved By: _____ **Date:** _____

Qualifiers:

*	Low Level	**	Value exceeds Maximum Contaminant Value
B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	S	Spike Recovery outside accepted recovery limits

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW-14DB

Lab Name: Upstate Labs Inc. Contract: CHA

Lab Code: 10170 Case No.: _____ SAS No.: _____ SDG No.: CHA78

Matrix: (soil/water) WATER Lab Sample ID: U0701392-014L

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: C16671.D

Level: (low/med) LOW Date Received: 1/24/07

% Moisture: not dec. _____ Date Analyzed: 2/5/07

GC Column: RTX-VO ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND	(ug/L or ug/Kg) UG/L	Q
75-71-8	Dichlorodifluoromethane	5	U J
74-87-3	Chloromethane	5	U J
75-1-4	Vinyl Chloride	5	U J
74-83-9	Bromomethane	5	U J
75-00-3	Chloroethane	5	U J
75-69-4	Trichlorofluoromethane	5	U J
107-02-8	Acrolein	100	U R
67-64-1	Acetone	10	U J
75-35-4	1,1-Dichloroethene	5	U J
75-05-8	Acetonitrile	100	U R
74-88-4	Iodomethane	5	U J
107-05-1	Allyl Chloride	5	U J
75-15-0	Carbon Disulfide	5	U J
75-09-2	Methylene Chloride	5	U J
107-13-1	Acrylonitrile	100	U R
156-60-5	trans-1,2-Dichloroethene	5	U J
75-34-33	1,1-Dichloroethane	5	U J
108-5-4	Vinyl Acetate	50	U J
126-99-8	Chloroprene	10	U J
78-93-3	2-Butanone	10	U J
107-12-0	Propionitrile	100	U R
594-20-7	2,2-Dichloropropane	5	U J
156-59-2	cis-1,2-Dichloroethene	5	U J
126-98-7	Methacrylonitrile	10	U J
67-66-3	Chloroform	5	U J
74-97-5	Bromochloromethane	5	U J
78-83-1	Isobutyl Alcohol	1000	U R
71-55-6	1,1,1-Trichloroethane	5	U J
563-58-6	1,1-Dichloropropene	5	U J
56-23-5	Carbon Tetrachloride	5	U J
71-43-2	Benzene	5	U J
107-06-2	1,2-Dichloroethane	5	U J
97-01-6	Trichloroethene	5	U J
78-87-5	1,2-Dichloropropane	5	U J
80-62-6	Methyl Methacrylate	10	U J
75-27-4	Bromodichloromethane	5	U J
74-95-3	Dibromomethane	5	U J
108-10-1	4-Methyl-2-pentanone	10	U J
10061-1-5	cis-1,3-Dichloropropene	5	U J

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW-14DB

Lab Name: Upstate Labs Inc. Contract: CHA

Lab Code: 10170 Case No.: SAS No.: SDG No.: CHA78

Matrix: (soil/water) WATER Lab Sample ID: U0701392-014L

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: C16671.D

Level: (low/med) LOW Date Received: 1/24/07

% Moisture: not dec. Date Analyzed: 2/5/07

GC Column: RTX-VO ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND (ug/L or ug/Kg) UG/L		Q
108-88-3	Toluene	5	U J
10061-2-6	trans-1,3-Dichloropropene	5	U J
97-63-2	Ethyl Methacrylate	10	U J
79-00-5	1,1,2-Trichloroethane	5	U J
591-78-6	2-Hexanone	10	U J
142-28-9	1,3-Dichloropropane	5	U J
127-18-4	Tetrachloroethene	5	U J
124-48-1	Dibromochloromethane	5	U J
106-93-4	1,2-Dibromoethane	5	U J
108-90-7	Chlorobenzene	5	U J
630-20-6	1,1,1,2-Tetrachloroethane	5	U J
100-41-4	Ethylbenzene	5	U J
108-38-3	m,p-Xylene	5	U J
95-47-6	o-Xylene	5	U J
100-42-5	Styrene	5	U J
75-25-2	Bromoform	5	U J
79-34-5	1,1,2,2-Tetrachloroethane	5	U J
96-18-4	1,2,3-Trichloropropane	5	U J
110-57-6	1,4-Dichloro-2-butene	10	U J
541-73-1	1,3-Dichlorobenzene	5	U J
106-46-7	1,4-Dichlorobenzene	5	U J
95-50-1	1,2-Dichlorobenzene	5	U J
96-12-8	1,2-Dibromo-3-chloro-propane	10	U J

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

MW-14DB

Lab Name: Upstate Labs Inc. Contract: CHA

Lab Code: 10170 Case No.: _____ SAS No.: _____ SDG No.: CHA78

Matrix: (soil/water) WATER Lab Sample ID: U0701392-014L

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: C16671.D

Level: (low/med) LOW Date Received: 1/24/07

% Moisture: not dec. _____ Date Analyzed: 2/5/07

GC Column: RTX-VO ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

Number TICs found: 0

CAS NO.	COMPOUND NAME	RT	EST. CONC.	Q

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW-14DB

Lab Name: UPSTATE LABS INC. Contract: CHA

Lab Code: 10170 Case No.: _____ SAS No.: _____ SDG No.: CHA78

Matrix: (soil/water) WATER Lab Sample ID: U0701392-014K

Sample wt/vol: 1000 (g/ml) ML Lab File ID: AE3316.D

Level: (low/med) LOW Date Received: 1/24/07

% Moisture: _____ decanted:(Y/N) N Date Extracted: 1/25/07

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 2/21/07

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: _____

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
10595-95-6	N-Nitrosomethethylamine	10	U
66-27-3	Methyl methanesulfonate	10	U
111-44-4	Bis(2-chloroethyl)ether	10	U
55-18-5	N-Nitrosodiethylamine	20	U
62-50-0	Ethyl methanesulfonate	20	U
108-95-2	Phenol	10	U
95-53-4	o-Toluidine	10	U
930-55-2	N-Nitrosopyrrolidine	40	U
95-57-8	2-Chlorophenol	10	U
98-86-2	Acetophenone	10	U
100-75-4	N-Nitrosopiperdine	20	U
126-68-1	O,O,O-Triethylphosphorothioate	10	U
1888-71-7	Hexachloropropene	10	U
87-65-0	2,6-Dichlorophenol	10	U
95-48-7	2-Methylphenol	10	U
67-72-1	Hexachloroethane	10	U
924-16-3	N-Nitroso-di-n-butylamine	10	U
621-64-7	N-Nitrosodi-n-propylamine	10	U
106-50-3	p-Phenylenediamine	10	U
106-44-5	(3+4)-Methylphenol	10	U
94-59-7	Safrole	10	U
95-94-3	1,2,4,5-Tetrachlorobenzene	10	U
98-95-3	Nitrobenzene	10	U
120-58-1	Isosafrole	10	U
78-59-1	Isophorone	10	U
130-15-4	1,4-Naphthoquinone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethylphenol	10	U
58-90-2	2,3,4,6-Tetrachlorophenol	10	U
111-91-1	Bis(2-chloroethoxy)methane	10	U
134-32-7	1-Naphthylamine	10	U
120-83-2	2,4-Dichlorophenol	10	U
608-93-5	Pentachlorobenzene	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U
91-20-3	Naphthalene	10	U
99-55-8	5-Nitro-o-toluidine	10	U
106-47-8	4-Chloroaniline	10	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW-14DB

Lab Name: UPSTATE LABS INC. Contract: CHA

Lab Code: 10170 Case No.: _____ SAS No.: _____ SDG No.: CHA78

Matrix: (soil/water) WATER Lab Sample ID: U0701392-014K

Sample wt/vol: 1000 (g/ml) ML Lab File ID: AE3316.D

Level: (low/med) LOW Date Received: 1/24/07

% Moisture: _____ decanted:(Y/N) N Date Extracted: 1/25/07

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 2/21/07

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: _____

CONCENTRATION UNITS:

CAS NO.	COMPOUND	(ug/L or ug/Kg) UG/L	Q
297-97-2	Thionazin	20	U
87-68-3	Hexachlorobutadiene	10	U
122-39-4	Diphenylamine	10	U
59-50-7	4-Chloro-3-methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
99-35-4	1,3,5-Trinitrobenzene	10	U R
62-44-2	Phenacetin	20	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
60-51-5	Dimethoate	10	U
95-95-4	2,4,5-Trichlorophenol	25	U
92-67-1	4-Aminobiphenyl	20	U
82-68-8	Pentachloronitrobenzene	20	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	25	U
298-04-4	Disulfoton	10	U
208-96-8	Acenaphthylene	10	U
	Diallate	20	U
23950-58-5	Pronamide	10	U
131-11-3	Dimethyl phthalate	10	U
298-0-0	Methyl parathion	10	U
606-20-2	2,6-Dinitrotoluene	10	U
83-32-9	Acenaphthene	10	U
99-09-2	3-Nitroaniline	25	U
298-02-2	Phorate	10	U
51-28-5	2,4-Dinitrophenol	25	U R
91-80-5	Methapyrilene	100	U
465-73-6	Isodrin	20	U
132-64-9	Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene	10	U
100-02-7	4-Nitrophenol	25	U
510-15-6	Chlorobenzilate	10	U
60-11-7	Dimethylaminoazobenzene	10	U
86-73-7	Fluorene	10	U
7005-72-3	4-Chlorophenyl phenyl ether	10	U
119-93-7	3,3'-Dimethylbenzidine	10	U
52-85-7	Famphur	20	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW-14DB

Lab Name: UPSTATE LABS INC. Contract: CHA

Lab Code: 10170 Case No.: _____ SAS No.: _____ SDG No.: CHA78

Matrix: (soil/water) WATER Lab Sample ID: U0701392-014K

Sample wt/vol: 1000 (g/ml) ML Lab File ID: AE3316.D

Level: (low/med) LOW Date Received: 1/24/07

% Moisture: _____ decanted:(Y/N) N Date Extracted: 1/25/07

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 2/21/07

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: _____

CONCENTRATION UNITS:

CAS NO.	COMPOUND	(ug/L or ug/Kg) UG/L	Q
84-66-2	Diethyl phthalate	10	U
100-01-6	4-Nitroaniline	25	U
53-96-3	2-Acetylaminofluorene	20	U
57-97-6	7,12-Dimethylbenz(a)anthracene	10	U
534-52-1	4,6-Dinitro-2-methylphenol	25	U R
56-49-3	3-Methylcholanthrene	10	U
86-30-6	N-Nitrosodiphenylamine	10	U
101-55-3	4-Bromophenyl phenyl ether	10	U
118-74-1	Hexachlorobenzene	10	U
87-86-5	Pentachlorophenol	25	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
84-74-2	Di-n-butyl phthalate	10	U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
85-68-7	Butyl benzyl phthalate	10	U
91-94-1	3,3'-Dichlorobenzidine	10	U
218-01-9	Chrysene	10	U
117-81-7	Bis(2-ethylhexyl)phthalate	7	~~JB~~ U
117-84-0	Di-n-octyl phthalate	10	U
205-99-2	Benzo(b)fluoranthene	10	U
207-08-9	Benzo(k)fluoranthene	10	U
50-32-8	Benzo(a)pyrene	10	U
193-39-5	Indeno(1,2,3-cd)pyrene	10	U
53-70-3	Dibenz(a,h)anthracene	10	U
191-24-2	Benzo(ghi)perylene	10	U
100-51-6	Benzyl alcohol	10	U
	Bis(2-chloroisopropyl)ether	10	U
	Kepone	25	U R
62-75-9	N-nitrosodimethylamine	10	U

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

MW-14DB

Lab Name: UPSTATE LABS INC. Contract: CHA

Lab Code: 10170 Case No.: _____ SAS No.: _____ SDG No.: CHA78

Matrix: (soil/water) WATER Lab Sample ID: U0701392-014K

Sample wt/vol: 1000 (g/ml) ML Lab File ID: AE3316.D

Level: (low/med) LOW Date Received: 1/24/07

% Moisture: _____ decanted: (Y/N) N Date Extracted: 1/25/07

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 2/21/07

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: _____

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

Number TICs found: 13

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	unknown	21.66	5	J
2.	unknown	21.72	3	J
3. 000629-54-9	Hexadecanamide	21.97	6	JN
4.	unknown	23.15	8	J
5. 000301-02-0	9-Octadecenamide, (Z)-	23.22	55	JN
6.	unknown	23.39	9	J
7.	unknown	24.01	3	J
8.	unknown	24.70	3	J
9.	unknown	24.74	8	J
10.	unknown	24.81	3	J
11.	unknown	25.00	6	J
12. 000112-84-5	Erucylamide	25.72	42	JN
13. 007683-64-9	Squalene	25.89	16	JN

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PESTICIDE ANALYSIS DATA SHEET

NYSDEC SAMPLE NO.

MW-14DB

Lab Name:	Upsate Labs Inc.	Contract:	CHA
Lab Code:	10170	Case No:	
SAS No:		SDG No.	CHA-78
Matrix: (soil/water)	Water	Lab Sample ID:	701392-14
Sample wt/vol:	1000 (g/mL) ml	Lab File ID:	GA-3760
% Solids		Date Recieved:	1/24/07
Extraction: (SepF/Cont/Sonc)	SepF.	Date Extracted:	1/26/07
Concentrated Extract Volume:	10	Date Analyzed:	2/8/07
Injection Volume:	1	Time Analyzed:	10:50 PM
GPC Cleanup: (Y/N)	N	Dilution Factor:	1
		Sulfur Cleanup:	Y

CONCENTRATION UNITS:

CAS NO.	COMPOUND	ug/L	Q
319-84-6	Alpha-BHC	0.05	U
319-85-7	Beta-BHC	0.05	U
319-86-8	Delta-BHC	0.05	U
58-89-9	Lindane	0.05	U
76-44-8	Heptachlor	0.05	U
309-00-2	Aldrin	0.05	U
1024-57-3	Heptachlor epoxide	0.05	U
959-98-8	Endosulfan I	0.05	U
60-57-1	Dieldrin	0.1	U
72-55-9	4,4'-DDE	0.1	U
72-20-8	Endrin	0.1	U
33213-65-9	Endosulfan II	0.1	U
72-54-8	4,4'-DDD	0.1	U
1031-07-8	Endosulfan sulfate	0.1	U
50-29-3	4,4'-DDT	0.1	U
72-43-5	Methoxychlor	0.5	U
53494-70-5	Endrin Ketone	0.1	U
7421-36-3	Endrin Aldehyde	0.1	U
5103-71-9	Alpha-chlordane	0.05	U
5103-74-2	Gamma-chlordane	0.05	U
8001-35-2	Toxaphene	5	U
12674-11-2	Aroclor 1016	1	U
11104-28-2	Aroclor 1221	1	U
11141-16-5	Aroclor 1232	1	U
53469-21-9	Aroclor 1242	1	U
12672-29-6	Aroclor 1248	1	U
11097-69-1	Aroclor 1254	1	U
11096-82-5	Aroclor 1260	1	U

FORM I-CLP-PEST

1A

HERBICIDE ANALYSIS DATA SHEET

NYSDEC SAMPLE NO.
MW-14DB

Lab Name:	Upsate Labs Inc.		Contract: CHA		
Lab Code:	10170	Case No:		SAS No:	SDG No. CHA-78
Matrix (soil/water)	Water			Lab Sample ID:	701392-14
Sample wt/vol:	1000 (g/mL)	ML		Lab File ID:	GA-3756
% Solids				Date Recieved:	1/24/07
Extraction: (SepF/Cont/Sonc)	Sep. F			Date Extracted.	2/2/07
Concentrated Extract Volume:	10			Date Analyzed:	2/6/07
Injection Volume:	1			Time Analyzed:	12:57 AM
GPC Cleanup: (Y/N)	N			Dilution Factor:	10
				Sulfur Cleanup:	Y

CONCENTRATION UNITS:

CAS NO.	COMPOUND	ug/L	Q
94-75-7	2,4-D	1.0	U J
93-72-1	2,4 5-TP (Silvex)	1.0	U J
	2,4,5-T (Silvex)	1.0	U J
	Dinoseb	1.0	U J
	Dicamba	1.0	U J

FORM I-HERB

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

CLIENT SAMP ID

MW-14DB

Lab Name: Upstate Laboratories, Inc. Contract:

Lab Code: 10170 Case No. SAS No.: SDG No.: CHA78

Matrix (soil/water): WATER Lab Sample ID: U0701392-014

Level (low/med): LOW Date Received: 1/25/07

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	3420		* J	P
7440-36-0	Antimony	15.0	U		P
7440-38-2	Arsenic	12.1			P
7440-39-3	Barium	67.0	B		P
7440-41-7	Beryllium	3.0	U		P
7440-42-8	Boron	500	U		P
7440-43-9	Cadmium	5.0	U		P
7440-70-2	Calcium	32600			P
7440-47-3	Chromium	5.0	U		P
7440-48-4	Cobalt	20.0	U		P
7440-50-8	Copper	11.9	B		P
57-12-5	Cyanide	10.0	U		C
471-34-1	Hardness, T	111000			P
7439-89-6	Iron	6530			P
7439-92-1	Lead	3.0	U		P
7439-95-4	Magnesium	7100			P
7439-96-5	Manganese	193			P
7439-97-6	Mercury	0.20	U	J	CV
7440-02-0	Nickel	30.0	U		P
7440-09-7	Potassium	1220	B		P
7782-49-2	Selenium	5.0	U		P
7440-22-4	Silver	10.0	U		P
7440-23-5	Sodium	15000			P
7440-28-0	Thallium	10.0	U		P
7440-31-5	Tin	300	U		P
7440-62-2	Vanadium	30.0	U		P
7440-66-6	Zinc	45.4		N* J	P

-155-

Color Before: GREY Clarity Before: CLOUDY Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts: YES

Comments:

Brown Sediment

Upstate Laboratories, Inc.

Date: *26-Feb-07*

CLIENT:	Clough, Harbour & Assoc. LLP	**Client Sample ID:**	MW-14DB
Lab Order:	U0701392	**Collection Date:**	1/24/2007 12:15:00 PM
Project:	C/O Albany Interim Landfill New		
Lab ID:	U0701392-014	**Matrix:**	GROUNDWATER

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
INORGANIC ANIONS BY IC FOR WATERS		E300.1				Analyst: DD
Bromide	ND	2.0		mg/L	10	2/16/2007
NOTES: The reporting limits were raised due to matrix interference.						
COLOR		E110.2				Analyst: MG
Color	15.0	5.00		UNITS	1	1/25/2007 8:00:00 AM
RESIDUE, DISSOLVED (TDS)		E160.1				Analyst: NJS
Residue, Dissolved (TDS)	88 J	25		mg/L	1	1/29/2007
TURBIDITY		E180.1				Analyst: NJS
Turbidity	90.0	0.250		NTU	5	1/25/2007
ALKALINITY ON AQUEOUS SAMPLES BY LACHA		E310.2				Analyst: SAR
Alkalinity, Total (As CaCO3)	110	10		mg/LCaCO3	1	1/26/2007
CHLORIDE WATERS BY LACHAT		E325.2				Analyst: SAR
Chloride	1.76	1.00		mg/L	1	1/26/2007
CYANIDE, TOTAL ASP		E335.2		(E335.2)		Analyst: BY
Cyanide	ND	10.0		µg/L	1	1/31/2007
NITROGEN, AMMONIA (AS N)		E350.2				Analyst: MG
Nitrogen, Ammonia (As N)	ND	0.500		mg/L	1	2/7/2007
TKN FOR WATERS		E351.3				Analyst: MG
Nitrogen, Kjeldahl, Total	ND	0.500		mg/L	1	2/7/2007
NITROGEN, NITRATE (AS N)		E353.2				Analyst: BY
Nitrogen, Nitrate (as N)	ND	0.200		mg/L	1	1/25/2007 4:02:00 PM
SULFATE		E375.4				Analyst: NJS
Sulfate	ND	5.00		mg/L	1	2/5/2007
SULFIDE, WATERS		E376.2				Analyst: BY
Sulfide	ND	0.100		mg/L	1	1/26/2007
BIOCHEMICAL OXYGEN DEMAND (5 DAY BOD)		E405.1				Analyst: DD
Biochemical Oxygen Demand	ND J	4		mg/L	1	1/26/2007 8:00:00 AM
CHEMICAL OXYGEN DEMAND (COD)		E410.4				Analyst: BS
Chemical Oxygen Demand	14	20	J	mg/L	1	2/9/2007
TOTAL ORGANIC CARBON (TOC)		E415.1				Analyst: BS
Organic Carbon, Total	ND	3.0		mg/L	1	2/9/2007

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Approved By: _____ **Date:** _____

Qualifiers:

*	Low Level	**	Value exceeds Maximum Contaminant Value
B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	S	Spike Recovery outside accepted recovery limits

Upstate Laboratories, Inc.

Date: *26-Feb-07*

CLIENT:	Clough, Harbour & Assoc. LLP	**Client Sample ID:**	MW-14DB
Lab Order:	U0701392	**Collection Date:**	1/24/2007 12:15:00 PM
Project:	C/O Albany Interim Landfill New		
Lab ID:	U0701392-014	**Matrix:**	GROUNDWATER

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
PHENOLICS, TOTAL REC. FOR WATERS		E420.1		(E420.1)		Analyst: SAR
Phenolics, Total Recoverable	0.006	0.005		mg/L	1	2/13/2007
HEXAVALENT CHROMIUM BY ASP 2005		SM3500				Analyst: MG
Hexavalent chromium	ND	0.010		mg/L	1	1/25/2007 8:00:00 AM

-157-

Approved By: _____ **Date:** _____

Qualifiers:

*	Low Level	**	Value exceeds Maximum Contaminant Value
B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	S	Spike Recovery outside accepted recovery limits

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

TRIP BLANK

Lab Name: Upstate Labs Inc. Contract: CHA

Lab Code: 10170 Case No.: _____ SAS No.: _____ SDG No.: CHA78

Matrix: (soil/water) WATER Lab Sample ID: U0701392-015A

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: C16672.D

Level: (low/med) LOW Date Received: 1/24/07

% Moisture: not dec. _____ Date Analyzed: 2/5/07

GC Column: RTX-VO ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L

CAS NO.	COMPOUND		Q
75-71-8	Dichlorodifluoromethane	5	U J
74-87-3	Chloromethane	5	U J
75-1-4	Vinyl Chloride	5	U J
74-83-9	Bromomethane	5	U J
75-00-3	Chloroethane	5	U J
75-69-4	Trichlorofluoromethane	5	U J
107-02-8	Acrolein	100	U R
67-64-1	Acetone	10	U J
75-35-4	1,1-Dichloroethene	5	U J
75-05-8	Acetonitrile	100	U R
74-88-4	Iodomethane	5	U J
107-05-1	Allyl Chloride	5	U J
75-15-0	Carbon Disulfide	5	U J
75-09-2	Methylene Chloride	1	~~JB~~ U J
107-13-1	Acrylonitrile	100	U R
156-60-5	trans-1,2-Dichloroethene	5	U J
75-34-33	1,1-Dichloroethane	5	U J
108-5-4	Vinyl Acetate	50	U J
126-99-8	Chloroprene	10	U J
78-93-3	2-Butanone	10	U J
107-12-0	Propionitrile	100	U R
594-20-7	2,2-Dichloropropane	5	U J
156-59-2	cis-1,2-Dichloroethene	5	U J
126-98-7	Methacrylonitrile	10	U J
67-66-3	Chloroform	5	U J
74-97-5	Bromochloromethane	5	U J
78-83-1	Isobutyl Alcohol	1000	U R
71-55-6	1,1,1-Trichloroethane	5	U J
563-58-6	1,1-Dichloropropene	5	U J
56-23-5	Carbon Tetrachloride	5	U J
71-43-2	Benzene	5	U J
107-06-2	1,2-Dichloroethane	5	U J
97-01-6	Trichloroethene	5	U J
78-87-5	1,2-Dichloropropane	5	U J
80-62-6	Methyl Methacrylate	10	U J
75-27-4	Bromodichloromethane	5	U J
74-95-3	Dibromomethane	5	U J
108-10-1	4-Methyl-2-pentanone	10	U J
10061-1-5	cis-1,3-Dichloropropene	5	U J

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

TRIP BLANK

Lab Name: Upstate Labs Inc. Contract: CHA

Lab Code: 10170 Case No.: _____ SAS No.: _____ SDG No.: CHA78

Matrix: (soil/water) WATER Lab Sample ID: U0701392-015A

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: C16672.D

Level: (low/med) LOW Date Received: 1/24/07

% Moisture: not dec. _____ Date Analyzed: 2/5/07

GC Column: RTX-VO ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND	(ug/L or ug/Kg) UG/L	Q
108-88-3	Toluene	5	U J
10061-2-6	trans-1,3-Dichloropropene	5	U J
97-63-2	Ethyl Methacrylate	10	U J
79-00-5	1,1,2-Trichloroethane	5	U J
591-78-6	2-Hexanone	10	U J
142-28-9	1,3-Dichloropropane	5	U J
127-18-4	Tetrachloroethene	5	U J
124-48-1	Dibromochloromethane	5	U J
106-93-4	1,2-Dibromoethane	5	U J
108-90-7	Chlorobenzene	5	U J
630-20-6	1,1,1,2-Tetrachloroethane	5	U J
100-41-4	Ethylbenzene	5	U J
108-38-3	m,p-Xylene	5	U J
95-47-6	o-Xylene	5	U J
100-42-5	Styrene	5	U J
75-25-2	Bromoform	5	U J
79-34-5	1,1,2,2-Tetrachloroethane	5	U J
96-18-4	1,2,3-Trichloropropane	5	U J
110-57-6	1,4-Dichloro-2-butene	10	U J
541-73-1	1,3-Dichlorobenzene	5	U J
106-46-7	1,4-Dichlorobenzene	5	U J
95-50-1	1,2-Dichlorobenzene	5	U J
96-12-8	1,2-Dibromo-3-chloro-propane	10	U J

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

TRIP BLANK

Lab Name: Upstate Labs Inc. Contract: CHA

Lab Code: 10170 Case No.: _____ SAS No.: _____ SDG No.: CHA78

Matrix: (soil/water) WATER Lab Sample ID: U0701392-015A

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: C16672.D

Level: (low/med) LOW Date Received: 1/24/07

% Moisture: not dec. _____ Date Analyzed: 2/5/07

GC Column: RTX-VO ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

Number TICs found: 0

CAS NO.	COMPOUND NAME	RT	EST. CONC.	Q

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HOLDING BLANK
1/24

Lab Name: Upstate Labs Inc. Contract: CHA

Lab Code: 10170 Case No.: _____ SAS No.: _____ SDG No.: CHA78

Matrix: (soil/water) WATER Lab Sample ID: U0701392-016A

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: C16673.D

Level: (low/med) LOW Date Received: 1/24/07

% Moisture: not dec. _____ Date Analyzed: 2/6/07

GC Column: RTX-VO ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND (ug/L or ug/Kg)	UG/L	Q
75-71-8	Dichlorodifluoromethane	5	U J
74-87-3	Chloromethane	5	U J
75-1-4	Vinyl Chloride	5	U J
74-83-9	Bromomethane	5	U J
75-00-3	Chloroethane	5	U J
75-69-4	Trichlorofluoromethane	5	U J
107-02-8	Acrolein	100	U R
67-64-1	Acetone	10	U J
75-35-4	1,1-Dichloroethene	5	U J
75-05-8	Acetonitrile	100	U R
74-88-4	Iodomethane	5	U J
107-05-1	Allyl Chloride	5	U J
75-15-0	Carbon Disulfide	5	U J
75-09-2	Methylene Chloride	2	JB U J
107-13-1	Acrylonitrile	100	U R
156-60-5	trans-1,2-Dichloroethene	5	U J
75-34-33	1,1-Dichloroethane	5	U J
108-5-4	Vinyl Acetate	50	U J
126-99-8	Chloroprene	10	U J
78-93-3	2-Butanone	10	U J
107-12-0	Propionitrile	100	U R
594-20-7	2,2-Dichloropropane	5	U J
156-59-2	cis-1,2-Dichloroethene	5	U J
126-98-7	Methacrylonitrile	10	U J
67-66-3	Chloroform	5	U J
74-97-5	Bromochloromethane	5	U J
78-83-1	Isobutyl Alcohol	1000	U R
71-55-6	1,1,1-Trichloroethane	5	U J
563-58-6	1,1-Dichloropropene	5	U J
56-23-5	Carbon Tetrachloride	5	U J
71-43-2	Benzene	5	U J
107-06-2	1,2-Dichloroethane	5	U J
97-01-6	Trichloroethene	5	U J
78-87-5	1,2-Dichloropropane	5	U J
80-62-6	Methyl Methacrylate	10	U J
75-27-4	Bromodichloromethane	5	U J
74-95-3	Dibromomethane	5	U J
108-10-1	4-Methyl-2-pentanone	10	U J
10061-1-5	cis-1,3-Dichloropropene	5	U J

1A

EPA SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

HOLDING BLANK
1/24

Lab Name: Upstate Labs Inc. Contract: CHA

Lab Code: 10170 Case No.: _____ SAS No.: _____ SDG No.: CHA78

Matrix: (soil/water) WATER Lab Sample ID: U0701392-016A

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: C16673.D

Level: (low/med) LOW Date Received: 1/24/07

% Moisture: not dec. _____ Date Analyzed: 2/6/07

GC Column: RTX-VO ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND (ug/L or ug/Kg) UG/L		Q
108-88-3	Toluene	5	U J
10061-2-6	trans-1,3-Dichloropropene	5	U J
97-63-2	Ethyl Methacrylate	10	U J
79-00-5	1,1,2-Trichloroethane	5	U J
591-78-6	2-Hexanone	10	U J
142-28-9	1,3-Dichloropropane	5	U J
127-18-4	Tetrachloroethene	5	U J
124-48-1	Dibromochloromethane	5	U J
106-93-4	1,2-Dibromoethane	5	U J
108-90-7	Chlorobenzene	5	U J
630-20-6	1,1,1,2-Tetrachloroethane	5	U J
100-41-4	Ethylbenzene	5	U J
108-38-3	m,p-Xylene	5	U J
95-47-6	o-Xylene	5	U J
100-42-5	Styrene	5	U J
75-25-2	Bromoform	5	U J
79-34-5	1,1,2,2-Tetrachloroethane	5	U J
96-18-4	1,2,3-Trichloropropane	5	U J
110-57-6	1,4-Dichloro-2-butene	10	U J
541-73-1	1,3-Dichlorobenzene	5	U J
106-46-7	1,4-Dichlorobenzene	5	U J
95-50-1	1,2-Dichlorobenzene	5	U J
96-12-8	1,2-Dibromo-3-chloro-propane	10	U J

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

HOLDING BLANK 1/31

Lab Name: Upstate Labs Inc. Contract: CHA

Lab Code: 10170 Case No.: _____ SAS No.: _____ SDG No.: CHA78

Matrix: (soil/water) WATER Lab Sample ID: U0701392-016A

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: C16673.D

Level: (low/med) LOW Date Received: 1/24/07

% Moisture: not dec. _____ Date Analyzed: 2/6/07

GC Column: RTX-VO ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

Number TICs found: 0

CAS NO.	COMPOUND NAME	RT	EST. CONC.	Q

Quality Control Summary

Upstate Laboratories, Inc.

2C

WATER SEMIVOLATILE SURROGATE RECOVERY

Lab Name: UPSTATE LABS INC. Contract: CHA

Lab Code: 10170 Case No.: _____ SAS No.: _____ SDG No.: CHA78

	EPA SAMPLE NO.	S1 (2FP) #	S2 (PHL) #	S3 (CP) #	S4 (DCB) #	S5 (NBZ) #	S6 (FBP) #	S7 (TBP) #	S8 (TPH) #	TOT OUT
01	MW-15SA	90	98	100	100	137 *	98	102	112	1
02	MW-15SB	83	94	90	81	114	84	102	92	0
03	MW-15IA	79	93	87	75	111	76	114	93	0
04	MW-15IB	75	72	80	74	113	77	118	97	0
05	MW-15DA	77	87	84	72	110	77	92	102	0
06	MW-15DB	79	87	85	75	111	82	85	116	0
07	MW-14SA	83	93	89	84	115 *	83	116	85	1
08	MW-14SB	82	91	87	83	116 *	82	123 *	73	2
09	MW-14IA	82	86	88	77	118 *	83	124 *	115	2
10	MW-14IB	55	61	59	54	77	54	81	70	0
11	MW-15IB MS	82	76	82	83	104	84	97	124	0
12	MW-15IB MSD	76	79	79	78	107	80	106	119	0
13	MW-14DA	80	88	87	80	113	84	110	138	0
14	MW-14DB	77	83	83	78	111	84	104	135	0
15	SVBLK	82	86	88	79	117 *	85	102	126	1
16	SVMBS	87	88	91	83	120 *	89	120	136	1
17	SVMBS RE	87	90	94	84	130 *	90	155 *	145 *	3

QC LIMITS

S1	(2FP)	=	2-Fluorophenol	(43-116)
S2	(PHL)	=	Phenol-d5	(10-110)
S3	(CP)	=	2-Chlorophenol-d4	(33-110)
S4	(DCB)	=	1,2-Dichlorobenzene-d4	(16-110)
S5	(NBZ)	=	Nitrobenzene-d5	(35-114)
S6	(FBP)	=	2-Fluorobiphenyl	(21-110)
S7	(TBP)	=	2,4,6-Tribromophenol	(10-123)
S8	(TPH)	=	Terphenyl-d14	(33-141)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D Surrogate diluted out

2A

WATER VOLATILE SYSTEM MONITORING COMPOUND RECOVERY

Lab Name: Upstate Labs Inc. Contract: CHA

Lab Cooe: 10170 Case No.: _____ SAS No.: _____ SDG No.: CHA78

	EPA SAMPLE NO.	SMC1 #	SMC2 #	SMC3 #	TOT OUT
01	VBLK01	97	100	94	0
02	VMBS01	93	98	93	0
03	ULI TRIP BLAN	90	97	93	0
04	MW-15SA	93	96	90	0
05	MW-15SB	97	96	93	0
06	MW-15IA	98	100	95	0
07	MW-15IB MS	97	98	93	0
08	MW-15IB MSD	94	97	91	0
09	MW-15IB	95	97	91	0
10	MW-15DA	92	95	89	0
11	MW-15DB	111	107	103	0
12	HOLDING BLA	94	96	92	0
13	VBLK02	95	100	94	0
14	VMBS02	91	95	94	0
15	MW-14SA	103	107	102	0
16	MW-14SB	99	102	98	0
17	MW-14IA	98	100	95	0
18	MW-14IB	101	101	99	0
19	MW-14DA	95	98	93	0
20	MW-14DB	97	99	94	0
21	TRIP BLANK	97	100	94	0
22	HOLDING BLA	90	95	87	0

			QC LIMITS
SMC1	=	Dibromofluoromethane	(86-118)
SMC2	=	Toluene-d8	(88-110)
SMC3	=	Bromofluorobenzene	(86-115)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D System Monitoring Compound diluted out

2E
SURROGATE RECOVERY

Lab Name: Upstate Labs inc.

Lab Code: 10170 Case No.: SAS No. SDG No.: CHA-78

GC Column(1): DB-XLB ID: 0.32 GC Column (2): DB-35MS ID: 0.32 (mm)

	NYSDEC SAMPLE NO.	TCX 1 % REC	#	TCX 2 % REC	#	DCB 1 % REC	DCB 2 % REC	#	OTHER (1)	OTHER (2)	TOT OUT
01	PBW	105%		75%		55%	35%				0
02	LCSW	110%		75%		60%	40%				0
03	MW-15SA	105%		75%		40%	30%				0
04	MW-15SB	105%		70%		55%	30%				0
05	MW-15IA	95%		70%		40%	30%				0
06	MW-15IB	105%		75%		65%	40%				0
07	MW-15I8MS	100%		70%		50%	40%				0
08	MW-15I8MSD	105%		70%		55%	35%				0
09	MW-15DA	85%		60%		45%	30%				0
10	MW-15DB	90%		60%		45%	35%				0
11	MW-14SA	105%		70%		50%	35%				0
12	MW-14SB	105%		70%		55%	35%				0
13	MW-14IA	100%		65%		55%	40%				0
14	MW-14IB	95%		65%		45%	35%				0
15	MW-14DA	I	#	130%		90%	80%				1
16	MW-14DB	75%		50%		35%	20%	#			1
17											0
18											0
19											0
20											0
21											0
22											0
23											0
24											0
25											0
26											0
27											0
28											0
29											0
30											0

ADVISORY
QC LIMITS
TCX = Tetrachloro-m-xylene (30 - 150)
DCB = Decachlorobiphenyl (30 - 150)

Column to be used to flag recovery values
* Values outside of QC limits
D Surrogate diluted out

2E
SURROGATE RECOVERY

Lab Name: Upstate Labs Inc.

Lab Code: 10170 Case No.: SAS No. SDG No.: CHA-78

GC Column(1): DB-XLB ID: 0.32 GC Column (2): DB-35MS ID: 0.32 (mm)

01 02	NYSDEC SAMPLE NO.	DCAA (1) % REC		DCAA (2) % REC	TOT OUT
03	PBW	107%		68%	0
04	LCSW	98%		92%	0
05	MW-15SA	156%	#	121%	1
06	MW-15SB	72%		69%	0
07	MW-15IA	86%		88%	0
08	MW-15IB	77%		79%	0
09	MW-15IBMS	100%		102%	0
10	MW-15IBMSD	159%	#	140%	1
11	MW-15DA	107%		102%	0
12	MW-15DB	151%	#	130%	1
13	MW-14SA	107%		92%	0
14	MW-14SB	122%		112%	0
15	MW-14IA	104%		102%	0
16	MW-14IB	108%		86%	0
17	MW-14DA	109%		81%	0
18	MW-14DB	94%		73%	0
19					0
20					0
21					0
22					0
23					0
24					0
25					0
26					0
27					0
28					0
29					0
30					0
31					0
32					0

Column to be used to flag recovery values
* Values outside of QC limits
D Surrogate diluted out

ADVISORY
QC LIMITS
(30 - 150)
(30 - 150)

3C

WATER SEMIVOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: UPSTATE LABS INC. Contract: CHA

Lab Code: 10170 Case No.: _____ SAS No.: _____ SDG No.: CHA78

Matrix Spike - EPA Sample No MW-15IB

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	MS CONCENTRATION (ug/L)	MS % REC #	QC LIMITS REC.
Phenol	150	0.0	110	73	12 - 110
2-Chlorophenol	150	0.0	110	73	27 - 123
1,2,4-Trichlorobenzene	100	0.0	84	84	39 - 98
4-Chloro-3-methylphenol	150	0.0	140	93	23 - 97
Acenaphthene	100	0.0	80	80	46 - 118
2,4-Dinitrotoluene	100	0.0	93	93	24 - 96
4-Nitrophenol	150	0.0	110	73	10 - 80
Pentachlorophenol	150	0.0	140	93	9 - 103
Pyrene	100	0.0	110	110	26 - 127
N-Nitrosodi-n-propylamine	100	0.0	98	98	41 - 116

COMPOUND	SPIKE ADDED (ug/L)	MSD CONCENTRATION (ug/L)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
Phenol	150	110	73	0	42	12 - 110
2-Chlorophenol	150	110	73	0	40	27 - 123
1,2,4-Trichlorobenzene	100	84	84	0	28	39 - 98
4-Chloro-3-methylphenol	150	140	93	0	42	23 - 97
Acenaphthene	100	78	78	3	31	46 - 118
2,4-Dinitrotoluene	100	110	110 *	17	38	24 - 96
4-Nitrophenol	150	150	100 *	31	50	10 - 80
Pentachlorophenol	150	140	93	0	50	9 - 103
Pyrene	100	110	110	0	31	26 - 127
N-Nitrosodi-n-propylamine	100	95	95	3	38	41 - 116

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: 0 out of 10 outside limits

Spike Recovery: 2 out of 20 outside limits

COMMENTS:

3A

WATER VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: Upstate Labs Inc. Contract: CHA

Lab Code: 10170 Case No.: _____ SAS No.: _____ SDG No.: CHA78

Matrix Spike - EPA Sample No: MW-15IB

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	MS CONCENTRATION (ug/L)	MS % REC #	QC LIMITS REC.
1,1-Dichloroethene	50	0.0	69	138	61 - 145
Benzene	50	0.0	64	128 *	76 - 127
Trichloroethene	50	0.0	62	124 *	71 - 120
Toluene	50	0.0	67	134 *	76 - 125
Chlorobenzene	50	0.0	64	128	75 - 130

COMPOUND	SPIKE ADDED (ug/L)	MSD CONCENTRATION (ug/L)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
1,1-Dichloroethene	50	74	148 *	7	14	61 - 145
Benzene	50	67	134 *	5	11	76 - 127
Trichloroethene	50	65	130 *	5	14	71 - 120
Toluene	50	70	140 *	4	13	76 - 125
Chlorobenzene	50	68	136 *	6	13	75 - 130

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: 0 out of 5 outside limits

Spike Recovery: 8 out of 10 outside limits

COMMENTS:

3F

SOIL PESTICIDE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: Upstate Labs Inc. Contract: CHA

Lab Code: 10170 Case No. _____ SAS No. _____ SDG No. CHA-78

Matrix Spike - NYSDEC Sample No. MW-15IB

COMPOUND	SPIKE ADDED ug/l	SAMPLE CONCENTRATION ug/l	MS CONCENTRATION ug/l	MS % REC #	QC LIMITS REC.
Lindane	1.0	<	1.3	130%	46 - 127
Heptachlor	1.0	<	1.3	130%	35 - 130
Aldrin	1.0	<	1.0	100%	34 - 132
Dieldrin	2.0	<	2.5	125%	31 - 134
Endrin	2.0	<	2.3	115%	42 - 139
4,4'-DDT	2.0	<	2.2	110%	23 - 134

COMPOUND	SPIKE ADDED ug/l	MSD CONCENTRATION ug/l	MSD % REC #	% RPD #	QC RPD	QC LIMITS REC.
Lindane	1.0	1.2	120%	8%	15	46 - 127
Heptachlor	1.0	1.3	130%	0	20	35 - 130
Aldrin	1.0	1.0	100%	0	22	34 - 132
Dieldrin	2.0	2.5	125%	0	18	31 - 134
Endrin	2.0	2.1	105%	9	21	42 - 139
4,4'-DDT	2.0	2.2	110%	0	27	23 - 134

Column to be used to flag recovery and RPD values with an asterick

* Values outside QC limits

RPD: 0 out of 6 outside limits

Spike Rec.. 0 out of 12 outside limits

Comments _____

FORM III-CLP-PEST-2

3F

HERBICIDE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: Upstate Labs Inc. Contract: CHA

Lab Code: 10170 Case No. _____ SAS No. _____ SDG No CHA-78

Matrix Spike - NYSDEC Sample No. MW-15IB

COMPOUND	SPIKE ADDED ug/l	SAMPLE CONCENTRATION ug/l	MS CONCENTRATION ug/l	MS % REC #	QC LIMITS REC.
2,4-D	20.0	<	18.2	91%	31-159
2,4 5-TP (Silvex)	20.0	<	23.2	116%	D-355
2,4,5-T (Silvex)	20.0	<	25.8	129%	50-150
Dinoseb					

COMPOUND	SPIKE ADDED ug/l	MSD CONCENTRATION ug/l	MSD % REC #	% RPD #	QC RPD	QC LIMITS REC.
2,4-D	20.0	24.6	123%	29%	20	31-159
2,4,5-TP (Silvex)	20.0	32	160%	32%	20	D-355
2,4 5-T (Silvex)	20.0	36	180%	33%	20	50-150
Dinoseb						

Column to be used to flag recovery and RPD values with an asterick

* Values outside QC limits

RPD: 3 out of 3 outside limits

Spike Rec.: 1 out of 12 outside limits

Comments _____

FORM III-HERB

U.S. EPA - CLP

5A
SPIKE SAMPLE RECOVERY

CLIENT SAMP ID

MW-15-IBS

Lab Name: Upstate Laboratories, Inc. Contract:

Lab Code: 10170 Case No. SAS No.: SDG No.: CHA78

Matrix (soil/water): WATER Level (low/med): LOW

% Solids for Sample: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Antimony	75-125	469.4586		15.0000	U	500.00	93.9		P
Arsenic	75-125	1978.1120		10.0000	U	2000.00	98.9		P
Barium	75-125	2236.9766		159.1070	B	2000.00	103.9		P
Beryllium	75-125	53.2004		3.0000	U	50.00	106.4		P
Boron	75-125	4858.9670		500.0000	U	5000.00	97.2		P
Cadmium	75-125	48.9205		5.0000	U	50.00	97.8		P
Chromium	75-125	210.7404		8.8776	B	200.00	100.9		P
Cobalt	75-125	514.1837		20.0000	U	500.00	102.8		P
Copper	75-125	261.1972		16.2332	B	250.00	98.0		P
Iron		16296.9247		15396.8309		1000.00	90.0		P
Lead	75-125	488.4064		6.1965		500.00	96.4		P
Manganese	75-125	1055.9320		630.2127		500.00	85.1		P
Nickel	75-125	511.6541		30.0000	U	500.00	102.3		P
Selenium	75-125	1942.4616		5.0000	U	2000.00	97.1		P
Silver	75-125	52.1099		10.0000	U	50.00	104.2		P
Thallium	75-125	1803.8585		10.0000	U	2000.00	90.2		P
Tin	75-125	4557.4561		300.0000	U	5000.00	91.1		P
Vanadium	75-125	528.7035		30.0000	U	500.00	105.7		P
Zinc	75-125	713.8659		70.5226		500.00	128.7	N	P

Comments:

U.S. EPA - CLP

5A
SPIKE SAMPLE RECOVERY

CLIENT SAMP ID

MW-15-IBS

Lab Name: Upstate Laboratories, Inc. Contract:

Lab Code: 10170 Case No. SAS No.: SDG No.: CHA78

Matrix (soil/water): WATER Level (low/med): LOW

% Solids for Sample: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Mercury	75-125	0.9173		0.2000	U	1.00	91.7		CV

Comments:

U.S. EPA - CLP

5A
SPIKE SAMPLE RECOVERY

CLIENT SAMP ID

MW-15-IBS

Lab Name: Upstate Laboratories, Inc. Contract:

Lab Code: 10170 Case No. SAS No.: SDG No.: CHA78

Matrix (soil/water): WATER Level (low/med): LOW

% Solids for Sample: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Cyanide	75-125	52.3656		10.0000	U	50.00	104.7		C

Comments:

U.S. EPA - CLP

6
DUPLICATES

CLIENT SAMP ID

MW-15-IB

Lab Name: Upstate Laboratories, Inc. Contract:

Lab Code: 10170 Case No. SAS No.: SDG No.: CHA78

Matrix (soil/water): WATER TOTAL Level (low/med): LOW

% Solids for Sample: 0.0 % Solids for Duplicate: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

Analyte	Control Limit	Sample (S)	C	Duplicate (D)	C	RPD	Q	M
Aluminum		6523.9905		8250.7425		23.4	*	P
Antimony		0.0000	U	0.0000	U			P
Arsenic		0.0000	U	0.0000	U			P
Barium		159.1070	B	185.0052	B	15.1		P
Beryllium		0.0000	U	0.0000	U			P
Boron		0.0000	U	0.0000	U			P
Cadmium		0.0000	U	0.0000	U			P
Calcium		96941.1799		102021.1460		5.1		P
Chromium	10	8.8776	B	10.1824		13.7		P
Cobalt		0.0000	U	0.0000	U			P
Copper		16.2332	B	17.9340	B	10.0		P
Cyanide		0.0000	U	0.0000	U			C
Iron		15396.8309		16516.1974		7.0		P
Lead	3	6.1965		6.8178		9.5		P
Magnesium	5000	18838.5020		19090.6716		1.3		P
Manganese		630.2127		609.2387		3.4		P
Mercury		0.0000	U	0.0000	U			CV
Nickel		0.0000	U	0.0000	U			P
Potassium		1592.0751	B	2332.8699	B	37.7		P
Selenium		0.0000	U	0.0000	U			P
Silver		0.0000	U	0.0000	U			P
Sodium	5000	9111.6776		10644.1428		15.5		P
Thallium		0.0000	U	0.0000	U			P
Tin		0.0000	U	0.0000	U			P
Vanadium		0.0000	U	0.0000	U			P
Zinc	20	70.5226		96.8188		31.4	*	P

Matrix Spike Blank Recovery
Upstate Laboratories, Inc.

Lab Name: Upstate Laboratories,Inc.
Lab Code: 10170
Sample Name LCS-9299
Date Analyzed: 2/21/2007
Instrument Name 14

Client:CHA
SDG #CHA78

Compounds	Amt. Added	MS Conc.	MS %Rec		QC Limits %Rec.
Phenol	75	64	85		12 - 110
2-Chlorophenol	75	66	88		27 - 123
1,4-Dichlorobenzene	50	39	78		36 - 97
N-Nitroso-di-n-propylamine	50	53	106		41 - 116
1,2,4-Trichlorobenzene	50	45	90		39 - 98
4-Chloro-3-methylphenol	75	83	111	*	23 - 97
Acenaphthene	50	44	88		46 - 118
4-Nitrophenol	75	88	117	*	10 --80
2,4-Dinitrotoluene	50	63	126	*	24 - 96
Pentachlorophenol	75	69	92		9 - 103
Pyrene	50	64	128	*	26 - 127

Prepared by:_____ Date: _____

Matrix Spike Blank Recovery
Upstate Laboratories, Inc.

Lab Name: Upstate Laboratories,Inc. **Client:CHA**
Lab Code: 10170 **SDG #CHA78**
Sample Name LCS-9299 RE
Date Analyzed: 2/22/2007
Instrument Name 14

Compounds	Amt. Added	MS Conc.	MS %Rec		QC Limits %Rec.
Phenol	75	63	84		12 - 110
2-Chlorophenol	75	66	88		27 - 123
1,4-Dichlorobenzene	50	39	78		36 - 97
N-Nitroso-di-n-propylamine	50	58	116		41 - 116
1,2,4-Trichlorobenzene	50	44	88		39 - 98
4-Chloro-3-methylphenol	75	90	120	*	23 - 97
Acenaphthene	50	45	90		46 - 118
4-Nitrophenol	75	120	160	*	10 --80
2,4-Dinitrotoluene	50	85	170	*	24 - 96
Pentachlorophenol	75	83	111	*	9 - 103
Pyrene	50	63	126		26 - 127

Prepared by:_____ Date: _____

WATER VOLATILE MATRIX SPIKE BLANK RECOVERY

Lab Name: Upstate Labs Inc. Contract: CHA

Lab Code: 10170 Case 1 SAS No.: _____ SDG No.: CHA78

Matrix Spike-EPA Sample No.: VBLK01 Level (low/med): Low

COMPOUND	SPIKE ADDED (ug/l)	SAMPLE CONCENTRATION (ug/l)	MS CONCENTRATIO (ug/l)	MS % REC	QC LIMITS
1,1-Dichloroethene	50	0	55	110	61-145
Benzene	50	0	56	112	76-127
Trichloroethene	50	0	55	110	71-120
Toluene	50	0	56	112	76-125
Chlorobenzene	50	0	55	110	75-130

WATER VOLATILE MATRIX SPIKE BLANK RECOVERY

Lab Name: Upstate Labs Inc. Contract: CHA

Lab Code: 10170 Case 1 SAS No.: _____ SDG No.: CHA78

Matrix Spike-EPA Sample No.: VBLK02 Level (low/med): Low

COMPOUND	SPIKE ADDED (ug/l)	SAMPLE CONCENTRATION (ug/l)	MS CONCENTRATIO (ug/l)	MS % REC	QC LIMITS
1,1-Dichloroethene	50	0	66	132	61-145
Benzene	50	0	61	122	76-127
Trichloroethene	50	0	59	118	71-120
Toluene	50	0	65	130*	76-125
Chlorobenzene	50	0	63	126	75-130

3E
METHOD BLANK SPIKE RECOVERY

Lab Name: Upstate Labs Inc. Contract: CHA

Lab Code: 10170 Case No. _____ SAS No. _____ SDG No. CHA-78

Blank Spike - NYSDEC Sample No. LCSW

COMPOUND	SPIKE ADDED (ug/L)	BS CONCENTRATION (ug/L)	BS % REC #	QC LIMITS REC.
Lindane	0.5	0.6	120%	39 - 131
Heptachlor	0.5	0.61	122%	40 - 131
Aldrin	0.5	0.49	98%	40 - 120
Dieldrin	1.0	1.19	119%	52 - 126
Endrin	1.0	1.03	103%	56 - 121
4,4'-DDT	1.0	1.16	116%	38 - 127

Column to be used to flag recovery and RPD values with an asterick

* Values outside QC limits

Spike Rec.: 0 out of 6 outside limits

Comments _____

FORM III-CLP-PEST-1

3E
METHOD BLANK SPIKE RECOVERY

Lab Name: Upstate Labs Inc. Contract: CHA

Lab Code: 10170 Case No. _____ SAS No. _____ SDG No. CHA-78

Blank Spike - NYSDEC Sample No. LCSW Dilution: 10

COMPOUND	SPIKE ADDED (ug/L)	RS CONCENTRATION (ug/L)	RS % REC #	QC LIMITS REC.
2,4-D	10.0	7.2	72%	10-150
2,4,5-TP	10.0	9.9	99%	10-150
2,4 5-T	10.0	9.1	91%	10-150
Dinoseb				

Column to be used to flag recovery and RPD values with an asterick

* Values outside QC limits

Spike Rec.: 0 out of 3 outside limits

Comments _____

FORM III-HERB-1

U.S. EPA - CLP

7
LABORATORY CONTROL SAMPLE

Lab Name: Upstate Laboratories, Inc. Contract:

Lab Code: 10170 Case No. SAS No.: SDG No.: CHA78

Solid LCS Source: ERA

Aqueous LCS Source: CPI

Analyte	Aqueous (ug/L) True	Found	%R	Solid (mg/kg) True	Found	C	Limits	%R
Aluminum	12000.0	13262.28	110.5					
Antimony	1000.0	1094.82	109.5					
Arsenic	1000.0	1043.23	104.3					
Barium	12000.0	13203.52	110.0					
Beryllium	1000.0	1115.57	111.6					
Boron	2000.0	2086.02	104.3					
Cadmium	1000.0	1024.59	102.5					
Calcium	21000.0	22401.18	106.7					
Chromium	1000.0	1065.18	106.5					
Cobalt	1000.0	1115.88	111.6					
Copper	1000.0	977.38	97.7					
Iron	21000.0	22860.01	108.9					
Lead	1000.0	1033.43	103.3					
Magnesium	21000.0	23239.92	110.7					
Manganese	1000.0	1077.33	107.7					
Nickel	1000.0	1070.39	107.0					
Potassium	20000.0	19457.50	97.3					
Selenium	1000.0	969.48	96.9					
Silver	2000.0	2019.94	101.0					
Sodium	22000.0	22900.14	104.1					
Thallium	1000.0	963.15	96.3					
Tin	5000.0	4971.99	99.4					
Vanadium	1000.0	1083.24	108.3					
Zinc	1000.0	1110.33	111.0					

U.S. EPA - CLP

7
LABORATORY CONTROL SAMPLE

Lab Name: Upstate Laboratories, Inc. Contract:

Lab Code: 10170 Case No. SAS No.: SDG No.: CHA78

Solid LCS Source: ERA

Aqueous LCS Source: CPI

Analyte	Aqueous (ug/L) True	Found	%R	Solid (mg/kg) True	Found	C	Limits		%R
Cyanide	187.0	221.61	118.5						

U.S. EPA - CLP

7
LABORATORY CONTROL SAMPLE

Lab Name: Upstate Laboratories, Inc. Contract:

Lab Code: 10170 Case No. SAS No.: SDG No.: CHA78

Solid LCS Source: ERA

Aqueous LCS Source: CPI

Analyte	Aqueous (ug/L) True	Found	%R	Solid (mg/kg) True	Found	C	Limits		%R
Cyanide	187.0	220.58	118.0						

4B

EPA SAMPLE NO.

SEMIVOLATILE METHOD BLANK SUMMARY

SVBLK

Lab Name: UPSTATE LABS INC. Contract: CHA

Lab Code: 10170 Case No.: SAS No.: SDG No.: CHA78

Lab File ID: AE3317.D Lab Sample ID: MB-9299

Instrument ID: 14.0 Date Extracted: 1/25/07

Matrix: (soil/water) WATER Date Analyzed: 2/21/07

Level: (low/med) LOW Time Analyzed: 16:48

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	MW-15SA	U0701392-002K	AE3299.D	2/20/07
02	MW-15SB	U0701392-003K	AE3300.D	2/20/07
03	MW-15IA	U0701392-004K	AE3301.D	2/20/07
04	MW-15IB	U0701392-005K	AE3302.D	2/20/07
05	MW-15DA	U0701392-006K	AE3303.D	2/20/07
06	MW-15DB	U0701392-007K	AE3304.D	2/20/07
07	MW-14SA	U0701392-009K	AE3305.D	2/20/07
08	MW-14SB	U0701392-010K	AE3306.D	2/20/07
09	MW-14IA	U0701392-011K	AE3307.D	2/21/07
10	MW-14IB	U0701392-012K	AE3308.D	2/21/07
11	MW-15IB MS	U0701392-005KMS	AE3313.D	2/21/07
12	MW-15IB MSD	U0701392-005KMSD	AE3314.D	2/21/07
13	MW-14DA	U0701392-013K	AE3315.D	2/21/07
14	MW-14DB	U0701392-014K	AE3316.D	2/21/07
15	SVMBS	LCS-9299	AE3318.D	2/21/07
16	SVMBS RE	LCS-9299	AE3331.D	2/22/07

COMMENTS:

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SVBLK

Lab Name: UPSTATE LABS INC. Contract: CHA

Lab Code: 10170 Case No.: _____ SAS No.: _____ SDG No.: CHA78

Matrix: (soil/water) WATER Lab Sample ID: MB-9299

Sample wt/vol: 1000 (g/ml) ML Lab File ID: AE3317.D

Level: (low/med) LOW Date Received: 1/24/07

% Moisture: _____ decanted:(Y/N) N Date Extracted: 1/25/07

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 2/21/07

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: _____

CONCENTRATION UNITS:

CAS NO.	COMPOUND	(ug/L or ug/Kg) UG/L	Q
10595-95-6	N-Nitrosomethethylamine	10	U
66-27-3	Methyl methanesulfonate	10	U
111-44-4	Bis(2-chloroethyl)ether	10	U
55-18-5	N-Nitrosodiethylamine	20	U
62-50-0	Ethyl methanesulfonate	20	U
108-95-2	Phenol	10	U
95-53-4	o-Toluidine	10	U
930-55-2	N-Nitrosopyrrolidine	40	U
95-57-8	2-Chlorophenol	10	U
98-86-2	Acetophenone	10	U
100-75-4	N-Nitrosopiperdine	20	U
126-68-1	O,O,O-Triethylphosphorothioate	10	U
1888-71-7	Hexachloropropene	10	U
87-65-0	2,6-Dichlorophenol	10	U
95-48-7	2-Methylphenol	10	U
67-72-1	Hexachloroethane	10	U
924-16-3	N-Nitroso-di-n-butylamine	10	U
621-64-7	N-Nitrosodi-n-propylamine	10	U
106-50-3	p-Phenylenediamine	10	U
106-44-5	(3+4)-Methylphenol	10	U
94-59-7	Safrole	10	U
95-94-3	1,2,4,5-Tetrachlorobenzene	10	U
98-95-3	Nitrobenzene	10	U
120-58-1	Isosafrole	10	U
78-59-1	Isophorone	10	U
130-15-4	1,4-Naphthoquinone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethylphenol	10	U
58-90-2	2,3,4,6-Tetrachlorophenol	10	U
111-91-1	Bis(2-chloroethoxy)methane	10	U
134-32-7	1-Naphthylamine	10	U
120-83-2	2,4-Dichlorophenol	10	U
608-93-5	Pentachlorobenzene	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U
91-20-3	Naphthalene	10	U
99-55-8	5-Nitro-o-toluidine	10	U
106-47-8	4-Chloroaniline	10	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SVBLK

Lab Name: UPSTATE LABS INC. Contract: CHA

Lab Code: 10170 Case No.: _____ SAS No.: _____ SDG No.: CHA78

Matrix: (soil/water) WATER Lab Sample ID: MB-9299

Sample wt/vol: 1000 (g/ml) ML Lab File ID: AE3317.D

Level: (low/med) LOW Date Received: 1/24/07

% Moisture: _____ decanted:(Y/N) N Date Extracted: 1/25/07

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 2/21/07

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: _____

CONCENTRATION UNITS:

CAS NO.	COMPOUND	(ug/L or ug/Kg) UG/L	Q
297-97-2	Thionazin	20	U
87-68-3	Hexachlorobutadiene	10	U
122-39-4	Diphenylamine	10	U
59-50-7	4-Chloro-3-methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
99-35-4	1,3,5-Trinitrobenzene	10	U
62-44-2	Phenacetin	20	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
60-51-5	Dimethoate	10	U
95-95-4	2,4,5-Trichlorophenol	25	U
92-67-1	4-Aminobiphenyl	20	U
82-68-8	Pentachloronitrobenzene	20	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	25	U
298-04-4	Disulfoton	10	U
208-96-8	Acenaphthylene	10	U
	Diallate	20	U
23950-58-5	Pronamide	10	U
131-11-3	Dimethyl phthalate	10	U
298-0-0	Methyl parathion	10	U
606-20-2	2,6-Dinitrotoluene	10	U
83-32-9	Acenaphthene	10	U
99-09-2	3-Nitroaniline	25	U
298-02-2	Phorate	10	U
51-28-5	2,4-Dinitrophenol	25	U
91-80-5	Methapyrilene	100	U
465-73-6	Isodrin	20	U
132-64-9	Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene	10	U
100-02-7	4-Nitrophenol	25	U
510-15-6	Chlorobenzilate	10	U
60-11-7	Dimethylaminoazobenzene	10	U
86-73-7	Fluorene	10	U
7005-72-3	4-Chlorophenyl phenyl ether	10	U
119-93-7	3,3'-Dimethylbenzidine	10	U
52-85-7	Famphur	20	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SVBLK

Lab Name: UPSTATE LABS INC. Contract: CHA

Lab Code: 10170 Case No.: _____ SAS No.: _____ SDG No.: CHA78

Matrix: (soil/water) WATER Lab Sample ID: MB-9299

Sample wt/vol: 1000 (g/ml) ML Lab File ID: AE3317.D

Level: (low/med) LOW Date Received: 1/24/07

% Moisture: _____ decanted:(Y/N) N Date Extracted: 1/25/07

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 2/21/07

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: _____

CONCENTRATION UNITS:

CAS NO.	COMPOUND	(ug/L or ug/Kg) UG/L	Q
84-66-2	Diethyl phthalate	10	U
100-01-6	4-Nitroaniline	25	U
53-96-3	2-Acetylaminofluorene	20	U
57-97-6	7,12-Dimethylbenz(a)anthracene	10	U
534-52-1	4,6-Dinitro-2-methylphenol	25	U
56-49-3	3-Methylcholanthrene	10	U
86-30-6	N-Nitrosodiphenylamine	10	U
101-55-3	4-Bromophenyl phenyl ether	10	U
118-74-1	Hexachlorobenzene	10	U
87-86-5	Pentachlorophenol	25	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
84-74-2	Di-n-butyl phthalate	10	U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
85-68-7	Butyl benzyl phthalate	10	U
91-94-1	3,3'-Dichlorobenzidine	10	U
218-01-9	Chrysene	10	U
117-81-7	Bis(2-ethylhexyl)phthalate	4	J
117-84-0	Di-n-octyl phthalate	10	U
205-99-2	Benzo(b)fluoranthene	10	U
207-08-9	Benzo(k)fluoranthene	10	U
50-32-8	Benzo(a)pyrene	10	U
193-39-5	Indeno(1,2,3-cd)pyrene	10	U
53-70-3	Dibenz(a,h)anthracene	10	U
191-24-2	Benzo(ghi)perylene	10	U
100-51-6	Benzyl alcohol	10	U
	Bis(2-chloroisopropyl)ether	10	U
	Kepone	25	U
62-75-9	N-nitrosodimethylamine	10	U

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

SVBLK

Lab Name: UPSTATE LABS INC. Contract: CHA

Lab Code: 10170 Case No.: _____ SAS No.: _____ SDG No.: CHA78

Matrix: (soil/water) WATER Lab Sample ID: MB-9299

Sample wt/vol: 1000 (g/ml) ML Lab File ID: AE3317.D

Level: (low/med) LOW Date Received: 1/24/07

% Moisture: _____ decanted: (Y/N) N Date Extracted: 1/25/07

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 2/21/07

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: _____

Number TICs found: 6

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 000629-54-9	Hexadecanamide	21.98	4	JN
2.	unknown	23.15	3	J
3. 000301-02-0	9-Octadecenamide, (Z)-	23.21	9	JN
4.	unknown	24.75	2	J
5. 000112-84-5	Erucylamide	25.72	10	JN
6. 007683-64-9	Squalene	25.89	23	JN

4A

VOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

VBLK01

Lab Name: Upstate Labs Inc. Contract: CHA

Lab Code: 10170 Case No.: _____ SAS No.: _____ SDG No.: CHA78

Lab File ID: C16640.D Lab Sample ID: MB

Date Analyzed: 2/3/07 Time Analyzed: 17:09

GC Column: RTX-VO ID: 0.53 (mm) Heated Purge: (Y/N) N

Instrument ID: 12

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	VMBS01	LCS	C16641.D	17:48
02	ULI TRIP BLANK	U0701392-001A	C16643.D	19:09
03	MW-15SA	U0701392-002L	C16644.D	19:49
04	MW-15SB	U0701392-003L	C16645.D	20:29
05	MW-15IA	U0701392-004L	C16646.D	21:09
06	MW-15IB MS	U0701392-005LMS	C16647.D	21:48
07	MW-15IB MSD	U0701392-005LMSD	C16648.D	22:27
08	MW-15IB	U0701392-005L	C16649.D	23:06
09	MW-15DA	U0701392-006L	C16650.D	23:45
10	MW-15DB	U0701392-007L	C16651.D	0:24
11	HOLDING BLANK	U0701392-008A	C16652.D	1:03

COMMENTS

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

VBLK01

Lab Name: Upstate Labs Inc. Contract: CHA

Lab Code: 10170 Case No.: _____ SAS No.: _____ SDG No.: CHA78

Matrix: (soil/water) WATER Lab Sample ID: MB

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: C16640.D

Level: (low/med) LOW Date Received: 1/24/07

% Moisture: not dec. _____ Date Analyzed: 2/3/07

GC Column: RTX-VO ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND (ug/L or ug/Kg) UG/L		Q
75-71-8	Dichlorodifluoromethane	5	U
74-87-3	Chloromethane	5	U
75-1-4	Vinyl Chloride	5	U
74-83-9	Bromomethane	5	U
75-00-3	Chloroethane	5	U
75-69-4	Trichlorofluoromethane	5	U
107-02-8	Acrolein	100	U
67-64-1	Acetone	10	U
75-35-4	1,1-Dichloroethene	5	U
75-05-8	Acetonitrile	100	U
74-88-4	Iodomethane	5	U
107-05-1	Allyl Chloride	5	U
75-15-0	Carbon Disulfide	5	U
75-09-2	Methylene Chloride	2	J
107-13-1	Acrylonitrile	100	U
156-60-5	trans-1,2-Dichloroethene	5	U
75-34-33	1,1-Dichloroethane	5	U
108-5-4	Vinyl Acetate	50	U
126-99-8	Chloroprene	10	U
78-93-3	2-Butanone	10	U
107-12-0	Propionitrile	100	U
594-20-7	2,2-Dichloropropane	5	U
156-59-2	cis-1,2-Dichloroethene	5	U
126-98-7	Methacrylonitrile	10	U
67-66-3	Chloroform	5	U
74-97-5	Bromochloromethane	5	U
78-83-1	Isobutyl Alcohol	1000	U
71-55-6	1,1,1-Trichloroethane	5	U
563-58-6	1,1-Dichloropropene	5	U
56-23-5	Carbon Tetrachloride	5	U
71-43-2	Benzene	5	U
107-06-2	1,2-Dichloroethane	5	U
97-01-6	Trichloroethene	5	U
78-87-5	1,2-Dichloropropane	5	U
80-62-6	Methyl Methacrylate	10	U
75-27-4	Bromodichloromethane	5	U
74-95-3	Dibromomethane	5	U
108-10-1	4-Methyl-2-pentanone	10	U
10061-1-5	cis-1,3-Dichloropropene	5	U

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

VBLK01

Lab Name: Upstate Labs Inc. Contract: CHA

Lab Code: 10170 Case No.: _____ SAS No.: _____ SDG No.: CHA78

Matrix: (soil/water) WATER Lab Sample ID: MB

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: C16640.D

Level: (low/med) LOW Date Received: 1/24/07

% Moisture: not dec. _____ Date Analyzed: 2/3/07

GC Column: RTX-VO ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND (ug/L or ug/Kg) UG/L		Q
108-88-3	Toluene	5	U
10061-2-6	trans-1,3-Dichloropropene	5	U
97-63-2	Ethyl Methacrylate	10	U
79-00-5	1,1,2-Trichloroethane	5	U
591-78-6	2-Hexanone	10	U
142-28-9	1,3-Dichloropropane	5	U
127-18-4	Tetrachloroethene	5	U
124-48-1	Dibromochloromethane	5	U
106-93-4	1,2-Dibromoethane	5	U
108-90-7	Chlorobenzene	5	U
630-20-6	1,1,1,2-Tetrachloroethane	5	U
100-41-4	Ethylbenzene	5	U
108-38-3	m,p-Xylene	5	U
95-47-6	o-Xylene	5	U
100-42-5	Styrene	5	U
75-25-2	Bromoform	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
96-18-4	1,2,3-Trichloropropane	5	U
110-57-6	1,4-Dichloro-2-butene	10	U
541-73-1	1,3-Dichlorobenzene	5	U
106-46-7	1,4-Dichlorobenzene	5	U
95-50-1	1,2-Dichlorobenzene	5	U
96-12-8	1,2-Dibromo-3-chloro-propane	10	U

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

VBLK01

Lab Name: Upstate Labs Inc. Contract: CHA

Lab Code: 10170 Case No.: _____ SAS No.: _____ SDG No.: CHA78

Matrix: (soil/water) WATER Lab Sample ID: MB

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: C16640.D

Level: (low/med) LOW Date Received: 1/24/07

% Moisture: not dec. _____ Date Analyzed: 2/3/07

GC Column: RTX-VO ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

Number TICs found: 0

CAS NO.	COMPOUND NAME	RT	EST. CONC.	Q

4A

EPA SAMPLE NO.

VOLATILE METHOD BLANK SUMMARY

VBLK02

Lab Name: Upstate Labs Inc. Contract: CHA

Lab Code: 10170 Case No.: SAS No.: SDG No.: CHA78

Lab File ID: C16657.D Lab Sample ID: MB

Date Analyzed: 2/5/07 Time Analyzed: 13:52

GC Column: RTX-VO ID: 0.53 (mm) Heated Purge: (Y/N) N

Instrument ID: 12

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	VMBS02	LCS	C16658.D	14:40
02	MW-14SA	U0701392-009L	C16666.D	19:44
03	MW-14SB	U0701392-010L	C16667.D	20:22
04	MW-14IA	U0701392-011L	C16668.D	21:00
05	MW-14IB	U0701392-012L	C16669.D	21:38
06	MW-14DA	U0701392-013L	C16670.D	22:16
07	MW-14DB	U0701392-014L	C16671.D	22:53
08	TRIP BLANK	U0701392-015A	C16672.D	23:31
09	HOLDING BLANK	U0701392-016A	C16673.D	0:09

COMMENTS

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

VBLK02

Lab Name: Upstate Labs Inc. Contract: CHA

Lab Code: 10170 Case No.: _____ SAS No.: _____ SDG No.: CHA78

Matrix: (soil/water) WATER Lab Sample ID: MB

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: C16657.D

Level: (low/med) LOW Date Received: 1/24/07

% Moisture: not dec. _____ Date Analyzed: 2/5/07

GC Column: RTX-VO ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND (ug/L or ug/Kg) UG/L		Q
75-71-8	Dichlorodifluoromethane	5	U
74-87-3	Chloromethane	5	U
75-1-4	Vinyl Chloride	5	U
74-83-9	Bromomethane	5	U
75-00-3	Chloroethane	5	U
75-69-4	Trichlorofluoromethane	5	U
107-02-8	Acrolein	100	U
67-64-1	Acetone	10	U
75-35-4	1,1-Dichloroethene	5	U
75-05-8	Acetonitrile	100	U
74-88-4	Iodomethane	5	U
107-05-1	Allyl Chloride	5	U
75-15-0	Carbon Disulfide	5	U
75-09-2	Methylene Chloride	2	J
107-13-1	Acrylonitrile	100	U
156-60-5	trans-1,2-Dichloroethene	5	U
75-34-33	1,1-Dichloroethane	5	U
108-5-4	Vinyl Acetate	50	U
126-99-8	Chloroprene	10	U
78-93-3	2-Butanone	10	U
107-12-0	Propionitrile	100	U
594-20-7	2,2-Dichloropropane	5	U
156-59-2	cis-1,2-Dichloroethene	5	U
126-98-7	Methacrylonitrile	10	U
67-66-3	Chloroform	5	U
74-97-5	Bromochloromethane	5	U
78-83-1	Isobutyl Alcohol	1000	U
71-55-6	1,1,1-Trichloroethane	5	U
563-58-6	1,1-Dichloropropene	5	U
56-23-5	Carbon Tetrachloride	5	U
71-43-2	Benzene	5	U
107-06-2	1,2-Dichloroethane	5	U
97-01-6	Trichloroethene	5	U
78-87-5	1,2-Dichloropropane	5	U
80-62-6	Methyl Methacrylate	10	U
75-27-4	Bromodichloromethane	5	U
74-95-3	Dibromomethane	5	U
108-10-1	4-Methyl-2-pentanone	10	U
10061-1-5	cis-1,3-Dichloropropene	5	U

1A

EPA SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

VBLK02

Lab Name: Upstate Labs Inc. Contract: CHA

Lab Code: 10170 Case No.: _____ SAS No.: _____ SDG No.: CHA78

Matrix: (soil/water) WATER Lab Sample ID: MB

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: C16657.D

Level: (low/med) LOW Date Received: 1/24/07

% Moisture: not dec. _____ Date Analyzed: 2/5/07

GC Column: RTX-VO ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND (ug/L or ug/Kg) UG/L		Q
108-88-3	Toluene	5	U
10061-2-6	trans-1,3-Dichloropropene	5	U
97-63-2	Ethyl Methacrylate	10	U
79-00-5	1,1,2-Trichloroethane	5	U
591-78-6	2-Hexanone	6	J
142-28-9	1,3-Dichloropropane	5	U
127-18-4	Tetrachloroethene	5	U
124-48-1	Dibromochloromethane	5	U
106-93-4	1,2-Dibromoethane	5	U
108-90-7	Chlorobenzene	5	U
630-20-6	1,1,1,2-Tetrachloroethane	5	U
100-41-4	Ethylbenzene	5	U
108-38-3	m,p-Xylene	5	U
95-47-6	o-Xylene	5	U
100-42-5	Styrene	5	U
75-25-2	Bromoform	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
96-18-4	1,2,3-Trichloropropane	5	U
110-57-6	1,4-Dichloro-2-butene	10	U
541-73-1	1,3-Dichlorobenzene	5	U
106-46-7	1,4-Dichlorobenzene	5	U
95-50-1	1,2-Dichlorobenzene	5	U
96-12-8	1,2-Dibromo-3-chloro-propane	10	U

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

VBLK02

Lab Name: Upstate Labs Inc. Contract: CHA

Lab Code: 10170 Case No.: _____ SAS No.: _____ SDG No.: CHA78

Matrix: (soil/water) WATER Lab Sample ID: MB

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: C16657.D

Level: (low/med) LOW Date Received: 1/24/07

% Moisture: not dec. _____ Date Analyzed: 2/5/07

GC Column: RTX-VO ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

Number TICs found: 0

CAS NO.	COMPOUND NAME	RT	EST. CONC.	Q

4 C

METHOD BLANK SUMMARY

NYSDEC SAMPLE NO
PBW

Lab Name: Upstate Labs Inc. Contract: CHA

Lab Code: 10170 Case No: _____ SAS No: _____ SDG No: CHA-78

Lab Sample ID: MB-9296 Lab File ID: GA-3760

Matrix: (Soil/water) Water Extraction: SONC.

Sulfur Cleanup: (Y/N) N Date Extracted: 1/26/07

Date Analyzed (1): 2/8/07 Date Analyzed (2): 2/8/07

Time Analyzed (1): 5:16 PM Time Analyzed (2): 5:38 PM

Instrument ID (1): 69 Instrument ID (2): 69

GC Column (1): DB-XLB GC Column (2): DB-35MS

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, AND MSB.

	NYSDEC SAMPLE NO	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	PBW	MB-9296	GA-3760	17:16
02	LCSW	LCS-9296	GA-3760	17:38
03	MW-15SA	U0701392-2	GA-3760	18:00
04	MW-15SB	U0701392-3	GA-3760	18:22
05	MW-15IA	U0701392-4	GA-3760	18:45
06	MW-15IB	U0701392-5	GA-3760	19:07
07	MW-15IBMS	U0701392-5MS	GA-3760	19:29
08	MW-15IBMSD	U0701392-5MSD	GA-3760	19:51
09	MW-15DA	U0701392-6	GA-3760	20:14
10	MW-15DB	U0701392-7	GA-3760	20:36
11	MW-14SA	U0701392-9	GA-3760	20:58
12	MW-14SB	U0701392-10	GA-3760	21:21
13	MW-14IA	U0701392-11	GA-3760	21:43
14	MW-14IB	U0701392-12	GA-3760	22:05
15	MW-14DA	U0701392-13	GA-3760	22:27
16	MW-14DB	U0701392-14	GA-3760	22:50
17				
18				
19				
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21				
22				
23				
24				
25				
26				
27				
28				

Comments: _____

1 D

PESTICIDE ANALYSIS DATA SHEET

NYSDEC SAMPLE NO.

PBW

Lab Name:	Upsate Labs Inc.	Contract:	CHA
Lab Code:	10170	Case No:	
SAS No:		SDG No.	CHA-78
Matrix: (soil/water)	Water	Lab Sample ID:	MB-9296
Sample wt/vol:	1000 (g/mL) ml	Lab File ID:	GA-3760
% Solids		Date Recieved:	1/26/07
Extraction: (SepF/Cont/Sonc)	SepF.	Date Extracted:	1/26/07
Concentrated Extract Volume:	10	Date Analyzed:	2/8/07
Injection Volume:	1	Time Analyzed:	5:16 PM
GPC Cleanup: (Y/N)	N	Dilution Factor	1
		Sulfur Cleanup:	Y

CONCENTRATION UNITS:

CAS NO.	COMPOUND	ug/kg	Q
319-84-6	Alpha-BHC	0.05	U
319-85-7	Beta-BHC	0.05	U
319-86-8	Delta-BHC	0.05	U
58-89-9	Lindane	0.05	U
76-44-8	Heptachlor	0.05	U
309-00-2	Aldrin	0.05	U
1024-57-3	Heptachlor epoxide	0.05	U
959-98-8	Endosulfan I	0.05	U
60-57-1	Dieldrin	0.1	U
72-55-9	4,4'-DDE	0.1	U
72-20-8	Endrin	0.1	U
33213-65-9	Endosulfan II	0.1	U
72-54-8	4,4'-DDD	0.1	U
1031-07-8	Endosulfan sulfate	0.1	U
50-29-3	4,4'-DDT	0.1	U
72-43-5	Methoxychlor	0.5	U
53494-70-5	Endrin Ketone	0.1	U
7421-36-3	Endrin Aldehyde	0.1	U
5103-71-9	Alpha-chlordane	0.05	U
5103-74-2	Gamma-chlordane	0.05	U
8001-35-2	Toxaphene	5	U
12674-11-2	Aroclor 1016	1	U
11104-28-2	Aroclor 1221	1	U
11141-16-5	Aroclor 1232	1	U
53469-21-9	Aroclor 1242	1	U
12672-29-6	Aroclor 1248	1	U
11097-69-1	Aroclor 1254	1	U
11096-82-5	Aroclor 1260	1	U

-200-

FORM I-CLP-PEST

4 C

METHOD BLANK SUMMARY

NYSDEC SAMPLE NO
PBW

Lab Name: Upstate Labs Inc. Contract: CHA

Lab Code: 10170 Case No: _____ SAS No: _____ SDG No: CHA-78

Lab Sample ID: MB9294 Lab File ID: GA3758

Matrix: (Soil/water) Water Extraction: SONC

Sulfur Cleanup: (Y/N) N Date Extracted: 2/2/07

Date Analyzed (1): 2/5/07 Date Analyzed (2): 2/5/07

Time Analyzed (1): 4:05 PM Time Analyzed (2): 4.33 PM

Instrument ID (1). 65 Instrument ID (2). 65

GC Column (1): DB-XLB GC Column (2): DB-35MS

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD. AND MSB.

	NYSDEC SAMPLE NO	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	PBW	MB-9294	GA3758	16:05
02	LCSW	LCS-9294	GA3758	16:33
03	MW-15SA	U0701392-2	GA3758	18:53
04	MW-15SB	U0701392-3	GA3758	19:21
05	MW-15IA	U0701392-4	GA3758	19:49
06	MW-15IB	U0701392-5	GA3758	20:17
07	MW-15IBMS	U0701392-5MS	GA3758	20:45
08	MW-15IBMSD	U0701392-5MSD	GA3758	21:13
09	MW-15DA	U0701392-6	GA3758	21:41
10	MW-15DB	U0701392-7	GA3758	22:09
11	MW-14SA	U0701392-9	GA3758	22:37
12	MW-14SB	U0701392-10	GA3758	23:05
13	MW-14IA	U0701392-11	GA3758	23.33
14	MW-14IB	U0701392-12	GA3758	00:01
15	MW-14DA	U0701392-13	GA3758	00:29
16	MW-14DB	U0701392-14	GA3758	00:57
17				
18				
19				
20				
21				
22				
23				
24				
25				
26				

Comments: _____

1A

HERBICIDE ANALYSIS DATA SHEET

NYSDEC SAMPLE NO.

PBW

Lab Name:	Upsate Labs Inc.		Contract: CHA		
Lab Code:	10170	Case No:		SAS No.	SDG No. CHA-78
Matrix: (soil/water)	Water			Lab Sample ID:	MB-9294
Sample wt/vol:	1000 (g/mL)	ML		Lab File ID.	GA-3758
% Solids				Date Recieved:	2/2/07
Extraction: (SepF/Cont/Sonc)	Sep. F			Date Extracted:	2/2/07
Concentrated Extract Volume:	10			Date Analyzed.	2/5/07
Injection Volume:	1			Time Analyzed:	4:05 PM
GPC Cleanup: (Y/N)	N			Dilution Factor:	10
				Sulfur Cleanup:	Y

CONCENTRATION UNITS:

CAS NO.	COMPOUND	ug/L	Q
94-75-7	2,4-D	1.0	U
93-72-1	2,4,5-TP (Silvex)	1.0	U
	2,4,5-T (Silvex)	1.0	U
	Dinoseb	1.0	U
	Dicamba	1.0	U

FORM I-HERB

U.S. EPA - CLP

3
BLANKS

Lab Name: Upstate Laboratories, Inc. Contract:

Lab Code: 10170 Case No. SAS No.: SDG No.: CHA78

Preparation Blank Matrix (soil/water): WATER

Preparation Blank Concentration Units (ug/L or mg/kg): UG/L

Analyte	Initial Calib. Blank (ug/L)	C	RunNo: 22686 Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	MB-9359 Prepa-ration Blank	C	M
Aluminum	100.0	U	100.0	U	100.0	U			100.000	U	P
Antimony	15.0	U	15.0	U	15.0	U			15.000	U	P
Arsenic	10.0	U	10.0	U	10.0	U			10.000	U	P
Barium	50.0	U	50.0	U	50.0	U			50.000	U	P
Beryllium	3.0	U	3.0	U	3.0	U			3.000	U	P
Cadmium	5.0	U	5.0	U	5.0	U			5.000	U	P
Calcium	1000.0	U	1000.0	U	1000.0	U			1000.000	U	P
Chromium	5.0	U	5.0	U	5.0	U			5.000	U	P
Cobalt	20.0	U	20.0	U	20.0	U			20.000	U	P
Iron	60.0	U	60.0	U	60.0	U			60.000	U	P
Lead	3.0	U	3.0	U	3.0	U			3.000	U	P
Magnesium	1000.0	U	1000.0	U	1000.0	U			1000.000	U	P
Manganese	10.0	U	10.0	U	10.0	U			10.000	U	P
Nickel	30.0	U	30.0	U	30.0	U			30.000	U	P
Potassium	1000.0	U	1000.0	U	1000.0	U			1000.000	U	P
Sodium	1000.0	U	1000.0	U	1000.0	U			1000.000	U	P
Thallium	10.0	U	10.0	U	10.0	U			10.000	U	P
Vanadium	30.0	U	30.0	U	30.0	U			30.000	U	P
Zinc	10.0	U	10.0	U	10.0	U			10.000	U	P

U.S. EPA - CLP

3
BLANKS

Lab Name: Upstate Laboratories, Inc. Contract:

Lab Code: 10170 Case No. SAS No.: SDG No.: CHA78

Preparation Blank Matrix (soil/water): WATER

Preparation Blank Concentration Units (ug/L or mg/kg): UG/L

Analyte	Initial Calib. Blank (ug/L)	C	RunNo: 22710 Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	MB-9359 Prepa-ration Blank	C	M
Copper	10.0	U	10.0	U	10.0	U			10.000	U	P
Silver	10.0	U	10.0	U	10.0	U			10.000	U	P

U.S. EPA - CLP

3
BLANKS

Lab Name: Upstate Laboratories, Inc. Contract:

Lab Code: 10170 Case No. SAS No.: SDG No.: CHA78

Preparation Blank Matrix (soil/water): WATER

Preparation Blank Concentration Units (ug/L or mg/kg): UG/L

Analyte	Initial Calib. Blank (ug/L)	C	RunNo: 22715 Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	MB-9359 Prepa-ration Blank	C	M
Selenium	5.0	U	5.0	U	5.0	U			5.000	U	P

U.S. EPA - CLP

3
BLANKS

Lab Name: Upstate Laboratories, Inc. Contract:

Lab Code: 10170 Case No. SAS No.: SDG No.: CHA78

Preparation Blank Matrix (soil/water): WATER

Preparation Blank Concentration Units (ug/L or mg/kg): UG/L

Analyte	Initial Calib. Blank (ug/L)	C	RunNo: 22688 Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	MB-9359 Prepa-ration Blank	C	M
Tin	300.0	U	300.0	U	300.0	U			300.000	U	P

U.S. EPA - CLP

3
BLANKS

Lab Name: Upstate Laboratories, Inc. Contract:

Lab Code: 10170 Case No. SAS No.: SDG No.: CHA78

Preparation Blank Matrix (soil/water): WATER

Preparation Blank Concentration Units (ug/L or mg/kg): UG/L

Analyte	Initial Calib. Blank (ug/L)	C	RunNo: 22684 Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	MB-9359 Prepa-ration Blank	C	M
Boron	500.0	U	500.0	U	500.0	U			500.000	U	P

U.S. EPA - CLP

3
BLANKS

Lab Name: Upstate Laboratories, Inc. Contract:

Lab Code: 10170 Case No. SAS No.: SDG No.: CHA78

Preparation Blank Matrix (soil/water): WATER

Preparation Blank Concentration Units (ug/L or mg/kg): UG/L

Analyte	Initial Calib. Blank (ug/L)	C	RunNo: 22462 Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	MB-9336 Prepa-ration Blank	C	M
Mercury	0.2	U	0.2	U	0.2	U	0.2	U	0.200	U	CV

U.S. EPA - CLP

3
BLANKS

Lab Name: Upstate Laboratories, Inc. Contract:

Lab Code: 10170 Case No. SAS No.: SDG No.: CHA78

Preparation Blank Matrix (soil/water): WATER

Preparation Blank Concentration Units (ug/L or mg/kg): UG/L

Analyte	Initial Calib. Blank (ug/L)	C	RunNo: 22462 Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	MB-9336 Prepa-ration Blank	C	M
Mercury			0.2	U	0.2	U	0.2	U			CV

U.S. EPA - CLP

3
BLANKS

Lab Name: Upstate Laboratories, Inc. Contract:

Lab Code: 10170 Case No. SAS No.: SDG No.: CHA78

Preparation Blank Matrix (soil/water): WATER

Preparation Blank Concentration Units (ug/L or mg/kg): UG/L

Analyte	Initial Calib. Blank (ug/L)	C	RunNo: 22462 Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	MB-9336 Prepa-ration Blank	C	M
Mercury			0.2	U	-0.3		-2.9				CV

U.S. EPA - CLP

3
BLANKS

Lab Name: Upstate Laboratories, Inc. Contract:

Lab Code: 10170 Case No. SAS No.: SDG No.: CHA78

Preparation Blank Matrix (soil/water): WATER

Preparation Blank Concentration Units (ug/L or mg/kg): UG/L

Analyte	Initial Calib. Blank (ug/L)	C	RunNo: 22566 Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	MB-9344 Prepa-ration Blank	C	M
Cyanide	10.0	U	10.0	U	10.0	U			10.000	U	C

U.S. EPA - CLP

3
BLANKS

Lab Name: Upstate Laboratories, Inc. Contract:

Lab Code: 10170 Case No. SAS No.: SDG No.: CHA78

Preparation Blank Matrix (soil/water): WATER

Preparation Blank Concentration Units (ug/L or mg/kg): UG/L

Analyte	Initial Calib. Blank (ug/L)	C	RunNo: 22568 Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	MB-9350 Prepa-ration Blank	C	M
Cyanide	10.0	U	10.0	U	10.0	U			10.000	U	C

U.S. EPA - CLP

4

ICP INTERFERENCE CHECK SAMPLE

Lab Name: Upstate Laboratories, Inc. Contract:

Lab Code: 10170 Case No. SAS No.: SDG No.: CHA78

ICP ID Number: 58.0 ICS Source: SPEX

Concentration Units: ug/L

Analyte	True Sol. A	True Sol. AB	Initial Found Sol. A	Initial Found Sol. AB	%R	Final Found Sol. A	Final Found Sol. AB	%R
Aluminum	500000	500000	544685	555346.8	111.1	553867	555652.4	111.1
Antimony	0	0	38	38.8		29	41.7	0.0
Arsenic	0	0	17	11.3		-2	2.2	0.0
Barium	0	500	35	575.5	115.1	37	564.7	112.9
Beryllium	0	500	0	555.6	111.1	0	559.2	111.8
Cadmium	0	1000	23	983.1	98.3	23	958.6	95.9
Calcium	500000	500000	541926	547271.8	109.5	544484	550380.9	110.1
Chromium	0	500	2	526.7	105.3	1	522.1	104.4
Cobalt	0	500	0	510.0	102.0	0	515.5	103.1
Iron	200000	200000	199481	202908.6	101.5	201476	201810.8	100.9
Lead	0	1000	-25	949.5	94.9	-28	932.3	93.2
Magnesium	500000	500000	545809	555576.7	111.1	547394	549049.5	109.8
Manganese	0	500	14	532.1	106.4	14	540.8	108.2
Nickel	0	1000	-1	1006.7	100.7	0	1014.4	101.4
Potassium	0	0	8	23.7		10	31.5	0.0
Sodium	0	0	716	644.3		656	549.3	0.0
Thallium	0	0	1	-1.6		12	9.3	0.0
Vanadium	0	500	0	542.8	108.6	-1	541.6	108.3
Zinc	0	1000	26	1041.9	104.2	26	1026.3	102.6

U.S. EPA - CLP

4
ICP INTERFERENCE CHECK SAMPLE

Lab Name: Upstate Laboratories, Inc. Contract:

Lab Code: 10170 Case No. SAS No.: SDG No.: CHA78

ICP ID Number: 58.0 ICS Source: SPEX

Concentration Units: ug/L

Analyte	True Sol. A	True Sol. AB	Initial Found Sol. A	Initial Found Sol. AB	Initial Found %R	Final Found Sol. A	Final Found Sol. AB	Final Found %R
Copper	0	500	-9	543.8	108.8	-9	550.0	110.0
Silver	0	1000	3	1097.4	109.7	2	1110.9	111.1

U.S. EPA - CLP

4

ICP INTERFERENCE CHECK SAMPLE

Lab Name: Upstate Laboratories, Inc. Contract:

Lab Code: 10170 Case No. SAS No.: SDG No.: CHA78

ICP ID Number: 58.0 ICS Source: SPEX

Concentration Units: ug/L

Analyte	True Sol. A	True Sol. AB	Initial Found Sol. A	Initial Found Sol. AB	Initial Found %R	Final Found Sol. A	Final Found Sol. AB	Final Found %R
Tin	0	1000	6	1026.7	102.7	3	993.8	99.4

U.S. EPA - CLP

4

ICP INTERFERENCE CHECK SAMPLE

Lab Name: Upstate Laboratories, Inc. Contract:

Lab Code: 10170 Case No. SAS No.: SDG No.: CHA78

ICP ID Number: 58.0 ICS Source: SPEX

Concentration Units: ug/L

Analyte	True Sol. A	True Sol. AB	Initial Found Sol. A	Initial Found Sol. AB	Initial Found %R	Final Found Sol. A	Final Found Sol. AB	Final Found %R
Boron	0	1000	39	992.7	99.3	-16	964.5	96.5

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: UPSTATE LABS INC. Contract: CHA

Lab Code: 10170 Case No.: SAS No.: SDG No.: CHA78

Lab File ID: AE3256.D DFTPP Injection Date: 2/14/07

Instrument ID: 14.0 DFTPP Injection Time: 11:29

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE	
51	30.0 - 80.0% of mass 198	30.1	
68	Less than 2.0% of mass 69	0.0	(0.0)1
69	Mass 69 Relative abundance	46.4	
70	Less than 2.0% of mass 69	0.1	(0.3)1
127	25.0 - 75.0% of mass 198	45.9	
197	Less than 1.0% of mass 198	0.0	
198	Base Peak, 100% relative abundance	100.0	
199	5.0 to 9.0% of mass 198	6.7	
275	10.0 - 30.0% of mass 198	19.2	
365	Greater than 0.75% of mass 198	2.3	
441	Present, but less than mass 443	6.8	
442	40.0 - 110.0% of mass 198	43.1	
443	15.0 - 24.0% of mass 442	8.4	(19.6)2

1-Value is % mass 69 2-Value is % mass 442

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THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD020	SSTD020	AE3257.D	2/14/07	11:49
02	SSTD005	SSTD005	AE3258.D	2/14/07	12:44
03	SSTD010	SSTD010	AE3259.D	2/14/07	13:27
04	SSTD050	SSTD050	AE3260.D	2/14/07	14:10
05	SSTD080	SSTD080	AE3261.D	2/14/07	14:53

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: UPSTATE LABS INC. Contract: CHA

Lab Code: 10170 Case No.: SAS No.: SDG No.: CHA78

Lab File ID: AE3256.D DFTPP Injection Date: 2/14/07

Instrument ID: 14.0 DFTPP Injection Time: 11:29

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE	
51	30.0 - 80.0% of mass 198	30.1	
68	Less than 2.0% of mass 69	0.0	(0.0)1
69	Mass 69 Relative abundance	46.4	
70	Less than 2.0% of mass 69	0.1	(0.3)1
127	25.0 - 75.0% of mass 198	45.9	
197	Less than 1.0% of mass 198	0.0	
198	Base Peak, 100% relative abundance	100.0	
199	5.0 to 9.0% of mass 198	6.7	
275	10.0 - 30.0% of mass 198	19.2	
365	Greater than 0.75% of mass 198	2.3	
441	Present, but less than mass 443	6.8	
442	40.0 - 110.0% of mass 198	43.1	
443	15.0 - 24.0% of mass 442	8.4	(19.6)2

1-Value is % mass 69 2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD005	SSTD005B	AE3262.D	2/14/07	15:36
02	SSTD010	SSTD010B	AE3263.D	2/14/07	16:19
03	SSTD020	SSTD020B	AE3264.D	2/14/07	17:03
04	SSTD050	SSTD050B	AE3265.D	2/14/07	17:45
05	SSTD080	SSTD080B	AE3266.D	2/14/07	18:26

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: UPSTATE LABS INC. Contract: CHA

Lab Code: 10170 Case No.: SAS No.: SDG No.: CHA78

Lab File ID: AE3291.D DFTPP Injection Date: 2/20/07

Instrument ID: 14.0 DFTPP Injection Time: 13:36

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE	
51	30.0 - 80.0% of mass 198	31.7	
68	Less than 2.0% of mass 69	0.0	(0.0)1
69	Mass 69 Relative abundance	46.8	
70	Less than 2.0% of mass 69	0.1	(0.3)1
127	25.0 - 75.0% of mass 198	41.8	
197	Less than 1.0% of mass 198	0.0	
198	Base Peak, 100% relative abundance	100.0	
199	5.0 to 9.0% of mass 198	7.0	
275	10.0 - 30.0% of mass 198	18.4	
365	Greater than 0.75% of mass 198	2.7	
441	Present, but less than mass 443	7.0	
442	40.0 - 110.0% of mass 198	44.5	
443	15.0 - 24.0% of mass 442	8.8	(19.9)2

1-Value is % mass 69 2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD020CC01	SSTD020	AE3292.D	2/20/07	13:56
02	MW-15SA	U0701392-002K	AE3299.D	2/20/07	19:03
03	MW-15SB	U0701392-003K	AE3300.D	2/20/07	19:46
04	MW-15IA	U0701392-004K	AE3301.D	2/20/07	20:27
05	MW-15IB	U0701392-005K	AE3302.D	2/20/07	21:09
06	MW-15DA	U0701392-006K	AE3303.D	2/20/07	21:51
07	MW-15DB	U0701392-007K	AE3304.D	2/20/07	22:32
08	MW-14SA	U0701392-009K	AE3305.D	2/20/07	23:14
09	MW-14SB	U0701392-010K	AE3306.D	2/20/07	23:56
10	MW-14IA	U0701392-011K	AE3307.D	2/21/07	0:37
11	MW-14IB	U0701392-012K	AE3308.D	2/21/07	1:18

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: UPSTATE LABS INC. Contract: CHA

Lab Code: 10170 Case No.: SAS No.: SDG No.: CHA78

Lab File ID: AE3291.D DFTPP Injection Date: 2/20/07

Instrument ID: 14.0 DFTPP Injection Time: 13:36

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE	
51	30.0 - 80.0% of mass 198	31.7	
68	Less than 2.0% of mass 69	0.0	(0.0)1
69	Mass 69 Relative abundance	46.8	
70	Less than 2.0% of mass 69	0.1	(0.3)1
127	25.0 - 75.0% of mass 198	41.8	
197	Less than 1.0% of mass 198	0.0	
198	Base Peak, 100% relative abundance	100.0	
199	5.0 to 9.0% of mass 198	7.0	
275	10.0 - 30.0% of mass 198	18.4	
365	Greater than 0.75% of mass 198	2.7	
441	Present, but less than mass 443	7.0	
442	40.0 - 110.0% of mass 198	44.5	
443	15.0 - 24.0% of mass 442	8.8	(19.9)2

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1-Value is % mass 69 2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD020CC01	SSTD020B	AE3293.D	2/20/07	14:42

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: UPSTATE LABS INC. Contract: CHA

Lab Code: 10170 Case No.: SAS No.: SDG No.: CHA78

Lab File ID: AE3291.D DFTPP Injection Date: 2/20/07

Instrument ID: 14.0 DFTPP Injection Time: 13:36

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE	
51	30.0 - 80.0% of mass 198	31.7	
68	Less than 2.0% of mass 69	0.0	(0.0)1
69	Mass 69 Relative abundance	46.8	
70	Less than 2.0% of mass 69	0.1	(0.3)1
127	25.0 - 75.0% of mass 198	41.8	
197	Less than 1.0% of mass 198	0.0	
198	Base Peak, 100% relative abundance	100.0	
199	5.0 to 9.0% of mass 198	7.0	
275	10.0 - 30.0% of mass 198	18.4	
365	Greater than 0.75% of mass 198	2.7	
441	Present, but less than mass 443	7.0	
442	40.0 - 110.0% of mass 198	44.5	
443	15.0 - 24.0% of mass 442	8.8	(19.9)2

1-Value is % mass 69 2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD020	SSTD020EXP	AE3294.D	2/20/07	15:27
02	SSTD005	SSTD005EXP	AE3295.D	2/20/07	16:11
03	SSTD010	SSTD010EXP	AE3296.D	2/20/07	16:55
04	SSTD050	SSTD050EXP	AE3297.D	2/20/07	17:38
05	SSTD080	SSTD080EXP	AE3298.D	2/20/07	18:21

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: UPSTATE LABS INC. Contract: CHA

Lab Code: 10170 Case No.: SAS No.: SDG No.: CHA78

Lab File ID: AE3309.D DFTPP Injection Date: 2/21/07

Instrument ID: 14.0 DFTPP Injection Time: 11:25

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE	
51	30.0 - 80.0% of mass 198	33.6	
68	Less than 2.0% of mass 69	0.2	(0.5)1
69	Mass 69 Relative abundance	48.8	
70	Less than 2.0% of mass 69	0.1	(0.2)1
127	25.0 - 75.0% of mass 198	44.4	
197	Less than 1.0% of mass 198	0.0	
198	Base Peak, 100% relative abundance	100.0	
199	5.0 to 9.0% of mass 198	6.5	
275	10.0 - 30.0% of mass 198	18.2	
365	Greater than 0.75% of mass 198	2.3	
441	Present, but less than mass 443	5.7	
442	40.0 - 110.0% of mass 198	40.3	
443	15.0 - 24.0% of mass 442	7.8	(19.3)2

1-Value is % mass 69 2-Value is % mass 442

-222-

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD020CC02	SSTD020	AE3310.D	2/21/07	11:43
02	MW-15IB MS	U0701392-005KMS	AE3313.D	2/21/07	13:55
03	MW-15IB MSD	U0701392-005KMSD	AE3314.D	2/21/07	14:37
04	MW-14DA	U0701392-013K	AE3315.D	2/21/07	15:20
05	MW-14DB	U0701392-014K	AE3316.D	2/21/07	16:03
06	SVBLK	MB-9299	AE3317.D	2/21/07	16:48
07	SVMBS	LCS-9299	AE3318.D	2/21/07	17:31

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: UPSTATE LABS INC. Contract: CHA

Lab Code: 10170 Case No.: _____ SAS No.: _____ SDG No.: CHA78

Lab File ID: AE3309.D DFTPP Injection Date: 2/21/07

Instrument ID: 14.0 DFTPP Injection Time: 11:25

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE	
51	30.0 - 80.0% of mass 198	33.6	
68	Less than 2.0% of mass 69	0.2	(0.5)1
69	Mass 69 Relative abundance	48.8	
70	Less than 2.0% of mass 69	0.1	(0.2)1
127	25.0 - 75.0% of mass 198	44.4	
197	Less than 1.0% of mass 198	0.0	
198	Base Peak, 100% relative abundance	100.0	
199	5.0 to 9.0% of mass 198	6.5	
275	10.0 - 30.0% of mass 198	18.2	
365	Greater than 0.75% of mass 198	2.3	
441	Present, but less than mass 443	5.7	
442	40.0 - 110.0% of mass 198	40.3	
443	15.0 - 24.0% of mass 442	7.8	(19.3)2

1-Value is % mass 69 2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD020CC02	SSTD020B	AE3312.D	2/21/07	13:10

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: UPSTATE LABS INC. Contract: CHA

Lab Code: 10170 Case No.: SAS No.: SDG No.: CHA78

Lab File ID: AE3309.D DFTPP Injection Date: 2/21/07

Instrument ID: 14.0 DFTPP Injection Time: 11:25

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE	
51	30.0 - 80.0% of mass 198	33.6	
68	Less than 2.0% of mass 69	0.2	(0.5)1
69	Mass 69 Relative abundance	48.8	
70	Less than 2.0% of mass 69	0.1	(0.2)1
127	25.0 - 75.0% of mass 198	44.4	
197	Less than 1.0% of mass 198	0.0	
198	Base Peak, 100% relative abundance	100.0	
199	5.0 to 9.0% of mass 198	6.5	
275	10.0 - 30.0% of mass 198	18.2	
365	Greater than 0.75% of mass 198	2.3	
441	Present, but less than mass 443	5.7	
442	40.0 - 110.0% of mass 198	40.3	
443	15.0 - 24.0% of mass 442	7.8	(19.3)2

1-Value is % mass 69 2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD020CC02	SSTD020EXP	AE3311.D	2/21/07	12:26

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: UPSTATE LABS INC. Contract: CHA

Lab Code: 10170 Case No.: SAS No.: SDG No.: CHA78

Lab File ID: AE3325.D DFTPP Injection Date: 2/22/07

Instrument ID: 14.0 DFTPP Injection Time: 15:06

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE	
51	30.0 - 80.0% of mass 198	31.7	
68	Less than 2.0% of mass 69	0.0	(0.0)1
69	Mass 69 Relative abundance	47.7	
70	Less than 2.0% of mass 69	0.0	(0.0)1
127	25.0 - 75.0% of mass 198	44.8	
197	Less than 1.0% of mass 198	0.0	
198	Base Peak, 100% relative abundance	100.0	
199	5.0 to 9.0% of mass 198	6.8	
275	10.0 - 30.0% of mass 198	20.4	
365	Greater than 0.75% of mass 198	3.2	
441	Present, but less than mass 443	8.6	
442	40.0 - 110.0% of mass 198	55.9	
443	15.0 - 24.0% of mass 442	10.8	(19.3)2

1-Value is % mass 69 2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD020CC03	SSTD020	AE3326.D	2/22/07	15:25
02	SVMBS RE	LCS-9299	AE3331.D	2/22/07	18:57

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: UPSTATE LABS INC. Contract: CHA

Lab Code: 10170 Case No.: SAS No.: SDG No.: CHA78

Lab File ID: AE3325.D DFTPP Injection Date: 2/22/07

Instrument ID: 14.0 DFTPP Injection Time: 15:06

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE	
51	30.0 - 80.0% of mass 198	31.7	
68	Less than 2.0% of mass 69	0.0	(0.0)1
69	Mass 69 Relative abundance	47.7	
70	Less than 2.0% of mass 69	0.0	(0.0)1
127	25.0 - 75.0% of mass 198	44.8	
197	Less than 1.0% of mass 198	0.0	
198	Base Peak, 100% relative abundance	100.0	
199	5.0 to 9.0% of mass 198	6.8	
275	10.0 - 30.0% of mass 198	20.4	
365	Greater than 0.75% of mass 198	3.2	
441	Present, but less than mass 443	8.6	
442	40.0 - 110.0% of mass 198	55.9	
443	15.0 - 24.0% of mass 442	10.8	(19.3)2

1-Value is % mass 69 2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD020CC03	SSTD020B	AE3327.D	2/22/07	16:08

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: UPSTATE LABS INC. Contract: CHA

Lab Code: 10170 Case No.: SAS No.: SDG No.: CHA78

Lab File ID: AE3325.D DFTPP Injection Date: 2/22/07

Instrument ID: 14.0 DFTPP Injection Time: 15:06

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE	
51	30.0 - 80.0% of mass 198	31.7	
68	Less than 2.0% of mass 69	0.0	(0.0)1
69	Mass 69 Relative abundance	47.7	
70	Less than 2.0% of mass 69	0.0	(0.0)1
127	25.0 - 75.0% of mass 198	44.8	
197	Less than 1.0% of mass 198	0.0	
198	Base Peak, 100% relative abundance	100.0	
199	5.0 to 9.0% of mass 198	6.8	
275	10.0 - 30.0% of mass 198	20.4	
365	Greater than 0.75% of mass 198	3.2	
441	Present, but less than mass 443	8.6	
442	40.0 - 110.0% of mass 198	55.9	
443	15.0 - 24.0% of mass 442	10.8	(19.3)2

1-Value is % mass 69 2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD020CC03	SSTD020EXP	AE3328.D	2/22/07	16:51

5A

VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: Upstate Labs Inc. Contract: CHA

Lab Code: 10170 Case No.: _____ SAS No.: _____ SDG No.: CHA78

Lab File ID: C16581.D BFB Injection Date: 1/31/07

Instrument ID: 12 BFB Injection Time: 13:12

GC Column: RTX-VOLA ID: 0.53 (mm) Heated Purge: (Y/N) N

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE	
50	8.0 - 40.0% of mass 95	29.5	
75	30.0 - 66.0% of mass 95	52.0	
95	Base peak, 100% relative abundance	100.0	
96	5.0 - 9.0% of mass 95	6.5	
173	Less than 2.0% of mass 174	0.0	(0.0)1
174	50.0 - 120.0% of mass 95	88.8	
175	4.0 - 9.0% of mass 174	7.2	(8.2)1
176	93.0 - 101.0% of mass 174	89.6	(100.9)1
177	5.0 - 9.0% of mass 176	5.7	(6.4)2

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

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	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VSTD200	VSTD200	C16582.D	1/31/07	13:50
02	VSTD100	VSTD100	C16583.D	1/31/07	14:28
03	VSTD020	VSTD020	C16584.D	1/31/07	15:06
04	VSTD050	VSTD050	C16585.D	1/31/07	15:44
05	VSTD010	VSTD010	C16586.D	1/31/07	16:22
06	VSTD003	VSTD003	C16587.D	1/31/07	17:01

5A

VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: Upstate Labs Inc. Contract: CHA

Lab Code: 10170 Case No.: _____ SAS No.: _____ SDG No.: CHA78

Lab File ID: C16638.D BFB Injection Date: 2/3/07

Instrument ID: 12 BFB Injection Time: 15:50

GC Column: RTX-VOLA ID: 0.53 (mm) Heated Purge: (Y/N) N

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE	
50	8.0 - 40.0% of mass 95	21.3	
75	30.0 - 66.0% of mass 95	57.3	
95	Base peak, 100% relative abundance	100.0	
96	5.0 - 9.0% of mass 95	7.6	
173	Less than 2.0% of mass 174	0.0	(0.0)1
174	50.0 - 120.0% of mass 95	108.0	
175	4.0 - 9.0% of mass 174	8.4	(7.8)1
176	93.0 - 101.0% of mass 174	107.6	(99.7)1
177	5.0 - 9.0% of mass 176	8.1	(7.5)2

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VSTD050CC01	CC	C16639.D	2/3/07	16:29
02	VBLK01	MB	C16640.D	2/3/07	17:09
03	VMBS01	LCS	C16641.D	2/3/07	17:48
04	ULI TRIP BLANK	U0701392-001A	C16643.D	2/3/07	19:09
05	MW-15SA	U0701392-002L	C16644.D	2/3/07	19:49
06	MW-15SB	U0701392-003L	C16645.D	2/3/07	20:29
07	MW-15IA	U0701392-004L	C16646.D	2/3/07	21:09
08	MW-15IB MS	U0701392-005LMS	C16647.D	2/3/07	21:48
09	MW-15IB MSD	U0701392-005LMSD	C16648.D	2/3/07	22:27
10	MW-15IB	U0701392-005L	C16649.D	2/3/07	23:06
11	MW-15DA	U0701392-006L	C16650.D	2/3/07	23:45
12	MW-15DB	U0701392-007L	C16651.D	2/4/07	0:24
13	HOLDING BLANK	U0701392-008A	C16652.D	2/4/07	1:03
14	VSTD050CC02	CC	C16654.D	2/4/07	2:21

5A

VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: Upstate Labs Inc. Contract: CHA

Lab Code: 10170 Case No.: _____ SAS No.: _____ SDG No.: CHA78

Lab File ID: C16655.D BFB Injection Date: 2/5/07

Instrument ID: 12 BFB Injection Time: 12:32

GC Column: RTX-VOLA ID: 0.53 (mm) Heated Purge: (Y/N) N

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE	
50	8.0 - 40.0% of mass 95	25.6	
75	30.0 - 66.0% of mass 95	57.7	
95	Base peak, 100% relative abundance	100.0	
96	5.0 - 9.0% of mass 95	7.7	
173	Less than 2.0% of mass 174	0.0	(0.0)1
174	50.0 - 120.0% of mass 95	104.5	
175	4.0 - 9.0% of mass 174	9.3	(8.9)1
176	93.0 - 101.0% of mass 174	102.5	(98.1)1
177	5.0 - 9.0% of mass 176	6.8	(6.6)2

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

-230-

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VSTD050CC03	CC	C16656.D	2/5/07	13:14
02	VBLK02	MB	C16657.D	2/5/07	13:52
03	VMBS02	LCS	C16658.D	2/5/07	14:40
04	MW-14SA	U0701392-009L	C16666.D	2/5/07	19:44
05	MW-14SB	U0701392-010L	C16667.D	2/5/07	20:22
06	MW-14IA	U0701392-011L	C16668.D	2/5/07	21:00
07	MW-14IB	U0701392-012L	C16669.D	2/5/07	21:38
08	MW-14DA	U0701392-013L	C16670.D	2/5/07	22:16
09	MW-14DB	U0701392-014L	C16671.D	2/5/07	22:53
10	TRIP BLANK	U0701392-015A	C16672.D	2/5/07	23:31
11	HOLDING BLANK	U0701392-016A	C16673.D	2/6/07	0:09
12	VSTD050CC04	CC	C16674.D	2/6/07	0:47

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: UPSTATE LABS INC. Contract: CHA

Lab Code: 10170 Case No.: SAS No.: SDG No.: CHA78

Lab File ID (Standard): AE3292.D Date Analyzed: 2/20/07

Instrument ID: 14.0 Time Analyzed: 13:56

		IS1(DCB)		IS2(NAP)		IS3(ACE)	
		AREA #	RT #	AREA #	RT #	AREA #	RT #
	12 HOUR STD	211251	10.92	850718	13.25	482366	16.53
	UPPER LIMIT	422502	11.42	1701436	13.75	964732	17.03
	LOWER LIMIT	105626	10.42	425359	12.75	241183	16.03
	EPA SAMPLE NO.						
01	MW-15SA	236961	10.91	916119	13.24	446172	16.52
02	MW-15SB	225239	10.91	879742	13.24	429753	16.52
03	MW-15IA	274659	10.93	1120565	13.24	573739	16.52
04	MW-15IB	327044	10.93	1249084	13.24	619894	16.52
05	MW-15DA	228193	10.92	887710	13.23	448665	16.52
06	MW-15DB	167426	10.92	630362	13.23	311389	16.51
07	MW-14SA	208898	10.91	832052	13.23	417983	16.52
08	MW-14SB	217144	10.91	849160	13.23	423253	16.52
09	MW-14IA	193526	10.91	744999	13.23	379431	16.52
10	MW-14IB	307179	10.91	1234763	13.23	646127	16.52

IS1 (DCB) = 1,4-Dichlorobenzene-d4
IS2 (NAP) = Naphthalene-d8
IS3 (ACE) = Acenaphthene-d10
IS4 (PHN) = Phenanthrene-d10
IS5 (CHR) = Chrysene-d12
IS6 (PER) = Perylene-d12

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT LOWER LIMIT = -0.50 minutes of internal standard RT

Column to be used to flag values outside QC limit with an asterisk.
* Values outside of contract required QC limits

8C

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: UPSTATE LABS INC. Contract: CHA

Lab Code: 10170 Case No.: SAS No.: SDG No.: CHA78

Lab File ID (Standard): AE3292.D Date Analyzed: 02/20/07

Instrument ID: 14.0 Time Analyzed: 13:56

		IS4(PHN)			IS5(CHR)			IS6(PER)		
		AREA	#	RT	#	AREA	#	RT	#	AREA	#	RT	#
	12 HOUR STD	698160		19.32		252412		24.27		129745		26.96	
	UPPER LIMIT	1396320		18.82		504824		23.77		259490		26.46	
	LOWER LIMIT	349080		19.82		126206		24.77		64873		27.46	
	EPA SAMPLE NO.												
01	MW-15SA	691025		19.30		241614		24.26		86741		26.94	
02	MW-15SB	678256		19.30		272169		24.26		119574		26.94	
03	MW-15IA	998176		19.31		471891		24.27		177491		26.96	
04	MW-15IB	1040143		19.31		430859		24.27		148077		26.95	
05	MW-15DA	701926		19.31		254486		24.26		95590		26.95	
06	MW-15DB	499588		19.30		173745		24.26		68697		26.94	
07	MW-14SA	698224		19.30		256999		24.25		86049		26.94	
08	MW-14SB	709251		19.30		293028		24.25		101394		26.94	
09	MW-14IA	651017		19.30		244353		24.25		77618		26.93	
10	MW-14IB	1059912		19.30		424263		24.25		141801		26.94	

IS1 (DCB) = 1,4-Dichlorobenzene-d4
IS2 (NAP) = Naphthalene-d8
IS3 (ACE) = Acenaphthene-d10
IS4 (PHN) = Phenanthrene-d10
IS5 (CHR) = Chrysene-d12
IS6 (PER) = Perylene-d12

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT LOWER LIMIT = -0.50 minutes of internal standard RT

Column to be used to flag values outside QC limit with an asterisk.
* Values outside of contract required QC limits

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: UPSTATE LABS INC. Contract: CHA

Lab Code: 10170 Case No.: SAS No.: SDG No.: CHA78

Lab File ID (Standard): AE3310.D Date Analyzed: 2/21/07

Instrument ID: 14.0 Time Analyzed: 11:43

		IS1(DCB)		IS2(NAP)		IS3(ACE)	
		AREA #	RT #	AREA #	RT #	AREA #	RT #
	12 HOUR STD	243291	10.88	854270	13.21	432068	16.49
	UPPER LIMIT	486582	11.38	1708540	13.71	864136	16.99
	LOWER LIMIT	121646	10.38	427135	12.71	216034	15.99
	EPA SAMPLE NO.						
01	MW-15IB MS	221066	10.90	817198	13.22	421492	16.50
02	MW-15IB MSD	265990	10.91	986539	13.22	507441	16.49
03	MW-14DA	199275	10.89	772431	13.21	411865	16.49
04	MW-14DB	183035	10.89	679314	13.20	356577	16.49
05	SVBLK	167030	10.89	628624	13.20	322342	16.50
06	SVMBS	133544	10.90	498641	13.21	256918	16.49

IS1 (DCB) = 1,4-Dichlorobenzene-d4
IS2 (NAP) = Naphthalene-d8
IS3 (ACE) = Acenaphthene-d10
IS4 (PHN) = Phenanthrene-d10
IS5 (CHR) = Chrysene-d12
IS6 (PER) = Perylene-d12

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT LOWER LIMIT = -0.50 minutes of internal standard RT

Column to be used to flag values outside QC limit with an asterisk.
* Values outside of contract required QC limits

8C

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: UPSTATE LABS INC. Contract: CHA

Lab Code: 10170 Case No.: _____ SAS No.: _____ SDG No.: CHA78

Lab File ID (Standard): AE3310.D Date Analyzed: 02/21/07

Instrument ID: 14.0 Time Analyzed: 11:43

		IS4(PHN)		IS5(CHR)		IS6(PER)	
		AREA #	RT #	AREA #	RT #	AREA #	RT #
	12 HOUR STD	625872	19.28	201709	24.23	104694	26.91
	UPPER LIMIT	1251744	18.78	403418	23.73	209388	26.41
	LOWER LIMIT	312936	19.78	100855	24.73	52347	27.41
	EPA SAMPLE NO.						
01	MW-15IB MS	586928	19.28	149559	24.23	27047 *	26.91
02	MW-15IB MS	748777	19.28	226062	24.23	112401	26.91
03	MW-14DA	559752	19.27	143186	24.22	71038	26.90
04	MW-14DB	501009	19.27	129082	24.23	67133	26.91
05	SVBLK	423614	19.28	125199	24.23	66045	26.91
06	SVMBS	377642	19.28	105904	24.23	60732	26.91

IS1 (DCB) = 1,4-Dichlorobenzene-d4
IS2 (NAP) = Naphthalene-d8
IS3 (ACE) = Acenaphthene-d10
IS4 (PHN) = Phenanthrene-d10
IS5 (CHR) = Chrysene-d12
IS6 (PER) = Perylene-d12

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT LOWER LIMIT = -0.50 minutes of internal standard RT

Column to be used to flag values outside QC limit with an asterisk.
* Values outside of contract required QC limits

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: UPSTATE LABS INC. Contract: CHA

Lab Code: 10170 Case No.: SAS No.: SDG No.: CHA78

Lab File ID (Standard): AE3326.D Date Analyzed: 2/22/07

Instrument ID: 14.0 Time Analyzed: 15:25

	IS1(DCB)			IS2(NAP)			IS3(ACE)		
	AREA	#	RT	#	AREA	#	RT	#	AREA	#	RT	#
12 HOUR STD	152464		10.89		608014		13.23		349506		16.51	
UPPER LIMIT	304928		11.39		1216028		13.73		699012		17.01	
LOWER LIMIT	76232		10.39		304007		12.73		174753		16.01	
EPA SAMPLE NO.												
01 SVMBS RE	133524		10.91		530366		13.22		256371		16.50	

IS1 (DCB) = 1,4-Dichlorobenzene-d4
IS2 (NAP) = Naphthalene-d8
IS3 (ACE) = Acenaphthene-d10
IS4 (PHN) = Phenanthrene-d10
IS5 (CHR) = Chrysene-d12
IS6 (PER) = Perylene-d12

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT LOWER LIMIT = -0.50 minutes of internal standard RT

Column to be used to flag values outside QC limit with an asterisk.
* Values outside of contract required QC limits

8C

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: UPSTATE LABS INC. Contract: CHA

Lab Code: 10170 Case No.: SAS No.: SDG No.: CHA78

Lab File ID (Standard): AE3326.D Date Analyzed: 02/22/07

Instrument ID: 14.0 Time Analyzed: 15:25

		IS4(PHN)		IS5(CHR)		IS6(PER)	
		AREA #	RT #	AREA #	RT #	AREA #	RT #
	12 HOUR STD	579102	19.29	118561	24.24	58313	26.91
	UPPER LIMIT	1158204	18.79	237122	23.74	116626	26.41
	LOWER LIMIT	289551	19.79	59281	24.74	29157	27.41
	EPA SAMPLE NO.						
01	SVMBS RE	412939	19.29	131192	24.24	53814	26.92

IS1 (DCB) = 1,4-Dichlorobenzene-d4
IS2 (NAP) = Naphthalene-d8
IS3 (ACE) = Acenaphthene-d10
IS4 (PHN) = Phenanthrene-d10
IS5 (CHR) = Chrysene-d12
IS6 (PER) = Perylene-d12

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT LOWER LIMIT = -0.50 minutes of internal standard RT

Column to be used to flag values outside QC limit with an asterisk.
* Values outside of contract required QC limits

8A

VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: Upstate Labs Inc. Contract: CHA

Lab Code: 10170 Case No.: SAS No.: SDG No.: CHA78

Lab File ID (Standard): C16639.D Date Analyzed: 2/3/07

Instrument ID: 12 Time Analyzed: 16:29

GC Column: RTX-VOLA ID: 0.53 (mm) Heated Purge (Y/N): N

		IS1(PFB) AREA #	RT #	IS2 AREA #	RT #	IS3 AREA #	RT #
	12 HOUR STD	366982	7.86	305710	11.17	229360	18.62
	UPPER LIMIT	733964	8.36	611420	11.67	458720	19.12
	LOWER LIMIT	183491	7.36	152855	10.67	114680	18.12
	EPA SAMPLE NO.						
01	VBLK01	358017	7.88	302960	11.18	222709	18.63
02	VMBS01	364567	7.88	304166	11.18	229720	18.63
03	ULI TRIP BLANK	351572	7.87	297064	11.17	223563	18.63
04	MW-15SA	359960	7.86	306140	11.17	230700	18.63
05	MW-15SB	340315	7.87	292153	11.16	221287	18.63
06	MW-15IA	336243	7.87	282991	11.17	212450	18.63
07	MW-15IB MS	344202	7.87	294181	11.19	224489	18.64
08	MW-15IB MSD	350573	7.87	296505	11.18	223741	18.63
09	MW-15IB	350283	7.87	298021	11.18	227042	18.63
10	MW-15DA	360828	7.88	301494	11.18	225046	18.63
11	MW-15DB	328238	7.88	280480	11.18	216276	18.63
12	HOLDING BLANK	350952	7.87	294026	11.18	222177	18.63

IS1 (PFB) = Pentafluorobenzene
IS2 = 1,4-Difluorobenzene
IS3 = Chlorobenzene-d5
IS4 (DCB) = 1,4-Dichlorobenzene-d4

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT LOWER LIMIT = -0.50 minutes of internal standard RT

Column to be used to flag values outside QC limit with an asterisk.
* Values outside of contract required QC limits

8A
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: Upstate Labs Inc. Contract: CHA

Lab Code: 10170 Case No.: SAS No.: SDG No.: CHA78

Lab File ID (Standard): C16639.D Date Analyzed: 02/03/07

Instrument ID: 12 Time Analyzed: 16:29

GC Column: RTX-VOLA ID: 0.53 (mm) Heated Purge (Y/N): N/X

		IS4(DCB) AREA	#	RT	#	AREA	#	RT	#	AREA	#	RT	#
	12 HOUR STD	173376		23.28									
	UPPER LIMIT	346752		22.78									
	LOWER LIMIT	86688		23.78									
	EPA SAMPLE NO.												
01	VBLK01	163886		23.28									
02	VMBS01	178521		23.28									
03	ULI TRIP BLA	163884		23.28									
04	MW-15SA	165276		23.28									
05	MW-15SB	160515		23.29									
06	MW-15IA	155631		23.29									
07	MW-15IB MS	160346		23.29									
08	MW-15IB MS	162647		23.28									
09	MW-15IB	164320		23.28									
10	MW-15DA	160404		23.28									
11	MW-15DB	152107		23.28									
12	HOLDING BL	162317		23.28									

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IS1 (PFB) = Pentafluorobenzene
IS2 = 1,4-Difluorobenzene
IS3 = Chlorobenzene-d5
IS4 (DCB) = 1,4-Dichlorobenzene-d4

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT LOWER LIMIT = -0.50 minutes of internal standard RT

Column to be used to flag values outside QC limit with an asterisk.
* Values outside of contract required QC limits

8A

VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: Upstate Labs Inc. Contract: CHA

Lab Code: 10170 Case No.: SAS No.: SDG No.: CHA78

Lab File ID (Standard): C16656.D Date Analyzed: 2/5/07

Instrument ID: 12 Time Analyzed: 13:14

GC Column: RTX-VOLA ID: 0.53 (mm) Heated Purge (Y/N): N

		IS1(PFB)		IS2		IS3	
		AREA #	RT #	AREA #	RT #	AREA #	RT #
	12 HOUR STD	385225	7.85	317673	11.14	238722	18.62
	UPPER LIMIT	770450	8.35	635346	11.64	477444	19.12
	LOWER LIMIT	192613	7.35	158837	10.64	119361	18.12
	EPA SAMPLE NO.						
01	VBLK02	377688	7.87	315652	11.17	237157	18.63
02	VMBS02	397792	7.82	329840	11.14	245325	18.62
03	MW-14SA	374075	7.88	310573	11.18	230753	18.62
04	MW-14SB	356296	7.88	294770	11.18	222479	18.63
05	MW-14IA	359182	7.88	297984	11.18	220500	18.62
06	MW-14IB	351567	7.89	293089	11.18	219867	18.63
07	MW-14DA	360094	7.88	297301	11.19	219094	18.62
08	MW-14DB	349296	7.88	291861	11.19	217406	18.63
09	TRIP BLANK	397667	7.88	334081	11.18	247585	18.62
10	HOLDING BLANK	392954	7.88	323602	11.18	238488	18.63

IS1 (PFB) = Pentafluorobenzene
IS2 = 1,4-Difluorobenzene
IS3 = Chlorobenzene-d5
IS4 (DCB) = 1,4-Dichlorobenzene-d4

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT LOWER LIMIT = -0.50 minutes of internal standard RT

Column to be used to flag values outside QC limit with an asterisk.
* Values outside of contract required QC limits

8A

VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: Upstate Labs Inc. Contract: CHA

Lab Code: 10170 Case No.: SAS No.: SDG No.: CHA78

Lab File ID (Standard): C16656.D Date Analyzed: 02/05/07

Instrument ID: 12 Time Analyzed: 13:14

GC Column: RTX-VOLA ID: 0.53 (mm) Heated Purge (Y/N): N

		IS4(DCB) AREA #	RT #	AREA #	RT #	AREA #	RT #
	12 HOUR STD	184422	23.27				
	UPPER LIMIT	368844	22.77				
	LOWER LIMIT	92211	23.77				
	EPA SAMPLE NO.						
01	VBLK02	170333	23.27				
02	VMBS02	198007	23.28				
03	MW-14SA	171461	23.27				
04	MW-14SB	163705	23.28				
05	MW-14IA	160576	23.27				
06	MW-14IB	160651	23.28				
07	MW-14DA	162482	23.27				
08	MW-14DB	157987	23.28				
09	TRIP BLANK	183395	23.28				
10	HOLDING BL	170612	23.28				

IS1 (PFB) = Pentafluorobenzene
IS2 = 1,4-Difluorobenzene
IS3 = Chlorobenzene-d5
IS4 (DCB) = 1,4-Dichlorobenzene-d4

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT LOWER LIMIT = -0.50 minutes of internal standard RT

Column to be used to flag values outside QC limit with an asterisk.
* Values outside of contract required QC limits

7D
PESTICIDE CALIBRATION VERIFICATION SUMMARY

Lab Name:	Upstate Labs Inc.	Contract:	CHA				
Lab Code:	10170	Case No:		SAS No:		SDG No:	CHA-78
GC Column:	DB-35MS	ID:	0 32	(mm)	Date(s) Analyzed:		11/2/06
NYSDEC Sample No (PIB_K:)	PBW				Date Analyzed:		2/8/07
Lab Sample ID (PIBLK):	MB-9296				Time Analyzed:		5:16 PM
NYSDEC Sample No (PEM):	PEM				Date Analyzed:		2/8/07
Lab Sample ID (PEM):	PEM				Time Analyzed:		4:31 PM

PEM COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT (ng)	NOM AMOUNT (ng)	RPD
Alpha-BHC	8.49			14	10	40%
Beta-BHC	9.42			14	10	40%
Lindane	9			14	10	40%
Endrin	12.16			95	50	90%
4,4'-DDT	12.76			145	100	45%
Methoxychlor	13.34			308	250	23%

4,4'-DDT % breakdown (1): 6 Endrin % breakdown (1): 8
Combined % breakdown (1): 14

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QC LIMITS:
RPD of amounts in PEM must be less than or equal to 25.0%.
4,4'-DDT breakdown must be less than or equal to 20.0%.
Endrin breakdown must be less than or equal to 20.0%.
Combined breakdown must be less than or equal to 30.0%.

FORM VII-CLP-PEST-1

7D

PESTICIDE CALIBRATION VERIFICATION SUMMARY

Lab Name: Upstate Labs Inc. Contract: CHA

Lab Code: 10170 Case No: SAS No: SDG No: CHA-78

GC Column: DB-XLB ID: 0 32 (mm) Date(s) Analyzed: 11/2/06

NYSDEC Sample No (PIBLK:) PBW Date Analyzed: 2/8/07

Lab Sample ID (PIBLK): MB-9296 Time Analyzed: 5.38 PM

NYSDEC Sample No (PEM): PEM Date Analyzed: 2/8/07

Lab Sample ID (PEM): PEM Time Analyzed: 4:53 PM

PEM COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT (ng)	NOM AMOUNT (ng)	RPD
Alpha-BHC	7.56			9	10	10%
Beta-BHC	8.52			9	10	10%
Lindane	8.13			9	10	10%
Endrin	11.16			56	50	12%
4,4'-DDT	11.71			69	100	31%
Methoxychlor	12.59			148	250	41%

4,4'-DDT % breakdown (1): 4 Endrin % breakdown (1): 10

Combined % breakdown (1): 14

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QC LIMITS:

RPD of amounts in PEM must be less than or equal to 25.0%.
4,4'-DDT breakdown must be less than or equal to 20.0%.
Endrin breakdown must be less than or equal to 20.0%.
Combined breakdown must be less than or equal to 30.0%.

FORM VII-CLP-PEST-1

7E Channel 1
PESTICIDE CALIBRATION VERIFICATION SUMMARY

Lab Name: Upstate Labs Inc.

Lab Code: 10170 Case No: _____ SAS No: _____ SDG No: CHA-78

GC Column: DB-35MS ID: 0.32 Date(s) Analyzed: 11/2/06

NYSDEC Sample No (PIBLK:) PBW Date Analyzed: 2/8/07

Lab Sample ID (PIBLK): MB-9296 Time Analyzed: 5:16 PM

NYSDEC Sample No (INDA): INDA M Date Analyzed: 2/8/07

Lab Sample ID (INDA): INDA M Time Analyzed: 11:56 PM

INDIVIDUAL MIX A COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT (ng)	NOM AMOUNT (ng)	RPD
4,4'-DDD	12.36			50	40	25%
4,4'-DDT	12.76			43	40	8%
Alpha-BHC	8.49			25	20	25%
Dieldrin	11.86			48	40	20%
Endosulfan I	11.51			24	20	20%
Endrin	12.17			48	40	20%
Lindane	9			25	20	25%
Heptachlor	9.88			26	20	30%
Methoxychlor	13.34			215	200	8%
Tetrachloro-m-xylene	7.84			24	20	20%
Decachlorobiphenyl	16.41			39	40	3%

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NYSDEC Sample No (INDB): INDB M Date Analyzed: 2/9/07

Lab Sample ID (INDB): INDB M Time Analyzed: 12:19 AM

INDIVIDUAL MIX B COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT (ng)	NOM AMOUNT (ng)	RPD
Beta-BHC	9.42			24	20	20%
Delta-BHC	9.79			24	20	20%
Aldrin	10.34			23	20	15%
Alpha-chlordane	11.46			24	20	20%
Gamma-chlordane	11.39			24	20	20%
4,4'-DDE	11.67			48	40	20%
Endosulfan II	12.52			48	40	20%
Endrin Aldehyde	12.66			46	40	15%
Endosulfan sulfate	13.03			47	40	18%
Endrin Ketone	13.61			45	40	13%
Heptachlor epoxide	10.96			34	20	70%
Tetrachloro-m-xylene	7.84			24	20	20%
Decachlorobiphenyl	16.4			39	40	3%

7E Channel 2
PESTICIDE CALIBRATION VERIFICATION SUMMARY

Lab Name: Upstate Labs Inc.

Lab Code: 10170 Case No: SAS No: SDG No: CHA-78

GC Column: DB-XLB ID: 0.32 Date(s) Analyzed: 11/2/06

NYSDEC Sample No (PIBLK:) PBW Date Analyzed: 2/8/07

Lab Sample ID (PIBLK): MB-9296 Time Analyzed: 5 38 PM

NYSDEC Sample No (INDA): INDA M Date Analyzed: 2/9/07

Lab Sample ID (INDA): INDA M Time Analyzed: 12:19 AM

INDIVIDUAL MIX A COMPOUND	RT	RT WINDOW FROM	TO	CALC AMOUNT (ng)	NOM AMOUNT (ng)	RPD
4,4'-DDD	11.35			34	40	15%
4,4'-DDT	11.71			25	40	38%
Alpha-BHC	7.56			18	20	10%
Dieldrin	10.75			35	40	13%
Endosulfan I	10.37			18	20	10%
Endrin	11.17			33	40	18%
Lindane	8.13			18	20	10%
Heptachlor	8.64			14	20	30%
Methoxychlor	12.6			120	200	40%
Tetrachloro-m-xylene	6.55			18	20	10%
Decachlorobiphenyl	14.47			30	40	25%

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NYSDEC Sample No (INDB): INDB M Date Analyzed: 2/9/07

Lab Sample ID (INDB): INDB M Time Analyzed: 12:41 AM

INDIVIDUAL MIX B COMPOUND	RT	RT WINDOW FROM	TO	CALC AMOUNT (ng)	NOM AMOUNT (ng)	RPD
Beta-BHC	8.52			17	20	15%
Delta-BHC	8.91			17	20	15%
Aldrin	9.08			17	20	15%
Alpha-chlordane	10.3			17	20	15%
Gamma-chlordane	10.17			17	20	15%
4,4'-DDE	10.59			35	40	13%
Endosulfan II	11.52			35	40	13%
Endrin Aldehyde	11.82			34	40	15%
Endosulfan sulfate	12.09			35	40	13%
Endrin Ketone	12.86			33	40	18%
Heptachlor epoxide	9.85			17	20	15%
Tetrachloro-m-xylene	6.55			18	20	10%
Decachlorobiphenyl	14.47			32	40	20%

PCB

UPSTATE LABORATORIES, INC.
CONTINUING CALIBRATION

S44-0-66 Revised 11/95

Instrument No. INST 69
Column DB-35MS ID 0.32
Initial Calbr. Date: 11/2/06

Continuing Calibr. Date 2/8/07 Time 4:53 PM

Aroclor	Peak	RT Windows RT	From	To	Actual (ppb)	Found (ppb)	% Diff.
1248	1	8.95			250	262	5%
	2	10.13					
	3	10.41					
	4	11.82					
	5	12.22					
	6						
	7						
	8						
	9						
	10						

Continuing Calibr. Date 2/9/07 Time 12:41 AM

Aroclor	Peak	RT Windows	From	To	Actual (ppb)	Found (ppb)	% Diff.
1242	1	8.40			250	292	17%
	2	8.95					
	3	9.98					
	4	10.41					
	5	11.09					
	6						
	7						
	8						
	9						
	10						

Criteria:

Methods 8080 & 8081

a new 5 point curve is prepared.

EPA Method 608 The laboratory referance sample (RS) serves as a continuing calibration standard.

PCB

UPSTATE LABORATORIES, INC.
CONTINUING CALIBRATION

S44-0-66 Revised 11/95

Instrument No. INST 69
Column DB-XLB ID 0.32
Initial Calbr. Date: 11/2/06

Continuing Calibr. Date 2/8/07 Time 5:16 PM

Aroclor	Peak	RT Windows RT	From	To	Actual (ppb)	Found (ppb)	% Diff.
1248	1	8.00			250	194	22%
	2	9.43					
	3	9.64					
	4	9.99					
	5	10.78					
	6						
	7						
	8						
	9						
	10						

Continuing Calibr. Date 2/9/07 Time 1:03 AM

Aroclor	Peak	RT Windows	From	To	Actual (ppb)	Found (ppb)	% Diff.
1242	1	7.42			250	255	2%
	2	8.00					
	3	8.67					
	4	9.44					
	5	9.99					
	6						
	7						
	8						
	9						
	10						

Criteria:

Methods 8080 & 8081

a new 5 point curve is prepared.

EPA Method 608 The laboratory referance sample (RS) serves as a continuing calibration standard.

HERBICIDE

UPSTATE LABORATORIES, INC.
CONTINUING CALIBRATION

S44-0-66 Revised 11/95

Instrument No. INST 65
Column DB-XLB ID 0.32
Initial Calbr. Date: 11/3/06

Continuing Calibr. Date 2/5/07 Time 3:37 PM

Aroclor	Peak	RT Windows			Actual (ppb)	Found (ppb)	% Diff
		RT	From	To			
2,4-D	1	10.45			50	52	4%
2,4,5-TP	2	12.74			50	50	0%
2,4,5-T	3	13.61			50	51	2%
Dinoseb	4	15.23			50	51	2%

Continuing Calibr. Date 2/6/07 Time 1:53 AM

Aroclor	Peak	RT Windows			Actual (ppb)	Found (ppb)	% Diff.
		RT	From	To			
2,4-D	1	10.45			50	55	10%
2,4,5-TP	2	12.74			50	58	16%
2,4,5-T	3	13.61			50	55	10%
Dinoseb	4	15.23			50	59	18%

Continuing Calibr. Date _____ Time _____

Aroclor	Peak	RT Windows			Actual (ppb)	Found (ppb)	% Diff.
		RT	From	To			
2,4-D	1				50		
2,4,5-TP	2				50		
2,4,5-T	3				50		
Dinoseb	4				50		

Criteria:
Methods 8080 & 8081
a new 5 point curve is prepared.

EPA Method 608 The laboratory reference sample (RS)
serves as a continuing calibration standard.

HERBICIDE

UPSTATE LABORATORIES, INC.
CONTINUING CALIBRATION

S44-0-66 Revised 11/95

Instrument No. INST 65
Column DB-35MS ID 0.32
Initial Calbr. Date: 11/3/06

Continuing Calibr. Date 2/5/07 Time 4:05 PM

Aroclor	Peak	RT Windows			Actual (ppb)	Found (ppb)	% Diff.
		RT	From	To			
2,4-D	1	10.14			50	62	24%
2,4,5-TP	2	11.88			50	57	14%
2,4,5-T	3	13.12			50	61	22%
Dinoseb	4	14 61			50	54	8%

Continuing Calibr. Date 2/6/07 Time 2:21 AM

Aroclor	Peak	RT Windows			Actual (ppb)	Found (ppb)	% Diff.
		RT	From	To			
2 4-D	1	10 14			50	74	48%
2 4,5-TP	2	11.88			50	65	30%
2,4,5-T	3	13.12			50	78	56%
Dinoseb	4	14.02			50	56	12%

Continuing Calibr. Date _____ Time _____

Aroclor	Peak	RT Windows			Actual (ppb)	Found (ppb)	% Diff.
		RT	From	To			
2,4-D	1				50		
2 4 5-TP	2				50		
2 4 5-T	3				50		
Dinoseb	4				50		

Criteria:
Methods 8080 & 8081
a new 5 point curve is prepared.

EPA Method 608 The laboratory referance sample (RS)
serves as a continuing calibration standard.

U.S. EPA - CLP

2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: Upstate Laboratories, Inc. Contract:

Lab Code: 10170 Case No. SAS No.: SDG No.: CHA78

Initial Calibration Verification Source: SPEX

Continuing Calibration Verification Source: CPI

Concentration Units: ug/L

Analyte	Initial Calibration True	Found	%R(1)	Continuing Calibration True	Found	%R(1)	Found	%R(1)	M
Aluminum	10000.0	10583.91	105.8	16000.0	17050.85	106.6	17157.04	107.2	P
Antimony	2500.0	2471.51	98.9	4800.0	4953.08	103.2	4829.73	100.6	P
Arsenic	500.0	490.77	98.2	800.0	782.90	97.9	785.93	98.2	P
Barium	10000.0	10872.57	108.7	16000.0	16969.10	106.1	16793.18	105.0	P
Beryllium	250.0	268.24	107.3	400.0	435.68	108.9	438.53	109.6	P
Cadmium	250.0	243.24	97.3	400.0	390.13	97.5	384.59	96.1	P
Calcium	25000.0	26167.06	104.7	40000.0	42160.68	105.4	43024.81	107.6	P
Chromium	500.0	523.73	104.7	800.0	850.27	106.3	845.38	105.7	P
Cobalt	2500.0	2704.96	108.2	4000.0	4295.19	107.4	4291.78	107.3	P
Iron	5000.0	5399.63	108.0	8000.0	8688.24	108.6	8711.49	108.9	P
Lead	150.0	149.43	99.6	400.0	394.72	98.7	392.07	98.0	P
Magnesium	25000.0	26390.96	105.6	40000.0	43500.91	108.8	43431.69	108.6	P
Manganese	750.0	793.14	105.8	1200.0	1288.40	107.4	1299.83	108.3	P
Nickel	2000.0	2112.06	105.6	3200.0	3418.79	106.8	3430.17	107.2	P
Potassium	25000.0	23180.60	92.7	40000.0	40998.09	102.5	40934.06	102.3	P
Sodium	25000.0	25472.62	101.9	40000.0	42458.05	106.1	42421.05	106.1	P
Thallium	500.0	488.88	97.8	800.0	770.53	96.3	787.94	98.5	P
Vanadium	2500.0	2662.32	106.5	4000.0	4348.78	108.7	4346.00	108.6	P
Zinc	1000.0	1074.89	107.5	1600.0	1684.79	105.3	1692.88	105.8	P

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

U.S. EPA - CLP

2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: Upstate Laboratories, Inc. Contract:

Lab Code: 10170 Case No. SAS No.: SDG No.: CHA78

Initial Calibration Verification Source: SPEX

Continuing Calibration Verification Source: CPI

Concentration Units: ug/L

Analyte	Initial Calibration True	Initial Calibration Found	Initial Calibration %R(1)	Continuing Calibration True	Continuing Calibration Found	Continuing Calibration %R(1)	Continuing Calibration Found	Continuing Calibration %R(1)	M
Copper	1250.0	1224.83	98.0	2000.0	2122.70	106.1	2090.75	104.5	P
Silver	500.0	484.45	96.9	800.0	814.55	101.8	828.90	103.6	P

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

U.S. EPA - CLP

2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: Upstate Laboratories, Inc. Contract:

Lab Code: 10170 Case No. SAS No.: SDG No.: CHA78

Initial Calibration Verification Source: SPEX

Continuing Calibration Verification Source: CPI

Concentration Units: ug/L

Analyte	Initial Calibration True	Initial Calibration Found	Initial Calibration %R(1)	Continuing Calibration True	Continuing Calibration Found	Continuing Calibration %R(1)	Continuing Calibration Found	Continuing Calibration %R(1)	M
Selenium	250.0	244.03	97.6	400.0	382.36	95.6	378.85	94.7	P

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

U.S. EPA - CLP

2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: Upstate Laboratories, Inc. Contract:

Lab Code: 10170 Case No. SAS No.: SDG No.: CHA78

Initial Calibration Verification Source: SPEX

Continuing Calibration Verification Source: CPI

Concentration Units: ug/L

Analyte	Initial Calibration True	Initial Calibration Found	Initial Calibration %R(1)	Continuing Calibration True	Continuing Calibration Found	Continuing Calibration %R(1)	Continuing Calibration Found	Continuing Calibration %R(1)	M
Tin	10000.0	10074.36	100.7	5000.0	5052.56	101.1	5061.47	101.2	P

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

U.S. EPA - CLP

2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: Upstate Laboratories, Inc. Contract:

Lab Code: 10170 Case No. SAS No.: SDG No.: CHA78

Initial Calibration Verification Source: SPEX

Continuing Calibration Verification Source: CPI

Concentration Units: ug/L

Analyte	Initial Calibration True	Initial Calibration Found	Initial Calibration %R(1)	Continuing Calibration True	Continuing Calibration Found	Continuing Calibration %R(1)	Continuing Calibration Found	Continuing Calibration %R(1)	M
Boron	10000.0	10124.27	101.2	5000.0	5084.56	101.7	5054.43	101.1	P

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

U.S. EPA - CLP

2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: Upstate Laboratories, Inc. Contract:

Lab Code: 10170 Case No. SAS No.: SDG No.: CHA78

Initial Calibration Verification Source: SPEX

Continuing Calibration Verification Source: CPI

Concentration Units: ug/L

Analyte	Initial Calibration True	Initial Calibration Found	Initial Calibration %R(1)	Continuing Calibration True	Continuing Calibration Found	Continuing Calibration %R(1)	Continuing Calibration Found	Continuing Calibration %R(1)	M
Mercury	2.0	2.22	110.9	4.0	4.20	104.9	3.73	93.1	CV

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

U.S. EPA - CLP

2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: Upstate Laboratories, Inc. Contract:

Lab Code: 10170 Case No. SAS No.: SDG No.: CHA78

Initial Calibration Verification Source: SPEX

Continuing Calibration Verification Source: CPI

Concentration Units: ug/L

Analyte	Initial Calibration True	Initial Calibration Found	Initial Calibration %R(1)	Continuing Calibration True	Continuing Calibration Found	Continuing Calibration %R(1)	Continuing Calibration Found	Continuing Calibration %R(1)	M
Mercury				4.0	1.80	45.0	3.31	82.7	CV

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

U.S. EPA - CLP

2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: Upstate Laboratories, Inc. Contract:

Lab Code: 10170 Case No. SAS No.: SDG No.: CHA78

Initial Calibration Verification Source: SPEX

Continuing Calibration Verification Source: CPI

Concentration Units: ug/L

Analyte	Initial Calibration True	Initial Calibration Found	Initial Calibration %R(1)	Continuing Calibration True	Continuing Calibration Found	Continuing Calibration %R(1)	Continuing Calibration Found	Continuing Calibration %R(1)	M
Mercury				4.0	3.09	77.3	3.38	84.4	CV

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

U.S. EPA - CLP

2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: Upstate Laboratories, Inc. Contract:

Lab Code: 10170 Case No. SAS No.: SDG No.: CHA78

Initial Calibration Verification Source: SPEX

Continuing Calibration Verification Source: CPI

Concentration Units: ug/L

Analyte	Initial Calibration True	Found	%R(1)	Continuing Calibration True	Found	%R(1)	Found	%R(1)	M
Mercury				4.0	4.34	108.5	3.90	97.5	CV

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

U.S. EPA - CLP

2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: Upstate Laboratories, Inc. Contract:

Lab Code: 10170 Case No. SAS No.: SDG No.: CHA78

Initial Calibration Verification Source: SPEX

Continuing Calibration Verification Source: CPI

Concentration Units: ug/L

Analyte	Initial Calibration True	Found	%R(1)	Continuing Calibration True	Found	%R(1)	Found	%R(1)	M
Mercury				4.0	3.46	86.5			CV

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

U.S. EPA - CLP

2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: Upstate Laboratories, Inc. Contract:

Lab Code: 10170 Case No. SAS No.: SDG No.: CHA78

Initial Calibration Verification Source: SPEX

Continuing Calibration Verification Source: CPI

Concentration Units: ug/L

Analyte	Initial Calibration True	Initial Calibration Found	Initial Calibration %R(1)	Continuing Calibration True	Continuing Calibration Found	Continuing Calibration %R(1)	Continuing Calibration Found	Continuing Calibration %R(1)	M
Cyanide	100.0	88.34	88.3	300.0	277.80	92.6	196.94	98.5	C

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

U.S. EPA - CLP

2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: Upstate Laboratories, Inc. Contract:

Lab Code: 10170 Case No. SAS No.: SDG No.: CHA78

Initial Calibration Verification Source: SPEX

Continuing Calibration Verification Source: CPI

Concentration Units: ug/L

Analyte	Initial Calibration True	Initial Calibration Found	Initial Calibration %R(1)	Continuing Calibration True	Continuing Calibration Found	Continuing Calibration %R(1)	Continuing Calibration Found	Continuing Calibration %R(1)	M
Cyanide	100.0	97.93	97.9	300.0	280.54	93.5	191.12	95.6	C

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

U.S. EPA - CLP

2B
CRDL STANDARD FOR AA AND ICP

Lab Name: Upstate Laboratories, Inc. Contract:

Lab Code: 10170 Case No. SAS No.: SDG No.: CHA78

AA CRDL Standard Source: CPI

ICP CRDL Standard Source: SPEX

Concentration Units: ug/L

	CRDL Standard for AA			CRDL Standard for ICP				
				Initial			Final	
Analyte	True	Found	%R	True	Found	%R	Found	%R
Aluminum				0.0	-4.44	0.0	3.79	0.0
Antimony				120.0	127.25	106.0	124.36	103.6
Arsenic				20.0	17.82	89.1	19.09	95.5
Barium				0.0	-0.15	0.0	0.02	0.0
Beryllium				10.0	11.21	112.1	11.30	113.0
Cadmium				10.0	10.49	104.9	10.11	101.1
Calcium				0.0	109.14	0.0	118.24	0.0
Chromium				20.0	22.22	111.1	21.75	108.8
Cobalt				100.0	116.34	116.3	116.95	116.9
Iron				0.0	5.06	0.0	5.63	0.0
Lead				6.0	7.00	116.7	7.80	129.9
Magnesium				0.0	2.31	0.0	0.50	0.0
Manganese				30.0	34.48	114.9	34.85	116.2
Nickel				80.0	87.98	110.0	88.42	110.5
Potassium				0.0	4.11	0.0	2.95	0.0
Sodium				0.0	675.88	0.0	576.93	0.0
Thallium				20.0	14.50	72.5	20.64	103.2
Vanadium				100.0	112.80	112.8	111.65	111.7
Zinc				40.0	48.69	121.7	47.79	119.5

U.S. EPA - CLP

2B
CRDL STANDARD FOR AA AND ICP

Lab Name: Upstate Laboratories, Inc. Contract:

Lab Code: 10170 Case No. SAS No.: SDG No.: CHA78

AA CRDL Standard Source: CPI

ICP CRDL Standard Source: SPEX

Concentration Units: ug/L

	CRDL Standard for AA			CRDL Standard for ICP				
				Initial			Final	
Analyte	True	Found	%R	True	Found	%R	Found	%R
Copper				50.0	56.57	113.1	57.12	114.2
Silver				20.0	22.31	111.5	22.54	112.7

U.S. EPA - CLP

2B
CRDL STANDARD FOR AA AND ICP

Lab Name: Upstate Laboratories, Inc. Contract:

Lab Code: 10170 Case No. SAS No.: SDG No.: CHA78

AA CRDL Standard Source: CPI

ICP CRDL Standard Source: SPEX

Concentration Units: ug/L

Analyte	CRDL Standard for AA			CRDL Standard for ICP				
				Initial			Final	
	True	Found	%R	True	Found	%R	Found	%R
Selenium				10.0	11.36	113.6	13.06	130.6

U.S. EPA - CLP

2B
CRDL STANDARD FOR AA AND ICP

Lab Name: Upstate Laboratories, Inc. Contract:

Lab Code: 10170 Case No. SAS No.: SDG No.: CHA78

AA CRDL Standard Source: CPI

ICP CRDL Standard Source: SPEX

Concentration Units: ug/L

Analyte	CRDL Standard for AA			CRDL Standard for ICP				
				Initial			Final	
	True	Found	%R	True	Found	%R	Found	%R
Tin				600.0	610.84	101.8	606.90	101.2

U.S. EPA - CLP

2B
CRDL STANDARD FOR AA AND ICP

Lab Name: Upstate Laboratories, Inc. Contract:

Lab Code: 10170 Case No. SAS No.: SDG No.: CHA78

AA CRDL Standard Source: CPI

ICP CRDL Standard Source: SPEX

Concentration Units: ug/L

	CRDL Standard for AA			CRDL Standard for ICP				
				Initial			Final	
Analyte	True	Found	%R	True	Found	%R	Found	%R
Boron				500.0	508.44	101.7	493.21	98.6

U.S. EPA - CLP

2B
CRDL STANDARD FOR AA AND ICP

Lab Name: Upstate Laboratories, Inc. Contract:

Lab Code: 10170 Case No. SAS No.: SDG No.: CHA78

AA CRDL Standard Source: CPI

ICP CRDL Standard Source: SPEX

Concentration Units: ug/L

	CRDL Standard for AA			CRDL Standard for ICP				
				Initial			Final	
Analyte	True	Found	%R	True	Found	%R	Found	%R
Mercury	0.2	0.29	145.4					

U.S. EPA - CLP

9

ICP SERIAL DILUTIONS

MW-14DB

Lab Name: Upstate Laboratories, Inc. Contract:

Lab Code: 10170 Case No. SAS No.: SDG No.: CHA78

Matrix (soil/water): WATER Level (low/med): LOW

Concentration Units: ug/L

Analyte	Initial Sample Result (I)	C	Serial Dilution Result (S)	C	% Difference	Q	M
Aluminum	3423.91		3389.75		1.0		P
Antimony	15.00	U	75.00	U			P
Arsenic	12.12		50.00	U	0.0		P
Barium	66.99	B	250.00	U	0.0		P
Beryllium	3.00	U	15.00	U			P
Boron	500.00	U	2500.00	U			P
Cadmium	5.00	U	25.00	U			P
Calcium	32635.37		36257.62		11.1		P
Chromium	5.00	U	25.00	U			P
Cobalt	20.00	U	100.00	U			P
Copper	11.87	B	50.00	U	0.0		P
Iron	6527.21		6563.42		0.6		P
Lead	3.00	U	15.00	U			P
Magnesium	7099.38		7452.23		5.0		P
Manganese	192.69		281.91		46.3		P
Nickel	30.00	U	150.00	U			P
Potassium	1221.39	B	5000.00	U	0.0		P
Selenium	5.00	U	25.00	U			P
Silver	10.00	U	50.00	U			P
Sodium	14987.41		17846.71		19.1		P
Thallium	10.00	U	50.00	U			P
Tin	300.00	U	1500.00	U			P
Vanadium	30.00	U	150.00	U			P
Zinc	45.42		347.42		664.8		P

Upstate Laboratories, Inc.

Date: *20-Mar-07*

CLIENT: Clough, Harbour & Assoc. LLP
Work Order: U0701392
Project: C/O Albany Interim Landfill New

ANALYTICAL QC SUMMARY REPORT

TestCode: 110.2

Sample ID: **MB-R22507** SampType: **MBLK** TestCode: **110.2** Units: **UNITS** Prep Date: RunNo: **22507**
Client ID: **ZZZZZ** Batch ID: **R22507** TestNo: **E110.2** Analysis Date: **1/25/2007** SeqNo: **408604**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Color	ND	5.00									

Sample ID: **MB-R22509** SampType: **MBLK** TestCode: **110.2** Units: **UNITS** Prep Date: RunNo: **22509**
Client ID: **ZZZZZ** Batch ID: **R22509** TestNo: **E110.2** Analysis Date: **1/24/2007** SeqNo: **408652**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Color	ND	5.00									

Sample ID: **U0701392-009ADUP** SampType: **DUP** TestCode: **110.2** Units: **UNITS** Prep Date: RunNo: **22507**
Client ID: **MW-14SA** Batch ID: **R22507** TestNo: **E110.2** Analysis Date: **1/25/2007** SeqNo: **408606**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Color	100.0	50.0						100	0	20	

Sample ID: **U0701382-001ADUP** SampType: **DUP** TestCode: **110.2** Units: **UNITS** Prep Date: RunNo: **22509**
Client ID: **ZZZZZ** Batch ID: **R22509** TestNo: **E110.2** Analysis Date: **1/24/2007** SeqNo: **408654**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Color	25.00	5.00						25	0	20	

Qualifiers:
E Value above quantitation range
ND Not Detected at the Reporting Limit
H Holding times for preparation or analysis exceeded
R RPD outside accepted recovery limits
J Analyte detected below quantitation limits
S Spike Recovery outside accepted recovery limits

CLIENT: Clough, Harbour & Assoc. LLP
Work Order: U0701392
Project: C/O Albany Interim Landfill New

ANALYTICAL QC SUMMARY REPORT

TestCode: 160.1

Sample ID: **MB-R22435** SampType: **MBLK** TestCode: **160.1** Units: **mg/L** Prep Date: RunNo: **22435**
Client ID: **ZZZZZ** Batch ID: **R22435** TestNo: **E160.1** Analysis Date: **1/28/2007** SeqNo: **407222**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Residue, Dissolved (TDS)	ND	25.0									

Sample ID: **MB-R22510** SampType: **MBLK** TestCode: **160.1** Units: **mg/L** Prep Date: RunNo: **22510**
Client ID: **ZZZZZ** Batch ID: **R22510** TestNo: **E160.1** Analysis Date: **1/29/2007** SeqNo: **408666**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Residue, Dissolved (TDS)	ND	25.0									

Sample ID: **LCS** SampType: **LCS** TestCode: **160.1** Units: **mg/L** Prep Date: RunNo: **22435**
Client ID: **ZZZZZ** Batch ID: **R22435** TestNo: **E160.1** Analysis Date: **1/28/2007** SeqNo: **407224**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Residue, Dissolved (TDS)	175.0	25.0	190.3	0	92.0	89	111				

Sample ID: **LCS** SampType: **LCS** TestCode: **160.1** Units: **mg/L** Prep Date: RunNo: **22510**
Client ID: **ZZZZZ** Batch ID: **R22510** TestNo: **E160.1** Analysis Date: **1/29/2007** SeqNo: **408668**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Residue, Dissolved (TDS)	192.5	25.0	190.3	0	101	89	111				

Sample ID: **U0701392-004ADUP** SampType: **DUP** TestCode: **160.1** Units: **mg/L** Prep Date: RunNo: **22435**
Client ID: **MW-15IA** Batch ID: **R22435** TestNo: **E160.1** Analysis Date: **1/28/2007** SeqNo: **407238**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Residue, Dissolved (TDS)	232.5	25.0						225	3.28	25	

Qualifiers:
E Value above quantitation range
ND Not Detected at the Reporting Limit
H Holding times for preparation or analysis exceeded
R RPD outside accepted recovery limits
J Analyte detected below quantitation limits
S Spike Recovery outside accepted recovery limits

CLIENT: Clough, Harbour & Assoc. LLP
Work Order: U0701392
Project: C/O Albany Interim Landfill New

ANALYTICAL QC SUMMARY REPORT

TestCode: 160.1

Sample ID: **U0701392-005ADUP** SampType: **DUP** TestCode: **160.1** Units: **mg/L** Prep Date: RunNo: **22510**
Client ID: **MW-15-IB** Batch ID: **R22510** TestNo: **E160.1** Analysis Date: **1/29/2007** SeqNo: **408670**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Residue, Dissolved (TDS)	165.0	25.0						160	3.08	25	

Qualifiers:

E	Value above quantitation range	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike Recovery outside accepted recovery limits

CLIENT: Clough, Harbour & Assoc. LLP
Work Order: U0701392
Project: C/O Albany Interim Landfill New

ANALYTICAL QC SUMMARY REPORT

TestCode: 180.1

Sample ID: **MB-R22341** SampType: **MBLK** TestCode: **180.1** Units: **NTU** Prep Date: RunNo: **22341**
Client ID: **ZZZZZ** Batch ID: **R22341** TestNo: **E180.1** Analysis Date: **1/24/2007** SeqNo: **406051**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Turbidity	ND	0.0500									

Sample ID: **MB-R22395** SampType: **MBLK** TestCode: **180.1** Units: **NTU** Prep Date: RunNo: **22395**
Client ID: **ZZZZZ** Batch ID: **R22395** TestNo: **E180.1** Analysis Date: **1/25/2007** SeqNo: **406895**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Turbidity	ND	0.0500									

Sample ID: **LCS** SampType: **LCS** TestCode: **180.1** Units: **NTU** Prep Date: RunNo: **22341**
Client ID: **ZZZZZ** Batch ID: **R22341** TestNo: **E180.1** Analysis Date: **1/24/2007** SeqNo: **406052**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Turbidity	1.100	0.0500	1.28	0	85.9	82	119				

Sample ID: **LCS** SampType: **LCS** TestCode: **180.1** Units: **NTU** Prep Date: RunNo: **22395**
Client ID: **ZZZZZ** Batch ID: **R22395** TestNo: **E180.1** Analysis Date: **1/25/2007** SeqNo: **406896**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Turbidity	1.210	0.0500	1.28	0	94.5	82	119				

Sample ID: **U0701392-005A** SampType: **DUP** TestCode: **180.1** Units: **NTU** Prep Date: RunNo: **22341**
Client ID: **MW-15-IB** Batch ID: **R22341** TestNo: **E180.1** Analysis Date: **1/24/2007** SeqNo: **406059**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Turbidity	169.5	0.250									

Qualifiers:
E Value above quantitation range
ND Not Detected at the Reporting Limit
H Holding times for preparation or analysis exceeded
R RPD outside accepted recovery limits
J Analyte detected below quantitation limits
S Spike Recovery outside accepted recovery limits

CLIENT: Clough, Harbour & Assoc. LLP
Work Order: U0701392
Project: C/O Albany Interim Landfill New

ANALYTICAL QC SUMMARY REPORT

TestCode: 180.1

Sample ID: **U0701392-014ADUP** SampType: **DUP** TestCode: **180.1** Units: **NTU** Prep Date: RunNo: **22395**
Client ID: **MW-14DB** Batch ID: **R22395** TestNo: **E180.1** Analysis Date: **1/25/2007** SeqNo: **406903**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Turbidity	93.50	0.250						90	3.81	10	

Qualifiers:

E	Value above quantitation range	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike Recovery outside accepted recovery limits

CLIENT: Clough, Harbour & Assoc. LLP
Work Order: U0701392
Project: C/O Albany Interim Landfill New

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_IC

Sample ID: **U0701392-005AMS** SampType: **MS** TestCode: **300_IC** Units: **mg/L** Prep Date: RunNo: **22909**
Client ID: **MW-15-IB** Batch ID: **R22909** TestNo: **E300.1** Analysis Date: **2/16/2007** SeqNo: **415288**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromide	50.24	2.0	50	0	100	75	125				

Sample ID: **U0701392-005ADUP** SampType: **DUP** TestCode: **300_IC** Units: **mg/L** Prep Date: RunNo: **22909**
Client ID: **MW-15-IB** Batch ID: **R22909** TestNo: **E300.1** Analysis Date: **2/16/2007** SeqNo: **415287**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromide	ND	2.0						0	0	0	

Sample ID: **U0701433-001ADUP** SampType: **DUP** TestCode: **300_IC** Units: **mg/L** Prep Date: RunNo: **22909**
Client ID: **ZZZZZ** Batch ID: **R22909** TestNo: **E300.1** Analysis Date: **2/16/2007** SeqNo: **415300**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromide	ND	2.0						0	0	0	

Sample ID: **CCB01** SampType: **CCB** TestCode: **300_IC** Units: **mg/L** Prep Date: RunNo: **22909**
Client ID: **ZZZZZ** Batch ID: **R22909** TestNo: **E300.1** Analysis Date: **2/16/2007** SeqNo: **415291**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromide	ND	0.20									

Sample ID: **CCB02** SampType: **CCB** TestCode: **300_IC** Units: **mg/L** Prep Date: RunNo: **22909**
Client ID: **ZZZZZ** Batch ID: **R22909** TestNo: **E300.1** Analysis Date: **2/16/2007** SeqNo: **415304**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromide	ND	0.20									

Qualifiers:
E Value above quantitation range
ND Not Detected at the Reporting Limit
H Holding times for preparation or analysis exceeded
R RPD outside accepted recovery limits
J Analyte detected below quantitation limits
S Spike Recovery outside accepted recovery limits

CLIENT: Clough, Harbour & Assoc. LLP
Work Order: U0701392
Project: C/O Albany Interim Landfill New

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_IC

Sample ID: **CCB03** SampType: **CCB** TestCode: **300_IC** Units: **mg/L** Prep Date: RunNo: **22909**
Client ID: **ZZZZZ** Batch ID: **R22909** TestNo: **E300.1** Analysis Date: **2/16/2007** SeqNo: **415308**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromide	ND	0.20									

Sample ID: **CCB01** SampType: **CCB** TestCode: **300_IC** Units: **mg/L** Prep Date: RunNo: **22971**
Client ID: **ZZZZZ** Batch ID: **R22971** TestNo: **E300.1** Analysis Date: **2/17/2007** SeqNo: **416531**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromide	ND	0.20									

Sample ID: **CCB02** SampType: **CCB** TestCode: **300_IC** Units: **mg/L** Prep Date: RunNo: **22971**
Client ID: **ZZZZZ** Batch ID: **R22971** TestNo: **E300.1** Analysis Date: **2/17/2007** SeqNo: **416542**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromide	ND	0.20									

Sample ID: **CCB03** SampType: **CCB** TestCode: **300_IC** Units: **mg/L** Prep Date: RunNo: **22971**
Client ID: **ZZZZZ** Batch ID: **R22971** TestNo: **E300.1** Analysis Date: **2/17/2007** SeqNo: **416546**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromide	ND	0.20									

Sample ID: **CCV01** SampType: **CCV** TestCode: **300_IC** Units: **mg/L** Prep Date: RunNo: **22909**
Client ID: **ZZZZZ** Batch ID: **R22909** TestNo: **E300.1** Analysis Date: **2/16/2007** SeqNo: **415292**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromide	4.973	0.20	5	0	99.5	90	110				

Qualifiers:
E Value above quantitation range
ND Not Detected at the Reporting Limit
H Holding times for preparation or analysis exceeded
R RPD outside accepted recovery limits
J Analyte detected below quantitation limits
S Spike Recovery outside accepted recovery limits

CLIENT: Clough, Harbour & Assoc. LLP
Work Order: U0701392
Project: C/O Albany Interim Landfill New

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_IC

Sample ID: **ICB01** SampType: **ICB** TestCode: **300_IC** Units: **mg/L** Prep Date: RunNo: **22909**
Client ID: **ZZZZZ** Batch ID: **R22909** TestNo: **E300.1** Analysis Date: **2/16/2007** SeqNo: **415278**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromide	ND	0.20									

Sample ID: **ICB** SampType: **ICB** TestCode: **300_IC** Units: **mg/L** Prep Date: RunNo: **22971**
Client ID: **ZZZZZ** Batch ID: **R22971** TestNo: **E300.1** Analysis Date: **2/17/2007** SeqNo: **416521**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromide	ND	0.20									

Sample ID: **ICV01** SampType: **ICV** TestCode: **300_IC** Units: **mg/L** Prep Date: RunNo: **22909**
Client ID: **ZZZZZ** Batch ID: **R22909** TestNo: **E300.1** Analysis Date: **2/16/2007** SeqNo: **415279**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromide	3.363	0.20	5	0	67.3	90	110				S

Sample ID: **ICV** SampType: **ICV** TestCode: **300_IC** Units: **mg/L** Prep Date: RunNo: **22971**
Client ID: **ZZZZZ** Batch ID: **R22971** TestNo: **E300.1** Analysis Date: **2/17/2007** SeqNo: **416522**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromide	5.001	0.20	5	0	100	90	110				

Qualifiers:
- E Value above quantitation range
- ND Not Detected at the Reporting Limit
- H Holding times for preparation or analysis exceeded
- R RPD outside accepted recovery limits
- J Analyte detected below quantitation limits
- S Spike Recovery outside accepted recovery limits

CLIENT: Clough, Harbour & Assoc. LLP
Work Order: U0701392
Project: C/O Albany Interim Landfill New

ANALYTICAL QC SUMMARY REPORT

TestCode: 310.2W

Sample ID: **U0701392-005BMS** SampType: **MS** TestCode: **310.2W** Units: **mg/LCaCO3** Prep Date: RunNo: **22654**
Client ID: **ZZZZZ** Batch ID: **R22654** TestNo: **E310.2** Analysis Date: **1/26/2007** SeqNo: **411216**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	165.0	10	50	136	58.0	45.2	131				

Sample ID: **U0701338-009BDUP** SampType: **DUP** TestCode: **310.2W** Units: **mg/LCaCO3** Prep Date: RunNo: **22654**
Client ID: **ZZZZZ** Batch ID: **R22654** TestNo: **E310.2** Analysis Date: **1/26/2007** SeqNo: **411188**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	252.0	10									

Sample ID: **U0701339-001BDUP** SampType: **DUP** TestCode: **310.2W** Units: **mg/LCaCO3** Prep Date: RunNo: **22654**
Client ID: **ZZZZZ** Batch ID: **R22654** TestNo: **E310.2** Analysis Date: **1/26/2007** SeqNo: **411196**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	179.0	10									

Sample ID: **U0701392-005BDUP** SampType: **DUP** TestCode: **310.2W** Units: **mg/LCaCO3** Prep Date: RunNo: **22654**
Client ID: **ZZZZZ** Batch ID: **R22654** TestNo: **E310.2** Analysis Date: **1/26/2007** SeqNo: **411215**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	136.0	10									

Sample ID: **U0701430-023CDUP** SampType: **DUP** TestCode: **310.2W** Units: **mg/LCaCO3** Prep Date: RunNo: **22654**
Client ID: **ZZZZZ** Batch ID: **R22654** TestNo: **E310.2** Analysis Date: **1/26/2007** SeqNo: **411230**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	124.0	10									

Qualifiers:
E Value above quantitation range
ND Not Detected at the Reporting Limit
H Holding times for preparation or analysis exceeded
R RPD outside accepted recovery limits
J Analyte detected below quantitation limits
S Spike Recovery outside accepted recovery limits

CLIENT: Clough, Harbour & Assoc. LLP
Work Order: U0701392
Project: C/O Albany Interim Landfill New

ANALYTICAL QC SUMMARY REPORT

TestCode: 310.2W

Sample ID: **U0701433-001CDUP** SampType: **DUP** TestCode: **310.2W** Units: **mg/LCaCO3** Prep Date: RunNo: **22654**
Client ID: **ZZZZZ** Batch ID: **R22654** TestNo: **E310.2** Analysis Date: **1/26/2007** SeqNo: **411250**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	448.0	10									

Sample ID: **U0701438-001CDUP** SampType: **DUP** TestCode: **310.2W** Units: **mg/LCaCO3** Prep Date: RunNo: **22654**
Client ID: **ZZZZZ** Batch ID: **R22654** TestNo: **E310.2** Analysis Date: **1/26/2007** SeqNo: **411259**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	485.0	10									

Sample ID: **CCB1** SampType: **CCB** TestCode: **310.2W** Units: **mg/LCaCO3** Prep Date: RunNo: **22654**
Client ID: **ZZZZZ** Batch ID: **R22654** TestNo: **E310.2** Analysis Date: **1/26/2007** SeqNo: **411134**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	ND	10									

Sample ID: **CCB10** SampType: **CCB** TestCode: **310.2W** Units: **mg/LCaCO3** Prep Date: RunNo: **22654**
Client ID: **ZZZZZ** Batch ID: **R22654** TestNo: **E310.2** Analysis Date: **1/26/2007** SeqNo: **411135**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	ND	10									

Sample ID: **CCB11** SampType: **CCB** TestCode: **310.2W** Units: **mg/LCaCO3** Prep Date: RunNo: **22654**
Client ID: **ZZZZZ** Batch ID: **R22654** TestNo: **E310.2** Analysis Date: **1/26/2007** SeqNo: **411136**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	ND	10									

Qualifiers:
E Value above quantitation range
ND Not Detected at the Reporting Limit
H Holding times for preparation or analysis exceeded
R RPD outside accepted recovery limits
J Analyte detected below quantitation limits
S Spike Recovery outside accepted recovery limits

CLIENT: Clough, Harbour & Assoc. LLP
Work Order: U0701392
Project: C/O Albany Interim Landfill New

ANALYTICAL QC SUMMARY REPORT

TestCode: 310.2W

Sample ID: **CCB2** SampType: **CCB** TestCode: **310.2W** Units: **mg/LCaCO3** Prep Date: RunNo: **22654**
Client ID: **ZZZZZ** Batch ID: **R22654** TestNo: **E310.2** Analysis Date: **1/26/2007** SeqNo: **411137**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	ND	10									

Sample ID: **CCB3** SampType: **CCB** TestCode: **310.2W** Units: **mg/LCaCO3** Prep Date: RunNo: **22654**
Client ID: **ZZZZZ** Batch ID: **R22654** TestNo: **E310.2** Analysis Date: **1/26/2007** SeqNo: **411138**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	ND	10									

Sample ID: **CCB4** SampType: **CCB** TestCode: **310.2W** Units: **mg/LCaCO3** Prep Date: RunNo: **22654**
Client ID: **ZZZZZ** Batch ID: **R22654** TestNo: **E310.2** Analysis Date: **1/26/2007** SeqNo: **411139**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	ND	10									

Sample ID: **CCB5** SampType: **CCB** TestCode: **310.2W** Units: **mg/LCaCO3** Prep Date: RunNo: **22654**
Client ID: **ZZZZZ** Batch ID: **R22654** TestNo: **E310.2** Analysis Date: **1/26/2007** SeqNo: **411140**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	ND	10									

Sample ID: **CCB6** SampType: **CCB** TestCode: **310.2W** Units: **mg/LCaCO3** Prep Date: RunNo: **22654**
Client ID: **ZZZZZ** Batch ID: **R22654** TestNo: **E310.2** Analysis Date: **1/26/2007** SeqNo: **411141**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	ND	10									

Qualifiers:
- E Value above quantitation range
- ND Not Detected at the Reporting Limit
- H Holding times for preparation or analysis exceeded
- R RPD outside accepted recovery limits
- J Analyte detected below quantitation limits
- S Spike Recovery outside accepted recovery limits

CLIENT: Clough, Harbour & Assoc. LLP
Work Order: U0701392
Project: C/O Albany Interim Landfill New

ANALYTICAL QC SUMMARY REPORT

TestCode: 310.2W

Sample ID: **CCB7** SampType: **CCB** TestCode: **310.2W** Units: **mg/LCaCO3** Prep Date: RunNo: **22654**
Client ID: **ZZZZZ** Batch ID: **R22654** TestNo: **E310.2** Analysis Date: **1/26/2007** SeqNo: **411142**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	ND	10									

Sample ID: **CCB8** SampType: **CCB** TestCode: **310.2W** Units: **mg/LCaCO3** Prep Date: RunNo: **22654**
Client ID: **ZZZZZ** Batch ID: **R22654** TestNo: **E310.2** Analysis Date: **1/26/2007** SeqNo: **411143**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	ND	10									

Sample ID: **CCB9** SampType: **CCB** TestCode: **310.2W** Units: **mg/LCaCO3** Prep Date: RunNo: **22654**
Client ID: **ZZZZZ** Batch ID: **R22654** TestNo: **E310.2** Analysis Date: **1/26/2007** SeqNo: **411144**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	ND	10									

Sample ID: **ICB1** SampType: **ICB** TestCode: **310.2W** Units: **mg/LCaCO3** Prep Date: RunNo: **22654**
Client ID: **ZZZZZ** Batch ID: **R22654** TestNo: **E310.2** Analysis Date: **1/26/2007** SeqNo: **411156**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	ND	10									

Sample ID: **ICB2** SampType: **ICB** TestCode: **310.2W** Units: **mg/LCaCO3** Prep Date: RunNo: **22654**
Client ID: **ZZZZZ** Batch ID: **R22654** TestNo: **E310.2** Analysis Date: **1/26/2007** SeqNo: **411157**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	ND	10									

Qualifiers:
E Value above quantitation range
ND Not Detected at the Reporting Limit
H Holding times for preparation or analysis exceeded
R RPD outside accepted recovery limits
J Analyte detected below quantitation limits
S Spike Recovery outside accepted recovery limits

CLIENT: Clough, Harbour & Assoc. LLP
Work Order: U0701392
Project: C/O Albany Interim Landfill New

ANALYTICAL QC SUMMARY REPORT

TestCode: 310.2W

Sample ID: **ICB3** SampType: **ICB** TestCode: **310.2W** Units: **mg/LCaCO3** Prep Date: RunNo: **22654**
Client ID: **ZZZZZ** Batch ID: **R22654** TestNo: **E310.2** Analysis Date: **1/26/2007** SeqNo: **411158**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	ND	10									

Sample ID: **ICB4** SampType: **ICB** TestCode: **310.2W** Units: **mg/LCaCO3** Prep Date: RunNo: **22654**
Client ID: **ZZZZZ** Batch ID: **R22654** TestNo: **E310.2** Analysis Date: **1/26/2007** SeqNo: **411159**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	ND	10									

Sample ID: **ICB5** SampType: **ICB** TestCode: **310.2W** Units: **mg/LCaCO3** Prep Date: RunNo: **22654**
Client ID: **ZZZZZ** Batch ID: **R22654** TestNo: **E310.2** Analysis Date: **1/26/2007** SeqNo: **411160**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	ND	10									

Sample ID: **ICB6** SampType: **ICB** TestCode: **310.2W** Units: **mg/LCaCO3** Prep Date: RunNo: **22654**
Client ID: **ZZZZZ** Batch ID: **R22654** TestNo: **E310.2** Analysis Date: **1/26/2007** SeqNo: **411161**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	ND	10									

Sample ID: **ICV1** SampType: **ICV** TestCode: **310.2W** Units: **mg/LCaCO3** Prep Date: RunNo: **22654**
Client ID: **ZZZZZ** Batch ID: **R22654** TestNo: **E310.2** Analysis Date: **1/26/2007** SeqNo: **411162**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	75.70	10	76.5	0	99.0	90	110				

Qualifiers:
E Value above quantitation range
ND Not Detected at the Reporting Limit
H Holding times for preparation or analysis exceeded
R RPD outside accepted recovery limits
J Analyte detected below quantitation limits
S Spike Recovery outside accepted recovery limits

CLIENT: Clough, Harbour & Assoc. LLP
Work Order: U0701392
Project: C/O Albany Interim Landfill New

ANALYTICAL QC SUMMARY REPORT

TestCode: 310.2W

Sample ID: **ICV2** SampType: **ICV** TestCode: **310.2W** Units: **mg/LCaCO3** Prep Date: RunNo: **22654**
Client ID: **ZZZZZ** Batch ID: **R22654** TestNo: **E310.2** Analysis Date: **1/26/2007** SeqNo: **411163**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	75.10	10	76.5	0	98.2	90	110				

Sample ID: **ICV3** SampType: **ICV** TestCode: **310.2W** Units: **mg/LCaCO3** Prep Date: RunNo: **22654**
Client ID: **ZZZZZ** Batch ID: **R22654** TestNo: **E310.2** Analysis Date: **1/26/2007** SeqNo: **411164**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	74.90	10	76.5	0	97.9	90	110				

Sample ID: **ICV4** SampType: **ICV** TestCode: **310.2W** Units: **mg/LCaCO3** Prep Date: RunNo: **22654**
Client ID: **ZZZZZ** Batch ID: **R22654** TestNo: **E310.2** Analysis Date: **1/26/2007** SeqNo: **411165**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	74.20	10	76.5	0	97.0	90	110				

Sample ID: **ICV5** SampType: **ICV** TestCode: **310.2W** Units: **mg/LCaCO3** Prep Date: RunNo: **22654**
Client ID: **ZZZZZ** Batch ID: **R22654** TestNo: **E310.2** Analysis Date: **1/26/2007** SeqNo: **411166**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	74.80	10	76.5	0	97.8	90	110				

Sample ID: **ICV6** SampType: **ICV** TestCode: **310.2W** Units: **mg/LCaCO3** Prep Date: RunNo: **22654**
Client ID: **ZZZZZ** Batch ID: **R22654** TestNo: **E310.2** Analysis Date: **1/26/2007** SeqNo: **411167**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	75.90	10	76.5	0	99.2	90	110				

Qualifiers:
E Value above quantitation range
ND Not Detected at the Reporting Limit
H Holding times for preparation or analysis exceeded
R RPD outside accepted recovery limits
J Analyte detected below quantitation limits
S Spike Recovery outside accepted recovery limits

CLIENT: Clough, Harbour & Assoc. LLP
Work Order: U0701392
Project: C/O Albany Interim Landfill New

ANALYTICAL QC SUMMARY REPORT

TestCode: 325.2_W

Sample ID: **U0701392-005AMS** SampType: **MS** TestCode: **325.2_W** Units: **mg/L** Prep Date: RunNo: **22597**
Client ID: **MW-15-IB** Batch ID: **R22597** TestNo: **E325.2** Analysis Date: **1/26/2007** SeqNo: **410512**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	147.0	1.00	100	29.7	117	73	115				S

Sample ID: **U0701338-009ADUP** SampType: **DUP** TestCode: **325.2_W** Units: **mg/L** Prep Date: RunNo: **22597**
Client ID: **ZZZZZ** Batch ID: **R22597** TestNo: **E325.2** Analysis Date: **1/26/2007** SeqNo: **410483**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	7.470	1.00						7.54	0.933	15	

Sample ID: **U0701339-001ADUP** SampType: **DUP** TestCode: **325.2_W** Units: **mg/L** Prep Date: RunNo: **22597**
Client ID: **ZZZZZ** Batch ID: **R22597** TestNo: **E325.2** Analysis Date: **1/26/2007** SeqNo: **410491**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	2.980	1.00						5.26	55.3	15	R

Sample ID: **U0701392-005ADUP** SampType: **DUP** TestCode: **325.2_W** Units: **mg/L** Prep Date: RunNo: **22597**
Client ID: **MW-15-IB** Batch ID: **R22597** TestNo: **E325.2** Analysis Date: **1/26/2007** SeqNo: **410511**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	30.20	1.00						29.7	1.67	15	

Sample ID: **U0701430-023ADUP** SampType: **DUP** TestCode: **325.2_W** Units: **mg/L** Prep Date: RunNo: **22597**
Client ID: **ZZZZZ** Batch ID: **R22597** TestNo: **E325.2** Analysis Date: **1/26/2007** SeqNo: **410526**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	3.860	1.00						4.06	5.05	15	

Qualifiers:
E Value above quantitation range
ND Not Detected at the Reporting Limit
H Holding times for preparation or analysis exceeded
R RPD outside accepted recovery limits
J Analyte detected below quantitation limits
S Spike Recovery outside accepted recovery limits

CLIENT: Clough, Harbour & Assoc. LLP
Work Order: U0701392
Project: C/O Albany Interim Landfill New

ANALYTICAL QC SUMMARY REPORT

TestCode: 325.2_W

Sample ID: **U0701433-001ADUP** SampType: **DUP** TestCode: **325.2_W** Units: **mg/L** Prep Date: RunNo: **22597**
Client ID: **ZZZZZ** Batch ID: **R22597** TestNo: **E325.2** Analysis Date: **1/26/2007** SeqNo: **410546**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	28.90	1.00						30	3.74	15	

Sample ID: **U0701438-001ADUP** SampType: **DUP** TestCode: **325.2_W** Units: **mg/L** Prep Date: RunNo: **22597**
Client ID: **ZZZZZ** Batch ID: **R22597** TestNo: **E325.2** Analysis Date: **1/26/2007** SeqNo: **410555**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	20.90	1.00						22.4	6.93	15	

Sample ID: **CCB1** SampType: **CCB** TestCode: **325.2_W** Units: **mg/L** Prep Date: RunNo: **22597**
Client ID: **ZZZZZ** Batch ID: **R22597** TestNo: **E325.2** Analysis Date: **1/26/2007** SeqNo: **410450**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	ND	1.00									

Sample ID: **CCB2** SampType: **CCB** TestCode: **325.2_W** Units: **mg/L** Prep Date: RunNo: **22597**
Client ID: **ZZZZZ** Batch ID: **R22597** TestNo: **E325.2** Analysis Date: **1/26/2007** SeqNo: **410451**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	ND	1.00									

Sample ID: **CCB3** SampType: **CCB** TestCode: **325.2_W** Units: **mg/L** Prep Date: RunNo: **22597**
Client ID: **ZZZZZ** Batch ID: **R22597** TestNo: **E325.2** Analysis Date: **1/26/2007** SeqNo: **410452**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	ND	1.00									

Qualifiers:
E Value above quantitation range
ND Not Detected at the Reporting Limit
H Holding times for preparation or analysis exceeded
R RPD outside accepted recovery limits
J Analyte detected below quantitation limits
S Spike Recovery outside accepted recovery limits

CLIENT: Clough, Harbour & Assoc. LLP
Work Order: U0701392
Project: C/O Albany Interim Landfill New

ANALYTICAL QC SUMMARY REPORT

TestCode: 325.2_W

Sample ID: **CCB4** SampType: **CCB** TestCode: **325.2_W** Units: **mg/L** Prep Date: RunNo: **22597**
Client ID: **ZZZZZ** Batch ID: **R22597** TestNo: **E325.2** Analysis Date: **1/26/2007** SeqNo: **410453**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	ND	1.00									

Sample ID: **CCB5** SampType: **CCB** TestCode: **325.2_W** Units: **mg/L** Prep Date: RunNo: **22597**
Client ID: **ZZZZZ** Batch ID: **R22597** TestNo: **E325.2** Analysis Date: **1/26/2007** SeqNo: **410454**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	ND	1.00									

Sample ID: **CCB6** SampType: **CCB** TestCode: **325.2_W** Units: **mg/L** Prep Date: RunNo: **22597**
Client ID: **ZZZZZ** Batch ID: **R22597** TestNo: **E325.2** Analysis Date: **1/26/2007** SeqNo: **410455**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	ND	1.00									

Sample ID: **CCB7** SampType: **CCB** TestCode: **325.2_W** Units: **mg/L** Prep Date: RunNo: **22597**
Client ID: **ZZZZZ** Batch ID: **R22597** TestNo: **E325.2** Analysis Date: **1/26/2007** SeqNo: **410456**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	ND	1.00									

Sample ID: **CCB8** SampType: **CCB** TestCode: **325.2_W** Units: **mg/L** Prep Date: RunNo: **22597**
Client ID: **ZZZZZ** Batch ID: **R22597** TestNo: **E325.2** Analysis Date: **1/26/2007** SeqNo: **410457**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	ND	1.00									

Qualifiers:
E Value above quantitation range
ND Not Detected at the Reporting Limit
H Holding times for preparation or analysis exceeded
R RPD outside accepted recovery limits
J Analyte detected below quantitation limits
S Spike Recovery outside accepted recovery limits

CLIENT: Clough, Harbour & Assoc. LLP
Work Order: U0701392
Project: C/O Albany Interim Landfill New

ANALYTICAL QC SUMMARY REPORT

TestCode: 325.2_W

Sample ID: **CCB9** SampType: **CCB** TestCode: **325.2_W** Units: **mg/L** Prep Date: RunNo: **22597**
Client ID: **ZZZZZ** Batch ID: **R22597** TestNo: **E325.2** Analysis Date: **1/26/2007** SeqNo: **410458**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	ND	1.00									

Sample ID: **CCB10** SampType: **CCB** TestCode: **325.2_W** Units: **mg/L** Prep Date: RunNo: **22597**
Client ID: **ZZZZZ** Batch ID: **R22597** TestNo: **E325.2** Analysis Date: **1/26/2007** SeqNo: **411124**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	ND	1.00									

Sample ID: **CCB11** SampType: **CCB** TestCode: **325.2_W** Units: **mg/L** Prep Date: RunNo: **22597**
Client ID: **ZZZZZ** Batch ID: **R22597** TestNo: **E325.2** Analysis Date: **1/26/2007** SeqNo: **411126**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	ND	1.00									

Sample ID: **CCV9** SampType: **CCV** TestCode: **325.2_W** Units: **mg/L** Prep Date: RunNo: **22597**
Client ID: **ZZZZZ** Batch ID: **R22597** TestNo: **E325.2** Analysis Date: **1/26/2007** SeqNo: **410449**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	244.0	1.00	250	0	97.6	90	110				

Sample ID: **ICB1** SampType: **ICB** TestCode: **325.2_W** Units: **mg/L** Prep Date: RunNo: **22597**
Client ID: **ZZZZZ** Batch ID: **R22597** TestNo: **E325.2** Analysis Date: **1/26/2007** SeqNo: **410420**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	ND	1.00									

Qualifiers:
- E Value above quantitation range
- ND Not Detected at the Reporting Limit
- H Holding times for preparation or analysis exceeded
- R RPD outside accepted recovery limits
- J Analyte detected below quantitation limits
- S Spike Recovery outside accepted recovery limits

CLIENT: Clough, Harbour & Assoc. LLP
Work Order: U0701392
Project: C/O Albany Interim Landfill New

ANALYTICAL QC SUMMARY REPORT

TestCode: 325.2_W

Sample ID: **ICB2** SampType: **ICB** TestCode: **325.2_W** Units: **mg/L** Prep Date: RunNo: **22597**
Client ID: **ZZZZZ** Batch ID: **R22597** TestNo: **E325.2** Analysis Date: **1/26/2007** SeqNo: **410421**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	ND	1.00									

Sample ID: **ICB3** SampType: **ICB** TestCode: **325.2_W** Units: **mg/L** Prep Date: RunNo: **22597**
Client ID: **ZZZZZ** Batch ID: **R22597** TestNo: **E325.2** Analysis Date: **1/26/2007** SeqNo: **410423**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	ND	1.00									

Sample ID: **ICB4** SampType: **ICB** TestCode: **325.2_W** Units: **mg/L** Prep Date: RunNo: **22597**
Client ID: **ZZZZZ** Batch ID: **R22597** TestNo: **E325.2** Analysis Date: **1/26/2007** SeqNo: **410425**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	ND	1.00									

Sample ID: **ICB5** SampType: **ICB** TestCode: **325.2_W** Units: **mg/L** Prep Date: RunNo: **22597**
Client ID: **ZZZZZ** Batch ID: **R22597** TestNo: **E325.2** Analysis Date: **1/26/2007** SeqNo: **410427**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	ND	1.00									

Sample ID: **ICB6** SampType: **ICB** TestCode: **325.2_W** Units: **mg/L** Prep Date: RunNo: **22597**
Client ID: **ZZZZZ** Batch ID: **R22597** TestNo: **E325.2** Analysis Date: **1/26/2007** SeqNo: **410430**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	ND	1.00									

Qualifiers:
E Value above quantitation range
ND Not Detected at the Reporting Limit
H Holding times for preparation or analysis exceeded
R RPD outside accepted recovery limits
J Analyte detected below quantitation limits
S Spike Recovery outside accepted recovery limits

CLIENT: Clough, Harbour & Assoc. LLP
Work Order: U0701392
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ANALYTICAL QC SUMMARY REPORT

TestCode: 325.2_W

Sample ID: **ICV1** SampType: **ICV** TestCode: **325.2_W** Units: **mg/L** Prep Date: RunNo: **22597**
Client ID: **ZZZZZ** Batch ID: **R22597** TestNo: **E325.2** Analysis Date: **1/26/2007** SeqNo: **410415**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	125.0	1.00	111.5	0	112	82	117				

Sample ID: **ICV2** SampType: **ICV** TestCode: **325.2_W** Units: **mg/L** Prep Date: RunNo: **22597**
Client ID: **ZZZZZ** Batch ID: **R22597** TestNo: **E325.2** Analysis Date: **1/26/2007** SeqNo: **410416**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	127.0	1.00	111.5	0	114	82	117				

Sample ID: **ICV3** SampType: **ICV** TestCode: **325.2_W** Units: **mg/L** Prep Date: RunNo: **22597**
Client ID: **ZZZZZ** Batch ID: **R22597** TestNo: **E325.2** Analysis Date: **1/26/2007** SeqNo: **410417**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	128.0	1.00	111.5	0	115	82	117				

Sample ID: **ICV4** SampType: **ICV** TestCode: **325.2_W** Units: **mg/L** Prep Date: RunNo: **22597**
Client ID: **ZZZZZ** Batch ID: **R22597** TestNo: **E325.2** Analysis Date: **1/26/2007** SeqNo: **410418**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	129.0	1.00	111.5	0	116	82	117				

Sample ID: **ICV5** SampType: **ICV** TestCode: **325.2_W** Units: **mg/L** Prep Date: RunNo: **22597**
Client ID: **ZZZZZ** Batch ID: **R22597** TestNo: **E325.2** Analysis Date: **1/26/2007** SeqNo: **410419**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	114.0	1.00	111.5	0	102	82	117				

Qualifiers:
E Value above quantitation range
ND Not Detected at the Reporting Limit
H Holding times for preparation or analysis exceeded
R RPD outside accepted recovery limits
J Analyte detected below quantitation limits
S Spike Recovery outside accepted recovery limits

CLIENT: Clough, Harbour & Assoc. LLP
Work Order: U0701392
Project: C/O Albany Interim Landfill New

ANALYTICAL QC SUMMARY REPORT

TestCode: 325.2_W

Sample ID: ICV6	SampType: ICV	TestCode: 325.2_W	Units: mg/L	Prep Date:	RunNo: 22597
Client ID: ZZZZZ	Batch ID: R22597	TestNo: E325.2		Analysis Date: 1/26/2007	SeqNo: 410459

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	120.0	1.00	111.5	0	108	82	117				

Qualifiers:
- E Value above quantitation range
- ND Not Detected at the Reporting Limit
- H Holding times for preparation or analysis exceeded
- R RPD outside accepted recovery limits
- J Analyte detected below quantitation limits
- S Spike Recovery outside accepted recovery limits

CLIENT: Clough, Harbour & Assoc. LLP
Work Order: U0701392
Project: C/O Albany Interim Landfill New

ANALYTICAL QC SUMMARY REPORT

TestCode: 350.2_W

Sample ID: **U0701392-005CMS** SampType: **MS** TestCode: **350.2_W** Units: **mg/L** Prep Date: RunNo: **22649**
Client ID: **MW-15-IB** Batch ID: **R22649** TestNo: **E350.2** Analysis Date: **2/2/2007** SeqNo: **411087**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Ammonia (As N)	4.846	0.500	5	0	96.9	60	135				

Sample ID: **U0701291-007BDUP** SampType: **DUP** TestCode: **350.2_W** Units: **mg/L** Prep Date: RunNo: **22698**
Client ID: **ZZZZZ** Batch ID: **R22698** TestNo: **E350.2** Analysis Date: **2/7/2007** SeqNo: **411940**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Ammonia (As N)	ND	0.500						0	0	25	

Sample ID: **U0701430-023BDUP** SampType: **DUP** TestCode: **350.2_W** Units: **mg/L** Prep Date: RunNo: **22698**
Client ID: **ZZZZZ** Batch ID: **R22698** TestNo: **E350.2** Analysis Date: **2/7/2007** SeqNo: **411967**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Ammonia (As N)	ND	0.500						0	0	25	

Sample ID: **U0701438-001BDUP** SampType: **DUP** TestCode: **350.2_W** Units: **mg/L** Prep Date: RunNo: **22698**
Client ID: **ZZZZZ** Batch ID: **R22698** TestNo: **E350.2** Analysis Date: **2/7/2007** SeqNo: **412034**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Ammonia (As N)	ND	0.500						0	0	25	

Sample ID: **U0701462-002CDUP** SampType: **DUP** TestCode: **350.2_W** Units: **mg/L** Prep Date: RunNo: **22698**
Client ID: **ZZZZZ** Batch ID: **R22698** TestNo: **E350.2** Analysis Date: **2/7/2007** SeqNo: **412061**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Ammonia (As N)	ND	0.500						0	0	25	

Qualifiers:
E Value above quantitation range
ND Not Detected at the Reporting Limit
H Holding times for preparation or analysis exceeded
R RPD outside accepted recovery limits
J Analyte detected below quantitation limits
S Spike Recovery outside accepted recovery limits

CLIENT: Clough, Harbour & Assoc. LLP
Work Order: U0701392
Project: C/O Albany Interim Landfill New

ANALYTICAL QC SUMMARY REPORT

TestCode: 350.2_W

Sample ID: **CCB1** SampType: **CCB** TestCode: **350.2_W** Units: **mg/L** Prep Date: RunNo: **22698**
Client ID: **ZZZZZ** Batch ID: **R22698** TestNo: **E350.2** Analysis Date: **2/7/2007** SeqNo: **411896**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Ammonia (As N)	ND	0.500									

Sample ID: **CCB10** SampType: **CCB** TestCode: **350.2_W** Units: **mg/L** Prep Date: RunNo: **22698**
Client ID: **ZZZZZ** Batch ID: **R22698** TestNo: **E350.2** Analysis Date: **2/7/2007** SeqNo: **411897**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Ammonia (As N)	ND	0.500									

Sample ID: **CCB11** SampType: **CCB** TestCode: **350.2_W** Units: **mg/L** Prep Date: RunNo: **22698**
Client ID: **ZZZZZ** Batch ID: **R22698** TestNo: **E350.2** Analysis Date: **2/7/2007** SeqNo: **411898**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Ammonia (As N)	ND	0.500									

Sample ID: **CCB2** SampType: **CCB** TestCode: **350.2_W** Units: **mg/L** Prep Date: RunNo: **22698**
Client ID: **ZZZZZ** Batch ID: **R22698** TestNo: **E350.2** Analysis Date: **2/7/2007** SeqNo: **411899**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Ammonia (As N)	ND	0.500									

Sample ID: **CCB3** SampType: **CCB** TestCode: **350.2_W** Units: **mg/L** Prep Date: RunNo: **22698**
Client ID: **ZZZZZ** Batch ID: **R22698** TestNo: **E350.2** Analysis Date: **2/7/2007** SeqNo: **411900**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Ammonia (As N)	ND	0.500									

Qualifiers:
E Value above quantitation range
ND Not Detected at the Reporting Limit
H Holding times for preparation or analysis exceeded
R RPD outside accepted recovery limits
J Analyte detected below quantitation limits
S Spike Recovery outside accepted recovery limits

CLIENT: Clough, Harbour & Assoc. LLP
Work Order: U0701392
Project: C/O Albany Interim Landfill New

ANALYTICAL QC SUMMARY REPORT

TestCode: 350.2_W

Sample ID: **CCB4** SampType: **CCB** TestCode: **350.2_W** Units: **mg/L** Prep Date: RunNo: **22698**
Client ID: **ZZZZZ** Batch ID: **R22698** TestNo: **E350.2** Analysis Date: **2/7/2007** SeqNo: **411901**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Ammonia (As N)	ND	0.500									

Sample ID: **CCB5** SampType: **CCB** TestCode: **350.2_W** Units: **mg/L** Prep Date: RunNo: **22698**
Client ID: **ZZZZZ** Batch ID: **R22698** TestNo: **E350.2** Analysis Date: **2/7/2007** SeqNo: **411902**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Ammonia (As N)	ND	0.500									

Sample ID: **CCB6** SampType: **CCB** TestCode: **350.2_W** Units: **mg/L** Prep Date: RunNo: **22698**
Client ID: **ZZZZZ** Batch ID: **R22698** TestNo: **E350.2** Analysis Date: **2/7/2007** SeqNo: **411903**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Ammonia (As N)	ND	0.500									

Sample ID: **CCB7** SampType: **CCB** TestCode: **350.2_W** Units: **mg/L** Prep Date: RunNo: **22698**
Client ID: **ZZZZZ** Batch ID: **R22698** TestNo: **E350.2** Analysis Date: **2/7/2007** SeqNo: **411904**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Ammonia (As N)	ND	0.500									

Sample ID: **CCB8** SampType: **CCB** TestCode: **350.2_W** Units: **mg/L** Prep Date: RunNo: **22698**
Client ID: **ZZZZZ** Batch ID: **R22698** TestNo: **E350.2** Analysis Date: **2/7/2007** SeqNo: **411905**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Ammonia (As N)	ND	0.500									

Qualifiers:
E Value above quantitation range
ND Not Detected at the Reporting Limit
H Holding times for preparation or analysis exceeded
R RPD outside accepted recovery limits
J Analyte detected below quantitation limits
S Spike Recovery outside accepted recovery limits

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Project: C/O Albany Interim Landfill New

ANALYTICAL QC SUMMARY REPORT

TestCode: 350.2_W

Sample ID: **CCB9** SampType: **CCB** TestCode: **350.2_W** Units: **mg/L** Prep Date: RunNo: **22698**
Client ID: **ZZZZZ** Batch ID: **R22698** TestNo: **E350.2** Analysis Date: **2/7/2007** SeqNo: **411906**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Ammonia (As N)	ND	0.500									

Sample ID: **CCV9** SampType: **CCV** TestCode: **350.2_W** Units: **mg/L** Prep Date: RunNo: **22698**
Client ID: **ZZZZZ** Batch ID: **R22698** TestNo: **E350.2** Analysis Date: **2/7/2007** SeqNo: **411917**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Ammonia (As N)	15.10	0.500	15	0	101	90	110				

Sample ID: **ICB1** SampType: **ICB** TestCode: **350.2_W** Units: **mg/L** Prep Date: RunNo: **22698**
Client ID: **ZZZZZ** Batch ID: **R22698** TestNo: **E350.2** Analysis Date: **2/7/2007** SeqNo: **411918**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Ammonia (As N)	ND	0.500									

Sample ID: **ICB2** SampType: **ICB** TestCode: **350.2_W** Units: **mg/L** Prep Date: RunNo: **22698**
Client ID: **ZZZZZ** Batch ID: **R22698** TestNo: **E350.2** Analysis Date: **2/7/2007** SeqNo: **411919**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Ammonia (As N)	ND	0.500									

Sample ID: **ICB3** SampType: **ICB** TestCode: **350.2_W** Units: **mg/L** Prep Date: RunNo: **22698**
Client ID: **ZZZZZ** Batch ID: **R22698** TestNo: **E350.2** Analysis Date: **2/7/2007** SeqNo: **411920**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Ammonia (As N)	ND	0.500									

Qualifiers:

E	Value above quantitation range	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike Recovery outside accepted recovery limits

CLIENT: Clough, Harbour & Assoc. LLP
Work Order: U0701392
Project: C/O Albany Interim Landfill New

ANALYTICAL QC SUMMARY REPORT

TestCode: 350.2_W

Sample ID: **ICB4** SampType: **ICB** TestCode: **350.2_W** Units: **mg/L** Prep Date: RunNo: **22698**
Client ID: **ZZZZZ** Batch ID: **R22698** TestNo: **E350.2** Analysis Date: **2/7/2007** SeqNo: **411921**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Ammonia (As N)	ND	0.500									

Sample ID: **ICB5** SampType: **ICB** TestCode: **350.2_W** Units: **mg/L** Prep Date: RunNo: **22698**
Client ID: **ZZZZZ** Batch ID: **R22698** TestNo: **E350.2** Analysis Date: **2/7/2007** SeqNo: **411922**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Ammonia (As N)	ND	0.500									

Sample ID: **ICB6** SampType: **ICB** TestCode: **350.2_W** Units: **mg/L** Prep Date: RunNo: **22698**
Client ID: **ZZZZZ** Batch ID: **R22698** TestNo: **E350.2** Analysis Date: **2/7/2007** SeqNo: **411923**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Ammonia (As N)	ND	0.500									

Sample ID: **ICV1** SampType: **ICV** TestCode: **350.2_W** Units: **mg/L** Prep Date: RunNo: **22698**
Client ID: **ZZZZZ** Batch ID: **R22698** TestNo: **E350.2** Analysis Date: **2/7/2007** SeqNo: **411924**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Ammonia (As N)	9.580	0.500	9.21	0	104	90	110				

Sample ID: **ICV2** SampType: **ICV** TestCode: **350.2_W** Units: **mg/L** Prep Date: RunNo: **22698**
Client ID: **ZZZZZ** Batch ID: **R22698** TestNo: **E350.2** Analysis Date: **2/7/2007** SeqNo: **411925**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Ammonia (As N)	9.600	0.500	9.21	0	104	90	110				

Qualifiers:
- E Value above quantitation range
- ND Not Detected at the Reporting Limit
- H Holding times for preparation or analysis exceeded
- R RPD outside accepted recovery limits
- J Analyte detected below quantitation limits
- S Spike Recovery outside accepted recovery limits

CLIENT: Clough, Harbour & Assoc. LLP
Work Order: U0701392
Project: C/O Albany Interim Landfill New

ANALYTICAL QC SUMMARY REPORT

TestCode: 350.2_W

Sample ID: **ICV3** SampType: **ICV** TestCode: **350.2_W** Units: **mg/L** Prep Date: RunNo: **22698**
Client ID: **ZZZZZ** Batch ID: **R22698** TestNo: **E350.2** Analysis Date: **2/7/2007** SeqNo: **411926**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Ammonia (As N)	9.600	0.500	9.21	0	104	90	110				

Sample ID: **ICV4** SampType: **ICV** TestCode: **350.2_W** Units: **mg/L** Prep Date: RunNo: **22698**
Client ID: **ZZZZZ** Batch ID: **R22698** TestNo: **E350.2** Analysis Date: **2/7/2007** SeqNo: **411927**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Ammonia (As N)	9.600	0.500	9.21	0	104	90	110				

Sample ID: **ICV5** SampType: **ICV** TestCode: **350.2_W** Units: **mg/L** Prep Date: RunNo: **22698**
Client ID: **ZZZZZ** Batch ID: **R22698** TestNo: **E350.2** Analysis Date: **2/7/2007** SeqNo: **411928**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Ammonia (As N)	9.610	0.500	9.21	0	104	90	110				

Sample ID: **ICV6** SampType: **ICV** TestCode: **350.2_W** Units: **mg/L** Prep Date: RunNo: **22698**
Client ID: **ZZZZZ** Batch ID: **R22698** TestNo: **E350.2** Analysis Date: **2/7/2007** SeqNo: **411929**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Ammonia (As N)	9.620	0.500	9.21	0	104	90	110				

Qualifiers:
E Value above quantitation range
ND Not Detected at the Reporting Limit
H Holding times for preparation or analysis exceeded
R RPD outside accepted recovery limits
J Analyte detected below quantitation limits
S Spike Recovery outside accepted recovery limits

CLIENT: Clough, Harbour & Assoc. LLP
Work Order: U0701392
Project: C/O Albany Interim Landfill New

ANALYTICAL QC SUMMARY REPORT

TestCode: 351.3_W

Sample ID: **MB-R22649** SampType: **MBLK** TestCode: **351.3_W** Units: **mg/L** Prep Date: RunNo: **22649**
Client ID: **ZZZZZ** Batch ID: **R22649** TestNo: **E351.3** Analysis Date: **2/2/2007** SeqNo: **411066**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Kjeldahl, Total	ND	0.500									

Sample ID: **MB-R22696** SampType: **MBLK** TestCode: **351.3_W** Units: **mg/L** Prep Date: RunNo: **22696**
Client ID: **ZZZZZ** Batch ID: **R22696** TestNo: **E351.3** Analysis Date: **2/7/2007** SeqNo: **411848**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Kjeldahl, Total	ND	0.500									

Sample ID: **LCS-R22649** SampType: **LCS** TestCode: **351.3_W** Units: **mg/L** Prep Date: RunNo: **22649**
Client ID: **ZZZZZ** Batch ID: **R22649** TestNo: **E351.3** Analysis Date: **2/2/2007** SeqNo: **411067**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Kjeldahl, Total	3.818	0.500	4.08	0	93.6	59	118				

Sample ID: **LCS-R22696** SampType: **LCS** TestCode: **351.3_W** Units: **mg/L** Prep Date: RunNo: **22696**
Client ID: **ZZZZZ** Batch ID: **R22696** TestNo: **E351.3** Analysis Date: **2/7/2007** SeqNo: **411849**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Kjeldahl, Total	3.818	0.500	4.08	0	93.6	59	118				

Sample ID: **U0701392-005CMS** SampType: **MS** TestCode: **351.3_W** Units: **mg/L** Prep Date: RunNo: **22649**
Client ID: **MW-15-IB** Batch ID: **R22649** TestNo: **E351.3** Analysis Date: **2/2/2007** SeqNo: **411077**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Kjeldahl, Total	4.846	0.500	5	0	96.9	55	124				

Qualifiers:
E Value above quantitation range
ND Not Detected at the Reporting Limit
H Holding times for preparation or analysis exceeded
R RPD outside accepted recovery limits
J Analyte detected below quantitation limits
S Spike Recovery outside accepted recovery limits

CLIENT: Clough, Harbour & Assoc. LLP
Work Order: U0701392
Project: C/O Albany Interim Landfill New

ANALYTICAL QC SUMMARY REPORT

TestCode: 351.3_W

Sample ID: **U0701392-005CDUP** SampType: **DUP** TestCode: **351.3_W** Units: **mg/L** Prep Date: RunNo: **22649**
Client ID: **MW-15-IB** Batch ID: **R22649** TestNo: **E351.3** Analysis Date: **2/2/2007** SeqNo: **411076**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Kjeldahl, Total	ND	0.500						0	0	19	

Sample ID: **U0701433-001BDUP** SampType: **DUP** TestCode: **351.3_W** Units: **mg/L** Prep Date: RunNo: **22696**
Client ID: **ZZZZZ** Batch ID: **R22696** TestNo: **E351.3** Analysis Date: **2/7/2007** SeqNo: **411853**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Kjeldahl, Total	ND	0.500						0	0	19	

Qualifiers:
- E Value above quantitation range
- ND Not Detected at the Reporting Limit
- H Holding times for preparation or analysis exceeded
- R RPD outside accepted recovery limits
- J Analyte detected below quantitation limits
- S Spike Recovery outside accepted recovery limits

CLIENT: Clough, Harbour & Assoc. LLP
Work Order: U0701392
Project: C/O Albany Interim Landfill New

ANALYTICAL QC SUMMARY REPORT

TestCode: 353.2_WNO3

Sample ID: **U0701392-005AMS** SampType: **MS** TestCode: **353.2_WNO3** Units: **mg/L** Prep Date: RunNo: **22575**
Client ID: **MW-15-IB** Batch ID: **R22575** TestNo: **E353.2** Analysis Date: **1/24/2007** SeqNo: **409895**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Nitrate (as N)	1.950	0.200	2	0	97.5	35	125				

Sample ID: **U0701392-005ADUP** SampType: **DUP** TestCode: **353.2_WNO3** Units: **mg/L** Prep Date: RunNo: **22575**
Client ID: **MW-15-IB** Batch ID: **R22575** TestNo: **E353.2** Analysis Date: **1/24/2007** SeqNo: **409894**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Nitrate (as N)	ND	0.200						0	0	20	

Sample ID: **U0701438-001ADUP** SampType: **DUP** TestCode: **353.2_WNO3** Units: **mg/L** Prep Date: RunNo: **22575**
Client ID: **ZZZZZ** Batch ID: **R22575** TestNo: **E353.2** Analysis Date: **1/24/2007** SeqNo: **409903**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Nitrate (as N)	0.6610	0.200						0.678	2.54	20	

Sample ID: **U0701430-023ADUP** SampType: **DUP** TestCode: **353.2_WNO3** Units: **mg/L** Prep Date: RunNo: **22578**
Client ID: **ZZZZZ** Batch ID: **R22578** TestNo: **E353.2** Analysis Date: **1/25/2007** SeqNo: **409993**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Nitrate (as N)	0.2180	0.200						0.2	8.61	20	

Sample ID: **U0701433-001ADUP** SampType: **DUP** TestCode: **353.2_WNO3** Units: **mg/L** Prep Date: RunNo: **22578**
Client ID: **ZZZZZ** Batch ID: **R22578** TestNo: **E353.2** Analysis Date: **1/25/2007** SeqNo: **410025**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Nitrate (as N)	0.2480	0.200						0.249	0.402	20	

Qualifiers:
E Value above quantitation range
ND Not Detected at the Reporting Limit
H Holding times for preparation or analysis exceeded
R RPD outside accepted recovery limits
J Analyte detected below quantitation limits
S Spike Recovery outside accepted recovery limits

CLIENT: Clough, Harbour & Assoc. LLP
Work Order: U0701392
Project: C/O Albany Interim Landfill New

ANALYTICAL QC SUMMARY REPORT

TestCode: 353.2_WNO3

Sample ID: **CCB1** SampType: **CCB** TestCode: **353.2_WNO3** Units: **mg/L** Prep Date: RunNo: **22575**
Client ID: **ZZZZZ** Batch ID: **R22575** TestNo: **E353.2** Analysis Date: **1/24/2007** SeqNo: **409898**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Nitrate (as N)	ND	0.200									

Sample ID: **CCB2** SampType: **CCB** TestCode: **353.2_WNO3** Units: **mg/L** Prep Date: RunNo: **22575**
Client ID: **ZZZZZ** Batch ID: **R22575** TestNo: **E353.2** Analysis Date: **1/24/2007** SeqNo: **409914**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Nitrate (as N)	ND	0.200									

Sample ID: **CCB3** SampType: **CCB** TestCode: **353.2_WNO3** Units: **mg/L** Prep Date: RunNo: **22575**
Client ID: **ZZZZZ** Batch ID: **R22575** TestNo: **E353.2** Analysis Date: **1/24/2007** SeqNo: **409973**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Nitrate (as N)	ND	0.200									

Sample ID: **CCB1** SampType: **CCB** TestCode: **353.2_WNO3** Units: **mg/L** Prep Date: RunNo: **22578**
Client ID: **ZZZZZ** Batch ID: **R22578** TestNo: **E353.2** Analysis Date: **1/25/2007** SeqNo: **409996**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Nitrate (as N)	ND	0.200									

Sample ID: **CCB2** SampType: **CCB** TestCode: **353.2_WNO3** Units: **mg/L** Prep Date: RunNo: **22578**
Client ID: **ZZZZZ** Batch ID: **R22578** TestNo: **E353.2** Analysis Date: **1/25/2007** SeqNo: **410011**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Nitrate (as N)	ND	0.200									

Qualifiers:

E	Value above quantitation range	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike Recovery outside accepted recovery limits

CLIENT: Clough, Harbour & Assoc. LLP
Work Order: U0701392
Project: C/O Albany Interim Landfill New

ANALYTICAL QC SUMMARY REPORT

TestCode: 353.2_WNO3

Sample ID: **CCB3** SampType: **CCB** TestCode: **353.2_WNO3** Units: **mg/L** Prep Date: RunNo: **22578**
Client ID: **ZZZZZ** Batch ID: **R22578** TestNo: **E353.2** Analysis Date: **1/25/2007** SeqNo: **410031**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Nitrate (as N)	ND	0.200									

Sample ID: **CCB4** SampType: **CCB** TestCode: **353.2_WNO3** Units: **mg/L** Prep Date: RunNo: **22578**
Client ID: **ZZZZZ** Batch ID: **R22578** TestNo: **E353.2** Analysis Date: **1/25/2007** SeqNo: **410040**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Nitrate (as N)	ND	0.200									

Sample ID: **CCV1** SampType: **CCV** TestCode: **353.2_WNO3** Units: **mg/L** Prep Date: RunNo: **22575**
Client ID: **ZZZZZ** Batch ID: **R22575** TestNo: **E353.2** Analysis Date: **1/24/2007** SeqNo: **409897**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Nitrate (as N)	4.060	0.200	4	0	102	90	110				

Sample ID: **CCV1** SampType: **CCV** TestCode: **353.2_WNO3** Units: **mg/L** Prep Date: RunNo: **22578**
Client ID: **ZZZZZ** Batch ID: **R22578** TestNo: **E353.2** Analysis Date: **1/25/2007** SeqNo: **409995**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Nitrate (as N)	3.710	0.200	4	0	92.8	90	110				

Sample ID: **ICB** SampType: **ICB** TestCode: **353.2_WNO3** Units: **mg/L** Prep Date: RunNo: **22575**
Client ID: **ZZZZZ** Batch ID: **R22575** TestNo: **E353.2** Analysis Date: **1/24/2007** SeqNo: **409882**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Nitrate (as N)	ND	0.200									

Qualifiers:

E	Value above quantitation range	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike Recovery outside accepted recovery limits

CLIENT: Clough, Harbour & Assoc. LLP
Work Order: U0701392
Project: C/O Albany Interim Landfill New

ANALYTICAL QC SUMMARY REPORT

TestCode: 353.2_WNO3

Sample ID: **ICB2** SampType: **ICB** TestCode: **353.2_WNO3** Units: **mg/L** Prep Date: RunNo: **22575**
Client ID: **ZZZZZ** Batch ID: **R22575** TestNo: **E353.2** Analysis Date: **1/24/2007** SeqNo: **409935**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Nitrate (as N)	ND	0.200									

Sample ID: **ICB** SampType: **ICB** TestCode: **353.2_WNO3** Units: **mg/L** Prep Date: RunNo: **22578**
Client ID: **ZZZZZ** Batch ID: **R22578** TestNo: **E353.2** Analysis Date: **1/25/2007** SeqNo: **409979**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Nitrate (as N)	ND	0.200									

Sample ID: **ICB2** SampType: **ICB** TestCode: **353.2_WNO3** Units: **mg/L** Prep Date: RunNo: **22578**
Client ID: **ZZZZZ** Batch ID: **R22578** TestNo: **E353.2** Analysis Date: **1/25/2007** SeqNo: **410015**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Nitrate (as N)	ND	0.200									

Sample ID: **ICV** SampType: **ICV** TestCode: **353.2_WNO3** Units: **mg/L** Prep Date: RunNo: **22575**
Client ID: **ZZZZZ** Batch ID: **R22575** TestNo: **E353.2** Analysis Date: **1/24/2007** SeqNo: **409881**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Nitrate (as N)	7.130	0.200	6.95	0	103	80	120				

Sample ID: **ICV2** SampType: **ICV** TestCode: **353.2_WNO3** Units: **mg/L** Prep Date: RunNo: **22575**
Client ID: **ZZZZZ** Batch ID: **R22575** TestNo: **E353.2** Analysis Date: **1/24/2007** SeqNo: **409928**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Nitrate (as N)	7.290	0.200	6.95	0	105	80	120				

Qualifiers:
E Value above quantitation range
ND Not Detected at the Reporting Limit
H Holding times for preparation or analysis exceeded
R RPD outside accepted recovery limits
J Analyte detected below quantitation limits
S Spike Recovery outside accepted recovery limits

CLIENT: Clough, Harbour & Assoc. LLP
Work Order: U0701392
Project: C/O Albany Interim Landfill New

ANALYTICAL QC SUMMARY REPORT

TestCode: 353.2_WNO3

Sample ID: ICV	SampType: ICV	TestCode: 353.2_WNO3	Units: mg/L	Prep Date:	RunNo: 22578
Client ID: ZZZZZ	Batch ID: R22578	TestNo: E353.2		Analysis Date: 1/25/2007	SeqNo: 409978

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Nitrate (as N)	7.190	0.200	6.95	0	103	80	120				

Sample ID: ICV2	SampType: ICV	TestCode: 353.2_WNO3	Units: mg/L	Prep Date:	RunNo: 22578
Client ID: ZZZZZ	Batch ID: R22578	TestNo: E353.2		Analysis Date: 1/25/2007	SeqNo: 410014

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Nitrate (as N)	6.660	0.200	6.95	0	95.8	80	120				

Qualifiers:

E	Value above quantitation range	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike Recovery outside accepted recovery limits

CLIENT: Clough, Harbour & Assoc. LLP
Work Order: U0701392
Project: C/O Albany Interim Landfill New

ANALYTICAL QC SUMMARY REPORT

TestCode: 375.4_W

Sample ID: **U0701392-005AMS** SampType: **MS** TestCode: **375.4_W** Units: **mg/L** Prep Date: RunNo: **22515**
Client ID: **MW-15-IB** Batch ID: **R22515** TestNo: **E375.4** Analysis Date: **2/1/2007** SeqNo: **408736**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	56.73	5.00	20	33.15	118	30	143				

Sample ID: **U0701392-005ADUP** SampType: **DUP** TestCode: **375.4_W** Units: **mg/L** Prep Date: RunNo: **22515**
Client ID: **MW-15-IB** Batch ID: **R22515** TestNo: **E375.4** Analysis Date: **2/1/2007** SeqNo: **408735**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	33.31	5.00						33.15	0.486	10	

Sample ID: **U0701338-009A** SampType: **DUP** TestCode: **375.4_W** Units: **mg/L** Prep Date: RunNo: **22567**
Client ID: **ZZZZZ** Batch ID: **R22567** TestNo: **E375.4** Analysis Date: **2/5/2007** SeqNo: **409672**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	89.99	10.0						91.5	1.66	10	

Sample ID: **CCB** SampType: **CCB** TestCode: **375.4_W** Units: **mg/L** Prep Date: RunNo: **22515**
Client ID: **ZZZZZ** Batch ID: **R22515** TestNo: **E375.4** Analysis Date: **2/1/2007** SeqNo: **408722**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	ND	5.00									

Sample ID: **CCB** SampType: **CCB** TestCode: **375.4_W** Units: **mg/L** Prep Date: RunNo: **22515**
Client ID: **ZZZZZ** Batch ID: **R22515** TestNo: **E375.4** Analysis Date: **2/1/2007** SeqNo: **408747**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	ND	5.00									

Qualifiers:
- E Value above quantitation range
- ND Not Detected at the Reporting Limit
- H Holding times for preparation or analysis exceeded
- R RPD outside accepted recovery limits
- J Analyte detected below quantitation limits
- S Spike Recovery outside accepted recovery limits

CLIENT: Clough, Harbour & Assoc. LLP
Work Order: U0701392
Project: C/O Albany Interim Landfill New

ANALYTICAL QC SUMMARY REPORT

TestCode: 375.4_W

Sample ID: **CCB** SampType: **CCB** TestCode: **375.4_W** Units: **mg/L** Prep Date: RunNo: **22567**
Client ID: **ZZZZZ** Batch ID: **R22567** TestNo: **E375.4** Analysis Date: **2/5/2007** SeqNo: **409648**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	ND	5.00									

Sample ID: **CCB** SampType: **CCB** TestCode: **375.4_W** Units: **mg/L** Prep Date: RunNo: **22567**
Client ID: **ZZZZZ** Batch ID: **R22567** TestNo: **E375.4** Analysis Date: **2/5/2007** SeqNo: **409685**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	ND	5.00									

Sample ID: **CCV** SampType: **CCV** TestCode: **375.4_W** Units: **mg/L** Prep Date: RunNo: **22515**
Client ID: **ZZZZZ** Batch ID: **R22515** TestNo: **E375.4** Analysis Date: **2/1/2007** SeqNo: **408723**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	53.39	5.00	50	0	107	90	110				

Sample ID: **CCV** SampType: **CCV** TestCode: **375.4_W** Units: **mg/L** Prep Date: RunNo: **22567**
Client ID: **ZZZZZ** Batch ID: **R22567** TestNo: **E375.4** Analysis Date: **2/5/2007** SeqNo: **409649**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	51.24	5.00	50	0	102	90	110				

Sample ID: **ICB** SampType: **ICB** TestCode: **375.4_W** Units: **mg/L** Prep Date: RunNo: **22515**
Client ID: **ZZZZZ** Batch ID: **R22515** TestNo: **E375.4** Analysis Date: **2/1/2007** SeqNo: **408724**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	ND	5.00									

Qualifiers:
- E Value above quantitation range
- ND Not Detected at the Reporting Limit
- H Holding times for preparation or analysis exceeded
- R RPD outside accepted recovery limits
- J Analyte detected below quantitation limits
- S Spike Recovery outside accepted recovery limits

CLIENT: Clough, Harbour & Assoc. LLP
Work Order: U0701392
Project: C/O Albany Interim Landfill New

ANALYTICAL QC SUMMARY REPORT

TestCode: 375.4_W

Sample ID: **ICB** SampType: **ICB** TestCode: **375.4_W** Units: **mg/L** Prep Date: RunNo: **22567**
Client ID: **ZZZZZ** Batch ID: **R22567** TestNo: **E375.4** Analysis Date: **2/5/2007** SeqNo: **409650**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	ND	5.00									

Sample ID: **ICV** SampType: **ICV** TestCode: **375.4_W** Units: **mg/L** Prep Date: RunNo: **22515**
Client ID: **ZZZZZ** Batch ID: **R22515** TestNo: **E375.4** Analysis Date: **2/1/2007** SeqNo: **408725**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	52.96	5.00	56.5	0	93.7	87	105				

Sample ID: **ICV** SampType: **ICV** TestCode: **375.4_W** Units: **mg/L** Prep Date: RunNo: **22567**
Client ID: **ZZZZZ** Batch ID: **R22567** TestNo: **E375.4** Analysis Date: **2/5/2007** SeqNo: **409651**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	54.15	5.00	56.5	0	95.8	87	105				

Qualifiers:
- E Value above quantitation range
- ND Not Detected at the Reporting Limit
- H Holding times for preparation or analysis exceeded
- R RPD outside accepted recovery limits
- J Analyte detected below quantitation limits
- S Spike Recovery outside accepted recovery limits

CLIENT: Clough, Harbour & Assoc. LLP
Work Order: U0701392
Project: C/O Albany Interim Landfill New

ANALYTICAL QC SUMMARY REPORT

TestCode: 376.2

Sample ID: U0701392-005GMS	SampType: MS	TestCode: 376.2	Units: mg/L	Prep Date:	RunNo: 22612
Client ID: MW-15-IB	Batch ID: R22612	TestNo: E376.2		Analysis Date: 1/26/2007	SeqNo: 410756

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfide	0.1771	0.100	0.192	0	92.3	22	168				

Sample ID: U0701392-005GDUP	SampType: DUP	TestCode: 376.2	Units: mg/L	Prep Date:	RunNo: 22612
Client ID: MW-15-IB	Batch ID: R22612	TestNo: E376.2		Analysis Date: 1/26/2007	SeqNo: 410755

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfide	ND	0.100						0	0	15	

Sample ID: CCB	SampType: CCB	TestCode: 376.2	Units: mg/L	Prep Date:	RunNo: 22612
Client ID: ZZZZZ	Batch ID: R22612	TestNo: E376.2		Analysis Date: 1/26/2007	SeqNo: 410760

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfide	ND	0.100									

Sample ID: CCB	SampType: CCB	TestCode: 376.2	Units: mg/L	Prep Date:	RunNo: 22612
Client ID: ZZZZZ	Batch ID: R22612	TestNo: E376.2		Analysis Date: 1/26/2007	SeqNo: 410768

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfide	ND	0.100									

Sample ID: CCV	SampType: CCV	TestCode: 376.2	Units: mg/L	Prep Date:	RunNo: 22612
Client ID: ZZZZZ	Batch ID: R22612	TestNo: E376.2		Analysis Date: 1/26/2007	SeqNo: 410759

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfide	1.018	0.100	0.961	0	106	90	110				

Qualifiers:

E	Value above quantitation range	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike Recovery outside accepted recovery limits

CLIENT: Clough, Harbour & Assoc. LLP
Work Order: U0701392
Project: C/O Albany Interim Landfill New

ANALYTICAL QC SUMMARY REPORT

TestCode: 376.2

Sample ID: CCV	SampType: CCV	TestCode: 376.2	Units: mg/L	Prep Date:	RunNo: 22612
Client ID: ZZZZZ	Batch ID: R22612	TestNo: E376.2		Analysis Date: 1/26/2007	SeqNo: 410767

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfide	0.4840	0.100	0.481	0	101	90	110				

Sample ID: ICB	SampType: ICB	TestCode: 376.2	Units: mg/L	Prep Date:	RunNo: 22612
Client ID: ZZZZZ	Batch ID: R22612	TestNo: E376.2		Analysis Date: 1/26/2007	SeqNo: 410746

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfide	ND	0.100									

Sample ID: ICV	SampType: ICV	TestCode: 376.2	Units: mg/L	Prep Date:	RunNo: 22612
Client ID: ZZZZZ	Batch ID: R22612	TestNo: E376.2		Analysis Date: 1/26/2007	SeqNo: 410745

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfide	1.223	0.100	1.06	0	115	67	119				

Qualifiers:

E	Value above quantitation range	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike Recovery outside accepted recovery limits

CLIENT: Clough, Harbour & Assoc. LLP
Work Order: U0701392
Project: C/O Albany Interim Landfill New

ANALYTICAL QC SUMMARY REPORT

TestCode: 405.1

Sample ID: **MB-R22447** SampType: **MBLK** TestCode: **405.1** Units: **mg/L** Prep Date: RunNo: **22447**
Client ID: **ZZZZZ** Batch ID: **R22447** TestNo: **E405.1** Analysis Date: **1/24/2007** SeqNo: **407656**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Biochemical Oxygen Demand	ND	4.00									

Sample ID: **MB-R22480** SampType: **MBLK** TestCode: **405.1** Units: **mg/L** Prep Date: RunNo: **22480**
Client ID: **ZZZZZ** Batch ID: **R22480** TestNo: **E405.1** Analysis Date: **1/26/2007** SeqNo: **408170**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Biochemical Oxygen Demand	ND	4.00									

Sample ID: **LCS-R22447** SampType: **LCS** TestCode: **405.1** Units: **mg/L** Prep Date: RunNo: **22447**
Client ID: **ZZZZZ** Batch ID: **R22447** TestNo: **E405.1** Analysis Date: **1/24/2007** SeqNo: **407657**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Biochemical Oxygen Demand	163.0	4.00	200	0	81.5	69.4	116				

Sample ID: **LCS-R22480** SampType: **LCS** TestCode: **405.1** Units: **mg/L** Prep Date: RunNo: **22480**
Client ID: **ZZZZZ** Batch ID: **R22480** TestNo: **E405.1** Analysis Date: **1/26/2007** SeqNo: **408171**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Biochemical Oxygen Demand	150.0	4.00	200	0	75.0	69.4	116				

Sample ID: **U0701392-005ADUP** SampType: **DUP** TestCode: **405.1** Units: **mg/L** Prep Date: RunNo: **22447**
Client ID: **MW-15-IB** Batch ID: **R22447** TestNo: **E405.1** Analysis Date: **1/24/2007** SeqNo: **407671**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Biochemical Oxygen Demand	4.000	4.00						5	22.2	20	R

Qualifiers:
E Value above quantitation range
ND Not Detected at the Reporting Limit
H Holding times for preparation or analysis exceeded
R RPD outside accepted recovery limits
J Analyte detected below quantitation limits
S Spike Recovery outside accepted recovery limits

CLIENT: Clough, Harbour & Assoc. LLP
Work Order: U0701392
Project: C/O Albany Interim Landfill New

ANALYTICAL QC SUMMARY REPORT

TestCode: 405.1

Sample ID: **U0701433-001ADUP** SampType: **DUP** TestCode: **405.1** Units: mg/L Prep Date: RunNo: **22480**
Client ID: **ZZZZZ** Batch ID: **R22480** TestNo: **E405.1** Analysis Date: **1/26/2007** SeqNo: **408183**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Biochemical Oxygen Demand	4.000	4.00						4	0	20	

Qualifiers:
E Value above quantitation range
ND Not Detected at the Reporting Limit
H Holding times for preparation or analysis exceeded
R RPD outside accepted recovery limits
J Analyte detected below quantitation limits
S Spike Recovery outside accepted recovery limits

CLIENT: Clough, Harbour & Assoc. LLP
Work Order: U0701392
Project: C/O Albany Interim Landfill New

ANALYTICAL QC SUMMARY REPORT

TestCode: 410.4

Sample ID: **LCS1** SampType: **LCS** TestCode: **410.4** Units: **mg/L** Prep Date: RunNo: **22782**
Client ID: **ZZZZZ** Batch ID: **R22782** TestNo: **E410.4** Analysis Date: **2/9/2007** SeqNo: **413202**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chemical Oxygen Demand	108.5	20.0	121	0	89.7	77	118				

Sample ID: **LCS2** SampType: **LCS** TestCode: **410.4** Units: **mg/L** Prep Date: RunNo: **22782**
Client ID: **ZZZZZ** Batch ID: **R22782** TestNo: **E410.4** Analysis Date: **2/9/2007** SeqNo: **413203**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chemical Oxygen Demand	100.2	20.0	121	0	82.8	77	118				

Sample ID: **U0701392-005CMS** SampType: **MS** TestCode: **410.4** Units: **mg/L** Prep Date: RunNo: **22782**
Client ID: **MW-15-IB** Batch ID: **R22782** TestNo: **E410.4** Analysis Date: **2/9/2007** SeqNo: **413224**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chemical Oxygen Demand	20.52	20.0	25	0	82.1	60	140				

Sample ID: **U0701338-009CDUP** SampType: **DUP** TestCode: **410.4** Units: **mg/L** Prep Date: RunNo: **22782**
Client ID: **ZZZZZ** Batch ID: **R22782** TestNo: **E410.4** Analysis Date: **2/9/2007** SeqNo: **413208**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chemical Oxygen Demand	ND	20.0						0	0	15	

Sample ID: **U0701339-001CDUP** SampType: **DUP** TestCode: **410.4** Units: **mg/L** Prep Date: RunNo: **22782**
Client ID: **ZZZZZ** Batch ID: **R22782** TestNo: **E410.4** Analysis Date: **2/9/2007** SeqNo: **413216**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chemical Oxygen Demand	ND	20 0						0	0	15	

Qualifiers:
E Value above quantitation range
ND Not Detected at the Reporting Limit
H Holding times for preparation or analysis exceeded
R RPD outside accepted recovery limits
J Analyte detected below quantitation limits
S Spike Recovery outside accepted recovery limits

CLIENT: Clough, Harbour & Assoc. LLP
Work Order: U0701392
Project: C/O Albany Interim Landfill New

ANALYTICAL QC SUMMARY REPORT

TestCode: 410.4

Sample ID: **U0701392-005CDUP** SampType: **DUP** TestCode: **410.4** Units: **mg/L** Prep Date: RunNo: **22782**
Client ID: **MW-15-IB** Batch ID: **R22782** TestNo: **E410.4** Analysis Date: **2/9/2007** SeqNo: **413223**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chemical Oxygen Demand	ND	20.0						0	0	15	

Sample ID: **CCB1** SampType: **CCB** TestCode: **410.4** Units: **mg/L** Prep Date: RunNo: **22782**
Client ID: **ZZZZZ** Batch ID: **R22782** TestNo: **E410.4** Analysis Date: **2/9/2007** SeqNo: **413192**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chemical Oxygen Demand	ND	20.0									

Sample ID: **CCB2** SampType: **CCB** TestCode: **410.4** Units: **mg/L** Prep Date: RunNo: **22782**
Client ID: **ZZZZZ** Batch ID: **R22782** TestNo: **E410.4** Analysis Date: **2/9/2007** SeqNo: **413193**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chemical Oxygen Demand	ND	20.0									

Sample ID: **CCB3** SampType: **CCB** TestCode: **410.4** Units: **mg/L** Prep Date: RunNo: **22782**
Client ID: **ZZZZZ** Batch ID: **R22782** TestNo: **E410.4** Analysis Date: **2/9/2007** SeqNo: **413233**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chemical Oxygen Demand	ND	20.0									

Sample ID: **CCV2** SampType: **CCV** TestCode: **410.4** Units: **mg/L** Prep Date: RunNo: **22782**
Client ID: **ZZZZZ** Batch ID: **R22782** TestNo: **E410.4** Analysis Date: **2/9/2007** SeqNo: **413195**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chemical Oxygen Demand	23.72	20.0	20	0	119	80	120				

Qualifiers:
- E Value above quantitation range
- ND Not Detected at the Reporting Limit
- H Holding times for preparation or analysis exceeded
- R RPD outside accepted recovery limits
- J Analyte detected below quantitation limits
- S Spike Recovery outside accepted recovery limits

CLIENT: Clough, Harbour & Assoc. LLP
Work Order: U0701392
Project: C/O Albany Interim Landfill New

ANALYTICAL QC SUMMARY REPORT

TestCode: 410.4

Sample ID: **ICB1** SampType: **ICB** TestCode: **410.4** Units: **mg/L** Prep Date: RunNo: **22782**
Client ID: **ZZZZZ** Batch ID: **R22782** TestNo: **E410.4** Analysis Date: **2/9/2007** SeqNo: **413196**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chemical Oxygen Demand	ND	20.0									

Sample ID: **ICB2** SampType: **ICB** TestCode: **410.4** Units: **mg/L** Prep Date: RunNo: **22782**
Client ID: **ZZZZZ** Batch ID: **R22782** TestNo: **E410.4** Analysis Date: **2/9/2007** SeqNo: **413197**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chemical Oxygen Demand	ND	20.0									

Sample ID: **ICV1** SampType: **ICV** TestCode: **410.4** Units: **mg/L** Prep Date: RunNo: **22782**
Client ID: **ZZZZZ** Batch ID: **R22782** TestNo: **E410.4** Analysis Date: **2/9/2007** SeqNo: **413199**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chemical Oxygen Demand	98.48	20.0	100	0	98.5	80	120				

Sample ID: **ICV2** SampType: **ICV** TestCode: **410.4** Units: **mg/L** Prep Date: RunNo: **22782**
Client ID: **ZZZZZ** Batch ID: **R22782** TestNo: **E410.4** Analysis Date: **2/9/2007** SeqNo: **413200**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chemical Oxygen Demand	93.28	20.0	100	0	93.3	80	120				

Qualifiers:
E Value above quantitation range
ND Not Detected at the Reporting Limit
H Holding times for preparation or analysis exceeded
R RPD outside accepted recovery limits
J Analyte detected below quantitation limits
S Spike Recovery outside accepted recovery limits

CLIENT: Clough, Harbour & Assoc. LLP
Work Order: U0701392
Project: C/O Albany Interim Landfill New

ANALYTICAL QC SUMMARY REPORT

TestCode: 415.1

Sample ID: **U0701392-005EMS** SampType: **MS** TestCode: **415.1** Units: **mg/L** Prep Date: RunNo: **22720**
Client ID: **MW-15-IB** Batch ID: **R22720** TestNo: **E415.1** Analysis Date: **2/9/2007** SeqNo: **412355**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Organic Carbon, Total	25.00	3.00	20	3	110	60	130				

Sample ID: **U0701392-005EDUP** SampType: **DUP** TestCode: **415.1** Units: **mg/L** Prep Date: RunNo: **22720**
Client ID: **MW-15-IB** Batch ID: **R22720** TestNo: **E415.1** Analysis Date: **2/9/2007** SeqNo: **412354**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Organic Carbon, Total	ND	3.00						3	0	15	

Sample ID: **U0701430-023FDUP** SampType: **DUP** TestCode: **415.1** Units: **mg/L** Prep Date: RunNo: **22720**
Client ID: **ZZZZZ** Batch ID: **R22720** TestNo: **E415.1** Analysis Date: **2/9/2007** SeqNo: **412370**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Organic Carbon, Total	4.000	3.00						4	0	15	

Sample ID: **CCB1** SampType: **CCB** TestCode: **415.1** Units: **mg/L** Prep Date: RunNo: **22720**
Client ID: **ZZZZZ** Batch ID: **R22720** TestNo: **E415.1** Analysis Date: **2/9/2007** SeqNo: **412332**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Organic Carbon, Total	ND	3.00									

Sample ID: **CCB2** SampType: **CCB** TestCode: **415.1** Units: **mg/L** Prep Date: RunNo: **22720**
Client ID: **ZZZZZ** Batch ID: **R22720** TestNo: **E415.1** Analysis Date: **2/9/2007** SeqNo: **412333**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Organic Carbon, Total	ND	3.00									

Qualifiers:

E	Value above quantitation range	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike Recovery outside accepted recovery limits

CLIENT: Clough, Harbour & Assoc. LLP
Work Order: U0701392
Project: C/O Albany Interim Landfill New

ANALYTICAL QC SUMMARY REPORT

TestCode: 415.1

Sample ID: **CCB3** SampType: **CCB** TestCode: **415.1** Units: **mg/L** Prep Date: RunNo: **22720**
Client ID: **ZZZZZ** Batch ID: **R22720** TestNo: **E415.1** Analysis Date: **2/9/2007** SeqNo: **412334**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Organic Carbon, Total	ND	3.00									

Sample ID: **CCB4** SampType: **CCB** TestCode: **415.1** Units: **mg/L** Prep Date: RunNo: **22720**
Client ID: **ZZZZZ** Batch ID: **R22720** TestNo: **E415.1** Analysis Date: **2/9/2007** SeqNo: **412335**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Organic Carbon, Total	ND	3.00									

Sample ID: **CCB5** SampType: **CCB** TestCode: **415.1** Units: **mg/L** Prep Date: RunNo: **22720**
Client ID: **ZZZZZ** Batch ID: **R22720** TestNo: **E415.1** Analysis Date: **2/9/2007** SeqNo: **412336**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Organic Carbon, Total	ND	3.00									

Sample ID: **CCV5** SampType: **CCV** TestCode: **415.1** Units: **mg/L** Prep Date: RunNo: **22720**
Client ID: **ZZZZZ** Batch ID: **R22720** TestNo: **E415.1** Analysis Date: **2/9/2007** SeqNo: **412341**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Organic Carbon, Total	85.21	3.00	80	0	107	90	110				

Sample ID: **ICB1** SampType: **ICB** TestCode: **415.1** Units: **mg/L** Prep Date: RunNo: **22720**
Client ID: **ZZZZZ** Batch ID: **R22720** TestNo: **E415.1** Analysis Date: **2/9/2007** SeqNo: **412342**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Organic Carbon, Total	ND	3.00									

Qualifiers:

E	Value above quantitation range	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike Recovery outside accepted recovery limits

CLIENT: Clough, Harbour & Assoc. LLP
Work Order: U0701392
Project: C/O Albany Interim Landfill New

ANALYTICAL QC SUMMARY REPORT

TestCode: 415.1

Sample ID: **ICB2** SampType: **ICB** TestCode: **415.1** Units: **mg/L** Prep Date: RunNo: **22720**
Client ID: **ZZZZZ** Batch ID: **R22720** TestNo: **E415.1** Analysis Date: **2/9/2007** SeqNo: **412343**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Organic Carbon, Total	ND	3.00									

Sample ID: **ICB3** SampType: **ICB** TestCode: **415.1** Units: **mg/L** Prep Date: RunNo: **22720**
Client ID: **ZZZZZ** Batch ID: **R22720** TestNo: **E415.1** Analysis Date: **2/9/2007** SeqNo: **412344**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Organic Carbon, Total	ND	3.00									

Sample ID: **ICV1** SampType: **ICV** TestCode: **415.1** Units: **mg/L** Prep Date: RunNo: **22720**
Client ID: **ZZZZZ** Batch ID: **R22720** TestNo: **E415.1** Analysis Date: **2/9/2007** SeqNo: **412345**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Organic Carbon, Total	40.94	3.00	49.1	0	83.4	85	115				S

Sample ID: **ICV2** SampType: **ICV** TestCode: **415.1** Units: **mg/L** Prep Date: RunNo: **22720**
Client ID: **ZZZZZ** Batch ID: **R22720** TestNo: **E415.1** Analysis Date: **2/9/2007** SeqNo: **412346**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Organic Carbon, Total	44.10	3.00	49.1	0	89.8	85	115				

Sample ID: **ICV3** SampType: **ICV** TestCode: **415.1** Units: **mg/L** Prep Date: RunNo: **22720**
Client ID: **ZZZZZ** Batch ID: **R22720** TestNo: **E415.1** Analysis Date: **2/9/2007** SeqNo: **412347**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Organic Carbon, Total	44.53	3.00	49.1	0	90.7	85	115				

Qualifiers:
E Value above quantitation range
ND Not Detected at the Reporting Limit
H Holding times for preparation or analysis exceeded
R RPD outside accepted recovery limits
J Analyte detected below quantitation limits
S Spike Recovery outside accepted recovery limits

CLIENT: Clough, Harbour & Assoc. LLP
Work Order: U0701392
Project: C/O Albany Interim Landfill New

ANALYTICAL QC SUMMARY REPORT

TestCode: 420.1

Sample ID: **9397-MBLK** SampType: **MBLK** TestCode: **420.1** Units: **mg/L** Prep Date: **1/30/2007** RunNo: **22690**
Client ID: **ZZZZZ** Batch ID: **9397** TestNo: **E420.1** **(E420.1)** Analysis Date: **1/31/2007** SeqNo: **411741**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Phenolics, Total Recoverable	ND	0.00500									

Sample ID: **MB-9422** SampType: **MBLK** TestCode: **420.1** Units: **mg/L** Prep Date: **2/4/2007** RunNo: **22709**
Client ID: **ZZZZZ** Batch ID: **9422** TestNo: **E420.1** **(E420.1)** Analysis Date: **2/5/2007** SeqNo: **412285**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Phenolics, Total Recoverable	ND	0.00500									

Sample ID: **9450-MBLK** SampType: **MBLK** TestCode: **420.1** Units: **mg/L** Prep Date: **2/12/2007** RunNo: **22767**
Client ID: **ZZZZZ** Batch ID: **9450** TestNo: **E420.1** **(E420.1)** Analysis Date: **2/13/2007** SeqNo: **412987**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Phenolics, Total Recoverable	ND	0.00500									

Sample ID: **9397-LCS** SampType: **LCS** TestCode: **420.1** Units: **mg/L** Prep Date: **1/30/2007** RunNo: **22690**
Client ID: **ZZZZZ** Batch ID: **9397** TestNo: **E420.1** **(E420.1)** Analysis Date: **1/31/2007** SeqNo: **411738**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Phenolics, Total Recoverable	0.1400	0.00500	0.171	0	81.9	41	130				

Sample ID: **LCS-9422** SampType: **LCS** TestCode: **420.1** Units: **mg/L** Prep Date: **2/4/2007** RunNo: **22709**
Client ID: **ZZZZZ** Batch ID: **9422** TestNo: **E420.1** **(E420.1)** Analysis Date: **2/5/2007** SeqNo: **412131**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Phenolics, Total Recoverable	0.1420	0.00500	0.171	0	83.0	41	130				

Qualifiers:
E Value above quantitation range
ND Not Detected at the Reporting Limit
H Holding times for preparation or analysis exceeded
R RPD outside accepted recovery limits
J Analyte detected below quantitation limits
S Spike Recovery outside accepted recovery limits

CLIENT: Clough, Harbour & Assoc. LLP
Work Order: U0701392
Project: C/O Albany Interim Landfill New

ANALYTICAL QC SUMMARY REPORT

TestCode: 420.1

Sample ID: **9450-LCS** SampType: **LCS** TestCode: **420.1** Units: **mg/L** Prep Date: **2/12/2007** RunNo: **22767**
Client ID: **ZZZZZ** Batch ID: **9450** TestNo: **E420.1** (E420.1) Analysis Date: **2/13/2007** SeqNo: **412992**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Phenolics, Total Recoverable	0.1430	0.00500	0.171	0	83.6	41	130				

Sample ID: **U0701392-005DMS** SampType: **MS** TestCode: **420.1** Units: **mg/L** Prep Date: **2/4/2007** RunNo: **22709**
Client ID: **MW-15-IB** Batch ID: **9422** TestNo: **E420.1** (E420.1) Analysis Date: **2/5/2007** SeqNo: **412135**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Phenolics, Total Recoverable	0.01930	0.00500	0.02	0	96.5	63	116				

Sample ID: **U0701339-001EDUP** SampType: **DUP** TestCode: **420.1** Units: **mg/L** Prep Date: **1/30/2007** RunNo: **22690**
Client ID: **ZZZZZ** Batch ID: **9397** TestNo: **E420.1** (E420.1) Analysis Date: **1/31/2007** SeqNo: **411809**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Phenolics, Total Recoverable	ND	0.00500						0	0	20	

Sample ID: **U0701392-005DDUP** SampType: **DUP** TestCode: **420.1** Units: **mg/L** Prep Date: **2/4/2007** RunNo: **22709**
Client ID: **MW-15-IB** Batch ID: **9422** TestNo: **E420.1** (E420.1) Analysis Date: **2/5/2007** SeqNo: **412134**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Phenolics, Total Recoverable	ND	0.00500						0	0	20	

Sample ID: **U0701430-023EDUP** SampType: **DUP** TestCode: **420.1** Units: **mg/L** Prep Date: **2/12/2007** RunNo: **22767**
Client ID: **ZZZZZ** Batch ID: **9450** TestNo: **E420.1** (E420.1) Analysis Date: **2/13/2007** SeqNo: **413005**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Phenolics, Total Recoverable	ND	0.00500						0	0	20	

Qualifiers:
E Value above quantitation range
ND Not Detected at the Reporting Limit
H Holding times for preparation or analysis exceeded
R RPD outside accepted recovery limits
J Analyte detected below quantitation limits
S Spike Recovery outside accepted recovery limits

CLIENT: Clough, Harbour & Assoc. LLP
Work Order: U0701392
Project: C/O Albany Interim Landfill New

ANALYTICAL QC SUMMARY REPORT

TestCode: 420.1

Sample ID: **CCB1** SampType: **CCB** TestCode: **420.1** Units: **mg/L** Prep Date: RunNo: **22690**
Client ID: **ZZZZZ** Batch ID: **R22690** TestNo: **E420.1** Analysis Date: **1/31/2007** SeqNo: **411711**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Phenolics, Total Recoverable	ND	0.00500									

Sample ID: **CCB2** SampType: **CCB** TestCode: **420.1** Units: **mg/L** Prep Date: RunNo: **22690**
Client ID: **ZZZZZ** Batch ID: **R22690** TestNo: **E420.1** Analysis Date: **1/31/2007** SeqNo: **411712**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Phenolics, Total Recoverable	ND	0.00500									

Sample ID: **CCB3** SampType: **CCB** TestCode: **420.1** Units: **mg/L** Prep Date: RunNo: **22690**
Client ID: **ZZZZZ** Batch ID: **R22690** TestNo: **E420.1** Analysis Date: **1/31/2007** SeqNo: **411713**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Phenolics, Total Recoverable	ND	0.00500									

Sample ID: **CCB4** SampType: **CCB** TestCode: **420.1** Units: **mg/L** Prep Date: RunNo: **22690**
Client ID: **ZZZZZ** Batch ID: **R22690** TestNo: **E420.1** Analysis Date: **1/31/2007** SeqNo: **411714**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Phenolics, Total Recoverable	ND	0.00500									

Sample ID: **CCB5** SampType: **CCB** TestCode: **420.1** Units: **mg/L** Prep Date: RunNo: **22690**
Client ID: **ZZZZZ** Batch ID: **R22690** TestNo: **E420.1** Analysis Date: **1/31/2007** SeqNo: **411715**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Phenolics, Total Recoverable	ND	0.00500									

Qualifiers:
- E Value above quantitation range
- ND Not Detected at the Reporting Limit
- H Holding times for preparation or analysis exceeded
- R RPD outside accepted recovery limits
- J Analyte detected below quantitation limits
- S Spike Recovery outside accepted recovery limits

CLIENT: Clough, Harbour & Assoc. LLP
Work Order: U0701392
Project: C/O Albany Interim Landfill New

ANALYTICAL QC SUMMARY REPORT

TestCode: 420.1

Sample ID: **CCB6** SampType: **CCB** TestCode: **420.1** Units: **mg/L** Prep Date: RunNo: **22690**
Client ID: **ZZZZZ** Batch ID: **R22690** TestNo: **E420.1** Analysis Date: **1/31/2007** SeqNo: **411716**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Phenolics, Total Recoverable	ND	0.00500									

Sample ID: **CCB7** SampType: **CCB** TestCode: **420.1** Units: **mg/L** Prep Date: RunNo: **22690**
Client ID: **ZZZZZ** Batch ID: **R22690** TestNo: **E420.1** Analysis Date: **1/31/2007** SeqNo: **411717**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Phenolics, Total Recoverable	ND	0.00500									

Sample ID: **CCB8** SampType: **CCB** TestCode: **420.1** Units: **mg/L** Prep Date: RunNo: **22690**
Client ID: **ZZZZZ** Batch ID: **R22690** TestNo: **E420.1** Analysis Date: **1/31/2007** SeqNo: **411718**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Phenolics, Total Recoverable	ND	0.00500									

Sample ID: **CCB** SampType: **CCB** TestCode: **420.1** Units: **mg/L** Prep Date: RunNo: **22709**
Client ID: **ZZZZZ** Batch ID: **R22709** TestNo: **E420.1** Analysis Date: **2/5/2007** SeqNo: **412127**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Phenolics, Total Recoverable	ND	0.00500									

Sample ID: **CCB1** SampType: **CCB** TestCode: **420.1** Units: **mg/L** Prep Date: RunNo: **22767**
Client ID: **ZZZZZ** Batch ID: **R22767** TestNo: **E420.1** Analysis Date: **2/13/2007** SeqNo: **412988**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Phenolics, Total Recoverable	ND	0.00500									

Qualifiers:
E Value above quantitation range
ND Not Detected at the Reporting Limit
H Holding times for preparation or analysis exceeded
R RPD outside accepted recovery limits
J Analyte detected below quantitation limits
S Spike Recovery outside accepted recovery limits

CLIENT: Clough, Harbour & Assoc. LLP
Work Order: U0701392
Project: C/O Albany Interim Landfill New

ANALYTICAL QC SUMMARY REPORT

TestCode: 420.1

Sample ID: **CCB2** SampType: **CCB** TestCode: **420.1** Units: **mg/L** Prep Date: RunNo: **22767**
Client ID: **ZZZZZ** Batch ID: **R22767** TestNo: **E420.1** Analysis Date: **2/13/2007** SeqNo: **412989**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Phenolics, Total Recoverable	ND	0.00500									

Sample ID: **CCV8** SampType: **CCV** TestCode: **420.1** Units: **mg/L** Prep Date: RunNo: **22690**
Client ID: **ZZZZZ** Batch ID: **R22690** TestNo: **E420.1** Analysis Date: **1/31/2007** SeqNo: **411726**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Phenolics, Total Recoverable	0.009460	0.00500	0.01	0	94.6	90	110				

Sample ID: **CCV** SampType: **CCV** TestCode: **420.1** Units: **mg/L** Prep Date: RunNo: **22709**
Client ID: **ZZZZZ** Batch ID: **R22709** TestNo: **E420.1** Analysis Date: **2/5/2007** SeqNo: **412128**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Phenolics, Total Recoverable	0.09780	0.00500	0.1	0	97.8	90	110				

Sample ID: **CCV2** SampType: **CCV** TestCode: **420.1** Units: **mg/L** Prep Date: RunNo: **22767**
Client ID: **ZZZZZ** Batch ID: **R22767** TestNo: **E420.1** Analysis Date: **2/13/2007** SeqNo: **412991**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Phenolics, Total Recoverable	ND	0.00500	0.01	0	0	90	110				S

Sample ID: **ICB1** SampType: **ICB** TestCode: **420.1** Units: **mg/L** Prep Date: RunNo: **22690**
Client ID: **ZZZZZ** Batch ID: **R22690** TestNo: **E420.1** Analysis Date: **1/31/2007** SeqNo: **411727**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Phenolics, Total Recoverable	ND	0.00500									

Qualifiers:
- E Value above quantitation range
- ND Not Detected at the Reporting Limit
- H Holding times for preparation or analysis exceeded
- R RPD outside accepted recovery limits
- J Analyte detected below quantitation limits
- S Spike Recovery outside accepted recovery limits

CLIENT: Clough, Harbour & Assoc. LLP
Work Order: U0701392
Project: C/O Albany Interim Landfill New

ANALYTICAL QC SUMMARY REPORT

TestCode: 420.1

Sample ID: **ICB2** SampType: **ICB** TestCode: **420.1** Units: **mg/L** Prep Date: RunNo: **22690**
Client ID: **ZZZZZ** Batch ID: **R22690** TestNo: **E420.1** Analysis Date: **1/31/2007** SeqNo: **411728**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Phenolics, Total Recoverable	ND	0.00500									

Sample ID: **ICB3** SampType: **ICB** TestCode: **420.1** Units: **mg/L** Prep Date: RunNo: **22690**
Client ID: **ZZZZZ** Batch ID: **R22690** TestNo: **E420.1** Analysis Date: **1/31/2007** SeqNo: **411729**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Phenolics, Total Recoverable	ND	0.00500									

Sample ID: **ICB4** SampType: **ICB** TestCode: **420.1** Units: **mg/L** Prep Date: RunNo: **22690**
Client ID: **ZZZZZ** Batch ID: **R22690** TestNo: **E420.1** Analysis Date: **1/31/2007** SeqNo: **411730**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Phenolics, Total Recoverable	ND	0.00500									

Sample ID: **ICB** SampType: **ICB** TestCode: **420.1** Units: **mg/L** Prep Date: RunNo: **22709**
Client ID: **ZZZZZ** Batch ID: **R22709** TestNo: **E420.1** Analysis Date: **2/5/2007** SeqNo: **412129**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Phenolics, Total Recoverable	ND	0.00500									

Sample ID: **ICV1** SampType: **ICV** TestCode: **420.1** Units: **mg/L** Prep Date: RunNo: **22690**
Client ID: **ZZZZZ** Batch ID: **R22690** TestNo: **E420.1** Analysis Date: **1/31/2007** SeqNo: **411731**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Phenolics, Total Recoverable	0.2000	0.00500	0.2	0	100	90	110				

Qualifiers:
E Value above quantitation range
ND Not Detected at the Reporting Limit
H Holding times for preparation or analysis exceeded
R RPD outside accepted recovery limits
J Analyte detected below quantitation limits
S Spike Recovery outside accepted recovery limits

CLIENT: Clough, Harbour & Assoc. LLP
Work Order: U0701392
Project: C/O Albany Interim Landfill New

ANALYTICAL QC SUMMARY REPORT

TestCode: 420.1

Sample ID: **ICV2** SampType: **ICV** TestCode: **420.1** Units: **mg/L** Prep Date: RunNo: **22690**
Client ID: **ZZZZZ** Batch ID: **R22690** TestNo: **E420.1** Analysis Date: **1/31/2007** SeqNo: **411732**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Phenolics, Total Recoverable	0.1990	0.00500	0.2	0	99.5	90	110				

Sample ID: **ICV3** SampType: **ICV** TestCode: **420.1** Units: **mg/L** Prep Date: RunNo: **22690**
Client ID: **ZZZZZ** Batch ID: **R22690** TestNo: **E420.1** Analysis Date: **1/31/2007** SeqNo: **411733**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Phenolics, Total Recoverable	0.2000	0.00500	0.2	0	100	90	110				

Sample ID: **ICV4** SampType: **ICV** TestCode: **420.1** Units: **mg/L** Prep Date: RunNo: **22690**
Client ID: **ZZZZZ** Batch ID: **R22690** TestNo: **E420.1** Analysis Date: **1/31/2007** SeqNo: **411734**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Phenolics, Total Recoverable	0.1980	0.00500	0.2	0	99.0	90	110				

Sample ID: **ICV** SampType: **ICV** TestCode: **420.1** Units: **mg/L** Prep Date: RunNo: **22709**
Client ID: **ZZZZZ** Batch ID: **R22709** TestNo: **E420.1** Analysis Date: **2/5/2007** SeqNo: **412130**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Phenolics, Total Recoverable	0.1990	0.00500	0.2	0	99.5	90	110				

Qualifiers:
E Value above quantitation range
ND Not Detected at the Reporting Limit
H Holding times for preparation or analysis exceeded
R RPD outside accepted recovery limits
J Analyte detected below quantitation limits
S Spike Recovery outside accepted recovery limits

CLIENT: Clough, Harbour & Assoc. LLP
Work Order: U0701392
Project: C/O Albany Interim Landfill New

ANALYTICAL QC SUMMARY REPORT

TestCode: CR6_W

Sample ID: **U0701392-005AMS** SampType: **MS** TestCode: **CR6_W** Units: **mg/L** Prep Date: RunNo: **22404**
Client ID: **MW-15-IB** Batch ID: **R22404** TestNo: **SM3500** Analysis Date: **1/24/2007** SeqNo: **407013**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent chromium	0.4719	0.010	0.5	0	94.4	75	125				

Sample ID: **U0701392-009AMS** SampType: **MS** TestCode: **Cr6_W** Units: **mg/L** Prep Date: RunNo: **22405**
Client ID: **MW-14SA** Batch ID: **R22405** TestNo: **SM3500** Analysis Date: **1/25/2007** SeqNo: **407046**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent chromium	0.4719	0.010	0.5	0	94.4	75	125				

Sample ID: **U0701392-005ADUP** SampType: **DUP** TestCode: **Cr6_W** Units: **mg/L** Prep Date: RunNo: **22404**
Client ID: **MW-15-IB** Batch ID: **R22404** TestNo: **SM3500** Analysis Date: **1/24/2007** SeqNo: **407012**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent chromium	ND	0.010						0	0	20	

Sample ID: **U0701392-009ADUP** SampType: **DUP** TestCode: **Cr6_W** Units: **mg/L** Prep Date: RunNo: **22405**
Client ID: **MW-14SA** Batch ID: **R22405** TestNo: **SM3500** Analysis Date: **1/25/2007** SeqNo: **407045**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent chromium	ND	0.010						0	0	20	

Sample ID: **CCB** SampType: **CCB** TestCode: **Cr6_W** Units: **mg/L** Prep Date: RunNo: **22404**
Client ID: **ZZZZZ** Batch ID: **R22404** TestNo: **SM3500** Analysis Date: **1/24/2007** SeqNo: **406993**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent chromium	ND	0.010									

Qualifiers:
- E Value above quantitation range
- ND Not Detected at the Reporting Limit
- H Holding times for preparation or analysis exceeded
- R RPD outside accepted recovery limits
- J Analyte detected below quantitation limits
- S Spike Recovery outside accepted recovery limits

CLIENT: Clough, Harbour & Assoc. LLP
Work Order: U0701392
Project: C/O Albany Interim Landfill New

ANALYTICAL QC SUMMARY REPORT

TestCode: CR6_W

Sample ID: **CCB** SampType: **CCB** TestCode: **Cr6_W** Units: **mg/L** Prep Date: RunNo: **22405**
Client ID: **ZZZZZ** Batch ID: **R22405** TestNo: **SM3500** Analysis Date: **1/25/2007** SeqNo: **407036**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent chromium	ND	0.010									

Sample ID: **CCV** SampType: **CCV** TestCode: **Cr6_W** Units: **mg/L** Prep Date: RunNo: **22404**
Client ID: **ZZZZZ** Batch ID: **R22404** TestNo: **SM3500** Analysis Date: **1/24/2007** SeqNo: **406995**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent chromium	0.4674	0.010	0.5	0	93.5	80	120				

Sample ID: **CCV** SampType: **CCV** TestCode: **Cr6_W** Units: **mg/L** Prep Date: RunNo: **22405**
Client ID: **ZZZZZ** Batch ID: **R22405** TestNo: **SM3500** Analysis Date: **1/25/2007** SeqNo: **407037**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent chromium	0.4674	0.010	0.5	0	93.5	80	120				

Sample ID: **ICB** SampType: **ICB** TestCode: **Cr6_W** Units: **mg/L** Prep Date: RunNo: **22404**
Client ID: **ZZZZZ** Batch ID: **R22404** TestNo: **SM3500** Analysis Date: **1/24/2007** SeqNo: **406997**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent chromium	ND	0.010									

Sample ID: **ICB** SampType: **ICB** TestCode: **Cr6_W** Units: **mg/L** Prep Date: RunNo: **22405**
Client ID: **ZZZZZ** Batch ID: **R22405** TestNo: **SM3500** Analysis Date: **1/25/2007** SeqNo: **407038**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent chromium	ND	0.010									

Qualifiers:

E	Value above quantitation range	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike Recovery outside accepted recovery limits

CLIENT: Clough, Harbour & Assoc. LLP
Work Order: U0701392
Project: C/O Albany Interim Landfill New

ANALYTICAL QC SUMMARY REPORT

TestCode: CR6_W

Sample ID: ICV	SampType: ICV	TestCode: Cr6_W	Units: mg/L	Prep Date:	RunNo: 22404
Client ID: ZZZZZ	Batch ID: R22404	TestNo: SM3500		Analysis Date: 1/24/2007	SeqNo: 406998

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent chromium	0.4461	0.010	0.487	0	91.6	80	120				

Sample ID: ICV	SampType: ICV	TestCode: Cr6_W	Units: mg/L	Prep Date:	RunNo: 22405
Client ID: ZZZZZ	Batch ID: R22405	TestNo: SM3500		Analysis Date: 1/25/2007	SeqNo: 407039

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent chromium	0.4461	0.010	0.487	0	91.6	80	120				

Qualifiers:

E	Value above quantitation range	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike Recovery outside accepted recovery limits

Chain of Custody

Upstate Laboratories, Inc.

Upstate Laboratories, Inc.

6034 Corporate Drive E. Syracuse New York 13057
(315) 437 0255 Fax 437 1209

Chain of Custody Record

Total 4 coolers

Client: CHA
Project #/ Project Name: C/O Albany Interim Landfill New
Client Contact: Keith Cowan
Phone #: 453-2899
Location (city/state) Address: ALBANY, NY

Sample ID	Date	Time	Matrix	GRAB OR COMP	ULI Internal Use Only	No. of Containers	1)	2)	3)	4)	5)	6)	7)	8)	9)	10)	Remarks
~~MW-14SA~~			GW	GRAB													NYS PART 360
~~MW-14SB~~			GW	GRAB													EXPANDED 1995
~~MW-14IA~~			GW	GRAB													ASP B
~~MW-14IB~~			GW	GRAB													
~~MW-14DA~~			GW	GRAB													
~~MW-14DB~~			GW	GRAB													
ULI TRIP BLANK	1/23/07	N/A	WATER	GRAB		1										X	
MW-15SA	1/23/07	12:35pm	GW	GRAB		13	x	x	x	x	x	x	x	x	x	x	
MW-15SB		12:45pm	GW	GRAB		13	x	x	x	x	x	x	x	x	x	x	
MW-15IA		3:00pm	GW	GRAB		13	x	x	x	x	x	x	x	x	x	x	
MW-15-IB		3:15pm	GW	GRAB		13	x	x	x	x	x	x	x	x	x	x	
MW-15DA		1:15pm	GW	GRAB		13	x	x	x	x	x	x	x	x	x	x	
MW-15DB		1:30pm	GW	GRAB		13	x	x	x	x	x	x	x	x	x	x	
MS/MSD		3:30pm	GW	GRAB		15	x	x	x	x	x	x	x	x	x	x	

Parameter and Method	Sample bottle: Type	Size	Preservative
1) NH3,TKN,COD	P	500ML	H2SO4
2) TOC	P	120ML	1:1HCL
3) TOTAL PHENOLS	AMBER	32OZ	H2SO4
4) ALKALINITY	G	8OZ	NONE
5) NO3,BOD5,TDS,SO4,CL,COLOR,TURB.,CR+6,BROMIDE	P	2000ML	NONE
6) T-AL,SB*,AS,BA,BE,CD,CA,CR,CO,CU,PB*,MG,MN,FE,HG,NI,K,	P	500ML	HNO3
7) SE,AG,NA,TL*,V,ZN,SN,B, + CALCULATED HARDNESS	P	500ML	HNO3
8) EPA EXPANDED LIST (8270,8081,8150)	G	32OZ	NONE
9) TOTAL CYANIDE, SULFIDE	P	1000ML	NAOH
1(EPA 8260 / **Dissolved Metals**	G	40ML	1:1 HCL

Sampled by (Print): James E Herrich, III
Company: CHA
Name of Courier: ~~CDL~~ Fed Ex

Relinquished by:(sign)	Date	Time	Received by: (sign)
J. E. Herrich, III	1/23/07	4:50pm	
Relinquished by:(sign)	Date	Time	Received by: (sign)
Relinquished by:(sign)	Date	Time	Received by: (sign)
Relinquished by:(sign)	Date	Time	Received by: (sign)
Relinquished by:(sign)	Date	Time	Rec'd for Lab by:
	1/24/07	0830	T Clump

Syracuse Rochester Buffalo **Albany** Binghamton Fair Lawn (NJ)

Upstate Laboratories, Inc.

Chain of Custody Record

6034 Corporate Drive E. Syracuse New York 13057
(315) 437 0255 Fax 437 1209

Client: CHA
Project #/ Project Name: C/O Albany Interim Landfill New
Client Contact: Keith Cowan
Phone #: 453-2899
Location (city/state) Address: ALBANY, NY

Sample ID	Date	Time	Matrix	GRAB OR COMP	ULI Internal Use Only	No. of Containers	1)	2)	3)	4)	5)	6)	7)	8)	9)	10)	Remarks
MW-14SA	1/24/07	10:15am	GW	GRAB		13	x	x	x	x	x	x	x	x	x	x	NYS PART 360
MW-14SB		10:30am	GW	GRAB		13	x	x	x	x	x	x	x	x	x	x	EXPANDED 1995
MW-14IA		3:00pm	GW	GRAB		13	x	x	x	x	x	x	x	x	x	x	ASP B
MW-14IB		3:15pm	GW	GRAB		13	x	x	x	x	x	x	x	x	x	x	
MW-14DA		12:00pm	GW	GRAB		13	x	x	x	x	x	x	x	x	x	x	
MW-14DB		12:15pm	GW	GRAB		13	x	x	x	x	x	x	x	x	x	x	
ULI TRIP BLANK		N/A	WATER	GRAB		1										X	
~~MW-15SA~~			GW	GRAB													
~~MW-15SB~~			GW	GRAB													
~~MW-15IA~~			GW	GRAB													
~~MW-15-IB~~			GW	GRAB													
~~MW-15DA~~			GW	GRAB													
~~MW-15DB~~			GW	GRAB													
~~MS/MSD~~			GW	GRAB													

Parameter and Method	Sample bottle: Type	Size	Preservative
1) NH3,TKN,COD	P	500ML	H2SO4
2) TOC	P	120ML	1:1HCL
3) TOTAL PHENOLS	AMBER	32OZ	H2SO4
4) ALKALINITY	G	8OZ	NONE
5) NO3,BOD5,TDS,SO4,CL,COLOR,TURB.,CR+6,BROMIDE	P	2000ML	NONE
6) T-AL,SB*,AS,BA,BE,CD,CA,CR,CO,CU,PB*,MG,MN,FE,HG,NI,K,	P	500ML	HNO3
7) SE,AG,NA,TL*,V,ZN,SN,B, + CALCULATED HARDNESS	P	500ML	HNO3
8) EPA EXPANDED LIST (8270,8081,8150)	G	32OZ	NONE
9) TOTAL CYANIDE, SULFIDE	P	1000ML	NAOH
10) EPA 8260 / **Dissolved Metals**	G	40ML	1:1 HCL

Sampled by (Print) James Herrick
Company: CHA
Name of Courier: CDL

Relinquished by: (sign)	Date	Time	Received by: (sign)
J. S. Herrick, III	1/24/07	4:10pm	
	1/24/07	5:00	
	1/25/07	1020	

Rec'd for Lab by:

Syracuse Rochester Buffalo **Albany** Binghamton Fair Lawn (NJ)

Upstate Laboratories, Inc.

Sample Receipt Checklist

Client Name CHA-ALBANY

Date and Time Receive 1/24/07

Work Order Number U0701392

Received by TC

Checklist completed by K. Crump 1/24/07 (Signature / Date)

Reviewed by _____ 1/24/07 (Initials / Date)

Matrix: Carrier name: FedEx

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shippping container/cooler?	Yes ☐	No ☐	Not Present ☑
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	3.0°C Yes ☑	No ☐	
Water - VOA vials have zero headspace?	No VOA vials submitted ☐	Yes ☑	No ☐
Water - pH acceptable upon receipt?	Yes ☑	No ☐	

Adjusted? _____ Checked by _____

Any No and/or NA (not applicable) response must be detailed in the comments section be

Client contacted _____ Date contacted: _____ Person contacted _____

Contacted by: _____ Regarding: _____

Comments: _____

Corrective Action _____

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KC

Upstate Laboratories, Inc.

Sample Receipt Checklist

Client Name CHA-ALBANY

Date and Time Receive ~~1/24/07~~ 1/25/07

Work Order Number U0701392

Received by TC

Checklist completed by K Crump (Signature) 1/25/07 (Date)

Reviewed by (Initials) 1/26/07 (Date)

Matrix:

Carrier name: FedEx

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shippping container/cooler?	Yes	No ☐	Not Present ☑
Custody seals intact on sample bottles?	Yes	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Water - VOA vials have zero headspace?	No VOA vials submitted 2.2°C	Yes ☑	No ☐
Water - pH acceptable upon receipt?	Yes ☑	No ☐	

Adjusted? _____ Checked by _____

Any No and/or NA (not applicable) response must be detailed in the comments section be

Client contacted _____ Date contacted: _____ Person contacted _____

Contacted by: _____ Regarding: _____

Comments: _____

Corrective Action _____

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Upstate Laboratories, Inc.
Internal Laboratory Sign–Out Log

SR–10–03 Revised 3/98

Project: C/O Albany
SDG No.:
ULI ID No.: U0701392

ULI Number or Range of ULI Numbers	Date/Time Sample(s) Taken	Purpose	S.Custodian Initials	Analyst Initials	Date/Time Sample(s) Returned	S.Custodian Initials	Analyst Initials
2->7A	1/24/07 11:35	Turb		NS	1/24/07 1:00pm		NS
9-14 A	1/25/07 3:00pm	Turb		NS	1/25/07 4:00pm		NS
2-7A	1/29/07 800	Color Cr+6		MG	1/29/07 300		MG
5A	1/29/07 1:35pm	TDS		NS	1/29/07 3:00pm		NS
2-14	1-29 5:30	SOV		BD	1-29 6pm		BD
2-14	1/30 8AM	Hg		[illegible]	1/30 12pm		[illegible]
2-7	1/30/07 845	~~Bu~~ CN		BY	1/30/07 4pm		BY
9-14	1/31/07 900pm	CN		BY	1/31/07 4pm		BY
5-1 9-14	1/31/07 12:00pm	TDS		NS	1/31/07 2:00pm		NS
2D	1/31/07 1200	420.1 WPR		SR	1/31/07 1400		SR
2-14C	2/2/07 800	TKN		MG	2/2/07 300		MG
2-7H 9-14H	2/2/07 900	ICP		KC			
1A, 2L-7L, 8A	2/3/07 1500	8260		MRN	2/3/07 1640		MRN
10-14A	2/5/07 9:00	SO4		NS	2/5/07 1pm		NS
9L-14L, 15A, 16A	2/5/07 1330	8260		MRN	2/5/07 1600		MRN
2-14G	1/26/07 10AM	S=		BY	1/26/07 5pm		T-330-
3-6E	2/6/07 935	420.1 WPR		SR	2/6/07 1400		SR
2-14	2/9/07	TOC		BS	2/9/07		BS
2-14	2/9/07	COD		BS	2/9/07		BS
2-14	2/9/07	Fecal		BS	2/9/07		BS

Upstate Laboratories, Inc.

6034 Corporate Drive
East Syracuse, New York 13057-1017

Sample Data Summary Package

Case Narrative, Summary of Test Results, Summary of QC Results, Chain of Custody Documentation and Field Data
Volume 1 of 4

SDG No. CHA-81

Project:

C/O Albany Interim Landfill
Albany, New York

Prepared for:

Clough, Harbour & Associates LLP
3 Winners Circle
P.O. Box 5269
Albany, New York 12205-5269

Samples Collected:

April 4, 2007
April 5, 2007

New York Lab Code 10170

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SAMPLE IDENTIFICATION AND
ANALYTICAL REQUIREMENT SUMMARY

Upstate Laboratories, Inc
6034 Corporate Drive
East Syracuse, New York 13057

Customer Sample Code	Laboratory Sample Code	Analytical Requirements					
		VOA GC/MS Method #	BNA GC/MS Method #	Pest PCBs Method #	Herb Method #	Metals	Wet Chemistry and Other
MW-14S	U0704115-001	8260	-	-	-	Baseline 1993	Baseline1993
MW-14I	U0704115-002	8260	-	-	-	Baseline 1993	Baseline1993
MW-14D	U0704115-003	8260	-	-	-	Baseline 1993	Baseline1993
CHA-2	U0704115-004	8260	-	-	-	Baseline 1993	Baseline1993
Holding Blank	U0704115-005	8260	-	-	-	-	-
MW-15S	U0704115-006	8260	-	-	-	Baseline 1993	Baseline1993
MW-15I	U0704115-007	8260	-	-	-	Baseline 1993	Baseline1993
MW-15I MS	U0704115-007MS	8260	-	-	-	Baseline 1993	Baseline1993
MW-15I MSD	U0704115-007MSD	8260	-	-	-	-	-
MW-15I Dupe	U0704115-007DP	-	-	-	-	Baseline 1993	Baseline1993
MW-15D	U0704115-008	8260	-	-	-	Baseline 1993 + Dissolved	Baseline1993
Trip Blank	U0704115-009	8260	-	-	-	-	-

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Narrative

1.0 Summary

This report presents the sample test results and quality control results for seven water sample locations for the City of Albany Interim Landfill Project, Albany, New York. The samples were analyzed for the parameters listed in Section 3.0, below.

This report is divided into two packages and four volumes. The Sample Data Summary Package (Volume 1) presents a summary of the test results and quality control data. This abbreviated format is useful to engineers and environmental scientists. The Sample Data Package (Volumes 2-4) is a comprehensive report containing instrument raw data. It is formatted for validation by an independent third party.

2.0 Chain of Custody

The samples were collected by Clough, Harbour & Associates personnel on April 4 and 5, 2007 and were then delivered to Upstate Laboratories, Inc., Syracuse, New York, via CD & L and Upstate personnel, respectively. The Chain of Custody documentation is copied in Volumes 1 & 2.

3.0 Methodology

The analyses were performed using test methods developed by the USEPA and reorganized by the NYSDEC in the Analytical Services Protocol (ASP). The specific method numbers are:

Parameter	Method	Reference
Volatile Organics	8260	(1)
Aluminum	200.7	(1)
Antimony	200.7	(1)
Arsenic	200.7	(1)
Barium	200.7	(1)
Beryllium	200.7	(1)
Boron	200.7	(1)
Cadmium	200.7	(1)
Calcium	200.7	(1)
Chromium	200.7	(1)
Cobalt	200.7	(1)
Copper	200.7	(1)
Iron	200.7	(1)
Lead	200.7	(1)
Magnesium	200.7	(1)
Manganese	200.7	(1)
Mercury	245.2	(1)
Nickel	200.7	(1)
Potassium	200.7	(1)
Selenium	200.7	(1)
Silver	200.7	(1)
Sodium	200.7	(1)
Thallium	200.7	(1)
Vanadium	200.7	(1)
Zinc	200.7	(1)
Total Alkalinity	310.2	(1)
Ammonia-Nitrogen	350.2	(1)
BOD	405.1	(1)
Chloride	325.2	(1)

The total number of pages in this Data Package is: 1124

COD	410.4	(1)
Color	110.2	(1)
Cyanide	335.2	(1)
Hexavalent Chromium	SM3500	(1)
Nitrate-Nitrogen	353.1	(1)
Phenols	420.1	(1)
Sulfate	375.4	(1)
TDS	160.1	(1)
TKN	351.3	(1)
TOC	415.1	(1)
Bromide	300.0	(1)

(1) New York State Department of Environmental Conservation Analytical Services Protocol (NYSDEC ASP), 10/95 Revision

4.0 Quality Control

Quality control data includes method blanks, reference samples, matrix spikes, matrix spike duplicates, duplicates, and surrogate recoveries. For wet chemistry, the association of QC data with sample data is made through the use of the "File No." found on both the final report pages and the QC summary pages.

5.0 Internal Validation

The following observations are offered:

Volatiles by GC/MS

Holding Time : Criteria were satisfied.

Calibration : The CC RRF values for Vinyl Acetate were outside QC acceptance limits for CC, lab files C17098.D and C17979.D. The CC %RSD values for Tetrachloroethene and Vinyl Acetate were outside QC acceptance limits for CC, lab files C17098.D, C17079.D and C17100.D. Several target compounds were manually integrated in the IC and CC. All other criteria were satisfied.

Method Blank : 2-Hexanone was detected above the PQL but below the CRDL in VBLK01. The detected concentration of 2-Hexanone in sample location MW-14S should be attributed to laboratory contamination. All other criteria were satisfied.

MSB : Criteria were satisfied.

MS/MSD : Criteria were satisfied.

Surrogates : Criteria were satisfied.

Internal Stds : Criteria were satisfied.

Trace Metals and Cyanide Data

Holding Time : Criteria were satisfied.

Calibration : The CCV1 and CCV2 %recovery for Thallium were slightly below QC acceptance limits. The CCV4 %recovery for Mercury was below QC acceptance limits. The initial CRDL Standard %recovery for Lead was greater than QC acceptance limits. All other criteria were satisfied.

Method Blanks : Selenium was detected above the PQL in CCB1 for R24568. All other criteria were satisfied.

Ref. Samples : The LCS %recovery for Antimony was greater than QC acceptance limits. All other criteria were satisfied.

Matrix Spikes	: The MS %recovery for Zinc was below QC acceptance limits. A Post Digestion Spike was analyzed for Zinc with a recovery within QC acceptance limits. All other criteria were satisfied.
Duplicates	: The Duplicate %RPD value for Zinc was outside QC acceptance limits. All other criteria were satisfied.

Wet Chemistry Data

Holding Time	: Criteria were satisfied.
Calibration	: The ICV %recovery for Bromide was outside QC acceptance limits due to equipment malfunction. All other criteria were satisfied.
Method Blanks	: Criteria were satisfied.
Ref. Samples	: Criteria were satisfied.
Matrix Spikes	: Criteria were satisfied.
Duplicates	: Criteria were satisfied.

I certify that this data package is in compliance with the terms and conditions of the Contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package and/or in the computer-readable data submitted on floppy diskette has been authorized by the Laboratory Manager or his designee, as verified by the following signature.

Approved Anthony J. Scala AS

Anthony J. Scala, Director

CHA81BALB.INT.doc

Sample Data

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW-14S

Lab Name: Upstate Labs Inc. Contract: CHA

Lab Code: 10170 Case No.: _____ SAS No.: _____ SDG No.: CHA81

Matrix: (soil/water) WATER Lab Sample ID: U0704115-001H

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: C17084.D

Level: (low/med) LOW Date Received: 4/5/07

% Moisture: not dec. _____ Date Analyzed: 4/10/07

GC Column: RTX-VO ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND (ug/L or ug/Kg)	UG/L	Q
74-87-3	Chloromethane	5	U
75-1-4	Vinyl Chloride	5	U
74-83-9	Bromomethane	5	U
75-00-3	Chloroethane	5	U
75-69-4	Trichlorofluoromethane	5	U
67-64-1	Acetone	10	U
75-35-4	1,1-Dichloroethene	5	U
74-88-4	Iodomethane	5	U
75-15-0	Carbon Disulfide	5	U
75-09-2	Methylene Chloride	5	U
107-13-1	Acrylonitrile	100	U R
156-60-5	trans-1,2-Dichloroethene	5	U
75-34-33	1,1-Dichloroethane	5	U
108-5-4	Vinyl Acetate	50	U
78-93-3	2-Butanone	10	U
156-59-2	cis-1,2-Dichloroethene	5	U
67-66-3	Chloroform	5	U
74-97-5	Bromochloromethane	5	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
71-43-2	Benzene	5	U
107-06-2	1,2-Dichloroethane	5	U
97-01-6	Trichloroethene	5	U
78-87-5	1,2-Dichloropropane	5	U
75-27-4	Bromodichloromethane	5	U
74-95-3	Dibromomethane	5	U
108-10-1	4-Methyl-2-pentanone	10	U
10061-1-5	cis-1,3-Dichloropropene	5	U
108-88-3	Toluene	5	U
10061-2-6	trans-1,3-Dichloropropene	5	U
79-00-5	1,1,2-Trichloroethane	5	U
591-78-6	2-Hexanone	5	~~JB~~ U
127-18-4	Tetrachloroethene	5	U
124-48-1	Dibromochloromethane	5	U
106-93-4	1,2-Dibromoethane	5	U
108-90-7	Chlorobenzene	5	U
630-20-6	1,1,1,2-Tetrachloroethane	5	U
100-41-4	Ethylbenzene	5	U
108-38-3	m,p-Xylene	5	U

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW-14S

Lab Name: Upstate Labs Inc. Contract: CHA

Lab Code: 10170 Case No.: SAS No.: SDG No.: CHA81

Matrix: (soil/water) WATER Lab Sample ID: U0704115-001H

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: C17084.D

Level: (low/med) LOW Date Received: 4/5/07

% Moisture: not dec. Date Analyzed: 4/10/07

GC Column: RTX-VO ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND	(ug/L or ug/Kg) UG/L	Q
95-47-6	o-Xylene	5	U
100-42-5	Styrene	5	U
75-25-2	Bromoform	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
96-18-4	1,2,3-Trichloropropane	5	U
110-57-6	1,4-Dichloro-2-butene	10	U
541-73-1	1,3-Dichlorobenzene	5	U
106-46-7	1,4-Dichlorobenzene	5	U
95-50-1	1,2-Dichlorobenzene	5	U
96-12-8	1,2-Dibromo-3-chloro-propane	10	U

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

MW-14S

Lab Name: Upstate Labs Inc. Contract: CHA

Lab Code: 10170 Case No.: _____ SAS No.: _____ SDG No.: CHA81

Matrix: (soil/water) WATER Lab Sample ID: U0704115-001H

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: C17084.D

Level: (low/med) LOW Date Received: 4/5/07

% Moisture: not dec. _____ Date Analyzed: 4/10/07

GC Column: RTX-VO ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

Number TICs found: 1

CAS NO.	COMPOUND NAME	RT	EST. CONC.	Q
1. 000123-38-6	Propanal	3.63	93	JN

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

CLIENT SAMP ID

MW-14S

Lab Name: Upstate Laboratories, Inc. Contract:

Lab Code: 10170 Case No. SAS No.: SDG No.: CHA81

Matrix (soil/water): WATER Lab Sample ID: U0704115-001

Level (low/med): LOW Date Received: 4/5/2007

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	1190			P
7440-36-0	Antimony	15.0	U		P
7440-38-2	Arsenic	10.0	U		P
7440-39-3	Barium	50.0	U		P
7440-41-7	Beryllium	3.0	U		P
7440-42-8	Boron	500	U		P
7440-43-9	Cadmium	5.0	U		P
7440-70-2	Calcium	39200			P
7440-47-3	Chromium	5.0	U		P
7440-48-4	Cobalt	20.0	U		P
7440-50-8	Copper	20.1	B		P
57-12-5	Cyanide	10.0	U		C
471-34-1	Hardness, T	129000			P
7439-89-6	Iron	7120			P
7439-92-1	Lead	3.0	U		P
7439-95-4	Magnesium	7650			P
7439-96-5	Manganese	323			P
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel	30.0	U		P
7440-09-7	Potassium	1000	U		P
7782-49-2	Selenium	5.0	U		P
7440-22-4	Silver	10.0	U		P
7440-23-5	Sodium	3680	B		P
7440-28-0	Thallium	14.4			P
7440-62-2	Vanadium	30.0	U		P
7440-66-6	Zinc	115		N* J	P

-10-

Color Before: YELLOW Clarity Before: CLOUDY Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts: YES

Comments:

Light Brown Sediment

Upstate Laboratories, Inc.

Date: *08-May-07*

CLIENT:	Clough, Harbour & Assoc. LLP	**Client Sample ID:**	MW-14S
Lab Order:	U0704115	**Collection Date:**	4/5/2007 8:20:00 AM
Project:	C/O Albany Interim Landfill		
Lab ID:	U0704115-001	**Matrix:**	GROUNDWATER

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
INORGANIC ANIONS BY IC FOR WATERS		E300.1				Analyst: **BY**
Bromide	ND	20	J	mg/L	100	5/1/2007
NOTES: The reporting limits were raised due to matrix interference.						
COLOR		E110.2				Analyst: **MAF**
Color	100	25.0		UNITS	5	4/5/2007
RESIDUE, DISSOLVED (TDS)		E160.1				Analyst: **MAF**
Residue, Dissolved (TDS)	440	25		mg/L	1	4/5/2007
ALKALINITY ON AQUEOUS SAMPLES BY LACHA		E310.2				Analyst: **SAR**
Alkalinity, Total (As CaCO3)	130	10		mg/LCaCO3	1	4/9/2007
CHLORIDE WATERS BY LACHAT		E325.2				Analyst: **SAR**
Chloride	6.86	1.00		mg/L	1	4/9/2007
NITROGEN, AMMONIA (AS NH3 BY LACHAT)		E350.1				Analyst: **BY**
Nitrogen, Ammonia (As NH3)	0.751	0.500		mg/L	1	4/26/2007
TKN FOR WATERS		E351.3				Analyst: **NJS**
Nitrogen, Kjeldahl, Total	1.47	0.500		mg/L	1	4/20/2007
NITROGEN, NITRATE (AS N)		E353.2				Analyst: **BY**
Nitrogen, Nitrate (as N)	ND	0.200		mg/L	1	4/5/2007 3:57:00 PM
SULFATE		E375.4				Analyst: **MAF**
Sulfate	9.82	5.00		mg/L	1	4/17/2007
BIOCHEMICAL OXYGEN DEMAND (5 DAY BOD)		E405.1				Analyst: **BS**
Biochemical Oxygen Demand	43	12		mg/L	1	4/5/2007 6:00:00 AM
CHEMICAL OXYGEN DEMAND (COD)		E410.4				Analyst: **NJS**
Chemical Oxygen Demand	180	100		mg/L	5	4/24/2007
TOTAL ORGANIC CARBON (TOC)		E415.1				Analyst: **NJS**
Organic Carbon, Total	33.8	3.0		mg/L	1	4/24/2007
PHENOLICS, TOTAL REC. FOR WATERS		E420.4		(E420.4)		Analyst: **SAR**
Phenolics, Total Recoverable	ND	0.005		mg/L	1	4/25/2007
HEXAVALENT CHROMIUM BY ASP 2005		SM3500				Analyst: **BS**
Hexavalent chromium	ND	0.010		mg/L	1	4/5/2007 4:30:00 PM

Approved By: _____ **Date:** _____

Qualifiers:

*	Low Level	**	Value exceeds Maximum Contaminant Value
B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	S	Spike Recovery outside accepted recovery limits

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW-14I

Lab Name: Upstate Labs Inc. Contract: CHA

Lab Code: 10170 Case No.: _____ SAS No.: _____ SDG No.: CHA81

Matrix: (soil/water) WATER Lab Sample ID: U0704115-002H

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: C17066.D

Level: (low/med) LOW Date Received: 4/5/07

% Moisture: not dec. _____ Date Analyzed: 4/9/07

GC Column: RTX-VO ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND (ug/L or ug/Kg)	UG/L	Q
74-87-3	Chloromethane	5	U
75-1-4	Vinyl Chloride	5	U
74-83-9	Bromomethane	5	U
75-00-3	Chloroethane	5	U
75-69-4	Trichlorofluoromethane	5	U
67-64-1	Acetone	10	U
75-35-4	1,1-Dichloroethene	5	U
74-88-4	Iodomethane	5	U
75-15-0	Carbon Disulfide	5	U
75-09-2	Methylene Chloride	5	U
107-13-1	Acrylonitrile	100	U R
156-60-5	trans-1,2-Dichloroethene	5	U
75-34-33	1,1-Dichloroethane	5	U
108-5-4	Vinyl Acetate	50	U
78-93-3	2-Butanone	10	U
156-59-2	cis-1,2-Dichloroethene	5	U
67-66-3	Chloroform	5	U
74-97-5	Bromochloromethane	5	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
71-43-2	Benzene	5	U
107-06-2	1,2-Dichloroethane	5	U
97-01-6	Trichloroethene	5	U
78-87-5	1,2-Dichloropropane	5	U
75-27-4	Bromodichloromethane	5	U
74-95-3	Dibromomethane	5	U
108-10-1	4-Methyl-2-pentanone	10	U
10061-1-5	cis-1,3-Dichloropropene	5	U
108-88-3	Toluene	5	U
10061-2-6	trans-1,3-Dichloropropene	5	U
79-00-5	1,1,2-Trichloroethane	5	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	5	U
124-48-1	Dibromochloromethane	5	U
106-93-4	1,2-Dibromoethane	5	U
108-90-7	Chlorobenzene	5	U
630-20-6	1,1,1,2-Tetrachloroethane	5	U
100-41-4	Ethylbenzene	5	U
108-38-3	m,p-Xylene	5	U

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW-14I

Lab Name: Upstate Labs Inc. Contract: CHA

Lab Code: 10170 Case No.: SAS No.: SDG No.: CHA81

Matrix: (soil/water) WATER Lab Sample ID: U0704115-002H

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: C17066.D

Level: (low/med) LOW Date Received: 4/5/07

% Moisture: not dec. Date Analyzed: 4/9/07

GC Column: RTX-VO ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND	(ug/L or ug/Kg) UG/L	Q
95-47-6	o-Xylene	5	U
100-42-5	Styrene	5	U
75-25-2	Bromoform	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
96-18-4	1,2,3-Trichloropropane	5	U
110-57-6	1,4-Dichloro-2-butene	10	U
541-73-1	1,3-Dichlorobenzene	5	U
106-46-7	1,4-Dichlorobenzene	5	U
95-50-1	1,2-Dichlorobenzene	5	U
96-12-8	1,2-Dibromo-3-chloro-propane	10	U

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

MW-14I

Lab Name: Upstate Labs Inc. Contract: CHA

Lab Code: 10170 Case No.: _____ SAS No.: _____ SDG No.: CHA81

Matrix: (soil/water) WATER Lab Sample ID: U0704115-002H

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: C17066.D

Level: (low/med) LOW Date Received: 4/5/07

% Moisture: not dec. _____ Date Analyzed: 4/9/07

GC Column: RTX-VO ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

Number TICs found: 0

CAS NO.	COMPOUND NAME	RT	EST. CONC.	Q

U.S. EPA - CLP

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INORGANIC ANALYSIS DATA SHEET

CLIENT SAMP ID

MW-14I

Lab Name: Upstate Laboratories, Inc. Contract:

Lab Code: 10170 Case No. SAS No.: SDG No.: CHA81

Matrix (soil/water): WATER Lab Sample ID: U0704115-002

Level (low/med): LOW Date Received: 4/5/2007

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	100	U		P
7440-36-0	Antimony	15.0	U		P
7440-38-2	Arsenic	10.0	U		P
7440-39-3	Barium	69.2	B		P
7440-41-7	Beryllium	3.0	U		P
7440-42-8	Boron	500	U		P
7440-43-9	Cadmium	5.0	U		P
7440-70-2	Calcium	64300			P
7440-47-3	Chromium	5.0	U		P
7440-48-4	Cobalt	20.0	U		P
7440-50-8	Copper	10.0	U		P
57-12-5	Cyanide	10.0	U		C
471-34-1	Hardness, T	197000			P
7439-89-6	Iron	535			P
7439-92-1	Lead	3.0	U		P
7439-95-4	Magnesium	8760			P
7439-96-5	Manganese	153			P
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel	30.0	U		P
7440-09-7	Potassium	1000	U		P
7782-49-2	Selenium	5.0	U		P
7440-22-4	Silver	10.0	U		P
7440-23-5	Sodium	4440	B		P
7440-28-0	Thallium	22.8			P
7440-62-2	Vanadium	30.0	U		P
7440-66-6	Zinc	66.5		N* J	P

-15-

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments:

Upstate Laboratories, Inc.

Date: *08-May-07*

CLIENT:	Clough, Harbour & Assoc. LLP	**Client Sample ID:**	MW-14I
Lab Order:	U0704115	**Collection Date:**	4/5/2007 9:40:00 AM
Project:	C/O Albany Interim Landfill		
Lab ID:	U0704115-002	**Matrix:**	GROUNDWATER

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
INORGANIC ANIONS BY IC FOR WATERS		**E300.1**				Analyst: **BY**
Bromide	ND J	0.20		mg/L	1	5/1/2007
COLOR		**E110.2**				Analyst: **MAF**
Color	8.00	5.00		UNITS	1	4/5/2007
RESIDUE, DISSOLVED (TDS)		**E160.1**				Analyst: **MAF**
Residue, Dissolved (TDS)	423	25		mg/L	1	4/5/2007
ALKALINITY ON AQUEOUS SAMPLES BY LACHA		**E310.2**				Analyst: **SAR**
Alkalinity, Total (As CaCO3)	130	10		mg/LCaCO3	1	4/9/2007
CHLORIDE WATERS BY LACHAT		**E325.2**				Analyst: **SAR**
Chloride	26.2	1.00		mg/L	1	4/9/2007
NITROGEN, AMMONIA (AS NH3 BY LACHAT)		**E350.1**				Analyst: **BY**
Nitrogen, Ammonia (As NH3)	ND	0.500		mg/L	1	4/26/2007
TKN FOR WATERS		**E351.3**				Analyst: **NJS**
Nitrogen, Kjeldahl, Total	1.47	0.500		mg/L	1	4/20/2007
NITROGEN, NITRATE (AS N)		**E353.2**				Analyst: **BY**
Nitrogen, Nitrate (as N)	ND	0.200		mg/L	1	4/5/2007 3:57:00 PM
SULFATE		**E375.4**				Analyst: **MAF**
Sulfate	52.6	5.00		mg/L	1	4/17/2007
BIOCHEMICAL OXYGEN DEMAND (5 DAY BOD)		**E405.1**				Analyst: **BS**
Biochemical Oxygen Demand	ND	4		mg/L	1	4/5/2007 6:00:00 AM
CHEMICAL OXYGEN DEMAND (COD)		**E410.4**				Analyst: **NJS**
Chemical Oxygen Demand	ND	20		mg/L	1	4/17/2007
TOTAL ORGANIC CARBON (TOC)		**E415.1**				Analyst: **NJS**
Organic Carbon, Total	ND	3.0		mg/L	1	4/24/2007
PHENOLICS, TOTAL REC. FOR WATERS		**E420.4**		**(E420.4)**		Analyst: **SAR**
Phenolics, Total Recoverable	ND	0.005		mg/L	1	4/25/2007
HEXAVALENT CHROMIUM BY ASP 2005		**SM3500**				Analyst: **BS**
Hexavalent chromium	ND	0.010		mg/L	1	4/5/2007 4:30:00 PM

Approved By: _____ **Date:** _____

Qualifiers:

*	Low Level	**	Value exceeds Maximum Contaminant Value
B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	S	Spike Recovery outside accepted recovery limits

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW-14D

Lab Name: Upstate Labs Inc. Contract: CHA

Lab Code: 10170 Case No.: _____ SAS No.: _____ SDG No.: CHA81

Matrix: (soil/water) WATER Lab Sample ID: U0704115-003H

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: C17067.D

Level: (low/med) LOW Date Received: 4/5/07

% Moisture: not dec. _____ Date Analyzed: 4/9/07

GC Column: RTX-VO ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND (ug/L or ug/Kg) UG/L		Q
74-87-3	Chloromethane	5	U
75-1-4	Vinyl Chloride	5	U
74-83-9	Bromomethane	5	U
75-00-3	Chloroethane	5	U
75-69-4	Trichlorofluoromethane	5	U
67-64-1	Acetone	10	U
75-35-4	1,1-Dichloroethene	5	U
74-88-4	Iodomethane	5	U
75-15-0	Carbon Disulfide	5	U
75-09-2	Methylene Chloride	5	U
107-13-1	Acrylonitrile	100	U R
156-60-5	trans-1,2-Dichloroethene	5	U
75-34-33	1,1-Dichloroethane	5	U
108-5-4	Vinyl Acetate	50	U
78-93-3	2-Butanone	10	U
156-59-2	cis-1,2-Dichloroethene	5	U
67-66-3	Chloroform	5	U
74-97-5	Bromochloromethane	5	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
71-43-2	Benzene	5	U
107-06-2	1,2-Dichloroethane	5	U
97-01-6	Trichloroethene	5	U
78-87-5	1,2-Dichloropropane	5	U
75-27-4	Bromodichloromethane	5	U
74-95-3	Dibromomethane	5	U
108-10-1	4-Methyl-2-pentanone	10	U
10061-1-5	cis-1,3-Dichloropropene	5	U
108-88-3	Toluene	5	U
10061-2-6	trans-1,3-Dichloropropene	5	U
79-00-5	1,1,2-Trichloroethane	5	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	5	U
124-48-1	Dibromochloromethane	5	U
106-93-4	1,2-Dibromoethane	5	U
108-90-7	Chlorobenzene	5	U
630-20-6	1,1,1,2-Tetrachloroethane	5	U
100-41-4	Ethylbenzene	5	U
108-38-3	m,p-Xylene	5	U

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW-14D

Lab Name: Upstate Labs Inc. Contract: CHA

Lab Code: 10170 Case No.: SAS No.: SDG No.: CHA81

Matrix: (soil/water) WATER Lab Sample ID: U0704115-003H

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: C17067.D

Level: (low/med) LOW Date Received: 4/5/07

% Moisture: not dec. Date Analyzed: 4/9/07

GC Column: RTX-VO ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND	(ug/L or ug/Kg) UG/L	Q
95-47-6	o-Xylene	5	U
100-42-5	Styrene	5	U
75-25-2	Bromoform	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
96-18-4	1,2,3-Trichloropropane	5	U
110-57-6	1,4-Dichloro-2-butene	10	U
541-73-1	1,3-Dichlorobenzene	5	U
106-46-7	1,4-Dichlorobenzene	5	U
95-50-1	1,2-Dichlorobenzene	5	U
96-12-8	1,2-Dibromo-3-chloro-propane	10	U

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

MW-14D

Lab Name: Upstate Labs Inc. Contract: CHA

Lab Code: 10170 Case No.: _____ SAS No.: _____ SDG No.: CHA81

Matrix: (soil/water) WATER Lab Sample ID: U0704115-003H

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: C17067.D

Level: (low/med) LOW Date Received: 4/5/07

% Moisture: not dec. _____ Date Analyzed: 4/9/07

GC Column: RTX-VO ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

Number TICs found: 0

CAS NO.	COMPOUND NAME	RT	EST. CONC.	Q

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

CLIENT SAMP ID

MW-14D

Lab Name: Upstate Laboratories, Inc. Contract:

Lab Code: 10170 Case No. SAS No.: SDG No.: CHA81

Matrix (soil/water): WATER Lab Sample ID: U0704115-003

Level (low/med): LOW Date Received: 4/5/2007

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	100	U		P
7440-36-0	Antimony	15.0	U		P
7440-38-2	Arsenic	10.0	U		P
7440-39-3	Barium	50.0	U		P
7440-41-7	Beryllium	3.0	U		P
7440-42-8	Boron	500	U		P
7440-43-9	Cadmium	5.0	U		P
7440-70-2	Calcium	20300			P
7440-47-3	Chromium	5.0	U		P
7440-48-4	Cobalt	20.0	U		P
7440-50-8	Copper	10.0	U		P
57-12-5	Cyanide	10.0	U		C
471-34-1	Hardness, T	66800			P
7439-89-6	Iron	149			P
7439-92-1	Lead	3.0	U		P
7439-95-4	Magnesium	3940	B		P
7439-96-5	Manganese	23.4			P
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel	30.0	U		P
7440-09-7	Potassium	1000	U		P
7782-49-2	Selenium	5.0	U		P
7440-22-4	Silver	10.0	U		P
7440-23-5	Sodium	16300			P
7440-28-0	Thallium	10.0	U		P
7440-62-2	Vanadium	30.0	U		P
7440-66-6	Zinc	57.2		N* J	P

-20-

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

Upstate Laboratories, Inc.

Date: *08-May-07*

CLIENT:	Clough, Harbour & Assoc. LLP	**Client Sample ID:**	MW-14D
Lab Order:	U0704115	**Collection Date:**	4/5/2007 11:40:00 AM
Project:	C/O Albany Interim Landfill		
Lab ID:	U0704115-003	**Matrix:**	GROUNDWATER

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
INORGANIC ANIONS BY IC FOR WATERS		**E300.1**				Analyst: **BY**
Bromide	ND J	0.20		mg/L	1	5/1/2007
COLOR		**E110.2**				Analyst: **MAF**
Color	7.00	5.00		UNITS	1	4/5/2007
RESIDUE, DISSOLVED (TDS)		**E160.1**				Analyst: **MAF**
Residue, Dissolved (TDS)	377	25		mg/L	1	4/5/2007
ALKALINITY ON AQUEOUS SAMPLES BY LACHA		**E310.2**				Analyst: **SAR**
Alkalinity, Total (As CaCO3)	110	10		mg/LCaCO3	1	4/9/2007
CHLORIDE WATERS BY LACHAT		**E325.2**				Analyst: **SAR**
Chloride	4.51	1.00		mg/L	1	4/9/2007
NITROGEN, AMMONIA (AS NH3 BY LACHAT)		**E350.1**				Analyst: **BY**
Nitrogen, Ammonia (As NH3)	ND	0.500		mg/L	1	4/26/2007
TKN FOR WATERS		**E351.3**				Analyst: **NJS**
Nitrogen, Kjeldahl, Total	2.86	0.500		mg/L	1	4/23/2007
NITROGEN, NITRATE (AS N)		**E353.2**				Analyst: **BY**
Nitrogen, Nitrate (as N)	ND	0.200		mg/L	1	4/5/2007 3:57:00 PM
SULFATE		**E375.4**				Analyst: **MAF**
Sulfate	ND	5.00		mg/L	1	4/17/2007
BIOCHEMICAL OXYGEN DEMAND (5 DAY BOD)		**E405.1**				Analyst: **BS**
Biochemical Oxygen Demand	ND	4		mg/L	1	4/5/2007 6:00:00 AM
CHEMICAL OXYGEN DEMAND (COD)		**E410.4**				Analyst: **NJS**
Chemical Oxygen Demand	ND	20		mg/L	1	4/17/2007
TOTAL ORGANIC CARBON (TOC)		**E415.1**				Analyst: **NJS**
Organic Carbon, Total	ND	3.0		mg/L	1	4/24/2007
PHENOLICS, TOTAL REC. FOR WATERS		**E420.4**		**(E420.4)**		Analyst: **SAR**
Phenolics, Total Recoverable	ND	0.005		mg/L	1	4/25/2007
HEXAVALENT CHROMIUM BY ASP 2005		**SM3500**				Analyst: **BS**
Hexavalent chromium	ND	0.010		mg/L	1	4/5/2007 4:30:00 PM

Approved By: _____ **Date:** _____

Qualifiers:

*	Low Level	**	Value exceeds Maximum Contaminant Value
B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	S	Spike Recovery outside accepted recovery limits

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

CHA-2

Lab Name: Upstate Labs Inc. Contract: CHA

Lab Code: 10170 Case No.: SAS No.: SDG No.: CHA81

Matrix: (soil/water) WATER Lab Sample ID: U0704115-004H

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: C17068.D

Level: (low/med) LOW Date Received: 4/5/07

% Moisture: not dec. Date Analyzed: 4/9/07

GC Column: RTX-VO ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND	(ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	5	U
75-1-4	Vinyl Chloride	5	U
74-83-9	Bromomethane	5	U
75-00-3	Chloroethane	5	U
75-69-4	Trichlorofluoromethane	5	U
67-64-1	Acetone	10	U
75-35-4	1,1-Dichloroethene	5	U
74-88-4	Iodomethane	5	U
75-15-0	Carbon Disulfide	5	U
75-09-2	Methylene Chloride	5	U
107-13-1	Acrylonitrile	100	U R
156-60-5	trans-1,2-Dichloroethene	5	U
75-34-33	1,1-Dichloroethane	5	U
108-5-4	Vinyl Acetate	50	U
78-93-3	2-Butanone	10	U
156-59-2	cis-1,2-Dichloroethene	5	U
67-66-3	Chloroform	5	U
74-97-5	Bromochloromethane	5	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
71-43-2	Benzene	5	U
107-06-2	1,2-Dichloroethane	5	U
97-01-6	Trichloroethene	5	U
78-87-5	1,2-Dichloropropane	5	U
75-27-4	Bromodichloromethane	5	U
74-95-3	Dibromomethane	5	U
108-10-1	4-Methyl-2-pentanone	10	U
10061-1-5	cis-1,3-Dichloropropene	5	U
108-88-3	Toluene	5	U
10061-2-6	trans-1,3-Dichloropropene	5	U
79-00-5	1,1,2-Trichloroethane	5	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	5	U
124-48-1	Dibromochloromethane	5	U
106-93-4	1,2-Dibromoethane	5	U
108-90-7	Chlorobenzene	5	U
630-20-6	1,1,1,2-Tetrachloroethane	5	U
100-41-4	Ethylbenzene	5	U
108-38-3	m,p-Xylene	5	U

1A

EPA SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

CHA-2

Lab Name: Upstate Labs Inc. Contract: CHA

Lab Code: 10170 Case No.: _____ SAS No.: _____ SDG No.: CHA81

Matrix: (soil/water) WATER Lab Sample ID: U0704115-004H

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: C17068.D

Level: (low/med) LOW Date Received: 4/5/07

% Moisture: not dec. _____ Date Analyzed: 4/9/07

GC Column: RTX-VO ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND (ug/L or ug/Kg)	UG/L	Q
95-47-6	o-Xylene	5	U
100-42-5	Styrene	5	U
75-25-2	Bromoform	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
96-18-4	1,2,3-Trichloropropane	5	U
110-57-6	1,4-Dichloro-2-butene	10	U
541-73-1	1,3-Dichlorobenzene	5	U
106-46-7	1,4-Dichlorobenzene	5	U
95-50-1	1,2-Dichlorobenzene	5	U
96-12-8	1,2-Dibromo-3-chloro-propane	10	U

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

CHA-2

Lab Name: Upstate Labs Inc. Contract: CHA

Lab Code: 10170 Case No.: _____ SAS No.: _____ SDG No.: CHA81

Matrix: (soil/water) WATER Lab Sample ID: U0704115-004H

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: C17068.D

Level: (low/med) LOW Date Received: 4/5/07

% Moisture: not dec. _____ Date Analyzed: 4/9/07

GC Column: RTX-VO ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

Number TICs found: 1

CAS NO.	COMPOUND NAME	RT	EST. CONC.	Q
1. 000123-38-6	Propanal	3.64	75	JN

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

CLIENT SAMP ID

CHA-2

Lab Name: Upstate Laboratories, Inc. Contract:

Lab Code: 10170 Case No. SAS No.: SDG No.: CHA81

Matrix (soil/water): WATER Lab Sample ID: U0704115-004

Level (low/med): LOW Date Received: 4/5/2007

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	1060			P
7440-36-0	Antimony	15.0	U		P
7440-38-2	Arsenic	10.0	U		P
7440-39-3	Barium	50.0	U		P
7440-41-7	Beryllium	3.0	U		P
7440-42-8	Boron	500	U		P
7440-43-9	Cadmium	5.0	U		P
7440-70-2	Calcium	39800			P
7440-47-3	Chromium	5.0	U		P
7440-48-4	Cobalt	20.0	U		P
7440-50-8	Copper	19.5	B		P
57-12-5	Cyanide	10.0	U		C
471-34-1	Hardness, T	132000			P
7439-89-6	Iron	7110			P
7439-92-1	Lead	3.0	U		P
7439-95-4	Magnesium	7830			P
7439-96-5	Manganese	331			P
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel	30.0	U		P
7440-09-7	Potassium	1000	U		P
7782-49-2	Selenium	5.0	U		P
7440-22-4	Silver	10.0	U		P
7440-23-5	Sodium	3650	B		P
7440-28-0	Thallium	15.9		J	P
7440-62-2	Vanadium	30.0	U		P
7440-66-6	Zinc	102		N* J	P

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Color Before: YELLOW Clarity Before: CLOUDY Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts: YES

Comments:

Light Brown Sediment

Upstate Laboratories, Inc.

Date: *08-May-07*

CLIENT:	Clough, Harbour & Assoc. LLP	**Client Sample ID:**	CHA-2
Lab Order:	U0704115	**Collection Date:**	4/5/2007 8:00:00 AM
Project:	C/O Albany Interim Landfill		
Lab ID:	U0704115-004	**Matrix:**	GROUNDWATER

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
INORGANIC ANIONS BY IC FOR WATERS		**E300.1**				Analyst: **BY**
Bromide	ND J	20		mg/L	100	5/1/2007
NOTES: The reporting limits were raised due to matrix interference.						
COLOR		**E110.2**				Analyst: **MAF**
Color	125	25.0		UNITS	5	4/5/2007
RESIDUE, DISSOLVED (TDS)		**E160.1**				Analyst: **MAF**
Residue, Dissolved (TDS)	265	25		mg/L	1	4/5/2007
ALKALINITY ON AQUEOUS SAMPLES BY LACHA		**E310.2**				Analyst: **SAR**
Alkalinity, Total (As CaCO3)	110	10		mg/LCaCO3	1	4/9/2007
CHLORIDE WATERS BY LACHAT		**E325.2**				Analyst: **SAR**
Chloride	4.81	1.00		mg/L	1	4/9/2007
NITROGEN, AMMONIA (AS NH3 BY LACHAT)		**E350.1**				Analyst: **BY**
Nitrogen, Ammonia (As NH3)	0.610	0.500		mg/L	1	4/26/2007
TKN FOR WATERS		**E351.3**				Analyst: **NJS**
Nitrogen, Kjeldahl, Total	2.06	0.500		mg/L	1	4/23/2007
NITROGEN, NITRATE (AS N)		**E353.2**				Analyst: **BY**
Nitrogen, Nitrate (as N)	ND	0.200		mg/L	1	4/5/2007 3:57:00 PM
SULFATE		**E375.4**				Analyst: **MAF**
Sulfate	9.21	5.00		mg/L	1	4/17/2007
BIOCHEMICAL OXYGEN DEMAND (5 DAY BOD)		**E405.1**				Analyst: **BS**
Biochemical Oxygen Demand	41	12		mg/L	1	4/5/2007 6:00:00 AM
CHEMICAL OXYGEN DEMAND (COD)		**E410.4**				Analyst: **NJS**
Chemical Oxygen Demand	94	20		mg/L	1	4/24/2007
TOTAL ORGANIC CARBON (TOC)		**E415.1**				Analyst: **NJS**
Organic Carbon, Total	44.6	3.0		mg/L	1	4/24/2007
PHENOLICS, TOTAL REC. FOR WATERS		**E420.4**		(E420.4)		Analyst: **SAR**
Phenolics, Total Recoverable	ND	0.005		mg/L	1	4/25/2007
HEXAVALENT CHROMIUM BY ASP 2005		**SM3500**				Analyst: **BS**
Hexavalent chromium	ND	0.010		mg/L	1	4/5/2007 4:30:00 PM

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Approved By: _____ **Date:** _____

Qualifiers:

*	Low Level	**	Value exceeds Maximum Contaminant Value
B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	S	Spike Recovery outside accepted recovery limits

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

Holding Blank

Lab Name: Upstate Labs Inc. Contract: CHA

Lab Code: 10170 Case No.: SAS No.: SDG No.: CHA81

Matrix: (soil/water) WATER Lab Sample ID: U0704115-005A

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: C17069.D

Level: (low/med) LOW Date Received: 4/5/07

% Moisture: not dec. Date Analyzed: 4/9/07

GC Column: RTX-VO ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND (ug/L or ug/Kg) UG/L		Q
74-87-3	Chloromethane	5	U
75-1-4	Vinyl Chloride	5	U
74-83-9	Bromomethane	5	U
75-00-3	Chloroethane	5	U
75-69-4	Trichlorofluoromethane	5	U
67-64-1	Acetone	10	U
75-35-4	1,1-Dichloroethene	5	U
74-88-4	Iodomethane	5	U
75-15-0	Carbon Disulfide	5	U
75-09-2	Methylene Chloride	5	U
107-13-1	Acrylonitrile	100	U R
156-60-5	trans-1,2-Dichloroethene	5	U
75-34-33	1,1-Dichloroethane	5	U
108-5-4	Vinyl Acetate	50	U
78-93-3	2-Butanone	10	U
156-59-2	cis-1,2-Dichloroethene	5	U
67-66-3	Chloroform	5	U
74-97-5	Bromochloromethane	5	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
71-43-2	Benzene	5	U
107-06-2	1,2-Dichloroethane	5	U
97-01-6	Trichloroethene	5	U
78-87-5	1,2-Dichloropropane	5	U
75-27-4	Bromodichloromethane	5	U
74-95-3	Dibromomethane	5	U
108-10-1	4-Methyl-2-pentanone	10	U
10061-1-5	cis-1,3-Dichloropropene	5	U
108-88-3	Toluene	5	U
10061-2-6	trans-1,3-Dichloropropene	5	U
79-00-5	1,1,2-Trichloroethane	5	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	5	U
124-48-1	Dibromochloromethane	5	U
106-93-4	1,2-Dibromoethane	5	U
108-90-7	Chlorobenzene	5	U
630-20-6	1,1,1,2-Tetrachloroethane	5	U
100-41-4	Ethylbenzene	5	U
108-38-3	m,p-Xylene	5	U

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

Holding Blank

Lab Name: Upstate Labs Inc. Contract: CHA

Lab Code: 10170 Case No.: _____ SAS No.: _____ SDG No.: CHA81

Matrix: (soil/water) WATER Lab Sample ID: U0704115-005A

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: C17069.D

Level: (low/med) LOW Date Received: 4/5/07

% Moisture: not dec. _____ Date Analyzed: 4/9/07

GC Column: RTX-VO ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND (ug/L or ug/Kg)	UG/L	Q
95-47-6	o-Xylene	5	U
100-42-5	Styrene	5	U
75-25-2	Bromoform	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
96-18-4	1,2,3-Trichloropropane	5	U
110-57-6	1,4-Dichloro-2-butene	10	U
541-73-1	1,3-Dichlorobenzene	5	U
106-46-7	1,4-Dichlorobenzene	5	U
95-50-1	1,2-Dichlorobenzene	5	U
96-12-8	1,2-Dibromo-3-chloro-propane	10	U

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

Holding Blank

Lab Name: Upstate Labs Inc. Contract: CHA

Lab Code: 10170 Case No.: _____ SAS No.: _____ SDG No.: CHA81

Matrix: (soil/water) WATER Lab Sample ID: U0704115-005A

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: C17069.D

Level: (low/med) LOW Date Received: 4/5/07

% Moisture: not dec. _____ Date Analyzed: 4/9/07

GC Column: RTX-VO ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

Number TICs found: 0

CAS NO.	COMPOUND NAME	RT	EST. CONC.	Q

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW-15S

Lab Name: Upstate Labs Inc. Contract: CHA

Lab Code: 10170 Case No.: SAS No.: SDG No.: CHA81

Matrix: (soil/water) WATER Lab Sample ID: U0704115-006H

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: C17104.D

Level: (low/med) LOW Date Received: 4/5/07

% Moisture: not dec. Date Analyzed: 4/11/07

GC Column: RTX-VO ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND	(ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	5	U
75-1-4	Vinyl Chloride	5	U
74-83-9	Bromomethane	5	U
75-00-3	Chloroethane	5	U
75-69-4	Trichlorofluoromethane	5	U
67-64-1	Acetone	10	U
75-35-4	1,1-Dichloroethene	5	U
74-88-4	Iodomethane	5	U
75-15-0	Carbon Disulfide	5	U
75-09-2	Methylene Chloride	5	U
107-13-1	Acrylonitrile	100	U R
156-60-5	trans-1,2-Dichloroethene	5	U
75-34-33	1,1-Dichloroethane	5	U
108-5-4	Vinyl Acetate	50	U
78-93-3	2-Butanone	10	U
156-59-2	cis-1,2-Dichloroethene	5	U
67-66-3	Chloroform	5	U
74-97-5	Bromochloromethane	5	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
71-43-2	Benzene	5	U
107-06-2	1,2-Dichloroethane	5	U
97-01-6	Trichloroethene	5	U
78-87-5	1,2-Dichloropropane	5	U
75-27-4	Bromodichloromethane	5	U
74-95-3	Dibromomethane	5	U
108-10-1	4-Methyl-2-pentanone	10	U
10061-1-5	cis-1,3-Dichloropropene	5	U
108-88-3	Toluene	5	U
10061-2-6	trans-1,3-Dichloropropene	5	U
79-00-5	1,1,2-Trichloroethane	5	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	5	U
124-48-1	Dibromochloromethane	5	U
106-93-4	1,2-Dibromoethane	5	U
108-90-7	Chlorobenzene	5	U
630-20-6	1,1,1,2-Tetrachloroethane	5	U
100-41-4	Ethylbenzene	5	U
108-38-3	m,p-Xylene	5	U

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW-15S

Lab Name: Upstate Labs Inc. Contract: CHA

Lab Code: 10170 Case No.: SAS No.: SDG No.: CHA81

Matrix: (soil/water) WATER Lab Sample ID: U0704115-006H

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: C17104.D

Level: (low/med) LOW Date Received: 4/5/07

% Moisture: not dec. Date Analyzed: 4/11/07

GC Column: RTX-VO ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND (ug/L or ug/Kg) UG/L		Q
95-47-6	o-Xylene	5	U
100-42-5	Styrene	5	U
75-25-2	Bromoform	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
96-18-4	1,2,3-Trichloropropane	5	U
110-57-6	1,4-Dichloro-2-butene	10	U
541-73-1	1,3-Dichlorobenzene	5	U
106-46-7	1,4-Dichlorobenzene	5	U
95-50-1	1,2-Dichlorobenzene	5	U
96-12-8	1,2-Dibromo-3-chloro-propane	10	U

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

MW-15S

Lab Name: Upstate Labs Inc. Contract: CHA

Lab Code: 10170 Case No.: _____ SAS No.: _____ SDG No.: CHA81

Matrix: (soil/water) WATER Lab Sample ID: U0704115-006H

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: C17104.D

Level: (low/med) LOW Date Received: 4/5/07

% Moisture: not dec. _____ Date Analyzed: 4/11/07

GC Column: RTX-VO ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

Number TICs found: 0

CAS NO.	COMPOUND NAME	RT	EST. CONC.	Q

U.S. EPA - CLP

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INORGANIC ANALYSIS DATA SHEET

CLIENT SAMP ID

MW-15S

Lab Name: Upstate Laboratories, Inc. Contract:

Lab Code: 10170 Case No. SAS No.: SDG No.: CHA81

Matrix (soil/water): WATER Lab Sample ID: U0704115-006

Level (low/med): LOW Date Received: 4/5/2007

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	292			P
7440-36-0	Antimony	15.0	U		P
7440-38-2	Arsenic	10.0	U		P
7440-39-3	Barium	63.6	B		P
7440-41-7	Beryllium	3.0	U		P
7440-42-8	Boron	500	U		P
7440-43-9	Cadmium	5.0	U		P
7440-70-2	Calcium	55900			P
7440-47-3	Chromium	5.0	U		P
7440-48-4	Cobalt	20.0	U		P
7440-50-8	Copper	10.0	U		P
57-12-5	Cyanide	10.0	U		C
471-34-1	Hardness, T	195000			P
7439-89-6	Iron	9590			P
7439-92-1	Lead	3.0	U		P
7439-95-4	Magnesium	13400			P
7439-96-5	Manganese	658			P
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel	30.0	U		P
7440-09-7	Potassium	3290	B		P
7782-49-2	Selenium	5.8			P
7440-22-4	Silver	10.0	U		P
7440-23-5	Sodium	36500			P
7440-28-0	Thallium	18.0		J	P
7440-62-2	Vanadium	30.0	U		P
7440-66-6	Zinc	56.1		N* J	P

Color Before: YELLOW Clarity Before: CLOUDY Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts: YES

Comments:

Light Brown Sediment

Upstate Laboratories, Inc.

Date: *08-May-07*

CLIENT:	Clough, Harbour & Assoc. LLP	**Client Sample ID:**	MW-15S
Lab Order:	U0704115	**Collection Date:**	4/4/2007 10:00:00 AM
Project:	C/O Albany Interim Landfill		
Lab ID:	U0704115-006	**Matrix:**	GROUNDWATER

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
INORGANIC ANIONS BY IC FOR WATERS		**E300.1**				Analyst: **BY**
Bromide	ND J	20		mg/L	100	5/1/2007
NOTES: The reporting limits were raised due to matrix interference.						
COLOR		**E110.2**				Analyst: **MAF**
Color	125	25.0		UNITS	5	4/5/2007
RESIDUE, DISSOLVED (TDS)		**E160.1**				Analyst: **MAF**
Residue, Dissolved (TDS)	680 J	25		mg/L	1	4/10/2007
ALKALINITY ON AQUEOUS SAMPLES BY LACHA		**E310.2**				Analyst: **SAR**
Alkalinity, Total (As CaCO3)	150	10		mg/LCaCO3	1	4/9/2007
CHLORIDE WATERS BY LACHAT		**E325.2**				Analyst: **SAR**
Chloride	50.2	1.00		mg/L	1	4/9/2007
NITROGEN, AMMONIA (AS NH3 BY LACHAT)		**E350.1**				Analyst: **BY**
Nitrogen, Ammonia (As NH3)	2.15	0.500		mg/L	1	4/26/2007
TKN FOR WATERS		**E351.3**				Analyst: **NJS**
Nitrogen, Kjeldahl, Total	3.60	0.500		mg/L	1	4/23/2007
NITROGEN, NITRATE (AS N)		**E353.2**				Analyst: **BY**
Nitrogen, Nitrate (as N)	ND	0.200		mg/L	1	4/5/2007 3:57:00 PM
SULFATE		**E375.4**				Analyst: **MAF**
Sulfate	35.5	5.00		mg/L	1	4/17/2007
BIOCHEMICAL OXYGEN DEMAND (5 DAY BOD)		**E405.1**				Analyst: **BS**
Biochemical Oxygen Demand	4	4		mg/L	1	4/5/2007 6:00:00 AM
CHEMICAL OXYGEN DEMAND (COD)		**E410.4**				Analyst: **NJS**
Chemical Oxygen Demand	31	20		mg/L	1	4/24/2007
TOTAL ORGANIC CARBON (TOC)		**E415.1**				Analyst: **NJS**
Organic Carbon, Total	7.1	3.0		mg/L	1	4/24/2007
PHENOLICS, TOTAL REC. FOR WATERS		**E420.4**		**(E420.4)**		Analyst: **SAR**
Phenolics, Total Recoverable	ND	0.005		mg/L	1	4/25/2007
HEXAVALENT CHROMIUM BY ASP 2005		**SM3500**				Analyst: **BS**
Hexavalent chromium	ND	0.010		mg/L	1	4/5/2007 4:30:00 PM

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Approved By: _____ **Date:** _____

Qualifiers:

*	Low Level	**	Value exceeds Maximum Contaminant Value
B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	S	Spike Recovery outside accepted recovery limits

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW-15I

Lab Name: Upstate Labs Inc. Contract: CHA

Lab Code: 10170 Case No.: _____ SAS No.: _____ SDG No.: CHA81

Matrix: (soil/water) WATER Lab Sample ID: U0704115-007H

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: C17105.D

Level: (low/med) LOW Date Received: 4/5/07

% Moisture: not dec. _____ Date Analyzed: 4/11/07

GC Column: RTX-VO ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND (ug/L or ug/Kg)	UG/L	Q
74-87-3	Chloromethane	5	U
75-1-4	Vinyl Chloride	5	U
74-83-9	Bromomethane	5	U
75-00-3	Chloroethane	5	U
75-69-4	Trichlorofluoromethane	5	U
67-64-1	Acetone	10	U
75-35-4	1,1-Dichloroethene	5	U
74-88-4	Iodomethane	5	U
75-15-0	Carbon Disulfide	5	U
75-09-2	Methylene Chloride	5	U
107-13-1	Acrylonitrile	100	U R
156-60-5	trans-1,2-Dichloroethene	5	U
75-34-33	1,1-Dichloroethane	5	U
108-5-4	Vinyl Acetate	50	U
78-93-3	2-Butanone	10	U
156-59-2	cis-1,2-Dichloroethene	5	U
67-66-3	Chloroform	5	U
74-97-5	Bromochloromethane	5	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
71-43-2	Benzene	5	U
107-06-2	1,2-Dichloroethane	5	U
97-01-6	Trichloroethene	5	U
78-87-5	1,2-Dichloropropane	5	U
75-27-4	Bromodichloromethane	5	U
74-95-3	Dibromomethane	5	U
108-10-1	4-Methyl-2-pentanone	10	U
10061-1-5	cis-1,3-Dichloropropene	5	U
108-88-3	Toluene	5	U
10061-2-6	trans-1,3-Dichloropropene	5	U
79-00-5	1,1,2-Trichloroethane	5	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	5	U
124-48-1	Dibromochloromethane	5	U
106-93-4	1,2-Dibromoethane	5	U
108-90-7	Chlorobenzene	5	U
630-20-6	1,1,1,2-Tetrachloroethane	5	U
100-41-4	Ethylbenzene	5	U
108-38-3	m,p-Xylene	5	U

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW-15I

Lab Name: Upstate Labs Inc. Contract: CHA

Lab Code: 10170 Case No.: SAS No.: SDG No.: CHA81

Matrix: (soil/water) WATER Lab Sample ID: U0704115-007H

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: C17105.D

Level: (low/med) LOW Date Received: 4/5/07

% Moisture: not dec. Date Analyzed: 4/11/07

GC Column: RTX-VO ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND	(ug/L or ug/Kg) UG/L	Q
95-47-6	o-Xylene	5	U
100-42-5	Styrene	5	U
75-25-2	Bromoform	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
96-18-4	1,2,3-Trichloropropane	5	U
110-57-6	1,4-Dichloro-2-butene	10	U
541-73-1	1,3-Dichlorobenzene	5	U
106-46-7	1,4-Dichlorobenzene	5	U
95-50-1	1,2-Dichlorobenzene	5	U
96-12-8	1,2-Dibromo-3-chloro-propane	10	U

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

MW-15I

Lab Name: Upstate Labs Inc. Contract: CHA

Lab Code: 10170 Case No.: _____ SAS No.: _____ SDG No.: CHA81

Matrix: (soil/water) WATER Lab Sample ID: U0704115-007H

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: C17105.D

Level: (low/med) LOW Date Received: 4/5/07

% Moisture: not dec. _____ Date Analyzed: 4/11/07

GC Column: RTX-VO ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

Number TICs found: 0

CAS NO.	COMPOUND NAME	RT	EST. CONC.	Q

U.S. EPA - CLP

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INORGANIC ANALYSIS DATA SHEET

CLIENT SAMP ID

MW-15I

Lab Name: Upstate Laboratories, Inc. Contract:

Lab Code: 10170 Case No. SAS No.: SDG No.: CHA81

Matrix (soil/water): WATER Lab Sample ID: U0704115-007

Level (low/med): LOW Date Received: 4/5/2007

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	207			P
7440-36-0	Antimony	15.0	U		P
7440-38-2	Arsenic	10.0	U		P
7440-39-3	Barium	126	B		P
7440-41-7	Beryllium	3.0	U		P
7440-42-8	Boron	500	U		P
7440-43-9	Cadmium	5.0	U		P
7440-70-2	Calcium	64500			P
7440-47-3	Chromium	5.0	U		P
7440-48-4	Cobalt	20.0	U		P
7440-50-8	Copper	10.0	U		P
57-12-5	Cyanide	10.0	U		C
471-34-1	Hardness, T	197000			P
7439-89-6	Iron	1070			P
7439-92-1	Lead	3.0	U		P
7439-95-4	Magnesium	8820			P
7439-96-5	Manganese	187			P
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel	30.0	U		P
7440-09-7	Potassium	1000	U		P
7782-49-2	Selenium	5.0	U		P
7440-22-4	Silver	10.0	U		P
7440-23-5	Sodium	9440			P
7440-28-0	Thallium	22.7		J	P
7440-62-2	Vanadium	30.0	U		P
7440-66-6	Zinc	231		N* J	P

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

Upstate Laboratories, Inc.

Date: *08-May-07*

CLIENT:	Clough, Harbour & Assoc. LLP	**Client Sample ID:**	MW-15I
Lab Order:	U0704115	**Collection Date:**	4/4/2007 12:00:00 PM
Project:	C/O Albany Interim Landfill		
Lab ID:	U0704115-007	**Matrix:**	GROUNDWATER

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
INORGANIC ANIONS BY IC FOR WATERS		**E300.1**				Analyst: **BY**
Bromide	ND J	0.20		mg/L	1	5/1/2007
COLOR		**E110.2**				Analyst: **MAF**
Color	10.0	5.00		UNITS	1	4/5/2007
RESIDUE, DISSOLVED (TDS)		**E160.1**				Analyst: **MAF**
Residue, Dissolved (TDS)	387 J	25		mg/L	1	4/10/2007
ALKALINITY ON AQUEOUS SAMPLES BY LACHA		**E310.2**				Analyst: **SAR**
Alkalinity, Total (As CaCO3)	140	10		mg/LCaCO3	1	4/9/2007
CHLORIDE WATERS BY LACHAT		**E325.2**				Analyst: **SAR**
Chloride	29.9	1.00		mg/L	1	4/9/2007
NITROGEN, AMMONIA (AS NH3 BY LACHAT)		**E350.1**				Analyst: **BY**
Nitrogen, Ammonia (As NH3)	ND	0.500		mg/L	1	4/26/2007
TKN FOR WATERS		**E351.3**				Analyst: **NJS**
Nitrogen, Kjeldahl, Total	1.76	0.500		mg/L	1	4/23/2007
NITROGEN, NITRATE (AS N)		**E353.2**				Analyst: **BY**
Nitrogen, Nitrate (as N)	ND	0.200		mg/L	1	4/5/2007 3:57:00 PM
SULFATE		**E375.4**				Analyst: **MAF**
Sulfate	39.4	5.00		mg/L	1	4/17/2007
BIOCHEMICAL OXYGEN DEMAND (5 DAY BOD)		**E405.1**				Analyst: **BS**
Biochemical Oxygen Demand	7	4		mg/L	1	4/5/2007 6:00:00 AM
CHEMICAL OXYGEN DEMAND (COD)		**E410.4**				Analyst: **NJS**
Chemical Oxygen Demand	ND	20		mg/L	1	4/24/2007
TOTAL ORGANIC CARBON (TOC)		**E415.1**				Analyst: **NJS**
Organic Carbon, Total	ND	3.0		mg/L	1	4/24/2007
PHENOLICS, TOTAL REC. FOR WATERS		**E420.4**		**(E420.4)**		Analyst: **SAR**
Phenolics, Total Recoverable	ND	0.005		mg/L	1	4/27/2007
HEXAVALENT CHROMIUM BY ASP 2005		**SM3500**				Analyst: **BS**
Hexavalent chromium	ND	0.010		mg/L	1	4/5/2007 4:30:00 PM

Approved By: _____ **Date:** _____

Qualifiers:

*	Low Level	**	Value exceeds Maximum Contaminant Value
B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	S	Spike Recovery outside accepted recovery limits

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW-15D

Lab Name: Upstate Labs Inc. Contract: CHA

Lab Code: 10170 Case No.: SAS No.: SDG No.: CHA81

Matrix: (soil/water) WATER Lab Sample ID: U0704115-008H

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: C17074.D

Level: (low/med) LOW Date Received: 4/5/07

% Moisture: not dec. Date Analyzed: 4/9/07

GC Column: RTX-VO ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND	(ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	5	U
75-1-4	Vinyl Chloride	5	U
74-83-9	Bromomethane	5	U
75-00-3	Chloroethane	5	U
75-69-4	Trichlorofluoromethane	5	U
67-64-1	Acetone	10	U
75-35-4	1,1-Dichloroethene	5	U
74-88-4	Iodomethane	5	U
75-15-0	Carbon Disulfide	5	U
75-09-2	Methylene Chloride	5	U
107-13-1	Acrylonitrile	100	U R
156-60-5	trans-1,2-Dichloroethene	5	U
75-34-33	1,1-Dichloroethane	5	U
108-5-4	Vinyl Acetate	50	U
78-93-3	2-Butanone	10	U
156-59-2	cis-1,2-Dichloroethene	5	U
67-66-3	Chloroform	5	U
74-97-5	Bromochloromethane	5	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
71-43-2	Benzene	5	U
107-06-2	1,2-Dichloroethane	5	U
97-01-6	Trichloroethene	5	U
78-87-5	1,2-Dichloropropane	5	U
75-27-4	Bromodichloromethane	5	U
74-95-3	Dibromomethane	5	U
108-10-1	4-Methyl-2-pentanone	10	U
10061-1-5	cis-1,3-Dichloropropene	5	U
108-88-3	Toluene	5	U
10061-2-6	trans-1,3-Dichloropropene	5	U
79-00-5	1,1,2-Trichloroethane	5	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	5	U
124-48-1	Dibromochloromethane	5	U
106-93-4	1,2-Dibromoethane	5	U
108-90-7	Chlorobenzene	5	U
630-20-6	1,1,1,2-Tetrachloroethane	5	U
100-41-4	Ethylbenzene	5	U
108-38-3	m,p-Xylene	5	U

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW-15D

Lab Name: Upstate Labs Inc. Contract: CHA

Lab Code: 10170 Case No.: SAS No.: SDG No.: CHA81

Matrix: (soil/water) WATER Lab Sample ID: U0704115-008H

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: C17074.D

Level: (low/med) LOW Date Received: 4/5/07

% Moisture: not dec. Date Analyzed: 4/9/07

GC Column: RTX-VO ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L

CAS NO.	COMPOUND		Q
95-47-6	o-Xylene	5	U
100-42-5	Styrene	5	U
75-25-2	Bromoform	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
96-18-4	1,2,3-Trichloropropane	5	U
110-57-6	1,4-Dichloro-2-butene	10	U
541-73-1	1,3-Dichlorobenzene	5	U
106-46-7	1,4-Dichlorobenzene	5	U
95-50-1	1,2-Dichlorobenzene	5	U
96-12-8	1,2-Dibromo-3-chloro-propane	10	U

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

MW-15D

Lab Name: Upstate Labs Inc. Contract: CHA

Lab Code: 10170 Case No.: _____ SAS No.: _____ SDG No.: CHA81

Matrix: (soil/water) WATER Lab Sample ID: U0704115-008H

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: C17074.D

Level: (low/med) LOW Date Received: 4/5/07

% Moisture: not dec. _____ Date Analyzed: 4/9/07

GC Column: RTX-VO ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

Number TICs found: 0

CAS NO.	COMPOUND NAME	RT	EST. CONC.	Q

U.S. EPA - CLP

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INORGANIC ANALYSIS DATA SHEET

CLIENT SAMP ID

MW-15DDissolved

Lab Name: Upstate Laboratories, Inc. Contract:

Lab Code: 10170 Case No. SAS No.: SDG No.: CHA81

Matrix (soil/water): Lab Sample ID: U0704115-008

Level (low/med): LOW Date Received: 4/5/2007

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	100	U		P
7440-36-0	Antimony	15.0	U		P
7440-38-2	Arsenic	18.5		J	P
7440-39-3	Barium	50.0	U		P
7440-41-7	Beryllium	3.0	U		P
7440-42-8	Boron	500	U		P
7440-43-9	Cadmium	5.0	U		P
7440-70-2	Calcium	23900			P
7440-47-3	Chromium	5.0	U		P
7440-48-4	Cobalt	20.0	U		P
7440-50-8	Copper	10.0	U		P
7439-89-6	Iron	105			P
7439-92-1	Lead	3.0	U		P
7439-95-4	Magnesium	3770	B		P
7439-96-5	Manganese	60.7			P
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel	30.0	U		P
7440-09-7	Potassium	1000	U		P
7782-49-2	Selenium	5.0	U		P
7440-22-4	Silver	10.0	U		P
7440-23-5	Sodium	13400			P
7440-28-0	Thallium	15.7			P
7440-62-2	Vanadium	30.0	U		P
7440-66-6	Zinc	51.0		J	P

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

CLIENT SAMP ID

MW-15D

Lab Name: Upstate Laboratories, Inc. Contract:

Lab Code: 10170 Case No. SAS No.: SDG No.: CHA81

Matrix (soil/water): WATER Lab Sample ID: U0704115-008

Level (low/med): LOW Date Received: 4/5/2007

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	6090			P
7440-36-0	Antimony	15.0	U		P
7440-38-2	Arsenic	13.8		J	P
7440-39-3	Barium	91.8	B		P
7440-41-7	Beryllium	3.0	U		P
7440-42-8	Boron	500	U		P
7440-43-9	Cadmium	5.0	U		P
7440-70-2	Calcium	53200			P
7440-47-3	Chromium	8.4	B		P
7440-48-4	Cobalt	20.0	U		P
7440-50-8	Copper	16.0	B		P
57-12-5	Cyanide	10.0	U		C
471-34-1	Hardness, T	181000			P
7439-89-6	Iron	12400			P
7439-92-1	Lead	5.0			P
7439-95-4	Magnesium	11700			P
7439-96-5	Manganese	416			P
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel	30.0	U		P
7440-09-7	Potassium	2180	B		P
7782-49-2	Selenium	5.0	U		P
7440-22-4	Silver	10.0	U		P
7440-23-5	Sodium	13900			P
7440-28-0	Thallium	23.8		J	P
7440-62-2	Vanadium	30.0	U		P
7440-66-6	Zinc	144		N* J	P

Color Before: BROWN Clarity Before: CLOUDY Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts: YES

Comments:

Medium Brown Sediment

Upstate Laboratories, Inc.

Date: *08-May-07*

CLIENT:	Clough, Harbour & Assoc. LLP	**Client Sample ID:**	MW-15D
Lab Order:	U0704115	**Collection Date:**	4/4/2007 3:10:00 PM
Project:	C/O Albany Interim Landfill		
Lab ID:	U0704115-008	**Matrix:**	GROUNDWATER

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
INORGANIC ANIONS BY IC FOR WATERS		**E300.1**				Analyst: **BY**
Bromide	0.25	0.20	J	mg/L	1	5/1/2007
COLOR		**E110.2**				Analyst: **MAF**
Color	10.0	5.00		UNITS	1	4/5/2007
RESIDUE, DISSOLVED (TDS)		**E160.1**				Analyst: **MAF**
Residue, Dissolved (TDS)	232	25	J	mg/L	1	4/10/2007
ALKALINITY ON AQUEOUS SAMPLES BY LACHA		**E310.2**				Analyst: **SAR**
Alkalinity, Total (As CaCO3)	110	10		mg/LCaCO3	1	4/9/2007
CHLORIDE WATERS BY LACHAT		**E325.2**				Analyst: **SAR**
Chloride	5.71	1.00		mg/L	1	4/9/2007
NITROGEN, AMMONIA (AS NH3 BY LACHAT)		**E350.1**				Analyst: **NJS**
Nitrogen, Ammonia (As NH3)	ND	0.500		mg/L	1	4/23/2007
TKN FOR WATERS		**E351.3**				Analyst: **NJS**
Nitrogen, Kjeldahl, Total	ND	0.500		mg/L	1	4/23/2007
NITROGEN, NITRATE (AS N)		**E353.2**				Analyst: **BY**
Nitrogen, Nitrate (as N)	ND	0.200		mg/L	1	4/5/2007 3:57:00 PM
SULFATE		**E375.4**				Analyst: **MAF**
Sulfate	ND	5.00		mg/L	1	4/17/2007
BIOCHEMICAL OXYGEN DEMAND (5 DAY BOD)		**E405.1**				Analyst: **BS**
Biochemical Oxygen Demand	ND	4		mg/L	1	4/5/2007 6:00:00 AM
CHEMICAL OXYGEN DEMAND (COD)		**E410.4**				Analyst: **NJS**
Chemical Oxygen Demand	ND	20		mg/L	1	4/24/2007
TOTAL ORGANIC CARBON (TOC)		**E415.1**				Analyst: **NJS**
Organic Carbon, Total	10.5	3.0		mg/L	1	4/24/2007
PHENOLICS, TOTAL REC. FOR WATERS		**E420.4**		**(E420.4)**		Analyst: **SAR**
Phenolics, Total Recoverable	ND	0.005		mg/L	1	4/25/2007
HEXAVALENT CHROMIUM BY ASP 2005		**SM3500**				Analyst: **BS**
Hexavalent chromium	ND	0.010		mg/L	1	4/5/2007 4:30:00 PM

-45-

Approved By: _____ **Date:** _____

Qualifiers:

*	Low Level	**	Value exceeds Maximum Contaminant Value
B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	S	Spike Recovery outside accepted recovery limits

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

Trip Blank

Lab Name: Upstate Labs Inc. Contract: CHA

Lab Code: 10170 Case No.: _____ SAS No.: _____ SDG No.: CHA81

Matrix: (soil/water) WATER Lab Sample ID: U0704115-009A

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: C17075.D

Level: (low/med) LOW Date Received: 4/5/07

% Moisture: not dec. _____ Date Analyzed: 4/9/07

GC Column: RTX-VO ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND	(ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	5	U
75-1-4	Vinyl Chloride	5	U
74-83-9	Bromomethane	5	U
75-00-3	Chloroethane	5	U
75-69-4	Trichlorofluoromethane	5	U
67-64-1	Acetone	10	U
75-35-4	1,1-Dichloroethene	5	U
74-88-4	Iodomethane	5	U
75-15-0	Carbon Disulfide	5	U
75-09-2	Methylene Chloride	5	U
107-13-1	Acrylonitrile	100	U R
156-60-5	trans-1,2-Dichloroethene	5	U
75-34-33	1,1-Dichloroethane	5	U
108-5-4	Vinyl Acetate	50	U
78-93-3	2-Butanone	10	U
156-59-2	cis-1,2-Dichloroethene	5	U
67-66-3	Chloroform	5	U
74-97-5	Bromochloromethane	5	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
71-43-2	Benzene	5	U
107-06-2	1,2-Dichloroethane	5	U
97-01-6	Trichloroethene	5	U
78-87-5	1,2-Dichloropropane	5	U
75-27-4	Bromodichloromethane	5	U
74-95-3	Dibromomethane	5	U
108-10-1	4-Methyl-2-pentanone	10	U
10061-1-5	cis-1,3-Dichloropropene	5	U
108-88-3	Toluene	5	U
10061-2-6	trans-1,3-Dichloropropene	5	U
79-00-5	1,1,2-Trichloroethane	5	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	5	U
124-48-1	Dibromochloromethane	5	U
106-93-4	1,2-Dibromoethane	5	U
108-90-7	Chlorobenzene	5	U
630-20-6	1,1,1,2-Tetrachloroethane	5	U
100-41-4	Ethylbenzene	5	U
108-38-3	m,p-Xylene	5	U

1A

EPA SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

Trip Blank

Lab Name: Upstate Labs Inc. Contract: CHA

Lab Code: 10170 Case No.: _____ SAS No.: _____ SDG No.: CHA81

Matrix: (soil/water) WATER Lab Sample ID: U0704115-009A

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: C17075.D

Level: (low/med) LOW Date Received: 4/5/07

% Moisture: not dec. _____ Date Analyzed: 4/9/07

GC Column: RTX-VO ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND (ug/L or ug/Kg)	UG/L	Q
95-47-6	o-Xylene	5	U
100-42-5	Styrene	5	U
75-25-2	Bromoform	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
96-18-4	1,2,3-Trichloropropane	5	U
110-57-6	1,4-Dichloro-2-butene	10	U
541-73-1	1,3-Dichlorobenzene	5	U
106-46-7	1,4-Dichlorobenzene	5	U
95-50-1	1,2-Dichlorobenzene	5	U
96-12-8	1,2-Dibromo-3-chloro-propane	10	U

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

Trip Blank

Lab Name: Upstate Labs Inc. Contract: CHA

Lab Code: 10170 Case No.: SAS No.: SDG No.: CHA81

Matrix: (soil/water) WATER Lab Sample ID: U0704115-009A

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: C17075.D

Level: (low/med) LOW Date Received: 4/5/07

% Moisture: not dec. Date Analyzed: 4/9/07

GC Column: RTX-VO ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

Number TICs found: 0

CAS NO.	COMPOUND NAME	RT	EST. CONC.	Q

Quality Control Summary

Upstate Laboratories, Inc.

2A

WATER VOLATILE SYSTEM MONITORING COMPOUND RECOVERY

Lab Name: Upstate Labs Inc. Contract: CHA

Lab Code: 10170 Case No.: _____ SAS No.: _____ SDG No.: CHA81

	EPA SAMPLE NO.	SMC1 #	SMC2 #	SMC3 #	TOT OUT
01	VBLK02	106	103	97	0
02	VMBS02	110	107	101	0
03	MW-14I	105	108	101	0
04	MW-14D	115	110	102	0
05	CHA-2	109	108	101	0
06	HOLDING BLA	109	106	100	0
07	MW-15I MS	109	109	102	0
08	MW-15I MSD	108	106	101	0
09	MW-15D	109	108	100	0
10	TRIP BLANK	111	105	99	0
11	VBLK01	111	109	102	0
12	VMBS01	104	103	98	0
13	MW-14S	105	103	98	0
14	VBLK03	106	107	100	0
15	VMBS03	108	106	102	0
16	MW-15S	112	108	103	0
17	MW-15I	111	110	105	0

			QC LIMITS
SMC1	=	Dibromofluoromethane	(86-118)
SMC2	=	Toluene-d8	(88-110)
SMC3	=	Bromofluorobenzene	(86-115)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D System Monitoring Compound diluted out

3A

WATER VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: Upstate Labs Inc. Contract: CHA

Lab Code: 10170 Case No.: SAS No.: SDG No.: CHA81

Matrix Spike - EPA Sample No MW-15I

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	MS CONCENTRATION (ug/L)	MS % REC #	QC LIMITS REC.
1,1-Dichloroethene	50	0.0	54	108	61 - 145
Benzene	50	0.0	51	102	76 - 127
Trichloroethene	50	0.0	52	104	71 - 120
Toluene	50	0.0	53	106	76 - 125
Chlorobenzene	50	0.0	51	102	75 - 130

COMPOUND	SPIKE ADDED (ug/L)	MSD CONCENTRATION (ug/L)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
1,1-Dichloroethene	50	57	114	5	14	61 - 145
Benzene	50	52	104	2	11	76 - 127
Trichloroethene	50	53	106	2	14	71 - 120
Toluene	50	54	108	2	13	76 - 125
Chlorobenzene	50	53	106	4	13	75 - 130

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: 0 out of 5 outside limits

Spike Recovery: 0 out of 10 outside limits

COMMENTS:

U.S. EPA - CLP

5A
SPIKE SAMPLE RECOVERY

CLIENT SAMP ID

MW-15IS

Lab Name: Upstate Laboratories, Inc. Contract:

Lab Code: 10170 Case No. SAS No.: SDG No.: CHA81

Matrix (soil/water): WATER Level (low/med): LOW

% Solids for Sample: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Antimony	75-125	598.9252		15.0000	U	500.00	119.8		P
Arsenic	75-125	2034.8512		10.0000	U	2000.00	101.7		P
Barium	75-125	2127.3670		125.7314	B	2000.00	100.1		P
Beryllium	75-125	50.2680		3.0000	U	50.00	100.5		P
Boron	75-125	4762.5687		500.0000	U	5000.00	95.3		P
Cadmium	75-125	49.8708		5.0000	U	50.00	99.7		P
Chromium	75-125	215.7496		5.0000	U	200.00	107.9		P
Cobalt	75-125	496.4491		20.0000	U	500.00	99.3		P
Copper	75-125	243.7043		10.0000	U	250.00	97.5		P
Iron	75-125	1999.8559		1069.0531		1000.00	93.1		P
Lead	75-125	503.6746		3.0000	U	500.00	100.7		P
Manganese	75-125	719.3425		187.2257		500.00	106.4		P
Nickel	75-125	524.0910		30.0000	U	500.00	104.8		P
Selenium	75-125	2175.3439		5.0000	U	2000.00	108.8		P
Silver	75-125	55.0720		10.0000	U	50.00	110.1		P
Thallium	75-125	1829.9763		22.7084		2000.00	90.4		P
Vanadium	75-125	498.6212		30.0000	U	500.00	99.7		P
Zinc	75-125	579.4486		231.4122		500.00	69.6	N	P

Comments:

U.S. EPA - CLP

5B
POST DIGEST SPIKE SAMPLE RECOVERY

CLIENT SAMP ID
MW-15IA

Lab Name: Upstate Laboratories, Inc. Contract:

Lab Code: 10170 Case No. SAS No.: SDG No.: CHA81

Matrix (soil/water): WATER Level (low/med): LOW

Concentration Units: ug/L

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Zinc		706.94		231.41		500.0	95.1		P

Comments:

U.S. EPA - CLP

5A
SPIKE SAMPLE RECOVERY

CLIENT SAMP ID
MW-15IS

Lab Name: Upstate Laboratories, Inc. Contract:

Lab Code: 10170 Case No. SAS No.: SDG No.: CHA81

Matrix (soil/water): WATER Level (low/med): LOW

% Solids for Sample: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Mercury	75-125	0.9731		0.2000	U	1.00	97.3		CV

Comments:

U.S. EPA - CLP

5A
SPIKE SAMPLE RECOVERY

CLIENT SAMP ID

MW-15IS

Lab Name: Upstate Laboratories, Inc. Contract:

Lab Code: 10170 Case No. SAS No.: SDG No.: CHA81

Matrix (soil/water): WATER Level (low/med): LOW

% Solids for Sample: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Cyanide	75-125	228.8100		10.0000	U	200.00	114.4		C

Comments:

U.S. EPA - CLP

6
DUPLICATES

CLIENT SAMP ID

MW-15I

Lab Name: Upstate Laboratories, Inc. Contract:

Lab Code: 10170 Case No. SAS No.: SDG No.: CHA81

Matrix (soil/water): WATER TOTAL Level (low/med): LOW

% Solids for Sample: 0.0 % Solids for Duplicate: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

Analyte	Control Limit	Sample (S)	C	Duplicate (D)	C	RPD	Q	M
Aluminum	200	207.4020		218.2545		5.1		P
Antimony		0.0000	U	0.0000	U			P
Arsenic		0.0000	U	0.0000	U			P
Barium		125.7314	B	122.3476	B	2.7		P
Beryllium		0.0000	U	0.0000	U			P
Boron		0.0000	U	0.0000	U			P
Cadmium		0.0000	U	0.0000	U			P
Calcium		64467.2950		62861.1740		2.5		P
Chromium		0.0000	U	0.0000	U			P
Cobalt		0.0000	U	0.0000	U			P
Copper		0.0000	U	0.0000	U			P
Cyanide		0.0000	U	0.0000	U			C
Iron		1069.0531		1117.8177		4.5		P
Lead		0.0000	U	0.0000	U			P
Magnesium	5000	8824.4945		8585.5296		2.7		P
Manganese		187.2257		184.5903		1.4		P
Mercury		0.0000	U	0.0000	U			CV
Nickel		0.0000	U	0.0000	U			P
Potassium		0.0000	U	0.0000	U			P
Selenium		0.0000	U	0.0000	U			P
Silver		0.0000	U	0.0000	U			P
Sodium	5000	9440.9516		9200.9364		2.6		P
Thallium	10	22.7084		21.5425		5.3		P
Vanadium		0.0000	U	0.0000	U			P
Zinc	20	231.4122		49.5297		129.5	*	P

WATER VOLATILE MATRIX SPIKE BLANK RECOVERY

Lab Name: Upstate Labs Inc. Contract: CHA

Lab Code: 10170 Case 1 SAS No.: _____ SDG No.: CHA81

Matrix Spike-EPA Sample No.: VBLK01 Level (low/med): Low

COMPOUND	SPIKE ADDED (ug/l)	SAMPLE CONCENTRATION (ug/l)	MS CONCENTRATIO (ug/l)	MS % REC	QC LIMITS
1,1-Dichloroethene	50	0	49	98	61-145
Benzene	50	0	52	104	76-127
Trichloroethene	50	0	52	104	71-120
Toluene	50	0	53	106	76-125
Chlorobenzene	50	0	52	104	75-130

WATER VOLATILE MATRIX SPIKE BLANK RECOVERY

Lab Name: Upstate Labs Inc. Contract: CHA

Lab Code: 10170 Case 1 SAS No.: _____ SDG No.: CHA81

Matrix Spike-EPA Sample No.: VBLK02 Level (low/med): Low

COMPOUND	SPIKE ADDED (ug/l)	SAMPLE CONCENTRATION (ug/l)	MS CONCENTRATIO (ug/l)	MS % REC	QC LIMITS
1,1-Dichloroethene	50	0	53	106	61-145
Benzene	50	0	50	100	76-127
Trichloroethene	50	0	49	98	71-120
Toluene	50	0	51	102	76-125
Chlorobenzene	50	0	49	98	75-130

WATER VOLATILE MATRIX SPIKE BLANK RECOVERY

Lab Name: Upstate Labs Inc. Contract: CHA

Lab Code: 10170 Case 1 SAS No.: _____ SDG No.: CHA81

Matrix Spike-EPA Sample No.: VBLK03 Level (low/med): Low

COMPOUND	SPIKE ADDED (ug/l)	SAMPLE CONCENTRATION (ug/l)	MS CONCENTRATIO (ug/l)	MS % REC	QC LIMITS
1,1-Dichloroethene	50	0	60	120	61-145
Benzene	50	0	60	120	76-127
Trichloroethene	50	0	59	118	71-120
Toluene	50	0	60	120	76-125
Chlorobenzene	50	0	58	116	75-130

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7
LABORATORY CONTROL SAMPLE

Lab Name: Upstate Laboratories, Inc. Contract:

Lab Code: 10170 Case No. SAS No.: SDG No.: CHA81

Solid LCS Source: ERA

Aqueous LCS Source: CPI

Analyte	Aqueous (ug/L) True	Found	%R	Solid (mg/kg) True	Found	C	Limits	%R
Aluminum	12000.0	12513.46	104.3					
Antimony	1000.0	1227.23	122.7					
Arsenic	1000.0	1024.67	102.5					
Barium	12000.0	12328.95	102.7					
Beryllium	1000.0	1006.83	100.7					
Boron	2000.0	2212.00	110.6					
Cadmium	1000.0	1040.06	104.0					
Calcium	21000.0	20869.63	99.4					
Chromium	1000.0	1096.03	109.6					
Cobalt	1000.0	1042.78	104.3					
Copper	1000.0	1026.12	102.6					
Iron	21000.0	21861.53	104.1					
Lead	1000.0	1045.71	104.6					
Magnesium	21000.0	22068.58	105.1					
Manganese	1000.0	1101.77	110.2					
Nickel	1000.0	1106.06	110.6					
Potassium	20000.0	19465.27	97.3					
Selenium	1000.0	1085.12	108.5					
Silver	2000.0	2223.94	111.2					
Sodium	22000.0	21882.09	99.5					
Thallium	1000.0	944.66	94.5					
Vanadium	1000.0	1012.82	101.3					
Zinc	1000.0	1089.40	108.9					

7
LABORATORY CONTROL SAMPLE

Lab Name: Upstate Laboratories, Inc. Contract:

Lab Code: 10170 Case No. SAS No.: SDG No.: CHA81

Solid LCS Source: ERA

Aqueous LCS Source: CPI

Analyte	Aqueous (ug/L) True	Found	%R	Solid (mg/kg) True	Found	C	Limits	%R
Aluminum	12000.0	12587.32	104.9					
Antimony	1000.0	1231.79	123.2					
Arsenic	1000.0	1022.23	102.2					
Barium	12000.0	12342.52	102.9					
Beryllium	1000.0	1002.88	100.3					
Boron	2000.0	2183.60	109.2					
Cadmium	1000.0	1039.06	103.9					
Calcium	21000.0	20859.93	99.3					
Chromium	1000.0	1097.71	109.8					
Cobalt	1000.0	1040.48	104.0					
Copper	1000.0	1034.62	103.5					
Iron	21000.0	21883.71	104.2					
Lead	1000.0	1042.84	104.3					
Magnesium	21000.0	22065.58	105.1					
Manganese	1000.0	1101.49	110.1					
Nickel	1000.0	1104.88	110.5					
Potassium	20000.0	20875.82	104.4					
Selenium	1000.0	1099.85	110.0					
Silver	2000.0	2231.65	111.6					
Sodium	22000.0	21891.90	99.5					
Thallium	1000.0	948.96	94.9					
Vanadium	1000.0	1015.28	101.5					
Zinc	1000.0	1076.99	107.7					

U.S. EPA - CLP

7

LABORATORY CONTROL SAMPLE

Lab Name: Upstate Laboratories, Inc. Contract:

Lab Code: 10170 Case No. SAS No.: SDG No.: CHA81

Solid LCS Source: ERA

Aqueous LCS Source: CPI

Analyte	Aqueous (ug/L) True	Found	%R	Solid (mg/kg) True	Found	C	Limits		%R
Cyanide	187.0	216.43	115.7						

U.S. EPA - CLP

7
LABORATORY CONTROL SAMPLE

Lab Name: Upstate Laboratories, Inc. Contract:

Lab Code: 10170 Case No. SAS No.: SDG No.: CHA81

Solid LCS Source: ERA

Aqueous LCS Source: CPI

Analyte	Aqueous (ug/L) True	Found	%R	Solid (mg/kg) True	Found	C	Limits		%R
Cyanide	187.0	207.25	110.8						

4A

VOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

VBLK01

Lab Name: Upstate Labs Inc. Contract: CHA

Lab Code: 10170 Case No.: _____ SAS No.: _____ SDG No.: CHA81

Lab File ID: C17082.D Lab Sample ID: MB

Date Analyzed: 4/10/07 Time Analyzed: 10:57

GC Column: RTX-VO ID: 0.53 (mm) Heated Purge: (Y/N) N

Instrument ID: 12.0

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	VMBS01	LCS	C17083.D	11:35
02	MW-14S	U0704115-001H	C17084.D	12:14

COMMENTS

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

VBLK01

Lab Name: Upstate Labs Inc. Contract: CHA

Lab Code: 10170 Case No.: _____ SAS No.: _____ SDG No.: CHA81

Matrix: (soil/water) WATER Lab Sample ID: MB

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: C17082.D

Level: (low/med) LOW Date Received: 4/5/07

% Moisture: not dec. _____ Date Analyzed: 4/10/07

GC Column: RTX-VO ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND	(ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	5	U
75-1-4	Vinyl Chloride	5	U
74-83-9	Bromomethane	5	U
75-00-3	Chloroethane	5	U
75-69-4	Trichlorofluoromethane	5	U
67-64-1	Acetone	10	U
75-35-4	1,1-Dichloroethene	5	U
74-88-4	Iodomethane	5	U
75-15-0	Carbon Disulfide	5	U
75-09-2	Methylene Chloride	5	U
107-13-1	Acrylonitrile	100	U
156-60-5	trans-1,2-Dichloroethene	5	U
75-34-33	1,1-Dichloroethane	5	U
108-5-4	Vinyl Acetate	50	U
78-93-3	2-Butanone	10	U
156-59-2	cis-1,2-Dichloroethene	5	U
67-66-3	Chloroform	5	U
74-97-5	Bromochloromethane	5	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
71-43-2	Benzene	5	U
107-06-2	1,2-Dichloroethane	5	U
97-01-6	Trichloroethene	5	U
78-87-5	1,2-Dichloropropane	5	U
75-27-4	Bromodichloromethane	5	U
74-95-3	Dibromomethane	5	U
108-10-1	4-Methyl-2-pentanone	10	U
10061-1-5	cis-1,3-Dichloropropene	5	U
108-88-3	Toluene	5	U
10061-2-6	trans-1,3-Dichloropropene	5	U
79-00-5	1,1,2-Trichloroethane	5	U
591-78-6	2-Hexanone	5	J
127-18-4	Tetrachloroethene	5	U
124-48-1	Dibromochloromethane	5	U
106-93-4	1,2-Dibromoethane	5	U
108-90-7	Chlorobenzene	5	U
630-20-6	1,1,1,2-Tetrachloroethane	5	U
100-41-4	Ethylbenzene	5	U
108-38-3	m,p-Xylene	5	U

1A

EPA SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

VBLK01

Lab Name: Upstate Labs Inc. Contract: CHA

Lab Code: 10170 Case No.: _____ SAS No.: _____ SDG No.: CHA81

Matrix: (soil/water) WATER Lab Sample ID: MB

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: C17082.D

Level: (low/med) LOW Date Received: 4/5/07

% Moisture: not dec. _____ Date Analyzed: 4/10/07

GC Column: RTX-VO ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND (ug/L or ug/Kg) UG/L		Q
95-47-6	o-Xylene	5	U
100-42-5	Styrene	5	U
75-25-2	Bromoform	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
96-18-4	1,2,3-Trichloropropane	5	U
110-57-6	1,4-Dichloro-2-butene	10	U
541-73-1	1,3-Dichlorobenzene	5	U
106-46-7	1,4-Dichlorobenzene	5	U
95-50-1	1,2-Dichlorobenzene	5	U
96-12-8	1,2-Dibromo-3-chloro-propane	10	U

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

VBLK01

Lab Name: Upstate Labs Inc. Contract: CHA

Lab Code: 10170 Case No.: _____ SAS No.: _____ SDG No.: CHA81

Matrix: (soil/water) WATER Lab Sample ID: MB

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: C17082.D

Level: (low/med) LOW Date Received: 4/5/07

% Moisture: not dec. _____ Date Analyzed: 4/10/07

GC Column: RTX-VO ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

Number TICs found: 0

CAS NO.	COMPOUND NAME	RT	EST. CONC.	Q

4A

EPA SAMPLE NO.

VOLATILE METHOD BLANK SUMMARY

VBLK02

Lab Name: Upstate Labs Inc. Contract: CHA

Lab Code: 10170 Case No.: SAS No.: SDG No.: CHA81

Lab File ID: C17063.D Lab Sample ID: MB

Date Analyzed: 4/9/07 Time Analyzed: 11:44

GC Column: RTX-VO ID: 0.53 (mm) Heated Purge: (Y/N) N

Instrument ID: 12.0

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	VMBS02	LCS	C17064.D	12:22
02	MW-14I	U0704115-002H	C17066.D	13:50
03	MW-14D	U0704115-003H	C17067.D	14:32
04	CHA-2	U0704115-004H	C17068.D	15:10
05	HOLDING BLANK	U0704115-005A	C17069.D	15:48
06	MW-15I MS	U0704115-007HMS	C17072.D	17:30
07	MW-15I MSD	U0704115-007HMSD	C17073.D	18:08
08	MW-15D	U0704115-008H	C17074.D	18:47
09	TRIP BLANK	U0704115-009A	C17075.D	19:25

COMMENTS

1A

EPA SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

VBLK02

Lab Name: Upstate Labs Inc. Contract: CHA

Lab Code: 10170 Case No.: SAS No.: SDG No.: CHA81

Matrix: (soil/water) WATER Lab Sample ID: MB

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: C17063.D

Level: (low/med) LOW Date Received: 4/5/07

% Moisture: not dec. Date Analyzed: 4/9/07

GC Column: RTX-VO ID. 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND	(ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	5	U
75-1-4	Vinyl Chloride	5	U
74-83-9	Bromomethane	5	U
75-00-3	Chloroethane	5	U
75-69-4	Trichlorofluoromethane	5	U
67-64-1	Acetone	10	U
75-35-4	1,1-Dichloroethene	5	U
74-88-4	Iodomethane	5	U
75-15-0	Carbon Disulfide	5	U
75-09-2	Methylene Chloride	5	U
107-13-1	Acrylonitrile	100	U
156-60-5	trans-1,2-Dichloroethene	5	U
75-34-33	1,1-Dichloroethane	5	U
108-5-4	Vinyl Acetate	50	U
78-93-3	2-Butanone	10	U
156-59-2	cis-1,2-Dichloroethene	5	U
67-66-3	Chloroform	5	U
74-97-5	Bromochloromethane	5	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
71-43-2	Benzene	5	U
107-06-2	1,2-Dichloroethane	5	U
97-01-6	Trichloroethene	5	U
78-87-5	1,2-Dichloropropane	5	U
75-27-4	Bromodichloromethane	5	U
74-95-3	Dibromomethane	5	U
108-10-1	4-Methyl-2-pentanone	10	U
10061-1-5	cis-1,3-Dichloropropene	5	U
108-88-3	Toluene	5	U
10061-2-6	trans-1,3-Dichloropropene	5	U
79-00-5	1,1,2-Trichloroethane	5	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	5	U
124-48-1	Dibromochloromethane	5	U
106-93-4	1,2-Dibromoethane	5	U
108-90-7	Chlorobenzene	5	U
630-20-6	1,1,1,2-Tetrachloroethane	5	U
100-41-4	Ethylbenzene	5	U
108-38-3	m,p-Xylene	5	U

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

VBLK02

Lab Name: Upstate Labs Inc. Contract: CHA

Lab Code: 10170 Case No.: _____ SAS No.: _____ SDG No.: CHA81

Matrix: (soil/water) WATER Lab Sample ID: MB

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: C17063.D

Level: (low/med) LOW Date Received: 4/5/07

% Moisture: not dec. _____ Date Analyzed: 4/9/07

GC Column: RTX-VO ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND (ug/L or ug/Kg)	UG/L	Q
95-47-6	o-Xylene	5	U
100-42-5	Styrene	5	U
75-25-2	Bromoform	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
96-18-4	1,2,3-Trichloropropane	5	U
110-57-6	1,4-Dichloro-2-butene	10	U
541-73-1	1,3-Dichlorobenzene	5	U
106-46-7	1,4-Dichlorobenzene	5	U
95-50-1	1,2-Dichlorobenzene	5	U
96-12-8	1,2-Dibromo-3-chloro-propane	10	U

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

VBLK02

Lab Name: Upstate Labs Inc. Contract: CHA

Lab Code: 10170 Case No.: _____ SAS No.: _____ SDG No.: CHA81

Matrix: (soil/water) WATER Lab Sample ID: MB

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: C17063.D

Level: (low/med) LOW Date Received: 4/5/07

% Moisture: not dec. _____ Date Analyzed: 4/9/07

GC Column: RTX-VO ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

Number TICs found: 0

CAS NO.	COMPOUND NAME	RT	EST. CONC.	Q

4A

VOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

VBLK03

Lab Name: Upstate Labs Inc. Contract: CHA

Lab Code: 10170 Case No.: SAS No.: SDG No.: CHA81

Lab File ID: C17101.D Lab Sample ID: MB

Date Analyzed: 4/11/07 Time Analyzed: 11:55

GC Column: RTX-VO ID: 0.53 (mm) Heated Purge: (Y/N) N

Instrument ID: 12.0

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	VMBS03	LCS	C17102.D	12:33
02	MW-15S	U0704115-006H	C17104.D	13:49
03	MW-15I	U0704115-007H	C17107.D	15:44

COMMENTS

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

VBLK03

Lab Name: Upstate Labs Inc. Contract: CHA

Lab Code: 10170 Case No.: _____ SAS No.: _____ SDG No.: CHA81

Matrix: (soil/water) WATER Lab Sample ID: MB

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: C17101.D

Level: (low/med) LOW Date Received: 4/5/07

% Moisture: not dec. _____ Date Analyzed: 4/11/07

GC Column: RTX-VO ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND (ug/L or ug/Kg) UG/L		Q
74-87-3	Chloromethane	5	U
75-1-4	Vinyl Chloride	5	U
74-83-9	Bromomethane	5	U
75-00-3	Chloroethane	5	U
75-69-4	Trichlorofluoromethane	5	U
67-64-1	Acetone	10	U
75-35-4	1,1-Dichloroethene	5	U
74-88-4	Iodomethane	5	U
75-15-0	Carbon Disulfide	5	U
75-09-2	Methylene Chloride	5	U
107-13-1	Acrylonitrile	100	U
156-60-5	trans-1,2-Dichloroethene	5	U
75-34-33	1,1-Dichloroethane	5	U
108-5-4	Vinyl Acetate	50	U
78-93-3	2-Butanone	10	U
156-59-2	cis-1,2-Dichloroethene	5	U
67-66-3	Chloroform	5	U
74-97-5	Bromochloromethane	5	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
71-43-2	Benzene	5	U
107-06-2	1,2-Dichloroethane	5	U
97-01-6	Trichloroethene	5	U
78-87-5	1,2-Dichloropropane	5	U
75-27-4	Bromodichloromethane	5	U
74-95-3	Dibromomethane	5	U
108-10-1	4-Methyl-2-pentanone	10	U
10061-1-5	cis-1,3-Dichloropropene	5	U
108-88-3	Toluene	5	U
10061-2-6	trans-1,3-Dichloropropene	5	U
79-00-5	1,1,2-Trichloroethane	5	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	5	U
124-48-1	Dibromochloromethane	5	U
106-93-4	1,2-Dibromoethane	5	U
108-90-7	Chlorobenzene	5	U
630-20-6	1,1,1,2-Tetrachloroethane	5	U
100-41-4	Ethylbenzene	5	U
108-38-3	m,p-Xylene	5	U

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

VBLK03

Lab Name: Upstate Labs Inc. Contract: CHA

Lab Code: 10170 Case No.: SAS No.: SDG No.: CHA81

Matrix: (soil/water) WATER Lab Sample ID: MB

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: C17101.D

Level: (low/med) LOW Date Received: 4/5/07

% Moisture: not dec. Date Analyzed: 4/11/07

GC Column: RTX-VO ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND	(ug/L or ug/Kg) UG/L	Q
95-47-6	o-Xylene	5	U
100-42-5	Styrene	5	U
75-25-2	Bromoform	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
96-18-4	1,2,3-Trichloropropane	5	U
110-57-6	1,4-Dichloro-2-butene	10	U
541-73-1	1,3-Dichlorobenzene	5	U
106-46-7	1,4-Dichlorobenzene	5	U
95-50-1	1,2-Dichlorobenzene	5	U
96-12-8	1,2-Dibromo-3-chloro-propane	10	U

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

VBLK03

Lab Name: Upstate Labs Inc. Contract: CHA

Lab Code: 10170 Case No.: _____ SAS No.: _____ SDG No.: CHA81

Matrix: (soil/water) WATER Lab Sample ID: MB

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: C17101.D

Level: (low/med) LOW Date Received: 4/5/07

% Moisture: not dec. _____ Date Analyzed: 4/11/07

GC Column: RTX-VO ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

Number TICs found: 0

CAS NO.	COMPOUND NAME	RT	EST. CONC.	Q

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3
BLANKS

Lab Name: Upstate Laboratories, Inc. Contract:

Lab Code: 10170 Case No. SAS No.: SDG No.: CHA81

Preparation Blank Matrix (soil/water): WATER

Preparation Blank Concentration Units (ug/L or mg/kg): UG/L

Analyte	Initial Calib. Blank (ug/L)	C	RunNo: 24333 Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	MB-9939 Prepa-ration Blank	C	M
Aluminum	100.0	U	100.0	U	100.0	U			100.000	U	P
Antimony	15.0	U	15.0	U	15.0	U			15.000	U	P
Arsenic	10.0	U	10.0	U	10.0	U			10.000	U	P
Barium	50.0	U	50.0	U	50.0	U			50.000	U	P
Beryllium	3.0	U	3.0	U	3.0	U			3.000	U	P
Cadmium	5.0	U	5.0	U	5.0	U			5.000	U	P
Calcium	1000.0	U	1000.0	U	1000.0	U			1000.000	U	P
Chromium	5.0	U	5.0	U	5.0	U			5.000	U	P
Cobalt	20.0	U	20.0	U	20.0	U			20.000	U	P
Copper	10.0	U	10.0	U	10.0	U			10.000	U	P
Iron	60.0	U	60.0	U	60.0	U			60.000	U	P
Lead	3.0	U	3.0	U	3.0	U			3.000	U	P
Magnesium	1000.0	U	1000.0	U	1000.0	U			1000.000	U	P
Manganese	10.0	U	10.0	U	10.0	U			10.000	U	P
Nickel	30.0	U	30.0	U	30.0	U			30.000	U	P
Potassium	1000.0	U	1000.0	U	1000.0	U			1000.000	U	P
Silver	10.0	U	10.0	U	10.0	U			10.000	U	P
Sodium	1000.0	U	1000.0	U	1000.0	U			1000.000	U	P
Thallium	10.0	U	10.0	U	10.0	U			10.000	U	P
Vanadium	30.0	U	30.0	U	30.0	U			30.000	U	P

U.S. EPA - CLP

3
BLANKS

Lab Name: Upstate Laboratories, Inc. Contract:

Lab Code: 10170 Case No. SAS No.: SDG No.: CHA81

Preparation Blank Matrix (soil/water): WATER

Preparation Blank Concentration Units (ug/L or mg/kg): UG/L

Analyte	Initial Calib. Blank (ug/L)	C	RunNo: 24333 Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	MB-9938 Prepa-ration Blank	C	M
Aluminum	100.0	U	100.0	U	100.0	U			100.000	U	P
Antimony	15.0	U	15.0	U	15.0	U			15.000	U	P
Arsenic	10.0	U	10.0	U	10.0	U			10.000	U	P
Barium	50.0	U	50.0	U	50.0	U			50.000	U	P
Beryllium	3.0	U	3.0	U	3.0	U			3.000	U	P
Cadmium	5.0	U	5.0	U	5.0	U			5.000	U	P
Calcium	1000.0	U	1000.0	U	1000.0	U			1000.000	U	P
Chromium	5.0	U	5.0	U	5.0	U			5.000	U	P
Cobalt	20.0	U	20.0	U	20.0	U			20.000	U	P
Copper	10.0	U	10.0	U	10.0	U			10.000	U	P
Iron	60.0	U	60.0	U	60.0	U			60.000	U	P
Lead	3.0	U	3.0	U	3.0	U			3.000	U	P
Magnesium	1000.0	U	1000.0	U	1000.0	U			1000.000	U	P
Manganese	10.0	U	10.0	U	10.0	U			10.000	U	P
Nickel	30.0	U	30.0	U	30.0	U			30.000	U	P
Potassium	1000.0	U	1000.0	U	1000.0	U			1000.000	U	P
Silver	10.0	U	10.0	U	10.0	U			10.000	U	P
Sodium	1000.0	U	1000.0	U	1000.0	U			1000.000	U	P
Thallium	10.0	U	10.0	U	10.0	U			10.000	U	P
Vanadium	30.0	U	30.0	U	30.0	U			30.000	U	P

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3
BLANKS

Lab Name: Upstate Laboratories, Inc. Contract:

Lab Code: 10170 Case No. SAS No.: SDG No.: CHA81

Preparation Blank Matrix (soil/water): WATER

Preparation Blank Concentration Units (ug/L or mg/kg): UG/L

Analyte	Initial Calib. Blank (ug/L)	C	RunNo: 24334 Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	MB-9939 Preparation Blank	C	M
Zinc	10.0	U	10.0	U	10.0	U			10.000	U	P

U.S. EPA - CLP

3
BLANKS

Lab Name: Upstate Laboratories, Inc. Contract:

Lab Code: 10170 Case No. SAS No.: SDG No.: CHA81

Preparation Blank Matrix (soil/water): WATER

Preparation Blank Concentration Units (ug/L or mg/kg): UG/L

Analyte	Initial Calib. Blank (ug/L)	C	RunNo: 24334 Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	MB-9938 Prepa-ration Blank	C	M
Zinc	10.0	U	10.0	U	10.0	U			10.000	U	P

U.S. EPA - CLP

3
BLANKS

Lab Name: Upstate Laboratories, Inc. Contract:

Lab Code: 10170 Case No. SAS No.: SDG No.: CHA81

Preparation Blank Matrix (soil/water): WATER

Preparation Blank Concentration Units (ug/L or mg/kg): UG/L

Analyte	Initial Calib. Blank (ug/L)	C	RunNo: 24568 Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	MB-9939 Prepa-ration Blank	C	M
Selenium	5.0	U	-7.5		5.0	U			5.000	U	P

U.S. EPA - CLP

3
BLANKS

Lab Name: Upstate Laboratories, Inc. Contract:

Lab Code: 10170 Case No. SAS No.: SDG No.: CHA81

Preparation Blank Matrix (soil/water): WATER

Preparation Blank Concentration Units (ug/L or mg/kg): UG/L

Analyte	Initial Calib. Blank (ug/L)	C	RunNo: 24568 Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	MB-9938 Prepa-ration Blank	C	M
Selenium	5.0	U	-7.5		5.0	U			5.000	U	P

U.S. EPA - CLP

3
BLANKS

Lab Name: Upstate Laboratories, Inc. Contract:

Lab Code: 10170 Case No. SAS No.: SDG No.: CHA81

Preparation Blank Matrix (soil/water): WATER

Preparation Blank Concentration Units (ug/L or mg/kg): UG/L

Analyte	Initial Calib. Blank (ug/L)	C	RunNo: 24278 Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	MB-9939 Prepa-ration Blank	C	M
Boron	500.0	U	500.0	U	500.0	U			500.000	U	P

U.S. EPA - CLP

3
BLANKS

Lab Name: Upstate Laboratories, Inc. Contract:

Lab Code: 10170 Case No. SAS No.: SDG No.: CHA81

Preparation Blank Matrix (soil/water): WATER

Preparation Blank Concentration Units (ug/L or mg/kg): UG/L

Analyte	Initial Calib. Blank (ug/L)	C	RunNo: 24278 Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	MB-9938 Prepa-ration Blank	C	M
Boron	500.0	U	500.0	U	500.0	U			500.000	U	P

U.S. EPA - CLP

3
BLANKS

Lab Name: Upstate Laboratories, Inc. Contract:

Lab Code: 10170 Case No. SAS No.: SDG No.: CHA81

Preparation Blank Matrix (soil/water): WATER

Preparation Blank Concentration Units (ug/L or mg/kg): UG/L

Analyte	Initial Calib. Blank (ug/L)	C	RunNo: 24114 Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	MB-9897 Prepa-ration Blank	C	M
Mercury	0.2	U	0.2	U	0.2	U	0.2	U	0.200	U	CV

U.S. EPA - CLP

3
BLANKS

Lab Name: Upstate Laboratories, Inc. Contract:

Lab Code: 10170 Case No. SAS No.: SDG No.: CHA81

Preparation Blank Matrix (soil/water): WATER

Preparation Blank Concentration Units (ug/L or mg/kg): UG/L

Analyte	Initial Calib. Blank (ug/L)	C	RunNo: 24114 Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	MB-9897 Prepa-ration Blank	C	M
Mercury			0.2	U							CV

U.S. EPA - CLP

3
BLANKS

Lab Name: Upstate Laboratories, Inc. Contract:

Lab Code: 10170 Case No. SAS No.: SDG No.: CHA81

Preparation Blank Matrix (soil/water): WATER

Preparation Blank Concentration Units (ug/L or mg/kg): UG/L

Analyte	Initial Calib. Blank (ug/L)	C	RunNo: 24114 Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	MB-9898 Prepa-ration Blank	C	M
Mercury	0.2	U	0.2	U	0.2	U	0.2	U	0.200	U	CV

U.S. EPA - CLP

3
BLANKS

Lab Name: Upstate Laboratories, Inc. Contract:

Lab Code: 10170 Case No. SAS No.: SDG No.: CHA81

Preparation Blank Matrix (soil/water): WATER

Preparation Blank Concentration Units (ug/L or mg/kg): UG/L

Analyte	Initial Calib. Blank (ug/L)	C	RunNo: 24114 Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	MB-9898 Preparation Blank	C	M
Mercury			0.2	U							CV

U.S. EPA - CLP

3
BLANKS

Lab Name: Upstate Laboratories, Inc. Contract:

Lab Code: 10170 Case No. SAS No.: SDG No.: CHA81

Preparation Blank Matrix (soil/water): WATER

Preparation Blank Concentration Units (ug/L or mg/kg): UG/L

Analyte	Initial Calib. Blank (ug/L)	C	RunNo: 24139 Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	MB-9878 Prepa-ration Blank	C	M
Cyanide	10.0	U	10.0	U					10.000	U	C

U.S. EPA - CLP

3
BLANKS

Lab Name: Upstate Laboratories, Inc. Contract:

Lab Code: 10170 Case No. SAS No.: SDG No.: CHA81

Preparation Blank Matrix (soil/water): WATER

Preparation Blank Concentration Units (ug/L or mg/kg): UG/L

Analyte	Initial Calib. Blank (ug/L)	C	RunNo: 24144 Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	MB-9890 Prepa-ration Blank	C	M
Cyanide	10.0	U	10.0	U					10.000	U	C

U.S. EPA - CLP

4

ICP INTERFERENCE CHECK SAMPLE

Lab Name: Upstate Laboratories, Inc. Contract:

Lab Code: 10170 Case No. SAS No.: SDG No.: CHA81

ICP ID Number: 58.0 ICS Source: SPEX

Concentration Units: ug/L

Analyte	True Sol. A	True Sol. AB	Initial Found Sol. A	Initial Found Sol. AB	%R	Final Found Sol. A	Final Found Sol. AB	%R
Aluminum	500000	500000	541469	528085.4	105.6	547135	534673.3	106.9
Antimony	0	0	15	17.3		17	10.3	0.0
Arsenic	0	0	-10	-8.2		-13	-4.2	0.0
Barium	0	500	18	510.1	102.0	18	516.6	103.3
Beryllium	0	500	0	490.4	98.1	0	495.3	99.1
Cadmium	0	1000	19	960.3	96.0	20	976.1	97.6
Calcium	500000	500000	550510	534707.5	106.9	552157	541299.3	108.3
Chromium	0	500	4	535.5	107.1	4	543.6	108.7
Cobalt	0	500	-3	473.1	94.6	-3	475.8	95.2
Copper	0	500	-19	511.9	102.4	-22	518.4	103.7
Iron	200000	200000	196299	192033.8	96.0	198185	194936.9	97.5
Lead	0	1000	-37	928.3	92.8	-37	936.4	93.6
Magnesium	500000	500000	540822	526105.7	105.2	546803	534505.3	106.9
Manganese	0	500	7	541.1	108.2	7	546.4	109.3
Nickel	0	1000	0	1007.6	100.8	-1	1017.7	101.8
Potassium	0	0	34	26.9		31	28.0	0.0
Silver	0	1000	2	1135.4	113.5	3	1152.6	115.3
Sodium	0	0	1143	1153.3		1173	1225.1	0.0
Thallium	0	0	21	20.7		20	18.4	0.0
Vanadium	0	500	1	504.2	100.8	1	512.2	102.4

U.S. EPA - CLP

4

ICP INTERFERENCE CHECK SAMPLE

Lab Name: Upstate Laboratories, Inc. Contract:

Lab Code: 10170 Case No. SAS No.: SDG No.: CHA81

ICP ID Number: 58.0 ICS Source: SPEX

Concentration Units: ug/L

Analyte	True Sol. A	True Sol. AB	Initial Found Sol. A	Initial Found Sol. AB	Initial Found %R	Final Found Sol. A	Final Found Sol. AB	Final Found %R
Zinc	0	1000	2	955.8	95.6	2	952.1	95.2

U.S. EPA - CLP

4

ICP INTERFERENCE CHECK SAMPLE

Lab Name: Upstate Laboratories, Inc. Contract:

Lab Code: 10170 Case No. SAS No.: SDG No.: CHA81

ICP ID Number: 58.0 ICS Source: SPEX

Concentration Units: ug/L

Analyte	True Sol. A	True Sol. AB	Initial Found Sol. A	Initial Found Sol. AB	Initial Found %R	Final Found Sol. A	Final Found Sol. AB	Final Found %R
Selenium	0	0	15	15.6		23	11.6	0.0

U.S. EPA - CLP

4
ICP INTERFERENCE CHECK SAMPLE

Lab Name: Upstate Laboratories, Inc. Contract:

Lab Code: 10170 Case No. SAS No.: SDG No.: CHA81

ICP ID Number: 58.0 ICS Source: SPEX

Concentration Units: ug/L

Analyte	True Sol. A	True Sol. AB	Initial Found Sol. A	Initial Found Sol. AB	Initial Found %R	Final Found Sol. A	Final Found Sol. AB	Final Found %R
Boron	0	1000	109	1072.9	107.3	31	1014.9	101.5

5A

VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: Upstate Labs Inc. Contract: CHA

Lab Code: 10170 Case No.: SAS No.: SDG No.: CHA81

Lab File ID: C17003.D BFB Injection Date: 3/28/07

Instrument ID: 12.0 BFB Injection Time: 11:54

GC Column: RTX-VOLA ID: 0.53 (mm) Heated Purge: (Y/N) N

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE	
50	8.0 - 40.0% of mass 95	24.5	
75	30.0 - 66.0% of mass 95	54.3	
95	Base peak, 100% relative abundance	100.0	
96	5.0 - 9.0% of mass 95	6.3	
173	Less than 2.0% of mass 174	0.0	(0.0)1
174	50.0 - 120.0% of mass 95	98.3	
175	4.0 - 9.0% of mass 174	7.4	(7.5)1
176	93.0 - 101.0% of mass 174	98.8	(100.5)1
177	5.0 - 9.0% of mass 176	6.7	(6.8)2

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

-94-

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VSTD050	VSTD050	C17004.D	3/28/07	12:36
02	VSTD200	VSTD200	C17005.D	3/28/07	13:14
03	VSTD100	VSTD100	C17006.D	3/28/07	13:52
04	VSTD020	VSTD020	C17007.D	3/28/07	14:30
05	VSTD010	VSTD010	C17008.D	3/28/07	15:08
06	VSTD003	VSTD003	C17009.D	3/28/07	15:46

5A

VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: Upstate Labs Inc. Contract: CHA

Lab Code: 10170 Case No.: _____ SAS No.: _____ SDG No.: CHA81

Lab File ID: C17080.D BFB Injection Date: 4/10/07

Instrument ID: 12.0 BFB Injection Time: 9:22

GC Column: RTX-VOLA ID: 0.53 (mm) Heated Purge: (Y/N) N

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	8.0 - 40.0% of mass 95	24.2
75	30.0 - 66.0% of mass 95	54.9
95	Base peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	7.9
173	Less than 2.0% of mass 174	0.0 (0.0)1
174	50.0 - 120.0% of mass 95	98.3
175	4.0 - 9.0% of mass 174	7.6 (7.7)1
176	93.0 - 101.0% of mass 174	91.6 (93.2)1
177	5.0 - 9.0% of mass 176	6.7 (7.3)2

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

-95-

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VSTD050CC01	CC	C17081.D	4/10/07	10:15
02	VBLK01	MB	C17082.D	4/10/07	10:57
03	VMBS01	LCS	C17083.D	4/10/07	11:35
04	MW-14S	U0704115-001H	C17084.D	4/10/07	12:14
05	VSTD050CC02	CC	C17098.D	4/10/07	21:06

5A

VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: Upstate Labs Inc. Contract: CHA

Lab Code: 10170 Case No.: SAS No.: SDG No.: CHA81

Lab File ID: C17061.D BFB Injection Date: 4/9/07

Instrument ID: 12.0 BFB Injection Time: 10:27

GC Column: RTX-VOLA ID: 0.53 (mm) Heated Purge: (Y/N) N

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	8.0 - 40.0% of mass 95	24.4
75	30.0 - 66.0% of mass 95	53.7
95	Base peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	7.5
173	Less than 2.0% of mass 174	0.0 (0.0)1
174	50.0 - 120.0% of mass 95	91.6
175	4.0 - 9.0% of mass 174	6.6 (7.3)1
176	93.0 - 101.0% of mass 174	92.4 (100.9)1
177	5.0 - 9.0% of mass 176	7.6 (8.2)2

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

-96-

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VSTD050CC03	CC	C17062.D	4/9/07	11:06
02	VBLK02	MB	C17063.D	4/9/07	11:44
03	VMBS02	LCS	C17064.D	4/9/07	12:22
04	MW-14I	U0704115-002H	C17066.D	4/9/07	13:50
05	MW-14D	U0704115-003H	C17067.D	4/9/07	14:32
06	CHA-2	U0704115-004H	C17068.D	4/9/07	15:10
07	HOLDING BLANK	U0704115-005A	C17069.D	4/9/07	15:48
08	MW-15I MS	U0704115-007HMS	C17072.D	4/9/07	17:30
09	MW-15I MSD	U0704115-007HMSD	C17073.D	4/9/07	18:08
10	MW-15D	U0704115-008H	C17074.D	4/9/07	18:47
11	TRIP BLANK	U0704115-009A	C17075.D	4/9/07	19:25
12	VSTD050CC04	CC	C17079.D	4/9/07	21:58

5A

VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: Upstate Labs Inc. Contract: CHA

Lab Code: 10170 Case No.: SAS No.: SDG No.: CHA81

Lab File ID: C17099.D BFB Injection Date: 4/11/07

Instrument ID: 12.0 BFB Injection Time: 10:19

GC Column: RTX-VOLA ID: 0.53 (mm) Heated Purge: (Y/N) N

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE	
50	8.0 - 40.0% of mass 95	24.0	
75	30.0 - 66.0% of mass 95	55.9	
95	Base peak, 100% relative abundance	100.0	
96	5.0 - 9.0% of mass 95	7.2	
173	Less than 2.0% of mass 174	0.0	(0.0)1
174	50.0 - 120.0% of mass 95	95.3	
175	4.0 - 9.0% of mass 174	7.6	(8.0)1
176	93.0 - 101.0% of mass 174	89.8	(94.3)1
177	5.0 - 9.0% of mass 176	6.8	(7.5)2

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

-97-

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VSTD050CC05	CC	C17100.D	4/11/07	11:01
02	VBLK03	MB	C17101.D	4/11/07	11:55
03	VMBS03	LCS	C17102.D	4/11/07	12:33
04	MW-15S	U0704115-006H	C17104.D	4/11/07	13:49
05	MW-15I	U0704115-007H	C17107.D	4/11/07	15:44

8A

VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: Upstate Labs Inc. Contract: CHA

Lab Code: 10170 Case No.: SAS No.: SDG No.: CHA81

Lab File ID (Standard): C17081.D Date Analyzed: 4/10/07

Instrument ID: 12.0 Time Analyzed: 10:15

GC Column: RTX-VOLA ID: 0.53 (mm) Heated Purge (Y/N): N

	IS1(PFB)		IS2		IS3	
	AREA #	RT #	AREA #	RT #	AREA #	RT #
12 HOUR STD	460347	8.09	396598	11.41	304586	18.79
UPPER LIMIT	920694	8.59	793196	11.91	609172	19.29
LOWER LIMIT	230174	7.59	198299	10.91	152293	18.29
EPA SAMPLE NO.						
01 VBLK01	470088	8.12	409823	11.43	317958	18.78
02 VMBS01	475451	8.13	403584	11.44	306795	18.79
03 MW-14S	473360	8.12	409785	11.43	314324	18.79

IS1 (PFB) = Pentafluorobenzene
IS2 = 1,4-Difluorobenzene
IS3 = Chlorobenzene-d5
IS4 (DCB) = 1,4-Dichlorobenzene-d4

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT LOWER LIMIT = -0.50 minutes of internal standard RT

Column to be used to flag values outside QC limit with an asterisk.
* Values outside of contract required QC limits

8A

VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: Upstate Labs Inc. Contract: CHA

Lab Code: 10170 Case No.: _____ SAS No.: _____ SDG No.: CHA81

Lab File ID (Standard): C17081.D Date Analyzed: 04/10/07

Instrument ID: 12.0 Time Analyzed: 10:15

GC Column: RTX-VOLA ID: 0.53 (mm) Heated Purge (Y/N): N

		IS4(DCB) AREA #	RT #	AREA #	RT #	AREA #	RT #
	12 HOUR STD	225039	23.43				
	UPPER LIMIT	450078	22.93				
	LOWER LIMIT	112520	23.93				
	EPA SAMPLE NO.						
01	VBLK01	224964	23.44				
02	VMBS01	232067	23.43				
03	MW-14S	228826	23.43				

IS1 (PFB) = Pentafluorobenzene
IS2 = 1,4-Difluorobenzene
IS3 = Chlorobenzene-d5
IS4 (DCB) = 1,4-Dichlorobenzene-d4

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT LOWER LIMIT = -0.50 minutes of internal standard RT

Column to be used to flag values outside QC limit with an asterisk.
* Values outside of contract required QC limits

8A

VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: Upstate Labs Inc. Contract: CHA

Lab Code: 10170 Case No.: SAS No.: SDG No.: CHA81

Lab File ID (Standard): C17062.D Date Analyzed: 4/9/07

Instrument ID: 12.0 Time Analyzed: 11:06

GC Column: RTX-VOLA ID: 0.53 (mm) Heated Purge (Y/N): N

		IS1(PFB)		IS2		IS3	
		AREA #	RT #	AREA #	RT #	AREA #	RT #
	12 HOUR STD	627427	8.11	539298	11.42	406568	18.79
	UPPER LIMIT	1254854	8.61	1078596	11.92	813136	19.29
	LOWER LIMIT	313714	7.61	269649	10.92	203284	18.29
	EPA SAMPLE NO.						
01	VBLK02	621200	8.14	546102	11.45	416042	18.80
02	VMBS02	616125	8.14	531878	11.44	401002	18.80
03	MW-14I	650476	8.09	551832	11.42	425734	18.79
04	MW-14D	553759	8.11	498204	11.43	387837	18.79
05	CHA-2	580803	8.14	505749	11.45	389902	18.79
06	HOLDING BLANK	539314	8.13	472675	11 44	361506	18.80
07	MW-15I MS	594210	8.08	513268	11 40	399469	18.78
08	MW-15I MSD	562403	8.14	489998	11.45	376929	18.79
09	MW-15D	577940	8.13	500631	11 44	385375	18.79
10	TRIP BLANK	538653	8.14	478571	11.45	369334	18.79

-100-

IS1 (PFB) = Pentafluorobenzene
IS2 = 1,4-Difluorobenzene
IS3 = Chlorobenzene-d5
IS4 (DCB) = 1,4-Dichlorobenzene-d4

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT LOWER LIMIT = -0.50 minutes of internal standard RT

Column to be used to flag values outside QC limit with an asterisk.
* Values outside of contract required QC limits

8A

VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: Upstate Labs Inc. Contract: CHA

Lab Code: 10170 Case No.: SAS No.: SDG No.: CHA81

Lab File ID (Standard): C17062.D Date Analyzed: 04/09/07

Instrument ID: 12.0 Time Analyzed: 11:06

GC Column: RTX-VOLA ID: 0.53 (mm) Heated Purge (Y/N): N

		IS4(DCB) AREA	#	RT	#	AREA	#	RT	#	AREA	#	RT	#
	12 HOUR STD	303256		23.43									
	UPPER LIMIT	606512		22.93									
	LOWER LIMIT	151628		23.93									
	EPA SAMPLE NO.												
01	VBLK02	299243		23.44									
02	VMBS02	306582		23.43									
03	MW-14I	313388		23.42									
04	MW-14D	282538		23.43									
05	CHA-2	280455		23.44									
06	HOLDING BL	266694		23.43									
07	MW-15I MS	291014		23.43									
08	MW-15I MSD	273551		23.43									
09	MW-15D	272575		23.42									
10	TRIP BLANK	268296		23.43									

IS1 (PFB) = Pentafluorobenzene
IS2 = 1,4-Difluorobenzene
IS3 = Chlorobenzene-d5
IS4 (DCB) = 1,4-Dichlorobenzene-d4

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT LOWER LIMIT = -0.50 minutes of internal standard RT

Column to be used to flag values outside QC limit with an asterisk.
* Values outside of contract required QC limits

8A

VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: Upstate Labs Inc. Contract: CHA

Lab Code: 10170 Case No.: _____ SAS No.: _____ SDG No.: CHA81

Lab File ID (Standard): C17100.D Date Analyzed: 4/11/07

Instrument ID: 12.0 Time Analyzed: 11:01

GC Column: RTX-VOLA ID: 0.53 (mm) Heated Purge (Y/N): N

	IS1(PFB)		IS2		IS3	
	AREA #	RT #	AREA #	RT #	AREA #	RT #
12 HOUR STD	623431	8.11	533376	11.43	410879	18.79
UPPER LIMIT	1246862	8.61	1066752	11.93	821758	19.29
LOWER LIMIT	311716	7.61	266688	10.93	205440	18.29
EPA SAMPLE NO.						
01 VBLK03	476222	8.10	399270	11.42	308708	18.80
02 VMBS03	521440	8.14	440676	11.45	335242	18.80
03 MW-15S	548345	8.14	472125	11.45	359779	18.80
04 MW-15I	559369	8.14	473243	11.46	357676	18.80

IS1 (PFB) = Pentafluorobenzene
IS2 = 1,4-Difluorobenzene
IS3 = Chlorobenzene-d5
IS4 (DCB) = 1,4-Dichlorobenzene-d4

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT LOWER LIMIT = -0.50 minutes of internal standard RT

Column to be used to flag values outside QC limit with an asterisk.
* Values outside of contract required QC limits

8A

VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: Upstate Labs Inc. Contract: CHA

Lab Code: 10170 Case No.: SAS No.: SDG No.: CHA81

Lab File ID (Standard): C17100.D Date Analyzed: 04/11/07

Instrument ID: 12.0 Time Analyzed: 11:01

GC Column: RTX-VOLA ID: 0.53 (mm) Heated Purge (Y/N): N

		IS4(DCB) AREA #	RT #	AREA #	RT #	AREA #	RT #
	12 HOUR STD	305919	23.43				
	UPPER LIMIT	611838	22.93				
	LOWER LIMIT	152960	23.93				
	EPA SAMPLE NO.						
01	VBLK03	220537	23.44				
02	VMBS03	258469	23.44				
03	MW-15S	264074	23.44				
04	MW-15I	266827	23.44				

IS1 (PFB) = Pentafluorobenzene
IS2 = 1,4-Difluorobenzene
IS3 = Chlorobenzene-d5
IS4 (DCB) = 1,4-Dichlorobenzene-d4

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT LOWER LIMIT = -0.50 minutes of internal standard RT

Column to be used to flag values outside QC limit with an asterisk.
* Values outside of contract required QC limits

U.S. EPA - CLP

2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: Upstate Laboratories, Inc. Contract:

Lab Code: 10170 Case No. SAS No.: SDG No.: CHA81

Initial Calibration Verification Source: SPEX

Continuing Calibration Verification Source: CPI

Concentration Units: ug/L

Analyte	Initial Calibration True	Initial Calibration Found	Initial Calibration %R(1)	Continuing Calibration True	Continuing Calibration Found	Continuing Calibration %R(1)	Continuing Calibration Found	Continuing Calibration %R(1)	M
Aluminum	10000.0	9403.91	94.0	16000.0	15906.02	99.4	15827.46	98.9	P
Antimony	2500.0	2580.64	103.2	4800.0	4777.19	99.5	4847.88	101.0	P
Arsenic	500.0	466.23	93.2	2000.0	1871.51	93.6	1872.79	93.6	P
Barium	10000.0	9801.35	98.0	16000.0	15757.45	98.5	15762.04	98.5	P
Beryllium	250.0	237.02	94.8	400.0	395.46	98.9	396.62	99.2	P
Cadmium	250.0	234.39	93.8	1000.0	947.70	94.8	948.50	94.9	P
Calcium	25000.0	24469.97	97.9	40000.0	39755.23	99.4	39661.35	99.2	P
Chromium	500.0	532.54	106.5	800.0	864.24	108.0	863.54	107.9	P
Cobalt	2500.0	2446.26	97.9	4000.0	4016.04	100.4	4033.42	100.8	P
Copper	1250.0	1191.04	95.3	2000.0	1997.52	99.9	1982.76	99.1	P
Iron	5000.0	4851.34	97.0	8000.0	8100.68	101.3	8100.30	101.3	P
Lead	150.0	141.57	94.4	2000.0	1903.56	95.2	1919.48	96.0	P
Magnesium	25000.0	24660.03	98.6	40000.0	40132.77	100.3	40039.46	100.1	P
Manganese	750.0	814.07	108.5	1200.0	1288.71	107.4	1292.97	107.7	P
Nickel	2000.0	2137.09	106.9	3200.0	3390.78	106.0	3378.64	105.6	P
Potassium	25000.0	22746.79	91.0	40000.0	38860.43	97.2	38986.02	97.5	P
Silver	500.0	521.07	104.2	800.0	848.71	106.1	846.04	105.8	P
Sodium	25000.0	23572.39	94.3	40000.0	39221.82	98.1	39039.76	97.6	P
Thallium	500.0	476.23	95.2	2000.0	1784.14	89.2	1788.22	89.4	P
Vanadium	2500.0	2397.28	95.9	4000.0	4031.26	100.8	4020.60	100.5	P

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

U.S. EPA - CLP

2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: Upstate Laboratories, Inc. Contract:

Lab Code: 10170 Case No. SAS No.: SDG No.: CHA81

Initial Calibration Verification Source: SPEX

Continuing Calibration Verification Source: CPI

Concentration Units: ug/L

Analyte	Initial Calibration True	Initial Calibration Found	Initial Calibration %R(1)	Continuing Calibration True	Continuing Calibration Found	Continuing Calibration %R(1)	Continuing Calibration Found	Continuing Calibration %R(1)	M
Zinc	1000.0	1005.96	100.6	1600.0	1676.85	104.8	1682.59	105.2	P

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

U.S. EPA - CLP

2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: Upstate Laboratories, Inc. Contract:

Lab Code: 10170 Case No. SAS No.: SDG No.: CHA81

Initial Calibration Verification Source: SPEX

Continuing Calibration Verification Source: CPI

Concentration Units: ug/L

Analyte	Initial Calibration True	Initial Calibration Found	Initial Calibration %R(1)	Continuing Calibration True	Continuing Calibration Found	Continuing Calibration %R(1)	Continuing Calibration Found	Continuing Calibration %R(1)	M
Selenium	250.0	248.15	99.3	2000.0	2047.84	102.4	2036.23	101.8	P

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

U.S. EPA - CLP

2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: Upstate Laboratories, Inc. Contract:

Lab Code: 10170 Case No. SAS No.: SDG No.: CHA81

Initial Calibration Verification Source: SPEX

Continuing Calibration Verification Source: CPI

Concentration Units: ug/L

Analyte	Initial Calibration True	Initial Calibration Found	Initial Calibration %R(1)	Continuing Calibration True	Continuing Calibration Found	Continuing Calibration %R(1)	Continuing Calibration Found	Continuing Calibration %R(1)	M
Boron	10000.0	10127.71	101.3	5000.0	4858.74	97.2	4844.63	96.9	P

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

U.S. EPA - CLP

2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: Upstate Laboratories, Inc. Contract:

Lab Code: 10170 Case No. SAS No.: SDG No.: CHA81

Initial Calibration Verification Source: SPEX

Continuing Calibration Verification Source: CPI

Concentration Units: ug/L

Analyte	Initial Calibration True	Found	%R(1)	Continuing Calibration True	Found	%R(1)	Found	%R(1)	M
Mercury	2.0	1.92	95.8	4.0	3.95	98.7	3.53	88.3	CV

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

U.S. EPA - CLP

2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: Upstate Laboratories, Inc. Contract:

Lab Code: 10170 Case No. SAS No.: SDG No.: CHA81

Initial Calibration Verification Source: SPEX

Continuing Calibration Verification Source: CPI

Concentration Units: ug/L

Analyte	Initial Calibration True	Initial Calibration Found	Initial Calibration %R(1)	Continuing Calibration True	Continuing Calibration Found	Continuing Calibration %R(1)	Continuing Calibration Found	Continuing Calibration %R(1)	M
Mercury				4.0	3.29	82.1	2.87	71.7	CV

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

U.S. EPA - CLP

2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: Upstate Laboratories, Inc. Contract:

Lab Code: 10170 Case No. SAS No.: SDG No.: CHA81

Initial Calibration Verification Source: SPEX

Continuing Calibration Verification Source: CPI

Concentration Units: ug/L

Analyte	Initial Calibration True	Found	%R(1)	Continuing Calibration True	Found	%R(1)	Found	%R(1)	M
Cyanide	100.0	92.68	92.7	200.0	194.08	97.0			C

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

U.S. EPA - CLP

2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: Upstate Laboratories, Inc. Contract:

Lab Code: 10170 Case No. SAS No.: SDG No.: CHA81

Initial Calibration Verification Source: SPEX

Continuing Calibration Verification Source: CPI

Concentration Units: ug/L

Analyte	Initial Calibration True	Found	%R(1)	Continuing Calibration True	Found	%R(1)	Found	%R(1)	M
Cyanide	100.0	95.48	95.5	200.0	202.86	101.4			C

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

U.S. EPA - CLP

2B
CRDL STANDARD FOR AA AND ICP

Lab Name: Upstate Laboratories, Inc. Contract:

Lab Code: 10170 Case No. SAS No.: SDG No.: CHA81

AA CRDL Standard Source: CPI

ICP CRDL Standard Source: SPEX

Concentration Units: ug/L

	CRDL Standard for AA			CRDL Standard for ICP				
				Initial			Final	
Analyte	True	Found	%R	True	Found	%R	Found	%R
Aluminum				0.0	108.14	0.0	115.98	0.0
Antimony				120.0	106.78	89.0	108.88	90.7
Arsenic				20.0	19.22	96.1	19.12	95.6
Barium				0.0	0.20	0.0	0.25	0.0
Beryllium				10.0	9.98	99.8	9.91	99.1
Cadmium				10.0	9.93	99.3	9.94	99.4
Calcium				0.0	810.41	0.0	960.31	0.0
Chromium				20.0	22.07	110.3	22.00	110.0
Cobalt				100.0	103.13	103.1	103.41	103.4
Copper				50.0	49.30	98.6	46.71	93.4
Iron				0.0	46.35	0.0	52.13	0.0
Lead				6.0	8.10	135.0	6.11	101.9
Magnesium				0.0	114.41	0.0	126.65	0.0
Manganese				30.0	33.64	112.1	33.88	112.9
Nickel				80.0	86.91	108.6	85.44	106.8
Potassium				0.0	25.95	0.0	12.44	0.0
Silver				20.0	21.32	106.6	21.59	108.0
Sodium				0.0	407.98	0.0	450.14	0.0
Thallium				20.0	20.61	103.1	23.38	116.9
Vanadium				100.0	100.74	100.7	100.97	101.0

U.S. EPA - CLP

2B
CRDL STANDARD FOR AA AND ICP

Lab Name: Upstate Laboratories, Inc. Contract:

Lab Code: 10170 Case No. SAS No.: SDG No.: CHA81

AA CRDL Standard Source: CPI

ICP CRDL Standard Source: SPEX

Concentration Units: ug/L

	CRDL Standard for AA			CRDL Standard for ICP				
				Initial			Final	
Analyte	True	Found	%R	True	Found	%R	Found	%R
Zinc				40.0	49.17	122.9	48.50	121.3

U.S. EPA - CLP

2B
CRDL STANDARD FOR AA AND ICP

Lab Name: Upstate Laboratories, Inc. Contract:

Lab Code: 10170 Case No. SAS No.: SDG No.: CHA81

AA CRDL Standard Source: CPI

ICP CRDL Standard Source: SPEX

Concentration Units: ug/L

	CRDL Standard for AA			CRDL Standard for ICP				
				Initial			Final	
Analyte	True	Found	%R	True	Found	%R	Found	%R
Selenium				10.0	11.04	110.4	11.14	111.4

U.S. EPA - CLP

2B
CRDL STANDARD FOR AA AND ICP

Lab Name: Upstate Laboratories, Inc. Contract:

Lab Code: 10170 Case No. SAS No.: SDG No.: CHA81

AA CRDL Standard Source: CPI

ICP CRDL Standard Source: SPEX

Concentration Units: ug/L

Analyte	CRDL Standard for AA			CRDL Standard for ICP				
				Initial			Final	
	True	Found	%R	True	Found	%R	Found	%R
Boron				500.0	579.35	115.9	538.82	107.8

U.S. EPA - CLP

2B
CRDL STANDARD FOR AA AND ICP

Lab Name: Upstate Laboratories, Inc. Contract:

Lab Code: 10170 Case No. SAS No.: SDG No.: CHA81

AA CRDL Standard Source: CPI

ICP CRDL Standard Source: SPEX

Concentration Units: ug/L

	CRDL Standard for AA			CRDL Standard for ICP				
				Initial			Final	
Analyte	True	Found	%R	True	Found	%R	Found	%R
Mercury	0.2	0.15	73.0					

9

ICP SERIAL DILUTIONS

MW-15DDissolved

Lab Name: Upstate Laboratories, Inc. Contract:

Lab Code: 10170 Case No. SAS No.: SDG No.: CHA81

Matrix (soil/water): Level (low/med): LOW

Concentration Units: ug/L

Analyte	Initial Sample Result (I)	C	Serial Dilution Result (S)	C	% Differ-ence	Q	M
Aluminum	100.00	U	500.00	U			P
Antimony	15.00	U	75.00	U			P
Arsenic	18.51		50.00	U	0.0		P
Barium	50.00	U	250.00	U			P
Beryllium	3.00	U	15.00	U			P
Boron	500.00	U	2500.00	U			P
Cadmium	5.00	U	25.00	U			P
Calcium	23867.36		27711.75		16.1		P
Chromium	5.00	U	25.00	U			P
Cobalt	20.00	U	100.00	U			P
Copper	10.00	U	156.40				P
Iron	105.00		390.23		271.7		P
Lead	3.00	U	15.00	U			P
Magnesium	3768.01	B	5000.00	U	0.0		P
Manganese	60.71		113.58		87.1		P
Nickel	30.00	U	150.00	U			P
Potassium	1000.00	U	5000.00	U			P
Selenium	5.00	U	25.00	U			P
Silver	10.00	U	50.00	U			P
Sodium	13433.82		12750.05		5.1		P
Thallium	15.65		50.00	U	0.0		P
Vanadium	30.00	U	150.00	U			P
Zinc	50.95		187.19		267.4		P

U.S. EPA - CLP

9

ICP SERIAL DILUTIONS

MW-15D

Lab Name: Upstate Laboratories, Inc. Contract:

Lab Code: 10170 Case No. SAS No.: SDG No.: CHA81

Matrix (soil/water): WATER Level (low/med): LOW

Concentration Units: ug/L

Analyte	Initial Sample Result (I)	C	Serial Dilution Result (S)	C	% Difference	Q	M
Aluminum	6086.47		5899.53		3.1		P
Antimony	15.00	U	75.00	U			P
Arsenic	13.76		50.00	U	0.0		P
Barium	91.78	B	250.00	U	0.0		P
Beryllium	3.00	U	15.00	U			P
Boron	500.00	U	2500.00	U			P
Cadmium	5.00	U	25.00	U			P
Calcium	53172.53		53892.56		1.4		P
Chromium	8.38	B	25.00	U	0.0		P
Cobalt	20.00	U	100.00	U			P
Copper	16.03	B	50.00	U	0.0		P
Iron	12437.01		12328.09		0.9		P
Lead	5.02		15.00	U	0.0		P
Magnesium	11745.51		11760.90		0.1		P
Manganese	415.98		422.92		1.7		P
Nickel	30.00	U	150.00	U			P
Potassium	2177.23	B	5000.00	U	0.0		P
Selenium	5.00	U	25.00	U			P
Silver	10.00	U	50.00	U			P
Sodium	13870.78		14079.43		1.5		P
Thallium	23.83		50.00	U	0.0		P
Vanadium	30.00	U	150.00	U			P
Zinc	143.51		263.46		83.6		P

Upstate Laboratories, Inc.

Date: *09-May-07*

CLIENT: Clough, Harbour & Assoc. LLP
Work Order: U0704115
Project: C/O Albany Interim Landfill

ANALYTICAL QC SUMMARY REPORT

TestCode: 110.2

Sample ID: **MB-R24341** SampType: **MBLK** TestCode: **110.2** Units: **UNITS** Prep Date: RunNo: **24341**
Client ID: **ZZZZZ** Batch ID: **R24341** TestNo: **E110.2** Analysis Date: **4/5/2007** SeqNo: **438527**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Color	ND	5.00									

Sample ID: **U0704115-007ADUP** SampType: **DUP** TestCode: **110.2** Units: **UNITS** Prep Date: RunNo: **24341**
Client ID: **MW-15I** Batch ID: **R24341** TestNo: **E110.2** Analysis Date: **4/5/2007** SeqNo: **438541**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Color	10.00	5.00						10	0	20	

Qualifiers:
E Value above quantitation range
ND Not Detected at the Reporting Limit
H Holding times for preparation or analysis exceeded
R RPD outside accepted recovery limits
J Analyte detected below quantitation limits
S Spike Recovery outside accepted recovery limits

CLIENT: Clough, Harbour & Assoc. LLP
Work Order: U0704115
Project: C/O Albany Interim Landfill

ANALYTICAL QC SUMMARY REPORT

TestCode: 160.1

Sample ID: **MB-R24425** SampType: **MBLK** TestCode: **160.1** Units: **mg/L** Prep Date: RunNo: **24425**
Client ID: **ZZZZZ** Batch ID: **R24425** TestNo: **E160.1** Analysis Date: **4/10/2007** SeqNo: **440393**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Residue, Dissolved (TDS)	ND	25.0									

Sample ID: **MB-R24681** SampType: **MBLK** TestCode: **160.1** Units: mg/L Prep Date: RunNo: **24681**
Client ID: **ZZZZZ** Batch ID: **R24681** TestNo: **E160.1** Analysis Date: **4/5/2007** SeqNo: **444427**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Residue, Dissolved (TDS)	ND	25.0									

Sample ID: **LCS** SampType: **LCS** TestCode: **160.1** Units: **mg/L** Prep Date: RunNo: **24425**
Client ID: **ZZZZZ** Batch ID: **R24425** TestNo: **E160.1** Analysis Date: **4/10/2007** SeqNo: **440395**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Residue, Dissolved (TDS)	107.5	25.0	104	0	103	75	130.5				

Sample ID: **LCS** SampType: **LCS** TestCode: **160.1** Units: **mg/L** Prep Date: RunNo: **24681**
Client ID: **ZZZZZ** Batch ID: **R24681** TestNo: **E160.1** Analysis Date: **4/5/2007** SeqNo: **444429**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Residue, Dissolved (TDS)	120.0	25.0	104	0	115	88	125				

Sample ID: **U0704115-007ADUP** SampType: **DUP** TestCode: **160.1** Units: **mg/L** Prep Date: RunNo: **24425**
Client ID: **MW-15I** Batch ID: **R24425** TestNo: **E160.1** Analysis Date: **4/10/2007** SeqNo: **440398**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Residue, Dissolved (TDS)	350.0	25.0						387.5	10.2	25	

Qualifiers:
E Value above quantitation range
ND Not Detected at the Reporting Limit
H Holding times for preparation or analysis exceeded
R RPD outside accepted recovery limits
J Analyte detected below quantitation limits
S Spike Recovery outside accepted recovery limits

CLIENT: Clough, Harbour & Assoc. LLP
Work Order: U0704115
Project: C/O Albany Interim Landfill

ANALYTICAL QC SUMMARY REPORT

TestCode: 160.1

Sample ID: **U0704187-004ADUP** SampType: **DUP** TestCode: **160.1** Units: **mg/L** Prep Date: RunNo: **24425**
Client ID: **ZZZZZ** Batch ID: **R24425** TestNo: **E160.1** Analysis Date: **4/10/2007** SeqNo: **440408**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Residue, Dissolved (TDS)	2585	25.0						2420	6.59	25	

Qualifiers:
E Value above quantitation range
ND Not Detected at the Reporting Limit
H Holding times for preparation or analysis exceeded
R RPD outside accepted recovery limits
J Analyte detected below quantitation limits
S Spike Recovery outside accepted recovery limits

CLIENT: Clough, Harbour & Assoc. LLP
Work Order: U0704115
Project: C/O Albany Interim Landfill

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_IC

Sample ID: **U0704115-007AMS** SampType: **MS** TestCode: **300_IC** Units: **mg/L** Prep Date: RunNo: **24694**
Client ID: **MW-15I** Batch ID: **R24694** TestNo: **E300.1** Analysis Date: **5/1/2007** SeqNo: **444560**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromide	4.640	0.20	5	0	92.8	75	125				

Sample ID: **U0704106-020ADUP** SampType: **DUP** TestCode: **300_IC** Units: **mg/L** Prep Date: RunNo: **24589**
Client ID: **ZZZZZ** Batch ID: **R24589** TestNo: **E300.1** Analysis Date: **4/30/2007** SeqNo: **442838**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromide	ND	2.0						0	0	0	

Sample ID: **U0704107-010ADUP** SampType: **DUP** TestCode: **300_IC** Units: **mg/L** Prep Date: RunNo: **24589**
Client ID: **ZZZZZ** Batch ID: **R24589** TestNo: **E300.1** Analysis Date: **4/30/2007** SeqNo: **442853**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromide	ND	2.0						0	0	0	

Sample ID: **U0704115-007ADUP** SampType: **DUP** TestCode: **300_IC** Units: **mg/L** Prep Date: RunNo: **24694**
Client ID: **MW-15I** Batch ID: **R24694** TestNo: **E300.1** Analysis Date: **5/1/2007** SeqNo: **444559**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromide	ND	0.20						0	0	0	

Sample ID: **U0704187-004ADUP** SampType: **DUP** TestCode: **300_IC** Units: **mg/L** Prep Date: RunNo: **24694**
Client ID: **ZZZZZ** Batch ID: **R24694** TestNo: **E300.1** Analysis Date: **5/1/2007** SeqNo: **444570**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromide	ND	2.0						0	0	0	

Qualifiers:
E Value above quantitation range
ND Not Detected at the Reporting Limit
H Holding times for preparation or analysis exceeded
R RPD outside accepted recovery limits
J Analyte detected below quantitation limits
S Spike Recovery outside accepted recovery limits

CLIENT: Clough, Harbour & Assoc. LLP
Work Order: U0704115
Project: C/O Albany Interim Landfill

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_IC

Sample ID: **U0704187-014ADUP** SampType: **DUP** TestCode: **300_IC** Units: **mg/L** Prep Date: RunNo: **24694**
Client ID: **ZZZZZ** Batch ID: **R24694** TestNo: **E300.1** Analysis Date: **5/1/2007** SeqNo: **444849**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromide	ND	0.20						0	0	0	

Sample ID: **CCB01** SampType: **CCB** TestCode: **300_IC** Units: **mg/L** Prep Date: RunNo: **24589**
Client ID: **ZZZZZ** Batch ID: **R24589** TestNo: **E300.1** Analysis Date: **4/30/2007** SeqNo: **442841**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromide	ND	0.20									

Sample ID: **CCB02** SampType: **CCB** TestCode: **300_IC** Units: **mg/L** Prep Date: RunNo: **24589**
Client ID: **ZZZZZ** Batch ID: **R24589** TestNo: **E300.1** Analysis Date: **4/30/2007** SeqNo: **442861**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromide	ND	0.20									

Sample ID: **CCB03** SampType: **CCB** TestCode: **300_IC** Units: **mg/L** Prep Date: RunNo: **24589**
Client ID: **ZZZZZ** Batch ID: **R24589** TestNo: **E300.1** Analysis Date: **4/30/2007** SeqNo: **442873**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromide	ND	0.20									

Sample ID: **CCB04** SampType: **CCB** TestCode: **300_IC** Units: **mg/L** Prep Date: RunNo: **24589**
Client ID: **ZZZZZ** Batch ID: **R24589** TestNo: **E300.1** Analysis Date: **4/30/2007** SeqNo: **442884**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromide	ND	0.20									

Qualifiers:
- E Value above quantitation range
- ND Not Detected at the Reporting Limit
- H Holding times for preparation or analysis exceeded
- R RPD outside accepted recovery limits
- J Analyte detected below quantitation limits
- S Spike Recovery outside accepted recovery limits

CLIENT: Clough, Harbour & Assoc. LLP
Work Order: U0704115
Project: C/O Albany Interim Landfill

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_IC

Sample ID: CCB01	SampType: CCB	TestCode: 300_IC	Units: mg/L	Prep Date:	RunNo: 24694
Client ID: ZZZZZ	Batch ID: R24694	TestNo: E300.1		Analysis Date: 5/1/2007	SeqNo: 444563

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromide	ND	0.20									

Sample ID: CCB02	SampType: CCB	TestCode: 300_IC	Units: mg/L	Prep Date:	RunNo: 24694
Client ID: ZZZZZ	Batch ID: R24694	TestNo: E300.1		Analysis Date: 5/1/2007	SeqNo: 444575

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromide	ND	0.20									

Sample ID: CCB	SampType: CCB	TestCode: 300_IC	Units: mg/L	Prep Date:	RunNo: 24694
Client ID: ZZZZZ	Batch ID: R24694	TestNo: E300.1		Analysis Date: 5/1/2007	SeqNo: 444853

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromide	ND	0.20									

Sample ID: CCB	SampType: CCB	TestCode: 300_IC	Units: mg/L	Prep Date:	RunNo: 24694
Client ID: ZZZZZ	Batch ID: R24694	TestNo: E300.1		Analysis Date: 5/1/2007	SeqNo: 444865

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromide	ND	0.20									

Sample ID: CCB	SampType: CCB	TestCode: 300_IC	Units: mg/L	Prep Date:	RunNo: 24694
Client ID: ZZZZZ	Batch ID: R24694	TestNo: E300.1		Analysis Date: 5/1/2007	SeqNo: 444873

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromide	ND	0.20									

Qualifiers:

E	Value above quantitation range	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike Recovery outside accepted recovery limits

CLIENT: Clough, Harbour & Assoc. LLP
Work Order: U0704115
Project: C/O Albany Interim Landfill

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_IC

Sample ID: **CCV02** SampType: **CCV** TestCode: **300_IC** Units: **mg/L** Prep Date: RunNo: **24589**
Client ID: **ZZZZZ** Batch ID: **R24589** TestNo: **E300.1** Analysis Date: **4/30/2007** SeqNo: **442860**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromide	ND	0.20	5	0	0	90	110				S

Sample ID: **CCV03** SampType: **CCV** TestCode: **300_IC** Units: **mg/L** Prep Date: RunNo: **24589**
Client ID: **ZZZZZ** Batch ID: **R24589** TestNo: **E300.1** Analysis Date: **4/30/2007** SeqNo: **442872**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromide	ND	0.20	5	0	0	90	110				S

Sample ID: **CCV01** SampType: **CCV** TestCode: **300_IC** Units: **mg/L** Prep Date: RunNo: **24694**
Client ID: **ZZZZZ** Batch ID: **R24694** TestNo: **E300.1** Analysis Date: **5/1/2007** SeqNo: **444562**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromide	4.760	0.20	5	0	95.2	90	110				

Sample ID: **ICB** SampType: **ICB** TestCode: **300_IC** Units: **mg/L** Prep Date: RunNo: **24589**
Client ID: **ZZZZZ** Batch ID: **R24589** TestNo: **E300.1** Analysis Date: **4/30/2007** SeqNo: **442828**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromide	ND	0.20									

Sample ID: **ICB** SampType: **ICB** TestCode: **300_IC** Units: **mg/L** Prep Date: RunNo: **24694**
Client ID: **ZZZZZ** Batch ID: **R24694** TestNo: **E300.1** Analysis Date: **5/1/2007** SeqNo: **444549**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromide	ND	0.20									

Qualifiers:
E Value above quantitation range
ND Not Detected at the Reporting Limit
H Holding times for preparation or analysis exceeded
R RPD outside accepted recovery limits
J Analyte detected below quantitation limits
S Spike Recovery outside accepted recovery limits

CLIENT: Clough, Harbour & Assoc. LLP
Work Order: U0704115
Project: C/O Albany Interim Landfill

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_IC

Sample ID: ICV	SampType: ICV	TestCode: 300_IC	Units: mg/L	Prep Date:	RunNo: 24589
Client ID: ZZZZZ	Batch ID: R24589	TestNo: E300.1		Analysis Date: 4/30/2007	SeqNo: 442827

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromide	ND	0.20	5	0	0	90	110				S

Sample ID: ICV	SampType: ICV	TestCode: 300_IC	Units: mg/L	Prep Date:	RunNo: 24694
Client ID: ZZZZZ	Batch ID: R24694	TestNo: E300.1		Analysis Date: 5/1/2007	SeqNo: 444542

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromide	ND	0.20	5	0	0	90	110				S

Qualifiers:

E	Value above quantitation range	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike Recovery outside accepted recovery limits

CLIENT: Clough, Harbour & Assoc. LLP
Work Order: U0704115
Project: C/O Albany Interim Landfill

ANALYTICAL QC SUMMARY REPORT

TestCode: 310.2W

Sample ID: **U0704115-007CMS** SampType: **MS** TestCode: **310.2W** Units: **mg/LCaCO3** Prep Date: RunNo: **24298**
Client ID: **MW-15I** Batch ID: **R24298** TestNo: **E310.2** Analysis Date: **4/9/2007** SeqNo: **437865**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	180.0	10	50	135	90.0	45.2	131				

Sample ID: **U0703488-004CDUP** SampType: **DUP** TestCode: **310.2W** Units: **mg/LCaCO3** Prep Date: RunNo: **24298**
Client ID: **ZZZZZ** Batch ID: **R24298** TestNo: **E310.2** Analysis Date: **4/9/2007** SeqNo: **437793**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	208.0	10						207	0.482	15	

Sample ID: **U0703507-005BDUP** SampType: **DUP** TestCode: **310.2W** Units: **mg/LCaCO3** Prep Date: RunNo: **24298**
Client ID: **ZZZZZ** Batch ID: **R24298** TestNo: **E310.2** Analysis Date: **4/9/2007** SeqNo: **437801**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	266.0	10						267	0.375	15	

Sample ID: **U0704005-003BDUP** SampType: **DUP** TestCode: **310.2W** Units: **mg/LCaCO3** Prep Date: RunNo: **24298**
Client ID: **ZZZZZ** Batch ID: **R24298** TestNo: **E310.2** Analysis Date: **4/9/2007** SeqNo: **437811**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	244.0	10						247	1.22	15	

Sample ID: **U0704006-003BDUP** SampType: **DUP** TestCode: **310.2W** Units: **mg/LCaCO3** Prep Date: RunNo: **24298**
Client ID: **ZZZZZ** Batch ID: **R24298** TestNo: **E310.2** Analysis Date: **4/9/2007** SeqNo: **437817**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	575.0	100						591	2.74	15	

Qualifiers:
E Value above quantitation range
ND Not Detected at the Reporting Limit
H Holding times for preparation or analysis exceeded
R RPD outside accepted recovery limits
J Analyte detected below quantitation limits
S Spike Recovery outside accepted recovery limits

CLIENT: Clough, Harbour & Assoc. LLP
Work Order: U0704115
Project: C/O Albany Interim Landfill

ANALYTICAL QC SUMMARY REPORT

TestCode: 310.2W

Sample ID: **U0704106-020CDUP** SampType: **DUP** TestCode: **310.2W** Units: **mg/LCaCO3** Prep Date: RunNo: **24298**
Client ID: **ZZZZZ** Batch ID: **R24298** TestNo: **E310.2** Analysis Date: **4/9/2007** SeqNo: **437830**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	257.0	10						257	0	15	

Sample ID: **U0704107-010CDUP** SampType: **DUP** TestCode: **310.2W** Units: **mg/LCaCO3** Prep Date: RunNo: **24298**
Client ID: **ZZZZZ** Batch ID: **R24298** TestNo: **E310.2** Analysis Date: **4/9/2007** SeqNo: **437838**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	173.0	10						173	0	15	

Sample ID: **U0704115-007CDUP** SampType: **DUP** TestCode: **310.2W** Units: **mg/LCaCO3** Prep Date: RunNo: **24298**
Client ID: **MW-15I** Batch ID: **R24298** TestNo: **E310.2** Analysis Date: **4/9/2007** SeqNo: **437864**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	134.0	10						135	0.743	15	

Sample ID: **CCB1** SampType: **CCB** TestCode: **310.2W** Units: **mg/LCaCO3** Prep Date: RunNo: **24298**
Client ID: **ZZZZZ** Batch ID: **R24298** TestNo: **E310.2** Analysis Date: **4/9/2007** SeqNo: **437754**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	ND	10									

Sample ID: **CCB2** SampType: **CCB** TestCode: **310.2W** Units: **mg/LCaCO3** Prep Date: RunNo: **24298**
Client ID: **ZZZZZ** Batch ID: **R24298** TestNo: **E310.2** Analysis Date: **4/9/2007** SeqNo: **437755**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	ND	10									

Qualifiers:
E Value above quantitation range
ND Not Detected at the Reporting Limit
H Holding times for preparation or analysis exceeded
R RPD outside accepted recovery limits
J Analyte detected below quantitation limits
S Spike Recovery outside accepted recovery limits

CLIENT: Clough, Harbour & Assoc. LLP
Work Order: U0704115
Project: C/O Albany Interim Landfill

ANALYTICAL QC SUMMARY REPORT

TestCode: 310.2W

Sample ID: CCB3	SampType: CCB	TestCode: 310.2W	Units: mg/LCaCO3	Prep Date:	RunNo: 24298
Client ID: ZZZZZ	Batch ID: R24298	TestNo: E310.2		Analysis Date: 4/9/2007	SeqNo: 437756

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	ND	10									

Sample ID: CCB4	SampType: CCB	TestCode: 310.2W	Units: mg/LCaCO3	Prep Date:	RunNo: 24298
Client ID: ZZZZZ	Batch ID: R24298	TestNo: E310.2		Analysis Date: 4/9/2007	SeqNo: 437757

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	ND	10									

Sample ID: CCB5	SampType: CCB	TestCode: 310.2W	Units: mg/LCaCO3	Prep Date:	RunNo: 24298
Client ID: ZZZZZ	Batch ID: R24298	TestNo: E310.2		Analysis Date: 4/9/2007	SeqNo: 437758

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	ND	10									

Sample ID: CCB6	SampType: CCB	TestCode: 310.2W	Units: mg/LCaCO3	Prep Date:	RunNo: 24298
Client ID: ZZZZZ	Batch ID: R24298	TestNo: E310.2		Analysis Date: 4/9/2007	SeqNo: 437759

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	ND	10									

Sample ID: CCB7	SampType: CCB	TestCode: 310.2W	Units: mg/LCaCO3	Prep Date:	RunNo: 24298
Client ID: ZZZZZ	Batch ID: R24298	TestNo: E310.2		Analysis Date: 4/9/2007	SeqNo: 437760

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	ND	10									

Qualifiers:
E Value above quantitation range
ND Not Detected at the Reporting Limit
H Holding times for preparation or analysis exceeded
R RPD outside accepted recovery limits
J Analyte detected below quantitation limits
S Spike Recovery outside accepted recovery limits

CLIENT: Clough, Harbour & Assoc. LLP
Work Order: U0704115
Project: C/O Albany Interim Landfill

ANALYTICAL QC SUMMARY REPORT

TestCode: 310.2W

Sample ID: **CCB8** SampType: **CCB** TestCode: **310.2W** Units: **mg/LCaCO3** Prep Date: RunNo: **24298**
Client ID: **ZZZZZ** Batch ID: **R24298** TestNo: **E310.2** Analysis Date: **4/9/2007** SeqNo: **437761**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	ND	10									

Sample ID: **CCB9** SampType: **CCB** TestCode: **310.2W** Units: **mg/LCaCO3** Prep Date: RunNo: **24298**
Client ID: **ZZZZZ** Batch ID: **R24298** TestNo: **E310.2** Analysis Date: **4/9/2007** SeqNo: **437762**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	ND	10									

Sample ID: **CCV9** SampType: **CCV** TestCode: **310.2W** Units: **mg/LCaCO3** Prep Date: RunNo: **24298**
Client ID: **ZZZZZ** Batch ID: **R24298** TestNo: **E310.2** Analysis Date: **4/9/2007** SeqNo: **437771**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	254.0	10	250	0	102	90	110				

Sample ID: **ICB1** SampType: **ICB** TestCode: **310.2W** Units: **mg/LCaCO3** Prep Date: RunNo: **24298**
Client ID: **ZZZZZ** Batch ID: **R24298** TestNo: **E310.2** Analysis Date: **4/9/2007** SeqNo: **437772**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	ND	10									

Sample ID: **ICB2** SampType: **ICB** TestCode: **310.2W** Units: **mg/LCaCO3** Prep Date: RunNo: **24298**
Client ID: **ZZZZZ** Batch ID: **R24298** TestNo: **E310.2** Analysis Date: **4/9/2007** SeqNo: **437773**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	ND	10									

Qualifiers:
E Value above quantitation range
ND Not Detected at the Reporting Limit
H Holding times for preparation or analysis exceeded
R RPD outside accepted recovery limits
J Analyte detected below quantitation limits
S Spike Recovery outside accepted recovery limits

CLIENT: Clough, Harbour & Assoc. LLP
Work Order: U0704115
Project: C/O Albany Interim Landfill

ANALYTICAL QC SUMMARY REPORT

TestCode: 310.2W

Sample ID: **ICB3** SampType: **ICB** TestCode: **310.2W** Units: **mg/LCaCO3** Prep Date: RunNo: **24298**
Client ID: **ZZZZZ** Batch ID: **R24298** TestNo: **E310.2** Analysis Date: **4/9/2007** SeqNo: **437774**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	ND	10									

Sample ID: **ICB4** SampType: **ICB** TestCode: **310.2W** Units: **mg/LCaCO3** Prep Date: RunNo: **24298**
Client ID: **ZZZZZ** Batch ID: **R24298** TestNo: **E310.2** Analysis Date: **4/9/2007** SeqNo: **437775**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	ND	10									

Sample ID: **ICB5** SampType: **ICB** TestCode: **310.2W** Units: **mg/LCaCO3** Prep Date: RunNo: **24298**
Client ID: **ZZZZZ** Batch ID: **R24298** TestNo: **E310.2** Analysis Date: **4/9/2007** SeqNo: **437776**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	ND	10									

Sample ID: **ICV1** SampType: **ICV** TestCode: **310.2W** Units: **mg/LCaCO3** Prep Date: RunNo: **24298**
Client ID: **ZZZZZ** Batch ID: **R24298** TestNo: **E310.2** Analysis Date: **4/9/2007** SeqNo: **437777**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	20.60	10	21.3	0	96.7	90	110				

Sample ID: **ICV2** SampType: **ICV** TestCode: **310.2W** Units: **mg/LCaCO3** Prep Date: RunNo: **24298**
Client ID: **ZZZZZ** Batch ID: **R24298** TestNo: **E310.2** Analysis Date: **4/9/2007** SeqNo: **437778**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	21.00	10	21.3	0	98.6	90	110				

Qualifiers:
E Value above quantitation range
ND Not Detected at the Reporting Limit
H Holding times for preparation or analysis exceeded
R RPD outside accepted recovery limits
J Analyte detected below quantitation limits
S Spike Recovery outside accepted recovery limits

CLIENT: Clough, Harbour & Assoc. LLP
Work Order: U0704115
Project: C/O Albany Interim Landfill

ANALYTICAL QC SUMMARY REPORT

TestCode: 310.2W

Sample ID: ICV3	SampType: ICV	TestCode: 310.2W	Units: mg/LCaCO3	Prep Date:	RunNo: 24298
Client ID: ZZZZZ	Batch ID: R24298	TestNo: E310.2		Analysis Date: 4/9/2007	SeqNo: 437779

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	21.40	10	21.3	0	100	90	110				

Sample ID: ICV4	SampType: ICV	TestCode: 310.2W	Units: mg/LCaCO3	Prep Date:	RunNo: 24298
Client ID: ZZZZZ	Batch ID: R24298	TestNo: E310.2		Analysis Date: 4/9/2007	SeqNo: 437780

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	21.20	10	21.3	0	99.5	90	110				

Sample ID: ICV5	SampType: ICV	TestCode: 310.2W	Units: mg/LCaCO3	Prep Date:	RunNo: 24298
Client ID: ZZZZZ	Batch ID: R24298	TestNo: E310.2		Analysis Date: 4/9/2007	SeqNo: 437781

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	21.80	10	21.3	0	102	90	110				

Qualifiers:
- E Value above quantitation range
- ND Not Detected at the Reporting Limit
- H Holding times for preparation or analysis exceeded
- R RPD outside accepted recovery limits
- J Analyte detected below quantitation limits
- S Spike Recovery outside accepted recovery limits

CLIENT: Clough, Harbour & Assoc. LLP
Work Order: U0704115
Project: C/O Albany Interim Landfill

ANALYTICAL QC SUMMARY REPORT

TestCode: 325.2_W

Sample ID: **U0704115-007AMS** SampType: **MS** TestCode: **325.2_W** Units: **mg/L** Prep Date: RunNo: **24293**
Client ID: **MW-15I** Batch ID: **R24293** TestNo: **E325.2** Analysis Date: **4/9/2007** SeqNo: **437719**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	83.10	1.00	50	29.9	106	73	115				

Sample ID: **U0703488-004ADUP** SampType: **DUP** TestCode: **325.2_W** Units: **mg/L** Prep Date: RunNo: **24293**
Client ID: **ZZZZZ** Batch ID: **R24293** TestNo: **E325.2** Analysis Date: **4/9/2007** SeqNo: **437645**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	22.50	1.00						23.3	3.49	15	

Sample ID: **U0703507-005ADUP** SampType: **DUP** TestCode: **325.2_W** Units: **mg/L** Prep Date: RunNo: **24293**
Client ID: **ZZZZZ** Batch ID: **R24293** TestNo: **E325.2** Analysis Date: **4/9/2007** SeqNo: **437653**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	3.530	1.00						2.33	41.0	15	R

Sample ID: **U0704005-003ADUP** SampType: **DUP** TestCode: **325.2_W** Units: **mg/L** Prep Date: RunNo: **24293**
Client ID: **ZZZZZ** Batch ID: **R24293** TestNo: **E325.2** Analysis Date: **4/9/2007** SeqNo: **437663**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	56.70	1.00						58.3	2.78	15	

Sample ID: **U0704006-003ADUP** SampType: **DUP** TestCode: **325.2_W** Units: **mg/L** Prep Date: RunNo: **24293**
Client ID: **ZZZZZ** Batch ID: **R24293** TestNo: **E325.2** Analysis Date: **4/9/2007** SeqNo: **437669**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	201.0	1.00						201	0	15	

Qualifiers:
E Value above quantitation range
ND Not Detected at the Reporting Limit
H Holding times for preparation or analysis exceeded
R RPD outside accepted recovery limits
J Analyte detected below quantitation limits
S Spike Recovery outside accepted recovery limits

CLIENT: Clough, Harbour & Assoc. LLP
Work Order: U0704115
Project: C/O Albany Interim Landfill

ANALYTICAL QC SUMMARY REPORT

TestCode: 325.2_W

Sample ID: **U0704106-020ADUP** SampType: **DUP** TestCode: **325.2_W** Units: **mg/L** Prep Date: RunNo: **24293**
Client ID: **ZZZZZ** Batch ID: **R24293** TestNo: **E325.2** Analysis Date: **4/9/2007** SeqNo: **437684**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	6.580	1.00						7.97	19.1	15	R

Sample ID: **U0704107-010ADUP** SampType: **DUP** TestCode: **325.2_W** Units: **mg/L** Prep Date: RunNo: **24293**
Client ID: **ZZZZZ** Batch ID: **R24293** TestNo: **E325.2** Analysis Date: **4/9/2007** SeqNo: **437692**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	2.290	1.00						3.16	31.9	15	R

Sample ID: **U0704115-007ADUP** SampType: **DUP** TestCode: **325.2_W** Units: **mg/L** Prep Date: RunNo: **24293**
Client ID: **MW-15I** Batch ID: **R24293** TestNo: **E325.2** Analysis Date: **4/9/2007** SeqNo: **437718**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	28.30	1.00						29.9	5.50	15	

Sample ID: **CCB1** SampType: **CCB** TestCode: **325.2_W** Units: **mg/L** Prep Date: RunNo: **24293**
Client ID: **ZZZZZ** Batch ID: **R24293** TestNo: **E325.2** Analysis Date: **4/9/2007** SeqNo: **437606**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	ND	1.00									

Sample ID: **CCB2** SampType: **CCB** TestCode: **325.2_W** Units: **mg/L** Prep Date: RunNo: **24293**
Client ID: **ZZZZZ** Batch ID: **R24293** TestNo: **E325.2** Analysis Date: **4/9/2007** SeqNo: **437607**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	ND	1.00									

Qualifiers:
E Value above quantitation range
ND Not Detected at the Reporting Limit
H Holding times for preparation or analysis exceeded
R RPD outside accepted recovery limits
J Analyte detected below quantitation limits
S Spike Recovery outside accepted recovery limits

CLIENT: Clough, Harbour & Assoc. LLP
Work Order: U0704115
Project: C/O Albany Interim Landfill

ANALYTICAL QC SUMMARY REPORT

TestCode: 325.2_W

Sample ID: CCB3	SampType: CCB	TestCode: 325.2_W	Units: mg/L	Prep Date:	RunNo: 24293
Client ID: ZZZZZ	Batch ID: R24293	TestNo: E325.2		Analysis Date: 4/9/2007	SeqNo: 437608

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	ND	1.00									

Sample ID: CCB4	SampType: CCB	TestCode: 325.2_W	Units: mg/L	Prep Date:	RunNo: 24293
Client ID: ZZZZZ	Batch ID: R24293	TestNo: E325.2		Analysis Date: 4/9/2007	SeqNo: 437609

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	ND	1.00									

Sample ID: CCB5	SampType: CCB	TestCode: 325.2_W	Units: mg/L	Prep Date:	RunNo: 24293
Client ID: ZZZZZ	Batch ID: R24293	TestNo: E325.2		Analysis Date: 4/9/2007	SeqNo: 437610

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	ND	1.00									

Sample ID: CCB6	SampType: CCB	TestCode: 325.2_W	Units: mg/L	Prep Date:	RunNo: 24293
Client ID: ZZZZZ	Batch ID: R24293	TestNo: E325.2		Analysis Date: 4/9/2007	SeqNo: 437611

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	ND	1.00									

Sample ID: CCB7	SampType: CCB	TestCode: 325.2_W	Units: mg/L	Prep Date:	RunNo: 24293
Client ID: ZZZZZ	Batch ID: R24293	TestNo: E325.2		Analysis Date: 4/9/2007	SeqNo: 437612

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	ND	1.00									

Qualifiers:

E	Value above quantitation range	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike Recovery outside accepted recovery limits

CLIENT: Clough, Harbour & Assoc. LLP
Work Order: U0704115
Project: C/O Albany Interim Landfill

ANALYTICAL QC SUMMARY REPORT

TestCode: 325.2_W

Sample ID: CCB8	SampType: CCB	TestCode: 325.2_W	Units: mg/L	Prep Date:	RunNo: 24293
Client ID: ZZZZZ	Batch ID: R24293	TestNo: E325.2		Analysis Date: 4/9/2007	SeqNo: 437613

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	ND	1.00									

Sample ID: CCB9	SampType: CCB	TestCode: 325.2_W	Units: mg/L	Prep Date:	RunNo: 24293
Client ID: ZZZZZ	Batch ID: R24293	TestNo: E325.2		Analysis Date: 4/9/2007	SeqNo: 437614

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	ND	1.00									

Sample ID: CCV9	SampType: CCV	TestCode: 325.2_W	Units: mg/L	Prep Date:	RunNo: 24293
Client ID: ZZZZZ	Batch ID: R24293	TestNo: E325 2		Analysis Date: 4/9/2007	SeqNo: 437623

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	245.0	1.00	250	0	98.0	90	110				

Sample ID: ICB1	SampType: ICB	TestCode: 325.2_W	Units: mg/L	Prep Date:	RunNo: 24293
Client ID: ZZZZZ	Batch ID: R24293	TestNo: E325.2		Analysis Date: 4/9/2007	SeqNo: 437624

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	ND	1.00									

Sample ID: ICB2	SampType: ICB	TestCode: 325.2_W	Units: mg/L	Prep Date:	RunNo: 24293
Client ID: ZZZZZ	Batch ID: R24293	TestNo: E325.2		Analysis Date: 4/9/2007	SeqNo: 437625

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	ND	1.00									

Qualifiers:

E	Value above quantitation range	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike Recovery outside accepted recovery limits

CLIENT: Clough, Harbour & Assoc. LLP
Work Order: U0704115
Project: C/O Albany Interim Landfill

ANALYTICAL QC SUMMARY REPORT

TestCode: 325.2_W

Sample ID: **ICB3** SampType: **ICB** TestCode: **325.2_W** Units: **mg/L** Prep Date: RunNo: **24293**
Client ID: **ZZZZZ** Batch ID: **R24293** TestNo: **E325.2** Analysis Date: **4/9/2007** SeqNo: **437626**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	ND	1.00									

Sample ID: **ICB4** SampType: **ICB** TestCode: **325.2_W** Units: **mg/L** Prep Date: RunNo: **24293**
Client ID: **ZZZZZ** Batch ID: **R24293** TestNo: **E325.2** Analysis Date: **4/9/2007** SeqNo: **437627**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	ND	1.00									

Sample ID: **ICB5** SampType: **ICB** TestCode: **325.2_W** Units: **mg/L** Prep Date: RunNo: **24293**
Client ID: **ZZZZZ** Batch ID: **R24293** TestNo: **E325.2** Analysis Date: **4/9/2007** SeqNo: **437628**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	ND	1.00									

Sample ID: **ICV1** SampType: **ICV** TestCode: **325.2_W** Units: **mg/L** Prep Date: RunNo: **24293**
Client ID: **ZZZZZ** Batch ID: **R24293** TestNo: **E325.2** Analysis Date: **4/9/2007** SeqNo: **437629**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	82.40	1.00	81.1	0	102	82	117				

Sample ID: **ICV2** SampType: **ICV** TestCode: **325.2_W** Units: **mg/L** Prep Date: RunNo: **24293**
Client ID: **ZZZZZ** Batch ID: **R24293** TestNo: **E325.2** Analysis Date: **4/9/2007** SeqNo: **437630**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	81.30	1.00	81.1	0	100	82	117				

Qualifiers:
E Value above quantitation range
ND Not Detected at the Reporting Limit
H Holding times for preparation or analysis exceeded
R RPD outside accepted recovery limits
J Analyte detected below quantitation limits
S Spike Recovery outside accepted recovery limits

CLIENT: Clough, Harbour & Assoc. LLP
Work Order: U0704115
Project: C/O Albany Interim Landfill

ANALYTICAL QC SUMMARY REPORT

TestCode: 325.2_W

Sample ID: **ICV3** SampType: **ICV** TestCode: **325.2_W** Units: **mg/L** Prep Date: RunNo: **24293**
Client ID: **ZZZZZ** Batch ID: **R24293** TestNo: **E325.2** Analysis Date: **4/9/2007** SeqNo: **437631**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	81.60	1.00	81.1	0	101	82	117				

Sample ID: **ICV4** SampType: **ICV** TestCode: **325.2_W** Units: **mg/L** Prep Date: RunNo: **24293**
Client ID: **ZZZZZ** Batch ID: **R24293** TestNo: **E325.2** Analysis Date: **4/9/2007** SeqNo: **437632**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	81.00	1.00	81.1	0	99.9	82	117				

Sample ID: **ICV5** SampType: **ICV** TestCode: **325.2_W** Units: **mg/L** Prep Date: RunNo: **24293**
Client ID: **ZZZZZ** Batch ID: **R24293** TestNo: **E325.2** Analysis Date: **4/9/2007** SeqNo: **437633**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	80.60	1.00	81.1	0	99.4	82	117				

Qualifiers:
E Value above quantitation range
ND Not Detected at the Reporting Limit
H Holding times for preparation or analysis exceeded
R RPD outside accepted recovery limits
J Analyte detected below quantitation limits
S Spike Recovery outside accepted recovery limits

CLIENT: Clough, Harbour & Assoc. LLP
Work Order: U0704115
Project: C/O Albany Interim Landfill

ANALYTICAL QC SUMMARY REPORT

TestCode: 350.1_W

Sample ID: **U0704115-007BMS** SampType: **MS** TestCode: **350.1_W** Units: **mg/L** Prep Date: RunNo: **24441**
Client ID: **MW-15I** Batch ID: **R24441** TestNo: **E350.1** Analysis Date: **4/26/2007** SeqNo: **440801**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Ammonia (As NH3)	7.690	0.500	8	0	96.1	60	135				

Sample ID: **U0704115-007BDUP** SampType: **DUP** TestCode: **350.1_W** Units: **mg/L** Prep Date: RunNo: **24441**
Client ID: **MW-15I** Batch ID: **R24441** TestNo: **E350.1** Analysis Date: **4/26/2007** SeqNo: **440800**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Ammonia (As NH3)	ND	0.500						0	0	25	

Sample ID: **U0704227-001BDUP** SampType: **DUP** TestCode: **350.1_W** Units: **mg/L** Prep Date: RunNo: **24441**
Client ID: **ZZZZZ** Batch ID: **R24441** TestNo: **E350.1** Analysis Date: **4/26/2007** SeqNo: **440853**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Ammonia (As NH3)	ND	0.500						0	0	25	

Sample ID: **CCB** SampType: **CCB** TestCode: **350.1_W** Units: **mg/L** Prep Date: RunNo: **24441**
Client ID: **ZZZZZ** Batch ID: **R24441** TestNo: **E350.1** Analysis Date: **4/26/2007** SeqNo: **440794**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Ammonia (As NH3)	ND	0.500									

Sample ID: **CCB** SampType: **CCB** TestCode: **350.1_W** Units: **mg/L** Prep Date: RunNo: **24441**
Client ID: **ZZZZZ** Batch ID: **R24441** TestNo: **E350.1** Analysis Date: **4/26/2007** SeqNo: **440824**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Ammonia (As NH3)	ND	0.500									

Qualifiers:
E Value above quantitation range
ND Not Detected at the Reporting Limit
H Holding times for preparation or analysis exceeded
R RPD outside accepted recovery limits
J Analyte detected below quantitation limits
S Spike Recovery outside accepted recovery limits

CLIENT: Clough, Harbour & Assoc. LLP
Work Order: U0704115
Project: C/O Albany Interim Landfill

ANALYTICAL QC SUMMARY REPORT

TestCode: 350.1_W

Sample ID: CCB	SampType: CCB	TestCode: 350.1_W	Units: mg/L	Prep Date:	RunNo: 24441
Client ID: ZZZZZ	Batch ID: R24441	TestNo: E350.1		Analysis Date: 4/26/2007	SeqNo: 440842

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Ammonia (As NH3)	ND	0.500									

Sample ID: CCB	SampType: CCB	TestCode: 350.1_W	Units: mg/L	Prep Date:	RunNo: 24441
Client ID: ZZZZZ	Batch ID: R24441	TestNo: E350.1		Analysis Date: 4/26/2007	SeqNo: 440856

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Ammonia (As NH3)	ND	0.500									

Sample ID: CCB	SampType: CCB	TestCode: 350.1_W	Units: mg/L	Prep Date:	RunNo: 24441
Client ID: ZZZZZ	Batch ID: R24441	TestNo: E350.1		Analysis Date: 4/26/2007	SeqNo: 440870

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Ammonia (As NH3)	ND	0.500									

Sample ID: CCB	SampType: CCB	TestCode: 350.1_W	Units: mg/L	Prep Date:	RunNo: 24441
Client ID: ZZZZZ	Batch ID: R24441	TestNo: E350.1		Analysis Date: 4/26/2007	SeqNo: 440883

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Ammonia (As NH3)	ND	0.500									

Sample ID: CCV	SampType: CCV	TestCode: 350.1_W	Units: mg/L	Prep Date:	RunNo: 24441
Client ID: ZZZZZ	Batch ID: R24441	TestNo: E350.1		Analysis Date: 4/26/2007	SeqNo: 440793

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Ammonia (As NH3)	15.50	0.500	15	0	103	90	110				

Qualifiers:
E Value above quantitation range
ND Not Detected at the Reporting Limit
H Holding times for preparation or analysis exceeded
R RPD outside accepted recovery limits
J Analyte detected below quantitation limits
S Spike Recovery outside accepted recovery limits

CLIENT: Clough, Harbour & Assoc. LLP
Work Order: U0704115
Project: C/O Albany Interim Landfill

ANALYTICAL QC SUMMARY REPORT

TestCode: 350.1_W

Sample ID: **CCV** SampType: **CCV** TestCode: **350.1_W** Units: **mg/L** Prep Date: RunNo: **24441**
Client ID: **ZZZZZ** Batch ID: **R24441** TestNo: **E350.1** Analysis Date: **4/26/2007** SeqNo: **440882**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Ammonia (As NH3)	5.020	0.500	5	0	100	90	110				

Sample ID: **ICB** SampType: **ICB** TestCode: **350.1_W** Units: **mg/L** Prep Date: RunNo: **24441**
Client ID: **ZZZZZ** Batch ID: **R24441** TestNo: **E350.1** Analysis Date: **4/26/2007** SeqNo: **440782**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Ammonia (As NH3)	ND	0.500									

Sample ID: **ICB** SampType: **ICB** TestCode: **350.1_W** Units: **mg/L** Prep Date: RunNo: **24441**
Client ID: **ZZZZZ** Batch ID: **R24441** TestNo: **E350.1** Analysis Date: **4/26/2007** SeqNo: **440826**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Ammonia (As NH3)	ND	0.500									

Sample ID: **ICB** SampType: **ICB** TestCode: **350.1_W** Units: **mg/L** Prep Date: RunNo: **24441**
Client ID: **ZZZZZ** Batch ID: **R24441** TestNo: **E350.1** Analysis Date: **4/26/2007** SeqNo: **440858**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Ammonia (As NH3)	ND	0.500									

Sample ID: **ICV** SampType: **ICV** TestCode: **350.1_W** Units: **mg/L** Prep Date: RunNo: **24441**
Client ID: **ZZZZZ** Batch ID: **R24441** TestNo: **E350.1** Analysis Date: **4/26/2007** SeqNo: **440781**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Ammonia (As NH3)	9.800	0.500	9.21	0	106	90	110				

Qualifiers:
E Value above quantitation range
ND Not Detected at the Reporting Limit
H Holding times for preparation or analysis exceeded
R RPD outside accepted recovery limits
J Analyte detected below quantitation limits
S Spike Recovery outside accepted recovery limits

CLIENT: Clough, Harbour & Assoc. LLP
Work Order: U0704115
Project: C/O Albany Interim Landfill

ANALYTICAL QC SUMMARY REPORT

TestCode: 350.1_W

Sample ID: ICV	SampType: ICV	TestCode: 350.1_W	Units: mg/L	Prep Date:	RunNo: 24441
Client ID: ZZZZZ	Batch ID: R24441	TestNo: E350.1		Analysis Date: 4/26/2007	SeqNo: 440825

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Ammonia (As NH3)	9.810	0.500	9.21	0	107	90	110				

Sample ID: ICV	SampType: ICV	TestCode: 350.1_W	Units: mg/L	Prep Date:	RunNo: 24441
Client ID: ZZZZZ	Batch ID: R24441	TestNo: E350.1		Analysis Date: 4/26/2007	SeqNo: 440857

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Ammonia (As NH3)	9.870	0.500	9.21	0	107	90	110				

Qualifiers:

E	Value above quantitation range	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike Recovery outside accepted recovery limits

CLIENT: Clough, Harbour & Assoc. LLP
Work Order: U0704115
Project: C/O Albany Interim Landfill

ANALYTICAL QC SUMMARY REPORT

TestCode: 351.3_W

Sample ID: **MB-R24287** SampType: **MBLK** TestCode: **351.3_W** Units: **mg/L** Prep Date: RunNo: **24287**
Client ID: **ZZZZZ** Batch ID: **R24287** TestNo: **E351.3** Analysis Date: **4/20/2007** SeqNo: **437560**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Kjeldahl, Total	ND	0.500									

Sample ID: **MB-R24339** SampType: **MBLK** TestCode: **351.3_W** Units: **mg/L** Prep Date: RunNo: **24339**
Client ID: **ZZZZZ** Batch ID: **R24339** TestNo: **E351.3** Analysis Date: **4/23/2007** SeqNo: **438501**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Kjeldahl, Total	ND	0.500									

Sample ID: **LCS** SampType: **LCS** TestCode: **351.3_W** Units: **mg/L** Prep Date: RunNo: **24287**
Client ID: **ZZZZZ** Batch ID: **R24287** TestNo: **E351.3** Analysis Date: **4/20/2007** SeqNo: **437561**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Kjeldahl, Total	3.010	0.500	2.99	0	101	44	145				

Sample ID: **LCS** SampType: **LCS** TestCode: **351.3_W** Units: **mg/L** Prep Date: RunNo: **24339**
Client ID: **ZZZZZ** Batch ID: **R24339** TestNo: **E351.3** Analysis Date: **4/23/2007** SeqNo: **438502**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Kjeldahl, Total	3.231	0.500	2.99	0	108	44	145				

Sample ID: **U0704115-007BMS** SampType: **MS** TestCode: **351.3_W** Units: **mg/L** Prep Date: RunNo: **24339**
Client ID: **MW-15I** Batch ID: **R24339** TestNo: **E351.3** Analysis Date: **4/23/2007** SeqNo: **438508**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Kjeldahl, Total	6.462	0.500	5	1.762	94.0	55	124				

Qualifiers:
E Value above quantitation range
ND Not Detected at the Reporting Limit
H Holding times for preparation or analysis exceeded
R RPD outside accepted recovery limits
J Analyte detected below quantitation limits
S Spike Recovery outside accepted recovery limits

CLIENT: Clough, Harbour & Assoc. LLP
Work Order: U0704115
Project: C/O Albany Interim Landfill

ANALYTICAL QC SUMMARY REPORT

TestCode: 351.3_W

Sample ID: **U0704107-010BDUP** SampType: **DUP** TestCode: **351.3_W** Units: **mg/L** Prep Date: RunNo: **24287**
Client ID: **ZZZZZ** Batch ID: **R24287** TestNo: **E351.3** Analysis Date: **4/20/2007** SeqNo: **437563**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Kjeldahl, Total	ND	0.500						0	0	19	

Sample ID: **U0704115-007BDUP** SampType: **DUP** TestCode: **351.3_W** Units: **mg/L** Prep Date: RunNo: **24339**
Client ID: **MW-15I** Batch ID: **R24339** TestNo: **E351.3** Analysis Date: **4/23/2007** SeqNo: **438507**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Kjeldahl, Total	1.836	0.500						1.762	4.08	19	

Qualifiers:
E Value above quantitation range
ND Not Detected at the Reporting Limit
H Holding times for preparation or analysis exceeded
R RPD outside accepted recovery limits
J Analyte detected below quantitation limits
S Spike Recovery outside accepted recovery limits

CLIENT: Clough, Harbour & Assoc. LLP
Work Order: U0704115
Project: C/O Albany Interim Landfill

ANALYTICAL QC SUMMARY REPORT

TestCode: 353.2_WNO3

Sample ID: **U0704115-007AMS** SampType: **MS** TestCode: **353.2_WNO3** Units: **mg/L** Prep Date: RunNo: **24250**
Client ID: **MW-15I** Batch ID: **R24250** TestNo: **E353.2** Analysis Date: **4/5/2007** SeqNo: **436990**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Nitrate (as N)	2.170	0.200	2	0	108	35	125				

Sample ID: **U0704115-007ADUP** SampType: **DUP** TestCode: **353.2_WNO3** Units: **mg/L** Prep Date: RunNo: **24250**
Client ID: **MW-15I** Batch ID: **R24250** TestNo: **E353.2** Analysis Date: **4/5/2007** SeqNo: **436989**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Nitrate (as N)	ND	0.200						0	0	20	

Sample ID: **CCB** SampType: **CCB** TestCode: **353.2_WNO3** Units: **mg/L** Prep Date: RunNo: **24250**
Client ID: **ZZZZZ** Batch ID: **R24250** TestNo: **E353.2** Analysis Date: **4/5/2007** SeqNo: **436997**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Nitrate (as N)	ND	0.200									

Sample ID: **CCV** SampType: **CCV** TestCode: **353.2_WNO3** Units: **mg/L** Prep Date: RunNo: **24250**
Client ID: **ZZZZZ** Batch ID: **R24250** TestNo: **E353.2** Analysis Date: **4/5/2007** SeqNo: **436996**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Nitrate (as N)	3.780	0.200	4	0	94.5	90	110				

Sample ID: **ICB** SampType: **ICB** TestCode: **353.2_WNO3** Units: **mg/L** Prep Date: RunNo: **24250**
Client ID: **ZZZZZ** Batch ID: **R24250** TestNo: **E353.2** Analysis Date: **4/5/2007** SeqNo: **436980**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Nitrate (as N)	ND	0.200									

Qualifiers:
E Value above quantitation range
ND Not Detected at the Reporting Limit
H Holding times for preparation or analysis exceeded
R RPD outside accepted recovery limits
J Analyte detected below quantitation limits
S Spike Recovery outside accepted recovery limits

CLIENT: Clough, Harbour & Assoc. LLP
Work Order: U0704115
Project: C/O Albany Interim Landfill

ANALYTICAL QC SUMMARY REPORT

TestCode: 353.2_WNO3

Sample ID: **ICV** SampType: **ICV** TestCode: **353.2_WNO3** Units: **mg/L** Prep Date: RunNo: **24250**
Client ID: **ZZZZZ** Batch ID: **R24250** TestNo: **E353.2** Analysis Date: **4/5/2007** SeqNo: **436979**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Nitrate (as N)	6.730	0.200	6.95	0	96.8	80	120				

Qualifiers:
E Value above quantitation range
ND Not Detected at the Reporting Limit
H Holding times for preparation or analysis exceeded
R RPD outside accepted recovery limits
J Analyte detected below quantitation limits
S Spike Recovery outside accepted recovery limits

CLIENT: Clough, Harbour & Assoc. LLP
Work Order: U0704115
Project: C/O Albany Interim Landfill

ANALYTICAL QC SUMMARY REPORT

TestCode: 375.4_W

Sample ID: **U0704115-007AMS** SampType: **MS** TestCode: **375.4_W** Units: **mg/L** Prep Date: RunNo: **24172**
Client ID: **MW-15I** Batch ID: **R24172** TestNo: **E375.4** Analysis Date: **4/17/2007** SeqNo: **435703**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	63.12	5.00	20	39.4	119	30	143				

Sample ID: **U0704115-007ADUP** SampType: **DUP** TestCode: **375.4_W** Units: **mg/L** Prep Date: RunNo: **24172**
Client ID: **MW-15I** Batch ID: **R24172** TestNo: **E375.4** Analysis Date: **4/17/2007** SeqNo: **435702**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	39.52	5.00						39.4	0.307	10	

Sample ID: **U0704187-004ADUP** SampType: **DUP** TestCode: **375.4_W** Units: **mg/L** Prep Date: RunNo: **24172**
Client ID: **ZZZZZ** Batch ID: **R24172** TestNo: **E375.4** Analysis Date: **4/17/2007** SeqNo: **435714**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	1427	100						1429	0.169	10	

Sample ID: **CCB** SampType: **CCB** TestCode: **375.4_W** Units: **mg/L** Prep Date: RunNo: **24172**
Client ID: **ZZZZZ** Batch ID: **R24172** TestNo: **E375.4** Analysis Date: **4/17/2007** SeqNo: **435705**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	ND	5.00									

Sample ID: **CCB** SampType: **CCB** TestCode: **375.4_W** Units: **mg/L** Prep Date: RunNo: **24172**
Client ID: **ZZZZZ** Batch ID: **R24172** TestNo: **E375.4** Analysis Date: **4/17/2007** SeqNo: **435724**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	ND	5.00									

Qualifiers:
E Value above quantitation range
ND Not Detected at the Reporting Limit
H Holding times for preparation or analysis exceeded
R RPD outside accepted recovery limits
J Analyte detected below quantitation limits
S Spike Recovery outside accepted recovery limits

CLIENT: Clough, Harbour & Assoc. LLP
Work Order: U0704115
Project: C/O Albany Interim Landfill

ANALYTICAL QC SUMMARY REPORT

TestCode: 375.4_W

Sample ID: ICB	SampType: ICB	TestCode: 375.4_W	Units: mg/L	Prep Date:	RunNo: 24172
Client ID: ZZZZZ	Batch ID: R24172	TestNo: E375.4		Analysis Date: 4/17/2007	SeqNo: 435694

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	ND	5.00									

Sample ID: ICV	SampType: ICV	TestCode: 375.4_W	Units: mg/L	Prep Date:	RunNo: 24172
Client ID: ZZZZZ	Batch ID: R24172	TestNo: E375.4		Analysis Date: 4/17/2007	SeqNo: 435695

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	83.93	5.00	81.9	0	102	87	105				

Qualifiers:

E	Value above quantitation range	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike Recovery outside accepted recovery limits

CLIENT: Clough, Harbour & Assoc. LLP
Work Order: U0704115
Project: C/O Albany Interim Landfill

ANALYTICAL QC SUMMARY REPORT

TestCode: 405.1

Sample ID: **MB-R24097** SampType: **MBLK** TestCode: **405.1** Units: **mg/L** Prep Date: RunNo: **24097**
Client ID: **ZZZZZ** Batch ID: **R24097** TestNo: **E405.1** Analysis Date: **4/5/2007** SeqNo: **434404**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Biochemical Oxygen Demand	ND	4.00									

Sample ID: **LCS-R24097** SampType: **LCS** TestCode: **405.1** Units: mg/L Prep Date: RunNo: **24097**
Client ID: **ZZZZZ** Batch ID: **R24097** TestNo: **E405.1** Analysis Date: **4/5/2007** SeqNo: **434405**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Biochemical Oxygen Demand	195.0	4.00	200	0	97.5	69.4	116				

Sample ID: **U0704106-020ADUP** SampType: DUP TestCode: **405.1** Units: **mg/L** Prep Date: RunNo: **24097**
Client ID: **ZZZZZ** Batch ID: **R24097** TestNo: **E405.1** Analysis Date: **4/5/2007** SeqNo: **434430**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Biochemical Oxygen Demand	4.000	4.00						5	22.2	20	

Sample ID: **U0704107-010ADUP** SampType: DUP TestCode: **405.1** Units: **mg/L** Prep Date: RunNo: **24097**
Client ID: **ZZZZZ** Batch ID: **R24097** TestNo: **E405.1** Analysis Date: **4/5/2007** SeqNo: **434437**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Biochemical Oxygen Demand	ND	4.00						0	0	20	

Sample ID: **U0704115-007ADUP** SampType: **DUP** TestCode: **405.1** Units: **mg/L** Prep Date: RunNo: **24097**
Client ID: **MW-15I** Batch ID: **R24097** TestNo: **E405.1** Analysis Date: **4/5/2007** SeqNo: **434486**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Biochemical Oxygen Demand	6.000	4.00						7	15.4	20	

Qualifiers:
E Value above quantitation range
ND Not Detected at the Reporting Limit
H Holding times for preparation or analysis exceeded
R RPD outside accepted recovery limits
J Analyte detected below quantitation limits
S Spike Recovery outside accepted recovery limits

CLIENT: Clough, Harbour & Assoc. LLP
Work Order: U0704115
Project: C/O Albany Interim Landfill

ANALYTICAL QC SUMMARY REPORT

TestCode: 410.4

Sample ID: **MB-R24199** SampType: **MBLK** TestCode: **410.4** Units: **mg/L** Prep Date: RunNo: **24199**
Client ID: **ZZZZZ** Batch ID: **R24199** TestNo: **E410.4** Analysis Date: **4/17/2007** SeqNo: **436092**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chemical Oxygen Demand	ND	20.0									

Sample ID: **MB-R24604** SampType: **MBLK** TestCode: **410.4** Units: **mg/L** Prep Date: RunNo: **24604**
Client ID: **ZZZZZ** Batch ID: **R24604** TestNo: **E410.4** Analysis Date: **4/24/2007** SeqNo: **442983**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chemical Oxygen Demand	ND	20.0									

Sample ID: **LCS** SampType: **LCS** TestCode: **410.4** Units: **mg/L** Prep Date: RunNo: **24199**
Client ID: **ZZZZZ** Batch ID: **R24199** TestNo: **E410.4** Analysis Date: **4/17/2007** SeqNo: **436095**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chemical Oxygen Demand	104.4	20.0	121	0	86.2	77	118				

Sample ID: **LCS** SampType: **LCS** TestCode: **410.4** Units: **mg/L** Prep Date: RunNo: **24604**
Client ID: **ZZZZZ** Batch ID: **R24604** TestNo: **E410.4** Analysis Date: **4/24/2007** SeqNo: **442986**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chemical Oxygen Demand	104.4	20.0	121	0	86.2	77	118				

Sample ID: **U0704115-007BMS** SampType: **MS** TestCode: **410.4** Units: **mg/L** Prep Date: RunNo: **24604**
Client ID: **MW-15I** Batch ID: **R24604** TestNo: **E410.4** Analysis Date: **4/24/2007** SeqNo: **442993**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chemical Oxygen Demand	58.03	20.0	50	0	116	60	140				

Qualifiers:
E Value above quantitation range
ND Not Detected at the Reporting Limit
H Holding times for preparation or analysis exceeded
R RPD outside accepted recovery limits
J Analyte detected below quantitation limits
S Spike Recovery outside accepted recovery limits

CLIENT: Clough, Harbour & Assoc. LLP
Work Order: U0704115
Project: C/O Albany Interim Landfill

ANALYTICAL QC SUMMARY REPORT

TestCode: 410.4

Sample ID: **U0704115-007BDUP** SampType: **DUP** TestCode: **410.4** Units: **mg/L** Prep Date: RunNo: **24604**
Client ID: **MW-15I** Batch ID: **R24604** TestNo: **E410.4** Analysis Date: **4/24/2007** SeqNo: **442992**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chemical Oxygen Demand	ND	20.0						0	0	15	

Sample ID: **CCB** SampType: **CCB** TestCode: **410.4** Units: **mg/L** Prep Date: RunNo: **24199**
Client ID: **ZZZZZ** Batch ID: **R24199** TestNo: **E410.4** Analysis Date: **4/17/2007** SeqNo: **436106**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chemical Oxygen Demand	ND	20.0									

Sample ID: **CCB** SampType: **CCB** TestCode: **410.4** Units: **mg/L** Prep Date: RunNo: **24199**
Client ID: **ZZZZZ** Batch ID: **R24199** TestNo: **E410.4** Analysis Date: **4/17/2007** SeqNo: **436111**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chemical Oxygen Demand	ND	20.0									

Sample ID: **CCB** SampType: **CCB** TestCode: **410.4** Units: **mg/L** Prep Date: RunNo: **24604**
Client ID: **ZZZZZ** Batch ID: **R24604** TestNo: **E410.4** Analysis Date: **4/24/2007** SeqNo: **442998**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chemical Oxygen Demand	ND	20.0									

Sample ID: **CCB** SampType: **CCB** TestCode: **410.4** Units: **mg/L** Prep Date: RunNo: **24604**
Client ID: **ZZZZZ** Batch ID: **R24604** TestNo: **E410.4** Analysis Date: **4/24/2007** SeqNo: **443007**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chemical Oxygen Demand	ND	20.0									

Qualifiers:
E Value above quantitation range
ND Not Detected at the Reporting Limit
H Holding times for preparation or analysis exceeded
R RPD outside accepted recovery limits
J Analyte detected below quantitation limits
S Spike Recovery outside accepted recovery limits

CLIENT: Clough, Harbour & Assoc. LLP
Work Order: U0704115
Project: C/O Albany Interim Landfill

ANALYTICAL QC SUMMARY REPORT

TestCode: 410.4

Sample ID: **CCV** SampType: **CCV** TestCode: **410.4** Units: **mg/L** Prep Date: RunNo: **24199**
Client ID: **ZZZZZ** Batch ID: **R24199** TestNo: **E410.4** Analysis Date: **4/17/2007** SeqNo: **436105**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chemical Oxygen Demand	47.35	20.0	40	0	118	80	120				

Sample ID: **CCV** SampType: **CCV** TestCode: **410.4** Units: **mg/L** Prep Date: RunNo: **24199**
Client ID: **ZZZZZ** Batch ID: **R24199** TestNo: **E410.4** Analysis Date: **4/17/2007** SeqNo: **436110**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chemical Oxygen Demand	84.87	20.0	75	0	113	80	120				

Sample ID: **CCV** SampType: **CCV** TestCode: **410.4** Units: **mg/L** Prep Date: RunNo: **24604**
Client ID: **ZZZZZ** Batch ID: **R24604** TestNo: **E410.4** Analysis Date: **4/24/2007** SeqNo: **442997**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chemical Oxygen Demand	38.68	20.0	40	0	96.7	80	120				

Sample ID: **CCV** SampType: **CCV** TestCode: **410.4** Units: **mg/L** Prep Date: RunNo: **24604**
Client ID: **ZZZZZ** Batch ID: **R24604** TestNo: **E410.4** Analysis Date: **4/24/2007** SeqNo: **443006**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chemical Oxygen Demand	75.25	20.0	75	0	100	80	120				

Sample ID: **ICB** SampType: **ICB** TestCode: **410.4** Units: **mg/L** Prep Date: RunNo: **24199**
Client ID: **ZZZZZ** Batch ID: **R24199** TestNo: **E410.4** Analysis Date: **4/17/2007** SeqNo: **436093**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chemical Oxygen Demand	ND	20.0									

Qualifiers:
E Value above quantitation range
ND Not Detected at the Reporting Limit
H Holding times for preparation or analysis exceeded
R RPD outside accepted recovery limits
J Analyte detected below quantitation limits
S Spike Recovery outside accepted recovery limits

CLIENT: Clough, Harbour & Assoc. LLP
Work Order: U0704115
Project: C/O Albany Interim Landfill

ANALYTICAL QC SUMMARY REPORT

TestCode: 410.4

Sample ID: **ICB** SampType: **ICB** TestCode: **410.4** Units: **mg/L** Prep Date: RunNo: **24604**
Client ID: **ZZZZZ** Batch ID: **R24604** TestNo: **E410.4** Analysis Date: **4/24/2007** SeqNo: **442984**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chemical Oxygen Demand	ND	20.0									

Sample ID: **ICV** SampType: **ICV** TestCode: **410.4** Units: **mg/L** Prep Date: RunNo: **24199**
Client ID: **ZZZZZ** Batch ID: **R24199** TestNo: **E410.4** Analysis Date: **4/17/2007** SeqNo: **436094**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chemical Oxygen Demand	95.81	20.0	100	0	95.8	80	120				

Sample ID: **ICV** SampType: **ICV** TestCode: **410.4** Units: **mg/L** Prep Date: RunNo: **24604**
Client ID: **ZZZZZ** Batch ID: **R24604** TestNo: **E410.4** Analysis Date: **4/24/2007** SeqNo: **442985**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chemical Oxygen Demand	99.02	20.0	100	0	99.0	80	120				

Qualifiers:
E Value above quantitation range
ND Not Detected at the Reporting Limit
H Holding times for preparation or analysis exceeded
R RPD outside accepted recovery limits
J Analyte detected below quantitation limits
S Spike Recovery outside accepted recovery limits

CLIENT: Clough, Harbour & Assoc. LLP
Work Order: U0704115
Project: C/O Albany Interim Landfill

ANALYTICAL QC SUMMARY REPORT

TestCode: 415.1

Sample ID: **U0704115-007FMS** SampType: **MS** TestCode: **415.1** Units: **mg/L** Prep Date: RunNo: **24358**
Client ID: **MW-15I** Batch ID: **R24358** TestNo: **E415.1** Analysis Date: **4/24/2007** SeqNo: **439036**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Organic Carbon, Total	10.95	3.00	10	0	110	60	130				

Sample ID: **U0704115-007FDUP** SampType: **DUP** TestCode: **415.1** Units: **mg/L** Prep Date: RunNo: **24358**
Client ID: **MW-15I** Batch ID: **R24358** TestNo: **E415.1** Analysis Date: **4/24/2007** SeqNo: **439035**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Organic Carbon, Total	ND	3.00						0	0	15	

Sample ID: **U0704187-004DDUP** SampType: **DUP** TestCode: **415.1** Units: **mg/L** Prep Date: RunNo: **24358**
Client ID: **ZZZZZ** Batch ID: **R24358** TestNo: **E415.1** Analysis Date: **4/24/2007** SeqNo: **439044**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Organic Carbon, Total	ND	3.00						0	0	15	

Sample ID: **U0704187-014DDUP** SampType: **DUP** TestCode: **415.1** Units: **mg/L** Prep Date: RunNo: **24358**
Client ID: **ZZZZZ** Batch ID: **R24358** TestNo: **E415.1** Analysis Date: **4/24/2007** SeqNo: **439056**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Organic Carbon, Total	ND	3.00						0	0	15	

Sample ID: **U0704227-001FDUP** SampType: **DUP** TestCode: **415.1** Units: **mg/L** Prep Date: RunNo: **24358**
Client ID: **ZZZZZ** Batch ID: **R24358** TestNo: **E415.1** Analysis Date: **4/24/2007** SeqNo: **439064**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Organic Carbon, Total	ND	3.00						0	0	15	

Qualifiers:
E Value above quantitation range
ND Not Detected at the Reporting Limit
H Holding times for preparation or analysis exceeded
R RPD outside accepted recovery limits
J Analyte detected below quantitation limits
S Spike Recovery outside accepted recovery limits

CLIENT: Clough, Harbour & Assoc. LLP
Work Order: U0704115
Project: C/O Albany Interim Landfill

ANALYTICAL QC SUMMARY REPORT

TestCode: 415.1

Sample ID: **CCB1** SampType: **CCB** TestCode: **415.1** Units: **mg/L** Prep Date: RunNo: **24358**
Client ID: **ZZZZZ** Batch ID: **R24358** TestNo: **E415.1** Analysis Date: **4/24/2007** SeqNo: **439017**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Organic Carbon, Total	ND	3.00									

Sample ID: **CCB2** SampType: **CCB** TestCode: **415.1** Units: **mg/L** Prep Date: RunNo: **24358**
Client ID: **ZZZZZ** Batch ID: **R24358** TestNo: **E415.1** Analysis Date: **4/24/2007** SeqNo: **439018**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Organic Carbon, Total	ND	3.00									

Sample ID: **CCB3** SampType: **CCB** TestCode: **415.1** Units: **mg/L** Prep Date: RunNo: **24358**
Client ID: **ZZZZZ** Batch ID: **R24358** TestNo: **E415.1** Analysis Date: **4/24/2007** SeqNo: **439019**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Organic Carbon, Total	ND	3.00									

Sample ID: **CCB4** SampType: **CCB** TestCode: **415.1** Units: **mg/L** Prep Date: RunNo: **24358**
Client ID: **ZZZZZ** Batch ID: **R24358** TestNo: **E415.1** Analysis Date: **4/24/2007** SeqNo: **439020**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Organic Carbon, Total	ND	3.00									

Sample ID: **CCV4** SampType: **CCV** TestCode: **415.1** Units: **mg/L** Prep Date: RunNo: **24358**
Client ID: **ZZZZZ** Batch ID: **R24358** TestNo: **E415.1** Analysis Date: **4/24/2007** SeqNo: **439024**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Organic Carbon, Total	37.22	3.00	40	0	93.0	90	110				

Qualifiers:
E Value above quantitation range
ND Not Detected at the Reporting Limit
H Holding times for preparation or analysis exceeded
R RPD outside accepted recovery limits
J Analyte detected below quantitation limits
S Spike Recovery outside accepted recovery limits

CLIENT: Clough, Harbour & Assoc. LLP
Work Order: U0704115
Project: C/O Albany Interim Landfill

ANALYTICAL QC SUMMARY REPORT

TestCode: 415.1

Sample ID: **ICB1** SampType: **ICB** TestCode: **415.1** Units: mg/L Prep Date: RunNo: **24358**
Client ID: **ZZZZZ** Batch ID: **R24358** TestNo: **E415.1** Analysis Date: **4/24/2007** SeqNo: **439025**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Organic Carbon, Total	ND	3.00									

Sample ID: **ICB2** SampType: **ICB** TestCode: **415.1** Units: **mg/L** Prep Date: RunNo: **24358**
Client ID: **ZZZZZ** Batch ID: **R24358** TestNo: **E415.1** Analysis Date: **4/24/2007** SeqNo: **439026**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Organic Carbon, Total	ND	3.00									

Sample ID: **ICV1** SampType: ICV TestCode: **415.1** Units: mg/L Prep Date: RunNo: **24358**
Client ID: **ZZZZZ** Batch ID: **R24358** TestNo: **E415.1** Analysis Date: **4/24/2007** SeqNo: **439027**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Organic Carbon, Total	22.36	3.00	25	0	89.4	80	120				

Sample ID: **ICV2** SampType: ICV TestCode: **415.1** Units: mg/L Prep Date: RunNo: **24358**
Client ID: **ZZZZZ** Batch ID: **R24358** TestNo: **E415.1** Analysis Date: **4/24/2007** SeqNo: **439028**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Organic Carbon, Total	22.96	3.00	25	0	91.8	80	120				

Qualifiers:
E Value above quantitation range
ND Not Detected at the Reporting Limit
H Holding times for preparation or analysis exceeded
R RPD outside accepted recovery limits
J Analyte detected below quantitation limits
S Spike Recovery outside accepted recovery limits

CLIENT: Clough, Harbour & Assoc. LLP
Work Order: U0704115
Project: C/O Albany Interim Landfill

ANALYTICAL QC SUMMARY REPORT

TestCode: 420.4

Sample ID: **U0704115-007EMS** SampType: **MS** TestCode: **420.4** Units: **mg/L** Prep Date: **4/25/2007** RunNo: **24456**
Client ID: **MW-15I** Batch ID: **10004** TestNo: **E420.4** (E420.4) Analysis Date: **4/27/2007** SeqNo: **441220**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Phenolics, Total Recoverable	0.02240	0.00500	0.02	0	112	63	116				

Sample ID: **U0704115-007EDUP** SampType: **DUP** TestCode: **420.4** Units: **mg/L** Prep Date: **4/25/2007** RunNo: **24456**
Client ID: **MW-15I** Batch ID: **10004** TestNo: **E420.4** (E420.4) Analysis Date: **4/27/2007** SeqNo: **441219**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Phenolics, Total Recoverable	ND	0.00500						0	0	0	

Sample ID: **U0704187-004EDUP** SampType: **DUP** TestCode: **420.4** Units: **mg/L** Prep Date: **4/25/2007** RunNo: **24456**
Client ID: **ZZZZZ** Batch ID: **10004** TestNo: **E420.4** (E420.4) Analysis Date: **4/27/2007** SeqNo: **442768**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Phenolics, Total Recoverable	ND	0.00500						0	0	0	

Sample ID: **CCB1** SampType: **CCB** TestCode: **420.4** Units: **mg/L** Prep Date: RunNo: **24404**
Client ID: **ZZZZZ** Batch ID: **R24404** TestNo: **E420.4** Analysis Date: **4/25/2007** SeqNo: **439831**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Phenolics, Total Recoverable	ND	0.00500									

Sample ID: **CCB2** SampType: **CCB** TestCode: **420.4** Units: mg/L Prep Date: RunNo: **24404**
Client ID: **ZZZZZ** Batch ID: **R24404** TestNo: **E420.4** Analysis Date: **4/25/2007** SeqNo: **439832**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Phenolics, Total Recoverable	ND	0.00500									

Qualifiers:
- E Value above quantitation range
- ND Not Detected at the Reporting Limit
- H Holding times for preparation or analysis exceeded
- R RPD outside accepted recovery limits
- J Analyte detected below quantitation limits
- S Spike Recovery outside accepted recovery limits

CLIENT: Clough, Harbour & Assoc. LLP
Work Order: U0704115
Project: C/O Albany Interim Landfill

ANALYTICAL QC SUMMARY REPORT

TestCode: 420.4

Sample ID: **CCB3** SampType: **CCB** TestCode: **420.4** Units: **mg/L** Prep Date: RunNo: **24404**
Client ID: **ZZZZZ** Batch ID: **R24404** TestNo: **E420.4** Analysis Date: **4/25/2007** SeqNo: **439833**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Phenolics, Total Recoverable	ND	0.00500									

Sample ID: **CCB4** SampType: **CCB** TestCode: **420.4** Units: **mg/L** Prep Date: RunNo: **24404**
Client ID: **ZZZZZ** Batch ID: **R24404** TestNo: **E420.4** Analysis Date: **4/25/2007** SeqNo: **439834**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Phenolics, Total Recoverable	ND	0.00500									

Sample ID: **CCB5** SampType: **CCB** TestCode: **420.4** Units: **mg/L** Prep Date: RunNo: **24404**
Client ID: **ZZZZZ** Batch ID. **R24404** TestNo: **E420.4** Analysis Date: **4/25/2007** SeqNo: **439835**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Phenolics, Total Recoverable	ND	0.00500									

Sample ID: **CCB6** SampType: **CCB** TestCode: **420.4** Units: **mg/L** Prep Date: RunNo: **24404**
Client ID: **ZZZZZ** Batch ID: **R24404** TestNo: **E420.4** Analysis Date: **4/25/2007** SeqNo: **439836**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Phenolics, Total Recoverable	ND	0.00500									

Sample ID: **CCB7** SampType: **CCB** TestCode: **420.4** Units: **mg/L** Prep Date: RunNo: **24404**
Client ID: **ZZZZZ** Batch ID: **R24404** TestNo: **E420.4** Analysis Date: **4/25/2007** SeqNo: **439837**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Phenolics, Total Recoverable	ND	0.00500									

Qualifiers:
E Value above quantitation range
ND Not Detected at the Reporting Limit
H Holding times for preparation or analysis exceeded
R RPD outside accepted recovery limits
J Analyte detected below quantitation limits
S Spike Recovery outside accepted recovery limits

CLIENT: Clough, Harbour & Assoc. LLP
Work Order: U0704115
Project: C/O Albany Interim Landfill

ANALYTICAL QC SUMMARY REPORT

TestCode: 420.4

Sample ID: **CCB1** SampType: **CCB** TestCode: **420.4** Units: **mg/L** Prep Date: RunNo: **24456**
Client ID: **ZZZZZ** Batch ID: **R24456** TestNo: **E420.4** Analysis Date: **4/27/2007** SeqNo: **441210**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Phenolics, Total Recoverable	ND	0.00500									

Sample ID: **CCB2** SampType: **CCB** TestCode: **420.4** Units: **mg/L** Prep Date: RunNo: **24456**
Client ID: **ZZZZZ** Batch ID: **R24456** TestNo: **E420.4** Analysis Date: **4/27/2007** SeqNo: **441211**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Phenolics, Total Recoverable	ND	0.00500									

Sample ID: **CCV7** SampType: **CCV** TestCode: **420.4** Units: **mg/L** Prep Date: RunNo: **24404**
Client ID: **ZZZZZ** Batch ID: **R24404** TestNo: **E420.4** Analysis Date: **4/25/2007** SeqNo: **439844**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Phenolics, Total Recoverable	0.1020	0.00500	0.1	0	102	90	110				

Sample ID: **CCV2** SampType: **CCV** TestCode: **420.4** Units: **mg/L** Prep Date: RunNo: **24456**
Client ID: **ZZZZZ** Batch ID: **R24456** TestNo: **E420.4** Analysis Date: **4/27/2007** SeqNo: **441213**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Phenolics, Total Recoverable	0.009950	0.00500	0.01	0	99.5	90	110				

Sample ID: **ICB1** SampType: **ICB** TestCode: **420.4** Units: **mg/L** Prep Date: RunNo: **24404**
Client ID: **ZZZZZ** Batch ID: **R24404** TestNo: **E420.4** Analysis Date: **4/25/2007** SeqNo: **439845**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Phenolics, Total Recoverable	ND	0.00500									

Qualifiers:
E Value above quantitation range
ND Not Detected at the Reporting Limit
H Holding times for preparation or analysis exceeded
R RPD outside accepted recovery limits
J Analyte detected below quantitation limits
S Spike Recovery outside accepted recovery limits

CLIENT: Clough, Harbour & Assoc. LLP
Work Order: U0704115
Project: C/O Albany Interim Landfill

ANALYTICAL QC SUMMARY REPORT

TestCode: 420.4

Sample ID: **ICB2** SampType: **ICB** TestCode: **420.4** Units: **mg/L** Prep Date: RunNo: **24404**
Client ID: **ZZZZZ** Batch ID: **R24404** TestNo: **E420.4** Analysis Date: **4/25/2007** SeqNo: **439846**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Phenolics, Total Recoverable	ND	0.00500									

Sample ID: **ICB3** SampType: **ICB** TestCode: **420.4** Units: **mg/L** Prep Date: RunNo: **24404**
Client ID: **ZZZZZ** Batch ID: **R24404** TestNo: **E420.4** Analysis Date: **4/25/2007** SeqNo: **439847**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Phenolics, Total Recoverable	ND	0.00500									

Sample ID: **ICB4** SampType: **ICB** TestCode: **420.4** Units: **mg/L** Prep Date: RunNo: **24404**
Client ID: **ZZZZZ** Batch ID: **R24404** TestNo: **E420.4** Analysis Date: **4/25/2007** SeqNo: **439848**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Phenolics, Total Recoverable	ND	0.00500									

Sample ID: **ICB1** SampType: **ICB** TestCode: **420.4** Units: **mg/L** Prep Date: RunNo: **24456**
Client ID: **ZZZZZ** Batch ID: **R24456** TestNo: **E420.4** Analysis Date: **4/27/2007** SeqNo: **441214**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Phenolics, Total Recoverable	ND	0.00500									

Sample ID: **ICV1** SampType: **ICV** TestCode: **420.4** Units: **mg/L** Prep Date: RunNo: **24404**
Client ID: **ZZZZZ** Batch ID: **R24404** TestNo: **E420.4** Analysis Date: **4/25/2007** SeqNo: **439849**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Phenolics, Total Recoverable	0.2010	0.00500	0.2	0	101	90	110				

Qualifiers:
E Value above quantitation range
ND Not Detected at the Reporting Limit
H Holding times for preparation or analysis exceeded
R RPD outside accepted recovery limits
J Analyte detected below quantitation limits
S Spike Recovery outside accepted recovery limits

CLIENT: Clough, Harbour & Assoc. LLP
Work Order: U0704115
Project: C/O Albany Interim Landfill

ANALYTICAL QC SUMMARY REPORT

TestCode: 420.4

Sample ID: **ICV2** SampType: **ICV** TestCode: **420.4** Units: **mg/L** Prep Date: RunNo: **24404**
Client ID: **ZZZZZ** Batch ID: **R24404** TestNo: **E420.4** Analysis Date: **4/25/2007** SeqNo: **439850**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Phenolics, Total Recoverable	0.2010	0.00500	0.2	0	101	90	110				

Sample ID: **ICV3** SampType: **ICV** TestCode: **420.4** Units: **mg/L** Prep Date: RunNo: **24404**
Client ID: **ZZZZZ** Batch ID: **R24404** TestNo: **E420.4** Analysis Date: **4/25/2007** SeqNo: **439851**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Phenolics, Total Recoverable	0.1970	0.00500	0.2	0	98.5	90	110				

Sample ID: **ICV4** SampType: **ICV** TestCode: **420.4** Units: **mg/L** Prep Date: RunNo: **24404**
Client ID: **ZZZZZ** Batch ID: **R24404** TestNo: **E420.4** Analysis Date: **4/25/2007** SeqNo: **439852**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Phenolics, Total Recoverable	0.1860	0.00500	0.2	0	93.0	90	110				

Sample ID: **ICV1** SampType: **ICV** TestCode: **420.4** Units: **mg/L** Prep Date: RunNo: **24456**
Client ID: **ZZZZZ** Batch ID: **R24456** TestNo: **E420.4** Analysis Date: **4/27/2007** SeqNo: **441215**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Phenolics, Total Recoverable	0.1980	0.00500	0.2	0	99.0	90	110				

Qualifiers:
E Value above quantitation range
ND Not Detected at the Reporting Limit
H Holding times for preparation or analysis exceeded
R RPD outside accepted recovery limits
J Analyte detected below quantitation limits
S Spike Recovery outside accepted recovery limits

CLIENT: Clough, Harbour & Assoc. LLP
Work Order: U0704115
Project: C/O Albany Interim Landfill

ANALYTICAL QC SUMMARY REPORT

TestCode: Cr6_W

Sample ID: **U0704115-007AMS** SampType: **MS** TestCode: **CR6_W** Units: **mg/L** Prep Date: RunNo: **24220**
Client ID: **MW-15I** Batch ID: **R24220** TestNo: **SM3500** Analysis Date: **4/5/2007** SeqNo: **436603**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent chromium	0.5202	0.010	0.5	0	104	75	125				H

Sample ID: **U0704115-007ADUP** SampType: **DUP** TestCode: **Cr6_W** Units: **mg/L** Prep Date: RunNo: **24220**
Client ID: **MW-15I** Batch ID: **R24220** TestNo: **SM3500** Analysis Date: **4/5/2007** SeqNo: **436602**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent chromium	ND	0.010						0	0	20	H

Sample ID: **CCB** SampType: **CCB** TestCode: **Cr6_W** Units: **mg/L** Prep Date: RunNo: **24220**
Client ID: **ZZZZZ** Batch ID: **R24220** TestNo: **SM3500** Analysis Date: **4/5/2007** SeqNo: **436592**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent chromium	ND	0.010									

Sample ID: **CCV** SampType: **CCV** TestCode: **Cr6_W** Units: **mg/L** Prep Date: RunNo: **24220**
Client ID: **ZZZZZ** Batch ID: **R24220** TestNo: **SM3500** Analysis Date: **4/5/2007** SeqNo: **436593**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent chromium	0.5078	0.010	0.5	0	102	80	120				

Sample ID: **ICB** SampType: **ICB** TestCode: **Cr6_W** Units: **mg/L** Prep Date: RunNo: **24220**
Client ID: **ZZZZZ** Batch ID: **R24220** TestNo: **SM3500** Analysis Date: **4/5/2007** SeqNo: **436594**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent chromium	ND	0.010									

Qualifiers:
E Value above quantitation range
ND Not Detected at the Reporting Limit
H Holding times for preparation or analysis exceeded
R RPD outside accepted recovery limits
J Analyte detected below quantitation limits
S Spike Recovery outside accepted recovery limits

CLIENT: Clough, Harbour & Assoc. LLP
Work Order: U0704115
Project: C/O Albany Interim Landfill

ANALYTICAL QC SUMMARY REPORT

TestCode: Cr6_W

Sample ID: ICV	SampType: ICV	TestCode: Cr6_W	Units: mg/L	Prep Date:	RunNo: 24220
Client ID: ZZZZZ	Batch ID: R24220	TestNo: SM3500		Analysis Date: 4/5/2007	SeqNo: 436595

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent chromium	0.4775	0.010	0.487	0	98.1	80	120				

Qualifiers:

E	Value above quantitation range	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike Recovery outside accepted recovery limits

Chain of Custody

Upstate Laboratories, Inc.

Upstate Laboratories, Inc.

Chain of Custody Record

6034 Corporate Drive E. Syracuse New York 13057
(315) 437 0255 Fax 437 1209

Client:		Project #/ Project Name				No. of Containers	1)	2)	3)	4)	5)	6)	7)	8)	9)	10)	Remarks
CHA		C/O ALBANY INTERIM LANDFILL															
Client Contact: KEITH COWAN	Phone # 453-4500	Location (city/state) Address ALBANY, NY															
Sample ID	Date	Time	Matrix	GRAB OR COMP	ULI Internal Use Only												
MW-14S	4/5/07	8:20AM	GW	GRAB		9	X	X	X	X	X	X	X	X	X		NYS PART 360
MW-14I	4/5/07	9:40AM	GW	GRAB		9	X	X	X	X	X	X	X	X	X		BASELINE 1993
MW-14D	4/5/07	11:40A	GW	GRAB		9	X	X	X	X	X	X	X	X	X		ASP CAT. B
CHA-2	4/5/07	8:00AM	GW	GRAB		9	X	X	X	X	X	X	X	X	X		

Parameter and Method	Sample bottle:	Type	Size	Preservative
1) NH3,TKN,COD		P	500ML	H2SO4
2) TOC		P	120ML	1:1HCL
3) TOTAL PHENOLS		AMBER	32OZ	H2SO4
4) ALKALINITY		G	8OZ	NONE
5) NO3,BOD5,TDS,SO4,CL,COLOR,BROMIDE,CR+6		P	2000ML	NONE
6) T-K,FE,MN,MG,BA,CR,NA,AG,HG,SE,TL*,PB*,CD,ZN,		P	500ML	HNO3
7) CA,AL,SB*,AS,BE,CU,NI,CO,V,B, + CALC. HARDNESS		P	500ML	HNO3
8) BASELINE 8260		G	40ML	1:1 HCL
9) TOTAL CYANIDE		P	1000ML	NAOH
1(Dissolved Metals		P	500ml	HNO3

Sampled by (Print) J.H. / J.S.
Company: CHA

Relinquished by:(sign)	Date	Time	Received by: (sign)
J.S. [signature]	4/5/07	12:30	[signature]
[signature]	4/5/07	2:30p	[signature]
[signature]	4/5/07	3:40p	[signature]

Name of Courier

Syracuse Rochester Buffalo Albany Binghamton Fair Lawn (NJ)

Upstate Laboratories, Inc. Chain of Custody Record

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(315) 437 0255 Fax 437 1209

Client:		Project #/ Project Name				No.											Remarks
CHA		C/O ALBANY INTERIM LANDFILL															
Client Contact:	Phone #	Location (city/state) Address				of											
KEITH COWAN	453-4500	ALBANY, NY															
Sample ID	Date	Time	Matrix	GRAB OR COMP	ULI Internal Use Only	Containers	1)	2)	3)	4)	5)	6)	7)	8)	9)	10)	
MW-15S	4/4/07	10:00am	GW	GRAB		9	X	X	X	X	X	X	X	X	X		NYS PART 360
MW-15I MS/MSD	4/4/07	12:00pm	GW	GRAB		11	X	X	X	X	X	X	X	X	X		BASELINE 1993
MW-15D	4/4/07	3:10pm	GW	GRAB		9	X	X	X	X	X	X	X	X	X	X	ASP CAT. B

Parameter and Method	Sample bottle:	Type	Size	Preservative
1) NH3,TKN,COD		P	500ML	H2SO4
2) TOC		P	120ML	1:1HCL
3) TOTAL PHENOLS		AMBER	32OZ	H2SO4
4) ALKALINITY		G	8OZ	NONE
5) NO3,BOD5,TDS,SO4,CL,COLOR,BROMIDE,CR+6		P	2000ML	NONE
6) T-K,FE,MN,MG,BA,CR,NA,AG,HG,SE,TL*,PB*,CD,ZN,		P	500ML	HNO3
7) CA,AL,SB*,AS,BE,CU,NI,CO,V,B, + CALC. HARDNESS		P	500ML	HNO3
8) BASELINE 8260		G	40ML	1:1 HCL
9) TOTAL CYANIDE		P	1000ML	NAOH
1(Dissolved Metals		P	500ml	HNO3

Sampled by (Print) J.H. / J.S.
Company: CHA

Relinquished by:(sign)	Date	Time	Name of Courier
[signature]	4/4/07	4:20 p	CDL
Relinquished by:(sign) [signature]	Date 4/4/07	Time 5:00 p	Received by: (sign) [signature]
Relinquished by:(sign)	Date	Time	Received by: (sign)
Relinquished by:(sign)	Date	Time	Received by: (sign)
Relinquished by:(sign)	Date 4/5/07	Time 1050	Rec'd for Lab by: [signature]

Syracuse Rochester Buffalo **Albany** Binghamton Fair Lawn (NJ)

Upstate Laboratories, Inc.
Internal Laboratory Sign–Out Log

SR–10–03 Revised 3/98

Project: CHA - ALBany
SDG No.:
ULI ID No.: 40704115

ULI Number or Range of ULI Numbers	Date/Time Sample(s) Taken	Purpose	S.Custodian Initials	Analyst Initials	Date/Time Sample(s) Returned	S.Custodian Initials	Analyst Initials
1H-4H, 5A, 6H-8H, 9A	4/9/07 12:30	8260		ART	4/9/07 1630		ART
1H, 6H, 7H	4/10/07 1115	8260		MRN	4/10/07 1325		MRN
[illegible]	4-11-07 9:00	CN		By	4/11/07 16:00		By
6H, 7H	4/11/07 1245	8260					
1-4, 6-8 FEI	4/13/07 8:AM	Hg		EK	4/13/07 12PM		EK
1-4B	4/17/07 1:35pm	CODS		NS	4/17/07 2:30pm		NS
1, 2B	4/20/07 8:30am	TKN		NS	4/20/07 9:30am		NS
3-8B	4/23/07 9:45am	TKN		NS	4/23/07 10:15am		NS
-8F	4/24/07 9:10am	TOC		NS	4/24/07 12pm		NS
1,4,6,7,8B	4/24/07 2:20pm	COD		NS	4/24/07 4:30pm		NS

Upstate Laboratories, Inc.

Sample Receipt Checklist

Client Name CHA-ALBANY

Date and Time Receive 4/5/2007

Work Order Numbe U0704115

Received by TC

Checklist completed by K Crump 4-5-07 (Signature / Date)

Reviewed by [illegible] 4/9/07 (Initials / Date)

Matrix:

Carrier name: ULI

Shipping container/cooler in good condition?	Yes ✔	No ☐	Not Presen ☐
Custody seals intact on shippping container/cooler?	Yes ☐	No ☐	Not Presen ✔
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Presen ☑
Chain of custody present?	Yes ✔	No ☐	
Chain of custody signed when relinquished and received?	Yes ✔	No ☐	
Chain of custody agrees with sample labels?	Yes ✔	No ☐	
Samples in proper container/bottle?	Yes ✔	No ☐	
Sample containers intact?	Yes ✔	No ☐	
Sufficient sample volume for indicated test?	Yes ✔	No ☐	
All samples received within holding time?	Yes ✔	No ☐	
Container/Temp Blank temperature in compliance?	4.6° Yes ✔	No ☐	
Water - VOA vials have zero headspace?	No VOA vials submitted ☐	Yes ☑	No ☐
Water - pH acceptable upon receipt?	Yes ✔	No ☐	

Adjusted? _____ Checked by _____

Any No and/or NA (not applicable) response must be detailed in the comments section be

Client contacted _____ Date contacted: _____ Person contacted _____

Contacted by: _____ Regarding: _____

Comments: _____

Corrective Action _____

Upstate Laboratories, Inc.

Sample Receipt Checklist

Client Name CHA-ALBANY

Date and Time Receive 4/5/2007

Work Order Numbe U0704115

Received by TC

Checklist completed by [signature] 4-5-07
Signature Date

Reviewed by [signature] 4/9/07
Initials Date

Matrix:

Carrier name: ULI

Shipping container/cooler in good condition?	Yes ✔	No ☐	Not Presen ☐
Custody seals intact on shippping container/cooler?	Yes	No ☐	Not Presen ✔
Custody seals intact on sample bottles?	Yes	No ☐	Not Presen ✔
Chain of custody present?	Yes ✔	No ☐	
Chain of custody signed when relinquished and received?	Yes ✔	No ☐	
Chain of custody agrees with sample labels?	Yes ✔	No ☐	
Samples in proper container/bottle?	Yes ✔	No ☐	
Sample containers intact?	Yes ✔	No ☐	
Sufficient sample volume for indicated test?	Yes ✔	No ☐	
All samples received within holding time?	Yes ✔	No ☐	
Container/Temp Blank temperature in compliance?	Yes ✔	No ☐	
Water - VOA vials have zero headspace?	No VOA vials submitted 48°	Yes ✔	No ☐
Water - pH acceptable upon receipt?	Yes ✔	No ☐	

Adjusted? _____ Checked by _____

Any No and/or NA (not applicable) response must be detailed in the comments section be

Client contacted _____ Date contacted: _____ Person contacted _____

Contacted by: _____ Regarding: _____

Comments: _____

Corrective Action _____

APPENDIX J

Data Validation Report

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Remediation
Water Supply

April 16, 2007

Mr. Keith Cowan
Clough, Harbour, & Associates LLP
III Winners Circle
P.O. Box 5269
Albany, New York 12205-0269

Re: City of Albany Landfill
Data Validation Report
January 2007 Ground Water Sampling Event
6NYCRR Part 360 Expanded Parameters

Dear Mr. Cowan:

The data usability summary report and data validation reviews are attached to this letter for the City of Albany Landfill. The data were mostly acceptable for Upstate Laboratories, Inc., SDG No. CHA78, with some issues that are identified and discussed in the validation summaries. There were "not detected" data that were rejected (R) in this data pack. The basis for rejecting the data are outlined in the QA/QC reviews for volatile and semi-volatile data. The data is rejected based solely on the validation guidance criteria. The rejected data may be determined to be acceptable to the user based on additional information that is not contained in the data validation criteria. data packs did not contain data that were unusable (R).

A list of common data validation acronyms is attached to this letter to assist you interpreting the validation summaries. If you have any questions concerning the work performed, please contact me at (518) 348-6995. Thank you for the opportunity to assist Clough, Harbour, & Associates LLP.

Sincerely,
Alpha Geoscience

Donald Anné

Donald Anné
Senior Chemist

DCA:dca
attachments

Z:\projects\2006\06621-06640\06625-albany landfill\cowan-0407.ltr wpd

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Data Validation Qualifiers Used in the QA/QC Reviews for USEPA Region II

U = Not detected. The associated number indicates the approximate sample concentration necessary to be detected significantly greater than the level of the highest associated blank.

R = Unreliable result; data is rejected or unusable. Analyte may or may not be present in the sample. Supporting data or information is necessary to confirm the result.

N = Tentative identification. Analyte is considered present. Special methods may be needed to confirm its presence or absence during future sampling efforts.

J = Analyte is present. Reported value may be associated with a higher level of uncertainty than is normally expected with the analytical method.

UJ = Not detected, quantitation limit may be inaccurate or imprecise.

Note: These qualifiers are used for data validation purposes. The data validation qualifiers may differ from the qualifiers that the laboratory assigns to the data. Refer to the laboratory analytical report for the definitions of the laboratory qualifiers.

Data Validation Acronyms

AA	Atomic absorption, flame technique
BHC	Hexachlorocyclohexane
BFB	Bromofluorobenzene
CCB	Continuing calibration blank
CCC	Calibration check compound
CCV	Continuing calibration verification
CN	Cyanide
CRDL	Contract required detection limit
CRQL	Contract required quantitation limit
CVAA	Atomic adsorption, cold vapor technique
DCAA	2,4-Dichlophenylacetic acid
DCB	Decachlorobiphenyl
DFTPP	Decafluorotriphenyl phosphine
ECD	Electron capture detector
FAA	Atomic absorption, furnace technique
FID	Flame ionization detector
FNP	1-Fluoronaphthalene
GC	Gas chromatography
GC/MS	Gas chromatography/mass spectrometry
GPC	Gel permeation chromatography
ICB	Initial calibration blank
ICP	Inductively coupled plasma-atomic emission spectrometer
ICV	Initial calibration verification
IDL	Instrument detection limit
IS	Internal standard
LCS	Laboratory control sample
LCS/LCSD	Laboratory control sample/laboratory control sample duplicate
MSA	Method of standard additions
MS/MSD	Matrix spike/matrix spike duplicate
PID	Photo ionization detector
PCB	Polychlorinated biphenyl
PCDD	Polychlorinated dibenzodioxins
PCDF	Polychlorinated dibenzofurans
QA	Quality assurance
QC	Quality control
RF	Response factor
RPD	Relative percent difference
RRF	Relative response factor
RRF(number)	Relative response factor at concentration of the number following
RT	Retention time
RRT	Relative retention time
SDG	Sample delivery group
SPCC	System performance check compound
TCX	Tetrachloro-m-xylene
%D	Percent difference
%R	Percent recovery
%RSD	Percent relative standard deviation

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Data Usability Summary Report
for Upstate Laboratories, Inc.
SDG No. CHA78
12 Ground Water Samples and 2 Trip Blanks
Collected January 23 and 24, 2007

Prepared by: Donald Anné
April 16, 2007

The data packages contain the documentation required by NYSDEC ASP. The proper chain of custody procedures were followed by the samplers. All information appeared legible and complete. The data packs contained the results for 19 ground water samples analyzed for volatile, semi-volatiles, pesticides/PCBs, herbicides, metal, and general chemistry analyses for 6NYCRR Part 360 expanded parameters and 2 trip and 2 holding blanks analyzed for volatiles only.

The overall performances of the analyses are acceptable. Upstate Laboratories, Inc. did not fulfill the requirements of the analytical method for volatiles. Three of the continuing calibrations were not ASP compliant.

The majority of the data are acceptable with some issues that are identified in the accompanying data validation reviews. The following data were flagged:

- The "not detected" results for acrolein, acetonitrile, acrylonitrile, propionitrile, and isobutyl alcohol were flagged as "unusable" (R) in all 12 ground water samples, 2 trip blanks, and 2 holding blanks because the response factors for these compounds were below the allowable minimum in the associated initial and continuing calibrations.

- The "not detected" volatile results were flagged as "estimated" (J) in the following samples in this data pack because the samples were analyzed beyond ASP holding times.

MW-15DB	MW-14SA	MW-13SB	MW-14IA	HOLDING BLANKs
MW-14IB	MW-14DA	MW-14DB	TRIP BLANK	

- The positive results for acetone and chloroform were flagged as "estimated" (J) in sample HOLDING BLANK 1/23 because the sample was analyzed beyond ASP holding times.

- Positive volatile results for methylene chloride were flagged as "not detected" (U) for TRIP BLANK, HOLDING BLANK ½3 and HOLDING BLANK 1/24 because the levels reported in the samples were not significantly greater (more than 10 times) than the associated method blank level.

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- The "not detected" results for 2,4-dinitrophenol, 4,6-dinitro-2-methylphenol, 1,3,5-trinitrobenzene, and kepone were flagged as "unusable" (R) in all 12 ground water samples because the response factors for these compounds were below the allowable minimum in the associated initial and/or continuing calibrations.

- Positive volatile results for bis(2-ethylhexyl)phthalate were flagged as "not detected" (U) for all 12 ground water samples because the levels reported in the samples were not significantly greater (more than 10 times) than the associated method blank level.

- The "not detected" results for all herbicides were flagged as "estimated" (J) in all 12 ground water samples because the samples were extracted beyond ASP holding times.

- The "not detected" results for mercury were flagged as "estimated" (J) in samples MW-14SB, MW-14IA, MW-14IB, MW-14DA, and MW-14DB because the percent recovery for continuing calibration verification standard eas below control limits.

- Positive results for zinc were flagged as "estimated" (J) in all 12 ground water samples because the percent recovery for zinc was above control limits for spike sample MW-15-IBS and the relative percent difference for zinc was above the allowable maximum for duplicate sample MW-15-IBD.

- Positive results for aluminum were flagged as "estimated" (J) in all 12 ground water samples because the relative percent difference for aluminum was above the allowable maximum for duplicate sample MW-15-IBD.

- Results for TDS were flagged as "estimates" (J) in all 12 ground water samples because the samples were analyzed beyond NYSDEC holding times for TDS.

- The "not detected" results for BOD_5 were flagged as "estimates" (J) in the following samples because the samples were analyzed beyond NYSDEC holding times for BOD_5.
  MW-14SB MW-14IA MW-14IB MW-14DA MW-14DB

- The positive results for BOD_5 were flagged as "estimates" (J) in the following samples because the relative percent difference for BOD_5 was above the allowable maximum for duplicate sample MW-15-IB.
  MW-15SA MW-15SB MW-15IA MW-15DA MW-14SA

All data that are not flagged rejected (R) are considered usable, with estimated (J) data associated with a higher level of quantitative uncertainty. Detailed information on data quality is included in the data validation reviews.

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QA/QC Review of Part 360 Expanded Volatiles Data for Upstate Laboratories, Inc. SDG No. CHA78 12 Ground Water Samples, 2 Trip Blanks, and 2 Holding Blanks Collected January 23 and 24, 2007

Prepared by: Donald Anné
April 16, 2007

Holding Times: The following samples were analyzed beyond NYSDEC ASP holding times. All results for these samples should be considered estimated (J).

MW-15DB	MW-14SA	MW-13SB	MW-14IA	HOLDING BLANKs
MW-14IB	MW-14DA	MW-14DB	TRIP BLANK	

GC/MS Tuning and Mass Calibration: The BFB tuning criteria were within control limits.

Initial Calibration: The compounds with ASP criteria for minimum %RSDs met those requirements. The RRFs for toluene were below the ASP minimum (0.400), but was above 0.010 for #12 on 01-31-07. No action is taken when two or fewer compounds per calibration do not meet ASP criteria, provided %RSDs are not greater than 40% and RRFs are not less than 0.010.

The average RRFs for acrolein (0.012), acetonitrile (0.013), acrylonitrile (0.036), propionitrile (0.015), and isobutyl alcohol (0.001) were below the allowable minimum (0.050) for #12 on 01-31-07. Positive results for these compounds should be considered estimated (J) and negative results unusable (R) in associated samples.

The %RSD for 4-methyl-2-pentanone (34.2%) was above the allowable maximum (30%) for #12 on 01-31-07. Positive results for 4-methyl-2-pentanone should be considered estimates (J) in associated samples.

Continuing Calibration: The compounds with ASP criteria for minimum %Ds met those requirements. The RRF50 for toluene (0.399) was below the ASP minimum (0.400), but was above 0.010 on 02-03-07 (C16639.D). The RRF50 for toluene (0.392) was below the ASP minimum (0.400), but was above 0.010 on 02-05-07 (C16656.D). No action is taken when two or fewer compounds per calibration that do not meet ASP criteria, provided %Ds are not greater than 40% and RRF50s are not less than 0.010.

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The RRF50s for acrolein (0.008), acetonitrile (0.016), acrylonitrile (0.042), propionitrile (0.017), and isobutyl alcohol (0.001) were below the allowable minimum (0.050) on 02-03-07 (C16639.D). The RRF50s for acrolein (0.009), acetonitrile (0.013), acrylonitrile (0.037), propionitrile (0.014), and isobutyl alcohol (0.001) were below the allowable minimum (0.050) on 02-05-07 (C16656.D). Positive results for these compounds should be considered estimated (J) and negative results unusable (R) in associated samples.

The %Ds for chloroethane (26.7%), acrolein (32.9%), acetonitrile (25.8%), 2,2-dichloropropane (49.6%), and methyl methacrylate (27.5%) were above the allowable maximum (25%) on 02-03-07 (C16639.D). The %Ds for vinyl acetate (99.0%), 2,2-dichloropropane (50.9%), 4-methyl-2-pentanone (30.7%), and 2-hexanone (25.4%) were above the allowable maximum (25%) on 02-05-07 (C16656.D). Positive results for the above compounds should be considered estimates (J) in associated samples.

Blanks: Method blank VBLK01 contained a trace of methylene chloride (2 ug/L). Method blank VBLK02 contained traces of methylene chloride (2 ug/L) and 2-hexanone (6 ug/L). Trip blank ULI TRIP BLANK contained a trace of carbon disulfide (2 ug/L). Holding blank 01-23-07 contained acetone (110 ug/L) and chloroform (2 ug/L). Results for methylene chloride and acetone that are less than ten times the highest associated blank should be reported as not detected (U) in samples. Results for carbon disulfide, chlorofrom, and 2-hexanone that are less than five times the highest associated blank should be reported as not detected (U) in samples.

Internal Standard Area Summary: The internal standard areas and retention times were within control limits.

Surrogate Recovery: The surrogate recoveries were within control limits for ground water samples.

Matrix Spike/Matrix Spike Duplicate: The relative percent differences were below the allowable maximums, but 8 of 10 percent recoveries were above control limits for MS/MSD sample MW-15IB. No action is taken on MS/MSD data alone to qualify or reject an entire set of samples.

Matrix Spike Blank Recovery: The percent recoveries were within QC limits for sample VBLK01. The percent recovery for toluene was above QC limits for sample VBLK02. Positive results for toluene should be considered estimated (J) in associated samples.

Compound ID: Checked compounds were within GC/MS quantitation limits. The mass spectra for detected compounds contained the primary and secondary ions, as outlined in the method.

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QA/QC Review of Expanded Semi-Volatiles
Data for Upstate Laboratories, Inc.
SDG No. CHA78
12 Ground Water Samples
Collected January 23 and 24, 2007

Prepared by: Donald Anné
April 16, 2007

Holding Times: Samples were extracted and analyzed SW-846 holding times.

GC/MS Tuning and Mass Calibration: The DFTPP tuning criteria were within control limits.

Initial Calibration: The RRFs for 2,6-dinitrotoluene, and 2,4-dinitrotoluene were below the ASP required minimum but were greater than 0.010, and the %RSDs for 2,6-dinitrotoluene, 2,4-dinitrotoluene, and pentachlorophenol were above ASP required maximum, but were less than 40% for #14.0 on 02-14-07. No action is taken when four or fewer compounds per calibration do not meet ASP criteria, provided the %RSDs are not greater than 40% and the RRFs are not less than 0.010.

The %RSDs for 3 compounds (Table 1) were above the allowable maximum (30%) for #14.0 on 02-14-07. The %RSDs for 7 compounds (Table 1) were above the allowable maximum (30%) for #14.0 on 02-20-07. Positive results for these compounds should be considered estimated (J) in associated samples.

The average RRFs for 1,3,5-trinitrobenzene (0.025) and kepone (0.018) were below the allowable minimum (0.050) for #14.0 on 02-20-07. Positive results for these two compounds should be considered estimated (J) and negative results unusable (R) in associated samples.

Continuing Calibration: The RRF50s for 4-nitrophenol and 2,6-dinitrotoluene were below the ASP required minimum but were greater than 0.010 and the %Ds for 4-nitrophenol and pentachlorophenol were above ASP required maximum, but were less than 40% on 02-20-07 (AE3292.D). The RRF50s for 4-nitrophenol, 2,6-dinitrotoluene, and 2,4-dinitrotoluene were below the ASP required minimum but were greater than 0.010 and the %Ds for 4-nitrophenol, 2,6-dinitrotoluene, 2,4-dinitrotoluene, and pentachlorophenol were above ASP required maximum, but were less than 40% on 02-21-07 (AE3310.D). No action is taken when four or fewer compounds per calibration do not meet ASP criteria, provided the %Ds are not greater than 40% and the RRF50s are not less than 0.010.

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The %Ds for 6 compounds (Table 1) were above the allowable maximum (25%) on 02-20-07 (AE3292.D). The %Ds for 3 compounds (Table 1) were above the allowable maximum (25%) on 02-20-07 (AE3310.D). The %Ds for 11 compounds (Table 1) were above the allowable maximum (25%) on 02-21-07 (AE3310.D). The %Ds for 7 compounds (Table 1) were above the allowable maximum (25%) on 02-21-07 (AE3311.D). Positive results for these compounds should be considered estimates (J) in associated samples.

The RFF50 for 2,4-dinitrophenol (0.019) and 4,6-dinitro-2-methylphenol (0.027) were below the allowable minimum (0.050) on 02-20-07 (AE3292.D). The RRF50s for 1,3,5-trinitrobenzene (0.016) and kepone (0.008) were below the allowable minimum (0.050) on 02-20-07 (AE3294.D). The RFF50 for 2,4-dinitrophenol (0.019) and 4,6-dinitro-2-methylphenol (0.025) were below the allowable minimum (0.050) on 02-21-07 (AE3310.D). The RRF50s for 1,3,5-trinitrobenzene (0.016) and kepone (0.008) were below the allowable minimum (0.050) on 02-21-07 (AE3311.D). Positive result for these compounds should be considered estimates (J) and negative results unusable (R) in associated samples.

Blanks: Method blank SBLK contained a trace of bis(2-ethylhexyl)phthalate (4 ug/L). Results for bis(2-ethylhexyl)phthalate that are less than ten times the method blank level should be reported as not detected (U) in associated samples (J).

Internal Standard Area Summary: The internal standard areas and retention times were within control limits.

Surrogate Recovery: One of four base/neutral surrogate recoveries for samples MW-15SA and MW-14SA was above control limits. One of four base/neutral and 1 of 4 acid extractable surrogate recoveries for samples MW-14SB and MW-14IA was above control limits. No action is taken on surrogate per fraction outside control limits, provided no recovery is less than 10%.

Matrix Spike/Matrix Spike Duplicate: The relative percent differences were below the allowable maximums but 2 of 20 percent recoveries were above control limits for MS/MSD sample MW-15IB. No action is taken on MS/MSD data alone to qualify or reject an entire set of samples.

Blank Spike Recovery: The percent recoveries for 4-chloro-3-methylphenol, 4-nitrophenol, 2,4-dinitrotoluene, and pyrene were above QC limits for sample LCS-9299. Positive results for these compounds should be considered estimated (J) in associated samples.

Compound ID: Checked compounds were within GC quantitation limits. The mass spectra for detected compounds contained the primary and secondary ions, as outlined in SW846.

Table 1

Compounds with %RSDs and/or %Ds above the Allowable Maximums

	Initial calibration 2-14 Instrument #14.0 %RSD > 30%	Initial calibration 2-20 Instrument #14.0 %RSD > 30%	Continuing calibration File: AE3292.D %D > 25%	Continuing calibration File: AE3294.D %D > 25%	Continuing calibration File: AE3310.D %D > 25%	Continuing calibration File: AE3311.D %D > 25%
2-nitrophenol			30.3%		64.2%	
2,3,4,6-tetrachlorophenol					29.4%	
2-nitroaniline					36.4%	
2,6-dinitrotoluene	35.6%				47.0%	
3-nitroaniline					40.6%	
2,4-dinitrophenol			63.8%		64.8%	
4-nitrophenol			42.0%			
2,4-dinitrotoluene					39.4%	
4-nitrophenol					48.5%	
4-nitroaniline	32.8%				29.6%	
4,6-dinitro-2-methylphenol	53.1%		61.2%		63.8%	
pentachlorophenol			36.8%		48.7%	
bis(2-ethylhexyl)phthalate			25.6%			
1,4-naphthoquinone		30.6%				
5-nitro-o-toluidine		37.4%				35.0%
1,3,5-trinitrobenzene		67.4%		35.8%		51.0%
pentachloronitrobenzene		35.3%				
methyl parathion		45.9%				32.6%
chlorobenzilate						25.8%
3,3'-dimethylbenzidine						42.8%
famphur		113.1%		45.2%		30.4%
kepone		116.1%		54.6%		55.1%

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QA/QC Review of Pesticide/PCB Data
for Upstate Laboratories, Inc.
SDG No. CHA78
12 Ground Water Samples
Collected January 23 and 24, 2007

Prepared by: Donald Anné
April 16, 2007

Holding Times: Samples were extracted and analyzed within NYSDEC holding times.

Blanks: The analysis of the method blank reported target pesticides and PCBs as not detected.

Surrogate Recovery: One of two surrogate recoveries for samples MW-14DA and MW-14DB was outside advisory limits, but was not less than 10% on one column. No action is taken on one surrogate on one column provided the recovery is not less than 10%.

Matrix Spike/Matrix Spike Duplicate: The relative percent differences were below the allowable maximum and the percent recoveries were within QC limits for MS/MSD sample MW-15IB.

Laboratory Control Sample: The percent recoveries were within QC limits for sample LCSW.

Initial Calibration: The %RSDs for applicable target pesticides were below the allowable maximum (20%), or the correlation coefficients were above the allowable minimums, as required.

Continuing Calibration: The %D for aroclor-1242 (17%) was above the allowable maximum (15%) on column DB-35MS. The %D for aroclor-1248 (22%) was above the allowable maximum (15%) on column DB-XLB. Positive results for these aroclors should be considered estimated (J) in associated samples.

Performance Evaluation Mixture: The resolutions for applicable compounds were greater than 60%, as required.

Pesticide Calibration Verification Summary (PEM): The % breakdowns were below the allowable maximums for 4,4'-DDT (20%), endrin (20%), and combined (30%) as required.

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The RPDs for alpha-BHC (40%), beta-BHC (40%), lindane (40%), edrin (90%), and 4,4'-DDT (45%) were above the allowable maximum (25%) for PEM on the DB-35MS column. The RPDs for 4,4'-DDT (31%) and methoxychlor (41%) were above the allowable maximum (25%) for PEM on the DB-XLB column. Positive results for these compounds should be considered estimated (J) in associated samples.

Pesticide Calibration Verification Summary (INDA & INDB): The RPD for heptachlor (30%) was above the allowable maximum (25%) for INDA M on the DB-35MS column. The RPD for heptachlor epoxide (70%) was above the allowable maximum (25%) for INDB M on the DB-35MS column. The RPDs for 4,4'-DDT (38%), heptachlor (30%), and methoxychlor (40%) were above the allowable maximum (25%) for INDA M on the DB-XLB column. Positive results for these compounds should be considered estimated (J) in associated samples.

DDT/Endrin Breakdown Check: The percent breakdowns were below the allowable maximum (20%) for 4,4'-DDT and endrin, as required.

Pesticide Analytical Sequence: The retention times for TCX and DCB were within control limits for environmental samples on both columns.

Pesticide Identification Summary for Single Component Analytes: Checked surrogate results were within GC quantitation limits. There were no detected concentrations of single component target pesticides in the ground water samples.

Pesticide Identification Summary for Multicomponent Analytes: There were no detected concentrations of multi-component target pesticides reported in the ground water samples.

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QA/QC Review of Herbicide Data
for Upstate Laboratories, Inc.
SDG No. CHA78
12 Ground Water Samples
Collected January 23 and 24, 2007

Prepared by: Donald Anné
April 16, 2007

Holding Times: Samples were extracted beyond NYSDEC holding times. Results for all samples should be considered estimated (J).

Blanks: The analysis of the method blank reported target herbicides as not detected.

Surrogate Recovery: The surrogate recovery for samples MW-15SA, and MW-15DB was above advisory limits. Positive results for samples MW-15SA, and MW-15DB should be considered estimated (J).

Matrix Spike/Matrix Spike Duplicate: The relative percent differences were below the allowable maximum and the percent recoveries were within QC limits for MS/MSD sample MW-15IB.

Laboratory Control Sample: The percent recoveries were within QC limits for sample LCSW.

Initial Calibration: The %RSDs for target herbicides were below the allowable maximum (20%), or the correlation coefficients were above the allowable minimums, as required.

Continuing Calibration: The %Ds for 2,4,5-TP (16%) and dinoseb (18%) were above the allowable maximum (15%) on 02-06-07 for the DB-XLB column. The %Ds for 2,4-D (24%) and 2,4,5-T (22%) were above the allowable maximum (15%) on 02-05-07 for the DB-35MS column. The %Ds for 2,4-D (48%), 2,4,5-TP (30%), and 2,4,5-T (56%) were above the allowable maximum (15%) on 02-06-07 for the DB-35MS column. Positive results for these herbicides should be considered estimated (J) in associated samples.

Herbicide Analytical Sequence: The retention times for DCAA were within control limits for environmental samples on both columns.

Herbicide Identification Summary: Checked surrogates were within GC quantitation limits. There were no detected concentrations of target herbicides reported in the ground water samples.

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QA/QC Review of Part 360 Expanded Metals and Cyanide Data for Upstate Laboratories, Inc.
SDG No. CHA73
12 Ground Water Samples
Collected January 23 and 24, 2007

Prepared by: Donald Anné
April 16, 2007

Holding Times: Samples were analyzed within NYSDEC holding times.

Initial and Continuing Calibration Verification: The percent recoveries for mercury in CCV3 was below control limits (80-120%). All results for mercury should be considered estimated (J) in associated samples.

CRDL Standard for AA and ICP: The percent recovery for mercury was above laboratory QC limits (70-130%). Positive results for mercury less than 0.4 ug/L should be considered estimated (J) in associated samples.

Blanks: The analyses of initial and continuing calibration, and preparation blanks reported baseline metals and cyanide as below the CRDLs, as required.

ICP Interference Check Sample: The percent recoveries for applicable baseline metals were within control limits (80-120%).

Spike Sample Recovery: The percent recovery for cyanide was within control limits (75-125%) for spike sample MW-15-IBS.

The percent recovery for zinc was above control limits (75-125%) for spike sample MW-15-IBS. Positive results for zinc should be considered estimated (J) in associated samples.

Duplicates: The relative percent differences for aluminum and zinc were above the allowable maximum (20%) in duplicate sample MW-15-IBD. Positive results for aluminum and zinc should be considered estimated (J) in associated samples.

Laboratory Control Sample: The percent recoveries for expanded metals and cyanide were within control limits (80-120%) in the aqueous LCS.

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ICP Serial Dilution: The %Ds for the applicable metals were below the allowable maximum (10%) in serial dilution sample MW-14DBL, as required.

Instrument Detection Limits: All IDLs were at or below the CRDLs, as required.

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QA/QC Review of Classical Chemistry* Expanded Parameters
Data for Upstate Laboratories, Inc.
SDG No. CHA78
12 Ground Water Samples
Collected January 23 and 24, 2007

Prepared by: Donald Anné
April 16, 2007

Holding Times: All samples were analyzed beyond the NYSDEC holding times for TDS . Results for TDS should be considered estimates (J) in all samples.

The following samples were analyzed beyond NYSDEC holding times for BOD_5. Results for these samples should be considered estimates (J).
MW-14SA MW-14SB MW-14IA MW-14IB MW-14DA MW-14DB

Initial and Continuing Calibration Verification: The percent recoveries for applicable target analytes were within laboratory established QC limits.

Blanks: The analyses of initial and continuing calibration and method blanks reported target analytes as not detected.

Spike Sample Recovery: The percent recoveries for target analytes were within laboratory established QC limits in the following spike samples.
MW-15-IA MW-15-IB MW-14SA MW-14DB

Duplicates: The relative percent differences for BOD_5 was above the allowable maximum (20%) in duplicate sample MW-15-IB. Positive results for BOD_5 should be considered estimated (J) in associated samples

Laboratory Control Sample: The percent recoveries for target analytes were within laboratory estabished QC limits for the LCSs.

* Classical chemistry analytes include alkalinity, ammonia, bio-chemical oxygen demand (BOD_5), bromide, chemical oxygen demand (COD), chloride, color, cyanide, hexavalent chromium, nitrate, sulfate, sulfide, total dissolved solids (TDS), total kjeldahl nitrogen (TKN), total organic carbon (TOC), total recoverable phenolics, and turbidity.

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May 16, 2007

Mr. Keith Cowan
Clough, Harbour, & Associates LLP
III Winners Circle
P.O. Box 5269
Albany, New York 12205-0269

Re: City of Albany Landfill
Data Validation Report
April 2007 Ground Water Sampling Event
6NYCRR Part 360 Baseline Parameters

Dear Mr. Cowan:

The data usability summary report (DUSR) and data validation reviews are attached to this letter for the City of Albany Landfill. The data were mostly acceptable for Upstate Laboratories, Inc., SDG No. CHA81, with some issues that are identified and discussed in the validation summaries. There were "not detected" volatile data that were rejected (R) in this data pack. The basis for rejecting the data are outlined in the DUSR and QA/QC review for volatile data. The data is rejected based solely on the validation guidance criteria. The rejected data may be determined to be acceptable to the user based on additional information that is not contained in the data validation criteria. data packs did not contain data that were unusable (R).

A list of common data validation acronyms is attached to this letter to assist you interpreting the validation summaries. If you have any questions concerning the work performed, please contact me at (518) 348-6995. Thank you for the opportunity to assist Clough, Harbour, & Associates LLP.

Sincerely,
Alpha Geoscience

Donald Anné

Donald Anné
Senior Chemist

DCA:dca
attachments

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Data Validation Acronyms

AA	Atomic absorption, flame technique
BHC	Hexachlorocyclohexane
BFB	Bromofluorobenzene
CCB	Continuing calibration blank
CCC	Calibration check compound
CCV	Continuing calibration verification
CN	Cyanide
CRDL	Contract required detection limit
CRQL	Contract required quantitation limit
CVAA	Atomic adsorption, cold vapor technique
DCAA	2,4-Dichlophenylacetic acid
DCB	Decachlorobiphenyl
DFTPP	Decafluorotriphenyl phosphine
ECD	Electron capture detector
FAA	Atomic absorption, furnace technique
FID	Flame ionization detector
FNP	1-Fluoronaphthalene
GC	Gas chromatography
GC/MS	Gas chromatography/mass spectrometry
GPC	Gel permeation chromatography
ICB	Initial calibration blank
ICP	Inductively coupled plasma-atomic emission spectrometer
ICV	Initial calibration verification
IDL	Instrument detection limit
IS	Internal standard
LCS	Laboratory control sample
LCS/LCSD	Laboratory control sample/laboratory control sample duplicate
MSA	Method of standard additions
MS/MSD	Matrix spike/matrix spike duplicate
PID	Photo ionization detector
PCB	Polychlorinated biphenyl
PCDD	Polychlorinated dibenzodioxins
PCDF	Polychlorinated dibenzofurans
QA	Quality assurance
QC	Quality control
RF	Response factor
RPD	Relative percent difference
RRF	Relative response factor
RRF(number)	Relative response factor at concentration of the number following
RT	Retention time
RRT	Relative retention time
SDG	Sample delivery group
SPCC	System performance check compound
TCX	Tetrachloro-m-xylene
%D	Percent difference
%R	Percent recovery
%RSD	Percent relative standard deviation

Data Validation Qualifiers Used in the QA/QC Reviews for USEPA Region II

U = Not detected. The associated number indicates the approximate sample concentration necessary to be detected significantly greater than the level of the highest associated blank.

R = Unreliable result; data is rejected or unusable. Analyte may or may not be present in the sample. Supporting data or information is necessary to confirm the result.

N = Tentative identification. Analyte is considered present. Special methods may be needed to confirm its presence or absence during future sampling efforts.

J = Analyte is present. Reported value may be associated with a higher level of uncertainty than is normally expected with the analytical method.

UJ = Not detected, quantitation limit may be inaccurate or imprecise.

Note: These qualifiers are used for data validation purposes. The data validation qualifiers may differ from the qualifiers that the laboratory assigns to the data. Refer to the laboratory analytical report for the definitions of the laboratory qualifiers.

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Data Usability Summary Report
for Upstate Laboratories, Inc.
SDG No. CHA81
7 Ground Water Samples,
1 Trip Blank, and 1 Holding Blank
Collected April 4 and 5, 2007

Prepared by: Donald Anné
May 16, 2007

The data packages contain the documentation required by NYSDEC ASP. The proper chain of custody procedures were followed by the samplers. All information appeared legible and complete. The data packs contained the results for 7 ground water samples analyzed for volatile, metal, and general chemistry analyses for 6NYCRR Part 360 baseline parameters, and 1 trip and 1 holding blanks analyzed for volatiles only.

The overall performances of the analyses are acceptable. Upstate Laboratories, Inc. did not fulfill the requirements of the analytical method for volatiles. Three of the continuing calibrations were not ASP compliant.

The majority of the data are acceptable with some issues that are identified in the accompanying data validation reviews. The following data were flagged:

- The "not detected" results for acrylonitrile were flagged as "unusable" (R) in all 7 ground water samples, 1 trip blank, and 1 holding blank because the response factors for acrylonitrile were below the allowable minimum in the associated initial and continuing calibrations.

- Positive volatile result for 2-hexanone was flagged as "not detected" (U) for sample MW-14S because the level reported in the sample was not significantly greater (more than 5 times) than the associated method blank level.

- The positive results for thallium were flagged as "estimated" (J) in samples CHA-2, MW-15S, MW-15I, and MW-15D because the percent recovery for thallium in the continuing calibration verification standard was below control limits.

- Positive results for zinc were flagged as "estimated" (J) in all 7 ground water samples because the percent recovery for zinc was below control limits for spike sample MW-15-IS and the relative percent difference for zinc was above the allowable maximum for duplicate sample MW-15-ID.

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- Positive results for arsenic were flagged as "estimated" (J) in samples MW-15D and MW-15DDissolved because the result for arsenic in the dissolved sample MW-15DDissolved was greater than the total sample MW-15D plus 10%.

- Results for TDS were flagged as "estimates" (J) in samples MW-15S, MW-15I, and MW-15D because the samples were analyzed beyond NYSDEC holding times for TDS.

- The "not detected" results for bromide were flagged as "estimated" (J) in the following samples because the percent recovery for bromide in the initial calibration verification standard was below control limits.
  MW-14S MW-14I MW-14D MW-15S MW-15I CHA-2

- The positive result for bromide was flagged as "estimated" (J) in sample MW-15D because the percent recovery for bromide in the initial calibration verification standard was below control limits

All data that are not flagged rejected (R) are considered usable, with estimated (J) data associated with a higher level of quantitative uncertainty. Detailed information on data quality is included in the data validation reviews.

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QA/QC Review of Part 360 Baseline Volatiles
Data for Upstate Laboratories, Inc.
SDG No. CHA81
7 Ground Water Samples, 1 Trip Blank,
and 1 Holding Blank
Collected April 4 and 5, 2007

Prepared by: Donald Anné
May 16, 2007

Holding Times: Samples were analyzed within NYSDEC ASP holding times.

GC/MS Tuning and Mass Calibration: The BFB tuning criteria were within control limits.

Initial Calibration: The compounds with ASP criteria for maximum %RSDs met those requirements. The RRFs for toluene were below the ASP minimum (0.400), but was above 0.010 for #12 on 03-28-07. No action is taken when two or fewer compounds per calibration do not meet ASP criteria, provided %RSDs are not greater than 40% and RRFs are not less than 0.010.

The average RRF for acrylonitrile (0.036) was below the allowable minimum (0.050), but was not below the method minimum (0.010) for #12 on 01-31-07. Positive results for acrylonitrile should be considered estimated (J) and negative results unusable (R) in associated samples.

The %RSDs for vinyl acetate (36.7%) and 1,4-dichloro-2-butene (30.9%) was above the allowable maximum (30%) for #12 on 03-28-07. Positive results for these two compounds should be considered estimates (J) in associated samples.

Continuing Calibration: The compounds with ASP criteria for minimum RRF50s met those requirements. The %D for carbon tetrachloride (25.8%) was above the ASP maximum (25%), but was below 40% on 4-10-07 (C17081.D). No action is taken when two or fewer compounds per calibration that do not meet ASP criteria, provided %Ds are not greater than 40% and RRF50s are not less than 0.010.

The %D for 1,4-dichloro-2-butene (55.6%) were above the allowable maximum (25%) on 04-09-07 (C17062.D). The %Ds for acetone (31.8%), 2-butanone (33.2%), carbon tetrachloride (25.8%), and 1,4-dichloro-2-butene (48.5%) were above the allowable maximum (25%) on 04-10-07 (C17081.D).

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The %Ds for vinyl acetate (57.2%) and 1,4-dichloro-2-butene (33.5%) were above the allowable maximum (25%) on 04-11-07 (C17100.D). Positive results for the above compounds should be considered estimates (J) in associated samples.

The RRF50 for acrylonitrile (0.039) was below the allowable minimum (0.050), but was above the method minimum (0.010) on 04-09-07 (C17062.D). The RRF50 for acrylonitrile (0.041) was below the allowable minimum (0.050), but was above the method minimum (0.010) on 04-10-07 (C17081.D). The RRF50 for acrylonitrile (0.039) was below the allowable minimum (0.050), but was above the method minimum (0.010) on 04-11-07 (C17100.D). Positive results for acrylonitrile should be considered estimated (J) and negative results unusable (R) in associated samples.

Blanks: Method blank VBLK01 contained a trace of 2-hexanone (5 ug/L). Results for 2-hexanone that are less than five times the method blank level should be reported as not detected (U) in associated samples.

Internal Standard Area Summary: The internal standard areas and retention times were within control limits.

Surrogate Recovery: The surrogate recoveries were within control limits for ground water samples.

Matrix Spike/Matrix Spike Duplicate: The relative percent differences were below the allowable maximums and the percent recoveries were within control limits for MS/MSD sample MW-15I.

Matrix Spike Blank Recovery: The percent recoveries were within QC limits for samples VBLK01, VBLK02, and VBLK03.

Compound ID: Checked compounds were within GC/MS quantitation limits. The mass spectra for detected compounds contained the primary and secondary ions, as outlined in the method.

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QA/QC Review of Part 360 Baseline Metals and Cyanide Data for Upstate Laboratories, Inc.
SDG No. CHA81
7 Ground Water Samples
Collected April 4 and 5, 2007

Prepared by: Donald Anné
May 16, 2007

Holding Times: Samples were analyzed within NYSDEC holding times.

Initial and Continuing Calibration Verification: The percent recoveries for thallium in CCV1 and CCV2 were below control limits (90-110%). All results for thallium should be considered estimated (J) in associated samples.

CRDL Standard for AA and ICP: The percent recovery for lead was above laboratory QC limits (70-130%). Positive results for lead less than 12.0 ug/L should be considered estimated (J) in associated samples.

Blanks: The analyses of initial and continuing calibration, and preparation blanks reported baseline metals and cyanide as below the CRDLs, as required.

ICP Interference Check Sample: The percent recoveries for applicable baseline metals were within control limits (80-120%).

Spike Sample Recovery: The percent recovery for zinc was below control limits (75-125%) for spike sample MW-15IS. All results for zinc should be considered estimated (J) in associated samples.

Duplicates: The relative percent difference for zinc was above the allowable maximum (20%) in duplicate sample MW-15ID. Positive results for zinc should be considered estimated (J) in associated samples.

Laboratory Control Sample: The percent recoveries for antimony were above control limits (80-120%) in the aqueous LCSs. Positive results for antimony should be considered estimated (J) in associated samples.

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ICP Serial Dilution: The %Ds for the applicable metals were below the allowable maximum (10%) in serial dilution sample MW-15D and MW-15DDissolved, as required.

Instrument Detection Limits: All IDLs were at or below the CRDLs, as required.

Total vs Dissolved The result for arsenic in the dissolved sample MW-15DDissolved was greater than the total sample MW-15D plus 10%. Results for arsenic in samples MW-15D and MW-15DDissolved should be considered estimated (J).

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QA/QC Review of Classical Chemistry* Baseline Parameters
Data for Upstate Laboratories, Inc.
SDG No. CHA81
7 Ground Water Samples
Collected April 4 and 5, 2007

Prepared by: Donald Anné
May 16, 2007

Holding Times: Samples MW-15S, MW-15I, and MW-15D were analyzed beyond the NYSDEC holding times for TDS. Results for TDS should be considered estimates (J) in these samples.

Initial and Continuing Calibration Verification: The percent recovery for bromide in the ICV was below control limits (90-110%). All results for bromide should be considered estimated (J) in associated samples.

Blanks: The analyses of initial and continuing calibration and method blanks reported target analytes as not detected.

Spike Sample Recovery: The percent recoveries for target analytes were within QC limits in spike samples MW-10I and MW-1I.

Duplicates: The relative percent differences for applicable target analytes were below the allowable maximum (20%) in duplicate samples MW-10I and MW-1I.

Laboratory Control Sample: The percent recoveries for target analytes were within laboratory QC limits for the LCSs.

* Classical chemistry analytes include alkalinity, ammonia, bio-chemical oxygen demand (BOD_5), bromide, chemical oxygen demand (COD), chloride, color, hardness, hexavalent chromium, nitrate, sulfate, total dissolved solids (TDS), total kjeldahl nitrogen (TKN), total organic carbon (TOC), and total phenols.

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APPENDIX K
Environmental Monitoring Plan

Proposed Eastern Expansion at the Albany Interim Landfill

Environmental Monitoring Plan

CHA Project Number: 12206

Prepared for:

The City of Albany, New York

Prepared by:

Clough Harbour & Associates LLP
III Winners Circle
Albany, New York 12205
(518) 453-4500

CLOUGH HARBOUR & ASSOCIATES LLP

July 31, 2007

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1.0 INTRODUCTION

Clough Harbour & Associates has been retained by The City of Albany to prepare an Environmental Monitoring Plan (EMP) for the proposed Eastern Expansion of the Albany Interim Landfill (AIL) located in the City of Albany, Albany County, New York (Figure 1). This document is a companion document to the Hydrogeologic Investigation Report found under separate cover. The purpose of this document is to describe all proposed on-site and off-site monitoring for the proposed Eastern Expansion of the AIL. It should be noted that this Plan describes the additional monitoring proposed for Eastern Expansion and is to be integrated with the on-going monitoring already being conducted for the AIL. The closed Greater Albany Landfill (GAL) will continue to be monitored separately.

The document describes the monitoring points, methods, required analyses, and frequency of sampling for groundwater, surface water, sediment, and leachate. The EMP also includes a schedule for monitoring existing water quality, operational water quality, and contingency water quality monitoring, if applicable.

The Environmental Monitoring Plan has been developed in accordance with the New York State Department of Environmental Conservation (NYSDEC) 6 NYCRR Part 360 Regulations regarding Solid Waste Management Facilities. The Monitoring Plan has been designed for the operational phase of the landfill through the first five years after closure. A separate Post Closure Monitoring Plan will be developed for this facility as part of the conceptual Closure Plan.

2.0 SITE HYDROGEOLOGY

2.1 GEOLOGY

The following description of the geology of the site is derived from a review of the historical data and site-specific stratigraphic data obtained during the recent soil boring and monitoring well installations at the site. Detailed descriptions of the subsurface soils are provided in the Subsurface Logs included as Appendix C.

There are 5 primary units within the overburden, in order of descending depth are listed below:

1. Shallow, Brown/Gray Sand Unit (Shallow Sand Unit);
2. Silty Sand/ Sand and Silt Unit (Intermediate Unit);
3. Deep Silty Clay/Sand and Silt Unit;
4. Deep Clay Unit; and
5. Till Unit.

Bedrock is present at depths apparently greater than 100 feet.

2.2 HYDROGEOLOGY

Three hydrostratigraphic units exist and are currently monitored at the AIL, Wedge, and P-4 project. These units include the shallow water bearing Sand Unit, the intermediate Silty Sand/Sandy Silt Unit, and the Deep Silty Clay/Sand and Silt Unit that overlies the confining clay. The stratigraphic units beneath the proposed expansion areas were similar in nature with the exception of the changes noted in the gradation within the deep Silty Clay/Clayey Silt Unit. For the proposed expansion area, CHA characterized the upper portion of this unit as silty clay, however, a transition to an underlying fine Sand and Silt Unit is noted, rather than the clayey silt.

3.0 ENVIRONMENTAL MONITORING NETWORK

3.1 LEAK DETECTION SYSTEM

The double composite liner system of the proposed Eastern Expansion to the Albany Interim Landfill has been designed to provide the best environmental protection and ease of monitoring possible. This system provides two (2) monitoring points, including a primary leachate collection system and a secondary leachate collection and recovery system (LCRS). These systems are routed to discrete collection areas where leachate from the primary collection system can be sampled for each individual cell, prior to pumping of leachate to the storage tanks.

The secondary LCRS flows to low points in the cells and are collected in leak detection manholes at which point levels are checked daily. Once leachate has accumulated to a two (2) foot level in the leak detection manhole, it is pumped into the leachate collection manholes. Locations of the leachate sampling points are available on Figure 2.

During the first year of operation, testing will consist of two (2) rounds of baseline parameter and two (2) rounds of expanded parameter analyses. The sampling and analyses shall be performed quarterly and analytical parameters will be alternated between baseline and expanded scans. The leachate sampling and analysis plan following the first year of operation will then be reduced to include semi-annual analysis for expanded parameters during both sample events.

Analytical testing parameters and sampling frequencies for the leachate are to be conducted in accordance with 6 NYCRR Part 360-2.11(c)(3).

3.2 GROUNDWATER MONITORING NETWORK

The current monitoring network for the AIL includes the following well locations:

- MW-1S, MW-1I, MW-1D
- MW-2S, MW-2I, MW-2D
- MW-7S, MW-7I, MW-7D

- MW-9S, MW-9I, MW-9D
- MW-10S, MW-10I, MW-10D
- MW-12S, MW-12I, MW-12D

Six (6) additional monitoring wells were installed as part of the hydrogeologic investigation for the proposed Eastern Expansion. These wells include the following:

- MW-14S, MW-14I, MW-14D
- MW-15S, MW-15I, MW-15D

The existing monitoring well network for the operational AIL will continue to be used with the exception of monitoring well clusters MW-7 and MW-12. These wells are within the Eastern Expansion footprint and must be abandoned prior to landfilling activities. It should be noted that these wells are currently part of the operational monitoring well network and will not be abandoned until liner installation activities begin. The two new well clusters (see Figure 1) have been installed to account for the loss of the well clusters MW-7 and MW-12 and to maintain minimum requirements set forth in NYCRR Part 360 for the cross-gradient and downgradient monitoring locations. The downgradient monitoring wells are spaced less than five hundred (500) feet apart and not more than fifty (50) feet from the proposed waste boundary. The cross-gradient monitoring wells are spaced within 1,500 feet apart and are also placed within fifty (50) feet from the waste boundary. No new upgradient wells are scheduled to be installed for the Eastern Expansion as the existing wells have significant amounts of data established that exhibit the historical and current groundwater chemistry.

Wells screened in the shallow overburden sand layer are designated with an “S”; monitoring wells screened in the intermediate silty sand/ sandy silt designated with an “I”, and at monitoring wells screened at the deep silty clay/clayey silt and clay interface designated with a “D”. Table 1 provides a list of all proposed monitoring points and geologic units screened.

3.3 WELL SCREEN PLACEMENT

The monitoring wells within the groundwater compliance network are screened to monitor the hydrostratigraphic layers in the shallow overburden sand unit, the intermediate silty sand/ sandy silt layer, and at the interface of the deep silty clay/ clayey silt and underlying clay layer. The monitoring well designations, screened intervals, and units screened are provided in Table 1. All wells recently installed were constructed in accordance with NYSDEC regulations.

The shallow monitoring wells designated with an "S" are installed in the overburden sand and are screened at depths less than thirty (30) feet below ground surface, not entering the intermediate silty sand/sandy silt layer that is underlying the overburden sands. The intermediate wells are screened in this intermediate silty sand/sandy silt layer. The bottom of the screened intervals for the intermediate layers are set at approximately sixty nine (69) feet to fifty seven (57) feet bgs. The deep monitoring wells were installed to monitor the groundwater that is perched on the confining clay layer that underlies the entire site. The deep wells contain screened intervals from approximately 84 feet to 105 feet bgs.

4.0 SURFACE WATER MONITORING

The City of Albany's Rapp Road facility is located within the Rensselaer Lake (Six Mile Waterworks) watershed. This lake is used for recreational purposes and not as a potable water reservoir. To the north of the landfill facility, there is a drainage ditch that receives some surface runoff from the facility. This drainage ditch is reported to be intermittent and largely affected by baseflow from the shallow water table. This drainage ditch flows to the east and eventually discharges into the Rensselaer Lake. This drainage ditch will likely be relocated as part of the construction activities because of being located within the footprint of the proposed expansion area.

No surface water samples are proposed for the operational environmental monitoring at this facility, and as such, no surface water sampling has been conducted to establish existing water quality. However, surface water and sediment sampling will be conducted as part of the contingency monitoring of this facility, if applicable, as outlined in Section 6.3 of this monitoring plan. All surface water and sediment sampling necessary during contingency monitoring is to be conducted in accordance with 6 NYCRR Part 360-2.11(c)(2) and protocols enclosed as Appendix A of this plan. The surface water monitoring points that would be sampled should contingency monitoring be placed in effect are labeled with the prefix 'SW" as displayed in Figure 3. Respective sediment sample monitoring points to be utilized during contingency monitoring are labeled with the prefix 'SS" as displayed in Figure 3. The Contingency Monitoring Plan is further discussed in Section 6.3 of this EMP.

5.0 LEACHATE SAMPLING

Existing cells at AIL consist of a double composite liner system. As discussed in Section 3.1, the double composite liner system provides two distinct sampling interfaces. A representative sample of these distinct layers will be sampled on a quarterly basis through the first operational year alternating from expanded to baseline parameters. During all subsequent operational years the liner system will be sampled on a semi-annual basis for expanded parameters during each monitoring event.

6.0 WATER QUALITY MONITORING PROGRAM

Three (3) different categories of analytical parameter scans will be used in water quality monitoring of the points previously described to establish existing water quality prior to landfilling, operational water quality during landfilling, and water quality during the post closure period. The three (3) categories of analytical parameter scans are as follows: expanded, baseline, and enhanced routine scans. Sampling protocols will be as outlined in Appendix A. The laboratory(s) performing all analyses will be certified under the New York State Department of Health's (NYSDOH's) Environmental Laboratory Approval Program under the Analytical Service Protocol (ASP) category for all parameters to be analyzed. Field and laboratory quality assurance and quality control (QA/QC) procedures are documented in separate plans attached in Appendices A and D. All laboratory analyses will conform to ASP procedures. The laboratory performing the analyses will be required to submit its most current QA/QC Plan to The City of Albany prior to conducting the required analyses.

6.1 EXISTING WATER QUALITY

Analysis of existing water quality for representative monitoring points from each water-bearing hydrogeologic unit within the critical stratigraphic section is provided as Appendix B. Groundwater samples from each water-bearing unit in the expansion wells were obtained from the two (2) new monitoring well clusters (MW-14 and MW-15) on January 23, 2007. Also provided in Appendix B is the existing data and existing water quality values (EWQV's) for the wells that are already operational at the AIL. The EWQV's represent the statistical comparison of intra-well data based on past baseline sampling results for each well rather than inter-well comparison of similar groundwater flow regimes. Results from the operational monitoring events are compared to EWQV's to determine whether or not there is a significant increase over existing background water quality. The EWQV's are formulated by collecting at least four pre-operational sets of samples, calculating the arithmetic mean of this data set, and adding three standard deviations of the data set to the mean.

Protocols followed during the sampling of the monitoring wells are outlined in the Appendix A. These protocols were standardized to provide a consistent sampling methodology, however, this basic protocol was modified for the deep wells to include evacuation and sampling using a WaTerra Inertial Hydrolift Pump and dedicated HDPE tubing and foot valves. This modification eliminated the need for bailing wells with high well column volumes. It should be noted that dedicated bailers are utilized for the shallow overburden wells.

All of the preliminary groundwater samples from the new wells were collected with a duplicate for each well to develop an initial data set to calculate the average and standard deviations necessary to establish existing water quality values. The new monitoring wells were sampled again during the second quarter, 2007 and will be sampled again during all future scheduled quarterly monitoring events for AIL to provide further pre-operational analysis so that EWQV's shall be representative of the natural groundwater chemistry associated with the location. Results of sampling to date are attached as Appendix B, however, there is insufficient data to produce the EWQV's for the expansion wells at this point. As the data is collected, the tables will be updated and EWQV's will be calculated. The EWQV 's will be the mean parameter concentration from four pre-operational monitoring events.

The second round of sampling of these wells was performed April 4-6, 2007 (second quarter), the third event will be conducted during September 2007 (third quarter), and the fourth round will be collected during the December, 2007 sampling event (fourth quarter). These rounds will be analyzed for baseline parameters for the new wells, pursuant to the NYSDEC's TAGM for Solid Waste Landfills and the 6 NYCRR Part 360-2.11 (c)(5)(1)(a) regulations, and scheduled parameter scans will be performed for the already existing operational groundwater monitoring wells.

6.2 OPERATIONAL WATER QUALITY

6.2.1 Leachate Collection System

Leachate at the facility has been characterized by performing semi-annual monitoring during the

years of operation for the existing AIL. Given that the specific waste stream for the AIL has been well defined by years of sampling on a semi-annual basis for expanded parameters, as cited in NYCRR 6 Part 360 2.11.c.3.ii, with department approval the schedule for leachate sampling will remain on the same frequency when the expansion is completed.

6.2.2 Groundwater Wells

The monitoring wells installed in the underlying hydrogeologic units will be sampled quarterly during the operational phase of this facility. Analytical parameters will include three (3) routine parameter scans and one (1) baseline parameter scan per year for all wells in the compliance monitoring network, once EWQV's have been established for the new wells.

The new wells will be analyzed for baseline scan parameters during the September and December sampling events to complete the EWQV's. Existing wells currently monitored for the operational AIL have established EWQV's that will continue to be used for the respective wells, and will remain as part of the existing monitoring well network following the completion of the Eastern Expansion.

6.2.3 Leak Detection Layer

The leak detection layer creates a significant monitoring point for the detection of a breach of the upper geomembrane. This layer will be monitored semi-annually for any leachate or fluid within the leak detection layer. Should leachate or fluid be detected in this layer, it will be pumped out to the leachate collection system. If determined that the upper membrane has been breached, additional sampling will be utilized and steps established by the contingency monitoring plan may be used in conjunction to isolate the leak.

6.2.4 Summary

Within 90 days of completing the quarterly field sampling activities, a determination will be

made whether or not there is a significant increase from existing water quality levels established for each parameter. In determining whether a significant increase has occurred, a comparison will be made of the groundwater quality of each parameter at each monitoring well to the existing water quality value of that parameter. A significant increase has occurred if: 1) the groundwater quality for any parameter at any monitoring well exceeds the existing water quality value for that parameter by three standard deviations; or 2) the groundwater quality for any parameter at any monitoring well exceeds the existing water quality value for that parameter and exceeds the water quality standards for that parameter as specified in Part 701, 702, or 703 of Title 6 of the NYCRR.

If there is a significant increase from existing water quality levels for one or more of the parameters during field sampling for the routine parameters, excluding the field parameters, at any monitoring well, the following will be performed: 1) Within 14 days of this finding, the NYSDEC will be notified of which parameters have shown significant increases from existing water quality levels; and 2) A sampling and analysis program will be conducted of all monitoring points for baseline parameters during the next quarterly sampling event. Subsequent sampling and analysis for baseline parameters will be conducted semiannually until the significant increase is determined not to be landfill-derived or the NYSDEC determines such monitoring is not needed to protect public health or the environment.

If there is a significant increase from existing water quality levels for one or more of the parameters during field sampling for the baseline parameters, excluding the field parameters, at any monitoring well, the following will be performed: 1) within 14 days of this finding, the NYSDEC will be notified of the existing water quality levels; and 2) a contingency monitoring program will be established within 90 days unless it is demonstrated to the NYSDEC that a source other than the facility caused the contamination or that the significant increase resulted from error in sampling, analysis, or natural variation in groundwater quality. A report documenting this demonstration will be submitted to the NYSDEC for approval. If a successful demonstration is made, documented and approved by the NYSDEC, the facility may continue operational water quality monitoring. If, after 90 days, a successful demonstration is not made, a

contingency monitoring program will be initiated.

6.3 CONTINGENCY WATER QUALITY MONITORING

Should a significant increase over existing water quality be detected for one or more of the baseline parameters or a waste stream release occurs, all affected monitoring points will be sampled and analyzed for contingency water quality monitoring in order to isolate the source of the potential contamination.

Within ninety (90) days of triggering the contingency water quality monitoring program, the groundwater will be sampled and analyzed for expanded parameters. A minimum of one (1) sample from each monitoring well (upgradient and downgradient) will be collected and analyzed during each sampling event. For any constituent detected in the downgradient wells as a result of the expanded parameter analysis, a minimum of two (2) independent samples from each well (upgradient and downgradient) will be collected within 30 days of obtaining the results of the expanded parameter analysis and analyzed for the detected constituents. These samples must be collected within two (2) weeks of each other and compared to the existing groundwater quality values. If an increase in the existing water quality values in the upgradient wells is indicated by this comparison, the existing water quality values for these parameters shall be revised to be the arithmetic mean of the results of the analyses for each parameter in the upgradient wells within each hydrogeologic flow region. A deletion of any of the expanded parameters may be conducted if it can be demonstrated that the removed parameters are not reasonably expected to be in, or derived from, the waste contained in the landfill based on the leachate sampling being performed pursuant to Section 5 of this plan.

After obtaining the results from the initial or subsequent sampling events, the following will be performed: 1) Within fourteen (14) days, NYSDEC will be notified of the expanded parameters that are detected. 2) Within ninety (90) days, and on a quarterly basis thereafter, all wells will be re-sampled and analyzed for all baseline parameters and for those expanded parameters that are detected. In addition, all wells will be sampled and analyzed annually for expanded parameters,

At least one sample from each upgradient and downgradient well will be collected and analyzed during these sampling events. Requirements of this item may be reduced by NYSDEC based on-site specific conditions. 3) Groundwater protection standards for all parameters detected will be established as per 360-2.11 (c)(5)(iv)(f) regulations.

If the concentrations of any of the expanded parameters are shown to be at or below existing water quality values for two (2) consecutive sampling events, the NYSDEC will be notified and if approved by NYSDEC that parameter may be removed from the contingency water quality monitoring program. If the concentrations of all the expanded parameters are shown to be at or below existing water quality values for two (2) consecutive sampling events, the NYSDEC will be notified and, if approved by NYSDEC, the facility will return to operational water quality monitoring.

If the concentrations of any expanded parameters are above existing water quality values, but all concentrations are below the groundwater protection standard established, contingency water quality monitoring will continue.

If one or more expanded parameters are detected at significant levels above the groundwater protection standard during any sampling event, the NYSDEC and all appropriate local government officials will be notified within fourteen (14) days of the expanded parameters that have exceeded the groundwater protection standard. The following will be conducted:

- characterize the nature and extent of the release by installing additional monitoring wells as necessary;
- install at least one additional monitoring well at the facility boundary in the direction of contaminant migration. Establish existing water quality for this well, if possible, consistent with Part 360-2.11(c)(5)(i).
- notify all persons who own the land or reside on the land that directly overlies any part of the plume of contamination if contaminants have migrated off-site as indicated by sampling of wells; and

- initiate an assessment of corrective measures as required by section 360-2.20 of the Part 360 regulations within ninety (90) days; or

- demonstrate that a source other than the landfill caused the contamination, or that the significant increase resulted from error in sampling, analysis, or natural variation in groundwater quality. This report will be submitted for approval by the NYSDEC. If approved; the facility will continue monitoring in accordance with the contingency water quality monitoring program and will return to operational monitoring if the expanded parameters are at or below existing water quality.

The groundwater protection standard for each expanded parameter detected in the groundwater shall be:

- for parameters for which a maximum contaminant level (MCL) has been promulgated under section 1412 of the Safe Drinking Water Act (codified) under 40 CFR Part 141 or for which a standard has been established pursuant to Part 701, 702, or 703 of 6 NYCRR, whichever is more stringent when the parameters are the same, the MCL or standard for that constituent.

- for parameters for which MCLs or standards have not been promulgated, the existing water quality concentration for the parameter established from on-site wells; or

- for parameters for which the existing water quality level is higher than the MCL or standard the existing water quality concentration.

6.4 REPORTING OF DATA

All water quality monitoring results will be reported to the NYSDEC within ninety (90) days of sample collection. The report will include tables with the minimum following information: 1. sample collection date, 2. analytical results, 3. designation of upgradient wells, 4. location and number of each environmental monitoring point sampled, 5. applicable water quality and groundwater protection standards. In addition, a table comparing current water quality, existing water quality, and applicable groundwater standards will be included with a discussion of results and a summary of any increase in existing water quality levels and exceedences of groundwater protection standards. Any proposed modification to the sampling and analysis program will be reported. All QA/QC documentation will be submitted to the NYSDEC. An annual report will be

prepared and will contain a summary of water quality data collected throughout the year with a special note given to changes in water quality which occurred throughout the year.

6.5 DATA QUALITY ASSESSMENT

A data usability analysis shall be performed on all analytical data for the facility and shall consist, at a minimum, of the following:

- An assessment to determine if the data quality objectives were met;
- Evaluation of field duplicate results to indicate the representativeness of the samples:
- Comparison of the results of all field blanks, trip blanks, and equipment rinsates with full data set to provide information concerning contaminants that may have been introduced during sampling or shipping;
- Evaluation of matrix effects to assess the performance of the analytical method with respect to the sample matrix, and determine whether the data have been biased high or low due to matrix effects;
- Integration of the field and laboratory data with geological, hydrogeological, and meteorological data to provide information about the extent of contamination, if it occurs; and
- Comparison of precision, accuracy, comparability, bias, completeness, representation, and defensibility of the data generated with that required to meet the data quality objectives established in the site analytical plan.

In addition to the data usability analysis, data validation, as discussed in the following, will be provided to assess data quality.

- For those sampling events for which only routine parameters are analyzed, the data validation shall be performed by the laboratory that performed the sample analyses.
- For those sampling events for which baseline or expanded parameters are analyzed, the data validation shall be performed by a person other than the laboratory that performed the analyses and that is acceptable to the NYSDEC.
- The data validation shall be performed on all analytical data for the facility at a rate acceptable to the NYSDEC, but not less than twenty percent of the data generated, and shall consist, at a minimum, of the following:

Field records and analytical data will be reviewed to determine whether the data are accurate and defensible. All QA/QC information shall be reviewed along with any corrective actions taken

during that sampling event; and

All data summaries shall be clearly marked to identify any data that are not representative of environmental conditions at the site, or that were not generated in accordance with the site analytical plan.

7.0 INDEPENDENT MONITORABILITY BETWEEN ALBANY INTERIM LANDFILL INCLUDING THE EASTERN EXPANSION AND THE GREATER ALBANY LANDFILL

The existing Greater Albany Sanitary Landfill (GAL) is located adjacent and sharing it's northern boundary with AIL. The ability to distinguish the location of a potential release from the waste facilities is an important element in the Environmental Monitoring Plan for this site. Identifying a release from either or both facilities can be accomplished utilizing three separate and distinct methods: groundwater flow direction, distinct leachate characteristics, and monitoring of the secondary leachate collection system.

7.1 GROUNDWATER FLOW

Groundwater flow in each of the underlying hydrogeological units trends toward the east by southeast throughout the site. A leak from this facility, should it escape the landfill liner system would most likely travel to the east and discharge into the adjacent woodland areas. Considering that the normal groundwater flow in the area is to the east by southeast it is highly unlikely that the GAL landfill would affect the monitorability of the AIL and Eastern Expansion that abut to the north. It is possible that during a leachate leak from the AIL, elevated parameters might be detected in the GAL samples. The GAL monitoring wells have been sampled on a quarterly basis since March of 2003 by CHA and have relatively stable parameter levels.

7.2 DISTINCT LEACHATE CHARACTERISTICS

In an effort to distinguish parameters which would definitively differentiate leachate from the AIL to the GAL, and to a number of the natural and/or seasonal variations, the results of multiple monitoring events data have been compiled by CHA from a minimum of twelve (12) events at the site. It should be noted that the GAL landfill is a closed unlined landfill that has not been used as a landfill since 1990, it should also be noted that this landfill has been sampled on a quarterly basis since March 2003 by CHA.

Wet chemical/leachate indicator parameter data from the sources identified were plotted on Piper diagrams to determine a distinct leachate signature to trace back to the individual landfills. Currently the new well clusters (MW-14, MW-15) installed closely resemble the upgradient well groundwater chemistry. The analysis from monitoring wells MW-1S, MW-14S, MW-15S, and the secondary leachate collection system sample from Cell 1 were plotted together and represent local natural groundwater chemistry. This plot is provided as Figure 6. The sample from the secondary leachate collection shows that the liner system is working and has not been impacted by the overlying waste mass. These wells that are considered to represent the upgradient groundwater chemistry were found to contain less than 50% sulfate/chloride and less than 20% sodium/potassium.

Downgradient wells from GAL (MW-1, MW-4S, MW-5S) were plotted with wells MW-7S, MW-9S, MW-10S, and MW-12S of the AIL, and the primary leachate collection sample from pumping station #2 of the AIL. This plot is provided as Figure 7 And illustrates that samples from wells directly downgradient of the GAL (e.g. MW-1 and MW-5S) exhibit much higher proportions of sodium and potassium than the wells located cross-gradient of the GAL (e.g. MW-4S, MW-9S, and MW-10S). These cross-gradient wells exhibit similar water chemistry with the exception that monitoring well MW-9S exhibits a higher proportion of sulfate and chloride. This is not unexpected given the fact that MW-9S has been influenced by the application of road salt. As illustrated by Figure 6, the natural background water quality exhibits the lowest proportion of sodium and potassium and the highest proportions of calcium and magnesium. Due to the fact that the major cation/anion chemistry for wells located cross-gradient and in relatively close proximity to the GAL plot between the background water chemistry and the downgradient/leachate sample, the results of the plots indicate a mixing of more natural waters with the GAL impacted groundwater.

Historical samples of these wells were plotted and determined to be in the same range with exception of increasing sodium and chloride parameters that are assumed to be the effects of road deicing. Monitoring well MW-5S plots at a 60% sulfate/chloride and 80%

sodium/potassium zone, however this is expected given the close proximity to the entry road with its continual deicing regiment.

GAL monitoring well MW-1 is a flush mount well that is located in the parking area of the Rapp Road Facility. Results of this well from the December 2006 monitoring event plot in the same general location as the data from the March 2003 monitoring event. Primary leachate collection data attained from pumping station #2 which services cells 7, 8, and 9 of AIL plot in a very close proximity (Figure 7). Monitoring well MW-1 is downgradient of both GAL and AIL, in fact, it is the furthest downgradient well from the waste mass. By the use of the volatile analysis, 2-Butanone and acetone is present in the leachate sample discussed at concentrations of 3900 and 2900 mg/l, respectively. Volatile analysis from monitoring well MW-1 contains concentrations of benzene, chlorobenzene, and 1,4 Dichlorobenzene at levels of 10, 49, and 3 mg/l respectively. Using the volatile analysis as tracers, the source of the contaminants present in the groundwater collected from monitoring well MW-1 are likely associated with surface runoff from the adjacent parking, staging areas and entry road to the Rapp Road Facility.

7.3 DETECTION AND MONITORING CAPABILITIES OF THE SECONDARY LEACHATE COLLECTION (LEAK DETECTION LAYER) SYSTEM

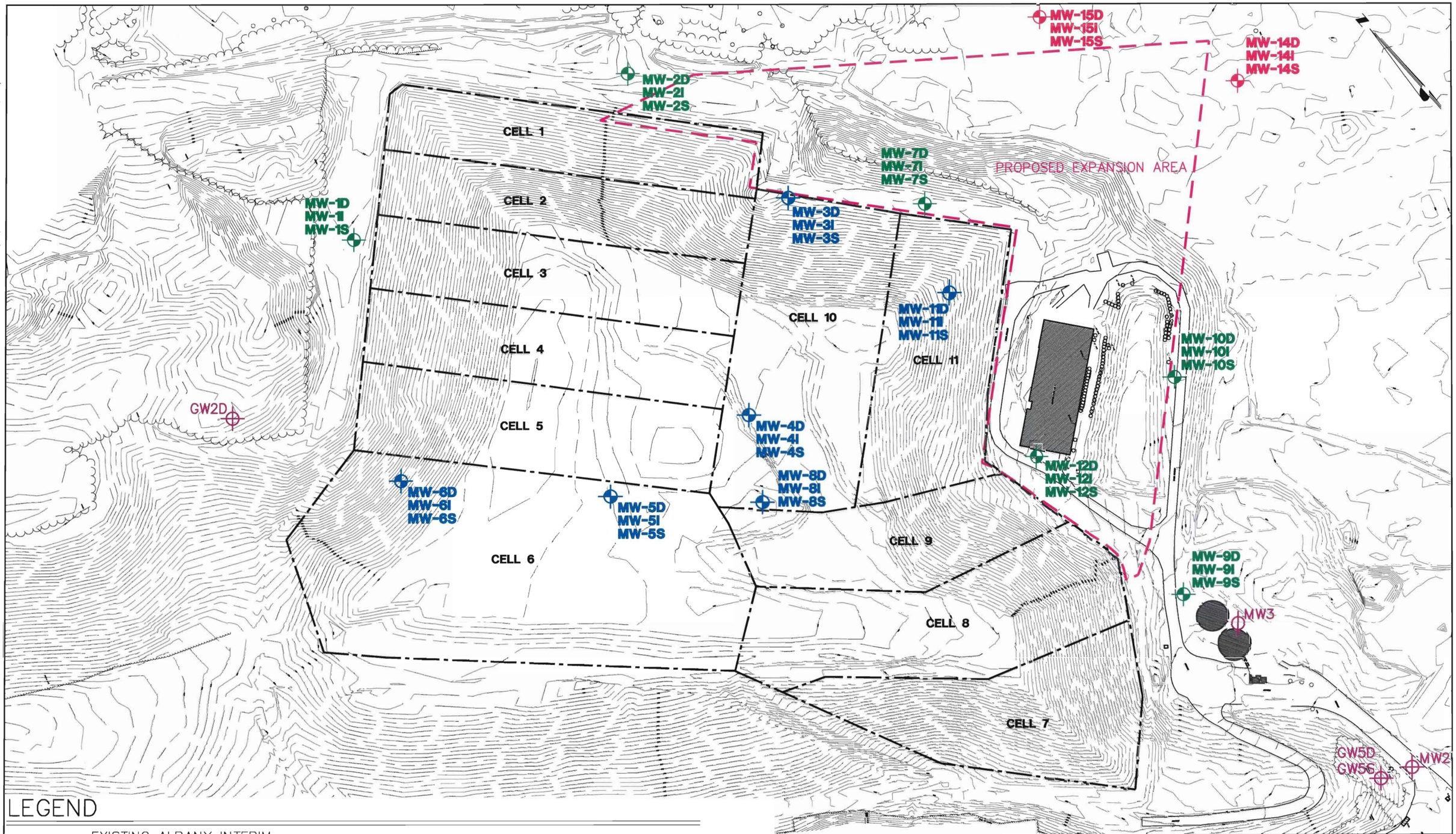
The leak detection layer is designed as an integral part of the secondary leachate collection system, and is effective throughout the entire landfill liner. Should the integrity of the upper geotextile membrane be compromised, leachate would enter the leak detection layer and collect at the designed monitoring point. Since the leak detection layer will be monitored on a monthly basis for water levels, early detection of a release will be possible.

8.0 CONCLUSION

This Environmental Monitoring Plan is prepared to supplement the Hydrogeologic Report prepared for The City of Albany, by Clough, Harbour & Associates. This Environmental Monitoring Plan is intended to replace the existing monitoring plan to include the future expansion landfill cells to be located at the eastern end of the existing landfill. As of July 3, 2007, this EMP is considered a draft until all of the data is collected to create the EWQV's and begin landfilling activities.

Contingency groundwater, surface water, and sediment samples are to be monitored at 31 environmental monitoring points. A compliance network of 18 liner monitoring wells are to serve as the primary means of detecting any failure of the landfill cell liner. The other environmental monitoring points are to be used for monitoring either existing operational or contingency water quality. Existing and operational water quality is to be monitored as shown on Figure 1. Contingency water quality will be monitored as specified in this report. The well construction summaries with screened intervals may be found as Table 1. Sampling protocols are available in Appendix A.

FIGURES



LEGEND

MW-1D MW-1I MW-1S — EXISTING ALBANY INTERIM LANDFILL MONITORING WELL CLUSTER

GW1D — GREATER ALBANY/RAPP ROAD LANDFILL MONITORING WELL CLUSTER

MW-1D MW-1I MW-1S — ABANDONED MONITORING WELL CLUSTER

MW-1D MW-1I MW-1S — NEWLY INSTALLED EASTERN EXPANSION MONITORING WELLS

SCALE: 1" = 200'

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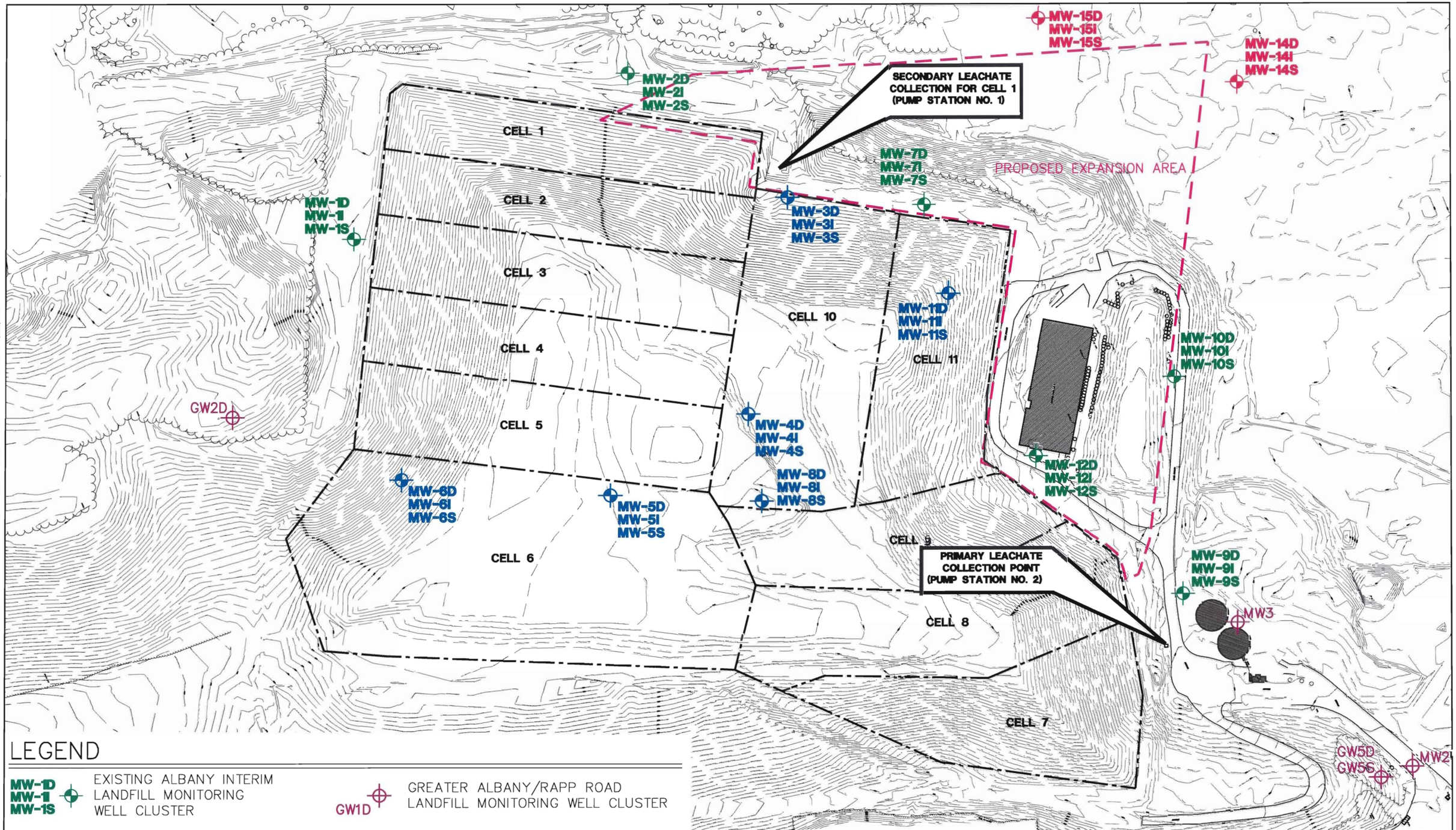
12206.4008.1102 | DATE: 07/30/07

FIGURE 1

EXISTING MONITORING WELL LOCATION MAP

RAPP ROAD SOLID WASTE MANAGEMENT FACILITY
CITY OF ALBANY
STATE OF NEW YORK

File: K:\12206\EXPANSION\HYDRO INVESTIGATION\HYDRO REPORT\ACAD\3-28-07\EMP\FIGURE 1 - EX.MONITORING WELL LOCATION MAP.DWG Saved: 7/30/2007 2:10:04 PM Plotted: 7/30/2007 2:49:53 PM User: Markham, Gary



LEGEND

MW-1D MW-1 MW-1S — EXISTING ALBANY INTERIM LANDFILL MONITORING WELL CLUSTER

GW1D — GREATER ALBANY/RAPP ROAD LANDFILL MONITORING WELL CLUSTER

MW-1D MW-1 MW-1S — ABANDONED MONITORING WELL CLUSTER

MW-1D MW-1 MW-1S — NEWLY INSTALLED EASTERN EXPANSION MONITORING WELLS

SCALE: 1" = 200'

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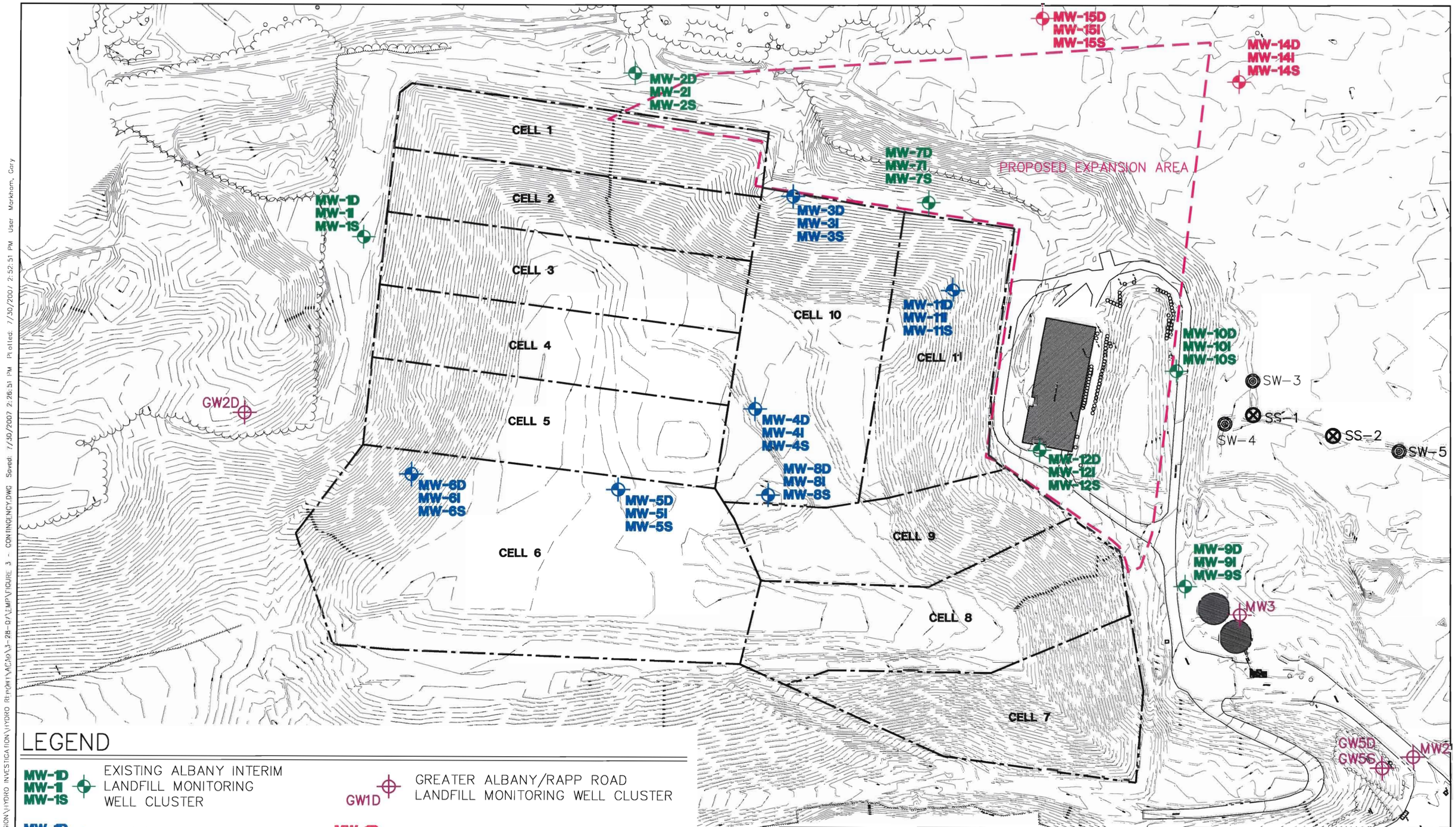
DATE: 07/30/07

FIGURE 2
LEACHATE MONITORING LOCATION POINTS
RAPP ROAD SOLID WASTE MANAGEMENT FACILITY
CITY OF ALBANY
STATE OF NEW YORK

File: K:\12206\EXPANSION\HYDRO INVESTIGATION\HYDRO REPORT\ACAD\3-28-07\EMP\FIGURE 2 - LEACHATE.DWG Saved: 7/30/2007 2:21:58 PM Plotted: 7/30/2007 2:51:24 PM User: Markham, Gary



LEGEND

MW-1D MW-1 MW-1S — EXISTING ALBANY INTERIM LANDFILL MONITORING WELL CLUSTER

GW1D — GREATER ALBANY/RAPP ROAD LANDFILL MONITORING WELL CLUSTER

MW-1D MW-1 MW-1S — ABANDONED MONITORING WELL CLUSTER

MW-1D MW-1 MW-1S — NEWLY INSTALLED EASTERN EXPANSION MONITORING WELLS

SW-3 — CONTINGENCY MONITORING SURFACE WATER SAMPLE

SS-2 — CONTINGENCY MONITORING SEDIMENT SAMPLE

SCALE: 1" = 200'

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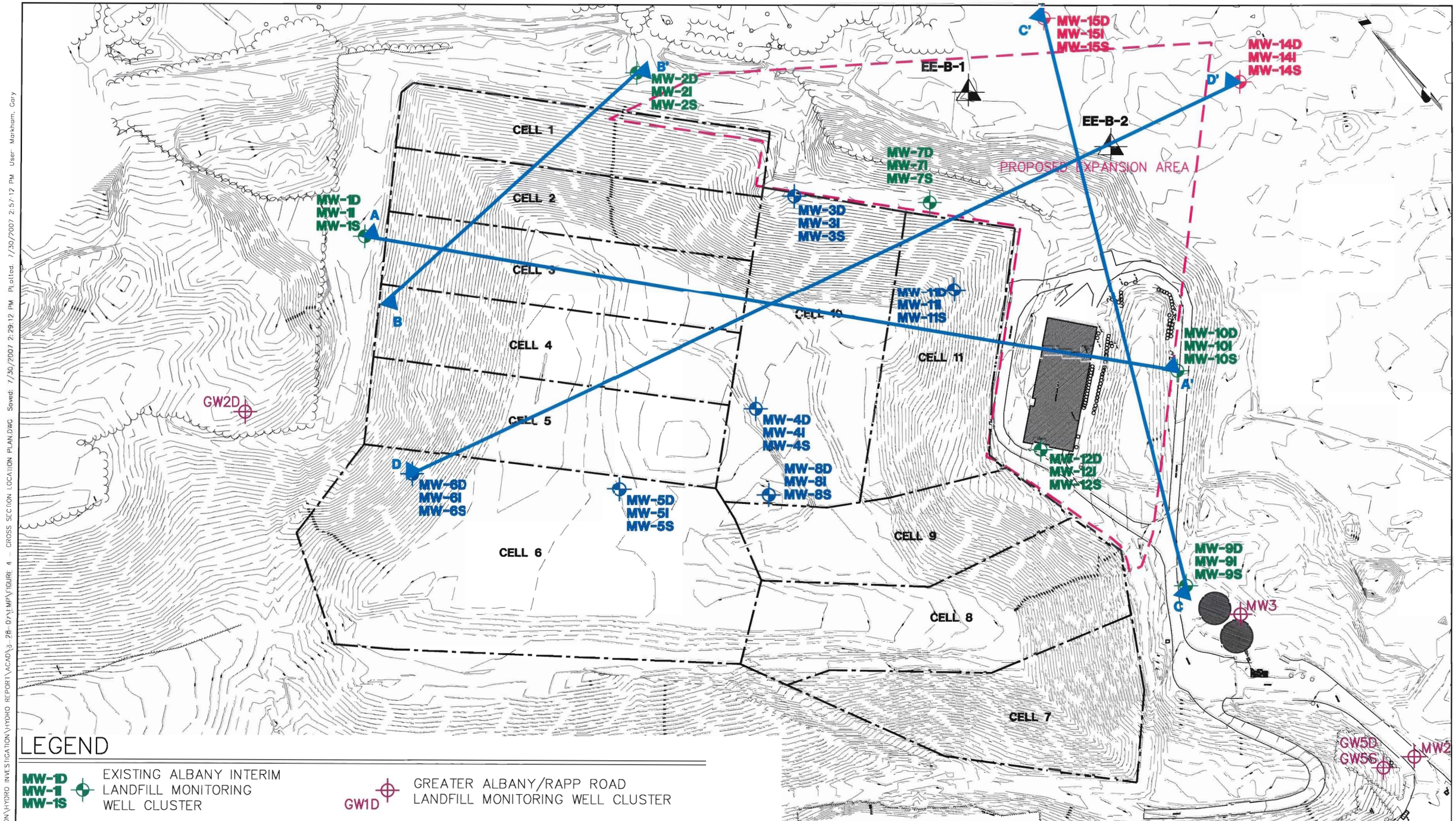
FIGURE 3

CONTINGENCY MONITORING LOCATION PLAN

RAPP ROAD SOLID WASTE MANAGEMENT FACILITY
CITY OF ALBANY
STATE OF NEW YORK

File: K:\12206\EXPANSION\HYDRO INVESTIGATION\HYDRO Report\ACAD\3-28-07\EMPTYFIGURE 3 - CONTINGENCY.DWG Saved: 7/30/2007 2:26:51 PM Plotted: 7/30/2007 2:52:51 PM User: Markham, Gary



LEGEND

MW-1D, MW-1I, MW-1S — EXISTING ALBANY INTERIM LANDFILL MONITORING WELL CLUSTER

GW1D — GREATER ALBANY/RAPP ROAD LANDFILL MONITORING WELL CLUSTER

MW-1D, MW-1I, MW-1S — ABANDONED MONITORING WELL CLUSTER

MW-1D, MW-1I, MW-1S — NEWLY INSTALLED EASTERN EXPANSION MONITORING WELLS

EE-B-2 — DEEP SOIL BORING LOCATION EASTERN EXPANSION AREA

A — A' — CROSS SECTION LOCATION

SCALE: 1" = 200'

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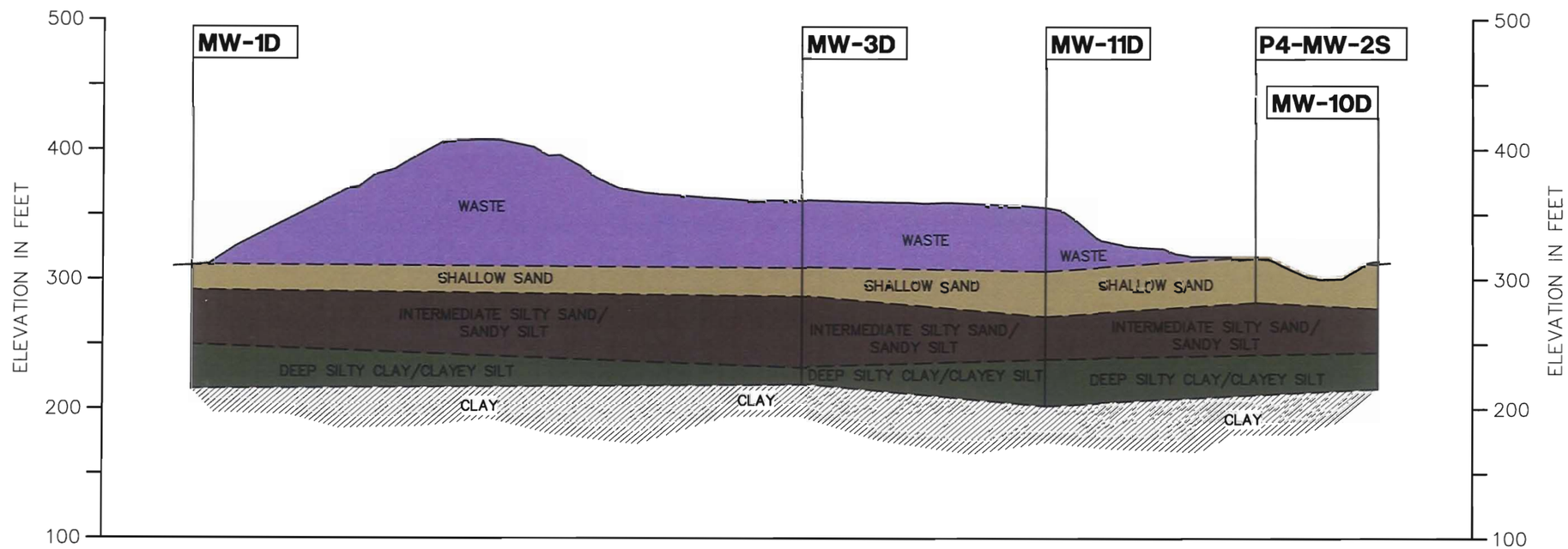
FIGURE 4

CROSS SECTION LOCATION PLAN

RAPP ROAD SOLID WASTE MANAGEMENT FACILITY
CITY OF ALBANY
STATE OF NEW YORK

File: K:\12206\EXPANSION\HYDRO INVESTIGATION\HYDRO REPORT\ACAD\3-28-07\MPF\FIGURE 4 - CROSS SECTION LOCATION PLAN.DWG Saved: 7/30/2007 2:29:12 PM Plotted: 7/30/2007 2:57:12 PM User: Markham, Cary



SECTION A–A'

HORIZTONTAL SCALE: 1" = 200'
VERTICAL SCALE: 1" = 100'

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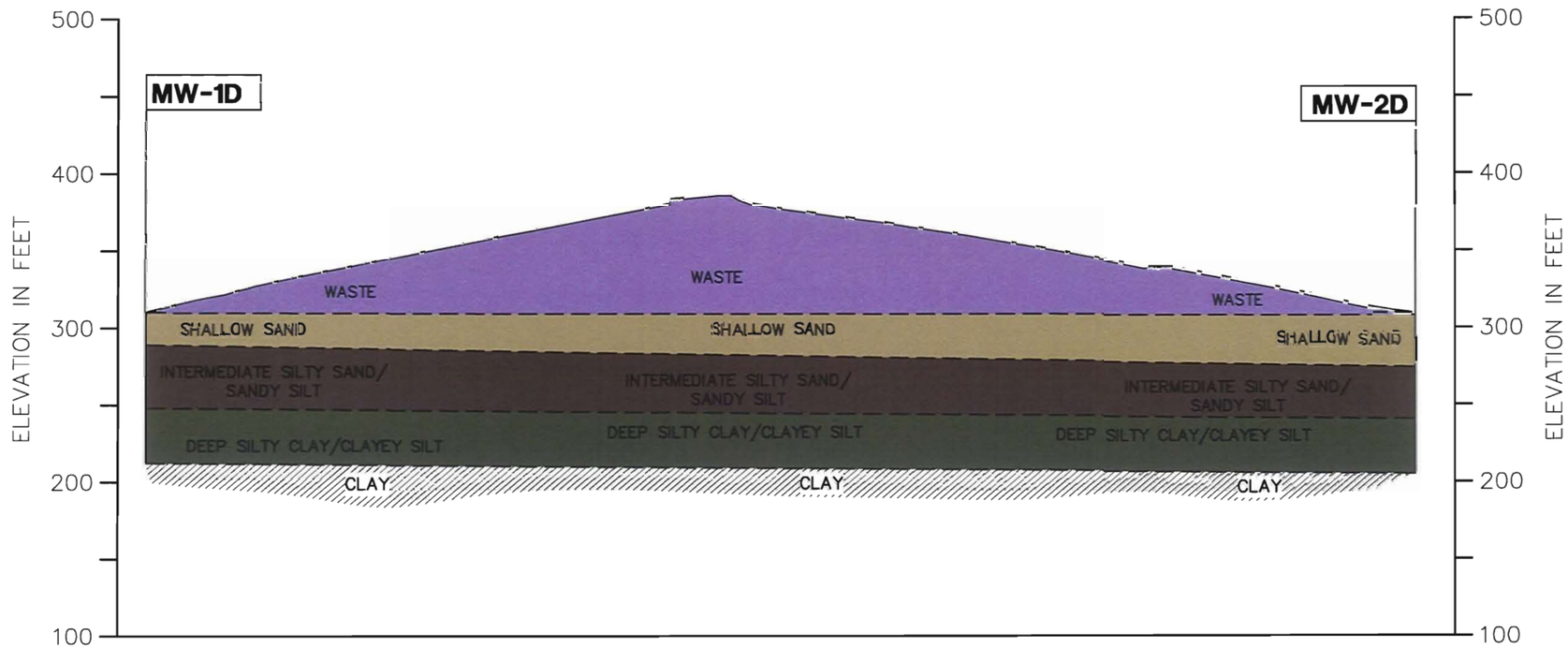
FIGURE 5–1

GEOLOGIC SECTION A–A'
RAPP ROAD SOLID WASTE MANAGEMENT FACILITY
CITY OF ALBANY
STATE OF NEW YORK

File: K:\12206\EXPANSION\HYDRO INVESTIGATION\HYDRO REPORT\ACAD\3-28-07\EMP\FIGURE 5.1 SECTION A-A'.DWG Saved: 7/30/2007 2:31:30 PM Plotted: 7/30/2007 2:58:06 PM User Markham, Gary



SECTION B–B'

HORIZTONTAL SCALE: 1" = 100'
VERTICAL SCALE: 1" = 100'

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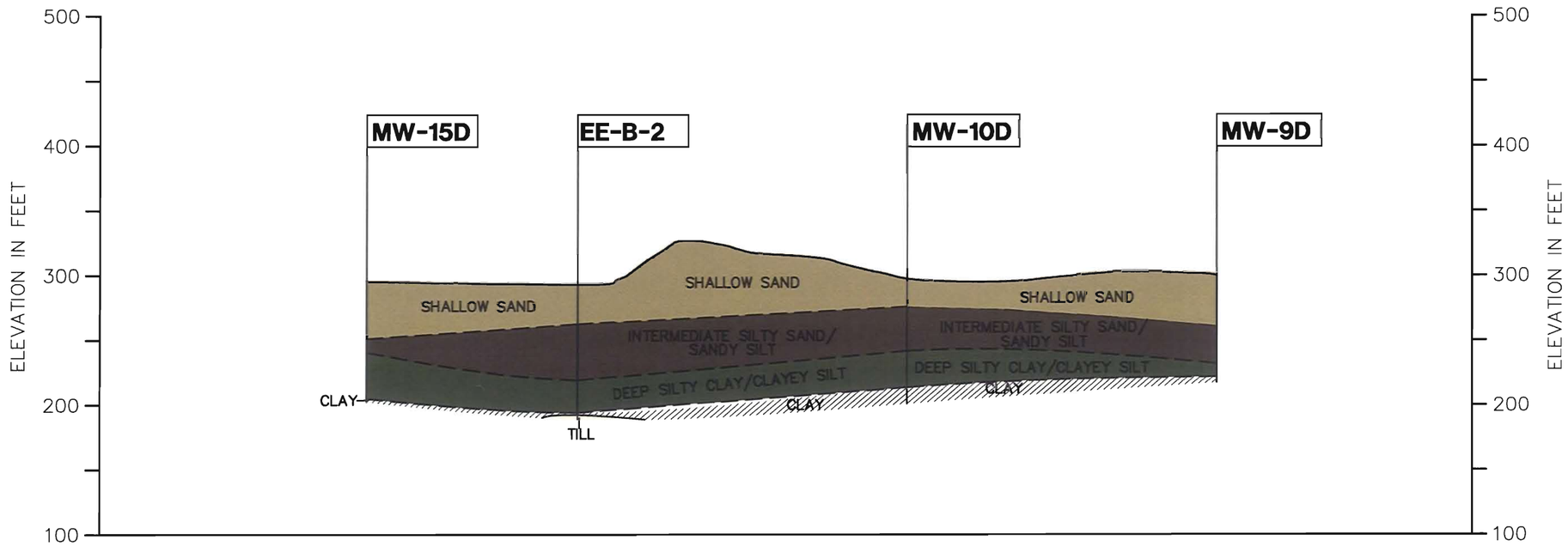
FIGURE 5–2

GEOLOGIC SECTION B–B'
RAPP ROAD SOLID WASTE MANAGEMENT FACILITY
CITY OF ALBANY
STATE OF NEW YORK

File: K:\12206\EXPANSION\HYDRO INVESTIGATION\HYDRO REPORT\ACAD\3-28-07\MP\FIGURE 5.2 - SECTION B-B'.DWG Saved: 1/30/2007 2:32:48 PM Plotted: 1/30/2007 2:58:50 PM User: Markham, Gary



SECTION C–C'

HORIZTONTAL SCALE: 1" = 200'
VERTICAL SCALE: 1" = 100'

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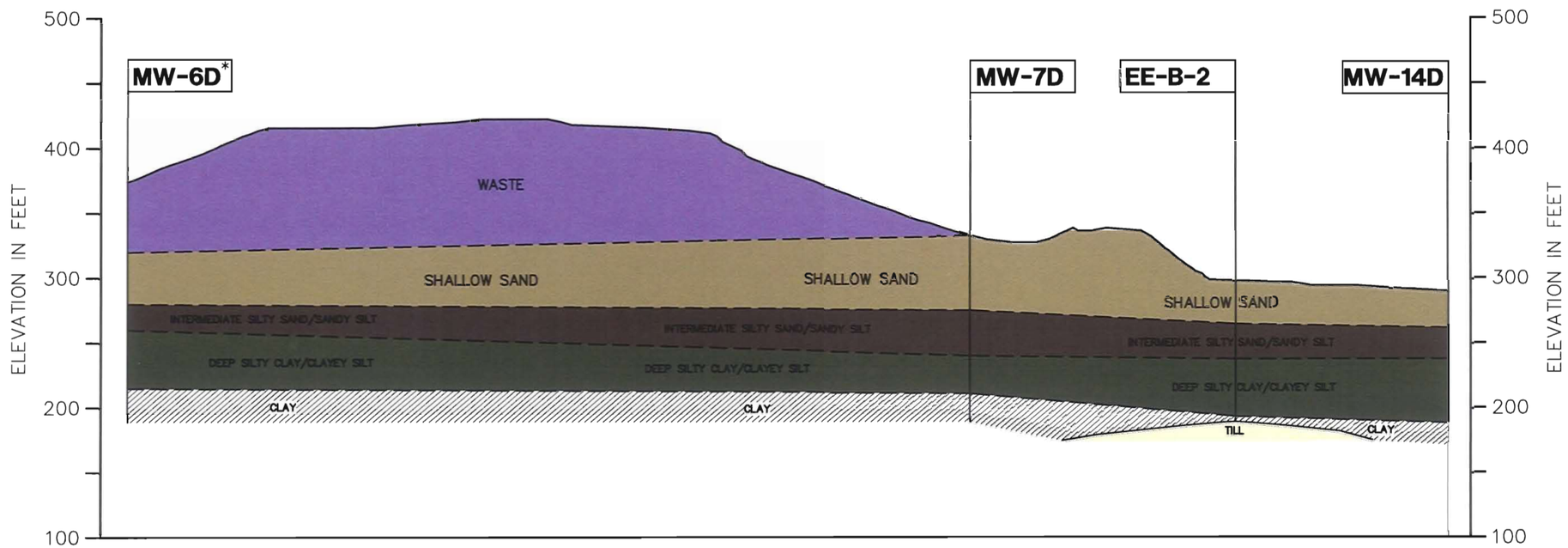
FIGURE 5–3

GEOLOGIC SECTION C–C'
RAPP ROAD SOLID WASTE MANAGEMENT FACILITY
CITY OF ALBANY
STATE OF NEW YORK

File: K:\12206\EXPANSION\HYDRO INVESTIGATION\HYDRO REPORT\ACAD\3-28-07\EMP\FIGURE 5.3 - SECTION C-C'.DWG Saved: 7/30/2007 3:16:29 PM Plotted: 7/30/2007 3:17:11 PM User: Markham, Gary



SECTION D–D'

* ORIGINAL SURFACE ELEVATION FOR "6D" ESTIMATED BY CLOSEST ORIGINAL TOPOLOGICAL FEATURE

HORIZTONTAL SCALE: 1" = 200'
VERTICAL SCALE: 1" = 100'

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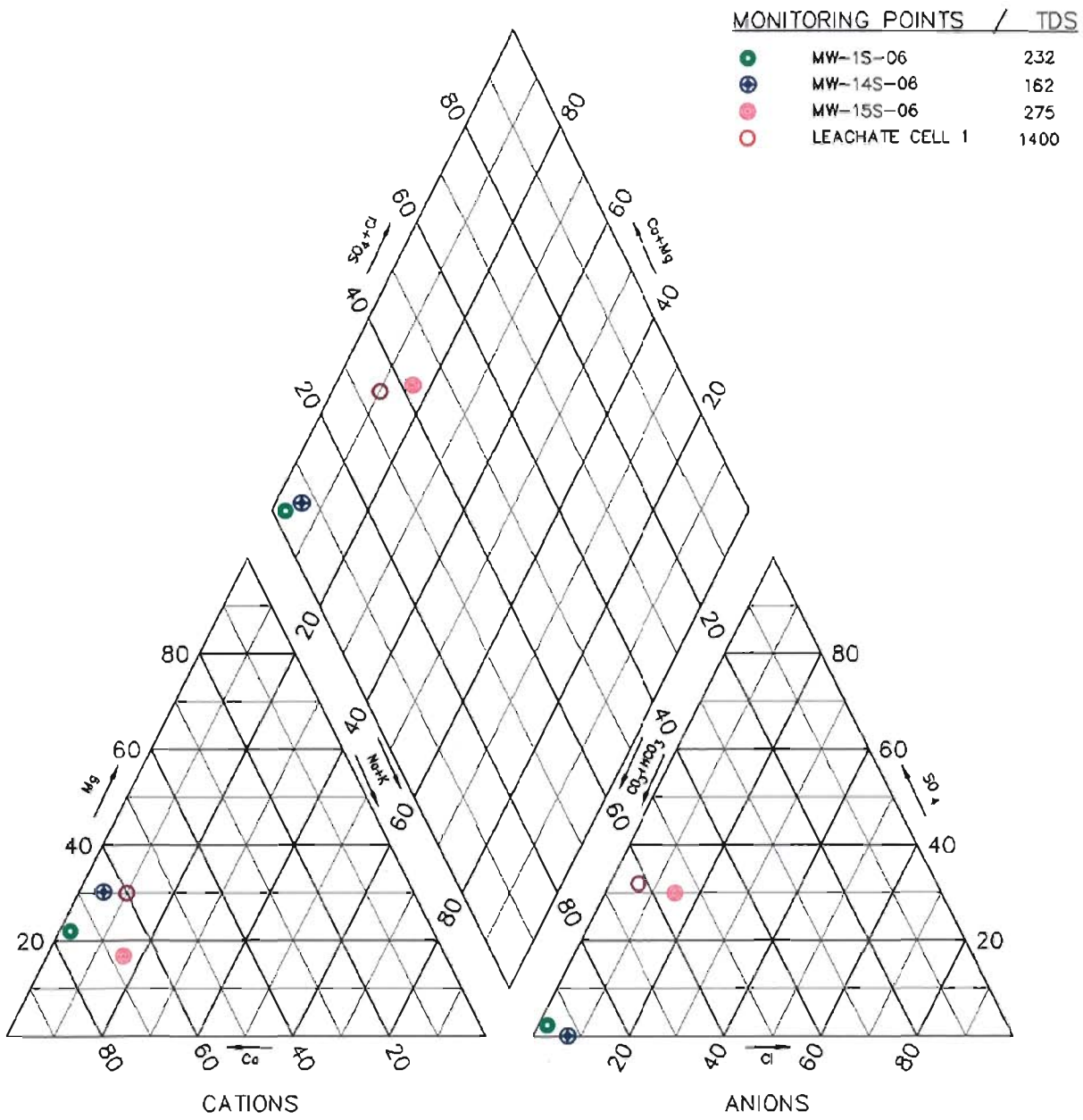
FIGURE 5–4

GEOLOGIC SECTION D–D'
RAPP ROAD SOLID WASTE MANAGEMENT FACILITY
CITY OF ALBANY
STATE OF NEW YORK

File: K:\12206\EXPANSION\HYDRO INVESTIGATION\HYDRO REPORT\ACAD\3-28-07\EMP\FIGURE 5.4 SECTION D-D'.DWG Saved: 7/30/2007 2:36:02 PM Plotted: 7/30/2007 3:00:23 PM User Markham, Cary



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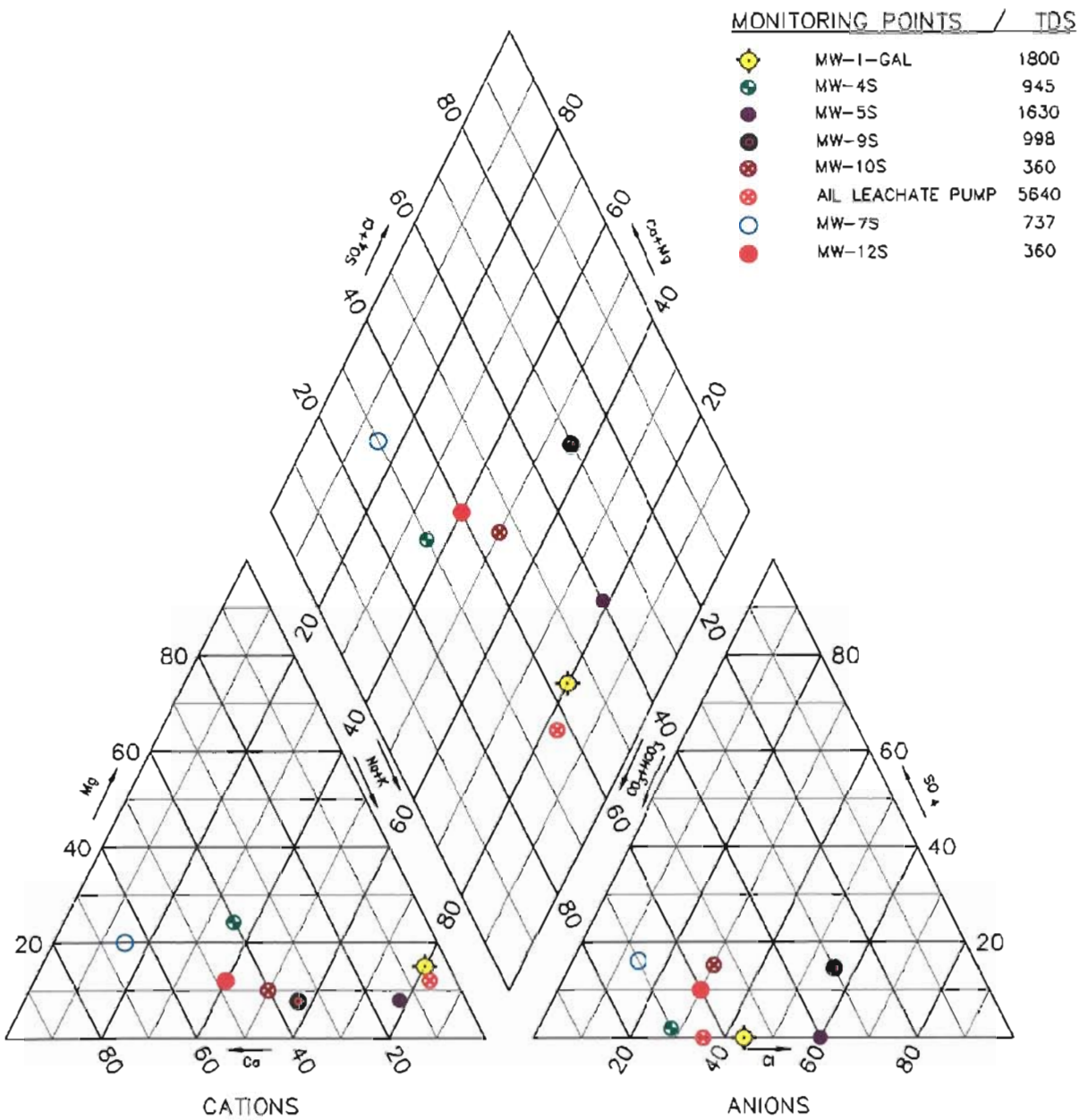
PIPE DIAGRAM –
NATURAL GROUNDWATER CHEMISTRY
RAPP ROAD SOLID WASTE MANAGEMENT FACILITY
ALBANY, NEW YORK

PROJECT NO. 12206

DATE: 07/30/07

FIGURE 6

File: K:\12206\EXPANSION\HYDRO INVESTIGATION\HYDRO REPORT\ACAD\3-28-07\EMP\FIGURE 6 - GROUNDWATER.DWG Saved: 7/30/2007 3:01:00 PM Plotted: 7/31/2007 10:46:14 AM User: Stuart, Jeff



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PIPE DIAGRAM – DOWN GRADIENT WELLS

RAPP ROAD SOLID WASTE MANAGEMENT FACILITY
ALBANY, NEW YORK

PROJECT NO. 12206

DATE: 07/30/07

FIGURE 7

File: K:\12206\EXPANSION\HYDRO INVESTIGATION\HYDRO REPORT\ACAD\3-28-07\EMP\FIGURE 7 - DOWNGRADIENT.DWG Saved: 7/31/2007 3:26:00 PM Plotted: 7/31/2007 3:26:20 PM User: Stuart, Jeff

TABLES

Table 1
Monitoring Points and Units Screened
Rapp Road Solid Waste Management Facility
Albany, New York
CHA Project No. 12206

Monitoring Well ID	Date Installed	Top of Riser Elevation (ft. AMSL)	Ground Elevation (ft. AMSL)	Depth to Bottom of Sand Pack (ft. bgs)	Screened Interval (ft. bgs)	Elevation of Screened Interval (ft. AMSL)	Depth [1] (ft. btor)	Bottom Elevation (ft. btor)	Shallow/Intermediate Contact Elevation (ft. AMSL)	Shallow/Intermediate Contact Depth (ft. bgs)	Intermediate/Deep Contact Elevation (ft. AMSL)	Intermediate/Deep Contact Depth (ft. bgs)	Top of Clay Elevation (ft. AMSL)	Depth to Top of Clay (ft. bgs)
EXISTING AIL/WEDGE/P4 WELLS														
MW-1S	10/25/1990	312.84	310.34	19.5	8.5 - 18.5	301.84 - 291.84	20.80	292.04	NI	NI	NI	NI	NA	NI
MW-1I	10/26/1990	313.08	310.58	61.5	50.5 - 60.5	260.08 - 250.08	63.20	249.88	290.58	20 - 22	NI	NI	NA	NI
MW-1D	10/24/1990	312.89	310.89	91.0	80.0 - 90.0	230.89 - 220.89	92.60	220.29	290.89	20 - 22	248.89	62- 65	214.89	96.00
MW-2S	10/18/1990	311.05	308.55	20.0	9.5 - 19.5	299.05 - 289.05	21.10	289.95	NI	NI	NI	NI	NA	NI
MW-2I	10/22/1990	311.61	308.61	60.0	49.0 - 59.0	259.61 - 249.61	60.90	250.71	271.61	37 - 40	NI	NI	NA	NI
MW-2D	10/17/1990	311.08	309.08	94.0	83.0 - 93.0	226.08 - 216.08	90.60	220.48	272.08	37 - 40	242.08	67 - 70	217.08	92 - 96
MW-7S	11/6/1990	324.50 [1]	308.26	24.0 [2]	12.0 - 22.00 [2]	296.26 - 286.26	39.00	285.50	NI	NI	NI	NI	NA	NI
MW-7I	11/6/1990	324.00 [1]	308.06	57.0 [2]	46.5 - 56.50 [2]	261.56 - 251.56	73.50	250.50	276.06	32 - 35	NI	NI	NA	NI
MW-7D	11/5/1990	324.60 [1]	307.61	97.0 [2]	83.5 - 93.50 [2]	224.11 - 214.11	109.80	214.80	275.61	32 - 35	240.61	67 - 70	211.61	96 - 98
MW-9S	7/8/1998	302.41	300.2	20.0	10.0 - 20.0	290.20 - 280.20	20.83	281.58	NI	NI	NI	NI	NA	NI
MW-9I	7/7/1998	302.57	300.3	60.0	50.0 - 60.0	250.30 - 240.30	57.55	245.02	366.3	34 - 36	231.3	69 - 72	NA	NI
MW-9D	7/2/1998	302.90	300.0	88.0	78.0 - 88.0	222.00 - 212.00	82.70	220.20	266.0	34 - 36	231.0	69 - 72	211.0	89 - 92
MW-10S	7/15/1998	312.18	309.9	28.0	18.0 - 28.0	291.90 - 281.90	28.66	283.52	NI	NI	NI	NI	NA	NI
MW-10I	7/14/1998	311.77	309.7	65.5	55.5 - 65.5	254.20 - 244.20	66.22	245.55	275.7	34 - 36	241.7	68 - 70	NA	NI
MW-10D	7/13/1998	311.70	309.7	94.0	84.0 - 94.0	225.70 - 215.70	96.38	215.32	275.7	34 - 36	241.7	68 - 70	213.7	96 - 98
MW-12S	NA	318.62	NA	NA	NA	NA	37.60	281.02	NA	NA	NA	NA	NA	NA
MW-12I	NA	318.69	NA	NA	NA	NA	72.55	246.14	NA	NA	NA	NA	NA	NA
MW-12D	NA	318.72	NA	NA	NA	NA	97.60	221.12	NA	NA	NA	NA	NA	NA
MW-14S	1/4/2007	294.75	292.10	13.0	3.0-13.0	289.1 - 279.1	15.65	279.10	NI	NI	NI	NI	NI	NI
MW-14I	1/4/2007	294.26	292.10	55.0	45.0 - 55.0	247.1 - 237.1	57.16	237.10	263.6	28 - 30	238.6	53 - 55	NI	NI
MW-14D	1/2/2007	294.23	292.10	102.0	92.0-102.0	200.1 - 190.10	104.13	190.10	262.1	28 - 30	238.1	53 - 55	189.6	102 - 104
MW-15S	12/26/2006	296.58	294.80	91.0	3.0-13.0	291.80-281.8.0	14.70	281.88	NI	NI	NI	NI	NI	NI
MW-15I	12/26/2006	296.60	294.80	55.0	45.0 - 55.0	249.80 - 239.80	56.80	239.80	251.3	42 - 44	241.3	52 - 54	NI	NI
MW-15D	12/21/2006	296.50	294.80	13.0	81.0 - 91.0	213.80 - 203.80	92.78	203.72	250.8	42 - 44	240.3	54 - 56	204.8	89 - 90
ABANDONED AIL/WEDGE/P4 WELLS														
MW-3S	Abandoned								NI	NI	NI	NI	NI	NI
MW-3I	Abandoned								284.83	22 - 25	NI	NI	NI	NI
MW-3D	Abandoned								286.17	22 - 25	231.17	77 - 80	218.17	90 - 92
MW-4S	Abandoned								NI	NI	NI	NI	NI	NI
MW-4I	Abandoned								279.32	22 - 25	NI	NI	NI	NI
MW-4D	Abandoned								279.21	22 - 25	249.21	52 - 55	216.21	85 - 87
MW-5S	Abandoned													
MW-5I	Abandoned													
MW-5D	Abandoned													
MW-6S	Abandoned													
MW-6I	Abandoned													
MW-6D	Abandoned													
MW-8S	Abandoned								NI	NI	NI	NI	NI	NI
MW-8I	Abandoned								284.40	24 - 30	NI	NI	NI	NI
MW-8D	Abandoned								284.40	24 - 30	238.40	70 - 75	219.40	89 - 92
MW-11S	Abandoned								NI	NI	NI	NI	NI	NI
MW-11I	Abandoned								269.60	35 - 38	NI	NI	NI	NI
MW-11D	Abandoned								269.90	35 - 38	236.90	68 - 70	200.90	104 - 106
GREATER ALBANY LANDFILL (GAL) EXISTING MONITORING WELLS														
GW-1D	4/18/1990	351.00	NA	NA	41.0 - 51.0	NA	53.70	297.30	NA	NA	NA	NA	NA	NA
GW-2D	4/17/1990	323.53	NA	NA	25.0 - 45.0	NA	48.20	275.33	NA	26 - 28	NA	NA	NA	NA
GW-4S	4/24/1990	301.57	NA	NA	22.0 - 42.0	NA	43.00	258.57	NA	NA	NA	NA	NA	NA
GW-4D	4/20/1990	302.00	NA	NA	61.0 - 81.0	NA	81.70	220.30	NA	NA	NA	NA	NA	NA
GW-5S	4/20/1990	294.24	NA	NA	14.0 - 34.0	NA	33.50	260.74	NA	NA	NA	NA	NA	NA
GW-5D	4/19/1990	294.29	NA	NA	31.0 - 81.0	NA	81.10	213.19	NA	23 - 25	NA	NA	NA	83 - 85
MW-1	NA	295.18	NA	NA	NA	NA	22.70	272.48	NA	NA	NA	NA	NA	NA
MW-2	3/3/1992	296.04	NA	NA	8.4 - 18.8	NA	22.25	273.79	NA	NA	NA	NA	NA	NA
MW-3	3/3/1992	300.06	NA	NA	2.8 - 13.2	NA	22.40	277.66	NA	NA	NA	NA	NA	NA

Notes:
Data presented above obtained from July 1999 Part 360 Application to Construct and Operate a Solid Waste Management Facility; P-4 Project Landfill Expansion; C.T. Male, 1999.
1. Monitoring wells re-surveyed in 2003 after well casings were extended with construction of new cell.
2. Depth based on original ground surface elevation at the time of installation.
NA - Data not available.
NI - Not installed to interval depth.

APPENDIX A

STANDARD PENETRATION TEST BORINGS

A. PURPOSE/SCOPE:

The purpose of drilling test borings is typically to characterize the lateral and vertical extent of contamination in the unsaturated zone. The test borings may also be used to allow the installation of ground water monitoring wells. Test borings may also be used to determine the subsurface characteristics for the purpose of geotechnical investigations.

B. EQUIPMENT/MATERIALS:

Drilling will be performed by a licensed drilling firm under the direction of Clough, Harbour and Associates. The drilling field crew will consist of a driller, a driller's assistant, and a CHA field geologist/engineer. The field geologist will supervise drilling operations and conduct the geologic logging of the boreholes. A list of typical equipment needed for installation of monitoring wells at the site is summarized in the table included in SOP #309.

C. PROCEDURE:

1. The drilling rig and sampling equipment may be required to be decontaminated by steam-cleaning (high pressure, hot water) prior to drilling and in between borings depending on the job requirements

2. The borings will be drilled with a hollow-stem augers, flush joint casing, open hole or any combination depending on the type of information needed, geologic conditions, and other limitations that may be imposed due to contamination or state or federal guidelines. The boring shall be advanced to match the sampling interval (continuous or standard sampling).

3. Drilling progress and information about the formations encountered shall be recorded by the geologist on the field boring log. The information should include total depth drilled, depths and thickness of strata, problems with borehole advancement, fill materials encountered, and water levels.

4. At the chosen depth interval, drive a clean, standard, 24-inch long, 2-inch O.D. split-spoon sampler into the soil a distance of 24 inches using a 140 lb hammer, free falling 30 inches. Record the number of blows required to drive the sampler every 6 inches on the field boring log. Discontinue driving the sampler if 100 blows have been applied and the sampler has not been driven 6 inches. If 6 inches of penetration has been achieved, discontinue driving the sampler after 50 blows has failed to penetrate fully any of the remaining 6 inch intervals. The first six inches seats the spoon, the next 12 inches represents the Standard Penetration Resistance, the last six inches is driven to insure sample recovery.

5. Retrieve the sampler from the borehole and place it on a clean, flat surface. Open the sampler and immediately scan the sample with an air monitoring instrument (e.g., HNu or OVA) if appropriate to the purpose of the investigation. Record instrument readings on field boring log.

Further, describe and record the following properties of the sample: Sample length recovered, presence of any slough in sampler, basic soil type (e.g., sand, gravel, clay), structure, texture, sorting, grain size, grain shape, degree of saturation, competency, color, odor, staining, and presence of foreign material(s). Refer to SOP#301, Field Description of Soils.

6. After the soil within the sampler has been described, it will be placed in sealed sample jars.

7. If appropriate to the investigation, the air space surrounding the borehole shall be scanned with a FID or PID and Explosimeter during all drilling activities to determine the absence of volatile organic compounds. Results of this air monitoring shall be recorded on the Geologic Field Log. Activities shall proceed according to the site HSP if the presence of volatile organic compounds is indicated.

8. If appropriate to the investigation, between boreholes, the down-hole drilling tools shall be steam-cleaned.

9. Upon completion of the test boring, all drill cuttings shall be placed back in the borehole.

10. Note the locations of the borings on a site map and/or mark the locations of the boreholes with a labelled wooden stake.

D. QA/QC REQUIREMENTS:

None.

E. SPECIAL CONDITIONS:

None.

F. REFERENCES:

ASTM Standard D 1586

MONITORING WELL INSTALLATION

A. PURPOSE/SCOPE:

Monitoring wells are used to define the lateral and vertical extent of ground-water contamination, to determine the elevation and fluctuations in the water table, as an observation point during pump tests, to aid in determining the hyraulic conductivity of screened soil layers, and to establish a background level for the local groundwater chemistry. The procedures described below are intended to provide access to ground water with minimum disturbance to the aquifer. Additionally, the procedures are intended to prevent cross-contamination between aquifers.

B. EQUIPMENT/MATERIALS:

Drilling will be performed by a licensed drilling firm under the direction of a Clough Harbour representative. The drilling field crew will consist of a driller, a driller's assistant, and a Clough Harbour field geologist/engineer. The field geologist will supervise drilling operations and conduct the geologic logging of the boreholes.

C. PROCEDURE:

Two types of monitoring wells will be discussed in this SOP. One type of monitoring well is installed in unconsolidated material in an unconfined aquifer. The second type of well is installed in a confined aquifer. Before proceeding with any work, refer to any applicable site Health and Safety Plans.

Wells installed in Unconfined Aquifers

Refer to SOP #303 for drilling procedures used to advance boreholes.

The following procedure describes construction of a monitoring well using 2-inch diameter water-tight flush threaded PVC well casing and screen. The slot size of the screen will be determined depending on the data required and the type of soil screened. Filter pack sand size used will be dependent on the screen slot size and various state and federal regulations.

It should be noted however, that the diameter and type of well casing material may differ according to different specific applications.

1. All well casing and screens shall be new and brought to the site enclosed in plastic. Contact of casing or screen with the ground prior to installation shall be avoided. Plastic sheeting (e.g., visqueen) shall be placed on the ground and used as a cover to protect stockpiled materials from contamination.

2. If monitoring for contaminants less dense than water, drilling will proceed to a depth of several feet below the water table. The well will be screened across the water table, using approximately ten feet of screen.

3. If monitoring for contaminants more dense than water, drilling will proceed until the first confining surface (e.g., clay layer, top of bedrock, etc.) is encountered. In these situations, ten feet of screen will be placed immediately above the confining surface.
4. A sand pack composed of washed sand will be tremmied in the annular space of each well from 0.5 feet below the screen to two feet or 20 percent of the screen length, whichever is

greater, above the screen. A six inch to 12 inch choke of #00 sand must be placed immediately below and above a bentonite seal at least 3 feet thick. All well measurements will be recorded in the field logbook. The remaining annulus to the ground surface will be filled with a cement-bentonite grout using a tremie pipe. Depending on local requirements a certain amount of setting time for the bentonite seal may be required before the bentonite/cement grout is placed.

5. The wells shall extend 3 feet above grade with a 4-6 inch diameter protective steel surface casing. The surface casing will be surrounded by a three-foot square concrete pad extending below the frost line. The pad should be shaped to shed rainwater. The protective casing shall be fitted with a lockable water-tight cap. Weep holes should be drilled at the base of the protective steel casing and a vent hole must be drilled at the top of the PVC casing to allow water levels to respond to barometeric changes and prevent explosive gas buildup. The annular space of the protective casing should be filled with gravel or coarse sand.

   In cases where wells must be installed in high traffic areas, the protective steel casing may be replaced with a manhole which is mounted flush with surface grade.

Wells Installed in Confined Aquifers

Wells installed in confined aquifers must penetrate a confining layer. That confining layer may be a clay lense in more porous unconsolidated materials or unfractured bedrock in consolidated materials.

1. Drill to the top of the confining surface. Steel casing will then be driven at least 6 inches into the confining layer. The steel casing will then be grouted in place. After the grout has set, drilling will proceed until the desired depth is reached. If drilling proceeds through more than 1 confining layer, the same process as described above will be repeated, except the first aquifer will be cased off with a a wider casing and the second aquifer will be cased off with narrower diameter casing, etc.

2. A well will then be constructed in this borehole in the same manner as described in steps 1 through 5 above.

   When installing a well in fractured rock, it may be possible to leave the open borehole as is, depending upon the competency of the rock.

D. QA/QC REQUIREMENTS:

None.

E. SPECIAL CONDITIONS:

None.

F. REFERENCES:

Handbook of Suggested Practices for the Design and Installation of Ground-water Monitoring Wells.

TYPICAL EQUIPMENT NEEDED FOR INSTALLATION OF BOREHOLES AND GROUND-WATER MONITORING WELLS

Heavy Equipment

Drill rig
Water truck (if needed)
Grout Mixer
Steam cleaner
Generator for steam cleaner

Sampling Tools

2-inch I.D split-barrel samplers
3-inch I.D. thin-walled sampling tubes

Well Casing Materials

Varies with job requirements

Other Well Construction Materials

Type I Portland cement
Bentonite pellets
Washed sand of various grain sizes depending on screen or geologic conditions

Miscellaneous Equipment/Materials

Bore brush
55-gallon drums
Stainless steel tape (100 feet)
Tremie pipe
Shovels

WELL DEVELOPMENT

A. PURPOSE/SCOPE:

Well development is performed to ensure the free flow of turbid-free water into the well. It can be accomplished using either a combination of mechanical surging and pumping or using compressed air.

Mechanical surging forces water to flow into and out of a screen by operating a plunger up and down in the casing, similar to a piston in a cylinder. The tool normally used is called a surge block, surge plunger, or swab. The combination of mechanical surging and pumping are generally used in 2 to 4-inch diameter monitoring wells.

Compressed air can also be used to develop wells in consolidated and unconsolidated formations. Most air rotary drilling rigs have sufficient air capacity to develop 6-inch to 12-inch diameter wells.

B. EQUIPMENT/MATERIALS:

Surge block, inertial or submersible pump, bailer or Air compressor, air line

C. PROCEDURE:

Mechanical Surging and Pumping

1. Before starting to surge, the well should be evacuated to make sure that water will flow into it.

2. Lower the surge block into the well until it is 10 to 15 feet beneath the static water level, but above the well screen. The water column will effectively transmit the action of the surge block to the screen section. The initial surging motion should be relatively gentle, allowing any material blocking the screen to break up, go into suspension, and then move into the well.

3. As water begins to move easily both into and out of the screen, the surging tool is usually lowered progressively downward through the entire length of the screen. As the block is lowered, the force of the surging movement is increased.

4. Continue surging for approximately 20 minutes, then pull the block from the well. A pump or bailer may be used to remove the sediment out of the well. Pumping should continue for approximately 20 minutes.

5. Continue alternating the surging and pumping action until little or no sand or fines can be pulled into the well. The turbidity of the final discharge water should be below 50 NTU.

Airlift Development

1. Place the airline into the water at a shallow depth. Initially, the air lift should be operated to pump fluids at a reduced rate from the well. Once a constant flow rate from the well has been established, the airline is lowered to within 5 ft. of the bottom of the screen, assuming that sufficient pressure is available to overcome the static head. Development can also start near the top of the screen, depending on the preference of the driller.

2. A surging action is created by injecting air into the well to lift the water to the surface. As the water reaches the top of the casing, the air supply is shut off, allowing the aerated water column to fall (this procedure is called "rawhiding"). This tends to drive the water outward through the well screen openings.

3. After surging the well for a period of 20 - 30 minutes, the air should be applied in a continuous manner so that the water is expelled from the casing. The airline should be lowered to the bottom of the well so that accumulated sediment will be expelled. Surging and lifting cycles are repeated until the water is relatively free of sand and fine particles. The turbidity of the final discharge water should be below 50 NTU.

D. QA/QC REQUIREMENTS:

If an air compressor is used to develop the wells, make sure a filter is present on the compressor. Otherwise, oil from the compressor will be present in the airstream that enters the well.

E. SPECIAL CONDITIONS:

The surge block should be operated with care in cases where excessive sand will be introduced through the well screen to prevent the tool from becoming sand locked.

Air development procedures should begin by determining that groundwater can flow freely into the screen. Application of too much air volume in the borehole when the formation is clogged can result in a collapsed screen.

F. REFERENCES:

Driscoll, F.E., Groundwater and Wells. Second Edition, Johnson Division, St. Paul, MN. 1986, P. 504-506

GROUNDWATER SAMPLING

A. PURPOSE/SCOPE:

To obtain representative ground-water samples from an aquifer.

B. EQUIPMENT/MATERIALS:

Inertial pump, submersible pump, disposable bailers, generator, sample bottles, bailing twine and rope, field analyses meters, sampling gloves, water level meters, filtration system, 2-inch Grundfos Rediflow pump and controller, well sampling forms.

C. PROCEDURE:

1. The wells will be sampled in order from the least contaminated well to the most contaminated well.

2. Using a decontaminated measurement probe, determine the water level in the well; then calculate the fluid volume in the casing.

3. Using a decontaminated surface pump, submersible pump or disposable bailer, purge the well of a minimum of one well volume. Purging will be conducted at the lowest flow rate possible to purge the well within a reasonable time frame and to decrease the potential for elevating the turbidity of the well water. Conductivity, pH, Eh, turbidity, and temperature readings shall be taken and recorded during the well purging. The well will be considered properly purged when a minimum of one well volume has been purged and the conductivity, pH, Eh, turbidity and temperature have stabilized. Turbidity should be below 50 NTU, if possible. Record these readings on the well sampling log.

   It is important that none of the sampling equipment (pump, bailer, pump tubing, electrical cords, rope, etc.) come into contact with the ground.

4. Sample collection will be performed utilizing either an inertial pump system, submersible pump or disposable bailer. If the inertial pump system or submersible pump is used, samples will be obtained through the dedicated polyethylene tubing. Should disposable bailers be utilized, the sampling will be performed as follows:

   Attach a new bailer line to the disposable bailer equipped with a single check valve. Check the operation of the check valve assembly to confirm free operation. Lower the single check valve bailer slowly into the well until it contacts the water surface. Then lower the bailer just below the water surface with a minimum of disturbance. When filled with groundwater, slowly raise the bailer to the surface. Discharge the first bailer to the ground. Tip the bailer to allow the water to slowly discharge from the top and to flow gently down the inside of the sample bottle with minimum entry turbulence and aeration.

5. The order in which samples are to be collected is as follows:

   volatile organic compounds,
   purgable organic carbon,
   purgeable organic halogens
   total organic halogens

total organic carbon
extractable organic
total metals
dissolved metals
phenols
cyanide
sulfate and chloride
turbidity
nitrate and ammonia
radionuclides.

6. When collecting aliquots for analysis of volatile organic compounds, make absolutely certain that there are no bubbles adhering to the walls or the top of the VOA container.

7. Add appropriate preservatives to samples as described in SOP #605.

8. Label the sample containers with all necessary information and complete all chain-of-custody documents and seals.

9. Place the properly labeled and sealed sample bottles in a cooler with ice and maintain at 4°C for the duration of the sampling and transportation period. Do not allow samples to freeze.

D. QA/QC REQUIREMENTS:

To the extent possible, all samples should be collected using the same type of equipment and in the same manner to ensure comparability of data.

E. SPECIAL CONDITIONS:

Under Step 3, if sample turbidity cannot be reduced below 50 NTU, then the samplers should collect all portions of the sample except for the metals. The samplers should then return within 24 hours and collect a sample for total metals analysis from the top of the water column.

Step 4 can be replaced if purging and sampling is being performed with a Grundfos Rediflow pump. In this case, after well purging was completed, the discharge rate for the pump would be reduced to approximately 40 ml/minute. Sampling can then proceed as described above.

E. REFERENCES:

None.

APPENDIX B

TABLE 3
Groundwater Analytical Monitoring Data
MW-1S
Albany Interim Landfill/P-4 Project
CHA Project No. 12244

TEST PARAMETER (mg/l unless otherwise noted)	Unit	TOGS Guidance Value	Mean (EWQV)	Mean (EWQV) Plus 3 Std. Dev.	2Q97 Bsln	3Q97 Rtne	4Q97 Rtne	1Q98 Rtne	2Q98 Rtne	3Q98 Bsln	4Q98 Rtne	1Q99 Rtne	2Q99 Rtne	3Q99 Rtne	4Q99 Bsln	1Q00 Rtne	2Q00 Rtne	3Q00 Rtne	4Q00 Rtne	1Q01 Rtne	2Q01 Rtne	3Q01 Bsln	4Q01 Rtne	1Q02 Rtne
Temperature	C°																							
Conductivity	uS		592.13	3372.89	2880	307	319	331	443	275	240	279'	325	346	542	36.6	685	292	585	349	331	579	287	265
pH	SU	6.5-8.5	7.21	7.79	7.07	7.89	7.42	7.85	7.28	8.28	9.3	8.3	9.08	8.85	9.27	6.86	7.22	7.8	8.15	6.9	7.23	7.2	7.03	7.27
Eh	mV		155	458.46	-1	-53	-17	-43	-8	-68	-118	-67	-119	-85	-112	-6	0.5	480	-61	335	80	65	30	N/A
Turbidity (after purging well)	N.T.U	5	322.75	943.18	NA	48	135	78	39	39	38	85	17	17	28	33	28	52	31.6	52.4	90.3	34.4	23.7	27.9
LEACHATE INDICATORS																								
Ammonia Nitrogen	mg/l	2	0.16	0.7	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.5	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.05	0.412	<0.05	<0.05	<0.05	<0.005
BOD 5	mg/l		1.5	1.5	<2	<2	<2	<2	2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2.0
Bromide	mg/l	2	0.41	1.84	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1.0
COD	mg/l		50.03	408.54	<5	<5	<5	<5	14.9	<5	<5	<5	<5	<5	<5	<5	13.1	7.5	<5	<5	<5	<5	<5	<5.0
Chloride	mg/l	250	3.51	10.93	4.21	3.54	3.2	3.86	5.39	3.14	3.58	2.95	3.42	3.32	3.44	2.63	3.51	3.4	3.35	2.98	3.31	2.74	2.59	2.88
Nitrate	mg/l	10	0.06	0.29	<0.05	<0.05	<0.05	<0.05	1.67	<0.05	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	2.02	0.05	0.785	<0.5	<0.5	<0.5	<0.5	<0.5
Sulfate	mg/l	250	13.39	24.57	6.79	8.31	4.82	16	26.9	16.3	10.2	14.8	16	16.5	13.4	15.4	29.8	16	16.6	16.3	14.7	14.2	12.5	14.6
Total Alkalinity	mg/l		224.63	796.17	150	157	142	140	251	146	110	148	140	153	123	133	266	130	172	207	153	192	141	156
Total Dissolved Solids	mg/l	500	144.19	322.24	194	202	169	187	304	198	141	190	222	193	159	157	344	190	221	237	186	189	173	180
Total Hardness	mg/l		352.55	1154.99	164	166	157	176	291	184	128	201	174	182	134	145	302	1444	199	200	181	370	157	165
Total Kjed. Nitrogen	mg/l		0.78	1.64	-	0.402	0.458	0.281	0.605	0.279	<0.2	0.261	<0.2	0.3	<0.2	0.642	0.38	<1	0.31	0.627	<0.2	<0.2	<02	<0.2
Total Organic Carbon	mg/l	500	1.93	7.07	<1	<1	<1	<1	4.9	<1	<1	<1	<1	<1	<1	1.73	4.65	<1	1.59	1.8	<1	<1	1.13	<1.0
Total Phenols	mg/l	0.001	0.01	0.04	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Color	P.C.U.	15	7.5	20.31	<5					<5					10		5					10		
Boron	mg/l	1	0.08	0.28	<0.2					<02					<0.2		<0.2					<02		
INORGANIC PARAMETERS:																								
Aluminum	mg/l	0.1	8.15	64.13	2.33					2.16					REJECT		REJECT					1.67		
Antimony	mg/l	0.003	0.95	8.16	<0.06					<0.06					<0.06		<0.06					<0.06		
Arsenic	mg/l	0.025	0.01	0.01	<0.01					<0.01					<0.01		<0.01					<0.01		
Barium	mg/l	1	0.12	0.68	<0.02					<0.02					<0.02		0.0301					<0.02		
Beryllium	mg/l	0.003	0..01	0.06	<0.005					<0.005					<0.005		<0.005					<0.005		
Cadmium	mg/l	0.01	0.003	0.006	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Calcium	mg/l		83.75	340.07	49.1	48.8	41.9	56.5	87	50.8	35	47.5	50.7	53.5	41.5	42.6	91.2	45	62.2	60.9	56.5	56.6	46	52.7
Chromium	mg/l		7.96	75.29	<0.01					<0.01					<0.01		<0.01					<0.01		
Hexavalent Chromium	mg/l	0.05	0.01	0.02	<0.01					<0.01					<0.01		<0.01					<0.01		
Cobalt	mg/l	0.005	0.03	0.08	<0.05					<0.05					<0.05		<0.05					<0.05		
Copper	mg/l	0.2	0.08	0.35	<0.02					<0.02					<0.02		<0.02					<0.02		
Total Cyanide	mg/l	0.1	0.01	0.01	<0.01					<0.01					<0.01		<0.01					<0.01		
Iron	mg/l	0.3	35.96	222.94	3.13	4.93	8.41	7.5	4.89	3.74	3.56	6.59	3.64	1.78	3.16	3.85	5.58	0.2	2.08	4.48	5.12	1.87	1.32	1.84
Lead	mg/l	0.025	3.59	23.51	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Magnesium	mg/l	35	15.72	56.87	9.51	9.76	9.28	9.93	14.2	10.3	7.11	10.5	10.4	9.17	8.02	8.35	16.7	7.7	11.6	10.5	10.6	10.8	8.65	8.43
Manganese	mg/l	0.3	2.81	15.33	0.133	0.204	0.569	0.662	1.92	0.353	0.221	0.443	0.34	0.623	0.601	0.682	2.89	0.14	0.314	1.42	1.2	0.472	0.309	1.19
Mercury	mg/l	0.002	0.09	0.81	<0.0003					<0.0003					<0.0003		<0.0003					<0.0002		
Nickel	mg/l	0.007	0.06	0.21	<0.04					<0.04					<0.04		<0.04					<0.04		
Potassium	mg/l		1.91	8.69	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	0.7	<2	<2	<2	<5	<5	<2.0
Selenium	mg/l	0.01	0.004	0.005	<0.005					<0.005					<0.005		<0.005					<0.005		
Silver	mg/l	0.05	0.01	0.03	<0.01					<0.01					<0.01							0.05		
Sodium	mg/l	20	1.83	5.45	1.6	1.67	1.93	1.61	2.74	1.72	1.5	1.66	1.62	1.86	1.64	1.92	2.78	2.2	2.33	2.34	2.02	2.11	1.95	1.99
Thallium	mg/l	0.004	0.01	0.01	<0.01					<0.01					<0.01		<0.01					<0.01		
Vanadium	mg/l	0.014	0.03	0.08	<0.05					<0.05					<0.05		<0.05					<0.05		
Zinc	mg/l	0.3	0.65		0.034					0.0298					0.0211		0.0314					0.0221		

TEST PARAMETER (mg/l unless otherwise noted)	April-03 Routine	June-03 Routine	Sep-03 Baseline	Dec-03 Routine	Mar-04 Routine	Jun-04 Routine	Sep-04 Routine	Dec-04 Baseline	Mar-05 Baseline	Jun-05 Routine	Sep-05 Routine	Dec-05 Routine	Mar-06 Routine	Jun-06 Baseline	Sep-06 Routine	Dec-06 Routine	Mar-07 Routine
Temperature	8.45	10	13.01	9.83	7.72	10.77	11.38	9.91	7.68	9.19	11.51	9.3	8.23	10.63	11.72	9.32	7.28
Conductivity	525	424	318	334	316	334	320	341	562	299	307	380	273	269	226	276	818
pH	6.97	7.71	8.18	7.06	7.61	7.63	7.85	7.48	6.57	7.84	8.28	7.94	7.31	7.94	9.35	8.04	6.78
Eh	129.5	23	-70.5	-30.4	-32.2	-73.4	-125.1	-146.9	-115.4	-83	-32.3	-66	201.5	-74.4	-1.5	-18.1	21
Turbidity (after purging well)	6.7	71.1	48.8	91.4	60	41.4	63.8	66.6	29.8	15	184	14.6	61.4	107	69.3	49.4	97.9
LEACHATE INDICATORS																	
Ammonia Nitrogen	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	< 0.5	< 0.5	<0.5	<0.5	<0.5	1.65
BOD 5	<4	<4	<4	<4	<4	<4	<4	<4	4		<4	<4	<4	<8	10	<4	6
Bromide		<2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.20		<2	< 0.2	< 0.2	<0.2	<0.2	< 0.2	<0.2
COD	<0.2	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	< 20	< 20	23	<20	<20	<20
Chloride	3	3	4	3	3	4	4.08	3.83	15.3	4.85	9.9	<1	5.4	13.8	5.44	4.98	55.3
Nitrate	1.9	<0.2	<0.2	0.3	<0.2	<0.2	0.3	<0.2	3.1	<0.2	<0.2	< 0.2	< 0.2	0.28	<0.2	<0.2	3.53
Sulfate	15	15	13	22	14	19.2	18.2	20.8	16.9	<250	10.3	7.31	10.2	13.7	9.84	5.16	39.6
Total Alkalinity	260	150	160	180	150	170	160	290	270	260	130	270	130	120	160	150	300
Total Dissolved Solids	320	150	180	200	230	185	230	632	360	<25	265	232	293	265	210	232	402
Total Hardness	260	140	130	180	150	168	158	162	298	140	144	99.5	141	160	147	126	306
Total Kjed. Nitrogen	<0.5	<0.5	0.9	<0.5	<0.5	<0.5	<0.5	<0.5	3.46		<0.5	< 0.5	< 0.5	<0.5	<0.5	<0.5	2.35
Total Organic Carbon	<3	<3	5	<3	<3	<3	<3	<3	4	<3	<3	< 3	< 3	<3	<3	<3	21.2
Total Phenols	<0.005	<0.005	0.007	<0.5	<0.005	<0.005	<0.005	<0.005	0.02	0.007	<0.005	< 0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Color			12					15	50					12			
Boron			<0.5					<0.5	<0.5					<0.5			
INORGANIC PARAMETERS:																	
Aluminum			0.842					1.81	0.702					2.86			
Antimony			<0.015					0.0195	<0.015					<0.015			
Arsenic			<0.01					<0.010	<0.010					<0.01			
Barium			<0.05					<0.050	<0.050					<0.05			
Beryllium			<0.003					<0.003	<0.003					<0.003			
Cadmium	<0.005	0.0101	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	< 0.005	< 0.005	<0.005	<0.005	<0.005	<0.005
Calcium	81.7	41.5	39.6	55.9	46	50.3	47.6	49.1	94.7	44	43.2	29.9	42.0	47.7	44.5	38.7	98.6
Chromium			<0.005					<0.005	<0.005					0.0664			
Hexavalent Chromium			<0.01					<0.010	<0.010					<0.010			
Cobalt			<0.02					<0.020	<0.020					<0.020			
Copper			0.0322					0.012	0.017					0.011			
Total Cyanide			<0.1					<0.010	<0.010					<0.010			
Iron	0.525	3.42	1.17	2.16	3.34	1.9	3.21	3.17	1.93	2	4.57	0.544	3.72	5.39	4.14	2.35	6.73
Lead	<0.003	0.0041	<0.003	<0.003	0.00376	0.0059	<0.003	<0.003	<0.003	0.001	<0.003	< 0.003	0.0026	<0.003	<0.003	<0.003	<0.003
Magnesium	12.9	8.68	7.8	10	9.5	10.3	9.5	9.67	15	8.7	8.77	6.02	8.70	10.00	8.74	7.14	14.50
Manganese	0.203	1.17	0.426	1.67	0.739	0.453	0.857	0.89	4.97	0.46	1	0.222	0.684	1.5	0.7	0.465	3.23
Mercury			<0.0002					<0.0002	<0.0002					<0.0002			
Nickel			<0.03					<0.030	<0.030					<0.030			
Potassium	<1	2.08	<1	<1.0	1.04	<1	1.02	<1	2.65	1.3	1.03	< 1	0.86	1.23	1.02	<1	2.62
Selenium			<0.005					<0.005	<0.005					0.00607			
Silver			<0.01					<0.010	<0.010					<0.010			
Sodium	2.18	2.11	1.56	2.34	1.81	2.17	1.86	1.65	3.79	2.8	2.27	1.4	2.5	2.49	2.8	1.71	23.2
Thallium			<0.01					<0.010	<0.010					<0.010			
Vanadium			<0.03					<0.030	<0.030					<0.030			
Zinc			0.0218					0.0504	0.0938					0.0945			

Notes:

1. Parameters listed are Part 360 Baseline or Routine Parameters Effective 1993.
2. Blanks indicate no analysis performed
3. "<" indicates not detected at the specified method detection limit (MDL)
4. Shaded values indicate detection above Standard.

TABLE 3
Groundwater Analytical Monitoring Data
MW-1I
Albany Interim Landfill/P-4 Project
CHA Project No. 12244

TEST PARAMETER (mg/l unless otherwise noted)	Unit	TOGS Guidance Value	Mean (EWQV)	Mean (EWQV) Plus 3 Std. Dev.	2Q97 Bsln	3Q97 Rtne	4Q97 Rtne	1Q98 Rtne	2Q98 Rtne	3Q98 Bsln	4Q98 Rtne	1Q99 Rtne	2Q99 Rtne	3Q99 Rtne	4Q99 Bsln	1Q00 Rtne	2Q00 Rtne	3Q00 Rtne	4Q00 Rtne	1Q01 Rtne	2Q01 Rtne	3Q01 Bsln	4Q01 Rtne	1Q02 Rtne
Temperature	C°																							
Conductivity	uS		406.88	2115.14	1808	239	258	268	192	229	247	243	257	257	36.8	20.4	-1.24	227	0.33	243	239	237	236	1843
pH	SU	6.5-8.5	7.46	8.95	6.96	7.84	7.48	8.08	8.4	8.26	8.94	8.39	9.09	8.6	8.5	7.23	8.49	7.8	8.34	7.47	7.37	7.64	7.18	7.31
Eh	mV		188.71	502.68	14	-50	-21	-56	-62	-66	-103	-73	-119	-91	-85	-12	-76	213	-67	300	-35	OR	-10	N/A
Turbidity (after purging well)	N.T.U	5	16.47	57.27	NA	2.4	2	2.5	2.9	3	2.4	11	1.1	6.3	5.3	3.3	5	3.2	22.9	3.18	2.32	2.77	3.91	2.94
LEACHATE INDICATORS:																								
Ammonia Nitrogen	mg/l	2	0.09	0.23	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.05	<0.1	<0.05	<0.5	<0.05	<0.05
BOD 5	mg/l		1.5	1.5	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	4.23	<2	<2.0
Bromide	mg/l	2	0.41	1.84	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1.0
COD	mg/l		12.53	87.04	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	8.47
Chloride	mg/l	250	1.8	4.07	2.07	1.93	1.75	1.96	1.86	1.08	2.14	1.35	2.05	1.76	1.52	1.32	1.95	2.3	2	1.8	2.04	2.14	2.5	2.99
Nitrate	mg/l	10	0.03	0.07	<0.05	<0.05	<0.05	<0.05	<0.5	<0.05	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.04	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Sulfate	mg/l	250	21.28	33.34	15.7	17.4	12.4	23.4	25.3	23.8	17.9	21.5	19.9	20.2	20.4	22.5	20.7	22	20.6	21.1	19.4	17.9	20.6	20.4
Total Alkalinity	mg/l		94.31	210.85	105	105	107	105	105	102	106	106	106	107	107	111	112	110	109	106	106	123	106	105
Total Dissolved Solids	mg/l	500	137.71	179.2	157	149	146	152	146	152	170	157	177	156	150	142	158	150	150	147	148	151	151	155
Total Hardness	mg/l		157.38	245.34	146	125	130	127	144	134	127	140	154	202	128	120	130	148	125	122	124	126	136	111
Total Kjed. Nitrogen	mg/l		0.72	0.96	0.83	0.273	0.365	<0.2	0.353	<0.2	<02	<0.2	<0.2	0.341	22	<0.2	<0.3	<1	0.231	<02	<0.2	<0.2	<0.2	<0.2
Total Organic Carbon	mg/l	500	2.29	6.82	3.9	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	1.04	<1	<1	<1	<1	<1	<1	1.12	<1.0
Total Phenols	mg/l	0.001	0.004	0.016	0.011	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Color	P.C.U.	15	7.68	20.01	<5					<5					10		5					5		
Boron	mg/l	1	0.05	0.17	<0.2					<02					<0.2		<02					<0.2		
INORGANIC PARAMETERS:																								
Aluminum	mg/l	0.1	1.42	8.76	0.252					<0.1					REJECT		REJECT					<0.1		
Antimony	mg/l	0.003	0.04	0.07	<0.06					<0.06					<0.06		<0.06					<0.06		
Arsenic	mg/l	0.025	0.01	0.02	<0.01					<0.01					<0.01		<0.01					<0.01		
Barium	mg/l	1	0.03	0.08	0.0301					0.0246					0.0256		0.0304					0.0248		
Beryllium	mg/l	0.003	0.003	0.007	<0.005					<0.005					<0.005		<0.005					<0.005		
Cadmium	mg/l	0.01	0.003	0.006	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Calcium	mg/l		50.56	80.51	43.4	37.8	36.1	40.6	38.3	36.5	36.9	36.1	40.1	43.6	42.8	39.5	53.9	50	39.5	37.8	40	40	40.6	39.6
Chromium	mg/l		0.01	0.03	<0.01					<0.01					<0.01		<0.01					<0.01		
Hexavalent Chromium	mg/l	0.05	0.01	0.02	<0.01					<0.01					<0.01		<0.01					0.0249		
Cobalt	mg/l	0.005	0.02	0.09	<0.05					<0.05					<0.05		<0.05					<0.05		
Copper	mg/l	0.2	0.03	0.07	<0.02					<0.02					<0.02		<0.02					<0.02		
Total Cyanide	mg/l	0.1	0.01	0.01	<0.01					<0.01					<0.01		<0.01					0.0133		
Iron	mg/l	0.3	3.09	18.7	1.07	0.458	0.685	0.458	0.536	0.702	0.456	0.384	0.622	0.654	0.521	0.552	REJECT	0.5	0.511	0.36	0.342	0.513	0.83	0.565
Lead	mg/l	0.025	0.01	0.02	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Magnesium	mg/l	35	16.51	97.21	5.96	5.74	6.03	6.08	5.81	5.8	5.64	5.91	5.95	6.76	6.28	5.9	6.14	5.7	5.95	5.32	5.7	5.88	5.72	6.78
Manganese	mg/l	0.3	0.22	0.5	0.198	0.14	0.178	0.139	0.141	0.173	0.128	0.124	0.148	0.154	0.15	0.159	0.164	0.13	0.128	0.109	0.136	0.132	0.161	0.14
Mercury	mg/l	0.002	0.0003	0.0005	<0.0003					<0.003					<0.0003		<0.0003					<0.0002		
Nickel	mg/l	0.007	0.03	0.06	<0.04					<0.04					<0.04		<0.04					<0.04		
Potassium	mg/l		1.32	4.31	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	4.47	0.5	<2	<2	<2	<5	<5	<2.0
Selenium	mg/l	0.01	0.004	0.005	<0.005					<0.005					<0.005		<0.005					<0.005		
Silver	mg/l	0.05	1.29	12.09	<0.01					<0.01					<0.01		<0.01					<0.01		
Sodium	mg/l	20	3.16	9.36	2.17	1.9	2.29	1.88	2.12	1.85	1.77	1.89	1.91	2.24	1.88	2.07	3.01	2.2	2.04	1.97	1.98	1.86	0.204	2.05
Thallium	mg/l	0.004	0.01	0.01	<0.01					<0.01					<0.01		<0.01					<0.01		
Vanadium	mg/l	0.014	0.02	0.09	<0.05					<0.05					<0.05		<0.05					<0.05		
Zinc	mg/l	0.3	0.05	0.18	0.0628					0.063					0.0368		<0.02					<0.02		

TEST PARAMETER (mg/l unless otherwise noted)	April-03 Routine	June-03 Routine	Sep-03 Baseline	Dec-03 Routine	Mar-04 Routine	Jun-04 Routine	Sep-04 Routine	Dec-04 Baseline	Mar-05 Baseline	Jun-05 Routine	Sep-05 Routine	Dec-05 Routine	Mar-06 Routine	Jun-06 Baseline	Sep-06 Routine	Dec-06 Routine	Mar-07 Routine
Temperature	9.75	10.5	11.1	8.85	8.48	11.63	10.94	8.40	9.41	10.46	10.60	7.9	8.67	10.69	10.66	8.93	8.94
Conductivity	253	325	243	195	280	253	251	252	253	253	252	384	248	185	174.6	241	276
pH	8.04	7.74	8.35	7.93	7.75	8.05	7.95	7.70	7.66	7.97	8.33	8.09	7.12	7.89	9.96	8.35	8.08
Eh	-123.1	-48	-129	-83.3	-34	-106.1	-138.4	-224.1	-150.2	-91	-44.9	-76	206.1	-74.5	-66.8	-39.4	-136.7
Turbidity (after purging well)	3.4	4.1	6.38	21.7	3.2		3.71	1.13	8.7	5.91	13.5	0.42	8.21	6.4	3.51	8.48	3.6
LEACHATE INDICATORS:																	
Ammonia Nitrogen	<0.5	<0.5	0.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.500	<0.5	<0.5	< 0.5	< 0.5	<0.5	<0.5	<0.5	<0.5
BOD 5	<4	<4	<4	<4	<4	<4	4	4	<4		<4	<4	<4	<8	13	<4	<4
Bromide	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.20		<0.2	< 0.2	< 0.2	<0.20	<0.2	<0.20	<0.20
COD	23	<20	<20	<20	<20	<20	<20	<20	<20	<20	28	< 20	< 20	31	<20	<20	<20
Chloride	3	3	3	3	4	5	3.83	5.36	6.89	5.36	6.75	6.65	8.22	5.77	9.77	6.64	9.82
Nitrate	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.20	<0.20	<0.20	<0.20	< 0.2		<0.20	<0.2	<0.20	<0.20
Sulfate	19	17	17	16	21	<5	28.8	27.9	<5	21	13.9	10.8		16.7	16.3	8.42	14.3
Total Alkalinity	110	100	100	110	110	120	130	230	100	100	99	110	100	670	110	120	110
Total Dissolved Solids	170	160	140	160	210	135	127	867	180	55	232	190	215	170	160	188	155
Total Hardness	110	110	93	120	120	122	121	127	117	120	126	122	117	105	103	54.3	132
Total Kjed. Nitrogen	<0.5	<0.5	1.4	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5		<0.5	< 0.5	< 0.5	<0.50	<0.5	<0.50	<0.5
Total Organic Carbon	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	< 3	< 3	<3	<3	<3	<3
Total Phenols	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.01	<0.005	<0.005	< 0.005	< 0.005	<0.005	<0.005	<0.005	<0.005
Color			6					7	12					13			
Boron			<0.5					<0.5	<0.5					<0.5			
INORGANIC PARAMETERS:																	
Aluminum			<0.1					<0.1	<0.1					<0.1			
Antimony			<0.015					0.0151	<0.015					<0.015			
Arsenic			<0.01					<0.010	<0.010					<0.010			
Barium			<0.05					<0.050	<0.050					<0.050			
Beryllium			<0.003					<0.003	<0.003					<0.003			
Cadmium	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	< 0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Calcium	34.9	34.3	29.9	38	37.5	39	38.5	40.7	37.5	39	40.4	38.4	36.9	32.7	32.6	15.9	41.9
Chromium			<0.005					<0.005	<0.005					<0.005			
Hexavalent Chromium			<0.01					<0.010	<0.010					<0.010			
Cobalt			<0.02					<0.020	<0.020					<0.020			
Copper			0.0284					<0.010	0.0111					<0.01			
Total Cyanide			<0.01					<0.010	<0.010					<0.010			
Iron	0.321	0.541	0.383	0.531	0.517	0.482	0.751	0.542	0.53	0.48	0.58	0.506	0.524	0.512	0.423	2.61	0.587
Lead	<0.003	<0.003	<0.003	<0.003	<0.003	0.00379	<0.003	0.00498	<0.003	0.004	<0.003	< 0.003	< 0.003	<0.003	<0.003	<0.003	<0.003
Magnesium	5.52	5.44	4.44	6.04	5.88	6	5.97	6.07	5.57	5.9	6.19	6.32	6.13	5.71	5.26	3.58	6.54
Manganese	0.111	0.134	0.1	0.135	0.138	0.138	0.201	0.137	0.132	0.13	0.148	0.140	0.132	0.121	0.129	0.114	0.152
Mercury			<0.0002					<0.0002	<0.0002					<0.0002			
Nickel			<0.03					<0.030	<0.030					<0.030			
Potassium	<1	1.33	<1.0	<1.0	<1.0	<1	<1	<1	6.91	1	1.45	< 1.0	< 1.0	<1.0	<1.0	<1	<1
Selenium			<0.005					0.0147	<0.005					<0.005			
Silver			<0.01					<0.010	<0.010					<0.010			
Sodium	1.7	2.17	1.51	2.23	1.83	2.15	1.73	1.5	2.42	2.4	2.3	1.66	2.228	1.88	2.39	20.8	2.18
Thallium			<0.01					<0.010	<0.010					<0.010			
Vanadium			<0.03					<0.030	<0.030					<0.030			
Zinc			0.093					0.0347	0.0203					0.0521			

Notes:

1. Parameters listed are Part 360 Baseline or Routine Parameters Effective 1993.
2. Blanks indicate no analysis performed
3. "<" indicates not detected at the specified method detection limit (MDL)
4. Shaded values indicate detection above Standard.

TABLE 3
Groundwater Analytical Monitoring Data
MW-1D
Albany Interim Landfill/P-4 Project
CHA Project No. 12244

TEST PARAMETER (mg/l unless otherwise noted)	Unit	TOGS Guidance Value	Mean (EWQV)	Mean (EWQV) Plus 3 Std. Dev.	2Q97 Bsln	3Q97 Rtne	4Q97 Rtne	1Q98 Rtne	2Q98 Rtne	3Q98 Bsln	4Q98 Rtne	1Q99 Rtne	2Q99 Rtne	3Q99 Rtne	4Q99 Bsln	2Q00 Rtne	3Q00 Rtne	4Q00 Rtne	1Q01 Rtne	2Q01 Rtne	3Q01 Bsln	4Q01 Rtne
Temperature	C°																					
Conductivity	uS		365.25	1932.98	1657	1857	185.4	195.4	171	175.7	178.6	174.5	194.7	195.2	24.5	19.99	167	455	180	198.6	291	181.5
pH	SU	6.5-8.5	8.21	9.9	7	8.39	8.15	8.69	8.95	8.42	8.94	8.34	9.27	8.94	8.67	8.56	8.2	8.8	8.13	7.3	7.94	7.41
Eh	mV		167.33	534.26	1	-78	-58	87	-83	-77	-104	-71	-116	-108	-95	-97	183	-87	295	25	35	-60
Turbidity (after purging well)	N.T.U	5	48.3	93.92	NA	5.2	5.5	12	6	9.1	9.8	22	13	54	135	190	94	268	80.2	142	28	8.62
LEACHATE INDICATORS:																						
Ammonia Nitrogen	mg/l	2	0.15	0.5	0.0653	0.0654	0.0789	<0.05	0.0619	0.0502	0.0652	0.0536	<0.05	<0.05	0.0564	0.0517	<0.1	0.108	0.106	<0.05	0.0758	0.0961
BOD 5	mg/l		1.5	1.5	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	21	<2
Bromide	mg/l	2	0.41	1.84	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
COD	mg/l		12.75	79.36	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5		5.93	7.5	<5	5.89	<5		<5
Chloride	mg/l	250	1.33	4.78	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1		<1
Nitrate	mg/l	10	0.03	0.13	<0.05	<0.05	<0.05	<0.05	<0.5	<0.05	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.11	<0.5	<0.5	<0.5		<0.5
Sulfate	mg/l	250	6.05	33.99	<2	<2	<2	2.54	3.07	2.94	<2	<2	2.45	3.02	2.4	3.58	2.7	3.1	2.45	2.53	3.32	3.27
Total Alkalinity	mg/l		114.28	214.67	92.2	96.8	113	97.2	96.8	93.9	95.5	95.1	93.5	94.5	105	119	100	96	96.1	96.8	106	94
Total Dissolved Solids	mg/l	500	107.07	172.57	111	120	104	113	115	119	120	121	133	112	133	138	120	141	122	121	114	111
Total Hardness	mg/l		114.45	279.49	76.7	74	75.7	79.7	91.2	95.6	77.1	88.4	80.6	97.2	120	161	87	152	83.3	104	76	80
Total Kjed. Nitrogen	mg/l		0.97	2.61		0.521	0.279	0.283	0.294	0.293	<0.2	0.226	<0.2	<0.2	0.223	0.32	<1	0.363	<0.2	0.209	<0.2	<0.2
Total Organic Carbon	mg/l	500	1.54	5.14	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	1.17	<1	<1	<1	1.23
Total Phenols	mg/l	0.001	0	0.01	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.005	<0.005	<0.005	<0.005	<0.005
Color	P.C.U.	15	8.28	26.86	<5					<5					5	10					<5	
Boron	mg/l	1	0.06	0.19	<0.2					<0.2					<0.2	<0.2					<0.2	
INORGANIC PARAMETERS																						
Aluminum	mg/l	0.1	3.35	20.68	0.392					1.05					REJECT	REJECT					1.45	
Antimony	mg/l	0.003	0.04	0.07	<0.06					<0.06					<0.06	<0.06					<0.06	
Arsenic	mg/l	0.025	0.01	0.02	<0.01					<0.01					<0.01	0.0106					0.0112	
Barium	mg/l	1	0.04	0.16	0.026					0.0319					0.0673	0.0812					0.0382	
Beryllium	mg/l	0.003	0	0.01	<0.005					<0.005					<0.005	<0.005					<0.005	
Cadmium	mg/l	0.01	0	0.01	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Calcium	mg/l		35.5	85.43	22.2	22.7	20.9	25	68.2	25.6	22.6	23.6	25.2	29.6	39.9	49.3	27	44.1	24.4	32.4	24.7	23.7
Chromium	mg/l		0.01	0.03	<0.01					<0.01					0.0131	0.0174					<0.01	
Hexavalent Chromium	mg/l	0.05	0.01	0.02	<0.01					<0.01					<0.01	<0.01						
Cobalt	mg/l	0.005	0.03	0.07	<0.05					<0.05					<0.05	<0.05					<0.05	
Copper	mg/l	0.2	0.03	0.08	<0.02					<0.02					<0.02	<0.02					<0.02	
Total Cyanide	mg/l	0.1	0.01	0.01	<0.01					<0.01					<0.01	<0.01					0.0133	
Iron	mg/l	0.3	6.45	41.84	0.573	0.757	1.14	1.44	7.06	1.85	1.04	1.58	1.27	3.39	9.22	13.6	0.9	13.7	3.02	6.6	1.23	0.806
Lead	mg/l	0.025	0.01	0.08	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.0062	0.0098	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Magnesium	mg/l	35	5.61	17.43	3.55	3.73	3.84	3.87	10.4	4.47	3.82	4.29	4.16	5.39	8	10.1	4.8	10	4.4	6.43	4.28	3.92
Manganese	mg/l	0.3	0.18	0.93	0.0256	0.0407	0.0465	0.0524	0.0814	0.0687	0.0402	0.0562	0.0439	0.103	0.233	0.364	0.1	0.367	0.0912	0.18	0.0514	0.0446
Mercury	mg/l	0.002	0	0	<0.0003					<0.003					<0.0003	<0.0003					<0.0002	
Nickel	mg/l	0.007	0.03	0.06	<0.04					<0.04					<0.04	<0.04					<0.04	
Potassium	mg/l		1.86	8.76	<2	<2	<2	<2	4.51	<2	<2	<2	<2	<2	2.05	2.54	0.6	2.32	<2	2.07	<5	<5
Selenium	mg/l	0.01	0	0.01	<0.005					<0.005					<0.005	<0.005					<0.005	
Silver	mg/l	0.05	0.01	0.02	<0.01					<0.01					<0.01	<0.01					<0.01	
Sodium	mg/l	20	16.53	45.8	10.2	10.8	11.6	9.85	5.71	8.83	9.84	9.97	9.59	9.8	16.4	17.5	13	17.5	13.2	12.8	10.4	9.58
Thallium	mg/l	0.004	0.01	0.01	<0.01					<0.01					<0.01	<0.01					<0.01	
Vanadium	mg/l	0.014	0.03	0.07	<0.05					<0.05					<0.05	<0.05					<0.05	
Zinc	mg/l	0.3	0.04	0.18	0.0152					0.0119					0.0339	0.0648					<0.02	

TEST PARAMETER (mg/l unless otherwise noted)	April-03 Routine	June-03 Routine	Sep-03 Baseline	Dec-03 Routine	Mar-04 Routine	Jun-04 Routine	Sep-04 Routine	Dec-04 Baseline	Mar-05 Baseline	Jun-05 Routine	Sep-05 Routine	Dec-05 Routine	Mar-06 Routine	Jun-06 Baseline	Sep-06 Routine	Dec-06 Routine	Mar-07 Routine
Temperature	9.92	12.1	10.48	8.74	9.12	11.41	10.38	8.75	10.16	10.65	10.52	8.9	9.14	10.88	10.67	8.29	9.33
Conductivity	199	251	186	166	183	184	183	185	185	186	180	263	173	128	129.6	170	185
pH	7.92	8.2	8.59	8.12	7.96	7.92	8.42	8.04	8.05	8.15	8.5	8.38	7.59	8.22	10.02	8.59	8.44
Eh	95.4	-8	-137.2	-70.5	-56	-99.2	-132.8	-185.3	-244.8	-99	-67.1	-89	175.6	-10.7	-37.9	16.4	-91.7
Turbidity (after purging well)	3.6	112.8	12.8	77	65	14	7.08	8.75	25.4	15.3	21.9	3.35	5.28	9.03	3.66	8.29	15.5
LEACHATE INDICATORS:																	
Ammonia Nitrogen	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.658	<0.5	< 0.5	< 0.5	<0.5	<0.5	<0.5	<0.5
BOD 5	<4	<4	6	<4	<4	<4	<4	<4	<4		<4	< 4	<4	<8	10	<4	<4
Bromide	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2		<0.2	< 0.2	< 0.2	<0.2	<0.2	<0.2	<0.2
COD	<20	21	<20	<20	<20	<20	<20	<20	<20	<20	<20	< 20	< 20	<20	<20	<20	<20
Chloride	<1	<1	<1	1	<1	<1	<1	1.02	1.79	<1	1.8	1.23	<1	1.67	1.79	2.22	2.45
Nitrate	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	0.6	<0.2	<0.2	<0.2	<0.2	< 0.2	< 0.2	<0.2	<0.2	<0.2	<0.2
Sulfate	<5	16	5	10	5	11.3	9.83	5.18	<5	<5	<5	< 5	<5	5.06	3.5	<5	<5
Total Alkalinity	100	92	92	92	94	110	110	320	94	85	87	99	180	210	97	100	95
Total Dissolved Solids	110	120	130	140	170	108	110	573	132	<25	188	132	152	105	105	125	125
Total Hardness	70	96	61	190	72	70.8	68.1	71.6	78.4	75	69.4	64.4	76.4	61.6	59.2	58.5	58.3
Total Kjed. Nitrogen	<0.5	<0.5	0.9	<0.5	<0.5	<0.5	5.37	<0.5	<0.5		<0.5	< 0.5	< 0.5	<0.5	<0.5	<0.5	<0.5
Total Organic Carbon	<3	<3	<3	<3	<3	<3	<3	14	<3	<3	<3	< 3	< 3	<3	<3	<3	<3
Total Phenols	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.009	<0.005	<0.005	< 0.005	< 0.005	<0.005	<0.005	<0.005	<0.005
Color			5					7	25					7			
Boron			<0.5					<0.5	<0.5					<0.5			
INORGANIC PARAMETERS																	
Aluminum			0.195					0.144	0.884					0.265			
Antimony			<0.015					<0.015	<0.015					<0.015			
Arsenic			0.0167					<0.010	0.0103					<0.011			
Barium			<0.05					<0.050	<0.050					<0.05			
Beryllium			<0.003					<0.003	<0.003					<0.003			
Cadmium	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.5	< 0.005	< 0.005	<0.005	<0.005	<0.005	<0.005
Calcium	21.9	29	19.1	55.5	22.2	22.2	21.4	22.5	24.2	24	21.7	19.9	23.8	19	18.3	17.9	17.9
Chromium			<0.005					<0.005	<0.005					<0.005			
Hexavalent Chromium			<0.01						<0.010					<0.010			
Cobalt			<0.02					<0.020	<0.020					<0.020			
Copper			0.0299					<0.010	<0.010					<0.010			
Total Cyanide			<0.01						<0.010					<0.010			
Iron	0.505	5.37	0.379	14.2	1.48	0.526	0.283	0.248	1.29	0.27	0.528	0.163	0.196	0.372	0.176	0.822	0.433
Lead	<0.003	0.00349	<0.003	0.00962	<0.003	<0.003	<0.003	0.00433	<0.003	<0.001	<0.003	< 0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Magnesium	3.82	5.74	3.18	12.5	4.06	3.72	3.57	3.73	4.39	3.9	3.7	3.55	4.13	3.43	3.27	3.38	3.31
Manganese	0.0421	0.173	0.0356	0.492	0.0646	0.0428	0.0363	0.0337	0.0659	0.04	0.0453	0.0376	0.0342	0.0299	0.0303	0.0721	0.0331
Mercury			0.0002					<0.0002	0.000594					<0.0002			
Nickel			<0.03					<0.030	<0.030					<0.03			
Potassium	<1	1.99	<1	2.15	1..13	<1	<1	1.2	1.17	0.95	<1	< 1	3.89	<1	<1	<1	<1
Selenium			<0.005					<0.005	<0.005					0.00628			
Silver			<0.01					<0.010	<0.010					<0.010			
Sodium	10.2	8.65	7	10.3	9.4	10.4	9.26	8.73	9.74	11	11.4	11.4	12.1	9.01	12.2	10.2	11.2
Thallium			<0.01					<0.010	<0.010					<0.010			
Vanadium			<0.03					<0.030	<0.030					<0.030			
Zinc			0.0112					0.0199	<0.010					0.0252			

Notes:

1. Parameters listed are Part 360 Baseline or Routine Parameters Effective 1993.
2. Blanks indicate no analysis performed
3. "<" indicates not detected at the specified method detection limit (MDL)
4. Shaded values indicate detection above Standard

TABLE 3
Groundwater Analytical Monitoring Data
MW-2S
Albany Interim Landfill/P-4 Project
CHA Project No 12244

TEST PARAMETER (mg/l unless otherwise noted)	Unit	TOGS Guidance Value	Mean (EWQV)	Mean (EWQV) Plus 3 Std. Dev.	2Q97 Bsln	3Q97 Rtne	4Q97 Rtne	1Q98 Rtne	2Q98 Rtne	3Q98 Bsln	4Q98 Rtne	1Q99 Rtne	2Q99 Rtne	3Q99 Rtne	4Q99 Bsln	1Q00 Rtne	2Q00 Rtne	3Q00 Rtne	4Q00 Rtne	1Q01 Rtne	2Q01 Rtne	3Q01 Bsln	4Q01 Rtne	1Q02 Rtne
Temperature	C°																							
Conductivity	uS		450.63	1512.75	1312	943	341	531	338	421	582	476	428	480	18.8	369	672	313	554	424	354	491	505	412
pH	SU	6.5-8.5	7.07	7.92	7.09	6.26	6.83	7.37	7.32	7.01	8.01	7.86	8.58	8.42	8.76	6.82	7.53	6.6	7.78	7.05	7.12	7	7.08	7.25
Eh	mV		192.67	521.16	7	36	11	-18	-7	0	53	-45	-171	-78	-88	12	-27	200	-36	NA	195	115	70	NIA
Turbidity (after purging well)	N.T.U	5	540	1302.1	NA	39	165	57	81	57	150	240	330	270	345	400	120	460	243	340	392	540	435	45.7
LEACHATE INDICATORS:																								
Ammonia Nitrogen	mg/l	2	0.45	2.72	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.5	<0.0	<0.05	<0.0	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
BOD 5	mg/l		3.19	11.01	<2	<2	<2	<2	<2	2.33	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<8	<2	<2.0
Bromide	mg/l	2	0.41	1.84	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	16.2	<1.0
COD	mg/l		33.48	199.68	<5	<5	<5	<5	<5	<5	<5	5.09	<5	5.41	6.5	6.86	5.62	7.5	<5	<5	0.33	6.24	9.21	6.47
Chloride	mg/l	250	6.8	24.26	4.71	12	10.6	4.92	2.98	2.88	3.93	4.67	2.79	2.72	2.44	3.3	12	5.3	6.16	5.01	0.37	51	30.3	15.2
Nitrate	mg/l	10	3.43	14.52	0.784	7.36	8	1.98	1.35	0.25	<0.5	1.47	1.4	1.47	2.06	1.47	2.68	2.7	3.4	3.35	0.41	3.22	<0.5	1.52
Sulfate	mg/l	250	48.19	111.01	29.5	25	19.1	24.8	34.1	24.2	21	26.9	25.1	29	20	20.4	35.2	26	21.3	22.5	0.46	78.1	48.3	54.5
Total Alkalinity	mg/l		119.75	269.56	164	347	307	174	166	304	293	268	172	201	146	168	141	140	205	168	0.50	134	190	224
Total Dissolved Solids	mg/l	500	215.75	386.74	251	483	370	241	239	413	366	346	264	234	204	296	235	228	273	235	0.54	399	337	361
Total Hardness	mg/l		198.09	385.9	239	372	366	168	238	367	3350	3316	198	268	200	194	177	166	215	192	0.58	250	250	260
Total Kjed. Nitrogen	mg/l		1.23	4.02	-	0.588	0.86	0.725	0.41	0.958	1.04	1.25	0.228	0.979	<0.2	1.35	1.15	2.5	0.852	0.416	0.62	0.81	0.724	0.582
Total Organic Carbon	mg/l	500	3.44	10	3	1.3	1.2	1.65	1.25	2.25	2.09	1.97	1.93	1.865	1.83	2.37	2.2	1.3	1.54	1.58	0.66	2.2	2.63	1.5
Total Phenols	mg/l	0.001	0.003	0.012	0.00991	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.005	<0.005	0.71	<0.005	<0.005	<0.005
Color	P.C.U.	15	11.25	40.05	<5					<5					10		5					100.		
Boron	mg/l	1	0.1	0.27	<0.2					<0.2					<0.2		<0.2					<0.21		
INORGANIC PARAMETERS:																								
Aluminum	mg/l	0.1	2.56	14.8	2.8					7.77					REJECT		REJECT					23.3		
Antimony	mg/l	0.003	0.47	3.86	<0.06					<0.06					<0.06		<0.06					<0.06		
Arsenic	mg/l	0.025	0.01	0.01	<0.01					0.0184					<0.01		<0.01					<0.01		
Barium	mg/l	1	0.04	0.13	0.0323					0.0665					0.0721		0.0542					0.119		
Beryllium	mg/l	0.003	0.01	0.04	<0.005					<0.005					<0.005		<0.005					<0.005		
Cadmium	mg/l	0.01	0.003	0.006	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.0051	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Calcium	mg/l		52.62	139.46	62.1	117	106	55.4	25.1	108	90.2	87.8	61.9	71.8	58.9	54.9	61.5	55	67.3	66.5	52.1	83.4	80.3	88.2
Chromium	mg/l		7.27	68.77	<0.01					0.0152					0.027		0.0193					0.0573		
Hexavalent Chromium	mg/l	0.05	0.01	0.02	<0.01					<0.01					<0.01		<0.01					<0.01		
Cobalt	mg/l	0.005	0.02	0.07	<0.05					<0.05					<0.05		<0.05					<0.05		
Copper	mg/l	0.2	0.05	0.17	<0.02					0.0234					0.035		0.0256					0.0274		
Total Cyanide	mg/l	0.1	0.01	0.01	<0.01					<0.01					<0.01		<0.01					0.0125		
Iron	mg/l	0.3	50.18	418.01	3.95	5.74	5.62	10.2	0.576	12.3	20.4	20.1	36	17.1	23.9	25.7	17.8	0.73	17.6	17.2	27.5	24.5	20.6	23.2
Lead	mg/l	0.025	8.73	75.56	<0.005	<0.005	<0.005	<0.005	<0.005	0.0232	0.0119	0.00929	0.0172	0.0154	0.0145	0.0137	0.0067	<0.005	0.00712	<0.005	0.0095	0.0093	0.0069	0.00894
Magnesium	mg/l	35	9.29	23.04	10.2	17.6	16.6	9.65	3.8	15.8	15.1	15.3	13.9	12.6	11.8	11.3	10.5	6.7	11.4	11.1	10.8	14.7	13.1	16.6
Manganese	mg/l	0.3	1.07	8.58	0.0457	0.0672	0.0733	0.12	0.0343	0.418	0.213	0.229	0.319	0.187	0.221	0.236	0.198	0.06	0.18	0.164	0.304	205	0.377	0.264
Mercury	mg/l	0.002	0.01	0.1	<0.0003					<0.0003					<0.0003		<0.0003					<0.0002		
Nickel	mg/l	0.007	0.04	0.06	<0.04					<0.04					<0.04		<0.04					<0.04		
Potassium	mg/l		2.53	11.23	4.28	5.23	5.02	6.17	<2	7.42	6.64	7.5	7.82	6.75	8.85	6.98	6.38	5	6.33	8.86	10.8	12.2	13.1	11.4
Selenium	mg/l	0.01	0.004	0.009	<0.005					<0.005					<0.005		<0.005					<0.005		
Silver	mg/l	0.05	0.01	0.03	<0.01					<0.01					<0.01		<0.01					<0.01		
Sodium	mg/l	20	8.56	25.85	7.49	6.04	5.28	8	11.1	6.18	5.41	6.72	6.92	6.84	8.82	5.85	9.18	7.1	7.96	6.2	10.2	12.5	13	8.73
Thallium	mg/l	0.004	0.92	8.68	<0.01					0.0103					<0.01		<0.01					<0.01		
Vanadium	mg/l	0.014	0.03	0.07	<0.05					<0.05					<0.05		<0.05					0.0638		
Zinc	mg/l	0.3	0.12	0.76	0.0483					0.171					0.085		0.137					0.0827		

TEST PARAMETER (mg/l unless otherwise noted)	April-03 Routine	June-03 Routine	Sep-03 Baseline	Dec-03 Routine	Mar-04 Routine	Jun-04 Routine	Sep-04 Routine	Dec-04 Baseline	Mar-05 Baseline	Jun-05 Routine	Sep-05 Routine	Dec-05 Routine	Mar-06 Routine	Jun-06 Baseline	Sep-06 Routine	Dec-06 Routine	Mar-07 Routine
Temperature	10.28	9.5	12.6	10.9	7.93	11.08	11.86	11.02	8.5	9.36	11.74	9.8	9.37	10.26	11.4	10.55	8.3
Conductivity	705	376	451	554	778	469	796	1162	596	591	925	667	700	437	648.8	829	1733
pH	7.03	7.53	7.5	7.4	7.36	6.82	7	7.30	7.63	7.68	7.78	7.18	6.61	7.89	7.82	7.33	7.03
Eh	98.2	52	-64.9	-41	-24.7	-42.7	-102.9	-211.5	-16.5	-5	-12.2	-22	191.5	-73.4	72	35.8	-0.5
Turbidity (after purging well)	220	448	389	111	600	512	443	367	>1000	945	409	468	253	872	497	10.55	195
LEACHATE INDICATORS:																	
Ammonia Nitrogen	<0.5	<0.5	1.4	<0.5	0.8	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	< 0.5	< 0.5	<0.5	<0.5	<0.5	<0.5
BOD 5	<4	<4	5	<4	<4	<4	<4	4	<4		<4	< 6	<4	<4	9	<4	<4
Bromide	<0.2	<0.2	<0.2	<0.2	<2	<0.2	<0.2	<0.2	<0.020		<0.2	< 2	< 0.20	<0.2	<0.2	<20df	<0.2
COD	<20	26	27	<20	23	22	<20	<20	<20	<20	27	< 20	23	<20	<20	32	41
Chloride	42	21	75	79	180	64	137	80.1	42.1	40.8	42.8	35.5	32.9	33.5	16.8	121	165
Nitrate	7.1	1.5	7.9	<0.05	13	5.7	<0.2	20	2	5.5	7.2	5.4	3.8	3.4	4.6	5.17	14.9
Sulfate	120	33	55	60	35	209	65.6	166	83.3	61.9	46.2	61	43.4	89.9	55.5	52.8	65.9
Total Alkalinity	180	70	180	190	240	210	210	460	260	250	250	120	92	210	380	340	340
Total Dissolved Solids	420	210	440	490	670	310	530	1100	528	502	442	122	392	408	577	597	700
Total Hardness	280	110	240	260	290	135	273	298	280	210	242	212	181	199	256	284	361
Total Kjed. Nitrogen	1.2	<0.5	0.9	<0.5	1.4	<0.5	<0.5	<0.5	<0.5		<0.5	< 0.5	< 0.5	<0.5	<0.5	<0.5	1.98
Total Organic Carbon	<3	<3	5	6	5	<3	6	7	30	4	3	3	3	4	7	9	10
Total Phenols	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.005	< 0.005	<0.005	<0.005	<0.005	<0.005
Color			15					15	2000					110			
Boron			<0.5					0.687	0.749					<0.5			
INORGANIC PARAMETERS:																	
Aluminum			2.69					6.1	8					9.37			
Antimony			<0.15					0.0276	<0.015					<0.015			
Arsenic			<0.01					<0.010	<0.010					<0.010			
Barium			<0.05					0.0706	0.0736					0.0604			
Beryllium			<0.003					<0.003	<0.003					<0.003			
Cadmium	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	< 0.005	< 0.005	<0.005	<0.005	<0.005	<0.005
Calcium	84.9	32.1	75.9	81.2	91.2	38.9	85.3	95.2	89.1	67	74.3	66.7	55.3	60.1	76.6	90.6	112
Chromium			0.0689					0.484	0.318					0.261			
Hexavalent Chromium			<0.01					<0.010	<0.010					<0.010			
Cobalt			<0.02					<0.020	<0.020					<0.02			
Copper			0.0476					0.036	0.0502					0.0328			
Total Cyanide			<0.01					<0.010	<0.010					<0.010			
Iron	13.8	14.7	5.01	4.7	16	18.2	16.9	12.9	15	13	23	17.4	18.1	19.2	23.8	4.03	16.3
Lead	<0.005	0.00839	<0.003	<0.003	0.00657	0.0123	0.00779	0.00615	0.00747	0.008	0.00976	< 0.01	0.014	0.00854	0.0109	0.00656	0.00813
Magnesium	15.9	7.73	11.1	12.8	15	9.13	14.7	14.6	13.9	11	13.6	11.2	10.5	11.8	15.8	14.1	19.6
Manganese	0.157	0.146	0.108	0.179	0.241	0.161	0.15	0.123	0.159	0.13	0.194	0.164	0.168	0.18	0.227	0.0862	0.243
Mercury			<0.0002					<0.0002	<0.0002					<0.0002			
Nickel			0.0593					0.103	0.0888					0.0525			
Potassium	6.42	7.91	5.11	6.01	7.91	7.3	8.87	9.22	9.59	7.3	10.6	7.78	7.18	7.82	7.71	8.00	9.31
Selenium			<0.005					<0.005	<0.005					0.00902			
Silver			<0.01					<0.010	<0.010					<0.010			
Sodium	15.1	18.9	21.3	50.4	47.8	25.4	55.9	115	77.6	76	66.8	35.1	54.3	57.8	57.8	47.0	67.9
Thallium			<0.01					<0.010	<0.010					<0.010			
Vanadium			<0.03					<0.030	<0.030					<0.030			
Zinc			0.0294					0.0487	0.0283					0.0721			

Notes:

1 Parameters listed are Part 360 Baseline or Routine
Parameters Effective 1993
2. Blanks indicate no analysis performed
3. "<" indicates not detected at the specified method detection limit (MDL)
4. Shaded values indicate detection above Standard

TABLE 3
Groundwater Analytical Monitoring Data
MW-2I
Albany Interim Landfill/P-4 Project
CHA Project No. 12244

TEST PARAMETER (mg/l unless otherwise noted)	Unit	TOGS Guidance Value	Mean (EWQV)	Mean (EQWV) Plus 3 Std. Dev.	2Q97 Bsln	3Q97 Rtne	4Q97 Rtne	1Q98 Rtne	2Q98 Rtne	3Q98 Bsln	4Q98 Rtne	1Q99 Rtne	2Q99 Rtne	3Q99 Rtne	4Q99 Bsln	1Q00 Rtne	2Q00 Rtne	3Q00 Rtne	4Q00 Rtne	1Q01 Rtne	2Q01 Rtne	3Q01 Bsln	1Q02 Rtne	April-03 Routine	June-03 Routine	Sep-03 Baseline	Dec-03 Routine	Mar-04 Routine	Jun-04 Routine	Sep-04 Routine	Dec-04 Baseline	Mar-05 Baseline	Jun-05 Routine	Sep-05 Routine	Dec-05 Routine	Mar-06 Routine	Jun-06 Baseline	Sep-06 Routine	Dec-06 Routine	Mar-07 Routine
Temperature	C*																							11.81	11.6	11.77	10.7	9.31	11.87	11.58	10.45	10.5	11.7	11.67	9.6	10.26	11.79	10.87	9.61	10	
Conductivity	uS		468	2764.67	2360	246	236	260	208	217	232	214	252	251	320	185.1	1.03	225	0.31	258	228	218	195.9	267	303	242	187	242	235	230	229	220	221	217	301	216	157	155.9	214	233	
pH	SU	6.5-8.5	7.6	8.22	7.19	8	7.69	8.14	8.18	7.72	8.92	8.22	10.55	9.02	8.92	7.29	8.45	7.1	8.48	7.2	7.45	7.41	7.82	7.71	7.66	8.02	8.13	7.79	7.39	8.03	7.74	8.35	8.15	8.28	7.96	6.35	8.12	9.09	8.27	7.8	
Eh	mV		161.57	518.21	-3	-58	-36	-60	53	-37	-101	-65	-205	-111	-107	-16	-75	153	-92	305	40	40		25.8	21	-104	-70	-52.5	-14.3	-99.8	-176.8	-70.7	-52	-38.1	-64	206.5	-92.3	10.2	-50.7	-73.6	
Turbidity (after purging well)	N.T.U	5	14.05	48.45	NA	4.6	1.5	2.9	2.9	1.4	2.1	4.2	1	2.6	3	2.3	7.1	3.6	2.14	3.22	6.39	2.23	6.34	2.7	5.7	12.5	9.16	6.9	1.49	18	4.56	10.2	8.43	7.51	1.85	12.9	3.09	4.13	4.59	6.83	
LEACHATE INDICATORS:																																									
Ammonia Nitrogen	mg/l	2	0.1	0.29	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.5	<0.5	0.8	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
BOD 5	mg/l		2.07	5.12	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2.0	<4	<4	<4	<4	<4	<4	<4	<4	<4		<4	<4	<4	<4	8	<4	<4	
Bromide	mg/l	2	0.38	1.95	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<11	<1	<1	<1	<1	<1	<1.0	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2		<0.20	<0.20	<0.2	<0.2	<0.2	<0.2	<0.2	
COD	mg/l		7.07	24.67	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	5	6.85	<5	<5	10.7	<5	<5	<5.0	<20	23	<20	<20	<20	<20	<20	<20	<20	<20	28	<20	<20	<20	<20	<20	<20	
Chloride	mg/l	250	1.52	3.12	1.77	1.55	1.71	1.52	1.48	<1	1.35	<1	1.51	1.53	1.15	<1	1.29	1.3	<1	<1	1.02	1.07	<2.0	<1	2	2	2	2	2	<1	5.1	<1	2.3	4.73	1.97	2.31	20.1	6.75	34.4	5.65	
Nitrate	mg/l	10	0.04	0.09	<0.05	<0.05	<0.05	<0.05	<0.5	<0.05	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.03	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	1.3	0.2	0.53	<0.2	0.999	0.528	
Sulfate	mg/l	250	17.46	41.35	11	13.8	10.6	21.6	24.3	22.2	16.6	21.3	19.5	19.7	20.8	17.2	20.2	22	21.2	21.6	20.2	19	20.4	18	16	21	21	18	<5	29.1	26.7	15.1	18.6	13.3	17.5	12.3	14.5	14	7.52	15.4	
Total Alkalinity	mg/l		97.25	119.57	101	106	106	102	101	96.3	97.6	98	98	99.5	102	105	105	110	103	105	106	113	106	120	95	110	110	110	110	100	170	94	91	110	110	92	120	130	160	100	
Total Dissolved Solids	mg/l	500	131.88	184.24	144	153	140	142	143	302	144	148	140	146	142	138	145	155	147	145	145	150	151	160	140	150	130	240	227	135	632	157	<25	147	370	190	140	155	182	255	
Total Hardness	mg/l		118.23	143.28	124	117	122	120	136	124	116	141	114	124	120	112	124	127	124	120	120	120	115	110	96	91	97	110	108	107	110	103	96	105	108	90.2	88.7	109	88.4	100	
Total Kjed. Nitrogen	mg/l		0.67	1.52		0.271	0.596	0.203	<02	<0.2	<0.2	<02	<0.2	<0.2	1.14	<0.2	0.336	<1	0.244	<0.2	<02	<0.2	<0.2	<0.5	<0.5	0.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
Total Organic Carbon	mg/l	500	2.71	10.75	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	1.41	<1	<1	<1	<1	<1	<1	<1.0	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	
Total Phenols	mg/l	0.001	0.003	0.007	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.006	<0.005	<0.005	0.008	<0.005	<0.005	<0.005	0.015	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	
Color	P.C.U.	15	11.25	38.72	<5					<5					5		5					<5				6					7	7					6				
Boron	mg/l	1	0.05	0.17	<02					<0.2					<0.2		<0.2					<0.2				<0.5					<0.5	<0.5					<0.5				
INORGANIC PARAMETERS:																																									
Aluminum	mg/l	0.1	0.3	1.43	<0.1					<0.1					REJECT		REJECT					<0.1				<0.1					<0.1	<0.1					<0.1				
Antimony	mg/l	0.003	0.04	0.07	<0.06					<0.06					<0.06		<0.06					<0.06				<0.015					<0.015	0.0284					<0.015				
Arsenic	mg/l	0.025	0.01	0.01	<0.01					<0.01					<0.01		<0.01					<0.01				<0.01					<0.010	<0.010					<0.010				
Barium	mg/l	1	0.05	0.06	0.0512					0.05					0.0502		0.0525					0.0531				<0.05					0.0546	0.0517					<0.05				
Beryllium	mg/l	0.003	0.003	0.007	<0.005					<0.005					<0.005		<0.005					<0.005				<0.003					<0.003	<0.003					<0.003				
Cadmium	mg/l	0.01	0.01	0.02	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	
Calcium	mg/l		39.33	48.39	37.8	38.4	35.1	40.7	37.8	36.5	33.9	33.8	37	38.2	40.4	38.4	39.7	43	39.6	41.2	40.7	41.1	40.3	35.6	32.1	30.2	32	36.3	35.9	35.5	36.5	34.2	32	34.6	35.6	29.7	29.2	35.8	29.2	33.1	
Chromium	mg/l		0.01	0.02	<0.01					<0.01					<0.01		<0.01					<0.01				<0.005					<0.005	<0.005					<0.005				
Hexavalent Chromium	mg/l	0.05	0.000694444	0.02	<0.01					<0.01					<0.01		<0.01					<0.01				<0.01					<0.010	<0.010					<0.010				
Cobalt	mg/l	0.005	0.02	0.09	<0.05					<0.05					<0.05		<0.05					<0.05				<0.02					<0.020	<0.020					<0.020				
Copper	mg/l	0.2	0.03	0.07	<0.02					<0.02					<0.02		<0.02					<0.02				0.0285					<0.010	0.0125					<0.010				
Total Cyanide	mg/l	0.1	0.01	0.01						<0.01					<0.01		<0.01					0.0125				<0.01					<0.010	<0.010					<0.010				
Iron	mg/l	0.3	0.83	3.51	0.327	0.566	0.607	0.576	0.304	0.359	0.361	0.268	0.289	0.266	261	0.233	0.266	0.24	0.231	0.306	0.325	0.243	0.981	0.237	0.332	0.339	0.363	0.399	0.201	0.359	0.601	0.348	0.62	0.37	0.452	0.33	0.263	0.288	0.328	0.367	
Lead	mg/l	0.025	0.01	0.02	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.003	<0.003	<0.003	0.00568	<0.003	0.00347	<0.003	<0.003	<0.003	<0.001	0.00366	<0.003	0.00325	<0.003	<0.003	<0.003	0.004	
Magnesium	mg/l	35	3.51	9.34	4.6	5.01	4.91	4.71	4.69	4.99	4.6	4.65	4.65	4.76	5.09	4.8	4.79	4.8	4.79	4.78	4.66	4.97	4.79	4.46	3.91	3.72	4.17	4.65	4.48	4.5	4.52	4.32	4.1	4.4	4.5	3.88	3.86	4.72	3.78	4.2	
Manganese	mg/l	0.3	0.15	0.23	0.124	0.224	0.152	0.19	0.124	0.142	0.148	0.12	0.115	0.151	0.135	0.12	0.105	0.15	0.134	0.146	0.107	0.14	0.362	0.118	0.0909	0.105	0.119	0.132	0.122	0.123	0.181	0.106	0.14	0.132	0.158	0.0873	0.152	0.133	0.148	0.129	
Mercury	mg/l	0.002	0.0003	0.0005	0.124					<0.0003					<0.0003		<0.0003					<0.0002				<0.0002					<0.0002	<0.0002					<0.0002				
Nickel	mg/l	0.007	0.03	0.06	<0.04					<0.04					<0.04		<0.04					<0.04				<0.03					<0.030	<0.030					<0.030				
Potassium	mg/l		1.2	3.56	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<0.5	<2	<2	<2	<5	<2.0	<1	<1	<1	<1	<1	<1	<1	<1	<1	1.2	<1	<1	<1.0	<1.0	<1	<1	<1	
Selenium	mg/l	0.01	0.004	0.005	<0.005					<0.005					<0.005		<0.005					<0.005				<0.005					<0.005	<0.005					0.00868				
Silver	mg/l	0.05	0.01	0.03	<0.01					<0.01					<0.01		<0.01					<0.01				<0.01					<0.010	<0.010					<0.010				
Sodium	mg/l	20	2.75	7.25	2.48	2.71	3.13	1.8	2.26	1.94	1.94	1.92	2.28	2.26	2.1	2.41	2.39	2.4	2.4	2.42	2.3	2.25	2.3	1.9	2.17	1.77	1.87	1.95	2.4	1.99	1.79	2	2.3	2.27	2.11	2.14	2.03	2.77	1.59	2.04	
Thallium	mg/l	0.004	0.01	0.01	<0.01					<0.01					<0.01		<0.01					<0.01				<0.01					<0.010	<0.010					<0.010				
Vanadium	mg/l	0.014	0.02	0.09	<0.05					<0.05					<0.05		<0.05					<0.05				<0.03					<0.030	<0.030					<0.030				
Zinc	mg/l	0.3	0.06	0.24	0.0214					0.0158					<0.02		<0.02					<0.02				0.0129					0.0221	0.0119					0.0116				

Notes:

1. Parameters listed are Part 360 Baseline or Routine Parameters Effective 1993.
2. Blanks indicate no analysis performed
3. "<" indicates not detected at the specified method detection limit (MDL)
4. Shaded values indicate detection above Standard.

TABLE 3
Groundwater Analytical Monitoring Data
MW-2D
Albany Interim Landfill/P-4 Project
CHA Project No. 12244

TEST PARAMETER (mg/l unless otherwise noted)	Unit	TOGS Guidance Value	Mean (EWQV)	Mean (EWQV) Plus 3 Std. Dev.	2Q97 Bsln	3Q97 Rtne	4Q97	1Q98 Rtne	2Q98 Rtne	3Q98 Bsln	4Q98 Rtne	1Q99 Rtne	2Q99 Rtne	3Q99 Rtne
Temperature	C°													
Conductivity	uS		334.88	1695.31	1454	190.4	190.5	196.5	173.5	173.2	181.3	176.9	200	200
pH	SU	6.5-8.5	8	9.57	7.11	8.68	8.38	8.69	8.71	8.02	8.11	8.18	10.6	9.05
Eh	mV		127.75	494.8	-9	-98	-73	-90	-76	-56	-72	-63	-207	-118
Turbidity (after purging well)	N.T.U.	5	577.5	1046.99	NA	105	145	54	28	45	125	70	65	150
LEACHATE INDICATORS:														
Ammonia Nitrogen	mg/l	2	0.17	0.53	0.124	0.132	0.138	<0.05	0.0934	0.102	0.144	0.0991	0.0935	0.112
BOD 5	mg/l		1.94	3.97	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Bromide	mg/l	2	0.41	1.84	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
COD	mg/l		31.09	173.27	<5	<5	12.9	<5	<5	<5	<5	<5	<5	<5
Chloride	mg/l	250	1.51	4.28	<1	1.21	<1	1.06	1.19	<1	<1	<1	<1	<1
Nitrate	mg/l	10	0.12	0.68	<0.05	<0.05	<0.05	<0.05	<0.5	<0.2	<0.5	<0.5	<0.5	<0.5
Sulfate	mg/l	250	3.24	12.41	<2	<2	<2	2.22	2.89	2.02	<2	<2	<2	2.37
Total Alkalinity	mg/l		159.13	446.65	97	97.6	99.8	98	97.2	91.5	96.7	97.2	97.6	100
Total Dissolved Solids	mg/l	500	157.5	342.79	162	134	139	145	132	121	128	129	93.9	131
Total Hardness	mg/l		341.21	1326.38	87	83.3	110	80	70	70.2	50	128	62.5	86.8
Total Kjed. Nitrogen	mg/l		0.9	2.47	0.406	0.381	0.382	0.349	0.382	0.378	0.292	0.377	<0.2	0.454
Total Organic Carbon	mg/l	500	4.14	14.18	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Total Phenols	mg/l	0.001	0.003	0.008	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Color	P.C.U.	15	10.31	36.96	<5					<5				
Boron	mg/l	1	0.08	0.3	<0.2					<0.2				
INORGANIC PARAMETERS:														
Aluminum	mg/l	0.1	16.65	95.97	6.14					3.61				
Antimony	mg/l	0.003	0.04	0.07	<0.06					<0.06				
Arsenic	mg/l	0.025	0.01	0.03	0.013					<0.01				
Barium	mg/l	1	0.16	0.76	0.0648					0.039				
Beryllium	mg/l	0.003	0.003	0.007	<0.005					<0.005				
Cadmium	mg/l	0.01	0.005	0.011	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Calcium	mg/l		101.48	418.22	22.4	23.4	20.2	23	17	18.8	13.5	20.6	18.7	21.2
Chromium	mg/l		0.03	0.16	0.012					0.0213				
Hexavalent Chromium	mg/l	0.05	0.01	0.02	<0.01					<0.01				
Cobalt	mg/l	0.005	0.03	0.07	<0.05					<0.05				
Copper	mg/l	0.2	0.08	0.4	<0.02					<0.02				
Total Cyanide	mg/l	0.1	0.01	0.01	<0.01					<0.01				
Iron	mg/l	0.3	37.92	235.45	8.35	7.52	7.63	7.4	2.44	5.55	3.01	4.86	5.25	7.64
Lead	mg/l	0.025	0.02	0.11	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.00597
Magnesium	mg/l	35	17.96	81.59	5.52	5.77	5.45	5.46	3.68	4.72	3.37	4.99	4.5	5.19
Manganese	mg/l	0.3	1.22	6.13	0.198	0.193	0.185	0.188	0.0978	0.146	0.0748	0.145	0.128	0.192
Mercury	mg/l	0.002	0.0003	0.0009	<0.0003					<0.0003				
Nickel	mg/l	0.007	0.06	0.23	<0.04					<0.04				
Potassium	mg/l		3.2	15.1	2.3	2.02	2.37	2.27	<2	<2	<2	<2	<2	3.25
Selenium	mg/l	0.01	0.01	0.01	<0.005					<0.005				
Silver	mg/l	0.05	0.01	0.03	<0.01					<0.01				
Sodium	mg/l	20	25	55.19	26.8	22.2	23.3	21.7	25.8	21.3	21.4	23.5	22.6	23.8
Thallium	mg/l	0.004	0.01	0.01	<0.01					<0.01				
Vanadium	mg/l	0.014	0.03	0.07	<0.05					<0.05				
Zinc	mg/l	0.3	0.15	0.83	0.0351					0.0201				

TEST PARAMETER (mg/l unless otherwise noted)	4Q99 Bsln	1Q00 Rtne	2Q00 Rtne	3Q00 Rtne	4Q00 Rtne	1Q01 Rtne	2Q01 Rtne	3Q01 Bsln	4Q01 Rtne	1Q02 Rtne	April-03 Routine	June-03 Routine	Sep-03 Baseline	Dec-03 Routine	Mar-04 Routine	Jun-04 Routine	Sep-04 Routine
Temperature											11.86	12.3	11.95	11	10.09	12.5	11.78
Conductivity	42.8	198	231	173	214	190	200	187.3	175.8	174.1	187	251	184	155	192	184	189
pH	NA	7.65	8.89	7.6	8.88	7.97	8.05	7.96	7.88	7.92	8.63	8.21	8.76	8.62	8.08	7.86	8.29
Eh	-190	-30	102	186	-92	275	55	-50	-40	-60	-60.1	12	-107.6	-74.7	-50.9	-84.2	-114.4
Turbidity (after purging well)	43	200	240	410	512	505	168	53.7	108	28.4	110	63.9	120	438	170	84.6	104
LEACHATE INDICATORS:																	
Ammonia Nitrogen	0.108	0.0663	0.103	<0.1	0.16	0.138	<0.05	0.111	0.129	0.0977	<0.5	<0.5	0.9	<0.5	<0.5	<0.5	<0.5
BOD 5	<2	<2	<2	<2	<2	<6	<2	<2	<2	<2.0	<4	<4	<4	<4	<4	<4	<4
Bromide	<5	<1	<1	<1	<1	<1	<1	<1	<1	<1.0	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
COD	<5	<5	<5	7.5	<5	10.4	<5	<5	<5	<5.0	24	<20	<20	<20	<20	<20	<20
Chloride	<1	<1	<1	<1	<1	<1	<1	<1	1.02	<2.0	<1	2	2	2	<1	2	<1
Nitrate	<0.5	<0.5	<0.5	0.04	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	0.3
Sulfate	<2	3.06	2.75	2.3	2.48	<2	2	3.12	2.4	2.74	<5	<5	<5	<5	14	12.5	8.18
Total Alkalinity	990	100	110	100	100	98.3	100	108	96	100	110	92	99	99	93	110	100
Total Dissolved Solids	172	155	141	185	220	178	142	122	142	119	140	120	140	160	150	100	120
Total Hardness	107	99.6	100	91	125	105	74	56.2	70	50	59	48	43	90	81	50.6	52.5
Total Kjed. Nitrogen	<0.2	0.426	0.33	2.5	0.609	0.388	<0.2	0.282	0.254	21	<0.5	<0.5	0.9	<0.5	<0.5	<0.5	<0.5
Total Organic Carbon	<1	1.21	1.08	<1	<1	<1	<1	<1	1.46	<1	<3	<3	<3	11	<3	<3	<3
Total Phenols	<0.005	<0.005	<0.005	<0.002	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Color	5		30					5					9				
Boron	<02		<0.2					<0.2					<0.5				
INORGANIC PARAMETERS:																	
Aluminum	REJECT		REJECT					3.32					1.56				
Antimony	<0.06		<0.06					<0.06					<0.015				
Arsenic	0.013		0.0169					0.0136					0.0155				
Barium	0.0738		0.0758					0.0347					<0.05				
Beryllium	<0.005		<0.005					<0.005					<0.003				
Cadmium	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Calcium	34.8	25.9	28.1	29	141	31.1	22.1	16.4	20.6	15.4	16.8	13.8	12.4	24.8	17.2	14.6	15.3
Chromium	0.0323		0.0198					0.0261					<0.005				
Hexavalent Chromium	<0.01		<0.01					<0.01					<0.01				
Cobalt	<0.05		<0.05					<0.05					<0.02				
Copper	<0.02		<0.02					<0.02					0.032				
Total Cyanide	<0.01		<0.01					0.0136					<0.01				
Iron	14.8	11.3	14	1.52	25.7	17.3	7.67	3	5.66	0.757	3.95	2.81	2.62	11.8	5.17	22.8	1.96
Lead	0.0099	0.0078	0.0202	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.003	<0.003	<0.003	<0.003	<0.003	0.0103	<0.003
Magnesium	8.8	6.76	7.36	4.4	32.4	8.02	5.28	3.84	4.87	3.17	4.19	3.3	3	6.79	4.45	3.41	3.48
Manganese	0.346	0.255	0.329	0.19	0.511	0.373	0.179	0.0865	0.15	0.0405	0.106	0.126	0.074	0.3	0.133	0.0763	0.0703
Mercury	<0.0003		<0.0003					<0.0002					0.0004				
Nickel	<0.04		<0.04					<0.04					<0.03				
Potassium	3.77	3.1	2.48	0.5	4.3	3.92	2.6	<5	<5	<2.0		1.35	<1	2.26	1.35	1.34	2.29
Selenium	<0.005		<0.005					<0.005					<0.005				
Silver	<0.01		<0.01					<0.01					<0.01				
Sodium	25.2	25.4	29.2	22	407	23.9	26.2	24.1	24.2	21.4	20.6	24.5	17.3	22.6	22.4	23.3	23.4
Thallium	<0.01		<0.01					<0.01					<0.01				
Vanadium	<0.05		<0.05					<0.05					<0.03				
Zinc	0.053		0.0714					<0.02					0.0202				

TEST PARAMETER (mg/l unless otherwise noted)	Dec-04 Baseline	Mar-05 Baseline	Jun-05 Routine	Sep-05 Routine	Dec-05 Routine	Mar-06 Routine	Jun-06 Baseline	Sep-06 Routine	Dec-06 Routine	Mar-07 Routine
Temperature	10.69	10.87	11.67	12.1	9.7	10.71	11.69	10.67	8.75	10.15
Conductivity	185	189	186	186	266	175	132	126.1	174	187
pH	8.42	8.47	8.04	8.51	8.47	7.76	8.06	9.37	8.52	8.78
Eh	-187.2	-49	-20	-13.6	-98	182	-90.7	29.2	-2.8	-49.3
Turbidity (after purging well)	61.5	80.3	36.1	77	98.5	73.4	30.8	31.9	65.2	39.6
LEACHATE INDICATORS:										
Ammonia Nitrogen	<0.5	<0.5	<0.5	<0.50	< 0.5	< 0.5	<0.5	<0.5	<0.5	<0.5
BOD 5	<4	<4		<4	< 4		<4	9	<4	<4
Bromide	<0.2	<0.20		<0.2	< 0.2	< 0.2	<0.2	<0.2	<0.2	<0.2
COD	<20	<20	<20	<20	< 20		<20	<20	<20	<20
Chloride	4.08	2.04	1.53	4.05	< 1	1.54	1.2	1.2	1.98	5.65
Nitrate	<0.2	<0.2	<0.2	<0.2	< 0.2		<0.2	<0.2	<0.2	0.358
Sulfate	5.18	<5	5.92	<5	< 5		<5	2.4	<5	<5
Total Alkalinity	190	94	74	87	96	290	100	100	100	100
Total Dissolved Solids	607	135	<25	85	135	185	102	125	115	118
Total Hardness	50.6	50.7	45	44.6	50.6	42.1	35.9	42.7	105	37.3
Total Kjed. Nitrogen	<0.5	<0.5		<0.5	< 0.5	< 0.5	<0.5	<0.5	<0.5	<0.5
Total Organic Carbon	<3	<3	3	<3	< 3	< 3	<3	<3	<3	<
Total Phenols	<0.005	0.016	<0.005	<0.005	0.007	< 0.005	<0.005	<0.005	<0.005	<0.005
Color	7	40					18			
Boron	<0.5	<0.5					<0.5			
INORGANIC PARAMETERS:										
Aluminum	1.32	1.57					0.639			
Antimony	<0.015	<0.015					<0.015			
Arsenic	0.0131	0.0159					0.012			
Barium	<0.050	<0.050					<0.050			
Beryllium	<0.003	<0.003					<0.003			
Cadmium	<0.005	<0.005	<0.005	<0.005	< 0.005	< 0.005	<0.005	<0.005	<0.005	<0.005
Calcium	14.6	14.6	13	12.8	14.2	12	10.3	12.5	32.9	10.8
Chromium	<0.005	0.00553					<0.005			
Hexavalent Chromium	<0.010	<0.010					<0.010			
Cobalt	<0.020	<0.020					<0.020			
Copper	<0.010	0.0134					<0.010			
Total Cyanide	<0.010	<0.01					<0.01			
Iron	1.96	2.07	0.56	2.16	4.29	1.64	1.08	0.982	0.489	1.13
Lead	0.00388	<0.003	<0.001	<0.003	< 0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Magnesium	3.41	3.43	3	3.08	3.7	2.95	2.48	2.81	5.44	2.53
Manganese	0.0593	0.0673	0.03	0.0673	0.119	0.05	0.0349	0.0499	0.138	0.039
Mercury	<0.0002	<0.0002					<0.0002			
Nickel	<0.030	<0.030					<0.030			
Potassium	1.88	2.78	1.7	<1	1.32	< 1.0	<1	<1	<1	<1
Selenium	<0.005	<0.005					0.00526			
Silver	<0.010	<0.010					<0.010			
Sodium	21.3	22.4	28	23.9	21.8	22.3	19	24.2	1.63	20.4
Thallium	<0.010	<0.010					<0.010			
Vanadium	<0.030	<0.030					<0.030			
Zinc	0.0217	<0.010					0.0124			

Notes.

1 Parameters listed are Part 360 Baseline or Routine Parameters Effective 1993.
2. Blanks indicate no analysis performed
3. "<" indicates not detected at the specified method detection limit (MDL)
4. Shaded values indicate detection above Standard.

TABLE 3
Groundwater Analytical Monitoring Data
MW-7S
Albany Interim Landfill/P-4 Project
CHA Project No 12244

TEST PARAMETER (mg/l unless otherwise noted)	Unit	TOGS Guidance Value	Mean (EWQV)	Mean (EWQV) Plus 3 Std. Dev.	2Q97 Bsln	3Q97 Rtne	4Q97 Rtne	1Q98 Rtne	2Q98 Rtne	3Q98 Bsln	4Q98 Rtne	1Q99 Rtne	2Q99 Rtne	3Q99 Rtne	4Q99 Bsln	1Q00 Rtne	2Q00 Rtne	3Q00 Rtne	4Q00 Rtne	1Q01 Rtne	2Q01 Rtne	3Q01 Bsln	4Q01 Rtne	1Q02 Rtne
Temperature	C°																							
Conductivity	uS		585.63	2418.12	2040	738	744	574	403	685	795	531	486	584	934	748	684	556	931	802	520	854	516	502
pH	SU	6.5-8.5	7.54	9.4	7.15	7.17	7.28	7.62	9.25	7.54	8.28	8.04	8.1	8.3	7.86	6.82	6.82	6.6	7.84	6.95	7.09	7.17	7.18	7.07
Eh	mV		173.29	548.37	-6	-10	-11	-29	-45	-28	-64	-41	-63	-73	-42	10	13	266	-38	320	195	55	165	190
Turbidity (after purging well)	N.T.U	5	441.43	1675.01	NA	85	320	66	250	75	40	155	55	86	93	73	230	94	245	195	106	55	60	93.8
LEACHATE INDICATORS:																								
Ammonia Nitrogen	mg/l	2	0.12	0.38	<0.05	<0.05	<0.05	<0.05	<0.05	<0.5	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
BOD 5	mg/l		2.44	7.44	5.57	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2.0
Bromide	mg/l	2	0.48	1.64	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	9.23	<1.0
COD	mg/l		25.65	147.63	<5	<5	21.8	<5	<5	<5	<5	<5	<5	5.73	<5	<5	6.23	7.5	<5	<5	<5	<5	<5	<5.0
Chloride	mg/l	250	18.24	43.87	20.9	36.5	21.9	18.6	16.5	49	16	5.28	5.97	6.29	6.85	3.69	6.14	17	6.57	8.5	5.76	8.85	9.54	12.4
Nitrate	mg/l	10	2.13	9.42	0.426	0.771	0.675	0.546	1.08	0.573	0.858	0.522	0.89	1	0.521	0.908	1.27	0.36	1.36	2.74	1.41	3.38	<0.5	4.7
Sulfate	mg/l	250	27.73	48.7	28.5	62	36.8	0.546	42.7	109	42.4	26.3	23.6	29.6	51.5	31	35.8	58	30.7	44.9	30.9	46	31.4	29.5
Total Alkalinity	mg/l		482.38	2069.46	229	284	273	229	190	277	279	266	225	256	306	371	418	275	312	356	335	364	268	323
Total Dissolved Solids	mg/l	500	252.75	478.04	352	545	409	325	307	541	416	339	268	331	491	348	412	465	352	445	391	460	332	368
Total Hardness	mg/l		495.38	2091.54	338	458	310	280	296	400	343	290	299	440	330	308	410	297	400	380	319	405	325	291
Total Kjed. Nitrogen	mg/l		1.24	3.74	0.609	0.743	0.561	0.358	1.14	0.761	0.447	0.444	0.201	0.587	0.437	0.421	0.45	<1	0.354	0.219	<0.2	0.268	<0.2	0.204
Total Organic Carbon	mg/l	500	4.04	21.23	1.7	<1	<1	<1	1.1	1.4	1.44	1.09	<1	1.32	1.25	1.51	1.72	1.2	1.69	1.74	1.12	1.57	1.7	<1.0
Total Phenols	mg/l	0.001	0.003	0.01	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.005	<0.005	<0.005	<0.005		<0.005
Color	P.C.U.	15	15.54	53.28	<5					<5					10		10					<5		
Boron	mg/l	1	0.22	1.21	<0.2					<0.2					<0.2		<0.2					<0.2		
INORGANIC PARAMETERS:																								
Aluminum	mg/l	0.1	22.19	171.92	9.78					5.22					REJECT		REJECT					3.64		
Antimony	mg/l	0.003	1.78	15.56	<0.06					<0.06					<0.06		<0.06					<0.06		
Arsenic	mg/l	0.025	0.01	0.01	<0.01					0.0216					<0.01		<0.01					<0.01		
Barium	mg/l	1	0.11	0.69	0.0497					0.0351					0.0353		0.0637					0.0272		
Beryllium	mg/l	0.003	0.01	0.1	<0.005					<0.005					<0.005		<0.005					<0.005		
Cadmium	mg/l	0.01	0.004	0.006	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Calcium	mg/l		146.53	701.81	100	132	89.3	90.7	93.6	114	98.6	76.5	80.1	79.2	105	76.9	126	99	114	122	96.1	126	96.6	91.6
Chromium	mg/l		14.71	132.72	0.506					0.517					0.19		0.117					0.0363		
Hexavalent Chromium	mg/l	0.05	0.02	0.08	<0.01					<0.01					<0.01		<0.01					<0.01		
Cobalt	mg/l	0.005	0.03	0.07	<0.05					<0.05					<0.05		<0.05					<0.05		
Copper	mg/l	0.2	0.14	0.75	0.0338					0.0378					0.0233		0.0205					<0.02		
Total Cyanide	mg/l	0.1	0.01	0.01	<0.01					<0.01					<0.01		<0.01					<0.01		
Iron	mg/l	0.3	58.95	440.42	20.3	9.55	9.54	8.44	21.6	15.9	6.61	11.7	9.38	9.22	12.5	11.4	11.4	0.82	6.76	9.73	8.48	4.16	5.21	6.43
Lead	mg/l	0.025	4.79	39.09	0.00629	<0.005	<0.005	<0.005	0.00776	<0.005	<0.005	<0.005	<0.005	0.00908	0.0066	0.0055	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Magnesium	mg/l	35	20.97	91.98	18.7	25	17.8	15	15.8	21	18.2	14.7	14.3	15.2	18.7	14.9	22.9	12	20.4	23.5	18.4	24.1	19.1	18.9
Manganese	mg/l	0.3	3.47	19.38	0.392	0.158	0.172	0.166	0.41	0.245	0.103	0.223	0.152	0.193	0.23	0.218	0.284	0.07	0.137	0.209	0.177	0.0969	0.101	0.131
Mercury	mg/l	0.002	0.23	2.04	<0.0003					<0.0003					<0.0003		<0.0003					<0.0002		
Nickel	mg/l	0.007	0.18	0.84	0.0931					0.0673					<0.04		<0.04					<0.04		
Potassium	mg/l		3.22	14.1	3.97	2.3	2.85	3.48	6.57	3.91	2.01	2.6	2.17	2.12	3.61	2.73	3.09	1.3	2.84	3.35	2.94	<5	5.98	3.12
Selenium	mg/l	0.01	0.01	0.01	<0.005					<0.005					<0.005		0.0188					<0.005		
Silver	mg/l	0.05	0.01	0.03	<0.01					<0.01					<0.01		<0.01					<0.01		
Sodium	mg/l	20	16.42	70.53	13.2	30.6	10.8	14.8	11.4	19.9	22.8	16.2	16.6	12.3	13	22.4	17.9	16	20.2	17.8	15.3	18.5	8.37	9.8
Thallium	mg/l	0.004	0.87	8.13	<0.01					0.0141					<0.01		0.0271					<0.01		
Vanadium	mg/l	0.014	1.27	7.72	<0.05					<0.05					<0.05		<0.05					<0.05		
Zinc	mg/l	0.3	0.19	1.26	0.0683					0.0809					0.0416		0.0458					0.02		

TEST PARAMETER (mg/l unless otherwise noted)	April-03 Routine	June-03 Routine	Sep-03 Baseline	Dec-03 Routine	Mar-04 Routine	Jun-04 Routine	Sep-04 Routine	Dec-04 Baseline	Mar-05 Baseline	Jun-05 Routine	Sep-05 Routine	Dec-05 Routine	Mar-06 Routine	Jun-06 Baseline	Sep-06 Routine	Dec-06 Routine	Mar-07 Routine
Temperature	15.21	15.7	15.6	13.36	14.02	15.81	15.42	14.54	15.76	16.57	16.57	14.5	15.55	16.99	17.08	16.07	17.71
Conductivity	832	835	747	617	582	603	808	853	519	689	951	1213	735	782	636.6	1245	1281
pH	7.01	7.19	7.44	7.23	7.43	7.47	7.56	7.44	7.18	7.27	7.68	7.14	6.62	7.62	7.61	6.9	7.04
Eh	95.3	23	-26.3	-39.3	-30.4	-49.5	-117.2	-128.6	110.6	2	-20.4	-19	150.3	-70.7	50.3	47.2	19.8
Turbidity (after purging well)	23	84.3	121	410	160	116	105	110	102	152	81.2	32.3	32.9	196	22	67.4	27.5
LEACHATE INDICATORS:																	
Ammonia Nitrogen	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.50	<0.5	<0.5	< 0.5	< 0.5	<0.5	<0.5	<0.5	<0.5
BOD 5	4	<4	<4	<4	<4	<4	<4	<4	<4		<4	< 4	<4	<4	5	<4	<4
Bromide	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2		<0.2	< 0.4	<0.2	<0.2	<0.2	<20df	<0.2
COD	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	78	< 20	<20	<20	<20	24	21
Chloride	13	9	12	23	7	8	22.5	18.4	2.55	15.1	19.1	27.1	24.4	25	38.5	65.2	36.2
Nitrate	2.8	1.3	2.4	7.2	1	1.5	2.1	7.5	0.24	0.32	6	8.1	3.6	4.7	4.4	9.02	4.58
Sulfate	29	28	38	<5	32	34.9	109	102	17.8	271	56	109	33.6	57.5	80.4	140	115
Total Alkalinity	430	350	380	370	290	280	320	590	270	300	390	400	130	390	400	500	490
Total Dissolved Solids	530	410	460	620	410	345	482	970	360	340	520	638	498	605	650	932	737
Total Hardness		340	340	420	300	284	422	490	329	380	440	515	372	457	425	531	504
Total Kjed. Nitrogen	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5		<0.5	< 0.5	< 0.5	<0.5	<0.5	<0.5	1.1
Total Organic Carbon	13	<3	10	<3	<3	<3	<3	<3	8	<3	<3	< 3	43	<3	8	5	3.1
Total Phenols	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.011	<0.005	<0.005	0.009	<0.005	<0.005	<0.005	<0.005	<0.005
Color			12					7	30					8			
Boron			<0.5					<0.5	<0.5					<0.5			
INORGANIC PARAMETERS:																	
Aluminum			1.38					1.48	5.22					2.35			
Antimony			<0.015					0.0402	<0.015					<0.015			
Arsenic			<0.01					<0.010	<0.010					<0.010			
Barium			<0.05					<0.050	<0.050					<0.050			
Beryllium			<0.003					<0.003	<0.003					<0.003			
Cadmium	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	< 0.005	< 0.005	<0.005	<0.005	<0.005	<0.05
Calcium	126	99.2	98.1	121	90	84	130	147	98.6	110	131	151	109	137	130	161	155
Chromium			0.0504					0.0228	0.0449					0.0348			
Hexavalent Chromium			<0.01					<0.010	<0.010					<0.010			
Cobalt			<0.02					<0.020	<0.020					<0.020			
Copper			0.039					0.0134	0.0228					0.0105			
Total Cyanide			<0.01					<0.010	<0.010					<0.010			
Iron	3.31	3.86	3.33	8.59	5.69	0.95	4.72	2.96	8.9	2	1.53	0.728	3.61	4.2	3.42	1.54	3.96
Lead	<0.003	<0.003	<0.003	<0.003	<0.003	0.00319	0.00511	<0.003	0.00837	<0.001	<0.003	< 0.003	<0.003	<0.00602	<0.003	<0.003	<0.003
Magnesium	29.6	22.8	22.6	28	19.5	18.1	23.5	29.6	20	26	27.7	33.5	24.1	27.9	24.1	31.2	28.8
Manganese	0.0969	0.111	0.089	0.254	0.184	0.0318	0.128	0.0804	0.218	0.064	0.0416	0.0448	0.0998	0.105	0.105	0.0623	0.112
Mercury			0.0006					<0.0002	<0.0002					<0.0002			
Nickel			<0.03					<0.030	<0.030					<0.030			
Potassium	2.09	2.24	1.96	2.45	2.11	1.37	2.87	2.49	2.87	2.3	2.43	1.84	1.86	2.21	2.1	1.98	2.62
Selenium			<0.005					<0.005	<0.005					0.0077			
Silver			<0.01					<0.010	<0.010					<0.010			
Sodium	5.79	5.69	6.49	7.02	5.56	5.45	11.6	9.17	5.73	7	17.3	27.1	16.6	18.8	23.9	39.3	41.1
Thallium			<0.01					<0.010	<0.010					<0.010			
Vanadium			<0.03					<0.030	<0.030					<0.030			
Zinc			0.0444					<0.0504	0.0664					0.0444			

Notes:

1. Parameters listed are Part 360 Baseline or Routine Parameters Effective 1993.
2. Blanks indicate no analysis performed
3. "<" indicates not detected at the specified method detection limit (MDL)
4. Shaded values indicate detection above Standard.

TABLE 3
Groundwater Analytical Monitoring Data
MW-7I
Albany Interim Landfill/P-4 Project
CHA Project No. 12244

TEST PARAMETER (mg/l unless otherwise noted)	Unit	TOGS Guidance Value	Mean (EWQV)	Mean (EWQV) Plus 3 Std. Dev.	2Q97 Bsln	3Q97 Rtne	4Q97 Rtne	1Q98 Rtne	2Q98 Rtne	3Q98 Bsln	4Q98 Rtne	1Q99 Rtne	2Q99 Rtne	3Q99 Rtne	4Q99 Bsln	1Q00 Rtne	2Q00 Rtne	3Q00 Rtne	4Q00 Rtne	1Q01 Rtne	2Q01 Rtne	3Q01 Bsln	4Q01 Rtne	1Q02 Rtne
Temperature	C°																							
Conductivity	uS		643.25	2698.41	2330	363	369	353	307	309	322	300	327	316	445	400	300	289	472	316	281	287	266	270
pH	SU	6.5-8.5	7.63	8.36	7.3	7.71	7.74	8.18	7.94	8.07	8.31	8.21	8.27	8.67	7.77	7.57	7.91	7.2	8.42	7.76	7.81	7.44	7.55	7.41
Eh	mV		162.14	538.19	-16	-43	-40	-60	-45	-58	-67	-63	-69	-83	-44	-30	-47	205	-72	150	100	-40	-5	110
Turbidity (after purging well)	N.T.U	5	20.22	57.07	NA	4	20	18	5.5	2.7	3.8	13	1	3.6	3.3	6	2	2.5	4.45	3.65	3.09	2.86	12.2	2.82
LEACHATE INDICATORS:																								
Ammonia Nitrogen	mg/l	2	0.14	0.7	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.086	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
BOD 5	mg/l		2.52	9.81	2.17	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	2.04	<2	<2	<2.0
Bromide	mg/l	2	0.43	1.8	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1.0
COD	mg/l		12.06	74.28	<5	<5	<5	<5	<5	<5	<5	<5	<5	6.05	<5	<5	5.31	7.5	<5	<5	<5	<5	<5	<5.0
Chloride	mg/l	250	26.28	47.64	15.2	15.7	14.2	13.6	14.2	12.8	10.6	9.15	8.77	8.05	7.82	7.42	7.25	9.1	7.67	7.6	7.45	5.69	8.17	6.37
Nitrate	mg/l	10	0.07	0.21	<0.05	<0.05	<0.05	<0.05	<0.5	<0.05	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.07	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Sulfate	mg/l	250	12.37	19.99	8.68	10.5	7.18	17.4	18.5	17.8	12.7	16.6	16.8	16.6	19	20.3	19	19	17.6	18.6	17.9	16.6	19	17.8
Total Alkalinity	mg/l		178.5	215.8	155	152	151	146	145	142	140	136	129	133	133	132	134	130	130	130	129	136	125	120
Total Dissolved Solids	mg/l	500	236.88	308.2	207	219	197	188	206	186	186	189	178	175	171	175	177	188	176	177		174	169	165
Total Hardness	mg/l		205.25	347.46	161	164	160	154	160	165	151	151	150	158	145	156	143	132	129	133		348	144	126
Total Kjed. Nitrogen	mg/l		1.47	5.56		0.345	0.353	0.204	<0.2	<0.2	<0.2	<0.2	<0.2	0.325	<0.2	<0.2	REJECT	<1	<0.2	<0.2		<0.2	<0.2	<0.2
Total Organic Carbon	mg/l	500	3.63	10	2.3	1.25	1.1	<1	<1	1.2	1.32	1.02	1.05	1.34	1.15	1.35	1.28	1.1	1.41	1.15		<1	1.65	<1.0
Total Phenols	mg/l	0.001	0.002	0.006	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Color	P.C.U.	15	20.71	63.52	35					<5					5		5					<5		
Boron	mg/l	1	0.12	0.21	<0.2					<02					<0.2		<02					<0.2		
INORGANIC PARAMETERS:																								
Aluminum	mg/l	0.1	0.9	5.48	0.142					<0.1					REJECT		REJECT					<0.1		
Antimony	mg/l	0.003	0.04	0.07	<0.06					<0.06					<0.06		<0.05					<0.06		
Arsenic	mg/l	0.025	0.01	0.01	<0.01					<0.01					<0.01		<0.01					<0.01		
Barium	mg/l	1	0.06	0.09	0.0617					0.0564					0.0498		0.0464					0.0493		
Beryllium	mg/l	0.003	0.003	0.007	<0.005					<0.005					<0.005		<0.005					<0.005		
Cadmium	mg/l	0.01	0.004	0.012	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Calcium	mg/l		63.79	112.67	49.7	49	47.4	49.6	50.5	45.5	43.6	41.4	46.6	47.4	46.3	42.6	42.9	42	39.5	45.3	43.6	45	43.2	43.5
Chromium	mg/l		0.01	0.02	<0.01					<0.01					<0.01		<0.01					<0.01		
Hexavalent Chromium	mg/l	0.05	0.01	0.02	<0.01					<0.01					<0.01		<0.01					<0.01		
Cobalt	mg/l	0.005	0.02	0.09	<0.05					<0.05					<0.05		<0.05					<0.05		
Copper	mg/l	0.2	0.12	0.97	<0.02					<0.02					<0.02		<0.02					<0.02		
Total Cyanide	mg/l	0.1	0.01	0.01	<0.01					<0.01					<0.01		<0.01					<0.01		
Iron	mg/l	0.3	2.34	13.89	0.48	0.499	0.603	0.476	0.383	0.465	0.452	0.338	0.282	0.503	0.514	0.358	0.276	0.38	0.458	0.384	0.26	0.576	0.822	0.546
Lead	mg/l	0.025	0.01	0.02	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Magnesium	mg/l	35	11.07	16.92	8.24	8.41	8.41	7.6	7.6	8	7.35	7.41	7.46	7.88	7.65	7.17	7.23	6.7	726	7.34	6.98	7.46	7.02	7.36
Manganese	mg/l	0.3	0.25	0.65	0.167	0.156	0.151	0.153	0.153	0.154	0.144	0.151	0.175	0.211	0.153	0.152	0.158	0.15	0.163	0.16	0.148	0.201	0.192	0.158
Mercury	mg/l	0.002	0.0003	0.0005	<0.0003					<0.0003					<0.0003		<0.0003					<0.0002		
Nickel	mg/l	0.007	0.03	0.06	<0.04					<0.04					<0.04		<0.04					<0.04		
Potassium	mg/l		1.65	6.34	<2	<2	2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	0.6	<2	<2	<2	5	<5	<2.0
Selenium	mg/l	0.01	0.004	0.005	<0.005					<0.005					<0.005		<0.005					<0.005		
Silver	mg/l	0.05	0.01	0.03	<0.01					<0.01					<0.01		<0.01					<0.01		
Sodium	mg/l	20	18.81	28.06	14.4	12.4	12.2	9.88	11.8	10.3	9.14	8.57	8.1	8.33	7.55	8.27	7.77	8.6	5.74	7.78	8.26	7.96	7.4	6.57
Thallium	mg/l	0.004	0.01	0.01	<0.01					<0.01					<0.01		<0.01					<0.01		
Vanadium	mg/l	0.014	0.02	0.09	<0.05					<0.05					<0.05		<0.05					<0.05		
Zinc	mg/l	0.3	0.03	0.12	0.0224					0.037					<0.02		<0.02					0.0265		

TEST PARAMETER (mg/l unless otherwise noted)	April-03 Routine	June-03 Routine	Sep-03 Baseline	Dec-03 Routine	Mar-04 Routine	Jun-04 Routine	Sep-04 Routine	Dec-04 Baseline	Mar-05 Baseline	Jun-05 Routine	Sep-05 Routine	Dec-05 Routine	Mar-06 Routine	Jun-06 Baseline	Sep-06 Routine	Dec-06 Routine	Mar-07 Routine
Temperature	14.53	15.7	15.47	13.4	13.64	15.78	15.14	13.75	15.34	16.12	15.55	13.6	14.51	16.35	16.42	14.91	16.03
Conductivity	279	341	294	236	297	300	304	301	290	295	282	342	270	198	194	253	283
pH	8	7.97	8.36	8.27	7.93	8.14	8.11	8.10	8.06	7.98	8.21	8.05	7.31	8.22	8.22	8.1	8.1
Eh	-134	-32	-100.7	-96	-53.7	-110.6	-120.9	-139.5	-41.6	-11	-49.6	-74	146.5	-98.5	-23.4	-78.7	-124.4
Turbidity (after purging well)	1.5	16.1	10.3	19.6	17	7.9	29.9	8.04	11.6	7.95	15	9.4	15.9	7.73	3.41	13.3	17.6
LEACHATE INDICATORS:																	
Ammonia Nitrogen	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	< 0.5	< 0.5	<0.5	<0.5	<0.5	<0.5
BOD 5	<4	<4	<4	<4	<4	<4	4	<4	<4		<4	<4	<4	<4	6	<4	<4
Bromide	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2		<0.2	< 0.2	< 0.2	<0.2	<0.2	<0.2	<0.2
COD	30	20	<20	<20	<20	<20	<20	<20	<20	<20	<20	< 20	< 20	<20	<20	<0.2	23
Chloride	5	6	7	7	<1	7	5.87	8.42	14.5	6.89	5.18	4.19	5.91	7.81	4.44	10.3	3.33
Nitrate	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	< 0.2	< 0.2	0.99	<0.2	2.13	0.856
Sulfate	18	12	16	21	<5	<5	26.7	25.6	14.9	18.8	15.2	20.8	12.3	16.2	14.5	9.63	10.1
Total Alkalinity	130	120	140	140	100	140	130	240	120	120	140	110	96	210	140	190	110
Total Dissolved Solids	190	180	200	240	490	172	172	648	168	60	160	182	230	160	197	235	193
Total Hardness	120	110	110	130	58	119	137	141	130	130	117	147	129	108	102	108	188
Total Kjed. Nitrogen	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	11.2		<0.5	< 0.5	< 0.5	<0.5	<0.5	<0.5	1.03
Total Organic Carbon	<3	<3	<3	<3	<3	<3	<3	<3	6	<3	<3	< 3	< 3	<3	<3	3	4.8
Total Phenols	<0.005	<0.005	<0.005	<0.005	0.01	<0.005	<0.005	<0.005	0.033	<0.005	<0.005	0.008	<0.005	<0.005	<0.005	<0.005	<0.005
Color			9					5	17					12			
Boron			<0.5					<0.5	<0.5					<0.5			
INORGANIC PARAMETERS:																	
Aluminum			<0.1					0.146	0.125					0.19			
Antimony			<0.015					<0.015	<0.015					<0.015			
Arsenic			<0.01					<0.010	<0.010					<0.010			
Barium			<0.05					0.0515	<0.0515					<0.05			
Beryllium			<0.003					<0.003	<0.003					<0.003			
Cadmium	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	< 0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Calcium	37.4	35	33.1	38.5	17.2	36.8	42.7	44.2	40.8	40	36.4	48.3	40.5	34.1	31.7	33.9	58.7
Chromium			<0.005					<0.005	<0.005					<0.005			
Hexavalent Chromium			<0.01					<0.010	<0.010					<0.010			
Cobalt			<0.02					<0.020	<0.020					<0.02			
Copper			0.0289					<0.010	0.0152					<0.010			
Total Cyanide			<0.01					<0.010	<0.010					<0.010			
Iron	0.398	0.452	0.491	0.487	0.239	0.486	0.837	0.55	0.545	0.61	0.478	0.348	0.734	0.901	0.378	0.426	15
Lead	<0.003	0.00302	<0.003	<0.003	<0.003	0.00333	<0.003	<0.003	<0.003	<0.001	0.00362	< 0.003	0.00639	<0.003	<0.003	<0.003	0.0045
Magnesium	6.9	6.48	5.8	7.19	3.64	6.61	7.43	7.52	6.92	6.8	6.32	6.46	6.78	5.53	5.5	5.69	10.1
Manganese	0.129	0.139	0.299	0.14	0.0559	0.132	0.143	0.131	0.137	0.16	0.159	0.0801	0.137	0.19	0.119	0.17	0.482
Mercury			0.0008					<0.0002	<0.0002					<0.0002			
Nickel			<0.03					<0.030	<0.030					<0.030			
Potassium	<1	<1	<1.000	<1.000	1.05	<1	<1	1.9	<1	1.8	<1	1.25	0.98	<1	<1	<1	3.91
Selenium			<0.005					0.00748	<0.005					0.00749			
Silver			<0.01					<0.010	<0.010					<0.010			
Sodium	5.79	7.22	5.58	7.93	15.9	7.31	7.59	7.62	7.82	9.8	8.06	6.72	8.65	6.97	7.71	6.39	57.7
Thallium			<0.010					<0.010	<0.010					<0.010			
Vanadium			<0.030					<0.030	<0.030					<0.030			
Zinc			0.0154					0.0373	0.0151					0.0399			

Notes

1 Parameters listed are Part 360 Baseline or Routine Parameters Effective 1993.
2. Blanks indicate no analysis performed
3. "<" indicates not detected at the specified method detection limit (MDL)
4. Shaded values indicate detection above Standard.

TABLE 3
Groundwater Analytical Monitoring Data
MW-7D
Albany Interim Landfill/P-4 Project
CHA Project No. 12244

TEST PARAMETER (mg/l unless otherwise noted)	Unit	TOGS Guidance Value	Mean (EWQV)	Mean (EWQV) Plus 3 Std Dev.	2Q97 Bsln	3Q97 Rtne	4Q97 Rtne	1Q98 Rtne	2Q98 Rtne	3Q98 Bsln	4Q98 Rtne	1Q99 Rtne	2Q99 Rtne	3Q99 Rtne	4Q99 Bsln	1Q00 Rtne	2Q00 Rtne	3Q00 Rtne	4Q00 Rtne	1Q01 Rtne	2Q01 Rtne	3Q01 Bsln	4Q01 Rtne	1Q02 Rtne
Temperature	C°																							
Conductivity	uS		405.38	1964.83	1671	189.8	193.9	208	174.7	179.4	180.8	186.6	201	201	289	281	207	177	274	192	185.4	194	286	183
pH	SU	6.5-8.5	8.47	11.28	7.18	8.46	8.55	9.15	9.02	8.84	8.4	9.02	8.91	8.65	8.12	8.04	8.31	7.8	8.91	8.27	8.27	7.17	7.81	7.97
Eh	mV		136	544.95	-10	-82	-81	-111	-88	-95	-7	-97	-106	-134	50	-57	-70	200	-95	250	125	55	-30	50
Turbidity (after purging well)	N.T.U	5	59.57	205.59	NA	2.5	15	9.5	11	2.8	1.8	12	2	6.5	8.6	5.6	1.9	3.4	31.9	9.79	6.13	5.78	5.14	8.65
LEACHATE INDICATORS:																								
Ammonia Nitrogen	mg/l	2	15.76	148.18	0.119	0.119	0.127	<0.05	0.128	0.0704	0.103	0.0938	0.102	0.116	0.123	0.0878	0.0873	<0.1	0.0737	0.0859	<0.05	0.0749	0.0858	0.103
BOD 5	mg/l		1.69	3.28	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2.0
Bromide	mg/l	2	0.41	1.84	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1.0
COD	mg/l		7.31	23.89	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	6.23	<5	<5	<5	<5	<5	<5	<5.0
Chloride	mg/l	250	1.69	5.33	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	1.02	<2.0
Nitrate	mg/l	10	0.08	0.35	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.02	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Sulfate	mg/l	250	3.41	13.22	<2	<2	<2	2.07	2.3	2.45	<2	<2	<2	2.16	<2	2.8	2.51	2.2	2.11	<2	2.1	2.66	2.65	2.33
Total Alkalinity	mg/l		120.53	232.53	98.2	101	105	103	97.8	96.3	97.6	94.7	96.3	95.7	101	102	101	95	104	100	104	106	98	96.7
Total Dissolved Solids	mg/l	500	161.75	437.31	125	0.118	87	103	126	117	120	118	105	111	114	112	113	115	112	113	112	113	115	108
Total Hardness	mg/l		81.48	184.49	55.2	56.2	60.3	55	83	59.6	54.2	55.8	67.3	58.5	60.6	71.7	57.8	71	88.4	80.8	60.5	59.7	62	56
Total Kied. Nitrogen	mg/l		1.34	4.84		1.31	0.4	0.21	0.43	0.22	0.23	<0.2	0.35	0.34	<0.2	0.26	<0.3	<1	0.2	<0.2	<02	<0.2	<0.2	<0.2
Total Organic Carbon	mg/l	500	2.66	10.06	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	1.18	1.21	<1	<1	1.16	<1	<1	<1	1.24	<1.0
Total Phenols	mg/l	0.001	0.003	0.007	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.002	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Color	P.C.U.	15	11.41	48.17	<5					<5					5		<5					<5		
Boron	mg/l	1	0.1	0.27	<0.2					<0.2					<0.2		<0.2					<0.2		
INORGANIC PARAMETERS:																								
Aluminum	mg/l	0.1	2.77	18.68	0.155					0.225					REJECT		REJECT					0.324		
Antimony	mg/l	0.003	0.04	0.07	<0.06					<0.06					<0.06		<0.06					<0.06		
Arsenic	mg/l	0.025	0.01	0.02	<0.01					0.0116					0.0125		0.0147					0.0128		
Barium	mg/l	1	0.02	0.09	<0.02					<0.02					<0.02		<0.02					<0.02		
Beryllium	mg/l	0.003	0.003	0.007	<0.005					<0.005					<0.005		<0.005					<0.005		
Cadmium	mg/l	0.01	0.003	0.006	<0.005		<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Calcium	mg/l		18.28	47.08	16	16.2	15.8	17.3	24.1	15.5	14.8	13.6	16.5	17.9	18.3	15.6	16.6	22	25.5	18.2	17.3	17.7	17.3	17.1
Chromium	mg/l		0.01	0.01	<0.01					<0.01					<0.01		<0.01					<0.01		
Hexavalent Chromium	mg/l	0.05	0.01	0.02	<0.01					<0.01					<0.01		<0.01					<0.01		
Cobalt	mg/l	0.005	0.03	0.07	<0.05					<0.05					<0.05		<0.05					<0.05		
Copper	mg/l	0.2	0.03	0.09	<0.02					<0.02					<0.02		<0.02					<0.02		
Total Cyanide	mg/l	0.1	0.01	0.01	<0.01					<0.01					<0.01		<0.01					<0.01		
Iron	mg/l	0.3	3.56	23.62	0.288	0.213	0.578	0.801	1.52	0.352	0.155	0.18	0.3	0.221	0.673	0.308	0.187	0.11	2.72	0.357	0.495	0.4	0.402	0.225
Lead	mg/l	0.025	0.01	0.02	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Magnesium	mg/l	35	4.21	10.94	3.5	3.61	3.68	3.31	4.27	3.61	3.43	3.35	3.49	3.86	3.99	3.48	3.63	3.8	5.52	3.71	3.51	3.86	3.6	3.61
Manganese	mg/l	0.3	0.09	0.48	0.0288	0.0295	0.0327	0.0305	0.0668	0.0288	0.0235	0.0186	0.0242	0.0302	0.0413	0.0255	0.0231	0.02	0.109	0.0244	0.0249	0.0245	0.0279	0.0281
Mercury	mg/l	0.002	0.0003	0.0005	<0.0003					<0.0003					<0.0003		<0.0003					<0.0002		
Nickel	mg/l	0.007	0.57	5.18	<0.04					<0.04					<0.04		<0.04					<0.04		
Potassium	mg/l		2.08	9.04	2.25	<2	<2	4.98	<2	<2	<2	2.18	<2	<2	<2	<2	<2	1.1	<2	<2	<2	5	<5	<2.0
Selenium	mg/l	0.01	0.004	0.005	<0.005					<0.005					<0.005		<0.005					<0.005		
Silver	mg/l	0.05	0.01	0.03	<0.01					<0.01					<0.01		<0.01					<0.01		
Sodium	mg/l	20	19.88	55.53	22.6	17.6	18.2	18.5	20.8	21	17.1	17.8	17.8	17.7	17	19.6	18.9	17	19.5	19.8	18.6	18.2	16.7	16.7
Thallium	mg/l	0.004	0.01	0.01	<0.01					<0.01					<0.01		<0.01					<0.01		
Vanadium	mg/l	0.014	2.26	8.38	<0.05					<0.05					<0.05		<0.05					<0.05		
Zinc	mg/l	0.3	0.03	0.1	0.0162					<0.04					<0.02		<0.02					<0.02		

TEST PARAMETER (mg/l unless otherwise noted)	April-03 Routine	June-03 Routine	Sep-03 Baseline	Dec-03 Routine	Mar-04 Routine	Jun-04 Routine	Sep-04 Routine	Dec-04 Baseline	Mar-05 Baseline	Jun-05 Routine	Sep-05 Routine	Dec-05 Routine	Mar-06 Routine	Jun-06 Baseline	Sep-06 Routine	Dec-06 Routine	Mar-07 Routine
Temperature	13.61	14.8	13.89	12.6	11.88	14.54	13.36	12.43	13.93	14.5	14.09	12.6	12.15	14.44	14.28	12.72	12.72
Conductivity	201	264	191	144	188	205	200	232	187	205	205	327	176	131	131	178	178
pH	8.31	7.97	9.01	8.55	8.1	8.13	8.74	8.40	8.32	8.08	8.46	7.98	7.73	8.3	8.95	8.29	8.29
Eh	106.8	-6	-37.1	-110	-53.1	-59.3	-122.8	-135.1	36.7	-30	-59.5	-63	120.5	-106.3	23.3	-50.5	-50.5
Turbidity (after purging well)	9.3	7.2	32.5	42.2	21	36.1	10.7	8.22	27.5	14.5	15.1	1.46	2.42	2.76	1.57	12.8	12.8
LEACHATE INDICATORS:																	
Ammonia Nitrogen	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	5.66	< 0.5	<0.5	<0.5	<0.5	<0.5
BOD 5	<4	<4	<4	<4	<4	<4	17	<4	<4		<4	< 4	<4	<4	<6	<4	<4
Bromide	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.20		<0.2	< 0.2	< 0.2	<0.2	<0.2	<0.2	<0.2
COD	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	< 20	< 20	<20	<20	<20	<20
Chloride	<1	1	<1	<1	6	<1	1.28	2.55	7.4	2.3	3.15	1.23	1.03	1.43	1.03	1.81	1.24
Nitrate	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	0.4	<0.2	<0.2	<0.2	<0.2	2.5	< 0.2	<0.2	<0.2	<0.2	<0.2
Sulfate	<5	<5	<5	<5	18	<5	11.4	5.18	<5	24.9	<5	< 5	<5	<5	<5	<5	<5
Total Alkalinity	110	99	110	110	130	110	100	160	99	80	88	190	91	110	100	110	88
Total Dissolved Solids	130	110	140	95	210	100	80	615	120	<25	65	165	162	95	72	115	88
Total Hardness	53	48	48	52	120	58.6	55.6	54	56	51	52	50.3	54.5	48.5	52.9	47.6	49.7
Total Kied. Nitrogen	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5		<0.5	< 0.5	< 0.5	<0.5	<0.5	<0.5	<0.5
Total Organic Carbon	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	< 3	< 3	<3	<3	<3	<3
Total Phenols	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.012	<0.005	<0.005	0.006	<0.005	<0.005	<0.005	<0.005	<0.005
Color			11					5	10					<5			
Boron			<0.5					<0.5	<0.5					<0.5			
INORGANIC PARAMETERS:																	
Aluminum			0.1					<0.1	0.112					<0.1			
Antimony			0.015					<0.015	<0.015					<0.015			
Arsenic			0.0118					<0.010	<0.010					0.01			
Barium			0.05					<0.050	<0.050					<0.050			
Beryllium			0.003					<0.003	<0.003					<0.003			
Cadmium	<0.005	<0.005	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	< 0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Calcium	15.5	14.1	14.3	15.3	38.6	17.5	16.4	16	16.6	15	15.3	14.8	15.9	14.2	15.6	14	14.6
Chromium			0.005					<0.005	<0.005					<0.005			
Hexavalent Chromium			<0.01					<0.010	<0.010					<0.010			
Cobalt			0.02					<0.020	<0.020					<0.020			
Copper			0.028					<0.010	0.0105					<0.010			
Total Cyanide			<0.01					<0.010	<0.010					<0.010			
Iron	<0.06	0.0991	0.209	0.127	0.627	0.33	0.232	0.141	0.161	0.1	0.0894	< 0.06	0.052	0.0842	0.072	<0.06	<0.06
Lead	<0.003	<0.003	0.003	<0.003	<0.003	0.00701	<0.003	<0.003	<0.003	<0.001	<0.003	< 0.003	< 0.003	<0.003	<0.003	<0.003	<0.003
Magnesium	3.41	3.12	2.93	3.42	6.84	3.63	3.56	3.43	3.51	3.2	3.32	3.23	3.59	3.17	3.42	3.07	3.18
Manganese	0.0147	0.0357	0.053	0.0556	0.139	0.0562	0.0474	0.0447	0.0503	0.042	0.0434	0.0434	0.0446	0.042	0.0497	0.0416	0.0404
Mercury			0.0029					<0.0002	<0.0002					<0.0002			
Nickel			0.03					<0.030	<0.030					<0.030			
Potassium	<1	1.33	1	<1.0	<1	<1	<1	<1	<1	1	<1	< 1	< 1	<1	<1	<1	<1
Selenium			0.005					<0.005	<0.005					<0.005			
Silver			0.481					<0.010	<0.010					<0.010			
Sodium	15.7	18.2	12.7	15.1	7.02	17.1	15.6	14.5	16.1	18	17.5	16.5	17.7	15	17.3	14.1	15.5
Thallium			0.01					<0.010	<0.010					<0.010			
Vanadium			0.03					<0.030	<0.030					<0.030			
Zinc			0.0224					0.0296	<0.010					0.0117			

Notes:

1. Parameters listed are Part 360 Baseline or Routine
   Parameters Effective 1993.
2. Blanks indicate no analysis performed
3. "<" indicates not detected at the specified method detection limit (MDL)
4. Shaded values indicate detection above Standard.

TABLE 3
Groundwater Analytical Monitoring Data
MW-9S
Albany Interim Landfill/P-4 Project
CHA Project No. 12244

TEST PARAMETER (mg/l unless otherwise noted)	Unit	TOGS Guidance Value	Mean (EWQV)	Mean (EWQV) Plus 3 Std. Dev.	3Q98 Expnd	3Q98 Bsln	1Q99 Bsln	4Q99 Bsln	2Q00 Bsln	3Q00 Rtne	4Q00 Rtne	1Q01 Rtne	2Q01 Rtne	3Q01 Bsln	4Q01 Rtne	1Q02 Rtne
Temperature	C*		15.13	29.39	20	15	8.7	16.8	13.8		5.3	8.9	22.5	17.8	12.5	10.1
Conductivity	uS		938.75	1987.78	600	680	1295	1180	951	1151	20.2	1886	1336	966	818	706
pH	SU	6.5-8.5	7.73	8.85	8	7.8	7.19	7.94	6.92	6.4	7.22	6.35	6.35	6.29	6.95	6.87
Eh	mV		-44.75	23.28	-80	-80	-12	-47	11	275	-8	125	20	OR	455	-60
Turbidity (after purging well)	N.T.U	5	405.2	1253.24	188.8	282	330	820	240	>1000	3780	502	1350	856		453
LEACHATE INDICATORS:																
Ammonia Nitrogen	mg/l	2	1.05	2.32	1.5	1.3	0.575	0.833	0.483	0.04	0.299	0.334	0.345	0.581	0.561	0.336
BOD 5	mg/l		3	9.36	6	<4	<2	<2	<2	3	2.83	<2	<2	<2	<2	<0.05
Bromide	mg/l	2	0.45	1.49	<0.2	<0.2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<2.0
COD	mg/l		79.5	208.06	140	41	60.6	76.4	66.4	112	169	155	87.3	84.9	63.2	49.5
Chloride	mg/l	250	236	439.07	330	170	231	213	180	316	416	508	385	234	192	164
Nitrate	mg/l	10	0.52	10	0.4	0.6	<0.5	0.704	1	0.98	2.19	1.94	1.55	<0.5	0.595	1.09
Sulfate	mg/l	250	83.38	120.82	96	67	81.2	89.3	58.3	114	91	94.8	150	95.8	101	80.3
Total Alkalinity	mg/l		147	352.84	230	62	150	146	126	90	100	76.3	71	88	89.6	112
Total Dissolved Solids	mg/l	500	702.25	1219.44	950	550	659	650	526	745	1010	1070	849	645	588	507
Total Hardness	mg/l		220.13	732.51	379	132	346	23.5	204	238	440	248	163	193	225	170
Total Kjed. Nitrogen	mg/l		2.77	7.24	4.9	1.8	1.68	2.68	2.05	3.9	3.16	2.91	2.37	10.7	1.76	1.59
Total Organic Carbon	mg/l	500	1910	47.92	16	9	19.45	31.95	29	117	61.83	15.68	32.95	38.23	21.2	21.5
Total Phenols	mg/l	0.001	0.004	0.004	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Color	P.C.U.	15	63.5	218.78	140	29	35	50	120					80		
Boron	mg/l	1	0.14	0.33	0.1	0.1	<0.2	0.228	<0.2					<0.4		
INORGANIC PARAMETERS:																
Aluminum	mg/l	0.1	12.28	39.86	25.7	4.81	9.38	9.24	REJECT					8.23		
Antimony	mg/l	0.003	0.03	0.09	<0.015	<0.015	<0.06	<0.06	<0.06					<0.12		
Arsenic	mg/l	0.025	0.03	0.07	0.0446	0.0112	0.0231	0.0333	0.0279					0.0284		
Barium	mg/l	1	0.18	0.5	0.337	0.093	0.151	0.151	0.106					0.137		
Beryllium	mg/l	0.003	0.01	0.02	0.0107	<0.003	<0.005	<0.005	<0.005					<0.01		
Cadmium	mg/l	0.01	0.01	0.01	0.0094	<0.005	<0.005	<0.005	<0.005	<0.005	0.0147	<0.005	<0.005	<0.01	<0.005	<0.005
Calcium	mg/l		78.33	174.4	116	40.1	88.5	68.7	70.6	79	112	77.4	54.2	60.3	57.4	51.7
Chromium	mg/l		0.04	0.12	0.072	0.0166	0.0218	0.0464	0.0653					0.0275		
Hexavalent Chromium	mg/l	0.05	0.01	0.01	<0.01	<0.01		<0.01	<0.01					<0.01		
Cobalt	mg/l	0.005	0.03	0.06	0.0216	<0.02	<0.05	<0.05	<0.05					<0.1		
Copper	mg/l	0.2	0.04	0.14	0.0902	0.03	<0.02	<0.02	<0.02					<0.04		
Total Cyanide	mg/l	0.1	0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01					0.011		
Iron	mg/l	0.3	76.1	177.35	49.8	46	93.6	115	95.2	99.5	2890	43.7	73.2	110	44.1	60.6
Lead	mg/l	0.025	0.01	0.07	0.0438	0.0047	<0.005	0.0072	0.0066	0.009	0.0315	<0.005	<0.005	<0.01	<0.005	0.00556
Magnesium	mg/l	35	13.96	31.61	21.8	7.64	14	12.4	13.8	10	13.9	13.9	9.94	11.4	10.7	9.8
Manganese	mg/l	0.3	1.15	2.5	1.64	0.585	1.34	1.04	0.771	0.67	0.658	0.6	0.466	0.552	0.475	0.39
Mercury	mg/l	0.002	0.0002	0.0003	<0.0002	<0.0002	<0.0003	<0.0003	<0.0003					<0.0002		
Nickel	mg/l	0.007	0.04	0.07	0.0497	0.0421	<0.04	<0.04	<0.04					<0.08		
Potassium	mg/l		16.98	36.1	25.4	10.2	17.5	14.8	13.6	21	9.34	10.9	10.9	15.1	12.2	9.51
Selenium	mg/l	0.01	4	0.004	<0.005	<0.005	<0.005	<0.005	<0.005					<0.01		
Silver	mg/l	0.05	0.01	0.01	REJECT	<0.01	<0.01	<0.01	<0.01					<0.02		
Sodium	mg/l	20	98.53	176.36	112	60.1	116	106	99.5	77	223	270	224	115	113	104
Thallium	mg/l	0.004	0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01					<0.02		
Vanadium	mg/l	0.014	0.11	0.28	0.185	0.0466	0.0841	0.108	0.0888					<0.1		
Zinc	mg/l	0.3	0.11	0.37	0.236	0.0797	0.0529	0.0552	0.0506					0.0484		

TEST PARAMETER (mg/l unless otherwise noted)	April-03 Routine	June-03 Routine	Sep-03 Baseline	Dec-03 Routine	Mar-04 Routine	Jun-04 Routine	Sep-04 Routine	Dec-04	Mar-05 Baseline	Jun-05 Routine	Sep-05 Routine	Dec-05 Routine	Mar-06 Routine	Jun-06 Baseline	Sep-06 Routine	Dec-06 Routine	Mar-07 Routine
Temperature	9.81	12.2	15.73	12.59	10.21	14.14	16.35	12.83	11.63	14.4	18.34	14.9	10.49	16.04	18.5	15.62	12.98
Conductivity	1698	213	3403	2834	4357	3341	5590	5721	3082	4550	4150	340	1725	1392	1215.6	1660	1463
pH	6.03	6.57	6.26	6.41	6.41	6.42	7.13	6.53	6.73	6.42	6.96	6.61	6.24	7.2	5.85	6.7	6.86
Eh	100.9	20	-7	16.5	-9.8	-18.3	-135.6	-200.5	-105.2	23	18.4	9	165.6	-106.3	11.3	67.8	-10.2
Turbidity (after purging well)	17	633	NR	1000	130	249	288	260	235	44.8	147	4.8	73	122	129	102	161
LEACHATE INDICATORS:																	
Ammonia Nitrogen	<0.5	0.6	0.6	0.9	<0.5	<0.5	<0.5	<0.5	<0.5	12.8	0.823	< 0.5	< 0.5	0.977	0.758	<0.5	<0.5
BOD 5	<4	<4	6	<4	<4	4.8	<4	<4	<4	14	4	4	6	9	5	<4	<4
Bromide	<0.2	<0.2	<2	<2	<0.2	<0.2	<0.2	<2.0	<2.0	<2	<2	< 2	< 0.2	<0.20	<2	<2df	<0.2
COD	36	<20	140	<20	<20	68	79	64	205	67	<40	48	42	43	33	43	33
Chloride	280	370	870	1200	1300	833	1220	3110	995	715	1710	700	427	340	354	281	207
Nitrate	5.6	5	3.7	2.7	3.3	1.5	0.7	0.69	0.24	0.55	<0.2	1.1	3.3	3.3	3	3.74	2.23
Sulfate	62	83	190	310	140	122.4	73.4	232	107	86.2	245	85.6	150	108	112	132	93.7
Total Alkalinity	150	180	170	180	110	310	430	440	340	85	320	290	250	120	220	200	220
Total Dissolved Solids	850	990	2200	2500	2600	2030	2850	3230	1950	1250	3630	1740	1070	1040	1080	998	690
Total Hardness	200	250	310	260	260	186	270	510	462	462	630	223	317	215	281	339	210
Total Kjed. Nitrogen	1.7	1.2	3.4	2.5	1.6	1.58	1.26	<0.5	4.61	27.8	1.32	< 0.5	< 0.5	1.97	18.1	<0.5	1.47
Total Organic Carbon	43	10	15	15	25	20.7	28	18	21	22	21	20	14	13	16	13	16.6
Total Phenols	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.031	0.009	<0.005	<0.005	< 0.005	< 0.005	0.006	<0.005	<0.005	<0.005
Color			650					150	300					28			
Boron			0.6					<0.5	<0.5					<0.5			
INORGANIC PARAMETERS:																	
Aluminum			4.43					6.08	3.21					3.01			
Antimony			<0.015					0.0251	<0.015					<0.015			
Arsenic			0.016					<0.010	<0.010					<0.010			
Barium			0.187					0.187	0.176					0.0861			
Beryllium			<0.003					<0.003	<0.003					<0.003			
Cadmium	<0.005	0.0153	0.00562	0.00572	<0.005	<0.005	0.00649	0.0058	<0.005	<0.005	<0.005	< 0.005	< 0.005	<0.005	<0.005	<0.005	<0.005
Calcium	64.6	78.8	102	86.2	85.9	59.2	87.1	167	151	152	206	72.5	104	70.5	89.8	109	67.7
Chromium			0.0126					0.0542	0.0231					<0.005			
Hexavalent Chromium			<0.01					<0.010	<0.010					<0.010			
Cobalt			0.02					<0.020	<0.020					<0.020			
Copper			0.01					0.0146	0.0314					0.0125			
Total Cyanide			<0.01					<0.010	<0.010					<0.010			
Iron	19.5	53.2	105	96.4	15.6	19.9	31.5	22.5	22.1	5.35	6.23	6.84	4.52	8.4	5.24	4.96	9.12
Lead	<0.003	<0.003	<0.003	<0.003	<0.003	0.00955	0.00795	0.0101	0.00316	<0.003	0.00596	< 0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Magnesium	10.5	13.3	13.8	10.6	11.9	9.35	12.7	22.7	20.5	20.1	28.2	10.1	14.1	9.51	13.9	16.4	10
Manganese	0.334	0.617	0.382	0.202	0.177	0.137	0.163	0.244	0.281	0.232	0.363	0.192	0.322	0.255	0.323	0.351	0.223
Mercury			0.0014					<0.0002	<0.0002					<0.0002			
Nickel			<0.03					<0.030	<0.030					<0.030			
Potassium	10.8	9.92	15.4	14.1	14.3	9.75	12.1	12.8	16	37.1	36	20.3	13.4	9.83	15.3	11.8	8.15
Selenium			<0.005					<0.005	<0.005					0.0106			
Silver			<0.01					<0.010	<0.010					<0.010			
Sodium	209	179	230	245	628	483	593	692	568	601	799	500	262	219	250	215	155
Thallium			<0.010					<0.010	0.0108					<0.010			
Vanadium			0.0332					0.058	0.0366					<0.030			
Zinc			0.0323					0.0714	0.0363					<0.0381			

Notes:

1 Parameters listed are Part 360 Baseline or Routine Parameters Effective 1993.
2. Blanks indicate no analysis performed
3. "<" indicates not detected at the specified method detection limit (MDL)
4. Shaded values indicate detection above Standard.

TABLE 3
Groundwater Analytical Monitoring Data
MW-9I
Albany Interim Landfill/P-4 Project
CHA Project No. 12244

TEST PARAMETER (mg/l unless otherwise noted)	Unit	TOGS Guidance Value	Mean (EWQV)	Mean (EWQV) Plus 3 Std. Dev.	3Q98 Expnd	4Q98 Bsln	1Q99 Bsln	4Q99 Bsln	2Q00 Bsln	3Q00 Rtne	4Q00 Rtne	1Q01 Rtne	2Q01 Rtne	3Q01 Bsln	4Q01 Rtne	April-03 Routine	June-03 Routine	Sep-03 Baseline	Dec-03 Routine	Mar-04 Routine	Jun-04 Routine	Sep-04 Routine	Dec-04 Baseline	Mar-05 Baseline	Jun-05 Routine	Sep-05 Routine	Dec-05 Routine	Mar-06 Routine	Jun-06 Baseline	Sep-06 Routine	Dec-06 Routine	Mar-07 Routine
Temperature	C°		14.73	26.31	20	13	11	14.9	15.5		-31	11	20.1	17.1	12.5	14.12	15.1	15.37	12.96	14.03	16.4	16.27	13.74	15.59	17.4	17.62	16.2	15.67	18.67	17.87	17.74	17.21
Conductivity	uS		426.8	1825.46	800	860	22.7	24.5	23.9	2160	26.3	26.4	24	233	1818	2414	277	2212	1564	1973	1916	1891	1818	1834	2080	2011	228	1917	1346	1541.9	1772	1962
pH	SU	6.5-8.5	7.51	8.3	7.4	7.2	7.65	7.79	7.49	7.2	7.62	7.32	7.22	7.27	7.27	7.28	7.19	7.51	7.53	7.36	7.34	7.86	7.63	7.51	7.35	7.67	7.17	6.51	7.87	6.82	7.27	7.37
Eh	mV		-10.25	96.11	25	15	-35	-46	-24	213	-31	-45	OR	OR	OR	-104.1	-71	-132.9	-111.1	-96.6	-136.6	-155.2	-219.3	-107.8	64	-106	-22	125.6	-132.8	-98	-76.5	-120.3
Turbidity (after purging well)	N.T.U	5	118.4	469.35	293	74.6	60	46	68	96	107	114	133	134	98.3	0	15	9.06	12.4	9.2	10.3	7.64	21.6	6.67	9.23	38.7	0.8	27.3	11.1	21.4	27.4	21.9
LEACHATE INDICATORS:																																
Ammonia Nitrogen	mg/l	2	57.37	158.96	70	19		83.1	80.9	65	68.2	65.4	69.2	82	91.2	43	53	55	31	42	41.2	34.5	13.7	<0.5	10.4	13.7	< 0.5	29.1	24.9	31.6	22.2	23
BOD 5	mg/l		7.34	23.46	<4	15	4.34	7.02	4.78	17	11.3	. 4.27	3.77	>18	9.45	10	7	12	8	6	4	14	12	9	8	11	7	8	<8	7	9	9
Bromide	mg/l	2	1.5	6.2	<0.2	<0.2	3.01	2.7	3.44	3.2	2.77	3.07	3.38	2.28	2.65	0.3	2.4	<0.2	<0.2	2.1	<0.2	0.23	2.2	<0.2	<2	<2	< 2	< 2.0	<2	<2	<2.0	2.3
COD	mg/l		147.5	212.88	140	120	165	165	150	126	149	155	148	162	193	130	110	130	100	96	89	86	80	61	112	74	84	94	115	93	78	68
Chloride	mg/l	250	479.75	766.17	620	450	443	406	432	449	380	438	463	448	418	390	400	460	330	320	319	209	1070	347	368	207	318	297	321	362	310	266
Nitrate	mg/l	10	0.26	0.65	<0.2	<0.2	<0.5	<0.5	<0.5	<0.02	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2	<0.2	<0.2	<0.2	<0.2	1.6	<0.2	<0.2	<0.20	<0.2	<0.2	0.26	<0.2	0.66	<0.2	0.736	0.317
Sulfate	mg/l	250	2.94	8.15	5	<5	<2	<2	58.3	<2	<2	94.8	<2	<2	<2	<5	<5	<5	6	<5	<5	5.18	5.18	<5	6.67	<5	< 5	8.01	<5	<5	<5	<5
Total Alkalinity	mg/l		683.25	955.39	770	750	585	628	755	590	616	607	677	710	705	660	620	570	570	510	490	510	480	480	260	490	600	520	100	580	500	490
Total Dissolved Solids	mg/l	500	1210	1607.24	1400	1200	1110	1130	1260	1140	1150	1190	1270	1240	1220	1200	1200	1100	900	1000	938	925	872	875	862	1190	1220	1100	1020	1160	1020	917
Total Hardness	mg/l		303.5	477.23	344	361	267	242	372	321	350	322	401	370	340	390	350		280	280	291	332	351	307	416	423	468	409	341	460	338	375
Total Kjed. Nitrogen	mg/l		50.86	159.79	79	32	83.4	9.04	85.6	67	71.8	66.4	63.1	87.8	90.7	47	55	52	49	44	39.5	32.4	27.8	29.6	15.8	29	26.8	28.1	36.7	43.1	30.4	25
Total Organic Carbon	mg/l	500	48.03	65.62	51	54	46.6	40.5	45.1	45	42.2	38.44	38.65	48.4	43.4	190	55	41	43	72	65.7	47	37	36	27	27	29	30	28	75	29	48.2
Total Phenols	mg/l	0.001	0.004	0.004	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	0.00579	<0.005	0.00704	<0.005	<0.005	<0.005	0.005	<0.005	<0.005	<0.005	0.0063	<0.005	<0.005	0.008	<0.005	<0.005	< 0.005	< 0.005	<0.005	<0.005	<0.005	<0.005
Color	P.C.U.	15	97	323.02	210	58	60	60	70					90				170					150	120					90			
Boron	mg/l	1	1.12	1.47	1.2	12	1.12	0.948	1.11									0.9					0.739	0.732					<0.5			
INORGANIC PARAMETERS:																																
Aluminum	mg/l	0.1	4.3	13.09	6.45	7.19	1.62	1.94	REJECT					0.495				<0.1					0.259	0.109					<0.1			
Antimony	mg/l	0.003	0.03	0.09	<0.015	<0.015	<0.06	<0.06	<0.06					<0.06				<0.015					0.0216	<0.015					<0.015			
Arsenic	mg/l	0.025	0.09	0.11	0.0948	0.101	0.0901	0.0928	0.11					0.12				0.088					0.124	0.11					0.114			
Barium	mg/l	1	0.26	0.53	0.383	0.282	0.201	0.192	0.208					0.208				0.133					0.107	0.104					0.0879			
Beryllium	mg/l	0.003	0.003	0.006	<0.003	<0.003	<0.005	<0.005	<0.005					<0.005				<0.003					<0.003	<0.003					<0.003			
Cadmium	mg/l	0.01	0.004	0.004	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.00604	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	< 0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Calcium	mg/l		53	102.96	62.1	71.9	38.8	39.2	52.4	50	46.7	52.5	62.9	59.8	53.7	70.3	62.5	46	52.8	52.9	52.7	62.8	66.1	60.5	82.5	81.8	90.4	79.1	68.6	88.8	66	74.6
Chromium	mg/l		0.07	0.43	0.251	0.021	<0.01	<0.01	<0.01					<0.01				<0.005					<0.005	<0.005					<0.005			
Hexavalent Chromium	mg/l	0.05	0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01					<0.01				<0.01					<0.010	<0.010					<0.010			
Cobalt	mg/l	0.005	0.03	0.07	<0.02	<0.02.	<0.05	<0.05	<0.05					<0.05				<0.020					<0.020	<0.020					<0.020			
Copper	mg/l	0.2	0.03	0.08	0.0436	0.0409	<0.02	<0.02	<0.02					<0.02				0.032					0.011	0.0182					<0.010			
Total Cyanide	mg/l	0.1	0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01					<0.01				<0.01					<0.010	<0.010					<0.010			
Iron	mg/l	0.3	16.07	41.68	21.7	25	9.5	8.06	10.6	7.46	9.4	10.8	10.6	10.2	9.11	8.28	8.32	4.99	6.05	5.81	5.87	6.65	6.54	6.18	6.87	7.41	7.74	6.35	5.24	7.28	5.15	5.47
Lead	mg/l	0.025	0.01	0.06	0.0344	0.0099	0.00546	0.0061	<0.005	<0.005	<0.005	<0.005	0.0055	<0.005	<0.005	<0.003	<0.003	<0.003	0.00383	<0.003	0.00497	<0.003	<0.003	<0.003	<0.003	<0.003	< 0.003	< 0.003	<0.003	<0.003	<0.003	<0.003
Magnesium	mg/l	35	39.35	58.86	45.8	44.1	33.8	33.7	54.5	47	44.3	45.4	56.1	51.2	44.9	51.6	46.2	31.1	36.5	36.8	38.7	42.5	45	38	51	53.2	58.8	51.3	41.2	57.8	42.1	45.8
Manganese	mg/l	0.3	0.25	0.74	0.33	0.434	0.124	0.0953	0.124	0.07	0.0814	0.0963	0.11	0.0831	0.0736	0.0882	0.0859	0.0458	0.0597	0.063	0.0683	0.0757	0.0798	0.0697	0.0806	0.0737	0.0821	0.0633	0.0525	0.0684	0.0903	0.0495
Mercury	mg/l	0.002	0.0002	0.0003	<0.0002	<0.0002	<0.0003	<0.0003	<0.0003					<0.0002				<0.002					<0.0002	<0.0002					<0.0002			
Nickel	mg/l	0.007	0.08	0.22	0.15	0.0793	0.0482	0.0497	0.061					0.0526				0.0352					0.0314	<0.030					<0.030			
Potassium	mg/l		97.68	131.63	113	99.1	91.2	87.4	86.8	82	73.4	80	81.6	67	95.5	62.4	57.3	46.7	63	44.2	50.3	40.5	46.5	36.3	45.6	38.7	40.9	40.7	40.5	46.8	31.3	27.4
Selenium	mg/l	0.01	0.004	0.004	<0.005	<0.005	<0.005	<0.005	<0.005					<0.005				<0.005					0.0342	<0.005					<0.005			
Silver	mg/l	0.05	0.01	0.01	REJECT	<0.01	<0.01	<0.01	<0.01					<0.01				<0.01					<0.010	0.01					<0.010			
Sodium	mg/l	20	290	451.68	263	370	254	273	258	216	227	252	254	221	271	264	199	202	231	220	201	202	200	184	212	186	207	196	162	223	185	162
Thallium	mg/l	0.004	0.01	0.03	0.0194	<0.01	<0.01	<0.01	<0.01					<0.01				<0.01					<0.010	<0.010					<0.010			
Vanadium	mg/l	0.014	0.03	0.06	<0.03	<0.03	<0.05	<0.05	<0.05					<0.05				<0.03					<0.030	<0.030					<0.030			
Zinc	mg/l	0.3	0.06	0.22	0.0695	0.131	0.0163	0.0308	0.0289					0.0275				0.0252					0.0404	0.0686					0.0121			

Notes:

1. Parameters listed are Part 360 Baseline or Routine Parameters Effective 1993.
2. Blanks indicate no analysis performed
3. "<" indicates not detected at the specified method detection limit (MDL)
4. Shaded values indicate detection above Standard.

TABLE 3
Groundwater Analytical Monitoring Data
MW-9D
Albany Interim Landfill/P-4 Project
CHA Project No. 12244

TEST PARAMETER (mg/l unless otherwise noted)	Unit	TOGS Guidance Value	Mean (EWQV)	Mean (EWQV) Plus 3 Std. Dev.	3Q98 Expnd	3Q98 Bsln	1Q99 Bsln	4Q99 Bsln	2Q00 Bsln	3Q00 Rtne	4Q00 Rtne	1Q01 Rtne	2Q01 Rtne	3Q01 Bsln	4Q01 Rtne
Temperature	C°		15.5	32.62	24	12	12.4	13.6	15.5		6	11.1	14.8	16.5	
Conductivity	uS		322.43	818.92	550	340	196.7	203	359	194	390	202	191	187	NA
pH	SU	6.5-8.5	8.81	9.89	8.6	8.4	9.14	9.08	8.4	8.5	9.06	8.47	7.9	8.31	
Eh	mV		-32	262.44	65	40	-113	-120	-74	187	-97	105	35	10	
Turbidity (after purging well)	N.T.U	5	1656.98	8509.34	191.9	186	1250	5000	2400	>1000	3000	8860	12400	11800	
LEACHATE INDICATORS:															
Ammonia Nitrogen	mg/l	2	0.62	1.63	1.1	0.6	0.357	0.418	0.186	0.3	0.144	0.146	0.115	0.286	
BOD 5	mg/l		2.25	4.85	<4	<4	<2	<2	3.01	2	3.66	5.79	<2	<2	
Bromide	mg/l	2	0.45	1.49	<0.2	<0.2	<1	<1	<1	<1	<1	<1	<1	<1	
COD	mg/l		19.26	53.11	29	26	<5	18.3	11.1	359	<5	<5	21.7	19.3	
Chloride	mg/l	250	3.74	16.59	<0	3	<1	1.21	1.17	1.1	<1	<1	<1	1.11	
Nitrate	mg/l	10	0.26	0.65	<0.2	<0.2	<0.5	<0.5	<0.5	<0.02	<0.5	<0.5	<0.5	<0.5	
Sulfate	mg/l	250	3.96	<0.40	7	<5	2.02	3.07	3.61	2.9	2.93	2.21	2.97	2.96	
Total Alkalinity	mg/l		129.25	310.87	96	100	220	101	107	420	110	105	104	312	
Total Dissolved Solids	mg/l	500	161.5	225.82	160	190	158	138	173	128	239	180	208	136	
Total Hardness	mg/l		817	2890.68	260	188	1300	1520	5340	1644	2900	1700	9150	9500	
Total Kjed. Nitrogen	mg/l		0.92	2.23	0.8	1	0.429	1.47	3.9	9.8	4.73	0.482	14.7	37.7	
Total Organic Carbon	mg/l	500	2.04	6.17	4	2	1.16	1.02	1.61	1.9	0.98	1.29	1.28	1.66	
Total Phenols	mg/l	0.001	0.004	0.004	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.005		<0.005	<0.005	
Color	P.C.U.	15	44.88	256.7	150	22	<5	<5	10					30	
Boron	mg/l	1	0.22	0.72	<0.1	<0.1	0.377	0.348	0.441					1.09	
INORGANIC PARAMETERS:															
Aluminum	mg/l	0.1	61.19	247.67	12.5	3.26	<05	124	REJECT					573	
Antimony	mg/l	0.003	0.03	0.09	<0.015	<0.015	<0.06	<0.06	<0.06					0.12	
Arsenic	mg/l	0.025	0.05	0.2	0.0189	0.0147	REJECT	0.107	0.119					0.36	
Barium	mg/l	1	0.47	2.01	0.0525	0.0508	0.678	1.1	1.27					4.09	
Beryllium	mg/l	0.003	4	0.009	<0.003	<0.003	<0.005	0.0058	0.0087					0.0135	
Cadmium	mg/l	0.01	0.004	0.004	<0.005	<0.005	<0.005	<0.005	0.008	<0.005	0.0064	<0.005	0.0085	0.0122	
Calcium	mg/l		731.83	3357.48	76.6	55.7	885	1910	1870	610	2850	609	2990	5440	
Chromium	mg/l		6.14	0.38	0.184	0.0267	0.204	0.159	0.211					0.715	
Hexavalent Chromium	mg/l	0.05	0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01					<0.01	
Cobalt	mg/l	0.005	0.06	0.22	<0.02	<0.02	0.0868	0.125	0.174					0.498	
Copper	mg/l	0.2	0.2	0.83	0.0347	0.0193	0.269	0.464	0.483					1.34	
Total Cyanide	mg/l	0.1	0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01					<0.05	
Iron	mg/l	0.3	220.18	962.31	24.1	8.63	331	517	487	11	1000	372	801	1650	
Lead	mg/l	0.025	0.07	0.27	0.0302	0.0072	0.104	0.149	0.115	<0.005	0.319	0.153	0.211	0.45	
Magnesium	mg/l	35	115.45	476.78	16.8	12	180	253	318	29	732	163	596	1170	
Manganese	mg/l	0.3	5.25	21.91	0.659	0.405	8.62	11.3	17.1	3.87	30.1	7.96	24.4	53.4	
Mercury	mg/l	0.002	0.0002	0.0003	<0.0002	<0.0002	<0.0003	<0.0003	0.00043					0.00079	
Nickel	mg/l	0.007	0.16	6.49	0.123	<0.03	0.219	0.273	0.339					1.01	
Potassium	mg/l		12.51	40.06	5.84	3.49	21.8	18.9	19.5	2	42.9	33.9	49.2	75.3	
Selenium	mg/l	0.01	0.01	0.02	<0.005	<0.005	0.0115	0.0052	0.0477					0.0217	
Silver	mg/l	0.05	0.01	0.01	REJECT	<0.01	<0.01	<0.01	<0.01					<0.02	
Sodium	mg/l	20	23.1	35.92	18.3	20.9	25.5	27.7	28.8	22	35.3	26.4	29.2	27	
Thallium	mg/l	0.004	0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.05					0.3	
Vanadium	mg/l	0.014	0.17	0.67	<0.03	<0.03	0.329	0.291	0.43					1.7	
Zinc	mg/l	0.3	0.39	1.27	0.163	0.144	0.518	0.745	0.924					2.79	

TEST PARAMETER (mg/l unless otherwise noted)	April-03 Routine	June-03 Routine	Sep-03 Baseline	Dec-03 Routine	Mar-04 Routine	Jun-04 Routine	Sep-04 Routine	Dec-04 Baseline	Mar-05 Baseline	Jun-05 Routine	Sep-05 Routine	Dec-05 Routine	Mar-06 Routine	Jun-06 Baseline	Sep-06 Routine	Dec-06 Routine	Mar-07 Routine
Temperature	12.97	14.5	14.22	12.49	12.9	14.8	14.25	11.45	13.35	15	14.86	13.1	13.36	15.65	15.15	14.82	14.95
Conductivity	194	345	206	173	194	214	222	256	197	260	208	386	248	145	148.7	222	209
pH	8.45	7.54	8.56	8.16	7.75	7.84	8.52	7.86	8.42	8.72	8.27	8.01	7.46	8.14	8.59	8.16	8.24
Eh	-48.6	-39	-21.7	-109.1	-5.9	-139.2	-115	-219.9	-154.8	99	-82	-70	100.2	-108.9	-156.8	-119.7	-160.3
Turbidity (after purging well)	800	312	1000	458	150	186	160	69.5	65.7	15	139	9.8	51.8	40.9	79.2	51.4	59.4
LEACHATE INDICATORS:																	
Ammonia Nitrogen	<0.5	<0.5	0.8	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	1.48	<0.5	< 0.5	< 0.5	<0.5	1.15	<0.5	<0.5
BOD 5	<4	<4	4	<4	<4	<4	<4	<4	<4	<4	<4	< 4	4	<8	<4	<4	<4
Bromide	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.20	<0.2	<2	< 0.2	<2	<0.2	<0.2	<0.2	<0.2
COD	38	<20	59	<20	21	<20	23	<20	<20	<20	40	< 20	< 20	<20	<20	<20	<20
Chloride	2	3	<1	2	<1	<1	1.53	7.4	6.89	91.9	1.58	8.38	17.5	46.4	26.2	58.3	2.81
Nitrate	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	0.3	<0.20	<0.2	1.2	<0.2	< 0.2	< 0.2	<0.2	<0.2	<0.2	<0.2
Sulfate	<5	<5	<5	<5	<5	3.73	5.69	8.43	11.3	6.11	<5	< 5	< 5	<5	3.3	<5	<5
Total Alkalinity	110	96	100	110	500	110	110	170	110	110	100	250	150	210	140	180	98
Total Dissolved Solids	150	160	180	50	130	122	128	582	135	52	340	212	193	112	190	182	<25
Total Hardness	850	700	410	930	430	314	324	145	152	320	324	100	143	91.2	191	95.9	137
Total Kjed. Nitrogen	1.1	1.7	2.6	<0.5	<0.5	<0.5	<0.5	<0.5	1.32	31.3	<0.5	< 0.5	< 0.5	<0.5	2.47	<0.5	<0.5
Total Organic Carbon	<3	6	15	<3	<3	<3	<3	<3	<3	<3	<3	< 3	< 3	<3	<3	<3	8.4
Total Phenols	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	< 0.005	< 0.005	<0.005	<0.005	<0.005	<0.005
Color			200					10	30					45			
Boron			<0.5					<0.5	<0.5					<0.5			
INORGANIC PARAMETERS:																	
Aluminum			11.1					3.91	4.77					1.45			
Antimony			<0.015					<0.015	<0.015					<0.015			
Arsenic			0.0173					0.0212	0.0127					0.0149			
Barium			0.151					0.0569	0.0632					<0.05			
Beryllium			<0.003					<0.003	<0.003					<0.003			
Cadmium	<0.005	0.00956	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	< 0.005	< 0.005	<0.005	<0.005	<0.005	<0.005
Calcium	254	240	120	274	126	90	92.9	40.8	42.8	91.3	92.3	28.9	40.3	25.7	53.4	27.8	39.1
Chromium			0.0139					<0.005	0.00646					<0.005			
Hexavalent Chromium			<0.01					<0.010	<0.010					<0.010			
Cobalt			<0.02					<0.020	<0.020					<0.02			
Copper			0.0756					0.0127	0.0227					<0.010			
Total Cyanide			<0.01					<0.010	<0.010					<0.010			
Iron	59.8	18.4	29.3	29.4	12.4	11.4	18.1	8.46	9.82	23.7	22.4	1.85	8	3.4	12.4	1.82	6.19
Lead	0.013	<0.003	0.0121	<0.003	0.00383	0.0115	0.01	0.00489	0.00417	0.0134	0.00755	0.0043	0.00498	<0.003	0.00548	<0.003	<0.003
Magnesium	53.3	24.6	27.6	59	28	21.6	22.4	10.4	10.9	22.3	22.8	6.82	10.4	6.54	14	6.43	9.63
Manganese	2.25	1.88	1.2	2.4	1.03	0.8	0.793	0.289	0.332	0.894	0.83	0.21	0.307	0.163	0.487	0.186	0.286
Mercury			0.007					<0.0002	<0.0002					<0.0002			
Nickel			<0.03					<0.030	<0.030					<0.030			
Potassium	6.4	3.44	3.48	3.46	2.39	1.78	2.53	1.86	4.94	3.71	3.23	< 1	1.71	<1	1.97	<1	1.09
Selenium			<0.005					<0.005	<0.005					0.00671			
Silver			<0.010					<0.010	<0.010					<0.01			
Sodium	17.9	18.3	12.8	17.2	16.9	16.7	15.9	16.3	16.3	19.5	18.9	13.7	18.7	16.7	18.4	14.9	17.1
Thallium			<0.01					<0.010	<0.010					<0.010			
Vanadium			<0.03					<0.030	<0.030					<0.030			
Zinc			0.0886					0.0419	0.0684					0.0179			

Notes:

1 Parameters listed are Part 360 Baseline or Routine Parameters Effective 1993.
2. Blanks indicate no analysis performed
3. "<" indicates not detected at the specified method detection limit (MDL)
4. Shaded values indicate detection above Standard.

TABLE 3
Groundwater Analytical Monitoring Data
MW-10S
Albany Interim Landfill/P-4 Project
CHA Project No. 12244

TEST PARAMETER (mg/l unless otherwise noted)	Unit	TOGS Guidance Value	Mean (EWQV)	Mean (EWQV) Plus 3 Std. Dev.	08/98 Expnd	10/98 Bsln	3/99 Bsln	10/99 Bsn	2Q00 Bsln	3Q00 Rtne	4Q00 Rtne	1Q01 Rtne	2Q01 Rtne	3Q01 Bsln	4Q01 Rtne	1Q02 Rtne
Temperature	C°		13.23	27.53	20	12	12.1	S.BI	15.5		6	8.8	18.9	14.9	8.3	9
Conductivity	uS		591.75	1279.13	600	900	355	512	633	431	728	408	349	361	409	302
pH	SU	6.5-8.5	8.33	10.45	9	8.6	7.34	8.37	7.28	7.3	8.34	6.98	7.02	7.41	7.28	7.39
Eh	mV		4	190.82	60	45	-12	-77	-10	300	-60	245	200	180	125	90
Turbidity (after purging well)	N.T.U	5	511.75	1397.39	133	854	540	520	520	550	587	370	267	550	24.2	178
LEACHATE INDICATORS:																
Ammonia Nitrogen	mg/l	2	0.21	0.79	<0.5	<0.5	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	NA	<0.05	<0.05	<0.05
BOD 5	mg/l		2.25	4.85	<4	<4	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2.0
Bromide	mg/l	2	0.45	1.49	<0.2	<0.2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1.0
COD	mg/l		15.46	62.99	38	<20	5.09	<5	<5	19	<5	<5	NA	<5	<5	<5.0
Chloride	mg/l	250	19.4	34.24	19	18	14.4	26.2	29.3	24	25.3	16.1	10.4	15.2	11.1	18.3
Nitrate	mg/l	10	1.28	2.52	1.2	1.6	0.733	1.6	2.26	1.1	0.714	0.717	0.849	<0.5	0.89	<0.5
Sulfate	mg/l	250	26.48	74.75	50	14	19.1	22.8	30.3	21	28.3	24.5	25.9	23.7	27.1	25.5
Total Alkalinity	mg/l		198.75	300.79	240	210	161	184	178	196	176	310	NA	177	180	139
Total Dissolved Solids	mg/l	500	285	484.37	370	300	215	255	282	260	265	223	216	224	241	207
Total Hardness	mg/l		342.25	968.64	653	274	212	230	210	185	220	255	167	178	218	144
Total Kjed. Nitrogen	mg/l		1.8	6.79	4	2.1	0.211	0.875	1.19	<1	0.984	0.391	NA	0.702	<0.2	0.259
Total Organic Carbon	mg/l	500	1.65	3.05	2	1	1.64	1.97	2.37	2	1.77	1.4	1.45	1.5	1.69	1.06
Total Phenols	mg/l	0.001	0.004	0.004	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Color	P.C.U.	15	10.19	24.46	12	15	10	<5	<5					200		
Boron	mg/l	1	0.11	0.24	<0.1	<0.1	<0.2	<0.2	<0.2							
INORGANIC PARAMETERS:																
Aluminum	mg/l	0.1	44.15	150.45	96.8	33.1	25.2	21.5	REJECT					25.1		
Antimony	mg/l	0.003	0.03	0.09	<0.015	<0.015	<0.06	<0.06	<0.06					<0.06		
Arsenic	mg/l	0.025	0.03	0.16	0.0977	0.0122	<0.01	<0.01	<0.01					<0.01		
Barium	mg/l	1	0.19	0.62	0.406	0.155	0.114	0.103	0.0891					0.115		
Beryllium	mg/l	0.003	0.01	0.02	0.0105	<0.003	<0.005	<0.005	<0.005					<0.005		
Cadmium	mg/l	0.01	0.005	0.012	0.0086	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Calcium	mg/l		97.33	280.63	188	79.4	58.7	63.2	74.6	62	72.2	57.8	53.2	56.9	63.5	46.8
Chromium	mg/l		0.13	0.24	0.167	0.156	0.112	0.0899	0.328					0.413		
Hexavalent Chromium	mg/l	0.05	0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01					<0.01		
Cobalt	mg/l	0.005	0.04	0.1	0.074	0.0294	<0.05	<0.05	<0.05					<0.05		
Copper	mg/l	0.2	0.13	0.41	0.262	0.115	0.0685	0.0584	0.0494					0.0324		
Total Cyanide	mg/l	0.1	0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01					<0.01		
Iron	mg/l	0.3	90.73	259.86	173	81.6	56.1	52.2	52.5	6.96	41.9	20.5	16.5	39.1	2.53	13.4
Lead	mg/l	0.025	0.05	0.19	0.118	0.0347	0.0217	0.0218	0.0267	<0.005	0.00724	<0.005	<0.005	0.0112	<0.005	<0.005
Magnesium	mg/l	35	22.2	67.44	44.5	18.3	12.5	13.5	14.8	7.4	14	8.53	8.27	14	10.9	8.51
Manganese	mg/l	0.3	2.77	8.21	5.48	1.87	1.69	2.03	1.83	0.46	1.44	0.869	0.811	1.42	0.652	0.727
Mercury	mg/l	0.002	0.0002	0.0003	<0.0002	<0.0002	<0.0003	<0.0003	<0.0003					<0.0002		
Nickel	mg/l	0.007	0.08	0.2	0.138	0.0763	0.0531	0.0534	109					0.0649		
Potassium	mg/l		6.78	12.46	9.35	6.28	6.68	4.81	6.57	3.4	7.45	4.61	4.71	7.08	2.01	3.88
Selenium	mg/l	0.01	0.004	0.008	<0.005	<0.005	<0.005	0.0062	<0.005					<0.005		
Silver	mg/l	0.05	0.01	0.01	REJECT	<0.01	<0.01	<0.01	<0.01					<0.01		
Sodium	mg/l	20	26.1	41.28	31.6	29	20.7	23.1	28.5	18	14.3	14.4	14.2	13.6	10.7	16.3
Thallium	mg/l	0.004	0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01					<0.01		
Vanadium	mg/l	0.014	0.12	0.32	0.22	0.113	0.0815	0.0759	0.0728					0.0734		
Zinc	mg/l	0.3	0.25	0.88	0.558	0.213	0.116	0.11	0.286					0.0901		

TEST PARAMETER (mg/l unless otherwise noted)	April-03 Routine	June-03 Routine	Sep-03 Baseline	Dec-03 Routine	Mar-04 Routine	Jun-04 Routine	Sep-04 Routine	Dec-04 Baseline	Mar-05 Baseline	Jun-05 Routine	Sep-05 Routine	Dec-05 Routine	Mar-06 Routine	Jun-06 Baseline	Sep-06 Routine	Dec-06 Routine	Mar-07 Routine
Temperature	11.14	9.7	11.99	12.55	10.47	10.29	12.49	11.99	10.76	10.4	12.17	13.2	9.99	10.7	12.53	12.88	11.36
Conductivity	401	701	566	597	510	568	835	809	761	1013	873	1727	871	605	486.8	356	478
pH	7.17	7.64	7.39	7.45	7.24	7.05	7.09	7.21	7.06	7.6	7.68	7.37	6.51	7.77	7.93	7.44	7.74
Eh	109.1	38	-30.8	-25.5	-5.9	-19.1	-121.4	-197.5	10.8	66	0	-29	193.4	-68	-7	32.2	12.9
Turbidity (after purging well)	23	384	198	162	650	353	615	722	>1000	10.4	789	53.5	483	502	741	496	1000
LEACHATE INDICATORS:																	
Ammonia Nitrogen	<0.5	0.5	<0.5	<0.5	0.9	<0.5	<0.5	<0.500	<0.50	<0.5	<0.5	< 0.5	< 0.5	<0.5	<0.5	<0.5	<0.5
BOD 5	<4	4	<4	<4	<4	<4	<4	<8	<4	<4	<4	< 4	< 4	<8	<4	<4	<4
Bromide	<0.2	0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.20	<0.2	<2	< 2	<0.2	<2	<0.2	<0.2	<0.2
COD	<20	20	<20	<20	<20	<20	27	<20	102	23	<20	< 20		<20	<20	<20	<20
Chloride	26	36	59	100	30	77	139	133	90.9	117	113	308	122	155	97.3	64.8	16.8
Nitrate	2.3	1.9	1.9	3.8	2.7	1.9	4	2.8	1	0.35	0.74	1.7	< 0.2	0.87	1.7	1.37	2.19
Sulfate	23	40	43	68	47	23.5	59.9	78.3	93.4	47.5	95.7	85.6	29.7	34.3	43.5	43.7	75.3
Total Alkalinity	140	170	160	160	180	180	140	200	130	57	100	140	210	520	140	170	110
Total Dissolved Solids	270	300	380	480	300	320	592	892	442	367	685	910	550	488	415	360	270
Total Hardness	160	190	180	270	190	191	292	251	243	247	244	332	224	178	148	153	112
Total Kjed. Nitrogen	0.9	0.6	<0.5	<0.5	1 6	<0.5	<0.5	<0.5	0.658	<0.5	<0.5	< 0.5	< 0.5	<0.5	<0.5	<0.5	<0.5
Total Organic Carbon	<3	3	<3	<3	<3	<3	<3	<3	<3	<3	<3	< 3	< 3	<3	<3	<3	<3
Total Phenols	<0.005	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.017	<0.005	<0.005	< 0.005	< 0.005	<0.005	<0.005	<0.005	<0.005
Color			48					10	70					16			
Boron			<0.5					<0.50	<0.5					<0.5			
INORGANIC PARAMETERS:																	
Aluminum			2.29					6.38	4.04					5.05			
Antimony			<0.015					0.0376	<0.015					0.0183			
Arsenic			<0.01					<0.010	<0.010					<0.010			
Barium			<0.05					<0.050	<0.050					<0.050			
Beryllium			<0.003					<0.003	<0.003					<0.003			
Cadmium	<0.005	0.00727	<0.005	<0.005	<0.005	<0.005	0.00757	<0.005	<0.005	<0.005	<0.005	< 0.005	< 0.005	<0.005	<0.005	<0.005	<0.005
Calcium	50.1	60.4	57.7	88.8	60.5	63.8	94.3	81.7	78	76.8	72.8	111	73	55	46.3	49.4	34
Chromium			0.052					2.77	4.27					3.89			
Hexavalent Chromium			<0.01					<0.010	<0.010					<0.010			
Cobalt			<0.02					<0.020	<0.020					<0.020			
Copper			0.037					0.0275	0.0526					0.0309			
Total Cyanide			<0.01					<0.010	<0.010					<0.010			
Iron	7.22	25.3	6.81	8.11	23.2	1.31	36.6	24.9	24.9	17.9	38.3	18.5	32.3	29.4	34.8	25.3	34.8
Lead	<0.003	0.0107	0.003	<0.003	0.00781	0.0154	0.0188	0.00399	0.00484	0.00471	0.00851	0.00605	0.00725	0.00556	0.0076	0.00332	0.00783
Magnesium	7.53	10.1	7.92	12.2	9.52	7.74	13.8	1.14	11.8	13.5	15.1	13.6	10.1	9.89	7.88	7.25	6.67
Manganese	0.422	1.31	0.417	0.367	0.952	0.0545	1.26	0.67	0.616	0.571	0.895	0.353	0.669	0.791	1.05	0.772	1.07
Mercury			<0.0002					<0.0002	<0.0002					<0.0002			
Nickel			<0.03					0.12	0.208					0.135			
Potassium	2.63	5.61	2.7	3.3	3.34	2.47	4.82	3.92	3.72	4.02	4.74	4.42	4.36	3.21	3.86	3.52	2.85
Selenium			<0.005					<0.005	<0.005					<0.00554			
Silver			<0.01					<0.010	<0.010					0.0125			
Sodium	15.3	23.3	18.4	35.8	27.7	28.4	31.9	35.7	47.8	46.9	61.9	154	80.5	63.2	56.3	70.4	33.1
Thallium			<0.01					<0.010	<0.010					<0.010			
Vanadium			<0.03					<0.030	<0.030					<0.030			
Zinc			0.0232					0.0248	0.0262					0.0379			

Notes:

1. Parameters listed are Part 360 Baseline or Routine Parameters Effective 1993.
2. Blanks indicate no analysis performed
3. "<" indicates not detected at the specified method detection limit (MDL)
4. Shaded values indicate detection above Standard.

TABLE 3
Groundwater Analytical Monitoring Data
MW-10I
Albany Interim Landfill/P-4 Project
CHA Project No. 12244

TEST PARAMETER (mg/l unless otherwise noted)	Unit	TOGS Guidance Value	Mean (EWQV)	Mean (EWQV) Plus 3 Std. Dev.	08/98 Expnd	10/98 Bsln	3/99 Bsln	10/99 Bsn	2Q00 Bsln	3Q00 Rtne	4Q00 Rtne	1Q01 Rtne	2Q01 Rtne	3Q01 Bsln	4Q01 Rtne	1Q02 Rtne
Temperature	C°		13.08	25.46	19	12	11.9	9.4	15.5		7.9	9.71	18.91	14.6	8.8	9.2
Conductivity	uS		846	1809.27	400	840	1008	1136	-3.43	999	1291	1107	953	854	827	782
pH	SU	6.5-8.5	8.04	9.14	8.4	7.6	7.89	8.28	7.24	7	7.8	7.2	7.2	7.2	7.2	7.3
Eh	mV		-17.75	221.7	-80	100	-38	-73	-10	179	-40	100	25	40	-10	30
Turbidity (after purging well)	N.T.U	5	218	862.92	516	232	84	40	29	45	35.6	41.6	64.1	51.9	62.1	68.4
LEACHATE INDICATORS:																
Ammonia Nitrogen	mg/l	2	1.44	9.18	<0.5	5.3	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.005	<0.05	<0.05
BOD 5	mg/l		2.25	4.85	<4	<4	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2.0
Bromide	mg/l	2	0.45	1.49	<0.2	<0.2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1.0
COD	mg/l		24.4	53.35	-31	34	18.8	13.8	13.1	11	9.87	12.4	11.8	8.9	10.8	9.24
Chloride	mg/l	250	49.23	104.49	-75	34	49.7	38.2	17.5	24	20.9	23	17.5	7.14	16	16.1
Nitrate	mg/l	10	0.26	0.65	<0.2	<0.2	<0.5	<0.5	<0.5	0.02	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Sulfate	mg/l	250	36	52.14	28	39	37.7	39.3	35.6	39	36	32.6	31.3	22	27.4	25.5
Total Alkalinity	mg/l		472.75	791.01	450	570	333	538	670	485	556	589	635	620	598	636
Total Dissolved Solids	mg/l	500	644.5	907.37	650	730	675	523	687	644	631	662	686	636	641	643
Total Hardness	mg/l		326.5	990.91	352	730	449	498	600	581	565	595	650	590	50	655
Total Kjed. Nitrogen	mg/l		0.8	2.26	<0.5	1.5	0.6888	0.634	0.569	<1	0.526	0.262	<02	0.201	0.228	0.266
Total Organic Carbon	mg/l	500	7.26	11.08	9	7	7.08	5.94	4.98	5.4	3.97	3.73	3.67	3.88	3.82	3.15
Total Phenols	mg/l	0.001	0.004	0.004	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.005	<0.005	<0.005		<0.005	<0.005
Color	P.C.U.	15	192.19	1268.01	20	11	15	<5	15					15		
Boron	mg/l	1	10.14	67.86	0.6	0.6	0.452	0.509	0.41					0.27		
INORGANIC PARAMETERS:																
Aluminum	mg/l	0.1	6.98	32.07	224	19.5	2.66	3.53	REJECT					1.63		
Antimony	mg/l	0.003	0.03	0.09	<0.015	<0.015	<0.06	<0.06	<0.06					<0.06		
Arsenic	mg/l	0.025	1.76	12.24	<0.01	0.0245	<0.01	<0.01	<0.01					<0.01		
Barium	mg/l	1	182.54	1277.46	<0.05	0.123	0.0507	0.0629	0.0533					0.0476		
Beryllium	mg/l	0.003	9.75	68.25	<0.003	<0.003	<0.005	<0.005	<0.005					<0.005		
Cadmium	mg/l	0.01	142.5	997.5	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Calcium	mg/l		135.78	293.6	97.1	211	102	133	150	154	147	157	165	162	155	172
Chromium	mg/l		0.02	0.08	0.0123	0.0498	<0.01	<0.01	<0.01					<0.01		
Hexavalent Chromium	mg/l	0.05	0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01					<0.01		
Cobalt	mg/l	0.005	0.03	0.06	0.02	0.024	<0.05	<0.05	<0.05					<0.05		
Copper	mg/l	0.2	0.04	0.17	0.021	0.104	0.025	0.0206	<0.02					<0.02		
Total Cyanide	mg/l	0.1	0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01					<0.01		
Iron	mg/l	0.3	15.55	79.87	4.97	47.7	5.36	4.16	3.4	0.97	1.88	3.37	2.58	2.69	3.3	4.24
Lead	mg/l	0.025	0.01	0.03	0.0072	0.018	<0.005	0.0066	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Magnesium	mg/l	35	36.75	67.38	26.6	49.2	30.5	40.7	48.2	48	46.3	48.9	50.6	52.3	50.6	55
Manganese	mg/l	0.3	0.97	2.78	0.459	1.83	0.678	0.917	0.957	0.81	0.853	0.939	0.998	0.954	0.927	1.11
Mercury	mg/l	0.002	0.0002	0.0003	<0.0002	<0.0002	<0.0003	<0.0003	<0.0003					<0.0002		
Nickel	mg/l	0.007	0.08	0.38	<0.03	0.231	<0.04	<0.04	<0.04					<0.04		
Potassium	mg/l		3.48	8.92	3.64	5.98	2.08	2.2	2.04	1.4	<2	<2	<2	<5	2.1	2.36
Selenium	mg/l	0.01	0.004	0.004	<0.005	<0.005	<0.005	<0.005	<0.005					<0.005		
Silver	mg/l	0.05	0.01	0.01	REJECT	<0.01	<0.01	0.0106	<0.01					<0.01		
Sodium	mg/l	20	107.33	186.21	112	142	93.8	81.5	51.4	30	30.5	27.6	24.6	22.9	18.3	13.4
Thallium	mg/l	0.004	0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01					<0.01		
Vanadium	mg/l	0.014	0.03	0.06	<0.03	0.0422	<0.05	<0.05	<0.05					<0.05		
Zinc	mg/l	0.3	0.07	0.3	0.0688	0.179	0.0215	<0.02	0.0211					<0.02		

TEST PARAMETER (mg/l unless otherwise noted)	April-03 Routine	June-03 Routine	Sep-03 Baseline	Dec-03 Routine	Mar-04 Routine	Jun-04 Routine	Sep-04 Routine	Dec-04 Baseline	Mar-05 Baseline	Jun-05 Routine	Sep-05 Routine	Dec-05 Routine	Mar-06 Routine	Jun-06 Baseline	Sep-06 Routine	Dec-06 Routine	Mar-07 Routine
Temperature	11.99	12.4	12.6	11.76	11.17	12.64	12.62	10.62	11.3	13.3	12.67	9.5	10.78	13.47	12.38	11.94	12.22
Conductivity	1106	944	942	767	916	954	1000	936	1052	1172	982	473	754	498	516.9	785	909
pH	7.05	7.33	7.31	7.42	7.22	6.39	7.33	7.53	7.25	7.59	7.78	7.08	7.01	7.83	8.52	7.44	7.43
Eh	-36.3	7	-77.1	-51.1	-34.7	-31.5	-139.2	-227.6	-12.8	65	-20.2	-17	163.5	-73.6	-17	11.3	-33.1
Turbidity (after purging well)	100	79.5	94.1	73.5	130	170	277	92.1	93.9	61.7	131	48	144	134	90.7	146	55.9
LEACHATE INDICATORS:																	
Ammonia Nitrogen	2.5	3.4	3.1	6.1	9.5	10.7	14.9	14.2	<0.50	<0.5	<0.5	8.9	5.76	5.31	5.05	5.67	5.81
BOD 5	<4	<4	<4	<4	<4	4.8	8	4	<4	<4	<4	< 4	< 4	<8	<4	<4	<4
Bromide	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.20	<0.20	<0.2	<0.2	< 0.2	< 0.2	<2	<0.2	<0.2	<0.2
COD	<20	23	<20	21	21	24	29	<20	<20	65	<20	< 20	22	<20	<20	<20	<20
Chloride	14	19	15	15	17	17.1	18.4	20.9	45.9	91.9	56.3	764	20.6	15.9	15.4	23.2	11.8
Nitrate	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.20	<0.20	0.56	<0.2	< 0.2	< 0.2	<0.2	<0.2	0.285	<0.2
Sulfate	25	23	24	35	26	25.9	38.5	38.1	95.7	31	30.2	150	21.8	25	34.4	20.8	44.8
Total Alkalinity	600	380	510	520	500	450	510	520	510	460	370	380	350	210	380	390	420
Total Dissolved Solids	660	430	550	600	510	505	515	995	550	450	922	1900	520	390	458	535	475
Total Hardness	560	340	440	500	450	478	507	498	485	544	437	636	213	289	357	411	372
Total Kjed. Nitrogen	2.6	3.1	4.7	6.1	9.5	11.1	13.1	16.6	18.1	<0.5	3.95	10.2	4.77	6.75	4.94	6.58	11.7
Total Organic Carbon	110	30	<6	62	<6	61.5	80	98	35	32	21	26	< 3	<3	41	40	4.8
Total Phenols	<0.005	<0.005	<0.005	<0.005	<0.005	0.007	<0.005	<0.005	0.012	<0.005	<0.005	< 0.005	< 0.005	<0.005	<0.005	<0.005	<0.003
Color			14					12	100					6			
Boron			<0.5					<0.5	<0.5					<0.5			
INORGANIC PARAMETERS:																	
Aluminum			0.801					1.12	1.12					1.04			
Antimony			0.0154					0.0292	<0.015					<0.015			
Arsenic			<0.01					<0.010	<0.010					<0.010			
Barium			<0.05					0.139	0.167					0.0593			
Beryllium			<0.003					<0.003	<0.003					<0.003			
Cadmium	<0.005	<0.005	<0.005	0.00644	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	< 0.005	< 0.005	<0.005	<0.005	<0.005	<0.005
Calcium	148	91.2	120	136	127	133	141	139	134	151	120	172	57.1	78.2	96.8	113	103
Chromium			<0.005					<0.005	<0.005					0.00579			
Hexavalent Chromium			<0.01					<0.010	<0.010					<0.010			
Cobalt			<0.02					<0.020	<0.020					<0.020			
Copper			0.0402					0.0237	0.0225					0.0113			
Total Cyanide			<0.01					<0.010	<0.010					<0.010			
Iron	3.51	3.58	2.35	2.3	3.8	5.12	3.6	2.9	3.33	3.33	3.98	0.911	2.98	2.83	1.7	1.49	1.83
Lead	<0.003	<0.003	<0.003	<0.003	<0.003	0.0103	<0.003	0.00365	0.00394	0.00328	0.00386	< 0.003	0.00434	<0.003	<0.003	<0.003	<0.003
Magnesium	46.6	27.8	34.6	39.6	32.4	35.5	37.8	36.6	36.4	40.8	33.5	50	17	22.7	27.9	31.4	28.1
Manganese	1.29	0.934	1.08	1.29	1.18	1.34	1.33	1.2	1.26	1.37	1.15	1.63	0.545	0.783	0.967	1.08	0.9
Mercury			<0.0002					<0.0002	<0.0002					<0.0002			
Nickel			<0.03					<0.030	<0.030					<0.030			
Potassium	2.58	3.02	3.12	3.7	6.01	8.15	8.68	10.2	11	11.3	8.38	15.3	7.89	7.45	6.95	6.35	5.89
Selenium			<0.005					<0.005	<0.005					0.00932			
Silver			0.01					<0.010	<0.010					<0.010			
Sodium	7.14	7.06	6.57	8.83	7.36	7.74	6.62	5.5	6.61	10.3	9.18	469	89.9	5.79	7.9	7.47	7.81
Thallium			<0.01					<0.010	<0.010					<0.010			
Vanadium			<0.03					<0.030	<0.030					<0.030			
Zinc			0.0215					0.0346	0.0476					0.0163			

Notes:

1 Parameters listed are Part 360 Baseline or Routine Parameters Effective 1993.
2. Blanks indicate no analysis performed
3. "<" indicates not detected at the specified method detection limit (MDL)
4. Shaded values indicate detection above Standard.

TABLE 3
Groundwater Analytical Monitoring Data
MW-10D
Albany Interim Landfill/P-4 Project
CHA Project No. 12244

TEST PARAMETER (mg/l unless otherwise noted)	Unit	TOGS Guidance Value	Mean (EWQV)	Mean (EWQV) Plus 3 Std. Dev.	08/98 Expnd	10/98 Bsln	3/99 Bsln	10/99 Bsln	2Q00 Bsln	3Q00 Rtne	4Q00 Rtne	1Q01 Rtne	2Q01 Rtne	3Q01 Bsln	4Q01 Rtne	1Q02 Rtne
Temperature	C°		13.48	24.56	19	12	11.3	11.6	13.9		6.1	9.2	20.81	13.3	9.2	9.9
Conductivity	uS		203.28	240.59	200	220	190.1	203	195.2	191	442	196	192.2	202	191.4	184
pH	SU	6.5-8.5	8.9	9.8	8.8	8.6	8.9	9.31	9.22	8.8	8.63	8.79	8.55	8.05	8.23	8.26
Eh	mV		-87	17.47	-80	-80	-95	-133	-106	204	-82	155	80	-25	-35	-20
Turbidity (after purging well)	N.T.U	5	4373.5	18289.51	414	480	9500	7100	22000	>1000	5040	30500	20100	5680	24.3	137
LEACHATE INDICATORS:																
Ammonia Nitrogen	mg/l	2	0.35	0.5	<0.5	<0.5	0.373	0.272	0.14	0.04	0.16	0.151	<0.05	0.133	<0.05	0.158
BOD 5	mg/l		2.93	6.27	<4	<4	4.22	<2	4.83	8	5.13	7.14	4	<2	<2	<2.0
Bromide	mg/l	2	0.45	1.49	<0.2	<0.2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1.0
COD	mg/l		17.83	52.72	35	<20	10.8	10.5	12.5	121	11.4	<5	<5	<5	<5	<5.0
Chloride	mg/l	250	2.88	10.63	4	6	<1	<1	<1	<1	<1	<1	7.79	2.38	4.5	<2.0
Nitrate	mg/l	10	0.26	0.65	<0.2	<0.2	<0.5	<0.5	<0.5	0.07	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Sulfate	mg/l	250	3.05	6.24	<5	<5	<2	3.19	3.47	3.1	3.71	2.74	4.49	3.66	3.58	4
Total Alkalinity	mg/l		325.28	1694.73	95	98	1010	98.1	112	870	102	114	93.3	99.6	84.8	100
Total Dissolved Solids	mg/l	500	281.5	519.88	200	390	277	259	336	180	403	372	337	175	109	163
Total Hardness	mg/l		1379.75	5637.92	222	107	2850	2340	5500	2331	3110	4000	723	2150	545	494
Total Kjed. Nitrogen	mg/l		0.93	3.31	<0.5	<0.5	0.899	2.06	10.1	13	13	0.567	6.86	8	<0.2	0.869
Total Organic Carbon	mg/l	500	1.61	2.99	1	2	1.93	1.5	2.23	<1	1.39	1.58	1.71	1.42	1.14	<1.0
Total Phenols	mg/l	0.001	0.004	0.004	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Color	P.C.U.	15	15.88	62.22	36	20	<5	<5	300					800		
Boron	mg/l	1	0.24	0.89	<0.1	<0.1	0.274	0.53	0.81					0.969		
INORGANIC PARAMETERS:																
Aluminum	mg/l	0.1	81.84	377.58	16.2	9.77	79.4	222	REJECT					417		
Antimony	mg/l	0.003	0.03	0.08	<0.015	0.0392	<0.06	0.0064	<0.06					<0.0169		
Arsenic	mg/l	0.025	0.06	0.26	0.0288	0.015	0.0493	0.16	0.222					0.189		
Barium	mg/l	1	0.89	3.84	0.191	0.138	1	2.24	2.49					2.38		
Beryllium	mg/l	0.003	0.01	0.02	<0.003	<0.003	<0.005	0.0139	0.0192					0.0066		
Cadmium	mg/l	0.01	0.004	0.004	<0.005	<0.005	<0.005	0.0034	0.0347	<0.005	0.0122	0.007	0.0063	<0.0012	<0.005	<0.005
Calcium	mg/l		630.98	3046.51	59.7	28.2	686	1750	3430	895	4070	1360	2850	1290	15.1	154
Chromium	mg/l		0.12	0.47	0.0297	0.0481	0.142	0.28	0.448					0.555		
Hexavalent Chromium	mg/l	0.05	0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01					<0.01		
Cobalt	mg/l	0.005	0.08	0.39	<0.02	<0.02	0.0644	0.229	0.352					0.327		
Copper	mg/l	0.2	0.42	1.41	0.0604	0.446	0.308	0.854	0.987					0.881		
Total Cyanide	mg/l	0.1	0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01					<0.01		
Iron	mg/l	0.3	210.43	1025.67	31.3	19.4	190	601	1300	6.7	1540	982	1180	780	0.842	81.7
Lead	mg/l	0.025	0.11	0.52	0.0248	0.0121	0.0872	0.307	0.368	<0.005	0.54	0.358	0.393	0.308	<0.005	0.0295
Magnesium	mg/l	35	137.17	703.67	17.8	8.89	110	412	517	23	1110	383	726	460	3.07	46.4
Manganese	mg/l	0.3	6.42	31.55	0.663	0.394	6.32	18.3	33.6	5.46	45.1	20.7	28.3	18.9	0.023	1.86
Mercury	mg/l	0.002	0.0003	0.0009	<0.0002	<0.0002	0.00051	0.00042	0.0011					<0.0002		
Nickel	mg/l	0.007	0.18	0.83	0.035	0.0372	0.16	0.495	0.678					0.616		
Potassium	mg/l		16.68	54.75	13	3.53	16.3	33.9	44.6	3.4	77.5	111	116	105	<2	18.1
Selenium	mg/l	0.01	0.01	0.02	<0.005	<0.005	0.00982	0.0113	<0.025					0.0176		
Silver	mg/l	0.05	0.01	0.02	REJECT	<0.01	<0.01	<0.0033	<0.01					0.0199		
Sodium	mg/l	20	85.63	430.65	258	26.3	23.7	34.5	42.2	28	49	41.4	38.6	32.2	19.2	29.3
Thallium	mg/l	0.004	0.01	0.03	<0.01	<0.01	<0.01	<0.0253	<0.05					<0.024		
Vanadium	mg/l	0.014	0.2	0.96	<0.03	<0.03	0.212	0.558	0.842					1.21		
Zinc	mg/l	0.3	0.51	2.36	0.121	0.106	398	1.41	1.86					1.86		

TEST PARAMETER (mg/l unless otherwise noted)	April-03 Routine	June-03 Routine	Sep-03 Baseline	Dec-03 Routine	Mar-04 Routine	Jun-04 Routine	Sep-04 Routine	Dec-04 Baseline	Mar-05 Baseline	Jun-05 Routine	Sep-05 Routine	Dec-05 Routine	Mar-06 Routine	Jun-06 Baseline	Sep-06 Routine	Dec-06 Routine	Mar-07 Routine
Temperature	11.66	12.1	12	10.48	10.94	13.11	12.42	10.1	11.28	12.5	12	10	10.38	12.6	11.72	11.22	11.19
Conductivity	190	266	192	165	190	196	190	193	192	243	194	254	182	131	132.7	178	189
pH	8.63	8.04	8.82	8.11	8.04	7.62	8.77	8.00	8.56	8.90	8.72	8.49	7.36	8.24	9.38	8.24	8.61
Eh	116	-42	-60.2	-58.2	-67.1	-44.4	-158.1	-215.9	-136.7	102	-62.9	-92	117	-99.3	-46.4	-35.4	-26.5
Turbidity (after purging well)	>1000	212	816	462	400	457	347	269	134	216	257	46	187	134	319	300	127
LEACHATE INDICATORS:																	
Ammonia Nitrogen	<0.5	1.2	<0.5	<0.5	0.9	<0.5	<0.5	<0.500	<0.50	1.15	<0.5	< 0.5	< 0.5	<0.5	<0.5	<0.5	<0.5
BOD 5	<4	<4	<4	<4	<4	<4	<4	8	<4	<4	<4	< 4	< 4	<8	<4	<4	<4
Bromide	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.20	<0.20	<0.2	<2	< 0.2	< 0.2	<0.2	<2	<2df	<0.2
COD	43	40	35	<20	29	44	<20	<20	<20	<20	55	< 20	< 20	<20	24	<20	<20
Chloride	2	2	2	2	2	<1	1.53	6.64	3.32	5.36	24.3	1.72	4.11	1.03	1 35	3.39	1.41
Nitrate	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	0.3	0.21	<0.2	0.53	<0.2	< 0.2	< 0.2	<0.2	0.3	<0.2	<0.2
Sulfate	<5	7	<5	6	<5	3.66	10.2	9.13	<5	6.54	<5	6.65	<5	5.15	<5	<5	<5
Total Alkalinity	94	90	100	98	110	100	100	190	94	57	100	180	110	360	100	160	88
Total Dissolved Solids	240	150	180	130	68	143	125	610	112	70	258	260	182	112	142	132	100
Total Hardness	1100	590	770	970	830	1000	470	520	502	172	578	301	268	308	411	415	96.8
Total Kjed. Nitrogen	3.3	1.1	1.7	<0.5	1.3	0.79	0.632	<0.5	1.32	17.4	<0.5	< 0.5	< 0.5	<0.5	<0.5	<0.5	<0.5
Total Organic Carbon	<3	<3	<3	<3	<3	5.5	<3	<3	7	<3	<3	< 3	< 3	<3	4	<3	<3
Total Phenols	<0.005	<0.005	<0.005	<0.005	<0.005	0.00582	0.013	<0.005	<0.005	<0.005	<0.005	0.092	<0.005	<0.005	<0.005	<0.005	<0.005
Color			18					12	325					40			
Boron			<0.5					<0.5	<0.5					<0.5			
INORGANIC PARAMETERS:																	
Aluminum			127					18.2	13.9					7.11			
Antimony			<0.015					0.0311	<0.015					<0.015			
Arsenic			0.0109					<0.010	0.0192					0.0164			
Barium			0.205					0.15	0.141					0.0869			
Beryllium			<0.003					<0.003	<0.003					<0.003			
Cadmium	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.00506	0.00603	<0.005	<0.005	<0.005	< 0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Calcium	321	187	236	283	251	312	132	146	143	48.3	168	85.2	75.7	86.9	115	117	273
Chromium			0.022					0.0204	0.0172					0.02			
Hexavalent Chromium			<0.01					<0.010	<0.010					<0.010			
Cobalt			<0.02					<0.020	<0.020					<0.020			
Copper			0.061					0.0415	<0.0557					0.0209			
Total Cyanide			<0.01					<0.010	<0.0169					<0.010			
Iron	78.8	22.5	30	45.9	29	35.4	37.2	37.6	30.6	14.3	21.8	21.2	16.4	16.1	29.4	26.3	6.17
Lead	0.0144	0.00394	<0.003	0.00718	0.00944	0.0209	0.0126	0.0131	0.0146	0.00704	0.0113	0.00842	0.00761	0.00691	0.0104	0.0129	0.0032
Magnesium	65.7	29.4	45.2	64.3	49.8	54.7	34	38	35.3	12.4	38.2	21.5	19.1	22	30.3	29.7	6.93
Manganese	2.84	1.53	1.9	2.55	2.06	2.53	1.29	1.28	1.27	0.44	1.44	0.857	0.687	0.78	1.21	1.17	0.224
Mercury			<0.0002					<0.0002	<0.0002					<0.0002			
Nickel			0.034					0.0397	<0.030					<0.030			
Potassium	8.54	6.43	4.19	4.25	4.4	4.94	4.31	5.06	4.28	2.99	5.93	3.09	2.39	2.31	3.35	3.07	1.1
Selenium			<0.005					<0.005	<0.005					0.00871			
Silver			<0.01					<0.010	<0.010					<0.010			
Sodium	22.1	24.3	19.1	22.1	21.8	24.1	20.3	21.6	20	23.3	24.1	22.5	23	20.6	20.4	19.2	20.5
Thallium			<0.01					<0.010	<0.010					<0.010			
Vanadium			<0.03					0.0346	<0.030					<0.030			
Zinc			0.0979					0.131	0.0733					0.0591			

Notes:

1. Parameters listed are Part 360 Baseline or Routine Parameters Effective 1993.
2. Blanks indicate no analysis performed
3. "<" indicates not detected at the specified method detection limit (MDL)
4. Shaded values indicate detection above Standard.

TABLE 3
Groundwater Analytical Monitoring Data
MW-12S
Albany Interim Landfill/P-4 Project
CHA Project No. 12244

TEST PARAMETER (mg/l unless otherwise noted)	Unit	TOGS Guidance Value	Mean (EWQV)	Mean (EWQV) Plus 3 Std. Dev.	07/00 Expnd	07/00 Expnd	08/00 Bsln	08/00 Bsln	09/00 Bsln	4Q00 Rtne	1Q01 Rtne	2Q01 Rtne	3Q01 Rtne	4Q01 Rtne	1Q02 Rtne
Temperature	C°		16.34	21.16	17.9	17.9	15.4	16.3	14.2	4.7	11	19.9	18.1	11.3	10.4
Conductivity	uS		1176	2889.61	1256	1256	1448	210	1710	6.89	28.1	1809	279	1855	1418
pH	SU	6.5-8.5	6.83	6.96	6.8	6.8	6.84	6.86	6.75	7.8	6.63	6.73	6.72	7.05	6.9
Eh	mV		15.6	20.15	15	15	14	18	16	-33	40	-25	-55	15	-40
Turbidity (after purging well)	N.T.U	5	792	2528.04	1700	920	430	190	720	436	575	294	414	390	304
LEACHATE INDICATORS:															0.231
Ammonia Nitrogen	mg/l	2	0.1	0.13	0.0988	0.111	0.0863	0.0886	0.<08	0.271	0.973	0.0834	0.154	0.131	<0.05
BOD 5	mg/l		15.74	68.7	14.8	15.3	<2	2.08	45	<2	<2	<2	<2	<2	12
Bromide	mg/l	2	0.75	0.75	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	40.7
COD	mg/l		24.38	50.46	28	35.8	13.7	18	26.4	30	33	27.2	24.1	24.6	749
Chloride	mg/l	250	383.2	582.12	384	452	295	442	343	747	448	504	720	708	<2.0
Nitrate	mg/l	10	0.87	1.36	0.725	0.66	1.02	1.01	0.913	0.665	<0.5	0.623	<0.5	<0.5	117
Sulfate	mg/l	250	86.46	112.61	87.1	98.8	74.5	84	87.9	119	90.8	88.7	88.5	93.2	320
Total Alkalinity	mg/l		279.8	342.96	280	309	264	256	290	358	315	283	278	262	1650
Total Dissolved Solids	mg/l	500	1014.2	1409.86	<040	1190	839	1060	942	1680	1170	1220	1610	1570	391
Total Hardness	mg/l		380.6	493.8	415	418	328	380	362	520	311	409	469	540	0.991
Total Kjed. Nitrogen	mg/l		2.82	6.13	4.2	2.58	2.32	1.38	3.6	1.41	1.7	0.979	1.24	1.02	11
Total Organic Carbon	mg/l	500	8.23	13.17	7.69	9.23	6.97	6.66	<0.58	<0.14	9.98	8.16	8.21	8.47	<1.0
Total Phenols	mg/l	0.001	0.004	0.004	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Color	P.C.U.	15	41	95.5	35	60	20	30	60				60		
Boron	mg/l	1	0.15	0.15	<0.2	<0.2	<0.2	<0.2	<0.2				<0.2		
INORGANIC PARAMETERS:															
Aluminum	mg/l	0.1	34.34	82.52	56.4	35.6	33	11.1	35.6				<0.2		
Antimony	mg/l	0.003	0.05	0.05	<0.06	<0.06	REJECT	<0.06	REJECT				<0.06		
Arsenic	mg/l	0.025	0.02	0.04	0.0302	0.0154	<0.01	<0.01	0.0187				<0.01		
Barium	mg/l	1	0.2	0.38	0.281		0.19	0.113	0.205				0.154		
Beryllium	mg/l	0.003	0	0	<0.005	<0.005	<0.005	<0.005	<0.005				<0.005		
Cadmium	mg/l	0.01	0.004	0.004	<0.005	<0.005	0.0057	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Calcium	mg/l		104.44	131.22	117	<09	96.8	<04	95.4	112	156	123	125	152	112
Chromium	mg/l		0.07	0.16	0.113	0.0701	0.0524	0.0229	0.0697				0.0212		
Hexavalent Chromium	mg/l	0.05	0.01	0.01	REJECT	REJECT	<0.01	REJECT	<0.01				<0.01		
Cobalt	mg/l	0.005	0.04	0.04	<0.05	<0.05	<0.05	<0.05	<0.05				<0.05		
Copper	mg/l	0.2	0.09	0.23	0.161	0.102	0.0621	0.0388	0.101				<0.02		
Total Cyanide	mg/l	0.1	0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01				0.011		
Iron	mg/l	0.3	55.02	133.97	87.2	59.1	37.8	20.6	70.4	5.7	38	15.6	21	25.4	28.9
Lead	mg/l	0.025	0.03	0.07	0.0454	0.0333	0.0171	0.0068	0.0281	<0.005	<0.005	<0.005	0.0069	0.00589	0.00821
Magnesium	mg/l	35	28.76	39.48	33.6	29.5	25.7	24.8	30.2	25.2	32.8	24.3	28	35.2	27.1
Manganese	mg/l	0.3	0.86	1.53	1.17	0.97	0.743	0.584	0.842	0.532	0.519	0.532	0.504	0.523	0.734
Mercury	mg/l	0.002	0.0002	0.0002	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003				<0.0002		
Nickel	mg/l	0.007	0.06	0.14	0.0964	0.0677	<0.04	<0.04	0.0644				<0.04		
Potassium	mg/l		7.36	13.42	9.77	7.09	7.7	4.86	REJECT	8.74	6.64	4.94	5.72	6.62	8.58
Selenium	mg/l	0.01	0.02	0.14	0.006	0.008	<0.005	<0.005	0.095				<0.005		
Silver	mg/l	0.05	0.01	0.01	<0.01	<0.01	REJECT	<0.01	<0.01				<0.01		
Sodium	mg/l	20	204.6	278.89	224	234	179	181	205	107	320	283	332	469	401
Thallium	mg/l	0.004	0.02	0.07	<0.05	<0.05	<0.01	<0.01	<0.01				<0.01		
Vanadium	mg/l	0.014	0.19	0.47	0.309	0.2	0.158	0.0798	REJECT				0.0791		
Zinc	mg/l	0.3	0.19	0.37	0.272	0.177	0.147	0.124	0.227				0.0557		

TEST PARAMETER (mg/l unless otherwise noted)	April-03 Routine	June-03 Routine	Sep-03 Baseline	Dec-03 Routine	Mar-04 Routine	Jun-04 Routine	Sep-04 Routine	Dec-04 Baseline	Mar-05 Baseline	Jun-05 Routine	Sep-05 Routine	Dec-05 Routine	Mar-06 Routine	Jun-06 Baseline	Sep-06 Routine	Dec-06 Routine	Mar-07 Routine
Temperature	12.8	12.5	12.94	13.25	10.73	11.84	16.04	14.78	10.54	12	17.73	14.9	11.09	12.56	17.17	13.69	14.73
Conductivity	2105	240	2427	306	273	269	410	282	231	325	266	273	210	160	166.2	197	649
pH	6.64	6.9	7.01	7.64	8.03	7	7.83	7.87	7.72	9.18	8.04	7.53	7.41	7.86	7.73	8.2	7.13
Eh	4.5	-4	-52.7	-51.5	-72	-65.6	-101	-214.7	-48.2	111	-72.3	-46	123	-85.1	-66.8	-61.6	21.6
Turbidity (after purging well)	600	230	117	447	500	>1000	546	350	470	197	533	93	529	419	501	381	379
LEACHATE INDICATORS:																	
Ammonia Nitrogen	<0.5	<0.5	0.9	<0.5	1.1	<0.5	<0.5	<0.5	2520	<0.5	<0.5	< 0.5	< 0.5	<0.5	<0.5	<0.5	<0.5
BOD 5	5	<4	<4	<4	<4	<4	<4	<4	<4	13	<4	< 6	< 8	22	<4	<4	<4
Bromide	<0.2	<2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.20	<0.20	<2	<2	< 2	< 0.2	<2	<2	<2df	<0.20
COD	77	53	<20	<20	<20	28	37	<20	<20	<20	<20	< 20	< 20	27	22	25	<20
Chloride	540	560	550	42	40	43	36.2	48	34.5	31.6	34.2	27.1	36.5	25.7	31.8	25.8	76.9
Nitrate	0.7	1	0.9	<0.2	<0.2	0.35	0.3	<0.2	<0.20	<0.2	<0.2	< 0.2	< 0.2	<0.2	<0.2	<0.2	<0.2
Sulfate	130	86	80	15	14	25.6	20.1	7.03	7.9	13.1	7 9	12.5	10.9	11.3	6.34	5.79	34.3
Total Alkalinity	280	310	270	110	61	56	77	110	45	40	60	60	47	60	60	61	230
Total Dissolved Solids	1400	1300	1300	190	190	180	150	457	147	102	265	168	218	140	160	127	360
Total Hardness	370	480	330	100	89	88.6	103	93.2	73.1	79.6	82.7	63.1	67.3	64.8	65.3	60.6	165
Total Kjed. Nitrogen	1.4	0.8	0.9	<0.5	0.9	<0.5	0.948	<0.5	<0.5	<0.5	<0.5	< 0.5	< 0.5	<0.5	<0.5	<0.5	<0.5
Total Organic Carbon	13	8	9	<3	<3	<3	<3	<3	<3	<3	<3	< 3	< 3	<3	<3	<3	4.2
Total Phenols	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.014	<0.005	<0.005	0.006	<0.005	<0.005	<0.005	<0.005	<0.005
Color			400					10	100					130			
Boron			<0.5					<0.5	<0.5					<0.5			
INORGANIC PARAMETERS:																	
Aluminum			3.67					8.97	8.05					9.62			
Antimony			<0.015					0.025	0.0186					<0.015			
Arsenic			<0.01					<0.010	0.0133					0.0126			
Barium			0.09					0.0505	<0.050					0.0528			
Beryllium			<0.003					<0.003	<0.003					<0.003			
Cadmium	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.00538	<0.005	<0.005	<0.5	<0.005	< 0.005	< 0.005	<0.005	<0.005	<0.005	<0.005
Calcium	113	156	105	32.5	28.4	27.1	32.5	29.6	22.9	25.7	25.9	20.6	20.7	19.5	20.1	19.6	51.8
Chromium			0.00599					0.0129	0.0111					0.0161			
Hexavalent Chromium			<0.01					<0.010	<0.010					<0.020			
Cobalt			<0.02					<0.020	<0.020					<0.020			
Copper			0.0396					0.0197	0.0246					0.0194			
Total Cyanide			<0.01					<0.010	<0.010					<0.010			
Iron	13.8	8.96	7.7	15.2	16.4	24.3	24	17	18.4	16.7	22.8	10.9	23.9	18.1	17.7	10.1	12.9
Lead	<0.003	<0.003	<0.003	0.009	0.00598	0.0112	0.0115	0.00391	0.00614	0.00809	0.00746	0.00447	0.0104	0.00674	0.00703	0.00541	0.00639
Magnesium	20.6	21.5	17.5	4.63	4.42	5.06	5.21	4.67	3.87	3.74	4.38	2.82	3.82	3.92	3.66	2.84	8.79
Manganese	0.283	0.365	0.262	0.104	0.0921	0.161	0.22	0.127	0.389	0.313	0.455	0.208	0.36	0.212	0.307	0.267	0.425
Mercury			0.0006					<0.0002	<0.0002					<0.0002			
Nickel			<0.03					<0.030	<0.030					<0.030			
Potassium	5.53	8.17	6.55	3.91	3.22	4.01	3.58	3.59	3.14	2.67	3.07	2	2.59	2.78	2.55	1.3	3.43
Selenium			<0.005					<0.005	<0.005					0.00609			
Silver			<0.01					<0.010	<0.010					<0.01			
Sodium	442	245	253	23.9	13.5	16.2	16.7	12.8	12.1	15.7	16.5	12.8	12.8	13.8	15.7	10.8	50.7
Thallium			<0.01					<0.010	<0.010					<0.010			
Vanadium			<0.03					0.0748	0.0936					0.0714			
Zinc			0.0402					0.0635	0.0402					0.0831			

Notes:

1 Parameters listed are Part 360 Baseline or Routine Parameters Effective 1993.
2. Blanks indicate no analysis performed
3. "<" indicates not detected at the specified method detection limit (MDL)
4. Shaded values indicate detection above Standard.
5. Alkalinity results for the MW-12 cluster during the June 2006 sampling event were delivered in incorrect order

TABLE 3
Groundwater Analytical Monitoring Data
MW-12I
Albany Interim Landfill/P-4 Project
CHA Project No. 12244

TEST PARAMETER (mg/l unless otherwise noted)	Unit	TOGS Guidance Value	Mean (EWQV)	Mean (EWQV) Plus 3 Std. Dev	07/00 Expnd	07/00 Expnd	08/00 Bsln	08/00 Bsln	09/00 Bsln	4Q00 Rtne	1Q01 Rtne	2Q01 Rtne	3Q01 Rtne	4Q01 Rtne	1Q02 Rtne
Temperature	C*		17.06	23.18	18.3	18.3	18.3	16.8	13.6	7.8	10.9	191	16.21	11.61	10.2
Conductivity	uS		1448.6	2246.56	1264	1264	1368	1905	1442	0.54	1265	1151	279	828	845
pH	SU	6.5-8.5	7.33	7.55	7.4	7.4	7.3	7.34	7.23	7.8	7.39	7.37	6.72	7.41	7.26
Eh	mV		-17.6	-3.92	-21	-21	-19	-17	-10	-38	30	-55	-55	OR	-60
Turbidity (after purging well)	N.T.U	5	206.2	661.35	230	240	430	84	47	98.8	93.7	97.3	77.3	64.3	69.1
LEACHATE INDICATORS:															
Ammonia Nitrogen	mg/l	2	13.68	16.32	12.7	13.1	15	13.7	13.9	14.8	10.8	11.4	9.71	5.86	12
BOD 5	mg/l		20.36	107.89	19.8	5.43	2.93	2.64	71	2.29	2.97	2.39	<2	2.41	2.55
Bromide	mg/l	2	1.34	1.69	1.34	1.18	1.43	1.47	1.29	1.05	1.04	<1	<1	<1	1.35
COD	mg/l		51.54	106.7	53.2	76.4	53.4	50.1	24.6	41.1	51.1	53.1	51.2	36.4	57.2
Chloride	mg/l	250	186.8	216.3	178	177	186	200	193	179	175	186	176	152	210
Nitrate	mg/l	10	0.38	0.38	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Sulfate	mg/l	250	20.94	25.61	19.4	19.4	22	21	22.9	18.5	13.4	15.1	15.3	12.3	14.9
Total Alkalinity	mg/l		485.2	510.16	482	482	500	480	482	425	367	403	440	309	485
Total Dissolved Solids	mg/l	500	790	806.43	782	794	790	796	788	687	664	722	733	597	820
Total Hardness	mg/l		487.8	653.5	485	498	575	443	438	388	512	399	370	312	414
Total Kjed. Nitrogen	mg/l		17.64	21.68	17.3	17.2	20	17.1	16.6	14.8	11.2	12	10	6.42	12.5
Total Organic Carbon	mg/l	500	18	19.9	18.75	18.45	17.6	18.03	17.18	16.33	15.83	17.7	20.73	12.48	19.9
Total Phenols	mg/l	0.001	0.004	0.004	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Color	P.C.U.	15	27	47.12	35	30	20	30	20				20		
Boron	mg/l	1	0.46	0.54	0.47	0.472	0.491	0.445	0.422				0.354		
INORGANIC PARAMETERS:															
Aluminum	mg/l	0.1	8.28	27.44	8.74	8.6	18.3	4.28	1.46				0.987		
Antimony	mg/l	0.003	0.05	0.05	<0.06	<0.06	REJECT	<0.06	REJECT				<0.06		
Arsenic	mg/l	0.025	0.01	0.01	<0.01	<0.01	<0.01	0.0103	<0.01				<0.01		
Barium	mg/l	1	0.37	0.49	0.347	0.342	0.439	0.358	0.349				0.286		
Beryllium	mg/l	0.003	0	0	<0.005	<0.005	<0.005	<0.005	<0.005				<0.005		
Cadmium	mg/l	0.01	0.001	0.008	<0.005	<0.005	6.0056	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.00519
Calcium	mg/l		138.6	206.07	140	138	174	128	113	108	95.4	115	101	85.9	115
Chromium	mg/l		0.02	0.04	0.0168	0.0155	0.0287	<0.01	<0.01				<0.01		
Hexavalent Chromium	mg/l	0.05	0.01	0.01	REJECT	REJECT	<0.01	REJECT	<0.01				<0.01		
Cobalt	mg/l	0.005	0.04	0.04	<0.05	<0.05	<0.05	<0.05	<0.05				<0.05		
Copper	mg/l	0.2	0.04	0.1	0.0463	0.0462	0.0687	0.023	<0.02				<0.02		
Total Cyanide	mg/l	0.1	0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01				0.011		
Iron	mg/l	0.3	19.96	54.75	22.9	21.8	36.6	12.4	6.11	5.58	4.75	6.81	5.24	4.18	4.45
Lead	mg/l	0.025	0.01	0.02	0.0099	0.0105	0.015	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Magnesium	mg/l	35	30.56	42.75	30.4	30	37.3	28.6	26.5	24.5	19.6	24.8	24.8	20.8	28
Manganese	mg/l	0.3	0.91	1.67	0.975	0.966	1.27	0.746	0.607	0.517	0.451	0.612	0.531	0.455	0.555
Mercury	mg/l	0.002	0.0002	0.0002	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003				<0.0002		
Nickel	mg/l	0.007	0.03	0.07	<0.04	<0.04	0.0543	<0.04	<0.04				<0.04		
Potassium	mg/l		9.39	14.16	9.06	8.11	11.7	8.69	REJECT	8.46	6.99	7.72	7.63	5.45	7.36
Selenium	mg/l	0.01	0	0.01	<0.005	<0.005	0.0062	<0.005	<0.005				<0.005		
Silver	mg/l	0.05	0.01	0.01	<0.01	<0.01	REJECT	<0.01	<0.01				<0.01		
Sodium	mg/l	20	129.6	148.17	133	133	136	122	124	104	126	121	107	99.9	146
Thallium	mg/l	0.004	0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01				<0.01		
Vanadium	mg/l	0.014	0.04	0.04	<0.05	<0.05	<0.05	<0.05	REJECT				<0.05		
Zinc	mg/l	0.3	0.08	16	0.073	77	0.119	6.0625	0.04621				0.0229		

TEST PARAMETER (mg/l unless otherwise noted)	April-03 Routine	June-03 Routine	Sep-03 Baseline	Dec-03 Routine	Mar-04 Routine	Jun-04 Routine	Sep-04 Routine	Dec-04 Baseline	Mar-05 Baseline	Jun-05 Routine	Sep-05 Routine	Dec-05 Routine	Mar-06 Routine	Jun-06 Baseline	Sep-06 Routine	Dec-06 Routine	Mar-07 Routine
Temperature	12.27	12.7	13.34	11.69	11.75	13.52	12.81	11.99	12.77	13.8	14.73	11.2	12.07	14.64	15.04	13.24	14.58
Conductivity	1382	1697	1039	885	939	974	1272	1028	1216	1434	1265	1557	1027	899	888	1174	1237
pH	7.37	7.16	7.7	7.48	7.56	6.74	7.82	7.12	7.4	8.22	7.83	7.34	6.82	7.68	8.08	7.32	7.39
Eh	-81.7	-32	-108.8	-79.7	-73.5	-70.1	-123.5	-207.2	7.4	83	-68.6	-27	176.2	-96.2	-54.3	-42.2	-95.2
Turbidity (after purging well)	350	304	394	380	360	236	289	308	594	210	182	29.6	433	205	209	270	113
LEACHATE INDICATORS:																	
Ammonia Nitrogen	14	15	9.3	5	5.2	3.95	4.42	4.94	<0.5	8.23	0.987	11.4	6.75	7	8.01	7.64	6.25
BOD 5	<4	<4	<4	<4	<4	<4	14	<4	<4	14	<4	< 4	< 4	<8	4	<4	5
Bromide	<0.2	<0.2	<0.2	<0.2	0.5	0.9	0.98	1	<0.2	0.8	<2	< 2	< 0.2	<2	<0.2	0.75	<1.6df
COD	87	67	38	40	36	46	58	23	106	43	45	34	42	33	38	68	47
Chloride	150	170	130	150	100	116	140	260	141	184	120	56.7	118	142	161	153	153
Nitrate	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	< 0.2	< 0.2	<0.2	<0.2	<0.2	<0.2
Sulfate	14	10	10	22	13	14.1	20.8	22.4	15.2	15	13.8	13.9	11.6	16.2	15.8	10.1	9.94
Total Alkalinity	470	470	320	400	290	330	400	340	400	360	420	350	350	390	460	390	420
Total Dissolved Solids	770	660	550	610	520	95	698	1050	618	570	995	648	628	718	712	690	602
Total Hardness	460	510	270	430	300	343	382	547	489	447	382	414	364	389	388	428	307
Total Kjed. Nitrogen	15	15	12	9.5	5.8	4.27	6.48	5.76	10.2	8.56	2.47	7.9	6.25	8.23	8.89	16	5.95
Total Organic Carbon	73	61	11	15	14	14	20	27	40	17	14	13	12	15	39	16	13.6
Total Phenols	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.013	<0.005	<0.005	< 0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Color			130					7	250					24			
Boron			<0.5					<0.5	<0.5					<0.5			
INORGANIC PARAMETERS:																	
Aluminum			2.99					11.8	9.39					2.73			
Antimony			<0.015					0.0302	<0.015					<0.015			
Arsenic			<0.01					<0.010	<0.010					<0.010			
Barium			0.228					0.268	0.29					0.292			
Beryllium			<0.003					<0.003	<0.003					<0.003			
Cadmium	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.00512	<0.005	<0.005	<0.005	< 0.005	< 0.005	<0.005	<0.005	<0.005	<0.005
Calcium	137	151	76.6	125	84.3	97.2	107	159	141	126	104	113	100	106	102	115	82.3
Chromium			<0.005					0.0144	0.0146					0.00584			
Hexavalent Chromium			<0.01					<0.010	<0.010					<0.010			
Cobalt			<0.02					<0.020	<0.020					<0.020			
Copper			0.0501					0.0669	0.0542					<0.0199			
Total Cyanide			<0.01					<0.010	0.0207					<0.010			
Iron	16.7	19.6	8.6	12.2	9.47	9.46	8.49	28	22.9	11.9	7.47	10.4	12.1	8.98	5.9	15	3.97
Lead	0.00562	0.00389	<0.003	<0.003	0.00433	0.0103	0.00306	0.011	0.00984	0.00716	0.00395	0.00524	0.006	<0.003	<0.003	0.0187	<0.003
Magnesium	29.8	31.2	18.2	29.5	20.5	24.2	27.6	36.5	33.1	32.2	29.3	31.8	27.7	30.5	32.1	34.4	24.8
Manganese	0.921	1.25	0.514	0.946	0.642	0.682	0.654	1.11	1.05	0.788	0.649	0.792	0.72	0.676	0.645	1.08	0.484
Mercury			0.002					<0.0002	<0.0002					<0.002			
Nickel			<0.03					0.0384	<0.030					<0.030			
Potassium	11.7	11	7.91	8.31	5.55	5.39	6.69	6.89	7.03	8.56	7.98	8.27	7.42	8.39	9.37	9.59	6.26
Selenium			<0.005					0.0145	<0.005					0.0085			
Silver			<0.010					<0.010	<0.010					<0.010			
Sodium	135	125	76.4	105	71.3	81	114	84.1	82.8	120	117	118	95.9	99.4	112	99.4	88.2
Thallium			<0.01					<0.010	<0.010					<0.010			
Vanadium			<0.03					<0.030	<0.030					<0.030			
Zinc			0.0401					0.104	0.0436					0.0364			

Notes:

1 Parameters listed are Part 360 Baseline or Routine Parameters Effective 1993.
2. Blanks indicate no analysis performed
3. "<" indicates not detected at the specified method detection limit (MDL)
4. Shaded values indicate detection above Standard.
5. Alkalinity results for the MW-12 cluster during the June 2006 sampling event were delivered in incorrect order

TABLE 3
Groundwater Analytical Monitoring Data
MW-12D
Albany Interim Landfill/P-4 Project
CHA Project No. 12244

TEST PARAMETER (mg/l unless otherwise noted)	Unit	TOGS Guidance Value	Mean (EWQV)	Mean (EWQV) Plus 3 Std. Dev.	07/00 Expnd	07/00 Expnd	08/00 Bsln	08/00 Bsln	09/00 Bsln	4Q00 Rtne	1Q01 Rtne	2Q01 Rtne	3Q01 Rtne	4Q01 Rtne	1Q02 Rtne	April-03 Routine	June-03 Routine	Sep-03 Baseline	Dec-03 Routine	Mar-04 Routine	Jun-04 Routine	Sep-04 Routine	Dec-04 Baseline	Mar-05 Baseline	Jun-05 Routine	Sep-05 Routine	Dec-05 Routine	Mar-06 Routine	Jun-06 Baseline	Sep-06 Routine	Dec-06 Routine	Mar-07 Routine
Temperature	C°		17.88	21.29	18.2	18.2	19.4	17.2	16.4	6.3	11.1	16.9	15.4	<0.7	12.4	11.75	13.2	12.57	11.2	11.73	13.06	12.9	11.69	12.27	13	13.09	10.4	11.8	13.54	12.81	11.48	12.68
Conductivity	uS		335.56	717.28	199.9	199.9	420	470	388	2.94	202	202	191.5	58.3	186.3	193	280	193	158	197	199	220	208	194	288	222	272	185	140	142.2	210	204
pH	SU	6.5-8.5	8.48	9	8.4	8.4	8.4	8.34	8.78	8.95	8.5	8.38	8.13	8.14	8.11	8.49	7.96	8.78	8.27	7.97	7.43	8.66	8.22	8.66	8.89	8.34	8.41	7.7	8.25	9.69	8.34	8.47
Eh	mV		-80.6	-57.5	-79	-79	-76	-75	-94	-97	125	170	85	-35	-60	-98.5	-36	-133.1	-25	-59.9	-52.2	113.4	-222.8	-111.5	99	-91.6	-88	85.7	-116	-75.3	-102.4	-82.5
Turbidity (after purging well)	N.T.U	5	6920	12981.19	8300	9500	6300	4300	6200	18900	19300	43300	268	13200	3200	>1000	270	>1000	1000	850	>1000	743	285	593	257	401	70	394	270	535	297	113
LEACHATE INDICATORS:																																
Ammonia Nitrogen	mg/l	2	0.33	0.76	0.37	0.44	0.469	0.214	0.142	0.381	0.162	0.0743	0.0629	0.151	0.136	<0.5	<0.5	0.6	0.6	1.4	<0.5	<0.5	<0.5	10.9	<0.5	<0.5	< 0.5	< 0.5	<0.5	<0.5	<0.5	<0.5
BOD 5	mg/l		4.85	14.7	<6	<6	<2	3.47	<0.3	5.92	7.22	2.7	<2	<2	4.67	<4	<4	<4	<4	<4	<4	4	<4	<4	<5	<4	< 6	<4	<8	<4	<4	<4
Bromide	mg/l	2	0.75	0.75	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	11	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<2	< 2	< 0.2	<0.2	<0.2	<0.2	1.2
COD	mg/l		11.11	19.65	13.7	11.1	13.7	6.85	<0.2	21.6	<5	<5	<5	<5	8.21	110	35	31	<20	54	76	61	<20	47	25	24	< 20	< 20	<20	<20	25	<20
Chloride	mg/l	250	1.04	2.06	1.14	1	<1	<1	1.57	<1	<1	<1	1.19	<1	12	<1	1	1	<1	<1	<1	<1	5.36	8.17	102	5.85	< 1	2.57	35.2	5.95	25	1.8
Nitrate	mg/l	10	0.38	0.38	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	0.8	0.22	<0.2	0.4	<0.2	< 0.2	< 0.2	<0.2	<0.2	<0.2	<0.2
Sulfate	mg/l	250	12637	30.39	7.75	7.32	12.1	14.4	21.8	4.16	2.9	2.56	4.55	2.9	2.6	<5	8	<5	6	<5	<5	7.6	7.09	<5	6.61	<5	8.49	<5	<5	2.4	<5	<5
Total Alkalinity	mg/l		108.4	112.95	109	109	110	106	<08	108	103	104	99.5	104	107	100	99	110	110	110	110	110	210	100	88	150	190	120	110	120	170	94
Total Dissolved Solids	mg/l	500	176.4	279.53	195	226	149	143	169	170	184	174	139	125	125	160	75	170	130	140	110	115	573	122	82	232	165	207	127	145	188	110
Total Hardness	mg/l		5774	13475.4	3260	2750	7040	8200	7620	5610	4020	9670	96.7	1820	1260	2200	410	800	1300	980	891	1160	834	1290	1110	1020	449	443	622	710	403	360
Total Kjed. Nitrogen	mg/l		20.12	53.14	37.9	18.2	15.4	8.21	20.9	8.29	0.615	19.1	0.426	20.6	3.48	4.7	<0.5	2.8	2	1.6	1.11	1.9	<0.5	1.97	<0.5	<0.5	< 0.5	< 0.5	<0.5	<0.5	<0.5	1.17
Total Organic Carbon	mg/l	500	1.78	2.23	1.93	1.81	1.54	1.77	1.86	1.43	1.75	1.91	<1	1.71	11	<6	<3	11	<3	6	16.8	<3	9	11	18	8	< 3	< 3	<3	<3	<3	8.5
Total Phenols	mg/l	0.001	0.004	0.004	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.011	<0.005	<0.005	< 0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Color	P.C.U.	15	98	378.74	200	200	15	35	40				30					17					7	250					45			
Boron	mg/l	1	0.82	1.99	0.523	0.568	<1	0.762	1.49				0.0439					<0.5					<0.5	0.627					<0.5			
INORGANIC PARAMETERS:																																
Aluminum	mg/l	0.1	322.8	676.74	211	236	339	318	510				7.7					10.5					30	39.7					16.2			
Antimony	mg/l	0.003	0.11	0.42	<0.06	<0.06	REJECT	<0.3	REJECT				<0.0034					<0.015					0.0339	<0.015					<0.015			
Arsenic	mg/l	0.025	0.26	0.65	0.162	0.184	0.227	0.243	0.488				0.0089					0.0125					<0.010	0.0323					0.024			
Barium	mg/l	1	2.61	6.14	1.45	1.42	2.74	3.35	4.1				0.14					0.305					0.285	0.396					0.209			
Beryllium	mg/l	0.003	0.02	0.04	0.0129	0.0141	<0.025	0.0216	0.0292				<0.00016					<0.003					<0.003	<0.003					<0.003			
Cadmium	mg/l	0.01	0.025	0.048	0.0178	0.0196	0.0301	0.021	0.0359	0.018	0.0162	0.0458	0.001	0.0348	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.0083	0.0101	0.00583	0.00859	0.00865	< 0.005	< 0.005	<0.005	0.00587	<0.005	<0.005
Calcium	mg/l		3062	6377.94	2190	1950	2750	3930	4490	6440	3840	9810	28.1	3890	701	648	118	272	442	330	254	359	235	369	323	294	127	127	177	199	112	103
Chromium	mg/l		0.44	0.98	0.282	0.313	0.427	0.441	0.736				0.009					0.0123					0.0307	0.0505					0.0213			
Hexavalent Chromium	mg/l	0.05	0.01	0.01	REJECT	REJECT	<0.01	<0.01	<0.01				<0.01					<0.01					<0.010	<0.010					<0.010			
Cobalt	mg/l	0.005	0.38	0.91	0.243	0.263	0.334	0.382	0.677				0.005					<0.02					0.0249	0.0384					<0.020			
Copper	mg/l	0.2	1.24	2.28	0.915	1.01	1.3	1.12	1.79				0.021					0.0533					0.0705	0.115					0.0443			
Total Cyanide	mg/l	0.1	0.01	0.02	<0.01	<0.01	<0.01	<0.01	<0.02				<0.01					<0.01					<0.010	<0.010					<0.010			
Iron	mg/l	0.3	96120	1920.01	803	875	719	889	1520	1530	1470	3030	<0.6	1790	368	175	20.7	26.4	18.1	19.6	50.9	58.7	65.5	88.4	60.7	69.5	33.8	27.1	39.9	53	30.3	21.3
Lead	mg/l	0.025	0.38	1.08	0.208	0.231	0.195	0.598	0.672	0.56	0.524	1	0.0078	1.02	0.135	0.0301	0.00485	<0.003	<0.003	<0.003	0.0264	0.0243	0.0232	0.036	0.0273	0.0223	0.0153	0.0141	0.0164	0.0175	0.00756	0.00729
Magnesium	mg/l	35	645.6	1612.07	457	463	462	616	1210	1660	913	2230	7.6	1020	216	147	27	28.5	56	37.5	62.2	64.1	60.2	88.7	73.4	70	32.1	30.8	43.7	51.5	29.6	25.1
Manganese	mg/l	0.3	32.68	68.12	25.8	25.5	25.4	33.9	52.8	62.4	42.7	<06	0.228	47.6	9.26	6.11	1.17	1.86	3.06	2.25	2.61	2.89	2.1	3.37	2.68	2.75	1.3	1.17	1.63	2.12	1.18	0.893
Mercury	mg/l	0.002	0.0008	0.0011	0.00072	0.00063	0.00094	0.00078	0.00079				<0.00002					0.0002					<0.0002	<0.0002					<0.0002			
Nickel	mg/l	0.007	0.71	1.76	0.45	0.491	0.658	0.695	1.28				0.0094					<0.03					0.0584	0.0696					0.0359			
Potassium	mg/l		37.13	73.55	27.3	30	54.3	36.9	REJECT	36.2	112	121	9.21	168	51.4	13.8	3.91	3.82	2.53	3.88	6.11	7.62	7.9	11.8	8.1	7.27	4.58	3.41	4.93	4.96	3.41	2.34
Selenium	mg/l	0.01	0.01	0.03	<0.005	0.0069	<0.025	<0.01	<0.025				<0.0035					<0.005					<0.005	<0.005					0.0129			
Silver	mg/l	0.05	0.02	0.06	<0.01	<0.01	REJECT	<0.05	<0.01				<0.0009					<0.01					<0.010	<0.010					<0.010			
Sodium	mg/l	20	33.9	47.95	28.2	32.6	35.1	32.6	41	25.1	32	39.4	14.9	33.2	19.1	12.8	14.3	10.4	14.2	12.5	12.7	12.6	12	12.5	13.5	13.5	12.8	13.1	<0.010	11.1	10.6	11.1
Thallium	mg/l	0.004	0.02	0.05	<0.01	<0.01	<0.01	<0.02	<0.05				<0.0024					<0.01					<0.010	<0.010					<0.010			
Vanadium	mg/l	0.014	0.78	1.44	0.577	0.636	0.823	1.07	REJECT				0.0174					<0.03					0.0619	0.0869					0.0335			
Zinc	mg/l	0.3	2.06	496	1.21	1.34	2.14	2	3.63		1		0.0357					0.0802					0.174	0.173					0.123			

Notes:

1 Parameters listed are Part 360 Baseline or Routine Parameters Effective 1993.
2. Blanks indicate no analysis performed
3. "<" indicates not detected at the specified method detection limit (MDL)
4. Shaded values indicate detection above Standard.
5. Alkalinity results for the MW-12 cluster during the June 2006 sampling event were delivered in incorrect order

TABLE 3
Groundwater Analytical Monitoring Data
MW-14S
Albany Interim Landfill/P-4 Project
CHA Project No. 12244

TEST PARAMETER (mg/l unless otherwise noted)	Unit	TOGS Guidance Value	Mean (EWQV)	Mean (EWQV) Plus 3 Std. Dev.	Jan-07A Expanded	Jan-07B Expanded	Apr-07 Baseline
Temperature	C°				6.6	6.6	4.04
Conductivity	uS				226	226	288
pH	SU	6.5-8.5			6.71	6.71	6.6
Eh	mV				15.5	15.5	-25.8
Turbidity (after purging well)	N.T.U	5			505	464	28.2
LEACHATE INDICATORS:							
Ammonia Nitrogen	mg/l	2			<0.5	<0.5	0.751
BOD 5	mg/l				6	<4	43
Bromide	mg/l	2			<2	<2	<20
COD	mg/l				<20	<20	180
Chloride	mg/l	250			7.26	6.35	6.86
Nitrate	mg/l	10			<0.2	<0.2	<0.2
Sulfate	mg/l	250			<5	6.71	9.82
Total Alkalinity	mg/l				130	140	130
Total Dissolved Solids	mg/l	500			162	250	440
Total Hardness	mg/l				226	231	129
Total Kjed. Nitrogen	mg/l				<0.50	<0.05	1.47
Total Organic Carbon	mg/l	500			11	11	33.8
Total Phenols	mg/l	0.001			<0.005	<0.005	<0.005
Color	P.C.U.	15			100	80	100
Boron	mg/l	1			<0.5	<0.5	<0.5
Sulfide	mg/l	1			<0.1	<0.1	
INORGANIC PARAMETERS:							
Aluminum	mg/l	0.1			31.2	28.7	1.19
Antimony	mg/l	0.003			<0.015	<0.015	<0.015
Arsenic	mg/l	0.025			0.0184	0.0209	<0.010
Barium	mg/l	1			0.199	0.198	<0.05
Beryllium	mg/l	0.003			<0.003	<0.003	<0.003
Cadmium	mg/l	0.01			0.00642	0.00669	<0.005
Calcium	mg/l				60.7	63.6	39.2
Chromium	mg/l				0.0451	0.0426	<0.005
Hexavalent Chromium	mg/l	0.05			<0.010	<0.010	<0.010
Cobalt	mg/l	0.005			0.0445	0.0435	<0.020
Copper	mg/l	0.2			0.122	0.121	0.0201
Total Cyanide	mg/l	0.1			<0.010	<0.010	<0.010
Iron	mg/l	0.3			50.9	48.3	7.12
Lead	mg/l	0.025			0.0377	0.0408	<0.003
Magnesium	mg/l	35			17.9	17.5	7.65
Manganese	mg/l	0.3			0.732	0.731	0.323
Mercury	mg/l	0.002			<0.0002	<0.0002	<0.0002
Nickel	mg/l	0.007			0.0763	0.0736	<0.030
Potassium	mg/l				4.31	3.85	<1
Selenium	mg/l	0.01			<0.005	<0.005	<0.005
Silver	mg/l	0.05			<0.010	<0.010	<0.010
Sodium	mg/l	20			4.24	3.75	3.68
Thallium	mg/l	0.004			<0.01	<0.010	0.0144
Vanadium	mg/l	0.014			0.0639	0.0626	<0.030
Zinc	mg/l				0.217	0.207	0.115
ASP PEST/PCB WATERS					<MDL	<MDL	
	ug/l	0.1					
CHLORINATED HERBICIDES					<MDL	<MDL	
	ug/l	0.1					
ORGANIC PARAMETERS:					<MDL	<MDL	<MDL
	ug/l	0.1					

Notes:

1. Parameters listed are Part 360 Baseline or Routine Parameters Effective 1993.
2. Blanks indicate no analysis performed
3. "<" indicates not detected at the specified method detection limit (MDL)

TABLE 3
Groundwater Analytical Monitoring Data
MW-14I
Albany Interim Landfill/P-4 Project
CHA Project No. 12244

TEST PARAMETER (mg/l unless otherwise noted)	Unit	TOGS Guidance Value	Mean (EWQV)	Mean (EWQV) Plus 3 Std. Dev.	Jan-07A Routine	Jan-07B Expanded	Apr-07 Baseline
Temperature	C°				7.52	7.52	7.9
Conductivity	uS				302	302	441
pH	SU	6.5-8.5			7.96	7.96	7.85
Eh	mV				-42.9	-42.9	-88.1
Turbidity (after purging well)	N.T.U	5			98.7	76	1.34
LEACHATE INDICATORS:							
Ammonia Nitrogen	mg/l	2			<0.5	<0.5	<0.5
BOD 5	mg/l				<4	<4	<4
Bromide	mg/l	2			<2	<2	<0.2
COD	mg/l				<20	<20	<20
Chloride	mg/l	250			15	15.5	26.2
Nitrate	mg/l	10			<0.2	<0.2	<0.2
Sulfate	mg/l	250			29.5	25.4	52.6
Total Alkalinity	mg/l				110	120	130
Total Dissolved Solids	mg/l	500			277	190	423
Total Hardness	mg/l				176	215	197
Total Kjed. Nitrogen	mg/l				<0.5	<0.5	1.47
Total Organic Carbon	mg/l	500			<3	<3	<3
Total Phenols	mg/l	0.001			<0.005	<0.005	<0.005
Color	P.C.U.	15			15	12	8
Boron	mg/l	1			<0.5	<0.5	<0.5
Sulfide	mg/l				<0.1	<0.1	
INORGANIC PARAMETERS:							
Aluminum	mg/l	0.1			3.18	3.61	<0.1
Antimony	mg/l	0.003			<0.015	<0.015	<0.015
Arsenic	mg/l	0.025			<0.010	0.0121	<0.10
Barium	mg/l	1			0.0848	0.113	0.0692
Beryllium	mg/l	0.003			<0.003	<0.003	<0.003
Cadmium	mg/l	0.01			<0.005	<0.005	<0.005
Calcium	mg/l				56.2	68.5	64.3
Chromium	mg/l				<0.005	<0.005	<0.005
Hexavalent Chromium	mg/l	0.05			<0.010	<0.010	<0.010
Cobalt	mg/l	0.005			<0.02	<0.02	<0.020
Copper	mg/l	0.2			0.0155	0.0202	<0.010
Total Cyanide	mg/l	0.1			<0.010	<0.010	<0.010
Iron	mg/l	0.3			6.89	8.04	0.535
Lead	mg/l	0.025			0.00782	0.00863	<0.003
Magnesium	mg/l	35			8.72	10.6	8.76
Manganese	mg/l	0.3			0.232	0.275	0.153
Mercury	mg/l	0.002			<0.0002	<0.0002	<0.0002
Nickel	mg/l	0.007			<0.030	<0.030	<0.030
Potassium	mg/l				1.09	1.28	<1
Selenium	mg/l	0.01			<0.005	<0.005	<0.005
Silver	mg/l	0.05			<0.010	<0.010	<0.010
Sodium	mg/l	20			4.73	5.77	4.44
Thallium	mg/l	0.004			<0.010	<0.010	0.0228
Vanadium	mg/l	0.014			<0.030	<0.030	<0.030
Zinc	mg/l	0.3			0.0297	0.034	0.0665
ASP PEST/PCB WATERS					<MDL	<MDL	
	ug/l	0.1					
CHLORINATED HERBICIDES					<MDL	<MDL	
	ug/l	0.1					
ORGANIC PARAMETERS:						<MDL	<MDL
Bis 2(ethylhexyl)phthlate	ug/l				10 U		

Notes:

1. Parameters listed are Part 360 Baseline or Routine Parameters Effective 1993.
2. Blanks indicate no analysis performed
3. "<" indicates not detected at the specified method detection limit (MDL)
4. Bis 2(ethylhexyl)phthalate is undetected (U) due to less than 10 times the associated method blank level.

TABLE 3
Groundwater Analytical Monitoring Data
MW-14D
Albany Interim Landfill/P-4 Project
CHA Project No. 12244

TEST PARAMETER (mg/l unless otherwise noted)	Unit	TOGS Guidance Value	Mean (EWQV)	Mean (EWQV) Plus 3 Std. Dev.	Jan-07A Expanded	Jan-07B Expanded	Apr-07 Baseline
Temperature	C°				7.53	7.53	8.57
Conductivity	uS				188	188	205
pH	SU	6.5-8.5			8.32	8.32	8.39
Eh	mV				-4.9	-4.9	-14.1
Turbidity (after purging well)	N.T.U	5			101	90	2.68
LEACHATE INDICATORS:							
Ammonia Nitrogen	mg/l	2			<0.5	<0.5	<0.5
BOD 5	mg/l				<4	<4	<4
Bromide	mg/l	2			<20	<2	<0.2
COD	mg/l				<20	<20	<20
Chloride	mg/l	250			7.38	1.76	4.51
Nitrate	mg/l	10			<0.2	<0.2	<0.2
Sulfate	mg/l	250			<5	<5	<5
Total Alkalinity	mg/l				100	110	110
Total Dissolved Solids	mg/l	500			160	88	402
Total Hardness	mg/l				119	111	66.8
Total Kjed. Nitrogen	mg/l				<0.5	<0.5	2.86
Total Organic Carbon	mg/l	500			<3	<3	<3
Total Phenols	mg/l	0.001			<0.005	0.006	<0.005
Color	P.C.U.	15			18	15	7
Boron	mg/l	1			<0.5	<0.5	<0.5
Sulfide	mg/l				<0.1	<0.1	
INORGANIC PARAMETERS:							
Aluminum	mg/l	0.1			2.87	3.42	<0.1
Antimony	mg/l	0.003			<0.015	<0.015	<0.015
Arsenic	mg/l	0.025			<0.010	0.0121	<0.010
Barium	mg/l	1			0.0692	0.067	<0.05
Beryllium	mg/l	0.003			<0.003	<0.003	<0.003
Cadmium	mg/l	0.01			<0.005	<0.005	<0.005
Calcium	mg/l				35.4	32.6	20.3
Chromium	mg/l				<0.005	<0.005	<0.005
Hexavalent Chromium	mg/l	0.05			<0.01	<0.010	<0.010
Cobalt	mg/l	0.005			<0.020	<0.020	<0.020
Copper	mg/l	0.2			0.0211	0.0119	<0.010
Total Cyanide	mg/l	0.1			<0.010	<0.010	<0.010
Iron	mg/l	0.3			5.66	6.53	0.149
Lead	mg/l	0.025			0.00387	<0.003	<0.003
Magnesium	mg/l	35			7.4	7.1	3.94
Manganese	mg/l	0.3			0.203	0.193	0.0234
Mercury	mg/l	0.002			<0.0002	<0.0002	<0.0002
Nickel	mg/l	0.007			<0.030	<0.030	<0.030
Potassium	mg/l				1.16	1.22	<1
Selenium	mg/l	0.01			<0.005	<0.005	<0.005
Silver	mg/l	0.05			<0.010	<0.010	<0.010
Sodium	mg/l	20			16	15	16.3
Thallium	mg/l	0.004			<0.010	<0.010	<0.010
Vanadium	mg/l	0.014			<0.030	<0.030	<0.030
Zinc	mg/l	0.3			0.0378	0.0454	0.0572
ASP PEST/PCB WATERS					<MDL	<MDL	
	ug/l	0.1					
CHLORINATED HERBICIDES					<MDL	<MDL	
	ug/l	0.1					
ORGANIC PARAMETERS:					<MDL	<MDL	<MDL
	ug/l	0.1					

Notes:

1. Parameters listed are Part 360 Baseline or Routine Parameters Effective 1993.
2. Blanks indicate no analysis performed
3. "<" indicates not detected at the specified method detection limit (MDL)

TABLE 3
Groundwater Analytical Monitoring Data
MW-15S
Albany Interim Landfill/P-4 Project
CHA Project No. 12244

TEST PARAMETER (mg/l unless otherwise noted)	Unit	TOGS Guidance Value	Mean (EWQV)	Mean (EWQV) Plus 3 Std. Dev.	Jan-07A Expanded	Jan-07B Expanded	Apr-07 Baseline
Temperature	C°				8.99	8.99	6.34
Conductivity	uS				565	565	570
pH	SU	6.5-8.5			6.86	6.86	7.03
Eh	mV				-17.1	-17.1	-59.2
Turbidity (after purging well)	N.T.U	5			464	331	38.1
LEACHATE INDICATORS:							
Ammonia Nitrogen	mg/l	2			2.14	1.99	2.15
BOD 5	mg/l				5	6	4
Bromide	mg/l	2			<2	<2	<20
COD	mg/l				22	32	31
Chloride	mg/l	250			65.2	65.5	50.2
Nitrate	mg/l	10			<0.2	<0.2	<0.20
Sulfate	mg/l	250			40.1	46.7	35.5
Total Alkalinity	mg/l				180	170	150
Total Dissolved Solids	mg/l	500			275	322	680
Total Hardness	mg/l				448	452	195
Total Kjed. Nitrogen	mg/l				1.47	2.2	3.6
Total Organic Carbon	mg/l	500			9	26	7.1
Total Phenols	mg/l	0.001			<0.005	<0.005	<0.005
Color	P.C.U.	15			80	70	125
Boron	mg/l	1			<0.005	<0.005	<0.5
Sulfide	mg/l				<0.1	<0.1	
INORGANIC PARAMETERS:							
Aluminum	mg/l	0.1			15.8	19	0.292
Antimony	mg/l	0.003			<0.015	<0.015	<0.015
Arsenic	mg/l	0.025			0.0207	0.0382	<0.010
Barium	mg/l	1			0.139	0.149	0.0636
Beryllium	mg/l	0.003			<0.003	<0.003	<0.003
Cadmium	mg/l	0.01			0.00786	0.0099	<0.005
Calcium	mg/l				139	139	55.9
Chromium	mg/l				0.0284	0.0316	<0.005
Hexavalent Chromium	mg/l	0.05			<0.01	<0.01	<0.01
Cobalt	mg/l	0.005			0.0265	0.0252	<0.020
Copper	mg/l	0.2			0.156	0.135	<0.010
Total Cyanide	mg/l	0.1			<0.01	<0.01	<0.01
Iron	mg/l	0.3			58.1	77.1	9.59
Lead	mg/l	0.025			0.0526	0.0453	<0.003
Magnesium	mg/l	35			24.5	1.25	13.4
Manganese	mg/l	0.3			1.24	1.25	0.658
Mercury	mg/l	0.002			<0.0002	<0.0002	<0.0002
Nickel	mg/l	0.007			0.0539	0.0509	<0.030
Potassium	mg/l				4.65	6.45	3.29
Selenium	mg/l	0.01			<0.005	<0.005	0.00585
Silver	mg/l	0.05			<0.01	<0.010	<0.010
Sodium	mg/l	20			40.1	39.2	36.5
Thallium	mg/l	0.004			<0.01	<0.010	0.018
Vanadium	mg/l	0.014			0.0791	0.0775	<0.030
Zinc	mg/l	0.3			0.147	0.145	0.0561
ASP PEST/PCB WATERS					<MDL	<MDL	
	ug/l	0.1					
CHLORINATED HERBICIDES					<MDL	<MDL	
	ug/l	0.1					
ORGANIC PARAMETERS:					<MDL	<MDL	<MDL
	ug/l	0.1					

Notes:

1. Parameters listed are Part 360 Baseline or Routine Parameters Effective 1993.
2. Blanks indicate no analysis performed
3. "<" indicates not detected at the specified method detection limit (MDL)

TABLE 3
Groundwater Analytical Monitoring Data
MW-15I
Albany Interim Landfill/P-4 Project
CHA Project No. 12244

TEST PARAMETER (mg/l unless otherwise noted)	Unit	TOGS Guidance Value	Mean (EWQV)	Mean (EWQV) Plus 3 Std. Dev.	JAN-07A Expanded	JAN-07B Expanded	Apr-07 Baseline
Temperature	C°				8.64	8.64	7.48
Conductivity	uS				406	406	4.44
pH	SU	6.5-8.5			7.9	7.9	7.82
Eh	mV				-129.6	-129.6	-96
Turbidity (after purging well)	N.T.U	5			35.5	18.4	3.64
LEACHATE INDICATORS:							
Ammonia Nitrogen	mg/l	2			<0.5	<0.5	<0.5
BOD 5	mg/l				4	5	7
Bromide	mg/l	2			<2	<2	<0.2
COD	mg/l				<20	<20	<20
Chloride	mg/l	250			30	29.7	29.9
Nitrate	mg/l	10			<0.2	<0.2	<0.2
Sulfate	mg/l	250			37.2	33.1	39.4
Total Alkalinity	mg/l				140	140	140
Total Dissolved Solids	mg/l	500			225	160	387
Total Hardness	mg/l				246	320	197
Total Kjed. Nitrogen	mg/l				<0.5	<0.5	1.76
Total Organic Carbon	mg/l	500			3	3	<3
Total Phenols	mg/l	0.001			<0.005	<0.005	<0.005
Color	P.C.U.	15			20	18	10
Boron	mg/l	1			<0.5	<0.5	<0.5
Sulfide	mg/l				<0.1	<0.1	
INORGANIC PARAMETERS:							
Aluminum	mg/l	0.1			5.24	6.52	0.207
Antimony	mg/l	0.003			<0.015	<0.015	<0.015
Arsenic	mg/l	0.025			<0.010	<0.010	<0.010
Barium	mg/l	1			0.138	0.159	0.126
Beryllium	mg/l	0.003			<0.003	<0.003	<0.003
Cadmium	mg/l	0.01			<0.005	<0.005	<0.005
Calcium	mg/l				75.4	96.9	64.5
Chromium	mg/l				0.00684	0.00888	<0.005
Hexavalent Chromium	mg/l	0.05			<0.010	<0.010	<0.010
Cobalt	mg/l	0.005			<0.02	<0.020	<0.020
Copper	mg/l	0.2			0.0157	0.0162	<0.010
Total Cyanide	mg/l	0.1			<0.01	<0.01	<0.010
Iron	mg/l	0.3			11.2	15.4	1.07
Lead	mg/l	0.025			0.00575	0.0062	<0.003
Magnesium	mg/l	35			14.1	18.8	8.82
Manganese	mg/l	0.3			0.452	0.63	0.187
Mercury	mg/l	0.002			<0.0002	<0.0002	<0.0002
Nickel	mg/l	0.007			<0.030	<0.030	<0.030
Potassium	mg/l				1.62	1.59	<1
Selenium	mg/l	0.01			<0.005	<0.005	<0.005
Silver	mg/l	0.05			<0.010	<0.010	<0.010
Sodium	mg/l	20			7.97	9.11	9.44
Thallium	mg/l	0.004			<0.010	<0.010	0.0227
Vanadium	mg/l	0.014			<0.030	<0.030	<0.030
Zinc	mg/l	0.3			0.0542	0.0705	0.231
ASP PEST/PCB WATERS					<MDL	<MDL	
	ug/l	0.1					
CHLORINATED HERBICIDES					<MDL	<MDL	
	ug/l	0.1					
ORGANIC PARAMETERS:					<MDL	<MDL	<MDL
	ug/l	0.1					

Notes:

1. Parameters listed are Part 360 Baseline or Routine Parameters Effective 1993.
2. Blanks indicate no analysis performed
3. "<" indicates not detected at the specified method detection limit (MDL)

TABLE 3
Groundwater Analytical Monitoring Data
MW-15D
Albany Interim Landfill/P-4 Project
CHA Project No. 12244

TEST PARAMETER (mg/l unless otherwise noted)	Unit	TOGS Guidance Value	Mean (EWQV)	Mean (EWQV) Plus 3 Std. Dev.	JAN-07A Expanded	JAN-07B Expanded	Apr-07 Baseline
Temperature	C*				8.47	8.47	8.79
Conductivity	uS				208	208	221
pH	SU	6.5-8.5			8.38	8.38	8.26
Eh	mV				29.5	29.5	2
Turbidity (after purging well)	N.T.U	5			840	1290	142
LEACHATE INDICATORS:							
Ammonia Nitrogen	mg/l	2			<0.5	<0.5	<0.5
BOD 5	mg/l				6	<4	<4
Bromide	mg/l	2			<2	<2	0.25
COD	mg/l				<20	<20	<20
Chloride	mg/l	250			3.39	3.14	5.71
Nitrate	mg/l	10			<0.2	<0.2	<0.2
Sulfate	mg/l	250			<5	<5	<5
Total Alkalinity	mg/l				110	110	110
Total Dissolved Solids	mg/l	500			157	150	232
Total Hardness	mg/l				5270	2220	181
Total Kjed. Nitrogen	mg/l				<0.5	<0.5	<0.5
Total Organic Carbon	mg/l	500			17	32	10.5
Total Phenols	mg/l	0.001			<0.005	<0.005	<0.005
Color	P.C.U.	15			120	100	10
Boron	mg/l	1			<0.5	<0.50	<0.50
Sulfide	mg/l				<0.1	<0.1	
INORGANIC PARAMETERS:							
Aluminum	mg/l	0.1			139	99.2	6.09
Antimony	mg/l	0.003			<0.015	<0.015	<0.015
Arsenic	mg/l	0.025			0.0952	0.0598	0.0138
Barium	mg/l	1			0.951	0.822	0.0918
Beryllium	mg/l	0.003			0.00659	0.00502	<0.003
Cadmium	mg/l	0.01			0.0446	0.0298	<0.005
Calcium	mg/l				1460	629	53.2
Chromium	mg/l				0.176	0.129	0.00838
Hexavalent Chromium	mg/l	0.05			<0.010	<0.010	<0.010
Cobalt	mg/l	0.005			0.141	0.1	<0.020
Copper	mg/l	0.2			0.406	0.302	0.016
Total Cyanide	mg/l	0.1			<0.010	<0.010	<0.010
Iron	mg/l	0.3			303	220	12.4
Lead	mg/l	0.025			0.105	0.0767	0.00502
Magnesium	mg/l	35			246	158	11.7
Manganese	mg/l	0.3			9.54	6.83	0.416
Mercury (total)	mg/l	0.002			<0.0002	<0.0002	<0.0002
Nickel	mg/l	0.007			0.281	0.198	<0.030
Potassium	mg/l				17.1	12	13.9
Selenium	mg/l	0.01			<0.005	<0.005	<0.005
Silver	mg/l	0.05			<0.010	<0.010	<0.010
Sodium	mg/l	20			10.8	12.3	13.9
Thallium	mg/l	0.004			<0.010	<0.010	<0.0238
Vanadium	mg/l	0.014			0.289	0.206	<0.030
Zinc	mg/l	0.3			0.842	0.628	0.144
Aluminum (Dissolved)	mg/l	0.1					<0.1
Antimony (Dissolved)	mg/l	0.003					<0.015
Arsenic (Dissolved)	mg/l	0.025					0.0185
Barium (Dissolved)	mg/l	1					<0.05
Beryllium (Dissolved)	mg/l	0.003					<0.003
Cadmium (Dissolved)	mg/l	0.01					<0.005
Calcium (Dissolved)	mg/l						23.9
Chromium (Dissolved)	mg/l						<0.005
Cobalt (Dissolved)	mg/l	0.005					<0.020
Copper (Dissolved)	mg/l	0.2					<0.010
Iron (Dissolved)	mg/l	0.3					0.105
Lead (Dissolved)	mg/l	0.025					<0.003
Magnesium (Dissolved)	mg/l	35					3.77
Manganese (Dissolved)	mg/l	0.3					0.0607
Mercury (dissolved)	mg/l	0.002					<0.0002
Nickel (Dissolved)	mg/l	0.007					<0.030
Potassium (Dissolved)	mg/l						<1
Selenium (Dissolved)	mg/l	0.01					<0.005
Silver (Dissolved)	mg/l	0.05					<0.010
Sodium (Dissolved)	mg/l	20					13.4
Thallium (Dissolved)	mg/l	0.004					0.0157
Vanadium (Dissolved)	mg/l	0.014					<0.030
Zinc (Dissolved)	mg/l	0.3					0.051
ASP PEST/PCB WATERS					<MDL	<MDL	
	ug/l	0.1					
CHLORINATED HERBICIDES					<MDL	<MDL	
	ug/l	0.1					
ORGANIC PARAMETERS:					<MDL	<MDL	<MDL
	ug/l	0.1					

Notes:

1 Parameters listed are Part 360 Baseline or Routine Parameters Effective 1993.
2. Blanks indicate no analysis performed
3. "<" indicates not detected at the specified method detection limit (MDL)

TABLE 3
Groundwater Analytical Monitoring Data
Primary Pump Station 2
Albany Interim Landfill/P-4 Project
CHA Project No. 12244

TEST PARAMETER (mg/l unless otherwise noted)	Unit	TOGS Guidance Value	Apr-07 Baseline
Temperature	C°		
Conductivity	uS		
pH	SU	6.5-8.5	
Eh	mV		
Turbidity (after purging well)	N.T.U	5	83
LEACHATE INDICATORS:			
Ammonia Nitrogen	mg/l	2	326
BOD 5	mg/l	456	456
Bromide	mg/l	2	0.2
COD	mg/l	<20	<20
Chloride	mg/l	250	1530
Nitrate	mg/l	10	0.2
Sulfate	mg/l	8.9	8.9
Total Alkalinity	mg/l		3900
Total Dissolved Solids	mg/l	500	6070
Total Hardness	mg/l		760
Total Kjed. Nitrogen	mg/l	0.2	437
Total Organic Carbon	mg/l	500	1450
Total Phenols	mg/l	0.001	0.022
Color	P.C.U.	15	1400
Boron	mg/l	1	17
Sulfide	mg/l	6.57	6.57
INORGANIC PARAMETERS:			
Aluminum	mg/l	0.1	< 0.25
Antimony	mg/l	0.003	<.015
Arsenic	mg/l	0.025	0.12
Barium	mg/l	1	2.3
Beryllium	mg/l	0.003	<0.025
Cadmium	mg/l	0.01	<0.025
Calcium	mg/l	2.5	140
Chromium	mg/l	0.25	<0.25
Hexavalent Chromium	mg/l	0.05	<0.05
Cobalt	mg/l	0.005	<0.25
Copper	mg/l	0.2	<0.10
Total Cyanide	mg/l	0.1	0.016
Iron	mg/l	0.3	0.58
Lead	mg/l	0.025	<0.015
Magnesium	mg/l	35	99
Manganese	mg/l	0.3	0.84
Mercury (total)	mg/l	0.002	<0.0004
Nickel	mg/l	0.007	<0.15
Potassium	mg/l	12	450
Selenium	mg/l	0.01	<0.025
Silver	mg/l	0.05	<0.25
Sodium	mg/l	20	1400
Thallium	mg/l	0.004	<0.015
Vanadium	mg/l	0.014	<1.5
Zinc	mg/l	0.3	0.16
ASP PEST/PCB WATERS			<MDL
	ug/l	0.1	
CHLORINATED HERBICIDES			<MDL
	ug/l	0.1	
ORGANIC PARAMETERS:			
Methyphenol	ug/l	100	320
Phenol	ug/l	0.1	140
Butanone	ug/l	500	4.8
Acetone	ug/l	500	3.7
Bis(2-chloroisopropyl)phthalate	ug/l	0.01	0.021

Notes:

1. Parameters listed are Part 360 Baseline or Routine Parameters Effective 1993.
2. Blanks indicate no analysis performed
3. "<" indicates not detected at the specified method detection limit (MDL)

TABLE 3
Groundwater Analytical Monitoring Data
Secondary- Cell # 1
Albany Interim Landfill/P-4 Project
CHA Project No. 12244

TEST PARAMETER (mg/l unless otherwise noted)	Unit	TOGS Guidance Value	Apr-07 Baseline
Temperature	C°		
Conductivity	uS		
pH	SU	6.5-8.5	
Eh	mV		
Turbidity (after purging well)	N.T.U	5	4.07
LEACHATE INDICATORS:			
Ammonia Nitrogen	mg/l	2	<.5
BOD 5	mg/l		<4
Bromide	mg/l	2	0.2
COD	mg/l		<20
Chloride	mg/l	250	68.9
Nitrate	mg/l	10	<.2
Sulfate	mg/l	250	140
Total Alkalinity	mg/l		550
Total Dissolved Solids	mg/l	500	1480
Total Hardness	mg/l		1000
Total Kjed. Nitrogen	mg/l		<.5
Total Organic Carbon	mg/l	500	3.1
Total Phenols	mg/l	0.001	<.500
Color	P.C.U.	15	8
Boron	mg/l	1	<.5
Sulfide	mg/l		<.1
INORGANIC PARAMETERS:			
Aluminum	mg/l	0.1	<0.050
Antimony	mg/l	0.003	<0.003
Arsenic	mg/l	0.025	<0.010
Barium	mg/l	1	<0.30
Beryllium	mg/l	0.003	<0.005
Cadmium	mg/l	0.01	<0.005
Calcium	mg/l		230
Chromium	mg/l		<0.05
Hexavalent Chromium	mg/l	0.05	<0.010
Cobalt	mg/l	0.005	<0.02
Copper	mg/l	0.2	0.02
Total Cyanide	mg/l	0.1	<0.010
Iron	mg/l	0.3	0.25
Lead	mg/l	0.025	<0.003
Magnesium	mg/l	35	110
Manganese	mg/l	0.3	3.8
Mercury (total)	mg/l	0.002	<0.0004
Nickel	mg/l	0.007	<0.03
Potassium	mg/l		4.5
Selenium	mg/l	0.01	<0.005
Silver	mg/l	0.05	<0.05
Sodium	mg/l	20	61
Thallium	mg/l	0.004	<0.003
Vanadium	mg/l	0.014	<0.3
Zinc	mg/l	0.3	0.018
Aluminum (Dissolved)	mg/l	0.1	
Antimony (Dissolved)	mg/l	0.003	
Arsenic (Dissolved)	mg/l	0.025	
Barium (Dissolved)	mg/l	1	
Beryllium (Dissolved)	mg/l	0.003	
Cadmium (Dissolved)	mg/l	0.01	
Calcium (Dissolved)	mg/l		
Chromium (Dissolved)	mg/l		
Cobalt (Dissolved)	mg/l	0.005	
Copper (Dissolved)	mg/l	0.2	
Iron (Dissolved)	mg/l	0.3	
Lead (Dissolved)	mg/l	0.025	
Magnesium (Dissolved)	mg/l	35	
Manganese (Dissolved)	mg/l	0.3	
Mercury (dissolved)	mg/l	0.002	
Nickel (Dissolved)	mg/l	0.007	
Potassium (Dissolved)	mg/l		
Selenium (Dissolved)	mg/l	0.01	
Silver (Dissolved)	mg/l	0.05	
Sodium (Dissolved)	mg/l	20	
Thallium (Dissolved)	mg/l	0.004	
Vanadium (Dissolved)	mg/l	0.014	
Zinc (Dissolved)	mg/l	0.3	
ASP PEST/PCB WATERS			
	ug/l	0.1	
CHLORINATED HERBICIDES			
	ug/l	0.1	
ORGANIC PARAMETERS:			
Bis(2-ethylhexyl)phthalate	ug/l	0.1	0.021
	ug/l	0.1	
	ug/l	0.1	

Notes:

1 Parameters listed are Part 360 Baseline or Routine Parameters Effective 1993.
2. Blanks indicate no analysis performed
3. "<" indicates not detected at the specified method detection limit (MDL)

APPENDIX C

C.T. MALE ASSOCIATES. P.C.

BORING NO.: **P4 B-1**

TEST BORING LOG

CLIENT: City of Albany								SHEET 1 OF 5
DRILLING CONTRACTOR: Maxim Technologies Inc.								PROJECT NO.: 97.4583
PURPOSE: Subsurface Investigation/Geophysical Survey								ELEVATION: 301.8 feet
Groundwater					Casing	Sample	Core	DATUM: MSL
Date	Time	Depth	Casing	Type	HAS/FJC	Split Spoon		DATE STARTED: 12/31/97
1/5/98	9:05A	8.60'	from HSA	Diameter	see notes	2"		DATE FINISHED: 1/6/98
				Weight		140lbs		DRILLER: C. Dinovo
				Fall		30"		INSPECTOR: J. Usher

Depth Ft.	Casing Blows	Sample No.	Blows on Sample Spoon per 6"	Unified Classi-fication	Graphic Log	IDENTIFICATION	REMARKS
		S-1	5, 6, 5, 3	SM		Top .9': Dark brown f SAND, trace Silt Bottom .4': Brown f SAND, trace Silt	REC = 1.3' Moist 4.25" HSA driiling to 10 feet. 6"Flush Joint Casing driven to 15' for mud rotary drilling.
5		S-2	4, 7, 9, 9	SM		Brownish gray f SAND	REC = 1.0' Moist
10		S-3	2, 1, 1, 1	SM		Brownish gray f SAND, trace Silt.	REC = 1.0' Wet At 10' began mud rotary drilling w/ 4"API rods & 5.5" hollow drag bit. 6'Sand cleaned from casing: 9-15'.
15		S-4	6, 3	SM		Brown m to f SAND, trace Silt	REC = 0.8' Saturated
			2, 1	SM		Brownish gray f to c, rounded SAND, trace Silt.	
20							

C.T. MALE ASSOCIATES. P.C.

C.T. MALE ASSOCIATES, P.C.

BORING NO.: **P4 B-1**

TEST BORING LOG

CLIENT: City of Albany

SHEET 2 OF 5

PROJECT NO.: 97.4583

Depth Ft.	Casing Blows	Sample No.	Blows on Sample Spoon per 6"	Unified Classification	Graphic Log	IDENTIFICATION	REMARKS
		S-5	6	SM		Brownish gray f SAND, trace Silt.	REC = 1.6' Saturated
			6				
			6				
			8				
25							
		S-6	5	SM		Brownish gray f SILTY SAND, trace Silt.	REC = 1.3' Saturated
			4				
			4				
			3				
30							
		S-7	3	SM		Brownish gray f SAND, little Silt.	REC = 1.9' Saturated
			3				
			5				
			6				
35							
		S-8	8	SM		Grayish brown f SAND, trace Silt.	REC = 1.0' Saturated
			8				
			10				
			9				
40							
		S-9	12	SM		Brown f SAND, trace Silt.	REC = 1.8' Saturated
			10				
			11	ML		Gray CLAYEY SILT, little Sand.	
			11				

C.T. MALE ASSOCIATES. P.C.

C.T. MALE ASSOCIATES, P.C.

BORING NO.: **P4 B-1**

TEST BORING LOG

CLIENT: City of Albany

SHEET 3 OF 5

PROJECT NO.: 97.4583

Depth Ft.	Casing Blows	Sample No.	Blows on Sample Spoon per 6"	Unified Classi-fication	Graphic Log	IDENTIFICATION	REMARKS
45							
		S-10	22, 46, 66, 61	ML		Gray f SILTY SAND	REC = 1.1' Saturated No unusual drilling resistance noted.
50							
		S-11	16, 19, 19, 19	ML		Gray f SILTY SAND	REC = 1.4' Saturated
55							
		S-12	9, 22, 22, 23	ML		Gray SILT and f SAND, trace Clay.	REC = 1.1' Saturated
60							
		S-13	14, 15, 17, 17	ML		Gray SILT, some f Sand.	REC = 1.2' Saturated
65							
		S-14	10, 18	ML		Gray SILT, little f Sand	REC = 1.3' Saturated

C.T. MALE ASSOCIATES. P.C.

C.T. MALE ASSOCIATES, P.C.

BORING NO.: **P4 B-1**

TEST BORING LOG

CLIENT: City of Albany

SHEET 4 OF 5

PROJECT NO.: 97.4583

Depth Ft.	Casing Blows	Sample No.	Blows on Sample Spoon per 6"	Unified Classification	Graphic Log	IDENTIFICATION	REMARKS
		S-14	30			See sample identification on sheet 3.	
			40				
70							
		S-15	19	ML		Gray SILT, little f Sand, trace Clay.	REC = 0.9' Saturated
			27				
			26				
			19				
75							
		S-16	25	ML		Similar to S-15	REC = 1.3' Saturated
			40				
			37				
			65				
80							
		S-17	19	ML		Similar to S-15	REC = 1.0' Saturated
			21				
			21				
			27				
85							
		S-18	19			NO SAMPLE OBTAINED. CLAY NOTED ON BOTTOM OF SPOON.	REC = 0
			13				
			12				
			10				
90							

C.T. MALE ASSOCIATES. P.C.

C.T. MALE ASSOCIATES, P.C.

BORING NO.: **P4 B-1**

TEST BORING LOG

CLIENT: City of Albany

SHEET 5 OF 5

PROJECT NO.: 97.4583

Depth Ft.	Casing Blows	Sample No.	Blows on Sample Spoon per 6"	Unified Classification	Graphic Log	IDENTIFICATION	REMARKS
		S-19	3, 4, 5, 7	ML-CL		Gray, medium plasticity CLAY and SILT, trace f Sand.	REC = 2.0' Saturated
95							
		S-20	2, 6, 12, 11	ML-CL	S-20A	Gray SILTY CLAY w/ <1/16" tan Silt varves	REC = 2.0' Saturated
					S-20B	Grayish brown CLAY and SILT w/ <1/16" tan Silt varves	
100							
		S-21	5, 5, 8, 7	ML-CL		Gray SILTY, high plasticity CLAY with intermittent varving of brown SILT, varving as frequent as every 3/4" (varving thickness is <1/16")	REC = 2.0' Saturated
105							
		S-22	4, 4, 6, 6	ML-CL		Gray SILTY CLAY, no significant varving.	REC = 2.0' Saturated
110							
						TOTAL DEPTH OF BORING = 112.5'	
		SHELBY TUBE SAMPLE				SHELBY TUBE OBTAINED FROM 112.5' TO 115'	
115							

Boring completed with 4" Flush Joint PVC Casing (cap on bottom) installed to 111.5'. Grouted in place with bentonite/portland cement slurry injected by tremie method at depth of 55'. Grout may not have reached bottom of boring - drilling mud/water may be present below 55'.

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C.T. MALE ASSOCIATES. P.C.

BORING NO.: **P4 B-2**

TEST BORING LOG

CLIENT:	City of Albany							SHEET 1 OF 2
DRILLING CONTRACTOR:	Maxim Technologies Inc.							PROJECT NO.: 97.4583
PURPOSE:	Subsurface Investigation/Monitoring Well Installation							ELEVATION: 301.7 feet
Groundwater					Casing	Sample	Core	DATUM: MSL
Date	Time	Depth	Casing	Type	HSA	Split Spoon		DATE STARTED: 1/7/98
1/8/98	9:30A	10.0'		Diameter	4-1/4"	2"		DATE FINISHED: 1/8/98
				Weight		140lbs		DRILLER: C. Dinovo
				Fall		30"		INSPECTOR: J. Usher

Depth Ft.	Casing Blows	Sample No.	Blows on Sample Spoon per 6"	Unified Classification	Graphic Log	IDENTIFICATION	REMARKS
		S-1	4, 5, 5, 6	SM		Top 1.0': Brownish orange f to m SAND Bottom 0.5': Very light gray f SAND.	REC = 1.5' Dry
		S-2	7, 5, 6, 4	SM		Very light gray f SAND	REC = 1.3' Dry
5		S-3	5, 4, 4, 5	SM		Brownish gray f to m SAND, little Silt.	REC = 1.0 Moist
		S-4	4, 5, 10, 10	SM		Similar to S-3	REC = 1.5' Moist
		S-5	7, 4, 5, 4	SM		Brown and gray f to m SAND	REC = 2.0' Moist - Wet
10		S-6	2, 1, 1, 1	SM		Brownish gray f SAND, trace Silt.	REC = 1.6' Wet - Saturated
		S-7	2, 1, 2, 1	SM		Similar to S-6	REC = 1.4' Wet - Saturated
15		S-8	1, 1, 1, 1	SM		Brownish gray f to m SAND, trace Silt.	REC = 0.5' Wet
		S-9	1, 1, 1, 1	SM		Gray f SAND, trace Silt.	REC = 1.3' Wet
		S-10	4, 2, 1, 1	SM		Similar to S-9.	REC = 1.8' Wet
20							

C.T. MALE ASSOCIATES. P.C.

C.T. MALE ASSOCIATES, P.C.

BORING NO.: **P4 B-2**

TEST BORING LOG

CLIENT: City of Albany

SHEET 2 OF 2

PROJECT NO.: 97.4583

Depth Ft.	Casing Blows	Sample No.	Blows on Sample Spoon per 6"	Unified Classi-fication	Graphic Log	IDENTIFICATION	REMARKS
		S-11	6 5 3 3	SM		Brownish gray f SAND, trace Silt.	REC = 2.0' Wet
						TOTAL DEPTH OF BORING = 22.0'	
25							
30							
35							
40							

K:/97.4583/env/B2log.xls

C.T. MALE ASSOCIATES. P.C.

BORING NO.: **P4 B-3**

TEST BORING LOG

CLIENT:	City of Albany							SHEET 1 OF 2
DRILLING CONTRACTOR:	Maxim Technologies Inc.							PROJECT NO.: 97.4583
PURPOSE:	Subsurface Investigation/Monitoring Well Installation							ELEVATION: 316.5 feet
Groundwater					Casing	Sample	Core	DATUM: MSL
Date	Time	Depth	Casing	Type	HSA	Split Spoon		DATE STARTED: 1/9/98
1/9/98	12:50P	29.4'	from grade	Diameter	4-1/4"	2"		DATE FINISHED: 1/9/98
1/12/98	11:20A	25.3'	from grade	Weight		140lbs		DRILLER: C. Dinovo
				Fall		30"		INSPECTOR: J. Usher

Depth Ft.	Casing Blows	Sample No.	Blows on Sample Spoon per 6"	Unified Classification	Graphic Log	IDENTIFICATION	REMARKS
			17			FILL - BLUE-GRAY CRUSHED STONE	REC = 1.0'
		S-1	13	SM		Brown f SAND, trace Silt.	Moist
			16				
			17				
			17			Brown-orange f SAND, trace Silt.	REC = 1.5'
		S-2	23	SM			Moist
			27				
			28				
			6			Orange brown f SAND, trace Silt.	REC = 1.5'
5		S-3	15	SM			Moist
			23				
			28				
			35			Similar to S-3	REC = 1.5'
		S-4	36	SM			Moist
			57				
			40				
			4			Brown f SAND, trace Silt.	REC = 1.6'
		S-5	17	SM			Moist
			26				
10			29				
			9			Brown - gray f SAND, trace Silt.	REC = 1.1'
		S-6	21	SM			Moist
			40				
			68				
			18			Brown f SAND, trace Silt, orange and gray	REC = 1.5'
		S-7	28	SM		streaking (1/4")	Moist
			50				
			65				
			18			Brown f SAND, trace Silt.	REC = 2.0'
15		S-8	27	SM			Moist
			52				
			67				
			8			Orange - brown f SAND, trace Silt.	REC = 1.4'
		S-9	15	SM			Moist
			15				
			11				
			4			Light brown f SAND, trace Silt.	REC = 1.4'
		S-10	5	SM			Moist
			5				
20			4				

C.T. MALE ASSOCIATES. P.C.

C.T. MALE ASSOCIATES, P.C.

BORING NO.: **P4 B-3**

TEST BORING LOG

CLIENT: City of Albany

SHEET 2 OF 2

PROJECT NO.: 97.4583

Depth Ft.	Casing Blows	Sample No.	Blows on Sample Spoon per 6"	Unified Classification	Graphic Log	IDENTIFICATION	REMARKS
		S-11	4 5 6 6	SM		Similar to S-10	REC = 1.6' Moist
		S-12	4 6 6 5	SM		Similar to S-10	REC = 1.6' Moist
25		S-13	5 6 6 7	SM		Brown f to m SAND, trace Silt.	REC = 2.0' Wet
		S-14	5 5 4 4	SM		Brown f to m SAND, little Silt.	REC = 1.8' Wet
		S-15	1 2 2 2	SM		Brownish gray f to m SAND, some Silt.	REC = 1.5' Saturated
30		S-16	2 2 3 4	SM		Brownish-gray f to m SAND, trace Silt.	REC = 2.0' Saturated
		S-17	2 3 3 5	SM		Similar to S-16	REC = 2.0' Wet
35		S-18	2 3 2 2	SM		Similar to S-16	REC = 2.0' Wet
		S-19	4 5	SM	S-19A	Brownish-gray f to m SAND, trace Silt.	REC = 2.0' Wet
			8 11	SM	S-19B	Gray f SAND, little Silt.	
		S-20	3 3 4 4	SM		Gray f SAND, little Silt Gray f SAND, some Silt.	REC = 1.0' Wet
40						TOTAL DEPTH OF BORING = 40 FEET	

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C.T. MALE ASSOCIATES. P.C.

BORING NO.: **P4 B-4**

TEST BORING LOG

CLIENT:	City of Albany							SHEET 1 OF 2
DRILLING CONTRACTOR:	Maxim Technologies Inc.							PROJECT NO.: 97.4583
PURPOSE:	Subsurface Investigation/Monitoring Well Installation							ELEVATION: 314.0 feet
Groundwater					Casing	Sample	Core	DATUM: MSL
Date	Time	Depth	Casing	Type	HSA	Split Spoon		DATE STARTED: 1/12/98
1/13/98	12:40P	21.4'	from grade	Diameter	4-1/4"	2"		DATE FINISHED: 1/13/98
1/13/98	2:30P	21.74'	from grade	Weight		140lbs		DRILLER: C.Rondeau 1/12; C. Dinovo 1/13
				Fall		30"		INSPECTOR: J. Usher

Depth Ft.	Casing Blows	Sample No.	Blows on Sample Spoon per 6"	Unified Classification	Graphic Log	IDENTIFICATION	REMARKS
			12			FILL - BLUE-GRAY CRUSHED STONE	REC = 1.3'
		S-1	13	SM		Dark brown f to c SAND, little Silt, organic matter.	Dry - Moist
			16				
			18				
			13			Brown f SAND, trace Silt	REC = 0.8'
		S-2	7	SM			Moist
			5				
			4				
			3			Brown f SAND, trace Silt.	REC = 0.3'
5		S-3	3	SM			Moist
			7				
			11				
			15			Brown f SAND, trace Silt.	REC = 1.4'
		S-4	11	SM			Moist
			11				
			12				
			4			Similar to S-4	REC = 1.5'
		S-5	6	SM			Moist
			6				
10			7				
			4			Similar to S-4	REC = 1.4'
		S-6	4	SM			Moist
			5				
			7				
			5			Similar to S-4	REC = 1.5'
		S-7	6	SM			Moist
			6				
			5				
			4			Similar to S-4	REC = 1.3'
15		S-8	3	SM			Moist
			4				
			4				
			4			Similar to S-4	REC = 1.3'
		S-9	5	SM			Moist
			5				
			8				
			4			Similar to S-4	REC = 1.3'
		S-10	5	SM			Moist
			6				
20			7				

C.T. MALE ASSOCIATES. P.C.

C.T. MALE ASSOCIATES, P.C.

BORING NO.: **P4 B-4**

TEST BORING LOG

CLIENT: City of Albany

SHEET 2 OF 2

PROJECT NO.: 97.4583

Depth Ft.	Casing Blows	Sample No.	Blows on Sample Spoon per 6"	Unified Classi-fication	Graphic Log	IDENTIFICATION	REMARKS
		S-11	3, 4, 7, 8	SM		Brown f to m SAND, trace Silt.	REC = 1.5' Moist
		S-12	9, 7, 8, 7	SM		Brown f to m SAND, little Silt.	REC = 1.8' Wet
25		S-13	Accidentally dropped into bore hole.	SM		Similar to S-12	REC = 1.0' Wet Water in Spoon
		S-14	3, 2, 2, 2	SM		Brown f to c SAND, little Silt, trace Clay.	REC = 1.7' Wet
		S-15	3, 2, 1, 1	SM		Brown f to m SAND, trace Silt, trace Clay.	REC = 0.7' Wet
30		S-16	2, 3, 7, 10	SM	S-16A S-16B	Brown f to c SAND, trace Clay. Brownish gray f to m SAND, trace Silt.	REC = 1.3' Wet
		S-17	7, 10, 12, 14	SM		Brownish gray f to m SAND, trace Silt.	REC = 1.8' Wet
35		S-18	5, 4, 3, 7	SM		Similar to S-17	REC = 1.8' Wet
		S-19	2, 3, 3, 7	SM		Similar to S-17	REC = 1.4' Wet
40		S-20	8, 13, 14, 14	SM		Gray f SAND, trace Silt	REC = 2.0' Wet
						TOTAL DEPTH OF BORING = 40 FEET	

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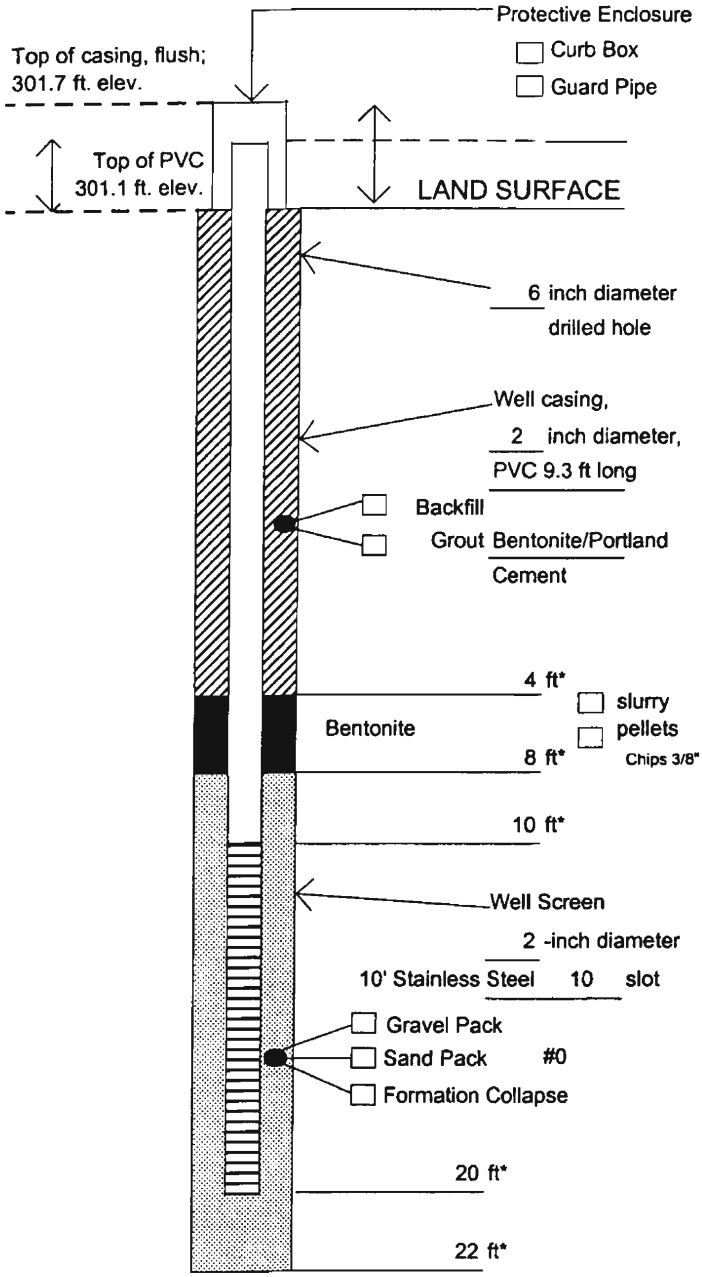
Well No. P4 MW-1S
(P4 B-2)

MONITORING WELL CONSTRUCTION LOG

C.T. MALE ASSOCIATES, P.C.



Overdrilled to compensate for sand flowing up augers.

* Depth below land surface.

Project Number	97.4583
Project Name	City of Albany AIL P4 Test Drilling
Well No.	P4 MW-1S
Boring No.	B-2
Town/City	City of Albany
County	Albany
State	New York
Installation Date(s)	1/8/98
Drilling Contractor	Maxim Technologies Inc.
Drilling Method	4.25" Hollow Stem Auger
Water Depth From Top of Riser	6.9 ft — 1/8/98 (Date)
Drilling Inspector Present	J. Usher

Notes:
Materials used:
(2.5) 100lb. bages of sand. Filtersil #0 WG Industrial Quart
(ANSI/NSF 61)
(1.5) bags of bentonite chips for seal (3/8")
10 gallons portland/bentonite mix for grout.

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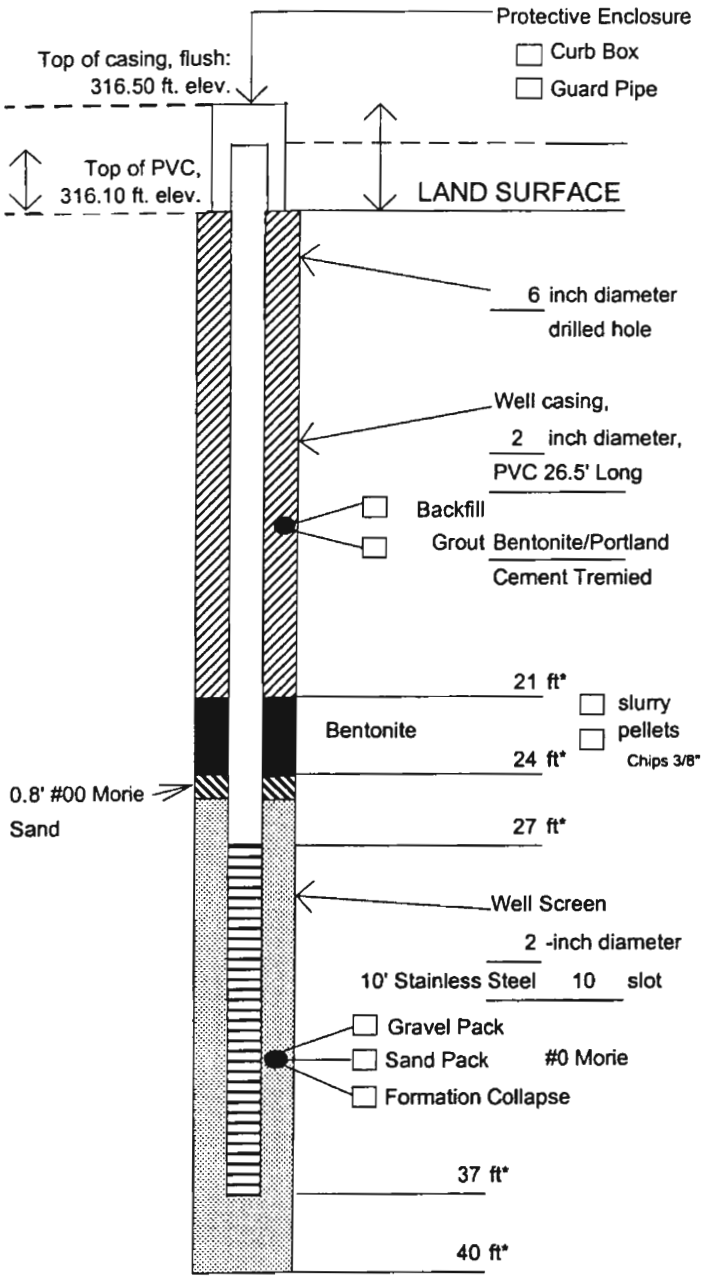
Well No. P4 MW-2S
(P4 B-3)

MONITORING WELL CONSTRUCTION LOG

C.T. MALE ASSOCIATES, P.C.



3/8" bentonite chips and formation collapse between 37 and 40 feet below grade.

* Depth below land surface.

Project Number 97.4583

Project Name City of Albany AIL P4 Test Drilling

Well No. P4 MW-2S Boring No. B-3

Town/City City of Albany

County Albany State New York

Installation Date(s) 1/9/98

Drilling Contractor Maxim Technologies Inc.

Drilling Method 4.25" Hollow Stem Auger

Water Depth From Top of Riser _____ ft _____ Date

Drilling Inspector Present J. Usher

Notes:

Materials used:

(3) 100 lb bags of quartz sand

(1) 1/4 50lb bag of bentonite chips (3/8" hole plug)

1/4 bag #00 sand

Grout:

(1/2) 50lb bag "Quik-Gel" Bentonite Powder

(2) 94lb bags Portland Cement

Approximately 50 gallons of water.

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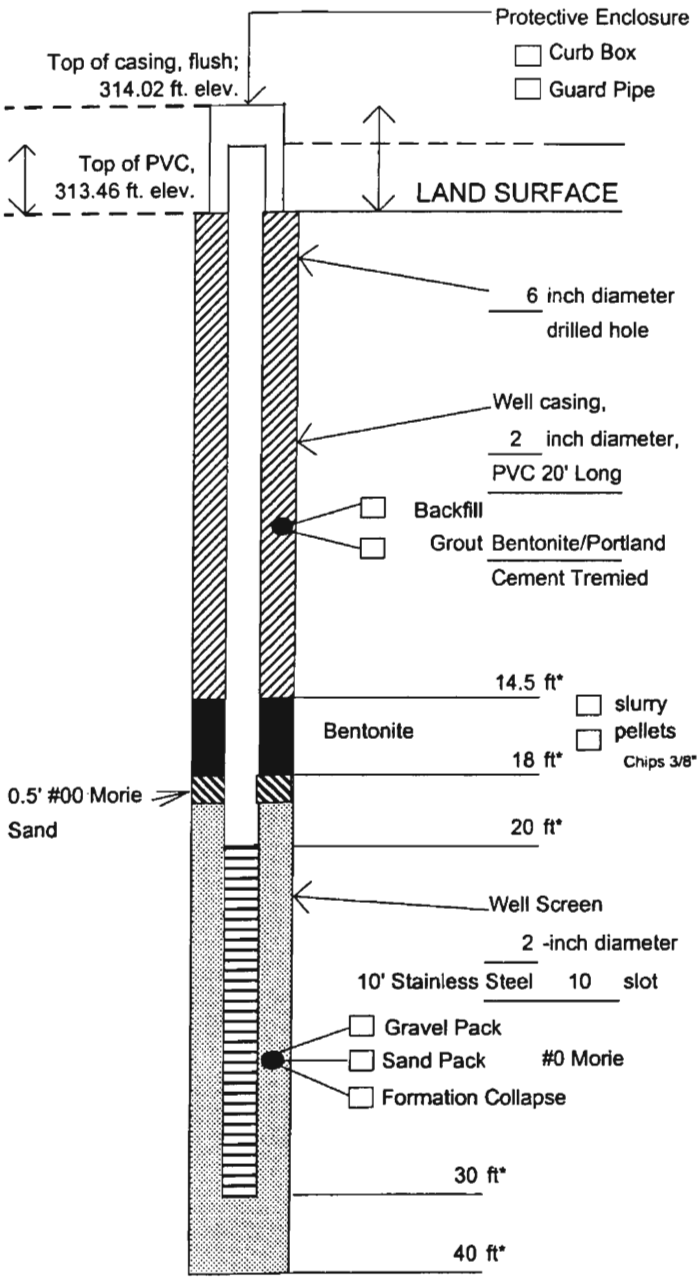
Well No. P4 MW-3S (P4 B-4)

MONITORING WELL CONSTRUCTION LOG

C.T. MALE ASSOCIATES, P.C.



Formation collapse, top 30 to 30.5' filled with #00 Sand.

* Depth below land surface.

Project Number 97.4583

Project Name City of Albany AIL P4 Test Drilling

Well No. P4 MW-3S Boring No. B-4

Town/City City of Albany

County Albany State New York

Installation Date(s) 1/13/98

Drilling Contractor Maxim Technologies Inc.

Drilling Method 4.25" Hollow Stem Auger

Water Depth From Top of Riser _____ ft _____ Date

Drilling Inspector Present J. Usher

Notes:

Materials used:

(3) 100 lb bags of #0 quartz sand

(1/4) 50lb bag of #00 morie sand

(2) 94lb bags of Portland Cement

(1 1/4) 50lb bag of Bentonite Chips 3/8"

(1/2) 50lb bag of Bentonite Powder

Approximately 50 gallons of water.

k:/97.4583/env/P4MW3Slog.xls

C.T. MALE ASSOCIATES, P.C.

BORING NO.: B-8S (MW-8S)

TEST BORING LOG

CLIENT: City of Albany AIL Expansion		SHEET 1 OF	2
DRILLING CONTRACTOR: SJB Services, Inc.		PROJECT NO.:	95.6748
PURPOSE: MW Cluster Installation		ELEVATION:	308.40 ft. from grade
		DATUM:	311.09 ft. from top ov PVC
		DATE STARTED:	12/23/96
		DATE FINISHED:	12/23/96
		DRILLER:	Jim Lamm
		INSPECTOR:	Brian Decatur

Groundwater					Casing	Sample	Core
Date	Time	Depth	Casing	Type	HSA	Split Spoon	
12/24/96	8:15 AM	14.34	T/O PVC	Diameter	4 1/4" ID	2"	
				Weight		140 lbs.	
				Fall		30"	

Depth Ft.	Casing Blows	Sample No.	Blows on Sample Spoon per 6"	Unified Classification	Graphic Log	IDENTIFICATION	REMARKS
		S-1	37			Clean asphalt fill material.	REC = 1.3'
			5			Brown fine to medium SAND, trace silt.	Dry -- Moist
			6				Augered to 5'.
			15				
5		S-2	4			Brown fine to medium SAND, trace silt.	REC = 1.4'
			3				Moist
			3				Augered to 10'.
			3				
10		S-3	4			Brown changing to grey fine to medium SAND, trace silt.	REC = 1.7'
			4				Moist
			4				Augered to 15'.
			4				
15		S-4	4			Grey fine to medium SAND, trace silt.	REC = 1.2'
			2				Wet
			2				Augered to 20'.
			2				
20							

C.T. MALE ASSOCIATES, P.C.

BORING NO.: B-8S
(MW-8S)

TEST BORING LOG

CLIENT: City of Albany AIL Expansion

SHEET 2 OF 2

PROJECT NO.: 95.6748

Depth Ft.	Casing Blows	Sample No.	Blows on Sample Spoon per 6"	Unified Classi-fication	Graphic Log	IDENTIFICATION	REMARKS
		S-5	5 5 5 4			Grey fine to medium SAND, trace silt.	REC = 1.9' Wet Augered to 22'.
						TOTAL DEPTH OF BORING = 22.0'	
25							
35							
40							

C.T. MALE ASSOCIATES, P.C.

TEST BORING LOG

BORING NO.: B-8I (MW-8I)

[redacted]EN T: City of Albany AIL Expansion								SHEET 1 OF	3
DRILLING CONTRACTOR: SJB Services, Inc.								PROJECT NO.:	95.6748
PURPOSE: MW Cluster Installation								ELEVATION:	308.40 ft. from grade
Groundwater					Casing	Sample	Core	DATUM:	311.07 ft. from top of PVC
Date	Time	Depth	Casing	Type	HSA	Split Spoon		DATE STARTED:	12/19/96
12/19	11:00 AM	14.2	From Grade	Diameter	4 1/4" ID	2"		DATE FINISHED:	12/20/96
12/24	8:55 AM	14.08	T/O PVC	Weight	140 lbs	3 15/16" Tri-Cone		DRILLER:	M. Lenigan
				Fall	30"	Roller bit used to clean augers.		INSPECTOR:	C. Thatcher

Depth Ft.	Casing Blows	Sample No.	Blows on Sample Spoon per 6"	Unified Classification	Graphic Log	IDENTIFICATION	REMARKS
				Fill		Clean asphalt fill material.	Augered to 5 feet. Standard Sampling
5							
		S1	1, 3, 4, 3	SM		Light Brown fine to medium SAND, trace Silt.	REC = 1.5' Dry Augered to 10'.
10		S-2	3, 3, 3, 2	SM		Top 1.3' Brown fine to medium SAND, little silt. Grayish brown very fine to medium SAND, little Silt.	REC = 1.7' Moist - Wet at bottom of spoon.
15		S-3	1, 1, 1, 1	SM		Brown very fine to fine SAND, little silt.	REC = 1.2' Wet
20							

C.T. MALE ASSOCIATES, P.C.

BORING NO.: B-8I
(MW-8I)

TEST BORING LOG

ENT: City of Albany AIL Expansion

SHEET 2 OF 3
PROJECT NO.: 95.6748

Depth Ft.	Casing Blows	Sample No.	Blows on Sample Spoon per 6"	Unified Classification	Graphic Log	IDENTIFICATION	REMARKS
20		S4	1, 1, 1, 1	SM		Gray and brown very fine to medium SAND rounded, trace Silt. Trace fine Gravel.	REC = 1.7' Wet
25		S5	1, 1, 2, 3	SM		Gray and brown fine to medium SAND, trace silt.	REC = 1.1' Wet
		S6	2, 1, 1, 2	SM		Grayish brown very fine to fine SAND, little silt.	REC = 0.2' Wet
35		S7	2, 6, 12, 14	SM		Grayish brown very fine to medium silty SAND.	REC = 0.9' Wet
40		S8	2, 10, 22, 22	SM		Similar to S7.	REC = 0.4' Overfull spoon. Auger to 45' Wash ~5' sand w/3 15/16" roller bit.

MAC-139 CT/ag 1/23/97

C.T. MALE ASSOCIATES, P.C.

BORING NO.: B-8I
(MW-8I)

TEST BORING LOG

ENT: City of Albany AIL Expansion	SHEET 3 OF 3
	PROJECT NO.: 95.6748

Depth Ft.	Casing Blows	Sample No.	Blows on Sample Spoon per 6"	Unified Classification	Graphic Log	IDENTIFICATION	REMARKS
45		S9	3			Gray silty fine to medium SAND.	REC = 2.0'
			5				Overfull spoon
			17				Auger to 50.
			17				Washout with rollerbit.
50		S10	1			Gray sandy SILT.	REC = 0.8'
			1				Wet
			4				
			7				
		S11	1			Gray sandy SILT.	REC = 0.6'
			1				Wet
			4				
			9				
60		S12	1			Gray very fine to fine sandy SILT, trace clay.	REC = 0.8'
			3				Wet
			4				
			6				Augering to 67'
							Washout with tri-cone rollerbit.
65							
						TOTAL DEPTH OF BORING = 67'	

CT/sg 1/23/97

C.T. MALE ASSOCIATES, P.C.

BORING NO.: B-8D (MW-8D)

TEST BORING LOG

CLIENT: City of Albany AIL Expansion								SHEET 1 OF	4
DRILLING CONTRACTOR: SJB Services, Inc.								PROJECT NO.:	95.6748
PURPOSE: MW Cluster Installation								ELEVATION:	308.60 ft. from grade
Groundwater					Casing	Sample	Core	DATUM:	311.28 ft. from top of PVC
Date	Time	Depth	Casing	Type	HSA	Split Spoon	2" —	DATE STARTED:	12/16/96
12/16/96	2:04 PM	13.5	From Grade	Diameter	4 1/4" ID	3 15/16" Tri Cone		DATE FINISHED:	12/18/96
12/17/96	7:15 AM	13.8	From Grade	Weight	140 lbs	Rollerbit used		DRILLER:	Mike Lenigan
12/19/96	10:00 AM	12.7	From Grade			to clear augers			
12/24/96	8:50 AM	14.3	T/O PVC	Fall	30"			INSPECTOR:	Chris Thatcher

Depth Ft.	Casing Blows	Sample No.	Blows on Sample Spoon per 6"	Unified Classification	Graphic Log	IDENTIFICATION	REMARKS
		S-1	3, 3, 3, 2	Fill		Clean asphalt fill material.	REC = 0.7' Moist Clean fill placed at boring location for drilling access.
		S-2	8, 8, 5, 4	SM		Top 0.2' fill material. Bottom 1.0' Brown, fine, rounded SAND.	REC = 1.2' Moist-Dry
5		S-3	2, 3, 3, 3	SM		Brown fine SAND, trace Silt.	REC = 1.8' Dry-Moist
		S-4	6, 5, 4, 4	SM		Similar to S-3.	REC = 1.8' Moist
10		S-5	2, 4, 4, 4	SM		Similar to S-3.	REC = 1.10' Moist
		S-6	2, 2, 2, 3	SM		Top 0.25 similar to S-3. 10.5' -11.5': Gray SAND, trace Silt. 11.5'-12.0': Brown SILT, trace f Sand.	REC = 1.5' Moist-Wet
		S-7	2, 2, 2, 1	SM		Brown fine SAND, some Silt.	REC = 2.0' Wet
15		S-8	1, 1, 1, 1	SM		Similar to S-7.	REC = 1.1' Wet
		S-9	1, 1, 1, 1	SM		Brown very fine to fine Sand, trace silt, some gray sand.	REC = 0.65' Wet
		S-10	1, 1, 1, 2	SM		Top 1.0' Brown very fine to medium SAND, trace silt. Bottom .7' Gray fine to medium SAND.	Advanced augers to ~18'. Water put into augers to create head. REC = 1.7' Wet
20							

TEST BORING LOG

BORING NO.: B-8D (MW-8D)

ENT: City of Albany AIL Expansion

SHEET 2 OF 4

PROJECT NO.: 95.6748

Depth Ft.	Casing Blows	Sample No.	Blows on Sample Spoon per 6"	Unified Classification	Graphic Log	IDENTIFICATION	REMARKS
		S-11	1, 1, 1, 1	SM		Brown fine to medium SAND, trace Silt some gray SAND.	REC = 1.3' Wet Sand In 1'
		S-12	1, 1, 2, 2	SM		Top 1.0' Brown fine to medium SAND, trace Silt. Bottom 11' Gray fine to medium SAND, trace silt.	REC = 2.0' Wet
25		S-13	1, 2, 2, 3	SM		Grayish Brown fine to medium SAND, trace silt.	REC = 1.8' Moist-Wet
		S-14	2, 2, 2, 7	SM		Similar to S-13.	REC = 1.8' Spoon over full Sand in augers.
		S-15	2, 3, 2, 3	SM		Similar to S-13.	REC = 1.5' Moist-Wet
		S-16	2, 3, 3, 3	SM		Similar to S-13.	REC = 1.6' Wet
		S-17	5, 2, 2, 2	SM		Similar to S-13.	REC = 2.0' Wet
35		S-18	8, 11, 12, 17	SM		Similar to S-13.	Augers advanced to 35 feet. 3 feet of sand came back into the hole. REC = 2.0' Wet
		S-19	8, 9, 10, 12	SM		Similar to S-13.	REC = 2.0' Wet
40		S-20	3, 3, 4, 4	SM		Grayish brown fine to coarse SAND, little Silt, with some silt at bottom of spoon.	~100 gallons of water used this far to keep sands from heaving REC = 2.0' Moist
		S-21	8, 12, 16, 16	SM		Grayish brown fine to coarse SAND. Some Silt.	~2' of sand in augers. REC = 1.6' Wet Overfull Spoon 13' of sand in augers. Augered to 45' used roller bit to clean sand out of annulus.

BORING NO.: B-8D
(MW-8D)

TEST BORING LOG

ENT: City of Albany AIL Expansion

SHEET 3 OF 4
PROJECT NO.: 95.6748

Depth Ft.	Casing Blows	Sample No.	Blows on Sample Spoon per 6"	Unified Classi-fication	Graphic Log	IDENTIFICATION	REMARKS
45		S-22	3, 5, 7, 7	ML - SM		Gray silty fine to medium SAND.	REC = 1.1' Wet
		S-23	5, 7, 8, 8	ML - SM		Gray silty fine to medium SAND.	REC = 2.0' Wet Auger to 50' 4' sand inside augers. Rollerbit to wash out prior to sampling.
50							
		S-24	5, 8, 14, 19	ML		Gray SILT, little Sand, trace clay.	REC = 2.0' Wet
		S-25	7, 7, 11, 19	ML		Gray SILT and fine to medium Sand.	REC = 0.6' Moist ~5' of sand in augers Auger to 60' Rollerbit to wash out augers.
60							
		S-26	7, 1, 3, 3	ML		Gray sandy SILT (very fine to fine sand), trace Clay.	REC = 2.0' Moist
		S-27	4, 7, 14, 18	ML		Similar to S-26.	REC = 2.0' Moist Auger to 65' Rollerbit to 65'.
65				ML		Similar to S-26.	REC = 1.5' Moist
		S-28	3, 3, 5, 5	ML		Similar to S-26.	REC = 2.0' Moist
		S-29	4, 5, 7, 10				

T. MALE ASSOCIATES, P.C.

BORING NO.: B-8D
(MW-8D)

TEST BORING LOG

ENT: City of Albany AIL Expansion

SHEET 4 OF 4
PROJECT NO.: 95.6748

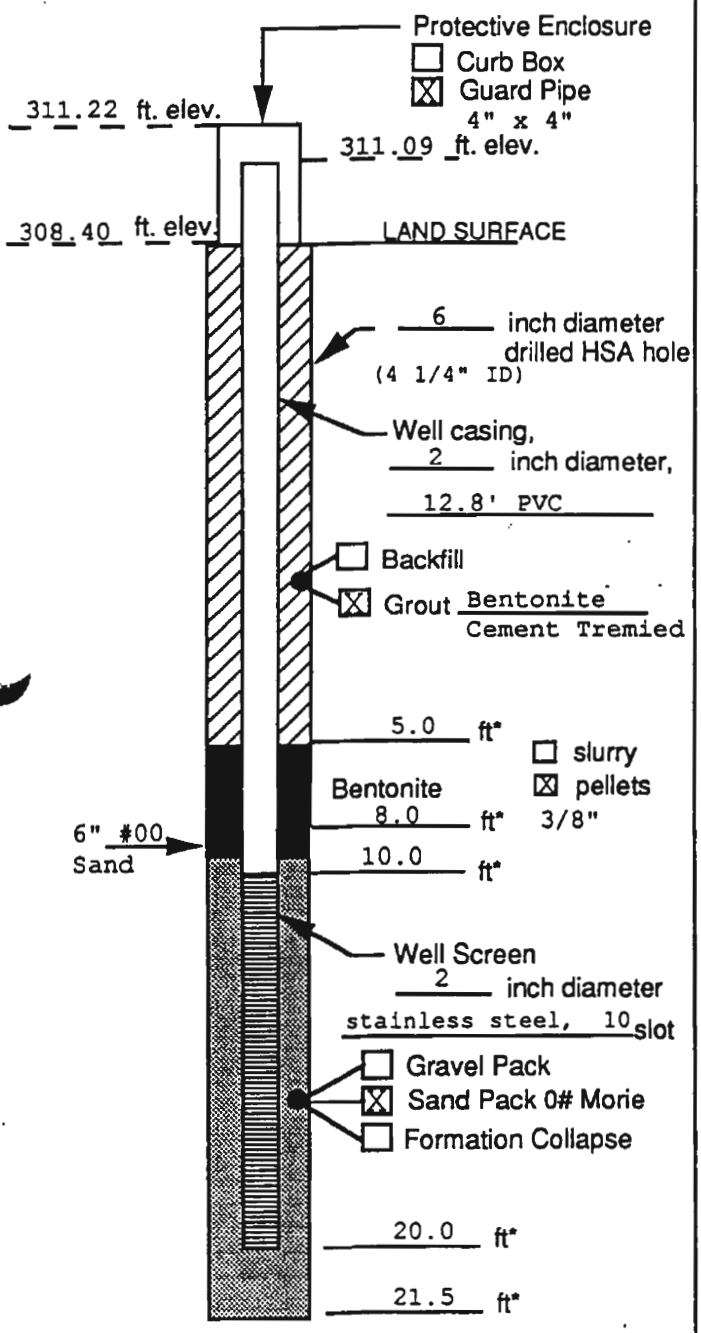
Depth Ft.	Casing Blows	Sample No.	Blows on Sample Spoon per 6"	Unified Classi-fication	Graphic Log	IDENTIFICATION	REMARKS
70		S-30	2	ML		Gray SILT, little very fine to fine Sand.	REC = 1.0'
			6				Moist
			12				
			12				
		S-31	12	ML		Similar to S-30.	REC = 0.5'
			12				Moist
			16				
			19				
75							Advanced augers to 75' cleaning out ~5' of sands w/rollerbit. No return water ~100 gallons water loss.
		S-32	4	ML		Gray SILT, little very fine to fine Sand, trace Clay.	REC = 1.2'
			3				Wet
			5				~5' of sand in augers.
			9				Auger to 80'
							Wash out with 3 15/16" roller bit.
							~100 gallons water loss.
		S-33	Wt of Rods	ML		Gray SILT, little Clay.	REC = 1.0'
			Wt of Rods				Wet
			3				
			6				
		S-34	5	ML		Gray clayey SILT.	REC = 0.7'
			7				Wet
			8				Auger to 85'
			12				
85							
		S-35	4	ML		All wash sand - not representative of formation.	REC = 0
			3				All wash Sand in spoon.
			4				
			6				
		S-36	10	ML		Gray clayey SILT.	REC = 0.4'
			12				Wet
			12				Wash sand above actual sand. Auger to 90'.
			19				
90							
		S-37	WOR	ML-CL		Gray silty CLAY 3" spoon used.	~15' of material in augers.
			WOR				Washing out with rollerbit.
			5				REC = 0.7'
			5				Wet
		S-3	WOR	CL		Gray varved CLAY of high plasticity with gray silt seams.	REC = 1.3'
			WOR				Wet
			WOR				
			WOR				2" Spoon

TOTAL DEPTH OF BORING = 94'

Well No. MW-8S

MONITOR WELL CONSTRUCTION LOG

C.T. Male Associates, P.C.



*Depth below land surface.

Project Number 95.6748

Project Name City of Albany Landfill Expansion

Well No. MW-8S Boring No. 8S

Town/City Albany

County Albany State New York

Installation Date(s) 12/23/96 & 12/24/96

Drilling Contractor SJB Services, Inc.

Drilling Method HSA

Water Depth From Top of Riser 14.34 ft 12/24/96 Date

Drilling Inspector Present Brian Decatur

Notes:

Materials Used:

3 Bags Sand
3/4 Bag Bentonite Pellets
2 Bags Portland Cement
1/2 Bags Bentonite "Benseal"

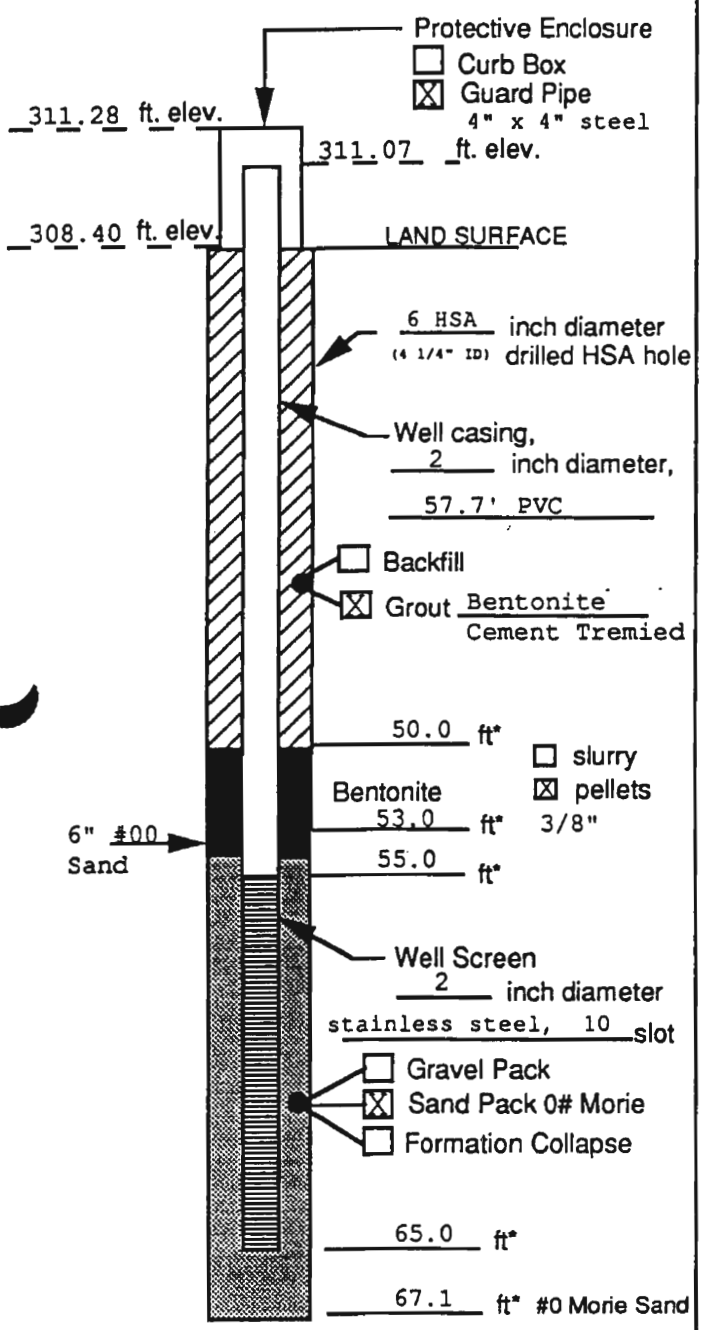
MAC-132

11/93

Well No. MW-8I

MONITOR WELL CONSTRUCTION LOG

C.T. Male Associates, P.C.



*Depth below land surface.

Project Number 95.6748

Project Name City of Albany Landfill Expansion

Well No. MW-8I Boring No. 8I

Town/City Albany

County Albany State New York

Installation Date(s) 12/23/96

Drilling Contractor SJB Services, Inc.

Drilling Method HSA

Water Depth From Top of Riser 14.29 ft 12/23/96 Date

Drilling Inspector Present Brian Decatur

Notes:

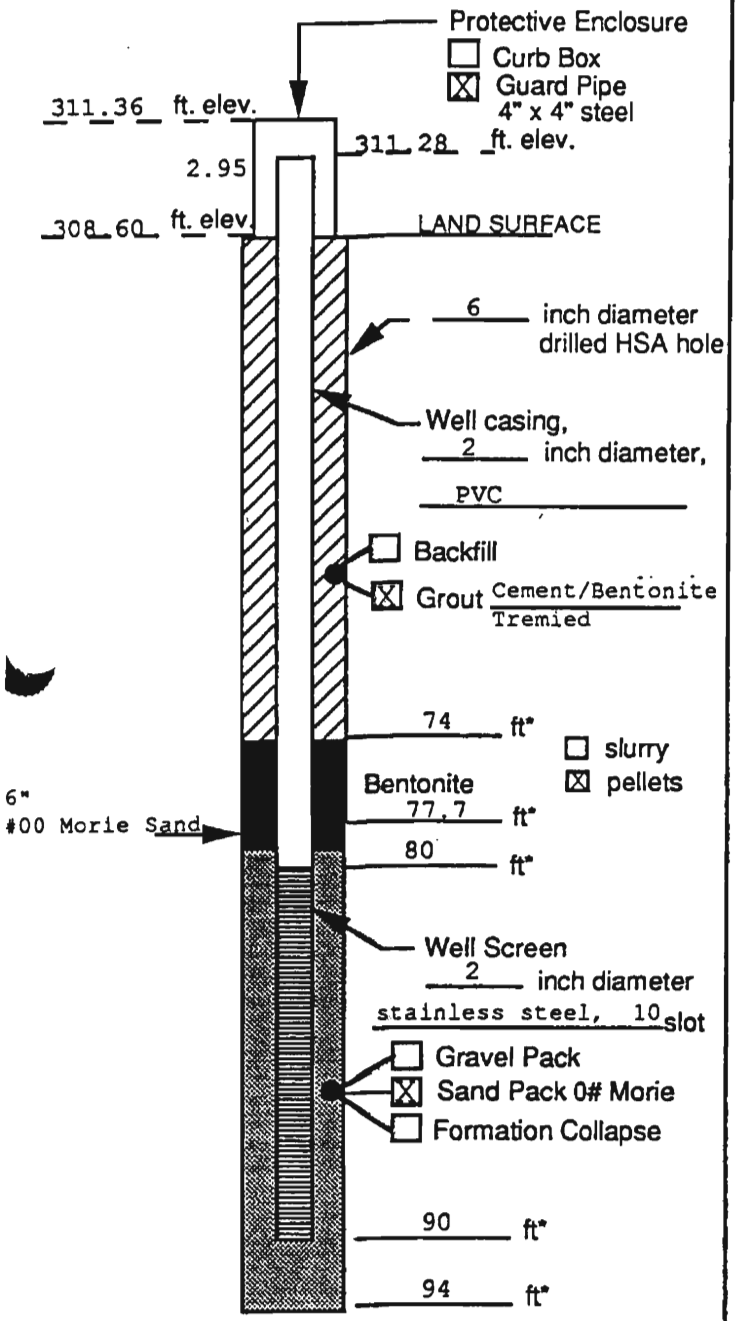
Materials Used:

2 1/2 Bags Sand
1/2 Bag Bentonite Pellets
4 Bags Portland Cement
1 1/2 Bags Bentonite "Benseal"

Well No. MW-8D

MONITOR WELL CONSTRUCTION LOG

C.T. Male Associates, P.C.



*Depth below land surface.

Project Number 95.6748

Project Name City of Albany Landfill Expansion

Well No. MW-8D Boring No. 8D

Town/City Albany

County Albany State New York

Installation Date(s) 12/18/96

Drilling Contractor SJB Services, Inc.

Drilling Method Hollow Stem Auger

Water Depth From Top of Riser 14.8 ft 12/20/96 8:00 AM
2.6' Stickup Date

Drilling Inspector Present C. Thatcher

Notes:

Continuous wire wrap stainless steel screen installed from 80 to 90 feet below grade. ~1/2' point placed at bottom.
#0 Morie Sand from 77.7 to 90.5 feet. #00 Morie Sand from 77 to 77.7 feet. Bentonite chips 3 bags (94 lbs.) Portland Cement.
2 1/2 bags Sand used for screen.
1/2 bag Bentonite for seal and grout.

C.T. MALE ASSOCIATES, P.C.

SUBSURFACE EXPLORATION LOG

BORING NO.: B-9S
ELEV.: 300.2' **DATUM: MSL**
START DATE: 7/7/98 **FINISH DATE:7/7/98**
SHEET 1 OF 1

PROJECT: P 4 Project CTM PROJECT NO.: 97.4583

LOCATION: Albany Interim Landfill CTM INSPECTOR: J. Cross

DEPTH (FT.)	SAMPLE TYPE	SAMPLE NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	18/24	N	RECOVERY	SAMPLE CLASSIFICATION	NOTES
		S-1	3	8	6	8	14	1.4	Top(0.0-1.0') Dark brown fine SAND, some gravel. Bottom(1.0-1.4') Light brown fine SAND. (SM)	Dry
5		S-2	5	10	9	6	19	1.7	Light orange brown fine SAND, trace silt. (SM)	Dry
10		S-3	5	4	3	4	7	1.6	Light orange-brown to light brown fine SAND, trace silt. (SM)	Wet
15		S-4	22	1	0	1	1	1.9	Gray fine SAND, trace silt. (SM)	Wet
20		S-5	5	3	2	2	5	1.8	Gray SILT, trace fine sand. (ML)	Wet
									T.D.= 21.0'	

N = NO. OF BLOWS TO DRIVE 2" SAMPLER 12" WITH A 140 LB. WT. FALLING 30" PER BLOW
DRILLING CONTRACTOR: Maxim Technologies, Inc. DRILL RIG TYPE: Truck Mounted Drill Rig
METHOD OF INVESTIGATION: 4.25" Hollow Stem Augers

GROUNDWATER LEVEL READINGS

DATE	LEVEL	CASING	STABILIZATION TIME

THE SUBSURFACE INFORMATION SHOWN HEREON WAS OBTAINED FOR C.T. MALE DESIGN PURPOSES. IT IS MADE AVAILABLE TO AUTHORIZED USERS ONLY THAT THEY MAY HAVE ACCESS TO THE SAME INFORMATION AVAILABLE TO C.T.MALE. IT IS PRESENTED IN GOOD FAITH, BUT IS NOT INTENDED AS A SUBSTITUTE FOR INVESTIGATIONS, INTERPRETATION OR JUDGMENT OF SUCH AUTHORIZED USERS.

SAMPLE CLASSIFICATION BY: JC

C.T. MALE ASSOCIATES, P.C.

SUBSURFACE EXPLORATION LOG

BORING NO.: B-9I
ELEV.: 300.3' **DATUM: MSL**
START DATE: 7/6/98 **FINISH DATE:7/6/98**
SHEET 1 OF 3

PROJECT: P 4 Project CTM PROJECT NO.: 97.4583

LOCATION: Albany Interim Landfill CTM INSPECTOR: J. Cross

DEPTH (FT.)	SAMPLE TYPE	SAMPLE NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	18/24	N	RECOVERY	SAMPLE CLASSIFICATION	NOTES
		S-1	2	5	8	11	13	1.7	Top(0.0-0.8') Dark brown fine SAND. Bottom(0.8-1.7') Light orange-brown fine SAND. (SM)	Dry
5		S-2	11	7	7	6	14	1.8	Light orange-brown fine SAND. (SM)	Dry
10		S-3	2	2	2	1	4	1.4	Same as S-2. (SM)	Wet
15		S-4	1	1	1	1	2	1.2	Light brown fine SAND. (SM)	Wet
20		S-5	2	1	1	2	2	1.3	Top(0.0-0.6') Same as S-4. Bottom(0.6-1.3') Gray fine SAND, Some Silt. (SM)	Wet
25		S-6	2	0	0	1	0	1.8	Gray fine SAND, trace silt. (SM)	Wet
30		S-7	4	1	0	1	1	1.8	Same as S-6. (SM)	Wet

N = NO. OF BLOWS TO DRIVE 2" SAMPLER 12" WITH A 140 LB. WT. FALLING 30" PER BLOW

DRILLING CONTRACTOR: Maxim Technologies, Inc. DRILL RIG TYPE: Truck Mounted Drill Rig

METHOD OF INVESTIGATION: 4.25" Hollow Stem Augers

GROUNDWATER LEVEL READINGS

DATE	LEVEL	CASING	STABILIZATION TIME

THE SUBSURFACE INFORMATION SHOWN HEREON WAS OBTAINED FOR C.T. MALE DESIGN PURPOSES. IT IS MADE AVAILABLE TO AUTHORIZED USERS ONLY THAT THEY MAY HAVE ACCESS TO THE SAME INFORMATION AVAILABLE TO C.T.MALE. IT IS PRESENTED IN GOOD FAITH, BUT IS NOT INTENDED AS A SUBSTITUTE FOR INVESTIGATIONS, INTERPRETATION OR JUDGMENT OF SUCH AUTHORIZED USERS.

SAMPLE CLASSIFICATION BY: JC

C.T. MALE ASSOCIATES, P.C.

SUBSURFACE EXPLORATION LOG

BORING NO.: B-9I
ELEV.: 300.3' **DATUM: MSL**
START DATE: 7/6/98 **FINISH DATE:7/6/98**
SHEET 2 OF 3

PROJECT: P 4 Project CTM PROJECT NO.: 97.4583

LOCATION: Albany Interim Landfill CTM INSPECTOR: J. Cross

DEPTH (FT.)	SAMPLE TYPE	SAMPLE NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	18/24	N	RECOVERY	SAMPLE CLASSIFICATION	NOTES
		S-7							See previous page for description.	
35		S-8	12	7	6	8	13	1.3	Gray SILT, Some fine Sand. (ML)	Wet
40		S-9a	8	14	9	7	23	0	Gray CLAYEY-SILT, trace fine sand. (ML)	Wet Two spoons taken with running sands. Third spoon contained 0.5' of native material.
45		S-9b	11	3	4	5	7	0.8	Gray fine SAND, Some Silt. (SM)	Wet
50		S-10	10	8	8	10	16	0.8	Same as S-9b. (SM)	Wet
55		S-11	4	5	4	7	9	1.2	Same as S-9b. (SM)	Wet
60		S-12	12	10	11	9	21	1.6	Same as S-9b. (SM)	Wet

N = NO. OF BLOWS TO DRIVE 2" SAMPLER 12" WITH A 140 LB. WT. FALLING 30" PER BLOW
DRILLING CONTRACTOR: Maxim Technologies, Inc. DRILL RIG TYPE: Truck Mounted Drill Rig
METHOD OF INVESTIGATION: 4.25" Hollow Stem Augers

GROUNDWATER LEVEL READINGS

DATE	LEVEL	CASING	STABILIZATION TIME

THE SUBSURFACE INFORMATION SHOWN HEREON WAS OBTAINED FOR C.T. MALE DESIGN PURPOSES. IT IS MADE AVAILABLE TO AUTHORIZED USERS ONLY THAT THEY MAY HAVE ACCESS TO THE SAME INFORMATION AVAILABLE TO C.T.MALE. IT IS PRESENTED IN GOOD FAITH, BUT IS NOT INTENDED AS A SUBSTITUTE FOR INVESTIGATIONS, INTERPRETATION OR JUDGMENT OF SUCH AUTHORIZED USERS.

SAMPLE CLASSIFICATION BY: JC

C.T. MALE ASSOCIATES, P.C.

SUBSURFACE EXPLORATION LOG

BORING NO.: B-9I
ELEV.: 300.3' **DATUM: MSL**
START DATE: 7/6/98 **FINISH DATE:7/6/98**
SHEET 3 OF 3

PROJECT: P 4 Project CTM PROJECT NO.: 97.4583

LOCATION: Albany Interim Landfill CTM INSPECTOR: J. Cross

DEPTH (FT.)	SAMPLE TYPE	SAMPLE NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	18/24	N	RECOVERY	SAMPLE CLASSIFICATION	NOTES
		S-12							See previous page for description.	Wet
65		S-13	12	9	14	17	23	1.9	Same as S-9b. (SM)	Wet
70		S-14	17	10	7	6	17	1.6	Gray CLAYEY-SILT, trace fine sand. (ML)	Wet Four feet of running sands entered auger and was washed out with the tri-cone.
75		S-15	3	3	5	8	8	2.0	Gray SILTY-CLAY. (ML-CL)	
									T.D.= 76.0'	

N = NO. OF BLOWS TO DRIVE 2" SAMPLER 12" WITH A 140 LB. WT. FALLING 30" PER BLOW
DRILLING CONTRACTOR: Maxim Technologies, Inc. DRILL RIG TYPE: Truck Mounted Drill Rig
METHOD OF INVESTIGATION: 4.25" Hollow Stem Augers

GROUNDWATER LEVEL READINGS

DATE	LEVEL	CASING	STABILIZATION TIME

THE SUBSURFACE INFORMATION SHOWN HEREON WAS OBTAINED FOR C.T. MALE DESIGN PURPOSES. IT IS MADE AVAILABLE TO AUTHORIZED USERS ONLY THAT THEY MAY HAVE ACCESS TO THE SAME INFORMATION AVAILABLE TO C.T.MALE. IT IS PRESENTED IN GOOD FAITH, BUT IS NOT INTENDED AS A SUBSTITUTE FOR INVESTIGATIONS, INTERPRETATION OR JUDGMENT OF SUCH AUTHORIZED USERS.

SAMPLE CLASSIFICATION BY: JC

C.T. MALE ASSOCIATES, P.C.

SUBSURFACE EXPLORATION LOG

BORING NO.: B-9D
ELEV.: 300.0' **DATUM: MSL**
START DATE: 6/24/98 **FINISH DATE:7/1/98**
SHEET 1 OF 4

PROJECT: P 4 Project CTM PROJECT NO.: 97.4583

LOCATION: Albany Interim Landfill CTM INSPECTOR: J. Cross

DEPTH (FT.)	SAMPLE TYPE	SAMPLE NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	18/24	N	RECOVERY	SAMPLE CLASSIFICATION	NOTES
		S-1	2	5	9	15	14	1.5	Top(0.0-1.0') Brown fine SAND, trace silt.	Moist
									Bottom(1.0-2.0') Light orange-brown fine SAND, trace silt.	
		S-2	15	18	33	35	51	1.4	Light orange-brown fine SAND, trace silt. (SM)	Moist
5		S-3	13	19	12	11	31	1.5	Same as S-2. (SM)	Moist
		S-4	11	12	11	10	23	1.7	Same as S-2. (SM)	Moist
		S-5	2	4	5	5	9	1.5	Light brown fine SAND, trace silt. (SM)	Wet
10		S-6	3	4	3	4	7	1.2	Same as S-5. (SM)	Wet
		S-7	4	3	3	3	6	2.0	Light brown fine SAND, Some Silt. (SM)	Wet
15		S-8	2	1	0	1	1	1.8	Top(0.0-1.0') Gray fine SAND, trace silt.	Wet
									Bottom(1.0-1.8') Light brown fine SAND, trace silt.	50 gal. of water added w/ hose.
		S-9	0	2	2	2	4	2.0	Top(0.0-1.0') Light brown fine SAND, Some Silt.	Wet
									Bottom(1.0-2.0') Gray fine SAND, Some Silt.	
20		S-10	2	2	1	1	3	2.0	Gray fine SAND, trace silt. (SM)	Wet
		S-11	0	2	1	2	3	2.0	Same as S-10. (SM)	Wet
		S-12	1	2	2	2	4	2.0	Same as S-10. (SM)	Wet
										50 gal. of water added w/ hose.
25		S-13	1	0	0	1	0	2.0	Same as S-10. (SM)	Wet
		S-14	6	4	4	3	8	2.0	Same as S-10. (SM)	Wet
30		S-15	6	3	2	1	5	0.6	Same as S-10. (SM)	Wet

N = NO. OF BLOWS TO DRIVE 2" SAMPLER 12" WITH A 140 LB. WT. FALLING 30" PER BLOW

DRILLING CONTRACTOR: Maxim Technologies, Inc. DRILL RIG TYPE: Truck Mounted Drill Rig

METHOD OF INVESTIGATION: 4.25" Hollow Stem Augers

GROUNDWATER LEVEL READINGS

DATE	LEVEL	CASING	STABILIZATION TIME
6/25	6.5	HSA	
6/29	9.1	HSA	

THE SUBSURFACE INFORMATION SHOWN HEREON WAS OBTAINED FOR C.T. MALE DESIGN PURPOSES. IT IS MADE AVAILABLE TO AUTHORIZED USERS ONLY THAT THEY MAY HAVE ACCESS TO THE SAME INFORMATION AVAILABLE TO C.T.MALE. IT IS PRESENTED IN GOOD FAITH, BUT IS NOT INTENDED AS A SUBSTITUTE FOR INVESTIGATIONS, INTERPRETATION OR JUDGMENT OF SUCH AUTHORIZED USERS.

SAMPLE CLASSIFICATION BY: JC

C.T. MALE ASSOCIATES, P.C.

SUBSURFACE EXPLORATION LOG

BORING NO.: B-9D
ELEV.: 300.0' **DATUM: MSL**
START DATE: 6/24/98 **FINISH DATE:7/1/98**
SHEET 2 OF 4

PROJECT: P 4 Project CTM PROJECT NO.: 97.4583

LOCATION: Albany Interim Landfill CTM INSPECTOR: J. Cross

DEPTH (FT.)	SAMPLE TYPE	SAMPLE NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	18/24	N	RECOVERY	SAMPLE CLASSIFICATION	NOTES
		S-16	5	2	3	3	5	1.4	Brown fine SAND, trace silt. (SM)	Wet
		S-17	12	8	4	4	12	0.7	Same as S-10. (SM)	Wet
35		S-18	6	9	16	20	25	2.0	Gray CLAYEY-SILT, trace fine sand. (ML)	Wet
		S-19	2	1	3	2	4	1.4	Same as S-18. (ML)	Wet
		S-20	6	9	9	21	18	2.0	Gray fine SAND, trace silt. (ML)	Wet
40									Bottom (0.2') Same as S-18.	
										Driller advanced auger without taking sample.
										Driller advanced auger without taking sample.
45		S-21	12	12	13	16	25	2.0	Gray SILT, trace fine sand, trace clay. (ML)	Wet
		S-22	6	7	12	14	19	1.7	Gray fine SAND, trace silt. (SM)	Wet
		S-23	5	6	7	6	13	1.7	Same as S-22. (SM)	Wet
50										
		S-24	1	2	1	1	3	0.6	Gray fine to medium SAND, trace silt.(SM)	Wet/ 100 gal. used to wash out casing with tri-cone.
		S-25	6	13	15	22	28	2.0	Same as S-22. (SM)	Wet/ 50 gal. used to wash out casing with tri-cone.
55		S-26	9	9	11	14	20	1.7	Gray fine SAND, trace to little silt. (SM)	Wet/ 100 gal. used to wash out casing with tri-cone.
		S-27	6	6	5	9	11	2.0	Gray SILT, trace fine sand, trace clay, lens of clay. (SM-ML)	Wet
60		S-28	6	5	6	8	11	2.0	Gray fine SAND, trace to little silt. (SM)	Wet

N = NO. OF BLOWS TO DRIVE 2" SAMPLER 12" WITH A 140 LB. WT. FALLING 30" PER BLOW
DRILLING CONTRACTOR: Maxim Technologies, Inc. DRILL RIG TYPE: Truck Mounted Drill Rig
METHOD OF INVESTIGATION: 4.25" Hollow Stem Augers

GROUNDWATER LEVEL READINGS

DATE	LEVEL	CASING	STABILIZATION TIME

THE SUBSURFACE INFORMATION SHOWN HEREON WAS OBTAINED FOR C.T. MALE DESIGN PURPOSES. IT IS MADE AVAILABLE TO AUTHORIZED USERS ONLY THAT THEY MAY HAVE ACCESS TO THE SAME INFORMATION AVAILABLE TO C.T.MALE. IT IS PRESENTED IN GOOD FAITH, BUT IS NOT INTENDED AS A SUBSTITUTE FOR INVESTIGATIONS, INTERPRETATION OR JUDGMENT OF SUCH AUTHORIZED USERS.

SAMPLE CLASSIFICATION BY: JC

C.T. MALE ASSOCIATES, P.C.

SUBSURFACE EXPLORATION LOG

BORING NO.: B-9D
ELEV.: 300.0' **DATUM: MSL**
START DATE: 6/24/98 **FINISH DATE:7/1/98**
SHEET 3 OF 4

PROJECT: P 4 Project CTM PROJECT NO.: 97.4583

LOCATION: Albany Interim Landfill CTM INSPECTOR: J. Cross

DEPTH (FT.)	SAMPLE TYPE	SAMPLE NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	18/24	N	RECOVERY	SAMPLE CLASSIFICATION	NOTES
		S-29	1	2	1	7	3	1.6	Same as S-22. (SM)	Wet
		S-30	9	11	12	13	23	2.0	Gray SILT, Some fine Sand. (SM-ML)	Wet
65		S-31	2	2	3	4	5	2.0	Gray CLAYEY-SILT, trace fine sand. (ML)	Wet
		S-32	4	6	3	5	9	2.0	Gray SILT, trace fine sand. (ML)	Wet
70		S-33	2	3	2	3	5	2.0	Top(0.0-1.4') Same as S-31. (ML) Bottom(1.4-2.0') Gray SILTY-CLAY.	Wet
		S-34	1	2	4	5	6	2.0	Gray SILTY-CLAY. (ML-CL)	Wet
		S-35	4	4	5	5	9	2.0	Gray SILTY-CLAY, gray clayey-silt varves. (ML-CL)	Wet
75		S-36	7	7	9	9	16	2.0	Gray SILTY-CLAY, gray clayey-silt varves, trace fine sand. (ML-CL)	Wet
		S-37	4	4	7	5	11	2.0	Gray silt, trace fine sand. (ML)	Wet
80		S-38	7	7	10	13	17	2.0	Same as S-37. (ML)	Wet
		S-39	4	3	4	7	7	1.6	Same as S-37. (ML)	Wet
		S-40	7	7	8	9	15	2.0	Same as S-37. (ML)	Wet
85		S-41	9	10	10	20	20	2.0	Same as S-37. (ML)	Wet
		S-42	11	15	27	33	41	2.0	Gray SILT, trace fine sand, trace clay.(ML)	Wet
90		S-43	5	8	10	9	18	1.9	Same as S-42. (ML)	Wet

N = NO. OF BLOWS TO DRIVE 2" SAMPLER 12" WITH A 140 LB. WT. FALLING 30" PER BLOW
DRILLING CONTRACTOR: Maxim Technologies, Inc. DRILL RIG TYPE: Truck Mounted Drill Rig
METHOD OF INVESTIGATION: 4.25" Hollow Stem Augers

GROUNDWATER LEVEL READINGS

DATE	LEVEL	CASING	STABILIZATION TIME

THE SUBSURFACE INFORMATION SHOWN HEREON WAS OBTAINED FOR C.T. MALE DESIGN PURPOSES. IT IS MADE AVAILABLE TO AUTHORIZED USERS ONLY THAT THEY MAY HAVE ACCESS TO THE SAME INFORMATION AVAILABLE TO C.T.MALE. IT IS PRESENTED IN GOOD FAITH, BUT IS NOT INTENDED AS A SUBSTITUTE FOR INVESTIGATIONS, INTERPRETATION OR JUDGMENT OF SUCH AUTHORIZED USERS.

SAMPLE CLASSIFICATION BY: JC

C.T. MALE ASSOCIATES, P.C.

SUBSURFACE EXPLORATION LOG

BORING NO.: B-9D
ELEV.: 300.0' **DATUM: MSL**
START DATE: 6/24/98 **FINISH DATE:7/1/98**
SHEET 4 OF 4

PROJECT: P 4 Project CTM PROJECT NO.: 97.4583

LOCATION: Albany Interim Landfill CTM INSPECTOR: J. Cross

DEPTH (FT.)	SAMPLE TYPE	SAMPLE NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	18/24	N	RECOVERY	SAMPLE CLASSIFICATION	NOTES
		S-44	3	3	5	9	8	2.0	Gray SILTY-CLAY, clayey-silt varves (ML-CL)	Wet
		S-45	10	5	8	6	13	2.0	Same as S-44. (ML-CL)	Wet
95		S-46	3	3	5	7	8	2.0	Same as S-44. (ML-CL)	Wet
		S-47	7	7	7	8	14	2.0	Gray SILTY- CLAY, clayey-silt varves, trace fine sand. (ML-CL)	Wet
100									T.D.= 98.0'	

N = NO. OF BLOWS TO DRIVE 2" SAMPLER 12" WITH A 140 LB. WT. FALLING 30" PER BLOW
DRILLING CONTRACTOR: Maxim Technologies, Inc. DRILL RIG TYPE: Truck Mounted Drill Rig
METHOD OF INVESTIGATION: 4.25" Hollow Stem Augers

GROUNDWATER LEVEL READINGS

DATE	LEVEL	CASING	STABILIZATION TIME

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SAMPLE CLASSIFICATION BY: JC

C.T. MALE ASSOCIATES, P.C.

SUBSURFACE EXPLORATION LOG

BORING NO.: B-10S
ELEV.: 309.9' **DATUM: MSL**
START DATE: 7/15/98 **FINISH DATE: 7/15/98**
SHEET 1 OF 2

PROJECT: P 4 Project CTM PROJECT NO.: 97.4583

LOCATION: Albany Interim Landfill CTM INSPECTOR: J. Cross

DEPTH (FT.)	SAMPLE TYPE	SAMPLE NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	18/24	N	RECOVERY	SAMPLE CLASSIFICATION	NOTES
		S-1	4	8	11	11	19	1.6	Top(0.0-0.6') Dark brown fine SAND, Little medium Gravel. Bottom(0.6-1.6') Light brown fine SAND, trace silt.	Dry
5		S-2	6	17	24	37	41	1.8	Light brown fine SAND, trace silt.	Dry
									Road Embankment Sand Fill	
10		S-3	7	17	25	29	42	1.6	Same as S-2.	Dry
15		S-4	5	8	8	7	16	1.6	Light brown fine SAND, trace silt. (SM)	Dry
20		S-5	4	4	3	4	7	1.4	Light orange-brown fine SAND, Some Silt. (SM)	Wet
25		S-6	1	1	1	1	2	1.5	Light brown fine SAND, Some Silt. (SM)	Wet
30		S-7	4	5	11	15	16	2.0	Top(0.0-1.1') Same as S-6. (SM)	Wet

N = NO. OF BLOWS TO DRIVE 2" SAMPLER 12" WITH A 140 LB. WT. FALLING 30" PER BLOW
DRILLING CONTRACTOR: Maxim Technologies, Inc. DRILL RIG TYPE: Truck Mounted Drill Rig
METHOD OF INVESTIGATION: 4.25' Hollow Stem Augers

GROUNDWATER LEVEL READINGS

DATE	LEVEL	CASING	STABILIZATION TIME

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SAMPLE CLASSIFICATION BY: JC

C.T. MALE ASSOCIATES, P.C.

SUBSURFACE EXPLORATION LOG

BORING NO.: B-10S
ELEV.: 309.9' DATUM: MSL
START DATE: 7/15/98 FINISH DATE: 7/15/98
SHEET 2 OF 2

PROJECT: P 4 Project CTM PROJECT NO.: 97.4583
LOCATION: Albany Interim Landfill CTM INSPECTOR: J. Cross

DEPTH (FT.)	SAMPLE TYPE	SAMPLE NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	18/24	N	RECOVERY	SAMPLE CLASSIFICATION	NOTES
									Bottom(1.1-2.0) Gray fine SAND, Some Silt. (SM)	
									T.D.= 31.0'	
35										

N = NO. OF BLOWS TO DRIVE 2" SAMPLER 12" WITH A 140 LB. WT. FALLING 30" PER BLOW
DRILLING CONTRACTOR: Maxim Technologies, Inc. DRILL RIG TYPE: Truck Mounted Drill Rig
METHOD OF INVESTIGATION: 4.25' Hollow Stem Augers

GROUNDWATER LEVEL READINGS

DATE	LEVEL	CASING	STABILIZATION TIME

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SAMPLE CLASSIFICATION BY: JC

C.T. MALE ASSOCIATES, P.C.

SUBSURFACE EXPLORATION LOG

BORING NO.: B-10I
ELEV.: 309.7' **DATUM: MSL**
START DATE: 7/14/98 **FINISH DATE: 7/14/98**
SHEET 1 OF 3

PROJECT: P 4 Project CTM PROJECT NO.: 97.4583

LOCATION: Albany Interim Landfill CTM INSPECTOR: J. Cross

DEPTH (FT.)	SAMPLE TYPE	SAMPLE NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	18/24	N	RECOVERY	SAMPLE CLASSIFICATION	NOTES
		S-1	5	7	10	16	17	1.7	Light brown fine SAND, some medium gravel. (SM)	Dry
5		S-2	9	14	25	31	39	1.8	Light brown fine SAND, trace silt. (SM)	Dry
									Road Embankment Sand Fill	
10		S-3	6	18	27	33	35	1.9	Same as S-2. (SM)	Dry
15		S-4	4	7	8	8	15	1.5	Light brown fine SAND, trace silt (SM)	Dry
20		S-5	3	4	3	3	7	1.5	Same as S-4.	Wet
25		S-6	1	0	3	3	3	1.4	Same as S-4.	Wet
30		S-7	5	6	7	12	13	1.2	Top(0.0-0.6') Same as S-4.	Wet

N = NO. OF BLOWS TO DRIVE 2" SAMPLER 12" WITH A 140 LB. WT. FALLING 30" PER BLOW

DRILLING CONTRACTOR: Maxim Technologies, Inc. DRILL RIG TYPE: Truck Mounted Drill Rig

METHOD OF INVESTIGATION: 4.25' Hollow Stem Augers

GROUNDWATER LEVEL READINGS

DATE	LEVEL	CASING	STABILIZATION TIME

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SAMPLE CLASSIFICATION BY: JC

C.T. MALE ASSOCIATES, P.C.

SUBSURFACE EXPLORATION LOG

BORING NO.: B-10I
ELEV.: 309.7' DATUM: MSL
START DATE: 7/14/98 FINISH DATE: 7/14/98
SHEET 2 OF 3

PROJECT: P 4 Project CTM PROJECT NO.: 97.4583
LOCATION: Albany Interim Landfill CTM INSPECTOR: J. Cross

DEPTH (FT.)	SAMPLE TYPE	SAMPLE NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	18/24	N	RECOVERY	SAMPLE CLASSIFICATION	NOTES
		S-7							Bottom(0.6-1.2') Light gray fine SAND, trace silt. (SM)	Wet
35		S-8	8	7	9	15	16	2.0	Light gray fine SAND, trace silt. (SM)	Wet 50 gal. water added w/ hose.
40		S-9	1	2	6	11	8	1.6	Same as S-8. (SM)	Wet
45		S-10	5	11	14	19	25	1.5	Top(0.0-1.1') Same as S-8. Bottom(1.1-1.5') Light brown fine SAND, trace silt. (SM)	Wet
50		S-11	16	10	10	10	20	1.9	Light brown fine SAND, Some Silt. (SM)	Wet 200 gal. water added w/ hose.
55		S-12	2	7	8	9	15	1.3	Same as S-11. (SM)	Wet
60		S-13	0	1	4	10	5	1.7	Same as S-11, lens of silty-clay (0.1').(SM)	Wet

N = NO. OF BLOWS TO DRIVE 2" SAMPLER 12" WITH A 140 LB. WT. FALLING 30" PER BLOW
DRILLING CONTRACTOR: Maxim Technologies, Inc. DRILL RIG TYPE: Truck Mounted Drill Rig
METHOD OF INVESTIGATION: 4.25' Hollow Stem Augers

GROUNDWATER LEVEL READINGS

DATE	LEVEL	CASING	STABILIZATION TIME

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SAMPLE CLASSIFICATION BY: JC

C.T. MALE ASSOCIATES, P.C.

SUBSURFACE EXPLORATION LOG

BORING NO.: B-10I
ELEV.: 309.7' DATUM: MSL
START DATE: 7/14/98 FINISH DATE: 7/14/98
SHEET 3 OF 3

PROJECT: P 4 Project CTM PROJECT NO.: 97.4583
LOCATION: Albany Interim Landfill CTM INSPECTOR: J. Cross

DEPTH (FT.)	SAMPLE TYPE	SAMPLE NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	18/24	N	RECOVERY	SAMPLE CLASSIFICATION	NOTES
										Wet
65		S-14	11	5	6	11	11	1.6	Light gray fine SAND, Some Silt. (SM)	Wet
70		S-15	8	15	15	16	30	1.8	Gray SILT, Some fine Sand. (ML)	Wet
75									T.D.= 71.0'	

N = NO. OF BLOWS TO DRIVE 2" SAMPLER 12" WITH A 140 LB. WT. FALLING 30" PER BLOW
DRILLING CONTRACTOR: Maxim Technologies, Inc. DRILL RIG TYPE: Truck Mounted Drill Rig
METHOD OF INVESTIGATION: 4.25' Hollow Stem Augers

GROUNDWATER LEVEL READINGS

DATE	LEVEL	CASING	STABILIZATION TIME

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SAMPLE CLASSIFICATION BY: JC

C.T. MALE ASSOCIATES, P.C.

SUBSURFACE EXPLORATION LOG

BORING NO.: B-10D
ELEV.: 309.7' **DATUM: MSL**
START DATE: 7/7/98 **FINISH DATE: 7/10/98**
SHEET 1 OF 4

PROJECT: P 4 Project CTM PROJECT NO.: 97.4583

LOCATION: Albany Interim Landfill CTM INSPECTOR: J. Cross

DEPTH (FT.)	SAMPLE TYPE	SAMPLE NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	18/24	N	RECOVERY	SAMPLE CLASSIFICATION	NOTES
		S-1	4	6	7	10	13	1.6	Top(0.0-0.6') Fill material.	Dry
									Bottom(0.6-1.6') Light brown fine SAND.	
		S-2	13	14	15	20	29	1.4	Light brown fine SAND, trace silt. (SM)	Dry
5		S-3	8	10	21	19	31	1.2	Same as S-2. (SM)	Dry
		S-4	30	30	33	33	63	1.9	Same as S-2. (SM)	Dry
		S-5	6	12	44	38	56	1.6	Same as S-2. (SM)	Dry
10									Road Embankment Sand Fill	
		S-6	71	63	51	59	114	1.8	Light brown fine SAND, trace silt. (SM)	Dry
		S-7	4	9	13	13	22	1.1	Same as S-6. (SM)	Dry
15		S-8	4	5	8	9	13	1.0	Same as S-6. (SM)	Dry
		S-9	8	8	9	8	17	1.5	Same as S-6. (SM)	Dry
		S-10	6	6	7	7	13	1.1	Same as S-6. (SM)	Moist
20		S-11	7	8	8	7	16	1.6	Same as S-6. (SM)	Wet
		S-12	2	3	4	5	7	1.6	Top(0.0-0.6') Light orange brown fine SAND.	Wet
									Bottom(0.6-1.6') Same as S-6.	
25		S-13	1	2	2	4	4	1.8	Brown fine to medium SAND, trace silt.	Wet
									(SM)	
		S-14	1	2	4	4	6	2.0	Same as S-13. (SM)	Wet
		S-15	6	2	3	4	5	2.0	Top(0.0-0.6') Light brown SILT, trace fine sand.	Wet
30									Bottom(0.6-2.0') Same as S-13.	

N = NO. OF BLOWS TO DRIVE 2" SAMPLER 12" WITH A 140 LB. WT. FALLING 30" PER BLOW

DRILLING CONTRACTOR: Maxim Technologies, Inc. DRILL RIG TYPE: Truck Mounted Drill Rig

METHOD OF INVESTIGATION: 4.25' Hollow Stem Augers

GROUNDWATER LEVEL READINGS

DATE	LEVEL	CASING	STABILIZATION TIME
7/8	21.3'	HSA	
7/9	21.0'	HSA	
7/10	21.9'	HSA	

SAMPLE CLASSIFICATION BY: JC

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C.T. MALE ASSOCIATES, P.C.

SUBSURFACE EXPLORATION LOG

BORING NO.: B-10D
ELEV.: 309.7' DATUM: MSL
START DATE: 7/7/98 FINISH DATE: 7/10/98
SHEET 2 OF 4

PROJECT: P 4 Project CTM PROJECT NO.: 97.4583
LOCATION: Albany Interim Landfill CTM INSPECTOR: J. Cross

DEPTH (FT.)	SAMPLE TYPE	SAMPLE NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	18/24	N	RECOVERY	SAMPLE CLASSIFICATION	NOTES
		S-16	5	8	8	8	16	1.9	Gray fine SAND, trace silt. (SM)	Wet Tri-cone, 50 gal. water added.
		S-17	6	9	13	18	22	1.7	Gray fine to medium SAND, trace silt.(SM)	Wet
35		S-18	6	6	12	13	18	1.5	Gray fine SAND, Some Silt. (SM)	Wet
		S-19	4	6	11	13	17	1.1	Same as S-18. (SM)	Wet
		S-20	3	6	7	6	13	1.3	Same as S-18. (SM)	Wet
40		S-21	1	2	6	5	8	1.4	Same as S-18. (SM)	Wet
		S-22	8	4	5	8	9	1.7	Top(0.0-0.7') Same as S-18. Bottom(0.7-1.7') Brown fine SAND, trace silt.	Wet
45		S-23	8	5	4	13	9	1.5	Brown fine SAND, Some Silt. (SM)	Wet
		S-24	9	11	15	21	26	2.0	Same as S-23. (SM)	Wet
		S-25	12	12	15	15	27	2.0	Same as S-23. (SM)	Wet
50		S-26	11	13	12	13	25	1.7	Same as S-23. (SM)	Wet
		S-27	17	10	15	18	25	1.3	Brown-Gray fine SAND, Some Silt (SM.	Wet
55		S-28	6	7	10	14	17	1.1	Same as S-27. (SM)	Wet
		S-29	13	8	9	14	17	1.4	Same as S-27. (SM)	Wet
60		S-30	12	10	13	18	23	1.2	Gray fine SAND, Some Silt. (SM)	Wet

N = NO. OF BLOWS TO DRIVE 2" SAMPLER 12" WITH A 140 LB. WT. FALLING 30" PER BLOW
DRILLING CONTRACTOR: Maxim Technologies, Inc. DRILL RIG TYPE: Truck Mounted Drill Rig
METHOD OF INVESTIGATION: 4.25' Hollow Stem Augers

GROUNDWATER LEVEL READINGS

DATE	LEVEL	CASING	STABILIZATION TIME

THE SUBSURFACE INFORMATION SHOWN HEREON WAS OBTAINED FOR C.T. MALE DESIGN PURPOSES. IT IS MADE AVAILABLE TO AUTHORIZED USERS ONLY THAT THEY MAY HAVE ACCESS TO THE SAME INFORMATION AVAILABLE TO C.T.MALE. IT IS PRESENTED IN GOOD FAITH, BUT IS NOT INTENDED AS A SUBSTITUTE FOR INVESTIGATIONS, INTERPRETATION OR JUDGMENT OF SUCH AUTHORIZED USERS.

SAMPLE CLASSIFICATION BY: JC

C.T. MALE ASSOCIATES, P.C.

SUBSURFACE EXPLORATION LOG

BORING NO.: B-10D
ELEV.: 309.7' DATUM: MSL
START DATE: 7/7/98 FINISH DATE: 7/10/98
SHEET 3 OF 4

PROJECT: P 4 Project CTM PROJECT NO.: 97.4583
LOCATION: Albany Interim Landfill CTM INSPECTOR: J. Cross

DEPTH (FT.)	SAMPLE TYPE	SAMPLE NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	18/24	N	RECOVERY	SAMPLE CLASSIFICATION	NOTES
		S-31	13	25	29	40	54	1.7	Gray fine SAND, Some Silt. (SM)	Wet
		S-32	6	22	39	52	61	1.4	Same as S-31. (SM)	Wet
65		S-33	6	1	2	18	3	1.8	Same as S-31, lens of clay(0.1'). (SM)	Wet
		S-34	15	30	17	25	47	1.6	Same as S-31. (SM)	Wet
		S-35	19	21	11	22	32	2.0	Top(0.0-1.6') Gray fine SAND, trace silt.	Wet
70									Bottom(1.6-2.0') Gray SILT, Some fine Sand.	
		S-36	1	3	5	7	8	1.5	Gray SILT, Some fine Sand. (SM-ML)	Wet
		S-37	8	8	7	9	15	1.8	Gray SILT, trace fine sand. (ML)	Wet
75		S-38	15	9	12	13	21	2.0	Same as S-37. (ML)	Wet
		S-39	9	6	7	6	13	1.6	Gray SILT, trace fine sand, trace clay.(ML)	Wet
		S-40	3	4	2	4	6	2.0	Gray SILTY-CLAY, silt varves with trace fine	Wet
80									sand. (ML-CL)	
		S-41	3	2	3	5	5	1.5	Same as S-40. (ML-CL)	Wet
		S-42	1	3	4	6	7	2.0	Same as S-40. (ML-CL)	Wet
85		S-43	1	4	5	10	9	2.0	Top(0.0-1.0') Same as S-40.	Wet
									Bottom(1.0-2.0') Gray CLAYEY-SILT, trace fine sand.	
		S-44	3	5	5	6	10	2.0	Gray CLAYEY-SILT, trace fine sand.	Wet
									(ML)	
90		S-45	12	14	14	11	28	2.0	Gray CLAYEY-SILT. (ML)	Wet

N = NO. OF BLOWS TO DRIVE 2" SAMPLER 12" WITH A 140 LB. WT. FALLING 30" PER BLOW
DRILLING CONTRACTOR: Maxim Technologies, Inc. DRILL RIG TYPE: Truck Mounted Drill Rig
METHOD OF INVESTIGATION: 4.25' Hollow Stem Augers

GROUNDWATER LEVEL READINGS

DATE	LEVEL	CASING	STABILIZATION TIME

THE SUBSURFACE INFORMATION SHOWN HEREON WAS OBTAINED FOR C.T. MALE DESIGN PURPOSES. IT IS MADE AVAILABLE TO AUTHORIZED USERS ONLY THAT THEY MAY HAVE ACCESS TO THE SAME INFORMATION AVAILABLE TO C.T.MALE. IT IS PRESENTED IN GOOD FAITH, BUT IS NOT INTENDED AS A SUBSTITUTE FOR INVESTIGATIONS, INTERPRETATION OR JUDGMENT OF SUCH AUTHORIZED USERS

SAMPLE CLASSIFICATION BY: JC

C.T. MALE ASSOCIATES, P.C.

SUBSURFACE EXPLORATION LOG

BORING NO.: B-10D
ELEV.: 309.7' **DATUM: MSL**
START DATE: 7/7/98 **FINISH DATE: 7/10/98**
SHEET 4 OF 4

PROJECT: P 4 Project CTM PROJECT NO.: 97.4583

LOCATION: Albany Interim Landfill CTM INSPECTOR: J. Cross

DEPTH (FT.)	SAMPLE TYPE	SAMPLE NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	18/24	N	RECOVERY	SAMPLE CLASSIFICATION	NOTES
		S-46	18	10	12	14	22	2.0	Gray CLAYEY-SILT. (ML)	Wet
		S-47	9	18	33	45	51	2.0	Same as S-46. (ML)	Wet
95		S-48	10	27	40	37	67	2.0	Same as S-46. (ML)	Wet
		S-49	-	9	13	16	22	2.0	Top(0.0-0.9') Same as S-46.	Wet
									Bottom(0.9-2.0') Gray SILTY-CLAY,silty to fine sand layers.	
		S-50	6	3	3	4	6	2.0	Top(0.0-1.5') Gray SILTY-CLAY,silty to fine sand layers.	Wet
100									Bottom(1.5-2.0) Gray SILTY-CLAY, Some fine Gravel.	
		S-51	3	4	7	8	11	1.8	Gray SILTY-CLAY, silty to fine sand layers. (ML-CL)	Wet
									T.D.= 102.0'	

N = NO. OF BLOWS TO DRIVE 2" SAMPLER 12" WITH A 140 LB. WT. FALLING 30" PER BLOW

DRILLING CONTRACTOR: Maxim Technologies, Inc. DRILL RIG TYPE: Truck Mounted Drill Rig

METHOD OF INVESTIGATION: 4.25' Hollow Stem Augers

GROUNDWATER LEVEL READINGS

DATE	LEVEL	CASING	STABILIZATION TIME

THE SUBSURFACE INFORMATION SHOWN HEREON WAS OBTAINED FOR C.T. MALE DESIGN PURPOSES. IT IS MADE AVAILABLE TO AUTHORIZED USERS ONLY THAT THEY MAY HAVE ACCESS TO THE SAME INFORMATION AVAILABLE TO C.T.MALE. IT IS PRESENTED IN GOOD FAITH, BUT IS NOT INTENDED AS A SUBSTITUTE FOR INVESTIGATIONS, INTERPRETATION OR JUDGMENT OF SUCH AUTHORIZED USERS.

SAMPLE CLASSIFICATION BY: JC

C.T. MALE ASSOCIATES, P.C.

SUBSURFACE EXPLORATION LOG

BORING NO.: B-11S
ELEV.: 304.5' DATUM: MSL
START DATE: 7/23/98 FINISH DATE: 7/23/98
SHEET 1 OF 1

PROJECT: P 4 Project CTM PROJECT NO.: 97.4583
LOCATION: Albany Interim Landfill CTM INSPECTOR: J. Cross

DEPTH (FT.)	SAMPLE TYPE	SAMPLE NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	18/24	N	RECOVERY	SAMPLE CLASSIFICATION	NOTES
		S-1	4	5	4	4	9	1.5	Light brown fine SAND, trace silt. (SM)	Dry
5		S-2	5	6	5	6	11	1.7	Same as S-1. (SM)	Dry
10		S-3	2	3	4	3	7	1.5	Same as S-1. (SM)	Moist
15		S-4	1	1	1	1	2	1.4	Top(0.0-1.0') Same as S-1. Bottom(1.0-1.4') Light orange-brown fine SAND, trace silt. (SM)	Wet
20		S-5	0	0	0	1	0	1.7	Top(0.0-0.7) Same as S-1. (SM) Bottom(0.7-1.7) Gray SILT, Some Clay, trace fine sand.	Wet Weight of rods drove spoon.
									T.D.= 21.0'	

N = NO. OF BLOWS TO DRIVE 2" SAMPLER 12" WITH A 140 LB. WT. FALLING 30" PER BLOW
DRILLING CONTRACTOR: Maxim Technologies, Inc. DRILL RIG TYPE: Truck Mounted Drill Rig
METHOD OF INVESTIGATION: 4.25' Hollow Stem Augers

GROUNDWATER LEVEL READINGS

DATE	LEVEL	CASING	STABILIZATION TIME

THE SUBSURFACE INFORMATION SHOWN HEREON WAS OBTAINED FOR C.T. MALE DESIGN PURPOSES. IT IS MADE AVAILABLE TO AUTHORIZED USERS ONLY THAT THEY MAY HAVE ACCESS TO THE SAME INFORMATION AVAILABLE TO C.T.MALE. IT IS PRESENTED IN GOOD FAITH, BUT IS NOT INTENDED AS A SUBSTITUTE FOR INVESTIGATIONS, INTERPRETATION OR JUDGMENT OF SUCH AUTHORIZED USERS.

SAMPLE CLASSIFICATION BY: JC

C.T. MALE ASSOCIATES, P.C.

SUBSURFACE EXPLORATION LOG

BORING NO.: B-11I
ELEV.: 304.6' DATUM: MSL
START DATE: 7/22/98 FINISH DATE: 7/22/98
SHEET 1 OF 3

PROJECT: P 4 Project CTM PROJECT NO.: 97.4583
LOCATION: Albany Interim Landfill CTM INSPECTOR: J. Cross

DEPTH (FT.)	SAMPLE TYPE	SAMPLE NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	18/24	N	RECOVERY	SAMPLE CLASSIFICATION	NOTES
		S-1	5	4	3	5	7	1.6	Light brown fine SAND, trace silt. (SM)	Dry
5		S-2	5	5	7	8	12	1.6	Same as S-1. (SM)	Dry
10		S-3	2	4	4	4	8	1.7	Light orange-brown fine SAND, trace silt. (SM)	Moist
15		S-4	2	3	3	2	6	1.7	Top(0.0-1.5') Same as S-3. Bottom(1.5-1.7') Light brown SILT, trace fine sand. (SM)	Wet
20		S-5	2	4	4	5	8	1.6	Top(0.0-0.6') Same as S-3. Bottom(0.6-1.6') Gray fine SAND, trace silt. (SM)	Wet
25		S-6	6	3	3	1	6	2.0	Gray fine SAND, trace silt. (SM)	Wet
30		S-7	0	1	3	8	4	2.0	Gray fine SAND, Some Silt. (SM)	Wet

N = NO. OF BLOWS TO DRIVE 2" SAMPLER 12" WITH A 140 LB. WT. FALLING 30" PER BLOW
DRILLING CONTRACTOR: Maxim Technologies, Inc. DRILL RIG TYPE: Truck Mounted Drill Rig
METHOD OF INVESTIGATION: 4.25' Hollow Stem Augers

GROUNDWATER LEVEL READINGS

DATE	LEVEL	CASING	STABILIZATION TIME

THE SUBSURFACE INFORMATION SHOWN HEREON WAS OBTAINED FOR C.T. MALE DESIGN PURPOSES. IT IS MADE AVAILABLE TO AUTHORIZED USERS ONLY THAT THEY MAY HAVE ACCESS TO THE SAME INFORMATION AVAILABLE TO C.T.MALE. IT IS PRESENTED IN GOOD FAITH, BUT IS NOT INTENDED AS A SUBSTITUTE FOR INVESTIGATIONS, INTERPRETATION OR JUDGMENT OF SUCH AUTHORIZED USERS.

SAMPLE CLASSIFICATION BY: JC

C.T. MALE ASSOCIATES, P.C.

SUBSURFACE EXPLORATION LOG

BORING NO.: B-11I
ELEV.: 304.6' **DATUM: MSL**
START DATE: 7/22/98 **FINISH DATE: 7/22/98**
SHEET 2 OF 3

PROJECT: P 4 Project CTM PROJECT NO.: 97.4583

LOCATION: Albany Interim Landfill CTM INSPECTOR: J. Cross

DEPTH (FT.)	SAMPLE TYPE	SAMPLE NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	18/24	N	RECOVERY	SAMPLE CLASSIFICATION	NOTES
		S-7							See previous page for descriptions.	50 gal. water added w/ hose.
35		S-8	4	7	11	12	18	1.3	Light brown fine SAND, trace silt. (SM)	Wet
40		S-9	9	26	26	26	52	1.2	Gray fine SAND, trace silt. (SM)	Wet 50 gal. water added w/ hose.
45		S-10	4	9	7	8	16	1.8	Same as S-9. (SM)	Wet
50		S-11	9	11	12	20	23	1.9	Gray fine SAND, Some Silt. (SM)	Wet
55		S-12	8	9	16	21	25	2.0	Same as S-11. (SM)	Wet/ Nose of spoon contained gray silt, trace fine sand.
60									No Sample taken.	Driller mistakenly washed out below the auger with 100 gallons of water.

N = NO. OF BLOWS TO DRIVE 2" SAMPLER 12" WITH A 140 LB. WT. FALLING 30" PER BLOW

DRILLING CONTRACTOR: Maxim Technologies, Inc. DRILL RIG TYPE: Truck Mounted Drill Rig

METHOD OF INVESTIGATION: 4.25' Hollow Stem Augers

GROUNDWATER LEVEL READINGS

DATE	LEVEL	CASING	STABILIZATION TIME

THE SUBSURFACE INFORMATION SHOWN HEREON WAS OBTAINED FOR C.T. MALE DESIGN PURPOSES. IT IS MADE AVAILABLE TO AUTHORIZED USERS ONLY THAT THEY MAY HAVE ACCESS TO THE SAME INFORMATION AVAILABLE TO C.T.MALE. IT IS PRESENTED IN GOOD FAITH, BUT IS NOT INTENDED AS A SUBSTITUTE FOR INVESTIGATIONS, INTERPRETATION OR JUDGMENT OF SUCH AUTHORIZED USERS.

SAMPLE CLASSIFICATION BY: JC

C.T. MALE ASSOCIATES, P.C.

SUBSURFACE EXPLORATION LOG

BORING NO.: B-11I
ELEV.: 304.6' **DATUM: MSL**
START DATE: 7/22/98 **FINISH DATE: 7/22/98**
SHEET 3 OF 3

PROJECT: P 4 Project CTM PROJECT NO.: 97.4583

LOCATION: Albany Interim Landfill CTM INSPECTOR: J. Cross

DEPTH (FT.)	SAMPLE TYPE	SAMPLE NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	18/24	N	RECOVERY	SAMPLE CLASSIFICATION	NOTES
									See previous page for description.	
65		S-13	6	4	8	7	12	1.8	Gray SILT, trace fine sand, trace clay. (ML)	Wet
									T.D.= 66.0'	
70										

N = NO. OF BLOWS TO DRIVE 2" SAMPLER 12" WITH A 140 LB. WT. FALLING 30" PER BLOW

DRILLING CONTRACTOR: Maxim Technologies, Inc. DRILL RIG TYPE: Truck Mounted Drill Rig

METHOD OF INVESTIGATION: 4.25' Hollow Stem Augers

GROUNDWATER LEVEL READINGS

DATE	LEVEL	CASING	STABILIZATION TIME

THE SUBSURFACE INFORMATION SHOWN HEREON WAS OBTAINED FOR C.T. MALE DESIGN PURPOSES. IT IS MADE AVAILABLE TO AUTHORIZED USERS ONLY THAT THEY MAY HAVE ACCESS TO THE SAME INFORMATION AVAILABLE TO C.T.MALE. IT IS PRESENTED IN GOOD FAITH, BUT IS NOT INTENDED AS A SUBSTITUTE FOR INVESTIGATIONS, INTERPRETATION OR JUDGMENT OF SUCH AUTHORIZED USERS.

SAMPLE CLASSIFICATION BY: JC

C.T. MALE ASSOCIATES, P.C.

SUBSURFACE EXPLORATION LOG

BORING NO.: B-11D
ELEV.: 304.9 **DATUM: MSL**
START DATE: 7/16/98 **FINISH DATE: 7/20/98**
SHEET 1 OF 4

PROJECT: P 4 Project CTM PROJECT NO.: 97.4583

LOCATION: Albany Interim Landfill CTM INSPECTOR: J. Cross

DEPTH (FT.)	SAMPLE TYPE	SAMPLE NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	18/24	N	RECOVERY	SAMPLE CLASSIFICATION	NOTES
		S-1	1	2	2	3	4	1.2	Light brown fine SAND, trace silt. (SM)	Dry
		S-2	5	6	6	6	12	1.3	Same as S-1. (SM)	Dry
5		S-3	6	4	6	8	10	1.3	Same as S-1. (SM)	Dry
		S-4	7	7	10	9	17	1.7	Same as S-1. (SM)	Dry
		S-5	4	7	8	9	15	1.5	Light orange-brown fine SAND, trace silt. (SM)	Dry
10		S-6	3	6	8	7	14	1.5	Light orange-brown fine SAND, Some Silt. (SM)	Moist
		S-7	6	5	6	8	11	2.0	Same as S-6. (SM)	Wet
15		S-8	2	1	1	1	2	1.8	Top(0.0-1.3') Light brown SILT, trace fine sand. Bottom(1.3-1.8') Gray SILT, trace fine sand, trace clay.	Wet
		S-9	2	1	3	3	4	1.7	Gray SILT, trace fine sand, trace clay. (SM-ML)	Wet
		S-10	1	4	5	10	9	1.6	Gray fine SAND, trace silt. (SM)	Wet
20		S-11	7	5	7	8	12	2.0	Same as S-10. (SM)	Wet
		S-12	5	4	4	3	8	1.8	Same as S-10. (SM)	Wet 200 gal. water added w/ hose.
25		S-13	3	5	4	6	9	1.0	Same as S-10. (SM)	Wet
		S-14	2	5	6	6	11	1.1	Top(0.0-0.7') Same as S-10. Bottom(0.7-1.1') Light brown SILT, trace fine sand, trace clay.	Wet
30		S-15	6	5	6	6	11	1.8	Top(0.0-0.6') Light brown SILT, trace fine sand, trace clay. Bottom(0.6-1.8') Same as S-10.	Wet

N = NO. OF BLOWS TO DRIVE 2" SAMPLER 12" WITH A 140 LB. WT. FALLING 30" PER BLOW

DRILLING CONTRACTOR: Maxim Technologies, Inc. DRILL RIG TYPE: Truck Mounted Drill Rig

METHOD OF INVESTIGATION: 4.25' Hollow Stem Augers

GROUNDWATER LEVEL READINGS

DATE	LEVEL	CASING	STABILIZATION TIME
7/17	11.2'	HSA	
7/20	13.4'	HSA	

THE SUBSURFACE INFORMATION SHOWN HEREON WAS OBTAINED FOR C.T. MALE DESIGN PURPOSES. IT IS MADE AVAILABLE TO AUTHORIZED USERS ONLY THAT THEY MAY HAVE ACCESS TO THE SAME INFORMATION AVAILABLE TO C.T.MALE. IT IS PRESENTED IN GOOD FAITH, BUT IS NOT INTENDED AS A SUBSTITUTE FOR INVESTIGATIONS, INTERPRETATION OR JUDGMENT OF SUCH AUTHORIZED USERS.

SAMPLE CLASSIFICATION BY: JC

C.T. MALE ASSOCIATES, P.C.

SUBSURFACE EXPLORATION LOG

BORING NO.: B-11D
ELEV.: 304.9' **DATUM: MSL**
START DATE: 7/16/98 **FINISH DATE: 7/20/98**
SHEET 2 OF 4

PROJECT: P 4 Project CTM PROJECT NO.: 97.4583

LOCATION: Albany Interim Landfill CTM INSPECTOR: J. Cross

DEPTH (FT.)	SAMPLE TYPE	SAMPLE NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	18/24	N	RECOVERY	SAMPLE CLASSIFICATION	NOTES
		S-16	5	8	8	11	16	2.0	Gray SILT, trace fine sand. (ML-SM)	Wet
		S-17	3	5	8	10	13	2.0	Light brown fine SAND, trace silt. (SM)	Wet
35		S-18	7	6	5	9	11	2.0	Same as S-17. (SM)	Wet 200 gal. water added w/ hose.
		S-19	3	5	10	18	15	2.0	Same as S-17. (SM)	Wet
		S-20	8	11	11	12	22	1.2	Gray fine SAND, some Silt. (SM)	Wet
40										200 gal. water added w/ hose.
		S-21	3	5	5	5	10	1.3	Brown fine SAND, some Silt. (SM)	Wet
		S-22	11	7	7	10	14	1.5	Same as S-21. (SM)	Wet
45		S-23	13	9	10	16	19	1.7	Same as S-21. (SM)	Wet
		S-24	10	10	12	16	22	2.0	Same as S-21. (SM)	Wet
		S-25	7	9	14	20	23	2.0	Same as S-21. (SM)	Wet
50										
		S-26	6	7	13	13	20	1.6	Top(0.0-1.1') Same as S-21. Bottom(1.1-1.6') Gray fine SAND, Some Silt.	Wet
		S-27	4	6	10	13	16	1.3	Same as S-20. (SM)	Wet
55		S-28	6	9	14	19	23	1.4	Same as S-20. (SM)	Wet
		S-29	6	18	9	10	27	1.4	Gray SILT, Some fine Sand. (ML-SM)	Wet
60		S-30	2	4	6	6	10	1.5	Gray CLAYEY-SILT, trace fine sand. (ML)	Wet

N = NO. OF BLOWS TO DRIVE 2" SAMPLER 12" WITH A 140 LB. WT. FALLING 30" PER BLOW

DRILLING CONTRACTOR: Maxim Technologies, Inc. DRILL RIG TYPE: Truck Mounted Drill Rig

METHOD OF INVESTIGATION: 4.25' Hollow Stem Augers

GROUNDWATER LEVEL READINGS

DATE	LEVEL	CASING	STABILIZATION TIME

THE SUBSURFACE INFORMATION SHOWN HEREON WAS OBTAINED FOR C.T. MALE DESIGN PURPOSES. IT IS MADE AVAILABLE TO AUTHORIZED USERS ONLY THAT THEY MAY HAVE ACCESS TO THE SAME INFORMATION AVAILABLE TO C.T.MALE. IT IS PRESENTED IN GOOD FAITH, BUT IS NOT INTENDED AS A SUBSTITUTE FOR INVESTIGATIONS, INTERPRETATION OR JUDGMENT OF SUCH AUTHORIZED USERS.

SAMPLE CLASSIFICATION BY: JC

C.T. MALE ASSOCIATES, P.C.

SUBSURFACE EXPLORATION LOG

BORING NO.: B-11D
ELEV.: 304.9' DATUM: MSL
START DATE: 7/7/98 FINISH DATE: 7/10/98
SHEET 3 OF 4

PROJECT: P 4 Project CTM PROJECT NO.: 97.4583
LOCATION: Albany Interim Landfill CTM INSPECTOR: J. Cross

DEPTH (FT.)	SAMPLE TYPE	NO.	BLOWS ON SAMPLER 6/12	12/18	18/24	N	RECOVERY	SAMPLE CLASSIFICATION	NOTES
	S-31	8	8	6	7	14	2.0	Gray CLAYEY-SILT, trace fine sand. (ML)	Wet
	S-32	17	20	10	12	30	1.9	Gray SILT, trace fine sand, Some Clay.(ML)	Wet
65	S-33	2	5	8	10	13	1.4	Gray SILT, trace fine sand. (ML)	Wet
	S-34	11	8	7	15	15	1.6	Same as S-33. (ML)	Wet
70	S-35	2	4	7	7	11	2.0	Top(0.0-1.0') Same as S-33. Bottom(1.0-2.0) Gray CLAY, clayey-silt layering.	Wet
	S-36	15	8	7	12	15	1.6	Gray CLAY, clayey-silt layering. (ML-CL)	Wet
	S-37	5	7	7	8	14	1.8	Same as S-36. (ML-CL)	Wet
75	S-38	10	12	11	13	23	1.9	Same as S-36. (ML-CL)	Wet
	S-39	4	6	6	9	12	2.0	Same as S-36. (ML-CL)	Wet
80	S-40	4	5	7	10	12	2.0	Same as S-36. (ML-CL)	Wet
	S-41	1	3	7	8	10	2.0	Top(0.0-1.1') Same as S-36. Bottom(1.1-2.0') Gray SILTY-CLAY, silty to fine sand layers.	Wet
	S-42	1	2	4	6	6	2.0	Top(0.0-1.3') Same as S-36. Bottom(1.3-2.0') Gray SILT, trace fine sand, Some Clay.	Wet
85	S-43	3	11	16	19	27	2.0	Gray SILT, trace to some fine Sand. (ML)	Wet
	S-44	5	13	31	50	44	2.0	Same as S-43. (ML)	Wet
90	S-45	7	21	48	63	67	2.0	Same as S-43. (ML)	Wet

N = NO. OF BLOWS TO DRIVE 2" SAMPLER 12" WITH A 140 LB. WT. FALLING 30" PER BLOW

DRILLING CO.: Maxim Technologies, Inc. DRILL RIG TYPE: Truck Mounted Drill Rig

METHOD: 4.25' Hollow Stem Augers

THE GEOLOGIC INFORMATION SHOWN HEREON WAS OBTAINED FOR C.T. MALE DESIGN PURPOSES. IT IS AVAILABLE TO AUTHORIZED USERS ONLY THAT THEY MAY HAVE ACCESS TO THE INFORMATION AVAILABLE TO C.T.MALE. IT IS PRESENTED IN GOOD FAITH, BUT IS NOT INTENDED AS A SUBSTITUTE FOR INVESTIGATIONS, INTERPRETATION OR JUDGMENT OF SUCH AUTHORITIES.

GROUNDWATER LEVEL READINGS

DATE	LEVEL	CASING	STABILIZATION TIME

SAMPLE CLASSIFICATION BY: JC

Rev. 4/1/97

C.T. MALE ASSOCIATES, P.C.

SUBSURFACE EXPLORATION LOG

BORING NO.: B-11D
ELEV.: 304.9' **DATUM: MSL**
START DATE: 7/7/98 **FINISH DATE: 7/10/98**
SHEET 4 OF 4

PROJECT: P 4 Project CTM PROJECT NO.: 97.4583

LOCATION: Albany Interim Landfill CTM INSPECTOR: J. Cross

DEPTH (FT.)	SAMPLE TYPE	SAMPLE NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	18/24	N	RECOVERY	SAMPLE CLASSIFICATION	NOTES
		S-46	3	9	19	28	38	2.0	Gray SILT, trace to Some fine Sand. (ML)	Wet
		S-47	6	9	23	41	32	2.0	Same as S-46. (ML)	Wet
95		S-48	7	12	20	29	32	2.0	Same as S-46. (ML)	Wet
		S-49	6	7	13	21	20	2.0	Same as S-46. (ML)	Wet
		S-50	7	14	23	39	37	2.0	Same as S-46. (ML)	Wet
100		S-51	3	3	13	21	16	1.6	Same as S-46. (ML)	Wet
		S-52	4	7	11	27	18	2.0	Same as S-46. (ML)	Wet
105		S-53	3	7	9	15	16	2.0	Top(0.0-0.9') Same as S-46.	Wet
									Bottom(0.9-2.0') Gray SILTY-CLAY, silty to fine layers.	
		S-54	5	5	5	12	10	2.0	SILTY-CLAY, sity to fine sand layers. (ML-CL)	Wet
110									T.D.= 108.0'	

N = NO. OF BLOWS TO DRIVE 2" SAMPLER 12" WITH A 140 LB. WT. FALLING 30" PER BLOW
DRILLING CONTRACTOR: Maxim Technologies, Inc. DRILL RIG TYPE: Truck Mounted Drill Rig
METHOD OF INVESTIGATION: 4.25' Hollow Stem Augers

GROUNDWATER LEVEL READINGS

DATE	LEVEL	CASING	STABILIZATION TIME

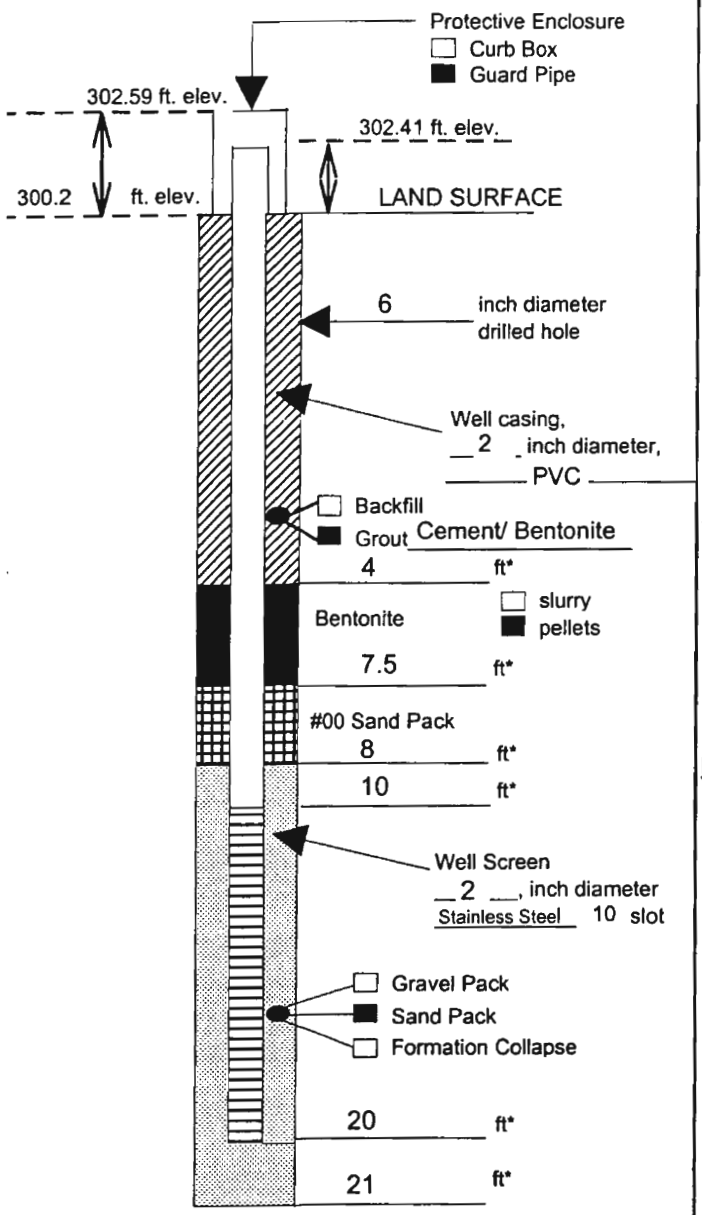
THE SUBSURFACE INFORMATION SHOWN HEREON WAS OBTAINED FOR C.T. MALE DESIGN PURPOSES. IT IS MADE AVAILABLE TO AUTHORIZED USERS ONLY THAT THEY MAY HAVE ACCESS TO THE SAME INFORMATION AVAILABLE TO C.T.MALE. IT IS PRESENTED IN GOOD FAITH, BUT IS NOT INTENDED AS A SUBSTITUTE FOR INVESTIGATIONS, INTERPRETATION OR JUDGMENT OF SUCH AUTHORIZED USERS.

SAMPLE CLASSIFICATION BY: JC

Well No. MW-9S

MONITOR WELL CONSTRUCTION LOG

C.T. MALE ASSOCIATES, P.C.



* Depth below land surface.

Project Number 97.4583

Project Name P 4 Project

Well No. MW-9S Boring No. B-9S

Town/City City of Albany

County Albany State New York

Installation Date(s) 7/8/98

Drilling Contractor Maxim Technologies, Inc.

Drilling Method 4.25" Hollow Stem Auger

Water Depth From Top of Riser 11.99 ft 7/20/98 (Date)

Drilling Inspector Present J. Cross

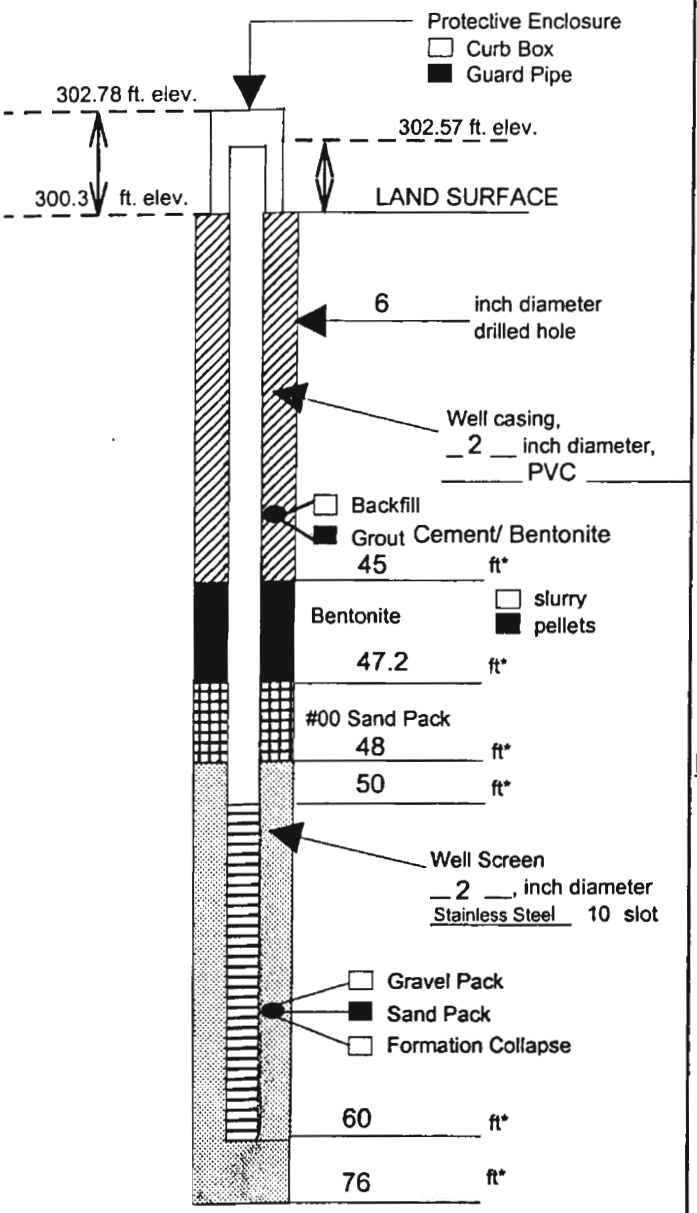
Notes:

Continuous wire wrap stainless steel screen installed from 10 to 20 feet below grade. #0 FilterSil from 8 to 21 feet. #00 Morie sand from 7.5 to 8 feet. Bentonite pellets 1/2 bag (25 lbs.). Two bags of Portland cement and 1/2 bag Bentonte for grout.

Well No. MW-9I

MONITOR WELL CONSTRUCTION LOG

C.T. MALE ASSOCIATES, P.C.



* Depth below land surface.

Project Number	97.4583
Project Name	P 4 Project
Well No.	MW-9I
Boring No.	B-9I
Town/City	City of Albany
County	Albany
State	New York
Installation Date(s)	7/7/98
Drilling Contractor	Maxim Technologies, Inc.
Drilling Method	4.25" Hollow Stem Auger
Water Depth From Top of Riser	12.59 ft 7/20/98 (Date)
Drilling Inspector Present	J. Cross

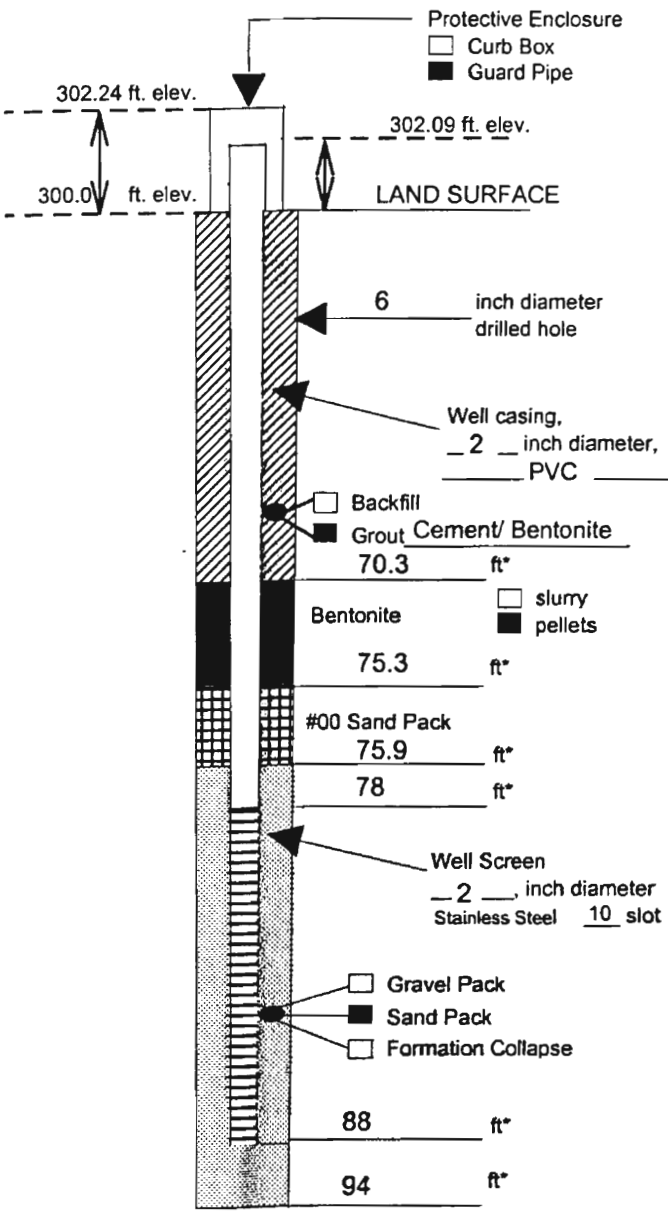
Notes:

Continuous wire wrap stainless steel screen installed from 50 to 60 feet below grade. #0 FilterSil from 48 to 62 feet. #00 Morie sand from 47.2 to 48 feet. Bentonite pellets 1/2 bag (25 lbs.). Three bags of Portland cement and one bag Bentonite for grout.

Well No. MW-9D

MONITOR WELL CONSTRUCTION LOG

C.T. MALE ASSOCIATES, P.C.



* Depth below land surface.

Project Number 97.4583

Project Name P 4 Project

Well No. MW-9D Boring No. B-9D

Town/City City of Albany

County Albany State New York

Installation Date(s) 7/2/98

Drilling Contractor Maxim Technologies, Inc.

Drilling Method 4.25" Hollow Stem Auger

Water Depth From Top of Riser 12.18 ft 7/20/98 Date

Drilling Inspector Present J. Cross

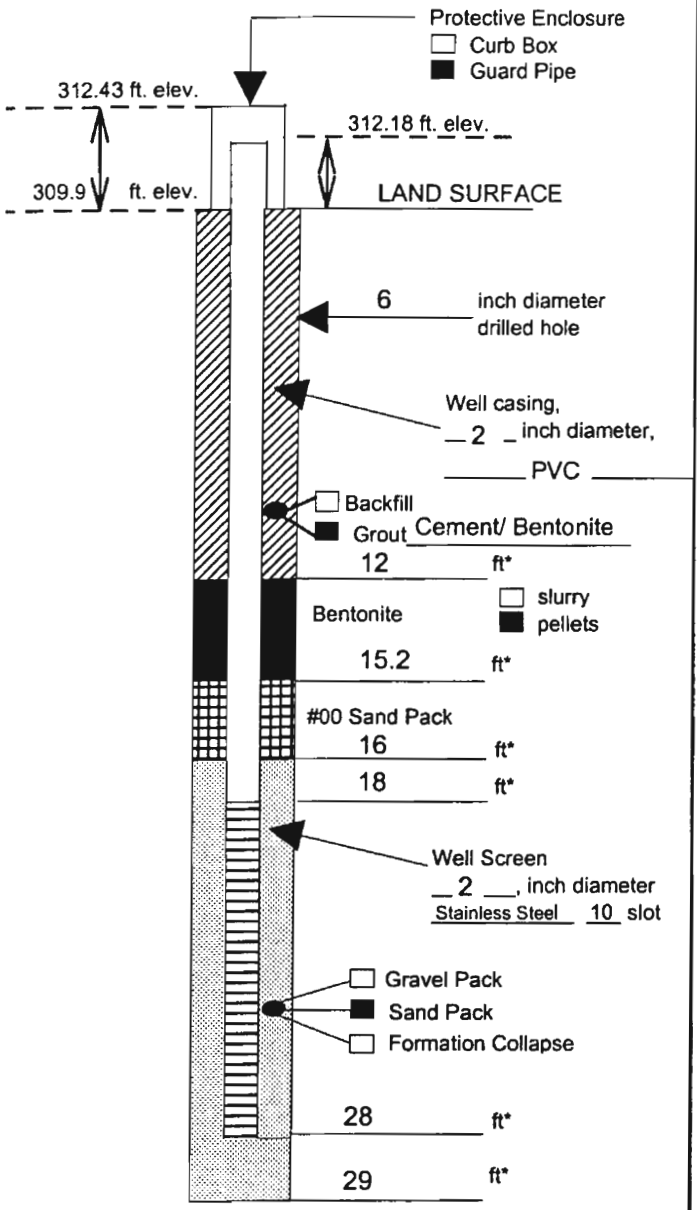
Notes:

Continuous wire wrap stainless steel screen installed from 78 to 88 feet below grade. #0 FilterSil from 75.9 to 88 feet. #00 Morie sand from 75.3 to 75.9 feet. Bentonite pellets 1/2 bag (25 lbs.). Four bags of Portland cement and one bag Bentonite for grout.

Well No. MW-10S

MONITOR WELL CONSTRUCTION LOG

C.T. MALE ASSOCIATES, P.C.



* Depth below land surface.

Project Number	97.4583
Project Name	P 4 Project
Well No.	MW-10S
Boring No.	B-10S
Town/City	City of Albany
County	Albany
State	New York
Installation Date(s)	7/15/98
Drilling Contractor	Maxim Technologies, Inc.
Drilling Method	4.25" Hollow Stem Auger
Water Depth From Top of Riser	22.94 ft 7/20/98 (Date)
Drilling Inspector Present	J. Cross

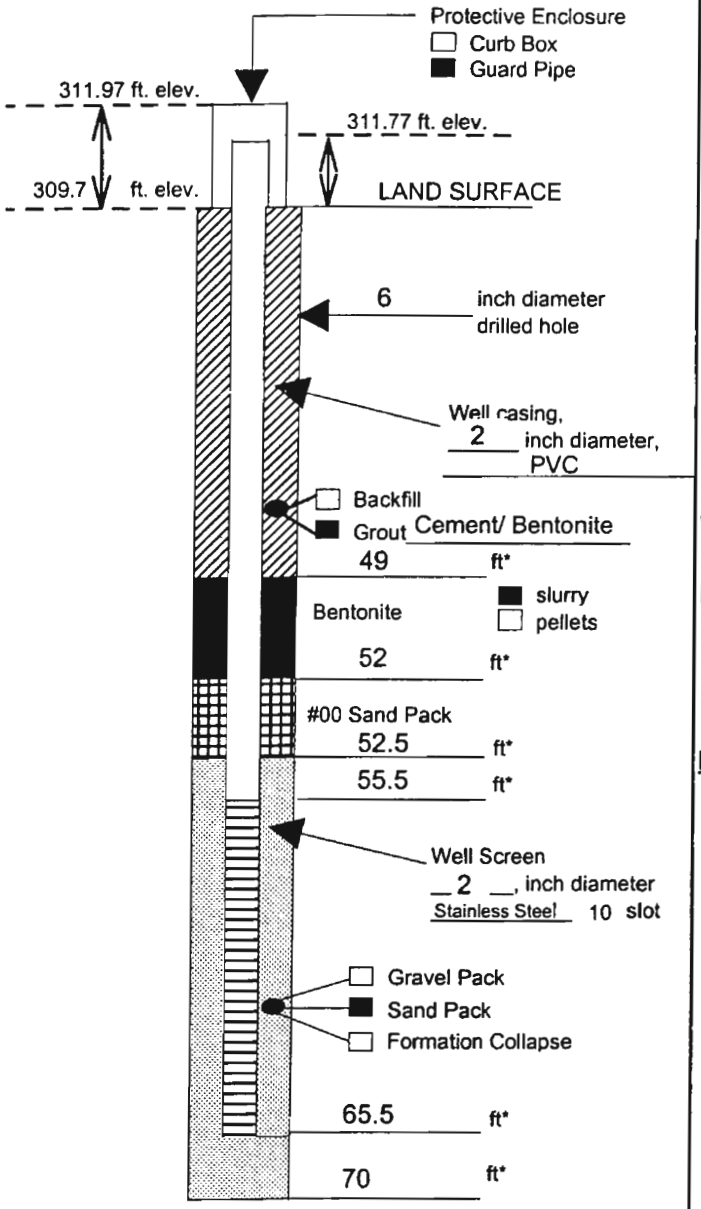
Notes:

Continuous wire wrap stainless steel screen installed from 18 to 28 feet below grade. #0 FilterSil from 16 to 28.5 feet. #00 Morie sand from 15.2 to 16 feet. Bentonite pellets 1/4 bag (15 lbs.). One bag of Portland cement and 1/4 bag Bentonite for grout.

Well No. MW-10I

MONITOR WELL CONSTRUCTION LOG

C.T. MALE ASSOCIATES. P.C.



* Depth below land surface.

Project Number	97.4583
Project Name	P 4 Project
Well No.	MW-10I
Boring No.	B-10I
Town/City	City of Albany
County	Albany
State	New York
Installation Date(s)	7/14/98
Drilling Contractor	Maxim Technologies, Inc.
Drilling Method	4.25" Hollow Stem Auger
Water Depth From Top of Riser	23.34 ft 7/20/98 (Date)
Drilling Inspector Present	J. Cross

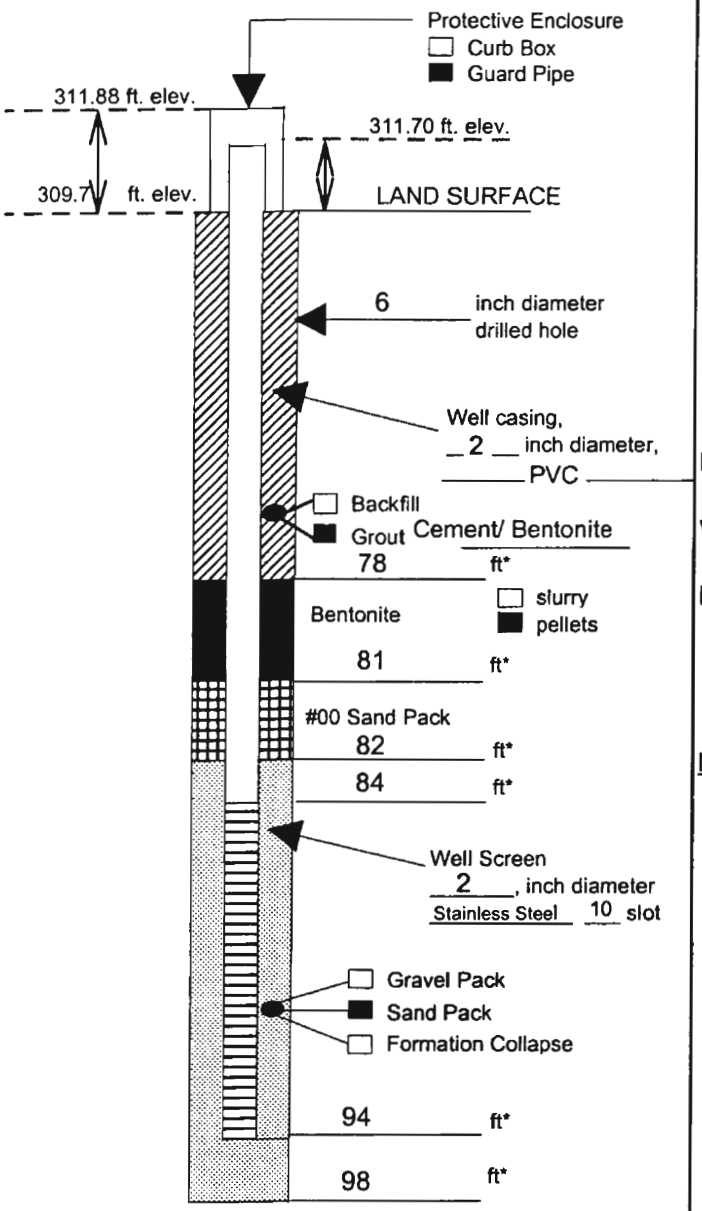
Notes:

Continuous wire wrap stainless steel screen installed from 55.5 to 65.5 feet below grade. #0 FilterSil from 52.5 to 65.5 feet. #00 Moire sand from 52 to 55.5 feet. Five gallons bentonite Hole Plug slurry. Four bags of Portland cement and 1/2 bag Bentonite for grout. Hole Plug was used because the basket in the drill bit did not break up enough to allow bentonite chips to fall through properly.

Well No. MW-10D

MONITOR WELL CONSTRUCTION LOG

C.T. MALE ASSOCIATES, P.C.



* Depth below land surface.

Project Number	97.4583
Project Name	P 4 Project
Well No.	MW-10D
Boring No.	B-10D
Town/City	City of Albany
County	Albany
State	New York
Installation Date(s)	7/13/98
Drilling Contractor	Maxim Technologies, Inc.
Drilling Method	4.25" Hollow Stem Auger
Water Depth From Top of Riser	22.03 ft 7/20/98 (Date)
Drilling Inspector Present	J. Cross

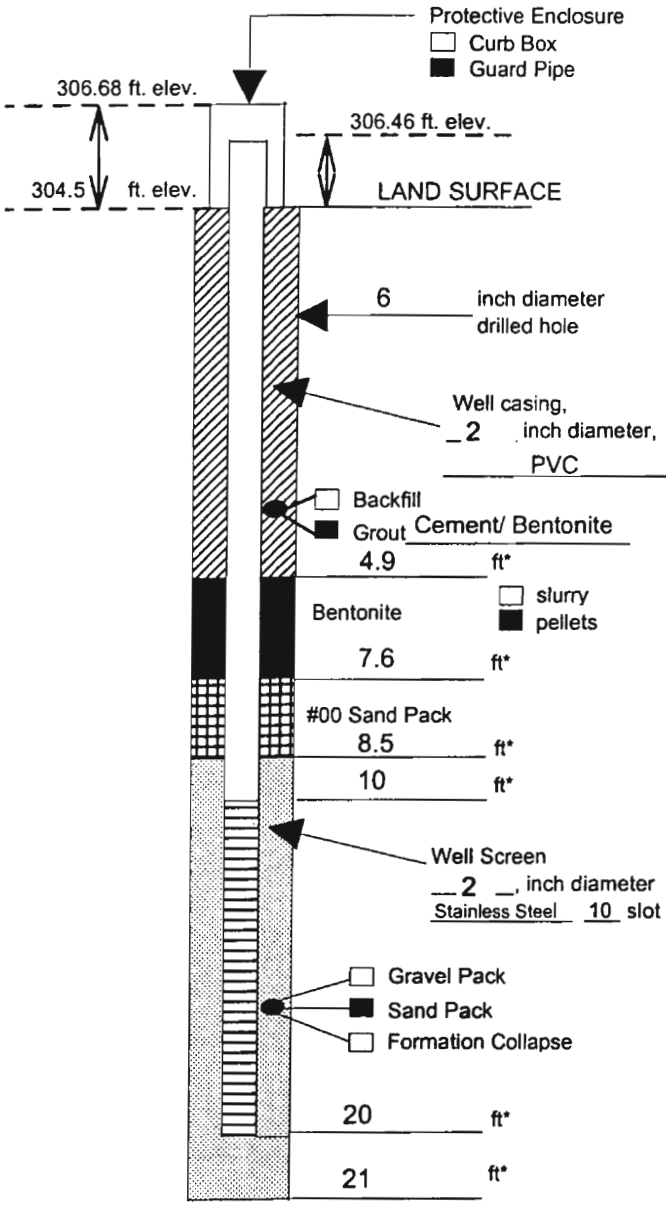
Notes:

Continuous wire wrap stainless steel screen installed from 84 to 94 feet below grade. #0 FilterSil from 82 to 95 feet. #00 Moire sand from 82 to 84 feet. Bentonite pellets 3/4 bag (35 lbs.). Eight bags of Portland cement and two bag Bentonite for grout.

Well No. MW-11S

MONITOR WELL CONSTRUCTION LOG

C.T. MALE ASSOCIATES, P.C.



* Depth below land surface.

Project Number	97.4583
Project Name	P 4 Project
Well No.	MW-11S
Boring No.	B-11S
Town/City	City of Albany
County	Albany
State	New York
Installation Date(s)	7/23/98
Drilling Contractor	Maxim Technologies, Inc.
Drilling Method	4.25" Hollow Stem Auger
Water Depth From Top of Riser	12.98 ft 7/30/98 (Date)
Drilling Inspector Present	J. Cross

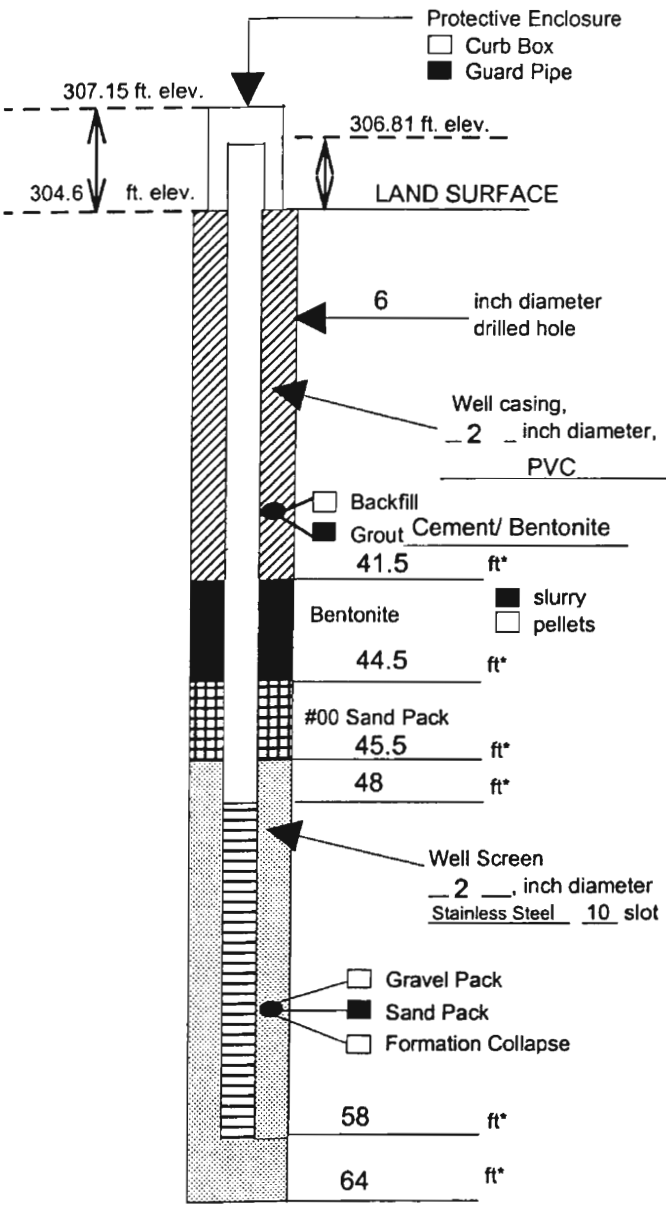
Notes:

Continuous wire wrap stainless steel screen installed from 10 to 20 feet below grade. #0 FilterSil from 8.5 to 21 feet. #00 Morie sand from 7.6 to 8.5 feet. Bentonite pellets 1/4 bag (15 lbs.). One bag of Portland cement and 1/4 bag Bentonite for grout.

Well No. MW-11I

MONITOR WELL CONSTRUCTION LOG

C.T. MALE ASSOCIATES, P.C.



* Depth below land surface.

Project Number	97.4583
Project Name	P 4 Project
Well No.	MW-11I
Boring No.	B-11I
Town/City	City of Albany
County	Albany
State	New York
Installation Date(s)	7/22/98
Drilling Contractor	Maxim Technologies, Inc.
Drilling Method	4.25" Hollow Stem Auger
Water Depth From Top of Riser	13.36 ft 7/23/98 (Date)
Drilling Inspector Present	J. Cross

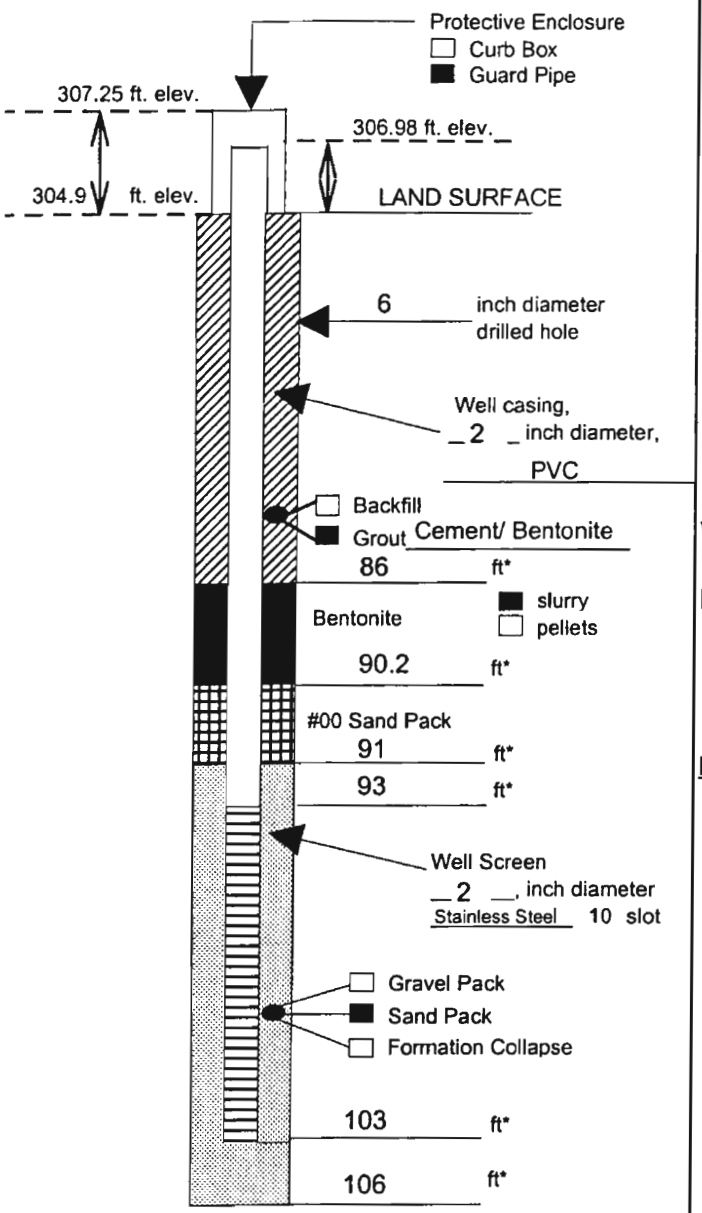
Notes:

Continuous wire wrap stainless steel screen installed from 48 to 58 feet below grade. #0 FilterSil from 45.5 to 59 feet. #00 Morie sand from 44.5 to 45.5 feet. One quarter bag Hole Plug bentonite powder used for bentonite seal. Three bags of Portland cement and one half bag Bentonite for grout. Slurry was used because the basket in the drill bit did not break up enough to allow bentonite chips to fall through properly.

Well No. MW-11D

MONITOR WELL CONSTRUCTION LOG

C.T. MALE ASSOCIATES, P.C.



* Depth below land surface.

Project Number	97.4583
Project Name	P 4 Project
Well No.	MW-11D
Boring No.	B-11D
Town/City	City of Albany
County	Albany
State	New York
Installation Date(s)	7/21/98
Drilling Contractor	Maxim Technologies, Inc.
Drilling Method	4.25" Hollow Stem Auger
Water Depth From Top of Riser	12.06 ft 7/23/98 (Date)
Drilling Inspector Present	J. Cross

Notes:

Continuous wire wrap stainless steel screen installed from 93 to 103 feet below grade. #0 FilterSil from 91 to 104.5 feet. #00 Morie sand from 90.2 to 91 feet. One half bag Hole Plug bentonite powder used for bentonite seal. Six bags of Portland cement and one bag Bentonite for grout. Slurry was used because the basket in the drill bit did not break up enough to allow bentonite chips to fall through properly.

CLOUGH HARBOUR & ASSOCIATES LLP

Rapp Road Eastern Expansion
SUBSURFACE LOG
HOLE NUMBER EE-B-1

PROJECT NUMBER: 12206-4008-1102 7/9/2007

LOCATION: Albany, New York

CLIENT: City of Albany DGS

CONTRACTOR: New England Boring Contractors

DRILLER: T. Carpenter INSPECTOR: K. Defayette

START DATE and TIME: 12/11/2006 1:00:00 PM

FINISH DATE and TIME: 12/13/2006 2:00:00 PM

SURFACE ELEV: 296.00 (ft; Estimated) CHECKED BY: W. Harris

DRILL FLUID: Water @ 8' DRILLING METHOD: 4" FJC

WATER LEVEL OBSERVATIONS DURING DRILLING	DATE	TIME	READING TYPE	WATER DEPTH (ft)	CASING BOTTOM (ft)	HOLE BOTTOM (ft)
	12-11-06	1:00 PM	During Drilling	0.8	None	2

SAMP./CORE NUMBER	SAMP. ADV. (ft) LEN. CORE (ft)	RECOVERY (ft)	Blows Per 6" on Split Spoon Sampler	"N" Value or RQD%	DEPTH (Feet)	DESCRIPTION AND CLASSIFICATION	ELEVATION (Feet)	Remarks on Character of Drilling, Water Return, etc.	WATER LEVELS AND/OR WELL DATA
						TOPSOIL		Advances boring with 2.25" SSA to 8' then advances 4" FJC to boring termination.	▽
S-1	2	1	1-WH-2-4			**f. SAND**, Some Silt, trace roots, brownish gray, v. loose, saturated **(SM)**			
					2	**f.m. SAND**, trace silt, brown, loose, saturated **(SP)**	294		
S-2	2	2	4-4-2-2	6					
					4	**f.m. SAND**, little silt, trace roots, grayish black, v. loose, saturated **(SM)**	292		
S-3	2	1.4	1-1-1-3	2					
					6	**f.m. SAND**, trace silt, brownish black, loose, saturated **(SP)**	290		
S-4	2	2	2-2-3-3	5					
					8	becomes dark gray, v. loose **(SP)**	288		
S-5	2	2	2-2-2-3	4					
					10	**f.m. SAND**, trace silt, dark gray, loose, saturated **(SP)**	286		
S-6	2	1.3	4-2-3-4	5					
					12	**Similar Soil (SP)**	284		
S-7	2	1.7	2-4-4-7	8					
					14	No Recovery	282	Tried to recover split spoon sample S-8 twice.	
S-8	2	0	2-2-3-2	5					
					16	**f.m. SAND**, trace silt, gray, v. loose, saturated **(SP)**	280		
S-9	2	1.8	2-2-2-2	4					
					18	becomes m. compact **(SP)**	278		
S-10	2	1.7	4-8-8-9	16					

CLOUGH HARBOUR & ASSOCIATES LLP

PROJECT NUMBER: 12206-4008-1102 7/9/2007

Rapp Road Eastern Expansion
SUBSURFACE LOG
HOLE NUMBER EE-B-1

SAMP./CORE NUMBER	SAMP. ADV. (ft) LEN. CORE (ft)	RECOVERY (ft)	Blows Per 6" on Split Spoon Sampler	"N" Value or RQD%	SAMPLE	DEPTH (Feet)	GRAPHICS	DESCRIPTION AND CLASSIFICATION	ELEVATION (Feet)	Remarks on Character of Drilling, Water Return, etc.	WATER LEVELS AND/OR WELL DATA
								f.m. SAND, trace silt, gray, m. compact, saturated **(SP)**			
S-11	2	1.3	4-6-7-8	13							
						22		**Similar Soil (SP)**	274		
S-12	2	2	5-5-7-8	12							
						24		becomes loose **(SP)**	272		
S-13	2	2	4-4-5-6	9							
						26		becomes m. compact **(SP)**	270		
S-14	2	1.1	2-4-7-7	11							
						28		**Similar Soil (SP)**	268		
S-15	2	1.8	3-7-14-21	21							
						30		**Similar Soil (SP)**	266		
S-16	2	2	6-9-10-12	19							
						32		**Similar Soil (SP)**	264		
S-17	2	2	5-9-11-17	20							
						34		**Similar Soil (SP)**	262		
S-18	2	1.5	7-7-9-12	16							
						36		becomes loose **(SP)**	260		
S-19	2	2	2-5-5-7	10							
						38		becomes m. compact **(SP)**	258		
S-20	2	2	2-5-9-13	14							
						40		**Similar Soil (SP)**	256		
S-21	2	2	5-6-8-10	14							
						42		**Similar Soil (SP)**	254		
S-22	2	2	4-6-9-10	15							
						44			252		

CLOUGH HARBOUR & ASSOCIATES LLP

PROJECT NUMBER: 12206-4008-1102 7/9/2007

Rapp Road Eastern Expansion
SUBSURFACE LOG
HOLE NUMBER EE-B-1

SAMP./CORE NUMBER	SAMP. ADV. (ft) LEN. CORE (ft)	RECOVERY (ft)	Blows Per 6" on Split Spoon Sampler	"N" Value or RQD%	SAMPLE	DEPTH (Feet)	GRAPHICS	DESCRIPTION AND CLASSIFICATION	ELEVATION (Feet)	Remarks on Character of Drilling, Water Return, etc.	WATER LEVELS AND/OR WELL DATA
								becomes loose **(SP)** *(continued)*			
S-23	2	2	4-4-6-8	10							
						46		**f. SAND**, little silt, gray, loose, saturated **(SM)**	250		
								f. SAND, trace silt, gray, loose, saturated **(SP)**			
S-24	2	1.6	2-3-3-5	6							
						48		becomes m. compact **(SP)**	248		
S-25	2	2	3-5-7-8	12							
						50		**f. SAND**, little silt, gray, loose, saturated **(SM)**	246		
S-26	2	2	3-4-5-8	9							
						52		**f.m. SAND**, trace silt, gray, loose, saturated **(SP)**	244		
S-27	2	2	4-4-6-8	10							
						54		becomes m. compact **(SP)**	242		
S-28	2	2	6-5-7-7	12							
						56		**Clayey SILT**, Some f. Sand, gray, stiff, saturated **(ML)**	240	f. Sand seams through out clayey silt layer.	
S-29	2	2	3-5-8-12	13							
						58		becomes hard **(ML)**	238		
S-30	2	2	12-16-17-21	33				**f.m. SAND**, Some Silt, gray, m. compact, saturated **(SM)**			
						60		**f. SAND**, little silt, gray, m. compact, saturated **(SM)**	236		
S-31	2	2	1-5-7-9	12							
						62		**Similar Soil (SM)**	234		
S-32	2	2	6-8-13-17	21				**f.m. SAND**, trace silt, gray, m. compact, saturated **(SP)**			
						64		**Similar Soil (SP)**	232		
S-33	2	2	11-11-11-11	22				**f. SAND**, Some Silt, gray, m. compact, saturated **(SM)**			
						66		**Similar Soil (SM)**	230		
S-34	2	2	10-9-11-12	20							
						68			228		

CLOUGH HARBOUR & ASSOCIATES LLP

PROJECT NUMBER: 12206-4008-1102 7/9/2007

Rapp Road Eastern Expansion
SUBSURFACE LOG
HOLE NUMBER EE-B-1

SAMP./CORE NUMBER	SAMP. ADV. (ft) LEN. CORE (ft)	RECOVERY (ft)	Blows Per 6" on Split Spoon Sampler	"N" Value or RQD%	DEPTH (Feet)	DESCRIPTION AND CLASSIFICATION	ELEVATION (Feet)	Remarks on Character of Drilling, Water Return, etc.	WATER LEVELS AND/OR WELL DATA
S-35	2	2	7-8-10-14	18		**f. SAND**, Some Silt, gray, m. compact, saturated **(SM)** *(continued)*			
					70	becomes compact **(SM)**	226		
S-36	2	1.6	13-18-15-18	33					
					72	becomes m. compact **(SM)**	224		
S-37	2	2	10-10-10-11	20					
					74	**Clayey SILT**, Some f. Sand, gray, m. compact, saturated **(ML)**	222	f. Sand seams through out clayey silt layer.	
S-38	2	1.2	6-6-6-6	12		**f. SAND**, Some Silt, gray, m. compact, saturated **(SM)**			
					76	becomes v. loose **(SM)**	220		
S-39	2	2	3-2-1-2	3		**Silty CLAY**, Some f.Sand, gray, soft, saturated **(CL)**			
					78	becomes m. stiff **(CL)**	218	f. Sand seams through out silty clay layer.	
S-40	2	2	3-3-5-7	8					
					80	**Similar Soil (CL)**	216		
S-41	2	2	3-4-6-7	10					
					82	**Similar Soil (CL)**	214		
S-42	2	2	3-4-5-6	9					
					84	becomes m. stiff **(CL)**	212		
S-43	2	2	WH-WH-5-5						
					86	becomes stiff **(CL)**	210		
S-44	2	2	5-5-5-5	10					
					88	**Similar Soil (CL)**	208		
S-45	2	2	5-6-6-6	12					
					90	becomes m. stiff **(CL)**	206		
S-46	2	2	1-1-4-9	5					
					92	**Silty CLAY**, Some f. Sand, gray, m. stiff, saturated **(CL)**	204		

CLOUGH HARBOUR & ASSOCIATES LLP

PROJECT NUMBER: 12206-4008-1102 7/9/2007

Rapp Road Eastern Expansion
SUBSURFACE LOG
HOLE NUMBER EE-B-1

SAMP./CORE NUMBER	SAMP. ADV. (ft) LEN. CORE (ft)	RECOVERY (ft)	Blows Per 6" on Split Spoon Sampler	"N" Value or RQD%	SAMPLE	DEPTH (Feet)	GRAPHICS	DESCRIPTION AND CLASSIFICATION	ELEVATION (Feet)	Remarks on Character of Drilling, Water Return, etc.	WATER LEVELS AND/OR WELL DATA
S-47	2	2	4-4-4-4	8				**Silty CLAY**, Some f. Sand, gray, m. stiff, saturated **(CL)** *(continued)*			
						94		becomes stiff **(CL)**	202		
S-48	2	2	1-1-10-12	11				**f.m. SAND**, trace silt, gray, m. compact, saturated **(SP)**			
						96		**Similar Soil (SP)**	200		
S-49	2	2	14-12-13-14	25				**Silty CLAY**, Some f. Sand, gray, m. compact, saturated **(CL)**			
						98		becomes stiff **(CL)**	198		
S-50	2	2	6-6-6-7	12							
						100		becomes v. stiff **(CL)**	196		
S-51	2	2	6-12-13-33	25							
						102		**Clayey SILT**, Some f.m.c Sand, little f.c gravel, gray, m. compact, wet **(ML-TILL)**	194		
S-52	2	1.3	30-62-40-45	R				becomes v. compact **(ML-TILL)**			
						104		End of Boring at 104 ft	192		
						106			190		
						108			188		
						110			186		
						112			184		
						114			182		
						116			180		

CLOUGH HARBOUR & ASSOCIATES LLP

Rapp Road Eastern Expansion
SUBSURFACE LOG
HOLE NUMBER EE-B-2

PROJECT NUMBER: 12206-4008-1102 7/9/2007

LOCATION: Albany, New York

CLIENT: City of Albany DGS

CONTRACTOR: New England Boring Contractors

DRILLER: T. Carpenter INSPECTOR: K. Defayette

START DATE and TIME: 12/13/2006 2:40:00 PM

FINISH DATE and TIME: 12/15/2006 4:30:00 PM

SURFACE ELEV: 293.00 (ft; Estimated) CHECKED BY: W. Harris

DRILL FLUID: Water @ 10' DRILLING METHOD: 4" FJC

WATER LEVEL OBSERVATIONS DURING DRILLING	DATE	TIME	READING TYPE	WATER DEPTH (ft)	CASING BOTTOM (ft)	HOLE BOTTOM (ft)
	12-13-06	2:50 PM	During Drilling	1	None	2

SAMP./CORE NUMBER	SAMP. ADV. (ft) LEN. CORE (ft)	RECOVERY (ft)	Blows Per 6" on Split Spoon Sampler	"N" Value or RQD%	SAMPLE	DEPTH (Feet)	GRAPHICS	DESCRIPTION AND CLASSIFICATION	ELEVATION (Feet)	Remarks on Character of Drilling, Water Return, etc.	WATER LEVELS AND/OR WELL DATA
								TOPSOIL		Advances boring with 2.25" SSA to 10' then advances 4" FJC to boring termination.	
S-1	2	1.1	1-1-2-2	3				**f.m. SAND**, Some Silt, some roots, trace wood, brown/gray, v. loose, saturated **(SM)**	292		▽
						2		**f.m. SAND**, Some Silt, trace roots, brownish gray, loose, saturated **(SM)**			
S-2	2	2	2-3-2-5	5					290		
						4		**f.m. SAND**, trace silt, trace roots, gray, loose, saturated **(SP)**			
S-3	2	1.8	2-3-3-3	6					288		
						6		**f.m. SAND**, trace silt, gray, loose, saturated **(SP)**			
S-4	2	2	2-3-4-5	7					286		
						8		becomes m. compact **(SP)**			
S-5	2	2	8-8-11-10	19					284		
						10		becomes loose **(SP)**			
S-6	2	1.3	3-4-4-5	8					282		
						12		becomes m. compact **(SP)**			
S-7	2	2	5-7-7-8	14					280		
						14		becomes loose **(SP)**			
S-8	2	1.2	3-4-5-5	9					278		
						16		**Similar Soil (SP)**			
S-9	2	1.3	2-3-6-9	9					276		
						18		becomes m. compact **(SP)**			
S-10	2	2	5-7-9-10	16					274		

CLOUGH HARBOUR & ASSOCIATES LLP

PROJECT NUMBER: 12206-4008-1102 7/9/2007

Rapp Road Eastern Expansion
SUBSURFACE LOG
HOLE NUMBER EE-B-2

SAMP./CORE NUMBER	SAMP. ADV. (ft) LEN. CORE (ft)	RECOVERY (ft)	Blows Per 6" on Split Spoon Sampler	"N" Value or RQD%	SAMPLE	DEPTH (Feet)	GRAPHICS	DESCRIPTION AND CLASSIFICATION	ELEVATION (Feet)	Remarks on Character of Drilling, Water Return, etc.	WATER LEVELS AND/OR WELL DATA
								f.m. SAND, trace silt, gray, loose, saturated **(SP)**			
S-11	2	2	4-5-4-6	9					272		
						22		**Similar Soil (SP)**			
S-12	2	2	4-3-4-4	7					270		
						24		becomes trace clay **(SP)**			
S-13	2	1.5	4-5-4-6	9					268		
						26		**f. SAND and SILT**, gray, m. compact, saturated **(SM)**			
S-14	2	2	4-6-6-6	12					266		
						28		**f. SAND**, Some silt, gray, m. compact, saturated **(SM)**			
S-15	2	2	4-6-8-20	14					264		
						30		becomes compact **(SM)**			
S-16	2	2	10-15-17-18	32					262		
						32		becomes m. compact **(SM)**			
S-17	2	2	5-7-7-10	14					260		
						34		**f.m. SAND**, trace silt, gray, loose, saturated **(SP)**			
S-18	2	1.5	3-3-3-4	6					258		
						36		**Similar Soil (SP)**			
S-19	2	1.5	2-3-3-5	6					256		
						38		**Similar Soil (SP)**			
S-20	2	2	3-4-5-6	9					254		
						40		**Similar Soil (SP)**			
S-21	2	1.6	3-4-3-4	7					252		
						42		becomes m. compact **(SP)**			
S-22	2	2	4-7-9-9	16					250		
						44					

CLOUGH HARBOUR & ASSOCIATES LLP

PROJECT NUMBER: 12206-4008-1102 7/9/2007

Rapp Road Eastern Expansion
SUBSURFACE LOG
HOLE NUMBER EE-B-2

SAMP./CORE NUMBER	SAMP. ADV. (ft) LEN. CORE (ft)	RECOVERY (ft)	Blows Per 6" on Split Spoon Sampler	"N" Value or RQD%	SAMPLE	DEPTH (Feet)	GRAPHICS	DESCRIPTION AND CLASSIFICATION	ELEVATION (Feet)	Remarks on Character of Drilling, Water Return, etc.	WATER LEVELS AND/OR WELL DATA
S-23	2	1.7	5-6-5-6	11				**f. SAND**, little silt, gray, m. compact, saturated **(SM)** *(continued)*	248		
						46		**f. SAND**, Some Silt, gray, m. compact, saturated **(SM)**			
S-24	2	2	4-7-7-7	14					246		
						48		becomes loose **(SM)**			
S-25	2	2	2-5-5-6	10					244		
						50		**Similar Soil (SM)**			
S-26	2	2	3-4-6-8	10					242		
								f. SAND, trace silt, gray, loose, saturated **(SP)**			
						52		**Similar Soil (SP)**			
S-27	2	2	5-5-5-8	10					240		
								f. SAND, Some Silt, gray, loose, wet **(SM)**			
						54		becomes v. loose **(SM)**			
S-28	2	1.3	6-1-2-2	3				**Silty CLAY**, Some f. Sand, gray, soft, wet **(CL)**	238		
						56		becomes m. stiff **(CL)**			
S-29	2	2	2-2-3-3	5					236		
						58		becomes stiff **(CL)**			
S-30	2	2	3-3-6-7	9					234		
						60		becomes m. stiff **(CL)**			
S-31	2	2	2-2-3-5	5					232		
						62		becomes stiff **(CL)**			
S-32	2	2	3-5-5-7	10					230		
						64		**Similar Soil (CL)**			
S-33	2	2	3-4-6-6	10					228		
						66		**Similar Soil (CL)**			
S-34	2	2	WH-WH-3-3						226		
						68		becomes m. stiff **(CL)**			

CLOUGH HARBOUR & ASSOCIATES LLP

PROJECT NUMBER: 12206-4008-1102 7/9/2007

Rapp Road Eastern Expansion
SUBSURFACE LOG
HOLE NUMBER EE-B-2

SAMP./CORE NUMBER	SAMP. ADV. (ft) LEN. CORE (ft)	RECOVERY (ft)	Blows Per 6" on Split Spoon Sampler	"N" Value or RQD%	SAMPLE	DEPTH (Feet)	GRAPHICS	DESCRIPTION AND CLASSIFICATION	ELEVATION (Feet)	Remarks on Character of Drilling, Water Return, etc.	WATER LEVELS AND/OR WELL DATA
S-35	2	2	WH-2-3-3	5				becomes m. stiff **(CL)** *(continued)*	224		
						70		becomes stiff **(CL)**			
S-36	2	2	5-6-5-9	11					222		
						72		becomes v. stiff **(CL)**			
S-37	2	2	6-8-8-6	16					220		
						74		becomes m. stiff **(CL)**			
S-38	2	2	4-4-4-5	8					218		
						76		becomes v. soft **(CL)**			
S-39	2	0.4	WH-WH-1-WH						216		
						78		**Clayey SILT**, Some f. Sand, stiff, gray, wet **(ML)**			
S-40	2	2	8-6-5-5	11					214		
						80		**f. SAND**, Some Silt, gray, compact, wet **(SM)**			
S-41	2	1.5	8-15-17-20	32					212		
						82		**Similar Soil (SM)**			
S-42	2	1.5	11-18-21-27	39					210		
						84		**f. SAND**, trace silt, gray, v. compact, wet **(SP)**			
S-43	2	1	24-31-46-50	77					208		
						86		**f. SAND**, little clayey silt, gray, v. compact, wet **(SM)**			
S-44	2	1	10-23-37-41	60					206		
						88		**f. SAND**, Some Silt, gray, v. compact, wet **(SM)**			
S-45	2	2	27-41-49-62	90					204		
						90		**f. SAND and SILT**, gray, v. compact, wet **(SM)**			
S-46	2	2	26-40-41-50	81					202		
						92		**SILT**, Some f. sand, gray, v. compact, wet **(ML)**			
			18-47-81/0.5								

CLOUGH HARBOUR & ASSOCIATES LLP

PROJECT NUMBER: 12206-4008-1102 7/9/2007

Rapp Road Eastern Expansion
SUBSURFACE LOG
HOLE NUMBER EE-B-2

SAMP./CORE NUMBER	SAMP. ADV. (ft) LEN. CORE (ft)	RECOVERY (ft)	Blows Per 6" on Split Spoon Sampler	"N" Value or RQD%	SAMPLE	DEPTH (Feet)	GRAPHICS	DESCRIPTION AND CLASSIFICATION	ELEVATION (Feet)	Remarks on Character of Drilling, Water Return, etc.	WATER LEVELS AND/OR WELL DATA
S-47	1.5	1.5		R				**SILT**, Some f. sand, gray, v. compact, wet **(ML)** *(continued)*	200		
						94		**Similar Soil (ML)**			
S-48	2	2	38-47-55-61	R					198		
						96		**Similar Soil (ML)**			
S-49	2	2	24-24-33-29	57					196		
						98		**Similar Soil (ML)**			
S-50	2	2	25-32-35-38	67				**Silty CLAY**, Some f. Sand, gray, hard, wet **(CL)**	194		
						100		becomes stiff **(CL)**			
S-51	2	2	5-5-7-7	12					192		
						102		becomes v. stiff **(CL)**			
S-52	2	2	6-10-9-18	19					190		
						104		**Clayey SILT**, Some f.m.c Sand, little f.c gravel, gray, v. stiff, wet **(ML-TILL)**			
								End of Boring at 104 ft			
						106			188		
						108			186		
						110			184		
						112			182		
						114			180		
						116			178		
									176		

CLOUGH HARBOUR & ASSOCIATES LLP

Rapp Road Eastern Expansion
SUBSURFACE LOG
HOLE NUMBER MW-14D

PROJECT NUMBER: 12206-4008-1102 7/9/2007

LOCATION: Albany, New York

CLIENT: City of Albany DGS

CONTRACTOR: New England Boring Contractors

DRILLER: T. Carpenter INSPECTOR: K. Defayette

START DATE and TIME: 12/28/2006 7:30:00 AM

FINISH DATE and TIME: 1/2/2007 9:00:00 AM

SURFACE ELEV: 292.10 (ft; Estimated) CHECKED BY: W. Harris

DRILL FLUID: Water @ 10' DRILLING METHOD: 4" FJC

WATER LEVEL OBSERVATIONS DURING DRILLING	DATE	TIME	READING TYPE	WATER DEPTH (ft)	CASING BOTTOM (ft)	HOLE BOTTOM (ft)

SAMP./CORE NUMBER	SAMP. ADV. (ft) LEN. CORE (ft)	RECOVERY (ft)	Blows Per 6" on Split Spoon Sampler	"N" Value or RQD%	DEPTH (Feet)	DESCRIPTION AND CLASSIFICATION	ELEVATION (Feet)	Remarks on Character of Drilling, Water Return, etc.
						TOPSOIL		
S-1	2	1.7	1-1-1-1	2		**f. SAND and SILT**, trace clay, trace roots, trace wood, brown, v. loose, saturated **(SM)**		
					2	**f.m. SAND**, little silt, gray, loose, saturated **(SM)**	290	
S-2	2	2	3-5-3-5	8				
					4	**f. SAND**, trace silt, trace roots, brownish gray, loose, saturated **(SP)**	288	
S-3	2	2	4-3-3-4	6				
					6	**f. SAND**, trace silt, gray, v. loose, saturated **(SP)**	286	
S-4	2	2	1-2-1-2	3				
					8	becomes loose **(SP)**	284	
S-5	2	2	2-2-3-3	5				
					10	**f. SAND**, little silt, gray, loose, saturated **(SM)**	282	
S-6	2	1	1-1-3-5	4				
					12	becomes m. compact **(SM)**	280	
S-7	2	2	11-11-15-19	26				
					14	**f. SAND**, trace silt, gray, m. compact, saturated **(SP)**	278	
S-8	2	2	5-6-5-6	11				
					16	becomes v. loose **(SP)**	276	
S-9	2	1.3	1-2-2-3	4				
					18	becomes m. compact **(SP)**	274	
S-10	2	2	4-8-12-14	20				

WATER LEVELS AND/OR WELL DATA

CLOUGH HARBOUR & ASSOCIATES LLP

PROJECT NUMBER: 12206-4008-1102 7/9/2007

Rapp Road Eastern Expansion
SUBSURFACE LOG
HOLE NUMBER MW-14D

SAMP./CORE NUMBER	SAMP. ADV. (ft) LEN. CORE (ft)	RECOVERY (ft)	Blows Per 6" on Split Spoon Sampler	"N" Value or RQD%	SAMPLE	DEPTH (Feet)	GRAPHICS	DESCRIPTION AND CLASSIFICATION	ELEVATION (Feet)	Remarks on Character of Drilling, Water Return, etc.	WATER LEVELS AND/OR WELL DATA
								Similar Soil (SP)			
S-11	2	2	3-8-12-10	20							
						22		**Similar Soil (SP)**	270		
S-12	2	2	6-6-7-9	13							
						24		becomes loose **(SP)**	268		
S-13	2	1.4	1-2-3-4	5							
						26		becomes v. loose **(SP)**	266		
S-14	2	0.8	2-1-2-2	3							
						28		becomes loose **(SP)**	264		
S-15	2	2	2-3-4-5	7							
						30		**f. SAND**, little silt, gray, m. compact, saturated **(SM)**	262	1" Silt seam in sample S-16.	
S-16	2	2	5-5-7-7	12							
						32		becomes loose **(SM)**	260	1" Silt seam in sample S-17.	
S-17	2	2	3-5-5-8	10							
						34		**Similar Soil (SM)**	258		
S-18	2	2	4-6-6-6	12							
						36		**f. SAND**, trace silt, gray, m. compact, saturated **(SP)**	256		
S-19	2	2	3-4-7-8	11							
						38		**Similar Soil (SP)**	254		
S-20	2	2	3-6-9-15	15							
						40		**Similar Soil (SP)**	252		
S-21	2	2	3-9-12-14	21							
						42		**Similar Soil (SP)**	250		
S-22	2	2	5-6-10-12	16							
						44			248		

CLOUGH HARBOUR & ASSOCIATES LLP

PROJECT NUMBER: 12206-4008-1102 7/9/2007

Rapp Road Eastern Expansion
SUBSURFACE LOG
HOLE NUMBER MW-14D

SAMP./CORE NUMBER	SAMP. ADV. (ft) LEN. CORE (ft)	RECOVERY (ft)	Blows Per 6" on Split Spoon Sampler	"N" Value or RQD%	SAMPLE	DEPTH (Feet)	GRAPHICS	DESCRIPTION AND CLASSIFICATION	ELEVATION (Feet)	Remarks on Character of Drilling, Water Return, etc.	WATER LEVELS AND/OR WELL DATA
S-23	2	2	4-6-7-6	13				**f. SAND and SILT**, gray, m. compact, saturated **(SM)** *(continued)*			
						46		**f. SAND and SILT**, gray, loose, saturated **(SM)**	246		
S-24	2	2	5-3-5-5	8							
						48		becomes m. compact **(SM)**	244		
S-25	2	2	3-5-6-5	11							
						50		becomes loose **(SM)**	242		
S-26	2	2	6-5-3-9	8							
						52		**Similar Soil (SM)**	240		
S-27	2	2	5-5-5-7	10							
						54		**Silty CLAY**, Some f. Sand, gray, soft, wet **(CL)**	238		
S-28	2	2	2-1-2-3	3							
						56		becomes m. stiff **(CL)**	236		
S-29	2	2	2-3-5-5	8							
						58		becomes stiff **(CL)**	234		
S-30	2	2	4-4-5-5	9							
						60		becomes m. stiff **(CL)**	232		
S-31	2	2	2-3-5-5	8							
						62		becomes stiff **(CL)**	230		
S-32	2	2	5-5-6-7	11							
						64		becomes m. stiff **(CL)**	228		
S-33	2	2	2-3-5-7	8							
						66		becomes stiff **(CL)**	226		
S-34	2	2	4-5-4-5	9							
						68		**Similar Soil (CL)**	224		

CLOUGH HARBOUR & ASSOCIATES LLP

PROJECT NUMBER: 12206-4008-1102 7/9/2007

Rapp Road Eastern Expansion
SUBSURFACE LOG
HOLE NUMBER MW-14D

SAMP./CORE NUMBER	SAMP. ADV. (ft) LEN. CORE (ft)	RECOVERY (ft)	Blows Per 6" on Split Spoon Sampler	"N" Value or RQD%	SAMPLE	DEPTH (Feet)	GRAPHICS	DESCRIPTION AND CLASSIFICATION	ELEVATION (Feet)	Remarks on Character of Drilling, Water Return, etc.	WATER LEVELS AND/OR WELL DATA
S-35	2	2	4-5-5-6	10				**Similar Soil (CL)** *(continued)*			
						70		**Similar Soil (CL)**	222		
S-36	2	2	5-5-5-6	10							
						72		**Similar Soil (CL)**	220		
S-37	2	2	3-5-6-6	11							
						74		becomes v. stiff **(CL)**	218		
S-38	2	2	10-14-15-24	29				**f. SAND and SILT**, gray, m. compact, saturated **(SM)**			
						76		**Similar Soil (SM)**	216		
S-39	2	1.5	8-9-13-16	22							
						78		becomes compact **(SM)**	214		
S-40	2	2	6-12-20-24	32							
						80		becomes hard **(SM)**	212		
S-41	2	1.5	12-20-24-31	44							
						82		**Similar Soil (SM)**	210		
S-42	2	2	19-17-31-34	48							
						84		**Similar Soil (SM)**	208		
S-43	2	2	18-18-22-29	40							
						86		becomes m. compact **(SM)**	206		
S-44	2	2	8-11-16-24	27							
						88		becomes v. compact **(SM)**	204		
S-45	2	2	11-25-33-41	58							
						90		becomes compact **(SM)**	202		
S-46	2	2	15-26-23-33	49							
						92		becomes v. compact **(SM)**	200		

CLOUGH HARBOUR & ASSOCIATES LLP

PROJECT NUMBER: 12206-4008-1102 7/9/2007

Rapp Road Eastern Expansion
SUBSURFACE LOG
HOLE NUMBER MW-14D

SAMP./CORE NUMBER	SAMP. ADV. (ft) LEN. CORE (ft)	RECOVERY (ft)	Blows Per 6" on Split Spoon Sampler	"N" Value or RQD%	SAMPLE	DEPTH (Feet)	GRAPHICS	DESCRIPTION AND CLASSIFICATION	ELEVATION (Feet)	Remarks on Character of Drilling, Water Return, etc.	WATER LEVELS AND/OR WELL DATA
S-47	2	2	14-25-34-46	59				becomes v. compact **(SM)** *(continued)*			
						94		becomes compact **(SM)**	198		
S-48	2	2	17-19-28-33	47							
						96		**Similar Soil (SM)**	196		
S-49	2	2	6-18-31-49	49							
						98			194	Driller advanced casing to far by accident from 98' to 100'.	
						100		**f. SAND and SILT**, little m. sand, gray, v. compact, saturated **(SM)**	192	m. Sand seams in sample S-50.	
S-50	2	2	29-34-0.5	34.5							
						102		**f.m. SAND**, trace silt, gray, m. compact, saturated **(SP)**	190		
S-51	2	2	5-10-16-15	26				**Silty CLAY**, Some f. Sand, gray, v. stiff, wet **(CL)**			
						104		End of Boring at 104 ft	188		
						106			186		
						108			184		
						110			182		
						112			180		
						114			178		
						116			176		

CLOUGH HARBOUR & ASSOCIATES LLP

Rapp Road Eastern Expansion
SUBSURFACE LOG
HOLE NUMBER MW-14I

PROJECT NUMBER: 12206-4008-1102 7/9/2007

LOCATION: Albany, New York

CLIENT: City of Albany DGS

CONTRACTOR: New England Boring Contractors

DRILLER: T. Carpenter INSPECTOR: K. Defayette

START DATE and TIME: 1/3/2007 9:30:00 AM

FINISH DATE and TIME: 1/4/2007 8:00:00 AM

SURFACE ELEV: 292.10 (ft; Estimated) CHECKED BY: W. Harris

DRILL FLUID: Water @ 8'

DRILLING METHOD: 4" FJC

WATER LEVEL OBSERVATIONS DURING DRILLING	DATE	TIME	READING TYPE	WATER DEPTH (ft)	CASING BOTTOM (ft)	HOLE BOTTOM (ft)

SAMP./CORE NUMBER	SAMP. ADV. (ft) LEN. CORE (ft)	RECOVERY (ft)	Blows Per 6" on Split Spoon Sampler	"N" Value or RQD%	SAMPLE	DEPTH (Feet)	GRAPHICS	DESCRIPTION AND CLASSIFICATION	ELEVATION (Feet)	Remarks on Character of Drilling, Water Return, etc.	WATER LEVELS AND/OR WELL DATA
								TOPSOIL			
S-1	2	2	2-2-2-4	4				**f. SAND**, Some Silt, gray, v. loose, wet **(SM)**			
						2			290		
						4			288		
								f. SAND, little silt, trace roots, gray, v. loose, saturated **(SM)**			
S-2	2	2	2-2-2-2	4		6			286		
						8			284		
						10		**f. SAND**, Some Silt, gray, loose, saturated **(SM)**	282		
S-3	2	1.8	3-5-5-6	10							
						12			280		
						14			278		
								f. SAND, trace silt, gray, loose, saturated **(SP)**			
S-4	2	1.2	4-4-5-6	9		16			276		
						18			274		

CLOUGH HARBOUR & ASSOCIATES LLP

PROJECT NUMBER: 12206-4008-1102 7/9/2007

Rapp Road Eastern Expansion
SUBSURFACE LOG
HOLE NUMBER MW-14I

SAMP./CORE NUMBER	SAMP. ADV. (ft) LEN. CORE (ft)	RECOVERY (ft)	Blows Per 6" on Split Spoon Sampler	"N" Value or RQD%	SAMPLE	DEPTH (Feet)	GRAPHICS	DESCRIPTION AND CLASSIFICATION	ELEVATION (Feet)	Remarks on Character of Drilling, Water Return, etc.	WATER LEVELS AND/OR WELL DATA
								f. SAND, trace silt, gray, loose, saturated **(SP)**			
S-5	2	1.5	3-6-4-6	10		22			270		
						24			268		
								Similar Soil (SP)			
S-6	2	1.5	3-2-3-3	5		26			266		
						28			264		
						30		**f. SAND**, Some Silt, gray, m. compact, saturated **(SM)**	262		
S-7	2	1.6	4-6-6-6	12							
						32			260		
						34			258		
								f. SAND, trace silt, gray, loose, saturated **(SP)**			
S-8	2	1.6	5-6-4-6	10		36			256		
						38			254		
						40		becomes m. compact **(SP)**	252		
S-9	2	2	7-10-15-13	25							
						42			250		
						44			248		

CLOUGH HARBOUR & ASSOCIATES LLP

PROJECT NUMBER: 12206-4008-1102 7/9/2007

Rapp Road Eastern Expansion
SUBSURFACE LOG
HOLE NUMBER MW-14I

SAMP./CORE NUMBER	SAMP. ADV. (ft) LEN. CORE (ft)	RECOVERY (ft)	Blows Per 6" on Split Spoon Sampler	"N" Value or RQD%	SAMPLE	DEPTH (Feet)	GRAPHICS	DESCRIPTION AND CLASSIFICATION	ELEVATION (Feet)	Remarks on Character of Drilling, Water Return, etc.	WATER LEVELS AND/OR WELL DATA
S-10	2	1.7	4-4-4-4	8		46		**f. SAND**, Some Silt, gray, loose, saturated **(SM)**	246		
						48			244		
S-11	2	1.5	3-4-3-5	7		50		**f. SAND and SILT**, gray, loose, saturated **(SM)**	242		
						52			240		
						54			238		
S-12	2	2	2-2-3-3	5		56		**Silty CLAY**, Some f. Sand, gray, m. stiff, wet **(CL)**	236		
								End of Boring at 57 ft			
						58			234		
						60			232		
						62			230		
						64			228		
						66			226		
						68			224		

CLOUGH HARBOUR & ASSOCIATES LLP

Rapp Road Eastern Expansion
SUBSURFACE LOG
HOLE NUMBER MW-14S

PROJECT NUMBER: 12206-4008-1102 7/9/2007

LOCATION: Albany, New York

CLIENT: City of Albany DGS

CONTRACTOR: New England Boring Contractors

DRILLER: T. Carpenter INSPECTOR: K. Defayette

START DATE and TIME: 1/4/2007 9:00:00 AM

FINISH DATE and TIME: 1/4/2007 11:45:00 AM

SURFACE ELEV: 292.10 (ft; Estimated) CHECKED BY: W. Harris

DRILL FLUID: Water @ 8'

DRILLING METHOD: 4" FJC

WATER LEVEL OBSERVATIONS DURING DRILLING	DATE	TIME	READING TYPE	WATER DEPTH (ft)	CASING BOTTOM (ft)	HOLE BOTTOM (ft)

SAMP./CORE NUMBER	SAMP. ADV. (ft) LEN. CORE (ft)	RECOVERY (ft)	Blows Per 6" on Split Spoon Sampler	"N" Value or RQD%	SAMPLE	DEPTH (Feet)	GRAPHICS	DESCRIPTION AND CLASSIFICATION	ELEVATION (Feet)	Remarks on Character of Drilling, Water Return, etc.	WATER LEVELS AND/OR WELL DATA
								TOPSOIL			
S-1	2	2	2-3-3-4	6				**f. SAND and SILT**, trace clay, brown, loose, wet **(SM)**			
						2		becomes gray **(SM)**	290		
						4			288		
S-2	2	2	1-1-2-2	3		6		**f. SAND**, trace silt, trace roots, gray, v. loose, saturated **(SP)**	286		
						8			284		
S-3	2	0.8	1-WH-2-2			10		**f. SAND**, trace silt, gray, v. loose, saturated **(SP)**	282		
						12			280		
								End of Boring at 13 ft			
						14			278		
						16			276		
						18			274		

CLOUGH HARBOUR & ASSOCIATES LLP

Rapp Road Eastern Expansion
SUBSURFACE LOG
HOLE NUMBER MW-15D

PROJECT NUMBER: 12206-4008-1102 7/9/2007

LOCATION: Albany, New York

CLIENT: City of Albany DGS

CONTRACTOR: New England Boring Contractors

DRILLER: T. Carpenter INSPECTOR: K. Defayette

START DATE and TIME: 12/18/2006 12:35:00 PM

FINISH DATE and TIME: 12/21/2006 8:00:00 AM

SURFACE ELEV: 294.80 (ft; Estimated) CHECKED BY: W. Harris

DRILL FLUID: Water @ 10' DRILLING METHOD: 4" FJC

WATER LEVEL OBSERVATIONS DURING DRILLING	DATE	TIME	READING TYPE	WATER DEPTH (ft)	CASING BOTTOM (ft)	HOLE BOTTOM (ft)

SAMP./CORE NUMBER	SAMP. ADV. (ft) LEN. CORE (ft)	RECOVERY (ft)	Blows Per 6" on Split Spoon Sampler	"N" Value or RQD%	DEPTH (Feet)	DESCRIPTION AND CLASSIFICATION	ELEVATION (Feet)	Remarks on Character of Drilling, Water Return, etc.
						TOPSOIL		
S-1	2	0.5	2-2-2-3	4		**f. SAND and SILT**, little roots, little c. sand, brown, v. loose, saturated **(SM)**	294	
					2	**f. SAND and SILT**, little roots, brownish gray, loose, wet **(SM)**		
S-2	2	2	2-6-4-5	10			292	
					4	**f. SAND**, little silt, trace roots, brownish gray, v. loose, saturated **(SM)**		
S-3	2	0.9	2-2-1-1	3			290	
					6	**f. SAND**, trace silt, gray, v. loose, saturated **(SP)**		
S-4	2	2	1-1-2-3	3			288	
					8	becomes loose **(SP)**		
S-5	2	2	1-2-4-7	6			286	
					10	**Similar Soil (SP)**		
S-6	2	1	4-2-4-4	6			284	
					12	**Similar Soil (SP)**		
S-7	2	2	3-3-4-4	7			282	
					14	**f. SAND**, trace silt, trace c. sand, gray, v. loose, saturated **(SP)**		Vanes of brown c. sand in sample S-8
S-8	2	1.4	2-1-1-3	2			280	
					16	**f. SAND**, trace silt, gray, loose, saturated **(SP)**		
S-9	2	1.3	2-4-5-7	9			278	
					18	becomes m. compact **(SP)**		
S-10	2	1.3	6-6-8-12	14			276	

WATER LEVELS AND/OR WELL DATA

CLOUCH HARBOUR & ASSOCIATES LLP

PROJECT NUMBER: 12206-4008-1102 7/9/2007

Rapp Road Eastern Expansion
SUBSURFACE LOG
HOLE NUMBER MW-15D

SAMP./CORE NUMBER	SAMP. ADV. (ft) LEN. CORE (ft)	RECOVERY (ft)	Blows Per 6" on Split Spoon Sampler	"N" Value or RQD%	SAMPLE	DEPTH (Feet)	GRAPHICS	DESCRIPTION AND CLASSIFICATION	ELEVATION (Feet)	Remarks on Character of Drilling, Water Return, etc.	WATER LEVELS AND/OR WELL DATA
								f. SAND, trace silt, gray, m. compact, saturated **(SP)**			
S-11	2	1.2	4-5-6-7	11					274		
						22		**Similar Soil (SP)**			
S-12	2	1.4	6-7-7-8	14					272		
						24		becomes v. loose **(SP)**			
S-13	2	1.3	2-2-2-2	4					270		
						26		**Similar Soil (SP)**			
S-14	2	1.2	2-1-2-4	3					268		
						28		becomes loose **(SP)**			
S-15	2	2	3-3-5-7	8					266		
						30		becomes m. compact **(SP)**			
S-16	2	2	6-7-8-8	15					264		
						32		becomes loose **(SP)**			
S-17	2	2	4-4-5-7	9					262		
						34		becomes v. loose **(SP)**			
S-18	2	1.4	1-1-1-5	2					260		
						36		becomes loose **(SP)**			
S-19	2	2	1-3-5-7	8					258		
						38		becomes m. compact **(SP)**			
S-20	2	2	3-6-7-7	13					256		
						40		becomes loose **(SP)**			
S-21	2	2	4-3-6-6	9					254		
						42		becomes m. compact **(SP)**			
S-22	2	2	6-6-7-9	13					252		
						44					

CLOUGH HARBOUR & ASSOCIATES LLP

PROJECT NUMBER: 12206-4008-1102 7/9/2007

Rapp Road Eastern Expansion
SUBSURFACE LOG
HOLE NUMBER MW-15D

SAMP./CORE NUMBER	SAMP. ADV. (ft) LEN. CORE (ft)	RECOVERY (ft)	Blows Per 6" on Split Spoon Sampler	"N" Value or RQD%	DEPTH (Feet)	DESCRIPTION AND CLASSIFICATION	ELEVATION (Feet)	Remarks on Character of Drilling, Water Return, etc.
S-23	2	2	3-5-4-6	9		**f. SAND and SILT**, gray, loose, saturated **(SM)** *(continued)*	250	
					46	**Similar Soil (SM)**		
S-24	2	2	2-3-6-6	9			248	
					48	becomes m. compact **(SM)**		
S-25	2	2	3-6-9-8	15			246	
					50	**f. SAND**, little silt, gray, m. compact, saturated **(SM)**		
S-26	2	1.7	6-6-5-5	11		**f. SAND and SILT**, gray, m. compact, saturated **(SM)**	244	
					52	**Similar Soil (SM)**		
S-27	2	2	3-6-7-8	13			242	
					54	becomes loose **(SM)**		
S-28	2	1.2	2-3-2-4	5		**Silty CLAY**, Some f. Sand, gray, soft, wet **(CL)**	240	f. Sand seams throughout silty clay layer.
					56	becomes stiff **(CL)**		
S-29	2	2	3-5-6-6	11			238	
					58	becomes m. stiff **(CL)**		
S-30	2	2	4-4-4-6	8			236	
					60	**Similar Soil (CL)**		
S-31	2	2	2-3-4-4	7			234	
					62	becomes stiff **(CL)**		
S-32	2	2	5-4-7-7	11			232	
					64	becomes m. stiff **(CL)**		
S-33	2	2	1-1-5-7	6			230	
					66	**Similar Soil (CL)**		
S-34	2	2	3-3-4-4	7			228	
					68	becomes stiff **(CL)**		

WATER LEVELS AND/OR WELL DATA

CLOUGH HARBOUR & ASSOCIATES LLP

PROJECT NUMBER: 12206-4008-1102 7/9/2007

Rapp Road Eastern Expansion
SUBSURFACE LOG
HOLE NUMBER MW-15D

SAMP./CORE NUMBER	SAMP. ADV. (ft) LEN. CORE (ft)	RECOVERY (ft)	Blows Per 6" on Split Spoon Sampler	"N" Value or RQD%	DEPTH (Feet)	DESCRIPTION AND CLASSIFICATION	ELEVATION (Feet)	Remarks on Character of Drilling, Water Return, etc.
S-35	2	2	4-5-8-7	13		becomes stiff **(CL)** *(continued)*	226	
					70	**Similar Soil (CL)**		
S-36	2	2	3-4-5-17	9		**f. SAND and SILT**, gray, loose, saturated **(SM)**	224	
					72	becomes m. compact **(SM)**		
S-37	2	2	8-10-12-16	22			222	
					74	**Similar Soil (SM)**		
S-38	2	1.4	5-11-18-20	29			220	
					76	**Similar Soil (SM)**		
S-39	2	2	6-15-14-18	29			218	
					78	**Similar Soil (SM)**		
S-40	2	2	8-13-14-17	27			216	
					80	becomes compact **(SM)**		
S-41	2	2	12-17-17-22	34			214	
					82	becomes v. compact **(SM)**		
S-42	2	2	13-34-25-21	59			212	
					84	becomes m. compact **(SM)**		
S-43	2	2	6-9-11-11	20			210	
					86	**Similar Soil (SM)**		
S-44	2	2	4-7-12-14	19			208	
					88	**SILT and f. SAND**, gray, compact, saturated **(ML)**		
S-45	2	2	8-18-25-25	43			206	
					90	**Silty CLAY**, Some f. Sand, gray, m. stiff, wet **(CL)**		
S-46	2	2	4-3-3-5	6			204	
					92	**Silty CLAY**, Some f. Sand, gray, v. soft, wet **(CL)**		

WATER LEVELS AND/OR WELL DATA

CLOUGH HARBOUR & ASSOCIATES LLP

PROJECT NUMBER: 12206-4008-1102 7/9/2007

Rapp Road Eastern Expansion
SUBSURFACE LOG
HOLE NUMBER MW-15D

SAMP./CORE NUMBER	SAMP. ADV. (ft) LEN. CORE (ft)	RECOVERY (ft)	Blows Per 6" on Split Spoon Sampler	"N" Value or RQD%	SAMPLE	DEPTH (Feet)	GRAPHICS	DESCRIPTION AND CLASSIFICATION	ELEVATION (Feet)	Remarks on Character of Drilling, Water Return, etc.	WATER LEVELS AND/OR WELL DATA
S-47	2	1	WH-1-WH-1					**Silty CLAY**, Some f. Sand, gray, v. soft, wet **(CL)** *(continued)*			
						94		**Silty CLAY**, Some f.m Sand, gray, m. stiff, wet **(CL)**			
S-48	2	2	WH-3-3-3	6					200		
						96		End of Boring at 96 ft			
									198		
						98					
									196		
						100					
									194		
						102					
									192		
						104					
									190		
						106					
									188		
						108					
									186		
						110					
									184		
						112					
									182		
						114					
									180		
						116					
									178		

CLOUGH HARBOUR & ASSOCIATES LLP

Rapp Road Eastern Expansion
SUBSURFACE LOG
HOLE NUMBER MW-15I

PROJECT NUMBER: 12206-4008-1102 7/9/2007

LOCATION: Albany, New York

CLIENT: City of Albany DGS

CONTRACTOR: New England Boring Contractors

DRILLER: T. Carpenter INSPECTOR: K. Defayette

START DATE and TIME: 12/21/2006 9:00:00 AM

FINISH DATE and TIME: 12/26/2006 8:00:00 AM

SURFACE ELEV: 294.80 (ft; Estimated) CHECKED BY: W. Harris

DRILL FLUID: Water @ 8' DRILLING METHOD: 4" FJC

WATER LEVEL OBSERVATIONS DURING DRILLING	DATE	TIME	READING TYPE	WATER DEPTH (ft)	CASING BOTTOM (ft)	HOLE BOTTOM (ft)

SAMP./CORE NUMBER	SAMP. ADV. (ft) LEN. CORE (ft)	RECOVERY (ft)	Blows Per 6" on Split Spoon Sampler	"N" Value or RQD%	SAMPLE	DEPTH (Feet)	GRAPHICS	DESCRIPTION AND CLASSIFICATION	ELEVATION (Feet)	Remarks on Character of Drilling, Water Return, etc.	WATER LEVELS AND/OR WELL DATA
								TOPSOIL			
S-1	2	0.4	1-1-WH-1					**f. SAND and SILT**, little roots, little c. sand, brown, v. loose, saturated **(SM)**	294		
						2					
									292		
						4					
									290		
								f.m. SAND, trace silt, brownish gray, loose, saturated **(SP)**			
S-2	2	2	1-2-3-4	5		6					
									288		
						8					
									286		
						10		**Similar Soil (SP)**			
S-3	2	1	1-1-4-4	5					284		
						12					
									282		
						14					
									280		
								becomes v. loose **(SP)**			
S-4	2	0.7	1-2-1-3	3		16					
									278		
						18					
									276		

CLOUGH HARBOUR & ASSOCIATES LLP

PROJECT NUMBER: 12206-4008-1102 7/9/2007

Rapp Road Eastern Expansion
SUBSURFACE LOG
HOLE NUMBER MW-15I

SAMP./CORE NUMBER	SAMP. ADV. (ft) LEN. CORE (ft)	RECOVERY (ft)	Blows Per 6" on Split Spoon Sampler	"N" Value or RQD%	SAMPLE	DEPTH (Feet)	GRAPHICS	DESCRIPTION AND CLASSIFICATION	ELEVATION (Feet)	Remarks on Character of Drilling, Water Return, etc.	WATER LEVELS AND/OR WELL DATA
								f.m. SAND, trace silt, gray, loose, saturated **(SP)**			
S-5	2	1.4	3-3-4-4	7					274		
						22					
									272		
						24					
									270		
								Similar Soil (SP)			
S-6	2	1.6	2-3-4-4	7		26					
									268		
						28					
									266		
						30		**f. SAND**, trace silt, gray, m. compact, saturated **(SP)**			
S-7	2	1.6	6-7-8-12	15					264		
						32					
									262		
						34					
									260		
								becomes v. loose **(SP)**			
S-8	2	2	WH-1-3-3	4		36					
									258		
						38					
									256		
						40		becomes m. compact **(SP)**			
S-9	2	2	6-6-5-7	11					254		
						42					
									252		
						44					

CLOUGH HARBOUR & ASSOCIATES LLP

PROJECT NUMBER: 12206-4008-1102 7/9/2007

Rapp Road Eastern Expansion
SUBSURFACE LOG
HOLE NUMBER MW-15I

SAMP./CORE NUMBER	SAMP. ADV. (ft) LEN. CORE (ft)	RECOVERY (ft)	Blows Per 6" on Split Spoon Sampler	"N" Value or RQD%	SAMPLE	DEPTH (Feet)	GRAPHICS	DESCRIPTION AND CLASSIFICATION	ELEVATION (Feet)	Remarks on Character of Drilling, Water Return, etc.	WATER LEVELS AND/OR WELL DATA
S-10	2	1.8	5-4-5-6	9		46		**f. SAND and SILT**, gray, loose, saturated **(SM)**	250		
						48			248		
						50		**Similar Soil (SM)**	246		
S-11	2	2	4-4-4-4	8		52			244		
						54			242		
S-12	2	2	1-3-3-5	6		56		**Silty CLAY**, Some f. Sand, gray, m. stiff, wet **(CL)**	240		
						58		End of Boring at 57 ft	238		
						60			236		
						62			234		
						64			232		
						66			230		
						68			228		

CLOUGH HARBOUR & ASSOCIATES LLP

Rapp Road Eastern Expansion
SUBSURFACE LOG
HOLE NUMBER MW-15S

PROJECT NUMBER: 12206-4008-1102 7/9/2007

LOCATION: Albany, New York

CLIENT: City of Albany DGS

CONTRACTOR: New England Boring Contractors

DRILLER: T. Carpenter INSPECTOR: K. Defayette

START DATE and TIME: 12/26/2006 8:30:00 AM

FINISH DATE and TIME: 12/16/2006 3:00:00 PM

SURFACE ELEV: 294.80 (ft; Estimated) CHECKED BY: W. Harris

DRILL FLUID: Water @ 8'

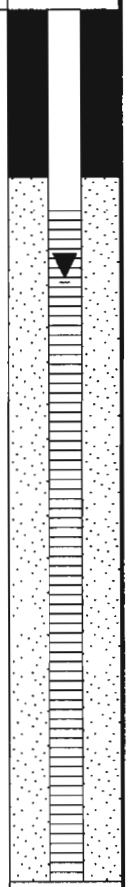
DRILLING METHOD: 4" FJC

WATER LEVEL OBSERVATIONS DURING DRILLING	DATE	TIME	READING TYPE	WATER DEPTH (ft)	CASING BOTTOM (ft)	HOLE BOTTOM (ft)

SAMP./CORE NUMBER	SAMP. ADV. (ft) LEN. CORE (ft)	RECOVERY (ft)	Blows Per 6" on Split Spoon Sampler	"N" Value or RQD%	DEPTH (Feet)	DESCRIPTION AND CLASSIFICATION	ELEVATION (Feet)
S-1	2	0.5	1-0-0-1	0	2	**TOPSOIL** **f. SAND and SILT**, trace clay, little c. sand, little roots, brownish gray, v. loose, saturated **(SM)**	294
					4		292
S-2	2	0.6	2-2-2-2	4	6	**f. SAND and SILT**, gray, v. loose, saturated **(SM)**	290 288
					8		286
S-3	2	2	2-1-2-2	3	10 12	**f. SAND**, trace silt, gray, v. loose, saturated **(SP)**	284 282
					14	End of Boring at 13 ft	280
					16		278
					18		276

Remarks on Character of Drilling, Water Return, etc.

WATER LEVELS AND/OR WELL DATA



SUBSURFACE LOG LOGS (12206.4008).GPJ UPDATEDCHA.GDT 7/30/07

CLOUGH HARBOUR & ASSOCIATES LLP

Rapp Road Eastern Expansion
SUBSURFACE LOG
HOLE NUMBER MW-A-16A

PROJECT NUMBER: 12206-4008-1102 7/9/2007

LOCATION: Albany, New York

CLIENT: City of Albany DGS

CONTRACTOR: ADT

DRILLER: Mike INSPECTOR: R.Hall

START DATE and TIME: 6/1/2007 8:00:00 AM

FINISH DATE and TIME: 6/1/2007 9:10:00 AM

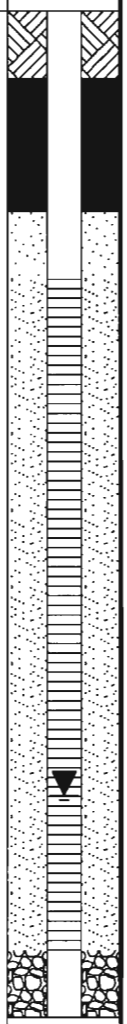
SURFACE ELEV: CHECKED BY: K. Cowan

DRILL FLUID: DRILLING METHOD: 4" FJC

WATER LEVEL OBSERVATIONS DURING DRILLING	DATE	TIME	READING TYPE	WATER DEPTH (ft)	CASING BOTTOM (ft)	HOLE BOTTOM (ft)

SAMP./CORE NUMBER	SAMP. ADV. (ft) LEN. CORE (ft)	RECOVERY (ft)	Blows Per 6" on Split Spoon Sampler	"N" Value or RQD%	DEPTH (Feet)	DESCRIPTION AND CLASSIFICATION	ELEVATION (Feet)	Remarks on Character of Drilling, Water Return, etc.
						TOPSOIL, Brown		
1	2	0.6	1-1-2-2	03%		**f. SAND**, trace organics, tan, very loose, moist **(SP)**		
					2	**f. SAND**, trace organics, layers of grey/tan, very loose, moist **(SP)**		
2	2	1.8	5-3-2-2	05%				
					4	**f. SAND**, trace organics, layers of grey/tan, very loose, moist **(SP)**		
3	3	1.2	1-1-1-WH	02%		**f. SAND**, tan, very loose, soft, moist **(SP)**		
					6			
						f. SAND, tan, very loose, soft, moist **(SP)**		
4	2	1.9	3-1-2-1	03%	8	**SILT**, little organics, black earth, very loose, moist **(ML)**		
						f. SAND, little organics, trace silt, very loose gray/tan **(SP)**		
						SILT and f. SAND, trace organics, gray, very loose, wet **(SM)**		
5	2	1.4	1-1-1-1	02%	10	**f. SAND**, trace organic, trace f. gravel, gray, very loose, wet **(SP)**		
						f. SAND, gray, very loose, wet **(SM)**		
6	2	1.9	2-2-2-2	04%	12			
						f. SAND, gray, very loose, wet **(SP)**		
7	2		1-1-WH-1	0%	14			
						End of Boring at 15 ft		
					16			
					18			

WATER LEVELS AND/OR WELL DATA



CLOUGH HARBOUR & ASSOCIATES LLP

Rapp Road Eastern Expansion
SUBSURFACE LOG
HOLE NUMBER MW-A16B

PROJECT NUMBER: 12206-4008-1102 7/9/2007

LOCATION: Albany, New York

CLIENT: City of Albany DGS

CONTRACTOR: ADT

DRILLER: Mike INSPECTOR: R. Hall

START DATE and TIME: 6/1/2007 10:30:00 AM

FINISH DATE and TIME: 6/1/2007 11:00:00 AM

SURFACE ELEV: CHECKED BY: K. Cowan

DRILL FLUID: DRILLING METHOD: 4" FJC

WATER LEVEL OBSERVATIONS DURING DRILLING	DATE	TIME	READING TYPE	WATER DEPTH (ft)	CASING BOTTOM (ft)	HOLE BOTTOM (ft)

SAMP./CORE NUMBER	SAMP. ADV. (ft) LEN. CORE (ft)	RECOVERY (ft)	Blows Per 6" on Split Spoon Sampler	"N" Value or RQD%	SAMPLE	DEPTH (Feet)	GRAPHICS	DESCRIPTION AND CLASSIFICATION	ELEVATION (Feet)	Remarks on Character of Drilling, Water Return, etc.	WATER LEVELS AND/OR WELL DATA
	2	0.6	1-1-2-2	3				**TOPSOIL**, Brown **f. SAND**, Gray/Tan, trace organics, moist **(SP)** No Recovery			
						2		**f. SAND**, Gray/Tan, trace organics, moist **(SP)**		2' to 4': Interbedded gray/tan sands	
	2	1.8	5-3-2-2	5							
						4		No Recovery **f. SAND**, Tan, trace organics, moist **(SP)**			
	2	1.3	1-1-1-wh	2							
								No Recovery			
						6		End of Boring at 6 ft		End of Boring @ 6 feet Augered through water line. Repairs to be Completed by City of Albany. Move 20' South and redrill, refer to boring log MW-A16R.	
						8					
						10					
						12					
						14					
						16					
						18					

CLOUGH HARBOUR & ASSOCIATES LLP

Rapp Road Eastern Expansion
SUBSURFACE LOG
HOLE NUMBER MW-A17

PROJECT NUMBER: 12206-4008-1102 7/9/2007

LOCATION: Albany, New York

CLIENT: City of Albany DGS

CONTRACTOR: ADT

DRILLER: Mike INSPECTOR: R. Hall

START DATE and TIME: 6/1/2007 11:15:00 AM

FINISH DATE and TIME: 6/1/2007 12:30:00 AM

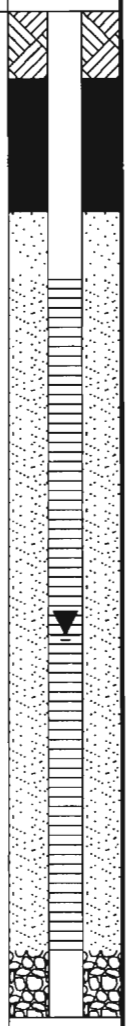
SURFACE ELEV: CHECKED BY: K. Cowan

DRILL FLUID: DRILLING METHOD: 4" FJC

WATER LEVEL OBSERVATIONS DURING DRILLING	DATE	TIME	READING TYPE	WATER DEPTH (ft)	CASING BOTTOM (ft)	HOLE BOTTOM (ft)

SAMP./CORE NUMBER	SAMP. ADV. (ft) LEN. CORE (ft)	RECOVERY (ft)	Blows Per 6" on Split Spoon Sampler	"N" Value or RQD%	DEPTH (Feet)	DESCRIPTION AND CLASSIFICATION	ELEVATION (Feet)	Remarks on Character of Drilling, Water Return, etc.
1	2	0.2	4-5-3-4	0%		**TOPSOIL (SP)**		
						f. SAND, trace c. gravel, trace organics, brown, loose, moist **(SP)**		
					2	**f. SAND**, trace silt, orange brown, medium compact, moist **(SP)**		
2	2	1.1	2-2-10-8	0%		**c. GRAVEL**, medium compact, moist **(SP)**		
						f. SAND, Some Silt, trace clay, trace organics, dark brown, medium compact, moist **(SP)**		
					4	**f. SAND**, trace Silt, orange, loose moist **(SP)**		
3	2	1.5	3-4-4-3	0%		**f. SAND**, little silt, grey, loose, wet **(SP)**		
					6	**f. SAND**, trace silt, trace m. sand, trace organics, very loose, saturated **(SP)**		slight organic odor
4	2	1.5	2-3-1-2	0%				
					8	**f. SAND**, little m. sand, gray, very loose, saturated **(SP)**		
5	2	1.3	1-WH-1-WH	0%				
					10	**f. SAND**, trace m. sand, gray, very loose, saturated **(SP)**		
6	2	1.2	WH-1-1-1	0%				
					12	**f. SAND**, trace m. sand, gray, loose, saturated **(SP)**		
7	2	0.6	1-3-2-6	0%				
					14	End of Boring at 14 ft		end of boring install MW-A17.
					16			
					18			

WATER LEVELS AND/OR WELL DATA



SUBSURFACE LOG LOGS (12206.4008).GPJ UPDATEDCHA.GDT 7/30/07

APPENDIX D

Upstate Laboratories, Inc
6034 Corporate Drive
East Syracuse, NY 13057

QC SOP No. : LQM-6
Revision No. : 6
Effective Date : 05/09/06
Revision Date : 05/09/06

Quality Control Division

Laboratory Quality Manual

Approved:

Anthony Scala, Technical Director

David Lennon, Laboratory Manager

Corey Niland, QA/QC Officer

All laboratory employees are required to read and document that they have read each version of the Laboratory Quality Manual. Each employee should sign forms QC-ETF-1 and QC-ETF-2 (see Appendix A and B) and then have this form submitted to HR to be kept in the employee training file.

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1. Quality Policy

It is the laboratory's objective to provide technically valid laboratory test results that accurately and precisely represent the quality of a client's sample being analyzed. The laboratory is committed to reaching and routinely performing laboratory work that is in conformance to the NELAC standards, resulting in the overall improvement of the laboratory's quality over time. Demonstration of the laboratory's commitment to reach its goal will result in the following:

- Adequately staffed and equipped facility,
- Successful participation in the proficiency testing programs operated by the New York State Environmental Laboratory Approval Program, the National Institute for Occupational Safety and Health and the US Environmental Protection Agency.
- Successful implementation of a NELAC compliant quality system,
- Annual internal audits with management review,
- Successful biennial assessments by the New York State Environmental Laboratory Approval Program,
- Timely reporting of laboratory test results to the regulating authorities,
- Laboratory test results that are supported by quality control data and documented laboratory testing procedures.

A copy of the quality policy is given to employees during the training of new hires. It is understood, implemented and maintained by employees at all levels. This is documented by management through the employee evaluation process, the training procedure, the internal audit process and the document control process.

2. Accredited Test Methods

Test	Method	Reference
Acidity	2310 B (4a)	9
Alcohols & Ketones	8015 A	3
Alkalinity, Titrametric	2320 B	9
Alkalinity, Colorimetric	310.2	1
Biological Oxygen Demand	5210 B	9
	405.1	1
Bromide	300.0	11
Chemical Oxygen Demand	8000	14
	410.4	1
Chloride (Titration)	4500-Cl C	9
	325.3	1
	9252 A	3
Chloride (Colorimetric)	4500-Cl E	9
	325.2	1
Chlorine	4500-Cl G	9
Chlorine Demand	2350 B	9
Coliform, Fecal	9222D	9
Coliform, Total	9222B	9
Color	2120 B	9
	110.2	1
Corrosivity	2330	3

2. Accredited Test Methods Con't

Test	Method	Reference
	1110	3
Cyanide	4500-CN E	9
	335.4	1
	9010 B	3
	335.2 CLP-M	8
	9014	3
Cyanide, Amenable	4500-CN G	9
	9014	3
Cyanide, Weak Acid Dissociable	4500-CN I	9
Flashpoint	1010	3
Fluoride	4500-F C	9
	340.2	1
Formaldehyde	3500	12
Hardness, by Calculation	200.7	5
Herbicides-TCLP	8151A	3
Herbicides-Expanded List	8151A	3
Inorganics by CLP:		
ICP Metals	200.7 CLP-M	8
Graphite Furnace	200.9 CLP-M	8
Mercury	245.2 CLP-M	8
Cyanide	335.2 CLP-M	8
Metals:		
Metals in Oil by ICP	D5185-91	10
Aluminum by ICP	200.7	5
	3010A	3
	6010B	3
Antimony by ICP	200.7	5
	3005A	3
	6010B	3
Antimony by AA Furnace	200.9	5
Arsenic by ICP	200.7	5
	3010A	3
	6010B	3
Barium by ICP	200.7	5
	3010A	3
	6010B	3
Beryllium by ICP	200.7	5
	3010A	3
	6010B	3
	NIOSH 7300	12
Boron	200.7	5
	6010B	3
Cadmium by ICP	200.7	5
	3010A	3
	6010B	3
Calcium by ICP	200.7	5
	3010A	3

2. Accredited Test Methods, continued

Test	Method	Reference
	6010B	3
Chromium, Hexavalent	3500-Cr D	9
	7196 A	3
Chromium by ICP	200.7	5
	3005A	
	3010A	3
	6010B	3
	NIOSH 7300	12
Cobalt by ICP	200.7	5
	3010A	3
	6010B	3
Copper by ICP	200.7	5
	3010A	3
	6010B	3
Gold	200.7	1
Iron by ICP	200.7	5
	3005A	3
	3010A	3
	6010B	3
Lead by AA Furnace	200.9	5
	239.1	1
	239.2	1
	App14.2, HUD 6-95	
	7421	3
	239.2 CLP-M	8
Lead by ICP	200.7	5
	3005A	3
	3010A	3
	3020-A	3
	6010B	3
Magnesium by ICP	200.7	5
	3010A	3
	6010	3
Manganese by ICP	200.7	5
	3010A	3
	6010B	3
Mercury by AA Cold Vapor		
Water	245.2	5
	7470A	3
	245.2 CLP-M	8
Solids	7471A	3
	245.2 CLP-M	8
Air	245.2	5
Molybdenum by ICP	200.7	5
	6010B	3
Nickel by ICP	200.7	5
	3010A	
	6010B	3

2. Accredited Test Methods, continued

Test	Method	Reference
Palladium	253.2	5
Platinum	355.2	5
Potassium by ICP	200.7	5
	3010A	3
	6010B	3
Selenium by AA Furnace	200.9	5
Selenium by ICP	200.7	5
	3010A	3
	6010B	3
Silica (SiO2)	200.7	5
	6010B	3
Silver by ICP	200.7	5
	3005A	3
	6010B	3
Sodium by ICP	200.7	5
	3010A	3
Thallium by AA Furnace	200.9	5
Thallium by ICP	200.7	5
	3010A	3
	6010B	3
Tin by ICP	200.7	5
	6010B	3
Titanium by ICP	200.7	5
Vanadium by ICP	200.7	5
	3010A	3
	6010B	3
Zinc by ICP	200.7	5
	3010A	3
	6010B	3
Nitrogen Dioxide	NIOSH 3,6700	12
Nitrogen Oxide	40CFR/60,1984 AppxA M7	
Nitrogen, Ammonia-Titrametric	350.1	1
	350.2	1
	4500-NH3 E	9
Nitrogen, Ammonia-Colorimetric	350.1	1
	4500-NH3 H	9
Nitrogen, Kjeldahl, Titrametric	351.3	1
	4500-NH3 E	9
Nitrogen, Nitrate (as N)	353.1	1
	353.2	1
	4500-NO3 F	9
Nitrogen, Nitrate-Nitrite		
Automated Hydrazine	353.1	1
	353.2	1
	4500-NO3 H	9

2. Accredited Test Methods, continued

Test	Method	Reference
Nitrogen, Nitrite		
Spectrophotometric	354.1	1
	4500-NO2 B	9
	354.1	
Odor	E140.1	1
	2150 B	9
Oil & Grease in Water	1664A	15
	413.1	1
Oil & Grease in Solids	9071 A	3
Oil & Grease, Hydrocarbons	1664A	3
	413.1	1
	5520 F	3
Oxygen, Winkler	4500-O C	9
Oxygen, Electrode	4500-O G	9
Particulates	40CFR/60,1985 APPxB	
Particulates, Suspended	40CFR/60,1985 APPxB	
Paint Filter Test	9095	8
PCB (Only)	608	2
	8082	3
	NYS DOH 311-1	7
Pesticides & PCBs:		
Priority Pollutant	608	2
TCLP	8081	3
Target Compound List	8081	8
TCL by NYSDEC ASP	91-3	8
NYSDEC Part 360-Expanded List	8082	3
Petroleum Distillates:		
By IR Spectrophotometry	418.1	1
	9073	3
By Gas Chromotography	310.13	7
By 8021 (STARS)	8021B	3
PNAs (STARS)	8270C	3
BTX	8021B	3
Petroleum Distillates:		
BTU	D3286-85	10
	ASTM D2015-77	10
Sulfur	ASTM D1552	10
	ASTM D4239	10
	D3286-85	10
	375.4	1
Viscosity	D445-86	10
% Ash	D482-87	10
% Chlorine (TOX)	D808-87	10
Hydrazine	D1385-86	10

2. Accredited Test Methods, continued

Test	Method	Reference
pH in Water	4500-H B	9
	9040 B	3
	150.1	1
pH in Solids	9045 B	3
Phenols (Phenolics)	420.1	1
	9065	3
Phosphorus, Total	4500-P E	9
	365.2	1
Phosphorus, Ortho	4500-P E	9
	365.2	1
	265.1	1
Reactivity:		
Cyanide	9010 B	3
Sulfide, Titrametric	9030 B	3
	SW-846 Ch7, Sec7.3	3
Semivolatile Organic Compounds by GC/MS:		
Priority Pollutants(B/N,A/E) 625		2
TCLP	8270C	3
	8015B	9
NYSDEC Part 360-		
Expanded List	8270C	3
PNAs (STARS)	8270C	3
Target Compound List	8270C	8
TCL by NYSDEC ASP	91-2	8
Solids (Residues):		
Total and Volatile	2540 B	9
	160.3	1
T and V-Suspended	2540 D	9
	160.2	1
Dissolved	2540 C	9
	160.1	1
Settable	2540 F	9
Total in Domestic Sludge	2540 G	9
Percent	2540 G	9
%solids	ASTM D2697-86	10
	ASTM D2216	10
Volatile Content	40CRF/P61,1984 AppxA Meth	24
% Water	ASTM D4006	10
Specific Conductivity	2510 C	9
	120.1	1
	9050	3
Standard Plate Count	9215B	9
Sulfate	375.4	1
	9038	3
Sulfide, Colorimetric	4500-S D	9

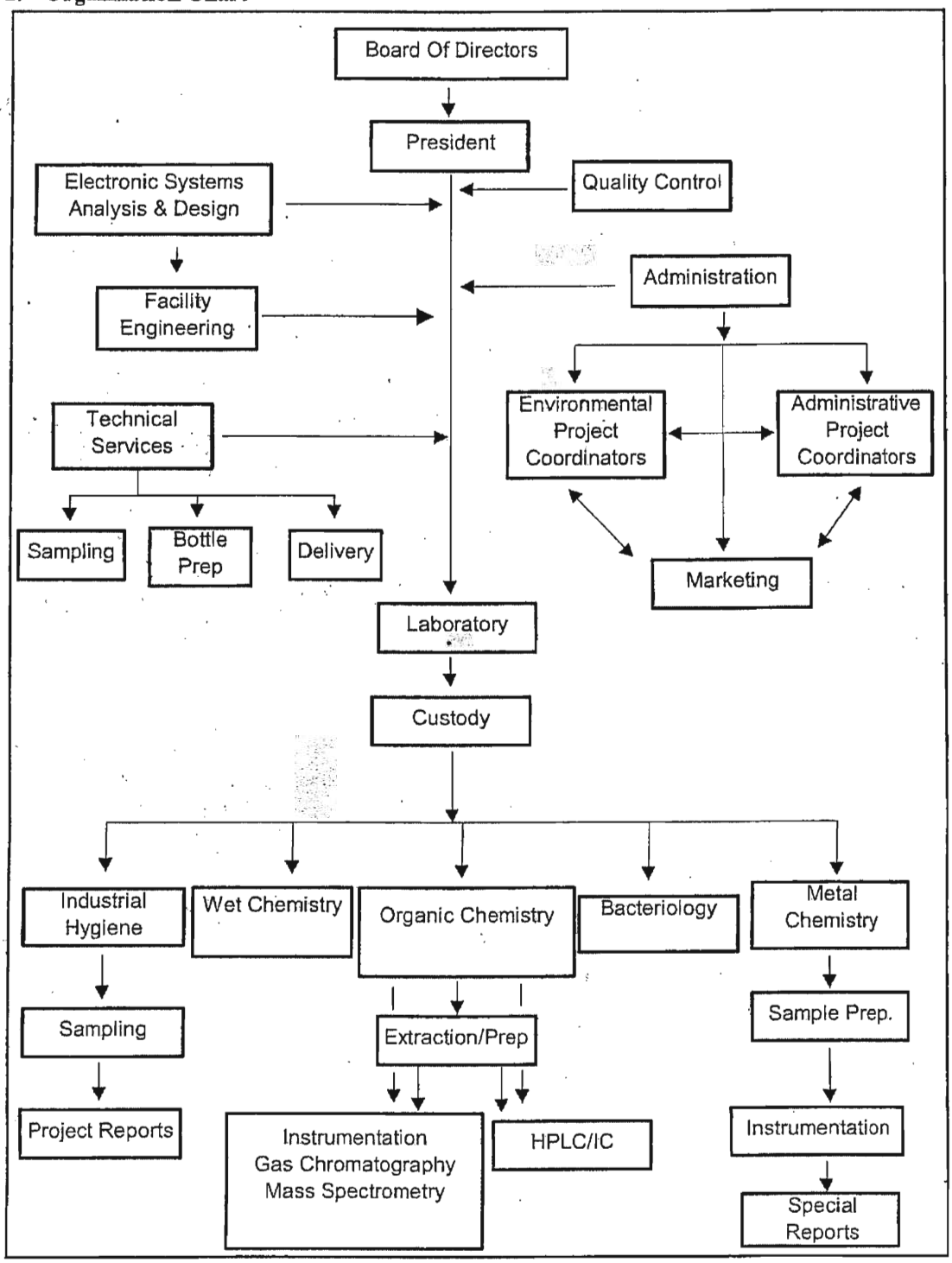
2. Accredited Test Methods, continued

Test	Method	Reference
	9030B	9
	9034	3
	376.2	1
Sulfite	4500-SO3 B	9
Surfactants (MBAS)	5540 C	9
	425.1	1
Sulfur Dioxide	40CFR/60,1984 AppxA M6	
TCLP	1311	3
Temperature	2550 B	9
	170.1	1
TOC	5310 B	9
	415.1	1
	9060	3
Total Organic Halogens	D808-87	10
Turbidity	2130 B	9
	9038	3
	9039	
EP Toxicity	SW-846 1310	3
Volatile Organic Compounds by GC:		
EPA Method 601/602	601/602	2
EPA Method 502.2	502.2	4
Trihalomethanes	502.2	4
EPA Method 8021	8021B	3
Petroleum (STARS)	8021B	3
EPA Method 8010/8020	8010/8020	3
BTX	8021B	3
Air Methods	NIOSH 2,	12
Volatile Organic Compounds by GC/MS:		
Priority Pollutants	624	2
TCLP	8260B	3
NYSDEC Part 360- Baseline & Expanded	8260B	3
EPA Appendix I & II	8260B	3
Target Compound List	8260B	8
TCL by NYSDEC ASP	91-1	8
524.2	524.2	4
Air Methods	NIOSH 2, TO-14	12

References:

1) "Methods for the Chemical Analysis of Water and Waste," USEPA, Environmental Monitoring Systems Laboratory, Cincinnati, EPA 600/4-79-020, revised March 1993.
2) "Guidelines Establishing Test Procedures for the Analyses of Pollutants Under the Clean Water Act," 40CFR Part 136, October 26, 1984.
3) "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods," USEPA, SW-846, 3rd ED.
4) "Methods for the Determination of Organic Compounds in Drinking Water," USEPA, EMSL, Cincinnati, 600/4-88/039, December 1988.
5) "Methods for the Determination of Metals in Environmental Samples Supplement I," USEPA, ORD, Washington D.C., 600/R-94-111, May 1994.
7) "Analytical Handbook," Laboratory of Organic Analytical Chemistry, Wadsworth Center for Laboratories and Research, New York State Department of Health, August 1991.
8) "Analytical Services Protocol," New York State Department of Environmental Protection, 10/95 revision.
9) "Standard Methods for the Examination of Water and Wastewater," APHA, AWWA, WEF, 18th ED., 1992.
10) "Annual Book of ASTM Standards," American Society for Testing and Materials, Philadelphia, PA, 1989.
11) "Determination of Inorganic Anions by Ion Chromatography," Method 300.0, USEPA EMSL, August 1993, Revision 2.1.
12) "NIOSH Manual of Analytical Methods," NIOSH.
14) "Chemical Oxygen Demand," Method 8000, Hach Handbook of Water Analyses, 1979, Hach Chemical Company.
15) 40 CFR Part 136.5

2. Organization Chart



4. Relationship Between Management, Technical Operations, Support Services and the Quality System

A. The lab director has the overall responsibility for the technical operation of the lab. The lab director is also responsible for arranging and overseeing all support services including instrument service contracts, subcontracting sample analysis and physical maintenance of the laboratory.

B. The lab manager is responsible for providing supervision to all laboratory personnel to ensure adherence to documented laboratory procedures. When the lab manager is not present in the lab, one operator from each area is appointed that is familiar with the calibration and test procedures, the objective of the calibration or test and the assessment of test results. The lab manager reports directly to the lab director.

C. The lab manager shall certify that personnel with the appropriate educational and/or technical background perform all tests for which the lab is accredited. Documentation includes college transcripts, past work experience, and on-site and off-site training certificates.

D. The quality assurance officer shall ensure that the lab's policies and objectives for quality of testing services are documented in the Quality Manual. The QA officer shall also ensure that the Quality Manual is communicated to, understood and implemented by all personnel concerned. Documentation includes signed statements in each analyst's training file.

E. The quality assurance officer is responsible for the quality system and its implementation. The QA officer has direct access to the highest level of management at which decisions are taken on lab policy and/or resources, and to the lab director. When the QA officer is not present, a deputy shall be appointed.

5. Job Descriptions of Staff

Laboratory / Technical Director – Responsible for the overall technical operation of the laboratory. The lab director is also in charge of overseeing all support services, physical maintenance of the building and interacting with all regulatory agencies.

Laboratory Manager – Responsible for providing supervision to all laboratory personnel to ensure adherence to documented policies and procedures. The lab manager is also in charge of hiring laboratory technicians and certifying that all personnel performing accredited tests have the appropriate educational and/or technical background.

Quality Assurance Officer – Responsible for the laboratory's quality system and its implementation. This includes, but is not limited to, the writing and revising of Standard Operating Procedures (SOPs), semi-annual internal audits, annual quality review meeting with management and preparation of laboratory control charts.

Environmental Project Coordinator (EPC) – Responsible for acting as a liaison between laboratory and clients. Duties include, but are not limited to, organizing sampling schedules and sample pick-up, writing work orders, writing price quotations, using data request forms to retrieve test results from the laboratory and verifying test results.

Administrative Project Coordinator (APC) – Responsible for compiling result data into final reports for clients, invoicing for projects completed, first draft reviews and secretarial work.

Laboratory Technician – Responsible for performing day to day tests on samples in accordance with the laboratory's quality system and method SOPs.

Sample Custodian – Responsible for properly accepting samples, assigning each sample a unique ULI sample number, storing samples in a secure walk-in cooler under conditions that ensure regulatory compliance, logging samples into the LIMS according to the chain of custody, and disposing of samples in an environmentally sound manner.

6. Deputy List

In the absence of key personnel, the following substitutions will occur:

Laboratory Manager – Dave Lennon
- Deputy replacement – Anthony J. Scala (Laboratory Director)

Laboratory Director – Anthony J. Scala
- Deputy replacement (Laboratory) – Dave Lennon
- Deputy replacement (Administrative) – Carole Scala
- Deputy replacement (Marketing) – Pete Rundell

Quality Assurance/Quality Control Officer – Corey Niland
- Deputy Replacement –Kristine Locker (Supervisor, GCMS VOC/SOC and Microbiology)

Environmental Project Coordinator Manager – Pete Fricano
- Deputy Replacement – Anthony Scala (Laboratory Director)

Sample Custodian – Kristina Crump

Office Manager – Carole Scala
- Deputy replacement – Jean Koch (Accounts Receivable / Administrative Assistant)

Accounting Manager / Human Resource Manager – Susan Bishop
- Deputy replacement – Bill Kimball

IT Director – David Saint Amour
- Deputy replacement - Vendor

Maintenance Engineer – Mike Johnson

7. Document Control

All operating procedures, manuals (including this quality manual), and documents are subject to document control. Distribution of controlled documents is limited to those indicated on the document distribution list. Controlled documents are indicated by the paper color located in the footer of each page. Uncontrolled copies are indicated by reproduction on any other type paper. The Quality Assurance Officer controls the supply of paper used to produce controlled copies.

The purpose of the document control system is to ensure that only the most recent revisions are available to the appropriate personnel, revisions are made on a timely basis, and revisions receive the required approvals. All internal regulatory documentation, standard operating procedures, work instructions, service manuals and product instructions are under document control. The QA Officer is responsible for the document control system and keeps a master list of the current revision and location of all controlled documents in the laboratory. The Laboratory Director and the Quality

Assurance Officer approve all newly released documents and revised documents. Any employee can request to change a document or policy. Where necessary, the Quality Assurance Officer may store retained obsolete documents, which may be kept for legal reasons or knowledge preservation. Each page of documents produced by the laboratory will contain the effective date, revision number, document number and document title.

8. Traceability of Measurements

Verification and/or validation of equipment, such as balances, thermometers and spectrophotometers, shall be performed with the National Institute of Standards and Technology (NIST) traceable standards. Calibration certificates must indicate NIST Traceability along with measured results and the associated uncertainty. Reference standards, such as Class S weights and NIST traceable thermometers are used for calibration only and are calibrated by a company that can provide traceability to NIST.

9. Review of All New Work

All new work is initiated by the Laboratory Director who delegates responsibilities for the new work to his supporting staff members. Affected staff meets prior to initiation of new work in order to determine if the appropriate facilities, manpower and time for analysis are available. The plan for any new projects shall be reviewed and approved by the Laboratory Director before starting such work. For any new testing method, the designated employee shall write a standard operating procedure and demonstrate capability to perform those tests prior to reporting results. The SOP(s) shall be under document control and a Demonstration of Capability Statement(s) must be on file.

10. Calibration/Verification of Test Procedures

A. Calibration and/or verification procedures are designed to ensure that the data will be of known quality and be appropriate for a given regulation or decision. Details of instrument calibration and/or test verification procedures including calibration range, standardizations, calculations and acceptance criteria are included or referenced in each test method SOP.

B. Sufficient raw data are retained to reconstruct the calibration used to calculate the sample results.

C. All calibrations are verified with a second source standard which is traceable to a national standard, when available.

D. Calibration standards include a concentration at or below the regulatory/decision level, but above the laboratory's detection limit.

E. Results of samples must be within the calibration range (bracketed by standards) or the results must be flagged as having less certainty.

F. No data associated with a calibration that is out-of-control will be reported.

G. Method Detection Limits (MDL) – the MDL has been determined by the laboratory and documented for each analyte where spiking solutions are available. MDL can be determined by the procedure presented in 40 CFR Part 136, Appendix B. All sample processing steps of the analytical methods are included in the determination of the MDL. The standard deviation of the analysis of seven portions of spiked reagent water is calculated. The spiked reagent water is at an estimated concentration between the actual MDL and 5 times the actual MDL. The MDL is the product of 3.14 times the calculated standard deviation. The MDL should be about one fifth of the practical and routinely achievable detection level that can be reported with relatively good certainty that any reported value is reliable.

11. Sample Handling

A. Sample Acceptance Policy – One full-time sample custodian is responsible for the receipt of all samples collected by the outer offices, field technicians and the clients themselves. All samples are checked to see that they arrive at the proper temperature (1°C to 6°C) or on ice, are accompanied by a complete chain of custody form, are received intact and are sampled in the correct container with the proper volume for the parameter(s) requested. A sample receipt checklist is completed for all projects, and any problems with the samples is documented and brought to the attention of the Environmental Project Coordinator (EPC). The EPC then contacts the client to determine if the samples need to be re-collected or if the laboratory should continue with the analysis. Each sample container is uniquely identified with a durable label. The sample collection policy is available to all sample collectors. Obtaining sample aliquots from a submitted sample as part of the test methods is carried out using procedures as written in each method SOP. Appropriate techniques to obtain representative subsamples are employed and documented in the method SOP.

The samples must be submitted to the laboratory with records of field ID, location, date and time of collection, collector's name, preservation, sample type and remarks. Complete preservation and handling instructions are furnished to the sample collectors.

Summary of Sampling and Handling Requirements

Analyte	Container	Preservation	Max. Holding Time
PUBLIC DRINKING WATER REQUIREMENTS:			
Coliform (Total)	P,G	0.008%$Na_2S_2O_3$	24 hr
Std. Plate Count	P,G	0.008%$Na_2S_2O_3$	24 hr
Inorganic Tests:			
Alkalinity	P,G	Headspace free-4°C	14 days
Antimony	P,G	HNO_3 to pH<2	6 mo
Arsenic	P,G	HNO_3 to pH<2	6 mo
Barium	P,G	HNO_3 to pH<2	6 mo
Beryllium	P,G	HNO_3 to pH<2	6 mo
Cadmium	P,G	HNO_3 to pH<2	6 mo
Calcium	P,G	HNO_3 to pH<2	6 mo
Chloride	P,G	None	28 days
Chromium	P,G	HNO_3 to pH<2	6 mo
Color	P,G	Cool, 4°C	48 hr
Conductivity	P,G	Cool, 4°C	48 hr
Copper	P,G	HNO_3 to pH<2	6 mo
Cyanide	P,G	Cool, 4°C NaOH To pH>12	14 days
Fluoride	P,G	None	28 days
Lead	P,G	HNO_3 to pH<2	6 mo
Mercury	G	HNO_3 to pH<2	28 days
	P	HNO_3 to pH<2	14 days
Nickel	P,G	HNO_3 to pH<2	6 mo
Nitrate	P,G	Cool, 4°C	48 hr
Nitrite	P,G	Cool, 4°C	48 hr
pH	P,G	None	1 hr
Phosphorus (Ortho)	P,G	Cool, 4°C	48 hr
Selenium	P,G	HNO_3 to pH<2	6 mo
Silica	P	Cool, 4°C	28 days
Sodium	P,G	HNO_3 to pH<2	6 mo
Sulfate	P,G	Cool, 4°C	28 days
Thallium	P,G	HNO_3 to pH<2	6 mo
T- Filterable Residue	P,G	Cool, 4°C	7 days

Analyte	Container	Preservation	Max. Holding Time
PUBLIC DRINKING WATER REQUIREMENTS:			
Inorganic Tests:			
Organic Tests:			
Trihalomethanes	G, with Teflon Lined Septum	0.008%$Na_2S_2O_3$	14 days
Volatile Halocarbons	G, with Teflon Lined Septum	Ascorbic Acid added to empty sample bottle Then add 1:1 HCl to pH<2. Cool 4°C	14 days
Method 525.2	G, free of plastic Tubing, gaskets	Cool, 4°C; Remove Cl residual. Adjust pH<2 with 6N HCl.	Extract within 7 days Analyze within 30 days of sample collection.
ENVIRONMENTAL ANALYSES/WATER REQUIREMENTS:			
Coliform (Total)	P,G	Cool, 4°C 0.008%$Na_2S_2O_3$	24 hr
Coliform (Fecal)	P,G	Cool, 4°C 0.008%$Na_2S_2O_3$	6 hr
Inorganic Tests:			
Acidity	P,G	Headspace free Cool, 4°C	14 days
Alkalinity	P,G	Headspace free Cool, 4°C	14 days
Ammonia	P,G	Cool, 4°C H_2SO_4 to pH<2	28 days
BOD	P,G	Cool, 4°C	48 hr
Bromide	P,G	None	28 days
CBOD	P,G	Cool, 4°C	48 hr
COD	P,G	Cool, 4°C H_2SO_4 to pH<2	28 days
Chloride	P,G	None	28 days
Color	P,G	Cool, 4°C	48 hr
Cyanide (Total & Amenable)	P,G	Cool, 4°C NaOH to pH>12, 0.6g ascorbic acid	14 days
Fluoride	P	None	28 days
Hardness	P,G	HNO_3 to pH<2 H_2SO_4 to pH<2	6 mo
pH	P,G	None	Immediately
Kjeldahl and Organic Nitrogen	P,G	Cool, 4°C H_2SO_4 to pH<2	28 days
Metals, except Boron, $Cr^{=6}$, & Mercury	P,G	HNO_3 to pH<2	6 mo

Analyte	Container	Preservation	Max. Holding Time
ENVIRONMENTAL ANALYSES/WATER REQUIREMENTS:			
Inorganic Tests:			
Boron	P, Quartz	HNO_3 to pH<2	6 mo
Cr^{+6}	P,G	Cool, 4°C	24 hr
Mercury	P,G	HNO_3 to pH<2	28 days
Nitrate	P,G	Cool, 4°C	48 hr
Nitrate – Nitrite	P,G	Cool, 4°C H_2SO_4 to pH<2	28 days
Nitrite	P,G	Cool, 4°C	48 hr
Oil & Grease	G	Cool, 4°C HCl or H_2SO_4 to pH<2	28 days
Organic Carbon	P,G	Cool, 4°C, HCl H_3PO_4 or H_2SO_4 to pH<2	28 days
Orthophosphate	P,G	Filter immediately Cool, 4°C	48 hr
Phenols	G	Cool, 4°C H_2SO_4 to pH<2	28 days
Phosphorus (Total)	P,G	Cool, 4°C H_2SO_4 to pH<2	28 days
Solids, Total	P,G	Cool, 4°C	7 days
Solids, Filterable	P,G	Cool, 4°C	7 days
Solids, Nonfilterable	P,G	Cool, 4°C	7 days
Solids, Volatile	P,G	Cool, 4°C	7 days
Silica	P,Quartz	Cool, 4°C	28 days
Specific Conductance	P,G	Cool, 4°C	28 days
Sulfate	P,G	Cool, 4°C	28 days
Sulfide	P,G	Cool, 4°C, add Zinc acetate plus NaOH to pH>9	7 days
Surfactants (MBAS)	P,G	Cool, 4°C	48 hr
Temperature	P,G	None	Immediately
Organic Tests:			
Purgeable Halocarbons	G, Teflon Lined Septum	Cool, 4°C Ascorbic Acid for Residual Chlorine	14 days
Purgeable Aromatics	G, Teflon Lined Septum	Cool, 4°C, 0.008% $Na_2S_2O_3$ for Residual Chlorine	14 days
Acrolein & Acrylonitrile	G, Teflon Lined Septum	Cool, 4°C, 0.008% $Na_2S_2O_3$ for Residual Chlorine	14 days
Phenols	G, Teflon Lined Septum	Cool, 4°C, 0.008% $Na_2S_2O_3$ for Residual Chlorine	7 days until extraction, 40 days after extraction

Analyte	Container	Preservation	Max. Holding Time
ENVIRONMENTAL ANALYSES/WATER REQUIREMENTS:			
Organic Tests:			
PCB's	G, Teflon Lined cap	Cool, 4°C	7 days until extraction, 40 days after extraction
Pesticides	G, Teflon Lined cap	Cool, 4°C	72 hr
		Cool, 4°C pH 5-9	7 days until extraction
		0.008%$Na_2S_2O_3$ for Residual Chlorine if Aldrin is to be determined	40 days after extraction
Polynuclear Aromatic	G, Teflon Lined cap	Cool, 4°C	7 days until extraction
		0.08% $Na_2S_2O_3$	40 days after extraction
		For Residual Chlorine only, store in dark	

B. Sample Receipt Protocol – Upon receipt, the condition of the samples, including all items specified in the sample acceptance policy, are checked and recorded. Samples with a temperature of 1°C to 6°C are acceptable if 4°C is specified. Samples that have not had time to cool are acceptable if they arrive on ice and cooling has begun. These samples are noted as "recently sampled" on sample receipt checklist and are immediately put on ice or placed in the walk-in cooler. Acid-preserved samples are acceptable if test with pH paper yields a pH of <2. Base-preserved samples are acceptable if test with pH paper yields a pH of >12. All samples that are improperly preserved are adjusted to the proper pH with the appropriate preservative and noted on sample receipt checklist. All samples that need preservation adjusting are recorded in the Sample Preservation Log.

Sample records are linked to the sample ID and include all required information specified by the sample acceptance policy. Samples are stored according to conditions specified in each test SOP. The laboratory has documented procedures and appropriate facilities to avoid deterioration, contamination, or damage to samples during storage, handling, preparation and testing. Storage conditions are maintained, monitored, and recorded.

C. Procedures for handling submitted samples

1. Obtaining sample aliquots from a submitted sample as part of the test method is carried out using procedures as written in each method SOP. Appropriate techniques to obtain representative subsamples are employed.
2. Each sample container is uniquely identified using a durable label. For this laboratory, the day of the year, the last two digits of the year, and the sample ID number (also written on the Chain of Custody) is used to identify all samples submitted.
3. The sample acceptance policy is documented and available to the sample collectors. If any samples do not meet any of the requirements of the acceptance policy, the data is flagged in a clear manner, which defines the nature of the problem.
4. The sample receipt protocol is documented. The condition of the sample, including any abnormalities or departures from standard condition as described in the relevant test method is recorded.

5. Receipt of all samples is recorded on the accompanying Chain of Custody form. This form contains the project name, date and time of collection and laboratory receipt, client ID, laboratory ID, and sample custodians' signatures.
6. Sample records, which are also available and linked to the sample ID, include all required information specified by the sample acceptance policy. These records are kept in the project draft folder with the Chain of Custody.
7. Samples are stored according to conditions specified in each test SOP. The laboratory has documented procedures and appropriate facilities to avoid deterioration, contamination or damage to samples during storage, handling, preparation and testing. Storage conditions are maintained, monitored and recorded where necessary.

12. Laboratory Environment

A. Calibration and testing occur only within the laboratory, designed, built and maintained as laboratory space. The laboratory space is maintained by the operations staff to the specifications required for laboratory space. Electronic balances are located away from drafts and doorways. In the bacteriological division of the laboratory, the biological sterility is measured using air density plates and recorded when necessary according to the bacteriological test method SOPs. Biological work areas are sterilized between uses. Neighboring test areas of incompatible activities are effectively separated. Specific work areas are defined and access to these areas is controlled. (Only authorized laboratory personnel and escorted signed-in visitors may enter the work area.) Smoking is prohibited throughout the entire building. Work areas include: entries to the laboratory, sample custody area, sample storage area, laboratory analysis area, chemical and waste storage area, data handling and storage area.

B. All equipment and reference materials required for the accredited tests are available in the laboratory. Records are maintained for all equipment, reference measurement materials, and services used by the laboratory.

C. Reference materials traceable to national standards of measurement or to national standard reference materials are stored away from heavy use areas or major equipment that may affect the proper operation of the materials. Certificates of Traceability are available for the reference thermometer and the Class S weights. The reference materials are used only for calibration to maintain the validity of performance.

13. Procedures for Calibration, Verification and Maintenance of Equipment

A. Equipment is maintained, inspected and cleaned according to the written Equipment Maintenance Procedures. Any defective item of equipment is clearly marked and taken out of service until it has been shown to perform satisfactorily.

B. Each item of equipment or reference material is labeled to show its calibration status.

C. Equipment and reference material records include:
   1. Name of item of equipment or reference material
   2. Manufacturer, identification, serial number
   3. Date received and placed in service
   4. Current location
   5. Condition when received
   6. Copy of manufacturer's instructions or manuals
   7. Dates and results of calibrations/verifications and date of next calibration/verification

8. Details of maintenance carried out to date and planned for the future
9. History of any damage, malfunction, modification or repair

D. Service of equipment is performed by qualified service organizations. All records and certificates from service calls are retained.

E. Support equipment is calibrated/verified annually using NIST traceable references over the range of use. Balances, ovens, refrigerators, freezers, incubators, and water baths are checked with NIST traceable references (where possible) daily and recorded. Mechanical volumetric dispensing devices are checked for accuracy quarterly and recorded. Autoclave cycles of chemical tests (digestions) are recorded by use of chemical indicators or temperature recorder and pressure gauge. The sterilization temperature, cycle time, and pressure of each autoclave run for biological tests are recorded by use of appropriate chemical or biological sterilization indicators.

14. Proficiency Testing Participation and Use of Reference Materials

A. The laboratory participates in the in the proficiency testing programs operated by the New York State Environmental Laboratory Approval Program, the National Institute for Occupational Safety and Health, the US Environmental Protection Agency, and private vendors. The results are used to evaluate the ability of the laboratory to produce accurate data. All proficiency test results and raw data are retained at the laboratory.

B. The laboratory purchases external reference samples. All reference samples are certified. The laboratory retains the manufacturer's Certificate of Analysis.

15. Internal Quality Control Procedures

The data acquired from quality control (QC) procedures are used to estimate the quality of analytical data, to determine the need for corrective action, and to interpret results after corrective actions are implemented. QC procedures and QC limits are clearly defined in each method SOP. QC limits are generated when no method limits exist. The QC limits for laboratory control samples (LCS) and matrix spikes (MS) are based on the historical mean recovery plus or minus three standard deviation units. Duplicate limits for precision range from zero to 3.27 times the mean of the historical differences or relative percent differences.

All quality control measures are assessed and evaluated on a continuous basis. The laboratory presents summaries if LCS and MS recoveries on control charts to monitor laboratory quality and map trends in results.

Method blanks are performed at a frequency of one per batch of twenty or fewer samples. The results are used to determine batch acceptance. When blanks exceed the method criteria, steps are taken to determine the source of contamination, and measures are made to minimize or eliminate the problem.

Laboratory control samples (LCS) are performed at a frequency of one per batch of twenty samples or less. Fewer are analyzed for certain parameters such as BOD and TKN. The results are used to determine batch acceptance.

Matrix spikes are performed at a frequency of one per twenty samples, or whenever they are requested by the client. The results are used to identify matrix interferences in the spike sample. Matrix interference is indicated when the LCS data is within limits, but the matrix spike data exceed QC criteria.

Laboratory duplicates and matrix spike duplicates (MSD) are performed at a frequency of one per twenty samples or less. MSDs are run for organic parameters. Both are a measure of precision. If a duplicate result falls outside QC limits, the original sample and the duplicate sample is regarded as unreliable.

16. Testing Discrepancies

Specific corrective action procedures for handling QC limit exceedances are detailed in each method SOP. In addition, general procedures are followed to determine when departures from quality control have occurred. Protocol for documentation of such deviations is determined by the Corrective Action Procedure. Due to sample scheduling times and sample holding times, it is not always possible to repeat the analysis if all quality control measures are not found to be acceptable. Therefore, when data must be reported, the laboratory uses data qualifiers on the final report to notify clients when their samples are associated with outlying QC measures.

17. Corrective Action Procedure

Corrective action is the process of identifying, recommending, approving and implementing measures to counter unacceptable departures from policies and procedures or out of control QC performance which can affect data quality.

Each method SOP details QC acceptance criteria and specific protocols for corrective actions. Any QC measure that falls outside of acceptable limits needs a corrective action. This corrective action may be performed by the laboratory technician (as defined in the method SOP), and/or by the QA Officer. All discrepancies will be identified and the associated sample data will be flagged. The QA Officer will conduct an investigation into the cause of the discrepancy, and will help to implement the corrective action. Each corrective action will be documented in a log, and each log entry must be reviewed, signed and dated by the QA Officer. Corrective actions should be performed prior to the reporting of the affected data. However, in cases where the discrepancy is discovered after the results are released, an amended report may be sent to the client with the reanalysis results (if applicable).

18. Permitted Departures from Standard Specifications or Documented Policies and Procedures

The laboratory manager has responsibility for ensuring the lab's policies and procedures are adhered to. Arrangements for known and controlled departures from documented policies and procedures are allowed. Planned departures do not require audits, however, the departure must be fully documented and include the reason for the departure, the affected SOP(s), the intended results of the departure and the actual results. If the data reported to the client is affected adversely, it will be noted in writing. The procedures used to document any specific departure are the same as the corrective action procedure.

19. Complaints

All complaints about the laboratory's activities received from clients or other parties will be documented in a complaint file (contained in the Corrective Action Log) maintained by the laboratory. The file will contain the date and person filing the complaint, a description of the complaint, source of the complaint, the resolution, and any written material accompanying the complaint.

The QA Officer is responsible for investigating all complaints by conducting an internal audit. All areas of the laboratory that are associated with the complaint are checked, and the written results of the investigation including actions taken by the laboratory are reviewed by the Laboratory Director and Laboratory Manager. The results of the investigation are signed and dated by the QA Officer.

20. Internal Audit and Data Review

A. Data Review – All data, including original observations, calculations, derived data, calibration records, QC records and a copy of the test report are kept for five years (ten years for drinking water) to allow historical reconstruction of the final result. All original observations and calculations are reviewed by the second analyst, Environmental Project Coordinator or QA Officer before the data are reported. The data is reviewed to ensure that all calculations are correct and to detect transcription errors. The second analyst (laboratory section supervisor or laboratory manager) must sign and date all reviewed data packages. The QA Officer evaluates the sample results and QC data for approximately 15 to 20% of the results that are reported due the large volume of samples this laboratory handles. Errors detected in the review process are referred to the analyst for corrective action. The QA Officer documents all corrective actions taken.

B. Internal Quality System Audits – The QA Officer will conduct annual internal audits on the laboratory's quality system. The QA Officer, who is independent of the activities being audited, will carry out these audits. The QA Officer will use the requirements of the ELAP manual as a guideline to evaluate the laboratory procedures and SOPs. All audit results will be documented, along with any corrective actions. The Laboratory Manager will ensure that all corrective actions are implemented immediately.

C. Managerial Review – The Laboratory Director and Laboratory Manager shall review the laboratory quality system and its testing and calibration activities annually to introduce any changes or improvements. The review will incorporate outcomes of recent internal audits, assessments by external bodies (NYSDOH, USEPA, NYSDEC), the results of proficiency tests, any changes in the volume or type of work performed, client feedback and corrective actions.

21. Training and Review of Personnel Qualifications

Laboratory management reviews an applicant's level of qualification, experience and skills against the laboratory's job description requirements before assigning an employee to the laboratory. Each analyst must possess adequate experience and education in the appropriate field. Most laboratory technicians possess a minimum of a two-year degree in chemistry or a related field, with some general knowledge of laboratory operations, test methods, QC procedures and records management. The QA Officer and HR will keep the following personnel records:

The QC Department will maintain a training file which contains:

1. A Demonstration of Capability (DOC) for each employee for each accredited method that they perform.
2. Documentation of any training courses, seminars and/or workshops.
3. Documentation of each employee's continued proficiency to perform each test method by one of the following annually:
   i. acceptable performance of a blind sample for each accredited method;
   ii. another Demonstration of Capability;
   iii. at least four consecutive Laboratory Control Samples with acceptable levels of precision and accuracy.
   iv. if i-iii cannot be performed, analysis of authentic samples that have been analyzed by another trained analyst with statistically precise results.

Demonstration of Capability (DOC) – A DOC must be performed prior to using any test method, and any time there is a change in instrument type. The procedure will follow ELAP Certification Manual Item 233, and the DOC Certificate included in this procedure is completed for each analyst for each test method.

The HR Department will maintain a training file which contains

1) A statement from each employee that they have read and understood, the latest version of the Quality Manual. The statement will be signed and dated.

2) A statement from each employee that they have read, acknowledged and understood their personal ethical and legal responsibilities including the potential punishments and penalties for improper, unethical or illegal actions. The statement will be signed and dated.

22. Education and Training in Ethical and Legal Responsibilities Including the Potential Punishments and Penalties for Improper, Unethical or Illegal Actions

All new employees that will be performing laboratory testing shall be given training from the QA Officer within the first two weeks of employment. A copy of the laboratory's Code of Ethical Conduct will be given to each employee (see Appendix B for the Code of Ethics). A record of training will be signed, indicating the employee read and understood the material presented to them. These signed records will be kept in the employee's training file.

23. Reporting Analytical Results

The results of each test carried out by the laboratory will be reported to the client and/or regulatory agency in an accurate, clear and unambiguous manner. Administrative Project Coordinators are responsible for compiling sample results into reports for review by client and/or validators.

All employees are informed that all knowledge of client results and private information is the sole property of ULI and its client. No information can be shared without prior written approval by ULI and/or the client.

24. Controlled Document Retention

Controlled documents will be stored for 10 years if they pertain to drinking water and 5 years for all other documents. In the event that the business ownership is transferred, the new owners will be given the opportunity to keep the records. In the event the business is closed, clients will be given 30 days to pick-up their records.

Appendix A

QC-ETF-1

Upstate Laboratories, Inc.
6034 Corporate Drive
East Syracuse, New York 13057

Quality Manual
Employee Training File
File: QC-ETF-1

By signing below, I certify that I have read and understood the latest version of the Laboratory Quality Manual.

Signature	Quality Manual Revision No.	Date

Appendix B

QC-ETF-2
Code of Ethics

Upstate Laboratories, Inc.
6034 Corporate Drive
East Syracuse, New York 13057

Quality Manual – Code of Ethics
Employee Training File
File: QC-ETF-2

Upstate Laboratory, Inc.
Code of Ethics

1. No employee should have any interest, financial or otherwise, direct or indirect, or engage in any business or transaction or professional activity or incur any obligation of any nature, which is in substantial conflict with the proper discharge of hid duties in the public interest.
2. No employee should accept other employment that will impair his/her independence of judgement in the exercise of his duties.
3. No employee should disclose confidential information acquired by him/her in the course of his/her official duties nor use such information to further his personal interests.
4. No employee should accept employment or engage in any business or professional activity that will require him/her to disclose confidential information that he/she has gained by reason of his/her official position or authority.
5. No employee should use or attempt to use his/her official position to secure unwarranted privileges or exemptions for him/herself or others.
6. No employee should engage in any transaction as representative or agent of the laboratory with any business entity in which he/she has a direct or indirect financial interest that might reasonably tend to conflict with the proper discharge of his/her official duties.
7. An employee should not by his/her conduct give reasonable basis for the impression that any person can improperly influence him.
8. Violations:
   In addition to any penalty contained in any other provision of law, such as fine and imprisonment, any such employee who shall knowingly and intentionally violate any of the provisions of this Code of Ethics may be fined, suspended or removed from employment in the manner provided by law.

By signing below, I certify that I have read and understood the Upstate Laboratory, Inc. **Code of Ethics**, and possible penalties for violations.

_____ _____
Signature Date

Albany Landfill Eastern Expansion

Landfill Site Selection Study

Albany Co., New York

CHA Project Number: 12206.4005.1106

Prepared for:

City of Albany
Department of General Services
1 Connors Boulevard
Albany, New York 12204

Prepared by:

CLOUGH HARBOUR & ASSOCIATES LLP

III Winners Circle
Albany, New York 12205
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July 30, 2007

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1.0 INTRODUCTION

The purpose of this report is to provide a current site selection study associated with the proposed Eastern Expansion of the Rapp Road Landfill. The existing facility is located east of Interstate 90 and northwest of Rapp Road (Figure 1- Site Location Map). This site selection study has been prepared to be in conformance with the landfill siting requirements of 6NYCRR Part 360 regulations, solid Waste Management Facilities, effective October 9, 1993 and the State Environmental Quality Review (SEQR) alternatives assessment.

Previous site selection studies have identified and evaluated a number of sites within the City of Albany for their viability as a landfill site in accordance with 6 NYCRR Part 360-2.12(b) and 6 NYCRR Part 617.14(f)(5). This study updates these evaluations by reviewing any changes in land use patterns on or adjacent to the previously evaluated sites.

Sections 2.0 and 3.0 below provide the purpose of the project and a summary of the previous landfill studies conducted by the ANSWERS Planning Unit. Information and data reviewed for the previous landfill siting studies associated with both the original permit proceedings for the Albany Interim Landfill (AIL) and the long-term siting process are presented in Section 3.0. All of the previous site selection studies were used as a basis for this update. The previous studies were used in part, as a basis for Section 4.0 which describes the selection and evaluation of potential landfill sites within the corporate boundaries of the City including the proposed Rapp Road Solid Landfill property.

2.0 PROJECT PURPOSE

The purpose of this 2007 site selection study is to re-evaluate the alternative sites identified in the 1999 “Landfill Site Selection Study” prepared by C.T. Male Associates, P.C. and determine if any of these sites are suitable for further consideration as an alternative to the proposed Eastern Expansion.

3.0 PREVIOUS LANDFILL STUDIES

The City of Albany has conducted numerous landfill studies for the ANSWERS Solid Waste Management Planning Unit. These past studies include a series of reports prepared in relation to siting a long-term landfill facility (Site C-2), two others associated with the original permitting process for the AIL (1988 and 1989), a fourth study was completed in 1996 during the first expansion of the AIL. The most recent study was completed in 1999 with the goal of identifying the most viable interim alternative landfill site located within the city of Albany corporate boundaries. These studies are summarized below.

City of Albany
Department
of General Services
One Connors Boulevard
Albany, New York

CLOUGH HARBOUR & ASSOCIATES LLP

1 inch equals 500 feet

N
W E
S

Legend

- Site Outline
- 100-year Flood Zones
- State Wetlands
- Federal Wetlands

Figure 1

Eastern Expansion

Site Location Map

Date: 6/13/07 K:\12206\GIS\Map\Siting Maps

3.1 1989-1994 Long Range Landfill Siting Study

The siting process for a long range landfill solution for the ANSWERS Planning Unit began in 1989. Fifteen sites were evaluated within the Capital District and included in the *Potential Landfill Sites Identification Report, 1991*. The Report Recommending Sites for Preliminary Investigation, 1992, recommended three of the fifteen sites for more detailed on-site evaluation. Based on the site investigations, a long term landfill facility was chosen (Site C-2, the Town of Coeymans) as the preferred site and included in the ANSWERS Final Site Selection Report (August 1994). The siting process for a long range facility was delayed by numerous factors including the lack of condemnation power by ANSWERS, lawsuits against the City, and more recently the potential for a very long permitting process relative to wetland impacts.

3.2 1988 Siting Study

The City of Albany evaluated Frisbie Avenue, Erie Boulevard, Normans Kill Farm, and the Albany Interim Landfill (AIL) site as potential alternative landfill sites as part of the Draft Environmental Impact Statement for the Rapp Road Sanitary Landfill Expansion (Malcolm Pirnie, 1988). Criteria used to review each site included existing land use, adjacent land use, timing and construction, traffic and access related conditions, and environmental issues. As a result of the evaluations in the Draft Environmental Impact Statement, the AIL was identified as the preferred site within the City's corporation limits. Alternative landfill configurations and sizes were also evaluated.

3.3 1989 Siting Study

The 1989 Siting Study evaluated ten alternative sites for the AIL as part of a document entitled "Response to Public Comments and Commissioner's Request for Additional Information" (including the AIL and those sites previously presented in the 1988 DEIS). Sites were evaluated by the City of Albany using the following criteria:

(1) Sites should be approximately 20 to 25 acres to accommodate cell construction, access roads, drainage structures, leachate management facilities, scale house and buffer areas,
(2) Sites should be located within corporate boundaries of the City,
(3) Sites should be located on non-developed land,
(4) Sites should not be located within the Pine Bush.

Secondary screening criteria used for this study included site acquisition, unstable areas, and unmonitorable or unremediable areas. The following table provides a summary of the ten sites evaluated by the City:

Site Identification Number	Location
1	Erie Boulevard
2	Frisbie Avenue
3	Normanskill Farm
4	Graceland Cemetery
5	Kenwood/Mt. Hope
6	Corporate Woods
7	Krumkill Road
8	Fuller East
9	Fuller West
10	Rapp Road Facility

3.4 1996 Siting Study

In the 1996 site selection study, alternative sites were evaluated based on the following attributes:
(1) Sites should be Approximately 15 to 20 acres in size to accommodate landfill cells and associated structures
(2) Sites should be located within the corporate boundaries of the City
(3) Sites should consist of undeveloped lands (other than for solid waste management facilities)
(4) Proposed landfill use should be compatible with existing zoning of the site.

The site size criterion was reduced from the criterion listed in the 1989 siting study because the City of Albany's needs for landfill capacity and ancillary facilities changed since that time. In the 1989 Study, the anticipated need was for a site that could accommodate a 14-acre landfill. In the 1996 study the need for an 8 acre landfill was identified. Due to on-going development and other factors, the number of available sites within the City had been reduced since the 1988 and 1989 studies were conducted. However, all potential sites within the City of Albany, in addition to the original ten, were re-evaluated as part of the 1996 siting process.

3.5 1999 Siting Study

The 1999 Siting Study (C.T. Male Associates, P.C., 1999) was based in large part on the three previous studies associated with the Rapp Road facility primarily because the study area for those reports was limited to properties within the City Limits. Due to the immediate need for landfill space, this was considered an important criterion for potential landfill sites.

The evaluation criteria used in this study was as follows:
(1) The site should be approximately 25 to 30 acres to accommodate landfill cells and associated structures.
(2) Sites should be located within the City limits
(3) Sites should consist of land that is undeveloped
(4) Zoning of site should be compatible with the proposed use (light industrial or heavy manufacturing).

These criteria are similar to those used in previous siting studies, except that the area needed for the P-4 project was determined to be 25 to 30 acres (see above).

The original ten sites evaluated in 1989, were re-evaluated in the 1999 study. In addition sites displaying the characteristics outlined above not situated in prohibited or restricted areas as determined by the Part 360 regulations were also reviewed.

Prohibited siting areas as outlined in 6 NYCRR Part 360-1.7(a)(2) regulations include the following: agricultural land, floodplains, threatened and endangered species or their critical habitat, and state regulated wetlands and reservoirs located in watersheds managed pursuant to the Safe Drinking Water Act. Restricted areas according to Part 360-2.12(c)(1)-(8) include: primary water supply and principal aquifers, floodplains, aircraft safety, unstable areas, unmonitorable or unremediable areas, fault areas, seismic impact zones and federally regulated wetlands. The evaluation of prohibited and restricted areas indicated that nearly two-thirds of the available land within the City can be included within one or more of these areas. The remaining lands were evaluated in terms of the four criteria listed above. This in combination with the requirements of Part 360 resulted in no sites meeting the criteria within the City of Albany.

3.6 Current Siting Study

The current siting study has employed the siting criteria used in the previous landfill siting studies. The primary criteria for choosing a site for evaluation was that it be located within the City of Albany corporate boundaries. Secondarily the site evaluation must demonstrate that there will be no significant adverse impacts related to the development and operation of a landfill. In

order to evaluate a reasonable range of alternatives the original sites evaluated in the 1989 study were re-evaluated for the current siting study. In addition, to identify potential alternative sites (in addition to the original ten alternative sites presented in the 1989 site selection study) sites with the four characteristics listed in Section 4.1 below, not situated within the prohibited or restricted siting areas stipulated in the Part 360 regulations were reviewed.

4.0 ALTERNATIVE SITES EVALUATION

4.1 Selection of Alternative Sites

This site selection study has evaluated the nine sites within the City of Albany that were originally considered to be potentially viable alternatives landfill sites. The tenth site, the Eastern Expansion of the Rapp Road Landfill is the subject of the Supplemental Draft Environmental Impact Statement and is evaluated in that document. These sites which originally were identified in 1989 are the most viable potential landfill sites in the City of Albany. Sites within the City of Albany have been evaluated based on four characteristics:

(1) Sites should be approximately 25 to 30 acres in size to accommodate landfill cells and associated structures,
(2) Within the corporate boundaries of the City,
(3) Sites should be located on non-developed land, and
(4) Proposed landfill use should be compatible with existing zoning.

Since no site has been identified within the City which meets the siting criteria, the focus of the current alternative sites evaluation will be on the nine sites previously presented in 1996 and again in 1999. Specifically each site is re-evaluated on the basis of changes in land use both on and adjacent to each site.

Site visits were conducted to each of the potential areas and photographs were taken to document current conditions (photographs are contained in Appendix A). Discussions of each site includes the following information: approximate size, location, current land use on the site and land use adjacent to the site, topography, slopes, mapped potential geologic hazards, access to the site, mapped surficial and bedrock geology, proximity to water supply sources, mapped unconfined aquifers, 100-year floodplain information, and threatened and endangered species information.

The first process in selecting alternative sites for a siting study involves the application of prohibited and restricted siting areas as set forth in the Part 360 regulations (effective October 9, 1993) and avoidance of these areas. Prohibited siting areas, according to 360-1.7(a)(2), include

the following: agricultural land, floodplains, threatened or endangered species or their critical habitat, regulated wetlands, and reservoirs located in watersheds managed pursuant to the Safe Drinking Water Act. Landfill siting restrictions according to 360-2.12(c)(1)-(8) involve the following areas: primary water supply and principal aquifers, floodplains, aircraft safety, unstable areas, unmonitorable or unremediable areas (lateral expansions excluded if the proposed expansion area can be constructed to demonstrate compliance with regulations), fault areas, seismic impact zones, and federally regulated wetlands.

Based on the above, sites with the four aforementioned characteristics not situated within the prohibited or restricted siting areas stipulated in the Part 360 regulations were reviewed. This approach is consistent with the NYSDEC's Solid Waste Management Facility Siting guidance (DEC, 1990) as applied to the expansion of an existing landfill.

4.2 Site Evaluation Criteria

The identified sites have been evaluated based upon the following criteria: unconsolidated deposits, proximity to water supply sources, natural topography, surface water resources, local land use (including incompatible structures and zoning), site acquisition, and site access. Other evaluation criteria set forth in 360-2.12(b)(2)(i)(b)(1) through (6) are bedrock subject to rapid or unpredictable groundwater flow and the site's relationship to mines, caves or other unusual hydrogeologic features that might alter groundwater flow. These latter two criteria do not apply to sites within the corporate boundaries of the City because most areas within the City have a thick deposit of overburden material overlying bedrock (the Normans Kill Formation is not subject to rapid or unpredictable groundwater flow) and no mines, caves or other unusual hydrogeologic features are known to exist within the City. The evaluation criteria pertaining to siting a landfill in an area where containment failure would do the least environmental damage and would be easiest to correct (360-2.12(b)(2)(i)(b)(3) is evaluated under the unconsolidated deposits criterion.

For each criterion a numerical value is assigned to a site based on the guidelines described below; values of 1 (unfavorable), 2 (acceptable), or 3 (favorable) were used for all criteria. Section 4.3, Site Specific Evaluations, provides tables for each site with numerical values assigned to each criterion.

Unconsolidated Deposits

Each alternative site was evaluated based on the unconsolidated deposits mapped for the site. The following guidelines were applied to each site:

- Favorable (3): Entire site and surrounding area are mapped by the NYSGS as a relatively impermeable deposit (i.e., clay).
- Acceptable (2): Only a portion of the site is mapped by the NYSGS as clay.
- Unfavorable (1): The NYSGS has mapped the site as sand or gravel.

Proximity to Water Supply Sources

Each area was evaluated with respect to its proximity to water supply sources. The following guidelines were applied to evaluating each area:

- Favorable (3): No water supply sources within a 1 mile radius.
- Acceptable (2): No water supply sources within a 0.5 mile radius.
- Unfavorable (1): A water supply source situated less than 0.5 miles from the site.

Based on a review of the NYSDOH New York State Atlas of Water System Sources (1982), no water supply sources are situated within the City of Albany boundaries or one mile of the alternative sites; therefore, all sites are favorable.

Natural Topography

Each area was evaluated with respect to its natural topography and slopes. The following guidelines were applied to evaluating each area:

- Favorable (3): At least 75% of the site's natural topography is moderately level terrain (slopes 0-10%).
- Acceptable (2): At least 50% of the site's natural topography is moderately level terrain with slopes ranging from 0 to 10%; steep slopes are present but soils are not unstable (i.e., clay).
- Unfavorable (1): Significantly less than 50% of the site's natural topography has moderately level terrain (slopes 0-10%) and steep slopes and clay soils predominate.

Wetlands and Other Aquatic Resources

Each area was evaluated with respect to its proximity to state and federal wetlands, and surface water resources. A site review was performed for each site to qualitatively ascertain the relative magnitude of wetlands on the alternative landfill sites. The following guidelines were applied to evaluating each area with respect to proximity to wetlands and surface waters:

- Favorable (3): No class C or higher waterbodies on or adjacent to the site. Total wetlands on the site are less than one (1) acre.

- Acceptable (2): No class C or higher water bodies on or adjacent to, but class D waterbodies and isolated federal wetlands exist on or adjacent to site (1 to 5 acres of wetlands exist on the site). Wetlands can be avoided.
- Unfavorable (1): State-regulated or federal wetlands (>5 acres of wetlands exist) and or class C or higher water bodies on or adjacent to site.

New York State regulates wetlands that are 12.4 acres or greater in size; no state regulated wetlands are mapped on any of the alternative landfill sites. To determine the full extent of federal wetlands on each site, a more detailed on-site review would have to be performed. National Wetland Inventory maps were reviewed for the presence of mapped wetlands; no NWI wetlands were mapped on any of the sites.

Local Land Use

This criterion examines the compatibility of a landfill with existing land use as well as planned use as reflected by current zoning for each area considered. Zoning was considered as a planning tool, not a legal impediment to development. Open space, cultural, historical, and recreational resources are considered under this criterion. The following guidelines were used to evaluate existing/future land use:

- Favorable (3): Area currently associated with industrial/heavy commercial use or zoned for same. No incompatible structures (schools, houses of worship, nursing homes or hospitals) adjacent to area or major access roads.
- Acceptable (2): Area not entirely industrial/heavy commercial but not residential in nature.
- Unfavorable (1): Area currently residential in nature or an area in or adjacent to open space, cultural, historical or recreational resources, or incompatible structures on or adjacent to site.

Site Acquisition

The focus of this criterion is to evaluate the ease of acquiring a site by examining present ownership, number of separately owned parcels comprising the area and rights-of-way through the area. Site acquisition was evaluated according to the following guidelines:

- Favorable (3): Site encompasses one parcel, there are no rights-of-way, it is City owned, and not "park land".
- Acceptable (2): Site encompasses one or more privately owned parcels and no known deed restrictions exist.

- Unfavorable (1): Site encompasses one or more privately owned parcels, there are one or more rights-of-way, site is an established park, deed restrictions exist, site is state or federally owned.

Site Access

This criterion evaluates the current accessibility of an area. Preferred sites are those where little change in functional use of surrounding roads would occur. Site access was evaluated according to the following criteria:

- Favorable (3): Infrastructure already exists at the site. No improvements necessary.
- Acceptable (2): Minor improvements to existing infrastructure would be required.
- Unfavorable (1): Major improvements would be necessary to create access to the site.

Area Available for Landfilling

This criterion evaluates the current amount of land available on the site appropriate for landfilling. Preferred sites are those with sufficient area, an appropriate configuration (i.e., not elongated or discontinuous) and level topography. Area available for landfilling was evaluated according to the following criteria:

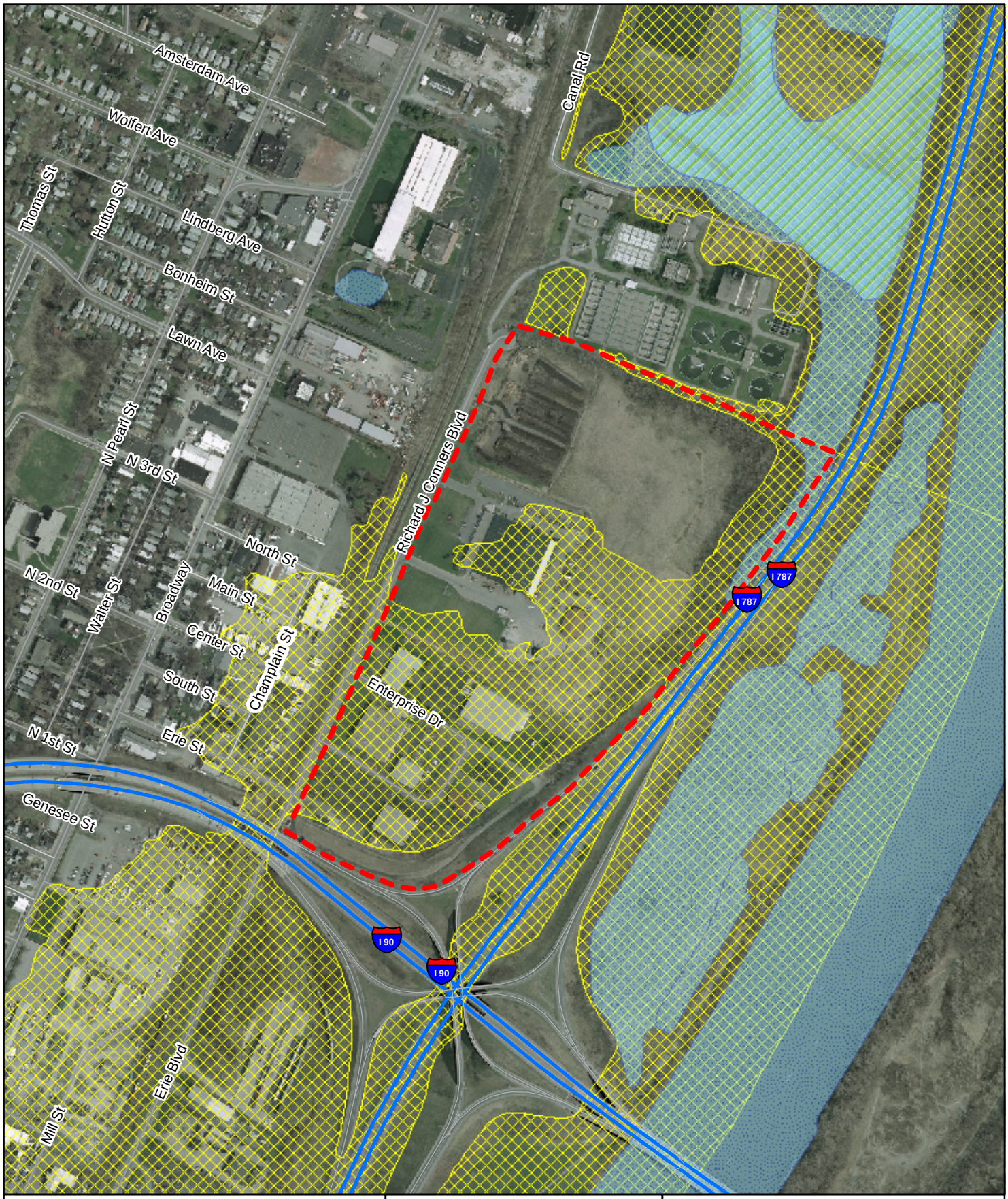
- Favorable (3): A minimum of 10 to 15 level acres whose configuration is appropriate for landfilling (i.e., not elongated or discontinuous).
- Acceptable (2): A site that has between 5 and 10 acres whose configuration may be appropriate for landfilling in certain areas of the site.
- Unfavorable (1): A site that has less than 5 acres of area available for landfilling and whose configuration is not appropriate for landfilling.

4.3 Site Specific Analyses

This section provides a summary of each criterion with respect to the site and the score which applies. The tables and narrative which follow in this section provide an evaluation of each site based on the siting criteria previously discussed. Evaluations for Sites 6 and 8 are provided even though the developable area is such that it is not feasible to construct a landfill facility (including cells, access roads, etc.) at these sites.

1. Erie Boulevard

This site consists of three parcels totaling approximately 63 acres located north of the intersection of Interstate 787 and Interstate 90 (Figure 2). Immediately west of the site is Erie Boulevard, railroad tracks, and a commercial/ industrial area. East of the site is Interstate 787 and the Hudson River; the Albany County North Wastewater Treatment Plant is situated north of the site.



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1 inch equals 600 feet

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- Site Outline
- State Wetlands
- Federal Wetlands
- 100-year Flood Zones

Figure 2

Alternative Landfill

Site # 1 - Erie Blvd.

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The southernmost of the three parcels comprising the site is approximately 17 acres and has recently been developed as a commercial office-warehouse complex. The middle and northern parcels were used as the City's sanitary landfill until 1973. From 1973 to early 1989, both of these parcels were used as a construction and demolition debris landfill. There is a city Department of General Services building on the 20 acre middle parcel. The 25 acre parcel on the northern portion of the site is no longer accepting construction and demolition waste materials and is closed. Soil borings conducted for closure of this site indicate that solid waste has been deposited on the middle and northern parcels up to the National Grid easement which runs parallel to Erie Boulevard. A City composting facility is situated in the northwestern corner of this site, and an exempt waste landfill (DGS Lower Landfill) is located southeast of the new building.

According to a 1980 USGS Topographic map, the site lies at approximately 10 feet above mean sea level. This site is relatively flat with no significant slopes. Ecological community observations at the site included a stream and associated wetland situated along the eastern border of the site and hardwood forested areas along Interstate 787. Available mapping for geologic hazards did not include this site. Access to the site would be along Erie Boulevard from Interstate 787. This road is currently traveled by trucks that service the industrial and commercial operations that take place in this area.

According to the New York State Geological Survey (NYSGS) Surficial Geologic Map, Hudson-Mohawk Sheet, the site is mapped as recent alluvium which consists of fine sand and gravel. Bedrock beneath the Erie Boulevard site is mapped by the NYSGS as the Normans Kill Shale. No community water supply sources are known to exist near this site (NYSDOH, 1982). Site 1 is mapped as an unconfined aquifer capable of supplying more than 100 gallons of water per minute (gpm) on the Potential Yields of Wells in Unconsolidated Aquifers in Upstate New York, Bugliosi, 1988. According to the Federal Emergency Management Agency (FEMA) maps, a portion of this site is situated within the 100-year floodplain. A review of the DEC Natural Heritage Program files for Site 1, conducted for the 1999 Siting Study indicated no threatened or endangered species listed by DEC occur on this site. Although no change is anticipated, contact has been made with the DEC Natural Heritage Program for the current study and a response is pending. Based on a cursory site visit, less than one acre of wetland exists on the site.

As stated above and as can be seen on Figure 3, large portions of the Erie Boulevard Site are situated within the 100-year floodplain as defined by the Federal Emergency Management Agency (FEMA). This is a prohibited area stipulated by Part 360 regulations and was therefore determined unsuitable for the development of a new landfill. Other unfavorable criteria for this

site include incompatible structures and land use, unconsolidated deposits of construction and demolition debris, and the proximity of an aquifer capable of producing greater than 100 gallons per minute. Recent evaluations revealed that the site appears to be the same as reported in the P-4 SDEIS. All commercial and city buildings are occupied and the composting facility is active. Debris is scattered in the non developed areas indicating the past landfill activities that occurred in the area.

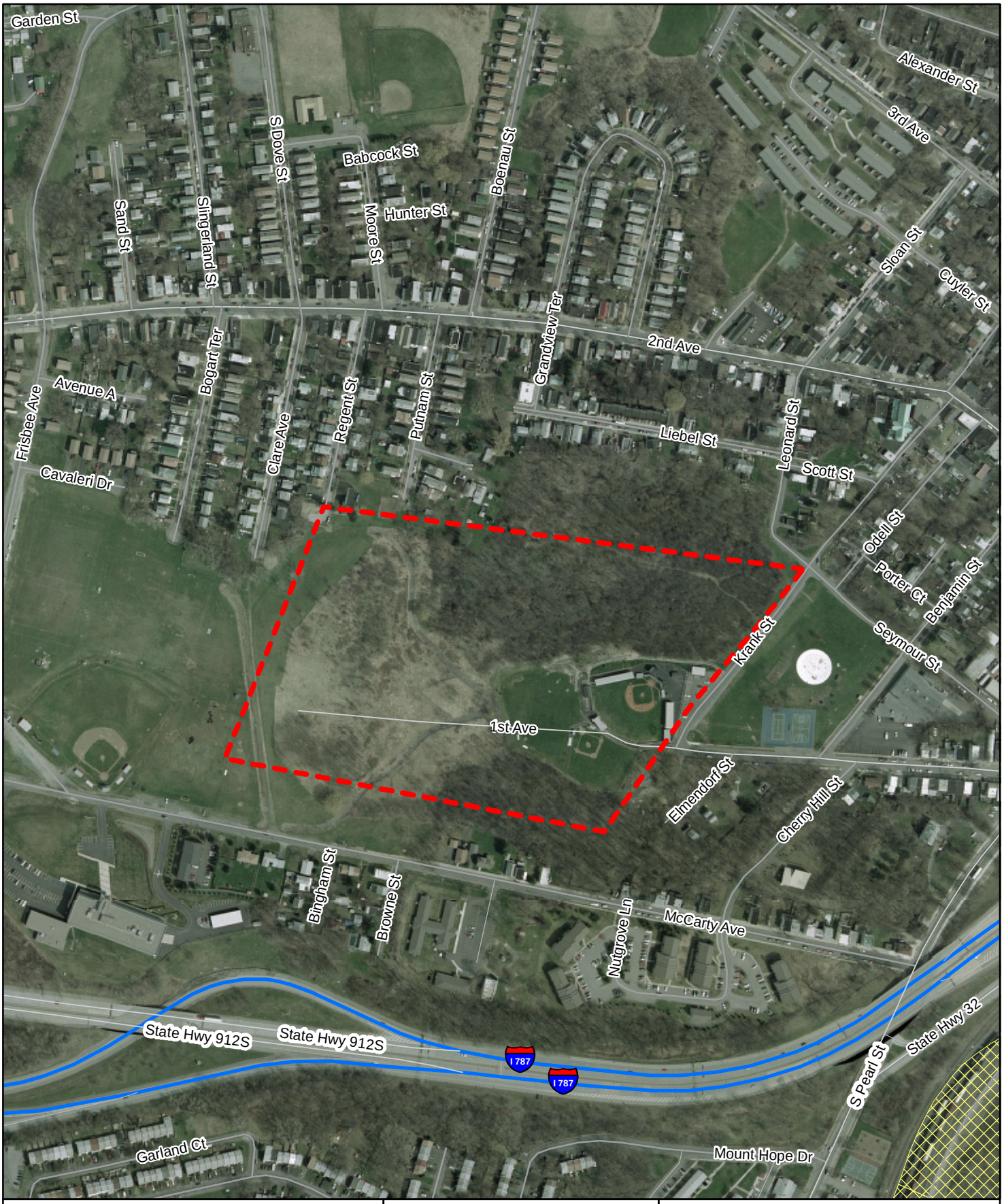
Site 1 Evaluation -Erie Boulevard

Criterion	Evaluation	Basis
Unconsolidated Deposits	1	Site mapped as sand and gravel.
Proximity to Water Supply Sources	3	None within one mile.
Natural Topography	3	Site is relatively flat w/ no significant slopes
Wetland and Aquatic Resources	3	<1 acre of wetlands on site
Local Land Use	1	Incompatible structures include Dept. of General Services building.
Site Acquisition	3	City owns site
Site Access	2	Access from I-787 & Erie Boulevard
Area Available for Landfilling	2	Northern region of site is a closed, capped landfill.
Total Score	**18**	

The Erie Boulevard Site is not suitable for a new landfill because, among other reasons, it is partially situated within the 100-year floodplain which is a prohibited siting area as stipulated by the Part 360 regulations. The Hudson River, a DEC Class C waterbody, is situated east of the site; an intermittent stream (i.e., federal wetland) was observed along the eastern border of the property. It is estimated that less than one acre of wetlands exist on this site. Site 1 has areas within it which were formerly sanitary and construction and demolition debris landfills. This parcel is occupied by the City of Albany's Department of General Services building, a composting facility, and a commercial office-warehouse complex.

2. Frisbie Avenue

This 40-acre parcel is located in a residential area in the southeastern region of the City, north of the intersection of Interstate 787 and Route 9W, and west of State Route 32 (Figure 3). The site currently serves as an open space/recreational area for southeast Albany residents. Hoffman Park is immediately west of Frisbie Avenue. The site also contains the Veterans Memorial Park. The



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Legend

- Site Outline
- 100-year Flood Zones
- State Wetlands
- Federal Wetlands

Figure 3

Alternative Landfill

Site # 2 - Fisbie Ave.

Date: 6/13/07 K:\12206\GIS\Map\Siting Maps

western and eastern portions of the site are developed as baseball parks. This site was used as a municipal solid waste landfill until about 30 years ago. In the 1960's the site was used as a repository for demolition debris and excavated material from the construction of the Empire State Plaza. Methane explosions have occurred at this site in the past. As of the 1999 siting study, the only portion of the site not utilized as a recreation area is located east of Frisbie Avenue and the upper ball field.

Site elevations range from approximately 60 to 150 feet above mean sea level; topography decreases toward the central area of the site from the north, west and south. A series of drainage runs that flow in an easterly direction are situated in the western portion of the site. A portion of the site east of Frisbie Avenue is situated within a steeply sloped (30% or greater) ravine. According to the Geologic Hazards map for the site, the northern and southern areas of the site are mapped as having the potential for landslides or other slope instability problems.

Regarding site access, vehicles exiting Interstates 787 or 87 en route to the site would travel on McCarthy Avenue for a short distance before turning onto Frisbie Avenue. The Frisbie Avenue Site is mapped by the NYSGS as lacustrine silt and clay. Bedrock beneath the site consists of the Normanskill Shale. No community water supply sources are mapped near this site (NYSDOH, 1982). Site 2 is not mapped on the Potential Yields of Wells in Unconsolidated Aquifers in Upstate New York, Bugliosi, 1988 as an unconfined aquifer. The site is not located within the 100-year floodplain. A review of the DEC Natural Heritage Program files for Site 2, conducted in 1999, indicated that no threatened or endangered species listed by DEC occur on this site. A request has been sent to the DEC Natural Heritage Program to update this information and a response is forthcoming. Based on a cursory site visit, less than one acre of wetland exists on the site.

The major issue with the Frisbie Avenue site is the difficulty of constructing a landfill over the Southern Boulevard Trunk Sewer. The topography of the area is unfavorable due to slopes of 30% or greater occurring at the site. A City park is located within this area. Even though no prohibited siting criteria occur on the Frisbie Avenue site, the above issues and surrounding land use make development of a landfill at this location unlikely. A recent site visit revealed that the recreational fields are still present and appear to have been expanded to include soccer fields on the upper east side of the site.

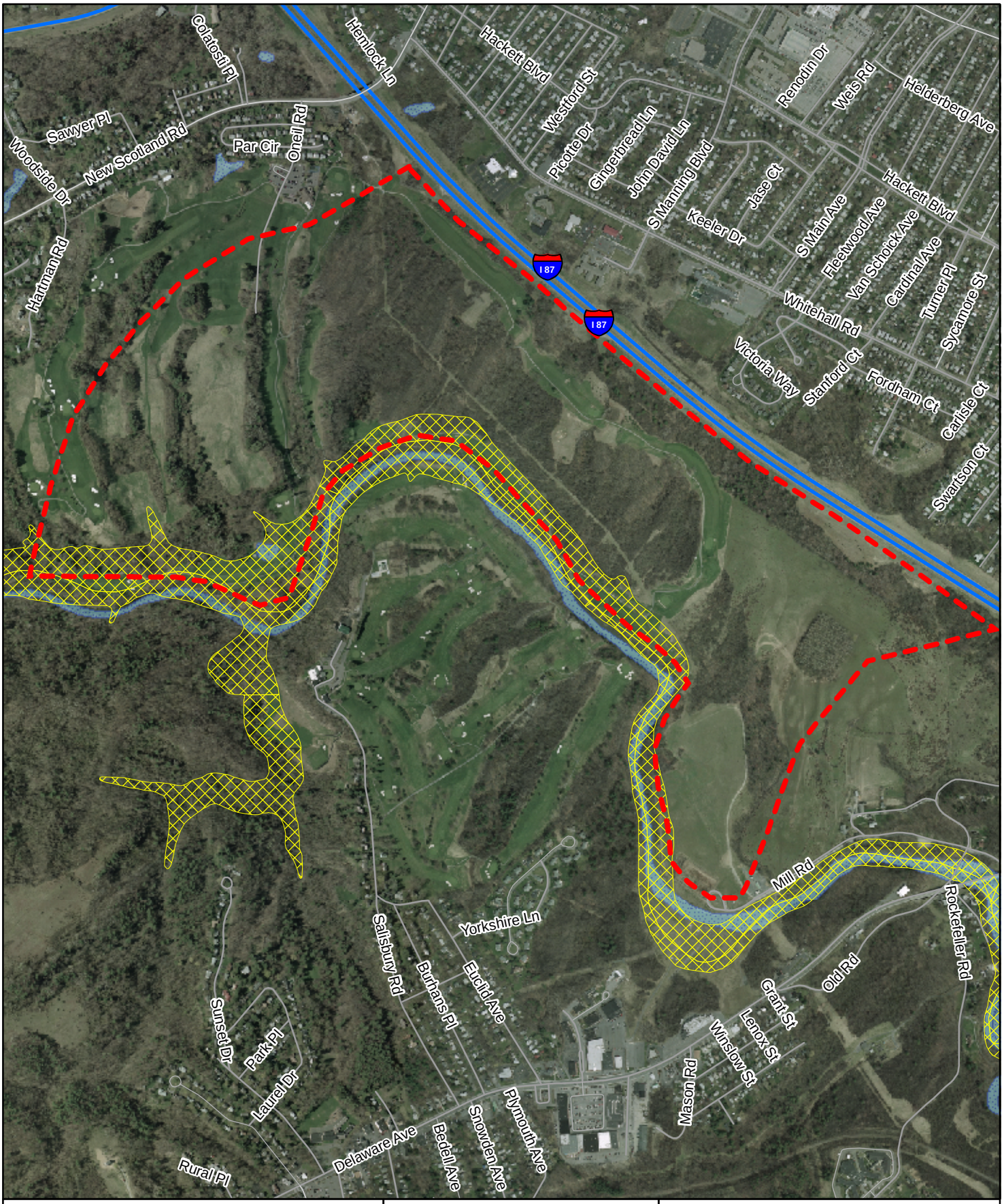
Site 2 Evaluation – Frisbie Avenue

Criterion	Evaluation	Basis
Unconsolidated Deposits	3	Mapped by NYSDEC as silt & clay
Proximity to Water Supply Sources	3	None within 1 mile
Natural Topography	1	Site mapped as clay & slopes of 30% or greater on site
Wetland and Aquatic Resources	3	No state wetlands or waterbodies on or adjacent to site. Federal wetlands (drains) exist on site (>1 acre).
Local Land Use	1	Site is urban park & open space area; residential neighborhoods surround site.
Site Acquisition	1	Site is established urban city park
Site Access	2	Access from McCarthy Ave. & Frisbie Ave. (residential area).
Area Available for Landfilling	1	Level areas of site are developed as community baseball field.
Total Score	**15**	

Use of Site 2 would require substantial cutting, filling and stabilization measures prior to use as a landfill facility. Additionally, this site is not a viable alternative site because of potential difficulties associated with constructing a landfill over the Southern Boulevard Trunk Sewer, which crosses the site from west to east. Construction of a landfill over a sanitary sewer line may not be acceptable to NYSDEC because of the potential for contaminated groundwater entering the sewer or traveling parallel to the sewer in the sewer bedding material. If this is the case, mitigation measures such as relocating the sewer and construction of a pump station would be required. Methane explosions have occurred at this site in the past due to the old construction and demolition debris placed at the site. It is estimated that less than one acre of wetlands exist on the site. Site 2 does not lie within a prohibited siting area, but is surrounded by incompatible land uses making it difficult to develop a landfill at this location.

3. Normanskill Farm

The Normanskill Farm site consists of approximately 350 City-owned acres located between Delaware Avenue and New Scotland Avenue, with Interstate 87 and the Normans Kill bordering the site to the north and south, respectively (Figure 4). The western portion of the site (approximately 35%) is the City's public golf course. Portions of the site are currently being used as a City farm, horse stables for the City's mounted police, and cross country skiing trails.



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Legend

- Site Outline
- 100-year Flood Zones
- State Wetlands
- Federal Wetlands

Figure 4

Alternative Landfill

Site # 3 - Normanskill Farm

Date: 6/13/07 K:\12206\GIS\Map\Siting Maps

Associated with the farm are a number of large pastures used for grazing animals such as cows and sheep.

Site elevations range from 100 to 220 feet above mean sea level. A majority of the site contains deep ravines with steep slopes which drain surface water to the Normans Kill. Slopes in these areas range from 15 to 35 percent. There is an approximate 50 acre, elongated area located in the eastern portion of the site, along Interstate 87. The level area on Site 3 is not wide, but segmented making the geometry of available level areas not conducive to landfill development. According to the Geologic Hazards map of the site area, only the east-southeastern region of the site is not mapped as either having the potential for landslides or other slope instability issues or having the potential for wind erosion if stripped of surface cover. Access to this portion of the site would require construction of a road from Delaware or New Scotland Avenue and the construction of bridges over ravines 50 feet deep and 700 to 800 feet wide.

According to the NYSGS Surficial Geologic Map, Hudson-Mohawk Sheet, the site is mapped as lacustrine silts and clays. Areas around the Normans Kill are mapped as recent alluvium which is comprised of fine sand and gravel. Bedrock at the site is mapped by the NYSGS as the Normans Kill Shale Formation. No community water supply systems are known to exist in the vicinity of this site (NYSDOH, 1982). Those portions of the site situated along the Normans Kill and in the northwest corner are mapped by Bugliosi as an unconfined aquifer capable of supplying greater than 100 gpm (1988). The 100-year floodplain is mapped along the Normans Kill. A 1999 review of the DEC Natural Heritage Program files for Site 3, indicated that no threatened or endangered species listed by DEC occur on this site. The status of this site is being confirmed for this study. Based on a cursory field visit and proximity to the Normans Kill, greater than five acres of wetlands exist on the site.

The Normanskill Farm is a City park/open space area that was purchased using money obtained from the Federal Land and Water Conservation Fund. Acquisition of this area requires an act of the State Legislature making development of a landfill prolonged and costly. Portions of this site are situated within a 100-year floodplain (a prohibited siting area) and greater than 5 acres of wetlands occur along the Normans Kill (a class C(T) stream). Construction of roads and bridges would be required for access to the site. Overall the Normanskill Farm site is unacceptable for the development of a landfill.

A recent site visit revealed that the conditions at the Normanskill Farm site have remained relatively unchanged since the P-4 SDEIS was completed. Changes include a K-9 Training area

that appears to be operating on the site and a sign indicating the location of a water conduit, both of which were not mentioned in the P-4 SDEIS.

Site 3 Evaluation Normans Kill Farm

Criterion	Evaluation	Basis
Unconsolidated Deposits	3	Site mapped as silt & clay
Proximity to Water Supply Sources	3	None within 1 mile
Natural Topography	1	Slopes at site range from 15-35%.
Wetland & Aquatic Resources	1	Normans Kill is Class C(T) stream bordering the site. >5 acres of wetlands exist on site.
Local Land Use	1	City-owned parcel containing a working farm, golf course & public open space.
Site Acquisition	1	City park/open space purchased through Federal Land & Water Conservation Fund.
Site Access	1	Poor access requiring construction of roads on steep slopes in clay soils &/or construction of bridges
Area Available for Landfilling	1	Potential landfill area is bisected by numerous ravines
Total Score	**12**	

This site would involve a significant infrastructure planning, design and construction effort as well as considerable costs. Construction of the access roads could cost 1 to 3 million dollars and would take 12 to 24 months to construct. Additionally, most of the lands on this site, including the portion under consideration, were purchased with federal dollars which require that the land be dedicated to public recreation. All non-public recreational uses must be reviewed and approved by the New York State Office of Parks, Recreation and Historic Preservation. Portions of Site 3 are situated within the 100-year floodplain (prohibited siting area) of the Normans Kill. An unconfined aquifer is mapped and incompatible land uses exist near the site (restricted siting areas). As identified above, greater than 5 acres of wetlands occur along the Normans Kill (a class C(T) stream). With impermeable, clay soils mapped on the site, wetlands and drainage areas are likely to exist in pockets over level areas.

In summary, the access problems, deed restrictions associated with developing the Normanskill site, and the extent of wetlands make it an unacceptable site for a landfill.

4. Graceland Cemetery

Graceland Cemetery, Inc. owns approximately 140 acres of land located north of the Normans Kill (Figure 5). It is bounded on the north and east by Interstate 87 and on the west by Delaware Avenue. The western one-third of the site is developed as a cemetery with the remaining portions of the site, east of an unnamed tributary to the Normans Kill, currently undeveloped. The unnamed tributary to the Normans Kill flows through the center of the site with the Normans Kill forming the southern border of the site.

Site elevations range from 70 to 200 feet above mean sea level. Most of the undeveloped portions of the site contain steep slopes (grades ranging from 15 to 30 percent) which drain to the Normans Kill. A large majority of this site is shown on the Geologic Hazards Map as having the potential for landslides or other slope instability problems. Access to the site could be from the Thruway at Exit 23; no other roads are situated in close proximity to this site.

Surficial geology of the site is mapped primarily as lacustrine silts and clays with recent alluvium (fine sands and gravel) situated along the Normans Kill stream corridor. Bedrock mapped by the NYSGS at the site consists of the Normans Kill Shale Formation. No community water supply systems are mapped in the vicinity of this site. A large portion of Site 4 is mapped by Bugliosi as an unconfined aquifer capable of yielding greater than 100 gpm (1988). Those portions of this site near the Normans Kill are situated within the 100-year floodplain. A 1999 review of the DEC Natural Heritage Program files for Site 4 indicated that no threatened or endangered species listed by DEC occur on this site. The DEC Natural Heritage Program is being contacted for this study to confirm the status of this site. Based on a cursory field visit, greater than one and less than five acres of wetlands exist on the site.

The Graceland Cemetery is considered unsuitable for the development of a landfill due to its steep topography and presence of prohibited and restricted siting criteria. The majority of the Graceland Cemetery site contains steep slopes making the development of a landfill extremely difficult and costly. Additionally, the site is located within a 100-year floodplain (a prohibited siting area) and is located above an unconfined aquifer (requiring a variance). Finally, the Graceland Cemetery is privately owned and acquisition would be necessary. A recent site visit revealed no change in site characteristics and surrounding land use.

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- Site Outline
- State Wetlands
- Federal Wetlands
- 100-year Flood Zones

Figure 5

Alternative Landfill

Site # 4 - Graceland Cemetary

Date: 6/13/07 K:\12206\GIS\Map\Siting Maps

Site 4 Evaluation Graceland Cemetery

Criterion	Evaluation	Basis
Unconsolidated Deposits	1	Site is mapped as sand & gravel
Proximity to Water Supply Sources	3	None within one mile.
Natural Topography	1	Most of site contains steep slopes.
Wetland and Aquatic Resources	1	Normans Kill a Class C(T) stream borders site. 1-5 acres of wetlands exist on site.
Local Land Use	2	Area is neither commercial nor industrial & is not residential
Site Acquisition	2	The site is privately owned by Graceland Cemetery Inc.
Site Access	2	Access via Route 9W or 1-787 requires travel over local road that currently carries commercial traffic.
Area Available for Landfilling	1	Most of the site contains slopes.
Total Score	**13**	

Accounting for buffer areas between a landfill cell and existing site features (Normans Kill, I-87), there are no sufficiently level areas on Site 4 to construct a landfill. In order to develop this site, existing ravines would have to be lined then filled, or portions of the site would have to be excavated to create an area suitable for landfill construction. Constructing a stable liner system on steep side slopes is difficult if not impossible because of the tendency for clay to fail under loads when slopes are greater than 20 to 25 percent. Once the slope is loaded (filled with solid waste) the entire facility could slump (move downhill) resulting in partial or complete destruction of the liner system. Excavation to create a level area large enough for a landfill and supporting structures is feasible but in the case of Site 4, not practical because of the amount of excavation required. To create a suitable 15 to 20 acre area, approximately 725,000 cubic yards of material would have to be excavated.

The cost and, more importantly, time, required to move this amount of material makes this alternative unacceptable; therefore, Site 4 is rejected as an alternative site. Additionally, the site is situated within a prohibited siting area: the 100-year floodplain of the Normans Kill. It is estimated that greater than one and less than five acres of wetlands exist on the site. Restricted siting areas for this location include incompatible land use and an unconfined aquifer is mapped.

5. Kenwood/Mt. Hope

This site is located between Kenwood Road, Mount Hope Drive, U.S. Route 9W and State Route 32 in the southeast corner of the City (Figure 6). The site consists of approximately 35 acres of land, primarily owned by Sacred Heart Female Academy with the balance of the site also privately owned. Nature trails exist on the site. Doane Stuart School is located on the south side of Kenwood Road. A Howard Johnson Hotel is located on Route 9W, which also owns a portion of the area. There is a small residential community located along Mount Hope Drive.

According to the USGS Topographic Map, the site lies at approximately 100 feet above mean sea level. Almost the entire site contains steep slopes that slope east toward the Hudson River. Slopes vary from 15 to 40 percent throughout the site. According to the NYSGS Geologic Hazards Map, the entire eastern region of this site has the potential for landslides or other slope instability problems.

Trucks from 1-787 and 1-90 (Exit 23) could travel south on Southern Boulevard (a four lane road) turning onto Doane Stuart Road. Surficial geology of the site is comprised of lacustrine silts and clays with the Normans Kill Shale mapped as the bedrock underlying the site. No community water supply sources were found near this site. Site 5 is not mapped by Bugliosi as an unconfined aquifer (1987). The site does not lie within the 100-year floodplain. A 1999 review of the DEC Natural Heritage Program files for Site 5, indicated that no threatened or endangered species listed by DEC occur on this site. The status of this site is being confirmed for this study. A cursory site visit indicated greater than one and less than five acres of wetlands exist on the site.

Although no prohibited siting areas occur on the Kenwood/Mt. Hope site, it does have similar topography issues as the Frisbie Avenue and Graceland Cemetery Sites. Slopes at this site are steep (15-40%), therefore stability is a primary concern. The site is also adjacent to a school and residential neighborhood (incompatible land uses deemed a restricted siting criteria) making this site not a viable option for the construction of a landfill. A recent site visit revealed the same conditions as reported in the P-4 SDEIS.

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- Site Outline
- State Wetlands
- Federal Wetlands
- 100-year Flood Zones

Figure 6

Alternative Landfill

Site # 5 - Kenwood / Mt. Hope

Date: 6/13/07 K:\12206\GIS\Map\Siting Maps

Site 5 Evaluation Kenwood/Mt. Hope

Criterion	Evaluation	Basis
Unconsolidated Deposits	3	Site is mapped as silt & clay
Proximity to Water Supply Sources	3	Site is not mapped as an aquifer
Natural Topography	1	Almost entire site contains steep slopes (15-40%)
Wetland and Aquatic Resources	2	No state wetlands or water bodies on or adjacent to the site. Federal wetlands (drains) exist on site (1-5 acres)
Local Land Use	1	Area is adjacent to a school & residential neighborhood.
Site Acquisition	2	Site is comprised of more than 1 private owner.
Site Access	2	Access is from Rt. 32 directly off Rt. 9W via a short length on a local road.
Area Available for Landfilling	1	Entire site slopes to the east
Total Score	**15**	

For the same reasons stated in the discussions of Sites 2 and 4, the topography of Site 5 makes it extremely difficult, if not impossible, to construct a landfill at the site. The slopes may not be stable enough to sustain load or weight from solid waste and the clay soil beneath the liner would be vulnerable to slumping, which would damage the liner system. No prohibited siting areas occur on this site; however, Site 5 is situated adjacent to a residential neighborhood (a restricted siting criterion) and between one and five acres of wetlands exist on the site. Site 5 is not considered a viable alternative site due to the proximity to residential areas.

6. Corporate Woods

Site 6, is located south of the Corporate Woods office complex adjacent to 1-90 at the Corporate Woods Boulevard Exit (Figure 7). The site is privately owned and approximately 80% developed. In reviewing tax maps and topographic maps during the site evaluation it was determined that the amount of available land between the Thruway right-of-way and the City's northerly boundary is less than 10 acres (i.e., less than the threshold set). Nonetheless, Site 6 is evaluated in the subsequent section.

According to the USGS Topographic Map, Site 6 has topography that gently slopes to the east and lies at approximately 240 feet above mean sea level. The NYSGS Geologic Hazards Map, indicates that only the northwestern corner of the site is subject to wind erosion. Access could be

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- Site Outline
- 100-year Flood Zones
- State Wetlands
- Federal Wetlands

Figure 7

Alternative Landfill

Site # 6 - Corporate Woods

Date: 6/13/07 K:\12206\GIS\Map\Siting Maps

afforded to this site from 1-90 at Exit 5A. A short distance would have to be traveled on an entrance road to the Corporate Woods office complex prior to reaching Site 6.

This site is mapped as lacustrine sand and the Normans Kill Shale Formation. According to the NYS Department of Health, no community water supply systems are situated in the vicinity of this site. This site is mapped by Bugliosi as an unconfined aquifer capable of yielding between 10 and 100 gpm (1988). The site is not situated within a floodplain area. A 1999 review of the DEC Natural Heritage Program files for Site 6, indicated that no threatened or endangered species listed by DEC occur on this site. As part of the current siting study, correspondence will be sent to the DEC Natural Heritage Program confirming this information. A cursory field visit indicated less than one acre of wetland exists on the site.

The small size of the Corporate Woods site and the fact that it is approximately 80% developed for commercial office space severely limits this property as a potential municipal landfill site. The remaining undeveloped areas are not nearly sufficient enough to accommodate a landfill with the required infrastructure and facilities. No prohibited siting areas are located at the site but restricted siting area criteria include an unconfined aquifer and incompatible adjacent land uses. A recent field visit confirmed these conditions.

Site 6 Evaluation Corporate Woods

Criterion	**Evaluation**	**Basis**
Unconsolidated Deposits	1	Site mapped as sand.
Proximity to Water Supply Sources	3	None within one mile.
Natural Topography	3	Site has gently sloping terrain.
Wetland and Aquatic Resources	3	No state wetlands or water bodies on or adjacent to site. Federal wetlands exist on site (< 1 acre).
Local Land Use	1	Area adjacent to a large commercial office complex.
Site Acquisition	2	Privately owned site.
Site Access	2	Access is from 1-90
Area Available for Landfilling	1	Most of the site is level.
Total Score	**16**	

Site 6 comprises less than 10 acres of land bounded on two sides by Interstate 90 and an exit. The undeveloped area is not sufficient to accommodate a landfill with the required infrastructure

and facilities. Although less than one acre of wetlands exist on the site, Site 6 is not a viable alternative landfill area due to the surrounding site development. Land use adjacent to the site consists of newly developed office buildings which are incompatible structures for a landfill. Additional restricted siting areas include an unconfined aquifer mapped at the site.

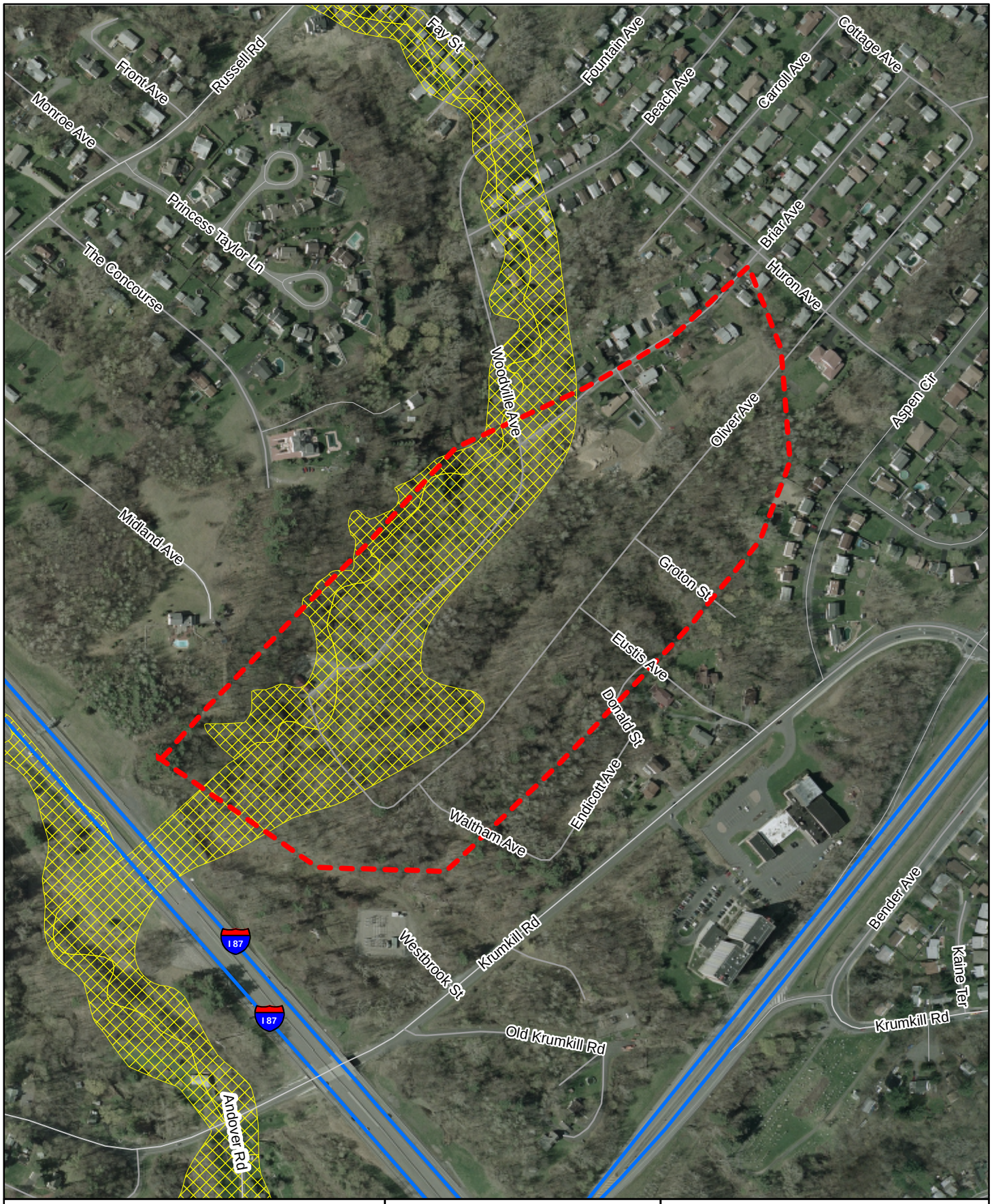
7. Krumkill Road

This site is located west of Krumkill Road, south of Huron Street and east of Briar Avenue and the Krum Kill (Figure 8). Site 7 consists of approximately 50 acres bordered by I-87 on the south and a National Grid electric power substation and transmission line. The northern portion of the site, along Huron Street and Briar Avenue, is a residential neighborhood (approximately 25% of the site). A church and an apartment complex are located on the east side of Krumkill Road. Newer residential developments were observed on Krumkill Road and just off Russell Road since the preparation of the P-4 SDEIS. The site is composed of numerous parcels, with less than 10 percent of the site owned by the City of Albany, and the balance owned by individuals or corporations.

According to the USGS Topographic Map, site elevations range from 200 to 300 feet above mean sea level. Slopes in the northern end of the site, adjacent to the residential area, vary from 8 to 20 percent. Two wetlands along the eastern edge of the property were identified, as well as one wetland in the northeastern corner and an unnamed tributary to the Krum Kill. In the southern portion of the site, slopes range from 10 to 35 percent, sloping generally west to the Krum Kill. According to the NYSGS Geologic Hazards Map, two-thirds of the site is mapped as having the potential for landslides or other slope stability problems.

Access to the site would be from Route 85 and Krum Kill Road. Surficial geology of the site area is mapped as lacustrine silts and clays with bedrock beneath the site mapped as the Normans Kill Shale Formation. No community water supply systems are situated in the vicinity of this site (NYSDOH, 1982). The area is mapped by Bugliosi as a principal aquifer because of the presence of sand and silt deposits interspersed with some lake clay deposits. Only those portions of Site 7 near the Krum Kill are situated within the 100-year floodplain. Based on a review of the DEC Natural Heritage Program files for Site 7, no threatened or endangered species are listed by DEC as occurring on this site as of 1999. Correspondence has been mailed to the DEC Natural Heritage Program confirming this status as part of this siting study. Based on a cursory site visit, greater than five acres of wetlands exist on the site.

The natural topography at the Krumkill Road site varies from 8 to 35%, making only portions of the site suitable for siting a landfill and therefore reducing the available volume and the life span



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1 inch equals 400 feet

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Legend

- Site Outline
- 100-year Flood Zones
- State Wetlands
- Federal Wetlands

Figure 8

Alternative Landfill

Site # 7 - Krumkill Road

Date: 6/13/07 K:\12206\GIS\Map\Siting Maps

of the landfill. The entire area slopes toward the Krum Kill, a class C waterbody and is mapped as an unconfined aquifer. The site also contains areas of designated 100-year floodplain and contains a Federal wetland, both of which are prohibited siting criteria. Furthermore, private residences are within the proposed Krumkill Road site and will need to be acquired and demolished before landfill construction could begin.

Site 7 Evaluation Krumkill Road

Criterion	Evaluation	Basis
Unconsolidated Deposits	3	Site mapped as silt & clay
Proximity to Water Supply Sources	3	None within one mile.
Natural Topography	1	Slopes at the site vary from 8 to 35%.
Wetland and Aquatic Resources	1	Krum Kill is a Class C waterbody. Federal wetlands exist on the site (>5 acres).
Local Land Use	1	Area is residential with a house of worship nearby.
Site Acquisition	2	Site is partly owned by the City with the balance privately owned.
Site Access	2	Access is from Krumkill Road, classified as a minor collector road. This would result in a change in the predominant functional use.
Area Available for Landfilling	1	Entire site slopes toward the Normans Kill.
Total Score	**14**	

Development of the northern portion of Site 7 would require the demolition of existing homes. A landfill could potentially be constructed on the southern two thirds of the site, but this would require demolition of two existing homes and excavation and regrading of 150,000 to 200,000 cubic yards of soil. In addition, due to the site's configuration, available volume and therefore the facility's life span, would be reduced by over 25 percent. A portion of Site 7 is located within the 100-year floodplain (prohibited siting area) of the Krum Kill. It is estimated that greater than five acres of wetlands exist on the site. Restricted siting areas for this location include incompatible land uses and the site is mapped by Bugliosi as an unconfined aquifer. This site is marginal for the above stated reasons and is not considered a viable alternative landfill site.

8. Fuller East

The Fuller East site is located in the northwest corner of the State University of New York (SUNY) campus (Figure 9). The 50-acre site is bounded on the west by Fuller Road and on the north by Washington Avenue. The site is undeveloped except for a parking lot on the northeast

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- State Wetlands
- Federal Wetlands
- 100-year Flood Zones

Figure 9

Alternative Landfill

Site # 8 - Fuller East

Date: 6/13/07 K:\12206\GIS\Map\Siting Maps

corner of the site, a major electric transmission line which bisects the site, and a SUNY Health Services building, parking lot and walkway situated in the southeastern region of the site.

The terrain in this area is relatively flat with ground elevations ranging from 260 to 300 feet. No significant slopes exist at the site. Site 8 is mapped on the Geologic Hazards map as having the potential for wind erosion if stripped of surface cover.

Access to the site could be via Fuller Road or Washington Avenue Extension. Surficial geology of the site is characterized by dunes which consist of fine to medium sands. Bedrock beneath the site is mapped as the Normans Kill Shale Formation. No community water supply systems are mapped in the vicinity of this site (NYSDOH, 1982). This site area is mapped by Bugliosi as a principal aquifer. No floodplains are situated on the site or in close proximity to the site. Site 8 is located within the Pine Bush Study area but is not designated as Pine Bush Protected lands. A 1999 review of the DEC Natural Heritage Program files indicated that the Inland Barrens Buckmoth (state-listed as 'Unprotected') and the Karner Blue Butterfly (state- and federally-listed as 'Endangered') are mapped as occurring on Site 8. Contact has been made with the DEC Natural Heritage Program to confirm this status. Based on a cursory field review, less than one acre of wetlands exists on the site.

The Fuller East site is not considered a viable option due to the presence of two listed threatened or endangered species. Furthermore, the site is owned by the State of New York and is part of the SUNY Albany Campus. Construction of a landfill here would be a significant incompatible land use. There have been no significant changes in land use on or in the vicinity of this site since the P-4 SDEIS.

Site 8 Evaluation Fuller East

Criterion	Evaluation	Basis
Unconsolidated Deposits	1	Site is mapped as sand.
Proximity to Water Supply Sources	3	None within one mile.
Natural Topography	3	Site is relatively flat, no significant slopes.
Wetland and Aquatic Resources	3	Rensselaer Lake is a Class D waterbody located nearby. <1 acre wetlands exist on site.
Local Land Use	1	Site is part of SUNY Albany campus
Site Acquisition	1	Site is owned by State of New York & cannot be acquired by eminent domain.
Site Access	2	Site access from Washington Ave. & Fuller Rd.
Area Available for Landfilling	2	Site is relatively level.
Total Score	**16**	

Development of Site 8 is complicated by two issues. The first is that a major electric transmission line traverses the site and would have to be relocated. Secondly the site is owned by and immediately adjacent to the SUNY Albany Campus. Moving of the transmission line would add significantly to both time and cost of the project. Development of the site would also require that the parking lots and perhaps the health services and maintenance buildings be demolished. Perhaps most important to the development of this site is its current ownership and location on the SUNY campus. The site could not be acquired through Eminent Domain Procedure Law and it is highly unlikely that the State University System would look favorably on constructing a landfill on this parcel. Although the site has less than one acre of wetlands, two threatened or endangered species are mapped as occurring on the site. The site is within the Pine Bush Preserve Study area but is not mapped as protected lands or as a recommended full protection area. There are also two restricted siting areas on this property: incompatible land use and the identification of this site as containing an unconfined aquifer. A recent field visit indicated that no significant changes in land use on or in the vicinity of this site since the P-4 SDEIS.

9. Fuller West

This site is located on the west side of Fuller Road and is bounded to the north and west by Washington Avenue Extension and on the south by the City's common boundary with the Town of Guilderland (Figure 10). Site 9 consists of approximately 35 acres of land and is owned by the State of New York. The site is bisected by existing roads. There is a residential community

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- 100-year Flood Zones
- State Wetlands
- Federal Wetlands

Figure 10

Alternative Landfill

Site # 9 - Fuller West

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located in the Town of Guilderland south of the site and an electric transmission line east of the site. SUNY dormitory buildings and parking lots currently occupy a significant portion of this site.

Ground elevations are close to 260 feet over the entire site. Wetland areas were found to occur in the vicinity of the electric transmission line in the southern region of the site. Surficial geology of this area is the same as for Site 8 with the potential for wind erosion to occur. Bedrock beneath the site consists of the Normans Kill Shale Formation. No community water supply systems are situated in proximity to this site. This area is mapped by Bugliosi as an unconfined aquifer (1988). No floodplains are situated on the site or in close proximity to the site. Site 9 is situated within designated Pine Bush Preserve Study Area but is not designated as Albany Pine Bush Protected Lands or recommended for full protection. A 1999 review of the NYSDEC Natural Heritage Program files for Site 10 indicates that no threatened or endangered species are listed as occurring on this site. Contact has been made with the NYSDEC Natural Heritage Program requesting an update as part of this siting study. Based on a cursory field review, greater than one and less than five acres of wetlands exist on the site.

As this site is also owned by the State of New York, it cannot be acquired through Eminent Domain Procedure Law. The Fuller West site is not considered a reasonable alternative due to its small size and proximity to SUNY dormitories and residential neighborhoods. Lake Rensselaer, a Class D waterbody, is adjacent to the site and an estimated 1-5 acres of wetlands occur within the proposed project area. The Fuller West site is located within the Albany Pine Bush Preserve. A recent site investigation revealed no significant change in these conditions.

Site 9 Evaluation Fuller West

Criterion	Evaluation	Basis
Unconsolidated Deposits	1	Site is mapped as sand
Proximity to Water Supply Sources	3	None within 1 mile.
Natural Topography	3	Site is flat with no significant slopes.
Wetland and Aquatic Resources	2	Rensselaer Lake is Class D somewhat adjacent to site. Approximately 1-5 acres of wetlands exist on site.
Local Land Use	1	Large majority of site is comprised of SUNY dormitories.
Site Acquisition	1	Site owned by State of New York & cannot be acquired by eminent domain.
Site Access	2	Access is from Fuller Rd. but would require construction of an access road.
Area Available for Landfilling	2	Site is relatively level.
Total Score	**15**	

Since there is not enough land to construct a landfill on this parcel and timely acquisition of the site is not guaranteed, Site 9 is not considered a reasonable alternative site for an alternative landfill. The available area on the site for a landfill, and close proximity to SUNY dormitories and residential neighborhoods make site development very difficult. As stated above Site 9 is located within the Pine Bush Preserve Study Area but is provided no additional protections nor is it recommended for additional protections. The site is mapped as an unconfined aquifer by Bugliosi with incompatible land use surrounding the site (both restricted siting areas). Additionally, it is estimated that between one and five acres of wetlands on site.

10. Rapp Road Landfill Eastern Expansion

The Eastern Expansion at Rapp Road has also been evaluated as part of the landfill siting process, particularly as the suitability of other sites is low. There are a number of impacts both adverse and beneficial related to this scenario which are discussed below. In regards to access the sites location immediately adjacent to the existing landfill will result in continued access from Rapp Road. The City will need to acquire an approximately 3.5 acres directly east of the landfill and approximately 1 acre of land owned by New York State, however it presently owns the 13 acres to the northeast that would be necessary for this expansion.

The Eastern Expansion would transform approximately 13 acres of forested land, including 5.6 acres of wetlands, located adjacent of Albany Pine Bush Preserve lands into landfill. To

compensate for this and other issues associated with landfill operations, an extensive Habitat Mitigation, Restoration & Enhancement Plan (Habitat Plan) has been proposed that will recharge wetlands on State lands to the east, create new wetlands, establish historic stream corridors, and convert the mobile home park and eventually much of the landfill to Pine Bush habitat.

Nearby land uses include the NYS Thruway and businesses along Washington Avenue Extension to the south. North of the landfill is a mix of light industrial and residential uses along with lands dedicated to the Albany Pine Bush Preserve. Preserve and State lands also occur to the east and west of the Landfill with a few homes along Rapp Road.

Topography at this site has been influenced by the landfilling operations that have taken place over the years. The GAL is approximately 405 feet high at its highest elevation and the AIL is a slightly lower elevation, although it is not completely filled. Slopes exist along the sides of both landfills. According to the Geologic Hazards map, the site is mapped as having the potential for wind erosion if stripped of surface cover. Access to the site is afforded by an existing infrastructure for the AIL and GAL. Trucks enter the site from Rapp Road via the Thruway and Washington Avenue Extension and travel on existing access roads. Surficial geology of the general area consists of dune sands from the Pine Bush Formation. Bedrock beneath the site is mapped as the Normans Kill Shale Formation. Several subsurface investigations have been conducted at the Rapp Road facility; therefore, the geology of the landfill expansion area is already documented and known. The DEIS for the AIL, the Phase II Investigation Report for the GAL (March 1991), and the Third Supplemental Draft Environmental Impact Statement (TSDEIS) for P-4 all contain boring log information and discussions about geology.

No community water systems exist in close proximity to this site. Fox Run Estates, situated north of the Rapp Road facility, was converted from private water wells to City water around 1991. Site 10 is mapped by Bugliosi as an unconfined aquifer capable of supplying greater than 100 gpm (1987). No floodplains are mapped at this site. Rensselaer Lake is the only major surface waterbody in the vicinity of the site situated approximately 4,000 feet southeast. Based on a review of the DEC Natural Heritage Program files for Site 10, several threatened or endangered species are listed by DEC as occurring in the Pine Bush Preserve; however, none are mapped as occurring on the Rapp Road facility (the AIL, GAL, or P-4).

Site 10 Rapp Road Landfill Eastern Expansion

Criterion	Evaluation	Basis
Unconsolidated Deposits	1	Site is mapped as sand.
Proximity to Water Supply Sources	3	None within one mile.
Natural Topography	3	Site is relatively flat, no significant slopes.
Wetland and Aquatic Resources	1	>5 acres of wetland on site. Cannot be avoided.
Local Land Use	2	Mixture of industrial, commercial & residential.
Site Acquisition	3	Site is owned by City of Albany.
Site Access	3	Expansion would use existing landfill access.
Area Available for Landfilling	3	All areas adjacent to existing landfill allowing expansion and overfill.
Total Score	**19**	

The two major concerns for the expansion are the presence of a primary aquifer and the need to impact wetland. The landfill liner system is designed to prevent leachate from entering the aquifer and an aquifer variance will be required from NYSDEC as part of the Part 360 Permit process. Wetland impacts will be mitigated as part of the Habitat Plan that will ultimately result in the re-establishment of viable Pine Bush habitat linking existing habitat west and east of the landfill and mobile home park. Land use conflicts are not significant but land use is an issue relative to past odor impact issues that the City is currently addressing. The fact that the expansion builds off of existing operations and the majority of surrounding land uses are vacant, Preserve lands, and commercial and industrial uses, land use conflicts are minimal.

5.0 SUMMARY OF EVALUATION

Evaluation criteria used for this study included unconsolidated deposits, proximity to water supply sources, natural topography, wetland and aquatic resources, local land use (including incompatible structures and zoning), site acquisition, and site access. Values of 1 for unfavorable, 2 for acceptable and 3 for favorable were applied to each criterion. The highest ranking site is deemed to be the most favorable landfill site. Based on the evaluation criteria applied to each site, Site 10, the proposed Eastern Expansion of the Rapp Road Landfill, has the highest ranking of the alternative sites evaluated. The following table summarizes scores for each site.

Site Identification	Score
Site 1 (Erie Boulevard)	18
Site 2 (Frisbie Avenue)	15
Site 3 (Normanskill Farm)	12
Site 4 (Graceland Cemetery)	13
Site 5 (Kenwood/ Mt. Hope)	15
Site 6 (Corporate Woods)	16
Site 7 (Krumkill Road)	14
Site 8 (Fuller East)	16
Site 9 (Fuller West)	15
Site 10 (Eastern Expansion)	19

As shown, the scores range from 12 for Site 3 to 19 for Site 10. Several sites do not have appropriate area or configurations to accommodate landfill operations. For instance, Site 6 with a score of 16 covers only about 10 acres of land and therefore would not be a viable option for a landfill facility due to its size. Similarly, Site 8 is situated on the University at Albany's campus representing an incompatible land use and therefore not a viable alternative (refer to the specific evaluation criteria for each site related to the area available for landfilling).

Based on Figure 2, which presents prohibited and restricted siting criteria applied to the City, the following table provides a summary of the number of prohibited and restricted siting criterion that apply to each site.

Site Identification	# of Prohibited Criteria	# of Restricted Criteria
Site 1 (Erie Boulevard	1	2
Site 2 (Frisbie Avenue)	0	1
Site 3 (Normanskill Farm)	1	2
Site 4 (Graceland Cemetery)	1	2
Site 5 (Kenwood/ Mt. Hope)	0	1
Site 6 (Corporate Woods)	1	1
Site 7 (Krumkill Road)	1	2
Site 8 (Fuller East)	2	2
Site 9 (Fuller West)	1	2
Site 10 (Eastern Expansion)	0	2

Prohibited siting areas applied to the City included 100-year floodplains, DEC-mapped wetlands, threatened and endangered species, and the Pine Bush Preserve. Sites 1, 3, 4, and 7 have a portion of their area covered by the 100-year floodplain. No sites were found to be situated within a DEC-mapped wetland area. Regarding restricted siting criteria, it is important to note that eight of the ten sites reviewed for this study are either mapped entirely or partially as an unconfined aquifer that could be considered a principal aquifer.

The following list provides a summary of whether each site is considered to be a viable alternative landfill site and why:

Site Designation	Viable Alternative?	Primary Reasoning
Site 1	No	Lack of sufficient area for landfilling.
Site 2	No	Lack of sufficient area for landfilling.
Site 3	No	Irregular geometry of level areas.
Site 4	No	Slopes and unnamed tributaries to the Normans Kill bisect the site.
Site 5	No	Significant slopes exist on the site.
Site 6	No	Site is primarily developed already.
Site 7	No	Topography of the site not conducive to landfilling.
Site 8	No	Lack of sufficient area for landfilling.
Site 9	No	Lack of sufficient area for landfilling.
Site 10	No	Expansion of existing landfill accompanied by a comprehensive habitat restoration plan

Although there are adverse impacts related to the Eastern Expansion, it provides the best opportunity for a short term solution (6-7 years) to address the needs of the ANSWERS communities and the region. It is considered the only viable short term option to address landfill needs within the remaining life of the current P-4 expansion (approximately 3 years).

6.0 RESULTS & CONCLUSIONS

The City of Albany has conducted siting studies in 1988, 1989, 1996, and 1999 to evaluate options for solid waste disposal within the corporate boundaries of the City for either a long term or interim facility. The purpose of this report is to update the 1999 study, providing a current evaluation of the sites based on the criteria set forth in NYCRR Part 360, Solid Waste Management Facilities (October, 1993). The 1999 site selection study applied the prohibited and restricted siting criteria provided in Part 360 to the City of Albany as a whole and concluded that no areas within the City of Albany satisfy the requirements. Therefore, the sites previously identified in the 1989 study were evaluated based on ranking system.

This 2007 siting study used the same ranking criteria to update the report. As anticipated, the results are essentially the same due to the fact the any location within the City that supports reasonably developable land is either developed or surrounded by development, most often residential or mixed uses. The physical conditions of the alternative sites and the surrounding land use have not changed significantly since the 1999 study.

When comparing rankings, the proposed Rapp Road Landfill Eastern Expansion ranks the highest due to the fact that this alternative avoids the need to retrofit a new landfill operation on a new site. Selection of a new site would be a far more costly proposition for the City that would yield limited capacity (an interim solution) and would result in greater land use, traffic and infrastructure impacts than what is anticipated for the Eastern Expansion.

SELECTED SITE PHOTOGRAPHS

Photo 1, Erie Boulevard, Department of General Services Building

Photo 2, Erie Boulevard, Composting Area

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Sheet 1	CHA File No. 12206

SITE PHOTOGRAPHS

Albany Landfill Eastern Expansion
City of Albany
Albany County, NY

Photo 3, Frisbie Avenue Memorial Fields

Photo 4, Frisbie Avenue –Western Sports Field

CLOUGH HARBOUR & ASSOCIATES LLP

Sheet 2	**CHA File No. 12206**

SITE PHOTOGRAPHS

Albany Landfill Eastern Expansion
City of Albany
Albany County, NY

Photo 5, Site 3- Normanskill Farm

Photo 6, Site 3- Normanskill Farm

CLOUGH HARBOUR & ASSOCIATES LLP

Sheet 3	**CHA File No. 12206**

SITE PHOTOGRAPHS

Albany Landfill Eastern Expansion
City of Albany
Albany County, NY

Photo 7, Site 4- Graceland Cemetery

Photo 8, Site 5-Kenwood/Mt. Hope

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Sheet 4	**CHA File No. 12206**

SITE PHOTOGRAPHS

Albany Landfill Eastern Expansion
City of Albany
Albany County, NY

Photo 9, Site 6- Corporate Woods

Photo 10, Site 7- Krumkill Road- Niagara Mohawk Substation

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Sheet 5	**CHA File No. 12206**

SITE PHOTOGRAPHS

Albany Landfill Eastern Expansion
City of Albany
Albany County, NY

Comprehensive Recycling Analysis
Eastern Landfill Expansion

City of Albany Rapp Road Solid Waste Management Facility

CHA Project Number: 12206

Prepared for:

The City of Albany, New York

Prepared by:

Clough, Harbour & Associates LLP
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CLOUGH HARBOUR & ASSOCIATES LLP

July 30, 2007

A comprehensive recycling analysis prepared by the City of Albany on behalf of the ANSWERS solid waste planning unit has previously been submitted to the New York State Department of Environmental Conservation (NYSDEC). The analysis was completed in 1988 as part of the ANSWERS Solid Waste Management Plan (SWMP), and was updated in 1991. The plan has been implemented since that time by the City of Albany and the participating ANSWERS solid waste planning unit representatives; and is updated on a regular basis by the compliance reports submitted to the NYSDEC. The approved SWMP is included in this 6 NYCRR Part 360 Solid Waste Management Facility Permit Application by reference.

Leachate Management Plan
Eastern Landfill Expansion

City of Albany Rapp Road Solid Waste Management Facility

CHA Project Number: 12206

Prepared for:

The City of Albany, New York

Prepared by:

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CLOUGH HARBOUR & ASSOCIATES LLP

July 30, 2007

A Leachate Management Plan included as part of this 6 NYCRR Part 360 Solid Waste Management Facility Permit Application has been prepared and is included in Section 3 - Engineering, Operations, and Landscaping Plan Drawings and Section 4 - Engineering Report.

Mined Land Use Plan
Eastern Landfill Expansion

City of Albany Rapp Road Solid Waste Management Facility

CHA Project Number: 12206

Prepared for:

The City of Albany, New York

Prepared by:

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July 30, 2007

This 6 NYCRR Part 360 Solid Waste Management Facility Permit Application does not propose to mine on-site soils on a continual basis for use as daily or intermediate cover material during facility operations. On-site soils excavated during construction will be used in the construction of the landfill facility. No soils will be excavated and removed from the project site. Therefore, a formal mining permit in accordance with Part 422 of Title 6 has not been prepared.

Financial Assurance Estimate
Eastern Landfill Expansion

City of Albany Rapp Road Solid Waste Management Facility

CHA Project Number: 12206

Prepared for:

The City of Albany, New York

Prepared by:

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July 30, 2007

The financial assurance closure cost estimate is presented in two parts. The first part is the closure cost associated with closing the portion of the landfill that remains active over the life of the Eastern Landfill Expansion, and the second part is for the cost of monitoring and maintenance, including leachate treatment cost, associated with the Eastern Landfill Expansion over the 30 year post-closure monitoring period. Each of these costs is presented, as follows.

Approximately 36 acres of the Rapp Road Solid Waste Management Facility will remain active during the life of the Eastern Landfill Expansion. This area will be closed in accordance with the plan described in the Engineering Report and detailed on the Permit Drawings included in the 6 NYCRR Part 360 Permit Application. The cost for completing the closure construction is estimated to be approximately $7,995,000. This cost assumes that the entire closure will be completed by a contractor hired by the City. Reference Table 1 for a summary of the closure cost estimate.

The post-closure environmental monitoring costs for the landfill over the 30 year post-closure period were estimated considering the monitoring requirements set forth in the Environmental Monitoring Plan appended to the Hydrogeologic Report included in the 6 NYCRR Part 360 Permit Application. Post-closure maintenance costs for the Eastern Landfill Expansion area were estimated for tasks typical for closed municipal landfills including gas and leachate collection systems operation and maintenance, leachate treatment, cover soils repairs, and mowing. The total cost associated with monitoring and maintenance over the 30 year period is estimated to be approximately $5,163,000. Table 2 provides a summary of post-closure monitoring and maintenance.

In summary, the total cost for associated with closure construction and post-closure monitoring and maintenance for the Eastern Landfill Expansion for establishing financial assurance documents is $13,158,000.

TABLE 1

Eastern Landfill Expansion
Rapp Road Solid Waste Management Facility
Closure Cost Estimate

May 15, 2007

Item	Unit Price		Quantity		Cost
Mobilization/Demobilization	$341,792.24	l.s	100.00	%	$341,792.24
Health & Safety Plan	$5,000.00	l.s	100.00	%	$5,000.00
Non-Woven Geotextile	$0.17	/s.f.	26,000.00	s.f.	$4,420.00
Cushion Soil Layer	$14.00	/c.y.	58,000.00	c.y.	$812,000.00
40 Mil Textured LLDPE	$0.53	/s.f.	1,568,160.00	s.f.	$831,124.80
Composite Drainage Netting	$0.55	/s.f.	990,000.00	s.f.	$544,500.00
Barrier Protection Fill	$14.00	/c.y.	116,160.00	c.y.	$1,626,240.00
Topsoil	$15.00	/c.y.	29,000.00	c.y.	$435,000.00
Establish Vegetation	$2,000.00	/ac.	36.00	ac.	$72,000.00
Soil Barrier Layer	$16.00	/c.y.	116,160.00	c.y.	$1,858,560.00
Stormwater Controls	$50,000.00	l.s	100.00	%	$50,000.00
Fine Stone Fill	$50.00	/c.y.	1,000.00	c.y.	$50,000.00
Crusher Run	$20.00	/c.y.	600.00	c.y.	$12,000.00
Silt Fence	$3.00	/l.f.	5,000.00	l.f.	$15,000.00
Mulching Blanket	$0.20	/s.f.	1,600,000.00	s.f.	$320,000.00
Site Grading	$200,000.00	l.s	100.00	%	$200,000.00
Subtotal:					**$7,177,637.04**
Construction Observation	$60,000.00	l.s	100.00	%	$60,000.00
Construction Administration	$40,000.00	l.s	100.00	%	$40,000.00
10 % Const. Contingency	$717,763.70	l.s	100.00	%	$717,763.70
Total Cost:					**$7,995,400.74**

TABLE 2

Eastern Landfill Expansion
Rapp Road Solid Waste Management Facility
Post-Closure Monitoring & Maintenance Cost Estimate

May 15, 2007

Item	Unit Price		Quantity		Cost
Environmental Monitoring					
Quarterly Monitoring	$53,000.00	/yr.	30.00	yrs.	$1,590,000.00
Landfill Inspections					
Quarterly Inspections	$5,500.00	/yr.	5.00	yrs.	$27,500.00
Semi-Annual Inspections	$3,000.00	/yr.	25.00	yrs.	$75,000.00
Site Maintenance					
Cover System Mowing	$2,500.00	/yr.	30.00	yrs.	$75,000.00
Erosion Repairs/Re-seeding	$25,000.00	/yr.	30.00	yrs.	$750,000.00
Gas/Leachate Systems O&M	$80,000.00	/yr.	30.00	yrs.	$2,400,000.00
Subtotal:					**$4,917,500.00**
5 % Const. Contingency	$245,875.00	l.s	100.00	%	$245,875.00
Total Cost:					**$5,163,375.00**

Notes:

1. Estimates in all categories include reporting.

Gas Collection System Design Plan
Eastern Landfill Expansion

City of Albany Rapp Road Solid Waste Management Facility

CHA Project Number: 12206

Prepared for:

The City of Albany, New York

Prepared by:

Clough Harbour & Associates LLP
III Winners Circle
Albany, New York 12205
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July 30, 2007

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1.0 INTRODUCTION

1.1 GENERAL

The Rapp Road Waste Management Facility currently has a gas collection system that has been installed in phases over the life of the facility. The initial system in the Greater Albany Landfill was passive with several vents fitted with vent flares. With the construction of the Albany Interim Landfill (Cells 1-5) and the "Wedge" (Cell 6) a series of horizontal collection lines were installed and connected to an active collection system in about 1996. In 1997 and 1998, additional collection wells and piping was installed in the Greater Albany Landfill with the construction of a gas to energy facility. In the late 1990's the system was expanded with the construction of the P-4 Expansion (Cells 7-9) with a series of horizontal collection trenches, vertical wells and associated header piping and laterals. The system was again expanded in 2001 with the construction of Cells 10 and 11. The current system is comprised of over 20 horizontal collection trenches and over 75 vertical collection wells to remove landfill gas under vacuum.

The City of Albany proposes the expansion of the facility to the east of the existing landfill. The Eastern Expansion of the landfill will involve an overfill of approximately 22 acres of the existing landfill and a lateral expansion of approximately 14 acres onto the adjacent City-owned property. The main components of the Rapp Road Landfill Eastern Expansion include a landfill liner system, a leachate collection and removal system, and a landfill gas collection system.

The collection system design plan which is outlined in the following sections incorporates elements of the existing system. The plan was developed in accordance with the requirements of 6 NYCRR Part 360-2.21 Landfill Gas Collection and Control Systems for Certain Municipal Solid Waste Landfills.

2.0 COLLECTION SYSTEM DESIGN REQUIREMENTS

The collection system must meet the requirements set forth in 6 NYCRR Part 360-2.21(c). The design plan for an active collection system must show that it meets the following four criteria:

- Can handle the maximum expected gas flow rate over the expected lifespan of the collection system equipment.
- Will collect gas from each area or cell in which waste has been placed for 5 years if the cell is active, and 2 years if it is closed or at final grade.
- Will collect gas at a sufficient extraction rate.
- Will minimize off-site migration of subsurface gas.

These design criteria are met at the Rapp Road Waste Management Facility.

2.1 MAXIMUM EXPECTED GAS GENERATION FLOW RATE

The maximum expected gas flow rate for the Rapp Road Waste Management Facility (including the Eastern Expansion) was calculated using EPA's LandGEM model. The Clean Air Act (CAA) defaults for the methane generation constant ($k = 0.05\ yr^{-1}$) and methane generation potential ($L_o = 170\ m^3/Mg$) were utilized in order to obtain a conservative estimate. Actual quantities of waste placed were input for years 1969-2006. Estimated values of waste to be placed were input for years 2007-2017. The LandGEM report is located in Appendix A. LandGEM calculations indicate that maximum average landfill gas production will be reached in 2011 at a rate of 4,448 ft^3/min.

2.2 GAS COLLECTION SYSTEM

Gas will be collected from each area of the Rapp Road Waste Management Facility in which waste has been placed. The current gas collection system composed of horizontal collection trenches, vertical collection wells and gas headers will be expanded to accommodate the

additional gas generated in the Eastern Expansion Area. The proposed additional gas collection system components are shown on the Gas Collection System Plan included in the Permit drawings.

The collection system has been designed to allow for accessibility of the system components for inspection or repair. Additional collection wells, collection trenches and header piping installed are surveyed upon installation.

The collection system has been designed to accommodate the filling of the landfill with the placement of header piping and gas connections points around the perimeter of the landfill cells that allows for connection of additional collection wells and collection trenches as filling of the waste progresses.

The collection system design will be integrated with the anticipated closure end use of the landfill. Connection of header and lateral piping above the final cover cap will be connected to collection wells and the header system around the perimeter of the landfill cells.

2.3 EXTRACTION RATE

For purposes of demonstrating that the gas collection system flow rate is sufficient, gauge pressure at each individual well will be monitored monthly. The collection system must maintain a negative pressure at all wellheads in the collection system without causing air infiltration.

The extraction components are sized appropriately to convey the projected gas, withstand installation, static and settlement, properly perforated so as not to impair head loss and prevent excessive air infiltration and the gravel around the pipe perforations are of correct size as not to enter the perforations.

A viscosity of 1.09E-4 ft^2/s was used for landfill gas when designing the landfill gas collection system.

2.4 MINIMIZATION OF OFF-SITE MIGRATION

Landfill gas migration at the site is controlled with the use of an active gas collection system and appropriate collection well and trench spacing based on the zone of influence, to ensure sufficient density of collection devices.

In order to demonstrate that the off-site migration of gas is minimized, methane concentration must remain below 500 ppm above background at the surface of the landfill. After installation of the collection system, the owner or operator must monitor surface concentrations of methane along the entire perimeter of the collection area and along a pattern that traverses the landfill at 30 meter intervals for each collection area on a quarterly basis.

3.0 CONTROL SYSTEM DESIGN REQUIREMENTS

The landfill gas control system is addressed in the Part 201 Permit Application/ Modification.

4.0 WELL FIELD CONSTRUCTION/DENSITY OF GAS COLLECTORS

The landfill gas extraction components shall be constructed of polyvinyl chloride (PVC) , high density polyethylene (HDPE), fiberglass, stainless steel or other nonporous corrosion resistant material of suitable dimensions to convey projected amounts of gas and withstand settlement forces and overburden or traffic loads. The materials use d for the construction of the underground components of the gas collection system is composed of either high density polyethylene (HDPE) or polyvinyl chloride (PVC). Carbon steel is used for flare system piping. HDPE is used for underground header, lateral and collection trench piping due to it's ability to flex and adjust to differential settlement without compromising it's structural integrity and the method used for joining pipe sections and fitting together are as strong as the pipe itself. PVC piping is used for construction of collection wells because the pipe will break and not pinch with movement of the well. Breaking of the well riser allows for continued collection of landfill gas through the filter material placed around the well riser.

Collection systems shall be perforated to allow gas entry without head loss sufficient to impair performance across the intended extent of control. Perforations shall be situated with regard to the need to prevent excessive air infiltration. The collection devices are designed to not allow indirect short circuiting of air into the cover or refuse in to the collection system or gas into the air. This is accomplished through placement of the wells tat the appropriate density to ensure the zone of influence for each well is not significantly influenced by adjacent wells and through tuning to the desired gas quality and flow rate to reduce air intrusion and optimize gas collection. In addition, the use of cover material reduces air intrusion. The depth of refuse is evaluated during design of the collection devices to ensure the integrity of the baseliner system is not compromised during collection well installation and ensure enough vacuum is available to influence the anticipated well zone of influence.

Air intrusion control is achieved with the adjustment of the well head at each collection point. The collection point is tuned to the desired gas quality and flow rate to reduce air intrusion.

Vertical wells shall be placed so as not to endanger underlying liners and shall address the occurrence of water within the landfill. Holes and trenches constructed for piped wells and horizontal collectors shall be of sufficient cross-section so as to allow for their proper construction and completion. Collection devices shall be designed so as not to allow indirect short circuiting of air into the cover or refuse into the collection system or gas into the air. Any gravel used around pipe perforations should be of a dimension so as not to penetrate or block perforations.

Collection devices may be connected to the collection header pipes below or above the landfill surface. The connector assembly shall include a positive closing throttle valve, any necessary seals and couplings, access couplings and at least one sampling port.

4.1 HORIZONTAL COLLECTION TRENCHES

Horizontal collection trenches are installed during the active phase of landfilling. The collection trenches are excavated into the waste mass at a horizontal spacing of 100 feet and a vertical spacing of 40 feet. The trenches are constructed with perforated 12 inch HDPE pipe surrounded by tire chips or stone interlaced with solid 4 inch HDPE pipe at the penetration of the mass to connect to the gas collection header.

4.2 VERTICAL COLLECTION WELLS

Vertical collection wells are generally installed as the waste mass meets the proposed finished grade at spacing between 100 to 200 feet. The vertical collection wells are generally installed to a depth of about 75 percent of the total waste height and constructed with PVC ranging in diameter from 2 to 6 inches. Wells are to be constructed with slotted pipe in the bottom ¾ of the well surrounded with stone, and then completed with a solid pipe riser surrounded with benonite to seal the well and eliminate air infiltration.

To ensure that the underlying baseliner system of the landfill cells are not damaged during installation of vertical collection wells, as-built drawings of the baseliner system and survey of

the top of waste mass are examined. The location of the vertical well is determined and the difference between the top of waste and baseliner is calculated and a maximum well depth of 75 percent of the difference is used for construction of the well.

Should water be encountered in the landfill during installation of the well, the well is either placed above the water elevation or the well is installed at the planned depth. If the well is installed at the planned elevation or becomes filled with water subsequent to installation, the water will be removed from the well with a dedicated well pump. Upon installation of the well pump, the well will be evaluated to determine if replacement of the well is required due to inability to drain the well.

4.3 COLLECTION SYSTEM AND CONDENSATE

The collection system conveys landfill gas from the horizontal collection trenches and the vertical collection wells to the landfill gas control devices. Collection system piping is constructed of HDPE pipe ranging in diameter from 6 to 12 inches. The piping is buried at a minimum depth of four feet within the waste mass or outside the footprint of the landfill, and is placed at the maximum slope possible to accommodate landfill settlement. Condensate is removed from the collection system piping with the use of condensate drop outs and condensate traps. The collected condensate is transported to the leachate collection system for discharge into the leachate collection system.

4.4 BLOWER SYSTEM

The main gas collection header is connected to the blower system and the landfill gas control devices. The blower system provides vacuum to collect gas from the wellfield. Collected landfill gas is routed through the collection system to the blower at vacuum ranging from 10 to 55 inches of water depending on operating conditions of the well field. It is then discharged from the blower at a pressure ranging from 10 to 20 pounds per square inch through a flame arrestor to the appropriate control device.

5.0 OPERATIONAL STANDARDS

To demonstrate that the design criteria for the collection and control system are met, the system must be monitored for compliance with the following operational standards as listed in 6 NYSCRR Part 360-2.21:

- A negative pressure must be maintained at each wellhead.
- Temperature of the collected LFG must remain below 55 ^{o}C.
- Nitrogen concentration in the collected LFG must be maintained below 20%, or oxygen concentration below 5%.
- Methane concentration must remain below 500 ppm above background at the surface of the landfill. Surface testing is conducted at 30 meter intervals.
- Control devices must be operated at all times when LFG is routed to the device.
- If the control device becomes inoperable, the gas mover system must be shut down within one hour.

Air intrusion control is achieved with the adjustment of the well head at each collection point. The collection point is tuned to the desired gas quality and flow rate to reduce air intrusion.

5.1 NEGATIVE PRESSURE AT WELLHEADS

The collection system is designed to provide a negative pressure at each wellhead. Pressure readings at each wellhead will be performed on a monthly basis.

5.2 TEMPERATURE

Temperature at each wellhead will be monitored on a monthly basis.

5.3 NITROGEN/OXYGEN CONCENTRATION

For purposes of demonstrating whether excess air infiltration into the landfill is occurring, each well must be monitored monthly for nitrogen or oxygen concentration. Wells will be monitored monthly.

5.4 METHANE CONCENTRATION

The gas collection system will be operated so that the methane concentration is less than 500 ppm above background at the surface of the landfill. Surface testing will be performed around the perimeter and on the surface at an interval of about 100 feet and at areas that indicated signs of distress due to gas migration. These surface scans will be performed on a quarterly basis. The scan route is included in Appendix I.

5.5 CONTROL DEVICE OPERATION/GAS MOVER SHUTDOWN

The gas engines are equipped with measuring devices that record flow. In the event the engines shut down, the gas is automatically diverted to the flare (2,000 ft^3/min John Zink) for combustion. In the event the flare shuts down, the system vacuum will reduce, and only enough landfill gas required to operate the engines will be recovered. The facility does not utilize a lock and key device to prevent bypass, rather the system automatically diverts gas to either functioning control device, or shuts the landfill in if neither the flare nor engines are operational. This system prevents any bypass and is equivalent to the lock and key configuration. The following shutdown sequences are followed at the gas to energy facility:

Flare Failure

- Flare shuts down
- Flare attempts three automatic restarts
- Automatic valve to flare inlet quickly closes preventing any gas from venting to atmosphere if three restart attempts fail.

- Blower continues to operate to supply gas to the engines

Engine(s) Failure

- Engine(s) shut down
- Pressure regulating valve closes and diverts gas to the flare (gas flow to engines blocked)
- Blower continues to operate to supply gas to the flare
- Compressor shuts down

Blower Failure

- Flare shuts down
- Engine shuts down
- The inlet, flare and engine pressure-sensing automatic valves all close to prevent gas from venting to atmosphere.

Total System Failure (loss of utility power)

- Flare, engines and blower shut down
- All automatic valves close
- Entire facility is isolated from the collection system preventing any gas venting to atmosphere.

The collection and destruction equipment is equipped with a thermocouple. When the thermocouple senses that the temperature has dropped below 400 ^{o}F, the gas flow to the flare is stopped with the use of an automatic valve, and three automatic restarts are attempted. If the three restart attempts fail, an alarm signal is sent indicating that the flare is shutdown and unable to restart.