REMEDIAL INVESTIGATION REPORT

WORK ASSIGNMENT D003825-32

POULTNEY STREET SITE
WHITEHALL (V)

SITE NO. 5-58-019
WASHINGTON (C), NY

Prepared for:
NEW YORK STATE
DEPARTMENT OF ENVIRONMENTAL CONSERVATION
625 Broadway, Albany, New York

Erin M. Crotty, Commissioner

DIVISION OF ENVIRONMENTAL REMEDIATION

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FINAL
November 2002

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DRAFT

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1.0 INTRODUCTION

The Poultney Street site is located on an island in the Village of Whitehall, Washington County, New York. The island is zoned light industrial. In November 1990, the New York State Department of Environmental Conservation (NYSDEC) classified the Poultney Street site as "Class 2" on its Registry of Inactive Hazardous Waste Sites. Under the State Superfund Standby Contract, Work Assignment D003825-32, URS Corporation (URS) was tasked to perform a Remedial Investigation/Feasibility Study (RI/FS). This RI report summarizes the results of the remedial investigation.

1.1 Purpose of Report

The purpose of this RI report is to present, summarize, and provide interpretations regarding data gathered during RI field activities. As part of the RI, field activities performed from December 2001 through April 2002 included literature reviews, soil borings and soil sampling, monitoring well installation, analytical testing of soil and groundwater samples, and a site feature and sampling point survey.

The specific objectives of the RI were to:

- Collect additional data to determine the vertical and horizontal extent of soil contamination and chemical migration on-site and off-site.

- Install groundwater monitoring wells to evaluate groundwater flow direction and quality, and to determine the extent of any contaminant plume migrating from the site.

- Evaluate the impact of site contamination upon human health and the environment.

- Provide sufficient data to determine the need for remedial action and perform a feasibility study.

report consists of text followed by tables and figures. Supporting documentation and analytical data are included as appendices. The Data Usability Summary Report (DUSR) has been submitted separately.

1.4 Previous Investigations

Three previous investigations were performed at the site. The following discussion summarizes these previous investigations and the data collected during them. The existing data have been reviewed and have been integrated as appropriate in this report. The previous investigations referred to the drum removal action, the collection of soil and groundwater samples from four distinct areas of the site, excavation of soils from the fire training area, and post-excavation soil sampling.

- **NYSDEC Drum Removal Action**

In December 1989, forty drums were identified and removed from the former drum staging area at the site. In January 1990, five of the forty drums were sampled for the full hazardous waste analysis, and all of the drums were subsequently moved to a holding area for proper removal/disposal under an emergency removal action. The drum contents were found to contain acetone, trichloroethene (TCE), lighter polycyclic aromatic hydrocarbons (PAHs), phthalates, and benzene, toluene, ethylbenzene and xylene (BTEX).

The NYSDEC collected numerous soil and surface water samples at the site in late 1989, and the following constituents were found to exist, including acetone, xylene, toluene, TCE, 1,2-dichloroethene (total), and 1,1,2-trichloroethane (1,1,2-TCA). Appendix A of the March 1999 *RI/FS Report for the Poultney Street Site* prepared by Environmental Liability Management, Inc. (referenced below) includes a total of eight tables that summarize the soil and surface water analytical data, along with a site plan (Figure 2) that depicts the approximate sampling locations.

1.2 Site Description and History

The Poultney Street site consists of an unimproved parcel of land, approximately two acres in size, located immediately to the south of the E.B. Metals Facility on Route 4 in the Village of Whitehall, Washington County, New York (Figure 1-1). The subject parcel is located on an island bounded by Wood Creek and the Champlain Canal, and is owned by the Clarendon and Pittsford Railroad Company. Neighboring the site is E.B. Metals to the north, a raised railroad embankment to the south, and the Champlain Canal to the west (Figure 1-2). The eastern property boundary is located approximately 500 feet from the canal.

The site consists of a drum disposal area on the western portion of the property, and a former fire training area near the center of the property. In the early 1970's, the site was used for training exercises by seven local fire departments. The local fire departments brought containers of flammable materials, solicited and obtained from various sources, to the property for fire extinguishing training and practice. In 1989, forty drums were identified and removed from this area and subsequently sampled and shipped offsite for proper disposal. The NYSDEC collected environmental samples in late 1989 and a number of contaminants were identified, including, but not limited to, acetone, xylenes, toluene, trichloroethene (TCE) and 1,1,2-trichloroethane (1,1,2-TCA). Based on the 1989 data, a NYSDEC contractor collected additional samples in 1995, finding volatile organic compounds (VOCs) in both the soil and groundwater.

1.3 Report Organization

This RI report has been organized and divided into seven sections corresponding to the format outlined by the United States Environmental Protection Agency (USEPA, 1988). Site background information, including a discussion of previous investigations, is provided in the following subsections. The scope of work is outlined, and the methods and procedures used during the field investigations are summarized, in Section 2.0. The physical characteristics, including a detailed discussion of the site geology and hydrogeology, are described in Section 3.0. A discussion of analytical testing results is provided in Section 4.0. Section 5.0 presents a discussion of the contaminant fate and transport and Section 6.0 provides a qualitative risk assessment. Section 7.0 presents the remedial investigation summary and conclusions. The RI

- **Immediate Investigation Work Assignment Report (NYSDEC, April 1995)**

The engineering firm Camp, Dresser & McKee (CDM) was retained by the NYSDEC to complete an Immediate Investigation Work Assignment (IIWA). In March 1995, soil and groundwater samples were collected from the former fire training and drum staging areas using a geoprobe drill rig. According to the information contained in Appendix A of the Environmental Liability Management, Inc. *RI/FS Report,* there were a total of 14 geoprobe borings performed at the Poultney Street site by CDM. Specifically, geoprobe borings GP-1 through GP-10 were located in the general proximity of the former fire training area, while geoprobe borings GP-11 through GP-14 were performed in the vicinity of the former drum staging area (refer to Figure 3 in Appendix A).

Examination of the soil analytical results presented in Table 9 of Appendix A reveal that TCE was detected at a maximum concentration of 1,600 milligrams per kilogram (mg/kg) in a soil sample obtained at an unknown depth from geoprobe boring GP-1. Geoprobe boring GP-1 was performed in the immediate vicinity of the fire trench. It appears that none of the soil samples collected from the former drum staging area were submitted for analysis.

Elevated concentrations of TCE in groundwater ranged from 6 micrograms per liter (µg/l) at geoprobe boring GP-7 to 55,000 µg/l at geoprobe boring GP-1. TCE was detected at a concentration of 16 µg/l at geoprobe boring GP-13 located in the former drum staging area.

Other constituents of concern (COC) detected in the groundwater in the former fire training area include: benzene (270 µg/l at GP-4), cis-1,2-dichloroethene (99,000 µg/l at GP-1), trans-1,2-dichloroethene (730 µg/l at GP-6), ethylbenzene (300 µg/l at GP-4), toluene (2,000 µg/l at GP-4), 1,1,2-TCA (140 µg/l at GP-1), vinyl chloride (87,000 µg/l at GP-4) and total xylenes (1,100 µg/l at GP-4).

The only COC other than TCE detected in the groundwater in the former drum staging area was cis-1,2-dichloroethene at a maximum concentration of 15 µg/l at GP-13.

- **Environmental Liability Management, Inc. RI/FS Report**

Environmental Liability Management, Inc. (ELM) of Princeton, New Jersey was retained by the Clarendon and Pittsford Railroad Company and Norton Performance Plastics Corporation to conduct a remedial investigation (RI) at the Poultney Street site. As stated in Section 2.2 (Soil Investigations) of the *RI/FS Report,* the intent of the RI was to:

- *Confirm previously identified trends of target compound degradation and determine concentrations;*
- *Define whether compound residues in soil act as a continuing source of dissolved compounds to shallow ground water;*
- *Determine whether target compounds are present in surface soil and whether there is a potential for direct human exposure to VOC residues; and*
- *Provide data to determine whether soil remediation is necessary to protect human health and/or the environment.*

In conjunction with the performance of the RI, an interim remedial measure (IRM) was completed at the site on August 20, 1998. As stated in Section 2.4 (Interim Remedial Measure) of the March 1999 *RI/FS Report* prepared by ELM, the IRM consisted of the removal of approximately 25 empty drums from the former fire training area and adjacent areas of the site. In addition, the excavation of 15 cubic yards of soil from the area beneath and immediately adjacent to the former trench was also performed. The contaminated soil reportedly contained residues of the release materials.

Field investigation activities associated with the RI were completed during July and August of 1998 and consisted of the following:

- Installation of ten temporary piezometers (five of which were converted to permanent groundwater monitoring wells) with the use of a geoprobe drill rig.

- Collection and analysis of four surface soil samples, 28 subsurface soil boring samples from 11 soil borings, ten groundwater samples from the temporary piezometers, and five groundwater samples from the permanent groundwater monitoring wells.

Figure 3 of the *RI/FS Report* depicts the location of the temporary piezometers and soil borings, while Figure 4 of the document indicates the location of the permanent monitoring wells.

Select surface soil, subsurface soil, and groundwater samples were analyzed on-site with a portable bench gas chromatograph (GC) equipped with photoionization and flame ionization detectors, while the remaining samples were submitted to Envirotech Research, Inc. of Edison, New Jersey for analysis. On-site analyses were performed to determine the concentrations of VOCs and certain inorganic parameters, while samples submitted to the lab were analyzed for VOCs and other specified parameters (e.g., total organic carbon, and ethene). Soil samples were collected at 11 boring locations for on-site analysis, and at six locations for submittal to Envirotech Research for laboratory testing.

According to the *RI/FS Report* prepared by ELM, groundwater samples collected from the ten temporary piezometers were analyzed on-site for VOCs and geochemical parameters. Groundwater samples collected from the five permanent monitoring wells were submitted to Envirotech Research for the analysis of VOCs, methane, ethane, ethene, nitrate, sulfate, and chloride.

Surface soil samples were analyzed to determine if target compounds are present in the on-site surface soils, and to evaluate if there is the potential for direct human exposure to VOCs. Trace levels of VOCs were detected in all four surface soil samples (GP-1, GP-2, PZ-3, and PZ-09), however none of the concentrations were found to exceed NYSDEC Recommended Soil Cleanup Objective (RSCO) levels.

Subsurface soil samples were collected at varying depths from ten different locations in the former fire training area (GP-1, GP-2, GP-4, GP-5, GP-7, PZ-7, PZ-8, PZ-9, PZ-12, and PZ-13), and from one location in the former drum staging area (PZ-03). TCE in soil was detected at a maximum concentration of 35 mg/kg at a depth of 3.5 feet below ground surface (bgs) in boring GP-1, while the maximum concentrations of vinyl chloride (2.6 mg/kg), ethylbenzene (22 mg/kg) and total xylene (84 mg/kg) in soil were detected at a depth of 6.0 feet bgs in boring PZ-3.

The results of water quality analysis (as depicted on Table 2 of ELM's *RI/FS Report*) indicate that the highest concentrations of vinyl chloride (14,000 µg/L), trans-1,2-dichloroethene (920 µg/L), and toluene (5,300 µg/L) were detected at PZ-9, while the highest concentration of TCE (25,000 µg/L) was detected at PZ-12. The contravention of NYS groundwater standards occurred for one or more VOCs at the following sample locations: PZ-03, PZ-07, PZ-08, PZ-09, PZ-12, and PZ-13.

Interim Remedial Measure:

In conjunction with the performance of the RI, an interim remedial measure (IRM) was completed at the site on August 20, 1998. As stated in Section 2.4 (Interim Remedial Measure) of the March 1999 *RI/FS Report* prepared by ELM, the IRM consisted of the removal of approximately 25 empty drums from the former fire training area and adjacent areas of the site. In addition, the excavation of 15 cubic yards of soil from the area beneath and immediately adjacent to the former trench was also performed. The depth of the excavation was limited to 3.5 feet below the ground surface, equivalent to the elevation of the water table on August 20, 1998. The excavated soil was subjected to a waste characterization analysis using the Toxicity Characteristic Leaching Procedure (TCLP), and deemed to be hazardous.

Following the completion of soil excavation activities, a total of six soil samples were obtained from the sidewalls of the trench and submitted for the analysis of VOCs using EPA Method 8260B. The base of the excavated area was not sampled due to the presence of the shallow groundwater table. According to the *RI/FS Report*, the trench was backfilled with clean soil following the collection of post-excavation soil samples.

Examination of the analytical results for the sidewall soil samples (as presented in Table 5 of the *RI/FS Report)* reveal that there were exceedances of TCE, toluene, and total xylene in all six soil samples. Of particular noteworthiness were the detected concentrations of TCE, which ranged from 180 mg/Kg to 1,600 mg/Kg. However, ELM concludes in their *RI/FS Report* that:

> *The residual compounds are not a significant source of ground water contamination, because concentrations of TCE (originally released compound) has been consistently decreasing in ground water; in situations where there is an active source, dissolved concentrations in underlying ground water tend to remain stable over time and distance. Natural processes were actively degrading target compounds in the former release area prior to the IRM and the excavation conducted during the IRM resulted in significant target compound mass reduction.*

2.0 REMEDIAL INVESTIGATION FIELD ACTIVITIES

The field activities conducted as part of this RI were sequenced to most effectively assess the impact of the site on the environment. The field activities were conducted between December 20, 2001 and April 2, 2002 and consisted of the following tasks:

- Collection of surface soil samples
- Subsurface Soil Sampling
- Installation of six monitoring wells
- Monitoring well development
- Collection of groundwater samples
- In-Situ Hydraulic Conductivity Testing
- Site Surveying

In addition one well (MW-06) was replaced with a new well with different screen length on June 17, 2002.

2.1 Surface Soil Sampling

On December 20, 2001, six surface soil samples (SS-01 to SS-06) were collected. Four surface soil samples (SS-01 through SS-04) were collected in the contamination source area, and two surface soil samples (SS-05 and SS-06) were collected on the former E. B. Metals property as background samples. The rationale for collection of each of the samples is presented in Table 2-1. The location of the samples were determined in the field by the NYSDEC representative and a URS geologist. Each sample was described, classified, and inspected for signs of contamination. A stainless steel spoon, which was decontaminated between each sample with a phosphorus free soap and deionized water, was used to collect the samples. Samples were analyzed for semi-volatile organic compounds (SVOCs) and TOC.

2.2 Subsurface Soil Sampling

Between January 8 and 16, 2002, 19 soil borings (SB-01 to SB-19) were advanced on the Poultney Street site. Fourteen soil borings (SB-01 through SB-14) were advanced in the area surrounding the primary source of contamination, and four soil borings (SB-15 through SB-18) were advanced in the area identified as a potential secondary source of contamination surrounding piezometer PZ-12. An additional boring SB-19 was advanced into the backfill of the sewer line adjacent to the site using a hand auger to evaluate the potential for the sewer line bedding to act as a conduit for the interception of subsurface contamination. Each soil boring location and total depth of the borings were determined in the field by the NYSDEC representative and URS field geologist. The objective of the borings was to delineate the clean "box" and determine extent of soil contamination.

The borings, with the exception of SB-19, were advanced by the personnel from SJB Drilling Company with a CME 850 drill rig using 3.25-inch inside diameter hollow shaft augers (HSAs). All borings were continuously sampled with a 2-inch diameter split spoon sampler and screened with a photo-ionization detector (PID) to evaluate for the presence of organic vapors. Spilt-spoon samples were collected in two-foot increments and each split-spoon sample was described and classified, inspected for signs of contamination, and screened with a PID by a URS geologist. All borings were sampled until reaching a confining layer of clay, which typically occurred between 16 and 20 feet below ground surface.

Soil samples submitted for laboratory analysis were determined by the NYSDEC representative based on the results of PID screening. The soil samples were submitted for analysis at a NYSDEC-approved laboratory. Thirty subsurface soil samples were collected for analytical analysis. This is five more samples than were assumed in the approved work plan. Collection of a greater number of samples was authorized in the field by the NYSDEC representative due to the high levels of contamination observed in the borings. These samples were collected where elevated PID readings were detected or from areas of concern identified by the NYSDEC representative. The rationale for collection of each of the samples is presented in Table 2-1. The samples were analyzed for Target Compound List (TCL) VOCs, SVOCs, and Total Organic Content (TOC). Subsurface boring logs for the borings advanced may be found in Appendix A.

2.3 Monitoring Well Installation

On January 16 to 18, 2002, six monitoring wells were installed to further define groundwater flow and the extent of groundwater contamination. Installation was preformed by SJB Drilling Company (SJB) at locations selected by a NYSDEC representative and a URS geologist based upon the approved work plan although with longer screens at the direction of the NYSDEC representative. MW-01, MW-02, and MW-03 were installed east of the primary source of contamination. MW-04 was installed north of the site on E. B. Metals property. MW-05 was installed west of, and MW-06 was installed adjacent to and on the northern side of, the primary source of contamination.

The monitoring well borings were advanced using an ATV-mounted CME-850 drill rig using 4.25-inch ID hollow-stem augers (HSAs). Continuous samples were collected in each boring using a 2-inch outside diameter (OD) split-spoon sampler. Each split-spoon sample was described, classified, inspected for signs of contamination, and screened with a PID by a URS geologist. All borings were sampled until reaching a confining layer of clay, which occurred between 17 and 21 feet below ground surface. Six soil samples were collected for analytical analysis. These samples were collected where elevated PID readings were detected or from areas of concern identified by the NYSDEC representative. The rationale for collection of each of the samples is presented in Table 2-1. The samples were analyzed for (TCL) VOCs, SVOCs, and TOC. Subsurface boring logs for the borings advanced may be found in Appendix A.

Upon completion, monitoring wells were installed in each boring. The monitoring wells consisted of two-inch inside diameter (ID) Schedule 40 PVC, 0.010-inch machine slotted screen connected to the surface with two-inch ID Schedule 40 PVC riser. The screen lengths ranged from 14.5 to 18 feet. According to the NYSDEC-approved work plan, each monitoring well were planned to be completed with a 10-foot long screen. During monitoring well installation, the NYSDEC representative requested the installation of longer well screens so that the entire saturated interval was screened at each well.

On June 17, 2002, URS replaced MW-06 with a new well, designated MW-6R. The original MW-6 was removed because review of groundwater elevation data available after

installation demonstrated that it was screened across two separate water bearing zones. Because this well was located directly in the source area, it could potentially act as a conduit for vertical migration. A new well was installed in the same borehole once the original well was removed. The new well was screened only in the lower water bearing zone characterizes by a sandy zone below the upper clay layers. All subsequent discussion of "new wells" or MW-06 in this report pertains to the original well installed in this location. Besides installation, no other activities, measurements, development, or sampling was completed for the replacement well.

Each well was finished with a 3-foot protective steel casing. Monitoring well construction logs are provided in Appendix A. Monitoring well construction data is summarized in Table 2-2.

2.4 Monitoring Well Development

The six newly installed wells were developed using a Waterra pump with dedicated/disposable high-density polyethylene (HDPE) tubing, foot valve, and surge block. Water quality was observed and wells were developed to the desired specification of less than 50 nephelometric turbidity units (NTU). MW-02 and MW-03 had a turbidity of higher than 50 NTU, but thirty-six and forty well volumes, respectively had been removed and the turbidity was approaching 50 NTUs when development was ceased. Monitoring well development logs are provided in Appendix B.

The five existing piezometers (PZ-03, PZ-04, PZ-07, PZ-09, and PZ-12) were re-developed using dedicated/disposable HDPE tubing and foot valve. Approximately 10 gallons of water was removed from each of piezometers PZ-03 and PZ-04. PZ-07, PZ-09, and PZ-12 went dry, yet recovered to within ten percent of their original volume within fifteen minutes. A minimum of three well volumes was removed from each of the piezometers. Piezometer development records are provided in Appendix B.

Water level measurements in piezometers and monitoring wells were collected on February 14, 2002 and April 2, 2002 and are presented in Table 2-3.

2.5 Groundwater Sampling

Groundwater at the six new wells (MW-01 to MW-06) and the five existing piezometers (PZ-03, PZ-04, PZ-07, PZ-09, and PZ-12) was sampled between February 8 and 12, 2002 to confirm the presence or absence of contamination. Each well or piezometer was purged and sampled as described in the approved work plan. Prior to sampling, each well was purged a minimum of three well volumes using a peristaltic pump and dedicated/disposable HDPE tubing. The wells were purged until water quality parameters were stable and three consecutive turbidity readings of less than 50 NTU were obtained. After purging was completed and the well had recharged sufficiently, samples were collected using a dedicated/disposable polyethylene bailer and dedicated polypropylene string. Purge logs are presented in Appendix C.

All samples were analyzed for TCL VOCs, chloride, methane, ethane, ethene, sulfide, sulfate, Dissolved Organic Carbon (DOC), and Nitrate. Natural attenuation parameters of chloride, methane/ethane/ethene, nitrate, sulfate, and sulfide were analyzed by the laboratory. Parameters analyzed in the field included ferrous iron, and phenolphthalein alkalinity. Results are summarized in Section 4.4.

2.6 In-Situ Hydraulic Conductivity Testing

On February 5, 2002, in-situ hydraulic conductivity tests were conducted at each of the newly installed wells. The field permeability tests consisted of rising-head slug tests. The water in each well was removed using a centrifugal pump equipped with 3/8-inch high-density polyethylene (HDPE) tubing and a foot valve. Dedicated tubing and foot valves were used. Pressure transducers with continuous recording data loggers were used to measure the changes in the water levels during each test. Each test was conducted as described in the approved Field Sampling Plan.

The field permeability test data were analyzed using the Bouwer & Rice Method (1976) that is applicable to both fully and partially penetrating wells in an unconfined aquifer or water bearing zone. As is presented below in section 3.5.2.2, two water-bearing zones have been found to be present at this site. Because the screened materials in well MW-03 are sand and the

screened materials in the other five wells consist of clay and sand, the data were analyzed by accounting for the inter-fingering clay and sand units within the screened interval. The hydraulic conductivity of the semi-confined sand unit is much greater than that of the semi-confining sandy clay unit. The hydraulic conductivities calculated are therefore indicative of the sand unit. More information is needed to characterize the hydraulic conductivity of the sandy clay unit, specifically the installation of monitoring wells that screen only the sandy clay unit.

The hydraulic conductivity testing results are summarized in Table 2-4. The assumptions and calculations for tests are presented in Appendix D.

2.7 Site Survey and Mapping

Following the completion of field activities, sampling locations were surveyed for horizontal location and elevation. Horizontal coordinates and elevations were initially tied into a local datum established on site. Surveyed locations and elevations of monitoring wells and piezometers are summarized in Table 2-5. The survey information was used to develop a base map of the site and adjacent areas that is used throughout this report. Because no benchmarks were available within the vicinity of the site, the base map was developed to a local datum. The local datum was set at a point about 14.6 feet northeast of MW-4, and designated a northing of 5,000 feet and an easting of 5,000 feet, with a magnetic north orientation. The vertical elevation was arbitrarily set at a spike on the eastern most utility pole shown on the drawings, and assigned an elevation of 100 feet. The horizontal survey data were then converted to state plane coordinates through manual registration to georeferenced aerial photographs. Elevations remain relative to an arbitrary local datum.

2.8 Data Validation and Data Usability Summary Reports

The data packages were prepared by the laboratory in accordance with the NYSDEC's Analytical Services Protocol (ASP) Category B Deliverable requirements. They were reviewed for compliance with the applicable methods and United States Environmental Protection Agency (USEPA) Region II *Contract Laboratory Program (CLP) Organic Data Review, SOP No. HW-6,* Rev. 11, June 1996. Qualifications applied to the sample results included "U" (undetected), "J"

(estimated value due to quality control QC outliers or concentration below the quantitation limit), and "JN" (presumptive evidence for the presence of the compound at an estimated value).

A Data Usability Summary Report (DUSR) was prepared following the guidelines provided in NYSDEC Division of Environmental Remediation *Guidance for the Development of Data Usability Summary Reports*, dated 1999 and the approved project *Final RI/FS Work Plan*, dated November 2002. The DUSR is submitted separately.

3.0 PHYSICAL CHARACTERISTICS OF THE STUDY AREA

3.1 Surface Features

The Poultney Street site is located on an island bounded by Wood Creek on the north, east, and south, and the Champlain Canal on the west. A raised railroad embankment, constructed of cinders and slag, runs along the south side of the site. The site is an unimproved lot and is mostly covered with grass. Dense vegetation surrounds the central portion of the site where the former fire training area was situated. The northern portion of the open area is paved with asphalt aggregate.

The topography of the site and the entire island is generally flat. The site is situated at an elevation of approximately 135 feet above mean sea level (msl). The topography west of the island is generally mountainous. The Champlain Canal is located immediately west of the site, and the canal and associated floodplains extend northward from the site. Skene Mountain is located northeast of the site. Wetlands are located south of Wood Creek, and the topography continues to be generally flat.

3.2 Demography and Land Use

According to information presented in the ELM *RI/FS Report* concerning land use in the immediate vicinity of the site, a retail gasoline station and a few residences are located on the island to the immediate north of Poultney Street. Undeveloped land exists to the south of the raised railroad embankment.

Regarding the surrounding land use, the ELM *RI/FS Report* states that,

> *Industrial properties, railroad tracks and a sanitary sewer plant are located approximately 300 feet west of the site, on the opposite side of the Champlain Canal. Further west (approximately 800 feet from the site) are mixed residential and commercial properties within the Village of Whitehall. Additional residential and commercial properties are also located on the opposite side of Wood Creek, approximately 800 feet east-northeast of the site.*

3.3 Soils

According to the Soil Survey of Washington County (USDA, 1975), the soil at the site consist of silty loams of the Teel, Saco, and Limerick Series. These floodplain deposits have high silt and organic contents and have low to moderate permeabilities. Based on the soil borings advanced at the site, a clay unit with silt and sand lenses is underlain by a sand unit and a gray clay unit. The top of the gray clay unit was encountered approximately 18 feet below the ground surface.

3.4 Surface Water Hydrology

The site is located within a floodplain on a small island, bounded by Wood Creek on the north, east, and south, and the Champlain Canal on the west. The direction of surface water flow within these two water bodies is to the north, to a confluence approximately 1,200 feet north of the site. Wood Creek is a tributary to the Mettawee River. Both the Mettawee River and the Champlain Canal surface waters have been assigned a designation of "Class C fresh surface water" by NYSDEC. Class C fresh surface water bodies are suitable for fish propagation and survival (NYCRR). The water quality of Class C waters is also suitable for primary and secondary contact recreation.

3.4.1 Site Drainage

As stated in the ELM *RI/FS Report,*

> *Bermed embankments separate the site from the Champlain Canal to the west, and from Wood Creek to the east. The southern area of the site is bounded by a raised railroad embankment and to the north, the built up bed of the site access road is present. These features, in combination with the relatively flat, flood-plain setting, prevent surface runoff from the site into adjacent surface water bodies. Based upon discussions with employees of the adjacent facility, the site is periodically subject to flooding as a result of this limited drainage capacity.*

3.5 Geology and Hydrogeology

The geology and hydrogeology in the site vicinity were studied as part of the RI. Information obtained from other studies conducted at the site and from various literature sources were used to help characterize the site hydrogeology. The following subsections summarize the regional and site-specific geology and hydrogeology.

3.5.1 Geology

3.5.1.1 Regional Geology

The site is situated in the Hudson-Champlain Lowlands physiographic terrain, which trends north-south (Fisher, 1984). This physiographic province is characterized by open, sparsely wooded, flatlands with very low to low relief. The overburden deposits are principally sands and clays of glacial origin.

Beneath the overburden deposits are principally carbonate rocks (dolomite and limestone) and sandstone of Middle to Lower Ordovician Age. According to information presented in the ELM *RI/FS Report*, the depth to bedrock at the site is uncertain, but is believed to be on the order of 50 to 100 feet.

3.5.1.2 Site Geology

Figure 3-1 shows lines of section. Figures 3-2 and 3-3 depict geologic cross-sections A-A' and B-B' at the site. Four stratigraphic units have been identified at the site. A two- to eight-foot thick layer of fill was encountered at most drilling locations. The fill consisted of sand and silt with some gravel and trace amounts of brick fragments, concrete, metal, and organics. The fill layer is underlain by a clay unit with fine sand lenses. The thickness of this sandy clay unit ranges from two to 14 feet across the site. The sandy clay unit is underlain by a layer of gray fine sand. A wedge of sand with fine gravel was identified within the sand unit in the northeastern portion of the site. The wedge thickens toward the north and east, and is absent under the remainder of the site. The sand unit is underlain by a laterally continuous deposit of

soft gray clay, as evidenced by the findings of the subsurface investigation. The elevation of the top of this basal clay unit is shown in Figure 3-4. As previously noted, the top of the bedrock surface was not encountered during the drilling program.

3.5.2 Hydrogeology

3.5.2.1 Regional Hydrogeology

The site is located on an island between the Champlain Canal and Wood Creek. The Wood Creek valley is characterized by lacustrine clays and silts deposited when the area was covered by glacial Lake Albany. The site groundwater discharges to surface waters of the Champlain Canal and Wood Creek. NYSDEC has classified all groundwater in the state as GA – suitable for potable water use (6 NYCRR 701), however, no drinking water supply wells were reported in the vicinity of the site.

3.5.2.2 Site Hydrogeology

The groundwater flow regime in the overburden was characterized as part of the RI. Two distinct water-bearing zones are apparent. The shallow groundwater flow regime occurs in the fill and the sandy clay unit, while the deep groundwater flow regime occurs in the lower semi-confined sand unit. This observation is supported by the fact that the piezometers screened in the sandy clay unit (PZ-07, PZ-09, and PZ-12) went dry during development, while the monitoring wells screened in the semi-confined sand unit did not. These two water-bearing zones were not noted in the ELM *RI/FS Report*, as the previously installed piezometers did not screen the semi-confined sand unit. Identification of two separate water bearing zones is a significant finding of this investigation.

The two water-bearing zones are in communication with one another through the semi-confining sandy clay unit. The basal clay unit defines the lower extent of the deep groundwater zone. The degree to which the two water-bearing zones are in communication with one another varies across the site, and is dependent on the lateral extent and thickness of the sandy clay unit.

As shown in Table 3-1, the newly installed monitoring wells are screened in the sandy clay unit, the semi-confined sand unit, and the basal confining clay layer, with the exception of monitoring wells MW-03 and MW-04, which additionally screen the fill material in the shallow subsurface. Since the monitoring wells screen both the shallow and deep water-bearing zones, the resultant water levels reflect a composite of the two zones and therefore do not provide representative water level data to be used in the interpretation of the direction of shallow or deep groundwater flow. Conversely, the piezometers are screened in the fill and/or sandy clay unit only, and thus represent the shallow groundwater. Thus, only these piezometers can be used to determine direction of groundwater flow. This groundwater flow determination reflects only the groundwater in the shallow sandy clay zone. Flow directions may be different in the deeper sand zone. Piezometers PZ-03, PZ-04, and PZ-12 are screened partly below the bottom of the sandy clay unit, but only for one to three feet compared with up to 8.5 feet for the newly installed monitoring wells. All five piezometers are hydraulically connected to the fill by the sand pack.

Figures 3-5 and 3-6 depict shallow groundwater elevation contours generated from water level data collected at the existing piezometers on February 14, 2002 and April 2, 2002. Shallow groundwater flows generally to the north and northwest from the former training area and discharges to the Champlain Canal and Wood Creek.

As described in Section 2.6, URS conducted slug tests at all newly installed monitoring wells, MW-01, MW-02, MW-03, MW-04, MW-05, and MW-06. The purpose of the slug tests was to determine the hydraulic conductivity of the sandy clay unit. However, these wells screen both the sandy clay and the deeper sand zones, and thus measurements reflect contributions from both zones. As shown in Table 2-4, the hydraulic conductivities calculated from the rising head tests ranged from 1.18×10^{-4} cm/sec to 1.20×10^{-3} cm/sec. Hydraulic conductivities were estimated during the previous investigation based on published ranges of values for silty sand and clayey sand to range from 5 x 10-5 cm/sec to 5 x 10-4 cm/sec across the site (ELM, 1999).

4.0 DISCUSSION OF NATURE AND EXTENT OF CONTAMINATION

This section characterizes the nature and extent of contamination detected in soil and groundwater in the vicinity of the Poultney Street site. Soil and groundwater contamination in the vicinity of the former fire training area reportedly occurred as a result of flammable containers being placed in a trench, opened and/or punctured, set ablaze and extinguished with water. As noted herein, the presence of non-aqueous phase liquid (NAPL) was detected by URS in the soil and groundwater at monitoring well MW-06. The following discussion presents the results of the field activities and environmental sampling data for soil and groundwater.

4.1 Surface Soil Results

A total of six surface soil samples were collected as part of the RI (Figure 4-1). Four surface soil samples were collected from the abandoned fire training trench to assess the level of residual contamination remaining in that area of the site, while two surface soil samples were obtained away from areas of known contamination as background samples. The surface soil samples were analyzed for total organic carbon (TOC) and SVOCs.

The rationale for sample selections is presented in Table 2-1. Table 4-1 summarizes the analytical results and Appendix F presents the data validation tables. For characterization purposes, Table 4-1 includes NYSDEC criteria provided in Technical Administrative Guidance Memorandum 4046 for each of the detected compounds. These criteria provide a basis for determining soil cleanup levels at State Superfund Sites and are considered to be the applicable standards, criteria, and guidance (SCGs) value for this site. Figure 4-1 depicts compounds detected above the SCGs based upon the RI sampling results.

Merck 1059

Detected SVOC compounds that exceed the NYS soil SCGs include benzo(a)anthracene, benzo(a)pyrene, and dibenz(a,h)anthracene. Detected concentrations of benzo(a)anthracene ranged from 19 µg/kg in SS-04 to 310 µg/kg in SS-05, and reported concentrations of benzo(a)anthracene exceeded the NYS soil SCG at location SS-05. Detected concentrations of benzo(a)pyrene ranged from 27 µg/kg in SS-04 to 310 µg/kg in SS-05, and reported concentrations of benzo(a)pyrene exceeded the NYS soil SCG at two locations (SS-05 and SS-06).

Dibenz(a,h)anthracene was detected only in soil sample SS-05 at a concentration of 48 µg/kg, where it exceeded the NYS soil SCG.

All exceedances of SVOCs were found at the two surface soil sampling locations (SS-05 and SS-06) chosen to provide background soil quality information for the site. Therefore, no surface soil contamination is present at the site.

4.2 Subsurface Soil Results

Sixteen subsurface soil samples were collected at varying depths from NYSDEC-approved locations in the vicinity of the former fire training trench to define the lateral and vertical extent of subsurface soil contamination in that area of the site. In addition, seven subsurface soil samples were collected in the area surrounding piezometer PZ-12 to evaluate if a second source of contamination exists in this particular area of the site. The final subsurface soil sample was collected from boring SB-19 located on the south side of the sanitary sewer line that transects the site from east to west. The purpose of this subsurface soil sample was to evaluate the potential for the sewer line bedding to act as a conduit for the interception and transmission of subsurface contamination. The above referenced twenty-four soil samples were analyzed for VOCs, TOC, and SVOCs to account for past historical activities at the site (i.e. burning of solvents).

The rationale for sample selections is presented in Table 2-1. Table 4-2 summarizes the analytical results. Figure 4-2 depicts compounds detected above the SCGs based upon the RI sampling results.

Detected VOC compounds that exceed the NYS soil SCGs include benzene, ethylbenzene, toluene, TCE, vinyl chloride, and total xylene. TCE was detected most frequently and at the highest concentrations. Detected concentrations of TCE ranged from 1 µg/kg in SB-18 (8.0-10.0) to 150,000 µg/kg in SB-08 (10.0-12.0) in the immediate vicinity of the former fire training area. Reported concentrations of TCE exceeded the NYS soil SCG at 6 locations: SB-01 (10.0-12.0), SB-08 (4.0-6.0), SB-09 (4.0-6.0 and 16.0-18.0), SB-13 (16.0-18.0), SB-14 (12.0-14.0), and MW-06 (10.0-12.0).

Benzene, ethylbenzene, and total xylene were detected only in soil sample SB-05 (4.0-6.0) at concentrations of 140 µg/kg, 7,100 µg/kg, and 17,000 µg/kg respectively. Concentrations of all three compounds exceeded the NYS soil SCG in this soil sample. Detected concentrations of toluene ranged from 1 µg/kg in soil sample SB-19 (2.0-4.0) to 3,900 µg/kg in soil sample SB-05 (4.0-6.0), and exceeded the NYS soil SCG at two locations: SB-05 (4.0-6.0) and SB-08 (10.0-12.0). Detected concentrations of vinyl chloride ranged from 2 µg/kg in soil samples MW-05 (6.0-8.0), SB-03 (16.0-18.0), and SB-15 (4.0-6.0) to 790 µg/kg in soil sample SB-14 (12.0-14.0), and exceeded the NYS soil SCG at three locations: SB-01 (10.0-12.0), SB-05 (4.0-6.0), and SB-14 (12.0-14.0).

Detected SVOC compounds that exceed the NYS soil SCGs include benzo(a)anthracene, benzo(a)pyrene, dibenz(a,h)anthracene, and phenol. Detected concentrations of benzo(a)anthracene range from 55 µg/kg at SB-17 (16.0-18.0) to 350 µg/kg at SB-16 (4.0-6.0), and exceed the NYS soil SCG at two locations: SB-16 (4.0-6.0) and SB-19 (2.0-4.0). Detected concentrations of benzo(a)pyrene range from 45 µg/kg at SB-17 (16.0-18.0) to 280 µg/kg at SB-16 (4.0-6.0), and exceed the NYS soil SCG at two locations: SB-16 (4.0-6.0) and SB-19 (2.0-4.0). Detected concentrations of dibenz(a,h)anthracene range from 75 µg/kg at SB-19 (2.0-4.0) to 82 µg/kg at SB-16 (4.0-6.0), and exceed the NYS soil SCG at both locations. Phenol was detected in only one soil sample, MW-06 (10.0-12.0), where it exceeded the NYS soil SCG.

Figure 4-3 shows the horizontal extent of contamination in soils as defined by the analytical results from the subsurface soil samples. Further inference of the extent of soil contamination is based on the PID readings taken at two-foot intervals on all soil borings. Subsurface soils are characterized by high concentrations of contaminants in the vicinity of the former trench near monitoring wells MW-06 and PZ-09. Concentrations of detected compounds decrease radially away from these areas until the detected compounds no longer exceed the NYS soil SCGs. The vertical extent of contamination in soils is marked by the relatively impermeable basal clay unit, except in the vicinity of MW-06 and PZ-09. All PID readings at the top of the basal clay unit were close to zero, except in the vicinity of MW-06 and PZ-09, where minor seepage of contaminants is expected because of high concentrations of TCE detected in soils at MW-06.

The lack of significant contamination in soil borings SB-15 through SB-18 show that there is no secondary sources in the vicinity of PZ-12. A secondary source had been hypothesized based on the elevated levels of contamination in this piezometer. However, no such source was detected.

4.3 Groundwater Results

One round of groundwater sampling was conducted during the period of February 8-12, 2002 as part of the RI. Specifically, groundwater samples were collected from the five existing piezometers (PZ-03, PZ-04, PZ-07, PZ-09, and PZ-12) and the six newly installed monitoring wells (MW-01 through MW-06) and submitted for the analysis of VOCs and natural attenuation (NA) parameters. The remaining piezometers from the ELM RI (PZ-01, PZ-02, PZ-08, PZ-13, and PZ-14) were installed as temporary piezometers and had been previously abandoned by ELM.

According to the approved work plan, the purpose of the field program was to gather sufficient site data to establish the nature and extent of site contamination necessary to formulate a feasibility study. This was to be accomplished by the installation of five shallow wells (10 foot screens) and one deep well. At the request of the NYSDEC Project Manager, this program was modified in the field, with the installation of six deep monitoring wells with 14.5 to 18.0 foot screens. Post-field interpretation of the geologic and hydrogeologic data showed, however, that two water bearing zones exist, and that these long screens span both zones. As a result, the hydrologic and geochemistry data collected from these wells cannot be applied with certainty to either the shallow or deep groundwater zones.

Table 4-3 summarizes the analytical results for the five piezometer and six monitoring well samples, and Appendix F presents the data validation tables. For characterization purposes, Table 4-3 includes NYSDEC criteria provided in TOGS 1.1.1 for each of the detected compounds. Figures 4-4 and 4-5 depict the compounds detected above the NYSDEC Class GA SCGs and their reported concentrations for shallow groundwater (piezometers) and monitoring wells, respectively.

Detected VOC compounds that exceed the NYS groundwater SCGs include 1,1,2-TCA, 1,1-DCE, 1,2-DCA, 1,2-DCE (cis and trans), acetone, benzene, ethylbenzene, methyl ethyl ketone (2-butanone), tetrachloroethene, toluene, TCE, vinyl chloride, and total xylene. 1,2-DCE (cis) was reported most frequently and at the highest concentrations. Detected concentrations of 1,2-DCE (cis) ranged from 12 µg/L in MW-04 to 160,000 µg/L in PZ-09. 1,2-DCE (cis) was reported at concentrations above the NYSDEC Class GA SCG in four of the five piezometers (excluding PZ-03), and five of six newly installed monitoring wells (excluding MW-04). The reported concentration of 1,2-DCE (cis) in piezometer PZ-09 is slightly less than the concentration of 180,000 µg/l reported by ELM in their *RI/FS Report* based on the results of the August 1998 sampling event. A comparison of the 1,2-DCE (cis) concentrations in piezometer PZ-12 for the August 1998 and February 2002 sampling events is the same (11,000 µg/L).

Detected concentrations of TCE ranged from 7 µg/l in MW-04 to 25,000 µg/L in PZ-12, and reported concentrations of TCE exceeded the NYSDEC Class GA SCG at seven locations (MW-01, MW-02, MW-03, MW-05, MW-06, PZ-09, PZ-12,). The reported concentration of 25,000 µg/L of TCE in piezometer PZ-12 is the same concentration reported by ELM in their *RI/FS Report* for the August 1998 sampling event. The reported concentration of TCE in piezometer PZ-09 (13,000 µg/L) is only slightly less than the August 1998 concentration of 14,000 µg/L reported by ELM.

Vinyl chloride was detected at concentrations ranging from 3 µg/L in PZ-07 to 10,000 µg/L in PZ-09, and reported concentrations of vinyl chloride exceeded the NYSDEC Class GA SCG at five locations (MW-03, MW-05, MW-06, PZ-07, and PZ-09). The reported concentration of 10,000 µg/L of vinyl chloride in piezometer PZ-09 is slightly less than the concentration of 14,000 µg/L reported by ELM for the August 1998 sampling event.

1,1,2-TCA was detected at concentrations ranging from 1 µg/L in MW-01 to 24 µg/L in PZ-09, and exceeded the NYSDEC Class GA SCG at PZ-09. 1,1-DCE was detected at a concentration of 0.8 µg/L in MW-05 and 200 µg/L at PZ-09, and exceeded the NYSDEC Class GA SCG at PZ-09. 1,2-DCA was detected at a concentration of 8 µg/L in PZ-09, where it exceeded the NYSDEC Class GA SCG. Detected concentrations of 1,2-DCE (trans) ranged from 1 µg/L in MW-02 to 330 µg/L in PZ-09. Detected concentration of 1,2-DCE (trans) exceeded

the NYSDEC Class GA SCG in four groundwater samples: MW-03, MW-05, PZ-09, and PZ-12. Acetone was detected at concentrations ranging from 6 µg/L in MW-03 and PZ-07 to 200 µg/L in PZ-09, and exceeded the NYSDEC Class GA SCG at PZ-09. Benzene was detected at concentration ranging from 0.8 µg/L in MW-05 to 34 µg/L in PZ-09, and exceeded the NYSDEC Class GA SCG in PZ-09. Ethylbenzene was detected at a concentration of 32 µg/L in PZ-09 and 110 µg/L in PZ-03, and exceeded the NYSDEC Class GA SCG in both groundwater samples. Methyl ethyl ketone (2-butanone) was detected at a concentration of 120 µg/L in PZ-09, where it exceeded the NYSDEC Class GA SCG. Tetrachloroethene was detected at a concentration of 6 µg/L in PZ-09 and 24 µg/L in PZ-12, and exceeded the NYSDEC Class GA SCG in both groundwater samples. Toluene was detected at a concentration of 10 µg/L in MW-05 and 1,300 µg/L in PZ-09, and exceeded the NYSDEC Class GA SCG in both groundwater samples. Total xylene was detected at a concentration of 120 µg/L in PZ-09 and 330 µg/L in PZ-03, and exceeded the NYSDEC Class GA SCG in both groundwater samples.

Detected concentrations of sulfide ranged from 0.60 µg/L in PZ-07 to 1.72 µg/L in PZ-09. Reported concentrations of sulfide exceeded the NYSDEC Class GA SCG at three locations: MW-06, PZ-07, and PZ-09. The presence of sulfide is indicative of strongly reducing conditions which are conducive to reductive dechlorination. A summary of all natural attenuation indicator parameters is presented in Table 4-4.

The groundwater contaminant plume in the shallow sandy clay zone extends to the northeast. The highest contaminant concentrations are in the vicinity of the source area near MW-06 and PZ-09, where the trench was formerly located, and to the northeast near PZ-12. This is in contrast to the general groundwater flow direction which is to the north and west. The top of the sandy clay unit decreases in elevation in the direction of PZ-12, and DNAPL, if present, may have flowed preferentially along the top of this semi-confining layer, from the source area towards PZ-12. This is a possible explanation of the elevated levels at PZ-12.

Contaminants were detected in the shallow groundwater at concentrations greater than that of compounds detected in the monitoring wells, which monitor both the shallow and deep groundwater. This is evident in the vicinity of MW-06 and PZ-09, where concentrations of TCE decrease from 13,000 to 60 µg/L, concentrations of vinyl chloride decrease from 10,000 to 23

µg/L, and concentrations of 1,2-dichloroethene (cis) decrease from 150,000 to 350 µg/L from shallow to deep groundwater.

As compounds migrate downward, they reach the semi-confining sandy clay unit, where they move slowly and accumulate. Because of the retarding effect of the clay in the sandy clay unit, only some of the contaminants reach the semi-confined sand unit below the sandy clay unit. Based on PID readings of soil samples taken during the soil boring and monitoring well installation programs, the vertical limit of groundwater contamination is expected to be limited to the top of the basal clay unit, except in the vicinity of the source area, where the basal clay unit is also contaminated.

The horizontal extent of contamination in the groundwater is unclear since compounds were detected exceeding the NYS groundwater SCGs in all groundwater samples, except MW-4. Additionally, the well screens in the newly installed wells were not limited to specific water-bearing zones, thus making data interpretation difficult. Installation of additional monitoring wells with isolated screen sections in the shallow and deep water-bearing units would be required to more fully characterize groundwater flow and to delineate the full extent of groundwater contamination at the site.

5.0 CONTAMINANT FATE AND TRANSPORT

5.1 Background

VOCs detected in the groundwater and soil at the site include BTEX compounds, chlorinated hydrocarbons, and ketones. Detected SVOCs in the soil include: benzo(a)anthracene, benzo(a)pyrene, dibenz(a,h)anthracene, and phenol. Results are summarized in Table 4-1 (surface soil analytical data), Table 4-2 (subsurface soil data) and Table 4-3 (groundwater analytical data).

Detections above the NYSDEC criteria were recorded for VOCs and SVOCs in the soil and VOCs in the groundwater. Therefore, this section focuses on the fate and transport processes acting on the various detected constituents in the subsurface environment. The discussion emphasizes processes that are essential in evaluating potential exposure of human and environmental receptors to the site contaminants.

5.2 General Description of Fate and Transport Mechanisms

5.2.1 Transport Processes

Contaminant transport in the subsurface can occur as migration of dissolved contaminants in groundwater or as migration of volatilized contaminants in the soil gas. Primary transport mechanisms are: advection, dispersion and partitioning of mass.

Advection occurs when the contaminant is carried by the flow of groundwater or soil gas. Dispersion refers to the spreading of the migrating contaminants due to the process of diffusion and mechanical mixing created by non-uniformities in the flow field. Dispersion results in the widening of the affected area, as well as in the smearing of the phase boundaries.

Mass partitioning is the process by which contaminants move between different environmental media in response to concentration gradients. Thus, for example, contaminants dissolved in groundwater may adsorb onto soil particles or volatilize into the soil gas. Based

upon the concentration gradients, the process may involve the mass transfer in any direction between any of the environmental media. The net result of mass partitioning is the distribution of the contaminant between all phases that remain in contact. Typically, mass partitioning acts to inhibit the migration of contaminants in groundwater or soil gas by immobilizing a part of the mass in the soil matrix (retardation). However, the process may be reversed, resulting in the slow release of the adsorbed contamination into the groundwater or soil gas.

5.2.2 Mass Destruction Processes

This discussion pertains to the subsurface environment. Therefore, mass destruction processes that rely on the presence of air or exposure to sunlight, such as photolysis, are of little importance and will not be discussed.

The most significant mass destruction process that takes place in groundwater is microbial degradation. During degradation, organic compounds may be transformed into daughter products through metabolic reactions. Daughter products formed as a result of degradation may be recalcitrant or degradable and either more or less toxic than the parent compounds. Degradable daughter products are ultimately metabolized into carbon dioxide and water.

The most significant microbial degradation processes operating in groundwater systems are: aerobic respiration, denitrification, iron reduction, sulfate reduction, and methanogenesis. Significant microbial degradation of chlorinated solvents occurs under anaerobic conditions.

There are also abiotic mechanisms that result in the destruction or transformation of the mass of organic contaminants. Examples of such reactions are hydrolysis and dehalogention. However, under normal temperature conditions prevailing in the subsurface environment, rates of these reactions are relatively low. Typically, the importance of these abiotic processes in the overall rate of mass destruction is low.

5.3 Fate and Transport of Site Contaminants

5.3.1 Properties

Contaminants detected at the site at levels exceeding the NYSDEC quality criteria consist primarily of BTEX compounds and chlorinated hydrocarbons in the groundwater and BTEX compounds, chlorinated hydrocarbons, and SVOCs in the soil. BTEX compounds and chlorinated hydrocarbons are volatile and moderately to highly soluble in groundwater. Their ability to adsorb onto the soil matrix is low to moderate. The properties of chlorinated hydrocarbons make them highly mobile in the subsurface environment. They are typically recalcitrant, except under anaerobic conditions. The SVOCs detected in the soil are strongly hydrophobic. Therefore, they are found adsorbed to the soil matrix.

5.3.2 Source of Contamination

Contamination at the Poultney Street site is attributed to the use of the parcel for fire training activities during the early 1970s by local fire departments. Specifically, containers of flammable liquids were placed in an elongated trench (approximate dimensions of 8 feet by 30 feet by 2 feet deep), then punctured, ignited, and extinguished with water. As a result of this practice, contaminants were introduced into the subsurface in the area surrounding the fire trench in the aqueous phase and as NAPL. As they migrated downward through the unsaturated zone, the compounds were continually adsorbed by the soil matrix. If the solvents encountered a low permeability layer, their downward movement may have been inhibited, in which case pools may have formed at the upper surface of the low permeability layer. Consequently, the final distribution of contamination depends on the overall mass of the contaminant release.

Due to the repeated use of the trench for fire training activities, the residual soil contamination at the site may be accompanied by distinctive pools of NAPL forming at the interface with low permeability layers. The pools can migrate laterally following the slope of the upper surface of low permeability zones. As previously discussed, isolated occurrences of NAPL were detected in the soil and groundwater at the site. However, the primary source of contamination is most likely the mass of contaminants adsorbed onto the soil matrix.

A summary of detected concentrations of BTEX compounds, chlorinated hydrocarbons, and SVOCs in the soil are shown in Tables 4-1 and 4-2. The distribution of soil contamination is shown in Figures 4-1 and 4-2. Most of the soil contamination is in the vicinity of the former fire training area. Exceedances of the NYSDEC soil criteria were recorded for several VOCs and SVOCs.

5.3.3 Dissolved Phase Contamination

Groundwater becomes contaminated when it comes into contact with contaminants adsorbed onto the soil at, or below, the water table. The dissolved phase contamination undergoes advection, dispersion and mass partitioning. Contaminated groundwater within the aquifer may undergo aerobic and/or anaerobic degradation. BTEX compounds are typically degraded under aerobic conditions. As the microorganisms degrade the BTEX compounds, the oxygen supply within the aquifer is depleted. As the aquifer becomes anaerobic, the dechlorination of chlorinated hydrocarbons becomes possible.

A summary of detected concentrations of BTEX compounds and chlorinated hydrocarbons in the groundwater are shown in Table 4-3. Examination of Figures 4-3 and 4-4 reveal that the groundwater contamination is found at higher concentrations within the shallow groundwater zone. Some contamination has apparently migrated vertically into the semi-confined sand unit where the confining layer is thin or absent (such as at the MW-03 location), or where the sand and silt lenses are interconnected. The newly installed deep monitoring wells screen both the shallow and deep groundwater zones. These wells may provide a preferential conduit for the downward migration of contamination at the site. In Section 8.0, URS recommends that all monitoring wells be abandoned to prevent further contamination of the deep groundwater zone.

6.0 QUALITATIVE HEALTH RISK ASSESSMENT

The qualitative health risk assessment (HRA) presented in this section provides an evaluation of potential adverse health effects that may result from exposure to contaminants attributable to historic activities at the Poultney Street site, under current and potential future site conditions. This qualitative HRA was performed to meet the objectives of NYSDEC Work Assignment D003825-32 and approved work plans (URS November 2001). It uses data and information collected during the field investigation to assess human health risk in the immediate and surrounding areas.

This qualitative HRA for the site follows the general format and procedures set forth in USEPA's Risk Assessment Guidance for Superfund (RAGS) (USEPA 1989). As such, it includes three of the four required components (i.e., risk characterization is not included because this assessment is qualitative):

- Identification of Chemicals of Potential Concern
- Exposure Assessment
- Toxicity Assessment

These components are presented in the following subsections.

6.1 Identification of Chemicals of Potential Concern

Based upon the analytical data obtained as part of this RI, the chemicals of potential concern (CPCs) were selected based on the frequency of detection, range of concentrations, and potential for migration, as well as whether the detected analytes exceeded criteria. Several volatiles were detected in groundwater and subsurface soil samples. Several semi-volatiles were detected in surface and subsurface soil samples. Tables 1-1 through 1-5 and Tables 4-1 through 4-7 identify detected compounds, identify criteria exceedances, and provide statistical summaries of detected compounds. Table 6-1 presents a summary of CPCs for all matrices and includes 1,1,2-TCA, 1,1-DCE, 1,2-DCA, 1,2-DCE (cis and trans), acetone, benzene, ethylbenzene, methyl

ethyl ketone, tetrachloroethene, toluene, TCE, vinyl chloride, xylene, benzo(a)anthracene, benzo(a)pyrene, dibenz(a,h)anthracene, and phenol.

6.2 Exposure Assessment

The purpose of this exposure assessment is to evaluate potential pathways of exposure at the Poultney Street site. An exposure pathway is the manner by which an individual may come in contact with a contaminant. The elements of a completed exposure pathway include: the contaminated environmental media (i.e., soil, water, or air); how the contaminant enters the body (i.e., inhalation, ingestion, and/or absorption through the skin); and the receptor (i.e., resident, trespasser, industrial worker) exposed to the contamination. Table 6-2 presents a summary of exposure pathways assessed for the Poultney Street site under current and future land use scenarios. The following subsections discuss the rationale for identifying these completed exposure pathways.

6.2.1 Identification of Potentially Exposed Receptors

The Poultney Street site is currently zoned for light industrial use. The zoning is not expected to change in the immediate future. Therefore, the current use and future use scenarios have been identified as abandoned industrial property. The site consists of an unimproved parcel of land, approximately two acres in size, located immediately to the south of the former E.B. Metals Facility. Access to the site is limited because the site is situated on an island bounded by Wood Creek and the Champlain Canal. There is one access road for entry onto the site. As shown in Table 6-2, under the current and future land use scenarios, it is possible that trespassers could potentially be exposed receptors.

Under the current land use scenario, there are no potable wells onsite. The public water supply for the Village of Whitehall is a surface water source located approximately four miles from the site at an elevation that is 800 feet higher than the site. Based upon our current understanding of the site hydrogeology, it is possible that groundwater may be discharging to the surface water bodies surrounding the island. The aquatic species present in the surface water bodies may serve as potentially exposed receptors. Therefore, under the current and future land

use scenarios, there are potentially exposed receptors associated with groundwater flow into the surface water bodies, as summarized in Table 6-2.

6.2.2 Identification of Media of Concern

In Section 4 (Discussion of Nature and Extent of Contamination), analytical results were presented on a medium-by-medium basis. As part of that presentation, comparisons were made between observed concentrations and applicable regulatory criteria, and criteria exceedances were noted. Within this report, a "medium of concern" is identified as a physical medium (e.g., surface soil, subsurface soil, or groundwater) in which one or more contaminants were detected at concentrations exceeding their applicable regulatory standards.

Groundwater currently is not used as a potable water supply (the drinking water source is a surface water body located four miles from the site). However, groundwater may be discharging to the surface water bodies surrounding the island. Therefore, groundwater is considered a medium of concern under the current and future land use scenarios, as shown in Table 6-2.

Under the current and future land use scenarios, trespassers entering the site could potentially be exposed to contaminated soil. Surface soil is not contaminated on site, and thus not a medium of concern. Subsurface soil is only accessible if a trespasser enters the site and physically exposes the underlying soil. Under the current and future land use scenarios, the potential for direct contact with contaminated subsurface soil is relatively low and therefore subsurface soil is a potential, but not likely, medium of concern.

6.2.3 Identification of Potential Routes of Exposure

Under the current and future land use scenarios (Table 6-2), exposure to site-related contaminants through drinking water is not expected since homes and businesses in the area are connected to a public water supply. However, groundwater may be discharging to the surface water bodies surrounding the island. Therefore, the potential exposure pathways that exist for groundwater include inhalation, ingestion and dermal absorption of contaminated surface water.

No potential exposure pathways exist for surface soils because the surface soil was not found to be uncontaminated. Completed exposure pathways do not exist for subsurface soil because of limited contact with the subsurface soils. Although inhalation of vapors generated from contaminated subsurface soil is a potential route of exposure to a trespasser, it is an unlikely route of exposure if the subsurface soil is not exposed.

6.3 Toxicity Assessment

Toxicity information for the CPCs identified in Section 6.1 are categorized by their relative effects on human health. Toxicological effects are divided into carcinogenic (i.e., cancer causing) and noncarcinogenic effects, with noncarcinogenic data further subdivided into chronic and subchronic (i.e., less than seven years) critical effects.

6.3.1 Carcinogenic Effects

The SmartTOX database was used to classify the CPCs identified in Table 6-1. The SmartTOX 1st Quarter 2001 Toxicity Value Lookup Table incorporates the changes on USEPA's Integrated Risk Information System (IRIS) from 12/12/2000 through 03/15/2001 and the Health Effects Assessment Summary Tables (HEAST) FY-1997 Annual Update. The USEPA classifies chemicals based on the "weight-of-evidence" for carcinogenicity, which expresses the degree of confidence relating to the likelihood that exposure to a given chemical could cause cancer in humans (USEPA 1989).

Five VOCs were classified by SmartTOX as having carcinogenic evidence. These compounds are summarized in Table 6-3. Benzene and vinyl chloride are known human carcinogens. Benzene and vinyl chloride were detected above criteria in both the groundwater and subsurface soil. 1,2-DCA is a probable human carcinogen. 1,2-DCA was detected above criteria in the groundwater. 1,1,2-TCA and 1,1-DCE are possible human carcinogens. 1,1,2-TCA and 1,1-DCE were detected above criteria in the groundwater.

Three SVOCs were classified by SmartTOX as having carcinogenic evidence. These compounds are summarized in Table 6-3. Benzo(a)anthracene, benzo(a)pyrene, and

dibenz(a,h)anthracene are probable human carcinogens. All three of these SVOCs were detected above criteria in the surface and subsurface soil.

6.3.2 Noncarcinogenic Effects

Critical effects express the toxic endpoint(s) of an adverse response (e.g., liver damage) associated with the exposure to noncarcinogenic chemicals. Table 6-4 identifies the toxicity values and potential noncarcinogenic effects for all of the CPCs identified in Table 6-1.

7.0 SUMMARY AND CONCLUSIONS

The RI was conducted to investigate contaminated soil and groundwater associated with past fire training activities at the Poultney Street site. Prior to this RI, three previous investigations were conducted at the site. A summary of these investigations and the data collected during them may be found in Section 1.4. Based on the results of the previous investigations, it was determined that contamination existed in site groundwater and subsurface soil.

The field activities associated with the RI were conducted in a single phase. Field activities included surface and subsurface soil sampling, installation of six monitoring wells, monitoring well development, groundwater level measurements, in-situ hydraulic conductivity testing, groundwater sampling and a site survey.

The specific objectives of the RI were:

- Collect additional data to determine the vertical and horizontal extent of soil contamination and chemical migration on-site and off-site.
- Install groundwater monitoring wells to evaluate groundwater flow direction and quality and determine the extent of any contaminant plume migrating from the site.
- Collect soil samples to determine whether a secondary source existed in the vicinity of PZ-12
- Sample bedding material along the sanitary sewer line to determine whether this is posing a preferential route of contaminant migration.

As illustrated in Figure 4-3, the vertical and horizontal extent of soil contamination at the Poultney Street site was determined based on the findings of this RI. However, due to the discovery in this investigation of two distinct water-bearing zones (that were not anticipated during the planning stages of the RI), the current spacing and configuration of the newly installed monitoring well network is deemed to be insufficient for the purpose of adequately

characterizing the shallow and deep groundwater flow regimes at the site. In addition, the extent of groundwater contamination at the site has not been fully delineated.

7.1 Hydrogeology

Four stratigraphic units that have been identified at the site: a fill layer, a clay unit with fine sand lenses, a semi-confined sand unit, and a laterally continuous basal clay unit. A wedge of fine gravel is present in the northeastern portion of the site. Bedrock was not encountered in any of the site borings, but is estimated to be approximately 50 to 100 feet below ground surface.

Based on boring log information and water level data, two water-bearing zones are present on the site: shallow groundwater in the sandy clay unit and deep groundwater in the semi-confined sand unit. Shallow groundwater (monitored by PZ-03, PZ-04, PZ-07, PZ-09, and PZ-12) flows generally north and northwest from the vicinity of PZ-09 and discharges to the Champlain Canal and Wood Creek. Hydraulic conductivities were measured in the new monitoring wells which span both water bearing zones. Measured hydraulic conductivities range from 1.18×10^{-4} cm/sec to 1.20×10^{-3} cm/sec. As previously discussed, the direction of groundwater flow in the semi-confined sand unit could not be determined due to the screened intervals of the newly installed monitoring wells that screen both the shallow and deep groundwater flow regimes. The basal clay unit define the lower extent of the deep groundwater zone. The two water-bearing units are in communication via the semi-confining sandy clay unit. That is, the clay in this unit is not laterally continuous, and is absent in the northeastern portion of the site. Therefore, there is a certain degree of communication of groundwater between the two zones where the clay is thin or absent, especially in the vicinity of MW-3.

7.2 Contamination Assessment

7.2.1 Surface Soil

Parameter concentrations detected in the surface soils are indicative of natural background levels, as all exceedances of SVOCs (benzo(a)anthracene, benzo(a)pyrene, and dibenz(a,h)anthracene) were found at surface soil sampling locations SS-05 and SS-06, which

were chosen to provide background soil quality information for the site. Therefore, there is no contamination present in the surface soils at the Poultney Street site.

7.2.2 Subsurface Soil

Figure 4-3 shows the horizontal extent of contamination in soils as defined by the analytical results from the analyzed subsurface soil samples. Detected VOC compounds that exceed the NYS soil SCGs include benzene, ethylbenzene, toluene, TCE, vinyl chloride, and total xylene. To a much lesser extent, some SVOC compounds (benzo(a)anthracene, benzo(a)pyrene, dibenz(a,h)anthracene, and phenol) exceed the NYS soil SCGs. TCE was detected most frequently and at the highest concentrations.

Subsurface soils are characterized by high concentrations of contaminants the vicinity of the former trench near monitoring wells MW-06 and PZ-09. Concentrations of detected compounds decrease radially away from these areas until the detected compounds no longer exceed the NYS soil SCGs. The vertical extent of contamination in soils is marked by the relatively impermeable basal clay unit, except in the vicinity of MW-06.

No secondary contamination source was detected in the vicinity of PZ-12. Four borings were installed in this area and did not reveal significant levels of contaminants. Additionally, SB-19, installed in the sewer bedding along the sanitary sewer north of the site, was found to contain no VOCs above quantitation limit, suggesting that the bedding is not serving as a preferential migration pathway.

7.2.3 Groundwater

Detected VOC compounds that exceed the NYSDEC Class GA SCGs include 1,1,2-TCA, 1,1-DCE, 1,2-DCA, 1,2-DCE (cis and trans), acetone, benzene, ethylbenzene, methyl ethyl ketone (2-butanone), tetrachloroethene, toluene, TCE, vinyl chloride, and total xylene. Sulfide was also detected in concentrations that exceed the NYSDEC Class GA SCG.

The shape of the groundwater contaminant plume has not been defined. The highest contaminant concentrations are in the vicinity of the source area near MW-06 and PZ-09, where the trench was formerly located, and to the northeast near PZ-12. One possible explanation for elevated levels at PZ-12 is that, should DNAPL be present, it may have flowed along the top of the sandy clay unit, which decreases in elevation from the source area towards PZ-12. Contaminants were detected in the shallow groundwater at concentrations greater than that of compounds detected in the monitoring wells, which were screened in both the shallow and the deep zones.

Based on PID readings on soil samples collected during the boring program, the vertical limit of groundwater contamination is the top of the basal clay unit, except in the vicinity of the source area where the basal clay unit is also contaminated. The horizontal extent of contamination in the groundwater is unclear since compounds were detected exceeding the NYS groundwater SCGs in all groundwater samples, except MW-4. The installation of additional monitoring wells with screen sections isolated in the shallow and deep water-bearing units is necessary to adequately characterize groundwater flow and delineate the full extent of groundwater contamination at the site.

7.3 Contaminant Fate and Transport

Contaminants detected at the site at levels exceeding the NYSDEC quality criteria consist primarily of BTEX compounds and chlorinated hydrocarbons in the groundwater and BTEX compounds, chlorinated hydrocarbons, and SVOCs in the soil. Most of the soil and groundwater contamination exists in the vicinity of the former fire training area.

The Poultney Street site consists of undeveloped land with no residences, therefore with the exception of trespassers, the presence of contaminants in the soil does not constitute a potential risk. Likewise, groundwater on the site is not used for drinking water purposes, therefore there is no potential for human exposure via contaminated groundwater.

Contaminated groundwater within the aquifer may undergo aerobic and/or anaerobic degradation. BTEX compounds are typically degraded under aerobic conditions. As the microorganisms degrade the BTEX compounds, the oxygen supply within the aquifer is depleted. As the aquifer becomes anaerobic, the reductive dechlorination of chlorinated hydrocarbons becomes possible. In summary, the presence of both BTEX compounds and chlorinated hydrocarbons in the groundwater favors microbial degradation.

The presence of degradation products such as cis-1,2-DCE and vinyl chloride suggest that there is active anaerobic biodegradation occurring in the aquifer. Biological degradation is a necessary component for natural attenuation to be a factor in remediating this site. However, because of the large source area, which contains free product, natural attenuation alone would not be sufficient for remediating the site. Action to address the source area would also be needed.

7.4 Qualitative Health Risk Summary

Based upon the analytical data obtained as part of this RI, the chemicals of potential concern are 1,1,2-TCA, 1,1-DCE, 1,2-DCA, 1,2-DCE (cis and trans), acetone, benzene, ethylbenzene, methyl ethyl ketone, tetrachloroethene, toluene, TCE, vinyl chloride, xylene, benzo(a)anthracene, benzo(a)pyrene, dibenz(a,h)anthracene, and phenol.

The Poultney Street site is currently zoned for light industrial use. The zoning is not expected to change in the immediate future. Therefore, the current and future use scenarios have been identified as abandoned industrial property. It is possible that trespassers could potentially be exposed receptors. There are no potable wells onsite. There are potentially exposed receptors associated with groundwater flow into the surface water bodies. The potential for direct contact with contaminated surface and subsurface soil is relatively low. Contact with subsurface soil is a potential, but not likely, media of concern.

Five VOCs were classified by SmartTOX as having carcinogenic evidence: benzene, vinyl chloride, 1,2-DCA, 1,1,2-TCA, and 1,1-DCE. Three SVOCs were classified by SmartTOX as having carcinogenic evidence: benzo(a)anthracene, benzo(a)pyrene, and dibenz(a,h)anthracene.

8.0 REFERENCES

Bouwer, H. and Rice, R.C., 1976. A Slug Test for Determining Hydraulic Conductivity of Unconfined Aquifers with Completely or Partially Penetrating Wells. *Water Resources Research*, 12(3), p. 423.

Bouwer, H., 1989. The Bouwer and Rice Slug Test – an Update. Groundwater, 27(3), p. 304.

Butler, J.J., 1997. *The Design, Performance, and Analysis of Slug Tests*. Lewis Publishers. New York.

Camp, Dresser & McKee, 1995. Field Data Package, Immediate Investigation Work Assignment, Poultney Street Site, Whitehall, New York.

Environmental Liability Management, Inc., 1999. Remedial Investigation/Feasibility Study Report, Poultney Street Site, Whitehall, New York.

Fisher, Donald W., 1984. Bedrock Geology of the Glenn Falls-Whitehall Region, New York. New York State Museum Map and Chart Series, No. 35.

New York State Department of Environmental Conservation (NYSDEC). 1989. Poultney Street Site – December 5, 1989 Sampling Event.

U.S. Department of Agriculture (USDA). 1975. Soil Survey of Washington County. Soil Conservation Service in Cooperation with Cornell University Agricultural Experiment Station.

United States Environmental Protection Agency. 1989. Risk Assessment Guidance for Superfund (RAGS). EPA/540/1-89/002. December.

TABLES

TABLE 2-1

SOIL SAMPLING RATIONALE
POULTNEY STREET

Sample Location	Sample Interval (feet)	Soil Vapor (ppm)	Sample Rationale
MW-01	16-18	140	Sample taken due to elevated soil vapor readings.
MW-02	14-16	8	Sample taken due to elevated soil vapor readings.
MW-03	16-18	14	Sample taken due to elevated soil vapor readings.
MW-04	8-10	1	Sample taken due to elevated soil vapor readings.
MW-05	6-8	9	Sample taken due to elevated soil vapor readings.
MW-06	10-12	440	Sample taken due to elevated soil vapor readings and because there is free product in the soil.
SB-01	10-12	275	Sample taken due to elevated soil vapor readings.
SB-01	18-20	0	Sample taken to confirm that the clay found at the bottom of the boring is in fact a confining layer.
SB-02	14-16	15	Sample taken due to elevated soil vapor readings.
SB-02	18-20	0	Sample taken to confirm that the clay found at the bottom of the boring is in fact a confining layer.
SB-03	16-18	16	Sample taken due to elevated soil vapor readings.
SB-03	18-20	0	Sample taken to confirm that the clay found at the bottom of the boring is in fact a confining layer.
SB-04	18-20	3	Sample taken due to elevated soil vapor readings.
SB-04	22-24	0	Sample taken to confirm that the clay found at the bottom of the boring is in fact a confining layer.
SB-05	4-6	135	Sample taken due to elevated soil vapor readings.
SB-06	16-18	7	Sample taken due to elevated soil vapor readings and to determine if a DNAPL is migrating through the sand layer.
SB-07	12-14	80	Sample taken due to elevated soil vapor readings and to determine if an LNAPL occurs at the top of the sand layer.
SB-08	10-12	600	Sample taken due to elevated soil vapor readings and proximity to source area.

TABLE 2-1

SOIL SAMPLING RATIONALE
POULTNEY STREET

Sample Location	Sample Interval (feet)	Soil Vapor (ppm)	Sample Rationale
SB-09	4-6	600	Sample taken due to elevated soil vapor readings and appearance of a sheen on the soil.
SB-09	16-18	30	Sample taken to confirm that the clay found at the bottom of the boring is in fact a confining layer.
SB-10	14-16	40	Sample taken due to elevated soil vapor readings.
SB-11	14-16	140	Sample taken due to elevated soil vapor readings.
SB-12	6-8	19	Sample taken due to elevated soil vapor readings.
SB-13	16-18	5	Sample taken due to elevated soil vapor readings and to determine if a DNAPL is migrating through the sand layer.
SB-14	12-14	300	Sample taken due to elevated soil vapor readings and to determine if an LNAPL occurs at the top of the sand layer.
SB-15	4-6	18	Sample taken due to elevated soil vapor readings and to determine if the area surrounding PZ-12 is a secondary source of contamination.
SB-16	4-6	4	Sample taken due to elevated soil vapor readings and to determine if the area surrounding PZ-12 is a secondary source of contamination.
SB-17	16-18	6	Sample taken due to elevated soil vapor readings and to determine if the area surrounding PZ-12 is a secondary source of contamination.
SB-18	8-10	11	Sample taken due to elevated soil vapor readings and to determine if the area surrounding PZ-12 is a secondary source of contamination.
SB-19	2-4	0	Sample taken to determine if sewer line backfill is acting as a conduit for contamination migration.
SS-01	0.33-0.5	NM	Sample was taken to determine health risks of surface soils in the spill area.
SS-02	0.17-0.33	NM	Sample was taken to determine health risks of surface soils in the spill area.
SS-03	0.08-0.25	NM	Sample was taken to determine health risks of surface soils in the spill area.
SS-04	0.08-0.25	NM	Sample was taken to determine health risks of surface soils in the spill area.
SS-05	0.08-0.25	NM	Sample was taken to determine background contamination that may exist beyond spill area.
SS-06	0.08-0.25	NM	Sample was taken to determine background contamination that may exist beyond spill area.

TABLE 2-2 *DRAFT*

SUMMARY OF MONITORING WELL AND PIEZOMETER CONSTRUCTION DATA
POULTNEY STREET

Monitoring Well ID	Ground Elevation (ft)	Screen Depth (ft)	Top Screen Elevation (ft)	Bottom Screen Elevation (ft)	Top Sandpack Depth (ft)	Top Sandpack Elevation (ft)
MW-01	99.07	3-20	96.07	79.07	2.5	96.57
MW-02	98.99	3-21	95.99	77.99	2.5	96.49
MW-03	97.16	3-18.5	94.16	78.66	2.5	94.66
MW-04	97.36	3-19	94.36	78.36	2.5	94.86
MW-05	99.13	3-17.5	96.13	81.63	2.5	96.63
MW-06	98.74	3-18	95.74	80.74	2.5	96.24
MW-06R	Not Measured	14.5-17.5	Not Measured	Not Measured	14.5	Not Measured
PZ-03	98.68	2-12	96.68	86.68	1	97.68
PZ-04	97.82	2-12	95.82	85.82	1	96.82
PZ-07	98.72	2-12	96.72	86.72	1	97.72
PZ-09	98.92	2-12	96.92	86.92	1	97.92
PZ-12	98.59	2-12	96.59	86.59	1	97.59

Note: All elevations are relative to BM#1, elevation 100.00 ft.

TABLE 2-3

WATER LEVEL DATA
POULTNEY STREET

Well ID	Elevation (ft.)			2/14/02		4/2/02	
	Casing	PVC	Ground	Groundwater Depth (ft.)	Groundwater Elevation	Groundwater Depth (ft.)	Groundwater Elevation
MW-01	102.17	102.03	99.07	7.75	94.28	6.93	95.10
MW-02	102.45	102.27	98.99	8.01	94.26	7.14	95.13
MW-03	100.15	99.91	97.16	5.58	94.33	4.82	95.09
MW-04	100.67	100.39	97.36	6.14	94.25	5.4	94.99
MW-05	101.57	101.44	99.13	7.4	94.04	6.17	95.27
MW-06	102.09	101.69	98.74	7.66	94.03	7	94.69
PZ-03	98.68	98.33	98.68	4.11	94.22	2.86	95.47
PZ-04	97.82	97.28	97.82	2.49	94.79	0.67	96.61
PZ-07	98.72	98.30	98.72	3.1	95.20	1.5	96.80
PZ-09	98.92	98.50	98.92	2.89	95.61	1.52	96.98
PZ-12	98.59	98.26	98.59	3.01	95.25	1.44	96.82

Notes:
All elevations are relative to BM#1, elevation 100.00 ft.

TABLE 2-4

SUMMARY OF HYDRAULIC CONDUCTIVITY TEST RESULTS
POULTNEY STREET

Monitoring Well ID	Screen Depth (ft)	Screened Materials	K (cm/s)
MW-01	3-20	clay and sand	4.58 E-04
MW-02	3-21	clay and sand	1.18 E-04
MW-03	3-18.5	sand	3.50 E-04
MW-04	3-19	clay and sand	3.04 E-04
MW-05	3-17.5	clay and sand	5.16 E-04
MW-06	3-18	clay and sand	1.20 E-03

TABLE 2-5

MONITORING WELL, PIEZOMETER, AND SOIL BORING SURVEY INFORMATION
POULTNEY STREET

Well ID	Survey		State Plane 83 New York East		Elevation (ft.)		
	Northing	Easting	Northing	Easting	Casing	Riser	Ground
MW-01	4945.17	4903.66	1719627.46	783535.26	102.17	102.03	99.07
MW-02	4918.05	4933.89	1719607.03	783570.84	102.45	102.27	98.99
MW-03	4966.17	4948.91	1719657.46	783575.47	100.15	99.91	97.16
MW-04	4991.81	4987.96	1719691.13	783608.66	100.67	100.39	97.36
MW-05	4949.63	4824.31	1719615.17	783455.94	101.57	101.44	99.13
MW-06	4926.55	4865.31	1719601.12	783501.23	102.09	101.69	98.74
PZ-03	4963.95	4728.60	1719619.76	783354.95	98.68	98.33	98.68
PZ-04	4992.07	4812.47	1719655.23	783433.26	97.82	97.28	97.82
PZ-07	4978.09	4875.83	1719657.24	783500.53	98.72	98.30	98.72
PZ-09	4924.10	4867.83	1719599.67	783505.55	98.92	98.50	98.92
PZ-12	4946.94	4951.49	1719641.18	783582.53	98.59	98.26	98.59
SB-01	4940.35	4853.31	1719612.14	783486.54	NA	NA	98.79
SB-02	4948.80	4835.92	1719614.63	783467.63	NA	NA	99.09
SB-03	4918.29	4837.49	1719586.99	783475.52	NA	NA	99.01
SB-04	4908.25	4896.43	1719589.53	783535.84	NA	NA	98.75
SB-05	4900.88	4875.44	1719577.95	783516.77	NA	NA	98.83
SB-06	4883.00	4871.91	1719559.44	783517.05	NA	NA	99.37
SB-07	4917.26	4884.24	1719594.41	783521.42	NA	NA	98.75
SB-08	4929.71	4869.89	1719605.07	783505.05	NA	NA	98.75
SB-09	4918.67	4861.84	1719592.64	783499.53	NA	NA	97.85
SB-10	4942.07	4865.13	1719616.37	783497.84	NA	NA	98.89
SB-11	4929.92	4880.58	1719607.61	783515.78	NA	NA	98.77
SB-12	4922.39	4895.18	1719603.38	783531.61	NA	NA	99.05
SB-13	4931.57	4914.83	1719616.23	783549.27	NA	NA	98.85
SB-14	4901.32	4854.53	1719573.99	783496.00	NA	NA	99.05
SB-15	4959.07	4949.75	1719650.85	783577.81	NA	NA	97.62
SB-16	4947.53	4941.64	1719637.71	783572.15	NA	NA	98.07
SB-17	4940.04	4955.90	1719633.33	783587.84	NA	NA	99.08
SB-18	4949.28	4966.68	1719644.77	783596.60	NA	NA	97.99
SB-19	4990.79	4957.80	1719684.05	783579.08	NA	NA	97.29
SS-01	4919.94	4851.24	1719591.30	783488.85	NA	NA	97.68
SS-02	4911.50	4850.25	1719582.86	783489.57	NA	NA	98.58
SS-03	4912.30	4869.05	1719587.71	783507.89	NA	NA	97.95
SS-04	4921.60	4874.89	1719598.30	783511.84	NA	NA	98.72
SS-05	5021.73	4943.90	1719711.55	783558.82	NA	NA	96.51
SS-06	5021.58	4844.65	1719690.44	783460.87	NA	NA	97.48

Notes:
All elevations are relative to BM#1, elevation 100.00 ft.
All surveyed northings and eastings are relative to SPIKE #1. N 5,000.000 E 5,000.000.

SUMMARY OF MONITORING WELL AND PIEZOMETER SCREENED INTERVAL CHARACTERISTICS POULTNEY STREET

Monitoring Well ID	Screen Depth (feet)	Screen Length (feet)				
		Fill	Sandy Clay Unit	Sand Unit	Basal Clay Unit	Intercepted Groundwater Zone
MW-01	3-20	0	9	7.5	0.5	Shallow and Deep
MW-02	3-21	0	9	8	1	Shallow and Deep
MW-03	3-18.5	1	6	8	0.5	Shallow and Deep
MW-04	3-19	0	7	8.5	0.5	Shallow and Deep
MW-05	3-17.5	0	9	5	0.5	Shallow and Deep
MW-06	3-18	0	11	3.5	0.5	Shallow and Deep
MW-06R	14.5-17.5	0	0	2.5	0.5	Deep
PZ-03	2-12	2	6	2	0	Shallow
PZ-04	2-12	0	9	1	0	Shallow
PZ-07	2-12	0	10	0	0	Shallow
PZ-09	2-12	0	10	0	0	Shallow
PZ-12	2-12	0	7	3	0	Shallow

TABLE 4-1
SUMMARY OF SURFACE SOIL ANALYTICAL DATA
POULTNEY STREET

Location ID			SS-01	SS-02	SS-03	SS-04	SS-05
Sample ID			SS-1	SS-2	SS-3	SS-4	SS-5
Matrix			Soil	Soil	Soil	Soil	Soil
Depth Interval (ft)			-	-	-	-	-
Date Sampled			12/20/01	12/20/01	12/20/01	12/20/01	12/20/01
Parameter	**Units**	**Criteria***					
Semivolatile Organic Compounds							
Anthracene	UG/KG	50000					93 J
Benzo(a)anthracene	UG/KG	224			45 J	19 J	310 J
Benzo(a)pyrene	UG/KG	61			42 J	27 J	310 J
Benzo(b)fluoranthene	UG/KG	1100	36 J		35 J	28 J	250 J
Benzo(g,h,i)perylene	UG/KG	50000	130 J		54 J	59 J	120 J
Benzo(k)fluoranthene	UG/KG	1100			32 J	23 J	250 J
Butylbenzylphthalate	UG/KG	50000	180 J	27 J	320 J		
Carbazole	UG/KG	-					35 J
Chrysene	UG/KG	400	27 J		44 J	29 J	310 J
Dibenz(a,h)anthracene	UG/KG	14					48 J
Fluoranthene	UG/KG	50000	24 J		72 J	33 J	530
Fluorene	UG/KG	50000					25 J
Indeno(1,2,3-cd)pyrene	UG/KG	3200	39 J		26 J	37 J	170 J
Phenanthrene	UG/KG	50000	21 J		40 J	24 J	360 J
Pyrene	UG/KG	50000	31 J		61 J	33 J	560
Miscellaneous Parameters							
Total Organic Carbon (TOC)	MG/KG	-	93,350	43,560	37,560	111,000	85,410

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

Flags assigned during chemistry validation are shown.

Concentration Exceeds Criteria.

J - The reported concentration is an estimated value.

Only Detected Results Reported.

TABLE 4-1
SUMMARY OF SURFACE SOIL ANALYTICAL DATA
POULTNEY STREET

Location ID			SS-06
Sample ID			SS-6
Matrix			Soil
Depth Interval (ft)			-
Date Sampled			12/20/01
Parameter	**Units**	**Criteria***	
Semivolatile Organic Compounds			
Anthracene	UG/KG	50000	
Benzo(a)anthracene	UG/KG	224	78 J
Benzo(a)pyrene	UG/KG	61	81 J
Benzo(b)fluoranthene	UG/KG	1100	71 J
Benzo(g,h,i)perylene	UG/KG	50000	44 J
Benzo(k)fluoranthene	UG/KG	1100	65 J
Butylbenzylphthalate	UG/KG	50000	
Carbazole	UG/KG	-	
Chrysene	UG/KG	400	87 J
Dibenz(a,h)anthracene	UG/KG	14	
Fluoranthene	UG/KG	50000	130 J
Fluorene	UG/KG	50000	
Indeno(1,2,3-cd)pyrene	UG/KG	3200	53 J
Phenanthrene	UG/KG	50000	70 J
Pyrene	UG/KG	50000	130 J
Miscellaneous Parameters			
Total Organic Carbon (TOC)	MG/KG	-	92,090

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

Flags assigned during chemistry validation are shown.

(oval) Concentration Exceeds Criteria.

J - The reported concentration is an estimated value.

Only Detected Results Reported.

Advanced Selection: SS
J:\35944.01\db\Program\Program.mde
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[LOCID] LIKE "SS*"

TABLE 4-2
SUMMARY OF SUBSURFACE SOIL ANALYTICAL DATA
POULTNEY STREET

Location ID			MW-01	MW-02	MW-03	MW-04	MW-05
Sample ID			MW1-16-18	MW2-14-16	MW3-16-18	MW4-8-10	MW5-6-8
Matrix			Soil	Soil	Soil	Soil	Soil
Depth Interval (ft)			16.0-18.0	14.0-16.0	16.0-18.0	8.0-10.0	6.0-8.0
Date Sampled			01/17/02	01/17/02	01/18/02	01/18/02	01/16/02
Parameter	**Units**	**Criteria***					
Volatile Organic Compounds							
1,1,2-Trichloro-1,2,2-trifluoroethane	UG/KG	6000					
1,1-Dichloroethene	UG/KG	400					
1,2-Dichloroethene (cis)	UG/KG	-	88	2 J	4 J		2 J
1,2-Dichloroethene (trans)	UG/KG	300					
Acetone	UG/KG	200					
Benzene	UG/KG	60					
Carbon disulfide	UG/KG	2700					
Chloromethane	UG/KG	-					
Cyclohexane	UG/KG	-					
Ethylbenzene	UG/KG	5500					
Isopropylbenzene (Cumene)	UG/KG	-					
Methyl acetate	UG/KG	-					
Methyl ethyl ketone (2-Butanone)	UG/KG	300					
Methylcyclohexane	UG/KG	-					
Methylene chloride	UG/KG	100	2 J				2 J
Tetrachloroethene	UG/KG	1400					
Toluene	UG/KG	1500					
Trichloroethene	UG/KG	700	66	24			9 J
Vinyl chloride	UG/KG	200					2 J
Xylene (total)	UG/KG	1200					
Semivolatile Organic Compounds							
1,1'-Biphenyl	UG/KG	-					
2-Methylnaphthalene	UG/KG	36400					

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

Flags assigned during chemistry validation are shown.

Concentration Exceeds Criteria.

D - Result reported from a secondary dilution analysis.
J - The reported concentration is an estimated value.
NA - Not analyzed.
R - The data is rejected.

Only Detected Results Reported.

Advanced Selection: SUBSURFACE SOIL
J:\35944.01\db\Program\Program.mde
Printed: 4/11/02 1:50:55 PM
[LOCID] NOT LIKE 'SS*' AND [MATRIX] = 'SO'

TABLE 4-2
SUMMARY OF SUBSURFACE SOIL ANALYTICAL DATA
POULTNEY STREET

Location ID			MW-01	MW-02	MW-03	MW-04	MW-05
Sample ID			MW1-16-18	MW2-14-16	MW3-16-18	MW4-8-10	MW5-6-8
Matrix			Soil	Soil	Soil	Soil	Soil
Depth Interval (ft)			16.0-18.0	14.0-16.0	16.0-18.0	8.0-10.0	6.0-8.0
Date Sampled			01/17/02	01/17/02	01/18/02	01/18/02	01/16/02
Parameter	**Units**	**Criteria***					
Semivolatile Organic Compounds							
Anthracene	UG/KG	50000					
Benzo(a)anthracene	UG/KG	224					
Benzo(a)pyrene	UG/KG	61					
Benzo(b)fluoranthene	UG/KG	1100					
Benzo(g,h,i)perylene	UG/KG	50000					
Benzo(k)fluoranthene	UG/KG	1100					
bis(2-Ethylhexyl)phthalate	UG/KG	50000					
Butylbenzylphthalate	UG/KG	50000					
Carbazole	UG/KG	-					
Chrysene	UG/KG	400					
Dibenz(a,h)anthracene	UG/KG	14					
Di-n-butylphthalate	UG/KG	8100					
Di-n-octylphthalate	UG/KG	50000					
Fluoranthene	UG/KG	50000					
Fluorene	UG/KG	50000					
Indeno(1,2,3-cd)pyrene	UG/KG	3200					
Naphthalene	UG/KG	13000					
Phenanthrene	UG/KG	50000					
Phenol	UG/KG	30					
Pyrene	UG/KG	50000					
Miscellaneous Parameters							
Total Organic Carbon (TOC)	MG/KG	-	462	1,558	NA	1,413	2,192

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

Flags assigned during chemistry validation are shown.

Concentration Exceeds Criteria.

D - Result reported from a secondary dilution analysis.
J - The reported concentration is an estimated value.
NA - Not analyzed.
R - The data is rejected.

Only Detected Results Reported.

Advanced Selection: SUBSURFACE SOIL
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[LOCID] NOT LIKE 'SS*' AND [MATRIX] = 'SO'

TABLE 4-2
SUMMARY OF SUBSURFACE SOIL ANALYTICAL DATA
POULTNEY STREET

Location ID			MW-06	SB-01	SB-01	SB-03	SB-04
Sample ID			MW6-10-12	SB1-10-12	SB1-18-20	SB3-16-18	SB4-18-20
Matrix			Soil	Soil	Soil	Soil	Soil
Depth Interval (ft)			10.0-12.0	10.0-12.0	18.0-20.0	16.0-18.0	18.0-20.0
Date Sampled			01/16/02	01/08/02	01/08/02	01/09/02	01/09/02
Parameter	**Units**	**Criteria***					
Volatile Organic Compounds							
1,1,2-Trichloro-1,2,2-trifluoroethane	UG/KG	6000			4 J		
1,1-Dichloroethene	UG/KG	400					
1,2-Dichloroethene (cis)	UG/KG	-	4,900 J	2,800		140	68
1,2-Dichloroethene (trans)	UG/KG	300					
Acetone	UG/KG	200					
Benzene	UG/KG	60					
Carbon disulfide	UG/KG	2700					2 J
Chloromethane	UG/KG	-		220 J			
Cyclohexane	UG/KG	-					
Ethylbenzene	UG/KG	5500					
Isopropylbenzene (Cumene)	UG/KG	-					
Methyl acetate	UG/KG	-					
Methyl ethyl ketone (2-Butanone)	UG/KG	300					
Methylcyclohexane	UG/KG	-					
Methylene chloride	UG/KG	100					
Tetrachloroethene	UG/KG	1400					
Toluene	UG/KG	1500		230 J	54 J		
Trichloroethene	UG/KG	700	110,000	11,000	15 J	190	13
Vinyl chloride	UG/KG	200		270 J		2 J	
Xylene (total)	UG/KG	1200					
Semivolatile Organic Compounds							
1,1'-Biphenyl	UG/KG	-					
2-Methylnaphthalene	UG/KG	36400	210 J				

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

Flags assigned during chemistry validation are shown.

Concentration Exceeds Criteria.

D - Result reported from a secondary dilution analysis.
J - The reported concentration is an estimated value.
NA - Not analyzed.
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Only Detected Results Reported.

Advanced Selection: SUBSURFACE SOIL
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[LOCID] NOT LIKE 'SS*' AND [MATRIX] = 'SO'

TABLE 4-2
SUMMARY OF SUBSURFACE SOIL ANALYTICAL DATA
POULTNEY STREET

Location ID			MW-06	SB-01	SB-01	SB-03	SB-04
Sample ID			MW6-10-12	SB1-10-12	SB1-18-20	SB3-16-18	SB4-18-20
Matrix			Soil	Soil	Soil	Soil	Soil
Depth Interval (ft)			10.0-12.0	10.0-12.0	18.0-20.0	16.0-18.0	18.0-20.0
Date Sampled			01/16/02	01/08/02	01/08/02	01/09/02	01/09/02
Parameter	**Units**	**Criteria***					
Semivolatile Organic Compounds							
Anthracene	UG/KG	50000					
Benzo(a)anthracene	UG/KG	224					
Benzo(a)pyrene	UG/KG	61					
Benzo(b)fluoranthene	UG/KG	1100					
Benzo(g,h,i)perylene	UG/KG	50000					
Benzo(k)fluoranthene	UG/KG	1100					
bis(2-Ethylhexyl)phthalate	UG/KG	50000					2,000
Butylbenzylphthalate	UG/KG	50000	92 J				
Carbazole	UG/KG	-					
Chrysene	UG/KG	400					
Dibenz(a,h)anthracene	UG/KG	14					
Di-n-butylphthalate	UG/KG	8100					
Di-n-octylphthalate	UG/KG	50000					66 J
Fluoranthene	UG/KG	50000					
Fluorene	UG/KG	50000					
Indeno(1,2,3-cd)pyrene	UG/KG	3200					
Naphthalene	UG/KG	13000	140 J				
Phenanthrene	UG/KG	50000					
Phenol	UG/KG	30	47 J				
Pyrene	UG/KG	50000					
Miscellaneous Parameters							
Total Organic Carbon (TOC)	MG/KG	-	5,864	1,412 J	5,483 J	1,010 J	991 J

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

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J - The reported concentration is an estimated value.

NA - Not analyzed.

R - The data is rejected.

Only Detected Results Reported.

Advanced Selection: SUBSURFACE SOIL
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[LOCID] NOT LIKE 'SS*' AND [MATRIX] = 'SO'

TABLE 4-2
SUMMARY OF SUBSURFACE SOIL ANALYTICAL DATA
POULTNEY STREET

Location ID			SB-05	SB-06	SB-08	SB-09	SB-09
Sample ID			SB5-4-6	SB6-16-18	SB8-10-12	SB9-4-6	SB9-16-18
Matrix			Soil	Soil	Soil	Soil	Soil
Depth Interval (ft)			4.0-6.0	16.0-18.0	10.0-12.0	4.0-6.0	16.0-18.0
Date Sampled			01/10/02	01/10/02	01/11/02	01/11/02	01/11/02
Parameter	**Units**	**Criteria***					
Volatile Organic Compounds							
1,1,2-Trichloro-1,2,2-trifluoroethane	UG/KG	6000					
1,1-Dichloroethene	UG/KG	400	30 J				
1,2-Dichloroethene (cis)	UG/KG	-	23,000 DJ	350 DJ	10,000 J	34,000 J	1,800 J
1,2-Dichloroethene (trans)	UG/KG	300	160 J	2 J			
Acetone	UG/KG	200					
Benzene	UG/KG	60	140 J				
Carbon disulfide	UG/KG	2700	27 J	3 J			
Chloromethane	UG/KG	-					
Cyclohexane	UG/KG	-	510 J				
Ethylbenzene	UG/KG	5500	7,100 DJ				
Isopropylbenzene (Cumene)	UG/KG	-	110 J				
Methyl acetate	UG/KG	-					
Methyl ethyl ketone (2-Butanone)	UG/KG	300					
Methylcyclohexane	UG/KG	-	440 DJ				
Methylene chloride	UG/KG	100					19 J
Tetrachloroethene	UG/KG	1400	4 J				
Toluene	UG/KG	1500	3,900 DJ		2,500 J		
Trichloroethene	UG/KG	700	210 J	240 DJ	150,000 J	140,000 J	29,000 DJ
Vinyl chloride	UG/KG	200	550 J	13 J			
Xylene (total)	UG/KG	1200	17,000 DJ				
Semivolatile Organic Compounds							
1,1'-Biphenyl	UG/KG	-			57 J	280 J	
2-Methylnaphthalene	UG/KG	36400	450 J		740	5,000 D	

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

Flags assigned during chemistry validation are shown.

Concentration Exceeds Criteria.

D - Result reported from a secondary dilution analysis.
J - The reported concentration is an estimated value.
NA - Not analyzed.
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Only Detected Results Reported.

Advanced Selection: SUBSURFACE SOIL
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Printed: 4/11/02 1:50:56 PM
[LOCID] NOT LIKE 'SS*' AND [MATRIX] = 'SO'

TABLE 4-2
SUMMARY OF SUBSURFACE SOIL ANALYTICAL DATA
POULTNEY STREET

Location ID			SB-05	SB-06	SB-08	SB-09	SB-09
Sample ID			SB5-4-6	SB6-16-18	SB8-10-12	SB9-4-6	SB9-16-18
Matrix			Soil	Soil	Soil	Soil	Soil
Depth Interval (ft)			4.0-6.0	16.0-18.0	10.0-12.0	4.0-6.0	16.0-18.0
Date Sampled			01/10/02	01/10/02	01/11/02	01/11/02	01/11/02
Parameter	**Units**	**Criteria***					
Semivolatile Organic Compounds							
Anthracene	UG/KG	50000					
Benzo(a)anthracene	UG/KG	224					
Benzo(a)pyrene	UG/KG	61					
Benzo(b)fluoranthene	UG/KG	1100					
Benzo(g,h,i)perylene	UG/KG	50000					
Benzo(k)fluoranthene	UG/KG	1100					
bis(2-Ethylhexyl)phthalate	UG/KG	50000					
Butylbenzylphthalate	UG/KG	50000	390 J		250 J	3,900 D	110 J
Carbazole	UG/KG	-					
Chrysene	UG/KG	400					
Dibenz(a,h)anthracene	UG/KG	14					
Di-n-butylphthalate	UG/KG	8100				83 J	
Di-n-octylphthalate	UG/KG	50000	1,600 J				
Fluoranthene	UG/KG	50000				100 J	
Fluorene	UG/KG	50000				210 J	
Indeno(1,2,3-cd)pyrene	UG/KG	3200					
Naphthalene	UG/KG	13000	220 J		380 J	2,500	
Phenanthrene	UG/KG	50000	110 J		70 J	480	
Phenol	UG/KG	30					
Pyrene	UG/KG	50000	90 J			200 J	
Miscellaneous Parameters							
Total Organic Carbon (TOC)	MG/KG	-	3,550	4,078	7,673	12,030	6,335

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

Flags assigned during chemistry validation are shown.

Concentration Exceeds Criteria.

D - Result reported from a secondary dilution analysis.
J - The reported concentration is an estimated value.
NA - Not analyzed.
R - The data is rejected.

Only Detected Results Reported.

Advanced Selection: SUBSURFACE SOIL
J:\35944.01\db\Program\Program.mde
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[LOCID] NOT LIKE 'SS*' AND [MATRIX] = 'SO'

TABLE 4-2
SUMMARY OF SUBSURFACE SOIL ANALYTICAL DATA
POULTNEY STREET

Location ID			SB-10	SB-11	SB-12	SB-13	SB-13
Sample ID			SB10-14-16	SB11-14-16	SB12-6-8	SB13-10-12	SB13-16-18
Matrix			Soil	Soil	Soil	Soil	Soil
Depth Interval (ft)			14.0-16.0	14.0-16.0	6.0-8.0	10.0-12.0	16.0-18.0
Date Sampled			01/11/02	01/11/02	01/14/02	01/14/02	01/14/02
Parameter	**Units**	**Criteria***					
Volatile Organic Compounds							
1,1,2-Trichloro-1,2,2-trifluoroethane	UG/KG	6000					
1,1-Dichloroethene	UG/KG	400					
1,2-Dichloroethene (cis)	UG/KG	-	100 J	340 DJ	34	2 J	270
1,2-Dichloroethene (trans)	UG/KG	300					
Acetone	UG/KG	200			92		
Benzene	UG/KG	60					
Carbon disulfide	UG/KG	2700			2 J		5 J
Chloromethane	UG/KG	-					
Cyclohexane	UG/KG	-					
Ethylbenzene	UG/KG	5500					
Isopropylbenzene (Cumene)	UG/KG	-					
Methyl acetate	UG/KG	-		70 J			
Methyl ethyl ketone (2-Butanone)	UG/KG	300			12 J		
Methylcyclohexane	UG/KG	-					
Methylene chloride	UG/KG	100					
Tetrachloroethene	UG/KG	1400					
Toluene	UG/KG	1500		22 J			
Trichloroethene	UG/KG	700	170 J	510 DJ			1,500 DJ
Vinyl chloride	UG/KG	200	6 J	5 J			
Xylene (total)	UG/KG	1200					
Semivolatile Organic Compounds							
1,1'-Biphenyl	UG/KG	-					
2-Methylnaphthalene	UG/KG	36400					

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

Flags assigned during chemistry validation are shown.

(oval) Concentration Exceeds Criteria.

D - Result reported from a secondary dilution analysis.
J - The reported concentration is an estimated value.
NA - Not analyzed.
R - The data is rejected.

Only Detected Results Reported.

Advanced Selection: SUBSURFACE SOIL
J:\35944.01\db\Program\Program.mde
Printed: 4/11/02 1:50:56 PM
[LOCID] NOT LIKE 'SS*' AND [MATRIX] = 'SO'

TABLE 4-2
SUMMARY OF SUBSURFACE SOIL ANALYTICAL DATA
POULTNEY STREET

Location ID			SB-10	SB-11	SB-12	SB-13	SB-13
Sample ID			SB10-14-16	SB11-14-16	SB12-6-8	SB13-10-12	SB13-16-18
Matrix			Soil	Soil	Soil	Soil	Soil
Depth Interval (ft)			14.0-16.0	14.0-16.0	6.0-8.0	10.0-12.0	16.0-18.0
Date Sampled			01/11/02	01/11/02	01/14/02	01/14/02	01/14/02
Parameter	**Units**	**Criteria***					
Semivolatile Organic Compounds							
Anthracene	UG/KG	50000					
Benzo(a)anthracene	UG/KG	224					
Benzo(a)pyrene	UG/KG	61					
Benzo(b)fluoranthene	UG/KG	1100					
Benzo(g,h,i)perylene	UG/KG	50000					
Benzo(k)fluoranthene	UG/KG	1100					
bis(2-Ethylhexyl)phthalate	UG/KG	50000					
Butylbenzylphthalate	UG/KG	50000					
Carbazole	UG/KG	-					
Chrysene	UG/KG	400					
Dibenz(a,h)anthracene	UG/KG	14					
Di-n-butylphthalate	UG/KG	8100					
Di-n-octylphthalate	UG/KG	50000					510
Fluoranthene	UG/KG	50000					
Fluorene	UG/KG	50000					
Indeno(1,2,3-cd)pyrene	UG/KG	3200					
Naphthalene	UG/KG	13000					
Phenanthrene	UG/KG	50000					
Phenol	UG/KG	30					
Pyrene	UG/KG	50000					
Miscellaneous Parameters							
Total Organic Carbon (TOC)	MG/KG	-	933	1,656	4,412	2,417	1,472

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

Flags assigned during chemistry validation are shown.

Concentration Exceeds Criteria.

D - Result reported from a secondary dilution analysis.
J - The reported concentration is an estimated value.
NA - Not analyzed.
R - The data is rejected.

Only Detected Results Reported.

Advanced Selection: SUBSURFACE SOIL
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[LOCID] NOT LIKE "SS*" AND [MATRIX] = "SO"

TABLE 4-2
SUMMARY OF SUBSURFACE SOIL ANALYTICAL DATA
POULTNEY STREET

Location ID			SB-14	SB-15	SB-16	SB-17	SB-18
Sample ID			SB14-12-14	SB15-4-6	SB16-4-6	SB17-16-18	SB18-8-10
Matrix			Soil	Soil	Soil	Soil	Soil
Depth Interval (ft)			12.0-14.0	4.0-6.0	4.0-6.0	16.0-18.0	8.0-10.0
Date Sampled			01/14/02	01/15/02	01/15/02	01/15/02	01/15/02
Parameter	**Units**	**Criteria***					
Volatile Organic Compounds							
1,1,2-Trichloro-1,2,2-trifluoroethane	UG/KG	6000					
1,1-Dichloroethene	UG/KG	400					
1,2-Dichloroethene (cis)	UG/KG	-	18,000 J	1,000 J	39	2 J	8 J
1,2-Dichloroethene (trans)	UG/KG	300	59 J	12 J			
Acetone	UG/KG	200					
Benzene	UG/KG	60					
Carbon disulfide	UG/KG	2700		1 J			
Chloromethane	UG/KG	-					
Cyclohexane	UG/KG	-					
Ethylbenzene	UG/KG	5500					
Isopropylbenzene (Cumene)	UG/KG	-					
Methyl acetate	UG/KG	-					
Methyl ethyl ketone (2-Butanone)	UG/KG	300					
Methylcyclohexane	UG/KG	-					
Methylene chloride	UG/KG	100			1 J		
Tetrachloroethene	UG/KG	1400					
Toluene	UG/KG	1500					
Trichloroethene	UG/KG	700	12,000 J		2 J		1 J
Vinyl chloride	UG/KG	200	790	2 J			
Xylene (total)	UG/KG	1200					
Semivolatile Organic Compounds							
1,1'-Biphenyl	UG/KG	-					
2-Methylnaphthalene	UG/KG	36400					

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

Flags assigned during chemistry validation are shown.

Concentration Exceeds Criteria.

D - Result reported from a secondary dilution analysis.
J - The reported concentration is an estimated value.
NA - Not analyzed.
R - The data is rejected.

Only Detected Results Reported.

Advanced Selection: SUBSURFACE SOIL
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[LOCID] NOT LIKE 'SS*' AND [MATRIX] = 'SO'

TABLE 4-2
SUMMARY OF SUBSURFACE SOIL ANALYTICAL DATA
POULTNEY STREET

Location ID			SB-14	SB-15	SB-16	SB-17	SB-18
Sample ID			SB14-12-14	SB15-4-6	SB16-4-6	SB17-16-18	SB18-8-10
Matrix			Soil	Soil	Soil	Soil	Soil
Depth Interval (ft)			12.0-14.0	4.0-6.0	4.0-6.0	16.0-18.0	8.0-10.0
Date Sampled			01/14/02	01/15/02	01/15/02	01/15/02	01/15/02
Parameter	**Units**	**Criteria***					
Semivolatile Organic Compounds							
Anthracene	UG/KG	50000			100 J		
Benzo(a)anthracene	UG/KG	224		61 J	350 J	55 J	
Benzo(a)pyrene	UG/KG	61			280 J	45 J	
Benzo(b)fluoranthene	UG/KG	1100			270 J	43 J	
Benzo(g,h,i)perylene	UG/KG	50000			51 J	430	
Benzo(k)fluoranthene	UG/KG	1100		52 J	330 J	47 J	
bis(2-Ethylhexyl)phthalate	UG/KG	50000					
Butylbenzylphthalate	UG/KG	50000					
Carbazole	UG/KG	-			49 J		
Chrysene	UG/KG	400		61 J	380 J	73 J	
Dibenz(a,h)anthracene	UG/KG	14			82 J		
Di-n-butylphthalate	UG/KG	8100					
Di-n-octylphthalate	UG/KG	50000		56 J		780	
Fluoranthene	UG/KG	50000		110 J	690	97 J	
Fluorene	UG/KG	50000					
Indeno(1,2,3-cd)pyrene	UG/KG	3200			190 J		
Naphthalene	UG/KG	13000					
Phenanthrene	UG/KG	50000		87 J	490	71 J	
Phenol	UG/KG	30					
Pyrene	UG/KG	50000		130 J	660	120 J	
Miscellaneous Parameters							
Total Organic Carbon (TOC)	MG/KG	-	1,697	2,717	3,364	710	1,004

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

Flags assigned during chemistry validation are shown.

Concentration Exceeds Criteria.

D - Result reported from a secondary dilution analysis.
J - The reported concentration is an estimated value.
NA - Not analyzed.
R - The data is rejected.

Only Detected Results Reported.

Advanced Selection: SUBSURFACE SOIL
J:\35944.01\db\Program\Program.mde
Printed: 4/11/02 1:50:57 PM
[LOCID] NOT LIKE 'SS*' AND [MATRIX] = 'SO'

TABLE 4-2
SUMMARY OF SUBSURFACE SOIL ANALYTICAL DATA
POULTNEY STREET

Location ID			SB-19
Sample ID			SB19-2-4
Matrix			Soil
Depth Interval (ft)			2.0-4.0
Date Sampled			01/21/02
Parameter	**Units**	**Criteria***	
Volatile Organic Compounds			
1,1,2-Trichloro-1,2,2-trifluoroethane	UG/KG	6000	
1,1-Dichloroethene	UG/KG	400	
1,2-Dichloroethene (cis)	UG/KG	-	3 J
1,2-Dichloroethene (trans)	UG/KG	300	
Acetone	UG/KG	200	
Benzene	UG/KG	60	
Carbon disulfide	UG/KG	2700	
Chloromethane	UG/KG	-	
Cyclohexane	UG/KG	-	
Ethylbenzene	UG/KG	5500	
Isopropylbenzene (Cumene)	UG/KG	-	
Methyl acetate	UG/KG	-	
Methyl ethyl ketone (2-Butanone)	UG/KG	300	
Methylcyclohexane	UG/KG	-	
Methylene chloride	UG/KG	100	
Tetrachloroethene	UG/KG	1400	
Toluene	UG/KG	1500	1 J
Trichloroethene	UG/KG	700	7 J
Vinyl chloride	UG/KG	200	
Xylene (total)	UG/KG	1200	
Semivolatile Organic Compounds			
1,1'-Biphenyl	UG/KG	-	
2-Methylnaphthalene	UG/KG	36400	

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

Flags assigned during chemistry validation are shown.

Concentration Exceeds Criteria.

D - Result reported from a secondary dilution analysis.
J - The reported concentration is an estimated value.
NA - Not analyzed.
R - The data is rejected.

Only Detected Results Reported.

TABLE 4-2
SUMMARY OF SUBSURFACE SOIL ANALYTICAL DATA
POULTNEY STREET

Location ID			SB-19
Sample ID			SB19-2-4
Matrix			Soil
Depth Interval (ft)			2.0-4.0
Date Sampled			01/21/02
Parameter	**Units**	**Criteria***	
Semivolatile Organic Compounds			
Anthracene	UG/KG	50000	110 J
Benzo(a)anthracene	UG/KG	224	250 J
Benzo(a)pyrene	UG/KG	61	270 J
Benzo(b)fluoranthene	UG/KG	1100	220 J
Benzo(g,h,i)perylene	UG/KG	50000	380 J
Benzo(k)fluoranthene	UG/KG	1100	220 J
bis(2-Ethylhexyl)phthalate	UG/KG	50000	1,800
Butylbenzylphthalate	UG/KG	50000	
Carbazole	UG/KG	-	47 J
Chrysene	UG/KG	400	280 J
Dibenz(a,h)anthracene	UG/KG	14	75 J
Di-n-butylphthalate	UG/KG	8100	
Di-n-octylphthalate	UG/KG	50000	
Fluoranthene	UG/KG	50000	540
Fluorene	UG/KG	50000	
Indeno(1,2,3-cd)pyrene	UG/KG	3200	210 J
Naphthalene	UG/KG	13000	
Phenanthrene	UG/KG	50000	420 J
Phenol	UG/KG	30	
Pyrene	UG/KG	50000	400 J
Miscellaneous Parameters			
Total Organic Carbon (TOC)	MG/KG	-	39,070

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

Flags assigned during chemistry validation are shown.

Concentration Exceeds Criteria.

D - Result reported from a secondary dilution analysis.
J - The reported concentration is an estimated value.
NA - Not analyzed.
R - The data is rejected.

Only Detected Results Reported.

Advanced Selection: SUBSURFACE SOIL
J:\35944.01\db\Program\Program.mde
Printed: 4/11/02 1:58:57 PM
[LOCID] NOT LIKE 'SS*' AND [MATRIX] = 'SO'

TABLE 4-3
SUMMARY OF GROUNDWATER ANALYTICAL DATA
POULTNEY STREET

Location ID			MW-01	MW-02	MW-02	MW-03	MW-03
Sample ID			MW-01	MW-02	MW-02	MW-03	MW-03
Matrix			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)			-	-	-	-	-
Date Sampled			02/11/02	02/08/02	02/14/02	02/08/02	02/14/02
Parameter	**Units**	**Criteria***					
Volatile Organic Compounds							
1,1,2-Trichloroethane	UG/L	1	1 J		NA	2 J	NA
1,1-Dichloroethene	UG/L	5			NA		NA
1,2-Dichloroethane	UG/L	0.6			NA		NA
1,2-Dichloroethene (cis)	UG/L	5	460 D	170	NA	2,200 D	NA
1,2-Dichloroethene (trans)	UG/L	5	4 J	1 J	NA	23	NA
4-Methyl-2-pentanone	UG/L	-			NA		NA
Acetone	UG/L	50		7 J	NA	6 J	NA
Benzene	UG/L	1			NA		NA
Carbon disulfide	UG/L	60			NA		NA
Chloroform	UG/L	7		1 J	NA		NA
Cyclohexane	UG/L	-			NA		NA
Ethylbenzene	UG/L	5			NA		NA
Methyl ethyl ketone (2-Butanone)	UG/L	50			NA		NA
Methylene chloride	UG/L	5			NA		NA
Tetrachloroethene	UG/L	5			NA		NA
Toluene	UG/L	5			NA		NA
Trichloroethene	UG/L	5	500 D	620 D	NA	430 D	NA
Vinyl chloride	UG/L	2			NA	12	NA
Xylene (total)	UG/L	5			NA		NA
Miscellaneous Parameters							
Chloride	MG/L	250	48.3	5.2	NA		NA
Dissolved Organic Content	MG/L	-	11.7		NA	22.4	NA
Nitrate	MG/L	10		NA		NA	0.24

*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.

D - Result reported from a secondary dilution analysis.
J - The reported concentration is an estimated value.
NA - Not analyzed.

Only Detected Results Reported.

TABLE 4-3
SUMMARY OF GROUNDWATER ANALYTICAL DATA
POULTNEY STREET

Location ID			MW-01	MW-02	MW-02	MW-03	MW-03
Sample ID			MW-01	MW-02	MW-02	MW-03	MW-03
Matrix			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)			-	-	-	-	-
Date Sampled			02/11/02	02/08/02	02/14/02	02/08/02	02/14/02
Parameter	Units	Criteria*					
Miscellaneous Parameters							
Sulfate	MG/L	250	108	97.4	NA	44.5	NA
Sulfide	MG/L	0.05			NA		NA
Dissolved Gases							
Ethane	UG/L	-			NA		NA
Ethene	UG/L	-			NA		NA
Methane	UG/L	-	7 J	12 DJ	NA	21 DJ	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.

D - Result reported from a secondary dilution analysis.
J - The reported concentration is an estimated value.
NA - Not analyzed.

Only Detected Results Reported.

Advanced Selection: WG
J:\35944.01\db\Program\Program.mde
Printed: 4/11/02 1:54:51 PM
([LOCID] = 'MW-06' AND [RUN_NUMBER] = '2') OR ([MATRIX] = 'WG' AND [LOCID] <> 'MW-06')

TABLE 4-3
SUMMARY OF GROUNDWATER ANALYTICAL DATA
POULTNEY STREET

Location ID			MW-04	MW-04	MW-05	MW-05	MW-06
Sample ID			MW-04	MW-04	MW-05	MW-05	MW-06
Matrix			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)			-	-	-	-	-
Date Sampled			02/08/02	02/14/02	02/11/02	02/14/02	02/12/02
Parameter	Units	Criteria*					(1-2)
Volatile Organic Compounds							
1,1,2-Trichloroethane	UG/L	1		NA		NA	
1,1-Dichloroethene	UG/L	5		NA	0.8 J	NA	
1,2-Dichloroethane	UG/L	0.6		NA		NA	
1,2-Dichloroethene (cis)	UG/L	5		NA	3,100 D	NA	350
1,2-Dichloroethene (trans)	UG/L	5		NA	6 J	NA	
4-Methyl-2-pentanone	UG/L	-		NA		NA	
Acetone	UG/L	50		NA		NA	
Benzene	UG/L	1		NA	0.8 J	NA	
Carbon disulfide	UG/L	60		NA		NA	
Chloroform	UG/L	7		NA		NA	
Cyclohexane	UG/L	-		NA		NA	
Ethylbenzene	UG/L	5		NA		NA	
Methyl ethyl ketone (2-Butanone)	UG/L	50		NA		NA	
Methylene chloride	UG/L	5		NA		NA	
Tetrachloroethene	UG/L	5		NA		NA	
Toluene	UG/L	5		NA	10	NA	
Trichloroethene	UG/L	5		NA	12	NA	60
Vinyl chloride	UG/L	2		NA	730 D	NA	23 J
Xylene (total)	UG/L	5		NA		NA	
Miscellaneous Parameters							
Chloride	MG/L	250		NA	7.52	NA	183
Dissolved Organic Content	MG/L	-	5.24	NA	11.1	NA	120
Nitrate	MG/L	10	NA	0.72	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.

D - Result reported from a secondary dilution analysis.

J - The reported concentration is an estimated value.

NA - Not analyzed.

Only Detected Results Reported.

Advanced Selection: WG
J:\35944.01\db\Program\Program.mde
Printed: 4/11/02 1:54:51 PM
([LOCID] = 'MW-06' AND [RUN_NUMBER] = '2') OR ([MATRIX] = 'WG' AND [LOCID] <> 'MW-06')

TABLE 4-3
SUMMARY OF GROUNDWATER ANALYTICAL DATA
POULTNEY STREET

Location ID			MW-04	MW-04	MW-05	MW-05	MW-06
Sample ID			MW-04	MW-04	MW-05	MW-05	MW-06
Matrix			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)			-	-	-	-	-
Date Sampled			02/08/02	02/14/02	02/11/02	02/14/02	02/12/02
Parameter	Units	Criteria*					(1-2)
Miscellaneous Parameters							
Sulfate	MG/L	250	26.5	NA	40.8	NA	18.7
Sulfide	MG/L	0.05		NA		NA	1.44
Dissolved Gases							
Ethane	UG/L	-		NA	15 J	NA	99 J
Ethene	UG/L	-		NA	120 J	NA	1,600 DJ
Methane	UG/L	-	42 DJ	NA	520 DJ	NA	880 DJ

*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.

D - Result reported from a secondary dilution analysis.

J - The reported concentration is an estimated value.

NA - Not analyzed.

Only Detected Results Reported.

Advanced Selection: WG
J:\35944.01\db\Program\Program.mdb
Printed: 4/11/02 1:54:52 PM
([LOCID] = 'MW-06' AND [RUN_NUMBER] = '2') OR ([MATRIX] = 'WG' AND [LOCID] <> 'MW-06')

TABLE 4-3
SUMMARY OF GROUNDWATER ANALYTICAL DATA
POULTNEY STREET

Location ID			PZ-03	PZ-04	PZ-04	PZ-07	PZ-09
Sample ID			PZ-03	PZ-04	PZ-04	PZ-07	PZ-09
Matrix			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)			-	-	-	-	-
Date Sampled			02/12/02	02/11/02	02/14/02	02/11/02	02/12/02
Parameter	**Units**	**Criteria***					
Volatile Organic Compounds							
1,1,2-Trichloroethane	UG/L	1			NA		24
1,1-Dichloroethene	UG/L	5			NA		200
1,2-Dichloroethane	UG/L	0.6			NA		8 J
1,2-Dichloroethene (cis)	UG/L	5		12	NA	220 D	160,000 D
1,2-Dichloroethene (trans)	UG/L	5			NA	3 J	330 J
4-Methyl-2-pentanone	UG/L	-			NA		56
Acetone	UG/L	50			NA	6 J	200 J
Benzene	UG/L	1	0.9 J		NA		34
Carbon disulfide	UG/L	60			NA		1 J
Chloroform	UG/L	7			NA		
Cyclohexane	UG/L	-	15		NA		1 J
Ethylbenzene	UG/L	5	110		NA		32
Methyl ethyl ketone (2-Butanone)	UG/L	50			NA		120
Methylene chloride	UG/L	5	2 J		NA		3 J
Tetrachloroethene	UG/L	5			NA		6 J
Toluene	UG/L	5			NA		1,300 DJ
Trichloroethene	UG/L	5			NA	3 J	13,000 D
Vinyl chloride	UG/L	2			NA	3 J	10,000 D
Xylene (total)	UG/L	5	330		NA		120
Miscellaneous Parameters							
Chloride	MG/L	250		8.49	NA	103	
Dissolved Organic Content	MG/L	-	6.22		NA	23.6	41.8
Nitrate	MG/L	10	0.075	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.

D - Result reported from a secondary dilution analysis.

J - The reported concentration is an estimated value.

NA - Not analyzed.

Only Detected Results Reported.

TABLE 4-3
SUMMARY OF GROUNDWATER ANALYTICAL DATA
POULTNEY STREET

Location ID			PZ-03	PZ-04	PZ-04	PZ-07	PZ-09
Sample ID			PZ-03	PZ-04	PZ-04	PZ-07	PZ-09
Matrix			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)			-	-	-	-	-
Date Sampled			02/12/02	02/11/02	02/14/02	02/11/02	02/12/02
Parameter	Units	Criteria*					
Miscellaneous Parameters							
Sulfate	MG/L	250	41.8	79.8	NA	26.9	249
Sulfide	MG/L	0.05			NA	0.60	1.72
Dissolved Gases							
Ethane	UG/L	-			NA		57 J
Ethene	UG/L	-			NA		1,100 DJ
Methane	UG/L	-	140 DJ	10 J	NA	53 D	2,800 DJ

*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.

D - Result reported from a secondary dilution analysis.
J - The reported concentration is an estimated value.
NA - Not analyzed.

Only Detected Results Reported.

Advanced Selection: WG
J:\35944.01\db\Program\Program.mde
Printed: 4/11/02 1:54:52 PM
([LOCID] = 'MW-06' AND [RUN_NUMBER] = '2') OR ([MATRIX] = 'WG' AND [LOCID] <> 'MW-06')

TABLE 4-3
SUMMARY OF GROUNDWATER ANALYTICAL DATA
POULTNEY STREET

Location ID			PZ-12	PZ-12
Sample ID			PZ-12	PZ-12
Matrix			Groundwater	Groundwater
Depth Interval (ft)			-	-
Date Sampled			02/11/02	02/14/02
Parameter	**Units**	**Criteria***		
Volatile Organic Compounds				
1,1,2-Trichloroethane	UG/L	1		NA
1,1-Dichloroethene	UG/L	5		NA
1,2-Dichloroethane	UG/L	0.6		NA
1,2-Dichloroethene (cis)	UG/L	5	11,000 D	NA
1,2-Dichloroethene (trans)	UG/L	5	76 J	NA
4-Methyl-2-pentanone	UG/L	-		NA
Acetone	UG/L	50		NA
Benzene	UG/L	1		NA
Carbon disulfide	UG/L	60		NA
Chloroform	UG/L	7		NA
Cyclohexane	UG/L	-		NA
Ethylbenzene	UG/L	5		NA
Methyl ethyl ketone (2-Butanone)	UG/L	50		NA
Methylene chloride	UG/L	5		NA
Tetrachloroethene	UG/L	5	24 J	NA
Toluene	UG/L	5		NA
Trichloroethene	UG/L	5	25,000 D	NA
Vinyl chloride	UG/L	2		NA
Xylene (total)	UG/L	5		NA
Miscellaneous Parameters				
Chloride	MG/L	250	14.4	NA
Dissolved Organic Content	MG/L	-	20.3	NA
Nitrate	MG/L	10	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.

D - Result reported from a secondary dilution analysis.
J - The reported concentration is an estimated value.
NA - Not analyzed.

Only Detected Results Reported.

TABLE 4-3
SUMMARY OF GROUNDWATER ANALYTICAL DATA
POULTNEY STREET

Location ID			PZ-12	PZ-12
Sample ID			PZ-12	PZ-12
Matrix			Groundwater	Groundwater
Depth Interval (ft)			-	-
Date Sampled			02/11/02	02/14/02
Parameter	Units	Criteria*		
Miscellaneous Parameters				
Sulfate	MG/L	250	17.3	NA
Sulfide	MG/L	0.05		NA
Dissolved Gases				
Ethane	UG/L	-		NA
Ethene	UG/L	-	1 J	NA
Methane	UG/L	-	49 DJ	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.

D - Result reported from a secondary dilution analysis.
J - The reported concentration is an estimated value.
NA - Not analyzed.

Only Detected Results Reported.

TABLE 4-4

NATURAL ATTENUATION PARAMETER SUMMARY
POULTNEY STREET

	Date	Dissolved Oxygen (mg/L)	Redox Potential (mV)	Ferrous Iron (mg/L)	Methane (ug/L)	Ethene (ug/L)	Chloride (mg/L)	Dissolved Organic Content (mg/L)	Nitrate (mg/L)	Sulfate (mg/L)	Sulfide (mg/L)
MW-01	2/11/02	5.1	-54.6	0.0	7	-	48.3	11.7	-	108	-
MW-02	2/8/02	1.1	-29.7	4.5	12	-	5.2	-	-	79.4	-
	2/14/02	NA*	-50.6								
MW-03	2/8/02	3.0	-57.1	0.9	21	-	-	22.4	0.24	44.5	-
	2/14/02	NA*	-52.6								
MW-04	2/8/02	1.3	-54.1	0.0	42	-	-	5.24	0.72	26.5	-
	2/14/02	NA*	-54.4								
MW-05	2/11/02	2.0	-43.3	1.6	520	120	7.5	11.1	-	4.08	-
	2/14/02	NA*	-47.0								
MW-06	2/12/02	12.1	-48.3	3.8	880	1600	183	120	-	18.7	1.44
PZ-03	2/12/02	12.4	-40.3	0.58	140	-	-	6.2	0.075	41.8	-
PZ-04	2/11/02	11.2	-44.9	0.0	10	-	8.5	-	-	79.8	-
	2/14/02	NA*	-36.5								
PZ-07	2/12/02	-	-	-	53	-	103.0	23.6	-	26.9	0.6
PZ-09	2/12/02	4.3	-28.5	4.55	2800	1100	-	41.8	-	249	1.72
	2/11/02	9.3	-37.5	1.25							
PZ-12	2/12/02	5.3	-51.4	0.75	49	1	14.4	20.3	-	17.3	-
	2/14/02	NA*	-44.6	-							

Key
NA* : Not analyszed due to incorrect calibration
- : Not detected

TABLE 6-1

CHEMICALS OF POTENTIAL CONCERN IN SAMPLES COLLECTED

Chemical	Matrix		
	Groundwater	Surface Soil	Subsurface Soil
1,1,2-Trichloroethane	Yes	No	No
1,1-Dichloroethene	Yes	No	No
1,2-Dichloroethane	Yes	No	No
cis-1,2-Dichloroethene	Yes	No	No
trans-1,2-Dichloroethene	Yes	No	No
Acetone	Yes	No	No
Benzene	Yes	No	Yes
Ethylbenzene	Yes	No	Yes
Methyl ethyl ketone	Yes	No	No
Tetrachloroethene	Yes	No	No
Toluene	Yes	No	Yes
Trichloroethene	Yes	No	Yes
Vinyl chloride	Yes	No	Yes
Xylene	Yes	No	Yes
Benzo(a)anthracene	No	*	Yes
Benzo(a)pyrene	No	*	Yes
Dibenz(a,h)anthracene	No	*	Yes
Phenol	No	No	Yes

* Exist only in background soil samples at levels below the quantitative limit. Thus these typically detected compounds are not considered chemicals of potential concern.

TABLE 6-2

POTENTIAL PATHWAYS OF EXPOSURE

CURRENT AND FUTURE USE SCENARIOS Potentially Contaminated Medium	Potential Routes of Exposure	Potential Receptors	Pathway Complete?
Groundwater	Dermal absorption Ingestion Inhalation	Trespassers Aquatic Species	Unknown. Drinking (potable) water provided by surface water source 4 miles away. Possible for groundwater to discharge into surface water bodies surrounding island. Aquatic species and trespassers may come in contact with contaminated surface water.
Surface Soil	Dermal absorption Ingestion Inhalation	Trespassers	There are no chemicals of potential concern in site surface soil.
Subsurface Soil	Dermal absorption Ingestion Inhalation	Trespassers	No. It is unlikely that trespassers will come in contact with exposed subsurface soil.

TABLE 6-3
SUBSURFACE SOIL
TOXICITY VALUES: CARCINOGENIC EFFECTS

Compound	USEPA Weight-of-Evidence Classification	Slope Factor (mg/kg-day)^-1		Basis for Carcinogenicity Classification
		Inhalation	Oral	
Benzene	A (1)	0.027 (1)	0.055 (1)	Epidemiologic studies and case studies provide clear evidence of a causal association between exposure to benzene and acute nonlymphocytic leukemia (ANLL) and also suggest evidence for chronic nonlymphocytic leukemia (CNLL) and chronic lymphocytic...
Vinyl chloride	A (1)	0.031 (1)	1.4 (1)	Based on sufficient evidence for carcinogenicity in human epidemiology studies.
Benzo(a)anthracene	B2 (1)	NV (1)	NV (1)	No human data from animal bioassays. B(a)A produced tumors in mice exposed by gavage, i.p., subcutaneous, or intramuscular injection & topical application. B(a)A produced mutations in bacteria and mammalian cells, & transformed mammalian cells . .
Benzo(a)pyrene	B2 (1)	NV (1)	7.3 (1)	Human data specifically linking BAP to a carcinogenic effect are lacking. There are, however, multiple animal studies in many species demonstrating BAP to be carcinogenic following administration by numerous routes. BAP has produced positive . . .
Dibenz(a,h)anthracene	B2 (1)	NV (1)	NV (1)	No human data & sufficient data from animal bioassays. Produced carcinomas in mice following oral or dermal exposure & injection site tumors in several species folowing subcutaneous or intramuscular administration. Has induced DNA damage . . .

Source List:
1 SmartTOX Database
2 Based on estimated order of potency with respect to Benzo(a)pyrene presented in USEPA.
3 Chronic RFD is used for subchronic RFD when no subchronic value is available.

NV - No Value Available

USEPA Weight-of-Evidence Classification
A - Human Carcinogen
B1 or B2 - Probable Human Carcinogen
C - Possible Human Carcinogen

TABLE 6-3
GROUNDWATER
TOXICITY VALUES: CARCINOGENIC EFFECTS

Compound	USEPA Weight-of-Evidence Classification	Slope Factor (mg/kg-day)^-1		Basis for Carcinogenicity Classification
		Inhalation	Oral	
1,1,2-Trichloroethane	C (1)	0.056 (1)	0.057 (1)	Hepatocellular carcinomas and pheochromocytomas in one strain of mice. Carcinogenicity was not shown in rats. 1,1,2-Trichloroethane is structurally related 1,2-dichloroethane, a probable human carcinogen.
1,1-Dichloroethene	C (1)	0.175 (1)	0.6 (1)	Tumors observed in one mouse strain after inhalation exposure. Other studies were of inadequate design. Vinylidene chloride is mutagenic, and a metabolite is known to alkylate and to bind covalently to DNA. It is structurally related to the known
1,2-Dichloroethane	B2 (1)	0.091 (1)	0.091 (1)	Induction of several tumor types in rats and mice treated by gavage and lung pappillomas inmice afte topical application.
Benzene	A (1)	0.027 (1)	0.055 (1)	Epidemiologic studies and case studies provide clear evidence of a causal association between exposure to benzene and acute nonlymphocytic leukemia (ANLL) and also suggest evidence for chronic nonlymphocytic leukemia (CNLL) and chronic lymphocytic...
Vinyl chloride	A (1)	0.031 (1)	1.4 (1)	Based on sufficient evidence for carcinogenicity in human epidemiology studies.

Source List:
1 SmartTOX Database
2 Based on estimated order of potency with respect to Benzo(a)pyrene presented in USEPA.
3 Chronic RFD is used for subchronic RFD when no subchronic value is available.

NV - No Value Available

USEPA Weight-of-Evidence Classification
A - Human Carcinogen
B1 or B2 - Probable Human Carcinogen
C - Possible Human Carcinogen

TABLE 6-4
SUBSURFACE SOIL
TOXICITY VALUES: POTENTIAL NONCARCINOGENIC EFFECTS

Compound	Reference Dose (mg/kg-day)				Critical Effects			
	Inhalation		Oral		Inhalation		Oral	
	Chronic	Subchronic	Chronic	Subchronic	Chronic	Subchronic	Chronic	Subchronic
Benzene	NV (1)	NV (1)	NV (1)	NV (1)	—	—	—	—
Ethylbenzene	0.286 (1)	NV (1)	0.1 (1)	NV (1)	Developmental toxicity	—	Liver and kidney toxicity	—
Toluene	0.114 (1)	NV (1)	0.2 (1)	2.0 (1)	Neurological effects	—	Changes in liver and kidney weights	Liver - Altered weight; Kidney - Altered weight
Trichloroethene	NV (1)	NV (1)	NV (1)	NV (1)	—	—	—	—
Vinyl chloride	0.029 (1)	NV (1)	0.003 (1)	NV (1)	Liver cell polymorphism	—	Liver cell polymorphism	—
Xylene (total)	NV (1)	NV (1)	2.0 (1)	NV (1)	—	—	Hyperactivity, decreased body weight and increased mortality (males).	—
Benzo(a)anthracene	NV (1)	NV (1)	NV (1)	NV (1)	—	—	—	—
Benzo(a)pyrene	NV (1)	NV (1)	NV (1)	NV (1)	—	—	—	—
Dibenz(a,h)anthracene	NV (1)	NV (1)	NV (1)	NV (1)	—	—	—	—
Phenol	NV (1)	NV (1)	0.6 (1)	0.6 (1)	—	—	Reduced fetal body weights in rats	Fetus - Decreased weight

Source List:

1 SmartTOX Database
2 Based on estimated order of potency with respect to Benzo(a)pyrene presented in USEPA.
3 Chronic RFD is used for subchronic RFD when no subchronic value is available.

NV - No Values Available
NOEL - No Observed Effects Level

TABLE 6-4
GROUNDWATER
TOXICITY VALUES: POTENTIAL NONCARCINOGENIC EFFECTS

Compound	Reference Dose (mg/kg-day)				Critical Effects			
	Inhalation		Oral		Inhalation		Oral	
	Chronic	Subchronic	Chronic	Subchronic	Chronic	Subchronic	Chronic	Subchronic
1,1,2-Trichloroethane	NV (1)	NV (1)	0.004 (1)	0.04 (1)	—	—	Clinical serum chemistry	Blood - Clinical chemistry alterations
1,1-Dichloroethene	NV (1)	NV (1)	0.009 (1)	0.009 (1)	—	—	Hepatic lesions	Liver - Lesions
1,2-Dichloroethane	NV (1)	NV (1)	NV (1)	NV (1)	—	—	—	—
1,2-Dichloroethene (cis)	NV (1)	NV (1)	0.01 (1)	0.1 (1)	—	—	Blood - Decreased hematocrit; Blood - Decreased hemoglobin	Blood - Decreased hematocrit; Blood - Decreased hemoglobin
1,2-Dichloroethene (trans)	NV (1)	NV (1)	0.02 (1)	0.2 (1)	—	—	Increased serum alkaline phosphatase in male mice	Blood - Increased alkaline phosphatase
Acetone	NV (1)	NV (1)	0.1 (1)	1.0 (1)	—	—	Increased liver and kidney weights and nephrotoxicity	Liver - Increased weight; Kidney - Increased weight; Kidney - Nephrotoxicity
Benzene	NV (1)	NV (1)	NV (1)	NV (1)	—	—	—	—
Ethylbenzene	0.286 (1)	NV (1)	0.1 (1)	NV (1)	Developmental toxicity	—	Liver and kidney toxicity	—
Methyl ethyl ketone (2-Butanone)	0.286 (1)	0.286 (1)	0.6 (1)	2.0 (1)	Decreased fetal birth weight	Fetus - Decreased birth weight	Decreased fetal birth weight	Fetus - Decreased birth weight
Tetrachloroethene	NV (1)	NV (1)	0.01 (1)	0.1 (1)	—	—	Hepatotoxicity in mice, weight gain in rats	Liver - Hepatotoxicity
Toluene	0.114 (1)	NV (1)	0.2 (1)	2.0 (1)	Neurological effects	—	Changes in liver and kidney weights	Liver - Altered weight; Kidney - Altered weight

Source List:
1 SmartTOX Database
2 Based on estimated order of potency with respect to Benzo(a)pyrene presented in USEPA.
3 Chronic RFD is used for subchronic RFD when no subchronic value is available.

NV - No Values Available
NOEL - No Observed Effects Level

TABLE 6-4
GROUNDWATER
TOXICITY VALUES: POTENTIAL NONCARCINOGENIC EFFECTS

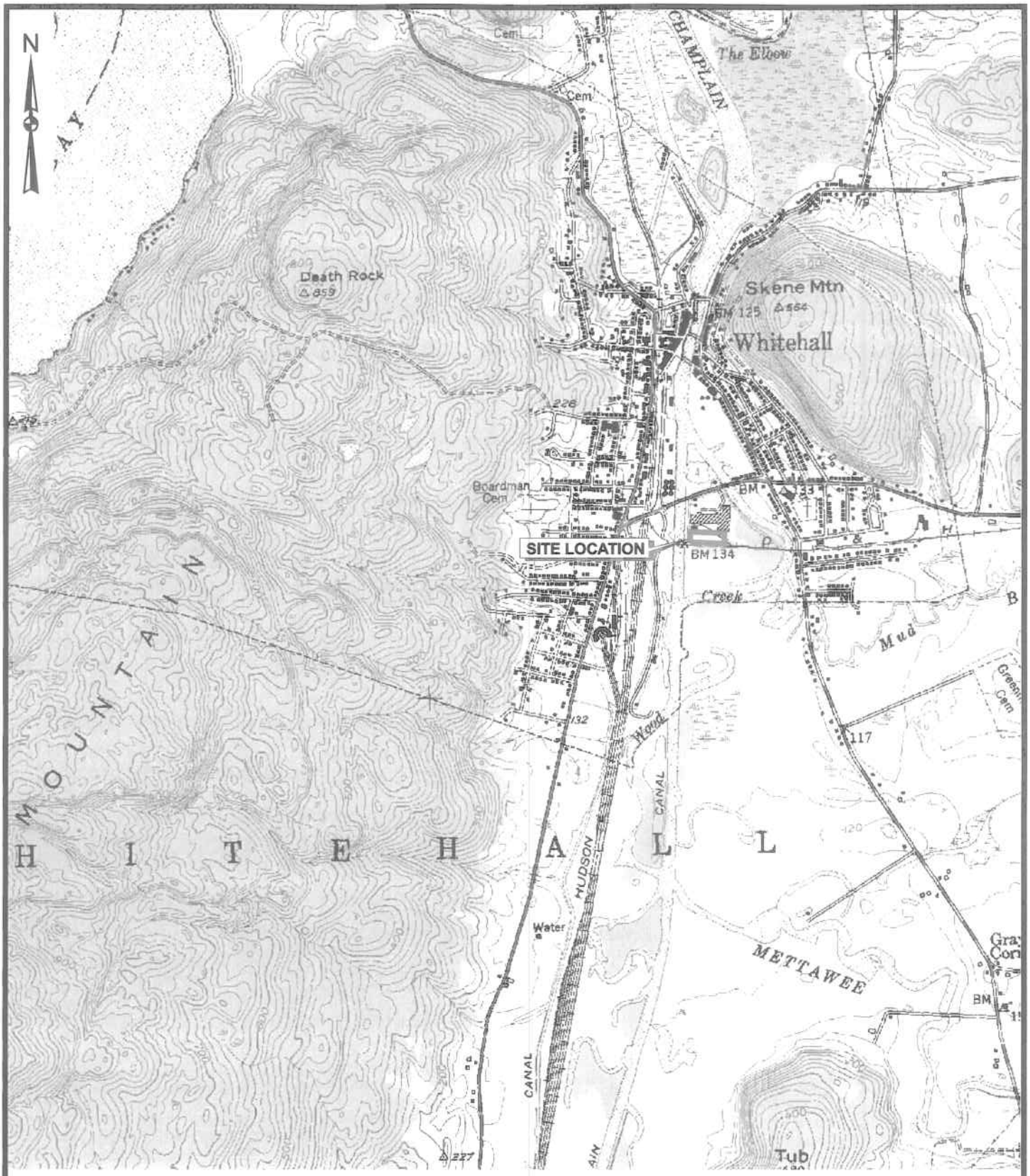
Compound	Reference Dose (mg/kg-day)				Critical Effects			
	Inhalation		Oral		Inhalation		Oral	
	Chronic	Subchronic	Chronic	Subchronic	Chronic	Subchronic	Chronic	Subchronic
Trichloroethene	NV (1)	NV (1)	NV (1)	NV (1)	—	—	—	—
Vinyl chloride	0.029 (1)	NV (1)	0.003 (1)	NV (1)	Liver cell polymorphism	—	Liver cell polymorphism	—
Xylene (total)	NV (1)	NV (1)	2.0 (1)	NV (1)	—	—	Hyperactivity, decreased body weight and increased mortality (males).	—
Sulfide					—	—	—	—

Source List:

1 SmartTOX Database
2 Based on estimated order of potency with respect to Benzo(a)pyrene presented in USEPA.
3 Chronic RFD is used for subchronic RFD when no subchronic value is available.

NV - No Values Available
NOEL - No Observed Effects Level

FIGURES



SOURCE:
USGS Topographic 7.5 Minute Quadrangles
Whitehall, NY - 1990

2000 0 2000 Feet

URS	POULTNEY STREET SITE WHITEHALL, NEW YORK SITE LOCATION MAP	FIGURE 1-1

J:\35944.01\db\GIS\sitelocation.apr SITE LOCATION
11/15/2002

N

CHAMPLAIN CANAL

CANAL DIKE

UP.

UP.

UP.

UP.

UP.

BRICK POWER HOUSE

CONCRETE PAD FOR 4000 GALLON FUEL OIL TANK

CINDER DRIVE

E.B. METALS FACILITY

SANITARY SEWER LINE

SMH

ARBITRARY SITE BENCHMARK
N: 5000
E: 5000

ARBITRARY ELEVATION DATUM 100 FT

FORMER DRUM STAGING AREA

FORMER LOCATION OF TRENCH IN FORMER FIRE TRAINING AREA

~600 ft to WOOD CREEK

DENSE VEGETATION

TOE OF SLOPE (APPROX.)

BRIDGE ABUTMENT

EDGE OF VEGETATION (TYP.)

ELEVATED RAILROAD BED

50 0 50 Feet

J:\35844.01\db\GIS\poultney.apr SITE PLAN
11/15/2002

POULTNEY STREET SITE PLAN

URS

FIGURE 1-2

N

CHAMPLAIN CANAL

CANAL DIKE

UP.

UP.

BRICK POWER HOUSE

CONCRETE PAD FOR 4000 GALLON FUEL OIL TANK

E.B. METALS FACILITY

CINDER DRIVE

SS-05

SS-06

UP.

UP.

SANITARY SEWER

MW-04

SB-19

ARBITRARY SITE BENCHMARK
N: 5000
E: 5000

UP.

ARBITRARY ELEVATION DATUM 100 FT

B

PZ-04

PZ-07

MW-03

SB-15

A'

SB-18

PZ-12

SB-16

SB-17

FORMER DRUM STAGING AREA

PZ-03

FORMER LOCATION OF TRENCH IN FORMER FIRE TRAINING AREA

MW-01

MW-05

SB-02

SB-01

SB-10

SB-13

SB-11

SB-08

MW-02

~800 ft to WOOD CREEK

MW-06

SB-12

PZ-09

SS-04

SS-01

SB-09

SB-07

SB-03

SB-04

A

SS-02

SS-03

SB-05

SB-14

DENSE VEGETATION

TOE OF SLOPE (APPROX.)

SB-06

B'

BRIDGE ABUTMENT

EDGE OF VEGETATION (TYP.)

ELEVATED RAILROAD BED

Legend

- Monitoring Well
- Piezometer
- Soil Boring
- Surface Soil Sample
- A — A' Geologic Cross-Section

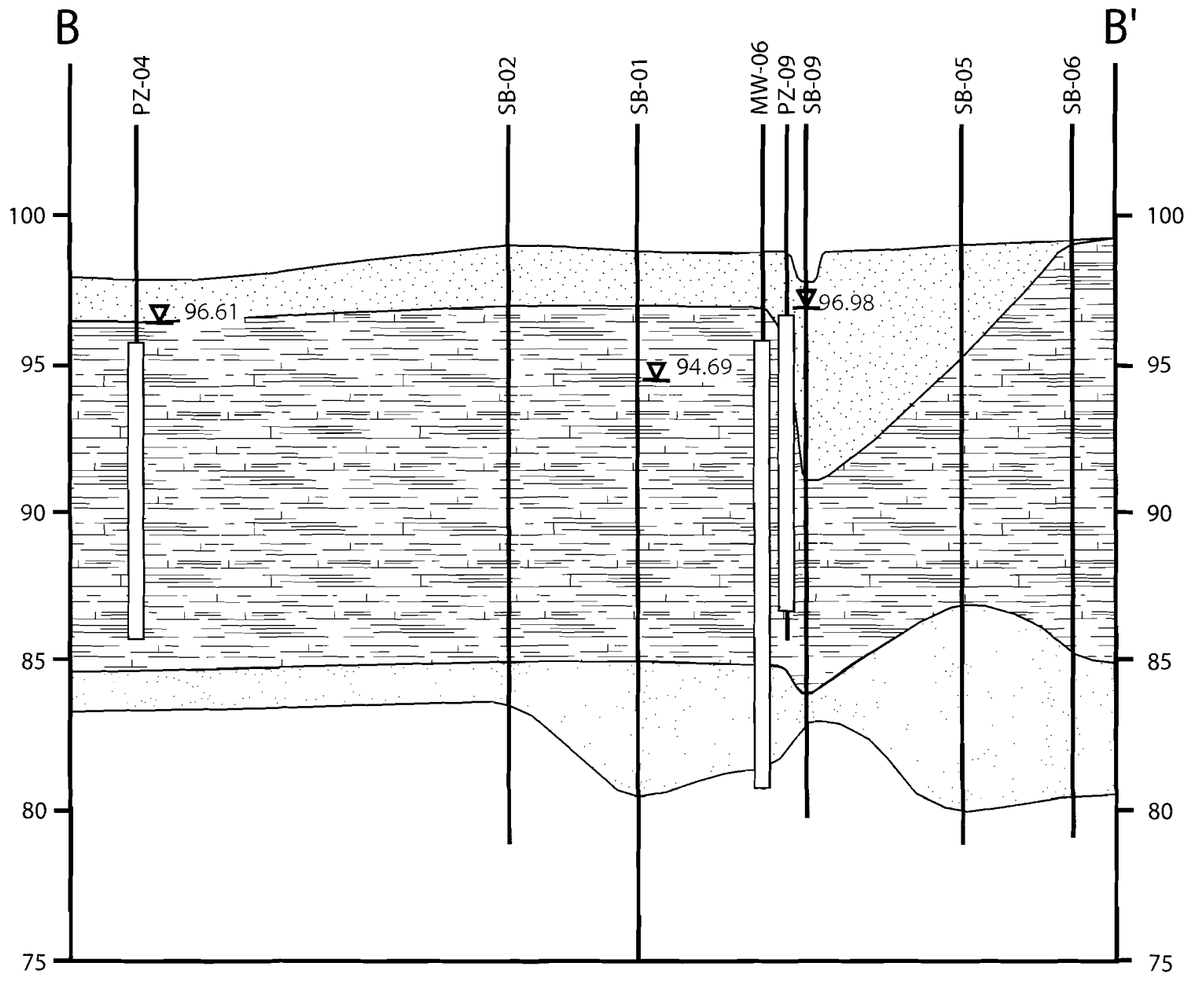
50 0 50 Feet

POULTNEY STREET
LINES OF SECTION

URS

FIGURE 3-1

J:\35944.01\db\GIS\poultney apr LINES OF SECTION
11/15/2002



LEGEND

- FILL
- CLAY WITH SAND LENSES
- SAND
- GRAY CLAY
- MW-1 — MONITORING WELL ID
- GROUNDWATER ELEVATION APRIL 2, 2002
- WELL SCREEN INTERVAL
- BOTTOM OF BORING

NOTES

1. REFER TO FIGURE 3-1 FOR THE ORIENTATION OF THE LINE OF SECTION.
2. REFER TO THE BORING LOGS IN APPENDIX A FOR DETAILED LITHOLOGIC DESCRIPTIONS.

5 0 5
VERTICAL SCALE: 1" = 5'

20 0 20
HORIZONTAL SCALE: 1" = 20'

POULTNEY STREET
GEOLOGIC CROSS-SECTION B-B'

URS

FIGURE 3-3

N

CHAMPLAIN CANAL

CANAL DIKE

BRICK POWER HOUSE

CONCRETE PAD FOR 4000 GALLON FUEL OIL TANK

E.B. METALS FACILITY

CINDER DRIVE

UP.

SANITARY SEWER LINE

SMH

ARBITRARY SITE BENCHMARK
N: 5000
E: 5000

MW-04, (78.76)

ARBITRARY ELEVATION DATUM 100 FT

MW-03, (79.16)

SB-15, (78.87)

SB-18, (79.99)

SB-16, (78.32)

SB-17, (79.33)

FORMER DRUM STAGING AREA

SB-01, (80.29)

SB-02, (83.09)

MW-05, (82.13)

SB-10, (80.89)

MW-01, (79.57)

SB-13, (79.65)

SB-11, (80.77)

MW-02, (76.99)

SB-08, (80.25)

SB-12, (80.30)

MW-06, (81.24)

SB-07, (80.15)

SB-03, (81.31)

SB-09, (82.85)

SB-04, (78.95)

SB-05, (79.83)

FORMER LOCATION OF TRENCH IN FORMER FIRE TRAINING AREA

SB-14, (80.80)

SB-06, (80.87)

TOE OF SLOPE (APPROX.)

DENSE VEGETATION

~600 ft to WOOD CREEK

BRIDGE ABUTMENT

EDGE OF VEGETATION (TYP.)

ELEVATED RAILROAD BED

Legend

- Monitoring Well
- Soil Boring
- 83 — Top of Clay Elevation Contour
- SB-09, (82.85)
  - Location ID
  - Top of Clay Elevation

50 0 50 Feet

POULTNEY STREET
ELEVATION OF TOP OF BASAL CLAY UNIT

URS

FIGURE 3-4

J:\35944.01\db\GIS\poultney.apr CLAY ELEVATION
11/15/2002

N

CHAMPLAIN CANAL

UP

BRICK POWER HOUSE

CONCRETE PAD FOR 4000 GALLON FUEL OIL TANK

E.B. METALS FACILITY

CINDER DRIVE

UP

UP

UP

SANITARY SEWER LINE

SMH

ARBITRARY SITE BENCHMARK
N: 5000
E: 5000

ARBITRARY ELEVATION DATUM 100 FT

94.40

94.80

94.80

95.00

95.20

95.40

95.60

PZ-04, 94.79

PZ-07, 95.20

PZ-12, 95.25

FORMER DRUM STAGING AREA

PZ-03, 94.22

FORMER LOCATION OF TRENCH IN FORMER FIRE TRAINING AREA

PZ-09, 95.61

~800 ft to WOOD CREEK

TOE OF SLOPE (APPROX.)

EDGE OF VEGETATION (TYP.)

ELEVATED RAILROAD BED

DENSE VEGETATION

Legend

- ▲ Piezometer
- 95.20 Groundwater Elevation Contour
- Groundwater Flow Direction

PZ-09, 95.61
Location ID
Groundwater Elevation (ft)

50 0 50 Feet

POULTNEY STREET
SHALLOW GROUNDWATER ELEVATION CONTOURS
(FEBRUARY 14, 2002)

URS

FIGURE 3-5

J:\35944.01\dtl\GIS\poultney apr 2\14\02 GROUNDWATER ELEVATION CONTOURS - SHALLOW
11/15/2002

N

CHAMPLAIN CANAL

UP.

BRICK POWER HOUSE

CONCRETE PAD FOR 4000 GALLON FUEL OIL TANK

E.B. METALS FACILITY

CINDER DRIVE

UP.

UP.

SANITARY SEWER LINE

ARBITRARY SITE BENCHMARK
N: 5000
E: 5000

SMH

UP.

ARBITRARY ELEVATION DATUM 100 FT

95.60

95.80

96.00

96.20

96.40

96.60

96.80

PZ-04, 96.61

PZ-07, 96.80

PZ-12, 96.82

FORMER DRUM STAGING AREA

PZ-03, 95.47

FORMER LOCATION OF TRENCH IN FORMER FIRE TRAINING AREA

PZ-09, 96.98

~800 ft to WOOD CREEK

TOE OF SLOPE (APPROX.)

EDGE OF VEGETATION (TYP.)

ELEVATED RAILROAD BED

DENSE VEGETATION

Legend

- ▲ Piezometer
- 96.20 Groundwater Elevation Contour
- ◀ Groundwater Flow Direction

PZ-09, 96.98
Location ID — Groundwater Elevation (ft)

50 0 50 Feet

POULTNEY STREET
SHALLOW GROUNDWATER ELEVATION CONTOURS
(APRIL 4, 2002)

URS

FIGURE 3-6

J:\35944.01\db\GIS\poultney.apr 4/2/02 GROUNDWATER ELEVATION CONTOURS - SHALLOW
11/15/2002

N

CHAMPLAIN CANAL

UP.

BRICK POWER HOUSE

CONCRETE PAD FOR 4000 GALLON FUEL OIL TANK

E.B. METALS FACILITY

CINDER DRIVE

SS-05
SVOCs:
Benzo(a)anthracene, 310
Benzo(a)pyrene, 310
Dibenz(a,h)anthracene, 48

SS-06
SVOCs:
Benzo(a)pyrene, 81

UP.

UP.

SANITARY SEWER LINE

ARBITRARY SITE BENCHMARK
N: 5000
E: 5000

SMH

UP.

UP.

ARBITRARY ELEVATION DATUM 100 FT

FORMER DRUM STAGING AREA

SS-04
No Compounds Exceed Criteria

FORMER LOCATION OF TRENCH IN FORMER FIRE TRAINING AREA

SS-01
No Compounds Exceed Criteria

~800 ft to WOOD CREEK

DENSE VEGETATION

SS-02
No Compounds Exceed Criteria

SS-03
No Compounds Exceed Criteria

TOE OF SLOPE (APPROX.)

EDGE OF VEGETATION (TYP.)

ELEVATED RAILROAD BED

Legend

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

SS-05
Benzo(a)pyrene, 310

Location ID

Compound Exceeding Criteria

Concentration (UG/KG)

50 0 50 Feet

POULTNEY STREET
SURFACE SOIL ANALYTICAL RESULTS

URS

FIGURE 4-1

J:\35944.01\db\GIS\poultney.apr SURFACE SOIL ANALYTICAL RESULTS
11/15/2002

N

CHAMPLAIN CANAL

UP.

BRICK POWER HOUSE

CONCRETE PAD FOR 4000 GALLON FUEL OIL TANK

E.B. METALS FACILITY

CINDER DRIVE

SANITARY SEWER LINE

ARBITRARY SITE BENCHMARK
N: 5000
E: 5000

SMH

ARBITRARY ELEVATION DATUM 100 FT

FORMER LOCATION OF TRENCH IN FORMER FIRE TRAINING AREA

FORMER DRUM STAGING AREA

~800 ft to WOOD CREEK

DENSE VEGETATION

TOE OF SLOPE (APPROX.)

EDGE OF VEGETATION (TYP.)

ELEVATED RAILROAD BED

MW-03 (16 - 18')
No Compounds Exceed Criteria

SB-19 (2 - 4')
SVOCs:
Benzo(a)anthracene, 250
Benzo(a)pyrene, 270
Dibenz(a,h)anthracene, 75

SB-10 (14 - 16')
No Compounds Exceed Criteria

SB-15 (4 - 6')
No Compounds Exceed Criteria

MW-04 (8 - 10')
No Compounds Detected

SB-08 (10 - 12')
VOCs:
Toluene, 2500
Trichloroethene, 150,000

SB-18 (8 - 10')
No Compounds Exceed Criteria

SB-01 (10 - 12')
VOCs:
Trichloroethene, 11,000
Vinyl chloride, 270

SB-16 (4 - 6')
SVOCs:
Benzo(a)anthracene, 350
Benzo(a)pyrene, 280
Dibenz(a,h)anthracene, 82

SB-17 (16 - 18')
No Compounds Exceed Criteria

SB-01 (18 - 20')
No Compounds Exceed Criteria

MW-05 (6 - 8')
No Compounds Exceed Criteria

MW-01 (16 - 18')
No Compounds Exceed Criteria

MW-02 (14 - 16')
No Compounds Exceed Criteria

MW-06 (10 - 12')
VOCs:
Trichloroethene, 110,000
SVOCs:
Phenol, 47

SB-03 (16 - 18')
No Compounds Exceed Criteria

SB-13 (10 - 12')
No Compounds Exceed Criteria

SB-13 (16 - 18')
VOCs:
Trichloroethene, 1500

SB-09 (4 - 6')
VOCs:
Trichloroethene, 140,000

SB-05 (4 - 6')
VOCs:
Benzene, 140
Ethylbenzene, 7100
Toluene, 3900
Vinyl chloride, 550
Xylene (total), 17,000

SB-14 (12 - 14')
VOCs:
Trichloroethene, 12,000
Vinyl chloride, 790

SB-09 (16 - 18')
VOCs:
Trichloroethene, 29,000

SB-04 (18 - 20')
No Compounds Exceed Criteria

SB-12 (6 - 8')
No Compounds Exceed Criteria

SB-11 (14 - 16')
No Compounds Exceed Criteria

SB-06 (16 - 18')
No Compounds Exceed Criteria

Legend

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

SB-09 (4 - 6')
Trichloroethene, 140,000

Location ID
Compound Exceeding Criteria
Depth Interval
Concentration (UG/KG)

50 0 50 Feet

POULTNEY STREET
SUBSURFACE SOIL ANALYTICAL RESULTS

URS

FIGURE 4-2

J:\35944.01\db\GIS\poultney.apr SUBSURFACE SOIL ANALYTICAL RESULTS
11/15/2002

N

CHAMPLAIN CANAL

UP.

BRICK POWER HOUSE

CONCRETE PAD FOR 4000 GALLON FUEL OIL TANK

E.B. METALS FACILITY

CINDER DRIVE

SB-08 (10 - 12')
VOCs:
Acetone, 1700
Methyl ethyl ketone (2-Butanone), 1800
Toluene, 2500
Trichloroethene, 150,000
Xylene (total), 1800

SANITARY SEWER LINE

ARBITRARY SITE BENCHMARK
N: 5000
E: 5000

MW-04

SB-19

SMH

ARBITRARY ELEVATION DATUM 100 FT

MW-03

SB-01 (10 - 12')
VOCs:
Methylene chloride, 190
Trichloroethene, 11,000
Vinyl chloride, 270

FORMER DRUM STAGING AREA

FORMER LOCATION OF TRENCH IN FORMER FIRE TRAINING AREA

SB-15

SB-16

SB-17

SB-18

MW-01

MW-05

SB-10

SB-11

SB-12

MW-02

~600 ft to WOOD CREEK

MW-06 (10 - 12')
VOCs:
Acetone, 3500
Methyl ethyl ketone (2-Butanone), 6800
Trichloroethene, 110,000

SB-03

SB-04

SB-13 (16 - 18')
VOCs:
Trichloroethene, 1500

DENSE VEGETATION

TOE OF SLOPE (APPROX.)

SB-06

SB-09 (4 - 6')
VOCs:
Acetone, 3600
Toluene, 4500
Trichloroethene, 140,000
Xylene (total), 1600

EDGE OF VEGETATION (TYP.)

SB-05 (4 - 6')
VOCs:
Benzene, 140
Ethylbenzene, 7100
Toluene, 3900
Vinyl chloride, 550
Xylene (total), 17,000

ELEVATED RAILROAD BED

SB-09 (16 - 18')
VOCs:
Trichloroethene, 29,000

SB-14 (12 - 14')
VOCs:
Trichloroethene, 4200
Vinyl chloride, 790

Legend

- Monitoring Well
- Soil Boring
- Estimated Extent of Soil Contamination

SB-09 (4 - 6')
Trichloroethene, 140,000

Location ID
Depth Interval
Compound Exceeding Criteria
Concentration (UG/KG)

50 0 50 Feet

POULTNEY STREET
EXTENT OF CONTAMINATION IN SOILS

URS

FIGURE 4-3

J:\35944.01\db\GIS\poultney.apr EXTENT CONTAMINATION IN SOILS
11/15/2002

N

CHAMPLAIN CANAL

UP.

BRICK POWER HOUSE

CONCRETE PAD FOR 4000 GALLON FUEL OIL TANK

E.B. METALS FACILITY

CINDER DRIVE

PZ-07
VOCs:
1,2-Dichloroethene (cis), 220 UG/L
Vinyl chloride, 3 UG/L
MISC:
Sulfide, 0.60 MG/L

UP.

SANITARY SEWER LINE

MW-04

SMH

ARBITRARY SITE BENCHMARK
N: 5000
E: 5000

UP.

ARBITRARY ELEVATION DATUM 100 FT

PZ-04
VOCs:
1,2-Dichloroethene (cis), 12 UG/L

MW-03

PZ-03
VOCs:
Ethylbenzene, 110 UG/L
Xylene (total), 330 UG/L

FORMER DRUM STAGING AREA

MW-01

MW-05

MW-02

PZ-12
VOCs:
1,2-Dichloroethene (cis), 11,000 UG/L
1,2-Dichloroethene (trans), 76 UG/L
Tetrachloroethene, 24 UG/L
Trichloroethene, 25,000 UG/L

~800 ft to WOOD CREEK

MW-06

FORMER LOCATION OF TRENCH IN FORMER FIRE TRAINING AREA

TOE OF SLOPE (APPROX.)

EDGE OF VEGETATION (TYP.)

PZ-09
VOCs:
1,1,2-Trichloroethane, 24 UG/L
1,1-Dichloroethene, 200 UG/L
1,2-Dichloroethane, 8 UG/L
1,2-Dichloroethene (cis), 160,000 UG/L
1,2-Dichloroethene (trans), 330 UG/L
Acetone, 200 UG/L
Benzene, 34 UG/L
Ethylbenzene, 32 UG/L
Methyl ethyl ketone (2-Butanone), 120 UG/L
Tetrachloroethene, 6 UG/L
Toluene, 1300 UG/L
Trichloroethene, 13,000 UG/L
Vinyl chloride, 10000 UG/L
Xylene (total), 120 UG/L
MISC:
Sulfide, 1.72 MG/L

DENSE VEGETATION

ELEVATED RAILROAD BED

Legend

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

PZ-09 Trichloroethene, 13,000 UG/L

Location ID — Compound Exceeding Criteria — Concentration — Units

50 0 50 Feet

POULTNEY STREET
SHALLOW GROUNDWATER ANALYTICAL RESULTS

URS

FIGURE 4-4

J:\35944.01\db\GIS\poultney.apr SHALLOW GROUNDWATER ANALYTICAL RESULTS
11/15/2002

N

CHAMPLAIN CANAL

UP.

BRICK POWER HOUSE

CONCRETE PAD FOR 4000 GALLON FUEL OIL TANK

E.B. METALS FACILITY

CINDER DRIVE

MW-03
VOCs:
1,1,2-Trichloroethane, 2 UG/L
1,2-Dichloroethene (cis), 2200 UG/L
1,2-Dichloroethene (trans), 23 UG/L
Trichloroethene, 430 UG/L
Vinyl chloride, 12 UG/L

ARBITRARY SITE BENCHMARK
N: 5000
E: 5000

MW-04

SMH

SANITARY SEWER LINE

ARBITRARY ELEVATION DATUM 100 FT

PZ-04

PZ-07

PZ-12

FORMER DRUM STAGING AREA

PZ-03

FORMER LOCATION OF TRENCH IN FORMER FIRE TRAINING AREA

PZ-09

MW-01
VOCs:
1,2-Dichloroethene (cis), 460 UG/L
Trichloroethene, 500 UG/L

MW-02
VOCs:
1,2-Dichloroethene (cis), 170 UG/L
Trichloroethene, 620 UG/L

~800 ft to WOOD CREEK

MW-05
VOCs:
1,2-Dichloroethene (cis), 3100 UG/L
1,2-Dichloroethene (trans), 6 UG/L
Toluene, 10 UG/L
Trichloroethene, 12 UG/L
Vinyl chloride, 730 UG/L

MW-06
VOCs:
1,1,2-Trichloroethane, 120 UG/L
1,1-Dichloroethene, 370 UG/L
1,2-Dichloroethane, 16 UG/L
1,2-Dichloroethene (cis), 350 UG/L
1,2-Dichloroethene (trans), 1400 UG/L
Acetone, 260 UG/L
Benzene, 140 UG/L
Ethylbenzene, 370 UG/L
Tetrachloroethene, 16 UG/L
Toluene, 1700 UG/L
Trichloroethene, 60 UG/L
Vinyl chloride, 23 UG/L
Xylene (total), 1100 UG/L
MISC:
Sulfide, 1.44 MG/L

TOE OF SLOPE (APPROX.)

EDGE OF VEGETATION (TYP.)

DENSE VEGETATION

ELEVATED RAILROAD BED

Legend

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

MW-06 Trichloroethene, 60 UG/L
(Location ID; Compound Exceeding Criteria; Concentration; Units)

50 0 50 Feet

POULTNEY STREET
MONITORING WELL GROUNDWATER ANALYTICAL RESULTS

URS

FIGURE 4-5

J:\35944.01\db\GIS\poultney.apr DEEP GROUNDWATER ANALYTICAL RESULTS
11/15/2002

APPENDICES

APPENDIX A

BORING LOGS AND MONITORING WELL/ PIEZOMETER CONSTRUCTION LOGS

LOG OF BORING

URS
Clifton Park, New York

PROJECT:	POULTNEY ST.	**METHOD OF DRILLING:**	4.25 Hollow Stem Auger
BORING NO.:	MW-1	**SAMPLE TYPE:**	2' x 2" Split Spoon
DATE:	1/17/02	**SURFACE CONDITIONS:**	Grass
BORING DIAMETER:	8.0"	**DRILLER:**	SJB
BORING DEPTH:	20 Feet	**GEOLOGIST:**	C. McMahon
ELEVATION:	GRD. 99.07/TOC. 102.03	**REVIEWED BY:**	Brian Crandall
BORING LOCATION:	N 4945.17/E 4903.66		

Depth / Elevation	Soil Symbols	Soil Description	Sample Depth (ft bg)	Driven/ Recovery (in.)	Blows per/ (6 in.)	PID (ppm)	Well Construction	Well Description
0 / 0		SAND AND GRAVEL: Brown, SAND AND GRAVEL, some brick, concrete, and metal, moist.	0-2	24/8	2,2,5,4	0		Concrete
		CLAY: Grey, medium-stiff CLAY with lenses of fine sand, trace organics, and metal, moist to saturated at 4.5'.	2-4	24/18	4,5,7,5	2		2" Sch. 40 PVC riser
5 / -5			4-6	24/16	2,2,3,3	1		Bentonite
		CLAY: Grey, soft CLAY with lenses of fine sand, some organics, saturated.	6-8	24/16	2,2,2,1	2		
		CLAY: Brown, medium-stiff CLAY, saturated.	8-10	24/16	2,2,3,2	7		
10 / -10		SAND AND SILT: Grey/green, SAND AND SILT, saturated.	10-12	24/20	WOH/24	3.5		
		SAND: Grey, fine SAND, trace silt, saturated.	12-14	24/24	2,2,2,2	1		0.010" Slot, 2" PVC Screen
		SAND: Grey, fine SAND, grading to coarse to fine sand, saturated.	14-16	24/18	WOH,2,3,4	5		# 0 Sand
15 / -15			16-18	24/24	2,3,2,3	140		
		SAND: Grey, fine SAND, saturated.	18-20	24/24	WOH,1,1,2	0		
20 / -20		CLAY: Soft grey CLAY, saturated.						

URS
Clifton Park, New York

LOG OF BORING

PROJECT:	POULTNEY ST.	**METHOD OF DRILLING:**	4.25 Hollow Stem Auger
BORING NO.:	MW-2	**SAMPLE TYPE:**	2' x 2" Split Spoon
DATE:	1/17/02	**SURFACE CONDITIONS:**	Grass
BORING DIAMETER:	8.0"	**DRILLER:**	SJB
BORING DEPTH:	22 Feet	**GEOLOGIST:**	C. McMahon
ELEVATION:	GRD. 98.99/TOC.102.27	**REVIEWED BY:**	Robert W. Lindsley
BORING LOCATION:	N 4918.05/E 4933.89		

Depth / Elevation	Soil Symbols	Soil Description	Sample Depth (ft bg)	Driven/ Recovery (in.)	Blows per/ (6 in.)	PID (ppm)	Well Construction	Well Description
0 / 0		CLAY: Brown, medium-stiff CLAY, some plastic and organics, moist.	0-2	24/10	1,2,4,5	0		Concrete
		CLAY: Brown, medium-stiff CLAY with lenses of fine sand, trace cinders, moist to saturated at 4.5'.	2-4	24/18	5,5,5,5	0		2" Sch. 40 PVC riser
5 / -5			4-6	24/18	2,2,3,2	0		Bentonite
		CLAY: Grey, medium-stiff CLAY, trace organics, saturated.	6-8	24/20	2,2,3,4	3		
		CLAY: Brown, medium-stiff CLAY, trace sand and organics, saturated.	8-10	24/14	4,5,4,5	0		
10 / -10		SAND AND SILT: Grey, SAND AND SILT, saturated.	10-12	24/20	WOH/18, 2	0		
		SAND: Grey, fine SAND, trace silt, saturated.	12-14	24/24	2,2,2,2	0		0.010" Slot, 2" PVC Screen
15 / -15		SAND: Grey, fine SAND with fine to medium gravel, trace organics, saturated.	14-16	24/24	WOH/18, 1	8		# 0 Sand
			16-18	24/14	1,3,4,5	1		
		SAND: Grey, fine SAND, trace coarse sand, saturated.	18-20	24/12	1,2,3,6	0.5		
20 / -20		CLAY: Soft grey CLAY, saturated.	20-22	24/NA	1,1,1,1	NA		

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Clifton Park, New York

LOG OF BORING

PROJECT:	POULTNEY ST.	**METHOD OF DRILLING:**	4.25 Hollow Stem Auger
BORING NO.:	MW-3	**SAMPLE TYPE:**	2' x 2" Split Spoon
DATE:	1/18/02	**SURFACE CONDITIONS:**	Grass
BORING DIAMETER:	8.0"	**DRILLER:**	SJB
BORING DEPTH:	20 Feet	**GEOLOGIST:**	C. McMahon
ELEVATION:	GRD. 97.16/TOC. 99.91	**REVIEWED BY:**	Brian M. Conditti
BORING LOCATION:	N 4966.17/E 4948.91		

Depth / Elevation	Soil Symbols	Soil Description	Sample Depth (ft bg)	Driven/ Recovery (in.)	Blows per/ (6 in.)	PID (ppm)	Well Construction	Well Description
0 / 0		SAND AND SILT: Brown, SAND AND SILT, some organics, moist	0-2	24/2	1,1,3,1	NA		Concrete
		SAND AND GRAVEL: Brown and rust, SAND AND GRAVEL, some organics, trace metal, moist.	2-4	24/8	1,1,2,3	8.5		2" Sch. 40 PVC riser Bentonite
5 / -5		SAND AND SILT: Grey, fine SAND AND SILT, saturated.	4-6	24/16	1,2,3,2	6		
		SAND AND SILT: Grey, fine SAND AND SILT to rusty fine SAND AND SILT, at 7.5', saturated.	6-8	24/24	2,4,3,4	1		
		SAND AND SILT: Brown, fine SAND AND SILT, saturated.	8-10	24/16	WOH,3,2,3	4		
10 / -10		SAND: Brown, fine SAND, trace silt and coarse sand, saturated.	10-12	24/12	1,1,2,1	2		0.010" Slot, 2" PVC Screen
			12-14	24/20	1,1,2,2	1		
15 / -15		SAND: Brown, medium to fine SAND, trace fine gravel, saturated.	14-16	24/14	1,2,2,4	2		# 0 Sand
			16-18	24/18	2,4,3,4	14		
		CLAY: Soft grey CLAY, saturated.	18-20	24/24	1,WOH/12,1	0		
20 / -20								

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Clifton Park, New York

LOG OF BORING

PROJECT:	POULTNEY ST.	**METHOD OF DRILLING:**	4.25 Hollow Stem Auger
BORING NO.:	MW-4	**SAMPLE TYPE:**	2' x 2" Split Spoon
DATE:	1/18/02	**SURFACE CONDITIONS:**	Grass
BORING DIAMETER:	8.0"	**DRILLER:**	SJB
BORING DEPTH:	20 Feet	**GEOLOGIST:**	C. McMahon
ELEVATION:	GRD. 97.36/TOC. 100.39	**REVIEWED BY:**	Robert M. Goodwin
BORING LOCATION:	N 4991.81/E 4987.96		

Depth / Elevation	Soil Symbols	Soil Description	Sample Depth (ft bg)	Driven/ Recovery (in.)	Blows per/ (6 in.)	PID (ppm)	Well Construction	Well Description
0 / 0		SAND AND SILT: Brown, SAND AND SILT, some brick fragments and organics, trace cinders, moist.	0-2	24/16	1,3,2,2	0		Concrete
		SAND AND SILT: Brown, fine SAND AND SILT, with cinders, trace organics, moist.	2-4	24/12	1,4,4,6	0		2" Sch. 40 PVC riser
5 / -5		SAND AND SILT: Brown, fine SAND AND SILT, saturated.	4-6	24/18	2,2,2,2	0		Bentonite
		CLAY: Brown, soft CLAY, trace sand, saturated.	6-8	24/24	3,3,3,4	0		
		SAND AND SILT: Brown, fine SAND AND SILT, saturated.	8-10	24/18	1,3,4,4	1		
10 / -10		SAND: Brown, fine SAND, some silt, saturated.	10-12	24/18	1,2,4,2	0		
		SAND: Brown, fine SAND, some medium to coarse sand, trace fine gravel, saturated.	12-14	24/24	4,5,6,6	0		0.010" Slot, 2" PVC Screen
15 / -15		SAND: Grey, fine SAND, saturated	14-16	24/14	3,4,7,6	0		# 0 Sand
		SAND: Grey, fine SAND, trace silt, saturated.	16-18	24/24	3,4,3,4	0		
20 / -20		CLAY: Soft grey CLAY, saturated.	18-20	24/24	1,1,1,1	0		

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LOG OF BORING

PROJECT:	POULTNEY ST.	**METHOD OF DRILLING:**	4.25 Hollow Stem Auger
BORING NO.:	MW-5	**SAMPLE TYPE:**	2' x 2" Split Spoon
DATE:	1/16/02	**SURFACE CONDITIONS:**	Grass
BORING DIAMETER:	8.0"	**DRILLER:**	SJB
BORING DEPTH:	18 Feet	**GEOLOGIST:**	C. McMahon
ELEVATION:	GRD.99.13/ TOC.101.44	**REVIEWED BY:**	Brett M. Cvijetki
BORING LOCATION:	N 4949.63/E 4824.31		

Depth / Elevation	Soil Symbols	Soil Description	Sample Depth (ft bg)	Driven/ Recovery (in.)	Blows per/ (6 in.)	PID (ppm)	Well Construction	Well Description
0 / 0		SAND AND SILT: Brown, SAND AND SILT, some organics and brick fragments, moist.	0-2	24/18	2,2,3,4	0		Concrete
		CLAY: Grey, medium-stiff CLAY with lenses of fine sand, moist.	2-4	24/16	3,3,4,4	0.5		2" Sch. 40 PVC riser
5 / -5			4-6	24/18	1,2,1,2	0		Bentonite
		CLAY: Grey/green, soft CLAY, some sand, saturated.	6-8	24/18	1,1,2,2	9		
		CLAY: Grey/green, medium-stiff CLAY with lenses of fine sand and silt, saturated.	8-10	24/16	1,2,4,5	3.5		
10 / -10		SAND AND SILT: Brown, fine SAND AND SILT, saturated.	10-12	24/18	1,2,3,5	1		
		SAND: Brown, fine SAND, trace silt, saturated.	12-14	24/24	2,3,4,4	0		0.010" Slot, 2" PVC Screen
15 / -15			14-16	24/12	1,1,2,3	1		# 0 Sand
		CLAY: Soft grey CLAY, saturated.	16-18	24/24	2,1,1,2	1		

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LOG OF BORING

PROJECT:	POULTNEY ST.	**METHOD OF DRILLING:**	4.25 Hollow Stem Auger
BORING NO.:	MW-6	**SAMPLE TYPE:**	2' x 2" Split Spoon
DATE:	1/16/02	**SURFACE CONDITIONS:**	Grass
BORING DIAMETER:	8.0"	**DRILLER:**	SJB
BORING DEPTH:	18 Feet	**GEOLOGIST:**	C. McMahon
ELEVATION:	GRD.98.74/TOC.101.69	**REVIEWED BY:**	Beth M. Gandetti
BORING LOCATION:	N 4926.55/E 4865.31		

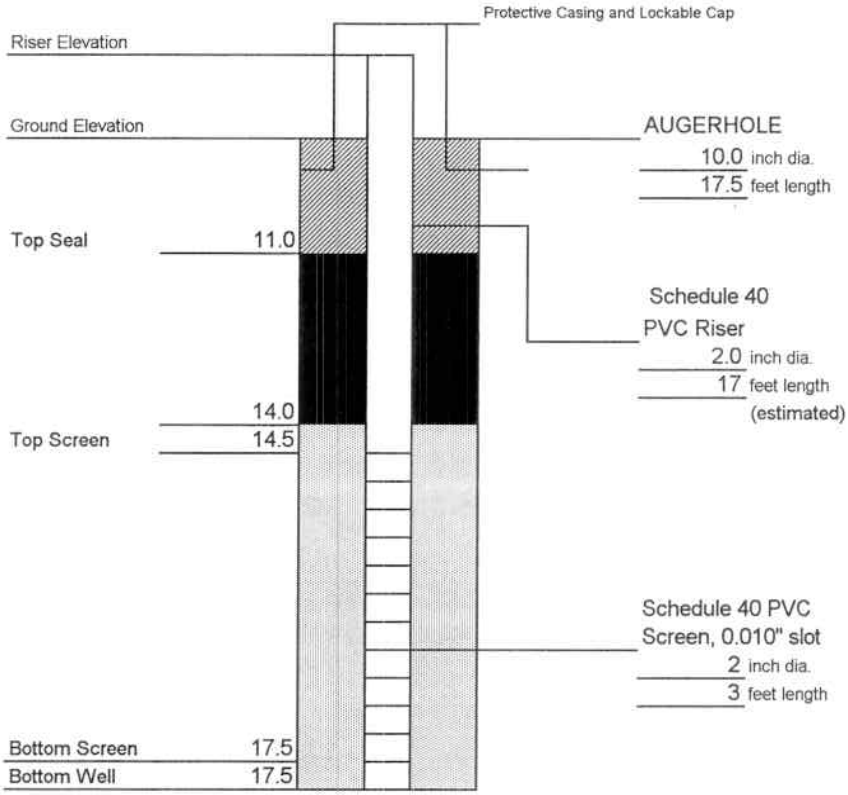
Depth / Elevation	Soil Symbols	Soil Description	Sample Depth (ft bg)	Driven/ Recovery (in.)	Blows per/ (6 in.)	PID (ppm)	Well Construction	Well Description
0 — 0		GRAVEL AND SAND: Brown, GRAVEL AND SAND, moist.						Concrete
		CLAY: Brown, medium-stiff CLAY, moist.	0-2	24/14	23,7,4,5	13		2" Sch. 40 PVC riser
		CLAY: Grey, medium-stiff CLAY, with lenses of fine sand, wet, strong odor, sheen.	2-4	24/20	4,5,5,3	80		Bentonite
		CLAY: Same as above, saturated, odor, free product.						
5 — -5			4-6	24/20	WOH/24	80		
		SAND AND SILT: Grey, SAND AND SILT, trace gravel, saturated, odor, free product.	6-8	24/24	WOH/2,1,1	300		
		CLAY: Grey, medium-stiff CLAY, trace organics and sand, saturated, odor, sheen.	8-10	24/20	WOH/24	280		
10 — -10		CLAY: Grey, stiff CLAY, saturated, strong odor, free product.	10-12	24/20	1,1,1,2	440		
		CLAY: Grey, soft CLAY, trace fine sand and organics, saturated, strong odor, free product.	12-14	24/24	3,3,2,1	240		0.010" Slot, 2" PVC Screen
		SAND: Grey, fine SAND, saturated, odor, sheen.						
15 — -15			14-16	24/24	WOH/24	220		# 0 Sand
			16-18	24/24	2,2,2,2	280		
		CLAY: Soft grey CLAY.						

DRILLING SUMMARY
Geologist: Chris Mc Mahon
Drilling Company: SJB Services, Inc.
Driller: John Lenhart
Rig Make/Model: CME-75
Date: 06/17/2002

GEOLOGIC LOG

Depth(ft.)	Description

DEPTH



WELL DESIGN

CASING MATERIAL		SCREEN MATERIAL		FILTER MATERIAL	
Surface:	Locking protective casing	Type:	Schedule 40 PVC	Type: #0 sand	Setting: 14'-17.5'
Monitor	Schedule 40 PVC	Slot Size:	0.010"	**SEAL MATERIAL**	
				Type: Bentonite Chips	Setting: 11.0'-14.0'
				Type: Cement/ Bentonite Grout	Setting: 2.0-11.0'
				Type: Concrete	Setting: 0- 2.0'

COMMENTS:
Replacement well MW-06R was installed in the same borehole as MW-06 following overdrilling and removal of MW-06

LEGEND
- Cement/Bentonite Grout
- Bentonite Seal
- Silica Sandpack

Client:	NYSDEC	Location:	Poultney Street Whitehall, NY	Project No.:	11171904
URS Corporation		MONITORING WELL CONSTRUCTION DETAILS		Well Number:	MW-06R

URS
Clifton Park, New York

LOG OF BORING

PROJECT:	POULTNEY ST.	**METHOD OF DRILLING:**	3.25" Hollow Stem Auger
BORING NO.:	SB-1	**SAMPLE TYPE:**	2' x 2" Split Spoon
DATE:	1/8/02	**SURFACE CONDITIONS:**	Grass
BORING DIAMETER:	7.0"	**DRILLER:**	SJB
BORING DEPTH:	24 Feet	**GEOLOGIST:**	C. McMahon
ELEVATION:	GRD.98.79	**REVIEWED BY:**	Robert M. Cudlitz
BORING LOCATION:	N 4940.35/E 4853.31		

Depth / Elevation	Soil Symbols	Soil Description	Sample Depth (ft bg)	Driven/ Recovery (in.)	Blows per/ (6 in.)	PID (ppm)	Well Construction	Well Description
0 / 0		SAND AND GRAVEL: Brown, SAND AND GRAVEL, some organics and silt, dry.	0-2	24/12	9,12,7,5	0		
		CLAY: Brown, CLAY with lenses of fine sand, some organics, moist.	2-4	24/18	4,4,5,5	0		
5 / -5		CLAY: Same as above, saturated, strong odor, free product.	4-6	24/24	WOH,1,1,1	9		Soil boring - no well installed
		SAND AND SILT: Brown, loose SAND AND SILT, strong odor.	6-8	24/24	1,1,5,4	30		
		CLAY: Green, stiff CLAY, (lower PID reading).						
10 / -10		CLAY: Brown, medium-stiff CLAY with fine sand, saturated.	8-10	24/24	5,3,4,6	10		
			10-12	24/24	1,1,3,5	275		
		SAND: Brown, fine SAND, some silt, cleaned up towards bottom, saturated.	12-14	24/24	1,3,5,7	20		
15 / -15			14-16	24/24	2,3,3,4	4		
			16-18	24/24	1,2,2,3	6		
		CLAY: Grey soft CLAY, PID reading = ZERO.	18-20	24/NA	2,1,1,1	0		
20 / -20			20-22	24/NA	NA	NA		
			22-24	24/NA	NA	NA		

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Clifton Park, New York

LOG OF BORING

PROJECT:	POULTNEY ST.	**METHOD OF DRILLING:**	3.25" Hollow Stem Auger
BORING NO.:	SB-2	**SAMPLE TYPE:**	2' x 2" Split Spoon
DATE:	1/8/02	**SURFACE CONDITIONS:**	Grass
BORING DIAMETER:	7.0"	**DRILLER:**	SJB
BORING DEPTH:	20 Feet	**GEOLOGIST:**	C. McMahon
ELEVATION:	GRD.99.09	**REVIEWED BY:**	Beth H. Condit
BORING LOCATION:	N 4948.80/E 4835.92		

Depth / Elevation	Soil Symbols	Soil Description	Sample Depth (ft bg)	Driven/ Recovery (in.)	Blows per/ (6 in.)	PID (ppm)	Well Construction	Well Description
0 / 0		SAND AND GRAVEL: Brown, SAND AND GRAVEL, some silt and organics, dry.	0-2	24/6	2,4,5,3	0		
		NO RECOVERY	2-4	24/0	NM	NM		
5 / -5		CLAY: Brown, soft CLAY with lenses of fine sand, saturated.	4-6	24/16	3,2,2,3	0		Soil boring - no well installed
		CLAY: Green, medium-stiff CLAY, saturated.	6-8	24/18	WOH/12,2,3	0		
		CLAY: Same as above with occasional sand lenses, saturated.	8-10	24/24	WOH,2,5,4	3		
10 / -10		CLAY: Brown, CLAY with lenses of brown fine sand and stained black fine sand, saturated.	10-12	24/18	2,3,3,4	1		
		SAND: Brown/green fine SAND with occasional lenses of medium-stiff brown clay, saturated.	12-14	24/24	1,3,3,2	1		
15 / -15			14-16	24/24	3,5,7,4	15		
		CLAY: Soft grey CLAY, saturated.	16-18	24/6	3,7,7,3	0		
20 / -20			18-20	24/12	WOH/24	0		

LOG OF BORING

URS
Clifton Park, New York

PROJECT:	POULTNEY ST.	**METHOD OF DRILLING:**	3.25" Hollow Stem Auger
BORING NO.:	SB-3	**SAMPLE TYPE:**	2' x 2" Split Spoon
DATE:	1/9/02	**SURFACE CONDITIONS:**	Grass
BORING DIAMETER:	7.0"	**DRILLER:**	SJB
BORING DEPTH:	20 Feet	**GEOLOGIST:**	C. McMahon
ELEVATION:	GRD.99.01	**REVIEWED BY:**	Beth M. Cruickshank
BORING LOCATION:	N 4918.29/E 4837.49		

Depth / Elevation	Soil Symbols	Soil Description	Sample Depth (ft bg)	Driven/ Recovery (in.)	Blows per/ (6 in.)	PID (ppm)	Well Construction	Well Description
0 — 0		GRAVEL: GRAVEL with brown sand and silt, dry.	0-2	24/6	7,11,7,3	0		
		NO RECOVERY	2-4	24/0	3,5,5,3	NM		
5 — -5		CLAY: Brown, medium-stiff CLAY with lenses of fine sand, saturated.	4-6	24/18	1,1,3,1	1.5		Soil boring - no well installed
		CLAY: Soft grey CLAY, saturated.						
		CLAY: Green/grey, medium-stiff CLAY with sand, saturated.	6-8	24/24	1,2,2,2	1.5		
		SAND AND SILT: Green/grey, SAND AND SILT, with black stained lens of sand at 11.7', saturated.	8-10	24/14	1,2,3,3	7		
10 — -10			10-12	24/16	3,2,4,4	11		
		SAND: Black/green, fine SAND, saturated.	12-14	24/24	2,3,4,4	9.5		
		SAND: Brown, fine SAND, trace silt, saturated.						
15 — -15			14-16	24/16	1,3,4,3	NM		
		SAND: Grey, fine SAND.	16-18	24/24	1,1,1,1	16		
		CLAY: Soft grey CLAY, saturated.						
20 — -20			18-20	24/NA	1,1,1,1	0		

URS
Clifton Park, New York

LOG OF BORING

PROJECT:	POULTNEY ST.	**METHOD OF DRILLING:**	3.25" Hollow Stem Auger
BORING NO.:	SB-4	**SAMPLE TYPE:**	2' x 2" Split Spoon
DATE:	1/9/02	**SURFACE CONDITIONS:**	Grass
BORING DIAMETER:	7.0"	**DRILLER:**	SJB
BORING DEPTH:	24 Feet	**GEOLOGIST:**	C. McMahon
ELEVATION:	GRD.98.75	**REVIEWED BY:**	Brian W. Conduitt
BORING LOCATION:	N 4908.25/E 4896.43		

Depth / Elevation	Soil Symbols	Soil Description	Sample Depth (ft bg)	Driven/ Recovery (in.)	Blows per/ (6 in.)	PID (ppm)	Well Construction	Well Description
0 / 0		SAND AND SILT: Brown, fine SAND AND SILT, some organics, moist to saturated at 4.5'.	0-2	24/14	2,2,4,6	2		
			2-4	24/14	2,3,3,2	5		
5 / -5			4-6	24/14	WOH/24	1		Soil boring - no well installed
		CLAY: Green/grey, medium-stiff CLAY, trace organics, saturated.	6-8	24/18	1,3,6,8	2		
		CLAY: Grey/brown, medium-stiff CLAY, saturated.	8-10	24/20	3,3,3,3	3		
10 / -10		SAND AND SILT: Grey, SAND AND SILT, saturated.	10-12	24/18	1,1,2,2	2.5		
		SAND AND SILT: Grey, SAND AND SILT, trace orgaincs, saturated.	12-14	24/24	1,2,1,2	2		
		SAND: Grey, fine SAND, trace silt, saturated.	14-16	24/20	WOH/18,1	4		
15 / -15			16-18	24/24	2,2,3,2	1		
			18-20	24/24	NA	3		
20 / -20		CLAY: Soft grey CLAY.						
		SAND: Grey, fine SAND, trace silt.	20-22	24/24	1,1,1,1	NM		
		CLAY: Soft grey CLAY, saturated.	22-24	24/24	NA	0		

URS
Clifton Park, New York

LOG OF BORING

PROJECT:	POULTNEY ST.	**METHOD OF DRILLING:**	3.25" Hollow Stem Auger
BORING NO.:	SB-5	**SAMPLE TYPE:**	2' x 2" Split Spoon
DATE:	1/10/02	**SURFACE CONDITIONS:**	Grass
BORING DIAMETER:	7.0"	**DRILLER:**	SJB
BORING DEPTH:	20 Feet	**GEOLOGIST:**	C. McMahon
ELEVATION:	GRD.98.83	**REVIEWED BY:**	Beth M. Cundiff
BORING LOCATION:	N 4900.88/E 4875.44		

Depth / Elevation	Soil Symbols	Soil Description	Sample Depth (ft bg)	Driven/ Recovery (in.)	Blows per/ (6 in.)	PID (ppm)	Well Construction	Well Description
0 / 0		SAND AND GRAVEL: Brown, SAND AND GRAVEL, some clay, moist.	0-2	24/18	3,6,4,3	0		
			2-4	24/12	2,3,3,2	11		
5 / -5		CLAY: Soft grey CLAY, moist, free product, and strong odor at clay-sand interface.	4-6	24/18	1,1,1,1	135		Soil boring - no well installed
		CLAY: Soft grey CLAY with lenses of fine sand, saturated, sheen on sample, strong odor.	6-8	24/24	1,1,2,2	50		
		CLAY: Soft grey CLAY, saturated.						
		CLAY: Brown, medium-stiff CLAY, saturated.	8-10	24/24	1,2,3,4	40		
10 / -10		CLAY: Green/grey medium-stiff CLAY, trace organics, saturated, strong odor.	10-12	24/24	1,2,3,2	50		
		SAND AND SILT: Grey, SAND AND SILT, saturated, strong odor.	12-14	24/24	2,3,4,4	100		
		SAND: Grey, fine SAND, saturated, strong odor.						
15 / -15			14-16	24/12	1,2,2,3	50		
			16-18	24/24	2,2,2,2	100		
20 / -20		CLAY: Soft grey CLAY, saturated.	18-20	24/24	NA	0		

URS
Clifton Park, New York

LOG OF BORING

PROJECT:	POULTNEY ST.	**METHOD OF DRILLING:**	3.25" Hollow Stem Auger
BORING NO.:	SB-6	**SAMPLE TYPE:**	2' x 2" Split Spoon
DATE:	1/10/02	**SURFACE CONDITIONS:**	Grass
BORING DIAMETER:	7.0"	**DRILLER:**	SJB
BORING DEPTH:	20 Feet	**GEOLOGIST:**	C. McMahon
ELEVATION:	GRD.99.37	**REVIEWED BY:**	Bethel. Conchetta
BORING LOCATION:	N 4883.00/E 4871.91		

Depth / Elevation	Soil Symbols	Soil Description	Sample Depth (ft bg)	Driven/ Recovery (in.)	Blows per/ (6 in.)	PID (ppm)	Well Construction	Well Description
0 / 0		CLAY: Brown, medium-stiff CLAY, with lenses of fine sand, moist to saturated at 4.5'.	0-2	24/16	1,1,2,3	0		
			2-4	24/18	3,5,4,4	0		
5 / -5			4-6	24/20	WOH/24	2		Soil boring - no well installed
		SAND: Brown, fine SAND, saturated.	6-8	24/24	WOH/24	1		
		CLAY: Soft grey CLAY, saturated.						
		CLAY: Grey, medium-stiff CLAY, some organics, saturated.	8-10	24/18	1,2,3,3	1.25		
10 / -10		CLAY: Grey, medium-stiff CLAY, lens of wood chips at 10.75', saturated.	10-12	24/20	3,1,1,2	0.75		
			12-14	24/24	2,3,4,4	1.25		
		SAND: Grey, fine SAND, saturated.						
15 / -15			14-16	24/18	2,3,3,3	5		
			16-18	24/18	2,3,2,3	7		
		CLAY: Soft grey CLAY, saturated.	18-20	24/24	NA	4.5		
20 / -20								

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LOG OF BORING

PROJECT:	POULTNEY ST.	**METHOD OF DRILLING:**	3.25" Hollow Stem Auger
BORING NO.:	SB-7	**SAMPLE TYPE:**	2' x 2" Split Spoon
DATE:	1/10/02	**SURFACE CONDITIONS:**	Grass
BORING DIAMETER:	7.0"	**DRILLER:**	SJB
BORING DEPTH:	20 Feet	**GEOLOGIST:**	C. McMahon
ELEVATION:	GRD.98.75	**REVIEWED BY:**	Brian A. Crudetti
BORING LOCATION:	N 4917.26/E 4884.24		

Depth / Elevation	Soil Symbols	Soil Description	Sample Depth (ft bg)	Driven/ Recovery (in.)	Blows per/ (6 in.)	PID (ppm)	Well Construction	Well Description
0 / 0		SAND AND GRAVEL: Brown, SAND AND GRAVEL, some silt, some organics, moist.	0-2	24/16	7,4,4,3	1.5		
		CLAY: Brown, medium-stiff CLAY, trace sand and organics, moist, strong odor.	2-4	24/18	4,5,6,5	5		
5 / -5		CLAY: Soft grey CLAY with lenses of fine sand, saturated strong odor.	4-6	24/24	WOH/24	40		Soil boring - no well installed
		CLAY: Grey, medium-stiff CLAY, trace sand, organics, saturated, trace free product, sheen on soil.	6-8	24/24	2,2,2,2	50		
		CLAY: Grey, medium-stiff CLAY, trace sand, organics, saturated, strong odor.	8-10	24/20	1,2,2,2	34		
10 / -10		CLAY: Grey, meduim-soft CLAY, saturated.	10-12	24/24	WOH/18,3	20		
		SAND AND SILT: Grey, SAND AND SILT, saturated, strong odor.	12-14	24/24	1,2,2,2	80		
		SAND: Grey, fine SAND, some silt, trace organics, saturated, strong odor.						
15 / -15			14-16	24/18	4,2,2,1	8		
			16-18	24/24	2,2,2,2	3.5		
		CLAY: Soft grey CLAY, saturated.	18-20	24/24	1,1,1,1	0		
20 / -20								

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LOG OF BORING

PROJECT:	POULTNEY ST.	**METHOD OF DRILLING:**	3.25" Hollow Stem Auger
BORING NO.:	SB-8	**SAMPLE TYPE:**	2' x 2" Split Spoon
DATE:	1/11/01	**SURFACE CONDITIONS:**	Grass
BORING DIAMETER:	7.0"	**DRILLER:**	SJB
BORING DEPTH:	20 Feet	**GEOLOGIST:**	C. McMahon
ELEVATION:	GRD.98.75	**REVIEWED BY:**	Brett M. Condotta
BORING LOCATION:	N 4929.71/E 4869.89		

Depth / Elevation	Soil Symbols	Soil Description	Sample Depth (ft bg)	Driven/ Recovery (in.)	Blows per/ (6 in.)	PID (ppm)	Well Construction	Well Description
0 / 0		SAND AND SILT: Brown, SAND AND SILT, some gravel and organics, moist.	0-2	24/14	14,6,6,7	1.75		
		CLAY: Grey, medium-stiff CLAY with lenses of fine sand, trace fine gravel, moist, strong odor.	2-4	24/18	4,5,5,4	12		
5 / -5		SAND AND SILT: Grey, SAND AND SILT with lenses of fine sand, saturated, sheen, odor.	4-6	24/18	WOH/12,2,1	48		Soil boring - no well installed
		CLAY: Grey, medium-stiff CLAY with lenses of fine sand, saturated, sheen, odor.	6-8	24/24	1,1,2,2	42		
		CLAY: Grey, medium-stiff CLAY, trace organics, saturated, odor.	8-10	24/24	WOH,1,2,1	320		
10 / -10		CLAY: Grey, medium-stiff CLAY, trace sand, saturated, odor.	10-12	24/24	1,2,2,3	600		
		CLAY: Grey, medium-stiff CLAY.	12-14	24/24	WOH,1,2,3	350		
		SAND AND SILT: Grey, SAND AND SILT, saturated, odor, trace free product.						
15 / -15		CLAY: Grey, medium-soft CLAY, sand and trace organics, odor, saturated.	14-16	24/18	WOH,18,3	180		
		SAND: Grey, fine SAND, saturated, odor.	16-18	24/18	1,6,3,2	144		
		CLAY: Soft grey CLAY, saturated.	18-20	24/24	WOH/24	11		
20 / -20								

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LOG OF BORING

PROJECT: POULTNEY ST.
BORING NO.: SB-9
DATE: 1/11/02
BORING DIAMETER: 7.0"
BORING DEPTH: 18 Feet
ELEVATION: GRD.97.85
BORING LOCATION: N 4918.67/E 4861.84

METHOD OF DRILLING: 3.25" Hollow Stem Auger
SAMPLE TYPE: 2' x 2" Split Spoon
SURFACE CONDITIONS: Grass
DRILLER: SJB
GEOLOGIST: C. McMahon
REVIEWED BY: Robert A. Cavaliere

Depth / Elevation	Soil Symbols	Soil Description	Sample Depth (ft bg)	Driven/ Recovery (in.)	Blows per/ (6 in.)	PID (ppm)	Well Construction	Well Description
0 / 0		NO RECOVERY	0-2	24/0	2,2,3,2	NA		
		SAND AND SILT: Grey, SAND AND SILT, saturated, strong odor, sheen.	2-4	24/12	WOH/24	140		
5 / -5		SAND AND SILT: Grey, SAND AND SILT, lenses of fine sand, saturated, strong odor, sheen.	4-6	24/24	WOH/24	600		Soil boring - no well installed
		CLAY: Brown, medium-stiff CLAY, trace organics, saturated, odor.	6-8	24/24	2,1,2,3	600		
		CLAY: Green/grey, medium-stiff CLAY, trace organics, saturated, odor, sheen.	8-10	24/18	WOH,1,2,3	150		
10 / -10		SAND AND SILT: Grey, SAND AND SILT, saturated, odor.	10-12	24/24	1,2,2,3	600		
			12-14	24/24	WOH,2,2,4	320		
		SAND: Grey, fine SAND, saturated, odor, sheen.						
15 / -15		SAND: Grey, medium to fine SAND, saturated, odor, sheen.	14-16	24/24	WOH,1,1,1	50		
		CLAY: Soft grey CLAY, saturated, odor, sheen.	16-18	24/24	1,1,1,1	30		

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LOG OF BORING

PROJECT:	POULTNEY ST.	**METHOD OF DRILLING:**	3.25" Hollow Stem Auger
BORING NO.:	SB-10	**SAMPLE TYPE:**	2' x 2" Split Spoon
DATE:	1/11/02	**SURFACE CONDITIONS:**	Grass
BORING DIAMETER:	7.0"	**DRILLER:**	SJB
BORING DEPTH:	20 Feet	**GEOLOGIST:**	C. McMahon
ELEVATION:	GRD.98.89	**REVIEWED BY:**	Brian M. Conduitte
BORING LOCATION:	N 4942.07/E 4865.13		

Depth / Elevation	Soil Symbols	Soil Description	Sample Depth (ft bg)	Driven/ Recovery (in.)	Blows per/ (6 in.)	PID (ppm)	Well Construction	Well Description
0 / 0		SAND AND SILT: Brown, SAND AND SILT, some gravel and some organics, moist.	0-2	24/16	10,9,8,8	5		
		SILT: Brown SILT, some sand, trace gravel and organics, moist.	2-4	24/18	4,6,6,5	3.6		
5 / -5		CLAY: Soft grey CLAY, saturated, slight sheen.	4-6	24/16	WOH,1,1,1	7		Soil boring - no well installed
			6-8	24/24	WOH/18,3	5		
		CLAY: Brown, medium-stiff CLAY, trace sand and organics, saturated.						
		CLAY: Green/grey medium-stiff CLAY, trace sand, saturated.	8-10	24/18	1,2,2,3	13		
10 / -10		SAND: Grey, fine SAND, saturated, odor.	10-12	24/18	WOH/12,4,4	5		
			12-14	24/24	2,2,3,3	14.5		
15 / -15			14-16	24/20	1,2,4,4	40		
			16-18	24/24	2,2,1,3	18		
		CLAY: Soft grey CLAY, saturated.						
20 / -20			18-20	24/24	WOH/24	1.5		

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LOG OF BORING

PROJECT:	POULTNEY ST.	**METHOD OF DRILLING:**	3.25" Hollow Stem Auger
BORING NO.:	SB-11	**SAMPLE TYPE:**	2' x 2" Split Spoon
DATE:	1/11/02	**SURFACE CONDITIONS:**	Grass
BORING DIAMETER:	7.0"	**DRILLER:**	SJB
BORING DEPTH:	20 Feet	**GEOLOGIST:**	C. McMahon
ELEVATION:	GRD.98.77	**REVIEWED BY:**	Brett A. Cuddeback
BORING LOCATION:	N 4929.92/E 4880.58		

Depth / Elevation	Soil Symbols	Soil Description	Sample Depth (ft bg)	Driven/ Recovery (in.)	Blows per/ (6 in.)	PID (ppm)	Well Construction	Well Description
0 / 0		SAND AND GRAVEL: Brown, SAND AND GRAVEL, moist	0-2	24/12	6,4,3,5	10		
		CLAY: Brown, medium-stiff CLAY, trace sand, organics, moist.	2-4	24/18	4,5,6,4	1.5		
5 / -5		CLAY: Grey/green medium-stiff clay with lenses of fine sand, saturated, strong odor, sheen.	4-6	24/20	WOH,1,2,2	3.5		Soil boring - no well installed
		SAND AND SILT: Grey, SAND AND SILT, saturated, odor.	6-8	24/24	2,2,2,2	30		
		CLAY: Green/grey medium-stiff CLAY, saturated, odor.						
		CLAY: Grey, medium-stiff CLAY, saturated, more sand, 10'-12'.	8-10	24/20	WOH,1,2,2	13		
10 / -10			10-12	24/24	WOH/12,2,2	3		
		SAND: Grey, fine SAND, saturated.	12-14	24/24	3,2,3,3	95		
		SAND: Same as above, saturated, odor, sheen, free product.	14-16	24/16	1,1,2,3	140		
15 / -15			16-18	24/24	2,3,2,3	10		
		CLAY: Soft grey CLAY, saturated.	18-20	24/24	1,1,1,1	13		
20 / -20								

URS
Clifton Park, New York

LOG OF BORING

PROJECT:	POULTNEY ST.	**METHOD OF DRILLING:**	3.25" Hollow Stem Auger
BORING NO.:	SB-12	**SAMPLE TYPE:**	2' x 2" Split Spoon
DATE:	1/14/02	**SURFACE CONDITIONS:**	Grass
BORING DIAMETER:	7.0"	**DRILLER:**	SJB
BORING DEPTH:	20 Feet	**GEOLOGIST:**	C. McMahon
ELEVATION:	GRD.99.05	**REVIEWED BY:**	Brian M. Candelli
BORING LOCATION:	N 4922.39/E 4895.18		

Depth / Elevation	Soil Symbols	Soil Description	Sample Depth (ft bg)	Driven/ Recovery (in.)	Blows per/ (6 in.)	PID (ppm)	Well Construction	Well Description
0 / 0		SAND AND GRAVEL: Brown SAND AND GRAVEL, some silt, trace organics, moist.	0-2	24/10	2,2,2,2	0		
		NO RECOVERY: Refusal on a large rock.	2-4	24/3	7,100/1	NM		
5 / -5		SAND AND SILT: Grey, SAND AND SILT some gravel, saturated.	4-6	24/20	WOH,1,1,1	4		Soil boring - no well installed
		CLAY: Green/grey medium-stiff CLAY, saturated.	6-8	24/24	3,4,4,3	19		
		CLAY: Grey brown medium stiff CLAY, trace organics, saturated.	8-10	24/20	2,3,4,4	0.5		
10 / -10		SAND AND SILT: Grey, SAND AND SILT, saturated, slight odor.	10-12	24/18	1,1,1,1	2.5		
		SAND: Grey, fine SAND, saturated.	12-14	24/24	2,2,2,2	3		
15 / -15			14-16	24/10	1,1,1,1	0.5		
			16-18	24/16	3,4,4,4	4.5		
20 / -20		CLAY: Soft grey CLAY, saturated.	18-20	24/24	1,5,1,1	0		

LOG OF BORING

URS
Clifton Park, New York

PROJECT:	POULTNEY ST.	**METHOD OF DRILLING:**	3.25" Hollow Stem Auger
BORING NO.:	SB-13	**SAMPLE TYPE:**	2' x 2" Split Spoon
DATE:	1/14/02	**SURFACE CONDITIONS:**	Grass
BORING DIAMETER:	7.0"	**DRILLER:**	SJB
BORING DEPTH:	20 Feet	**GEOLOGIST:**	C. McMahon
ELEVATION:	GRD.98.85	**REVIEWED BY:**	
BORING LOCATION:	N 4931.57/E 4914.83		

Depth / Elevation	Soil Symbols	Soil Description	Sample Depth (ft bg)	Driven/ Recovery (in.)	Blows per/ (6 in.)	PID (ppm)	Well Construction	Well Description
0 / 0		SAND AND GRAVEL: SAND AND GRAVEL, went through lid of 55 gallon drum.	0-2	24/2	5,4,4,4	NM		
		SAND AND SILT: Brown, SAND AND SILT, some gravel, trace organics, moist.	2-4	24/12	3,3,4,4	0		
5 / -5		CLAY: Grey, medium-stiff CLAY with lenses of fine sand, saturated.	4-6	24/10	3,2,1,1	0.5		Soil boring - no well installed
		NO RECOVERY	6-8	24/0	5,6,7,5	NM		
		SILT: Brown SILT, some sand, trace organics, lenses of fine sand, saturated.	8-10	24/20	2,2,2,2	0		
10 / -10			10-12	24/20	WOH,1,1,1	0		
			12-14	24/24	1,1,1,1	0		
		SAND: Grey, fine SAND, saturated.	14-16	24/20	1,1,2,2	2		
15 / -15		SAND: Same as above, some fine gravel, saturated.	16-18	24/20	1,1,2,2	5		
		CLAY: Soft grey CLAY, saturated.	18-20	24/24	2,1,1,2	0.5		
20 / -20								

LOG OF BORING

URS
Clifton Park, New York

PROJECT:	POULTNEY ST.	**METHOD OF DRILLING:**	3.25" Hollow Stem Auger
BORING NO.:	SB-14	**SAMPLE TYPE:**	2' x 2" Split Spoon
DATE:	1/14/02	**SURFACE CONDITIONS:**	Grass
BORING DIAMETER:	7.0"	**DRILLER:**	SJB
BORING DEPTH:	20 Feet	**GEOLOGIST:**	C. McMahon
ELEVATION:	GRD.99.05	**REVIEWED BY:**	Brett M. Candelli
BORING LOCATION:	N 4901.32/E 4854.53		

Depth / Elevation	Soil Symbols	Soil Description	Sample Depth (ft bg)	Driven/ Recovery (in.)	Blows per/ (6 in.)	PID (ppm)	Well Construction	Well Description
0 / 0		SAND AND GRAVEL: Brown, SAND AND GRAVEL, some silt and organics, moist.	0-2	24/16	1,2,4,4	1		
		CLAY: Brown, medium-soft CLAY with lenses of fine sand, moist to saturated.	2-4	24/18	1,3,4,3	5		
5 / -5			4-6	24/18	1,1,1,1	6		Soil boring - no well installed
		SAND: Grey fine SAND, saturated, odor.	6-8	24/24	1,2,3,2	4		
		CLAY: Green/grey medium-stiff CLAY, saturated, odor.	8-10	24/16	WOH/1223	130		
10 / -10			10-12	24/24	1,3,2,3	165		
		SAND: Grey, fine SAND, saturated, slight odor.	12-14	24/24	2,4,3,3	300		
15 / -15			14-16	24/16	2,2,3,3	30		
			16-18	24/18	4,4,2,2	20		
		SAND: Soft grey CLAY, saturated.	18-20	24/24	WOH/24	1		
20 / -20								

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LOG OF BORING

PROJECT:	POULTNEY ST.	**METHOD OF DRILLING:**	3.25" Hollow Stem Auger
BORING NO.:	SB-15	**SAMPLE TYPE:**	2' x 2" Split Spoon
DATE:	1/15/02	**SURFACE CONDITIONS:**	Grass
BORING DIAMETER:	7.0"	**DRILLER:**	SJB
BORING DEPTH:	20 Feet	**GEOLOGIST:**	C. McMahon
ELEVATION:	GRD.97.62	**REVIEWED BY:**	Brian M. Lindsay
BORING LOCATION:	N 4959.07/E 4949.75		

Depth / Elevation	Soil Symbols	Soil Description	Sample Depth (ft bg)	Driven/ Recovery (in.)	Blows per/ (6 in.)	PID (ppm)	Well Construction	Well Description
0 / 0		SAND AND GRAVEL: Brown, SAND AND GRAVEL, some brick fragments, moist.	0-2	24/8	2,2,3,3	NM		
		CLAY: Brown, CLAY, some sand, trace organics, moist.	2-4	24/16	2,4,4,4	13		
5 / -5			4-6	24/18	1,2,3,3	18		Soil boring - no well installed
		SAND AND SILT: Brown, SAND AND SILT, saturated.	6-8	24/24	2,4,6,4	2.5		
			8-10	24/18	1,1,2,2	3		
10 / -10		SAND: Brown, fine SAND, saturated.	10-12	24/24	2,2,3,4	7.5		
		SAND: Brown, fine SAND with fine gravel, saturated.	12-14	24/24	3,4,3,4	3		
15 / -15		SAND: Brown, fine SAND, some silt, saturated.	14-16	24/18	2,3,4,5	4.5		
		SAND: Grey, fine SAND, some fine gravel, saturated.	16-18	24/20	4,4,5,6	1.5		
20 / -20		CLAY: Soft grey CLAY, saturated.	18-20	24/24	1,1,1,1	0		

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Clifton Park, New York

LOG OF BORING

PROJECT:	POULTNEY ST.	**METHOD OF DRILLING:**	3.25" Hollow Stem Auger
BORING NO.:	SB-16	**SAMPLE TYPE:**	2' x 2" Split Spoon
DATE:	1/15/02	**SURFACE CONDITIONS:**	Grass
BORING DIAMETER:	7.0"	**DRILLER:**	SJB
BORING DEPTH:	22 Feet	**GEOLOGIST:**	C. McMahon
ELEVATION:	GRD.98.07	**REVIEWED BY:**	Robert A. Conduti
BORING LOCATION:	N 4947.53/E 4941.64		

Depth / Elevation	Soil Symbols	Soil Description	Sample Depth (ft bg)	Driven/ Recovery (in.)	Blows per/ (6 in.)	PID (ppm)	Well Construction	Well Description
0 / 0		SAND AND SILT: Brown, SAND AND SILT, some brick fragments, trace organics, moist.	0-2	24/18	3,3,2,3	1		
		SAND AND GRAVEL: Brown, SAND AND GRAVEL, some brick fragments, moist.	2-4	24/6	6,6,5,2	0.5		
5 / -5		CLAY: Brown, CLAY, some sand, trace organics, saturated.	4-6	24/12	2,2,2,2	4		Soil boring - no well installed
		SAND AND SILT: Brown and grey SAND AND SILT, saturated.	6-8	24/20	2,3,3,2	1.5		
			8-10	24/18	1,1,1,1	9		
10 / -10		SAND: Brown, fine SAND, some silt, saturated.	10-12	24/18	1,2,2,1	2		
			12-14	24/24	2,2,3,2	3		
15 / -15		SAND: Grey, fine SAND, trace fine gravel, saturated.	14-16	24/18	2,3,4,4	8		
			16-18	24/24	3,5,5,7	4		
			18-20	24/24	4,4,5,5	NM		
20 / -20		CLAY: Soft grey CLAY, saturated.	20-22	24/24	1,2,2,2	0		

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LOG OF BORING

PROJECT:	POULTNEY ST.	**METHOD OF DRILLING:**	3.25" Hollow Stem Auger
BORING NO.:	SB-17	**SAMPLE TYPE:**	2' x 2" Split Spoon
DATE:	1/15/02	**SURFACE CONDITIONS:**	Grass
BORING DIAMETER:	7.0"	**DRILLER:**	SJB
BORING DEPTH:	22 Feet	**GEOLOGIST:**	C. McMahon
ELEVATION:	GRD.99.08	**REVIEWED BY:**	
BORING LOCATION:	N 4940.04/E 4955.90		

Depth / Elevation	Soil Symbols	Soil Description	Sample Depth (ft bg)	Driven/ Recovery (in.)	Blows per/ (6 in.)	PID (ppm)	Well Construction	Well Description
0 — 0		SAND AND SILT: Dark brown, SAND AND SILT, with organics and brick, moist.	0-2	24/14	2,2,2,2	1.5		
		SAND AND SILT: Same as above, some cinders, ash and broken glass, moist.	2-4	24/16	10,4,4,5	1.5		
5 — -5		CLAY: Brown and grey, medium-stiff CLAY with lenses of fine sand, trace organics, saturated.	4-6	24/18	1,2,2,2	0.5		Soil boring - no well installed
		CLAY: Brown and grey, medium-stiff CLAY, saturated.	6-8	24/18	2,3,2,3	1		
		SAND: Brown, fine SAND, some silt, saturated.	8-10	24/18	2,2,2,3	4		
10 — -10			10-12	24/18	2,3,4,4	1.5		
			12-14	24/22	3,3,2,3	0.5		
		SAND: Brown, fine SAND, trace fine gravel, saturated.	14-16	24/18	WOH,1,2,4	0.5		
15 — -15			16-18	24/20	2,3,4,3	6		
			18-20	24/20	3,3,2,1	0		
20 — -20		CLAY: Soft grey CLAY, saturated.	20-22	24/24	1,1,1,1	0		

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Clifton Park, New York

LOG OF BORING

PROJECT:	POULTNEY ST.	**METHOD OF DRILLING:**	3.25" Hollow Stem Auger
BORING NO.:	SB-18	**SAMPLE TYPE:**	2' x 2" Split Spoon
DATE:	1/15/02	**SURFACE CONDITIONS:**	Grass
BORING DIAMETER:	7.0"	**DRILLER:**	SJB
BORING DEPTH:	20 Feet	**GEOLOGIST:**	C. McMahon
ELEVATION:	GRD.97.99	**REVIEWED BY:**	
BORING LOCATION:	N 4949.28/E 4966.68		

Depth / Elevation	Soil Symbols	Soil Description	Sample Depth (ft bg)	Driven/ Recovery (in.)	Blows per/ (6 in.)	PID (ppm)	Well Construction	Well Description
0 — 0		CLAY: Brown, medium-stiff CLAY, some organics, moist.	0-2	24/14	1,2,1,2	0		
			2-4	24/20	3,4,3,3	0		
5 — -5		CLAY: Brown, medium-stiff CLAY, trace sand, saturated.	4-6	24/18	1,2,2,3	0		Soil boring - no well installed
		CLAY: Brown, medium-stiff CLAY, trace organics, saturated.	6-8	24/24	1,2,2,2	0		
		SAND: Brown, fine SAND, some silt, saturated.	8-10	24/20	WOH,2,2,4	11		
10 — -10			10-12	24/24	3,4,3,4	0.5		
		SAND: Brown, fine SAND, some silt, trace fine gravel, saturated.	12-14	24/24	3,3,4,4	0		
15 — -15			14-16	24/24	3,5,3,2	0		
		SAND: Grey, fine SAND, trace fine gravel, silt, saturated.	16-18	24/24	3,4,4,4	0		
		CLAY: Soft grey CLAY, saturated.	18-20	24/24	2,2,2,2	0		
20 — -20								

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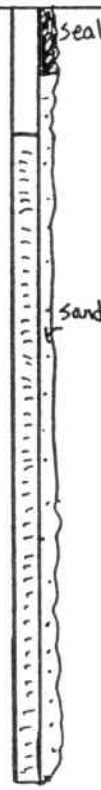
Pennsylvania Office
Doylestown, PA

SOIL BORING / TEMPORARY PIEZOMETER LOG

Project Number: 96142
Project Name: Poultney Street Site #558019 Whitehall, NY
Drilling Date: 7/30/98
Logged By: Dave Skitt
Drilling Co.: Terra Probe
Driller(s): Frank and/or Tom Fendler
Drilling Method: Direct Push - Geoprobe
Boring Diameter: 2-inch
Boring Depth, Total (feet): 12'
Sampling Method: 48-inch Macro-core
Depth to Water (feet): ~4.5'

Boring ID: PZ-1
Screen: 12'-2', 1-inch diameter Sch. 40 PVC – 10 Slot
Riser: 2'-0' 1-inch diameter Sch. 40 PVC
Sand Pack: 12'-1' #1 Sand
Well Seal: 1'-0' Bentonite
Screen Depth (feet): ~2' Below Grade
Development: NA
Approx. Yield (gpm): NA
Abandonment Method:* Bentonite/cement mix
Abandonment Date: 8/22/98

Sample Interval (feet)	Recovery (inches)	PID (ppm)	Comments or Notes	Stratigraphic Description
0-4	40	0		0-1.5' Brown silt, m-c gravel 1.5'-2' Coal debris 2'-2.5' mod. brown silt w/ vegetation debris, dry, stiff 2.5'-3.5' Gray black clay w/ vegetation debris, trace f-m sand, stiff 3.5'-4' Orange brown f-m sand, trace silt
4-8	48	0	moist ~4.5'	4'-4.5' Orange gray clay w/ vegetation debris 4.5'-4.75' Gray and brown (variegated) clay and silt 4.75'-8' Gray and brown (variegated) vf-sand
8-12	48	0	wet @ 8'	8'-9' Gray and brown (variegated) f-m sand 9'-9.5' Gray and brown (variegated) clayey silt 9.5'-11' Gray brown f-m sand, trace silt 11'-12' Gray f-m sand 12' End of Boring
			Grab water sample for field GC	



Depth (feet): 0, 4, 8, 12, 16

* = PVC screen/riser removed prior to abandonment.
NA = Not Applicable

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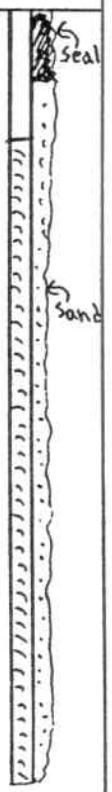
SOIL BORING / TEMPORARY PIEZOMETER LOG

Project Number: 96142
Project Name: Poultney Street Site #558019 Whitehall, NY
Drilling Date: 7/30/98
Logged By: Dave Skitt
Drilling Co.: Terra Probe
Driller(s): Frank and/or Tom Fendler
Drilling Method: Direct Push - Geoprobe
Boring Diameter: 2-inch
Boring Depth, Total (feet): 12'
Sampling Method: 48-inch Macro-core
Depth to Water (feet): ~3.25'

Boring ID: PZ-2
Screen: 12'-2', 1-inch diameter Sch. 40 PVC – 10 Slot
Riser: 2'-0', 1-inch diameter Sch. 40 PVC
Sand Pack: 12'-1', #1 Sand
Well Seal: 1'-0', Bentonite
Screen Depth (feet): ~2' Below Grade
Development: NA
Approx. Yield (gpm): NA
Abandonment Method: * Bentonite / Cement mix
Abandonment Date: 8/22/98

Sample Interval (feet)	Recovery (inches)	PID (ppm)	Comments or Notes	Stratigraphic Description
0-4	40	0	moist ~3.25'	0-1' Dark brown silty clay, stiff 1'-1.25' Coal debris 1.25'-3.25' Gray brown silty clay, stiff 3.25'-4' Gray brown silty clay w/ f-m sand lenses
4-8	48	0		4'-4.5' Gray brown f-m sand 4.5'-6.5' Gray brown clay, soft 6.5'-6.75' Brown f-m sand 6.75'-7' Black Peat 7'-8' Gray green clay
8-12	48	0	wet @ 8'	8'-12' Brown f-m sand and silty sand
			Grab water sample for field GC	12' End of Boring * = PVC screen/riser removed prior to abandonment NA = Not Applicable

Piezometer Construction Sketch



Depth (feet): 0, 4, 8, 12, 16

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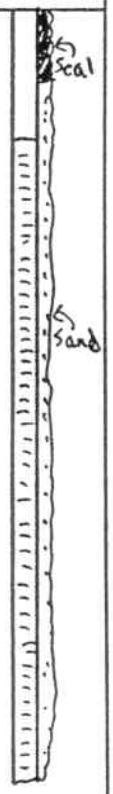
SOIL BORING / TEMPORARY PIEZOMETER LOG*

Project Number: 96142
Project Name: Poultney Street Site #558019 Whitehall, NY
Drilling Date: 7/30/98
Logged By: Dave Skitt
Drilling Co.: Terra Probe
Driller(s): Frank and/or Tom Fendler
Drilling Method: Direct Push - Geoprobe
Boring Diameter: 2-inch
Boring Depth, Total (feet): 12'
Sampling Method: 48-inch Macro-core
Depth to Water (feet): ~4'

Boring ID: PZ-3
Screen: 12'-2', 1-inch diameter Sch. 40 PVC – 10 Slot
Riser: 2'-0', 1-inch diameter Sch. 40 PVC
Sand Pack: 12'-1', #1 Sand
Well Seal: 1'-0', Bentonite
Screen Depth (feet): ~2' Below Grade
Development: Peristaltic Pump
Approx. Yield (gpm): ~0.25 gpm
Abandonment Method: NA; converted to well.
Abandonment Date: NA

Sample Interval (feet)	Recovery (inches)	PID (ppm)	Comments or Notes	Stratigraphic Description
0-4	38	0	0-1", PPV0+10	0-1' Coal debris 1'-4' Gray brown stiff clay; sand lens @ 3.5'
4-8	48	4', 0 6', 540 8', 170	moist ~4' 6', PPV0+10 Field GC	4'-4.25' Brown f-m sand 4.25'-5' Gray clay, moist, stiff 5'-7' Gray clay, soft, sticky, 1.5" sand lens @ 6' 7'-8.75' Gray stiff clay
8-12	48	8.75', 300 9', 50 10', 300 11', 20 12' 0-10	8.75', Field GC	8.75'-9' Gray f-m sand 9'-10' Gray stiff clay 10'-12' Brown m-c sand, wet 12' End of Boring
			Grab water sample for field GC	* Piezometer converted to monitoring well with same ID. NA = Not Applicable

Piezometer Construction Sketch



Depth (feet): 0, 4, 8, 12, 16

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SOIL BORING / TEMPORARY PIEZOMETER LOG *

Project Number: 96142
Project Name: Poultney Street Site #558019 Whitehall, NY
Drilling Date: 7/30/98
Logged By: Dave Skitt
Drilling Co.: Terra Probe
Driller(s): Frank and/or Tom Fendler
Drilling Method: Direct Push - Geoprobe
Boring Diameter: 2-inch
Boring Depth, Total (feet): 12'
Sampling Method: 48-inch Macro-core
Depth to Water (feet): ~3.5'

Boring ID: pz-4
Screen: 12'-2', 1-inch diameter Sch. 40 PVC – 10 Slot
Riser: 2'-0', 1-inch diameter Sch. 40 PVC
Sand Pack: 12'-1', #1 Sand
Well Seal: 1'-0', Bentonite
Screen Depth (feet): ~2' Below Grade
Development: Peristaltic Pump
Approx. Yield (gpm): ~0.2 gpm
Abandonment Method: NA; converted to well
Abandonment Date: NA

Sample Interval (feet)	Recovery (inches)	PID (ppm)	Comments or Notes	Stratigraphic Description
0-4	40	0-5	moist @ 3.5'	0-1.5' Gray black sandy silt w/ f-m gravel, stiff, dry 1.5'-2' Gray brown sandy clay, stiff 2'-4' Gray brown silty sand
4-8	0	NA		4-8' No recovery
8-12	48	0		8'-9' Gray brown f-m sand, trace silt/clay 9'-9.5' mod. gray soft clay 9.5'-11' Gray-green-black clay 11'-12' Gray and orange-brown silt and vf-sand
			Grab water sample for field GC	12' End of Boring

Piezometer Construction Sketch: Seal; Sand; Depth (feet): 0, 4, 8, 12, 16

*= Piezometer converted to monitoring well with same ID.

NA= Not Applicable

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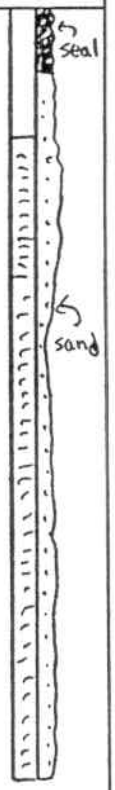
SOIL BORING / TEMPORARY PIEZOMETER LOG*

Project Number: 96142
Project Name: Poultney Street Site #558019 Whitehall, NY
Drilling Date: 7/29/98
Logged By: Dave Skitt
Drilling Co.: Terra Probe
Driller(s): Frank and/or Tom Fendler
Drilling Method: Direct Push - Geoprobe
Boring Diameter: 2-inch
Boring Depth, Total (feet): 12'
Sampling Method: 48-inch Macro-core
Depth to Water (feet): ~5.5'

Boring ID: PZ-7
Screen: 12'-2', 1-inch diameter Sch. 40 PVC – 10 Slot
Riser: 2'-0', 1-inch diameter Sch. 40 PVC
Sand Pack: 12'-1', #1 Sand
Well Seal: 1'-0, Bentonite
Screen Depth (feet): ~2' Below Grade
Development: Peristaltic pump
Approx. Yield (gpm): < 0.1 gpm
Abandonment Method: NA; Converted to Well
Abandonment Date: NA

Sample Interval (feet)	Recovery (inches)	PID (ppm)	Comments or Notes	Stratigraphic Description
0-4	42	0-10		0-2' Gray-black silt, trace sand, some f-m gravel, stiff 2'-4' Mod. gray-brown sandy silt, 1"-2" sand lenses at 2', 2.75', and 3.75'
4-8	42	0-10	5.25', Field GC moist @ 5.5'	4'-5' mod. brown f-m sand 5'-5.5' mod. brown clayey sand 5.5'-6' mod. gray-brown sandy clay 6'-8.25 Gray clay, stiff
8-12	44	0-5	9.25', TOC	8.25'-10' Gray-brown peat with clay 10'-11' Gray clay, soft 11'-12' Gray, clayey f-sand 12' End of Boring
			Grab water sample for field GC	* Piezometer converted to monitoring well with same I.D. NA = Not Applicable

Piezometer Construction Sketch



Depth (feet): 0, 4, 8, 12, 16

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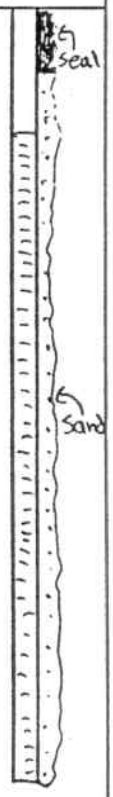
SOIL BORING / TEMPORARY PIEZOMETER LOG

Project Number: 96142
Project Name: Poultney Street Site #558019 Whitehall, NY
Drilling Date: 7/29/98
Logged By: Dave Skitt
Drilling Co.: Terra Probe
Driller(s): Frank and/or Tom Fendler
Drilling Method: Direct Push - Geoprobe
Boring Diameter: 2-inch
Boring Depth, Total (feet): 12'
Sampling Method: 48-inch Macro-core
Depth to Water (feet): ~4.5'

Boring ID: PZ-8
Screen: 12'-2', 1-inch diameter Sch. 40 PVC – 10 Slot
Riser: 2'-0', 1-inch diameter Sch. 40 PVC
Sand Pack: 12'-1', #1 Sand
Well Seal: 1'-0', Bentonite
Screen Depth (feet): ~2' Below Grade
Development: NA
Approx. Yield (gpm): NA
Abandonment Method: * Bentonite/cement mix
Abandonment Date: 8/22/98

Sample Interval (feet)	Recovery (inches)	PID (ppm)	Comments or Notes	Stratigraphic Description
0-4	40	2', 20 3' 10	3.5', Field GC	0-3.5' mod. brown silty, f-c sand, stiff, 1" sand lens at 3' 3.5'-4' mod. brown-gray silty clay, stiff
4-8	36	6', 80 7', 11	moist @ 4.5' 7.5', Field GC	4'-6' Olive brown-gray clayey sand, soft, 2" clay lens at 6' 6'-10' Gray clayey f-sand, soft
8-12	40	9', 5 11', 5		10'-12' Gray clay, stiff 12' End of Boring
			Grab water sample for field GC	* = PVC screen/riser removed prior to abandonment NA = Not Applicable

Piezometer Construction Sketch



Depth (feet): 0, 4, 8, 12, 16

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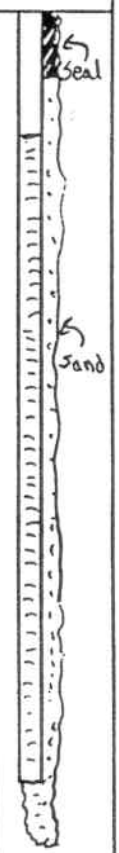
SOIL BORING / TEMPORARY PIEZOMETER LOG *

Project Number:	96142	Boring ID:	PZ-9
Project Name:	Poultney Street Site #558019 Whitehall, NY	Screen:	12'-2', 1-inch diameter Sch. 40 PVC – 10 Slot
Drilling Date:	7/29/98	Riser:	2'-0', 1-inch diameter Sch. 40 PVC
Logged By:	Dave Skitt	Sand Pack:	13-1', #1 Sand
Drilling Co.:	Terra Probe	Well Seal:	1'-0', Bentonite
Driller(s):	Frank and/or Tom Fendler	Screen Depth (feet):	~2' Below Grade
Drilling Method:	Direct Push - Geoprobe	Development:	Peristaltic Pump
Boring Diameter:	2-inch	Approx. Yield (gpm):	< 0.1 gpm
Boring Depth, Total (feet):	13'	Abandonment Method:	NA
Sampling Method:	48-inch Macro-core	Abandonment Date:	NA
Depth to Water (feet):	~4'		

Sample Interval (feet)	Recovery (inches)	PID (ppm)	Comments or Notes	Stratigraphic Description
0-4	35	**	0-1", PPVO+10	0-3' mod. brown f-m sand, dry but sticky, tightly packed (stiff)
			3.5', Bulk Density TOC Field GC	3'-3.75' Gray clayey m-sand 3.75'-4' Gray clay, stiff
4-8	37	**	moist @ 4', Petroluem odor noted	4'-6' Gray clayey m-sand, moist
				6'-7' Gray, m-c sand, wet
			7.5', TOC Field GC	7'-7.5' Gray clay 7.5'-7.75 Gray silty sand 7.75'-8' Gray clay
8-12	24	**	8'-12' Poor recovery- Pushed 2nd spoon to 13'	8'-11' Gray m-c sand, trace f-gravel, wet
				11'-13' Gray clay, stiff
				13' End of Boring
			Grab water sample for Field GC	* = Piezometer converted to monitoring well with same ID. ** = PID malfunction, no readings obtained



NA = Not Applicable

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SOIL BORING / TEMPORARY PIEZOMETER LOG *

Project Number: 96142
Project Name: Poultney Street Site #558019 Whitehall, NY
Drilling Date: 7/30/98
Logged By: Dave Skitt
Drilling Co.: Terra Probe
Driller(s): Frank and/or Tom Fendler
Drilling Method: Direct Push - Geoprobe
Boring Diameter: 2-inch
Boring Depth, Total (feet): 12'
Sampling Method: 48-inch Macro-core
Depth to Water (feet): ~ 4'

Boring ID: PZ-12
Screen: 12'-2', 1-inch diameter Sch. 40 PVC – 10 Slot
Riser: 2'-0', 1-inch diameter Sch. 40 PVC
Sand Pack: 12'-1', #1 Sand
Well Seal: 1'-0', Bentonite
Screen Depth (feet): ~ 2' Below Grade
Development: Peristaltic Pump
Approx. Yield (gpm): < 0.1 gpm
Abandonment Method: NA; Converted to well
Abandonment Date: NA

Sample Interval (feet)	Recovery (inches)	PID (ppm)	Comments or Notes	Stratigraphic Description	Piezometer Construction Sketch	Depth (feet)
0-4	36	2', 15 4', 110	3.5' Field GC	0-2' Gray-black sandy silt, f-m gravel, brick fragments 2'-3.5' Mod. brown sandy clay, stiff 3.5'-4.5' Lt.-mod. brown f-m sand, trace silt 4.5'-5' Gray-brown clayey silt	seal	0
4-8	42	moist @ 4' 6', 140 8', 10	6', Field GC	5'-8' Gray and brown silty clay, trace vf-sand, wet	sand	4
8-12	46	0-10		8'-9' Gray and brown vf-sand, trace silty clay, wet 9'-12' Mod. brown f-m sand, trace silt		8
			Grab water sample for field GC	12' End of Boring * Piezometer converted to monitoring well with same ID. NA = Not Applicable		12 16

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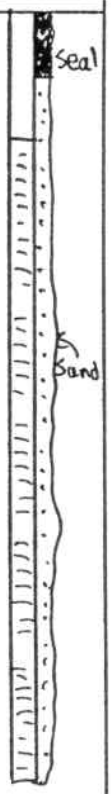
SOIL BORING / TEMPORARY PIEZOMETER LOG

Project Number: 96142
Project Name: Poultney Street Site #558019 Whitehall, NY
Drilling Date: 7/31/98
Logged By: Dave Skitt
Drilling Co.: Terra Probe
Driller(s): Frank and/or Tom Fendler
Drilling Method: Direct Push - Geoprobe
Boring Diameter: 2-inch
Boring Depth, Total (feet): 12'
Sampling Method: 48-inch Macro-core
Depth to Water (feet): ~4'

Boring ID: PZ-13
Screen: 12'-2', 1-inch diameter Sch. 40 PVC – 10 Slot
Riser: 2'-0', 1-inch diameter Sch. 40 PVC
Sand Pack: 12'-1', #1 Sand
Well Seal: 1'-0', Bentonite
Screen Depth (feet): ~2' Below Grade
Development: NA
Approx. Yield (gpm): NA
Abandonment Method: * Bentonite/cement mix
Abandonment Date: 8/22/98

Sample Interval (feet)	Recovery (inches)	PID (ppm)	Comments or Notes	Stratigraphic Description
0-4	38	3.75', 30	3.75', Field GC moist ~4'	0-0.5' Dark brown sandy silt 0.5'-1.5' Lt. brown sandy silt w/ f-m gravel 1.5'-2' Brown silty sand, dry 2'-3.5' Brown sandy clay 3.5'-4' Brown f-m sand, trace silt
4-8	30	7', 40	7.5', PPM+10	4'-6.5' No recovery 6.5'-6.75' Brown f-m sand, trace silt 6.75'-7.75' Brown sandy clay 7.75'-8.5' Gray f-m sand, trace silt
8-12	48	8', 100 9', 20 10', 10 11', 20		8.5'-11.25' Gray brown soft clay 11.25'-12' Gray brown stiff clay 12' End of Boring
			Grab water sample for field GC	* = PVC screen/riser removed prior to abandonment NA = Not Applicable



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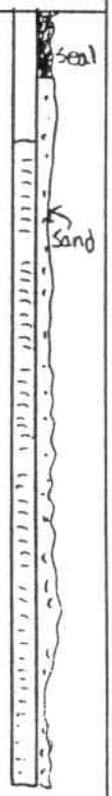
SOIL BORING / TEMPORARY PIEZOMETER LOG

Project Number: 96142
Project Name: Poultney Street Site #558019 Whitehall, NY
Drilling Date: 7/31/98
Logged By: Dave Skitt
Drilling Co.: Terra Probe
Driller(s): Frank and/or Tom Fendler
Drilling Method: Direct Push - Geoprobe
Boring Diameter: 2-inch
Boring Depth, Total (feet): 12'
Sampling Method: 48-inch Macro-core
Depth to Water (feet): ~ 4.75'

Boring ID: PZ-14
Screen: 12'-2', 1-inch diameter Sch. 40 PVC – 10 Slot
Riser: 2'-0', 1-inch diameter Sch. 40 PVC
Sand Pack: 12'-1', #1 Sand
Well Seal: 1'-0', Bentonite
Screen Depth (feet): ~ 2' Below Grade
Development: NA
Approx. Yield (gpm): NA
Abandonment Method: * Bentonite/Cement mix
Abandonment Date: 8/22/98

Sample Interval (feet)	Recovery (inches)	PID (ppm)	Comments or Notes	Stratigraphic Description
0-4	42	0		0-1' Lt. brown silt w/ f-m gravel 1'-1.25' Coal debris 1.25'-4.75' Dark brown sandy clay, stiff, small sand lenses at 4' and 4.5'
4-8	46	0	moist ~4.75'	4.75'-5' Brown f-m sand, trace silt 5'-5.5' Brown vf-sand, trace clay 5.5'-6' Brown gray clay 6'-6.25' Brown gray f-sand 6.25'-7.25' Gray green stiff clay 7.25'-8' Orange gray clayey f-m sand
8-12	0	NA	macro-core liner collapsed	8'-12' Brown f-m sand (Based on traces left in collapsed macro-core liner)
			Grab water sample for field GC	12' End of Boring * = PVC screen/riser removed prior to abandonment. NA = Not Applicable



Depth (feet): 0, 4, 8, 12, 16

APPENDIX B

MONITORING WELL DEVELOPMENT LOGS

WELL DEVELOPMENT LOG

URS

PROJECT TITLE: WHITEHALL / POULTNEY ST.
PROJECT NO.: 05-00035944.22
STAFF: C. McMaster
DATE(S): 1/29/02 – 1/30/02

WELL NO.: MW-1

		WELL ID.	VOL. (GAL./FT.)
1. TOTAL CASING AND SCREEN LENGTH (FT.):	23.04	1"	0.04
		2"	0.17
2. CASING INTERNAL DIAMETER (IN.):	.17	3"	0.38
		4"	0.66
3. WATER LEVEL BELOW TOP OF CASING (FT.):	8.16	5"	1.04
		6"	1.50
4. VOLUME OF WATER IN CASING (GAL.):	2.53	8"	2.60
#1-#3 x #2 (Gal./Ft.)			

PARAMETERS	ACCUMULATED VOLUME PURGED (GALLONS)										
	0	115	117	120	123	126					
pH											
SPEC. COND. (µmhos)											
TURBIDITY (NTU)		150	112	82	60	46					
TEMPERATURE (°C)											
DISSOLVED OXYGEN (mg/L)											

COMMENTS: EQUIPMENT: WATERRA PUMP w/ 5/8" ID TUBING, FOOTVALVE + 1 1/4" SURGE BLOCK
REMOVED ~ 70 GALLONS W/ SURGE BLOCK, MOVING THE TUBING UP A FOOT AT A TIME AFTER ~ 5 GALLONS WERE REMOVED @ EACH INTERVAL. REMOVED SURGE BLOCK AFTER ENTIRE SCREENED INTERVAL WAS SURGED AND REMOVED ~ 50 GALLONS FROM BOTTOM TO TOP AS THE WATER CLEARED. WATER WAS CLOUDY + BROWN TO BEGIN WITH THEN CLEARING SLIGHT ODOR, COULDN'T TELL IF IT WAS A SULFUR OR BUENT PRODUCT SMELL.

WELL DEVELOPMENT LOG

URS

PROJECT TITLE: Whitehall / Poultney St.

PROJECT NO.: 05-00039544.21

STAFF: C. McMahon

DATE(S): 1/25/02

WELL NO.: MW-2

		WELL ID.	VOL. (GAL./FT.)
1. TOTAL CASING AND SCREEN LENGTH (FT.):	8 (CW) 23.40	1"	0.04
		2"	0.17
2. CASING INTERNAL DIAMETER (IN.):	2"	3"	0.38
		4"	0.66
3. WATER LEVEL BELOW TOP OF CASING (FT.):	8.82	5"	1.04
		6"	1.50
4. VOLUME OF WATER IN CASING (GAL.):	2.56	8"	2.60
#1-#3 x #2 (Gal./Ft.)			

PARAMETERS	ACCUMULATED VOLUME PURGED (GALLONS) Gallons										
	0	~85	~86	~87	~88	~89	~90	~91	~94		
pH											
SPEC. COND. (µmhos)											
TURBIDITY (NTU)		572	40	330	243	166	120	99	85		
TEMPERATURE (°C)											
DISSOLVED OXYGEN (mg/L)											

COMMENTS: EQUIPMENT: WATTERA PUMP w/ 5/8" ID TUBING, FOOT VALVE + 1 3/4" SURGE BLOCK
REMOVED 55 GALLONS w/ SURGE BLOCK MOVING TUBING up and (CW) w/ EVERY 10 MIN OR 5 GAL.
REMOVED ANOTHER 40 GALLONS w/o SURGE BLOCK MOVING TUBING FROM BOTTOM TO TOP AS
WATER CLEARED. WATER DIDN'T CLEAR VERY WELL @ TOP MAY NEED TO SURGE
INTERVAL AGAIN + THEN TRY TO SEE IF IT WILL CLEAR.

WELL DEVELOPMENT LOG

URS

PROJECT TITLE: Whitehall / Poultney St.
PROJECT NO.: 05-00035944.22
STAFF: C. McMahon
DATE(S): 1/24/02

WELL NO.: MW-3

1. TOTAL CASING AND SCREEN LENGTH (FT.):	21.21
2. CASING INTERNAL DIAMETER (IN.):	.017
3. WATER LEVEL BELOW TOP OF CASING (FT.):	6.45
4. VOLUME OF WATER IN CASING (GAL.): #1-#3 x #2 (Gal./Ft.)	2.51

WELL ID.	VOL. (GAL./FT.)
1"	0.04
2"	0.17
3"	0.38
4"	0.66
5"	1.04
6"	1.50
8"	2.60

PARAMETERS	ACCUMULATED VOLUME PURGED (GALLONS) GALLONS										
	0	~80	~85	~90	~95	~100					
pH											
SPEC. COND. (μmhos)											
TURBIDITY (NTU)		304	135	84	82	60					
TEMPERATURE (°C)											
DISSOLVED OXYGEN (mg/L)											

COMMENTS: EQUIPMENT: WATTERA PUMP w/ 5/8" TUBING, FOOT VALVE + 1 3/4" SURGE BLOCK
REMOVED 55 GALLONS w/ SURGE BLOCK MOVING UP ~1' EVERY 10 MIN OR 5 GAL.
REMOVED SURGE BLOCK + MOVED UP ~1' AFTER WATER CLEARED TOC
TURBIDITY ~ 3' FROM TOP.

WELL DEVELOPMENT LOG

URS

PROJECT TITLE: Whitehall / Poultney St.
PROJECT NO.: 05-00035944.22
STAFF: C. McMahon
DATE(S): 1/23/02

WELL NO.: MW-4

1. TOTAL CASING AND SCREEN LENGTH (FT.):	22.20
2. CASING INTERNAL DIAMETER (IN.):	2"
3. WATER LEVEL BELOW TOP OF CASING (FT.):	7.13
4. VOLUME OF WATER IN CASING (GAL.):	2.56

#1-#3 x #2 (Gal./Ft.)

WELL ID.	VOL. (GAL./FT.)
1"	0.04
2"	0.17
3"	0.38
4"	0.66
5"	1.04
6"	1.50
8"	2.60

PARAMETERS	ACCUMULATED VOLUME PURGED (GALLONS) GALLONS										
	0	70	~~80~~ (80)								
pH		C.	7.5	7.7							
SPEC. COND. (µmhos)											
TURBIDITY (NTU)		168	65	29							
TEMPERATURE (°C)											
DISSOLVED OXYGEN (mg/L)											

COMMENTS: EQUIPMENT: WATTERA PUMP w/ ¾" TUBING, FOOT VALVE + 1¾" SURGE BLOCK
REMOVED 50 GALLONS w/ SURGE BLOCK MOVING UP ~1' EVERY 10 MIN OR 5 GALLONS. REMOVED SURGE BLOCK AND MOVED UP ~1' AFTER WATER CLEARED TOOK TURBIDITY ~ 2' FROM WATER LEVEL

WELL DEVELOPMENT LOG

URS

PROJECT TITLE: Whitehall / Pinckney St.
PROJECT NO.: 65-00375744.2 #
STAFF: C. McMahon
DATE(S): 1/29/02

WELL NO.: MW-5

		WELL ID.	VOL. (GAL./FT.)
1. TOTAL CASING AND SCREEN LENGTH (FT.):	20.32	1"	0.04
		2"	0.17
2. CASING INTERNAL DIAMETER (IN.):	.17	3"	0.38
		4"	0.66
3. WATER LEVEL BELOW TOP OF CASING (FT.):	7.82	5"	1.04
		6"	1.50
4. VOLUME OF WATER IN CASING (GAL.):	2.13	8"	2.60
#1-#3 x #2 (Gal./Ft.)			

PARAMETERS	ACCUMULATED VOLUME PURGED (GALLONS)											
	0	~68	~70	~72	~74							
pH												
SPEC. COND. (µmhos)												
TURBIDITY (NTU)		138	109	80	48							
TEMPERATURE (°C)												
DISSOLVED OXYGEN (mg/L)												

COMMENTS: Equipment: Waterra Pump w/ 5/8" ID tubing, footvalve & 1 3/4" surge block. Removed ~50 gallons w/ surge block moving up through the entire screen interval. Removed surge block & repeated process until water cleared. Water was clear no odor.

WELL DEVELOPMENT LOG

URS

PROJECT TITLE: Whitehall / Poultney St.
PROJECT NO.: 05-00035944.21
STAFF: C. McMahon
DATE(S): 1/31/02

WELL NO.: MW-6

		WELL ID.	VOL. (GAL./FT.)
1. TOTAL CASING AND SCREEN LENGTH (FT.):	~~8.3~~ 21.18	1"	0.04
		2"	0.17
2. CASING INTERNAL DIAMETER (IN.):	.17	3"	0.38
		4"	0.66
3. WATER LEVEL BELOW TOP OF CASING (FT.):	8.32	5"	1.04
		6"	1.50
4. VOLUME OF WATER IN CASING (GAL.):	2.08	8"	2.60
#1-#3 x #2 (Gal./Ft.)			

PARAMETERS	ACCUMULATED VOLUME PURGED (GALLONS)										
	0	103									
pH											
SPEC. COND. (µmhos)											
TURBIDITY (NTU)		~35-40									
TEMPERATURE (°C)											
DISSOLVED OXYGEN (mg/L)											

COMMENTS: Equipment: Waterra Pump w/ 5/8" ID tubing, footvalve + 1 3/4" surge block. Removed ~ 60 gallons w/ surge block making way up the screened interval. Removed surge block + repeated process until water cleared (~ 40 gallons). Strong odor, sheen. Wet clear. Vial for turbidity water broke before I developed this well in my estimation. Final turbidity was ~ 35 to 40 NTU at ~103 gallons

WELL DEVELOPMENT LOG

URS

PROJECT TITLE: WHITEHALL / POULTNEY ST.
PROJECT NO.: 05-0003544.21
STAFF: C. McMAHON
DATE(S): 2/1/01

WELL NO.: PZ-7

		WELL ID.	VOL. (GAL./FT.)
1. TOTAL CASING AND SCREEN LENGTH (FT.):	10.88	1"	0.04
		2"	0.17
2. CASING INTERNAL DIAMETER (IN.):	.04	3"	0.38
		4"	0.66
3. WATER LEVEL BELOW TOP OF CASING (FT.):	4.28	5"	1.04
		6"	1.50
4. VOLUME OF WATER IN CASING (GAL.):	0.26 GAL	8"	2.60

#1-#3 x #2 (Gal./Ft.)

PARAMETERS	ACCUMULATED VOLUME PURGED (GALLONS)										
	0										
pH											
SPEC. COND. (μmhos)											
TURBIDITY (NTU)											
TEMPERATURE (°C)											
DISSOLVED OXYGEN (mg/L)											

COMMENTS: WATER DARK, ODOR PRESENT, SLOW RECOVERY, AFTER ~ 20 MIN WELL RECOVERS TO 3/4 OF ORIGINAL VOLUME, AFTER .26 GAL REMOVED WELL WENT DRY

EQUIPMENT: 5/8" ID TUBING W/ ~~FOOT~~ STANDARD FLOW FOOT VALVE.

WELL DEVELOPMENT LOG

URS

PROJECT TITLE: WHITEHALL / POULTNEY ST.
PROJECT NO.: 05-00035944.21
STAFF: C. McMAHON
DATE(S): 2/1/02

WELL NO.: PZ-12

		WELL ID.	VOL. (GAL./FT.)
1. TOTAL CASING AND SCREEN LENGTH (FT.):	11.04	1"	0.04
		2"	0.17
2. CASING INTERNAL DIAMETER (IN.):	.04	3"	0.38
		4"	0.66
3. WATER LEVEL BELOW TOP OF CASING (FT.):	3.86	5"	1.04
		6"	1.50
4. VOLUME OF WATER IN CASING (GAL.):	0.29	8"	2.60
#1-#3 x #2 (Gal./Ft.)			

PARAMETERS	ACCUMULATED VOLUME PURGED (GALLONS)										
	0										
pH											
SPEC. COND. (μmhos)											
TURBIDITY (NTU)											
TEMPERATURE (°C)											
DISSOLVED OXYGEN (mg/L)											

COMMENTS: WELL WENT DRY AFTER ~1 WELL VOLUME

SLOW RECOVERY; WATER CLOUDY; SLIGHT ODOR / GALLON REMOVED

EQUIPMENT: 5/8" ID TUBING W/ STANDARD FLOW FOOTVALVE.

WELL DEVELOPMENT LOG

URS

PROJECT TITLE: WHITEHALL / POULTNEY ST.
PROJECT NO.: 05-600 35944.21
STAFF: C. McMAHON
DATE(S): 2/4/02

WELL NO.: PZ-4

		WELL ID.	VOL. (GAL./FT.)
1. TOTAL CASING AND SCREEN LENGTH (FT.):	11.03	1"	0.04
		2"	0.17
2. CASING INTERNAL DIAMETER (IN.):	.04	3"	0.38
		4"	0.66
3. WATER LEVEL BELOW TOP OF CASING (FT.):	3.01	5"	1.04
		6"	1.50
4. VOLUME OF WATER IN CASING (GAL.):	.32	8"	2.60
#1-#3 x #2 (Gal./Ft.)			

PARAMETERS	ACCUMULATED VOLUME PURGED (GALLONS)										
	0										
pH											
SPEC. COND. (μmhos)											
TURBIDITY (NTU)											
TEMPERATURE (°C)											
DISSOLVED OXYGEN (mg/L)											

COMMENTS: WATER BROWN + CLOUDY, 10 GALLONS REMOVED.

EQUIPMENT: 5/8" ID HDPE TUBING W/ STANDARD FLOW FOOT VALVE.

WELL DEVELOPMENT LOG

URS

PROJECT TITLE: WHITEHALL / POULTNEY ST.
PROJECT NO.: 85-00035944.21
STAFF: C. MCMAHON
DATE(S): 2/1/02

WELL NO.: PZ-9

		WELL ID.	VOL. (GAL./FT.)
1. TOTAL CASING AND SCREEN LENGTH (FT.):	11.02	1"	0.04
		2"	0.17
2. CASING INTERNAL DIAMETER (IN.):	.04	3"	0.38
		4"	0.66
3. WATER LEVEL BELOW TOP OF CASING (FT.):	3.75	5"	1.04
		6"	1.50
4. VOLUME OF WATER IN CASING (GAL.):	~~7.27~~ CW	8"	2.60
#1-#3 x #2 (Gal./Ft.)	0.29		

PARAMETERS	ACCUMULATED VOLUME PURGED (GALLONS)										
	0										
pH											
SPEC. COND. (µmhos)											
TURBIDITY (NTU)											
TEMPERATURE (°C)											
DISSOLVED OXYGEN (mg/L)											

COMMENTS: WATER IS DARK, STRONG ODOR, SHEEN, WELL WENT DRY AFTER ~ .25 GALLON. RECHARGED AFTER ~ 20 MIN / GALLON REMOVED WATER DIDN'T CLEAR

EQUIPMENT: 5/8" ID HDPE TUBING W/ STAINLESS FLOW FOOT VALVE

APPENDIX C

MONITORING WELL PURGE LOGS

WELL PURGING LOG

URS

PROJECT TITLE: Poultney Street
PROJECT NO.: 05-0003594421
STAFF: L. McMahon & E. Lovendinski
DATE: 2/12/02

START PURGE: 845
END PURGE: 930

WELL NO.: PZ-3

1. TOTAL CASING AND SCREEN LENGTH (FT.): 10.65'
2. CASING INTERNAL DIAMETER (IN.): 1"
3. WATER LEVEL BELOW TOP OF CASING (FT.): 4.98 5.67
4. VOLUME OF WATER IN CASING (GAL.): 0.23

WELL ID.	VOL. (GAL./FT.)
(1")	0.04
2"	0.17
3"	0.38
4"	0.66
5"	1.04
6"	1.50
8"	2.60

#1-#3 x #2 (Gal./Ft.)

VOLUME OF 3 CASINGS: 0.69 GAL.

PARAMETERS	ACCUMULATED VOLUME PURGED (GALLONS)										
	0 .25	.6	.8	1.5							
pH	6.41	6.74	6.81	6.87							
SPEC. COND. (µmhos)	376	377	375	369							
TURBIDITY (NTU)	650	52	28.5	14.45							
TEMPERATURE (°C)	6.38	6.50	6.48	6.54							
DISSOLVED OXYGEN (mg/L)	12.5	12.45	12.45	12.43							
ORP mV	-38	-46.9	-41.2	-40.3							

COMMENTS: Ferrous Iron = .58
Phenophthalein = 0
No Rx after 100 drops of H_2SO_4

WELL PURGING LOG

URS

PROJECT TITLE: Poultney St.

PROJECT NO.: 05-00035444.21

STAFF: C. McMahon + E. Lorendziki

DATE: 2/4/02

START PURGE: 1000

END PURGE: 1040

WELL NO.: PZ-4

		WELL ID.	VOL. (GAL./FT.)
1. TOTAL CASING AND SCREEN LENGTH (FT.):	11.28	1"	0.04
		2"	0.17
2. CASING INTERNAL DIAMETER (IN.):	.04	3"	0.38
		4"	0.66
3. WATER LEVEL BELOW TOP OF CASING (FT.):	2.14	5"	1.04
		6"	1.50
4. VOLUME OF WATER IN CASING (GAL.):	0.37	8"	2.60

#1-#3 x #2 (Gal./Ft.)

VOLUME OF 3 CASINGS: 1.11 GAL.

PARAMETERS	ACCUMULATED VOLUME PURGED (GALLONS)											
	0.25	.75	1.0	1.5	2.0							
pH	6.14	6.70	6.30	6.71	6.86							
SPEC. COND. (µmhos)	617	638	635	644	641							
TURBIDITY (NTU)	330	235	125	96	40.5							
TEMPERATURE (°C)	3.48	3.55	3.44	3.55	3.58							
DISSOLVED OXYGEN (mg/L)	13.23	11.54	12.85	11.26	11.23							
ORP mV	-43.1	-46.1	-43.6	-43.7	-44.9							

COMMENTS: TEMP. IS OFF BECAUSE OF LOW FLOW BEING INFLUENCED BY THE AMBIENT TEMP.
FERROUS IRON = 0
PHENOLPHTHALEIN = 0 NO ~~X~~ AFTER 160 DROPS H_2SO_4

WELL PURGING LOG

URS

PROJECT TITLE: WHITEHALL / POULTNEY ST

PROJECT NO.: 05-00035744.21

STAFF: C. McMAHON & C. LOMBARDSKI

DATE: 2/12/02

START PURGE: ___

END PURGE: 1205

WELL NO.: PZ-9

		WELL ID.	VOL. (GAL./FT.)
1. TOTAL CASING AND SCREEN LENGTH (FT.):	11.26	1"	0.04
		2"	0.17
2. CASING INTERNAL DIAMETER (IN.):	~~1~~ (CW)	3"	0.38
		4"	0.66
3. WATER LEVEL BELOW TOP OF CASING (FT.):	1.49	5"	1.04
		6"	1.50
4. VOLUME OF WATER IN CASING (GAL.):	0.34 ~~1.66~~ (CW)	8"	2.60

#1-#3 x #2 (Gal./Ft.)

VOLUME OF 3 CASINGS: 1.17 GAL.

PARAMETERS	ACCUMULATED VOLUME PURGED (GALLONS)										
	0.25	.5	0.75	1.2							
pH	6.42	6.89	6.91	6.95							
SPEC. COND. (µmhos)	378	353	351	357							
TURBIDITY (NTU)	35.4	8.60	5.85	8.50							
TEMPERATURE (°C)	2.31	2.64	4.19	5.34 ~~6.50~~ (SD)							
DISSOLVED OXYGEN (mg/L)	0.67	3.86	4.26	4.34							
ORP mV	-55.5	-33.2	-36.0	-26.5							

COMMENTS: FERROUS IRON = 4.55
PHENOPHTHALEIN = 0
NO REACTION AFTER 100 DROPS OF H_2SO_4

STRONG ODOR / SHEEN / LNAPL AFTER WELL WAS AIRED DRY WITH A BAILER (DURING SAMP.

WELL PURGING LOG

URS

PROJECT TITLE: Poulsbo St.

PROJECT NO.: 05-00055744.21

STAFF: C. McMahon + E. Zeeb

DATE: 2/10/05

START PURGE: 1330

END PURGE: 1412

WELL NO.: PZ-9

		WELL ID.	VOL. (GAL./FT.)
1. TOTAL CASING AND SCREEN LENGTH (FT.):	11.27	1"	0.04
		2"	0.17
2. CASING INTERNAL DIAMETER (IN.):	.04	3"	0.38
		4"	0.66
3. WATER LEVEL BELOW TOP OF CASING (FT.):	3.22	5"	1.04
		6"	1.50
4. VOLUME OF WATER IN CASING (GAL.):	.32	8"	2.60

#1-#3 x #2 (Gal./Ft.)

VOLUME OF 3 CASINGS: 0.96 GAL.

PARAMETERS	ACCUMULATED VOLUME PURGED (GALLONS)											
	0 .25	.5	.8	1.0	1.25							
pH	5.04	5.85	6.38	6.56	6.68							
SPEC. COND. (µmhos)	937	1041	1039	1020	1005							
TURBIDITY (NTU)	440	173	80	15.5	3.5							
TEMPERATURE (°C)	4.5	5.01	3.88	3.55	3.24							
DISSOLVED OXYGEN (mg/L)	9.3	5.82	6.22	7.78	9.3							
ORP mV	-38.6	-44.8	-38.7	-37.4	-37.5							

COMMENTS: FINAL FLOW = 1.25
NAPHTHALENE = 0
NO ODOR AFTER 100 GALS H_2SO_4

WELL PURGING LOG

URS

PROJECT TITLE: WHITEHALL / POULTNEY ST.

PROJECT NO.: 05-00035944.21

STAFF: G. McMAHON + E. LORCNDUSKI

DATE: 2/11/02

START PURGE: 1115

END PURGE: 1134

WELL NO.: FZ-12

		WELL ID.	VOL. (GAL./FT.)
1. TOTAL CASING AND SCREEN LENGTH (FT.):	11.29	1"	0.04
		2"	0.17
2. CASING INTERNAL DIAMETER (IN.):	.04	3"	0.38
		4"	0.66
3. WATER LEVEL BELOW TOP OF CASING (FT.):	2.99	5"	1.04
		6"	1.50
4. VOLUME OF WATER IN CASING (GAL.):	0.33	8"	2.60

#1-#3 x #2 (Gal./Ft.)

VOLUME OF 3 CASINGS: 0.99 GAL.

PARAMETERS	ACCUMULATED VOLUME PURGED (GALLONS)										
	0.2	.5	.75	1.0							
pH	6.55	6.60	6.72	6.77							
SPEC. COND. (µmhos)	573	574	579	575							
TURBIDITY (NTU)	650	470	450	150							
TEMPERATURE (°C)	5.44	5.61	5.04	4.71							
DISSOLVED OXYGEN (mg/L)	2.69	2.92	5.00	5.33							
ORP mV	-51.1	-50.6	-50.4	-51.4							

COMMENTS: FERROUS IRON = .75
PHENOPHTHALEIN = 0
NO RC AFTER 10 DROPS H_2SO_4

WELL PURGING LOG

URS

PROJECT TITLE: WHITEHALL / POULTNEY ST.

PROJECT NO.: 25-00035944.21

STAFF E. GOVENDUSKI & C. McMAHON

DATE 2/11/02

START PURGE 1229

END PURGE ~~1255~~ 1308

WELL NO.: MW-1

		WELL ID	VOL. (GAL./FT.)
1. TOTAL CASING AND SCREEN LENGTH (FT.):	23.29	1"	0.04
		2"	0.17
2. CASING INTERNAL DIAMETER (IN.):	.17	3"	0.38
		4"	0.66
3. WATER LEVEL BELOW TOP OF CASING (FT.):	7.55	5"	1.04
		6"	1.50
4. VOLUME OF WATER IN CASING (GAL.):	2.68	8"	2.60

#1-#3 x #2 (Gal./Ft.)

VOLUME OF 3 CASINGS: 8.04 GAL.

PARAMETERS	ACCUMULATED VOLUME PURGED (GALLONS)										
	0 .5	1.5	2.5	3.5	4.5	5.5	6.5	7.5	8.5		
pH	5.79	6.54	6.81	6.89	6.96	6.98	7.00	7.01	7.01		
SPEC. COND. (µmhos)	843	857	855	857	854	864	867	874	880		
TURBIDITY (NTU)	38.5	6.85	160	84.5	32.5	19.5	15.5	10.8	8.69		
TEMPERATURE (°C)	5.54	6.38	6.94	7.12	7.32	7.38	7.42	7.5	7.47		
DISSOLVED OXYGEN (mg/L)	11.67	9.49	9.04	8.89	8.57	7.98	7.00	5.96	5.10		
ORP mV	-49.6	-49.8	-50.7	-51.2	-54.3	-54.4	-54.9	-55.3	-54.6		

COMMENTS: FERROUS IRON = 0
PHENOPHTHALEIN = 0
NO RX AFTER 100 DROPS H_2SO_4

WELL PURGING LOG

URS

PROJECT TITLE: Poultney St.

PROJECT NO.: 05-00055944.21

START: C. McMahon + E. Lorenoski

DATE: 7/8/02

START PURGE: 1342

END PURGE: 1413

WELL NO.: MW-2

		WELL ID.	VOL. (GAL./FT.)
1. TOTAL CASING AND SCREEN LENGTH (FT.):	23.29	1"	0.04
		2"	0.17
2. CASING INTERNAL DIAMETER (IN.):	2	3"	0.38
		4"	0.66
3. WATER LEVEL BELOW TOP OF CASING (FT.):	8.37	5"	1.04
		6"	1.50
4. VOLUME OF WATER IN CASING (GAL.):	2.54	8"	2.60

#1-#3 x #2 (Gal./Ft.)

VOLUME OF 3 CASINGS: 7.62 GAL.

PARAMETERS	ACCUMULATED VOLUME PURGED (GALLONS)										
	0.5	1.0	2.0	3.0	4.0	5.0	6.0	7.0	8.0		
pH	5.05*	5.38	5.70	5.80	5.89	5.92	5.94	5.95	5.97		
SPEC. COND. (µmhos)	947	948	942	935	926	919	902	893	880		
TURBIDITY (NTU)	134	8.6	10.70	8.5	10.1	5.9	2.7	1.73	2.43		
TEMPERATURE (°C)	7.74	8.08	8.61	8.73	8.8	8.87	8.94	8.94	8.91		
DISSOLVED OXYGEN (mg/L)	7.81	5.41	5.71	5.81	4.75	3.33	1.92	1.38	1.09		
ORP MV	-33.3	-26.3	-23.2	-26.4	-27.5	-27.8	-29.1	-26.1	-29.7		

COMMENTS: pump @ 8.5

FERROUS IRON = 4.5 mg/L

PHENOLPHTHALEIN = 0

NO RX AFTER 100 DROPS H_2SO_4

WELL PURGING LOG

URS

PROJECT TITLE: Poultney St.

PROJECT NO.: 05-00035944.21

STAFF: CM/EL

DATE: 2/5/02

START PURGE: 1243

END PURGE: 1342

WELL NO.: MW-3

1. TOTAL CASING AND SCREEN LENGTH (FT.): 21.46

2. CASING INTERNAL DIAMETER (IN.): .17

3. WATER LEVEL BELOW TOP OF CASING (FT.): 6.02
2.62

4. VOLUME OF WATER IN CASING (GAL.): ~~6.0 GW~~

#1-#3 x #2 (Gal./Ft.)

VOLUME OF 3 CASINGS: 7.86 GAL.

WELL ID.	VOL. (GAL./FT.)
1"	0.04
2"	0.17
3"	0.38
4"	0.66
5"	1.04
6"	1.50
8"	2.60

PARAMETERS	ACCUMULATED VOLUME PURGED (GALLONS)										
	0 gal	1	2	3	4	5	6	7.5	8.5		
pH	6.58	6.58	6.3	6.28	6.28	6.29	6.27	6.28	5.52		
SPEC. COND. (µmhos)	490	498	494	492	487	489	486	489	483		
TURBIDITY (NTU)	11.2	17.5	37.2	26.2	9.89	6.8	4.12	2.47	6.7		
TEMPERATURE (°C)	7.3	7.81	8.28	8.43	8.51	8.55	8.56	8.58	8.65		
DISSOLVED OXYGEN (mg/L)	4.05	3.07	3.85	3.02	2.56	2.81	2.62	2.59	2.95		
ORP mV	-56.2	-56.5	-52.5	-53.8	-54.7	-54.9	-56.2	-55.1	-57.1		

COMMENTS: peristaltic pump @ 7.5 water level steady @ 7.15' btoc

FERROUS IRON = .9 mg/L

PHENOLPHTHALEIN ALKALINITY = 0

NO CHANGE AFTER 100 DROPS H_2SO_4

WELL PURGING LOG

URS

PROJECT TITLE: Pomeroy St

PROJECT NO.: 05-00055744.21

STAFF: C. McMillan & E. Lorenzoni

DATE: 2/8/02

START PURGE: 1135

END PURGE: 1228

WELL NO.: MW-4

		WELL ID	VOL. (GAL./FT.)
1. TOTAL CASING AND SCREEN LENGTH (FT.):	22.45	1"	0.04
		2"	0.17
2. CASING INTERNAL DIAMETER (IN.):	2	3"	0.38
		4"	0.66
3. WATER LEVEL BELOW TOP OF CASING (FT.):	6.51	5"	1.04
		6"	1.50
4. VOLUME OF WATER IN CASING (GAL.):	2.71	8"	2.60

#1-#3 x #2 (Gal./Ft.)

VOLUME OF 3 CASINGS: 8.13 GAL.

PARAMETERS	ACCUMULATED VOLUME PURGED (GALLONS)										
	1	2	3	4	5	6	7	8	9		
pH	5.8	5.89	5.95	5.99	6.03	6.06	6.08	6.10	6.11		
SPEC. COND. (µmhos)	478	479	480	480	482	479	480	480	480		
TURBIDITY (NTU)	3.8	2.4	1.1	0.79	0.77	0.60	0.76	0.55	0.65		
TEMPERATURE (°C)	6.6	6.59	6.64	6.72	6.68	6.72	6.69	6.72	6.70		
DISSOLVED OXYGEN (mg/L)	1.51	1.43	1.33	1.29	1.32	1.14	1.31	1.23	1.30		
ORP	-60	-60.8	-59.5	-51.9	-51.8	-50.5	-50.6	-50.7	-54.1		

COMMENTS: PERISTALTIC (@ 7.5) DTW = STEADY @ 6.59' BTOC

FERROUS IRON = 0

PHENOLPHTHALEIN ALK: = 0

NO REACTION TO H_2SO_4 AFTER 10 DROPS

WELL PURGING LOG

URS

PROJECT TITLE: WHITEHALL / POULTNEY STREET
PROJECT NO.: 05-00035944.21
STAFF: EA/GCM
DATE: 7/11/02
START PURGE: 918
END PURGE: 918

WELL NO.: MW-6

		WELL ID.	VOL. (GAL./FT.)
1. TOTAL CASING AND SCREEN LENGTH (FT.):	20.57	1"	0.04
		2"	0.17
2. CASING INTERNAL DIAMETER (IN.):	.17	3"	0.38
		4"	0.66
3. WATER LEVEL BELOW TOP OF CASING (FT.):	7.05'	5"	1.04
		6"	1.50
4. VOLUME OF WATER IN CASING (GAL.):	2.29	8"	2.60

#1-#3 x #2 (Gal./Ft.)

VOLUME OF 3 CASINGS: 6.87 GAL.

PARAMETERS	ACCUMULATED VOLUME PURGED (GALLONS)										
	0	1.5	2.5	3.5	4.5	6.8	7.8				
pH	2.17	6.84	6.86	6.89	6.91	6.91	6.93				
SPEC. COND. (µmhos)	511	598	608	611	614	613	615				
TURBIDITY (NTU)	NM	6.2	5.14	2.99	1.28	1.01	1.08				
TEMPERATURE (°C)	4.95	7.34	7.56	7.68	7.73	7.72	7.72				
DISSOLVED OXYGEN (mg/L)	11.66	5.09	3.59	2.69	2.10	2.25	1.99				
ORP mV	-28.9	-30.5	-35.9	-37.7	-42.1	-42.8	-43.3				

COMMENTS: FERROUS IRON = 1.6
PHENOPHTHALEIN = 0
NO REACTION AFTER 100 DROPS H_2SO_4

WELL PURGING LOG

URS

PROJECT TITLE: Whitehall / Poultary St.

PROJECT NO.: 05-00833944.21

STAFF: C. McMahon + E. Levkowski

DATE: 2/12/02

START PURGE: 945

END PURGE: 1030

WELL NO.: MW-6

		WELL ID.	VOL. (GAL./FT.)
1. TOTAL CASING AND SCREEN LENGTH (FT.):	21.33	1"	0.04
		2"	0.17
2. CASING INTERNAL DIAMETER (IN.):	2	3"	0.38
		4"	0.66
3. WATER LEVEL BELOW TOP OF CASING (FT.):	7.50	5"	1.04
		6"	1.50
4. VOLUME OF WATER IN CASING (GAL.):	2.35	8"	2.60

#1-#3 x #2 (Gal./Ft.)

VOLUME OF 3 CASINGS: 7.05 GAL.

PARAMETERS	ACCUMULATED VOLUME PURGED (GALLONS)										
	0 1	2	3	4	5	6	7	8			
pH	5.83	6.12	6.27	6.33	6.34	~~6.37~~ 6.37	6.38	6.39			
SPEC. COND. (µmhos)	825	843	844	846	848	845	~~858~~ 847	840			
TURBIDITY (NTU)	8.95	7.25	15.5	8.85	5.35	6.35	4.21	6.25			
TEMPERATURE (°C)	5.72	6.29	6.74	6.99	7.03	7.04	7.19	7.27			
DISSOLVED OXYGEN (mg/L)	12.77	12.57	12.32	12.21	12.19	12.16	12.11	12.10			
ORP mV	-45.8	-48.3	-49.8	-48.2	-48.1	-47.8	-47.1	-48.3			

COMMENTS: FERROUS IRON = 3.8

PHENOLPHTHALEIN = 0

NO RX AFTER 100 DROPS OF H_2SO_4

STRONG ~~SHEEN~~ ODOR/LIGHT SHEEN

WELL PURGING LOG

URS

PROJECT TITLE: Poultney St.

PROJECT NO.: 25-00035944.21

STAFF: JW / BL

DATE: 2/14/12

START PURGE: 930

END PURGE: 1012

WELL NO.: MW-2

1. TOTAL CASING AND SCREEN LENGTH (FT.): 23.29

2. CASING INTERNAL DIAMETER (IN.): .17

3. WATER LEVEL BELOW TOP OF CASING (FT.): 8.01

4. VOLUME OF WATER IN CASING (GAL.): 2.60

#1-#3 x #2 (Gal./Ft.)

VOLUME OF 3 CASINGS: 7.80 GAL.

WELL ID	VOL. (GAL./FT.)
1"	0.04
2"	0.17
3"	0.38
4"	0.66
5"	1.04
6"	1.50
8"	2.60

PARAMETERS	YSI FTC ACCUMULATED VOLUME PURGED (GALLONS)										
	1.0	2.0	3.0	4.0	5.0	6.0	7.0	8.0			
pH	6.71	6.70	6.71	6.71	6.72	6.71	6.71	6.71			
SPEC. COND. (µmhos)	817	818	815	813	811	811	810	807			
TURBIDITY (NTU)	1.78	3.75	2.5	1.05	.75	.38	.41	2.5			
TEMPERATURE (°C)	6.44	7.13	7.67	7.82	7.86	7.86	7.98	8.01			
DISSOLVED OXYGEN (mg/L)	39.90	40.90	39.52	39.83	39.56	37.50	36.53	35.75			
ORP mV	-51.2	-51.2	-51.3	-49.7	-48.7	-50.4	-51.0	-50.6			

COMMENTS: Purged + Sampled w/ Peristaltic Pump
Sampled for Nitrates (250 mL HDPE/No preservative) @ 1012
Water transparent no X, Y, Z

WELL PURGING LOG

URS

PROJECT TITLE: WHITEHALL / POULTNEY ST.

PROJECT NO.: 05-000-55944.21

START: C. MUTTER

DATE: 2/14/02

START PURGE: 821

END PURGE: 847

WELL NO.: MW-3

		WELL ID	VOL. (GAL./FT.)
1. TOTAL CASING AND SCREEN LENGTH (FT.):	21.46	1"	0.04
		2"	0.17
2. CASING INTERNAL DIAMETER (IN.):	.17	3"	0.38
		4"	0.66
3. WATER LEVEL BELOW TOP OF CASING (FT.):	5.58	5"	1.04
		6"	1.50
4. VOLUME OF WATER IN CASING (GAL.):	2.70	8"	2.60

#1-#3 x #2 (Gal./Ft.)

VOLUME OF 3 CASINGS: 8.10 GAL.

PARAMETERS	YSI FTC ACCUMULATED VOLUME PURGED (GALLONS)										
	0 1.0	2.0	3.0	4.0	5.0	6.0	7.0	8.0			
pH	6.49	6.40	6.62	6.63	6.65	6.67	6.67	6.68			
SPEC. COND. (µmhos)	449	441	447	447	447	447	448	447			
TURBIDITY (NTU)	55.5	11.6	7.25	6.01	4.25	4.65	4.25	3.25			
TEMPERATURE (°C)	6.23	6.70	6.76	6.95	7.05	7.13	7.20	7.25			
DISSOLVED OXYGEN (mg/L)	36.06	36.30	36.43	36.85	36.88	36.93	36.61	36.06			
ORP mV	-51.1	-52.3	-52.8	-52.4	-51.4	-53.4	-51.9	-52.6			

COMMENTS: PURGED + SAMPLED W/ PERISTALTIC PUMP
SAMPLED FOR NITRATES (250 mL HDPE / NO PRESERVATIVE) @ 849
WATER TRANSPARENT, NO X, Y, Z

WELL PURGING LOG

URS

PROJECT TITLE: Whitehall / Poultney St.

PROJECT NO.: 05-00035944.21

STAFF: C. Ott + E. L.

DATE: 2/14/12

START PURGE: 7:45

END PURGE: 8:16

WELL NO.: MW-4

		WELL ID	VOL. (GAL./FT.)
1. TOTAL CASING AND SCREEN LENGTH (FT.):	22.45	1"	0.04
		2"	0.17
2. CASING INTERNAL DIAMETER (IN.):	.17	3"	0.38
		4"	0.66
3. WATER LEVEL BELOW TOP OF CASING (FT.):	6.14	5"	1.04
		6"	1.50
4. VOLUME OF WATER IN CASING (GAL.):	2.77	8"	2.60

#1-#3 x #2 (Gal./Ft.)

VOLUME OF 3 CASINGS: 8.31 GAL.

PARAMETERS	YSI FTC ACCUMULATED VOLUME PURGED (GALLONS)										
	1.0	2.0	3.0	4.0	5.0	6.0	7.0	8.0	8.5		
pH	5.93	6.04	6.27	6.40	6.45	6.50	5.44 (6.52)	6.53	6.51		
SPEC. COND. (µmhos)	433	444	445	445	446	446	445	445	445		
TURBIDITY (NTU)	1.90	1.27	1.05	.55	.49	.20	.40	.39	.42		
TEMPERATURE (°C)	5.6	5.91	5.83	5.87	5.89	5.87	5.93	5.91	5.87		
DISSOLVED OXYGEN (mg/L)	43.2	45.87	41.91	39.52	44.44	39.83	37.10	36.48	36.18		
ORP mV	-48.7	-57.2	-54.5	-54.4	-53.3	-56.4	-54.5	-54.2	-54.4		

COMMENTS: Purged + Sampled w/ peristaltic pump
Sampled for Nitrates (250 mL HDPE/no preservative) @ 816
Water transparent; no x, y, z

WELL PURGING LOG

URS

PROJECT TITLE: Poultney St.
PROJECT NO.: 05-0055444.21
STAFF: CM/EL
DATE: 2/14/13
START PURGE: 1046
END PURGE: 1105

WELL NO.: MW-5

1. TOTAL CASING AND SCREEN LENGTH (FT.): 20.57
2. CASING INTERNAL DIAMETER (IN.): .17
3. WATER LEVEL BELOW TOP OF CASING (FT.): 7.40
4. VOLUME OF WATER IN CASING (GAL.): 2.24 ~~2.29~~ 3.12
   #1-#3 x #2 (Gal./Ft.)
   VOLUME OF 3 CASINGS: ~~6.72~~ 6.72 GAL.

WELL ID.	VOL. (GAL./FT.)
1"	0.04
2"	0.17
3"	0.38
4"	0.66
5"	1.04
6"	1.50
8"	2.60

PARAMETERS	YSI FTC ACCUMULATED VOLUME PURGED (GALLONS)										
	0 (initial)	2.0	3.0	4.0	5.0	6.0	7.0				
pH	5.89	6.41	6.54	6.65	6.73	6.75	6.77				
SPEC. COND. (µmhos)	698	709	715	710	712	711	710				
TURBIDITY (NTU)	2.85	2.54	1.35	1.02	0.56	0.52	0.55				
TEMPERATURE (°C)	5.78	6.12	6.38	6.49	6.55	6.55	6.57				
DISSOLVED OXYGEN (mg/L)	34.66	29.95	30.70	31.97	32.36	32.37	32.50				
ORP mV	-43.5	-45.7	-46.4	-45.8	-46.2	-46.5	-47.0				

COMMENTS: Sampled for Nitrate - 1 250 mL HDPE (unpres) @ 1108
No X, Y, Z - Transparent
Purged and Sampled using Peristaltic pump

WELL PURGING LOG

URS

PROJECT TITLE: Poultney St.

PROJECT NO.: 05-00035944.21

STAFF: CM/EL

DATE: 2/14/12

START PURGE: 1155

END PURGE: 1219

WELL NO.: PZ-4

		WELL ID.	VOL. (GAL./FT.)
1. TOTAL CASING AND SCREEN LENGTH (FT.):	11.28	1"	0.04
		2"	0.17
2. CASING INTERNAL DIAMETER (IN.):	2	3"	0.38
		4"	0.66
3. WATER LEVEL BELOW TOP OF CASING (FT.):	2.49	5"	1.04
		6"	1.50
4. VOLUME OF WATER IN CASING (GAL.):	0.35	8"	2.60

#1-#3 x #2 (Gal./Ft.)

VOLUME OF 3 CASINGS: 1.05 GAL.

PARAMETERS	YSI FTC ACCUMULATED VOLUME PURGED (GALLONS)										
	0.1	0.5	1.0	1.5	2.0	2.5	3.0				
pH	5.73 ~~5.67~~	6.36	6.46	6.57	6.63	6.67	6.66				
SPEC. COND. (µmhos)	310	732	917	963	963	950	962				
TURBIDITY (NTU)	92	180	230	52.5	45.5	21.4	18.5				
TEMPERATURE (°C)	3.12	3.59	3.86	3.99	3.98	4.03	4.03				
DISSOLVED OXYGEN (mg/L)	59.62	65.76	66.98	71.87	79.04	83.54	85.46				
ORP mV	-36.6	-36.1	-36.9	-36.6	-37.1	-37.0	-36.5				

COMMENTS: Sampled & purged using peristaltic pump.
For nitrates - 250mL HDPE unpres
Transparent, no X, Y, Z
Time: 1219

WELL PURGING LOG

URS

PROJECT TITLE: Poultney St.

PROJECT NO.: 05-10035944.21

STAFF CAR/EC

DATE 7/14/12

START PURGE 854

END PURGE 919

WELL NO: PZ-12

		WELL ID	VOL. (GAL./FT.)
1. TOTAL CASING AND SCREEN LENGTH (FT.):	11.29	1"	0.04
		2"	0.17
2. CASING INTERNAL DIAMETER (IN.):	.04	3"	0.38
		4"	0.66
3. WATER LEVEL BELOW TOP OF CASING (FT.):	3.01	5"	1.04
		6"	1.50
4. VOLUME OF WATER IN CASING (GAL.):	0.33	8"	2.60

#1-#3 x #2 (Gal./Ft.)

VOLUME OF 3 CASINGS: 0.99 GAL.

PARAMETERS	YSI FTC ACCUMULATED VOLUME PURGED (GALLONS)										
	0.25 ~~0.33~~	.5	.75	1.0							
pH	6.20	6.65	6.81	6.83							
SPEC. COND. (µmhos)	620	637	620	630							
TURBIDITY (NTU)	~~88.5~~	16.82	4.26	4.16							
TEMPERATURE (°C)	4.06	3.65	3.50	3.51							
DISSOLVED OXYGEN (mg/L)	48.75	46.04	38.33	36.41							
ORP mV	-46.3	-45.5	-44.7	-44.6							

COMMENTS: PURGED + SAMPLED W/ PERISTALTIC PUMP
SAMPLED FOR NITRATES (250mL HDPE/NO PRESERVATIVE) @ 919
WATER TRANSPARENT, NO X, Y, Z

APPENDIX D

HYDRAULIC CONDUCTIVITY TESTING

URS

EG&
Centrifugal pump
w/ 3/8" HDPE tubing w/ f.v.

SLUG TEST FIELD DATA

Test Number _____ Well Number MW-1

Field Crew EL/CM Date 3/1/02

Weather 40° Mostly sunny

Type of Slug Pump Volume _____

Water Level Monitoring Transducer / Solinst (circle one) Instrument # _____

Time started _____ Initial Displacement 5.82533

Static Depth to Water 7.47 'BTOC

Data File Name MW-1.DAT

Method of Transfer to Office _____ Date of Transfer to Office _____

	TIME	STATIC	FALLING	RISING	COMMENTS
pump on	1102:00	5.82533			
off	1103:56	5.85481			Pumped 10 gal
END	1144±?	5.82914	Dumped		

URS

Pumped w/ centrifugal pump w/ 3/8" HDPE tubing w/ foot valve

SLUG TEST FIELD DATA

Test Number _____ Well Number MW-2

Field Crew EL/CM/SH Date 3/1/02

Weather 30's pt. cloudy 5 MPH Wind

Type of Slug _____ Volume _____

Water Level Monitoring (Transducer) / Solinst (circle one) Instrument # _____

Time started _____ Initial Displacement ~~8.72586'~~ 8.72746'

Static Depth to Water 7.68

Data File Name ~~MW~~ MW-2.DAT

Method of Transfer to Office _____ Date of Transfer to Office _____

TIME	STATIC	FALLING	RISING	COMMENTS
1000100	8.72586			See above right
1002100	7.21874			Pumped 10 gal
10:46. Stopped acquisition		8.71664		

up one off

URS

Pumped w/centrifugal pump w/ 3/8" HDPE tubing. Pump on @ 0921

SLUG TEST FIELD DATA

Test Number _____ Well Number MW-3

Field Crew EL/CM/SH Date 3/1/02

Weather 30°F Cloudy Slight Wind

Type of Slug _____ Volume _____

Water Level Monitoring (Transducer) / Solinst (circle one) Instrument # _____

Time started _____ Initial Displacement _____

Static Depth to Water 5.15 (BTOC) 15.3326

Data File Name MW3.DAT

Method of Transfer to Office _____ Date of Transfer to Office _____

TIME	STATIC	FALLING	RISING	COMMENTS
mp one 0921 →	0924			See above rslt - Pumped ~17 gal
				Note decreased transducer
				for ~ 30 sec near ~~end~~
				09:45
10:07	Stopped data aquisition		- saved as	MW3.DAT - DATA INCLUDES DATA
				from previous well (MW-4)

URS

SLUG TEST FIELD DATA

Test Number _____ Well Number MW-4

Field Crew EL/CM/SH Date 3/01/02

Weather 30°F Cloudy Slight wind

Type of Slug 2-1"x5' PVC Volume _____

Water Level Monitoring (Transducer)/ Solinst (circle one) Instrument # _____

Time started _____ Initial Displacement _____

Static Depth to Water 6.81' BTOC (15.5167)

Data File Name _____

Method of Transfer to Office _____ Date of Transfer to Office _____

TIME	STATIC	FALLING	RISING	COMMENTS
8:15:00		✓		
8:18:25			15.137	
~~8:22:00~~ 8:24		✓		
08:26:00			15.2243	See Reverse
08:38:00	15.5167			Centrifugal pump 30 sec.
8:43:00	53:21 STOP Date			" " ~~3~~ 3 min 1 gal

URS

Pumped w/ centrifugal pump w/ 3/8" HDPE tubing w/ foot valve

SLUG TEST FIELD DATA

Test Number _____ Well Number MW-5

Field Crew EL/CM/SH Date 3/1/02

Weather 30's pt. cloudy/ 0-2 mph wind

Type of Slug _____ Volume _____

Water Level Monitoring (Transducer / Solinst (circle one)) Instrument # 9205

Time started _____ Initial Displacement _____ 12.7122

Static Depth to Water 6.42

Data File Name MW-5.DAT

Method of Transfer to Office _____ Date of Transfer to Office _____

TIME	STATIC	FALLING	RISING	COMMENTS
10:38:00	12.7122	✓		
~~10:39:11~~				
10:40:11	9.76696			Removed ~1 gal
~~11:15:16~~				
11:11:31	12.723	Dumped		

URS

EQ
- Centrifug. 1 pump
- 3/8" HDPE tubage
- HDPE Foot valve

SLUG TEST FIELD DATA

Test Number _____ Well Number MW-6

Field Crew EL, CM Date 3/1/02

Weather 38°F Mostly Sunny Steady South wind 5-10mph

Type of Slug Pumped Volume _____

Water Level Monitoring (Transducer) / Solinst (circle one) Instrument # _____

Time started _____ Initial Displacement 12.7071'

Static Depth to Water 7.47'

Data File Name MW-6.DAT

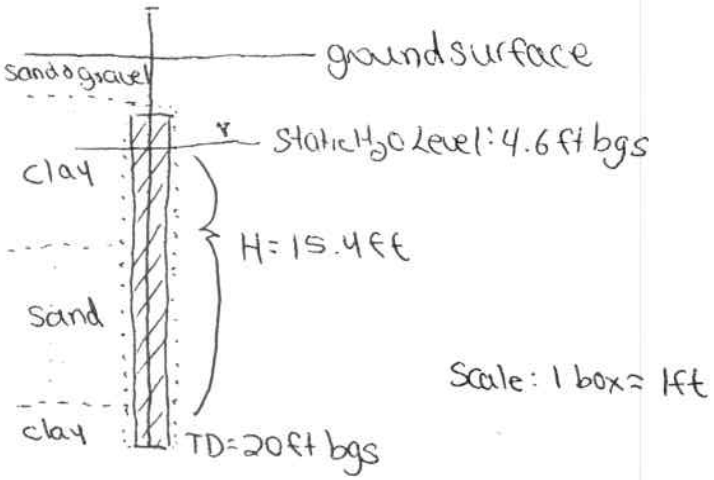
Method of Transfer to Office _____ Date of Transfer to Office _____

TIME	STATIC	FALLING	RISING	COMMENTS
pump on 11:26:00	12.9288	✓		
pump off 11:28:21	8.71663		✓	Pumped 10 gal
ND 11:55:31	12.9504	DRAWDOWN		

Poultney Street: Whitehall, NY
05-00035944.22

3/14/02

MW-1



$r_c = 0.083$ ft
$r_w = 0.333$ ft
effective casing radius:
$r_{ce} = [r_c^2 + n(r_w^2 - r_c^2)]^{0.5}$
$n = 0.25$ $r_{ce} = 0.181$ ft

Case 1: Account for sand and clay layers across screen length
$L = H$ when screen is partially saturated
$L = 15.4\text{ ft} - \underbrace{5.4\text{ ft} - 2\text{ ft}}_{\text{thickness of clay layers}} = 8\text{ ft}$

In unconfined aquifers, $D = H$
$D = 8$ ft
$H = 8$ ft

$L/r_w = \frac{8\text{ ft}}{0.333\text{ ft}} = 24$

$H = D$ ∴ from plot of coefficients vs. L/r_w, $C = 1.9$

Case 2: Assume homogeneous unit across screen length
$L = H$ when screen is partially saturated
$L = 15.4$ ft

In unconfined aquifers, $D = H$ ∴
$D = 15.4$ ft
$H = 15.4$ ft

$L/r_w = \frac{15.4\text{ ft}}{0.333\text{ ft}} = 46.2$

$H = D$ ∴ from plot of coefficients vs. L/r_w, $C = 2.7$

Checked by

Well Number: **MW-1**
3/1/02

Input Variables:

r_{ce}=	0.181 ft
r_w=	0.333 ft

	Case 1	Case 2
L=	8 ft	15.4 ft
D=	8 ft	15.4 ft
H=	8 ft	15.4 ft

Variables from Plot of Log Y vs. t:

	Test 1
t_o=	4 min
t=	10 min
Y_o=	0.12 ft
Y_t=	0.039 ft

For H=D:

Coefficients from Plot of Coefficients vs. L/r_w:

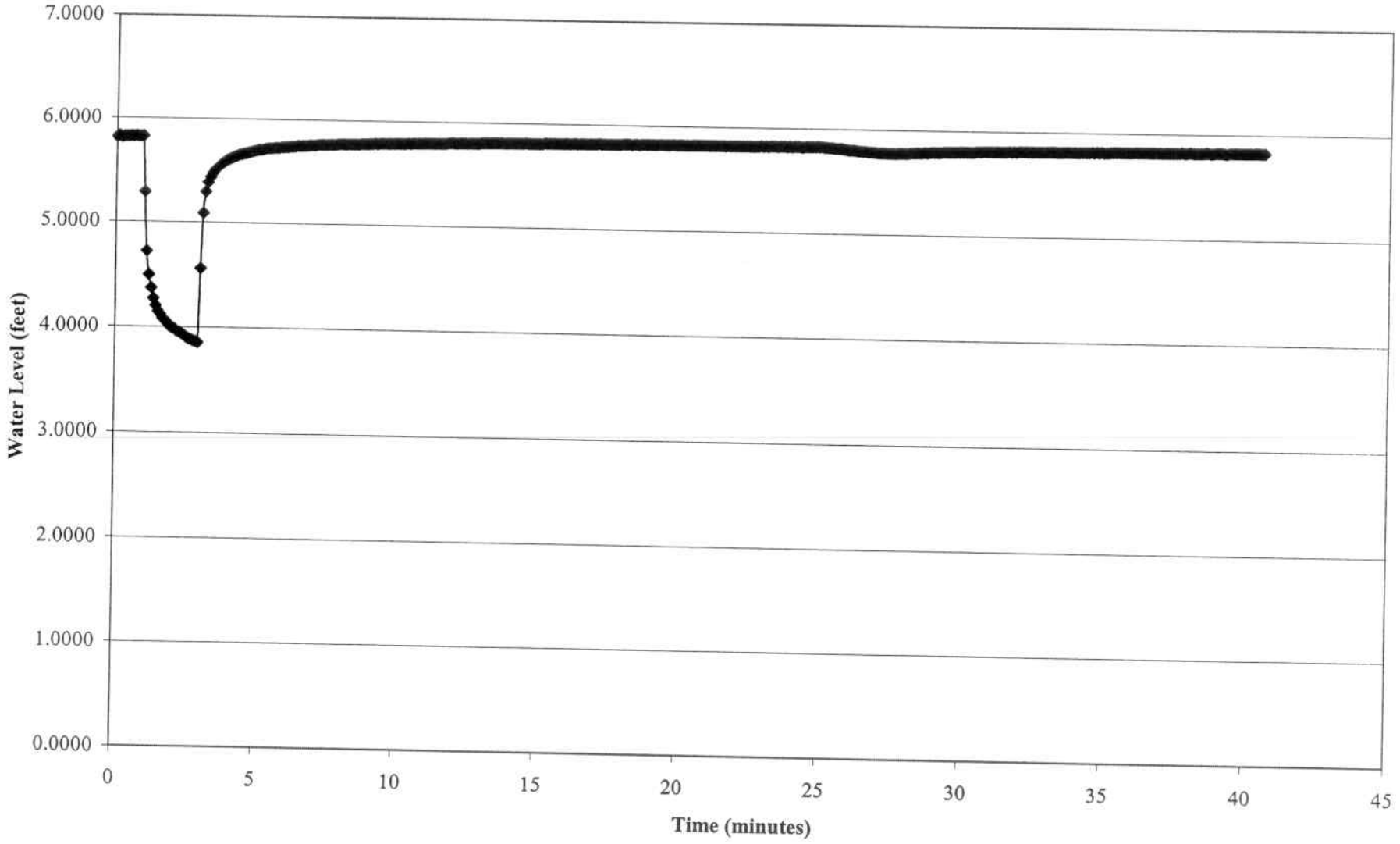
	Case 1	Case 2
C=	1.9	2.7
ln R_e/r_w=	2.35	2.90

Calculations:

	Case 1	Case 2
K=	9.02E-04 ft/min	5.77E-04 ft/min
K=	4.58E-04 cm/s	2.93E-04 cm/s

Checked by:

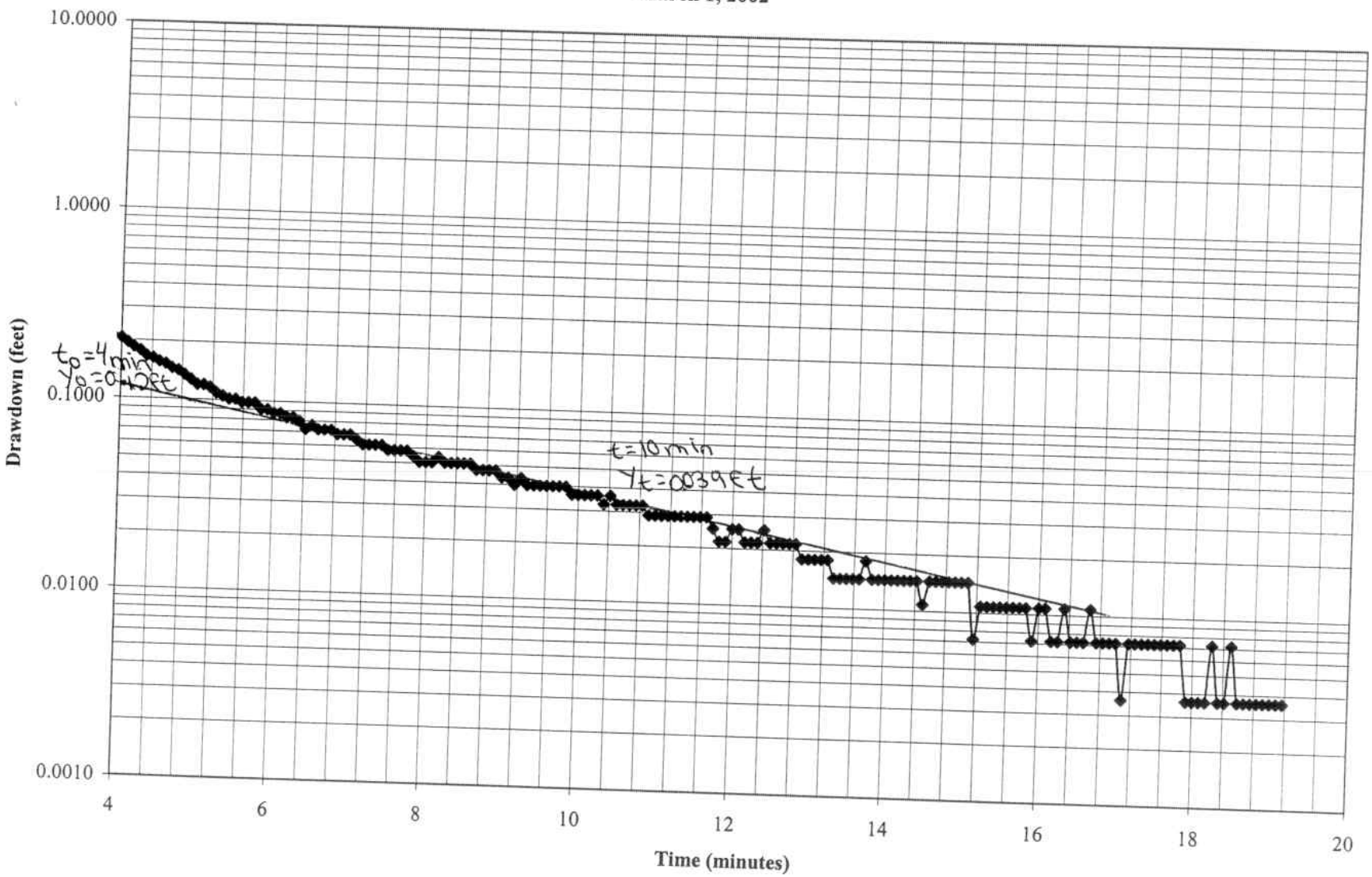
MW-1
March 1, 2002



Poultney Street
05-00035944.22/MW-1Results/Graph

URS Corporation
3/13/02

MW-1
March 1, 2002



Poultney Street
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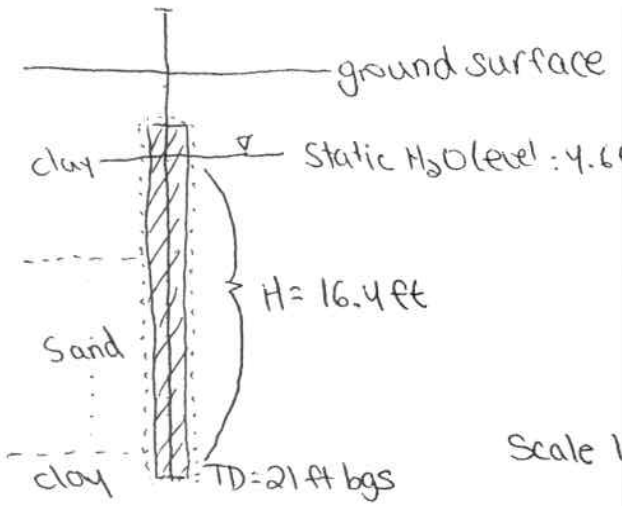
3/13/02

Poultney Street: Whitehall, NY
OS-00035944.22

3/14/02

MW-2



Scale 1 box ≈ 1 ft

$r_c = 0.083$ ft

$r_w = 0.333$ ft

$r_{ce} = [r_c^2 + n(r_w^2 - r_c^2)]^{0.5}$

$n = 0.25$

$r_{ce} = 0.181$ ft

Case1: Account for sand and clay layers across screen length

$L = H$ when screen is partially saturated

$L = 16.4\text{ ft} - \underbrace{5.4\text{ ft} - 1\text{ ft}}_{\text{Thickness of clay layers}} = 10\text{ ft}$

In unconfined aquifers, $D = H$

$D = 10$ ft

$H = 10$ ft

$L/r_w = \frac{10\text{ ft}}{0.333\text{ ft}} = 30$

$H = D$ ∴ from plot of Coefficients vs. L/r_w, $C = 2.3$

Case2: Assume homogeneous unit across screen length

$L = H$ when screen is partially saturated

$L = 16.4$ ft

In unconfined aquifers, $D = H$;

$D = 16.4$ ft

$H = 16.4$ ft

$L/r_w = \frac{16.4\text{ ft}}{0.333\text{ ft}} = 49$

$H = D$ ∴ from plot of coefficients vs L/r_w, $C = 2.9$

Checked by:

Well Number: **MW-2**
3/1/02

Input Variables:

r_c=	0.181 ft
r_w=	0.333 ft

	Case 1	Case 2
L=	10 ft	16.4 ft
D=	10 ft	16.4 ft
H=	10 ft	16.4 ft

Variables from Plot of Log Y vs. t:

	Test 1
t_o=	4 min
t=	26 min
Y_o=	0.07 ft
Y_t=	0.02 ft

For H=D:

Coefficients from Plot of Coefficients vs. L/r_w:

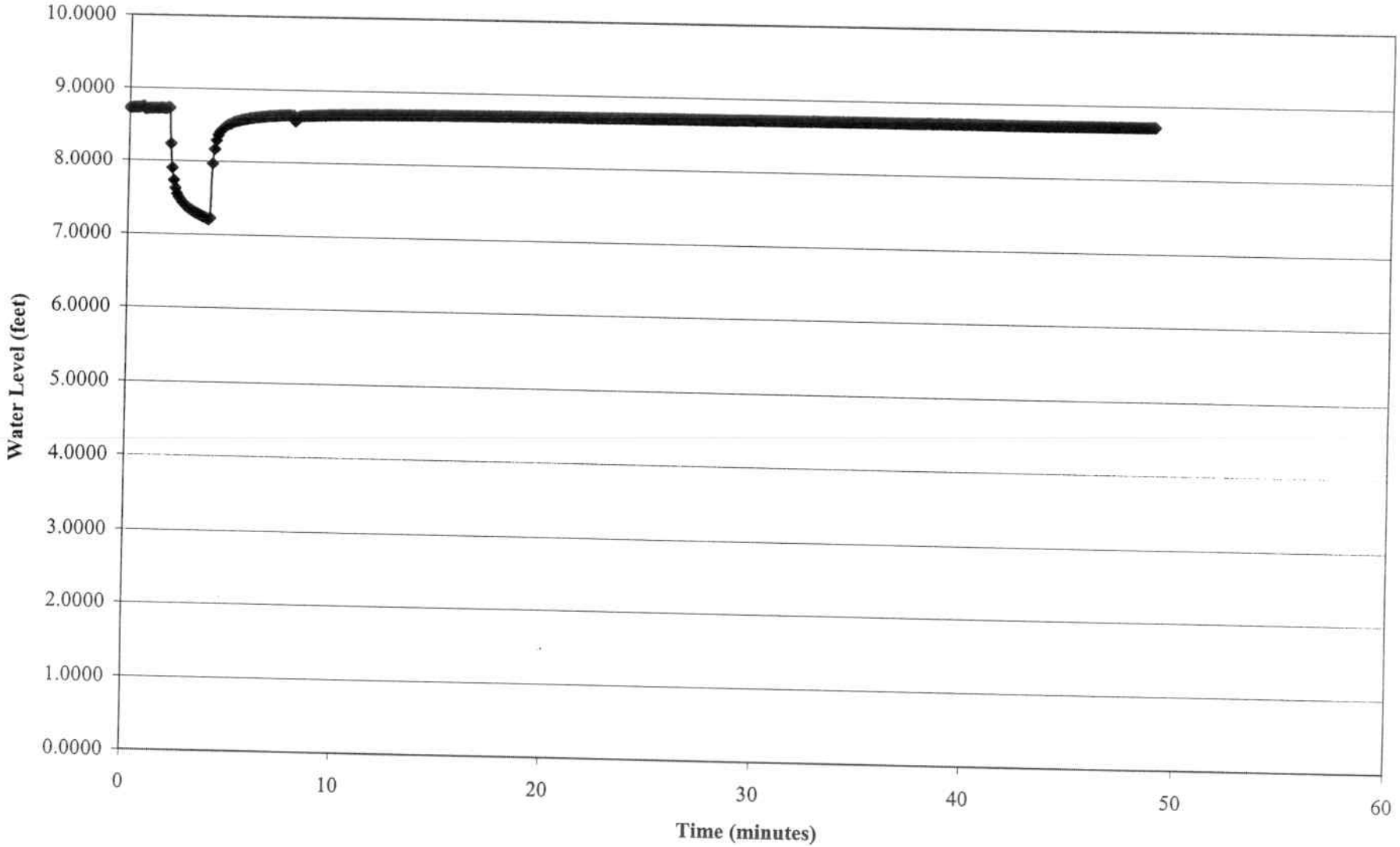
	Case 1	Case 2
C=	2.3	2.9
$\ln R_e/r_w$=	2.50	2.93

Calculations:

	Case 1	Case 2
K=	2.33E-04 ft/min	1.67E-04 ft/min
K=	1.18E-04 cm/s	8.47E-05 cm/s

Checked by:

MW-2
March 1, 2002



Poultney Street
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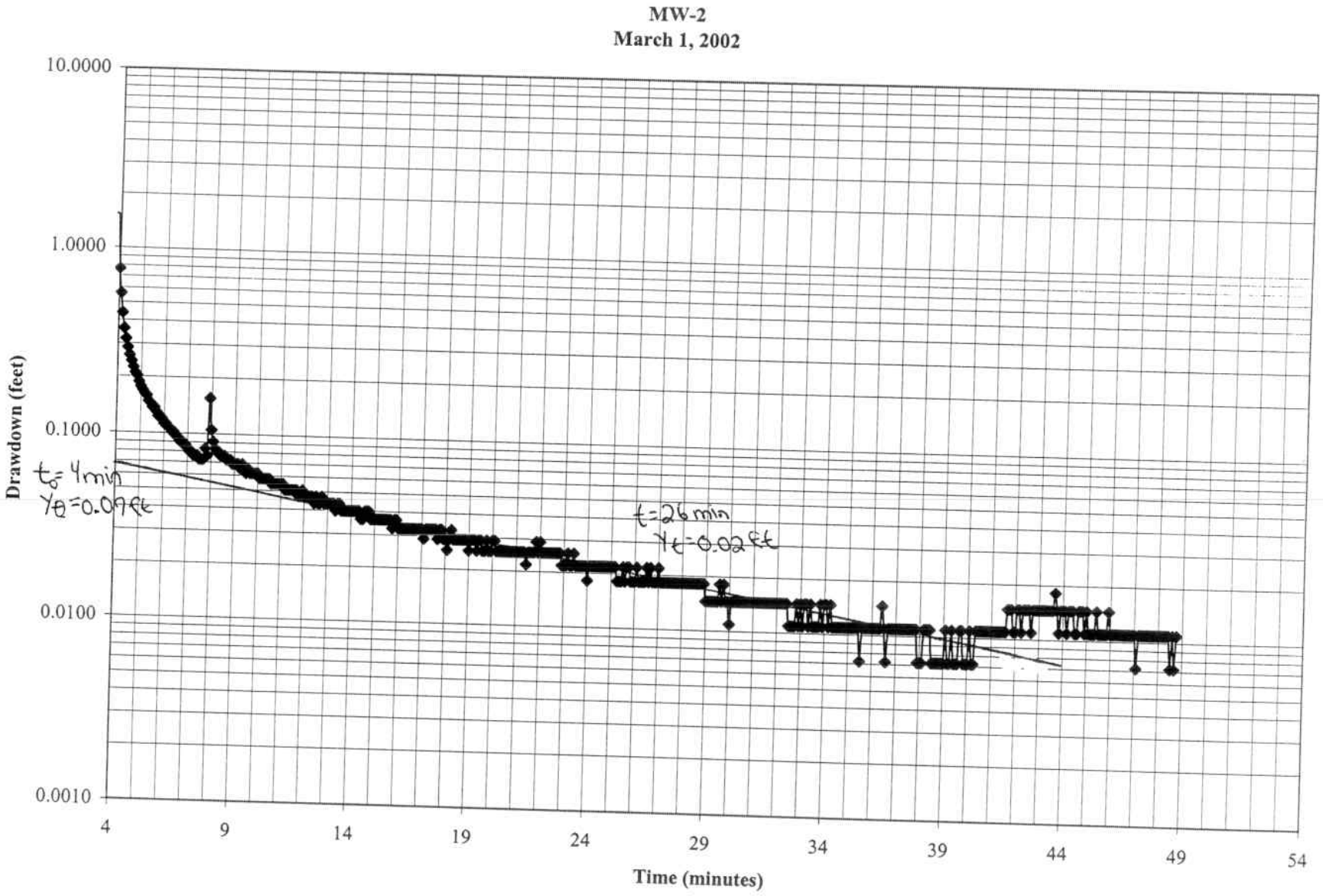

Poultney Street
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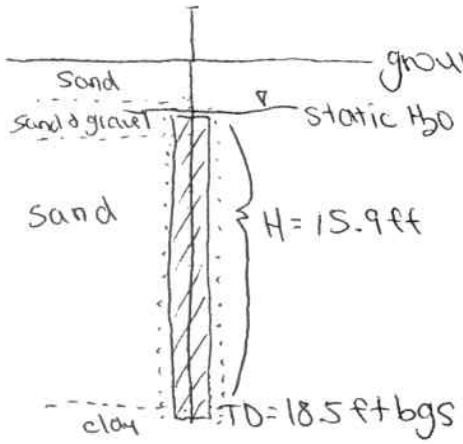
3/13/02

Poultney Street · Whitehall, NY
05-0035944.22

3/14/02

MW-3



Scale: 1 box = 1 ft

$r_c = 0.083$ ft

$r_w = 0.333$ ft

$r_{ce} = [r_c^2 + n(r_w^2 - r_c^2)]^{0.5}$

$n = 0.25$

$r_{ce} = 0.181$ ft

$L = 15.5\text{ ft} - \underbrace{0.5\text{ ft}}_{\text{clay thickness}} = 15\text{ ft}$

In unconfined aquifers, $D = H$

$H = 15.9$ ft

$D = 15.9$ ft

$L/r_w = \frac{15\text{ ft}}{0.333\text{ ft}} = 45$

$H = D$ ∴ from plot of coefficients vs. L/r_w, $C = 2.6$

Checked by: [signature]

Well Number: **MW-3**
3/1/02

Input Variables:

r_c=	0.181 ft
r_w=	0.333 ft

	Case 1
L=	15 ft
D=	15.9 ft
H=	15.9 ft

Variables from Plot of Log Y vs. t:

	Test 1
t_o=	5 min
t=	11 min
Y_o=	0.19 ft
Y_t=	0.052 ft

For H=D:

Coefficients from Plot of Coefficients vs. L/r_w:

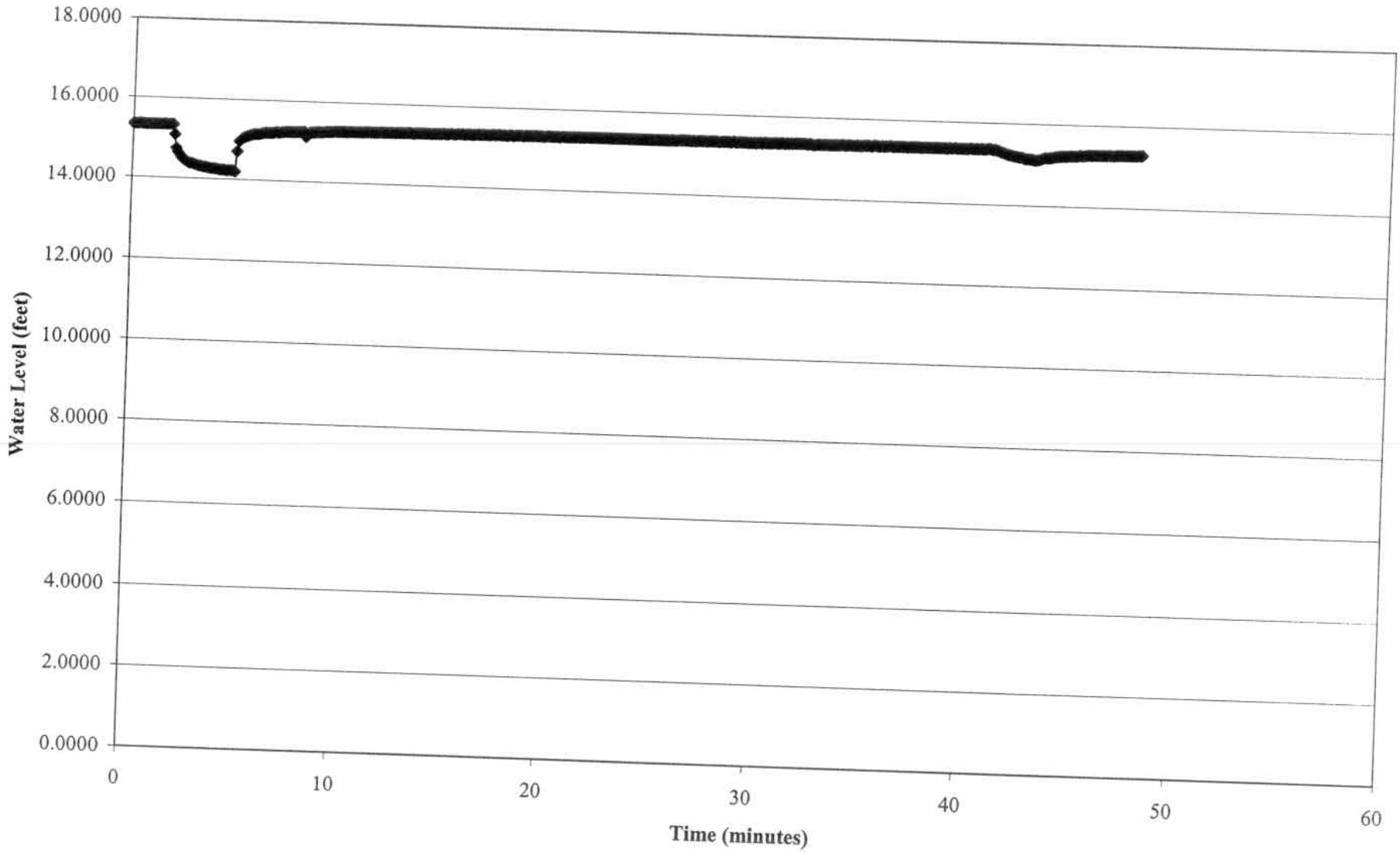
	Case 1
C=	2.6
$\ln R_e/r_w$=	2.92

Calculations:

	Case 1
K=	6.89E-04 ft/min
K=	3.50E-04 cm/s

Checked by

MW-3
March 1, 2002



Poultney Street
05-00035944.22/MW-3Results/Graph

URS Corporation
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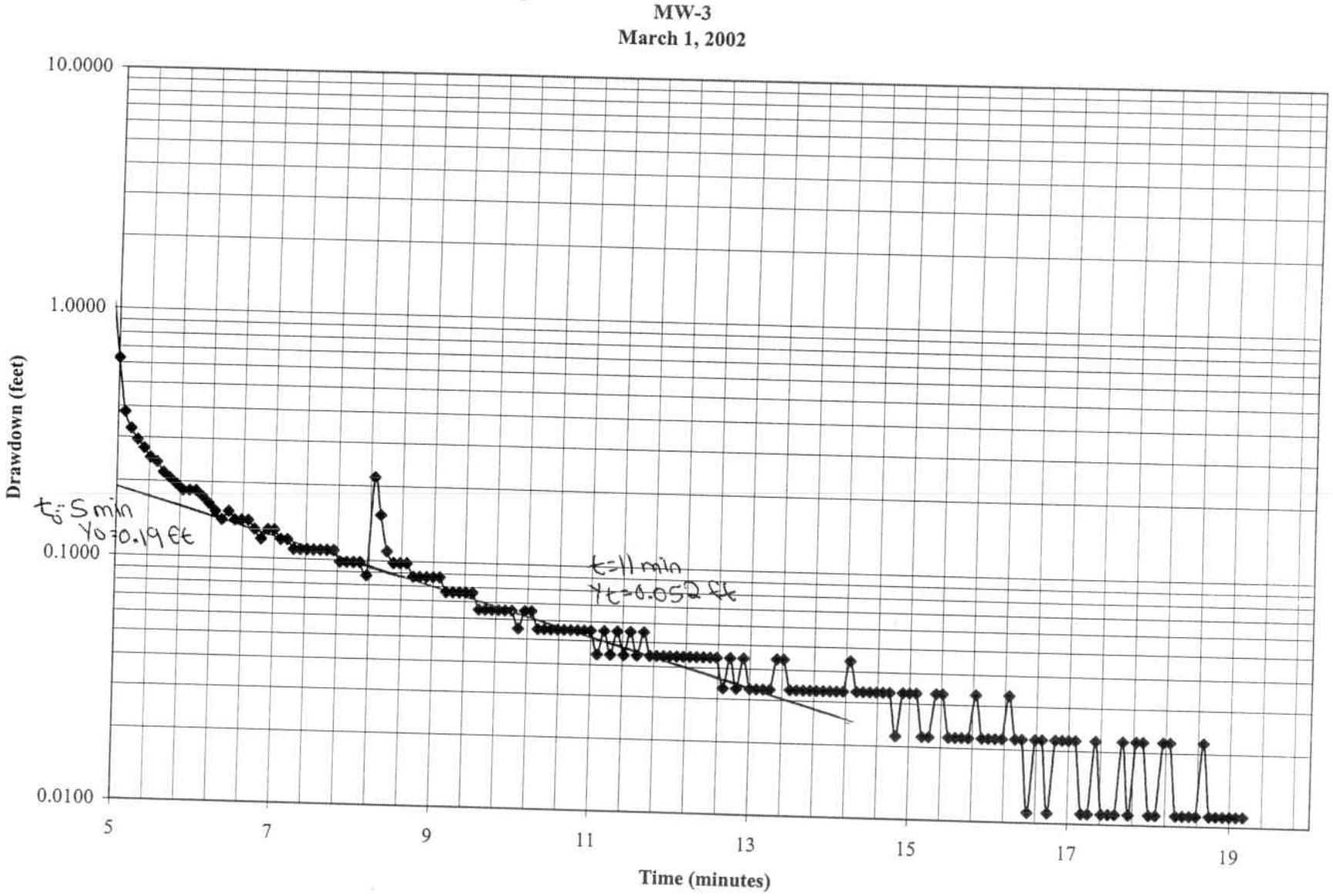

Poultney Street
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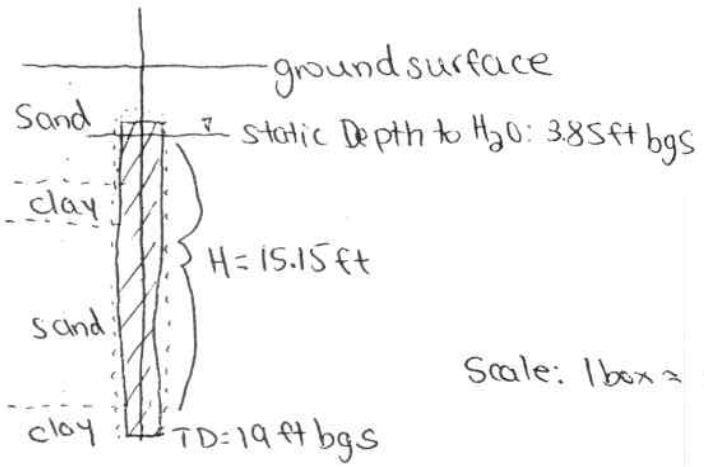
Poultney Street Whitehall, NY
05-0003594422

3/13/02

MW-4



Scale: 1box = 1ft

$r_c = 0.083$ ft
$r_w = 0.333$ ft

$r_{ce} = [r_c^2 + n(r_w^2 - r_c^2)]^{0.5}$

$n = 0.25$

$r_{ce} = 0.181$ ft

Case 1: Account for sand and clay layers across screen length

L=H when screen is partially saturated

$L = 15.15\text{ft} - \underbrace{2\text{ft} - 1.5\text{ft}}_{\text{thickness of clay layers}} = 11.65\text{ft}$

In unconfined aquifers, D=H

D= 11.65ft

H= 11.65ft

$L/r_w = \frac{11.65\text{ft}}{0.333\text{ft}} = 34.9$

H=D ∴ from plot of coefficients vs. L/r_w, C= 2.3

Case 2: Assume homogeneous units across screen

L=H when screen is partially saturated

L= 15.15ft

In unconfined aquifers, D=H

D= 15.15ft

H= 15.15ft

$L/r_w = \frac{15.15\text{ft}}{0.333\text{ft}} = 45.5$

H=D ∴ from plot of coefficients vs. L/r_w, C= 2.6

Checked by:

Well Number: **MW-4**
3/1/02

Input Variables:

r_c=	0.181 ft
r_w=	0.333 ft

	Case 1	Case 2
L=	11.65 ft	15.15 ft
D=	11.65 ft	15.15 ft
H=	11.65 ft	15.15 ft

Variables from Plot of Log Y vs. t:

	Test 1
t_o=	36 min
t=	40 min
Y_o=	0.18 ft
Y_t=	0.095 ft

For H=D:

Coefficients from Plot of Coefficients vs. L/r_w:

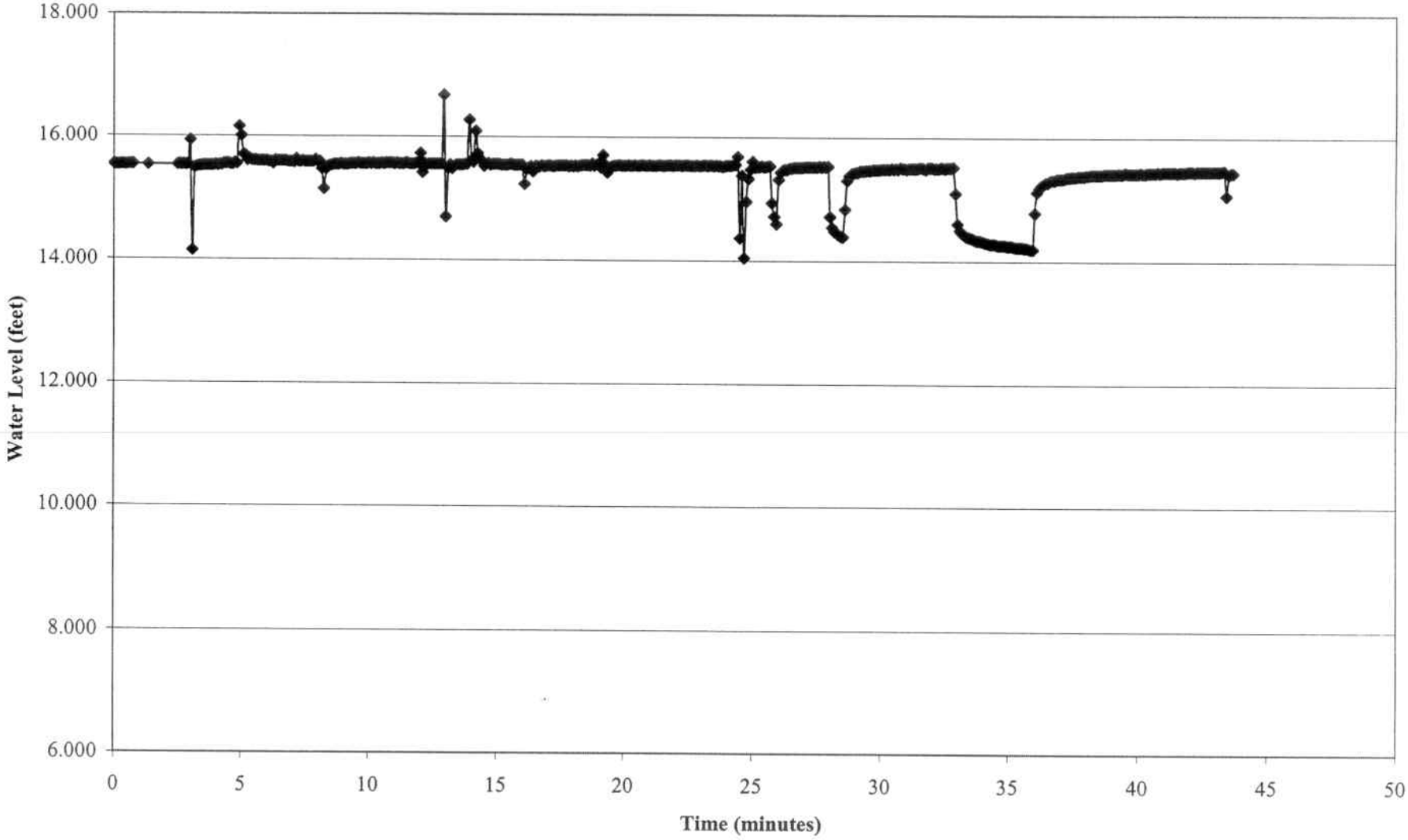
	Case 1	Case 2
C=	2.3	2.6
ln R_e/r_w=	2.67	2.90

Calculations:

	Case 1	Case 2
K=	5.99E-04 ft/min	5.00E-04 ft/min
K=	3.04E-04 cm/s	2.54E-04 cm/s

checked by:

MW-4
March 1, 2002



Poultney Street
05-00035944.22/MW-4Results/Graph

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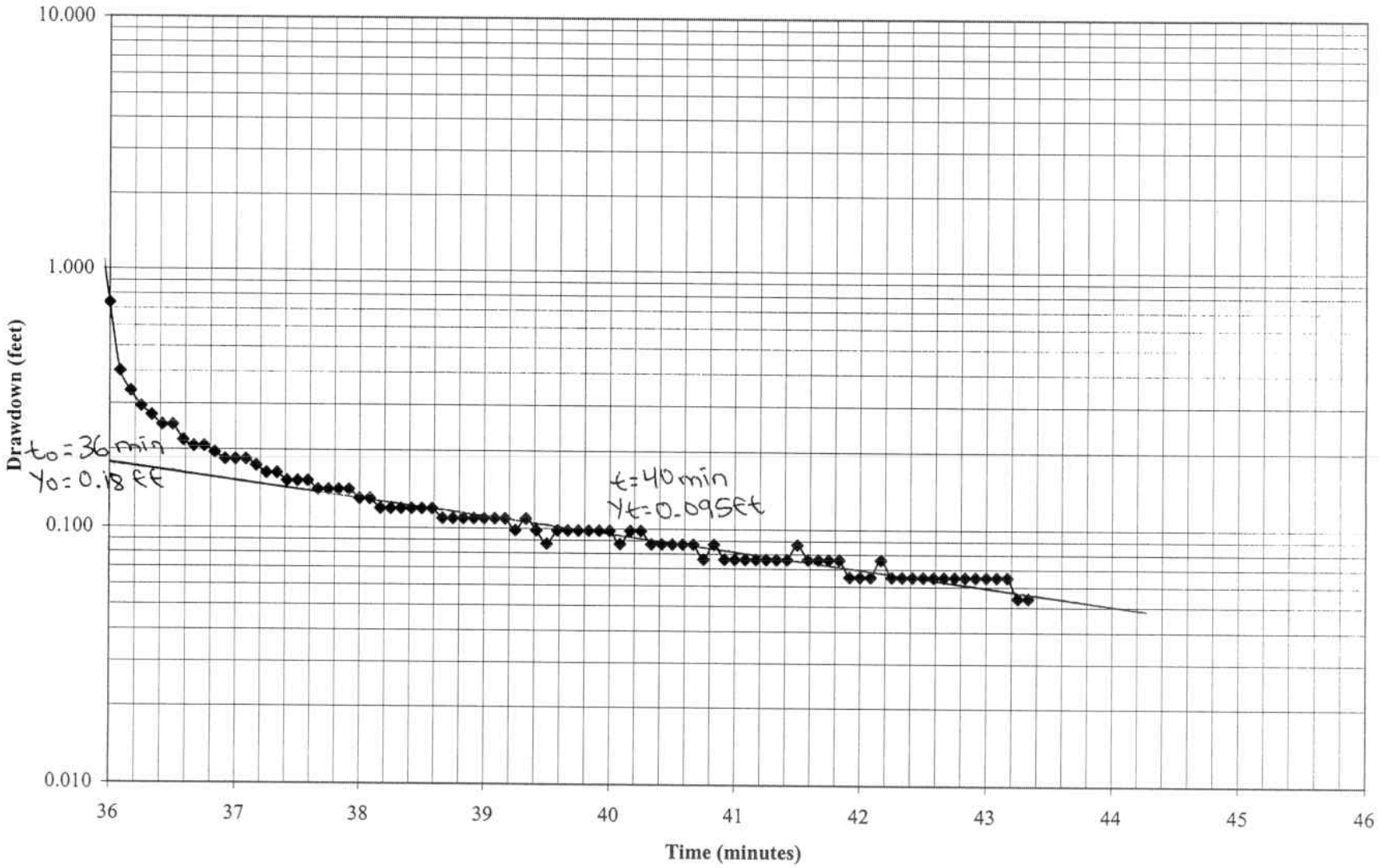
MW-4
March 1, 2002



Poultney Street
05-00035944.22/MW-4Results/Test 1

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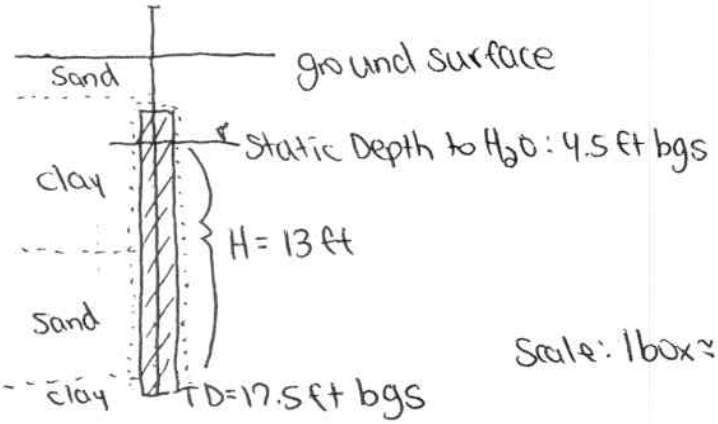
3/13/02

Poultney Street: Whitehall, NY
05-00035944.22

3/13/02

MW-5



$r_c = 0.083$ ft
$r_w = 0.333$ ft
$r_{ce} = [r_c^2 + n(r_w^2 - r_c^2)]^{0.5}$
$n = 0.25$
$r_{ce} = 0.181$ ft

Case 1: Account for sand and clay layers across screen length

$L = H$ when screen is partially saturated

$L = 13\text{ ft} - 5.5\text{ ft} - 0.5\text{ ft} = 7\text{ ft}$
(5.5 ft: thickness of clay layers)

In unconfined aquifers, $D = H$

$D = 7$ ft
$H = 7$ ft

$L/r_w = \frac{7\text{ ft}}{0.333\text{ ft}} = 21$

$H = D$ ∴ from plot of coefficients vs L/r_w, $C = 1.6$

Case 2: Assume homogeneous unit across screen

$L = H$ when screen is partially saturated

$L = 13$ ft

In unconfined aquifers, $D = H$

$D = 13$ ft
$H = 13$ ft

$L/r_w = \frac{13\text{ ft}}{0.333\text{ ft}} = 39$

$H = D$ ∴ from plot of coefficients vs. L/r_w, $C = 2.4$

Checked by:

Well Number: **MW-5**
3/1/02

Input Variables:

r_c=	0.181 ft
r_w=	0.333 ft

	Case 1	Case 2
L=	7 ft	13 ft
D=	7 ft	13 ft
H=	7 ft	13 ft

Variables from Plot of Log Y vs. t:

	Test 1
t_o=	9 min
t=	19 min
Y_o=	0.3 ft
Y_t=	0.045 ft

For H=D:

Coefficients from Plot of Coefficients vs. L/r_w:

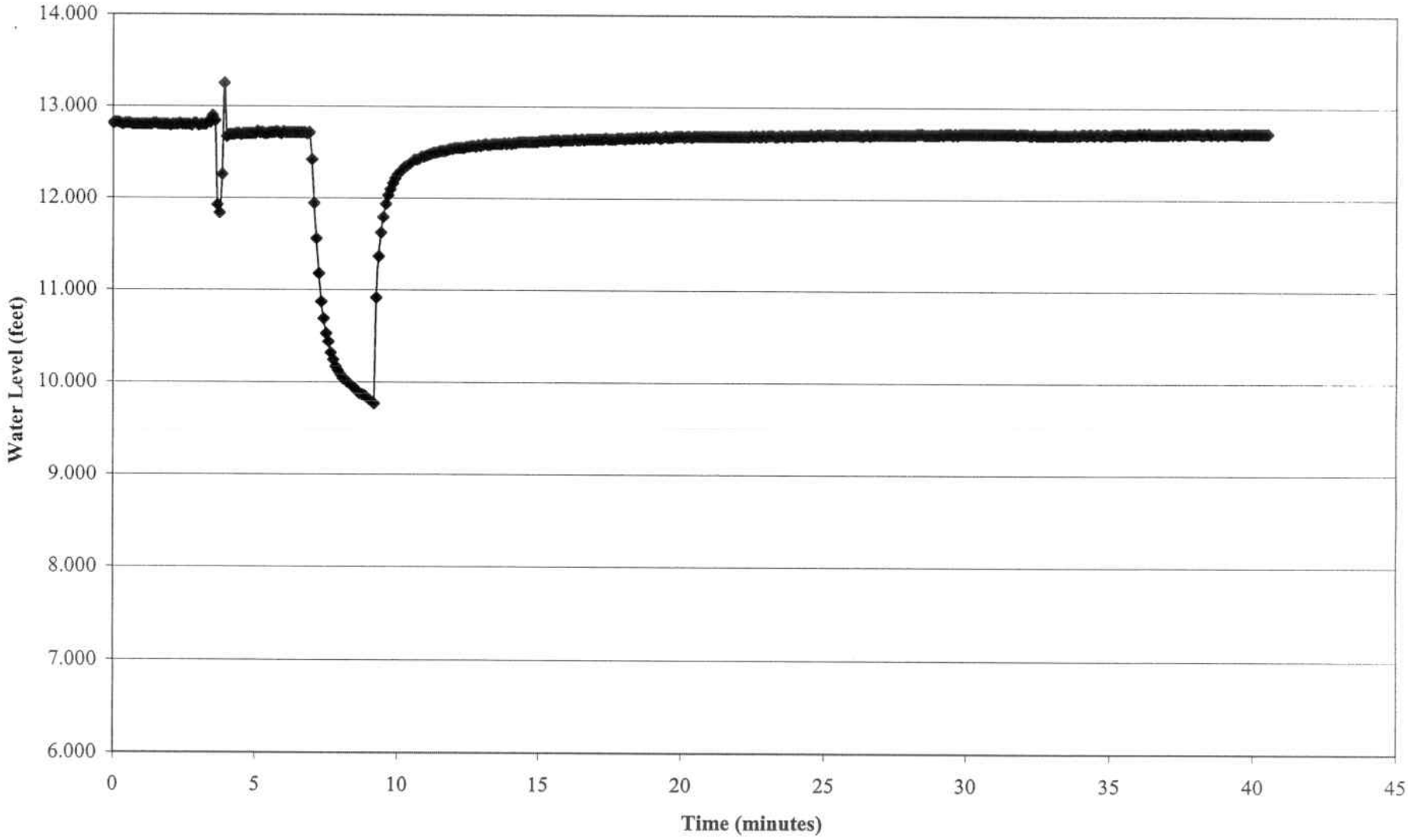
	Case 1	Case 2
C=	1.6	2.4
ln R_e/r_w=	2.29	2.77

Calculations:

	Case 1	Case 2
K=	1.02E-03 ft/min	6.61E-04 ft/min
K=	5.16E-04 cm/s	3.36E-04 cm/s

Checked by:

MW-5
March 1, 2002



Poultney Street
05-00035944.22/MW-5Results/Graph

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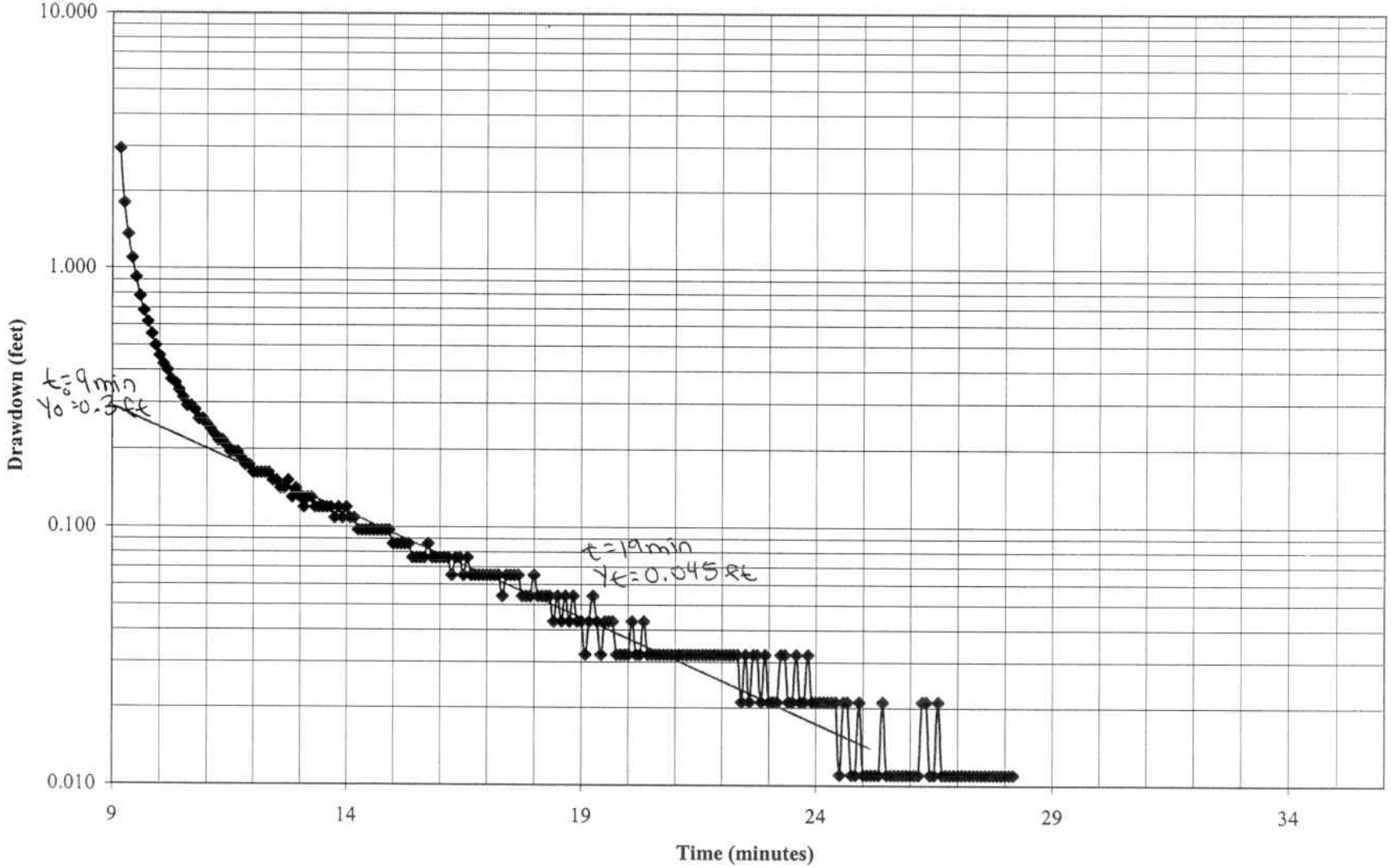
MW-5
March 1, 2002



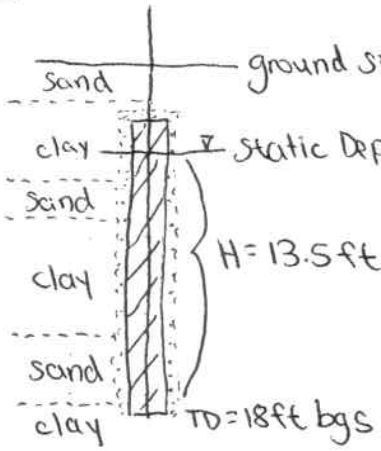
Poultney Street
05-00035944.22/MW-5Results/Test 1

URS Corporation
3/13/02

Poultney Street: Whitehall, NY
05-00035944.22

3/13/02

MW-6



Scale: 1 box = 1 ft

$r_c = 0.083$ ft
$r_w = 0.333$ ft
$r_{ce} = [r_c^2 + n(r_w^2 - r_c^2)]^{0.5}$
$n = 0.25$
$r_{ce} = 0.181$ ft

Case 1: Account for sand and clay layers across screen length

$L = H$ when screen is partially saturated

$L = 13.5\text{ft} - \underbrace{1.5\text{ft} - 6\text{ft} - 0.5\text{ft}}_{\text{thickness of clay layers}} = 5.5\text{ft}$

In unconfined aquifers, $D = H$ (Material above WT is unsaturated)

$D = 5.5$ ft
$H = 5.5$ ft

$L/r_w = \frac{5.5\text{ft}}{0.333\text{ft}} = 16.5$

$H = D$ ∴ from plot of coefficients vs. L/r_w, $C = 1.5$

Case 2: Assume screen is in homogeneous unit

$L = H$ when screen is partially saturated

$L = 13.5$ ft

In unconfined aquifers, $D = H$

$D = 13.5$ ft
$H = 13.5$ ft

$L/r_w = \frac{13.5\text{ft}}{0.333\text{ft}} = 40.5$

$H = D$ ∴ from plot of coefficients vs. L/r_w, $C = 2.4$

Checked by

Well Number: **MW-6**
3/1/02

Input Variables:

r_c=	0.181 ft
r_w=	0.333 ft

	Case 1	Case 2
L=	5.5 ft	13.5 ft
D=	5.5 ft	13.5 ft
H=	5.5 ft	13.5 ft

Variables from Plot of Log Y vs. t:

	Test 1
t_o=	4 min
t=	10 min
Y_o=	1 ft
Y_t=	0.1 ft

For H=D:

Coefficients from Plot of Coefficients vs. L/r_w:

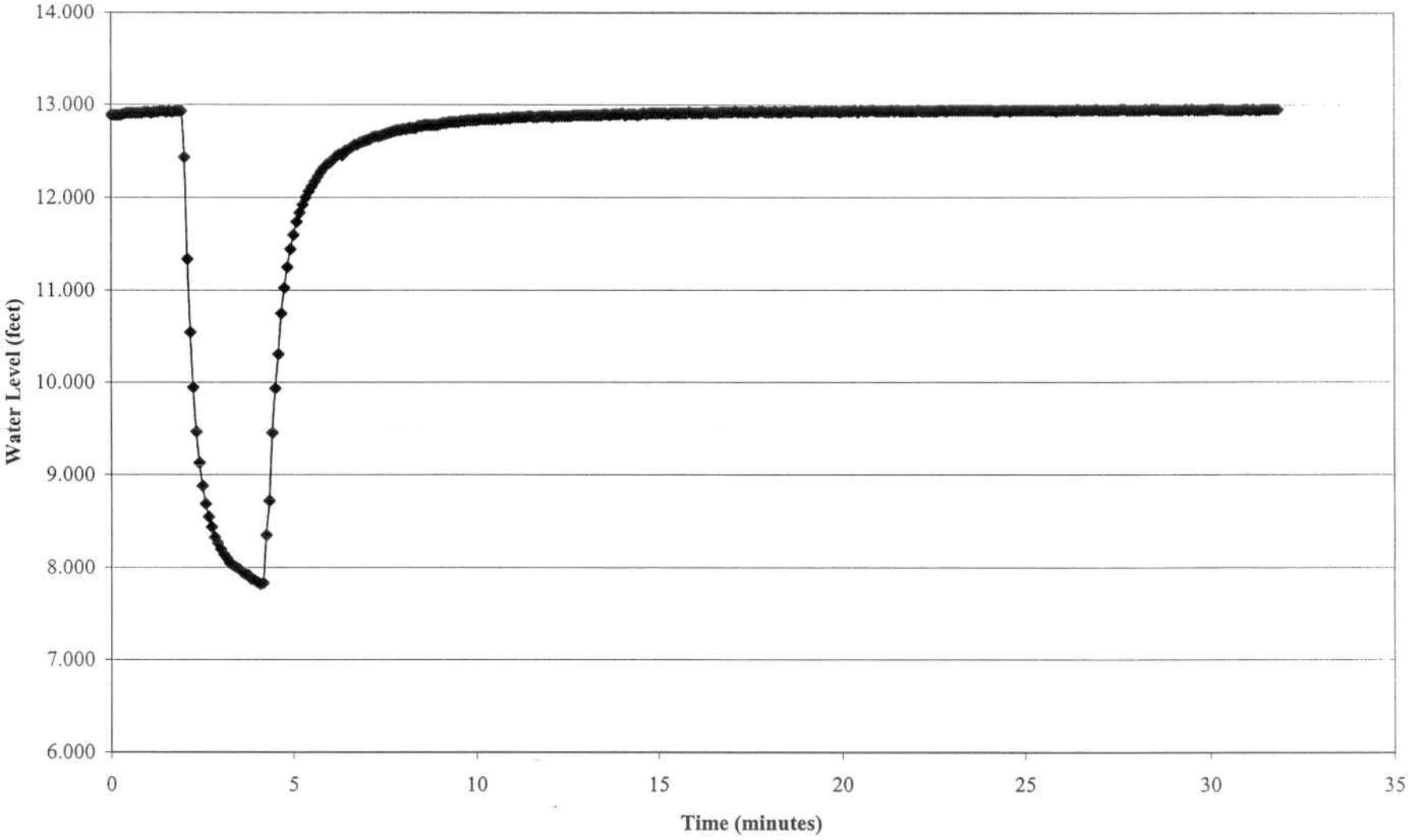
	Case 1	Case 2
C=	1.5	2.4
ln R_e/r_w=	2.07	2.81

Calculations:

	Case 1	Case 2
K=	2.37E-03 ft/min	1.31E-03 ft/min
K=	1.20E-03 cm/s	6.64E-04 cm/s

Checked by

MW-6
March 1, 2002



Poultney Street
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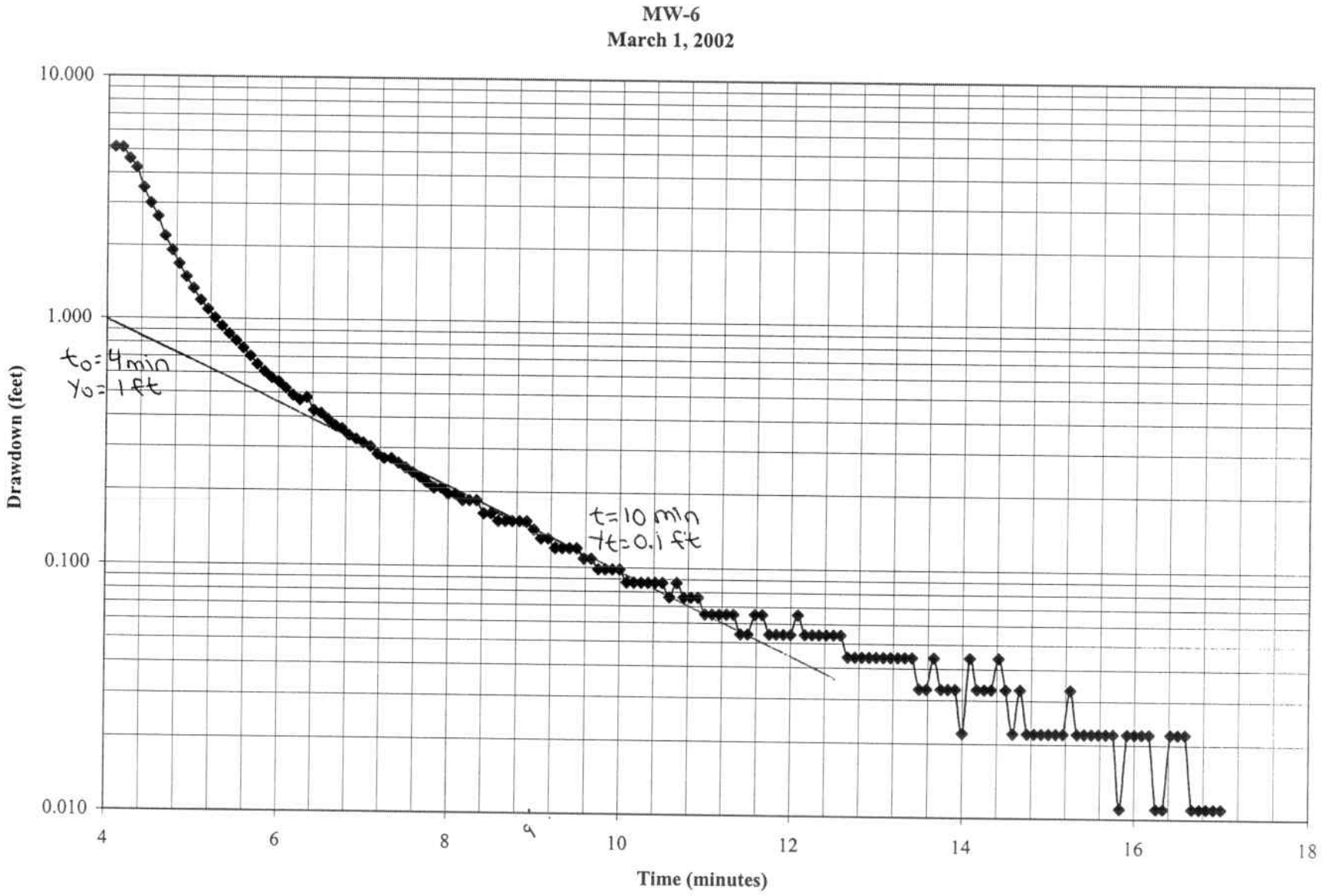
URS Corporation
3/11/02



Poultney Street
05-00035944.22/MW-6Results/Test 1

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3/13/02