Voluntary Cleanup Program
Site Investigation / Remedial Alternatives Report

for the
Former Dowell Facility
Depew, New York

prepared for:

Volunteers

Dowell, a Division of Schlumberger Technology Corporation
Dowell Schlumberger Incorporated
The Dow Chemical Company

prepared by:

URS Corporation
282 Delaware Avenue
Buffalo, New York 14202

Final
March 2002

VOLUNTARY CLEANUP PROGRAM
SITE INVESTIGATION / REMEDIAL ALTERNATIVES REPORT

FOR THE

FORMER DOWELL FACILITY
3311 WALDEN AVENUE
DEPEW, NEW YORK

Prepared For:

VOLUNTEERS
DOWELL, A DIVISION OF SCHLUMBERGER TECHNOLOGY CORPORATION
DOWELL SCHLUMBERGER INCORPORATED
THE DOW CHEMICAL COMPANY

Prepared By:

URS CORPORATION
282 DELAWARE AVENUE
BUFFALO, NEW YORK 14202

FINAL

MARCH 2002

FORMER DOWELL FACILITY

SITE INVESTIGATION/REMEDIAL ALTERNATIVES REPORT

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1.0 INTRODUCTION

URS Corporation (URS) performed a Site Investigation (SI) for Dowell, a division of Schlumberger Technology Corporation at the Former Dowell Facility located at 3311 Walden Avenue in Buffalo, New York. The SI was conducted under a Voluntary Cleanup Agreement (VCA) between Dowell, a division of Schlumberger Technology Corporation , The Dow Chemical Company, Dowell Schlumberger Incorporated (the Volunteers), and the New York State Department of Environmental Conservation (NYSDEC) (VCA Index #B9-0586-00-10).

The following SI activities were performed consistent with the NYSDEC approved Work Plan:

- Preparation of a site investigation work plan;
- Excavation of one test trench east of the Former Maintenance Shop along an existing drain line with collection of two soil samples;
- Collection of sediment samples at two floor drain/sump locations inside of the Former Maintenance Shop and at two sumps located outside of the Former Maintenance Shop;
- Advancement of soil borings at ten locations inside of the Former Maintenance Shop and Former Chemical Storage Building immediately adjacent to existing floor drains/sumps with the collection of five soil samples from selected boring locations;
- Advancement of soil borings at eleven locations around the perimeter of the Former Chemical Storage Building and the Former Acid Plant with collection of ten soil samples from selected boring locations;
- Installation of four new shallow groundwater monitoring wells and two piezometers;
- Performance of hydraulic conductivity testing in five monitoring wells;
- Collection of groundwater samples in eight groundwater monitoring wells (four new wells and four existing wells) and two piezometers;

- Collection of several rounds of groundwater level readings and preparation of groundwater contour maps;

- Performance of an asbestos survey in the Former Maintenance Shop and Former Chemical Storage Building;

- Land surveying of all investigation locations performed during the SI and preparation of site maps.

Following completion of the SI, a Remedial Alternatives Report (RAR) was prepared. Based on the results of the SI, various remedial alternatives were developed and evaluated and a preferred alternative was selected for the site.

1.1 Purpose of Report

The purpose of this SI/RAR is to:

- Present a summary of the SI activities and results;

- Identify remedial alternatives;

- Evaluate each remedial alternative for compliance with the selected criteria; and,

- Present the rationale for selection of the preferred alternative.

1.2 Site Description and History

The Former Dowell Facility is located to the east of Buffalo, New York on Walden Avenue in the Village of Depew (Figure 1-1). The site is situated in a mixed residential and industrial/commercial area. Properties surrounding the site include Walden Avenue to the north, a railroad yard to the south, a lumber yard and supply store (84 Lumber) to the east, and an industrial manufacturer (Buffalo Batt and Felt) to the west. A residential neighborhood is located across Walden Avenue to the north.

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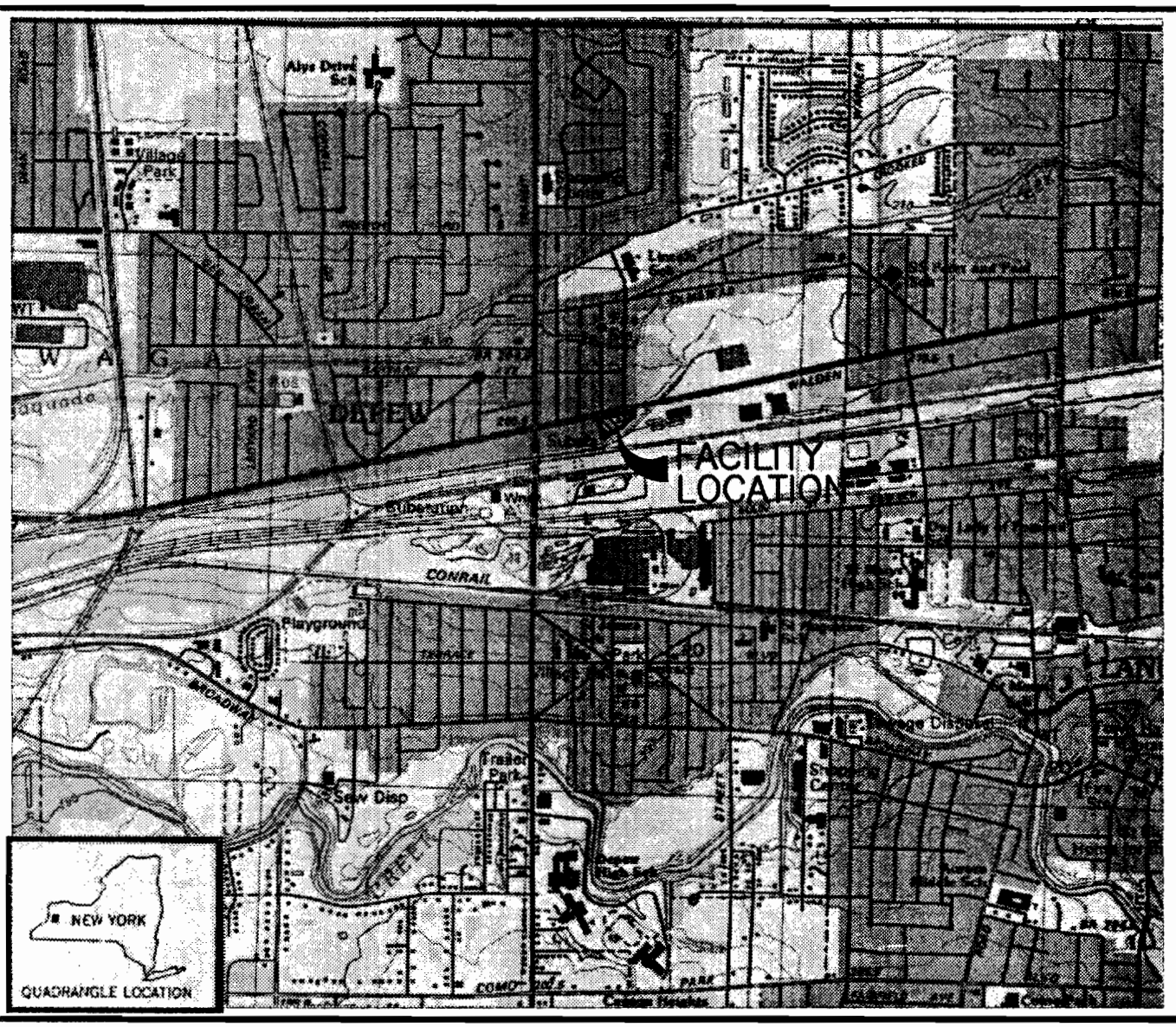

REFERENCE:
BASE MAP IS A PORTION OF THE U.S.G.S. 7.5 x 15 MINUTE TOPOGRAPHIC SERIES LANCASTER, NY QUADRANGLE. DATED: 1982. SCALE: 1" = 2000', CONTOUR INTERVAL IS 2 METERS.

2000' 0 2000'

SCALE: 1"= 2000'

VOLUNTARY CLEANUP PROGRAM – FORMER DOWELL FACILITY

URS	SITE LOCATION MAP	FIGURE 1-1

AC-15630

The facility is relatively flat-lying and covers approximately 3.5 acres. It is presently inactive and remaining vacant structures on the property include a former office building, a former chemical storage warehouse, and a former maintenance shop (Figure 1-2). A former railroad spur runs east-west through the center of the site. The property is secured with a locking 6-foot high chain-link fence around the entire perimeter of the site.

Former activities at the facility included servicing industrial facilities and limited oil-field related projects. Various industrial cleaning and oil-field chemicals were stored onsite and transferred into tank trucks for use at job sites.

1.3 Previous Investigations

Previous investigations at the facility were associated with various environmental-related projects. In September 1989, Geraghty & Miller (G&M) completed a tank removal project. This project involved the removal of one 1,000-gallon underground storage tank (UST) and its associated fuel dispenser, and one 8,000-gallon aboveground storage tank (AST). Both tanks were used for fuel storage. During this project, residual hydrocarbons were detected in fill materials surrounding the UST and beneath its dispenser. The contaminated fill material was excavated and transported offsite for disposal. There was no apparent evidence of residual hydrocarbons in the native soils surrounding the tank excavation and beneath the dispenser area. G & M installed a monitoring well in the UST excavation to allow for the future collection of groundwater samples.

In May 1990, G & M performed a site investigation at the Former Dowell Facility. The objective of this investigation was to determine the presence of chemical constituents in site soils and groundwater. The investigation results revealed that low-level concentrations of volatile organic compounds (VOCs) were present in shallow groundwater within fill materials beneath the northeast corner of the site, and in the north-central portion of the site, adjacent to a former transfer and chemical storage tank area. The shallow saturated zone occurred between depths of 0.5 feet and 2.0 feet below grade. This zone was characterized to be a thin discontinuous perched groundwater lens.

N

WALDEN AVENUE

PROPERTY LINE

WATER-METER VAULT

FORMER TANK

SLIDING GATE

FORMER BULK CEMENT PLANT

FORMER ACID PLANT

FORMER 8000 GALLON DIESEL TANK

SIDEWALK

MAINTENANCE SHOP

FORMER FUEL DISPENSER

HCl TANK

FORMER RAILROAD SPUR

OFFICE (3311 WALDEN AVE)

CORRUGATED STEEL BLDG.

BRICK BUILDING

OFFICE

FORMER 1000 GALLON GASOLINE UST (REMOVED)

FORMER CEMENT SILOS

FORMER COMPRESSOR

FORMER CHEMICAL STORAGE

WASH BAY

TRAILER

FORMER OIL SEPARATOR (ABANDONED)

FORMER MUD SEPARATOR (ABANDONED)

Legend

- Former Structure
- Floor Drain/Catch Basin or Sump Location
- Property Line
- Fence Line
- Drain Line

40 0 40 Feet

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1/15/2002

FORMER DOWELL FACILITY
SITE PLAN

URS

FIGURE 1-2

In January 1992, G & M performed a physical/chemical evaluation of groundwater at the former UST location. No visible hydrocarbons (sheen) were present and no VOCs or total petroleum hydrocarbons (TPH) were detected in the groundwater sample.

From September 1996 to March 1997, Radian International LLC (Radian) installed four monitoring wells (MW-01, MW-02, MW-03 and MW-04) at the site (Figure 1-3), conducted two rounds of groundwater sampling, and decommissioned the mud separator. Groundwater samples were analyzed for VOCs, Resource Conservation and Recovery Act (RCRA) metals and TPH. MW-3 showed detected concentrations of 1,1-dichloroethene (DCE), 1,1-dichloroethane (DCA), and 1,1,1-trichloroethane (TCA) at levels which exceed the maximum concentration levels (MCL's) presented in NYSDEC Division of Water Technical and Operational Guidance Series (TOGS) 1.1.1: *Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations* (6/98). TPH and methylene chloride was detected in each of the four monitoring wells, but were attributed to an upgradient source. Lead was present in MW-02 and MW-04 at concentrations which exceeded their MCLs.

In November 1997, Radian performed a supplemental investigation which consisted of advancing three soil borings (SB-01, -02 & -03) around MW-03 and five soil borings (SB-04 to SB-08) around the perimeter of the Former Acid Plant (Figure 1-3). Groundwater samples also were collected from the four existing monitoring wells. Soil samples were collected from each boring around MW-03 for VOC analysis. Analytical results from soil samples were compared to the NYSDEC Technical and Guidance Memorandum (TAGM) 4046: *Determination of Soil Cleanup Objectives and Cleanup Levels* (1/94). SB-01 (4' to 6') and SB-03 (16' to 18') showed no VOC detections greater than TAGM 4046 Levels. SB-02 (6' to 8') exhibited a concentration of DCE greater than its TAGM 4046 level. Soil samples were also collected from various intervals at the five borings (SB-04, SB-05, SB-06, SB-07, and SB-08) around the Former Acid Plant. Analytical results from soil samples collected at SB-06 (10' - 12' and 14' - 16') and SB-08 (2' - 4' and 6' - 8') showed no VOC detections greater than the TAGM 4046 level. TCE was detected at SB-04 (8' - 10') and at SB-05 (6' - 8') at concentrations greater than its TAGM 4046 level. DCE was detected at SB-05 (6' - 8') and at SB-07 (8' - 10') at concentrations greater than its TAGM 4046 level. TCE (8' to 10' and 18' to 20') and DCA (8' to 10') were also present at SB-07 at concentrations greater than their TAGM 4046 levels. Groundwater sample results showed no VOCs detected at concentrations which

N

WALDEN AVENUE

PROPERTY LINE

WATER-METER VAULT

SLIDING GATE

SIDEWALK

MW-02

FORMER TANK

MW-04

SB-01

MW-03

SB-03

SB-02

SUMP-03

ROUND SUMP

FORMER BULK CEMENT PLANT

FORMER ACID PLANT

FORMER 8000 GALLON DIESEL TANK

SB-08

SB-06

SB-04

MAINTENANCE SHOP

FORMER FUEL DISPENSER

SB-05

CHEM STOR.

HCL TANK

FORMER RAILROAD SPUR

SUMP-02

RECTANGULAR SUMP

SUMP-01

OFFICE (3311 WALDEN AVE)

CORRUGATED STEEL BLDG.

BRICK BUILDING

SB-07

FORMER 1000 GALLON GASOLINE UST (REMOVED)

OFFICE

FORMER CEMENT SILOS

FORMER COMPRESSOR

FORMER CHEMICAL STORAGE

WASH BAY

TRAILER

SUMP-05

FORMER OIL SEPARATOR (ABANDONED)

SUMP-04

FORMER MUD SEPARATOR (ABANDONED)

MW-01

Legend

- Monitoring Well
- Soil Boring
- Former Structure
- Floor Drain/Catch Basin or Sump Location
- Property Line
- Fence Line
- Drain Line

40 0 40 Feet

FORMER DOWELL FACILITY
PREVIOUS INVESTIGATION LOCATIONS

URS

FIGURE 1-3

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1/15/2002

exceeded MCL's at MW-01, MW-02 and MW-04. DCA was present in MW-03 at a concentration which exceeded its MCL.

In July 1998, Radian performed several tasks including: removal of the former concrete Acid Plant revetment; excavation of previously-identified contaminated subsurface soil around the Former Acid Plant; removal of the cement bulk plant; and other miscellaneous debris removal.

In July and December 1998, groundwater samples were collected from the four monitoring wells for VOC analysis. Analytical results for MW-01, MW-02 and MW-04 showed no VOCs at concentrations which exceeded the MCLs. DCA and TCA were detected at MW-03 at concentrations which exceeded their MCL's during both rounds.

In July 1999 and January 2000, groundwater samples were collected from the four monitoring wells for VOC analysis. Analytical results were similar to the 1998 results. Appendix A presents a summary of analytical results for soil and groundwater samples collected, and soil boring logs from the above-referenced previous investigations.

1.4. Future Site Use

Following completion of the site investigation program, all the onsite buildings with the exception of the existing office building, will be demolished to grade and the floor slabs removed. Remedial activities, if any are required, will then be implemented. The property will then be marketed for commercial and/or industrial re-use. Deed restrictions limiting the reuse to commercial/industrial purposes will be incorporated, as appropriate.

2.0 STUDY AREA INVESTIGATION

A site reconnaissance was performed by representatives of Dowell, NYSDEC, and URS on September 22, 2000 to identify those areas of the site requiring investigation and to select tentative sampling locations. The SI was conducted in accordance with the *Voluntary Cleanup Program Work Plan for the Supplemental Investigation Former Dowell Facility, Depew, New York*, (URS June 2001) approved by NYSDEC. The SI was conducted at the site from July 9 through July 17, 2001. Field activities included a floor drain/sump sediment investigation, subsurface soil investigation, groundwater investigation, asbestos survey and land surveying. Table 2-1 presents a sample matrix summary and the boring locations are shown in Figure 2-1. The test pit log is shown in Appendix B and boring logs are presented in Appendix C. The SI activities are described in the following sections.

2.1 Catch Basin/Floor Drain and Sewer Line Investigation

To identify and characterize potential contamination associated with catch basins/floor drains, discrete sediment samples were collected from each of the two floor drains inside the Maintenance Shop (Sump-01 and Sump-02), the round catch basin/sump east of the Former Maintenance Shop and the rectangular catch basin/sump west of the former fuel dispenser. A total of four sediment samples were collected for Target Compound List (TCL) VOC analysis using NYSDEC Analytical Service Protocols (ASP) Method 95-1. The sediment sample analytical parameters are shown in Table 2-1. The sediment sample locations are presented in Figure 2-1.

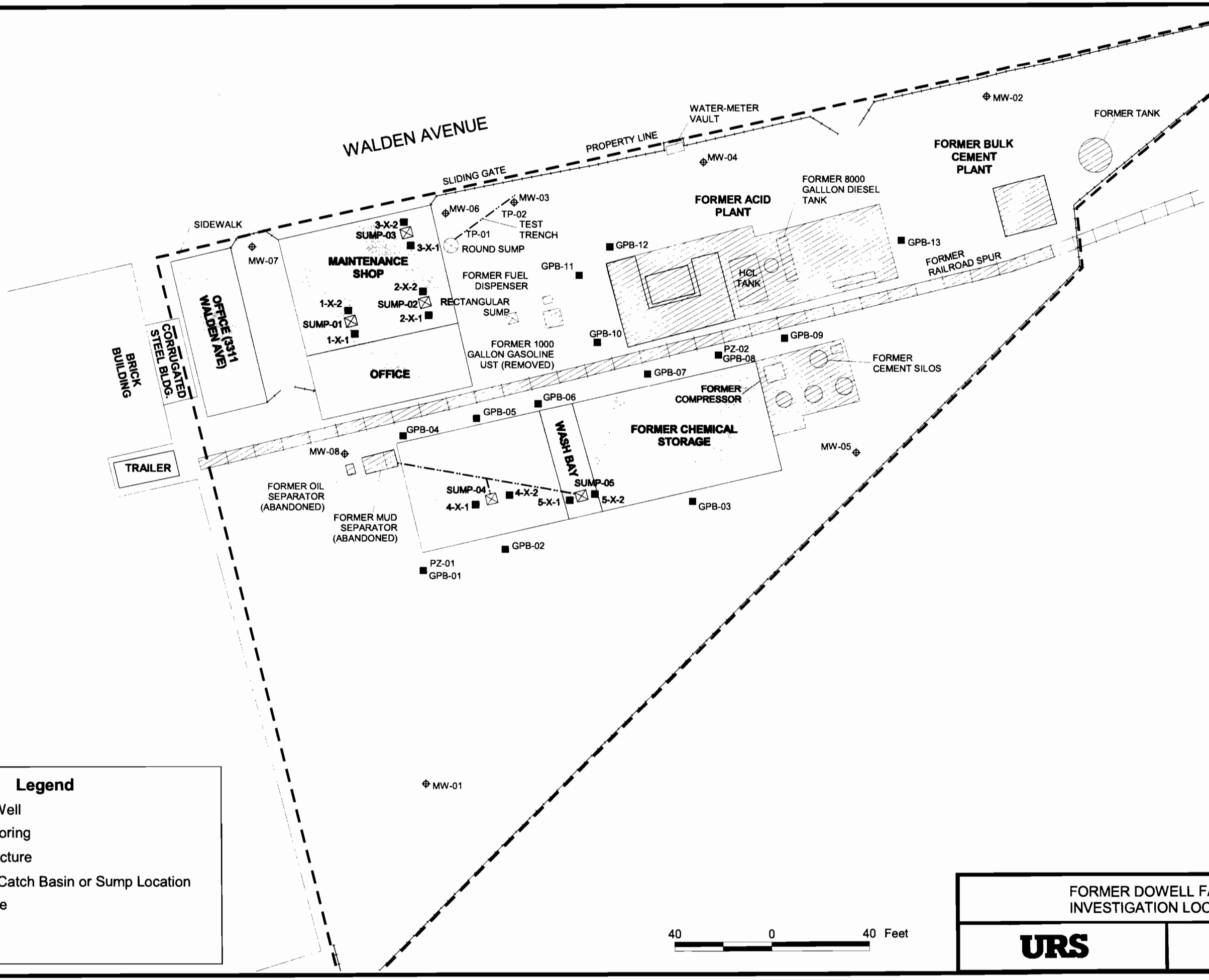
One test trench was excavated from the round catch basin/sump (east of the Maintenance Shop) to monitoring well MW-03. The test trench was excavated by Nature's Way (Crittenden, New York) to expose a 4-inch diameter clay tile pipe to visually inspect the surrounding soil for evidence of contamination (i.e., staining) and obtain samples from the pipe bedding. Two samples (TP-01 and TP-02) were collected for TCL VOC analysis from the pipe bedding at locations which exhibited visual evidence of potential contamination. The test trench and sample locations are shown in Figure 2-1.

TABLE 2-1
FORMER DOWELL FACILITY
SAMPLE MATRIX SUMMARY
SEDIMENT, SOIL, GROUNDWATER

		Date	Depth	Parameters						
Sample ID	Matrix	Collected	(ft)	VOC	SVOC	Pest	PCB	Metals	Cyanide	TPH
Rectangle Sump	Sediment	7/12/01	NA	X						
Round Sump	Sediment	7/12/01	NA	X						
Sump #1 Mainten.	Sediment	7/11/01	NA	X						
Sump #2 Mainten.	Sediment	7/11/01	NA	X						
1-x-1 Sump #01	Soil	7/12/01	0.5-1.0	X						
2-x-1 Sump #02	Soil	7/12/01	1.0-1.5	X						
3-x-2 Sump #03	Soil	7/12/01	1.0-1.5	X						
4-x-2 Sump #04	Soil	7/12/01	2.0-2.5	X						
5-x-1 Sump #05	Soil	7/12/01	2.5-3.0	X						
GPB-02	Soil	7/10/01	1.8-2.0	X						
GPB-03	Soil	7/10/01	1.5-2.0	X						
GPB-04	Soil	7/12/01	3.0-3.5	X						
GPB-07	Soil	7/12/01	7.0-7.5	X						
GPB-08	Soil	7/13/01	2.0-2.5	X						
GPB-09	Soil	7/13/01	11.5-12.0	X						
GPB-10	Soil	7/13/01	7.0-7.5	X						
GPB-11	Soil	7/13/01	14.5-16.0	X						
GPB-12	Soil	7/13/01	13.5-14.0	X						
GPB-13	Soil	7/13/01	13.5-15.0	X						
MW-08	Soil	7/10/01	4.0-5.0	X						
TP-1 #2 (Pipe)	Soil	7/11/01	2.0-2.5	X						
TP-1 (2-2.5)	Soil	7/11/01	2.0-2.5	X						

TABLE 2-1 (Con't)

Sample ID	Matrix	Date Collected	Depth (ft)	Parameters						
				VOC	SVOC	Pest	PCB	Metals	Cyanide	TPH
MW-01	Groundwater	7/17/01	NA	X	X	X	X	X	X	X
MW-02	Groundwater	7/17/01	NA	X						
MW-03	Groundwater	7/17/01	NA	X	X	X	X	X	X	X
MW-04	Groundwater	7/17/01	NA	X						
MW-05	Groundwater	7/17/01	NA	X	X	X	X	X	X	X
MW-06	Groundwater	7/17/01	NA	X						
MW-07	Groundwater	7/17/01	NA	X						
MW-08	Groundwater	7/17/01	NA	X						
PZ-1	Groundwater	7/17/01	NA	X						
PZ-2	Groundwater	7/17/01	NA	X						


N
WALDEN AVENUE
PROPERTY LINE
SLIDING GATE
WATER-METER VAULT
MW-02
FORMER TANK
MW-04
FORMER BULK CEMENT PLANT
FORMER 8000 GALLON DIESEL TANK
FORMER ACID PLANT
SIDEWALK
MW-06
MW-03
TP-02
TEST TRENCH
TP-01
ROUND SUMP
3-X-2
SUMP-03
3-X-1
MW-07
MAINTENANCE SHOP
GPB-12
GPB-13
GPB-11
FORMER FUEL DISPENSER
HCL TANK
FORMER RAILROAD SPUR
2-X-2
1-X-2
SUMP-02
RECTANGULAR SUMP
SUMP-01
2-X-1
1-X-1
OFFICE (311 WALDEN AVE)
BRICK BUILDING
CORRUGATED STEEL BLDG.
OFFICE
FORMER 1000 GALLON GASOLINE UST (REMOVED)
GPB-10
GPB-09
PZ-02
GPB-08
FORMER CEMENT SILOS
GPB-07
FORMER COMPRESSOR
GPB-06
GPB-05
WASH BAY
FORMER CHEMICAL STORAGE
GPB-04
MW-08
MW-05
TRAILER
FORMER OIL SEPARATOR (ABANDONED)
SUMP-04
4-X-2
SUMP-05
4-X-1
5-X-1
5-X-2
GPB-03
FORMER MUD SEPARATOR (ABANDONED)
GPB-02
PZ-01
GPB-01
MW-01
Legend
Monitoring Well
Geoprobe Boring
Former Structure
Floor Drain/Catch Basin or Sump Location
Property Line
Fence Line
Drain Line
40 0 40 Feet
FORMER DOWELL FACILITY
INVESTIGATION LOCATIONS
URS
FIGURE 2-1
J:\35824.00\db\Gis\dowell.apr INVESTIGATION LOCATION
1/15/2002

2.2 Subsurface Soil Investigation

To identify and characterize potential subsurface soil contamination, twenty-three soil borings were advanced using Geoprobe direct-push technology by Nature's Way at the following locations:

Former Maintenance Shop

Six soil borings were advanced around the three floor sumps (Sump-01, 02, and 03) located in the Former Maintenance Shop (two borings per sump). Each boring was advanced through the concrete floor slab to a depth of 4 feet below ground surface (bgs). The soil cores were visually inspected and screened with a photoionization detector (PID) to evaluate the presence of VOC contamination. Three soil samples (1- x -1, 2- x -1, and 3- x -2) were collected for TCL VOC analysis (one sample per sump).

Former Chemical Storage Building

Four soil borings were advanced around the two sumps (Sump-04 and 05) located in the Former Chemical Storage Building (two borings per sump). Three of the borings were advanced to 4 feet bgs, and one boring at Sump-04 was advanced to 8 feet bgs. The soil cores were visually inspected and screened with a photoionization detector (PID). Two soil samples (4- x -2 and 5- x -1) were collected for TCL VOC analysis (one sample per sump).

Nine soil borings (GPB-01 through GPB-09) were advanced along the north and south side of the Former Chemical Storage Building. Each boring was advanced to 12 feet bgs. Soil cores were visually inspected and screened with a PID. Piezometers were installed in soil borings GPB-01 (PZ-1) and GPB-08 (PZ-2) to allow for the collection of groundwater samples and to obtain water level measurements. Six soil samples (GPB-02, -03, -04, -07, -08, and -09) were collected for TCL VOC analysis.

Former Acid Plant

Four soil borings (GPB-10 through GPB-13) were advanced around the Former Acid Plant. The borings were advanced to depths ranging from 12 to 16 feet bgs. Soil cores were visually inspected and screened with a PID. Four soil samples were collected for TCL VOC analysis (one from each boring).

Former Mud Separator and Oil Separator

One soil sample was collected from the soil boring at MW-08, adjacent to the former mud separator and oil separator that previously were filled in-place with concrete. The soil sample (MW-08) was collected for TCL VOC analysis.

2.3 Groundwater Investigation

The groundwater investigation focused on the shallow/unconfined groundwater unit. During the SI, four new monitoring wells (MW-05, MW-06, MW-07, and MW-08) were drilled and installed by Nature's Way, using standard hollow stem auger drilling methods. Split spoon samples were collected continuously at two-foot intervals in accordance with the American Society for Testing and Materials (ASTM) specifications (ASTM D1586-84). Soil samples were visually classified and stored in sealed glass jars for future reference. Boring logs for each monitoring well are presented in Appendix C. All wells were screened across the water table surface to obtain information about possible free product. Well depths ranged from 14 to 20 feet bgs.

Monitoring wells were constructed of two-inch inner diameter (ID) threaded Schedule 40 polyvinyl chloride (PVC) flush-joint casing and ten-foot sections of machine-slotted 0.010-inch well screens equipped with a threaded end cap. The annulus around the well screen was backfilled with No. 1 Morie sand. The sandpack extended a maximum of two feet above the well screen. A bentonite seal was placed above the sandpack to form a maximum two-foot seal. A cement/bentonite grout was placed to within one-foot of the ground surface. Each of the four new monitoring wells were completed with flush-mount protective casings. Two piezometers were installed in GPB-01 (PZ-01) and GPB-08 (PZ-02). The piezometers were installed to allow for future groundwater

sample collection and water level measurements. Both piezometers are constructed of one-inch outer diameter (OD) PVC riser and ten-foot sections of 0.010-inch well screen. The monitoring well and piezometer construction details are presented in Appendix D.

URS developed the new monitoring wells/piezometers utilizing pumping and surging techniques to remove sediment from the well screen and sandpack. Well evacuation was accomplished using a peristaltic pump and dedicated high density polyethylene (HDPE) tubing. Disposable polyethylene bailers were used to surge the wells during development. The wells were developed until pH, specific conductivity, and temperature stabilized and the water had a turbidity of less than 50 Nephelometric turbidity units (NTU). Well/piezometer development logs are presented in Appendix E.

Groundwater samples were collected from each of the four new wells, four existing wells, and two piezometers. The groundwater samples were collected using new dedicated/disposable HDPE bailers at each monitoring well location. HDPE tubing and a stainless steel check valve was used to sample the small diameter piezometers. A minimum of three well volumes were purged from each well prior to sampling. Well purge logs are presented in Appendix F. Groundwater samples collected from MW-01, MW-03, and MW-05 were analyzed for TCL VOCs, TCL semi-volatile organic compounds (SVOCs), TCL pesticides, TCL polychlorinated biphenyls (PCBs), Target Analyte List (TAL) metals, cyanide, and TPH using NYSDEC ASP methodologies. Groundwater samples collected from MW-02, MW-04, MW-06, MW-07, MW-08, PZ-01, and PZ-02 were analyzed for TCL VOCs only, in accordance with the NYSDEC - approved work plan. Upon completion of sampling activities, five of the eight monitoring wells underwent hydraulic conductivity testing. Two rounds of groundwater level measurements were performed to develop groundwater contour maps and determine groundwater flow directions.

2.4 Asbestos Investigation

URS personnel conducted an asbestos survey of the Former Maintenance Shop/Office and the Former Chemical Storage Building. Both the interior and exterior of these structures were investigated to identify and sample suspected asbestos-containing material (ACM). An asbestos

survey report detailing the results and linear/square footage of ACM will be submitted separately so it can be included in contract documents for the building demolition.

2.5 Site Survey

Each investigation location was surveyed for horizontal and vertical coordinates using Global Positioning Survey (GPS) techniques. Horizontal coordinates are based on the New York State Plane Coordinate System, Traverse Mercator Projection, East Zone, North American Datum of 1983. Vertical coordinates (elevations) were based on the National Geodetic Vertical Datum of 1988 (mean sea level). All features were labeled and an appropriate legend was provided for pertinent features (e.g., monitoring wells, soil samples). All surveying was conducted under the supervision of a New York State-licensed land surveyor. A base map was prepared in AutoCAD 14 format.

3.0 PHYSICAL CHARACTERISTICS OF THE STUDY AREA

3.1 Surface Features

The site is comprised of three out of service structures including an office building, maintenance shop, and chemical storage building. The site is bordered by Walden Avenue to the north, Buffalo Batt and Felt to the west, CSX railroad to the south, and 84 Lumber to the east. Surface topography gently slopes from south to north in the southern portion of the site and is generally flat in the northern portion of the site. Surface water flows from south to north across the site. A former railroad siding traverses the site from east to west, immediately north of the Former Chemical Storage Building. There are two out of service catch basins/sumps onsite and a filled in-place mud/oil separator. Additionally, there is an out-of-service water meter vault located about mid-way along the northern property line.

3.2 Geology and Hydrogeology

The Former Dowell Facility rests on a regional glacial till deposit. The till is typically comprised of unsorted clay, silt, fine sand, and fine to coarse gravel that exhibits low permeability. Underlying the till is the Marcellus and Skaneateles Shale formations (G & M, 1990). These rock formations are present throughout the southern half of the Erie-Niagara Basin and locally contain thin interbedded limestones. The overlying till ranges in thickness from 2 to 200 feet within the basin and is approximately 30 feet thick beneath the site. The Shale formations typically produce small quantities of groundwater ranging from 10 to 15 gallons per minute. The overlying till is an insignificant source of groundwater.

Based on the geologic data obtained from the monitoring well and Geoprobe soil borings, the soils on site consist of approximately 0 to 4 feet of fill composed of poorly sorted sands, silts, clay, gravel, and cinders. Underlying the fill layer is a thick layer of glacial till predominantly consisting of red-brown clay and silt with minimal or trace amounts of fine to coarse sand and gravel. The glacial till unit extends from approximately 4 to 30 feet bgs, the depth to the top of bedrock.

The four new monitoring wells and two piezometers are screened at varying depths in the lower portion of the fill material and/or the upper portion of the till layer. The bottom of the 10-foot well screens were set to 12 feet bgs at PZ-01 and PZ-02, 14 feet bgs at MW-05, 19.5 feet bgs at MW-07 and MW-08, and 20 feet bgs at MW-06. The depth to groundwater ranges from less than one foot to approximately 5 feet bgs. The four existing wells are screened in the lower portion of the till to the top of bedrock. Water levels in these wells range from 3 to 14 bgs.

3.2.1 Groundwater Hydraulic Conductivity

In-situ hydraulic conductivity testing and analyses was performed on selected monitoring wells (MW-01, MW-02, MW-05, MW-06, and MW-07). The tests were performed by introducing and then removing a solid one-foot by five foot slug, and recording the fall and rise of the water in the well with a data logging pressure transducer. After the slug was introduced, the water level was allowed to recover to pre-test conditions prior to removing the slug. Initial water levels were measured with an electronic water level meter prior to each test. The collected data were analyzed using the Bouwer and Rice method (updated 1989) for unconfined aquifers. In all tests, the well screen was below the top of the water table surface; therefore, both the falling and rising head tests were analyzed. Monitoring well MW-01 is screened from 20 feet to 30 feet bgs in stiff clay with trace amounts of silts, sand, and gravel. The measured conductivity in MW-01 ranged between 1.55 x 10^{-5} centimeters per second (cm/sec) and 1.93 x 10^{-5} cm/sec. MW-02 is screened from 18.3 feet to 28.3 feet in medium to stiff clay with trace amounts of silt, sand, and gravel. The measured conductivity in MW-02 ranged between 7.20 x 10^{-6} cm/sec and 1.27 x 10^{-5} cm/sec. MW-05 is screened from 4 feet to 14 feet in silty clay fill which is underlain by silty clay with fine sand which grades to clayey silt at depth. The measured conductivity in MW-05 ranged between 1.57 x 10^{-3} cm/sec and 1.85 x 10^{-3} cm/sec. MW-06 is screened from 10 feet to 20 feet in silty clay with trace fine to coarse sand. The measured conductivity in MW-06 ranged between 5.46 x 10^{-6} cm/sec and 3.25 x 10^{-5} cm/sec. MW-07 is screened from 9.5 feet to 19.5 feet in silty clay with thin fine sand and layers with angular gravel. The measured conductivity in MW-07 was 9.03 x 10^{-7}. There was no rising head test performed at MW-07. With the exception of MW-05, the results of the slug tests present a range of hydraulic conductivities that are representative of the clayey till unit which overlies the bedrock across the site. The average hydraulic conductivity of this unit is approximately 1.18 x 10^{-5} cm/sec. The hydraulic conductivity results are presented in Appendix G.

3.2.2 Groundwater Flow

Based on the results of groundwater level measurements (Table 3-1) and review of the site geology described in the boring logs, it appears that there are two independent groundwater units at the site. There is an upper, unconfined water surface recorded in MW-05 to MW-08 and PZ-01 and PZ-02 (Figures 3-1 and 3-2) and a deeper, confined groundwater unit in the lower part of the till/upper bedrock as recorded in MW-01 to MW-04 (Figures 3-3 and 3-4). As indicated in the figures, flow in the upper, unconfined unit is to the north-northwest, whereas flow in the deeper, confined bedrock/till unit is to the west-northwest.

TABLE 3-1
FORMER DOWELL SITE
GROUNDWATER ELEVATION MEASUREMENTS

Location ID / Type	Northing	Easting	Ground Elevation (ft)	Casing Elevation (ft)	Meas.point (Riser)Elev.(ft)	Geol. Zone	Specific Gravity	Date	Depth to Water (ft)	Water Elev. (ft)	Product Thick. (ft)	Corrected Water Elev. (ft)	Remark
MW-01	1060924.157	1118932.986	104.10	104.10	103.80	A	1	7/16/01	14.10	89.70	0.00	89.7	
								11/6/01	13.55	90.25	0.00	90.25	
								12/12/01	13.14	90.66	0.00	90.66	
MW-02	1061209.591	1119165.904	102.53	102.53	102.25	A	1	7/16/01	4.15	98.10	0.00	98.1	
								10/12/01	3.56	98.69	0.00	98.69	
								11/6/01	3.85	98.40	0.00	98.4	
								12/12/01	3.16	99.09	0.00	99.09	
MW-03	1061166.624	1118970.677	101.11	101.11	100.57	A	1	7/16/01	12.75	87.82	0.00	87.82	
								11/6/01	10.92	89.65	0.00	89.65	
								12/12/01	10.53	90.04	0.00	90.04	
MW-04	1061182.893	1119049.101	101.65	101.65	101.25	A	1	7/16/01	6.80	94.45	0.00	94.45	
								10/12/01	4..86		0.00		
								11/6/01	4.61	96.64	0.00	96.64	
								12/12/01	4.72	96.53	0.00	96.53	
MW-05	1061061.919	1119111.257	104.54	104.54	103.97	A	1	7/13/01	2.21	101.76	0.00	101.76	
								10/12/01	0.30	103.67	0.00	103.67	
								11/6/01	0.40	103.57	0.00	103.57	
								12/12/01	1.05	102.92	0.00	102.92	
MW-06	1061162.035	1118942.310	100.96	100.96	100.38	A	1	7/16/01	4.46	95.92	0.00	95.92	

NM - No Measurement

Geologic Zone:
A Aquifer

The value noted in the column labeled Specific Gravity is an assumed value for free product, if found.

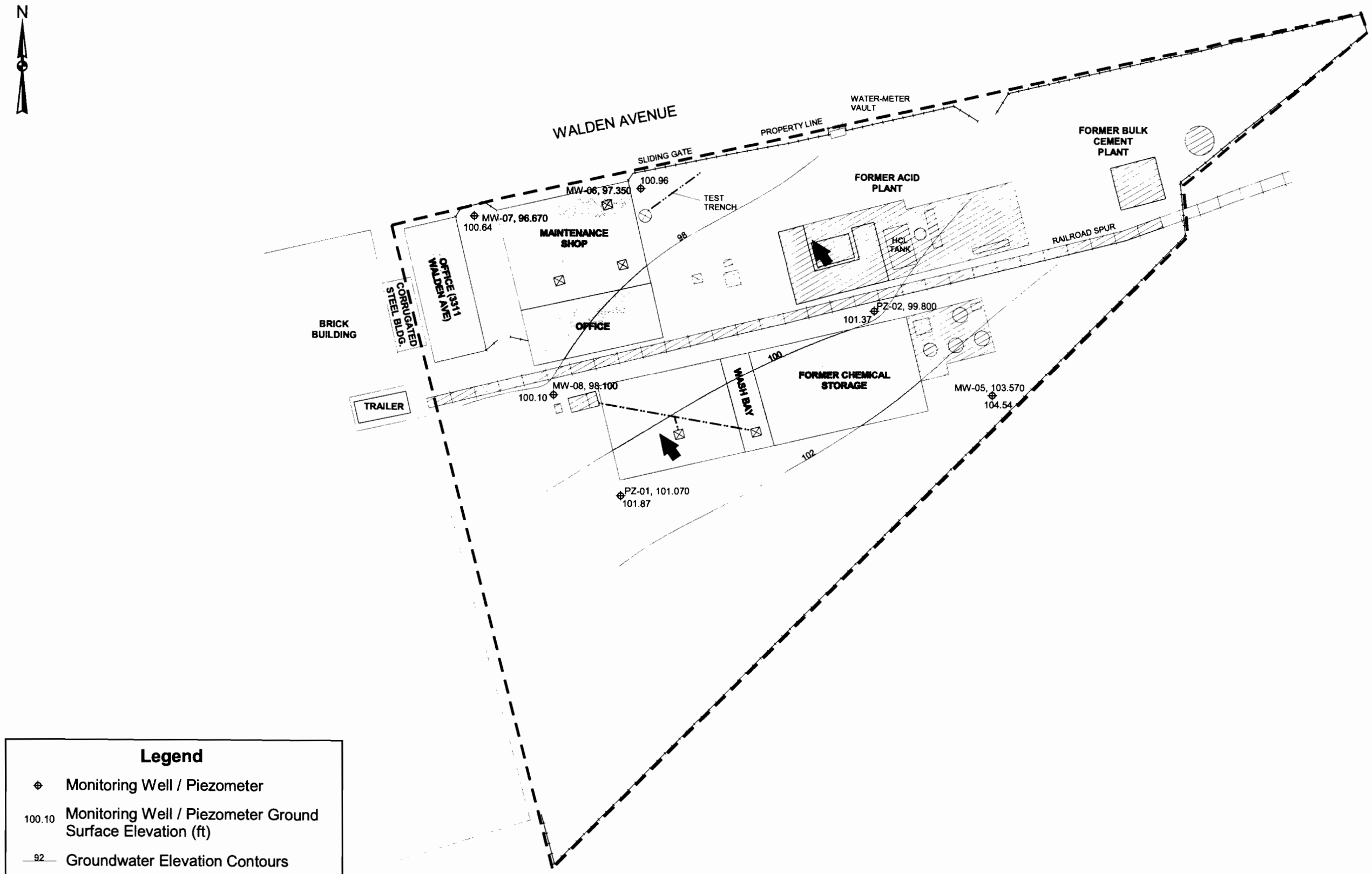
TABLE 3-1
FORMER DOWELL SITE
GROUNDWATER ELEVATION MEASUREMENTS

Location ID / Type	Northing	Easting	Ground Elevation (ft)	Casing Elevation (ft)	Meas.point (Riser)Elev.(ft)	Geol. Zone	Specific Gravity	Date	Depth to Water (ft)	Water Elev. (ft)	Product Thick. (ft)	Corrected Water Elev. (ft)	Remark
								10/12/01	3.31	97.07	0.00	97.07	
								11/6/01	3.03	97.35	0.00	97.35	
								12/12/01	3.37	97.01	0.00	97.01	
MW-07	1061148.617	1118862.788	100.64	100.64	100.10	A	1	7/16/01	11.82	88.28	0.00	88.28	
								10/12/01	3.41	96.69	0.00	96.69	
								11/6/01	3.43	96.67	0.00	96.67	
								12/12/01	3.89	96.21	0.00	96.21	
MW-08	1061061.953	1118900.487	100.10	100.10	99.65	A	1	7/16/01	3.39	96.26	0.00	96.26	
								10/12/01	1.89	97.76	0.00	97.76	
								11/6/01	1.55	98.10	0.00	98.1	
								12/12/01	1.82	97.83	0.00	97.83	
PZ-01	1061012.984	1118932.541	101.87	NA	104.75	A	1	10/12/01	4.68	100.07	0.00	100.07	
								11/6/01	3.68	101.07	0.00	101.07	
								12/12/01	3.86	100.89	0.00	100.89	
PZ-02	1061103.019	1119054.805	101.37	NA	104.67	A	1	10/12/01	4.94	99.73	0.00	99.73	
								11/6/01	4.87	99.80	0.00	99.8	
								12/12/01	5.01	99.66	0.00	99.66	

NM - No Measurement

Geologic Zone:
A Aquifer

The value noted in the column labeled Specific Gravity is an assumed value for free product, if found.

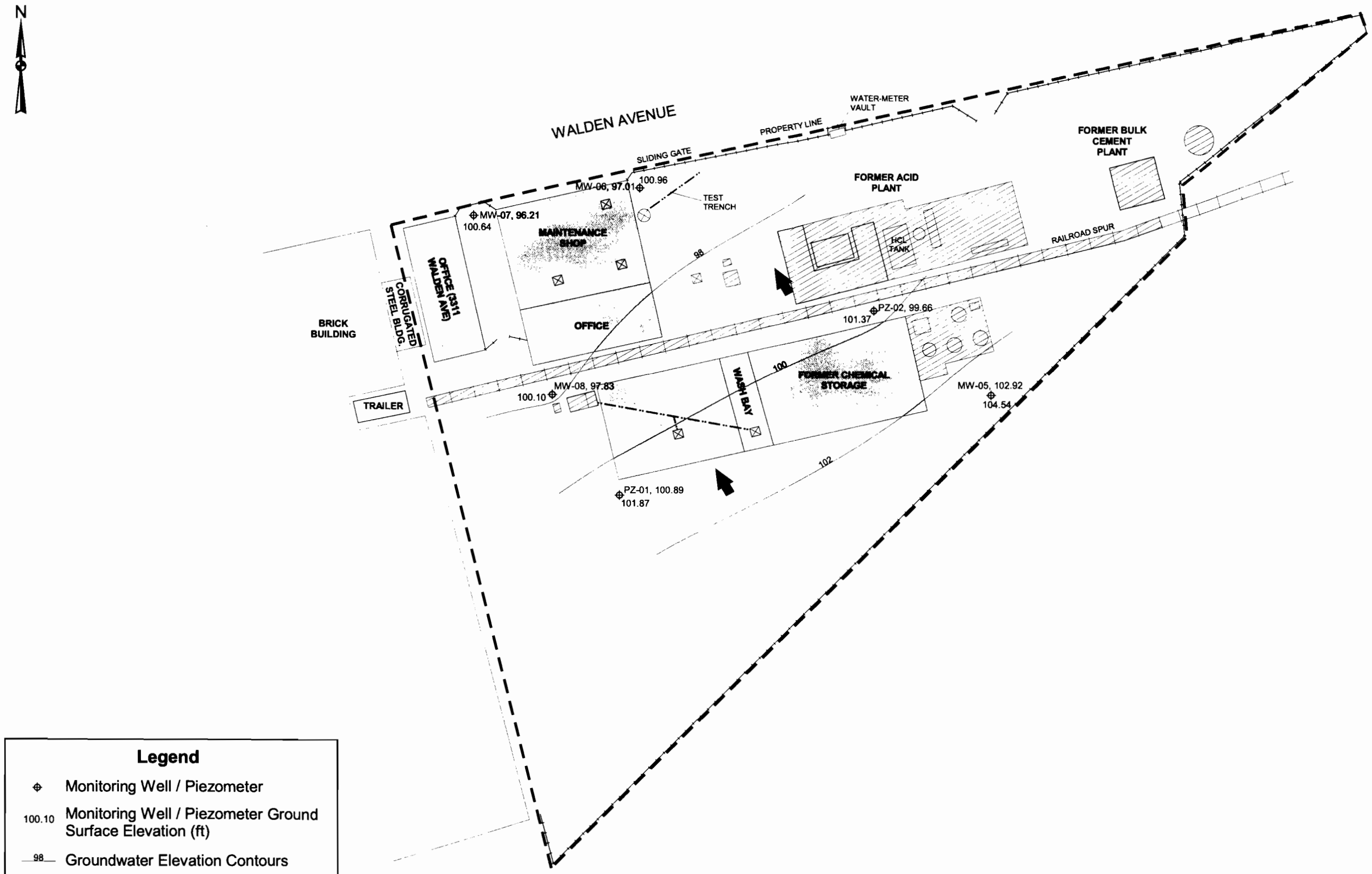


J:\35824.00\db\Gis\dowell.apr LAYER B 11/06/01 GROUNDWATER ELEVATIONS
1/18/2002

FORMER DOWELL FACILITY
GROUNDWATER ELEVATION CONTOUR MAP
UPPER TILL, UNCONFINED UNIT (NOVEMBER 6, 2001)

URS

FIGURE 3-1



J:\35824.00\dtr\Gis\dowell.apr LAYER B 12/12/01 GROUNDWATER ELEVATIONS
1/15/2002

FORMER DOWELL FACILITY
GROUNDWATER ELEVATION CONTOUR MAP
UPPER TILL, UNCONFINED UNIT(DECEMBER 12, 2001)

URS

FIGURE 3-2

N

WALDEN AVENUE

PROPERTY LINE

SLIDING GATE

WATER-METER VAULT

MW-02, 98.400
102.53

MW-04, 96.640
101.65

MW-03, 89.650
101.11

TEST TRENCH

FORMER BULK CEMENT PLANT

FORMER ACID PLANT

HCL TANK

RAILROAD SPUR

MAINTENANCE SHOP

OFFICE (9311 WALDEN AVE)

CORRUGATED STEEL BLDG.

BRICK BUILDING

OFFICE

TRAILER

WASH BAY

FORMER CHEMICAL STORAGE

98

96

94

92

90

MW-01, 90.250
104.10

Legend

- Monitoring Well / Piezometer
- 100.10 Monitoring Well / Piezometer Ground Surface Elevation (ft)
- 92 Groundwater Elevation Contours
- Groundwater Flow Direction

MW-01, 90.25
Location ID
Groundwater Elevation(ft)

50 0 50 Feet

FORMER DOWELL FACILITY
GROUNDWATER ELEVATION CONTOUR MAP
CONFINED BEDROCK/LOWER TILL UNIT (NOVEMBER 6, 2001)

URS

FIGURE 3-3

J:\35824.00\db\Gis\dowell.apr LAYER A 11/06/01 GROUNDWATER ELEVATIONS
1/18/2002

N

WALDEN AVENUE

PROPERTY LINE

SLIDING GATE

WATER-METER VAULT

MW-02, 99.09
102.53

MW-04, 96.53
101.65

MW-03, 90.04
101.11

TEST TRENCH

FORMER BULK CEMENT PLANT

FORMER ACID PLANT

HCL TANK

RAILROAD SPUR

MAINTENANCE SHOP

OFFICE (311 WALDEN AVE)

OFFICE

CORRUGATED STEEL BLDG.

BRICK BUILDING

TRAILER

WASH BAY

FORMER CHEMICAL STORAGE

98

96

94

92

90

MW-01, 90.66
104.10

Legend

- Monitoring Well / Piezometer
- 100.10 Monitoring Well / Piezometer Ground Surface Elevation (ft)
- 92 Groundwater Elevation Contours
- Groundwater Flow Direction

MW-01, 90.66
Location ID
Groundwater Elevation(ft)

50 0 50 Feet

FORMER DOWELL FACILITY
GROUNDWATER ELEVATION CONTOUR MAP
CONFINED BEDROCK/LOWER TILL UNIT(DECEMBER 12, 2001)

URS

FIGURE 3-4

J:\35824.00d\Gis\dowell.apr | LAYER A 12/12/01 GROUNDWATER ELEVATIONS
1/15/2002

4.0 NATURE AND EXTENT OF CONTAMINATION

Based on the data collected during the SI, the nature and extent of contamination has been evaluated. The following sections describe the analytical results and comparison to applicable regulatory standards on a media-specific basis.

4.1 Applicable Standards, Criteria, and Guidance

The analytical data obtained from soils, sediment and groundwater samples have been compared to applicable New York State standards, criteria, and guidance (SCG) values. The matrix-specific SCGs are shown below.

Soil

NYSDEC Technical Administrative Guidance Memorandum (TAGM) 4046: *Determination of Soil Cleanup Objectives and Cleanup Levels,* January 1994/January 2000.

6 NYCRR Part 371, *Identification and Listing of Hazardous Wastes*

NYSDEC Division of Hazardous Substances Regulation TAGM 3028: *Contained in Criteria for Environmental Media*, November 1992

Groundwater

NYSDEC Technical and Operational Guidance Series (TOGS) 1.1.1: *Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations,* June 1998

6 NYCRR Part 700 - 705: *Water Quality Regulations for Surface Water and Groundwater*

The analytical results with SCG comparative criteria are shown in Tables 4-1, 4-2, and 4-3 for all matrices.

TABLE 4-1
SUMMARY OF DETECTED ANALYTES IN SEDIMENT SAMPLES
FORMER DOWELL SITE

Location ID			RECTANGLE SUMP	ROUND SUMP	SUMP-01	SUMP-02
Sample ID			RECTANGLE SUMP	ROUND SUMP	SUMP #1 MAINTEN	SUMP #2 MAINTEN
Matrix			Sediment	Sediment	Sediment	Sediment
Depth Interval (ft)			-	-	-	-
Date Sampled			07/12/01	07/12/01	07/11/01	07/11/01
Parameter	**Units**	**Criteria***				
Volatiles						
1,1,1-Trichloroethane	UG/KG	800	10 J	4 J	16,000 D	1,600 D
1,1-Dichloroethane	UG/KG	200	5 J		1,100 DJ	2,600 D
1,1-Dichloroethene	UG/KG	400				7 J
1,2,4-Trichlorobenzene	UG/KG	3400			21 J	
1,2-Dichlorobenzene	UG/KG	7900	5 J		20 J	
1,3-Dichlorobenzene	UG/KG	1600			100 J	
1,4-Dichlorobenzene	UG/KG	8500			10 J	
2-Butanone	UG/KG	300				9 J
Carbon disulfide	UG/KG	2700	4 J			
Chloroethane	UG/KG	1900				160
cis-1,2-Dichloroethene	UG/KG	-	19		27	55
Ethylbenzene	UG/KG	5500			5 J	88 J
Isopropylbenzene	UG/KG	-				64 J
Methylcyclohexane	UG/KG	-	6 J		6 J	15
Tetrachloroethene	UG/KG	1400	9 J	4 J	15,000 D	67 J
Toluene	UG/KG	1500			7 J	140 J
Trichloroethene	UG/KG	700	9 J	4 J	48	45
Vinyl chloride	UG/KG	200	4 J			21
Xylene (total)	UG/KG	1200				860 DJ

*Criteria- NYSDEC TAGM: Determination of Soil Cleanup Objectives and Cleanup Levels; HWR-94-4046 January 24, 1994 (Revised).

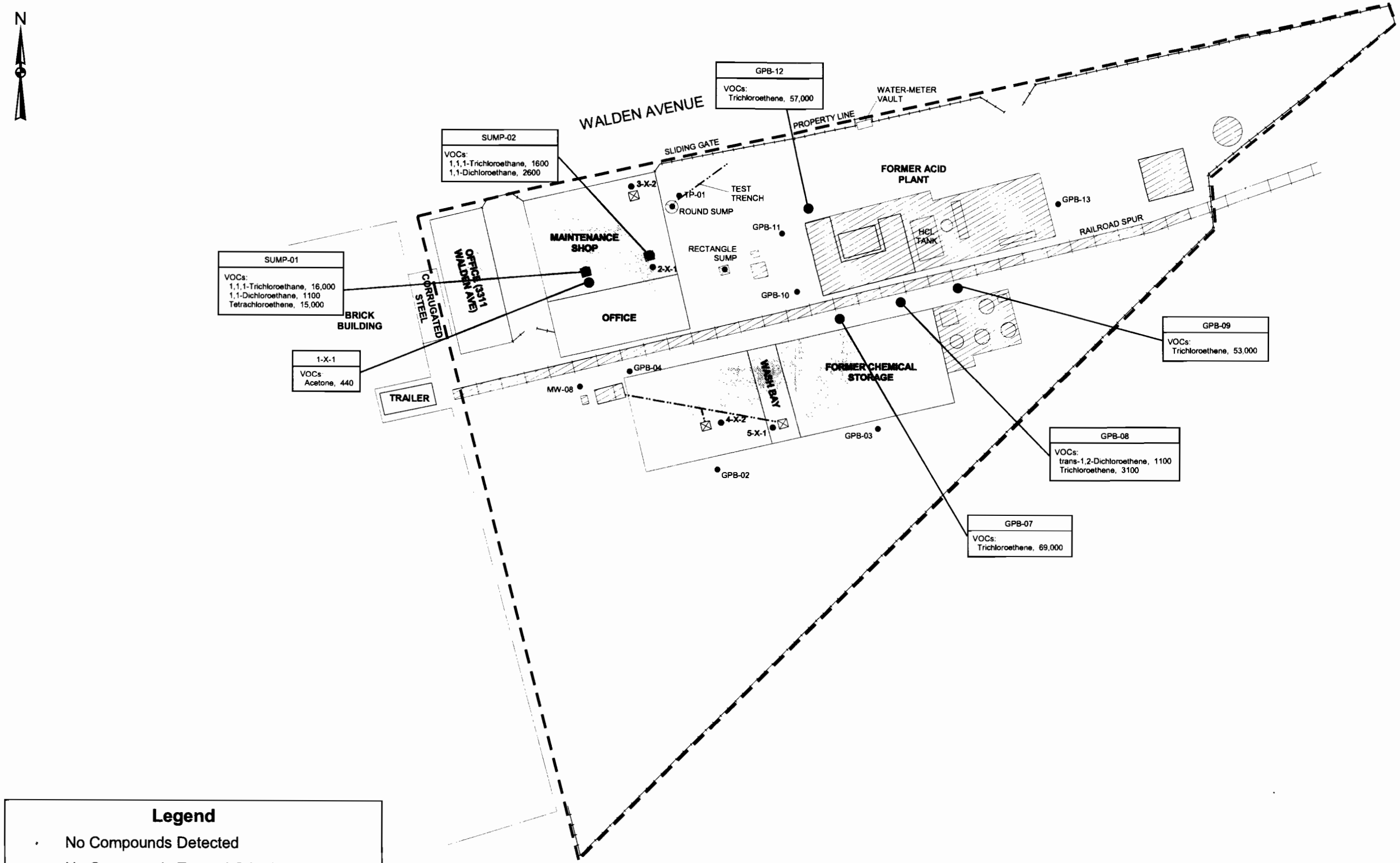
Flags assigned during chemistry validation are shown.

Concentration Exceeds Criteria.

MADE BY:_____

CHECKED BY: _____

Only Detected Results Reported.



J:\35824.00\db\Gis\dowell apr SOIL EXCEEDANCES 1/15/2002

FORMER DOWELL FACILITY
SOIL/SEDIMENT ANALYTICAL RESULTS

URS

FIGURE 4-1

TABLE 4-2
SUMMARY OF DETECTED ANALYTES IN SOIL SAMPLES
FORMER DOWELL SITE

Location ID			1-X-1	2-X-1	3-X-2	4-X-2	5-X-1
Sample ID			1-X-1 SUMP	2-X-1 SUMP	3-X-2 SUMP	4-X-2 SUMP	5-X-1 SUMP
Matrix			Soil	Soil	Soil	Soil	Soil
Depth Interval (ft)			0.5-1.0	1.0-1.5	1.0-1.5	2.0-2.5	2.5-3.0
Date Sampled			07/12/01	07/12/01	07/12/01	07/12/01	07/12/01
Parameter	**Units**	**Criteria***					
Volatiles							
1,1,1-Trichloroethane	UG/KG	800					
1,1-Dichloroethane	UG/KG	200	150				
1,1-Dichloroethene	UG/KG	400					
1,2-Dichlorobenzene	UG/KG	7900	1,500 J				
2-Butanone	UG/KG	300	140	10 J	29		5 J
Acetone	UG/KG	200	440 J		89		
Carbon disulfide	UG/KG	2700	3 J				
Chlorobenzene	UG/KG	1700	290				
Chloroethane	UG/KG	1900	120		31		
cis-1,2-Dichloroethene	UG/KG	-					
Ethylbenzene	UG/KG	5500	7 J	4 J			
Methyl tert-butyl ether	UG/KG	-	9 J				
Methylcyclohexane	UG/KG	-					
Methylene chloride	UG/KG	100	13 J	30			23
Tetrachloroethene	UG/KG	1400		7 J			7 J
Toluene	UG/KG	1500	43	13			12
trans-1,2-Dichloroethene	UG/KG	300					
Trichloroethene	UG/KG	700		16			14
Vinyl chloride	UG/KG	200	6 J				
Xylene (total)	UG/KG	1200	53				

*Criteria- NYSDEC TAGM: Determination of Soil Cleanup Objectives and Cleanup Levels; HWR-94-4046 January 24, 1994 (Revised).

Flags assigned during chemistry validation are shown.

Concentration Exceeds Criteria.

MADE BY:_____

CHECKED BY: _____

Only Detected Results Reported.

TABLE 4-2
SUMMARY OF DETECTED ANALYTES IN SOIL SAMPLES
FORMER DOWELL SITE

Location ID			GPB-02	GPB-03	GPB-04	GPB-07	GPB-08
Sample ID			GPB-02	GPB-03	GPB-04	GPB-07	GPB-08
Matrix			Soil	Soil	Soil	Soil	Soil
Depth Interval (ft)			1.8-2.0	1.5-2.0	3.0-3.5	7.0-7.5	2.0-2.5
Date Sampled			07/10/01	07/10/01	07/12/01	07/12/01	07/13/01
Parameter	**Units**	**Criteria***					
Volatiles							
1,1,1-Trichloroethane	UG/KG	800					
1,1-Dichloroethane	UG/KG	200					
1,1-Dichloroethene	UG/KG	400					5 J
1,2-Dichlorobenzene	UG/KG	7900					
2-Butanone	UG/KG	300			21		
Acetone	UG/KG	200			87		
Carbon disulfide	UG/KG	2700		4 J			12 J
Chlorobenzene	UG/KG	1700					
Chloroethane	UG/KG	1900					
cis-1,2-Dichloroethene	UG/KG	-	4 J			1,800	25,000 D
Ethylbenzene	UG/KG	5500					
Methyl tert-butyl ether	UG/KG	-					
Methylcyclohexane	UG/KG	-					
Methylene chloride	UG/KG	100					
Tetrachloroethene	UG/KG	1400					
Toluene	UG/KG	1500		7 J			6 J
trans-1,2-Dichloroethene	UG/KG	300					1,100 DJ
Trichloroethene	UG/KG	700				69,000 DJ	3,100 D
Vinyl chloride	UG/KG	200					150
Xylene (total)	UG/KG	1200					

*Criteria- NYSDEC TAGM: Determination of Soil Cleanup Objectives and Cleanup Levels; HWR-94-4046 January 24, 1994 (Revised).

Flags assigned during chemistry validation are shown.

Concentration Exceeds Criteria.

MADE BY:_____

CHECKED BY: _____

Only Detected Results Reported.

TABLE 4-2
SUMMARY OF DETECTED ANALYTES IN SOIL SAMPLES
FORMER DOWELL SITE

Location ID			GPB-09	GPB-10	GPB-11	GPB-12	GPB-13
Sample ID			GPB-09	GPB-10	GPB-11	GPB-12	GPB-13
Matrix			Soil	Soil	Soil	Soil	Soil
Depth Interval (ft)			11.5-12.0	7.0-7.5	14.5-16.0	13.5-14.0	13.5-15.0
Date Sampled			07/13/01	07/13/01	07/13/01	07/13/01	07/13/01
Parameter	**Units**	**Criteria***					
Volatiles							
1,1,1-Trichloroethane	UG/KG	800			53		
1,1-Dichloroethane	UG/KG	200			40		51
1,1-Dichloroethene	UG/KG	400			7 J		
1,2-Dichlorobenzene	UG/KG	7900					
2-Butanone	UG/KG	300					
Acetone	UG/KG	200					
Carbon disulfide	UG/KG	2700					
Chlorobenzene	UG/KG	1700					
Chloroethane	UG/KG	1900					
cis-1,2-Dichloroethene	UG/KG	-		21	150		
Ethylbenzene	UG/KG	5500					
Methyl tert-butyl ether	UG/KG	-					
Methylcyclohexane	UG/KG	-					
Methylene chloride	UG/KG	100					
Tetrachloroethene	UG/KG	1400					
Toluene	UG/KG	1500			4 J		
trans-1,2-Dichloroethene	UG/KG	300			6 J		
Trichloroethene	UG/KG	700	53,000 D		690 D	57,000	
Vinyl chloride	UG/KG	200					
Xylene (total)	UG/KG	1200					

*Criteria- NYSDEC TAGM: Determination of Soil Cleanup Objectives and Cleanup Levels; HWR-94-4046 January 24, 1994 (Revised).

Flags assigned during chemistry validation are shown.

( ) Concentration Exceeds Criteria.

MADE BY:_____

CHECKED BY:_____

Only Detected Results Reported.

TABLE 4-2
SUMMARY OF DETECTED ANALYTES IN SOIL SAMPLES
FORMER DOWELL SITE

Location ID			MW-08	TP-01	TP-01
Sample ID			MW-08	TP-1 #2 (PIPE)	TP-1 (2-2.5)
Matrix			Soil	Soil	Soil
Depth Interval (ft)			4.0-5.0	2.0-2.0	2.0-2.5
Date Sampled			07/10/01	07/11/01	07/11/01
Parameter	**Units**	**Criteria***			
Volatiles					
1,1,1-Trichloroethane	UG/KG	800			24 J
1,1-Dichloroethane	UG/KG	200			16 J
1,1-Dichloroethene	UG/KG	400			
1,2-Dichlorobenzene	UG/KG	7900			35 J
2-Butanone	UG/KG	300			
Acetone	UG/KG	200			
Carbon disulfide	UG/KG	2700			
Chlorobenzene	UG/KG	1700			
Chloroethane	UG/KG	1900			
cis-1,2-Dichloroethene	UG/KG	-		72	
Ethylbenzene	UG/KG	5500			5 J
Methyl tert-butyl ether	UG/KG	-			
Methylcyclohexane	UG/KG	-			8 J
Methylene chloride	UG/KG	100			17 J
Tetrachloroethene	UG/KG	1400		7 J	21 J
Toluene	UG/KG	1500			11 J
trans-1,2-Dichloroethene	UG/KG	300			
Trichloroethene	UG/KG	700		41	20 J
Vinyl chloride	UG/KG	200			11 J
Xylene (total)	UG/KG	1200			57 J

*Criteria- NYSDEC TAGM: Determination of Soil Cleanup Objectives and Cleanup Levels; HWR-94-4046 January 24, 1994 (Revised).

Flags assigned during chemistry validation are shown.

Concentration Exceeds Criteria.

MADE BY:_____

CHECKED BY:_____

Only Detected Results Reported.

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[MATRIX] = 'SO' AND [PRCODE] <> 'V-TIC'

TABLE 4-3
SUMMARY OF DETECTED ANALYTES IN GROUNDWATER SAMPLES
FORMER DOWELL SITE

Location ID			MW-01	MW-02	MW-03	MW-04	MW-05
Sample ID			MW-01	MW-02	MW-03	MW-04	MW-05
Matrix			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)			-	-	-	-	-
Date Sampled			07/17/01	07/17/01	07/17/01	07/17/01	07/17/01
Parameter	**Units**	**Criteria***					
Volatiles							
1,1,1-Trichloroethane	UG/L	5			4,500 J	R	
1,1,2-Trichloroethane	UG/L	1					
1,1-Dichloroethane	UG/L	5			50,000 DJ	R	
1,1-Dichloroethene	UG/L	5			14		
1,2-Dichloroethane	UG/L	0.6			11		
1,2-Dichloropropane	UG/L	1					
2-Butanone	UG/L	50			7 J		
Acetone	UG/L	50			6 J		5 J
Chloroethane	UG/L	5			130		
Chloroform	UG/L	7					
cis-1,2-Dichloroethene	UG/L	5			9 J		
Methyl acetate	UG/L	-			6 J		
trans-1,2-Dichloroethene	UG/L	5					
Trichloroethene	UG/L	5					
Vinyl chloride	UG/L	2			9 J		
Metals							
Aluminum	UG/L	-	365	NA	706	NA	12,200
Arsenic	UG/L	25	7.3 B	NA	7.9 B	NA	7.5 B
Barium	UG/L	1000	151 B	NA	658	NA	160 B
Cadmium	UG/L	5		NA	15.5	NA	
Calcium	UG/L	-	R	NA	R	NA	R
Chromium	UG/L	50		NA		NA	11.4

*Criteria- NYSDEC TOGS (1.1.1), Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations. June 1998 (includes 4/2000 Addendum). Class GA.

Flags assigned during chemistry validation are shown.

Concentration Exceeds Criteria.

MADE BY:_____

CHECKED BY: _____

Only Detected Results Reported.

TABLE 4-3
SUMMARY OF DETECTED ANALYTES IN GROUNDWATER SAMPLES
FORMER DOWELL SITE

Location ID			MW-01	MW-02	MW-03	MW-04	MW-05
Sample ID			MW-01	MW-02	MW-03	MW-04	MW-05
Matrix			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)			-	-	-	-	-
Date Sampled			07/17/01	07/17/01	07/17/01	07/17/01	07/17/01
Parameter	**Units**	**Criteria***					
Metals							
Copper	UG/L	200	7.1 B	NA	25.3	NA	42.5
Iron	UG/L	300	1,550	NA	4,260	NA	17,900
Lead	UG/L	25	R	NA	R	NA	134
Magnesium	UG/L	35000	81,100	NA	164,000	NA	R
Manganese	UG/L	300	44.9	NA	165	NA	1,900
Mercury	UG/L	0.7	0.32	NA		NA	0.38
Nickel	UG/L	100	11.2 B	NA	497	NA	20.0 B
Potassium	UG/L	-	1,700 B	NA	4,220 B	NA	5,770
Sodium	UG/L	20000	R	NA	R	NA	R
Thallium	UG/L	0.5	2.1 B	NA		NA	
Vanadium	UG/L	-		NA		NA	19.2 B
Zinc	UG/L	2000	R	NA	R	NA	R
Miscellaneous							
Cyanide	MG/L	0.2		NA		NA	0.0037 B
Total Petroleum Hydrocarbons	MG/L	-		NA	2.4	NA	

*Criteria- NYSDEC TOGS (1.1.1), Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations. June 1998 (includes 4/2000 Addendum). Class GA.

Flags assigned during chemistry validation are shown.

Concentration Exceeds Criteria.

MADE BY:_____

CHECKED BY: _____

Only Detected Results Reported.

TABLE 4-3
SUMMARY OF DETECTED ANALYTES IN GROUNDWATER SAMPLES
FORMER DOWELL SITE

Location ID			MW-06	MW-07	MW-08	PZ-01	PZ-02
Sample ID			MW-06	MW-07	MW-08	PZ-01	PZ-02
Matrix			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)			-	-	-	-	-
Date Sampled			07/17/01	07/17/01	07/17/01	07/17/01	07/17/01
Parameter	**Units**	**Criteria***					
Volatiles							
1,1,1-Trichloroethane	UG/L	5	190				12
1,1,2-Trichloroethane	UG/L	1					4 J
1,1-Dichloroethane	UG/L	5	560 J				9 J
1,1-Dichloroethene	UG/L	5	6 J				32
1,2-Dichloroethane	UG/L	0.6					
1,2-Dichloropropane	UG/L	1					4 J
2-Butanone	UG/L	50					
Acetone	UG/L	50	7 J	6 J		63 J	30 J
Chloroethane	UG/L	5					
Chloroform	UG/L	7					8 J
cis-1,2-Dichloroethene	UG/L	5					9,500 DJ
Methyl acetate	UG/L	-					
trans-1,2-Dichloroethene	UG/L	5					380 J
Trichloroethene	UG/L	5					60,000 DJ
Vinyl chloride	UG/L	2			8 J		1,000 J
Metals							
Aluminum	UG/L	-	NA	NA	NA	NA	NA
Arsenic	UG/L	25	NA	NA	NA	NA	NA
Barium	UG/L	1000	NA	NA	NA	NA	NA
Cadmium	UG/L	5	NA	NA	NA	NA	NA
Calcium	UG/L	-	NA	NA	NA	NA	NA
Chromium	UG/L	50	NA	NA	NA	NA	NA

*Criteria- NYSDEC TOGS (1.1.1), Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations. June 1998 (includes 4/2000 Addendum). Class GA.

Flags assigned during chemistry validation are shown.

( ) Concentration Exceeds Criteria.

MADE BY:_____

CHECKED BY: _____

Only Detected Results Reported.

TABLE 4-3
SUMMARY OF DETECTED ANALYTES IN GROUNDWATER SAMPLES
FORMER DOWELL SITE

Location ID			MW-06	MW-07	MW-08	PZ-01	PZ-02
Sample ID			MW-06	MW-07	MW-08	PZ-01	PZ-02
Matrix			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)			-	-	-	-	-
Date Sampled			07/17/01	07/17/01	07/17/01	07/17/01	07/17/01
Parameter	**Units**	**Criteria***					
Metals							
Copper	UG/L	200	NA	NA	NA	NA	NA
Iron	UG/L	300	NA	NA	NA	NA	NA
Lead	UG/L	25	NA	NA	NA	NA	NA
Magnesium	UG/L	35000	NA	NA	NA	NA	NA
Manganese	UG/L	300	NA	NA	NA	NA	NA
Mercury	UG/L	0.7	NA	NA	NA	NA	NA
Nickel	UG/L	100	NA	NA	NA	NA	NA
Potassium	UG/L	-	NA	NA	NA	NA	NA
Sodium	UG/L	20000	NA	NA	NA	NA	NA
Thallium	UG/L	0.5	NA	NA	NA	NA	NA
Vanadium	UG/L	-	NA	NA	NA	NA	NA
Zinc	UG/L	2000	NA	NA	NA	NA	NA
Miscellaneous							
Cyanide	MG/L	0.2	NA	NA	NA	NA	NA
Total Petroleum Hydrocarbons	MG/L	-	NA	NA	NA	NA	NA

*Criteria- NYSDEC TOGS (1.1.1), Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations. June 1998 (includes 4/2000 Addendum). Class GA.

Flags assigned during chemistry validation are shown.

Concentration Exceeds Criteria.

MADE BY:_____

CHECKED BY: _____

Only Detected Results Reported.

4.2 Catch Basin Sediment Analytical Results

Four sediment samples were collected from catch basins or floor sumps during the SI and analyzed for TCL VOCs. Two sediment samples were collected from Sump-01 and Sump-02 in the Former Maintenance Shop and two sediment samples were collected from the round sump/catch basin and rectangular sump/catch basin east of the Former Maintenance Shop. Three VOCs were detected in Sump-01 at concentrations that exceed their SCGs. Tetrachloroethene (PCE) was detected at 15,000 micrograms per kilogram (µg/kg) (SCG 1,400 µg/kg), 1,1-DCA was detected at 1,100 µg/kg (SCG 200 µg/kg), and 1,1,1-TCA was detected at 16,000 µg/kg (SCG 800 µg/kg). Two VOCs were detected in Sump-02 at concentrations that exceed their SCGs. 1,1-DCA was detected at 2,600 µg/kg and 1,1,1-TCA was detected at 1,600 µg/kg. Although several VOCs were detected in the rectangular sump and a few VOCs were detected in the round sump, none of the detections exceed their SCGs. A summary of detected analytes in sediment samples is shown in Table 4-1 and in Figure 4-1.

4.3 Subsurface Soil Analytical Results

Sixteen subsurface soil samples were collected from various soil borings across the site. Each sample was collected from soil borings which exhibited elevated PID readings or visual evidence of potential contamination (i.e., staining, sheen, odors). Each of the 16 subsurface soil samples were collected and analyzed for TCL VOC. Analytical results are discussed below.

Former Maintenance Shop

Three soil samples were collected from Geoprobe borings advanced adjacent to Sump-01 (1-x-1), Sump-02 (2-x-1), and Sump-03 (3-x-2). Sample depths ranged from 0.5 to 1.5 feet bgs. As indicated in Table 4-2, only one VOC (acetone) was detected in the samples (1-x-1) at a concentration of 440 µg/kg which exceeds its SCG of 200 µg/kg.

Former Chemical Storage Building

Two soil samples were collected from Geoprobe borings advanced adjacent to Sump-04 (4-x-2) and Sump-05 (5-x-1). As indicated in Table 4-2, no VOCs were detected in either of the samples at concentrations that exceed the SCGs. Six soil samples (GPB-02, -03, -04, -07, -08, and -09) were collected from Geoprobe borings advanced around the perimeter of the Former Chemical Storage Building. As indicated in Table 4-2, no VOCs were detected in the soil samples collected from GPB-02, GPB-03, and GPB-04 at concentrations which exceed the SCGs. Trichloroethene (TCE) was detected at concentrations above its SCG of 700 µg/kg in soil samples GPB-07 (69,000 µg/kg), GPB-08 (3,100 µg/kg), and GPB-09 (53,000 µg/kg). Also, trans-1,2-DCE was detected in GPB-08 at a concentration of 1,100 µg/kg which exceeds its SCG of 300 µg/kg. No other VOCs were detected in GPB-07, GPB-08, and GPB-09 at concentrations that exceed the SCGs.

Former Acid Plant

Four soil samples (GPB-11 through GPB-13) were collected from Geoprobe borings around the perimeter of the Former Acid Plant. As indicated in Table 4-2, TCE was the only VOC detected and at only one location GPB-12 (57,000 µg/kg) at a concentration that exceeds its SCG of 700 µg/kg.

Former Mud Separator and Oil Separator

As indicated in Table 4-2, one soil sample (MW-08) was collected from soil boring MW-08 for VOC analysis. No VOCs were detected in the sample.

Drain Line Excavation

Two soil samples (TP-01 #2 and TP-01) were collected from the excavation along the 4-inch clay-tile drain pipe which extends from the round sump towards MW-03. One of the soil samples was collected from soil inside of the pipe and one from soil bedding outside of the

pipe. As indicated in Table 4-2, no VOCs were detected in either of the samples at concentrations that exceed the SCGs.

4.4 Groundwater Analytical Results

Ten groundwater samples were collected during the SI: eight from monitoring wells and two from piezometers. MW-01, MW-03, and MW-05 groundwater samples were analyzed for TCL VOCs, TCL SVOCs, TCL pesticides, TCL PCBs, TAL metals, cyanide and TPH. Groundwater samples collected from MW-02, MW-04, MW-06, MW-07, MW-08, PZ-01, and PZ-02 were analyzed for TCL VOCs only. Analytical results are summarized in Table 4-3 and are presented in Figure 4-2.

No VOCs, SVOCs, pesticides or PCBs were detected in MW-01 and MW-05 at concentrations which exceed the SCGs. Several metals including iron (Fe), lead (Pb), magnesium (Mg), manganese (Mn), and thallium (Th) were detected at concentrations which exceed their SCGs. Cyanide was not detected above SCGs and TPH was not detected in either MW-01 or MW-05.

Several VOCs were detected in MW-03 at concentrations that exceed the SCGs. These VOCs include; 1,1,1-TCA at 4,500 micrograms per liter (µg/l) (SCG 5 µg/l); 1,1-DCA at 50,000 µg/l (SCG 5 µg/l); 1,1-DCE at 14 µg/l (SCG 5 µg/l); 1,2-DCA at 11 µg/l (SCG 0.6 µg/l); chloroethane at 130 µg/l (SCG 5 µg/l), and vinyl chloride at 9 µg/l (SCG 2 µg/l). No SVOCs, pesticides, or PCBs were detected at concentrations which exceed the SCGs. Several metals including cadmium (Cd), Fe, Mg, and nickel (Ni) were detected at concentrations that exceed their SCGs. Cyanide was not detected and TPH was detected at 2.4 milligrams per liter (mg/l).

No VOCs were detected at concentrations that exceed the SCGs in groundwater samples collected from MW-02, MW-04, and MW-07. Three VOCs were detected at concentrations that exceed the SCGs in groundwater sample MW-06. The VOCs include: 1,1,1-TCA at 190 µg/l (SCG 5 µg/l); 1,1-DCA at 560 µg/l (SCG 5 µg/l); and 1,1-DCE at 6 µg/l (SCG 5 µg/l). One VOC (vinyl chloride) was detected in MW-08 at 8 µg/l which exceeds its SCG of 2 µg/l. One VOC (acetone) was detected in PZ-01 at 63 µg/l which exceeds its SCG of 50 µg/l.

N

WALDEN AVENUE

MW-03
VOCs:
1,1,1-Trichloroethane, 4200
1,1,2-Trichloroethane, 2
1,1-Dichloroethane, 50,000
1,1-Dichloroethene, 14
1,2-Dichloroethane, 11
Chloroethane, 130
cis-1,2-Dichloroethene, 9
Vinyl chloride, 9
SVOCs:
bis(2-Ethylhexyl)phthalate, 6
METALS:
Cadmium, 15.5
Iron, 4260
Magnesium, 164,000
Nickel, 497

MW-04
VOCs:
1,1,1-Trichloroethane, 8
1,1-Dichloroethane, 110

MW-06
VOCs:
1,1,1-Trichloroethane, 190
1,1-Dichloroethane, 490
1,1-Dichloroethene, 6

MW-02

PROPERTY LINE

WATER-METER VAULT

SLIDING GATE

deep

TEST TRENCH

MW-07

MAINTENANCE SHOP

OFFICE (3311 WALDEN AVE)

CORRUGATED STEEL BLDG.

OFFICE

FORMER ACID PLANT

HCL TANK

RAILROAD SPUR

BRICK BUILDING

TRAILER

WASH BAY

FORMER CHEMICAL STORAGE

PZ-02
VOCs:
1,1,1-Trichloroethane, 12
1,1,2-Trichloroethane, 4
1,1-Dichloroethane, 9
1,1-Dichloroethene, 32
1,2-Dichloropropane, 4
Chloroform, 8
cis-1,2-Dichloroethene, 9500
trans-1,2-Dichloroethene, 380
Trichloroethene, 60,000
Vinyl chloride, 1000

MW-08
VOCs:
Vinyl chloride, 8

MW-05
METALS:
Iron, 17,900
Lead, 134
Manganese, 1900

PZ-01
VOCs:
Acetone, 63

MW-01
METALS:
Iron, 1550
Magnesium, 61,100

deep

Legend

- No Compounds Detected
- No Compounds Exceed Criteria
- At Least One Compound Exceeds Criteria

MW-06
1,1,1-Trichloroethane, 150

Location ID — Compound Exceeding Criteria — Concentration (UG/L)

50 0 50 Feet

FORMER DOWELL FACILITY
GROUNDWATER ANALYTICAL RESULTS (JULY 2001)

URS

FIGURE 4-2

J:\35824.00\db\gis\dowell.apr JULY 01 GROUNDWATER EXCEEDANCES
1/15/2002

Ten VOCs were detected in PZ-02 at concentrations that exceed their SCGs. The VOCs include: 1,1,1-TCA at 12 µg/l (SCG 5 µg/l);1,1,2-TCA at 4 µg/l (SCG 1 µg/l); 1,1-DCA at 9 µg/l (SCG 5 µg/l); 1,1-DCE at 32 µg/l (SCG 5 µg/l); 1,2-dichloropropane at 4 µg/l (SCG 1 µg/l); chloroform at 8 µg/l (SCG 7 µg/l); cis-1,2-DCE at 380 µg/l (SCG 5 µg/l); TCE at 60,000 µg/l (SCG 5 µg/l); and vinyl chloride at 1,000 µg/l (SCG 2 µg/l).

A summary of detected analytes in groundwater samples in shown in Table 4-3 and in Figure 4-2.

4.5 Summary of Contamination

Analytical results showed that the sediments in the sumps of the Former Maintenance Shop are contaminated with VOCs (1,1,1-TCA, 1,1-DCA, and PCE). Subsurface soil samples collected from the Former Acid Plant and Former Chemical Storage Building area showed elevated levels of VOCs (TCA and trans-1,2, DCE). Groundwater samples showed elevated levels of VOCs, consisting primarily of 1,1,1-TCA and 1,1-DCA in MW-03 and MW-06 and TCE, cis-1,2-DCE, and vinyl chloride in PZ-02. The contaminants present in groundwater at MW-03 and MW-06 are similar to the contaminants found in the sump sediments in the Former Maintenance Shop. Also, the primary contaminants present in PZ-02 were not present in the downgradient wells MW-03 and MW-06.

4.6 Analytical Testing Data Validation

Data validation was performed on all samples collected. This data validation was limited to a review of the following criteria:

- Holding times
- Data completeness
- Comparison of surrogate, spike, and duplicate recoveries to validation criteria
- Blank contamination
- 10% quantitation check that reported sample results are correct
- Proper sample analysis

- Sample chromatograms
- NYSDEC ASP Sample Preparation and Analysis Summary Forms

Based on this review, a data usability summary report (DUSR) was prepared. The DUSR is presented in Appendix H.

5.0 EXPOSURE PATHWAY ANALYSIS

5.1 Migration Pathways

An exposure pathway is the route by which an individual comes in contact with a contaminant. The five elements of an exposure pathway are 1) the source of contamination; 2) the environmental medium and transport mechanisms; 3) the point of exposure; 4) the route of exposure; and 5) the receptor population. In order for an individual to be affected by contamination at the site, a pathway must be complete. Pathways may be direct or indirect. Direct exposure pathways include dermal contact with, and/or inhalation or ingestion of, the contaminant. Ingestion of contaminated drinking water is an example of a complete direct exposure pathway. An example of an indirect exposure pathway is human consumption of fish which have been contaminated by eating smaller creatures living in contaminated sediments. The following sections address several potential exposure pathways at the site.

5.1.1 Sediment Exposure Pathway

Sediment samples were collected from four floor sump/catch basin locations during this SI. Sediment samples collected from the round sump and rectangular sump located outside of the Former Maintenance Shop showed no VOC detected above the SCGs. Three VOCs including: 1,1,1-TCA, 1,1-DCA, and PCE were detected at concentrations that exceed their SCGs in sediment samples that were collected from Sump-01 and Sump-02, located inside the Former Maintenance Shop. Sediments in Sumps-01 and -02 are sources of contamination, but these covered sumps are located inside of a locked building, and there is no transport mechanism that would promote sediment movement. Therefore, potential receptor populations would not be exposed to the contaminated sediments under current conditions as there is no completed exposure pathway which would pose a risk to human health.

5.1.2 Subsurface Soil Exposure Pathway

VOCs were detected in subsurface soil samples at concentrations that exceed the SCGs. The majority of the exceedances were present in soil samples collected from soil borings between the Former Chemical Storage Building and the Former Acid Plant. Specifically, TCE and trans-1,2-DCE were detected in GPB-7, GPB-8, and GPB-9 above the SCGs. TCE was also detected in GPB-12 (northwest corner of the Former Acid Plant) above its SCG. Subsurface soils are a source of contamination in localized areas of the site. The only potential receptor population that may come in contact with the subsurface soils are construction workers performing earthwork. Currently, a complete exposure pathway does not exist which would pose a risk to human health.

5.1.3 Groundwater Exposure Pathway

Groundwater samples showed some VOCs and metals at concentrations above the SCGs. The bulk of the exceedances were found in MW-03 and PZ-02, which are located east of the Former Maintenance Shop and between the Former Chemical Storage Building and Former Acid Plant, respectively. The primary contaminant detected in PZ-02 is TCE (50,000 μg/L). TCE was not detected in MW-03, which is located less than 100 feet downgradient from PZ-02. Therefore, it appears that the TCE contamination remains local to the vicinity of PZ-02. Although groundwater associated with the water table aquifer in some areas of the site may be considered source contamination, there is no complete route of exposure as potential receptor populations are supplied with municipal water and do not use groundwater for consumption or recreation.

5.1.4 Air Exposure Pathway

Fugitive or respirable dust is not a concern at the facility as the open areas of the site are adequately vegetated and/or are covered with material too large to become airborne (i.e., gravel, asphalt). Although VOCs were present in some subsurface soils, the samples were collected at depths in soils with temperatures that do not promote volatilization and have very low permeability and porosity. Therefore, volatilization is not considered it significant concern. There are no complete air exposure pathways at the site.

5.1.5 Conclusions

Based on the above exposure pathway analysis, contaminated sediment, subsurface soils and groundwater all represent potential contaminant sources. However, there were no complete exposure pathways identified, as possible receptor populations are not expected to come in contact with contaminated media or be exposed for any period of time that would pose a health risk.

5.2 Habitat-Based Assessment

A habitat-based assessment is performed during a SI when it is determined that an impact to wildlife may exist as a result of contamination from the site. Field observations were made in conjunction with environmental sampling to determine if such an assessment was necessary for this SI. The potential impacts or routes of exposure to wildlife that were considered include, but are not limited to, the following:

- Uptake of contaminants by plant life on or near the site.
- Consumption of contaminated plants by animals in the area.
- Direct contact with contaminants at the surface by animal life on or near the site.
- Impacts to surface water via storm runoff or groundwater discharge.

After consideration of the above-mentioned potential impacts with the conditions defined for the site, it was determined that potential impacts to wildlife by site-related contamination are minimal. No further habitat-based assessment/evaluation is envisioned based on the data gathered to date.

6.0 IDENTIFICATION AND DEVELOPMENT OF REMEDIAL ALTERNATIVES

6.1 Introduction

This section presents the methodology and rationale used to develop remedial action alternatives for the Former Dowell.

6.2 Remedial Action Objectives

The objective of the NYSDEC Voluntary Cleanup Program is to investigate and evaluate sites that have been impacted due to real or perceived environmental contamination so that they can be remediated, as necessary, and redeveloped. This objective includes the identification and development of remedial alternatives. In order to evaluate the practicality and feasibility of meeting this objective, it has been assumed that the site will continue to be used solely for commercial/industrial purposes. Appropriate remedial action alternatives based on commercial/industrial land use were subsequently developed and evaluated. A remedy for the site was then selected from these alternatives.

6.2.1 Selection of Cleanup Goals

The cleanup goals for each matrix are listed below:

Soil

NYSDEC Technical Administrative Guidance Memorandum (TAGM) 4046: *Determination of Soil Cleanup Objectives and Cleanup Levels,* January 1994, revised.

Groundwater

NYSDEC Technical and Operational Guidance Series (TOGS) 1.1.1: *Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations,* June 1998.

6.2.2 Regulatory Implications of Contaminant Concentrations

It is to be noted that the TAGM 4046 criteria have been developed based on residential use scenarios. Consequently, with industrial re-use scenarios, as proposed for this site, these criteria are used for initial screening of the site. Final cleanup goals subsequently are developed on a case by case basis with the NYSDEC and NYSDOH. Likewise, the TOGS 1.1.1 criteria are used in cases where the groundwater is utilized, or may be potentially utilized in the future, as a source of drinking water. Considering that groundwater is not now, or likely to be in the future, a source of drinking water, the TOGS 1.1.1 criteria are used for initial screening of the site. Final cleanup goals will be developed with the NYSDEC and NYSDOH.

Sediment

Three VOCs (TCA, DCA, and PCE) were detected at concentrations that exceed their SCGs in sediment samples collected from two floor sumps (Sump-01 and Sump-02) located in the Former Maintenance Shop. Although contamination is present in the sediments of the sumps, under the current site scenario there is no complete exposure pathway which would pose a risk to human health. As the Former Maintenance Shop and floor sumps are slated for demolition, the sediments in the sumps will have to be removed, therefore, remedial alternatives were developed for sump sediments.

Soils

The following VOCs were detected in subsurface soil samples at concentrations that exceed their SCGs.

- Acetone (Sample 1-x-1)
- trans-1,2-DCA (GPB-08), and
- TCE (GPB-07, GPB-08, GPB-09, and GPB-12)

Although acetone was detected in one subsurface soil sample (1-x-1 sump), it is a common laboratory contaminant and is unlikely to persist in any medium for an extended period of time, as it volatilizes rapidly. Under the current site use scenario, there is no complete exposure pathway to contaminated subsurface soils which would pose a risk to human health with the exception of future construction workers. Consequently, as the site structures are slated for demolition, and earthwork will take place during the concrete slab removals and future excavation for foundations, remedial alternatives were developed for subsurface soils.

Groundwater

There were no SVOCs, pesticides, PCBs, or cyanide detected in groundwater samples that exceed the SCGs. Consequently, these constituents were not considered during the development of remedial alternatives for groundwater. Several VOCs and metals were detected in site groundwater samples at concentrations that exceed the SCGs. All of the VOCs detected above the SCGs in groundwater were considered during the development of remedial alternatives. Only those metals that did not exceed the SCGs in background wells were considered during the development of remedial alternatives.

The primary contaminants of concern in groundwater at the site include:

- TCE (PZ-02)
- 1,1-DCA (MW-03, MW-06, PZ-02)
- cis-1,2-DCE (MW-03, PZ-02)
- 1,1,1-TCA (MW-03, MW-06, PZ-02)
- Vinyl Chloride (MW-03, PZ-02)

Other contaminants that were detected in groundwater samples that exceed the SCGs include:

- Acetone (PZ-01)
- Chloroethane (MW-03)
- Choroform (PZ-02)
- 1,2-DCA (MW-03)

- 1,1-DCE (MW-03, MW-06, PZ-02)
- trans-1,2-DCE (PZ-02)
- 1,2-Dichloropropane (PZ-02)
- 1,1,2-TCA (PZ-02)
- Cadmium (MW-03)
- Nickel (MW-03)

The above-listed contaminants are the basis for the development of remedial alternatives.

6.3 General Response Actions

General response actions may be applied at the site to meet the remedial action objective. They may include treatment, containment, excavation, extraction, disposal, institutional controls, no action, or a combination of responses. The following general response actions were identified for the subsurface soil and groundwater at the site:

- No action
- Institutional controls
- Groundwater extraction and treatment
- In-situ oxidation
- Source removal

6.4 Development of Alternatives

The general response actions identified in Section 6.3 have been assembled into remedial action alternatives that address the contamination concerns at the site as a whole.

The primary exposure routes associated with the VOCs and metals in the on-site soil and groundwater include:

- Dermal contact

- Ingestion

Consequently, in developing the remedial action alternatives, the primary goal was to prevent contact with, and ingestion of, the contaminated soil and groundwater. Five alternatives were developed which include:

- Alternative 1 - No Action
- Alternative 2 - Institutional Controls
- Alternative 3 - Groundwater Treatment and Extraction
- Alternative 4 - In-Situ Oxidation
- Alternative 5 - Source Removal

These alternatives are evaluated in detail in Section 7.0.

7.0 DETAILED ANALYSIS OF ALTERNATIVES

7.1 Introduction

A detailed analysis of the remedial action alternatives developed for the site consists of the presentation and analysis of relevant information necessary to select a remedy for the site. The proposed alternatives were analyzed in this report using the following seven evaluation criteria as defined in 6 NYCRR Part 375:

1. Overall protection of human health and the environment
2. Compliance with remedial action objectives
3. Short-term effectiveness and performance
4. Long-term effectiveness and performance
5. Reduction of toxicity, mobility, and volume
6. Implementability
7. Cost

The criterion of community acceptance will be evaluated by the NYSDEC following issuance of the proposed remedial action plan.

7.2 Individual Analysis of Alternatives

The components of each alternative are further defined in the following paragraphs with regard to volume or areas of contaminated media to be addressed; the technologies to be used; and any performance requirements associated with those technologies. For each alternative the estimated capital costs, estimated operational and maintenance (O&M) costs (in present dollars), the years of active remediation at the site, and the years of monitoring have been provided.

7.2.1 Alternative 1 – No Action

Capital Cost:	$0	**Years of Active Remediation:**	0
O&M Costs:	$0	**Years of Monitoring:**	0
Total Costs:	$0		

Under the No Action alternative, no remedial activities would be taken at the site to remove, contain, or treat contaminated soil and groundwater. This alternative does not comply with the remedial goals in that the contamination levels of organic compounds that exceed the SCG values are not reduced and the direct contact hazards are not mitigated at the site.

- **Overall protection of human health and the environment** – Alternative 1 is not expected to provide adequate protection of human health and the environment.
- **Compliance with remedial action objectives** – Alternative 1 does not achieve the VCA remedial action objectives.
- **Short-term effectiveness** – Alternative 1 includes no treatment and reduces contaminant levels by natural processes.
- **Long-term effectiveness and permanence** – Alternative 1 does not offer long-term effectiveness or permanence since it does not reduce contamination levels.
- **Reduction of toxicity, mobility, and volume** – Alternative 1 does not include treatment and will not reduce the toxicity, mobility, or volume of contaminants.
- **Implementability** – Alternative 1 does not require implementation by remedy.
- **Cost** – No costs are associated with Alternative 1.

7.2.2 Alternative 2 – Institutional Controls

Capital Cost:	$20,000	**Years of Active Remediation:**	0
O&M Costs:	$ 50,000	**Years of Monitoring:**	30
Total Costs:	$ 70,000		

Under the Institutional Control alternative, human exposure and health risks are eliminated by restricting public access and future development activities rather than by cleaning up or containing the organic compounds. This alternative relies upon natural processes (biodegradation,

volatilization and leaching) to reduce contaminant concentrations slowly over time. The Institutional Control alternative includes deed restrictions to control future development on site (i.e., restricted earthwork) and groundwater use restrictions prohibiting withdrawal of groundwater for drinking water or other potable uses. This alternative also includes the routine monitoring of groundwater to track the natural reduction of contaminant levels as well as routine site reviews. This alternative does not comply with the remedial goals in that the contamination levels of organic compounds that exceed the SCG values are not reduced and the direct contact hazards are not mitigated at the site.

- **Overall protection of human health and the environment** – Alternative 2 is not expected to provide adequate protection of human health and the environment.
- **Compliance with remedial action objectives** – Alternative 2 does not achieve the VCA remedial action objectives.
- **Short-term effectiveness** – Alternative 2 includes no treatment and reduces contaminant levels by natural processes.
- **Long-term effectiveness and permanence** – Alternative 2 does not offer long-term effectiveness or permanence since it does not reduce contamination levels. Although institutional controls, such as deed and groundwater use restrictions, lower the risk from direct contact hazards, these controls do not reduce contaminant levels.
- **Reduction of toxicity, mobility, and volume** – Alternative 2 does not include treatment and will not reduce the toxicity, mobility, or volume of contaminants.
- **Implementability** – Alternative 2 includes deed and groundwater use restrictions, which are relatively easy to implement.
- **Cost** – Legal costs represent the capital costs for Alternative 2. O&M costs include the maintenance of monitoring wells, the collection and analysis of groundwater samples, and the site reviews.

7.2.3 Alternative 3 – Groundwater Treatment and Extraction

Capital Cost:	$425,000	**Years of Active Remediation:**	2
O&M Costs:	$500,000	**Years of Monitoring:**	5
Total Costs:	$925,000		

Under the Groundwater Treatment and Extraction alternative, a series of water table pumping wells would be installed at the site. Groundwater would be removed from the wells at a rate to form a cone of depression around the site preventing the off-site migration of contaminants. The groundwater would be passed through a series of fiber filters to remove sediments and through activated carbon filters to remove residual organic compounds. Treated groundwater would be tested and discharged through a State Pollution Discharge Elimination System (SPDES)-permitted discharge. This alternative complies with the remedial goals for groundwater in that the organic compounds are reduced and the direct contact and inhalation hazards are mitigated at the site. The Groundwater Treatment and Extraction alternative would prevent the off-site migration of contaminants and would minimize the transport of the organic compounds to the atmosphere.

- **Overall protection of human health and the environment** – Alternative 3 is expected to be protective of human health and the environment.
- **Compliance with remedial action objectives** – Alternative 3 is expected to meet the VCA remedial action objectives for groundwater, but not for soil.
- **Short-term effectiveness** – Alternative 3 does offer short-term effectiveness by preventing the off-site migration of organic compounds and the removal of the contaminants from the groundwater.
- **Long-term effectiveness and permanence** – Alternative 3 does offer long-term effectiveness and permanence since it reduces contaminant levels in groundwater.
- **Reduction of toxicity, mobility, and volume** – Alternative 3 would effectively reduce the toxicity, mobility, and volume of contaminants in the groundwater.
- **Implementability** – Alternative 3 would be the most difficult to implement because it requires the installation of water table pumping wells as well as the removal, treatment, sampling, and disposal of groundwater. The water table aquifer does not produce sufficient water to maintain an efficient pump rate. Furthermore, this alternative would require extensive worker health and safety measures and other environmental controls.
- **Cost** – The installation of the water table pumping wells and associated equipment represent the capital costs while the treatment, sampling and disposal of the groundwater represent the O&M costs.

7.2.4 Alternative 4 – In-Situ Oxidation

Capital Cost:	$425,000	**Years of Active Remediation:**	0.5
O&M Costs:	$75,000	**Years of Monitoring:**	1
Total Costs:	$500,000		

Under the In-Situ Oxidation alternative, soil and groundwater in areas that showed SCG value exceedances would be treated in place. A series of injection wells would be installed in the areas where soil and groundwater contamination has been identified. Various catalysts and oxidizers would be injected into the wells to oxidize or reduce the organic compounds. Soil and groundwater samples would be collected from and adjacent to the injection wells prior to, and approximately 30 days after, injection to evaluate the effectiveness of the oxidation. Analytical results would be used to determine the need for additional injections of catalysts and oxidizers. This alternative complies with the remedial goals in that the organic compounds are reduced and the direct contact hazards are mitigated at the site. The In-Situ Oxidation alternative would prevent the off-site migration of contaminants.

- **Overall protection of human health and the environment** – Alternative 4 is expected to be protective of human health and the environment.
- **Compliance with remedial action objectives** – Alternative 4 is expected to meet the VCA remedial action objectives.
- **Short-term effectiveness** – Alternative 4 does offer short-term effectiveness by preventing the off-site migration of organic compounds and the reduction of the contaminants on and in the soil and groundwater.
- **Long-term effectiveness and permanence** – Alternative 4 does offer long-term effectiveness and permanence since it reduces contaminant levels.
- **Reduction of toxicity, mobility, and volume** – Alternative 4 would reduce the toxicity, mobility, and volume of contaminants in the soil and groundwater.

- **Implementability** – Alternative 4 would be relatively easy to implement, but due to the low permeability of the aquifer material (clay), the effectiveness of oxidation would be limited. Multiple injection wells would be required to increase the efficiency of the oxidizing catalysts.
- **Cost** – The installation of the injection wells, associated equipment, and chemicals represent the capital costs while the sampling and reapplication of chemicals represent the O&M costs.

7.2.5 Alternative 5 – Source Removal

Capital Cost:	$311,781	**Years of Active Remediation:**	0.5
O&M Costs:	$12,986	**Years of Monitoring:**	5±
Total Cost:	$324,767		

Under this alternative, soil between the Former Chemical Storage Building and the Former Acid Plant would be excavated and hauled to an off-site disposal facility. Soil beneath the former railroad spur in the vicinity of GPB-07, -08 and -09 would be excavated to approximately 15 feet below ground surface (bgs) and the excavated soil stockpiled on-site on plastic sheeting. Soil outside the northwest corner of the Former Acid Plant near GPB-12, would also be excavated to approximately 15 feet bgs and the excavated soil stock piled on-site on plastic sheeting. Also, soil around MW-03 and the 4-inch clay-tile pipe and sediment in Sumps-01 and -02 in the Former Maintenance Shop would be removed. Post-excavation soil samples would be collected from the walls and floor of the excavations to confirm that residual levels of contaminants of concern are below the VCA remedial action levels. Representative samples of the excavated soil would be collected and analyzed, and a waste profile prepared for the soil. The soil would then be transported to an approved off-site facility as either a hazardous waste or as a non-hazardous contaminated solid waste. This alternative complies with the remediation goals in that the contamination levels of organic compounds that exceed the SCG values are reduced and direct contact hazards are mitigated. By removing source areas, groundwater contaminant reduction will occur through the process of natural attenuation. The Source Removal alternative would prevent the transport of the organic compounds to the atmosphere. Figure 7-1 shows the proposed source removal area.

N

WALDEN AVENUE

PROPERTY LINE

SLIDING GATE

WATER-METER VAULT

SIDEWALK

MW-02

FORMER TANK

FORMER CEMENT PLANT

MW-04

MW-03

MW-06

TP-02

TP-01

ROUND SUMP

FORMER ACID PLANT

FORMER 8000 GALLON DIESEL TANK

3-X-2

3-X-1

MW-07

MAINTENANCE SHOP

GPB-12

GPB-13

GPB-11

FORMER FUEL DISPENSER

HCL TANK

FORMER RAILROAD SPUR

2-X-2

SUMP-02

1-X-2

SUMP-01

2-X-1

1-X-1

OFFICE (3311 WALDEN AVE)

CORRUGATED STEEL BLDG.

BRICK BUILDING

OFFICE

FORMER 1000 GALLON GASOLINE UST (REMOVED)

GPB-10

GPB-09

PZ-02

GPB-08

GPB-07

FORMER CEMENT SILOS

FORMER COMPRESSOR

GPB-04

WASH BAY

FORMER CHEMICAL STORAGE

MW-08

MW-05

TRAILER

FORMER OIL SEPARATOR (ABANDONED)

4-X-1

4-X-2

5-X-1

5-X-2

GPB-03

FORMER MUD SEPARATOR (ABANDONED)

GPB-02

PZ-01

GPB-01

MW-01

Legend

- Monitoring Well
- Geoprobe Boring
- Former Structure
- Proposed Excavation Area
- Floor Drain/Catch Basin and Sump Location

40 0 40 Feet

FORMER DOWELL FACILITY
ALTERNATIVE 5 -PROPOSED SOURCE REMOVAL AREA

URS

FIGURE 7-1

J:\35824.00\dbi\Gis\dowell.apr ALTERNATIVE 5- PROPOSED SOURCE REMOVAL AREA
1/18/2002

- **Overall protection of human health and the environment** – Alternative 5 is expected to provide adequate protection of human health and the environment.
- **Compliance with remedial action objectives** – Alternative 5 achieves the VCA remedial action objectives.
- **Short-term effectiveness** – Alternative 5 includes the physical removal of contaminants.
- **Long-term effectiveness and permanence** – Alternative 5 offers long-term effectiveness and permanence since it removes contaminated source areas and reduces contamination levels in groundwater by natural attenuation.
- **Reduction of toxicity, mobility, and volume** – Alternative 5 will reduce the toxicity, mobility, and volume of contaminants remaining on-site.
- **Implementability** – Alternative 5 is relatively easy to implement.
- **Cost** – The removal and off-site disposal of the soil represents the capital costs. Table 7-1 breaks down the costs for Alternative 5.

7.3 Selected Remedial Alternatives

Based on the analysis of alternatives presented above, it is recommended that Alternative 5 - Source Removal, be implemented at the site. This alternative provides a high degree of protection to human health and the environment, is cost effective, and relatively easy to implement.

This alternative satisfies the VCA remedial objectives in that it eliminates direct contact hazards associated with sediment and subsurface soils at the site. The only potential exposure is to construction workers during remedial action excavations. This potential exposure route will be minimized by development of soils management procedures to be followed during remedial activities. This alternative does reduce the volume and toxicity of the contaminants by removing the source of contamination and allowing for contamination reduction by natural attenuation. Additionally, this alternative is considerably less expensive than Alternative 3, while affording future site workers/visitors a higher level of protection.

TABLE 7-1
COST ESTIMATE FOR ALTERNATIVE 5 - SOURCE REMOVAL

Cost Estimate	Site: Former Dowell Site Depew, New York			Technology/Process: Demolition and Removal					Page 1 of 1	
	Quantity	Units	Safety	Unit Price at Safety Level			Total Costs			
Assembly/Line Item			Level	Labor	Equipment	Materials	Labor	Equipment	Materials	Total
Mobilization & Fee	1	EA	D	0.0000	0.0000	3091.9540	0.0000	0.0000	3091.9540	$3,091.95
Remove Underlying Soil by RR Spur	1479	TONS	D	1.0589	3.0749	0.0000	1566.1131	4547.7771	0.0000	$6,113.89
Load Wastes (Soil) from RR Spur	870	CY	D	0.4109	0.9715	0.0000	357.4830	845.2050	0.0000	$1,202.69
Transport Wastes (Soil) from RR Spur	2000	MI	D	0.0000	0.0000	2.9064	0.0000	0.0000	5812.8000	$5,812.80
Disposal of Wastes (Soil) from RR Spur (3)	870	TONS	D	0.0000	0.0000	111.3103	0.0000	0.0000	96839.9610	$96,839.96
Remove Underlying Soil by Acid Plant	893	TONS	D	1.0589	3.0749	0.0000	945.5977	2745.8857	0.0000	$3,691.48
Load Wastes (Soil) from Acid Plant	525	CY	D	0.4109	0.9715	0.0000	215.7225	510.0375	0.0000	$725.76
Transport Wastes (Soil) from Acid Plant	450	MI	D	0.0000	0.0000	2.9064	0.0000	0.0000	1307.8800	$1,307.88
Disposal of Hazardous Waste (Soil) (3)	525	TONS	D	0.0000	0.0000	111.3103	0.0000	0.0000	58437.9075	$58,437.91
Remove Underlying Soil @ Drain Line	492	TONS	D	1.0589	3.0749	0.0000	520.9788	1512.8508	0.0000	$2,033.83
Load Waste (Soil & Pipe) from Drain Line	289	CY	D	0.4109	0.9715	0.0000	118.7501	280.7635	0.0000	$399.51
Transport Waste (Soil & Pipe) from Drain Line	50	MI	D	0.0000	0.0000	2.9064	0.0000	0.0000	145.3200	$145.32
Dispose of Waste (Soil) from Drain Line (3)	289	TONS	D	0.0000	0.0000	111.3103	0.0000	0.0000	32168.6767	$32,168.68
Transport Drums (Sediment) from Sumps	100	MI	D	0.0000	0.0000	3.4630	0.0000	0.0000	346.3000	$346.30
Disposal of Hazardous Waste from Sumps	4	DRUM	D	0.0000	0.0000	117.4949	0.0000	0.0000	469.9796	$469.98
Backfill	1887	CY	D	0.5297	1.1411	4.6503	999.5439	2153.2557	8775.1161	$11,927.92
Confirmatory Sampling (VOC's Only)	15	EA	D	0.0000	0.0000	324.6552	0.0000	0.0000	4869.8280	$4,869.83
Oversight	120	HR	D	30.9195	0.0000	0.0000	3710.3400	0.0000	0.0000	$3,710.34
O&M Monitoring (Post-Remediation)(VOC's Only)	40	EA	D	0.0000	0.0000	324.6552	0.0000	0.0000	12986.2080	$12,986.21
						Total	**8434.5291**	**12595.7753**	**$225,251.93**	**$246,282.24**

Notes:

1. All costs are from the Environmental Restoration Unit Cost Book (ECHOS, 1995) and are in 1995 US dollars.
2. New York zip code 14225 has a cost multiplier of 1.11.
3. Disposal quantities are based on 1 ton per cubic yard.

Subtotal:	$246,282.24
New York Multiplier (1.11):	$27,091.07
Subtotal:	$273,373.31
Contingency (10%):	$27,337.33
Subtotal:	$300,710.64
Escalation (8%):	$24,056.85
Total:	**$324,767.49**

8.0 CONCLUSIONS

Based on the data collected during this SI and review of data collected during previous investigations, URS concludes the following:

- Sediments in the floor sumps of the Former Maintenance Shop are contaminated with 1,1,1-TCA, 1,1-DCA, and PCE. These chlorinated organic solvents are present in the floor sumps at concentrations that exceed the SCG's. The sediments should be removed prior to demolition of the Former Maintenance Shop to eliminate the potential exposure and direct contact hazards to construction workers and future site workers/visitors.

- Subsurface soil samples collected from the area between the Former Chemical Storage Building and the Former Acid Plant, as well as the area northwest of the Former Acid Plant, are contaminated with TCE and trans-1,2-DCE. These chlorinated organic solvents are present at concentrations that exceed the SCGs. The soils in these areas should be removed via excavation and replaced with clean backfill. The source removal operation will effectively remove the source of contamination from the site and eliminate the potential exposure and direct contact hazards to future site workers/visitors.

- Groundwater was found to be present in two distinct water-bearing zones. There is an upper till/unconfined unit in which monitoring wells MW-05 to MW-08 and piezometers PZ-01 and PZ-02 are set. There is a confined bedrock/lower till unit in which monitoring wells MW-01 to MW-04 are set.

- Groundwater contamination is present in two distinct areas of the site. The groundwater sample collected from PZ-02, between the Former Chemical Storage Building and the Former Acid Plant, is primarily contaminated with TCE, cis-1,2-DCE, and vinyl chloride. The groundwater samples collected from MW-03 and MW-06, east of the Former Maintenance Shop, are primarily contaminated with 1,1,1-TCA and 1,1-DCA. The contaminants in MW-03 and MW-06 are the same compounds present in the sump sediments of the Former Maintenance Shop. It is likely that groundwater in this area

has been impacted by past activities performed in the Former Maintenance Shop. Groundwater contamination in the PZ-02 area is most likely associated with the elevated levels of VOCs in soils in these areas. Also, the primary contaminants in PZ-02 (TCE, cis-1,2-DCE, and vinyl chloride) were not present in the downgradient wells or were at significantly lower concentrations. The groundwater contamination from the PZ-02 area does not appear to have impacted perimeter, downgradient groundwater quality.

- Five remedial alternatives were evaluated and a preferred alternative was selected. Alternative 5 - Source Removal (Excavation) is the remedial alternative that provides the highest degree of protection to human health and the environment, is cost effective, and is easy to implement.

APPENDICES

APPENDIX A

PREVIOUS INVESTIGATION DETAILS

Table 3

Soil Sample Results

DS-Depew, New York Facility

November 1997

Detected Volatile Compound	Soil Boring ID and Sample Depth Interval (feet)													
	SB-01 (4 - 6)	SB-02 (6 - 8)	SB-03 (12 - 14)	SB-03 (16 - 18)	SB-04 (8 - 10)	SB-04 (14 - 16)	SB-05 (6 - 8)	SB-05 (10 - 12)	SB-05 (14 - 16)	SB-06 (4 - 6)	SB-07 (8 - 10)	SB-07 (18 - 20)	SB-08 (2 - 4)	SB-08 (6 - 8)
	Constituent concentrations (mg/Kg)													
Vinyl Chloride	0.022	0.029	ND	ND	0.11	ND	0.10	0.042	ND	ND	0.16	ND	ND	ND
1,2-DCA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.006	ND	ND	ND
TCE	0.11	0.66 (*)	ND	ND	33.0 (*)	0.033	3.3 (*)	29.0 (*)	0.012	ND	17.0 (*)	9.7 (*)	ND (*)	0.008
1,1,1-TCA	0.017	ND	1.6 (*)	ND	ND	ND	ND	ND	ND	ND	0.37J (*)	ND (*)	ND	ND
1,2-DCE (total)	0.21 (*)	0.63 (*)	ND	ND	2.0 (*)	ND	0.87 (*)	ND (*)	ND	ND	0.61J (*)	ND (*)	ND	ND
Methylene Chloride	ND	ND	0.008	0.01	ND	0.013	ND	ND	0.009	ND	ND	0.006	0.023	ND
Acetone	ND	ND	0.02	0.016	ND	ND	0.033	ND	0.02	0.028	ND	ND	0.30 (*)	0.022
1,1-DCA	ND	ND	7.9 (*)	0.34 (*)	ND	ND	0.025	ND	ND	ND	0.21	ND	0.008	ND
Toluene	ND	ND	ND	0.01	ND	0.019	ND	ND	ND	ND	ND	ND	0.016	ND
Chlorobenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.008	ND	ND	ND	ND
Ethylbenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.14	ND	ND	ND	ND
Total Xylenes	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.067	ND	ND	ND	ND
Chloroform	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.016	ND	ND	ND
PCE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.38	ND	ND	ND
1,1-DCE	ND	ND	ND	ND	ND	ND	0.007	ND	ND	ND	0.38	ND	ND	ND
1,1,2-TCA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.013	ND	ND	ND
(*) - Dilute Analysis	1 : 2	1 : 5	1 : 125	1 : 2	1 : 250		1 : 125	1 : 250			1 : 125	1 : 125	1 : 2	

Notes:

Laboratory Analysis for Volatile Organic Compounds using EPA SW 846 Method 8260A
ND - Not Detected - Below Laboratory Quantification Limit
DCA - dichloroethane
TCE - trichloroethylene
TCA - trichloroethane
DCE - dichloroethene
PCE - tetrachloroethene
J - Present - Below the Quantification Limit in the Diluted Analysis

TABLE 4
MW-1
Groundwater Analytical Results
Former Dowell Schlumberger Facility, Depew, New York

Volatile Compounds	Sep-96 (Mg/L)	Mar-97 (Mg/L)	Nov-97 (Mg/L)	Jul-98 (Mg/L)	Dec-98 (Mg/L)	Jul-99 (Mg/L)	Jan-00 (Mg/L)
Chloroethane	<0.005	<0.005	NA	<0.005	<0.005	<0.005	<0 001
Vinyl Chlonde	<0.005	<0.005	NA	<0.005	<0.005	<0.005	<0 001
Methylene Chlonde	0.020	<0.005	NA	0.003[B]	<0.005	<0.005	0 001[d]
Acetone	<0.010	<0.010	NA	<0.025	<0.01	<0.010	0.006[B]
1,1-Dichloroethene	<0.005	<0.005	NA	<0.005	<0.005	<0 005	<0.001
1,1-Dichloroethane	<0.005	<0.005	NA	<0.005	<0.005	<0 005	<0.001
1,2-Dichloroethene (total)	<0.005	<0.005	NA	<0.005	<0.005	<0.005	<0.001
1,2-Dichloroethane	<0.005	<0.005	NA	<0.005	<0.005	<0 005	<0.001
1,1,1-Trichloroethane	<0.005	<0.005	NA	<0.005	<0.005	<0.005	<0.001
Total VOCs	**0.020**	**ND**	**NA**	**ND**	**ND**	**ND**	**ND**

Notes

Volatile Organic Analysis by EPA SW846 Method 8260A

NA= Not Analyzed

[B] Qualified as non-detect due to blank contamination

TABLE 5
MW-2
Groundwater Analytical Results
Former Dowell Schlumberger Facility, Depew, New York

Volatile Compounds	Sep-96 (Mg/L)	Mar-97 (Mg/L)	Nov-97 (Mg/L)	Jul-98 (Mg/L)	Dec-98 (Mg/L)	Jul-99 (Mg/L)	Jan-00 (Mg/L)
Chloroethane	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.001
Vinyl Chloride	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.001
Methylene Chloride	0.012	<0.005	0.007	0.005[B]	<0.005	<0.005	0.001[B]
Acetone	0.013	<0.010	0.014	<0.025	<0.005	<0.010	0.005[B]
1,1-Dichloroethene	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.001
1,1-Dichloroethane	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.001
1,2-Dichloroethene (total)	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.001
1,2-Dichloroethane	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.001
1,1,1-Trichloroethane	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.001
Total VOCs	0.015	ND	0.021	ND	ND	ND	ND

Notes

Volatile Organic Analysis by EPA SW846 Method 8260A

ND=Not Detected

[B] Qualified as non-detect due to blank contamination

TABLE 6

MW-3

Groundwater Analytical Results

Former Dowell Schlumberger Facility, Depew, New York

Volatile Compounds	Sep-96 (Mg/L)	Mar-97 (Mg/L)	Nov-97 (Mg/L)	Jul-98 (Mg/L)	Dec-98 (Mg/L)	Jul-99 (Mg/L)	Jan-00 (Mg/L)
Chloroethane	<0.005	<0.005	**<0.005/0.010**	**0.021/<1**	**<0.005/0.006**	**0.007**	<0.200/<0.200
Vinyl Chloride	<0.005	<0.005	**<0.005/0.005**	**0.12/<1**	<0.005/<0.005	<0.005	<0.200/<0.200
Methylene Chloride	**0.011**	<0.005	**0.010/0.012**	0.005[B]/0.930[B]	<0.005/<0.005	<0.005	0.27[B]/0.33[B]
Acetone	<0.010	<0.010	**<0.010/0.030**	0.007[B]/<5	<0.010/<0.010	<0.010	1.0[B]/1.0[B]
1,1-Dichloroethene	<0.005	**0.019**	**0.013/0.028**	**0.068/<1**	**0.010/0.028**	**0.007**	**0.22*/0.28***
1,1-Dichloroethane	**0.48**	**7.7**	**14.0*/18.0***	**19/33**	**16/30**	**19.0***	**18.0*/20.0***
1,2-Dichloroethene (total)	<0.005	<0.005	**0.005/0.010**	**0.005/<1**	<0.005/<0.005	<0.005	<0.200/<0.200
1,2-Dichloroethane	<0.005	**0.005**	**.006/0.011**	**0.009/<1**	**0.006/0.010**	**0.006**	<0.200/<0.200
1,1,1-Trichloroethane	**0.1**	**1.000**	**2.0*/2.6***	**3.7/5.5**	**3.3/5.4**	**2.4***	**2.5*/2.6***
Total VOCs	**0.591**	**6.724**	**20.696**	**38.723**	**35.450**	**21.42**	**22.88**

Notes

Volitile Organic Analysis by EPA SW846 Method 8260A

<0.005 / 0.010 = Sample Result / Duplicate Result

(*) = Dilute Analysis

ND=Not Detected

[B] Qualified as non-detect due to blank contamination

TABLE 7
MW-4
Groundwater Analytical Results
Former Dowell Schlumberger Facility, Depew, New York

Volatile Compounds	Sep-96 (Mg/L)	Mar-97 (Mg/L)	Nov-97 (Mg/L)	Jul-98 (Mg/L)	Dec-98 (Mg/L)	Jul-99 (Mg/L)	Jan-00 (Mg/L)
Chloroethane	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.001
Vinyl Chloride	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.001
Methylene Chloride	0.012	<0.005	<0.005	0.005[B]	<0.005	<0.005	0.002[B]
Acetone	0.020	<0.010	<0.010	0.005[B]	<0.010	<0.010	0.006[B]
1,1-Dichloroethene	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.001
1,1-Dichloroethane	<0.005	<0.005	<0.005	0.004	0.021	<0.005	<0.001
1,2-Dichloroethene (total)	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.001
1,2-Dichloroethane	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.001
1,1,1-Trichloroethane	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.001
Total VOCs	0.032	ND	ND	0.004	0.021	ND	ND

Notes

Volitile Organic Analysis by EPA SW846 Method 8260A

ND= Not Detected

[B] Qualified as non-detect due to blank contamination

RADIAN INTERNATIONAL LLC

WELL NO. MW-1 PAGE 1 OF 1

PROJECT NAME DS - Depew PROJECT NO. 007551

LOCATION _____ GEOLOGIST DNM

BY DNM DRILLING CONTRACTOR Maxim DRILLER _____

DATE 10/23/96 DRILLING METHOD HSA w/ SS Samples RIG TYPE CME-75

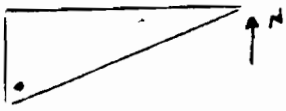
CHK BY _____ DRILLING START DATE 9/10/96 DRILLING COMPLETION DATE 9/10/96

DATE _____ SURFACE ELEVATION _____ STICK-UP ELEVATION _____

DEPTH FEET	SOIL SAMPLE NO.	SOIL SAMPLE REC. (IN.)	SOIL SAMPLE BL./6"	ROCK SAMPLE RUN (FT)	ROCK SAMPLE REC. (%)	ROCK SAMPLE RQD. (%)	VISUAL CLASSIFICATION AND REMARKS	PROFILE	STATIC WATER LEVEL (FT)	BORING/CASING DIA. (IN.)	DEPTH (FEET)	WELL CONSTRUCTION DETAILS	REMARKS
0	SS1	4	9, 6, 10, 18				Medium Dense, Black-Brown Silty CINDERS and Fine to Coarse Angular GRAVEL, Moist	F				Flushmount Protective Cover	
2	SS2	6	24, 12, 3, 3				Medium Dense to Very Loose, Fine to Medium CINDERS, Trace to Little Wood Frags, Crushed Sandstone, and Fine to Medium Gravel, Moist					Bentonite-Cement Grout	
4	SS3	12	3, 3, 5, 7				Soft to Medium Stiff, Green-Gray Silty Clay Grading to Red-Brown CLAY Trace Silt, Plant Roots, Moist	CL					
6	SS4	20	14, 16, 20, 28				Very Stiff, Red-Brown CLAY, Little Silt, Gray Along Fractures, Damp					2" PVC Screen Riser	
8	SS5	0"	21, 21, 29, 29				No RECOVERY	CL					
10	SS6	13	7, 8, 12, 13				Stiff, Red-Brown and Gray CLAY, Orange-Brown Staining, Little Silt, Trace Fine to Medium Gravel, Moist	CL	9/12				
12													

Well located in S.E corner of property

ADDITIONAL REMARKS



RADIAN INTERNATIONAL LLC

WELL NO. MW-1 PAGE 1 OF 1

PROJECT NAME DS - Depew PROJECT NO. 093531

LOCATION Depew, NY GEOLOGIST DNM

DEPTH FEET	SOIL SAMPLE NO.	REC. (IN.)	BL./6"	ROCK SAMPLE RUN (FT)	REC. (%)	RQD. (%)	VISUAL CLASSIFICATION AND REMARKS	PROFILE	STATIC WATER LEVEL (FT)	BORING/CASING DIA. (IN.)	DEPTH (FEET)	WELL CONSTRUCTION DETAILS	REMARKS
12	SS7	0	18 18 20 16				No Recovery	CL					
14	SS8	24	5 11 11 12				Stiff, Red-Brown CLAY, Little Silt, Trace very Fine Sand and Fine to Medium Gravel, Iron-Stained, Moist				14		Bentonite Seal
16	SS9	22	18 20 21 18				Very Stiff, Gray-Brown CLAY, Little Silt, Trace to Little Fine to Medium Gravel, Trace Very Fine to Medium Sand and Very Coarse Gravel Moist	CL			17		Clean Filter Sand Pack
18	SS10	1	5 9 12 15				Stiff, Gray-Brown, CLAY, Little Silt, Trace Very Fine to Medium Sand and Fine to Medium Gravel, Moist	CL					
20	SS11	22	3 6 31 6				Soft, Red-Gray CLAY Little Silt and Very Fine Sand, Little Fine to Medium Gravel, Moist	CL			20		2" Sch 40 PVC well Screen (0.010" slot)
22	SS12	24	10 10 14 13				Stiff, Gray-Brown CLAY, Little Silt and Very Fine to Fine Sand, Little Fine to Medium Gravel, 2" Sandy Gravel Seam @ 23.5', Wet	CL					
24	SS13	20	16 8 11 16				Stiff, Gray-Brown CLAY, Some Silt, Little Fine to Medium Sand and Fine to Medium Gravel, Spoon-Wet	SP					
26	SS14	13	10 10 30 42				Stiff to Hard, As Above to 27.0', Red-Brown, CLAY Little Silt and Fine to Medium Gravel, Moist	CL	-				
28													

ADDITIONAL REMARKS

RADIAN INTERNATIONAL LLC

WELL NO. MW-1 PAGE OF

PROJECT NAME DS - Depew PROJECT NO. 26351

LOCATION Depew NY GEOLOGIST DNM

DEPTH FEET	SOIL SAMPLE NO.	REC. (IN.)	BL./6"	ROCK SAMPLE RUN (FT)	REC. (%)	ROD. (%)	VISUAL CLASSIFICATION AND REMARKS	PROFILE	STATIC WATER LEVEL (FT)	BORING/CASING DIA. (IN.)	DEPTH (FEET)	WELL CONSTRUCTION DETAILS	REMARKS
28	SS15	18	41 14 21 10%0				Hard, Red-brown CLAY, Little to Some Silt, Little Very Fine to Fine Sand and Fine to Medium Gravel, Moist	CL			30		PVC End Cap
30							HSA Refusal @ 30.0'						

ADDITIONAL REMARKS

RADIAN INTERNATIONAL LLC

WELL NO. MW2 PAGE 1 OF 1

PROJECT NAME D - Dublin PROJECT NO. [redacted]

LOCATION _____ GEOLOGIST DNM

BY DNM DRILLING CONTRACTOR Maxim Tech. DRILLER _____

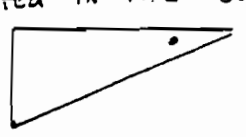
DATE 10/23/96 DRILLING METHOD HSA w/ SS Sampling RIG TYPE CME-75

CHK BY _____ DRILLING START DATE 9/11/96 DRILLING COMPLETION DATE 9/11/96

DATE _____ SURFACE ELEVATION _____ STICK-UP ELEVATION _____

DEPTH (FEET)	SOIL SAMPLE NO.	SOIL SAMPLE REC. (IN.)	SOIL SAMPLE BL/6"	ROCK SAMPLE RUN (FT)	ROCK SAMPLE REC. (%)	ROCK SAMPLE RQD. (%)	VISUAL CLASSIFICATION AND REMARKS	PROFILE	STATIC WATER LEVEL (FT)	BORING/CASING DIA. (IN.)	DEPTH (FEET)	WELL CONSTRUCTION DETAILS	REMARKS
0													
2	SS1	15	33 60 80 22				Very Dense, Black-Brown Medium to Coarse CINDERS Some Fine to Coarse Sand, Little Coarse Sand, Moist					Flushmount Protective Cover	
4	SS2	8	3 3 5 7				Medium Stiff, Red-Brown, CLAY, Little Silt, Trace Fine Sand and Fine Gravel, Plant Roots, Wet on Top					Bentonite-Cement Grout	
6	SS3	4	37 16 18 19				Very Stiff, Red-Brown, CLAY, Little Silt, Trace Fine Gravel, Gray Along Some Fractures, Damp		9/12			2" Sch 40 PVC Riser	
8	SS4	14	28 28 32 36				Hard, Red-Brown CLAY, Trace to Little Silt, Damp						
10	SS5	20	16 19 27 47				Very Stiff to Hard, Red-Brown CLAY, Trace Silt, Very Fine Gravel, Fine Sand, Trace Gray Mottles and Iron Staining, Damp						
12	SS6	8	30 28 20 21				Very Stiff, Red-Brown CLAY, Little Silt, Trace Fine Gravel, Damp						

Well located in N.E. Corner of Property



ADDITIONAL REMARKS

RADIAN INTERNATIONAL LLC

WELL NO. MW-2 PAGE 1 OF 1

PROJECT NAME DS - DEPEW PROJECT NO. 207531

LOCATION DEPEW, NY GEOLOGIST DNM

DEPTH FEET	SOIL SAMPLE NO.	REC. (IN.)	BL./6"	ROCK SAMPLE RUN (FT)	REC. (%)	ROD. (%)	VISUAL CLASSIFICATION AND REMARKS	PROFILE	STATIC WATER LEVEL (FT)	BORING/CASING DIA. (IN.)	DEPTH (FEET)	WELL CONSTRUCTION DETAILS	REMARKS
12	SS7	24	38 37 31 30				Hard, Red-brown CLAY, Trace to Little Silt, Trace Fine Sand and Fine Gravel, Little Iron-staining, Damp to Moist				13.5		
14	SS8	0	7 11 11 10				No Recovery				15		Bentonite Seal
16	SS9	23	8 10 13 13				Stiff, Red-Brown, Gray-Brown CLAY, Little Silt and Very Fine to Medium Sand, Little Fine Gravel, Moist to Wet						Clean Filter Sand Pack
18	SS10	24	6 6 10 13				Medium Stiff to Stiff, Red-Brown CLAY, Little Silt and Very Fine to Fine Sand, Little Fine Gravel, Moist to Wet				18.3		
20	SS11	24	6 6 10 14				As Above w/ Coarser Gravel						2" Sch 40 PVC well Screen (0.010" slot)
22	SS12	22	6 6 10 13				Medium Stiff to Stiff, Red-Brown CLAY, Little Fine to Medium Gravel and Silt, Little Very Fine to Medium Sand, Wet @ 23.0'						
24	SS13	0	5 8 9 15				No Recovery						
26	SS14	0	11 13 50/1"				No Recovery HSA to Refusal @ 28.3'						
28											28.3		PVC End Cap

ADDITIONAL REMARKS

RADIAN INTERNATIONAL LLC

WELL NO. MW-3 PAGE OF

PROJECT NAME D? Depot PROJECT NO. [illegible]

LOCATION GEOLOGIST DNM

BY DNM DRILLING CONTRACTOR MAXIM Test DRILLER

DATE 10/23/96 DRILLING METHOD HSA w/SS Samples RIG TYPE CME-75

CHK BY DRILLING START DATE DRILLING COMPLETION DATE

DATE SURFACE ELEVATION STICK-UP ELEVATION

DEPTH FEET	SOIL SAMPLE NO.	REC. (IN.)	BL/6"	ROCK SAMPLE RUN (FT)	REC. (%)	RQD. (%)	VISUAL CLASSIFICATION AND REMARKS	PROFILE	STATIC WATER LEVEL (FT)	BORING/CASING DIA. (IN.)	DEPTH (FEET)	WELL CONSTRUCTION DETAILS	REMARKS
0													
							ASPHALT						
	HSA						Black-Brown, Fine Cinders, Gravel and Sand	(F)					
2	SS1	7	4 10 20 23				Very Stiff, Red-Brown CLAY, Trace Silt, Gray Along Fractures, Damp	CL					
4	SS2	16	15 17 22 26				Very Stiff, Red-Brown, Gray Along Fractures, CLAY, Little Silt, Trace Fine Gravel, Damp						Bentonite-Cement Grout
6	SS3	20	35 26 35 46				Hard, Red-Brown CLAY, Little Gray Along Fractures, Trace Silt, Very Fine Sand, and Fine Gravel, Damp	CL					2" Sch 40 PVC Riser
8	SS4	22	14 22 28 36				Very Stiff, Red-Brown CLAY, Trace Silt and Very Fine Sand, Trace Fine Gravel, Iron-Staining @ 10.5', Damp	CL			9.5		
10	SS5	24	11 18 18 18				Very Stiff, Brown and Red-Brown CLAY, Little Silt, Trace Very Fine Sand and Fine Gravel, Some Iron-Staining, Damp	CL					Bentonite Seal
12											12		

ADDITIONAL REMARKS

RADIAN INTERNATIONAL LLC

WELL NO. MW-3 PAGE OF

PROJECT NAME DS-Depew PROJECT NO. 007531

LOCATION Depew, N.Y. GEOLOGIST DJM

DEPTH FEET	SOIL SAMPLE NO.	REC. (IN.)	BL./6"	ROCK SAMPLE RUN (FT)	REC. (%)	ROD. (%)	VISUAL CLASSIFICATION AND REMARKS	PROFILE	STATIC WATER LEVEL (FT)	BORING/CASING DIA. (IN.)	DEPTH (FEET)	WELL CONSTRUCTION DETAILS	REMARKS
12	SS6	20	18 17 16 21				Very Stiff, Brown to Red-Brown CLAY, Little Silt, Trace very Fine Sand and Fine Gravel, Little Iron-Staining, Moist	CL					
14	SS7	23	4 4 5 8				Soft to Medium Stiff, Red-Brown CLAY, Some Silt, Little Very Fine to Medium Sand and Fine to Medium Gravel, Moist to Wet	CL			15		
16	SS8	23	6 7 9 14				Medium Stiff, Red-Brown CLAY, Little to Some Silt, Little Very Fine to Medium Sand, Little Fine to Medium Gravel, Wet	CL					
18	SS9	22	4 5 6 10				Medium Stiff, Red-Brown, CLAY, Little to Some Silt, Little Very Fine to Medium Sand, Little Fine to Medium Gravel, Wet	CL					
20	SS10	20	4 9 9 14				Medium Stiff, Red-Brown and Grey-Brown CLAY, Little to Some Silt, Little Very Fine to Medium Sand and Gravel, Wet	CL					
22	SS11	21	6 11 11 15				Medium Stiff, Red-Brown CLAY, Some Silt, Little Very Fine to Medium Sand and Fine to Medium Gravel, Moist	CL					
24	SS12	0	6 9 10 15				No Recovery - Coarse Gravel in Shoe	CL	-		25		
26	SS13	22	11 11 14 18				Medium Stiff, Red-Brown CLAY, Little to Some Silt, Little Very Fine to Medium Sand, Little Fine to Coarse Gravel, Moist to Wet						
28													

WELL CONSTRUCTION DETAILS: Clean Filter Sand Pack; 2" Sch 40 PVC Well Screen (0.010" Slot)

ADDITIONAL REMARKS

MAISVFORM

RADIAN INTERNATIONAL LLC

WELL NO. MW-3 PAGE OF

PROJECT NAME DS- DeFew PROJECT NO. 007531

LOCATION DeFew, N.Y. GEOLOGIST DNM

DEPTH	SOIL SAMPLE			ROCK SAMPLE			VISUAL CLASSIFICATION AND REMARKS	PROFILE	STATIC WATER LEVEL (FT)	BORING/ CASING DIA. (IN.)	DEPTH (FEET)	WELL CONSTRUCTION DETAILS	REMARKS
FEET	NO.	REC. (IN.)	BL./ 6"	RUN (FT)	REC. (%)	ROD. (%)							
28	SS14	6	4 6 50/2				As Above with Weathered Limestone Fragment in Shoe. Damp to Moist						
29													

ADDITIONAL REMARKS

Split Spoon Refusal @ 29.0'

RADIAN INTERNATIONAL LLC

WELL NO. MW-4 PAGE 1 OF 1

PROJECT NAME [illegible] PROJECT NO. [illegible]

LOCATION [illegible] GEOLOGIST DNM

BY DNM DRILLING CONTRACTOR Maxim TECH DRILLER [illegible]

DATE 10/23/96 DRILLING METHOD HSA w/ S.S. Sampling RIG TYPE CME-75

CHK BY [illegible] DRILLING START DATE 9/11/96 DRILLING COMPLETION DATE 9/12/96

DATE [illegible] SURFACE ELEVATION [illegible] STICK-UP ELEVATION [illegible]

DEPTH FEET	SOIL SAMPLE NO.	REC. (IN.)	BL/6"	ROCK SAMPLE RUN (FT)	REC. (%)	ROD. (%)	VISUAL CLASSIFICATION AND REMARKS	PROFILE	STATIC WATER LEVEL (FT)	BORING/CASING DIA. (IN.)	DEPTH (FEET)	WELL CONSTRUCTION DETAILS	REMARKS
0													
	HSA						Black-Brown CINDERS and GRAVEL, Some Clay, Moist	(F)					Flushmount Protective Casing
2	SS1	14	9 9 19 20				Medium Stiff to Stiff, Red-Brown CLAY, Little Silt, Trace Fine Sand, Gray Along Fractures, Moist	CL					Bentonite-Cement Grout
4	SS2	19	12 16 25 27				Stiff to Very Stiff, Red-Brown CLAY, Little Silt, Trace Fine Gravel and Fine Sand, Gray Along Fractures, Damp	CL					2" Sch 40 PVC Riser
6	HSA						Red-Brown CLAY	CL					
9	SS3	20	16 18 30 36				Very Stiff to Hard, Red-Brown CLAY, Little Silt, Trace Fine Sand and Gravel, Iron-Staining, Damp	CL	-				
11	HSA												

ADDITIONAL REMARKS

RADIAN INTERNATIONAL LLC

WELL NO. MW-4 PAGE 1 OF 2

PROJECT NAME DS - Depew PROJECT NO. 207531

LOCATION Depew, NY GEOLOGIST DNM

DEPTH FEET	SOIL SAMPLE NO.	REC. (IN.)	BL./6"	ROCK SAMPLE RUN (FT)	REC. (%)	RQD. (%)	VISUAL CLASSIFICATION AND REMARKS	PROFILE	STATIC WATER LEVEL (FT)	BORING/CASING DIA. (IN.)	DEPTH (FEET)	WELL CONSTRUCTION DETAILS	REMARKS
12	HSA						Red-Brown CLAY	CL			13	Bentonite Seal	
14	SS4	12	7 8 9 13				Medium Stiff to Stiff, Red-Brown CLAY to 15.0', (15'-16') Gray CLAY, Stiff, Trace Gravel and Very Fine to Fine Sand, Moist	CL			15		
16	HSA						Gray and Gray-Brown CLAY	CL			18.05		
20	SS5	12	4 8 11 10				Stiff, Gray-Brown CLAY, Little Silt and Very Fine to Coarse Sand, Little Fine to Medium Gravel, Wet	CL				2" Sch 40 PVC Well Screen (0.010" Slot)	
22	HSA						Gray-Brown CLAY	CL				Clean Filter Sand Pack	
24	SS6	0	16 17 12 15				No Recovery	CL					
26	HSA						Gray-Brown CLAY	CL					
28							HSA Refusal @ 28.4'				28.09	PVC End Cap	

ADDITIONAL REMARKS

APPENDIX B

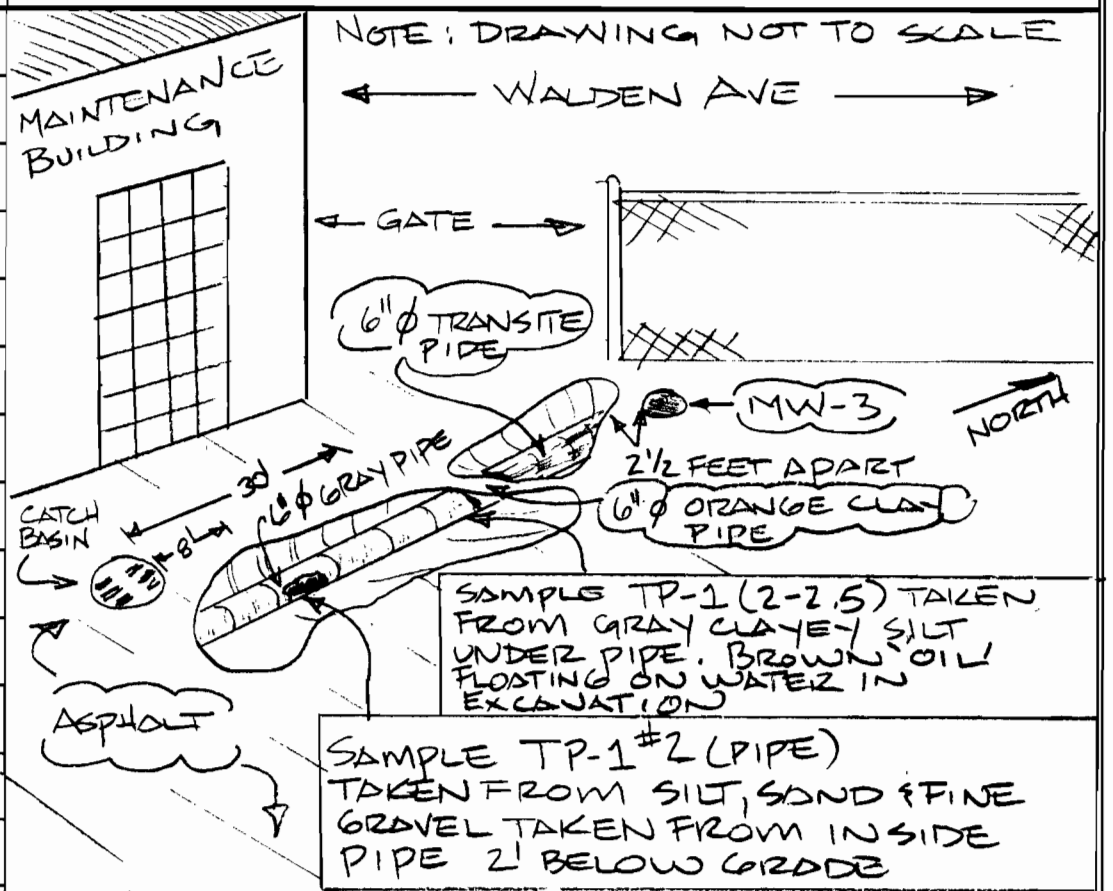
TEST PIT LOG

URS
282 Delaware Avenue
Buffalo, New York 14202
(716) 856-5636

TEST PIT LOG

PROJECT:	**3311 Walden Ave.**		Sheet 1 of 1
CLIENT:	Dowell Schlumberger	**JOB NUMBER:**	05-00035824.00
CONTRACTOR:	Nature's Way	**LOCATION:**	Depew, New York
DATE STARTED:	07/11/2001	**GROUND ELEVATION:**	not surveyed
DATE COMPLETED:	07/11/2001	**OPERATOR:**	Jamie Feldman
TRENCH NUMBER:	**TP-1**	**GEOLOGIST:**	Tim Burmeier

DEPTH (FT)	DESCRIPTION



COMMENTS: Excavated with Ford 655-A rubber-tire backhoe. Soil screened with Mini-Rae 2000 photoionizing detector

APPENDIX C

BORING LOGS

URS Corporation

GEOPROBE BORING LOG

BORING NO: Sump 1-X-2

PROJECT:	Dowell Schlumberger Site, Depew, New York	SHEET:	1 of 1
CLIENT:	Dowell Schlumberger	PROJECT NO.:	05-00035824.00
BORING CONTRACTOR:	Nature's Way, Inc.	BORING LOCATION:	Inside maintenance bldg
GROUNDWATER:		GROUND ELEVATION:	
DATE STARTED:	07/12/01		
DATE FINISHED:	07/12/01		
DRILLER:	S. Gingrich		
GEOLOGIST:	T. Burmeier		
REVIEWED BY:	D. Sheppard		

DATE	TIME	LEVEL	TYPE	CAS. TYPE	CAS.	SAMPLER	CORE	TUBE
				Dia.		2"		
				Length		48"		
				Liner		Acetate		

DEPTH FEET	SAMPLE STRATA	"S" NO.	RECOVERY %	COLOR	CONSISTENCY HARDNESS	DESCRIPTION MATERIAL	USCS	REMARKS PID (ppm)	
				Gray	Dense	0-0.5': Concrete floor, 0.5-1' sub-base gravel	Fill	0	Moist-
		1	100%	Black	Stiff	1.0-1.5' Silty clay with fine gravel	CL	210	Wet
4				Orange-Brown		1.5-4.5' Clayey silt	ML	4-8	
						End of boring at 4.5 feet			

Comments: Boring advanced using a truck mounted Simco Earthprobe 200 Direct-Push Assembly.

PROJECT NO. 05-00035824.00

BORING NO. Sump 1-X-2

URS Corporation

GEOPROBE BORING LOG

BORING NO: Sump 1-X-1

PROJECT:	Dowell Schlumberger Site, Depew, New York
CLIENT:	Dowell Schlumberger
BORING CONTRACTOR:	Nature's Way, Inc.
GROUNDWATER:	
SHEET:	1 of 1
PROJECT NO.:	05-00035824.00
ORING LOCATION:	Inside maintenance bldg
GROUND ELEVATION:	
DATE STARTED:	07/12/01
DATE FINISHED:	07/12/01
DRILLER:	S. Gingrich
GEOLOGIST:	T. Burmeier
REVIEWED BY:	D. Sheppard

DATE	TIME	LEVEL	TYPE	TYPE	CAS.	SAMPLER	CORE	TUBE
				Dia.		2"		
				Length		48"		
				Liner		Acetate		

DEPTH FEET	SAMPLE STRATA	"S" NO.	RECOVERY %	COLOR	CONSISTENCY HARDNESS	DESCRIPTION MATERIAL	USCS	REMARKS PID (ppm)	
				Gray	Dense	0-0.5': Concrete floor, 0.5-1' sub-base gravel	Fill	0	Moist-
		1	100%	Black	Stiff	1.0-1.5' Silty clay with fine gravel	CL	220	Wet
4				Orange-Brown		1.5-4.5' Clayey silt	ML	3	
						End of boring at 4.5 feet			

Comments: Boring advanced using a truck mounted Simco Earthprobe 200 Direct-Push Assembly. Sampled 1-1.5' interval for VOC analysis

PROJECT NO. 05-00035824.00

BORING NO. Sump 1-X-1

URS Corporation

GEOPROBE BORING LOG

BORING NO: Sump 2-X-1

PROJECT:	Dowell Schlumberger Site, Depew, New York
CLIENT:	Dowell Schlumberger
BORING CONTRACTOR:	Nature's Way, Inc.
SHEET:	1 of 1
PROJECT NO.:	05-00035824.00
BORING LOCATION:	Inside maintenance bldg.
GROUND ELEVATION:	
DATE STARTED:	07/12/01
DATE FINISHED:	07/12/01
DRILLER:	S. Gingrich
GEOLOGIST:	T. Burmeier
REVIEWED BY:	D. Sheppard

GROUNDWATER:

DATE	TIME	LEVEL	TYPE

	CAS.	SAMPLER	CORE	TUBE
TYPE		Macro core		
Dia.		2"		
Length		48"		
Liner		Acetate		

DEPTH FEET	STRATA	"S" NO.	RECOVERY %	COLOR	CONSISTENCY / HARDNESS	MATERIAL	USCS	REMARKS PID (ppm)	
				Gray	Dense	0-0.5': Concrete floor, 0.5-1' sub-base gravel and sand	Fill	0	Moist
		1	88%		Stiff	1.0-2.0' Silty clay grading to...	CL	1500+	
				Yellow Brn.		2.0-4.5' Clayey silt	ML	0	Slightly Moist
4				Orange-Brown					
						End of boring at 4.5 feet			

Comments: Boring advanced using a truck mounted Simco Earthprobe 200 Direct-Push Assembly. Sampled 1.5-2' interval for VOC analysis

PROJECT NO.	05-00035824.00
BORING NO.	Sump 2-X-1

URS Corporation

GEOPROBE BORING LOG

BORING NO: Sump 2-X-2

PROJECT: Dowell Schlumberger Site, Depew, New York
SHEET: 1 of 1

CLIENT: Dowell Schlumberger
PROJECT NO.: 05-00035824.00

BORING CONTRACTOR: Nature's Way, Inc.
BORING LOCATION: Inside maintenance bldg.

GROUNDWATER:
GROUND ELEVATION:

DATE	TIME	LEVEL	TYPE	CAS.	SAMPLER	CORE	TUBE
			TYPE		Macro core		
			Dia.		2"		
			Length		48"		
			Liner		Acetate		

DATE STARTED: 07/12/01
DATE FINISHED: 07/12/01
DRILLER: S. Gingrich
GEOLOGIST: T. Burmeier
REVIEWED BY: D. Sheppard

DEPTH FEET	SAMPLE STRATA	"S" NO.	RECOVERY %	COLOR	CONSISTENCY / HARDNESS	DESCRIPTION MATERIAL	USCS	REMARKS PID (ppm)	
				Gray	Dense	0-0.5': Concrete floor, 0.5-1' sub-base gravel and sand	Fill	0	Moist
		1	88%		Stiff	1.0-2.0' Silty clay grading to...	CL	300+	
				Yellow Brn.		2.0-4.5' Clayey silt	ML	0	Slightly Moist
4				Orange-Brown					
						End of boring at 4.5 feet			

Comments: Boring advanced using a truck mounted Simco Earthprobe 200 Direct-Push Assembly.

PROJECT NO. 05-00035824.00
BORING NO. Sump 2-X-2

URS Corporation

GEOPROBE BORING LOG

BORING NO: Sump 3-X-1

PROJECT:	Dowell Schlumberger Site, Depew, New York								SHEET:	1 of 1
CLIENT:	Dowell Schlumberger								PROJECT NO.:	05-00035824.00
BORING CONTRACTOR:	Nature's Way, Inc.								BORING LOCATION:	Inside maintenance bldg.
GROUNDWATER:					CAS.	SAMPLER	CORE	TUBE	GROUND ELEVATION:	
DATE	TIME	LEVEL	TYPE	TYPE		Macro core			DATE STARTED:	07/12/01
				Dia.		2"			DATE FINISHED:	07/12/01
				Length		48"			DRILLER:	S. Gingrich
				Liner		Acetate			GEOLOGIST:	T. Burmeier
									REVIEWED BY:	D. Sheppard

	SAMPLE					DESCRIPTION			
DEPTH FEET	STRATA	"S" NO.	RECOVERY %	COLOR	CONSISTENCY HARDNESS	MATERIAL	USCS	REMARKS PID (ppm)	
				Gray Brown	Dense	0-0.5': Concrete floor, 0.5-1' sub-base gravel and sand	Fill	0	Moist
		1	88%		Stiff	1.0-1.5' Fine sand	CL	35	
				Yellow Brn.		1.5-2.5' Clayey silt with fine sand	ML	8	Slightly
4				Reddish-Brown		2.5-4.5 Clayey silt		0	Moist
						End of boring at 4.5 feet			

Comments: Boring advanced using a truck mounted Simco Earthprobe 200 Direct-Push Assembly.

PROJECT NO.	05-00035824.00
BORING NO.	Sump 3-X-1

URS Corporation

GEOPROBE BORING LOG

BORING NO: Sump 3-X-2

PROJECT:	Dowell Schlumberger Site, Depew, New York	SHEET:	1 of 1
CLIENT:	Dowell Schlumberger	PROJECT NO.:	05-00035824.00
BORING CONTRACTOR:	Nature's Way, Inc.	BORING LOCATION:	Inside maintenance bldg.
GROUNDWATER:		GROUND ELEVATION:	
DATE STARTED:	07/12/01		
DATE FINISHED:	07/12/01		
DRILLER:	S. Gingrich		
GEOLOGIST:	T. Burmeier		
REVIEWED BY:	D. Sheppard		

DATE	TIME	LEVEL	TYPE	CAS.	SAMPLER	CORE	TUBE
			TYPE		Macro core		
			Dia.		2"		
			Length		48"		
			Liner		Acetate		

DEPTH FEET	SAMPLE STRATA	"S" NO.	RECOVERY %	COLOR	CONSISTENCY HARDNESS	DESCRIPTION MATERIAL	USCS	REMARKS PID (ppm)	
		1	88%	Gray Brown	Dense	0-0.5': Concrete floor, 0.5-1' sub-base gravel and sand	Fill	0	Moist
					Stiff	1.0-1.5' Fine sand	CL	59	
				Yellow Brn.		1.5-2.5' Clayey silt with fine sand	ML	0	Slightly
4				Reddish-Brown				0	Moist
						End of boring at 4.5 feet			

Comments: Boring advanced using a truck mounted Simco Earthprobe 200 Direct-Push Assembly. Sampled 1.5-2' interval for VOC analysis

PROJECT NO. 05-00035824.00

BORING NO. Sump 3-X-2

URS Corporation

GEOPROBE BORING LOG

BORING NO: Sump 4-X-1

PROJECT:	Dowell Schlumberger Site, Depew, New York	SHEET:	1 of 1
CLIENT:	Dowell Schlumberger	PROJECT NO.:	05-00035824.00
BORING CONTRACTOR:	Nature's Way, Inc.	BORING LOCATION:	Inside chemical storage bldg.
GROUNDWATER:		GROUND ELEVATION:	
DATE STARTED:	07/12/01		
DATE FINISHED:	07/12/01		
DRILLER:	S. Gingrich		
GEOLOGIST:	T. Burmeier		
REVIEWED BY:	D. Sheppard		

DATE	TIME	LEVEL	TYPE	CAS.	SAMPLER	CORE	TUBE
			TYPE		Macro core		
			Dia.		2"		
			Length		48"		
			Liner		Acetate		

SAMPLE						DESCRIPTION		
DEPTH FEET	STRATA	"S" NO.	RECOVERY %	COLOR	CONSISTENCY / HARDNESS	MATERIAL	USCS	REMARKS PID (ppm)
				Gray	Dense	0-0.5': Concrete floor, 0.5-1' sub-base gravel and sand	Fill	0
		1	50%	Brown		1.0-2.5' Fill:gravel, sand, and wood		0
4								Moist-wet
						End of boring at 4.5 feet		

Comments: Boring advanced using a truck mounted Simco Earthprobe 200 Direct-Push Assembly.	PROJECT NO.	05-00035824.00
	BORING NO.	Sump 4-X-1

URS Corporation									GEOPROBE BORING LOG	
									BORING NO: Sump 4-X-2	
PROJECT:	Dowell Schlumberger Site, Depew, New York								SHEET:	1 of 1
CLIENT:	Dowell Schlumberger								PROJECT NO.:	05-00035824.00
BORING CONTRACTOR:	Nature's Way, Inc.								BORING LOCATION:	Inside chemical storage bldg
GROUNDWATER:					CAS.	SAMPLER	CORE	TUBE	GROUND ELEVATION:	
DATE	TIME	LEVEL	TYPE	TYPE		Macro core			DATE STARTED:	07/12/01
				Dia.		2"			DATE FINISHED:	07/12/01
				Length		48"			DRILLER:	S. Gingrich
				Liner		Acetate			GEOLOGIST:	T. Burmeier
									REVIEWED BY:	D. Sheppard

SAMPLE						DESCRIPTION			
DEPTH FEET	STRATA	"S" NO.	RECOVERY %	COLOR	CONSISTENCY HARDNESS	MATERIAL	USCS	REMARKS PID (ppm)	
4		1	63%	Gray Lt. Brown Brown	Dense	0-0.5': Concrete floor, 0.5-1' sub-base gravel and sand 1.0-4.0' Fill:gravel, sand, silty clay and brick	Fill	0	Moist-wet
8		2	100%	Black-Dark Gray	Stiff	4.0-6.5' Clayey silt 6.5-6.8' Coarse sand 6.8-8.0' Clayey silt	ML SC ML		
						End of boring at 8.0 feet			

Comments: Boring advanced using a truck mounted Simco Earthprobe 200 Direct-Push Assembly. Sampled 2-2.5' interval for VOC analysis.	PROJECT NO.	05-00035824.00
	BORING NO.	Sump 4-X-2

URS Corporation									GEOPROBE BORING LOG	
									BORING NO: Sump 5-X-1	
PROJECT:	Dowell Schlumberger Site, Depew, New York								SHEET:	1 of 1
CLIENT:	Dowell Schlumberger								PROJECT NO.:	05-00035824.00
BORING CONTRACTOR:	Nature's Way, Inc.								BORING LOCATION:	Inside chemical storage bldg
GROUNDWATER:					CAS.	SAMPLER	CORE	TUBE	GROUND ELEVATION:	
DATE	TIME	LEVEL	TYPE	TYPE		Macro core			DATE STARTED:	07/12/01
				Dia.		2"			DATE FINISHED:	07/12/01
				Length		48"			DRILLER:	S. Gingrich
				Liner		Acetate			GEOLOGIST:	T. Burmeier
									REVIEWED BY:	D. Sheppard

	SAMPLE					DESCRIPTION			
DEPTH FEET	STRATA	"S" NO.	RECOVERY %	COLOR	CONSISTENCY HARDNESS	MATERIAL	USCS	REMARKS PID (ppm)	
		1	75%	Gray Black	Dense	0-0.5': Concrete floor, 0.5-1' sub-base gravel and sand 1.0-4.0' Fill:silt and fine -medium sand	Fill	0	Moist-wet
4						End of boring at 4.0 feet			

Comments: Boring advanced using a truck mounted Simco Earthprobe 200 Direct-Push Assembly. Sampled 2.5-3.0' interval for VOC analysis	PROJECT NO. 05-00035824.00 BORING NO. Sump 5-X-1

URS Corporation									GEOPROBE BORING LOG	
									BORING NO: Sump 5-X-2	
PROJECT:	Dowell Schlumberger Site, Depew, New York								SHEET:	1 of 1
CLIENT:	Dowell Schlumberger								PROJECT NO.:	05-00035824.00
BORING CONTRACTOR:	Nature's Way, Inc.								BORING LOCATION:	Inside chemical storage bldg
GROUNDWATER:					CAS.	SAMPLER	CORE	TUBE	GROUND ELEVATION:	
DATE	TIME	LEVEL	TYPE	TYPE		Macro core			DATE STARTED:	07/12/01
				Dia.		2"			DATE FINISHED:	07/12/01
				Length		48"			DRILLER:	S. Gingrich
				Liner		Acetate			GEOLOGIST:	T. Burmeier
									REVIEWED BY:	D. Sheppard

SAMPLE						DESCRIPTION			
DEPTH FEET	STRATA	"S" NO.	RECOVERY %	COLOR	CONSISTENCY HARDNESS	MATERIAL	USCS	REMARKS PID (ppm)	
4		1	75%	Gray Black	Dense	0-0.5': Concrete floor, 0.5-1' sub-base gravel and sand 1.0-4.0' Fill:silt and fine -medium sand	Fill	0	Moist-wet
						End of boring at 4.0 feet			

Comments: Boring advanced using a truck mounted Simco Earthprobe 200 Direct-Push Assembly.	PROJECT NO.	05-00035824.00
	BORING NO.	Sump 5-X-2

URS Corporation

GEOPROBE BORING LOG

BORING NO: GPB-1

PROJECT:	Dowell Schlumberger Site, Depew, New York
CLIENT:	Dowell Schlumberger
BORING CONTRACTOR:	Nature's Way, Inc.
SHEET:	1 of 1
PROJECT NO.:	05-00035824.00
BORING LOCATION:	South of chemical storage bldg.
GROUND ELEVATION:	
DATE STARTED:	07/10/01
DATE FINISHED:	07/10/01
DRILLER:	S. Gingrich
GEOLOGIST:	S.Tivnan
REVIEWED BY:	D. Sheppard

GROUNDWATER:

DATE	TIME	LEVEL	TYPE

	CAS.	SAMPLER	CORE	TUBE
TYPE		split-spoon		
Dia.		2"		
Length		24"		
Liner		Acetate		

DEPTH FEET	STRATA	SAMPLE "S" NO.	RECOVERY %	COLOR	CONSISTENCY / HARDNESS	DESCRIPTION / MATERIAL	USCS	REMARKS / PID (ppm)
		1	100%	Lt. Brown / Brown-Black	Dense	0-3.0' Fill:crushed limestone, re-worked silty clay with cinders and fine gravel	Fill	0.0 moist
		2	50%					
4				Orange brown	Stiff	3.0-4.0' Silty clay	CL	wet@4'
		3	100%			4.0-11.5' Clayey silt	ML	moist
		4	100%					
8								
		5	60%					
		6	90%		Soft			
12						11.0-12.0' Silty clay	CL	
						End of boring at 12.0 feet		

Comments: Boring advanced using a truck mounted Simco Earthprobe 200 Direct-Push Assembly. Installed mini-well with screen from 2-12'

PROJECT NO. 05-00035824.00

BORING NO. GPB-1

URS Corporation

GEOPROBE BORING LOG

BORING NO: GPB-2

PROJECT:	Dowell Schlumberger Site, Depew, New York
CLIENT:	Dowell Schlumberger
BORING CONTRACTOR:	Nature's Way, Inc.
SHEET:	1 of 1
PROJECT NO.:	05-00035824.00
BORING LOCATION:	South of chemical storage bldg.
GROUND ELEVATION:	
DATE STARTED:	07/10/01
DATE FINISHED:	07/10/01
DRILLER:	S. Gingrich
GEOLOGIST:	S.Tivnan
REVIEWED BY:	D. Sheppard

GROUNDWATER:				CAS.	SAMPLER	CORE	TUBE
DATE	TIME	LEVEL	TYPE	TYPE	split-spoon		
				Dia.	2"		
				Length	24"		
				Liner	Acetate		

DEPTH FEET	STRATA	SAMPLE "S" NO.	RECOVERY %	COLOR	CONSISTENCY / HARDNESS	DESCRIPTION / MATERIAL	USCS	REMARKS / PID (ppm)
		1	90%	Lt. Brown / Brown-Black	Dense	0-3.0' Fill:crushed limestone, re-worked silty clay with cinders and fine gravel	Fill	0.0 moist
		2	15%					
4				Orange brown	Stiff	3.0-4.0' Silty clay	CL	wet@4'
		3	0%			4.0-11.5' Clayey silt	ML	
		4	100%					moist
8								
		5	70%					
		6	100%					
12					Soft	11.0-14.0' Silty clay	CL	
		7	100%					
						End of boring at 14.0 feet		

Comments: Boring advanced using a truck mounted Simco Earthprobe 200 Direct-Push Assembly. Installed mini-well with screen from 2-12'

PROJECT NO. 05-00035824.00

BORING NO. GPB-2

URS Corporation

GEOPROBE BORING LOG

BORING NO: GPB-3

PROJECT:	Dowell Schlumberger Site, Depew, New York								SHEET:	1 of 1
CLIENT:	Dowell Schlumberger								PROJECT NO.:	05-00035824.00
BORING CONTRACTOR:	Nature's Way, Inc.								BORING LOCATION:	South of chemical storage bldg.
GROUNDWATER:					CAS.	SAMPLER	CORE	TUBE	GROUND ELEVATION:	
DATE	TIME	LEVEL	TYPE	TYPE		split-spoon			DATE STARTED:	07/10/01
				Dia.		2"			DATE FINISHED:	07/10/01
				Length		24"			DRILLER:	S. Gingrich
				Liner		Acetate			GEOLOGIST:	S.Tivnan
									REVIEWED BY:	D. Sheppard

	SAMPLE					DESCRIPTION		
DEPTH FEET	STRATA	"S" NO.	RECOVERY %	COLOR	CONSISTENCY HARDNESS	MATERIAL	USCS	REMARKS PID (ppm)
		1	65%	Lt. Brown Brown-Black	Dense	0-4.0' Fill:crushed limestone, re-worked silty clay with cinders and fine gravel	Fill	0.0 1-5 moist
		2	50%					1-4
4				Orange brown				wet@4'
		3	100%		Stiff	4.0-11.5' Clayey silt	ML	0-0.5 moist
		4	100%					0.0
8								
		5	100%					
						Refusal at 10 feet		
12								

Comments: Boring advanced using a truck mounted Simco Earthprobe 200 Direct-Push	PROJECT NO.	05-00035824.00
Assembly. Installed mini-well with screen from 2-12'	BORING NO.	GPB-3

URS Corporation

GEOPROBE BORING LOG

BORING NO: GPB-4

PROJECT:	Dowell Schlumberger Site, Depew, New York								SHEET:	1 of 1
CLIENT:	Dowell Schlumberger								PROJECT NO.:	05-00035824.00
BORING CONTRACTOR:	Nature's Way, Inc.								BORING LOCATION:	North of chemical storage bldg.
GROUNDWATER:					CAS.	SAMPLER	CORE	TUBE	GROUND ELEVATION:	
DATE	TIME	LEVEL	TYPE	TYPE		Macro core			DATE STARTED:	07/12/01
				Dia.		2"			DATE FINISHED:	07/12/01
				Length		48"			DRILLER:	S. Gingrich
				Liner		Acetate			GEOLOGIST:	T. Burmeier
									REVIEWED BY:	D. Sheppard

	SAMPLE					DESCRIPTION		
DEPTH FEET	STRATA	"S" NO.	RECOVERY %	COLOR	CONSISTENCY HARDNESS	MATERIAL	USCS	REMARKS PID (ppm)
		1	68%	Dk brn./blk.	Dense	0-1.5' Fill: sand and fine gravel	Fill	320* Moist
				Gray green	Soft	1.5-4.0' Silty clay	CL	0.2
4								
		2	100%	Red brown to Orange brown	Stiff	4.0-11.5' Clayey silt	ML	0 Slightly moist
8								Moist
		3	88%		Soft			Very moist
12						11.5-12.0' silty clay	CL	
						End of boring at 12.0 feet		

Comments: Boring advanced using a truck mounted Simco Earthprobe 200 Direct-Push Assembly. Sampled 3-3.5' interval for VOC analysis.

* instrument appeared to be affected by moisture

PROJECT NO.	05-00035824.00
BORING NO.	GPB-4

URS Corporation

GEOPROBE BORING LOG

BORING NO: GPB-5

PROJECT:	Dowell Schlumberger Site, Depew, New York
CLIENT:	Dowell Schlumberger
BORING CONTRACTOR:	Nature's Way, Inc.
GROUNDWATER:	
SHEET:	1 of 1
PROJECT NO.:	05-00035824.00
BORING LOCATION:	North of chemical storage bldg.
GROUND ELEVATION:	
DATE STARTED:	07/12/01
DATE FINISHED:	07/12/01
DRILLER:	S. Gingrich
GEOLOGIST:	T. Burmeier
REVIEWED BY:	D. Sheppard

DATE	TIME	LEVEL	TYPE		CAS.	SAMPLER	CORE	TUBE
				TYPE		Macro core		
				Dia.		2"		
				Length		48"		
				Liner		Acetate		

DEPTH FEET	STRATA	SAMPLE "S" NO.	RECOVERY %	COLOR	CONSISTENCY / HARDNESS	DESCRIPTION / MATERIAL	USCS	REMARKS / PID (ppm)
		1	58%	Dk brown	Dense	0-2.0' Fill: silt, sand and fine gravel	Fill	0.0 Moist
4				Gray green	Soft	1.5-4.0' Silty clay	CL	
		2	100%	Orange brown	Stiff	4.0-11.5' Clayey silt	ML	Slightly moist
8								Moist
		3	100%		Soft			Very moist
12						11.5-12.0' silty clay	CL	
						End of boring at 12.0 feet		

Comments: Boring advanced using a truck mounted Simco Earthprobe 200 Direct-Push Assembly.

PROJECT NO.	05-00035824.00
BORING NO.	GPB-5

URS Corporation

GEOPROBE BORING LOG

BORING NO: GPB-6

PROJECT:	Dowell Schlumberger Site, Depew, New York
CLIENT:	Dowell Schlumberger
BORING CONTRACTOR:	Nature's Way, Inc.
SHEET:	1 of 1
PROJECT NO.:	05-00035824.00
BORING LOCATION:	North of chemical storage bldg.
GROUND ELEVATION:	
DATE STARTED:	07/12/01
DATE FINISHED:	07/12/01
DRILLER:	S. Gingrich
GEOLOGIST:	T. Burmeier
REVIEWED BY:	D. Sheppard

GROUNDWATER:

DATE	TIME	LEVEL	TYPE

	CAS.	SAMPLER	CORE	TUBE
TYPE		Macro core		
Dia.		2"		
Length		48"		
Liner		Acetate		

DEPTH FEET	STRATA	SAMPLE "S" NO.	RECOVERY %	COLOR	CONSISTENCY / HARDNESS	DESCRIPTION MATERIAL	USCS	REMARKS PID (ppm)	
		1	68%	Gray	Dense	0-1.7' Fill:crushed limestone, silt, sand and fine gravel	Fill	0.0	Wet
				Dk brn./blk.					
4				Gray green	Soft	1.7-4.0' Silty clay	CL		Moist
		2	100%	Orange brown	Stiff	4.0-11.5' Clayey silt	ML		Slightly moist
8									Moist
		3	100%		Soft				Very moist
12						11.5-12.0' silty clay	CL		
						End of boring at 12.0 feet			

Comments: Boring advanced using a truck mounted Simco Earthprobe 200 Direct-Push Assembly.

PROJECT NO.	05-00035824.00
BORING NO.	GPB-6

URS Corporation

GEOPROBE BORING LOG

BORING NO: GPB-7

PROJECT:	Dowell Schlumberger Site, Depew, New York	SHEET:	1 of 1
CLIENT:	Dowell Schlumberger	PROJECT NO.:	05-00035824.00
BORING CONTRACTOR:	Nature's Way, Inc.	BORING LOCATION:	North of chemical storage bldg.
GROUNDWATER:		GROUND ELEVATION:	

DATE	TIME	LEVEL	TYPE		CAS.	SAMPLER	CORE	TUBE
				TYPE		Macro core		
				Dia.		2"		
				Length		48"		
				Liner		Acetate		

DATE STARTED:	07/12/01
DATE FINISHED:	07/12/01
DRILLER:	S. Gingrich
GEOLOGIST:	T. Burmeier
REVIEWED BY:	D. Sheppard

DEPTH FEET	STRATA	SAMPLE "S" NO.	SAMPLE RECOVERY %	COLOR	CONSISTENCY HARDNESS	DESCRIPTION MATERIAL	USCS	REMARKS PID (ppm)	
		1	63%	Gray / Black / Gray green	Dense	0-1.5' Fill:crushed limestone, sand and fine gravel	Fill	0.0	Wet
4					Soft	1.5-11.5' Clayey silt	CL		Moist
		2	100%	Orange brown	Stiff		ML	30	Slightly moist
8									Moist
		3	100%		Soft				Very moist
12						11.5-12.0' silty clay	CL	7	
						End of boring at 12.0 feet			

Comments: Boring advanced using a truck mounted Simco Earthprobe 200 Direct-Push Assembly. Sampled 7-7.5' interval for VOC analysis.

PROJECT NO. 05-00035824.00

BORING NO. GPB-7

URS Corporation

GEOPROBE BORING LOG

BORING NO: GPB-8

PROJECT:	Dowell Schlumberger Site, Depew, New York	SHEET:	1 of 1
CLIENT:	Dowell Schlumberger	PROJECT NO.:	05-00035824.00
BORING CONTRACTOR:	Nature's Way, Inc.	BORING LOCATION:	North of chemical storage bldg.
GROUNDWATER:		GROUND ELEVATION:	

DATE	TIME	LEVEL	TYPE	CAS.	SAMPLER	CORE	TUBE
			TYPE		Macro core		
			Dia.		2"		
			Length		48"		
			Liner		Acetate		

DATE STARTED:	07/13/01
DATE FINISHED:	07/13/01
DRILLER:	S. Gingrich
GEOLOGIST:	T. Burmeier
REVIEWED BY:	D. Sheppard

DEPTH FEET	STRATA	SAMPLE "S" NO.	SAMPLE RECOVERY %	COLOR	CONSISTENCY HARDNESS	DESCRIPTION MATERIAL	USCS	REMARKS PID (ppm)	
		1	63%	Gray / Black	Dense	0-2.0' Fill:crushed limestone, sand, silt, and fine grave	Fill	600+	Moist-wet
4				Gray green	Soft	2.0-4.0' Silty clay	CL		
		2	100%	Orange brown	Stiff	4.0-11.5' Clayey silt	ML	67	Slightly moist
8									Moist
		3	100%		Soft				Very moist
12						11.5-12.0' silty clay	CL	2000	
						End of boring at 12.0 feet			

Comments: Boring advanced using a truck mounted Simco Earthprobe 200 Direct-Push Assembly. Sampled 2-2.5' interval for VOC analysis. Set mini-well with screen from 2-12 feet

PROJECT NO.	05-00035824.00
BORING NO.	GPB-8

URS Corporation									GEOPROBE BORING LOG	
									BORING NO: GPB-9	
PROJECT:	Dowell Schlumberger Site, Depew, New York								SHEET:	1 of 1
CLIENT:	Dowell Schlumberger								PROJECT NO.:	05-00035824.00
BORING CONTRACTOR:	Nature's Way, Inc.								BORING LOCATION:	North of chemical storage bldg.
GROUNDWATER:					CAS.	SAMPLER	CORE	TUBE	GROUND ELEVATION:	
DATE	TIME	LEVEL	TYPE	TYPE		Macro core			DATE STARTED:	07/13/01
				Dia.		2"			DATE FINISHED:	07/13/01
				Length		48"			DRILLER:	S. Gingrich
				Liner		Acetate			GEOLOGIST:	T. Burmeier
									REVIEWED BY:	D. Sheppard

	SAMPLE					DESCRIPTION			
DEPTH FEET	STRATA	"S" NO.	RECOVERY %	COLOR	CONSISTENCY HARDNESS	MATERIAL	USCS	REMARKS PID (ppm)	
		1	50%	Gray / Black	Dense	0-2.0' Fill:crushed limestone, sand, silt, and fine gravel	Fill	0.0	Moist-wet
4				Orange brown	Soft	2.0-4.0' Clayey silt	CL		
		2	100%		Stiff	4.0-12' Silty clay	ML		Slightly moist
8									Moist
		3	100%		Soft			27-30	Very moist
12							CL		
						End of boring at 12.0 feet			

Comments: Boring advanced using a truck mounted Simco Earthprobe 200 Direct-Push Assembly. Sampled 11.5-12' interval for VOC analysis.	PROJECT NO.	05-00035824.00
	BORING NO.	GPB-9

URS Corporation									GEOPROBE BORING LOG	
									BORING NO: GPB-10	
PROJECT:	Dowell Schlumberger Site, Depew, New York								SHEET:	1 of 1
CLIENT:	Dowell Schlumberger								PROJECT NO.:	05-00035824.00
BORING CONTRACTOR:	Nature's Way, Inc.								BORING LOCATION:	Former acid storage area
GROUNDWATER:					CAS.	SAMPLER	CORE	TUBE	GROUND ELEVATION:	
DATE	TIME	LEVEL	TYPE	TYPE		Macro core			DATE STARTED:	07/13/01
				Dia.		2"			DATE FINISHED:	07/13/01
				Length		48"			DRILLER:	S. Gingrich
				Liner		Acetate			GEOLOGIST:	T. Burmeier
									REVIEWED BY:	D. Sheppard

	SAMPLE					DESCRIPTION		REMARKS	
DEPTH FEET	STRATA	"S" NO.	RECOVERY %	COLOR	CONSISTENCY HARDNESS	MATERIAL	USCS		PID (ppm)
		1	100%	Gray / Gray brown	Dense	0-3.0' Fill:crushed limestone, re-worked silty clay with cinders and fine gravel	Fill	0.0	Moist-wet
4				Orange brown		3.0-4.0' Silty clay	CL		
		2	100%		Stiff	4.0-11.5' Clayey silt	ML		Slightly moist
8									Moist
		3	100%		Soft				Very moist
12						11.5-12.0' Silty clay	CL		
						End of boring at 12.0 feet			

Comments: Boring advanced using a truck mounted Simco Earthprobe 200 Direct-Push	PROJECT NO.	05-00035824.00
Assembly. Sampled 7-7.5' interval for VOC analysis.	BORING NO.	GPB-10

URS Corporation

GEOPROBE BORING LOG

BORING NO: GPB-11

PROJECT:	Dowell Schlumberger Site, Depew, New York								SHEET:	1 of 1
CLIENT:	Dowell Schlumberger								PROJECT NO.:	05-00035824.00
BORING CONTRACTOR:	Nature's Way, Inc.								BORING LOCATION:	Former acid storage area
GROUNDWATER:					CAS.	SAMPLER	CORE	TUBE	GROUND ELEVATION:	
DATE	TIME	LEVEL	TYPE	TYPE		Macro core			DATE STARTED:	07/13/01
				Dia.		2"			DATE FINISHED:	07/13/01
				Length		48"			DRILLER:	S. Gingrich
				Liner		Acetate			GEOLOGIST:	T. Burmeier
									REVIEWED BY:	D. Sheppard

SAMPLE						DESCRIPTION			
DEPTH FEET	STRATA	"S" NO.	RECOVERY %	COLOR	CONSISTENCY HARDNESS	MATERIAL	USCS	REMARKS PID (ppm)	
		1	95%	Gray / Gray brown	Dense	0-3.0' Fill:crushed limestone, re-worked silty clay	Fill	0.0	Moist
4				Orange brown		3.0-11.0' Clayey silt	CL ML		
		2	100%		Stiff				Slightly moist
8									
		3	88%		Soft				Moist
12						11.0-16.0' Silty clay	CL		
		4	100%						
16									
						End of boring at 16.0 feet			

Comments: Boring advanced using a truck mounted Simco Earthprobe 200 Direct-Push	PROJECT NO.	05-00035824.00
Assembly. Sampled 14.5-16' interval for VOC analysis.	BORING NO.	GPB-11

URS Corporation

GEOPROBE BORING LOG

BORING NO: GPB-12

PROJECT:	Dowell Schlumberger Site, Depew, New York
CLIENT:	Dowell Schlumberger
BORING CONTRACTOR:	Nature's Way, Inc.
SHEET:	1 of 1
PROJECT NO.:	05-00035824.00
BORING LOCATION:	Former acid storage area
GROUND ELEVATION:	
DATE STARTED:	07/13/01
DATE FINISHED:	07/13/01
DRILLER:	S. Gingrich
GEOLOGIST:	T. Burmeier
REVIEWED BY:	D. Sheppard

GROUNDWATER: DATE	TIME	LEVEL	TYPE

	CAS.	SAMPLER	CORE	TUBE
TYPE		Macro core		
Dia.		2"		
Length		48"		
Liner		Acetate		

SAMPLE						DESCRIPTION			
DEPTH FEET	STRATA	"S" NO.	RECOVERY %	COLOR	CONSISTENCY HARDNESS	MATERIAL	USCS	REMARKS PID (ppm)	
		1	95%	Gray Gray brown	Dense	0-3.0' Fill:crushed limestone, re-worked silty clay	Fill	0.0	Moist
4		2	100%	Medium brown	Stiff	3.0-11.0' Clayey silt	CL ML		Slightly moist
8		3	88%					9-22	
12		4	100%		Soft	11.0-14.0' Silty clay	CL	20-55	Moist
16						End of boring at 14.0 feet			

Comments: Boring advanced using a truck mounted Simco Earthprobe 200 Direct-Push Assembly. Sampled 13.5-14' interval for VOC analysis.

PROJECT NO. 05-00035824.00

BORING NO. GPB-12

URS Corporation

GEOPROBE BORING LOG

BORING NO: GPB-13

PROJECT: Dowell Schlumberger Site, Depew, New York	SHEET: 1 of 1
CLIENT: Dowell Schlumberger	PROJECT NO.: 05-00035824.00
BORING CONTRACTOR: Nature's Way, Inc.	BORING LOCATION: Former acid storage area
GROUNDWATER:	GROUND ELEVATION:
DATE STARTED:	07/13/01
DATE FINISHED:	07/13/01
DRILLER:	S. Gingrich
GEOLOGIST:	T. Burmeier
REVIEWED BY:	D. Sheppard

DATE	TIME	LEVEL	TYPE	CAS.	SAMPLER	CORE	TUBE
			TYPE		Macro core		
			Dia.		2"		
			Length		48"		
			Liner		Acetate		

SAMPLE						DESCRIPTION			
DEPTH FEET	STRATA	"S" NO.	RECOVERY %	COLOR	CONSISTENCY / HARDNESS	MATERIAL	USCS	REMARKS PID (ppm)	
4		1	63%	Lt. Brown / Black	Dense	0-4.0' Fill:silt, crushed limestone over fine sand	Fill	0.0	Moist
8		2	100%	Yellow brown	Stiff	4.0-12.0' Clayey silt	ML		Slightly moist
12		3	88%						Moist
		4	88%	Medium brown	Soft	12.0-15.5' Silty clay	CL		
						End of boring at 15.5 feet			

Comments: Boring advanced using a truck mounted Simco Earthprobe 200 Direct-Push Assembly. Sampled 13.5-15' interval for VOC analysis.

PROJECT NO. 05-00035824.00

BORING NO. GPB-13

URS Corporation

TEST BORING LOG

PROJECT:	Dowell Schlumberger Site, Depew, New York
CLIENT:	Dowell Schlumberger
BORING CONTRACTOR:	Nature's Way, Inc.
GROUNDWATER:	

	CAS.	SAMPLER	CORE	TUBE
TYPE	HSA	Split spoon		
DIA.	4¼ " ID	2"		
WT.		140#		
FALL		30"		

DATE	TIME	LEVEL	TYPE

* POCKET PENETROMETER READING

BORING NO:	MW-5
SHEET:	1 of 1
PROJECT NO.:	05-00035824.00
BORING LOCATION:	
GROUND ELEVATION:	
DATE STARTED:	07/09/01
DATE FINISHED:	07/09/01
DRILLER:	S. Gingrich
GEOLOGIST:	T. Burmeier
REVIEWED BY:	D. Lenhardt

DEPTH FEET	STRATA	SAMPLE "S" NO.	SAMPLE "N" TYPE	BLOWS PER 6"	RECOVERY % RQD %	COLOR	CONSISTENCY HARDNESS	MATERIAL DESCRIPTION	USCS	REMARKS PID (ppm)
		1	33	5 17 / 16 9	55%	Gray Brown	Dense	0-6': Fill - silt with coarse sand and fine to medium gravel	Fill	0 Sli. moist
		2	4	3 2 / 2 1	70%	Black	Loose			0 Vy. moist
5		3	5	2 1 / 4 2	10%	Red Brown	Medium Soft	Fill- clay with brick fragments		0 Wet
		4	5	WoH 2 / 3 4	70%	Blue Gray		Silty Clay with fine sand	CL	0 Sli. moist
10		5	14	4 6 / 8 9	85%	Medium Brown	Stiff	Clayey Silt	ML	0
		6	20	6 8 / 12 18	100%		Very Stiff	-clay content increases with depth		0
		7	13	4 6 / 7 10	85%		Stiff			0 moist
15								End of boring at 14.0 feet		
20										
25										
30										
35										

Comments: Boring advance using a truck mounted Diedrich D-50; utilizing 4-1/4 inch ID HSA. Samples collected using 2" split spoon samplers.
WoH= Weight of hammer assembly

PROJECT NO.	05-00035824.00
BORING NO.	MW-5

URS Corporation

TEST BORING LOG

PROJECT:	Dowell Schlumberger Site, Depew, New York
CLIENT:	Dowell Schlumberger
BORING CONTRACTOR:	Nature's Way, Inc.
GROUNDWATER:	

	CAS.	SAMPLER	CORE	TUBE
TYPE	HSA	Split spoon		
DIA.	4¼ " ID	2"		
WT.		140#		
FALL		30"		

DATE	TIME	LEVEL	TYPE

* POCKET PENETROMETER READING

BORING NO:	MW-6
SHEET:	1 of 1
PROJECT NO.:	05-00035824.00
BORING LOCATION:	
GROUND ELEVATION:	
DATE STARTED:	07/09/01
DATE FINISHED:	07/09/01
DRILLER:	S. Gingrich
GEOLOGIST:	T. Burmeier
REVIEWED BY:	D. Lenhardt

DEPTH FEET	STRATA	SAMPLE "S" NO.	SAMPLE "N" TYPE	BLOWS PER 6"	RECOVERY % RQD %	DESCRIPTION COLOR	CONSISTENCY HARDNESS	MATERIAL DESCRIPTION	USCS	REMARKS PID (ppm)	
		1	71	10 29 / 42 50/1	5%	Gray Brown	Very Dense	0-6': Fill - asphalt paving over silt and fine to coarse gravel	Fill	507*	Sli. moist
		2	20	7 9 / 11 16	0%		Medium Dense			0	Vy. moist
5		3	19	10 8 / 11 17	95%	Yellow Brown	Very Stiff	Clayey Silt, trace fine gravel	ML	0	Wet
		4	18	5 7 / 11 15	90%			-clay content increases with depth		0	Sli. moist
		5	21	4 7 / 14 19	95%	Medium Brown				0	
10											
		6	15	5 7 / 8 12	90%		Stiff	Silty Clay	CL	0	
		7	12	6 5 / 7 8	55%			-clay content increases with depth		0	moist
15		8	11	3 5 / 6 5	45%	Gray Brown		- with 5% fine to coarse sand		0	Wet
		9	7	2 3 / 4 6	100%		Medium Soft			0	
		10	6	1 3 / 3 5	100%					0	
20											
								End of boring at 20.5 feet			
25											
30											
35											

Comments: Boring advance using a truck mounted Diedrich D-50; utilizing 4-1/4 inch ID

HSA. Samples collected using 2" split spoon samplers.

WoH= Weight of hammer assembly. *= jar headspace, probably cause by sample moisture

PROJECT NO.	05-00035824.00
BORING NO.	MW-6

URS Corporation

TEST BORING LOG

BORING NO:	MW-7
SHEET:	1 of 1
PROJECT NO.:	05-00035824.00
BORING LOCATION:	
GROUND ELEVATION:	
DATE STARTED:	07/10/01
DATE FINISHED:	07/10/01
DRILLER:	S. Gingrich
GEOLOGIST:	T. Burmeier
REVIEWED BY:	D. Lenhardt

PROJECT: Dowell Schlumberger Site, Depew, New York

CLIENT: Dowell Schlumberger

BORING CONTRACTOR: Nature's Way, Inc.

GROUNDWATER:				CAS.	SAMPLER	CORE	TUBE
DATE	TIME	LEVEL	TYPE	TYPE	HSA	Split spoon		
				DIA.	4¼ " ID	2"		
				WT.		140#		
				FALL		30"		
				* POCKET PENETROMETER READING				

DEPTH FEET	SAMPLE STRATA	"S" NO.	"N" TYPE	BLOWS PER 6"	RECOVERY % RQD %	DESCRIPTION COLOR	CONSISTENCY HARDNESS	MATERIAL DESCRIPTION	USCS	REMARKS PID (ppm)	
		1	25	X 11 14 8	10%	Dark Gray	Medium Dense	0-2': Fill - asphalt paving and sub-base gravel with silt	Fill	0*	Sli. moist
		2	13	6 5 8 12	85%	Yellow Brown	Stiff	Silty clay with gray mottles	CL	0*	moist
5		3	27	15 12 15 14	0%	Medium Brown	Very Stiff	Clayey Silt	ML	0*	Sli. moist
		4	16	2 5 11 14	85%			-clay content increases with depth		0	
		5	41	12 19 22 26	95%					0	
10		6	18	3 7 11 21	0%					0	Moist
		7	8	1 3 5 7	100%	Gray Brown	Medium Soft	Silty Clay trace subrounded fine gravel	CL	0	
15		8	6	1 2 4 8	100%			- with 1" thick fine sand and silt layers and 3-5% fine to coarse sand		0	Wet
		9	11	2 4 7 9	100%		Stiff	- with 10% fine angular gravel		0	
20		10	12	3 4 8 10	60%					0	
25								End of boring at 20.0 feet			
30											
35											

Comments: Boring advance using a truck mounted Diedrich D-50; utilizing 4-1/4 inch ID

HSA. Samples collected using 2" split spoon samplers.

WoH= Weight of hammer assembly. * Initial PID readings affected by humidity

PROJECT NO.	05-00035824.00
BORING NO.	MW-7

URS Corporation

TEST BORING LOG

PROJECT:	Dowell Schlumberger Site, Depew, New York
CLIENT:	Dowell Schlumberger
BORING CONTRACTOR:	Nature's Way, Inc.
GROUNDWATER:	

	CAS.	SAMPLER	CORE	TUBE
TYPE	HSA	Split spoon		
DIA.	4¼ " ID	2"		
WT.		140#		
FALL		30"		

DATE	TIME	LEVEL	TYPE

* POCKET PENETROMETER READING

BORING NO:	MW-8
SHEET:	1 of 1
PROJECT NO.:	05-00035824.00
BORING LOCATION:	
GROUND ELEVATION:	
DATE STARTED:	07/10/01
DATE FINISHED:	07/10/01
DRILLER:	S. Gingrich
GEOLOGIST:	T. Burmeier
REVIEWED BY:	D. Lenhardt

DEPTH FEET	STRATA	SAMPLE "S" NO.	SAMPLE "N" TYPE	BLOWS PER 6"	RECOVERY % RQD %	DESCRIPTION COLOR	CONSISTENCY HARDNESS	MATERIAL DESCRIPTION	USCS	REMARKS PID (ppm)	
		1	9	5 4 / 5 3	50%	Gray Black	Loose	0-2': Fill - fine gravel, silt, cinders, brick fragments	Fill	0	Moist
		2	7	1 2 / 5 6	90%	Orange Brown	Medium Soft	Silty Clay with gray mottles	CL	0	
5		3	13	5 5 / 8 10	80%		Stiff	Clayey silt	ML	0	Sli. Moist
		4	17	4 7 / 10 14	90%		Very Stiff	-clay content increases with depth		0	
10		5	18	4 7 / 11 17	50%	Medium Brown				0	Moist
		6	12	3 4 / 8 10	100%		Stiff	Silty Clay	CL	0	
		7	13	4 7 / 6 7	100%	Gray Brown		- 5 % fine to coarse sand and gravel		0	Wet
15		8	11	3 5 / 6 7	20%					0	
		9	9	2 4 / 5 7	95%					0	
20		10	11	3 4 / 7 6	45%					0	
								End of boring at 20.0 feet			
25											
30											
35											

Comments: Boring advance using a truck mounted Diedrich D-50; utilizing 4-1/4 inch ID

HSA. Samples collected using 2" split spoon samplers.

WoH= Weight of hammer assembly. Sampled 4-5' interval for VOC analysis

PROJECT NO.	05-00035824.00
BORING NO.	MW-8

APPENDIX D

MONITORING WELL/PIEZOMETER CONSTRUCTION DETAILS

DRILLING SUMMARY

Geologist:
Tim Burmeier

Drilling Company:
Nature's Way

Driller:
Steve Gingrich

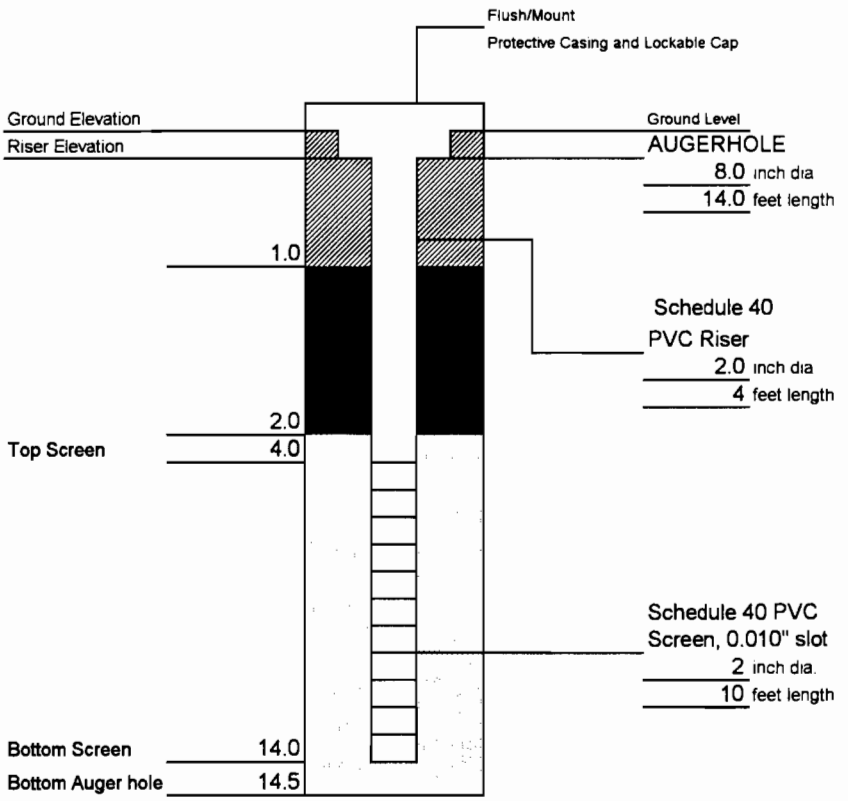
Rig Make/Model:
Diedrich D-50

Date:
07/09/2001

GEOLOGIC LOG

Depth(ft.)	Description
0-6.0	Fill- granular
6.0-8.0	Silty Clay
8.0-14.0	Clayey Silt

DEPTH



WELL DESIGN

CASING MATERIAL		SCREEN MATERIAL		FILTER MATERIAL
Surface:	Flush Mount Roadbox	Type:	Schedule 40 PVC	Type: Morie Equivalent "00N" Setting: 2.0'-14.5
Monitor	Schedule 40 PVC	Slot Size:	0.010"	SEAL MATERIAL
				Type: Bentonite Chips Setting: 1.0'-2.0'
				Type: Concrete/ Bentonite Grout Setting: 0.0-1.0'

COMMENTS:

LEGEND

- Cement/Bentonite Grout
- Bentonite Seal
- Silica Sandpack

Client:	**Dowell Schlumberger**	**Location:**	**3311 Walden Avenue Depew, New York**	**Project No.:**	**05.000.35824.00**
URS Corporation		**MONITORING WELL CONSTRUCTION DETAILS**		**Well Number:**	**MW-05**

DRILLING SUMMARY

Geologist:
Tim Burmeier

Drilling Company:
Nature's Way

Driller:
Steve Gingrich

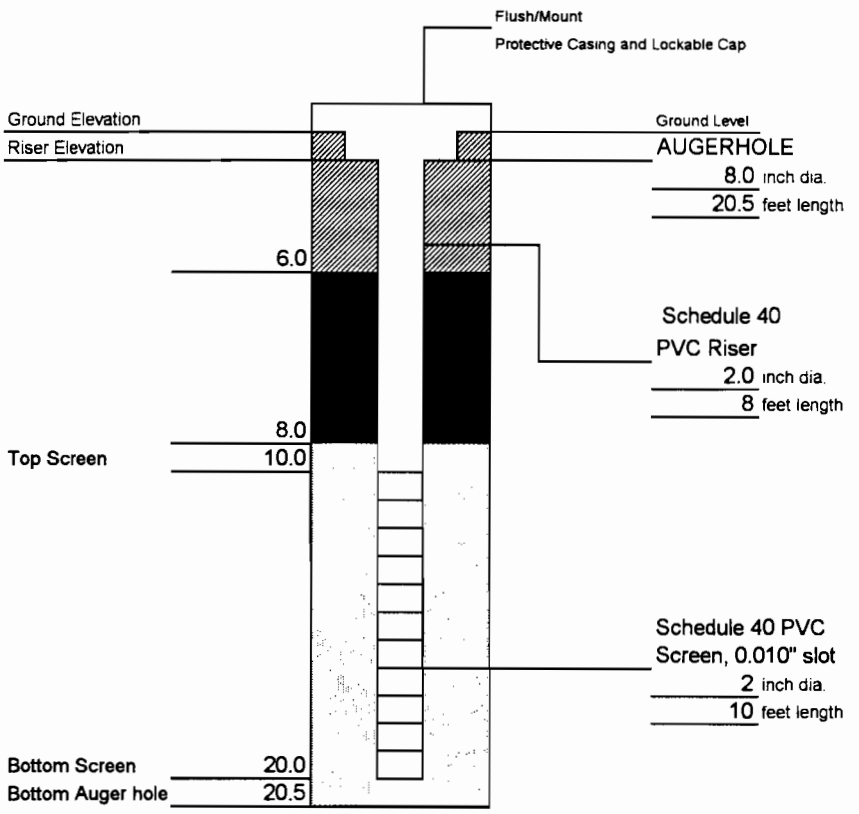
Rig Make/Model:
Diedrich D-50

Date:
07/09/2001

GEOLOGIC LOG

DEPTH

Depth(ft.)	Description
0-4.0	Fill- granular
4.0-10.0	Clayey Silt
10.0-20.5	Silty Clay



WELL DESIGN

CASING MATERIAL		SCREEN MATERIAL		FILTER MATERIAL	
Surface:	Flush Mount Roadbox	Type:	Schedule 40 PVC	Type: Morie Equivalent "00N"	Setting: 8.0'-20.5
Monitor	Schedule 40 PVC	Slot Size:	0.010"	SEAL MATERIAL	
				Type: Bentonite Chips	Setting: 6.0'-8.0'
				Type: Concrete/ Bentonite Grout	Setting: 0.0-6.0'

COMMENTS:

LEGEND

- Cement/Bentonite Grout
- Bentonite Seal
- Silica Sandpack

Client:	**Dowell Schlumberger**	**Location:**	**3311 Walden Avenue Depew, New York**	**Project No.:**	**05.000.35824.00**
URS Corporation		**MONITORING WELL CONSTRUCTION DETAILS**		**Well Number:**	**MW-06**

DRILLING SUMMARY

Geologist: Tim Burmeier

Drilling Company: Nature's Way

Driller: Steve Gingrich

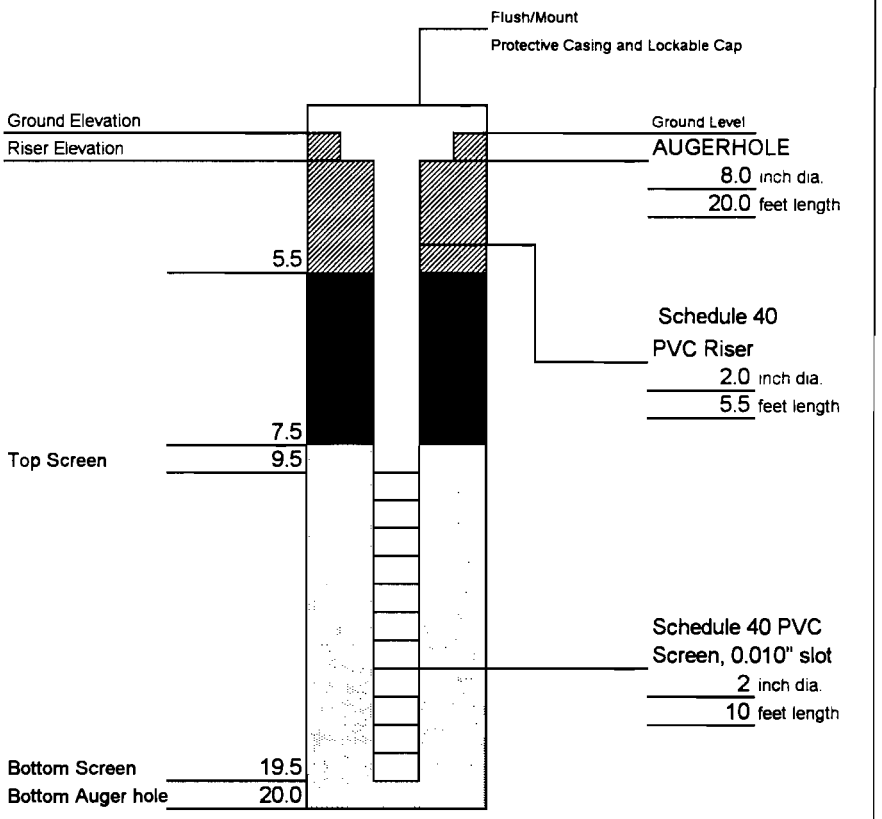
Rig Make/Model: Diedrich D-50

Date: 07/10/2001

GEOLOGIC LOG

Depth(ft.)	Description
0-2.0	Fill- granular
2.0-4.0	Silty Clay
4.0-12.0	Clayey Silt
12.0-20.0	Silty Clay

D E P T H



WELL DESIGN

CASING MATERIAL		SCREEN MATERIAL		FILTER MATERIAL	
Surface:	Flush Mount Roadbox	Type:	Schedule 40 PVC	Type: Morie Equivalent "00N"	Setting: 7.5'-20.0'
Monitor	Schedule 40 PVC	Slot Size:	0.010"	SEAL MATERIAL	
				Type: Bentonite Chips	Setting: 5.5'-7.5'
				Type: Concrete/ Bentonite Grout	Setting: 0.0-5.5'

COMMENTS:

LEGEND

- Cement/Bentonite Grout
- Bentonite Seal
- Silica Sandpack

Client:	**Dowell Schlumberger**	**Location:**	**3311 Walden Avenue Depew, New York**	**Project No.:**	**05.000.35824.00**
URS Corporation		**MONITORING WELL CONSTRUCTION DETAILS**		**Well Number:**	**MW-07**

DRILLING SUMMARY

Geologist:
Tim Burmeier

Drilling Company:
Nature's Way

Driller:
Steve Gingrich

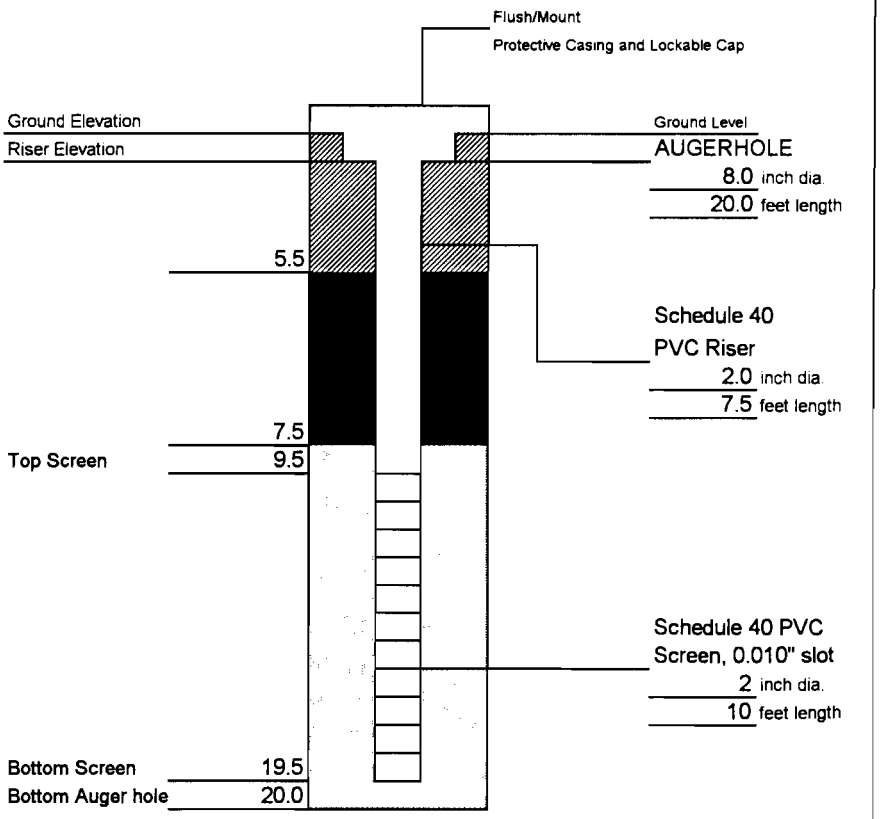
Rig Make/Model:
Diedrich D-50

Date:
07/10/2001

GEOLOGIC LOG

DEPTH

Depth(ft.)	Description
0-2.0	Fill- granular
2.0-4.0	Silty Clay
4.0-10.0	Clayey Silt
10.0-20.0	Silty Clay



WELL DESIGN

CASING MATERIAL		SCREEN MATERIAL		FILTER MATERIAL	
Surface:	Flush Mount Roadbox	Type:	Schedule 40 PVC	Type: Morie Equivalent "00N"	Setting: 7.5-20.0'
Monitor	Schedule 40 PVC	Slot Size:	0.010"	SEAL MATERIAL	
				Type: Bentonite Chips	Setting: 5.5-7.5'
				Type: Concrete/ Bentonite Grout	Setting: 0.0-5.5'

COMMENTS:

LEGEND

- Cement/Bentonite Grout
- Bentonite Seal
- Silica Sandpack

Client:	**Dowell Schlumberger**	**Location:**	**3311 Walden Avenue Depew, New York**	**Project No.:**	**05.000.35824.00**
URS Corporation		**MONITORING WELL CONSTRUCTION DETAILS**		**Well Number:**	**MW-08**

DRILLING SUMMARY

Geologist:
Tim Burmeier

Drilling Company:
Nature's Way

Driller:
Steve Gingrich

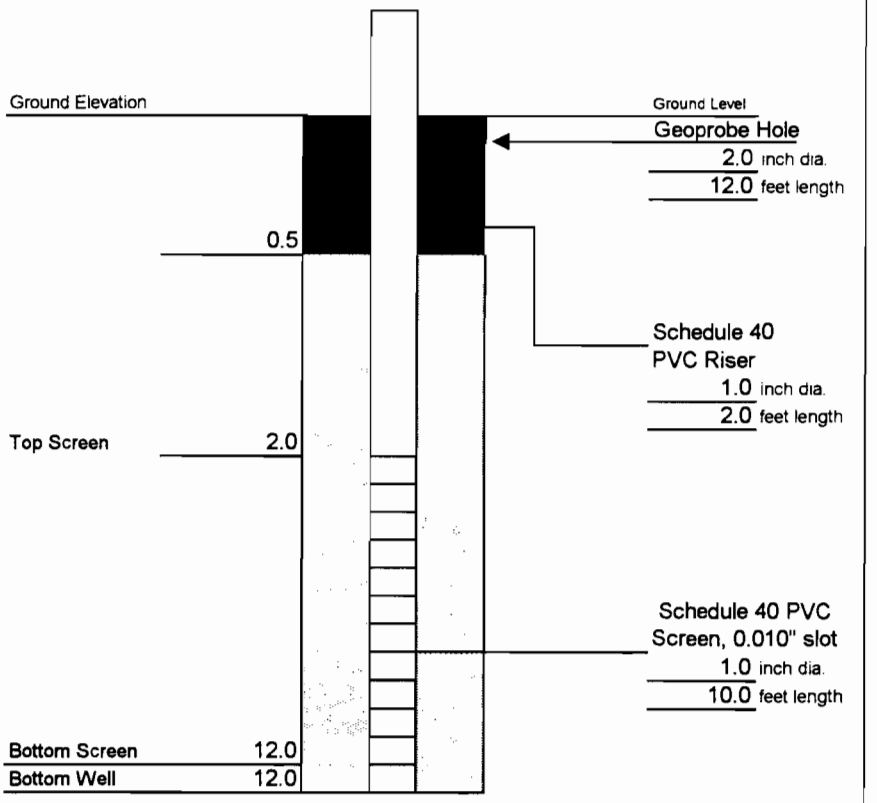
Rig Make/Model:
Simco Earth Probe 200

Date:
07/12/2001

GEOLOGIC LOG

Depth(ft.)	Description
0-1.5	Fill- granular
1.5-4.0	Silty Clay
4.0-11.5	Clayey Silt
11.5-12.0	Silty Clay

DEPTH



WELL DESIGN

CASING MATERIAL		SCREEN MATERIAL		FILTER MATERIAL
Surface:	Unprotected riser	Type:	Schedule 40 PVC	Type: Global #4 coarse sand — Setting: 0.5'-12.0'
Monitor	Schedule 40 PVC	Slot Size:	0.010"	SEAL MATERIAL
				Type: Bentonite Chips — Setting: 0-0.5'
				Type: Concrete/ Bentonite Grout — Setting: None

COMMENTS: Geoprobe mini-well

LEGEND

- Cement/Bentonite Grout
- Bentonite Seal
- Silica Sandpack

Client:	**Dowell Schlumberger**	**Location:**	**3311 Walden Avenue Depew, New York**	**Project No.:**	**05.000.35824.00**
URS Corporation		**MONITORING WELL CONSTRUCTION DETAILS**		**Well Number:**	**GPB-4**

DRILLING SUMMARY

Geologist:
Tim Burmeier

Drilling Company:
Nature's Way

Driller:
Steve Gingrich

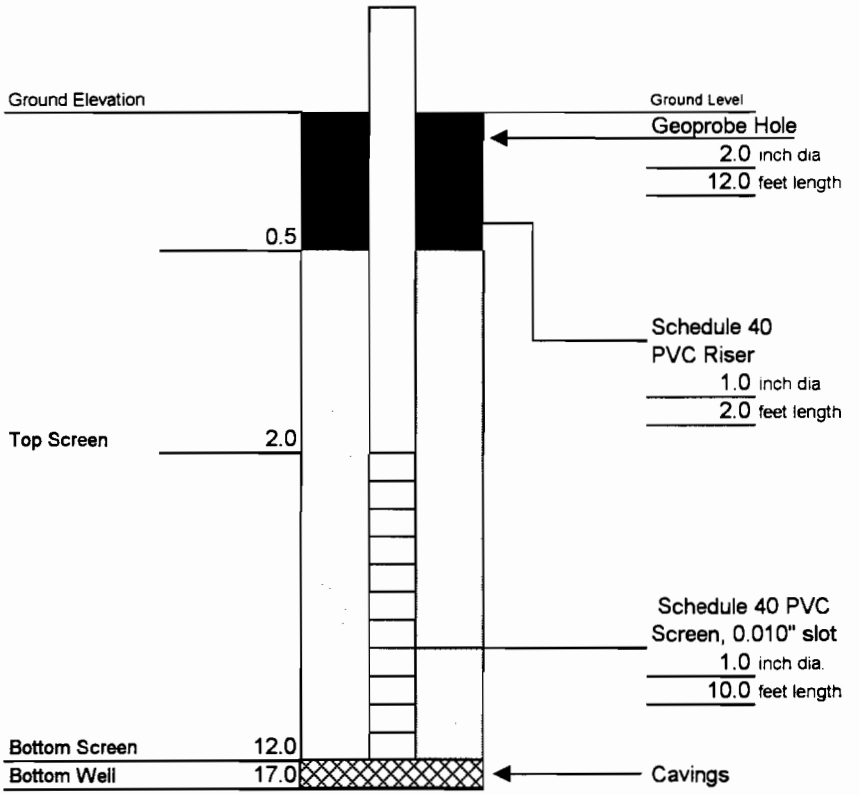
Rig Make/Model:
Simco Earth Probe 200

Date:
07/12/2001

GEOLOGIC LOG

Depth(ft.)	Description
0-0.5	Crushed limestone
0.5-2.0'	Black granular fill
2.0-4.0	Silty Clay
4.0-12.0	Clayey Silt

DEPTH



WELL DESIGN

CASING MATERIAL		SCREEN MATERIAL		FILTER MATERIAL	
Surface:	Unprotected riser	Type:	Schedule 40 PVC	Type: Global #4 coarse sand	Setting: 0.5-12.0
Monitor	Schedule 40 PVC	Slot Size:	0.010"	SEAL MATERIAL	
				Type: Bentonite Chips	Setting: 0.0-0.5'
				Type: Concrete/ Bentonite Grout	Setting: None

COMMENTS: Geoprobe mini-well

LEGEND

- Cement/Bentonite Grout
- Bentonite Seal
- Silica Sandpack

Client:	**Dowell Schlumberger**	**Location:**	**3311 Walden Avenue Depew, New York**	**Project No.:**	**05.000.35824.00**
URS Corporation		**MONITORING WELL CONSTRUCTION DETAILS**		**Well Number:**	**GPB-8**

APPENDIX E

WELL DEVELOPMENT LOGS

WELL DEVELOPMENT LOG

URS Corporation

PROJECT TITLE: Former Dowell Facility WELL NO.: MW-5

PROJECT NO.: 35824.00 Page:1 of 3

STAFF: Steve Tivnan

DATE(S): July 12, 2001 - July 13, 2001

			WELL ID.	VOL. (GAL/FT)
1. TOTAL CASING AND SCREEN LENGTH (FT.)	=	13.43	1"	0.04
2. WATER LEVEL BELOW TOP OF CASING (FT.)	=		2"	0.17
3. NUMBER OF FEET STANDING WATER (#1 - #2)	=		3"	0.38
4. VOLUME OF WATER/FOOT OF CASING (GAL.)	=		4"	0.66
5. VOLUME OF WATER IN CASING (GAL.)(#3 x #4)	=		5"	1.04
6. VOLUME OF WATER TO REMOVE (GAL.)(#5 x ___)	=		6"	1.50
7. VOLUME OF WATER REMOVED (GAL.)	=	105	8"	2.60

ACCUMULATED VOLUME PURGED (GALLONS)

PARAMETERS	0	2	5	8	10	12	15	18	20	25	30
pH	5.69	5.93	5.94	5.42	5.34	5.34	5.91	6.15	5.87	5.63	5.83
SPEC. COND. (umhos)	960	600	560	550	550	530	550	540	520	500	520
TEMPERATURE (°F)	73.1	65.7	64.5	64.9	63.2	63.2	63.5	63.6	64.1	67.2	63.8
TURBIDITY (NTU)	>1000	>1000	>1000	>1000	>1000	945	785	712	707	>1000	>1000

COMMENTS:

1) The well was developed with an ISCO peristaltic pump and dedicated HDPE tubing.
2) The well was surged during development with a dedicated PVC bailer.
3) Good Recharge

WELL DEVELOPMENT LOG

URS Corporation

PROJECT TITLE: Former Dowell Facility WELL NO.: MW-5

PROJECT NO.: 35824.00 Page:2 of 3

STAFF: Steve Tivnan

DATE(S): July 12, 2001 - July 13, 2001

			WELL ID.	VOL. (GAL/FT)
1. TOTAL CASING AND SCREEN LENGTH (FT.)	=	13.43	1"	0.04
2. WATER LEVEL BELOW TOP OF CASING (FT.)	=		2"	0.17
3. NUMBER OF FEET STANDING WATER (#1 - #2)	=		3"	0.38
4. VOLUME OF WATER/FOOT OF CASING (GAL.)	=		4"	0.66
5. VOLUME OF WATER IN CASING (GAL.)(#3 x #4)	=		5"	1.04
6. VOLUME OF WATER TO REMOVE (GAL.)(#5 x ___)	=		6"	1.50
7. VOLUME OF WATER REMOVED (GAL.)	=	105	8"	2.60

ACCUMULATED VOLUME PURGED (GALLONS)

PARAMETERS	35	40	45	50	55	60	65	70	75	80	85
pH	6.20	5.72	5.75	6.20	6.22	5.93	6.42	6.44	6.44	6.44	6.56
SPEC. COND. (umhos)	490	510	490	530	520	520	545	556	565	565	597
TEMPERATURE (°F)	63.8	65.0	63.3	63.3	59.0	63.0	64.0	64.0	63.9	64.0	67.5
TURBIDITY (NTU)	>1000	>1000	>1000	890	766	492	126	130	36	16	95

COMMENTS:

1) The well was developed with an ISCO peristaltic pump and dedicated HDPE tubing.
2) The well was surged during development with a dedicated PVC bailer.
3) Good Recharge

WELL DEVELOPMENT LOG

URS Corporation

PROJECT TITLE: Former Dowell Facility WELL NO.: MW-5

PROJECT NO.: 35824.00 Page:3 of 3

STAFF: Steve Tivnan

DATE(S): July 12, 2001 - July 13, 2001

			WELL ID.	VOL. (GAL/FT)
1. TOTAL CASING AND SCREEN LENGTH (FT.)	=	13.43	1"	0.04
2. WATER LEVEL BELOW TOP OF CASING (FT.)	=		2"	0.17
3. NUMBER OF FEET STANDING WATER (#1 - #2)	=		3"	0.38
4. VOLUME OF WATER/FOOT OF CASING (GAL.)	=		4"	0.66
5. VOLUME OF WATER IN CASING (GAL.)(#3 x #4)	=		5"	1.04
6. VOLUME OF WATER TO REMOVE (GAL.)(#5 x ___)	=		6"	1.50
7. VOLUME OF WATER REMOVED (GAL.)	=	105	8"	2.60

ACCUMULATED VOLUME PURGED (GALLONS)

PARAMETERS	90	95	100	105							
pH	6.67	6.54	6.61	6.52							
SPEC. COND. (umhos)	5390	547	506	505							
TEMPERATURE (°F)	62.9	65.2	66.5	60.5							
TURBIDITY (NTU)	763	267	62	88							

COMMENTS:

1) The well was developed with an ISCO peristaltic pump and dedicated HDPE tubing.
2) The well was surged during development with a dedicated PVC bailer.
3) Good Recharge

WELL DEVELOPMENT LOG

URS Corporation

PROJECT TITLE: Former Dowell Facility WELL NO.: MW-6

PROJECT NO.: 35824.00 Page:1 of 1

STAFF: Steve Tivnan

DATE(S): July 12, 2001 - July 13, 2001

			WELL ID.	VOL. (GAL/FT)
1. TOTAL CASING AND SCREEN LENGTH (FT.)	=	19.42	1"	0.04
2. WATER LEVEL BELOW TOP OF CASING (FT.)	=	3.19	2"	0.17
3. NUMBER OF FEET STANDING WATER (#1 - #2)	=	16.23	3"	0.38
4. VOLUME OF WATER/FOOT OF CASING (GAL.)	=	0.17	4"	0.66
5. VOLUME OF WATER IN CASING (GAL.)(#3 x #4)	=	2.76	5"	1.04
6. VOLUME OF WATER TO REMOVE (GAL.)(#5 x ___)	=	8.28	6"	1.50
7. VOLUME OF WATER REMOVED (GAL.)	=	15	8"	2.60

ACCUMULATED VOLUME PURGED (GALLONS)

PARAMETERS	0	2	5	8	10	12	15				
pH	6.25	6.29	5.18	6.14	6.14	7.21	6.82				
SPEC. COND. (umhos)	1179	1191	1166	1171	1123	1275	1234				
TEMPERATURE (°F)	59.5	59.5	56.7	55.3	55.0	60.2	57.5				
TURBIDITY (NTU)	240	>1000	310	400	>1000	814	732				

COMMENTS:

1) The well was developed with an ISCO peristaltic pump and dedicated HDPE tubing.
2) The well was surged during development with a dedicated PVC bailer.
3) Poor Recharge

WELL DEVELOPMENT LOG

URS Corporation

PROJECT TITLE: Former Dowell Facility WELL NO.: MW-7

PROJECT NO.: 35824.00 Page:1 of 1

STAFF: Steve Tivnan

DATE(S): July 12, 2001 - July 13, 2001

			WELL ID.	VOL. (GAL/FT)
1. TOTAL CASING AND SCREEN LENGTH (FT.)	=	18.96	1"	0.04
2. WATER LEVEL BELOW TOP OF CASING (FT.)	=	13.40	2"	0.17
3. NUMBER OF FEET STANDING WATER (#1 - #2)	=	5.56	3"	0.38
4. VOLUME OF WATER/FOOT OF CASING (GAL.)	=	0.17	4"	0.66
5. VOLUME OF WATER IN CASING (GAL.)(#3 x #4)	=	0.95	5"	1.04
6. VOLUME OF WATER TO REMOVE (GAL.)(#5 x ___)	=	2.84	6"	1.50
7. VOLUME OF WATER REMOVED (GAL.)	=	12	8"	2.60

ACCUMULATED VOLUME PURGED (GALLONS)

PARAMETERS	0	2	5	10	12						
pH	6.21	6.23	6.20	6.76	6.71						
SPEC. COND. (umhos)	704	595	529	630	577						
TEMPERATURE (°F)	59.0	56.0	55.2	58.2	57.2						
TURBIDITY (NTU)	210	110	92	227	215						

COMMENTS:

1) The well was developed with an ISCO peristaltic pump and dedicated HDPE tubing.
2) The well was surged during development with a dedicated PVC bailer.
3) Very Poor Recharge

WELL DEVELOPMENT LOG

URS Corporation

PROJECT TITLE: Former Dowell Facility WELL NO.: MW-8

PROJECT NO.: 35824.00 Page:1 of 1

STAFF: Steve Tivnan

DATE(S): July 12, 2001 - July 13, 2001

			WELL ID.	VOL. (GAL/FT)
1. TOTAL CASING AND SCREEN LENGTH (FT.)	=	19.05	1"	0.04
2. WATER LEVEL BELOW TOP OF CASING (FT.)	=	2.21	2"	0.17
3. NUMBER OF FEET STANDING WATER (#1 - #2)	=	16.84	3"	0.38
4. VOLUME OF WATER/FOOT OF CASING (GAL.)	=	0.17	4"	0.66
5. VOLUME OF WATER IN CASING (GAL.)(#3 x #4)	=	2.86	5"	1.04
6. VOLUME OF WATER TO REMOVE (GAL.)(#5 x ___)	=	8.59	6"	1.50
7. VOLUME OF WATER REMOVED (GAL.)	=	17	8"	2.60

ACCUMULATED VOLUME PURGED (GALLONS)

PARAMETERS	0	2	5	10	12	14	17				
pH	6.61	6.32	6.10	6.00	6.99	6.67	6.55				
SPEC. COND. (umhos)	830	864	763	755	834	771	757				
TEMPERATURE (°F)	61.6	64.5	58.6	56.1	58.0	55.5	55.4				
TURBIDITY (NTU)	90	>1000	800	450	411	548	>1000				

COMMENTS:

1) The well was developed with an ISCO peristaltic pump and dedicated HDPE tubing.
2) The well was surged during development with a dedicated PVC bailer.
3) Poor Recharge

APPENDIX F

WELL PURGING LOGS

WELL PURGE LOG

URS Corporation

PROJECT TITLE: Former Dowell Facility WELL NO.: MW-1

PROJECT NO.: 35824.00 Page:1 of 1

STAFF: Steve Tivnan

DATE(S): July 16, 2001

			WELL ID.	VOL. (GAL/FT)
1. TOTAL CASING AND SCREEN LENGTH (FT.)	=	28.75	1"	0.04
2. WATER LEVEL BELOW TOP OF CASING (FT.)	=	14.10	2"	0.17
3. NUMBER OF FEET STANDING WATER (#1 - #2)	=	14.65	3"	0.38
4. VOLUME OF WATER/FOOT OF CASING (GAL.)	=	0.17	4"	0.66
5. VOLUME OF WATER IN CASING (GAL.)(#3 x #4)	=	2.49	5"	1.04
6. VOLUME OF WATER TO REMOVE (GAL.)(#5 x 3)	=	7.5	6"	1.50
7. VOLUME OF WATER REMOVED (GAL.)	=	6.3	8"	2.60

ACCUMULATED VOLUME PURGED (GALLONS)

PARAMETERS	0	2.1	4.2	6.3							
pH	7.15	6.90	6.94	7.05							
SPEC. COND. (umhos)	627	517	620	689							
TEMPERATURE (°F)	67.0	61.2	63.0	64.0							
TURBIDITY (NTU)	15	6	2	4							

COMMENTS:

1) The well was purged with an ISCO peristaltic pump and dedicated HDPE tubing.
2) The well was sampled with a dedicated PVC bailer.
3) Parameters: VOC, SVOC, pesticide, PCB, metals, cyanide, TPH

WELL PURGE LOG

URS Corporation

PROJECT TITLE: Former Dowell Facility WELL NO.: MW-2

PROJECT NO.: 35824.00 Page:1 of 1

STAFF: Steve Tivnan

DATE(S): July 16, 2001

			WELL ID.	VOL. (GAL/FT)
1. TOTAL CASING AND SCREEN LENGTH (FT.)	=	26.52	1"	0.04
2. WATER LEVEL BELOW TOP OF CASING (FT.)	=	4.15	2"	0.17
3. NUMBER OF FEET STANDING WATER (#1 - #2)	=	22.37	3"	0.38
4. VOLUME OF WATER/FOOT OF CASING (GAL.)	=	0.17	4"	0.66
5. VOLUME OF WATER IN CASING (GAL.)(#3 x #4)	=	3.80	5"	1.04
6. VOLUME OF WATER TO REMOVE (GAL.)(#5 x 3)	=	11.4	6"	1.50
7. VOLUME OF WATER REMOVED (GAL.)	=	11.2	8"	2.60

ACCUMULATED VOLUME PURGED (GALLONS)

PARAMETERS	0	2.8	5.6	8.4	11.2						
pH	7.22	7.11	7.18	7.30	7.44						
SPEC. COND. (umhos)	590	551	583	648	663						
TEMPERATURE (°F)	62.5	58.2	59.9	65.0	64.0						
TURBIDITY (NTU)	7	4	11	10	11						

COMMENTS:

1) The well was purged with an ISCO peristaltic pump and dedicated HDPE tubing.
2) The well was sampled with a dedicated PVC bailer.
3) Parameters: VOC's

WELL PURGE LOG

URS Corporation

PROJECT TITLE: Former Dowell Facility WELL NO.: MW-3

PROJECT NO.: 35824.00 Page:1 of 1

STAFF: Steve Tivnan

DATE(S): July 16, 2001

			WELL ID.	VOL. (GAL/FT)
1. TOTAL CASING AND SCREEN LENGTH (FT.)	=	24.30	1"	0.04
2. WATER LEVEL BELOW TOP OF CASING (FT.)	=	12.75	2"	0.17
3. NUMBER OF FEET STANDING WATER (#1 - #2)	=	11.55	3"	0.38
4. VOLUME OF WATER/FOOT OF CASING (GAL.)	=	0.17	4"	0.66
5. VOLUME OF WATER IN CASING (GAL.)(#3 x #4)	=	1.96	5"	1.04
6. VOLUME OF WATER TO REMOVE (GAL.)(#5 x 3)	=	5.88	6"	1.50
7. VOLUME OF WATER REMOVED (GAL.)	=	6	8"	2.60

ACCUMULATED VOLUME PURGED (GALLONS)

PARAMETERS	0	3	6								
pH	6.74	6.65	6.55								
SPEC. COND. (umhos)	1783	1694	1548								
TEMPERATURE (°F)	61.0	58.1	57.1								
TURBIDITY (NTU)	6	4	6								

COMMENTS:

1) The well was purged with an ISCO peristaltic pump and dedicated HDPE tubing.
2) The well was sampled with a dedicated PVC bailer.
3) Parameters: VOC, SVOC, pesticide, PCB, metals, cyanide, TPH

WELL PURGE LOG

URS Corporation

PROJECT TITLE: Former Dowell Facility WELL NO.: MW-4

PROJECT NO.: 35824.00 Page:1 of 1

STAFF: Steve Tivnan

DATE(S): July 16, 2001

			WELL ID.	VOL. (GAL/FT)
1. TOTAL CASING AND SCREEN LENGTH (FT.)	=	27.66	1"	0.04
2. WATER LEVEL BELOW TOP OF CASING (FT.)	=	6.80	2"	0.17
3. NUMBER OF FEET STANDING WATER (#1 - #2)	=	20.86	3"	0.38
4. VOLUME OF WATER/FOOT OF CASING (GAL.)	=	0.17	4"	0.66
5. VOLUME OF WATER IN CASING (GAL.)(#3 x #4)	=	3.55	5"	1.04
6. VOLUME OF WATER TO REMOVE (GAL.)(#5 x 3)	=	10.64	6"	1.50
7. VOLUME OF WATER REMOVED (GAL.)	=	5.5	8"	2.60

ACCUMULATED VOLUME PURGED (GALLONS)

PARAMETERS	0	1.8	3.9	5.5							
pH	7.11	7.05	6.86	6.71							
SPEC. COND. (umhos)	1679	1617	1592	1667							
TEMPERATURE (°F)	62.5	58.7	57.9	61.0							
TURBIDITY (NTU)	13	7	6	8							

COMMENTS:

1) The well was purged with an ISCO peristaltic pump and dedicated HDPE tubing.
2) The well was sampled with a dedicated PVC bailer.
3) Parameters: VOC's

WELL PURGE LOG

URS Corporation

PROJECT TITLE: Former Dowell Facility WELL NO.: MW-5

PROJECT NO.: 35824.00 Page:1 of 1

STAFF: Steve Tivnan

DATE(S): July 16, 2001

			WELL ID.	VOL. (GAL/FT)
1. TOTAL CASING AND SCREEN LENGTH (FT.)	=	13.43	1"	0.04
2. WATER LEVEL BELOW TOP OF CASING (FT.)	=	3.40	2"	0.17
3. NUMBER OF FEET STANDING WATER (#1 - #2)	=	10.03	3"	0.38
4. VOLUME OF WATER/FOOT OF CASING (GAL.)	=	0.17	4"	0.66
5. VOLUME OF WATER IN CASING (GAL.)(#3 x #4)	=	1.71	5"	1.04
6. VOLUME OF WATER TO REMOVE (GAL.)(#5 x 3)	=	5.12	6"	1.50
7. VOLUME OF WATER REMOVED (GAL.)	=	7.5	8"	2.60

ACCUMULATED VOLUME PURGED (GALLONS)

PARAMETERS	0	3.7	7.5								
pH	7.52	7.10	7.11								
SPEC. COND. (umhos)	539	511	532								
TEMPERATURE (°F)	59.0	59.0	59.6								
TURBIDITY (NTU)	105	381	767								

COMMENTS:

1) The well was purged with an ISCO peristaltic pump and dedicated HDPE tubing.
2) The well was sampled with a dedicated PVC bailer.
3) Parameters: VOC, SVOC, pesticide, PCB, metals, cyanide, TPH

WELL PURGE LOG

URS Corporation

PROJECT TITLE: Former Dowell Facility WELL NO.: MW-6

PROJECT NO.: 35824.00 Page:1 of 1

STAFF: Steve Tivnan

DATE(S): July 16, 2001

			WELL ID.	VOL. (GAL/FT)
1. TOTAL CASING AND SCREEN LENGTH (FT.)	=	19.42	1"	0.04
2. WATER LEVEL BELOW TOP OF CASING (FT.)	=	4.46	2"	0.17
3. NUMBER OF FEET STANDING WATER (#1 - #2)	=	14.96	3"	0.38
4. VOLUME OF WATER/FOOT OF CASING (GAL.)	=	0.17	4"	0.66
5. VOLUME OF WATER IN CASING (GAL.)(#3 x #4)	=	2.54	5"	1.04
6. VOLUME OF WATER TO REMOVE (GAL.)(#5 x 3)	=	7.63	6"	1.50
7. VOLUME OF WATER REMOVED (GAL.)	=	8	8"	2.60

ACCUMULATED VOLUME PURGED (GALLONS)

PARAMETERS	0	4	8								
pH	6.80	6.76	6.74								
SPEC. COND. (umhos)	1450	1360	1310								
TEMPERATURE (°F)	65.6	60.0	59.3								
TURBIDITY (NTU)	37	178	452								

COMMENTS:

1) The well was purged with an ISCO peristaltic pump and dedicated HDPE tubing.
2) The well was sampled with a dedicated PVC bailer.
3) Parameters: VOC's

WELL PURGE LOG

URS Corporation

PROJECT TITLE: Former Dowell Facility WELL NO.: MW-7

PROJECT NO.: 35824.00 Page:1 of 1

STAFF: Steve Tivnan

DATE(S): July 16, 2001

			WELL ID.	VOL. (GAL/FT)
1. TOTAL CASING AND SCREEN LENGTH (FT.)	=	18.96	1"	0.04
2. WATER LEVEL BELOW TOP OF CASING (FT.)	=	11.82	2"	0.17
3. NUMBER OF FEET STANDING WATER (#1 - #2)	=	7.14	3"	0.38
4. VOLUME OF WATER/FOOT OF CASING (GAL.)	=	0.17	4"	0.66
5. VOLUME OF WATER IN CASING (GAL.)(#3 x #4)	=	1.21	5"	1.04
6. VOLUME OF WATER TO REMOVE (GAL.)(#5 x 3)	=	3.64	6"	1.50
7. VOLUME OF WATER REMOVED (GAL.)	=	4	8"	2.60

ACCUMULATED VOLUME PURGED (GALLONS)

PARAMETERS	0	2	4								
pH	7.15	7.13	6.95								
SPEC. COND. (umhos)	635	646	600								
TEMPERATURE (°F)	59.0	57.5	57.0								
TURBIDITY (NTU)	68	582	350								

COMMENTS:

1) The well was purged with an ISCO peristaltic pump and dedicated HDPE tubing.
2) The well was sampled with a dedicated PVC bailer.
3) Parameters: VOC's

WELL PURGE LOG

URS Corporation

PROJECT TITLE: Former Dowell Facility WELL NO.: MW-8

PROJECT NO.: 35824.00 Page:1 of 1

STAFF: Steve Tivnan

DATE(S): July 16, 2001

			WELL ID.	VOL. (GAL/FT)
1. TOTAL CASING AND SCREEN LENGTH (FT.)	=	19.05	1"	0.04
2. WATER LEVEL BELOW TOP OF CASING (FT.)	=	3.39	2"	0.17
3. NUMBER OF FEET STANDING WATER (#1 - #2)	=	15.66	3"	0.38
4. VOLUME OF WATER/FOOT OF CASING (GAL.)	=	0.17	4"	0.66
5. VOLUME OF WATER IN CASING (GAL.)(#3 x #4)	=	2.66	5"	1.04
6. VOLUME OF WATER TO REMOVE (GAL.)(#5 x 3)	=	7.99	6"	1.50
7. VOLUME OF WATER REMOVED (GAL.)	=	8.1	8"	2.60

ACCUMULATED VOLUME PURGED (GALLONS)

PARAMETERS	0	2	5	8.1							
pH	7.00	6.92	6.91	6.90							
SPEC. COND. (umhos)	885	840	788	779							
TEMPERATURE (°F)	64.4	60.2	57.0	57.4							
TURBIDITY (NTU)	90	184	197	374							

COMMENTS:

1) The well was purged with an ISCO peristaltic pump and dedicated HDPE tubing.
2) The well was sampled with a dedicated PVC bailer.
3) Parameters: VOC's

WELL PURGE LOG

URS Corporation

PROJECT TITLE: Former Dowell Facility WELL NO.: PZ-1

PROJECT NO.: 35824.00 Page:1 of 1

STAFF: Steve Tivnan

DATE(S): July 16, 2001

			WELL ID.	VOL. (GAL/FT)
1. TOTAL CASING AND SCREEN LENGTH (FT.)	=	14.88	1"	0.04
2. WATER LEVEL BELOW TOP OF CASING (FT.)	=	4.82	2"	0.17
3. NUMBER OF FEET STANDING WATER (#1 - #2)	=	10.06	3"	0.38
4. VOLUME OF WATER/FOOT OF CASING (GAL.)	=	0.04	4"	0.66
5. VOLUME OF WATER IN CASING (GAL.)(#3 x #4)	=	0.40	5"	1.04
6. VOLUME OF WATER TO REMOVE (GAL.)(#5 x 3)	=	1.21	6"	1.50
7. VOLUME OF WATER REMOVED (GAL.)	=	1	8"	2.60

ACCUMULATED VOLUME PURGED (GALLONS)

PARAMETERS	0	1									
pH	7.50	7.02									
SPEC. COND. (umhos)	642	595									
TEMPERATURE (°F)	64.0	61.0									
TURBIDITY (NTU)	586	>1000									

COMMENTS:

1) The well was purged with an ISCO peristaltic pump and dedicated HDPE tubing.
2) The well was sampled with HDPE tubing and a check valve.
3) Parameters: VOC's

WELL PURGE LOG

URS Corporation

PROJECT TITLE: Former Dowell Facility WELL NO.: PZ-2

PROJECT NO.: 35824.00 Page:1 of 1

STAFF: Steve Tivnan

DATE(S): July 16, 2001

			WELL ID.	VOL. (GAL/FT)
1. TOTAL CASING AND SCREEN LENGTH (FT.)	=	15.30	1"	0.04
2. WATER LEVEL BELOW TOP OF CASING (FT.)	=	5.45	2"	0.17
3. NUMBER OF FEET STANDING WATER (#1 - #2)	=	9.85	3"	0.38
4. VOLUME OF WATER/FOOT OF CASING (GAL.)	=	0.04	4"	0.66
5. VOLUME OF WATER IN CASING (GAL.)(#3 x #4)	=	0.39	5"	1.04
6. VOLUME OF WATER TO REMOVE (GAL.)(#5 x 3)	=	1.18	6"	1.50
7. VOLUME OF WATER REMOVED (GAL.)	=	2.00	8"	2.60

ACCUMULATED VOLUME PURGED (GALLONS)

PARAMETERS	0	1	2								
pH	7.09	6.87	6.99								
SPEC. COND. (umhos)	781	557	588								
TEMPERATURE (°F)	60.0	61.0	61.3								
TURBIDITY (NTU)	>1000	>1000	>1000								

COMMENTS:

1) The well was purged with an ISCO peristaltic pump and dedicated HDPE tubing.
2) The well was sampled with HDPE tubing and a check valve.
3) Parameters: VOC's

APPENDIX G

WATER LEVEL ELEVATIONS AND HYDRAULIC CONDUCTIVITY DATA

TABLE 3-1
FORMER DOWELL SITE
GROUNDWATER ELEVATION MEASUREMENTS

Location ID / Type	Northing	Easting	Ground Elevation (ft)	Casing Elevation (ft)	Meas.point (Riser)Elev.(ft)	Geol. Zone	Specific Gravity	Date	Depth to Water (ft)	Water Elev. (ft)	Product Thick. (ft)	Corrected Water Elev. (ft)	Remark
MW-01	1060924.157	1118932.986	104.10	104.10	103.80	A	1	7/16/01	14.10	89.70	0.00	89.7	
								11/6/01	13.55	90 25	0.00	90.25	
								12/12/01	13.14	90.66	0.00	90.66	
MW-02	1061209.591	1119165.904	102.53	102.53	102.25	A	1	7/16/01	4 15	98 10	0 00	98 1	
								10/12/01	3.56	98.69	0.00	98.69	
								11/6/01	3.85	98.40	0.00	98.4	
								12/12/01	3.16	99.09	0.00	99.09	
MW-03	1061166.624	1118970.677	101.11	101.11	100.57	A	1	7/16/01	12.75	87 82	0 00	87 82	
								11/6/01	10.92	89.65	0.00	89.65	
								12/12/01	10.53	90.04	0.00	90.04	
MW-04	1061182 893	1119049.101	101.65	101.65	101.25	A	1	7/16/01	6.80	94 45	0.00	94.45	
								10/12/01	4..86		0.00		
								11/6/01	4.61	96.64	0.00	96.64	
								12/12/01	4.72	96.53	0.00	96.53	
MW-05	1061061.919	1119111.257	104.54	104.54	103.97	A	1	7/13/01	2.21	101.76	0.00	101.76	
								10/12/01	0 30	103 67	0.00	103.67	
								11/6/01	0.40	103.57	0.00	103 57	
								12/12/01	1 05	102 92	0 00	102 92	
MW-06	1061162.035	1118942.310	100.96	100.96	100.38	A	1	7/16/01	4.46	95 92	0 00	95 92	

NM - No Measurement

Geologic Zone:
A Aquifer

The value noted in the column labeled Specific Gravity is an assumed value for free product, if found.

TABLE 3-1
FORMER DOWELL SITE
GROUNDWATER ELEVATION MEASUREMENTS

Location ID / Type	Northing	Easting	Ground Elevation (ft)	Casing Elevation (ft)	Meas.point (Riser)Elev.(ft)	Geol. Zone	Specific Gravity	Date	Depth to Water (ft)	Water Elev. (ft)	Product Thick. (ft)	Corrected Water Elev. (ft)	Remark
								10/12/01	3.31	97.07	0.00	97.07	
								11/6/01	3 03	97.35	0.00	97.35	
								12/12/01	3.37	97.01	0.00	97.01	
MW-07	1061148.617	1118862.788	100.64	100.64	100.10	A	1	7/16/01	11.82	88.28	0.00	88.28	
								10/12/01	3.41	96.69	0.00	96.69	
								11/6/01	3.43	96.67	0.00	96.67	
								12/12/01	3.89	96.21	0.00	96.21	
MW-08	1061061.953	1118900.487	100.10	100.10	99.65	A	1	7/16/01	3.39	96.26	0.00	96.26	
								10/12/01	1.89	97.76	0.00	97.76	
								11/6/01	1.55	98.10	0.00	98.1	
								12/12/01	1.82	97.83	0.00	97.83	
PZ-01	1061012.984	1118932.541	101.87	NA	104.75	A	1	10/12/01	4 68	100.07	0.00	100.07	
								11/6/01	3 68	101.07	0.00	101.07	
								12/12/01	3.86	100.89	0.00	100.89	
PZ-02	1061103.019	1119054.805	101.37	NA	104.67	A	1	10/12/01	4.94	99.73	0.00	99.73	
								11/6/01	4.87	99.80	0 00	99.8	
								12/12/01	5.01	99 66	0 00	99 66	

NM - No Measurement

The value noted in the column labeled Specific Gravity is an assumed value for free product, if found.

Geologic Zone:
A Aquifer

Well	cm/sec			ft/min			ft/day		
	Average	Falling	Rising	Average	Falling	Rising	Average	Falling	Rising
MW-1	1.74E-05	1.93E-05	1.55E-05	3.42E-05	3.80E-05	3.05E-05	0.05	0.055	0.044
MW-2	9.93E-06	1.27E-05	7.20E-06	1.96E-05	2.49E-05	1.42E-05	0.03	0.036	0.020
MW-5	1.71E-03	1.85E-03	1.57E-03	3.36E-03	3.64E-03	3.08E-03	4.84	5.239	4.440
MW-6	1.90E-05	3.25E-05	5.46E-06	3.74E-05	6.41E-05	1.07E-05	0.05	0.092	0.015
MW-7	9.03E-07	9.03E-07	NA	1.78E-06	1.78E-06	NA	0.003	0.003	NA

D:\Projects\Misc\[Former Dowel - Slug Tests.xls]Summary

Well	Average		
	cm/sec	ft/min	ft/day
MW-1	1.74E-05	3.42E-05	0.049
MW-2	9.93E-06	1.96E-05	0.028
MW-5	1.71E-03	3.36E-03	4.840
MW-6	1.90E-05	3.74E-05	0.054
MW-7	9.03E-07	1.78E-06	0.003

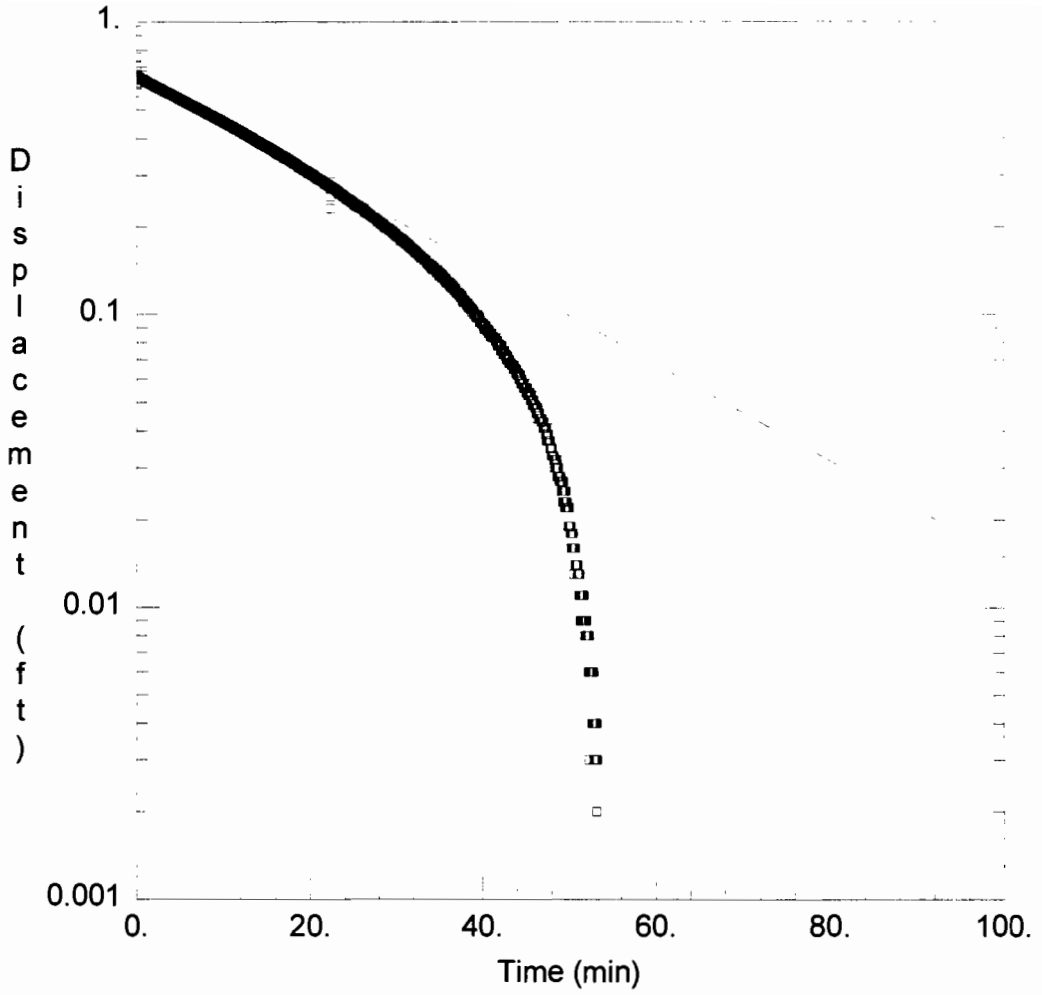
Well	Max Displacement (ft)	Depth to Water** (ft)	Total Depth (ft)	Height of Water Column (ft)	Aquifer Thickness*** (ft)	Screen Length (ft)	Top of Water above Top of Screen (Y/N)	Well Radius (ft)	Borehole Radius (ft)
MW-1f*	1	13.14	30.00	16.86	10.00	10.0	Y	0.0833	0.333
MW-1r*	1	13.14	30.00	16.86	10.00	10.0	Y	0.0833	0.333
MW-2f*	1	3.16	28.00	24.84	10.00	10.0	Y	0.0833	0.333
MW-2r*	1	3.16	28.00	24.84	10.00	10.0	Y	0.0833	0.333
MW-5f	1	1.05	14.00	12.95	10.00	10.0	Y	0.0833	0.333
MW-5r	1	1.05	14.00	12.95	10.00	10.0	Y	0.0833	0.333
MW-6f	1	3.37	20.00	16.63	10.00	10.0	Y	0.0833	0.333
MW-6r	1	3.37	20.00	16.63	10.00	10.0	Y	0.0833	0.333
MW-7f	1	3.89	19.50	15.61	10.00	10.0	Y	0.0833	0.333

Note:

*Wells MW-1 and MW-2, auger diameter not indicated on boring logs, therefore was assumed 4 1/4"HSA and 8" borehole radius.

**Water levels taken from 12/12/01 measurements.

***Aquifer thickness assumed equal to screen length based on boring logs and stratigraphy.



WELL TEST ANALYSIS

Data Set: J:\35824.00\Excel\Slug Tests\MW-1f-B&R.aqt
Date: 01/15/02 Time: 09:40:15

PROJECT INFORMATION

Company: URS
Client: Former Dowell Site
Project: 05-00035824.00
Test Location: Depew, New York

AQUIFER DATA

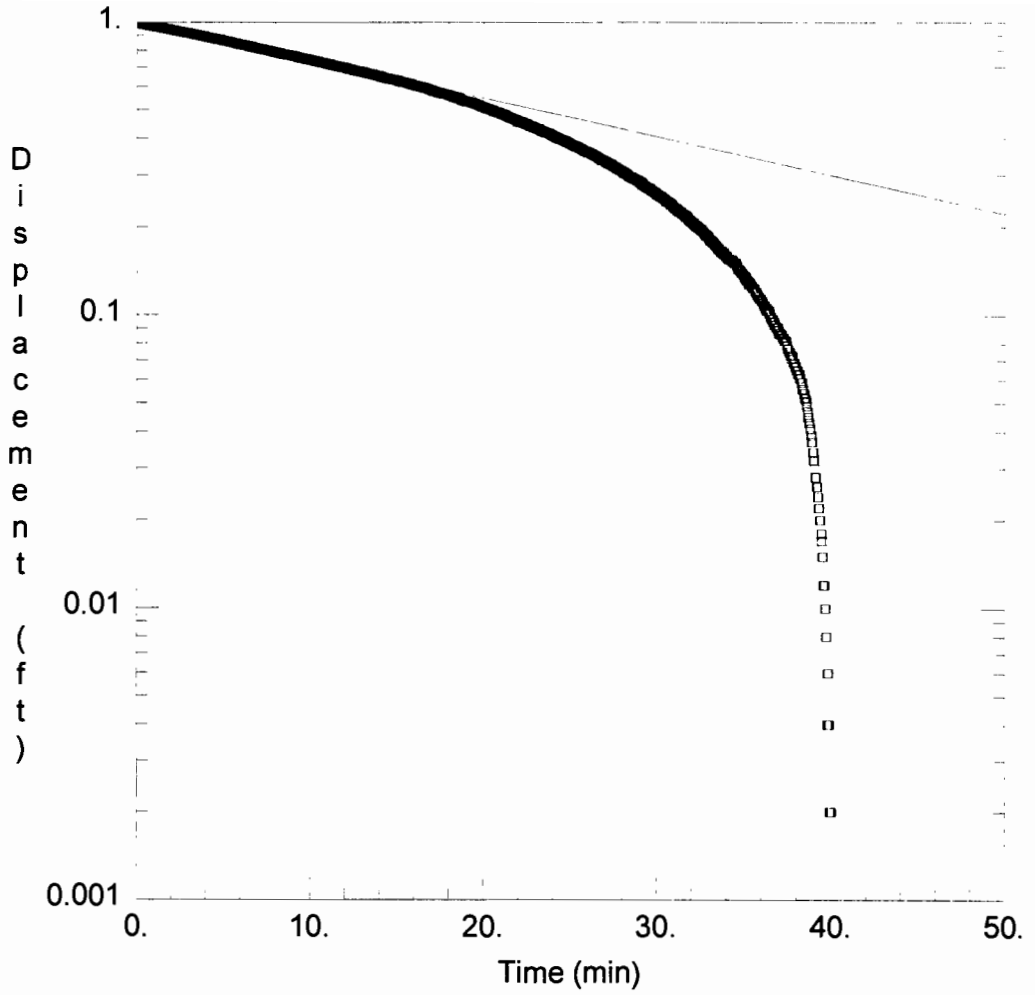
Saturated Thickness: 10. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (MW-1f)

Initial Displacement: 1. ft
Wellbore Radius: 0.333 ft
Screen Length: 10. ft
Gravel Pack Porosity: 0.3
Casing Radius: 0.0833 ft
Well Skin Radius: 0.333 ft
Total Well Penetration Depth: 16.86 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 3.795E-05 ft/min
y0 = 0.6542 ft



WELL TEST ANALYSIS

Data Set: J:\35824.00\Excel\Slug Tests\MW-1r-B&R.aqt
Date: 01/15/02 Time: 09:40:56

PROJECT INFORMATION

Company: URS
Client: Former Dowell Site
Project: 05-00035824.00
Test Location: Depew, New York

AQUIFER DATA

Saturated Thickness: 10. ft Anisotropy Ratio (Kz/Kr): 1.

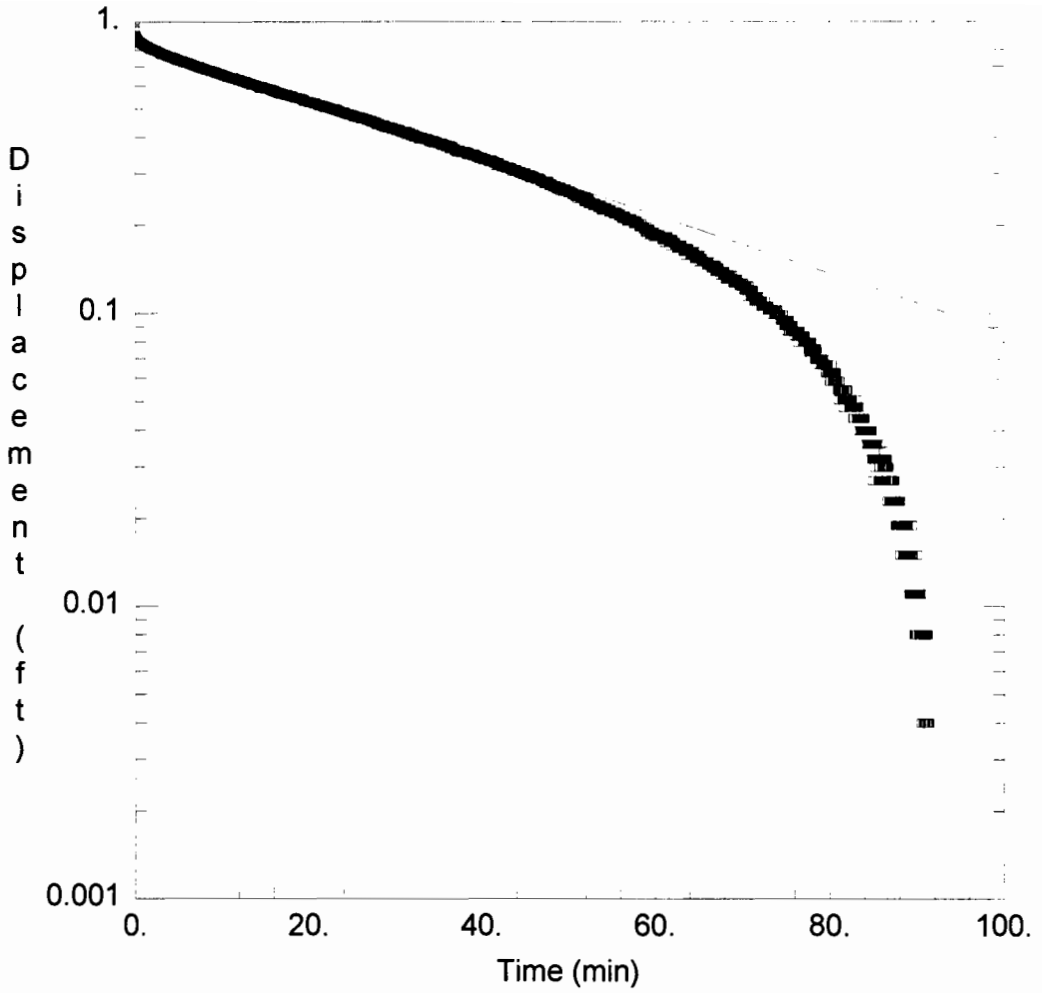
WELL DATA (MW-1r)

Initial Displacement: 1. ft
Wellbore Radius: 0.333 ft
Screen Length: 10. ft
Gravel Pack Porosity: 0.3
Casing Radius: 0.0833 ft
Well Skin Radius: 0.333 ft
Total Well Penetration Depth: 16.86 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 3.049E-05 ft/min y0 = 1.011 ft



WELL TEST ANALYSIS

Data Set: J:\35824.00\Excel\Slug Tests\MW-2f-B&R.aqt
Date: 01/15/02 Time: 09:41:06

PROJECT INFORMATION

Company: URS
Client: Former Dowell Site
Project: 05-00035824.00
Test Location: Depew, New York

AQUIFER DATA

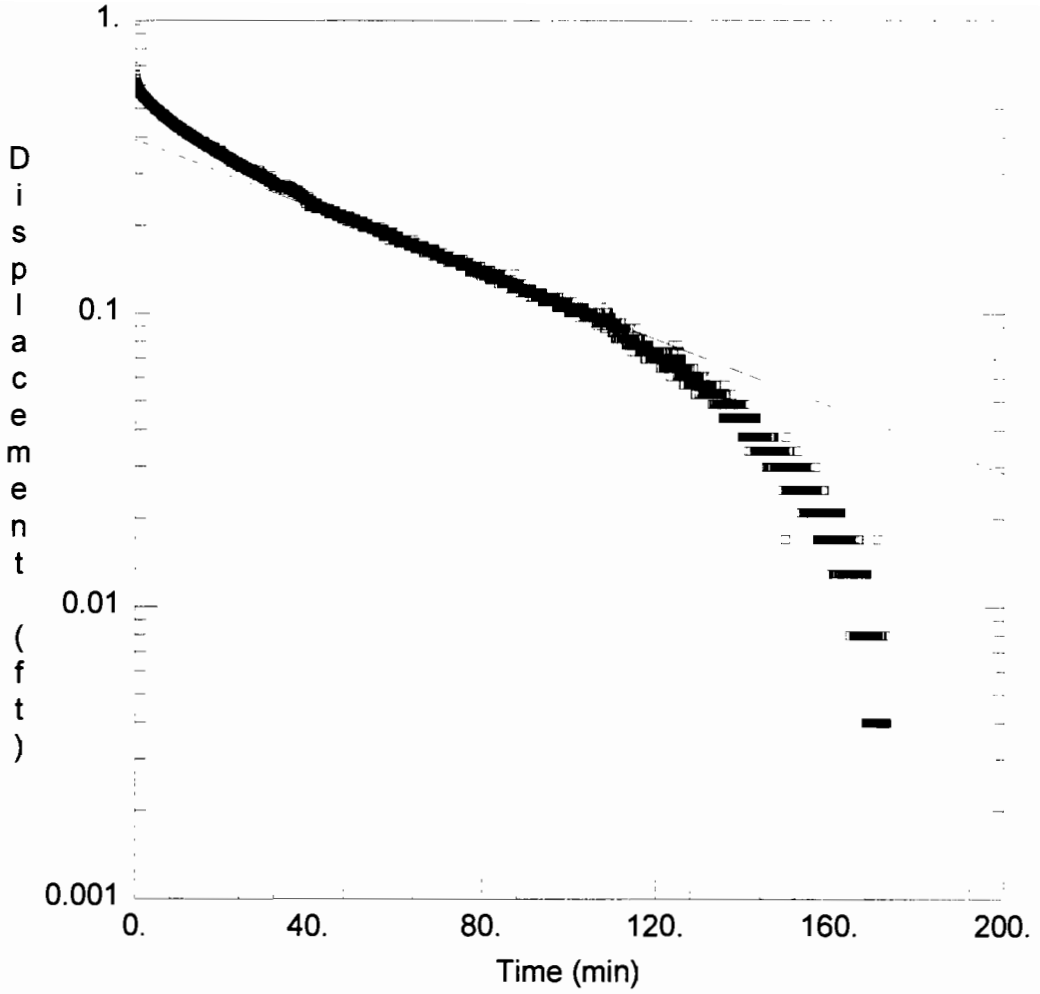
Saturated Thickness: 10. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (MW-2f)

Initial Displacement: 1. ft
Wellbore Radius: 0.333 ft
Screen Length: 10. ft
Gravel Pack Porosity: 0.3
Casing Radius: 0.0833 ft
Well Skin Radius: 0.333 ft
Total Well Penetration Depth: 24.84 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 2.492E-05 ft/min
y0 = 0.8649 ft



WELL TEST ANALYSIS

Data Set: J:\35824.00\Excel\Slug Tests\MW-2r-B&R.aqt
Date: 01/15/02 Time: 09:41:15

PROJECT INFORMATION

Company: URS
Client: Former Dowell Site
Project: 05-00035824.00
Test Location: Depew, New York

AQUIFER DATA

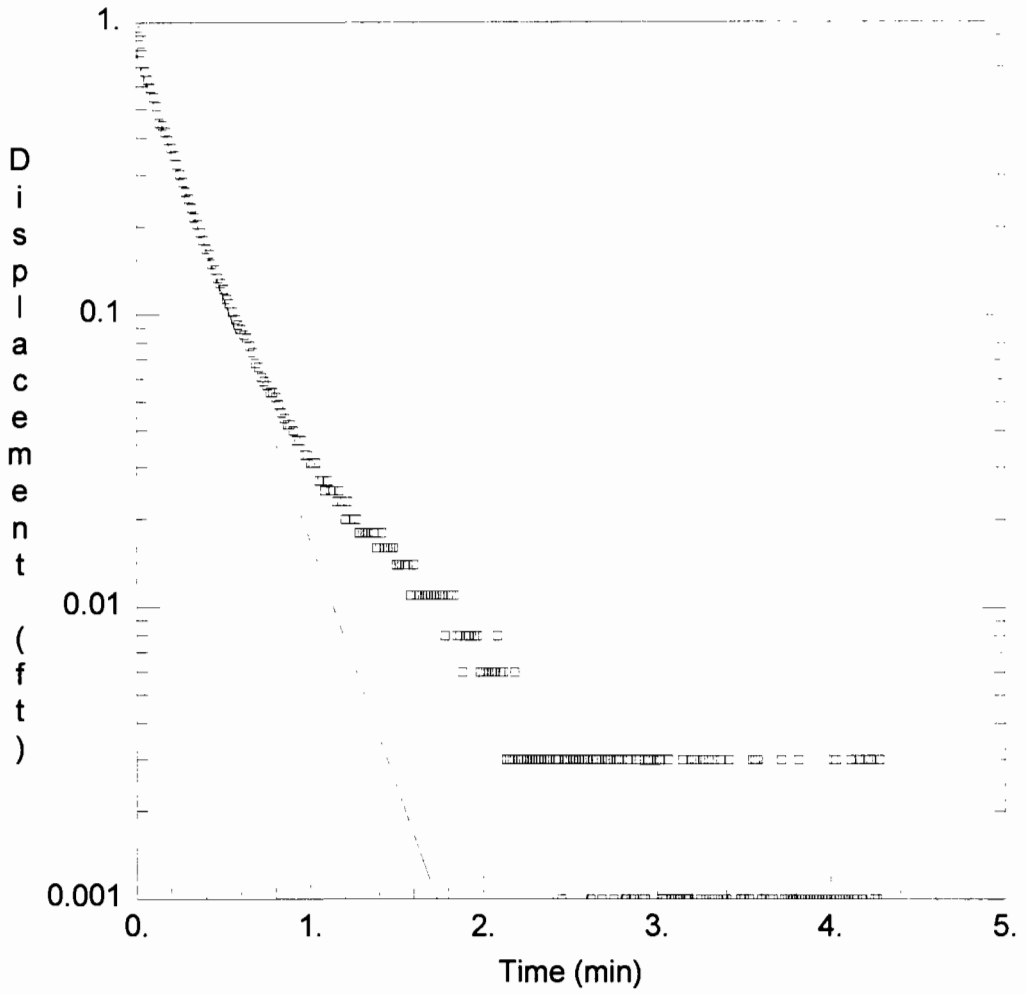
Saturated Thickness: 10. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (MW-2r)

Initial Displacement: 1. ft
Wellbore Radius: 0.333 ft
Screen Length: 10. ft
Gravel Pack Porosity: 0.3
Casing Radius: 0.0833 ft
Well Skin Radius: 0.333 ft
Total Well Penetration Depth: 24.84 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 1.418E-05 ft/min
y0 = 0.393 ft



WELL TEST ANALYSIS

Data Set: J:\35824.00\Excel\Slug Tests\MW-5f-B&R.aqt
Date: 01/15/02 Time: 09:41:27

PROJECT INFORMATION

Company: URS
Client: Former Dowell Site
Project: 05-00035824.00
Test Location: Depew, New York

AQUIFER DATA

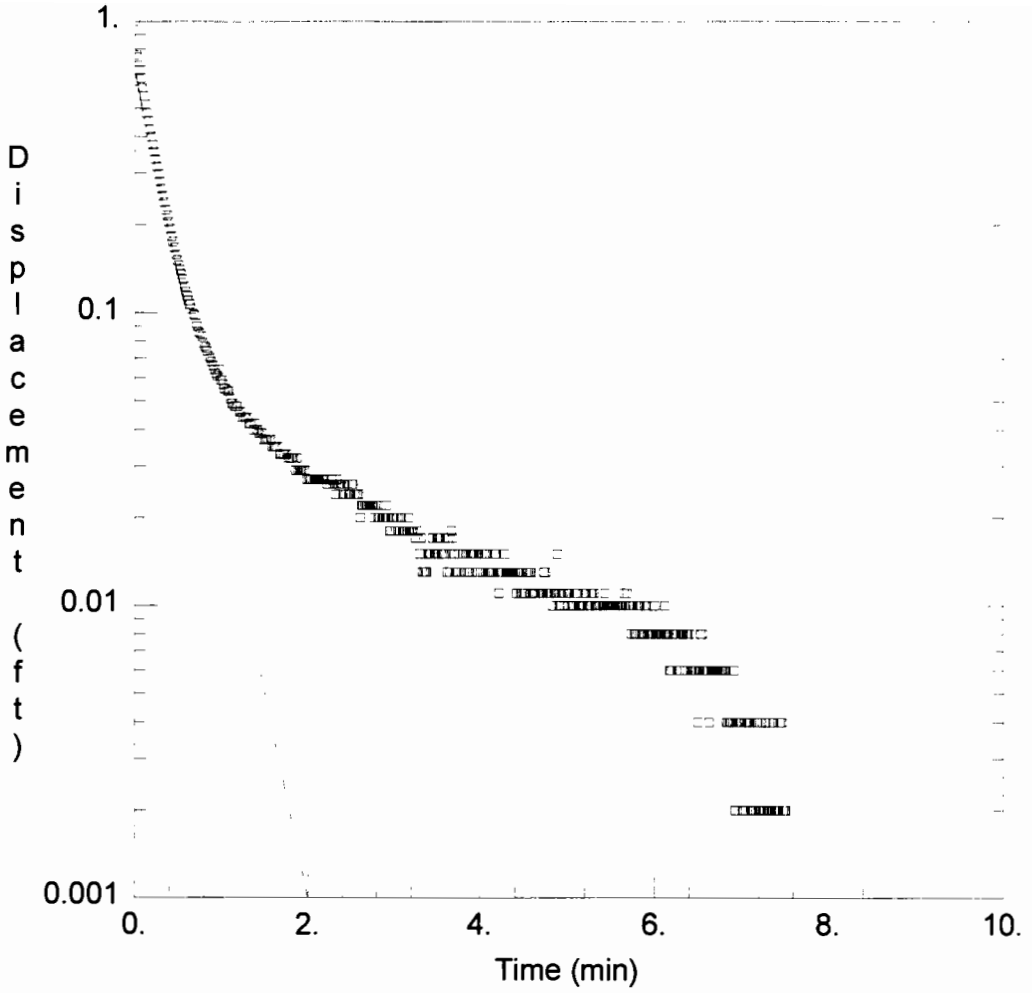
Saturated Thickness: 10. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (MW-5f)

Initial Displacement: 1. ft
Wellbore Radius: 0.333 ft
Screen Length: 10. ft
Gravel Pack Porosity: 0.3
Casing Radius: 0.0833 ft
Well Skin Radius: 0.333 ft
Total Well Penetration Depth: 12.95 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.003638 ft/min
y0 = 0.7734 ft



WELL TEST ANALYSIS

Data Set: J:\35824.00\Excel\Slug Tests\MW-5r-B&R.aqt
Date: 01/15/02 Time: 09:41:32

PROJECT INFORMATION

Company: URS
Client: Former Dowell Site
Project: 05-00035824.00
Test Location: Depew, New York

AQUIFER DATA

Saturated Thickness: 10. ft Anisotropy Ratio (Kz/Kr): 1.

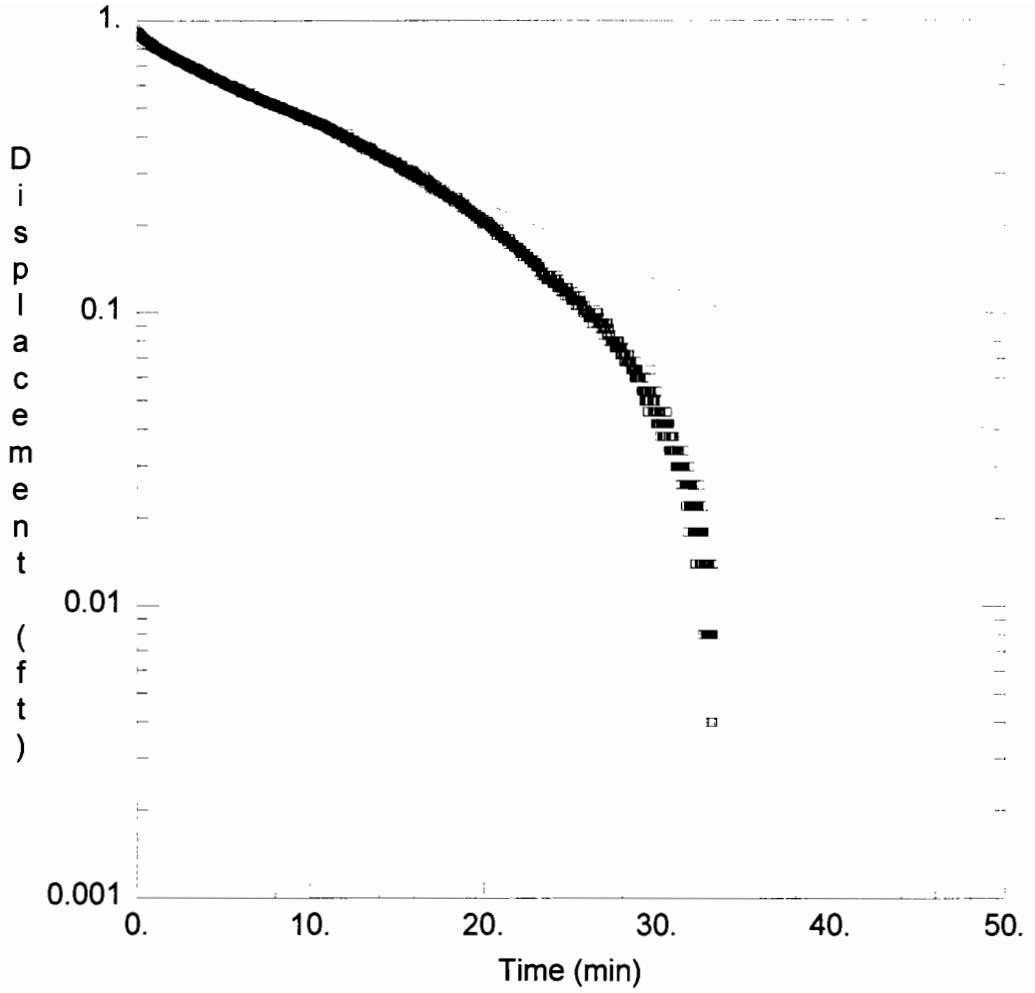
WELL DATA (MW-5r)

Initial Displacement: 1. ft
Wellbore Radius: 0.333 ft
Screen Length: 10. ft
Gravel Pack Porosity: 0.3
Casing Radius: 0.0833 ft
Well Skin Radius: 0.333 ft
Total Well Penetration Depth: 12.95 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 0.003083 ft/min y0 = 0.665 ft



WELL TEST ANALYSIS

Data Set: J:\35824.00\Excel\Slug Tests\MW-6f-B&R.aqt
Date: 01/15/02 Time: 09:41:39

PROJECT INFORMATION

Company: URS
Client: Former Dowell Site
Project: 05-00035824.00
Test Location: Depew, New York

AQUIFER DATA

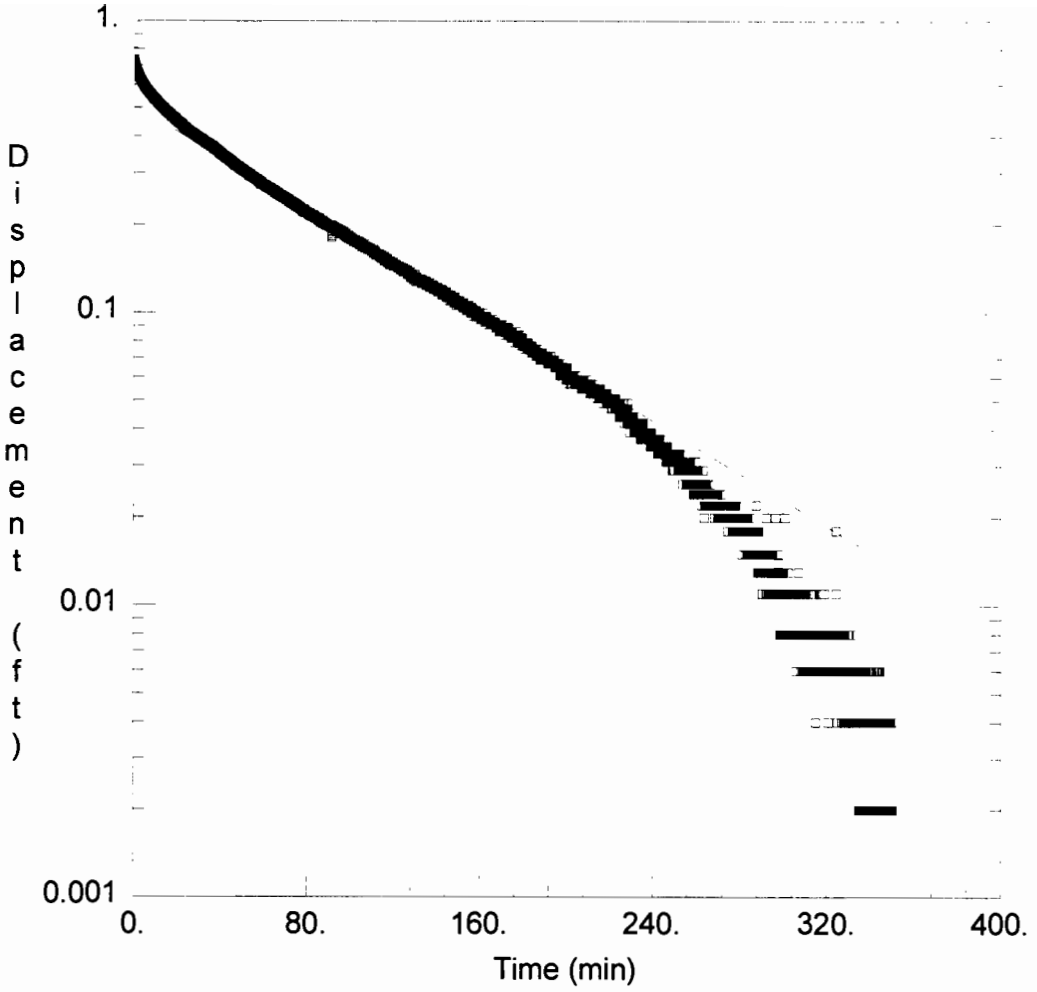
Saturated Thickness: 10. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (MW-6f)

Initial Displacement: 1. ft
Wellbore Radius: 0.333 ft
Screen Length: 10. ft
Gravel Pack Porosity: 0.3
Casing Radius: 0.0833 ft
Well Skin Radius: 0.333 ft
Total Well Penetration Depth: 20. ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 6.406E-05 ft/min
y0 = 0.8234 ft



WELL TEST ANALYSIS

Data Set: J:\35824.00\Excel\Slug Tests\MW-6r-B&R.aqt
Date: 01/15/02 Time: 09:41:47

PROJECT INFORMATION

Company: URS
Client: Former Dowell Site
Project: 05-00035824.00
Test Location: Depew, New York

AQUIFER DATA

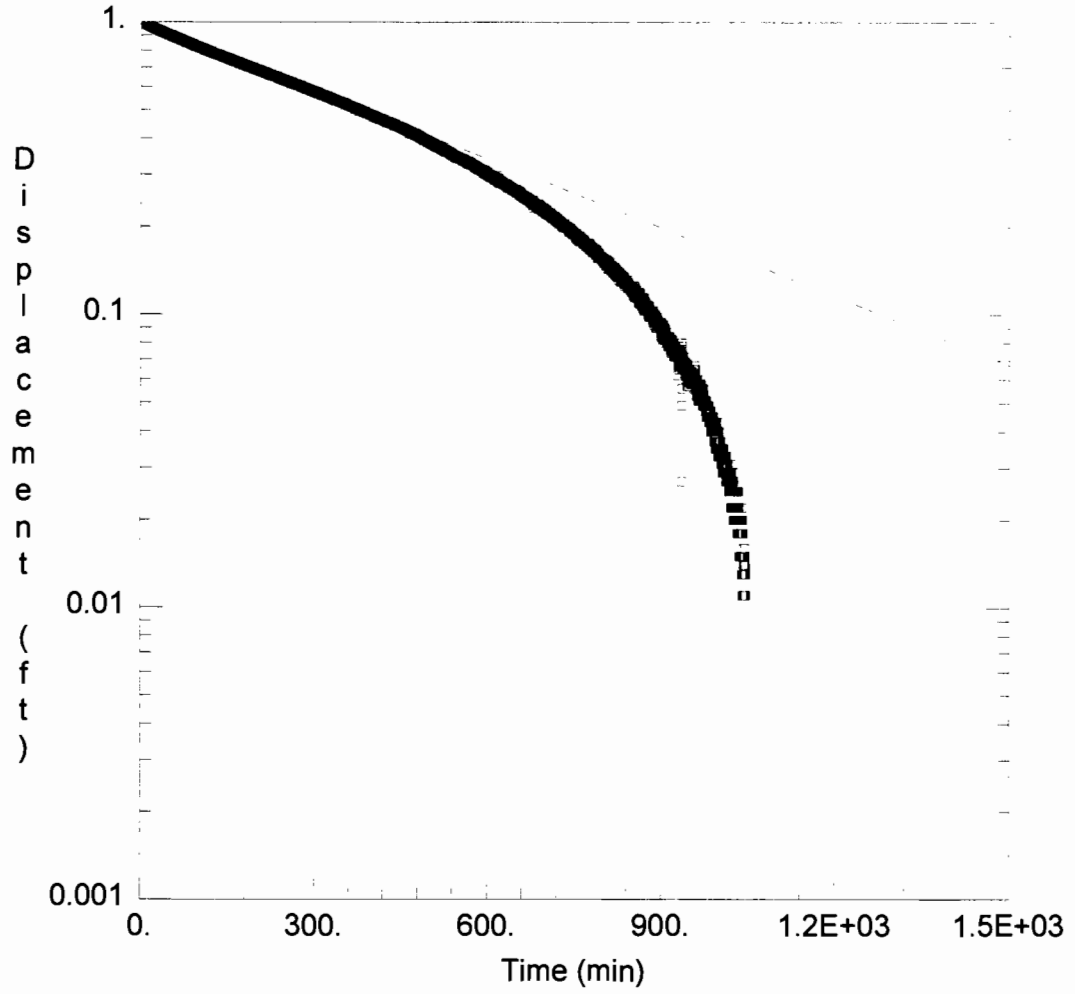
Saturated Thickness: 10. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (MW-6r)

Initial Displacement: 1. ft
Wellbore Radius: 0.333 ft
Screen Length: 10. ft
Gravel Pack Porosity: 0.3
Casing Radius: 0.0833 ft
Well Skin Radius: 0.333 ft
Total Well Penetration Depth: 20. ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 1.074E-05 ft/min
y0 = 0.5112 ft



WELL TEST ANALYSIS

Data Set: J:\35824.00\Excel\Slug Tests\MW-7f-B&R.aqt
Date: 01/15/02 Time: 09:42:01

PROJECT INFORMATION

Company: URS
Client: Former Dowell Site
Project: 05-00035824.00
Test Location: Depew, New York

AQUIFER DATA

Saturated Thickness: 10. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (MW-7f)

Initial Displacement: 1. ft
Wellbore Radius: 0.333 ft
Screen Length: 10. ft
Gravel Pack Porosity: 0.3
Casing Radius: 0.0833 ft
Well Skin Radius: 0.333 ft
Total Well Penetration Depth: 15.61 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 1.777E-06 ft/min
y0 = 1.001 ft

APPENDIX H

DATA USABILITY SUMMARY REPORT

DATA USABILITY SUMMARY REPORT

FORMER DOWELL FACILITY
SUPPLEMENTAL INVESTIGATION
DEPEW, NEW YORK

Analyses Performed by:
FRIEND LABORATORY, INC.

Prepared for:
VOLUNTEERS
DOWELL, A DIVISION OF SCHLUMBERGER TECHNOLOGY CORPORATION
DOWELL SCHLUMBERGER INCORPORATED
THE DOW CHEMICAL COMPANY

Prepared by:
URS CORPORATION
282 DELAWARE AVENUE
BUFFALO, NY 14202

JANUARY 2002

TABLE OF CONTENTS

I. INTRODUCTION

This Data Usability Summary Report (DUSR) has been prepared following the guidelines provided in New York State Department of Environmental Conservation (NYSDEC) Division of Environmental Remediation *Guidance for the Development of Data Usability Summary Reports*, dated June 1999.

II. ANALYTICAL METHODOLOGIES

The data being evaluated is from the July 10 through 17, 2001 sampling of 18 soil samples, 4 sediment samples, 10 groundwater samples, 3 matrix spike/matrix spike duplicates (MS/MSD), 2 rinse blanks, and 1 trip blank. The analytical laboratory that performed the analyses was Friend Laboratory, Inc., (FLI) located in Waverly, New York. The samples were analyzed for Target Compound List (TCL) volatile organic compounds (VOCs), TCL semivolatile organic compounds (SVOCs), and TCL pesticides/polychlorinated biphenyls (Pesticides/PCBs) by United States Environmental Protection Agency (USEPA) Statement of Work (SOW) OLM04.2, target analyte list (TAL) metals and cyanide by USEPA SOW ILM04.1, and total petroleum hydrocarbons by *Methods for Chemical Analysis of Water and Wastes* Method 418.1. Not all samples were analyzed for all parameters. All methods are referenced in NYSDEC Analytical Services Protocol (ASP), 6/2000. The validated analytical results are presented in Table 1.

A limited data validation was performed following the general guidelines in USEPA Region II Contract Laboratory Program (CLP) Organics Data Review (CLP/SOW OLM04.2), SOP No. HW-6, Revision #12, March 2001, and USEPA Region II Evaluation of Metals Data for the CLP, SOP No. HW-2, Revision XI, January 1992. Qualifications applied to the data include "J/UJ" (estimated concentration/estimated quantitation limit), "D" (result reported from a secondary dilution analysis), "U" (not detected), and "R" (rejected). A summary of data qualifications is presented in Table 2. Support documentation for the qualification of data is presented in Attachment A.

III. DATA DELIVERABLE COMPLETENESS

The laboratory deliverable data packages were in accordance with NYSDEC ASP, Superfund Category requirements.

IV. PRESERVATION/HOLDING TIMES

Aqueous samples MW-3 (dilution analysis only) and PZ-2 (dilution analysis only) were analyzed for VOCs more than 14 days after sample collection. Soil samples TP-1 (2-2.5) and GPB-7 (7-7.5) [dilution analysis only] were analyzed for VOCs more than 10 days after sample collection. The USEPA Region II technical holding time for VOC analyses of preserved (i.e., pH<2, 4°±2°C) aqueous samples is fourteen days from sample collection. The USEPA Region II technical holding time for VOC analyses of soil samples is ten days from sample collection. The results from analyses performed outside of holding time were qualified "J/UJ." It should be noted that the NYSDEC ASP contractual holding times were met for all samples and analyses except the dilution analyses of MW-3 and PZ-2. All other reported analyses were performed within USEPA Region II technical and NYSDEC ASP contractual holding times.

No other qualifications were made for preservation/holding time exceedances.

V. QUALITY CONTROL DATA

A. QC Blanks

Acetone, 2-butanone, chloromethane, trichloroethene, and bis(2-ethylhexyl)phthalate were detected in the samples listed in Table 2 at a concentration less than five times (ten times for the common laboratory contaminants of acetone, 2-butanone, and phthalates) the amount detected in the associated method, trip, rinsate and/or holding blank. In accordance with USEPA Region II validation guidelines, the results were qualified "U."

In accordance with USEPA Region II validation guidelines, the detected results of 1,1,1-trichloroethane and 1,1-dichloroethane in MW-4 were qualified "R" because of possible carryover from sample MW-3 which was analyzed immediately prior to MW-4. The laboratory did not analyze a blank after the analysis of MW-3, as required by the method when concentrations exceed the range of calibration. MW-4 was not reanalyzed.

In accordance with USEPA Region II validation guidelines, the detected results of calcium, lead, magnesium, sodium, and/or zinc in MW-1, MW-3 and MW-5 were qualified "R" because of contamination in the associated rinse blank. The concentrations in the samples were less than five times the rinse blank concentration.

Documentation supporting the qualification of data (i.e., Form I for the method blank, injection log) is presented in Attachment A. No other qualifications were made because of blank or carryover contamination.

B. Instrument Tuning Criteria

All NYSDEC ASP instrument tuning criteria were met for the VOC and SVOC analyses.

C. Initial and Continuing Calibrations

The percent difference (%D) between the initial and continuing calibration (CCAL) standard RRF exceeded 25% for several VOCs and SVOCs. The VOCs include acetone, 4-methyl-2-pentanone, and 1,2,4-trichlorobenzene. The SVOCs include 2,4-dinitrophenol and 4-nitrophenol. In accordance with USEPA Region II validation guidelines, the associated results for these compounds (all were non-detect) were qualified "UJ" as listed in Table 2.

Documentation supporting the qualification of data (i.e., Form VII) is presented in Attachment A. All other initial and continuing calibration data were compliant with USEPA Region II validation criteria. It should be noted that all NYSDEC ASP contractual calibration criteria were met.

D. Surrogate/Internal Standard Recoveries

The VOC fraction of sample Sump #2 had one high surrogate recovery in the initial analysis. All surrogate recoveries were within control limits in the reanalysis. Using professional judgement, no qualification was required for the surrogate outlier because matrix interference was evident and all detected target compounds eluted prior to the matrix interference.

The initial VOC analysis of samples Sump #1 and Sump #2 exhibited low recoveries (i.e., less than 50%) for the internal standard (IS) chlorobenzene-d_5. The recoveries in the dilution analysis were within control limits. The associated compounds from the initial analysis were used because of lower quantitation limits and more conservative results (i.e., detected versus non-detected). Results for those compounds associated with IS chlorobenzene-d_5 were qualified "J/UJ" in accordance with Region II validation guidelines.

Documentation supporting the qualification of data (i.e., Form II for the surrogates and Form VIII for the internal standards) is presented in Attachment A. All other surrogate and internal standard recoveries were within the applicable QC limits.

E. Matrix Spike/Matrix Spike Duplicate and Matrix Spike Blank

The matrix spike blank (MSB) recovery for the SVOC n-nitroso-di-n-propylamine was below the NYSDEC ASP quality control (QC) limit. Results for all samples were qualified "UJ" (all were non-detect). 2,4-Dinitrotoluene and 4-nitrophenol had high recoveries in the MSB. Qualification of non-detect results is not required.

Documentation supporting the qualification of data (i.e., Form III) is presented in Attachment A. All other MS/MSD and MSB results were within the applicable QC limits, and no other qualification of data was necessary.

F. Matrix Duplicates

All NYSDEC ASP matrix duplicate criteria were met for the metal, cyanide and total petroleum hydrocarbon analyses. Matrix duplicates are not performed on organic fractions.

G. Serial Dilutions

All serial dilution results were within the applicable QC limits, and no qualification of data was necessary.

VI. SAMPLE RESULTS

A. Raw Data vs. Reporting Forms

The final results as listed on the reporting forms were generally in agreement with the raw data however, some transcription/calculation errors were detected. Results for several low level VOCs (i.e., "J" values) were changed to non-detect (i.e., "U") at the quantitation limit because the concentration detected was below the instrument detection limit (IDL), therefore the values are not considered reliable. There were several instances where the laboratory reported results as non-detect but the concentration was greater than the IDL, but less than the quantitation limit. False negative results, along with the qualification are documented in Table 2.

B. Sample Dilutions

Results for several compounds were qualified "E" by the laboratory to indicate that the calibration range was exceeded in the initial analysis. Results qualified "D" indicate a result reported from a secondary dilution analysis. Because of high concentrations of target compounds and the necessity for substantial dilution, some detections were diluted out (i.e., not detected in the secondary dilution). For the samples listed in Table 2, the "E" value from the initial (undiluted) analysis was reported on Table 1, and the "E" qualifier was replaced with "J". Samples GPB-7, GBP-9, and GBP-12 for VOC analysis were diluted prior to analysis due to the high concentration of target compounds. The quantitation limits for the non-detect compounds in these samples are the lowest achievable at the diluted levels.

C. Quantitation Limits

All quantitation limits were reported in accordance with method requirements, and were adjusted for dilution factors and/or moisture content. Several organic sample results were qualified "J" by the laboratory indicating an estimated concentration below the quantitation limit, but greater than the IDL. Several inorganic sample results were qualified "B" by the laboratory indicating a concentration below the contract required detection limit (CRDL), but greater than the IDL.

All inorganic CRDL standard results were within the QC limits, and no qualification of data was necessary.

D. Chromatography

No chromatography problems were encountered.

E. Compound Identification

The results for carbon tetrachloride in Sump#1 and methylcyclohexane in PZ-2 were determined to be false positive results. The sample spectra did not match standard spectra. High concentrations of analytes with retention times near these compounds caused interference. The results were qualified "U" at the quantitation limit, in accordance with Region II validation guidelines. No other qualifications for compound identification were necessary.

VII. SUMMARY

All sample analyses were found to be compliant with the method and validation criteria, except where previously noted. Those results qualified "J/UJ"(estimated) are considered conditionally usable. Those results qualified "R"(rejected) are unusable. All other sample results are usable as reported. Although 1,1,1-trichloroethane and 1,1-dichloroethane data in groundwater sample MW-4, and several metals in groundwater samples MW-1, MW-3, and MW-5 were rejected, historical (i.e., semiannual monitoring) data exists for these wells. URS Corporation does not recommend the recollection of samples at this time. For the purposes of this investigation, sufficient data exist for meeting data quality objectives.

TABLE 1
ANALYTICAL SEDIMENT SAMPLE RESULTS
FORMER DOWELL SITE

Location ID		RECTANGLE SUMP	ROUND SUMP	SUMP-01	SUMP-02
Sample ID		RECTANGLE SUMP	ROUND SUMP	SUMP #1 MAINTEN	SUMP #2 MAINTEN
Matrix		Sediment	Sediment	Sediment	Sediment
Depth Interval (ft)		8.0-24.0	9.0-14.0	1.0-1.5	2.0-2.5
Date Sampled		07/12/01	07/12/01	07/11/01	07/11/01
Parameter	**Units**				
Volatiles					
1,1,1-Trichloroethane	UG/KG	10 J	4 J	16,000 D	1,600 D
1,1,2,2-Tetrachloroethane	UG/KG	13 U	10 U	13 UJ	12 UJ
1,1,2-Trichloro-1,2,2-trifluoroethane	UG/KG	13 U	10 U	13 U	12 U
1,1,2-Trichloroethane	UG/KG	13 U	10 U	13 U	12 U
1,1-Dichloroethane	UG/KG	5 J	10 U	1,100 DJ	2,600 D
1,1-Dichloroethene	UG/KG	13 U	10 U	13 U	7 J
1,2,4-Trichlorobenzene	UG/KG	13 U	10 U	21 J	12 UJ
1,2-Dibromo-3-chloropropane	UG/KG	13 U	10 U	13 UJ	12 UJ
1,2-Dibromoethane	UG/KG	13 U	10 U	13 UJ	12 UJ
1,2-Dichlorobenzene	UG/KG	5 J	10 U	20 J	12 UJ
1,2-Dichloroethane	UG/KG	13 U	10 U	13 U	12 U
1,2-Dichloropropane	UG/KG	13 U	10 U	13 U	12 U
1,3-Dichlorobenzene	UG/KG	13 U	10 U	100 J	12 UJ
1,4-Dichlorobenzene	UG/KG	13 U	10 U	10 J	12 UJ
2-Butanone	UG/KG	13 U	10 U	13 U	9 J
2-Hexanone	UG/KG	13 U	10 U	13 UJ	12 UJ
4-Methyl-2-pentanone	UG/KG	13 U	10 U	13 UJ	12 UJ
Acetone	UG/KG	29 U	10 U	13 U	12 U
Benzene	UG/KG	13 U	10 U	13 U	12 U
Bromodichloromethane	UG/KG	13 U	10 U	13 U	12 U
Bromoform	UG/KG	13 U	10 U	13 U	12 U
Bromomethane	UG/KG	13 U	10 U	13 U	12 U
Carbon disulfide	UG/KG	4 J	10 U	13 U	12 U
Carbon tetrachloride	UG/KG	13 U	10 U	13 U	12 U

Flags assigned during chemistry validation are shown.

MADE BY: GEK 1/14/02
CHECKED BY: JJL 1/15/02

Detection Limits shown are PQL

TABLE 1
ANALYTICAL SEDIMENT SAMPLE RESULTS
FORMER DOWELL SITE

Location ID		RECTANGLE SUMP	ROUND SUMP	SUMP-01	SUMP-02
Sample ID		RECTANGLE SUMP	ROUND SUMP	SUMP #1 MAINTEN	SUMP #2 MAINTEN
Matrix		Sediment	Sediment	Sediment	Sediment
Depth Interval (ft)		8.0-24.0	9.0-14.0	1.0-1.5	2.0-2.5
Date Sampled		07/12/01	07/12/01	07/11/01	07/11/01
Parameter	**Units**				
Volatiles					
Chlorobenzene	UG/KG	13 U	10 U	13 UJ	12 UJ
Chloroethane	UG/KG	13 U	10 U	13 U	160
Chloroform	UG/KG	13 U	10 U	13 U	12 U
Chloromethane	UG/KG	13 U	10 U	13 U	12 U
cis-1,2-Dichloroethene	UG/KG	19	10 U	27	55
cis-1,3-Dichloropropene	UG/KG	13 U	10 U	13 U	12 U
Cyclohexane	UG/KG	13 U	10 U	13 U	12 U
Dibromochloromethane	UG/KG	13 U	10 U	13 U	12 U
Dichlorodifluoromethane	UG/KG	13 U	10 U	13 U	12 U
Ethylbenzene	UG/KG	13 U	10 U	5 J	88 J
Isopropylbenzene	UG/KG	13 U	10 U	13 UJ	64 J
Methyl acetate	UG/KG	13 U	10 U	13 U	12 U
Methyl tert-butyl ether	UG/KG	13 U	10 U	13 U	12 U
Methylcyclohexane	UG/KG	6 J	10 U	6 J	15
Methylene chloride	UG/KG	13 U	10 U	13 U	12 U
Styrene	UG/KG	13 U	10 U	13 UJ	12 UJ
Tetrachloroethene	UG/KG	9 J	4 J	15,000 D	67 J
Toluene	UG/KG	13 U	10 U	7 J	140 J
trans-1,2-Dichloroethene	UG/KG	13 U	10 U	13 U	12 U
trans-1,3-Dichloropropene	UG/KG	13 U	10 U	13 U	12 U
Trichloroethene	UG/KG	9 J	4 J	48	45
Trichlorofluoromethane	UG/KG	13 U	10 U	13 U	12 U
Vinyl chloride	UG/KG	4 J	10 U	13 U	21
Xylene (total)	UG/KG	13 U	10 U	13 UJ	860 DJ

Flags assigned during chemistry validation are shown.

MADE BY: GEK 1/14/02
CHECKED BY: JJL 1/15/02

Detection Limits shown are PQL

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[MATRIX] = 'SE' AND [PRCCODE] <> 'V-TIC'

TABLE 1
ANALYTICAL SOIL SAMPLE RESULTS
FORMER DOWELL SITE

Location ID		1-X-1	2-X-1	3-X-2	4-X-2	5-X-1
Sample ID		1-X-1 SUMP	2-X-1 SUMP	3-X-2 SUMP	4-X-2 SUMP	5-X-1 SUMP
Matrix		Soil	Soil	Soil	Soil	Soil
Depth Interval (ft)		0.5-1.0	1.0-1.5	1.0-1.5	2.0-2.5	2.5-3.0
Date Sampled		07/12/01	07/12/01	07/12/01	07/12/01	07/12/01
Parameter	Units					
Volatiles						
1,1,1-Trichloroethane	UG/KG	17 U	12 U	13 U	10 U	11 U
1,1,2,2-Tetrachloroethane	UG/KG	17 U	12 U	13 U	10 U	11 U
1,1,2-Trichloro-1,2,2-trifluoroethane	UG/KG	17 U	12 U	13 U	10 U	11 U
1,1,2-Trichloroethane	UG/KG	17 U	12 U	13 U	10 U	11 U
1,1-Dichloroethane	UG/KG	150	12 U	13 U	10 U	11 U
1,1-Dichloroethene	UG/KG	17 U	12 U	13 U	10 U	11 U
1,2,4-Trichlorobenzene	UG/KG	17 U	12 U	13 U	10 U	11 U
1,2-Dibromo-3-chloropropane	UG/KG	17 U	12 U	13 U	10 U	11 U
1,2-Dibromoethane	UG/KG	17 U	12 U	13 U	10 U	11 U
1,2-Dichlorobenzene	UG/KG	1,500 J	12 U	13 U	10 U	11 U
1,2-Dichloroethane	UG/KG	17 U	12 U	13 U	10 U	11 U
1,2-Dichloropropane	UG/KG	17 U	12 U	13 U	10 U	11 U
1,3-Dichlorobenzene	UG/KG	17 U	12 U	13 U	10 U	11 U
1,4-Dichlorobenzene	UG/KG	17 U	12 U	13 U	10 U	11 U
2-Butanone	UG/KG	140	10 J	29	10 U	5 J
2-Hexanone	UG/KG	17 U	12 U	13 U	10 U	11 U
4-Methyl-2-pentanone	UG/KG	17 U	12 UJ	13 U	10 U	11 UJ
Acetone	UG/KG	440 J	40 U	89	23 U	25 U
Benzene	UG/KG	17 U	12 U	13 U	10 U	11 U
Bromodichloromethane	UG/KG	17 U	12 U	13 U	10 U	11 U
Bromoform	UG/KG	17 U	12 U	13 U	10 U	11 U
Bromomethane	UG/KG	17 U	12 U	13 U	10 U	11 U
Carbon disulfide	UG/KG	3 J	12 U	13 U	10 U	11 U
Carbon tetrachloride	UG/KG	17 U	12 U	13 U	10 U	11 U

Flags assigned during chemistry validation are shown.

MADE BY: GEK 1/14/02
CHECKED BY: JJL 1/15/02

Detection Limits shown are PQL

TABLE 1
ANALYTICAL SOIL SAMPLE RESULTS
FORMER DOWELL SITE

Location ID		1-X-1	2-X-1	3-X-2	4-X-2	5-X-1
Sample ID		1-X-1 SUMP	2-X-1 SUMP	3-X-2 SUMP	4-X-2 SUMP	5-X-1 SUMP
Matrix		Soil	Soil	Soil	Soil	Soil
Depth Interval (ft)		0.5-1.0	1.0-1.5	1.0-1.5	2.0-2.5	2.5-3.0
Date Sampled		07/12/01	07/12/01	07/12/01	07/12/01	07/12/01
Parameter	**Units**					
Volatiles						
Chlorobenzene	UG/KG	290	12 U	13 U	10 U	11 U
Chloroethane	UG/KG	120	12 U	31	10 U	11 U
Chloroform	UG/KG	17 U	12 U	13 U	10 U	11 U
Chloromethane	UG/KG	17 U	12 U	13 U	10 U	11 U
cis-1,2-Dichloroethene	UG/KG	17 U	12 U	13 U	10 U	11 U
cis-1,3-Dichloropropene	UG/KG	17 U	12 U	13 U	10 U	11 U
Cyclohexane	UG/KG	17 U	12 U	13 U	10 U	11 U
Dibromochloromethane	UG/KG	17 U	12 U	13 U	10 U	11 U
Dichlorodifluoromethane	UG/KG	17 U	12 U	13 U	10 U	11 U
Ethylbenzene	UG/KG	7 J	4 J	13 U	10 U	11 U
Isopropylbenzene	UG/KG	17 U	12 U	13 U	10 U	11 U
Methyl acetate	UG/KG	17 U	12 U	13 U	10 U	11 U
Methyl tert-butyl ether	UG/KG	9 J	12 U	13 U	10 U	11 U
Methylcyclohexane	UG/KG	17 U	12 U	13 U	10 U	11 U
Methylene chloride	UG/KG	13 J	30	13 U	10 U	23
Styrene	UG/KG	17 U	12 U	13 U	10 U	11 U
Tetrachloroethene	UG/KG	17 U	7 J	13 U	10 U	7 J
Toluene	UG/KG	43	13	13 U	10 U	12
trans-1,2-Dichloroethene	UG/KG	17 U	12 U	13 U	10 U	11 U
trans-1,3-Dichloropropene	UG/KG	17 U	12 U	13 U	10 U	11 U
Trichloroethene	UG/KG	17 U	16	13 U	10 U	14
Trichlorofluoromethane	UG/KG	17 U	12 U	13 U	10 U	11 U
Vinyl chloride	UG/KG	6 J	12 U	13 U	10 U	11 U
Xylene (total)	UG/KG	53	12 U	13 U	10 U	11 U

Flags assigned during chemistry validation are shown.

MADE BY: GEK_1/14/02
CHECKED BY: [illegible] 1/15/02

Detection Limits shown are PQL

TABLE 1
ANALYTICAL SOIL SAMPLE RESULTS
FORMER DOWELL SITE

Location ID		GPB-02	GPB-03	GPB-04	GPB-07	GPB-08
Sample ID		GPB-02	GPB-03	GPB-04	GPB-07	GPB-08
Matrix		Soil	Soil	Soil	Soil	Soil
Depth Interval (ft)		1.8-2.0	1.5-2.0	3.0-3.5	7.0-7.5	2.0-2.5
Date Sampled		07/10/01	07/10/01	07/12/01	07/12/01	07/13/01
Parameter	Units					
Volatiles						
1,1,1-Trichloroethane	UG/KG	11 U	10 U	14 U	1,500 U	15 U
1,1,2,2-Tetrachloroethane	UG/KG	11 U	10 U	14 U	1,500 U	15 U
1,1,2-Trichloro-1,2,2-trifluoroethane	UG/KG	11 U	10 U	14 U	1,500 U	15 U
1,1,2-Trichloroethane	UG/KG	11 U	10 U	14 U	1,500 U	15 U
1,1-Dichloroethane	UG/KG	11 U	10 U	14 U	1,500 U	15 U
1,1-Dichloroethene	UG/KG	11 U	10 U	14 U	1,500 U	5 J
1,2,4-Trichlorobenzene	UG/KG	11 U	10 U	14 U	1,500 U	15 U
1,2-Dibromo-3-chloropropane	UG/KG	11 U	10 U	14 U	1,500 U	15 U
1,2-Dibromoethane	UG/KG	11 U	10 U	14 U	1,500 U	15 U
1,2-Dichlorobenzene	UG/KG	11 U	10 U	14 U	1,500 U	15 U
1,2-Dichloroethane	UG/KG	11 U	10 U	14 U	1,500 U	15 U
1,2-Dichloropropane	UG/KG	11 U	10 U	14 U	1,500 U	15 U
1,3-Dichlorobenzene	UG/KG	11 U	10 U	14 U	1,500 U	15 U
1,4-Dichlorobenzene	UG/KG	11 U	10 U	14 U	1,500 U	15 U
2-Butanone	UG/KG	11 U	10 U	21	1,500 U	15 U
2-Hexanone	UG/KG	11 U	10 U	14 U	1,500 U	15 U
4-Methyl-2-pentanone	UG/KG	11 U	10 U	14 U	1,500 U	15 U
Acetone	UG/KG	17 U	19 U	87	1,500 U	73 U
Benzene	UG/KG	11 U	10 U	14 U	1,500 U	15 U
Bromodichloromethane	UG/KG	11 U	10 U	14 U	1,500 U	15 U
Bromoform	UG/KG	11 U	10 U	14 U	1,500 U	15 U
Bromomethane	UG/KG	11 U	10 U	14 U	1,500 U	15 U
Carbon disulfide	UG/KG	11 U	4 J	14 U	1,500 U	12 J
Carbon tetrachloride	UG/KG	11 U	10 U	14 U	1,500 U	15 U

Flags assigned during chemistry validation are shown.

MADE BY: GEK 1/14/02
CHECKED BY: FJL 1/15/02

Detection Limits shown are PQL

TABLE 1
ANALYTICAL SOIL SAMPLE RESULTS
FORMER DOWELL SITE

Location ID		GPB-02	GPB-03	GPB-04	GPB-07	GPB-08
Sample ID		GPB-02	GPB-03	GPB-04	GPB-07	GPB-08
Matrix		Soil	Soil	Soil	Soil	Soil
Depth Interval (ft)		1.8-2.0	1.5-2.0	3.0-3.5	7.0-7.5	2.0-2.5
Date Sampled		07/10/01	07/10/01	07/12/01	07/12/01	07/13/01
Parameter	**Units**					
Volatiles						
Chlorobenzene	UG/KG	11 U	10 U	14 U	1,500 U	15 U
Chloroethane	UG/KG	11 U	10 U	14 U	1,500 U	15 U
Chloroform	UG/KG	11 U	10 U	14 U	1,500 U	15 U
Chloromethane	UG/KG	11 U	10 U	14 U	1,500 U	15 U
cis-1,2-Dichloroethene	UG/KG	4 J	10 U	14 U	1,800	25,000 D
cis-1,3-Dichloropropene	UG/KG	11 U	10 U	14 U	1,500 U	15 U
Cyclohexane	UG/KG	11 U	10 U	14 U	1,500 U	15 U
Dibromochloromethane	UG/KG	11 U	10 U	14 U	1,500 U	15 U
Dichlorodifluoromethane	UG/KG	11 U	10 U	14 U	1,500 U	15 U
Ethylbenzene	UG/KG	11 U	10 U	14 U	1,500 U	15 U
Isopropylbenzene	UG/KG	11 U	10 U	14 U	1,500 U	15 U
Methyl acetate	UG/KG	11 U	10 U	14 U	1,500 U	15 U
Methyl tert-butyl ether	UG/KG	11 U	10 U	14 U	1,500 U	15 U
Methylcyclohexane	UG/KG	11 U	10 U	14 U	1,500 U	15 U
Methylene chloride	UG/KG	11 U	10 U	14 U	1,500 U	15 U
Styrene	UG/KG	11 U	10 U	14 U	1,500 U	15 U
Tetrachloroethene	UG/KG	11 U	10 U	14 U	1,500 U	15 U
Toluene	UG/KG	11 U	7 J	14 U	1,500 U	6 J
trans-1,2-Dichloroethene	UG/KG	11 U	10 U	14 U	1,500 U	1,100 DJ
trans-1,3-Dichloropropene	UG/KG	11 U	10 U	14 U	1,500 U	15 U
Trichloroethene	UG/KG	11 U	10 U	14 U	69,000 DJ	3,100 D
Trichlorofluoromethane	UG/KG	11 U	10 U	14 U	1,500 U	15 U
Vinyl chloride	UG/KG	11 U	10 U	14 U	1,500 U	150
Xylene (total)	UG/KG	11 U	10 U	14 U	1,500 U	15 U

Flags assigned during chemistry validation are shown.

MADE BY: GEK 1/14/02
CHECKED BY: JJL 1/15/02

Detection Limits shown are PQL

TABLE 1
ANALYTICAL SOIL SAMPLE RESULTS
FORMER DOWELL SITE

Location ID		GPB-09	GPB-10	GPB-11	GPB-12	GPB-13
Sample ID		GPB-09	GPB-10	GPB-11	GPB-12	GPB-13
Matrix		Soil	Soil	Soil	Soil	Soil
Depth Interval (ft)		11.5-12.0	7.0-7.5	14.5-16.0	13.5-14.0	13.5-15.0
Date Sampled		07/13/01	07/13/01	07/13/01	07/13/01	07/13/01
Parameter	Units					
Volatiles						
1,1,1-Trichloroethane	UG/KG	1,300 U	11 U	53	7,400 U	12 U
1,1,2,2-Tetrachloroethane	UG/KG	1,300 U	11 U	11 U	7,400 U	12 U
1,1,2-Trichloro-1,2,2-trifluoroethane	UG/KG	1,300 U	11 U	11 U	7,400 U	12 U
1,1,2-Trichloroethane	UG/KG	1,300 U	11 U	11 U	7,400 U	12 U
1,1-Dichloroethane	UG/KG	1,300 U	11 U	40	7,400 U	51
1,1-Dichloroethene	UG/KG	1,300 U	11 U	7 J	7,400 U	12 U
1,2,4-Trichlorobenzene	UG/KG	1,300 U	11 U	11 U	7,400 UJ	12 U
1,2-Dibromo-3-chloropropane	UG/KG	1,300 U	11 U	11 U	7,400 U	12 U
1,2-Dibromoethane	UG/KG	1,300 U	11 U	11 U	7,400 U	12 U
1,2-Dichlorobenzene	UG/KG	1,300 U	11 U	11 U	7,400 U	12 U
1,2-Dichloroethane	UG/KG	1,300 U	11 U	11 U	7,400 U	12 U
1,2-Dichloropropane	UG/KG	1,300 U	11 U	11 U	7,400 U	12 U
1,3-Dichlorobenzene	UG/KG	1,300 U	11 U	11 U	7,400 U	12 U
1,4-Dichlorobenzene	UG/KG	1,300 U	11 U	11 U	7,400 U	12 U
2-Butanone	UG/KG	1,300 U	11 U	11 U	7,400 U	12 U
2-Hexanone	UG/KG	1,300 U	11 U	11 U	7,400 U	12 U
4-Methyl-2-pentanone	UG/KG	1,300 U	11 UJ	11 U	7,400 U	12 UJ
Acetone	UG/KG	1,300 U	14 U	11 U	7,400 UJ	12 U
Benzene	UG/KG	1,300 U	11 U	11 U	7,400 U	12 U
Bromodichloromethane	UG/KG	1,300 U	11 U	11 U	7,400 U	12 U
Bromoform	UG/KG	1,300 U	11 U	11 U	7,400 U	12 U
Bromomethane	UG/KG	1,300 U	11 U	11 U	7,400 U	12 U
Carbon disulfide	UG/KG	1,300 U	11 U	11 U	7,400 U	12 U
Carbon tetrachloride	UG/KG	1,300 U	11 U	11 U	7,400 U	12 U

Flags assigned during chemistry validation are shown.

MADE BY: GEK 1/14/02
CHECKED BY: JTL 1/15/02

Detection Limits shown are PQL

TABLE 1
ANALYTICAL SOIL SAMPLE RESULTS
FORMER DOWELL SITE

Location ID		GPB-09	GPB-10	GPB-11	GPB-12	GPB-13
Sample ID		GPB-09	GPB-10	GPB-11	GPB-12	GPB-13
Matrix		Soil	Soil	Soil	Soil	Soil
Depth Interval (ft)		11.5-12.0	7.0-7.5	14.5-16.0	13.5-14.0	13.5-15.0
Date Sampled		07/13/01	07/13/01	07/13/01	07/13/01	07/13/01
Parameter	**Units**					
Volatiles						
Chlorobenzene	UG/KG	1,300 U	11 U	11 U	7,400 U	12 U
Chloroethane	UG/KG	1,300 U	11 U	11 U	7,400 U	12 U
Chloroform	UG/KG	1,300 U	11 U	11 U	7,400 U	12 U
Chloromethane	UG/KG	1,300 U	11 U	11 U	7,400 U	12 U
cis-1,2-Dichloroethene	UG/KG	1,300 U	21	150	7,400 U	12 U
cis-1,3-Dichloropropene	UG/KG	1,300 U	11 U	11 U	7,400 U	12 U
Cyclohexane	UG/KG	1,300 U	11 U	11 U	7,400 U	12 U
Dibromochloromethane	UG/KG	1,300 U	11 U	11 U	7,400 U	12 U
Dichlorodifluoromethane	UG/KG	1,300 U	11 U	11 U	7,400 U	12 U
Ethylbenzene	UG/KG	1,300 U	11 U	11 U	7,400 U	12 U
Isopropylbenzene	UG/KG	1,300 U	11 U	11 U	7,400 U	12 U
Methyl acetate	UG/KG	1,300 U	11 U	11 U	7,400 U	12 U
Methyl tert-butyl ether	UG/KG	1,300 U	11 U	11 U	7,400 U	12 U
Methylcyclohexane	UG/KG	1,300 U	11 U	11 U	7,400 U	12 U
Methylene chloride	UG/KG	1,300 U	11 U	11 U	7,400 U	12 U
Styrene	UG/KG	1,300 U	11 U	11 U	7,400 U	12 U
Tetrachloroethene	UG/KG	1,300 U	11 U	11 U	7,400 U	12 U
Toluene	UG/KG	1,300 U	11 U	4 J	7,400 U	12 U
trans-1,2-Dichloroethene	UG/KG	1,300 U	11 U	6 J	7,400 U	12 U
trans-1,3-Dichloropropene	UG/KG	1,300 U	11 U	11 U	7,400 U	12 U
Trichloroethene	UG/KG	53,000 D	11 U	690 D	57,000	12 U
Trichlorofluoromethane	UG/KG	1,300 U	11 U	11 U	7,400 U	12 U
Vinyl chloride	UG/KG	1,300 U	11 U	11 U	7,400 U	12 U
Xylene (total)	UG/KG	1,300 U	11 U	11 U	7,400 U	12 U

Flags assigned during chemistry validation are shown.

MADE BY: GEK 1/14/02
CHECKED BY: JJL 1/15/02

Detection Limits shown are PQL

TABLE 1
ANALYTICAL SOIL SAMPLE RESULTS
FORMER DOWELL SITE

Location ID		MW-08	TP-01	TP-01
Sample ID		MW-08	TP-1 #2 (PIPE)	TP-1 (2-2.5)
Matrix		Soil	Soil	Soil
Depth Interval (ft)		4.0-5.0	2.0-2.0	2.0-2.5
Date Sampled		07/10/01	07/11/01	07/11/01
Parameter	**Units**			
Volatiles				
1,1,1-Trichloroethane	UG/KG	12 U	15 U	24 J
1,1,2,2-Tetrachloroethane	UG/KG	12 U	15 U	16 UJ
1,1,2-Trichloro-1,2,2-trifluoroethane	UG/KG	12 U	15 U	16 UJ
1,1,2-Trichloroethane	UG/KG	12 U	15 U	16 UJ
1,1-Dichloroethane	UG/KG	12 U	15 U	16 J
1,1-Dichloroethene	UG/KG	12 U	15 U	16 UJ
1,2,4-Trichlorobenzene	UG/KG	12 U	15 U	16 UJ
1,2-Dibromo-3-chloropropane	UG/KG	12 U	15 U	16 UJ
1,2-Dibromoethane	UG/KG	12 U	15 U	16 UJ
1,2-Dichlorobenzene	UG/KG	12 U	15 U	35 J
1,2-Dichloroethane	UG/KG	12 U	15 U	16 UJ
1,2-Dichloropropane	UG/KG	12 U	15 U	16 UJ
1,3-Dichlorobenzene	UG/KG	12 U	15 U	16 UJ
1,4-Dichlorobenzene	UG/KG	12 U	15 U	16 UJ
2-Butanone	UG/KG	12 U	15 U	16 UJ
2-Hexanone	UG/KG	12 U	15 U	16 UJ
4-Methyl-2-pentanone	UG/KG	12 U	15 U	16 UJ
Acetone	UG/KG	12 U	15 U	16 UJ
Benzene	UG/KG	12 U	15 U	16 UJ
Bromodichloromethane	UG/KG	12 U	15 U	16 UJ
Bromoform	UG/KG	12 U	15 U	16 UJ
Bromomethane	UG/KG	12 U	15 U	16 UJ
Carbon disulfide	UG/KG	12 U	15 U	16 UJ
Carbon tetrachloride	UG/KG	12 U	15 U	16 UJ

Flags assigned during chemistry validation are shown.

MADE BY: GEK 1/14/02
CHECKED BY: 1/15/02

Detection Limits shown are PQL

TABLE 1
ANALYTICAL SOIL SAMPLE RESULTS
FORMER DOWELL SITE

Location ID		MW-08	TP-01	TP-01
Sample ID		MW-08	TP-1 #2 (PIPE)	TP-1 (2-2.5)
Matrix		Soil	Soil	Soil
Depth Interval (ft)		4.0-5.0	2.0-2.0	2.0-2.5
Date Sampled		07/10/01	07/11/01	07/11/01
Parameter	**Units**			
Volatiles				
Chlorobenzene	UG/KG	12 U	15 U	16 UJ
Chloroethane	UG/KG	12 U	15 U	16 UJ
Chloroform	UG/KG	12 U	15 U	16 UJ
Chloromethane	UG/KG	12 U	15 U	16 UJ
cis-1,2-Dichloroethene	UG/KG	12 U	72	16 UJ
cis-1,3-Dichloropropene	UG/KG	12 U	15 U	16 UJ
Cyclohexane	UG/KG	12 U	15 U	16 UJ
Dibromochloromethane	UG/KG	12 U	15 U	16 UJ
Dichlorodifluoromethane	UG/KG	12 U	15 U	16 UJ
Ethylbenzene	UG/KG	12 U	15 U	5 J
Isopropylbenzene	UG/KG	12 U	15 U	16 UJ
Methyl acetate	UG/KG	12 U	15 U	16 UJ
Methyl tert-butyl ether	UG/KG	12 U	15 U	16 UJ
Methylcyclohexane	UG/KG	12 U	15 U	8 J
Methylene chloride	UG/KG	12 U	15 U	17 J
Styrene	UG/KG	12 U	15 U	16 UJ
Tetrachloroethene	UG/KG	12 U	7 J	21 J
Toluene	UG/KG	12 U	15 U	11 J
trans-1,2-Dichloroethene	UG/KG	12 U	15 U	16 UJ
trans-1,3-Dichloropropene	UG/KG	12 U	15 U	16 UJ
Trichloroethene	UG/KG	12 U	41	20 J
Trichlorofluoromethane	UG/KG	12 U	15 U	16 UJ
Vinyl chloride	UG/KG	12 U	15 U	11 J
Xylene (total)	UG/KG	12 U	15 U	57 J

Flags assigned during chemistry validation are shown.

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CHECKED BY: JRL 1/15/02

Detection Limits shown are PQL

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[MATRIX] = 'SO' AND [PRCCODE] <> 'V-TIC'

TABLE 1
ANALYTICAL GROUNDWATER SAMPLE RESULTS
FORMER DOWELL SITE

Location ID		MW-01	MW-02	MW-03	MW-04	MW-05
Sample ID		MW-01	MW-02	MW-03	MW-04	MW-05
Matrix		Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)		-	-	-	-	-
Date Sampled		07/17/01	07/17/01	07/17/01	07/17/01	07/17/01
Parameter	Units					
Volatiles						
1,1,1-Trichloroethane	UG/L	10 U	10 U	4,500 J	R	10 U
1,1,2,2-Tetrachloroethane	UG/L	10 U	10 U	10 U	10 U	10 U
1,1,2-Trichloro-1,2,2-trifluoroethane	UG/L	10 U	10 U	10 U	10 U	10 U
1,1,2-Trichloroethane	UG/L	10 U	10 U	10 U	10 U	10 U
1,1-Dichloroethane	UG/L	10 U	10 U	50,000 DJ	R	10 U
1,1-Dichloroethene	UG/L	10 U	10 U	14	10 U	10 U
1,2,4-Trichlorobenzene	UG/L	10 U	10 U	10 U	10 U	10 U
1,2-Dibromo-3-chloropropane	UG/L	10 U	10 U	10 U	10 U	10 U
1,2-Dibromoethane	UG/L	10 U	10 U	10 U	10 U	10 U
1,2-Dichlorobenzene	UG/L	10 U	10 U	10 U	10 U	10 U
1,2-Dichloroethane	UG/L	10 U	10 U	11	10 U	10 U
1,2-Dichloropropane	UG/L	10 U	10 U	10 U	10 U	10 U
1,3-Dichlorobenzene	UG/L	10 U	10 U	10 U	10 U	10 U
1,4-Dichlorobenzene	UG/L	10 U	10 U	10 U	10 U	10 U
2-Butanone	UG/L	10 U	10 U	7 J	10 U	10 U
2-Hexanone	UG/L	10 U	10 U	10 U	10 U	10 U
4-Methyl-2-pentanone	UG/L	10 U	10 UJ	10 UJ	10 UJ	10 U
Acetone	UG/L	10 U	10 U	6 J	10 U	5 J
Benzene	UG/L	10 U	10 U	10 U	10 U	10 U
Bromodichloromethane	UG/L	10 U	10 U	10 U	10 U	10 U
Bromoform	UG/L	10 U	10 U	10 U	10 U	10 U
Bromomethane	UG/L	10 U	10 U	10 U	10 U	10 U
Carbon disulfide	UG/L	10 U	10 U	10 U	10 U	10 U
Carbon tetrachloride	UG/L	10 U	10 U	10 U	10 U	10 U

Flags assigned during chemistry validation are shown.

MADE BY:__GEK_1/14/02__
CHECKED BY: __JJL_1/15/02__

Detection Limits shown are PQL

TABLE 1
ANALYTICAL GROUNDWATER SAMPLE RESULTS
FORMER DOWELL SITE

Location ID		MW-01	MW-02	MW-03	MW-04	MW-05
Sample ID		MW-01	MW-02	MW-03	MW-04	MW-05
Matrix		Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)		-	-	-	-	-
Date Sampled		07/17/01	07/17/01	07/17/01	07/17/01	07/17/01
Parameter	**Units**					
Volatiles						
Chlorobenzene	UG/L	10 U	10 U	10 U	10 U	10 U
Chloroethane	UG/L	10 U	10 U	130	10 U	10 U
Chloroform	UG/L	10 U	10 U	10 U	10 U	10 U
Chloromethane	UG/L	10 U	10 U	10 U	10 U	10 U
cis-1,2-Dichloroethene	UG/L	10 U	10 U	9 J	10 U	10 U
cis-1,3-Dichloropropene	UG/L	10 U	10 U	10 U	10 U	10 U
Cyclohexane	UG/L	10 U	10 U	10 U	10 U	10 U
Dibromochloromethane	UG/L	10 U	10 U	10 U	10 U	10 U
Dichlorodifluoromethane	UG/L	10 U	10 U	10 U	10 U	10 U
Ethylbenzene	UG/L	10 U	10 U	10 U	10 U	10 U
Isopropylbenzene	UG/L	10 U	10 U	10 U	10 U	10 U
Methyl acetate	UG/L	10 U	10 U	6 J	10 U	10 U
Methyl tert-butyl ether	UG/L	10 U	10 U	10 U	10 U	10 U
Methylcyclohexane	UG/L	10 U	10 U	10 U	10 U	10 U
Methylene chloride	UG/L	10 U	10 U	10 U	10 U	10 U
Styrene	UG/L	10 U	10 U	10 U	10 U	10 U
Tetrachloroethene	UG/L	10 U	10 U	10 U	10 U	10 U
Toluene	UG/L	10 U	10 U	10 U	10 U	10 U
trans-1,2-Dichloroethene	UG/L	10 U	10 U	10 U	10 U	10 U
trans-1,3-Dichloropropene	UG/L	10 U	10 U	10 U	10 U	10 U
Trichloroethene	UG/L	10 U	10 U	10 U	10 U	10 U
Trichlorofluoromethane	UG/L	10 U	10 U	10 U	10 U	10 U
Vinyl chloride	UG/L	10 U	10 U	9 J	10 U	10 U
Xylene (total)	UG/L	10 U	10 U	10 U	10 U	10 U

Flags assigned during chemistry validation are shown.

MADE BY:__GEK_1/14/02__
CHECKED BY: __JJL_1/15/02__

Detection Limits shown are PQL

TABLE 1
ANALYTICAL GROUNDWATER SAMPLE RESULTS
FORMER DOWELL SITE

Location ID		MW-01	MW-02	MW-03	MW-04	MW-05
Sample ID		MW-01	MW-02	MW-03	MW-04	MW-05
Matrix		Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)		-	-	-	-	-
Date Sampled		07/17/01	07/17/01	07/17/01	07/17/01	07/17/01
Parameter	**Units**					
Semivolatiles						
1,1'-Biphenyl	UG/L	10 U	NA	10 U	NA	12 U
2,2'-oxybis(1-Chloropropane)	UG/L	10 U	NA	10 U	NA	12 U
2,4,5-Trichlorophenol	UG/L	25 U	NA	25 U	NA	29 U
2,4,6-Trichlorophenol	UG/L	10 U	NA	10 U	NA	12 U
2,4-Dichlorophenol	UG/L	10 U	NA	10 U	NA	12 U
2,4-Dimethylphenol	UG/L	10 U	NA	10 U	NA	12 U
2,4-Dinitrophenol	UG/L	25 UJ	NA	25 UJ	NA	29 UJ
2,4-Dinitrotoluene	UG/L	10 U	NA	10 U	NA	12 U
2,6-Dinitrotoluene	UG/L	10 U	NA	10 U	NA	12 U
2-Chloronaphthalene	UG/L	10 U	NA	10 U	NA	12 U
2-Chlorophenol	UG/L	10 U	NA	10 U	NA	12 U
2-Methylnaphthalene	UG/L	10 U	NA	10 U	NA	12 U
2-Methylphenol	UG/L	10 U	NA	10 U	NA	12 U
2-Nitroaniline	UG/L	25 U	NA	25 U	NA	29 U
2-Nitrophenol	UG/L	10 U	NA	10 U	NA	12 U
3,3'-Dichlorobenzidine	UG/L	10 U	NA	10 U	NA	12 U
3-Nitroaniline	UG/L	25 U	NA	25 U	NA	29 U
4,6-Dinitro-2-methylphenol	UG/L	25 U	NA	25 U	NA	29 U
4-Bromophenylphenylether	UG/L	10 U	NA	10 U	NA	12 U
4-Chloro-3-methylphenol	UG/L	10 U	NA	10 U	NA	12 U
4-Chloroaniline	UG/L	10 U	NA	10 U	NA	12 U
4-Chlorophenylphenylether	UG/L	10 U	NA	10 U	NA	12 U
4-Methylphenol	UG/L	10 U	NA	10 U	NA	12 U
4-Nitroaniline	UG/L	25 U	NA	25 U	NA	29 U

Flags assigned during chemistry validation are shown.

MADE BY:__GEK_1/14/02__
CHECKED BY: __JJL_1/15/02__

Detection Limits shown are PQL

TABLE 1
ANALYTICAL GROUNDWATER SAMPLE RESULTS
FORMER DOWELL SITE

Location ID		MW-01	MW-02	MW-03	MW-04	MW-05
Sample ID		MW-01	MW-02	MW-03	MW-04	MW-05
Matrix		Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)		-	-	-	-	-
Date Sampled		07/17/01	07/17/01	07/17/01	07/17/01	07/17/01
Parameter	**Units**					
Semivolatiles						
4-Nitrophenol	UG/L	25 UJ	NA	25 UJ	NA	29 UJ
Acenaphthene	UG/L	10 U	NA	10 U	NA	12 U
Acenaphthylene	UG/L	10 U	NA	10 U	NA	12 U
Acetophenone	UG/L	10 U	NA	10 U	NA	12 U
Anthracene	UG/L	10 U	NA	10 U	NA	12 U
Atrazine	UG/L	10 U	NA	10 U	NA	12 U
Benzaldehyde	UG/L	10 U	NA	10 U	NA	12 U
Benzo(a)anthracene	UG/L	10 U	NA	10 U	NA	12 U
Benzo(a)pyrene	UG/L	10 U	NA	10 U	NA	12 U
Benzo(b)fluoranthene	UG/L	10 U	NA	10 U	NA	12 U
Benzo(g,h,i)perylene	UG/L	10 U	NA	10 U	NA	12 U
Benzo(k)fluoranthene	UG/L	10 U	NA	10 U	NA	12 U
bis(2-Chloroethoxy)methane	UG/L	10 U	NA	10 U	NA	12 U
bis(2-Chloroethyl)ether	UG/L	10 U	NA	10 U	NA	12 U
bis(2-Ethylhexyl)phthalate	UG/L	10 U	NA	10 U	NA	12 U
Butylbenzylphthalate	UG/L	10 U	NA	10 U	NA	12 U
Caprolactam	UG/L	10 U	NA	10 U	NA	12 U
Carbazole	UG/L	10 U	NA	10 U	NA	12 U
Chrysene	UG/L	10 U	NA	10 U	NA	12 U
Dibenz(a,h)anthracene	UG/L	10 U	NA	10 U	NA	12 U
Dibenzofuran	UG/L	10 U	NA	10 U	NA	12 U
Diethylphthalate	UG/L	10 U	NA	10 U	NA	12 U
Dimethylphthalate	UG/L	10 U	NA	10 U	NA	12 U
Di-n-butylphthalate	UG/L	10 U	NA	10 U	NA	12 U

Flags assigned during chemistry validation are shown.

MADE BY:__GEK_1/14/02__
CHECKED BY: __JJL_1/15/02__

Detection Limits shown are PQL

TABLE 1
ANALYTICAL GROUNDWATER SAMPLE RESULTS
FORMER DOWELL SITE

Location ID		MW-01	MW-02	MW-03	MW-04	MW-05
Sample ID		MW-01	MW-02	MW-03	MW-04	MW-05
Matrix		Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)		-	-	-	-	-
Date Sampled		07/17/01	07/17/01	07/17/01	07/17/01	07/17/01
Parameter	**Units**					
Semivolatiles						
Di-n-octylphthalate	UG/L	10 U	NA	10 U	NA	12 U
Fluoranthene	UG/L	10 U	NA	10 U	NA	12 U
Fluorene	UG/L	10 U	NA	10 U	NA	12 U
Hexachlorobenzene	UG/L	10 U	NA	10 U	NA	12 U
Hexachlorobutadiene	UG/L	10 U	NA	10 U	NA	12 U
Hexachlorocyclopentadiene	UG/L	10 U	NA	10 U	NA	12 U
Hexachloroethane	UG/L	10 U	NA	10 U	NA	12 U
Indeno(1,2,3-cd)pyrene	UG/L	10 U	NA	10 U	NA	12 U
Isophorone	UG/L	10 U	NA	10 U	NA	12 U
Naphthalene	UG/L	10 U	NA	10 U	NA	12 U
Nitrobenzene	UG/L	10 U	NA	10 U	NA	12 U
N-Nitroso-di-n-propylamine	UG/L	10 UJ	NA	10 UJ	NA	12 UJ
N-Nitrosodiphenylamine	UG/L	10 U	NA	10 U	NA	12 U
Pentachlorophenol	UG/L	25 U	NA	25 U	NA	29 U
Phenanthrene	UG/L	10 U	NA	10 U	NA	12 U
Phenol	UG/L	10 U	NA	10 U	NA	12 U
Pyrene	UG/L	10 U	NA	10 U	NA	12 U
Pesticides						
4,4'-DDD	UG/L	0.10 U	NA	0.10 U	NA	0.11 U
4,4'-DDE	UG/L	0.10 U	NA	0.10 U	NA	0.11 U
4,4'-DDT	UG/L	0.10 U	NA	0.10 U	NA	0.11 U
Aldrin	UG/L	0.050 U	NA	0.050 U	NA	0.053 U
alpha-BHC	UG/L	0.050 U	NA	0.050 U	NA	0.053 U
alpha-Chlordane	UG/L	0.050 U	NA	0.050 U	NA	0.053 U

Flags assigned during chemistry validation are shown.

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Detection Limits shown are PQL

TABLE 1
ANALYTICAL GROUNDWATER SAMPLE RESULTS
FORMER DOWELL SITE

Location ID		MW-01	MW-02	MW-03	MW-04	MW-05
Sample ID		MW-01	MW-02	MW-03	MW-04	MW-05
Matrix		Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)		-	-	-	-	-
Date Sampled		07/17/01	07/17/01	07/17/01	07/17/01	07/17/01
Parameter	**Units**					
Pesticides						
beta-BHC	UG/L	0.050 U	NA	0.050 U	NA	0.053 U
delta-BHC	UG/L	0.050 U	NA	0.050 U	NA	0.053 U
Dieldrin	UG/L	0.10 U	NA	0.10 U	NA	0.11 U
Endosulfan I	UG/L	0.050 U	NA	0.050 U	NA	0.053 U
Endosulfan II	UG/L	0.10 U	NA	0.10 U	NA	0.11 U
Endosulfan sulfate	UG/L	0.10 U	NA	0.10 U	NA	0.11 U
Endrin	UG/L	0.10 U	NA	0.10 U	NA	0.11 U
Endrin aldehyde	UG/L	0.10 U	NA	0.10 U	NA	0.11 U
Endrin ketone	UG/L	0.10 U	NA	0.10 U	NA	0.11 U
gamma-Chlordane	UG/L	0.050 U	NA	0.050 U	NA	0.053 U
Heptachlor	UG/L	0.050 U	NA	0.050 U	NA	0.053 U
Heptachlor epoxide	UG/L	0.050 U	NA	0.050 U	NA	0.053 U
Lindane (gamma-BHC)	UG/L	0.050 U	NA	0.050 U	NA	0.053 U
Methoxychlor	UG/L	0.50 U	NA	0.50 U	NA	0.53 U
Toxaphene	UG/L	5.0 U	NA	5.0 U	NA	5.3 U
PCB's						
Aroclor 1016	UG/L	1.0 U	NA	1.0 U	NA	1.1 U
Aroclor 1221	UG/L	2.0 U	NA	2.0 U	NA	2.1 U
Aroclor 1232	UG/L	1.0 U	NA	1.0 U	NA	1.1 U
Aroclor 1242	UG/L	1.0 U	NA	1.0 U	NA	1.1 U
Aroclor 1248	UG/L	1.0 U	NA	1.0 U	NA	1.1 U
Aroclor 1254	UG/L	1.0 U	NA	1.0 U	NA	1.1 U
Aroclor 1260	UG/L	1.0 U	NA	1.0 U	NA	1.1 U

Flags assigned during chemistry validation are shown.

MADE BY:__GEK_1/14/02__
CHECKED BY: __JJL_1/15/02__

Detection Limits shown are PQL

TABLE 1
ANALYTICAL GROUNDWATER SAMPLE RESULTS
FORMER DOWELL SITE

Location ID		MW-01	MW-02	MW-03	MW-04	MW-05
Sample ID		MW-01	MW-02	MW-03	MW-04	MW-05
Matrix		Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)		-	-	-	-	-
Date Sampled		07/17/01	07/17/01	07/17/01	07/17/01	07/17/01
Parameter	**Units**					
Metals						
Aluminum	UG/L	365	NA	706	NA	12,200
Antimony	UG/L	29.0 U	NA	29.0 U	NA	29.0 U
Arsenic	UG/L	7.3 B	NA	7.9 B	NA	7.5 B
Barium	UG/L	151 B	NA	658	NA	160 B
Beryllium	UG/L	1.0 U	NA	1.0 U	NA	1.0 U
Cadmium	UG/L	5.0 U	NA	15.5	NA	5.0 U
Calcium	UG/L	R	NA	R	NA	R
Chromium	UG/L	10.0 U	NA	10.0 U	NA	11.4
Cobalt	UG/L	7.0 U	NA	7.0 U	NA	7.0 U
Copper	UG/L	7.1 B	NA	25.3	NA	42.5
Iron	UG/L	1,550	NA	4,260	NA	17,900
Lead	UG/L	R	NA	R	NA	134
Magnesium	UG/L	81,100	NA	164,000	NA	R
Manganese	UG/L	44.9	NA	165	NA	1,900
Mercury	UG/L	0.32	NA	0.20 U	NA	0.38
Nickel	UG/L	11.2 B	NA	497	NA	20.0 B
Potassium	UG/L	1,700 B	NA	4,220 B	NA	5,770
Selenium	UG/L	2.0 U	NA	2.0 U	NA	2.0 U
Silver	UG/L	6.0 U	NA	6.0 U	NA	6.0 U
Sodium	UG/L	R	NA	R	NA	R
Thallium	UG/L	2.1 B	NA	2.0 U	NA	2.0 U
Vanadium	UG/L	8.0 U	NA	8.0 U	NA	19.2 B
Zinc	UG/L	R	NA	R	NA	R

Flags assigned during chemistry validation are shown.

MADE BY:__GEK_1/14/02__
CHECKED BY: __JJL_1/15/02__

Detection Limits shown are PQL

TABLE 1
ANALYTICAL GROUNDWATER SAMPLE RESULTS
FORMER DOWELL SITE

Location ID		MW-01	MW-02	MW-03	MW-04	MW-05
Sample ID		MW-01	MW-02	MW-03	MW-04	MW-05
Matrix		Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)		-	-	-	-	-
Date Sampled		07/17/01	07/17/01	07/17/01	07/17/01	07/17/01
Parameter	Units					
Miscellaneous						
Cyanide	MG/L	0.0030 U	NA	0.0030 U	NA	0.0037 B
Total Petroleum Hydrocarbons	MG/L	1.2 U	NA	2.4	NA	0.69 U

Flags assigned during chemistry validation are shown.

MADE BY:__GEK_1/14/02__
CHECKED BY: __JJL_1/15/02__

Detection Limits shown are PQL

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(MATRIX) = 'WG'

TABLE 1
ANALYTICAL GROUNDWATER SAMPLE RESULTS
FORMER DOWELL SITE

Location ID		MW-06	MW-07	MW-08	PZ-01	PZ-02
Sample ID		MW-06	MW-07	MW-08	PZ-01	PZ-02
Matrix		Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)		-	-	-	-	-
Date Sampled		07/17/01	07/17/01	07/17/01	07/17/01	07/17/01
Parameter	Units					
Volatiles						
1,1,1-Trichloroethane	UG/L	190	10 U	10 U	10 U	12
1,1,2,2-Tetrachloroethane	UG/L	10 U	10 U	10 U	10 U	10 U
1,1,2-Trichloro-1,2,2-trifluoroethane	UG/L	10 U	10 U	10 U	10 U	10 U
1,1,2-Trichloroethane	UG/L	10 U	10 U	10 U	10 U	4 J
1,1-Dichloroethane	UG/L	560 J	10 U	10 U	10 U	9 J
1,1-Dichloroethene	UG/L	6 J	10 U	10 U	10 U	32
1,2,4-Trichlorobenzene	UG/L	10 U	10 U	10 U	10 UJ	10 UJ
1,2-Dibromo-3-chloropropane	UG/L	10 U	10 U	10 U	10 U	10 U
1,2-Dibromoethane	UG/L	10 U	10 U	10 U	10 U	10 U
1,2-Dichlorobenzene	UG/L	10 U	10 U	10 U	10 U	10 U
1,2-Dichloroethane	UG/L	10 U	10 U	10 U	10 U	10 U
1,2-Dichloropropane	UG/L	10 U	10 U	10 U	10 U	4 J
1,3-Dichlorobenzene	UG/L	10 U	10 U	10 U	10 U	10 U
1,4-Dichlorobenzene	UG/L	10 U	10 U	10 U	10 U	10 U
2-Butanone	UG/L	10 U	10 U	10 U	10 U	10 U
2-Hexanone	UG/L	10 U	10 U	10 U	10 U	10 U
4-Methyl-2-pentanone	UG/L	10 UJ	10 UJ	10 UJ	10 U	10 U
Acetone	UG/L	7 J	6 J	10 U	63 J	30 J
Benzene	UG/L	10 U	10 U	10 U	10 U	10 U
Bromodichloromethane	UG/L	10 U	10 U	10 U	10 U	10 U
Bromoform	UG/L	10 U	10 U	10 U	10 U	10 U
Bromomethane	UG/L	10 U	10 U	10 U	10 U	10 U
Carbon disulfide	UG/L	10 U	10 U	10 U	10 U	10 U
Carbon tetrachloride	UG/L	10 U	10 U	10 U	10 U	10 U

Flags assigned during chemistry validation are shown.

MADE BY:__GEK_1/14/02__
CHECKED BY: __JJL_1/15/02__

Detection Limits shown are PQL

TABLE 1
ANALYTICAL GROUNDWATER SAMPLE RESULTS
FORMER DOWELL SITE

Location ID		MW-06	MW-07	MW-08	PZ-01	PZ-02
Sample ID		MW-06	MW-07	MW-08	PZ-01	PZ-02
Matrix		Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)		-	-	-	-	-
Date Sampled		07/17/01	07/17/01	07/17/01	07/17/01	07/17/01
Parameter	**Units**					
Volatiles						
Chlorobenzene	UG/L	10 U	10 U	10 U	10 U	10 U
Chloroethane	UG/L	10 U	10 U	10 U	10 U	10 U
Chloroform	UG/L	10 U	10 U	10 U	10 U	8 J
Chloromethane	UG/L	10 U	10 U	10 U	10 U	10 U
cis-1,2-Dichloroethene	UG/L	10 U	10 U	10 U	10 U	9,500 DJ
cis-1,3-Dichloropropene	UG/L	10 U	10 U	10 U	10 U	10 U
Cyclohexane	UG/L	10 U	10 U	10 U	10 U	10 U
Dibromochloromethane	UG/L	10 U	10 U	10 U	10 U	10 U
Dichlorodifluoromethane	UG/L	10 U	10 U	10 U	10 U	10 U
Ethylbenzene	UG/L	10 U	10 U	10 U	10 U	10 U
Isopropylbenzene	UG/L	10 U	10 U	10 U	10 U	10 U
Methyl acetate	UG/L	10 U	10 U	10 U	10 U	10 U
Methyl tert-butyl ether	UG/L	10 U	10 U	10 U	10 U	10 U
Methylcyclohexane	UG/L	10 U	10 U	10 U	10 U	10 U
Methylene chloride	UG/L	10 U	10 U	10 U	10 U	10 U
Styrene	UG/L	10 U	10 U	10 U	10 U	10 U
Tetrachloroethene	UG/L	10 U	10 U	10 U	10 U	10 U
Toluene	UG/L	10 U	10 U	10 U	10 U	10 U
trans-1,2-Dichloroethene	UG/L	10 U	10 U	10 U	10 U	380 J
trans-1,3-Dichloropropene	UG/L	10 U	10 U	10 U	10 U	10 U
Trichloroethene	UG/L	10 U	10 U	10 U	10 U	60,000 DJ
Trichlorofluoromethane	UG/L	10 U	10 U	10 U	10 U	10 U
Vinyl chloride	UG/L	10 U	10 U	8 J	10 U	1,000 J
Xylene (total)	UG/L	10 U	10 U	10 U	10 U	10 U

Flags assigned during chemistry validation are shown.

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Detection Limits shown are PQL

TABLE 1
ANALYTICAL GROUNDWATER SAMPLE RESULTS
FORMER DOWELL SITE

Location ID		MW-06	MW-07	MW-08	PZ-01	PZ-02
Sample ID		MW-06	MW-07	MW-08	PZ-01	PZ-02
Matrix		Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)		-	-	-	-	-
Date Sampled		07/17/01	07/17/01	07/17/01	07/17/01	07/17/01
Parameter	Units					
Semivolatiles						
1,1'-Biphenyl	UG/L	NA	NA	NA	NA	NA
2,2'-oxybis(1-Chloropropane)	UG/L	NA	NA	NA	NA	NA
2,4,5-Trichlorophenol	UG/L	NA	NA	NA	NA	NA
2,4,6-Trichlorophenol	UG/L	NA	NA	NA	NA	NA
2,4-Dichlorophenol	UG/L	NA	NA	NA	NA	NA
2,4-Dimethylphenol	UG/L	NA	NA	NA	NA	NA
2,4-Dinitrophenol	UG/L	NA	NA	NA	NA	NA
2,4-Dinitrotoluene	UG/L	NA	NA	NA	NA	NA
2,6-Dinitrotoluene	UG/L	NA	NA	NA	NA	NA
2-Chloronaphthalene	UG/L	NA	NA	NA	NA	NA
2-Chlorophenol	UG/L	NA	NA	NA	NA	NA
2-Methylnaphthalene	UG/L	NA	NA	NA	NA	NA
2-Methylphenol	UG/L	NA	NA	NA	NA	NA
2-Nitroaniline	UG/L	NA	NA	NA	NA	NA
2-Nitrophenol	UG/L	NA	NA	NA	NA	NA
3,3'-Dichlorobenzidine	UG/L	NA	NA	NA	NA	NA
3-Nitroaniline	UG/L	NA	NA	NA	NA	NA
4,6-Dinitro-2-methylphenol	UG/L	NA	NA	NA	NA	NA
4-Bromophenylphenylether	UG/L	NA	NA	NA	NA	NA
4-Chloro-3-methylphenol	UG/L	NA	NA	NA	NA	NA
4-Chloroaniline	UG/L	NA	NA	NA	NA	NA
4-Chlorophenylphenylether	UG/L	NA	NA	NA	NA	NA
4-Methylphenol	UG/L	NA	NA	NA	NA	NA
4-Nitroaniline	UG/L	NA	NA	NA	NA	NA

Flags assigned during chemistry validation are shown.

MADE BY:__GEK_1/14/02__
CHECKED BY: __JJL_1/15/02__

Detection Limits shown are PQL

TABLE 1
ANALYTICAL GROUNDWATER SAMPLE RESULTS
FORMER DOWELL SITE

Location ID		MW-06	MW-07	MW-08	PZ-01	PZ-02
Sample ID		MW-06	MW-07	MW-08	PZ-01	PZ-02
Matrix		Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)		-	-	-	-	-
Date Sampled		07/17/01	07/17/01	07/17/01	07/17/01	07/17/01
Parameter	Units					
Semivolatiles						
4-Nitrophenol	UG/L	NA	NA	NA	NA	NA
Acenaphthene	UG/L	NA	NA	NA	NA	NA
Acenaphthylene	UG/L	NA	NA	NA	NA	NA
Acetophenone	UG/L	NA	NA	NA	NA	NA
Anthracene	UG/L	NA	NA	NA	NA	NA
Atrazine	UG/L	NA	NA	NA	NA	NA
Benzaldehyde	UG/L	NA	NA	NA	NA	NA
Benzo(a)anthracene	UG/L	NA	NA	NA	NA	NA
Benzo(a)pyrene	UG/L	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	UG/L	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	UG/L	NA	NA	NA	NA	NA
Benzo(k)fluoranthene	UG/L	NA	NA	NA	NA	NA
bis(2-Chloroethoxy)methane	UG/L	NA	NA	NA	NA	NA
bis(2-Chloroethyl)ether	UG/L	NA	NA	NA	NA	NA
bis(2-Ethylhexyl)phthalate	UG/L	NA	NA	NA	NA	NA
Butylbenzylphthalate	UG/L	NA	NA	NA	NA	NA
Caprolactam	UG/L	NA	NA	NA	NA	NA
Carbazole	UG/L	NA	NA	NA	NA	NA
Chrysene	UG/L	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	UG/L	NA	NA	NA	NA	NA
Dibenzofuran	UG/L	NA	NA	NA	NA	NA
Diethylphthalate	UG/L	NA	NA	NA	NA	NA
Dimethylphthalate	UG/L	NA	NA	NA	NA	NA
Di-n-butylphthalate	UG/L	NA	NA	NA	NA	NA

Flags assigned during chemistry validation are shown.

MADE BY:__GEK_1/14/02__
CHECKED BY: __JJL_1/15/02__

Detection Limits shown are PQL

TABLE 1
ANALYTICAL GROUNDWATER SAMPLE RESULTS
FORMER DOWELL SITE

Location ID		MW-06	MW-07	MW-08	PZ-01	PZ-02
Sample ID		MW-06	MW-07	MW-08	PZ-01	PZ-02
Matrix		Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)		-	-	-	-	-
Date Sampled		07/17/01	07/17/01	07/17/01	07/17/01	07/17/01
Parameter	**Units**					
Semivolatiles						
Di-n-octylphthalate	UG/L	NA	NA	NA	NA	NA
Fluoranthene	UG/L	NA	NA	NA	NA	NA
Fluorene	UG/L	NA	NA	NA	NA	NA
Hexachlorobenzene	UG/L	NA	NA	NA	NA	NA
Hexachlorobutadiene	UG/L	NA	NA	NA	NA	NA
Hexachlorocyclopentadiene	UG/L	NA	NA	NA	NA	NA
Hexachloroethane	UG/L	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	UG/L	NA	NA	NA	NA	NA
Isophorone	UG/L	NA	NA	NA	NA	NA
Naphthalene	UG/L	NA	NA	NA	NA	NA
Nitrobenzene	UG/L	NA	NA	NA	NA	NA
N-Nitroso-di-n-propylamine	UG/L	NA	NA	NA	NA	NA
N-Nitrosodiphenylamine	UG/L	NA	NA	NA	NA	NA
Pentachlorophenol	UG/L	NA	NA	NA	NA	NA
Phenanthrene	UG/L	NA	NA	NA	NA	NA
Phenol	UG/L	NA	NA	NA	NA	NA
Pyrene	UG/L	NA	NA	NA	NA	NA
Pesticides						
4,4'-DDD	UG/L	NA	NA	NA	NA	NA
4,4'-DDE	UG/L	NA	NA	NA	NA	NA
4,4'-DDT	UG/L	NA	NA	NA	NA	NA
Aldrin	UG/L	NA	NA	NA	NA	NA
alpha-BHC	UG/L	NA	NA	NA	NA	NA
alpha-Chlordane	UG/L	NA	NA	NA	NA	NA

Flags assigned during chemistry validation are shown.

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CHECKED BY: __JJL_1/15/02__

Detection Limits shown are PQL

TABLE 1
ANALYTICAL GROUNDWATER SAMPLE RESULTS
FORMER DOWELL SITE

Location ID		MW-06	MW-07	MW-08	PZ-01	PZ-02
Sample ID		MW-06	MW-07	MW-08	PZ-01	PZ-02
Matrix		Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)		-	-	-	-	-
Date Sampled		07/17/01	07/17/01	07/17/01	07/17/01	07/17/01
Parameter	**Units**					
Pesticides						
beta-BHC	UG/L	NA	NA	NA	NA	NA
delta-BHC	UG/L	NA	NA	NA	NA	NA
Dieldrin	UG/L	NA	NA	NA	NA	NA
Endosulfan I	UG/L	NA	NA	NA	NA	NA
Endosulfan II	UG/L	NA	NA	NA	NA	NA
Endosulfan sulfate	UG/L	NA	NA	NA	NA	NA
Endrin	UG/L	NA	NA	NA	NA	NA
Endrin aldehyde	UG/L	NA	NA	NA	NA	NA
Endrin ketone	UG/L	NA	NA	NA	NA	NA
gamma-Chlordane	UG/L	NA	NA	NA	NA	NA
Heptachlor	UG/L	NA	NA	NA	NA	NA
Heptachlor epoxide	UG/L	NA	NA	NA	NA	NA
Lindane (gamma-BHC)	UG/L	NA	NA	NA	NA	NA
Methoxychlor	UG/L	NA	NA	NA	NA	NA
Toxaphene	UG/L	NA	NA	NA	NA	NA
PCB's						
Aroclor 1016	UG/L	NA	NA	NA	NA	NA
Aroclor 1221	UG/L	NA	NA	NA	NA	NA
Aroclor 1232	UG/L	NA	NA	NA	NA	NA
Aroclor 1242	UG/L	NA	NA	NA	NA	NA
Aroclor 1248	UG/L	NA	NA	NA	NA	NA
Aroclor 1254	UG/L	NA	NA	NA	NA	NA
Aroclor 1260	UG/L	NA	NA	NA	NA	NA

Flags assigned during chemistry validation are shown.

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CHECKED BY: __JJL_1/15/02__

Detection Limits shown are PQL

TABLE 1
ANALYTICAL GROUNDWATER SAMPLE RESULTS
FORMER DOWELL SITE

Location ID		MW-06	MW-07	MW-08	PZ-01	PZ-02
Sample ID		MW-06	MW-07	MW-08	PZ-01	PZ-02
Matrix		Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)		-	-	-	-	-
Date Sampled		07/17/01	07/17/01	07/17/01	07/17/01	07/17/01
Parameter	**Units**					
Metals						
Aluminum	UG/L	NA	NA	NA	NA	NA
Antimony	UG/L	NA	NA	NA	NA	NA
Arsenic	UG/L	NA	NA	NA	NA	NA
Barium	UG/L	NA	NA	NA	NA	NA
Beryllium	UG/L	NA	NA	NA	NA	NA
Cadmium	UG/L	NA	NA	NA	NA	NA
Calcium	UG/L	NA	NA	NA	NA	NA
Chromium	UG/L	NA	NA	NA	NA	NA
Cobalt	UG/L	NA	NA	NA	NA	NA
Copper	UG/L	NA	NA	NA	NA	NA
Iron	UG/L	NA	NA	NA	NA	NA
Lead	UG/L	NA	NA	NA	NA	NA
Magnesium	UG/L	NA	NA	NA	NA	NA
Manganese	UG/L	NA	NA	NA	NA	NA
Mercury	UG/L	NA	NA	NA	NA	NA
Nickel	UG/L	NA	NA	NA	NA	NA
Potassium	UG/L	NA	NA	NA	NA	NA
Selenium	UG/L	NA	NA	NA	NA	NA
Silver	UG/L	NA	NA	NA	NA	NA
Sodium	UG/L	NA	NA	NA	NA	NA
Thallium	UG/L	NA	NA	NA	NA	NA
Vanadium	UG/L	NA	NA	NA	NA	NA
Zinc	UG/L	NA	NA	NA	NA	NA

Flags assigned during chemistry validation are shown.

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CHECKED BY: __JJL_1/15/02__

Detection Limits shown are PQL

TABLE 1
ANALYTICAL GROUNDWATER SAMPLE RESULTS
FORMER DOWELL SITE

Location ID		MW-06	MW-07	MW-08	PZ-01	PZ-02
Sample ID		MW-06	MW-07	MW-08	PZ-01	PZ-02
Matrix		Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)		-	-	-	-	-
Date Sampled		07/17/01	07/17/01	07/17/01	07/17/01	07/17/01
Parameter	Units					
Miscellaneous						
Cyanide	MG/L	NA	NA	NA	NA	NA
Total Petroleum Hydrocarbons	MG/L	NA	NA	NA	NA	NA

Flags assigned during chemistry validation are shown.

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CHECKED BY: __JJL_1/15/02__

Detection Limits shown are PQL

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TABLE 1
ANALYTICAL FIELD QC SAMPLE RESULTS
FORMER DOWELL SITE

Location ID		FIELDQC	FIELDQC	FIELDQC
Sample ID		RINSE BLANK	RB-1	TB-1
Matrix		Quality Control	Quality Control	Quality Control
Depth Interval (ft)		-	-	-
Date Sampled		07/13/01	07/17/01	07/17/01
Parameter	**Units**	Material Rinse Blank (1-1)	Material Rinse Blank (1-1)	Tnp Blank (1-1)
Volatiles				
1,1,1-Trichloroethane	UG/L	10 U	10 U	10 U
1,1,2,2-Tetrachloroethane	UG/L	10 U	10 U	10 U
1,1,2-Trichloro-1,2,2-trifluoroethane	UG/L	10 U	10 U	10 U
1,1,2-Trichloroethane	UG/L	10 U	10 U	10 U
1,1-Dichloroethane	UG/L	10 U	10 U	10 U
1,1-Dichloroethene	UG/L	10 U	10 U	10 U
1,2,4-Trichlorobenzene	UG/L	10 U	10 UJ	10 UJ
1,2-Dibromo-3-chloropropane	UG/L	10 U	10 U	10 U
1,2-Dibromoethane	UG/L	10 U	10 U	10 U
1,2-Dichlorobenzene	UG/L	10 U	10 U	10 U
1,2-Dichloroethane	UG/L	10 U	10 U	10 U
1,2-Dichloropropane	UG/L	10 U	10 U	10 U
1,3-Dichlorobenzene	UG/L	10 U	10 U	10 U
1,4-Dichlorobenzene	UG/L	10 U	10 U	10 U
2-Butanone	UG/L	10 U	10 U	10 U
2-Hexanone	UG/L	10 U	10 U	10 U
4-Methyl-2-pentanone	UG/L	10 U	10 U	10 U
Acetone	UG/L	10 U	10 UJ	10 UJ
Benzene	UG/L	10 U	10 U	10 U
Bromodichloromethane	UG/L	10 U	10 U	10 U
Bromoform	UG/L	10 U	10 U	10 U
Bromomethane	UG/L	10 U	10 U	10 U
Carbon disulfide	UG/L	10 U	10 U	10 U
Carbon tetrachloride	UG/L	10 U	10 U	10 U

Flags assigned during chemistry validation are shown.

MADE BY:__GEK_1/14/02__
CHECKED BY: __JJL_1/15/02__

Detection Limits shown are PQL

TABLE 1
ANALYTICAL FIELD QC SAMPLE RESULTS
FORMER DOWELL SITE

Location ID		FIELDQC	FIELDQC	FIELDQC
Sample ID		RINSE BLANK	RB-1	TB-1
Matrix		Quality Control	Quality Control	Quality Control
Depth Interval (ft)		-	-	-
Date Sampled		07/13/01	07/17/01	07/17/01
Parameter	Units	Material Rinse Blank (1-1)	Material Rinse Blank (1-1)	Trip Blank (1-1)
Volatiles				
Chlorobenzene	UG/L	10 U	10 U	10 U
Chloroethane	UG/L	10 U	10 U	10 U
Chloroform	UG/L	10 U	10 U	10 U
Chloromethane	UG/L	10 U	10 U	10 U
cis-1,2-Dichloroethene	UG/L	10 U	10 U	10 U
cis-1,3-Dichloropropene	UG/L	10 U	10 U	10 U
Cyclohexane	UG/L	10 U	10 U	10 U
Dibromochloromethane	UG/L	10 U	10 U	10 U
Dichlorodifluoromethane	UG/L	10 U	10 U	10 U
Ethylbenzene	UG/L	10 U	10 U	10 U
Isopropylbenzene	UG/L	10 U	10 U	10 U
Methyl acetate	UG/L	10 U	10 U	10 U
Methyl tert-butyl ether	UG/L	10 U	10 U	10 U
Methylcyclohexane	UG/L	10 U	10 U	10 U
Methylene chloride	UG/L	10 U	10 U	10 U
Styrene	UG/L	10 U	10 U	10 U
Tetrachloroethene	UG/L	10 U	10 U	10 U
Toluene	UG/L	10 U	10 U	10 U
trans-1,2-Dichloroethene	UG/L	10 U	10 U	10 U
trans-1,3-Dichloropropene	UG/L	10 U	10 U	10 U
Trichloroethene	UG/L	10 U	10 U	10 U
Trichlorofluoromethane	UG/L	10 U	10 U	10 U
Vinyl chloride	UG/L	10 U	10 U	10 U
Xylene (total)	UG/L	10 U	10 U	10 U

Flags assigned during chemistry validation are shown.

MADE BY:__GEK_1/14/02__
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Detection Limits shown are PQL

TABLE 1
ANALYTICAL FIELD QC SAMPLE RESULTS
FORMER DOWELL SITE

Location ID		FIELDQC	FIELDQC	FIELDQC
Sample ID		RINSE BLANK	RB-1	TB-1
Matrix		Quality Control	Quality Control	Quality Control
Depth Interval (ft)		-	-	-
Date Sampled		07/13/01	07/17/01	07/17/01
Parameter	Units	Material Rinse Blank (1-1)	Material Rinse Blank (1-1)	Trip Blank (1-1)
Semivolatiles				
1,1'-Biphenyl	UG/L	NA	10 U	NA
2,2'-oxybis(1-Chloropropane)	UG/L	NA	10 U	NA
2,4,5-Trichlorophenol	UG/L	NA	25 U	NA
2,4,6-Trichlorophenol	UG/L	NA	10 U	NA
2,4-Dichlorophenol	UG/L	NA	10 U	NA
2,4-Dimethylphenol	UG/L	NA	10 U	NA
2,4-Dinitrophenol	UG/L	NA	25 UJ	NA
2,4-Dinitrotoluene	UG/L	NA	10 U	NA
2,6-Dinitrotoluene	UG/L	NA	10 U	NA
2-Chloronaphthalene	UG/L	NA	10 U	NA
2-Chlorophenol	UG/L	NA	10 U	NA
2-Methylnaphthalene	UG/L	NA	10 U	NA
2-Methylphenol	UG/L	NA	10 U	NA
2-Nitroaniline	UG/L	NA	25 U	NA
2-Nitrophenol	UG/L	NA	10 U	NA
3,3'-Dichlorobenzidine	UG/L	NA	10 U	NA
3-Nitroaniline	UG/L	NA	25 U	NA
4,6-Dinitro-2-methylphenol	UG/L	NA	25 U	NA
4-Bromophenylphenylether	UG/L	NA	10 U	NA
4-Chloro-3-methylphenol	UG/L	NA	10 U	NA
4-Chloroaniline	UG/L	NA	10 U	NA
4-Chlorophenylphenylether	UG/L	NA	10 U	NA
4-Methylphenol	UG/L	NA	10 U	NA
4-Nitroaniline	UG/L	NA	25 U	NA

Flags assigned during chemistry validation are shown.

MADE BY:__GEK_1/14/02__
CHECKED BY: __JJL_1/15/02__

Detection Limits shown are PQL

TABLE 1
ANALYTICAL FIELD QC SAMPLE RESULTS
FORMER DOWELL SITE

Location ID		FIELDQC	FIELDQC	FIELDQC
Sample ID		RINSE BLANK	RB-1	TB-1
Matrix		Quality Control	Quality Control	Quality Control
Depth Interval (ft)		-	-	-
Date Sampled		07/13/01	07/17/01	07/17/01
Parameter	Units	Material Rinse Blank (1-1)	Material Rinse Blank (1-1)	Trip Blank (1-1)
Semivolatiles				
4-Nitrophenol	UG/L	NA	25 UJ	NA
Acenaphthene	UG/L	NA	10 U	NA
Acenaphthylene	UG/L	NA	10 U	NA
Acetophenone	UG/L	NA	10 U	NA
Anthracene	UG/L	NA	10 U	NA
Atrazine	UG/L	NA	10 U	NA
Benzaldehyde	UG/L	NA	10 U	NA
Benzo(a)anthracene	UG/L	NA	10 U	NA
Benzo(a)pyrene	UG/L	NA	10 U	NA
Benzo(b)fluoranthene	UG/L	NA	10 U	NA
Benzo(g,h,i)perylene	UG/L	NA	10 U	NA
Benzo(k)fluoranthene	UG/L	NA	10 U	NA
bis(2-Chloroethoxy)methane	UG/L	NA	10 U	NA
bis(2-Chloroethyl)ether	UG/L	NA	10 U	NA
bis(2-Ethylhexyl)phthalate	UG/L	NA	3 J	NA
Butylbenzylphthalate	UG/L	NA	10 U	NA
Caprolactam	UG/L	NA	10 U	NA
Carbazole	UG/L	NA	10 U	NA
Chrysene	UG/L	NA	10 U	NA
Dibenz(a,h)anthracene	UG/L	NA	10 U	NA
Dibenzofuran	UG/L	NA	10 U	NA
Diethylphthalate	UG/L	NA	10 U	NA
Dimethylphthalate	UG/L	NA	10 U	NA
Di-n-butylphthalate	UG/L	NA	10 U	NA

Flags assigned during chemistry validation are shown.

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Detection Limits shown are PQL

TABLE 1
ANALYTICAL FIELD QC SAMPLE RESULTS
FORMER DOWELL SITE

Location ID		FIELDQC	FIELDQC	FIELDQC
Sample ID		RINSE BLANK	RB-1	TB-1
Matrix		Quality Control	Quality Control	Quality Control
Depth Interval (ft)		-	-	-
Date Sampled		07/13/01	07/17/01	07/17/01
Parameter	**Units**	Material Rinse Blank (1-1)	Material Rinse Blank (1-1)	Trip Blank (1-1)
Semivolatiles				
Di-n-octylphthalate	UG/L	NA	10 U	NA
Fluoranthene	UG/L	NA	10 U	NA
Fluorene	UG/L	NA	10 U	NA
Hexachlorobenzene	UG/L	NA	10 U	NA
Hexachlorobutadiene	UG/L	NA	10 U	NA
Hexachlorocyclopentadiene	UG/L	NA	10 U	NA
Hexachloroethane	UG/L	NA	10 U	NA
Indeno(1,2,3-cd)pyrene	UG/L	NA	10 U	NA
Isophorone	UG/L	NA	10 U	NA
Naphthalene	UG/L	NA	10 U	NA
Nitrobenzene	UG/L	NA	10 U	NA
N-Nitroso-di-n-propylamine	UG/L	NA	10 UJ	NA
N-Nitrosodiphenylamine	UG/L	NA	10 U	NA
Pentachlorophenol	UG/L	NA	25 U	NA
Phenanthrene	UG/L	NA	10 U	NA
Phenol	UG/L	NA	10 U	NA
Pyrene	UG/L	NA	10 U	NA
Pesticides				
4,4'-DDD	UG/L	NA	0.11 U	NA
4,4'-DDE	UG/L	NA	0.11 U	NA
4,4'-DDT	UG/L	NA	0.11 U	NA
Aldrin	UG/L	NA	0.055 U	NA
alpha-BHC	UG/L	NA	0.055 U	NA
alpha-Chlordane	UG/L	NA	0.055 U	NA

Flags assigned during chemistry validation are shown.

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CHECKED BY: __JJL_1/15/02__

Detection Limits shown are PQL

TABLE 1
ANALYTICAL FIELD QC SAMPLE RESULTS
FORMER DOWELL SITE

Location ID		FIELDQC	FIELDQC	FIELDQC
Sample ID		RINSE BLANK	RB-1	TB-1
Matrix		Quality Control	Quality Control	Quality Control
Depth Interval (ft)		-	-	-
Date Sampled		07/13/01	07/17/01	07/17/01
Parameter	Units	Material Rinse Blank (1-1)	Material Rinse Blank (1-1)	Trip Blank (1-1)
Pesticides				
beta-BHC	UG/L	NA	0.055 U	NA
delta-BHC	UG/L	NA	0.055 U	NA
Dieldrin	UG/L	NA	0.11 U	NA
Endosulfan I	UG/L	NA	0.055 U	NA
Endosulfan II	UG/L	NA	0.11 U	NA
Endosulfan sulfate	UG/L	NA	0.11 U	NA
Endrin	UG/L	NA	0.11 U	NA
Endrin aldehyde	UG/L	NA	0.11 U	NA
Endrin ketone	UG/L	NA	0.11 U	NA
gamma-Chlordane	UG/L	NA	0.055 U	NA
Heptachlor	UG/L	NA	0.055 U	NA
Heptachlor epoxide	UG/L	NA	0.055 U	NA
Lindane (gamma-BHC)	UG/L	NA	0.055 U	NA
Methoxychlor	UG/L	NA	0.55 U	NA
Toxaphene	UG/L	NA	5.5 U	NA
PCB's				
Aroclor 1016	UG/L	NA	1.1 U	NA
Aroclor 1221	UG/L	NA	2.2 U	NA
Aroclor 1232	UG/L	NA	1.1 U	NA
Aroclor 1242	UG/L	NA	1.1 U	NA
Aroclor 1248	UG/L	NA	1.1 U	NA
Aroclor 1254	UG/L	NA	1.1 U	NA
Aroclor 1260	UG/L	NA	1.1 U	NA

Flags assigned during chemistry validation are shown.

MADE BY:__GEK_1/14/02__
CHECKED BY: __JJL_1/15/02__

Detection Limits shown are PQL

TABLE 1
ANALYTICAL FIELD QC SAMPLE RESULTS
FORMER DOWELL SITE

Location ID		FIELDQC	FIELDQC	FIELDQC
Sample ID		RINSE BLANK	RB-1	TB-1
Matrix		Quality Control	Quality Control	Quality Control
Depth Interval (ft)		-	-	-
Date Sampled		07/13/01	07/17/01	07/17/01
Parameter	Units	Material Rinse Blank (1-1)	Material Rinse Blank (1-1)	Trip Blank (1-1)
Metals				
Aluminum	UG/L	NA	93.0 U	NA
Antimony	UG/L	NA	29.0 U	NA
Arsenic	UG/L	NA	2.0 U	NA
Barium	UG/L	NA	102 B	NA
Beryllium	UG/L	NA	1.0 U	NA
Cadmium	UG/L	NA	5.0 U	NA
Calcium	UG/L	NA	66,500	NA
Chromium	UG/L	NA	10.0 U	NA
Cobalt	UG/L	NA	7.0 U	NA
Copper	UG/L	NA	11.5 B	NA
Iron	UG/L	NA	75.0 U	NA
Lead	UG/L	NA	9.7	NA
Magnesium	UG/L	NA	12,200	NA
Manganese	UG/L	NA	2.0 U	NA
Mercury	UG/L	NA	0.20 U	NA
Nickel	UG/L	NA	6.0 U	NA
Potassium	UG/L	NA	1,450 B	NA
Selenium	UG/L	NA	2.0 U	NA
Silver	UG/L	NA	6.0 U	NA
Sodium	UG/L	NA	23,400	NA
Thallium	UG/L	NA	2.0 U	NA
Vanadium	UG/L	NA	8.0 U	NA
Zinc	UG/L	NA	64.3	NA

Flags assigned during chemistry validation are shown.

MADE BY:__GEK_1/14/02__
CHECKED BY: __JJL_1/15/02__

Detection Limits shown are PQL

TABLE 1
ANALYTICAL FIELD QC SAMPLE RESULTS
FORMER DOWELL SITE

Location ID		FIELDQC	FIELDQC	FIELDQC
Sample ID		RINSE BLANK	RB-1	TB-1
Matrix		Quality Control	Quality Control	Quality Control
Depth Interval (ft)		-	-	-
Date Sampled		07/13/01	07/17/01	07/17/01
Parameter	Units	Material Rinse Blank (1-1)	Material Rinse Blank (1-1)	Trip Blank (1-1)
Miscellaneous				
Cyanide	MG/L	NA	0.0030 U	NA
Total Petroleum Hydrocarbons	MG/L	NA	0.64 U	NA

Flags assigned during chemistry validation are shown.

MADE BY:__GEK_1/14/02__
CHECKED BY: __JJL_1/15/02__

Detection Limits shown are PQL

TABLE 2

SUMMARY OF DATA QUALIFICATIONS

SAMPLE ID	FRACTION	ANALYTICAL DEVIATION	QUALIFICATION
TP-1 (2-2.5'), GPB-7 (7-7.5)(dilution analysis only), MW-3 (dilution analysis only), PZ-2 (dilution analysis only)	VOC	Technical holding time exceedance	Qualify non-detects "UJ" and detects "J"
Rectangular Sump	VOC	2-Butanone detected in sample less than ten times amount in associated blank	Qualify "U" and raise to quantitation limit
GPB-2, GPB-3, Rectangle Sump, 2-X-1 Sump, 4-X-2 Sump, 5-X-1 Sump, GPB-8, GPB-10	VOC	Acetone detected in sample less than ten times amount in associated blank	Qualify "U" at detected concentration
Sump #2	VOC	Chloromethane detected in sample less than five times amount in associated blank	Qualify "U" and raise to quantitation limit
GPB-10	VOC	Trichloroethene detected in sample less than five times amount in associated blank	Qualify "U" and raise to quantitation limit
GPB-12, RB-1 (7/17/01), TB-1, PZ-1, PZ-2	VOC	CCAL %D greater than 25% for acetone, 1,2,4-trichlorobenzene	Qualify detects "J" and non-detects "UJ"
2-X-1 Sump, 5-X-1 Sump, GPB-10, GPB-13, MW-1, MW-3, MW-4, MW-6, MW-7, MW-8	VOC	CCAL %D greater than 25% for 4-methyl-2-pentanone	Qualify non-detects "UJ"
Sump #1, Sump #2	VOC	Chlorobenzene-d5 internal standard recovery below 50%	Qualify associated detects "J" and non-detects "UJ"
5-X-1 Sump	VOC	False negative. 2-Butanone detected in sample greater than instrument detection limit	Report detection with "J" qualifier
MW-5	VOC	False negative. Acetone detected in sample greater than instrument detection limit	Report detection with "J" qualifier
MW-4	VOCs	Possible false positive of 1,1-dichloroethane, 1,1,1-trichloroethane from instrument carryover	Qualify "R"
Sump #1	VOC	False positive for carbon tetrachloride	Qualify as non-detect "U" at the quantitation limit
PZ-2	VOC	False positive for methylcyclohexane	Qualify as non-detect "U" at the quantitation limit
1-X-1 Sump	VOC	Reported "E" values for acetone, 1,2-dichlorobenzene	Remove "E" and qualify "J"
MW-3	VOC	Reported "E" value for 1,1,1-trichloroethane	Remove "E" and qualify "J"
MW-6	VOC	Reported "E" value for 1,1-dichloroethane	Remove "E" and qualify "J"

TABLE 2 (Con't)

SAMPLE ID	FRACTION	ANALYTICAL DEVIATION	QUALIFICATION
PZ-2	VOC	Reported "E" values for vinyl chloride, trans-1,2-dichloroethene	Remove "E" and qualify "J"
MW-1, MW-3, MW-5	SVOC	bis-(2-Ethylhexyl)phthalate detected in sample less than ten times amount in associated blank	Qualify "U" and raise to quantitation limit
MW-1, MW-3, MW-5, RB-1 (7/17/01)	SVOC	Low matrix spike blank recovery for n-nitroso-di-n-propylamine	Qualify non-detects "UJ"
MW-1, MW-3, MW-5, RB-1 (7/17/01)	SVOC	CCAL %D greater than 25% for, 2,4-dinitrophenol, 4-nitrophenol	Qualify non-detects "UJ"
MW-1, MW-3	Metals	Calcium, lead, sodium, zinc detected in sample less than five times amount in associated rinse blank	Qualify "R"
MW-5	Metals	Calcium, magnesium, sodium, zinc detected in sample less than five times amount in associated rinse blank	Qualify "R"

ATTACHMENT A

SUPPORT DOCUMENTATION

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SAMPLE PREPARATION AND ANALYSIS SUMMARY
ASP 2000 VOA
ANALYSES

Customer Sample Code	Laboratory Sample Code	Matrix	Date Collected	Date Received	Low Level Med. Level	Date Analyzed
MW-1	L72771-1	WATER	07/17/01	07/18/01	LOW	07/20/01
MW-2	L72771-2	WATER	07/17/01	07/18/01	LOW	07/22/01
MW-3	L72771-3	WATER	07/17/01	07/18/01	LOW	07/22/01
MW-4	L72771-4	WATER	07/17/01	07/18/01	LOW	07/23&8/13/01
MW-5	L72771-5	WATER	07/17/01	07/18/01	LOW	07/20/01
MW-5, L72771-5MS	L72771-6	WATER	07/17/01	07/18/01	LOW	07/20/01
MW-5, L72771-5MSD/DUP	L72771-7	WATER	07/17/01	07/18/01	LOW	07/20/01
MW-6	L72771-8	WATER	07/17/01	07/18/01	LOW	07/23&8/13/01
MW-7	L72771-9	WATER	07/17/01	07/18/01	LOW	07/23/01
MW-8	L72771-10	WATER	07/17/01	07/18/01	LOW	07/23/01
RB-1	L72771-11	WATER	07/17/01	07/18/01	LOW	07/23/01
TB-1	L72771-12	WATER	07/17/01	07/18/01	LOW	07/23/01
PZ-1	L72771-13	WATER	07/17/01	07/18/01	LOW	07/23/01
PZ-2	L72771-14	WATER	07/17/01	07/18/01	LOW	07/23&8/13/01

1A

NYSDEC SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

VHBLK01

Lab Name: FRIEND LABORATORY, INC. Contract:

Lab Code: 10252 Case No.: SAS No.: SDG No.: DOWELL

Matrix: (soil/water) WATER Lab Sample ID: L72162-13

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: C6026.D

Level: (low/med) LOW Date Received: 07/16/01

% Moisture: not dec. Date Analyzed: 08/13/01

GC Column: RTX-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
75-71-8	Dichlorodifluoromethane	10	U
74-87-3	Chloromethane	4	JB
75-01-4	Vinyl Chloride	10	U
74-83-9	Bromomethane	10	U
75-00-3	Chloroethane	10	U
75-69-4	Trichlorofluoromethane	10	U
75-35-4	1,1-Dichloroethene	10	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroetha	10	U
67-64-1	Acetone	6	JB
75-15-0	Carbon Disulfide	10	U
79-20-9	Methyl Acetate	10	U
75-09-2	Methylene Chloride	10	U
156-60-5	trans-1,2-Dichloroethene	10	U
1634-04-4	Methyl tert-Butyl Ether	10	U
75-34-3	1,1-Dichloroethane	10	U
156-59-2	cis-1,2-Dichloroethene	10	U
78-93-3	2-Butanone	10	U
67-66-3	Chloroform	10	U
71-55-6	1,1,1-Trichloroethane	10	U
110-82-7	Cyclohexane	10	U
56-23-5	Carbon Tetrachloride	10	U
71-43-2	Benzene	10	U
107-06-2	1,2-Dichloroethane	10	U
79-01-6	Trichloroethene	10	U
108-87-2	Methylcyclohexane	10	U
78-87-5	1,2-Dichloropropane	10	U
75-27-4	Bromodichloromethane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
108-10-1	4-Methyl-2-pentanone	10	U
108-88-3	Toluene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
79-00-5	1,1,2-Trichloroethane	10	U
127-18-4	Tetrachloroethene	10	U
591-78-6	2-Hexanone	10	U
124-48-1	Dibromochloromethane	10	U
106-93-4	1,2-Dibromoethane	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
106-42-3/108-38-3	p-Xylene/m-Xylene	10	U

4A

VOLATILE METHOD BLANK SUMMARY

NYSDEC Sample NO.

VBLKS1

Lab Name: FRIEND LABORATORY, INC. Contract: _____

Lab Code: 10252 Case No.: _____ SAS No.: _____ SDG No.: DOWELL

Lab File ID: C5738.D Lab Sample ID: vblk

Date Analyzed: 07/18/01 Time Analyzed: 14:06

GC Column: RTX-624 ID: 0.53 (mm) Heated Purge: (Y/N) Y

Instrument ID: MSD-C

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD AND MSB

	NYSDEC SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	VBLKS1MS	VBLKMS	C5739.D	14:40
02	GPB-2	L72349-1	C5744.D	17:25
03	MW-8	L72349-4	C5745.D	17:58
04	GPB-3	L72349-5	C5746.D	18:31
05	TP-2 #2	L72349-8	C5748.D	19:37
06	SUMP #1 RE	L72349-9 LOW	C5749.D	20:09
07	RECT SUMP	L72349-11	C5751.D	21:15
08	GPB-2 MS	L72349-2, -1MS	C5752.D	21:47
09	GPB-2 MSD	L72349-3, -1MSD	C5753.D	22:19

COMMENTS

4A

VOLATILE METHOD BLANK SUMMARY

NYSDEC Sample NO.

VBLKS2

Lab Name: FRIEND LABORATORY, INC. Contract:

Lab Code: 10252 Case No.: SAS No.: SDG No.: DOWELL

Lab File ID: C5756.D Lab Sample ID: vblk

Date Analyzed: 07/19/01 Time Analyzed: 12:08

GC Column: RTX-624 ID: 0.53 (mm) Heated Purge: (Y/N) Y

Instrument ID: MSD-C

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD AND MSB

	NYSDEC SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	VBLKS2MS	VBLKMS	C5757.D	12:41
02	ROUND SUMP	L72349-12	C5758.D	13:13
03	1-X-1 SUMP	L72349-13	C5759.D	13:45
04	3-X-2 SUMP	L72349-15	C5761.D	14:50
05	4-X-2 SUMP	L72349-16	C5762.D	15:23
06	GPB-4	L72349-18	C5764.D	16:28
07	SUMP #2 RE	L72349-10 LOW	C5775.D	22:23

COMMENTS

NOTEBOOK#: FL-01-082 INSTRUMENT: MSD-C PAGE: 34

DATE	FILE #	TUBE #	FL # Log-in #	WG #	CUSTOMER/DESCRIPTION	SITE	pH	SAMPLE REANALYZED Dilution	SAMPLE REANALYZED Filo #	Time	Rerun
7/20/1	5794	10	72771-5	25616		V1	1.5	—		20:10	
	[redacted]	11	[redacted]		[redacted]			—		20:41	
	[redacted]	12	[redacted]	↓	[redacted]			—		21:13	
	~~5795~~	13	72349-9 MS					— 1:50		21:44	
	~~5798~~	14	-9 MSD				1.5	↓			
↓	5799	15	72771-1	25616		V3		—		22:47	
7-22	[redacted]	22	[redacted]		[redacted]	HP CIP-2005				4:22	
	[redacted]	23	[redacted]		[redacted]					4:55	
	5803	24	VBLKC2		VBLK					5:27	
	~~5805~~	25	L72349-14	25548	LCS					6:10	
	5804	27	L72612-3							6:32	
	5805	29	-9							7:04	
	5806	30	L72349-17							7:37	
	5807	31	-13						5751	8:09	1:5 D
	5808	32	612-4							8:41	
	5809	17	-5 MS							9:13	
	5810	18	-6 MSD							9:45	
	~~5811~~	19	L72349-7							10:17	
	5812	20	L72777-2	25616	MW-2	V3	1.5			10:49	
↓	5813	21	-3		MW-3	V3	↓			11:21	~~1:50~~ 1:100
	5814	22	-4		MW-4	V2				11:53	CD
7-27	5815	2	-8	↓	MW-6	V2				12:25	1:5

COMMENTS:

SIM

8940U

44	pc	Ethylbenzene	0.341	0.329	3.5	92	0.00
45	pc	p-Xylene/m-Xylene	0.434	0.413	4.8	92	0.00
46	pc	o-Xylene	0.423	0.406	4.0	92	0.00
47	pc	Styrene	0.713	0.676	5.2	91	0.00
48	Spc	4-Bromofluorobenzene	0.644	0.634	1.6	94	0.00
49	pc	Isopropylbenzene	1.165	1.104	5.2	90	0.00
50	pc	1,1,2,2-Tetrachloroethane	0.627	0.587	6.4	90	0.00
51	pc	1,3-Dichlorobenzene	0.903	0.833	7.8	90	0.00
52	pc	1,4-Dichlorobenzene	0.923	0.833	9.8	87	-0.16
53	pc	1,2-Dichlorobenzene	0.871	0.808	7.2	91	0.00
54	pc	1,2-Dibromo-3-chloropropane	0.111	0.100	9.9	88	0.00
55	pc	1,2,4-Trichlorobenzene	0.666	0.478	28.2#	71	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 1

C5801.D 0720NCLP.M Mon Jul 23 09:31:40 2001 MSD-D

Evaluate Continuing Calibration Report

Data File : C:\HPCHEM\2\DATA\B2635.D Vial: 2
Acq On : 30 Jul 20101 5:02 pm Operator: CPW
Sample : SSTD050 Inst : MSD-B
Misc : 97-151-64-K Multiplr: 1.00
MS Integration Params: rteint.p

Method : C:\HPCHEM\2\METHODS\CLPB7-30.M (RTE Integrator)
Title : 95-2,2uL INJ.,HP5MS25MM ID X 30M X 0.25uM THICK
Last Update : Tue Jul 31 07:52:36 2001
Response via : Multiple Level Calibration

Min. RRF : 0.010 Min. Rel. Area : 10% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 500%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
40		ACENAPHTHYLENE	2.015	1.841	8.6	144	0.01
41		3-NITROANILINE	0.475	0.412	13.3	140	0.01
42	c,m	ACENAPHTHENE	1.281	1.161	9.4	143	0.01
43	c	2,4-DINITROPHENOL	0.219	0.147	32.9	134	0.00
44	c,m	4-NITROPHENOL	0.257	0.186	27.6	124	0.00
45		DIBENZOFURAN	1.875	1.686	10.1	139	0.01
46	m	2,4-DINITROTOLUENE	0.552	0.421	23.7	128	0.01
47		DIETHYL PHTHALATE	1.664	1.359	18.3	134	0.01
48		FLUORENE	1.430	1.207	15.6	135	0.00
49		4-CHLOROPHENYLPHENYLETHER	0.726	0.644	11.3	140	0.01
50	I	PHENANTHRENE-d10	1.000	1.000	0.0	124	0.00
51	S	2,4,6-TRIBROMOPHENOL	0.147	0.146	0.7	137	0.01
52		4-NITROANILINE	0.176	0.183	-4.0	126	0.01
53		2-METHYL-4,6-DINITROPHENOL	0.208	0.171	17.8	122	0.00
54		N-NITROSODIPHENYLAMINE	0.600	0.607	-1.2	135	0.00
55		4-BROMOPHENYLPHENYLETHER	0.283	0.285	-0.7	131	0.00
56		HEXACHLOROBENZENE	0.304	0.292	3.9	124	0.00
57	c,m	ATRAZINE	0.288	0.262	9.0	124	0.01
58	c,m	PENTACHLOROPHENOL	0.170	0.144	15.3	127	0.01
59		PHENANTHRENE	1.327	1.207	9.0	122	0.00
60		ANTHRACENE	1.350	1.221	9.6	122	0.00
61		CARBAZOLE	1.144	1.008	11.9	116	0.01
62		DI-N-BUTYL PHTHALATE	1.739	1.526	12.2	117	0.01
63	c	FLUORANTHENE	1.377	1.164	15.5	108	0.00
64	I	CHRYSENE-d12	1.000	1.000	0.0	93	0.00
65	m	PYRENE	1.649	1.550	6.0	106	0.00
66	s	TERPHENYL-D14	1.288	1.431	-11.1	103	0.00
67		BUTYLBENZYL PHTHALATE	0.886	0.786	11.3	96	0.00
68		3,3'-DICHLOROBENZIDINE	0.413	0.371	10.2	87	0.00
69		BENZO(A)ANTHRACENE	1.438	1.320	8.2	93	0.00
70		BIS-2-ETHYLHEXYL PHTHALATE	1.119	0.985	12.0	96	0.00
71		CHRYSENE	1.388	1.269	8.6	92	0.00
72	I	PERYLENE-d12	1.000	1.000	0.0	101	0.00
73	c	DI-N-OCTYL PHTHALATE	2.876	2.579	10.3#	95	0.00
74		BENZO(B)FLUORANTHENE	2.079	1.907	8.3	99	0.00
75		BENZO(K)FLUORANTHENE	1.962	1.812	7.6	100	0.00
76	c	BENZO(A)PYRENE	1.843	1.665	9.7	102	0.00
77		INDENO(1,2,3-CD)PYRENE	1.470	1.325	9.9	105	0.00

00506

(#) = Out of Range

8A

VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: FRIEND LABORATORY, INC. Contract:

Lab Code: 10252 Case No.: SAS No.: SDG No.: DOWELL

Lab File ID (Standard): C5735.D Date Analyzed: 07/18/01

Instrument ID: MSD-C Time Analyzed: 12:27

GC Column: RTX-624 ID: 0.53 (mm) Heated Purge (Y/N): Y

		IS1BCM AREA #	RT #	IS2DFB AREA #	RT #	IS3CB AREA #	RT #
	12 HOUR STD	4705923	8.43	15851531	10.34	13462499	15.83
	UPPER LIMIT	9411846	8.93	31703062	10.84	26924998	16.33
	LOWER LIMIT	2352962	7.93	7925766	9.84	6731250	15.33
	NYSDEC SAMPLE NO.						
01	VBLKS1	4644488	8.42	15748884	10.34	13482847	15.83
02	VBLKS1MS	4919300	8.42	16461976	10.34	14011478	15.83
03	GPB-2	3455496	8.43	10704363	10.34	7539535	15.84
04	MW-8	4412402	8.43	14559795	10.34	11558564	15.84
05	GPB-3	3781337	8.43	10436633	10.35	7045551	15.84
06	TP-2 #2	4358746	8.44	13356923	10.35	9452138	15.84
07	SUMP #1 RE	3953842	8.44	10529417	10.35	6435621 *	15.84
08	RECT SUMP	3457339	8.43	10658643	10.34	6832642	15.83
09	GPB-2 MS	2750636	8.43	8187692	10.34	5330591 *	15.83
10	GPB-2 MSD	3259407	8.43	9366264	10.34	6116207 *	15.83

IS1 BCM = Bromochloromethane
IS2 DFB = 1,4-Difluorobenzene
IS3 CB = Chlorobenzene-d5

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

eal
8/20/01

3C

WATER SEMIVOLATILE BLANK SPIKE RECOVERY

Lab Name: FRIEND LABORATORY, INC. Contract: _____

Lab Code: 10252 Case No.: _____ SAS No.: _____ SDG No.: DOWELL

Matrix Spike - EPA Sample No SBLK57MS

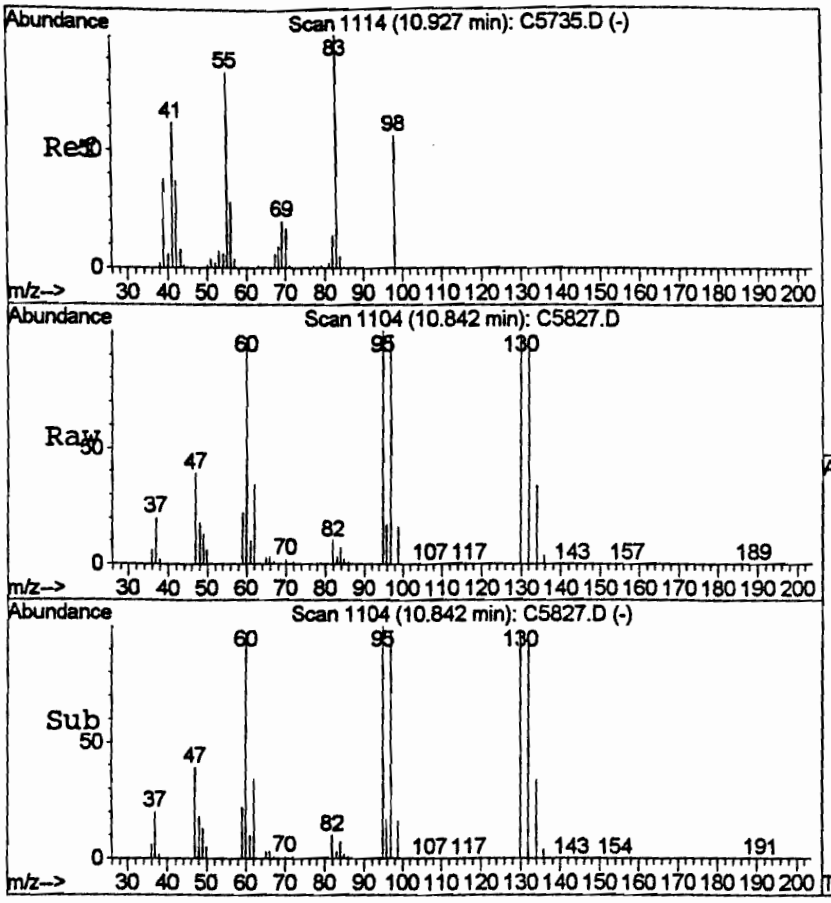
COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	MS CONCENTRATION	MS % REC #	QC LIMITS REC.
Phenol	75		60	80	12 - 110
2-Chlorophenol	75		62	83	27 - 123
N-Nitrosodi-n-propylamine	50		17	34 *	41 - 116
4-Chloro-3-methylphenol	75		60	80	23 - 97
Acenaphthene	50		46	92	46 - 118
2,4-Dinitrotoluene	50		49	98 *	24 - 96
4-Nitrophenol	75		78	104 *	10 - 80
Pentachlorophenol	75		67	89	9 - 103
Pyrene	50		45	90	26 - 127

Column to be used to flag recovery values with an asterisk

* Values outside of QC limits

Spike Recovery: 3 out of 9 outside limits

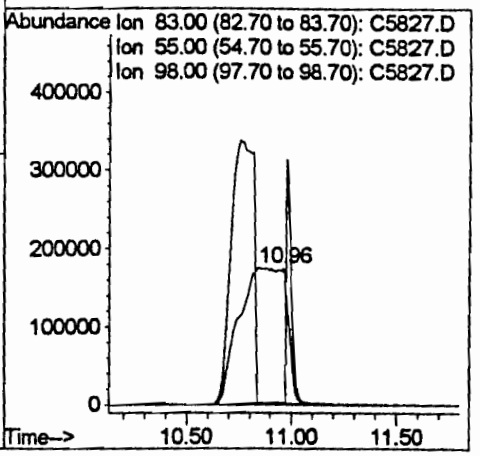
COMMENTS: _____

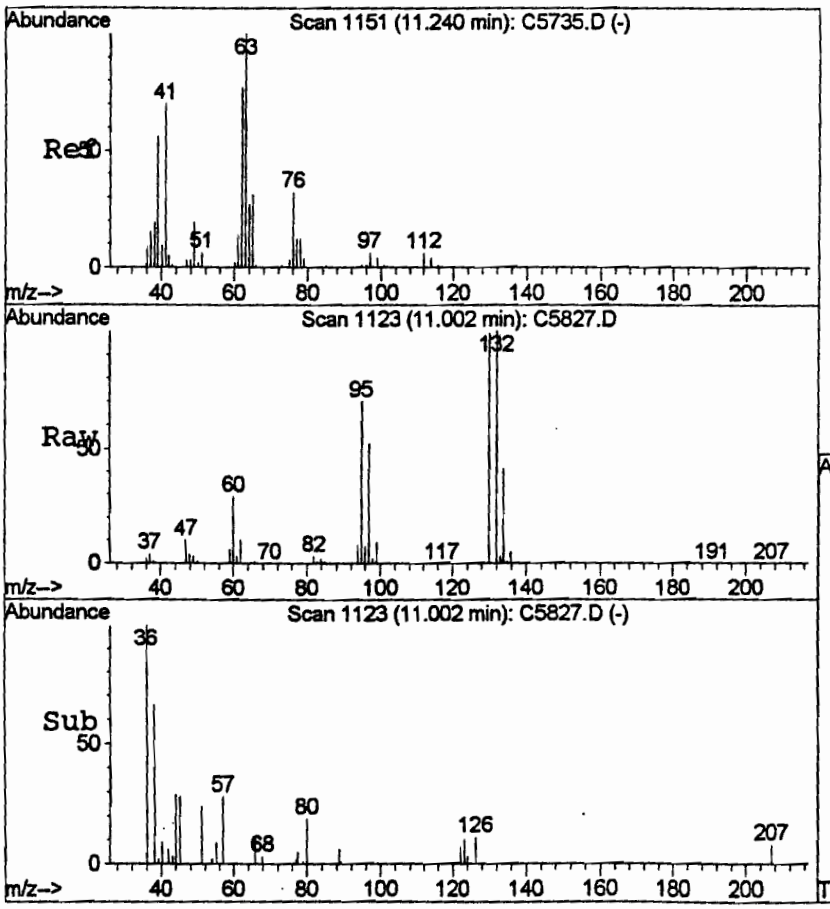


#28
Methyl cyclohexane
Concen: 361.48 ug/L m
RT: 10.84 min Scan# 1104
Delta R.T. -0.08 min
Lab File: C5827.D
Acq: 23 Jul 01 6:47 am

Tgt Ion: 83 Resp:27502563

Ion	Ratio	Lower	Upper
83	100		
55	0.2	19.7	29.5#
98	0.0	16.0	24.0#





#29
1,2-Dichloropropane
Concen: 3.54 ug/L
RT: 11.00 min Scan# 1123
Delta R.T. -0.22 min
Lab File: C5827.D
Acq: 23 Jul 01 6:47 am

Tgt Ion: 63 Resp: 246389

Ion	Ratio	Lower	Upper
63	100		
65	0.0	25.0	37.4#
114	0.0	2.2	3.4#