FINAL SITE INVESTIGATION REPORT AND FEASIBILITY STUDY

PARCEL 2 - SENECA STREET
BUFFALO, NEW YORK

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CERTIFICATION

I, Bryan T. Smith, a Registered Professional Engineer in the State of New York, certify that the Feasibility Study presented in Section 7.0 of the report entitled "Site Investigation Report, Parcel 2 - Seneca Street, Buffalo, New York", was performed in accordance with "Site Investigation/Feasibility Study Work Plan, Voluntary Cleanup Agreement, Parcel 2 - Seneca Street, Buffalo, New York" dated June 2001.

Bryan T. Smith, P.E.

3/28/03

Date

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1.0 INTRODUCTION

Phase I and Phase II Environmental Site Assessments (ESAs) of the property located at 2137 Seneca Street, Buffalo, New York (Site) were completed between June and August 1999. The Site Assessments were undertaken by The Fourth River Company (FRC) on behalf of a prospective purchaser of the property, Walnut Capital Partners. The Site is owned by Franchise Finance Corporation of America (FFCA).

The results of the ESAs indicated that volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), and metals were present in soil and groundwater on the Site at concentrations exceeding the relevant New York State (NYS) standards.

On behalf of FFCA, representatives of Hodgson, Russ, Andrews, Woods & Goodyear (HRAWG) and Conestoga-Rovers & Associates (CRA) met with representatives of the New York State Department of Environmental Conservation (NYSDEC) on April 14, 2000. The parties agreed that additional investigative activities were necessary to determine the nature and extent of chemicals and metals in on-Site soil and groundwater. Subsequently, FFCA voluntarily completed a Preliminary Site Investigation to confirm the data reported in the FRC ESAs and to develop a Site characterization. The results of the Preliminary Site Investigation demonstrated that an area of environmental concern existed in the northern quadrant of the property.

FFCA developed a Work Plan for a Site Investigation/Feasibility Study (SI/FS) as part of a Voluntary Cleanup Agreement under the Voluntary Cleanup Program to further define the conditions in the northern quadrant of the property. The activities associated with the SI were completed with the receipt and validation of the final analytical data in January 2002. Following review of the preliminary results of the SI, FFCA proposed and NYSDEC agreed that the SI Report would be prepared and the site characterization reviewed before undertaking the FS.

1.1 OBJECTIVE

The primary purpose of the SI was to gather the data necessary to:

i) complete the Site characterization, particularly in the northern quadrant of the Site; and

ii) gather the data necessary to conduct the FS.

1.2 ORGANIZATION OF THE REPORT

This report presents the results of the Site investigations and is organized as follows:

i) Section 1 – Introduction: An overview of the history and objective of the Site Investigation is presented in Section 1;

ii) Section 2 - Site Location and Description: The location and physical features of the Site are described in Section 2;

iii) Section 3 - Field Activities and Sample Analyses: A summary of the field activities and procedures associates with the SI is presented in Section 3;

iv) Section 4 - Regional Geology and Hydrogeology: The regional geologic and hydrogeologic characteristics are briefly described in Section 4;

v) Section 5 - Site Geology and Hydrogeology: The characterization of Site geology and hydrogeology is presented in Section 5;

vi) Section 6 – Nature and Extent of Contamination: The analytical data collected during the SI are presented and discussed in Section 6;

vii) Section 7 – Feasibility Study: The Feasibility Study of remedial alternatives for Site soil and groundwater is presented in Section 7; and

viii) Section 8 – Conclusions and Recommendations: The conclusions regarding the nature and extent of contamination, identification of remaining data gaps, and recommendation for remedial action are summarized in Section 8.

2.0 SITE LOCATION AND DESCRIPTION

The following subsections present descriptions of the Site and its current conditions.

2.1 SITE LOCATION AND DESCRIPTION

The Site is located at 2137 Seneca Street in Buffalo, Erie County, New York, and includes the properties at 2137 through 2153 Seneca Street, excluding 2151 Seneca Street. The location of the Site within the City of Buffalo is shown on Figure 2.1.

2.2 SITE DESCRIPTION

The Site comprises approximately 0.5-acre of relatively flat property located on the southwest corner of Seneca Street and Kingston Place. A Site plan is shown on Figure 2.2.

The Site is located in an urban area and is surrounded by commercial and residential properties. Commercial properties are located adjacent to the Site to the north, east, and west and residential/commercial properties are located to the south.

The FRC ESA reports describe the historic uses of the Site as residential dwellings, a pharmacy, a retail tire establishment, automotive service building, offices, and a dry cleaning establishment. Gasoline filling stations were reportedly located in the southeast corner of the Site and on the adjacent property (2157 Seneca Street). Underground storage tanks were believed to have been present at both these locations. The historic locations of on-site buildings are shown on Figure 2.3. A list of the types of businesses which occupied these buildings is presented in Table 2.1.

Sanborn Fire Insurance Maps and City Directory listings for the Site and adjacent properties were received and reviewed during the SI. These records show that two dry cleaning businesses were located within one block of the Site to the northwest; one at the southwest corner of Princeton Place and Seneca Street and one at the southeast corner of Norman Avenue and Seneca Street. A third dry cleaning establishment was located further northwest at the southeast corner of Kamper Avenue and Seneca Street. One or more of these businesses appear in records dated as early as 1940. The locations of these intersections can be seen on Figure 2.1. Other uses of properties in the vicinity of the Site were reported to include a printing facility, a metal fabrication shop, a glass cutting business, a bank and other retail establishments. Anecdotal evidence indicates that solvents were used at the glass cutting business.

An attempt was made to acquire as-built drawings of buildings which currently or historically occupied the Site. However, such drawings were not located.

2.3 SURFACE CHARACTERISTICS

One building, a former restaurant, is currently located on the Site. The majority of the ground surface surrounding the building is an asphalt paved parking lot. The surface characteristics are shown on Figure 2.2.

2.4 PROPERTY OWNERSHIP

A listing of the current ownership of the properties surrounding the Site is presented in Table 2.2. A property boundary survey was performed most recently in 1985. The boundary survey is shown on the survey plan presented in Appendix A.

2.5 UNDERGROUND UTILITIES

Numerous underground utilities are present adjacent to the Site along both Seneca Street and Kingston Place. These utilities include gas lines (one of which enters the Site from Kingston Place) and sanitary and storm sewers. The locations of the underground utilities are shown on Figure 2.2.

Drawings showing the storm and sanitary sewers in the vicinity of the Site were obtained from the Buffalo Sewer Authority (BSA). The layouts of the sewers shown on the BSA drawings have been compiled onto a single plan, Plan 1 located at the back of this report. Copies of the BSA drawings are presented in Appendix B. Profiles of the sewers are also shown on the BSA drawings. Field measurements were obtained which verified the invert depths shown on the BSA drawings.

The information presented on Plan 1 shows that stormwater in the area is conveyed to Cazenovia Creek via two separate storm sewers. One storm sewer runs from the southwest to northeast along Seneca Street to Kingston Place. At Kingston Place this sewer is connected to the sanitary sewers along Seneca Street by overflow chambers. The storm sewer at Seneca Street and Kingston Place then turns 90 degrees and runs southwest along Kingston Place to the Cazenovia Creek outfall. There is no storm sewer on Seneca Street between Kingston Place and Princeton Place. Storm sewer is again present along Seneca Street from the corner of Princeton Place to Yale Place where it is tied to the sanitary overflow, turns 90 degrees and runs southwest along Yale Place to another outfall at Cazenovia Creek.

2.6 NATURAL RESOURCES

A natural resource field and recovery survey was performed by Mr. Mark Lindberg of Fine Line Technical Services during the Preliminary Site Investigation (November 2000). The survey showed that there are no identified rare, threatened or endangered species, habitats of concern, or freshwater wetlands within a one-half mile radius of the Site. Portions of Cazenovia Creek classified as Classes B and C are located within a one-half mile radius of the Site. The complete natural resource survey report is presented in Appendix C.

2.7 GROUNDWATER USE

The Site is located within the Buffalo Water Authority district and all potable water is supplied through that system. Nonetheless, a survey of groundwater users located within a 0.5-mile radius of the Site was conducted as part of the Site Investigation. The Erie County Department of Health and NYSDEC were contacted during the well survey. According to those Agencies, there are no users of groundwater, either residential or industrial, within a half-mile radius of the Site.

3.0 FIELD ACTIVITIES AND SAMPLE ANALYSES

Field activities, including subsurface soil sampling, groundwater monitoring well installation, groundwater sampling, and hydraulic monitoring and testing have been conducted at the Site. These activities were conducted by FRC in 1999 and CRA in 2000 through 2002. Summaries of the field activities completed are presented in the following subsections. A summary of the samples collected and analyses performed, is presented in Table 3.1.

3.1 SUBSURFACE SOIL SAMPLING

In July 1999, FRC advanced 12 boreholes (SB-1 through SB-10) at the Site using a Geoprobe rig. These boreholes were completed to depths ranging from 1.5 to 20 feet below ground surface (BGS). Soil samples were collected for chemical analysis based on screening of the soil cores with a photoionization detector (PID). Nine soil samples were collected for analysis of Target Compound List (TCL) VOCs and six samples were collected for analysis of Spill Technology and Remediation Series (STARS) SVOCs. All soil samples from these boreholes were collected from below the water table.

In September 2000, CRA advanced 12 additional soil borings (SB-11 through SB-16A and MW-1 through MW-5). Soil samples collected from the unsaturated zone in each borehole were screened with a PID, and portions of each sample were retained for headspace screening. Soil samples for chemical analysis were selected based upon the headspace screening results. Soil samples from 11 of the 12 boreholes advanced were analyzed for TCL VOCs, STARS SVOCs, and/or Target Analyte List (TAL) metals as indicated in Table 3.1.

Following review of the analytical data from the September 2000 sampling, it was determined that additional soil characterization was required. Therefore, samples were collected from 12 additional soil borings (SB-17 through SB-29) in August 2001. Borehole installation and sample collection were conducted in accordance with the procedures contained in the Work Plan with the following exceptions:

i) the soil borings were installed using a Geoprobe system rather than a drill rig and hollow stem augers;

ii) the PID used for screening recovered soil samples malfunctioned on August 22, 2001. Therefore, the analytical samples from SB-18, SB-22, and SB-23 were selected based upon physical characteristics and depth relative to the water table rather than soil vapor readings; and

iii) borings SB-26 and SB-27 were installed and sampled for the purpose of delineating the SVOC presence in soils in the area of SB-8 and SB-9. The analytical samples from SB-8 and SB-9 were collected from the 4 to 8 and 0 to 4 foot BGS intervals, respectively. The samples from borings SB-26 and SB-27 were each collected from the interval directly above the water table surface (10 feet to 12 feet BGS).

The locations of the soil borings are shown on Figure 2.2. Stratigraphic logs of the borings are presented in Appendix D.

3.2 GROUNDWATER

3.2.1 MONITORING WELL/PIEZOMETER INSTALLATION

In 2000/2001, CRA installed 19 overburden monitoring wells and three piezometers on and adjacent to the Site. Monitoring well and piezometer installation details are presented in Table 3.2, and instrumentation logs are included on the stratigraphic logs contained in Appendix D.

The SI/FS Work Plan stipulated that two piezometers were to be installed on Kingston Place along the alignment of the sewers. Due to overhead and underground utility interferences, PZ-1 was relocated. Upon review of the revised location and the intended use of the data from this well (evaluation of the influence of the sewers on groundwater flow), it was decided that an installation nearer the intended location was required. Therefore, an additional piezometer, PZ-3, was installed.

Overhead utility interferences prevented the use of a drill rig for installation of the boreholes for monitoring wells MW-10 and MW-10A. These boreholes were installed using a geoprobe instead of a drill rig. Due to the small diameter boreholes, wells were constructed of 1-inch outside diameter polyvinyl chloride (PVC).

3.2.2 WELL AND PIEZOMETER DEVELOPMENT

All of the monitoring wells and piezometers were developed through a combination of pumping with a peristaltic pump and/or surging with a stainless steel or teflon bailer. A minimum of 10 volumes of groundwater were removed from wells and piezometers which exhibited adequate recharge. The well development records are presented in Appendix E.

3.2.3 GROUNDWATER SAMPLING

During the 1999 investigation, groundwater samples were collected from two soil borings, SB-6 and SB-9. Additional groundwater sampling was conducted in October 2000, September and November 2001, and June and September 2002. At least one groundwater sample was collected from each of the 19 Site monitoring wells. The samples were analyzed for TCL VOC, STARS SVOC, and/or TAL metals.

With the exceptions noted below, monitoring wells were purged and sampled in accordance with the procedures contained in the SI/FS Work Plan. The exceptions to the Work Plan procedures were:

i) due to slow recharge which would have made full recovery especially long, the minimum of 7 days of recovery between development and sampling specified in the SI/FS Work Plan was not always allowed for wells with poor recovery; and

ii) the inside diameter of wells MW-10 and MW-10A was too small (1-inch) to allow use of a bailer for purging or sampling. These wells were purged using a peristaltic pump and VOC samples were collected by filling the pump tubing, crimping the tubing shut, releasing the pump vacuum, and draining the tubing into the sample containers.

The groundwater analytical parameters for all the sampling events are summarized in Table 3.1. Well purging records are contained in Appendix E.

3.3 HYDRAULIC MONITORING

Complete rounds of water level measurements have been collected on seven occasions in accordance with the procedures contained in the SI/FS Work Plan. The water level measurements were converted to elevation for the evaluation of groundwater flow direction. A summary of the groundwater elevation data is presented in Table 3.3.

3.4 HYDRAULIC CONDUCTIVITY TESTING

The hydraulic conductivity of the monitoring wells was tested using two different methods: well recovery tests and slug tests.

3.4.1 RECOVERY TESTS

Recovery tests following well development or sampling were not routinely performed. However, the field records from well development and purging for sampling include information regarding well yield and recovery. This information is presented in Table 3.4.

3.4.2 SLUG TESTS

Slug tests were performed in each monitoring well except MW-10 and MW-10A to collect the data necessary to calculate estimated hydraulic conductivity (K) values.

At least one rising head test was conducted in each well tested.

The small diameter (1-inch) of wells MW-10 and MW-10A prevented the use of a mechanical slug and pressure transducer; therefore, these wells were not tested.

3.5 SITE SURVEY

With the exception of monitoring wells MW-12 and MW-12A, which were surveyed by CRA personnel, the location and elevation of the monitoring wells and soil borings were surveyed by a licensed land surveyor following installation. Elevations were measured relative to the National Geodetic Vertical Datum (NGVD). The locations of the monitoring wells and soil borings are shown on the Site Plan on Figure 2.2. Surface features such as catchbasins, building corners, curb lines, etc. were also surveyed. A copy of the survey plan is contained in Appendix A.

3.6 WASTE DISPOSAL

Both solid and liquid wastes were characterized and disposed in accordance with the appropriate regulations.

Borehole cuttings were characterized as a non-hazardous solid waste. The drummed waste was transported to CWM Chemical Services (CWM) for disposal.

Groundwater and decontamination waters generated in 2000 were also disposed at CWM. Copies of the waste manifests for both the solid and liquid wastes are presented in Appendix F.

Following receipt of the analytical data from the September 2001 sampling program, an application was made to the BSA to discharge the wastewaters generated during the SI directly into the municipal sewer for treatment at the Publically Owned Treatment Works (POTW). A permit was granted and the wastewaters from the September and November 2001 monitoring events were discharged December 20, 2001. A copy of the discharge permit is contained in Appendix G.

4.0 REGIONAL GEOLOGY AND HYDROGEOLOGY

4.1 GEOLOGY

4.1.1 OVERBURDEN

Much of Erie County and the Lake Erie Plain exhibit the effects of Wisconsin stage Pleistocene glaciation. The most prominent features are a series of west to east trending end moraines and southwest to northeast trending beach ridges of the late Wisconsin age Lakes Warren and Whittlesey. The Surficial Geologic Map of New York - Niagara Sheet (Cadwell 1988) and the Quaternary Geology of New York - Niagara Sheet (Muller 1977) indicate that the unconsolidated materials in the vicinity of the Site consist predominately of generally reddish-brown, generally laminated, lacustrine silt and clay with occasional sand and fine, rounded gravel deposited in these pro-glacial lakes.

The clays may occasionally be underlain by ablation or lodgment till deposited by the ice sheet. This till may vary from a silty clay to a sandy silt and is moderately to abundantly stony. The lodgment till is comprised of clay, silt, sand, and larger grain sizes transported by and deposited beneath the glacial ice. It is typically poorly sorted, compact and has a low permeability. The till generally overlies bedrock in the region.

Other post-glacial deposition may include minor amounts of alluvium, wetlands deposits (peat), and artificial fill resulting from the areas in proximity to Cazenovia Creek.

4.1.2 BEDROCK

The bedrock geology of the area consists of Upper (Late) Silurian and Lower to Middle Devonian age strata which tend to dip southward at approximately 40 feet per mile and strike approximately east-west.

According to the Geologic Map of Erie County, New York Bedrock Geology (Buehler and Tesmer 1963), the uppermost bedrock in the area beneath the Site is the Marcellus Formation of the Hamilton Group. The Middle Devonian Marcellus Formation is made up of black calcareous shales and some calcareous concretions. The contact with the underlying Seneca Member of the Onondaga Limestone Formation is gradational.

4.2 HYDROGEOLOGY

4.2.1 OVERBURDEN HYDROGEOLOGY

The overburden materials in the area and under the Site are not important sources of either domestic or industrial water. Groundwater is not extensively utilized in the Buffalo area due to the availability of surface water supplies and the developed municipal water supply system. The overburden of the Lake Erie Basin is primarily glacially derived and consists of till, lake sediments, and sand or gravel deposits. In the area of the Site the overburden consists of varying thicknesses of fill underlain by fine-grained lacustrine and glacial deposits, primarily a silty clay with occasional thin seams of silty or sandy materials. Below this, and directly overlying the bedrock, a compact, poorly sorted, thin glacial till may be present. The lacustrine clay generally exhibits low hydraulic conductivities on the order of 1 x 10-7 centimeters per second (cm/sec) or less and consequently severely retards groundwater movement. The fill and/or recent alluvium overlying the fine-grained lacustrine deposits sometimes acts as a perched waterbearing zone. The thin silty-sandy seams within the clay are infrequent and usually not laterally extensive but do allow limited horizontal groundwater movement. Horizontal migration of groundwater through the fill/alluvium and through silty/sandy layers and stringers in the lacustrine clay is often disrupted by underground utilities. The utility bedding may act as a preferential pathway for overburden groundwater flow.

4.2.2 BEDROCK HYDROGEOLOGY

The Marcellus Shale is the uppermost bedrock unit in this area. Depth to the bedrock beneath the Site can be over 30 feet. Generally the unit strikes east-west and dips southerly at 40 feet per mile. It is well fractured and jointed. Horizontal pathways, such as fractures and bedding planes control bedrock groundwater flow in this area. Secondary vertical fractures and joints within the formation further connect the horizontal pathways and create flow paths. Generally, the vertical joints in the Marcellus Shale trend north-south, northeast-southwest, and east-west. Conductivity testing in the formation in central western New York yielded a hydraulic conductivity arithmetic average of 5.02 x 10-3 cm/sec.

The general direction of upper bedrock groundwater flow in the area of the Site would most likely be toward the southwest and Cazenovia Creek, located less than 1000 feet away.

5.0 SITE GEOLOGY AND HYDROGEOLOGY

5.1 GEOLOGY

Characterization of the Site geology is limited to the overburden regime. The overburden at the Site generally consists of fill overlying fine-grained native soils.

The information used in this characterization was obtained primarily from the boreholes installed by CRA in 2000 and 2001. Cross-sections illustrating the overburden stratigraphy of the Site are presented on Figures 5.2 through 5.5. Figure 5.1 shows the cross-section alignments.

5.1.1 FILL

Fill was encountered at all boreholes installed at the Site. The fill ranged in thickness from 1.5 to 18 feet with the thickest fill encountered off-Site to the northwest at well location MW-12/12A. The fill consists of reworked soil, primarily silt and clay with sand and gravel. Red brick, coal, slag, wood, ceramic tile, concrete, and other assorted small building demolition debris were also encountered in the fill.

The fill is generally thickest northwest of the Site. Fill thickness on-Site is greatest north of and adjacent to the existing building. An isopach map of the fill thickness is presented on Figure 5.6.

5.1.2 NATIVE SOIL

The native soils underlying the fill generally consist of sand overlying silt and/or clay; however, the soil stratigraphy is highly variable and silt and clay generally underlies the fill in the southeastern area of the Site. With the exception of MW-4/4A where the lowermost interval is sand, the bedrock is overlain by clay.

The hydraulic conductivity (K) of each of the monitoring wells was determined by performing slug tests and using the resultant data to calculate a K value. K values were calculated for an unconfined aquifer by the Bouwer-Rice method using AQTESOLV software. The calculated K values are presented in Table 5.1 and the calculations are presented in Appendix H. The hydraulic conductivity of the shallow overburden, the fill or underlying sand, ranges from 2.36E x 10^{-3} to 3.28 x 10^{-4} cm/sec with a geometric mean of 2.74 x 10^{-3} cm/sec. The hydraulic conductivity of the deep overburden overlying the bedrock ranges from 3.64×10^{-4} to 9.79×10^{-6} cm/sec with a geometric mean of 1.41×10^{-5} cm/sec.

5.1.3 BEDROCK

The bedrock at the Site was encountered at three borings, MW-4A, MW-10A, and MW-11A, at depths ranging from 25 feet at MW-10A to 30.0 feet BGS at MW-4A. Based on the data from these borings, the dip of the bedrock appears to be northwest to southeast.

5.2 HYDROGEOLOGY

Groundwater monitoring wells and piezometers at the Site are installed in the shallow overburden (15) and deep overburden, immediately above the bedrock surface (7). These wells and piezometers were installed between September 2000 and November 2001.

5.2.1 GROUNDWATER LEVEL ELEVATIONS

Three complete rounds of hydraulic monitoring have been conducted since the well installation program was completed. During the first round, November 2001, water level elevations in the Kingston Place storm sewer were not measured. These level measurements were included during the monitoring conducted in June and September 2002. The water level elevations measured in the shallow and deep monitoring wells in June and September 2002 have been plotted on Site plans and potentiometric surface contours have been drawn. These data and contours are presented on Figures 5.7 through 5.10.

5.2.1.1 SHALLOW OVERBURDEN

The data collected from the additional shallow overburden monitoring wells installed during the Site Investigation and measurements of water levels in the Kingston Place storm sewer have been used to define the pattern of groundwater flow in the shallow overburden.

The potentiometric contours presented on Figures 5.7 and 5.8 demonstrate that groundwater elevations are influenced by both seasonal conditions and the presence of the storm sewer along Kingston Place. In June 2002 (early summer), a mounded water level is present in the northeast corner of the Site around MW-11. In September 2002 (fall), the mounded elevations are present around monitoring wells MW-9 and MW-11. The elevation at MW-9 located across Kingston Place from the Site is approximately 2 feet higher than the elevation in MW-11 adjacent to the Site. The Kingston Place storm sewer was essentially dry during both the June and September 2002 monitoring events; however, water levels in the adjacent wells were approximately 1 to 3 feet above the invert of the sewer.

At both times of year on-Site groundwater flow appears to be from north to southeast and east across the Site.

The hydraulic gradients in the shallow overburden across the Site during the June and September 2002 monitoring events were approximately 0.010 feet/foot and 0.004 feet/foot, respectively. The average gradient is 0.007 feet/foot.

5.2.1.2 DEEP OVERBURDEN

The deep overburden monitoring wells are located along the north Site boundary and north and northeast of the Site. Only one deep overburden well, MW-4A, has been installed within the Site boundary.

The hydraulic monitoring data from the June and September monitoring events presented on Figures 5.9 and 5.10 show similar groundwater flow conditions. With the exception of the mounded water level around well MW-11 in June 2002, groundwater flow in the deep overburden is from the northwest to southeast and east at both times of year.

6.0 NATURE AND EXTENT OF CONTAMINATION

Samples of environmental media, including soil vapor, soil, and groundwater were collected and analyzed during the Site investigations. The data resulting from the 2000/2001 field activities have been reviewed for quality assurance as laid forth in the SI/FS Work Plan. The following subsections present the analytical results for each media sampled. Laboratory analytical reports or analytical data assessments are contained in Appendix I.

6.1 SOIL VAPOR

Organic vapor readings were collected from soil cores to aid in the selection of soil analytical samples and evaluate the potential for organic vapors to reach indoor air in existing or potential future structures on the Site.

6.1.1 RESULTS

The organic vapor data have been compiled and are presented on the stratigraphic logs in Appendix D.

The range of organic vapor readings was from 0 to >2,000 parts per million (ppm), with the highest readings taken at SB-18, 0 to 2 feet BGS, and SB-19, 6 to 10 feet BGS. The sample from SB-18 was collected immediately beneath the asphalt surface cover and, in all likelihood, the vapor reading reflects residue of the asphalt. SB-19 is located within the area of soils impacted by tetrachloroethene (PCE) (see Section 6.2). Excluding these samples, the maximum organic vapor reading in screened unsaturated soil was 161 ppm in soil boring SB-28 at 2 to 4 feet BGS.

Monitoring well MW-2 is located immediately northwest of the existing building. Concern has been raised as to the impact of the VOCs in Site soils and shallow groundwater on indoor air in this or future buildings. The soil vapor readings of samples collected from the boring for MW-2 ranged from 1.7 to 5.5 ppm.

Since the organic vapor measurements were not compound-specific, a comparison to risk-based air standards cannot be made.

The groundwater-to-indoor air exposure pathway has been evaluated using the Site data. Several states have developed conservative generic criteria that are protective of the groundwater-to-indoor air exposure pathway for use in screening VOC levels in groundwater. The Michigan Department of Environmental Quality (MDEQ 2000) is one of these states. The MDEQ has developed Generic Groundwater Volatilization to Indoor Air Inhalation Criteria (GVIIC) for residential and industrial/commercial land use. The MDEQ GVIIC are considered to be protective of health effects that may result from chronic inhalation exposure to hazardous substances. The GVIIC are based on the Johnson and Ettinger Model (JEM). The JEM was developed to estimate diffusive and convective transport of chemical vapors from soils/groundwater to indoor air. The JEM is widely used by United States Environmental Protection Agency (USEPA), the American Society for Testing and Materials (ASTM), and several other states and international jurisdictions. In general terms, the JEM consists of five fundamental steps:

i) calculation of the ratio of the soil vapor phase concentration (determined from groundwater concentration assuming equilibrium) to the total concentration at the source;

ii) calculation of the effective diffusion coefficient of chemical vapor flow through soil and/or groundwater, which occurs through both pore air and pore water spaces;

iii) calculation of the infiltration rate of chemical vapors into the building;

iv) calculation of the building vapor concentration to the total groundwater vapor source concentration ratio; and

v) back calculation to the GVIIC from an acceptable indoor air concentration.

The GVIIC for PCE, trichloroethene (TCE), and 1,2-dichloroethene (1,2-DCE) for industrial and residential land use are presented in Table 6.1. The maximum average concentrations of these compounds in on-Site monitoring wells are also presented on Table 6.1. Comparing the GVIIC to the maximum average concentrations of these compounds detected in Site groundwater shows that the detected concentrations are well below the GVIIC. Therefore, it is expected that these VOC levels will not result in any adverse indoor air impact.

6.1.2 SUMMARY

VOCs are present in soil vapors and in Site groundwater. However, the soil vapor concentrations are low (1.7 to 5.5 ppm) and the VOC concentrations in groundwater are lower than the GVIIC.

6.2 SUBSURFACE SOILS

Subsurface soil samples were collected and analyzed during each of the investigative programs. The sample collection and analyses details are summarized in Table 3.1. Surface soils at the Site are not exposed; therefore, separate characterization of the surface soils is not necessary.

6.2.1 RESULTS

Summaries of the compounds detected in the subsurface soil samples collected at the Site are presented in Tables 6.2 and 6.3. The soils analytical data are presented in Appendix I. The data validation reports for the samples collected and analyzed in 2000/2001 are also contained in Appendix I.

Analyte concentrations detected in site soils have been compared to the NYS soil cleanup objectives presented in Technical and Administrative Guidance Memoranda (TAGM) 4046. Analyte concentrations exceeding the cleanup objectives are highlighted in Tables 6.2 and 6.3.

6.2.1.1 ORGANIC CHEMICAL COMPOUNDS

Both VOCs and SVOCs were detected in soil samples at concentrations exceeding the TAGM 4046 cleanup objectives. Detailed descriptions of the locations and extent of the exceedances of the TAGM 4046 cleanup objectives for organic chemical compounds are presented in the following subsections.

6.2.1.1.1 VOLATILE ORGANIC COMPOUNDS

The soil samples analyzed in 1999 (from borings SB-1B and SB-3 through SB-10) were collected from intervals within the saturated zone of the borings. Therefore, the analytical data from these samples is reflective of the contribution from groundwater. The subsequent soil sampling programs were designed to provide the data necessary to characterize the unsaturated soils across the Site. Because they are not representative of the unsaturated soils, the data from the borings installed in 1999 are not discussed further in this report.

The VOCs detected in the soil samples at concentrations exceeding the TAGM 4046 cleanup objectives are limited to acetone and PCE. Acetone was detected in one sample (SB-16A , 7.0 to 9.0 feet BGS) at a concentration, 420 milligrams per kilogram (µg/Kg), which exceeds its TAGM standard of 200 µg/Kg. The presence of acetone at this concentration in only one location does not present either an environmental or human health concern. Therefore, acetone in Site soils will not be discussed further in this report.

The detected concentrations of PCE in unsaturated soils on-Site range from 1.5J to 29,000 µg/Kg. The TAGM 4046 cleanup objective for PCE is 1,400 µg/Kg. All borings in which PCE was detected at concentrations exceeding the cleanup objective are located in the northeast quadrant of the Site. The concentrations of PCE detected in the unsaturated soils have been plotted on a Site plan and the plan is presented on Figure 6.1. The plotted data show that the samples exhibiting PCE presence above the cleanup objective were all collected from borings centered around SB-16A northwest of the existing on-Site building.

The data presented on Figure 6.1 further demonstrate that the areal extent of soils containing PCE at elevated concentrations is well defined.

Soil boring SB-17 was installed and sampled to gather data for use in preparing a profile of the PCE concentrations in the area of SB-16A. Review of the soils analytical data presented in Table 6.2 shows that PCE is present throughout the interval between ground surface and the top of the water table, approximately 9 feet BGS. PCE was detected in all samples with concentrations increasing with depth. While PCE is present throughout this regime, only the concentration in the lowermost interval (8 to 10 feet BGS) exceeded the TAGM cleanup objective. The sample exhibiting the exceedance was collected across the water table surface. Therefore, it is difficult to determine whether the concentration, 4,100 micrograms per liter (µg/L), is reflective of chemical presence in soil or groundwater. To present the most conservative scenario for evaluation, it has been assumed that the concentration is reflective of soil. Based on these data, the total thickness of impacted unsaturated soil in the area is assumed to be 9 feet. The thickness of the interval exhibiting the exceedance is assumed to be 2 feet, between 7 and 9 feet BGS.

Based upon the definition of the areal extent of PCE impacted soils and the assumptions regarding depth, the total volume of impacted soil is estimated to be 420 cubic yards and the volume of soil exhibiting exceedances of the PCE standard is estimated to be 90 cubic yards.

Soil samples from borings SB-22 and SB-23 were collected and analyzed to obtain the data necessary to evaluate the presence of VOCs in the bedding of the storm sewer on Kingston Place. The only VOC detected in the samples from these borings was PCE at low concentrations, 19 and 1.6J µg/Kg, respectively.

6.2.1.1.2 SEMI-VOLATILE ORGANIC COMPOUNDS

Six SVOCs (benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, and dibenz(a,h)anthracene) were detected in soil samples at concentrations which exceeded their respective cleanup objectives. The exceedances are highlighted in Table 6.2. The locations at which the exceedances were detected have been plotted on a Site plan and the plan is shown on Figure 6.2.

Exceedances of the TAGM 4046 cleanup objective for benzo(a)anthracene were noted in the samples collected from SB-8 and SB-9 during the ESAs and not in any other samples collected in this area of the Site. The rationale for the selection of the depth intervals for the ESA samples is unknown. However, based on a review of the boring logs contained in Appendix D, the following has been assumed:

i) the sample from SB-8 was collected from the 4-foot interval just above the saturated zone (4 feet to 8 feet BGS); and

ii) the sample from SB-9 was collected from the 0 to 4-foot BGS interval to evaluate an "oil or tar-like substance" that was observed 2 feet BGS.

Borings SB-26 and SB-27 were drilled and sampled during the SI to verify that the exceedances of the cleanup objective for benzo(a)anthracene in SB-8 and SB-9 were isolated hotspots and not representative of an area of significant environmental impact. No evidence of chemical presence was observed while drilling either SB-26 or SB-27. The PID readings were not elevated and the soils exhibited no evidence of chemical presence (odor, color, etc.). Therefore, the analytical samples from these borings were collected from the interval immediately above the water table. No SVOCs were detected in the samples from SB-26 and SB-27. These data verify that there are only hot spots in the SB-8/SB-9 area and that the data from these borings do not represent an area of sufficient extent to pose a significant environmental impact. Therefore, no further discussion of SVOCs in this portion of the Site is presented in this report.

SVOCs were detected at concentrations exceeding their respective TAGM cleanup objectives in samples from borings SB-15 and MW-4 located in the northeast quadrant of the Site adjacent to the area in which the PCE-impacted soils were identified. To better define the extent of SVOCs in soils in this area, borings SB-18 and SB-24 were drilled and sampled. With the exception of dibenz(a,h)anthracene which was detected in MW-4 and not in SB-18, the SVOCs detected at concentrations exceeding their respective cleanup objectives were the same in the samples from SB-18 and MW-4. No SVOCs were detected in the sample from boring SB-24. Examination of Figure 6.2 shows that the area in which the SVOC exceedances are located is well defined. The area is entirely within the northeast quadrant of the Site and is approximately 1,700 ft^2 in size. The maximum depth of sampling for SVOC analyses in this area was 8 feet BGS in SB-18. The water table surface in this area as indicated by the hydraulic monitoring data from MW-4 is approximately 7.5 feet BGS; therefore, it is assumed that the soils of concern in this area extend from the ground surface to the top of the water table or approximately 8 feet BGS. Based on these assumptions, the volume of SVOC soil exhibiting concentrations of SVOCs in excess of their respective TAGM cleanup objectives is approximately 500 cubic yards.

6.2.1.1.3 METALS

The concentrations of several metals also exceed the TAGM 4046 cleanup objectives; however, the cleanup objectives can be adjusted for Site background. The concentrations of each of the metals in the soil samples are relatively consistent across the Site, indicating that they are representative of background concentrations. The only potentially elevated concentrations which are:

i) copper (96.6 milligrams per kilogram [mg/Kg]) and zinc (1310 mg/Kg) in the boring for MW-5;

ii) arsenic in soil boring SB-12 (12.9 mg/Kg); and

iii) chromium (22.8 mg/Kg) in soil boring SB-15.

Similarly to the SVOC exceedances at SB-8 and SB-9, these potentially elevated concentrations of metals in isolated borings represent possible hot spots and not an area or areas of potential significant environmental impact. Therefore, NYSDEC agreed that further investigation of metals in soils at the Site was not required.

6.2.2 SUMMARY

The significant exceedances of TAGM 4046 cleanup objectives were for PCE and several SVOCs in soils in the northern quadrant of the Site. These areas are shown on Figures 6.1 and 6.2, respectively.

The presence of these areas is consistent with previous land use. Laundry and dry cleaners had been located in the area of the PCE exceedances and a tire sales facility in the area of the SVOC exceedances (see Table 6.2).

PCE is not present at significant concentrations in soils along the alignment of the sewers on Kingston Place.

6.3 GROUNDWATER

Groundwater samples have been collected on at least one occasion from each of the Site monitoring wells. The samples have been analyzed for VOCs, SVOCs, and/or metals as indicated in Table 3.1. The following subsections present the analytical data and discuss the nature and extent of chemical presence in Site groundwater.

6.3.1 RESULTS

The groundwater analytical data are presented with the data validation reports for the 2000 through 2002 sample analyses in Appendix I. Summaries of the compounds detected in the groundwater samples are presented in Tables 6.4 and 6.5.

The concentrations of the analytes detected in the Site groundwater samples have been compared to the NYS ambient water quality standards for Class GA (potable) groundwater (Technical and Operation Guidance Standards [TOGS] 1.1.1). The analyte concentrations exceeding the standards are highlighted in Tables 6.4 and 6.5. The groundwater samples collected in July 1999 were collected directly from open boreholes and the sample quality is questionable. The remaining groundwater analytical data are sufficient to characterize the quality of groundwater at the Site; therefore, the groundwater data collected in 1999 are not discussed further in this report.

6.3.1.1 ORGANIC CHEMICAL COMPOUNDS

Exceedances of the standards for organic chemical compounds in groundwater were limited to three VOCs; PCE, TCE, and cis-1,2-DCE. No SVOCs were detected in any groundwater sample. The locations at which exceedances were identified are all located in the northeast quadrant of the Site and northwest of the Site, across Kingston Place. No exceedances of standards were detected in the monitoring wells located near the residences southwest of the Site or in the wells northeast of the Site across Seneca Street.

Shallow Overburden Groundwater: The highest average concentration of PCE in the shallow overburden, 18,000 µg/L in September 2002, was detected in MW-4 located at the northeast corner of the Site. The highest concentration of PCE in MW-11, approximately 20 feet northeast of MW-4 on the northeast corner of Seneca Street and Kingston Place, was 1,700 µg/L in November 2001. The analytical results from wells MW-4 and MW-11 are highly variable. These wells are located nearest the area of soils exhibiting elevated concentrations of PCE and the variability in the data may reflect effects resulting from the presence of these soils. With the possible exception of MW-12 which also exhibits variability in the analytical data, the concentrations of PCE in the monitored wells has decreased over the period the investigation has been conducted. Interpretation of the analytical data where significant variability occurs is difficult. Therefore, for the purpose of this report average concentrations of analytes have been utilized to characterize chemical presence.

The average concentration of PCE in shallow groundwater decreases with distance from the Site, going from approximately 8,800 µg/L at MW-4 to 6,700 µg/L at MW-9 and 3,500 µg/L at MW-12. This pattern of chemical presence would be consistent with a pathway of groundwater flow from the Site. However, the average PCE concentration in MW-11, located approximately 20 feet north/northwest of MW-4 and between MW-4 and MW-9, is approximately 750 µg/L. The concentrations of the PCE degradation products TCE and DCE increase with distance from the Site, each being highest furthest from the Site, at MW-12. The concentrations of TCE range from approximately 620 and 45 µg/L at MW-4 and MW-11, respectively, to 720 µg/L at MW-9 and 1,200 µg/L at MW-12. The concentrations of DCE exhibit an identical pattern but are lower in the on-site wells. Average DCE concentrations in MW-4 and MW-11 are 142 and 13 µg/L respectively, 208 µg/L in MW-9, and 1,700 µg/L in MW-12. The average concentrations of PCE, TCE, and cis-1,2-DCE have been plotted on a Site plan and isopleths drawn. The plots are presented on Figures 6.3 through 6.5.

The following physical conditions would limit the migration of groundwater from the Site to wells MW-9 and MW-12:

i) the presence of the storm sewer along Kingston Place which may intercept the shallow groundwater migrating toward the northwest;

ii) the direction of shallow groundwater flow, southwest toward Cazenovia Creek; and

iii) the absence of a preferential flow pathway, i.e., a storm sewer, along Seneca Street between Kingston Place and MW-12.

Deep Overburden Groundwater: Isopleths of the average PCE, TCE, and cis-1,2-DCE concentrations in the deep overburden groundwater are presented on Figures 6.6 through 6.8. The pattern of PCE presence in this interval is similar to that described for the shallow interval: average concentrations of PCE are lower off-Site than on-Site. The patterns of presence of the degradation products differ somewhat from the pattern observed in the shallow groundwater. Both TCE and DCE are present in on-Site wells MW-4A and MW-11A at average concentrations of approximately 40 to 90 µg/L. The average concentrations in the nearest off-Site well, MW-9A, are less than 5 µg/L, an order of magnitude lower than on-Site. Furthest from the Site, in well MW-12A, the average concentrations of TCE and DCE increase to approximately 20 and 70 µg/L, respectively.

The deep overburden monitoring wells are screened in the clay or lower sand unit. The analytical data from the deep overburden wells demonstrate the effectiveness of the clay underlying the shallow overburden in limiting the vertical migration of the VOCs in shallow groundwater. The properties of the clay soils and the apparent direction of groundwater flow at this depth which is from MW-12A southeast also make the source of VOCs in the deep overburden groundwater unclear.

6.3.1.2 METALS

Concentrations of iron, magnesium, manganese, and sodium are present in Site groundwater at concentrations that exceed the groundwater quality standards. Total lead was detected in the samples from SB-1B and SB-6 at concentrations exceeding the standards but was not detected in any of the monitoring well samples at these concentrations. As described previously, the SB-1B and SB-6 groundwater samples were collected directly from an open borehole (no filter pack). The concentrations of lead in these samples were most likely due to the sediment in these unfiltered samples.

The metals present in Site groundwater at elevated concentrations are ubiquitous and do not present environmental or human health risk.

6.3.2 SUMMARY

The compounds present in Site groundwater at concentrations which are of potential environmental and/or human health concern are PCE, TCE, and cis-1,2-DCE. The presence of elevated concentrations of these compounds in off-Site groundwater does not appear to be attributable to the on-Site source (the PCE impacted soils).

7.0 FEASIBILITY STUDY

Based upon the Site investigation data generated to date, the media of concern at the Site are overburden groundwater and on-Site soils in the northeast quadrant of the Site. The data and discussions presented previously in this report demonstrate that there is a potential continuing source of VOCs to groundwater in the on-Site soils. The remainder of this report presents the results of the Feasibility Study performed to evaluate remedial technology alternatives to address the Chemicals of Concern (COC) presence in the Site soils and groundwater.

7.1 POTENTIAL STANDARDS, CRITERIA, AND GUIDELINES

7.1.1 TYPES AND APPLICABILITY

Applicable or relevant and appropriate NYS Standards, Criteria, and Guidelines (SCGs) are used to develop remedial action objectives (RAOs) and to scope and formulate remedial action technologies and alternatives. SCGs may also include Federal Applicable or Relevant and Appropriate Requirements (ARARs) or standards if they are more stringent than State standards. SCGs are categorized as:

i) chemical-specific requirements that define acceptable exposure levels and may, therefore, be used in establishing preliminary remediation goals;

ii) location-specific requirements that may set restrictions on activities without specific locations, such as floodplains or wetlands; and

iii) action-specific requirements which may set controls or restrictions for particular treatment and disposal activities related to the management of hazardous wastes.

Potential SCGs are described in the following subsections.

7.1.1.1 CHEMICAL-SPECIFIC SCGs

Chemical-specific SCGs define health- or risk-based concentration limits in various environmental media for hazardous substances and contaminants. Concentration limits provide protective cleanup levels or may be used as a basis for estimating appropriate cleanup levels for the COCs in the designated media. Chemical-specific SCGs may be used to determine treatment system discharge requirements or disposal restrictions for remedial activities and/or to assess the effectiveness or suitability of a remedial alternative. Chemical-specific SCGs are generally promulgated standards or other ARARs. Applicable or relevant and appropriate guidance values may be appropriate where a promulgated standard for a particular substance is not available.

Potential chemical-specific SCGs which may apply to soil, groundwater, and air at the Site are described in the subsections which follow.

7.1.1.1.1 GROUNDWATER

For the purpose of the FS, Site groundwater will be considered Class GA. Class GA groundwater pertains to fresh groundwater found in the saturated zone of unconsolidated deposits and bedrock. The best usage of Class GA groundwater is a source of potable water supply. However, Site groundwater is not used as a drinking water source. The NYS water quality standards and guidance values for Class GA groundwater are stipulated in:

i) New York Water Classifications and Quality Standards (6NYCRR Parts 609, and 700-704); and

ii) TOGS 1.1.1, Ambient Water Quality Standards and Guidance Values dated October 22, 1993 (reissued June 1998).

The Class GA groundwater SCGs for the chemical compounds detected in Site groundwater are presented in Table 7.1. The standards presented in Table 7.1 represent the most stringent of those published in the above-referenced documents.

7.1.1.1.2 SOILS

Potential chemical-specific SCGs for soils consist of soil cleanup objectives as presented in TAGM 4046. The cleanup objectives listed in TAGM 4046 are guidance values (non-promulgated values) only. However, these objectives may be utilized as a To-Be-Considered (TBC), as defined by USEPA guidance. The NYSDEC soil cleanup objectives for the chemical compounds detected in Site soils are presented in Table 7.2.

7.1.1.1.3 AIR

While it has been demonstrated that the concentrations of COCs in indoor air in on-Site or nearby residential or industrial/commercial buildings are not of concern, remedial activities may impact air quality. The area in which the Site is located is classified as Level III (densely populated, primarily commercial office buildings, department stores, and light industries).

The air SCGs for the constituents detected in Site soil and groundwater are presented in Table 7.3.

7.1.1.2 ACTION-SPECIFIC SCGs

Action-specific SCGs are determined by the particular remedial activities that are selected for the Site cleanup. Action-specific requirements establish controls or restrictions on the design, implementation, and performance of remedial activities. Following the development of the remedial alternatives, action-specific SCGs that specify performance levels, actions, technologies, or specific levels for discharged or residual chemicals provide a means for assessing the feasibility and effectiveness of the remedial activities.

The action-specific SCGs which may be applicable to potential Site remedial technologies are presented in Table 7.4.

7.1.1.3 LOCATION-SPECIFIC SCGs

Potential location-specific SCGs are requirements that set restrictions on activities depending on the physical and environmental characteristics of the Site or its immediate surroundings.

The Site is bounded by commercial and residential properties. Municipal utilities, particularly a combined sewer system, are also present along the boundaries of the Site. The natural resource field and recovery survey presented in Appendix C has demonstrated that there are no identified rare, threatened or endangered species, habitats of concern, or freshwater wetlands within a one-half mile radius of the Site. However, portions of Cazenovia Creek classified as Classes B and C are located within one-half mile of the Site. Potential location-specific SCGs are listed in Table 7.5.

7.2 REMEDIAL ACTION GOALS AND OBJECTIVES

7.2.1 REMEDIAL ACTION GOALS

The primary goals of any remedial action are that:

i) it be protective of human health and the environment;
ii) it maintains protection over time; and
iii) it minimizes untreated waste (National Oil and Hazardous Substances Contingency Plan [NCP]).

The remedy selection process will be performed in a manner consistent with the NYSDEC approved SRI/FS Documentation Work Plan, the USEPA guidance document "Guidance for Conducting Remedial Investigations and Feasibility Studies under CERCLA" dated October 1988 (USEPA Guidance), NYSDEC "TAGM HWR-90-4030: Selection of Remedial Actions at Inactive Hazardous Waste Sites" dated May 15, 1990 (NYSDEC TAGM), and any other appropriate USEPA and Department technical and administrative documents.

7.2.2 REMEDIAL ACTION OBJECTIVES

The USEPA Guidance states "*Remedial action objectives consist of medium-specific or operable-unit specific goals for protecting human health and the environment. The objectives should be as specific as possible but not so specific that the range of alternatives that can be developed is unduly limited*". RAOs established for the protection of human health and the environment should specify:

i) the contaminants and media of concern;
ii) the exposure routes and receptors; and
iii) an acceptable contaminant level or range of levels for each exposure route.

The results of the SI indicate that neither air nor surface water are media of concern. Therefore, the remedial actions evaluated for the Site address on-Site soil and groundwater impacted by COCs. In addition, where applicable, evaluation of remedial alternatives will consider the potential effect on concentrations of COCs in the ambient air.

Based on the results of the Site investigations, the following RAOs have been established:

i) to remove the on-Site continuing source of VOCs to groundwater;

ii) to prevent exposure of human receptors to on-Site contaminated soil and/or groundwater;

iii) to restore on-Site contaminated groundwater to the maximum extent practicable, for future use consistent with the intended land use and to contaminant concentrations that will not result in exceedances of potential or applicable SCGs;

iv) to monitor the groundwater in a manner to verify the effectiveness of the remedial actions;

v) to prevent or mitigate, to the maximum extent practicable, the migration of contaminated groundwater to off-Site areas;

vi) to insure that off-Site groundwater impacted by activities attributable to the Site is monitored and addressed as necessary to be protective of public health and the environment; and

vii) to minimize future Site restrictions, to the maximum extent practicable, in order to allow for potential unimpeded future use of the Site.

7.3 GENERAL RESPONSEACTIONS AND IDENTIFICATION OF REMEDIAL TECHNOLOGIES

General response actions are remedial approaches which encompass those actions that will satisfy the RAOs. General response actions may include treatment, containment, excavation, extraction, disposal, institutional controls, or a combination of these, if required, to address varied Site environmental problems and to be effective in meeting all of the RAOs. The general response actions evaluated for each media at the Site are described in the following subsections and listed in Table 7.6. The specific remedial technologies considered for the general response actions are also listed in Table 7.6.

7.3.1 NO ACTION

The no action response is primarily used as a basis for comparison with other alternatives. Under the no action response, no measures are taken to improve environmental conditions at the Site. This response does not reduce the volume, mobility or toxicity of the hazardous constituents of the Site media. Groundwater monitoring may be conducted, as appropriate.

7.3.2 INSTITUTIONAL CONTROL

The institutional control response is not intended to reduce the toxicity, mobility or volume of hazardous site constituents but to reduce the potential of human and wildlife exposure to those constituents. Options may include implementation of a long-term groundwater monitoring program to track contaminant migration and transport and/or initiation of institutional controls to restrict or limit the use of the Site or the contaminated media until such time that it is restored to acceptable quality as determined by NYSDEC.

7.3.3 CONTAINMENT TECHNOLOGIES

Containment technologies include physical and hydraulic containment. The containment response does not reduce the volume or toxicity of the contaminants in the Site media. The purpose of this response is to reduce contaminant mobility, and in doing so, minimize exposure and reduce potential hazards at the Site. Periodic monitoring is necessary following implementation of the containment response to determine its effectiveness and evaluate the need for further action.

Soil containment technologies are physical containment technologies. The soil containment technology identified as potentially applicable to the Site is the use of a surface barrier (cap) to prevent exposure to soil contaminants at the surface of the Site.

Groundwater containment technologies include both physical and hydraulic containment technologies. Physical barriers for containment of groundwater at the Site include subsurface vertical barriers to control groundwater migration, and impermeable or low permeability surface barriers to control surface water infiltration. Containment of contaminated groundwater may also be achieved through the operation of collection systems (i.e., extraction wells or collection trenches).

7.3.4 COLLECTION TECHNOLOGIES

Collection technologies reduce the mass of contaminants present to a greater or lesser degree, dependent on the aggressiveness of the collection effort. Use of the collection technologies reduces the mobility and toxicity of Site contaminants by removal and disposition at a secure location. These technologies provide no treatment of contaminated media but may be used in conjunction with a disposal and/or treatment option to meet the Site-specific goals and objectives.

The soil collection technology identified as potentially applicable to the Site is the excavation of impacted soils. This technology is necessary for implementation of ex situ treatment and/or disposal alternatives.

The groundwater collection technology identified as potentially applicable to the Site utilizes extraction wells or a collection trench. A collection trench is generally most effective at shallow depths and in highly permeable soils, and when a low permeability confining lower layer of soil exists. Under these conditions, a collection trench would be installed at the surface of the confining layer where the most effective hydraulic influence could be created. Although extraction wells are sometimes used for shallow groundwater removal, they are typically used in deeper overburden and bedrock installations when collection trench installations are considered unfeasible.

7.3.5 TREATMENT TECHNOLOGIES

The purpose of a treatment technology, when used alone or in conjunction with a collection technology, is to reduce the volume, toxicity and/or mobility of Site contaminants. Remedial treatment technologies include biological, physical, chemical, and thermal processes or some combination of those processes (e.g., physical/thermal treatment).

The soil treatment options identified as potentially applicable to the Site include biodegradation, thermal desorption, incineration, oxidation, vacuum extraction of soil vapor, and bioventing.

The groundwater treatment technologies identified as potentially applicable to the Site include activated carbon treatment, air stripping, chemical oxidation, biodegradation, and air sparging.

7.3.6 DISPOSAL

Disposal technologies involve off-Site or on-Site disposal of contaminated media or products of treatment processes. Disposal technologies do not usually involve reduction of contaminant volume or toxicity, but are primarily intended to reduce contaminant mobility. Off-Site disposal options include disposal at a permitted treatment, storage, and disposal facility (TSDF). Off-Site disposal options normally involve transportation of the waste to the TSDF, which, depending on the proximity of the TSDF, may result in very high capital costs.

On-Site soil disposal options include use of excavated, treated soils as excavation backfill. On-Site treated water disposal options include municipal sewer discharge and injection.

7.4 INITIAL SCREENING OF REMEDIAL TECHNOLOGIES

This section presents the screening of the remedial technologies assembled to address the general response actions presented in Section 7.3 and listed in Table 7.6. The technologies and process options screened represent those reasonably expected to achieve the RAOs.

The screening of remedial technologies and process options is designed to determine their applicability to the Site and eliminate those technologies that technically cannot be implemented. The results of the initial screening of remedial technologies and process options are shown in Table 7.7.

7.5 DEVELOPMENT ANDSCREENING OF REMEDIAL ALTERNATIVES

The remedial technologies and process options which were retained following the initial screening described in Section 7.4 have been assembled into the following sets of soil and groundwater remedial alternatives.

Soil

1. No Action.
2. Institutional Controls.
3. Containment.
4. Collection and Treatment.
5. In Situ Treatment.

Groundwater

1. No Action.
2. Institutional Controls and Monitoring.

3. Collection and On-Site Treatment.
4. In Situ Treatment.

Sufficient information was gathered to allow for the screening of the alternatives based on two screening criteria: effectiveness and implementability. Consistent with the NYSDEC TAGM, cost was not considered in this preliminary screening step. The screening criteria are defined as follows:

Effectiveness: Effectiveness addresses the ability for an alternative to satisfy RAOs and contribute substantially to the protection of public health, welfare, and the environment. For the Site, this means alternatives which remediate soil and groundwater containing COCs to the maximum extent practicable. The ability of an alternative to accomplish short- and long-term effectiveness and a reduction in toxicity, mobility, and volume of contaminants is evaluated. Each alternative was rated in its ability to meet SCGs and the RAOs.

Implementability: Implementability addresses the ability for an alternative to be constructed in a reasonable time frame using accepted technologies (and addresses practical considerations). The technical feasibility to construct and reliably operate a remedy was evaluated, and each alternative was rated as either readily implemented, implemented with moderate concerns addressed, or difficult to implement.

The screening of the identified remedial alternatives and the associated process options for soil and groundwater are presented in Tables 7.8 through 7.11.

7.6 RETAINED REMEDIAL ALTERNATIVES

The screening of the remedial alternatives performed in Section 7.5 using the established criteria of effectiveness and implementability has resulted in the development of the remedial alternatives listed in the following subsections. These alternatives are analyzed in detail in Section 7.7 using the evaluation criteria established in the NCP and guidance documents.

7.6.1 SOIL

1. Alternative 1: No Action.
2. Alternative 2: Impermeable Cover and Institutional Controls.

3. Alternative 3: Excavation and Off-Site Disposal of SVOC-Contaminated Soil and In Situ Chemical Oxidation of VOC-Contaminated Soil.
4. Alternative 4: Excavation and Off-Site Disposal of SVOC-Contaminated and VOC-Contaminated Soils.

These four alternatives are analyzed in detail in Section 7.7.2 using the evaluation criteria established in the NCP and guidance documents.

7.6.2 GROUNDWATER

1. Alternative 1: No Action.
2. Alternative 2: Institutional Controls and Monitoring.
3. Alternative 3: Groundwater Collection with On-Site Pre-Treatment and off-Site Disposal at POTW.
4. Alternative 4: In Situ Chemical Oxidation.

Alternatives 3 and 4 additionally would include groundwater monitoring. Alternative 3 would also involve implementation of institutional controls.

These four alternatives are analyzed in detail in Section 7.7.3 using the evaluation criteria established in the NCP and guidance documents.

7.7 DETAILED ANALYSIS OF RETAINED REMEDIAL ALTERNATIVES

7.7.1 GENERAL

Remedial alternatives for both on-Site soil and groundwater were developed in Section 7.6 for possible application at the Site. These alternatives are subject to a detailed analysis using the nine evaluation criteria developed by USEPA as presented in the USEPA Guidance. The nine evaluation criteria are as follows:

i) overall protection of human health and the environment;
ii) compliance with ARARs/SCGs;
iii) long-term effectiveness and permanence;
iv) reduction of toxicity, mobility or volume;
v) short-term effectiveness;

vi) implementability;

vii) cost;

viii) State acceptance; and

ix) community acceptance.

The criteria of State acceptance and community acceptance cannot be evaluated at the feasibility study stage because they are based upon agency and public comments regarding the FS report. Consequently, no further discussion of these two criteria is provided.

The remaining seven evaluation criteria are divided into two primary groups, namely threshold criteria and balancing criteria.

The threshold criteria include overall protection of human health and the environment, and compliance with applicable SCGs. With the exception of the No Further Action alternative, all remedial alternatives must meet the threshold criteria to be eligible for further consideration.

The remaining five evaluation criteria are considered the balancing criteria. Each of the remedial alternatives is assessed and analyzed on a comparative basis using these evaluation criteria. Ultimately, a remedial action plan is proposed that incorporates the alternative which provides the best solution with respect to the balancing criteria.

The detailed analysis of retained alternatives has been performed in a manner consistent with the NYSDEC TAGM and USEPA Guidance. The analyses are described in detail in the following subsections. Backup information for the cost estimates is presented in Appendix J.

7.7.2 RETAINED ALTERNATIVES SOIL

7.7.2.1 ALTERNATIVE1 - NO ACTION

7.7.2.1.1 DESCRIPTION

The No Action alternative (Alternative 1) provides no active remedial measures to improve the environmental conditions at the Site. Natural degradation would reduce COC concentrations in soil over the long term. No remedial actions, institutional controls, or monitoring would be conducted.

7.7.2.1.2 ASSESSMENT

Overall Protection of Human Health and the Environment: Because no additional remedial measures are implemented with Alternative 1, the potential future risk to human health and the environment would not be reduced beyond that which would be achieved through natural degradation processes (biodegradation and natural physical processes such as volatilization).

As the apparent source of VOCs in groundwater at the Site is the presence of VOCs in Site soils, Alternative 1 will not be protective of human health and the environment in the future if Site groundwater is used as a water supply source or if the future land use of the Site is not controlled. This alternative will not achieve the RAOs.

Compliance with SCGs: Alternative 1 would not achieve the chemical-specific SCGs which apply to soils. Since no remedial action would be implemented, no action-specific SCGs apply to Alternative 1. The potentially applicable location-specific SCG for this alternative is the City of Buffalo zoning ordinances.

Reduction of Toxicity, Mobility, or Volume: Alternative 1 provides no active reduction of toxicity, mobility, or volume of the COCs. However, over the long term, the volume and toxicity of COCs in soil would be reduced by natural degradation processes.

Short-Term Effectiveness: Alternative 1 requires no remedial actions. Therefore, there would be no additional short-term risks posed to the community, the workers, or the environment as a result of the implementation of this alternative.

Long-Term Effectiveness and Permanence: Because this alternative would not result in any further remedial actions, the residual risks would not be reduced beyond that which would be achieved through natural degradation processes. RAOs would not be met by Alternative 1, and a permanent remedy would not be provided.

Implementability: Because there are no remedial actions being undertaken, the implementability criterion is not applicable.

Cost: Because there are no remedial actions, institutional controls, or monitoring being undertaken, there are no costs associated with Alternative 1. The cost summary is presented in Table 7.12.

7.7.2.2 ALTERNATIVE2 - IMPERMEABLE COVR AND INSTITUTIONAL CONTROLS

7.7.2.2.1 DESCRIPTION

Alternative 2, Impermeable Cover and Institutional Controls, includes:

i) construction of an impermeable cover (cap) over surficial and subsurface on-Site soils containing VOCs and SVOCs at concentrations exceeding SCGs; and

ii) implementation of institutional controls to restrict exposure to contaminated soil.

To be consistent with the anticipated future commercial use of the Site, the impermeable cover would consist of a binder coarse layer and top coarse layer of asphalt pavement. In areas where the existing asphalt has good integrity, it may be necessary to only seal minor cracks or add a single layer of top coarse asphalt. At other localized areas currently covered with grass, a binder coarse layer and top coarse layer of asphalt would be constructed; this may require limited excavation and off-Site disposal of topsoil in order to maintain grades. A long-term operation and maintenance (O&M) program, comprising periodic inspections and routine maintenance activities, would be implemented to maintain the long-term integrity of the asphalt cover.

Under this alternative, a Deed Restriction or Record Notice would be added as an addendum to an existing deed for the Site. The deed restriction would inform the property owner of the Site history and restricted land / groundwater use on the property and require the owner to obtain regulatory approvals before conducting subsurface construction activities that may disturb impacted soils. Any future conveyance of the property would be subject to these restrictions. The restriction or restrictive covenants must be drafted in accordance with applicable and relevant State and municipal legal codes to be enforceable.

In view of these institutional controls, additional zoning restrictions are believed to be unnecessary at the Site.

7.7.2.2.2 ASSESSMENT

Overall Protection of Human Health and the Environment: Alternative 2 would be protective of human health by preventing potential exposure to contaminated soils. Additionally, while the apparent on-Site source of VOCs to groundwater would not be removed, Alternative 2 would be protective of the environment by mitigating the future potential transport of COCs to groundwater and off-Site groundwater areas as a result of reduced infiltration of precipitation through contaminated soils.

Therefore, Alternative 2 would achieve some of the RAOs.

Compliance with SCGs: Alternative 2 would not achieve the chemical-specific SCGs which apply to soils.

The potentially applicable action-specific SCGs for this alternative are those listed in Table 7.4 under the following headings:

- Capping;
- Construction of New Landfill on Site;
- Excavation;
- Surface Water Control;
- Waste Pile;
- Closure with Waste in Place; and
- Treatment in a unit.

These SCGs would be satisfied by Alternative 2.

The potentially applicable location-specific SCG for this alternative is the City of Buffalo zoning ordinances.

Reduction of Toxicity, Mobility, or Volume: Alternative 2 provides no active reduction of toxicity, mobility, or volume of the COCs. However, over the long term, the volume and toxicity of COCs in soil would be reduced by natural degradation processes.

Short-Term Effectiveness: The impermeable cover would be constructed using standard techniques. Short-term hazards to workers would be mitigated through proper work and health and safety procedures. The short-term effectiveness of Alternative 2 would be almost immediate upon completion of the impermeable cover construction, since exposure of human receptors to on-Site contaminated soil would immediately be prevented. No additional short-term risks would be posed to the community or the environment.

Long-Term Effectiveness and Permanence: The institutional controls to be established for Alternative 2 and implementation of a long-term O&M Program would make this alternative effective in the long term. Over the long term, the incremental risk attributable to the Site would be reduced as a result of natural degradation processes of COCs in the soil. For institutional controls to be effective in the long term, they must be enforced.

Implementability: Alternative 2 is readily implementable at the Site.

Cost: The estimated 30-year present worth cost for Alternative 2, given the estimated frequency of periodic repairs every 5 years; asphalt replacement every 15 years; and annual inspections of the asphalt pavement covers, is $87,000. The cost summary is presented in Table 7.13. The costs of this alternative are associated with costs for the asphalt pavement cover, engineering, O&M inspections and reporting, O&M repairs, and implementation of deed restrictions.

7.7.2.3 ALTERNATIVE 3 - EXCAVATION AND OFF-SITE DISPOSAL OF SVOC-CONTAMINATED SOILS AND IN SITU CHEMICAL OXIDATION OF VOC-CONTAMINATED SOILS

7.7.2.3.1 DESCRIPTION

Alternative 3 includes:

i) excavation of on-Site soils containing SVOCs at concentrations exceeding SCGs, and off-Site disposal of the excavated soils at a permitted landfill; and

ii) in situ chemical oxidation of on-Site soils containing VOCs at concentrations exceeding SCGs.

All excavation activities would be conducted in compliance with applicable Occupational Safety and Health Administration (OSHA) standards. SVOC-contaminated soils would be excavated to the water table. Excavated soil likely would be removed from Site concurrently with the excavation activities.

Following completion of excavation activities, the excavation would be backfilled with clean imported structural fill and compacted, then the surface would be restored with asphalt pavement and grass consistent with existing surface characteristics.

In situ chemical oxidation of VOC-contaminated soil would be conducted by injecting potassium permanganate ($KMnO_4$) or another appropriate oxidizer into the soil above the water table. Injection would be accomplished through pushpoints or other temporary screened installations in a grid pattern at varying depths to provide appropriate coverage of the VOC-contaminated soil. The grid spacing, injection depths, type, and quantity of oxidizer would be determined based on bench scale and/or pilot scale testing to be conducted. The types of by-products produced by the chemical oxidation process also would be evaluated during selection of the type and quantity of oxidizer to be used to confirm there would be no adverse impacts to the environment caused by the oxidation process. For evaluating cost in this FS, it has been assumed that $KMnO_4$ will be the oxidizer of choice and that treatment will be completed in one injection event.

7.7.2.3.2 ASSESSMENT

Overall Protection of Human Health and the Environment: Alternative 3 would be protective of human health through the removal of SVOC-contaminated soils from the Site and treatment of VOC-contaminated soil to acceptable levels. During the removal and treatment processes proper work and health and safety procedures would be implemented to prevent the exposure of humans to contaminated soil until the SCGs are achieved.

Alternative 3 would be protective of the environment by removing the on-Site source of SVOCs and VOCs to groundwater.

Compliance with SCGs: Alternative 3 would achieve the chemical-specific SCGs which apply to soils.

The potentially applicable action-specific SCGs for this alternative are those listed in Table 7.4 under the following headings:

- Container Storage;
- Excavation;
- Incineration Off Site;
- Placement of Waste in Land Disposal Unit;
- Surface Water Control;
- Waste Pile;

- Closure with Waste in Place;
- Transporting Hazardous Waste Off Site; and
- Treatment in a unit.

These SCGs would be satisfied by Alternative 3.

There are no potentially applicable location-specific SCG for this alternative.

Reduction of Toxicity, Mobility, or Volume: Alternative 3 would eliminate or greatly reduce the toxicity, mobility, and volume of the COCs.

Short-Term Effectiveness: Short-term hazards to workers would be mitigated through proper work and health and safety procedures. The short-term effectiveness of Alternative 3 would be immediate upon completion of the SVOC soil removal and VOC soil oxidation.

Long-Term Effectiveness and Permanence: The excavation and off-Site disposal of SVOC-contaminated soils and in situ oxidation of VOC-contaminated soils would provide a long-term remedy through the removal or destruction of the COCs and restoration of the Site soils to acceptable quality. Once the chemical-specific SCGs are achieved, there is no potential for recurring presence of COCs in Site soils.

Implementability: The implementability of Alternative 3 is largely contingent upon the ability to adequately distribute the chemical oxidant to the area of VOC-contaminated soil where SCGs are exceeded. The implementability of Alternative 3 is of some concern due to the silt and clay soils in the area where VOC-contaminated soil would need to be treated.

Cost: The estimated capital cost for Alternative 3 is $199,000. The cost summary is presented in Table 7.14. The costs of this alternative are associated with excavation and off-Site disposal of SVOC-contaminated soil, in situ treatment of VOC-contaminated soil, and engineering.

7.7.2.4 ALTERNATIVE 4 - EXCAVATION AND OFF-SITE DISPOSAL OF IMPACTED SOILS

7.7.2.4.1 DESCRIPTION

Alternative 4 includes excavation of Site soils contaminated with SVOCs and VOCs at concentrations exceeding SCGs. All excavated soils containing SVOCs and soils containing VOCs at concentrations exceeding the cleanup criteria would be disposed off-Site at a permitted landfill. Soils exhibiting VOC or SVOC concentrations lower than the criteria would be used as backfill in the completed excavation.

All excavation activities would be conducted in compliance with applicable OSHA standards. SVOC- and VOC-contaminated soils would be excavated to the water table. Excavated soil likely would be removed from Site concurrently with the excavation activities.

Following completion of excavation activities, the excavation would be backfilled with clean imported structural fill and compacted, then the surface would be restored with asphalt pavement and grass consistent with existing surface characteristics.

7.7.2.4.2 ASSESSMENT

Overall Protection of Human Health and the Environment: Alternative 4 would be protective of human health through the removal of SVOC- and VOC-contaminated soils from the Site. During the excavation and removal process, proper work and health and safety procedures would be implemented to prevent the exposure of humans to contaminated soil until the SCGs are achieved.

Alternative 4 would be protective of the environment by removal of the on-Site sources of SVOCs and VOCs to groundwater.

Compliance with SCGs: Alternative 4 would achieve the chemical-specific SCGs which apply to soils.

The potentially applicable action-specific SCGs for this alternative are those listed in Table 7.4 under the following headings:

- Container Storage;
- Excavation;

- Incineration Off Site;
- Placement of Waste in Land Disposal Unit;
- Surface Water Control;
- Waste Pile; and
- Transporting Hazardous Waste Off Site.

These SCGs would be satisfied by Alternative 4.

No location-specific SCGs would be applicable to this alternative.

Reduction of Toxicity, Mobility, or Volume: Alternative 4 would eliminate the toxicity, mobility, and volume of the COCs.

Short-Term Effectiveness: Short-term hazards to workers would be mitigated through proper work and health and safety procedures. The short-term effectiveness of Alternative 4 would be immediate upon completion of the SVOC- and VOC-contaminated soil removal.

Long-Term Effectiveness and Permanence: The excavation and off-Site disposal of SVOC- and VOC-contaminated soils would provide a long-term remedy through the removal of the COCs and restoration of the Site soils to acceptable quality. Once the chemical-specific SCGs are achieved, there is no potential for recurring presence of COCs in Site soils.

Implementability: Alternative 4 is readily implementable at the Site.

Cost: The estimated capital cost for Alternative 4 is $210,000. The cost summary is presented in Table 7.15. The costs of this alternative are associated with excavation and off-Site disposal of SVOC- and VOC-contaminated soils and engineering.

7.7.3 COMPARATIVE ANALYSIS OF SOIL REMEDIAL ALTERNATIVES

The purpose of the comparative analysis is to identify the relative advantages and disadvantages of each alternative evaluated in detail in the previous section. The detailed evaluation presented in Section 7.7.2 evaluated each remedial alternative independently without any consideration for the other alternatives. The comparison of remedial alternatives in this section will evaluate the relative performance of each alternative with respect to the detailed evaluation criteria: overall protection of human health and the environment, compliance with SCGs, short-term effectiveness, long-term effectiveness and permanence, reduction of toxicity, mobility, and volume, implementability, and cost.

Discussions of the relative advantages and disadvantages of the alternatives are presented in the following subsections. Table 7.16 presents a ranking of each alternatives.

7.7.3.1 OVERALL PROTECTION OF HUMAN HEALTH AND THE ENVIRONMENT

Alternative 1, No Action, provides no protection to human health or the environment beyond that which will be achieved through natural degradation of the COCs.

Alternative 2, Impermeable Cover and Institutional Controls, will provide a measure of protection of human health through the prevention of incidental contact with impacted soils and protective of the environment by mitigating future transport of COCs to groundwater.

Alternative 3, Excavation and Off-Site Disposal of SVOC-Contaminated Soils and In Situ Chemical Oxidation of VOC-Contaminated Soils, will provide protection to human health and the environment through the removal or treatment of impacted soils to acceptable levels. This alternative will eliminate both the potential for direct contact with impacted soils and the potential for future transport of chemicals to groundwater.

Alternative 4, Excavation and Off-Site Disposal of Impacted Soils, will provide protection to human health and the environment through the removal of COCs in impacted soils to acceptable levels. This alternative will eliminate both the potential for direct contact with impacted soils and the potential for future transport of chemicals to groundwater.

Alternatives 3 and 4 provide the same level of protection of the environment; however, the protective level will be achieved in shorter time with Alternative 4. Once the removal or treatment of contaminated soils to meet the chemical-specific SCGs is complete, there would be no potential risk to human health or the environment from on-Site soil.

7.7.3.2 COMPLIANCE WITH SCG

Neither Alternatives 1 or 2 will comply with the chemical-specific SCGs.

Alternatives 3 and 4 will both comply with the chemical-specific SCGs.

Alternative 4 will comply with the chemical-specific SCGs in the shortest time frame, as applicable standards would be achieved immediately following completion of excavation activities.

All alternatives will comply with applicable action-specific SCGs.

A potentially applicable location-specific SCG for Alternatives 1 and 2 is the City of Buffalo zoning ordinances.

7.7.3.3 REDUCTION OF TOXICITY, MOBILITY, AND VOLUME

Neither of Alternatives 1 or 2 will reduce the toxicity, mobility or volume of the COCs in soil beyond that which will be achieved through natural degradation.

Alternative 3 will reduce toxicity and volume of VOCs through oxidation. Alternative 4 will reduce mobility of impacted soils but will not effect toxicity or volume. While it is known that in situ treatment can effectively reduce or eliminate VOC presence in Site soil, there is a degree of uncertainty as to the extent and duration of treatment required. Alternative 4 has less uncertainty and will accomplish the intended goal in the shortest time.

7.7.3.4 SHORT-TERM EFFECTIVENESS

No risk to the community, workers, or the environment would be presented by the implementation of Alternative 1.

Only minimal risk to the community, workers, or the environment would be presented by Alternative 2, in the event that removal of topsoil may expose SVOC-contaminated soil in localized areas. Short-term hazards to workers and the community would be mitigated through proper work and health and safety procedures.

Low potential risk would be associated with Alternatives 3 and 4, primarily during the excavation of contaminated soils. Short-term hazards to workers would be mitigated through proper work and health and safety procedures to present little or no risk.

While still low, the highest risk to community, workers, or the environment would be presented by Alternative 4, due to the excavation of VOC-contaminated soils. Proper work and health and safety procedures will minimize these potential risks.

7.7.3.5 LONG-TERM EFFECTIVENESS AND PERMANENCE

There is no additional long-term effectiveness of Alternative 1 over what will be provided by natural degradation processes.

Alternative 2 would provide effectiveness and permanence in the prevention of exposure of human receptors to contaminated soil, and mitigating the migration of contaminated groundwater by reducing infiltration of precipitation through contaminated soils. Alternatives 3 and 4 would provide effectiveness and permanence through the removal or destruction of the COCs and restoration of Site soils to acceptable quality. The RAOs would be achieved by Alternatives 2, 3, and 4, however, Alternative 4 would achieve its effectiveness in the shortest period of time.

7.7.3.6 IMPLEMENTABILITY

All alternatives are implementable. Alternative 1 is the most easily implemented since there would be no on-Site work involved. Alternative 2 would be easily implemented since no subsurface activities would be conducted.

Alternatives 3 and 4 entail similar field activities; however, Alternative 4 is somewhat more implementable since only one technology is involved. Access to injection points which could interfere with Site use may need to be maintained in Alternative 3. In addition, the uncertainties associated with Alternative 3 (i.e., the effectiveness of the treatment) make this alternative more difficult to implement.

7.7.3.7 COST

The cost associated with the implementation of the remedial alternatives is lowest for Alternative 1, No Action ($0) and increases successively for Alternatives 2 through 4.

The net present worth costs for Alternatives 2, 3, and 4 are $87,000, $199,000, and $210,000, respectively. The cost of Alternative 3 is dependent upon the effectiveness of the in situ treatment and would increase if SCGs are not achieved after one treatment event (each additional injection event is estimated to cost $30,000).

7.7.4 RETAINED ALTERNATIVES GROUNDWATER

7.7.4.1 ALTERNATIVE 1 - NO ACTION

7.7.4.1.1 DESCRIPTION

The No Further Action alternative (Alternative 1) provides no active remedial measures to improve the environmental conditions at the Site. Natural attenuation and biodegradation would reduce COC concentrations in groundwater over the long term. No remedial actions, institutional controls, or monitoring would be conducted.

7.7.4.1.2 ASSESSMENT

Overall Protection of Human Health and the Environment: Because no additional remedial measures are implemented with Alternative 1, the potential future risk to human health and the environment would not be reduced beyond that which will be achieved through natural attenuation and as an indirect result of the remedial action implemented to address on-Site soils.

Alternative 1 will not be protective of human health and the environment in the future if Site groundwater is used as a water supply source or if the future land use of the Site is not controlled. This alternative will not achieve the RAOs.

Compliance with SCGs: Alternative 1 would not achieve the chemical-specific SCGs which apply to groundwater. Since no remedial action would be implemented, no action-specific SCGs apply to Alternative 1. The potentially applicable location-specific SCG for this alternative is the City of Buffalo zoning ordinances.

Reduction of Toxicity, Mobility, or Volume: Alternative 1 provides no active reduction of toxicity, mobility, or volume of the COCs. However, over the long term, the volume and toxicity of COCs in groundwater would be reduced through natural attenuation and degradation processes.

Short-Term Effectiveness: Alternative 1 requires no remedial actions. Therefore, there would be no additional short-term risks posed to the community, the workers, or the environment as a result of the implementation of this alternative.

Long-Term Effectiveness and Permanence: Because this alternative would not result in any direct remedial actions, the residual risks would not be reduced beyond that which would be achieved through natural attenuation and as an indirect result of the remedial action implemented to address on-Site soils. RAOs would not be met by Alternative 1, and a permanent remedy would not be provided.

Implementability: Because there are no remedial actions being undertaken, the implementability criterion is not applicable.

Cost: Because there are no remedial actions being undertaken, there are no costs associated with Alternative 1. The cost summary is presented in Table 7.17.

7.7.4.2 ALTERNATIVE 2 - INSTITUTIONAL CONTROLS AND MONITORING

7.7.4.2.1 DESCRIPTION

Alternative 2, Institutional Controls and Monitoring, includes the implementation of institutional controls to restrict exposure to contaminated groundwater and monitoring of groundwater on- and off-Site.

Under this alternative, a Deed Restriction or Record Notice would be added as an addendum to an existing deed for the Site. The deed restriction would inform the property owner of the Site history and restricted land use/groundwater use on the property. Deed restrictions would also require the owner to obtain regulatory approvals before the installation of wells or performance of subsurface construction activities below the water table. Any future conveyance of the property would be subject to these restrictions. The restriction or restrictive covenants would be drafted in accordance with applicable and relevant State and municipal legal codes to be enforceable.

In view of these institutional controls, additional zoning restrictions are believed to be unnecessary at the Site.

Long-term groundwater monitoring would be performed to evaluate the effectiveness of natural attenuation and biodegradation in reducing the concentrations of COCs, and thereby the toxicity and volume, of the COCs. For evaluation purposes, it has been assumed that the groundwater monitoring network will consist of 15 wells including one background monitoring well. A sampling frequency of semi-annually for years 1 through 5 and annually for years 6 through 30 has been assumed. All collected groundwater samples will be analyzed for VOCs.

Groundwater monitoring would also include measurement and evaluation of water table elevations to monitor groundwater flow patterns.

7.7.4.2.2 ASSESSMENT

Overall Protection of Human Health and the Environment: Effective deed restrictions and monitoring would be protective of human health by preventing potential exposure to contaminated groundwater. The potential future risk to the environment using Alternative 2 would not be reduced beyond that which will be achieved through natural attenuation and as an indirect result of the remedial action implemented to address on-Site soils.

Therefore, Alternative 2 would achieve some of the RAOs if the following controls are enacted:

i) property deed restrictions maintained and enforced over the long term to control potential exposure to contaminated groundwater; and

ii) an effective groundwater monitoring program.

Compliance with SCGs: Alternative 2 would not achieve the chemical-specific SCGs which apply to groundwater. Since no remedial action would be implemented, no action-specific SCGs apply to Alternative 2. The potentially applicable location-specific SCGs for this alternative are the City of Buffalo zoning ordinances and Buffalo Sewer Authority discharge limitations.

Reduction of Toxicity, Mobility, or Volume: Alternative 2 provides no active reduction of toxicity, mobility, or volume of the COCs. However, over the long term, the volume and toxicity of COCs in groundwater would be reduced by natural attenuation and degradation processes as well as an indirect result of the remedial action implemented to address on-Site soils.

Short-Term Effectiveness: Alternative 2 requires no remedial actions. Therefore, there would be no additional short-term risks posed to the community, the workers, or the environment as a result of the implementation of this alternative.

Long-Term Effectiveness and Permanence: The institutional controls to be established for Alternative 2 would make this alternative effective in the long term. Groundwater monitoring would be used to assess the natural attenuation processes in the groundwater and subsequently evaluate the potential risk of exposure to contaminated groundwater over time. Over the long term, the incremental risk attributable to the Site would be reduced as a result of natural attenuation processes in the groundwater. For institutional controls to be effective in the long term, they must be enforced.

Implementability: Alternative 2 is readily implementable at the Site.

Cost: The estimated 30-year present worth cost for Alternative 2, given a semi-annual sampling frequency for years 1 through 5 and an annual sampling frequency for years 6 through 30, is $323,000. The cost summary is presented in Table 7.18. The costs of this alternative are associated with long-term monitoring and reporting and implementation of deed restrictions.

7.7.4.3 ALTERNATIVE 3 - GROUNDWATER COLLECTION WITH ON-SITE PRETREATMENT AND OFFSITE DISPOSAL AT POTW

7.7.4.3.1 DESCRIPTION

Alternative 3 includes:

i) institutional controls and monitoring;

ii) groundwater collection using extraction wells or a collection drain;

iii) on-Site groundwater treatment by air stripping or granular activated carbon (GAC); and

iv) discharge of treated water to POTW.

The extraction well or collection drain system would be designed to contain and recover contaminated groundwater. The system would consist of a series of extraction wells or a single collection drain constructed near the western Site boundary adjacent to Kingston Place and Seneca Street. Determination as to the use of extraction wells or a collection drain to collect the groundwater would be made during the predesign phase of the project.

Alternative 3 would include a groundwater quality and hydraulic monitoring program. The monitoring data would be evaluated to ensure that the collection and treatment system can effectively achieve the RAOs. The groundwater monitoring program would include:

i) measurement of water levels in all on-Site and off-Site monitoring wells prior to beginning groundwater sampling in each monitoring event;

ii) collection and analyses of groundwater samples from six on-Site and two off-Site monitoring wells quarterly during years 1 through 5 and semi-annually during years 6 through 10; and

iii) collection and analyses of groundwater samples from 15 on-Site and off-Site monitoring wells annually in years 1 through 30.

Additionally, samples of collected groundwater prior to and following on-Site treatment would be collected and analyzed and periodic reporting and evaluation of the system effectiveness would be conducted. The collection and treatment system would be evaluated by the following criteria:

i) the maintenance of a hydraulic gradient towards the groundwater collection system; and

ii) a decrease in the concentrations of the COCs in the groundwater within the plume.

During the first 5 years of operation of the collection and treatment system, the effectiveness of the system will be evaluated annually and modifications (for example, the addition of extraction wells) may be made as appropriate to achieve hydraulic containment. After the collection of a maximum of 5 years of monitoring and operating data, an evaluation will be performed to determine if the extraction system can achieve the groundwater RAOs. If it is determined that the system cannot meet the groundwater RAOs, then a contingent alternative may be considered.

Potential human exposure to contaminated groundwater during operation of the collection and treatment system would be controlled by implementing institutional controls. This alternative would require the institutional controls to be maintained until the RAOs were achieved.

7.7.4.3.2 ASSESSMENT

Overall Protection of Human Health and the Environment: Alternative 3 would be protective of human health through the hydraulic containment, collection and treatment of contaminated groundwater and through institutional controls.

Alternative 3 would be protective of the environment by mitigating the future potential transport of COCs to off-Site groundwater and the storm sewer on Kingston Place.

Compliance with SCGs: Alternative 3 would achieve the chemical-specific SCGs which apply to groundwater.

The potentially applicable action-specific SCGs for this alternative are those listed in Table 7.4 under the following headings:

- Container Storage;
- Discharge of Treatment System Effluent;
- Land Treatment;
- Surface Water Control;
- Treatment (in a unit);
- Closure of Land Treatment Units; and
- Transporting Hazardous Waste Off Site.

These SCGs would be satisfied by Alternative 3.

The potentially applicable location-specific SCGs for this alternative are the City of Buffalo building codes and zoning ordinances and Buffalo Sewer Authority discharge limitations.

Reduction of Toxicity, Mobility, and Volume: Alternative 3 would result in the active reduction of toxicity, mobility, and volume of the COCs in Site groundwater:

i) toxicity of the COCs would be reduced through the on-Site and off-Site treatment of collected groundwater;

ii) mobility would be reduced through the maintenance of the hydraulic containment provided by the operation of the extraction wells or collection drain; and

iii) the volume of contaminated groundwater would be reduced by the collection achieved through the operation of the collection system.

Short-Term Effectiveness: Groundwater extraction wells or the collection drain would be constructed using standard drilling or construction techniques, respectively. Short-term hazards to workers would be mitigated through proper work and health and safety procedures. The short-term effectiveness of Alternative 3 would be almost immediately upon startup of the on-Site treatment system as a result of the near-immediate commencement of reduction of the toxicity, mobility, and volume of the COC plume. No additional short-term risks would be posed to the community or the environment.

Long-Term Effectiveness and Permanence: The groundwater collection system would provide long-term hydraulic containment of potentially contaminated groundwater in the shallow overburden aquifer. Groundwater treatment through air stripping or GAC would effectively and permanently remove COCs from the extracted groundwater.

The groundwater monitoring program included in this alternative would provide adequate controls to determine the effectiveness of containment and achievement of the RAOs.

Long-term effectiveness would also be ensured by maintenance of the groundwater remediation system.

Implementability: The implementability of Alternative 3 would be largely contingent upon receipt of approval from the BSA to discharge pre-treated groundwater to the POTW. It is, however, common in groundwater remediation for POTWs to permit such pre-treated discharge to the POTW provided that physical and chemical influent parameters stipulated in a Site-specific permit are achieved.

Extraction well and collection drain systems are common technologies frequently used in groundwater remediation. As such, the collection system could be implemented with demonstrated, available construction materials and techniques.

If it were determined that the initially installed extraction wells or collection drain could not achieve or maintain hydraulic containment, additional extraction wells could be added.

The groundwater treatment systems using air strippers or GAC are common technologies frequently used in groundwater remediation. A predesign study would be conducted to determine the most appropriate and cost-effective pre-treatment system in a long-term operating scenario. Alternative 3 could be constructed within 6 months of its selection as the preferred remedial alternative and is assumed to be operated for a period of 30 years.

Cost: The estimated 30-year present worth cost for Alternative 3 is $2,096,000, as summarized in Table 7.19. The costs of this alternative are associated with construction the groundwater collection and treatment system, operation and maintenance of the collection and treatment system, engineering, and long-term monitoring and reporting.

7.7.4.4 ALTERNATIVE 4 - INSITU CHEMICAL OXIDATION

7.7.4.4.1 DESCRIPTION

Alternative 4 includes:

i) institutional controls;

ii) in situ groundwater treatment by chemical oxidation; and

iii) short-term monitoring to verify the effectiveness of the treatment.

In situ chemical oxidation of the COCs in groundwater would be conducted by injecting $KMnO_4$ or another appropriate oxidizer into the shallow overburden groundwater through pushpoints or other temporary screened installations. The injection network would be installed to allow coverage of the northern area of the Site with the most concentrated number of points in the area(s) of highest PCE concentration. The locations and depths of the injection points, type, and quantity of oxidizer would be determined based on bench scale and/or pilot testing to be conducted. The types of by-products produced by the chemical oxidation process would be evaluated during selection of the type and quantity of oxidizer to be used to confirm there would not be adverse impacts to the environment caused by the oxidation process.

It is estimated that three treatment events over a 1 to 2 year period will be required to oxidize the chemical mass, with groundwater monitoring conducted prior to beginning treatment and between events. The monitoring data would be used to verify the remaining chemical mass, reevaluate the estimates of oxidizer required to complete the restoration of the groundwater, and modify the injection scenario, if necessary.

Groundwater monitoring would be performed on a semi-annual basis for at least 5 years following completion of the in situ oxidation. The monitoring program would consist of the semi-annual collection of samples from six on-Site and two off-Site groundwater wells. The monitoring would be performed to evaluate the effectiveness of the treatment, confirm that the groundwater was permanently restored to acceptable quality. Groundwater monitoring would also include measurement and evaluation of water table elevations to track groundwater flow patterns.

Institutional controls (deed restrictions) to restrict exposure to contaminated groundwater at the Site would be implemented until the effectiveness of the chemical oxidation treatment was confirmed.

7.7.4.4.2 ASSESSMENT

Overall Protection of Human Health and the Environment: Alternative 4 would be protective of human health through the treatment of contaminated groundwater to acceptable levels. During the treatment process proper work and health and safety procedures would be implemented to prevent the exposure of humans to contaminated groundwater until the RAOs are achieved.

Alternative 4 would be protective of the environment by mitigating the future potential transport of COCs to off-Site groundwater.

Compliance with SCGs: Alternative 4 would achieve the chemical-specific SCGs which apply to groundwater.

The potentially applicable action-specific SCGs for this alternative are those listed in Table 7.4 under the following headings:

- Container Storage; and
- Surface Water Control.

These SCGs would be satisfied by Alternative 4.

The potentially applicable location-specific SCGs for this alternative are the City of Buffalo zoning ordinances.

Reduction of Toxicity, Mobility, and Volume: Alternative 4 would result in active reduction in the toxicity of COCs within the on-Site limit of the plume. This alternative would not affect the mobility or volume of groundwater within the plume; however, once the chemical-specific SCGs have been achieved, neither the mobility nor volume of the restored groundwater would be of concern.

Short-Term Effectiveness: Short-term hazards to workers would be mitigated through proper work and health and safety procedures. Mixing and pumping mechanisms would be present on the ground surface during the treatment process; however, all chemicals and solutions would be containerized and no additional short-term risks would be posed to the community, the workers, or the environment.

Long-Term Effectiveness and Permanence: The in situ oxidation of COCs within the on-Site groundwater plume would provide a long-term remedy through the destruction of the COCs and restoration of the on-Site groundwater to acceptable quality. Once the chemical specific SCGs are achieved in the source area, there is no potential for recurring presence of COCs in on-Site groundwater.

The oxidation of chemicals by $KMnO_4$ (or another appropriate oxidizing compound) is essentially immediate upon contact. Therefore, Alternative 4 is expected to achieve the chemical-specific SCGs in a significantly shorter time than Alternative 3. It is assumed that the achievement of the chemical-specific SCGs would be accomplished within 2 years of the commencement of treatment and that the monitoring program would be completed 5 years following the completion of treatment, a total project duration of 7 years.

Implementability: The implementability of Alternative 4 is largely contingent upon the ability to adequately distribute the chemical oxidant within the plume of contaminated groundwater. The implementability of Alternative 4 is of some concern due to the silt and clay fill soils in the northern portion of the Site where the highest concentrations of VOCs in groundwater are present. However, all tasks required to implement the alternative utilize standard procedures and materials.

Cost: The 30-year present worth estimated cost to implement Alternative 4 is $123,000 and is summarized in Table 7.20. The costs of this alternative are associated with chemical oxidation of the on-Site contaminated groundwater plume, engineering, and post-treatment groundwater monitoring to document treatment effectiveness.

7.7.4.5 COMPARATIVE ANALYSES OF GROUNDWATER REMEDIAL ALTERNATIVES

The purpose of the comparative analysis is to identify the relative advantages and disadvantages of each alternative evaluated in detail in the previous section. The detailed evaluation presented in Section 7.7.4 evaluated each remedial alternative independently without any consideration for the other alternatives. The comparison of remedial alternatives in this section will evaluate the relative performance of each with respect to the detailed evaluation criteria: overall protection of human health and the environment, compliance with SCGs, short-term effectiveness, long-term effectiveness and permanence, reduction of toxicity, mobility, and volume, implementability, and cost.

Discussions of the relative advantages and disadvantages of the alternatives are presented in the following subsections. Table 7.21 presents a ranking of each alternatives.

7.7.4.5.1 OVERALL PROTECTION OF HUMAN HEALTH AND THE ENVIRONMENT

Alternative 1, No Action, provides no protection to human health or the environment beyond that which will be achieved through natural attenuation of the COCs.

Alternative 2, Institutional Controls and Monitoring, will provide a measure of protection of human health through the prevention of the use of contaminated groundwater at the Site. Additional protection will be provided through groundwater monitoring which will track changes in VOC concentration and extent. Alternatives 1 and 2 provide the same level of protection of the environment.

Alternative 3, Groundwater Collection with on-Site Pre-Treatment and off-Site Disposal at POTW, will be protective of human health and the environment through the enforcement of institutional controls and through hydraulic containment, collection, and treatment of the contaminated groundwater until the chemical-specific SCGs have been achieved.

Alternative 4, In Situ Chemical Oxidation, provides the highest level of protection to human health and the environment in the shortest time frame. While the treatment is underway, protection of human health will be provided through the enforcement of institutional controls. Once the treatment is complete and groundwater quality meets the chemical-specific SCGs there will be no potential risk to human health or the environment from on-Site groundwater.

7.7.4.6 COMPLIANCE WITH SCG

Neither Alternatives 1 or 2 will comply with the chemical-specific SCGs.

Alternative 3 will comply with the chemical-specific SCGs over time. This compliance will be achieved through the collection of groundwater containing COCs with subsequent treatment of the collected water. Typical for the groundwater collection and treatment technology, the attainment of SCGs through groundwater collection and treatment is expected to take a considerable length of time.

Alternative 4 will comply with the chemical-specific SCGs in the shortest time frame. The effective treatment of the COCs in situ will restore groundwater within the treatment area to quality which meets the applicable standards.

All alternatives will comply with applicable action-specific SCGs, however, treatment of air emissions from the air stripper (if used) in Alternative 3 may be required to comply with air regulations.

City of Buffalo zoning ordinances is a potentially applicable location-specific SCG for all alternatives. Additionally, BSA discharge limitations are potentially applicable to Alternative 2 and are likely applicable to Alternative 3.

7.7.4.7 REDUCTION OF TOXICITY, MOBILITY, AND VOLUME

Neither of Alternatives 1 or 2 will reduce the toxicity, mobility or volume of the COCs in groundwater beyond that which will be achieved through natural attenuation.

Alternative 3 would reduce the mobility of the COCs through the maintenance of hydraulic containment. Alternative 3 will reduce the toxicity and volume of COCs through the treatment of collected groundwater. As the collection system would be located in close proximity to the western Site property boundary, the reduction in toxicity and volume by removing groundwater with the highest concentrations of COCs would be accelerated.

Alternative 4 would permanently destroy the COCs and thereby eliminate toxicity and volume. Through the application of treatment at the Site boundary, mobility of the COC plume would also be controlled.

7.7.4.8 SHORT-TERM EFFECTIVENESS

No risk to the community, workers, or the environment would be presented by the implementation of Alternatives 1 or 2.

Low potential risk would be associated with Alternative 4, during the installation of chemical oxidant in the field, and during treatment effectiveness and post-treatment groundwater monitoring.

While still low, the highest risk to community, workers, or the environment would be presented by Alternative 3. This risk would be due to the potential for spills or leaks of contaminated groundwater in forcemains or in the treatment system. Proper operating and maintenance procedures will minimize these potential risks.

7.7.4.9 LONG-TERM EFFECTIVENESS AND PERMANENCE

The long-term effectiveness and permanence of Alternatives 1 and 2 are minimal.

Alternatives 3 and 4 would provide effectiveness and permanence in the prevention of migration of contaminated groundwater through the collection/and or treatment of the water. RAOs would be achieved by Alternatives 3 and 4; however, Alternative 4 would achieve its effectiveness in the shortest period of time.

7.7.4.10 IMPLEMENTABILITY

All alternatives are implementable. Alternative 1 would be the most easily implemented since there would be no on-Site work involved. Alternative 2 would be similar to Alternative 1 except that on-Site monitoring wells would need to be maintained and could limit future use of the areas in which they are located.

Alternative 4 would be more difficult to implement than Alternatives 1 or 2. Temporary on-Site appurtenances (hold tanks, etc) would be required while the treatment is underway. Monitoring wells would only be required until the treatment has been demonstrated to be effective which, for this FS, has been assumed to be 2 years following the completion of treatment.

Of the alternatives considered, Alternative 3 is the most difficult to implement. Underground services would be required for the operation of the collection system, an on-Site shelter would be required for housing of the treatment system and system controls, and monitoring wells and a collection system would need to be present and maintained until the applicable standards have been achieved which, for this Feasibility Study, has been assumed to be 30 years. The presence of these features above and below grade may interfere with future Site use.

7.7.4.11 COST

The cost associated with the implementation of the remedial alternatives is lowest for Alternative 1, No Action ($0) and increases successively for Alternatives 4, 2, and 3. The net present worth costs for Alternatives 4, 2, and 3 are $123,000, $323,000, and $2,096,000, respectively.

The costs of Alternatives 3 and 4 are dependent upon the effectiveness of the treatments. The cost of Alternative 3 is primarily dependent upon the O&M costs. If the treatment required in Alternative 4 doubled, the cost would increase substantially, primarily due to additional monitoring.

7.8 SUMMARY AND RECOMMENDATION

The following eight remedial alternatives for addressing chemical presence at the Site, four for on-Site VOC and SVOC contaminated soil and four for VOC-impacted on-Site groundwater, were assembled in the FS:

- Soil Alternatives
  - i) No Action;
  - ii) Impermeable Cover and Institutional Controls;
  - iii) Excavation and Off-Site Disposal of SVOC Soils and In Situ Chemical Oxidation of VOCs in Soils; and

iv) Excavation and Off-Site Disposal of all Impacted Soil.

- Groundwater Alternatives
    - i) No Action;
    - ii) Institutional Controls and Monitoring;
    - iii) Collection with On-Site Pre-Treatment and Off-Site Disposal at POTW; and
    - iv) In Situ Chemical Oxidation.

The recommended remedial action for the Site is a combination of the following alternatives:

i) Soil Alternative 4 - Excavation and Off-Site Disposal of all Impacted Soil; and

ii) Groundwater Alternative 4 – In Situ Chemical Oxidation.

The implementation of these alternatives will result in restoration of on-site soil and groundwater in the most expeditious manner possible and will allow for unrestricted use of the Site in a relatively short timeframe. This work will also positively effect the quality of of-site groundwater by removing the potential site-related sources. The combined estimated cost of these alternatives is approximately $333,000.

8.0 CONCLUSIONS AND RECOMMENDATIONS

8.1 NATURE AND EXTENT OF CONTAMINATION

The following conclusions have been drawn regarding the nature and extent of chemical presence in soil vapor, soil, and groundwater on and adjacent to the Site.

1. VOCs are present in soil vapors and in Site groundwater. However, the soil vapor concentrations are low (1.7 to 5.5 ppm) and the VOC concentrations in groundwater are lower than the GVIIC. Therefore, VOCs in indoor air in on-Site or nearby residential or industrial/commercial buildings are not of concern.
2. The significant exceedances of TAGM 4046 cleanup objectives for soil are limited to PCE and several SVOCs in soils in the northern quadrant of the Site. This area is also the apparent on-site source of VOCs in groundwater.
3. PCE is not present at significant concentrations in soils along the alignment of the sewers on Kingston Place.
4. The compounds present in Site groundwater at concentrations which are of potential environmental and/or human health concern are PCE, TCE, and cis-1,2-DCE. The presence of elevated concentrations of these compounds in off-Site groundwater may be attributable to the on-Site source (the PCE impacted soils).

8.2 REMAINING DATA GAPS

The following have been identified as remaining gaps in the Site characterization. Collection of data to fill these gaps is required in order to complete a Remedial Action:

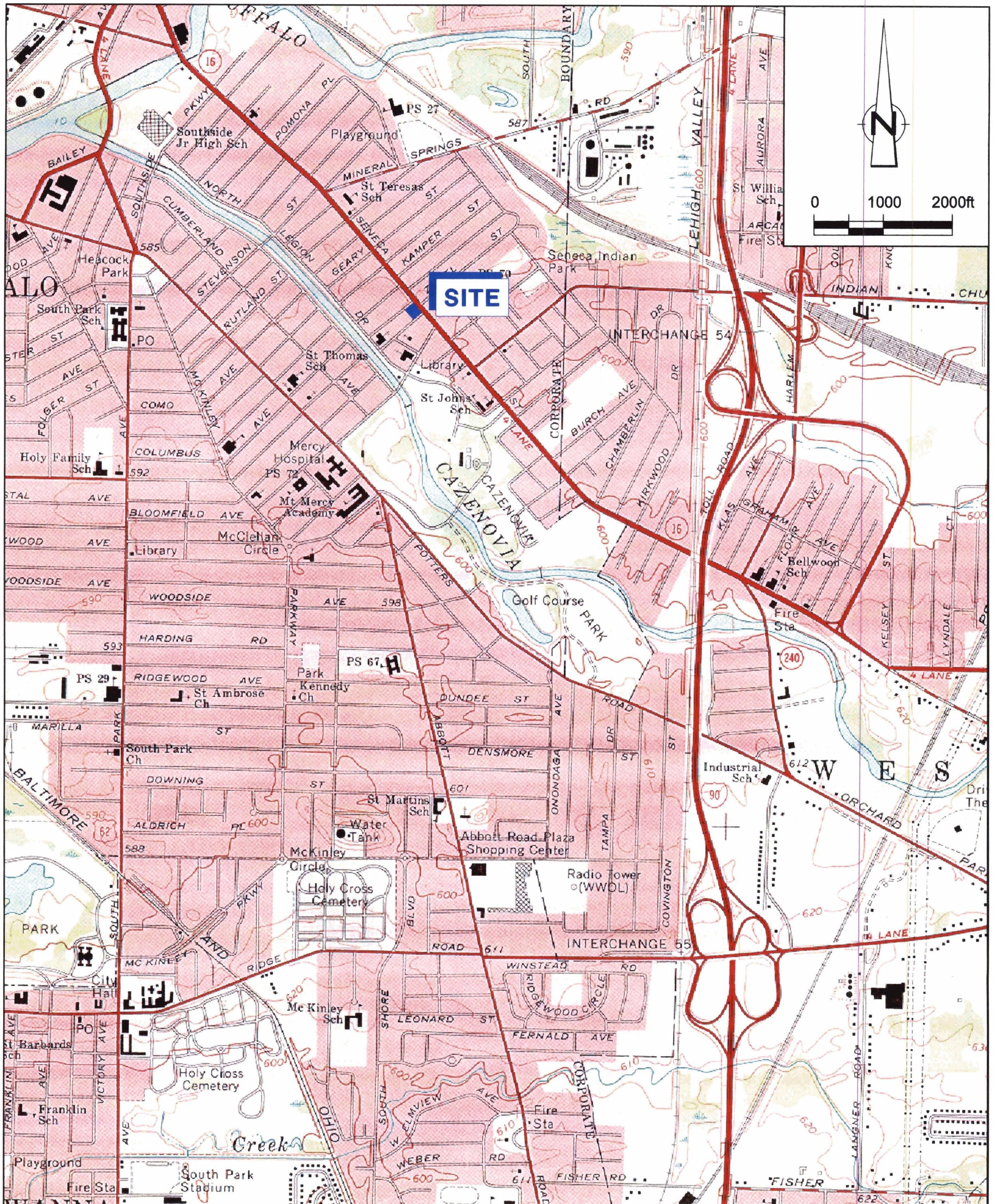
i) confirmation of the absence of on-site underground storage tanks;
ii) quantitative determination of air quality inside the existing on-site building;
iii) completion of the definition of the extent of presence of soils requiring remedial action; and
iv) further characterization of on- and off-Site groundwater impact.

The investigative activities required to obtain the data necessary to fill these gaps will be described in the Remedial Action Work Plan.

8.3 RECOMMENDED REMEDIAL ACTION

The recommended remedial action for the Site is excavation and off-site disposal of all impacted soil at the Site, and in situ chemical oxidation of VOCs in on-Site groundwater. Upon completion of these actions, a groundwater monitoring program will be implemented to gather the data necessary to evaluate the effectiveness of the site remedy.

Details regarding the remedial action and monitoring program will be included in a Remedial Action Work Plan.



SOURCE:

USGS BUFFALO SE, NY
QUADRANGLE, 1965.

figure 2.1

SITE LOCATION PLAN
PARCEL 2, SENECA STREET
Buffalo, New York

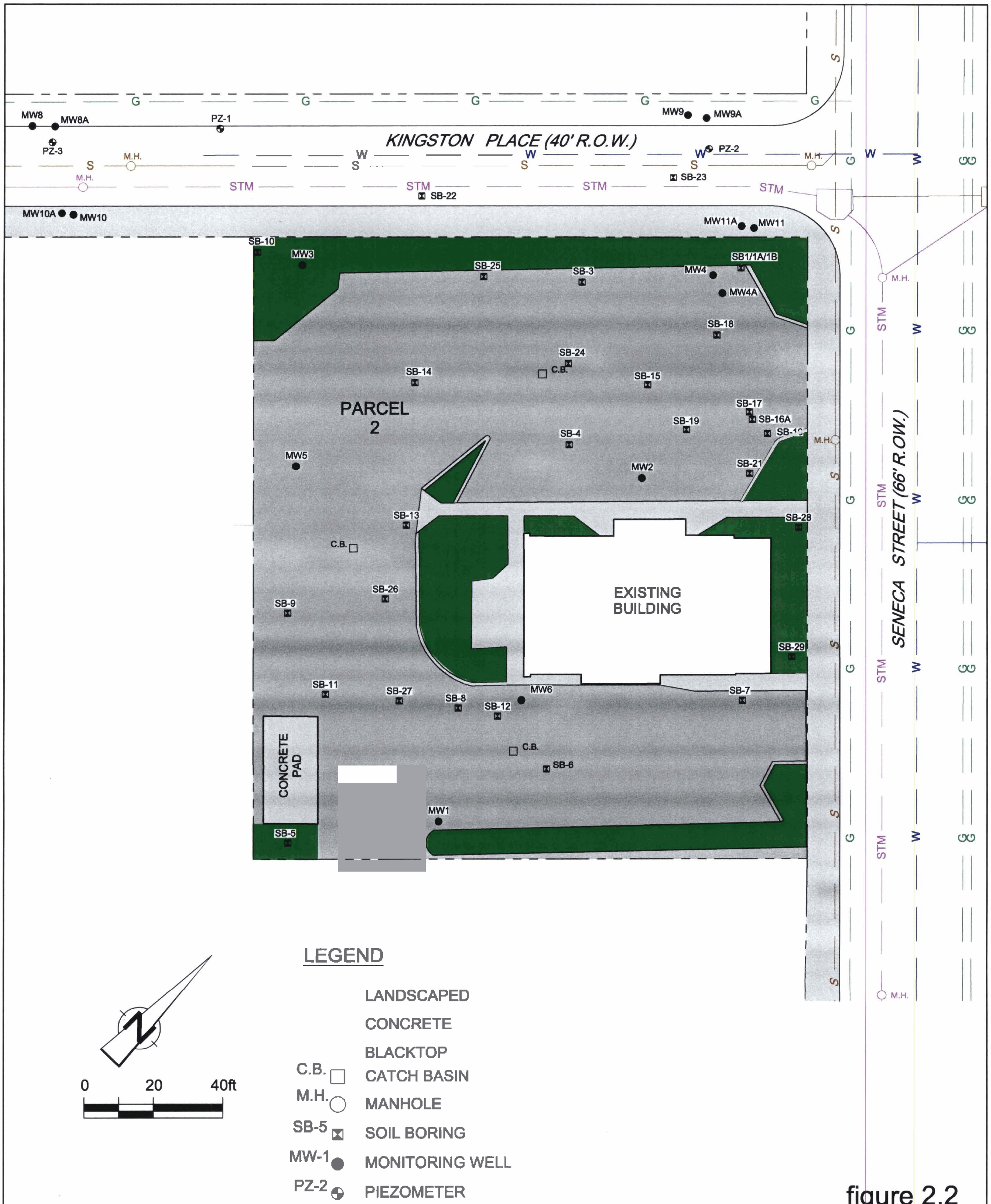


figure 2.2

SITE PLAN, SURFACE
CHARACTERISTICS & UNDERGROUND UTILITIES
PARCEL 2 - SENECA STREET
Buffalo, New York

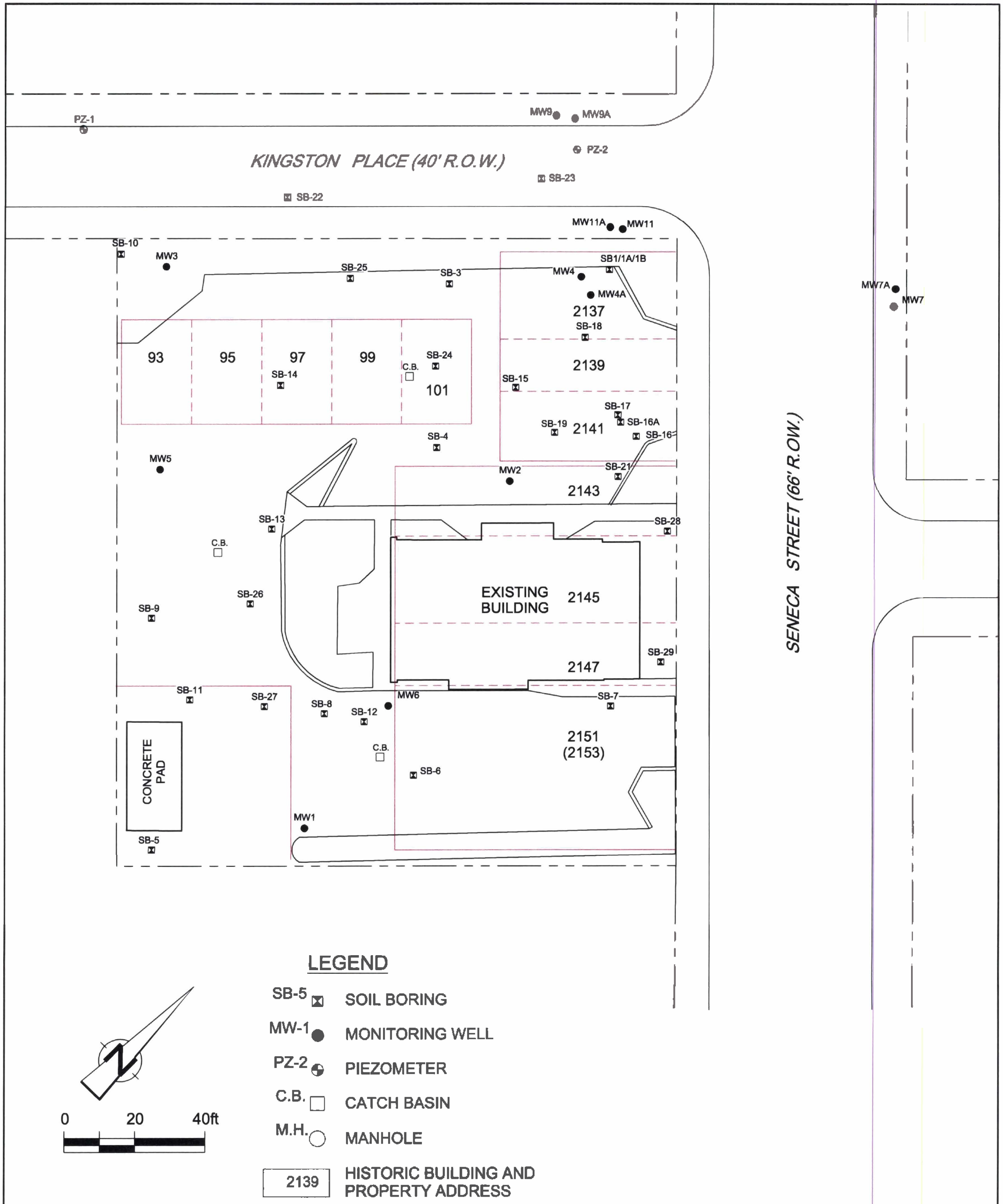


figure 2.3

BUILDING LOCATIONS
PARCEL 2 - SENECA STREET
Buffalo, New York

15867-00(002)GN-NF003 MAR 31/2003

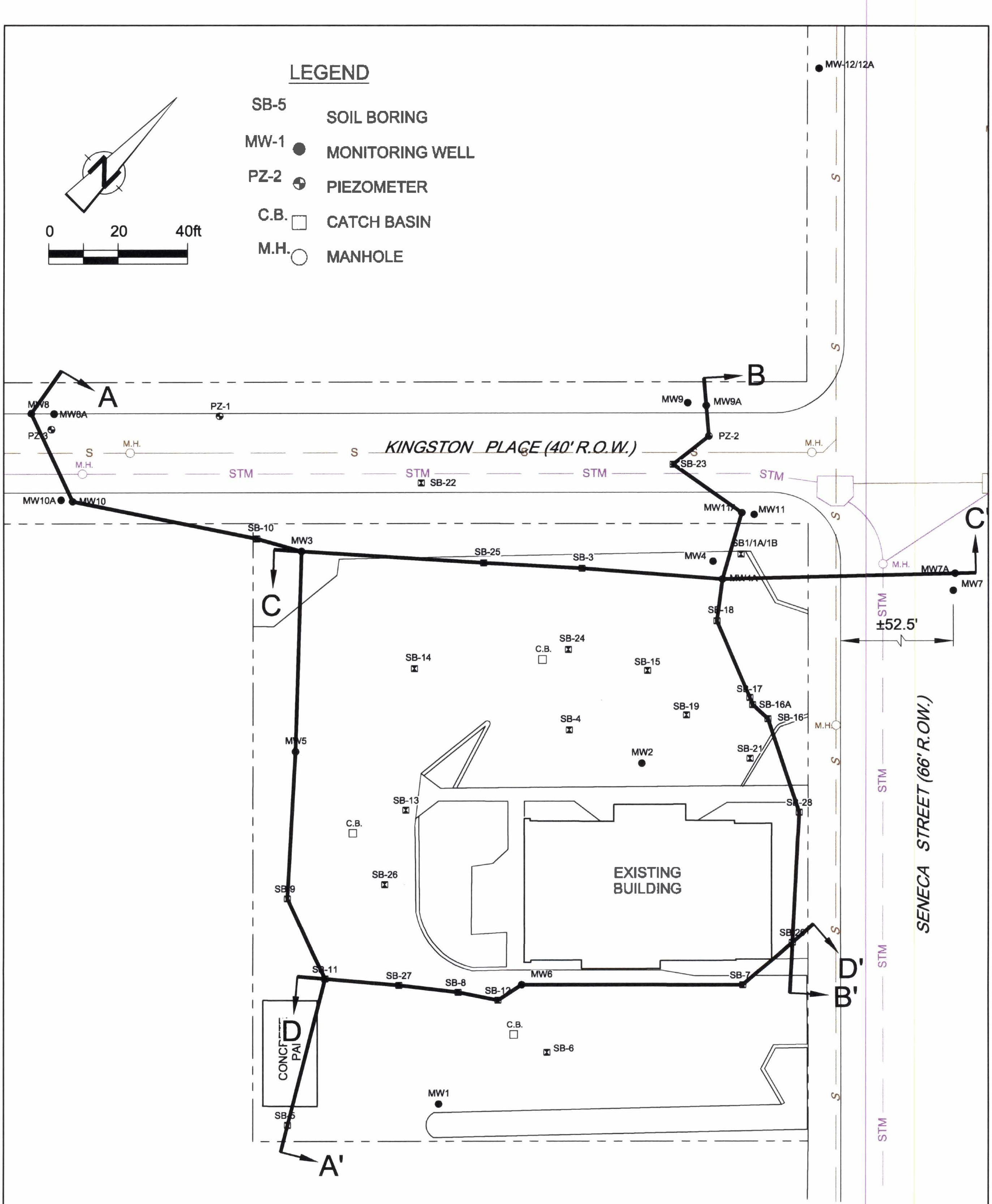


figure 5.1

CROSS-SECTION LOCATION PLAN
PARCEL 2 - SENECA STREET
Buffalo, New York

CRA

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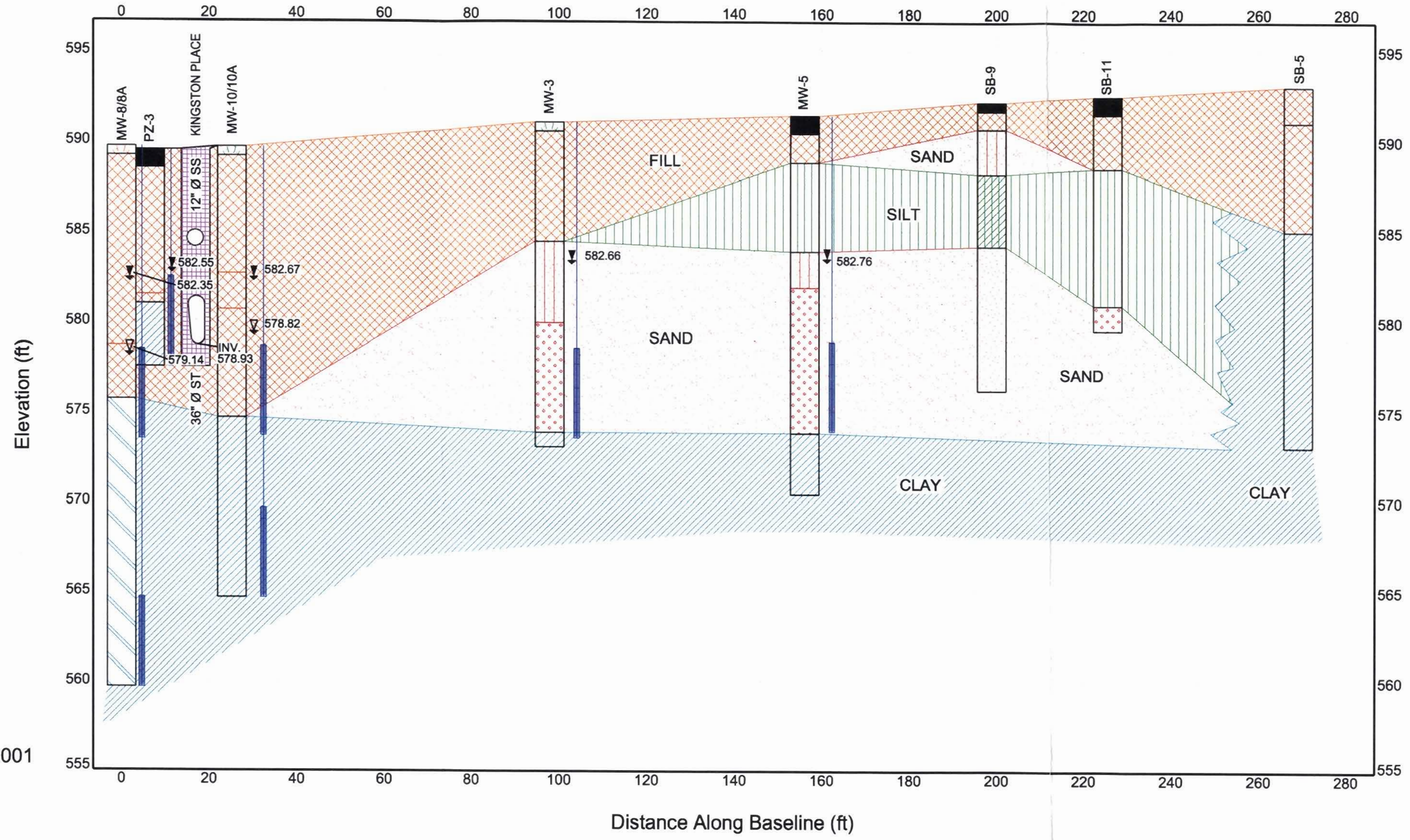

LEGEND

▨ FILL

☐ NATIVE SAND

▥ NATIVE SILT

▨ NATIVE CLAY

▤ WELL SCREEN

▦ BEDDING/BACKFILL

SS SANITARY SEWER

ST STORM SEWER

↧ SHALLOW WATER LEVEL ELEVATION 11/26/2001

⊽ DEEP WATER LEVEL ELEVATION 11/26/2001

NOTES:

SOIL SYMBOLOGY IS BASED ON THE UNIFIED SOIL CLASSIFICATION SYSTEM.

figure 5.2

SUBSURFACE PROFILE A-A'
PARCEL 2 - SENECA STREET
Buffalo, New York

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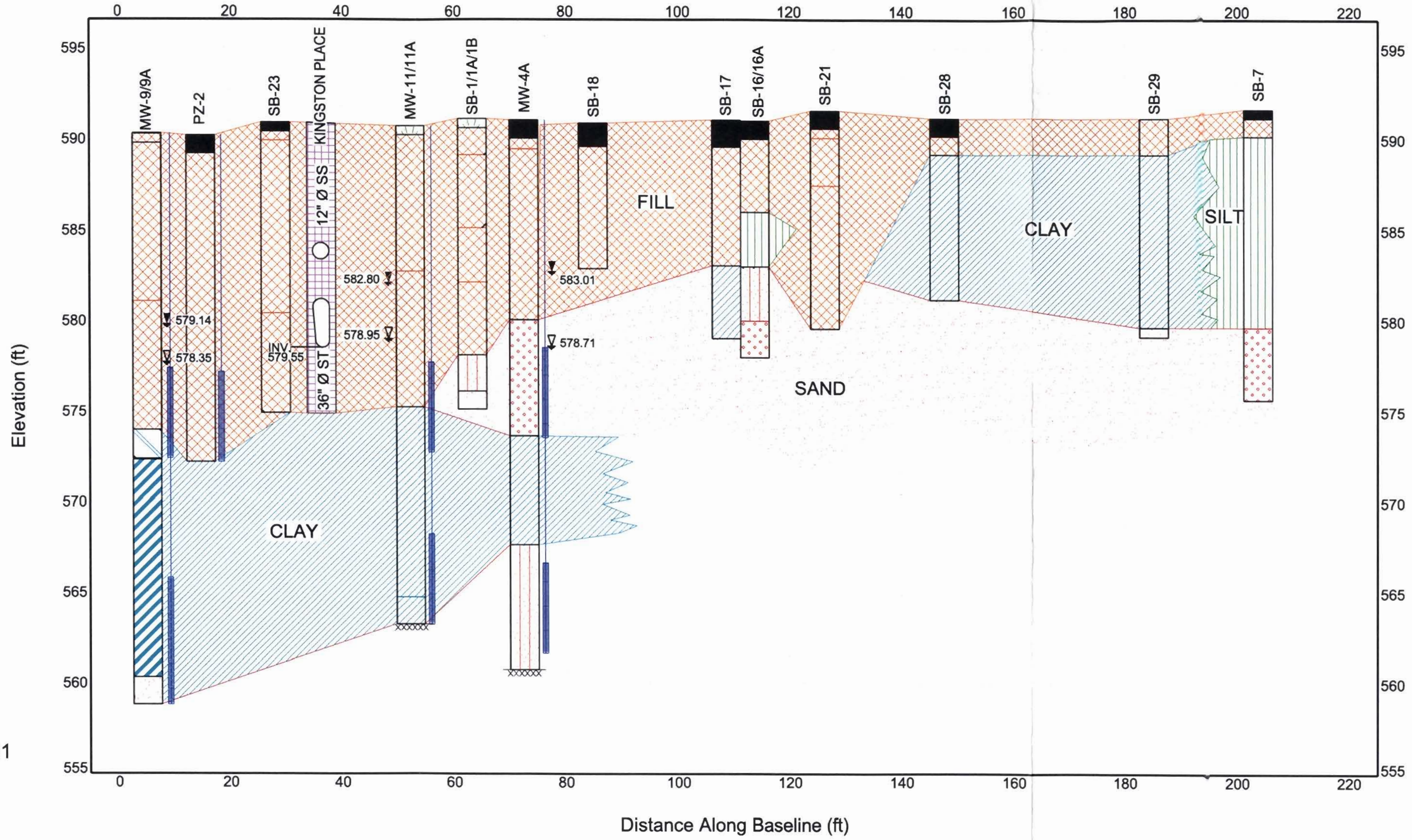

LEGEND

▨ FILL

☐ NATIVE SAND

▥ NATIVE SILT

▨ NATIVE CLAY

▤ WELL SCREEN

▦ BEDDING/BACKFILL

SS SANITARY SEWER

ST STORM SEWER

↧ SHALLOW WATER LEVEL ELEVATION 11/26/2001

⊽ DEEP WATER LEVEL ELEVATION 11/26/2001

xxxxxx TOP OF BEDROCK

NOTES:

SOIL SYMBOLOGY IS BASED ON THE UNIFIED SOIL CLASSIFICATION SYSTEM.

figure 5.3

SUBSURFACE PROFILE B-B'
PARCEL 2 - SENECA STREET
Buffalo, New York

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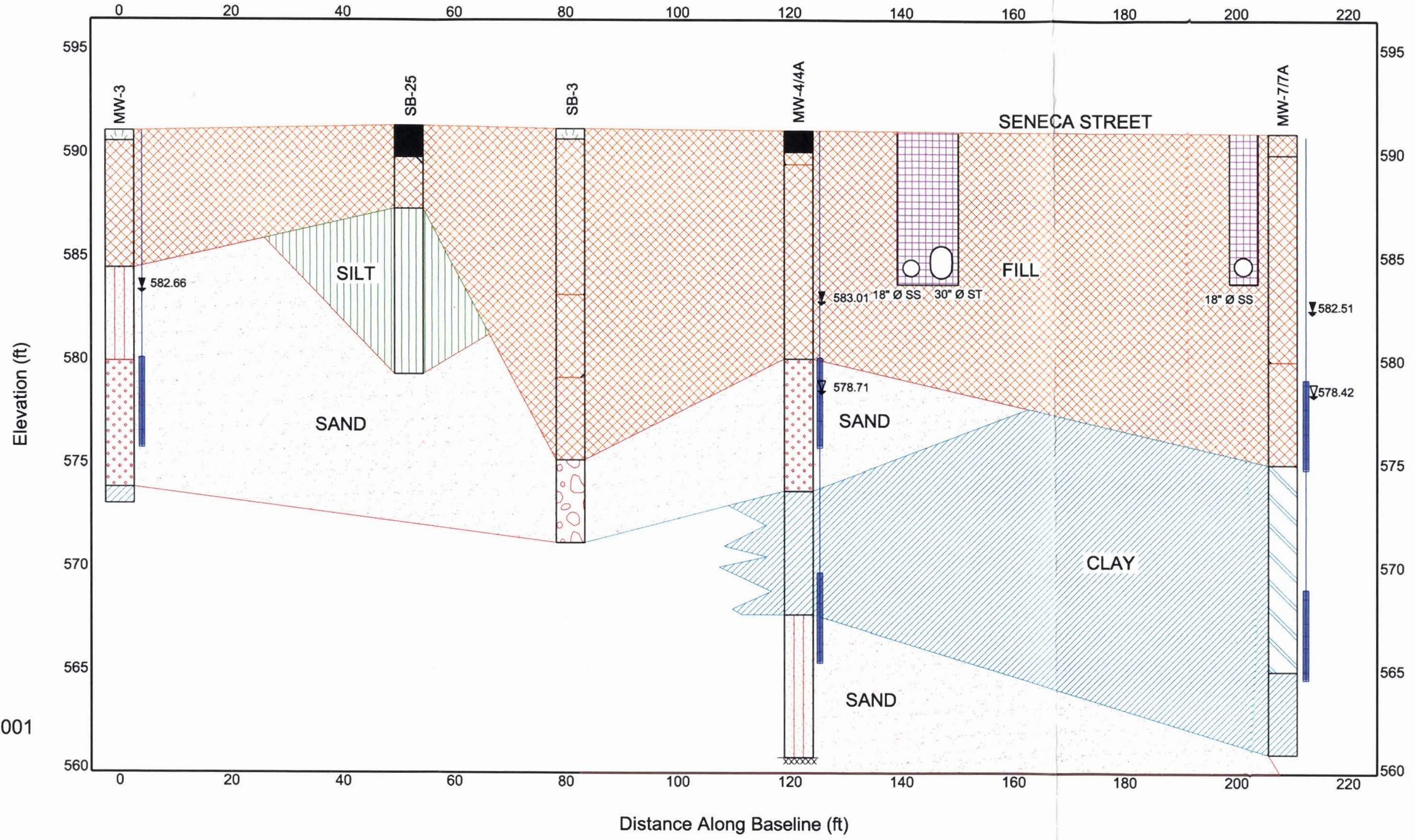


LEGEND

- ▨ FILL
- ☐ NATIVE SAND
- ▥ NATIVE SILT
- ▨ NATIVE CLAY
- ▤ WELL SCREEN
- ▦ BEDDING/BACKFILL
- SS SANITARY SEWER
- ST STORM SEWER
- ↧ SHALLOW WATER LEVEL ELEVATION 11/26/2001
- ▽ DEEP WATER LEVEL ELEVATION 11/26/2001
- xxxxxx TOP OF BEDROCK

NOTES:

SOIL SYMBOLOGY IS BASED ON THE UNIFIED SOIL CLASSIFICATION SYSTEM.

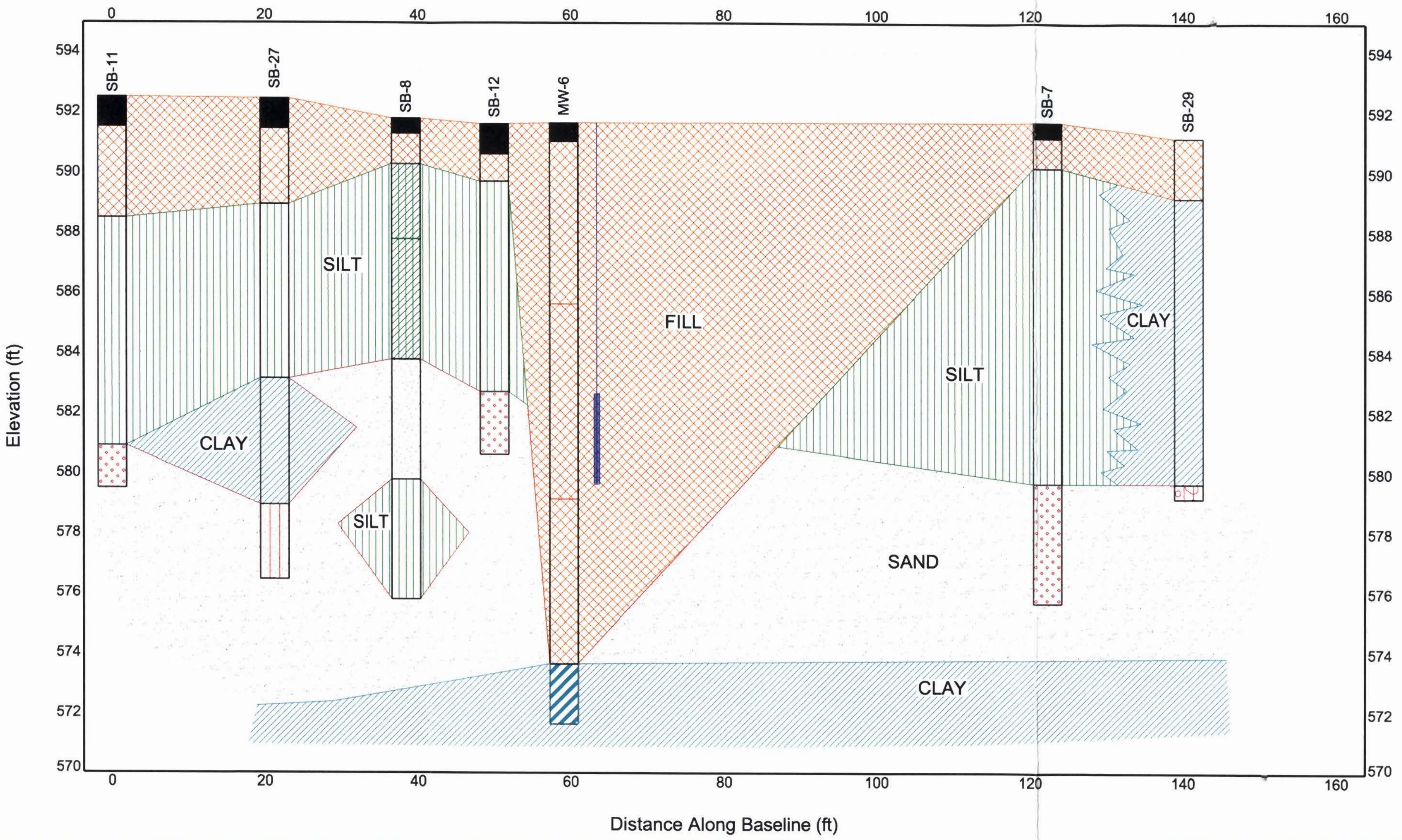
figure 5.4

SUBSURFACE PROFILE C-C'
PARCEL 2 - SENECA STREET
Buffalo, New York

15867-00(002)GN-NF020 MAR 28/2003

LEGEND

- ▨ FILL
- □ NATIVE SAND
- ▥ NATIVE SILT
- ▨ NATIVE CLAY
- ▤ WELL SCREEN



NOTES:

SOIL SYMBOLOGY IS BASED ON THE UNIFIED SOIL CLASSIFICATION SYSTEM.

figure 5.5

SUBSURFACE PROFILE D-D'
PARCEL 2 - SENECA STREET
Buffalo, New York

15867-00(002)GN-NF021 MAR 28/2003

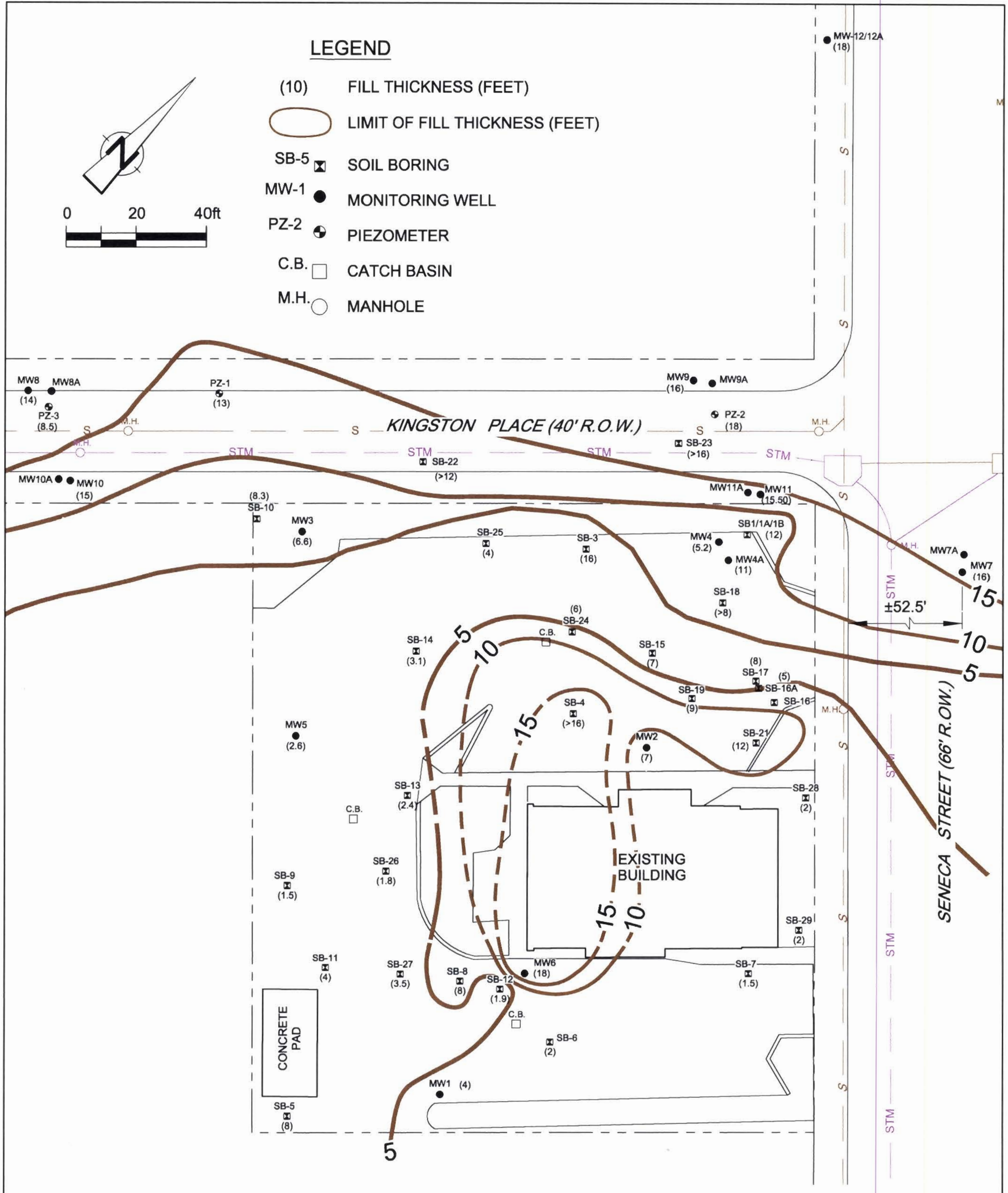
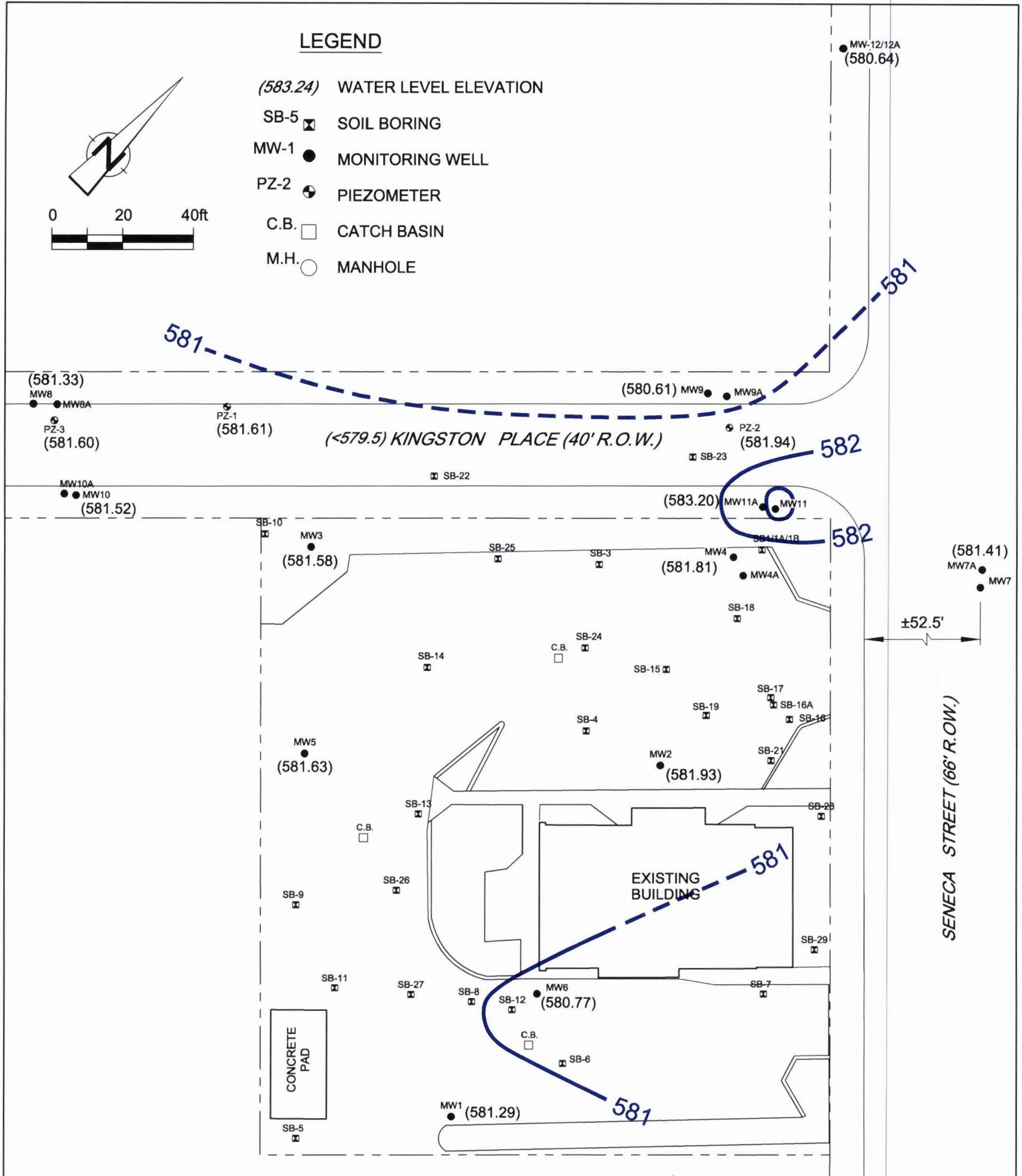


figure 5.6

ISOPACH OF FILL
PARCEL 2 - SENECA STREET
Buffalo, New York

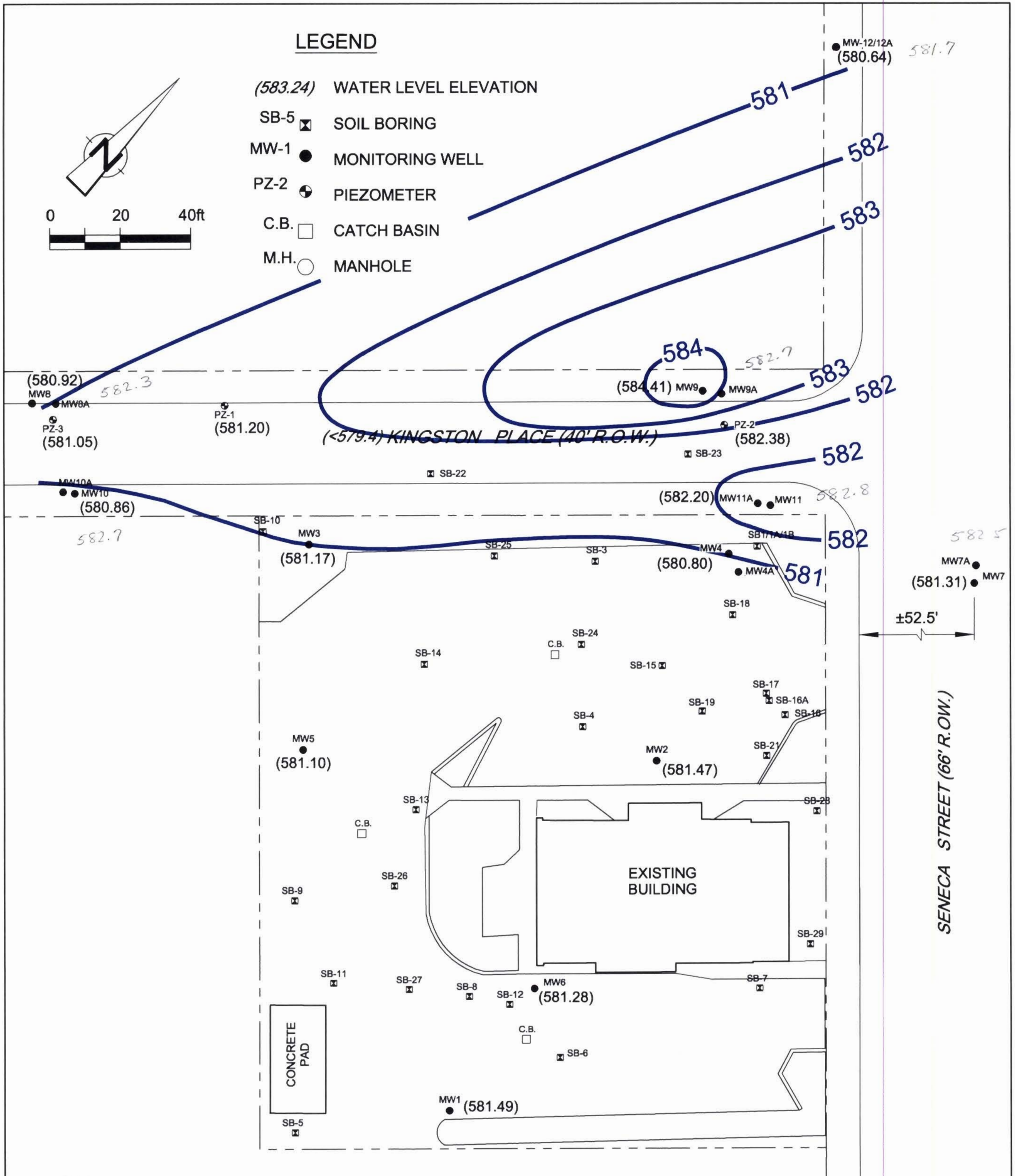
15867-00(002)GN-NF017 MAR 28/2003



NOTE:
AVERAGE WATER LEVEL AT
KINGSTON PLACE SEWER <579.5

figure 5.7

SHALLOW OVERBURDEN
POTENTIOMETRIC SURFACE CONTOURS - JUNE 2002
PARCEL 2 - SENECA STREET
Buffalo, New York



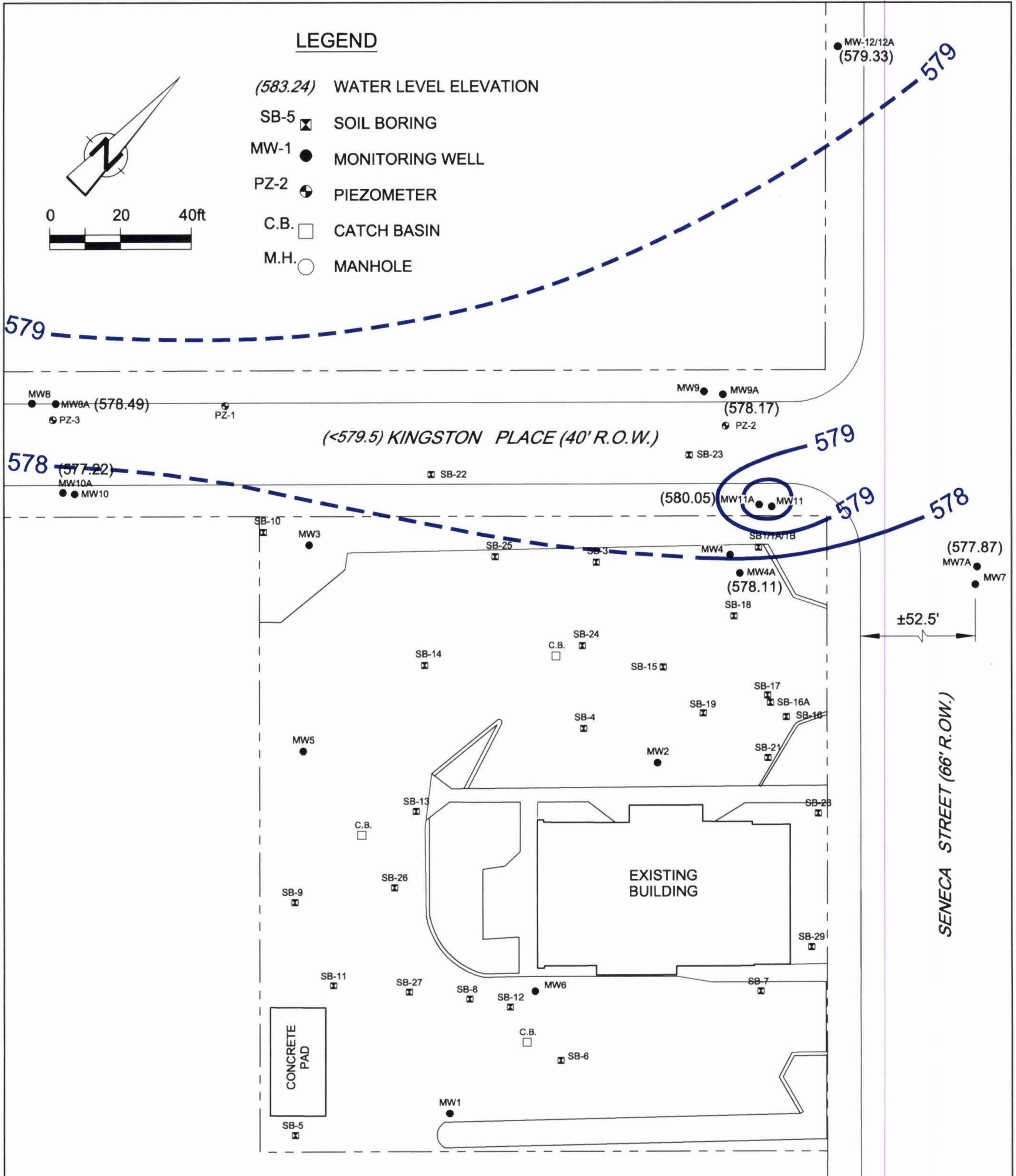
NOTE:

AVERAGE WATER LEVEL AT
KINGSTON PLACE SEWER <579.41

figure 5.8

SHALLOW OVERBURDEN
POTENTIOMETRIC SURFACE CONTOURS - SEPTEMBER 2002
PARCEL 2 - SENECA STREET
Buffalo, New York

15867-00(002)GN-NF023 MAR 28/2003



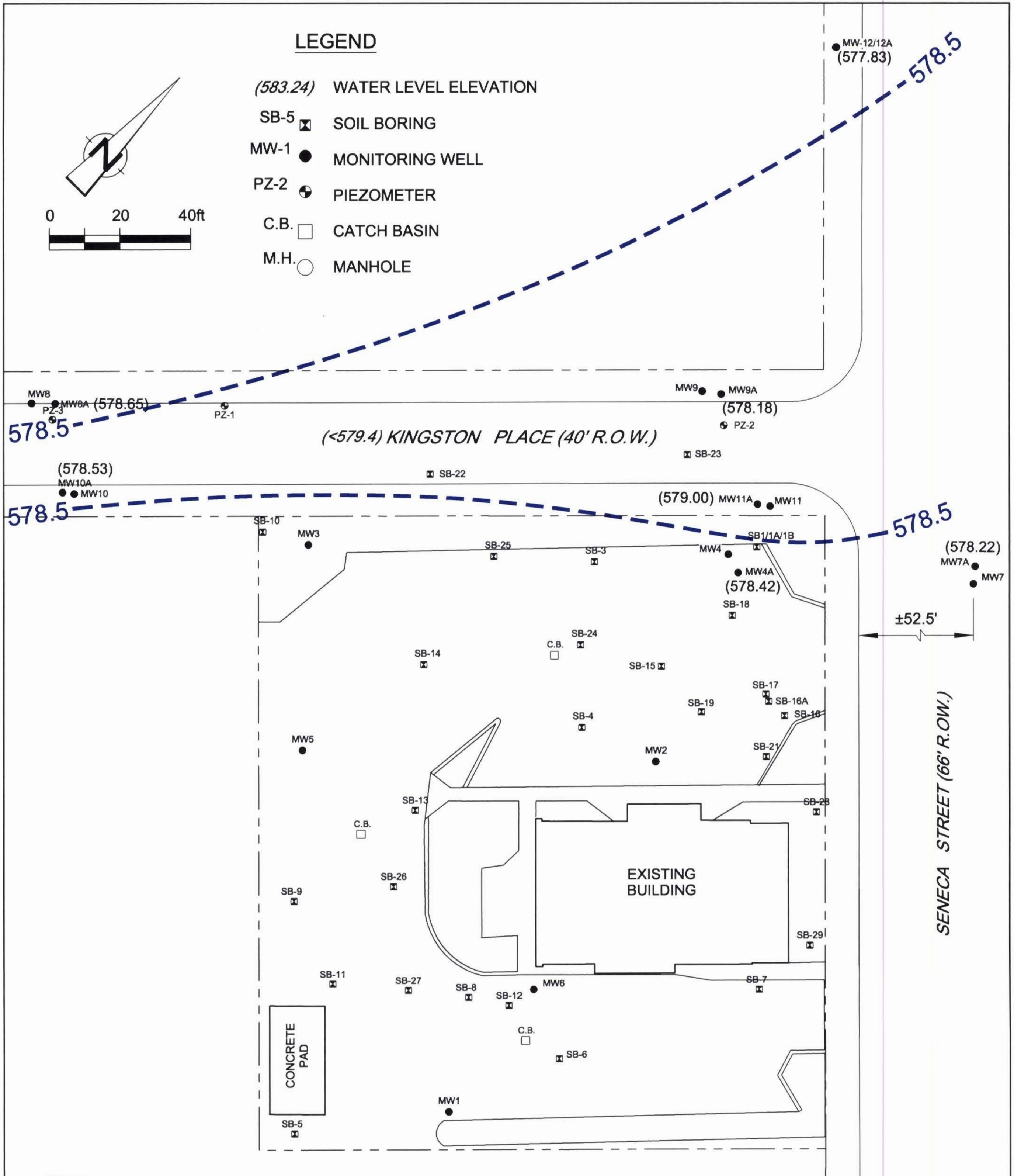
NOTE:
AVERAGE WATER LEVEL AT
KINGSTON PLACE SEWER <579.5

figure 5.9

DEEP OVERBURDEN
POTENTIOMETRIC SURFACE CONTOURS - JUNE 2002
PARCEL 2 - SENECA STREET
Buffalo, New York

CRA

15867-00(002)GN-NF024 MAR 28/2003



NOTE:
AVERAGE WATER LEVEL AT
KINGSTON PLACE SEWER <579.4

figure 5.10

DEEP OVERBURDEN
POTENTIOMETRIC SURFACE CONTOURS - SEPTEMBER 2002
PARCEL 2 - SENECA STREET
Buffalo, New York

15867-00(002)GN-NF025 MAR 28/2003

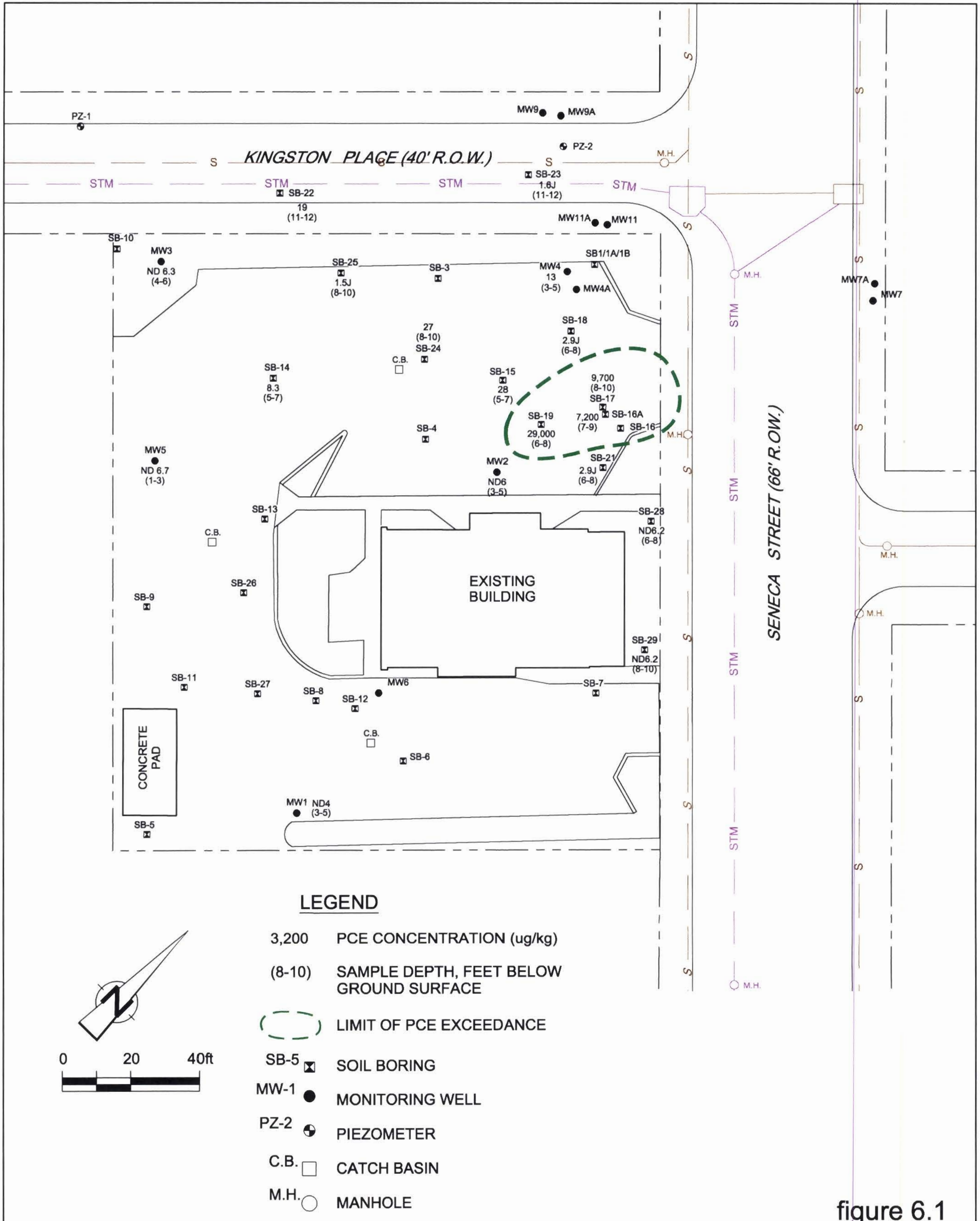


figure 6.1

MAXIMUM PCE CONCENTRATIONS IN SITE SOILS
PARCEL 2 - SENECA STREET
Buffalo, New York

15867-00(002)GN-NF004 MAR 31/2003

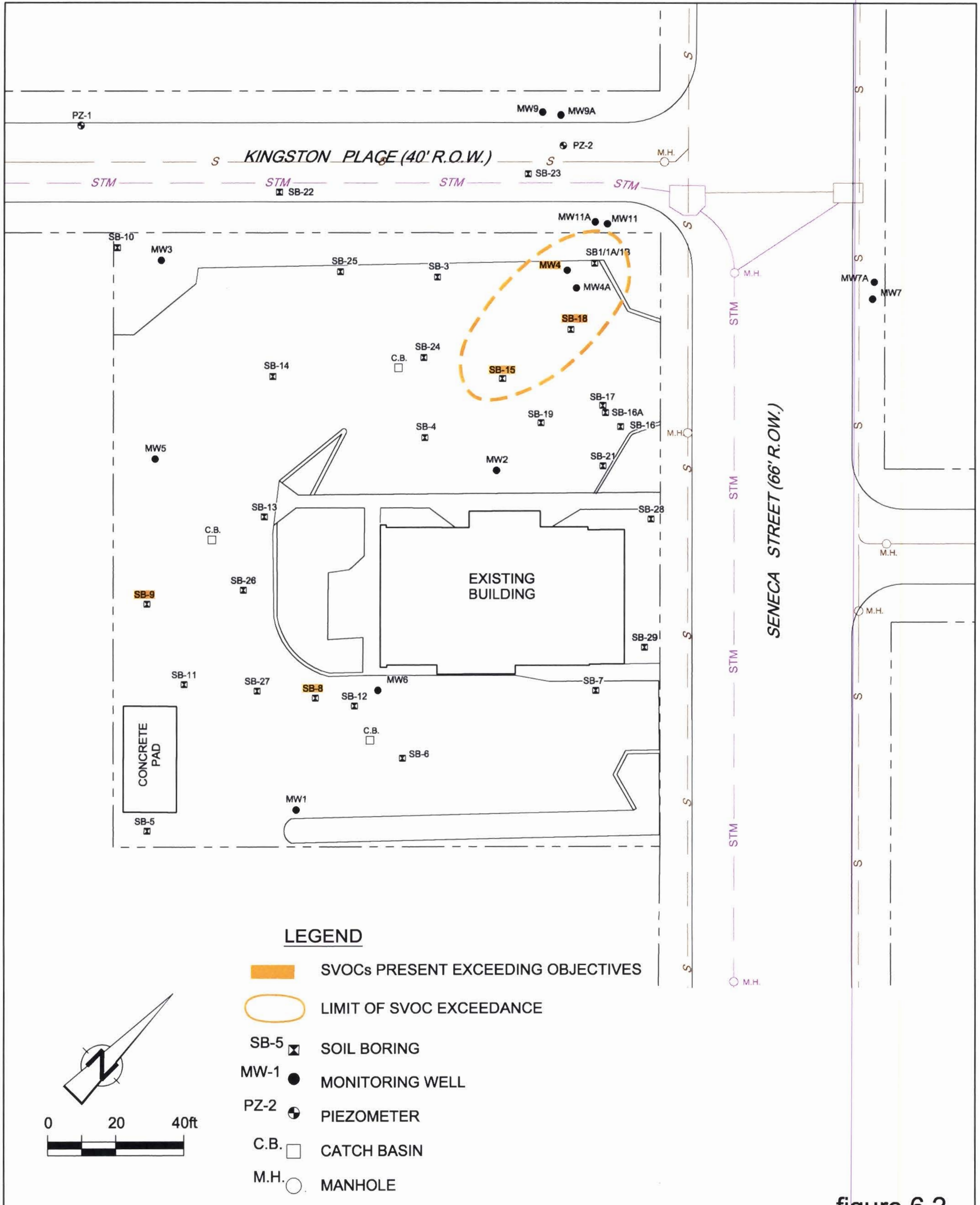


figure 6.2

LOCATIONS OF SVOC EXCEEDANCES IN SITE SOIL
PARCEL 2 - SENECA STREET
Buffalo, New York

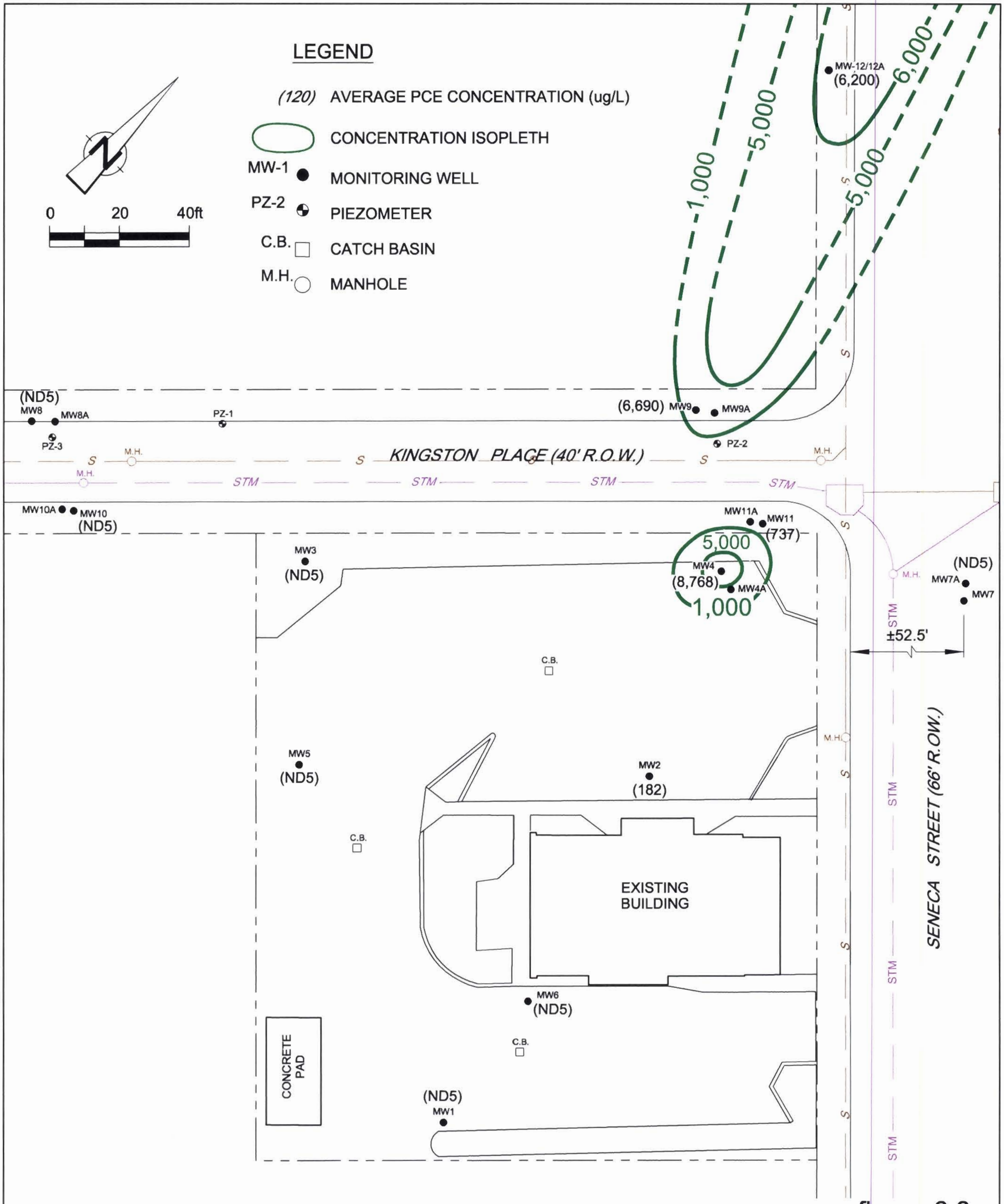


figure 6.3

PCE CONCENTRATION ISOPLETH
SHALLOW OVERBURDEN GROUNDWATER
PARCEL 2 - SENECA STREET
Buffalo, New York

15867-00(002)GN-NF007 MAR 31/2003

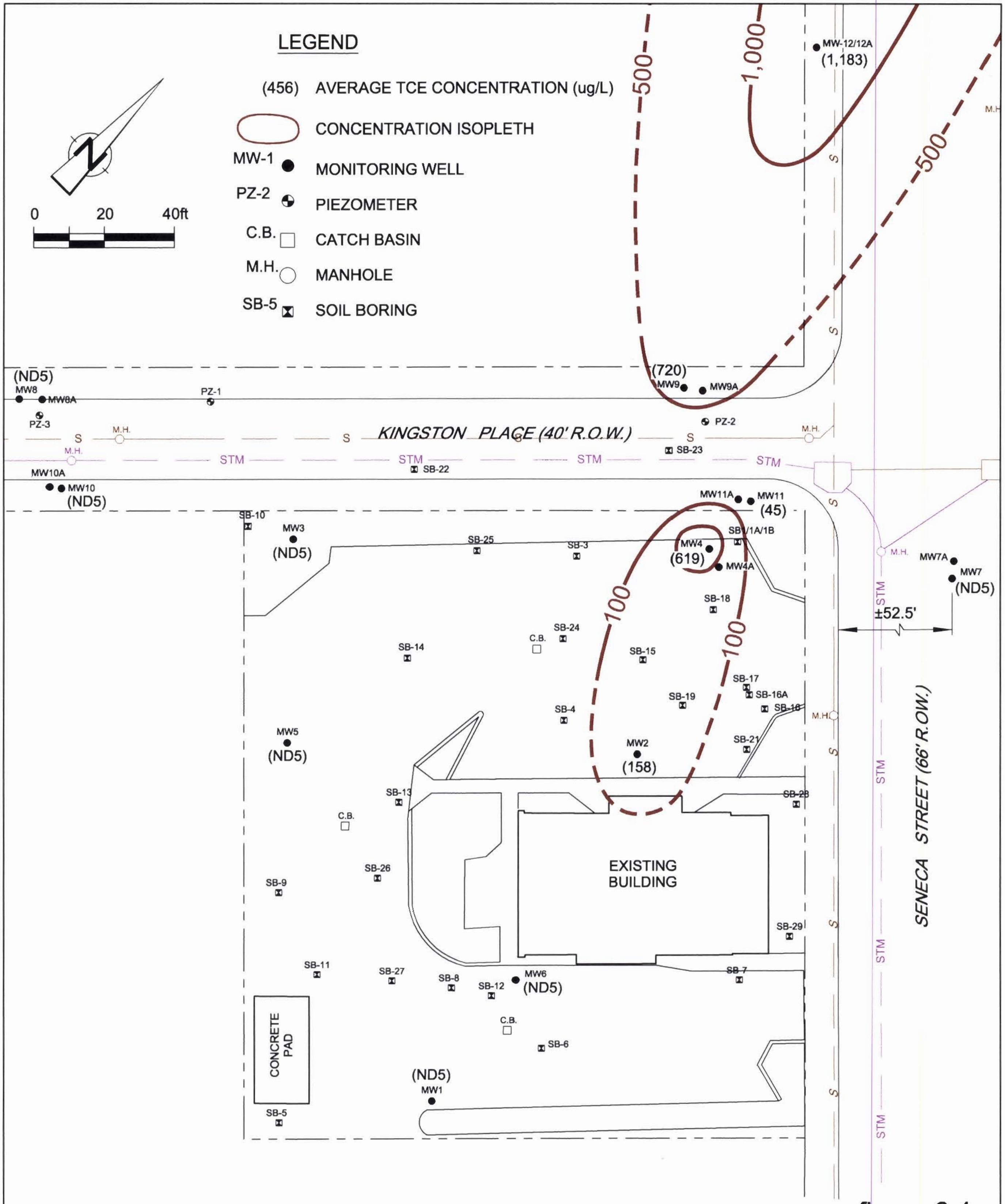


figure 6.4

TCE CONCENTRATION ISOPLETH
SHALLOW OVERBURDEN GROUNDWATER
PARCEL 2 - SENECA STREET
Buffalo, New York

15867-00(002)GN-NF013 MAR 28/2003

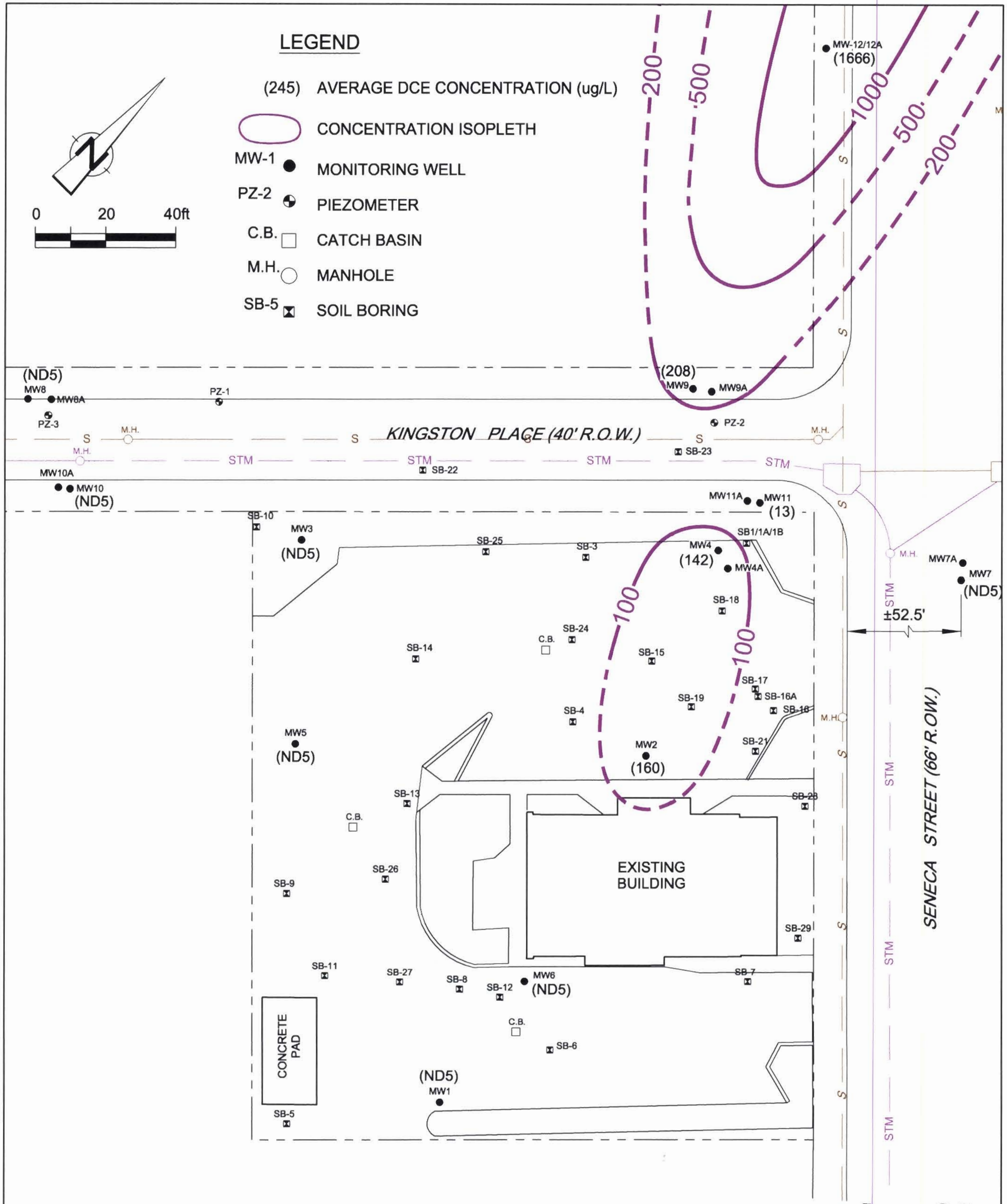


figure 6.5

DCE CONCENTRATION ISOPLETH
SHALLOW OVERBURDEN GROUNDWATER
PARCEL 2 - SENECA STREET
Buffalo, New York

15867-00(002)GN-NF015 MAR 28/2003

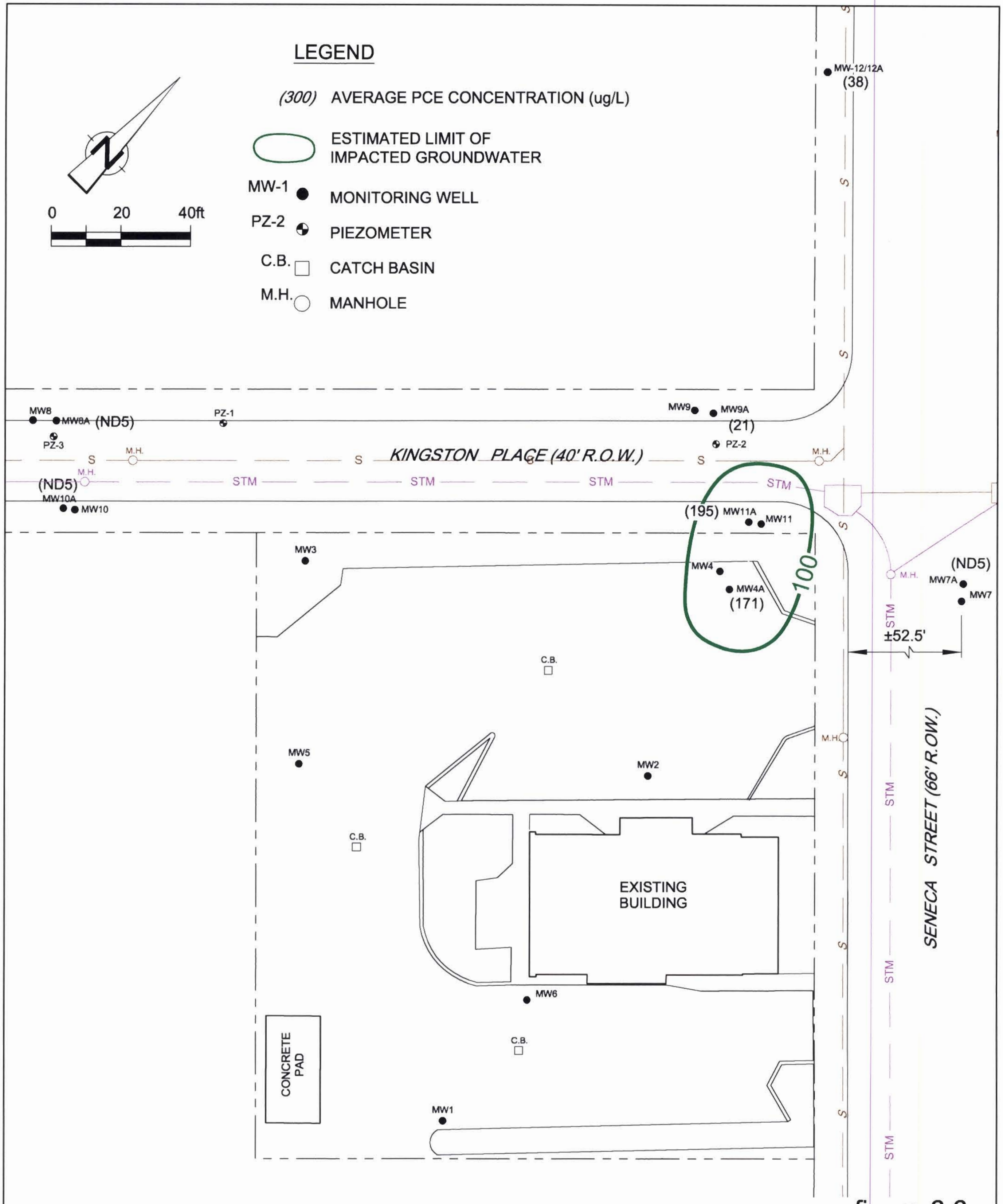


figure 6.6

PCE CONCENTRATION ISOPLETH
DEEP OVERBURDEN GROUNDWATER
PARCEL 2 - SENECA STREET
Buffalo, New York

15867-00(002)GN-NF012 MAR 28/2003

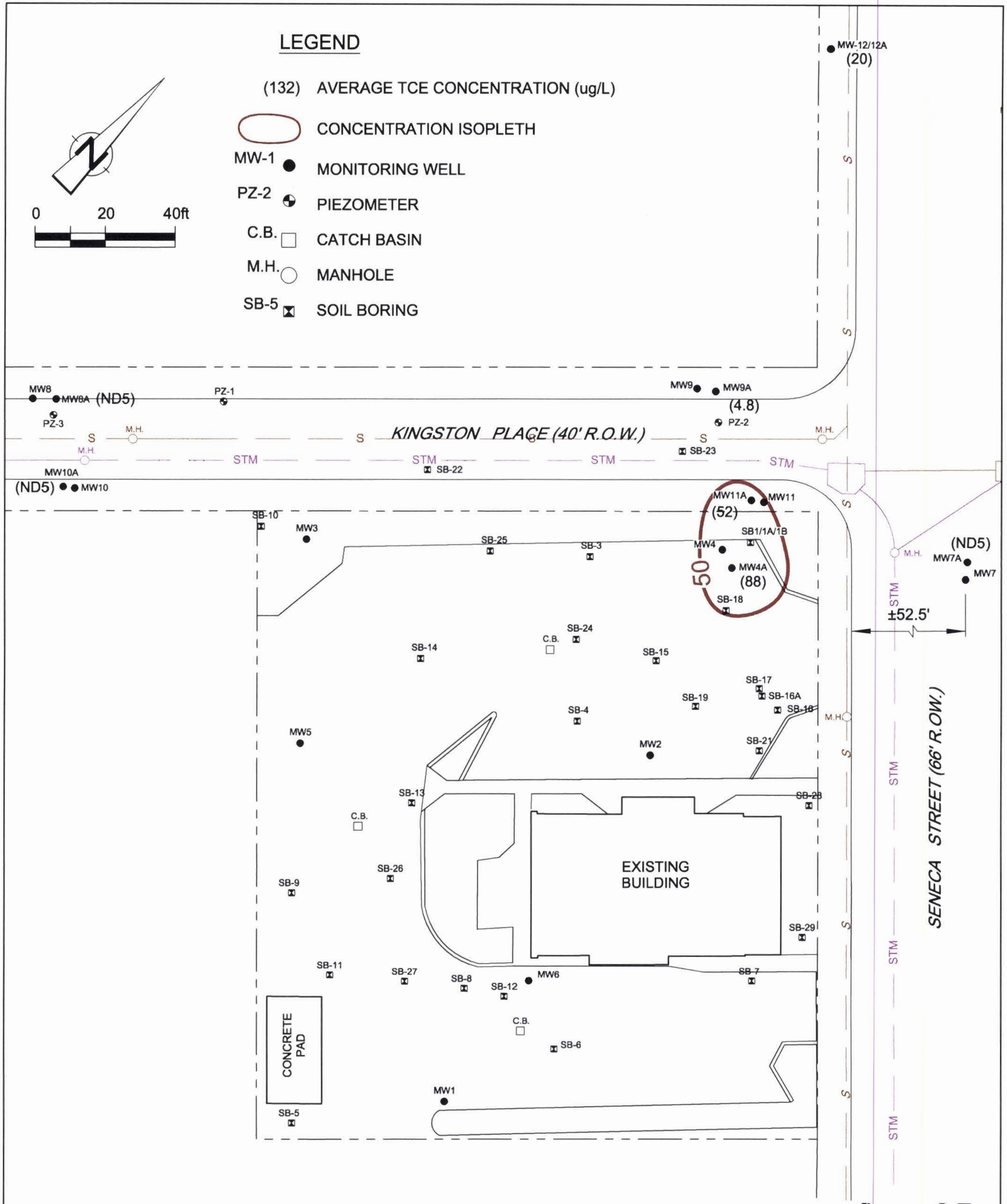


figure 6.7

TCE CONCENTRATION ISOPLETH
DEEP OVERBURDEN GROUNDWATER
PARCEL 2 - SENECA STREET
Buffalo, New York

15867-00(002)GN-NF014 MAR 28/2003

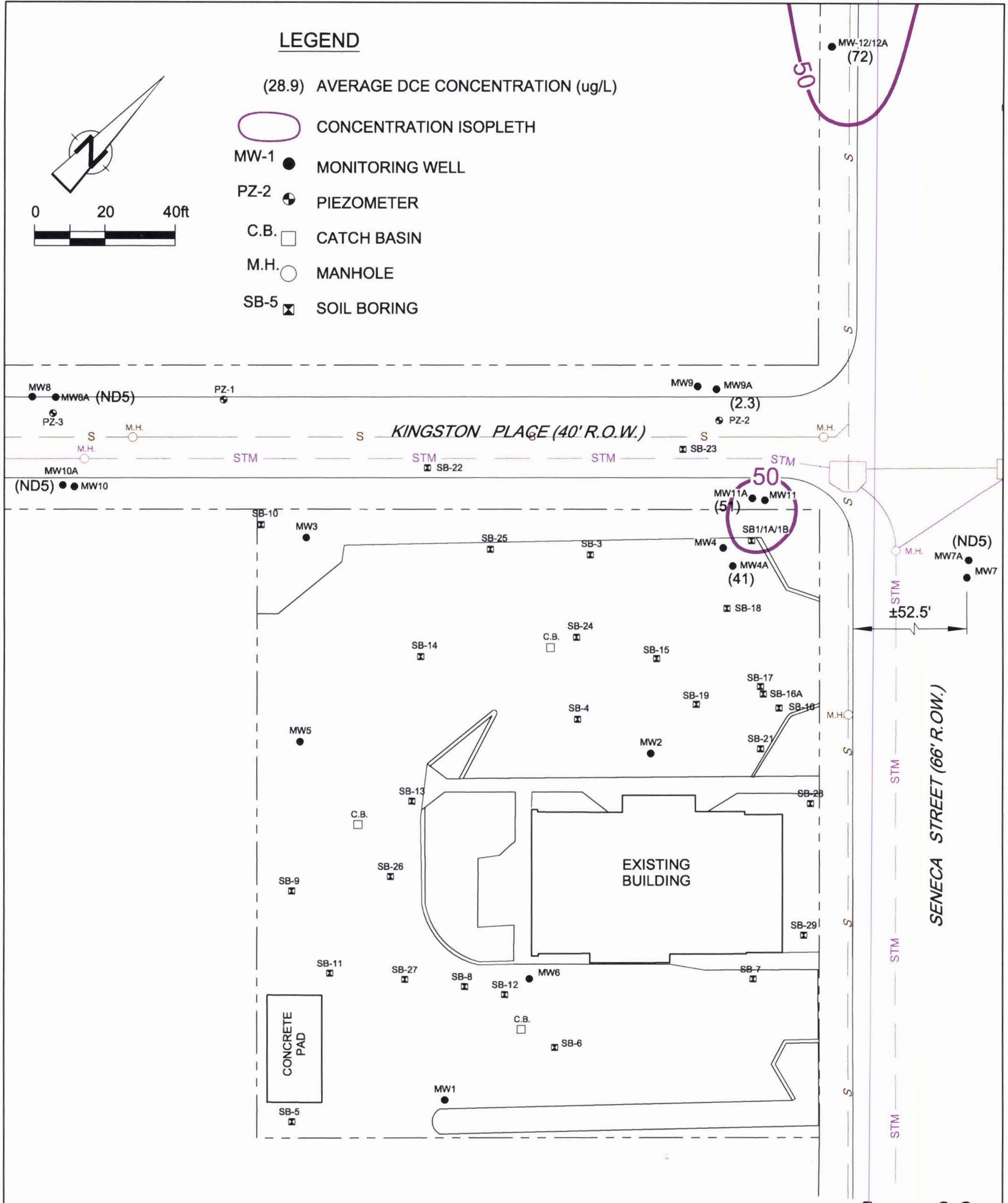


figure 6.8

DCE CONCENTRATION ISOPLETH
DEEP OVERBURDEN GROUNDWATER
PARCEL 2 - SENECA STREET
Buffalo, New York

15867-00(002)GN-NF016 MAR 28/2003

TABLE 2.1

HISTORIC BUSINESS LISTINGS/PROPERTY USE
SITE INVESTIGATION/FEASIBILITY STUDY
PARCEL 2 - SENECA STREET
BUFFALO, NEW YORK

		1900	*1917*	*1940*	*1950*	*1959*	*1965*
Seneca Street	2137	Undeveloped	Drugstore	Tire sales	Restaurant	Restaurant	Restaurant
	2139	Undeveloped	Drugstore	Tire sales	Restaurant	Laundry	Laundry
	2141	Undeveloped	Drugstore	Tire sales	Restaurant	Drycleaner	Drycleaner
	2143	Undeveloped	Undeveloped	Undeveloped	Restaurant	Restaurant	Restaurant
	2145	Undeveloped	Undeveloped	Undeveloped	Undeveloped	Thrift store	Food store
	2147	Undeveloped	Undeveloped	Undeveloped	Restaurant	Restaurant	Restaurant
	2151	Undeveloped	Undeveloped	Undeveloped	Undeveloped	Auto supply	Auto supply
	2153	Undeveloped	Undeveloped	Tire warehouse	Auto service	Restaurant(?)	Restaurant(?)
Kingston Place	93	Undeveloped	Residential	Residential	Residential	Unknown	Unknown
	95	Undeveloped	Residential	Residential	Residential	Unknown	Unknown
	97	Undeveloped	Residential	Residential	Residential	Unknown	Unknown
	99	Undeveloped	Residential	Residential	Residential	Unknown	Unknown
	101	Undeveloped	Residential	Residential	Residential	Unknown	Unknown

		1971	*1977*	*1985*	*1992*	*1998*	*2001*
Seneca Street	2137	Restaurant	Book store	Demolished	No buildings	No buildings	No buildings
	2139	Unknown	Unknown	Demolished	No buildings	No buildings	No buildings
	2141	Drycleaner	Drycleaner	Demolished	No buildings	No buildings	No buildings
	2143	Restaurant	Restaurant	Demolished	No buildings	No buildings	No buildings
	2145	Vacant	Vacant	Restaurant	Vacant	Restaurant	Vacant
	2147	Restaurant	Restaurant	Demolished	No buildings	No buildings	No buildings
	2151	Vacant	Aquarium	Demolished	No buildings	No buildings	No buildings
	2153	Vacant	Unknown	Auto service	No buildings	Machine shop	No buildings
Kingston Place	93	Unknown	Unknown	Demolished	No buildings	No buildings	No buildings
	95	Unknown	Unknown	Demolished	No buildings	No buildings	No buildings
	97	Unknown	Unknown	Demolished	No buildings	No buildings	No buildings
	99	Unknown	Unknown	Demolished	No buildings	No buildings	No buildings
	101	Unknown	Unknown	Demolished	No buildings	No buildings	No buildings

TABLE 2.2

PROPERTY OWNERSHIP INFORMATION
SITE INVESTIGATION/FEASIBILITY STUDY
PARCEL 2 - SENECA STREET
BUFFALO, NEW YORK

Parcel Address	*Owner Name*
2131 Seneca Street	Property Developers Inc.
2140 Seneca Street	Gorenflo, Richard
2134 Seneca Street	Nostrant, Daniel and Gould, Kevin
2132 Seneca Street	Do, Bihn
2137 Seneca Street	Insured Income Properties Inc.
2157 Seneca Street	Key Bank of NY
2161 Seneca Street	Johnson, Michael T.
2158 Seneca Street	2158-2160 Seneca Street, Inc.
2156 Seneca Street	Wagner, Norman and Sue
2152 Seneca Street	Giglia, Joseph and Marie
85 Kingston Place	Armstrong, John and Lanor
87 Kingston Place	Eckam, Douglas
91 Kingston Place	Nowak, John
92 Kingston Place	Cunningham, Francis
88 Kingston Place	City of Buffalo Real Estate Division
90 Kingston Place	Beutler, Richard Sr.

Note:
Information obtained from Erie County Real Property Information, March 2001.

TABLE 3.1

SAMPLE COLLECTION AND ANALYSES SUMMARY
SITE INVESTIGATION/FEASIBILITY STUDY
PARCEL 2 - SENECA STREET
BUFFALO, NEW YORK

			Analysis/Parameters								
	Location	*Sample Date*	*TCL VOCs*	*TCL SVOCs*	*STARS VOCs*	*STARS SVOCs*	*Metals (Filtered)*	*Metals (Unfiltered)*	*CN*	*Lead Only*	*Comment*
Soils	SB-1	07/21/99	X								8.0-12.0'
	SB-3	07/21/99	X								12.0'-16.0'
	SB-4	07/21/99	X								12.0'-16.0'
	SB-5	07/21/99			X	X				X	12.0'-16.0'
	SB-6	07/21/99			X	X				X	8.0'-12.0'
	SB-7	07/21/99			X	X				X	8.0'-12.0'
	SB-8	07/21/99			X	X				X	4.0'-8.0'
	SB-9	07/21/99			X	X				X	0-4.0'
	SB-10	07/21/99			X	X				X	8.0'-12.0'
	SB-11	09/13/00				X		X	X		7.0-9.0'
	SB-12	09/13/00				X		X	X		7.0-9.0'
	SB-13	09/13/00				X		X	X		7.0-9.0'
	SB-14	09/13/00	X			X		X	X		5.0-7.0'
	SB-15	09/13/00	X			X		X	X		5.0-7.0'
	MW-1	09/14/00	X			X		X	X		3.0-5.0'
	MW-5	09/14/00	X			X		X	X		1.0-3.0'
	MW-3	09/14/00	X			X		X	X		0.0-2.0'
	MW-3	09/14/00	X			X		X	X		4.0-6.0'
	MW-2	09/15/00	X			X		X	X		3.0-5.0'
	MW-2	09/15/00	X			X		X	X		7.0-9.0', Duplicate collected
	MW-4	09/16/00	X			X		X	X		3.0-5.0'
	SB-16A	09/18/00	X			X		X	X		7.0-9.0'
	SB-17	08/20/01	X								2.0-4.0'
	SB-17	08/20/01	X								6.0-8.0'
	SB-17	08/22/01	X								0-2.0'
	SB-17	08/22/01	X								4.0-6.0'
	SB-17	08/22/01	X								8.0-10.0'
	SB-18	08/22/01	X	X							6.0-8.0'
	SB-19	08/20/01	X	X							6.0-8.0'
	SB-21	08/20/01	X								6.0-8.0'
	SB-22	08/22/01	X								11.0-12.0'
	SB-23	08/22/01	X								11.0-12.0'
	SB-24	08/20/01	X	X							8.0-10.0', Duplicate collected
	SB-25	08/20/01	X								8.0-10.0'
	SB-26	08/20/01		X							10.0-12.0'
	SB-27	08/20/01		X							10.0-12.0'
	SB-28	08/20/01	X								6.0-8.0'
	SB-29	08/20/01	X								8.0-10.0'

TABLE 3.1

SAMPLE COLLECTION AND ANALYSES SUMMARY
SITE INVESTIGATION/FEASIBILITY STUDY
PARCEL 2 - SENECA STREET
BUFFALO, NEW YORK

			Analysis/Parameters								
	Location	***Sample Date***	***TCL VOCs***	***TCL SVOCs***	***STARS VOCs***	***STARS SVOCs***	***Metals (Filtered)***	***Metals (Unfiltered)***	***CN***	***Lead Only***	***Comment***
Groundwater	SB-1B	07/21/99	X		X	X				X	
	SB-6	07/21/99	X		X	X				X	
	MW-1	10/04/00	X			X		X	X		
	MW-1	09/19/01	X								
	MW-2	10/05/00	X			X		X	X		
	MW-2	09/20/01	X								
	MW-2	11/29/01	X								
	MW-2	06/20/02	X								
	MW-2	09/24/02	X								
	MW-3	10/04/00	X			X		X	X		
	MW-3	09/20/01	X								
	MW-4	10/05/00	X			X		X	X		Duplicate collected
	MW-4	09/24/01	X								
	MW-4	11/28/01	X								Duplicate collected
	MW-4	06/19/02	X								
	MW-4	09/25/02	X								
	MW-4A	10/04/00	X			X	X	X	X		
	MW-4A	09/24/01	X								
	MW-4A	11/29/01	X								
	MW-4A	06/20/02	X								
	MW-4A	09/25/02	X								
	MW-5	10/04/00	X			X		X	X		
	MW-5	09/19/01	X								
	MW-6	09/24/01	X	X							Duplicate collected
	MW-7	09/24/01	X	X							
	MW-7A	09/20/01	X								
	MW-8	09/24/01	X								
	MW-8A	09/20/01	X								
	MW-9	09/21/01	X								
	MW-9	11/27/01	X								
	MW-9	06/19/02	X								
	MW-9	09/25/02	X								
	MW-9A	09/21/01	X								
	MW-9A	11/28/01	X								
	MW-9A	06/19/02	X								
	MW-9A	09/26/02	X								
	MW-10	09/20/01	X	X							
	MW-10A	09/20/01	X								
	MW-11	09/20/01	X	X							
	MW-11	11/28/01	X								
	MW-11	06/19/02	X								
	MW-11	09/25/02	X								

TABLE 3.1

SAMPLE COLLECTION AND ANALYSES SUMMARY
SITE INVESTIGATION/FEASIBILITY STUDY
PARCEL 2 - SENECA STREET
BUFFALO, NEW YORK

			Analysis/Parameters								
	Location	*Sample Date*	*TCL VOCs*	*TCL SVOCs*	*STARS VOCs*	*STARS SVOCs*	*Metals (Filtered)*	*Metals (Unfiltered)*	*CN*	*Lead Only*	*Comment*
Groundwater	MW-11A	09/20/01	X								
(Cont'd.)	MW-11A	11/29/01	X								
	MW-11A	06/20/02	X								
	MW-11A	09/25/02	X								
	MW-12	11/27/01	X								
	MW-12	06/20/02	X								
	MW-12	09/25/02	X								
	MW-12A	11/30/01	X								
	MW-12A	06/20/02	X								
	MW-12A	09/26/02	X								

Notes:

'	Feet.
CN	Chloroacetophenone.
STARS	Spill Technology and Remediation.
SVOCs	Semi-Volatile Organic Compounds.
TCL	Target Compound List.
VOCs	Volatile Organic Compounds.

TABLE 3.2

MONITORING WELL INSTALLATION DETAILS
SITE INVESTIGATION/FEASIBILITY STUDY
PARCEL 2 - SENECA STREET
BUFFALO, NEW YORK

Well No.	*Borehole Depth (Ft. BGS)*	*Ground Elevation (Ft. NGVD)*	*Sandpack Interval*		*Screened Interval*	
			(Ft. BGS)	*(Ft. NGVD)*	*(Ft. BGS)*	*(Ft. NGVD)*
MW-1	21.0	592.6	13.5 to 21.0	579.1 to 571.6	16.0 to 21.0	576.6 to 571.6
MW-2	18.0	591.7	9.0 to 18.0	582.7 to 573.7	12.5 to 17.5	579.2 to 574.2
MW-3	18.0	591.0	9.0 to 18.0	582.0 to 573.0	12.5 to 17.5	578.5 to 573.5
MW-4	18.0	591.2	9.0 to 18.0	582.2 to 573.2	12.5 to 17.5	578.7 to 573.7
MW-4A	30.0	591.0	21.5 to 29.6	569.5 to 561.4	24.4 to 29.4	566.6 to 561.6
MW-5	21.0	591.4	9.5 to 21.0	581.9 to 570.4	12.5 to 17.5	578.9 to 573.9
MW-6	20.0	591.6	23.0 to 20.0	568.6 to 571.6	15.0 to 20.0	576.6 to 571.6
MW-7	18.4	590.9	11.4 to 18.4	579.5 to 572.5	13.4 to 18.4	577.5 to 572.5
MW-7A	30.0	590.9	23.0 to 30.0	567.9 to 560.9	25.0 to 30.0	565.9 to 560.9
MW-8	16.2	589.7	8.0 to 16.2	581.7 to 573.5	11.2 to 16.2	578.5 to 573.5
MW-8A	30.0	589.6	22.0 to 30.0	567.6 to 559.6	25.0 to 30.0	564.6 to 559.6
MW-9	17.9	590.3	11.0 to 17.9	579.3 to 572.4	12.9 to 17.9	577.4 to 572.4
MW-9A	31.5	590.3	24.5 to 31.5	565.8 to 558.8	26.5 to 31.5	563.8 to 558.8
MW-10	16.0	589.4	7.0 to 16.0	582.4 to 573.4	11.0 to 16.0	578.4 to 573.4
MW-10A	25.0	589.6	12.0 to 25.0	577.6 to 564.6	20.0 to 25.0	569.6 to 564.6
MW-11	18.0	590.8	11.0 to 18.0	579.8 to 572.8	13.0 to 18.0	577.8 to 572.8
MW-11A	27.5	590.7	20.5 to 27.5	570.2 to 563.2	22.5 to 27.5	568.2 to 563.2
MW-12	18.0	590.6	11.0 to 18.0	579.6 to 572.6	13.0 to 18.0	577.6 to 572.6
MW-12A	30.0	590.6	23.0 to 30.0	567.6 to 560.6	25.0 to 30.0	565.6 to 560.6
PZ-1	18.0	589.6	11.0 to 18.0	578.6 to 571.6	13.0 to 18.0	576.6 to 571.6
PZ-2	18.0	590.2	11.0 to 18.0	579.2 to 572.2	13.0 to 18.0	577.2 to 572.2
PZ-3	12.0	589.4	4.0 to 12.0	585.4 to 577.4	7.0 to 12.0	582.4 to 577.4

Notes:

Ft. BGS	Feet Below Ground Surface.
NGVD	National Geodetic Vertical Datum

TABLE 3.3

WATER LEVEL ELEVATIONS
SITE INVESTIGATION/FEASIBILITY STUDY
PARCEL 2 - SENECA STREET
BUFFALO, NEW YORK

Well No.	*Top of Casing*	*09/27/00*	*10/05/00*	*02/07/01*	*09/28/01*	*11/26/01*	*11-Jun-02*	*23-Sep-02*
MW-1	592.24	583.13	583.19	583.42	582.16	583.14	581.29	581.49
MW-2	591.23	583.18	583.13	583.35	582.01	583.08	581.93	581.47
MW-3	590.33	582.67	582.75	583.00	581.54	582.66	581.58	581.17
MW-4	590.51	583.09	583.11	583.29	582.02	583.01	581.81	580.80
MW-4A	590.61	579.36	579.72	579.81	578.09	578.71	578.11	578.42
MW-5	590.76	582.78	582.81	583.03	580.62	582.76	581.63	581.10
MW-6	591.47	--	--	--	581.96	NM	580.77	581.28
MW-7	590.41	--	--	--	581.72	582.51	581.41	581.31
MW-7A	590.42	--	--	--	577.87	578.42	577.87	578.22
MW-8	588.88	--	--	--	581.33	582.35	581.33	580.92
MW-8A	589.04	--	--	--	578.26	579.14	578.49	578.65
MW-9	589.71	--	--	--	581.92	582.73	580.61	584.41
MW-9A	589.55	--	--	--	577.99	578.35	578.17	578.18
MW-10	589.02	--	--	--	581.29	582.67	581.52	580.86
MW-10A	589.07	--	--	--	578.10	578.82	577.22	578.53
MW-11	590.40	--	--	--	581.87	582.80	583.20	582.20
MW-11A	590.20	--	--	--	578.68	578.95	580.05	579.00
MW-12	589.69	--	--	--	--	581.69	580.64	580.67
MW-12A	589.83	--	--	--	--	579.18	579.33	577.83
PZ-1	589.36	--	--	--	581.60	NM	581.61	581.20
PZ-2	590.04	--	--	--	581.86	NM	581.94	582.38
PZ-3	589.15	--	--	--	581.40	582.55	581.60	581.05
Storm Sewer	-	NM	NM	NM	NM	NM	Dry	Dry

Notes:

All elevations are relative to National Geodetic Vertical Datum

--	Not installed.
NM	Not measured.

TABLE 3.4

WELL RECOVERY INFORMATION
SITE INVESTIGATION/FEASIBILITY STUDY
PARCEL 2 - SENECA STREET
BUFFALO, NEW YORK

Well Number	*Description*
MW-1	Yield sufficient for purging and sampling
MW-2	Yield sufficient for purging and sampling
MW-3	Yield sufficient for purging and sampling
MW-4	Yield sufficient for purging and sampling
MW-4A	Dry after 1.5 volumes (5 gallons) removed. Same day recovery sufficient for sampling.
MW-5	Yield sufficient for purging and sampling.
MW-6	Yield sufficient for purging and sampling
MW-7	Yield sufficient for purging and sampling
MW-7A	Dry after 3 volumes (8 gallons) removed. Same day recovery sufficient for sampling.
MW-8	Yield sufficient for purging and sampling.
MW-8A	Dry after 2.5 volumes (5 gallons). 24-hour recovery 2.5 gallons.
MW-9	Dry after 4 volumes (5 gallons) removed, full recovery in 15 minutes.
MW-9A	Yield sufficient for purging and sampling.
MW-10	Dry after 4 volumes (1.0 gallon), same day recovery sufficient for sampling.
MW-10A	Yield sufficient for purging and sampling.
MW-11	Yield sufficient for purging and sampling.
MW-11A	Dry after 3 volumes (7.5 gallons) removed, recovery 1.8 gallons in 4 hours.
MW-12	Yield sufficient for purging and sampling.
MW-12A	Dry after 1.5 volumes (4.5 gallons) removed, recovery 3.3 gallons in approximately 48 hours.

TABLE 5.1

ESTIMATED HYDRAULIC CONDUCTIVITY VALUES
SITE INVESTIGATION/FEASIBILITY STUDY
PARCEL 2 - SENECA STREET
BUFFALO, NEW YORK

	Well ID	*Falling Head (cm/sec)*	*Rising Head (cm/sec)*	*Geometric Mean (cm/sec)*
Shallow Overburden	MW-1	2.460E-03	2.113E-03	
		2.375E-03	2.495E-03	2.356E-03
	MW-2	8.259E-03	7.132E-03	
		1.034E-02	1.025E-02	8.889E-03
	MW-3	4.548E-03	5.283E-03	
		6.219E-03	5.406E-03	5.331E-03
	MW-4	5.541E-03	4.981E-03	
		4.998E-03	5.723E-03	5.301E-03
	MW-5	4.594E-03	1.608E-03	
		4.484E-03	1.963E-03	2.840E-03
	MW-6	2.586E-03		2.586E-03
	MW-7	4.646E-03		4.646E-03
	MW-8	1.394E-04		1.394E-04
	MW-9	3.284E-04		3.284E-04
	MW-10		*- Not Tested -*	
	MW-11	1.145E-02	8.647E-03	9.950E-03
	MW-12	1.189E-02	7.039E-03	
		1.117E-02	4.638E-03	7.198E-03
Deep Overburden	MW-4A	1.693E-05	1.554E-05	1.622E-05
	MW-7A	1.452E-05	6.603E-06	9.792E-06
	MW-8A	1.932E-05	1.274E-05	1.569E-05
	MW-9A	3.769E-04	3.523E-04	3.644E-04
	MW-10A		*- Not Tested -*	
	MW-11A	2.500E-06		2.500E-06
	MW-12A	3.509E-06		3.509E-06

Note:

cm/sec	Centimeters per Second.

TABLE 6.1

GENERIC GROUNDWATER VOLATILIZATION TO INDOOR AIR INHALATION CRITERIA
SITE INVESTIGATION/FEASIBILITY STUDY
PARCEL 2 - SENECA STREET
BUFFALO, NEW YORK

Compound	*Units*	*Maximum Average Concentration*(1)	*Residential Criteria* (2)	*Industrial Criteria* (2)
Tetrachloroethene	μg/L	7,880 (MW-4)	25,000	170,000
Trichloroethene	μg/L	456 (MW-4)	15,000	97,000
cis-1,2-Dichloroethene	μg/L	240 (MW-2)	96,000	200,000

Notes:

(1) Maximum of the average groundwater concentration detected in on-Site monitoring wells.

(2) Source: Michigan Department of Environmental Quality, Part 201,
Operational Memo 18, Attachment A, June 2000.

TABLE 6.2

ORGANIC CHEMICAL COMPOUNDS DETECTED IN SOILS
SITE INVESTIGATION/FEASIBILITY STUDY
PARCEL 2 - SENECA STREET
BUFFALO, NEW YORK

		Sample Location:	*SB-1B*	*SB-3*	*SB-4*	*SB-6*	*SB-7*	*SB-8*	*SB-9*	*SB-10*	*SB-14*	*SB-15*
		Sample Depth (ft BGS):	*8.0-12.0*	*12.0-16.0*	*12.0-16.0*	*8.0-12.0*	*8.0-12.0*	*4.0-8.0*	*0-4.0*	*8.0-12.0*	*5.0-7.0*	*5.0-7.0*
		Sample Date:	*07/21/99*	*07/21/99*	*07/21/99*	*07/21/99*	*07/21/99*	*07/21/99*	*07/21/99*	*07/21/99*	*9/13/2000*	*9/13/2000*
Parameter	*TAGM 4046 Standard*	*Unit*										
Volatiles												
Acetone	200	µg/Kg	100 U	100 U	25	NA	NA	NA	NA	NA	24 U	21 U
2-Butanone	300	µg/Kg	100 U	100 U	100 U	NA	NA	NA	NA	NA	24 U	21UJ
cis-1,2-Dichloroethene	NS	µg/Kg	NA	NA	NA	NA	NA	NA	NA	NA	6.0 U	5.3 U
Tetrachloroethene	1400	µg/Kg	15	12000	421	NA	NA	NA	NA	NA	8.3	28
Methylene chloride	100	µg/Kg	20	7	3	NA	NA	NA	NA	NA	6.0 U	5.3 U
Trichloroethene	700	µg/Kg	2	54	12	NA	NA	NA	NA	NA	6.0 U	5.3 U
Toluene	1500	µg/Kg	3	5 U	5 U	1.5	2.7	7.0	1.9	5.9	6.0 U	5.3 U
Xylenes, total	1200	µg/Kg	2	5 U	5 U	2.8 U	2.8 U	7.5	2.8 U	7.6	6.0 U	5.3 U
Benzene	60	µg/Kg	5 U	5 U	5 U	1 U	1 U	5.1	1 U	1 U	6.0 U	5.3 U
Ethylbenzene	5500	µg/Kg	5 U	5 U	5 U	1 U	1 U	1.8	1 U	1 U	6.0 U	5.3 U
Semi-Volatiles												
Acenaphthene	50000	µg/Kg	NA	NA	NA	330 U	330 U	330 U	330 U	330 U	400 U	1800 UJ
Anthracene	50000	µg/Kg	NA	NA	NA	330 U	330 U	164	330 U	330 U	400 U	170 J
Benzo(a)anthracene	224	µg/Kg	NA	NA	NA	89	330 U	450	6340	330 U	400 U	710 J
Benzo(a)pyrene	61	µg/Kg	NA	NA	NA	87	330 U	520	6080	330 U	400 U	720 J
Benzo(b)fluoranthene	1100	µg/Kg	NA	NA	NA	157	330 U	513	6280	330 U	400 U	750 J
Benzo(g,h,i)perylene	50000	µg/Kg	NA	NA	NA	330 U	330 U	328	3420	330 U	400 U	280 J
Benzo(k)fluoranthene	1100	µg/Kg	NA	NA	NA	87	330 U	475	4080	330 U	400 U	730 J
bis(2-Ethylhexyl) phthalate	50000	µg/Kg	NA	NA	NA	330 U	330 U	330 U	330 U	330 U	400 U	1800 UJ
Carbazole	NS	µg/Kg	NA	NA	NA	330 U	330 U	330 U	330 U	330 U	400 U	1800 UJ
Chrysene	400	µg/Kg	NA	NA	NA	129	330 U	514	6670	330 U	400 U	830 J
Dibenzofuran	6200	µg/Kg	NA	NA	NA	330 U	330 U	330 U	330 U	330 U	400 U	1800 UJ
Dibenz(a,h)anthracene	14	µg/Kg	NA	NA	NA	330 U	330 U	330 U	1690	330 U	400 U	1800 UJ
Fluoranthene	50000	µg/Kg	NA	NA	NA	258	330 U	1280	8330	330 U	400 U	1800 J
Fluorene	50000	µg/Kg	NA	NA	NA	330 U	330 U	89	330 U	330 U	400 U	1800 UJ
Indeno(1,2,3-cd)pyrene	3200	µg/Kg	NA	NA	NA	330 U	330 U	275	3180	330 U	400 U	290 J
Naphthalene	13000	µg/Kg	NA	NA	NA	330 U	330 U	330 U	330 U	330 U	400 U	1800 UJ
Phenanthrene	50000	µg/Kg	NA	NA	NA	160	330 U	979	330 U	330 U	400 U	950 J
Pyrene	50000	µg/Kg	NA	NA	NA	242	330 U	1340	12600	330 U	400 U	860 J
2-Methyl naphthalene	35400	µg/Kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:

J	Estimated.
NA	Not analyzed.
TAGM	Technical and Administrative Guidance Memoranda.
U	Non-detect at associated value.
☐	Exceeds standard.

TABLE 6.2

ORGANIC CHEMICAL COMPOUNDS DETECTED IN SOILS
SITE INVESTIGATION/FEASIBILITY STUDY
PARCEL 2 - SENECA STREET
BUFFALO, NEW YORK

		Sample Location:	***SB-16A***	***SB-17***	***SB-17***	***SB-17***	***SB-17***	***SB-17***	***SB-18***	***SB-19***	***SB-21***	***SB-22***
		Sample Depth (ft BGS):	***7.0-9.0***	***0-2.0***	***2.0-4.0***	***4.0-6.0***	***6.0-8.0***	***8.0-10.0***	***6.0-8.0***	***6.0-8.0***	***6.0-8.0***	***11.0-22.0***
		Sample Date:	***9/18/2000***	***08/22/01***	***08/22/01***	***08/22/01***	***08/22/01***	***08/22/01***	***08/22/01***	***08/20/01***	***08/20/01***	***08/22/01***
Parameter	***TAGM 4046 Standard***	***Unit***										
Volatiles												
Acetone	200	µg/Kg	$\boxed{\text{420 J}}$	21 U	21 U	25 U	25 U	24 U	46 U	25 U	24 U	24 U
2-Butanone	300	µg/Kg	1300U	21 U	21 U	25 U	25 U	24 U	8.3 J	25 U	24 U	24 U
cis-1,2-Dichloroethene	NS	µg/Kg	310 U	5.2 U	5.2 U	6.2 U	6.2 U	1.5J	6.1	70	6.0 U	5.9 U
Tetrachloroethene	1400	µg/Kg	$\boxed{\text{7200}}$	13	33	16	140	$\boxed{\text{9700}}$	2.9J	$\boxed{\text{29000}}$	2.9 J	19
Methylene chloride	100	µg/Kg	310 U	5.2 U	5.2 U	6.2 U	6.2 U	6.1 U	5.7 U	6.3 U	6.0 U	5.9 U
Trichloroethene	700	µg/Kg	310 U	5.2 U	5.2 U	6.2 U	6.2 U	13	6.1	25	6.0 U	5.9 U
Toluene	1500	µg/Kg	310 U	5.2 U	5.2 U	6.2 U	6.2 U	6.1 U	5.7 U	6.3 U	6.0 U	5.9 U
Xylenes, total	1200	µg/Kg	310 U	16 U	16 U	19 U	19 U	18 U	17 U	19 U	18 U	18 U
Benzene	60	µg/Kg	310 U	5.2 U	5.2 U	6.2 U	6.2 U	6.1 U	5.7 U	6.3 U	6.0 U	5.9 U
Ethylbenzene	5500	µg/Kg	310 U	5.2 U	5.2 U	6.2 U	6.2 U	6.1 U	5.7 U	6.3 U	6.0 U	5.9 U
Semi-Volatiles												
Acenaphthene	50000	µg/Kg	410 U	NA	NA	NA	NA	NA	1200 J	410 U	NA	NA
Anthracene	50000	µg/Kg	410 U	NA	NA	NA	NA	NA	1800 J	410 U	NA	NA
Benzo(a)anthracene	224	µg/Kg	410 U	NA	NA	NA	NA	NA	$\boxed{\text{3200 J}}$	410 U	NA	NA
Benzo(a)pyrene	61	µg/Kg	410 U	NA	NA	NA	NA	NA	$\boxed{\text{2200 J}}$	410 U	NA	NA
Benzo(b)fluoranthene	1100	µg/Kg	410 U	NA	NA	NA	NA	NA	$\boxed{\text{2000 J}}$	410 U	NA	NA
Benzo(g,h,i)perylene	50000	µg/Kg	410 U	NA	NA	NA	NA	NA	1100 J	410 U	NA	NA
Benzo(k)fluoranthene	1100	µg/Kg	410 U	NA	NA	NA	NA	NA	$\boxed{\text{1400 J}}$	410 U	NA	NA
bis(2-Ethylhexyl) phthalate	50000	µg/Kg	410 U	NA	NA	NA	NA	NA	3800 U	120 J	NA	NA
Carbazole	NS	µg/Kg	410 U	NA	NA	NA	NA	NA	880 J	410 U	NA	NA
Chrysene	400	µg/Kg	22 J	NA	NA	NA	NA	NA	$\boxed{\text{2900 J}}$	410 U	NA	NA
Dibenzofuran	6200	µg/Kg	410 U	NA	NA	NA	NA	NA	730 J	410 U	NA	NA
Dibenz(a,h)anthracene	14	µg/Kg	410 U	NA	NA	NA	NA	NA	3800 U	410 U	NA	NA
Fluoranthene	50000	µg/Kg	46 J	NA	NA	NA	NA	NA	5900	43 J	NA	NA
Fluorene	50000	µg/Kg	410 U	NA	NA	NA	NA	NA	1100 J	410 U	NA	NA
Indeno(1,2,3-cd)pyrene	3200	µg/Kg	410 U	NA	NA	NA	NA	NA	1100 J	410 U	NA	NA
Naphthalene	13000	µg/Kg	410 U	NA	NA	NA	NA	NA	1700 J	410 U	NA	NA
Phenanthrene	50000	µg/Kg	46 J	NA	NA	NA	NA	NA	6900	410 U	NA	NA
Pyrene	50000	µg/Kg	44 J	NA	NA	NA	NA	NA	5800	51 J	NA	NA
2-Methyl naphthalene	35400	µg/Kg	NA	NA	NA	NA	NA	NA	460 J	410 U	NA	NA

Notes:

J	Estimated.
NA	Not analyzed.
TAGM	Technical and Administrative Guidance Memoranda.
U	Non-detect at associated value.
☐	Exceeds standard.

TABLE 6.2

ORGANIC CHEMICAL COMPOUNDS DETECTED IN SOILS
SITE INVESTIGATION/FEASIBILITY STUDY
PARCEL 2 - SENECA STREET
BUFFALO, NEW YORK

		Sample Location:	***SB-23***	***SB-24***	***SB-25***	***MW-1***	***MW-2***	***MW-3***	***MW-3***	***MW-4***	***MW-5***
		Sample Depth (ft BGS):	***11.0-12.0***	***8.0-10.0***	***8.0-10.0***	***3.0-5.0***	***3.0-5.0***	***0-2.0***	***4.0-6.0***	***3.0-5.0***	***1.0-3.0***
		Sample Date:	***08/22/01***	***08/20/01***	***08/20/01***	***9/14/2000***	***9/15/2000***	***9/14/2000***	***9/14/2000***	***9/15/2000***	***9/14/2000***
Parameter	***TAGM 4046 Standard***	***Unit***									
Volatiles											
Acetone	200	µg/Kg	24 U	24 U/24 U	24 U	27 J	29 J	25 UJ	28 J	21 U	27 U
2-Butanone	300	µg/Kg	24 U	24 U/24 U	24 U	24 UJ	24 UJ	25 UJ	25 UJ	21 UJ	27 UJ
cis-1,2-Dichloroethene	NS	µg/Kg	5.9 U	6.0 U/6.0 U	6.0 U	6.0 U	6.0 U	6.2 U	6.3 U	5.3 U	6.7 U
Tetrachloroethene	1400	µg/Kg	1.6 J	53/9.8	1.5 J	6.0 U	6.0 U	6.2 U	6.3 U	13	6.7 U
Methylene chloride	100	µg/Kg	5.9 U	6.0 U/6.0 U	6.0 U	6.0 U	6.0 U	6.2 U	6.3 U	5.3 U	6.7 U
Trichloroethene	700	µg/Kg	5.9 U	6.0 U/6.0 U	6.0 U	6.0 U	6.0 U	6.2 U	6.3 U	5.3 U	6.7 U
Toluene	1500	µg/Kg	5.9 U	6.0 U/6.0 U	6.0 U	6.0 U	6.0 U	6.2 U	6.3 U	5.3 U	6.7 U
Xylenes, total	1200	µg/Kg	18 U	18 U/18 U	18 U	6.0 U	6.0 U	6.2 U	6.3 U	5.3 U	6.7 U
Benzene	60	µg/Kg	5.9 U	6.0 U/6.0 U	6.0 U	6.0 U	6.0 U	6.2 U	6.3 U	5.3 U	6.7 U
Ethylbenzene	5500	µg/Kg	5.9 U	6.0 U/6.0 U	6.0 U	6.0 U	6.0 U	6.2 U	6.3 U	5.3 U	6.7 U
Semi-Volatiles											
Acenaphthene	50000	µg/Kg	NA	400 U/400 U	NA	400 U	2000 U	410 U	410 U	970 J	440 U
Anthracene	50000	µg/Kg	NA	400 U/400 U	NA	400 U	2000 U	31 J	410 U	2100 J	30 J
Benzo(a)anthracene	224	µg/Kg	NA	400 U/400 U	NA	400 U	150 J	160 J	410 U	5700 J	88 J
Benzo(a)pyrene	61	µg/Kg	NA	400 U/400 U	NA	22 J	2000 U	160 J	410 U	5600	90 J
Benzo(b)fluoranthene	1100	µg/Kg	NA	400 U/400 U	NA	30 J	190 J	210 J	410 U	6400	78 J
Benzo(g,h,i)perylene	50000	µg/Kg	NA	400 U/400 U	NA	400 U	2000 U	53 J	410 U	1500 J	50 J
Benzo(k)fluoranthene	1100	µg/Kg	NA	400 U/400 U	NA	400 U	170 J	160 J	410 U	5400	70 J
bis(2-Ethylhexyl) phthalate	50000	µg/Kg	NA	400 U/400 U	NA	400 U	2000 U	410 U	410 U	3500 U	440 U
Carbazole	NS	µg/Kg	NA	400 U/400 U	NA	400 U	2000 U	410 U	410 U	3500 U	440 U
Chrysene	400	µg/Kg	NA	400 U/400 U	NA	28 J	190 J	180 J	410 U	6200 J	110 J
Dibenzofuran	6200	µg/Kg	NA	400 U/400 U	NA	400 U	2000 U	410 U	410 U	3500 U	440 U
Dibenz(a,h)anthracene	14	µg/Kg	NA	400 U/400 U	NA	400 U	2000 U	410 U	410 U	500 J	440 U
Fluoranthene	50000	µg/Kg	NA	400 U/400 U	NA	55 J	540 J	490	410 U	22000	220 J
Fluorene	50000	µg/Kg	NA	400 U/400 U	NA	400 U	2000 U	410 U	410 U	1100 J	440 U
Indeno(1,2,3-cd)pyrene	3200	µg/Kg	NA	400 U/400 U	NA	400 U	2000 U	53 J	410 U	1700 J	45 J
Naphthalene	13000	µg/Kg	NA	400 U/400 U	NA	400 U	2000 U	410 U	410 U	3500 U	440 U
Phenanthrene	50000	µg/Kg	NA	400 U/400 U	NA	29 J	260 J	160 J	410 U	11000	140 J
Pyrene	50000	µg/Kg	NA	400 U/400 U	NA	22 J	220 J	180 J	410 U	8200 J	120 J
2-Methyl naphthalene	35400	µg/Kg	NA	400 U/400 U	NA	NA	NA	NA	NA	NA	NA

Notes:

J	Estimated.
NA	Not analyzed.
TAGM	Technical and Administrative Guidance Memoranda.
U	Non-detect at associated value.
☐	Exceeds standard.

TABLE 6.3

METALS DETECTED IN SOIL
SITE INVESTIGATION/FEASIBILITY STUDY
PARCEL 2 - SENECA STREET
BUFFALO, NEW YORK

		Sample Location:	*MW-1*	*MW-2*	*MW-2*	*MW-2*	*MW-3*	*MW-3*	*MW-4*
		Sample ID:	*S-091400-KL-007*	*S-091500-KL-012*	*S-091500-KL-013*	*S-091500-KL-014*	*S-091400-KL-009*	*S-091400-KL-010*	*S-091500-KL-015*
		Sample Depth (ft. BGS):	*3.0-5.0*	*3.0-50*	*7.0-9.0*	*7.0-9.0*	*0-2.0*	*4.0-6.0*	*3.0-5.0*
		Sample Date:	*9/14/2000*	*9/15/2000*	*9/15/2000*	*9/15/2000* *Duplicate*	*9/14/2000*	*09/14/00*	*9/15/2000*
	TAGM 4046 Std								
Metals									
Aluminum	Background	mg/Kg	11700	15300	9050	8990	9460	12900	9060
Antimony	Background	mg/Kg	0.80 UJ	0.64 UJ	0.40 UJ	0.88 J	0.81 J	0.54 UJ	0.46 UJ
Arsenic	7.5	mg/Kg	8.5	4.8	7.5	7.0	8.1	10.7	4.6
Barium	300	mg/Kg	68.7	457	55.1	60.1	76.2	107	129
Cadmium	1	mg/Kg	0.60 UJ	0.60 UJ	0.61 UJ	0.62 UJ	0.12 J	0.63 UJ	0.88 J
Calcium	Background	mg/Kg	20000	171000	2760	2890	27400	1770	201000
Chromium	10	mg/Kg	16.0	12.6	11.9	12.0	14.9	16.9	6.1
Cobalt	30	mg/Kg	11.1	8.5	11.2	10.9	10.7	15.9	2.6
Copper	25	mg/Kg	16.8	20.6	27.4	26.1	30.2	31.0	11.2
Iron	2000	mg/Kg	28500	11700	23600	23200	23100	32400	9310
Lead	Background	mg/Kg	33.9	25.6	11.3	11.1	87.6	15.8	34.9
Magnesium	Background	mg/Kg	4740 J	31200 J	3400 J	3470 J	9790 J	4830 J	9420 J
Manganese	Background	mg/Kg	453	1700	384	365	627	603	413
Nickel	13	mg/Kg	23.6	11.3	25.4	26.0	22.2	35.4	7.6
Potassium	Background	mg/Kg	915	1360	771	691	924	943	931
Selenium	2	mg/Kg	0.34	1.2 U	0.61 U	0.62 U	0.62 U	0.63 U	0.53 U
Silver	Background	mg/Kg	1.2 U	0.19	1.2 U	1.2 U	1.2 U	1.3 U	1.1 U
Sodium	Background	mg/Kg	343 U	507	142 U	161 U	138 U	79.0 U	358 U
Thallium	Background	mg/Kg	1.2	3.4	1.4	0.87	1.5	1.1	1.6
Vanadium	150	mg/Kg	17.8	13.2	15.7	14.8	18.8	19.6	9.3
Zinc	20	mg/Kg	84.3	141	83.2	82.0	121	108	311
Mercury	0.1	mg/Kg	0.043	0.068	0.031	0.023	0.11	0.035	0.042
Cyanide (total)		mg/Kg	0.60 U	3.8	0.61 U	0.62 U	17.1	0.63 U	0.53 U

Notes:

-	Not applicable.
J	Estimated.
TAGM	Technical Administrative Guidance Memoranda.
U	Non-detect at associated value.
☐	Exceeds standard.

TABLE 6.3

METALS DETECTED IN SOIL
SITE INVESTIGATION/FEASIBILITY STUDY
PARCEL 2 - SENECA STREET
BUFFALO, NEW YORK

		Sample Location:	*MW-5*	*SB-11*	*SB-12*	*SB-13*	*SB-14*	*SB-15*	*SB-16A*
		Sample ID:	*S-091400-KL-008*	*S-091300-KL-001*	*S-091300-KL-005*	*S-091300-KL-002*	*S-091300-KL-003*	*S-091300-KL-004*	*S-091800-KL-016*
		Sample Depth (ft. BGS):	*1.0-3.0*	*7.0-9.0*	*7.0-9.0*	*7.0-9.0*	*5.0-7.0*	*5.0-7.0*	*7.0-9.0*
		Sample Date:	*9/14/2000*	*9/13/2000*	*9/13/2000*	*9/13/2000*	*9/13/2000*	*9/13/2000*	*9/18/2000*
	TAGM 4046 Std								
Metals									
Aluminum	Background	mg/Kg	14100	14500	14100	10200	10500	4230	11100
Antimony	Background	mg/Kg	0.58 UJ	0.70 UJ	0.93 J	0.62 UJ	0.32 UJ	0.46 UJ	0.78 UJ
Arsenic	7.5	mg/Kg	9.7	9.7	12.9	8.6	9.3	4.8	9.9
Barium	300	mg/Kg	85.9	80.2	103	50.8	56.4	71.4	67.9
Cadmium	1	mg/Kg	1.5 J	0.61 UJ	0.62 UJ	0.60 UJ	0.60 UJ	0.48 J	0.63 UJ
Calcium	Background	mg/Kg	42600	2020	1450	1840	2190	178000	2100
Chromium	10	mg/Kg	18.4	18.9	18.6	13.2	12.9	22.8	13.7
Cobalt	30	mg/Kg	15.7	13.2	16.6	11.9	14.8	3.0	16.8
Copper	25	mg/Kg	96.6	30.0	33.7	27.1	31.5	21.0	32.0
Iron	2000	mg/Kg	30800	34000	36100	26300	26900	9270	28000
Lead	Background	mg/Kg	44.8	12.6	17.3	11.7	13.7	354	13.9
Magnesium	Background	mg/Kg	11100 J	5360 J	5230 J	3790 J	3730 J	26400 J	3940 J
Manganese	Background	mg/Kg	515	459	673	422	668	315	708
Nickel	13	mg/Kg	31.8	37.8	37.5	28.4	31.2	8.7	31.3
Potassium	Background	mg/Kg	1620	1090	1030	737	902	585	795
Selenium	2	mg/Kg	0.67 U	1.2 U	0.62 U	0.60 U	0.60 U	0.54 U	0.63 U
Silver	Background	mg/Kg	1.4 U	1.2 U	1.2 U	1.2 U	1.2 U	1.1 U	1.3 U
Sodium	Background	mg/Kg	151 U	112 U	255 U	156 U	114 U	421	220 U
Thallium	Background	mg/Kg	1.5	1.8	1.2	1.4	2.2	0.86	1.4
Vanadium	150	mg/Kg	21.4	21.0	21.4	17.3	18.2	9.6	17.9
Zinc	20	mg/Kg	1310	102	103	81.0	84.6	186	87.5
Mercury	0.1	mg/Kg	0.091	0.032 U	0.026 U	0.017 U	0.033 U	0.13	0.034
Cyanide (total)		mg/Kg	0.67 U	0.61 U	0.62 U	0.60 U	0.60 U	0.53 U	0.63 U

Notes:

-	Not applicable.
J	Estimated.
TAGM	Technical Administrative Guidance Memoranda.
U	Non-detect at associated value.
☐	Exceeds standard.

TABLE 6.4

ORGANIC CHEMICAL COMPOUNDS DETECTED IN GROUNDWATER
SITE INVESTIGATION/FEASIBILITY STUDY
PARCEL 2 - SENECA STREET
BUFFALO, NEW YORK

		Sample Location:	*SB-1B*	*SB-6*	*MW-1*		*MW-2*				
		Sample Date:	*7/21/99*	*7/21/99*	*10/4/2000*	*9/19/01*	*10/5/2000*	*9/20/01*	*11/29/01*	*6/20/02*	*9/24/02*
Parameter	***Groundwater Std.***[(1)]	***Units***									
Volatile Organic Compounds											
1,1,1-Trichloroethane	5	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	25 U	5.0 U	5.0 U	5.0 U	5.0 U
1,1-Dichloroethane	5	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	25 U	5.0 U	5.0 U	5.0 U	5.0 U
1,1-Dichloroethene	5	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	25 U	5.0 U	5.0 U	5.0 U	5.0 U
Acetone	50	µg/L	100 U	100 U	3.7 J	20 U	100 U	20 U	20 U	20 U	20 U
Carbon disulfide	5	µg/L	5.0 U	5.0 U	5.0 UJ	5.0 U	25 UJ	5.0 U	5.0 U	5.0 U	5.0 U
cis-1,2-Dichloroethene	5	µg/L	NA	NA	5.0 U	5.0 U	400	180	140	71	9.3
Tetrachloroethene	5	µg/L	12600	5.0 U	5.0 U	5.0 U	690 J	50	85	70	16
trans-1,2-Dichloroethene	5	µg/L	2.0	5.0 U	5.0 U	5.0 U	25 U	5.0 U	5.0 U	5.0 U	5.0 U
Trichloroethene	5	µg/L	537	5.0 U	5.0 U	5.0 U	350	210	140	83	6.7
Vinyl chloride	5	µg/L	10 U	10 U	10 U	10 U	50 U	4.5J	5.0 J	1.4 J	10 U
Ethylbenzene	5	µg/L	7.1	2.8 U	5.0 U	5.0 U	25 U	5.0 U	5.0 U	5.0 U	5.0 U
Methyl Tert Butyl Ether		µg/L	NA	NA	NA	5.0 U	NA	5.0 U	5.0 U	5.0 U	5.0 U
Xylenes, Total	5	µg/L	4.6	2.8U	5.0 U	15.0 U	25 U	15.0 U	15.0 U	15.0 U	15.0 U
Semi-Volatile Organic Compounds											
Caprolactum		µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:

(1)	New York State Ambient Water Quality Standards, Class GA Groundwater, Technical and Operation Guidance Standards (TOGS) 1.1.1.
NA	Not analyzed.
J	Estimated.
R	Rejected.
U	Non-detect at associated value.
☐	Exceeds standard.
100/10	Results of duplicate analyses

TABLE 6.4

ORGANIC CHEMICAL COMPOUNDS DETECTED IN GROUNDWATER
SITE INVESTIGATION/FEASIBILITY STUDY
PARCEL 2 - SENECA STREET
BUFFALO, NEW YORK

		Sample Location:	*MW-4*					*MW-4A*				
		Sample Date:	*10/5/2000*	*9/24/01*	*11/25/01*	*6/19/02*	*9/25/02*	*10/4/2000*	*9/24/01*	*11/29/01*	*6/20/02*	*9/25/02*
Parameter	***Groundwater Std.(1)***	***Units***										
Volatile Organic Compounds												
1,1,1-Trichloroethane	5	µg/L	500 U/500 U	5.0 U	150 U/250 U	75 U	1000 U/250 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
1,1-Dichloroethane	5	µg/L	500 U/500 U	5.0 U	150 U/250 U	75 U	1000 U/250 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
1,1-Dichloroethene	5	µg/L	500 U/500 U	5.0 U	150 U/250 U	75 U	1000 U/250 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Acetone	50	µg/L	R	20 U	600 U/1000 U	300 U	4000 U/1000 U	17 J	20 U	20 U	20 U	20 U
Carbon disulfide	5	µg/L	500 UJ/500 UJ	5.0 U	150 U/250 U	75 U	1000 U/250 U	5.0 UJ	5.0 U	5.0 U	5.0 U	5.0 U
cis-1,2-Dichloroethene	5	µg/L	250 J/220 J	3.8 J	100 J/160 J	120	220 J/220 J	7.6	33	46	110	6.4
Tetrachloroethene	5	µg/L	17000 J/15000 J	41	5800/9400	2200	19000/17000	730	65	32	7.1	20
trans-1,2-Dichloroethene	5	µg/L	500 U/500 U	5.0 U	150 U/250 U	75 U	1000 U/250 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Trichloroethene	5	µg/L	940 /840	6.5	360/580	330	1300/1500	30	270	95	25	22
Vinyl chloride	5	µg/L	500 U/500 U	10 U	300 U/500 U	150 U	2000 U/500 U	10 U	10 U	10 U	10 U	10 U
Ethylbenzene	5	µg/L	500 U/500 U	5.0 U	150 U/250 U	75 U	1000 U/250 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Methyl Tert Butyl Ether		µg/L	NA/NA	5.0 U	150 U/250 U	75 U	1000 U/250 U	NA	5.0 U	5.0 U	5.0 U	5.0 U
Xylenes, Total	5	µg/L	500 U/500 U	15.0 U	450 U/750 U	220 U	3000 U/750 U	5.0 U	15.0 U	15.0 U	15.0 U	15.0 U
Semi-Volatile Organic Compounds												
Caprolactum		µg/L	NA	NA	NA	NA	NA/NA	NA	NA	NA	NA	NA

Notes:

(1) New York State Ambient Water Quality Standards,
Class GA Groundwater, Technical and Operation
Guidance Standards (TOGS) 1.1.1.

NA Not analyzed.

J Estimated.

R Rejected.

U Non-detect at associated value.

☐ Exceeds standard.

100/10 Results of duplicate analyses

TABLE 6.4

ORGANIC CHEMICAL COMPOUNDS DETECTED IN GROUNDWATER
SITE INVESTIGATION/FEASIBILITY STUDY
PARCEL 2 - SENECA STREET
BUFFALO, NEW YORK

		Sample Location:	***MW-5***		***MW-6***	***MW-7***	***MW-8A***	***MW-9***			
		Sample Date:	***10/4/2000***	***9/19/01***	***9/24/01***	***9/24/01***	***9/20/01***	***9/21/01***	***11/27/01***	***6/19/02***	***9/25/02***
Parameter	***Groundwater Std.***[(1)]	***Units***									
Volatile Organic Compounds											
1,1,1-Trichloroethane	5	µg/L	2.8 J	5.0 U	5.0 U/5.0 U	5.0 U	5.0 U	5.0 U	250 U	200 U	5.0 U
1,1-Dichloroethane	5	µg/L	1.5 J	5.0 U	5.0 U/5.0 U	5.0 U	5.0 U	5.0 U	250 U	200 U	5.0 U
1,1-Dichloroethene	5	µg/L	5.0 U	5.0 U	5.0 U/5.0 U	5.0 U	5.0 U	2.0 J	250 U	200 U	5.0 U
Acetone	50	µg/L	4.3 J	20 U	20 U/20 U	20 U	13 J	20 U	1000 U	800 U	20 U
Carbon disulfide	5	µg/L	5.0 UJ	5.0 U	5.0 U/5.0 U	1.1J	5.0 U	5.0 U	250 U	200 U	5.0 U
cis-1,2-Dichloroethene	5	µg/L	5.0 U	5.0 U	5.0 U/5.0 U	5.0 U	5.0 U	230 J	260	280	62
Tetrachloroethene	5	µg/L	5.0 U	5.0 U	5.0 U/5.0 U	5.0 U	5.0 U	12000	9500	4600	660
trans-1,2-Dichloroethene	5	µg/L	5.0 U	5.0 U	5.0 U/5.0 U	5.0 U	5.0 U	2.2 J	250 U	200 U	5.0 U
Trichloroethene	5	µg/L	5.0 U	5.0 U	5.0 U/5.0 U	5.0 U	5.0 U	1200	1000	540	140
Vinyl chloride	5	µg/L	10 U	10 U	10 U/10 U	10 U	10 U	2.7 J	250 U	400 U	10 U
Ethylbenzene	5	µg/L	5.0 U	5.0 U	5.0 U/5.0 U	5.0 U	5.0 U	5.0 U	250 U	200 U	5.0 U
Methyl Tert Butyl Ether		µg/L	NA	5.0 U	5.0 U/5.0 U	5.0 U	5.0 U	5.0 U	250 U	200 U	5.0 U
Xylenes, Total	5	µg/L	5.0 U	15.0 U	15U/15U	15.0 U	15.0 U	15.0 U	750 U	600 U	15.0 U
Semi-Volatile Organic Compounds											
Caprolactum		µg/L	NA	NA	5100/4000	1600	NA	NA	NA	NA	NA

Notes:

(1)	New York State Ambient Water Quality Standards, Class GA Groundwater, Technical and Operation Guidance Standards (TOGS) 1.1.1.
NA	Not analyzed.
J	Estimated.
R	Rejected.
U	Non-detect at associated value.
☐	Exceeds standard.
100/10	Results of duplicate analyses

TABLE 6.4

ORGANIC CHEMICAL COMPOUNDS DETECTED IN GROUNDWATER
SITE INVESTIGATION/FEASIBILITY STUDY
PARCEL 2 - SENECA STREET
BUFFALO, NEW YORK

		Sample Location:	*MW-9A*				*MW-10*	*MW-10A*	*MW-11*			
		Sample Date:	***9/21/01***	***11/28/01***	***6/19/02***	***9/26/02***	***9/20/01***	***9/20/01***	***9/21/01***	***11/28/01***	***6/19/02***	***9/25/02***
Parameter	***Groundwater Std.***[(1)]	***Units***										
Volatile Organic Compounds												
1,1,1-Trichloroethane	5	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	10 U	5.0 U	5.0 U/5.0 U	50 U
1,1-Dichloroethane	5	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	10 U	5.0 U	5.0 U/5.0 U	50 U
1,1-Dichloroethene	5	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	10 U	5.0 U	5.0 U/5.0 U	50 U
Acetone	50	µg/L	20 U	20 U	20 U	20 U	20 U	5.7 J	40 U	20 U	20 U/20 U	200 U
Carbon disulfide	5	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	10 U	5.0 U	5.0 U/5.0 U	50 U
cis-1,2-Dichloroethene	5	µg/L	5.0 U	2.0 J	1.5 J	3.2 J	5.0 U	5.0 U	4.3 J	29	2.0 J/1.7 J	18 J
Tetrachloroethene	5	µg/L	27	41	9.2	5.0	5.0 U	5.0 U	240	1700	22J / 5.7 J	1000
trans-1,2-Dichloroethene	5	µg/L	3.7J	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	10 U	5.0 U	5.0 U/5.0 U	50 U
Trichloroethene	5	µg/L	5.0 U	7.7	5.1	3.9 J	5.0 U	5.0 U	12	84	3.4 J/2.2 J	81
Vinyl chloride	5	µg/L	10 U	10 U	10 U	10 U	10 U	10 U	20 U	10 U	10 U/10 U	100 U
Ethylbenzene	5	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	10 U	5.0 U	5.0 U/5.0 U	50 U
Methyl Tert Butyl Ether		µg/L	5.0 U	5.0 U	5.0 U	5.0 U	2.9 J	5.0 U	10 U	5.0 U	5.0 U/5.0 U	50 U
Xylenes, Total	5	µg/L	15.0 U	15.0 U	15.0 U	15.0 U	15.0 U	15.0 U	30 U	15.0 U	15.0 U/15.0 U	150 U
Semi-Volatile Organic Compounds												
Caprolactum		µg/L	NA	NA	NA	NA	10 U	NA	10 U	NA	NA	NA

Notes:

[(1)]	New York State Ambient Water Quality Standards, Class GA Groundwater, Technical and Operation Guidance Standards (TOGS) 1.1.1.
NA	Not analyzed.
J	Estimated.
R	Rejected.
U	Non-detect at associated value.
☐	Exceeds standard.
100/10	Results of duplicate analyses

TABLE 6.4

ORGANIC CHEMICAL COMPOUNDS DETECTED IN GROUNDWATER
SITE INVESTIGATION/FEASIBILITY STUDY
PARCEL 2 - SENECA STREET
BUFFALO, NEW YORK

		Sample Location:	*MW-11A*				*MW-12*			*MW-12A*		
		Sample Date:	***9/20/01***	***11/29/01***	***6/20/02***	***9/25/02***	***11/27/01***	***6/20/02***	***9/25/02***	***11/30/01***	***6/20/02***	***9/26/02***
Parameter	***Groundwater Std.(1)***	***Units***										
Volatile Organic Compounds												
1,1,1-Trichloroethane	5	µg/L	5.0 U	10 U	5.0 U	5.0 U	5.0 U	120 U	120 U	5.0 U	5.0 U	5.0 U
1,1-Dichloroethane	5	µg/L	5.0 U	10 U	5.0 U	5.0 U	5.0 U	120 U	120 U	5.0 U	5.0 U	5.0 U
1,1-Dichloroethene	5	µg/L	5.0 U	10 U	5.0 U	5.0 U	3.2 J	120 U	120 U	5.0 U	5.0 U	5.0 U
Acetone	50	µg/L	20 U	40 U	20 U	20 U	20 U	500 U	500 U	5.6 J	6.1 J	20 U
Carbon disulfide	5	µg/L	1.5 J	10 U	5.0 U	5.0 U	5.0 U	120 U	120 U	2.7 J	5.0 U	5.0 U
cis-1,2-Dichloroethene	5	µg/L	5.5	7.1J	6.2	120	360	440	4200	33	54	130
Tetrachloroethene	5	µg/L	480	240	56	3.6 J	6200	4000	240	100	9.5	4.6 J
trans-1,2-Dichloroethene	5	µg/L	5.0 U	10 U	5.0 U	5.0 U	3.0 J	120 U	120 U	5.0 U	5.0 U	5.0 U
Trichloroethene	5	µg/L	75	80	43	11	2000	1300	250	36	15	9.0
Vinyl chloride	5	µg/L	10 U	20 U	10 U	10 U	3.3 J	250 U	250 U	10 U	10 U	10 U
Ethylbenzene	5	µg/L	5.0 U	10 U	5.0 U	5.0 U	5.0 U	120 U	120 U	5.0 U	5.0 U	5.0 U
Methyl Tert Butyl Ether		µg/L	5.0 U	10 U	5.0 U	5.0 U	5.0 U	120 U	120 U	5.0 U	5.0 U	5.0 U
Xylenes, Total	5	µg/L	15.0 U	30 U	15.0 U	15.0 U	15.0 U	380 U	380 U	15.0 U	15.0 U	15.0 U
Semi-Volatile Organic Compounds												
Caprolactum		µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:

(1)	New York State Ambient Water Quality Standards, Class GA Groundwater, Technical and Operation Guidance Standards (TOGS) 1.1.1.
NA	Not analyzed.
J	Estimated.
R	Rejected.
U	Non-detect at associated value.
☐	Exceeds standard.
100/10	Results of duplicate analyses

TABLE 6.5

METALS DETECTED IN GROUNDWATER
SITE INVESTIGATION/FEASIBILITY STUDY
PARCEL 2 - SENECA STREET
BUFFALO, NEW YORK

		Sample Location:	***SB-1B***	***SB-6***	***MW-1***	***MW-2***	***MW-3***	***MW-4***	***MW-4***	***MW-4A***	***MW-5***
		Sample Date:	***7/21/99***	***7/21/99***	***10/4/2000***	***10/5/2000***	***10/5/2000***	***10/5/2000***	***10/5/2000 Duplicate***	***10/4/2000***	***10/4/2000***
Parameter	***Groundwater Std.***(1)	***Units***									
Aluminum	-	ug/L	NA	NA	153	86.0	105	394	440	1290/200U	53.1
Arsenic	25	ug/L	NA	NA	10.0 U	4.1	10.0 U	10.0 U	10.0 U	10.0 U/10.0U	10.0U
Barium	1,000	ug/L	NA	NA	181	137	61.4	111	112	164/154	88.1
Calcium	-	ug/L	NA	NA	153000	143000	112000	129000	130000	74700/62700	104000
Chromium	50	ug/L	NA	NA	2.2 U	1.6	1.9 U	1.7	1.2	3.8 U/10.0U	1.8U
Copper	200	ug/L	NA	NA	25.0 U	6.9 U	25.0 U	5.3 U	5.8 U	8.2 U	25.0U
Iron	300	ug/L	NA	NA	6820	1010	587	1060	1110	8130/164	1750
Lead	25	ug/L	2280	1820	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.5/3.0U	3.0U
Magnesium	35,000	ug/L	NA	NA	42500	24100	21000	25900	26100	21600/18800	12300
Manganese	300	ug/L	NA	NA	2270	1940	289	823	822	135/62.0	1380
Nickel	100	ug/L	NA	NA	7.5	6.4	11.9	9.3	14.8	18.7/9.9	11.6
Potassium	-	ug/L	NA	NA	1760	7640	8720	5010	5270	2150/1310	3670
Selenium	10	ug/L	NA	NA	2.4	5.0 U	2.3	5.0 U	5.0 U	5.0 U/5.0U	2.2
Sodium	20,000	ug/L	NA	NA	168000	204000	82500	161000	162000	33400/30400	55200
Zinc	2,000	ug/L	NA	NA	20.0 U	11.0	20.0 U	9.4	9.5	17.6/20.0U	5.3

Notes:

(1)	New York State Ambient Water Quality Standards, Class GA Groundwater, Technical and Operation Guidance Standards (TOGS) 1.1.1.
NA	Not analyzed.
U	Non-detect at associated value.
☐	Exceeds standard.
100/10	Total concentration/dissolved concentration

TABLE 7.1

NEW YORK STATE WATER QUALITY CRITERIA FOR GROUNDWATER COMPOUNDS OF CONCERN SITE INVESTIGATION/FEASIBILITY STUDY PARCEL 2 - SENECA STREET BUFFALO, NEW YORK

Detected VOCs	*Class GA Groundwater*$^{(1)}$ *(µg/L)*
cis-1,2-Dichloroethene	5
Trichloroethene	5
Tetrachloroethene	5

Notes:

(1) Class GA groundwater is potable, suitable for drinking.

Source: NYSDEC "Ambient Water Quality Standards and Guidance Values", Division of Water, Technical Operational Guidance Series (1.1.1), dated October 22, 1993, reissued June 1998.

VOCs Volatile Organic Compounds.

TABLE 7.2

NEW YORK STATE RECOMMENDED SOIL CLEANUP OBJECTIVES FOR VOCs AND SVOCs DETECTED ON SITE SOILS
SITE INVESTIGATION/FEASIBILITY STUDY
PARCEL 2 - SENECA STREET
BUFFALO, NEW YORK

	Recommended Soil Cleanup Objective (ppm)
***Volatile Organic Compounds*(1)**	
cis-1,2-Dichloroethene	NA
2-Butanone	0.3
Acetone	0.2
Benzene	0.06
Ethylbenzene	5.5
Methylene chloride	0.1
Tetrachloroethene	1.4
Toluene	1.5
Trichloroethene	0.7
Xylene (Total)	1.2
***Semi-Volatiles*(1)**	
Acenaphthene	50.0
Anthracene	50.0
Benzo(a)anthracene	0.224 or MDL
Benzo(a)pyrene	0.061 or MDL
Benzo(b)fluoranthene	1.1
Benzo(g,h,i)perylene	50.0
Benzo(k)fluoranthene	1.1
bis(2-Ethylhexyl)phthalate	50.0
Carbazole	NA
Chrysene	0.4
Dibenzo(a,h)anthracene	0.014 or MDL
Dibenzofuran	6.2
Fluoranthene	50.0
Fluorene	50.0
Indeno(1,2,3-cd)pyrene	3.2
2-Methylnaphthalene	36.4
Naphthalene	13.0
Phenanthrene	50.0
Pyrene	50.0

Notes:

(1)	Total volatile organic compounds to be less than 10 ppm; total semi-volatiles to be less than 500 ppm; and any individual semi-volatile to be less than 50 ppm.
NA	No recommendation given for these parameters.
MDL	Method detection limit.
▨	Detected during Site Investigation at concentration exceeding the the cleanup objective.
ppm	Parts Per Milliion.
Source:	Recommended Soil Cleanup Objectives are guidance values only based on the New York State Department of Environmental Conservation, Division of Hazardous Waste Remediation: "Technical and Administrative Guidance Memorandum (TAGM): Determination of Soil Cleanup Objectives and Cleanup Levels", HWR-92-4046 dated January 24, 1994.

TABLE 7.3

NEW YORK STATE AMBIENT AIR GUIDELINE CONCENTRATIONS FOR COMPOUNDS DETECTED IN SITE SOIL AND GROUNDWATER
SITE INVESTIGATION/FEASIBILITY STUDY
PARCEL 2 - SENECA STREET
BUFFALO, NEW YORK

	SGC$^{(1)}$ *(µg/m^3)*	*AGC*$^{(2)}$ *(µg/m^3)*
Volatile Organic Compounds		
Methylene chloride	14,000	2.1
Acetone	180,000	28,000
1,2-Dichloroethene (Total)	NGC	1,900
2-Butanone	59,000	1,000
Trichloroethene	54,000	0.45
Benzene	1,300	0.13
Tetrachloroethene	1,000	1.0
Toluene	37,000	400
Ethylbenzene	54,000	1,000
Xylene (Total)	4,300	700
Semi-Volatiles		
Acenaphthene	NGC	NGC
Anthracene	NGC	0.02
Benzo(a)anthracene	NGC	0.02
Benzo(a)pyrene	NGC	NGC
Benzo(b)fluoranthene	NGC	NGC
Benzo(g,h,i)perylene	NGC	NGC
Benzo(k)fluoranthene	NGC	NGC
bis(2-Ethylhexyl)phthalate	NGC	NGC
Carbazole	NGC	NGC
Chrysene	NGC	0.02
Dibenzo(a,h)anthracene	NGC	0.02
Dibenzofuran	NGC	0.00000003
Fluoranthene	NGC	NGC
Fluorene	NGC	NGC
Indeno(1,2,3-cd)pyrene	NGC	NGC
2-Methylnaphthalene	NGC	NGC
Naphthalene	7,900	3.0
Phenanthrene	NGC	0.02
Pyrene	NGC	0.02

TABLE 7.3

NEW YORK STATE AMBIENT AIR GUIDELINE CONCENTRATIONS FOR COMPOUNDS DETECTED IN SITE SOIL AND GROUNDWATER
SITE INVESTIGATION/FEASIBILITY STUDY
PARCEL 2 - SENECA STREET
BUFFALO, NEW YORK

	SGC $^{(1)}$ *($\mu g/m^3$)*	*AGC $^{(2)}$* *($\mu g/m^3$)*
Metals		
Aluminum	NGC	5
Antimony	NGC	1
Arsenic	NGC	0.00023
Barium	NGC	1.2
Beryllium	1.0	0.00042
Cadmium	NGC	0.0005
Calcium	NGC	NGC
Chromium	NGC	1.2
Cobalt	NGC	0.005
Copper	100	0.02
Iron	NGC	NGC
Lead	NGC	0.75
Magnesium	NGC	NGC
Manganese	NGC	0.05
Mercury (inorganic/organic)	1.8	0.3
Nickel	6.0	0.004
Potassium	NGC	NGC
Selenium	NGC	20
Silver	NGC	20
Sodium	NGC	NGC
Thallium	NGC	0.24
Vanadium	NGC	0.2
Zinc	NGC	50

Notes:

(1)	SGC "Short-Term Guideline Concentration", derivation presented in guidance document.
(2)	AGC "Annual Guideline Concentration", derivation presented in guidance document.
NGC	No guideline concentration.
Source:	NYSDEC "DAR-1, AGC/SGC Tables", July 12, 2000.

TABLE 7.4

POTENTIAL ACTION-SPECIFIC STANDARDS, CRITERIA AND GUIDELINES
SITE INVESTIGATION/FEASIBILITY STUDY
PARCEL 2 - SENECA STREET
BUFFALO, NEW YORK

	Federal SCGs			*New York State SCGs*		
Activity	*Title*	*Subtitle*	*Citation*	*Title*	*Subtitle*	*Citation*
Capping	Standards for owners and operators of hazardous waste treatment, storage and disposal facilities	Closure and post-closure care	40 CFR 264.310	Hazardous waste treatment, storage and disposal facility permitting requirements	--	6 NYCRR Subpart 373-1
		Post-closure care and use of property	40 CFR 264.117(c)			
				Final status standards for owners and operators of hazardous waste treatment, storage and disposal facilities	--	6 NYCRR Subpart 373-2
Container Storage	Standards for owners and operators of hazardous waste treatment, storage and disposal facilities	Condition of containers	40 CFR 264.171	Hazardous waste treatment, storage and disposal facility permitting requirements	--	6 NYCRR Subpart 373-1
		Compatibility of waste with containers	40 CFR 264.172			
		Management of containers	40 CFR 264.173			
		Inspections	40 CFR 264.174			
		Containment	40 CFR 264.175			
Construction of New Landfill on Site	Standards for owners and operators of hazardous waste treatment, storage and disposal facilities	Design and operating requirements	40 CFR 264.301	Hazardous waste treatment, storage and disposal facility permitting requirements	--	6 NYCRR Subpart 373-1
		Operation and maintenance	40 CFR 264.303-304			
		Closure and post-closure care	40 CFR 264.310			
		Groundwater protection	40 CFR 264.91-100			
Discharge of Treatment System Effluent	Administered permit programs: The national pollutant discharge elimination system	Establishing limitations, standards and other permit conditions	40 CFR 122.44 and State regulations approved under 40 CFR 131	Implementation of NPDES program in New York State	--	6 NYCRR Part 750-757
				Technical and Operations Guidance Series	--	--
				Blending policy for use of sources of drinking water	--	NYSDOH PWS 68
	Criteria and standards for the national pollutant discharge elimination program	Best management practices	40 CFR 125.100	Drinking water supplies	--	Part 5 of State Sanitary Code
		Discharge to waters of the U.S.	40 CFR 125.104	Use and protection of waters	--	6 NYCRR Part 608
	Guidelines establishing test procedures for the analysis of pollutants	Identification of test procedures and alternate test procedures	40 CFR 136.1-4			
	Effluent guidelines and standards	Organic chemicals plastics and synthetic fibres	40 CFR Part 414			
Excavation	Land disposal restrictions (also see Closure)	Treatment standards	40 CFR 268 (Subpart D)	Hazardous waste treatment, storage and disposal facility permitting requirements	--	6 NYCRR Subpart 376
Incineration Off Site	Standards for owners and operators of hazardous waste treatment, storage and disposal facilities	Waste analysis	40 CFR 264.341			
Land Treatment	Standards for owners and operators of hazardous waste treatment, storage and disposal facilities	Treatment program	40 CFR 264.271	Hazardous waste treatment, storage and disposal facility permitting requirements	--	6 NYCRR Subpart 373-1
		Design and operating requirements	40 CFR 264.273			
		Unsaturated zone monitoring	40 CFR 264.278	New York air pollution control regulations	General provisions	6 NYCRR Part 200
		Special requirements for ignitable or reactive waste	40 CFR 264.281		Permits and certificates	6 NYCRR Part 201
					General prohibitions	6 NYCRR Part 211
					General process emission sources	6 NYCRR Part 212
					Incinerators	6 NYCRR Part 219

TABLE 7.4

POTENTIAL ACTION-SPECIFIC STANDARDS, CRITERIA AND GUIDELINES
SITE INVESTIGATION/FEASIBILITY STUDY
PARCEL 2 - SENECA STREET
BUFFALO, NEW YORK

	Federal SCGs			*New York State SCGs*		
Activity	*Title*	*Subtitle*	*Citation*	*Title*	*Subtitle*	*Citation*
Placement of Waste in Land Disposal Unit	Land disposal restrictions	Treatment standards	40 CFR 268 (Subpart D)	Hazardous waste treatment, storage and disposal facility permitting requirements	--	6 NYCRR Subpart 373-1
					Basis for Listing Hazardous Waste	6 NYCRR Appendix 22
Surface Water Control	Standards for owners and operators of hazardous waste treatment, storage and disposal facilities	Design and operating requirements for waste piles	40 CFR 264.251(c),(d)	Hazardous waste treatment, storage and disposal facility permitting requirements	--	6 NYCRR Subpart 373-1 6 NYCRR Part 701 and Part 703
		Design and operating requirements for land treatment	40 CFR 264.273(c),(d)			
		Design and operating requirements for landfills	40 CFR 264.301(c),(d)			
Treatment (in a unit)	Standards for owners and operators of hazardous waste treatment, storage and disposal facilities	Design and operating requirements for waste piles	40 CFR 264.251	Hazardous waste treatment, storage and disposal facility permitting requirements	--	6 NYCRR Subpart 373-1
		Design and operating requirements for thermal treatment units	40 CFR 265.373	Interim status standards for owners and operators of hazardous waste facilities	--	6 NYCRR Subpart 373-3
		Design and operating requirements for miscellaneous treatment units	40 CFR 264.601	New York air pollution control regulations	General provisions Permits and certificates General prohibitions General process emission sources	6 NYCRR Part 200 6 NYCRR Part 201 6 NYCRR Part 211 6 NYCRR Part 212
Treatment (when waste will be land disposed)	Land disposal restrictions	Identification of waste Treatment Standards Waste Specific prohibitions - Solvent wastes	40 CFR 268.10-12 40 CFR 268 (Subpart D) 40 CFR 268.30 RCRA Sections 3004 (d) (3), (e) (3) 42 USC 6924 (d) (3), (e) (3)	Hazardous waste treatment, storage and disposal facility permitting requirements	--	6 NYCRR Subpart 373-1
				Interim status standards for owners and operators of hazardous waste facilities	--	6 NYCRR Subpart 373-3
Waste Pile	Standards for owners and operators of hazardous waste treatment, storage and disposal facilities	Design and operating requirements	40 CFR 264.251	New York air pollution control regulations	General provisions Permits and certificates General prohibitions General process emission sources	6 NYCRR Part 200 6 NYCRR Part 201 6 NYCRR Part 211 6 NYCRR Part 212
				Hazardous waste treatment, storage and disposal facility permitting requirements	--	6 NYCRR Subpart 373-1
				Interim status standards for owners and operators of hazardous waste facilities	--	6 NYCRR Subpart 373-3
Closure with Waste in Place	Standards for owners and operators of hazardous waste treatment, storage and disposal facilities	Closure and post-closure care	40 CFR 264.258			
		Post-closure care and groundwater monitoring	40 CFR 264.310			
Closure of Land Treatment Units	Standards for owners and operators of hazardous waste treatment, storage and disposal facilities	Closure of land treatment units	40 CFR 264.280	Final status standards for owners and operators of hazardous waste facilities	--	6 NYCRR Subpart 373-2
Transporting Hazardous Waste Off Site	Standards applicable to transporters of hazardous waste	--	40 CFR 263	Waste transport permits	--	5 NYCRR Part 364
				Hazardous waste manifest system and related standards for generators, transporters and facilities	--	6 NYCRR Part 372

TABLE 7.5

POTENTIAL LOCATION-SPECIFIC STANDARDS, CRITERIA AND GUIDELINES
SITE INVESTIGATION/FEASIBILITY STUDY
PARCEL 2 - SENECA STREET
BUFFALO, NEW YORK

Authority	*Title*	*Citation*	*Description*
New York State Public Authorities	Buffalo Sewer Authority	Title 8, Section 1175	Applies to any wastewater effluents discharged to the sewer system of the Buffalo Sewer Authority.
State of New York	New York State Building Code	6 NYCRR, Subtitle S	Building codes of the City of Buffalo.
City of Buffalo	Zoning Ordinances	Chapter 511, Sections 01 to 154	These provisions apply to the allowable use of property within defined areas of the City of Buffalo.

TABLE 7.6

POTENTIAL RESPONSE ACTIONS AND REMEDIAL TECHNOLOGIES
SITE INVESTIGATION/FEASIBILITY STUDY
PARCEL 2 - SENECA STREET
BUFFALO, NEW YORK

Medium	*General Response Action*	*Remedial Technology*	*Process Options*	*Description*
Soil	No Action	None	Not Applicable	No action. Natural processes are allowed to reduce chemical concentrations to acceptable levels.
	Institutional Control	Access Restrictions	Deed Restrictions	Restrict exposure to soils on Site.
	Containment	Physical Treatment	Capping	A permanent surface barrier is placed over the area containing contaminated soils thus preventing or minimizing physical contact and/or surface water infiltration.
	Collection	Excavation	Excavation	Excavate contaminated soils above the water table for on-site treatment or off-site disposal.
	On-Site Ex Situ Treatment of Excavated Soil	Physical Treatment	Thermal Desorption	Excavated soil is heated to volatilize chemicals. Treated soils may be used as excavation backfill or transported off-site for disposal.
			Incineration	Excavated soil is processed at high temperature to volatilize and combust organic contaminants.
			Chemical Oxidation	Excavated soil is mixed with an oxidizing agent to destroy chemicals. Treated soils may be used as excavation backfill or transported off-site for disposal.
	In Situ Treatment	Chemical Treatment	Chemical Oxidation	Oxidizing chemicals are applied to soils to destroy chemicals.
		Physical Treatment	Soil Vapor Extraction	A vacuum is applied to the soil through extraction wells and organic vapors are removed.
		Biological Treatment	Bioventing	Oxygen is provided to existing soil microorganisms stimulating natural biodegradation processes.
	Disposal	On-site Disposal	Backfilling	Treated excavated soil is returned to the original excavation as backfill.
		On-site Disposal	Off-site Disposal	Treated or untreated excavated soil is transported to a permitted treatment, storage, and disposal facility.

TABLE 7.6

POTENTIAL RESPONSE ACTIONS AND REMEDIAL TECHNOLOGIES
SITE INVESTIGATION/FEASIBILITY STUDY
PARCEL 2 - SENECA STREET
BUFFALO, NEW YORK

Medium	*General Response Action*	*Remedial Technology*	*Process Options*	*Description*
Groundwater	No Action	None	Not Applicable	No action. Natural processes are allowed to reduce chemical concentrations to acceptable levels.
	Institutional Control & Monitoring	Access Restrictions	Deed Restrictions	Restrict groundwater usage on Site and in the immediate vicinity of the Site.
		Long-Term Groundwater Monitoring	Monitor Groundwater	Monitor the natural degradation and attenuation of COCs in groundwater through sampling and analysis.
	Physical Containment	Barrier Walls	Slurry Wall/Sheet Piling	Construction of a barrier wall downgradient or around the area of concern to restrict off-Site groundwater migration and limit upgradient groundwater flow to the Site.
		Surface Barrier	Capping	A permanent surface barrier is placed over the area (in whole or in part) containing contaminated media thus controlling migration and eliminating surface water infiltration.
	Hydraulic Containment	Groundwater Extraction	Groundwater Extraction Well Network	Installation and operation of groundwater extraction wells to provide a hydraulic barrier to groundwater migration through the establishment and maintenance of an inward hydraulic gradient.
			Collection Trenches	Installation of downgradient groundwater collection drains/trenches to achieve a hydraulic barrier that will restrict migration of groundwater off Site.
	Collection	Groundwater Extraction	Extraction Wells	Installation and operation of groundwater extraction well(s) to remove groundwater containing COCs from the source area.
			Collection Trenches	Installation and operation of collection trenches to remove groundwater containing COCs from the source area.

TABLE 7.6

POTENTIAL RESPONSE ACTIONS AND REMEDIAL TECHNOLOGIES
SITE INVESTIGATION/FEASIBILITY STUDY
PARCEL 2 - SENECA STREET
BUFFALO, NEW YORK

Medium	***General Response Action***	***Remedial Technology***	***Process Options***	***Description***
Groundwater (Cont'd)	Treatment of Collected Groundwater	On-site Physical Treatment	Activated Carbon Treatment	Adsorption of contaminants onto activated carbon for off-Site disposal. Treated water would be disposed off-site at a disposal facility or by direct discharge to the municipal sewer.
			Air Stripping Treatment	Remove contaminants to vapor phase, reinject or dispose of water. Vapor treatment may be required.
	In Situ Groundwater Treatment	Physical/Chemical Treatment	Chemical Oxidation	Oxidation agent(s) are injected into the saturated zone to breakdown chemicals.
		Physical Treatment	Air Sparging	Installation of an air injection system to air-strip volatiles from the groundwater. May be used in conjunction with vapor extraction.
		Biological Treatment	Enhanced Biological Biodegradation	Nutrients are injected into groundwater to stimulate biological degradation by indigenous (native) bacteria. If the indigenous microbial population is inactive or inadequate, can supplement with microbes specifically designed for the treatment. Oxygen or oxygen consuming materials may be added to create aerobic or anaerobic conditions.
	Disposal	Off-site Disposal	Off-site Disposal	Transportation of extracted groundwater to a permitted treatment, storage, and disposal facility.
			Discharge to POTW	Discharge of extracted, treated groundwater to a municipal treatment works.
		On-site Disposal	Injection	Extracted, treated groundwater is injected back into the aquifer through on-site points. May also be used to provide hydraulic containment.

TABLE 7.7

RESULTS OF INITIAL SCREENING OF REMEDIAL TECHNOLOGIES
SITE INVESTIGATION/FEASIBILITY STUDY
PARCEL 2 - SENECA STREET
BUFFALO, NEW YORK

Medium	*General Response Action*	*Technology Type*	*Process Options*	*Retained for Further Evaluation*	*Comments*
Soil	No Action	None	Not Applicable	Yes	Required by FS Guidance Documents
	Institutional Controls	Access Restrictions	Deed Restrictions	Yes	May be utilized as a support technology. Will not reach remediation goals alone.
	Containment	Physical Treatment	Capping	Yes	Demonstrated effective to eliminate exposure to contaminated soils and reduce or eliminate surface water infiltration.
	Collection	Excavation	Excavation	Yes	Would remove impacted soils thus eliminating potential for exposure.
	On-Site Ex Situ Treatment of Excavated Soil	Physical Treatment	Thermal Desorption	No	Not as effective as incineration for PAH compounds.
			Incineration	Yes	Demonstrated effective treatment technology.
			Chemical Oxidation	No	Not effective in treatment of PAH compounds.
	In Situ Treatment	Chemical Treatment	Chemical Oxidation	Yes	Demonstrated effective treatment technology for VOCs.
		Physical Treatment	Soil Vapor Extraction	Yes	Demonstrated effective treatment technology for VOCs.
		Biological Treatment	Bioventing	No	Effectiveness will be poor due to combined aerobic and anaerobic degradation pathways of the Site COCs.
	Disposal	On-Site Disposal	Backfilling	No	Soils are likely a listed hazardous waste, delisting would be required prior to use as backfill.
		Off-Site Disposal	Off-Site Disposal	Yes	Demonstrated effective for disposal of treated or untreated soil.

TABLE 7.7

RESULTS OF INITIAL SCREENING OF REMEDIAL TECHNOLOGIES
SITE INVESTIGATION/FEASIBILITY STUDY
PARCEL 2 - SENECA STREET
BUFFALO, NEW YORK

Medium	*General Response Action*	*Technology Type*	*Process Options*	*Retained for Further Evaluation*	*Comments*
Groundwater	No Action	None	Not Applicable	Yes	Required by FS Guidance Documents
	Institutional Controls & Monitoring	None	Deed Restrictions	Yes	May be utilized as a support technology. Will not reach remediation goals alone.
			Long-Term Groundwater Monitoring	Yes	May be utilized as a support technology. Will not reach remediation goals alone.
	Physical Containment	Barrier Walls	Slurry	Yes	May reduce or eliminate off-site migration of contaminants and reduce volume of groundwater to be extracted and treated.
			Sheet Piles	Yes	Same as slurry walls.
		Surface Barrier	Capping	No	Would not provide barrier to potential off-site migration. May be retained as soil option.
	Hydraulic Containment	Groundwater Removal	Extraction Wells	Yes	Demonstrated effective collection and containment technology. Would collect contaminated groundwater, prevent future migration, and reduce concentrations of COCs.
	Collection	Groundwater Removal	Extraction Wells	Yes	Demonstrated effective collection and containment technology. Would collect contaminated groundwater, prevent future migration, and reduce concentrations of COCs.
			Collection Trench	Yes	Demonstrated effective collection and containment technology. Would collect contaminated groundwater, prevent future migration, and reduce concentrations of COCs.

TABLE 7.7

RESULTS OF INITIAL SCREENING OF REMEDIAL TECHNOLOGIES
SITE INVESTIGATION/FEASIBILITY STUDY
PARCEL 2 - SENECA STREET
BUFFALO, NEW YORK

Medium	*General Response Action*	*Technology Type*	*Process Options*	*Retained for Further Evaluation*	*Comments*
Groundwater (cont'd)	Treatment of Collected Groundwater	Physical Treatment	Air Stripping	Yes	Demonstrated effective treatment technology.
			Activated Carbon	Yes	Demonstrated effective treatment technology.
	In Situ Groundwater Treatment	Biological	Aerobic/Anaerobic Biodegradation	No	Different processes are required for aerobic and anaerobic degradation. Therefore, enhancement of one process is counterproductive to the other.
		Physical/Chemical	Chemical Oxidation	Yes	Demonstrated effective for treatment of VOCs. Multiple applications of oxidizing agent will most likely be required.
		Physical	Air Sparging	Yes	May require soil vapor extraction system to be effective.
	Disposal of Treated Groundwater	Off-Site Disposal	Off-Site Disposal	Yes	
			Discharge to POTW	Yes	Demonstrated effective for disposal of treated water. Permit will be required.
		On-Site Disposal	Injection	Yes	Effective for disposal of treated water. May reduce or improve effectiveness of collection. Permit may be required.

TABLE 7.8

SCREENING OF IDENTIFIED REMEDIAL ALTERNATIVES FOR SOIL
SITE INVESTIGATION/FEASIBILITY STUDY
PARCEL 2 - SENECA STREET
BUFFALO, NEW YORK

General Response Action	*Description*	*Effectiveness*	*Implementability*
NO ACTION	No measures are taken to improve Site environmental conditions with respect to the soils. All contaminants remain on Site. Environmental risks and potential exposure pathways are not addressed by any activities.	- Not effective in meeting all RAOs. - No reduction of volume, toxicity, or mobility of Site contaminants. - No additional risk during implementation.	- Readily implemented.
INSTITUTIONAL CONTROLS			
Deed Restrictions	Implementation of institutional controls, such as deed restrictions, to reduce potential exposure to Site related chemicals, limit future uses of the Site grounds, and generally restrict visitor access to the Site.	- Effectiveness is dependant on future enforcement of deed restrictions. - No reduction of volume, toxicity, or mobility of Site contaminants. - Effective in reducing potential for human exposure to and ingestion of Site chemicals.	- Readily implemented.
PHYSICAL CONTAINMENT			
Permeable Soil Cover	All portions of the Site where soil contaminant concentrations exceed potential soil cleanup goals are carefully regraded to promote positive drainage and covered with compacted fill and topsoil.	- Effective in reducing the potential for human exposure to Site chemicals in the soils. - Does not reduce volume, toxicity, or mobility of Site contaminants.	- Implementable with moderate concern due to lack of consistency with future Site use (commercial/parking). - Requires routine inspections and maintenance. - Technically feasible.
Impermeable Cover	All portions of the Site that are not currently paved and where soil contaminant concentrations exceed potential soil cleanup goals are carefully regraded to promote positive drainage and covered with compacted clay and topsoil, or asphalt.	- Effective in reducing the potential for human exposure to and mobility of Site chemicals in the soils. - Does not reduce the volume or toxicity of the Site contaminants. - Reduces volume of contaminated groundwater which may need treatment.	- Readily implemented. - Requires routine inspections and maintenance. - Technically feasible and more protective than permeable soil cover. - More consistent with future Site use than soil cover.
COLLECTION AND ON-SITE TREATMENT WITH SUBSEQUENT DISPOSAL			
Collection			
Excavation	Removal of impacted soils above the water table.	- Effectively reduces volume, toxicity, and mobility of contaminants.	- Readily implemented.

TABLE 7.8

SCREENING OF IDENTIFIED REMEDIAL ALTERNATIVES FOR SOIL
SITE INVESTIGATION/FEASIBILITY STUDY
PARCEL 2 - SENECA STREET
BUFFALO, NEW YORK

General Response Action	***Description***	***Effectiveness***	***Implementability***
On-Site Treatment			
Incineration	Incineration employs high temperature oxidation to degrade substances into non-hazardous products. Incineration could be implemented by the construction of a Site dedicated thermal destruction unit or by utilizing a mobile incineration unit.	- Can be used for both liquid and solid wastes. - Reliability and effectiveness are well demonstrated. - Reduces the volume, mobility, and toxicity of contaminants in the soils. - Test runs may be necessary to determine optimum operating conditions and actual effectiveness.	- Difficult to implement. - Visual presence of treatment facility. - Requires excavation of the soil. - May utilize an on Site constructed unit or a mobile unit. - Limited mobile units available. - Difficult to permit. - Community acceptance unlikely.
Disposal			
On-Site Disposal	On-Site disposal would be accomplished by use of treated soils as backfill in the excavation from which they were removed. May be combined with a surface barrier.	- Effective in reducing the potential for human exposure to Site chemicals in the soils. - Reduces volume, toxicity, or mobility of Site contaminants.	- Implementable with moderate concern. - Uncertain status of soil as potential listed hazardous waste. - Technically feasible. - Soil excavation will require security until completely backfilled.
Off-Site Disposal	Transport of treated or untreated soils to a permitted waste treatment, storage, and disposal facility.	- Eliminates potential for human exposure to Site chemicals in the soils. - Reduces volume, toxicity, or mobility of Site contaminants.	- Readily implemented. - Technically feasible. - Disposal as a hazardous waste may be required.
IN SITU TREATMENT			
Soil Vapor Extraction	Extraction wells or trenches are used to extract volatilized contaminants from soil vadose zone using a vacuum or negative pressure. Wells/trenches can be installed at the source area(s) or in a network surrounding the source. May be combined with air sparging.	- Unlikely to be effective due to clay and silt content of fill soils. - Effective in the removal of VOCs from the soil; not effective for removal of Site SVOCs. - Reduces volume, toxicity, and mobility of Site contaminants. - Possible long-term operation for cleanup to SCGs. - Effective in reducing the potential for human exposure to Site chemicals in the soils.	- Implementable with moderate concern. - Total cleanup costs are highly dependent on cleanup timeframe. - Off-gas treatment may be necessary for completeness. - Control of air emissions and/or odors may be required. - Visual presence of treatment facility.

TABLE 7.8

SCREENING OF IDENTIFIED REMEDIAL ALTERNATIVES FOR SOIL
SITE INVESTIGATION/FEASIBILITY STUDY
PARCEL 2 - SENECA STREET
BUFFALO, NEW YORK

General Response Action	***Description***	***Effectiveness***	***Implementability***
Chemical Oxidation	Delivery of oxidizing agent to impacted soils to destroy contaminants or convert them into less toxic or harmless compounds. May be combined with a surface barrier.	- Effective in the removal of VOCs from the soil; not effective for removal of Site SVOCs. - Reduces volume, toxicity, and mobility of Site contaminants. - Effective in reducing the potential for human exposure to Site chemicals in the soils.	- Readily implemented. - Above-grade equipment is temporary. - Cleanup timeframe expected to be substantially less than for other treatment technologies.

Notes:

COCs	Compounds of Concern.
O&M	Operation and Maintenance.
POTW	Publicly Owned Treatment Works.
RAOs	Remedial Action Objectives.
SCGs	Standards, Criteria, and Guidelines.
VOC	Volatile Organic Compound
SVOCs	Semi-Volatile Organic Compounds.

TABLE 7.9

SCREENING OF IDENTIFIED REMEDIAL ALTERNATIVES FOR GROUNDWATER
SITE INVESTIGATION/FEASIBILITY STUDY
PARCEL 2 - SENECA STREET
BUFFALO, NEW YORK

General Response Action	*Description*	*Effectiveness*	*Implementability*
NO ACTION	No measures are taken to improve Site environmental conditions with respect to groundwater. All contaminants remain on Site. Environmental risks and potential exposure pathways are not addressed by any activities.	- Not effective in meeting all RAOs - No additional risk during implementation	- Readily implemented.
INSTITUTIONAL CONTROLS AND MONITORING			
Institutional Controls	Implementation of institutional controls, such as deed restrictions, to reduce potential exposure to Site related chemicals, restrict installation of on-Site water supply wells, and restrict future use of on-Site groundwater .	- Effectiveness is dependant on future enforcement of restrictions. - No reduction of volume, toxicity, or mobility of COCs. - Effective in reducing potential for human exposure to COCs.	- Readily implemented.
Long-term Groundwater Monitoring	Implementation of a groundwater monitoring program to monitor water quality, the natural attenuation/degradation of COCs, and the potential migration of the COC plume.	- No reduction of volume, toxicity, or mobility of COCs. - Effective in tracking migration, natural degradation and attenuation of the COC plume . - Does not reduce potential for human exposure to COCs.	- Readily implemented. - Additional groundwater monitoring wells may be required.
CONTAINMENT AND COLLECTION			
Physical Containment			
Barrier Wall	Construction of a low permeability barrier wall around the area of concern by backfilling an excavated trench to a selected depth with clay or a bentonite slurry or by installing sheet pile walls. The barrier should be keyed into an equally low permeability layer for maximum effectiveness.	- Effectively reduces mobility of Site COCs. - No reduction in volume or toxicity of COCs. - Lower clay layer beneath the Site is of marginally low permeability for a barrier wall to be effective.	- Difficult to implement. - Construction is feasible; however activities would cause disruption of pedestrian and vehicular traffic and create a noise nuisance. - Potential impact to adjacent underground utilities during construction is of concern.
Hydraulic Containment and/or Source Removal			
Extraction Wells	Installation and operation of groundwater extraction wells either on Site at the source of contamination or downgradient of the source to induce an inward gradient.	- May be effective for collection of groundwater and provision of hydraulic containment. - General low permeability of shallow overburden soils may limit effectiveness of extraction wells. - Reduces mobility of contaminants.	- Implementable with moderate concern. - Construction is feasible; however activities would cause disruption of pedestrian and vehicular traffic and create a noise nuisance. - Required unobstructed access to wells may cause interference with Site use.
Collection Trenches	Installation of downgradient groundwater collection drains/trenches to achieve a hydraulic barrier which will restrict migration of groundwater off Site. Intercepts groundwater at the Site boundary.	- Effective and proven for collection of groundwater from shallow aquifers with a lower confining layer - as at the Site - Reduces mobility of contaminants.	- Implementable with moderate concern. - Construction is feasible; however activities would cause disruption of pedestrian and vehicular traffic and create a noise nuisance.

TABLE 7.9

SCREENING OF IDENTIFIED REMEDIAL ALTERNATIVES FOR GROUNDWATER
SITE INVESTIGATION/FEASIBILITY STUDY
PARCEL 2 - SENECA STREET
BUFFALO, NEW YORK

General Response Action	*Description*	*Effectiveness*	*Implementability*
TREATMENT OF COLLECTED GROUNDWATER			
Air Stripping	Contaminants (VOCs) are removed from the water using an air purging system. Product vapor may need treatment prior to discharge.	- Very effective in reducing VOC concentrations.	- Readily implemented. - Technically feasible. - Requires routine maintenance. - May require vapor treatment. - Permitting may be required.
Activated Carbon	Water is passed through activated carbon and VOCs are removed by being adsorbed to the carbon.	- Very effective in reducing VOC concentrations.	- Readily implemented. - Technically feasible. - Requires routine maintenance.
IN SITU TREATMENT			
Air Sparging	Installation of an air injection system to air-strip volatiles from the groundwater. It may be used in conjunction with vapor extraction to collect and treat the vapor produced.	- May need to be combined with a soil vapor extraction system to be effective in removal of VOCs; therefore, may not achieve SCGs as a stand alone treatment.	- Implementable with moderate concern. - Presence of low permeability asphalt pavement at surface restricts implementability. - May create an on-going noise nuisance. - Systems are readily available.
Chemical Oxidation	Delivery of oxidizing agent to impacted groundwater to destroy contaminants or convert them into less toxic or harmless compounds. May be used in conjunction with other technologies (i.e., containment or collection).	- Proven effectiveness in treating COCs.	- Readily implemented. - Technically feasible. - Oxidizing agent commercially available and easy to handle. - General low permeability of shallow overburden soils may require high density of oxidizer injection points.
DISPOSAL			
Off-Site Disposal	Collection and transport of treated or untreated groundwater to a permitted waste treatment, storage, and disposal facility.	- Eliminates potential for human exposure to Site chemicals in groundwater. - Reduces volume, toxicity, and mobility of Site contaminants.	- Readily implemented. - Technically feasible.
Discharge to POTW	Discharge of pre-treated or untreated groundwater directly into municipal sewer for subsequent treatment at POTW.	- Eliminates potential for human exposure to Site chemicals in groundwater. - Reduces volume, toxicity, and mobility of Site contaminants.	- Implementable with moderate concern. - Pre-treatment prior to discharge is likely required. - Technically feasible. - Permitting required.
Injection	Installation and operation of groundwater injection wells to provide a hydraulic barrier to minimize off-Site migration of contaminated groundwater.	- Can be difficult to maintain and monitor hydraulic barrier. - If not maintained, may accelerate off-Site migration of contaminated groundwater.	- Difficult to implement due to complicated controls required to maintain hydraulic containment.

Notes:

COCs	Compounds of Concern.
O&M	Operation and Maintenance.
POTW	Publicly Owned Treatment Works.
RAOs	Remedial Action Objectives.
SCGs	Standards, Criteria, and Guidelines.
VOC	Volatile Organic Compound

TABLE 7.10

SUMMARY OF DEVELOPMENT AND SCREENING OF REMEDIAL ALTERNATIVES FOR SOIL
SITE INVESTIGATION/FEASIBILITY STUDY
PARCEL 2 - SENECA STREET
BUFFALO, NEW YORK

			Physical Containment		*Collection and On-Site Treatment*	*In Situ Treatment*	
	No Further Action	***Institutional Controls***	***Permeable Soil Cover***	***Impermeable Soil Cover***	***Excavation and Treatment/Disposal***	***Soil Vapor Extraction***	***Chemical Oxidation***
Effectiveness							
• Reduce toxicity, mobility, and volume of COCs	No	No	No	No	Yes	Yes	Yes
• Minimizes residual risk and affords long-term protection	No	Yes	No	Yes	Yes	Yes	Yes
Implementability	Readily implemented	Readily implemented	Moderate concerns	Readily implemented	Moderate concerns	Moderate concerns	Readily implemented
Relative Cost							
• Capital	None	Low	Low	Low	High	Moderate	Low
• O&M (30 years)	None	Low	Low	Low	Moderate	Moderate	Low
Recommendation	Retained for detailed analysis	Retained for detailed analysis	Eliminated from further consideration	Retained for detailed analysis	Retained for detailed analysis	Eliminated from further consideration	Retained for detailed analysis

TABLE 7.11

SUMMARY OF DEVELOPMENT AND SCREENING OF REMEDIAL ALTERNATIVES FOR GROUNDWATER
SITE INVESTIGATION/FEASIBILITY STUDY
PARCEL 2 - SENECA STREET
BUFFALO, NEW YORK

			Hydraulic Containment & Collection	*Physical Containment*	*In Situ Treatment*	
	No Action	*Institutional Controls and Monitoring*	*Extraction Wells or Collection Trench*	*Barrier Wall*	*Chemical Oxidation*	*Air Sparging*
Effectiveness						
• Reduce toxicity, mobility, and volume of COCs	No	No	Yes	Yes	Yes	Yes
• Minimizes residual risk and affords long-term protection	No	Yes	Yes	Yes	Yes	Yes
Implementability	Readily implemented	Readily implemented	Moderate concerns	Difficult to implement	Readily implemented	Moderate concerns
Relative Cost						
• Capital	None	Low	Low	High	Low	Low
• O&M (30 years)	None	Low	Moderate	High	Low	Moderate
Recommendation	Retained for detailed analysis	Retained for detailed analysis	Retained for detailed analysis	Eliminated from further consideration	Retained for detailed analysis	Retained for detailed analysis

TABLE 7.12

COST ANALYSIS SUMMARY
SOIL ALTERNATIVE 1 - NO ACTION
SITE INVESTIGATION/FEASIBILITY STUDY
PARCEL 2 - SENECA STREET
BUFFALO, NEW YORK

	Item	*Estimated Cost*
A.	Remedial Actions, Institutional Controls, Monitoring (no action for any of these)	$0
	TOTAL ESTIMATED COST - SOIL ALTERNATIVE 1	**$0**

TABLE 7.13

COST ANALYSIS SUMMARY
SOIL ALTERNATIVE 2 - IMPERMEABLE COVER AND INSTITUTIONAL CONTROLS
SITE INVESTIGATION/FEASIBILITY STUDY
PARCEL 2 - SENECA STREET
BUFFALO, NEW YORK

	Item			*Estimated Cost*
A.	Institutional Controls (Deed Restrictions)			$ 5,000
		Sub-Total		$ 5,000
B.	Asphalt Pavement Cover			$ 15,000
		Sub-Total		$ 15,000
C.	Engineering			
	• Design and Engineering			$ 5,000
	• Construction Management			$ 8,000
	• Reporting			$ 2,000
		Sub-Total		$ 15,000
		Total Estimated Capital Cost		**$ 35,000**
			Estimated Cost Per Event	***Present Worth*** (1)
D.	Operation and Maintenance			
	• Periodic Repairs (every 5 years)		$ 2,000	$ 5,000
	• Asphalt Pavement Replacement (every 15 years)		$ 26,000	$ 28,000
		Sub-Total		$ 33,000
E.	Annual Inspections and Reporting			
	• Years 1 through 30		$ 1,000	$ 19,000
		Sub-Total		$ 19,000
		TOTAL ESTIMATED COST - SOIL ALTERNATIVE 2		**$ 87,000**

Notes:

(1) Net present worth calculated using a 6 percent interest rate and 3 percent inflation rate, rounded to the nearest $1,000.

TABLE 7.14

COST ANALYSIS SUMMARY
SOIL ALTERNATIVE 3 - EXCAVATION AND OFF-SITE DISPOSAL OF SVOC-CONTAMINATED SOIL AND IN SITU CHEMICAL OXIDATION OF VOC-CONTAMINATED SOIL
SITE INVESTIGATION/FEASIBILITY STUDY
PARCEL 2 - SENECA STREET
BUFFALO, NEW YORK

	Item		*Estimated Cost*
Excavation and Off-Site Disposal of SVOC-Contaminated Soil (assumes 500 c.y.)			
A.	Excavation, Transportation and Disposal, Backfilling, Restoration		$ 115,000
		Sub-Total	$ 115,000
B.	Engineering:		
	• Design, Approvals, Contract		$ 18,000
	• Construction Management		$ 10,000
	• Reporting		$ 5,000
		Sub-Total	$ 33,000
		Sub-Total Costs	$ 148,000
In Situ Chemical Oxidation of VOC-Contaminated Soil (assumes 300 c.y.)			
A.	Chemical Oxidation (assumes 1 injection):		
	• Injection Network		$ 10,000
	• Oxidizing Agent		$ 10,000
		Sub-Total	$ 20,000
B.	Engineering:		
	• Pre-Design/Treatability Study		$ 10,000
	• Design		$ 5,000
	• Mixing & Application of Agent (assumes 1 injection)		$ 10,000
	• Treatment Effectiveness Evaluation		$ 6,000
		Sub-Total	$ 31,000
		Sub-Total Costs	$ 51,000
		TOTAL ESTIMATED COST - SOIL ALTERNATIVE 3	**$ 199,000**

TABLE 7.15

COST ANALYSIS SUMMARY
SOIL ALTERNATIVE 4 - EXCAVATION AND OFF-SITE DISPOSAL OF IMPACTED SOILS
SITE INVESTIGATION/FEASIBILITY STUDY
PARCEL 2 - SENECA STREET
BUFFALO, NEW YORK

	Item			*Estimated Cost*
Excavation and Off-Site Disposal of SVOC-Contaminated Soil (assumes 500 c.y.)				
1	Excavation, Loading, Backfilling, Restoration		$	36,000
2	Transportation and Disposal		$	65,000
		Sub-Total	$	101,000
Excavation and Off-Site Disposal of VOC-Contaminated Soil				
1	Excavation, Loading, Backfilling, Restoration (420 c.y.)		$	30,000
2	Transportation and Disposal (100 c.y.)		$	14,000
		Sub-Total	$	44,000
Engineering				
A.	Design, Approvals, Contract		$	40,000
B.	Construction Management		$	15,000
C.	Reporting		$	10,000
		Sub-Total	$	65,000
	TOTAL ESTIMATED COST - SOIL ALTERNATIVE		**$**	**210,000**

TABLE 7.16

RANKING OF SOIL REMEDIAL ALTERNATIVES
SITE INVESTIGATION/FEASIBILITY STUDY
PARCEL 2 - SENECA STREET
BUFFALO, NEW YORK

	Alternative			
	No. 1: No Action	*No. 2: Impermeable Cover and Institutional Controls*	*No. 3: Exc. And Off-Site Disposal of SVOCs, and In Situ Chemical Oxidation of VOCs*	*No. 4: Exc. And Off-Site Disposal of Impacted Soil*
Overall Protection of Human Health	4	3	2	1
Compliance with SCGs	4*	4*	2	1
Reduction of Toxicity, Mobility, and Volume	4*	4*	2	1
Short-Term Effectiveness	1	2	3	4
Long-Term Effectiveness and Permanence	4	3	2	1
Implementability	1	2	4	3
Net Present Worth Cost**	$0	$87,000	$199,000	$210,000

Notes:

* Alternatives of same ranking are equally effective.

** Present worth calculated using a 6 percent interest rate and 3 percent inflation rate.

TABLE 7.17

COST ANALYSIS SUMMARY
GROUNDWATER ALTERNATIVE 1 - NO ACTION
SITE INVESTIGATION/FEASIBILITY STUDY
PARCEL 2 - SENECA STREET
BUFFALO, NEW YORK

	Item	*Estimated Cost*
A.	Remedial Actions, Institutional Controls, Monitoring (no action for any of these)	$0
	TOTAL ESTIMATED COST - GROUNDWATER ALTERNATIVE 1	**$0**

TABLE 7.18

COST ANALYSIS SUMMARY
GROUNDWATER ALTERNATIVE 2 - INSTITUTIONAL CONTROLS AND MONITORING
SITE INVESTIGATION/FEASIBILITY STUDY
PARCEL 2 - SENECA STREET
BUFFALO, NEW YORK

	Item		*Estimated Cost*
A.	Institutional Controls (Deed Restrictions)		$ 5,000
		Sub-Total	$ 5,000

		Estimated Annual Cost	*Present Worth (1)*
B.	Operation and Maintenance (well repair)	$ 2,000	$ 33,000
C.	Site Monitoring and Reporting		
	1. Years 1 though 5	$ 18,000	$ 80,000
	2. Years 6 through 30	$ 12,000	$ 205,000
		Sub-Total	$ 318,000
	TOTAL ESTIMATED COST - GROUNDWATER ALTERNATIVE		**$ 323,000**

Notes:

(1) Present worth calculated using a 6 percent interest rate and 3 percent inflation rate, recorded to the nearest $1,000.

TABLE 7.19

COST ANALYSIS SUMMARY
GROUNDWATER ALTERNATIVE 3 - GROUNDWATER COLLECTION & TREATMENT WITH OFF-SITE DISPOSAL AT POTW
SITE INVESTIGATION/FEASIBILITY STUDY
PARCEL 2 - SENECA STREET
BUFFALO, NEW YORK

	Item			*Estimated Cost*
A.	Institutional Controls (Deed Restrictions)		$	5,000
		Sub-Total	$	5,000
B.	Collection and Treatment System:			
	• Collection System		$	60,000
	• Treatment System		$	120,000
	• System Startup		$	5,000
		Sub-Total	$	185,000
C.	Engineering:			
	• Pre-Design/Treatability Study		$	15,000
	• Design and Engineering		$	30,000
	• Construction Management		$	35,000
		Sub-Total	$	80,000
		Total Capital Cost:	**$**	**270,000**

				Estimated Annual Cost		***Present Worth (1)***
D.	Disposal of Treated Water at POTW			0 (2)		0 (2)
		Sub-Total				0 (2)
E.	Operation and Maintenance					
	• Monitoring wells		$	2,000	$	33,000
	• Collection and Treatment System		$	72,000	$	1,400,000
		Sub-Total			$	1,433,000
F.	Site Monitoring and Reporting					
	• Years 1 through 5		$	27,000	$	120,000
	• Years 6 through 30		$	16,000	$	273,000
		Sub-Total			$	393,000
	TOTAL ESTIMATED COST - GROUNDWATER ALTERNATIVE 3				**$**	**2,096,000**

Notes:

(1) Present worth calculated using a 6 percent interest rate and 3 percent inflation rate.

(2) Preliminary discussions with the Buffalo Sewer Authority indicates there would be no charge for disposal of treated groundwater at the POTW.

TABLE 7.20

COST ANALYSIS SUMMARY
GROUNDWATER ALTERNATIVE 4 - IN SITU CHEMICAL OXIDATION
SITE INVESTIGATION/FEASIBILITY STUDY
PARCEL 2 - SENECA STREET
BUFFALO, NEW YORK

	Item			*Estimated Cost*
A.	Institutional Controls (Deed Restrictions)		$	5,000
		Sub-Total	$	5,000
B.	Chemical Oxidation (assumes 4 injections):			
	• Injection Network		$	8,000
	• Oxiding Agent		$	1,200
		Sub-Total	$	9,200
C.	Engineering:			
	• Pre-Design/Treatability Study		$	15,000
	• Design		$	5,000
	• Mixing & Application of Agent (assumes 4 injections)		$	10,000
	• Treatment Effectiveness Monitoring and Evaluation (assumes 4 monitoring events)		$	26,000
		Sub-Total	$	56,000
		Total Capital Cost:	**$**	**70,200**
		Estimated Annual Cost		***Present Worth (1)***
D.	Post-Treatment Groundwater Monitoring			
	• Monitoring (assumes additional 10 semi-annual events)	$12,000	$	53,000
		Sub-Total	$	53,000
	TOTAL ESTIMATED COST - GROUNDWATER ALTERNATIVE 4		$	123,200

Notes:

(1) Present worth calculated using a 6 percent interest rate and 3 percent inflation rate.

TABLE 7.21

RANKING OF GROUNDWATER REMEDIAL ALTERNATIVES
SITE INVESTIGATION/FEASIBILITY STUDY
PARCEL 2 - SENECA STREET
BUFFALO, NEW YORK

	Alternative			
	No. 1: No Action	*No. 2: Institutional Controls and Monitoring*	*No. 3: Collection with On-Site Pre-Treatment and Off-Site Disposal at POTW*	*No. 4: In Situ Chemical Oxidation*
Overall Protection of Human Health	4	3	2	1
Compliance with SCGs	4*	4*	2	1
Reduction of Toxicity, Mobility, and Volume	4*	4*	2	1
Short-Term Effectiveness	1*	1*	4*	4*
Long-Term Effectiveness and Permanence	4*	4*	1*	1*
Implementability	1	2	4	3
Net Present Worth Cost**	$0	$ 323,000	$ 2,096,000	$ 123,000

Notes:

* Alternatives of same ranking are equally effective.

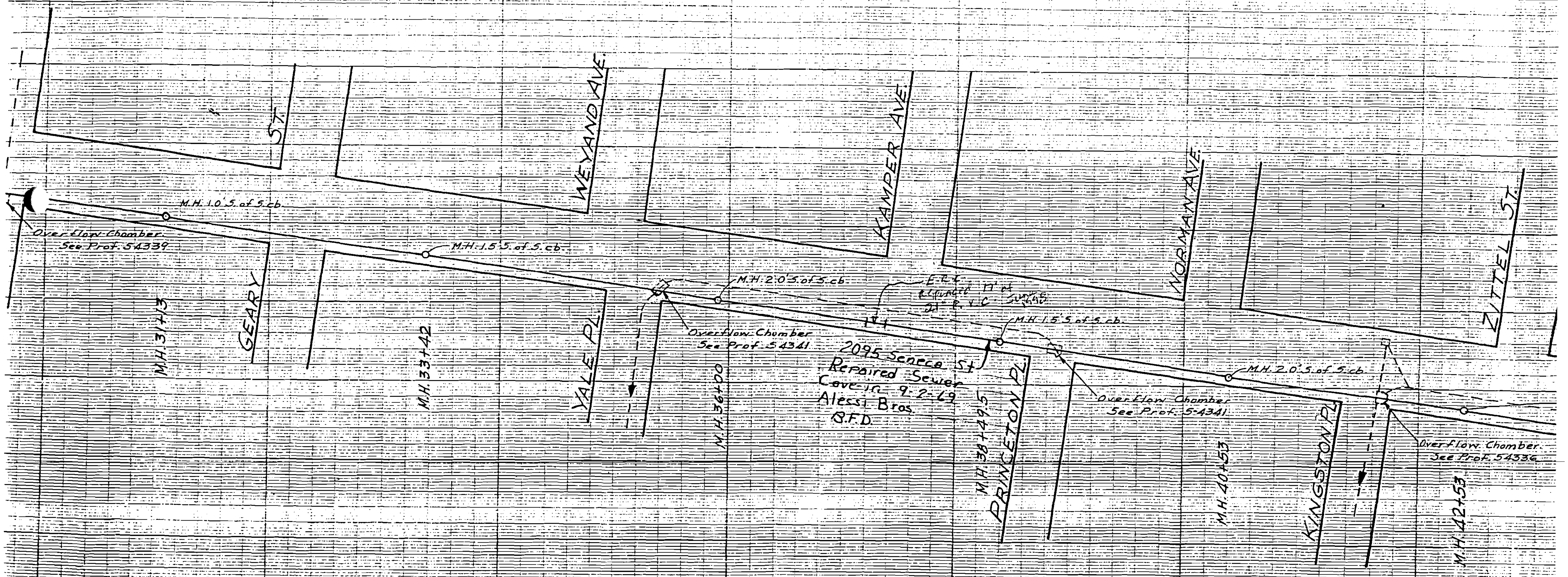
** Present worth calculated using a 6 percent interest rate and 3 percent inflation rate.

APPENDIX A

SITE SURVEY MAPS

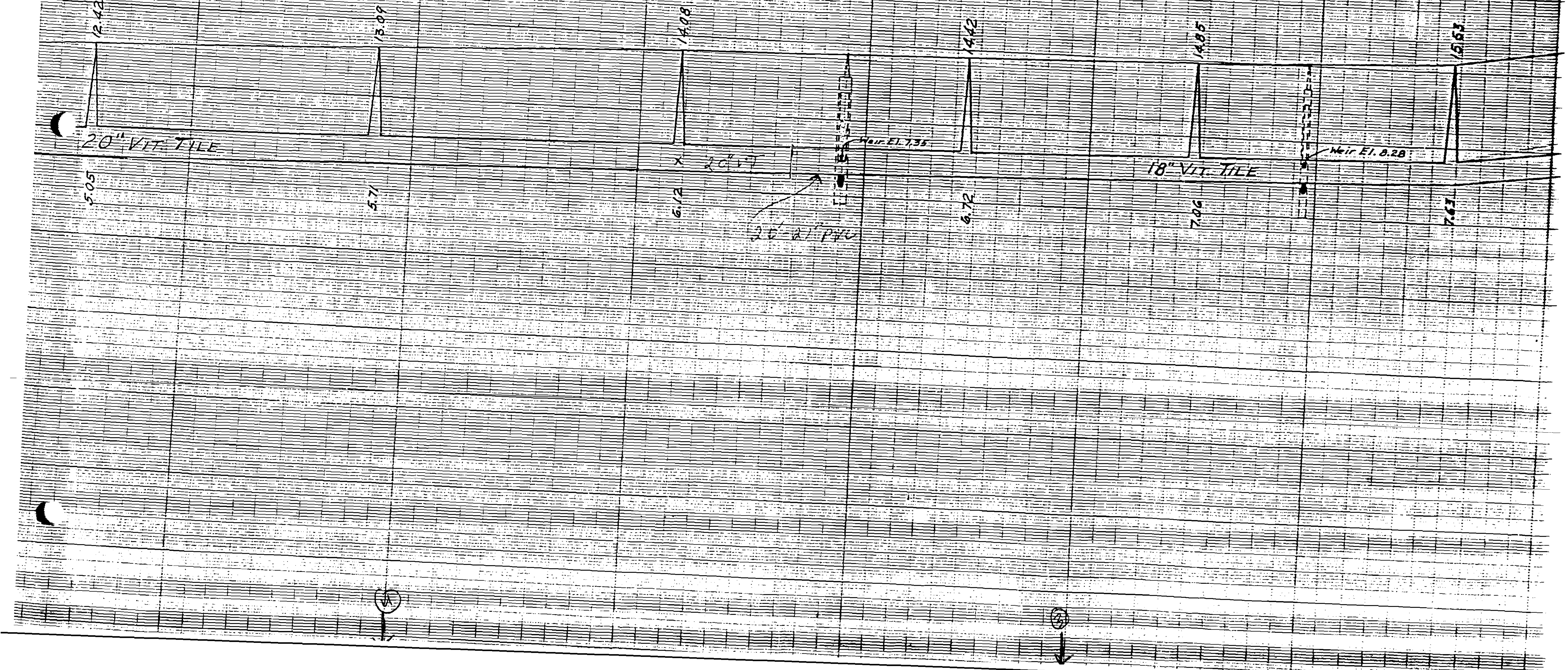
APPENDIX B

BUFFALO SEWER AUTHORITY SEWER DRAWINGS



2095 Seneca St
Repaired Sewer
Cave-in 9-2-69
Alessi Bros
B.F.D.

BK, #19 PG, 2-14


12.42
13.09
14.08
14.42
14.85
15.63
20" VIT. TILE
5.05
5.71
x 20" VT
6.12
20'-21" PVC
Weir El. 7.35
6.72
18" VIT. TILE
7.06
Weir El. 8.28
7.63

APPENDIX C

NATURAL RESOURCE SURVEY REPORT

Site Description

The Parcel 2, Seneca Street Site (Site) consists of approximately 0.6 acres of developed urban land located at the corner of Seneca and Kingston Streets in the Village of West Seneca, City of Buffalo, Erie County, New York. The Site locale is within an urbanized area dominated by retail businesses, and single and multi-family residences. Development of the Site includes one vacant building, paved driveways and parking areas. Observations of Site conditions conducted by Fine Line Technical Services during November 2000 indicated that the Site and immediate vicinity are "culturally developed". No undisturbed natural resource elements occur on the Site. The location of the Site is shown on Figure 1. Site Location Plan.

Natural Resources within a One-half Mile Radius of the Site

The presence and identification of natural resources with a one-half mile radius of the Site was determined by direct observation and by review of existing agency resource information for the Site area. Agency information reviewed included maps and data provided by the New York State Department of Environmental Conservation (NYSDEC) Divisions of Water Resources, Regulatory Affairs, and Fish, Wildlife, and Marine Resources, and the U.S. Fish and Wildlife Service. Natural resource elements investigated in the area within a one-half mile radius of the Site are identified below.

"Rare Threatened and Endangered Species"

Review of NYSDEC New York State Natural Heritage Program files indicate that there are no known occurrences of rare or state-listed animals or plants, significant natural communities, or other significant habitats, on or in the immediate vicinity of the Site. Correspondence from NYSDEC Division of Fish, Wildlife and Marine Resources, Wildlife Resources Center and the NYSDEC Regional Wildlife Manager (Region 9) are contained in Attachment A.

Freshwater Wetlands

Review of the NYSDEC Freshwater Wetlands Map titled "Buffalo, New York" indicate that no State regulated wetlands occur on the site or within one- half mile of the Site. The closest New York State wetlands in the vicinity of the Site are identified as BU-1 and BU-16. BU-1 is located approximately two miles west of the Site. BU-16 is located approximately two miles to the southeast. The portion of the New York State Wetland map showing the Site and its vicinity is presented in Figure 2. New York State Freshwater Wetlands Map.

The U.S. Fish and Wildlife Service, National Wetland Inventory Map titled "Buffalo, New York" indicates that no federally regulated wetlands occur on the Site. A portion of Cazenovia Creek located within one-half mile of the Site includes a federally regulated wetland classified as "R3OWH". This wetland is a riverine habitat that consists of continuously flowing water contained in natural and artificial channels. The system is characterized by high gradient and fast water velocity. The substrate consists of rock, cobbles and gravel with patches of sand. There is very little or no floodplain development. The portion of the National Wetland Inventory Map showing this area is presented as Figure 3. National Wetland Inventory Map.

Regulated Open Waters

No regulated open water areas occur on the Site. Portions of Cazenovia Creek occur in the area within one-half mile of the Site. The segments of the Creek in this area are included as items 139 and 140 of Chapter 10 of the New York State Waters Index and are identified as Waters Index Number W-1-4 (portion as described) "Enters Buffalo River from southeast approximately 6.14 miles above mouth. From mouth to Cazenovia street Bridge, City of Buffalo", and as Waters Index Number E-1-4 (portion as described) "From Cazenovia street Bridge, City of Buffalo, to junction of East Branch Cazenovia Creek and West Branch of Cazenovia Creek". These stream segments are classified as Class C and Class B waters respectively

These areas are located southwest of the Site and are shown on Figure 4. New York State Waters.

New York State waters are classified by "best usage" and are defined as follows:

Class B-The best usages of Class B waters are primary and secondary contact recreation and fishing. These waters shall be suitable for fish propagation and survival.

Class C-The best usages of Class C waters is fishing. These waters shall be suitable for. primary and secondary contact recreation, although other factors may limit the use for these purposes.

Figures

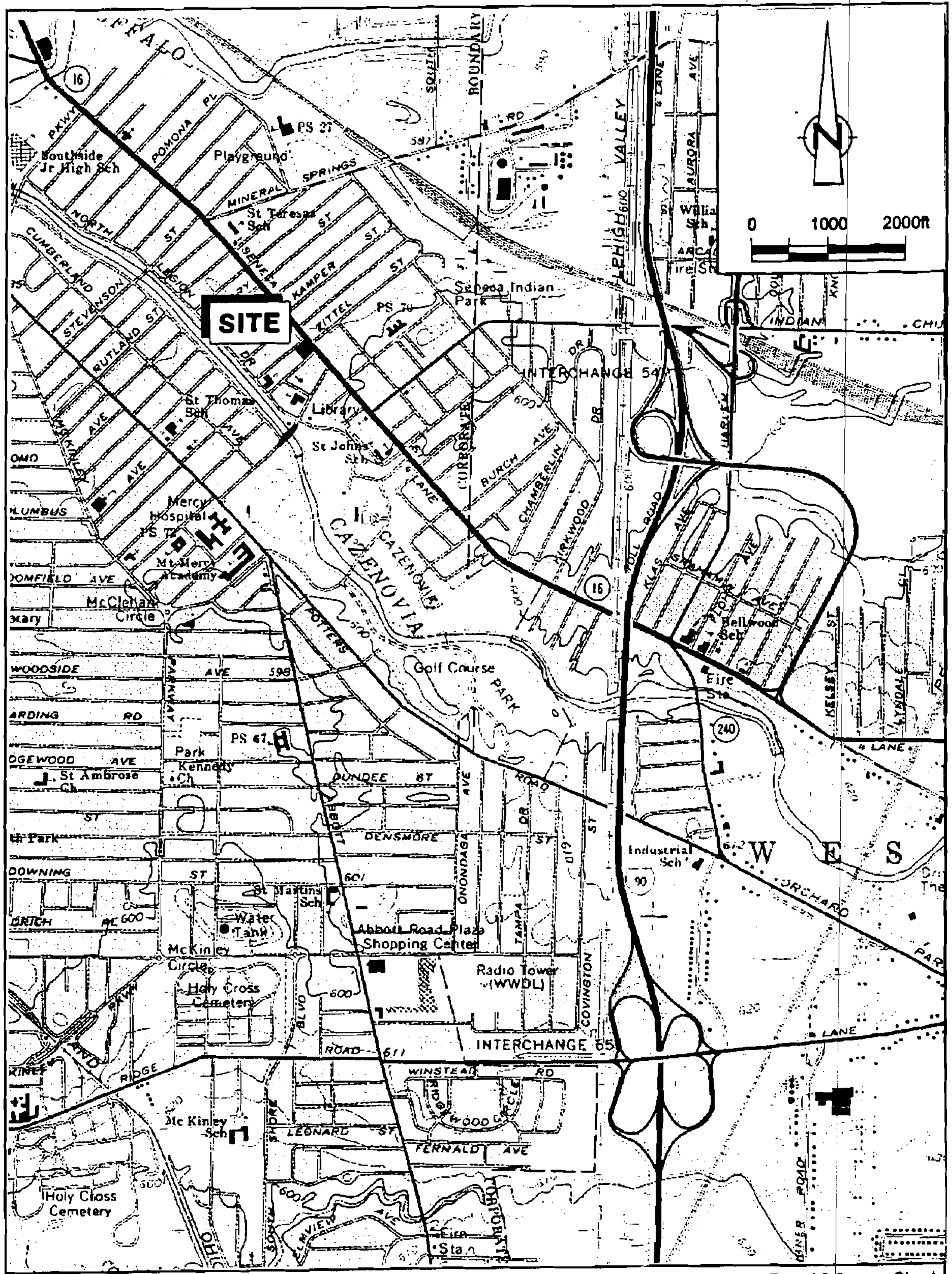


Figure 1. Site Location Plan

Parcel 2 Seneca Street
Buffalo, New York

Figure 2. New York State Freshwater Wetlands Map
"Buffalo, New York"
Source: NYSDEC

Parcel 2 Seneca Street
Buffalo, New York

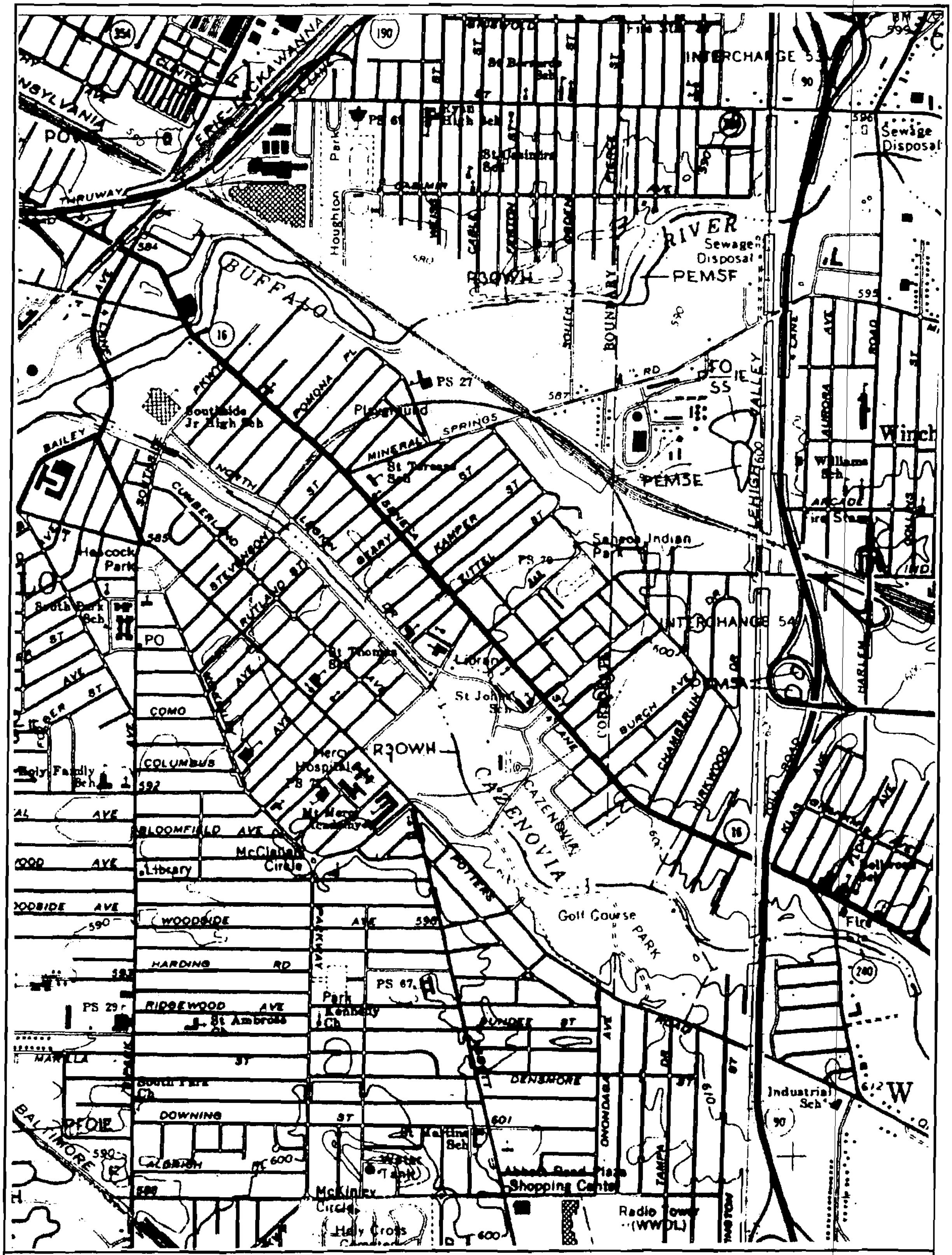


Figure 3. National Wetland Inventory Map

"Buffalo, New York"

Source: US Fish and Wildlife Service

Parcel 2 Seneca Street

Buffalo, New York

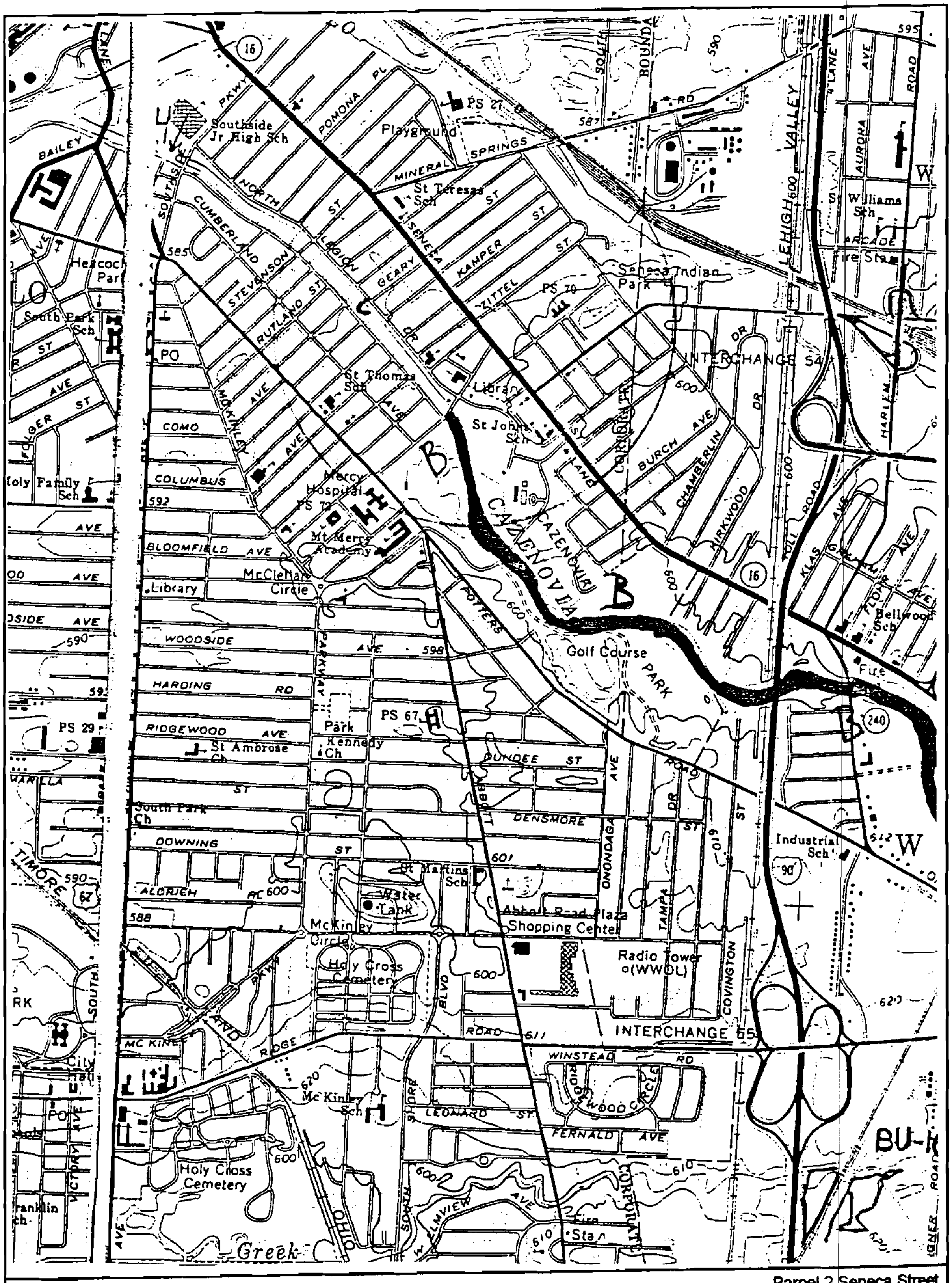


Figure 4. New York State Waters Map

Parcel 2 Seneca Street
Buffalo, New York

Source: NYSDEC

Attachment

New York State Department of Environmental Conservation
Division of Fish, Wildlife and Marine Resources, Region 9
0 Michigan Avenue, Buffalo, New York, 14203-2999
Phone: (716) 851-7010 • **FAX:** (716) 851-7005
Website: www.dec.state.ny.us

Environmental Conservation 30 YEARS
John P. Cahill
Commissioner

November 28, 2000

Mr. Mark Lindberg
Fine Line Technical Services
12492 Smith Road
Medina, NY 14103

Dear Mr. Lindberg:

Site Investigation, Parcel 2
Seneca Street, Buffalo, NY

I have reviewed the Natural Heritage Data Files in regards to the above-mentioned project as marked on the map provided by you. According to the files, no known species of special management concern including threatened or endangered status and no known habitat of special concern were found on the project site or in the immediate vicinity of the project site.

Please be advised that the absence of data does not necessarily mean that rare or endangered elements, natural communities or other significant habitats do not exist on or adjacent to the proposed site, but rather that our files do not contain any information that indicates the presence of these. Our files are continually growing as new habitats and occurrences of rare species and communities are discovered. In most cases, site-specific or comprehensive surveys for plant and animal occurrences have not been conducted. For these cases, we cannot provide a definitive statement on the presence or absence of species, habitats or communities. Nothing in this letter can be substituted for on-site surveys that may be required for environmental assessment.

If I can be of any further assistance, please call me at (716) 851-7010.

Sincerely,

Greg G. Ecker

Greg G. Ecker
Wildlife Technician II

GGE:dcg
ecker\lindberg.ltr

cc: Mr. Russ Biss, Regional Wildlife Manager

New York State Department of Environmental Conservation
Division of Fish, Wildlife & Marine Resources
Wildlife Resources Center - New York Natural Heritage Program
700 Troy-Schenectady Road, Latham, New York 12110-2400
Phone: (518) 783-3932 FAX: (518) 783-3916

John P. Cahill
Commissioner

December 5, 2000

Mark A Lindberg
Fine Line Technical Services
12492 Smith Rd
Medina, NY 14103

Dear Mr. Lindberg:

In response to your recent request, we have reviewed the New York Natural Heritage Program databases with respect to the proposed Investigation of "Parcel 2 Seneca Street", site as indicated on the map you provided, including one-half mile radius, located in the City of Buffalo, Erie County.

> We have no records of <u>known</u> occurrences of rare or state-listed animals or plants, significant natural communities, or other significant habitats, on or in the immediate vicinity of your site.

The absence of data does not mean, however, that rare or state-listed species, natural communities or other significant habitats do not exist on or adjacent to the proposed site, but rather that our files currently do not contain any information which indicates their presence. For most sites, comprehensive field surveys have not been conducted. For these reasons, we cannot provide a definitive statement on the presence or absence of rare or state-listed species, or of significant natural communities. This information should <u>not</u> be substituted for <u>on-site</u> surveys that may be required for environmental assessment.

Our databases are continually growing as records are added and updated. If this proposed project is still under development one year from now, we recommend that you contact us again so that we may update this response with the most current information.

This response applies only to known occurrences of rare or state-listed animals, and plants, significant natural communities, and other significant habitats. For information regarding regulated areas or permits that may be required under state law (e.g., <u>regulated wetlands</u>), please contact the appropriate NYS DEC Regional Office, Division of Environmental Permits, at the enclosed address.

Sincerely,

Heidi Krahling

Heidi J. Krahling, Information Services
NY Natural Heritage Program

Enc.
cc: Reg. 9, Wildlife Mgr.

Item No.	*Waters Index Number*	*Name*	*Description*	*Map Ref. No.*	*Class*	*Standards*
139	W-1-4 portion as described	Cazenovia Creek	Enters Buffalo River from southeast approximately 6.14 miles above mouth. From mouth to Cazenovia Street Bridge, City of Buffalo.	6	C	C
140	E-1-4 portion as described	Cazenovia Creek	From Cazenovia Street Bridge, City of Buffalo, to junction of East Branch Cazenovia Creek and West Branch Cazenovia Creek.	6, 7	B	B
141	E-1-4-1, 2, 3, 4, 5 and 6 and tribs. as shown on reference map	Tribs. of Cazenovia Creek	Enter from east and south between mouth and Spring Brook.	6, 7	C	C
142	E-1-4-7 and trib.	Spring Brook	Enters Cazenovia Creek from east at Spring Brook.	7	C	C(T)
143	E-1-4-8, 9, 10, 11, 12, 13	Tribs. of Cazenovia Creek	Enter from east and south between Spring Brook and junction of East Branch Cazenovia Creek, and West Branch Cazenovia Creek.	7	C	C
144	E-1-4-14 portion as described	East Branch Cazenovia Creek	Enters Cazenovia Creek from south approximately 0.5 mile west of East Aurora village line. Mouth to hamlet of Holland.	7, 11	B	B
145	E-1-4-14 portion as described	East Branch Cazenovia Creek (Protection Creek above trib. 26)	From hamlet of Holland to source.	11, 12	C	C(T)
146	E-1-4-14-1, 2, 3 and trib.	Tribs of East Branch Cazenovia Creek	Enter from north and south at approximately 0.4, 0.6 and 1.2 miles, respectively, above mouth.	7, 11	C	C
147	E-1-4-14-4 and tribs.	Tannery Brook	Enters East Branch Cazenovia Creek from northeast approximately 1.8 miles above mouth.	7	C	C
148	E-1-4-14-5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21 and tribs.	Tribs. of East Branch Cazenovia Creek	Enter from east and west between Tannery Brook and hamlet of Holland.	7, 11	B	B
149	E-1-4-14-22, 23 and tribs.	Tribs. of East Branch Cazenovia Creek	Enter from south at hamlet of Holland and approximately 0.5 mile above hamlet of Holland, respectively.	11	B	B
150	E-1-4-14-24 and trib.	Trib. of East Branch Cazenovia Creek	Enters from east approximately 1.5 miles above hamlet of Holland.	11	C	C(T)
151	E-1-4-14-25	Trib. of East Branch Cazenovia Creek	Enters from west approximately 1.6 miles above hamlet of Holland.	11	C	C
152	E-1-4-14-26	Trib. of East Branch Cazenovia Creek	Enters from south approximately 2.1 miles above hamlet of Holland.	11	C	C(T)
153	E-1-4-14-26-1, 2, 3, 4, 5 and trib.	Subtribs. of East Branch Cazenovia Creek		11	C	C
154	E-1-4-14-27	Trib. of East Branch Cazenovia Creek	Enters from east approximately 2.5 miles above hamlet of Holland.	11	B	B

APPENDIX D

STRATIGRAPHIC AND INSTRUMENTATION LOGS

Boring Log
The Fourth River Company

Project No: 1240
Boring No: SB - 1
Page No: 1 / 1
Date Begun: 07/21/99
Date Finished: 07/21/99
Well Installed: no

Client: *Walnut Capital*
Driller: *Zebra Environmental*
Method: *Geoprobe*
Diameter: *2"*

Location: *Buffalo, NY*
Engineer: *jch*
Elevation: *n/a* ground
Elevation: *n/a* TOC/TOR

Sample Number	Recovery (in)	Blows per 6-inch	HNu (ppm)	Depth	Classification	Notes
	0			1	*brown SILT, some Clay (TOPSOIL), little Grass, trace Sand*	
				2		
					refusal @ 2' on suspected concrete	
				3		
				4		
				5		
				6		
				7		
				8		
				9		
				10		
				11		
				12		
				13		
				14		
				15		
				16		
				17		
				18		
				19		
				20		

Boring Log

The Fourth River Company

Project No: 1240
Boring No: SB - 1A
Page No: 1 / 1
Date Begun: 07/21/99
Date Finished: 07/21/99
Well Installed: no

Client: Walnut Capital
Driller: Zebra Environmental
Method: Geoprobe
Diameter: 2"

Location: Buffalo, NY
Engineer: jch
Elevation: n/a ground
Elevation: n/a TOC/TOR

Sample Number	Recovery (in)	Blows per 6-inch	HNu (ppm)	Depth	Classification	Notes
					ASPHALT	
	0			1	grey SAND, GRAVEL and SLAG (FILL)	
				2	refusal @ 1.5' on suspected concrete	
				3		
				4		
				5		
				6		
				7		
				8		
				9		
				10		
				11		
				12		
				13		
				14		
				15		
				16		
				17		
				18		
				19		
				20		

Boring Log
The Fourth River Company

Project No: 1240
Boring No: SB - 1B
Page No: 1 / 1
Date Begun: 07/21/99
Date Finished: 07/21/99
Well Installed: no

Client: Walnut Capital
Driller: Zebra Environmental
Method: Geoprobe
Diameter: 2"

Location: Buffalo, NY
Engineer: jch
Elevation: n/a ground
Elevation: n/a TOC/TOR

Sample Number	Recovery (in)	Blows per 6-inch	HNu (ppm)	Depth	Classification	Notes
					brown SILT, some Clay, little Grass (TOPSOIL)	
				1		
	42		0.5	2	brown f SAND and CLAYEY SILT	
				3	brown and grey SILTY CLAY	
				4		
				5		
	48		0.5	6	brown CLAYEY SILT and f SAND	
				7		
				8		damp @ 8'
				9	brown SAND and SILT, some Rock fragments, some Wood	
				10		wet @ 10'
SB-1B, 3	46		0.5	11		
				12		
				13	brown SAND and SILT, some Clay	
	42		0.5	14		wet
				15	grey SAND and GRAVEL, some Clay	
				16		
					boring terminated @ 16'	
				17	SB-1B GW sampled	
				18		
				19		
				20		

Boring Log
The Fourth River Company

Project No: 1240
Boring No: SB - 2
Page No: 1 / 1
Date Begun: 07/21/99
Date Finished: 07/21/99
Well Installed: no

Client: *Walnut Capital*
Driller: *Zebra Environmental*
Method: *Geoprobe*
Diameter: *2"*

Location: *Buffalo, NY*
Engineer: *jch*
Elevation: *n/a* ground
Elevation: *n/a* TOC/TOR

Sample Number	Recovery (in)	Blows per 6-inch	HNu (ppm)	Depth	Classification	Notes
					ASPHALT	
				1		
	0				*grey SLAG, SAND and GRAVEL (FILL)*	
				2		
					refusal @ 2' on suspected concrete	
				3		
				4		
				5		
				6		
				7		
				8		
				9		
				10		
				11		
				12		
				13		
				14		
				15		
				16		
				17		
				18		
				19		
				20		

Boring Log
The Fourth River Company

Project No: 1240
Boring No: SB - 3
Page No: 1 / 1
Date Begun: 07/21/99
Date Finished: 07/21/99
Well Installed: no

Client: Walnut Capital
Driller: Zebra Environmental
Method: Geoprobe
Diameter: 2"

Location: Buffalo, NY
Engineer: jch
Elevation: n/a ground
Elevation: n/a TOC/TOR

Sample Number	Recovery (in)	Blows per 6-inch	HNu (ppm)	Depth	Classification	Notes
	42		0	1 2 3 4	brown SILT, some Clay, some Grass (TOPSOIL) brown SILTY CLAY, some f Sand	tree root @ 3'
	48		0.5	5 6 7 8	brown SILTY CLAY, some f Sand, trace Roots	
	42		0.5	9 10 11 12	brown f SAND, some Silt, trace Gravel, rock fragments	wet @ 10'
SB-3, 4	18		6	13 14 15 16	brown f SAND and GRAVEL, trace rock fragments	wet
	36		2	17 18 19 20	brown c SAND and GRAVEL, trace Silt	wet

boring terminated @ 20'

Boring Log
The Fourth River Company

Project No: 1240
Boring No: SB - 4
Page No: 1 / 1
Date Begun: 07/21/99
Date Finished: 07/21/99
Well Installed: no

Client: Walnut Capital
Driller: Zebra Environmental
Method: Geoprobe
Diameter: 2"

Location: Buffalo, NY
Engineer: jch
Elevation: n/a ground
Elevation: n/a TOC/TOR

Sample Number	Recovery (in)	Blows per 6-inch	HNu (ppm)	Depth	Classification	Notes
	42		0.5	1 2 3 4	ASPHALT grey SLAG, GRAVEL and SAND (FILL) brown SILTY CLAY	
	42		0.5	5 6 7 8	brown SILTY CLAY, some Clayey Silt, trace Sand, trace Gravel, trace Wood @ 8'	damp @ 8'
	48		0.5	9 10 11 12	brown c SAND, some Gravel, some brown to grey Silt, trace Clay	wet @ 10'
SB - 4, 4	24		1.5	13 14 15 16	brown c SAND and GRAVEL, some brown to grey Silt, trace Wood	wet
				17 18 19 20	boring terminated @ 16'	

Boring Log
The Fourth River Company

Project No: 1240
Boring No: SB - 5
Page No: 1 / 1
Date Begun: 07/21/99
Date Finished: 07/21/99
Well Installed: no

Client: Walnut Capital
Driller: Zebra Environmental
Method: Geoprobe
Diameter: 2"

Location: Buffalo, NY
Engineer: jch
Elevation: n/a ground
Elevation: n/a TOC/TOR

Sample Number	Recovery (in)	Blows per 6-inch	HNu (ppm)	Depth	Classification	Notes
	42		0.5	1	*grey SLAG and SAND, some Mulch*	
				2		
				3	*brown to grey SILTY CLAY*	
				4		
	48		0.5	5	*brown w/light grey mottling SILTY CLAY, trace Slag*	
				6		
				7		
				8		
	48		0.5	9	*brown w/light grey SILTY CLAY, trace Sand and Gravel*	
				10		
				11		
				12		
SB - 5, 4	48		0.5	13	*brown SILTY CLAY, some grey mf Sand, trace Gravel*	*damp*
				14		
				15		
				16		
	48		0.5	17	*grey SILTY CLAY, some f Sand, trace Gravel*	*wet @ 16'*
				18		
				19		
				20		

boring terminated at 20'

Boring Log
The Fourth River Company

Project No: 1240
Boring No: SB - 6
Page No: 1 / 1
Date Begun: 07/21/99
Date Finished: 07/21/99
Well Installed: no

Client: *Walnut Capital*
Driller: *Zebra Environmental*
Method: *Geoprobe*
Diameter: *2"*

Location: *Buffalo, NY*
Engineer: *jch*
Elevation: *n/a* ground
Elevation: *n/a* TOC/TOR

Sample Number	Recovery (in)	Blows per 6-inch	HNu (ppm)	Depth	Classification	Notes
				1	brown MULCH, some Sand and Gravel (FILL)	
	42		0.5	2		
				3	brown SILT and CLAY, trace Gravel	
				4		
				5	brown SILT and CLAY, some Clayey Silt, trace Gravel	
	48		0.5	6		
				7		
				8		
				9	brown SILT and CLAY, some Clayey Silt, trace Gravel	
SB - 6, 3	48		0.5	10		
				11		
				12		wet @ 12'
				13	brown to grey SILTY CLAY, some c Sand and Gravel, trace Wood	
	48		0.5	14		wet
				15		
				16		
				17	boring terminated @ 16' SB-7 GW sampled	
				18		
				19		
				20		

Boring Log
The Fourth River Company

Project No: *1240*
Boring No: *SB - 7*
Page No: *1 / 1*
Date Begun: *07/21/99*
Date Finished: *07/21/99*
Well Installed: *no*

Client: *Walnut Capital*
Driller: *Zebra Environmental*
Method: *Geoprobe*
Diameter: *2"*

Location: *Buffalo, NY*
Engineer: *jch*
Elevation: *n/a* **ground**
Elevation: *n/a* **TOC/TOR**

Sample Number	Recovery (in)	Blows per 6-inch	HNu (ppm)	Depth	Classification	Notes
					ASPHALT	
				1	*grey SLAG, SAND and GRAVEL (FILL)*	
	44		0.5	2	*brown to black SILT and CLAY*	
				3		
				4		
				5	*brown SILT, some mf Sand, some Silty Clay*	
	48		0.5	6		
				7		
				8		
				9	*brown SILT, some mf Sand, some Silty Clay, trace Gravel*	
SB - 7, 3	48		0.5	10		*wet @ 10'*
				11		
				12		
				13	*grey mf to c SAND, some Silt, trace Gravel, trace Clay, trace Wood*	
	48		0.5	14		*wet*
				15		
				16		
					boring terminated @ 16'	
				17		
				18		
				19		
				20		

Boring Log
The Fourth River Company

Project No: 1240
Boring No: SB - 8
Page No: 1 / 1
Client: Walnut Capital
Driller: Zebra Environmental
Method: Geoprobe
Diameter: 2"
Location: Buffalo, NY
Engineer: jch
Elevation: n/a ground
Elevation: n/a TOC/TOR
Date Begun: 07/21/99
Date Finished: 07/21/99
Well Installed: no

Sample Number	Recovery (in)	Blows per 6-inch	HNu (ppm)	Depth	Classification	Notes
					ASPHALT	
				1	*grey SLAG, SAND and GRAVEL (FILL)*	
	42		*0.5*	2	*brown to grey SILT and CLAY, trace Sand*	
				3		
				4		
				5	*brown to grey SILT and CLAY, some Sand and Gravel (FILL)*	
SB - 8, 2	*48*		*1*	6		
				7		
				8		*damp @ 8'*
				9	*brown m SAND, some Gravel, some brown to grey Silt and Clay*	
	24		*0.5*	10		*damp to wet*
				11		
				12		
				13	*brown to grey SILT, some Sand and Gravel, trace Clay*	
	24		*0.5*	14		*wet*
				15		
				16		
					boring terminated @ 16'	
				17		
				18		
				19		
				20		

Boring Log
The Fourth River Company

Project No: 1240
Boring No: SB - 9
Page No: 1 / 1
Date Begun: 07/21/99
Date Finished: 07/21/99
Well Installed: no

Client: Walnut Capital
Driller: Zebra Environmental
Method: Geoprobe
Diameter: 2"

Location: Buffalo, NY
Engineer: jch
Elevation: n/a ground
Elevation: n/a TOC/TOR

Sample Number	Recovery (in)	Blows per 6-inch	HNu (ppm)	Depth	Classification	Notes
SB - 9, 1	44		1.5	1 2 3 4	ASPHALT grey SAND, GRAVEL and SLAG (FILL) dark brown SILT and SAND	oil or tar-like substance @ 2'
	48		0.5	5 6 7 8	brown and grey SILT and CLAY, trace Sand and Gravel	
	24		0.5	9 10 11 12	brown mf SAND, some Silt, some Gravel, trace Clay	wet @ bottom
	48		0.5	13 14 15 16	brown to grey m SAND, some Silt and Clay, some Gravel, trace Wood @ 14'	wet
				17 18 19 20	boring terminated @ 16'	

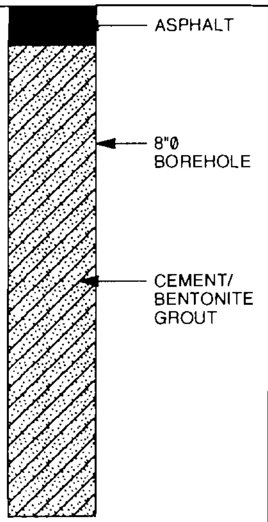
STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: Seneca St. Parcel #2
PROJECT NUMBER: 15867
CLIENT: Confidential
LOCATION: Buffalo, NY

HOLE DESIGNATION: SB-11
DATE COMPLETED: September 1, 2000
DRILLING METHOD: HSA
FIELD PERSONNEL: K. Lynch

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	NORTHING: 4795.84 EASTING: 4986.39 GROUND SURFACE	592.48					
	ASPHALT, gravel sub-base						
2	GRAVEL (Fill), some sand, fine, angular, grey, dry to moist	591.48	1SS	☒	2.0	8	0
4	ML-SILT, little fine sand and clay, trace fine gravel, grey and brown, dry to moist, mottled, laminated, stiff	588.48	2SS	☒	2.0	4	0
6			3SS	☒	2.0	8	0
8			4SS	☒	2.0	9	0
10		∇	5SS	☒	2.0	5	0
12	SW-SAND, little silt, fine to medium grained, rounded and subrounded, grey, dry to moist - wet below 12.2ft BGS	580.88	6SS	☒	2.0	7	0
14	END OF BOREHOLE @ 13.0ft BGS	579.48					
16							
18							
20							
22							
24							
26							
28							
30							
32							
34							

SOIL BORING INSTALLATION



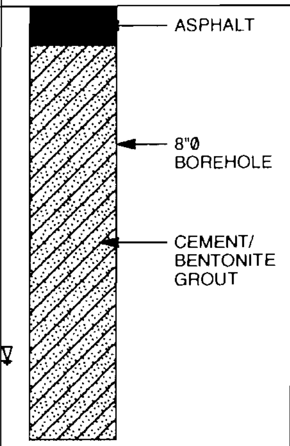
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ∇ 09/01/00
CHEMICAL ANALYSIS ○

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Seneca St. Parcel #2
PROJECT NUMBER: 15867
CLIENT: Confidential
LOCATION: Buffalo, NY

HOLE DESIGNATION: SB-12
DATE COMPLETED: September 13, 2000
DRILLING METHOD: HSA
FIELD PERSONNEL: K. Lynch

STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL
NORTHING: 4824.5 EASTING: 5027.21 GROUND SURFACE	591.59
asphalt	590.59
GRAVEL (Fill), some sand, grey, dry	589.69
ML-SILT, little sand, brown and grey, dry to moist, laminated, stiff	582.69
SW-SAND, trace fine rounded gravel, brown, wet	580.59
END OF BOREHOLE @ 11.0ft BGS	



SAMPLE NUMBER	INTERVAL	REC (ft)	'N' VALUE	PID (ppm)
1SS	☒	2.0	8	0.1
2SS	☒	2.0	12	0
3SS	☒	2.0	16	0.3
(4SS)	☒	2.0	7	0.6
5SS	☒	2.0	2	0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ 09/13/00
CHEMICAL ANALYSIS ○

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

Page 1 of 1

PROJECT NAME: Seneca St. Parcel #2
PROJECT NUMBER: 15867
CLIENT: Confidential
LOCATION: Buffalo, NY

HOLE DESIGNATION: SB-13
DATE COMPLETED: September 13, 2000
DRILLING METHOD: HSA
FIELD PERSONNEL: K. Lynch

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	SOIL BORING INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	NORTHING: 4848.26 EASTING: 4969.84 GROUND SURFACE	591.33						
	ASPHALT, gravel sub-base	590.33	ASPHALT					
2	GRAVEL (Fill), some sand, trace iron slag, brown and grey, dry to moist	588.93		1SS		2.0	14	0
4	ML-SILT, trace sand, grey, dry to moist, laminated, medium stiffness		8"Ø BOREHOLE	2SS		2.0	12	0
6			CEMENT/ BENTONITE GROUT	3SS		2.0	9	0.2
8		582.63		4SS		2.0	4	0
10	SM-SAND, trace silt, fine grained, moist to wet, loose	580.33		5SS		2.0	1	1.1
	END OF BOREHOLE @ 11.0ft BGS							
12								
14								
16								
18								
20								
22								
24								
26								
28								
30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ○

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

Page 1 of 1

PROJECT NAME: Seneca St. Parcel #2
PROJECT NUMBER: 15867
CLIENT: Confidential
LOCATION: Buffalo, NY

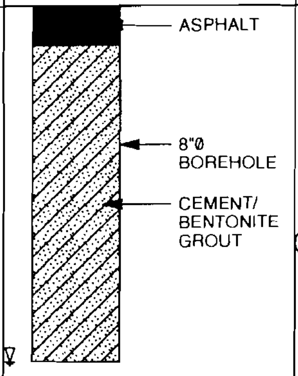
HOLE DESIGNATION: SB-14
DATE COMPLETED: September 13, 2000
DRILLING METHOD: HSA
FIELD PERSONNEL: K. Lynch

NORTHING: 4879.95
EASTING: 4943.64

STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL
GROUND SURFACE	590.48
ASPHALT, gravel sub-base	
GRAVEL (Fill), some sand, grey, dry	589.48
ML-SILT, little fine sand, brown with grey, dry to moist, stiff, laminated	587.38
SM-SAND, little silt, fine to medium grained, brown, dry to moist - wet below 7.5ft BGS	584.68
END OF BOREHOLE @ 9.0ft BGS	581.48

DEPTH ft BGS: 2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24, 26, 28, 30, 32, 34

SOIL BORING INSTALLATION



SAMPLE				
NUMBER	INTERVAL	REC (ft)	'N' VALUE	PID (ppm)
1SS	☒	2.0	14	0
2SS	☒	2.0	18	0.1
3SS	☒	2.0	6	0.3
4SS	☒	2.0	2	0.3

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ 08/13/00
CHEMICAL ANALYSIS ○

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

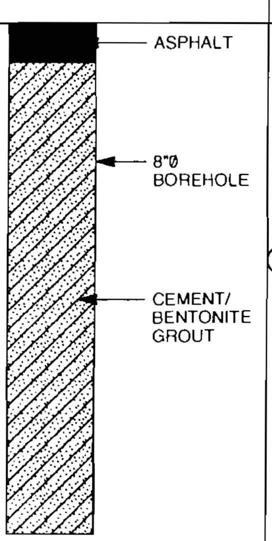
PROJECT NAME: Seneca St. Parcel #2
PROJECT NUMBER: 15867
CLIENT: Confidential
LOCATION: Buffalo, NY

HOLE DESIGNATION: SB-15
DATE COMPLETED: September 13, 2000
DRILLING METHOD: HSA
FIELD PERSONNEL: K. Lynch

NORTHING: 4925.01
EASTING: 4994.24

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL
	GROUND SURFACE	590.76
	ASPHALT, gravel sub-base	589.76
2	GRAVEL (Fill), some sand, grey and brown, dry	588.36
4	RUBBLE FILL, concerete, red-brick, metallic slag, coal, silt (lumpy), dry - hard concrete slab from 6.6 to 7.0ft BGS	583.76
8	SM-SAND, little silt, fine to medium grained, gray and brown, wet, strong chemical odor - roots below 12.5ft BGS	577.76
	END OF BOREHOLE @ 13.0ft BGS	

SOIL BORING INSTALLATION



SAMPLE

NUMBER	INTERVAL	REC (ft)	'N' VALUE	PID (ppm)
1SS	☒	2.0	24	0.3
2SS	☒	2.0	28	0.1
3SS	☒	2.0	18	0.1
4SS	☒	2.0	5	-
5SS	☒	2.0	2	0.6
6SS	☒	2.0	1	43

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ∇ 08/13/00
CHEMICAL ANALYSIS ○

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

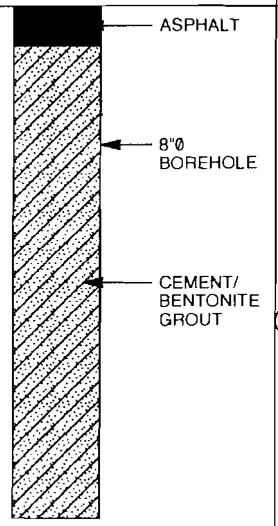
Page 1 of 1

PROJECT NAME: Seneca St. Parcel #2
PROJECT NUMBER: 15867
CLIENT: Confidential
LOCATION: Buffalo, NY

HOLE DESIGNATION: SB-16/16A
DATE COMPLETED: September 18, 2000
DRILLING METHOD: HSA
FIELD PERSONNEL: K. Lynch

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	NORTHING: 4938.15 EASTING: 5023.03 GROUND SURFACE	590.99					
	ASPHALT, gravel sub-base						
	GRAVEL (Fill), some sand, trace coal, concrete and red brick, dry	589.99					
2	- sprinkler wires and tubing		1SS	☒	2.0	20	-
4	- split spoon advances through void from 3.5 to 5.0ft BGS - auger to 5.0ft BGS, moved to SB-16A		2SS	☒	2.0	0	-
	ML-SILT, dark brown with tan and black discoloration, dry to moist, medium stiff, laminated	585.99					
6			3SS	☒	2.0	8	0
8	SM-SAND, little silt, brown, moist to wet	582.99 ∇	4SS	☒	2.0	6	5
10	- wet, grey - roots		5SS	☒	2.0	2	0.9
	SW-SAND, little fine rounded gravel, fine to coarse grained, grey, wet, slight sceptic odor	579.99					
12			6SS	☒	2.0	5	0.9
	END OF BOREHOLE @ 13.0ft BGS	577.99					
14							
16							
18							
20							
22							
24							
26							
28							
30							
32							
34							

SOIL BORING INSTALLATION



NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ∇ 09/18/00
CHEMICAL ANALYSIS ○

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

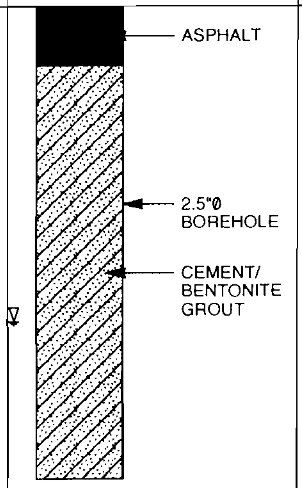
Page 1 of 1

PROJECT NAME: Seneca St. Parcel #2
PROJECT NUMBER: 15867
CLIENT: Confidential
LOCATION: Buffalo, NY

HOLE DESIGNATION: SB-17
DATE COMPLETED: August 22, 2001
DRILLING METHOD: Direct Push
FIELD PERSONNEL: F. Garbe

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	NORTHING: 4939.14 EASTING: 5021.03 GROUND SURFACE	591.05					
	ASPHALT, roadway and gravel sub-base		1	☒	2.0		-
2	CLAY (Fill), some silt and angular gravel, tan to brown	589.55	2	☒	2.0		-
4	- more sand below 4.0ft BGS		3	☒	2.0		-
6	- wood, brick and coal fragments @ 6.0ft BGS		4	☒	2.0		-
8	CL-SILTY CLAY, dark brown to green-brown	583.05	5	☒	2.0		-
10			6	☒	2.0		-
12	END OF BOREHOLE @ 12.0ft BGS	579.05					
14							
16							
18							
20							
22							
24							
26							
28							
30							
32							
34							

SOIL BORING INSTALLATION



NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ∇ 08/22/01

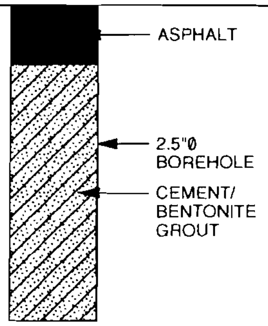
STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

Page 1 of 1

PROJECT NAME: Seneca St. Parcel #2
PROJECT NUMBER: 15867
CLIENT: Confidential
LOCATION: Buffalo, NY

HOLE DESIGNATION: SB-18
DATE COMPLETED: August 22, 2001
DRILLING METHOD: Direct Push
FIELD PERSONNEL: F. Garbe

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	SOIL BORING INSTALLATION	SAMPLE				
				NUMBER	INTERVAL	REC (ft)	'N' VALUE	PID (ppm)
	NORTHING: 4948.9 EASTING: 4999.35 GROUND SURFACE	590.87						
	ASPHALT, roadway and gravel sub-base	589.57	ASPHALT	1	☒	2.0		>2000
2	SAND with SILT (Fill), black			2	☒	2.0		-
4			2.5"0 BOREHOLE CEMENT/ BENTONITE GROUT					
	- brick fragments @ 5.0ft BGS			3	☒	2.0		-
6	- moist with wood fragments @ 6.0ft BGS			4	☒	2.0		-
8	END OF BOREHOLE @ 8.0ft BGS	582.87						
10								
12								
14								
16								
18								
20								
22								
24								
26								
28								
30								
32								
34								



NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Seneca St. Parcel #2
PROJECT NUMBER: 15867
CLIENT: Confidential
LOCATION: Buffalo, NY

HOLE DESIGNATION: SB-19
DATE COMPLETED: August 20, 2001
DRILLING METHOD: Direct Push
FIELD PERSONNEL: F. Garbe

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	SOIL BORING INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	NORTHING: 4923.35 EASTING: 5011.08 GROUND SURFACE	591.07						
	ASPHALT, roadway and gravel sub-base		ASPHALT	1	☒	2.0		-
2	GRAVEL (Fill), some sand, red brick fragments, dry	589.57		2	☒	2.0		1079
4	CLAY (Fill), some silt, some angular gravel and wood fragments, trace brick	588.07	2.5"Ø BOREHOLE	3	☒	2.0		-
6	- moist with more sand @ 6.0ft BGS		CEMENT/ BENTONITE GROUT	4	☒	2.0		>2000
8	- wood fragments @ 8.0 ft BGS			5	☒	2.0		-
10	ML-SILT, some clay and sand, trace gravel, dark brown to tan, occassional yellow and black clay mottling, wet	582.07	▽	6	☒	2.0		>2000
12	END OF BOREHOLE @ 12.0ft BGS	579.07						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ 08/20/01

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

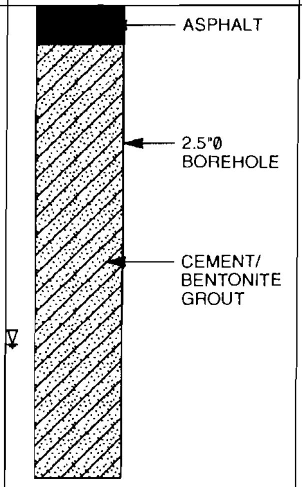
Page 1 of 1

PROJECT NAME: Seneca St. Parcel #2
PROJECT NUMBER: 15867
CLIENT: Confidential
LOCATION: Buffalo, NY

HOLE DESIGNATION: SB-21
DATE COMPLETED: August 20, 2001
DRILLING METHOD: Direct Push
FIELD PERSONNEL: F. Garbe

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	NORTHING: 4926.27 EASTING: 5032.95 GROUND SURFACE	591.55					
	ASPHALT, roadway and gravel sub-base		1	☒	2.0		>2000
	GRAVEL (Fill), some sand	590.55					
2	CLAY (Fill), some silt, dark brown, dry, stiff	590.05	2	☒	2.0		>2000
4	SILT (Fill), some gravel, dark brown, dry	587.45					
6	- more sand below 5.5ft BGS		3	☒	2.0		>2000
8			4	☒	2.0		>2000
10	- wet with more angular gravel below 9.5ft BGS		5	☒	2.0		>2000
	- more tan brown sand with yellow mottling below 10.5ft BGS		6	☒	2.0		>2000
12	END OF BOREHOLE @ 12.0ft BGS	579.55					
14							
16							
18							
20							
22							
24							
26							
28							
30							
32							
34							

SOIL BORING INSTALLATION



NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ⊽ 08/20/2001

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

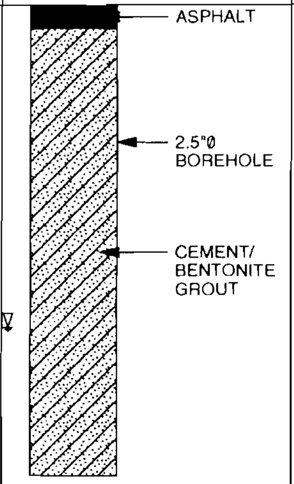
Page 1 of 1

PROJECT NAME: Seneca St. Parcel #2
PROJECT NUMBER: 15867
CLIENT: Confidential
LOCATION: Buffalo, NY

HOLE DESIGNATION: SB-22
DATE COMPLETED: August 22, 2001
DRILLING METHOD: Direct Push
FIELD PERSONNEL: F. Garbe

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL
	NORTHING: 4920.93 EASTING: 4908.58 GROUND SURFACE	589.71
	ASPHALT, roadway and gravel sub-base	589.11
	CLAY (Fill), some silt, some sand, trace gravel, brown to yellowish brown to tan, dry	
6	- wood fragments @ 6.0ft BGS	
8	- becomes very moist and soft with more silt below 8.0ft BGS	
10	- becomes wet with more fine rounded gravel and silt below 10ft BGS	
	- wet with more coarse sand below 11.5ft BGS	
12	END OF BOREHOLE @ 12.0ft BGS	577.71

SOIL BORING INSTALLATION



SAMPLE NUMBER	INTERVAL	REC (ft)	'N' VALUE	PID (ppm)
1	☒	2.0		-
2	☒	2.0		-
3	☒	2.0		-
4	☒	2.0		-
5	☒	2.0		-
6	☒	2.0		-

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ∇ 08/22/2001

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

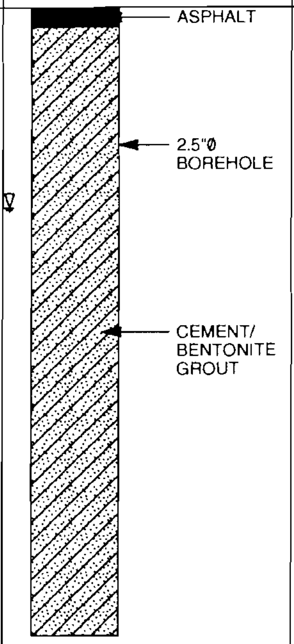
Page 1 of 1

PROJECT NAME: Seneca St. Parcel #2
PROJECT NUMBER: 15867
CLIENT: Confidential
LOCATION: Buffalo, NY

HOLE DESIGNATION: SB-23
DATE COMPLETED: August 22, 2001
DRILLING METHOD: Direct Push
FIELD PERSONNEL: F. Garbe

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL
	NORTHING: 4973.68 EASTING: 4959.32 GROUND SURFACE	590.91
	ASPHALT, roadway and gravel sub-base	590.41
	SAND with GRAVEL (Fill), yellowish brown	589.91
	CLAY with SILT (Fill), some gravel, dark brown to black, dry, stiff	
6	- less sand and gravel below 6.0ft BGS	
8	- moist to wet and soft with less clay below 8.0ft BGS	
10	GRAVEL with COARSE SAND (Fill), some silt, dark brown to black, wet	580.41
12	- more silt and clay below 12.5ft BGS	
16	END OF BOREHOLE @ 16.0ft BGS	574.91

SOIL BORING INSTALLATION



SAMPLE NUMBER	INTERVAL	REC (ft)	'N' VALUE	PID (ppm)
1	0–2	2.0		-
2	2–4	2.0		-
3	4–6	2.0		-
4	6–8	2.0		-
5	8–10	2.0		-
6	10–12	2.0		-
7	12–14	2.0		-
8	14–16	2.0		-

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ 08/22/01

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

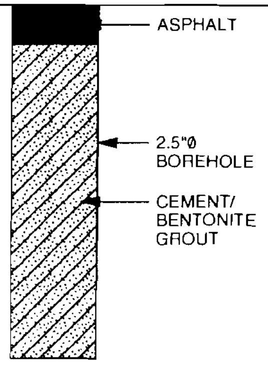
Page 1 of 1

PROJECT NAME: Seneca St. Parcel #2
PROJECT NUMBER: 15867
CLIENT: Confidential
LOCATION: Buffalo, NY

HOLE DESIGNATION: SB-24
DATE COMPLETED: August 20, 2001
DRILLING METHOD: Direct Push
FIELD PERSONNEL: F. Garbe

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL
	NORTHING: 4914.12 EASTING: 4972.7 GROUND SURFACE	590.36
	ASPHALT, roadway and gravel sub-base	589.36
2	SILT with SAND and GRAVEL (Fill), dark brown to black	586.36
4	SAND (Fill), some gravel, dry	585.56
	SILT with SAND and GRAVEL (Fill), light grey, wet	584.36
6	CL-CLAY, some silt, light brown with yellow mottling	581.36
8		
	END OF BOREHOLE @ 9.0ft BGS	

SOIL BORING INSTALLATION



SAMPLE NUMBER	INTERVAL	REC (ft)	'N' VALUE	PID (ppm)
1	☒	2.0		-
2	☒	2.0		0
3	☒	2.0		-
4	☒	2.0		0
5	☒	2.0		0
6	☒	2.0		0.3

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ∇ 08/20/01

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

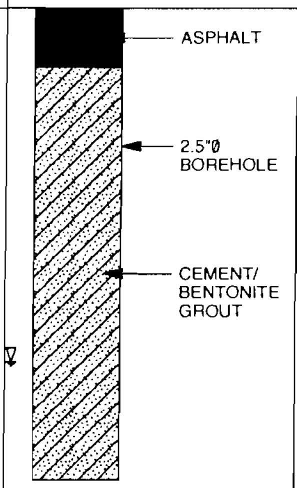
Page 1 of 1

PROJECT NAME: Seneca St. Parcel #2
PROJECT NUMBER: 15867
CLIENT: Confidential
LOCATION: Buffalo, NY

HOLE DESIGNATION: SB-25
DATE COMPLETED: August 20, 2001
DRILLING METHOD: Direct Push
FIELD PERSONNEL: F. Garbe

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL
	NORTHING: 4915.58 EASTING: 4937.64 GROUND SURFACE	591.28
	ASPHALT, roadway and gravel sub-base	
2	SILT (Fill), some gravel and sand, light tan to tan-yellow, grading to brown, dry, stiff	589.78
4	ML-SILT, some clay, light brown to tan, dry	587.28
	- wet below 9.0 ft BGS	
12	END OF BOREHOLE @ 12.0ft BGS	579.28

SOIL BORING INSTALLATION



SAMPLE NUMBER	INTERVAL	REC (ft)	'N' VALUE	PID (ppm)
1	☒	2.0		-
2	☒	2.0		0
3	☒	2.0		0
4	☒	2.0		0
5	☒	2.0		0
6	☒	2.0		-

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ∇ 08/20/01

OVERBURDEN LOG 15867.GPJ CRA_CORP.GDT 1/22/02

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

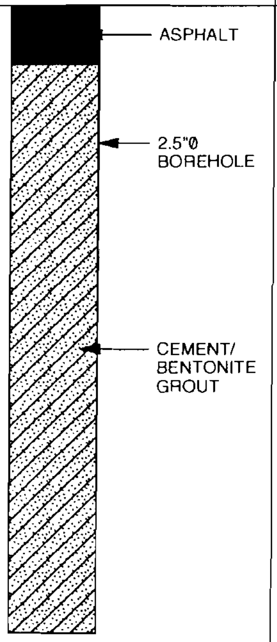
Page 1 of 1

PROJECT NAME: Seneca St. Parcel #2
PROJECT NUMBER: 15867
CLIENT: Confidential
LOCATION: Buffalo, NY

HOLE DESIGNATION: SB-26
DATE COMPLETED: August 20, 2001
DRILLING METHOD: Direct Push
FIELD PERSONNEL: F. Garbe

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL
	NORTHING: 4828.42 EASTING: 4979.68 GROUND SURFACE	591.96
	ASPHALT, roadway and gravel sub-base	590.96
	GRAVEL (Fill), some sand, dry	590.16
2 4 6 8	CL-CLAY, some silt, dark brown to black, occassional green mottling, stiff - moist with more sand and silt below 6.5ft BGS	582.46
10	ML-SILT, some sand and clay, trace gravel, very moist - wet with more sand below 11.0ft BGS	579.96
12 14	SM-SAND with SILT and CLAY, some gravel, wet	575.96
16	END OF BOREHOLE @ 16.0ft BGS	
18 20 22 24 26 28 30 32 34		

SOIL BORING INSTALLATION



SAMPLE NUMBER	INTERVAL	REC (ft)	'N' VALUE	PID (ppm)
1	☒	2.0		0
2	☒	2.0		0.8
3	☒	2.0		0
4	☒	2.0		0
5	☒	2.0		0
6	☒	2.0		0
7	☒	2.0		-
8	☒	2.0		-

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ∇ 08/20/01

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

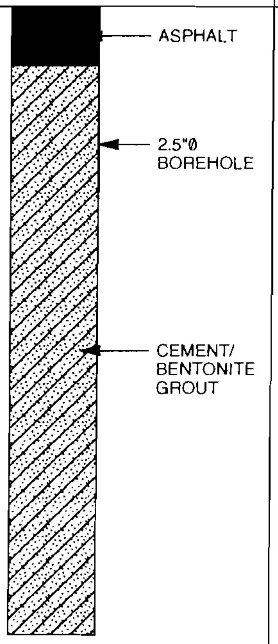
Page 1 of 1

PROJECT NAME: Seneca St. Parcel #2
PROJECT NUMBER: 15867
CLIENT: Confidential
LOCATION: Buffalo, NY

HOLE DESIGNATION: SB-27
DATE COMPLETED: August 20, 2001
DRILLING METHOD: Direct Push
FIELD PERSONNEL: F. Garbe

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL
	NORTHING: 4809.1 EASTING: 5003 GROUND SURFACE	592.43
	ASPHALT, roadway and gravel sub-base	
	GRAVEL (Fill), some sand, dry	591.43
2		
	ML-SILT, some clay, trace sand, occassional black and yellow mottling, dry	588.93
4		
6	- more sand below 6.0ft BGS	
8		
	CL-CLAY with SILT and SAND, trace gravel, grey, wet	583.13
10		▽
12		
	SM-SAND, some silt, trace clay, trace wood, dark brown to black, wet	578.93
14		
16	END OF BOREHOLE @ 16.0ft BGS	576.43
18		
20		
22		
24		
26		
28		
30		
32		
34		

SOIL BORING INSTALLATION



SAMPLE				
NUMBER	INTERVAL	REC (ft)	'N' VALUE	PID (ppm)
1	☒	2.0		1.4
2	☒	2.0		0
3	☒	2.0		0
4	☒	2.0		0
5	☒	2.0		0
6	☒	2.0		0
7	☒	2.0		0
8	☒	2.0		0

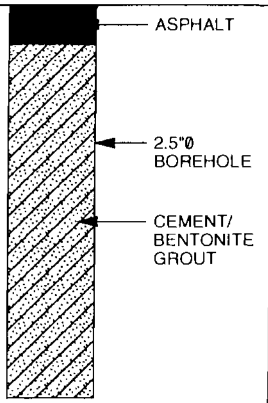
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ 08/20/01

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

Page 1 of 1

PROJECT NAME: Seneca St. Parcel #2
PROJECT NUMBER: 15867
CLIENT: Confidential
LOCATION: Buffalo, NY

HOLE DESIGNATION: SB-28
DATE COMPLETED: August 20, 2001
DRILLING METHOD: Direct Push
FIELD PERSONNEL: F. Garbe

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	SOIL BORING INSTALLATION	SAMPLE NUMBER	INTERVAL	REC (ft)	'N' VALUE	PID (ppm)
	NORTHING: 4923.86 EASTING: 5054.1 GROUND SURFACE	591 15						
	ASPHALT, roadway and gravel sub-base			1	☒	2.0		-
	GRAVEL (Fill), some sand	590.15						
2	CL-CLAY, some sand and silt, yellow-tan-brown, dry	589.15		2	☒	2.0		161
4				3	☒	2.0		93.5
6	- moist below 6.5ft BGS			4	☒	2.0		58.6
8	- tan, wet, with more clay below 8.0ft BGS			5	☒	2.0		-
10	END OF BOREHOLE @ 10.0ft BGS	581.15						
12								
14								
16								
18								
20								
22								
24								
26								
28								
30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

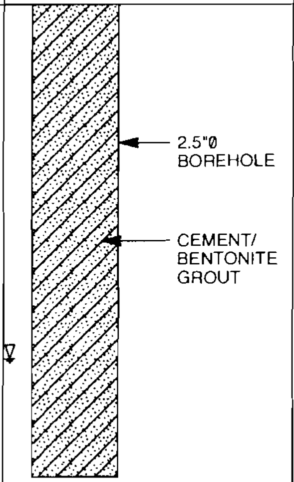
Page 1 of 1

PROJECT NAME: Seneca St. Parcel #2
PROJECT NUMBER: 15867
CLIENT: Confidential
LOCATION: Buffalo, NY

HOLE DESIGNATION: SB-29
DATE COMPLETED: August 20, 2001
DRILLING METHOD: Direct Push
FIELD PERSONNEL: F. Garbe

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	NORTHING: 4894.68 EASTING: 5077.72 GROUND SURFACE	591.14					
	SILT and CLAY (Fill), some gravel, light brown		1	☒	2.0		0
2	CL-CLAY, some silt, dark brown, dry	589.14	2	☒	2.0		0
4			3	☒	2.0		0
6			4	☒	2.0		0
8	- wet below 8.0 ft BGS		5	☒	2.0		0
10			6	☒	2.0		0
	GM-GRAVEL with SILT, some clay, wet	579.64					
12	END OF BOREHOLE @ 12.0ft BGS	579.14					
14							
16							
18							
20							
22							
24							
26							
28							
30							
32							
34							

SOIL BORING INSTALLATION



NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ∇ 08/20/01

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

Page 1 of 1

PROJECT NAME: Seneca St. Parcel #2
PROJECT NUMBER: 15867
CLIENT: Confidential
LOCATION: Buffalo, NY

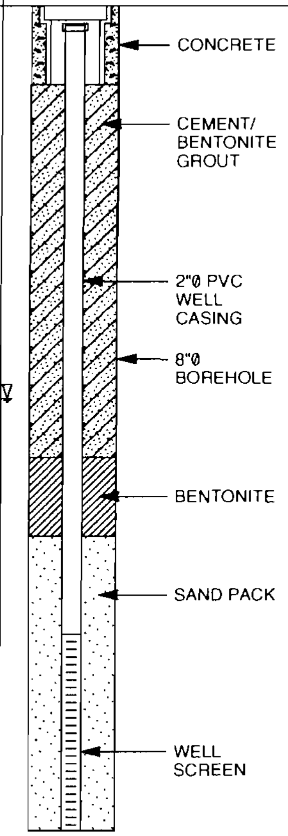
HOLE DESIGNATION: MW-1
DATE COMPLETED: September 14, 2000
DRILLING METHOD: HSA
FIELD PERSONNEL: K. Lynch

STRATIGRAPHIC DESCRIPTION & REMARKS		ELEV. ft AMSL
NORTHING: 4790.47	GROUND SURFACE	592.55
EASTING: 5034.71	TOP OF RISER	592.24
ASPHALT, gravel sub-base		591.55
GRAVEL (Fill), some silt, little sand, brown and grey, moist		588.55
ML-SILT, little fine sand, grey and brown, dry to moist, medium stiff, laminated		584.95
SM-SAND, little silt, fine grained, brown, moist to wet - some silt, soft, moist - trace silt, mottled, loose, dark brown, moist to wet - trace silt, fine grained, dark grey, moist to wet, root at 14.5ft BGS, intermittant thin silt lenses		577.35
SW-SAND, some fine to medium gravel, fine to coarse grained, rounded, grey, wet		572.15
ML-SILT, some clay, little fine sand, trace fine subangular gravel, grey, soft, sticky		571.55
END OF BOREHOLE @ 21.0ft BGS		

DEPTH ft BGS: 2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24, 26, 28, 30, 32, 34

DEPTH ft BGS	NUMBER	INTERVAL	REC (ft)	'N' VALUE	PID (ppm)
2	1SS	☒	2.0	15	0.2
4	2SS	☒	2.0	6	0.1
6	3SS	☒	2.0	10	0
8	4SS	☒	2.0	10	0.1
10	5SS	☒	2.0	4	0.2
12	6SS	☒	2.0	4	0.5
14	7SS	☒	2.0	2	0
16	8SS	☒	2.0	2	0
18	9SS	☒	2.0	2	0
20	10SS	☒	2.0	2	0.1

MONITOR INSTALLATION



WELL DETAILS
Screened interval:
576.55 to 571.55ft AMSL
Length: 5ft
Diameter: 2in
Slot Size: 10
Material: Stainless Steel
Seal:
581.05 to 579.05ft AMSL
Material: Bentonite
Sand Pack:
579.05 to 571.55ft AMSL
Material: Silica Sand

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ∇ 09/14/00
CHEMICAL ANALYSIS ○

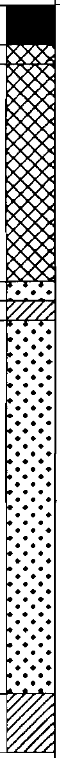
STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Seneca St. Parcel #2
PROJECT NUMBER: 15867
CLIENT: Confidential
LOCATION: Buffalo, NY

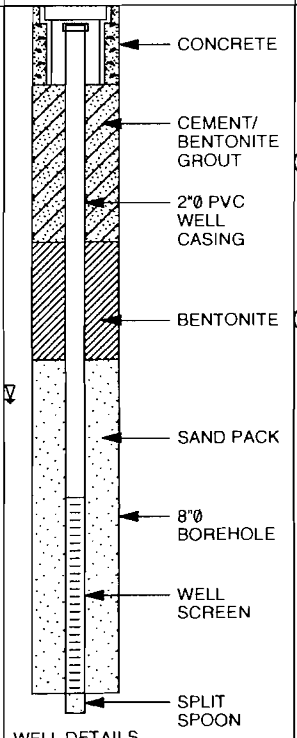
HOLE DESIGNATION: MW-2
DATE COMPLETED: September 15, 2000
DRILLING METHOD: HSA
FIELD PERSONNEL: K. Lynch

NORTHING: 4904.16
EASTING: 5010.91

STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL
GROUND SURFACE	591.71
TOP OF RISER	591.23
ASPHALT, gravel sub-base	590.71
GRAVEL (Fill), some sand, grey, dry	590.21
SILT (Fill), little fine sand, dark grey, dry to moist, slight odour, medium stiff, trace red brick, ceramic pieces, thin red flakes (above conrete @ 3.5ft BGS)	584.71
SW-SAND, some round and subangular gravel, dark grey, wet - moist to wet sandy silt layer from 7.8 to 8.0ft BGS	584.21
CL-CLAY, some silt, little sand, brown, moist	583.71
SW-SAND, little fine gravel, trace silt (in thin lenses), fine to coarse grained, subround, dark grey, wet, trace wood tree root)	574.21
CL-CLAY, little silt, grey, moist, soft, sticky	572.71
END OF BOREHOLE @ 19.0ft BGS	



MONITOR INSTALLATION



WELL DETAILS
Screened interval:
579.21 to 574.21ft AMSL
Length: 5ft
Diameter: 2in
Slot Size: 10
Material: Stainless Steel
Seal:
585.71 to 582.71ft AMSL
Material: Bentonite
Sand Pack:
582.71 to 573.71ft AMSL
Material: Silica Sand

SAMPLE				
NUMBER	INTERVAL	REC (ft)	'N' VALUE	PID (ppm)
1SS	☒	2.0	9	2.5
2SS	☒	2.0	50	1.7
3SS	☒	2.0	7	-
4SS	☒	2.0	8	1.9
5SS	☒	2.0	2	4.5
6SS	☒	2.0	3	5.0
7S	☒	2.0	2	2.8
8SS	☒	2.0	5	1.8
9SS	☒	2.0	3	5.5

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ∇ 09/15/00
CHEMICAL ANALYSIS ○

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

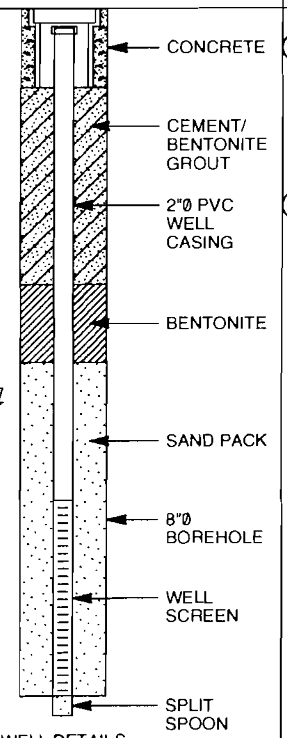
Page 1 of 1

PROJECT NAME: Seneca St. Parcel #2
PROJECT NUMBER: 15867
CLIENT: Confidential
LOCATION: Buffalo, NY

HOLE DESIGNATION: MW-3
DATE COMPLETED: September 14, 2000
DRILLING METHOD: HSA
FIELD PERSONNEL: K. Lynch

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL
	NORTHING: 4883.35 EASTING: 4897.19 GROUND SURFACE TOP OF RISER	591.00 590.33
	OL-SILTY LOAM (TOPSOIL), brown, dry to moist, soft, vegetation	590.50
2 4 6	SILT (Fill), little clay and fine sand, brown, dry to moist, stiff, laminated, trace glossy blue slag and gravel from 0.5 to 1.3ft BGS	584.40
8 10	SM-SAND, little silt, fine grained, brown, dry to moist, medium stiff - becomes soft, moist to wet - intermittant thin silty and clay lenses	579.90
12 14 16	SW-SAND, fine to coarse grained, trace fine founded gravel, brown and grey, wet, few roots (above 13.2ft BGS)	573.80
18	CL-CLAY, trace silt, grey and red-brown, moist, soft	573.00
20 22 24 26 28 30 32 34	END OF BOREHOLE @ 18.0ft BGS	

MONITOR INSTALLATION



WELL DETAILS
Screened interval:
578.50 to 573.50ft AMSL
Length: 5ft
Diameter: 2in
Slot Size: 10
Material: Stainless Steel
Seal:
584.00 to 582.00ft AMSL
Material: Bentonite
Sand Pack:
582.00 to 573.00ft AMSL
Material: Silica Sand

SAMPLE				
NUMBER	INTERVAL	REC (ft)	'N' VALUE	PID (ppm)
1SS		2.0	16	0.2
2SS		2.0	15	0.1
3SS		2.0	6	1.8
4SS		2.0	9	0
5SS		2.0	3	0.2
6SS		2.0	2	0.8
7SS		2.0	2	0.3
8SS		2.0	1	-
9SS		2.0	2	0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ 09/14/00
CHEMICAL ANALYSIS ○

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

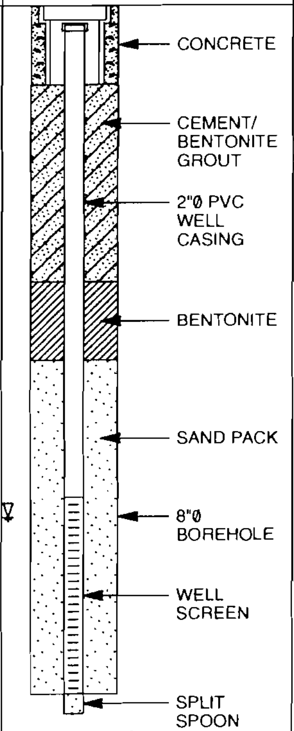
PROJECT NAME: Seneca St. Parcel #2
PROJECT NUMBER: 15867
CLIENT: Confidential
LOCATION: Buffalo, NY

HOLE DESIGNATION: MW-4
DATE COMPLETED: September 15, 2000
DRILLING METHOD: HSA
FIELD PERSONNEL: K. Lynch

NORTHING: 4961.64
EASTING: 4985.81

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL
	GROUND SURFACE	591.16
	TOP OF RISER	590.51
	ASPHALT, gravel sub-base	590.16
	GRAVEL (Fill), subangular, some sand, trace silt, gray, dry	587.86
	FILL, red brick, coal, metal, dry to moist, no odor	585.96
	ML-SILT, little fine sand, brown, dry to moist, medium stiff, laminated	583.06
	SM-SAND, little silt, moist, loose - wet with less silt below 9.5ft BGS	580.56
	ML-SILT, some fine to medium grained sand, trace fine round gravel, dark grey, moist to wet, soft	579.96
	SW-SAND, some fine rounded gravel, little silt, wet, medium stiffness	573.66
	CL-CLAY, trace silt, trace fine sand, red-brown, grades to grey, soft, sticky	572.16
	END OF BOREHOLE @ 19.0ft BGS	

MONITOR INSTALLATION



WELL DETAILS
Screened interval:
578.66 to 573.66ft AMSL
Length: 5ft
Diameter: 2in
Slot Size: 10
Material: Stainless Steel
Seal:
584.16 to 582.16ft AMSL
Material: Bentonite
Sand Pack:
582.16 to 573.16ft AMSL
Material: Silica Sand

SAMPLE

NUMBER	INTERVAL	REC (ft)	'N' VALUE	PID (ppm)
1SS	☒	2.0	11	0
2SS	☒	2.0	9	0
3SS	☒	2.0	6	0
4SS	☒	2.0	10	0
5SS	☒	2.0	2	0
6SS	☒	2.0	2	0.6
7SS	☒	2.0	2	0.4
8SS	☒	2.0	2	-
9SS	☒	2.0	-	-

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ∇ 09/15/00
CHEMICAL ANALYSIS ○

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

Page 1 of 2

PROJECT NAME: Seneca St. Parcel #2
PROJECT NUMBER: 15867
CLIENT: Confidential
LOCATION: Buffalo, NY

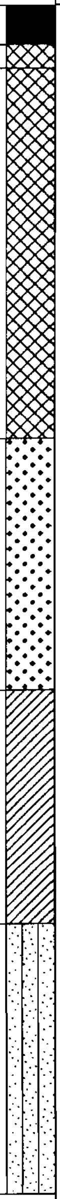
HOLE DESIGNATION: MW-4A
DATE COMPLETED: September 18, 2000
DRILLING METHOD: HSA
FIELD PERSONNEL: K. Lynch

NORTHING: 4959.01
EASTING: 4992.33

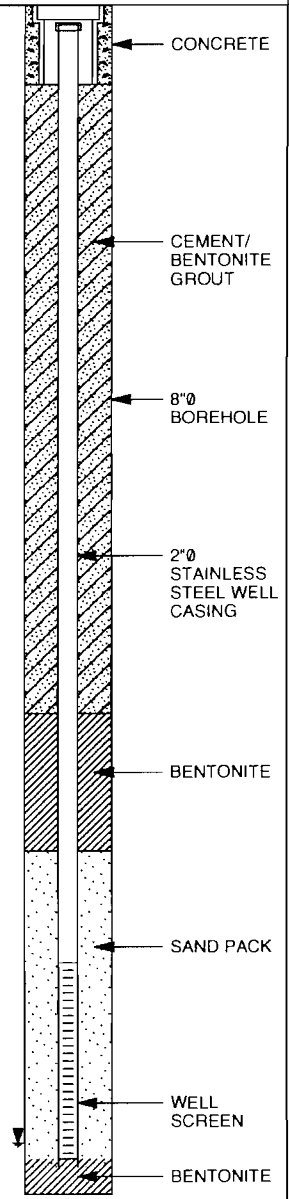
	ELEV. ft AMSL
GROUND SURFACE	591.04
TOP OF RISER	590.61

DEPTH ft BGS: 2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24, 26, 28, 30, 32, 34

STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL
ASPHALT, gravel sub-base	590.04
GRAVEL (Fill), some sand, angular, grey and brown, dry	589.44
SAND (Fill), some gravel, trace red brick and concrete, moist	580.04
SW-SAND, some fine rounded gravel, trace silt, small roots, moist, wet - becomes wet below 15ft BGS	573.64
CL-CLAY, little silt, grey and red-brown, moist, soft, sticky - trace gravel	567.64
SM-SAND, some silt and rounded gravel, fine to medium, dense, grey, moist - dry to moist below 27ft BGS - spoon refusal @ 29.6ft BGS - auger refusal @ 30.3ft BGS	560.74
END OF BOREHOLE @ 30.3ft BGS	



MONITOR INSTALLATION



WELL DETAILS
Screened interval:
566.64 to 561.64ft AMSL
Length: 5ft
Diameter: 2in
Slot Size: 10
Material: Stainless Steel

SAMPLE

NUMBER	INTERVAL	REC (ft)	'N' VALUE	PID (ppm)
1SS		2.0	9	0.1
2SS		2.0	10	0.1
3SS		2.0	19	0.3
4SS		2.0	10	0
5SS		2.0	4	1.0
6SS		2.0	4	0.9
7SS		2.0	4	-
8SS		2.0	3	1.6
9SS		2.0	4	2.6
10SS		2.0		0
11SS		2.0	1	0
12SS		2.0	9	0
13SS		2.0	7	0.1
14SS		2.0	30	0
15SS		0.6	>50	0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Seneca St. Parcel #2
PROJECT NUMBER: 15867
CLIENT: Confidential
LOCATION: Buffalo, NY

HOLE DESIGNATION: MW-4A
DATE COMPLETED: September 18, 2000
DRILLING METHOD: HSA
FIELD PERSONNEL: K. Lynch

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITOR INSTALLATION	SAMPLE				
				NUMBER	INTERVAL	REC (ft)	'N' VALUE	PID (ppm)
36			Seal: 573.04 to 569.54ft AMSL Material: Bentonite Sand Pack: 569.54 to 561.44ft AMSL Material: Silica Sand					
38								
40								
42								
44								
46								
48								
50								
52								
54								
56								
58								
60								
62								
64								
66								
68								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

Page 1 of 1

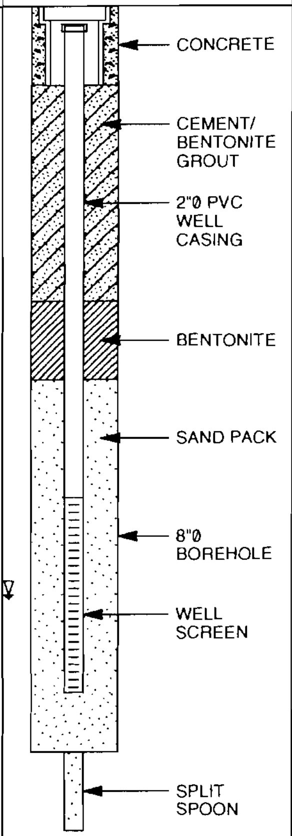
PROJECT NAME: Seneca St. Parcel #2
PROJECT NUMBER: 15867
CLIENT: Confidential
LOCATION: Buffalo, NY

HOLE DESIGNATION: MW-5
DATE COMPLETED: September 14, 2000
DRILLING METHOD: HSA
FIELD PERSONNEL: K. Lynch

NORTHING: 4838.45
EASTING: 4934.21

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL
	GROUND SURFACE	591.37
	TOP OF RISER	590.76
	ASPHALT, gravel sub-base	590.37
2	GRAVEL (Fill), some sand, grey and brown, dry	588.77
4	ML-SILT, grey, dry to moist, medium stiff - becomes brown below 5.0ft BGS	583.87
8	SM-SAND, little silt, fine grained, brown, dry to moist, loose - medium grained sand lens from 7.9 to 8.1 and 8.2 to 8.4ft BGS	581.87
10	SW-SAND, little fine to medium gravel, fine to coarse grained, rounded, trace silt in thin lenses, brown, wet	573.77
18	CL-CLAY, little silt, trace fine sand, light grey, moist, soft, sticky	570.37
	END OF BOREHOLE @ 21.0ft BGS	

MONITOR INSTALLATION



WELL DETAILS
Screened interval:
578.87 to 573.87ft AMSL
Length: 5ft
Diameter: 3in
Slot Size: 10
Material: Stainless Steel
Seal:
583.87 to 581.87ft AMSL
Material: Bentonite
Sand Pack:
581.87 to 570.37ft AMSL
Material: Silica Sand

SAMPLE				
NUMBER	INTERVAL	REC (ft)	'N' VALUE	PID (ppm)
1SS	☒	2.0	10	0
2SS	☒	2.0	15	0
3SS	☒	2.0	6	0
4SS	☒	2.0	7	0
5SS	☒	2.0	5	0
6SS	☒	2.0	3	0
7SS	☒	2.0	3	0
8SS	☒	2.0	4	0
9SS	☒	2.0	4	0
10SS	☒	2.0	0	1.0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ 09/14/00

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Seneca St. Parcel #2
PROJECT NUMBER: 15867
CLIENT: Confidential
LOCATION: Buffalo, NY

HOLE DESIGNATION: MW-6
DATE COMPLETED: August 28, 2001
DRILLING METHOD: HSA
FIELD PERSONNEL: F. Garbe

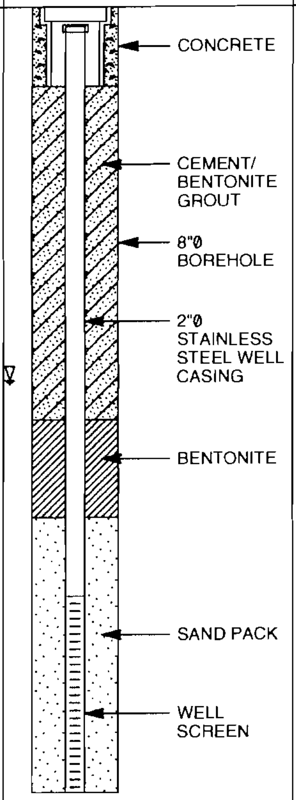
NORTHING: 4833.31
EASTING: 5029.35

STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL
GROUND SURFACE	591.62
TOP OF RISER	591.47
ASPHALT, roadway and gravel sub-base	
CLAY with GRAVEL (Fill), red-brown to dark grey-green, clay mottled dark yellow, dry, stiff	591.02
CLAY with GRAVEL (Fill), light grey, wet, less gravel with depth - becoming soft below 10ft BGS	585.62
SILT (Fill), some fine sand, trace clay, trace fine rounded gravel, dark grey to red-brown, some reddish wood fragments	579.12
CH-CLAY, trace sand and silt, grey, wet, soft, sticky	573.62
END OF BOREHOLE @ 20.0ft BGS	571.62

DEPTH ft BGS: 2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24, 26, 28, 30, 32, 34

SAMPLE				
NUMBER	INTERVAL	REC (ft)	'N' VALUE	PID (ppm)
1SS	☒	0.8	15	-
2SS	☒	0.9	3	0
3SS	☒	0.0	4	0
4SS	☒	1.5	6	0
5SS	☒	0.0	4	0
6SS	☒	1.4	2	3
7SS	☒	1.3	4	2
8SS	☒	0.0	5	2
9SS	☒	0.0	5	-
10SS	☒	2.0	2	0

MONITOR INSTALLATION



WELL DETAILS
Screened interval:
576.62 to 571.62ft AMSL
Length: 5ft
Diameter: 2in
Slot Size: 10
Material: Stainless Steel
Seal:
581.12 to 578.62ft AMSL
Material: Bentonite
Sand Pack:
578.62 to 571.62ft AMSL
Material: Silica Sand

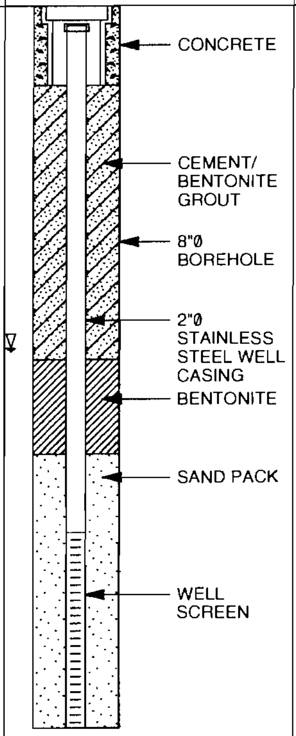
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ 08/28/01

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Seneca St. Parcel #2
PROJECT NUMBER: 15867
CLIENT: Confidential
LOCATION: Buffalo, NY

HOLE DESIGNATION: MW-7
DATE COMPLETED: September 4, 2001
DRILLING METHOD: HSA
FIELD PERSONNEL: F. Garbe

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
	NORTHING: 5015.11 EASTING: 5058.47 GROUND SURFACE TOP OF RISER	 590.93 590.41					
	OVERBURDEN (see overburden stratigraphy for well MW-7A)						
18	END OF BOREHOLE @ 18.4ft BGS	572.53					



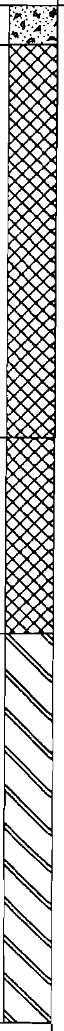
WELL DETAILS
Screened interval:
577.53 to 572.53ft AMSL
Length: 5ft
Diameter: 2in
Slot Size: 10
Material: Stainless Steel
Seal:
581.93 to 579.53ft AMSL
Material: Bentonite
Sand Pack:
579.53 to 572.53ft AMSL
Material: Silica Sand

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ 09/04/01

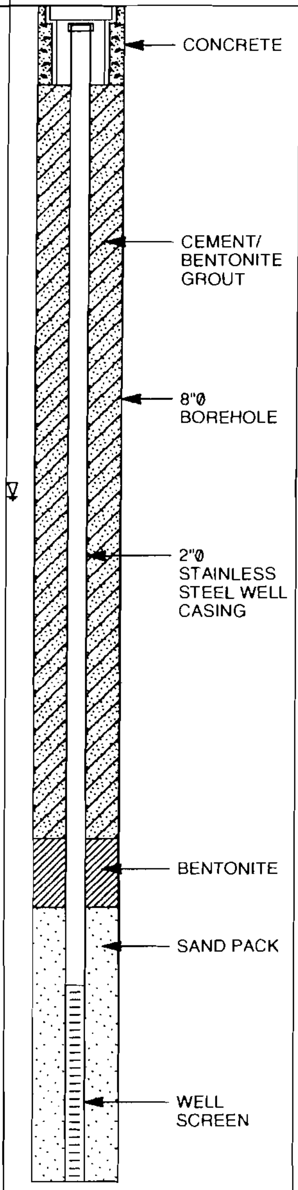
STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Seneca St. Parcel #2
PROJECT NUMBER: 15867
CLIENT: Confidential
LOCATION: Buffalo, NY
HOLE DESIGNATION: MW-7A
DATE COMPLETED: September 4, 2001
DRILLING METHOD: HSA
FIELD PERSONNEL: F. Garbe

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL
	NORTHING: 5018.5 GROUND SURFACE	590.92
	EASTING: 5055.32 TOP OF RISER	590.42
	CONCRETE, gravel sub-base	
	CLAY (Fill), trace to some silt, red-brown, occassional grey mottling, dry, stiff	589.92
10	- becomes moist to wet below 10 ft BGS	
	SILT (Fill), some fine sand, minor gravel, brown, soft	579.92
	- decomposed wood	
14	- more gravel	
16	CI-CLAY, trace gravel, grey, soft	574.92
	- more fine rounded gravel below 22.6 ft BGS	
26	ML-SILT, some clay, some rounded moderate to coarse gravel, becoming drier	564.92
30	END OF BOREHOLE @ 30.0ft BGS	560.92



MONITOR INSTALLATION



WELL DETAILS
Screened interval:
565.92 to 560.92ft AMSL
Length: 5ft
Diameter: 2in
Slot Size: 10
Material: Stainless Steel

SAMPLE NUMBER	INTERVAL	REC (ft)	'N' VALUE	PID (ppm)
1SS	☒	0.7	12	0
2SS	☒	0.9	11	0
3SS	☒	0.7	12	0
4SS	☒	2.0	16	0
5SS	☒	1.0	6	0
6SS	☒	2.0	8	0
7SS	☒	1.3	3	0
8SS	☒	1.1	4	0
9SS	☒	2.0	2	0
10SS	☒	2.0	3	0
11SS	☒	1.3	5	0
12SS	☒	2.0	11	0
13SS	☒	1.1	12	0
14SS	☒	0.8	58	0
15SS	☒	0.8	24	0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ⊻ 09/04/01

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Seneca St. Parcel #2

PROJECT NUMBER: 15867

CLIENT: Confidential

LOCATION: Buffalo, NY

HOLE DESIGNATION: MW-7A

DATE COMPLETED: September 4, 2001

DRILLING METHOD: HSA

FIELD PERSONNEL: F. Garbe

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITOR INSTALLATION	SAMPLE				
				NUMBER	INTERVAL	REC (ft)	'N' VALUE	PID (ppm)
36			Seal: 569.72 to 567.92ft AMSL Material: Bentonite Sand Pack: 567.92 to 560.92ft AMSL Material: Silica Sand					
38								
40								
42								
44								
46								
48								
50								
52								
54								
56								
58								
60								
62								
64								
66								
68								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

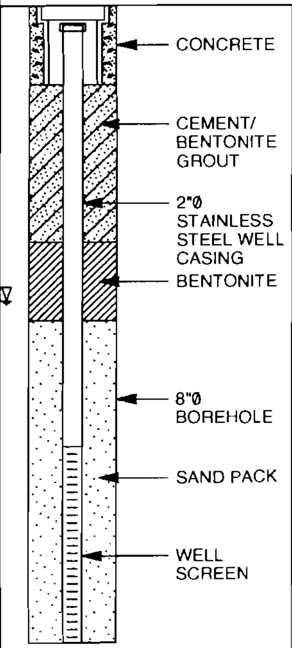
WATER FOUND ⊻ 09/04/01

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

Page 1 of 1

PROJECT NAME: Seneca St. Parcel #2
PROJECT NUMBER: 15867
CLIENT: Confidential
LOCATION: Buffalo, NY

HOLE DESIGNATION: MW-8
DATE COMPLETED: August 31, 2001
DRILLING METHOD: HSA
FIELD PERSONNEL: F. Garbe

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS		ELEV. ft AMSL	MONITOR INSTALLATION	SAMPLE			
					NUMBER	INTERVAL	REC (ft)	'N' VALUE
	NORTHING: 4863.01 EASTING: 4809.01	GROUND SURFACE TOP OF RISER	589.71 588.88					
2 4 6 8 10 12 14 16	OVERBURDEN (see overburden stratigraphy for well MW-8A)							
18 20 22 24 26 28 30 32 34	END OF BOREHOLE @ 16.2ft BGS		573.51					

WELL DETAILS
Screened interval:
578.51 to 573.51ft AMSL
Length: 5ft
Diameter: 2in
Slot Size: 10
Material: Stainless Steel
Seal:
583.71 to 501.71ft AMSL
Material: Bentonite
Sand Pack:
581.71 to 573.51ft AMSL
Material: Silica Sand

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ 08/31/01

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

Page 1 of 2

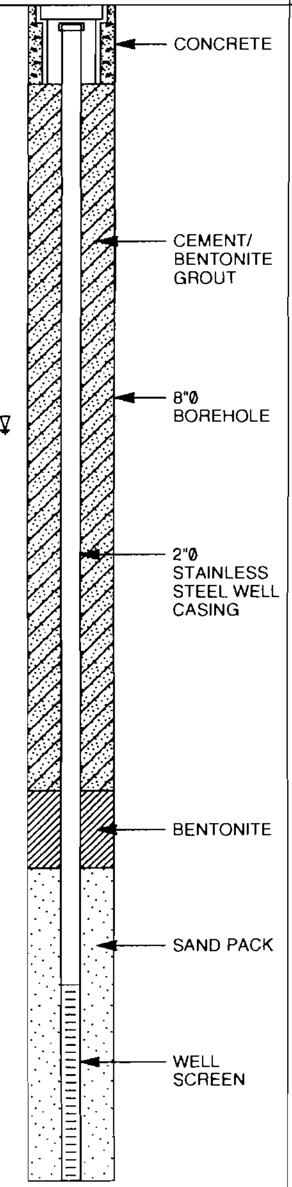
PROJECT NAME: Seneca St. Parcel #2
PROJECT NUMBER: 15867
CLIENT: Confidential
LOCATION: Buffalo, NY

HOLE DESIGNATION: MW-8A
DATE COMPLETED: August 31, 2001
DRILLING METHOD: HSA
FIELD PERSONNEL: F. Garbe

NORTHING: 4867.37
EASTING: 4814.04

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL
	GROUND SURFACE	589.63
	TOP OF RISER	589.04
	TOPSOIL, grass root mat	589.13
	SILT (Fill), some clay, little fine sand, orange-brown to brown to red-brown, dry, stiff - becomes wet below 9.2ft BGS - more sand below 9.3ft BGS - decomposed reddish wood @ 10ft BGS	578.63
	SAND (Fill), some silt, some gravel, grey to red-brown, wet, soft	575.63
	CI-CLAY, little silt, grey, soft - more silt, trace fine rounded gravel below 22ft BGS - increasing rounded moderately coarse gravel, drier below 28ft BGS	559.63
30	END OF BOREHOLE @ 30.0ft BGS	

MONITOR INSTALLATION



WELL DETAILS
Screened interval:
564.63 to 559.63ft AMSL
Length: 5ft
Diameter: 2in
Slot Size: 10
Material: Stainless Steel

SAMPLE NUMBER	INTERVAL	REC (ft)	'N' VALUE	PID (ppm)
1SS	☒	1.3	12	0
2SS	☒	1.7	20	0
3SS	☒	1.4	11	0
4SS	☒	2.0	9	0
5SS	☒	1.7	4	0
6SS	☒	1.7	5	0
7SS	☒	0.3	7	0
8SS	☒	1.5	17	0
9SS	☒	1.8	3	0
10SS	☒	2.0	2	0
11SS	☒	1.9	2	0
12SS	☒	0.7	4	0
13SS	☒	1.2	22	0
14SS	☒	0.8	32	0
15SS	☒	0.8	57	0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ∇ 08/31/01

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

Page 2 of 2

PROJECT NAME: Seneca St. Parcel #2
PROJECT NUMBER: 15867
CLIENT: Confidential
LOCATION: Buffalo, NY

HOLE DESIGNATION: MW-8A
DATE COMPLETED: August 31, 2001
DRILLING METHOD: HSA
FIELD PERSONNEL: F. Garbe

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITOR INSTALLATION	SAMPLE				
				NUMBER	INTERVAL	REC (ft)	'N' VALUE	PID (ppm)
36			Seal: 569.63 to 567.63ft AMSL Material: Bentonite Sand Pack: 567.63 to 559.63ft AMSL Material: Silica Sand					
38								
40								
42								
44								
46								
48								
50								
52								
54								
56								
58								
60								
62								
64								
66								
68								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ⊻ 08/31/01

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

Page 1 of 1

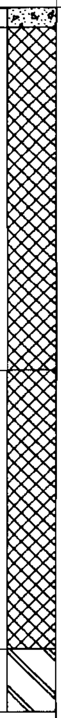
PROJECT NAME: Seneca St. Parcel #2
PROJECT NUMBER: 15867
CLIENT. Confidential
LOCATION: Buffalo, NY

HOLE DESIGNATION: MW-9
DATE COMPLETED: August 29, 2001
DRILLING METHOD: HSA
FIELD PERSONNEL: F. Garbe

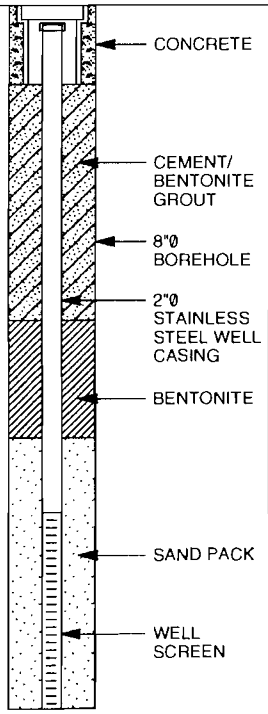
NORTHING: 4989.5
EASTING: 4950.55

		ELEV. ft AMSL
	GROUND SURFACE	590.27
	TOP OF RISER	589.71

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL
	CONCRETE, gravel sub-base	589.77
	CLAY (Fill), some silt, little sand, dark green to light brown to dark red-brown, stiff	
8	- becomes very moist and soft below 8 ft BGS	
	SAND (Fill), some silt, some angular gravel red-brown to grey, wet, soft	581.07
12	- wood fragments @ 12 ft BGS	
	- increasing gravel @ 15.5 ft BGS	
	CI-CLAY, trace sand and fine gravel, red-brown, wet, soft	573.97
18	END OF BOREHOLE @ 17.9ft BGS	572.37



MONITOR INSTALLATION



WELL DETAILS
Screened interval:
577.37 to 572.37ft AMSL
Length: 5ft
Diameter: 2in
Slot Size: 10
Material: Stainless Steel
Seal:
582.27 to 579.27ft AMSL
Material: Bentonite
Sand Pack:
579.27 to 572.37ft AMSL
Material: Silica Sand

SAMPLE				
NUMBER	INTERVAL	REC (ft)	'N' VALUE	PID (ppm)
1SS	☒	0.9	7	35
2SS	☒	2.0	19	60
3SS	☒	1.5	8	20
4SS	☒	1.6	13	30
5SS	☒	1.8	3	6
6SS	☒	1.5	2	15
7SS	☒	2.0	2	10
8SS	☒	0.0	13	-
9SS	☒	1.7	5	2

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Seneca St. Parcel #2
PROJECT NUMBER: 15867
CLIENT: Confidential
LOCATION: Buffalo, NY

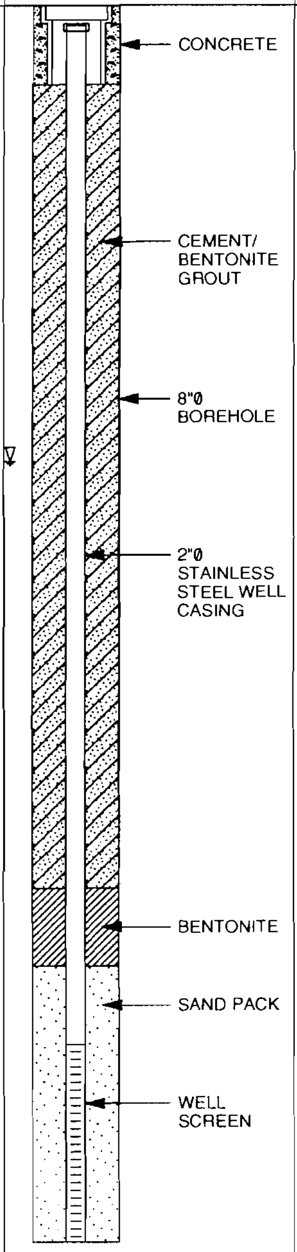
HOLE DESIGNATION: MW-9A
DATE COMPLETED: August 29, 2001
DRILLING METHOD: HSA
FIELD PERSONNEL: F. Garbe

NORTHING: 4993.28
EASTING: 4954.02

GROUND SURFACE 590.31
TOP OF RISER 589.55

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL
	OVERBURDEN (see overburden stratigraphy for well MW-9)	
18	CH-CLAY, trace silt, grey to tan-grey, wet, soft	572.31
24	- increasing fine rounded gravel @ 24 ft BGS	
28	- gravel becoming coarser, less clay @ 28 ft BGS	
30	GC-GRAVEL, some sand, trace clay, grey, wet	560.31
	END OF BOREHOLE @ 31.5ft BGS	558.81

MONITOR INSTALLATION



WELL DETAILS
Screened interval:
565.81 to 558.81ft AMSL
Length: 7ft
Diameter: 2in

SAMPLE

NUMBER	INTERVAL	REC (ft)	'N' VALUE	PID (ppm)
1SS	☒	2.0	4	0
2SS	☒	2.0	6	0
3SS	☒	2.0	2	0
4SS	☒	1.6	16	0
5SS	☒	2.0	105	0
6SS	☒	1.1	37	0
7SS	☒	1.7	47	0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ⊻ 08/29/01

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Seneca St. Parcel #2
PROJECT NUMBER: 15867
CLIENT: Confidential
LOCATION: Buffalo, NY

HOLE DESIGNATION: MW-9A
DATE COMPLETED: August 29, 2001
DRILLING METHOD: HSA
FIELD PERSONNEL: F. Garbe

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITOR INSTALLATION	SAMPLE				
				NUMBER	INTERVAL	REC (ft)	'N' VALUE	PID (ppm)
36			Slot Size: 10 Material: Stainless Steel Seal: 567.81 to 565.81ft AMSL Material: Bentonite Sand Pack: 565.81 to 558.81ft AMSL Material: Silica Sand					
38								
40								
42								
44								
46								
48								
50								
52								
54								
56								
58								
60								
62								
64								
66								
68								

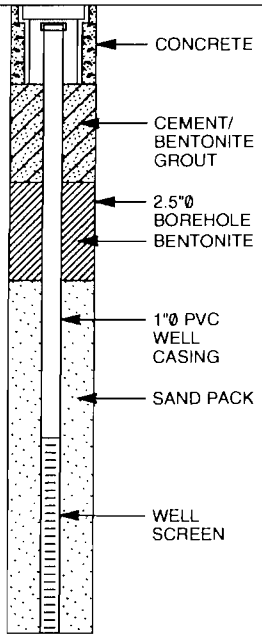
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ⊻ 08/29/01

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

Page 1 of 1

PROJECT NAME: Seneca St. Parcel #2
PROJECT NUMBER: 15867
CLIENT: Confidential
LOCATION: Buffalo, NY

HOLE DESIGNATION: MW-10
DATE COMPLETED: August 30, 2001
DRILLING METHOD: Direct Push
FIELD PERSONNEL: F. Garbe

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
	NORTHING: 4852.6 EASTING: 4834.86 GROUND SURFACE TOP OF RISER	589.42 589.02					
2 4 6 8 10 12 14	OVERBURDEN (see overburden stratigraphy for well MW-10A)						
16 18 20 22 24 26 28 30 32 34	END OF BOREHOLE @ 16.0ft BGS	573.42	WELL DETAILS Screened interval: 578.42 to 573.42ft AMSL Length: 5ft Diameter: 1in Slot Size: 10 Material: SCH 80 PVC Seal: 584.92 to 582.42ft AMSL Material: Bentonite Sand Pack: 582.42 to 573.42ft AMSL Material: Silica Sand				

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ 08/30/01

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

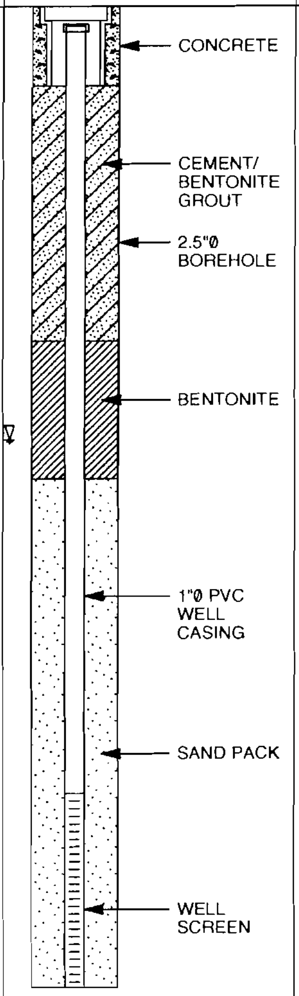
Page 1 of 1

PROJECT NAME: Seneca St. Parcel #2
PROJECT NUMBER: 15867
CLIENT: Confidential
LOCATION: Buffalo, NY

HOLE DESIGNATION: MW-10A
DATE COMPLETED: August 30, 2001
DRILLING METHOD: Direct Push
FIELD PERSONNEL: F. Garbe

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL
	NORTHING: 4850.37 EASTING: 4832.41 GROUND SURFACE TOP OF RISER	589.61 589.07
	TOPSOIL, rootmat	
	CLAY (Fill), some silt, brown, dry	589.11
2		
4		
	- roots, woody debris @ 5 ft BGS	
6	- becomes moist below 6.0ft BGS	
	SAND with SILT and GRAVEL (Fill), trace clay, dark brown, moist, clay content increases with depth	582.61
8		
	CLAY with SAND (Fill), some silt, dark brown, occassional black mottling or thin layers	580.61
10		
12	- increasing fine to coarse gravel 12.5ft BGS	
14	- woody debris @ 14 ft BGS	
	CL-CLAY with SILT, minor fine rounded gravel, grey to brown-grey, wet	574.61
16		
18	- decreasing moisture @ 18 ft BGS	
20		
22	- more sand and fine rounded gravel below 22.5ft BGS	
24		
	END OF BOREHOLE @ 25.0ft BGS	564.61
26		
28		
30		
32		
34		

MONITOR INSTALLATION



WELL DETAILS
Screened interval:
569.61 to 564.61ft AMSL
Length: 5ft
Diameter: 1in
Slot Size: 10
Material: SCH 80 PVC
Seal:
581.11 to 577.61ft AMSL
Material: Bentonite
Sand Pack:
577.61 to 564.61ft AMSL
Material: Silica Sand

SAMPLE

NUMBER	INTERVAL	REC (ft)	'N' VALUE	PID (ppm)
1		4.0		-
2		3.5		-
3		4.0		-
4		2.6		-
5		4.0		-
6		4.0		-
7		1.4		-

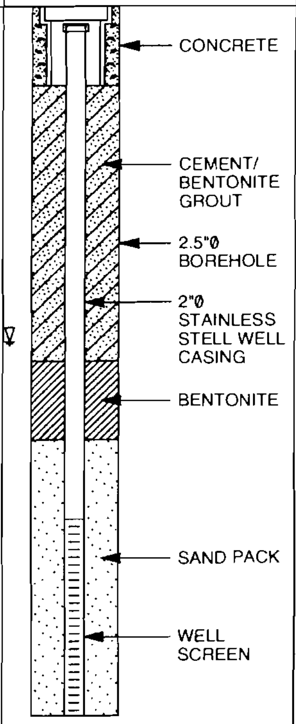
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ 08/30/01

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: Seneca St. Parcel #2
PROJECT NUMBER: 15867
CLIENT: Confidential
LOCATION: Buffalo, NY

HOLE DESIGNATION: MW-11
DATE COMPLETED: August 30, 2011
DRILLING METHOD: HSA
FIELD PERSONNEL: F. Garbe

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
	NORTHING: 4979.14 GROUND SURFACE EASTING: 4986.13 TOP OF RISER	590.75 590.40					
	OVERBURDEN (see overburden stratigraphy for well MW-11A)						
2							
4							
6							
8							
10							
12							
14							
16							
18	END OF BOREHOLE @ 18.0ft BGS	572.75					
20							
22							
24							
26							
28							
30							
32							
34							



WELL DETAILS
Screened interval:
577.75 to 572.75ft AMSL
Length: 5ft
Diameter: 2in
Slot Size: 10
Material: Stainless Steel
Seal:
581.75 to 579.75ft AMSL
Material: Bentonite
Sand Pack:
579.75 to 572.75ft AMSL
Material: Silica Sand

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ⊻ 08/30/01

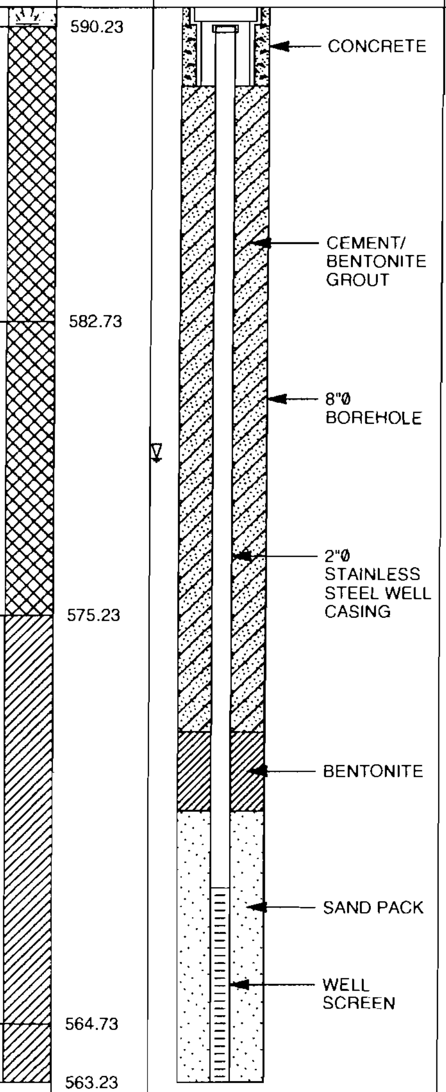
STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Seneca St. Parcel #2
PROJECT NUMBER: 15867
CLIENT: Confidential
LOCATION: Buffalo, NY

HOLE DESIGNATION: MW-11A
DATE COMPLETED: August 30, 2001
DRILLING METHOD: HSA
FIELD PERSONNEL: F. Garbe

NORTHING: 4976.34
EASTING: 4983.22

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL
	GROUND SURFACE	590.73
	TOP OF RISER	590.20
	OL-SILT (TOPSOIL), little clay, brown	590.23
	SILT (Fill), some clay, trace sand, brown to dark brown, dry, friable, occassional grey mottling	
6	- more clay below 6.0 ft BGS	
8	CLAY (Fill), some silt, little sand, dark grey, wet, minor black mottling	582.73
	- minor reddish decomposed wood @ 11.2 ft BGS	
12	- abundant fine gravel below 12.7 ft BGS	
	- increasing coarser gravel @ 15 ft BGS	
16	CL-CLAY, some silt, minor fine gravel, dark red-brown, wet, soft	575.23
18	- less sand and gravel, soft below 18 ft BGS	
	- decreasing gravel @ 21.5 ft BGS	
26	CL-CLAY with GRAVEL (TILL), coarse rounded gravel, grey, dry, stiff	564.73
28	END OF BOREHOLE @ 27.5ft BGS	563.23



NUMBER	INTERVAL	REC (ft)	'N' VALUE	PID (ppm)
1SS	☒	1.2	16	-
2SS	☒	1.4	20	-
3SS	☒	1.8	17	-
4SS	☒	2.0	14	-
5SS	☒	1.6	4	-
6SS	☒	2.0	3	-
7SS	☒	1.4	2	-
8SS	☒	0.6	4	-
9SS	☒	1.5	2	-
10SS	☒	1.6	2	-
11SS	☒	2.0	2	-
12SS	☒	1.1	3	-
13SS	☒	0.8	6	-
14SS	☒	0.3	65	-

WELL DETAILS
Screened interval:
568.23 to 563.23ft AMSL
Length: 5ft
Diameter: 2in
Slot Size: 10
Material: Stainless Steel
Seal:
572.23 to 570.23ft AMSL
Material: Bentonite
Sand Pack:
570.23 to 563.23ft AMSL

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ⊻ 08/30/01

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: Seneca St. Parcel #2
PROJECT NUMBER: 15867
CLIENT: Confidential
LOCATION: Buffalo, NY

HOLE DESIGNATION: MW-11A
DATE COMPLETED: August 30, 2001
DRILLING METHOD: HSA
FIELD PERSONNEL: F. Garbe

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITOR INSTALLATION	SAMPLE				
				NUMBER	INTERVAL	REC (ft)	'N' VALUE	PID (ppm)
36			Material: Silica Sand					
38								
40								
42								
44								
46								
48								
50								
52								
54								
56								
58								
60								
62								
64								
66								
68								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ⊻ 08/30/01

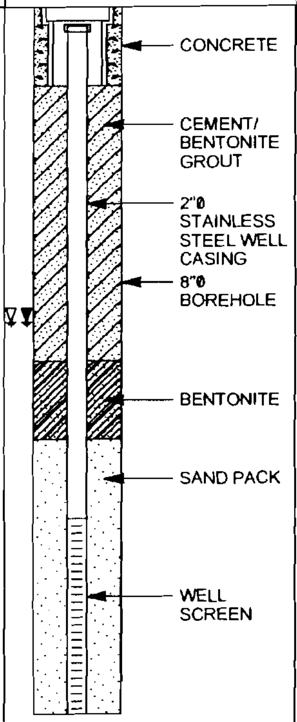
STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

Page 1 of 1

PROJECT NAME: Seneca St. Parcel #2
PROJECT NUMBER: 15867
CLIENT: Confidential
LOCATION: Buffalo, NY

HOLE DESIGNATION: MW-12
DATE COMPLETED: October 30, 2001
DRILLING METHOD: HSA
FIELD PERSONNEL: J. Pietraszek

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
	GROUND SURFACE TOP OF RISER	590.60 589.69					
	OVERBURDEN (not sampled) (see overburden stratigraphy for well MW-12A)						
18	END OF BOREHOLE @ 18.0ft BGS	572.60					



WELL DETAILS
Screened interval:
577.60 to 572.60ft AMSL
13.00 to 18.00ft BGS
Length: 5ft
Diameter: 2in
Slot Size: 10
Material: Stainless Steel
Seal:
581.60 to 579.60ft AMSL
9.00 to 11.00ft BGS
Material: Bentonite
Sand Pack:
579.60 to 572.60ft AMSL
11.00 to 18.00ft BGS
Material: Silica Sand

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ∇ 10/30/01 STATIC WATER LEVEL ▼ 11/26/01

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

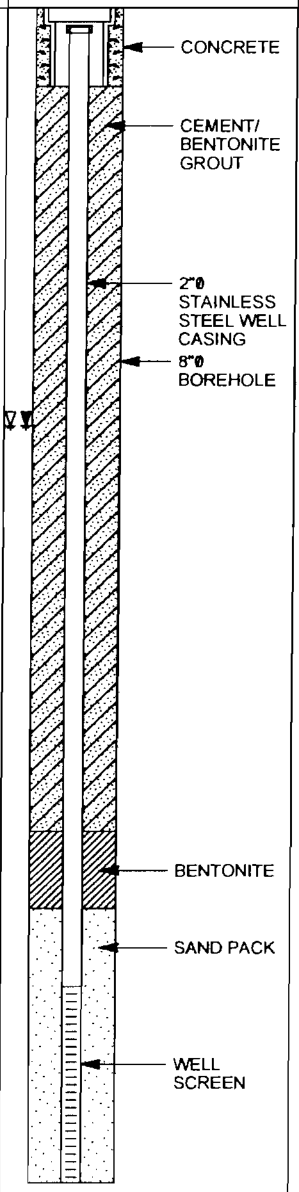
Page 1 of 2

PROJECT NAME: Seneca St. Parcel #2
PROJECT NUMBER: 15867
CLIENT: Confidential
LOCATION: Buffalo, NY

HOLE DESIGNATION: MW-12A
DATE COMPLETED: October 29, 2001
DRILLING METHOD: HSA
FIELD PERSONNEL: J. Pietraszek

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL
	GROUND SURFACE TOP OF RISER	590.60 589.83
	SOIL (Fill), brown, slightly moist	
2		
4	SILTY CLAY (Fill), some woody debris (roots), brown with grey mottling, slightly moist	586.60
6		
8		
10	- increasing clay below 10 ft BGS	
	- becoming grey with red mottling	
12	CLAYEY SILT (Fill), brown with grey mottling	578.60
	SANDY SILT (Fill), some clay, grey, very moist	577.60
14	GRAVELLY SAND (Fill), fine grained rounded gravel, very wet	576.60
16	- gravel becomes angular, fine to medium grained below 16 ft BGS	
18	CL-CLAY, some silt, very moist, dark grey	572.60
20		
	- becomes gravelly below 21 ft BGS	
22	CL-CLAY, dark brown, some red mottling, moist	568.60
	SP-SILTY SAND, little fine gravel, dark grey	568.10
	CL-CLAY, grey, moist, some red mottling	567.90
24		
26	SP-SANDY SILT with FINE GRAVEL, moist, dark grey - clay inclusions @ 27.0 ft BGS	564.60
28		
30	END OF BOREHOLE @ 30.0ft BGS	560.60
32		
34		

MONITOR INSTALLATION



WELL DETAILS
Screened interval:
565.60 to 560.60ft AMSL
25.00 to 30.00ft BGS
Length: 5ft
Diameter: 2in
Slot Size: 10
Material: Stainless Steel

SAMPLE NUMBER	INTERVAL	REC (ft)	'N' VALUE	PID (ppm)
SS1	☒	0.1	5	0
SS2	☒	0.2	12	0
SS3	☒	1.2	14	0
SS4	☒	1.3	19	0
SS5	☒	1.4	9	0
SS6	☒	2.0	10	0
SS7	☒	0.8	6	0
SS8	☒	0.4	5	0
SS9	☒	0.8	7	0
SS10	☒	2.0	4	0
SS11	☒	2.0	5	0
SS12	☒	1.8	2	0
SS13	☒	2.0	3	0
SS14	☒	1.9	3	0
SS15	☒	1.8	5	0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ 9/29/01 STATIC WATER LEVEL ▼ 11/26/01

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

Page 2 of 2

PROJECT NAME: Seneca St. Parcel #2
PROJECT NUMBER: 15867
CLIENT: Confidential
LOCATION: Buffalo, NY

HOLE DESIGNATION: MW-12A
DATE COMPLETED: October 29, 2001
DRILLING METHOD: HSA
FIELD PERSONNEL: J. Pietraszek

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITOR INSTALLATION	SAMPLE				
				NUMBER	INTERVAL	REC (ft)	'N' VALUE	PID (ppm)
36			Seal: 569.60 to 567.60ft AMSL 21.00 to 23.00ft BGS Material: Bentonite Sand Pack: 567.60 to 560.60ft AMSL 23.00 to 30.00ft BGS Material: Silica Sand					
38								
40								
42								
44								
46								
48								
50								
52								
54								
56								
58								
60								
62								
64								
66								
68								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

WATER FOUND ▽ 9/29/01 STATIC WATER LEVEL ▼ 11/26/01

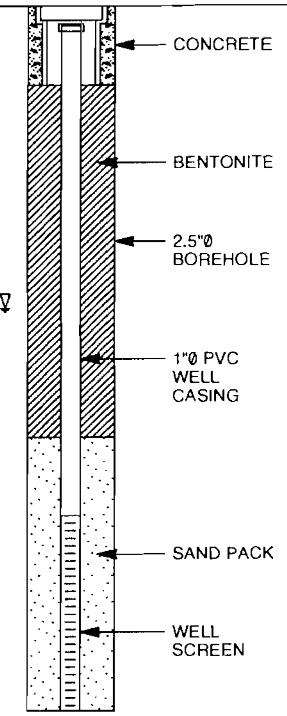
STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Seneca St. Parcel #2
PROJECT NUMBER: 15867
CLIENT: Confidential
LOCATION: Buffalo, NY

HOLE DESIGNATION: PZ-1
DATE COMPLETED: August 22, 2001
DRILLING METHOD: Direct Push
FIELD PERSONNEL: F. Garbe

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL
	NORTHING: 4895.68 GROUND SURFACE EASTING: 4852.83 TOP OF RISER	589.62 589.36
	ASPHALT, roadway and gravel sub-base	588.62
	CLAY (Fill), some silt, little sand, dark brown, dry, occassional grey mottling - increasing sand @ 6 ft BGS	580.42
	SAND (Fill), some silt and clay, trace gravel, brown - gravel inclusions	576.72
	CI-CLAY with SILT, grey to dark grey to brown, soft	571.62
	END OF BOREHOLE @ 18.0ft BGS	

MONITOR INSTALLATION



WELL DETAILS
Screened interval:
576.62 to 571.62ft AMSL
Length: 5ft
Diameter: 1in
Slot Size: 10
Material: SCH 80 PVC
Seal:
587.62 to 578.62ft AMSL
Material: Bentonite
Sand Pack:
578.62 to 571.62ft AMSL
Material: Silica Sand

SAMPLE				
NUMBER	INTERVAL	REC (ft)	'N' VALUE	PID (ppm)
1		2.7		-
2		3.5		-
3		3.9		-
4		4.0		-

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ 08/22/01

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

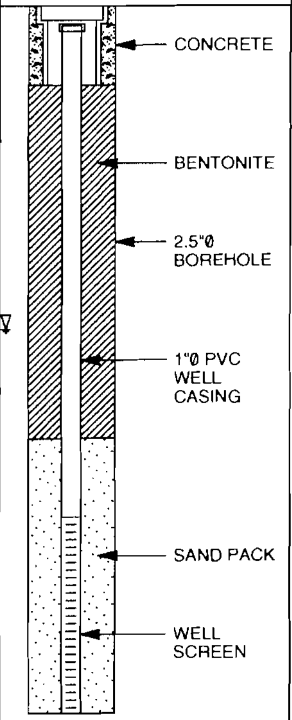
Page 1 of 1

PROJECT NAME: Seneca St. Parcel #2
PROJECT NUMBER: 15867
CLIENT: Confidential
LOCATION: Buffalo, NY

HOLE DESIGNATION: PZ-2
DATE COMPLETED: August 22, 2001
DRILLING METHOD: Direct Push
FIELD PERSONNEL: F. Garbe

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	NORTHING: 4986.94 EASTING: 4961.25 GROUND SURFACE TOP OF RISER	590.19 590.04					
	ASPHALT, roadway and gravel sub-base						
	CLAY (Fill), some silt, dark brown, stiff	589.19					
2			1	☒	1.8		-
6	- some grey and red mottling		2	☒	4.0		-
8	- becoming very moist ∇						
10			3	☒	4.0		-
12	- increasing sand and fine rounded gravel content, clay becoming wet and soft below 12ft BGS						
15	- angular gravel and wood @ 15 ft BGS		4	☒	2.3		-
18	END OF BOREHOLE @ 18.0ft BGS	572.19					

MONITOR INSTALLATION



WELL DETAILS
Screened interval:
577.19 to 572.19ft AMSL
Length: 5ft
Diameter: 1in
Slot Size: 10
Material: SCH 80 PVC
Seal:
588.19 to 579.19ft AMSL
Material: Bentonite
Sand Pack:
579.19 to 572.19ft AMSL
Material: Silica Sand

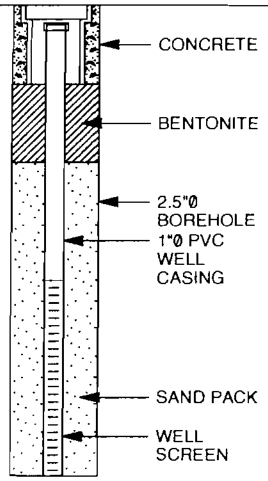
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ∇ 08/22/01

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: Seneca St. Parcel #2
PROJECT NUMBER: 15867
CLIENT: Confidential
LOCATION: Buffalo, NY

HOLE DESIGNATION: PZ-3
DATE COMPLETED: August 30, 2001
DRILLING METHOD: Direct Push
FIELD PERSONNEL: F. Garbe

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	NORTHING: 4863.62 GROUND SURFACE EASTING: 4816.47 TOP OF RISER	589.44 589.15						
	ASPHALT, roadway and gravel sub-base							
	CLAY with SILT (Fill), light brown to brown, dry	588.44						
2				1		4.0		-
4								
	- increasing sand content below 5.0ft BGS							
6	- increasing moisture content below 6.0ft BGS			2		4.0		-
8	- wood fragments @ 8.3ft BGS	581.44	∇					
	SAND (Fill), some gravel, black	580.94						
	CL-CLAY, some silt, brown, occassional black mottling							
10				3		0.8		-
12	END OF BOREHOLE @ 12.0ft BGS	577.44						
14								
16								
18								
20								
22								
24								
26								
28								
30								
32								
34								



WELL DETAILS
Screened interval:
582.44 to 577.44ft AMSL
Length: 5ft
Diameter: 1in
Slot Size: 10
Material: SCH 80 PVC
Seal:
587.44 to 585.44ft AMSL
Material: Bentonite
Sand Pack:
585.44 to 577.44ft AMSL
Material: Silica Sand

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ∇ 08/30/01

APPENDIX E

WELL DEVELOPMENT AND PURGING RECORDS

WELL DEVELOPMENT LOGS

14.9°C

MW-1 Well Development
9-21-00 K. Lynch

Method - Surge with bailer, pump with peristaltic w/ dedicated Teflon tubing. 2" Ø well

Depth 21.2' BTOC
IWL 9.14' BTOC
12.06' x .16 = 1.93 gal/vol

Start 10:00

	Volume	Gals	pH	Cond	Temp °C	Commen
FROM BOTTOM	(1) BAIL *	2	6.80	1840	16.2°c	Cloudy, Silty Dk color
	2	4	6.98	1760	15.7°	Same
	3 *	6	6.91	1780	15.5°	Clearer
	4	8	6.94	1820	15.5°	Clearing
	5 *	10	6.96	1810	15.5°	Same
TOP OF WATER	6	12	6.99	1740	15.9°	Very Cloudy Brown
	7 *	14	6.97	1770	15.8°	Clearing
	8	16	6.94	1790	15.7	Cloudy Brown
	9 *	18	6.96	1740	15.8°	Clearing
	10	20	6.89	1770	15.7°	Clearing
	11	22	7.00	1790	15.7°	Clearer
	12	24	7.00	1790	15.8°	Clear, very Sl. cldy no odor no sheen

End: 11:00

Final W/L = 13.1' BTOC.

* Surge well with Bailer

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(63)

MW-5 Well Development
9-21-00 K. Lynch

Method: Surge with bailer, pump with peristaltic pump w/ dedicated Teflon Tubing

Depth 17.10' 2" Ø well
IWL 8.08'
9.02 x .16 = 1.44 Gal/volume

Start 11:20

Volume	Gals	pH	Cond	Temp °C	Comments
1	1.5	6.81	900	17.2°	cloudy Brown, Heavy seds
2	3.0	6.64	825	16.9°	Same
3	4.5	6.52	957	16.8°	Same Clearing
* 4	6.0	6.37	947	16.9°	cloudy, Brown,
5	7.5	6.41	934	17.1°	Heavy sed
* + MOVE TUBING TO TOP OF WATER					
6	9.0	6.51	988	17.1°	Clearing after cloudy
7	10.5	6.53	1092	16.5°	Clear Sl. cldy
* 8	12.0	6.51	980	16.5°	Cloudy Brown
9	13.5	6.48	950	16.5	Clear Sl cldy
10	15.0	6.46	942	16.6°	Clear, colorless no sheen no odor

Final Water Level = 12.1' BTOC

End 12:10

* Surge well with bailer

MW-3 Development 9-21-00
K. Lynch

Method: Bailer to surge well, pump with peristaltic and dedicated teflon tubing

Depth - 17.0' BTOC
IWL 7.7
9.3 × .16 = 1.48 Gal/vol

Start: 1330

	Volume	Gals	pH	Cond	Temp °C	Comments
Bailed	1	1.5	6.67	690	15.1°c	Cloudy brn no odor or Sheen
From	2	3.0	6.76	920	15.0°	
Bottom	3	* 4.5	6.65	939	14.8°	Clearing Same
	4	6.0	6.69	860	14.3°	Cloudy Brown, Sed
	5	7.5	6.64	890	14.3°	Same
	6	* 9.0	6.60	920	14.4°	Same
	7	10.5	6.53	980	14.3°	Clearing
	8	* 12.0	6.55	990	14.4°	Sediment Laden-Brown
Top of Water	9	13.5	6.69	990	14.4°	Same
	10	* 15.0	6.73	985	14.4°	Clearing
	11	16.5	6.77	980	14.4°	Cloudy Brown -Sed
	12	18.0	6.85	980	14.4°	Clearing
	13	* 19.5	6.90	988	14.5°	Clearing
	14	21.0	6.87	980	14.5	Clearing
	15	22.5	6.90	980	14.6°	Clear - Sl cldy
	16	24.0	6.91	980	14.6°	no sheen no odor

1500 W/L = 10.0' BTOC

MW-2 Development 9-21-00 (65) KHL

Method - Bailer & Peristaltic Pump with Dedicated teflon Tubing

Depth 17.4' 2" ø well
IWL 8.2
Start 1530 9.2' × .16 = 1.47 gal/vol

Volume	Gal	pH	Cond	Temp °C	Comment
1	1.5	7.03	1800?	15.7°	Cloudy - Dk Brn, Sediments
2	3.0	6.99	1830	16.0°	Same
3	4.5	6.87	1800	16.0°	Same
* 4	6.0	6.94	1740	16.0°	Same
5	7.5	6.89	1690	15.7°	Same
6	9.0	6.87	1650	15.7°	Same
* 7	10.5	6.89	1630	16.1°	Clearer, Clearing
8	12.0	6.89	1610	16.0°	Sl Cloudy
* 9	13.5	6.80	1680	16.2°	Cloudy Dk Brn
10	15.0	LCD Gone on pH meter			
* 11					
12					
13					
14					
15					

Purge 15 vol to Clear

1625 end.

Final W/L = 11.3' BTOC

9/22/00

1300 - Onsite - picked up drums on way.

1400 W/L 4A = 11.12' BTOC
4 = 9.67' BTOC

1435 Start purging water from MW-4 - Use Bailer & Peristaltic

1520 Done - 12+ Volumes removed water clear.

1530 - Start MW-4A - Well goes dry - pumped ~ 3 Gal - W/L drops below 22' - will no longer pump - bail ~ 2 more gallons - well dry.

1610 Attempt to set up Telog transducer - computer has no installed Serial port - Done - pick up Secure drums, place cones behind bldg.

1718 Leave site

MW-4 Development 9/22/00 (67)
K Lynch
Method - Bailer & Peristaltic Pump with Dedicated Teflon Tubing

Depth 17.05'
W/L 9.67'
9.38' x .16 = 1.50 gallons [redacted]

Start 1435

Vol	Gal	pH	Cond	Temp	Comment
1	1.5	6.72	642	18.0°	Very cldy - Dk brown Seds
2	3.0	6.95	804	17.4°	Same
3	4.5	6.82	774	17.3°	Same
4 *	6.0	6.75	700	17.1°	Clearing
5	7.5	6.90	504	17.3°	Cloudy Brown
4 = 11.32'		4A = 11.12'	BTOC	W/L 1451	
6 *	9.0	6.76	631	16.9°	Clearing - Same,
* ↓ From	TOP				
7	10.5	6.89	581	17.3°	Cloudy Brown
8	12.0	6.85	497	17.2°	Same
9	13.5	6.83	537	16.9°	Clearing Cloudy
10	15.0	6.79	542	16.9°	Sl. Cldy
*		~~6.76~~	~~654~~	~~17.3°~~	~~Cloudy~~
11	16.5	6.76	654	17.3°	Sl. Cldy
12	18.0	6.73	2160?	16.9°	Very Sl. Cldy

Final W/L 10.50' + 4A = 11.12' 1520

[redacted]

MW-4A Development 9-22-00 K

Method Peristaltic Pump & Bailer -

~~Vot~~	~~Gal~~	Depth	29.95' BTOC
		IWL	11.12' BTOC
			18.33 x .16 = 2.93G

Vol	Gal	pH	Cond	Temp°C	W/Q
1	3	7.42	2300	16.1°	Very cloudy Heavy sed. Load

Pumped 3 gal +/- - Reached < 23' + won't p

Bail	6	7.46	1620	15.8°	Same

Well Dry - W/L = 28.73' BTOC.

9/26 1630 Purged 4 Gal - No readings w/ Bailer - Well Dry. Install X-ducer to monitor recovery.

KPJ

Tue - 9/26/00 Overcast 45°F KPL (69)

8:00 Onsite w/ operating computer to do water level round and slug tests.

830 Begin Water Levels

Well	Time	W/L BTOC
MW-1	0835	8.12'
MW-5	0836	7.11'
MW-3	0837	6.74'
MW-2	0838	7.26'
MW-4A	0839	11.43'
MW-4	0840	6.64'

* Heavy Rain over weekend

Slugs used are 1.5" ø x 36" Long Solid PVC w/ Blunt ends.
Volume = 0.275 Gallons or 0.05

Set up Xducers #1504 (1453?)(Rio G rosset Tag) & #7687 (C-030CC) test. - Ft. H2O - both 20 PSI for 5 - 46' water.

Decon both Xducers + Cables.

MW-1 Slug test

30 J. Pietrezak onsite

1:50 J. Pietrezak leaves site Leave

1430 KL to N.F.

1630 KL onsite. - Download Xducer - ~~4A~~ Purge Well Dry - Install Xducer to monitor Recovery

#15867
11/20/01 F. Garbe
Field File

MW-6

WELL DEVELOPMENT AND STABILIZATION FORM

PROJECT NAME: Parcel 2 - Seneca St. RFI **PROJECT NO.:** 15867

DATE OF WELL DEVELOPMENT: 9/11/01

DEVELOPMENT CREW MEMBERS: F. Garbe

PURGING METHOD: teflon bailer / dedicated tubing & peristaltic pump

SAMPLE NO.:

SAMPLE TIME:

WELL INFORMATION

WELL NUMBER: MW-6

WELL TYPE (diameter/material) 2"⌀ Stainless Steel

MEASURING POINT ELEVATION: rim€

STATIC WATER DEPTH: 10.35 ft. below rim **ELEVATION:** 581.12

BOTTOM DEPTH: 19.60 ft below rim **ELEVATION:** 571.87

WATER COLUMN LENGTH: 9.25'

SCREENED INTERVAL: 5'

WELL VOLUME: 1.48 Gals (≐ 1½ Gals)

Note: For 2-inch diameter well: 1 foot = 0.14 gallons (imp) or 0.16 gallons (us)
1 meter = 2 liters

volumes 1 through 7: NO parameters measured. water very turbid, brown, silty

	UNITS	8 ~~1~~	9 ~~2~~	10 ~~3~~	11 ~~4~~	12 ~~5~~	13	14	15
VOLUME PURGED (volume/total volume):	Gals.	1½ Gals 12 Gals	1½ Gals 13½	1½ Gals 15 Gals	1½ Gals 16½	1½ 18 Gals	1½ 19½	1½ 21	1½ 22½
FIELD pH:	–	6.02	6.09	6.15	6.21	6.11	6.26	6.20	6.18
FIELD TEMPERATURE:	°F	67.1	65.1	65.1	65.3	64.4°	63.3°	62.6°	63.0
FIELD CONDUCTIVITY:	umhos/cm	1650	1700	1690	1730	1610	1460	1420	1480
CLARITY/TURBIDITY VALUES:	NTU's	1024	930	920	990	108	43.8	74.3	44.6
COLOR:	–	Lt. brown	Lt. Brown	Lt. Brown	Lt. Brown	mod. Lt. Brown	very Lt Brown	clear	clear
ODOR:	–	NO	NO	NO	NO	NO	NO	NO	NO
COMMENTS:	–	turbid	turbid	turbid	turbid	clearing	clear	clear	clear

COPIES TO: File

Total: → 15 volumes purged
22½ Gals to
NTU < 50

CRA 1001 (29) Rev. 6, September 13, 1999, Form SP-09

MW-7

WELL DEVELOPMENT AND STABILIZATION FORM

PROJECT NAME: Parcel 2 - Seneca St. RFI PROJECT NO.: 15867

DATE OF WELL DEVELOPMENT: 9/13/01

DEVELOPMENT CREW MEMBERS: F. Garbe

PURGING METHOD: peristaltic pump & tubing

SAMPLE NO.:

SAMPLE TIME:

WELL INFORMATION

WELL NUMBER: MW-7

WELL TYPE (diameter/material): 2" Ø stainless steel

MEASURING POINT ELEVATION: rim (=

STATIC WATER DEPTH: 9.27 ft. Below TOC ELEVATION: 581.14

BOTTOM DEPTH: 17.95 ft. Below TOC ELEVATION: 572.46

WATER COLUMN LENGTH: 8.68 ft

SCREENED INTERVAL: 5 ft.

WELL VOLUME: 1.39 Gals (≈1½ Gal)

Note: For 2-inch diameter well: 1 foot = 0.14 gallons (imp) or 0.16 gallons (us)
1 meter = 2 liters

	UNITS	1	2	3	4	5	TOTAL/ AVERAGE
VOLUME PURGED (volume/total volume):	Gals Gals	1½ 1½	1½ 3	1½ 4½	1½ 6	1½ 7½	
FIELD pH:	–	NA	NA	6.36	6.51	6.53	
FIELD TEMPERATURE:	°F	NA	NA	62.2°	62.5°	62.2°	
FIELD CONDUCTIVITY:	umhos/cm	NA	NA	2520	1980	2080	
CLARITY/TURBIDITY VALUES:	NTU's	NA	NA	262	73	26	
COLOR:	-	v. Black-Brn	Lt. Brown	Lt tan tint	clear w/ v Lt tan tint	clear	
ODOR:	–	No	No	No	No	No	
COMMENTS:	-	very turbid	mod. turbid	mod. turbid	clear	clear	

COPIES TO: File Purged 5 vols (7½ gals). to NTU ∠ 50

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MW-7A

WELL DEVELOPMENT AND STABILIZATION FORM

PROJECT NAME: Parcel 2 - Seneca St RFI

PROJECT NO.: 15867

DATE OF WELL DEVELOPMENT: 9/13/01 & 9/17/01

DEVELOPMENT CREW MEMBERS: F. Garbe

PURGING METHOD: teflon bailer

SAMPLE NO.:

SAMPLE TIME:

WELL INFORMATION

WELL NUMBER: MW-7A

WELL TYPE (diameter/material) 2" ϕ Stainless Steel

MEASURING POINT ELEVATION: rim (=

STATIC WATER DEPTH: 12.60 ft below TOC

ELEVATION: 577.82

BOTTOM DEPTH: 29.48 ft bolow TOC

ELEVATION: 560.94

WATER COLUMN LENGTH: 16.88 ft.

SCREENED INTERVAL: 5 ft.

WELL VOLUME: 2.7 Gals (≃2 3/4 Gals)

9/13/01 Purged 3 vols to dryness, no Field parameters, very Turbid

9/17/01 Purge vols 4-6 to dryness

Note: For 2-inch diameter well: 1 foot = 0.14 gallons (imp) or 0.16 gallons (us)
1 meter = 2 liters

	UNITS	4 ~~1~~	5 ~~2~~	6 ~~3~~	~~4~~	~~5~~	TOTAL/ AVERAGE
VOLUME PURGED (volume/total volume):	Gals Gals	2 3/4 11	2 3/4 13 3/4	2 3/4 16 1/2*			
FIELD pH:	-	6.78	6.62	6.54			
FIELD TEMPERATURE:	°F	60.3°	59.2°	59.4°			
FIELD CONDUCTIVITY:	umhos/cm	1800	1790	1880			
CLARITY/TURBIDITY VALUES:	NTUs	>2000	>2000	>2000			
COLOR:	-	tan-Brn	tan-Brn	tan-Brn			
ODOR:	-	No	No	No			
COMMENTS:	-	very turbid	very turbid	very turbid *Dryness			

COPIES TO: File

Purged 6 vols (16 1/2 Gals) to dryness twice. NTUs still >50 (very turbid)

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MW-8

WELL DEVELOPMENT AND STABILIZATION FORM

PROJECT NAME: Parcel 2 - Seneca St. RFI PROJECT NO.: 15867

DATE OF WELL DEVELOPMENT: 9/13/01

DEVELOPMENT CREW MEMBERS: F. Garbe

PURGING METHOD: Peristaltic pump & tubing

SAMPLE NO.:

SAMPLE TIME:

WELL INFORMATION

WELL NUMBER: MW-8

WELL TYPE (diameter/material) 2"ϕ stainless steel

MEASURING POINT ELEVATION: rim (=

STATIC WATER DEPTH: 8.21 ft below TOC ELEVATION: 580.67

BOTTOM DEPTH: 15.73 ft below TOC ELEVATION: 573.15

WATER COLUMN LENGTH: 7.52 ft

SCREENED INTERVAL: 5 ft

WELL VOLUME: 1.2 Gals (≃ 1¼ Gals)

Note: For 2-inch diameter well: 1 foot = 0.14 gallons (imp) or 0.16 gallons (us)
1 meter = 2 liters

	UNITS	1	2	3	4	5	TOTAL/ AVERAGE
VOLUME PURGED (volume/total volume):	Gals Gals	1¼ 1¼	1¼ 2½	1¼ 3¾	1¼ 5	1¼ 6¼	
FIELD pH:	--	NA	NA	6.87	6.84	6.63	
FIELD TEMPERATURE:	°F	NA	NA	59.2°	59.6°	58.1°	
FIELD CONDUCTIVITY:	umhos/cm	NA	NA	1560	1380	1460	
CLARITY/TURBIDITY VALUES:	NTUs	NA	NA	217	78	40	
COLOR:	-	black	Brown	(w/ tan tint) Clear	clear w/ v.lt tan tint	clear	
ODOR:	-	No	No	No	NO	No	
COMMENTS:	-	v turbid	mod. turbid	clear	clear	Clear	

COPIES TO: File

Purged 5 vols (6¼ Gals) to NTU < 50

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MW-8A

WELL DEVELOPMENT AND STABILIZATION FORM

PROJECT NAME: Parcel 2 - Seneca St.
PROJECT NO.: 15867
DATE OF WELL DEVELOPMENT: 9/13/01 & 9/17/01
DEVELOPMENT CREW MEMBERS: F. Garbe
PURGING METHOD: teflon bailer
SAMPLE NO.:
SAMPLE TIME:

WELL INFORMATION

WELL NUMBER: MW-8A
WELL TYPE (diameter/material) 2" ø stainless steel
MEASURING POINT ELEVATION: rim (=
STATIC WATER DEPTH: 9.48 ft below TOC
ELEVATION: 579.56
BOTTOM DEPTH: 29.04 ft below TOC
ELEVATION: 560.00
WATER COLUMN LENGTH: 19.56 ft
SCREENED INTERVAL: 5 ft
WELL VOLUME: 3.13 Gals (≈3¼ Gals)

9/13/01 Purge vols 1-2 to dryness. No Field parameters. very turbid, brown.
→9/14/01
9/17/01 Purge vols 4-5 to dryness (1 vol = 2½ G.
→ Purge 1 vol. to dryness (# 3
no parameters - turbid.

Note: For 2-inch diameter well: 1 foot = 0.14 gallons (imp) or 0.16 gallons (us)
1 meter = 2 liters

	UNITS	~~1~~ 4	~~2~~ 5	3	4	5	TOTAL/ AVERAGE
VOLUME PURGED (volume/total volume):	Gals Gals	2½ 1[illegible]½	2½ 12¼*				
FIELD pH:	-	6.51	6.42				
FIELD TEMPERATURE:	°F	57.7°	58.0°				
FIELD CONDUCTIVITY:	umhos/cm	680	720				
CLARITY/TURBIDITY VALUES:	NTUs	1403	1330				
COLOR:	-	Lt tan Brn	Lt tan Brn				
ODOR:	-	No	No				
COMMENTS:	-	-	*Dry @ 3/4 Gal				

(3/10 vol)

COPIES TO: File.

END Development @ 4 vols
Purged → To dryness twice with NTUs > 50.

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MW-9
PG ①

WELL DEVELOPMENT AND STABILIZATION FORM

PROJECT NAME: Parcel 2 - Seneca St. RFI **PROJECT NO.:** 15867

DATE OF WELL DEVELOPMENT: 9\12\01

DEVELOPMENT CREW MEMBERS: F. Garbe

PURGING METHOD: Polytubing & peristaltic pump

SAMPLE NO.:

SAMPLE TIME:

WELL INFORMATION

WELL NUMBER: MW-9

WELL TYPE (diameter/material) 2" ϕ stainless steel

MEASURING POINT ELEVATION: rim (=

STATIC WATER DEPTH: 8.29 ft below TOC **ELEVATION:** 581.42

BOTTOM DEPTH: 15.15 ft below TOC **ELEVATION:** 574.56

WATER COLUMN LENGTH: 6.86 ft

SCREENED INTERVAL: 5 ft

WELL VOLUME: = 1.09 Gals (≈1¼ Gals)

9|12|01 Purged 4 vols
No field parameters,
v. brown, v. turbid,
lots of sediments
continued..
Dry at 4th volume end

Note: For 2-inch diameter well: 1 foot = 0.14 gallons (imp) or 0.16 gallons (us)
1 meter = 2 liters

	UNITS	5 ~~1~~	6 ~~2~~	7 ~~3~~	8 ~~4~~	9 ~~5~~	TOTAL/ AVERAGE
VOLUME PURGED (volume/total volume):	Gals Gals	1¼ 6¼	1¼ 7½*	1¼ 8¾	1¼ 9	1¼ 10¼	
FIELD pH:	—	6.36	6.36	6.56	6.50	6.54	
FIELD TEMPERATURE:	°F	65.0°	65.3°	65.2°	65.0°	65.1°	
FIELD CONDUCTIVITY:	umhos/cm	1600	1430	1450	1420	1390	
CLARITY/TURBIDITY VALUES:	NTU's	326	325	148	180	170	
COLOR:	-	Lt Brown	Lt. Brown	Lt yellow tint	Lt. yellow tint	Lt. yellow tint	
ODOR:	-	No	No	No	No	No	
COMMENTS:	-	slightly turbid	slightly turbid * Dryness	mod. turbid	mod. turbid	mod. turbid	

COPIES TO: File

cont-on PG ②

→ Dry @ 4th vol. & 6th vol. returns w/in 10 mins

MW-9
PG ②

WELL DEVELOPMENT AND STABILIZATION FORM

PROJECT NAME: Parcel 2 - Seneca St RFI PROJECT NO.: 15867

DATE OF WELL DEVELOPMENT: 9/12/01

DEVELOPMENT CREW MEMBERS: F. Garbe

PURGING METHOD: peristaltic pump & poly tubing

SAMPLE NO.:

SAMPLE TIME:

WELL INFORMATION

WELL NUMBER: MW-9

WELL TYPE (diameter/material) 2"ϕ stainless steel

MEASURING POINT ELEVATION: rim (=

STATIC WATER DEPTH: 8.29 ft below TOC ELEVATION: 581.42

BOTTOM DEPTH: 15.15 ft. below TOC ELEVATION: 574.56

WATER COLUMN LENGTH: 6.86 ft

SCREENED INTERVAL: 5 ft.

WELL VOLUME: = 1.09 Gals (≃ 1 1/4 Gals)

Note: For 2-inch diameter well: 1 foot = 0.14 gallons (imp) or 0.16 gallons (us)
1 meter = 2 liters

	UNITS	10 ~~1~~	11 ~~2~~	12 ~~3~~	13 ~~4~~	14 ~~5~~	TOTAL/ AVERAGE
VOLUME PURGED (volume/total volume):	Gals	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	
	Gals	11 1/2	12 3/4	14	15 1/4	16 1/2	
FIELD pH:	–	6.70	6.62	6.84	6.73	6.74	
FIELD TEMPERATURE:	°F	66.0°	65.2°	65.0°	65.3°		
FIELD CONDUCTIVITY:	umhos/cm	1320	1220	1180	1200	1240	
CLARITY/TURBIDITY VALUES:	NTU	132	148	118	62	33	
COLOR:	-	Lt yellow Brn tint	Lt yellow Brn tint	Lt. yellow brown	clear	clear	
ODOR:	–	No	No	No	No	No	
COMMENTS:	–	mildly turbid	mildly turbid	mildly turbid	clear	clear	

COPIES TO: File → Purged 14 vols (17 1/2 Gals) to NTU < 50

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MW-9A

WELL DEVELOPMENT AND STABILIZATION FORM

PROJECT NAME: Parcel 2- Seneca St RFI PROJECT NO.: 15867

DATE OF WELL DEVELOPMENT: 9/12/01 & 9/17/01

DEVELOPMENT CREW MEMBERS: F. Garbe

PURGING METHOD: teflon bailer & poly cord

SAMPLE NO.:

SAMPLE TIME:

WELL INFORMATION

WELL NUMBER: MW-9A

WELL TYPE (diameter/material) 2" ⌀ stainless steel

MEASURING POINT ELEVATION: rim (=

STATIC WATER DEPTH: 12.83 ft below TOC ELEVATION: 576.72

BOTTOM DEPTH: 29.02 ft below TOC ELEVATION: 560.53

WATER COLUMN LENGTH: 16.11 ft

SCREENED INTERVAL: 5 feet

WELL VOLUME: 2.59 Gals (≈ 2½ Gals)

9/12/01 Purge vols 1-7 w/No Field parameters - very turbid
Purge vols 8-10
9/17/01 Purge vols * 11-13.

Note: For 2-inch diameter well: 1 foot = 0.14 gallons (imp) or 0.16 gallons (us)
1 meter = 2 liters

← 9/12/01 → ← 9/17/01 →

	UNITS	8 ~~1~~	9 ~~2~~	10 ~~3~~	11 ~~4~~	12 ~~5~~	13
VOLUME PURGED (volume/total volume):	Gals Gals	2½ 20	2½ 22½	2½ 25	2¾ 27¾	2¾ 30½	2¾ 33¾
FIELD pH:	-	6.89	6.42	7.20	7.64	7.56	7.12
FIELD TEMPERATURE:	°F	61.3°	61.0°	60.7°	61.9°	62.5°	61.0°
FIELD CONDUCTIVITY:	umhos/cm	400	420	470	630	580	520
CLARITY/TURBIDITY VALUES:	NTUs	1196	1220	1470	>2000	>2000	1455
COLOR:	-	Lt tan Brn	Lt. tan Brown	Lt tan Brown	tan-grey	Lt. grey	Lt grey
ODOR:	-	NO	NO	NO	NO	NO	NO
COMMENTS:	-	turbid	turbid	turbid	Turbid	turbid	turbid

COPIES TO: File → Purged 13 vols (33¾ Gals) w/ NTU still > 50

MW-10

WELL DEVELOPMENT AND STABILIZATION FORM

PROJECT NAME: Parcel 2 - Seneca St.
PROJECT NO.: 15867
DATE OF WELL DEVELOPMENT: 9/13/01
DEVELOPMENT CREW MEMBERS: F. Garbe
PURGING METHOD: Peristaltic pump & tubing
SAMPLE NO.:
SAMPLE TIME:

WELL INFORMATION

WELL NUMBER: MW - 10
WELL TYPE (diameter/material): 1" ⌀ PVC
MEASURING POINT ELEVATION: rim (=
STATIC WATER DEPTH: 8.41 ft below TOC
ELEVATION: 580.61
BOTTOM DEPTH: 15.33 ft below TOC
ELEVATION: 573.80
WATER COLUMN LENGTH: 6.92 ft
SCREENED INTERVAL: 5 ft
WELL VOLUME: 0.28 Gals (≃ 1/4 Gal)

9/13/01 Purge 4 vols (1-4) to dryness. No Field parameters. V. Brn & turbid

9/20/01 Purged vols* 5-16, sampled later that day. Took approx alternate volume readings (below)

Note: For 2-inch diameter well: 1 foot = 0.14 gallons (imp) or 0.16 gallons (us)
1 meter = 2 liters

	Vol # → ~~UNITS~~	6 ~~1~~	8 ~~2~~	9 ~~3~~	13 ~~4~~	14 ~~5~~	TOTAL/ AVERAGE
VOLUME PURGED (volume/total volume):	Gal Gal	1/4 1 1/2	1/4 2	1/4 2 1/4	1/4 3 1/4	1/4 3 1/2	
FIELD pH:	-	7.05	6.80	6.60	6.55	6.41	
FIELD TEMPERATURE:	°F	61.3°	59.5°	59.8°	60.8°	60.9°	
FIELD CONDUCTIVITY:	umhos/cm	830	920	940	970	940	
CLARITY/TURBIDITY VALUES:	NTUs	>2000	949	>2000	974	792	
COLOR:	-	red-Brn	Grey tint	Grey	Brn	Grey-Brn	
ODOR:	-	No	No	No	No	No	
COMMENTS:	-	v. turbid	mod. turbid, clearing	turbid	turbid	turbid	

COPIES TO: File

Purged 15 vols (3 3/4 Gals) with Purge to dryness on 9/13/01 & intermittent dryness (temporary) on 9/20/01. NTUS never < 50. Sampled later on 9/20/01

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MW-10

WELL DEVELOPMENT AND STABILIZATION FORM

PROJECT NAME: Parcel 2 - Seneca St RFI   PROJECT NO.: 15867

DATE OF WELL DEVELOPMENT: 9/13/01

DEVELOPMENT CREW MEMBERS: F. Garbe

PURGING METHOD: Peristaltic pump & tubing

SAMPLE NO.:

SAMPLE TIME:

WELL INFORMATION

WELL NUMBER: MW-10A

WELL TYPE (diameter/material) 1" ϕ PVC

MEASURING POINT ELEVATION: rim (=

STATIC WATER DEPTH: 11.05 ft below TOC   ELEVATION: 578.02

BOTTOM DEPTH: 28.02 ft below TOC   ELEVATION: 561.05

WATER COLUMN LENGTH: 16.97 ft

SCREENED INTERVAL: 5 ft.

WELL VOLUME: .70 Gals (≃ 3/4 Gals)

9/13/01 vols 1-3 purged w/ out field parameter Very brn very turbid to brown, mod. turbid
9/20/01 Purge vols #4 - #8 (& then sample). Below

Note: For 2-inch diameter well: 1 foot = 0.14 gallons (imp) or 0.16 gallons (us)
1 meter = 2 liters

	UNITS	4 ~~1~~	5 ~~2~~	6 ~~3~~	7 ~~4~~	8 ~~5~~	TOTAL/ AVERAGE
VOLUME PURGED (volume/total volume):	Gals	3/4	3/4	3/4	3/4	3/4	
	Gals	3	3 3/4	4 1/2	5 1/4	6	
FIELD pH:	-	7.15	7.08	7.23	7.17	7.20	
FIELD TEMPERATURE:	°F	60.0°	60.0°	58.3°	57.2°	56.7°	
FIELD CONDUCTIVITY:	umhos/cm	640	740	700	630	650	
CLARITY/TURBIDITY VALUES:	NTUs	706	>2000	820	1054	1520	
COLOR:	-	Brn	Brn	Brn	Brn	Brn	
ODOR:	-	No	No	No	No	No	
COMMENTS:	-	turbid	turbid	turbid	turbid	turbid	

COPIES TO: RL

Purged 8 vols (6 Gals) w/ NTUs never less than 50. Sampled later on 9/20/01.

MW-11
PG ①

WELL DEVELOPMENT AND STABILIZATION FORM

PROJECT NAME: Parcel 2 - Seneca St. RFI PROJECT NO.: 15867

DATE OF WELL DEVELOPMENT: 9/11/01

DEVELOPMENT CREW MEMBERS: F. Garbe

PURGING METHOD: teflon bailer / tubing & peristaltic pump

SAMPLE NO.:

SAMPLE TIME:

WELL INFORMATION

WELL NUMBER: MW - 11

WELL TYPE (diameter/material) 2" ∅ stainless steel

MEASURING POINT ELEVATION: rim (=

STATIC WATER DEPTH: 9.18 ft below TOC ELEVATION: 581.22

BOTTOM DEPTH: 17.52 ft. below TOC ELEVATION: 572.88

WATER COLUMN LENGTH: 8.34 ft.

SCREENED INTERVAL: 5 ft.

WELL VOLUME: 1.33 Gals (≃ 1 1/3 Gals)

Note: For 2-inch diameter well: 1 foot = 0.14 gallons (imp) or 0.16 gallons (us)
1 meter = 2 liters

	UNITS	1	2	3	4	5	TOTAL/ AVERAGE
VOLUME PURGED (volume/total volume):	Gals Gals	1 1/3 1 1/3	1 1/3 2 2/3	1 1/3 4	1 1/3 5 1/3	1 1/3 6 2/3	
FIELD pH:	–	NA	NA	7.04	6.72	6.70	
FIELD TEMPERATURE:	°F	NA	NA	63.6°	64.2°	62.9°	
FIELD CONDUCTIVITY:	umhos/ cm	NA	NA	770	830	810	Con't PG ②
CLARITY/TURBIDITY VALUES:	NTUs	NA	NA	587	395	92	
COLOR:	–	Brown	Lt. Brown	Lt. Brown	Lt. yellow Brown	Lt yellow tint	
ODOR:	–	NO	No	NO	No	NO	
COMMENTS:	–	very turbid	turbid	turbid, clearing	mod. turbid	clear (v. ltly turbid)	

COPIES TO: File

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MW-11
PG ②

WELL DEVELOPMENT AND STABILIZATION FORM

PROJECT NAME: Parcel 2 - Seneca St. RFI **PROJECT NO.:** 15867
DATE OF WELL DEVELOPMENT: 9/11/01
DEVELOPMENT CREW MEMBERS: F. Garbe
PURGING METHOD: teflon bailer / peristaltic pump & tubing
SAMPLE NO.:
SAMPLE TIME:

WELL INFORMATION

WELL NUMBER: MW-11
WELL TYPE (diameter/material) 2" ø stainless steel
MEASURING POINT ELEVATION: rim (=
STATIC WATER DEPTH: 9.18 ft. below TOC **ELEVATION:** 581.22
BOTTOM DEPTH: 17.52 ft. below TOC **ELEVATION:** 572.88
WATER COLUMN LENGTH: 8.34 ft.
SCREENED INTERVAL: 5'
WELL VOLUME: 1.33 Gals (≃1 1/3 Gals)

Note: For 2-inch diameter well: 1 foot = 0.14 gallons (imp) or 0.16 gallons (us)
1 meter = 2 liters

	UNITS	6 ~~1~~	7 ~~2~~	8 ~~3~~	9 ~~4~~	10 ~~5~~	*TOTAL/ AVERAGE*
VOLUME PURGED (volume/total volume):	Gals Gals	1 1/3 8	1 1/3 9 1/3	1 1/3 10 2/3	1 1/3 12	1 1/3 13 1/3	 13 1/2 Gals
FIELD pH:	-	6.67	6.68	6.65	6.69	6.57	-
FIELD TEMPERATURE:	°F	62.6°	62.7	63.1°	62.6°	63.1°	-
FIELD CONDUCTIVITY:	umhos/cm	700	808	814	867	866	-
CLARITY/TURBIDITY VALUES:	NTUs	86	134	76	62	46	-
COLOR:	-	Lt yellow Brn tint	Lt. yellow tint	Lt. yellow tint	Lt. yellow tint	clear	-
ODOR:	-	No	No	No	No	No	-
COMMENTS:	-	Clear	clear	clear	clear	clear	-

COPIES TO: F'L

Purged 10 volumes
(13 1/2 Gals)
to NTU < 50

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MW-11A

WELL DEVELOPMENT AND STABILIZATION FORM

PROJECT NAME: Parcel 2 - Seneca St. RFI
PROJECT NO.: 15867
DATE OF WELL DEVELOPMENT: 9/11/01 - 9/17/01
DEVELOPMENT CREW MEMBERS: F. Garbe
PURGING METHOD: teflon bailer / peristaltic pump & tubing
SAMPLE NO.:
SAMPLE TIME:

WELL INFORMATION

WELL NUMBER: MW-11A
WELL TYPE (diameter/material) 2" ϕ stainless steel
MEASURING POINT ELEVATION: rim (=
STATIC WATER DEPTH: 11.60 ft below TOC
ELEVATION: 578.60
BOTTOM DEPTH: 27.00 ft below TOC
ELEVATION: 563.20
WATER COLUMN LENGTH: 15.40 ft.
SCREENED INTERVAL: 5'
WELL VOLUME: 2.46 Gals (≃2½ Gals)

9/11/01 1 vol. purged
v. turbid
No parameters
9/12/01 3 vols purged
v. turbid
No parameters
dry at 3rd vol.
+1 vol to dry later

Note: For 2-inch diameter well: 1 foot = 0.14 gallons (imp) or 0.16 gallons (us)
1 meter = 2 liters

	UNITS	7 ~~1~~	8 ~~2~~	9 ~~3~~	~~4~~	~~5~~	*TOTAL/ AVERAGE*
VOLUME PURGED (volume/total volume):	Gals	2½	2½	2½			
	Gals	17.5	20	22.5			
FIELD pH:	-	6.30	6.37	6.32			
FIELD TEMPERATURE:	°F	62.6°	62.5°	62.6°			
FIELD CONDUCTIVITY:	umhos/cm	940	660	690			
CLARITY/TURBIDITY VALUES:	NTU's	1227	1114	1190			
COLOR:	-	Lt. Brown	Lt Brown	Lt. Brown			
ODOR:	-	NO	NO	NO			
COMMENTS:	-	turbid	turbid	turbid			

COPIES TO: File

→ Purged 9 vols
(22.5 Gals) to
dryness 3 times
w/ NTU still >50

9/14/01 2 vols purged
(to dry)
No parameters,
v. turbid.
9/17/01 3 vols to dry
(#7-#9)

WELL DEVELOPMENT AND STABILIZATION FORM

PROJECT NAME: 2137 Seneca St **PROJECT NO.:** 15867

DATE OF WELL DEVELOPMENT: 11-27-01

DEVELOPMENT CREW MEMBERS: J. Pietraszek

PURGING METHOD: Teflon Bailer / Peristaltic Pump

SAMPLE NO.: GW-112701-JP-001

SAMPLE TIME: 1315

WELL INFORMATION

WELL NUMBER: MW12

WELL TYPE (diameter/material) 2" PVC

MEASURING POINT ELEVATION:

STATIC WATER DEPTH: 8.0' toc **ELEVATION:**

BOTTOM DEPTH: 16.55' toc **ELEVATION:**

WATER COLUMN LENGTH: 8.55'

SCREENED INTERVAL: 13'-18' bgs

WELL VOLUME: 1.5 gal

Note: For 2-inch diameter well: 1 foot = 0.14 gallons (imp) or 0.16 gallons (us)
1 meter = 2 liters

	UNITS	1	2	3	4	5	*TOTAL/ AVERAGE*
VOLUME PURGED (volume/total volume):	gal/ft						
FIELD pH:	—	6.50	6.54	6.81	6.59	6.61	
FIELD TEMPERATURE:	°F	60.8	60.4	60.6	60.8	60.4	
FIELD CONDUCTIVITY:	µmhos/cm	1910	1880	1900	1810	1830	
CLARITY/TURBIDITY VALUES:	NTU	1000+	1000+	1000+	741	736	
COLOR:		Dk. Brn	"	"	"	"	
ODOR:		none	"	"	"	"	
COMMENTS:							

(over)

COPIES TO:

WELL DEVELOPMENT AND STABILIZATION FORM

PROJECT NAME: 2137 Seneca St - Parcel 2 Site **PROJECT NO.:** 15867

DATE OF WELL DEVELOPMENT: 11/27/01, 11/29/01, 11/30/01

DEVELOPMENT CREW MEMBERS: J. Pietraszek

PURGING METHOD: Teflon Bailer / ~~Peri~~ JP

SAMPLE NO.: GW-113001-JP-010

SAMPLE TIME: 0830

WELL INFORMATION

WELL NUMBER: MW-12A

WELL TYPE (diameter/material) 2" ø PVC

MEASURING POINT ELEVATION:

STATIC WATER DEPTH: **ELEVATION:**

BOTTOM DEPTH: 29.35' (tor) **ELEVATION:**

WATER COLUMN LENGTH: 18.70'

SCREENED INTERVAL: 25' - 30' bgs

WELL VOLUME: 3.0 gal

Note: For 2-inch diameter well: 1 foot = 0.14 gallons (imp) or 0.16 gallons (us)
1 meter = 2 liters

	UNITS	1	2	3	4	5	*TOTAL/ AVERAGE*
VOLUME PURGED (volume/total volume):		3.0 gal	6.0 gal				
FIELD pH:	—	6.68	8.13				
FIELD TEMPERATURE:	°F	58.5	56.4				
FIELD CONDUCTIVITY:	µmhos/cm	2210	1940				
CLARITY/TURBIDITY VALUES:	NTU	898	999				
COLOR:		dk. brn turbid	dk brn, turbid				
ODOR:		—	—				
COMMENTS:		Dry @ 4.5 gal	Dry @ 3.3 gal				

COPIES TO:

CRA 1001 (29) Rev. 6, September 13, 1999, Form SP-09

WELL PURGING RECORDS

Purge Record
Well : MW-1
Date : 10/4/00
Crew : KPL
Method : Peristaltic Pump - Teflon tubing
@ Top of water column

Depth : 21.20'
Water : 9.11'
12.09 x .16 = 1.93 Gal/vol

Start 1300

Vol	Gal	pH	ms/m Cond	°C Temp	Turb.
1	2.0	7.09	1.765	16.4°	200
Cloudy, brown, no odor, fine seds, no sheen					
2	4.0	6.75	2.25	16.1°	48
Sl. Cldy, tan, no odor, no sheen, fine seds					
3	6.0	6.81	2.13	16.1°	8.7
V. Sl. Cldy, colorless to Lt. Tan, no sheen, no odor					
4	8.0	6.88	1.858	16.1°	1.3
Clear, Colorless, no sheen, no odor					

End 1315

KPL

Sampling Record
Well # MW-1
Date : 10/4/00
Time : 1315
Crew : K. Lynch
Method - Peristaltic for Metals, CN, SVOCs. Teflon Bailer for VOCs

Sample ID W-100400-KL-002
Sample Containers: 2X 40ml VOC w/HCl
2X 1l SVOC, 1X .5l Metals w/HNO3,
1X 500 ml w/NaOH for CN.

pH	Cond	Temp	Turb.
6.86	2.26	16.1°c	0.6

Clear, colorless, no sheen, no odor, no seds.

C of C # N-0472

Inst. Control # Hazco pH/Cond # 14263
Turb. DRT 15 T-000436

KPL

Purge Record

Well : MW-Z
Date : 10/5/00
Crew : KPL
Method : Peristaltic w/Dedicated Teflon Tubing

Depth 17.40'
Water 8.10
9.30 x .16 = 1.49 gal/vol

0950 Start

Vol	Gal	pH	Cond	Temp °C	Turb
1	1.5	6.67	1.073	17.6	16.0
Sl. Cldy, sl. yellow, no sheen, sl sulfur odor					
2	3.0	6.93	1.48	16.8°	60
Sl. Cloudy - Lt Brown - Trace Seds, no sheen, sulfur					
3	4.5	7.07	2.070	16.7	4.0
Clear, no odor, no sheen, sl yellow color					

1003 End 6 Gal purged.

KPL

Sample Record

Well MW-Z
Date 10/5/00
Time 1015
Crew KPL
Method Peristaltic - SVOCs, metals, CN
Bailer - Teflon - VOCs

Sample ID W-100500-KL-005
Sample Containers 2X40ml VOC - HCl
2X1l SVOC, 1X.5l Metals - HNO3
1X.5l CN - NaOH

pH	Cond	Temp	Turb
7.11	2090	16.3°C	1.3

Clear, colorless, no sheen, no odor, no Seds.

CofC # N-00473
Inst. #s Horiba - HAzco # 14263
DRT-15 - Turbidity T-00436

KPL

Purge Record

Well : MW-3
Date : 10/4/00
Crew : KPL
Method : Peristaltic Pump

Depth : 17.0'
Water : 7.66'
9.34' X .16 = 1.49 Gal /Vo

Vol	Gal	pH	Cond	Temp°C	Turb.
1	1.5	6.94	2.090	15.6°	16.3
Sl. Cldy - Brown, no sheen, no odor					
2	3.0	6.81	1.610	15.4°	13.3
Clearer, sl green-brown color, no odor, no she					
3	4.5	6.73	0.790	15.3°	6.8
V. Sl. Cldy, sl. green-br. color, no sheen or odo					
4	6.0	6.68	0.527	15.3°	4.6
Clear, colorless to sl. green-brown, no odor no sheen					

KPL

Sample Record

Well MW-3
Date 10/4/00
Time 1530
Crew KPL
Method Peristaltic Pump (SVOCs + CN + Metals)
Bailer-Teflon (VOCs)

Sample ID W-100400-KL-004 + MS + MSD

Sample Containers 6 X 40 ml + 6 X 1l + 3 X 500 ml + 3 X 500 ml
(VOC, SVOC, metals, CN.)

pH	Cond	Temp	Turb.
6.82	0.466	15.4°	1.03

Clear, colorless, no sheen, no odor, no seds

C of C # N-0472

Inst. # Horiba pH/cond
Hazco 14263
Turbidity - T00436

KPL

Purge Record

Well MW-4
Date 10/5/00
Crew KPL
Method Peristaltic Pump - dedicated)
Teflon Tubing
Depth 17.05'
Water 7.40
9.65' x .16 = 1.54 Gal/Vol

Start 1035

Vol	Gal	pH	Cond	Temp °C	Turb
1	1.5	7.45	0.863	17.7°	12.
V. sl. cldy, sl. yellow, no sheen, no odor					
2	3.0	7.15	~~1.48~~ 1.510	17.3°	74.8
Cldy, lt. brown, few seds, no sheen, no odor					
3	4.5	6.93	1.775	16.9°	27.3
V. sl. cldy, yellow, no sheen, no odor					
4	6.0	6.90	2.21	16.8°	3.1
Clear, V. sl. yellow, no sheen, no odor					

End 1051 7.0 Gal purged

KPL

Sample Record

89

Well: MW-4
Date: 10/5/00
Time: 1100
Crew: KPL
Method: Peristaltic SVOCs, Metals, CN
Teflon Bailer - VOCs

Sample ID W-100500-KL-006 + Duplicate
as W-100500-KL-007 @ 1300

Bottles - each set: 2X40ml VOCs + HCl
2X1L SVOCs ; 1X500ml Metals - HNO3
1X500ml CN - NaOH

Sample Data:

pH	Cond	Temp	Turb.
6.91	2.30	17.0°	0.93

Clear, colorless, no sheen, no odor, no Sediments

C of C #: N-00473
Inst. #: Horiba - Hazco 14263
Turbidity - T-0436

KPL

Purge Record

Well MW-4A
Date 10/4/00
Crew KPC
Method Teflon Bailer -

Depth 29.45'
W/L 11.25'
18.20' x .16 = 2.91 Gal

Start Time: 0940

		SU	MS/m	°C	NTU
Vol	Gals	pH	Cond	Temp	Turb.
1	3.0	6.68	.239	14.4	170

Cloudy, Green-gray color, few gray sedes, no odor

2 5.0 gal - Dry - < 6" water in well

		6.77	.350	13.1°	>200

Tan color, very cloudy, no odor. Lots of seds

1020 end

Sample Record ⑲

Well 4A
Date 10/4/00
Crew KPC
Time 1440
Method - Teflon Bailer
W/L = 13.5' BTOC

Sample No W-100400-KL-003

Sample Containers 2 X 40 ml VOC - HCl
2 X 1 l SVOC; 1 X 500 ml Metals - HNO3
1 X 500 ml CN - NaOH, 1 X 500 ml
Ss. TAL Metals - FIELD FILT. - HNO3

pH	Cond	Temp	Turb.
6.79	1.881	~~14~~ 13.8°	12.75

Sl. Cldy, brown, no sheen, no odor, few sediments

C of C # N-0472

Instrument #s Horiba Hazco 142103
DRT-15 T-00436

Purge Record
Well : MW-5
Date : 10/4/00
Crew KPC
Method Peristaltic pump w/ dedicated teflon Tubing

Depth 17.10'
Water 7.58'
9.12' X .16 = 1.46 gal

Start 1355

Vol	Gal	pH	Cond	Temp	Turb
1	1.5	7.01	1.201	17.9°	5.14
Sl. cldy, yellow, trace sedo, no odor, no sheen					
2	3.0	6.81	1.302	17.6°	10.0
Same					
3	4.5	6.72	2.020	16.8°	~~1.75~~ 1.45
Clear, colorless, no sheen, no odor					

1408 hrs
End

KPC

(83)

Sample Record
Well # 5
Date 10/4/00
Time 1415
Crew KPC
Method Peristaltic pump ē Teflon Tubing (Metals, CN, SVOC's) Bailer-teflon for VOC's

Sample ID W-100400-KL-002

Sample Containers 2X40ml TCL VOC w/HCl, 2X1L STARS SVOCs, 1X500ml TAL Metals w/HNO3, 1X500ml

pH	Cond	Temp	Turb
6.66	1.687	16.8°	0.31

Clear, colorless, no sheen, no odor

C of C # N-0472

Inst. control # 5 Horiba - Hazco 1423
Turb. DRT 15 = T00436

KPC

N 15867 11/30

Field File

WELL PURGING FIELD INFORMATION FORM

JOB# 15867 - – –

SITE/PROJECT NAME: Parcel 2 - Seneca St. RFI

WELL# MW-1

WELL PURGING INFORMATION

091901	091901	1.6	8.0
PURGE DATE (MM DD YY)	SAMPLE DATE (MM DD YY)	WATER VOL. IN CASING (LITRES/[✓ GALLONS])	ACTUAL VOLUME PURGED (LITRES/[✓ GALLONS])

PURGING AND SAMPLING EQUIPMENT

PURGING EQUIPMENT.........DEDICATED [✓ Y] N (CIRCLE ONE)

SAMPLING EQIPMENT.........DEDICATED [✓ Y] N (CIRCLE ONE)

PURGING DEVICE: G
SAMPLING DEVICE: G
A - SUBMERSIBLE PUMP; B - PERISTALTIC PUMP; C - BLADDER PUMP; D - GAS LIFT PUMP; E - PURGE PUMP; F - DIPPER BOTTLE; G - BAILER; H - WATERRA®
X- ______ PURGING OTHER (SPECIFY)
X- ______ SAMPLING OTHER (SPECIFY)

PURGING DEVICE: A
SAMPLING DEVICE: A
A - TEFLON; B - STAINLESS STEEL; C - POLYPROPYLENE; D - PVC; E - POLYETHYLENE
X- ______ PURGING OTHER (SPECIFY)
X- ______ SAMPLING OTHER (SPECIFY)

PURGING DEVICE: ______
SAMPLING DEVICE: ______
A - TEFLON; B - TYGON; C - ROPE; X- ______ (SPECIFY); D - POLYPROPYLENE; E - POLYETHYLENE; F - SILICONE; G - COMBINATION TEFLON/POLYPROPYLENE
X- ______ PURGING OTHER (SPECIFY)
X- ______ SAMPLING OTHER (SPECIFY)

FILTERING DEVICES 0.45 ______ A - IN-LINE DISPOSABLE B - PRESSURE C - VACUUM

FIELD MEASUREMENTS

WELL ELEVATION: 592.24 (m/[✓ ft])

GROUNDWATER ELEVATION: 581.22 (m/[✓ ft])

DEPTH TO WATER: 11.02 (m/[✓ ft])

WELL DEPTH: 21.10 (m/[✓ ft])

pH	TURBIDITY	CONDUCTIVITY	SAMPLE TEMPERATURE
6.35 (std)	44.1 (ntu)	1720. (µm/cm) ~~AT 25°C~~	64.3 ~~°C~~ °F
6.49 (std)	36.3 (ntu)	1760. (µm/cm) ~~AT 25°C~~	64.3 ~~°C~~ °F
6.53 (std)	47.2 (ntu)	1770. (µm/cm) ~~AT 25°C~~	64.8 ~~°C~~ °F
6.48 (std)	45.0 (ntu)	1760. (µm/cm) ~~AT 25°C~~	64.5 ~~°C~~ °F
6.53 (std)	43.2 (ntu)	1690. (µm/cm) ~~AT 25°C~~	64.2 ~~°C~~ °F

FIELD COMMENTS

SAMPLE APPEARANCE: → ODOR: NONE COLOR: Light Grey TURBIDITY: turbid

WEATHER CONDITIONS: WIND SPEED NONE DIRECTION – PRECIPITATION Y [✓ N] OUTLOOK Yes/expected

SPECIFIC COMMENTS Purged 5 volumes (8.0 Gals) via dedicated teflon bailer & poly cord, sampled immediately (10:30 AM). Sample id W-091901-FG-MW1

Sampled 3x40 ml VOA vials
for TCL VOAs

I CERTIFY THAT SAMPLING PROCEDURES WERE IN ACCORDANCE WITH APPLICABLE CRA PROTOCOLS

CRA 9/19/01 Frank Garbe Frank Garbe
DATE PRINT SIGNATURE

CRA 1001 (29) Rev. 6, September 13, 1999, Form SP-10

WELL PURGING FIELD INFORMATION FORM

JOB# 15867 - - -

SITE/PROJECT NAME: Parcel 2 - Seneca St. RFI

WELL# MW-2

WELL PURGING INFORMATION

092001	092001	1.2	6.2
PURGE DATE (MM DD YY)	SAMPLE DATE (MM DD YY)	WATER VOL. IN CASING (LITRES/[✓ GALLONS])	ACTUAL VOLUME PURGED (LITRES/[✓ GALLONS])

PURGING AND SAMPLING EQUIPMENT

PURGING EQUIPMENT.........DEDICATED [✓ Y] N (CIRCLE ONE)

SAMPLING EQIPMENT.........DEDICATED [✓ Y] N (CIRCLE ONE)

PURGING DEVICE: G — A - SUBMERSIBLE PUMP, B - PERISTALTIC PUMP, C - BLADDER PUMP, D - GAS LIFT PUMP, E - PURGE PUMP, F - DIPPER BOTTLE, G - BAILER, H - WATERRA® — X- ______ PURGING OTHER (SPECIFY)

SAMPLING DEVICE: G — X- ______ SAMPLING OTHER (SPECIFY)

PURGING DEVICE: A — A - TEFLON, B - STAINLESS STEEL, C - POLYPROPYLENE, D - PVC, E - POLYETHYLENE — X- ______ PURGING OTHER (SPECIFY)

SAMPLING DEVICE: A — X- ______ SAMPLING OTHER (SPECIFY)

PURGING DEVICE: ☐ — A - TEFLON, B - TYGON, C - ROPE, X- ______ (SPECIFY), D - POLYPROPYLENE, E - POLYETHYLENE, F - SILICONE, G - COMBINATION TEFLON/POLYPROPYLENE — X- ______ PURGING OTHER (SPECIFY)

SAMPLING DEVICE: ☐ — X- ______ SAMPLING OTHER (SPECIFY)

FILTERING DEVICES 0.45 ☐ A - IN-LINE DISPOSABLE B - PRESSURE C - VACUUM

FIELD MEASUREMENTS

WELL ELEVATION 591.23 (m/[✓ ft])

GROUNDWATER ELEVATION 581.18 (m/[✓ ft])

DEPTH TO WATER 10.05 (m/[✓ ft])

WELL DEPTH 17.31 (m/[✓ ft])

pH	TURBIDITY	CONDUCTIVITY	SAMPLE TEMPERATURE
6.56 (std)	>2000 (ntu)	2200 (μm/cm) ~~AT 25°C~~	66.7 ~~(°C)~~ °F
6.82 (std)	>2000 (ntu)	2220 (μm/cm) ~~AT 25°C~~	65.8 ~~(°C)~~ °F
6.98 (std)	460 (ntu)	2370 (μm/cm) ~~AT 25°C~~	65.9 ~~(°C)~~ °F
6.94 (std)	280 (ntu)	2340 (μm/cm) AT 25°C	66.3 ~~(°C)~~ °F
6.97 (std)	266 (ntu)	2370 (μm/cm) ~~AT 25°C~~	66.2 ~~(°C)~~ °F

FIELD COMMENTS

SAMPLE APPEARANCE: → ODOR: NONE COLOR: dk grey-green TURBIDITY: turbid

WEATHER CONDITIONS: WIND SPEED mod. gusts DIRECTION from NW PRECIPITATION Y [✓ N] OUTLOOK cloudy/64°F

SPECIFIC COMMENTS Purged 5 volumes (6.4 Gals) via dedicated teflon bailer from 13:40 Pm to 15:20 Pm. Sampled w/ dedicated bailer at 15:40 PM for 3 x 40ml VOA vials (TCL VOCs). Sample Id W-092001-FO-MW2

I CERTIFY THAT SAMPLING PROCEDURES WERE IN ACCORDANCE WITH APPLICABLE CRA PROTOCOLS

CRA

9/20/01 Frank Garbe Frank Garbe

DATE PRINT SIGNATURE

CRA 1001 (29) Rev. 6, September 13, 1999, Form SP-10

WELL PURGING FIELD INFORMATION FORM

JOB# 15867-

SITE/PROJECT NAME: ______

WELL# MW2

WELL PURGING INFORMATION

PURGE DATE (MM DD YY): 11 29 01

SAMPLE DATE (MM DD YY): 11 29 01

WATER VOL. IN CASING (LITRES/GALLONS): 1.5

ACTUAL VOLUME PURGED (LITRES/GALLONS): 6.0

PURGING AND SAMPLING EQUIPMENT

PURGING EQUIPMENT.........DEDICATED [✓ Y] N (CIRCLE ONE)

SAMPLING EQIPMENT.........DEDICATED [✓ Y] N (CIRCLE ONE)

PURGING DEVICE: B

SAMPLING DEVICE: G

A - SUBMERSIBLE PUMP
B - PERISTALTIC PUMP
C - BLADDER PUMP
D - GAS LIFT PUMP
E - PURGE PUMP
F - DIPPER BOTTLE
G - BAILER
H - WATERRA®

X- ______ PURGING OTHER (SPECIFY)

X- ______ SAMPLING OTHER (SPECIFY)

PURGING DEVICE: C

SAMPLING DEVICE: A

A - TEFLON
B - STAINLESS STEEL
C - POLYPROPYLENE
D - PVC
E - POLYETHYLENE

X- ______ PURGING OTHER (SPECIFY)

X- ______ SAMPLING OTHER (SPECIFY)

PURGING DEVICE: ______

SAMPLING DEVICE: ______

A - TEFLON
B - TYGON
C - ROPE
X- ______ (SPECIFY)
D - POLYPROPYLENE
E - POLYETHYLENE
F - SILICONE
G - COMBINATION TEFLON/POLYPROPYLENE

X- ______ PURGING OTHER (SPECIFY)

X- ______ SAMPLING OTHER (SPECIFY)

FILTERING DEVICES 0.45 ______ A - IN-LINE DISPOSABLE B - PRESSURE C - VACUUM

FIELD MEASUREMENTS

WELL ELEVATION: ______ (m/ft)

GROUNDWATER ELEVATION: ______ (m/ft)

DEPTH TO WATER: 8.15 (m/[✓ ft])

WELL DEPTH: 17.3 (m/[✓ ft])

pH	TURBIDITY	CONDUCTIVITY	SAMPLE TEMPERATURE
9.8 (std)	13 (ntu)	1940 (µm/cm) AT 25°C	59.1 (~~°C~~) °F
9.3 (std)	1 (ntu)	2160 (µm/cm) AT 25°C	60.9 (~~°C~~) °F
9.5 (std)	3 (ntu)	2160 (µm/cm) AT 25°C	60.4 (~~°C~~) °F
9.4 (std)	3 (ntu)	2180 (µm/cm) AT 25°C	60.9 (~~°C~~) °F
(std)	(ntu)	(µm/cm) AT 25°C	(°C)

FIELD COMMENTS

SAMPLE APPEARANCE: ______ ODOR: ______ COLOR: ______ TURBIDITY: clear

WEATHER CONDITIONS: WIND SPEED ______ DIRECTION ______ PRECIPITATION [✓ Y]/N OUTLOOK rain

SPECIFIC COMMENTS Sample ID: GW-112901-JP-009 (3 x 40ml VOC)

I CERTIFY THAT SAMPLING PROCEDURES WERE IN ACCORDANCE WITH APPLICABLE CRA PROTOCOLS

CRA

DATE: 2/6/02

PRINT: J Pietraszek

SIGNATURE

CRA 1001 (29) Rev. 6, September 13, 1999, Form SP-10

WELL PURGING FIELD INFORMATION FORM

JOB# 15867.--

ITE/PROJECT NAME: Parcel2 - Seneca St RFI

WELL# MW-3

WELL PURGING INFORMATION

092001	092091	1.2	6.0
PURGE DATE (MM DD YY)	SAMPLE DATE (MM DD YY)	WATER VOL. IN CASING (~~LITRES~~/[✓ GALLONS])	ACTUAL VOLUME PURGED (LITRES/[✓ GALLONS])

PURGING AND SAMPLING EQUIPMENT

PURGING EQUIPMENT.........DEDICATED [✓ Y] N (CIRCLE ONE)

SAMPLING EQIPMENT.........DEDICATED [✓ Y] N (CIRCLE ONE)

PURGING DEVICE: G

SAMPLING DEVICE: G

A - SUBMERSIBLE PUMP
B - PERISTALTIC PUMP
C - BLADDER PUMP
D - GAS LIFT PUMP
E - PURGE PUMP
F - DIPPER BOTTLE
G - BAILER
H - WATERRA®

X- ______ PURGING OTHER (SPECIFY)

X- ______ SAMPLING OTHER (SPECIFY)

PURGING DEVICE: A

SAMPLING DEVICE: A

A - TEFLON
B - STAINLESS STEEL
C - POLYPROPYLENE
D - PVC
E - POLYETHYLENE

X- ______ PURGING OTHER (SPECIFY)

X- ______ SAMPLING OTHER (SPECIFY)

PURGING DEVICE: ______

SAMPLING DEVICE: ______

A - TEFLON
B - TYGON
C - ROPE
D - POLYPROPYLENE
E - POLYETHYLENE
F - SILICONE
G - COMBINATION TEFLON/POLYPROPYLENE

X- ______ (SPECIFY)

X- ______ PURGING OTHER (SPECIFY)

X- ______ SAMPLING OTHER (SPECIFY)

FILTERING DEVICES 0.45 ______ A - IN-LINE DISPOSABLE B - PRESSURE C - VACUUM

FIELD MEASUREMENTS

WELL ELEVATION 590.33 (m/[✓ ft])

GROUNDWATER ELEVATION 580.82 (m/[✓ ft])

DEPTH TO WATER 9.51 (m/[✓ ft])

WELL DEPTH 17.05 (m/[✓ ft])

pH	TURBIDITY	CONDUCTIVITY	SAMPLE TEMPERATURE
6.68 (std)	>2000 (ntu)	880 (µm/cm) ~~AT 25°C~~	62.6 (~~°C~~) °F
6.67 (std)	682 (ntu)	940 (µm/cm) ~~AT 25°C~~	61.3 (~~°C~~) °F
6.58 (std)	805 (ntu)	920 (µm/cm) ~~AT 25°C~~	61.8 (~~°C~~) °F
6.52 (std)	771 (ntu)	950 (µm/cm) AT 25°C	62.6 (~~°C~~) °F
6.50 (std)	570 (ntu)	960 (µm/cm) ~~AT 25°C~~	61.8 (~~°C~~) °F

FIELD COMMENTS

SAMPLE APPEARANCE: → ODOR: None COLOR: red-brn TURBIDITY: turbid

WEATHER CONDITIONS: WIND SPEED moderate gusts DIRECTION from NW PRECIPITATION Y [✓ N] OUTLOOK None expected

SPECIFIC COMMENTS Purged 5 volumes (6.0 gals) from 10AM-11AM with dedicated teflon bailer & poly cord. Sampled at 11:20 AM w/ bailer for 3x 40 ml VOA vials (for TCL VOCs). Sample id W-092001-FG-MW3.

I CERTIFY THAT SAMPLING PROCEDURES WERE IN ACCORDANCE WITH APPLICABLE CRA PROTOCOLS

CRA

9/20/01 Frank Garbe Frank Garbe

DATE PRINT SIGNATURE

WELL PURGING FIELD INFORMATION FORM

JOB# 15867-

SITE/PROJECT NAME: Parcel 2 - Seneca St. RFI

WELL# MW-4

WELL PURGING INFORMATION

092401	092401	1.2	3.8
PURGE DATE (MM DD YY)	SAMPLE DATE (MM DD YY)	WATER VOL. IN CASING (LITRES/ [✓ GALLONS])	ACTUAL VOLUME PURGED (LITRES/ [✓ GALLONS])

PURGING AND SAMPLING EQUIPMENT

PURGING EQUIPMENT.........DEDICATED [✓ Y] N (CIRCLE ONE)

SAMPLING EQIPMENT.........DEDICATED [✓ Y] N (CIRCLE ONE)

PURGING DEVICE: B — A - SUBMERSIBLE PUMP, B - PERISTALTIC PUMP, C - BLADDER PUMP, D - GAS LIFT PUMP, E - PURGE PUMP, F - DIPPER BOTTLE, G - BAILER, H - WATERRA® — X- ______ PURGING OTHER (SPECIFY)

SAMPLING DEVICE: G — X- ______ SAMPLING OTHER (SPECIFY)

PURGING DEVICE: C — A - TEFLON, B - STAINLESS STEEL, C - POLYPROPYLENE – tubing, D - PVC, E - POLYETHYLENE — X- ______ PURGING OTHER (SPECIFY)

SAMPLING DEVICE: A — X- ______ SAMPLING OTHER (SPECIFY)

PURGING DEVICE: ______ — A - TEFLON, B - TYGON, C - ROPE, X- ______ (SPECIFY), D - POLYPROPYLENE, E - POLYETHYLENE, F - SILICONE, G - COMBINATION TEFLON/POLYPROPYLENE — X- ______ PURGING OTHER (SPECIFY)

SAMPLING DEVICE: ______ — X- ______ SAMPLING OTHER (SPECIFY)

FILTERING DEVICES 0.45: ______ — A - IN-LINE DISPOSABLE, B - PRESSURE, C - VACUUM

FIELD MEASUREMENTS

WELL ELEVATION: 590.51 (m/ft)

GROUNDWATER ELEVATION: 581.13 (m/ft)

DEPTH TO WATER: 9.38 (m/ft)

WELL DEPTH: 17.05 (m/ft)

pH	TURBIDITY	CONDUCTIVITY	SAMPLE TEMPERATURE
6.86 (std)	154 (ntu)	390 (μm/cm) ~~AT 25°C~~	65.3 ~~(°C)~~ °F
6.87 (std)	35 (ntu)	400 (μm/cm) ~~AT 25°C~~	65.3 ~~(°C)~~ °F
6.93 (std)	27 (ntu)	410 (μm/cm) ~~AT 25°C~~	65.1 ~~(°C)~~ °F
(std)	(ntu)	(μm/cm) AT 25°C	(°C)
(std)	(ntu)	(μm/cm) AT 25°C	(°C)

FIELD COMMENTS

SAMPLE APPEARANCE: ______ ODOR: ______ COLOR: ______ TURBIDITY: ______

WEATHER CONDITIONS: WIND SPEED None DIRECTION NA PRECIPITATION Y [✓ N] OUTLOOK ______

SPECIFIC COMMENTS Purged 3 volumes (3.75 Gals) from 10^{40} to 11^{00} by peristaltic pump & dedicated & poly tubing. First volume brown color & turbid then clearing rapidly to light grey & Clear by end of 1st volume. (1st volume had H_2S odor). Sampled at 11^{10} with dedicated teflon bailer for 3 x 40 ml VOA vials (TCL VOCs). Sample id W-092401-FG-MW4.

I CERTIFY THAT SAMPLING PROCEDURES WERE IN ACCORDANCE WITH APPLICABLE CRA PROTOCOLS

CRA

DATE: 09/24/01 PRINT: Frank Garbe SIGNATURE: Frank Garbe

CRA 1001 (29) Rev. 6, September 13, 1999, Form SP-10

WELL PURGING FIELD INFORMATION FORM

JOB# 15867-

SITE/PROJECT NAME: ____________

WELL# MW4

WELL PURGING INFORMATION

112801	112801	1.5	7.5
PURGE DATE (MM DD YY)	SAMPLE DATE (MM DD YY)	WATER VOL. IN CASING (LITRES/ [✓ GALLONS])	ACTUAL VOLUME PURGED (LITRES/GALLONS)

PURGING AND SAMPLING EQUIPMENT

PURGING EQUIPMENT.........DEDICATED [✓ Y] N (CIRCLE ONE)

SAMPLING EQIPMENT.........DEDICATED [✓ Y] N (CIRCLE ONE)

PURGING DEVICE B — A - SUBMERSIBLE PUMP; B - PERISTALTIC PUMP; C - BLADDER PUMP; D - GAS LIFT PUMP; E - PURGE PUMP; F - DIPPER BOTTLE; G - BAILER; H - WATERRA®

X- ____________ PURGING OTHER (SPECIFY)

SAMPLING DEVICE ~~B~~G

X- ____________ SAMPLING OTHER (SPECIFY)

PURGING DEVICE C — A - TEFLON; B - STAINLESS STEEL; C - POLYPROPYLENE - tubing; D - PVC; E - POLYETHYLENE

X- ____________ PURGING OTHER (SPECIFY)

SAMPLING DEVICE A

X- ____________ SAMPLING OTHER (SPECIFY)

PURGING DEVICE ____ — A - TEFLON; B - TYGON; C - ROPE; X- ____________ (SPECIFY); D - POLYPROPYLENE; E - POLYETHYLENE; F - SILICONE; G - COMBINATION TEFLON/POLYPROPYLENE

X- ____________ PURGING OTHER (SPECIFY)

SAMPLING DEVICE ____

X- ____________ SAMPLING OTHER (SPECIFY)

FILTERING DEVICES 0.45 ____ A - IN-LINE DISPOSABLE B - PRESSURE C - VACUUM

FIELD MEASUREMENTS

WELL ELEVATION ____ (m/ft)

GROUNDWATER ELEVATION ____ (m/ft)

DEPTH TO WATER 7.5 (m/ [✓ ft])

WELL DEPTH 17.05 (m/ [✓ ft])

pH	TURBIDITY	CONDUCTIVITY	SAMPLE TEMPERATURE
10.4 (std)	4 (ntu)	670 (μm/cm) AT 25°C	60.4 (~~°C~~) °F
10.7 (std)	1 (ntu)	980 (μm/cm) AT 25°C	61.5 (~~°C~~) °F
11.4 (std)	1 (ntu)	1370 (μm/cm) AT 25°C	61.5 (~~°C~~) °F
11.5 (std)	0 (ntu)	1520 (μm/cm) AT 25°C	61.8 (~~°C~~) °F
11.3 (std)	0 (ntu)	1590 (μm/cm) AT 25°C	61.7 (~~°C~~) °F

FIELD COMMENTS

SAMPLE APPEARANCE: ____________ ODOR: — COLOR: Clear TURBIDITY: none

WEATHER CONDITIONS: WIND SPEED ____________ DIRECTION ____________ PRECIPITATION [✓ Y]/N OUTLOOK Sl. rain

SPECIFIC COMMENTS Took the duplicate sample on this well aswell. Sample ID: GW-112801-JP-003. Dup. Sample ID GW-112801-JP-004. (3x40ml VOC each)

I CERTIFY THAT SAMPLING PROCEDURES WERE IN ACCORDANCE WITH APPLICABLE CRA PROTOCOLS

CRA

2/6/02 J. Pietraszek

DATE PRINT SIGNATURE

CRA 1001 (29) Rev. 6, September 13, 1999, Form SP-10

WELL PURGING FIELD INFORMATION FORM

JOB# 15867 -

SITE/PROJECT NAME: Parcel 2 - Seneca St. RFI

WELL# MW-4A

WELL PURGING INFORMATION

092401	092401	2.7	4.8
PURGE DATE (MM DD YY)	SAMPLE DATE (MM DD YY)	WATER VOL. IN CASING (LITRES/GALLONS)	ACTUAL VOLUME PURGED (LITRES/GALLONS)

PURGING AND SAMPLING EQUIPMENT

PURGING EQUIPMENT.........DEDICATED [✓ Y] N (CIRCLE ONE)

SAMPLING EQLPMENT.........DEDICATED [✓ Y] N (CIRCLE ONE)

PURGING DEVICE: G
SAMPLING DEVICE: G

A - SUBMERSIBLE PUMP; B - PERISTALTIC PUMP; C - BLADDER PUMP; D - GAS LIFT PUMP; E - PURGE PUMP; F - DIPPER BOTTLE; G - BAILER; H - WATERRA®

X- ________ PURGING OTHER (SPECIFY)
X- ________ SAMPLING OTHER (SPECIFY)

PURGING DEVICE: A
SAMPLING DEVICE: A

A - TEFLON; B - STAINLESS STEEL; C - POLYPROPYLENE; D - PVC; E - POLYETHYLENE

X- ________ PURGING OTHER (SPECIFY)
X- ________ SAMPLING OTHER (SPECIFY)

PURGING DEVICE: ____
SAMPLING DEVICE: ____

A - TEFLON; B - TYGON; C - ROPE; X- ________ (SPECIFY); D - POLYPROPYLENE; E - POLYETHYLENE; F - SILICONE; G - COMBINATION TEFLON/POLYPROPYLENE

X- ________ PURGING OTHER (SPECIFY)
X- ________ SAMPLING OTHER (SPECIFY)

FILTERING DEVICES 0.45 ____ A - IN-LINE DISPOSABLE B - PRESSURE C - VACUUM

FIELD MEASUREMENTS

WELL ELEVATION 590.61 (m [✓ ft])

GROUNDWATER ELEVATION 578.10 (m [✓ ft])

DEPTH TO WATER 12.51 (m [✓ ft])

WELL DEPTH 29.22 (m [✓ ft])

pH	TURBIDITY	CONDUCTIVITY	SAMPLE TEMPERATURE
7.05 (std)	29.5 (ntu)	690 (µm/cm) AT 25°C	58.6 (~~°C~~) °F
7.53 (std)	>200.0 (ntu)	780 (µm/cm) AT 25°C	58.7 (~~°C~~) °F
(std)	(ntu)	(µm/cm) AT 25°C	(°C)
(std)	(ntu)	(µm/cm) AT 25°C	(°C)
(std)	(ntu)	(µm/cm) AT 25°C	(°C)

FIELD COMMENTS

SAMPLE APPEARANCE: → ODOR: NONE COLOR: clear TURBIDITY: clear

WEATHER CONDITIONS: WIND SPEED None DIRECTION NA PRECIPITATION Y [✓ N] OUTLOOK cloudy, 68°F

SPECIFIC COMMENTS Purged 1 1/2 + volumes (4.75 Gallons) to dryness with dedicated teflon bailer & poly cord, 1st volume black/turbid becoming dark grey, turbid, silty & then dry (at 1 8/13 ths volumes). Purged from 11:20 to 11:55. Let well recharge until 12:30. Sampled with dedicated teflon bailer for TCL VOC's (3 x 40 ml VOA vials). Sample id W-092401-FG-MW4A. Sample was clear.

I CERTIFY THAT SAMPLING PROCEDURES WERE IN ACCORDANCE WITH APPLICABLE CRA PROTOCOLS

CRA

09/24/01	Frank Garbe	Frank Garbe
DATE	PRINT	SIGNATURE

CRA 1001 (29) Rev. 6, September 13, 1999, Form SP-10

WELL PURGING FIELD INFORMATION FORM

JOB# 1 5 8 6 7 -

SITE/PROJECT NAME:

WELL# MW4A

WELL PURGING INFORMATION

PURGE DATE (MM DD YY): 11 28 01

SAMPLE DATE (MM DD YY): 11 29 01

WATER VOL. IN CASING (LITRES/GALLONS): 2.8

ACTUAL VOLUME PURGED (LITRES/GALLONS):

PURGING AND SAMPLING EQUIPMENT

PURGING EQUIPMENT.........DEDICATED [✓ Y] N (CIRCLE ONE)

SAMPLING EQIPMENT.........DEDICATED [✓ Y] N (CIRCLE ONE)

PURGING DEVICE: B
SAMPLING DEVICE: G

A - SUBMERSIBLE PUMP
B - PERISTALTIC PUMP
C - BLADDER PUMP
D - GAS LIFT PUMP
E - PURGE PUMP
F - DIPPER BOTTLE
G - BAILER
H - WATERRA®

X- ______ PURGING OTHER (SPECIFY)
X- ______ SAMPLING OTHER (SPECIFY)

PURGING DEVICE: C
SAMPLING DEVICE: A

A - TEFLON
B - STAINLESS STEEL
C - POLYPROPYLENE - tubing
D - PVC
E - POLYETHYLENE

X- ______ PURGING OTHER (SPECIFY)
X- ______ SAMPLING OTHER (SPECIFY)

PURGING DEVICE:
SAMPLING DEVICE:

A - TEFLON
B - TYGON
C - ROPE
X- ______ (SPECIFY)
D - POLYPROPYLENE
E - POLYETHYLENE
F - SILICONE
G - COMBINATION TEFLON/POLYPROPYLENE

X- ______ PURGING OTHER (SPECIFY)
X- ______ SAMPLING OTHER (SPECIFY)

FILTERING DEVICES 0.45: A - IN-LINE DISPOSABLE B - PRESSURE C - VACUUM

FIELD MEASUREMENTS

WELL ELEVATION: (m/ft)

GROUNDWATER ELEVATION: (m/ft)

DEPTH TO WATER: 11.88 (m/[✓ ft])

WELL DEPTH: 29.22 (m/[✓ ft])

pH	TURBIDITY	CONDUCTIVITY	SAMPLE TEMPERATURE
10.9 (std)	14.8 (ntu)	830 (µm/cm) AT 25°C	55.2 (~~°C~~ °F)
9.0 (std)	7.4 (ntu)	790 (µm/cm) AT 25°C	55.7 (~~°C~~ °F)
(std)	(ntu)	(µm/cm) AT 25°C	(°C)
(std)	(ntu)	(µm/cm) AT 25°C	(°C)
(std)	(ntu)	(µm/cm) AT 25°C	(°C)

FIELD COMMENTS

SAMPLE APPEARANCE: ______ ODOR: ______ COLOR: Sl. cloudy TURBIDITY: ______

WEATHER CONDITIONS: WIND SPEED ______ DIRECTION ______ PRECIPITATION [✓ Y]/N OUTLOOK rain

SPECIFIC COMMENTS: Sample ID: GW-112901-JP-009 (3x40ml VOC)

I CERTIFY THAT SAMPLING PROCEDURES WERE IN ACCORDANCE WITH APPLICABLE CRA PROTOCOLS.

CRA

DATE: 2/6/02

PRINT: J. Pietraszek

SIGNATURE:

CRA 1001 (29) Rev. 6, September 13, 1999, Form SP-10

WELL PURGING FIELD INFORMATION FORM

JOB# 15867 - - -

SITE/PROJECT NAME: Parcel 2 - Seneca St RFI

WELL# MW-5

WELL PURGING INFORMATION

PURGE DATE (MM DD YY): 09 19 01

SAMPLE DATE (MM DD YY): 09 19 01

WATER VOL. IN CASING (LITRES/ [✓ GALLONS]): 1.1

ACTUAL VOLUME PURGED (LITRES/ [✓ GALLONS]): 6.2

PURGING AND SAMPLING EQUIPMENT

PURGING EQUIPMENT.........DEDICATED [✓ Y] N (CIRCLE ONE)

SAMPLING EQIPMENT.........DEDICATED [✓ Y] N (CIRCLE ONE)

PURGING DEVICE: G

SAMPLING DEVICE: G

A - SUBMERSIBLE PUMP
B - PERISTALTIC PUMP
C - BLADDER PUMP
D - GAS LIFT PUMP
E - PURGE PUMP
F - DIPPER BOTTLE
G - BAILER
H - WATERRA®

X- ______ PURGING OTHER (SPECIFY)

X- ______ SAMPLING OTHER (SPECIFY)

PURGING DEVICE: A

SAMPLING DEVICE: A

A - TEFLON
B - STAINLESS STEEL
C - POLYPROPYLENE
D - PVC
E - POLYETHYLENE

X- ______ PURGING OTHER (SPECIFY)

X- ______ SAMPLING OTHER (SPECIFY)

PURGING DEVICE: ______

SAMPLING DEVICE: ______

A - TEFLON
B - TYGON
C - ROPE X- ______ (SPECIFY)
D - POLYPROPYLENE
E - POLYETHYLENE
F - SILICONE
G - COMBINATION TEFLON/POLYPROPYLENE

X- ______ PURGING OTHER (SPECIFY)

X- ______ SAMPLING OTHER (SPECIFY)

FILTERING DEVICES 0.45 ______ A - IN-LINE DISPOSABLE B - PRESSURE C - VACUUM

FIELD MEASUREMENTS

WELL ELEVATION: 590.76 (m/ [✓ ft])

GROUNDWATER ELEVATION: 580.81 (m/ [✓ ft])

DEPTH TO WATER: 9.95 (m/ [✓ ft])

WELL DEPTH: 17.04 (m/ [✓ ft])

pH	TURBIDITY	CONDUCTIVITY	SAMPLE TEMPERATURE
6.42 (std)	683. (ntu)	590. (µm/cm) ~~AT 25°C~~	66.4 ~~(°C)~~ °F
6.35 (std)	780. (ntu)	640. (µm/cm) ~~AT 25°C~~	65.6 ~~(°C)~~ °F
6.37 (std)	613. (ntu)	680. (µm/cm) AT 25°C	66.2 ~~(°C)~~ °F
6.36 (std)	490. (ntu)	710. (µm/cm) ~~AT 25°C~~	65.7 ~~(°C)~~ °F
6.42 (std)	446. (ntu)	920. (µm/cm) ~~AT 25°C~~	65.4 ~~(°C)~~ °F

FIELD COMMENTS

SAMPLE APPEARANCE: → Some red sediments ODOR: NONE COLOR: red-Brown tint TURBIDITY: mostly turbid

WEATHER CONDITIONS: WIND SPEED NONE DIRECTION — PRECIPITATION Y [✓ N] OUTLOOK Yes/expected

SPECIFIC COMMENTS Purged 5 volumes (6.4 Gals) via dedicated teflon bailer & poly cord, sampled immed. (12:10 PM) via bailer. Sample id W-011901-FG-MW5 - Sampled for 3 x 40ml VOA vials for TCL VOAs.

I CERTIFY THAT SAMPLING PROCEDURES WERE IN ACCORDANCE WITH APPLICABLE CRA PROTOCOLS

CRA

DATE: 9/19/01 PRINT: Frank Garbe SIGNATURE: Frank Garbe

CRA 1001 (29) Rev. 6, September 13, 1999, Form SP-10

+ DUPLICATE

WELL PURGING FIELD INFORMATION FORM

JOB# 1 5 8 6 7 -

SITE/PROJECT NAME: Parcel 2 - Seneca St. RFI

WELL# MW-6

"MW-15"

WELL PURGING INFORMATION

092401	092401	1.5	6.3
PURGE DATE (MM DD YY)	SAMPLE DATE (MM DD YY)	WATER VOL. IN CASING (LITRES/[✓ GALLONS])	ACTUAL VOLUME PURGED (LITRES/[✓ GALLONS])

PURGING AND SAMPLING EQUIPMENT

PURGING EQUIPMENT.........DEDICATED [✓ Y] N (CIRCLE ONE)

SAMPLING EQIPMENT.........DEDICATED [✓ Y] N (CIRCLE ONE)

PURGING DEVICE: G

SAMPLING DEVICE: G

A - SUBMERSIBLE PUMP
B - PERISTALTIC PUMP
C - BLADDER PUMP
D - GAS LIFT PUMP
E - PURGE PUMP
F - DIPPER BOTTLE
G - BAILER
H - WATERRA®

X- ______ PURGING OTHER (SPECIFY)

X- ______ SAMPLING OTHER (SPECIFY)

PURGING DEVICE: A

SAMPLING DEVICE: A

A - TEFLON
B - STAINLESS STEEL
C - POLYPROPYLENE
D - PVC
E - POLYETHYLENE

X- ______ PURGING OTHER (SPECIFY)

X- ______ SAMPLING OTHER (SPECIFY)

PURGING DEVICE: ______

SAMPLING DEVICE: ______

A - TEFLON
B - TYGON
C - ROPE
X- ______ (SPECIFY)
D - POLYPROPYLENE
E - POLYETHYLENE
F - SILICONE
G - COMBINATION TEFLON/POLYPROPYLENE

X- ______ PURGING OTHER (SPECIFY)

X- ______ SAMPLING OTHER (SPECIFY)

FILTERING DEVICES 0.45 ______ A - IN-LINE DISPOSABLE B - PRESSURE C - VACUUM

FIELD MEASUREMENTS

WELL ELEVATION: 591.47 (m/[✓ ft])

GROUNDWATER ELEVATION: 580.94 (m/[✓ ft])

DEPTH TO WATER: 10.53 (m/[✓ ft])

WELL DEPTH: 19.60 (m/[✓ ft])

pH	TURBIDITY	CONDUCTIVITY	SAMPLE TEMPERATURE
6.79 (std)	214. (ntu)	1640. (µm/cm) ~~AT 25°C~~	64.8 ~~(°C)~~ °F
6.50 (std)	356. (ntu)	1660. (µm/cm) ~~AT 25°C~~	64.7 ~~(°C)~~ °F
6.68 (std)	322. (ntu)	1640. (µm/cm) ~~AT 25°C~~	64.6 ~~(°C)~~ °F
6.49 (std)	286. (ntu)	1610. (µm/cm) ~~AT 25°C~~	64.2 ~~(°C)~~ °F
6.56 (std)	317. (ntu)	1630. (µm/cm) ~~AT 25°C~~	63.9 ~~(°C)~~ °F

FIELD COMMENTS

SAMPLE APPEARANCE: → ODOR: None COLOR: green-yellow → Grey TURBIDITY: mod. to lightly turbid

WEATHER CONDITIONS: WIND SPEED None DIRECTION NA PRECIPITATION [✓ Y]/N OUTLOOK cloudy/rain occ., 65°

SPECIFIC COMMENTS Purged with dedicated teflon bailer (from 14^{15} to 15^{00}) 6 volumes (6.25 gals). Purge water ~~[illegible]~~ remained green-grey, mod. turbid throughout. Sampled w/ dedicated teflon bailer @ 15^{10} (Sample id W-092401-FG-MW6) and sampled DUPLICATE (W-092401-FG-MW15 at "14:30"). Sample was mod. turbid, light yellow green to grey. Both original & duplicate had TCL VOAs (3x 40ml VOA vials) & TCL SVOC's (2x1 liter amber glass bottles) collected.

I CERTIFY THAT SAMPLING PROCEDURES WERE IN ACCORDANCE WITH APPLICABLE CRA PROTOCOLS

CRA

9/24/01	Frank Garbe	Frank Garbe
DATE	PRINT	SIGNATURE

WELL PURGING FIELD INFORMATION FORM

JOB# 15867-

SITE/PROJECT NAME: Parcel 2 - Seneca Street RFI

WELL# MW-7

WELL PURGING INFORMATION

092401	092401	1.4	4.0
PURGE DATE (MM DD YY)	SAMPLE DATE (MM DD YY)	WATER VOL. IN CASING (LITRES/[✓ GALLONS])	ACTUAL VOLUME PURGED (LITRES/GALLONS)

PURGING AND SAMPLING EQUIPMENT

PURGING EQUIPMENT.........DEDICATED [✓ Y] N (CIRCLE ONE)

SAMPLING EQIPMENT.........DEDICATED [✓ Y] N (CIRCLE ONE)

PURGING DEVICE: B — A - SUBMERSIBLE PUMP, B - PERISTALTIC PUMP, C - BLADDER PUMP, D - GAS LIFT PUMP, E - PURGE PUMP, F - DIPPER BOTTLE, G - BAILER, H - WATERRA®; X- ______ PURGING OTHER (SPECIFY)

SAMPLING DEVICE: G — X- ______ SAMPLING OTHER (SPECIFY)

PURGING DEVICE: C — A - TEFLON, B - STAINLESS STEEL, C - POLYPROPYLENE – tubing, D - PVC, E - POLYETHYLENE; X- ______ PURGING OTHER (SPECIFY)

SAMPLING DEVICE: A — X- ______ SAMPLING OTHER (SPECIFY)

PURGING DEVICE: ☐ A - TEFLON, B - TYGON, C - ROPE, X- ______ (SPECIFY), D - POLYPROPYLENE, E - POLYETHYLENE, F - SILICONE, G - COMBINATION TEFLON/POLYPROPYLENE; X- ______ PURGING OTHER (SPECIFY)

SAMPLING DEVICE: ☐ X- ______ SAMPLING OTHER (SPECIFY)

FILTERING DEVICES 0.45 ☐ A - IN-LINE DISPOSABLE B - PRESSURE C - VACUUM

FIELD MEASUREMENTS

WELL ELEVATION 590.41 (m/[✓ ft])

GROUNDWATER ELEVATION 581.02 (m/[✓ ft])

DEPTH TO WATER 9.39 (m/[✓ ft])

WELL DEPTH 17.95 (m/[✓ ft])

pH	TURBIDITY	CONDUCTIVITY	SAMPLE TEMPERATURE
6.71 (std)	57 (ntu)	2200 (µm/cm) ~~AT 25°C~~	61.9 ~~(°C)~~ °F
6.74 (std)	96 (ntu)	2360 (µm/cm) ~~AT 25°C~~	62.0 ~~(°C)~~ °F
6.69 (std)	24 (ntu)	2100 (µm/cm) ~~AT 25°C~~	61.8 ~~(°C)~~ °F
(std)	(ntu)	(µm/cm) AT 25°C	(°C)
(std)	(ntu)	(µm/cm) AT 25°C	(°C)

FIELD COMMENTS

SAMPLE APPEARANCE: → ODOR: None COLOR: clear TURBIDITY: clear

WEATHER CONDITIONS: WIND SPEED None DIRECTION NA PRECIPITATION [✓ Y] N OUTLOOK occ. rain/cloudy/68°

SPECIFIC COMMENTS Purged 3 volumes (4.0 Gals) with peristaltic pump & dedicated poly. tubing from 15:45 to 16:30. Well not dry - purge water brown/turbid rapidly becoming clear. Sampled with dedicated teflon bailer at 16:30 for TCL VOCs (3 x 40ml VOA vials) and TCL SVOCs (2 x 1-Liter amber glass). Sample clear.

I CERTIFY THAT SAMPLING PROCEDURES WERE IN ACCORDANCE WITH APPLICABLE CRA PROTOCOLS

CRA

DATE 9/24/01 PRINT Frank Garbe SIGNATURE Frank Garbe

CRA 1001 (29) Rev. 6, September 13, 1999, Form SP-10

WELL PURGING FIELD INFORMATION FORM

JOB# 1 5 8 6 7 - - -

TE/PROJECT NAME: Parcel 2 - Seneca St RFI

WELL# MW - 7A

WELL PURGING INFORMATION

092001	092001	2.7	7.4
PURGE DATE (MM DD YY)	SAMPLE DATE (MM DD YY)	WATER VOL. IN CASING (LITRES/[✓ GALLONS])	ACTUAL VOLUME PURGED (LITRES/[✓ GALLONS])

PURGING AND SAMPLING EQUIPMENT

PURGING EQUIPMENT.........DEDICATED [✓ Y] N (CIRCLE ONE)

SAMPLING EQIPMENT.........DEDICATED [✓ Y] N (CIRCLE ONE)

PURGING DEVICE G
SAMPLING DEVICE G
A - SUBMERSIBLE PUMP, B - PERISTALTIC PUMP, C - BLADDER PUMP, D - GAS LIFT PUMP, E - PURGE PUMP, F - DIPPER BOTTLE, G - BAILER, H - WATERRA®
X- ______ PURGING OTHER (SPECIFY)
X- ______ SAMPLING OTHER (SPECIFY)

PURGING DEVICE A
SAMPLING DEVICE A
A - TEFLON, B - STAINLESS STEEL, C - POLYPROPYLENE, D - PVC, E - POLYETHYLENE
X- ______ PURGING OTHER (SPECIFY)
X- ______ SAMPLING OTHER (SPECIFY)

PURGING DEVICE ☐
SAMPLING DEVICE ☐
A - TEFLON, B - TYGON, C - ROPE, X- ______ (SPECIFY), D - POLYPROPYLENE, E - POLYETHYLENE, F - SILICONE, G - COMBINATION TEFLON/POLYPROPYLENE
X- ______ PURGING OTHER (SPECIFY)
X- ______ SAMPLING OTHER (SPECIFY)

FILTERING DEVICES 0.45 ☐ A - IN-LINE DISPOSABLE B - PRESSURE C - VACUUM

FIELD MEASUREMENTS

WELL ELEVATION 590.42 (m/[✓ ft])

GROUNDWATER ELEVATION 577.97 (m/[✓ ft])

DEPTH TO WATER 12.45 (m/[✓ ft])

WELL DEPTH 29.48 (m/[✓ ft])

pH	TURBIDITY	CONDUCTIVITY	SAMPLE TEMPERATURE
6.18 (std)	964 (ntu)	1530 (µm/cm) ~~AT 25°C~~	60.6 ~~(°C)~~ °F
6.81 (std)	639 (ntu)	1470 (µm/cm) ~~AT 25°C~~	58.3 ~~(°C)~~ °F
7.12 (std)	767 (ntu)	1380 (µm/cm) AT 25°C	61.3 ~~(°C)~~ °F
(std)	(ntu)	(µm/cm) AT 25°C	(°C)
(std)	(ntu)	(µm/cm) AT 25°C	(°C)

FIELD COMMENTS

SAMPLE APPEARANCE: Clear ODOR: None COLOR: Clear TURBIDITY: clear

WEATHER CONDITIONS: WIND SPEED mod gusts DIRECTION from NW PRECIPITATION Y/[✓ N] OUTLOOK cloudy, 64°F

SPECIFIC COMMENTS Purged 8:10-9:40Am 2 vols + 2.0 Gals (7.4 Gals tot.) to dry via dedicated bailer. Sampled at 14:05 via bailer. Sample id W-092001-FG-MW7A. Collected 3 x 40 ml VOA vials (for TCL VOAs) & 2 x 40 ml VOA vials for NYSDEC split

I CERTIFY THAT SAMPLING PROCEDURES WERE IN ACCORDANCE WITH APPLICABLE CRA PROTOCOLS

CRA

9/20/01 DATE

Frank Garbe PRINT

Frank Garbe SIGNATURE

CRA 1001 (29) Rev. 6, September 13, 1999, Form SP-10

WELL PURGING FIELD INFORMATION FORM

JOB# 15867 -

SITE/PROJECT NAME: Parcel 2 - Seneca St.

WELL# MW-8

WELL PURGING INFORMATION

092401	092401	1.2	3.8
PURGE DATE (MM DD YY)	SAMPLE DATE (MM DD YY)	WATER VOL. IN CASING (LITRES/ [✓ GALLONS])	ACTUAL VOLUME PURGED (LITRES/ [✓ GALLONS])

PURGING AND SAMPLING EQUIPMENT

PURGING EQUIPMENT.........DEDICATED [✓ Y] N (CIRCLE ONE)

SAMPLING EQIPMENT.........DEDICATED [✓ Y] N (CIRCLE ONE)

PURGING DEVICE: B

SAMPLING DEVICE: G

A - SUBMERSIBLE PUMP; B - PERISTALTIC PUMP; C - BLADDER PUMP; D - GAS LIFT PUMP; E - PURGE PUMP; F - DIPPER BOTTLE; G - BAILER; H - WATERRA®

X- ____ PURGING OTHER (SPECIFY)

X- ____ SAMPLING OTHER (SPECIFY)

PURGING DEVICE: C

SAMPLING DEVICE: A

A - TEFLON; B - STAINLESS STEEL; C - POLYPROPYLENE - tubing; D - PVC; E - POLYETHYLENE

X- ____ PURGING OTHER (SPECIFY)

X- ____ SAMPLING OTHER (SPECIFY)

PURGING DEVICE: ____

SAMPLING DEVICE: ____

A - TEFLON; B - TYGON; C - ROPE; X- ____ (SPECIFY); D - POLYPROPYLENE; E - POLYETHYLENE; F - SILICONE; G - COMBINATION TEFLON/POLYPROPYLENE

X- ____ PURGING OTHER (SPECIFY)

X- ____ SAMPLING OTHER (SPECIFY)

FILTERING DEVICES 0.45 ____ A - IN-LINE DISPOSABLE B - PRESSURE C - VACUUM

FIELD MEASUREMENTS

WELL ELEVATION 588.88 (m/ [✓ ft])

GROUNDWATER ELEVATION 580.46 (m/ [✓ ft])

DEPTH TO WATER 8.42 (m/ [✓ ft])

WELL DEPTH 15.73 (m/ [✓ ft])

pH	TURBIDITY	CONDUCTIVITY	SAMPLE TEMPERATURE
7.52 (std)	17.2 (ntu)	1490 (µm/cm) ~~AT 25°C~~	59.5 ~~(°C)~~ °F
7.18 (std)	3.5 (ntu)	1520 (µm/cm) AT 25°C	59.4 ~~(°C)~~ °F
7.07 (std)	4.0 (ntu)	1590 (µm/cm) ~~AT 25°C~~	60.2 ~~(°C)~~ °F
(std)	(ntu)	(µm/cm) AT 25°C	(°C)
(std)	(ntu)	(µm/cm) AT 25°C	(°C)

FIELD COMMENTS

SAMPLE APPEARANCE: → ODOR: None COLOR: clear TURBIDITY: clear

WEATHER CONDITIONS: WIND SPEED None DIRECTION NA PRECIPITATION [✓ Y] N OUTLOOK cldy/~~H~~rain, 68°F

SPECIFIC COMMENTS Purged with peristaltic pump & dedicated poly. tubing (from 12:15 to 12:28) 3 volumes (3.75 Gals). Well not dry - purge water clear/less than 50 NTUS. Sampled at 13:00 with dedicated teflon bailer and poly cord for TCL VOC's (3 x 40 ml VOA vials). Sample id W-092401-FG-MW8. Sample clear.

I CERTIFY THAT SAMPLING PROCEDURES WERE IN ACCORDANCE WITH APPLICABLE CRA PROTOCOLS

9/24/01	Frank Garbe	Frank Garbe
DATE	PRINT	SIGNATURE

CRA

CRA 1001 (29) Rev. 6, September 13, 1999, Form SP-10

WELL PURGING FIELD INFORMATION FORM

JOB# 15867 - - -

SITE/PROJECT NAME: Parcel 2 - Seneca St. RFI

WELL# MW-8A

WELL PURGING INFORMATION

09 20 01	09 20 01	2.8	4.8
PURGE DATE (MM DD YY)	SAMPLE DATE (MM DD YY)	WATER VOL. IN CASING (LITRES/[✓ GALLONS])	ACTUAL VOLUME PURGED (LITRES/[✓ GALLONS])

PURGING AND SAMPLING EQUIPMENT

PURGING EQUIPMENT.........DEDICATED [✓ Y] N (CIRCLE ONE)

SAMPLING EQIPMENT.........DEDICATED [✓ Y] N (CIRCLE ONE)

PURGING DEVICE: G

SAMPLING DEVICE: G

A - SUBMERSIBLE PUMP　B - PERISTALTIC PUMP　C - BLADDER PUMP　D - GAS LIFT PUMP　E - PURGE PUMP　F - DIPPER BOTTLE　G - BAILER　H - WATERRA®

X- ______ PURGING OTHER (SPECIFY)

X- ______ SAMPLING OTHER (SPECIFY)

PURGING DEVICE: A

SAMPLING DEVICE: A

A - TEFLON　B - STAINLESS STEEL　C - POLYPROPYLENE　D - PVC　E - POLYETHYLENE

X- ______ PURGING OTHER (SPECIFY)

X- ______ SAMPLING OTHER (SPECIFY)

PURGING DEVICE: ______

SAMPLING DEVICE: ______

A - TEFLON　B - TYGON　C - ROPE　X- ______ (SPECIFY)　D - POLYPROPYLENE　E - POLYETHYLENE　F - SILICONE　G - COMBINATION TEFLON/POLYPROPYLENE

X- ______ PURGING OTHER (SPECIFY)

X- ______ SAMPLING OTHER (SPECIFY)

FILTERING DEVICES 0.45 ______　A - IN-LINE DISPOSABLE　B - PRESSURE　C - VACUUM

FIELD MEASUREMENTS

WELL ELEVATION 589.04 (m/[✓ ft])

GROUNDWATER ELEVATION 576.84 (m/[✓ ft])

DEPTH TO WATER 12.20 (m/[✓ ft])

WELL DEPTH 29.04 (m/[✓ ft])

pH	TURBIDITY	CONDUCTIVITY	SAMPLE TEMPERATURE
7.38 (std)	629 (ntu)	1200 (µm/cm) ~~AT 25°C~~	57.7 ~~(°C)~~ °F
NA (std)	NA (ntu)	MA (µm/cm) AT 25°C	NA (°C)
(std)	(ntu)	(µm/cm) AT 25°C	(°C)
(std)	(ntu)	(µm/cm) AT 25°C	(°C)
(std)	(ntu)	(µm/cm) AT 25°C	(°C)

FIELD COMMENTS

SAMPLE APPEARANCE: → ODOR: None COLOR: Light Brown TURBIDITY: turbid

WEATHER CONDITIONS: WIND SPEED mod. gusts DIRECTION from NW PRECIPITATION Y [✓ N] OUTLOOK cloudy/64°F

SPECIFIC COMMENTS Purged 1 vol & 2 Gals (4.8 Gals) via dedicated teflon bailer to dryness. Sampled with dedicated bailer at 13:20. Sampled 3 x 40 ml VOA vials (TCL VOCs). Sample id W-092001-FG-MW8A

I CERTIFY THAT SAMPLING PROCEDURES WERE IN ACCORDANCE WITH APPLICABLE CRA PROTOCOLS

CRA

DATE 9/20/01　PRINT Frank Garbe　SIGNATURE Frank Garbe

CRA 1001 (29) Rev. 6, September 13, 1999, Form SP-10

WELL PURGING FIELD INFORMATION FORM

JOB# 15867-+-

SITE/PROJECT NAME: Parcel 2 - Seneca St.

WELL# MW-9

WELL PURGING INFORMATION

092101	092101	1.0	5.2
PURGE DATE (MM DD YY)	SAMPLE DATE (MM DD YY)	WATER VOL. IN CASING (LITRES/[✓ GALLONS])	ACTUAL VOLUME PURGED (LITRES/[✓ GALLONS])

PURGING AND SAMPLING EQUIPMENT

PURGING EQUIPMENT.........DEDICATED [✓ Y] N (CIRCLE ONE)

SAMPLING EQIPMENT.........DEDICATED [✓ Y] N (CIRCLE ONE)

PURGING DEVICE B A - SUBMERSIBLE PUMP D - GAS LIFT PUMP G - BAILER X- PURGING OTHER (SPECIFY)

B - PERISTALTIC PUMP E - PURGE PUMP H - WATERRA®

SAMPLING DEVICE G C - BLADDER PUMP F - DIPPER BOTTLE X- SAMPLING OTHER (SPECIFY)

PURGING DEVICE C A - TEFLON D - PVC X- PURGING OTHER (SPECIFY)

B - STAINLESS STEEL E - POLYETHYLENE

SAMPLING DEVICE A C - POLYPROPYLENE - tubing X- SAMPLING OTHER (SPECIFY)

PURGING DEVICE ☐ A - TEFLON D - POLYPROPYLENE F - SILICONE X- PURGING OTHER (SPECIFY)

B - TYGON E - POLYETHYLENE G - COMBINATION TEFLON/POLYPROPYLENE

SAMPLING DEVICE ☐ C - ROPE X- (SPECIFY) X- SAMPLING OTHER (SPECIFY)

FILTERING DEVICES 0.45 ☐ A - IN-LINE DISPOSABLE B - PRESSURE C - VACUUM

FIELD MEASUREMENTS

WELL ELEVATION 589.71 (m/[✓ ft])

GROUNDWATER ELEVATION 581.11 (m/[✓ ft])

DEPTH TO WATER 8.61 (m/[✓ ft])

WELL DEPTH 15.15 (m/[✓ ft])

pH	TURBIDITY	CONDUCTIVITY	SAMPLE TEMPERATURE
6.85 (std)	534 (ntu)	1660 (µm/cm) ~~AT 25°C~~	65.1 ~~(°C)~~ °F
6.86 (std)	427 (ntu)	1520 (µm/cm) AT 25°C	65.0 ~~(°C)~~ °F
6.97 (std)	301 (ntu)	1440 (µm/cm) ~~AT 25°C~~	64.4 ~~(°C)~~ °F
6.96 (std)	62 (ntu)	1380 (µm/cm) ~~AT 25°C~~	63.9 ~~(°C)~~ °F
6.90 (std)	47 (ntu)	1340 (µm/cm) ~~AT 25°C~~	63.8 ~~(°C)~~ °F

FIELD COMMENTS

SAMPLE APPEARANCE: clear ODOR: None COLOR: clear TURBIDITY: clear (50 < NTU)

WEATHER CONDITIONS: WIND SPEED None DIRECTION NA PRECIPITATION Y [✓ N] OUTLOOK Sunny / 68°F

SPECIFIC COMMENTS Purged 5 volumes (5 1/4 Gals) w/ peristaltic pump & dedicated tubing from 14³⁰ to 14⁴⁵. Sampled w/ dedicated teflon bailer at 14:50, for 3 x 40 ml VOA vials (TCL VOAs) (Sample id W092101-FG-MW9.

I CERTIFY THAT SAMPLING PROCEDURES WERE IN ACCORDANCE WITH APPLICABLE CRA PROTOCOLS.

CRA

DATE 9/21/01 PRINT Frank Garba SIGNATURE Frank Garba

CRA 1001 (29) Rev. 6, September 13, 1999, Form SP-10

WELL PURGING FIELD INFORMATION FORM

JOB# 15867 -

SITE/PROJECT NAME: 2137 Seneca St - Parcel 2 Site

WELL# MW9

WELL PURGING INFORMATION

112701	112701	.	9.1
PURGE DATE (MM DD YY)	SAMPLE DATE (MM DD YY)	WATER VOL. IN CASING (LITRES/GALLONS)	ACTUAL VOLUME PURGED (LITRES/GALLONS)

PURGING AND SAMPLING EQUIPMENT

PURGING EQUIPMENT.........DEDICATED [✓ Y] N (CIRCLE ONE)

SAMPLING EQIPMENT.........DEDICATED [✓ Y] N (CIRCLE ONE)

PURGING DEVICE: B — A - SUBMERSIBLE PUMP; B - PERISTALTIC PUMP; C - BLADDER PUMP; D - GAS LIFT PUMP; E - PURGE PUMP; F - DIPPER BOTTLE; G - BAILER; H - WATERRA®

X- ______ PURGING OTHER (SPECIFY)

SAMPLING DEVICE: G

X- ______ SAMPLING OTHER (SPECIFY)

PURGING DEVICE: ☐ — A - TEFLON; B - STAINLESS STEEL; C - POLYPROPYLENE; D - PVC; E - POLYETHYLENE

X- ______ PURGING OTHER (SPECIFY)

SAMPLING DEVICE: A

X- ______ SAMPLING OTHER (SPECIFY)

PURGING DEVICE: ☐ — A - TEFLON; B - TYGON; C - ROPE; X- ______ (SPECIFY); D - POLYPROPYLENE; E - POLYETHYLENE; F - SILICONE; G - COMBINATION TEFLON/POLYPROPYLENE

X- ______ PURGING OTHER (SPECIFY)

SAMPLING DEVICE: ☐

X- ______ SAMPLING OTHER (SPECIFY)

FILTERING DEVICES 0.45 ☐ A - IN-LINE DISPOSABLE B - PRESSURE C - VACUUM

FIELD MEASUREMENTS

WELL ELEVATION ~~6.95~~ JP (m/[✓ ft])

GROUNDWATER ELEVATION . (m/ft)

DEPTH TO WATER 6.95 (m/[✓ ft])

WELL DEPTH 15.15 (m/[✓ ft])

pH	TURBIDITY	CONDUCTIVITY	SAMPLE TEMPERATURE
6.4 (std)	43. (ntu)	2150. (µm/cm) AT 25°C	62.7 (~~°C~~) °F
6.6 (std)	316. (ntu)	1580. (µm/cm) AT 25°C	62.4 (~~°C~~) °F
6.7 (std)	86. (ntu)	1490. (µm/cm) AT 25°C	61.8 (~~°C~~) °F
6.6 (std)	57. (ntu)	1440. (µm/cm) AT 25°C	61.8 (~~°C~~) °F (over)
6.6 (std)	87. (ntu)	1350. (µm/cm) AT 25°C	61.7 (~~°C~~) °F

FIELD COMMENTS

SAMPLE APPEARANCE: Clear ODOR: none COLOR: Clear TURBIDITY: min. to none

WEATHER CONDITIONS: WIND SPEED 0 DIRECTION — PRECIPITATION [✓ Y] N OUTLOOK lt. rain

SPECIFIC COMMENTS Had to put peristaltic on a low speed to allow for recharge. Water started out cloudy, but cleared up rather quickly.

Sample : GW-112701-JP-002

I CERTIFY THAT SAMPLING PROCEDURES WERE IN ACCORDANCE WITH APPLICABLE CRA PROTOCOLS

CRA

11/27/01 DATE

Jane Pietraszek PRINT

Pietraszek SIGNATURE

CRA 1001 (29) Rev. 6, September 13, 1999, Form SP-10

WELL PURGING FIELD INFORMATION FORM

JOB# 15867-

SITE/PROJECT NAME: Parcel 2 - Seneca St. RFI

WELL# MW-9A

WELL PURGING INFORMATION

092101	092101	2.8	9.0
PURGE DATE (MM DD YY)	SAMPLE DATE (MM DD YY)	WATER VOL. IN CASING (LITRES/[✓ GALLONS])	ACTUAL VOLUME PURGED (LITRES/GALLONS)

PURGING AND SAMPLING EQUIPMENT

PURGING EQUIPMENT.........DEDICATED [✓ Y] N (CIRCLE ONE)

SAMPLING EQIPMENT.........DEDICATED [✓ Y] N (CIRCLE ONE)

PURGING DEVICE: G — A - SUBMERSIBLE PUMP, B - PERISTALTIC PUMP, C - BLADDER PUMP, D - GAS LIFT PUMP, E - PURGE PUMP, F - DIPPER BOTTLE, G - BAILER, H - WATERRA®

X- ______ PURGING OTHER (SPECIFY)

SAMPLING DEVICE: G

X- ______ SAMPLING OTHER (SPECIFY)

PURGING DEVICE: A — A - TEFLON, B - STAINLESS STEEL, C - POLYPROPYLENE, D - PVC, E - POLYETHYLENE

X- ______ PURGING OTHER (SPECIFY)

SAMPLING DEVICE: A

X- ______ SAMPLING OTHER (SPECIFY)

PURGING DEVICE: ___ — A - TEFLON, B - TYGON, C - ROPE X- ______ (SPECIFY), D - POLYPROPYLENE, E - POLYETHYLENE, F - SILICONE, G - COMBINATION TEFLON/POLYPROPYLENE

X- ______ PURGING OTHER (SPECIFY)

SAMPLING DEVICE: ___

X- ______ SAMPLING OTHER (SPECIFY)

FILTERING DEVICES 0.45: ___ — A - IN-LINE DISPOSABLE, B - PRESSURE, C - VACUUM

FIELD MEASUREMENTS

WELL ELEVATION: 589.55 (m/[✓ ft])

GROUNDWATER ELEVATION: 577.98 (m/[✓ ft])

DEPTH TO WATER: 11.57 (m/[✓ ft])

WELL DEPTH: 29.02 (m/[✓ ft])

pH	TURBIDITY	CONDUCTIVITY	SAMPLE TEMPERATURE
7.43 (std)	521 (ntu)	480 (µm/cm) ~~AT 25°C~~	61.6 (~~°C~~) °F
7.60 (std)	1424 (ntu)	440 (µm/cm) ~~AT 25°C~~	60.0 (~~°C~~) °F
7.86 (std)	870 (ntu)	470 (µm/cm) ~~AT 25°C~~	58.2 (~~°C~~) °F
(std)	(ntu)	(µm/cm) AT 25°C	(°C)
(std)	(ntu)	(µm/cm) AT 25°C	(°C)

FIELD COMMENTS

SAMPLE APPEARANCE: → F6 ODOR: NONE COLOR: tan-grey TURBIDITY: turbid

WEATHER CONDITIONS: WIND SPEED NONE DIRECTION NA PRECIPITATION Y [✓ N] OUTLOOK Sunny/68°F

SPECIFIC COMMENTS Purged 3 volumes (9.0 Gals) w/ dedicated teflon bailer & poly cord from 15:15 to 16:00 (Well did Not clear during development). Sampled with dedicated teflon bailer at 16:10 for 3x40 ml VOA vials (TCL VOCs). Sample id W-092101-FG-MW9A

I CERTIFY THAT SAMPLING PROCEDURES WERE IN ACCORDANCE WITH APPLICABLE CRA PROTOCOLS

CRA

9/21/01	Frank Garbe	Frank Garbe
DATE	PRINT	SIGNATURE

CRA 1001 (29) Rev. 6, September 13, 1999, Form SP-10

WELL PURGING FIELD INFORMATION FORM

JOB# 15867 -

SITE/PROJECT NAME:

WELL# MW9A

WELL PURGING INFORMATION

112801	112801	2.8	11.2
PURGE DATE (MM DD YY)	SAMPLE DATE (MM DD YY)	WATER VOL. IN CASING (LITRES/[✓ GALLONS])	ACTUAL VOLUME PURGED (LITRES/[✓ GALLONS])

PURGING AND SAMPLING EQUIPMENT

PURGING EQUIPMENT.........DEDICATED Y N (CIRCLE ONE)

SAMPLING EQIPMENT.........DEDICATED Y N (CIRCLE ONE)

PURGING DEVICE G — A - SUBMERSIBLE PUMP, B - PERISTALTIC PUMP, C - BLADDER PUMP, D - GAS LIFT PUMP, E - PURGE PUMP, F - DIPPER BOTTLE, G - BAILER, H - WATERRA®; X- PURGING OTHER (SPECIFY)

SAMPLING DEVICE G; X- SAMPLING OTHER (SPECIFY)

PURGING DEVICE A — A - TEFLON, B - STAINLESS STEEL, C - POLYPROPYLENE, D - PVC, E - POLYETHYLENE; X- PURGING OTHER (SPECIFY)

SAMPLING DEVICE A; X- SAMPLING OTHER (SPECIFY)

PURGING DEVICE — A - TEFLON, B - TYGON, C - ROPE, X- (SPECIFY), D - POLYPROPYLENE, E - POLYETHYLENE, F - SILICONE, G - COMBINATION TEFLON/POLYPROPYLENE; X- PURGING OTHER (SPECIFY)

SAMPLING DEVICE; X- SAMPLING OTHER (SPECIFY)

FILTERING DEVICES 0.45 — A - IN-LINE DISPOSABLE, B - PRESSURE, C - VACUUM

FIELD MEASUREMENTS

WELL ELEVATION (m/ft)

GROUNDWATER ELEVATION (m/ft)

DEPTH TO WATER 11.20 (m/[✓ ft])

WELL DEPTH 29.02 (m/[✓ ft])

pH	TURBIDITY	CONDUCTIVITY	SAMPLE TEMPERATURE
11.6 (std)	70 (ntu)	420 (µm/cm) AT 25°C	55.5 (~~°C~~) °F
11.0 (std)	39 (ntu)	630 (µm/cm) AT 25°C	56.1 (~~°C~~) °F
11.1 (std)	144 (ntu)	620 (µm/cm) AT 25°C	55.5 (~~°C~~) °F
11.0 (std)	48 (ntu)	570 (µm/cm) AT 25°C	56.0 (~~°C~~) °F
(std)	(ntu)	(µm/cm) AT 25°C	(°C)

FIELD COMMENTS

SAMPLE APPEARANCE: ODOR: — COLOR: clear TURBIDITY: none

WEATHER CONDITIONS: WIND SPEED DIRECTION PRECIPITATION [✓ Y]/N OUTLOOK Sl. rain

SPECIFIC COMMENTS Sample ID: GW - 112801 - JP - 006 (3x40ml voc)

I CERTIFY THAT SAMPLING PROCEDURES WERE IN ACCORDANCE WITH APPLICABLE CRA PROTOCOLS

CRA

DATE 2/6/02

PRINT J. Pietraszik

SIGNATURE

CRA 1001 (29) Rev. 6, September 13, 1999, Form SP-10

WELL PURGING FIELD INFORMATION FORM

JOB# 15867 - - -

TE/PROJECT NAME: Parcel 2 - Seneca St RFI

WELL# MW-10

WELL PURGING INFORMATION

09 20 01	09 20 01	.4	5.5
PURGE DATE (MM DD YY)	SAMPLE DATE (MM DD YY)	WATER VOL. IN CASING (LITRES/[✓ GALLONS])	ACTUAL VOLUME PURGED (LITRES/GALLONS)

PURGING AND SAMPLING EQUIPMENT

PURGING EQUIPMENT.........DEDICATED [✓ Y] N (CIRCLE ONE)

SAMPLING EQIPMENT.........DEDICATED [✓ Y] N (CIRCLE ONE)

PURGING DEVICE B

SAMPLING DEVICE X

A - SUBMERSIBLE PUMP
B - PERISTALTIC PUMP
C - BLADDER PUMP
D - GAS LIFT PUMP
E - PURGE PUMP
F - DIPPER BOTTLE
G - BAILER
H - WATERRA®

X- ______ PURGING OTHER (SPECIFY)

X- Peristaltic tubing SAMPLING OTHER (SPECIFY)

PURGING DEVICE C

SAMPLING DEVICE C

A - TEFLON
B - STAINLESS STEEL
C - POLYPROPYLENE ↳ tubing
D - PVC
E - POLYETHYLENE

X- ______ PURGING OTHER (SPECIFY)

X- ______ SAMPLING OTHER (SPECIFY)

PURGING DEVICE ☐

SAMPLING DEVICE ☐

A - TEFLON
B - TYGON
C - ROPE X- ______ (SPECIFY)
D - POLYPROPYLENE
E - POLYETHYLENE
F - SILICONE
G - COMBINATION TEFLON/POLYPROPYLENE

X- ______ PURGING OTHER (SPECIFY)

X- ______ SAMPLING OTHER (SPECIFY)

FILTERING DEVICES 0.45 ☐ A - IN-LINE DISPOSABLE B - PRESSURE C - VACUUM

FIELD MEASUREMENTS

WELL ELEVATION 589.02 (m [✓ ft])

GROUNDWATER ELEVATION 583.60 (m [✓ ft])

DEPTH TO WATER 5.42 (m [✓ ft])

WELL DEPTH 15.33 (m [✓ ft])

	pH	TURBIDITY	CONDUCTIVITY	SAMPLE TEMPERATURE
5th	7.05 (std)	>2000 (ntu)	830 (µm/cm) ~~AT 25°C~~	61.3 ~~(°C)~~ °F
7th	6.80 (std)	949 (ntu)	920 (µm/cm) ~~AT 25°C~~	59.5 ~~(°C)~~ °F
8th	6.60 (std)	>2000 (ntu)	940 (µm/cm) ~~AT 25°C~~	59.8 ~~(°C)~~ °F
2th	6.55 (std)	974 (ntu)	970 (µm/cm) ~~AT 25°C~~	60.8 ~~(°C)~~ °F
4th vol	6.41 (std)	792 (ntu)	940 (µm/cm) ~~AT 25°C~~	60.9 ~~(°C)~~ °F

FIELD COMMENTS

SAMPLE APPEARANCE: → ODOR: None COLOR: brown TURBIDITY: mod. turbid

WEATHER CONDITIONS: WIND SPEED moderate gusts DIRECTION from NW PRECIPITATION Y [✓ N] OUTLOOK None

SPECIFIC COMMENTS

Purged 10 volumes (4 Gals) w/ peristaltic pump & dedicated polypropylene tubing. Purged from 10 Am to 11 Am. Sampled using only polypropylene tubing as a suction lift device at 14:30 Pm. Collected 3 x 40 ml VOA vials (TCL VOAs) & 2 x 1 Liter amber glass (for TCL SVOCs). also collected 2 x 40 ml VOA vials for NYSDEC split. Sample id W-092001-FG-MW10

I CERTIFY THAT SAMPLING PROCEDURES WERE IN ACCORDANCE WITH APPLICABLE CRA PROTOCOLS

CRA

9/20/01 DATE

Frank Garbe PRINT

Frank Garbe SIGNATURE

CRA 1001 (29) Rev. 6, September 13, 1999, Form SP-10

WELL PURGING FIELD INFORMATION FORM

JOB# 15867 - - -

SITE/PROJECT NAME: Parcel 2 - Seneca St RFI

WELL# MW-10A

WELL PURGING INFORMATION

092001	092001	.7	.
PURGE DATE (MM DD YY)	SAMPLE DATE (MM DD YY)	WATER VOL. IN CASING (LITRES/[✓ GALLONS])	ACTUAL VOLUME PURGED (LITRES/GALLONS)

PURGING AND SAMPLING EQUIPMENT

PURGING EQUIPMENT.........DEDICATED Y N (CIRCLE ONE)

SAMPLING EQIPMENT.........DEDICATED Y N (CIRCLE ONE)

PURGING DEVICE	B	A - SUBMERSIBLE PUMP B - PERISTALTIC PUMP C - BLADDER PUMP	D - GAS LIFT PUMP E - PURGE PUMP F - DIPPER BOTTLE	G - BAILER H - WATERRA®	X- PURGING OTHER (SPECIFY)
SAMPLING DEVICE	X				X- Peristaltic tubing SAMPLING OTHER (SPECIFY)
PURGING DEVICE	C	A - TEFLON B - STAINLESS STEEL C - POLYPROPYLENE —tubing	D - PVC E - POLYETHYLENE		X- PURGING OTHER (SPECIFY)
SAMPLING DEVICE	C				X- SAMPLING OTHER (SPECIFY)
PURGING DEVICE		A - TEFLON B - TYGON C - ROPE	D - POLYPROPYLENE E - POLYETHYLENE	F - SILICONE G - COMBINATION TEFLON/POLYPROPYLENE	X- PURGING OTHER (SPECIFY)
SAMPLING DEVICE		X- (SPECIFY)			X- SAMPLING OTHER (SPECIFY)
FILTERING DEVICES 0.45		A - IN-LINE DISPOSABLE	B - PRESSURE	C - VACUUM	

FIELD MEASUREMENTS

WELL ELEVATION	589.07	(m/[✓ ft])	GROUNDWATER ELEVATION	578.05	(m/[✓ ft])
DEPTH TO WATER	11.02	(m/[✓ ft])	WELL DEPTH	28.02	(m/[✓ ft])

pH	TURBIDITY	CONDUCTIVITY	SAMPLE TEMPERATURE
7.15 (std)	706. (ntu)	640. (μm/cm) ~~AT 25~~°C	60.0 ~~(°C)~~ °F
7.08 (std)	>2000. (ntu)	740. (μm/cm) ~~AT 25~~°C	60.0 ~~(°C)~~ °F
7.23 (std)	820. (ntu)	700. (μm/cm) ~~AT 25~~°C	58.3 ~~(°C)~~ °F
7.17 (std)	1054. (ntu)	630. (μm/cm) ~~AT 25~~°C	57.2 ~~(°C)~~ °F
7.20 (std)	1520. (ntu)	650. (μm/cm) ~~AT 25~~°C	56.7 ~~(°C)~~ °F

FIELD COMMENTS

SAMPLE APPEARANCE: → ODOR: None COLOR: Brown TURBIDITY: turbid

WEATHER CONDITIONS: WIND SPEED mod. gusts DIRECTION from NW PRECIPITATION Y [✓ N] OUTLOOK None expected

SPECIFIC COMMENTS Purged 5 volumes (3 3/4 Gals) via peristaltic pump and dedicated tubing (polypropylene). Purged from 11:35 AM to 12:15 PM. Sample at 12:20 PM using peristaltic tubing polypropylene tubing as suction lift device. Collected 3x 40 ml VOA vials for TCL VOCs Sample id W-092001-FG-MW10A

I CERTIFY THAT SAMPLING PROCEDURES WERE IN ACCORDANCE WITH APPLICABLE CRA PROTOCOLS

CRA

9/20/01	Frank Garbe	Frank Garbe
DATE	PRINT	SIGNATURE

CRA 1001 (29) Rev. 6, September 13, 1999, Form SP-10

WELL PURGING FIELD INFORMATION FORM

JOB# 15867 - - -

SITE/PROJECT NAME: Parcel 2 - Seneca St RFI

WELL# MW-11

WELL PURGING INFORMATION

092101	092101	1.3	6.7
PURGE DATE (MM DD YY)	SAMPLE DATE (MM DD YY)	WATER VOL. IN CASING (LITRES/GALLONS)	ACTUAL VOLUME PURGED (LITRES/GALLONS)

PURGING AND SAMPLING EQUIPMENT

PURGING EQUIPMENT.........DEDICATED [✓ Y] N (CIRCLE ONE)

SAMPLING EQIPMENT.........DEDICATED [✓ Y] N (CIRCLE ONE)

PURGING DEVICE: B

SAMPLING DEVICE: G

A - SUBMERSIBLE PUMP
B - PERISTALTIC PUMP
C - BLADDER PUMP
D - GAS LIFT PUMP
E - PURGE PUMP
F - DIPPER BOTTLE
G - BAILER
H - WATERRA®

X- ______ PURGING OTHER (SPECIFY)

X- ______ SAMPLING OTHER (SPECIFY)

PURGING DEVICE: C

SAMPLING DEVICE: A

A - TEFLON
B - STAINLESS STEEL
C - POLYPROPYLENE - tubing
D - PVC
E - POLYETHYLENE

X- ______ PURGING OTHER (SPECIFY)

X- ______ SAMPLING OTHER (SPECIFY)

PURGING DEVICE: ☐

SAMPLING DEVICE: ☐

A - TEFLON
B - TYGON
C - ROPE
D - POLYPROPYLENE
E - POLYETHYLENE
F - SILICONE
G - COMBINATION TEFLON/POLYPROPYLENE

X- ______ (SPECIFY)

X- ______ PURGING OTHER (SPECIFY)

X- ______ SAMPLING OTHER (SPECIFY)

FILTERING DEVICES 0.45 ☐ A - IN-LINE DISPOSABLE B - PRESSURE C - VACUUM

FIELD MEASUREMENTS

WELL ELEVATION: 590.40 (m [✓ ft])

GROUNDWATER ELEVATION: 581.11 (m [✓ ft])

DEPTH TO WATER: 9.29 (m [✓ ft])

WELL DEPTH: 17.52 (m [✓ ft])

pH	TURBIDITY	CONDUCTIVITY	SAMPLE TEMPERATURE
6.70 (std)	237. (ntu)	680. (μm/cm) ~~AT 25°C~~	64.5 ~~(°C)~~ °F
6.86 (std)	83. (ntu)	730. (μm/cm) ~~AT 25°C~~	63.7 ~~(°C)~~ °F
6.78 (std)	120. (ntu)	720. (μm/cm) ~~AT 25°C~~	63.2 ~~(°C)~~ °F
6.90 (std)	180. (ntu)	700. (μm/cm) ~~AT 25°C~~	63.5 ~~(°C)~~ °F
6.94 (std)	51. (ntu)	780. (μm/cm) ~~AT 25°C~~	62.8 ~~(°C)~~ °F

FIELD COMMENTS

SAMPLE APPEARANCE: Clear ODOR: None COLOR: yellow brn tint TURBIDITY: clear

WEATHER CONDITIONS: WIND SPEED None DIRECTION NA PRECIPITATION Y [✓ N] OUTLOOK Sunny / 68°F

SPECIFIC COMMENTS: Purged 5 volumes (6.7 Gals) w/ peristaltic pump & dedicated tubing from 12:50pm to 13:10pm. Sampled w/ dedicated teflon bailer at 13:30 pm for 9 x 40 ml VOA VIALS (TCL VOCS) and 6 x 1 Liter glass amber bottles (TCL SVOCS) included sample volume for MS/MSD. Sample id W-092101-FG-MW11

I CERTIFY THAT SAMPLING PROCEDURES WERE IN ACCORDANCE WITH APPLICABLE CRA PROTOCOLS

CRA

DATE: 9/21/01 PRINT: Frank Garbe SIGNATURE: Frank Garbe

WELL PURGING FIELD INFORMATION FORM

JOB# 1 5 8 6 7 -

SITE/PROJECT NAME:

WELL# MW11

WELL PURGING INFORMATION

PURGE DATE (MM DD YY): 11 28 01

SAMPLE DATE (MM DD YY): 11 28 01

WATER VOL. IN CASING (LITRES/[✓ GALLONS]): 1.6

ACTUAL VOLUME PURGED (LITRES/[✓ GALLONS]): 4.8

PURGING AND SAMPLING EQUIPMENT

PURGING EQUIPMENT.........DEDICATED [✓ Y] N (CIRCLE ONE)

SAMPLING EQIPMENT.........DEDICATED [✓ Y] N (CIRCLE ONE)

PURGING DEVICE: B

SAMPLING DEVICE: G

A - SUBMERSIBLE PUMP B - PERISTALTIC PUMP C - BLADDER PUMP D - GAS LIFT PUMP E - PURGE PUMP F - DIPPER BOTTLE G - BAILER H - WATERRA®

X- ______ PURGING OTHER (SPECIFY)

X- ______ SAMPLING OTHER (SPECIFY)

PURGING DEVICE: C

SAMPLING DEVICE: A

A - TEFLON B - STAINLESS STEEL C - POLYPROPYLENE D - PVC E - POLYETHYLENE

X- ______ PURGING OTHER (SPECIFY)

X- ______ SAMPLING OTHER (SPECIFY)

PURGING DEVICE: ______

SAMPLING DEVICE: ______

A - TEFLON B - TYGON C - ROPE X- ______ (SPECIFY) D - POLYPROPYLENE E - POLYETHYLENE F - SILICONE G - COMBINATION TEFLON/POLYPROPYLENE

X- ______ PURGING OTHER (SPECIFY)

X- ______ SAMPLING OTHER (SPECIFY)

FILTERING DEVICES 0.45 ______ A - IN-LINE DISPOSABLE B - PRESSURE C - VACUUM

FIELD MEASUREMENTS

WELL ELEVATION: ______ (m/ft)

GROUNDWATER ELEVATION: ______ (m/ft)

DEPTH TO WATER: ~~17.52~~ ft 7.60 (m/[✓ ft])

WELL DEPTH: 17.52 (m/ft)

pH	TURBIDITY	CONDUCTIVITY	SAMPLE TEMPERATURE
10.7 (std)	57 (ntu)	950 (μm/cm) AT 25°C	59.7 ~~°C~~ °F
10.7 (std)	7 (ntu)	1050 (μm/cm) AT 25°C	59.5 ~~°C~~ °F
10.7 (std)	1 (ntu)	1150 (μm/cm) AT 25°C	60.2 ~~°C~~ °F
(std)	(ntu)	(μm/cm) AT 25°C	(°C)
(std)	(ntu)	(μm/cm) AT 25°C	(°C)

FIELD COMMENTS

SAMPLE APPEARANCE: – ODOR: clean COLOR: none TURBIDITY: ______

WEATHER CONDITIONS: WIND SPEED ______ DIRECTION ______ PRECIPITATION [✓ Y]/N OUTLOOK sl. rain

SPECIFIC COMMENTS Sample ID: GW-112801-JP-005 (3x40ml VOC)

MS/MSD taken at this well (3x40ml VOC each)

I CERTIFY THAT SAMPLING PROCEDURES WERE IN ACCORDANCE WITH APPLICABLE CRA PROTOCOLS

CRA

DATE ______ PRINT ______ SIGNATURE ______

CRA 1001 (29) Rev. 6, September 13, 1999, Form SP-10

WELL PURGING FIELD INFORMATION FORM

JOB# 15867 - - -

SITE/PROJECT NAME: Parcel 2 - Seneca St. RFI

WELL# MW-11A

WELL PURGING INFORMATION

092001	092001	2.4	6.5
PURGE DATE (MM DD YY)	SAMPLE DATE (MM DD YY)	WATER VOL. IN CASING (LITRES/GALLONS)	ACTUAL VOLUME PURGED (LITRES/GALLONS)

PURGING AND SAMPLING EQUIPMENT

PURGING EQUIPMENT.........DEDICATED [✓ Y] N (CIRCLE ONE)

SAMPLING EQIPMENT.........DEDICATED [✓ Y] N (CIRCLE ONE)

PURGING DEVICE: G

SAMPLING DEVICE: G

A - SUBMERSIBLE PUMP; B - PERISTALTIC PUMP; C - BLADDER PUMP; D - GAS LIFT PUMP; E - PURGE PUMP; F - DIPPER BOTTLE; G - BAILER; H - WATERRA®

X- ______ PURGING OTHER (SPECIFY)

X- ______ SAMPLING OTHER (SPECIFY)

PURGING DEVICE: A

SAMPLING DEVICE: A

A - TEFLON; B - STAINLESS STEEL; C - POLYPROPYLENE; D - PVC; E - POLYETHYLENE

X- ______ PURGING OTHER (SPECIFY)

X- ______ SAMPLING OTHER (SPECIFY)

PURGING DEVICE: ☐

SAMPLING DEVICE: ☐

A - TEFLON; B - TYGON; C - ROPE; X- ______ (SPECIFY); D - POLYPROPYLENE; E - POLYETHYLENE; F - SILICONE; G - COMBINATION TEFLON/POLYPROPYLENE

X- ______ PURGING OTHER (SPECIFY)

X- ______ SAMPLING OTHER (SPECIFY)

FILTERING DEVICES 0.45 ☐ A - IN-LINE DISPOSABLE B - PRESSURE C - VACUUM

FIELD MEASUREMENTS

WELL ELEVATION 590.20 (m/[✓ ft])

GROUNDWATER ELEVATION 578.29 (m/[✓ ft])

DEPTH TO WATER 11.91 (m/[✓ ft])

WELL DEPTH 27.00 (m/[✓ ft])

pH	TURBIDITY	CONDUCTIVITY	SAMPLE TEMPERATURE
6.96 (std)	691 (ntu)	880 (µm/cm) ~~AT 25°C~~	63.4 ~~(°C)~~ °F
7.15 (std)	1207 (ntu)	870 (µm/cm) ~~AT 25°C~~	59.9 ~~(°C)~~ °F
(std)	(ntu)	(µm/cm) AT 25°C	(°C)
(std)	(ntu)	(µm/cm) AT 25°C	(°C)
(std)	(ntu)	(µm/cm) AT 25°C	(°C)

FIELD COMMENTS

SAMPLE APPEARANCE: → ODOR: None COLOR: Light brown TURBIDITY: mod. turbid

WEATHER CONDITIONS: WIND SPEED mod. gusts DIRECTION from NW PRECIPITATION Y/[✓ N] OUTLOOK cloudy/64°F

SPECIFIC COMMENTS Used dedicated teflon bailer to purge 2 vols + 1.7 Gals (6.5 Gals) to dryness from 13:45 PM to 14:05. used dedicated bailer to Sample at 15:15 PM for 3 x 40 ml VOA vials (TCL VOCs). Sample id W-092001-FG-MW11A

I CERTIFY THAT SAMPLING PROCEDURES WERE IN ACCORDANCE WITH APPLICABLE CRA PROTOCOLS

CRA

9/20/01 DATE

Frank Garbe PRINT

Frank Garbe SIGNATURE

WELL PURGING FIELD INFORMATION FORM

JOB# 1 5 8 6 7 -

SITE/PROJECT NAME:

WELL# MW11A

WELL PURGING INFORMATION

11 28 01	11 29 01	2.5	5.0
PURGE DATE (MM DD YY)	SAMPLE DATE (MM DD YY)	WATER VOL. IN CASING (LITRES/ [✓ GALLONS])	ACTUAL VOLUME PURGED (LITRES/GALLONS)

PURGING AND SAMPLING EQUIPMENT

PURGING EQUIPMENT.........DEDICATED [✓ Y] N (CIRCLE ONE)

SAMPLING EQIPMENT.........DEDICATED [✓ Y] N (CIRCLE ONE)

PURGING DEVICE: G
SAMPLING DEVICE: G

A - SUBMERSIBLE PUMP, B - PERISTALTIC PUMP, C - BLADDER PUMP, D - GAS LIFT PUMP, E - PURGE PUMP, F - DIPPER BOTTLE, G - BAILER, H - WATERRA®

X- ______ PURGING OTHER (SPECIFY)
X- ______ SAMPLING OTHER (SPECIFY)

PURGING DEVICE: A
SAMPLING DEVICE: A

A - TEFLON, B - STAINLESS STEEL, C - POLYPROPYLENE, D - PVC, E - POLYETHYLENE

X- ______ PURGING OTHER (SPECIFY)
X- ______ SAMPLING OTHER (SPECIFY)

PURGING DEVICE: ______
SAMPLING DEVICE: ______

A - TEFLON, B - TYGON, C - ROPE, X- ______ (SPECIFY), D - POLYPROPYLENE, E - POLYETHYLENE, F - SILICONE, G - COMBINATION TEFLON/POLYPROPYLENE

X- ______ PURGING OTHER (SPECIFY)
X- ______ SAMPLING OTHER (SPECIFY)

FILTERING DEVICES 0.45 ______ A - IN-LINE DISPOSABLE B - PRESSURE C - VACUUM

FIELD MEASUREMENTS

WELL ELEVATION ______ (m/ft)
GROUNDWATER ELEVATION ______ (m/ft)
DEPTH TO WATER 11.25 (m/ [✓ ft])
WELL DEPTH 27.0 (m/ [✓ ft])

pH	TURBIDITY	CONDUCTIVITY	SAMPLE TEMPERATURE
10.5 (std)	28 (ntu)	1070 (µm/cm) AT 25°C	57.2 ~~°C~~ °F
8.7 (std)	94 (ntu)	980 (µm/cm) AT 25°C	56.4 ~~°C~~ °F
(std)	(ntu)	(µm/cm) AT 25°C	(°C)
(std)	(ntu)	(µm/cm) AT 25°C	(°C)
(std)	(ntu)	(µm/cm) AT 25°C	(°C)

FIELD COMMENTS

SAMPLE APPEARANCE: ______ ODOR: ______ COLOR: ______ TURBIDITY: cloudy

WEATHER CONDITIONS: WIND SPEED ______ DIRECTION ______ PRECIPITATION [✓ Y]/N OUTLOOK Rain

SPECIFIC COMMENTS Sample ID: GW-112901-JP-008 (3 x 40 ml VOC)

I CERTIFY THAT SAMPLING PROCEDURES WERE IN ACCORDANCE WITH APPLICABLE CRA PROTOCOLS

CRA

DATE 2/6/02
PRINT J Pietraszek
SIGNATURE

CRA 1001 (29) Rev. 6, September 13, 1999, Form SP-10

WELL PURGING FIELD INFORMATION FORM

JOB# 15867-

SITE/PROJECT NAME: Parcel 2 Site

WELL# MW2

WELL PURGING INFORMATION

PURGE DATE (MM DD YY)	SAMPLE DATE (MM DD YY)	WATER VOL. IN CASING (LITRES/GALLONS)	ACTUAL VOLUME PURGED (LITRES/GALLONS)
062002	062002	1.2	3.6

PURGING AND SAMPLING EQUIPMENT

PURGING EQUIPMENT.........DEDICATED [✓ Y] N (CIRCLE ONE)

SAMPLING EQIPMENT.........DEDICATED [✓ Y] N (CIRCLE ONE)

PURGING DEVICE: B

SAMPLING DEVICE: G

A - SUBMERSIBLE PUMP D - GAS LIFT PUMP G - BAILER
B - PERISTALTIC PUMP E - PURGE PUMP H - WATERRA®
C - BLADDER PUMP F - DIPPER BOTTLE

X- ______ PURGING OTHER (SPECIFY)
X- ______ SAMPLING OTHER (SPECIFY)

PURGING DEVICE: C

SAMPLING DEVICE: A

A - TEFLON D - PVC
B - STAINLESS STEEL E - POLYETHYLENE
C - POLYPROPYLENE - tubing

X- ______ PURGING OTHER (SPECIFY)
X- ______ SAMPLING OTHER (SPECIFY)

PURGING DEVICE: ______

SAMPLING DEVICE: ______

A - TEFLON D - POLYPROPYLENE F - SILICONE
B - TYGON E - POLYETHYLENE G - COMBINATION TEFLON/POLYPROPYLENE
C - ROPE X- ______ (SPECIFY)

X- ______ PURGING OTHER (SPECIFY)
X- ______ SAMPLING OTHER (SPECIFY)

FILTERING DEVICES 0.45 ______ A - IN-LINE DISPOSABLE B - PRESSURE C - VACUUM

FIELD MEASUREMENTS

WELL ELEVATION ______ (m/ft)

GROUNDWATER ELEVATION 581.93 (m/ft)

DEPTH TO WATER 9.3 (m/ft)

WELL DEPTH 17.12 (m/ft)

pH (std)	TURBIDITY (ntu)	CONDUCTIVITY (µm/cm) AT 25°C	SAMPLE TEMPERATURE (°C)
7.0	26	1890	14.6
7.0	16	1860	14.2
7.0	6	1870	14.7

FIELD COMMENTS

SAMPLE APPEARANCE: clear ODOR: ______ COLOR: ______ TURBIDITY: ______

WEATHER CONDITIONS: WIND SPEED – DIRECTION – PRECIPITATION Y/N OUTLOOK ns

SPECIFIC COMMENTS ______

I CERTIFY THAT SAMPLING PROCEDURES WERE IN ACCORDANCE WITH APPLICABLE CRA PROTOCOLS

CRA

DATE: 7/1/02 PRINT: J Pietraszek SIGNATURE: Pietraszek

CRA 1001 (29) Rev. 6, September 13, 1999, Form SP-10

WELL PURGING FIELD INFORMATION FORM

JOB# 15867-

SITE/PROJECT NAME: Parcel 2 Site

WELL# MW4

WELL PURGING INFORMATION

061902	062002	1.5	6.0
PURGE DATE (MM DD YY)	SAMPLE DATE (MM DD YY)	WATER VOL. IN CASING (LITRES/GALLONS)	ACTUAL VOLUME PURGED (LITRES/GALLONS)

PURGING AND SAMPLING EQUIPMENT

PURGING EQUIPMENT.........DEDICATED [✓ Y] N (CIRCLE ONE)

SAMPLING EQIPMENT.........DEDICATED [✓ Y] N (CIRCLE ONE)

PURGING DEVICE B
SAMPLING DEVICE G

A - SUBMERSIBLE PUMP
B - PERISTALTIC PUMP
C - BLADDER PUMP
D - GAS LIFT PUMP
E - PURGE PUMP
F - DIPPER BOTTLE
G - BAILER
H - WATERRA®

X- ________ PURGING OTHER (SPECIFY)
X- ________ SAMPLING OTHER (SPECIFY)

PURGING DEVICE C
SAMPLING DEVICE A

A - TEFLON
B - STAINLESS STEEL
C - POLYPROPYLENE – tubing
D - PVC
E - POLYETHYLENE

X- ________ PURGING OTHER (SPECIFY)
X- ________ SAMPLING OTHER (SPECIFY)

PURGING DEVICE ____
SAMPLING DEVICE ____

A - TEFLON
B - TYGON
C - ROPE
X- ________ (SPECIFY)
D - POLYPROPYLENE
E - POLYETHYLENE
F - SILICONE
G - COMBINATION TEFLON/POLYPROPYLENE

X- ________ PURGING OTHER (SPECIFY)
X- ________ SAMPLING OTHER (SPECIFY)

FILTERING DEVICES 0.45 ____ A - IN-LINE DISPOSABLE B - PRESSURE C - VACUUM

FIELD MEASUREMENTS

WELL ELEVATION ________ (m/ft)

GROUNDWATER ELEVATION 581.81 (m/[✓ ft])

DEPTH TO WATER 8.70 (m/[✓ ft])

WELL DEPTH 16.8 (m/[✓ ft])

pH	TURBIDITY	CONDUCTIVITY	SAMPLE TEMPERATURE
7.5 (std)	35 (ntu)	1660 (µm/cm) AT 25°C	NA (°C)
7.4 (std)	9 (ntu)	1230 (µm/cm) AT 25°C	NA (°C)
7.4 (std)	3 (ntu)	1760 (µm/cm) AT 25°C	NA (°C)
7.4 (std)	2 (ntu)	1720 (µm/cm) AT 25°C	NA (°C)
(std)	(ntu)	(µm/cm) AT 25°C	(°C)

FIELD COMMENTS

SAMPLE APPEARANCE: clear ODOR: ________ COLOR: ________ TURBIDITY: ________

WEATHER CONDITIONS: WIND SPEED — DIRECTION — PRECIPITATION Y/N OUTLOOK no

SPECIFIC COMMENTS

thermometer has dead battery – no temp

I CERTIFY THAT SAMPLING PROCEDURES WERE IN ACCORDANCE WITH APPLICABLE CRA PROTOCOLS

CRA 7/1/02 DATE J Pietraszek PRINT SIGNATURE

WELL PURGING FIELD INFORMATION FORM

JOB# 15867-

ITE/PROJECT NAME: Parcel 2 Site

WELL# MW4A

WELL PURGING INFORMATION

061902	062002	2.8	11.2
PURGE DATE (MM DD YY)	SAMPLE DATE (MM DD YY)	WATER VOL. IN CASING (LITRES/GALLONS)	ACTUAL VOLUME PURGED (LITRES/GALLONS)

PURGING AND SAMPLING EQUIPMENT

PURGING EQUIPMENT.........DEDICATED [✓ Y] N (CIRCLE ONE)

SAMPLING EQIPMENT.........DEDICATED [✓ Y] N (CIRCLE ONE)

PURGING DEVICE: G

SAMPLING DEVICE: G

A - SUBMERSIBLE PUMP; B - PERISTALTIC PUMP; C - BLADDER PUMP; D - GAS LIFT PUMP; E - PURGE PUMP; F - DIPPER BOTTLE; G - BAILER; H - WATERRA®

X- ______ PURGING OTHER (SPECIFY)

X- ______ SAMPLING OTHER (SPECIFY)

PURGING DEVICE: A

SAMPLING DEVICE: A

A - TEFLON; B - STAINLESS STEEL; C - POLYPROPYLENE; D - PVC; E - POLYETHYLENE

X- ______ PURGING OTHER (SPECIFY)

X- ______ SAMPLING OTHER (SPECIFY)

PURGING DEVICE: ______

SAMPLING DEVICE: ______

A - TEFLON; B - TYGON; C - ROPE; X- ______ (SPECIFY); D - POLYPROPYLENE; E - POLYETHYLENE; F - SILICONE; G - COMBINATION TEFLON/POLYPROPYLENE

X- ______ PURGING OTHER (SPECIFY)

X- ______ SAMPLING OTHER (SPECIFY)

FILTERING DEVICES 0.45 ______ A - IN-LINE DISPOSABLE B - PRESSURE C - VACUUM

FIELD MEASUREMENTS

WELL ELEVATION ______ (m/ft)

GROUNDWATER ELEVATION 578.11 (m/[✓ ft])

DEPTH TO WATER 12.5 (m/[✓ ft])

WELL DEPTH 29.05 (m/[✓ ft])

pH (std)	TURBIDITY (ntu)	CONDUCTIVITY (µm/cm) AT 25°C	SAMPLE TEMPERATURE (°C)
7.5	71.	640.	NA
8.2	246.	730.	NA
8.1	144.	690.	16.8
8.0	692.	810.	16.2

FIELD COMMENTS

SAMPLE APPEARANCE: ______ ODOR: ______ COLOR: ______ TURBIDITY: ______

WEATHER CONDITIONS: WIND SPEED — DIRECTION — PRECIPITATION Y/N OUTLOOK no

SPECIFIC COMMENTS

6/19/02 - thermometer w/ dead batteries for first half of purging
Well dry @ 6.0 gal

6/20/02 - Well dry @ 3.0 gal

I CERTIFY THAT SAMPLING PROCEDURES WERE IN ACCORDANCE WITH APPLICABLE CRA PROTOCOLS

CRA

DATE: 7/1/02

PRINT: J Pietraszek

SIGNATURE:

CRA 1001 (29) Rev. 6, September 13, 1999, Form SP-10

WELL PURGING FIELD INFORMATION FORM

JOB# 15867 -

SITE/PROJECT NAME: Parcel 2 Site

WELL# MW9

WELL PURGING INFORMATION

061902	061902	1.5	7.5
PURGE DATE (MM DD YY)	SAMPLE DATE (MM DD YY)	WATER VOL. IN CASING (LITRES/GALLONS)	ACTUAL VOLUME PURGED (LITRES/GALLONS)

PURGING AND SAMPLING EQUIPMENT

PURGING EQUIPMENT.........DEDICATED [✓ Y] N (CIRCLE ONE)

SAMPLING EQIPMENT.........DEDICATED [✓ Y] N (CIRCLE ONE)

PURGING DEVICE: B

SAMPLING DEVICE: G

A - SUBMERSIBLE PUMP, B - PERISTALTIC PUMP, C - BLADDER PUMP, D - GAS LIFT PUMP, E - PURGE PUMP, F - DIPPER BOTTLE, G - BAILER, H - WATERRA®

X- PURGING OTHER (SPECIFY)

X- SAMPLING OTHER (SPECIFY)

PURGING DEVICE: C

SAMPLING DEVICE: A

A - TEFLON, B - STAINLESS STEEL, C - POLYPROPYLENE - tubing, D - PVC, E - POLYETHYLENE

X- PURGING OTHER (SPECIFY)

X- SAMPLING OTHER (SPECIFY)

PURGING DEVICE:

SAMPLING DEVICE:

A - TEFLON, B - TYGON, C - ROPE, X- (SPECIFY), D - POLYPROPYLENE, E - POLYETHYLENE, F - SILICONE, G - COMBINATION TEFLON/POLYPROPYLENE

X- PURGING OTHER (SPECIFY)

X- SAMPLING OTHER (SPECIFY)

FILTERING DEVICES 0.45: A - IN-LINE DISPOSABLE, B - PRESSURE, C - VACUUM

FIELD MEASUREMENTS

WELL ELEVATION: (m/ft)

GROUNDWATER ELEVATION: 580.61 (m/[✓ ft])

DEPTH TO WATER: 9.1 (m/[✓ ft])

WELL DEPTH: 17.5 (m/[✓ ft])

pH (std)	TURBIDITY (ntu)	CONDUCTIVITY (μm/cm) AT 25°C	SAMPLE TEMPERATURE (°C)
12.1	51	1050	NA
9.2	240	1710	NA
7.6	62	1780	NA
8.0	25	1700	NA
8.0	15	1720	NA

FIELD COMMENTS

SAMPLE APPEARANCE: ODOR: COLOR: TURBIDITY:

WEATHER CONDITIONS: WIND SPEED — DIRECTION — PRECIPITATION Y/N OUTLOOK no

SPECIFIC COMMENTS

thermometer battery dead - no readings

I CERTIFY THAT SAMPLING PROCEDURES WERE IN ACCORDANCE WITH APPLICABLE CRA PROTOCOLS

CRA

DATE: ~~7/1~~ 7/1/02

PRINT: J Pietraszek

SIGNATURE: J Pietrasz

CRA 1001 (29) Rev. 6, September 13, 1999, Form SP-10

WELL PURGING FIELD INFORMATION FORM

JOB# 15867-

SITE/PROJECT NAME: Parcel Q Site

WELL# MW9A

WELL PURGING INFORMATION

061902	061902	3.8	22.8
PURGE DATE (MM DD YY)	SAMPLE DATE (MM DD YY)	WATER VOL. IN CASING (LITRES/GALLONS)	ACTUAL VOLUME PURGED (LITRES/GALLONS)

PURGING AND SAMPLING EQUIPMENT

PURGING EQUIPMENT.........DEDICATED Y N (CIRCLE ONE)

SAMPLING EQIPMENT.........DEDICATED Y N (CIRCLE ONE)

PURGING DEVICE: G

SAMPLING DEVICE: G

A - SUBMERSIBLE PUMP, B - PERISTALTIC PUMP, C - BLADDER PUMP, D - GAS LIFT PUMP, E - PURGE PUMP, F - DIPPER BOTTLE, G - BAILER, H - WATERRA®

X- ______ PURGING OTHER (SPECIFY)

X- ______ SAMPLING OTHER (SPECIFY)

PURGING DEVICE: A

SAMPLING DEVICE: A

A - TEFLON, B - STAINLESS STEEL, C - POLYPROPYLENE, D - PVC, E - POLYETHYLENE

X- ______ PURGING OTHER (SPECIFY)

X- ______ SAMPLING OTHER (SPECIFY)

PURGING DEVICE: ______

SAMPLING DEVICE: ______

A - TEFLON, B - TYGON, C - ROPE, X- ______ (SPECIFY), D - POLYPROPYLENE, E - POLYETHYLENE, F - SILICONE, G - COMBINATION TEFLON/POLYPROPYLENE

X- ______ PURGING OTHER (SPECIFY)

X- ______ SAMPLING OTHER (SPECIFY)

FILTERING DEVICES 0.45 ______ A - IN-LINE DISPOSABLE B - PRESSURE C - VACUUM

FIELD MEASUREMENTS

WELL ELEVATION ______ (m/ft)

GROUNDWATER ELEVATION 578.17 (m/[✓ ft])

DEPTH TO WATER 11.38 (m/[✓ ft])

WELL DEPTH 34.5 (m/[✓ ft])

pH (std)	TURBIDITY (ntu)	CONDUCTIVITY (µm/cm) AT 25°C	SAMPLE TEMPERATURE (°C)
10.2	133	490	NA
10.2	342	650	NA
9.8	285	640	NA
9.5	407	760	NA
9.5	365	800	NA
9.4	353	820	

FIELD COMMENTS

SAMPLE APPEARANCE: ______ ODOR: ______ COLOR: ______ TURBIDITY: ______

WEATHER CONDITIONS: WIND SPEED — DIRECTION — PRECIPITATION Y/N OUTLOOK no

SPECIFIC COMMENTS

thermometer battery dead - no readings

I CERTIFY THAT SAMPLING PROCEDURES WERE IN ACCORDANCE WITH APPLICABLE CRA PROTOCOLS

CRA

DATE: 9/1/02

PRINT: J. Pietroszek

SIGNATURE: Pietrasz

CRA 1001 (29) Rev. 6, September 13, 1999, Form SP-10

WELL PURGING FIELD INFORMATION FORM

JOB# 15867-

SITE/PROJECT NAME: Parcel 2 Site

WELL# MW11

WELL PURGING INFORMATION

061902	061902	1.3	5.2
PURGE DATE (MM DD YY)	SAMPLE DATE (MM DD YY)	WATER VOL. IN CASING (LITRES/GALLONS)	ACTUAL VOLUME PURGED (LITRES/GALLONS)

PURGING AND SAMPLING EQUIPMENT

PURGING EQUIPMENT.........DEDICATED [✓ Y] N (CIRCLE ONE)

SAMPLING EQIPMENT.........DEDICATED [✓ Y] N (CIRCLE ONE)

PURGING DEVICE: B — A - SUBMERSIBLE PUMP, B - PERISTALTIC PUMP, C - BLADDER PUMP, D - GAS LIFT PUMP, E - PURGE PUMP, F - DIPPER BOTTLE, G - BAILER, H - WATERRA®

SAMPLING DEVICE: G

X- ______ PURGING OTHER (SPECIFY)

X- ______ SAMPLING OTHER (SPECIFY)

PURGING DEVICE: C — A - TEFLON, B - STAINLESS STEEL, C - POLYPROPYLENE -tubing, D - PVC, E - POLYETHYLENE

SAMPLING DEVICE: A

X- ______ PURGING OTHER (SPECIFY)

X- ______ SAMPLING OTHER (SPECIFY)

PURGING DEVICE: ☐ — A - TEFLON, B - TYGON, C - ROPE, D - POLYPROPYLENE, E - POLYETHYLENE, F - SILICONE, G - COMBINATION TEFLON/POLYPROPYLENE

SAMPLING DEVICE: ☐

X- ______ (SPECIFY)

X- ______ PURGING OTHER (SPECIFY)

X- ______ SAMPLING OTHER (SPECIFY)

FILTERING DEVICES 0.45 ☐ A - IN-LINE DISPOSABLE B - PRESSURE C - VACUUM

FIELD MEASUREMENTS

WELL ELEVATION ______ (m/ft)

DEPTH TO WATER 7.2 (m/[✓ ft])

GROUNDWATER ELEVATION 583.20 (m/[✓ ft])

WELL DEPTH 17.3 (m/[✓ ft])

pH	TURBIDITY	CONDUCTIVITY	SAMPLE TEMPERATURE
7.6 (std)	36. (ntu)	1530. (μm/cm) AT 25°C	NA. (°C)
7.3 (std)	9. (ntu)	1520. (μm/cm) AT 25°C	NA. (°C)
7.3 (std)	2. (ntu)	1610. (μm/cm) AT 25°C	NA. (°C)
7.3 (std)	3. (ntu)	1550. (μm/cm) AT 25°C	WA. (°C)
. (std)	. (ntu)	. (μm/cm) AT 25°C	. (°C)

FIELD COMMENTS

SAMPLE APPEARANCE: ______ ODOR: ______ COLOR: ______ TURBIDITY: ______

WEATHER CONDITIONS: WIND SPEED — DIRECTION — PRECIPITATION Y/N OUTLOOK no

SPECIFIC COMMENTS

thermometer battery died - no readings

I CERTIFY THAT SAMPLING PROCEDURES WERE IN ACCORDANCE WITH APPLICABLE CRA PROTOCOLS

CRA

7/1/02	J. Pietraszek	
DATE	PRINT	SIGNATURE

WELL PURGING FIELD INFORMATION FORM

JOB# 1 5 8 6 7 -

SITE/PROJECT NAME: Parcel 2 Site

WELL# M W 11 A

WELL PURGING INFORMATION

0 6 1 9 0 2	0 6 2 0 0 2	2.7	8.1
PURGE DATE (MM DD YY)	SAMPLE DATE (MM DD YY)	WATER VOL. IN CASING (LITRES/GALLONS)	ACTUAL VOLUME PURGED (LITRES/GALLONS)

PURGING AND SAMPLING EQUIPMENT

PURGING EQUIPMENT.........DEDICATED [✓ Y] N (CIRCLE ONE)

SAMPLING EQIPMENT.........DEDICATED [✓ Y] N (CIRCLE ONE)

PURGING DEVICE G — A - SUBMERSIBLE PUMP, B - PERISTALTIC PUMP, C - BLADDER PUMP, D - GAS LIFT PUMP, E - PURGE PUMP, F - DIPPER BOTTLE, G - BAILER, H - WATERRA®; X- ____ PURGING OTHER (SPECIFY)

SAMPLING DEVICE G — X- ____ SAMPLING OTHER (SPECIFY)

PURGING DEVICE A — A - TEFLON, B - STAINLESS STEEL, C - POLYPROPYLENE, D - PVC, E - POLYETHYLENE; X- ____ PURGING OTHER (SPECIFY)

SAMPLING DEVICE A — X- ____ SAMPLING OTHER (SPECIFY)

PURGING DEVICE ____ — A - TEFLON, B - TYGON, C - ROPE, X- ____ (SPECIFY), D - POLYPROPYLENE, E - POLYETHYLENE, F - SILICONE, G - COMBINATION TEFLON/POLYPROPYLENE; X- ____ PURGING OTHER (SPECIFY)

SAMPLING DEVICE ____ — X- ____ SAMPLING OTHER (SPECIFY)

FILTERING DEVICES 0.45 ____ A - IN-LINE DISPOSABLE B - PRESSURE C - VACUUM

FIELD MEASUREMENTS

WELL ELEVATION ____ (m/ft)

GROUNDWATER ELEVATION 580.05 (m/[✓ ft])

DEPTH TO WATER 10.15 (m/[✓ ft])

WELL DEPTH 27.05 (m/[✓ ft])

pH	TURBIDITY	CONDUCTIVITY	SAMPLE TEMPERATURE
8.7 (std)	67 (ntu)	1110 (µm/cm) AT 25°C	NA (°C)
7.8 (std)	637 (ntu)	970 (µm/cm) AT 25°C	NA (°C)
7.5 (std)	360 (ntu)	930 (µm/cm) AT 25°C	15.3 (°C)
(std)	(ntu)	(µm/cm) AT 25°C	(°C)
(std)	(ntu)	(µm/cm) AT 25°C	(°C)

FIELD COMMENTS

SAMPLE APPEARANCE: ____ ODOR: ____ COLOR: ____ TURBIDITY: ____

WEATHER CONDITIONS: WIND SPEED ____ DIRECTION ____ PRECIPITATION Y/N OUTLOOK ____

SPECIFIC COMMENTS

6/19/02 thermometer battery died - no readings / Well dry @ 7.0 gal

6/20/02 new thermometer / Well dry at 3.0 gal

I CERTIFY THAT SAMPLING PROCEDURES WERE IN ACCORDANCE WITH APPLICABLE CRA PROTOCOLS

CRA 7/1/02 DATE J Pietroszek PRINT SIGNATURE

CRA 1001 (29) Rev. 6, September 13, 1999, Form SP-10

WELL PURGING FIELD INFORMATION FORM

JOB# 15867 -

ITE/PROJECT NAME: Parcel 2 Site

WELL# MW12

WELL PURGING INFORMATION

062002	062002	1.2	4.8
PURGE DATE (MM DD YY)	SAMPLE DATE (MM DD YY)	WATER VOL. IN CASING (LITRES/GALLONS)	ACTUAL VOLUME PURGED (LITRES/GALLONS)

PURGING AND SAMPLING EQUIPMENT

PURGING EQUIPMENT.........DEDICATED [✓ Y] N (CIRCLE ONE)

SAMPLING EQIPMENT.........DEDICATED [✓ Y] N (CIRCLE ONE)

PURGING DEVICE: B

SAMPLING DEVICE: G

A - SUBMERSIBLE PUMP; B - PERISTALTIC PUMP; C - BLADDER PUMP; D - GAS LIFT PUMP; E - PURGE PUMP; F - DIPPER BOTTLE; G - BAILER; H - WATERRA®

X- ____ PURGING OTHER (SPECIFY)

X- ____ SAMPLING OTHER (SPECIFY)

PURGING DEVICE: C

SAMPLING DEVICE: A

A - TEFLON; B - STAINLESS STEEL; C - POLYPROPYLENE - tubing; D - PVC; E - POLYETHYLENE

X- ____ PURGING OTHER (SPECIFY)

X- ____ SAMPLING OTHER (SPECIFY)

PURGING DEVICE: ____

SAMPLING DEVICE: ____

A - TEFLON; B - TYGON; C - ROPE; X- ____ (SPECIFY); D - POLYPROPYLENE; E - POLYETHYLENE; F - SILICONE; G - COMBINATION TEFLON/POLYPROPYLENE

X- ____ PURGING OTHER (SPECIFY)

X- ____ SAMPLING OTHER (SPECIFY)

FILTERING DEVICES 0.45 ____ A - IN-LINE DISPOSABLE B - PRESSURE C - VACUUM

FIELD MEASUREMENTS

WELL ELEVATION ____ (m/ft)

DEPTH TO WATER 9.05 (m/[✓ ft])

GROUNDWATER ELEVATION 581.63 (m/[✓ ft])

WELL DEPTH 12.0 (m/[✓ ft])

pH	TURBIDITY	CONDUCTIVITY	SAMPLE TEMPERATURE
6.4 (std)	9.3 (ntu)	1480 (μm/cm) AT 25°C	15.6 (°C)
6.4 (std)	7.5 (ntu)	1370 (μm/cm) AT 25°C	13.8 (°C)
6.4 (std)	5.9 (ntu)	1390 (μm/cm) AT 25°C	14.1 (°C)
6.4 (std)	4.1 (ntu)	1410 (μm/cm) AT 25°C	14.8 (°C)
(std)	(ntu)	(μm/cm) AT 25°C	(°C)

FIELD COMMENTS

SAMPLE APPEARANCE: sl. cloudy ODOR: ____ COLOR: light yellow TURBIDITY: ____

WEATHER CONDITIONS: WIND SPEED — DIRECTION — PRECIPITATION Y/N OUTLOOK no

SPECIFIC COMMENTS ____

I CERTIFY THAT SAMPLING PROCEDURES WERE IN ACCORDANCE WITH APPLICABLE CRA PROTOCOLS

CRA

DATE: 7/1/02

PRINT: J Pietraszek

SIGNATURE: JPietraszek

CRA 1001 (29) Rev. 6, September 13, 1999, Form SP-10

WELL PURGING FIELD INFORMATION FORM

JOB# 15867 -

SITE/PROJECT NAME: Parcel 2 Site

WELL# MW12A

WELL PURGING INFORMATION

061902	062002	3.0	6.0
PURGE DATE (MM DD YY)	SAMPLE DATE (MM DD YY)	WATER VOL. IN CASING (LITRES/GALLONS)	ACTUAL VOLUME PURGED (LITRES/GALLONS)

PURGING AND SAMPLING EQUIPMENT

PURGING EQUIPMENT.........DEDICATED [✓ Y] N (CIRCLE ONE)

SAMPLING EQIPMENT.........DEDICATED [✓ Y] N (CIRCLE ONE)

PURGING DEVICE G
SAMPLING DEVICE G
A - SUBMERSIBLE PUMP, B - PERISTALTIC PUMP, C - BLADDER PUMP, D - GAS LIFT PUMP, E - PURGE PUMP, F - DIPPER BOTTLE, G - BAILER, H - WATERRA®
X- PURGING OTHER (SPECIFY)
X- SAMPLING OTHER (SPECIFY)

PURGING DEVICE A
SAMPLING DEVICE A
A - TEFLON, B - STAINLESS STEEL, C - POLYPROPYLENE, D - PVC, E - POLYETHYLENE
X- PURGING OTHER (SPECIFY)
X- SAMPLING OTHER (SPECIFY)

PURGING DEVICE
SAMPLING DEVICE
A - TEFLON, B - TYGON, C - ROPE, X- (SPECIFY), D - POLYPROPYLENE, E - POLYETHYLENE, F - SILICONE, G - COMBINATION TEFLON/POLYPROPYLENE
X- PURGING OTHER (SPECIFY)
X- SAMPLING OTHER (SPECIFY)

FILTERING DEVICES 0.45 — A - IN-LINE DISPOSABLE, B - PRESSURE, C - VACUUM

FIELD MEASUREMENTS

WELL ELEVATION (m/ft)
GROUNDWATER ELEVATION 580.05 (m/ft)
DEPTH TO WATER 10.5 (m/ft)
WELL DEPTH 29.2 (m/ft)

pH (std)	TURBIDITY (ntu)	CONDUCTIVITY (µm/cm) AT 25°C	SAMPLE TEMPERATURE (°C)
11.8	181	810	NA
10.4	315	660	16.2

FIELD COMMENTS

SAMPLE APPEARANCE: Sl. cloudy ODOR: COLOR: lght brown TURBIDITY:

WEATHER CONDITIONS: WIND SPEED — DIRECTION — PRECIPITATION Y/N OUTLOOK no

SPECIFIC COMMENTS

6/19/02 Thermometer battery dead / Well dry @ 4.5 gal

6/20/02 Well dry @ 3.0 gal

I CERTIFY THAT SAMPLING PROCEDURES WERE IN ACCORDANCE WITH APPLICABLE CRA PROTOCOLS

CRA

DATE 7/1/02 PRINT J Pietraszek SIGNATURE

WELL PURGING FIELD INFORMATION FORM

JOB# 15867 -

SITE/PROJECT NAME: Parcel 2 Site

WELL# MW2

WELL PURGING INFORMATION

PURGE DATE (MM DD YY): 092402

SAMPLE DATE (MM DD YY): 092402

WATER VOL. IN CASING (LITRES/[✓ GALLONS]): 1.2

ACTUAL VOLUME PURGED (LITRES/[✓ GALLONS]): 5.0

PURGING AND SAMPLING EQUIPMENT

PURGING EQUIPMENT.........DEDICATED [✓ Y] N (CIRCLE ONE)

SAMPLING EQIPMENT.........DEDICATED [✓ Y] N (CIRCLE ONE)

PURGING DEVICE: G

SAMPLING DEVICE: G

A - SUBMERSIBLE PUMP
B - PERISTALTIC PUMP
C - BLADDER PUMP
D - GAS LIFT PUMP
E - PURGE PUMP
F - DIPPER BOTTLE
G - BAILER
H - WATERRA®

X- ______ PURGING OTHER (SPECIFY)

X- ______ SAMPLING OTHER (SPECIFY)

PURGING DEVICE: A

SAMPLING DEVICE: A

A - TEFLON
B - STAINLESS STEEL
C - POLYPROPYLENE
D - PVC
E - POLYETHYLENE

X- ______ PURGING OTHER (SPECIFY)

X- ______ SAMPLING OTHER (SPECIFY)

PURGING DEVICE: ______

SAMPLING DEVICE: ______

A - TEFLON
B - TYGON
C - ROPE
X- ______ (SPECIFY)
D - POLYPROPYLENE
E - POLYETHYLENE
F - SILICONE
G - COMBINATION TEFLON/POLYPROPYLENE

X- ______ PURGING OTHER (SPECIFY)

X- ______ SAMPLING OTHER (SPECIFY)

FILTERING DEVICES 0.45 ______ A - IN-LINE DISPOSABLE B - PRESSURE C - VACUUM

FIELD MEASUREMENTS

WELL ELEVATION toc 591.23 (m/[✓ ft])

GROUNDWATER ELEVATION 581.43 (m/[✓ ft])

DEPTH TO WATER 9.80 (m/[✓ ft])

WELL DEPTH 17.05 (m/[✓ ft])

pH (std)	TURBIDITY (ntu)	CONDUCTIVITY (µm/cm) AT 25°C	SAMPLE TEMPERATURE (°C)
7.1	21	1820	19.2
7.0	6	1760	19.1
7.0	3	1760	18.6
7.0	2	1760	18.6

FIELD COMMENTS

SAMPLE APPEARANCE: clear w/ blk & red seds ODOR: ______ COLOR: ______ TURBIDITY: ______

WEATHER CONDITIONS: WIND SPEED ______ DIRECTION ______ PRECIPITATION Y/[✓ N] OUTLOOK ______

SPECIFIC COMMENTS ______

I CERTIFY THAT SAMPLING PROCEDURES WERE IN ACCORDANCE WITH APPLICABLE CRA PROTOCOLS

CRA

DATE: 9/02

PRINT: J. Pietraszek-Polovich

SIGNATURE: J Polovich

CRA 1001 (29) Rev. 6, September 13, 1999, Form SP-10

WELL PURGING FIELD INFORMATION FORM

JOB# 15867 -

SITE/PROJECT NAME: Parcel 2 Site

WELL# MW4

WELL PURGING INFORMATION

092502	092502	1.3	5.5
PURGE DATE (MM DD YY)	SAMPLE DATE (MM DD YY)	WATER VOL. IN CASING (LITRES/GALLONS)	ACTUAL VOLUME PURGED (LITRES/GALLONS)

PURGING AND SAMPLING EQUIPMENT

PURGING EQUIPMENT.........DEDICATED [✓ Y] N (CIRCLE ONE)

SAMPLING EQIPMENT.........DEDICATED [✓ Y] N (CIRCLE ONE)

PURGING DEVICE G — A - SUBMERSIBLE PUMP, B - PERISTALTIC PUMP, C - BLADDER PUMP, D - GAS LIFT PUMP, E - PURGE PUMP, F - DIPPER BOTTLE, G - BAILER, H - WATERRA®

SAMPLING DEVICE G

X- ______ PURGING OTHER (SPECIFY)

X- ______ SAMPLING OTHER (SPECIFY)

PURGING DEVICE A — A - TEFLON, B - STAINLESS STEEL, C - POLYPROPYLENE, D - PVC, E - POLYETHYLENE

SAMPLING DEVICE A

X- ______ PURGING OTHER (SPECIFY)

X- ______ SAMPLING OTHER (SPECIFY)

PURGING DEVICE ____ — A - TEFLON, B - TYGON, C - ROPE, D - POLYPROPYLENE, E - POLYETHYLENE, F - SILICONE, G - COMBINATION TEFLON/POLYPROPYLENE, X- ______ (SPECIFY)

SAMPLING DEVICE ____

X- ______ PURGING OTHER (SPECIFY)

X- ______ SAMPLING OTHER (SPECIFY)

FILTERING DEVICES 0.45 ____ A - IN-LINE DISPOSABLE B - PRESSURE C - VACUUM

FIELD MEASUREMENTS

WELL ELEVATION toc 590.51 (m [✓ ft])

GROUNDWATER ELEVATION 581.38 (m [✓ ft])

DEPTH TO WATER 9.13 (m [✓ ft])

WELL DEPTH 17.01 (m [✓ ft])

pH	TURBIDITY	CONDUCTIVITY	SAMPLE TEMPERATURE
6.9 (std)	26 (ntu)	1630 (μm/cm) AT 25°C	17.7 (°C)
6.8 (std)	4 (ntu)	1670 (μm/cm) AT 25°C	17.7 (°C)
6.8 (std)	2 (ntu)	1670 (μm/cm) AT 25°C	17.6 (°C)
6.8 (std)	2 (ntu)	1670 (μm/cm) AT 25°C	17.5 (°C)
(std)	(ntu)	(μm/cm) AT 25°C	(°C)

FIELD COMMENTS

SAMPLE APPEARANCE: ______ ODOR: ______ COLOR: clear w/ blk seds TURBIDITY: ______

WEATHER CONDITIONS: WIND SPEED ______ DIRECTION ______ PRECIPITATION Y/[✓ N] OUTLOOK ______

SPECIFIC COMMENTS ______

I CERTIFY THAT SAMPLING PROCEDURES WERE IN ACCORDANCE WITH APPLICABLE CRA PROTOCOLS

CRA 9/02 J. Pietraszek-Polovich J Polovich

DATE PRINT SIGNATURE

CRA 1001 (29) Rev. 6, September 13, 1999, Form SP-10

WELL PURGING FIELD INFORMATION FORM

JOB# 15867 -

SITE/PROJECT NAME: Parcel 2 Site

WELL# MW4A

WELL PURGING INFORMATION

092302	092502	2.5	10.0
PURGE DATE (MM DD YY)	SAMPLE DATE (MM DD YY)	WATER VOL. IN CASING (LITRES/ [✓ GALLONS])	ACTUAL VOLUME PURGED (LITRES/ [✓ GALLONS])

PURGING AND SAMPLING EQUIPMENT

PURGING EQUIPMENT.........DEDICATED [✓ Y] N (CIRCLE ONE)

SAMPLING EQIPMENT.........DEDICATED [✓ Y] N (CIRCLE ONE)

PURGING DEVICE: G
SAMPLING DEVICE: G
A - SUBMERSIBLE PUMP; B - PERISTALTIC PUMP; C - BLADDER PUMP; D - GAS LIFT PUMP; E - PURGE PUMP; F - DIPPER BOTTLE; G - BAILER; H - WATERRA®
X- ______ PURGING OTHER (SPECIFY)
X- ______ SAMPLING OTHER (SPECIFY)

PURGING DEVICE: A
SAMPLING DEVICE: A
A - TEFLON; B - STAINLESS STEEL; C - POLYPROPYLENE; D - PVC; E - POLYETHYLENE
X- ______ PURGING OTHER (SPECIFY)
X- ______ SAMPLING OTHER (SPECIFY)

PURGING DEVICE: ______
SAMPLING DEVICE: ______
A - TEFLON; B - TYGON; C - ROPE; X- ______ (SPECIFY); D - POLYPROPYLENE; E - POLYETHYLENE; F - SILICONE; G - COMBINATION TEFLON/POLYPROPYLENE
X- ______ PURGING OTHER (SPECIFY)
X- ______ SAMPLING OTHER (SPECIFY)

FILTERING DEVICES 0.45 ______ A - IN-LINE DISPOSABLE B - PRESSURE C - VACUUM

FIELD MEASUREMENTS

WELL ELEVATION toc 590.61 ~~589.69~~ (ipp) (m/ [✓ ft])

GROUNDWATER ELEVATION 578.41 (m/ [✓ ft])

DEPTH TO WATER 12.20 (m/ [✓ ft])

WELL DEPTH 29.27 (m/ [✓ ft])

pH (std)	TURBIDITY (ntu)	CONDUCTIVITY (µm/cm) AT 25°C	SAMPLE TEMPERATURE (°C)
6.5	77	670	16.0
7.4	405	720	15.4
8.1	142	720	16.2
7.8	143	700	15.0

FIELD COMMENTS

SAMPLE APPEARANCE: ______ ODOR: ______ COLOR: dk brown TURBIDITY: ______

WEATHER CONDITIONS: WIND SPEED ______ DIRECTION ______ PRECIPITATION Y/ [✓ N] OUTLOOK ______

SPECIFIC COMMENTS
Well dry @ 5.0g on 9/23/02
Well dry @ ~~2.5~~ 4.0 g on 9/24/02
Sampled on 9/25/02 after purging 1 volume.

I CERTIFY THAT SAMPLING PROCEDURES WERE IN ACCORDANCE WITH APPLICABLE CRA PROTOCOLS

CRA

DATE: 9/02 PRINT: J. Pietraszek-Polovich SIGNATURE: Polovich

CRA 1001 (29) Rev. 6, September 13, 1999, Form SP-10

WELL PURGING FIELD INFORMATION FORM

JOB# 1 5 8 6 7 -

SITE/PROJECT NAME: Parcel 2 Site

WELL# MW9

WELL PURGING INFORMATION

092502	092502	1.5	9.0
PURGE DATE (MM DD YY)	SAMPLE DATE (MM DD YY)	WATER VOL. IN CASING (LITRES/GALLONS)	ACTUAL VOLUME PURGED (LITRES/GALLONS)

PURGING AND SAMPLING EQUIPMENT

PURGING EQUIPMENT.........DEDICATED [✓ Y] N (CIRCLE ONE)

SAMPLING EQIPMENT.........DEDICATED [✓ Y] N (CIRCLE ONE)

PURGING DEVICE G
SAMPLING DEVICE G
A - SUBMERSIBLE PUMP, B - PERISTALTIC PUMP, C - BLADDER PUMP, D - GAS LIFT PUMP, E - PURGE PUMP, F - DIPPER BOTTLE, G - BAILER, H - WATERRA®
X- ______ PURGING OTHER (SPECIFY)
X- ______ SAMPLING OTHER (SPECIFY)

PURGING DEVICE A
SAMPLING DEVICE A
A - TEFLON, B - STAINLESS STEEL, C - POLYPROPYLENE, D - PVC, E - POLYETHYLENE
X- ______ PURGING OTHER (SPECIFY)
X- ______ SAMPLING OTHER (SPECIFY)

PURGING DEVICE
SAMPLING DEVICE
A - TEFLON, B - TYGON, C - ROPE, X- ______ (SPECIFY), D - POLYPROPYLENE, E - POLYETHYLENE, F - SILICONE, G - COMBINATION TEFLON/POLYPROPYLENE
X- ______ PURGING OTHER (SPECIFY)
X- ______ SAMPLING OTHER (SPECIFY)

FILTERING DEVICES 0.45 ______ A - IN-LINE DISPOSABLE B - PRESSURE C - VACUUM

FIELD MEASUREMENTS

WELL ELEVATION toc 589.71 (m/[✓ ft])

GROUNDWATER ELEVATION 581.31 (m/[✓ ft])

DEPTH TO WATER 8.40 (m/[✓ ft])

WELL DEPTH 17.50 (m/[✓ ft])

pH	TURBIDITY	CONDUCTIVITY	SAMPLE TEMPERATURE
6.2 (std)	76. (ntu)	1500. (µm/cm) AT 25°C	18.4 (°C)
6.8 (std)	28. (ntu)	1530. (µm/cm) AT 25°C	18.2 (°C)
6.9 (std)	25. (ntu)	1490. (µm/cm) AT 25°C	17.8 (°C)
6.9 (std)	25. (ntu)	1550. (µm/cm) AT 25°C	17.8 (°C)
6.9 (std)	19. (ntu)	1570. (µm/cm) AT 25°C	17.9 (°C)

FIELD COMMENTS

SAMPLE APPEARANCE: clear w/ blk seds ODOR: ______ COLOR: ______ TURBIDITY: ______

WEATHER CONDITIONS: WIND SPEED ______ DIRECTION ______ PRECIPITATION Y/[✓ N] OUTLOOK ______

SPECIFIC COMMENTS

I CERTIFY THAT SAMPLING PROCEDURES WERE IN ACCORDANCE WITH APPLICABLE CRA PROTOCOLS

CRA

9/02 J Pietroszek-Polovich Polovich
DATE PRINT SIGNATURE

CRA 1001 (29) Rev. 6, September 13, 1999, Form SP-10

WELL PURGING FIELD INFORMATION FORM

JOB# 15867-

SITE/PROJECT NAME: Parcel 2 Site

WELL# MW9A

WELL PURGING INFORMATION

PURGE DATE (MM DD YY): 092502

SAMPLE DATE (MM DD YY): 092602

WATER VOL. IN CASING (LITRES/GALLONS): 3.0

ACTUAL VOLUME PURGED (LITRES/GALLONS): 27.0

PURGING AND SAMPLING EQUIPMENT

PURGING EQUIPMENT.........DEDICATED [✓ Y] N (CIRCLE ONE)

SAMPLING EQIPMENT.........DEDICATED [✓ Y] N (CIRCLE ONE)

PURGING DEVICE: B

SAMPLING DEVICE: G

A - SUBMERSIBLE PUMP; B - PERISTALTIC PUMP; C - BLADDER PUMP; D - GAS LIFT PUMP; E - PURGE PUMP; F - DIPPER BOTTLE; G - BAILER; H - WATERRA®

X- ______ PURGING OTHER (SPECIFY)

X- ______ SAMPLING OTHER (SPECIFY)

PURGING DEVICE: C

SAMPLING DEVICE: A

A - TEFLON; B - STAINLESS STEEL; C - POLYPROPYLENE; D - PVC; E - POLYETHYLENE

X- ______ PURGING OTHER (SPECIFY)

X- ______ SAMPLING OTHER (SPECIFY)

PURGING DEVICE: ______

SAMPLING DEVICE: ______

A - TEFLON; B - TYGON; C - ROPE; X- ______ (SPECIFY); D - POLYPROPYLENE; E - POLYETHYLENE; F - SILICONE; G - COMBINATION TEFLON/POLYPROPYLENE

X- ______ PURGING OTHER (SPECIFY)

X- ______ SAMPLING OTHER (SPECIFY)

FILTERING DEVICES 0.45 ______ A - IN-LINE DISPOSABLE B - PRESSURE C - VACUUM

FIELD MEASUREMENTS

WELL ELEVATION toc: 589.55 (m/[✓ ft])

GROUNDWATER ELEVATION: 578.10 (m/[✓ ft])

DEPTH TO WATER: 11.45 (m/[✓ ft])

WELL DEPTH: 30.50 (m/[✓ ft])

	pH	TURBIDITY	CONDUCTIVITY	SAMPLE TEMPERATURE
9/25/02	9.0 (std)	149 (ntu)	430 (μm/cm) AT 25°C	15.9 (°C)
	8.5 (std)	510 (ntu)	580 (μm/cm) AT 25°C	16.1 (°C)
	8.3 (std)	305 (ntu)	600 (μm/cm) AT 25°C	15.3 (°C)
	8.2 (std)	344 (ntu)	620 (μm/cm) AT 25°C	14.9 (°C)
9/26/02	8.4 (std)	98 (ntu)	650 (μm/cm) AT 25°C	14.8 (°C)

over →

FIELD COMMENTS

SAMPLE APPEARANCE: Sl. Cloudy ODOR: ______ COLOR: ______ TURBIDITY: ______

WEATHER CONDITIONS: WIND SPEED ______ DIRECTION ______ PRECIPITATION Y/[✓ N] OUTLOOK ______

SPECIFIC COMMENTS: Purged ~12.0 g 9/25/02 - had to ship samples
Purged ~14.0 g 9/26/02 - then sampled

I CERTIFY THAT SAMPLING PROCEDURES WERE IN ACCORDANCE WITH APPLICABLE CRA PROTOCOLS

CRA

DATE: 9/02

PRINT: J. Pietraszek-Polovich

SIGNATURE: J. Polovich

CRA 1001 (29) Rev. 6, September 13, 1999, Form SP-10

WELL PURGING FIELD INFORMATION FORM

JOB# 15867 -

SITE/PROJECT NAME: Parcel 2 Site

WELL# MW11

WELL PURGING INFORMATION

09 24 02	09 25 02	1.5	13.5
PURGE DATE (MM DD YY)	SAMPLE DATE (MM DD YY)	WATER VOL. IN CASING (LITRES/GALLONS)	ACTUAL VOLUME PURGED (LITRES/GALLONS)

PURGING AND SAMPLING EQUIPMENT

PURGING EQUIPMENT.........DEDICATED Y N (CIRCLE ONE)

SAMPLING EQIPMENT.........DEDICATED Y N (CIRCLE ONE)

PURGING DEVICE G

SAMPLING DEVICE G

A - SUBMERSIBLE PUMP · B - PERISTALTIC PUMP · C - BLADDER PUMP · D - GAS LIFT PUMP · E - PURGE PUMP · F - DIPPER BOTTLE · G - BAILER · H - WATERRA®

X- ______ PURGING OTHER (SPECIFY)

X- ______ SAMPLING OTHER (SPECIFY)

PURGING DEVICE A

SAMPLING DEVICE A

A - TEFLON · B - STAINLESS STEEL · C - POLYPROPYLENE · D - PVC · E - POLYETHYLENE

X- ______ PURGING OTHER (SPECIFY)

X- ______ SAMPLING OTHER (SPECIFY)

PURGING DEVICE

SAMPLING DEVICE

A - TEFLON · B - TYGON · C - ROPE · X- ______ (SPECIFY) · D - POLYPROPYLENE · E - POLYETHYLENE · F - SILICONE · G - COMBINATION TEFLON/POLYPROPYLENE

X- ______ PURGING OTHER (SPECIFY)

X- ______ SAMPLING OTHER (SPECIFY)

FILTERING DEVICES 0.45 ______ A - IN-LINE DISPOSABLE · B - PRESSURE · C - VACUUM

FIELD MEASUREMENTS

WELL ELEVATION toc 590.40 (m [✓ ft])

GROUNDWATER ELEVATION 581.30 (m [✓ ft])

DEPTH TO WATER 9.10 (m [✓ ft])

WELL DEPTH 17.55 (m [✓ ft])

pH	TURBIDITY	CONDUCTIVITY	SAMPLE TEMPERATURE
7.1 (std)	18.3 (ntu)	930 (µm/cm) AT 25°C	18.8 (°C)
6.8 (std)	26.6 (ntu)	1370 (µm/cm) AT 25°C	18.1 (°C)
6.8 (std)	35.0 (ntu)	1510 (µm/cm) AT 25°C	17.8 (°C)
6.8 (std)	24.8 (ntu)	1550 (µm/cm) AT 25°C	18.1 (°C)
6.7 (std)	16.2 (ntu)	1560 (µm/cm) AT 25°C	17.8 (°C)

over →

FIELD COMMENTS

SAMPLE APPEARANCE: clear ODOR: ______ COLOR: ______ TURBIDITY: ______

WEATHER CONDITIONS: WIND SPEED ______ DIRECTION ______ PRECIPITATION Y/[✓ N] OUTLOOK ______

SPECIFIC COMMENTS MS/MSD taken on this well.

Purged 8.5 g on 9/24/02 - had to leave site

Returned 9/25/02 ; purged 5.0g - sampled

I CERTIFY THAT SAMPLING PROCEDURES WERE IN ACCORDANCE WITH APPLICABLE CRA PROTOCOLS

CRA 9/02 J. Pietraszek-Polovich

DATE PRINT SIGNATURE

WELL PURGING FIELD INFORMATION FORM

JOB# 1 5 8 6 7 -

ITE/PROJECT NAME: Parcel 2 Site

WELL# MW11A

WELL PURGING INFORMATION

0 9 2 3 0 2	0 9 2 5 0 2	2.5	10.0
PURGE DATE (MM DD YY)	SAMPLE DATE (MM DD YY)	WATER VOL. IN CASING (LITRES/[✓ GALLONS])	ACTUAL VOLUME PURGED (LITRES/[✓ GALLONS])

PURGING AND SAMPLING EQUIPMENT

PURGING EQUIPMENT.........DEDICATED [✓ Y] N (CIRCLE ONE)

SAMPLING EQIPMENT.........DEDICATED [✓ Y] N (CIRCLE ONE)

PURGING DEVICE: G
SAMPLING DEVICE: G
A - SUBMERSIBLE PUMP; B - PERISTALTIC PUMP; C - BLADDER PUMP; D - GAS LIFT PUMP; E - PURGE PUMP; F - DIPPER BOTTLE; G - BAILER; H - WATERRA®
X- ______ PURGING OTHER (SPECIFY)
X- ______ SAMPLING OTHER (SPECIFY)

PURGING DEVICE: A
SAMPLING DEVICE: A
A - TEFLON; B - STAINLESS STEEL; C - POLYPROPYLENE; D - PVC; E - POLYETHYLENE
X- ______ PURGING OTHER (SPECIFY)
X- ______ SAMPLING OTHER (SPECIFY)

PURGING DEVICE: ☐
SAMPLING DEVICE: ☐
A - TEFLON; B - TYGON; C - ROPE; X- ______ (SPECIFY); D - POLYPROPYLENE; E - POLYETHYLENE; F - SILICONE; G - COMBINATION TEFLON/POLYPROPYLENE
X- ______ PURGING OTHER (SPECIFY)
X- ______ SAMPLING OTHER (SPECIFY)

FILTERING DEVICES 0.45 ☐ A - IN-LINE DISPOSABLE B - PRESSURE C - VACUUM

FIELD MEASUREMENTS

WELL ELEVATION toc: 590.20 (m/[✓ ft])

GROUNDWATER ELEVATION: 579.00 (m/[✓ ft])

DEPTH TO WATER: 11.20 (m/[✓ ft])

WELL DEPTH: 27.05 (m/[✓ ft])

pH (std)	TURBIDITY (ntu)	CONDUCTIVITY (µm/cm) AT 25°C	SAMPLE TEMPERATURE (°C)
6.9	30	870	17.0
7.1	428	960	15.5
7.4	278	930	16.4
7.4	562	900	13.7

FIELD COMMENTS

SAMPLE APPEARANCE: ______ ODOR: ______ COLOR: ______ TURBIDITY: ______

WEATHER CONDITIONS: WIND SPEED ______ DIRECTION ______ PRECIPITATION Y/[✓ N] OUTLOOK ______

SPECIFIC COMMENTS
well dry @ 5.0 g on 9/23/02
well dry @ 2.5 g on 9/24/02
Well sampled on 9/25/02 after purging dry in the A.M.

I CERTIFY THAT SAMPLING PROCEDURES WERE IN ACCORDANCE WITH APPLICABLE CRA PROTOCOLS

CRA 9/02 DATE J. Pietraszek-Polovich PRINT Polovich SIGNATURE

CRA 1001 (29) Rev. 6, September 13, 1999, Form SP-10

WELL PURGING FIELD INFORMATION FORM

JOB# 15867-

TE/PROJECT NAME: Parcel 2 Site

WELL# MW12

WELL PURGING INFORMATION

092502	092502	1.3	9.0
PURGE DATE (MM DD YY)	SAMPLE DATE (MM DD YY)	WATER VOL. IN CASING (LITRES/GALLONS)	ACTUAL VOLUME PURGED (LITRES/GALLONS)

PURGING AND SAMPLING EQUIPMENT

PURGING EQUIPMENT.........DEDICATED [✓ Y] N (CIRCLE ONE)

SAMPLING EQIPMENT.........DEDICATED [✓ Y] N (CIRCLE ONE)

PURGING DEVICE G

SAMPLING DEVICE G

A - SUBMERSIBLE PUMP, B - PERISTALTIC PUMP, C - BLADDER PUMP, D - GAS LIFT PUMP, E - PURGE PUMP, F - DIPPER BOTTLE, G - BAILER, H - WATERRA®

X- PURGING OTHER (SPECIFY)

X- SAMPLING OTHER (SPECIFY)

PURGING DEVICE A

SAMPLING DEVICE A

A - TEFLON, B - STAINLESS STEEL, C - POLYPROPYLENE, D - PVC, E - POLYETHYLENE

X- PURGING OTHER (SPECIFY)

X- SAMPLING OTHER (SPECIFY)

PURGING DEVICE

SAMPLING DEVICE

A - TEFLON, B - TYGON, C - ROPE X- (SPECIFY), D - POLYPROPYLENE, E - POLYETHYLENE, F - SILICONE, G - COMBINATION TEFLON/POLYPROPYLENE

X- PURGING OTHER (SPECIFY)

X- SAMPLING OTHER (SPECIFY)

FILTERING DEVICES 0.45 A - IN-LINE DISPOSABLE B - PRESSURE C - VACUUM

FIELD MEASUREMENTS

WELL ELEVATION toc 589.69 (m [✓ ft])

GROUNDWATER ELEVATION 580.68 (m [✓ ft])

DEPTH TO WATER 9.01 (m [✓ ft])

WELL DEPTH 17.25 (m [✓ ft])

pH (std)	TURBIDITY (ntu)	CONDUCTIVITY (µm/cm) AT 25°C	SAMPLE TEMPERATURE (°C)
6.8	87	1340	18.4
6.7	38	1400	18.5
6.8	16	1410	18.5
6.7	9	1410	18.4
6.7	20	1420	18.2

FIELD COMMENTS

SAMPLE APPEARANCE: Sl. cloudy ODOR: COLOR: Sl. cloudy JD TURBIDITY:

WEATHER CONDITIONS: WIND SPEED DIRECTION PRECIPITATION Y [✓ N] OUTLOOK

SPECIFIC COMMENTS

I CERTIFY THAT SAMPLING PROCEDURES WERE IN ACCORDANCE WITH APPLICABLE CRA PROTOCOLS

CRA

DATE 9/02 PRINT J. Pietraszek Polovich SIGNATURE J Polovich

CRA 1001 (29) Rev. 6, September 13, 1999, Form SP-10

WELL PURGING FIELD INFORMATION FORM

JOB# 15867-

SITE/PROJECT NAME: Parcele 2 Site

WELL# MW12A

WELL PURGING INFORMATION

092302	092602	3.0	7.0
PURGE DATE (MM DD YY)	SAMPLE DATE (MM DD YY)	WATER VOL. IN CASING (LITRES/[✓ GALLONS])	ACTUAL VOLUME PURGED (LITRES/[✓ GALLONS])

PURGING AND SAMPLING EQUIPMENT

PURGING EQUIPMENT.........DEDICATED [✓ Y] N (CIRCLE ONE)

SAMPLING EQIPMENT.........DEDICATED [✓ Y] N (CIRCLE ONE)

PURGING DEVICE G

SAMPLING DEVICE G

A - SUBMERSIBLE PUMP
B - PERISTALTIC PUMP
C - BLADDER PUMP
D - GAS LIFT PUMP
E - PURGE PUMP
F - DIPPER BOTTLE
G - BAILER
H - WATERRA®

X- ______ PURGING OTHER (SPECIFY)

X- ______ SAMPLING OTHER (SPECIFY)

PURGING DEVICE A

SAMPLING DEVICE A

A - TEFLON
B - STAINLESS STEEL
C - POLYPROPYLENE
D - PVC
E - POLYETHYLENE

X- ______ PURGING OTHER (SPECIFY)

X- ______ SAMPLING OTHER (SPECIFY)

PURGING DEVICE

SAMPLING DEVICE

A - TEFLON
B - TYGON
C - ROPE
X- ______ (SPECIFY)
D - POLYPROPYLENE
E - POLYETHYLENE
F - SILICONE
G - COMBINATION TEFLON/POLYPROPYLENE

X- ______ PURGING OTHER (SPECIFY)

X- ______ SAMPLING OTHER (SPECIFY)

FILTERING DEVICES 0.45 ☐ A - IN-LINE DISPOSABLE B - PRESSURE C - VACUUM

FIELD MEASUREMENTS

WELL ELEVATION toc 589.83 ~~589.00~~ (m/[✓ ft])

DEPTH TO WATER 12.00 (m/[✓ ft])

GROUNDWATER ELEVATION 577.83 (m/[✓ ft])

WELL DEPTH 29.50 (m/[✓ ft])

pH	TURBIDITY	CONDUCTIVITY	SAMPLE TEMPERATURE
8.5 (std)	78.5 (ntu)	680 (µm/cm) AT 25°C	16.6 (°C)
8.3 (std)	13.9 (ntu)	670 (µm/cm) AT 25°C	13.7 (°C)
7.6 (std)	11.5 (ntu)	700 (µm/cm) AT 25°C	15.1 (°C)
(std)	(ntu)	(µm/cm) AT 25°C	(°C)
(std)	(ntu)	(µm/cm) AT 25°C	(°C)

FIELD COMMENTS

SAMPLE APPEARANCE: ______ ODOR: ______ COLOR: very dark TURBIDITY: ______

WEATHER CONDITIONS: WIND SPEED ______ DIRECTION ______ PRECIPITATION Y [✓ N] OUTLOOK ______

SPECIFIC COMMENTS

Well dry @ 4.0 g on 9/23/02
Well dry @ 3.0 gal on 9/24/02
Well dry @ 1.2 gal on 9/25/02
Well sampled on 9/26/02 w/in 24 hrs of last purge.

I CERTIFY THAT SAMPLING PROCEDURES WERE IN ACCORDANCE WITH APPLICABLE CRA PROTOCOLS

CRA

9/02 J. Pietraszek-Polovich Polovich
DATE PRINT SIGNATURE

CRA 1001 (29) Rev. 6, September 13, 1999, Form SP-10

APPENDIX F

WASTE MANIFESTS

CWM1

③

Please print or type
(Form designed for use on elite (12-pitch) typewriter.)

NON-HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No. N.Y.R.0.0.0.0.9.6.1.3.1

Manifest Document No.

2. Page 1 of 1

3. Generator's Name and Mailing Address
FRANCHISE FINANCE CORP OF AMER
2137 SENECA ST
BUFFALO NY 14210-2366

4. Generator's Phone (716) 297-5150

5. Transporter 1 Company Name BUFFALO Fuel corp

6. US EPA ID Number NYR.0.0.0.0.4.5.7.24

A. Transporter's Phone 800 208 9089

7. Transporter 2 Company Name

8. US EPA ID Number

B. Transporter's Phone

9. Designated Facility Name and Site Address
CWM CHEMICAL SERVICES, LLC.
1550 BALMER RD.
MODEL CITY NY 14107

10. US EPA ID Number N Y D 0 4 9 8 3 6 6 7 9

C. Facility's Phone (716)754-823

11. Waste Shipping Name and Description	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol
a. NON REGULATED MATERIAL -03	1	DM	1 gallon 55 gallons 1 gallon	458 lbs 55 gal
b. NON REGULATED MATERIAL -04	3	DM	2700 lbs	900 lbs DM
c.				
d.				

GENERATOR

D. Additional Descriptions for Materials Listed Above
a. CR7602
b. CR7603

E. Handling Codes for Wastes Listed Above

15. Special Handling Instructions and Additional Information
CHEMTREC Emergency Response Number (800)424-9300 WMI Contract
SERVICE REQUEST #________

16. **GENERATOR'S CERTIFICATION:** I certify the materials described above on this manifest are not subject to federal regulations for reporting proper disposal of Hazardous Waste.

Printed/Typed Name GARY D. LaLiberty
Signature Gary D. La Liberty
Month 05 Day 09 Year 01

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials
Printed/Typed Name DAVID FOUST
Signature
Month 05 Day 09 Year 01

18. Transporter 2 Acknowledgement of Receipt of Materials
Printed/Typed Name
Signature
Month Day Year

FACILITY

19. Discrepancy Indication Space
a/1a b - profiles reversed - JS

20. Facility Owner or Operator: Certification of receipt of waste materials covered by this manifest except as noted in Item 19.

Printed/Typed Name JONATHAN SCHEARER
Signature Jonathan Schearer
Month 05 Day 09 Year 01

Printed by
Neenah, WI 54957

ORIGINAL - RETURN TO GENERATOR

NYB9543519

STATE OF NEW YORK
DEPARTMENT OF ENVIRONMENTAL CONSERVATION
DIVISION OF SOLID & HAZARDOUS MATERIALS

HAZARDOUS WASTE MANIFEST

P.O. Box 12820, Albany, New York 12212

Please type or print. Do not staple.

(Hazardous Waste Manifest 5/00)

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA No. [illegible] Manifest Doc. No. 00091

2. Page 1 of 1

Information within heavy bold line is not required by Federal Law.

3. Generator's Name and Mailing Address
FRANCHISE FINANCE CORP OF AMER
2137 SENECA ST
BUFFALO NY 14210-2366

4. Generator's Telephone Number (716)297-6150

5. Transporter 1 (Company Name) Buffalo Fuel Corp

6. US EPA ID Number NYR000045724

7. Transporter 2 (Company Name)

8. US EPA ID Number

9. Designated Facility Name and Site Address
CWM CHEMICAL SERVICES, LLC.
1550 BALMER RD.
MODEL CITY NY 14107

10. US EPA ID Number NYD049836679

A. NYB9543519

B. Generator's ID SAME

C. State Transporter's ID 4R532R NY

D. Transporter's Telephone (800 208 [illegible]

E. State Transporter's ID

F. Transporter's Telephone ( )

G. State Facility ID

H. Facility Telephone ( ) 716 754-8231

11. US DOT Description (Including Proper Shipping Name, Hazard Class and ID Number)	12. Containers Number	12. Containers Type	13. Total Quantity	14. Unit Wt/Vol	I. Waste No.
a. RQ, HAZARDOUS WASTE, LIQUID, N.O.S.,9, NA3082,III,(D039, D040) ~~DM~~ DF	~~002~~ 001	~~DF~~ DA	65 gallons	~~P~~ gal	EPA D039 STATE
b. RQ, HAZARDOUS WASTE, LIQUID N.O.S, 9, NA3082, III (D039, D040)	2	DF	434 ~~217~~	P	EPA D039 STATE
c.					EPA STATE
d.					EPA STATE

J. Additional Descriptions for Materials listed Above
a. CR760R D040
b. CR7604 D040
c.
d.

K. Handling Codes for Wastes Listed Above
a. ☐
b. ☐
c. ☐
d. ☐

15. Special Handling Instructions and Additional Information
CHEMTREC Emergency Response Number (800)424-9300 WMI Contract
SERVICE REQUEST #

16. **GENERATOR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations and state laws and regulations.

If I am large quantity generator. I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; OR if I am a smaller generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.

Printed/Typed Name Gary D LaLiberty Signature Gary D LaLiberty Mo. Day Year 05 09 91

17. Transporter 1 Acknowledgement of Receipt of Materials
Printed/Typed Name Phil Faust Signature Mo. Day Year 05 09 01

18. Transporter 2 Acknowledgement of Receipt of Materials
Printed/Typed Name Signature Mo. Day Year

19. Discrepancy Indication Space Line a - 13 & 14, 65G
12 - Split drums up with that put g on next lower line Kab-T

20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.
Printed/Typed Name JONATHAN SCHAAR Signature Jonathan Schaar Mo. Day Year 05 09 91

COPY 5-GENERATOR - MAILED BY TSD FACILITY

In case of emergency or spill immediately call the National Response Center (800) 424-8802 and the NYS Department of Environmental Conservation (518) 457-7362

GENERATOR

TRANSPORTER

(5)

NON-HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No. NYR000096131
Manifest Document No. 69496
2. Page 1 of 1

3. Generator's Name and Mailing Address
FRANCHISE FINANCE CORP OF AMER
137 SENECA ST
BUFFALO NY 14210-2366

4. Generator's Phone (716)297-6150

5. Transporter 1 Company Name FRANKS VACWEAMTRUCK
6. US EPA ID Number NYD982792814
A. Transporter's Phone 7162842132

7. Transporter 2 Company Name
8. US EPA ID Number
B. Transporter's Phone

9. Designated Facility Name and Site Address
CWM CHEMICAL SERVICES, L.L.C.
1550 BALMER ROAD
MODEL CITY NY 14107
10. US EPA ID Number NYD049836679
C. Facility's Phone (716)754-8231

11. Waste Shipping Name and Description	12. Containers No.	12. Containers Type	13. Total Quantity	14. Unit Wt/Vol
a. NON REGULATED MATERIAL 08	15	DM	10500	
b.				
c.				
d.				

D. Additional Descriptions for Materials Listed Above
a. CR7602

E. Handling Codes for Wastes Listed Above

15. Special Handling Instructions and Additional Information
CHEMTREC Emergency Response Number (800)424-9300 WMI Contract
SERVICE REQUEST # ____________

GENERATOR

16. **GENERATOR'S CERTIFICATION:** I certify the materials described above on this manifest are not subject to federal regulations for reporting proper disposal of Hazardous Waste.

Printed/Typed Name Frank Garbe
Signature Frank Garbe
Month 01 Day 29 Year 02

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials
Printed/Typed Name LEE BOEHRINGER
Signature Lee Boehringer
Month 01 Day 29 Year 02

18. Transporter 2 Acknowledgement of Receipt of Materials
Printed/Typed Name
Signature
Month Day Year

FACILITY

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of waste materials covered by this manifest except as noted in Item 19.
Printed/Typed Name JONATHAN SCHEARER
Signature Jonathan
Month 01 Day 30 Year 02

ORIGINAL RETURN TO GENERATOR

APPENDIX G

WASTEWATER DISCHARGE PERMIT

Permit No.: 01-12-TP081

Expiration Date: December 31, 2002
Date Paid: November 29, 2001

BUFFALO SEWER AUTHORITY

TEMPORARY DISCHARGE PERMIT

Permittee: **CONESTOGA-ROVERS ASSOCIATES**

Location Address: **2055 Niagara Falls Blvd. Niagara Falls, New York 14304**

The above named Permittee is hereby approved to discharge **Groundwater** only, from

GE CAPITAL FRANCHISE FINANCE CORP.
2137 SENECA STREET, BUFFALO, NEW YORK

to the Buffalo Sewer Authority facilities in accordance with the Buffalo Sewer Authority Regulations, Article VI, Section 14, and subject to the following conditions:

ARTICLE 1 CONDITIONS OF ACCEPTANCE

The discharge of the approved waste by the Permittee shall be subject to the following conditions:

a. Times, Location & Rate

The following location is designated for discharge during the hours listed and subject to the limit for rate of discharge specified:

Location: (see attached map)

Time Discharge is Permitted: 7:00am to 7:00pm

Limit on Rate of Discharge: 300 gals per day during dry weather only

b. Operations

The Permittee shall maintain cleanliness, minimize odors and protect the Buffalo Sewer Authority facilities during the permittee's operations. The Permittee shall not permit any condition to arise which may pose a threat to public health, safety or welfare.

c. Samples and Analyses

The Buffalo Sewer Authority may from time to time, require the Permittee to sample and analyze its waste discharges. Such sampling and analyses shall be performed and results submitted by a New York State Dept. of Health certified laboratory. The analyses required shall be as specified by the Buffalo Sewer Authority, which also reserves the right, at its convenience, to sample wastes discharged by the Permittee.

d. Refusal to Discharge

The Buffalo Sewer Authority may refuse the Permittee permission to discharge wastes at any time and for any reason whatsoever, for the protection of sewer facilities against damage or flooding; to assure the proper operation and maintenance of said facilities; or to protect public health, safety or welfare.

e. Local Limits

Except as otherwise specified in this permit, the permit holder shall comply with all specific prohibitions, limits on pollutants or pollutant parameters set forth in the Buffalo Sewer Authority Sewer Use Regulations, as amended from time to time, and such prohibitions, limits and parameters shall be deemed pretreatment standards for purposes for the Clean Water Act.

ARTICLE 2 REGULATIONS

The Permittee must conform to all Buffalo Sewer Authority regulations and appropriate Federal, State and County Statutes, rules, mandates, directives, and orders concerning the collection, transportation, treatment and disposal of wastewaters.

ARTICLE 3 INSURANCE AND INDEMNIFICATION

The Permittee, agrees to indemnify and hold harmless the Buffalo Sewer Authority and its agents and employees against any and all claims resulting from work performed under this permit. The permittee shall be solely responsible for any and all injury or damage to its employees or property arising from use of Buffalo Sewer Authority facilities under this permit.

In the event of any alteration, non-renewal or cancellation of these policies, at least (45) forty-five days advance notice shall be given to the Industrial Waste Section, Bird Island Treatment Plant, 90 West Ferry Street, Buffalo, New York 14213 - before such change shall be effective.

Permit No.: 01-12-TP081

ARTICLE 4 TERMINATION FOR VIOLATION OF AGREEMENT

In the event of a violation of any of the terms and conditions of this permit by the Permittee or upon the failure to pay the charges herein specified, the Buffalo Sewer Authority shall terminate the permit by service of notice of termination by registered mail at the Permittee's office address as set forth above.

ARTICLE 5 PERMITTEE APPROVAL

Official ANTHONY YING (Print Name) Title V P - TREASURER (Print)

Signature ______ Date 12/13/01

ARTICLE 6 BUFFALO SEWER AUTHORITY APPROVAL

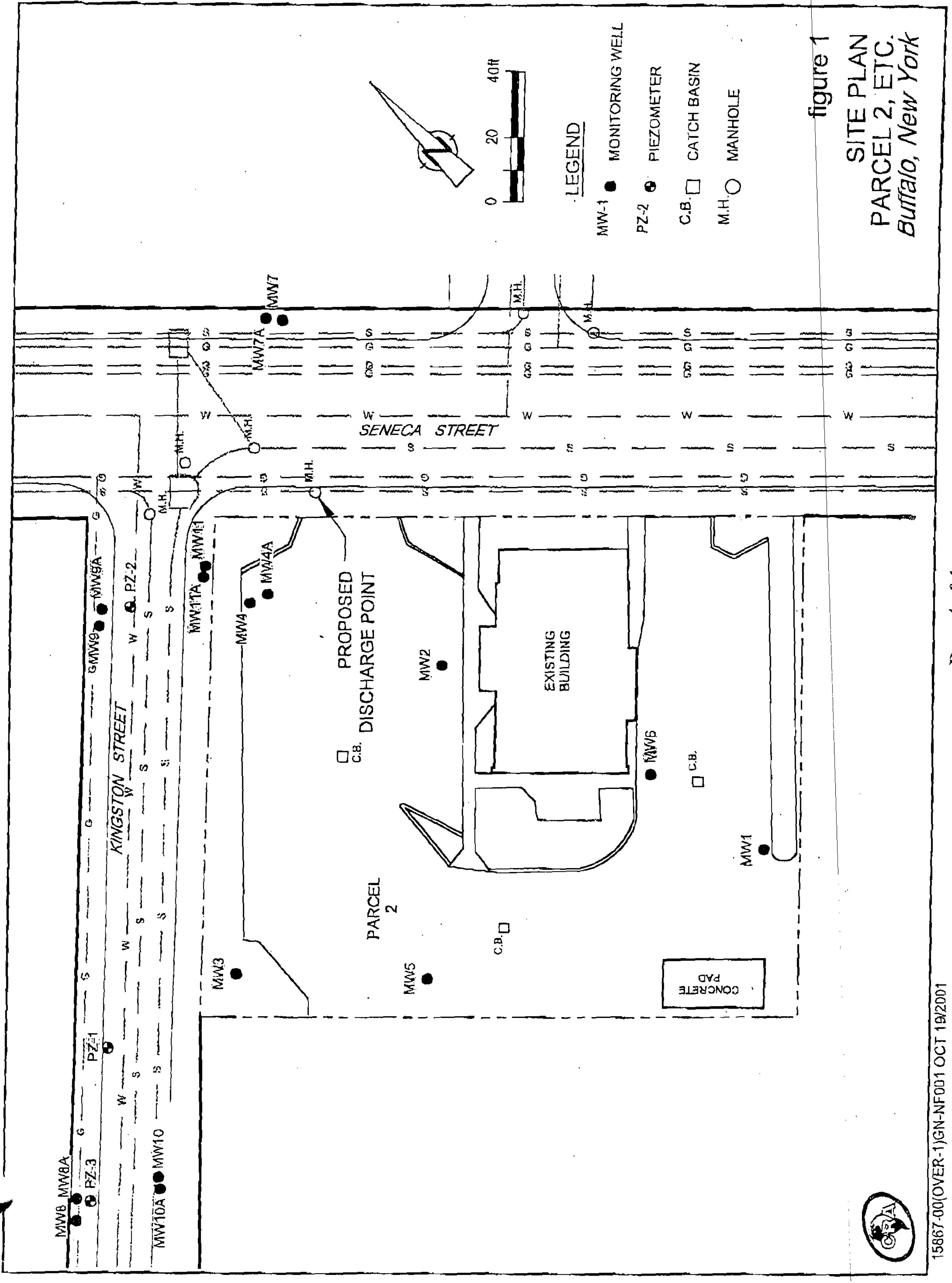
Approved as to Content:

Signature ______ (Industrial Waste Administrator) Date 12/19/01

Effective this 18th day of Dec , 2-1

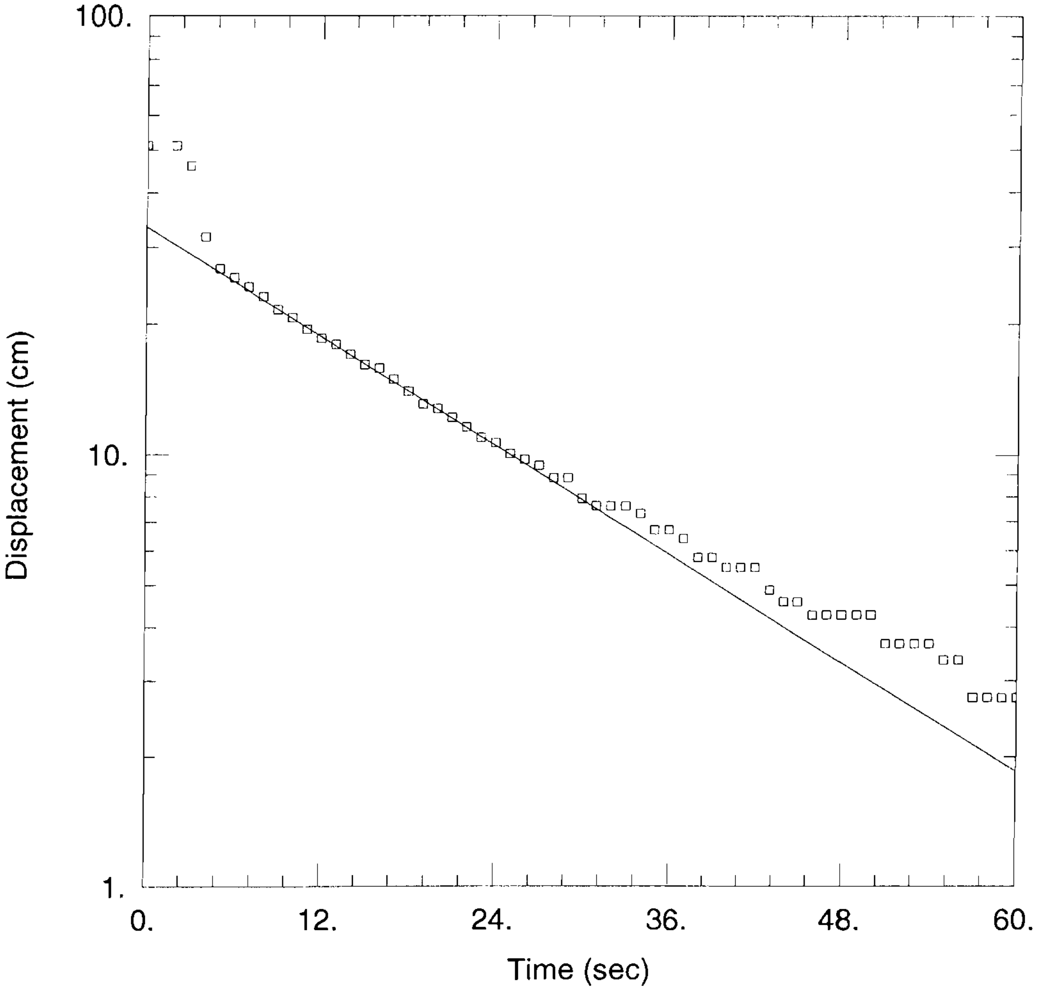
General Manager
Buffalo Sewer Authority

Permit No.: 01-1?-TP081



APPENDIX H

HYDRAULIC CONDUCTIVITY CALCULATIONS



MW-1 FALLING HEAD SLUG TEST NO. 1

Data Set: P:\10000\15867\Y2000Telog\MW1f1.aqt
Date: 01/11/02 Time: 08:48:48

PROJECT INFORMATION

Company: CRA
Client: Seneca Street
Project: 15867
Test Location: Buffalo, NY
Test Date: 09/26/00

AQUIFER DATA

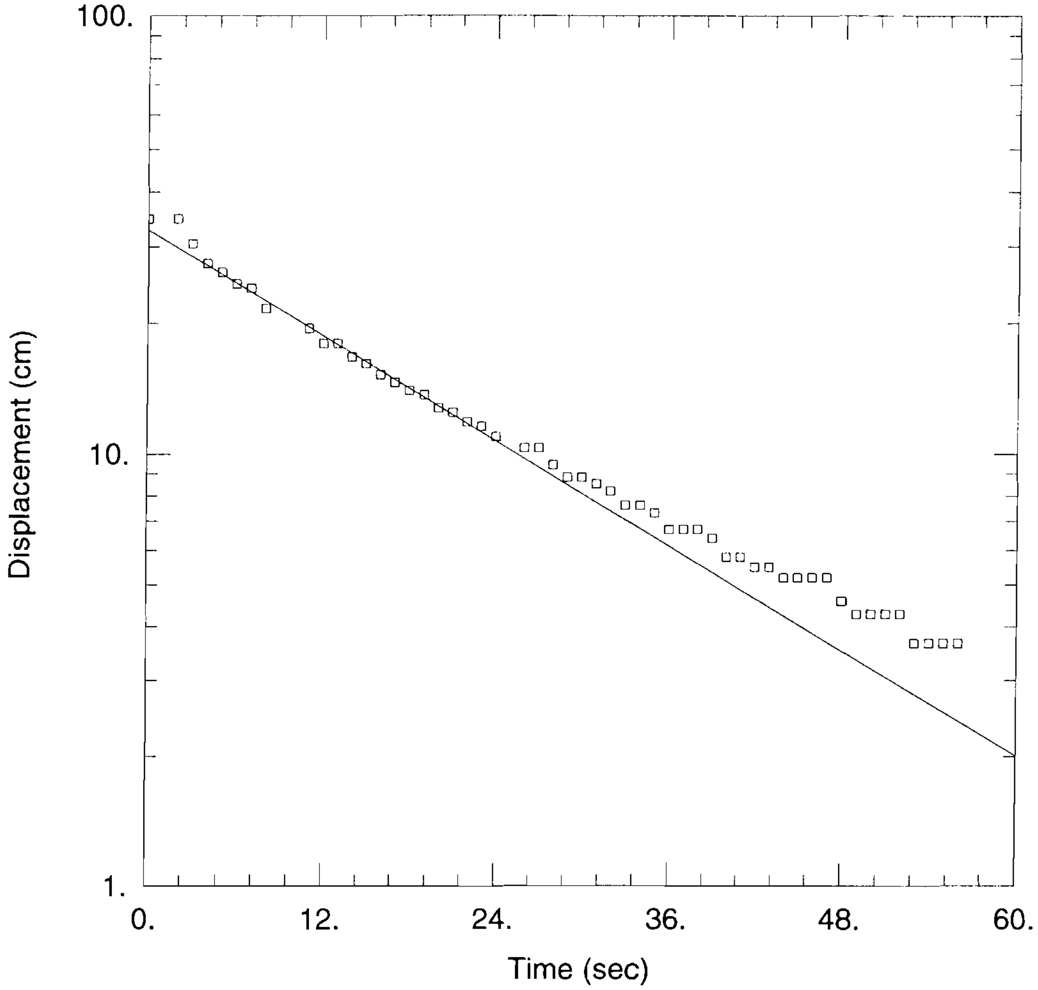
Saturated Thickness: 334. cm
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (MW-1)

Initial Displacement: 51.2 cm
Water Column Height: 334. cm
Casing Radius: 2.54 cm
Wellbore Radius: 10.16 cm
Screen Length: 152.4 cm

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.00246 cm/sec
y0 = 33.45 cm



MW-1 FALLING HEAD SLUG TEST NO. 2

Data Set: P:\10000\15867\Y2000Telog\MW1f2.aqt
Date: 01/11/02 Time: 08:50:19

PROJECT INFORMATION

Company: CRA
Client: Seneca Street
Project: 15867
Test Location: Buffalo, NY
Test Date: 09/26/00

AQUIFER DATA

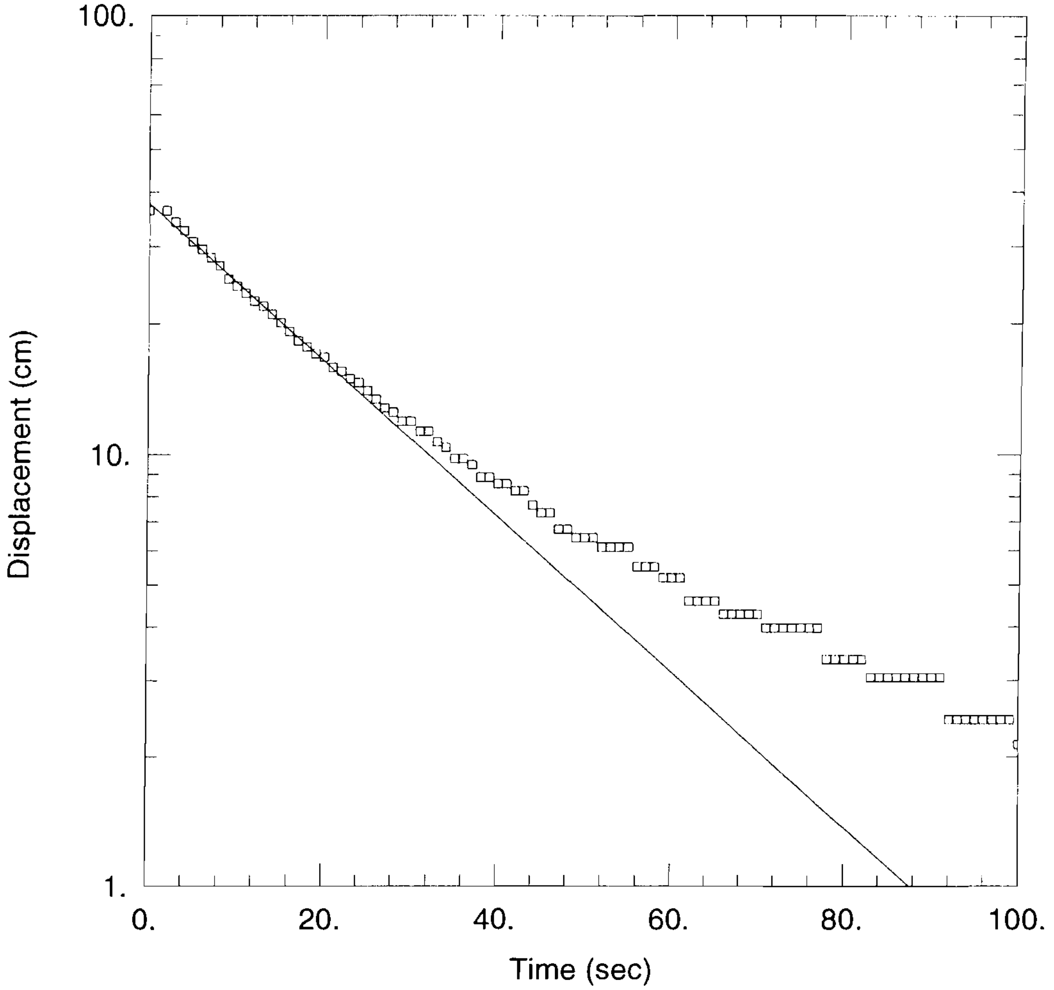
Saturated Thickness: 334. cm
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (MW-1)

Initial Displacement: 34.7 cm
Water Column Height: 334. cm
Casing Radius: 2.54 cm
Wellbore Radius: 10.16 cm
Screen Length: 152.4 cm

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.002375 cm/sec
y0 = 32.81 cm



MW-1 RISING HEAD SLUG TEST NO. 1

Data Set: P:\10000\15867\Y2000Telog\MW1r1.aqt
Date: 01/11/02 Time: 08:51:51

PROJECT INFORMATION

Company: CRA
Client: Seneca Street
Project: 15867
Test Location: Buffalo, NY
Test Date: 09/26/00

AQUIFER DATA

Saturated Thickness: 334. cm Anisotropy Ratio (Kz/Kr): 1.

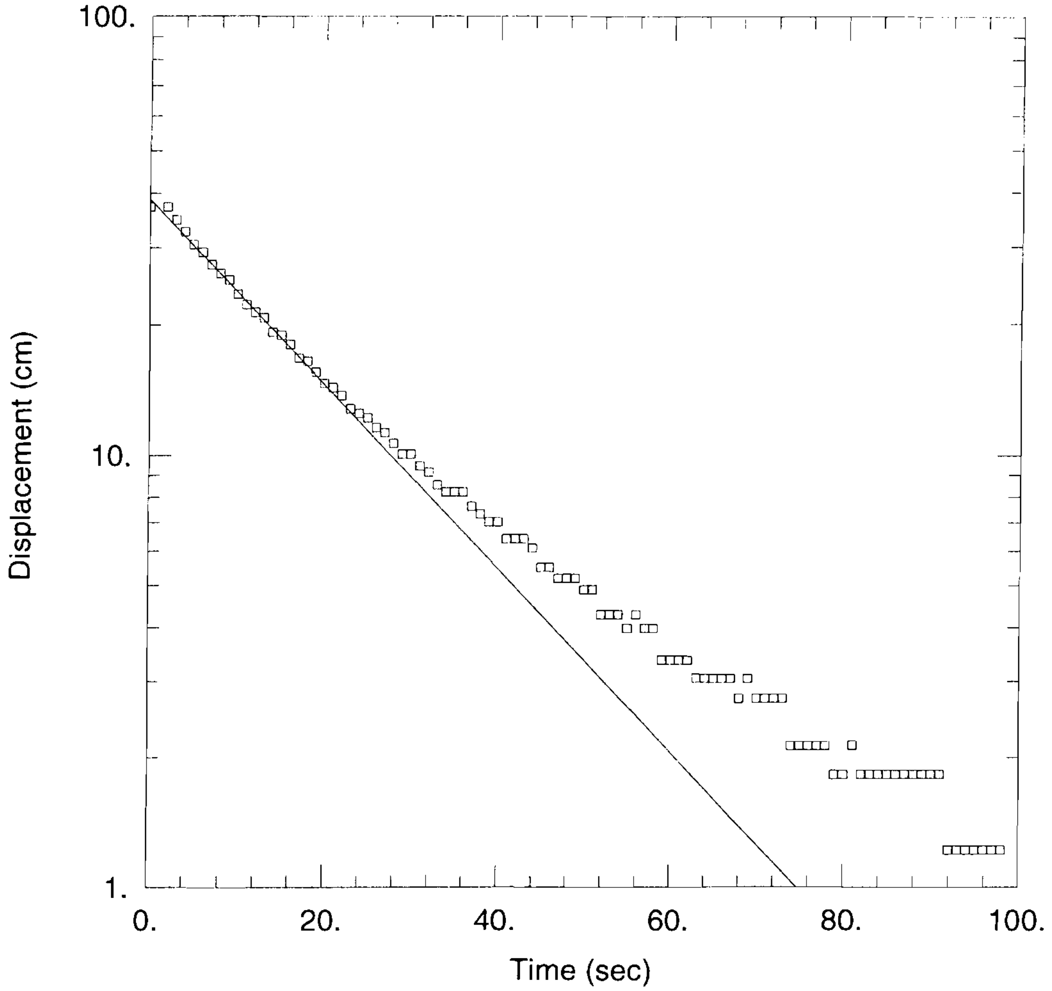
WELL DATA (MW-1)

Initial Displacement: 36.3 cm Water Column Height: 334. cm
Casing Radius: 2.54 cm Wellbore Radius: 10.16 cm
Screen Length: 152.4 cm

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 0.002113 cm/sec y0 = 37.64 cm



MW-1 RISING HEAD SLUG TEST NO. 2

Data Set: P:\10000\15867\Y2000Telog\MW1r2.aqt
Date: 01/11/02 Time: 08:52:59

PROJECT INFORMATION

Company: CRA
Client: Seneca Street
Project: 15867
Test Location: Buffalo, NY
Test Date: 09/26/00

AQUIFER DATA

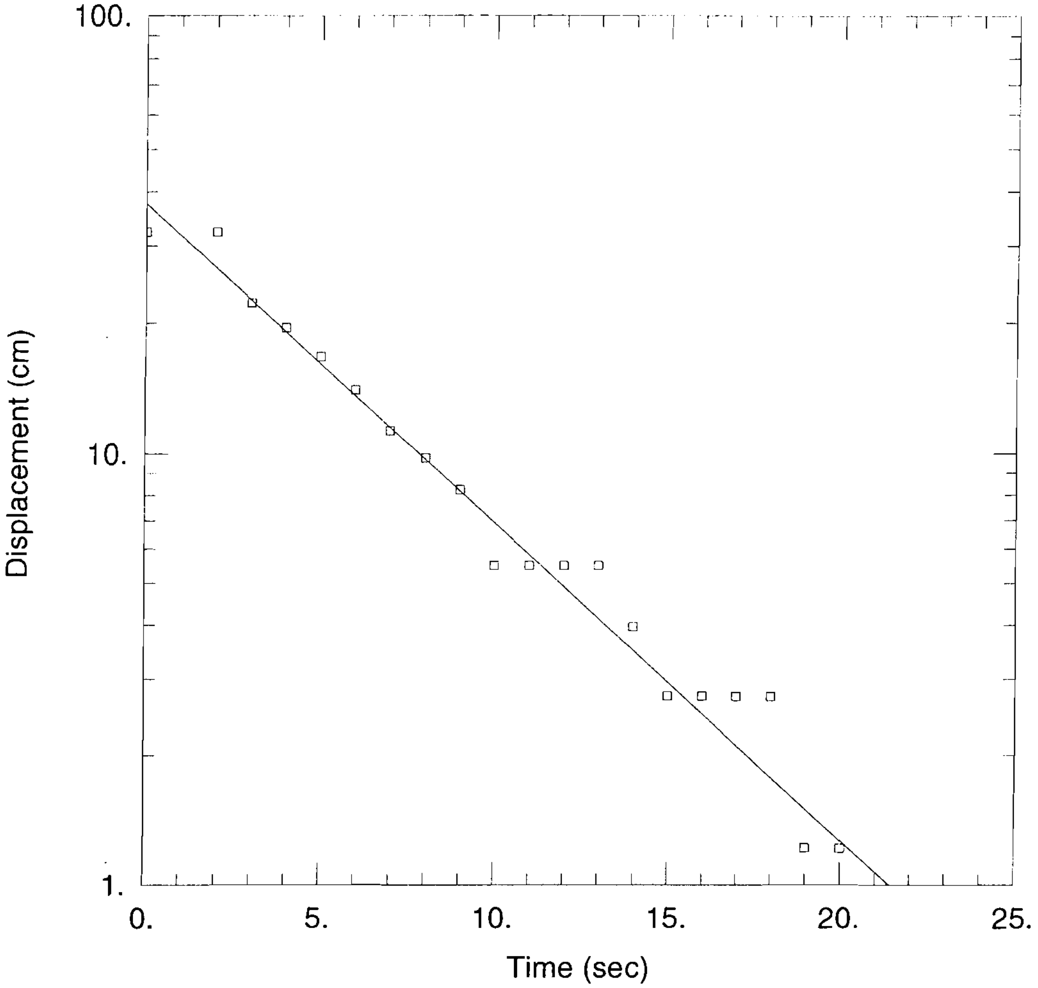
Saturated Thickness: 334. cm
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (MW-1)

Initial Displacement: 37.2 cm
Water Column Height: 334. cm
Casing Radius: 2.54 cm
Wellbore Radius: 10.16 cm
Screen Length: 152.4 cm

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.002495 cm/sec
y0 = 38.75 cm



MW-2 FALLING HEAD SLUG TEST NO. 1

Data Set: P:\10000\15867\Y2000Telog\MW2f1.aqt
Date: 01/11/02 Time: 08:54:10

PROJECT INFORMATION

Company: CRA
Client: Seneca Street
Project: 15867
Test Location: Buffalo, NY
Test Date: 09/26/00

AQUIFER DATA

Saturated Thickness: 274. cm
Anisotropy Ratio (Kz/Kr): 1.

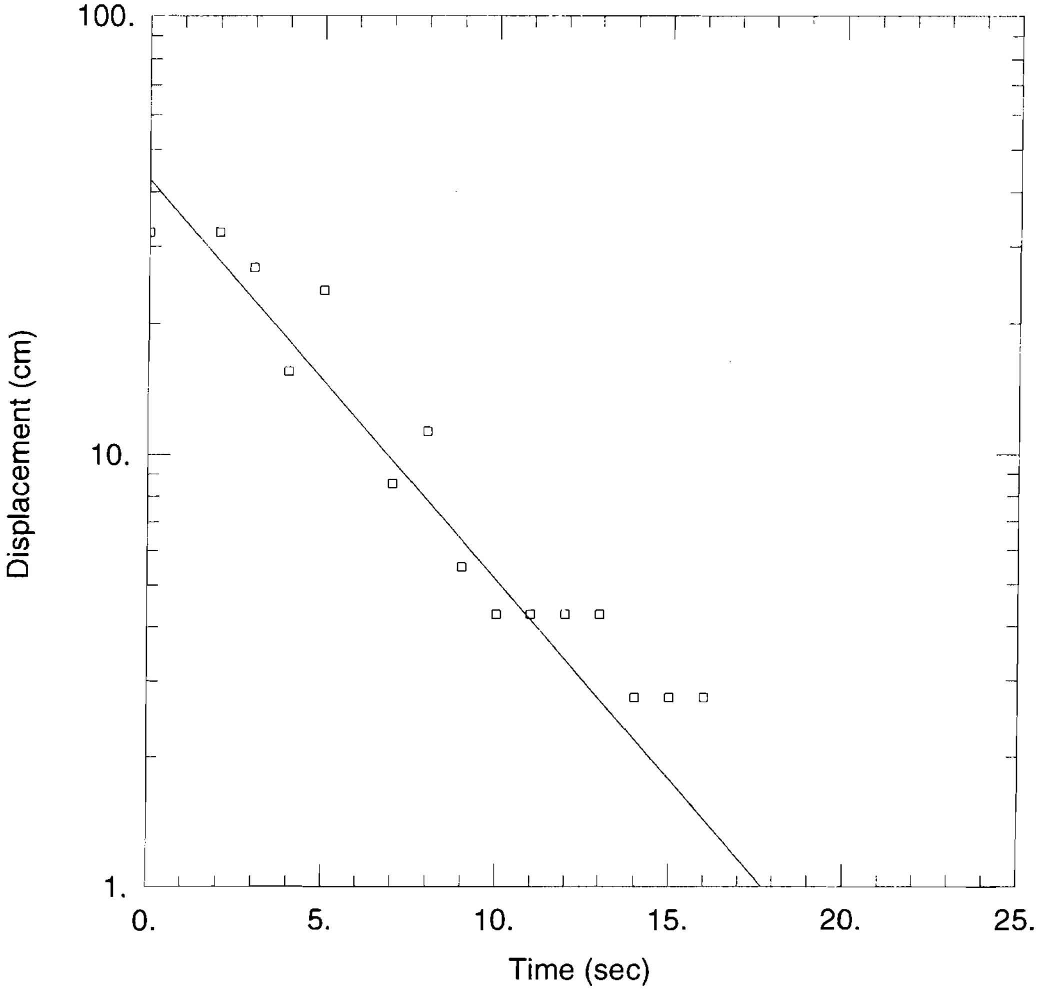
WELL DATA (MW-2)

Initial Displacement: 32.3 cm
Casing Radius: 2.54 cm
Screen Length: 152.4 cm
Water Column Height: 274. cm
Wellbore Radius: 10.16 cm

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice

K = 0.008259 cm/sec
y0 = 37.52 cm



MW-2 FALLING HEAD SLUG TEST NO. 2

Data Set: P:\10000\15867\Y2000Telog\MW2f2.aqt
Date: 01/11/02 Time: 09:04:38

PROJECT INFORMATION

Company: CRA
Client: Seneca Street
Project: 15867
Test Location: Buffalo, NY
Test Date: 09/26/00

AQUIFER DATA

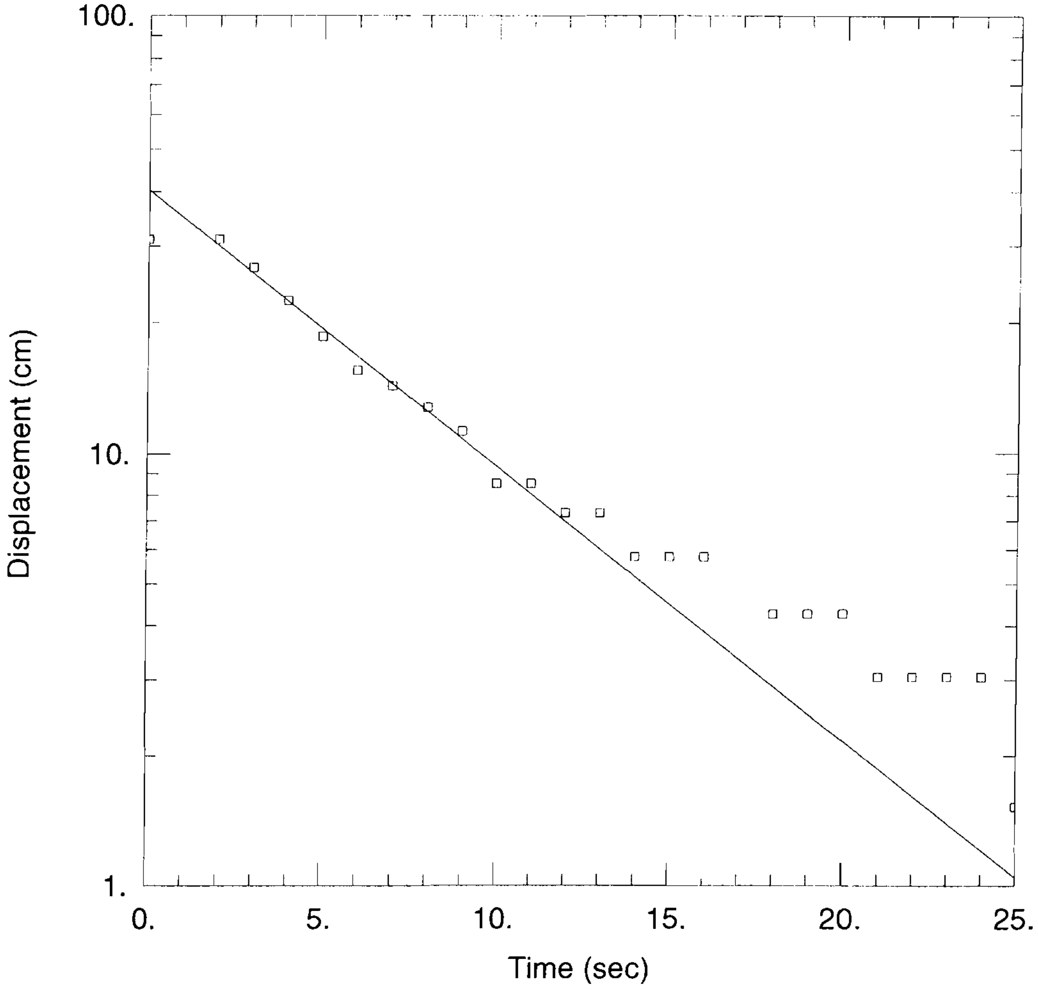
Saturated Thickness: 274. cm
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (MW-2)

Initial Displacement: 32.3 cm
Water Column Height: 274. cm
Casing Radius: 2.54 cm
Wellbore Radius: 10.16 cm
Screen Length: 152.4 cm

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.01034 cm/sec
y0 = 42.7 cm



MW-2 RISING HEAD SLUG TEST NO. 1

Data Set: P:\10000\15867\Y2000Telog\MW2r1.aqt
Date: 01/11/02 Time: 09:06:30

PROJECT INFORMATION

Company: CRA
Client: Seneca Street
Project: 15867
Test Location: Buffalo, NY
Test Date: 09/26/00

AQUIFER DATA

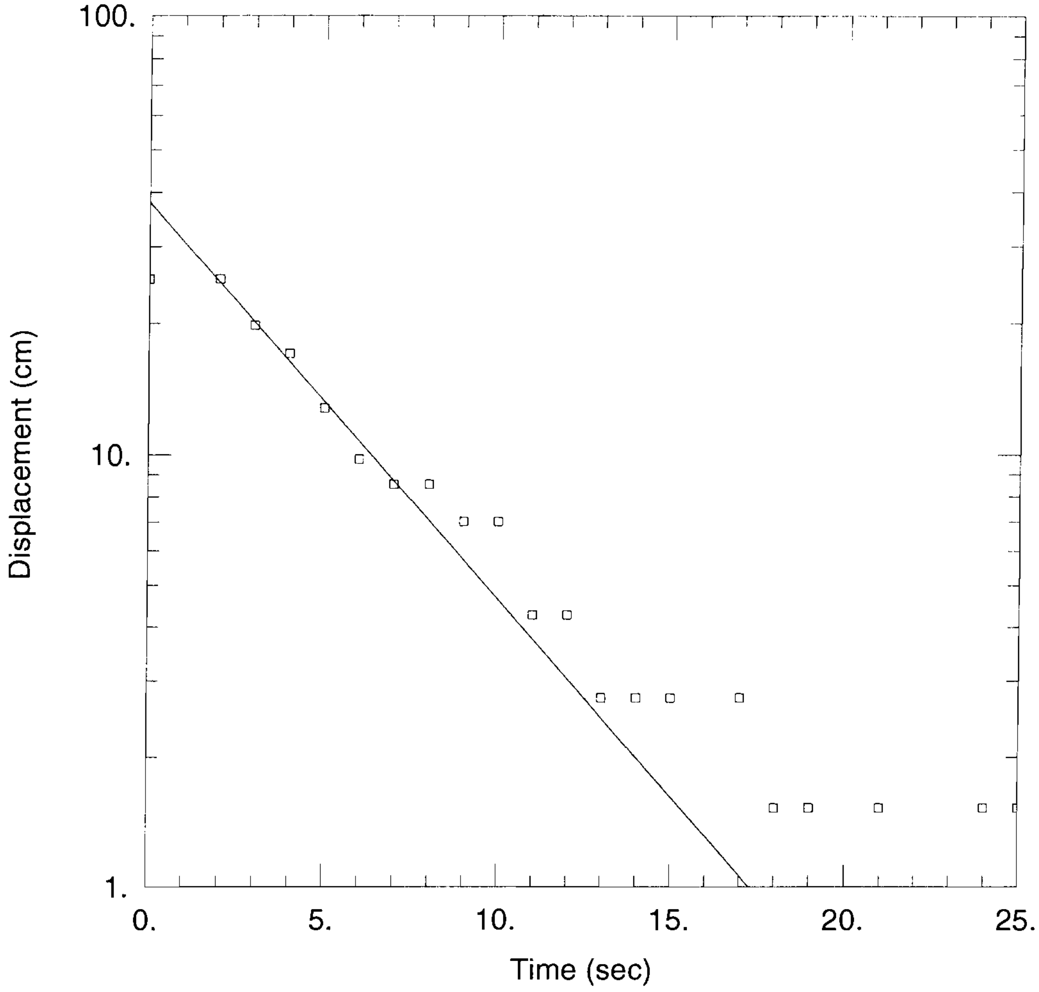
Saturated Thickness: 274. cm
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (MW-2)

Initial Displacement: 31.1 cm
Water Column Height: 274. cm
Casing Radius: 2.54 cm
Wellbore Radius: 10.16 cm
Screen Length: 152.4 cm

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.007132 cm/sec
y0 = 40.38 cm



MW-2 RISING HEAD SLUG TEST NO. 2

Data Set: P:\10000\15867\Y2000Telog\MW2r2.aqt
Date: 01/11/02 Time: 09:07:22

PROJECT INFORMATION

Company: CRA
Client: Seneca Street
Project: 15867
Test Location: Buffalo, NY
Test Date: 09/26/00

AQUIFER DATA

Saturated Thickness: 274. cm
Anisotropy Ratio (Kz/Kr): 1.

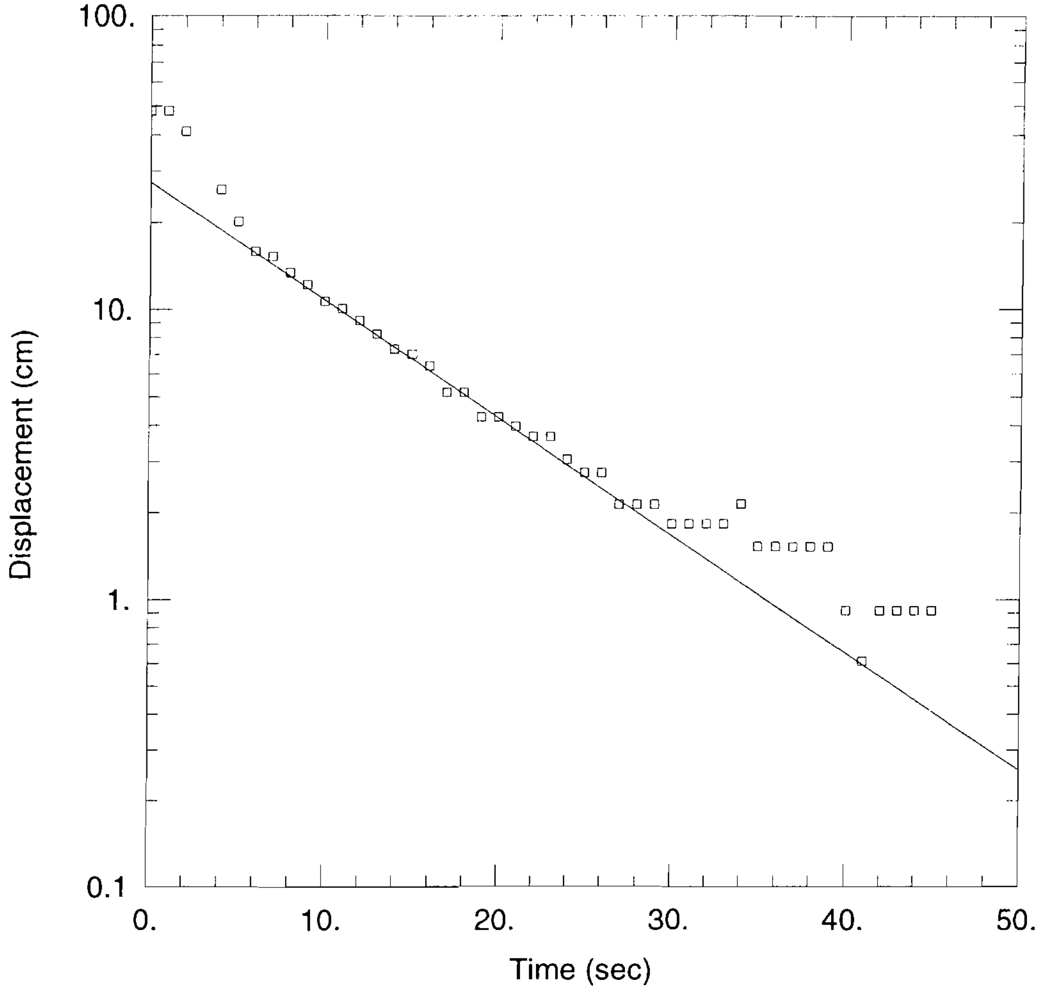
WELL DATA (MW-2)

Initial Displacement: 25.3 cm
Water Column Height: 274. cm
Casing Radius: 2.54 cm
Wellbore Radius: 10.16 cm
Screen Length: 152.4 cm

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice

K = 0.01025 cm/sec
y0 = 37.89 cm



MW-3 FALLING HEAD SLUG TEST NO. 1

Data Set: P:\10000\15867\Y2000Telog\MW3f1.aqt
Date: 01/11/02 Time: 09:08:34

PROJECT INFORMATION

Company: CRA
Client: Seneca Street
Project: 15867
Test Location: Buffalo, NY
Test Date: 09/26/00

AQUIFER DATA

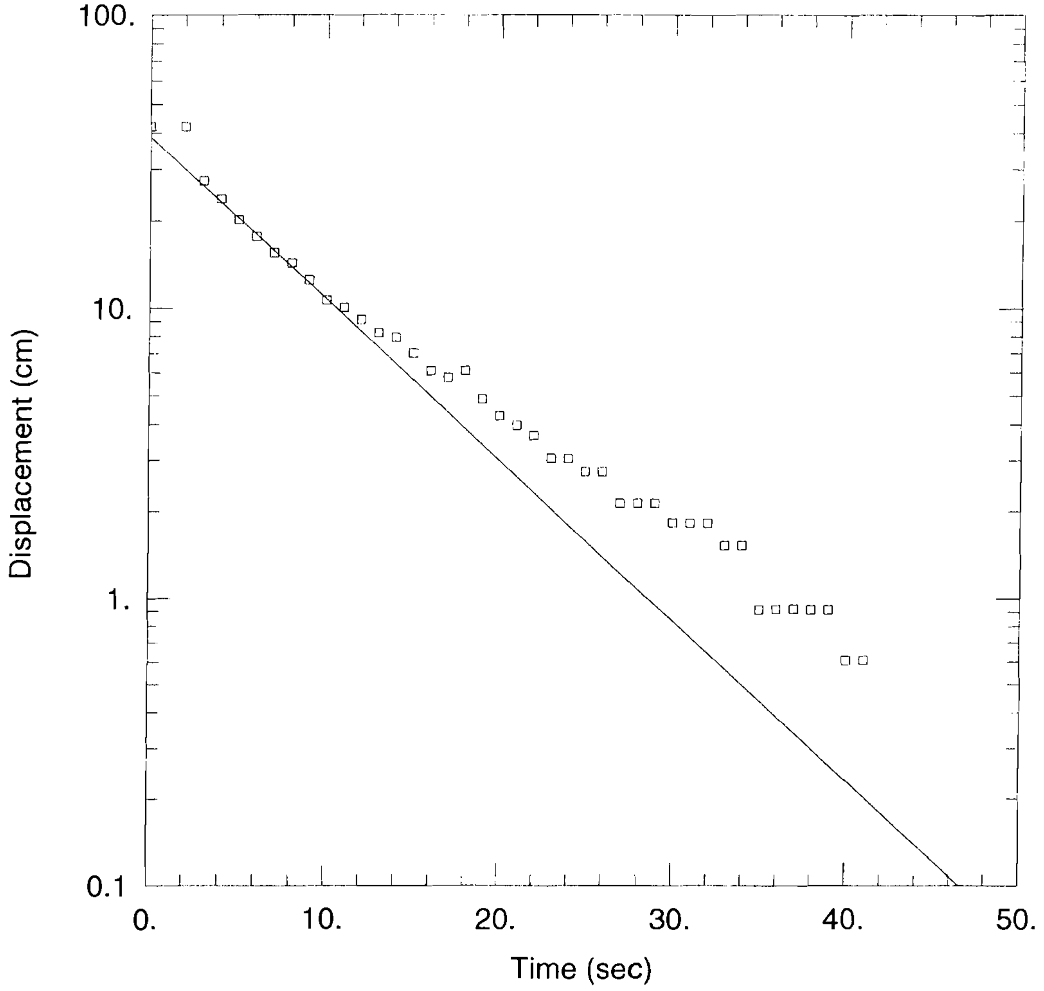
Saturated Thickness: 270. cm
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (MW-3)

Initial Displacement: 48.2 cm
Water Column Height: 270. cm
Casing Radius: 2.54 cm
Wellbore Radius: 10.16 cm
Screen Length: 152.4 cm

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.004548 cm/sec
y0 = 27.52 cm



MW-3 FALLING HEAD SLUG TEST NO. 2

Data Set: P:\10000\15867\Y2000Telog\MW3f2.aqt
Date: 01/11/02 Time: 09:10:00

PROJECT INFORMATION

Company: CRA
Client: Seneca Street
Project: 15867
Test Location: Buffalo, NY
Test Date: 09/26/00

AQUIFER DATA

Saturated Thickness: 270. cm Anisotropy Ratio (Kz/Kr): 1.

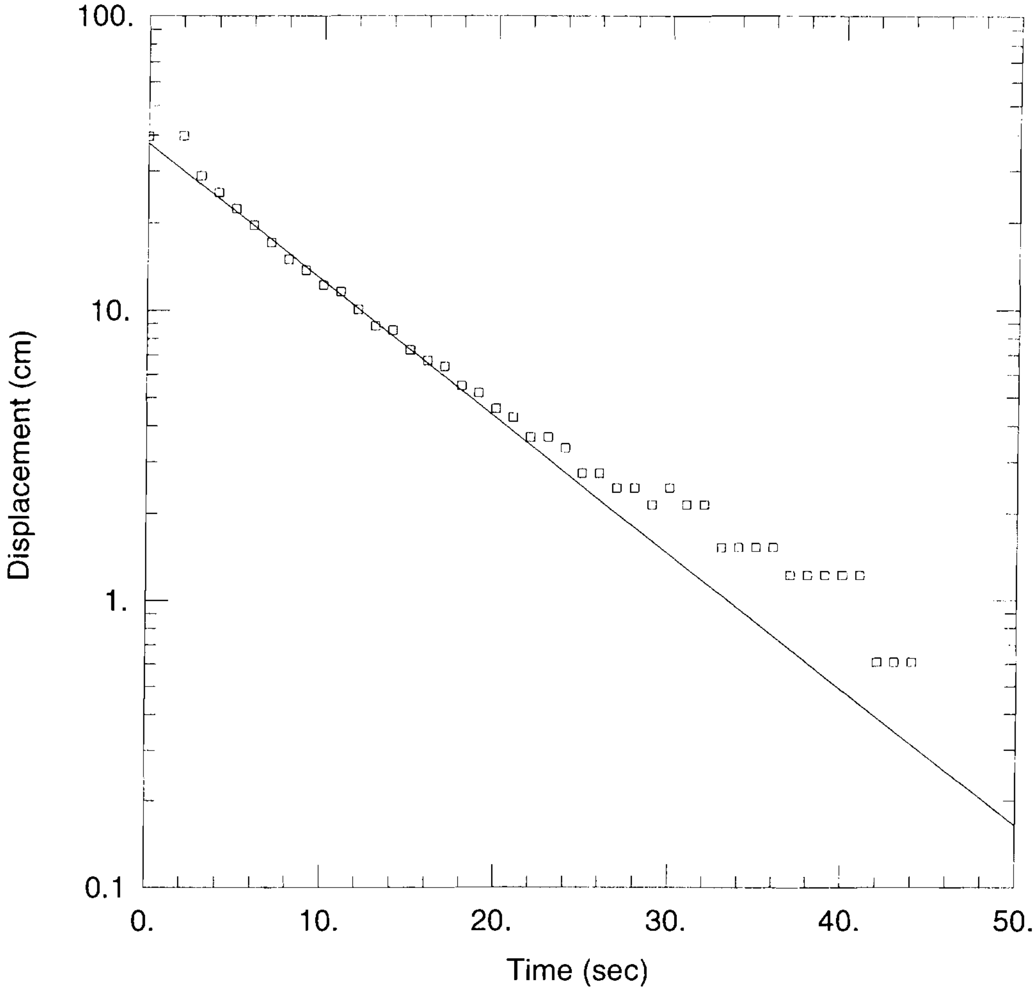
WELL DATA (MW-3)

Initial Displacement: 42.1 cm Water Column Height: 270. cm
Casing Radius: 2.54 cm Wellbore Radius: 10.16 cm
Screen Length: 152.4 cm

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 0.006219 cm/sec y0 = 38.78 cm



MW-3 RISING HEAD SLUG TEST NO. 1

Data Set: P:\10000\15867\Y2000Telog\MW3r1.aqt
Date: 01/11/02 Time: 09:12:03

PROJECT INFORMATION

Company: CRA
Client: Seneca Street
Project: 15867
Test Location: Buffalo, NY
Test Date: 09/26/00

AQUIFER DATA

Saturated Thickness: 270. cm
Anisotropy Ratio (Kz/Kr): 1.

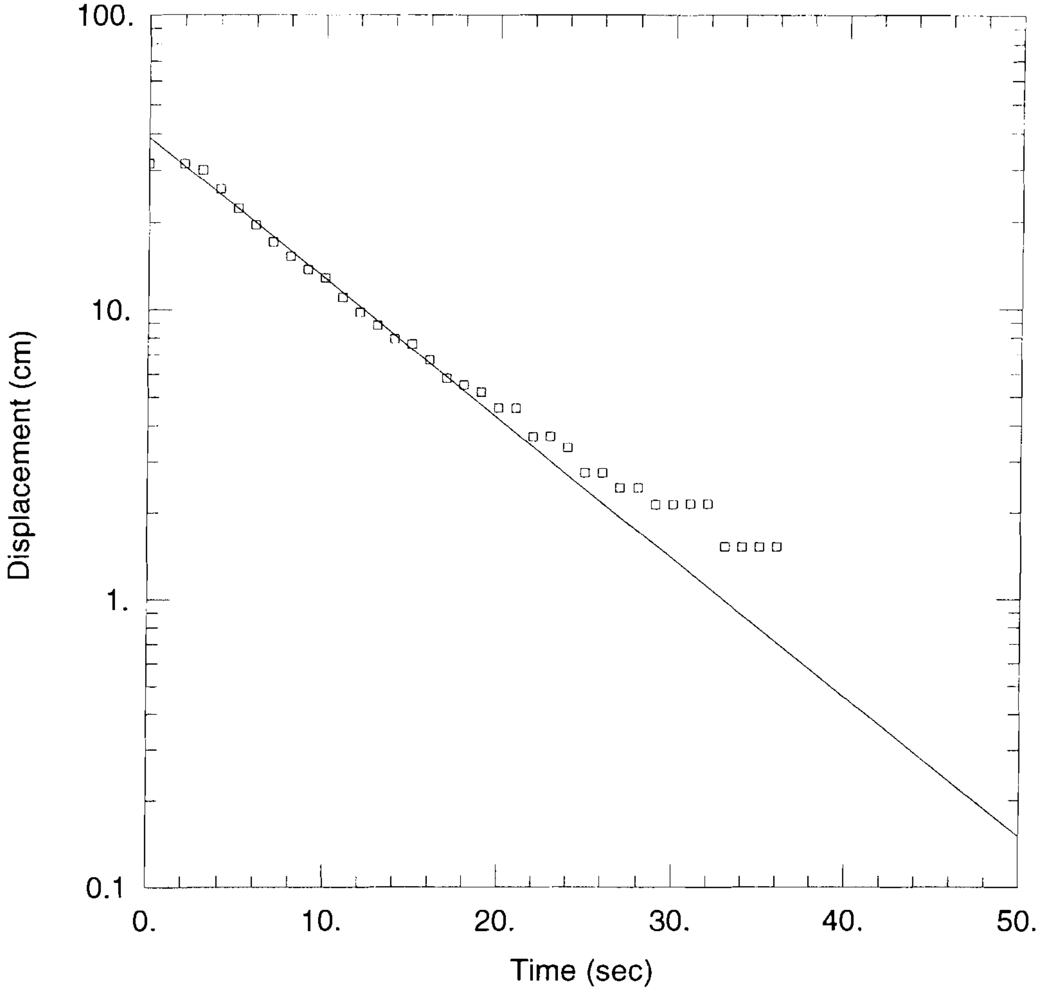
WELL DATA (MW-3)

Initial Displacement: 39.6 cm
Water Column Height: 270. cm
Casing Radius: 2.54 cm
Wellbore Radius: 10.16 cm
Screen Length: 152.4 cm

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice

K = 0.005283 cm/sec
y0 = 37.48 cm



MW-3 RISING HEAD SLUG TEST NO. 2

Data Set: P:\10000\15867\Y2000Telog\MW3r2.aqt
Date: 01/11/02 Time: 09:12:55

PROJECT INFORMATION

Company: CRA
Client: Seneca Street
Project: 15867
Test Location: Buffalo, NY
Test Date: 09/26/00

AQUIFER DATA

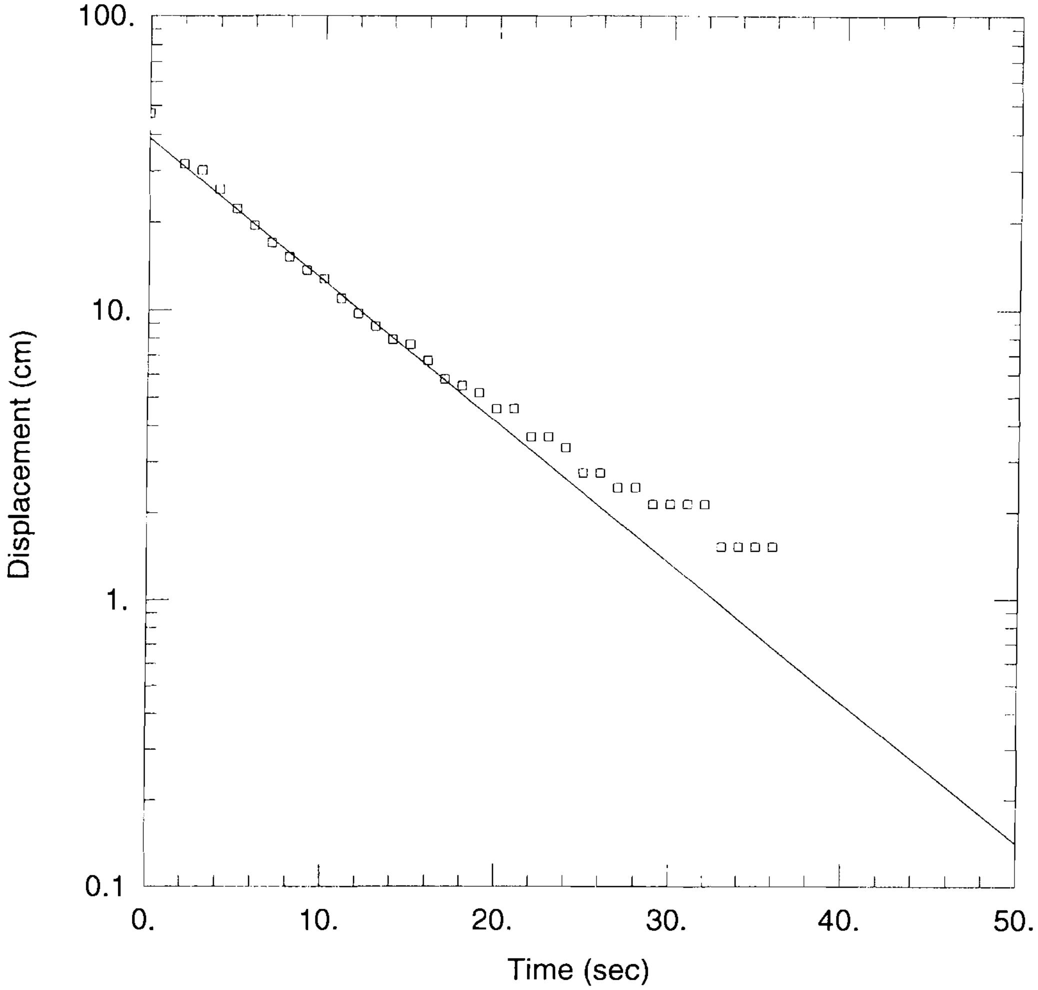
Saturated Thickness: 270. cm
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (MW-3)

Initial Displacement: 31.7 cm
Water Column Height: 270. cm
Casing Radius: 2.54 cm
Wellbore Radius: 10.16 cm
Screen Length: 152.4 cm

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.005406 cm/sec
y0 = 38.88 cm



MW-4 FALLING HEAD SLUG TEST NO. 1

Data Set: P:\10000\15867\Y2000Telog\MW4f1.aqt
Date: 01/11/02 Time: 09:14:07

PROJECT INFORMATION

Company: CRA
Client: Seneca Street
Project: 15867
Test Location: Buffalo, NY
Test Date: 09/26/00

AQUIFER DATA

Saturated Thickness: 287. cm
Anisotropy Ratio (Kz/Kr): 1.

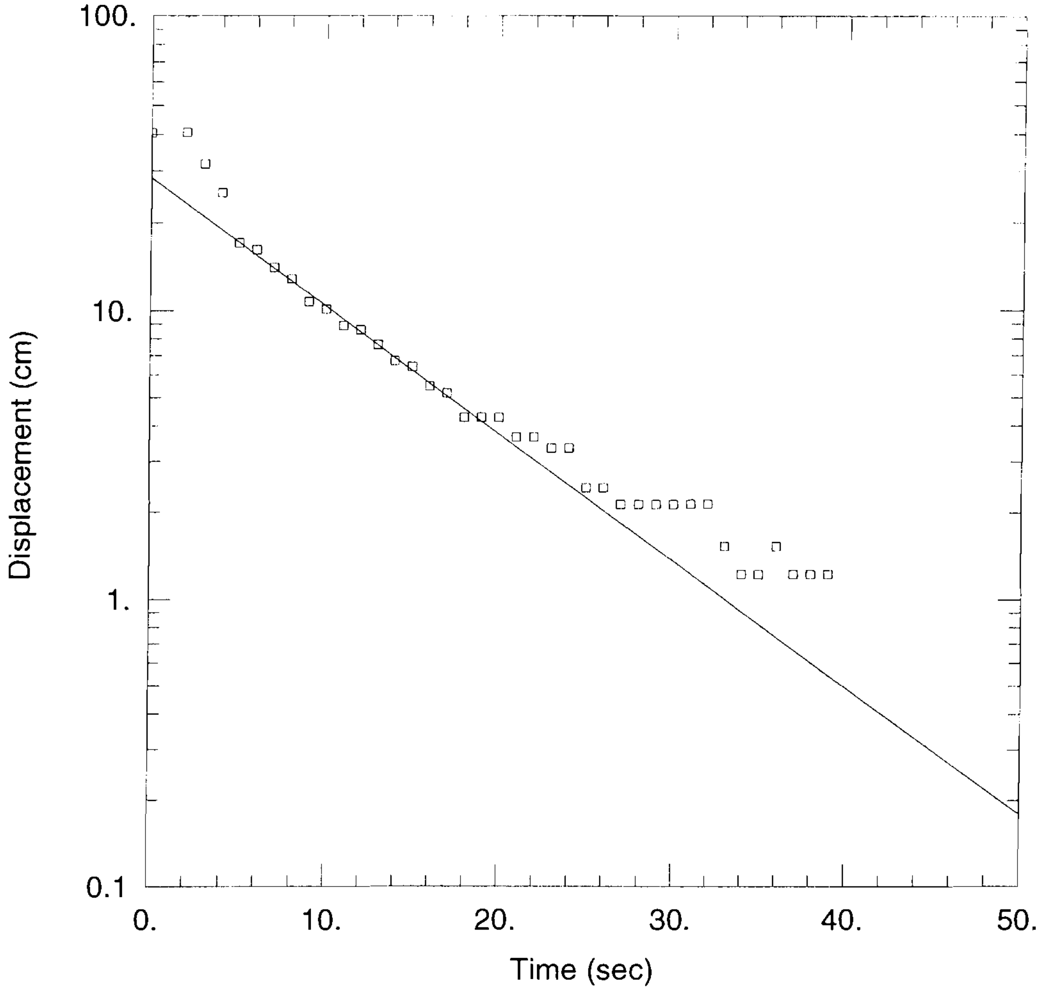
WELL DATA (MW-4)

Initial Displacement: 47.2 cm
Casing Radius: 2.54 cm
Screen Length: 152.4 cm
Water Column Height: 287. cm
Wellbore Radius: 10.16 cm

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice

K = 0.005541 cm/sec
y0 = 38.83 cm



MW-4 FALLING HEAD SLUG TEST NO. 2

Data Set: P:\10000\15867\Y2000Telog\MW4f2.aqt
Date: 01/11/02 Time: 09:14:50

PROJECT INFORMATION

Company: CRA
Client: Seneca Street
Project: 15867
Test Location: Buffalo, NY
Test Date: 09/26/00

AQUIFER DATA

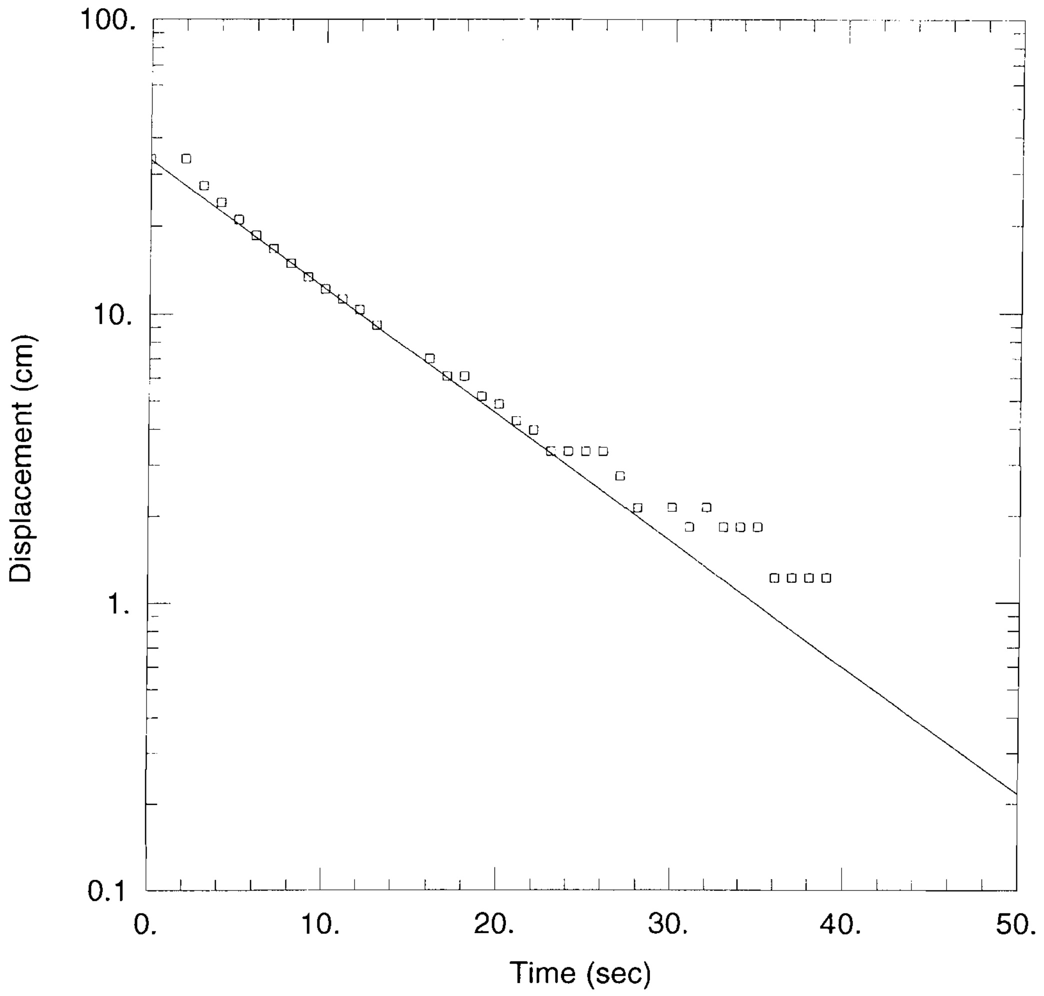
Saturated Thickness: 287. cm
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (MW-4)

Initial Displacement: 40.5 cm
Water Column Height: 287. cm
Casing Radius: 2.54 cm
Wellbore Radius: 10.16 cm
Screen Length: 152.4 cm

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.004998 cm/sec
y0 = 28.44 cm



MW-4 RISING HEAD SLUG TEST NO. 1

Data Set: P:\10000\15867\Y2000Telog\MW4r1.aqt
Date: 01/11/02 Time: 09:15:57

PROJECT INFORMATION

Company: CRA
Client: Seneca Street
Project: 15867
Test Location: Buffalo, NY
Test Date: 09/26/00

AQUIFER DATA

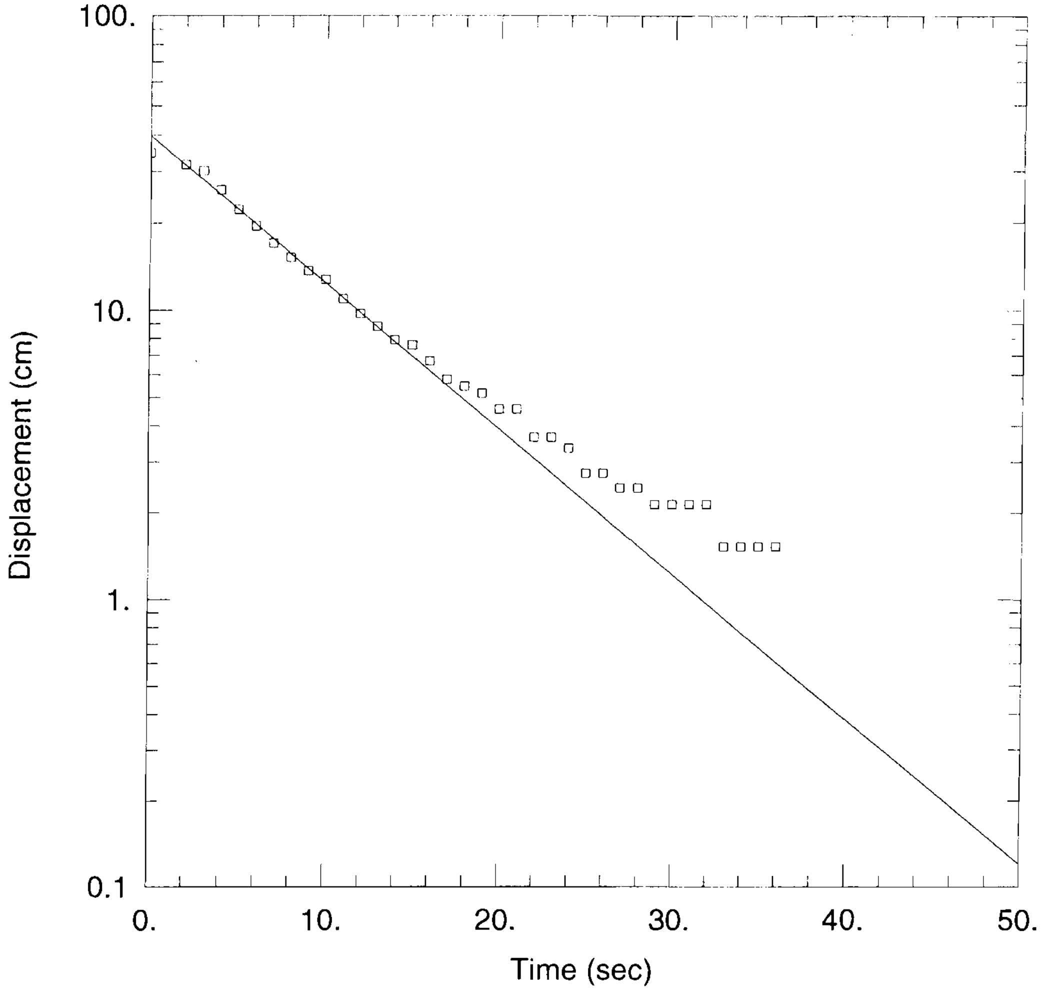
Saturated Thickness: 287. cm
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (MW-4)

Initial Displacement: 33.8 cm
Water Column Height: 287. cm
Casing Radius: 2.54 cm
Wellbore Radius: 10.16 cm
Screen Length: 152.4 cm

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.004981 cm/sec
y0 = 33.66 cm



MW-4 RISING HEAD SLUG TEST NO. 2

Data Set: P:\10000\15867\Y2000Telog\MW4r2.aqt
Date: 01/11/02 Time: 09:16:29

PROJECT INFORMATION

Company: CRA
Client: Seneca Street
Project: 15867
Test Location: Buffalo, NY
Test Date: 09/26/00

AQUIFER DATA

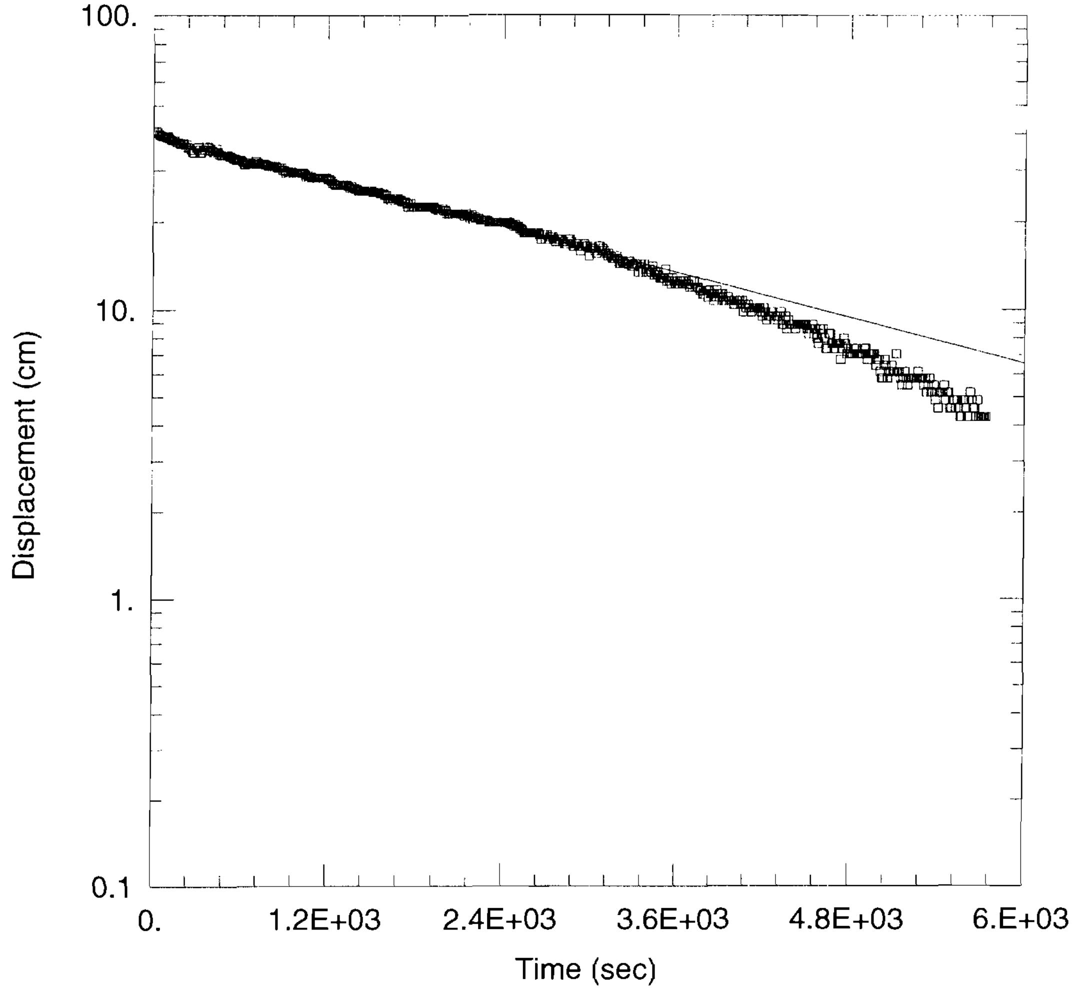
Saturated Thickness: 287. cm
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (MW-4)

Initial Displacement: 34.7 cm
Casing Radius: 2.54 cm
Screen Length: 152.4 cm
Water Column Height: 287. cm
Wellbore Radius: 10.16 cm

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.005723 cm/sec
y0 = 39.77 cm



MW-4A FALLING HEAD SLUG TEST NO. 1

Data Set: P:\10000\15867\Y2000Telog\MW4Af1.aqt
Date: 01/11/02 Time: 09:18:34

PROJECT INFORMATION

Company: CRA
Client: Seneca Street
Project: 15867
Test Location: Buffalo, NY
Test Date: 09/26/00

AQUIFER DATA

Saturated Thickness: 210. cm
Anisotropy Ratio (Kz/Kr): 1.

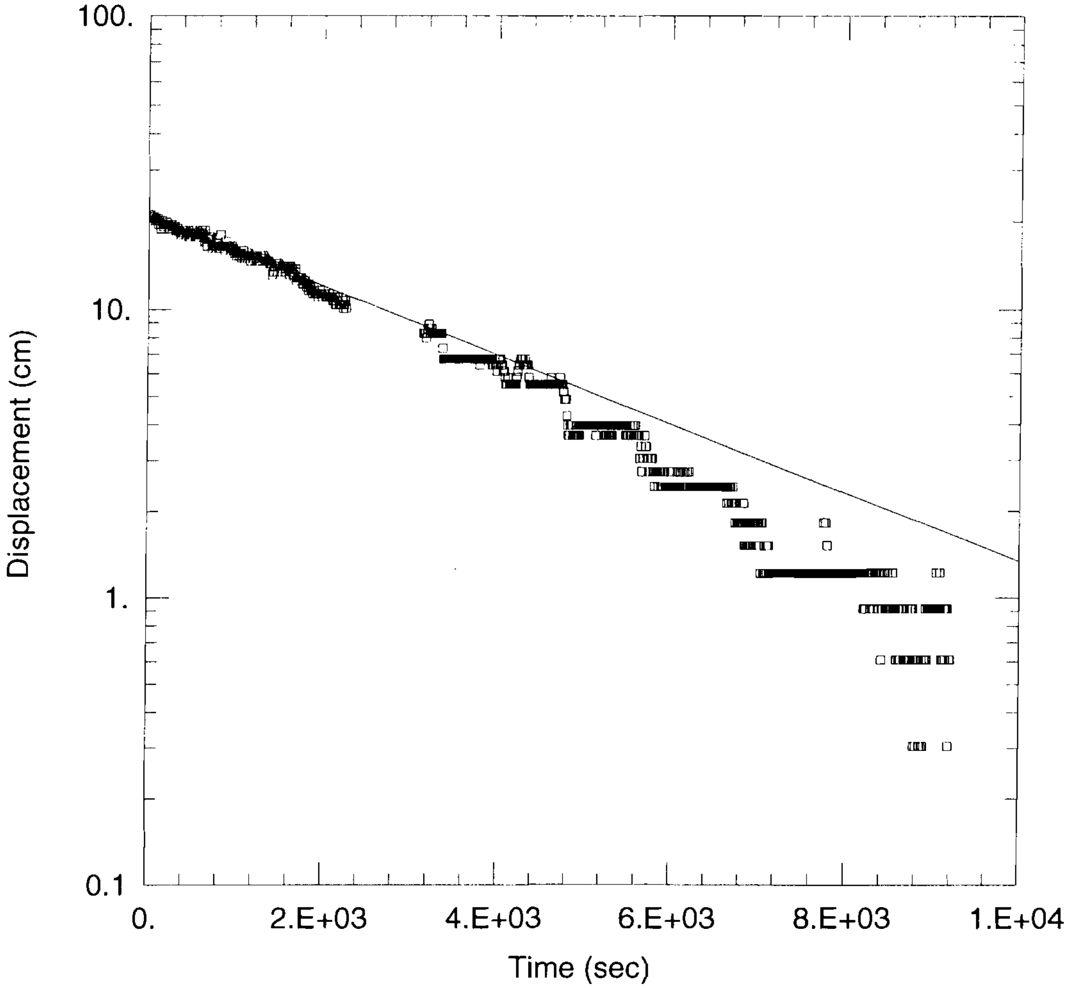
WELL DATA (MW-4A)

Initial Displacement: 41.1 cm
Casing Radius: 2.54 cm
Screen Length: 152.4 cm
Water Column Height: 568. cm
Wellbore Radius: 10.16 cm

SOLUTION

Aquifer Model: Confined
Solution Method: Bouwer-Rice

K = 1.693E-05 cm/sec
y0 = 39.28 cm



MW-4A RISING HEAD SLUG TEST NO. 1

Data Set: P:\10000\15867\Y2000Telog\MW4Ar1.aqt
Date: 01/11/02 Time: 09:19:29

PROJECT INFORMATION

Company: CRA
Client: Seneca Street
Project: 15867
Test Location: Buffalo, NY
Test Date: 09/26/00

AQUIFER DATA

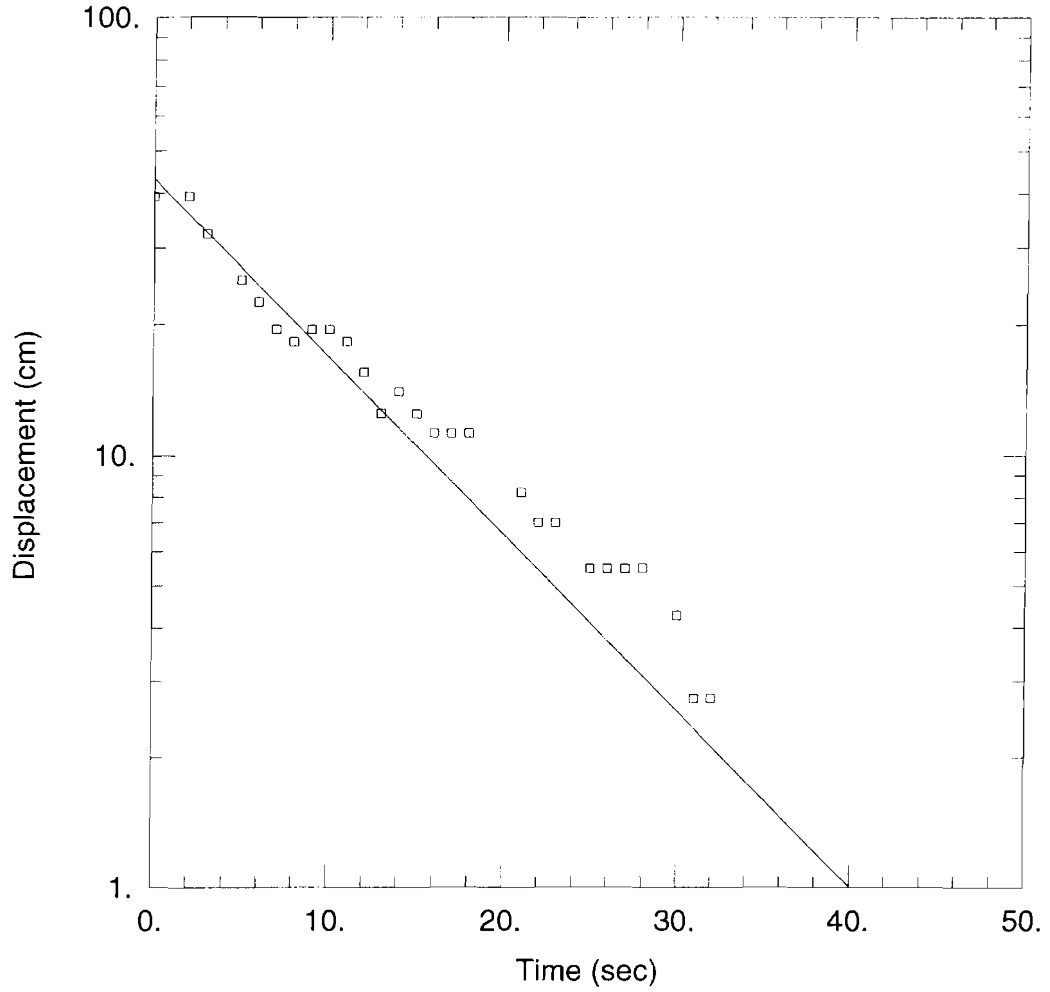
Saturated Thickness: 210. cm
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (MW-4A)

Initial Displacement: 21. cm
Water Column Height: 568. cm
Casing Radius: 2.54 cm
Wellbore Radius: 10.16 cm
Screen Length: 152.4 cm

SOLUTION

Aquifer Model: Confined
Solution Method: Bouwer-Rice
K = 1.554E-05 cm/sec
y0 = 20.79 cm



MW-5 FALLING HEAD SLUG TEST NO. 1

Data Set: P:\10000\15867\Y2000Telog\MW5f1.aqt
Date: 01/11/02 Time: 09:21:27

PROJECT INFORMATION

Company: CRA
Client: Seneca Street
Project: 15867
Test Location: Buffalo, NY
Test Date: 09/26/00

AQUIFER DATA

Saturated Thickness: 276. cm
Anisotropy Ratio (Kz/Kr): 1.

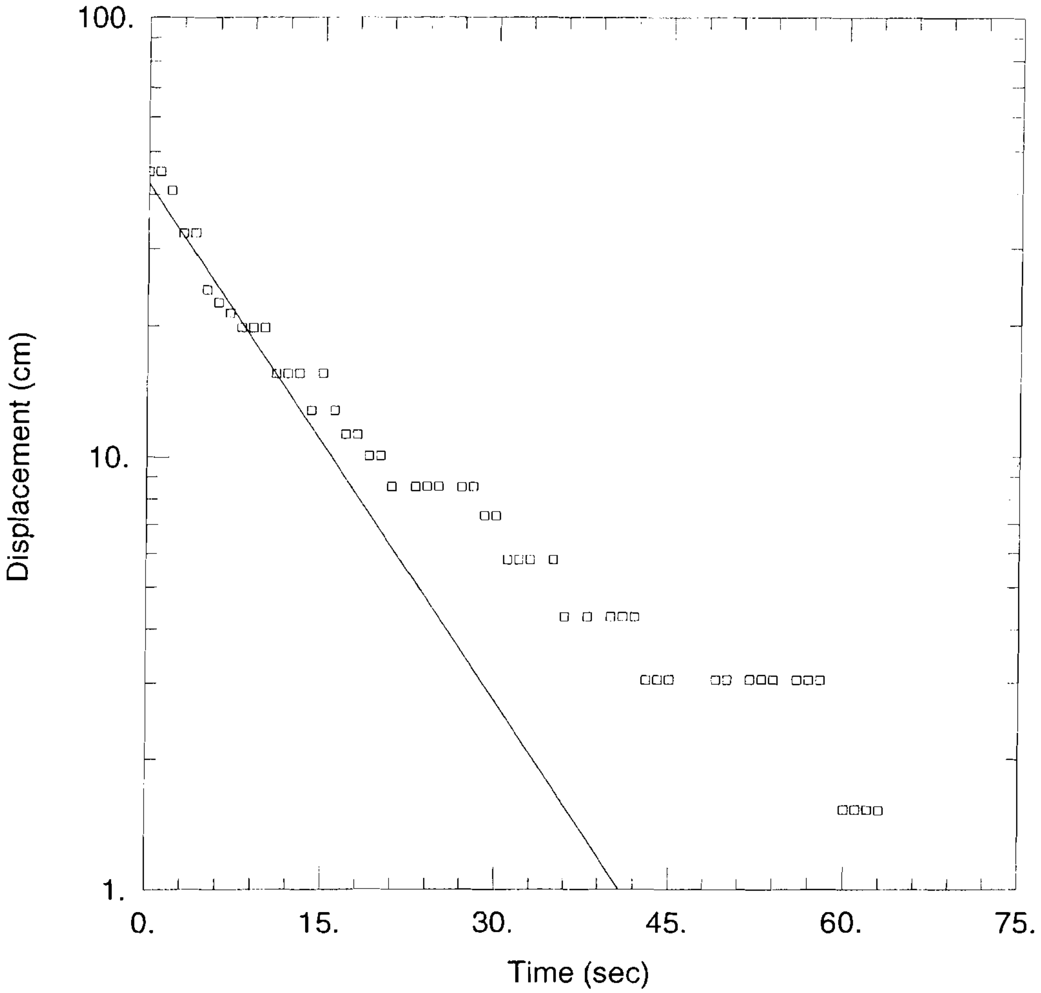
WELL DATA (MW-5)

Initial Displacement: 39.3 cm
Water Column Height: 276. cm
Casing Radius: 2.54 cm
Wellbore Radius: 10.16 cm
Screen Length: 152.4 cm

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice

K = 0.004594 cm/sec
y0 = 43.18 cm



MW-5 FALLING HEAD SLUG TEST NO. 2

Data Set: P:\10000\15867\Y2000Telog\MW5f2.aqt
Date: 01/11/02 Time: 09:23:32

PROJECT INFORMATION

Company: CRA
Client: Seneca Street
Project: 15867
Test Location: Buffalo, NY
Test Date: 09/26/00

AQUIFER DATA

Saturated Thickness: 276. cm
Anisotropy Ratio (Kz/Kr): 1.

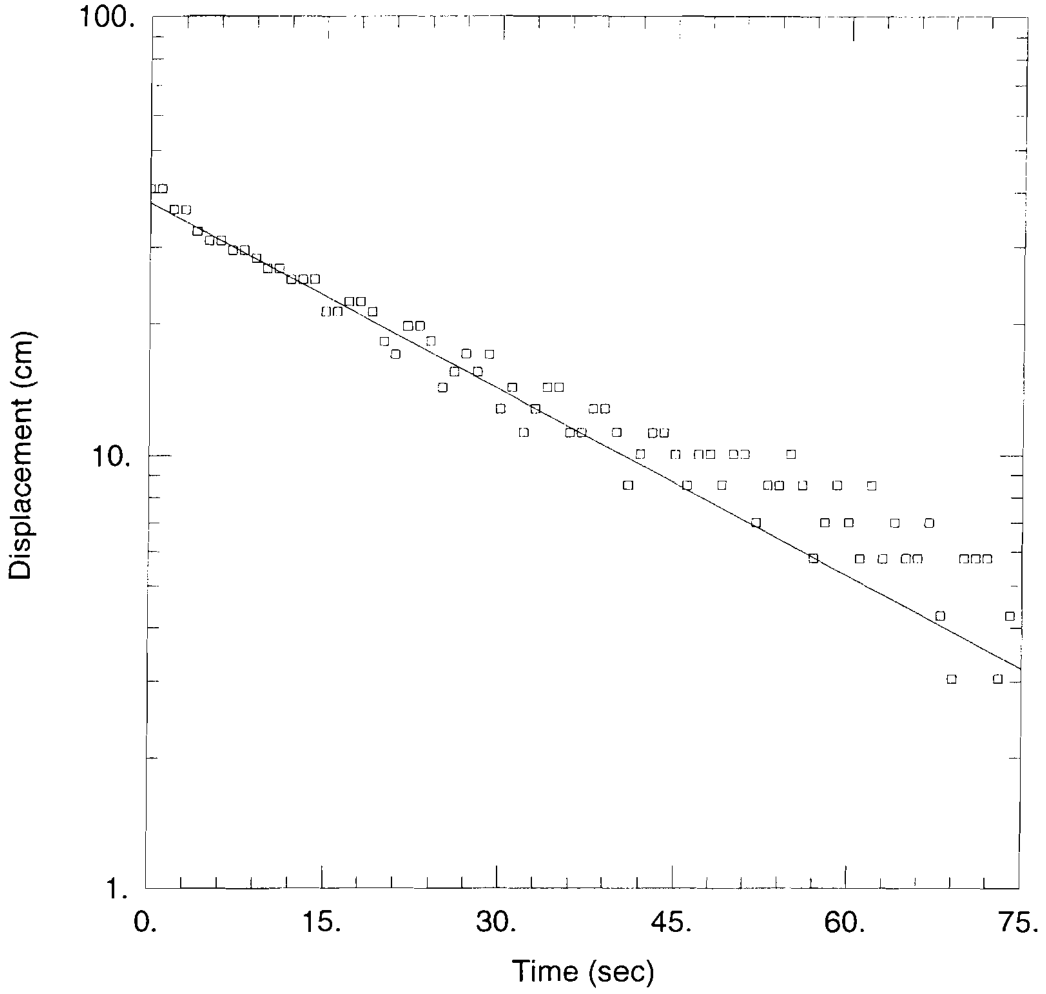
WELL DATA (MW-5)

Initial Displacement: 45.1 cm
Water Column Height: 276. cm
Casing Radius: 2.54 cm
Wellbore Radius: 10.16 cm
Screen Length: 152.4 cm

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice

K = 0.004484 cm/sec
y0 = 42.48 cm



MW-5 RISING HEAD SLUG TEST NO. 1

Data Set: P:\10000\15867\Y2000Telog\MW5r1.aqt
Date: 01/11/02 Time: 09:24:15

PROJECT INFORMATION

Company: CRA
Client: Seneca Street
Project: 15867
Test Location: Buffalo, NY
Test Date: 09/26/00

AQUIFER DATA

Saturated Thickness: 276. cm
Anisotropy Ratio (Kz/Kr): 1.

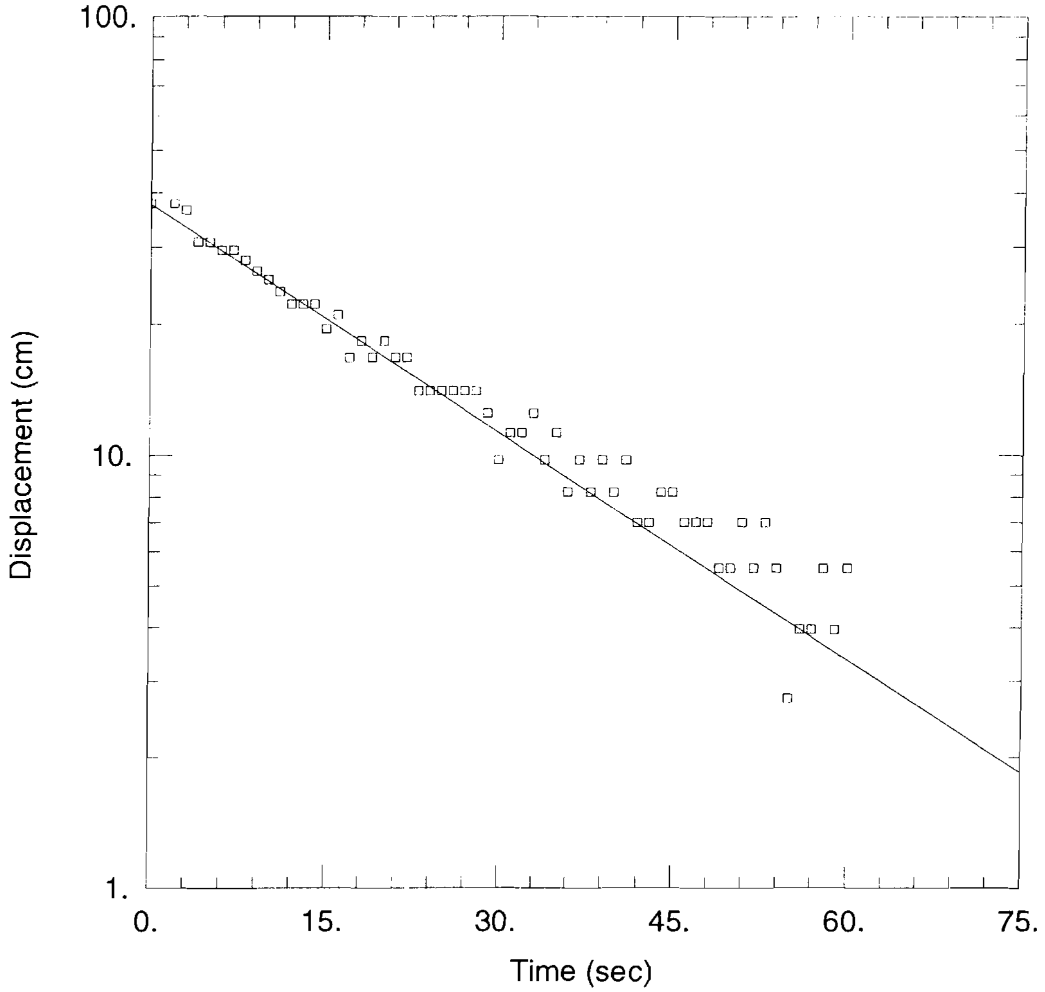
WELL DATA (MW-5)

Initial Displacement: 40.9 cm
Water Column Height: 276. cm
Casing Radius: 2.54 cm
Wellbore Radius: 10.16 cm
Screen Length: 152.4 cm

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice

K = 0.001608 cm/sec
y0 = 37.95 cm



MW-5 RISING HEAD SLUG TEST NO. 2

Data Set: P:\10000\15867\Y2000Telog\MW5r2.aqt
Date: 01/11/02 Time: 09:24:49

PROJECT INFORMATION

Company: CRA
Client: Seneca Street
Project: 15867
Test Location: Buffalo, NY
Test Date: 09/26/00

AQUIFER DATA

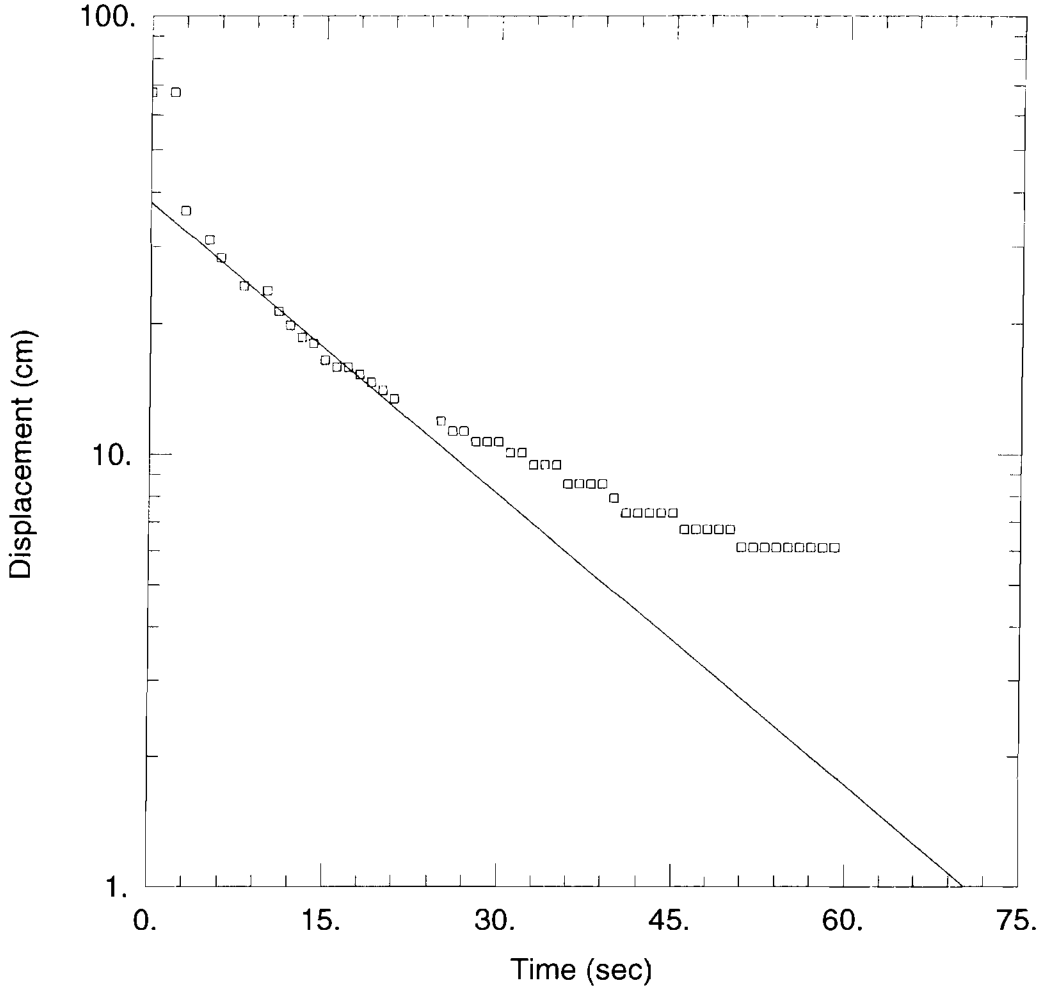
Saturated Thickness: 276. cm
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (MW-5)

Initial Displacement: 37.8 cm
Water Column Height: 276. cm
Casing Radius: 2.54 cm
Wellbore Radius: 10.16 cm
Screen Length: 152.4 cm

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.001963 cm/sec
y0 = 37.59 cm



MW-6 FALLING HEAD SLUG TEST NO. 1

Data Set: P:\10000\15867\Y2001Telog\jsv_slugtests\MW-6f1.aqt
Date: 01/11/02 Time: 13:56:10

PROJECT INFORMATION

Company: CRA
Client: Seneca Street
Project: 15867
Test Location: Buffalo, NY
Test Date: 09/26/00

AQUIFER DATA

Saturated Thickness: 306. cm
Anisotropy Ratio (Kz/Kr): 1.

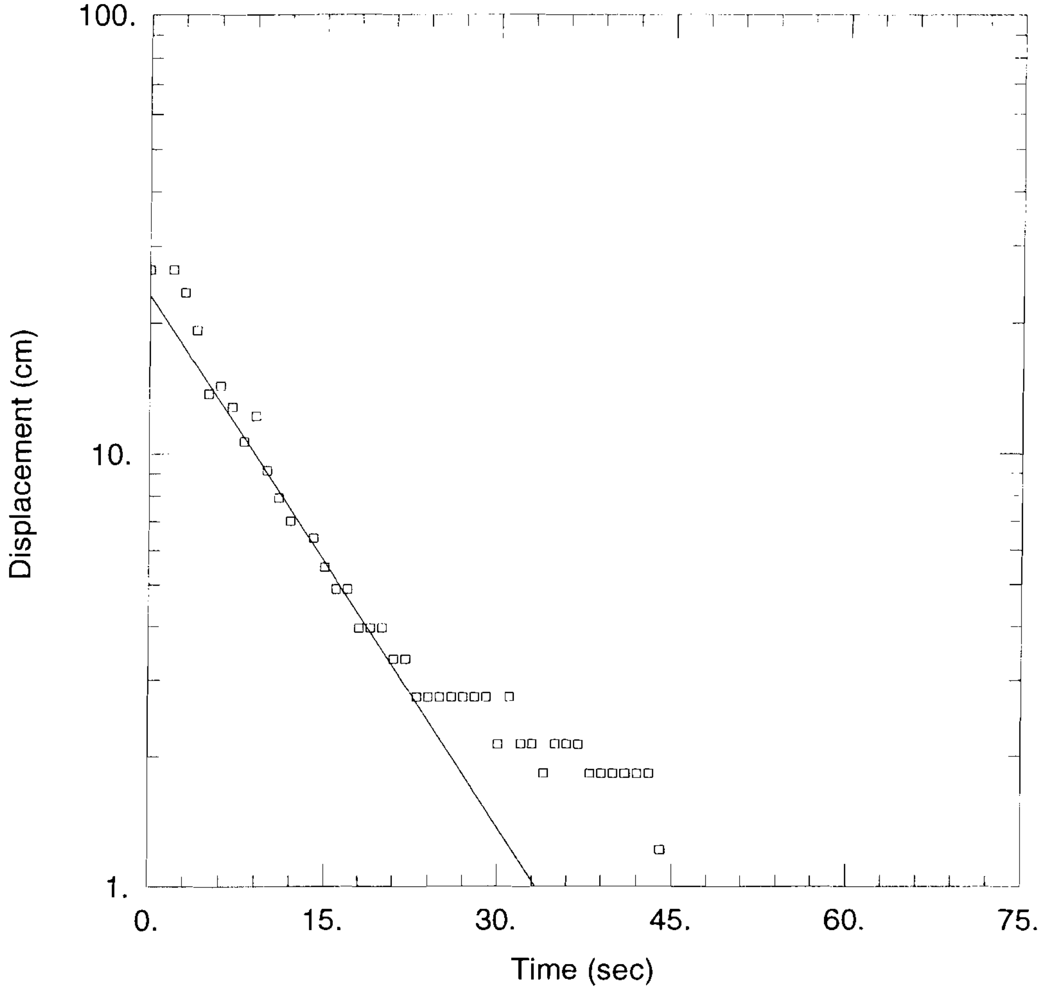
WELL DATA (MW-6)

Initial Displacement: 67.4 cm
Water Column Height: 306. cm
Casing Radius: 2.54 cm
Wellbore Radius: 10.16 cm
Screen Length: 152.4 cm

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice

K = 0.002586 cm/sec
y0 = 38.01 cm



MW-7 FALLING HEAD SLUG TEST NO. 1

Data Set: P:\10000\15867\Y2001Telog\jsv_slugtests\MW-7f1.aqt
Date: 01/11/02 Time: 14:20:21

PROJECT INFORMATION

Company: CRA
Client: Seneca Street
Project: 15867
Test Location: Buffalo, NY
Test Date: 09/26/00

AQUIFER DATA

Saturated Thickness: 286. cm
Anisotropy Ratio (Kz/Kr): 1.

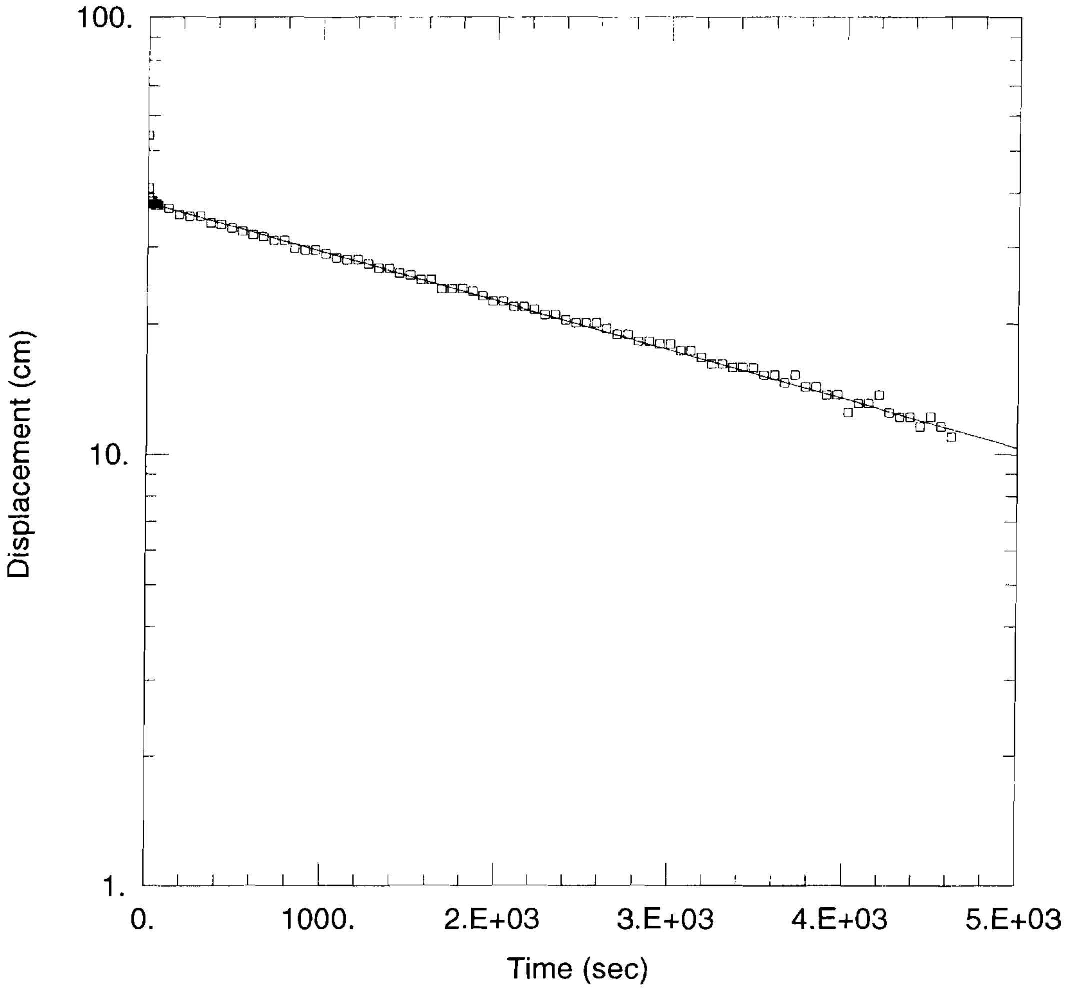
WELL DATA (MW-7)

Initial Displacement: 26.5 cm
Water Column Height: 286. cm
Casing Radius: 2.54 cm
Wellbore Radius: 10.16 cm
Screen Length: 152.4 cm

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice

K = 0.004646 cm/sec
y0 = 23.2 cm



MW-7A FALLING HEAD SLUG TEST NO. 1

Data Set: P:\10000\15867\Y2001Telog\jsv_slugtests\MW-7Af1.aqt
Date: 01/11/02 Time: 14:07:23

PROJECT INFORMATION

Company: CRA
Client: Seneca Street
Project: 15867
Test Location: Buffalo, NY
Test Date: 09/26/00

AQUIFER DATA

Saturated Thickness: 521. cm Anisotropy Ratio (Kz/Kr): 1.

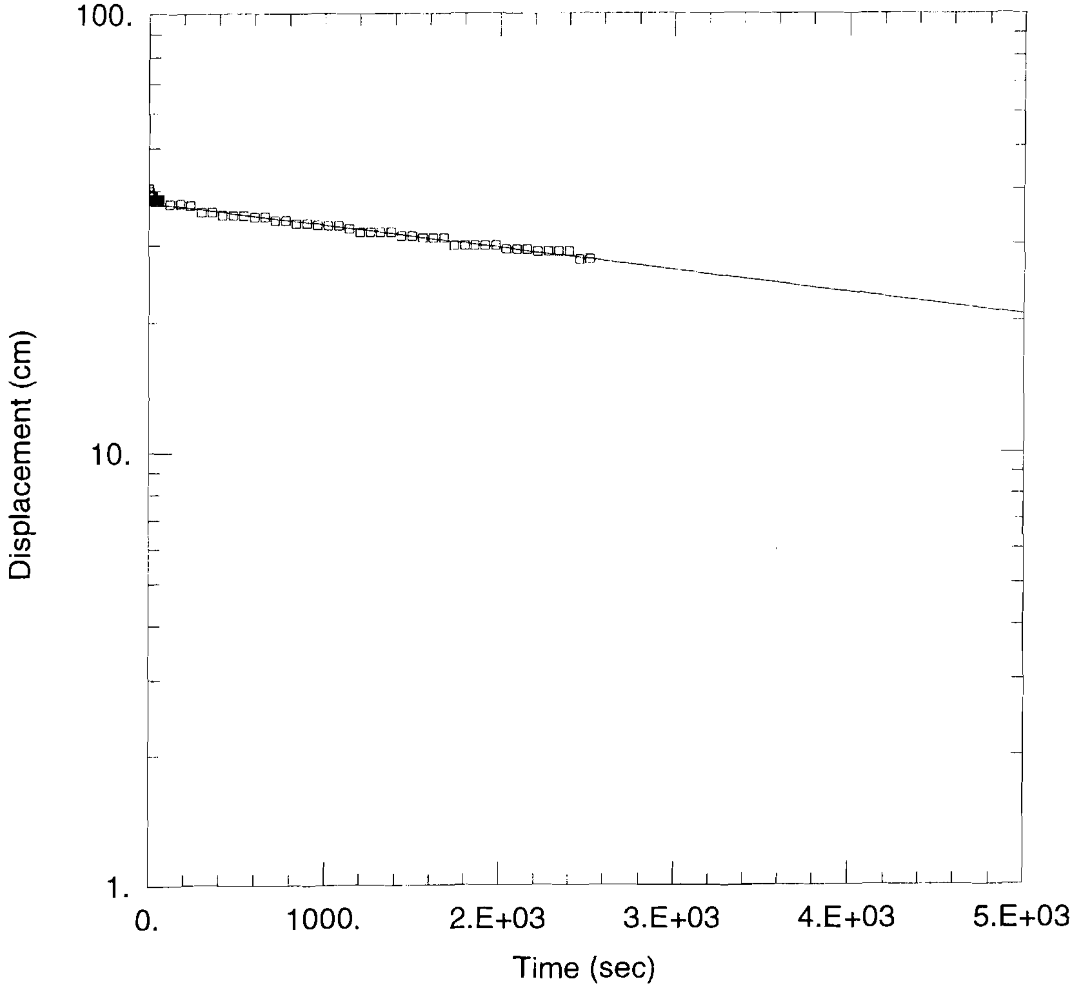
WELL DATA (MW-7A)

Initial Displacement: 54.3 cm Water Column Height: 521. cm
Casing Radius: 2.54 cm Wellbore Radius: 10.16 cm
Screen Length: 152.4 cm

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 1.452E-05 cm/sec y0 = 38.02 cm



MW-7A RISING HEAD SLUG TEST NO. 1

Data Set: P:\10000\15867\Y2001Telog\jsv_slugtests\MW-7AR1.aqt
Date: 01/11/02 Time: 14:09:09

PROJECT INFORMATION

Company: CRA
Client: Seneca Street
Project: 15867
Test Location: Buffalo, NY
Test Date: 09/26/00

AQUIFER DATA

Saturated Thickness: 521. cm
Anisotropy Ratio (Kz/Kr): 1.

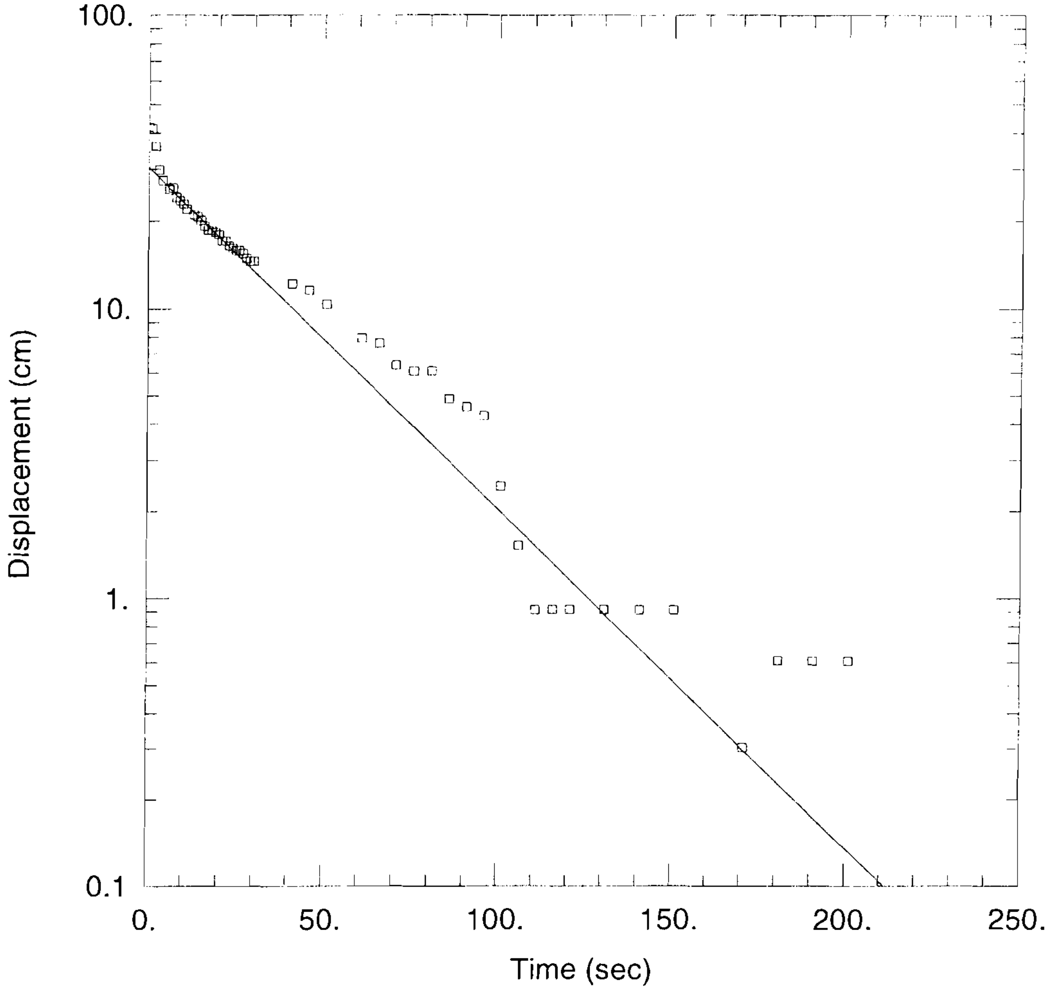
WELL DATA (MW-7A)

Initial Displacement: 40.6 cm
Casing Radius: 2.54 cm
Screen Length: 152.4 cm
Water Column Height: 521. cm
Wellbore Radius: 10.16 cm

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice

K = 6.603E-06 cm/sec
y0 = 37.49 cm



MW-8 FALLING HEAD SLUG TEST NO. 1

Data Set: P:\10000\15867\Y2001Telog\Jan02files\MW-8f1.aqt
Date: 01/23/02 Time: 15:02:22

PROJECT INFORMATION

Company: CRA
Client: Seneca Street
Project: 15867
Test Location: Buffalo, NY
Test Date: 09/26/00

AQUIFER DATA

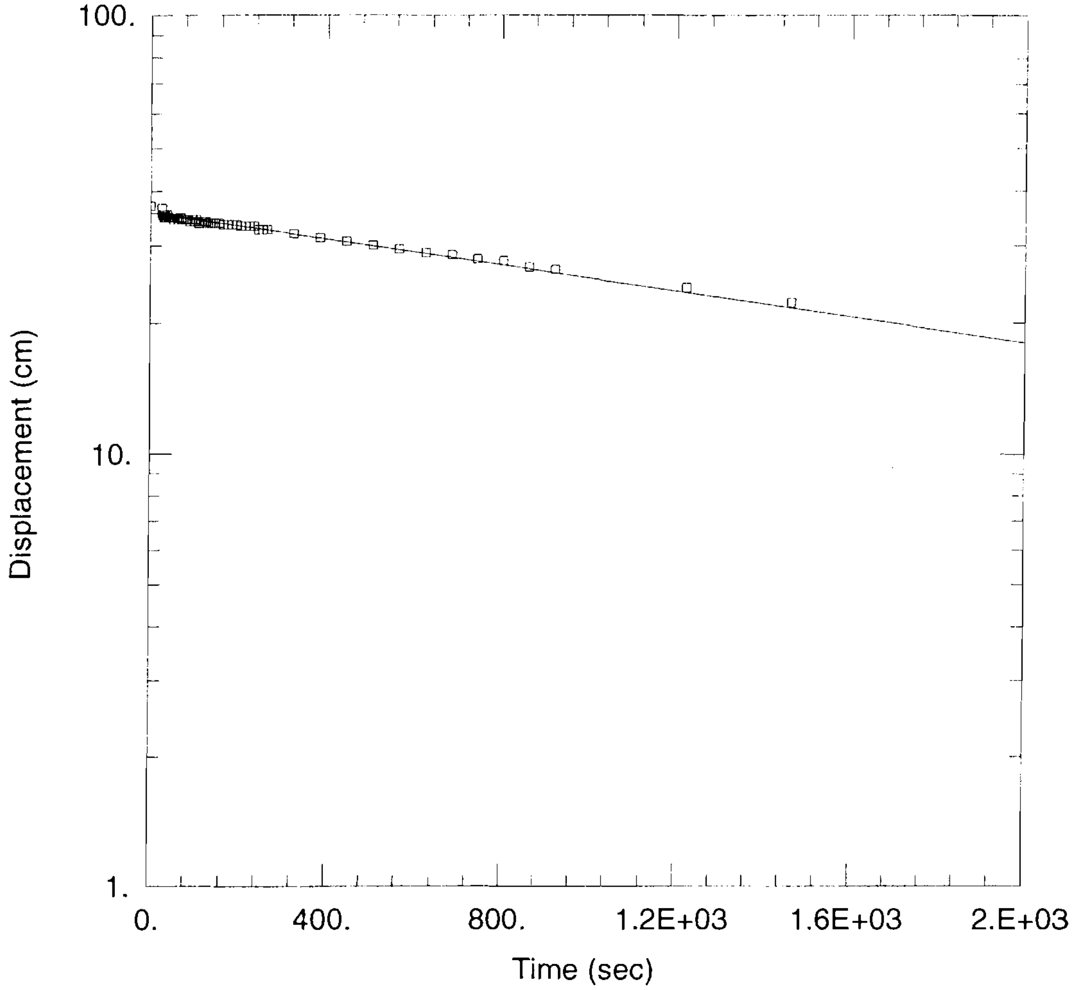
Saturated Thickness: 350. cm
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (MW-8)

Initial Displacement: 42. cm
Water Column Height: 350. cm
Casing Radius: 2.54 cm
Wellbore Radius: 10.16 cm
Screen Length: 152.4 cm

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.001394 cm/sec
y0 = 30.5 cm



MW-8A FALLING HEAD SLUG TEST NO. 1

Data Set: P:\10000\15867\Y2001Telog\Jan02files\MW-8af1.aqt
Date: 01/23/02 Time: 15:03:02

PROJECT INFORMATION

Company: CRA
Client: Seneca Street
Project: 15867
Test Location: Buffalo, NY
Test Date: 09/26/00

AQUIFER DATA

Saturated Thickness: 286. cm
Anisotropy Ratio (Kz/Kr): 1.

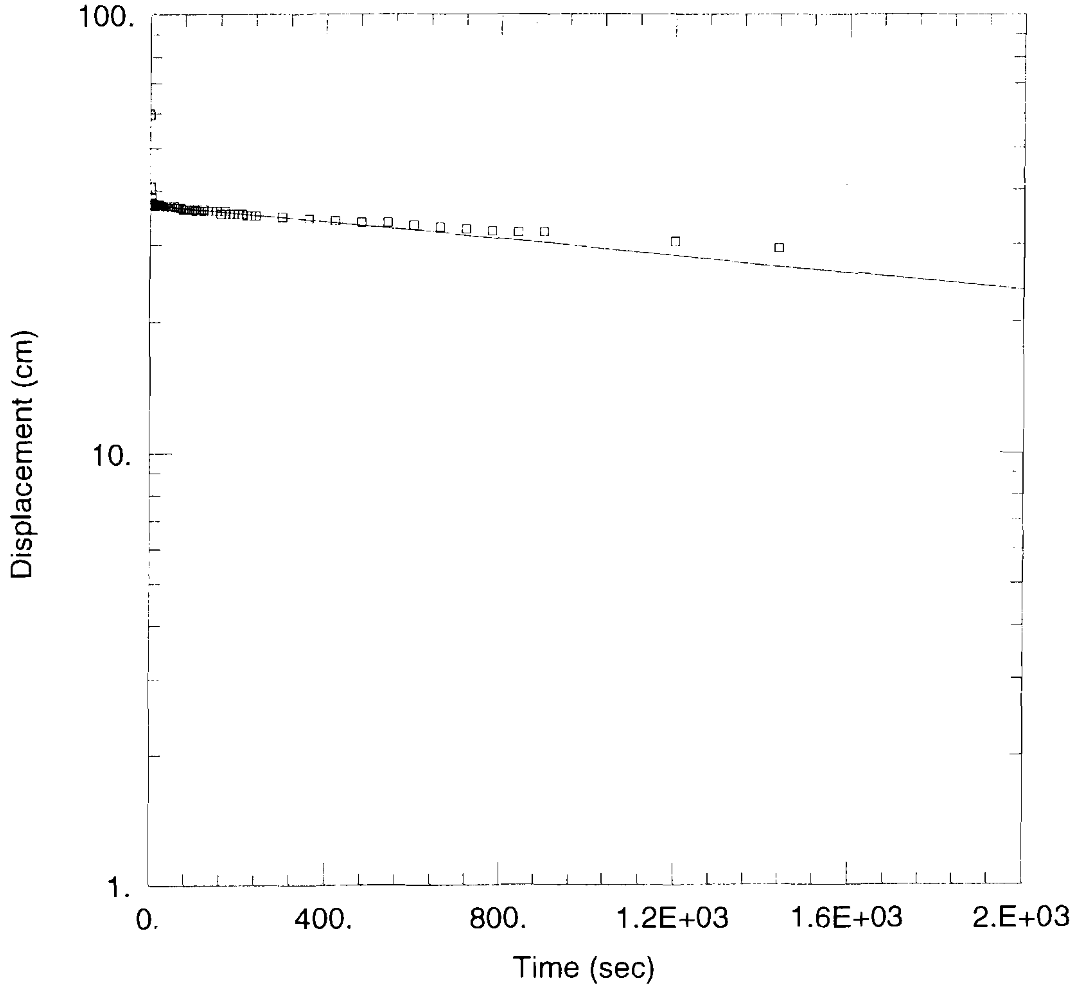
WELL DATA (MW-8A)

Initial Displacement: 37. cm
Casing Radius: 2.54 cm
Screen Length: 152.4 cm
Water Column Height: 559. cm
Wellbore Radius: 10.16 cm

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice

K = 1.932E-05 cm/sec
y0 = 35.71 cm



MW-8A RISING HEAD SLUG TEST NO. 1

Data Set: P:\10000\15867\Y2001Telog\Jan02files\MW-8ar1.aqt
Date: 01/23/02 Time: 15:03:25

PROJECT INFORMATION

Company: CRA
Client: Seneca Street
Project: 15867
Test Location: Buffalo, NY
Test Date: 09/26/00

AQUIFER DATA

Saturated Thickness: 559. cm
Anisotropy Ratio (Kz/Kr): 1.

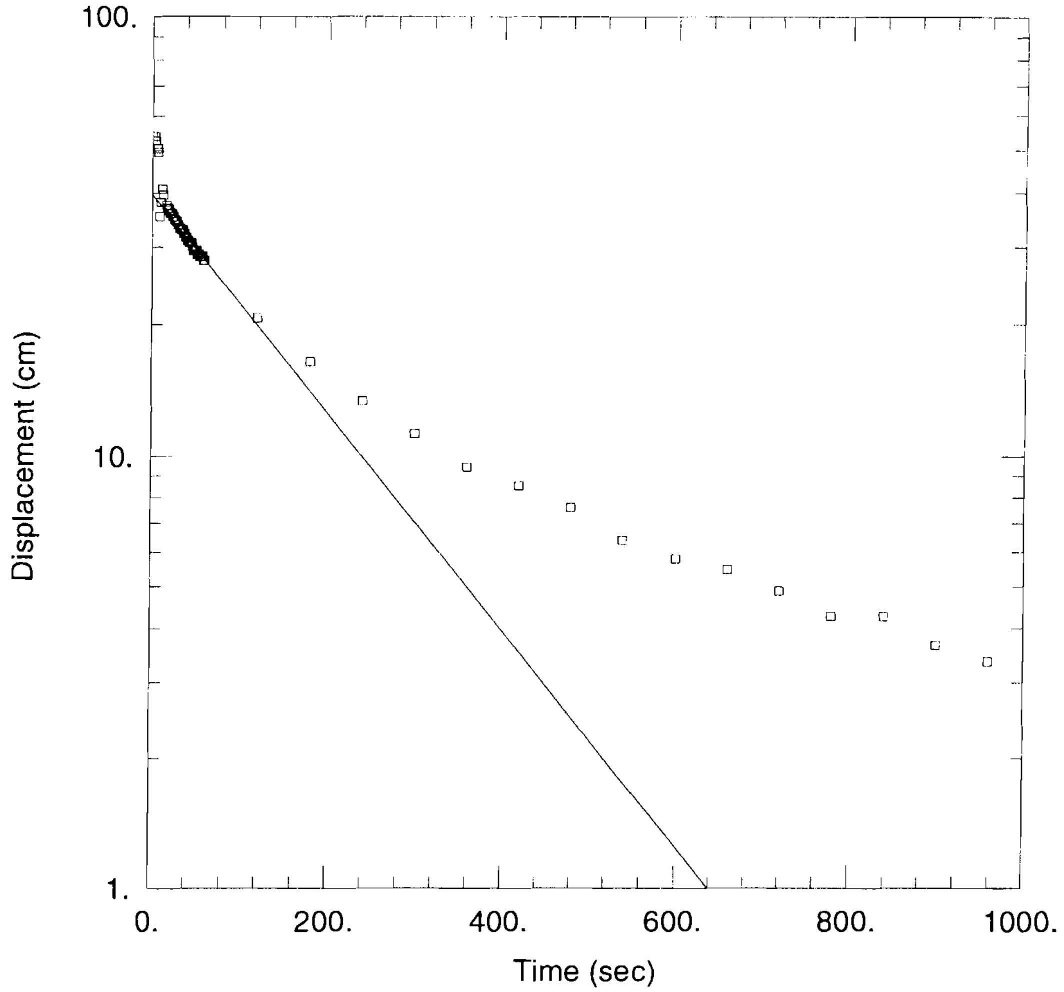
WELL DATA (MW-8A)

Initial Displacement: 60. cm
Casing Radius: 2.54 cm
Screen Length: 152.4 cm
Water Column Height: 559. cm
Wellbore Radius: 10.16 cm

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice

K = 1.274E-05 cm/sec
y0 = 37.12 cm



MW-9 FALLING HEAD SLUG TEST NO. 1

Data Set: P:\10000\15867\Y2001Telog\jsv_slugtests\MW-9Af1.aqt
Date: 01/11/02 Time: 14:13:12

PROJECT INFORMATION

Company: CRA
Client: Seneca Street
Project: 15867
Test Location: Buffalo, NY
Test Date: 09/26/00

AQUIFER DATA

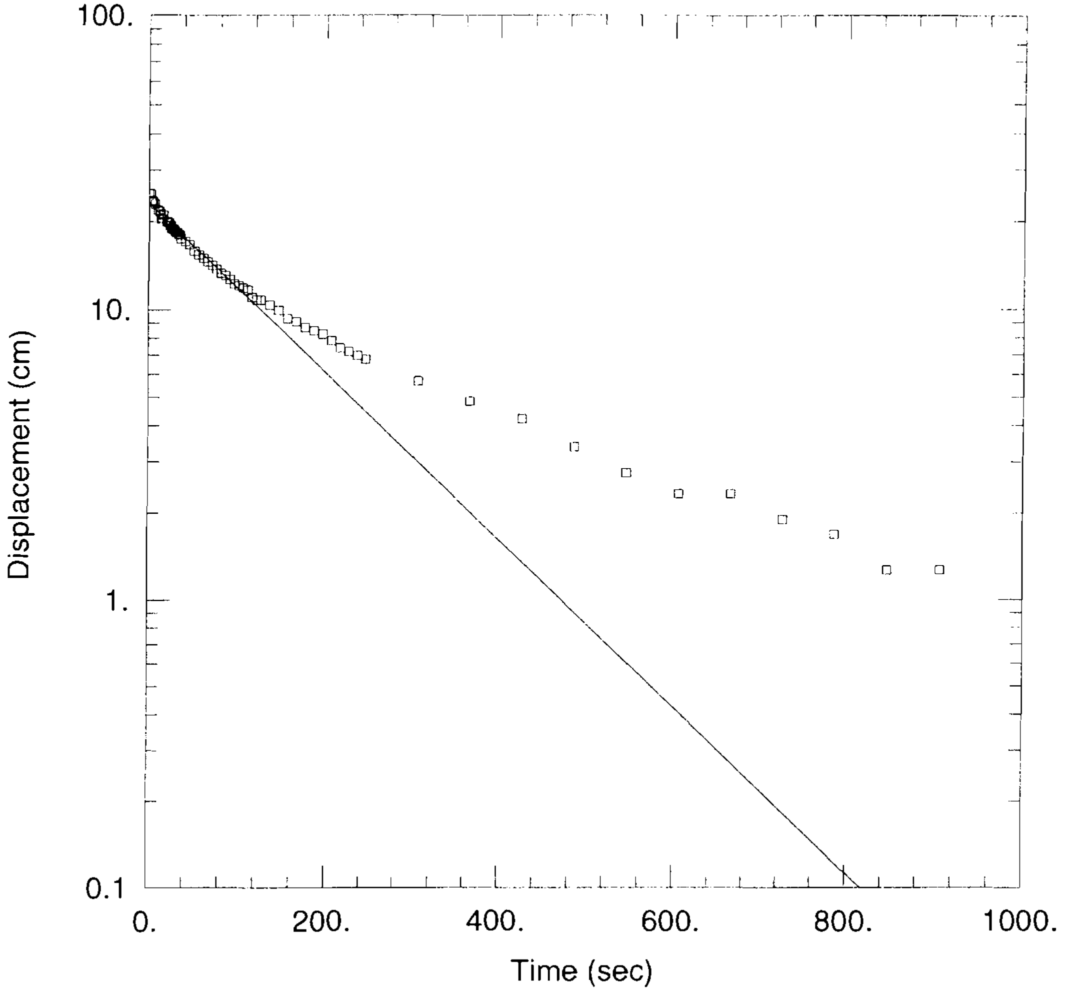
Saturated Thickness: 587. cm
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (MW-9A)

Initial Displacement: 54. cm
Water Column Height: 587. cm
Casing Radius: 2.54 cm
Wellbore Radius: 10.16 cm
Screen Length: 152.4 cm

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.0003284 cm/sec
y0 = 39.81 cm



MW-9A FALLING HEAD SLUG TEST NO. 1

Data Set: P:\10000\15867\Y2001Telog\Jan02files\MW-9af1.aqt
Date: 01/23/02 Time: 14:47:23

PROJECT INFORMATION

Company: CRA
Client: Seneca Street
Project: 15867
Test Location: Buffalo, NY
Test Date: 09/26/00

AQUIFER DATA

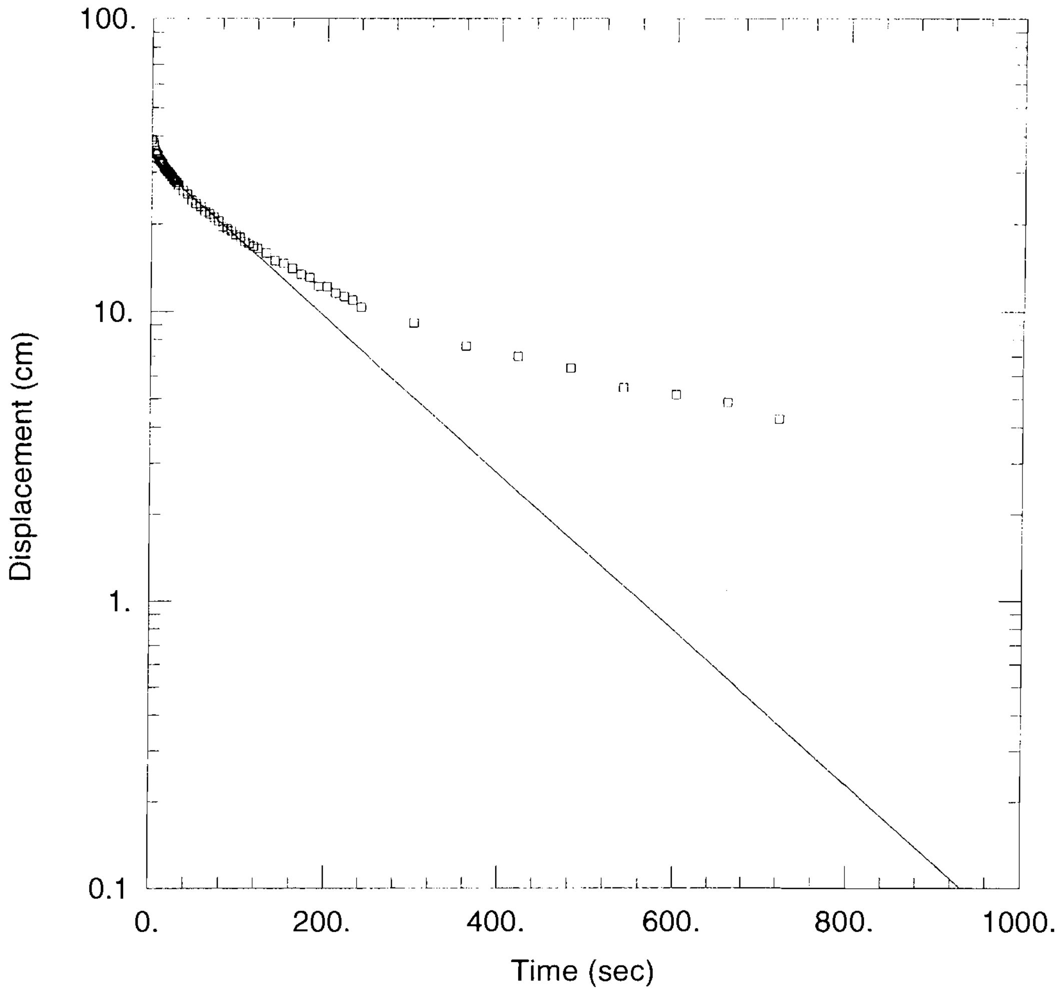
Saturated Thickness: 565. cm
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (MW-11)

Initial Displacement: 25. cm
Water Column Height: 565. cm
Casing Radius: 2.54 cm
Wellbore Radius: 10.16 cm
Screen Length: 152.4 cm

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.0003769 cm/sec
y0 = 23.15 cm



MW-9A RISING HEAD SLUG TEST NO. 1

Data Set: P:\10000\15867\Y2001Telog\Jan02files\MW-9ar1.aqt
Date: 01/23/02 Time: 14:49:10

PROJECT INFORMATION

Company: CRA
Client: Seneca Street
Project: 15867
Test Location: Buffalo, NY
Test Date: 09/26/00

AQUIFER DATA

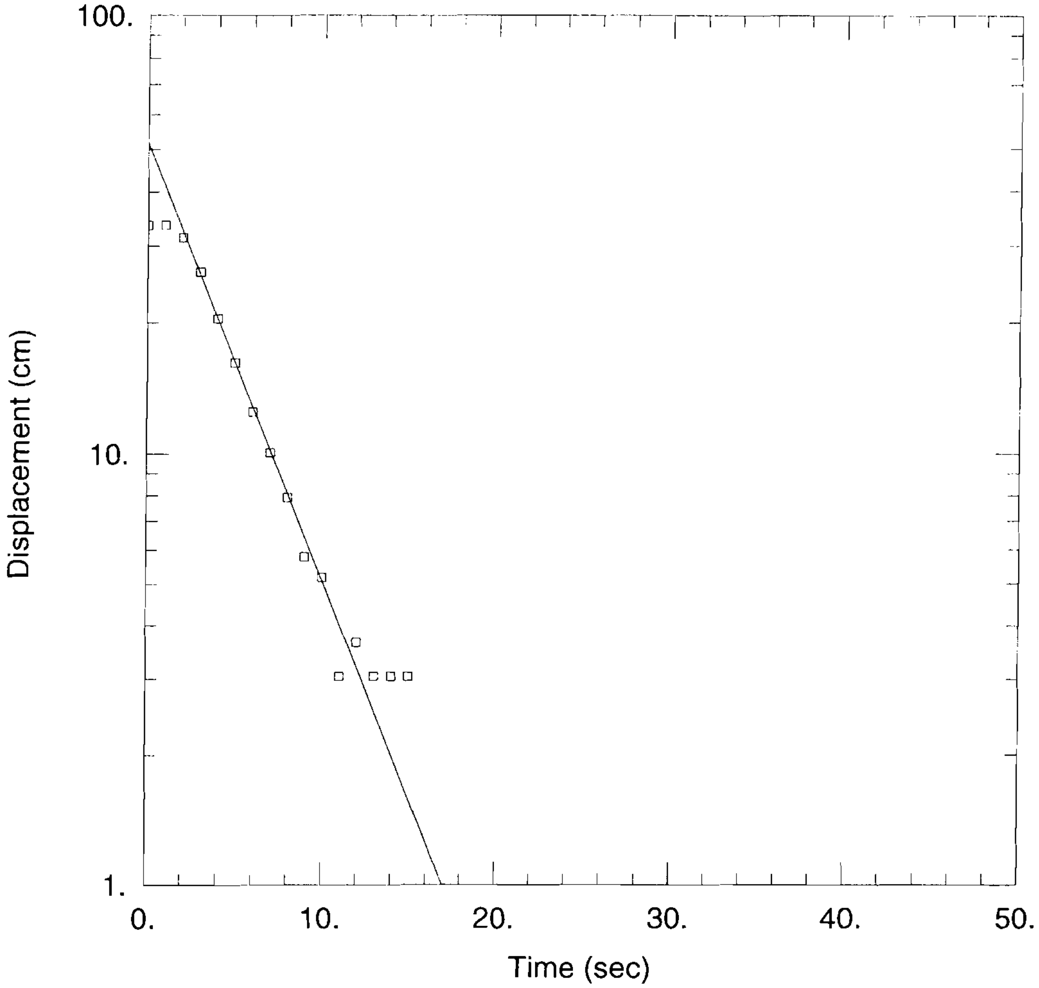
Saturated Thickness: 565. cm
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (MW-11)

Initial Displacement: 39. cm
Casing Radius: 2.54 cm
Screen Length: 152.4 cm
Water Column Height: 565. cm
Wellbore Radius: 10.16 cm

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.0003523 cm/sec
y0 = 33.01 cm



MW-11 FALLING HEAD SLUG TEST NO. 1

Data Set: P:\10000\15867\Y2001Telog\jsv_slugtests\MW-11f1.aqt
Date: 01/11/02 Time: 14:18:30

PROJECT INFORMATION

Company: CRA
Client: Seneca Street
Project: 15867
Test Location: Buffalo, NY
Test Date: 09/26/00

AQUIFER DATA

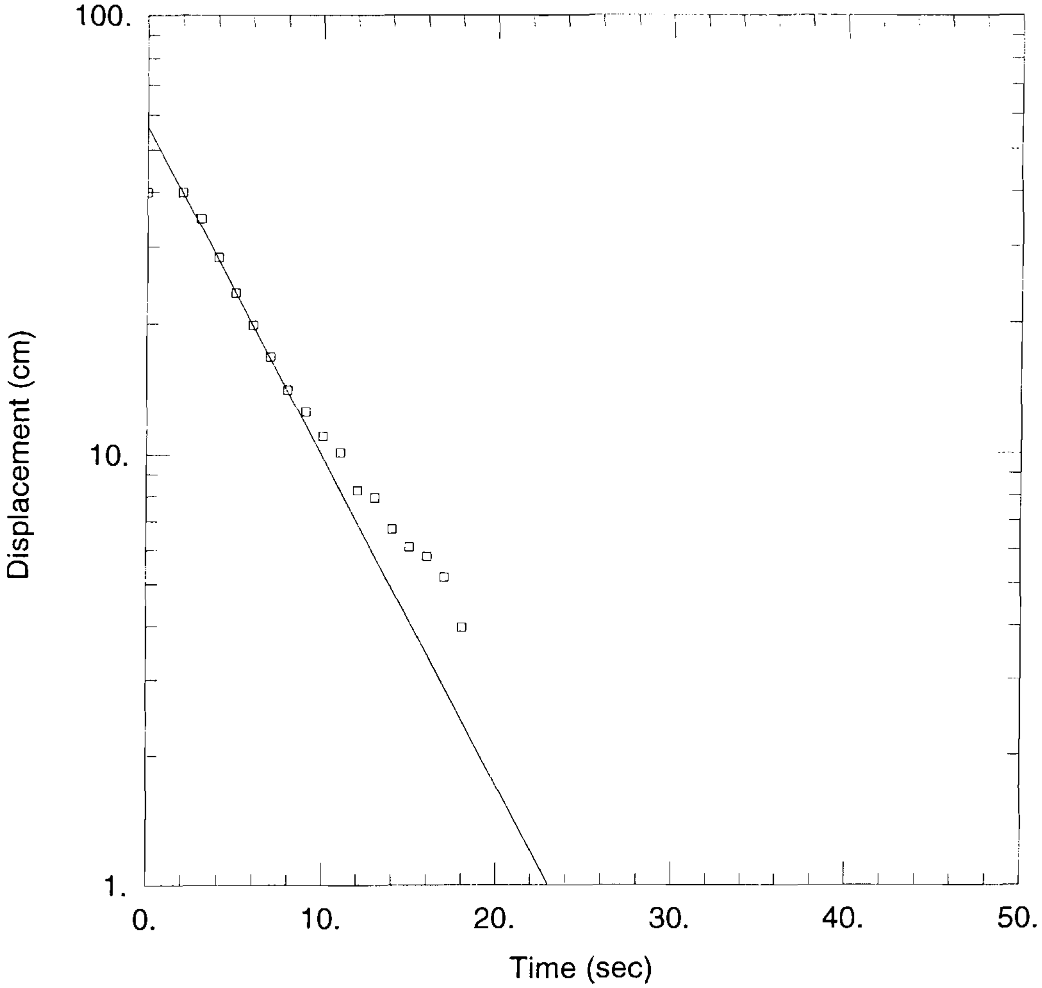
Saturated Thickness: 288. cm
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (MW-11)

Initial Displacement: 33.5 cm
Water Column Height: 288. cm
Casing Radius: 2.54 cm
Wellbore Radius: 10.16 cm
Screen Length: 152.4 cm

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.01145 cm/sec
y0 = 51.92 cm



MW-11 RISING HEAD SLUG TEST NO. 1

Data Set: P:\10000\15867\Y2001Telog\jsv_slugtests\MW-11r1.aqt
Date: 01/11/02 Time: 14:19:47

PROJECT INFORMATION

Company: CRA
Client: Seneca Street
Project: 15867
Test Location: Buffalo, NY
Test Date: 09/26/00

AQUIFER DATA

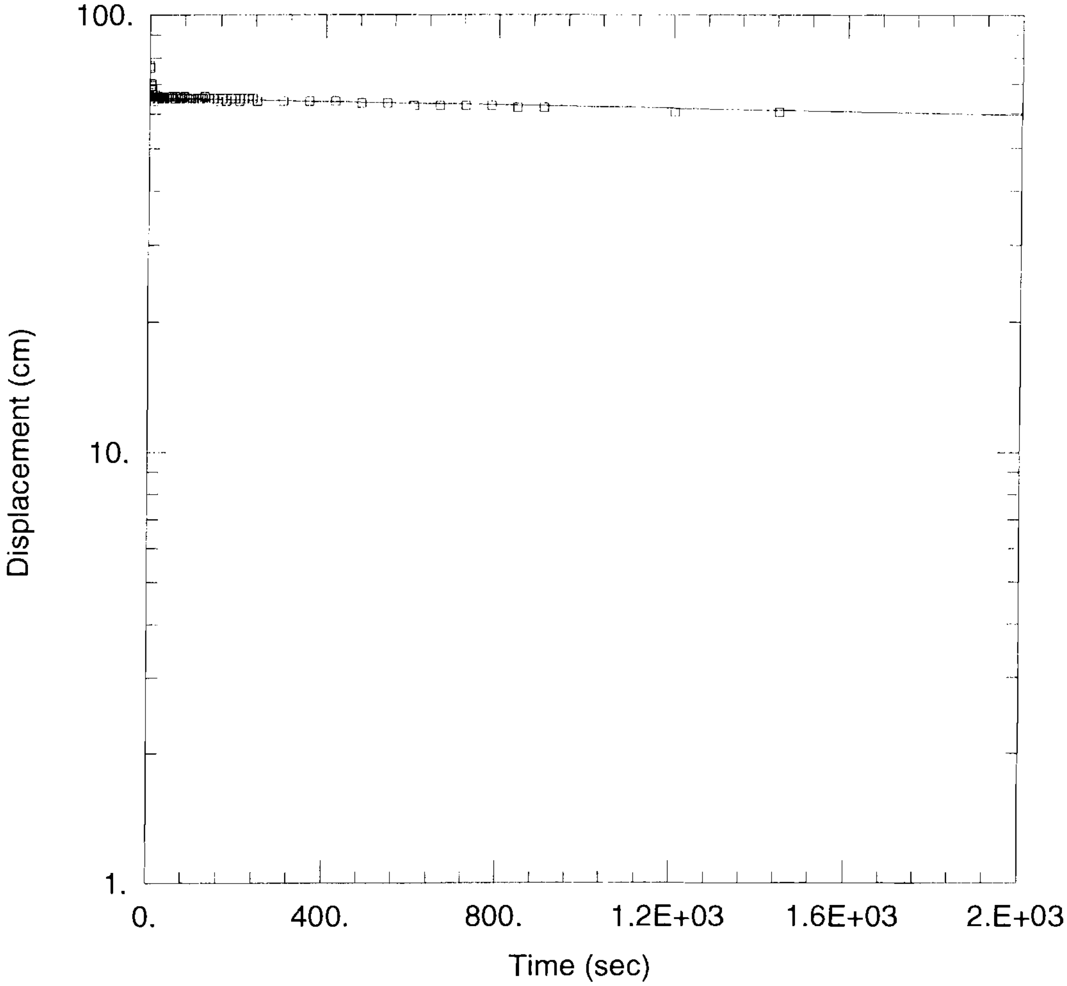
Saturated Thickness: 288. cm
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (MW-11)

Initial Displacement: 40. cm
Casing Radius: 2.54 cm
Screen Length: 152.4 cm
Water Column Height: 288. cm
Wellbore Radius: 10.16 cm

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.008647 cm/sec
y0 = 56.59 cm



MW-11A FALLING HEAD SLUG TEST NO. 1

Data Set: P:\10000\15867\Y2001Telog\Jan02files\MW-11aF1.aqt
Date: 01/23/02 Time: 15:03:57

PROJECT INFORMATION

Company: CRA
Client: Seneca Street
Project: 15867
Test Location: Buffalo, NY
Test Date: 09/26/00

AQUIFER DATA

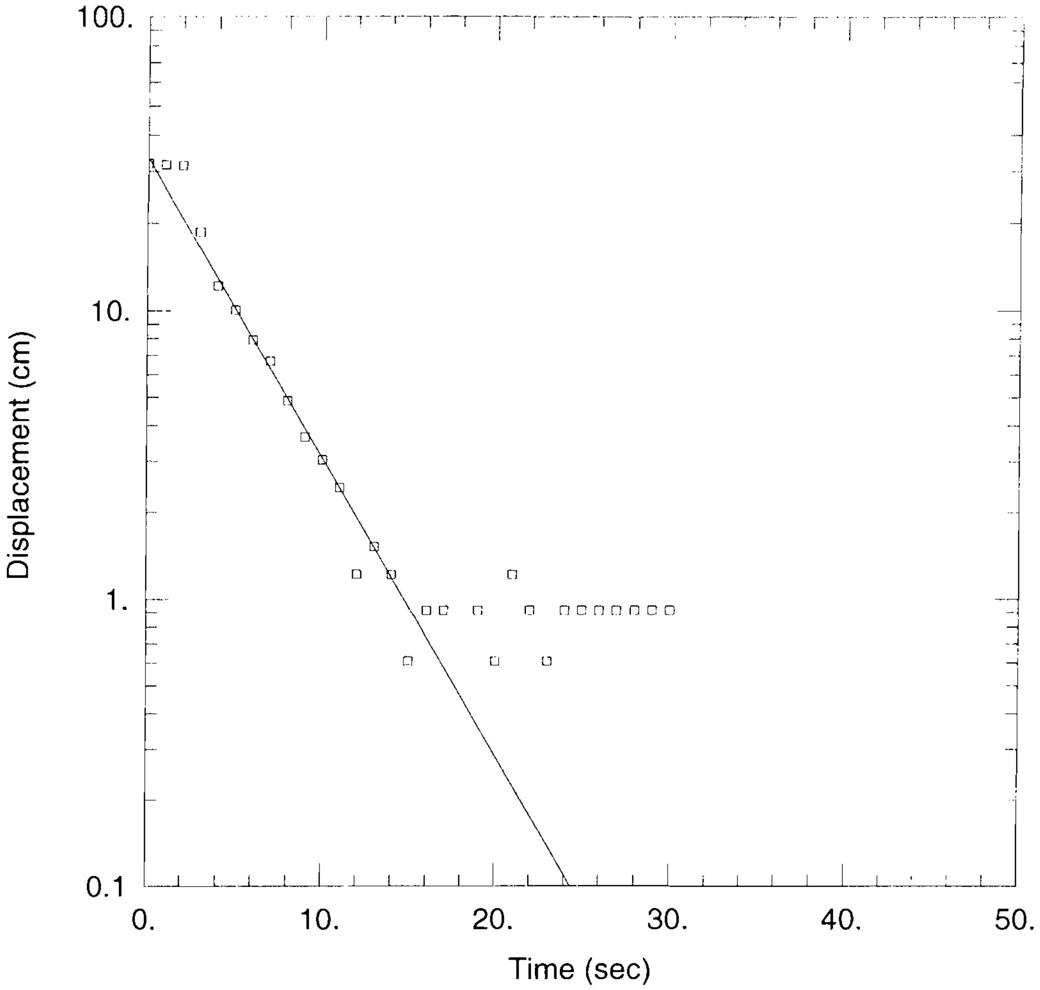
Saturated Thickness: 540. cm
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (MW-11A)

Initial Displacement: 77. cm
Water Column Height: 540. cm
Casing Radius: 2.54 cm
Wellbore Radius: 10.16 cm
Screen Length: 152.4 cm

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 2.504E-06 cm/sec
y0 = 65.06 cm



MW-12 FALLING HEAD SLUG TEST NO. 1

Data Set: P:\10000\15867\Y2001Telog\Jan02files\MW-12f1.aqt
Date: 01/23/02 Time: 14:32:19

PROJECT INFORMATION

Company: CRA
Client: Seneca Street
Project: 15867
Test Location: Buffalo, NY
Test Date: 09/26/00

AQUIFER DATA

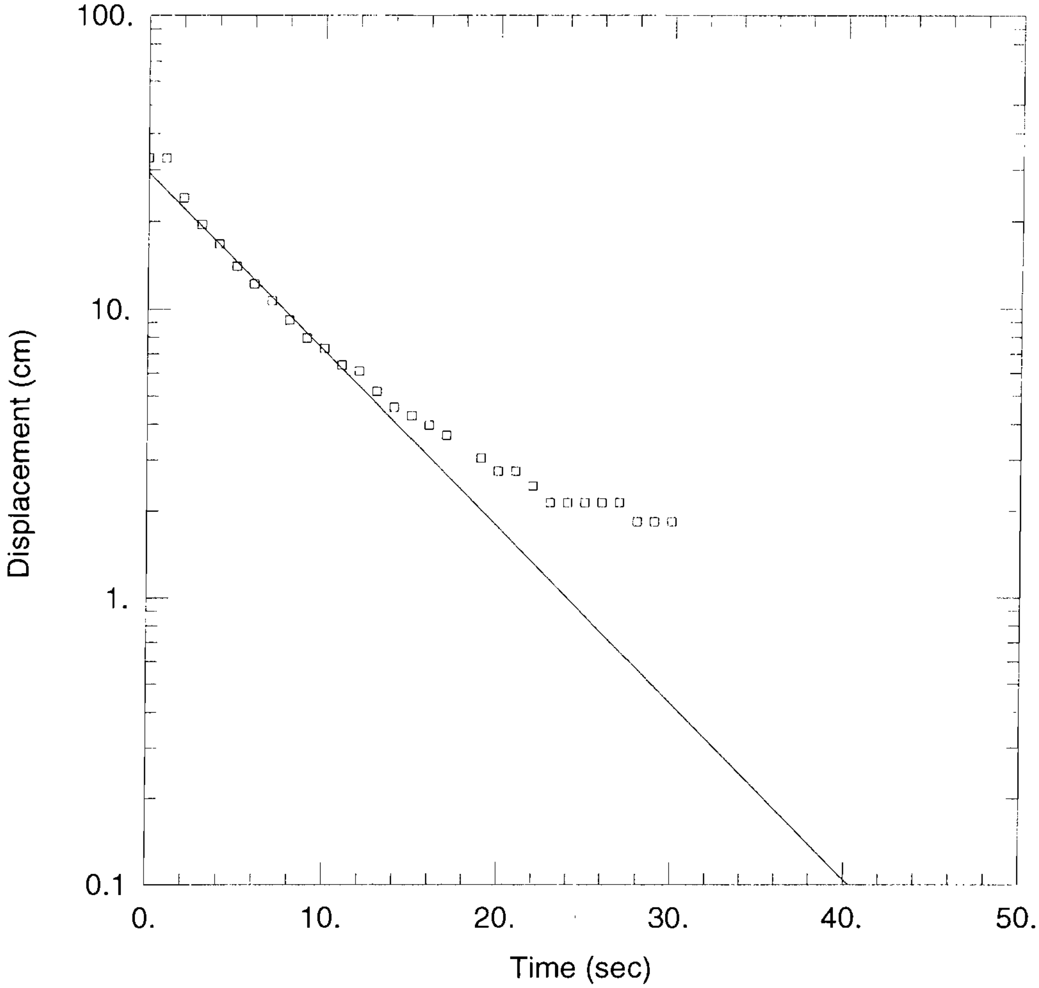
Saturated Thickness: 302. cm
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (MW-12)

Initial Displacement: 32. cm
Water Column Height: 302. cm
Casing Radius: 2.54 cm
Wellbore Radius: 10.16 cm
Screen Length: 152.4 cm

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.01189 cm/sec
y0 = 33.52 cm



MW-12 RISING HEAD SLUG TEST NO. 1

Data Set: P:\10000\15867\Y2001Telog\Jan02files\MW-12r1.aqt
Date: 01/23/02 Time: 14:34:27

PROJECT INFORMATION

Company: CRA
Client: Seneca Street
Project: 15867
Test Location: Buffalo, NY
Test Date: 09/26/00

AQUIFER DATA

Saturated Thickness: 302. cm Anisotropy Ratio (Kz/Kr): 1.

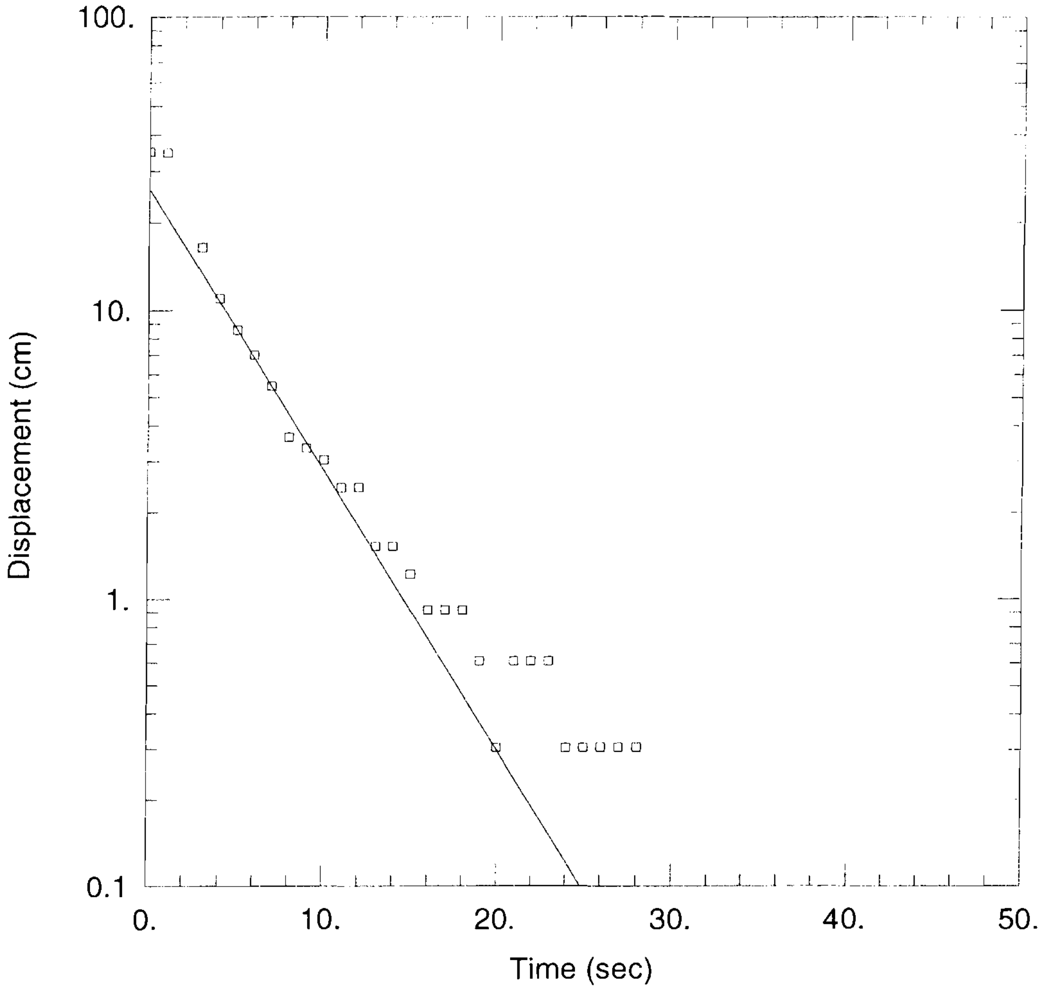
WELL DATA (MW-12)

Initial Displacement: 33. cm Water Column Height: 302. cm
Casing Radius: 2.54 cm Wellbore Radius: 10.16 cm
Screen Length: 152.4 cm

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 0.007039 cm/sec y0 = 29.5 cm



MW-12 FALLING HEAD SLUG TEST NO. 2

Data Set: P:\10000\15867\Y2001Telog\Jan02files\MW-12f2.aqt
Date: 01/23/02 Time: 14:37:41

PROJECT INFORMATION

Company: CRA
Client: Seneca Street
Project: 15867
Test Location: Buffalo, NY
Test Date: 09/26/00

AQUIFER DATA

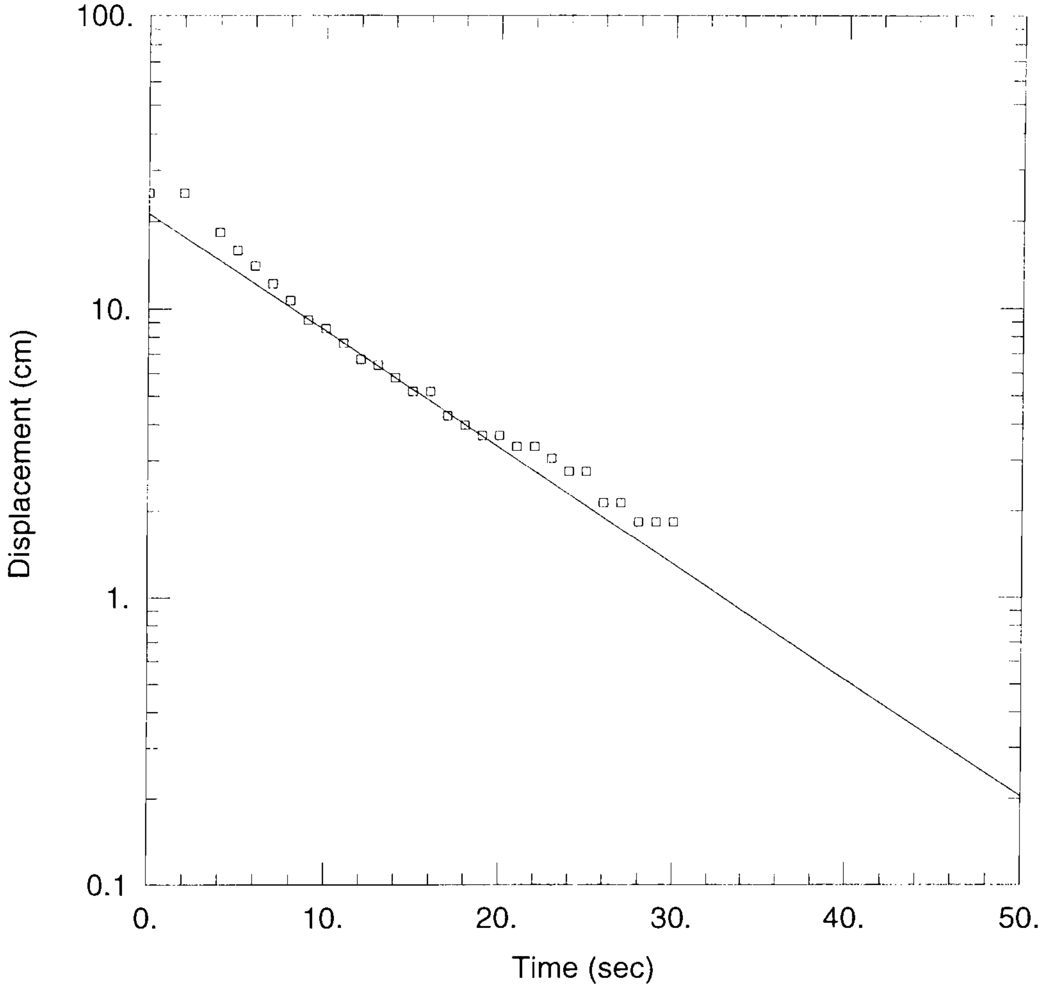
Saturated Thickness: 302. cm
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (MW-12)

Initial Displacement: 35. cm
Water Column Height: 302. cm
Casing Radius: 2.54 cm
Wellbore Radius: 10.16 cm
Screen Length: 152.4 cm

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.01117 cm/sec
y0 = 26.3 cm



MW-12 RISING HEAD SLUG TEST NO. 2

Data Set: P:\10000\15867\Y2001Telog\Jan02files\MW-12r2.aqt
Date: 01/23/02 Time: 14:40:10

PROJECT INFORMATION

Company: CRA
Client: Seneca Street
Project: 15867
Test Location: Buffalo, NY
Test Date: 09/26/00

AQUIFER DATA

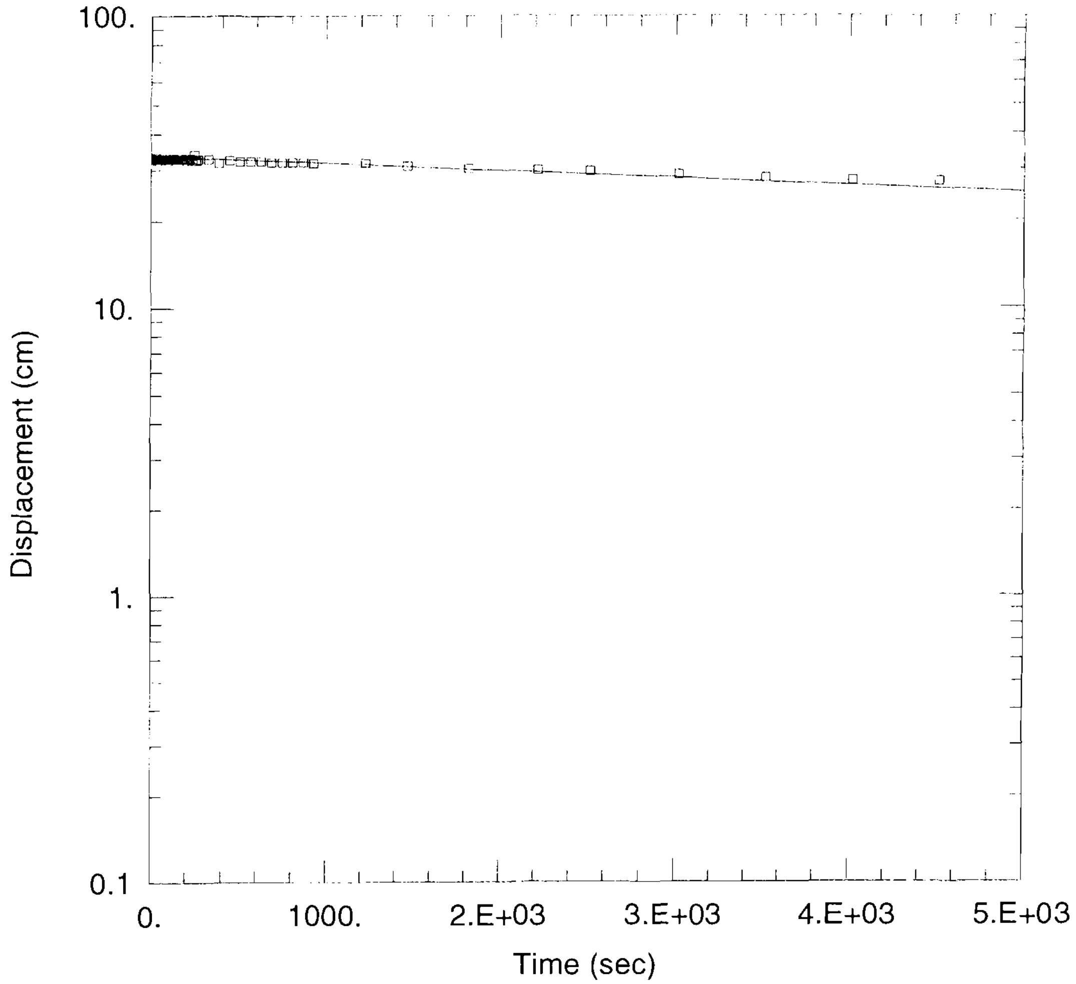
Saturated Thickness: 302. cm
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (MW-12)

Initial Displacement: 25. cm
Water Column Height: 302. cm
Casing Radius: 2.54 cm
Wellbore Radius: 10.16 cm
Screen Length: 152.4 cm

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.004638 cm/sec
y0 = 21.31 cm



MW-12A FALLING HEAD SLUG TEST NO. 1

Data Set: P:\10000\15867\Y2001Telog\Jan02files\MW-12af1.aqt
Date: 01/23/02 Time: 14:43:05

PROJECT INFORMATION

Company: CRA
Client: Seneca Street
Project: 15867
Test Location: Buffalo, NY
Test Date: 09/26/00

AQUIFER DATA

Saturated Thickness: 743. cm
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (MW-~~11~~) 12A

Initial Displacement: 33. cm
Casing Radius: 2.54 cm
Screen Length: 152.4 cm
Water Column Height: 743. cm
Wellbore Radius: 10.16 cm

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 3.509E-06 cm/sec
y0 = 33.48 cm

APPENDIX I

ANALYTICAL DATA AND VALIDATION REPORTS

Table 1
Analytical Results for USEPA Target Compound List VOCs
Seneca Street at Kingston Place
Buffalo, New York
FRC Project number 1240

	Sample	SB-1B,3	SB-3,4	SB-4,4	**Sample**	SB1B-GW	SB6-GW
	Depth (ft.)	8 to 12	12 to 16	12 to 16	**Depth (ft.)**	10	12
	Medium	soil	soil	soil	**Medium**	water	water
Compound	**Units**	7/21/99	7/21/99	7/21/99	**Units**	7/21/99	7/21/99
Volatiles SW-846							
Chloromethane	ug/Kg	<10	<10	<10	ug/L	<10	<10
Bromomethane	ug/Kg	<10	<10	<10	ug/L	<10	<10
Vinyl chloride	ug/Kg	<10	<10	<10	ug/L	<10	<10
Chloroethane	ug/Kg	<10	<10	<10	ug/L	<10	<10
Methylene chloride	ug/Kg	**20**	**7**	**3**	ug/L	<5	<5
Acetone	ug/Kg	<100	<100	**25**	ug/L	<100	<100
Carbon disulfide	ug/Kg	<5	<5	<5	ug/L	<5	<5
1,1-Dichloroethene	ug/Kg	<5	<5	<5	ug/L	<5	<5
1,1-Dichloroethane	ug/Kg	<5	<5	<5	ug/L	<5	<5
Trans-1,2-dichloroethene	ug/Kg	<5	<5	<5	ug/L	**2**	<5
Chloroform	ug/Kg	<5	<5	<5	ug/L	<5	<5
2-butanone	ug/Kg	<100	<100	<100	ug/L	<100	<100
1,2-Dichloroethane	ug/Kg	<5	<5	<5	ug/L	<5	<5
1,1,1-Trichloroethane	ug/Kg	<5	<5	<5	ug/L	<5	<5
Carbon tetrachloride	ug/Kg	<5	<5	<5	ug/L	<5	<5
Vinyl acetate	ug/Kg	<50	<50	<50	ug/L	<50	<50
Bromodichloromethane	ug/Kg	<5	<5	<5	ug/L	<5	<5
1,2-dichloropropane	ug/Kg	<5	<5	<5	ug/L	<5	<5
cis-1,3-dichloropropene	ug/Kg	<5	<5	<5	ug/L	<5	<5
Tricholorethene	ug/Kg	**2**	**54**	**12**	ug/L	**537**	<5
Benzene	ug/Kg	<5	<5	<5	ug/L	<5	<5
Dibromochloromethane	ug/Kg	<5	<5	<5	ug/L	<5	<5
trans-1,3-dichloropropene	ug/Kg	<5	<5	<5	ug/L	<5	<5
1,1,2-trichloroethane	ug/Kg	<5	<5	<5	ug/L	<5	<5
2-chloroethylvinyl ether	ug/Kg	<10	<10	<10	ug/L	<10	<10
Bromoform	ug/Kg	<5	<5	<5	ug/L	<5	<5
4-methyl-2-pentanone	ug/Kg	<50	<50	<50	ug/L	<50	<50
2-hexanone	ug/Kg	<50	<50	<50	ug/L	<50	<50
Tetrachloroethene	ug/Kg	**15**	**12000**	**421**	ug/L	**12600**	<5
1,1,2,2-tetrachloroethane	ug/Kg	<5	<5	<5	ug/L	<5	<5
Toluene	ug/Kg	**3**	<5	<5	ug/L	<5	<5
Chlorobenzene	ug/Kg	<5	<5	<5	ug/L	<5	<5
Ethylbenzene	ug/Kg	<5	<5	<5	ug/L	<5	<5
Styrene	ug/Kg	<5	<5	<5	ug/L	<5	<5
m,p-xylene	ug/Kg	**2**	<5	<5	ug/L	<5	<5
o-xylene	ug/Kg	<5	<5	<5	ug/L	<5	<5

Values in bold indicate the presence of the compound above the method detection imit.

Table 2

Analytical Results for NYSDEC Petroleum-Contaminated Soil Guidance Policy VOCs, SVOCs and Lead

Seneca Street at Kingston Place
Buffalo, New York
FRC Project number 1240

	Sample	SB-5,4	SB-6,3	SB-7,3	SB-8,2	SB-9,1	SB-10, 3	Sample	SB1B-GW	SB6-GW
	Depth (ft.)	12 to 16	8 to 12	8 to 12	4 to 8	0 to 4	8 to 12	Depth (ft.)		
	Medium	soil	soil	soil	soil	soil	soil	Medium	water	water
Compound	Units	7/21/99	7/21/99	7/21/99	7/21/99	7/21/99	7/21/99	Units	7/21/99	7/21/99
<u>Volatiles - TCLP 8021 - NYDEC</u>										
Methyl-t-butylether	ug/Kg	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	ug/L	<5.0	<5.0
Benzene	ug/Kg	<1.0	<1.0	<1.0	5.1	<1.0	2.7	ug/L	<0.7	<0.7
Toluene	ug/Kg	<1.0	1.5	2.7	7	1.9	5.9	ug/L	<1.0	<1.0
Ethylbenzene	ug/Kg	<1.3	<1.3	<1.3	1.8	<1.3	<1.3	ug/L	7.1	<1.3
m,p-xylene	ug/Kg	<2.8	<2.8	<2.8	7.5	<2.8	7.6	ug/L	5.3	<2.8
o-xylene	ug/Kg	<1.7	<1.7	<1.7	<1.7	<1.7	<1.7	ug/L	2.3	<1.7
Isopropylbenzene	ug/Kg	<1.6	<1.6	<1.6	<1.6	<1.6	<1.6	ug/L	<1.6	<1.6
n-propylbenzene	ug/Kg	<1.7	<1.7	<1.7	<1.7	<1.7	<1.7	ug/L	<1.7	<1.7
1,3,5-trimethylbenzene	ug/Kg	<1.7	<1.7	<1.7	<1.7	<1.7	<1.7	ug/L	<1.7	<1.7
tert-butylbenzene	ug/Kg	<3.6	<3.6	<3.6	<3.6	<3.6	<3.6	ug/L	<3.6	<3.6
1,2,4-trimethylbenzene	ug/Kg	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	ug/L	<1.4	<1.4
sec-butylbenzene	ug/Kg	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2	ug/L	<2.2	<2.2
p-isopropyltoluene	ug/Kg	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	ug/L	<1.8	<1.8
n-butylbenzene	ug/Kg	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	ug/L	<2.8	<2.8
Naphthalene	ug/Kg	<1.6	<1.6	<1.6	<1.6	<1.6	<1.6	ug/L	<1.6	<1.6
<u>Metals</u>										
Lead	mg/Kg	10.6	16	14.3	13.2	488	11.9	mg/l	2.28	1.82
<u>TCLP 8270 - NYDEC BN List</u>										
Anthracene	ug/Kg	<330	<330	<330	164	<330	<330	ug/L	<10	<10
Fluorene	ug/Kg	<330	<330	<330	89	<330	<330	ug/L	<10	<10
Phenanthrene	ug/Kg	<330	160	<330	979	2330	<330	ug/L	<10	<10
Pyrene	ug/Kg	<330	242	<330	1340	12600	<330	ug/L	<10	<10
Acenaphthene	ug/Kg	<330	<330	<330	<330	<330	<330	ug/L	<10	<10
Benzo(a)anthracene	ug/Kg	<330	89	<330	450	6340	<330	ug/L	<10	<10
Fluoranthene	ug/Kg	<330	258	<330	1280	8330	<330	ug/L	<10	<10
Benzo(b)fluoranthene	ug/Kg	<330	157	<330	513	6280	<330	ug/L	<10	<10
Benzo(k)fluoranthene	ug/Kg	<330	87	<330	475	4080	<330	ug/L	<10	<10
Benzo(a)pyrene	ug/Kg	<330	87	<330	520	6080	<330	ug/L	<10	<10
Dibenzo(a,h)anthracene	ug/Kg	<330	<330	<330	<330	1690	<330	ug/L	<10	<10
Benzo(g,h,i)perylene	ug/Kg	<330	<330	<330	328	3420	<330	ug/L	<10	<10
Indeno(1,2,3-cd)pyrene	ug/Kg	<330	<330	<330	275	3180	<330	ug/L	<10	<10
Napthalene	ug/Kg	<330	<330	<330	<330	<330	<330	ug/L	<10	<10
Chrysene	ug/Kg	<330	129	<330	514	6670	<330	ug/L	<10	<10

Values in bold indicate the presence of the compound above the method detection limit

CRA

CONESTOGA-ROVERS & ASSOCIATES
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MEMORANDUM

TO: Carol Dunnigan
REF. NO.: 15867

FROM: Susan Scrocchi/amd/1
DATE: December 15, 2000

RE: **Data Usability Summary Report**
Site Investigation
Parcel #2 – Seneca Street
Buffalo, New York

INTRODUCTION

The following details an evaluation of results reported by Severn Trent Laboratories (STL) located in Pittsburgh, Pennsylvania, for 7 groundwater samples and 14 soil samples collected in September 2000 at the Parcel #2 Site located in Buffalo, New York.

The samples were analyzed for the following:

Parameters	*Methodology*
Target Compound List (TCL), Volatile Organic Compounds (VOCs)	SW-846 8260[1]
STARS Semi-Volatile Organic Compounds (SVOCs)	SW-846 8270[1]
TAL Metals	SW-846 6010/7470/7471[1]
Cyanide	SW-846 9012A[1]

A summary of the analytical results is presented in Tables 1A and 1B.

The Quality Assurance/Quality Control (QA/QC) criteria by which these data have been evaluated is outlined in the analytical methods, the "USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review" (February 1994, EPA 540/R-94/012), and "USEPA Contract Laboratory Program National Function Guidelines for Inorganic Data Review" (February 1994, EPA-540/R-94-013).

QA/QC REVIEW

Deliverables

The data package was complete as defined under the requirements for Analytical Services Protocol (ASP) Category B deliverables.

Methods referenced from:
[1] "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods," USEPA SW-846, 3rd Edition (w/rev.)

Holding Times

Based on the methods, all required holding times were met.

Gas Chromatograph/Mass Spectrometer (GC/MS) Tuning – VOCs and SVOCs

Bromofluorobenzene (BFB) and decafluorotriphenylphosphine (DFTPP) were analyzed at the beginning of each 12-hour calibration period and all tuning criteria were met.

Initial Calibration – VOCs and SVOCs

Initial multi-point calibrations were established for all compounds of interest as required. Acceptable instrument sensitivity (relative response factors (RRF) ≥ 0.05) was demonstrated for all compounds of interest, with the exception of bromomethane (0.045) and chloroethane (0.040). All associated positive results were qualified as estimated, and all non-detect results were rejected. Acceptable instrument linearity (percent relative standard deviation (%RSD) ≤ 30 percent) was demonstrated for all compounds of interest except 2-butanone, acetone, and 4-methyl-2-pentanone. All associated positive results were qualified as estimated, and all non-detect results were judged to be acceptable based on acceptable sensitivity.

Continuing Calibration – VOCs and SVOCs

Continuing calibration standards were analyzed and compared to the initial calibration curve every twelve hours. All continuing calibration RRFs were ≥ 0.05 with the exception of some acetone and bromomethane standards. All associated positive data were qualified as estimated, and all non-detect data were rejected due to poor analyte sensitivity. All percent differences (%D) were ≤ 25 percent, with the exception of slight increases and decreases in various VOC responses. All associated data were qualified as estimated to reflect the implied variability.

Initial and Continuing Calibration – Inorganic Parameters

Initial and continuing calibration verification (CCV) standards were analyzed at the proper frequency for the analyses of TAL metals and cyanide. All recoveries were acceptable.

Blanks

Method blanks were analyzed on a daily basis and were non-detect for the compounds of interest with the exception of low level concentrations of acetone and various metals. All associated results similar in concentration to the blanks were qualified as non-detect.

Two trip blanks and one rinse blank were collected with the samples and submitted for analyses. All trip blank results were non-detect for the VOCs of interest. Acetone, 2-butanone, and various metals were present in the rinse blank at low levels. Acetone results were previously qualified as non-detect due to the method blanks. All samples were non-detect for 2-butanone. All metals (except mercury) results were significantly greater than the rinse blank concentrations and would not have been affected. Some low level mercury results were qualified as non-detect.

Surrogate Spike Recoveries – VOCs and SVOCs

All samples blanks and QC samples were spiked with the proper surrogate compounds prior to sample preparation and analysis. All surrogate recoveries met the method criteria indicating acceptable analytical efficiency, with the exception of low SVOC surrogate recoveries for sample SB-15. The associated results were qualified as estimated to reflect the implied low bias.

Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analyses

MS/MSD analyses were performed at the proper frequency for all parameters. All results were acceptable indicating good analytical accuracy and precision, with the exception of some outlying metal results. All antimony, cadmium, and magnesium results for the soil samples were qualified as estimated.

Internal Standards (IS) Performance – VOCs and SVOCs

All results were calculated correctly using the IS responses. Retention times for all ISs were within the specified window of ±30 seconds of the continuing calibration IS retention time. All IS areas were within the specified acceptance limit of 0.5 to 2 times the area of the continuing calibration standard, with the exception of some high SVOC IS recoveries. The associated positive results for samples MW-1, MW-3, and MW-4 were qualified as estimated. The associated non-detect results would not have been impacted.

Blank Spike (BS) Analyses

BSs were analyzed at the required frequency for all parameters and all recoveries were acceptable indicating adequate analytical efficiency.

Field Duplicate Analyses

Samples were collected in duplicate and submitted "blind" to the laboratory for analysis. The analytical results were comparable, demonstrating acceptable sampling and analytical precision for this study.

Target Compound Identification and Quantitation

All compound identifications were reviewed and were acceptable. Ion relative abundances of mass spectra for the reported compounds were checked against library reference spectra and were found to be acceptable. Spectra were provided for all reported positive identifications. Quantitation calculations were verified by random recalculation from the raw data.

OVERALL ASSESSMENT

All deliverables required by the project were present and the data package was complete. Based on the preceding evaluation, the data were acceptable for use with the qualifications and exceptions noted.

TABL -A

SOILS ANALYTICAL RESULTS SUMMARY
SITE INVESTIGATION/FEASIBILITY STUDY
PARCEL 2 - SENECA STREET
BUFFALO, NEW YORK

	Sample Location:	*MW-1*	*MW-2*	*MW-2*	*MW-2*	*MW-3*	*MW-3*	*MW-4*
	Sample ID:	*S-091400-KL-007*	*S-091500-KL-012*	*S-091500-KL-013*	*S-091500-KL-014*	*S-091400-KL-009*	*S-091400-KL-010*	*S-091500-KL-015*
	Sample Date:	*9/14/2000*	*9/15/2000*	*9/15/2000*	*9/15/2000*	*9/14/2000*	*9/14/2000*	*9/15/2000*
					Duplicate			
Parameter	***Unit***							
Volatiles								
1,1,1-Trichloroethane	ug/Kg	6.0 U	6.0 U	6.1 U	6.2 U	6.2 U	6.3 U	5.3 U
1,1,2,2-Tetrachloroethane	ug/Kg	6.0 U	6.0 U	6.1 U	6.2 U	6.2 U	6.3 U	5.3 U
1,1,2-Trichloroethane	ug/Kg	6.0 U	6.0 U	6.1 U	6.2 U	6.2 U	6.3 U	5.3 U
1,1-Dichloroethane	ug/Kg	6.0 U	6.0 U	6.1 U	6.2 U	6.2 U	6.3 U	5.3 U
1,1-Dichloroethene	ug/Kg	6.0 U	6.0 U	6.1 U	6.2 U	6.2 U	6.3 U	5.3 U
1,2-Dichloroethane	ug/Kg	6.0 U	6.0 U	6.1 U	6.2 U	6.2 U	6.3 U	5.3 U
1,2-Dichloropropane	ug/Kg	6.0 U	6.0 U	6.1 U	6.2 U	6.2 U	6.3 U	5.3 U
2-Butanone	ug/Kg	24 UJ	24 UJ	24 UJ	25 UJ	25 UJ	25 UJ	21 UJ
2-Hexanone	ug/Kg	24 UJ	24 UJ	24 UJ	25 UJ	25 UJ	25 UJ	21 UJ
4-Methyl-2-pentanone	ug/Kg	24 U	24 U	24 U	25 U	25 U	25 U	21 U
Acetone	ug/Kg	27 J	29 J	24 U	25 U	25 UJ	28 J	21 U
Benzene	ug/Kg	6.0 U	6.0 U	6.1 U	6.2 U	6.2 U	6.3 U	5.3 U
Bromodichloromethane	ug/Kg	6.0 U	6.0 U	6.1 U	6.2 U	6.2 U	6.3 U	5.3 U
Bromoform	ug/Kg	6.0 U	6.0 U	6.1 U	6.2 U	6.2 U	6.3 U	5.3 U
Bromomethane	ug/Kg	R	R	R	R	R	R	R
Carbon disulfide	ug/Kg	6.0 U	6.0 U	6.1 U	6.2 U	6.2 U	6.3 U	5.3 U
Carbon tetrachloride	ug/Kg	6.0 U	6.0 U	6.1 U	6.2 U	6.2 U	6.3 U	5.3 U
Chlorobenzene	ug/Kg	6.0 U	6.0 U	6.1 U	6.2 U	6.2 U	6.3 U	5.3 U
Chloroethane	ug/Kg	12 U	12 U	12 U	12 U	12 U	13 U	11 U
Chloroform	ug/Kg	6.0 U	6.0 U	6.1 U	6.2 U	6.2 U	6.3 U	5.3 U
Chloromethane	ug/Kg	12 U	12 U	12 U	12 U	12 U	13 U	11 U
cis-1,2-Dichloroethene	ug/Kg	6.0 U	6.0 U	6.1 U	6.2 U	6.2 U	6.3 U	5.3 U
cis-1,3-Dichloropropene	ug/Kg	6.0 U	6.0 U	6.1 U	6.2 U	6.2 U	6.3 U	5.3 U
Dibromochloromethane	ug/Kg	6.0 U	6.0 U	6.1 U	6.2 U	6.2 U	6.3 U	5.3 U
Ethylbenzene	ug/Kg	6.0 U	6.0 U	6.1 U	6.2 U	6.2 U	6.3 U	5.3 U
Methylene chloride	ug/Kg	6.0 U	6.0 U	6.1 U	6.2 U	6.2 U	6.3 U	5.3 U
Styrene	ug/Kg	6.0 U	6.0 U	6.1 U	6.2 U	6.2 U	6.3 U	5.3 U
Tetrachloroethene	ug/Kg	6.0 U	6.0 U	6.1 U	6.2 U	6.2 U	6.3 U	5.3 U
Toluene	ug/Kg	6.0 U	6.0 U	6.1 U	6.2 U	6.2 U	6.3 U	13
trans-1,2-Dichloroethene	ug/Kg	6.0 U	6.0 U	6.1 U	6.2 U	6.2 U	6.3 U	5.3 U
trans-1,3-Dichloropropene	ug/Kg	6.0 U	6.0 U	6.1 U	6.2 U	6.2 U	6.3 U	5.3 U
Trichloroethene	ug/Kg	6.0 U	6.0 U	6.1 U	6.2 U	6.2 U	6.3 U	5.3 U
Vinyl chloride	ug/Kg	12 U	12 U	12 U	12 U	12 U	13 U	11 U
Xylene (total)	ug/Kg	6.0 U	6.0 U	6.1 U	6.2 U	6.2 U	6.3 U	5.3 U
Semi-Volatiles								
Acenaphthene	ug/Kg	400 U	2000 U	400 U	410 U	410 U	410 U	970 J
Anthracene	ug/Kg	400 U	2000 U	400 U	410 U	31 J	410 U	2100 J
Benzo(a)anthracene	ug/Kg	400 U	150 J	400 U	410 U	160 J	410 U	5700 J
Benzo(a)pyrene	ug/Kg	22 J	2000 U	400 U	410 U	160 J	410 U	5600
Benzo(b)fluoranthene	ug/Kg	30 J	190 J	400 U	410 U	210 J	410 U	6400
Benzo(g,h,i)perylene	ug/Kg	400 U	2000 U	400 U	410 U	53 J	410 U	1500 J
Benzo(k)fluoranthene	ug/Kg	400 U	170 J	400 U	410 U	160 J	410 U	5400

SOILS ANALYTICAL RESULTS SUMMARY
SITE INVESTIGATION/FEASIBILITY STUDY
PARCEL 2 - SENECA STREET
BUFFALO, NEW YORK

	Sample Location:	*MW-1*	*MW-2*	*MW-2*	*MW-2*	*MW-3*	*MW-3*	*MW-4*
	Sample ID:	*S-091400-KL-007*	*S-091500-KL-012*	*S-091500-KL-013*	*S-091500-KL-014*	*S-091400-KL-009*	*S-091400-KL-010*	*S-091500-KL-015*
	Sample Date:	*9/14/2000*	*9/15/2000*	*9/15/2000*	*9/15/2000* *Duplicate*	*9/14/2000*	*9/14/2000*	*9/15/2000*
Parameter	***Unit***							
Semi-Volatiles (Contd)								
Chrysene	ug/Kg	28 J	190 J	400 U	410 U	180 J	410 U	6200 J
Dibenz(a,h)anthracene	ug/Kg	400 U	2000 U	400 U	410 U	410 U	410 U	500 J
Fluoranthene	ug/Kg	55 J	540 J	400 U	410 U	490	410 U	22000
Fluorene	ug/Kg	400 U	2000 U	400 U	410 U	410 U	410 U	1100 J
Indeno(1,2,3-cd)pyrene	ug/Kg	400 U	2000 U	400 U	410 U	53 J	410 U	1700 J
Naphthalene	ug/Kg	400 U	2000 U	400 U	410 U	410 U	410 U	3500 U
Phenanthrene	ug/Kg	29 J	260 J	400 U	410 U	160 J	410 U	11000
Pyrene	ug/Kg	22 J	220 J	400 U	410 U	180 J	410 U	8200 J
Metals								
Aluminum	mg/Kg	11700	15300	9050	8990	9460	12900	9060
Antimony	mg/Kg	0.80 UJ	0.64 UJ	0.40 UJ	0.88 J	0.81 J	0.54 UJ	0.46 UJ
Arsenic	mg/Kg	8.5	4.8	7.5	7.0	8.1	10.7	4.6
Barium	mg/Kg	68.7	457	55.1	60.1	76.2	107	129
Beryllium	mg/Kg	0.47 UJ	1.8 UJ	0.45 UJ	0.43 UJ	0.51 UJ	0.61 UJ	1.3 UJ
Cadmium	mg/Kg	0.60 UJ	0.60 UJ	0.61 UJ	0.62 UJ	0.12 J	0.63 UJ	0.88 J
Calcium	mg/Kg	20000	171000	2760	2890	27400	1770	201000
Chromium	mg/Kg	16.0	12.6	11.9	12.0	14.9	16.9	6.1
Cobalt	mg/Kg	11.1	8.5	11.2	10.9	10.7	15.9	2.6
Copper	mg/Kg	16.8	20.6	27.4	26.1	30.2	31.0	11.2
Iron	mg/Kg	28500	11700	23600	23200	23100	32400	9310
Lead	mg/Kg	33.9	25.6	11.3	11.1	87.6	15.8	34.9
Magnesium	mg/Kg	4740 J	31200 J	3400 J	3470 J	9790 J	4830 J	9420 J
Manganese	mg/Kg	453	1700	384	365	627	603	413
Nickel	mg/Kg	23.6	11.3	25.4	26.0	22.2	35.4	7.6
Potassium	mg/Kg	915	1360	771	691	924	943	931
Selenium	mg/Kg	0.34	1.2 U	0.61 U	0.62 U	0.62 U	0.63 U	0.53 U
Silver	mg/Kg	1.2 U	0.19	1.2 U	1.2 U	1.2 U	1.3 U	1.1 U
Sodium	mg/Kg	343 U	507	142 U	161 U	138 U	79.0 U	358 U
Thallium	mg/Kg	1.2	3.4	1.4	0.87	1.5	1.1	1.6
Vanadium	mg/Kg	17.8	13.2	15.7	14.8	18.8	19.6	9.3
Zinc	mg/Kg	84.3	141	83.2	82.0	121	108	311
Mercury	mg/Kg	0.043	0.068	0.031	0.023	0.11	0.035	0.042
General Chemistry								
Cyanide (total)	mg/Kg	0.60 U	3.8	0.61 U	0.62 U	17.1	0.63 U	0.53 U
Total Solids	%	82.8	83.2	82.2	80.5	80.9	80.0	94.0

SOILS ANALYTICAL RESULTS SUMMARY
SITE INVESTIGATION/FEASIBILITY STUDY
PARCEL 2 - SENECA STREET
BUFFALO, NEW YORK

	Sample Location:	*MW-5*	*SB-11*	*SB-12*	*SB-13*	*SB-14*	*SB-15*	*SB-16A*
	Sample ID:	*S-091400-KL-008*	*S-091300-KL-001*	*S-091300-KL-005*	*S-091300-KL-002*	*S-091300-KL-003*	*S-091300-KL-004*	*S-091800-KL-016*
	Sample Date:	*9/14/2000*	*9/13/2000*	*9/13/2000*	*9/13/2000*	*9/13/2000*	*9/13/2000*	*9/18/2000*
Parameter	*Unit*							
Volatiles								
1,1,1-Trichloroethane	ug/Kg	6.7 U	-	-	-	6.0 U	5.3 U	310 U
1,1,2,2-Tetrachloroethane	ug/Kg	6.7 U	-	-	-	6.0 U	5.3 U	310 U
1,1,2-Trichloroethane	ug/Kg	6.7 U	-	-	-	6.0 U	5.3 U	310 U
1,1-Dichloroethane	ug/Kg	6.7 U	-	-	-	6.0 U	5.3 U	310 U
1,1-Dichloroethene	ug/Kg	6.7 U	-	-	-	6.0 U	5.3 U	310 U
1,2-Dichloroethane	ug/Kg	6.7 U	-	-	-	6.0 U	5.3 U	310 U
1,2-Dichloropropane	ug/Kg	6.7 U	-	-	-	6.0 U	5.3 U	310 U
2-Butanone	ug/Kg	27 UJ	-	-	-	24 UJ	21 UJ	1300 U
2-Hexanone	ug/Kg	27 UJ	-	-	-	24 U	21 U	1300 U
4-Methyl-2-pentanone	ug/Kg	27 U	-	-	-	24 UJ	21 UJ	1300 U
Acetone	ug/Kg	27 U	-	-	-	24 U	21 U	420 J
Benzene	ug/Kg	6.7 U	-	-	-	6.0 U	5.3 U	310 U
Bromodichloromethane	ug/Kg	6.7 U	-	-	-	6.0 U	5.3 U	310 U
Bromoform	ug/Kg	6.7 U	-	-	-	6.0 U	5.3 U	310 U
Bromomethane	ug/Kg	R	-	-	-	12 U	11 U	630 U
Carbon disulfide	ug/Kg	6.7 U	-	-	-	6.0 U	5.3 U	310 U
Carbon tetrachloride	ug/Kg	6.7 U	-	-	-	6.0 U	5.3 U	310 U
Chlorobenzene	ug/Kg	6.7 U	-	-	-	6.0 U	5.3 U	310 U
Chloroethane	ug/Kg	13 U	-	-	-	12 UJ	11 UJ	630 U
Chloroform	ug/Kg	6.7 U	-	-	-	6.0 U	5.3 U	310 U
Chloromethane	ug/Kg	13 U	-	-	-	12 U	11 U	630 U
cis-1,2-Dichloroethene	ug/Kg	6.7 U	-	-	-	6.0 U	5.3 U	310 U
cis-1,3-Dichloropropene	ug/Kg	6.7 U	-	-	-	6.0 U	5.3 U	310 U
Dibromochloromethane	ug/Kg	6.7 U	-	-	-	6.0 U	5.3 U	310 U
Ethylbenzene	ug/Kg	6.7 U	-	-	-	6.0 U	5.3 U	310 U
Methylene chloride	ug/Kg	6.7 U	-	-	-	6.0 U	5.3 U	310 U
Styrene	ug/Kg	6.7 U	-	-	-	6.0 U	5.3 U	310 U
Tetrachloroethene	ug/Kg	6.7 U	-	-	-	8.3	28	7200
Toluene	ug/Kg	6.7 U	-	-	-	6.0 U	5.3 U	310 U
trans-1,2-Dichloroethene	ug/Kg	6.7 U	-	-	-	6.0 U	5.3 U	310 U
trans-1,3-Dichloropropene	ug/Kg	6.7 U	-	-	-	6.0 U	5.3 U	310 U
Trichloroethene	ug/Kg	6.7 U	-	-	-	6.0 U	5.3 U	310 U
Vinyl chloride	ug/Kg	13 U	-	-	-	12 U	11 U	630 U
Xylene (total)	ug/Kg	6.7 U	-	-	-	6.0 U	5.3 U	310 U
Semi-Volatiles								
Acenaphthene	ug/Kg	440 U	400 U	410 U	390 U	400 U	1800 UJ	410 U
Anthracene	ug/Kg	30 J	400 U	410 U	390 U	400 U	170 J	410 U
Benzo(a)anthracene	ug/Kg	88 J	400 U	410 U	390 U	400 U	710 J	410 U
Benzo(a)pyrene	ug/Kg	90 J	400 U	410 U	390 U	400 U	720 J	410 U
Benzo(b)fluoranthene	ug/Kg	78 J	400 U	410 U	390 U	400 U	750 J	410 U
Benzo(g,h,i)perylene	ug/Kg	50 J	400 U	410 U	390 U	400 U	280 J	410 U
Benzo(k)fluoranthene	ug/Kg	70 J	400 U	410 U	390 U	400 U	730 J	410 U

SOILS ANALYTICAL RESULTS SUMMARY
SITE INVESTIGATION/FEASIBILITY STUDY
PARCEL 2 - SENECA STREET
BUFFALO, NEW YORK

	Sample Location:	*MW-5*	*SB-11*	*SB-12*	*SB-13*	*SB-14*	*SB-15*	*SB-16A*
	Sample ID:	*S-091400-KL-008*	*S-091300-KL-001*	*S-091300-KL-005*	*S-091300-KL-002*	*S-091300-KL-003*	*S-091300-KL-004*	*S-091800-KL-016*
	Sample Date:	*9/14/2000*	*9/13/2000*	*9/13/2000*	*9/13/2000*	*9/13/2000*	*9/13/2000*	*9/18/2000*
Parameter	*Unit*							
Semi-Volatiles (Contd)								
Chrysene	ug/Kg	110 J	400 U	410 U	390 U	400 U	830 J	22 J
Dibenz(a,h)anthracene	ug/Kg	440 U	400 U	410 U	390 U	400 U	1800 UJ	410 U
Fluoranthene	ug/Kg	220 J	400 U	410 U	390 U	400 U	1800 J	46 J
Fluorene	ug/Kg	440 U	400 U	410 U	390 U	400 U	1800 UJ	410 U
Indeno(1,2,3-cd)pyrene	ug/Kg	45 J	400 U	410 U	390 U	400 U	290 J	410 U
Naphthalene	ug/Kg	440 U	400 U	410 U	390 U	400 U	1800 UJ	410 U
Phenanthrene	ug/Kg	140 J	400 U	410 U	390 U	400 U	950 J	46 J
Pyrene	ug/Kg	120 J	400 U	410 U	390 U	400 U	860 J	44 J
Metals								
Aluminum	mg/Kg	14100	14500	14100	10200	10500	4230	11100
Antimony	mg/Kg	0.58 UJ	0.70 UJ	0.93 J	0.62 UJ	0.32 UJ	0.46 UJ	0.78 UJ
Arsenic	mg/Kg	9.7	9.7	12.9	8.6	9.3	4.8	9.9
Barium	mg/Kg	85.9	80.2	103	50.8	56.4	71.4	67.9
Beryllium	mg/Kg	0.74 UJ	0.60 UJ	0.69 UJ	0.47 UJ	0.50 UJ	0.24 UJ	0.53 UJ
Cadmium	mg/Kg	1.5 J	0.61 UJ	0.62 UJ	0.60 UJ	0.60 UJ	0.48 J	0.63 UJ
Calcium	mg/Kg	42600	2020	1450	1840	2190	178000	2100
Chromium	mg/Kg	18.4	18.9	18.6	13.2	12.9	22.8	13.7
Cobalt	mg/Kg	15.7	13.2	16.6	11.9	14.8	3.0	16.8
Copper	mg/Kg	96.6	30.0	33.7	27.1	31.5	21.0	32.0
Iron	mg/Kg	30800	34000	36100	26300	26900	9270	28000
Lead	mg/Kg	44.8	12.6	17.3	11.7	13.7	354	13.9
Magnesium	mg/Kg	11100 J	5360 J	5230 J	3790 J	3730 J	26400 J	3940 J
Manganese	mg/Kg	515	459	673	422	668	315	708
Nickel	mg/Kg	31.8	37.8	37.5	28.4	31.2	8.7	31.3
Potassium	mg/Kg	1620	1090	1030	737	902	585	795
Selenium	mg/Kg	0.67 U	1.2 U	0.62 U	0.60 U	0.60 U	0.54 U	0.63 U
Silver	mg/Kg	1.4 U	1.2 U	1.2 U	1.2 U	1.2 U	1.1 U	1.3 U
Sodium	mg/Kg	151 U	112 U	255 U	156 U	114 U	421	220 U
Thallium	mg/Kg	1.5	1.8	1.2	1.4	2.2	0.86	1.4
Vanadium	mg/Kg	21.4	21.0	21.4	17.3	18.2	9.6	17.9
Zinc	mg/Kg	1310	102	103	81.0	84.6	186	87.5
Mercury	mg/Kg	0.091	0.032 U	0.026 U	0.017 U	0.033 U	0.13	0.034
General Chemistry								
Cyanide (total)	mg/Kg	0.67 U	0.61 U	0.62 U	0.60 U	0.60 U	0.53 U	0.63 U
Total Solids	%	75.2	82.0	80.4	83.9	83.1	93.5	79.6

Notes:

-	Not applicable.
J	Estimated.
R	Rejected
U	Non-detect at associated value.

GROUNDWATER ANALYTICAL RESULTS SUMMARY
SITE INVESTIGATION/FEASIBILITY STUDY
PARCEL 2 - SENECA STREET
BUFFALO, NEW YORK

	Sample Location:	*MW-1*	*MW-2*	*MW-3*	*MW-4*	*MW-4*	*MW-4A*	*MW-5*
	Sample ID:	*W-100400-KL-001*	*W-100500-KL-005*	*W-100400-KL-004*	*W-100500-KL-006*	*W-100500-KL-007*	*W-100400-KL-003*	*W-100400-KL-002*
	Sample Date:	*10/4/2000*	*10/5/2000*	*10/4/2000*	*10/5/2000*	*10/5/2000* *Duplicate*	*10/4/2000*	*10/4/2000*
Parameter	***Units***							
Volatiles								
1,1,1-Trichloroethane	ug/L	5.0 U	25 U	5.0 U	500 U	500 U	5.0 U	2.8 J
1,1,2,2-Tetrachloroethane	ug/L	5.0 U	25 U	5.0 U	500 U	500 U	5.0 U	5.0 U
1,1,2-Trichloroethane	ug/L	5.0 U	25 U	5.0 U	500 U	500 U	5.0 U	5.0 U
1,1-Dichloroethane	ug/L	5.0 U	25 U	5.0 U	500 U	500 U	5.0 U	1.5 J
1,1-Dichloroethene	ug/L	5.0 U	25 U	5.0 U	500 U	500 U	5.0 U	5.0 U
1,2-Dichloroethane	ug/L	5.0 U	25 U	5.0 U	500 U	500 U	5.0 U	5.0 U
1,2-Dichloropropane	ug/L	5.0 U	25 U	5.0 U	500 U	500 U	5.0 U	5.0 U
2-Butanone	ug/L	20 U	100 U	20 U	2000 U	2000 U	20 U	20 U
2-Hexanone	ug/L	20 U	100 U	20 U	2000 U	2000 U	20 U	20 U
4-Methyl-2-pentanone	ug/L	20 U	100 U	20 U	2000 U	2000 U	20 U	20 U
Acetone	ug/L	3.7 J	100 U	R	R	R	17 J	4.3 J
Benzene	ug/L	5.0 U	25 U	5.0 U	500 U	500 U	5.0 U	5.0 U
Bromodichloromethane	ug/L	5.0 U	25 U	5.0 U	500 U	500 U	5.0 U	5.0 U
Bromoform	ug/L	5.0 U	25 UJ	5.0 U	500 UJ	500 UJ	5.0 U	5.0 UJ
Bromomethane	ug/L	R	R	R	R	R	R	R
Carbon disulfide	ug/L	5.0 UJ	25 UJ	5.0 UJ	500 UJ	500 UJ	5.0 UJ	5.0 UJ
Carbon tetrachloride	ug/L	5.0 U	25 U	5.0 U	500 U	500 U	5.0 U	5.0 U
Chlorobenzene	ug/L	5.0 U	25 U	5.0 U	500 U	500 U	5.0 U	5.0 U
Chloroethane	ug/L	10 U	R	10 U	R	R	10 U	10 U
Chloroform	ug/L	5.0 U	25 U	5.0 U	500 U	500 U	5.0 U	5.0 U
Chloromethane	ug/L	10 U	50 U	10 U	1000 U	1000 U	10 U	10 U
cis-1,2-Dichloroethene	ug/L	5.0 U	400	5.0 U	250 J	220 J	7.6	5.0 U
cis-1,3-Dichloropropene	ug/L	5.0 U	25 U	5.0 U	500 U	500 U	5.0 U	5.0 U
Dibromochloromethane	ug/L	5.0 U	25 U	5.0 U	500 U	500 U	5.0 U	5.0 U
Ethylbenzene	ug/L	5.0 U	25 U	5.0 U	500 U	500 U	5.0 U	5.0 U
Methylene chloride	ug/L	5.0 U	25 U	5.0 U	500 U	500 U	5.0 U	5.0 U
Styrene	ug/L	5.0 U	25 U	5.0 U	500 U	500 U	5.0 U	5.0 U
Tetrachloroethene	ug/L	5.0 U	690 J	5.0 U	17000 J	15000 J	730	5.0 U
Toluene	ug/L	5.0 U	25 U	5.0 U	500 U	500 U	5.0 U	5.0 U
trans-1,2-Dichloroethene	ug/L	5.0 U	25 U	5.0 U	500 U	500 U	5.0 U	5.0 U
trans-1,3-Dichloropropene	ug/L	5.0 U	25 U	5.0 U	500 U	500 U	5.0 U	5.0 U
Trichloroethene	ug/L	5.0 U	350	5.0 U	940	840	30	5.0 U
Vinyl chloride	ug/L	10 U	50 U	10 U	1000 U	1000 U	10 U	10 U
Xylene (total)	ug/L	5.0 U	25 U	5.0 U	500 U	500 U	5.0 U	5.0 U
Semi-Volatiles								
Acenaphthene	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Anthracene	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(a)anthracene	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(a)pyrene	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(b)fluoranthene	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(g,h,i)perylene	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(k)fluoranthene	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Chrysene	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U

GROUNDWATER ANALYTICAL RESULTS SUMMARY
SITE INVESTIGATION/FEASIBILITY STUDY
PARCEL 2 - SENECA STREET
BUFFALO, NEW YORK

	Sample Location:	*MW-1*	*MW-2*	*MW-3*	*MW-4*	*MW-4*	*MW-4A*	*MW-5*
	Sample ID:	*W-100400-KL-001*	*W-100500-KL-005*	*W-100400-KL-004*	*W-100500-KL-006*	*W-100500-KL-007*	*W-100400-KL-003*	*W-100400-KL-002*
	Sample Date:	*10/4/2000*	*10/5/2000*	*10/4/2000*	*10/5/2000*	*10/5/2000*	*10/4/2000*	*10/4/2000*
						Duplicate		
Parameter	*Units*							
Semi-Volatiles (Contd)								
Dibenz(a,h)anthracene	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Fluoranthene	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Fluorene	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Indeno(1,2,3-cd)pyrene	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Naphthalene	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Phenanthrene	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Pyrene	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Metals								
Aluminum (Dissolved)	ug/L	-	-	-	-	-	200 U	-
Aluminum	ug/L	153	86.0	105	394	440	1290	53.1
Antimony (Dissolved)	ug/L	-	-	-	-	-	3.5 U	-
Antimony	ug/L	60.0 U	60.0 U	60.0 U	60.0 U	60.0 U	60.0 U	1.9 U
Arsenic (Dissolved)	ug/L	-	-	-	-	-	10.0 U	-
Arsenic	ug/L	10.0 U	4.1	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Barium (Dissolved)	ug/L	-	-	-	-	-	154	-
Barium	ug/L	181	137	61.4	111	112	164	88.1
Beryllium (Dissolved)	ug/L	-	-	-	-	-	5.0 U	-
Beryllium	ug/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Cadmium (Dissolved)	ug/L	-	-	-	-	-	5.0 U	-
Cadmium	ug/L	5.0 U	5.0 U	5.0 U	5.0 U	0.50	5.0 U	5.0 U
Calcium (Dissolved)	ug/L	-	-	-	-	-	62700	-
Calcium	ug/L	153000	143000	112000	129000	130000	74700	104000
Chromium (Dissolved)	ug/L	-	-	-	-	-	10.0 U	-
Chromium	ug/L	2.2 U	1.6	1.9 U	1.7	1.2	3.8 U	1.8 U
Cobalt (Dissolved)	ug/L	-	-	-	-	-	50.0 U	-
Cobalt	ug/L	50.0 U	50.0 U	50.0 U	50.0 U	3.5	50.0 U	50.0 U
Copper (Dissolved)	ug/L	-	-	-	-	-	25.0 U	-
Copper	ug/L	25.0 U	6.9 U	25.0 U	5.3 U	5.8 U	8.2 U	25.0 U
Iron (Dissolved)	ug/L	-	-	-	-	-	164	-
Iron	ug/L	6820	1010	587	1060	1110	8130	1750
Lead (Dissolved)	ug/L	-	-	-	-	-	3.0 U	-
Lead	ug/L	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.5	3.0 U
Magnesium (Dissolved)	ug/L	-	-	-	-	-	18800	-
Magnesium	ug/L	42500	24100	21000	25900	26100	21600	12300
Manganese (Dissolved)	ug/L	-	-	-	-	-	62.0	-
Manganese	ug/L	2270	1940	289	823	822	135	1380
Nickel (Dissolved)	ug/L	-	-	-	-	-	9.9	-
Nickel	ug/L	7.5	6.4	11.9	9.3	14.8	18.7	11.6
Potassium (Dissolved)	ug/L	-	-	-	-	-	1310	-
Potassium	ug/L	1760	7640	8720	5010	5270	2150	3670
Selenium (Dissolved)	ug/L	-	-	-	-	-	5.0 U	-
Selenium	ug/L	2.4	5.0 U	2.3	5.0 U	5.0 U	5.0 U	2.2

TABLE 1B

GROUNDWATER ANALYTICAL RESULTS SUMMARY
SITE INVESTIGATION/FEASIBILITY STUDY
PARCEL 2 - SENECA STREET
BUFFALO, NEW YORK

	Sample Location:	*MW-1*	*MW-2*	*MW-3*	*MW-4*	*MW-4*	*MW-4A*	*MW-5*
	Sample ID:	*W-100400-KL-001*	*W-100500-KL-005*	*W-100400-KL-004*	*W-100500-KL-006*	*W-100500-KL-007*	*W-100400-KL-003*	*W-100400-KL-002*
	Sample Date:	*10/4/2000*	*10/5/2000*	*10/4/2000*	*10/5/2000*	*10/5/2000* *Duplicate*	*10/4/2000*	*10/4/2000*
Parameter	***Units***							
Metals (Contd)								
Silver (Dissolved)	ug/L	-	-	-	-	-	10.0 U	-
Silver	ug/L	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Sodium (Dissolved)	ug/L	-	-	-	-	-	30400	-
Sodium	ug/L	168000	204000	82500	161000	162000	33400	55200
Thallium (Dissolved)	ug/L	-	-	-	-	-	10.0 U	-
Thallium	ug/L	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Vanadium (Dissolved)	ug/L	-	-	-	-	-	50.0 U	-
Vanadium	ug/L	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U
Zinc (Dissolved)	ug/L	-	-	-	-	-	20.0 U	-
Zinc	ug/L	20.0 U	11.0	20.0 U	9.4	9.5	17.6	5.3
Mercury (Dissolved)	ug/L	-	-	-	-	-	0.081 U	-
Mercury	ug/L	0.059 U	0.089 U	0.075 U	0.13 U	0.077 U	0.073 U	0.071 U
General Chemistry								
Cyanide (total)	ug/L	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U

Notes:

-	Not applicable.
J	Estimated.
R	Rejected.
U	Non-detect at associated value.

CHAIN OF CUSTODY RECORD

CONESTOGA-ROVERS & ASSOCIATES
2055 Niagara Falls Blvd., Suite 3
Niagara Falls, N.Y. 14304 (716) 297-6150

SHIPPED TO (Laboratory Name): Severn-Trent Labs Pittsburgh, PA

REFERENCE NUMBER: 15867 Seneca St. Parcel 2

SAMPLER'S SIGNATURE: K. Lynch

PRINTED NAME: Kevin Lynch

SEQ. No.	DATE	TIME	SAMPLE No.	SAMPLE TYPE	No. of Containers	PARAMETERS	TCL VOC (HCl)	TCL SVOCs	TAL Metals (HNO3)	CN (NaOH)						REMARKS
	10/5/00	1015	W-100500-KL-005	Water	6		2	2	1	1						
	↓	1100	W-100500-KL-006	↓	6		2	2	1	1						
	↓	1300	W-100500-KL-007	↓	6		2	2	1	1						Dup of 006
	↓	—	TRIP BLANK	↓	2		2	—	—	—						

TOTAL NUMBER OF CONTAINERS: 20

HEALTH/CHEMICAL HAZARDS:

RELINQUISHED BY: ① K. Lynch DATE: 10/5/00 TIME: 1600

RECEIVED BY: ① DATE: TIME:

RELINQUISHED BY: ② DATE: TIME:

RECEIVED BY: ② DATE: TIME:

RELINQUISHED BY: ③ DATE: TIME:

RECEIVED BY: ③ DATE: TIME:

METHOD OF SHIPMENT: FED EX

WAY BILL No.

White	–Fully Executed Copy
Yellow	–Receiving Laboratory Copy
Pink	–Shipper Copy
Goldenrod	–Sampler Copy

SAMPLE TEAM: K. Lynch

RECEIVED FOR LABORATORY BY:

DATE: TIME:

No N 0473

1001 (D) APR 28/97(NF) REV. 0 (F-15)

CHAIN OF CUS DY RECORD

CONESTOGA-ROVERS & ASSOCIATES 2055 Niagara Falls Blvd., Suite 3 Niagara Falls, N.Y. 14304 (716) 297-6150	**SHIPPED TO (Laboratory Name):** Severn-Trent Labs Pittsburgh, PA	**REFERENCE NUMBER:** 15867 Parcel 2 - Seneca St.

SAMPLER'S SIGNATURE:

PRINTED NAME: KEVIN LYNCH

SEQ. No.	DATE	TIME	SAMPLE No.	SAMPLE TYPE	No. of Containers	PARAMETERS	TCL VOCs (HCl)	STARS SVOCs	TAL Metals (HNO3)	CN (NaOH)	Dissolved TAL Metals					REMARKS
	10/4/00	1315	W-100400-KL-001	Water	6	~~2~~	2	2	1	1	X					* Dissolved Metals
	↓	1415	W-100400-KL-002	↓	6	X	2	2	1	1	X					Sample Field Filtered
		1440	W-100400-KL-003		7	X	2	2	1	1	1					w/ HNO3 Added.
		1530	W-100400-KL-004 + MS + MSD		18	X	6	6	3	3	X					
		—	Trip Blank		2	X	2	X	X	X	X					

TOTAL NUMBER OF CONTAINERS 39

HEALTH/CHEMICAL HAZARDS

RELINQUISHED BY: ①	DATE: 10/4/00 TIME: 1700 +	RECEIVED BY: ①	DATE: TIME:
RELINQUISHED BY: ②	DATE: TIME:	RECEIVED BY: ②	DATE: TIME:
RELINQUISHED BY: ③	DATE: TIME:	RECEIVED BY: ③	DATE: TIME:

METHOD OF SHIPMENT: FED EX

WAY BILL No.

White –Fully Executed Copy
Yellow –Receiving Laboratory Copy
Pink –Shipper Copy
Goldenrod –Sampler Copy

SAMPLE TEAM: K. Lynch

RECEIVED FOR LABORATORY BY:

DATE: TIME:

No N 0472

1001 (D) APR 28/97(NF) REV. 0 (F-15)

CHAIN OF CUSTODY RECORD

CONESTOGA-ROVERS & ASSOCIATES
2055 Niagara Falls Blvd., Suite 3
Niagara Falls, N.Y. 14304 (716) 297-6150

SHIPPED TO (Laboratory Name): STL Pittsburgh

REFERENCE NUMBER: 15867
Parcel [illegible] - Seneca St.

SAMPLER'S SIGNATURE: K. P. Lynch

PRINTED NAME: Kevin Lynch

SEQ. No.	DATE	TIME	SAMPLE No.	SAMPLE TYPE	No. of Containers	PARAMETERS	TCL VOCs	STARS SVOCs	TAL Metals	CN	REMARKS
	9/13/00	1130	S-091300-KL-001	SOIL	2		-	X	X		
		1215	S-091300-KL-002	SOIL	2		-	X	X		
		1315	W-091300-KL-001	WATER	6		X	X	X	X	
		1400	S-091300-KL-003	SOIL	3		X	X	X	-	
		1445	S-091300-KL-004	SOIL	2		X	X			← Volume for SVOCs + Metals in same jar
		1545	S-091300-KL-005	SOIL	2		-	X	X		
		1500	S-091300-KL-006	SOIL	3		X	X	X		

Sample, S-091300-KL 006 Store only - Do not Analyze ~~Sample~~ until directed.
KPL

Per C. Dunnigan - Do not Analyze .006 Sample
K. P. Lynch

No Trip Blanks Provided

TOTAL NUMBER OF CONTAINERS: 20

HEALTH/CHEMICAL HAZARDS:

RELINQUISHED BY: ① K. P. Lynch DATE: 9/13/00 TIME: 1630

RECEIVED BY: ① DATE: TIME:

RELINQUISHED BY: ② DATE: TIME:

RECEIVED BY: ② DATE: TIME:

RELINQUISHED BY: ③ DATE: TIME:

RECEIVED BY: ③ DATE: TIME:

METHOD OF SHIPMENT: FEDEX

WAY BILL No. 5152694643

White –Fully Executed Copy
Yellow –Receiving Laboratory Copy
Pink –Shipper Copy
Goldenrod –Sampler Copy

SAMPLE TEAM: K. Lynch

RECEIVED FOR LABORATORY BY:

DATE: TIME:

Nº N 0469

1001 (D) APR 28/97(NF) REV. 0 (F-15)

CHAIN OF CUSTODY RECORD

CONESTOGA-ROVERS & ASSOCIATES
2055 Niagara Falls Blvd., Suite 3
Niagara Falls, N.Y. 14304 (716) 297-6150

SHIPPED TO (Laboratory Name): Severn - Trent Labs Pittsburgh, PA

REFERENCE NUMBER: 15867 Parcel 4 · Seneca St.

SAMPLER'S SIGNATURE:

PRINTED NAME: KEVIN LYNCH

SEQ. No.	DATE	TIME	SAMPLE No.	SAMPLE TYPE	No. of Containers	PARAMETERS TCL VOCs	STARS SVOCs	TAL Metals	REMARKS
	9/14/00	1215	S-091400-KL-008	SOIL	3	X	X	X	
		0945	S-091400-KL-007		3	X	X	X	
		1515	S-091400-KL-009		2	X	X		1 Jar for SVOCs + Metals
		1620	S-091400-KL-010		3	X	X	X	
			Above Samples Held until 9/15 shipment in possession of sampler K. Lynch						
	9/15/00	0900	S-091500-KL-014 BLIND DUP OF 012	SOIL	2	X	X		1 Jar for SVOCs & Metals
		0945	S-091500-KL-012		2	X	X		
		1015	S-091500-KL-013		2	X	X		
		1500	S-091500-KL-015		2	X	X		

TOTAL NUMBER OF CONTAINERS 19

HEALTH/CHEMICAL HAZARDS

RELINQUISHED BY: ①	DATE: 9/15/00 TIME: 1530	RECEIVED BY: ①	DATE: TIME:
RELINQUISHED BY: ②	DATE: TIME:	RECEIVED BY: ②	DATE: TIME:
RELINQUISHED BY: ③	DATE: TIME:	RECEIVED BY: ③	DATE: TIME:

METHOD OF SHIPMENT: Fed Ex 9/15

WAY BILL No. 5152694584

White	–Fully Executed Copy
Yellow	–Receiving Laboratory Copy
Pink	–Shipper Copy
Goldenrod	–Sampler Copy

SAMPLE TEAM: K. Lynch

RECEIVED FOR LABORATORY BY:

DATE: ______ TIME: ______

No N 0470

1001 (D) APR 28/97(NF) REV. 0 (F-15)

CHAIN OF CUSTODY RECORD

CONESTOGA-ROVERS & ASSOCIATES
2055 Niagara Falls Blvd., Suite 3
Niagara Falls, N.Y. 14304 (716) 297-6150

SHIPPED TO (Laboratory Name): Severn-Trent Lab
Pittsburgh, PA

REFERENCE NUMBER: 15867
Parcel 2 - Seneca St

SAMPLER'S SIGNATURE:

PRINTED NAME: KEVIN LYNCH

SEQ. No.	DATE	TIME	SAMPLE No.	SAMPLE TYPE	No. of Containers	PARAMETERS	TCL VOCs	STARS SVOCs	TAL Metals							REMARKS
	9/18/00	1400	S-091800-KL-016	SOIL	3		X	X	X							

TOTAL NUMBER OF CONTAINERS: 3

HEALTH/CHEMICAL HAZARDS

RELINQUISHED BY: ①
DATE: 9/18/00
TIME: 1530

RECEIVED BY: ①
DATE:
TIME:

RELINQUISHED BY: ②
DATE:
TIME:

RECEIVED BY: ②
DATE:
TIME:

RELINQUISHED BY: ③
DATE:
TIME:

RECEIVED BY: ③
DATE:
TIME:

METHOD OF SHIPMENT: Fed Ex

WAY BILL No. 5152694595

White	–Fully Executed Copy
Yellow	–Receiving Laboratory Copy
Pink	–Shipper Copy
Goldenrod	–Sampler Copy

SAMPLE TEAM: K. Lynch

RECEIVED FOR LABORATORY BY:

DATE: TIME:

No N 0471

1001 (D) APR 28/97(NF) REV. 0 (F-15)

CONESTOGA-ROVERS
& ASSOCIATES

2055 Niagara Falls Blvd., Suite #3
Niagara Falls, New York 14304
Telephone: (716) 297-6150 Fax: (716) 297-2265
www.CRAworld.com

MEMORANDUM

TO: Carol Dunnigan

REF. NO.: 15867

FROM: Susan Scrocchi/js/2 SCS

DATE: November 7, 2001

RE: **Data Usability Summary Report**
Site Investigation
Parcel #2 - Seneca Street
Buffalo, New York

INTRODUCTION

The following details an evaluation of results reported by Severn Trent Laboratories (STL) located in Pittsburgh, Pennsylvania, for 18 groundwater samples and 17 soil samples collected from August through September 2001 at the Parcel #2 Site located in Buffalo, New York.

The samples were analyzed for the following:

Parameters	*Methodology*
Target Compound List (TCL) Volatile Organic Compounds (VOCs)	SW-846 8260[1]
TCL Semi-Volatile Organic Compounds (SVOCs)	SW-846 8270[1]

A sample collection and analysis summary is presented in Table 1. A summary of the analytical results is presented in Tables 2A and 2B.

The Quality Assurance/Quality Control (QA/QC) criteria by which these data have been evaluated is outlined in the analytical methods and the "USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review" (February 1994, EPA 540/R-94/012).

QA/QC REVIEW

Deliverables

The data package was complete as defined under the requirements for Analytical Services Protocol (ASP) Category A deliverables.

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[1] "Test Methods for Solid Waste Physical/Chemical Methods", SW-846, 3rd Edition, September 1986 (with all subsequent revisions).

Holding Times

Based on the methods, all required holding times were met.

Blanks

Method blanks were analyzed on a daily basis and were non-detect for the compounds of interest with the exception of low level concentrations of acetone and di-n-butylphthalate. All associated results similar in concentration to the blanks were qualified as non-detect.

Three trip blanks were collected with the samples and submitted for VOC analyses. All trip blank results were non-detect for the VOCs of interest.

Surrogate Spike Recoveries

All sample blanks and QC samples were spiked with the proper surrogate compounds prior to sample preparation and analysis. All surrogate recoveries met the method criteria indicating acceptable analytical efficiency.

Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analyses

MS/MSD analyses were performed at the proper frequency for all parameters. All results were acceptable indicating good analytical accuracy and precision.

Blank Spike (BS) Analyses

BSs were analyzed at the required frequency for all parameters and all recoveries were acceptable indicating adequate analytical efficiency.

Field Duplicate Analyses

Samples were collected in duplicate and submitted "blind" to the laboratory for analysis. The analytical results were comparable, demonstrating acceptable sampling and analytical precision for this study.

Sample Quantitation

Due to high concentrations of caprolactam, some SVOC analyses required dilutions. The associated reporting limits were elevated to reflect the dilution factors.

OVERALL ASSESSMENT

All deliverables required by the project were present and the data package was complete. Based on the preceding evaluation, the data were acceptable for use with the qualifications noted.

TABLE 1

SAMPLING AND ANALYSIS SUMMARY
QUARTERLY SAMPLING MONITORING PROGRAM
PARCEL #2 - SENECA STREET
BUFFALO, NEW YORK
AUGUST - SEPTEMBER 2001

					Analysis/Parameters		
Sample I.D.	*Location I.D.*	*Matrix*	*Collection Date (mm/dd/yy)*	*Collection Time (hr:min)*	*Volatiles*	*Semi-Volatiles*	*Comments*
082001-SB27-10-12	SB27-10-12	Soil	08/20/01	11:30		X	
082001-SB26-10-12	SB26-10-12	Soil	08/20/01	11:40		X	
082001-SB21-6-8	SB21-6-8	Soil	08/20/01	14:00	X		
082001-SB19-6-8	SB19-6-8	Soil	08/20/01	16:15	X	X	
082001-SB28-6-8	SB28-6-8	Soil	08/20/01	15:00	X		
082001-SB29-8-10	SB29-8-10	Soil	08/20/01	16:00	X		
082001-SB24-8-10	SB24-8-10	Soil	08/20/01	17:00	X	X	
082001-SB35-8-10	SB24-8-10	Soil	08/20/01	17:30	X	X	Field duplicate of 082001-SB24-8-10
082001-SB17-2-4	SB17-2-4	Soil	08/20/01	14:10	X		
082001-SB17-6-8	SB17-6-8	Soil	08/20/01	14:20	X		
082001-SB25-8-10	SB25-8-10	Soil	08/20/01	18:00	X		
082201-SB18-6-8	SB18-6-8	Soil	08/22/01	08:35	X	X	
082201-SB17-0-2	SB17-0-2	Soil	08/22/01	09:20	X		
082201-SB17-4-6	SB17-4-6	Soil	08/22/01	09:30	X		
082201-SB17-8-10	SB17-8-10	Soil	08/22/01	09:45	X		
082201-SB22-11-12	SB22-11-12	Soil	08/22/01	10:30	X		
082201-SB23-11-12	SB23-11-12	Soil	08/22/01	11:00	X		
W-091901-FG-MW1	MW1	Water	09/19/01	10:30	X		
W-091901-FG-MW5	MW5	Water	09/19/01	10:55	X		
W-092001-FG-MW3	MW3	Water	09/20/01	11:20	X		
W-092001-FG-MW10A	MW10A	Water	09/20/01	12:20	X		
W-092001-FG-MW8A	MW8A	Water	09/20/01	13:20	X		
W-092001-FG-MW10	MW10	Water	09/20/01	14:05	X	X	
W-092001-FG-MW7A	MW7A	Water	09/20/01	14:15	X		
W-092001-FG-MW2	MW2	Water	09/20/01	15:40	X		
W-092001-FG-MW11A	MW11A	Water	09/20/01	16:15	X		

TABLE 1

SAMPLING AND ANALYSIS SUMMARY
QUARTERLY SAMPLING MONITORING PROGRAM
PARCEL #2 - SENECA STREET
BUFFALO, NEW YORK
AUGUST - SEPTEMBER 2001

					Analysis/Parameters		
Sample I.D.	*Location I.D.*	*Matrix*	*Collection Date (mm/dd/yy)*	*Collection Time (hr:min)*	*Volatiles*	*Semi-Volatiles*	*Comments*
W-092101-FG-MW11	MW11	Water	09/21/01	13:30	X	X	
W-092101-FG-MW9	MW9	Water	09/21/01	14:50	X		
W-092101-FG-MW9A	MW9A	Water	09/21/01	16:10	X		
W-092401-FG-MW4	MW4	Water	09/24/01	11:10	X		
W-092401-FG-MW4A	MW4A	Water	09/24/01	12:30	X		
W-092401-FG-MW8	MW8	Water	09/24/01	13:00	X		
W-092401-FG-MW6	MW6	Water	09/24/01	15:10	X	X	
W-092401-FG-MW15	MW6	Water	09/24/01	14:30	X	X	Field duplicate of W-092401-FG-MW6
W-092401-FG-MW7	MW7	Water	09/24/01	16:30	X	X	

TABLE 2A

ANALYTICAL RESULTS SUMMARY - SOILS
QUARTERLY SAMPLING MONITORING PROGRAM
PARCEL #2 - SENECA STREET
BUFFALO, NEW YORK
AUGUST - SEPTEMBER 2001

	Sample Location:	*SB-17*	*SB-17*	*SB-17*	*SB-17*	*SB-17*	*SB-18*
	Sample ID:	*082001-SB17-2-4*	*082001-SB17-6-8*	*082201-SB17-0-2*	*082201-SB17-4-6*	*082201-SB17-8-10*	*082201-SB18-6-8*
		2-4 ft	*6-8 ft*	*0-2 ft*	*4-6 ft*	*8-10 ft*	*6-8 ft*
	Sample Date:	*8/20/2001*	*8/20/2001*	*8/22/2001*	*8/22/2001*	*8/22/2001*	*8/22/2001*
Parameter	*Unit*						
Volatiles							
1,1,1-Trichloroethane	µg/kg	ND 5.2	ND 6.2	ND 5.2	ND 6.2	ND 6.1	ND 5.7
1,1,2,2-Tetrachloroethane	µg/kg	ND 5.2	ND 6.2	ND 5.2	ND 6.2	ND 6.1	ND 5.7
1,1,2-Trichloroethane	µg/kg	ND 5.2	ND 6.2	ND 5.2	ND 6.2	ND 6.1	ND 5.7
1,1-Dichloroethane	µg/kg	ND 5.2	ND 6.2	ND 5.2	ND 6.2	ND 6.1	ND 5.7
1,1-Dichloroethene	µg/kg	ND 5.2	ND 6.2	ND 5.2	ND 6.2	ND 6.1	ND 5.7
1,2,4-Trichlorobenzene	µg/kg	ND 5.2	ND 6.2	ND 5.2	ND 6.2	ND 6.1	ND 5.7
1,2-Dibromo-3-chloropropane DBCP	µg/kg	ND 10	ND 12	ND 10	ND 12	ND 12	ND 11
1,2-Dibromoethane Ethylene Dibromide	µg/kg	ND 5.2	ND 6.2	ND 5.2	ND 6.2	ND 6.1	ND 5.7
1,2-Dichlorobenzene	µg/kg	ND 5.2	ND 6.2	ND 5.2	ND 6.2	ND 6.1	ND 5.7
1,2-Dichloroethane	µg/kg	ND 5.2	ND 6.2	ND 5.2	ND 6.2	ND 6.1	ND 5.7
1,2-Dichloropropane	µg/kg	ND 5.2	ND 6.2	ND 5.2	ND 6.2	ND 6.1	ND 5.7
1,3-Dichlorobenzene	µg/kg	ND 5.2	ND 6.2	ND 5.2	ND 6.2	ND 6.1	ND 5.7
1,4-Dichlorobenzene	µg/kg	ND 5.2	ND 6.2	ND 5.2	ND 6.2	ND 6.1	ND 5.7
2-Butanone	µg/kg	ND 21	ND 25	ND 21	ND 25	ND 24	8.3 J
2-Hexanone	µg/kg	ND 21	ND 25	ND 21	ND 25	ND 24	ND 23
4-Methyl-2-pentanone	µg/kg	ND 21	ND 25	ND 21	ND 25	ND 24	ND 23
Acetone	µg/kg	ND 21	ND 25	ND 21	ND 25	ND 24	ND 46
Benzene, isopropyl	µg/kg	ND 5.2	ND 6.2	ND 5.2	ND 6.2	ND 6.1	ND 5.7
Benzene	µg/kg	ND 5.2	ND 6.2	ND 5.2	ND 6.2	ND 6.1	ND 5.7
Bromodichloromethane	µg/kg	ND 5.2	ND 6.2	ND 5.2	ND 6.2	ND 6.1	ND 5.7
Bromoform	µg/kg	ND 5.2	ND 6.2	ND 5.2	ND 6.2	ND 6.1	ND 5.7
Bromomethane	µg/kg	ND 10	ND 12	ND 10	ND 12	ND 12	ND 11
Carbon disulfide	µg/kg	ND 5.2	ND 6.2	ND 5.2	ND 6.2	ND 6.1	ND 5.7
Carbon tetrachloride	µg/kg	ND 5.2	ND 6.2	ND 5.2	ND 6.2	ND 6.1	ND 5.7
Chlorobenzene	µg/kg	ND 5.2	ND 6.2	ND 5.2	ND 6.2	ND 6.1	ND 5.7
Chloroethane	µg/kg	ND 10	ND 12	ND 10	ND 12	ND 12	ND 11
Chloroform Trichloromethane	µg/kg	ND 5.2	ND 6.2	ND 5.2	ND 6.2	ND 6.1	ND 5.7
Chloromethane	µg/kg	ND 10	ND 12	ND 10	ND 12	ND 12	ND 11
cis-1,2-Dichloroethene	µg/kg	ND 5.2	ND 6.2	ND 5.2	ND 6.2	1.5 J	6.1
cis-1,3-Dichloropropene	µg/kg	ND 5.2	ND 6.2	ND 5.2	ND 6.2	ND 6.1	ND 5.7
Cyclohexane	µg/kg	ND 5.2	ND 6.2	ND 5.2	ND 6.2	ND 6.1	ND 5.7

ANALYTICAL RESULTS SUMMARY - SOILS
QUARTERLY SAMPLING MONITORING PROGRAM
PARCEL #2 - SENECA STREET
BUFFALO, NEW YORK
AUGUST - SEPTEMBER 2001

	Sample Location:	*SB-17*	*SB-17*	*SB-17*	*SB-17*	*SB-17*	*SB-18*
	Sample ID:	*082001-SB17-2-4*	*082001-SB17-6-8*	*082201-SB17-0-2*	*082201-SB17-4-6*	*082201-SB17-8-10*	*082201-SB18-6-8*
		2-4 ft	*6-8 ft*	*0-2 ft*	*4-6 ft*	*8-10 ft*	*6-8 ft*
	Sample Date:	*8/20/2001*	*8/20/2001*	*8/22/2001*	*8/22/2001*	*8/22/2001*	*8/22/2001*
Parameter	*Unit*						
Volatiles (Cont'd.)							
Dibromochloromethane	µg/kg	ND 5.2	ND 6.2	ND 5.2	ND 6.2	ND 6.1	ND 5.7
Dichlorodifluoromethane CFC-12	µg/kg	ND 10	ND 12	ND 10	ND 12	ND 12	ND 11
Ethylbenzene	µg/kg	ND 5.2	ND 6.2	ND 5.2	ND 6.2	ND 6.1	ND 5.7
Methyl acetate	µg/kg	ND 5.2	ND 6.2	ND 5.2	ND 6.2	ND 6.1	ND 5.7
Methyl cyclohexane	µg/kg	ND 5.2	ND 6.2	ND 5.2	ND 6.2	ND 6.1	ND 5.7
Methyl Tert Butyl Ether	µg/kg	ND 5.2	ND 6.2	ND 5.2	ND 6.2	ND 6.1	ND 5.7
Methylene chloride	µg/kg	ND 5.2	ND 6.2	ND 5.2	ND 6.2	ND 6.1	ND 5.7
Styrene	µg/kg	ND 5.2	ND 6.2	ND 5.2	ND 6.2	ND 6.1	ND 5.7
Tetrachloroethene	µg/kg	33	140	13	16	9700	2.9 J
Toluene	µg/kg	ND 5.2	ND 6.2	ND 5.2	ND 6.2	ND 6.1	ND 5.7
trans-1,2-Dichloroethene	µg/kg	ND 5.2	ND 6.2	ND 5.2	ND 6.2	ND 6.1	ND 5.7
trans-1,3-Dichloropropene	µg/kg	ND 5.2	ND 6.2	ND 5.2	ND 6.2	ND 6.1	ND 5.7
Trichloroethene	µg/kg	ND 5.2	ND 6.2	ND 5.2	ND 6.2	13	6.1
Trichlorofluoromethane CFC-11	µg/kg	ND 10	ND 12	ND 10	ND 12	ND 12	ND 11
Trifluorotrichloroethane Freon 113	µg/kg	ND 5.2	ND 6.2	ND 5.2	ND 6.2	ND 6.1	ND 5.7
Vinyl chloride	µg/kg	ND 10	ND 12	ND 10	ND 12	ND 12	ND 11
Xylene total	µg/kg	ND 16	ND 19	ND 16	ND 19	ND 18	ND 17
Semi-Volatiles							
2,2'-oxybis 1-Chloropropane	µg/kg	-	-	-	-	-	ND 3800
2,4,5-Trichlorophenol	µg/kg	-	-	-	-	-	ND 3800
2,4,6-Trichlorophenol	µg/kg	-	-	-	-	-	ND 3800
2,4-Dichlorophenol	µg/kg	-	-	-	-	-	ND 3800
2,4-Dimethylphenol	µg/kg	-	-	-	-	-	ND 3800
2,4-Dinitrophenol	µg/kg	-	-	-	-	-	ND 18000
2,4-Dinitrotoluene	µg/kg	-	-	-	-	-	ND 3800
2,6-Dinitrotoluene	µg/kg	-	-	-	-	-	ND 3800
2-Chloronaphthalene	µg/kg	-	-	-	-	-	ND 3800
2-Chlorophenol	µg/kg	-	-	-	-	-	ND 3800
2-Methyl naphthalene	µg/kg	-	-	-	-	-	460 J
2-Methylphenol	µg/kg	-	-	-	-	-	ND 3800

TABLE 2A

ANALYTICAL RESULTS SUMMARY - SOILS
QUARTERLY SAMPLING MONITORING PROGRAM
PARCEL #2 - SENECA STREET
BUFFALO, NEW YORK
AUGUST - SEPTEMBER 2001

	Sample Location:	*SB-17*	*SB-17*	*SB-17*	*SB-17*	*SB-17*	*SB-18*
	Sample ID:	*082001-SB17-2-4*	*082001-SB17-6-8*	*082201-SB17-0-2*	*082201-SB17-4-6*	*082201-SB17-8-10*	*082201-SB18-6-8*
		2-4 ft	*6-8 ft*	*0-2 ft*	*4-6 ft*	*8-10 ft*	*6-8 ft*
	Sample Date:	*8/20/2001*	*8/20/2001*	*8/22/2001*	*8/22/2001*	*8/22/2001*	*8/22/2001*
Parameter	*Unit*						
Semi-Volatiles (Cont'd.)							
2-Nitroaniline	µg/kg	-	-	-	-	-	ND 18000
2-Nitrophenol	µg/kg	-	-	-	-	-	ND 3800
3,3'-Dichlorobenzidine	µg/kg	-	-	-	-	-	ND 18000
3-Nitroaniline	µg/kg	-	-	-	-	-	ND 18000
4,6-Dinitro-2-methylphenol	µg/kg	-	-	-	-	-	ND 18000
4-Bromophenyl phenyl ether	µg/kg	-	-	-	-	-	ND 3800
4-Chloro-3-methylphenol	µg/kg	-	-	-	-	-	ND 3800
4-Chloroaniline	µg/kg	-	-	-	-	-	ND 3800
4-Chlorophenyl phenyl ether	µg/kg	-	-	-	-	-	ND 3800
4-Methylphenol	µg/kg	-	-	-	-	-	ND 3800
4-Nitroaniline	µg/kg	-	-	-	-	-	ND 18000
4-Nitrophenol	µg/kg	-	-	-	-	-	ND 18000
Acenaphthene	µg/kg	-	-	-	-	-	1200 J
Acenaphthylene	µg/kg	-	-	-	-	-	ND 3800
Acetophenone	µg/kg	-	-	-	-	-	ND 3800
Anthracene	µg/kg	-	-	-	-	-	1800 J
Atrazine	µg/kg	-	-	-	-	-	ND 3800
Benzaldehyde	µg/kg	-	-	-	-	-	ND 3800
Benzo a anthracene	µg/kg	-	-	-	-	-	3200 J
Benzo a pyrene	µg/kg	-	-	-	-	-	2200 J
Benzo b fluoranthene	µg/kg	-	-	-	-	-	2000 J
Benzo g,h,i perylene	µg/kg	-	-	-	-	-	1100 J
Benzo k fluoranthene	µg/kg	-	-	-	-	-	1400 J
Biphenyl	µg/kg	-	-	-	-	-	ND 3800
bis 2-Chloroethoxy methane	µg/kg	-	-	-	-	-	ND 3800
bis 2-Chloroethyl ether	µg/kg	-	-	-	-	-	ND 3800
bis 2-Ethylhexyl phthalate	µg/kg	-	-	-	-	-	ND 3800
Butyl benzylphthalate	µg/kg	-	-	-	-	-	ND 3800
Caprolactam	µg/kg	-	-	-	-	-	ND 3800
Carbazole	µg/kg	-	-	-	-	-	880 J
Chrysene	µg/kg	-	-	-	-	-	2900 J

TABLE 2A

ANALYTICAL RESULTS SUMMARY - SOILS
QUARTERLY SAMPLING MONITORING PROGRAM
PARCEL #2 - SENECA STREET
BUFFALO, NEW YORK
AUGUST - SEPTEMBER 2001

	Sample Location:	*SB-17*	*SB-17*	*SB-17*	*SB-17*	*SB-17*	*SB-18*
	Sample ID:	*082001-SB17-2-4*	*082001-SB17-6-8*	*082201-SB17-0-2*	*082201-SB17-4-6*	*082201-SB17-8-10*	*082201-SB18-6-8*
		2-4 ft	*6-8 ft*	*0-2 ft*	*4-6 ft*	*8-10 ft*	*6-8 ft*
	Sample Date:	*8/20/2001*	*8/20/2001*	*8/22/2001*	*8/22/2001*	*8/22/2001*	*8/22/2001*
Parameter	*Unit*						
Semi-Volatiles (Cont'd.)							
Dibenz a,h anthracene	µg/kg	-	-	-	-	-	ND 3800
Dibenzofuran	µg/kg	-	-	-	-	-	730 J
Diethyl phthalate	µg/kg	-	-	-	-	-	ND 3800
Dimethyl phthalate	µg/kg	-	-	-	-	-	ND 3800
Di-n-butylphthalate	µg/kg	-	-	-	-	-	ND 3800
Di-n-octyl phthalate	µg/kg	-	-	-	-	-	ND 3800
Fluoranthene	µg/kg	-	-	-	-	-	5900
Fluorene	µg/kg	-	-	-	-	-	1100 J
Hexachlorobenzene	µg/kg	-	-	-	-	-	ND 3800
Hexachlorobutadiene	µg/kg	-	-	-	-	-	ND 3800
Hexachlorocyclopentadiene	µg/kg	-	-	-	-	-	ND 18000
Hexachloroethane	µg/kg	-	-	-	-	-	ND 3800
Indeno 1,2,3-cd pyrene	µg/kg	-	-	-	-	-	1100 J
Isophorone	µg/kg	-	-	-	-	-	ND 3800
Naphthalene	µg/kg	-	-	-	-	-	1700 J
Nitrobenzene	µg/kg	-	-	-	-	-	ND 3800
N-Nitrosodi-n-propylamine	µg/kg	-	-	-	-	-	ND 3800
N-Nitrosodiphenylamine	µg/kg	-	-	-	-	-	ND 3800
Pentachlorophenol	µg/kg	-	-	-	-	-	ND 18000
Phenanthrene	µg/kg	-	-	-	-	-	6900
Phenol	µg/kg	-	-	-	-	-	ND 3800
Pyrene	µg/kg	-	-	-	-	-	5800
General Chemistry							
Total Solids	%	95.9	80.6	96.3	80.3	82.0	87.0

TABLE 2A

ANALYTICAL RESULTS SUMMARY - SOILS
QUARTERLY SAMPLING MONITORING PROGRAM
PARCEL #2 - SENECA STREET
BUFFALO, NEW YORK
AUGUST - SEPTEMBER 2001

	Sample Location:	*SB-19*	*SB-21*	*SB-22*	*SB-23*	*SB-24*	*SB-24*
	Sample ID:	*082001-SB19-6-8*	*082001-SB21-6-8*	*082201-SB22-11-12*	*082201-SB23-11-12*	*082001-SB24-8-10*	*082001-SB35-8-10*
		6-8 ft	*6-8 ft*	*11-12 ft*	*11-12 ft*	*8-10 ft*	*8-10 ft*
	Sample Date:	*8/20/2001*	*8/20/2001*	*8/22/2001*	*8/22/2001*	*8/20/2001*	*8/20/2001*
							Duplicate
Parameter	*Unit*						
Volatiles							
1,1,1-Trichloroethane	µg/kg	ND 6.3	ND 6.0	ND 5.9	ND 5.9	ND 6.0	ND 6.0
1,1,2,2-Tetrachloroethane	µg/kg	ND 6.3	ND 6.0	ND 5.9	ND 5.9	ND 6.0	ND 6.0
1,1,2-Trichloroethane	µg/kg	ND 6.3	ND 6.0	ND 5.9	ND 5.9	ND 6.0	ND 6.0
1,1-Dichloroethane	µg/kg	ND 6.3	ND 6.0	ND 5.9	ND 5.9	ND 6.0	ND 6.0
1,1-Dichloroethene	µg/kg	ND 6.3	ND 6.0	ND 5.9	ND 5.9	ND 6.0	ND 6.0
1,2,4-Trichlorobenzene	µg/kg	ND 6.3	ND 6.0	ND 5.9	ND 5.9	ND 6.0	ND 6.0
1,2-Dibromo-3-chloropropane DBCP	µg/kg	ND 13	ND 12	ND 12	ND 12	ND 12	ND 12
1,2-Dibromoethane Ethylene Dibromide	µg/kg	ND 6.3	ND 6.0	ND 5.9	ND 5.9	ND 6.0	ND 6.0
1,2-Dichlorobenzene	µg/kg	ND 6.3	ND 6.0	ND 5.9	ND 5.9	ND 6.0	ND 6.0
1,2-Dichloroethane	µg/kg	ND 6.3	ND 6.0	ND 5.9	ND 5.9	ND 6.0	ND 6.0
1,2-Dichloropropane	µg/kg	ND 6.3	ND 6.0	ND 5.9	ND 5.9	ND 6.0	ND 6.0
1,3-Dichlorobenzene	µg/kg	ND 6.3	ND 6.0	ND 5.9	ND 5.9	ND 6.0	ND 6.0
1,4-Dichlorobenzene	µg/kg	ND 6.3	ND 6.0	ND 5.9	ND 5.9	ND 6.0	ND 6.0
2-Butanone	µg/kg	ND 25	ND 24	ND 24	ND 24	ND 24	ND 24
2-Hexanone	µg/kg	ND 25	ND 24	ND 24	ND 24	ND 24	ND 24
4-Methyl-2-pentanone	µg/kg	ND 25	ND 24	ND 24	ND 24	ND 24	ND 24
Acetone	µg/kg	ND 25	ND 24	ND 24	ND 24	ND 24	ND 24
Benzene, isopropyl	µg/kg	ND 6.3	ND 6.0	ND 5.9	ND 5.9	ND 6.0	ND 6.0
Benzene	µg/kg	ND 6.3	ND 6.0	ND 5.9	ND 5.9	ND 6.0	ND 6.0
Bromodichloromethane	µg/kg	ND 6.3	ND 6.0	ND 5.9	ND 5.9	ND 6.0	ND 6.0
Bromoform	µg/kg	ND 6.3	ND 6.0	ND 5.9	ND 5.9	ND 6.0	ND 6.0
Bromomethane	µg/kg	ND 13	ND 12	ND 12	ND 12	ND 12	ND 12
Carbon disulfide	µg/kg	ND 6.3	ND 6.0	ND 5.9	ND 5.9	ND 6.0	ND 6.0
Carbon tetrachloride	µg/kg	ND 6.3	ND 6.0	ND 5.9	ND 5.9	ND 6.0	ND 6.0
Chlorobenzene	µg/kg	ND 6.3	ND 6.0	ND 5.9	ND 5.9	ND 6.0	ND 6.0
Chloroethane	µg/kg	ND 13	ND 12	ND 12	ND 12	ND 12	ND 12
Chloroform Trichloromethane	µg/kg	ND 6.3	ND 6.0	ND 5.9	ND 5.9	ND 6.0	ND 6.0
Chloromethane	µg/kg	ND 13	ND 12	ND 12	ND 12	ND 12	ND 12
cis-1,2-Dichloroethene	µg/kg	70	ND 6.0	ND 5.9	ND 5.9	ND 6.0	ND 6.0
cis-1,3-Dichloropropene	µg/kg	ND 6.3	ND 6.0	ND 5.9	ND 5.9	ND 6.0	ND 6.0
Cyclohexane	µg/kg	ND 6.3	ND 6.0	ND 5.9	ND 5.9	ND 6.0	ND 6.0

TABLE 2A

ANALYTICAL RESULTS SUMMARY - SOILS
QUARTERLY SAMPLING MONITORING PROGRAM
PARCEL #2 - SENECA STREET
BUFFALO, NEW YORK
AUGUST - SEPTEMBER 2001

	Sample Location:	*SB-19*	*SB-21*	*SB-22*	*SB-23*	*SB-24*	*SB-24*
	Sample ID:	*082001-SB19-6-8*	*082001-SB21-6-8*	*082201-SB22-11-12*	*082201-SB23-11-12*	*082001-SB24-8-10*	*082001-SB35-8-10*
		6-8 ft	*6-8 ft*	*11-12 ft*	*11-12 ft*	*8-10 ft*	*8-10 ft*
	Sample Date:	*8/20/2001*	*8/20/2001*	*8/22/2001*	*8/22/2001*	*8/20/2001*	*8/20/2001*
							Duplicate
Parameter	*Unit*						
Volatiles (Cont'd.)							
Dibromochloromethane	µg/kg	ND 6.3	ND 6.0	ND 5.9	ND 5.9	ND 6.0	ND 6.0
Dichlorodifluoromethane CFC-12	µg/kg	ND 13	ND 12	ND 12	ND 12	ND 12	ND 12
Ethylbenzene	µg/kg	ND 6.3	ND 6.0	ND 5.9	ND 5.9	ND 6.0	ND 6.0
Methyl acetate	µg/kg	ND 6.3	ND 6.0	ND 5.9	ND 5.9	ND 6.0	ND 6.0
Methyl cyclohexane	µg/kg	ND 6.3	ND 6.0	ND 5.9	ND 5.9	ND 6.0	ND 6.0
Methyl Tert Butyl Ether	µg/kg	ND 6.3	ND 6.0	ND 5.9	ND 5.9	ND 6.0	ND 6.0
Methylene chloride	µg/kg	ND 6.3	ND 6.0	ND 5.9	ND 5.9	ND 6.0	ND 6.0
Styrene	µg/kg	ND 6.3	ND 6.0	ND 5.9	ND 5.9	ND 6.0	ND 6.0
Tetrachloroethene	µg/kg	29000	2.9 J	19	1.6 J	53 J	9.8 J
Toluene	µg/kg	ND 6.3	ND 6.0	ND 5.9	ND 5.9	ND 6.0	ND 6.0
trans-1,2-Dichloroethene	µg/kg	ND 6.3	ND 6.0	ND 5.9	ND 5.9	ND 6.0	ND 6.0
trans-1,3-Dichloropropene	µg/kg	ND 6.3	ND 6.0	ND 5.9	ND 5.9	ND 6.0	ND 6.0
Trichloroethene	µg/kg	25	ND 6.0	ND 5.9	ND 5.9	ND 6.0	ND 6.0
Trichlorofluoromethane CFC-11	µg/kg	ND 13	ND 12	ND 12	ND 12	ND 12	ND 12
Trifluorotrichloroethane Freon 113	µg/kg	ND 6.3	ND 6.0	ND 5.9	ND 5.9	ND 6.0	ND 6.0
Vinyl chloride	µg/kg	ND 13	ND 12	ND 12	ND 12	ND 12	ND 12
Xylene total	µg/kg	ND 19	ND 18	ND 18	ND 18	ND 18	ND 18
Semi-Volatiles							
2,2'-oxybis 1-Chloropropane	µg/kg	ND 410	-	-	-	ND 400	ND 400
2,4,5-Trichlorophenol	µg/kg	ND 410	-	-	-	ND 400	ND 400
2,4,6-Trichlorophenol	µg/kg	ND 410	-	-	-	ND 400	ND 400
2,4-Dichlorophenol	µg/kg	ND 410	-	-	-	ND 400	ND 400
2,4-Dimethylphenol	µg/kg	ND 410	-	-	-	ND 400	ND 400
2,4-Dinitrophenol	µg/kg	ND 2000	-	-	-	ND 1900	ND 1900
2,4-Dinitrotoluene	µg/kg	ND 410	-	-	-	ND 400	ND 400
2,6-Dinitrotoluene	µg/kg	ND 410	-	-	-	ND 400	ND 400
2-Chloronaphthalene	µg/kg	ND 410	-	-	-	ND 400	ND 400
2-Chlorophenol	µg/kg	ND 410	-	-	-	ND 400	ND 400
2-Methyl naphthalene	µg/kg	ND 410	-	-	-	ND 400	ND 400
2-Methylphenol	µg/kg	ND 410	-	-	-	ND 400	ND 400

ANALYTICAL RESULTS SUMMARY - SOILS
QUARTERLY SAMPLING MONITORING PROGRAM
PARCEL #2 - SENECA STREET
BUFFALO, NEW YORK
AUGUST - SEPTEMBER 2001

	Sample Location:	*SB-19*	*SB-21*	*SB-22*	*SB-23*	*SB-24*	*SB-24*
	Sample ID:	*082001-SB19-6-8*	*082001-SB21-6-8*	*082201-SB22-11-12*	*082201-SB23-11-12*	*082001-SB24-8-10*	*082001-SB35-8-10*
		6-8 ft	*6-8 ft*	*11-12 ft*	*11-12 ft*	*8-10 ft*	*8-10 ft*
	Sample Date:	*8/20/2001*	*8/20/2001*	*8/22/2001*	*8/22/2001*	*8/20/2001*	*8/20/2001*
							Duplicate
Parameter	*Unit*						
Semi-Volatiles (Cont'd.)							
2-Nitroaniline	µg/kg	ND 2000	-	-	-	ND 1900	ND 1900
2-Nitrophenol	µg/kg	ND 410	-	-	-	ND 400	ND 400
3,3'-Dichlorobenzidine	µg/kg	ND 2000	-	-	-	ND 1900	ND 1900
3-Nitroaniline	µg/kg	ND 2000	-	-	-	ND 1900	ND 1900
4,6-Dinitro-2-methylphenol	µg/kg	ND 2000	-	-	-	ND 1900	ND 1900
4-Bromophenyl phenyl ether	µg/kg	ND 410	-	-	-	ND 400	ND 400
4-Chloro-3-methylphenol	µg/kg	ND 410	-	-	-	ND 400	ND 400
4-Chloroaniline	µg/kg	ND 410	-	-	-	ND 400	ND 400
4-Chlorophenyl phenyl ether	µg/kg	ND 410	-	-	-	ND 400	ND 400
4-Methylphenol	µg/kg	ND 410	-	-	-	ND 400	ND 400
4-Nitroaniline	µg/kg	ND 2000	-	-	-	ND 1900	ND 1900
4-Nitrophenol	µg/kg	ND 2000	-	-	-	ND 1900	ND 1900
Acenaphthene	µg/kg	ND 410	-	-	-	ND 400	ND 400
Acenaphthylene	µg/kg	ND 410	-	-	-	ND 400	ND 400
Acetophenone	µg/kg	ND 410	-	-	-	ND 400	ND 400
Anthracene	µg/kg	ND 410	-	-	-	ND 400	ND 400
Atrazine	µg/kg	ND 410	-	-	-	ND 400	ND 400
Benzaldehyde	µg/kg	ND 410	-	-	-	ND 400	ND 400
Benzo a anthracene	µg/kg	ND 410	-	-	-	ND 400	ND 400
Benzo a pyrene	µg/kg	ND 410	-	-	-	ND 400	ND 400
Benzo b fluoranthene	µg/kg	ND 410	-	-	-	ND 400	ND 400
Benzo g,h,i perylene	µg/kg	ND 410	-	-	-	ND 400	ND 400
Benzo k fluoranthene	µg/kg	ND 410	-	-	-	ND 400	ND 400
Biphenyl	µg/kg	ND 410	-	-	-	ND 400	ND 400
bis 2-Chloroethoxy methane	µg/kg	ND 410	-	-	-	ND 400	ND 400
bis 2-Chloroethyl ether	µg/kg	ND 410	-	-	-	ND 400	ND 400
bis 2-Ethylhexyl phthalate	µg/kg	120 J	-	-	-	ND 400	ND 400
Butyl benzylphthalate	µg/kg	ND 410	-	-	-	ND 400	ND 400
Caprolactam	µg/kg	ND 410	-	-	-	ND 400	ND 400
Carbazole	µg/kg	ND 410	-	-	-	ND 400	ND 400
Chrysene	µg/kg	ND 410	-	-	-	ND 400	ND 400

ANALYTICAL RESULTS SUMMARY - SOILS
QUARTERLY SAMPLING MONITORING PROGRAM
PARCEL #2 - SENECA STREET
BUFFALO, NEW YORK
AUGUST - SEPTEMBER 2001

	Sample Location:	*SB-19*	*SB-21*	*SB-22*	*SB-23*	*SB-24*	*SB-24*
	Sample ID:	*082001-SB19-6-8*	*082001-SB21-6-8*	*082201-SB22-11-12*	*082201-SB23-11-12*	*082001-SB24-8-10*	*082001-SB35-8-10*
		6-8 ft	*6-8 ft*	*11-12 ft*	*11-12 ft*	*8-10 ft*	*8-10 ft*
	Sample Date:	*8/20/2001*	*8/20/2001*	*8/22/2001*	*8/22/2001*	*8/20/2001*	*8/20/2001*
							Duplicate
Parameter	*Unit*						
Semi-Volatiles (Cont'd.)							
Dibenz a,h anthracene	µg/kg	ND 410	-	-	-	ND 400	ND 400
Dibenzofuran	µg/kg	ND 410	-	-	-	ND 400	ND 400
Diethyl phthalate	µg/kg	ND 410	-	-	-	ND 400	ND 400
Dimethyl phthalate	µg/kg	ND 410	-	-	-	ND 400	ND 400
Di-n-butylphthalate	µg/kg	ND 410	-	-	-	ND 400	ND 400
Di-n-octyl phthalate	µg/kg	ND 410	-	-	-	ND 400	ND 400
Fluoranthene	µg/kg	43 J	-	-	-	ND 400	ND 400
Fluorene	µg/kg	ND 410	-	-	-	ND 400	ND 400
Hexachlorobenzene	µg/kg	ND 410	-	-	-	ND 400	ND 400
Hexachlorobutadiene	µg/kg	ND 410	-	-	-	ND 400	ND 400
Hexachlorocyclopentadiene	µg/kg	ND 2000	-	-	-	ND 1900	ND 1900
Hexachloroethane	µg/kg	ND 410	-	-	-	ND 400	ND 400
Indeno 1,2,3-cd pyrene	µg/kg	ND 410	-	-	-	ND 400	ND 400
Isophorone	µg/kg	ND 410	-	-	-	ND 400	ND 400
Naphthalene	µg/kg	ND 410	-	-	-	ND 400	ND 400
Nitrobenzene	µg/kg	ND 410	-	-	-	ND 400	ND 400
N-Nitrosodi-n-propylamine	µg/kg	ND 410	-	-	-	ND 400	ND 400
N-Nitrosodiphenylamine	µg/kg	ND 410	-	-	-	ND 400	ND 400
Pentachlorophenol	µg/kg	ND 2000	-	-	-	ND 1900	ND 1900
Phenanthrene	µg/kg	ND 410	-	-	-	ND 400	ND 400
Phenol	µg/kg	ND 410	-	-	-	ND 400	ND 400
Pyrene	µg/kg	51 J	-	-	-	ND 400	ND 400
General Chemistry							
Total Solids	%	79.8	83.6	84.9	84.6	83.4	82.7

TABLE 2A

ANALYTICAL RESULTS SUMMARY - SOILS
QUARTERLY SAMPLING MONITORING PROGRAM
PARCEL #2 - SENECA STREET
BUFFALO, NEW YORK
AUGUST - SEPTEMBER 2001

	Sample Location:	*SB-25*	*SB-26*	*SB-27*	*SB-28*	*SB-29*
	Sample ID:	*082001-SB25-8-10*	*082001-SB26-10-12*	*082001-SB27-10-12*	*082001-SB28-6-8*	*082001-SB29-8-10*
		8-10 ft	*10-12 ft*	*10-12 ft*	*6-8 ft*	*8-10 ft*
	Sample Date:	*8/20/2001*	*8/20/2001*	*8/20/2001*	*8/20/2001*	*8/20/2001*
Parameter	*Unit*					
Volatiles						
1,1,1-Trichloroethane	µg/kg	ND 6.0	-	-	ND 6.2	ND 6.2
1,1,2,2-Tetrachloroethane	µg/kg	ND 6.0	-	-	ND 6.2	ND 6.2
1,1,2-Trichloroethane	µg/kg	ND 6.0	-	-	ND 6.2	ND 6.2
1,1-Dichloroethane	µg/kg	ND 6.0	-	-	ND 6.2	ND 6.2
1,1-Dichloroethene	µg/kg	ND 6.0	-	-	ND 6.2	ND 6.2
1,2,4-Trichlorobenzene	µg/kg	ND 6.0	-	-	ND 6.2	ND 6.2
1,2-Dibromo-3-chloropropane DBCP	µg/kg	ND 12	-	-	ND 12	ND 12
1,2-Dibromoethane Ethylene Dibromide	µg/kg	ND 6.0	-	-	ND 6.2	ND 6.2
1,2-Dichlorobenzene	µg/kg	ND 6.0	-	-	ND 6.2	ND 6.2
1,2-Dichloroethane	µg/kg	ND 6.0	-	-	ND 6.2	ND 6.2
1,2-Dichloropropane	µg/kg	ND 6.0	-	-	ND 6.2	ND 6.2
1,3-Dichlorobenzene	µg/kg	ND 6.0	-	-	ND 6.2	ND 6.2
1,4-Dichlorobenzene	µg/kg	ND 6.0	-	-	ND 6.2	ND 6.2
2-Butanone	µg/kg	ND 24	-	-	ND 25	ND 25
2-Hexanone	µg/kg	ND 24	-	-	ND 25	ND 25
4-Methyl-2-pentanone	µg/kg	ND 24	-	-	ND 25	ND 25
Acetone	µg/kg	ND 24	-	-	ND 25	ND 25
Benzene, isopropyl	µg/kg	ND 6.0	-	-	ND 6.2	ND 6.2
Benzene	µg/kg	ND 6.0	-	-	ND 6.2	ND 6.2
Bromodichloromethane	µg/kg	ND 6.0	-	-	ND 6.2	ND 6.2
Bromoform	µg/kg	ND 6.0	-	-	ND 6.2	ND 6.2
Bromomethane	µg/kg	ND 12	-	-	ND 12	ND 12
Carbon disulfide	µg/kg	ND 6.0	-	-	ND 6.2	ND 6.2
Carbon tetrachloride	µg/kg	ND 6.0	-	-	ND 6.2	ND 6.2
Chlorobenzene	µg/kg	ND 6.0	-	-	ND 6.2	ND 6.2
Chloroethane	µg/kg	ND 12	-	-	ND 12	ND 12
Chloroform Trichloromethane	µg/kg	ND 6.0	-	-	ND 6.2	ND 6.2
Chloromethane	µg/kg	ND 12	-	-	ND 12	ND 12
cis-1,2-Dichloroethene	µg/kg	ND 6.0	-	-	ND 6.2	ND 6.2
cis-1,3-Dichloropropene	µg/kg	ND 6.0	-	-	ND 6.2	ND 6.2
Cyclohexane	µg/kg	ND 6.0	-	-	ND 6.2	ND 6.2

TABLE 2A

ANALYTICAL RESULTS SUMMARY - SOILS
QUARTERLY SAMPLING MONITORING PROGRAM
PARCEL #2 - SENECA STREET
BUFFALO, NEW YORK
AUGUST - SEPTEMBER 2001

	Sample Location:	*SB-25*	*SB-26*	*SB-27*	*SB-28*	*SB-29*
	Sample ID:	*082001-SB25-8-10*	*082001-SB26-10-12*	*082001-SB27-10-12*	*082001-SB28-6-8*	*082001-SB29-8-10*
		8-10 ft	*10-12 ft*	*10-12 ft*	*6-8 ft*	*8-10 ft*
	Sample Date:	*8/20/2001*	*8/20/2001*	*8/20/2001*	*8/20/2001*	*8/20/2001*
Parameter	*Unit*					
Volatiles (Cont'd.)						
Dibromochloromethane	µg/kg	ND 6.0	-	-	ND 6.2	ND 6.2
Dichlorodifluoromethane CFC-12	µg/kg	ND 12	-	-	ND 12	ND 12
Ethylbenzene	µg/kg	ND 6.0	-	-	ND 6.2	ND 6.2
Methyl acetate	µg/kg	ND 6.0	-	-	ND 6.2	ND 6.2
Methyl cyclohexane	µg/kg	ND 6.0	-	-	ND 6.2	ND 6.2
Methyl Tert Butyl Ether	µg/kg	ND 6.0	-	-	ND 6.2	ND 6.2
Methylene chloride	µg/kg	ND 6.0	-	-	ND 6.2	ND 6.2
Styrene	µg/kg	ND 6.0	-	-	ND 6.2	ND 6.2
Tetrachloroethene	µg/kg	1.5 J	-	-	ND 6.2	ND 6.2
Toluene	µg/kg	ND 6.0	-	-	ND 6.2	ND 6.2
trans-1,2-Dichloroethene	µg/kg	ND 6.0	-	-	ND 6.2	ND 6.2
trans-1,3-Dichloropropene	µg/kg	ND 6.0	-	-	ND 6.2	ND 6.2
Trichloroethene	µg/kg	ND 6.0	-	-	ND 6.2	ND 6.2
Trichlorofluoromethane CFC-11	µg/kg	ND 12	-	-	ND 12	ND 12
Trifluorotrichloroethane Freon 113	µg/kg	ND 6.0	-	-	ND 6.2	ND 6.2
Vinyl chloride	µg/kg	ND 12	-	-	ND 12	ND 12
Xylene total	µg/kg	ND 18	-	-	ND 18	ND 19
Semi-Volatiles						
2,2'-oxybis 1-Chloropropane	µg/kg	-	ND 390	ND 400	-	-
2,4,5-Trichlorophenol	µg/kg	-	ND 390	ND 400	-	-
2,4,6-Trichlorophenol	µg/kg	-	ND 390	ND 400	-	-
2,4-Dichlorophenol	µg/kg	-	ND 390	ND 400	-	-
2,4-Dimethylphenol	µg/kg	-	ND 390	ND 400	-	-
2,4-Dinitrophenol	µg/kg	-	ND 1900	ND 1900	-	-
2,4-Dinitrotoluene	µg/kg	-	ND 390	ND 400	-	-
2,6-Dinitrotoluene	µg/kg	-	ND 390	ND 400	-	-
2-Chloronaphthalene	µg/kg	-	ND 390	ND 400	-	-
2-Chlorophenol	µg/kg	-	ND 390	ND 400	-	-
2-Methyl naphthalene	µg/kg	-	ND 390	ND 400	-	-
2-Methylphenol	µg/kg	-	ND 390	ND 400	-	-

TABLE 2A

ANALYTICAL RESULTS SUMMARY - SOILS
QUARTERLY SAMPLING MONITORING PROGRAM
PARCEL #2 - SENECA STREET
BUFFALO, NEW YORK
AUGUST - SEPTEMBER 2001

	Sample Location:	*SB-25*	*SB-26*	*SB-27*	*SB-28*	*SB-29*
	Sample ID:	*082001-SB25-8-10*	*082001-SB26-10-12*	*082001-SB27-10-12*	*082001-SB28-6-8*	*082001-SB29-8-10*
		8-10 ft	*10-12 ft*	*10-12 ft*	*6-8 ft*	*8-10 ft*
	Sample Date:	*8/20/2001*	*8/20/2001*	*8/20/2001*	*8/20/2001*	*8/20/2001*
Parameter	*Unit*					
Semi-Volatiles (Cont'd.)						
2-Nitroaniline	µg/kg	-	ND 1900	ND 1900	-	-
2-Nitrophenol	µg/kg	-	ND 390	ND 400	-	-
3,3'-Dichlorobenzidine	µg/kg	-	ND 1900	ND 1900	-	-
3-Nitroaniline	µg/kg	-	ND 1900	ND 1900	-	-
4,6-Dinitro-2-methylphenol	µg/kg	-	ND 1900	ND 1900	-	-
4-Bromophenyl phenyl ether	µg/kg	-	ND 390	ND 400	-	-
4-Chloro-3-methylphenol	µg/kg	-	ND 390	ND 400	-	-
4-Chloroaniline	µg/kg	-	ND 390	ND 400	-	-
4-Chlorophenyl phenyl ether	µg/kg	-	ND 390	ND 400	-	-
4-Methylphenol	µg/kg	-	ND 390	ND 400	-	-
4-Nitroaniline	µg/kg	-	ND 1900	ND 1900	-	-
4-Nitrophenol	µg/kg	-	ND 1900	ND 1900	-	-
Acenaphthene	µg/kg	-	ND 390	ND 400	-	-
Acenaphthylene	µg/kg	-	ND 390	ND 400	-	-
Acetophenone	µg/kg	-	ND 390	ND 400	-	-
Anthracene	µg/kg	-	ND 390	ND 400	-	-
Atrazine	µg/kg	-	ND 390	ND 400	-	-
Benzaldehyde	µg/kg	-	ND 390	ND 400	-	-
Benzo a anthracene	µg/kg	-	ND 390	ND 400	-	-
Benzo a pyrene	µg/kg	-	ND 390	ND 400	-	-
Benzo b fluoranthene	µg/kg	-	ND 390	ND 400	-	-
Benzo g,h,i perylene	µg/kg	-	ND 390	ND 400	-	-
Benzo k fluoranthene	µg/kg	-	ND 390	ND 400	-	-
Biphenyl	µg/kg	-	ND 390	ND 400	-	-
bis 2-Chloroethoxy methane	µg/kg	-	ND 390	ND 400	-	-
bis 2-Chloroethyl ether	µg/kg	-	ND 390	ND 400	-	-
bis 2-Ethylhexyl phthalate	µg/kg	-	ND 390	ND 400	-	-
Butyl benzylphthalate	µg/kg	-	ND 390	ND 400	-	-
Caprolactam	µg/kg	-	ND 390	ND 400	-	-
Carbazole	µg/kg	-	ND 390	ND 400	-	-
Chrysene	µg/kg	-	ND 390	ND 400	-	-

TABLE 2A

ANALYTICAL RESULTS SUMMARY - SOILS
QUARTERLY SAMPLING MONITORING PROGRAM
PARCEL #2 - SENECA STREET
BUFFALO, NEW YORK
AUGUST - SEPTEMBER 2001

	Sample Location:	*SB-25*	*SB-26*	*SB-27*	*SB-28*	*SB-29*
	Sample ID:	*082001-SB25-8-10*	*082001-SB26-10-12*	*082001-SB27-10-12*	*082001-SB28-6-8*	*082001-SB29-8-10*
		8-10 ft	*10-12 ft*	*10-12 ft*	*6-8 ft*	*8-10 ft*
	Sample Date:	*8/20/2001*	*8/20/2001*	*8/20/2001*	*8/20/2001*	*8/20/2001*
Parameter	*Unit*					
Semi-Volatiles (Cont'd.)						
Dibenz a,h anthracene	µg/kg	-	ND 390	ND 400	-	-
Dibenzofuran	µg/kg	-	ND 390	ND 400	-	-
Diethyl phthalate	µg/kg	-	ND 390	ND 400	-	-
Dimethyl phthalate	µg/kg	-	ND 390	ND 400	-	-
Di-n-butylphthalate	µg/kg	-	ND 390	ND 400	-	-
Di-n-octyl phthalate	µg/kg	-	ND 390	ND 400	-	-
Fluoranthene	µg/kg	-	ND 390	ND 400	-	-
Fluorene	µg/kg	-	ND 390	ND 400	-	-
Hexachlorobenzene	µg/kg	-	ND 390	ND 400	-	-
Hexachlorobutadiene	µg/kg	-	ND 390	ND 400	-	-
Hexachlorocyclopentadiene	µg/kg	-	ND 1900	ND 1900	-	-
Hexachloroethane	µg/kg	-	ND 390	ND 400	-	-
Indeno 1,2,3-cd pyrene	µg/kg	-	ND 390	ND 400	-	-
Isophorone	µg/kg	-	ND 390	ND 400	-	-
Naphthalene	µg/kg	-	ND 390	ND 400	-	-
Nitrobenzene	µg/kg	-	ND 390	ND 400	-	-
N-Nitrosodi-n-propylamine	µg/kg	-	ND 390	ND 400	-	-
N-Nitrosodiphenylamine	µg/kg	-	ND 390	ND 400	-	-
Pentachlorophenol	µg/kg	-	ND 1900	ND 1900	-	-
Phenanthrene	µg/kg	-	ND 390	ND 400	-	-
Phenol	µg/kg	-	ND 390	ND 400	-	-
Pyrene	µg/kg	-	ND 390	ND 400	-	-
General Chemistry						
Total Solids	%	83.0	84.1	83.5	81.2	80.5

Notes:

-	Not applicable.
J	Estimated.
ND	Non-detect at associated value.

ANALYTICAL RESULTS SUMMARY - GROUNDWATER
QUARTERLY SAMPLING MONITORING PROGRAM
PARCEL #2 - SENECA STREET
BUFFALO, NEW YORK
AUGUST - SEPTEMBER 2001

	Sample Location:	*MW-1*	*MW-2*	*MW-3*	*MW-4*	*MW-4A*	*MW-5*
	Sample ID:	*W-091901-FG-MW1*	*W-092001-FG-MW2*	*W-092001-FG-MW3*	*W-092401-F6-MW4*	*W-092401-F6-MW4A*	*W-091901-FG-MW5*
	Sample Date:	*9/19/2001*	*9/20/2001*	*9/20/2001*	*9/24/2001*	*9/24/2001*	*9/19/2001*
Parameter	*Unit*						
Volatiles							
1,1,1-Trichloroethane	µg/L	ND 5.0	ND 5.0	ND 5.0	ND 5.0	ND 5.0	ND 5.0
1,1,2,2-Tetrachloroethane	µg/L	ND 5.0	ND 5.0	ND 5.0	ND 5.0	ND 5.0	ND 5.0
1,1,2-Trichloroethane	µg/L	ND 5.0	ND 5.0	ND 5.0	ND 5.0	ND 5.0	ND 5.0
1,1-Dichloroethane	µg/L	ND 5.0	ND 5.0	ND 5.0	ND 5.0	ND 5.0	ND 5.0
1,1-Dichloroethene	µg/L	ND 5.0	ND 5.0	ND 5.0	ND 5.0	ND 5.0	ND 5.0
1,2,4-Trichlorobenzene	µg/L	ND 5.0	ND 5.0	ND 5.0	ND 5.0	ND 5.0	ND 5.0
1,2-Dibromo-3-chloropropane DBCP	µg/L	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10
1,2-Dibromoethane Ethylene Dibromide	µg/L	ND 5.0	ND 5.0	ND 5.0	ND 5.0	ND 5.0	ND 5.0
1,2-Dichlorobenzene	µg/L	ND 5.0	ND 5.0	ND 5.0	ND 5.0	ND 5.0	ND 5.0
1,2-Dichloroethane	µg/L	ND 5.0	ND 5.0	ND 5.0	ND 5.0	ND 5.0	ND 5.0
1,2-Dichloropropane	µg/L	ND 5.0	ND 5.0	ND 5.0	ND 5.0	ND 5.0	ND 5.0
1,3-Dichlorobenzene	µg/L	ND 5.0	ND 5.0	ND 5.0	ND 5.0	ND 5.0	ND 5.0
1,4-Dichlorobenzene	µg/L	ND 5.0	ND 5.0	ND 5.0	ND 5.0	ND 5.0	ND 5.0
2-Butanone	µg/L	ND 20	ND 20	ND 20	ND 20	ND 20	ND 20
2-Hexanone	µg/L	ND 20	ND 20	ND 20	ND 20	ND 20	ND 20
4-Methyl-2-pentanone	µg/L	ND 20	ND 20	ND 20	ND 20	ND 20	ND 20
Acetone	µg/L	ND 20	ND 20	ND 20	ND 20	ND 20	ND 20
Benzene, isopropyl	µg/L	ND 5.0	ND 5.0	ND 5.0	ND 5.0	ND 5.0	ND 5.0
Benzene	µg/L	ND 5.0	ND 5.0	ND 5.0	ND 5.0	ND 5.0	ND 5.0
Bromodichloromethane	µg/L	ND 5.0	ND 5.0	ND 5.0	ND 5.0	ND 5.0	ND 5.0
Bromoform	µg/L	ND 5.0	ND 5.0	ND 5.0	ND 5.0	ND 5.0	ND 5.0
Bromomethane	µg/L	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10
Carbon disulfide	µg/L	ND 5.0	ND 5.0	ND 5.0	ND 5.0	ND 5.0	ND 5.0
Carbon tetrachloride	µg/L	ND 5.0	ND 5.0	ND 5.0	ND 5.0	ND 5.0	ND 5.0
Chlorobenzene	µg/L	ND 5.0	ND 5.0	ND 5.0	ND 5.0	ND 5.0	ND 5.0
Chloroethane	µg/L	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10
Chloroform Trichloromethane	µg/L	ND 5.0	ND 5.0	ND 5.0	ND 5.0	ND 5.0	ND 5.0
Chloromethane	µg/L	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10
cis-1,2-Dichloroethene	µg/L	ND 5.0	180	ND 5.0	3.8 J	33	ND 5.0
cis-1,3-Dichloropropene	µg/L	ND 5.0	ND 5.0	ND 5.0	ND 5.0	ND 5.0	ND 5.0
Cyclohexane	µg/L	ND 5.0	ND 5.0	ND 5.0	ND 5.0	ND 5.0	ND 5.0
Dibromochloromethane	µg/L	ND 5.0	ND 5.0	ND 5.0	ND 5.0	ND 5.0	ND 5.0
Dichlorodifluoromethane CFC-12	µg/L	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10

ANALYTICAL RESULTS SUMMARY - GROUNDWATER
QUARTERLY SAMPLING MONITORING PROGRAM
PARCEL #2 - SENECA STREET
BUFFALO, NEW YORK
AUGUST - SEPTEMBER 2001

	Sample Location:	*MW-1*	*MW-2*	*MW-3*	*MW-4*	*MW-4A*	*MW-5*
	Sample ID:	*W-091901-FG-MW1*	*W-092001-FG-MW2*	*W-092001-FG-MW3*	*W-092401-F6-MW4*	*W-092401-F6-MW4A*	*W-091901-FG-MW5*
	Sample Date:	*9/19/2001*	*9/20/2001*	*9/20/2001*	*9/24/2001*	*9/24/2001*	*9/19/2001*
Parameter	*Unit*						
Volatiles (Cont'd.)							
Ethylbenzene	µg/L	ND 5.0	ND 5.0	ND 5.0	ND 5.0	ND 5.0	ND 5.0
Methyl acetate	µg/L	ND 5.0	ND 5.0	ND 5.0	ND 5.0	ND 5.0	ND 5.0
Methyl cyclohexane	µg/L	ND 5.0	ND 5.0	ND 5.0	ND 5.0	ND 5.0	ND 5.0
Methyl Tert Butyl Ether	µg/L	ND 5.0	ND 5.0	ND 5.0	ND 5.0	ND 5.0	ND 5.0
Methylene chloride	µg/L	ND 5.0	ND 5.0	ND 5.0	ND 5.0	ND 5.0	ND 5.0
Styrene	µg/L	ND 5.0	ND 5.0	ND 5.0	ND 5.0	ND 5.0	ND 5.0
Tetrachloroethene	µg/L	ND 5.0	50	ND 5.0	41	65	ND 5.0
Toluene	µg/L	ND 5.0	ND 5.0	ND 5.0	ND 5.0	ND 5.0	ND 5.0
trans-1,2-Dichloroethene	µg/L	ND 5.0	ND 5.0	ND 5.0	ND 5.0	ND 5.0	ND 5.0
trans-1,3-Dichloropropene	µg/L	ND 5.0	ND 5.0	ND 5.0	ND 5.0	ND 5.0	ND 5.0
Trichloroethene	µg/L	ND 5.0	210	ND 5.0	6.5	270	ND 5.0
Trichlorofluoromethane CFC-11	µg/L	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10
Trifluorotrichloroethane Freon 113	µg/L	ND 5.0	ND 5.0	ND 5.0	ND 5.0	ND 5.0	ND 5.0
Vinyl chloride	µg/L	ND 10	4.5 J	ND 10	ND 10	ND 10	ND 10
Xylene total	µg/L	ND 15	ND 15	ND 15	ND 15	ND 15	ND 15
Semi-Volatiles							
2,2'-oxybis 1-Chloropropane	µg/L	-	-	-	-	-	-
2,4,5-Trichlorophenol	µg/L	-	-	-	-	-	-
2,4,6-Trichlorophenol	µg/L	-	-	-	-	-	-
2,4-Dichlorophenol	µg/L	-	-	-	-	-	-
2,4-Dimethylphenol	µg/L	-	-	-	-	-	-
2,4-Dinitrophenol	µg/L	-	-	-	-	-	-
2,4-Dinitrotoluene	µg/L	-	-	-	-	-	-
2,6-Dinitrotoluene	µg/L	-	-	-	-	-	-
2-Chloronaphthalene	µg/L	-	-	-	-	-	-
2-Chlorophenol	µg/L	-	-	-	-	-	-
2-Methyl naphthalene	µg/L	-	-	-	-	-	-
2-Methylphenol	µg/L	-	-	-	-	-	-
2-Nitroaniline	µg/L	-	-	-	-	-	-
2-Nitrophenol	µg/L	-	-	-	-	-	-
3,3'-Dichlorobenzidine	µg/L	-	-	-	-	-	-
3-Nitroaniline	µg/L	-	-	-	-	-	-

ANALYTICAL RESULTS SUMMARY - GROUNDWATER
QUARTERLY SAMPLING MONITORING PROGRAM
PARCEL #2 - SENECA STREET
BUFFALO, NEW YORK
AUGUST - SEPTEMBER 2001

	Sample Location:	*MW-1*	*MW-2*	*MW-3*	*MW-4*	*MW-4A*	*MW-5*
	Sample ID:	*W-091901-FG-MW1*	*W-092001-FG-MW2*	*W-092001-FG-MW3*	*W-092401-F6-MW4*	*W-092401-F6-MW4A*	*W-091901-FG-MW5*
	Sample Date:	*9/19/2001*	*9/20/2001*	*9/20/2001*	*9/24/2001*	*9/24/2001*	*9/19/2001*
Parameter	*Unit*						
Semi-Volatiles (Cont'd.)							
4,6-Dinitro-2-methylphenol	µg/L	-	-	-	-	-	-
4-Bromophenyl phenyl ether	µg/L	-	-	-	-	-	-
4-Chloro-3-methylphenol	µg/L	-	-	-	-	-	-
4-Chloroaniline	µg/L	-	-	-	-	-	-
4-Chlorophenyl phenyl ether	µg/L	-	-	-	-	-	-
4-Methylphenol	µg/L	-	-	-	-	-	-
4-Nitroaniline	µg/L	-	-	-	-	-	-
4-Nitrophenol	µg/L	-	-	-	-	-	-
Acenaphthene	µg/L	-	-	-	-	-	-
Acenaphthylene	µg/L	-	-	-	-	-	-
Acetophenone	µg/L	-	-	-	-	-	-
Anthracene	µg/L	-	-	-	-	-	-
Atrazine	µg/L	-	-	-	-	-	-
Benzaldehyde	µg/L	-	-	-	-	-	-
Benzo a anthracene	µg/L	-	-	-	-	-	-
Benzo a pyrene	µg/L	-	-	-	-	-	-
Benzo b fluoranthene	µg/L	-	-	-	-	-	-
Benzo g,h,i perylene	µg/L	-	-	-	-	-	-
Benzo k fluoranthene	µg/L	-	-	-	-	-	-
Biphenyl	µg/L	-	-	-	-	-	-
bis 2-Chloroethoxy methane	µg/L	-	-	-	-	-	-
bis 2-Chloroethyl ether	µg/L	-	-	-	-	-	-
bis 2-Ethylhexyl phthalate	µg/L	-	-	-	-	-	-
Butyl benzylphthalate	µg/L	-	-	-	-	-	-
Caprolactam	µg/L	-	-	-	-	-	-
Carbazole	µg/L	-	-	-	-	-	-
Chrysene	µg/L	-	-	-	-	-	-
Dibenz a,h anthracene	µg/L	-	-	-	-	-	-
Dibenzofuran	µg/L	-	-	-	-	-	-
Diethyl phthalate	µg/L	-	-	-	-	-	-
Dimethyl phthalate	µg/L	-	-	-	-	-	-
Di-n-butylphthalate	µg/L	-	-	-	-	-	-
Di-n-octyl phthalate	µg/L	-	-	-	-	-	-

TABLE 2B

ANALYTICAL RESULTS SUMMARY - GROUNDWATER
QUARTERLY SAMPLING MONITORING PROGRAM
PARCEL #2 - SENECA STREET
BUFFALO, NEW YORK
AUGUST - SEPTEMBER 2001

	Sample Location:	*MW-1*	*MW-2*	*MW-3*	*MW-4*	*MW-4A*	*MW-5*
	Sample ID:	*W-091901-FG-MW1*	*W-092001-FG-MW2*	*W-092001-FG-MW3*	*W-092401-F6-MW4*	*W-092401-F6-MW4A*	*W-091901-FG-MW5*
	Sample Date:	*9/19/2001*	*9/20/2001*	*9/20/2001*	*9/24/2001*	*9/24/2001*	*9/19/2001*
Parameter	*Unit*						
Semi-Volatiles (Cont'd.)							
Fluoranthene	µg/L	-	-	-	-	-	-
Fluorene	µg/L	-	-	-	-	-	-
Hexachlorobenzene	µg/L	-	-	-	-	-	-
Hexachlorobutadiene	µg/L	-	-	-	-	-	-
Hexachlorocyclopentadiene	µg/L	-	-	-	-	-	-
Hexachloroethane	µg/L	-	-	-	-	-	-
Indeno 1,2,3-cd pyrene	µg/L	-	-	-	-	-	-
Isophorone	µg/L	-	-	-	-	-	-
Naphthalene	µg/L	-	-	-	-	-	-
Nitrobenzene	µg/L	-	-	-	-	-	-
N-Nitrosodi-n-propylamine	µg/L	-	-	-	-	-	-
N-Nitrosodiphenylamine	µg/L	-	-	-	-	-	-
Pentachlorophenol	µg/L	-	-	-	-	-	-
Phenanthrene	µg/L	-	-	-	-	-	-
Phenol	µg/L	-	-	-	-	-	-
Pyrene	µg/L	-	-	-	-	-	-

ANALYTICAL RESULTS SUMMARY - GROUNDWATER
QUARTERLY SAMPLING MONITORING PROGRAM
PARCEL #2 - SENECA STREET
BUFFALO, NEW YORK
AUGUST - SEPTEMBER 2001

	Sample Location:	*MW-6*	*MW-6*	*MW-7*	*MW-7A*	*MW-8*	*MW-8A*
	Sample ID:	*W-092401-F6-MW6*	*W-092401-F6-MW15*	*W-092401-F6-MW7*	*W-092001-FG-MW7A*	*W-092401-F6-MW8*	*W-092001-FG-MW8A*
	Sample Date:	*9/24/2001*	*9/24/2001*	*9/24/2001*	*9/20/2001*	*9/24/2001*	*9/20/2001*
			Duplicate				
Parameter	*Unit*						
Volatiles							
1,1,1-Trichloroethane	µg/L	ND 5.0	ND 5.0	ND 5.0	ND 5.0	ND 5.0	ND 5.0
1,1,2,2-Tetrachloroethane	µg/L	ND 5.0	ND 5.0	ND 5.0	ND 5.0	ND 5.0	ND 5.0
1,1,2-Trichloroethane	µg/L	ND 5.0	ND 5.0	ND 5.0	ND 5.0	ND 5.0	ND 5.0
1,1-Dichloroethane	µg/L	ND 5.0	ND 5.0	ND 5.0	ND 5.0	ND 5.0	ND 5.0
1,1-Dichloroethene	µg/L	ND 5.0	ND 5.0	ND 5.0	ND 5.0	ND 5.0	ND 5.0
1,2,4-Trichlorobenzene	µg/L	ND 5.0	ND 5.0	ND 5.0	ND 5.0	ND 5.0	ND 5.0
1,2-Dibromo-3-chloropropane DBCP	µg/L	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10
1,2-Dibromoethane Ethylene Dibromide	µg/L	ND 5.0	ND 5.0	ND 5.0	ND 5.0	ND 5.0	ND 5.0
1,2-Dichlorobenzene	µg/L	ND 5.0	ND 5.0	ND 5.0	ND 5.0	ND 5.0	ND 5.0
1,2-Dichloroethane	µg/L	ND 5.0	ND 5.0	ND 5.0	ND 5.0	ND 5.0	ND 5.0
1,2-Dichloropropane	µg/L	ND 5.0	ND 5.0	ND 5.0	ND 5.0	ND 5.0	ND 5.0
1,3-Dichlorobenzene	µg/L	ND 5.0	ND 5.0	ND 5.0	ND 5.0	ND 5.0	ND 5.0
1,4-Dichlorobenzene	µg/L	ND 5.0	ND 5.0	ND 5.0	ND 5.0	ND 5.0	ND 5.0
2-Butanone	µg/L	ND 20	ND 20	ND 20	ND 20	ND 20	ND 20
2-Hexanone	µg/L	ND 20	ND 20	ND 20	ND 20	ND 20	ND 20
4-Methyl-2-pentanone	µg/L	ND 20	ND 20	ND 20	ND 20	ND 20	ND 20
Acetone	µg/L	ND 20	ND 20	ND 20	ND 20	ND 20	13 J
Benzene, isopropyl	µg/L	ND 5.0	ND 5.0	ND 5.0	ND 5.0	ND 5.0	ND 5.0
Benzene	µg/L	ND 5.0	ND 5.0	ND 5.0	ND 5.0	ND 5.0	ND 5.0
Bromodichloromethane	µg/L	ND 5.0	ND 5.0	ND 5.0	ND 5.0	ND 5.0	ND 5.0
Bromoform	µg/L	ND 5.0	ND 5.0	ND 5.0	ND 5.0	ND 5.0	ND 5.0
Bromomethane	µg/L	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10
Carbon disulfide	µg/L	ND 5.0	ND 5.0	1.1 J	ND 5.0	ND 5.0	ND 5.0
Carbon tetrachloride	µg/L	ND 5.0	ND 5.0	ND 5.0	ND 5.0	ND 5.0	ND 5.0
Chlorobenzene	µg/L	ND 5.0	ND 5.0	ND 5.0	ND 5.0	ND 5.0	ND 5.0
Chloroethane	µg/L	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10
Chloroform Trichloromethane	µg/L	ND 5.0	ND 5.0	ND 5.0	ND 5.0	ND 5.0	ND 5.0
Chloromethane	µg/L	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10
cis-1,2-Dichloroethene	µg/L	ND 5.0	ND 5.0	ND 5.0	ND 5.0	ND 5.0	ND 5.0
cis-1,3-Dichloropropene	µg/L	ND 5.0	ND 5.0	ND 5.0	ND 5.0	ND 5.0	ND 5.0
Cyclohexane	µg/L	ND 5.0	ND 5.0	ND 5.0	ND 5.0	ND 5.0	ND 5.0
Dibromochloromethane	µg/L	ND 5.0	ND 5.0	ND 5.0	ND 5.0	ND 5.0	ND 5.0
Dichlorodifluoromethane CFC-12	µg/L	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10

ANALYTICAL RESULTS SUMMARY - GROUNDWATER
QUARTERLY SAMPLING MONITORING PROGRAM
PARCEL #2 - SENECA STREET
BUFFALO, NEW YORK
AUGUST - SEPTEMBER 2001

	Sample Location:	*MW-6*	*MW-6*	*MW-7*	*MW-7A*	*MW-8*	*MW-8A*
	Sample ID:	*W-092401-F6-MW6*	*W-092401-F6-MW15*	*W-092401-F6-MW7*	*W-092001-FG-MW7A*	*W-092401-F6-MW8*	*W-092001-FG-MW8A*
	Sample Date:	*9/24/2001*	*9/24/2001*	*9/24/2001*	*9/20/2001*	*9/24/2001*	*9/20/2001*
			Duplicate				
Parameter	*Unit*						
Volatiles (Cont'd.)							
Ethylbenzene	µg/L	ND 5.0	ND 5.0	ND 5.0	ND 5.0	ND 5.0	ND 5.0
Methyl acetate	µg/L	ND 5.0	ND 5.0	ND 5.0	ND 5.0	ND 5.0	ND 5.0
Methyl cyclohexane	µg/L	ND 5.0	ND 5.0	ND 5.0	ND 5.0	ND 5.0	ND 5.0
Methyl Tert Butyl Ether	µg/L	ND 5.0	ND 5.0	ND 5.0	ND 5.0	ND 5.0	ND 5.0
Methylene chloride	µg/L	ND 5.0	ND 5.0	ND 5.0	ND 5.0	ND 5.0	ND 5.0
Styrene	µg/L	ND 5.0	ND 5.0	ND 5.0	ND 5.0	ND 5.0	ND 5.0
Tetrachloroethene	µg/L	ND 5.0	ND 5.0	ND 5.0	ND 5.0	ND 5.0	ND 5.0
Toluene	µg/L	ND 5.0	ND 5.0	ND 5.0	ND 5.0	ND 5.0	ND 5.0
trans-1,2-Dichloroethene	µg/L	ND 5.0	ND 5.0	ND 5.0	ND 5.0	ND 5.0	ND 5.0
trans-1,3-Dichloropropene	µg/L	ND 5.0	ND 5.0	ND 5.0	ND 5.0	ND 5.0	ND 5.0
Trichloroethene	µg/L	ND 5.0	ND 5.0	ND 5.0	ND 5.0	ND 5.0	ND 5.0
Trichlorofluoromethane CFC-11	µg/L	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10
Trifluorotrichloroethane Freon 113	µg/L	ND 5.0	ND 5.0	ND 5.0	ND 5.0	ND 5.0	ND 5.0
Vinyl chloride	µg/L	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10
Xylene total	µg/L	ND 15	ND 15	ND 15	ND 15	ND 15	ND 15
Semi-Volatiles							
2,2'-oxybis 1-Chloropropane	µg/L	ND 1000	ND 1000	ND 10	-	-	-
2,4,5-Trichlorophenol	µg/L	ND 1000	ND 1000	ND 10	-	-	-
2,4,6-Trichlorophenol	µg/L	ND 1000	ND 1000	ND 10	-	-	-
2,4-Dichlorophenol	µg/L	ND 1000	ND 1000	ND 10	-	-	-
2,4-Dimethylphenol	µg/L	ND 1000	ND 1000	ND 10	-	-	-
2,4-Dinitrophenol	µg/L	ND 5000	ND 5000	ND 50	-	-	-
2,4-Dinitrotoluene	µg/L	ND 1000	ND 1000	ND 10	-	-	-
2,6-Dinitrotoluene	µg/L	ND 1000	ND 1000	ND 10	-	-	-
2-Chloronaphthalene	µg/L	ND 1000	ND 1000	ND 10	-	-	-
2-Chlorophenol	µg/L	ND 1000	ND 1000	ND 10	-	-	-
2-Methyl naphthalene	µg/L	ND 1000	ND 1000	ND 10	-	-	-
2-Methylphenol	µg/L	ND 1000	ND 1000	ND 10	-	-	-
2-Nitroaniline	µg/L	ND 5000	ND 5000	ND 50	-	-	-
2-Nitrophenol	µg/L	ND 1000	ND 1000	ND 10	-	-	-
3,3'-Dichlorobenzidine	µg/L	ND 5000	ND 5000	ND 50	-	-	-
3-Nitroaniline	µg/L	ND 5000	ND 5000	ND 50	-	-	-

ANALYTICAL RESULTS SUMMARY - GROUNDWATER
QUARTERLY SAMPLING MONITORING PROGRAM
PARCEL #2 - SENECA STREET
BUFFALO, NEW YORK
AUGUST - SEPTEMBER 2001

	Sample Location:	*MW-6*	*MW-6*	*MW-7*	*MW-7A*	*MW-8*	*MW-8A*
	Sample ID:	*W-092401-F6-MW6*	*W-092401-F6-MW15*	*W-092401-F6-MW7*	*W-092001-FG-MW7A*	*W-092401-F6-MW8*	*W-092001-FG-MW8A*
	Sample Date:	*9/24/2001*	*9/24/2001*	*9/24/2001*	*9/20/2001*	*9/24/2001*	*9/20/2001*
			Duplicate				
Parameter	*Unit*						
Semi-Volatiles (Cont'd.)							
4,6-Dinitro-2-methylphenol	µg/L	ND 5000	ND 5000	ND 50	-	-	-
4-Bromophenyl phenyl ether	µg/L	ND 1000	ND 1000	ND 10	-	-	-
4-Chloro-3-methylphenol	µg/L	ND 1000	ND 1000	ND 10	-	-	-
4-Chloroaniline	µg/L	ND 1000	ND 1000	ND 10	-	-	-
4-Chlorophenyl phenyl ether	µg/L	ND 1000	ND 1000	ND 10	-	-	-
4-Methylphenol	µg/L	ND 1000	ND 1000	ND 10	-	-	-
4-Nitroaniline	µg/L	ND 5000	ND 5000	ND 50	-	-	-
4-Nitrophenol	µg/L	ND 5000	ND 5000	ND 50	-	-	-
Acenaphthene	µg/L	ND 1000	ND 1000	ND 10	-	-	-
Acenaphthylene	µg/L	ND 1000	ND 1000	ND 10	-	-	-
Acetophenone	µg/L	ND 1000	ND 1000	ND 10	-	-	-
Anthracene	µg/L	ND 1000	ND 1000	ND 10	-	-	-
Atrazine	µg/L	ND 1000	ND 1000	ND 10	-	-	-
Benzaldehyde	µg/L	ND 1000	ND 1000	ND 10	-	-	-
Benzo a anthracene	µg/L	ND 1000	ND 1000	ND 10	-	-	-
Benzo a pyrene	µg/L	ND 1000	ND 1000	ND 10	-	-	-
Benzo b fluoranthene	µg/L	ND 1000	ND 1000	ND 10	-	-	-
Benzo g,h,i perylene	µg/L	ND 1000	ND 1000	ND 10	-	-	-
Benzo k fluoranthene	µg/L	ND 1000	ND 1000	ND 10	-	-	-
Biphenyl	µg/L	ND 1000	ND 1000	ND 10	-	-	-
bis 2-Chloroethoxy methane	µg/L	ND 1000	ND 1000	ND 10	-	-	-
bis 2-Chloroethyl ether	µg/L	ND 1000	ND 1000	ND 10	-	-	-
bis 2-Ethylhexyl phthalate	µg/L	ND 1000	ND 1000	ND 10	-	-	-
Butyl benzylphthalate	µg/L	ND 1000	ND 1000	ND 10	-	-	-
Caprolactam	µg/L	5100	4000	1600	-	-	-
Carbazole	µg/L	ND 1000	ND 1000	ND 10	-	-	-
Chrysene	µg/L	ND 1000	ND 1000	ND 10	-	-	-
Dibenz a,h anthracene	µg/L	ND 1000	ND 1000	ND 10	-	-	-
Dibenzofuran	µg/L	ND 1000	ND 1000	ND 10	-	-	-
Diethyl phthalate	µg/L	ND 1000	ND 1000	ND 10	-	-	-
Dimethyl phthalate	µg/L	ND 1000	ND 1000	ND 10	-	-	-
Di-n-butylphthalate	µg/L	ND 1000	ND 1000	ND 10	-	-	-
Di-n-octyl phthalate	µg/L	ND 1000	ND 1000	ND 10	-	-	-

ANALYTICAL RESULTS SUMMARY - GROUNDWATER
QUARTERLY SAMPLING MONITORING PROGRAM
PARCEL #2 - SENECA STREET
BUFFALO, NEW YORK
AUGUST - SEPTEMBER 2001

	Sample Location:	*MW-6*	*MW-6*	*MW-7*	*MW-7A*	*MW-8*	*MW-8A*
	Sample ID:	*W-092401-F6-MW6*	*W-092401-F6-MW15*	*W-092401-F6-MW7*	*W-092001-FG-MW7A*	*W-092401-F6-MW8*	*W-092001-FG-MW8A*
	Sample Date:	*9/24/2001*	*9/24/2001*	*9/24/2001*	*9/20/2001*	*9/24/2001*	*9/20/2001*
			Duplicate				
Parameter	*Unit*						
Semi-Volatiles (Cont'd.)							
Fluoranthene	µg/L	ND 1000	ND 1000	ND 10	-	-	-
Fluorene	µg/L	ND 1000	ND 1000	ND 10	-	-	-
Hexachlorobenzene	µg/L	ND 1000	ND 1000	ND 10	-	-	-
Hexachlorobutadiene	µg/L	ND 1000	ND 1000	ND 10	-	-	-
Hexachlorocyclopentadiene	µg/L	ND 5000	ND 5000	ND 50	-	-	-
Hexachloroethane	µg/L	ND 1000	ND 1000	ND 10	-	-	-
Indeno 1,2,3-cd pyrene	µg/L	ND 1000	ND 1000	ND 10	-	-	-
Isophorone	µg/L	ND 1000	ND 1000	ND 10	-	-	-
Naphthalene	µg/L	ND 1000	ND 1000	ND 10	-	-	-
Nitrobenzene	µg/L	ND 1000	ND 1000	ND 10	-	-	-
N-Nitrosodi-n-propylamine	µg/L	ND 1000	ND 1000	ND 10	-	-	-
N-Nitrosodiphenylamine	µg/L	ND 1000	ND 1000	ND 10	-	-	-
Pentachlorophenol	µg/L	ND 5000	ND 5000	ND 50	-	-	-
Phenanthrene	µg/L	ND 1000	ND 1000	ND 10	-	-	-
Phenol	µg/L	ND 1000	ND 1000	ND 10	-	-	-
Pyrene	µg/L	ND 1000	ND 1000	ND 10	-	-	-

TABLE 2B

ANALYTICAL RESULTS SUMMARY - GROUNDWATER
QUARTERLY SAMPLING MONITORING PROGRAM
PARCEL #2 - SENECA STREET
BUFFALO, NEW YORK
AUGUST - SEPTEMBER 2001

	Sample Location:	*MW-9*	*MW-9A*	*MW-10*	*MW-10A*	*MW-11*	*MW-11A*
	Sample ID:	*W-092101-FG-MW9*	*W-092101-FG-MW9A*	*W-092001-FG-MW10*	*W-092001-FG-MW10A*	*W-092101-FG-MW11*	*W-092001-FG-MW11A*
	Sample Date:	*9/21/2001*	*9/21/2001*	*9/20/2001*	*9/20/2001*	*9/21/2001*	*9/20/2001*
Parameter	*Unit*						
Volatiles							
1,1,1-Trichloroethane	µg/L	ND 5.0	ND 5.0	ND 5.0	ND 5.0	ND 10	ND 5.0
1,1,2,2-Tetrachloroethane	µg/L	ND 5.0	ND 5.0	ND 5.0	ND 5.0	ND 10	ND 5.0
1,1,2-Trichloroethane	µg/L	ND 5.0	ND 5.0	ND 5.0	ND 5.0	ND 10	ND 5.0
1,1-Dichloroethane	µg/L	ND 5.0	ND 5.0	ND 5.0	ND 5.0	ND 10	ND 5.0
1,1-Dichloroethene	µg/L	2.0 J	ND 5.0	ND 5.0	ND 5.0	ND 10	ND 5.0
1,2,4-Trichlorobenzene	µg/L	ND 5.0	ND 5.0	ND 5.0	ND 5.0	ND 10	ND 5.0
1,2-Dibromo-3-chloropropane DBCP	µg/L	ND 10	ND 10	ND 10	ND 10	ND 20	ND 10
1,2-Dibromoethane Ethylene Dibromide	µg/L	ND 5.0	ND 5.0	ND 5.0	ND 5.0	ND 10	ND 5.0
1,2-Dichlorobenzene	µg/L	ND 5.0	ND 5.0	ND 5.0	ND 5.0	ND 10	ND 5.0
1,2-Dichloroethane	µg/L	ND 5.0	ND 5.0	ND 5.0	ND 5.0	ND 10	ND 5.0
1,2-Dichloropropane	µg/L	ND 5.0	ND 5.0	ND 5.0	ND 5.0	ND 10	ND 5.0
1,3-Dichlorobenzene	µg/L	ND 5.0	ND 5.0	ND 5.0	ND 5.0	ND 10	ND 5.0
1,4-Dichlorobenzene	µg/L	ND 5.0	ND 5.0	ND 5.0	ND 5.0	ND 10	ND 5.0
2-Butanone	µg/L	ND 20	ND 20	ND 20	ND 20	ND 40	ND 20
2-Hexanone	µg/L	ND 20	ND 20	ND 20	ND 20	ND 40	ND 20
4-Methyl-2-pentanone	µg/L	ND 20	ND 20	ND 20	ND 20	ND 40	ND 20
Acetone	µg/L	ND 20	ND 20	ND 20	5.7 J	ND 40	ND 20
Benzene, isopropyl	µg/L	ND 5.0	ND 5.0	ND 5.0	ND 5.0	ND 10	ND 5.0
Benzene	µg/L	ND 5.0	ND 5.0	ND 5.0	ND 5.0	ND 10	ND 5.0
Bromodichloromethane	µg/L	ND 5.0	ND 5.0	ND 5.0	ND 5.0	ND 10	ND 5.0
Bromoform	µg/L	ND 5.0	ND 5.0	ND 5.0	ND 5.0	ND 10	ND 5.0
Bromomethane	µg/L	ND 10	ND 10	ND 10	ND 10	ND 20	ND 10
Carbon disulfide	µg/L	ND 5.0	ND 5.0	ND 5.0	ND 5.0	ND 10	1.5 J
Carbon tetrachloride	µg/L	ND 5.0	ND 5.0	ND 5.0	ND 5.0	ND 10	ND 5.0
Chlorobenzene	µg/L	ND 5.0	ND 5.0	ND 5.0	ND 5.0	ND 10	ND 5.0
Chloroethane	µg/L	ND 10	ND 10	ND 10	ND 10	ND 20	ND 10
Chloroform Trichloromethane	µg/L	ND 5.0	ND 5.0	ND 5.0	ND 5.0	ND 10	ND 5.0
Chloromethane	µg/L	ND 10	ND 10	ND 10	ND 10	ND 20	ND 10
cis-1,2-Dichloroethene	µg/L	230 J	ND 5.0	ND 5.0	ND 5.0	4.3 J	5.5
cis-1,3-Dichloropropene	µg/L	ND 5.0	ND 5.0	ND 5.0	ND 5.0	ND 10	ND 5.0
Cyclohexane	µg/L	ND 5.0	ND 5.0	ND 5.0	ND 5.0	ND 10	ND 5.0
Dibromochloromethane	µg/L	ND 5.0	ND 5.0	ND 5.0	ND 5.0	ND 10	ND 5.0
Dichlorodifluoromethane CFC-12	µg/L	ND 10	ND 10	ND 10	ND 10	ND 20	ND 10

TABLE 2B

ANALYTICAL RESULTS SUMMARY - GROUNDWATER
QUARTERLY SAMPLING MONITORING PROGRAM
PARCEL #2 - SENECA STREET
BUFFALO, NEW YORK
AUGUST - SEPTEMBER 2001

	Sample Location:	*MW-9*	*MW-9A*	*MW-10*	*MW-10A*	*MW-11*	*MW-11A*
	Sample ID:	*W-092101-FG-MW9*	*W-092101-FG-MW9A*	*W-092001-FG-MW10*	*W-092001-FG-MW10A*	*W-092101-FG-MW11*	*W-092001-FG-MW11A*
	Sample Date:	*9/21/2001*	*9/21/2001*	*9/20/2001*	*9/20/2001*	*9/21/2001*	*9/20/2001*
Parameter	*Unit*						
Volatiles (Cont'd.)							
Ethylbenzene	µg/L	ND 5.0	ND 5.0	ND 5.0	ND 5.0	ND 10	ND 5.0
Methyl acetate	µg/L	ND 5.0	ND 5.0	ND 5.0	ND 5.0	ND 10	ND 5.0
Methyl cyclohexane	µg/L	ND 5.0	ND 5.0	ND 5.0	ND 5.0	ND 10	ND 5.0
Methyl Tert Butyl Ether	µg/L	ND 5.0	ND 5.0	2.9 J	ND 5.0	ND 10	ND 5.0
Methylene chloride	µg/L	ND 5.0	ND 5.0	ND 5.0	ND 5.0	ND 10	ND 5.0
Styrene	µg/L	ND 5.0	ND 5.0	ND 5.0	ND 5.0	ND 10	ND 5.0
Tetrachloroethene	µg/L	12000	27	ND 5.0	ND 5.0	240	480
Toluene	µg/L	ND 5.0	ND 5.0	ND 5.0	ND 5.0	ND 10	ND 5.0
trans-1,2-Dichloroethene	µg/L	2.2 J	ND 5.0	ND 5.0	ND 5.0	ND 10	ND 5.0
trans-1,3-Dichloropropene	µg/L	ND 5.0	ND 5.0	ND 5.0	ND 5.0	ND 10	ND 5.0
Trichloroethene	µg/L	1200	3.7 J	ND 5.0	ND 5.0	12	75
Trichlorofluoromethane CFC-11	µg/L	ND 10	ND 10	ND 10	ND 10	ND 20	ND 10
Trifluorotrichloroethane Freon 113	µg/L	ND 5.0	ND 5.0	ND 5.0	ND 5.0	ND 10	ND 5.0
Vinyl chloride	µg/L	2.7 J	ND 10	ND 10	ND 10	ND 20	ND 10
Xylene total	µg/L	ND 15	ND 15	ND 15	ND 15	ND 30	ND 15
Semi-Volatiles							
2,2'-oxybis 1-Chloropropane	µg/L	-	-	ND 10	-	ND 10	-
2,4,5-Trichlorophenol	µg/L	-	-	ND 10	-	ND 10	-
2,4,6-Trichlorophenol	µg/L	-	-	ND 10	-	ND 10	-
2,4-Dichlorophenol	µg/L	-	-	ND 10	-	ND 10	-
2,4-Dimethylphenol	µg/L	-	-	ND 10	-	ND 10	-
2,4-Dinitrophenol	µg/L	-	-	ND 50	-	ND 50	-
2,4-Dinitrotoluene	µg/L	-	-	ND 10	-	ND 10	-
2,6-Dinitrotoluene	µg/L	-	-	ND 10	-	ND 10	-
2-Chloronaphthalene	µg/L	-	-	ND 10	-	ND 10	-
2-Chlorophenol	µg/L	-	-	ND 10	-	ND 10	-
2-Methyl naphthalene	µg/L	-	-	ND 10	-	ND 10	-
2-Methylphenol	µg/L	-	-	ND 10	-	ND 10	-
2-Nitroaniline	µg/L	-	-	ND 50	-	ND 50	-
2-Nitrophenol	µg/L	-	-	ND 10	-	ND 10	-
3,3'-Dichlorobenzidine	µg/L	-	-	ND 50	-	ND 50	-
3-Nitroaniline	µg/L	-	-	ND 50	-	ND 50	-

TABLE 2B

ANALYTICAL RESULTS SUMMARY - GROUNDWATER
QUARTERLY SAMPLING MONITORING PROGRAM
PARCEL #2 - SENECA STREET
BUFFALO, NEW YORK
AUGUST - SEPTEMBER 2001

	Sample Location:	*MW-9*	*MW-9A*	*MW-10*	*MW-10A*	*MW-11*	*MW-11A*
	Sample ID:	*W-092101-FG-MW9*	*W-092101-FG-MW9A*	*W-092001-FG-MW10*	*W-092001-FG-MW10A*	*W-092101-FG-MW11*	*W-092001-FG-MW11A*
	Sample Date:	*9/21/2001*	*9/21/2001*	*9/20/2001*	*9/20/2001*	*9/21/2001*	*9/20/2001*
Parameter	*Unit*						
Semi-Volatiles (Cont'd.)							
4,6-Dinitro-2-methylphenol	µg/L	-	-	ND 50	-	ND 50	-
4-Bromophenyl phenyl ether	µg/L	-	-	ND 10	-	ND 10	-
4-Chloro-3-methylphenol	µg/L	-	-	ND 10	-	ND 10	-
4-Chloroaniline	µg/L	-	-	ND 10	-	ND 10	-
4-Chlorophenyl phenyl ether	µg/L	-	-	ND 10	-	ND 10	-
4-Methylphenol	µg/L	-	-	ND 10	-	ND 10	-
4-Nitroaniline	µg/L	-	-	ND 50	-	ND 50	-
4-Nitrophenol	µg/L	-	-	ND 50	-	ND 50	-
Acenaphthene	µg/L	-	-	ND 10	-	ND 10	-
Acenaphthylene	µg/L	-	-	ND 10	-	ND 10	-
Acetophenone	µg/L	-	-	ND 10	-	ND 10	-
Anthracene	µg/L	-	-	ND 10	-	ND 10	-
Atrazine	µg/L	-	-	ND 10	-	ND 10	-
Benzaldehyde	µg/L	-	-	ND 10	-	ND 10	-
Benzo a anthracene	µg/L	-	-	ND 10	-	ND 10	-
Benzo a pyrene	µg/L	-	-	ND 10	-	ND 10	-
Benzo b fluoranthene	µg/L	-	-	ND 10	-	ND 10	-
Benzo g,h,i perylene	µg/L	-	-	ND 10	-	ND 10	-
Benzo k fluoranthene	µg/L	-	-	ND 10	-	ND 10	-
Biphenyl	µg/L	-	-	ND 10	-	ND 10	-
bis 2-Chloroethoxy methane	µg/L	-	-	ND 10	-	ND 10	-
bis 2-Chloroethyl ether	µg/L	-	-	ND 10	-	ND 10	-
bis 2-Ethylhexyl phthalate	µg/L	-	-	ND 10	-	ND 10	-
Butyl benzylphthalate	µg/L	-	-	ND 10	-	ND 10	-
Caprolactam	µg/L	-	-	ND 10	-	ND 10	-
Carbazole	µg/L	-	-	ND 10	-	ND 10	-
Chrysene	µg/L	-	-	ND 10	-	ND 10	-
Dibenz a,h anthracene	µg/L	-	-	ND 10	-	ND 10	-
Dibenzofuran	µg/L	-	-	ND 10	-	ND 10	-
Diethyl phthalate	µg/L	-	-	ND 10	-	ND 10	-
Dimethyl phthalate	µg/L	-	-	ND 10	-	ND 10	-
Di-n-butylphthalate	µg/L	-	-	ND 10	-	ND 10	-
Di-n-octyl phthalate	µg/L	-	-	ND 10	-	ND 10	-

TABLE 2B

ANALYTICAL RESULTS SUMMARY - GROUNDWATER
QUARTERLY SAMPLING MONITORING PROGRAM
PARCEL #2 - SENECA STREET
BUFFALO, NEW YORK
AUGUST - SEPTEMBER 2001

	Sample Location:	*MW-9*	*MW-9A*	*MW-10*	*MW-10A*	*MW-11*	*MW-11A*
	Sample ID:	*W-092101-FG-MW9*	*W-092101-FG-MW9A*	*W-092001-FG-MW10*	*W-092001-FG-MW10A*	*W-092101-FG-MW11*	*W-092001-FG-MW11A*
	Sample Date:	*9/21/2001*	*9/21/2001*	*9/20/2001*	*9/20/2001*	*9/21/2001*	*9/20/2001*
Parameter	*Unit*						
Semi-Volatiles (Cont'd.)							
Fluoranthene	µg/L	-	-	ND 10	-	ND 10	-
Fluorene	µg/L	-	-	ND 10	-	ND 10	-
Hexachlorobenzene	µg/L	-	-	ND 10	-	ND 10	-
Hexachlorobutadiene	µg/L	-	-	ND 10	-	ND 10	-
Hexachlorocyclopentadiene	µg/L	-	-	ND 50	-	ND 50	-
Hexachloroethane	µg/L	-	-	ND 10	-	ND 10	-
Indeno 1,2,3-cd pyrene	µg/L	-	-	ND 10	-	ND 10	-
Isophorone	µg/L	-	-	ND 10	-	ND 10	-
Naphthalene	µg/L	-	-	ND 10	-	ND 10	-
Nitrobenzene	µg/L	-	-	ND 10	-	ND 10	-
N-Nitrosodi-n-propylamine	µg/L	-	-	ND 10	-	ND 10	-
N-Nitrosodiphenylamine	µg/L	-	-	ND 10	-	ND 10	-
Pentachlorophenol	µg/L	-	-	ND 50	-	ND 50	-
Phenanthrene	µg/L	-	-	ND 10	-	ND 10	-
Phenol	µg/L	-	-	ND 10	-	ND 10	-
Pyrene	µg/L	-	-	ND 10	-	ND 10	-

Notes:

-	Not applicable.
J	Estimated.
ND	Non-detect at associated value.

CHAIN OF CUSTODY RECORD

CONESTOGA-ROVERS & ASSOCIATES
2055 Niagara Falls Blvd., Suite 3
Niagara Falls, N.Y. 14304 (716) 297-6150

SHIPPED TO (Laboratory Name):
STL Pittsburgh
450 William Pitt Way
Pittsburgh, PA 15238

REFERENCE NUMBER: 015867
2137 Seneca St.
Buffalo NY RFI

SAMPLER'S SIGNATURE: Frank Garbe

PRINTED NAME: Frank Garbe

SEQ. No.	DATE	TIME	SAMPLE No.	SAMPLE TYPE	No. of Containers	PARAMETERS	VOA 8260B	BNA 8270C								REMARKS
	8/20/04	1130	082001-SB27-10-12	Soil	1		-	1								
✓		1140	082001-SB26-10-12		1		-	1								
✓✓		1400	082001-SB21-6-8		2		2	-								
✓✓✓		1615	082001-SB19-6-8		3		2	1								
✓✓		1500	082001-SB28-6-8		2		2	-								
✓✓		1600	082001-SB29-5-10		2		2	-								
✓✓✓		1700	082001-SB24-8-10		3		2	1								
✓✓✓		1730	082001-SB35-8-10		3		2	1								
✓✓		1410	082001-SB17-2-4		2		2	-								
✓✓		1420	082001-SB17-6-8		2		2	-								
		~~[illegible]~~	~~[illegible]~~ FG													
✓✓	↓	1800	082001-SB25-8-10	↓	2		2	-								

TOTAL NUMBER OF CONTAINERS 24

HEALTH/CHEMICAL HAZARDS

RELINQUISHED BY: ① Frank Garbe	DATE: 8/20/04 TIME: 17:00 (FEDEX)	RECEIVED BY: ①	DATE: TIME:
RELINQUISHED BY: ②	DATE: TIME:	RECEIVED BY: ②	DATE: TIME:
RELINQUISHED BY: ③	DATE: TIME:	RECEIVED BY: ③	DATE: TIME:

METHOD OF SHIPMENT:

WAY BILL No.

White	–Fully Executed Copy
Yellow	–Receiving Laboratory Copy
Pink	–Shipper Copy
Goldenrod	–Sampler Copy

SAMPLE TEAM:
Frank Garbe
Jane Pietraszek

RECEIVED FOR LABORATORY BY:

DATE: TIME:

NO M 3523

1001 (D) APR 28/97(NF) REV. 0 (F-15)

CHAIN OF CU ODY RECORD

CONESTOGA-ROVERS & ASSOCIATES
2055 Niagara Falls Blvd., Suite 3
Niagara Falls, N.Y. 14304 (716) 297-6150

SHIPPED TO (Laboratory Name):
STL Pittsburgh
450 William Pitt Way
Pittsburgh, PA 15238

REFERENCE NUMBER: [illegible]
2037 Seneca St
[illegible]

SAMPLER'S SIGNATURE: Frank Garbo
PRINTED NAME: Frank Garbe

SEQ. No.	DATE	TIME	SAMPLE No.	SAMPLE TYPE	No. of Containers	PARAMETERS	VOA 8260B	BNA 8270C								REMARKS
	8/22/01	8:35	082201-SB12-6-8	Soil	3		2	1								
	↓	9:25	082201-SB11-0-2	↓	2		2	–								
		9:30	082201-SB17-4-6		2		2	–								
		9:45	082201-SB17-8-10		2		2	–								
		10:30	082201-SB22-11-12		2		2	–								
		11:00	082201-SB23-11-12		2		2	–								

TOTAL NUMBER OF CONTAINERS: 13

HEALTH/CHEMICAL HAZARDS

RELINQUISHED BY: ① Frank Garbo
DATE: 8/22/01
TIME: 17:00 via
RECEIVED BY: ① FEDEX
DATE:
TIME:

RELINQUISHED BY: ②
DATE:
TIME:
RECEIVED BY: ②
DATE:
TIME:

RELINQUISHED BY: ③
DATE:
TIME:
RECEIVED BY: ③
DATE:
TIME:

METHOD OF SHIPMENT:
WAY BILL No.

White	–Fully Executed Copy
Yellow	–Receiving Laboratory Copy
Pink	–Shipper Copy
Goldenrod	–Sampler Copy

SAMPLE TEAM:
Frank Garbo
Jane Pietraszek

RECEIVED FOR LABORATORY BY:
DATE: TIME:

No N 3524

1001 (D) APR 28/97(NF) REV. 0 (F-15)

CHAIN OF CUSTODY RECORD

CONESTOGA-ROVERS & ASSOCIATES 2055 Niagara Falls Blvd., Suite 3 Niagara Falls, N.Y. 14304 (716) 297-6150	**SHIPPED TO (Laboratory Name):** STL Pittsburgh 450 William Pitt Way Pittsburg, PA 15238	**REFERENCE NUMBER:** #015867 2137 Seneca St.

SAMPLER'S SIGNATURE: ____________ PRINTED NAME: Frank Garbe

SEQ. No.	DATE	TIME	SAMPLE No.	SAMPLE TYPE	No. of Containers	PARAMETERS	TCL VOA	TCL BNA								REMARKS - contact Susan Scroochi w/
	9/19/01	1030	W-091901-FG-MW1	water	3		X									ques & results.
	9/19/01	1055	W-091901-FG-MW5	water	3		X									- hot turbid
	9/20/01	1120	W-092001-FG-MW3	water	3		X									samples settle
	9/20/01	1210	W-092001-FG-MW10A	water	3		X									and decont.
	9/20/01	1320	W-092001-FG-MW9A	water	3		X									
	9/20/01	1405	W-092001-FG-MW10	water	~~2~~	5	X	X								
	9/20/01	1415	W-092001-FG-MW7A	water	~~5~~	3	X	~~2~~								
	9/20/01	1510	W-092001-FG-MW2	water	3		X									
	9/19/01	—	TB-1	water	2		X									Trip Blank
	9/20/01	1615	W-092001-FG-MW11A	water	3		X									

TOTAL NUMBER OF CONTAINERS	31	HEALTH/CHEMICAL HAZARDS	

RELINQUISHED BY: ① Frank Garbe	DATE: 9/20/01 TIME: 17:30	RECEIVED BY: ①	DATE: TIME:
RELINQUISHED BY: ②	DATE: TIME:	RECEIVED BY: ②	DATE: TIME:
RELINQUISHED BY: ③	DATE: TIME:	RECEIVED BY: ③	DATE: TIME:

METHOD OF SHIPMENT: WAY BILL No.

White	–Fully Executed Copy
Yellow	–Receiving Laboratory Copy
Pink	–Shipper Copy
Goldenrod	–Sampler Copy

SAMPLE TEAM:
Frank Garbe
Jane Dietrzak

RECEIVED FOR LABORATORY BY:
DATE: ____ TIME: ____

Nº N 0875

CHAIN OF CU ODY RECORD

CRA
CONESTOGA-ROVERS & ASSOCIATES
2055 Niagara Falls Blvd. Suite Three
Niagara Falls, NY 14304 (716)297-6150

SHIPPED TO (Laboratory Name):
STL Pittsburgh
4150 William Pitt Way
Pittsburgh, PA 15238

REFERENCE NUMBER: #015867
2137 Seneca St ('Pizza Hut')

SAMPLER'S SIGNATURE: Frank Garbe

PRINTED NAME: Frank Garbe

SEQ. No.	DATE	TIME	SAMPLE No.	SAMPLE TYPE	No. OF CONTAINERS	PARAMETERS	TCL VOCs	TCL SVOCs (BNA)		REMARKS
										Contact: Sue Scrocchi
	9-21-01	13:30	W-092101-FG-MW11	Water	15		9	6	MS/MSD	(716 297-6150)
	↓	14:50	W-092101-FG-MW9	" "	3		3			w/results &
	↓	16:10	W-092101-FG-MW9A	" "	3		3			Questions
	9/21/01	—	TB-2	" "	2		2		Trip Blank	

* Please let turbid samples settle & decant sample volume

TOTAL NUMBER OF CONTAINERS: 23

HEALTH/CHEMICAL HAZARDS:

RELINQUISHED BY: ① Frank Garbe DATE: 9/21/01 TIME: 17:30
RECEIVED BY: ② DATE: TIME:
RELINQUISHED BY: ② DATE: TIME:
RECEIVED BY: ③ DATE: TIME:
RELINQUISHED BY: ③ DATE: TIME:
RECEIVED BY: ④ DATE: TIME:

METHOD OF SHIPMENT: FedEx

WAY BILL No.

White	-Fully Executed Copy
Yellow	-Receiving Laboratory Copy
Pink	-Shipper Copy
Goldenrod	-Sampler Copy

SAMPLE TEAM: Frank Garbe

RECEIVED FOR LABORATORY BY:
DATE: TIME:

№ NF-2458

1001 (D) OCT 31/94(NF) REV.1 (F-05)

CHAIN OF CU ODY RECORD

CRA
CONESTOGA-ROVERS & ASSOCIATES
2055 Niagara Falls Blvd. Suite Three
Niagara Falls, NY 14304 (716)297-6150

SHIPPED TO (Laboratory Name):
STL Pittsburgh
450 William Pitt Way
Pittsburgh PA 15238

REFERENCE NUMBER: # 015867
2137 Seneca St. (Pizza Hut)

SAMPLER'S SIGNATURE: Frank Garbe
PRINTED NAME: Frank Garbe

SEQ. No.	DATE	TIME	SAMPLE No.	SAMPLE TYPE	No. OF CONTAINERS	PARAMETERS	TCL VOCs	TCL SVOCs									REMARKS
	9-24-01	11^{10}	W-092401-FG-MW4	W	3		3										
	↓	12^{30}	W-092401-FG-MW4A	W	3		3										
		13^{00}	W-092401-FG-MW8	W	3		3										
		15^{10}	W-092401-FG-MW6	W	5		3	2									
		14^{30}	W-092401-FG-MW15	W	5		3	2									
		16^{30}	W-092401-FG-MW7	W	5		3	2									
		–	TB-3	W	2		2										Trip Blank
																	Please let turbid
																	samples settle & decant
																	Contact Sue
																	Scrocchi (CRA)
																	w/ results &
																	Questions

TOTAL NUMBER OF CONTAINERS: 24

HEALTH/CHEMICAL HAZARDS

RELINQUISHED BY:	DATE / TIME	RECEIVED BY:	DATE / TIME
① Frank Garbe	DATE: 9/24/01 TIME: 17:30	②	DATE: TIME:
②	DATE: TIME:	③	DATE: TIME:
③	DATE: TIME:	④	DATE: TIME:

METHOD OF SHIPMENT: Fedex
WAY BILL No.

White – Fully Executed Copy
Yellow – Receiving Laboratory Copy
Pink – Shipper Copy
Goldenrod – Sampler Copy

SAMPLE TEAM: Frank Garbe

RECEIVED FOR LABORATORY BY:
DATE: TIME:

№ NF-2459

1001 (D) OCT 31/94(NF) REV.1 (F-05)

CONESTOGA-ROVERS
& ASSOCIATES

2055 Niagara Falls Blvd., Suite #3
Niagara Falls, New York 14304
Telephone: (716) 297-6150 Fax: (716) 297-2265
www.CRAworld.com

MEMORANDUM

TO: Carol Dunnigan

FROM: Susan Scrocchi/js/3

REF. NO.: 15867

DATE: January 7, 2002
Revised: January 15, 2002

RE: **Data Usability Summary Report**
Site Investigation
Parcel #2 - Seneca Street
Buffalo, New York

INTRODUCTION

The following details an evaluation of results reported by Severn Trent Laboratories (STL) located in Pittsburgh, Pennsylvania, for 10 groundwater samples in November 2001 at the Parcel #2 Site located in Buffalo, New York.

The samples were analyzed for Target Compound List (TCL) volatile organic compounds (VOCs) using Method SW-846 8260, referenced from "Test Methods for Solid Waste Physical/Chemical Methods", SW-847, 3rd Edition, September 1986 (with all subsequent revisions).

A summary of the analytical results is presented in Table 1.

The Quality Assurance/Quality Control (QA/QC) criteria by which these data have been evaluated is outlined in the analytical methods and the "USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review" (October 1999, United States Environmental Protection Agency [USEPA] 540/R-99/008).

QA/QC REVIEW

Deliverables

The data package was complete as defined under the requirements for Analytical Services Protocol (ASP) Category A deliverables.

Holding Times

Based on the methods, all required holding times were met.

Blanks

Method blanks were analyzed on a daily basis and were non-detect for the compounds of interest.

A trip blank was collected with the samples and submitted for VOC analyses. Trip blank results were non-detect for the VOCs of interest.

Surrogate Spike Recoveries

All sample blanks and QC samples were spiked with the proper surrogate compounds prior to sample preparation and analysis. All surrogate recoveries met the method criteria indicating acceptable analytical efficiency.

Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analyses

MS/MSD analyses were performed at the proper frequency. All results were acceptable indicating good analytical accuracy and precision.

Blank Spike (BS) Analyses

BSs were analyzed at the required frequency for all parameters and all recoveries were acceptable indicating adequate analytical efficiency.

Field Duplicate Analyses

Samples were collected in duplicate and submitted "blind" to the laboratory for analysis. The analytical results were comparable, demonstrating acceptable sampling and analytical precision for this study.

OVERALL ASSESSMENT

All deliverables required by the project were present and the data package was complete. Based on the preceding evaluation, the data were acceptable for use without qualification.

TABLE 1

ANALYTICAL RESULTS SUMMARY
GROUNDWATER SAMPLING
PARCEL #2, SENECA STREET
NOVEMBER 2001

	Sample Location:	*MW-11*	*MW-11A*	*MW-12*	*MW-12A*	*MW-2*
	Sample ID:	*GW-112801-JP-005*	*GW-112901-JP-008*	*GW-112701-JP-001*	*GW-113001-JP-010*	*GW-112901-JP-009*
	Sample Date:	*11/28/2001*	*11/29/2001*	*11/27/2001*	*11/30/2001*	*11/29/2001*
Parameter	*Unit*					
Volatiles						
1,1,1-Trichloroethane	µg/L	ND 5.0	ND 10	ND 5.0	ND 5.0	ND 5.0
1,1,2,2-Tetrachloroethane	µg/L	ND 5.0	ND 10	ND 5.0	ND 5.0	ND 5.0
1,1,2-Trichloroethane	µg/L	ND 5.0	ND 10	ND 5.0	ND 5.0	ND 5.0
1,1-Dichloroethane	µg/L	ND 5.0	ND 10	ND 5.0	ND 5.0	ND 5.0
1,1-Dichloroethene	µg/L	ND 5.0	ND 10	3.2 J	ND 5.0	ND 5.0
1,2,4-Trichlorobenzene	µg/L	ND 5.0	ND 10	ND 5.0	ND 5.0	ND 5.0
1,2-Dibromo-3-chloropropane (DBCP)	µg/L	ND 10	ND 20	ND 10	ND 10	ND 10
1,2-Dibromoethane (Ethylene Dibromide)	µg/L	ND 5.0	ND 10	ND 5.0	ND 5.0	ND 5.0
1,2-Dichlorobenzene	µg/L	ND 5.0	ND 10	ND 5.0	ND 5.0	ND 5.0
1,2-Dichloroethane	µg/L	ND 5.0	ND 10	ND 5.0	ND 5.0	ND 5.0
1,2-Dichloropropane	µg/L	ND 5.0	ND 10	ND 5.0	ND 5.0	ND 5.0
1,3-Dichlorobenzene	µg/L	ND 5.0	ND 10	ND 5.0	ND 5.0	ND 5.0
1,4-Dichlorobenzene	µg/L	ND 5.0	ND 10	ND 5.0	ND 5.0	ND 5.0
2-Butanone	µg/L	ND 20	ND 40	ND 20	ND 20	ND 20
2-Hexanone	µg/L	ND 20	ND 40	ND 20	ND 20	ND 20
4-Methyl-2-pentanone	µg/L	ND 20	ND 40	ND 20	ND 20	ND 20
Acetone	µg/L	ND 20	ND 40	ND 20	5.6 J	ND 20
Benzene, isopropyl	µg/L	ND 5.0	ND 10	ND 5.0	ND 5.0	ND 5.0
Benzene	µg/L	ND 5.0	ND 10	ND 5.0	ND 5.0	ND 5.0
Bromodichloromethane	µg/L	ND 5.0	ND 10	ND 5.0	ND 5.0	ND 5.0
Bromoform	µg/L	ND 5.0	ND 10	ND 5.0	ND 5.0	ND 5.0
Bromomethane	µg/L	ND 10	ND 20	ND 10	ND 10	ND 10
Carbon disulfide	µg/L	ND 5.0	ND 10	ND 5.0	2.7 J	ND 5.0
Carbon tetrachloride	µg/L	ND 5.0	ND 10	ND 5.0	ND 5.0	ND 5.0
Chlorobenzene	µg/L	ND 5.0	ND 10	ND 5.0	ND 5.0	ND 5.0
Chloroethane	µg/L	ND 10	ND 20	ND 10	ND 10	ND 10
Chloroform (Trichloromethane)	µg/L	ND 5.0	ND 10	ND 5.0	ND 5.0	ND 5.0
Chloromethane	µg/L	ND 10	ND 20	ND 10	ND 10	ND 10

TABLE 1

ANALYTICAL RESULTS SUMMARY
GROUNDWATER SAMPLING
PARCEL #2, SENECA STREET
NOVEMBER 2001

	Sample Location:	*MW-11*	*MW-11A*	*MW-12*	*MW-12A*	*MW-2*
	Sample ID:	*GW-112801-JP-005*	*GW-112901-JP-008*	*GW-112701-JP-001*	*GW-113001-JP-010*	*GW-112901-JP-009*
	Sample Date:	*11/28/2001*	*11/29/2001*	*11/27/2001*	*11/30/2001*	*11/29/2001*
Parameter	*Unit*					
Volatiles						
cis-1,2-Dichloroethene	µg/L	29	7.1 J	360	33	140
cis-1,3-Dichloropropene	µg/L	ND 5.0	ND 10	ND 5.0	ND 5.0	ND 5.0
Cyclohexane	µg/L	ND 5.0	ND 10	ND 5.0	ND 5.0	ND 5.0
Dibromochloromethane	µg/L	ND 5.0	ND 10	ND 5.0	ND 5.0	ND 5.0
Dichlorodifluoromethane (CFC-12)	µg/L	ND 10	ND 20	ND 10	ND 10	ND 10
Ethylbenzene	µg/L	ND 5.0	ND 10	ND 5.0	ND 5.0	ND 5.0
Methyl acetate	µg/L	ND 5.0	ND 10	ND 5.0	ND 5.0	ND 5.0
Methyl cyclohexane	µg/L	ND 5.0	ND 10	ND 5.0	ND 5.0	ND 5.0
Methyl Tert Butyl Ether	µg/L	ND 5.0	ND 10	ND 5.0	ND 5.0	ND 5.0
Methylene chloride	µg/L	ND 5.0	ND 10	ND 5.0	ND 5.0	ND 5.0
Styrene	µg/L	ND 5.0	ND 10	ND 5.0	ND 5.0	ND 5.0
Tetrachloroethene	µg/L	1700	240	6200	100	85
Toluene	µg/L	ND 5.0	ND 10	ND 5.0	ND 5.0	ND 5.0
trans-1,2-Dichloroethene	µg/L	ND 5.0	ND 10	3.0 J	ND 5.0	ND 5.0
trans-1,3-Dichloropropene	µg/L	ND 5.0	ND 10	ND 5.0	ND 5.0	ND 5.0
Trichloroethene	µg/L	84	80	2000	36	140
Trichlorofluoromethane (CFC-11)	µg/L	ND 10	ND 20	ND 10	ND 10	ND 10
Trifluorotrichloroethane (Freon 113)	µg/L	ND 5.0	ND 10	ND 5.0	ND 5.0	ND 5.0
Vinyl chloride	µg/L	ND 10	ND 20	3.3 J	ND 10	5.0 J
Xylene (total)	µg/L	ND 15	ND 30	ND 15	ND 15	ND 15

TABLE 1

ANALYTICAL RESULTS SUMMARY
GROUNDWATER SAMPLING
PARCEL #2, SENECA STREET
NOVEMBER 2001

	Sample Location:	*MW-4*	*MW-4*	*MW-4A*	*MW-9*	*MW-9A*
	Sample ID:	*GW-112801-JP-003*	*GW-112801-JP-004*	*GW-112901-JP-007*	*GW-112701-JP-002*	*GW-112801-JP-006*
	Sample Date:	*11/28/2001*	*11/28/2001*	*11/29/2001*	*11/27/2001*	*11/28/2001*
			(Field Duplicate)			
Parameter	*Unit*					
Volatiles						
1,1,1-Trichloroethane	μg/L	ND 150	ND 250	ND 5.0	ND 250	ND 5.0
1,1,2,2-Tetrachloroethane	μg/L	ND 150	ND 250	ND 5.0	ND 250	ND 5.0
1,1,2-Trichloroethane	μg/L	ND 150	ND 250	ND 5.0	ND 250	ND 5.0
1,1-Dichloroethane	μg/L	ND 150	ND 250	ND 5.0	ND 250	ND 5.0
1,1-Dichloroethene	μg/L	ND 150	ND 250	ND 5.0	ND 250	ND 5.0
1,2,4-Trichlorobenzene	μg/L	ND 150	ND 250	ND 5.0	ND 250	ND 5.0
1,2-Dibromo-3-chloropropane (DBCP)	μg/L	ND 300	ND 500	ND 10	ND 500	ND 10
1,2-Dibromoethane (Ethylene Dibromide)	μg/L	ND 150	ND 250	ND 5.0	ND 250	ND 5.0
1,2-Dichlorobenzene	μg/L	ND 150	ND 250	ND 5.0	ND 250	ND 5.0
1,2-Dichloroethane	μg/L	ND 150	ND 250	ND 5.0	ND 250	ND 5.0
1,2-Dichloropropane	μg/L	ND 150	ND 250	ND 5.0	ND 250	ND 5.0
1,3-Dichlorobenzene	μg/L	ND 150	ND 250	ND 5.0	ND 250	ND 5.0
1,4-Dichlorobenzene	μg/L	ND 150	ND 250	ND 5.0	ND 250	ND 5.0
2-Butanone	μg/L	ND 600	ND 1000	ND 20	ND 1000	ND 20
2-Hexanone	μg/L	ND 600	ND 1000	ND 20	ND 1000	ND 20
4-Methyl-2-pentanone	μg/L	ND 600	ND 1000	ND 20	ND 1000	ND 20
Acetone	μg/L	ND 600	ND 1000	ND 20	ND 1000	ND 20
Benzene, isopropyl	μg/L	ND 150	ND 250	ND 5.0	ND 250	ND 5.0
Benzene	μg/L	ND 150	ND 250	ND 5.0	ND 250	ND 5.0
Bromodichloromethane	μg/L	ND 150	ND 250	ND 5.0	ND 250	ND 5.0
Bromoform	μg/L	ND 150	ND 250	ND 5.0	ND 250	ND 5.0
Bromomethane	μg/L	ND 300	ND 500	ND 10	ND 500	ND 10
Carbon disulfide	μg/L	ND 150	ND 250	ND 5.0	ND 250	ND 5.0
Carbon tetrachloride	μg/L	ND 150	ND 250	ND 5.0	ND 250	ND 5.0
Chlorobenzene	μg/L	ND 150	ND 250	ND 5.0	ND 250	ND 5.0
Chloroethane	μg/L	ND 300	ND 500	ND 10	ND 500	ND 10
Chloroform (Trichloromethane)	μg/L	ND 150	ND 250	ND 5.0	ND 250	ND 5.0
Chloromethane	μg/L	ND 300	ND 500	ND 10	ND 500	ND 10

TABLE 1

ANALYTICAL RESULTS SUMMARY
GROUNDWATER SAMPLING
PARCEL #2, SENECA STREET
NOVEMBER 2001

	Sample Location:	*MW-4*	*MW-4*	*MW-4A*	*MW-9*	*MW-9A*
	Sample ID:	*GW-112801-JP-003*	*GW-112801-JP-004*	*GW-112901-JP-007*	*GW-112701-JP-002*	*GW-112801-JP-006*
	Sample Date:	*11/28/2001*	*11/28/2001*	*11/29/2001*	*11/27/2001*	*11/28/2001*
			(Field Duplicate)			
Parameter	*Unit*					
Volatiles						
cis-1,2-Dichloroethene	µg/L	100 J	160 J	46	260	2.0 J
cis-1,3-Dichloropropene	µg/L	ND 150	ND 250	ND 5.0	ND 250	ND 5.0
Cyclohexane	µg/L	ND 150	ND 250	ND 5.0	ND 250	ND 5.0
Dibromochloromethane	µg/L	ND 150	ND 250	ND 5.0	ND 250	ND 5.0
Dichlorodifluoromethane (CFC-12)	µg/L	ND 300	ND 500	ND 10	ND 500	ND 10
Ethylbenzene	µg/L	ND 150	ND 250	ND 5.0	ND 250	ND 5.0
Methyl acetate	µg/L	ND 150	ND 250	ND 5.0	ND 250	ND 5.0
Methyl cyclohexane	µg/L	ND 150	ND 250	ND 5.0	ND 250	ND 5.0
Methyl Tert Butyl Ether	µg/L	ND 150	ND 250	ND 5.0	ND 250	ND 5.0
Methylene chloride	µg/L	ND 150	ND 250	ND 5.0	ND 250	ND 5.0
Styrene	µg/L	ND 150	ND 250	ND 5.0	ND 250	ND 5.0
Tetrachloroethene	µg/L	5800	9400	32	9500	41
Toluene	µg/L	ND 150	ND 250	ND 5.0	ND 250	ND 5.0
trans-1,2-Dichloroethene	µg/L	ND 150	ND 250	ND 5.0	ND 250	ND 5.0
trans-1,3-Dichloropropene	µg/L	ND 150	ND 250	ND 5.0	ND 250	ND 5.0
Trichloroethene	µg/L	360	580	95	1000	7.7
Trichlorofluoromethane (CFC-11)	µg/L	ND 300	ND 500	ND 10	ND 500	ND 10
Trifluorotrichloroethane (Freon 113)	µg/L	ND 150	ND 250	ND 5.0	ND 250	ND 5.0
Vinyl chloride	µg/L	ND 300	ND 500	ND 10	ND 500	ND 10
Xylene (total)	µg/L	ND 450	ND 750	ND 15	ND 750	ND 15

Notes:

J	Estimated.
ND	Non-detect at associated value.

CONESTOGA-ROVERS
& ASSOCIATES

2055 Niagara Falls Blvd., Suite #3
Niagara Falls, New York 14304
Telephone: (716) 297-6150 Fax: (716) 297-2265
www.CRAworld.com

MEMORANDUM

TO: Carol Dunnigan

REF. NO.: 15867

FROM: Susan Scrocchi/js/5 SCS

DATE: July 19, 2002

RE: **Data Usability Summary Report**
Site Investigation
Parcel #2 - Seneca Street
Buffalo, New York

INTRODUCTION

The following details an evaluation of results reported by Severn Trent Laboratories (STL) located in Pittsburgh, Pennsylvania, for 10 groundwater samples in June 2002 at the Parcel #2 Site located in Buffalo, New York.

The samples were analyzed for Target Compound List (TCL) volatile organic compounds (VOCs) using Method SW-846 8260, referenced from "Test Methods for Solid Waste Physical/Chemical Methods", SW-847, 3rd Edition, September 1986 (with all subsequent revisions).

A summary of the analytical results is presented in Table 1.

The Quality Assurance/Quality Control (QA/QC) criteria by which these data have been evaluated is outlined in the analytical methods and the "USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review" (October 1999, United States Environmental Protection Agency [USEPA] 540/R-99/008).

QA/QC REVIEW

Deliverables

The data package was complete as defined under the requirements for Analytical Services Protocol (ASP) Category A deliverables.

Holding Times

Based on the methods, all required holding times were met.

Blanks

Method blanks were analyzed on a daily basis and were non-detect for the compounds of interest with the exception of 1,2,4-trichlorobenzene present at 1.7 µg/L. All sample results were non-detect for that compound and would not have been impacted.

A trip blank was collected with the samples and submitted for VOC analyses. Trip blank results were non-detect for the VOCs of interest.

Surrogate Spike Recoveries

All sample blanks and QC samples were spiked with the proper surrogate compounds prior to sample preparation and analysis. All surrogate recoveries met the method criteria indicating acceptable analytical efficiency.

Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analyses

MS/MSD analyses were performed at the proper frequency. All results were acceptable indicating good analytical accuracy and precision.

Blank Spike (BS) Analyses

BSs were analyzed at the required frequency for all parameters and all recoveries were acceptable indicating adequate analytical efficiency.

Field Duplicate Analyses

Samples were collected in duplicate and submitted "blind" to the laboratory for analysis. The analytical results were comparable, demonstrating acceptable sampling and analytical precision for this study with the exception of one compound. A 118 percent difference was observed between the tetrachloroethene results. Sample GW-061902-JEP-012 and its field duplicate, GW-061902-JEP-013, were qualified as estimated for this compound due to this observed variability.

OVERALL ASSESSMENT

All deliverables required by the project were present and the data package was complete. Based on the preceding evaluation, the data were acceptable for use with the qualifications noted.

TABLE 1

ANALYTICAL RESULTS SUMMARY
GROUNDWATER SAMPLING
PARCEL #2, SENECA STREET
JUNE 2002

	Location:	*MW-2*	*MW-4*	*MW-4A*	*MW-9*	*MW-9A*
	Sample ID:	*GW-062002-JEP-016*	*GW-061902-JEP-011*	*GW-062002-JEP-020*	*GW-061902-JEP-014*	*GW-061902-JEP-015*
	Sample Date:	06/20/02	06/19/02	06/20/02	06/19/02	06/19/02
Parameters	*Units*					
Volatiles						
1,1,1-Trichloroethane	µg/L	ND 5.0	ND 75	ND 5.0	ND 200	ND 5.0
1,1,2,2-Tetrachloroethane	µg/L	ND 5.0	ND 75	ND 5.0	ND 200	ND 5.0
1,1,2-Trichloroethane	µg/L	ND 5.0	ND 75	ND 5.0	ND 200	ND 5.0
1,1-Dichloroethane	µg/L	ND 5.0	ND 75	ND 5.0	ND 200	ND 5.0
1,1-Dichloroethene	µg/L	ND 5.0	ND 75	ND 5.0	ND 200	ND 5.0
1,2,4-Trichlorobenzene	µg/L	ND 5.0	ND 75	ND 5.0	ND 200	ND 5.0
1,2-Dibromo-3-chloropropane (DBCP)	µg/L	ND 10	ND 150	ND 10	ND 400	ND 10
1,2-Dibromoethane (Ethylene Dibromide)	µg/L	ND 5.0	ND 75	ND 5.0	ND 200	ND 5.0
1,2-Dichlorobenzene	µg/L	ND 5.0	ND 75	ND 5.0	ND 200	ND 5.0
1,2-Dichloroethane	µg/L	ND 5.0	ND 75	ND 5.0	ND 200	ND 5.0
1,2-Dichloropropane	µg/L	ND 5.0	ND 75	ND 5.0	ND 200	ND 5.0
1,3-Dichlorobenzene	µg/L	ND 5.0	ND 75	ND 5.0	ND 200	ND 5.0
1,4-Dichlorobenzene	µg/L	ND 5.0	ND 75	ND 5.0	ND 200	ND 5.0
2-Butanone	µg/L	ND 20	ND 300	ND 20	ND 800	ND 20
2-Hexanone	µg/L	ND 20	ND 300	ND 20	ND 800	ND 20
4-Methyl-2-pentanone	µg/L	ND 20	ND 300	ND 20	ND 800	ND 20
Acetone	µg/L	ND 20	ND 300	ND 20	ND 800	ND 20
Benzene	µg/L	ND 5.0	ND 75	ND 5.0	ND 200	ND 5.0
Bromodichloromethane	µg/L	ND 5.0	ND 75	ND 5.0	ND 200	ND 5.0
Bromoform	µg/L	ND 5.0	ND 75	ND 5.0	ND 200	ND 5.0
Bromomethane	µg/L	ND 10	ND 150	ND 10	ND 400	ND 10
Carbon disulfide	µg/L	ND 5.0	ND 75	ND 5.0	ND 200	ND 5.0
Carbon tetrachloride	µg/L	ND 5.0	ND 75	ND 5.0	ND 200	ND 5.0
Chlorobenzene	µg/L	ND 5.0	ND 75	ND 5.0	ND 200	ND 5.0
Chloroethane	µg/L	ND 10	ND 150	ND 10	ND 400	ND 10
Chloroform (Trichloromethane)	µg/L	ND 5.0	ND 75	ND 5.0	ND 200	ND 5.0
Chloromethane	µg/L	ND 10	ND 150	ND 10	ND 400	ND 10
cis-1,2-Dichloroethene	µg/L	71	120	110	280	1.5 J
cis-1,3-Dichloropropene	µg/L	ND 5.0	ND 75	ND 5.0	ND 200	ND 5.0
Cyclohexane	µg/L	ND 5.0	ND 75	ND 5.0	ND 200	ND 5.0
Dibromochloromethane	µg/L	ND 5.0	ND 75	ND 5.0	ND 200	ND 5.0
Dichlorodifluoromethane (CFC-12)	µg/L	ND 10	ND 150	ND 10	ND 400	ND 10

TABLE 1

ANALYTICAL RESULTS SUMMARY
GROUNDWATER SAMPLING
PARCEL #2, SENECA STREET
JUNE 2002

	Location:	*MW-2*	*MW-4*	*MW-4A*	*MW-9*	*MW-9A*
	Sample ID:	*GW-062002-JEP-016*	*GW-061902-JEP-011*	*GW-062002-JEP-020*	*GW-061902-JEP-014*	*GW-061902-JEP-015*
	Sample Date:	*06/20/02*	*06/19/02*	*06/20/02*	*06/19/02*	*06/19/02*
Parameters	*Units*					
Volatiles						
Ethylbenzene	µg/L	ND 5.0	ND 75	ND 5.0	ND 200	ND 5.0
Isopropylbenzene	µg/L	ND 5.0	ND 75	ND 5.0	ND 200	ND 5.0
Methyl acetate	µg/L	ND 5.0	ND 75	ND 5.0	ND 200	ND 5.0
Methyl cyclohexane	µg/L	ND 5.0	ND 75	ND 5.0	ND 200	ND 5.0
Methyl Tert Butyl Ether	µg/L	ND 5.0	ND 75	ND 5.0	ND 200	ND 5.0
Methylene chloride	µg/L	ND 5.0	ND 75	ND 5.0	ND 200	ND 5.0
Styrene	µg/L	ND 5.0	ND 75	ND 5.0	ND 200	ND 5.0
Tetrachloroethene	µg/L	70	2200	7.1	4600	9.2
Toluene	µg/L	ND 5.0	ND 75	ND 5.0	ND 200	ND 5.0
trans-1,2-Dichloroethene	µg/L	ND 5.0	ND 75	ND 5.0	ND 200	ND 5.0
trans-1,3-Dichloropropene	µg/L	ND 5.0	ND 75	ND 5.0	ND 200	ND 5.0
Trichloroethene	µg/L	83	330	25	540	5.1
Trichlorofluoromethane (CFC-11)	µg/L	ND 10	ND 150	ND 10	ND 400	ND 10
Trifluorotrichloroethane (Freon 113)	µg/L	ND 5.0	ND 75	ND 5.0	ND 200	ND 5.0
Vinyl chloride	µg/L	1.4 J	ND 150	ND 10	ND 400	ND 10
Xylene (total)	µg/L	ND 15	ND 220	ND 15	ND 600	ND 15

TABLE 1

ANALYTICAL RESULTS SUMMARY
GROUNDWATER SAMPLING
PARCEL #2, SENECA STREET
JUNE 2002

	Location:	*MW-11*	*MW-11*	*MW-11A*	*MW-12*	*MW-12A*
	Sample ID:	*GW-061902-JEP-012*	*GW-061902-JEP-013*	*GW-062002-JEP-019*	*GW-062002-JEP-017*	*GW-062002-JEP-018*
	Sample Date:	06/19/02	06/19/02	06/20/02	06/20/02	06/20/02
			Duplicate			
Parameters	*Units*					
Volatiles						
1,1,1-Trichloroethane	µg/L	ND 5.0	ND 5.0	ND 5.0	ND 120	ND 5.0
1,1,2,2-Tetrachloroethane	µg/L	ND 5.0	ND 5.0	ND 5.0	ND 120	ND 5.0
1,1,2-Trichloroethane	µg/L	ND 5.0	ND 5.0	ND 5.0	ND 120	ND 5.0
1,1-Dichloroethane	µg/L	ND 5.0	ND 5.0	ND 5.0	ND 120	ND 5.0
1,1-Dichloroethene	µg/L	ND 5.0	ND 5.0	ND 5.0	ND 120	ND 5.0
1,2,4-Trichlorobenzene	µg/L	ND 5.0	ND 5.0	ND 5.0	ND 120	ND 5.0
1,2-Dibromo-3-chloropropane (DBCP)	µg/L	ND 10	ND 10	ND 10	ND 250	ND 10
1,2-Dibromoethane (Ethylene Dibromide)	µg/L	ND 5.0	ND 5.0	ND 5.0	ND 120	ND 5.0
1,2-Dichlorobenzene	µg/L	ND 5.0	ND 5.0	ND 5.0	ND 120	ND 5.0
1,2-Dichloroethane	µg/L	ND 5.0	ND 5.0	ND 5.0	ND 120	ND 5.0
1,2-Dichloropropane	µg/L	ND 5.0	ND 5.0	ND 5.0	ND 120	ND 5.0
1,3-Dichlorobenzene	µg/L	ND 5.0	ND 5.0	ND 5.0	ND 120	ND 5.0
1,4-Dichlorobenzene	µg/L	ND 5.0	ND 5.0	ND 5.0	ND 120	ND 5.0
2-Butanone	µg/L	ND 20	ND 20	ND 20	ND 500	ND 20
2-Hexanone	µg/L	ND 20	ND 20	ND 20	ND 500	ND 20
4-Methyl-2-pentanone	µg/L	ND 20	ND 20	ND 20	ND 500	ND 20
Acetone	µg/L	ND 20	ND 20	ND 20	ND 500	6.1 J
Benzene	µg/L	ND 5.0	ND 5.0	ND 5.0	ND 120	ND 5.0
Bromodichloromethane	µg/L	ND 5.0	ND 5.0	ND 5.0	ND 120	ND 5.0
Bromoform	µg/L	ND 5.0	ND 5.0	ND 5.0	ND 120	ND 5.0
Bromomethane	µg/L	ND 10	ND 10	ND 10	ND 250	ND 10
Carbon disulfide	µg/L	ND 5.0	ND 5.0	ND 5.0	ND 120	ND 5.0
Carbon tetrachloride	µg/L	ND 5.0	ND 5.0	ND 5.0	ND 120	ND 5.0
Chlorobenzene	µg/L	ND 5.0	ND 5.0	ND 5.0	ND 120	ND 5.0
Chloroethane	µg/L	ND 10	ND 10	ND 10	ND 250	ND 10
Chloroform (Trichloromethane)	µg/L	ND 5.0	ND 5.0	ND 5.0	ND 120	ND 5.0
Chloromethane	µg/L	ND 10	ND 10	ND 10	ND 250	ND 10
cis-1,2-Dichloroethene	µg/L	2.0 J	1.7 J	6.2	440	54
cis-1,3-Dichloropropene	µg/L	ND 5.0	ND 5.0	ND 5.0	ND 120	ND 5.0
Cyclohexane	µg/L	ND 5.0	ND 5.0	ND 5.0	ND 120	ND 5.0
Dibromochloromethane	µg/L	ND 5.0	ND 5.0	ND 5.0	ND 120	ND 5.0
Dichlorodifluoromethane (CFC-12)	µg/L	ND 10	ND 10	ND 10	ND 250	ND 10

TABLE 1

ANALYTICAL RESULTS SUMMARY
GROUNDWATER SAMPLING
PARCEL #2, SENECA STREET
JUNE 2002

	Location:	*MW-11*	*MW-11*	*MW-11A*	*MW-12*	*MW-12A*
	Sample ID:	GW-061902-JEP-012	GW-061902-JEP-013	GW-062002-JEP-019	GW-062002-JEP-017	GW-062002-JEP-018
	Sample Date:	06/19/02	06/19/02 *Duplicate*	06/20/02	06/20/02	06/20/02
Parameters	*Units*					
Volatiles						
Ethylbenzene	µg/L	ND 5.0	ND 5.0	ND 5.0	ND 120	ND 5.0
Isopropylbenzene	µg/L	ND 5.0	ND 5.0	ND 5.0	ND 120	ND 5.0
Methyl acetate	µg/L	ND 5.0	ND 5.0	ND 5.0	ND 120	ND 5.0
Methyl cyclohexane	µg/L	ND 5.0	ND 5.0	ND 5.0	ND 120	ND 5.0
Methyl Tert Butyl Ether	µg/L	ND 5.0	ND 5.0	ND 5.0	ND 120	ND 5.0
Methylene chloride	µg/L	ND 5.0	ND 5.0	ND 5.0	ND 120	ND 5.0
Styrene	µg/L	ND 5.0	ND 5.0	ND 5.0	ND 120	ND 5.0
Tetrachloroethene	µg/L	22 J	5.7 J	56	4000	9.5
Toluene	µg/L	ND 5.0	ND 5.0	ND 5.0	ND 120	ND 5.0
trans-1,2-Dichloroethene	µg/L	ND 5.0	ND 5.0	ND 5.0	ND 120	ND 5.0
trans-1,3-Dichloropropene	µg/L	ND 5.0	ND 5.0	ND 5.0	ND 120	ND 5.0
Trichloroethene	µg/L	3.4 J	2.2 J	43	1300	15
Trichlorofluoromethane (CFC-11)	µg/L	ND 10	ND 10	ND 10	ND 250	ND 10
Trifluorotrichloroethane (Freon 113)	µg/L	ND 5.0	ND 5.0	ND 5.0	ND 120	ND 5.0
Vinyl chloride	µg/L	ND 10	ND 10	ND 10	ND 250	ND 10
Xylene (total)	µg/L	ND 15	ND 15	ND 15	ND 380	ND 15

Notes:

J	Estimated.
NDx	Non-detect at associated value.

CONESTOGA-ROVERS
& ASSOCIATES

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MEMORANDUM

TO: Carol Barron

REF. NO.: 15867

FROM: Susan Scrocchi/js/1 SCS

DATE: October 30, 2002

RE: **Data Usability Summary Report**
Site Investigation
Parcel #2 - Seneca Street
Buffalo, New York

INTRODUCTION

The following details an evaluation of results reported by Severn Trent Laboratories (STL) located in Pittsburgh, Pennsylvania, for 10 groundwater samples in September 2002 at the Parcel #2 Site located in Buffalo, New York.

The samples were analyzed for Target Compound List (TCL) volatile organic compounds (VOCs) using Method SW-846 8260, referenced from "Test Methods for Solid Waste Physical/Chemical Methods", SW-847, 3rd Edition, September 1986 (with all subsequent revisions).

A summary of the analytical results is presented in Table 1.

The Quality Assurance/Quality Control (QA/QC) criteria by which these data have been evaluated is outlined in the analytical methods and the "USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review" (October 1999, United States Environmental Protection Agency [USEPA] 540/R-99/008).

QA/QC REVIEW

Deliverables

The data package was complete as defined under the requirements for Analytical Services Protocol (ASP) Category A deliverables.

Holding Times

Based on the methods, all required holding times were met.

Blanks

Method blanks were analyzed on a daily basis and were non-detect for the compounds of interest.

A trip blank was collected with the samples and submitted for VOC analyses. Acetone and 2-butanone were present at 6.8 micrograms per liter (μg/L) and 3.4 μg/L, respectively. Sample MW-2 had similar concentrations of those compounds and was qualified as non-detect.

Surrogate Spike Recoveries

All sample blanks and QC samples were spiked with the proper surrogate compounds prior to sample preparation and analysis. All surrogate recoveries met the method criteria indicating acceptable analytical efficiency.

Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analyses

MS/MSD analyses were performed at the proper frequency. All results were acceptable indicating good analytical accuracy and precision.

Blank Spike (BS) Analyses

BSs were analyzed at the required frequency for all parameters and all recoveries were acceptable indicating adequate analytical efficiency.

Field Duplicate Analyses

Samples were collected in duplicate and submitted "blind" to the laboratory for analysis. The analytical results were comparable, demonstrating acceptable sampling and analytical precision for this study.

OVERALL ASSESSMENT

All deliverables required by the project were present and the data package was complete. Based on the preceding evaluation, the data were acceptable for use with the qualifications noted.

TABLE 1

ANALYTICAL RESULTS SUMMARY
SEPTEMBER 2002 QUARTERLY GROUNDWATER SAMPLING
PIZZA HUT

	Location:	*MW-2*	*MW-4*	*MW-4*	*MW-4A*	*MW-9*
	Sample ID:	*GW-092402-JP-021*	*GW-092502-JP-022*	*GW-092502-JP-023*	*GW-092502-JP-025*	*GW-092502-JP-028*
	Sample Date:	*09/24/2002*	*09/25/2002*	*09/25/2002*	*09/25/2002*	*09/25/2002*
				Duplicate		
Parameters	*Units*					
Volatiles						
1,1,1-Trichloroethane	µg/L	5.0 U	1000 U	250 U	5.0 U	5.0 U
1,1,2,2-Tetrachloroethane	µg/L	5.0 U	1000 U	250 U	5.0 U	5.0 U
1,1,2-Trichloroethane	µg/L	5.0 U	1000 U	250 U	5.0 U	5.0 U
1,1-Dichloroethane	µg/L	5.0 U	1000 U	250 U	5.0 U	5.0 U
1,1-Dichloroethene	µg/L	5.0 U	1000 U	250 U	5.0 U	5.0 U
1,2,4-Trichlorobenzene	µg/L	5.0 U	1000 U	250 U	5.0 U	5.0 U
1,2-Dibromo-3-chloropropane (DBCP)	µg/L	10 U	2000 U	500 U	10 U	10 U
1,2-Dibromoethane (Ethylene Dibromide)	µg/L	5.0 U	1000 U	250 U	5.0 U	5.0 U
1,2-Dichlorobenzene	µg/L	5.0 U	1000 U	250 U	5.0 U	5.0 U
1,2-Dichloroethane	µg/L	5.0 U	1000 U	250 U	5.0 U	5.0 U
1,2-Dichloropropane	µg/L	5.0 U	1000 U	250 U	5.0 U	5.0 U
1,3-Dichlorobenzene	µg/L	5.0 U	1000 U	250 U	5.0 U	5.0 U
1,4-Dichlorobenzene	µg/L	5.0 U	1000 U	250 U	5.0 U	5.0 U
2-Butanone	µg/L	20 U	4000 U	1000 U	20 U	20 U
2-Hexanone	µg/L	20 U	4000 U	1000 U	20 U	20 U
4-Methyl-2-pentanone	µg/L	20 U	4000 U	1000 U	20 U	20 U
Acetone	µg/L	20 U	4000 U	1000 U	20 U	20 U
Benzene	µg/L	5.0 U	1000 U	250 U	5.0 U	5.0 U
Bromodichloromethane	µg/L	5.0 U	1000 U	250 U	5.0 U	5.0 U
Bromoform	µg/L	5.0 U	1000 U	250 U	5.0 U	5.0 U
Bromomethane	µg/L	10 U	2000 U	500 U	10 U	10 U
Carbon disulfide	µg/L	5.0 U	1000 U	250 U	5.0 U	5.0 U
Carbon tetrachloride	µg/L	5.0 U	1000 U	250 U	5.0 U	5.0 U
Chlorobenzene	µg/L	5.0 U	1000 U	250 U	5.0 U	5.0 U
Chloroethane	µg/L	10 U	2000 U	500 U	10 U	10 U
Chloroform (Trichloromethane)	µg/L	5.0 U	1000 U	250 U	5.0 U	5.0 U
Chloromethane	µg/L	10 U	2000 U	500 U	10 U	10 U
cis-1,2-Dichloroethene	µg/L	9.3	220 J	220 J	6.4	62
cis-1,3-Dichloropropene	µg/L	5.0 U	1000 U	250 U	5.0 U	5.0 U
Cyclohexane	µg/L	5.0 U	1000 U	250 U	5.0 U	5.0 U
Dibromochloromethane	µg/L	5.0 U	1000 U	250 U	5.0 U	5.0 U
Dichlorodifluoromethane (CFC-12)	µg/L	10 U	2000 U	500 U	10 U	10 U
Ethylbenzene	µg/L	5.0 U	1000 U	250 U	5.0 U	5.0 U
Isopropylbenzene	µg/L	5.0 U	1000 U	250 U	5.0 U	5.0 U
Methyl acetate	µg/L	5.0 U	1000 U	250 U	5.0 U	5.0 U
Methyl cyclohexane	µg/L	5.0 U	1000 U	250 U	5.0 U	5.0 U

TABLE 1

ANALYTICAL RESULTS SUMMARY
SEPTEMBER 2002 QUARTERLY GROUNDWATER SAMPLING
PIZZA HUT

	Location:	*MW-2*	*MW-4*	*MW-4*	*MW-4A*	*MW-9*
	Sample ID:	*GW-092402-JP-021*	*GW-092502-JP-022*	*GW-092502-JP-023*	*GW-092502-JP-025*	*GW-092502-JP-028*
	Sample Date:	*09/24/2002*	*09/25/2002*	*09/25/2002*	*09/25/2002*	*09/25/2002*
				Duplicate		
Parameters	*Units*					
Volatiles						
Methyl Tert Butyl Ether	µg/L	5.0 U	1000 U	250 U	5.0 U	5.0 U
Methylene chloride	µg/L	5.0 U	1000 U	250 U	5.0 U	5.0 U
Styrene	µg/L	5.0 U	1000 U	250 U	5.0 U	5.0 U
Tetrachloroethene	µg/L	16	19000	17000	20	660
Toluene	µg/L	5.0 U	1000 U	250 U	5.0 U	5.0 U
trans-1,2-Dichloroethene	µg/L	5.0 U	1000 U	250 U	5.0 U	5.0 U
trans-1,3-Dichloropropene	µg/L	5.0 U	1000 U	250 U	5.0 U	5.0 U
Trichloroethene	µg/L	6.7	1300	1500	22	140
Trichlorofluoromethane (CFC-11)	µg/L	10 U	2000 U	500 U	10 U	10 U
Trifluorotrichloroethane (Freon 113)	µg/L	5.0 U	1000 U	250 U	5.0 U	5.0 U
Vinyl chloride	µg/L	10 U	2000 U	500 U	10 U	10 U
Xylene (total)	µg/L	15 U	3000 U	750 U	15 U	15 U

TABLE 1

ANALYTICAL RESULTS SUMMARY
SEPTEMBER 2002 QUARTERLY GROUNDWATER SAMPLING
PIZZA HUT

	Location:	*MW-9A*	*MW-11*	*MW-11A*	*MW-12*	*MW-12A*
	Sample ID:	*GW-092602-JP-029*	*GW-092502-JP-024*	*GW-092502-JP-026*	*GW-092502-JP-027*	*GW-092602-JP-030*
	Sample Date:	*09/26/2002*	*09/25/2002*	*09/25/2002*	*09/25/2002*	*09/26/2002*
Parameters	*Units*					
Volatiles						
1,1,1-Trichloroethane	µg/L	5.0 U	50 U	5.0 U	120 U	5.0 U
1,1,2,2-Tetrachloroethane	µg/L	5.0 U	50 U	5.0 U	120 U	5.0 U
1,1,2-Trichloroethane	µg/L	5.0 U	50 U	5.0 U	120 U	5.0 U
1,1-Dichloroethane	µg/L	5.0 U	50 U	5.0 U	120 U	5.0 U
1,1-Dichloroethene	µg/L	5.0 U	50 U	5.0 U	120 U	5.0 U
1,2,4-Trichlorobenzene	µg/L	5.0 U	50 U	5.0 U	120 U	5.0 U
1,2-Dibromo-3-chloropropane (DBCP)	µg/L	10 U	100 U	10 U	250 U	10 U
1,2-Dibromoethane (Ethylene Dibromide)	µg/L	5.0 U	50 U	5.0 U	120 U	5.0 U
1,2-Dichlorobenzene	µg/L	5.0 U	50 U	5.0 U	120 U	5.0 U
1,2-Dichloroethane	µg/L	5.0 U	50 U	5.0 U	120 U	5.0 U
1,2-Dichloropropane	µg/L	5.0 U	50 U	5.0 U	120 U	5.0 U
1,3-Dichlorobenzene	µg/L	5.0 U	50 U	5.0 U	120 U	5.0 U
1,4-Dichlorobenzene	µg/L	5.0 U	50 U	5.0 U	120 U	5.0 U
2-Butanone	µg/L	20 U	200 U	20 U	500 U	20 U
2-Hexanone	µg/L	20 U	200 U	20 U	500 U	20 U
4-Methyl-2-pentanone	µg/L	20 U	200 U	20 U	500 U	20 U
Acetone	µg/L	20 U	200 U	20 U	500 U	20 U
Benzene	µg/L	5.0 U	50 U	5.0 U	120 U	5.0 U
Bromodichloromethane	µg/L	5.0 U	50 U	5.0 U	120 U	5.0 U
Bromoform	µg/L	5.0 U	50 U	5.0 U	120 U	5.0 U
Bromomethane	µg/L	10 U	100 U	10 U	250 U	10 U
Carbon disulfide	µg/L	5.0 U	50 U	5.0 U	120 U	5.0 U
Carbon tetrachloride	µg/L	5.0 U	50 U	5.0 U	120 U	5.0 U
Chlorobenzene	µg/L	5.0 U	50 U	5.0 U	120 U	5.0 U
Chloroethane	µg/L	10 U	100 U	10 U	250 U	10 U
Chloroform (Trichloromethane)	µg/L	5.0 U	50 U	5.0 U	120 U	5.0 U
Chloromethane	µg/L	10 U	100 U	10 U	250 U	10 U
cis-1,2-Dichloroethene	µg/L	3.2 J	18 J	120	4200	130
cis-1,3-Dichloropropene	µg/L	5.0 U	50 U	5.0 U	120 U	5.0 U
Cyclohexane	µg/L	5.0 U	50 U	5.0 U	120 U	5.0 U
Dibromochloromethane	µg/L	5.0 U	50 U	5.0 U	120 U	5.0 U
Dichlorodifluoromethane (CFC-12)	µg/L	10 U	100 U	10 U	250 U	10 U
Ethylbenzene	µg/L	5.0 U	50 U	5.0 U	120 U	5.0 U
Isopropylbenzene	µg/L	5.0 U	50 U	5.0 U	120 U	5.0 U
Methyl acetate	µg/L	5.0 U	50 U	5.0 U	120 U	5.0 U
Methyl cyclohexane	µg/L	5.0 U	50 U	5.0 U	120 U	5.0 U

ANALYTICAL RESULTS SUMMARY
SEPTEMBER 2002 QUARTERLY GROUNDWATER SAMPLING
PIZZA HUT

	Location:	*MW-9A*	*MW-11*	*MW-11A*	*MW-12*	*MW-12A*
	Sample ID:	*GW-092602-JP-029*	*GW-092502-JP-024*	*GW-092502-JP-026*	*GW-092502-JP-027*	*GW-092602-JP-030*
	Sample Date:	*09/26/2002*	*09/25/2002*	*09/25/2002*	*09/25/2002*	*09/26/2002*
Parameters	*Units*					
Volatiles						
Methyl Tert Butyl Ether	µg/L	5.0 U	50 U	5.0 U	120 U	5.0 U
Methylene chloride	µg/L	5.0 U	50 U	5.0 U	120 U	5.0 U
Styrene	µg/L	5.0 U	50 U	5.0 U	120 U	5.0 U
Tetrachloroethene	µg/L	5.0	1000	3.6 J	240	4.6 J
Toluene	µg/L	5.0 U	50 U	5.0 U	120 U	5.0 U
trans-1,2-Dichloroethene	µg/L	5.0 U	50 U	5.0 U	120 U	5.0 U
trans-1,3-Dichloropropene	µg/L	5.0 U	50 U	5.0 U	120 U	5.0 U
Trichloroethene	µg/L	3.9 J	81	11	250	9.0
Trichlorofluoromethane (CFC-11)	µg/L	10 U	100 U	10 U	250 U	10 U
Trifluorotrichloroethane (Freon 113)	µg/L	5.0 U	50 U	5.0 U	120 U	5.0 U
Vinyl chloride	µg/L	10 U	100 U	10 U	250 U	10 U
Xylene (total)	µg/L	15 U	150 U	15 U	380 U	15 U

Notes

µg/L	Micrograms Per Liter.
J	Estimated.
ND	Non-detect at associated value.

APPENDIX J

COST ESTIMATE BACKUP

TABLE J.1

ESTIMATED COSTS - SOILS ALTERNATIVE 2
IMPERMEABLE COVER & INSTITUTIONAL CONTROLS
SITE INVESTIGATION/FEASIBILITY STUDY
PARCEL 2 - SENECA STREET
BUFFALO, NEW YORK

		Estimated Quantity	*Unit*	*Unit Cost*	*Total*
	Administrative Cost				
1	Administrative Cost to Implement Deed Restrictions	1	L.S.	$ 5,000	$ 5,000
	Sub-Total, Administrative Cost:				$ 5,000
	Direct Capital Costs				
	Asphalt Pavement Cover				
1	Remove & Dispose of Existing Asphalt	5600	S.F.	$ 0.80	$ 4,480
2	Supply & Place New Asphalt	5600	S.F.	$ 1.60	$ 8,960
3	Misc. curb, sidewalk, & grass repair	1	L.S.	$ 1,500	$ 1,500
	Sub-Total, Direct Capital Cost				$ 14,940
	Indirect Capital Costs				
1	Design & Engineering (assume 25% of capital cost)				$ 3,735
2	Construction Management	100	Hours	$80	$ 8,000
3	Reporting	1	L.S.	$2,000	$ 2,000
2	Contingency Allowance (assume 20% of capital cost)				$ 2,988
	Sub-Total, Indirect Capital Costs:				$ 16,723
	Total Capital Costs:				**$ 36,663**

TABLE J.2

ESTIMATED COSTS - SOILS ALTERNATIVE 3
SOILS EXCAVATION & IN SITU CHEMICAL OXIDATION
SITE INVESTIGATION/FEASIBILITY STUDY
PARCEL 2 - SENECA STREET
BUFFALO, NEW YORK

		Estimated Quantity	*Unit*	*Unit Cost*	*Total*
Direct Capital Costs					
	Excavate & Off-Site Dispose SVOC Soil (500 c.y.)				
1	Insurance, Mobilization/ Demobilization	1	L.S.	$ 5,000	$ 5,000
2	Excavate & load soil	500	c.y.	$ 25	$ 12,500
3	Supply & place imported backfill	500	c.y.	$ 25	$ 12,500
4	Transportation to disposal facility	850	ton	$ 11.50	$ 9,775
5	Disposal	850	ton	$ 65	$ 55,250
6	Remove & dispose of existing asphalt	3100	S.F.	$ 0.80	$ 2,480
7	Supply & place new asphalt	3100	S.F.	$ 1.60	$ 4,960
8	Misc. curb, sidewalk, & grass repair	1	L.S.	$ 700	$ 700
			Sub-Total, Direct Capital Cost		$ 103,165
	Indirect Capital Costs				
1	Design & Engineering (assume 25% of capital cost)				$ 25,791
2	Contingency Allowance (assume 20% of capital cost)				$ 20,633
			Sub-Total, Indirect Capital Costs:		$ 46,424
		Total Capital Cost - Excavation & Disposal			$ 149,589
	In Situ Treatment (Assumes 100 c.y. plus 50% excess)				
1	Potassium Permanganate (Ratio 30 lbs:1 c.y. soil)	4500	Pound	$ 2	$ 9,000
2	Installation of Injection Points	20	Each	$ 500	$ 10,000
3	Mixing & Injection of Sol'n (1 event @ 10 days)	1	Event	$ 10,000	$ 10,000
			Sub-Total		$ 29,000

TABLE J.2

ESTIMATED COSTS - SOILS ALTERNATIVE 3
SOILS EXCAVATION & IN SITU CHEMICAL OXIDATION
SITE INVESTIGATION/FEASIBILITY STUDY
PARCEL 2 - SENECA STREET
BUFFALO, NEW YORK

		Estimated Quantity	*Unit*	*Unit Cost*	*Total*
	Effectiveness Evaluation				
1	Sample collection	20	Hours	$ 60	$ 1,200
2	Sample analyses (VOCs)	10	Sample	$ 120	$ 1,200
3	Data review & reporting	1	L.S.	$ 3,000	$ 3,000
4	Disbursements	1	L.S.	$ 300	$ 300
			Sub-Total		$ 5,700
		Total Capital Cost - In Situ Treatment			$ 34,700
	Indirect Capital Costs				
1	Design & Engineering (assume 25% of capital cost)				$ 8,675
2	Contingency Allowance (assume 20% of capital cost)				$ 6,940
		Sub-Total, Indirect Capital Costs:			$ 15,615
		Total Capital Cost - In Situ Treatment			$ 50,315

Notes:
Costs are in total present value.
Assume 1.7 tons/c.y.

TABLE J.3

ESTIMATED COSTS - SOILS ALTERNATIVE 4
SOILS EXCAVATION & DISPOSAL
SITE INVESTIGATION/FEASIBILITY STUDY
PARCEL 2 - SENECA STREET
BUFFALO, NEW YORK

		Estimated Quantity	*Unit*	*Unit Cost*	*Total*
Direct Capital Costs					
	Excavate & Off-Site Dispose SVOC Soil (500 c.y.)				
1	Insurance, Mobilization/ Demobilization	1	L.S.	$ 3,000	$ 3,000
2	Excavate & load soil	500	c.y.	$ 25	$ 12,500
3	Supply & place backfill	500	c.y.	$ 25	$ 12,500
4	Transportation to disposal facility	850	ton	$ 11.50	$ 9,775
5	Disposal	850	ton	$ 65	$ 55,250
6	Remove & dispose of existing asphalt	3100	S.F.	$ 0.80	$ 2,480
7	Supply & place new asphalt	3100	S.F.	$ 1.60	$ 4,960
8	Misc. curb, sidewalk, & grass repair	1	L.S.	$ 700	$ 700
				Sub-Total	$ 101,165
	Excavate & Off-Site Dispose VOC Soil (420 c.y. excavated, 100 c.y. disposed)				
1	Insurance, Mobilization/ Demobilization	1	L.S.	$ 2,000	$ 2,000
2	Excavate & load soil	420	c.y.	$ 25	$ 10,500
3	Backfill with residual VOC soils	320	c.y.	$ 25	$ 8,000
3	Supply & place imported backfill	100	c.y.	$ 25	$ 2,500
4	Transportation to disposal facility	170	ton	$ 15	$ 2,550
5	Disposal	170	ton	$ 65	$ 11,050
6	Remove & dispose of existing asphalt	2500	S.F.	$ 0.80	$ 2,000
7	Supply & place new asphalt	2500	S.F.	$ 1.60	$ 4,000
8	Misc. curb, sidewalk, & grass repair	1	L.S.	$ 800	$ 800
				Sub-Total	$ 43,400
	Indirect Capital Costs				
1	Design & Engineering (assume 25% of capital cost)				$ 36,141
2	Contingency Allowance (assume 20% of capital cost)				$ 28,913
				Sub-Total, Indirect Capital Costs:	$ 65,054
				Total Capital Cost	$ 209,619

Notes:
Costs are in total present value.
Assume 1.7 tons/c.y.

TABLE J.4

ESTIMATED COSTS - GROUNDWATER ALTERNATIVE 2
INSTITUTIONAL CONTROLS AND MONITORING (GROUNDWATER)
SITE INVESTIGATION/FEASIBILITY STUDY
PARCEL 2 - SENECA STREET
BUFFALO, NEW YORK

		Estimated Quantity	*Unit*	*Unit Cost*	*Total*
	Administrative Cost				
1	Administrative Cost to Implement Deed Restrictions	1	L.S.	$ 5,000	$ 5,000
	Sub-Total, Administrative Cost:				$ 5,000
	Operation and Maintenance				
1	Monitoring Well Maintenance	1	L.S.	$ 2,000	$ 2,000
2	Site monitoring (15 wells)				
	• Sample Collection	30	Hours/Event	$ 60	$ 1,800
	• Sample Analyses (VOCs)	20	Samples/Event	$ 120	$ 2,400
	• Data Validation and Reporting	1	Event	$ 2,000	$ 2,000
	• Disbursements	1	Event	$ 300	$ 300
	Sub-Total, Monitoring/Event:				$ 6,500
3	Annual Report	1	L.S.	$ 5,000	$ 5,000

TABLE J.5

ESTIMATED COSTS - GROUNDWATER ALTERNATIVE 3
GROUNDWATER COLLECTION & TREATMENT/DISPOSAL
SITE INVESTIGATION/FEASIBILITY STUDY
PARCEL 2 - SENECA STREET
BUFFALO, NEW YORK

		Estimated Quantity	*Unit*	*Unit Cost*	*Total*
	Administrative Cost				
1	Administrative Cost to Implement Deed Restrictions	1	L.S.	$ 5,000	$ 5,000
		Sub-Total, Administrative Cost:			$ 5,000
	Direct Capital Cost				
1	a. Collection Trench				
	i. Trench installation	150	L.F.	$ 300	$ 45,000
	ii. Pump(s), instrumentation	1	L.S.	$ 10,000	$ 10,000
		Sub-Total, Collection Trench			$ 55,000
	b. Extraction Wells				
	i. Well Installation	8	Each	$ 3,000	$ 24,000
	ii. Pumps, mechanical, & instrumentation	8	Each	$ 5,000	$ 40,000
		Sub-Total, Extraction Wells			$ 64,000
2	Groundwater Treatment System				
	a. Tanks, air stripper, carbon polisher	1	L.S.	$ 65,000	$ 65,000
	b. Air stripper off-gas treatment	1	L.S.	$ 35,000	$ 35,000
	c. Treatment system building	1	L.S.	$ 20,000	$ 20,000
	d. Startup	1	L.S.	$ 5,000	$ 5,000
		Sub-Total, Treatment System			$ 125,000
				Sub-Total, Direct Capital Cost	$ 185,000
	Indirect Capital Cost				
1	Design & Engineering (assume 25% of capital cost)				$ 46,250
2	Contingency Allowance (assume 20% of capital cost)				$ 37,000
				Sub-Total, Indirect Capital Cost	$ 83,250

TABLE J.5

ESTIMATED COSTS - GROUNDWATER ALTERNATIVE 3
GROUNDWATER COLLECTION & TREATMENT/DISPOSAL
SITE INVESTIGATION/FEASIBILITY STUDY
PARCEL 2 - SENECA STREET
BUFFALO, NEW YORK

		Estimated Quantity	*Unit*	*Unit Cost*	*Total*
	Operation and Maintenance				
1	Annual Monitoring Well Maintenance	1	L.S.	$ 2,000	$ 2,000
2	Annual System Maintenance				
	a. Engineering, inspections, maintenance, & reporting	1	L.S.	$ 50,000	$ 50,000
	b. Influent & effluent monitoring (assumes monthly)	24	Each	$ 300	$ 7,200
	c. Carbon changeout & recycling	1	L.S.	$ 12,000	$ 12,000
	d. Disposal or bag filters & misc. consumables	1	L.S.	$ 2,500	$ 2,500
		Sub-Total, Annual Maintenance			$ 73,700
2	Quarterly Site Monitoring (8 wells)				
	• Sample Collection	20	Hours/Event	$ 60	$ 1,200
	• Sample Analyses (VOCs)	10	Samples/Event	$ 120	$ 1,200
	• Data Validation and Reporting	1	Event	$ 2,000	$ 2,000
	• Disbursements	1	Event	$ 300	$ 300
		Sub-Total, Monitoring/Event:			$ 4,700
3	Annual Site monitoring (15 wells)				
	• Sample Collection	30	Hours/Event	$ 60	$ 1,800
	• Sample Analyses (VOCs)	20	Samples/Event	$ 120	$ 2,400
	• Data Validation and Reporting	1	Event	$ 2,000	$ 2,000
	• Disbursements	1	Event	$ 300	$ 300
		Sub-Total, Monitoring/Event:			$ 6,500
4	Annual Report	1	L.S.	$ 5,000	$ 5,000
5	5-Year Evaluation Report	1	L.S.	$ 10,000	$ 10,000

TABLE J.6

ESTIMATED COSTS - GROUNDWATER ALTERNATIVE 4
IN SITU CHEMICAL OXIDATION (GROUNDWATER)
SITE INVESTIGATION/FEASIBILITY STUDY
PARCEL 2 - SENECA STREET
BUFFALO, NEW YORK

		Estimated Quantity	*Unit*	*Unit Cost*	*Total*
	Administrative Cost				
1	Administrative Cost to Implement Deed Restrictions	1	L.S.	$ 5,000	$ 5,000
		Sub-Total, Administrative Cost:			$ 5,000
	Pre-Design Treatability Study	1	L.S.	$ 15,000	$ 15,000
		Sub-Total, Pre-Design Treatability Study:			$ 15,000
	Direct Capital Costs				
2	Potassium Permanganate	600	Pounds	$ 2	$ 1,200
3	Installation of Injection Points	15	Each	$ 500	$ 7,500
4	Mixing & Injection of Sol'n (4 events @ 3 days)	4	Event	$ 2,500	$ 10,000
		Sub-Total, Direct Capital Costs:			$ 18,700
	Effectiveness Monitoring (6-8 wells)				
1	Sample collection	20	Hours/Event	$ 60	$ 1,200
2	Sample analyses (VOCs & general parameters)	10	Samples/Event	$ 300	$ 3,000
3	Data validation & reporting	1	Event	$ 2,000	$ 2,000
4	Disbursements	1	Event	$ 300	$ 300
		Sub-Total, Monitoring/Event:			$ 6,500
	Indirect Capital Costs				
5	Design & Engineering (assume 25% of capital cost)				$ 4,675
6	Contingency Allowance (assume 20% of capital cost)				$ 3,740
		Sub-Total, Indirect Capital Costs:			$ 8,415
		Total Capital Costs:			**$ 73,115**
	Operation & Maintenance				
1	Site monitoring (15 wells)				
	i) Sample collection	30	Hours/Event	$ 60	$ 1,800
	ii) Sample analyses (VOCs)	17	Samples/Event	$ 120	$ 1,440
	iii) Data validation & reporting	1	Event	$ 2,000	$ 2,000
	iv) Disbursements	1	Event	$ 300	$ 300
		Sub-Total, Monitoring/Event:			$ 5,540
2	Final Report	1	Each	$ 5,000	$ 5,000

Notes:
Costs are in total present value.