Report

Buffalo Avenue Site [illegible]
Niagara Falls, New York

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O'BRIEN & GERE

REPORT

BUFFALO AVENUE SITE INVESTIGATION

NIAGARA FALLS, NEW YORK

PREPARED FOR:

THE CITY OF NIAGARA FALLS
NIAGARA FALLS, NEW YORK

NOVEMBER 1991

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EXECUTIVE SUMMARY

The Buffalo Avenue site consists of a 25.8 acre parcel of land located within the City of Niagara Falls corporate limits, about 400 feet north of the Niagara River and directly east of the City of Niagara Falls Water Treatment Plant (WTP). The site is owned by the New York Power Authority (NYPA) and the New York State Office of General Services (NYSOGS). The site is currently classified as "2a" in the 1987 New York State Registry of Inactive Hazardous Waste Disposal Sites. This classification signifies that sufficient data and information does not presently exist to allow the New York State Department of Environmental Conservation (NYSDEC) to make a determination of whether or not the site poses a threat to public health, and the environment.

A preliminary investigation was conducted by Malcolm Pirnie, Inc. in 1989 and 1990 to assess the potential suitability of the Buffalo Avenue site for construction of a new City of Niagara Falls WTP. The preliminary site investigation identified an area of approximately 10 acres in size for siting of a new WTP facility. The New York State Department of Health (NYSDOH) and the Niagara County Health Department (NCHD) have formally concurred with the selection of this 10-acre portion of the site. However, the NYSDOH and NCHD also noted that their concurrence was contingent upon further investigation of the 10-acre site to "demonstrate that a water facility can be safely constructed on the site." The NYSDEC has also endorsed this site subject to verification that it can be delisted/de-classified.

The overall purpose of this site investigation is to identify whether the 10-acre portion of the Buffalo Avenue site is environmentally suitable for construction of the new WTP, as suggested by previous investigators, and to evaluate whether the remaining 15.8 acres contains hazardous waste, as defined by 40 CFR Part 261 ("hazardous waste"). This 15.8-acre parcel had not been previously investigated in detail and is known to contain fill materials. Specific project objectives have been defined as follows: confirm preliminary investigation results on the 10-acre site; characterize the ground water beneath the site and assess the source of contaminants detected, if any; identify surface contamination, if any, which may affect WTP construction activities; and develop the data necessary to support a petition to delist the 25.8 acre site, or a portion thereof, from the NYS Inactive Hazardous Waste Site Registry.

This site investigation provides an evaluation of the nature and extent of contamination in ground water, surficial soils and subsurface fill materials. Investigatory tasks discussed herein include: completion of test borings and installation of monitoring wells in overburden and bedrock water bearing zones; hydraulic conductivity testing of the overburden and bedrock monitoring wells; monthly monitoring of ground water levels for a minimum of four months; sampling and analysis of surficial soils across the site; sampling and analysis of fill material; and sampling and analysis of ground water in overburden and bedrock. At the request of the NYPA, three additional soil borings (SB-38, SB-39, and SB-40) and one additional monitoring well (MW-16S) were completed on the existing City of Niagara Falls Water Treatment Plant property as part of this site investigation. The completion of site investigations has resulted in the following conclusions:

1. Site geology is characterized by unconsolidated fill, silty sand, lacustrine clay, and alluvium overlying a clayey glacial till deposit. These unconsolidated deposits overlie dolostone bedrock. The fill material was differentiated as either shot rock fill or miscellaneous waste fill.
2. Shallow unconfined ground water was present beneath the site at depths ranging from less than 1 foot to about 17 feet below grade. Shallow ground water movement was to the south towards the Niagara River at a velocity estimated to be 0.72 ft/day.
3. Bedrock ground water movement is to the west-northwest under a hydraulic gradient which became steeper on the western portion of the site in response to increased surface water and ground water discharge into the NYPA water intake conduits and the Falls Street tunnel.
4. Thirty-four surface soil samples were collected as part of this site investigation. No polynuclear aromatic hydrocarbons were detected above typical Niagara Falls area background levels. Hexachlorobenzene and several pesticide compounds were detected slightly above background in several samples from the western portion of the site. Dibenzofuran was detected in surface soils in the northwest corner of the site exclusively, at low concentrations. Seven metals were detected above typical background concentrations in several samples. EPTOX and TCLP analyses performed on a select sample which had lead concentrations above background indicated this sample is not a hazardous waste with respect to lead.
5. Soil boring sample analyses from the 10-acre portion of site indicated no volatile organic constituents at concentrations above 0.006 ppm. EPTOX and

TCLP analyses performed on a select sample which had lead concentrations above background indicated this sample is not hazardous waste with respect to lead.

6. Shot rock fill encountered in the soil borings completed on the 15.8 acre portion of the site contained volatile organic compound concentrations of 0.025 ppm or less. Semivolatile compounds were detected in shot rock at concentrations of 4.2 ppm or less, with the exception of SB-28 (2 to 5 ft). No PCBs were detected in the shot rock fill. Several pesticide compounds were detected at low concentrations of 0.037 ppm and less, with the exception of SB-29 (4 to 7 ft) which contained beta-BHC (2.2 ppm). Cyanide was detected exclusively in SB-29 (4 to 7 ft), located in the northwest corner of the site, at a concentration of 3.8 ppm. Nine metals were detected above typical background concentrations in several samples. EPTOX and TCLP analyses performed on three select sample which had lead and chromium concentrations above background indicated these samples are not hazardous waste with respect to lead and chromium.

7. Shot rock fill was encountered in off-site soil boring SB-40 (2 to 5 ft), and exhibited similar chemical characteristics to the on-site shot rock fill with the following exceptions. Tetrachloroethene was the only volatile organic detected in SB-40 (2 to 4 ft) at a concentration of 1.1 ppm. Chlorinated hydrocarbon compounds detected in SB-40 include 1,4-dichlorobenzene (0.049 ppm), hexachloroethane (0.31 ppm), 1,2,4-trichlorobenzene (3.5 ppm), hexachlorobutadiene (14 ppm), and hexachlorobenzene (18 ppm). SB-40 contained higher concentrations of pesticides such as beta-BHC (0.034 ppm),

aldrin (0.52 ppm), heptachlor epoxide (1.4 ppm), endosulfan I (0.42 ppm), 4,4-DDD (2.7 ppm), and 4,4-DDT (2.2 ppm). The pesticide compounds detected in SB-40 are above background concentrations.

8. Miscellaneous waste fill encountered in soil borings completed on the 15.8-acre portion of the site contained volatile organic compound concentrations of 0.034 ppm or less. Semivolatile compounds were detected in miscellaneous waste at low concentrations, with few exceptions. The chlorinated hydrocarbon compounds were detected at a concentration of 0.71 ppm and less. PAH concentrations were generally at background levels with the exception of SB-15 (8 to 16 ft) and SB-33 (4 to 7 ft). Phenol was detected exclusively in SB-30 (11.5 to 12 ft) at a concentration of 4.7 ppm, which is above typical background levels. The PCB Aroclor-1242 was detected in the miscellaneous waste fill exclusively at SB-27 (5 to 13.5 ft) at a concentration of 2.2 ppm. This soil boring was on the west-central edge of the site and was the only sample which contained PCBs. Pesticide compounds were detected at low concentrations of 0.095 ppm and less, with the exception of SB-28 (5 to 11 ft) which contained beta-BHC (2.9 ppm). Cyanide was detected in four samples at concentrations ranging from 1.16 ppm to 2.4 ppm, and in SB-27 (5 to 13.5 ft) at a concentration of 9.87 ppm. Ten metals were detected above typical background concentrations in several samples. EPTOX and TCLP results presented in the preliminary Malcolm Pirnie study indicated that the concentrations of metals in the sample extracts were low in all but the EPTOX extract for lead generated from a soil composite from the northwest corner of the site, which exceeded the 5 ppm level for a characteristic

hazardous waste. The EPTOX and TCLP organic parameters were essentially non-detectable in the EPTOX and TCLP extracts, respectively, which indicates these samples are not hazardous waste. As part of this investigation, EPTOX and TCLP analyses were performed on eleven select samples which had lead, chromium, and mercury concentrations above background. Results from these EPTOX and TCLP analyses indicated these samples are not hazardous waste with respect to lead, chromium, and mercury, with the exception of SB-33 (4 to 7 ft) which contained an EPTOX lead concentration of 39.1 ppm. To evaluate the discrepancy between EPTOX and TCLP analyses from SB-33, five additional soil samples were collected and analyzed for total lead, EPTOX lead, and TCLP lead. The values obtained from the EPTOX and TCLP analyses were considerably lower than the maximum allowable limit of 5 ppm for lead, which indicates these soils are not hazardous waste.

9. Miscellaneous waste fill was encountered in the three off-site soil borings and exhibited similar chemical characteristics to the on-site miscellaneous waste fill with the following exceptions. SB-40 (5 to 12 ft) contained higher levels of the chlorinated hydrocarbons 1,2,4-trichlorobenzene (3.4 ppm), hexachlorobutadiene (1.6 ppm), and hexachlorobenzene (1.9 ppm).

10. Ground water analyses indicate MW-7S contained the volatile organic constituents chlorobenzene and benzene exceeding the Class GA ground water standards during the first sampling round exclusively. Benzene was the only volatile organic detected which exceeded a Class GA standard during the second sampling event. Semivolatile organic compounds detected above the

Class GA standards include 1,3-dichlorobenzene and 1,4-dichlorobenzene, which were both detected at a concentration of 6 ppb in MW-7S. These chlorobenzene compounds were detected in adjacent soil boring samples and have likely affected the ground water chemistry in MW-7S. Pesticides were detected above the Class GA standards in four wells during the first sampling round. During the second sampling event, only MW-7S and off-site well MW-16S contained pesticides above the Class GA standards. These pesticide compounds were also detected above background levels in subsurface soils collected in close proximity to MW-7S and MW-16S. The pesticides in the fill materials have likely affected the ground water chemistry in these wells. Antimony was detected in MW-7S at levels above the Class GA guidance value of 3 ppb in both the unfiltered and filtered samples. Manganese was detected in several wells at concentrations above the Class GA Standard (300 ppb) in unfiltered samples, but the only filtered samples in exceedance were MW-7S (415 ppb and 386 ppb) and off-site well MW-16S (552 ppb). Iron, magnesium, and sodium exhibited concentrations in exceedance of the Class GA standards and guidance values in both unfiltered and filtered samples. These metals are likely characteristic of the background ground water chemistry and are not likely affected by the chemistry of the on-site fill materials. Chromium, mercury, lead, and zinc exceeded Class GA standards in unfiltered samples, however, corresponding filtered samples were less than the Class GA standards in all cases. Because sediment/ground water interactions have the ability to dominate the ground water chemistry, the filtered ground water samples are more likely to provide representative results of metals in solution. Cyanide was detected above the Class GA standard of 100 ppb only in the unfiltered sample from MW-7S (267 ppb). The cyanide detected in SB-27 (5 to 13.5 ft) has likely affected the ground water chemistry in this well.

11. The O'Brien & Gere site investigation results presented herein confirm the preliminary Malcolm Pirnie investigation results and are consistent with the validated Dames & Moore Phase II Investigation results. Based on the information collected, the 10-acre portion of the site appears to be environmentally suitable for construction of the new Water Treatment Plant, with no evidence of surface contamination which may affect construction activities. The remaining 15.8-acre portion of the site does not contain hazardous waste, as defined by 40 CFR Part 261. The majority of the 15.8-acre site contains surface soil, subsurface soil, and ground water which do not contravene background levels or existing standards. However, a portion of the 15.8-acre site in the vicinity of MW-7S contains fill materials which contain constituents above typical background levels. The ground water from MW-7S exceeded several Class GA standards and guidance values.

SECTION 1 - INTRODUCTION

1.01 Project Background

The City of Niagara Falls (City) drinking water treatment plant (WTP) requires major capital improvements in order to continue reliable production of high quality drinking water. In addition, the current water treatment plant property has been contaminated by chemical wastes migrating from the adjacent Occidental Chemical Company (OCC) "S-Area" site. A recent modification to a 1985 U.S. District Court Consent Order (RRT Stipulation April 1991) has been approved which requires construction of a new Water Treatment Plant (WTP) on the adjacent Buffalo Avenue site owned by New York Power Authority (NYPA) and the New York State Office of General Services (NYSOGS).

In 1989 a conceptual agreement was reached between OCC and the City, which would compensate the City for the projected higher cost of constructing the new facility. This development prompted the City to undertake a screening of potential water treatment plant sites. Of six candidate sites, the New York Power Authority's (NYPA) Buffalo Avenue site (Figure 1) was identified as the best available site for a new WTP based on existing/adjacent land use, proximity to existing source of supply and transmission system, and available land area (Malcolm Pirnie, 1990) among other site selection criteria.

The Buffalo Avenue site consists of a 25.8 acre parcel of land located within the City of Niagara Falls corporate limits, about 400 feet north of the Niagara River and directly east of the City of Niagara Falls Water Treatment Plant (Figure 2). The Robert Moses Parkway is located to the south between the site and the Niagara

River. The area surrounding the site to the north, east, and west consists of residential, commercial, and industrial properties.

The Buffalo Avenue site is currently classified as "2a" in the 1987 New York State Registry of Inactive Hazardous Waste Disposal Sites. This classification signifies that sufficient data and information does not presently exist to allow the New York State Department of Environmental Conservation (NYSDEC) to make a determination of whether or not the site poses a threat to public health, and the environment.

A preliminary field investigation was undertaken by Malcolm Pirnie, Inc. in 1989 and 1990 to assess the potential suitability of the NYPA - Buffalo Avenue site for construction of a new water treatment plant (Malcolm Pirnie, 1990). The investigation focused on the northern 14.3 acres of the 25.8-acre site because the northern portion was formerly residential in nature and available historic information indicated fill activities had occurred on the southern portion of the site.

The preliminary site investigation identified an apparently uncontaminated area of approximately 10 acres in size for siting of a new WTP facility. The New York State Department of Health (NYSDOH) and Niagara County Health Department (NCHD) have formally concurred with the selection of this 10-acre area of the site (Appendix A). However, the NYSDOH and NCHD also noted that their concurrence was contingent upon further investigation of the 10-acre site to "demonstrate that a water facility can be safely constructed on the site." The NYSDEC has also endorsed this site subject to verification that it can be delisted/de-classified (Appendix A).

1.02 Site History

As shown on Figure 2, the NYPA-Buffalo Avenue site is bordered on the west by the existing City water treatment plant property, and is located between Buffalo Avenue and the Robert Moses Parkway from 56th Street to beyond 61st Street. The site is currently owned primarily by NYPA, although the NYSOGS retains title to approximately 7.6 acres of the southern portion of the property.

A comparison of 1927 and 1980 City maps and construction surveys revealed that the original shoreline has been extended as far as 700 feet to the south by fill activities. The fill apparently progressed in three distinct phases (Dames & Moore, 1988):

(1) refuse, incinerator residue, and miscellaneous debris were alleged to be disposed of on-site from the 1930s to the 1950s;

(2) dredged material from the construction of the Niagara River Ice Canal was disposed of on-site by NYPA (date undocumented); and

(3) soil, rock (i.e. "shot rock") and other materials excavated by NYPA during construction of the Niagara Power Project conduits were disposed of on-site from 1958 to 1963.

A United States Department of Agriculture (USDA) aerial photograph taken in 1958 (ARE-3U-85) verifies the southern site boundary at that time, and a subsequent aerial photograph (AER-2GG-53) confirms that the Parkway was in place by 1966. Residential and commercial structures on the site were apparently demolished in the late 1950s, and all disposal activities are believed to have ceased prior to 1963.

The alleged presence of soil contamination at the NYPA - Buffalo Ave. site was initially reported in 1981 during a geotechnical foundation investigation by a potential purchaser of the property. Subsequent studies carried out in 1983 by the United States Environmental Protection Agency (USEPA) and NYSDEC confirmed the presence of several organic compounds and concluded that "additional analyses are required to confirm the extent of contaminant migration from this site" (Niagara River Toxics Committee, 1984).

In 1985, NYPA entered into an Order on Consent with NYSDEC to undertake a Phase II Investigation of the site, which was intended to establish the extent of contamination and provide the data and information needed by NYSDEC to classify the site. NYPA's Phase II Investigation will be finalized by O'Brien & Gere Engineers, Inc., at the request of both NYPA and NYSDEC, and will be submitted to the NYSDEC under separate cover.

1.03 Previous Investigations

A brief summary of the previous investigations of the NYPA - Buffalo Avenue site is presented below and the corresponding pertinent data are included in Exhibits A, B, and C.

- 1981 - seven boreholes (B1-81 through B4-81, B6-81, B9-81, and B10-81) were completed by Pittsburgh Testing Laboratories (PTL) on behalf of Hysen Supplies, Inc. as part of a foundation related soil investigation;
- 1982 - five piezometers (OW1-82 through OW5-82) were installed by Conestoga-Rovers & Associates, Ltd. (CRA) on behalf of OCC in

order to determine ground water levels in the overburden. To the best of our knowledge, these piezometers have been abandoned;

- 1982 and 1983 - nine boreholes (1 through 9) were completed by the U.S. Geological Survey (USGS) as part of the sampling program of inactive hazardous waste disposal sites adjacent to the Niagara River; and
- 1987 - eight clusters of overburden and bedrock wells (MW-1 through MW-8), the completion of three (3) soil borings (B1-87 through B3-87), a seismic survey, and a soil and ground water sampling and analysis program were completed by Dames & Moore on behalf of the NYPA (Draft Phase II investigation of the site). Upon review of the draft report, the NYSDEC requested that a number of additional work tasks be completed before the report would be approved. Included in these tasks were collection of additional hydrogeologic and chemical data in addition to reevaluation of the HRS document. This additional data was collected as part of the Buffalo Avenue Site Investigation, completed by O'Brien & Gere, based on agreement between the NYSDEC, NYPA, and the City. Based on additional discussions between O'Brien & Gere and the NYSDEC, it was agreed that this report would be used to fulfill the requirements of a Phase II Investigation. A detailed discussion of these additional work efforts, and a summary of the data collected by O'Brien & Gere to complete the NYPA Phase II Investigation are included as Exhibit C.

Figure 3 illustrates the locations of the above-referenced borings/wells on the NYPA Buffalo Avenue site.

- 1989 - 35 soil borings (BH-1 to BH-35) were completed by Malcolm Pirnie as part of a preliminary soil sampling program to define the extent of contamination in the northern portion of the site. During this investigation, areas designated with letters A through K were delineated based on the location of borings completed in a single day. These areas are identified on Figure 4. Soil gas and electromagnetic surveys were also conducted in an effort to delineate localized areas of contamination. Boring locations are shown on Figure 4.

The following presents a brief summary of the findings of the above investigations:

1.03.1 Overburden Soil/Fill

The soil samples collected during the 1981 PTL investigation were analyzed only for trichlorobenzenes, tetrachlorobenzenes, hexachlorobutadiene (C-46), and hexachlorocyclopentadiene (C-56). These compounds were apparently detected in the samples at the following concentration ranges:

▪ trichlorobenzene	30 - 563 ppb
▪ tetrachlorobenzene	21 - 626 ppb
▪ hexachlorobutadiene	3 - 48 ppb
▪ hexachlorocyclopentadiene	None detected

However, because the laboratory conducted the analysis using GC-EC (Electron Capture) rather than GC-MS (Mass Spectroscopy), the validity of this data is suspect. The report concluded that, with the exception of B-9-81, the concentration appeared to decrease with increasing depth below the surface. Inorganics were not analyzed during these investigations.

The analytical results of the soils samples collected between June 25, 1982 and May 28, 1983 by the USGS indicate the presence of organic compounds in soil borings 1 and 2. In Soil Boring 1, PAHs were detected at concentrations ranging from 750 ppb to 4,200 ppb; there were no PAHs detected in Soil Boring 2. The only organic compound detected in Soil Boring 2 was the pesticide 4,4-DDT, at a concentration of 25 ppb. It is understood that this analysis was also conducted by GC-Electron Capture and is, therefore, unconfirmable.

The findings of the soil sampling and analyses completed by Dames & Moore during the Phase II investigation of the NYPA - Buffalo Avenue site indicated that polynuclear aromatic hydrocarbons (PAHs) were detected in soil samples at concentrations ranging from 68 ppb to 44,000 ppb. Volatile organic compounds, including halogenated ethanes, were also detected in the soil samples at concentrations ranging from 1 ppb to 143 ppb. Inorganics (metals), including arsenic, chromium, copper, lead, and zinc were detected in soil samples. Surficial soils near well location MW-1 apparently exceeded the EPTOX limit for selenium. The volatile organic compounds acetone and methylene chloride were detected in some of the method blanks as well as in the soil samples, indicating possible laboratory contamination.

The results of the preliminary sampling program conducted by Malcolm Pirnie are summarized in Exhibit A. A review of Exhibit A indicated generally low to non-detectable concentrations of the organic TCL and TCLP/EPTOX parameters. The principal organic parameters detected in the soil samples during this study were fifteen PAHs at very low individual concentrations of non-detectable to 57 ppb. Very low to non-detectable concentrations of volatile organics were also observed in some of the soils. The detection of volatile organic compounds methylene chloride and acetone were attributed to laboratory contamination.

Concentrations of inorganics found in native soils and fill in the preliminary study are generally of the same magnitude as the concentrations that occur in natural soils, with the notable exception of lead in Areas B/C/D, which are in the northwest corner of the site (Figure 4). Slightly elevated concentrations of calcium, magnesium, and mercury are also apparent on-site, possibly due to the presence of fly ash in the fill previously deposited at the site.

The EPTOX/TCLP results presented in the preliminary study shows that the concentrations of metals in the sample extracts were low in all but the EPTOX extract for lead generated from the B/C/D area soil composite, which was collected in the northwest corner of the site. The EPTOX results of this sample exceeded the level for a characteristic hazardous waste as defined by 40 CFR Part 261. However, the TCLP extract for the same sample was below the level for a characteristic hazardous waste.

<u>1.03.2 Ground Water</u>

Ground water samples were collected from shallow monitoring wells on-site (MW 1S through 8S) and analyzed by Dames & Moore in late 1987. Methylene chloride (13-400 ppb) and acetone (1.1-130 ppb) were reportedly detected in these samples. However, acetone was also detected in the laboratory blanks. Other volatile organic compounds such as benzene and trichloroethylene were reportedly detected in three of the ground water samples at concentrations less than 5 ppb.

The PAH compound naphthalene was reportedly detected in one of the ground water samples at a concentration of 29 ppb. No other PAHs were detected in the shallow ground water. In addition, four pesticides (aldrin, delta-BHC, endosulfan I, and heptachlor epoxide) were reported in three of the ground water samples. Inorganic parameters reportedly detected in ground water included arsenic, barium, cadmium, chromium, iron, lead, magnesium, manganese, selenium, silver, and zinc.

1.04 Site Investigation Purpose, Objectives, and Scope

The overall purpose of this site investigation is to identify whether the 10-acre portion of the Buffalo Avenue site is environmentally suitable for construction of the new WTP, as suggested by previous investigators, and to evaluate whether the remaining 15.8 acres contains hazardous waste, as defined by 40 CFR Part 261 ("hazardous waste"). This 15.8-acre parcel had not been previously investigated in detail and was known to contain fill materials (Figure 2). The investigation results, in conjunction with the results of the previously completed investigations, will be used to support a petition for site delisting by the NYSDEC.

Specific project objectives have been defined as follows:

1. Confirm preliminary investigation results on the 10-acre site;

SECTION 2 - FIELD INVESTIGATIONS

2.01 Introduction

The site investigations discussed below were completed in accordance with two separate Work Plans. The Site Suitability Assessment Work Plan was prepared for field investigations associated with the 10-acre portion of the site (O'Brien & Gere, 1991 a). The Site Acquisition Investigation Work Plan was prepared for data collection efforts associated with investigation of the adjacent 15.8-acre parcel and evaluating the possibility of delisting this portion of the property (O'Brien & Gere, 1991 b). These 10-acre and 15.8-acre portions of the property are illustrated on Figure 2.

The scope of the investigatory tasks included surface soil sampling, subsurface soil sampling, and installation and sampling of overburden and bedrock ground water monitoring wells. The Work Plans were reviewed and approved by the NYSDEC prior to implementation by O'Brien & Gere Engineers, Inc. on behalf of the City.

2.02 Surface Soil Sampling

A total of thirty four surface soil samples were collected at the Buffalo Avenue site at the locations shown on Figure 5. The sampling program was completed to:

1. assess the presence of "hazardous waste" on the 10-acre site;
2. evaluate the selenium levels in the eastern portion of the site (Areas I/J/K on Figure 4) that were tentatively identified during the previous investigations; and

3. assess the presence of "hazardous waste" on the 15.8 acre area of the NYPA property.

Surface soil sampling locations were selected at the grid nodes identified on Figure 5. Soil samples were collected either by driving a split spoon sampler to the required depth or by using stainless steel trowels. Surface soil sample descriptions are included on Table 1.

Sample collection methods, container/preservation requirements, handling, labeling, and documentation procedures were in accordance with the approved Work Plans (O'Brien & Gere, 1991 a,b). Soil samples were submitted to Recra Environmental, Inc. in Amherst, New York for the required analyses.

Surface soil samples SS-1 through SS-14 were collected from a depth of 0 to 2 feet on the 10-acre portion of the site and analyzed for base neutral/acid extractable compounds, lead, chromium, and selenium. Samples SS-15 through SS-18 were collected from a depth of 0 to 6 inches and analyzed for selenium exclusively for further horizontal definition of selenium in the soils which was identified during the previous investigations. Surface soil samples SS-19 through SS-34 were collected from a depth of 0 to 2 feet on the remainder of the site and analyzed for Target Compound List (TCL) parameters excluding TCL volatiles.

Based on the results of the total lead analyses, SS-20 was also analyzed for extractable lead using Extraction Procedure Toxicity (EPTOX) and Toxicity Characteristic Leaching Procedure (TCLP) methods as the total lead level detected in this sample was elevated. The purpose of this additional analysis was to evaluate whether this sample met the criteria for a characteristic hazardous waste as defined by 40 CFR, Part 261.

Surface soil analytical sample results are summarized in Tables 2 through 5. The Recra Environmental, Inc. laboratory data packages are being submitted to NYSDEC under separate cover.

2.03 Subsurface Soil Sampling

A total of forty soil borings were completed at the Buffalo Avenue site at the locations shown on Figure 6. The subsurface fill/soil sampling program was designed to meet the following objectives:

1. confirm the absence of hazardous waste in the proposed new WTP utility corridor and 10-acre site as indicated by the results of the preliminary WTP site investigation (Malcolm Pirnie, 1990);
2. evaluate the distribution of the lead and chromium detected in Areas B, C, and D (Figure 4) during the preliminary site investigation (Malcolm Pirnie, 1990) as it relates to characterization of the material as a "hazardous waste";
3. further characterize the fill in the B/C/D area (Figure 4); and
4. characterize the southern portion of the site, which has not been fully investigated, with respect to the presence of "hazardous waste".

Soil boring locations were selected from the sampling grid as identified on Figure 6. The borings were completed to the base of the fill material using hollow stem auger drilling methods. If fill material was not present, the boring was completed to approximately 5 feet below grade. Subsurface fill/soil samples were collected continuously using split-barrel sampling per ASTM Method D-1586-84.

Sample collection methods, container/preservation requirements, handling, labeling, and documentation procedures were in accordance with the approved Work Plans (O'Brien & Gere, 1991 a,b). Soil samples were submitted to Recra Environmental, Inc. in Amherst, New York for the required analyses.

At soil boring locations SB-1 through SB-13, one fill sample was selected for analysis of TCL volatiles using the criteria detailed in the approved Work Plan (O'Brien & Gere, 1991 a). A fill composite was also collected from each boring and submitted for analysis of total lead and chromium. Equal portions of each split spoon sample through the full depth of fill, exclusive of the first 2 feet, were used for compositing purposes. The compositing of fill samples was completed by Recra Environmental, Inc. in accordance with the Work Plan protocols.

At soil boring locations SB-14 through SB-40, separate characterization and analysis of the shot rock fill (rock and soil material removed during completion of NYPA utility tunnels in the area) and miscellaneous waste fill were required (O'Brien & Gere, 1991 b). At each borehole, one shot rock and one miscellaneous waste sample were collected for analysis of TCL volatiles using the criteria detailed in the approved Work Plan (O'Brien & Gere, 1991 b). A composite of each of the two fill types was also collected for analysis of the remaining TCL parameters. Equal portions of each split spoon sample collected of each fill type, exclusive of the first two-feet, was used for compositing purposes. The compositing of fill samples was completed by Recra Environmental, Inc. in accordance with the Work Plan protocols.

Drill cuttings generated during the soil boring program were placed in labelled NYSDOT-approved 55-gallon drums, and are temporarily being stored at a designated location on the City's property.

Soil boring logs SB-1 through SB-40 are included as Appendix B. Subsurface soil sample results are summarized in Tables 5 through 9. The Recra Environmental, Inc. laboratory data packages are being submitted to the NYSDEC under separate cover.

In accordance with the Work Plans (O'Brien & Gere, 1991 a,b), fifteen composited samples were selected, based on the detection of elevated concentrations of selected metals (Table 9), for analysis of select extractable metals using EPTOX and TCLP methods (Table 5). The purpose of these analyses was to evaluate whether the samples meet the criteria for characteristic hazardous waste based on extractable metal concentrations, as set forth in 40 CFR Part 261.

2.04 Monitoring Well Installations

2.04.1 Overburden Monitoring Wells

Seven additional monitoring wells (MW-9S, MW-10S, MW-12S, MW-13S, MW-14S, MW-15S, and MW-16S) were completed in the first-encountered, shallow water-bearing zone at the locations shown on Figure 7. These wells augment the existing on-site shallow monitoring well network installed by Dames & Moore which includes MW-1S through MW-8S. The new wells were installed to further evaluate the geology, hydrology, and ground water chemistry of the site and surrounding area.

Overburden monitoring wells were installed using a truck mounted drill rig and 4 1/4-inch I.D. hollow stem augers. Continuous split spoon soil sampling was conducted, per ASTM D1586-84, to completion depths. Soil samples were described and logged in detail by the on-site O'Brien & Gere

Drill cuttings generated during monitoring well installations were placed in labelled NYSDOT-approved 55-gallon drums, and are temporarily being stored at a designated location on the City's property.

2.04.2 Bedrock Monitoring Wells

Four additional upper bedrock monitoring wells (MW-10D, MW-11D, MW-12D, and MW-13D) and five deep bedrock monitoring wells (MW-2DB, MW-6DB, MW-8DB, MW-10DB, and MW-11DB) were completed in the bedrock water-bearing zones at the locations shown on Figure 7. These wells augment the existing on-site bedrock monitoring well network installed by Dames & Moore, which includes upper bedrock wells MW-1D through MW-8D. Additionally, MW-6D was replaced by O'Brien & Gere because the integrity of this well was in question because it contained unusually high pH ground water. The new upper bedrock wells were installed to further evaluate the hydrogeology and ground water chemistry, and to provide early detection of potential contaminant migration during intake tunnel construction. The deep bedrock wells were installed to evaluate ground water chemistry at the depth of the proposed raw water intake tunnel.

Monitoring wells were installed in accordance with protocols outlined in the approved Work Plan (O'Brien & Gere, 1991 a). The wells are constructed of 2-inch I.D. PVC riser pipe and flush joint, threaded, 0.010-inch PVC well screen. Drilling and sampling equipment were decontaminated prior to their use at each well location in accordance with procedures described in the approved Work Plans.

Continuous split spoon soil sampling of the unconsolidated deposits was conducted, per ASTM D1586-84, to the top of the bedrock. Bedrock monitoring wells were installed using a truck mounted drill rig and advancing 4 1/4-inch I.D. hollow stem augers to the top of the clayey till deposit, followed by wash and drive casing drilling methods to the top of bedrock. The bedrock was then continuously sampled using an HQ wire-line coring assembly. Soil samples and bedrock cores were described and logged in detail by the on-site O'Brien & Gere hydrogeologist. Monitoring well logs and well construction diagrams are included in Appendix C.

Upon completion, the newly installed monitoring wells were developed by bailing: to remove fine-grained sediment that had accumulated in and around the well screen during installation; and to enhance the hydraulic connection between the well and the water-bearing unit. The effectiveness of well development was monitored using portable turbidity, Ph, temperature, and specific conductivity instruments. Development of each well continued until the turbidity of the water removed was less than 50 NTUs, or until the Ph and specific conductivity stabilized.

After completion of the additional monitoring wells, a field instrument survey was completed to determine the horizontal location and vertical elevation of each well. Well construction specifications of each bedrock monitoring well are presented in Table 10.

2.05 Physical Soils Testing

Laboratory soil tests were performed on grab samples collected from the screened interval of each shallow monitoring well. The testing included grain size distribution per ASTM D422 and D1140, and Atterburg limits per ASTM D4318.

One shelby tube sample of the native clay was collected at MW-6DB (14 to 16 ft) and analyzed for vertical permeability, per the Corps of Engineers Method EM-1110-2-1906. As outlined in the Work Plan (O'Brien & Gere, 1991 a), a shelby tube of the glacial till was attempted. However, the physical characteristics of this material prevented a sample from being collected. Physical testing results conducted as part of this investigation are summarized in Table 11 and soils testing laboratory reports are included in Appendix D.

2.06 Hydraulic Conductivity Testing

In situ hydraulic conductivity tests were completed on all monitoring wells which contained a sufficient volume of water to evaluate the horizontal permeability of the screened materials. The tests were completed in accordance with protocols outlined in the Work Plan (O'Brien & Gere, 1991 a). Data were reduced and hydraulic conductivity values were obtained using either the Hvorslev or Bouwer and Rice methods (Hvorslev, 1951; Bouwer and Rice, 1976). Hydraulic conductivity data are summarized on Table 10 and data sheets are included in Appendix E.

Following completion of coring at deep bedrock well locations MW-2DB, MW-6DB, MW-8DB, and MW-10DB, packer permeability testing was conducted in the open rock boreholes. The tests were conducted in accordance with protocols outlined in the approved Work Plan and analyzed using the methods outlined in the

Earth Manual (U.S. Bureau of Reclamation, 1974). The test method involved isolating discrete 9- or 10-foot intervals of the bedrock borehole with an inflatable packer assembly, and measuring the volume of water which could be pumped into each interval using variable water pressures. The packer test results are summarized on Table 12 and the field data sheets are included in Appendix E.

2.07 Ground Water Elevation Monitoring

Monthly ground water elevation measurements have been collected from all of the monitoring wells from May 31, 1991 to September 16, 1991 (Table 13). The measurements were collected to evaluate the site hydrology and to assess the influence, if any, the Niagara River or buried building foundations may have on the site ground water flow characteristics.

In addition to the monthly ground water elevation monitoring, ground water elevations were measured hourly at all well locations for a twenty-four hour water period between July 18 and 19, 1991. The purpose of this monitoring was to assess the influence the fluctuating Niagara River stage, resulting from the NYPA water intake conduits, is having on the daily site ground water flow characteristics. Although the 24-hour monitoring was completed as part of the NYPA Phase II Investigation, the results are shown on Table 14.

2.08 Ground Water Sampling

Ground water monitoring wells were sampled on two separate occasions during this site investigation. A period of at least one week was allowed to elapse between development and the first sampling event to allow the wells to equilibrate.

A total of twenty seven monitoring wells were sampled during the first sampling event between June 10 and 14, 1991. Monitoring well MW-9S was dry during the first sampling event. The samples were collected in accordance with protocols outlined in the Work Plans (O'Brien & Gere, 1991 a,b). The first round of ground water samples was analyzed for TCL/TAL parameters using the 1989 New York State Analytical Services Protocols (NYS ASP).

The second round of ground water samples was analyzed for an abbreviated list of parameters as outlined in a letter from the City of Niagara Falls to the NYSDEC dated August 20, 1991, and further defined in a response letter from the NYSDEC to the City of Niagara Falls dated September 13, 1991 (Appendix A). A total of twenty five monitoring wells were sampled from September 18 to 20, 1991. Monitoring wells MW-6S, MW-9S, and MW-10S were dry during the second sampling event.

Prior to initiating each sampling event, a complete set of ground water elevations were collected from the wells. These data were used to calculate the volume of water present in each of the wells.

Prior to sampling, a minimum of three well volumes of water was purged from each well. Bottom-loading stainless steel bailers attached to dedicated polypropylene rope were used to evacuate and sample all wells. Immediately after collection, ground water samples were transferred to labeled and precleaned sample containers as specified in the Work Plans.

Samples collected for volatile organic constituent analyses were collected first. Ground water samples collected for inorganic analyses were filtered in the field through a 0.45 micrometer pore size filter prior to preserving. Samples requiring pH adjustment for preservation were checked in the field using pH paper, and appropriate quantities of preservative were added to the samples as needed. Samples requiring refrigeration for preservation were immediately transferred to coolers packed with ice or ice packs. Proper chain of custody documentation was maintained as specified in the Work Plan (O'Brien & Gere, 1991 a)

During the June 1991 sampling round, unfiltered samples were collected for inorganic analyses from all monitoring wells. Filtered samples were also collected only from monitoring wells with ground water which exhibited turbidity values greater than 50 NTUs. Because sediment was present in some of the ground water samples which exhibited high turbidity, sediment/ground water interactions have the ability to dominate the ground water chemistry. For this reason, filtered ground water samples are more likely to provide representative results of metals in solution. During the September 1991 sampling round, both unfiltered and filtered samples were collected for inorganic analyses regardless of their turbidity values.

Field measurements for Ph, specific conductance, and temperature were obtained from ground water grab samples prior to and during laboratory sample collection. These data are contained on the ground water sampling logs presented in Appendix F. Ground water analytical data are presented in Tables 15 through 18.

All sampling equipment was decontaminated in accordance with procedures in the approved Work Plans. Water generated during monitoring well sampling was placed in labelled NYSDOT-approved 55-gallon drums, which are temporarily being stored at a designated location on the City's property.

SECTION 3 - SITE INVESTIGATION RESULTS

3.01 Hydrogeologic Assessment

3.01.1 Physiography

The Buffalo Avenue site is located within the Niagara Frontier Region of western New York State (Fisher and Brett, 1981). This region is relatively flat lying, with the exception of the Niagara Gorge and two prominent east-west trending escarpments known as the Niagara Escarpment and Onondaga Escarpment. Another prominent feature in this region is the Niagara River, which has a relatively short course (31.6 miles), high flow (202,000 ft^3/sec), and serves as an outlet for four of the Great Lakes (Fisher, 1981).

The site consists of a 25.8 acre parcel of land located within the City of Niagara Falls corporate limits, about 400 feet north of the Niagara River and directly east of the City of Niagara Falls Water Treatment Plant (Figure 2). The Robert Moses Parkway is located to the south between the site and the Niagara River. The area surrounding the site to the north, east, and west consists of residential, commercial, and industrial properties.

The ground surface at the site is relatively flat-lying with a crowned area in the center and a low-lying area in the southwest corner. Ground elevations on site range from about 569 to 582 feet above mean sea level. The site is predominantly grass covered or barren, with a cluster of trees in the northwest corner.

3.01.2 Regional Geology

The bedrock underlying the Niagara Frontier region is sedimentary in origin and belongs to the Devonian, Silurian, Ordovician, and Cambrian Systems (Rickard and Fisher, 1970). The Cambrian rock sequence overlies older Precambrian rocks. In the Niagara Falls area, these sedimentary sequences range in thickness from 1,980 to 3,000 feet (Fisher and Brett, 1981).

Unconsolidated surficial materials deposited during the Quaternary Period overlie the sedimentary bedrock. These deposits consist of ground and end moraines; ice-contact stratified drift; outwash terrace and delta gravel; alluvial gravel, sand, and silt; beach sand and gravel; lacustrine sand, silt, and clay; peat, marl, and muck; and aeolian sand (Muller, 1977).

3.01.3 Site Geology

The site geology has been characterized by soil borings and monitoring well installations completed during this investigation. Data collected during previous site investigations by Pittsburg Testing, 1981; Consetoga-Rovers, 1982; USGS, 1982 and 1983; Dames & Moore, 1988; and Malcolm Pirnie, 1989 and 1990 are also used.

Forty soil borings and sixteen monitoring wells were completed as part of this investigation at the locations shown on Figures 6 and 7, respectively. The primary bedrock and unconsolidated deposits identified during site investigations from the base of the profile upward are: dolostone bedrock; till; lacustrine clay; alluvium; silty sand deposits; miscellaneous waste fill; and shot rock fill. One east-west and two north-south cross sections have been developed which illustrate the subsurface geology and are included as Figures

8, 9, and 10. The cross sections were developed along the transects shown on Figure 7.

The bedrock underlying the site is the Upper Silurian Lockport Group (Rickard and Fisher, 1970). This Group is 150 to 200 feet thick and consists of the Guelph, Oak Orchard, Eramosa, and Goat Island Dolostones, and the Gasport Limestone. The bedrock unit beneath the site is the Oak Orchard Formation. Wells which fully penetrate the Oak Orchard at the nearby Occidental Chemical Company's "S-Area" indicate this formation averages 90 to 95 feet thick in this area (Malcolm Pirnie, 1989).

The Oak Orchard Formation is brownish gray to dark gray dolostone and contains stylolites, corals, carbonaceous partings, shale interbeds, and vugs. The uppermost portion of the bedrock is highly fractured and contains both horizontal bedding plane and vertical joint fractures. Bedrock cores retrieved from MW-2DB, MW-6DB, MW-8DB, MW-10DB, and MW-11DB revealed that fractures were commonly mineralized with calcite, gypsum, pyrite, and sphalerite.

A bedrock topography map constructed from monitoring well and soil boring data is included as Figure 11. The map illustrates a distinct linear bedrock high extending in a northeast-southwest direction in the central portion of the site. Less distinct linear bedrock lows were noted northwest and southeast of this bedrock high.

A till unit deposited during Wisconsin glaciation directly overlies the bedrock beneath the site. This unit is continuous across the site and thins on the west side of the site. The till ranges in thickness from 5.2 feet at MW-8D to 14.5 feet at MW-4D and averages about 10.5 feet in thickness. The till is predominantly reddish brown angular to rounded dolostone gravel in a cohesive silty clay matrix. Interbedded silty sand and gravel lenses were noted within the till unit.

The glacial till deposit is overlain by either lacustrine clay or alluvium (Figures 8, 9, and 10). The lacustrine clay was encountered beneath the entire site and consists of reddish brown and gray clay with silt laminations. The alluvium, encountered only on the southern half of the site, consists of gray interbedded fine sand and silts.

A brown silty sand deposit was encountered above the lacustrine clay north of the site (Figures 9 and 10). This native deposit is present beneath fill materials and in areas where no fill material was encountered.

Miscellaneous waste fill, which was allegedly disposed of on-site from the 1930s to the 1950s, collectively refers to all on-site fill materials with the exception of the shot rock fill. Where present, this fill directly overlies the lacustrine clay or alluvium (Figures 8, 9, and 10). This fill consists of refuse, incinerator residue, and miscellaneous debris. The miscellaneous waste fill is generally olive green, gray, black, or gray in color and consists of reworked gravel, sand, silt, clay mixed with ash, brick, burnt wood, cinders, slag, shells, layered lime deposits (previously defined as "filter cake"), glass, and granular carbon. A review of a 1958 aerial photograph of the site indicate that a storm sewer discharged water and sediments from nearby industries to the water which previously covered a portion of the site. The filter cake and granular carbon layers were likely deposited as a result of this activity.

In general, the thickness of miscellaneous waste fill varies across the site. The maximum thickness of this fill is 19 feet, encountered in SB-20 on the south-central portion of the site. This fill type was not encountered in nine borings in the northwest corner of the site or in SB-17, SB-21, and SB-22, which are located in the south-central portion of the site.

The shot rock fill, which was disposed of on-site from 1958 to 1963, consists of gravel-size angular dolostone in a matrix of reddish brown sand, silt, and clay (Dames & Moore, 1988). The shot rock fill was not encountered in the borings directly south of Buffalo Avenue. Where present, this fill overlies either native materials or the miscellaneous waste fill. In general, the shot rock fill averages 7.5 feet thick, and increases in thickness in the south and central potions of the site. The maximum thickness of shot rock fill was 19.5 feet in SB-21, located in the south-central portion of the site.

Figure 12 illustrates the combined shot rock and miscellaneous waste fill thickness on the site. The maximum thickness of fill is in the south-central portion of the site, with an absence of fill materials in the northwest corner of the site.

3.01.4 Regional Hydrogeology

The major hydrostratigraphic units identified in the Niagara Falls area include a shallow unconsolidated water-bearing zone, an unconsolidated aquitard, and a bedrock aquifer (Johnston, 1964; Miller and Kappel, 1987). Ground water movement in the shallow water bearing zone is variable and likely influenced by topography, proximity to local recharge or discharge boundaries, man-made structures, and underground utility conduits.

In the Niagara Falls area, the upper portions of the Lockport Dolomite is the principal source of ground water. Ground water movement in the Lockport Dolomite moves primarily along bedding plane fractures, which are parallel to the natural bedding surface in the rock. Vertical joints also transmit significant amount of ground water, particularly in the upper 10 to 25 feet of bedrock where significant dissolution and enlargement of fractures has occurred. The major joint fractures identified in the upper part of the Lockport Dolomite are oriented N70°E to N80°E, are generally straight, and are spaced 10 to 80 feet apart (Miller and Kappel, 1987). Where present, solution cavities formed by the dissolution of gypsum by percolating ground water can also transmit significant volumes of water in the bedrock.

Ground water flow through the bedrock aquifer is generally to the southwest with ultimate discharge into the Niagara River. Local man-made structures such as the NYPA water intake conduits and the Falls Street Tunnel combined sewer have locally altered the predominant bedrock ground water flow patterns (Miller and Kappel, 1987).

The NYPA water intake conduits, located about one-half mile west and downstream of the site, divert water on a daily basis from the Niagara River as part of the Niagara Power Project. During the tourist season (April 1 through October 31), NYPA is allowed to divert up to 110,000 cfs from the river during non-peak hours and lesser quantities during peak hours. The diversion of variable amounts of water each day continually lowers and raises the elevation of the Niagara River. During the non-tourist season from

November 1 to March 31, the NYPA is allowed to divert larger quantities of water during each day.

3.01.5 Site Hydrogeology

An evaluation of the site hydrogeology has been completed using data collected from the fifteen overburden monitoring wells, twelve upper bedrock monitoring wells, and five deep bedrock monitoring wells (Figure 7). Ground water level measurements were collected from the wells between May 31, 1991 and September 16, 1991 (Table 13). Additionally, water levels were collected continuously for a 24-hour period on July 18 and 19, 1991 in conjunction with completing the NYPA Phase II Investigation (Table 14).

3.01.5.1 Overburden Hydrogeology

Shallow unconfined ground water was present beneath the site at depths ranging from less than 1 foot at MW-3S to about 17 feet at MW-4S. The shallow ground water zone pinched out in the northern portion of the site during the summer months, as confirmed by the absence of ground water in MW-6S, MW-9S, and MW-10S. The limited areal extent of saturated overburden materials suggests that ground water recharge to this unit is primarily from precipitation infiltration. Shallow ground water contour maps were prepared for high and low ground water conditions using data collected on June 10, 1991 and September 16, 1991, respectively (Figures 13 and 14).

In general, shallow ground water movement was to the south towards the Niagara River under a hydraulic gradient which ranged from 0.01 ft/ft to 0.05 ft/ft. A review of Figures 13 and 14 indicates ground water mounding was present in the north-central portion of the site. The mounding likely occurred when water readily infiltrates the more permeable sediments in this area during the spring months and slowly dissipates the ground water to the downgradient areas during the low recharge fall months. Comparison of Figures 13 and 14 confirms this as the hydraulic gradient in the mounded area was higher during high ground water conditions (0.05 ft/ft) than during the low ground water conditions (0.013 ft/ft).

To evaluate if the shallow ground water responds to daily Niagara River stage fluctuations, ground water data from the continuous 24-hour monitoring event was compared to Niagara River elevations recorded during the same time period. Monitoring well MW-4S, and to a lesser extent MW-2S and MW-8S, were the only shallow wells which showed instantaneous response to Niagara River stage fluctuations as indicated by the 24-hour water level measurements (Figure 15). The response of these wells occurred because of their close proximity to the Niagara River, which is the likely discharge boundary for the shallow ground water.

In situ hydraulic conductivity tests indicate the permeability of the unconsolidated materials screened by the wells vary significantly and range from 0.045 ft/day (1.6×10^{-5} cm/sec) at MW-15S to 127.6 ft/day (4.5×10^{-2} cm/sec) at MW-1S (Table 10). The geometric mean hydraulic conductivity value is 8.4 ft/day (2.96×10^{-3} cm/sec). Assuming a porosity value of 0.35 and a hydraulic gradient of 0.03 ft/ft for the unconsolidated materials, an estimate of ground water velocity was calculated using the formula V = Ki/n, where:

V = horizontal ground water velocity in ft/day;

K = hydraulic conductivity in ft/day;

i = hydraulic gradient in ft/ft; and

n = porosity in %

The resultant ground water velocity of the shallow unconfined unit is 0.72 ft/day (263 ft/yr).

An evaluation of vertical flow potential between the shallow overburden unit and the bedrock indicated a downward potential. The glacial till deposit, and the lacustrine clay deposit in the northern portion of the site, likely act as effective barriers to restrict the downward migration of shallow ground water.

3.01.5.2 Bedrock Hydrogeology

The bedrock aquifer beneath the site is separated from the unconsolidated deposits by the glacial till aquiclude. To evaluate the bedrock hydrology, twelve upper bedrock wells and five deep bedrock wells were installed (Figure 7). The upper bedrock well depths range from 39 to 55 feet, whereas the deep bedrock wells are approximately 75 feet deep. The depth to bedrock is relatively consistent and ranges from 33 feet at MW-8D to 43 feet at MW-4D.

The potentiometric surface of the upper bedrock and deep bedrock wells showed little fluctuation over the 4 month water level monitoring period (Table 13). To evaluate if the shallow ground water responds to daily Niagara River stage fluctuations, ground water data from the continuous 24-hour monitoring event was compared to Niagara River elevations recorded during the same time period (Table 14). The potentiometric surface during the 24-hour monitoring event showed direct correlation to Niagara River stage fluctuations in all bedrock monitoring wells except MW-6DB and MW-10DB, which showed an inverse relationship (Figure 15).

Upper bedrock potentiometric surface maps were prepared for high and low ground water elevation conditions using data collected during the 24-hour monitoring event (Figures 16 and 17). Ground water flow in the upper bedrock is to the west-northwest under a hydraulic gradient which varied an order of magnitude from 0.0002 ft/ft to 0.002 ft/ft. The hydraulic gradient in the east and central portion of the site was constant and low. The hydraulic gradient in the west portion of the site was higher and fluctuates on a daily basis. The higher hydraulic gradient on the western portion of the site in the bedrock may occur because this area is closer to the NYPA water intake conduits and the Falls Street combined sewer tunnel, where bedrock ground water is constantly being discharged. The daily response of the upper bedrock wells to river stage fluctuation was uniform and ranged from 0.74 feet to 1.07 feet.

Deep bedrock potentiometric surface maps were prepared for high and low ground water elevation conditions using data collected during the 24-hour monitoring event (Figures 18 and 19). Ground water flow in the deep bedrock was to the west-northwest. The hydraulic gradient during the high ground water condition was 0.003 ft/ft and uniform, whereas the hydraulic gradient during low ground water conditions became steeper on the western portion of the site. The hydraulic gradient during low conditions ranged from 0.0013 ft/ft to 0.004 ft/ft. The daily response of the deep bedrock wells to river stage fluctuation ranged from 0.31 feet to 0.81 feet. The higher hydraulic gradient on the western portion of the site in the bedrock may occur because this area is closer to the NYPA water intake conduits and the Falls Street combined sewer tunnel, where bedrock ground water is constantly being discharged.

Packer hydraulic conductivity testing was conducted in the open rock boreholes of MW-2DB, MW-6DB, MW-8DB, and MW-10DB (Table 12). In general, the packer test data indicate that bedrock hydraulic conductivity decreased with increasing depth. This correlates to the rock quality designation (RQD) of the bedrock which increased with increasing depth and was inversely related to the hydraulic conductivity. The hydraulic conductivity of each tested interval depended on the number, size, degree of connectivity, and extent of mineralization of fractures and vugs within the bedrock.

In situ hydraulic conductivity tests indicated the permeability of the bedrock screened by the upper bedrock wells ranged from 0.065 ft/day (2.3×10^{-5} cm/sec) in MW-10D to 42.5 ft/day (1.5×10^{-2} cm/sec) in MW-7D. The geometric mean hydraulic conductivity value of the upper bedrock was 10.3 ft/day (3.6 x 10^{-3} cm/sec). In situ tests performed on the deep bedrock wells indicated a range of hydraulic conductivity from 0.02 ft/day (8.8 x 10^{-6} cm/sec) to 4.3 ft/day (1.5 x 10^{3} cm/sec). An evaluation of vertical flow potential between the upper bedrock and deeper bedrock indicated a downward flow potential.

3.02 Data Validation

The analytical data generated for the New York Power Authority (NYPA) Buffalo Avenue Site in Niagara Falls, New York were validated based on QA/QC criteria established by New York State Department of Environmental Conservation Superfund-Contract Laboratory Program (CLP) (NYSDEC Analytical Services Protocol, September 1989) and QA/QC criteria presented within the QAPP developed for this investigation. A detailed data validation memorandum was prepared and is included as Appendix G. Validation procedures were based on U.S. EPA CLP data validation guidelines developed by U.S. EPA Region II. Rejected data, which are considered unusable for either qualitative or quantitative purposes, resulted when a major deficiency was noted in the data generation process. Minor deficiencies in the data generation process resulted in approximation of sample data. Approximation of a data point indicates uncertainty in the reported concentration of the chemical, but not its assigned identity. The conservative assumptions used in the development of site investigation conclusions allow for the use of approximate analytical data while still adhering to the project data quality objectives. This approach to the use of analytical data is consistent with the guidance presented in for chromium and may be considered biased low based on low matrix spike and CRDL standard recoveries. In addition, lead results were approximated in several of the subsurface and surface soil samples due to excursions from MSA and matrix spike analysis criteria.

Sample results for subsurface volatile analyses have been determined to be useable. Sample detection limits were approximated in sample SB-7 (6-8) due to an excursion from internal standards criteria. In addition, detection limits were raised or results replaced with the CRDL for acetone, methylene chloride, and chlorobenzene in several of the samples due to contamination of various laboratory and/or field blank samples with those compounds. Approximately 94% of the surface soil semivolatile sample results have been determined to be useable. Sample detection limits were rejected in sample SS-1 due to an excursion from extraction holding time requirements. Sample detection limits were raised or results replaced with the CRDL for di-n-butylphthalate in several of the samples due to contamination of the laboratory method blank sample with this compound. In addition, the pyrene result in sample SS-8 was approximated due to an excursion from MS/MSD RPD criteria.

Phase II - Site Acquisition Investigation

Thirty-eight subsurface and sixteen surface soil samples were collected between May 5 and May 22, 1991 and analyzed for TCL inorganics, volatiles, semivolatiles, PCB/Pesticides and selected TCLP and EPTOX metal analyses.

Approximately 93% of inorganic sample results have been determined to be useable. The TCLP lead result in subsurface sample SB-27W(5-13.5) was rejected due to an excursion from furnace MSA criteria. This may be attributed to sample matrix effects, since quality control results did not improve with laboratory reanalysis. Sample results were rejected for selenium in subsurface and surface soil samples, and for manganese in the surface soil samples based on matrix spike (MS) recoveries of <1% in MS samples SB-17SR(2-10), SB-26SR(2-5), SB-26W(5-10), and SS-19. Matrix spike recoveries of <1% in MS sample SB-17SR (2-10) also resulted in the rejection of sample results for zinc and silver in the following subsurface soils: SB-14SR(2-6), SB-14W(6-12), SB-15SR(2-8), SB-15W(8-16), SB-16SR(2-6), SB-16W(6-16), SB-17SR(2-10), SB-18SR(2-4), SB-18W(4-22), SB-19W(10-12), SB-19SR(2-10), SB-22SR(2-14), and BLDUP2. Based on recommendations from NYSDEC, subsurface and surface soil samples will be reanalyzed for selenium. Reanalyses for rejected manganese, silver, and zinc sample results are currently not required. Surface soil sample results were approximated for the following analytes due to low matrix spike recoveries: antimony, arsenic, barium, beryllium, cadmium, chromium, cobalt, copper, nickel, silver, thallium, vanadium, and zinc. Low matrix spike recoveries also resulted in approximation of subsurface soil results for arsenic, antimony, barium, beryllium, cadmium, cobalt, copper, nickel, thallium, and vanadium in the many of the samples. Detection limits were raised for sodium in the majority of subsurface and surface soil samples; and for mercury in four of the subsurface samples based on detected concentrations of these analytes in equipment blank samples. Minor deficiencies in CRDL standard, calibration blank, ICP interference check sample, laboratory and field duplicate RPD, matrix spike analysis, ICP serial dilution, furnace analysis, and TCLP/EPTOX mercury holding time criteria resulted in the approximation of sample results for metals in many of the subsurface and surface soil samples.

Volatile sample results have been determined to be useable. Volatile sample results were approximated in initial and reanalyzed subsurface sample SB-29W(7-8) due to excursions from surrogate and internal standards criteria. Detection limits were raised or results replaced with the CRDL for acetone and methylene chloride in the majority of the samples; and for chlorobenzene in two of the subsurface samples due to detected concentrations of these compounds in various laboratory and/or field blank samples. PCB/pesticide sample results have been determined to be useable. Based on the initial documentation provided, TCL PCB/pesticide compound identifications could not be verified. As a result, the laboratory was requested to re-assess PCB/pesticide sample results and provide documentation of standard retention time windows for primary and confirmation column analyses. Revised sample results for seven surface and 21 subsurface soil samples and supporting documentation were provided on November 19 and 21, 1991. Excursions from extraction holding time requirements resulted in the approximation of TCL PCB/pesticide results in samples SB-18SR(2-4), SB-20W(2-19), and SB-21SR(12-19.5). Deficiencies from calibration and MS/MSD criteria resulted in approximation of sample results for delta-BHC, 4,4'-DDE, heptachlor epoxide, and gamma-BHC in some of the samples. Excursions from standard retention time criteria resulted in recalculation of retention time windows for the affected compounds and standards. As a result, revisions were performed on PCB/pesticide data for several of the samples.

Approximately 97% of semivolatile sample results have been determined to be useable. Sample detection limits were rejected for the TCL semivolatile acid-extractable compounds in the following samples based on excursions from surrogate recovery criteria: SB-19SR(2-10), SB-21SR(2-19.5), SB-25W(11-13), and SB-27W(5-13.5). Excursions from extraction holding time requirements resulted in rejection of detection limits and approximation of detected sample results for subsurface soil sample SB-27W(5-13.5)DL; and the approximation of sample results in subsurface sample SB-18SR(2-4). Detection limits were raised or results replaced with the CRDL for di-n-butylphthalate and benzoic acid in the subsurface soil samples based on detected concentrations of these compounds in laboratory blank samples. It should be noted, that TCL semivolatile sample data received on November 19, 1991 replaced previously reported results for the following subsurface samples: SB-19SR(2-10), SB-21SR(2-19.5), SB-25W(11-13), and SB-27W(5-13.5).

Ground Water Investigation

Two rounds of ground water samples were collected. The first round of ground water samples, consisting of twenty-nine samples collected between June 9, and June 13, 1991, were analyzed for TCL inorganics, volatiles, semivolatiles and PCB/Pesticides. Twenty-six ground water samples were collected between September 18 and September 20, 1991 for the second round and analyzed for TCL volatiles (EPA method 8010/8020) and pesticides (EPA 8080).

More than 98% of inorganic sample results have been determined to useable for the ground water samples. Sample results were rejected for antimony in the following ground water samples collected during the second round: MW-7D, MW-7D-F, MW-7S, MW-7S-F, BLDUP3, BLDUP3-F, and equipment blank samples. Antimony results were rejected due to 0% recovery in MS sample MW-7D. Based on results of a preliminary data validation performed for the first round of ground water samples, sample results were rejected for zinc in sample MW-2D-F, and for lead in the following samples: MW-10D, MW-2S-F, MW-7S-F, MW-6S-F, MW-5D, BLDUP (6/13/91), and EQBLK (6/13/91). These samples were reanalyzed and sample results were determined to be useable. Minor excursions from CRDL standard recovery, calibration blank, ICP interference check sample, ICP serial dilution, field duplicate RPD, and total-filtered analysis criterium resulted in the approximation of metal results in many of the ground water samples. Detection limits were raised for copper and zinc in many of the Round 1 ground water samples and for total and filtered hexavalent chromium in the majority of the ground water samples collected during Round 2.

Organic sample results for each round of ground water samples collected have been determined to be useable. Detection limits were raised for gamma-BHC, acetone, and chlorobenzene in the first round of ground water samples collected based on detected concentrations of these compounds in various laboratory and/or field blank samples. Detection limits for chlorobenzene were also raised for the second round of ground water samples collected due to equipment blank contamination. As a result, the detection limit for MW-7S for the second round, exceeded New York State ground water limit of 5 ppb. Deficiencies from continuing calibration analyses resulted in the approximation of detected sample results for TCL volatiles in the following Round 2 ground water samples: MW-13D, MW-13, MW-14S, BLDUP3 (9/20/91), and EQBLK2 (9/19/91). Semivolatile sample results are useable without qualification.

3.03 Surface Soil/Fill Characterization

3.03.1 Previous Results

Thirteen surface soil samples were collected on-site by Dames & Moore and analyzed for organic and inorganic parameters (Dames & Moore, 1988). Volatile organic compounds including benzene, 2-butanone, vinyl acetate, 1,1-dichloroethane, 1,1,1-trichloroethane, and trichloroethene were detected in select samples at low concentrations (<0.02 ppm). These values are considered to be estimates based on the data validation. Methylene chloride and acetone were also detected in select samples at concentrations up to 0.244 ppm; these compounds were also found in the laboratory blanks at levels up to 0.048 ppm. The polynuclear aromatic hydrocarbon (PAH) compounds phenanthrene, fluoranthene, and pyrene were detected in two soil samples at concentrations up to 0.7 ppm. Zinc was detected in soil samples at concentrations up to 0.83 ppm.

3.03.2 Investigation Results

To further characterize the Buffalo Avenue site's surface soil, samples SS-1 through SS-14 were analyzed for TCL BNAs and lead, chromium, and selenium; samples SS-15 through SS-18 were analyzed for selenium; and samples SS-19 through SS-34 were analyzed for TCL parameters, excluding TCL volatiles. Sampling locations are illustrated on Figure 5 and analytical results are included in Tables 2 through 5. Background concentrations discussed herein were excerpted from a letter from the Niagara County Health Department to the NYSDEC (Appendix A).

(0.0042 ppm). BHC and related isomers are reported in Niagara Falls soils at concentrations up to 1 ppm.

Inorganics analyses were compared to typical background concentrations of soils from New York State using references by Bowen (1979), Shacklette and Boerngen (1984), Shacklette et al (1971), and Walsh et al (1977). Calcium and magnesium concentrations exceeded the background ranges. These metals are primary constituents of dolostone bedrock, which in turn is part of the shot rock fill materials. Lead was detected above background levels at concentrations ranging from 15.1 ppm to 449 ppm. In general, higher lead concentrations were found on the west half of the site. Chromium was detected above background in the northwest corner of the site at SS-14 (87.9 ppm) and SS-20 (75 ppm). Mercury was detected above background levels along the west boundary of the site at SS-19, SS-20, SS-21, SS-23, SS-24, and SS-25. The mercury concentrations range from 0.11 ppm to 3.0 ppm. Iron was detected above background levels at SS-33 (37,200 ppm). Copper was detected above background in most of the samples with concentrations up to 37.3 ppm. Zinc was detected above background in all samples and ranged from 81.1 ppm to 470 ppm.

Sample SS-20 was submitted for EPTOX lead and TCLP lead analysis to evaluate if the sample exhibits hazardous waste characteristics. The sample contained 0.26 ppm and 0.018 ppm of lead using the EPTOX and TCLP methods, respectively (Table 5). These values are considerably lower than the maximum allowable concentration level for extractable lead of 5.0 ppm, which indicates this soil does not exhibit hazardous waste characteristics with respect to lead as defined by 40 CFR Part 261.

3.04 Subsurface Soil/Fill Characterization

3.04.1 Previous Results

In 1981, Pittsburg Testing Laboratories completed seven soil borings on the western half of the Buffalo Avenue site (Figure 3). Nineteen soil samples were analyzed for OCC indicators trichlorobenzene, tetrachlorobenzene, C-56 (hexachlorocyclopentadiene), and C-46 (hexachlorobutadiene). In general, these compounds, with the exception of C-56, were detected in the soil samples at concentrations which decreased with increasing depth. Because the laboratory analyzed the samples using gas chromatography/electron capture (GC/EC) instrumentation rather than gas chromatography/mass spectroscopy (GC/MS), the validity of these data could not be confirmed.

In 1982 and 1983, the USGS completed nine borings on-site and analyzed soils to evaluate potential contaminant migration into the Niagara River. Organic compounds were detected only in soil borings 1 and 2, which are located in the southwest corner of the site (Figure 3). In soil boring 1, PAHs were detected at concentrations ranging from 0.75 to 4.2 ppm; there were no PAHs detected in soil boring 2. The only organic compound detected in soil boring 2 was the pesticide 4,4-DDT at a concentration of 0.025 ppm. Because the laboratory analyzed the samples using GC/EC instrumentation rather than GC/MS, the validity of these data could not be was detected in SB-5 at a concentration of 0.0002 ppm and 2-butanone was detected in SB-1 at a concentration of 0.005 ppm.

Total lead and chromium values were compared to typical background ranges of soil from New York State (Table 9). Lead was detected above background in all but SB-10 (2 to 4 ft) with concentrations up to 156 ppm. Chromium was detected above background only in SB-2 (2 to 13.9 ft) at a concentration of 52.5 ppm.

Sample SB-1 (2 to 9.5 ft) was submitted for EPTOX lead and TCLP lead analysis to evaluate if the sample exhibits hazardous waste characteristics as defined by 40 CFR Part 261. The sample contained 0.45 ppm and 0.023 ppm of lead using the EPTOX and TCLP methods, respectively (Table 5). These values are considerably lower than the maximum allowable concentration level for extractable lead of 5.0 ppm, which indicates this soil does not exhibit hazardous waste characteristics with respect to lead.

To further evaluate the shot rock and miscellaneous waste fill materials on the remaining 15.8 acres of the site, samples of each fill type were collected from SB-14 through SB-40, if present, and analyzed for TCL/TAL parameters. Soil borings SB-38, SB-39, and SB-40 were completed off-site on the City of Niagara Falls property (Figure 6). Background concentrations discussed herein were excerpted from a letter from the Niagara County Health Department to the NYSDEC (Appendix A), in addition to other documents referenced herein. The following two sections discuss the characteristics of each fill type separately.

bis(2-ethylhexyl)phthalate at a concentration of 32 ppm. Phthalate compounds are common in all Niagara Falls soils.

Individual PAH compound concentrations ranged from non-detectable to 4.2 ppm, with only SB-29 (4 to 7 ft) containing PAH compounds in the ppm range. Background concentrations of individual PAH compounds in Niagara Falls are up to 10 ppm. Sample SB-29 (4 to 7 ft) also contained dibenzofuran at a concentration of 0.61 ppm. Phenol was detected exclusively in SB-33 (2 to 4 ft) at a concentration of 0.017 ppm. Background levels of phenol in area soils are typically in the 0.5 to 1 ppm range. Benzoic acid was detected in SB-24 (2 to 6 ft) and SB-25 (2 to 11 ft) at concentrations of 0.45 ppm and 0.25 ppm, respectively.

No PCBs were detected in the shot rock fill. Several pesticide compounds were detected on-site at low concentrations of 0.037 ppm and less, with the exception of SB-29 (4 to 7 ft) which contained beta-BHC at a concentration of 2.2 ppm. Off-site soil boring SB-40 (2 to 5 ft) contained higher concentrations of pesticides such as beta-BHC (0.034 ppm), aldrin (0.52 ppm), heptachlor epoxide (1.4 ppm), endosulfan I (0.42 ppm), 4,4-DDD (2.7 ppm), and 4,4-DDT (2.2 ppm). The pesticide compounds detected in SB-40 are above background concentrations.

Inorganics analyses were compared to typical background concentrations of soils from New York State using references by Bowen (1979), Shacklette et al (1984), Shacklette et al (1971), and Walsh et al (1977). Cadmium was detected above background levels in SB-17 (2 to 10 ft), SB-18 (2 to 4 ft), and SB-19 (2 to 10 ft) at concentrations of 8.8 ppm. 5.6 ppm, and

6.6 ppm, respectively. Calcium and magnesium concentrations exceeded the background ranges in most of the samples. These metals are primary constituents of dolostone bedrock, which in turn is part of the shot rock fill materials. Chromium was detected above background in SB-29 (4 to 7 ft), SB-30 (2-11.5 ft) and SB-33 (2 to 4 ft) at concentrations of 57 ppm, 84.3 ppm, and 126 ppm, respectively. Copper was detected above background levels in most of the samples and ranges in concentration from 15.3 ppm to 69.5 ppm. Lead was detected above background in all samples and ranges from 23.9 ppm to 243 ppm. Mercury was detected at concentrations from 0.1 ppm to 2.8 ppm, and was above background in most samples. Nickel was detected above background in SB-29 (4 to 7 ft) at a concentration of 29.7 ppm. Zinc was detected above background in most samples and concentrations range from 65.7 ppm to 311 ppm. Cyanide was detected exclusively in SB-29 (4 to 7 ft), located in the northwest corner of the site, at a concentration of 3.8 ppm.

To evaluate if the shot rock fill exhibits hazardous waste characteristics, three sample composites were selected for further analysis using EPTOX and TCLP methods, respectively (Table 5). The values obtained from these analyses indicate values which are considerably lower than the maximum allowable concentration level for extractable lead (5.0 ppm) and chromium (5.0 ppm), as defined by 40 CFR Part 261. The results indicate these soils do not exhibit hazardous waste characteristics with respect to lead and chromium.

Miscellaneous Waste Fill

Volatile organics were detected in miscellaneous waste fill samples at low concentrations, with few exceptions. Toluene was the most prevalent volatile organic detected in the miscellaneous waste with concentrations ranging from 0.0001 ppm to 0.002 ppm. Other volatile organics which were also detected at low concentrations include carbon disulfide, 1,2-dichloroethene, 2-butanone, trichloroethene, chlorobenzene, chloroform, benzene, ethylbenzene, xylenes, and tetrachloroethene. Background levels of toluene and benzene are reported in area soil samples at concentrations up to 0.03 ppm. Individual volatile compound concentrations were 0.006 ppm and less, with the exception of SB-27 (5 to 6 feet), which contains chlorobenzene (0.019 ppm) and SB-30 (11.5 to 12 ft) which contains 2-butanone (0.034 ppm). Off-site soil boring SB-39 (2 to 4 ft) contained tetrachloroethene (0.03 ppm) and off-site boring SB-40 (6 to 8 ft) contained trichloroethene (0.013 ppm) and tetrachloroethene (0.03 ppm).

Semivolatile compounds were detected in miscellaneous waste at low concentrations, with few exceptions. The chlorinated hydrocarbon compounds were detected at a maximum concentration of 0.71 ppm. Off-site soil boring SB-40 (5 to 12 ft) contained 1,2,4-trichlorobenzene (3.4 ppm), hexachlorobutadiene (1.6 ppm), and hexachlorobenzene (1.9 ppm). The majority of miscellaneous waste samples contained individual PAH concentrations of 6.2 ppm and less, however, SB-15 (8 to 16 ft) and SB-33 (4 to 7 ft) contained individual PAH concentrations up to 17 ppm and 62 ppm, respectively. PAH compounds with concentrations up to 10 ppm each are common in surface concentration from 16.8 ppm to 164 ppm. Iron was detected above background with concentrations up to 77,200 ppm. Lead was detected above background in all samples and ranges from 20.2 ppm to 1510 ppm. Mercury was detected at concentrations from 0.26 ppm to 5.1 ppm, and was above background in most samples. Nickel was detected above background levels in six samples and ranges from 25.5 ppm to 68.9 ppm. Zinc was detected above background in most samples and concentrations range from 108 ppm to 449 ppm. The off-site soil borings contained zinc at concentrations ranging from 202 ppm to 638 ppm. Cyanide was detected in four samples at concentrations ranging from 1.16 ppm to 2.4 ppm, and in SB-27 (5 to 13.5 ft) at a concentration of 9.87 ppm.

To evaluate if the miscellaneous waste fill exhibits hazardous waste characteristics, eleven sample composites were selected for further analysis using EPTOX and TCLP methods, respectively (Table 5). The values obtained from these analyses indicate values which are considerably lower than the maximum allowable concentration level for lead (5.0 ppm), chromium (5.0 ppm), and mercury (0.2 ppm), as defined by 40 CFR Part 261. The results indicate these soils do not exhibit hazardous waste characteristics with respect to lead, chromium, and mercury, with one exception. The EPTOX analysis from SB-33 (4 to 7 ft) indicated a lead concentration of 39.1 ppm, which exceeds the maximum allowable concentration.

To evaluate the discrepancy between the TCLP and EPTOX analyses from SB-33 (4 to 7 ft), five additional soil borings were completed in the vicinity of SB-33 (Appendix H). Miscellaneous waste fill samples from each of the five borings were analyzed for total lead, EPTOX lead, and TCLP lead. The values obtained from the EPTOX and TCLP analyses indicate values which are considerably lower than the maximum allowable concentration level for lead (5.0 ppm), as defined by 40 CFR Part 261 (Appendix H). The results indicate these soils do not exhibit hazardous waste characteristics with respect to lead.

In addition to the analyses described above, three samples of the lime layer or "filter cake" samples were collected from SB-23, SB-24, and SB-29 and were analyzed for lead and chromium to evaluate if this material represents a concentrated source of lead and chromium. As stated in Section 3.01.3, the filter cake material represents a discontinuous lime layer first identified by previous investigations. The results of these analyses indicate lead concentrations from 9.3 ppm to 109 ppm, and chromium concentrations from 11 ppm to 22 ppm (Appendix I). These concentrations do not appear to represent a concentrated source of lead and chromium.

3.05 Ground Water Chemistry Assessment

3.05.1 Previous Results

Ground water samples were collected from shallow on-site monitoring wells MW 1S through 8S and analyzed by Dames & Moore in late 1987. Methylene chloride (13-400 ppb) and acetone (1.1-130 ppb) were reportedly detected in these samples. However, acetone was also detected in the laboratory blanks. Other volatile organic compounds such as benzene and trichloroethylene were reportedly detected in three of the ground water samples at less than 5 ppb.

The polynuclear aromatic hydrocarbon (PAH) naphthalene was reportedly detected in one of the ground water samples at a concentration of 29 ppb. No other PAH compounds were detected in the water-bearing overburden unit. In addition, four pesticides (aldrin, delta-BHC, endosulfan I, and heptachlor epoxide) were reported in three of the ground water samples. Inorganic parameters reportedly detected in ground water included barium, cadmium, chromium, iron, lead, magnesium, manganese, silver, and zinc. The values reported are considered to be estimates based on the findings of the data validation.

In September 1990, the NYSDEC collected ground water samples from monitoring wells MW-2S, MW-7S, and MW-7D. The samples were analyzed for TCL/TAL parameters using NYSDEC ASP. Methylene chloride and acetone were detected in all three wells, but were also detected in the associated laboratory blanks. The compound 2-butanone was detected in MW-7D at a concentration of 3 ppb.

Semivolatiles detected in the three wells were chlorobenzenes at a maximum individual concentration of 7 ppb. Di-n-butylphthalate was detected in MW-2S and MW-7D at a concentration of 1 ppb. Pesticide compounds detected in MW-7S include alpha-BHC (0.04 ppb) and gamma-BHC (0.16 ppb). Beta-BHC was detected in MW-2S at a concentration of 0.01 ppb. Inorganics which exceeded the Class GA standard in at least one of these wells include chromium, iron, lead, manganese, mercury, sodium, and zinc.

It is understood that these samples were not filtered, and therefore some of the inorganics detected in the ground water samples may be attributed to suspended sediment in the sample.

3.05.2 Investigation Results

To further evaluate the ground water chemistry, twenty seven monitoring wells were sampled between June 10 and 14, 1991. The samples were analyzed for TCL/TAL parameters during the first sampling and an abbreviated list of parameters during the second sampling round, which occurred between September 18 and 20, 1991. Ground water analytical data are presented in Tables 15 through 18.

During the June 1991 sampling round, unfiltered samples were collected for inorganic analyses from all monitoring wells. Filtered samples were also collected only from monitoring wells with ground water which exhibited turbidity values greater than 50 NTUs. When sediment is present in a ground water sample, such as that collected from monitoring wells with high turbidity, sediment/ground water interactions have the ability to dominate the ground water chemistry. For this reason, filtered ground water samples are more likely to provide representative results of metals in solution. During the second sampling round, both unfiltered and filtered samples were analyzed for inorganic parameters. The ground water analytical results discussed below were compared to the New York State Class GA Ground Water Standards and Guidance Values. Class GA waters are defined as fresh ground waters found in the saturated zone of unconsolidated deposits and bedrock which are best used as a source of potable water.

Monitoring well MW-7S was the only on-site well with detected volatile organics above the Class GA ground water standard during the first sampling round. MW-7S contained chlorobenzene and benzene at concentrations of 17 ppb and 0.8 ppb, respectively. However, ground water from MW-7S did not exceed any Class GA standards during the second sampling round. Benzene was the only volatile organic detected above the Class GA standard of 0.7 ppb during the second sampling event. This compound was detected in MW-2D during the second sampling round at a concentration of 0.99 ppb.

Semivolatile organic compounds detected above the Class GA standards include 1,3-dichlorobenzene and 1,4-dichlorobenzene, which were both detected at a concentration of 6 ppb in MW-7S. Semivolatile analyses were not completed during the second sampling round.

The pesticide compounds alpha-BHC and gamma-BHC were detected in MW-7S at concentrations of 0.064 ppb and 0.33 ppb, respectively, during the first sampling round. Beta-BHC was detected in on-site wells MW-6S (0.09 ppb) and MW-13S (0.022 ppb), and in off-site well MW-16S (0.051 ppb). No PCBs were detected in any monitoring wells. During the second sampling round, MW-7S contained alpha-BHC (0.081 ppb), beta-BHC (0.093 ppb), delta-BHC (0.017 ppb), aldrin (0.071 ppb), heptachlor epoxide (0.008 ppb), and endrin (0.013 ppb). Alpha-BHC and beta-BHC were also detected in off-site well MW-16S during the second round at concentrations of 0.008 ppb and 0.011 ppb, respectively.

Antimony was detected in MW-7S at levels above the Class GA guidance value of 3 ppb in both the unfiltered (340 ppb) and filtered samples (46 ppb). Chromium was detected above the Class GA standard of 50 ppb in the unfiltered samples from six wells at concentrations from 53 ppb in MW-4D to 1940 ppb in MW-7S. With the exception of MW-7S, chromium was detected at concentrations of 94 ppb or less in the unfiltered samples, which slightly exceed the Class GA ground water standard. All filtered samples showed chromium concentrations below the Class GA standard for chromium, which suggests that chromium is associated with suspended sediment in the unfiltered samples.

Iron and magnesium values exceeded the Class GA standard and guidance value, respectively, in most of the unfiltered and filtered ground water samples, with lower values of each metal in the corresponding filtered samples. Iron was detected in the unfiltered samples at concentrations up to 95,300 ppb in MW-6S, whereas magnesium values ranged up to 308,000 ppb in the unfiltered sample from MW-8D. Sodium was detected above the Class GA standard of 20,000 ppb in most of the wells. Unfiltered and filtered samples contained almost identical sodium concentrations, which indicates that essentially all of the sodium is in solution.

Manganese was detected in several wells at concentrations above the Class GA Standard (300 ppb) in unfiltered samples, but the only filtered samples in exceedance were on-site well MW-7S (415 ppb and 386 ppb) and off-site well MW-16S (552 ppb). Lead was detected in several unfiltered samples above the Class GA standard, with the highest lead concentration at

MW-7S (1040 ppb). The corresponding filtered samples all had lead values below the Class GA standard of 25 ppb.

Mercury was detected above the Class GA standard of 2 ppb in unfiltered samples from on-site well MW-7S (6 ppb) and off-site well MW-16S (4.1 ppb). Mercury was not detected in the corresponding filtered samples from these wells. Zinc was detected in five unfiltered samples above the Class GA standard, with the highest zinc concentration at MW-7S (1540 ppb). Zinc was also detected in the unfiltered sample from off-site well MW-16S (595 ppm). The corresponding filtered samples all had zinc concentrations below the Class GA standard of 300 ppb. Cyanide was detected above the Class GA standard of 100 ppb in the unfiltered sample collected from MW-7S (267 ppb).

SECTION 4 - CONCLUSIONS

The completion of site investigations has resulted in the following conclusions:

1. Site geology is characterized by unconsolidated fill, silty sand, lacustrine clay, and alluvium overlying a clayey glacial till deposit. These unconsolidated deposits overlie dolostone bedrock. The fill material was differentiated as either shot rock fill or miscellaneous waste fill.

2. Shallow unconfined ground water was present beneath the site at depths ranging from less than 1 foot to about 17 feet below grade. Shallow ground water movement was to the south towards the Niagara River at a velocity estimated to be 0.72 ft/day.

3. Bedrock ground water movement is to the west-northwest under a hydraulic gradient which became steeper on the western portion of the site in response to increased surface water and ground water discharge into the NYPA water intake conduits and the Falls Street tunnel.

4. Thirty-four surface soil samples were collected as part of this site investigation. No polynuclear aromatic hydrocarbons were detected above typical Niagara Falls area background levels. Hexachloro-benzene and several pesticide compounds were detected slightly above background in several samples from the western portion of the site. Dibenzofuran was detected in surface soils in the northwest corner of the site exclusively, at low concentrations. Seven metals were detected above typical background concentrations in several samples. EPTOX

and TCLP analyses performed on a select sample which had lead concentrations above background indicated this sample is not a hazardous waste with respect to lead.

5. Soil boring sample analyses from the 10-acre portion of site indicated no volatile organic constituents at concentrations above 0.006 ppm. EPTOX and TCLP analyses performed on a select sample which had lead concentrations above background indicated this sample is not hazardous waste with respect to lead.

6. Shot rock fill encountered in the soil borings completed on the 15.8 acre portion of the site contained volatile organic compound concentrations of 0.025 ppm or less. Semivolatile compounds were detected in shot rock at concentrations of 4.2 ppm or less, with the exception of SB-28 (2 to 5 ft). No PCBs were detected in the shot rock fill. Several pesticide compounds were detected at low concentrations of 0.037 ppm and less, with the exception of SB-29 (4 to 7 ft) which contained beta-BHC (2.2 ppm). Cyanide was detected exclusively in SB-29 (4 to 7 ft), located in the northwest corner of the site, at a concentration of 3.8 ppm. Nine metals were detected above typical background concentrations in several samples. EPTOX and TCLP analyses performed on three select sample which had lead and chromium concentrations above background indicated these samples are not hazardous waste with respect to lead and chromium.

7. Shot rock fill was encountered in off-site soil boring SB-40 (2 to 5 ft), and exhibited similar chemical characteristics to the on-site shot rock

fill with the following exceptions. Tetrachloroethene was the only volatile organic detected in SB-40 (2 to 4 ft) at a concentration of 1.1 ppm. Chlorinated hydrocarbon compounds detected in SB-40 include 1,4-dichlorobenzene (0.049 ppm), hexachloroethane (0.31 ppm), 1,2,4-trichlorobenzene (3.5 ppm), hexachlorobutadiene (14 ppm), and hexachlorobenzene (18 ppm). SB-40 contained higher concentrations of pesticides such as beta-BHC (0.034 ppm), aldrin (0.52 ppm), heptachlor epoxide (1.4 ppm), endosulfan I (0.42 ppm), 4,4-DDD (2.7 ppm), and 4,4-DDT (2.2 ppm). The pesticide compounds detected in SB-40 are above background concentrations.

8. Miscellaneous waste fill encountered in soil borings completed on the 15.8-acre portion of the site contained volatile organic compound concentrations of 0.034 ppm or less. Semivolatile compounds were detected in miscellaneous waste at low concentrations, with few exceptions. The chlorinated hydrocarbon compounds were detected at a concentration of 0.71 ppm and less. PAH concentrations were generally at background levels with the exception of SB-15 (8 to 16 ft) and SB-33 (4 to 7 ft). Phenol was detected exclusively in SB-30 (11.5 to 12 ft) at a concentration of 4.7 ppm, which is above typical background levels. The PCB Aroclor-1242 was detected in the miscellaneous waste fill exclusively at SB-27 (5 to 13.5 ft) at a concentration of 2.2 ppm. This soil boring was on the west-central edge of the site and was the only sample which contained PCBs. Pesticide compounds were detected at low concentrations of 0.095 ppm

and less, with the exception of SB-28 (5 to 11 ft) which contained beta-BHC (2.9 ppm). Cyanide was detected in four samples at concentrations ranging from 1.16 ppm to 2.4 ppm, and in SB-27 (5 to 13.5 ft) at a concentration of 9.87 ppm. Ten metals were detected above typical background concentrations in several samples. EPTOX and TCLP results presented in the preliminary Malcolm Pirnie study indicated that the concentrations of metals in the sample extracts were low in all but the EPTOX extract for lead generated from a soil composite from the northwest corner of the site, which exceeded the 5 ppm level for a characteristic hazardous waste. The EPTOX and TCLP organic parameters were essentially non-detectable in the EPTOX and TCLP extracts, respectively, which indicates these samples are not hazardous waste. As part of this investigation, EPTOX and TCLP analyses were performed on eleven select samples which had lead, chromium, and mercury concentrations above background. Results from these EPTOX and TCLP analyses indicated these samples are not hazardous waste with respect to lead, chromium, and mercury, with the exception of SB-33 (4 to 7 ft) which contained an EPTOX lead concentration of 39.1 ppm. To evaluate the discrepancy between EPTOX and TCLP analyses from SB-33, five additional soil samples were collected and analyzed for total lead, EPTOX lead, and TCLP lead. The values obtained from the EPTOX and TCLP analyses were considerably lower than the maximum allowable limit of 5 ppm for lead, which indicates these soils are not hazardous waste.

9. Miscellaneous waste fill was encountered in the three off-site soil borings and exhibited similar chemical characteristics to the on-site miscellaneous waste fill with the following exceptions. SB-40 (5 to 12 ft) contained higher levels of the chlorinated hydrocarbons 1,2,4-trichlorobenzene (3.4 ppm), hexachlorobutadiene (1.6 ppm), and hexachlorobenzene (1.9 ppm).

10. Ground water analyses indicate MW-7S contained the volatile organic constituents chlorobenzene and benzene exceeding the Class GA ground water standards during the first sampling round exclusively. Benzene was the only volatile organic detected which exceeded a Class GA standard during the second sampling event. Semivolatile organic compounds detected above the Class GA standards include 1,3-dichlorobenzene and 1,4-dichlorobenzene, which were both detected at a concentration of 6 ppb in MW-7S. These chlorobenzene compounds were detected in adjacent soil boring samples and have likely affected the ground water chemistry in MW-7S. Pesticides were detected above the Class GA standards in four wells during the first sampling round. During the second sampling event, only MW-7S and off-site well MW-16S contained pesticides above the Class GA standards. These pesticide compounds were also detected above background levels in subsurface soils collected in close proximity to MW-7S and MW-16S. The pesticides in the fill materials have likely affected the ground water chemistry in these wells. Antimony was detected in MW-7S at levels above the Class GA guidance value of 3

ppb in both the unfiltered and filtered samples. Manganese was detected in several wells at concentrations above the Class GA Standard (300 ppb) in unfiltered samples, but the only filtered samples in exceedance were MW-7S (415 ppb and 386 ppb) and off-site well MW-16S (552 ppb). Iron, magnesium, and sodium exhibited concentrations in exceedance of the Class GA standards and guidance values in both unfiltered and filtered samples. These metals are likely characteristic of the background ground water chemistry and are not likely affected by the chemistry of the on-site fill materials. Chromium, mercury, lead, and zinc exceeded Class GA standards in unfiltered samples, however, corresponding filtered samples were less than the Class GA standards in all cases. Because sediment/ground water interactions have the ability to dominate the ground water chemistry, the filtered ground water samples are more likely to provide representative results of metals in solution. Cyanide was detected above the Class GA standard of 100 ppb only in the unfiltered sample from MW-7S (267 ppb). The cyanide detected in SB-27 (5 to 13.5 ft) has likely affected the ground water chemistry in this well.

11. The O'Brien & Gere site investigation results presented herein confirm the preliminary Malcolm Pirnie investigation results and are consistent with the validated Dames & Moore Phase II Investigation results. Based on the information collected, the 10-acre portion of the site appears to be environmentally suitable for construction of the new Water Treatment Plant, with no evidence of surface contamination

which may affect construction activities. The remaining 15.8-acre portion of the site does not contain hazardous waste, as defined by 40 CFR Part 261. The majority of the 15.8-acre site contains surface soil, subsurface soil, and ground water which do not contravene background levels or existing standards. However, a portion of the 15.8-acre site in the vicinity of MW-7S contains fill materials which contain constituents above typical background levels. The ground water from MW-7S exceeded several Class GA standards and guidance values.

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TABLE 1

SURFACE SOIL SAMPLE DESCRIPTIONS
BUFFALO AVENUE SITE INVESTIGATION
NIAGARA FALLS, NEW YORK

SAMPLE #	BLOWS	PENETR/ RECOVERY	DESCRIPTION
SS-1	8-15-17-14	2'/2'	Dry, red-brown, very fine to fine sand, some med. dark dolomitic grvl., little silt
SS-2	11-16-12-12	2'/2'	SAME AS ABOVE
SS-3	8-9-6-6	2'/2'	Dry, red-brown to olive green, v.f.sand and silt, little clay, little med. gvl.
SS-4	8-7-7-9	2'/2'	Dry, red-brown, very fine sand and silt, some clay, little fine gvl.
SS-5	8-9-7-9	2'/1.5'	SAME AS ABOVE
SS-6	10-11-13-11	2'/2'	Dry, red-brown, very fine to fine sand, some med. dark dolomitic grvl., little silt
SS-7	8-7-7-6	2'/1'	Dry, yellow-orange to red-brown fine sand, little med. gvl., trace slag.
SS-8	4-4-6-7	2'/2'	Dry, red-brown to olive green, v.f.sand and silt, little clay, little med. gvl.
SS-9	5-6-7-5	2'/1'	Dry, red-brown, very fine sand and silt, some clay, little fine gvl.
SS-10	3-3-7-6	2'/1'	Dry, brown, fine sand, some v.f. sand, trace brick and fine gvl.,trace organics.
SS-11	1-1-2-1	2'/1'	Dry, brown and orange fine sand, some very fine sand, little silt.
SS-12	8-11-10-14	2'/2'	Dry, brown and yellow-orange to gold fine sand, some very fine sand, little silt, trace clay
SS-13	9-16-20-22	2'/1'	Dry, brown and orange fine sand, some very fine sand, little silt.
SS-14	6-6-4-5	2'/2'	Dry, brown and yellow-orange fine sand, some very fine sand, little silt, trace clay
SS-19	3-3-4-3	2'/2'	Dry, yellow-brown to brown, very fine to fine sand some silt, trace clay
SS-20	11-13-16-22	2'/1'	Dry, red-brown very fine sand, some silt,little med. dark dolomitic angular gvl.
SS-21	15-15-19-12	2'/2'	Dry, red-brown very fine to fine sand some silt, little clay, little med. dolomitic gvl.
SS-22	10-15-19-14	2'/2'	Dry, red-brown very fine to fine sand some silt, little med. dolomitic gvl., trace clay
SS-23	4-7-11-13	2'/2'	Dry, red-brown very fine to fine sand some silt, little med. dolomitic gvl., trace clay
SS-24	9-11-14-13	2'/2'	Dry, red-brown very fine to fine sand some silt, little med. dolomitic gvl., trace clay
SS-25	5-5-6-7	2'/1.5'	Dry, red-brown very fine to fine sand some silt, little clay, little med. dolomitic gvl.
SS-26	8-7-9-12	2'/1'	Dry, red-brown very fine to fine sand some silt, little clay, little fine to med. dolomitic gvl.
SS-27	7-7-6-6	2'/1.5'	Dry, red-brown very fine to fine sand some silt, little clay, little med. dolomitic gvl.
SS-28	6-8-7-9	2'/1'	Dry, red-brown very fine to fine sand some silt, some clay, little med. dolomitic gvl.
SS-29	8-6-7-8	2'/0.8'	Dry, red-brown very fine to fine sand some silt, little med. dolomitic gvl., trace clay
SS-30	11-13-13-16	2'/1.8'	Dry, red-brown very fine to fine sand, little coarse sand, some silt, some clay, little med. dolomitic gvl.
SS-31	12-12-12-15	2'/0.8'	Dry, red-brown very fine to fine sand some silt, little clay, little fine to med. dolomitic gvl.
SS-32	11-8-7-8	2'/2'	Dry, red-brown, silty clay, (laminated), little very fine sand, trace med gvl.
SS-33	3-3-3-4	2'/2'	Dry, red-brown, silty clay, (laminated), little very fine sand, trace fine gvl.
SS-34	8-9-9-11	2'/1'	Dry, red-brown, very fine sand, some silt and fine sand, little clay, little fine to med. gvl.

DRT:bdm/H35

TABLE 2
NIAGARA FALLS
SURFACE SOIL
SEMIVOLATILE ANALYSES

	SS-1		SS-2		SS-3		SS-4		SS-5		SS-6		SS-7		SS-7DL		SS-8		BL DUP SS-8	
Phenol	0.71	R	0.72	U	0.75	U	0.71	U	0.71	U	0.68	U	0.69	U	1.4	U	0.74	U	0.72	U
bis(2-Chloroethyl)ether	0.71	R	0.72	U	0.75	U	0.71	U	0.71	U	0.68	U	0.69	U	1.4	U	0.74	U	0.72	U
2-Chlorophenol	0.71	R	0.72	U	0.75	U	0.71	U	0.71	U	0.68	U	0.69	U	1.4	U	0.74	U	0.72	U
1,3-Dichlorobenzene	0.71	R	0.72	U	0.75	U	0.71	U	0.71	U	0.68	U	0.69	U	1.4	U	0.74	U	0.72	U
1,4-Dichlorobenzene	0.71	R	0.72	U	0.75	U	0.71	U	0.71	U	0.68	U	0.69	U	1.4	U	0.74	U	0.72	U
Benzyl alcohol	0.71	R	0.72	U	0.75	U	0.71	U	0.71	U	0.68	U	0.69	U	1.4	U	0.74	U	0.72	U
1,2-Dichlorobenzene	0.71	R	0.72	U	0.75	U	0.71	U	0.71	U	0.68	U	0.69	U	1.4	U	0.74	U	0.72	U
2-Methylphenol	0.71	R	0.72	U	0.75	U	0.71	U	0.71	U	0.68	U	0.69	U	1.4	U	0.74	U	0.72	U
bis(2-Chloroisopropyl)ether	0.71	R	0.72	U	0.75	U	0.71	U	0.71	U	0.68	U	0.69	U	1.4	U	0.74	U	0.72	U
4-Methylphenol	0.71	R	0.72	U	0.75	U	0.71	U	0.71	U	0.68	U	0.69	U	1.4	U	0.74	U	0.72	U
N-Nitroso-di-n-propylamine	0.71	R	0.72	U	0.75	U	0.71	U	0.71	U	0.68	U	0.69	U	1.4	U	0.74	U	0.72	U
Hexachloroethane	0.71	R	0.72	U	0.75	U	0.71	U	0.71	U	0.68	U	0.69	U	1.4	U	0.74	U	0.72	U
Nitrobenzene	0.71	R	0.72	U	0.75	U	0.71	U	0.71	U	0.68	U	0.69	U	1.4	U	0.74	U	0.72	U
Isophorone	0.71	R	0.72	U	0.75	U	0.71	U	0.71	U	0.68	U	0.69	U	1.4	U	0.74	U	0.72	U
2-Nitrophenol	0.71	R	0.72	U	0.75	U	0.71	U	0.71	U	0.68	U	0.69	U	1.4	U	0.74	U	0.72	U
2,4-Dimethylphenol	0.71	R	0.72	U	0.75	U	0.71	U	0.71	U	0.68	U	0.69	U	1.4	U	0.74	U	0.72	U
Benzoic Acid	3.5	R	3.5	U	3.7	U	3.5	U	3.5	U	3.3	U	3.3	U	6.7	U	3.6	U	3.5	U
bis(2-Chloroethoxy)methane	0.71	R	0.72	U	0.75	U	0.71	U	0.71	U	0.68	U	0.69	U	1.4	U	0.74	U	0.72	U
2,4-Dichlorophenol	0.71	R	0.72	U	0.75	U	0.71	U	0.71	U	0.68	U	0.69	U	1.4	U	0.74	U	0.72	U
1,2,4-Trichlorobenzene	0.71	R	0.72	U	0.75	U	0.71	U	0.71	U	0.68	U	0.69	U	1.4	U	0.74	U	0.72	U
Naphthalene	0.71	R	0.72	U	0.75	U	0.71	U	0.71	U	0.68	U	0.69	U	1.4	U	0.74	U	0.72	U
4-Chloroaniline	0.71	R	0.72	U	0.75	U	0.71	U	0.71	U	0.68	U	0.69	U	1.4	U	0.74	U	0.72	U
Hexachlorobutadiene	0.71	R	0.72	U	0.75	U	0.71	U	0.71	U	0.68	U	0.69	U	1.4	U	0.74	U	0.72	U
4-Chloro-3-methylphenol	0.71	R	0.72	U	0.75	U	0.71	U	0.71	U	0.68	U	0.69	U	1.4	U	0.74	U	0.72	U
2-methylnaphthalene	0.71	R	0.72	U	0.75	U	0.71	U	0.71	U	0.68	U	0.69	U	1.4	U	0.74	U	0.72	U
Hexachlorocyclopentadiene	0.71	R	0.72	U	0.75	U	0.71	U	0.71	U	0.68	U	0.69	U	1.4	U	0.74	U	0.72	U
2,4,6-Trichlorophenol	0.71	R	0.72	U	0.75	U	0.71	U	0.71	U	0.68	U	0.69	U	1.4	U	0.74	U	0.72	U
2,4,5-Trichlorophenol	3.5	R	3.5	U	3.7	U	3.5	U	3.5	U	3.3	U	3.3	U	6.7	U	3.6	U	3.5	U
2-Chloronaphthalene	0.71	R	0.72	U	0.75	U	0.71	U	0.71	U	0.68	U	0.69	U	1.4	U	0.74	U	0.72	U

NOTES: All values reported in mg/kg (ppm).
U – Compound was analyzed but not detected.
J – Indicates an estimated value (GC/MS only).
B – Analyte was found in the associated blank as well as in the sample.
D – Identifies all compounds identified in an analysis at a secondary dilution factor.
E – Identifies compounds whose concentrations exceed the calibration range of the GC/MS instrument for that specific analysis.
DL – Sample extract diluted per method requirements.

TABLE 2
NIAGARA FALLS
SURFACE SOIL
SEMIVOLATILE ANALYSES

	SS-1	SS-2	SS-3	SS-4	SS-5	SS-6	SS-7	SS-7DL	SS-8	BL DUP SS-8
2-Nitroaniline	3.5 R	3.5 U	3.7 U	3.5 U	3.5 U	3.3 U	3.3 U	6.7 U	3.6 U	3.5 U
Dimethylphthalate	0.71 R	0.72 U	0.75 U	0.71 U	0.71 U	0.68 U	0.69 U	1.4 U	0.74 U	0.72 U
Acenaphthylene	0.71 R	0.72 U	0.75 U	0.71 U	0.71 U	0.68 U	0.69 U	1.4 U	0.74 U	0.72 U
2,6-Dinitrotoluene	0.71 R	0.72 U	0.75 U	0.71 U	0.71 U	0.68 U	0.69 U	1.4 U	0.74 U	0.72 U
3-Nitroaniline	3.5 R	3.5 U	3.7 U	3.5 U	3.5 U	3.3 U	3.3 U	6.7 U	3.6 U	3.5 U
Acenaphthene	0.71 R	0.72 U	0.093 J	0.71 U	0.71 U	0.68 U	0.69 U	1.4 U	0.74 U	0.72 U
2,4-Dinitrophenol	3.5 R	3.5 U	3.7 U	3.5 U	3.5 U	3.3 U	3.3 U	6.7 U	3.6 U	3.5 U
4-Nitrophenol	3.5 R	3.5 U	3.7 U	3.5 U	3.5 U	3.3 U	3.3 U	6.7 U	3.6 U	3.5 U
Dibenzofuran	0.71 R	0.72 U	0.75 U	0.71 U	0.71 U	0.68 U	0.69 U	1.4 U	0.74 U	0.72 U
2,4-Dinitrotoluene	0.71 R	0.72 U	0.75 U	0.71 U	0.71 U	0.68 U	0.69 U	1.4 U	0.74 U	0.72 U
Diethylphthalate	0.71 R	0.72 U	0.75 U	0.71 U	0.71 U	0.68 U	0.69 U	1.4 U	0.74 U	0.72 U
4-Chlorophenyl-phenylether	0.71 R	0.72 U	0.75 U	0.71 U	0.71 U	0.68 U	0.69 U	1.4 U	0.74 U	0.72 U
Fluorene	0.71 R	0.72 U	0.75 U	0.71 U	0.71 U	0.68 U	0.69 U	1.4 U	0.74 U	0.72 U
4-Nitroaniline	3.5 R	3.5 U	3.7 U	3.5 U	3.5 U	3.3 U	3.3 U	6.7 U	3.6 U	3.5 U
4,6-Dinitro-2-methylphenol	3.5 R	3.5 U	3.7 U	3.5 U	3.5 U	3.3 U	3.3 U	6.7 U	3.6 U	3.5 U
N-Nitrosodiphenylamine(1)	0.71 R	0.72 U	0.75 U	0.71 U	0.71 U	0.68 U	0.69 U	1.4 U	0.74 U	0.72 U
4-Bromophenyl-phenylether	0.71 R	0.72 U	0.75 U	0.71 U	0.71 U	0.68 U	0.69 U	1.4 U	0.74 U	0.72 U
Hexachlorobenzene	0.71 R	0.72 U	0.75 U	0.71 U	0.71 U	0.68 U	0.69 U	1.4 U	0.74 U	0.72 U
Pentachlorophenol	3.5 R	3.5 U	3.7 U	3.5 U	3.5 U	3.3 U	3.3 U	6.7 U	3.6 U	3.5 U
Phenanthrene	0.71 R	0.72 U	0.46 J	0.71 U	0.059 J	0.68 U	0.69 U	1.4 U	0.44 J	0.045 J
Anthracene	0.71 R	0.72 U	0.1 J	0.71 U	0.71 U	0.68 U	0.69 U	1.4 U	0.088 J	0.72 U
Di-n-butylphthalate	2 R	6.4 U	4.8 U	4.9 U	3.4 U	1 U	1.4 U	1.4 U	5 U	4.6 U
Fluoranthene	0.71 R	0.72 U	0.72 J	0.71 U	0.71 U	0.68 U	0.69 U	1.4 U	0.85	0.08 J
Pyrene	0.71 R	0.72 U	0.92	0.71 U	0.099 J	0.68 U	0.69 U	1.4 U	0.76 J	0.086 J
Butylbenzylphthalate	0.71 R	0.41 J	0.73 J	3.5	4.3	2	2.7	2.3	2.9	0.72 U
3,3-Dichlorobenzidine	1.4 R	1.4 U	1.5 U	1.4 U	1.4 U	1.4 U	1.4 U	2.8 U	1.5 U	1.4 U
Benzo(a)anthracene	0.71 R	0.72 U	0.72 J	0.71 U	0.71 U	0.68 U	0.69 U	1.4 U	0.42 J	0.06 J
Chrysene	0.71 R	0.72 U	0.64 J	0.71 U	0.71 U	0.68 U	0.69 U	1.4 U	0.35 J	0.72 U
bis(2-Ethylhexyl)phthalate	0.096 J	5.4	2	5.7	0.85	1.6	12 J	8.5	0.74 J	0.88
Di-n-octylphthalate	0.71 R	0.72 U	0.75 U	0.71 U	0.71 U	0.68 U	0.69 U	1.4 U	0.74 U	0.72 U
Benzo(b)fluoranthene	0.71 R	0.72 U	0.94	0.71 U	0.14 J	0.68 U	0.69 U	1.4 U	0.41 J	0.072 J
Benzo(k)fluoranthene	0.71 R	0.72 U	0.36 J	0.71 U	0.71 U	0.68 U	0.69 U	1.4 U	0.25 J	0.039 J
Benzo(a)pyrene	0.71 R	0.72 U	0.74 J	0.71 U	0.71 U	0.68 U	0.69 U	1.4 U	0.36 J	0.043 J
Indeno(1,2,3-cd)pyrene	0.71 R	0.72 U	0.4 J	0.71 U	0.71 U	0.68 U	0.69 U	1.4 U	0.74 U	0.72 U
Dibenz(a,h)anthracene	0.71 R	0.72 U	0.75 U	0.71 U	0.71 U	0.68 U	0.69 U	1.4 U	0.74 U	0.72 U
Benzo(g,h,i)perylene	0.71 R	0.72 U	0.33 J	0.71 U	0.71 U	0.68 U	0.69 U	1.4 U	0.32 J	0.72 U

TABLE 2
NIAGARA FALLS
SURFACE SOIL
SEMIVOLATILE ANALYSES

	SS-9		SS-10		SS-11		SS-12		SS-13		SS-14		SS-19		BL DUP SS-19		SS-20		SS-21	
Phenol	0.7	U	0.78	U	0.79	U	0.81	U	0.7	U	0.89	U	0.82	U	0.87	U	0.81	U	0.72	U
bis(2-Chloroethyl)ether	0.7	U	0.78	U	0.79	U	0.81	U	0.7	U	0.89	U	0.82	U	0.87	U	0.81	U	0.72	U
2-Chlorophenol	0.7	U	0.78	U	0.79	U	0.81	U	0.7	U	0.89	U	0.82	U	0.87	U	0.81	U	0.72	U
1,3-Dichlorobenzene	0.7	U	0.78	U	0.79	U	0.81	U	0.7	U	0.89	U	0.82	U	0.87	U	0.81	U	0.72	U
1,4-Dichlorobenzene	0.7	U	0.78	U	0.79	U	0.81	U	0.7	U	0.89	U	0.82	U	0.87	U	0.81	U	0.72	U
Benzyl alcohol	0.7	U	0.78	U	0.79	U	0.81	U	0.7	U	0.89	U	0.82	U	0.87	U	0.81	U	0.72	U
1,2-Dichlorobenzene	0.7	U	0.78	U	0.79	U	0.81	U	0.7	U	0.89	U	0.82	U	0.87	U	0.81	U	0.72	U
2-Methylphenol	0.7	U	0.78	U	0.79	U	0.81	U	0.7	U	0.89	U	0.82	U	0.87	U	0.81	U	0.72	U
bis(2-Chloroisopropyl)ether	0.7	U	0.78	U	0.79	U	0.81	U	0.7	U	0.89	U	0.82	U	0.87	U	0.81	U	0.72	U
4-Methylphenol	0.7	U	0.78	U	0.79	U	0.81	U	0.7	U	0.89	U	0.82	U	0.87	U	0.81	U	0.72	U
N-Nitroso-di-n-propylamine	0.7	U	0.78	U	0.79	U	0.81	U	0.7	U	0.89	U	0.82	U	0.87	U	0.81	U	0.72	U
Hexachloroethane	0.7	U	0.78	U	0.79	U	0.81	U	0.7	U	0.89	U	0.82	U	0.87	U	0.81	U	0.72	U
Nitrobenzene	0.7	U	0.78	U	0.79	U	0.81	U	0.7	U	0.89	U	0.82	U	0.87	U	0.81	U	0.72	U
Isophorone	0.7	U	0.78	U	0.79	U	0.81	U	0.7	U	0.89	U	0.82	U	0.87	U	0.81	U	0.72	U
2-Nitrophenol	0.7	U	0.78	U	0.79	U	0.81	U	0.7	U	0.89	U	0.82	U	0.87	U	0.81	U	0.72	U
2,4-Dimethylphenol	0.7	U	0.78	U	0.79	U	0.81	U	0.7	U	0.89	U	0.82	U	0.87	U	0.81	U	0.72	U
Benzoic Acid	3.4	U	3.8	U	3.8	U	3.9	U	3.4	U	4.3	U	4	U	4.2	U	4	U	3.5	U
bis(2-Chloroethoxy)methane	0.7	U	0.78	U	0.79	U	0.81	U	0.7	U	0.89	U	0.82	U	0.87	U	0.81	U	0.72	U
2,4-Dichlorophenol	0.7	U	0.78	U	0.79	U	0.81	U	0.7	U	0.89	U	0.82	U	0.87	U	0.81	U	0.72	U
1,2,4-Trichlorobenzene	0.7	U	0.78	U	0.79	U	0.81	U	0.7	U	0.89	U	0.82	U	0.87	U	0.81	U	0.72	U
Naphthalene	0.7	U	0.031	J	0.79	U	0.81	U	0.7	U	0.044	J	0.82	U	0.87	U	0.12	J	0.72	U
4-Chloroaniline	0.7	U	0.78	U	0.79	U	0.81	U	0.7	U	0.89	U	0.82	U	0.87	U	0.81	U	0.72	U
Hexachlorobutadiene	0.7	U	0.78	U	0.79	U	0.81	U	0.7	U	0.89	U	0.82	U	0.87	U	0.81	U	0.72	U
4-Chloro-3-methylphenol	0.7	U	0.78	U	0.79	U	0.81	U	0.7	U	0.89	U	0.82	U	0.87	U	0.81	U	0.72	U
2-methylnaphthalene	0.7	U	0.018	J	0.79	U	0.81	U	0.024	J	0.041	J	0.82	U	0.87	U	0.12	J	0.024	J
Hexachlorocyclopentadiene	0.7	U	0.78	U	0.79	U	0.81	U	0.7	U	0.89	U	0.82	U	0.87	U	0.81	U	0.72	U
2,4,6-Trichlorophenol	0.7	U	0.78	U	0.79	U	0.81	U	0.7	U	0.89	U	0.82	U	0.87	U	0.81	U	0.72	U
2,4,5-Trichlorophenol	3.4	U	3.8	U	3.8	U	3.9	U	3.4	U	4.3	U	4	U	4.2	U	4	U	3.5	U
2-Chloronaphthalene	0.7	U	0.78	U	0.79	U	0.81	U	0.7	U	0.89	U	0.82	U	0.87	U	0.81	U	0.72	U

TABLE 2
NIAGARA FALLS
SURFACE SOIL
SEMIVOLATILE ANALYSES

	SS-9	SS-10	SS-11	SS-12	SS-13	SS-14	SS-19	BL DUP SS-19	SS-20	SS-21
2-Nitroaniline	3.4 U	3.8 U	3.8 U	3.9 U	3.4 U	4.3 U	4 U	4.2 U	4 U	3.5 U
Dimethylphthalate	0.7 U	0.78 U	0.79 U	0.81 U	0.7 U	0.89 U	0.82 U	0.87 U	0.81 U	0.72 U
Acenaphthylene	0.7 U	0.78 U	0.79 U	0.81 U	0.7 U	0.89 U	0.82 U	0.87 U	0.81 U	0.72 U
2,6-Dinitrotoluene	0.7 U	0.78 U	0.79 U	0.81 U	0.7 U	0.89 U	0.82 U	0.87 U	0.81 U	0.72 U
3-Nitroaniline	3.4 U	3.8 U	3.8 U	3.9 U	3.4 U	4.3 U	4 U	4.2 U	4 U	3.5 U
Acenaphthene	0.7 U	0.045 J	0.79 U	0.81 U	0.054 J	0.89 U	0.82 U	0.87 U	0.077 J	0.72 U
2,4-Dinitrophenol	3.4 U	3.8 U	3.8 U	3.9 U	3.4 U	4.3 U	4 U	4.2 U	4 U	3.5 U
4-Nitrophenol	3.4 U	3.8 U	3.8 U	3.9 U	3.4 U	4.3 U	4 U	4.2 U	4 U	3.5 U
Dibenzofuran	0.7 U	0.031 J	0.79 U	0.81 U	0.023 J	0.018 J	0.82 U	0.87 U	0.065 J	0.022 J
2,4-Dinitrotoluene	0.7 U	0.78 U	0.79 U	0.81 U	0.7 U	0.89 U	0.82 U	0.87 U	0.81 U	0.72 U
Diethylphthalate	0.7 U	0.78 U	0.79 U	0.81 U	0.7 U	0.89 U	0.82 U	0.87 U	0.81 U	0.72 U
4-Chlorophenyl-phenylether	0.7 U	0.78 U	0.79 U	0.81 U	0.7 U	0.89 U	0.82 U	0.87 U	0.81 U	0.72 U
Fluorene	0.7 U	0.038 J	0.79 U	0.81 U	0.025 J	0.89 U	0.82 U	0.87 U	0.81 U	0.72 U
4-Nitroaniline	3.4 U	3.8 U	3.8 U	3.9 U	3.4 U	4.3 U	4 U	4.2 U	4 U	3.5 U
4,6-Dinitro-2-methylphenol	3.4 U	3.8 U	3.8 U	3.9 U	3.4 U	4.3 U	4 U	4.2 U	4 U	3.5 U
N-Nitrosodiphenylamine(1)	0.7 U	0.78 U	0.79 U	0.81 U	0.7 U	0.89 U	0.82 U	0.87 U	0.81 U	0.72 U
4-Bromophenyl-phenylether	0.7 U	0.78 U	0.79 U	0.81 U	0.7 U	0.89 U	0.82 U	0.87 U	0.81 U	0.72 U
Hexachlorobenzene	0.096 J	0.057 J	0.79 U	0.14 J	0.15 J	0.094 J	0.82 U	0.87 U	0.21 J	0.085 J
Pentachlorophenol	3.4 U	3.8 U	3.8 U	3.9 U	3.4 U	4.3 U	4 U	4.2 U	4 U	3.5 U
Phenanthrene	0.7 U	0.52 J	0.79 U	0.096 J	0.3 J	0.22 J	0.077 J	0.27 J	0.93	0.37 J
Anthracene	0.7 U	0.086 J	0.79 U	0.81 U	0.047 J	0.031 J	0.82 U	0.87 U	0.2 J	0.071 J
Di-n-butylphthalate	3.7 B	4.1 U	3 U	6.9 U	3.4 U	3.5 U	0.82 U	0.87 U	0.3 J	0.094 J
Fluoranthene	0.7 U	0.71 J	0.79 U	0.16 J	0.44 J	0.33 J	0.82 U	0.41 J	1.5	0.52 J
Pyrene	0.7 U	0.66 J	0.79 U	0.17 J	0.44 J	0.35 J	0.82 U	0.87 J	1.4	0.45 J
Butylbenzylphthalate	1.1	0.24 J	0.79 U	0.048 J	0.065 J	0.11 J	0.82 U	0.87 U	0.81 U	0.72 U
3,3-Dichlorobenzidine	1.4 U	1.6 U	1.6 U	1.6 U	1.4 U	1.8 U	1.6 U	1.7 U	1.6 U	1.4 U
Benzo(a)anthracene	0.7 U	0.43 J	0.79 U	0.094 J	0.27 J	0.27 J	0.82 U	0.2 J	0.92	0.28 J
Chrysene	0.7 U	0.42 J	0.79 U	0.81 U	0.29 J	0.31 J	0.82 U	0.3 J	0.98	0.32 J
bis(2-Ethylhexyl)phthalate	0.87	0.38 J	2	0.44 J	9.3	0.33 J	2.1	2.2	4	0.38 J
Di-n-octylphthalate	0.7 U	0.78 U	0.79 U	0.81 U	0.7 U	0.89 U	0.82 U	0.87 U	0.81 U	0.72 U
Benzo(b)fluoranthene	0.7 U	0.53 J	0.79 U	0.17 J	0.43 J	0.44 J	0.079 J	0.32 J	1.2	0.45 J
Benzo(k)fluoranthene	0.7 U	0.23 J	0.79 U	0.055 J	0.2 J	0.16 J	0.82 U	0.13 J	0.59 J	0.18 J
Benzo(a)pyrene	0.7 U	0.35 J	0.79 U	0.81 U	0.3 J	0.34 J	0.82 U	0.18 J	0.67 J	0.24 J
Indeno(1,2,3-cd)pyrene	0.7 U	0.19 J	0.79 U	0.81 U	0.21 J	0.19 J	0.82 U	0.12 J	0.42 J	0.12 J
Dibenz(a,h)anthracene	0.7 U	0.042 J	0.79 U	0.81 U	0.7 U	0.12 J	0.82 U	0.87 U	0.094 J	0.72 U
Benzo(g,h,i)perylene	0.7 U	0.18 J	0.79 U	0.81 U	0.19 J	0.27 J	0.82 U	0.1 J	0.33 J	0.098 J

TABLE 2
NIAGARA FALLS
SURFACE SOIL
SEMIVOLATILE ANALYSES

	SS-22	SS-23	SS-24	SS-25	SS-26	SS-27	SS-28	SS-29	SS-30	SS-31
Phenol	0.7 U	0.73 U	0.72 U	0.69 U	0.7 U	0.71 U	0.76 U	0.76 U	0.72 U	0.74 U
bis(2-Chloroethyl)ether	0.7 U	0.73 U	0.72 U	0.69 U	0.7 U	0.71 U	0.76 U	0.76 U	0.72 U	0.74 U
2-Chlorophenol	0.7 U	0.73 U	0.72 U	0.69 U	0.7 U	0.71 U	0.76 U	0.76 U	0.72 U	0.74 U
1,3-Dichlorobenzene	0.7 U	0.73 U	0.72 U	0.69 U	0.7 U	0.71 U	0.76 U	0.76 U	0.72 U	0.74 U
1,4-Dichlorobenzene	0.7 U	0.73 U	0.72 U	0.69 U	0.7 U	0.71 U	0.76 U	0.76 U	0.72 U	0.74 U
Benzyl alcohol	0.7 U	0.73 U	0.72 U	0.69 U	0.7 U	0.71 U	0.76 U	0.76 U	0.72 U	0.74 U
1,2-Dichlorobenzene	0.7 U	0.73 U	0.72 U	0.69 U	0.7 U	0.71 U	0.76 U	0.76 U	0.72 U	0.74 U
2-Methylphenol	0.7 U	0.73 U	0.72 U	0.69 U	0.7 U	0.71 U	0.76 U	0.76 U	0.72 U	0.74 U
bis(2-Chloroisopropyl)ether	0.7 U	0.73 U	0.72 U	0.69 U	0.7 U	0.71 U	0.76 U	0.76 U	0.72 U	0.74 U
4-Methylphenol	0.7 U	0.73 U	0.72 U	0.69 U	0.7 U	0.71 U	0.76 U	0.76 U	0.72 U	0.74 U
N-Nitroso-di-n-propylamine	0.7 U	0.73 U	0.72 U	0.69 U	0.7 U	0.71 U	0.76 U	0.76 U	0.72 U	0.74 U
Hexachloroethane	0.7 U	0.73 U	0.72 U	0.69 U	0.7 U	0.71 U	0.76 U	0.76 U	0.72 U	0.74 U
Nitrobenzene	0.7 U	0.73 U	0.72 U	0.69 U	0.7 U	0.71 U	0.76 U	0.76 U	0.72 U	0.74 U
Isophorone	0.7 U	0.73 U	0.72 U	0.69 U	0.7 U	0.71 U	0.76 U	0.76 U	0.72 U	0.74 U
2-Nitrophenol	0.7 U	0.73 U	0.72 U	0.69 U	0.7 U	0.71 U	0.76 U	0.76 U	0.72 U	0.74 U
2,4-Dimethylphenol	0.7 U	0.73 U	0.72 U	0.69 U	0.7 U	0.71 U	0.76 U	0.76 U	0.72 U	0.74 U
Benzoic Acid	3.4 U	3.5 U	3.5 U	3.4 U	3.4 U	3.5 U	3.7 U	3.7 U	3.5 U	3.6 U
bis(2-Chloroethoxy)methane	0.7 U	0.73 U	0.72 U	0.69 U	0.7 U	0.71 U	0.76 U	0.76 U	0.72 U	0.74 U
2,4-Dichlorophenol	0.7 U	0.73 U	0.72 U	0.69 U	0.7 U	0.71 U	0.76 U	0.76 U	0.72 U	0.74 U
1,2,4-Trichlorobenzene	0.7 U	0.73 U	0.72 U	0.69 U	0.7 U	0.71 U	0.76 U	0.76 U	0.72 U	0.74 U
Naphthalene	0.7 U	0.73 U	0.72 U	0.69 U	0.7 U	0.71 U	0.76 U	0.76 U	0.72 U	0.74 U
4-Chloroaniline	0.7 U	0.73 U	0.72 U	0.69 U	0.7 U	0.71 U	0.76 U	0.76 U	0.72 U	0.74 U
Hexachlorobutadiene	0.7 U	0.73 U	0.72 U	0.69 U	0.7 U	0.71 U	0.76 U	0.76 U	0.72 U	0.74 U
4-Chloro-3-methylphenol	0.7 U	0.73 U	0.72 U	0.69 U	0.7 U	0.71 U	0.76 U	0.76 U	0.72 U	0.74 U
2-methylnaphthalene	0.7 U	0.73 U	0.72 U	0.69 U	0.7 U	0.71 U	0.76 U	0.76 U	0.72 U	0.74 U
Hexachlorocyclopentadiene	0.7 U	0.73 U	0.72 U	0.69 U	0.7 U	0.71 U	0.76 U	0.76 U	0.72 U	0.74 U
2,4,6-Trichlorophenol	0.7 U	0.73 U	0.72 U	0.69 U	0.7 U	0.71 U	0.76 U	0.76 U	0.72 U	0.74 U
2,4,5-Trichlorophenol	3.4 U	3.5 U	3.5 U	3.4 U	3.4 U	3.5 U	3.7 U	3.7 U	3.5 U	3.6 U
2-Chloronaphthalene	0.7 U	0.73 U	0.72 U	0.69 U	0.7 U	0.71 U	0.76 U	0.76 U	0.72 U	0.74 U

TABLE 2
NIAGARA FALLS
SURFACE SOIL
SEMIVOLATILE ANALYSES

	SS-22	SS-23	SS-24	SS-25	SS-26	SS-27	SS-28	SS-29	SS-30	SS-31
2-Nitroaniline	3.4 U	3.5 U	3.5 U	3.4 U	3.4 U	3.5 U	3.7 U	3.7 U	3.5 U	3.6 U
Dimethylphthalate	0.7 U	0.73 U	0.72 U	0.69 U	0.7 U	0.71 U	0.76 U	0.76 U	0.72 U	0.74 U
Acenaphthylene	0.7 U	0.73 U	0.72 U	0.69 U	0.7 U	0.71 U	0.76 U	0.76 U	0.72 U	0.74 U
2,6-Dinitrotoluene	0.7 U	0.73 U	0.72 U	0.69 U	0.7 U	0.71 U	0.76 U	0.76 U	0.72 U	0.74 U
3-Nitroaniline	3.4 U	3.5 U	3.5 U	3.4 U	3.4 U	3.5 U	3.7 U	3.7 U	3.5 U	3.6 U
Acenaphthene	0.7 U	0.73 U	0.72 U	0.69 U	0.7 U	0.71 U	0.76 U	0.76 U	0.72 U	0.74 U
2,4-Dinitrophenol	3.4 U	3.5 U	3.5 U	3.4 U	3.4 U	3.5 U	3.7 U	3.7 U	3.5 U	3.6 U
4-Nitrophenol	3.4 U	3.5 U	3.5 U	3.4 U	3.4 U	3.5 U	3.7 U	3.7 U	3.5 U	3.6 U
Dibenzofuran	0.7 U	0.73 U	0.72 U	0.69 U	0.7 U	0.71 U	0.76 U	0.76 U	0.72 U	0.74 U
2,4-Dinitrotoluene	0.7 U	0.73 U	0.72 U	0.69 U	0.7 U	0.71 U	0.76 U	0.76 U	0.72 U	0.74 U
Diethylphthalate	0.7 U	0.73 U	0.72 U	0.69 U	0.7 U	0.71 U	0.76 U	0.76 U	0.72 U	0.74 U
4-Chlorophenyl-phenylether	0.7 U	0.73 U	0.72 U	0.69 U	0.7 U	0.71 U	0.76 U	0.76 U	0.72 U	0.74 U
Fluorene	0.7 U	0.73 U	0.72 U	0.69 U	0.7 U	0.71 U	0.76 U	0.76 U	0.72 U	0.74 U
4-Nitroaniline	3.4 U	3.5 U	3.5 U	3.4 U	3.4 U	3.5 U	3.7 U	3.7 U	3.5 U	3.6 U
4,6-Dinitro-2-methylphenol	3.4 U	3.5 U	3.5 U	3.4 U	3.4 U	3.5 U	3.7 U	3.7 U	3.5 U	3.6 U
N-Nitrosodiphenylamine(1)	0.7 U	0.73 U	0.72 U	0.69 U	0.7 U	0.71 U	0.76 U	0.76 U	0.72 U	0.74 U
4-Bromophenyl-phenylether	0.7 U	0.73 U	0.72 U	0.69 U	0.7 U	0.71 U	0.76 U	0.76 U	0.72 U	0.74 U
Hexachlorobenzene	0.35 J	0.73 U	0.72 U	0.14 J	0.26 J	0.71 U	0.76 U	0.76 U	0.72 U	0.74 U
Pentachlorophenol	3.4 U	3.5 U	3.5 U	3.4 U	3.4 U	3.5 U	3.7 U	3.7 U	3.5 U	3.6 U
Phenanthrene	0.095 J	0.067 J	0.079 J	0.69 U	0.7 U	0.054 J	0.14 J	0.76 U	0.72 U	0.74 U
Anthracene	0.7 U	0.73 U	0.72 U	0.69 U	0.7 U	0.71 U	0.76 U	0.76 U	0.72 U	0.74 U
Di-n-butylphthalate	0.15 J	0.73 U	0.72 U	0.69 U	0.7 U	0.12 J	0.76 U	0.76 U	0.12 J	0.74 U
Fluoranthene	0.12 J	0.73 U	0.14 J	0.057 J	0.7 U	0.095 J	0.23 J	0.76 U	0.72 U	0.12 J
Pyrene	0.13 J	0.12 J	0.13 J	0.055 J	0.7 U	0.095 J	0.23 J	0.76 U	0.72 U	0.74 U
Butylbenzylphthalate	0.7 U	0.73 U	0.72 U	0.69 U	0.7 U	0.71 U	0.76 U	0.76 U	0.72 U	0.74 U
3,3-Dichlorobenzidine	1.4 U	1.5 U	1.4 U	1.4 U	1.4 U	1.4 U	1.5 U	1.5 U	1.4 U	1.5 U
Benzo(a)anthracene	0.061 J	0.075 J	0.081 J	0.69 U	0.7 U	0.71 U	0.11 J	0.76 U	0.72 U	0.098 J
Chrysene	0.7 U	0.73 U	0.72 U	0.69 U	0.7 U	0.71 U	0.76 U	0.76 U	0.72 U	0.12 J
bis(2-Ethylhexyl)phthalate	0.85	2	2.1	0.5 J	1.8	0.89	1.1	6	2	1.7
Di-n-octylphthalate	0.7 U	0.73 U	0.72 U	0.69 U	0.7 U	0.71 U	0.76 U	0.76 U	0.72 U	0.74 U
Benzo(b)fluoranthene	0.075 J	0.11 J	0.13 J	0.69 U	0.7 U	0.086 J	0.2 J	0.76 U	0.72 U	0.12 J
Benzo(k)fluoranthene	0.7 U	0.73 U	0.72 U	0.69 U	0.7 U	0.71 U	0.087 J	0.76 U	0.72 U	0.052 J
Benzo(a)pyrene	0.7 U	0.066 J	0.077 J	0.69 U	0.7 U	0.71 U	0.76 U	0.76 U	0.72 U	0.088 J
Indeno(1,2,3-cd)pyrene	0.7 U	0.73 U	0.72 U	0.69 U	0.7 U	0.71 U	0.76 U	0.76 U	0.72 U	0.74 U
Dibenz(a,h)anthracene	0.7 U	0.73 U	0.72 U	0.69 U	0.7 U	0.71 U	0.76 U	0.76 U	0.72 U	0.74 U
Benzo(g,h,i)perylene	0.7 U	0.73 U	0.72 U	0.69 U	0.7 U	0.71 U	0.76 U	0.76 U	0.72 U	0.74 U

TABLE 2
NIAGARA FALLS
SURFACE SOIL
SEMIVOLATILE ANALYSES

	SS-32		SS-33		SS-34		EQBLK 5/21/91		EQBLK 5/22/91	
Phenol	0.72	U	0.23	J	0.71	U	0.01	U	0.01	U
bis(2-Chloroethyl)ether	0.72	U	0.83	U	0.71	U	0.01	U	0.01	U
2-Chlorophenol	0.72	U	0.83	U	0.71	U	0.01	U	0.01	U
1,3-Dichlorobenzene	0.72	U	0.83	U	0.71	U	0.01	U	0.01	U
1,4-Dichlorobenzene	0.72	U	0.83	U	0.71	U	0.01	U	0.01	U
Benzyl alcohol	0.72	U	0.83	U	0.71	U	0.01	U	0.01	U
1,2-Dichlorobenzene	0.72	U	0.83	U	0.71	U	0.01	U	0.01	U
2-Methylphenol	0.72	U	0.83	U	0.71	U	0.01	U	0.01	U
bis(2-Chloroisopropyl)ether	0.72	U	0.83	U	0.71	U	0.01	U	0.01	U
4-Methylphenol	0.72	U	0.83	U	0.71	U	0.01	U	0.01	U
N-Nitroso-di-n-propylamine	0.72	U	0.83	U	0.71	U	0.01	U	0.01	U
Hexachloroethane	0.72	U	0.83	U	0.71	U	0.01	U	0.01	U
Nitrobenzene	0.72	U	0.83	U	0.71	U	0.01	U	0.01	U
Isophorone	0.72	U	0.83	U	0.71	U	0.01	U	0.01	U
2-Nitrophenol	0.72	U	0.83	U	0.71	U	0.01	U	0.01	U
2,4-Dimethylphenol	0.72	U	0.83	U	0.71	U	0.01	U	0.01	U
Benzoic Acid	3.5	U	0.075	J	3.5	U	0.051	U	0.051	U
bis(2-Chloroethoxy)methane	0.72	U	0.83	U	0.71	U	0.01	U	0.01	U
2,4-Dichlorophenol	0.72	U	0.83	U	0.71	U	0.01	U	0.01	U
1,2,4-Trichlorobenzene	0.72	U	0.83	U	0.71	U	0.01	U	0.01	U
Naphthalene	0.72	U	0.83	U	0.71	U	0.01	U	0.01	U
4-Chloroaniline	0.72	U	0.83	U	0.71	U	0.01	U	0.01	U
Hexachlorobutadiene	0.72	U	0.83	U	0.71	U	0.01	U	0.01	U
4-Chloro-3-methylphenol	0.72	U	0.83	U	0.71	U	0.01	U	0.01	U
2-methylnaphthalene	0.72	U	0.83	U	0.71	U	0.01	U	0.01	U
Hexachlorocyclopentadiene	0.72	U	0.83	U	0.71	U	0.01	U	0.01	U
2,4,6-Trichlorophenol	0.72	U	0.83	U	0.71	U	0.01	U	0.01	U
2,4,5-Trichlorophenol	3.5	U	4	U	3.5	U	0.051	U	0.051	U
2-Chloronaphthalene	0.72	U	0.83	U	0.71	U	0.01	U	0.01	U

TABLE 2
NIAGARA FALLS
SURFACE SOIL
SEMIVOLATILE ANALYSES

	SS-32		SS-33		SS-34		EQBLK 5/21/91		EQBLK 5/22/91	
2-Nitroaniline	3.5	U	4	U	3.5	U	0.051	U	0.051	U
Dimethylphthalate	0.72	U	0.83	U	0.71	U	0.01	U	0.01	U
Acenaphthylene	0.72	U	0.83	U	0.71	U	0.01	U	0.01	U
2,6-Dinitrotoluene	0.72	U	0.83	U	0.71	U	0.01	U	0.01	U
3-Nitroaniline	3.5	U	4	U	3.5	U	0.051	U	0.051	U
Acenaphthene	0.72	U	0.83	U	0.71	U	0.01	U	0.01	U
2,4-Dinitrophenol	3.5	U	4	U	3.5	U	0.051	U	0.051	U
4-Nitrophenol	3.5	U	4	U	3.5	U	0.051	U	0.051	U
Dibenzofuran	0.72	U	0.83	J	0.71	U	0.01	U	0.01	U
2,4-Dinitrotoluene	0.72	U	0.83	U	0.71	U	0.01	U	0.01	U
Diethylphthalate	0.72	U	0.83	U	0.71	U	0.01	U	0.01	U
4-Chlorophenyl-phenylether	0.72	U	0.83	U	0.71	U	0.01	U	0.01	U
Fluorene	0.72	U	0.83	U	0.71	U	0.01	U	0.01	U
4-Nitroaniline	3.5	U	4	U	3.5	U	0.051	U	0.051	U
4,6-Dinitro-2-methylphenol	3.5	U	4	U	3.5	U	0.051	U	0.051	U
N-Nitrosodiphenylamine(1)	0.72	U	0.83	U	0.71	U	0.01	U	0.01	U
4-Bromophenyl-phenylether	0.72	U	0.83	U	0.71	U	0.01	U	0.01	U
Hexachlorobenzene	0.72	U	0.83	U	0.71	U	0.01	U	0.01	U
Pentachlorophenol	3.5	U	4	U	3.5	U	0.051	U	0.051	U
Phenanthrene	0.058	J	0.83	U	0.077	J	0.01	U	0.01	U
Anthracene	0.72	U	0.83	U	0.71	U	0.01	U	0.01	U
Di-n-butylphthalate	0.72	U	0.83	U	0.71	U	0.01	U	0.01	U
Fluoranthene	0.12	J	0.83	U	0.71	U	0.01	U	0.01	U
Pyrene	0.72	U	0.83	U	0.71	U	0.01	U	0.01	U
Butylbenzylphthalate	0.72	U	0.83	U	0.71	U	0.01	U	0.01	U
3,3-Dichlorobenzidine	1.4	U	1.7	U	1.4	U	0.02	U	0.02	U
Benzo(a)anthracene	0.067	J	0.83	U	0.71	U	0.01	U	0.01	U
Chrysene	0.72	U	0.83	U	0.71	U	0.01	U	0.01	U
bis(2-Ethylhexyl)phthalate	4.2		8.9		2.1		0.01	U	0.01	U
Di-n-octylphthalate	0.72	U	0.83	U	0.71	U	0.01	U	0.01	U
Benzo(b)fluoranthene	0.07	J	0.83	U	0.05	J	0.01	U	0.01	U
Benzo(k)fluoranthene	0.03	J	0.83	U	0.71	U	0.01	U	0.01	U
Benzo(a)pyrene	0.044	J	0.83	U	0.71	U	0.01	U	0.01	U
Indeno(1,2,3-cd)pyrene	0.72	U	0.83	U	0.71	U	0.01	U	0.01	U
Dibenz(a,h)anthracene	0.72	U	0.83	U	0.71	U	0.01	U	0.01	U
Benzo(g,h,i)perylene	0.72	U	0.83	U	0.71	U	0.01	U	0.01	U

TABLE 3
NIAGARA FALLS
SURFACE SOIL
PESTICIDES/PCBs ANALYSES

	SS-19		BL DUP SS-19		SS-20		SS-21		SS-22		SS-23		SS-24		SS-25		SS-26	
Aldrin	0.02	U	0.022	U	0.02	U	0.018	U	0.017	U	0.018	U	0.018	U	0.017	U	0.018	U
Alpha-BHC	0.02	U	0.022	U	0.02	U	0.018	U	0.017	U	0.018	U	0.018	U	0.017	U	0.018	U
Beta-BHC	0.02	U	0.022	U	0.02	U	0.018	U	0.017	U	0.018	U	0.018	U	0.017	U	0.018	U
Delta-BHC	0.02	U	0.022	U	0.02	U	0.018	U	0.017	U	0.018	U	0.018	U	0.017	U	0.018	U
Gamma-BHC	0.02	U	0.022	U	0.02	U	0.018	U	0.017	U	0.018	U	0.018	U	0.017	U	0.018	U
Chlorodane	0.2	UJ	0.22	U	0.2	U	0.18	U	0.17	U	0.18	U	0.18	U	0.17	U	0.18	U
4,4-DDD	0.04	U	0.044	U	0.04	U	0.036	U	0.034	U	0.036	U	0.036	U	0.035	U	0.036	U
4,4-DDE	0.04	U	0.044	U	0.028	J	0.036	U	0.034	U	0.036	U	0.036	U	0.035	U	0.036	U
4,4-DDT	0.04	U	0.044	U	0.04	U	0.036	U	0.036	U	0.036	U	0.036	U	0.035	U	0.036	U
Dieldrin	0.04	U	0.044	U	0.04	U	0.036	U	0.034	U	0.036	U	0.036	U	0.035	U	0.036	U
Endosulfan I	0.02	U	0.022	U	0.02	U	0.018	U	0.017	U	0.018	U	0.018	U	0.017	U	0.018	U
Endosulfan II	0.04	U	0.044	U	0.04	U	0.036	U	0.034	U	0.036	U	0.036	U	0.035	U	0.036	U
Endosulfan sulfate	0.04	U	0.044	U	0.04	U	0.036	U	0.034	U	0.036	U	0.036	U	0.035	U	0.036	U
Endrin	0.04	U	0.044	U	0.04	U	0.036	U	0.034	U	0.036	U	0.036	U	0.035	U	0.036	U
Heptachlor	0.02	U	0.022	U	0.02	U	0.018	U	0.017	U	0.018	U	0.018	U	0.017	U	0.018	U
Heptachlor epoxide	0.02	U	0.0021	J	0.0021	J	0.0041	J	0.0058	J	0.018	U	0.018	U	0.0036	J	0.059	
Endrin ketone	0.04	U	0.044	U	0.04	U	0.036	U	0.034	U	0.036	U	0.036	U	0.035	U	0.036	U
Methoxychlor	0.2	U	0.22	U	0.2	U	0.18	U	0.17	U	0.18	U	0.18	U	0.17	U	0.18	U
Aroclor-1016	0.2	U	0.22	U	0.2	U	0.18	U	0.17	U	0.18	U	0.18	U	0.17	U	0.18	U
Aroclor-1221	0.2	U	0.22	U	0.2	U	0.18	U	0.17	U	0.18	U	0.18	U	0.17	U	0.18	U
Aroclor-1232	0.2	U	0.22	U	0.2	U	0.18	U	0.17	U	0.18	U	0.18	U	0.17	U	0.18	U
Aroclor-1242	0.2	U	0.22	U	0.2	U	0.18	U	0.17	U	0.18	U	0.18	U	0.17	U	0.18	U
Aroclor-1248	0.2	U	0.22	U	0.2	U	0.18	U	0.17	U	0.18	U	0.18	U	0.17	U	0.18	U
Aroclor-1254	0.4	U	0.44	U	0.4	U	0.36	U	0.34	U	0.36	U	0.36	U	0.35	U	0.36	U
Aroclor-1260	0.4	U	0.44	U	0.4	U	0.36	U	0.34	U	0.36	U	0.36	U	0.35	U	0.36	U
Toxaphene	0.4	U	0.44	U	0.4	U	0.36	U	0.34	U	0.36	U	0.36	U	0.35	U	0.36	U

NOTES: All values reported in mg/kg (ppm).
U - Compound was analyzed but not detected.
J - Indicates an estimated value (GC/MS only).

TABLE 3
NIAGARA FALLS
SURFACE SOIL
PESTICIDES/PCBs ANALYSES

	SS-27		SS-28		SS-29		SS-30		SS-31		SS-32		SS-33		SS-34		EQBLK 5/22/91	
Aldrin	0.018	U	0.018	U	0.019	U	0.018	U	0.018	U	0.018	U	0.021	U	0.018	U	0.00005	U
Alpha-BHC	0.018	U	0.019	U	0.019	U	0.018	U	0.018	U	0.018	U	0.021	U	0.018	U	0.00005	U
Beta-BHC	0.018	U	0.019	U	0.019	U	0.018	U	0.018	U	0.018	U	0.021	U	0.018	U	0.00005	U
Delta-BHC	0.018	U	0.019	U	0.019	U	0.018	U	0.018	U	0.018	U	0.012	J	0.018	U	0.00005	U
Gamma-BHC	0.018	U	0.019	U	0.019	U	0.018	U	0.018	U	0.018	U	0.0042	J	0.018	U	0.00005	U
Chlorodane	0.18	U	0.19	U	0.19	U	0.18	U	0.18	U	0.18	U	0.21	U	0.18	U	0.0001	U
4,4-DDD	0.036	U	0.038	U	0.038	U	0.036	U	0.036	U	0.036	U	0.042	U	0.036	U	0.0001	U
4,4-DDE	0.036	U	0.038	U	0.038	U	0.036	U	0.036	U	0.036	U	0.042	U	0.036	U	0.0001	U
4,4-DDT	0.036	U	0.038	U	0.038	U	0.036	U	0.036	U	0.036	U	0.042	U	0.036	U	0.0001	U
Dieldrin	0.036	U	0.038	U	0.038	U	0.036	U	0.036	U	0.036	U	0.042	U	0.036	U	0.0001	U
Endosulfan I	0.018	U	0.019	U	0.019	U	0.018	U	0.018	U	0.018	U	0.021	U	0.018	U	0.00005	U
Endosulfan II	0.036	U	0.038	U	0.038	U	0.036	U	0.036	U	0.036	U	0.042	U	0.036	U	0.0001	U
Endosulfan sulfate	0.036	U	0.038	U	0.038	U	0.036	U	0.036	U	0.036	U	0.042	U	0.036	U	0.0001	U
Endrin	0.036	U	0.038	U	0.038	U	0.036	U	0.036	U	0.036	U	0.042	U	0.036	U	0.0001	U
Heptachlor	0.018	U	0.019	U	0.019	U	0.018	U	0.018	U	0.018	U	0.021	U	0.018	U	0.00005	U
Heptachlor epoxide	0.018	U	0.019	U	0.019	U	0.018	U	0.018	U	0.018	U	0.021	U	0.018	U	0.00005	U
Endrin ketone	0.036	U	0.038	U	0.038	U	0.036	U	0.036	U	0.036	U	0.042	U	0.036	U	0.0001	U
Methoxychlor	0.18	U	0.19	U	0.19	U	0.18	U	0.18	U	0.18	U	0.21	U	0.18	U	0.0005	U
Aroclor-1016	0.18	U	0.19	U	0.19	U	0.18	U	0.18	U	0.18	U	0.21	U	0.18	U	0.0005	U
Aroclor-1221	0.18	U	0.19	U	0.19	U	0.18	U	0.18	U	0.18	U	0.21	U	0.18	U	0.0005	U
Aroclor-1232	0.18	U	0.19	U	0.19	U	0.18	U	0.18	U	0.18	U	0.21	U	0.18	U	0.0005	U
Aroclor-1242	0.18	U	0.19	U	0.19	U	0.18	U	0.18	U	0.18	U	0.21	U	0.18	U	0.0005	U
Aroclor-1248	0.18	U	0.19	U	0.19	U	0.18	U	0.18	U	0.18	U	0.21	U	0.18	U	0.0005	U
Aroclor-1254	0.36	U	0.38	U	0.38	U	0.36	U	0.36	U	0.36	U	0.42	U	0.36	U	0.001	U
Aroclor-1260	0.36	U	0.38	U	0.38	U	0.36	U	0.36	U	0.36	U	0.42	U	0.36	U	0.001	U
Toxaphene	0.36	U	0.38	U	0.38	U	0.36	U	0.36	U	0.36	U	0.42	U	0.36	U	0.001	U

TABLE 4
NIAGARA FALLS
SURFACE SOIL
INORGANIC ANALYSES

	TYPICAL RANGE **	SS-1	SS-2	SS-3	SS-4	SS-5	SS-6	SS-7	SS-8	BL DUP SS-8	SS-9
ALUMINUM	1,000-25,000										
ANTIMONY	———										
ARSENIC	3-12										
BARIUM	15-600										
BERYLLIUM	0-1.75										
CADMIUM	0.01-2.0										
CALCIUM	130-35,000										
CHROMIUM	1.5-40	12.4 J	16.6 J	29.6 J	18.8 J	21.5 J	21.3 J	11.8 J	22.8 J	16.3 J	15.1 J
COBALT	2.5-60										
COPPER	<1-15										
IRON	17,500-25,000										
LEAD	1-12.5	39.1	45.2	44	35.9	449	27.1	26.3 R	19.5	20.4	43.5 J
MAGNESIUM	2,500-6,000										
MANGANESE	50-5,000										
MERCURY	0.042-0.066										
NICKEL	0.5-25										
POTASSIUM	8,500-43,000										
SELENIUM	<0.1-0.125	10.9 R	1.1 R	1.2 R	1.1 R	1.1 R	1.1 R	1.0 R	1.2 R	1.1	1.1 R
SILVER											
SODIUM	6,000-8,000										
THALLIUM	———										
VANADIUM	25-60										
ZINC	37-60										
CYANIDE	———										

NOTES: All values reported in mg/kg (ppm).
U – Indicates element was analyzed for but not detected.
B – Indicates a value greater than or equal to the instrument detection limit, but less than the contract required detection limit.
NA – Not analyzed.
R – Rejected by data validator.
J – Indicates an estimated value. (GC/MS only)

TABLE 4
NIAGARA FALLS
SURFACE SOIL
INORGANIC ANALYSES

	TYPICAL RANGE **	SS-10	SS-11	SS-12	SS-13	SS-14	SS-15	SS-16	SS-17	SS-18	EQBLK 5/21/91
ALUMINUM	1,000-25,000										
ANTIMONY	——										
ARSENIC	3-12										
BARIUM	15-600										
BERYLLIUM	0-1.75										
CADMIUM	0.01-2.0										
CALCIUM	130-35,000										
CHROMIUM	1.5-40	21.6 J	12.8 J	16 J	33.8 J	87.9 J	NA	NA	NA	NA	5 U
COBALT	2.5-60										
COPPER	<1-15										
IRON	17,500-25,000										
LEAD	1-12.5	123 J	29.2	49.4	58.7	85 J	NA	NA	NA	NA	3 U
MAGNESIUM	2,500-6,000										
MANGANESE	50-5,000										
MERCURY	0.042-0.066										
NICKEL	0.5-25										
POTASSIUM	8,500-43,000										
SELENIUM	<0.1-0.125	1.2 R	1.2 R	1.2 R	1.1 R	1.4 R	1.1 R	1.1 R	1.1 R	1.1 R	5 U
SILVER											
SODIUM	6,000-8,000										
THALLIUM	----										
VANADIUM	25-60										
ZINC	37-60										
CYANIDE	——										

TABLE 4
NIAGARA FALLS
SURFACE SOIL
INORGANIC ANALYSES

	TYPICAL RANGE **	SS-19	BL DUP SS-19	SS-20	SS-21	SS-22	SS-23	SS-24	SS-25	SS-26
ALUMINUM	1,000-25,000	7,910	8,790	9,140	9,460	5,220	8,590	6,590	8,240	7,400
ANTIMONY	———	1.2 UJ	1.4 UJ	1.2 UJ	1.1 UJ	1.1 UJ	1.1 UJ	1.1 UJ	1.1 UJ	1.1 UJ
ARSENIC	3-12	8 J	8.2 J	5.4 J	4.6 J	2.6 J	2.4 J	3.4 J	2.8 J	2.9 J
BARIUM	15-600	73.4 J	85.3 J	113 J	145 J	56.9 J	69.7 J	69.8 J	59 J	45.2 J
BERYLLIUM	0-1.75	1.2 UJ	1.4 UJ	1.2 UJ	1.1 UJ	1.1 UJ	1.1 UJ	1.1 UJ	1.1 UJ	1.1 UJ
CADMIUM	0.01-2.0	1.2 UJ	1.4 UJ	1.2 UJ	1.1 UJ	1.1 UJ	1.1 UJ	1.1 UJ	1.1 UJ	1.1 UJ
CALCIUM	130-35,000	10,800	9,560	110,000	49,800	121,000	127,000	101,000	117,000	143,000
CHROMIUM	1.5-40	19.9 J	24.9 J	75 J	27.6 J	19.4 J	19.1 J	31.4 J	14.2 J	14 J
COBALT	2.5-60	6.8 J	8.1 J	9.3 J	8.3 J	5.1 J	7.4 J	8.3 J	5.5 J	4.7 J
COPPER	<1-15	30 J	28.7 J	37.3 J	23.3 J	17.2 J	15.1 J	19.9 J	15.2 J	14.9 J
IRON	17,500-25,000	10,600	13,200	13,100	15,800	9,590	14,900	13,400	10,900	9,150
LEAD	1-12.5	70	92.8	120 J	64.5 J	53.8	33	74	50	51
MAGNESIUM	2,500-6,000	2,810	4,460	58,600	24,300	62,800	58,200	48,600	51,100	34,000
MANGANESE	50-5,000	251 R	315 R	554 R	415 R	444 R	574 R	496 R	494 R	624 R
MERCURY	0.042-0.066	0.17 J	0.45 J	1.7 J	0.23 J	0.1 U	3 J	0.11 J	0.54 J	0.09 U
NICKEL	0.5-25	17.3 J	22.7 J	21.4 J	20.4 J	14.2 J	21.4 J	21.1 J	17.1 J	15.3 J
POTASSIUM	8,500-43,000	1,200	1,220	1,750	1,700	1,780	3,220	1,870	2,170	1,620
SELENIUM	<0.1-0.125	1.2 R	1.4 R	1.2 R	1.1 R	1.1 R	1.1 R	1.1 R	1.1 R	1.1 R
SILVER		1.5 UJ	1.6 UJ	1.5 UJ	1.3 UJ	1.3 UJ	1.3 UJ	1.3 UJ	1.3 UJ	1.3 UJ
SODIUM	6,000-8,000	279 U	295 U	443 U	334 U	375 U	350 U	363 U	345 U	383 U
THALLIUM	———	1.2 UJ	1.4 UJ	1.2 UJ	1.1 UJ	1.1 UJ	1.1 UJ	1.1 UJ	1.1 UJ	1.1 U
VANADIUM	25-60	18.9 J	25.5 J	23.8 J	21.4 J	14.3 J	21.5 J	22.3 J	16 J	11.3 J
ZINC	37-60	88.8 J	96.1 J	220 J	275 J	470 J	150 J	160 J	240 J	125 J
CYANIDE	———	1.25 U	1.35 U	1.23 U	1.1 U	1.08 U	1.11 U	1.09 U	1.08 U	1.09 U

TABLE 4
NIAGARA FALLS
SURFACE SOIL
INORGANIC ANALYSES

	TYPICAL RANGE **	SS-27	SS-28	SS-29	SS-30	SS-31	SS-32	SS-33	SS-34	EQBLK 5/22/91
ALUMINUM	1,000-25,000	7,330	9,100	11,700	7,740	5,340	12,500	19,200	6,870	50 U
ANTIMONY	———	1.1 UJ	1.2 UJ	1.2 UJ	1.1 UJ	1.1 UJ	1.1 UJ	1.3 UJ	1.1 UJ	5 U
ARSENIC	3-12	3.1 J	4.2 J	4 J	4.4 J	4.8 J	4.8 J	5.4 J	4.5 J	5 U
BARIUM	15-600	68 J	92.1 J	72.6 J	63.2 J	35.8 J	102 J	156 J	67.3 J	30 U
BERYLLIUM	0-1.75	1.1 UJ	1.2 UJ	1.2 UJ	1.1 UJ	1.1 UJ	1.1 UJ	1.3 UJ	1.1 UJ	5 U
CADMIUM	0.01-2.0	1.1 UJ	1.2 UJ	1.2 UJ	1.1 UJ	1.1 UJ	1.1 UJ	1.3 UJ	1.1 UJ	5 U
CALCIUM	130-35,000	81,500	74,200	95,300	92,400	57,300	69,500	54,500	93,200	1,520
CHROMIUM	1.5-40	16.5 J	24.5 J	19.9 J	22.7 J	14.2 J	24.2 J	40.9 J	18.5 J	10 U
COBALT	2.5-60	7.9 J	10 J	10.6 J	7.7 J	6.9 J	9.5 J	15.7 J	8.2 J	20 U
COPPER	<1-15	17.3 J	20.2 J	20.7 J	16.9 J	13.6 J	18.1 J	24.9 J	22.9 J	5.5
IRON	17,500-25,000	13,100	16,800	18,000	14,600	12,800	20,400	37,200	19,000	57.9
LEAD	1-12.5	65.9	58.8	32.6	51	29.5	29.2	15.1 J	36.6 J	3
MAGNESIUM	2,500-6,000	38,800	36,600	43,400	44,300	26,200	29,000	18,300	38,100	200 U
MANGANESE	50-5,000	554 R	563 R	534 R	454 R	280 R	575 R	689 R	500 R	5 U
MERCURY	0.042-0.066	0.11 U	0.1 U	0.1 U	0.11 U	0.1 U	0.1 U	0.12 U	0.1 U	0.2 U
NICKEL	0.5-25	19.2 J	27.8 J	23.7 J	19 J	17 J	26.6 J	44.4 J	19.8 J	20 U
POTASSIUM	8,500-43,000	2,150	3,050	3,330	2,410	1,550	3,960	7,100	1,860	200 U
SELENIUM	<0.1-0.125	1.1 R	1.2 R	1.2 R	1.1 R	1.1 R	1.1 R	1.3 R	1.1 R	5 U
SILVER		1.3 UJ	1.5 UJ	1.4 UJ	1.3 UJ	1.3 UJ	1.4 UJ	1.6 UJ	1.3 UJ	6 U
SODIUM	6,000-8,000	341 U	373 U	396 U	350 U	295 U	376 U	425 U	364 U	1,790
THALLIUM	———	1.1 U	1.2 UJ	1.2 UJ	1.1 UJ	1.1 UJ	1.1 UJ	1.3 UJ	1.1 UJ	5 U
VANADIUM	25-60	22.1 J	30.7 J	24.5 J	19.6 J	13.9 J	27.6 J	50.2 J	16.5 J	30 U
ZINC	37-60	169 J	166 J	112 J	185 J	82.3 J	104 J	81.1 J	192 J	17.8
CYANIDE	———	1.09 U	1.18 U	1.16 U	1.09 U	1.12 U	1.12 U	1.27 U	1.09 U	10 U

TABLE 5
EPTOX/TCLP RESULTS
BUFFALO AVENUE SITE INVESTIGATION
NIAGARA FALLS, NEW YORK

Sample #	Extract	Lead		Chromium	Mercury	
TCLP LIMIT		5.00		5.00	0.20	
SS20	TCLP	0.018				
	EPTOX	0.260	N*			
SB1 2-9.5'	TCLP	0.023				
	EPTOX	0.450	N*			
SB15 8-16'W	TCLP	0.010				
	EPTOX	0.009	SN*			
SB16 6-16'W	TCLP	0.126	S	0.162		
	EPTOX	0.350	N*	0.025		
SB18 4-22'W	TCLP	0.015				
	EPTOX	0.590	N*			
SB19 2-10'SR	TCLP	0.014				
	EPTOX	0.200	N*			
SB23 5-16'W	TCLP				0.00094	*
	EPTOX				0.00020	
SB26 5-10'W	TCLP	0.050	S			
	EPTOX	0.310	N*			
SB27 5-13.5'W	TCLP	0.223	+			
	EPTOX	1.870	N*			
SB28 5-11'W	TCLP	0.160		0.024	0.00020	*
	EPTOX	0.225	N*	0.024	0.00020	
SB29 4-7'SR	TCLP	0.079	S			
	EPTOX	0.885	N*			
SB33 2-4'SR	TCLP	0.018		0.017		
	EPTOX	0.160	N*	0.010		
SB33 4-7'W	TCLP	0.660				
	EPTOX	39.100	N*			
SB38 2-6'W	TCLP	0.138	S			
	EPTOX	0.020	N*			
SB39 2-11'W	TCLP	0.458	S			
	EPTOX	0.320	N*			
SB40 5-12'W	TCLP	0.900				
	EPTOX	0.770	N*			

NOTE: Results in ppm.

TABLE 6
NIAGARA FALLS
SOIL BORING
VOLATILE ANALYSES

	SB-1 (4-6')		SB-2 (4-6')		SB-3 (8-10')		SB-4 (14-16')		SB-5 (8-10')		SB-6 (10-12')		SB-7 (6-8')		SB-8 (4-6')		BL DUP SB-8 (4-6')	
CHLOROMETHANE	0.011	U	0.011	U	0.011	U	0.011	U	0.011	U	0.011	U	0.012	UJ	0.012	U	0.012	U
BROMOMETHANE	0.011	U	0.011	U	0.011	U	0.011	U	0.011	U	0.011	U	0.012	UJ	0.012	U	0.012	U
VINYL CHLORIDE	0.011	U	0.011	U	0.011	U	0.011	U	0.011	U	0.011	U	0.012	UJ	0.012	U	0.012	U
CHLOROETHANE	0.011	U	0.011	U	0.011	U	0.011	U	0.011	U	0.011	U	0.012	UJ	0.012	U	0.012	U
METHYLENE CHLORIDE	0.006	U	0.005	U	0.005	U	0.006	U	0.006	U	0.005	U	0.006	UJ	0.006	U	0.006	U
ACETONE	0.049	U	0.047	U	0.022	U	0.011	U	0.011	U	0.011	U	0.012	UJ	0.012	U	0.012	U
CARBON DISULFIDE	0.006	U	0.005	U	0.005	U	0.006	U	0.006	U	0.005	U	0.006	UJ	0.006	U	0.006	U
1,1-DICHLOROETHENE	0.006	U	0.005	U	0.005	U	0.006	U	0.006	U	0.005	U	0.006	UJ	0.006	U	0.006	U
1,1-DICHLOROETHANE	0.006	U	0.005	U	0.005	U	0.006	U	0.006	U	0.005	U	0.006	UJ	0.006	U	0.006	U
1,2-DICHLOROETHENE (TOTAL)	0.006	U	0.005	U	0.005	U	0.006	U	0.006	U	0.001	J	0.006	UJ	0.006	U	0.006	U
CHLOROFORM	0.006	U	0.005	U	0.005	U	0.006	U	0.006	U	0.005	U	0.006	UJ	0.006	U	0.006	U
1,2-DICHLOROETHANE	0.006	U	0.005	U	0.005	U	0.006	U	0.006	U	0.005	U	0.006	UJ	0.006	U	0.006	U
2-BUTANONE	0.005	J	0.011	U	0.011	U	0.011	U	0.011	U	0.011	U	0.012	UJ	0.012	U	0.012	U
1,1,1-TRICHLOROETHANE	0.006	U	0.005	U	0.005	U	0.006	U	0.006	U	0.005	U	0.006	UJ	0.006	U	0.006	U
CARBON TETRACHLORIDE	0.006	U	0.005	U	0.005	U	0.006	U	0.006	U	0.005	U	0.006	UJ	0.006	U	0.006	U
VINYL ACETATE	0.011	U	0.011	U	0.011	U	0.011	U	0.011	U	0.011	U	0.012	UJ	0.012	U	0.012	U
BROMODICHLOROMETHANE	0.006	U	0.005	U	0.005	U	0.006	U	0.006	U	0.005	U	0.006	UJ	0.006	U	0.006	U
1,2-DICHLOROPROPANE	0.006	U	0.005	U	0.005	U	0.006	U	0.006	U	0.005	U	0.006	UJ	0.006	U	0.006	U
CIS-1,3-DICHLOROPROPANE	0.006	U	0.005	U	0.005	U	0.006	U	0.006	U	0.005	U	0.006	UJ	0.006	U	0.006	U
TRICHLOROETHENE	0.006	U	0.005	U	0.005	U	0.006	U	0.006	U	0.005	U	0.006	UJ	0.006	U	0.006	U
DIBROMOCHLOROMETHANE	0.006	U	0.005	U	0.005	U	0.006	U	0.006	U	0.005	U	0.006	UJ	0.006	U	0.006	U
1,1,2-TRICHLOROETHANE	0.006	U	0.005	U	0.005	U	0.006	U	0.006	U	0.005	U	0.006	UJ	0.006	U	0.006	U
BENZENE	0.006	U	0.005	U	0.005	U	0.006	U	0.006	U	0.005	U	0.006	UJ	0.006	U	0.006	U
TRANS-1,3-DICHLOROPROPANE	0.006	U	0.005	U	0.005	U	0.006	U	0.006	U	0.005	U	0.006	UJ	0.006	U	0.006	U
BROMOFORM	0.006	U	0.005	U	0.005	U	0.006	U	0.006	U	0.005	U	0.006	UJ	0.006	U	0.006	U
4-METHYL-2-PENTANONE	0.011	U	0.011	U	0.011	U	0.011	U	0.011	U	0.011	U	0.012	UJ	0.012	U	0.012	U
2-HEXANONE	0.011	U	0.011	U	0.011	U	0.011	U	0.011	U	0.011	U	0.012	UJ	0.012	U	0.012	U
TETRACHLOROETHENE	0.006	U	0.005	U	0.005	U	0.006	U	0.006	U	0.005	U	0.006	UJ	0.006	U	0.006	U
1,1,2,2-TETRACHLOROETHENE	0.006	U	0.005	U	0.005	U	0.006	U	0.006	U	0.005	U	0.006	UJ	0.006	U	0.006	U
TOLUENE	0.006	U	0.005	U	0.005	U	0.006	U	0.006	U	0.0007	J	0.006	UJ	0.006	U	0.006	U
CHLOROBENZENE	0.006	U	0.005	U	0.005	U	0.006	U	0.0002	J	0.005	U	0.006	UJ	0.006	U	0.006	U
ETHYLBENZENE	0.006	U	0.005	U	0.005	U	0.006	U	0.006	U	0.005	U	0.006	UJ	0.006	U	0.006	U
STYRENE	0.006	U	0.005	U	0.005	U	0.006	U	0.006	U	0.005	U	0.006	UJ	0.006	U	0.006	U
TOTAL XYLENES	0.006	U	0.005	U	0.005	U	0.006	U	0.006	U	0.005	U	0.006	UJ	0.006	U	0.006	U

NOTES: **All values reported in mg/kg (ppm)**
U – Compound was analyzed but not detected.
J – Indicates an estimated value (GC/MS only).
B – Analyte is found in the associated blank as well as in the sample.
RE – Sample reanalyzed due to quality control assurances.

TABLE 6
NIAGARA FALLS
SOIL BORING
VOLATILE ANALYSES

	SB-9 (2-4')	SB-10 (2-4')	SB-14SR (2-4)	SB-14W (8-10)	SB-15W (12-14)	SB-15SR (4-6)	SB-16W (14-16)	SB-16SR (2-4)	SB-17SR (2-4)
CHLOROMETHANE	0.012 U	0.012 U	0.011 U	0.011 U	0.014 U	0.011 U	0.013 U	0.011 U	0.012 U
BROMOMETHANE	0.012 U	0.012 U	0.011 U	0.011 U	0.014 U	0.011 U	0.013 U	0.011 U	0.012 U
VINYL CHLORIDE	0.012 U	0.012 U	0.011 U	0.011 U	0.014 U	0.011 U	0.013 U	0.011 U	0.012 U
CHLOROETHANE	0.012 U	0.012 U	0.011 U	0.011 U	0.014 U	0.011 U	0.013 U	0.011 U	0.012 U
METHYLENE CHLORIDE	0.006 J	0.006 U	0.005 U	0.006 U	0.007 U	0.005 U	0.006 U	0.006 U	0.006 U
ACETONE	0.012 U	0.012 U	0.011 U	0.027 U	0.019 U	0.011 U	0.013 U	0.011 U	0.012 U
CARBON DISULFIDE	0.006 U	0.006 U	0.005 U	0.006 U	0.007 U	0.005 U	0.006 U	0.006 U	0.006 U
1,1-DICHLOROETHENE	0.006 U	0.006 U	0.005 U	0.006 U	0.007 U	0.005 U	0.006 U	0.006 U	0.006 U
1,1-DICHLOROETHANE	0.006 U	0.006 U	0.005 U	0.006 U	0.007 U	0.005 U	0.006 U	0.006 U	0.006 U
1,2-DICHLOROETHENE (TOTAL)	0.006 U	0.006 U	0.005 U	0.006 U	0.003 J	0.001 J	0.006 U	0.006 U	0.006 U
CHLOROFORM	0.006 U	0.006 U	0.005 U	0.006 U	0.007 U	0.005 U	0.006 U	0.006 U	0.006 U
1,2-DICHLOROETHANE	0.006 U	0.006 U	0.005 U	0.006 U	0.007 U	0.005 U	0.006 U	0.006 U	0.006 U
2-BUTANONE	0.012 U	0.012 U	0.011 U	0.003 J	0.014 U	0.011 U	0.013 U	0.011 U	0.012 U
1,1,1-TRICHLOROETHANE	0.006 U	0.006 U	0.005 U	0.006 U	0.007 U	0.005 U	0.006 U	0.006 U	0.006 U
CARBON TETRACHLORIDE	0.006 U	0.006 U	0.005 U	0.006 U	0.007 U	0.005 U	0.006 U	0.006 U	0.006 U
VINYL ACETATE	0.012 U	0.012 U	0.011 U	0.011 U	0.014 U	0.011 U	0.013 U	0.011 U	0.012 U
BROMODICHLOROMETHANE	0.006 U	0.006 U	0.005 U	0.006 U	0.007 U	0.005 U	0.006 U	0.006 U	0.006 U
1,2-DICHLOROPROPANE	0.006 U	0.006 U	0.005 U	0.006 U	0.007 U	0.005 U	0.006 U	0.006 U	0.006 U
CIS-1,3-DICHLOROPROPANE	0.006 U	0.006 U	0.005 U	0.006 U	0.007 U	0.005 U	0.006 U	0.006 U	0.006 U
TRICHLOROETHENE	0.006 U	0.006 U	0.005 U	0.006 U	0.007 U	0.005 U	0.006 U	0.006 U	0.006 U
DIBROMOCHLOROMETHANE	0.006 U	0.006 U	0.005 U	0.006 U	0.007 U	0.005 U	0.006 U	0.006 U	0.006 U
1,1,2-TRICHLOROETHANE	0.006 U	0.006 U	0.005 U	0.006 U	0.007 U	0.005 U	0.006 U	0.006 U	0.006 U
BENZENE	0.006 U	0.006 U	0.005 U	0.006 U	0.001 J	0.005 U	0.006 U	0.006 U	0.006 U
TRANS-1,3-DICHLOROPROPANE	0.006 U	0.006 U	0.005 U	0.006 U	0.007 U	0.005 U	0.006 U	0.006 U	0.006 U
BROMOFORM	0.006 U	0.006 U	0.005 U	0.006 U	0.007 U	0.005 U	0.006 U	0.006 U	0.006 U
4-METHYL-2-PENTANONE	0.012 U	0.012 U	0.011 U	0.011 U	0.014 U	0.011 U	0.013 U	0.011 U	0.012 U
2-HEXANONE	0.012 U	0.012 U	0.011 U	0.011 U	0.014 U	0.011 U	0.013 U	0.011 U	0.012 U
TETRACHLOROETHENE	0.006 U	0.006 U	0.005 U	0.006 U	0.007 U	0.005 U	0.006 U	0.006 U	0.006 U
1,1,2,2-TETRACHLOROETHENE	0.006 U	0.006 U	0.005 U	0.006 U	0.007 U	0.005 U	0.006 U	0.006 U	0.006 U
TOLUENE	0.006 U	0.006 U	0.005 U	0.0006 J	0.001 J	0.0009 J	0.006 U	0.001 J	0.006 U
CHLOROBENZENE	0.006 U	0.006 U	0.005 U	0.006 U	0.004 J	0.0001 J	0.006 U	0.006 U	0.006 U
ETHYLBENZENE	0.006 U	0.006 U	0.005 U	0.006 U	0.007 U	0.005 U	0.006 U	0.006 U	0.006 U
STYRENE	0.006 U	0.006 U	0.005 U	0.006 U	0.007 U	0.005 U	0.006 U	0.006 U	0.006 U
TOTAL XYLENES	0.006 U	0.006 U	0.005 U	0.006 U	0.007 U	0.005 U	0.006 U	0.006 U	0.006 U

TABLE 6
NIAGARA FALLS
SOIL BORING
VOLATILE ANALYSES

	SB-18SR (2-4)	SB-18W (6-8)	SB-19W (16-18)	SB-19SR (6-8)	BL DUP SB-19SR (6-8)	SB-20W (2-4)	SB-21SR (2-4)	SB-22SR (6-8)	SB-23SR (2-4)
CHLOROMETHANE	0.011 U	0.012 U	0.011 U	0.01 U	0.012 U	0.011 U	0.011 U	0.011 U	0.011 U
BROMOMETHANE	0.011 U	0.012 U	0.011 U	0.01 U	0.012 U	0.011 U	0.011 U	0.011 U	0.011 U
VINYL CHLORIDE	0.011 U	0.012 U	0.011 U	0.01 U	0.012 U	0.011 U	0.011 U	0.002 J	0.011 U
CHLOROETHANE	0.011 U	0.012 U	0.011 U	0.01 U	0.012 U	0.011 U	0.011 U	0.011 U	0.011 U
METHYLENE CHLORIDE	0.006 U	0.006 U	0.006 U	0.013	0.025	0.006 U	0.006 U	0.005 U	0.005 U
ACETONE	0.015 U	0.016 U	0.044 U	0.01 U	0.026 U	0.017 U	0.011 U	0.011 U	0.011 U
CARBON DISULFIDE	0.005 U	0.006 U	0.006 U	0.005 U	0.006 U	0.006 U	0.006 U	0.001 J	0.005 U
1,1-DICHLOROETHENE	0.005 U	0.006 U	0.006 U	0.005 U	0.006 U	0.006 U	0.006 U	0.005 U	0.005 U
1,1-DICHLOROETHANE	0.005 U	0.006 U	0.006 U	0.005 U	0.006 U	0.006 U	0.006 U	0.005 U	0.005 U
1,2-DICHLOROETHENE (TOTAL)	0.005 U	0.006 U	0.006 U	0.005 U	0.006 U	0.006 U	0.006 U	0.004 J	0.005 U
CHLOROFORM	0.005 U	0.006 U	0.006 U	0.005 U	0.006 U	0.006 U	0.006 U	0.002 J	0.005 U
1,2-DICHLOROETHANE	0.005 U	0.006 U	0.006 U	0.005 U	0.006 U	0.006 U	0.006 U	0.005 U	0.005 U
2-BUTANONE	0.011 U	0.012 U	0.006 J	0.01 U	0.012 U	0.011 U	0.011 U	0.011 U	0.011 U
1,1,1-TRICHLOROETHANE	0.005 U	0.006 U	0.006 U	0.005 U	0.006 U	0.006 U	0.006 U	0.005 U	0.005 U
CARBON TETRACHLORIDE	0.005 U	0.006 U	0.006 U	0.005 U	0.006 U	0.006 U	0.006 U	0.005 U	0.005 U
VINYL ACETATE	0.011 U	0.012 U	0.011 U	0.01 U	0.012 U	0.011 U	0.011 U	0.011 U	0.011 U
BROMODICHLOROMETHANE	0.005 U	0.006 U	0.006 U	0.005 U	0.006 U	0.006 U	0.006 U	0.005 U	0.005 U
1,2-DICHLOROPROPANE	0.005 U	0.006 U	0.006 U	0.005 U	0.006 U	0.006 U	0.006 U	0.005 U	0.005 U
CIS-1,3-DICHLOROPROPANE	0.005 U	0.006 U	0.006 U	0.005 U	0.006 U	0.006 U	0.006 U	0.005 U	0.005 U
TRICHLOROETHENE	0.0006 J	0.0007 J	0.001 J	0.005 U	0.006 U	0.001 J	0.001 J	0.005 J	0.005 U
DIBROMOCHLOROMETHANE	0.005 U	0.006 U	0.006 U	0.005 U	0.006 U	0.006 U	0.006 U	0.005 U	0.005 U
1,1,2-TRICHLOROETHANE	0.005 U	0.006 U	0.006 U	0.005 U	0.006 U	0.006 U	0.006 U	0.005 U	0.005 U
BENZENE	0.005 U	0.006 U	0.006 U	0.0009 J	0.0007 J	0.006 U	0.006 U	0.001 J	0.005 U
TRANS-1,3-DICHLOROPROPANE	0.005 U	0.006 U	0.006 U	0.005 U	0.006 U	0.006 U	0.006 U	0.005 U	0.005 U
BROMOFORM	0.005 U	0.006 U	0.006 U	0.005 U	0.006 U	0.006 U	0.006 U	0.005 U	0.005 U
4-METHYL-2-PENTANONE	0.011 U	0.012 U	0.011 U	0.01 U	0.012 U	0.011 U	0.011 U	0.011 U	0.011 U
2-HEXANONE	0.011 U	0.012 U	0.011 U	0.01 U	0.012 U	0.011 U	0.011 U	0.011 U	0.011 U
TETRACHLOROETHENE	0.005 U	0.006 U	0.006 U	0.005 U	0.006 U	0.006 U	0.006 U	0.003 J	0.005 U
1,1,2,2-TETRACHLOROETHENE	0.005 U	0.006 U	0.006 U	0.005 U	0.006 U	0.006 U	0.006 U	0.002 J	0.005 U
TOLUENE	0.005 U	0.006 U	0.001 J	0.002 J	0.0009 J	0.006 U	0.006 U	0.002 J	0.001 J
CHLOROBENZENE	0.005 U	0.006 U	0.006 U	0.005 U	0.006 U	0.006 U	0.006 U	0.003 J	0.005 U
ETHYLBENZENE	0.005 U	0.006 U	0.006 U	0.005 U	0.006 U	0.006 U	0.006 U	0.005 U	0.005 U
STYRENE	0.005 U	0.006 U	0.006 U	0.005 U	0.006 U	0.006 U	0.006 U	0.005 U	0.005 U
TOTAL XYLENES	0.005 U	0.006 U	0.006 U	0.005 U	0.006 U	0.006 U	0.006 U	0.005 U	0.005 U

TABLE 6
NIAGARA FALLS
SOIL BORING
VOLATILE ANALYSES

	SB-23W (5-6)	SB-24SR (4-6)	SB-24W (8-10)	SB-25SR (4-6)	SB-25W (11-13)	SB-26SR (2-4)	BL DUP SB-26SR (2-4)	SB-26W (6-8)	BL DUP SB-26W (6-8)
CHLOROMETHANE	0.011 U	0.011 U	0.011 U	0.011 U	0.013 U	0.011 U	0.011 U	0.012 U	0.012 U
BROMOMETHANE	0.011 U	0.011 U	0.011 U	0.011 U	0.013 U	0.011 U	0.011 U	0.012 U	0.012 U
VINYL CHLORIDE	0.011 U	0.011 U	0.011 U	0.011 U	0.013 U	0.011 U	0.011 U	0.012 U	0.012 U
CHLOROETHANE	0.011 U	0.011 U	0.011 U	0.011 U	0.013 U	0.011 U	0.011 U	0.012 U	0.012 U
METHYLENE CHLORIDE	0.006 U	0.006 U	0.006 U	0.005 U	0.006 U	0.006 U	0.005 U	0.006 U	0.006 U
ACETONE	0.035 U	0.017 U	0.015 U	0.014 U	0.015 U	0.011 U	0.011 U	0.012 U	0.012 U
CARBON DISULFIDE	0.001 J	0.006 U	0.001 J	0.005 U	0.006 U	0.006 U	0.005 U	0.006 U	0.006 U
1,1-DICHLOROETHENE	0.006 U	0.006 U	0.006 U	0.005 U	0.006 U	0.006 U	0.005 U	0.006 U	0.006 U
1,1-DICHLOROETHANE	0.006 U	0.006 U	0.006 U	0.005 U	0.006 U	0.006 U	0.005 U	0.006 U	0.006 U
1,2-DICHLOROETHENE (TOTAL)	0.0008 J	0.0006 J	0.0006 J	0.005 U	0.006 U	0.006 U	0.005 U	0.006 U	0.006 U
CHLOROFORM	0.006 U	0.006 U	0.006 U	0.005 U	0.006 U	0.006 U	0.005 U	0.006 U	0.006 U
1,2-DICHLOROETHANE	0.006 U	0.006 U	0.006 U	0.005 U	0.006 U	0.006 U	0.005 U	0.006 U	0.006 U
2-BUTANONE	0.011 U	0.011 U	0.011 U	0.011 U	0.013 U	0.011 U	0.011 U	0.012 U	0.012 U
1,1,1-TRICHLOROETHANE	0.006 U	0.006 U	0.006 U	0.005 U	0.006 U	0.006 U	0.005 U	0.006 U	0.006 U
CARBON TETRACHLORIDE	0.006 U	0.006 U	0.006 U	0.005 U	0.006 U	0.006 U	0.005 U	0.006 U	0.006 U
VINYL ACETATE	0.011 U	0.011 U	0.011 U	0.011 U	0.013 U	0.011 U	0.011 U	0.012 U	0.012 U
BROMODICHLOROMETHANE	0.006 U	0.006 U	0.006 U	0.005 U	0.006 U	0.006 U	0.005 U	0.006 U	0.006 U
1,2-DICHLOROPROPANE	0.006 U	0.006 U	0.006 U	0.005 U	0.006 U	0.006 U	0.005 U	0.006 U	0.006 U
CIS-1,3-DICHLOROPROPANE	0.006 U	0.006 U	0.006 U	0.005 U	0.006 U	0.006 U	0.005 U	0.006 U	0.006 U
TRICHLOROETHENE	0.006 U	0.006 U	0.006 U	0.005 U	0.006 U	0.006 U	0.005 U	0.006 U	0.006 U
DIBROMOCHLOROMETHANE	0.006 U	0.006 U	0.006 U	0.005 U	0.006 U	0.006 U	0.005 U	0.006 U	0.006 U
1,1,2-TRICHLOROETHANE	0.006 U	0.006 U	0.006 U	0.005 U	0.006 U	0.006 U	0.005 U	0.006 U	0.006 U
BENZENE	0.006 U	0.006 U	0.0005 J	0.005 U	0.006 U	0.006 U	0.005 U	0.006 U	0.006 U
TRANS-1,3-DICHLOROPROPANE	0.006 U	0.006 U	0.006 U	0.005 U	0.006 U	0.006 U	0.005 U	0.006 U	0.006 U
BROMOFORM	0.006 U	0.006 U	0.006 U	0.005 U	0.006 U	0.006 U	0.005 U	0.006 U	0.006 U
4-METHYL-2-PENTANONE	0.011 U	0.011 U	0.011 U	0.011 U	0.013 U	0.011 U	0.011 U	0.012 U	0.012 U
2-HEXANONE	0.011 U	0.011 U	0.011 U	0.011 U	0.013 U	0.011 U	0.011 U	0.012 U	0.012 U
TETRACHLOROETHENE	0.006 U	0.006 U	0.006 U	0.001 J	0.006 U	0.006 U	0.005 U	0.006 U	0.006 U
1,1,2,2-TETRACHLOROETHENE	0.006 U	0.006 U	0.006 U	0.005 U	0.006 U	0.006 U	0.005 U	0.006 U	0.006 U
TOLUENE	0.006 U	0.006 U	0.006 U	0.007	0.006 U	0.006 U	0.001 J	0.002 J	0.006 U
CHLOROBENZENE	0.0004 J	0.008	0.006	0.005 U	0.004 J	0.006 U	0.005 U	0.002 J	0.004 J
ETHYLBENZENE	0.006 U	0.006 U	0.006 U	0.005 U	0.006 U	0.006 U	0.005 U	0.0003 J	0.006 U
STYRENE	0.006 U	0.006 U	0.006 U	0.005 U	0.006 U	0.006 U	0.005 U	0.006 U	0.006 U
TOTAL XYLENES	0.006 U	0.006 U	0.006 U	0.002 J	0.006 U	0.006 U	0.005 U	0.005 J	0.0006 J

TABLE 6
NIAGARA FALLS
SOIL BORING
VOLATILE ANALYSES

	SB-27SR (2-4)	SB-27W (5-6)	SB-28SR (2-4)	SB-28W (6-8)	SB-29SR (4-6)	SB-29W (7-8)	SB-29W (7-8)RE	SB-30SR (2-4)	SB-30W (11.5-12)
CHLOROMETHANE	0.011 U	0.013 U	0.011 U	0.012 U	0.011 U	0.016 UJ	0.017 UJ	0.011 U	0.012 U
BROMOMETHANE	0.011 U	0.013 U	0.011 U	0.012 U	0.011 U	0.016 UJ	0.017 UJ	0.011 U	0.012 U
VINYL CHLORIDE	0.011 U	0.013 U	0.011 U	0.012 U	0.011 U	0.016 UJ	0.017 UJ	0.011 U	0.012 U
CHLOROETHANE	0.011 U	0.013 U	0.011 U	0.012 U	0.011 U	0.016 UJ	0.017 UJ	0.011 U	0.012 U
METHYLENE CHLORIDE	0.006 U	0.007 U	0.005 U	0.006 U	0.005 U	0.018 UJ	0.008 UJ	0.006 U	0.006 U
ACETONE	0.011 U	0.033 U	0.011 U	0.063 U	0.062 U	0.039 UJ	0.042 UJ	0.011 U	0.16 U
CARBON DISULFIDE	0.006 U	0.007 U	0.005 U	0.006 U	0.005 U	0.008 UJ	0.008 UJ	0.006 U	0.002 J
1,1-DICHLOROETHENE	0.006 U	0.007 U	0.005 U	0.006 U	0.005 U	0.008 UJ	0.008 UJ	0.006 U	0.006 U
1,1-DICHLOROETHANE	0.006 U	0.007 U	0.005 U	0.006 U	0.005 U	0.008 UJ	0.008 UJ	0.006 U	0.006 U
1,2-DICHLOROETHENE (TOTAL)	0.006 U	0.007 U	0.005 U	0.006 U	0.005 U	0.008 UJ	0.008 UJ	0.006 U	0.006 U
CHLOROFORM	0.006 U	0.0008 J	0.005 U	0.006 U	0.005 U	0.008 UJ	0.008 UJ	0.006 U	0.006 U
1,2-DICHLOROETHANE	0.006 U	0.007 U	0.005 U	0.006 U	0.005 U	0.008 UJ	0.008 UJ	0.006 U	0.006 U
2-BUTANONE	0.011 U	0.013 U	0.011 U	0.012 U	0.011 U	0.016 UJ	0.017 UJ	0.011 U	0.034
1,1,1-TRICHLOROETHANE	0.006 U	0.007 U	0.005 U	0.006 U	0.005 U	0.008 UJ	0.008 UJ	0.006 U	0.006 U
CARBON TETRACHLORIDE	0.006 U	0.007 U	0.005 U	0.006 U	0.005 U	0.008 UJ	0.008 UJ	0.006 U	0.006 U
VINYL ACETATE	0.011 U	0.013 U	0.011 U	0.012 U	0.011 U	0.016 UJ	0.017 UJ	0.011 U	0.012 U
BROMODICHLOROMETHANE	0.006 U	0.007 U	0.005 U	0.006 U	0.005 U	0.008 UJ	0.008 UJ	0.006 U	0.006 U
1,2-DICHLOROPROPANE	0.006 U	0.007 U	0.005 U	0.006 U	0.005 U	0.008 UJ	0.008 UJ	0.006 U	0.006 U
CIS-1,3-DICHLOROPROPANE	0.006 U	0.007 U	0.005 U	0.006 U	0.005 U	0.008 UJ	0.008 UJ	0.006 U	0.006 U
TRICHLOROETHENE	0.006 U	0.007 U	0.005 U	0.006 U	0.005 U	0.008 UJ	0.008 UJ	0.01	0.0009 J
DIBROMOCHLOROMETHANE	0.006 U	0.007 U	0.005 U	0.006 U	0.005 U	0.008 UJ	0.008 UJ	0.006 U	0.006 U
1,1,2-TRICHLOROETHANE	0.006 U	0.007 U	0.005 U	0.006 U	0.005 U	0.008 UJ	0.008 UJ	0.006 U	0.006 U
BENZENE	0.006 U	0.007 U	0.005 U	0.006 U	0.005 U	0.008 UJ	0.008 UJ	0.006 U	0.0009 J
TRANS-1,3-DICHLOROPROPANE	0.006 U	0.007 U	0.005 U	0.006 U	0.005 U	0.008 UJ	0.008 UJ	0.006 U	0.006 U
BROMOFORM	0.006 U	0.007 U	0.005 U	0.006 U	0.005 U	0.008 UJ	0.008 UJ	0.006 U	0.006 U
4-METHYL-2-PENTANONE	0.011 U	0.013 U	0.011 U	0.012 U	0.011 U	0.016 UJ	0.017 UJ	0.011 U	0.012 U
2-HEXANONE	0.011 U	0.013 U	0.011 U	0.012 U	0.011 U	0.016 UJ	0.017 UJ	0.011 U	0.012 U
TETRACHLOROETHENE	0.006 U	0.007 U	0.005 U	0.006 U	0.005 U	0.008 UJ	0.008 UJ	0.006 U	0.006 U
1,1,2,2-TETRACHLOROETHENE	0.006 U	0.007 U	0.005 U	0.006 U	0.005 U	0.008 UJ	0.008 UJ	0.006 U	0.006 U
TOLUENE	0.006 U	0.002 J	0.0008 J	0.006 U	0.005 U	0.008 UJ	0.008 UJ	0.006 U	0.002 J
CHLOROBENZENE	0.006 U	0.019	0.005 U	0.006 U	0.005 U	0.008 UJ	0.008 UJ	0.006 U	0.006 U
ETHYLBENZENE	0.006 U	0.007 U	0.005 U	0.006 U	0.005 U	0.008 UJ	0.008 UJ	0.006 U	0.006 U
STYRENE	0.006 U	0.007 U	0.005 U	0.006 U	0.005 U	0.008 UJ	0.008 UJ	0.006 U	0.006 U
TOTAL XYLENES	0.006 U	0.007 U	0.0001 J	0.006 U	0.005 U	0.008 UJ	0.008 UJ	0.006 U	0.006 U

TABLE 6
NIAGARA FALLS
SOIL BORING
VOLATILE ANALYSES

	SB-31SR (2-4)	SB-32SR (2-4)	SB-33SR (2-4)	SB-33SR (2-4)	SB-33W (4-6)	SB-38W (2-4)	SB-39W (2-4)	SB-40SR (2-4)	SB-40W (6-8)
CHLOROMETHANE	0.012 U	0.011 U	0.011 U	0.011 U	0.014 U	0.011 U	0.012 U	1.4 U	0.012 U
BROMOMETHANE	0.012 U	0.011 U	0.011 U	0.011 U	0.014 U	0.011 U	0.012 U	1.4 U	0.012 U
VINYL CHLORIDE	0.012 U	0.011 U	0.011 U	0.011 U	0.014 U	0.011 U	0.012 U	1.4 U	0.012 U
CHLOROETHANE	0.012 U	0.011 U	0.011 U	0.011 U	0.014 U	0.011 U	0.012 U	1.4 U	0.012 U
METHYLENE CHLORIDE	0.006 U	0.0003 BJ	0.005 U	0.005 U	0.007 U	0.005 U	0.006 U	0.68 U	0.006 U
ACETONE	0.012 U	0.012 B	0.012 U	0.013 U	0.092 U	0.011 U	0.012 U	1.4 U	0.019 U
CARBON DISULFIDE	0.006 U	0.005 U	0.005 U	0.005 U	0.007 U	0.005 U	0.006 U	0.68 U	0.006 U
1,1-DICHLOROETHENE	0.006 U	0.005 U	0.005 U	0.005 U	0.007 U	0.005 U	0.006 U	0.68 U	0.006 U
1,1-DICHLOROETHANE	0.006 U	0.005 U	0.005 U	0.005 U	0.007 U	0.005 U	0.006 U	0.68 U	0.006 U
1,2-DICHLOROETHENE (TOTAL)	0.006 U	0.005 U	0.005 U	0.005 U	0.007 U	0.005 U	0.006 U	0.68 U	0.005 J
CHLOROFORM	0.006 U	0.005 U	0.005 U	0.005 U	0.007 U	0.005 U	0.006 U	0.68 U	0.006 U
1,2-DICHLOROETHANE	0.006 U	0.005 U	0.005 U	0.005 U	0.007 U	0.005 U	0.006 U	0.68 U	0.006 U
2-BUTANONE	0.012 U	0.011 U	0.011 U	0.011 U	0.014 U	0.011 U	0.012 U	1.4 U	0.012 U
1,1,1-TRICHLOROETHANE	0.006 U	0.005 U	0.005 U	0.005 U	0.007 U	0.005 U	0.006 U	0.68 U	0.006 U
CARBON TETRACHLORIDE	0.006 U	0.005 U	0.005 U	0.005 U	0.007 U	0.005 U	0.006 U	0.68 U	0.006 U
VINYL ACETATE	0.012 U	0.011 U	0.011 U	0.011 U	0.014 U	0.011 U	0.012 U	1.4 U	0.012 U
BROMODICHLOROMETHANE	0.006 U	0.005 U	0.005 U	0.005 U	0.007 U	0.005 U	0.006 U	0.68 U	0.006 U
1,2-DICHLOROPROPANE	0.006 U	0.005 U	0.005 U	0.005 U	0.007 U	0.005 U	0.006 U	0.68 U	0.006 U
CIS-1,3-DICHLOROPROPANE	0.006 U	0.005 U	0.005 U	0.005 U	0.007 U	0.005 U	0.006 U	0.68 U	0.006 U
TRICHLOROETHENE	0.006 U	0.005 U	0.005 U	0.005 U	0.007 U	0.005 U	0.006 U	0.68 U	0.013
DIBROMOCHLOROMETHANE	0.006 U	0.005 U	0.005 U	0.005 U	0.007 U	0.005 U	0.006 U	0.68 U	0.006 U
1,1,2-TRICHLOROETHANE	0.006 U	0.005 U	0.005 U	0.005 U	0.007 U	0.005 U	0.006 U	0.68 U	0.006 U
BENZENE	0.006 U	0.005 U	0.005 U	0.005 U	0.007 U	0.005 U	0.006 U	0.68 U	0.006 U
TRANS-1,3-DICHLOROPROPANE	0.006 U	0.005 U	0.005 U	0.005 U	0.007 U	0.005 U	0.006 U	0.68 U	0.006 U
BROMOFORM	0.006 U	0.005 U	0.005 U	0.005 U	0.007 U	0.005 U	0.006 U	0.68 U	0.006 U
4-METHYL-2-PENTANONE	0.012 U	0.011 U	0.011 U	0.011 U	0.014 U	0.011 U	0.012 U	1.4 U	0.012 U
2-HEXANONE	0.012 U	0.011 U	0.011 U	0.011 U	0.014 U	0.011 U	0.012 U	1.4 U	0.012 U
TETRACHLOROETHENE	0.006 U	0.0003 J	0.0003 J	0.0003 J	0.002 J	0.001 J	0.03	1.1	0.03
1,1,2,2-TETRACHLOROETHENE	0.006 U	0.005 U	0.005 U	0.005 U	0.007 U	0.005 U	0.006 U	0.68 U	0.006 U
TOLUENE	0.002 J	0.001 J	0.001 J	0.002 J	0.007 U	0.005 U	0.006 U	0.68 U	0.0001 J
CHLOROBENZENE	0.006 U	0.005 U	0.005 U	0.005 U	0.007 U	0.005 U	0.006 U	0.68 U	0.006 U
ETHYLBENZENE	0.006 U	0.005 U	0.005 U	0.005 U	0.007 U	0.005 U	0.006 U	0.68 U	0.006 U
STYRENE	0.006 U	0.005 U	0.005 U	0.005 U	0.007 U	0.005 U	0.006 U	0.68 U	0.006 U
TOTAL XYLENES	0.002 J	0.005 U	0.005 U	0.001 J	0.007 U	0.005 U	0.006 U	0.68 U	0.006 U

TABLE 6
NIAGARA FALLS
SOIL BORING
VOLATILE ANALYSES

DATE COLLECTED	EQBLK 5/3/91	EQBLK 5/8/91	EQBLK 5/17/91	TBLK 4/30/91	TBLK 5/1/91	TBLK 5/2/91	TBLK 5/3/91	TBLK 5/6/91	TBLK 5/7/91
CHLOROMETHANE	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
BROMOMETHANE	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
VINYL CHLORIDE	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
CHLOROETHANE	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
METHYLENE CHLORIDE	0.005 U	0.005 U	0.005 U	0.002 J	0.002 J	0.002 J	0.002 J	0.001 J	0.001 J
ACETONE	0.01 U	0.01 U	0.028	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
CARBON DISULFIDE	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
1,1-DICHLOROETHENE	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
1,1-DICHLOROETHANE	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
1,2-DICHLOROETHENE (TOTAL)	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
CHLOROFORM	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
1,2-DICHLOROETHANE	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
2-BUTANONE	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
1,1,1-TRICHLOROETHANE	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
CARBON TETRACHLORIDE	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
VINYL ACETATE	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
BROMODICHLOROMETHANE	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
1,2-DICHLOROPROPANE	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
CIS-1,3-DICHLOROPROPANE	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
TRICHLOROETHENE	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
DIBROMOCHLOROMETH. NE	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
1,1,2-TRICHLOROETHANE	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
BENZENE	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
TRANS-1,3-DICHLOROPROPANE	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
BROMOFORM	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
4-METHYL-2-PENTANONE	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
2-HEXANONE	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
TETRACHLOROETHENE	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
1,1,2,2-TETRACHLOROETHENE	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
TOLUENE	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
CHLOROBENZENE	0.0006 J	0.005 U	0.0006 J	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
ETHYLBENZENE	0.001 J	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
STYRENE	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
TOTAL XYLENES	0.013	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U

TABLE 6
NIAGARA FALLS
SOIL BORING
VOLATILE ANALYSES

DATE COLLECTED	TBLK 5/9/91		TBLK 5/14/91		TBLK 5/16/91		TBLK 5/17/91		TBLK 5/20/91	
CHLOROMETHANE	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U
BROMOMETHANE	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U
VINYL CHLORIDE	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U
CHLOROETHANE	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U
METHYLENE CHLORIDE	0.005	U	0.001	J	0.002	J	0.002	J	0.002	J
ACETONE	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U
CARBON DISULFIDE	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U
1,1-DICHLOROETHENE	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U
1,1-DICHLOROETHANE	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U
1,2-DICHLOROETHENE (TOTAL)	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U
CHLOROFORM	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U
1,2-DICHLOROETHANE	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U
2-BUTANONE	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U
1,1,1-TRICHLOROETHANE	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U
CARBON TETRACHLORIDE	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U
VINYL ACETATE	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U
BROMODICHLOROMETHANE	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U
1,2-DICHLOROPROPANE	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U
CIS-1,3-DICHLOROPROPANE	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U
TRICHLOROETHENE	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U
DIBROMOCHLOROMETHANE	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U
1,1,2-TRICHLOROETHANE	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U
BENZENE	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U
TRANS-1,3-DICHLOROPROPANE	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U
BROMOFORM	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U
4-METHYL-2-PENTANONE	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U
2-HEXANONE	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U
TETRACHLOROETHENE	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U
1,1,2,2-TETRACHLOROETHENE	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U
TOLUENE	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U
CHLOROBENZENE	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U
ETHYLBENZENE	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U
STYRENE	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U
TOTAL XYLENES	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U

TABLE 7
NIAGARA FALLS
SOIL BORING
SEMIVOLATILE ANALYSES

	SB-14SR (2-6)	SB-14W (6-12)	SB-15SR (2-8)	SB-15W (8-16)	SB-15W (8-16) DL	SB-16SR (2-6)	SB-16W (6-16)	SB-17SR (2-10)	SB-18SR (2-4)	SB-18W (4-22)	SB-19W (10-20)	SB-19SR (2-10)	BL DUP SB-19SR (2-10)
Phenol	0.74 U	0.72 U	0.74 U	0.78 U	3.9 U	0.72 U	0.76 U	0.77 U	0.74 UJ	0.75 U	0.76 U	0.73 R	0.74 U
bis(2-Chloroethyl)ether	0.74 U	0.72 U	0.74 U	0.78 U	3.9 U	0.72 U	0.76 U	0.77 U	0.74 UJ	0.75 U	0.76 U	0.73 U	0.74 U
2-Chlorophenol	0.74 U	0.72 U	0.74 U	0.78 U	3.9 U	0.72 U	0.76 U	0.77 U	0.74 UJ	0.75 U	0.76 U	0.73 R	0.74 U
1,3-Dichlorobenzene	0.74 U	0.72 U	0.74 U	0.78 U	3.9 U	0.72 U	0.76 U	0.77 U	0.74 UJ	0.08 J	0.76 U	0.73 U	0.74 U
1,4-Dichlorobenzene	0.74 U	0.72 U	0.74 U	0.069 J	3.9 U	0.72 U	0.76 U	0.77 U	0.74 UJ	0.09 J	0.76 U	0.73 U	0.74 U
Benzyl Alcohol	0.74 U	0.72 U	0.74 U	0.78 U	3.9 U	0.72 U	0.76 U	0.77 U	0.74 UJ	0.75 U	0.76 U	0.73 U	0.74 U
1,2-Dichlorobenzene	0.74 U	0.72 U	0.74 U	0.056 J	3.9 U	0.72 U	0.76 U	0.77 U	0.74 UJ	0.75 U	0.76 U	0.73 U	0.74 U
2-Methylphenol	0.74 U	0.72 U	0.74 U	0.78 U	3.9 U	0.72 U	0.76 U	0.77 U	0.74 UJ	0.75 U	0.76 U	0.73 R	0.74 U
bis(2-Chloroisopropyl)ether	0.74 U	0.72 U	0.74 U	0.78 U	3.9 U	0.72 U	0.76 U	0.77 U	0.74 UJ	0.75 U	0.76 U	0.73 U	0.74 U
4-Methylphenol	0.74 U	0.72 U	0.74 U	0.78 U	3.9 U	0.72 U	0.76 U	0.77 U	0.74 UJ	0.75 U	0.76 U	0.73 R	0.74 U
N-Nitroso-di-n-propylamine	0.74 U	0.72 U	0.74 U	0.78 U	3.9 U	0.72 U	0.76 U	0.77 U	0.74 UJ	0.75 U	0.76 U	0.73 U	0.74 U
Hexachloroethane	0.74 U	0.72 U	0.74 U	0.78 U	3.9 U	0.72 U	0.76 U	0.77 U	0.74 UJ	0.75 U	0.76 U	0.73 U	0.74 U
Nitrobenzene	0.74 U	0.72 U	0.74 U	0.78 U	3.9 U	0.72 U	0.76 U	0.77 U	0.74 UJ	0.75 U	0.76 U	0.73 U	0.74 U
Isophorone	0.74 U	0.72 U	0.74 U	0.78 U	3.9 U	0.72 U	0.76 U	0.77 U	0.74 UJ	0.75 U	0.76 U	0.73 U	0.74 U
2-Nitrophenol	0.74 U	0.72 U	0.74 U	0.78 U	3.9 U	0.72 U	0.76 U	0.77 U	0.74 UJ	0.75 U	0.76 U	0.73 R	0.74 U
2,4-Dimethylphenol	0.74 U	0.72 U	0.74 U	0.78 U	3.9 U	0.72 U	0.76 U	0.77 U	0.74 UJ	0.75 U	0.76 U	0.73 R	0.74 U
Benzoic Acid	3.6 U	3.5 U	3.6 U	0.063 J	19 U	3.5 U	3.7 U	3.7 U	3.6 UJ	3.6 U	3.7 U	3.6 R	3.6 U
bis(2-Chloroethoxy)methane	0.74 U	0.72 U	0.74 U	0.78 U	3.9 U	0.72 U	0.76 U	0.77 U	0.74 UJ	0.75 U	0.76 U	0.73 U	0.74 U
2,4-Dichlorophenol	0.74 U	0.72 U	0.74 U	0.78 U	3.9 U	0.72 U	0.76 U	0.77 U	0.74 UJ	0.75 U	0.76 U	0.73 R	0.74 U
1,2,4-Trichlorobenzene	0.74 U	0.72 U	0.15 J	0.78 U	3.9 U	0.72 U	0.76 U	0.77 U	0.15 J	0.22 J	0.76 U	0.73 U	0.14 J
Naphthalene	0.74 U	0.72 U	0.74 U	1.6	1.7 J	0.72 U	0.21 J	0.77 U	0.74 UJ	0.75 U	0.76 U	0.73 U	0.74 U
4-Chloroaniline	0.74 U	0.72 U	0.74 U	0.78 U	3.9 U	0.72 U	0.76 U	0.77 U	0.74 UJ	0.75 U	0.76 U	0.73 U	0.74 U
Hexachlorobutadiene	0.74 U	0.72 U	0.74 U	0.78 U	3.9 U	0.72 U	0.76 U	0.77 U	0.74 UJ	0.75 U	0.76 U	0.09 J	0.14 J
4-Chloro-3-Methylphenol	0.74 U	0.72 U	0.74 U	0.78 U	3.9 U	0.72 U	0.76 U	0.77 U	0.74 UJ	0.75 U	0.76 U	0.73 R	0.74 U
2-Methylnaphthalene	0.74 U	0.72 U	0.74 U	0.8	0.7 J	0.72 U	0.047 J	0.77 U	0.74 UJ	0.75 U	0.049 J	0.73 U	0.036 J
Hexachlorocyclopentadiene	0.74 U	0.72 U	0.74 U	0.78 U	3.9 U	0.72 U	0.76 U	0.77 U	0.74 UJ	0.75 U	0.76 U	0.73 U	0.74 U
2,4,6-Trichlorophenol	0.74 U	0.72 U	0.74 U	0.78 U	3.9 U	0.72 U	0.76 U	0.77 U	0.74 UJ	0.75 U	0.76 U	0.73 R	0.74 U
2,4,5-Trichlorophenol	3.6 U	3.5 U	3.6 U	3.8 U	19 U	3.5 U	3.7 U	3.7 U	3.6 UJ	3.6 U	3.7 U	3.6 R	3.6 U
2-Chloronaphthalene	0.74 U	0.72 U	0.74 U	0.78 U	3.9 U	0.72 U	0.76 U	0.77 U	0.74 UJ	0.75 U	0.76 U	0.73 U	0.74 U
2-Nitroaniline	3.6 U	3.5 U	3.6 U	3.8 U	19 U	3.5 U	3.7 U	3.7 U	3.6 UJ	3.6 U	3.7 U	3.6 U	3.6 U
Dimethyl phthalate	0.74 U	0.72 U	0.74 U	0.78 U	3.9 U	0.72 U	0.76 U	0.77 U	0.74 UJ	0.75 U	0.76 U	0.73 U	0.74 U
Acenaphthylene	0.74 U	0.72 U	0.74 U	0.078 J	3.9 U	0.72 U	0.053 J	0.77 U	0.74 UJ	0.75 U	0.76 U	0.73 U	0.74 U
2,6-Dinitrotoluene	0.74 U	0.72 U	0.74 U	0.78 U	3.9 U	0.72 U	0.76 U	0.77 U	0.74 UJ	0.75 U	0.76 U	0.73 U	0.74 U

NOTES: All values reported in mg/kg (ppm).
U – Compound was analyzed but not detected.
J – Indicates an estimated value. (GC/MS only)
R – Rejected by data validator.
DL – Sample extract diluted per method requirements.

TABLE 7
NIAGARA FALLS
SOIL BORING
SEMIVOLATILE ANALYSES

	SB-14SR (2-6)	SB-14W (6-12)	SB-15SR (2-8)	SB-15W (8-16)	SB-15W (8-16) DL	SB-16SR (2-6)	SB-16W (6-16)	SB-17SR (2-10)	SB-18SR (2-4)	SB-18W (4-22)	SB-19W (10-20)	SB-19SR (2-10)	BL DUP SB-19SR (2-10)
3-Nitroaniline	3.6 U	3.5 U	3.6 U	3.8 U	19 U	3.5 U	3.7 U	3.7 U	3.6 UJ	3.6 U	3.7 U	3.6 U	3.6 U
Acenaphthene	0.74 U	0.72 U	0.74 U	2.4	2.7 J	0.72 U	0.13 J	0.77 U	0.74 UJ	0.75 U	0.76 U	0.73 U	0.74 U
2,4-Nitrophenol	3.6 U	3.5 U	3.6 U	3.8 U	19 U	3.5 U	3.7 U	3.7 U	3.6 UJ	3.6 U	3.7 U	3.6 R	3.6 U
4-Nitrophenol	3.6 U	3.5 U	3.6 U	3.8 U	19 U	3.5 U	3.7 U	0.77 U	3.6 UJ	3.6 U	3.7 U	3.6 R	3.6 U
Dibenzofuran	0.74 U	0.72 U	0.74 U	2.4	2.5 J	0.72 U	0.092 J	0.77 U	0.74 UJ	0.75 U	0.76 U	0.73 U	0.74 U
2,4-Dinitrotoluene	0.74 U	0.72 U	0.74 U	0.78 U	3.9 U	0.72 U	0.76 U	0.77 U	0.74 UJ	0.75 U	0.76 U	0.73 U	0.74 U
Diethylphthalate	0.74 U	0.72 U	0.74 U	0.78 U	3.9 U	0.72 U	0.76 U	0.77 U	0.74 UJ	0.75 U	0.76 U	0.73 U	0.74 U
4-Chlorophenyl-phenylether	0.74 U	0.72 U	0.74 U	0.78 U	3.9 U	0.72 U	0.76 U	0.77 U	0.74 UJ	0.75 U	0.76 U	0.73 U	0.74 U
Fluorene	0.74 U	0.72 U	0.74 U	3.6	3.5 J	0.72 U	0.15 J	0.77 U	0.74 UJ	0.75 U	0.76 U	0.73 U	0.74 U
4-Nitroaniline	3.6 U	3.5 U	3.6 U	3.8 U	19 U	3.5 U	3.7 U	3.7 U	3.6 UJ	3.6 U	3.7 U	3.6 U	3.6 U
4,6-Dinitro-2-methylphenol	3.6 U	3.5 U	3.6 U	3.8 U	19 U	3.5 U	3.7 U	3.7 U	3.6 UJ	3.6 U	3.7 U	3.6 R	3.6 U
N-Nitrosodiphenylamine	0.74 U	0.72 U	0.74 U	0.78 U	3.9 U	0.72 U	0.76 U	0.77 U	0.74 UJ	0.75 U	0.76 U	0.73 U	0.02 J
4-Bromophenyl-phenylether	0.74 U	0.72 U	0.74 U	0.78 U	3.9 U	0.72 U	0.76 U	0.77 U	0.74 UJ	0.75 U	0.76 U	0.73 U	0.74 U
Hexachlorobenzene	0.74 U	0.72 U	0.74 U	0.78 U	3.9 U	0.72 U	0.76 U	0.77 U	0.74 UJ	0.75 U	0.76 U	0.11 J	0.16 J
Pentachlorophenol	3.6 U	3.5 U	3.6 U	3.8 U	19 U	3.5 U	3.7 U	3.7 U	3.6 UJ	3.6 U	3.7 U	3.6 R	3.6 U
Phenanthrene	0.74 U	0.29 J	0.74 U	16 J	26	0.72 U	1.3	0.019 J	0.74 UJ	0.75 U	0.048 J	0.73 U	0.039 J
Anthracene	0.74 U	0.18 J	0.74 U	5	5.8	0.72 U	0.3 J	0.77 U	0.74 UJ	0.75 U	0.76 U	0.73 U	0.74 U
Di-n-butylphthalate	0.95 U	1.5 U	2 U	1.1 U	3.9 U	0.72 U	1.2 U	2 U	0.48 J	2.9 U	2.4 U	2.9 U	4.2 J
Fluoranthene	0.74 U	2.1	0.04 J	17 J	24	0.052 J	2	0.77 U	0.74 UJ	0.75 U	0.76 U	0.73 U	0.029 J
Pyrene	0.74 U	1.7	0.74 U	15 J	27	0.048 J	1.8	0.77 U	0.74 UJ	0.075 J	0.76 U	0.73 U	0.028 J
Butylbenzylphthalate	0.74 U	0.72 U	0.74 U	0.78 U	3.9 U	0.72 U	0.76 U	0.029 J	0.74 UJ	0.75 U	0.76 U	0.097 J	0.29 J
3,3-Dichlorobenzidine	1.5 U	1.4 U	1.5 U	1.6 U	7.8 U	1.4 U	1.5 U	1.5 U	1.5 UJ	1.5 U	1.5 U	1.5 U	1.5 U
Benzo(a)anthracene	0.74 U	1.4	0.74 U	8.8	14	0.72 U	1	0.77 U	0.74 UJ	0.056 J	0.76 U	0.73 U	0.74 U
Chrysene	0.74 U	1.1	0.74 U	6	9.6	0.72 U	0.87	0.049 J	0.74 UJ	0.072 J	0.76 U	0.73 U	0.74 U
bis(2-Ethylhexyl)phthalate	0.11 J	0.49 J	0.24 J	0.96	0.92 J	0.14 J	0.47 J	2.1	1.8 J	0.16 J	0.31 J	0.4 J	0.4 J
Di-n-octylphthalate	0.74 U	0.72 U	0.74 U	0.78 U	3.9 U	0.72 U	0.76 U	0.77 U	0.74 UJ	0.75 U	0.76 U	0.73 U	0.74 U
Benzo(b)fluoranthene	0.74 U	1.1	0.74 U	8.4	8.5	0.72 U	0.95	0.77 U	0.74 UJ	0.11 J	0.76 U	0.73 U	0.74 U
Benzo(k)fluoranthene	0.74 U	0.71 J	0.74 U	4.4	4.8	0.72 U	0.53 J	0.77 U	0.74 UJ	0.75 U	0.76 U	0.73 U	0.74 U
Benzo(a)pyrene	0.74 U	0.79	0.74 U	6.1	7.8	0.72 U	0.79	0.77 U	0.74 UJ	0.031 J	0.76 U	0.73 U	0.065 J
Indeno(1,2,3-cd)pyrene	0.74 U	0.41 J	0.74 U	2.1	5.1	0.72 U	0.38 J	0.77 U	0.74 UJ	0.75 U	0.76 U	0.73 U	0.74 U
Dibenzo(a,h)anthracene	0.74 U	0.13 J	0.74 U	0.15 J	3.9 U	0.72 U	0.11 J	0.77 U	0.74 UJ	0.75 U	0.76 U	0.73 U	0.74 U
Benzo(g,h,i)perylene	0.74 U	0.27 J	0.74 U	1.5	3.6 J	0.72 U	0.3 J	0.77 U	0.74 UJ	0.75 U	0.76 U	0.73 U	0.74 U

TABLE 7
NIAGARA FALLS
SOIL BORING
SEMIVOLATILE ANALYSES

	SB-20W (2-19)	SB-21SR (2-19.5)	SB-22SR (2-14)	SB-23SR (2-5)	SB-23W (5-16)	SB-24SR (2-6)	SB-24W (6-19)	SB-25SR (2-11)	SB-25W (11-13)	SB-26SR (2-5)	BL DUP SB-26SR (2-5)	SB-26W (5-10)	BL DUP SB-26W (5-10)
Phenol	0.78 U	0.71 R	0.73 U	0.7 U	0.73 U	0.74 U	0.75 U	0.74 U	0.85 R	0.71 U	0.72 U	0.8 U	0.71 U
bis(2-Chloroethyl)ether	0.78 U	0.71 U	0.73 U	0.7 U	0.73 U	0.74 U	0.75 U	0.74 U	0.85 U	0.71 U	0.72 U	0.8 U	0.71 U
2-Chlorophenol	0.78 U	0.71 R	0.73 U	0.7 U	0.73 U	0.74 U	0.75 U	0.74 U	0.85 R	0.71 U	0.72 U	0.8 U	0.71 U
1,3-Dichlorobenzene	0.78 U	0.71 U	0.65 J	0.7 U	0.73 U	0.74 U	0.75 U	0.74 U	0.85 U	0.71 U	0.72 U	0.33 J	0.68 J
1,4-Dichlorobenzene	0.78 U	0.71 U	0.18 J	0.7 U	0.73 U	0.74 U	0.75 U	0.74 U	0.85 U	0.71 U	0.72 U	0.33 J	0.63 J
Benzyl Alcohol	0.78 U	0.71 U	0.73 U	0.7 U	0.73 U	0.74 U	0.75 U	0.74 U	0.85 U	0.71 U	0.72 U	0.8 U	0.71 U
1,2-Dichlorobenzene	0.78 U	0.71 U	0.73 U	0.7 U	0.73 U	0.74 U	0.75 U	0.74 U	0.85 U	0.71 U	0.72 U	0.8 U	0.71 U
2-Methylphenol	0.78 U	0.71 R	0.73 U	0.7 U	0.73 U	0.74 U	0.75 U	0.74 U	0.85 R	0.71 U	0.72 U	0.8 U	0.71 U
bis(2-Chloroisopropyl)ether	0.78 U	0.71 U	0.73 U	0.7 U	0.73 U	0.74 U	0.75 U	0.74 U	0.85 U	0.71 U	0.72 U	0.8 U	0.71 U
4-Methylphenol	0.78 U	0.71 R	0.73 U	0.7 U	0.73 U	0.74 U	0.75 U	0.74 U	0.85 R	0.71 U	0.72 U	0.8 U	0.71 U
N-Nitroso-di-n-propylamine	0.78 U	0.71 U	0.73 U	0.7 U	0.73 U	0.74 U	0.75 U	0.74 U	0.85 U	0.71 U	0.72 U	0.8 U	0.71 U
Hexachloroethane	0.78 U	0.71 U	0.73 U	0.7 U	0.73 U	0.74 U	0.75 U	0.74 U	0.85 U	0.71 U	0.72 U	0.8 U	0.71 U
Nitrobenzene	0.78 U	0.71 U	0.73 U	0.7 U	0.73 U	0.74 U	0.75 U	0.74 U	0.85 U	0.71 U	0.72 U	0.8 U	0.71 U
Isophorone	0.78 U	0.71 U	0.73 U	0.7 U	0.73 U	0.74 U	0.75 U	0.74 U	0.85 U	0.71 U	0.72 U	0.8 U	0.71 U
2-Nitrophenol	0.78 U	0.71 R	0.73 U	0.7 U	0.73 U	0.74 U	0.75 U	0.74 U	0.85 R	0.71 U	0.72 U	0.8 U	0.71 U
2,4-Dimethylphenol	0.78 U	0.71 R	0.73 U	0.7 U	0.73 U	0.74 U	0.75 U	0.74 U	0.85 R	0.71 U	0.72 U	0.8 U	0.71 U
Benzoic Acid	3.8 U	3.4 R	3.5 U	3.4 U	0.82 J	0.45 J	3.6 U	0.25 J	4.1 R	3.5 U	3.5 U	3.9 U	3.4 U
bis(2-Chloroethoxy)methane	0.78 U	0.71 U	0.73 U	0.7 U	0.73 U	0.74 U	0.75 U	0.74 U	0.85 U	0.71 U	0.72 U	0.8 U	0.71 U
2,4-Dichlorophenol	0.78 U	0.71 R	0.73 U	0.7 U	0.73 U	0.74 U	0.75 U	0.74 U	0.85 R	0.71 U	0.72 U	0.8 U	0.71 U
1,2,4-Trichlorobenzene	0.78 U	0.71 U	0.75	0.7 U	0.16 J	0.74 U	0.75 U	0.74 U	0.85 U	0.71 U	0.72 U	0.8 U	0.13 J
Naphthalene	0.78 U	0.71 U	0.73 U	0.7 U	0.73 U	0.74 U	0.75 U	0.74 U	0.85 U	0.71 U	0.72 U	0.16 J	0.71 U
4-Chloroaniline	0.78 U	0.71 U	0.73 U	0.7 U	0.73 U	0.74 U	0.75 U	0.74 U	0.85 U	0.71 U	0.72 U	0.8 U	0.71 U
Hexachlorobutadiene	0.78 U	0.71 U	0.73 U	0.7 U	0.73 U	0.74 U	0.75 U	0.74 U	0.85 U	0.71 U	0.72 U	0.8 U	0.71 U
4-Chloro-3-Methylphenol	0.78 U	0.71 R	0.73 U	0.7 U	0.73 U	0.74 U	0.75 U	0.74 U	0.85 R	0.71 U	0.72 U	0.8 U	0.71 U
2-Methylnaphthalene	0.78 U	0.072 U	0.73 U	0.7 U	0.73 U	0.74 U	0.75 U	0.74 U	0.85 U	0.71 U	0.72 U	0.28 J	0.082 J
Hexachlorocyclopentadiene	0.78 U	0.71 U	0.73 U	0.7 U	0.73 U	0.74 U	0.75 U	0.74 U	0.85 U	0.71 U	0.72 U	0.8 U	0.71 U
2,4,6-Trichlorophenol	0.78 U	0.71 R	0.73 U	0.7 U	0.73 U	0.74 U	0.75 U	0.74 U	0.85 R	0.71 U	0.72 U	0.8 U	0.71 U
2,4,5-Trichlorophenol	3.8 U	3.4 R	3.5 U	3.4 U	3.6 U	3.6 U	3.6 U	3.6 U	4.1 R	3.5 U	3.5 U	3.9 U	3.4 U
2-Chloronaphthalene	0.78 U	0.71 U	0.73 U	0.7 U	0.73 U	0.74 U	0.75 U	0.74 U	0.85 U	0.71 U	0.72 U	0.8 U	0.71 U
2-Nitroaniline	3.8 U	3.4 U	3.5 U	3.4 U	3.6 U	3.6 U	3.6 U	3.6 U	4.1 U	3.5 U	3.5 U	3.9 U	3.4 U
Dimethyl phthalate	0.78 U	0.71 U	0.73 U	0.7 U	0.73 U	0.74 U	0.75 U	0.74 U	0.85 U	0.71 U	0.72 U	0.8 U	0.71 U
Acenaphthylene	0.78 U	0.71 U	0.73 U	0.7 U	0.73 U	0.74 U	0.75 U	0.74 U	0.85 U	0.71 U	0.72 U	0.8 U	0.71 U
2,6-Dinitrotoluene	0.78 U	0.71 U	0.73 U	0.7 U	0.73 U	0.74 U	0.75 U	0.74 U	0.85 U	0.71 U	0.72 U	0.8 U	0.71 U

TABLE 7
NIAGARA FALLS
SOIL BORING
SEMIVOLATILE ANALYSES

	SB-20W (2-19)	SB-21SR (2-19.5)	SB-22SR (2-14)	SB-23SR (2-5)	SB-23W (5-16)	SB-24SR (2-6)	SB-24W (6-19)	SB-25SR (2-11)	SB-25W (11-13)	SB-26SR (2-5)	BL DUP SB-26SR (2-5)	SB-26W (5-10)	BL DUP SB-26W (5-10)
3-Nitroaniline	3.8 U	3.4 U	3.5 U	3.4 U	3.6 U	3.6 U	3.6 U	3.6 U	4.1 U	3.5 U	3.5 U	3.9 U	3.4 U
Acenaphthene	0.78 U	0.71 U	0.73 U	0.7 U	0.73 U	0.74 U	0.75 U	0.74 U	0.024 U	0.71 U	0.72 U	0.8 U	0.04 J
2,4-Nitrophenol	3.8 U	3.4 R	3.5 U	3.4 U	3.6 U	3.6 U	3.6 U	3.6 U	4.1 R	3.5 U	3.5 U	3.9 U	3.4 U
4-Nitrophenol	3.8 U	3.4 R	3.5 U	3.4 U	3.6 U	3.6 U	3.6 U	3.6 U	4.1 R	3.5 U	3.5 U	3.9 U	3.4 U
Dibenzofuran	0.78 U	0.71 U	0.73 U	0.7 U	0.73 U	0.74 U	0.75 U	0.74 U	0.85 U	0.71 U	0.72 U	0.084 J	0.041 J
2,4-Dinitrotoluene	0.78 U	0.71 U	0.73 U	0.7 U	0.73 U	0.74 U	0.75 U	0.74 U	0.85 U	0.71 U	0.72 U	0.8 U	0.71 U
Diethylphthalate	0.78 U	0.71 U	0.73 U	0.7 U	0.73 U	0.74 U	0.75 U	0.74 U	0.85 U	0.71 U	0.72 U	0.8 U	0.71 U
4-Chlorophenyl-phenylether	0.78 U	0.71 U	0.73 U	0.7 U	0.73 U	0.74 U	0.75 U	0.74 U	0.85 U	0.71 U	0.72 U	0.8 U	0.71 U
Fluorene	0.78 U	0.71 U	0.73 U	0.7 U	0.73 U	0.74 U	0.75 U	0.74 U	0.85 U	0.71 U	0.72 U	0.8 U	0.71 U
4-Nitroaniline	3.8 U	3.4 U	3.5 U	3.4 U	3.6 U	3.6 U	3.6 U	3.6 U	4.1 U	3.5 U	3.5 U	3.9 U	3.4 U
4,6-Dinitro-2-methylphenol	3.8 U	3.4 R	3.5 U	3.4 U	3.6 U	3.6 U	3.6 U	3.6 U	4.1 R	3.5 U	3.5 U	3.9 U	3.4 U
N-Nitrosodiphenylamine	0.78 U	0.71 U	0.73 U	0.7 U	0.73 U	0.74 U	0.75 U	0.74 U	0.85 U	0.71 U	0.72 U	0.8 U	0.71 U
4-Bromophenyl-phenylether	0.78 U	0.71 U	0.73 U	0.7 U	0.73 U	0.74 U	0.75 U	0.74 U	0.85 U	0.71 U	0.72 U	0.8 U	0.71 U
Hexachlorobenzene	0.78 U	0.71 U	0.73 U	0.7 U	0.1 J	0.74 U	0.75 U	0.74 U	0.85 U	0.71 U	0.72 U	0.8 U	0.71 U
Pentachlorophenol	3.8 U	3.4 R	3.5 U	3.4 U	3.6 U	3.6 U	3.6 U	3.6 U	4.1 R	3.5 U	3.5 U	3.9 U	3.4 U
Phenanthrene	0.072 J	0.062 J	0.73 U	0.7 U	0.25 J	0.74 U	0.75 U	0.74 U	0.85 U	0.71 U	0.72 U	0.29 J	0.41 J
Anthracene	0.78 U	0.71 U	0.73 U	0.7 U	0.73 U	0.74 U	0.75 U	0.74 U	0.85 U	0.71 U	0.72 U	0.8 U	0.096 J
Di-n-butylphthalate	0.056 J	0.71 U	3.6 U	0.7 U	0.73 U	0.74 U	0.75 U	0.74 U	0.85 U	0.71 U	0.72 U	0.8 U	0.71 U
Fluoranthene	0.2 J	0.71 U	0.73 U	0.7 U	0.36 J	0.74 U	0.75 U	0.74 U	0.85 U	0.71 U	0.72 U	0.36 J	0.94
Pyrene	0.2 J	0.71 U	0.73 U	0.7 U	0.32 J	0.74 U	0.75 U	0.74 U	0.85 U	0.71 U	0.72 U	0.4 J	0.88
Butylbenzylphthalate	0.78 U	0.71 U	0.44 J	0.7 U	0.73 U	0.74 U	0.75 U	0.74 U	0.85 U	0.71 U	0.72 U	0.8 U	0.71 U
3,3-Dichlorobenzidine	1.6 U	1.4 U	1.5 U	1.4 U	1.5 U	1.5 U	1.5 U	1.5 U	1.7 U	1.4 U	1.4 U	1.6 U	1.4 U
Benzo(a)anthracene	0.13 J	0.71 U	0.73 U	0.7 U	0.2 J	0.74 U	0.75 U	0.74 U	0.85 U	0.71 U	0.72 U	0.43 J	0.84
Chrysene	0.14 J	0.71 U	0.73 U	0.7 U	0.17 J	0.74 U	0.75 U	0.74 U	0.85 U	0.71 U	0.72 U	0.39 J	0.71 J
bis(2-Ethylhexyl)phthalate	5.1	2.9	0.37 J	0.39 J	0.28 J	0.74 U	2.1	0.4 J	0.46 J	0.71 U	0.72 U	0.8 U	0.34 J
Di-n-octylphthalate	0.78 U	0.71 U	0.73 U	0.7 U	0.73 U	0.74 U	0.75 U	0.74 U	0.85 U	0.71 U	0.72 U	0.8 U	0.71 U
Benzo(b)fluoranthene	0.16 J	0.71 U	0.73 U	0.7 U	0.2 J	0.74 U	0.75 U	0.74 U	0.3 J	0.71 U	0.72 U	0.53 J	1
Benzo(k)fluoranthene	0.087 J	0.71 U	0.73 U	0.7 U	0.73 U	0.74 U	0.75 U	0.74 U	0.85 U	0.71 U	0.72 U	0.28 J	0.39 J
Benzo(a)pyrene	0.11 J	0.71 U	0.73 U	0.7 U	0.73 U	0.74 U	0.75 U	0.74 U	0.85 U	0.71 U	0.72 U	0.39 J	0.81
Indeno(1,2,3-cd)pyrene	0.78 U	0.71 U	0.73 U	0.7 U	0.73 U	0.74 U	0.75 U	0.74 U	0.85 U	0.71 U	0.72 U	0.8 U	0.48 J
Dibenzo(a,h)anthracene	0.78 U	0.71 U	0.73 U	0.7 U	0.73 U	0.74 U	0.75 U	0.74 U	0.85 U	0.71 U	0.72 U	0.8 U	0.1 J
Benzo(g,h,i)perylene	0.78 U	0.71 U	0.73 U	0.7 U	0.73 U	0.74 U	0.75 U	0.74 U	0.85 U	0.71 U	0.72 U	0.8 U	0.38 J

TABLE 7
NIAGARA FALLS
SOIL BORING
SEMIVOLATILE ANALYSES

	SB-27SR (2-5)	SB-27W (5-13.5)	SB-27W (5-13.5) DL	SB-28SR (2-5)	SB-28SR (2-5) DL	SB-28W (5-11)	SB-29SR (4-7)	SB-29W (7-11)	SB-30SR (2-11.5)	SB-30W (11.5-12)	SB-31SR (2-4)	SB-32SR (2-4)
Phenol	0.74 U	0.85 R	8.7 R	0.75 U	7.5 U	0.92 U	0.74 U	0.79 U	0.75 U	4.7	0.7 U	0.73 U
bis(2-Chloroethyl)ether	0.74 U	0.85 U	8.7 R	0.75 U	7.5 U	0.92 U	0.74 U	0.79 U	0.75 U	0.79 U	0.7 U	0.73 U
2-Chlorophenol	0.74 U	0.85 R	8.7 R	0.75 U	7.5 U	0.92 U	0.74 U	0.79 U	0.75 U	0.79 U	0.7 U	0.73 U
1,3-Dichlorobenzene	0.74 U	0.73 J	8.7 R	0.75 U	7.5 U	0.92 U	0.74 U	0.79 U	0.75 U	0.79 U	0.7 U	0.73 U
1,4-Dichlorobenzene	0.74 U	2.3	8.7 R	0.75 U	7.5 U	0.39 J	0.12 J	0.79 U	0.75 U	0.79 U	0.7 U	0.73 U
Benzyl Alcohol	0.74 U	0.85 U	8.7 R	0.75 U	7.5 U	0.92 U	0.74 U	0.79 U	0.75 U	0.79 U	0.7 U	0.73 U
1,2-Dichlorobenzene	0.74 U	0.38 J	8.7 R	0.75 U	7.5 U	0.2 J	0.74 U	0.79 U	0.75 U	0.79 U	0.7 U	0.73 U
2-Methylphenol	0.74 U	0.85 R	8.7 R	0.75 U	7.5 U	0.92 U	0.74 U	0.79 U	0.75 U	0.79 U	0.7 U	0.73 U
bis(2-Chloroisopropyl)ether	0.74 U	0.85 U	8.7 R	0.75 U	7.5 U	0.92 U	0.74 U	0.79 U	0.75 U	0.79 U	0.7 U	0.73 U
4-Methylphenol	0.74 U	0.85 R	8.7 R	0.75 U	7.5 U	0.92 U	0.74 U	0.79 U	0.75 U	0.79 U	0.7 U	0.73 U
N-Nitroso-di-n-propylamine	0.74 U	0.85 U	8.7 R	0.75 U	7.5 U	0.92 U	0.74 U	0.79 U	0.75 U	0.79 U	0.7 U	0.73 U
Hexachloroethane	0.74 U	0.85 U	8.7 R	0.75 U	7.5 U	0.92 U	0.74 U	0.79 U	0.75 U	0.79 U	0.7 U	0.73 U
Nitrobenzene	0.74 U	0.85 U	8.7 R	0.75 U	7.5 U	0.92 U	0.74 U	0.79 U	0.75 U	0.79 U	0.7 U	0.73 U
Isophorone	0.74 U	0.85 U	8.7 R	0.75 U	7.5 U	0.92 U	0.74 U	0.79 U	0.75 U	0.79 U	0.7 U	0.73 U
2-Nitrophenol	0.74 U	0.85 R	8.7 R	0.75 U	7.5 U	0.92 U	0.74 U	0.79 U	0.75 U	0.79 U	0.7 U	0.73 U
2,4-Dimethylphenol	0.74 U	0.85 R	8.7 R	0.75 U	7.5 U	0.92 U	0.74 U	0.79 U	0.75 U	0.79 U	0.7 U	0.73 U
Benzoic Acid	3.6 U	4.1 R	42 R	3.6 U	36 U	4.5 U	3.6 U	3.9 U	3.6 U	3.8 U	3.4 U	3.5 U
bis(2-Chloroethoxy)methane	0.74 U	0.85 U	8.7 R	0.75 U	7.5 U	0.92 U	0.74 U	0.79 U	0.75 U	0.79 U	0.7 U	0.73 U
2,4-Dichlorophenol	0.74 U	0.85 R	8.7 R	0.75 U	7.5 U	0.92 U	0.74 U	0.79 U	0.75 U	0.79 U	0.7 U	0.73 U
1,2,4-Trichlorobenzene	0.74 U	0.9	8.7 R	0.75 U	7.5 U	0.28 J	0.14 J	0.79 U	0.75 U	0.79 U	0.7 U	0.73 U
Naphthalene	0.74 U	1.1	8.7 R	0.75 U	7.5 U	0.58 J	0.74 J	0.069 J	0.75 U	0.13 J	0.7 U	0.73 U
4-Chloroaniline	0.74 U	0.85 U	8.7 R	0.75 U	7.5 U	0.92 U	0.74 U	0.79 U	0.75 U	0.79 U	0.7 U	0.73 U
Hexachlorobutadiene	0.74 U	0.85 U	8.7 R	0.75 U	7.5 U	0.92 U	0.74 U	0.79 U	0.75 U	0.79 U	0.7 U	0.73 U
4-Chloro-3-Methylphenol	0.74 U	0.85 R	8.7 R	0.75 U	7.5 U	0.92 U	0.74 U	0.79 U	0.75 U	0.79 U	0.7 U	0.73 U
2-Methylnaphthalene	0.74 U	0.56 J	8.7 R	0.078 J	7.5 U	0.17 J	0.37 J	0.047 J	0.11 J	0.073 J	0.7 U	0.037 J
Hexachlorocyclopentadiene	0.74 U	0.85 U	8.7 R	0.75 U	7.5 U	0.92 U	0.74 U	0.79 U	0.75 U	0.79 U	0.7 U	0.73 U
2,4,6-Trichlorophenol	0.74 U	0.85 R	8.7 R	0.75 U	7.5 U	0.92 U	0.74 U	0.79 U	0.75 U	0.79 U	0.7 U	0.73 U
2,4,5-Trichlorophenol	3.6 U	4.1 R	42 R	3.6 U	36 U	4.5 U	3.6 U	3.9 U	3.6 U	3.8 U	3.4 U	3.5 U
2-Chloronaphthalene	0.74 U	0.85 U	8.7 R	0.75 U	7.5 U	0.92 U	0.74 U	0.79 U	0.75 U	0.79 U	0.7 U	0.73 U
2-Nitroaniline	3.6 U	4.1 U	42 R	3.6 U	36 U	4.5 U	3.6 U	3.9 U	3.6 U	3.8 U	3.4 U	3.5 U
Dimethyl phthalate	0.74 U	0.85 U	8.7 R	0.75 U	7.5 U	0.92 U	0.74 U	0.79 U	0.75 U	0.79 U	0.7 U	0.73 U
Acenaphthylene	0.74 U	0.32 J	8.7 R	0.75 U	7.5 U	0.097 J	0.2 J	0.79 U	0.75 U	0.79 U	0.7 U	0.73 U
2,6-Dinitrotoluene	0.74 U	0.85 U	8.7 R	0.75 U	7.5 U	0.92 U	0.74 U	0.79 U	0.75 U	0.79 U	0.7 U	0.73 U

TABLE 7
NIAGARA FALLS
SOIL BORING
SEMIVOLATILE ANALYSES

	SB-27SR (2-5)	SB-27W (5-13.5)	SB-27W (5-13.5) DL	SB-28SR (2-5)	SB-28SR (2-5) DL	SB-28W (5-11)	SB-29SR (4-7)	SB-29W (7-11)	SB-30SR (2-11.5)	SB-30W (11.5-12)	SB-31SR (2-4)	SB-32SR (2-4)
3-Nitroaniline	3.6 U	4.1 U	42 R	3.6 U	36 U	4.5 U	3.6 U	3.9 U	3.6 U	3.8 U	3.4 U	3.5 U
Acenaphthene	0.74 U	0.34 J	8.7 R	0.75 U	7.5 U	0.55 J	0.33 J	0.79 U	0.75 U	0.059 J	0.7 U	0.73 U
2,4-Nitrophenol	3.6 U	4.1 R	42 R	3.6 U	36 U	4.5 U	3.6 U	3.9 U	3.6 U	3.8 U	3.4 U	3.5 U
4-Nitrophenol	3.6 U	4.1 R	42 R	3.6 U	36 U	4.5 U	3.6 U	3.9 U	0.75 U	3.8 U	3.4 U	3.5 U
Dibenzofuran	0.74 U	1.5	0.46 J	0.75 U	7.5 U	0.5 J	0.61 J	0.79 U	0.75 U	0.065 J	0.7 U	0.73 U
2,4-Dinitrotoluene	0.74 U	0.85 U	8.7 R	0.75 U	7.5 U	0.92 U	0.74 U	0.79 U	0.75 U	0.79 U	0.7 U	0.73 U
Diethylphthalate	0.74 U	0.85 U	8.7 R	0.75 U	7.5 U	0.92 U	0.74 U	0.79 U	0.75 U	0.79 U	0.7 U	0.73 U
4-Chlorophenyl-phenylether	0.74 U	0.85 U	8.7 R	0.75 U	7.5 U	0.92 U	0.74 U	0.79 U	0.75 U	0.79 U	0.7 U	0.73 U
Fluorene	0.74 U	2	8.7 R	0.75 U	7.5 U	0.75 J	0.76	0.79 U	0.75 U	0.79 U	0.7 U	0.73 U
4-Nitroaniline	3.6 U	4.1 U	42 R	3.6 U	36 U	4.5 U	3.6 U	3.9 U	3.6 U	3.8 U	3.4 U	3.5 U
4,6-Dinitro-2-methylphenol	3.6 U	4.1 R	42 R	3.6 U	36 U	4.5 U	3.6 U	3.9 U	3.6 U	3.8 U	3.4 U	3.5 U
N-Nitrosodiphenylamine	0.74 U	0.85 U	8.7 R	0.75 U	7.5 U	0.92 U	0.74 U	0.79 U	0.75 U	0.79 U	0.7 U	0.73 U
4-Bromophenyl-phenylether	0.74 U	0.85 U	8.7 R	0.75 U	7.5 U	0.92 U	0.74 U	0.79 U	0.75 U	0.79 U	0.7 U	0.73 U
Hexachlorobenzene	0.74 U	0.85 U	8.7 R	0.75 U	7.5 U	0.92 U	0.74 U	0.79 U	0.75 U	0.79 U	0.7 U	0.73 U
Pentachlorophenol	3.6 U	4.1 R	42 R	3.6 U	36 U	4.5 U	3.6 U	3.9 U	3.6 U	3.8 U	3.4 U	3.5 U
Phenanthrene	0.74 U	14 J	4.9 J	0.25 J	7.5 U	4.7	3.9	0.46 J	0.31 J	0.73 J	0.7 U	0.1 J
Anthracene	0.74 U	1.8	0.7 J	0.75 U	7.5 U	1.2	0.92	0.79 U	0.043 J	0.16 J	0.7 U	0.73 U
Di-n-butylphthalate	0.74 U	0.85 U	8.7 R	0.13 J	7.5 U	0.92 U	0.74 U	0.11 J	0.37 J	0.24 J	0.7 U	0.13 J
Fluoranthene	0.74 U	15 J	5.7 J	0.31 J	7.5 U	5.4	4.2	0.49 J	0.29 J	1.1	0.7 U	0.14 J
Pyrene	0.74 U	10	5.6 J	0.28 J	7.5 U	4.2	3.6	0.41 J	0.22 J	0.76 J	0.7 U	0.12 J
Butylbenzylphthalate	0.74 U	0.85 U	8.7 R	0.75 U	7.5 U	0.92 U	0.74 U	0.79 U	0.75 U	0.79 U	0.7 U	0.73 U
3,3-Dichlorobenzidine	1.5 U	1.7 U	17 R	1.5 U	15 U	1.8 U	1.5 U	1.6 U	1.5 U	1.6 U	1.4 U	1.5 U
Benzo(a)anthracene	0.74 U	6	3 J	0.2 J	7.5 U	2.8	2.5	0.25 J	0.13 J	0.54 J	0.7 U	0.08 J
Chrysene	0.74 U	4.6	8.7 R	0.19 J	7.5 U	3	2.2	0.25 J	0.14 J	0.59 J	0.7 U	0.73 U
bis(2-Ethylhexyl)phthalate	0.4 J	0.43 J	20 J	32 J	39	0.2 J	0.56 J	0.29 J	0.65 J	0.29 J	0.047 J	0.36 J
Di-n-octylphthalate	0.74 U	0.85 U	8.7 R	0.75 U	7.5 U	0.92 U	0.74 U	0.79 U	0.75 U	0.79 U	0.7 U	0.73 U
Benzo(b)fluoranthene	0.74 U	6	2.8 J	0.23 J	7.5 U	3.5	3	0.26 J	0.14 J	0.79 J	0.7 U	0.11 J
Benzo(k)fluoranthene	0.74 U	2.2	1.4 J	0.12 J	7.5 U	1.8	1.6	0.11 J	0.065 J	0.38 J	0.7 U	0.73 U
Benzo(a)pyrene	0.74 U	4.2	2.3 J	0.13 J	7.5 U	2.3	0.51 J	0.17 J	0.073 J	0.59 J	0.7 U	0.73 U
Indeno(1,2,3-cd)pyrene	0.74 U	1.4	8.7 R	0.75 U	7.5 U	0.74 J	0.67 J	0.79 U	0.75 U	0.43 J	0.7 U	0.73 U
Dibenzo(a,h)anthracene	0.74 U	0.25 J	8.7 R	0.75 U	7.5 U	0.26 J	0.16 J	0.79 U	0.75 U	0.11 J	0.7 U	0.73 U
Benzo(g,h,i)perylene	0.74 U	1	8.7 R	0.75 U	7.5 U	0.61 J	0.39 J	0.79 U	0.75 U	0.39 J	0.7 U	0.73 U

TABLE 7
NIAGARA FALLS
SOIL BORING
SEMIVOLATILE ANALYSES

	SB-33SR (2-4)	SB-33W (4-7)	SB-33W (4-7) DL	SB-38W (2-6)	SB-39W (2-11)	SB-40SR (2-5)	SB-40SR (2-5) DL	SB-40W (5-12)	EQBLK 5/8/91	EQBLK 5/17/91
Phenol	0.017 J	1.7 U	8.4 U	0.8 U	0.92 U	0.74 U	7.4 U	0.85 U	0.01 U	0.01 U
bis(2-Chloroethyl)ether	0.68 U	1.7 U	8.4 U	0.8 U	0.92 U	0.74 U	7.4 U	0.85 U	0.01 U	0.01 U
2-Chlorophenol	0.68 U	1.7 U	8.4 U	0.8 U	0.92 U	0.74 U	7.4 U	0.85 U	0.01 U	0.01 U
1,3-Dichlorobenzene	0.68 U	1.7 U	8.4 U	0.8 U	0.92 U	0.74 U	7.4 U	0.85 U	0.01 U	0.01 U
1,4-Dichlorobenzene	0.68 U	1.7 U	8.4 U	0.8 U	0.92 U	0.049 J	7.4 U	0.055 J	0.01 U	0.01 U
Benzyl Alcohol	0.68 U	1.7 U	8.4 U	0.8 U	0.92 U	0.74 U	7.4 U	0.85 U	0.01 U	0.01 U
1,2-Dichlorobenzene	0.68 U	1.7 U	8.4 U	0.8 U	0.92 U	0.74 U	7.4 U	0.068 J	0.01 U	0.01 U
2-Methylphenol	0.68 U	1.7 U	8.4 U	0.8 U	0.92 U	0.74 U	7.4 U	0.85 U	0.01 U	0.01 U
bis(2-Chloroisopropyl)ether	0.68 U	1.7 U	8.4 U	0.8 U	0.92 U	0.74 U	7.4 U	0.85 U	0.01 U	0.01 U
4-Methylphenol	0.68 U	0.082 J	8.4 U	0.8 U	0.92 U	0.74 U	7.4 U	0.85 U	0.01 U	0.01 U
N-Nitroso-di-n-propylamine	0.68 U	1.7 U	8.4 U	0.8 U	0.92 U	0.74 U	7.4 U	0.85 U	0.01 U	0.01 U
Hexachloroethane	0.68 U	1.7 U	8.4 U	0.8 U	0.92 U	0.31 J	7.4 U	0.85 U	0.01 U	0.01 U
Nitrobenzene	0.68 U	1.7 U	8.4 U	0.8 U	0.92 U	0.74 U	7.4 U	0.85 U	0.01 U	0.01 U
Isophorone	0.68 U	1.7 U	8.4 U	0.8 U	0.92 U	0.74 U	7.4 U	0.85 U	0.01 U	0.01 U
2-Nitrophenol	0.68 U	1.7 U	8.4 U	0.8 U	0.92 U	0.74 U	7.4 U	0.85 U	0.01 U	0.01 U
2,4-Dimethylphenol	0.68 U	1.7 U	8.4 U	0.8 U	0.92 U	0.74 U	7.4 U	0.85 U	0.01 U	0.01 U
Benzoic Acid	3.3 U	8.1 U	41 U	3.9 U	4.5 U	3.6 U	36 U	4.1 U	0.05 U	0.05 U
bis(2-Chloroethoxy)methane	0.68 U	1.7 U	8.4 U	0.8 U	0.92 U	0.74 U	7.4 U	0.85 U	0.01 U	0.01 U
2,4-Dichlorophenol	0.68 U	1.7 U	8.4 U	0.8 U	0.92 U	0.74 U	7.4 U	0.85 U	0.01 U	0.01 U
1,2,4-Trichlorobenzene	0.68 U	1.7 U	8.4 U	0.8 U	0.92 U	3.5	3.5 J	3.4	0.01 U	0.01 U
Naphthalene	0.68 U	15	8.7	0.1 J	0.15 J	0.74 U	7.4 U	0.85 U	0.01 U	0.01 U
4-Chloroaniline	0.68 U	1.7 U	8.4 U	0.8 U	0.92 U	0.74 U	7.4 U	0.85 U	0.01 U	0.01 U
Hexachlorobutadiene	0.68 U	1.7 U	8.4 U	0.8 U	0.92 U	14 J	18	1.6	0.01 U	0.01 U
4-Chloro-3-Methylphenol	0.68 U	1.7 U	8.4 U	0.8 U	0.92 U	0.74 U	7.4 U	0.85 U	0.01 U	0.01 U
2-Methylnaphthalene	0.68 U	17	9.7	0.8 U	0.16 J	0.74 U	7.4 U	0.85 U	0.01 U	0.01 U
Hexachlorocyclopentadiene	0.68 U	1.7 U	8.4 U	0.8 U	0.92 U	0.74 U	7.4 U	0.85 U	0.01 U	0.01 U
2,4,6-Trichlorophenol	0.68 U	1.7 U	8.4 U	0.8 U	0.92 U	0.74 U	7.4 U	0.85 U	0.01 U	0.01 U
2,4,5-Trichlorophenol	3.3 U	8.1 U	41 U	3.9 U	4.5 U	3.6 U	36 U	4.1 U	0.05 U	0.05 U
2-Chloronaphthalene	0.68 U	1.7 U	8.4 U	0.8 U	0.92 U	0.74 U	7.4 U	0.85 U	0.01 U	0.01 U
2-Nitroaniline	3.3 U	8.1 U	41 U	3.9 U	4.5 U	3.6 U	36 U	4.1 U	0.05 U	0.05 U
Dimethyl phthalate	0.68 U	1.7 U	8.4 U	0.8 U	0.92 U	0.74 U	7.4 U	0.85 U	0.01 U	0.01 U
Acenaphthylene	0.68 U	0.62 J	8.4 U	0.8 U	0.92 U	0.74 U	7.4 U	0.85 U	0.01 U	0.01 U
2,6-Dinitrotoluene	0.68 U	1.7 U	8.4 U	0.8 U	0.92 U	0.74 U	7.4 U	0.85 U	0.01 U	0.01 U

TABLE 7
NIAGARA FALLS
SOIL BORING
SEMIVOLATILE ANALYSES

	SB-33SR (2-4)	SB-33W (4-7)	SB-33W (4-7) DL	SB-38W (2-6)	SB-39W (2-11)	SB-40SR (2-5)	SB-40SR (2-5) DL	SB-40W (5-12)	EQBLK 5/8/91	EQBLK 5/17/91
3-Nitroaniline	3.3 U	8.1 U	41 U	3.9 U	4.5 U	3.6 U	36 U	4.1 U	0.05 U	0.05 U
Acenaphthene	0.036 J	11	6.3 J	0.062 J	0.041 J	0.74 U	7.4 U	0.85 U	0.01 U	0.01 U
2,4-Nitrophenol	3.3 U	8.1 U	41 U	3.9 U	4.5 U	3.6 U	36 U	4.1 U	0.05 U	0.05 U
4-Nitrophenol	3.3 U	8.1 U	41 U	3.9 U	4.5 U	3.6 U	36 U	4.1 U	0.05 U	0.05 U
Dibenzofuran	0.68 U	6	3 J	0.8 U	0.059 J	0.74 U	7.4 U	0.85 U	0.01 U	0.01 U
2,4-Dinitrotoluene	0.68 U	1.7 U	8.4 U	0.8 U	0.92 U	0.74 U	7.4 U	0.85 U	0.01 U	0.01 U
Diethylphthalate	0.68 U	1.7 U	8.4 U	0.8 U	0.92 U	0.74 U	7.4 U	0.85 U	0.01 U	0.01 U
4-Chlorophenyl-phenylether	0.68 U	1.7 U	8.4 U	0.8 U	0.92 U	0.74 U	7.4 U	0.85 U	0.01 U	0.01 U
Fluorene	0.68 U	11	6.2 J	0.099 J	0.92 U	0.74 U	7.4 U	0.85 U	0.01 U	0.01 U
4-Nitroaniline	3.3 U	8.1 U	41 U	3.9 U	4.5 U	3.6 U	36 U	4.1 U	0.05 U	0.05 U
4,6-Dinitro-2-methylphenol	3.3 U	8.1 U	41 U	0.8 U	4.5 U	3.6 U	36 U	4.1 U	0.05 U	0.05 U
N-Nitrosodiphenylamine	0.68 U	1.7 U	8.4 U	3.9 U	0.92 U	0.74 U	7.4 U	0.85 U	0.01 U	0.01 U
4-Bromophenyl-phenylether	0.68 U	1.7 U	8.4 U	0.8 U	0.92 U	0.74 U	7.4 U	0.85 U	0.01 U	0.01 U
Hexachlorobenzene	0.68 U	1.7 U	8.4 U	0.8 U	0.92 U	18 J	19	1.9	0.01 U	0.01 U
Pentachlorophenol	3.3 U	8.1 U	41 U	3.9 U	4.5 U	3.6 U	36 U	4.1 U	0.05 U	0.05 U
Phenanthrene	0.41 J	52 J	37	0.78 J	0.57 J	0.067 J	7.4 U	0.85 U	0.01 U	0.01 U
Anthracene	0.081 J	14	8.3 J	0.15 J	0.099 J	0.74 U	7.4 U	0.85 U	0.01 U	0.01 U
Di-n-butylphthalate	0.11 J	1.7 U	8.4 U	0.8 U	0.11 J	0.11 J	7.4 U	0.14 J	0.01 U	0.01 U
Fluoranthene	0.63 J	62 J	43	0.92	0.67 J	0.15 J	7.4 U	0.85 U	0.01 U	0.01 U
Pyrene	0.5 J	57 J	39	0.64 J	0.49 J	0.13 J	7.4 U	0.85 U	0.01 U	0.01 U
Butylbenzylphthalate	0.68 U	1.7 U	8.4 U	0.21 J	0.92 U	0.74 U	7.4 U	0.85 U	0.01 U	0.01 U
3,3-Dichlorobenzidine	1.4 U	3.4 U	17 U	1.6 U	1.8 U	1.5 U	15 U	1.7 U	0.02 U	0.02 U
Benzo(a)anthracene	0.37 J	36 J	22	0.41 J	0.31 J	0.74 U	7.4 U	0.85 U	0.01 U	0.01 U
Chrysene	0.38 J	31 J	22	0.36 J	0.32 J	0.1 J	7.4 U	0.85 U	0.01 U	0.01 U
bis(2-Ethylhexyl)phthalate	0.13 J	0.61 J	0.36 J	0.61 J	0.71 J	1.4	1.2 J	0.2 J	0.01 U	0.01 U
Di-n-octylphthalate	0.68 U	1.7 U	8.4 U	0.8 U	0.92 U	0.74 U	7.4 U	0.85 U	0.01 U	0.01 U
Benzo(b)fluoranthene	0.44 J	50 J	27	0.49 J	0.38 J	0.15 J	7.4 U	0.85 U	0.01 U	0.01 U
Benzo(k)fluoranthene	0.22 J	17	12	0.26 J	0.18 J	0.059 J	7.4 U	0.85 U	0.01 U	0.01 U
Benzo(a)pyrene	0.3 J	32 J	21	0.37 J	0.26 J	0.74 U	7.4 U	0.85 U	0.01 U	0.01 U
Indeno(1,2,3-cd)pyrene	0.096 J	13	14	0.8 U	0.92 U	0.74 U	7.4 U	0.85 U	0.01 U	0.01 U
Dibenzo(a,h)anthracene	0.68 U	0.59 J	2 J	0.8 U	0.92 U	0.74 U	7.4 U	0.85 U	0.01 U	0.01 U
Benzo(g,h,i)perylene	0.68 U	8.6	11	0.2 J	0.12 J	0.74 U	7.4 U	0.85 U	0.01 U	0.01 U

TABLE 8
NIAGARA FALLS
SOIL BORING
PESTICIDES/PCB ANALYSES

	SB-14SR (2-6)	SB-14W (6-12)	SB-15SR (2-8)	SB-15W (8-16)	SB-16SR (2-6)	SB-16W (6-16)	SB-17SR (2-10)	SB-18SR (2-4)	SB-18W (4-22)	SB-19W (10-20)	SB-19SR (2-10)	BL DUP SB-19SR (2-10)	SB-20W (2-19)	SB-21SR (12-19.5)	SB-22SR (2-14)
alpha-BHC	0.018 U	0.018 U	0.019 U	0.019 U	0.018 U	0.019 U	0.019 U	0.018 UJ	0.019 U	0.019 U	0.018 U	0.019 U	0.019 UJ	0.018 UJ	0.019 U
beta-BHC	0.018 U	0.018 U	0.019 U	0.019 U	0.018 U	0.019 U	0.019 U	0.018 UJ	0.019 U	0.023	0.018 U	0.019 U	0.019 UJ	0.018 UJ	0.019 U
delta-BHC	0.018 U	0.018 U	0.019 U	0.017 J	0.018 U	0.019 U	0.019 U	0.018 UJ	0.019 U	0.019 U	0.018 U	0.019 U	0.019 UJ	0.018 UJ	0.019 U
gamma-BHC (lindane)	0.018 U	0.018 U	0.019 U	0.022	0.018 U	0.019 U	0.019 U	0.018 UJ	0.019 U	0.019 U	0.018 U	0.019 U	0.019 UJ	0.018 UJ	0.019 U
Heptachlor	0.018 U	0.018 U	0.019 U	0.019 U	0.018 U	0.019 U	0.019 U	0.018 UJ	0.019 U	0.0058 J	0.0056 J	0.0067 J	0.019 UJ	0.018 UJ	0.0056 J
Aldrin	0.018 U	0.018 U	0.019 U	0.019 U	0.018 U	0.019 U	0.019 U	0.018 UJ	0.019 U	0.019 U	0.018 U	0.019 U	0.019 UJ	0.018 UJ	0.019 U
Heptachlor epoxide	0.018 U	0.018 U	0.019 U	0.019 U	0.018 U	0.019 U	0.019 U	0.018 UJ	0.019 U	0.019 U	0.018 U	0.019 U	0.019 UJ	0.018 UJ	0.019 U
Endosulfan I	0.018 U	0.018 U	0.019 U	0.019 U	0.018 U	0.019 U	0.019 U	0.018 UJ	0.019 U	0.019 U	0.018 U	0.019 U	0.019 UJ	0.018 UJ	0.019 U
Dieldrin	0.036 U	0.036 U	0.037 U	0.039 U	0.036 U	0.038 U	0.038 U	0.036 UJ	0.037 U	0.038 U	0.036 U	0.037 U	0.039 UJ	0.035 UJ	0.037 U
4,4'-DDE	0.036 U	0.036 U	0.037 U	0.039 U	0.036 U	0.038 U	0.038 U	0.036 UJ	0.037 U	0.038 U	0.036 U	0.037 U	0.039 UJ	0.035 UJ	0.037 U
Endrin	0.036 U	0.036 U	0.037 U	0.039 U	0.036 U	0.038 U	0.038 U	0.036 UJ	0.037 U	0.038 U	0.036 U	0.037 U	0.039 UJ	0.035 UJ	0.037 U
Endosulfan II	0.036 U	0.036 U	0.037 U	0.039 U	0.036 U	0.038 U	0.038 U	0.036 UJ	0.037 U	0.038 U	0.036 U	0.037 U	0.039 UJ	0.035 UJ	0.0024 J
4,4'-DDD	0.036 U	0.036 U	0.037 U	0.039 U	0.036 U	0.038 U	0.038 U	0.036 UJ	0.037 U	0.038 U	0.036 U	0.037 U	0.039 UJ	0.035 UJ	0.037 U
Endosulfan sulfate	0.036 U	0.036 U	0.037 U	0.039 U	0.036 U	0.038 U	0.038 U	0.036 UJ	0.037 U	0.038 U	0.036 U	0.037 U	0.039 UJ	0.035 UJ	0.037 U
4,4'-DDT	0.036 U	0.036 U	0.037 U	0.039 U	0.036 U	0.038 U	0.038 U	0.036 UJ	0.037 U	0.038 U	0.036 U	0.037 U	0.039 UJ	0.035 UJ	0.037 U
Methoxychlor	0.18 U	0.18 U	0.19 U	0.19 U	0.18 U	0.19 U	0.19 U	0.18 UJ	0.19 U	0.19 U	0.18 U	0.19 U	0.19 UJ	0.18 UJ	0.19 U
Endrin ketone	0.036 U	0.036 U	0.037 U	0.039 U	0.036 U	0.038 U	0.038 U	0.036 UJ	0.037 U	0.038 U	0.036 U	0.037 U	0.039 UJ	0.035 UJ	0.037 U
alpha-chlordane	0.18 U	0.18 U	0.19 U	0.19 U	0.18 U	0.19 U	0.19 U	0.18 UJ	0.19 U	0.19 U	0.18 U	0.19 U	0.19 UJ	0.18 UJ	0.19 U
gamma-chlordane	0.18 U	0.18 U	0.19 U	0.19 U	0.18 U	0.19 U	0.19 U	0.18 UJ	0.19 U	0.19 U	0.18 U	0.19 U	0.19 UJ	0.18 UJ	0.19 U
Toxaphene	0.36 U	0.36 U	0.37 U	0.39 U	0.36 U	0.38 U	0.38 U	0.36 UJ	0.37 U	0.38 U	0.36 U	0.37 U	0.39 UJ	0.35 UJ	0.37 U
Aroclor-1016	0.18 U	0.18 U	0.19 U	0.19 U	0.18 U	0.19 U	0.19 U	0.18 UJ	0.19 U	0.19 U	0.18 U	0.19 U	0.19 UJ	0.18 UJ	0.19 U
Aroclor-1221	0.18 U	0.18 U	0.19 U	0.19 U	0.18 U	0.19 U	0.19 U	0.18 UJ	0.19 U	0.19 U	0.18 U	0.19 U	0.19 UJ	0.18 UJ	0.19 U
Aroclor-1232	0.18 U	0.18 U	0.19 U	0.19 U	0.18 U	0.19 U	0.19 U	0.18 UJ	0.19 U	0.19 U	0.18 U	0.19 U	0.19 UJ	0.18 UJ	0.19 U
Aroclor-1242	0.18 U	0.18 U	0.19 U	0.19 U	0.18 U	0.19 U	0.19 U	0.18 UJ	0.19 U	0.19 U	0.18 U	0.19 U	0.19 UJ	0.18 UJ	0.19 U
Aroclor-1248	0.18 U	0.18 U	0.19 U	0.19 U	0.18 U	0.19 U	0.19 U	0.18 UJ	0.19 U	0.19 U	0.18 U	0.19 U	0.19 UJ	0.18 UJ	0.19 U
Aroclor-1254	0.36 U	0.36 U	0.37 U	0.39 U	0.36 U	0.38 U	0.38 U	0.36 UJ	0.37 U	0.38 U	0.36 U	0.37 U	0.39 UJ	0.35 UJ	0.37 U
Aroclor-1260	0.36 U	0.36 U	0.37 U	0.39 U	0.36 U	0.38 U	0.38 U	0.36 UJ	0.37 U	0.38 U	0.36 U	0.37 U	0.39 UJ	0.35 UJ	0.37 U

NOTES: All values reported in mg/kg (ppm).
U – Compound was analyzed but not detected.
J – Indicates an estimated value. (GC/MS only)

TABLE 8
NIAGARA FALLS
SOIL BORING
PESTICIDES/PCB ANALYSES

	SB-23SR (2-5)	SB-23W (5-16)	SB-24SR (2-6)	SB-24W (6-19)	SB-25SR (2-11)	SB-25W (11-13)	SB-26SR (2-5)	BL DUP SB-26SR (2-5)	SB-26W (5-10)	BL DUP SB-26W (5-10)	SB-27SR (2-5)	SB-27W (5-13.5)	SB-28SR (2-5)	SB-28W (5-11)	SB-29SR (4-7)
alpha-BHC	0.018 U	0.019 U	0.019 U	0.019 U	0.018 U	0.022 U	0.018 U	0.018 U	0.02 U	0.018 U	0.019 U	0.088 U	0.018 U	0.023 U	0.019 U
beta-BHC	0.018 U	0.019 U	0.019 U	0.019 U	0.018 U	0.022 U	0.018 U	0.02	0.02 U	0.018 U	0.019 U	0.088 U	0.018 U	2.9 J	2.2 J
delta-BHC	0.018 U	0.019 U	0.019 U	0.019 U	0.018 U	0.022 U	0.018 U	0.018 U	0.02 U	0.018 U	0.019 U	0.088 U	0.018 U	0.03 J	0.0068 J
gamma-BHC (lindane)	0.018 U	0.019 U	0.019 U	0.019 U	0.018 U	0.022 U	0.018 U	0.018 U	0.02 U	0.018 U	0.019 U	0.088 U	0.018 U	0.12	0.016 J
Heptachlor	0.018 U	0.019 U	0.019 U	0.019 U	0.018 U	0.022 U	0.001 J	0.018 U	0.02 U	0.018 U	0.019 U	0.088 U	0.018 U	0.016 J	0.019
Aldrin	0.018 U	0.019 U	0.019 U	0.019 U	0.018 U	0.006 J	0.018 U	0.018 U	0.011 J	0.018 U	0.019 U	0.088 U	0.005 J	0.023 U	0.022
Heptachlor epoxide	0.0024 J	0.019 U	0.017 J	0.004 J	0.018 U	0.022 U	0.018 U	0.018 U	0.02 U	0.018 U	0.019 U	0.088 U	0.018 U	0.023 U	0.019 U
Endosulfan I	0.018 U	0.019 U	0.019 U	0.019 U	0.018 U	0.022 U	0.018 U	0.018 U	0.02 U	0.018 U	0.019 U	0.088 U	0.018 U	0.023 U	0.019 U
Dieldrin	0.036 U	0.038 U	0.038 U	0.038 U	0.036 U	0.044 U	0.036 U	0.036 U	0.04 U	0.011 J	0.038 U	0.18 U	0.036 U	0.056	0.037 U
4,4'-DDE	0.036 U	0.038 U	0.038 U	0.038 U	0.036 U	0.019 J	0.036 U	0.036 U	0.04 U	0.036 U	0.038 U	0.18 U	0.036 U	0.045 U	0.027 J
Endrin	0.036 U	0.038 U	0.038 U	0.038 U	0.036 U	0.044 U	0.036 U	0.036 U	0.04 U	0.036 U	0.038 U	0.18 U	0.036 U	0.095	0.037 J
Endosulfan II	0.036 U	0.038 U	0.038 U	0.038 U	0.036 U	0.044 U	0.036 U	0.036 U	0.04 U	0.036 U	0.038 U	0.18 U	0.036 U	0.045 U	0.037 U
4,4'-DDD	0.036 U	0.038 U	0.038 U	0.038 U	0.036 U	0.016 J	0.036 U	0.036 U	0.04 U	0.036 U	0.038 U	0.18 U	0.017 J	0.045 U	0.037 U
Endosulfan sulfate	0.036 U	0.038 U	0.038 U	0.038 U	0.036 U	0.007 J	0.036 U	0.036 U	0.04 U	0.036 U	0.038 U	0.18 U	0.036 U	0.045 U	0.037 U
4,4'-DDT	0.036 U	0.038 U	0.038 U	0.038 U	0.036 U	0.021 J	0.036 U	0.036 U	0.04 U	0.036 U	0.038 U	0.18 U	0.036 U	0.056	0.037 U
Methoxychlor	0.18 U	0.19 U	0.19 U	0.19 U	0.18 U	0.22 U	0.18 U	0.18 U	0.2 U	0.18 U	0.19 U	0.88 U	0.18 U	0.23 U	0.19 U
Endrin ketone	0.036 U	0.038 U	0.038 U	0.038 U	0.036 U	0.044 U	0.036 U	0.036 U	0.04 U	0.036 U	0.038 U	0.18 U	0.036 U	0.045 U	0.037 U
alpha-chlordane	0.18 U	0.19 U	0.19 U	0.19 U	0.18 U	0.22 U	0.18 U	0.18 U	0.2 U	0.18 U	0.19 U	0.88 U	0.18 U	0.23 U	0.19 U
gamma-chlordane	0.18 U	0.19 U	0.19 U	0.19 U	0.18 U	0.22 U	0.18 U	0.18 U	0.2 U	0.18 U	0.19 U	0.88 U	0.18 U	0.23 U	0.19 U
Toxaphene	0.36 U	0.38 U	0.38 U	0.38 U	0.36 U	0.44 U	0.36 U	0.36 U	0.4 U	0.36 U	0.38 U	1.8 U	0.36 U	0.45 U	0.37 U
Aroclor-1016	0.18 U	0.19 U	0.19 U	0.19 U	0.18 U	0.22 U	0.18 U	0.18 U	0.2 U	0.18 U	0.19 U	0.88 U	0.18 U	0.23 U	0.19 U
Aroclor-1221	0.18 U	0.19 U	0.19 U	0.19 U	0.18 U	0.22 U	0.18 U	0.18 U	0.2 U	0.18 U	0.19 U	0.88 U	0.18 U	0.23 U	0.19 U
Aroclor-1232	0.18 U	0.19 U	0.19 U	0.19 U	0.18 U	0.22 U	0.18 U	0.18 U	0.2 U	0.18 U	0.19 U	0.88 U	0.18 U	0.23 U	0.19 U
Aroclor-1242	0.18 U	0.19 U	0.19 U	0.19 U	0.18 U	0.22 U	0.18 U	0.18 U	0.2 U	0.18 U	0.19 U	2.2	0.18 U	0.23 U	0.19 U
Aroclor-1248	0.18 U	0.19 U	0.19 U	0.19 U	0.18 U	0.22 U	0.18 U	0.18 U	0.2 U	0.18 U	0.19 U	0.88 U	0.18 U	0.23 U	0.19 U
Aroclor-1254	0.36 U	0.38 U	0.38 U	0.38 U	0.36 U	0.44 U	0.36 U	0.36 U	0.4 U	0.36 U	0.38 U	1.8 U	0.36 U	0.45 U	0.37 U
Aroclor-1260	0.36 U	0.38 U	0.38 U	0.38 U	0.36 U	0.44 U	0.36 U	0.36 U	0.4 U	0.36 U	0.38 U	1.8 U	0.36 U	0.45 U	0.37 U

TABLE 8
NIAGARA FALLS
SOIL BORING
PESTICIDES/PCB ANALYSES

	SB-29W (7-11)	SB-30SR (2-11.5)	SB-30W (11.5-12)	SB-31SR (2-4)	SB-32SR (2-4)	SB-33SR (2-4)	SB-33W (4-7)	SB-38W (2-6)	SB-39W (2-11)	SB-40SR (2-5)	SB-40W (5-12)	EQBLK 5/8/91	EQBLK 5/17/91
alpha-BHC	0.02 U	0.018 U	0.02 U	0.018 U	0.017 U	0.017 U	0.11 U	0.02 U	0.023 U	0.18 U	0.11 U	0.00006 U	0.00005 U
beta-BHC	0.02 U	0.018 U	0.02 U	0.018 U	0.017 U	0.017 U	0.11 U	0.02 U	0.023 U	0.034 J	0.11 U	0.00006 U	0.00005 U
delta-BHC	0.02 U	0.018 U	0.02 U	0.0061 J	0.017 U	0.017 U	0.035 J	0.0075 J	0.023 U	0.18 U	0.11 U	0.00006 U	0.00005 U
gamma-BHC (lindane)	0.02 U	0.018 U	0.02 U	0.018 U	0.017 U	0.017 U	0.11 U	0.1 J	0.023 U	0.18 U	0.11 U	0.00006 U	0.00005 U
Heptachlor	0.02 U	0.018 U	0.02 U	0.018 U	0.017 U	0.017 U	0.11 U	0.02 U	0.023 U	0.18 U	0.11 U	0.00006 U	0.00005 U
Aldrin	0.02 U	0.018 U	0.0036 J	0.018 U	0.0036 J	0.0075 J	0.11 U	0.02 U	0.75	0.52	0.11 U	0.00006 U	0.00005 U
Heptachlor epoxide	0.02 U	0.018 U	0.02 U	0.021	0.017 U	0.017 U	0.11 U	0.02 U	0.023 U	1.4	0.05 J	0.00006 U	0.00005 U
Endosulfan I	0.02 U	0.018 U	0.02 U	0.018 U	0.014 J	0.021	0.11 U	0.02 U	0.065	0.42	0.11 U	0.00006 U	0.00005 U
Dieldrin	0.04 U	0.036 U	0.04 U	0.035 U	0.01 J	0.034 U	0.32 U	0.04 U	0.045 U	0.36 U	0.22 U	0.0001 U	0.0001 U
4,4'-DDE	0.04 U	0.036 U	0.04 U	0.035 U	0.034 U	0.034 U	0.32 U	0.012 J	0.045 U	0.36 U	0.22 U	0.0001 U	0.0001 U
Endrin,	0.04 U	0.036 U	0.04 U	0.035 U	0.034 U	0.0075 J	0.32 U	0.04 U	0.041 J	0.36 U	0.22 U	0.0001 U	0.0001 U
Endosulfan II	0.04 U	0.036 U	0.04 U	0.035 U	0.034 U	0.01 J	0.32 U	0.04 U	0.012 J	0.36 U	0.22 U	0.0001 U	0.0001 U
4,4'-DDD	0.04 U	0.036 U	0.013 J	0.035 U	0.034 U	0.034 U	0.32 U	0.04 U	0.045 U	2.7	0.35	0.0001 U	0.0001 U
Endosulfan sulfate	0.04 U	0.036 U	0.026 J	0.0063 J	0.034 U	0.034 U	0.32 U	0.052	0.045 U	0.36 U	0.22 U	0.0001 U	0.0001 U
4,4'-DDT	0.04 U	0.036 U	0.04 U	0.013 J	0.034 U	0.034 U	0.32 U	0.052 J	0.071 J	2.2	0.22 U	0.0001 U	0.0001 U
Methoxychlor	0.2 U	0.18 U	0.2 U	0.18 U	0.17 U	0.17 U	1.1 U	0.2 U	0.23 U	1.8 U	1.1 U	0.0006 U	0.0005 U
Endrin ketone	0.04 U	0.036 U	0.04 U	0.035 U	0.034 U	0.034 U	0.32 U	0.04 U	0.045 U	0.36 U	0.22 U	0.0001 U	0.0001 U
alpha-chlordane	0.2 U	0.18 U	0.2 U	0.18 U	0.17 U	0.17 U	1.1 U	0.2 U	0.23 U	1.8 U	1.1 U	0.0001 U	0.0001 U
gamma-chlordane	0.2 U	0.18 U	0.2 U	0.18 U	0.17 U	0.17 U	1.1 U	0.2 U	0.23 U	1.8 U	1.1 U	0.0001 U	0.0001 U
Toxaphene	0.4 U	0.36 U	0.4 U	0.35 U	0.34 U	0.34 U	2.2 U	0.4 U	0.45 U	3.6 U	2.2 U	0.0012 U	0.001 U
Aroclor-1016	0.2 U	0.18 U	0.2 U	0.18 U	0.17 U	0.17 U	1.1 U	0.2 U	0.23 U	1.8 U	1.1 U	0.0006 U	0.0005 U
Aroclor-1221	0.2 U	0.18 U	0.2 U	0.18 U	0.17 U	0.17 U	1.1 U	0.2 U	0.23 U	1.8 U	1.1 U	0.0006 U	0.0005 U
Aroclor-1232	0.2 U	0.18 U	0.2 U	0.18 U	0.17 U	0.17 U	1.1 U	0.2 U	0.23 U	1.8 U	1.1 U	0.0006 U	0.0005 U
Aroclor-1242	0.2 U	0.18 U	0.2 U	0.18 U	0.17 U	0.17 U	1.1 U	0.2 U	0.23 U	1.8 U	1.1 U	0.0006 U	0.0005 U
Aroclor-1248	0.2 U	0.18 U	0.2 U	0.18 U	0.17 U	0.17 U	1.1 U	0.2 U	0.23 U	1.8 U	1.1 U	0.0006 U	0.0005 U
Aroclor-1254	0.4 U	0.36 U	0.4 U	0.35 U	0.34 U	0.34 U	2.2 U	0.4 U	0.45 U	3.6 U	2.2 U	0.0012 U	0.001 U
Aroclor-1260	0.4 U	0.36 U	0.4 U	0.35 U	0.34 U	0.34 U	2.2 U	0.4 U	0.45 U	3.6 U	2.2 U	0.0012 U	0.001 U

TABLE 9
NIAGARA FALLS
SOIL BORING
INORGANIC ANALYSES

	LIMIT EP TOX	TYPICAL RANGE **	SB-1 (2-9.5')	SB-2 (2-13.9')	SB-3 (2-18.5')	SB-4 (2-17.5')	SB-5 (2-19')	SB-6 (2-17')	SB-7 (2-9')	SB-8 (2-6')	BL DUP SB-8 (2-6')
ALUMINUM		1,000-25,000									
ANTIMONY		———									
ARSENIC	5.0	3-12									
BARIUM	100.0	15-600									
BERYLLIUM		0-1.75									
CADMIUM	1.0	0.01-2.0									
CALCIUM		130-35,000									
CHROMIUM	5.0	1.5-40	8.6 J	52.5 J	11.4 J	15.1 J	10.7 J	10.0 J	11.7 J	15.0 J	13.3 J
COBALT		2.5-60									
COPPER		<1-15									
IRON		17,500-25,000									
LEAD	5.0	1-12.5	156.0	51.3	35.3	39.9 J	68.1	32.8	25.9 J	22.7 J	20.0 J
MAGNESIUM		2,500-6,000									
MANGANESE		50-5,000									
MERCURY	0.2	0.042-0.066									
NICKEL		0.5-25									
POTASSIUM		8,500-43,000									
SELENIUM	1.0	<0.1-0.125									
SILVER	5.0										
SODIUM		6,000-8,000									
THALLIUM		———									
VANADIUM		25-60									
ZINC		37-60									
CYANIDE		———									

NOTES:
All values reported in mg/kg (ppm).
** – Referenced from Bowen (1979), Shacklette et al (1984), Shacklette et al (1971), Walsh et al (1977)
U – Indicates elememt was analyzed for but not detected.
B – Indicates a value greater than or equal to the instrument detection limit but less than the contract required detection limit.
J – Indicates an estimated value. (GC/MS only)

TABLE 9
NIAGARA FALLS
SOIL BORING
INORGANIC ANALYSES

	LIMIT EP TOX	TYPICAL RANGE **	SB-9 (2-7')	SB-10 (2-4')	EQBLK 5/2/91	SB-14SR (2-6)	SB-14W (6-12)	SB-15SR (2-8)	SB-15W (8-16)	SB-16SR (2-6)
ALUMINUM		1,000-25,000				5660	4290	9870	8470	5920
ANTIMONY		-----				1.1 UJ	1.1 UJ	1.1 UJ	1.2 UJ	1.1 UJ
ARSENIC	5.0	3-12				2.6 J	20.2 J	3.7 J	5.1 J	3.1 J
BARIUM	100.0	15-600				49.1 J	74.7 J	88.0 J	277 J	58.4 J
BERYLLIUM		0-1.75				1.1 UJ	1.1 UJ	1.1 UJ	1.2 UJ	1.1 UJ
CADMIUM	1.0	0.01-2.0				1.1 U	1.1 U	1.1 U	1.2 U	1.1 U
CALCIUM		130-35,000				88600 J	85400 J	69000 J	55300 J	97100 J
CHROMIUM	5.0	1.5-40	9.8 J	7.6 J	10.0 U	13.5 J	14.0 J	21.6 J	26.4 J	15.9 J
COBALT		2.5-60				10.8 U	11.0 U	10.9 U	12.2 U	11.2 U
COPPER		<1-15				15.3 J	20.2 J	18.4 J	59.3 J	17.4 J
IRON		17,500-25,000				12200 J	12300 J	18800 J	38200 J	12800 J
LEAD	5.0	1-12.5	36.6	12.1 J	8.0	23.9	35.4	24.8 J	61.1	27.1 J
MAGNESIUM		2,500-6,000				39300 J	39600 J	28800 J	14000 J	46800 J
MANGANESE		50-5,000				549 J	355 J	550 J	654 J	489 J
MERCURY	0.2	0.042-0.066				0.17	0.38	0.10 U	3.5	0.10
NICKEL		0.5-25				16.7 J	15.5 J	23.1 J	27.7 J	14.2 J
POTASSIUM		8,500-43,000				1520	948	3070	1980	2010
SELENIUM	1.0	<0.1-0.125				1.1 R	1.1 R	1.1 R	1.2 R	1.1 R
SILVER	5.0					2.6 R	2.8 R	2.4 R	2.2 R	3.4 R
SODIUM		6,000-8,000				179 U	238 U	217 U	255 U	197 U
THALLIUM		-----				1.1 UJ	1.1 UJ	1.1 UJ	1.2 UJ	1.1 UJ
VANADIUM		25-60				14.6 J	29.6 J	25.6 J	22.4 J	17.7 J
ZINC		37-60				216 R	336 R	99.9 R	1200 R	141 R
CYANIDE		-----				1.1 U	1.2	1.1 U	2.4	1.1 U

TABLE 9
NIAGARA FALLS
SOIL BORING
INORGANIC ANALYSES

	LIMIT EP TOX	TYPICAL RANGE **	SB-16W (6-16)	SB-17SR (2-10)	SB-18SR (2-4)	SB-18W (4-22)	SB-19W (10-20)	SB-19SR (2-10)	BL DUP SB-19SR (2-10)
ALUMINUM		1,000-25,000	6530	9140	4520	4980	10200	3880	5760
ANTIMONY		------	1.1 UJ	1.1 UJ	1.1 UJ	1.2 UJ	1.2 UJ	1.1 UJ	1.1 UJ
ARSENIC	5.0	3-12	9.9 J	3.0 J	3.1 J	3.5 J	4.2 J	2.7 J	3.4 J
BARIUM	100.0	15-600	109 J	79.7 J	65.6 J	33.7 J	95.1 J	50.5 J	48.1 J
BERYLLIUM		0-1.75	1.2 UJ	1.1 UJ	1.1 UJ	1.2 UJ	1.2 UJ	1.1 UJ	1.1 UJ
CADMIUM	1.0	0.01-2.0	1.2 U	8.8 J	5.6 J	4.4 J	1.2 U	6.6 J	5.4 J
CALCIUM		130-35,000	68100 J	76300	69500	88300 J	95200 J	103000	101000
CHROMIUM	5.0	1.5-40	117 J	16.8 J	9.6 J	13.5 J	48.6 J	11.8 J	14.9 J
COBALT		2.5-60	13.0 J	8.1 J	6.7 J	11.6 U	11.7 U	6.8 J	6.8 J
COPPER		<1-15	74.7 J	18.7 J	17.5 J	13.5 J	19.9 J	16.8 J	18.3 J
IRON		17,500-25,000	71700 J	16400	12300	11300	17300 J	10900	10800
LEAD	5.0	1-12.5	364	35.6 J	33.1 J	928	75.2	243 J	44.5 J
MAGNESIUM		2,500-6,000	16700 J	31000	23200	41900 J	41400 J	49100	50100
MANGANESE		50-5,000	871 J	512 J	523 J	345 J	618 J	431 J	426 J
MERCURY	0.2	0.042-0.066	0.26	0.19	0.10	0.10 U	0.42	0.15	0.11 U
NICKEL		0.5-25	68.9 J	22.5 J	15.8 J	14.0 J	25.5 J	17.2 J	13.9 J
POTASSIUM		8,500-43,000	1220	2030	1180	956	2700	1060	1210
SELENIUM	1.0	<0.1-0.125	1.1 R	1.1 R	1.1 R	1.2 R	1.2 R	1.1 R	1.1 R
SILVER	5.0		2.3 R	22.7 R	1.1 R	1.9 R	3.1 R	9.9 R	6.1 R
SODIUM		6,000-8,000	311 U	345 U	322 U	173 U	309 U	356 U	336 U
THALLIUM		------	1.1 UJ	1.1 UJ	1.1 UJ	1.2 UJ	1.2 UJ	1.1 UJ	1.1 UJ
VANADIUM		25-60	30.2 J	20.8 J	14.4 J	12.8 J	25.8 J	12.8 J	13.2 J
ZINC		37-60	141 R	194 R	81.4 R	852 R	153 R	194 R	148 R
CYANIDE		------	1.1 U	1.1 U	1.1 U	1.1 U	1.16	1.1 U	1.1 U

TABLE 9
NIAGARA FALLS
SOIL BORING
INORGANIC ANALYSES

	LIMIT EP TOX	TYPICAL RANGE **	SB-20W (2-19)	SB-21SR (12-19.5)	SB-22SR (2-14)	SB-23SR (2-5)	SB-23W (5-16)	SB-24SR (2-6)	SB-24W (6-19)	SB-25SR (2-11)
ALUMINUM		1,000-25,000	5580 J	3420 J	4720	3670	7990	5520	5800	4100
ANTIMONY		------	1.1 UJ	1.1 UJ	1.1 UJ	1.0 UJ	1.2 UJ	1.2 UJ	1.2 UJ	1.0 UJ
ARSENIC	5.0	3-12	2.8 J	2.2 J	3.6 J	3.6 J	4.7 J	4.2 J	2.6 J	2.3 J
BARIUM	100.0	15-600	44.9	37.1	33.7 J	39.2	72.6	53.7	64.7	39.5
BERYLLIUM		0-1.75	1.1 U	1.1 U	1.0 UJ	1.0 U	1.2 U	1.1 U	1.2 U	1.1 U
CADMIUM	1.0	0.01-2.0	1.1 U	1.1 U	1.0 U	1.0 U	1.4	1.1 U	1.2 U	1.1 U
CALCIUM		130-35,000	117000 J	124000 J	90600 J	85600 J	62000 J	90800 J	108000 J	144000 J
CHROMIUM	5.0	1.5-40	13.7	9.8	8.2 J	13.2	16.1	13.6	13.9	13.2
COBALT		2.5-60	5.7	4.3 U	10.4 U	4.4	7.3	5.0	5.5	4.5 U
COPPER		<1-15	16.8	26.0	14.2 J	12.1	21.5	17.8	20.7	13.8
IRON		17,500-25,000	10700 J	7620 J	9790 J	8140 J	15600 J	11600 J	12300 J	8120 J
LEAD	5.0	1-12.5	42.6 J	47.3 J	27.2	24.7	51.0	39.5	33.5 J	91.6
MAGNESIUM		2,500-6,000	56700 J	61600 J	45500 J	41400 J	25800 J	41500 J	50700 J	75900 J
MANGANESE		50-5,000	467 J	492 J	357 J	380 J	466 J	470 J	616 J	499 J
MERCURY	0.2	0.042-0.066	0.11 U	0.10 U	0.10 U	0.53	4.1	0.10 U	0.14 U	0.12 U
NICKEL		0.5-25	17.6	14.1	12.7 J	13.2	24.6	19.1	21.0	14.8
POTASSIUM		8,500-43,000	1310	972	1510	820	1550	1190	1260	982
SELENIUM	1.0	<0.1-0.125	1.1 R	1.1 R	1.1 R	1.00 R	1.2 R	1.2 R	1.2 R	1.0 R
SILVER	5.0		1.1 UJ	1.1 UJ	3.8 R	1.2 U	1.4 U	1.3 U	1.5 U	1.4 U
SODIUM		6,000-8,000	246 U	226 U	175 U	175 U	195 U	177 U	213 U	223 U
THALLIUM		------	1.1 U	1.1 U	1.1 UJ	1.00 U	1.2 U	1.2 U	1.2 U	1.0 U
VANADIUM		25-60	13.1	9.6	12.1 J	9.0	19.0	13.2	14.3	9.9
ZINC		37-60	162 J	190 J	120 R	82.6 J	175 J	168 J	143 J	225 J
CYANIDE		------	1.2 U	1.1 U	1.1 U	1.08 U	1.15 U	1.15 U	1.16 U	1.12 U

TABLE 9
NIAGARA FALLS
SOIL BORING
INORGANIC ANALYSES

	LIMIT EP TOX	TYPICAL RANGE **	SB-25W (11-13)	SB-26SR (2-5)	BL DUP SB-26SR (2-5)	SB-26W (5-10)	BL DUP SB-26W (5-10)	SB-27SR (2-5)	SB-27W (5-13.5)	SB-28SR (2-5)
ALUMINUM		1,000-25,000	4920	4960	3850	5470	3450	4620	4610	7880
ANTIMONY		-----	1.2 U	1.0 U	1.0 UJ	5.1 J	2.7 J	1.1 U	135 J	1.1 UJ
ARSENIC	5.0	3-12	4.6 J	3.9 J	2.8 J	9.6 J	10.5 J	4.1 J	7.5 J	4.7 J
BARIUM	100.0	15-600	31.8	49.3	53.6	140	87.5	49.7	38.2	86.5
BERYLLIUM		0-1.75	1.3 U	1.0 U	1.1 U	1.2 U	1.1 U	1.1 U	1.3 U	1.1 U
CADMIUM	1.0	0.01-2.0	1.3 U	1.0 U	1.1 U	3.8	1.3	1.1 U	1.3 U	1.1 U
CALCIUM		130-35,000	30700 J	77100 J	110000 J	49900 J	49800 J	129000 J	55800 J	1720 J
CHROMIUM	5.0	1.5-40	13.8	11.2	9.8	19.2	17.0	13.0	26.7	29.4 J
COBALT		2.5-60	6.0	4.8	4.4 U	6.5	4.4 U	4.3 U	5.3 U	11.3 UJ
COPPER		<1-15	19.7	15.4	17.3	35.3	22.5	11.5	87.2	22.9
IRON		17,500-25,000	11400 J	10400 J	8320 J	21200 J	23000 J	9200 J	7500 J	14100
LEAD	5.0	1-12.5	20.2	39.4 J	57.0 J	223	117 J	47.3	179	88.1
MAGNESIUM		2,500-6,000	11500 J	28900 J	49900 J	19400 J	22400 J	66600 J	1470 J	50200
MANGANESE		50-5,000	198 J	401 J	621 J	251 J	234 J	676 J	44.7 J	486
MERCURY	0.2	0.042-0.066	1.6	0.10 U	0.10 U	0.65	1.1	0.62	3.6	0.67
NICKEL		0.5-25	18.7	14.6	14.6	19.4	13.1	15.1	62.2	19.3
POTASSIUM		8,500-43,000	873	621	870	799	1280	852	145	1270
SELENIUM	1.0	<0.1-0.125	1.2 R	1.0 R	1.0 R	1.3 R	1.1 R	1.1 R	1.3 R	1.1 R
SILVER	5.0		1.6 U	1.2 U	1.3 U	1.5 U	1.3 U	1.3 U	1.6 U	1.4 U
SODIUM		6,000-8,000	126 U	124 U	180 U	223 U	185 U	195 U	269 U	678 U
THALLIUM		-----	1.2 U	1.0 U	1.0 U	1.3 U	1.1 U	1.1 U	1.3 U	1.1 U
VANADIUM		25-60	10.4	11.2	9.7	15.1	13.0	10.0	29.5	24.9 J
ZINC		37-60	108 J	168 J	141 J	283 J	390 J	65.7 J	111 J	179 J
CYANIDE		-----	1.32 U	1.10 U	1.10 U	1.25 U	1.44	1.15 U	9.87	1.1 U

TABLE 9
NIAGARA FALLS
SOIL BORING
INORGANIC ANALYSES

	LIMIT EP TOX	TYPICAL RANGE **	SB-33W (4-7)	SB-38W (2-6)	SB-39W (2-11)	SB-40W (5-12)	SB-40SR (2-5)	EQBLK 5/8/91	EQBLK 5/17/91
ALUMINUM		1,000-25,000	3880	10800	16200	10300	9030	50.0 U	107
ANTIMONY		———	8.8 J	5.8 J	3.2 J	7.7 J	1.1 U	5.0 U	5.0 U
ARSENIC	5.0	3-12	10.9 J	9.7 J	21.3 J	9.9 J	3.4 J	5.0 U	5.0 U
BARIUM	100.0	15-600	1240	168	246	131	105	30.0 U	30.0 U
BERYLLIUM		0-1.75	1.3 U	1.3 U	1.4 U	1.3 U	1.1 U	5.0 U	5.0 UJ
CADMIUM	1.0	0.01-2.0	1.3 U	1.5 U	2.2 U	1.3 U	1.1 U	5.0 U	5.0 UJ
CALCIUM		130-35,000	57700	34800	45900	10400	81800	640	1420
CHROMIUM	5.0	1.5-40	26.4 J	40.2 J	31.3 J	20.1 J	16.1 J	5.0 U	10.0 U
COBALT		2.5-60	13.1 UJ	12.5 UJ	19.3 J	15.4 J	13.3 J	20.0 U	20.0 U
COPPER		<1-15	164	152	59.4	47.8	22.7	5.0 U	6.2
IRON		17,500-25,000	32000	26400	27800	69700	17600	83.3	122
LEAD	5.0	1-12.5	1510 J	164 J	212 J	434 J	52.0 J	3.0 U	3.0 U
MAGNESIUM		2,500-6,000	6000	10800	11000	1850	21800	247	200 U
MANGANESE		50-5,000	293 J	416 J	582	308 J	1070	5.0 U	5.0 U
MERCURY	0.2	0.042-0.066	0.85	0.91	2.1	0.19 U	1.7	0.20 U	0.58
NICKEL		0.5-25	20.0	47.3	42.0	44.8	28.4	20.0 U	20.0 U
POTASSIUM		8,500-43,000	421	1430	2530	991	2340	200 U	200 U
SELENIUM	1.0	<0.1-0.125	1.3 R	1.2 R	1.4 R	1.4 R	1.1 R	5.0 U	5.0 U
SILVER	5.0		1.6 U	5.4	5.0	1.6 U	1.4 U	6.0 U	6.0 U
SODIUM		6,000-8,000	784 U	1140 U	839 U	839 U	686 U	516	1940
THALLIUM		———	1.3 U	1.2 U	1.4 U	1.4 U	1.1 U	5.0 U	5.0 U
VANADIUM		25-60	23.5 J	32.6	40.6	39.8	22.9 J	30.0 U	30.0 U
ZINC		37-60	394 J	638 J	403 J	202 J	107 J	5.0 U	20.1
CYANIDE		———	1.3 U	1.2 U	1.4 U	1.5	1.1 U	10.0 U	10.0 U

TABLE 10

WELL CONSTRUCTION SPECIFICATIONS
BUFFALO AVENUE SITE INVESTIGATION
NIAGARA FALLS, NY

WELL ID	GROUND ELEV. (FT)	WELL DEPTH (FT)	ELEV. TOP OF PROT. CASING (FT)	ELEV. TOP OF PVC (FT)	SCREEN LENGTH (FT)	SCREENED INTERVAL (FT)	K cm/sec
MW-1S	574.10	11.2	576.16	574.92	6.0	562.9 - 568.9	4.5E-02
MW-2S	573.00	20.1	575.45	575.40	11.0	552.9 - 563.9	1.8E-04
MW-3S	576.30	12.0	578.49	578.30	7.0	564.3 - 571.3	2.79-03
MW-4S	579.80	25.3	582.61	582.32	10.0	554.5 - 564.5	9.55-04
MW-5S	574.50	9.0	577.60	576.84	5.0	565.5 - 570.5	N C
MW-6S	573.30	8.2	575.83	575.59	4.0	565.1 - 569.1	2.1E-05
MW-7S	573.30	11.8	575.91	575.42	7.0	561.5 - 568.5	3.5E-03
MW-8S	570.10	19.1	572.21	572.03	10.0	551.0 - 561.0	3.0E-04
* MW-9S	573.94	7.9	573.94	573.56	5.0	566.04 - 571.04	N C
* MW-10S	574.07	8.1	574.07	573.36	5.0	565.97 - 570.97	1.2E-04
* MW-12S	578.10	17.0	579.81	579.62	10.0	561.1 - 571.10	3.3E-05
* MW-13S	579.00	17.1	581.65	581.50	13.0	561.9 - 574.9	2.7E-05
* MW-14S	573.70	21.8	575.74	575.52	17.0	551.9 - 568.9	2.9E-04
* MW-15S	574.10	21.8	576.28	576.01	17.0	552.3 - 569.3	1.6E-05
* MW-16S	572.60	14.7	574.82	574.63	10.0	557.9 - 567.9	9.9E-03
MW-1D	574.10	42.9	576.16	575.95	10.0	531.2 - 541.2	3.6E-03
MW-2D	573.10	42.1	575.15	575.05	10.0	531.0 - 541.0	1.7E-03
MW-3D	576.10	39.3	578.06	577.94	7.0	536.8 - 543.8	8.5E-03
MW-4D	580.30	54.4	583.04	582.82	10.0	525.9 - 535.9	1.4E-03
MW-5D	574.70	40.6	576.98	576.70	10.0	534.1 - 544.1	1.1E-02
MW-6D	573.30	45.3	574.82	574.34	5.0	528.0 - 533.0	3.8E-03
MW-7D	572.90	44.3	575.17	574.94	10.0	528.60 - 538.60	1.5E-02
MW-8D	570.10	42.9	572.41	572.24	10.0	527.2 - 537.2	5.4E-03
* MW-10D	574.00	45.2	574.00	573.46	5.0	528.8 - 533.8	2.3E-05
* MW-11D	574.75	44.5	574.53	574.32	5.0	530.25 - 535.25	2.6E-03
* MW-12D	578.30	44.8	579.90	579.59	5.0	533.5 - 538.5	1.1E-02
* MW-13D	579.10	44.8	580.76	580.47	5.0	534.3 - 539.3	2.2E-03
* MW-2DB	573.40	74.8	575.34	574.94	15.0	498.6 - 513.6	1.1E-03
* MW-6DB	573.30	75.5	575.09	574.53	15.0	497.8 - 512.8	8.8E-06
* MW-8DB	569.80	74.4	571.36	571.01	15.0	495.4 - 510.4	1.4E-04
* MW-10DB	574.04	75.3	574.04	573.61	15.0	498.74 - 513.74	2.4E-05
* MW-11DB	574.46	75.0	574.23	573.89	15.0	499.46 - 514.46	1.5E-03

* - WELLS INSTALLED BY O'BRIEN & GERE
WELL DEPTHS GIVEN BELOW GRADE

N C - NOT COMPLETED DUE TO INSUFFICIENT VOLUMES OF WATER IN WELLS

DRT:bdm/H32

TABLE 11

PHYSICAL SOILS TESTING RESULTS
BUFFALO AVENUE SITE INVESTIGATION
NIAGARA FALLS, NY

WELL	DEPTH	PLASTIC LIMIT	LIQUID LIMIT	PLASTICITY INDEX	AVERAGE GRAIN SIZE (mm)	COEFFICIENT OF PERMEABILITY (cm/sec)
MW-6DB	14 - 16 (SHELBY TUBE)	--	--	--	--	3.56E-8
MW-9S	4 - 8	15	21	6	0.031	--
MW-10S	COMPOSITE	18	24	6	0.039	--
MW-12S	15 - 17	20	38	18	0.004	--
MW-13S	COMPOSITE	20	42	22	0.0017	--
MW-14S	8 - 10	NON-PLASTIC	--	--	0.11	--
MW-15S	COMPOSITE	17	30	13	0.008	--
MW-16S	14 - 16	19	36	17	0.002	--

DRT:bdm/H29

TABLE 12
BEDROCK PACKER TESTING RESULTS
BUFFALO AVENUE SITE INVESTIGATION
NIAGARA FALLS, NEW YORK

Borehole No.	Depth	RQD (%)	Average K (cm/sec)
2DB	35-44 ft	10	2.8×10^{-3}
2DB	45-54 ft	22.5	2.13×10^{-3}
2DB	55-64 ft	31.7	1.08×10^{-3}
2DB	65-75 ft	95.8	2.48×10^{-5}
6DB	36-45 ft	32.5	2.98×10^{-3}
6DB	45-54 ft	45.8	2.89×10^{-4}
6DB	54-63 ft	85	NA
6DB	63-72 ft	97.5	4.76×10^{-6}
8DB	35-44 ft	50	2.26×10^{-3}
8DB	45-54 ft	63.3	NA
8DB	55-64 ft	82.5	4.24×10^{-4}
8DB	64-74 ft	96.7	7.03×10^{-4}
10 DB	35-44 ft	51.7	4.53×10^{-4}
10 DB	44-53 ft	74.2	NA
10 DB	53-62 ft	85	NA
10 DB	62-71 ft	91.2	NA

NA = Water could not be pumped into bedrock at this interval.

TABLE 13
GROUND WATER ELEVATION DATA
BUFFALO AVENUE SITE INVESTIGATION
NIAGARA FALLS, NEW YORK

WELL ID	GROUND WATER ELEVATIONS							
	5/31/91	6/10/91	6/12/91	6/14/91	6/20/91	7/18/91	8/15/91	9/16/91
MW-1S	564.51	564.39	564.36	564.33	564.24	564.00	563.86	563.65
MW-2S	563.39	563.27	563.34	563.26	563.20	563.23	562.98	562.63
MW-3S	NA	575.25	575.51	575.08	NA	574.39	570.91	568.82
MW-4S	562.76	562.17	562.75	562.87	562.86	563.04	562.96	562.89
MW-5S	NA	68.73	568.61	568.57	NA	566.83	DRY	565.01
MW-6S	568.18	567.51	567.39	567.19	566.87	565.31	DRY	DRY
MW-7S	564.66	564.52	564.46	564.42	564.28	563.84	563.45	563.10
MW-8S	563.18	563.09	563.09	563.07	563.06	563.10	562.85	562.84
MW-9S*	566.34	DRY	DRY	DRY	DRY	DRY	DRY	DRY
MW-10S*	568.03	567.22	567.07	567.10	566.72	DRY	DRY	DRY
MW-12S*	564.61	566.59	563.70	565.12	566.59	566.33	565.91	564.88
MW-13S*	575.12	573.70	573.16	572.82	572.33	571.27	570.15	567.65
MW-14S*	568.11	567.12	567.02	566.71	566.29	564.58	563.63	562.72
MW-15S*	567.98	567.63	567.53	567.36	567.15	566.69	566.16	565.47
MW-16S*	563.81	563.68	563.65	563.63	563.57	563.37	563.33	563.26
MW-1D	562.54	562.93	562.82	562.81	562.92	562.89	562.92	562.65
MW-2D	562.51	562.82	562.47	562.73	562.85	562.82	562.90	562.63
MW-3D	562.39	562.52	562.25	562.54	562.46	562.66	562.79	562.47
MW-4D	562.25	563.32	562.46	562.55	562.47	562.64	562.77	562.47
MW-5D	562.45	562.47	562.19	562.60	562.42	562.62	562.79	559.51
MW-6D*	561.82	561.93	561.73	561.95	561.93	562.20	562.28	562.11
MW-7D	561.50	561.69	561.46	561.70	561.67	561.95	562.06	561.98
MW-8D	562.00	562.36	562.02	562.36	562.32	562.50	562.64	562.41
MW-10D*	562.18	562.63	562.56	562.71	562.59	561.88	562.71	562.32
MW-11D*	563.05	562.90	562.58	562.84	562.93	562.90	562.94	562.66
MW-12D*	562.32	562.45	562.15	562.46	562.38	562.57	562.56	562.48
MW-13D*	562.39	562.58	562.30	562.62	562.49	562.68	562.79	562.53
MW-2DB*	562.65	562.79	562.51	562.73	562.82	562.82	562.86	562.64
MW-6DB*	560.40	558.73	559.36	559.14	559.02	559.73	559.81	559.95
MW-8DB*	562.00	562.13	561.95	562.14	562.13	562.33	562.41	562.28
MW-10DB	562.37	561.89	562.05	561.99	561.85	562.16	562.26	562.45
MW-11DB	562.73	562.48	561.92	562.44	562.48	562.56	562.64	562.42

*Wells installed by O'Brien & Gere Engineers, Inc.
NA - Data Not Available

DRT:ers/N75

WELL ID	7/18/91 1230 PM	1330 hr	1430 hr	1600 hr	0730 hr	0830 hr	0930 hr	1030 hr	1130 hr	G W ELEV CHANGE
MW-1S	564.00	564.00	564.00	564.00	563.99	564.01	564.00	564.00	564.00	0.03
MW-2S	563.23	563.22	563.22	563.21	563.15	563.16	563.18	563.20	563.22	0.10
MW-3S	574.45	574.41	574.38	574.37	574.25	574.24	574.22	574.22	574.21	0.24
MW-4S	563.04	562.94	562.88	562.83	562.77	563.03	563.22	563.22	563.19	0.94
MW-5S	567.72	567.70	567.69	567.68	567.77	567.76	567.75	567.72	567.71	0.12
MW-6S	565.31	565.31	565.31	565.31	565.26	565.26	565.26	565.26	565.26	0.05
MW-7S	563.84	563.84	563.84	563.84	563.82	563.82	563.83	563.83	563.83	0.02
MW-8S	563.10	563.08	563.05	563.04	562.93	562.95	563.00	563.05	563.09	0.18
• MW-9S	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	0.00
• MW-10S	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	0.00
• MW-12S	566.33	566.33	566.33	566.34	566.34	566.33	566.33	566.34	566.33	0.09
• MW-13S	571.27	571.27	571.27	571.28	571.24	571.23	571.24	571.23	571.25	0.05
• MW-14S	564.58	564.58	564.59	564.58	564.56	564.55	564.55	564.54	564.55	0.04
• MW-15S	566.69	566.69	566.69	566.69	566.68	566.68	566.68	566.67	566.67	0.02
• MW-16S	563.37	563.43	563.42	563.43	563.42	563.42	563.42	563.42	563.43	0.06
MW-1D	562.89	562.82	562.77	562.73	562.98	563.14	563.09	563.05	563.02	0.90
MW-2D	562.82	562.76	562.71	562.67	562.89	563.08	563.04	562.99	562.96	0.93
MW-3D	562.66	562.57	562.53	562.50	562.64	562.87	562.86	562.81	562.79	0.94
MW-4D	562.64	562.56	562.52	562.48	562.68	562.88	562.85	562.80	562.78	0.94
MW-5D	562.62	562.52	562.50	562.46	562.56	562.80	562.81	562.77	562.76	0.93
• MW-6D	562.20	562.12	562.08	562.04	561.97	562.18	562.33	562.31	562.30	0.83
MW-7D	561.95	561.89	561.85	561.82	561.76	561.99	562.06	562.05	562.04	0.74
MW-8D	562.50	562.41	562.37	562.32	562.43	562.74	562.71	562.66	562.65	1.07
• MW-10D	561.88	562.82	562.78	562.73	562.73	562.91	563.01	563.01	563.00	0.75
• MW-11D	562.90	562.84	562.79	562.75	563.07	563.20	563.14	563.09	563.06	0.95
• MW-12D	562.57	562.49	562.45	562.41	562.51	562.79	562.77	562.73	562.73	0.96
• MW-13D	562.68	562.60	562.56	562.52	562.66	562.90	562.86	562.84	562.82	0.93
• MW-2DB	562.82	562.76	562.71	562.68	562.85	563.02	562.99	562.97	562.94	0.81
• MW-6DB	559.73	559.82	559.89	559.96	559.56	559.53	559.54	559.59	559.65	0.66
• MW-8DB	562.33	562.28	562.24	562.23	562.21	562.44	562.43	562.42	562.41	0.70
• MW-10DB	562.16	562.19	562.23	562.26	562.08	562.07	562.08	562.09	562.13	0.31
• MW-11DB	562.56	562.51	562.47	562.44	562.66	562.72	562.71	562.69	562.67	0.71

• - WELLS INSTALLED BY O'BRIEN & GERE

DRT:bdm/H31

TABLE 15
NIAGARA FALLS
GROUND WATER
VOLATILE ORGANICS ANALYSES

	NYS GA STANDARDS	MW-1S 6/91	MW-1S 9/91	MW-1D 6/91	MW-1D 9/91	MW-2S 6/91	MW-2S 9/91	MW-2D 6/91	MW-2D 9/91	MW-2DB 6/91
CHLOROMETHANE	NE	10 U	0.4 U	10 U	0.4 U	10 U	0.4 U	10 U	0.4 U	10 U
BROMOMETHANE	NE	10 U	0.4 U	10 U	0.4 U	10 U	0.4 U	10 U	0.4 U	10 U
VINYL CHLORIDE	2	10 U	0.4 U	10 U	0.4 U	10 U	0.4 U	10 U	0.4 U	10 U
CHLOROETHANE	NE	10 U	0.4 U	10 U	0.4 U	10 U	0.4 U	10 U	0.4 U	10 U
METHYLENE CHLORIDE	5	5 U	0.2 U	5 U	0.34	5 U	0.2 U	5 U	0.2 U	5 U
ACETONE	NE	10 U		10 U		10 U		10 U		10 U
CARBON DISULFIDE	NE	5 U		5 U		5 U		5 U		5 U
1,1-DICHLOROETHENE	5	5 U	0.2 U	5 U	0.2 U	5 U	0.2 U	5 U	0.2 U	5 U
1,1-DICHLOROETHANE	5	5 U	0.2 U	5 U	0.2 U	5 U	0.24	5 U	0.2 U	5 U
1,2-DICHLOROETHENE (TOTAL)	5	5 U	0.2 U	5 U	0.2 U	5 U	0.2 U	5 U	0.2 U	5 U
CHLOROFORM	100	5 U	0.2 U	5 U	0.2 U	5 U	0.2 U	5 U	0.2 U	0.4 J
1,2-DICHLOROETHANE	5	5 U	0.2 U	5 U	0.2 U	5 U	0.2 U	5 U	0.2 U	5 U
2-BUTANONE	NE	10 U		10 U		10 U		10 U		10 U
1,1,1-TRICHLOROETHANE	5	5 U	1.3 U	5 U	0.2 U	5 U	0.2 U	5 U	0.2 U	5 U
CARBON TETRACHLORIDE	5	5 U	0.2 U	5 U	0.2 U	5 U	0.35	5 U	0.2 U	5 U
VINYL ACETATE	2	10 U		10 U		10 U		10 U		10 U
BROMODICHLOROMETHANE	50 *	5 U	0.2 U	5 U	0.2 U	5 U	0.2 U	5 U	0.2 U	5 U
1,2-DICHLOROPROPANE	5	5 U	0.2 U	5 U	0.2 U	5 U	0.2 U	5 U	0.2 U	5 U
CIS-1,3-DICHLOROPROPANE	NE	5 U	0.2 U	5 U	0.2 U	5 U	0.2 U	5 U	0.2 U	5 U
TRICHLOROETHENE	5	5 U	0.2 U	5 U	0.2 U	5 U	0.2 U	5 U	0.2 U	5 U
DIBROMOCHLOROMETHANE	50 *	5 U	0.2 U	5 U	0.2 U	5 U	0.2 U	5 U	0.2 U	5 U
1,1,2-TRICHLOROETHANE	5	5 U	0.2 U	5 U	0.2 U	5 U	0.2 U	5 U	0.2 U	5 U
BENZENE	ND	5 U	0.27	5 U	0.2 U	5 U	0.2 U	5 U	0.99	5 U
TRANS-1,3-DICHLOROPROPANE	NE	5 U	0.2 U	5 U	0.2 U	5 U	0.2 U	5 U	0.2 U	5 U
BROMOFORM	50 *	5 U	1 U	5 U	1 U	5 U	1 U	5 U	1 U	5 U
4-METHYL-2-PENTANONE	NE	10 U		10 U		10 U		10 U		10 U
2-HEXANONE	50 *	10 U		10 U		10 U		10 U		10 U
TETRACHLOROETHENE	5	5 U	0.2 U	5 U	0.2 U	5 U	0.2 U	5 U	0.2 U	5 U
1,1,2,2-TETRACHLOROETHENE	5	5 U	0.2 U	5 U	0.2 U	5 U	0.2 U	5 U	0.2 U	5 U
TOLUENE	5	5 U	0.2 U	5 U	0.2 U	5 U	0.2 U	5 U	0.2 U	5 U
CHLOROBENZENE	5	5 U	0.2 U	5 U	0.2 U	1 J	1.1	5 U	0.2 U	5 U
ETHYLBENZENE	5	5 U	0.2 U	5 U	0.2 U	5 U	0.2 U	5 U	0.2 U	5 U
STYRENE	5	5 U		5 U		5 U		5 U		5 U
TOTAL XYLENES	5	5 U	0.2 U	5 U	0.2 U	5 U	0.38	5 U	0.2 U	5 U

NOTES:
All values reported in ug/L (ppb).
* – Guidance Value
U – Compound was analyzed but not detected.
J – Indicates an estimated value (GC/MS only).

TABLE 15
NIAGARA FALLS
GROUND WATER
VOLATILE ORGANICS ANALYSES

	NYS GA STANDARDS	MW-2DB 9/91	MW-3D 6/91	MW-4S 6/91	MW-4S 9/91	MW-4D 6/91	MW-4D 9/91	MW-5D 6/91	MW-6S 6/91	MW-6D 6/91
CHLOROMETHANE	NE	0.4 U	10 U	10 U	0.4 U	10 U	0.4 U	10 U	10 U	10 U
BROMOMETHANE	NE	0.4 U	10 U	10 U	0.4 U	10 U	0.4 U	10 U	10 U	10 U
VINYL CHLORIDE	2	0.4 U	10 U	10 U	0.4 U	10 U	0.4 U	10 U	10 U	10 U
CHLOROETHANE	NE	0.4 U	10 U	10 U	0.4 U	10 U	0.4 U	10 U	10 U	10 U
METHYLENE CHLORIDE	5	0.2 U	5 U	5 U	0.2 U	5 U	0.2 U	5 U	5 U	5 U
ACETONE	NE		10 U	10 U		10 U		10 U	10 U	10 U
CARBON DISULFIDE	NE		5 U	5 U		5 U		5 U	5 U	5 U
1,1-DICHLOROETHENE	5	0.2 U	5 U	5 U	0.2 U	5 U	0.2 U	5 U	5 U	5 U
1,1-DICHLOROETHANE	5	0.2 U	5 U	5 U	0.2 U	5 U	0.2 U	5 U	5 U	5 U
1,2-DICHLOROETHENE (TOTAL)	5	0.2 U	5 U	5 U	0.2 U	5 U	0.2 U	5 U	5 U	5 U
CHLOROFORM	100	0.2 U	5 U	5 U	0.2 U	5 U	0.2 U	5 U	5 U	5 U
1,2-DICHLOROETHANE	5	0.2 U	5 U	5 U	0.2 U	5 U	0.2 U	5 U	5 U	5 U
2-BUTANONE	NE		10 U	10 U		10 U		10 U	10 U	10 U
1,1,1-TRICHLOROETHANE	5	0.2 U	5 U	5 U	0.2 U	5 U	0.88	5 U	5 U	5 U
CARBON TETRACHLORIDE	5	0.2 U	5 U	5 U	0.2 U	5 U	0.2 U	5 U	5 U	5 U
VINYL ACETATE	2		10 U	10 U		10 U		10 U	10 U	10 U
BROMODICHLOROMETHANE	50 *	0.2 U	5 U	5 U	0.2 U	5 U	0.2 U	5 U	5 U	5 U
1,2-DICHLOROPROPANE	5	0.2 U	5 U	5 U	0.2 U	5 U	0.2 U	5 U	5 U	5 U
CIS-1,3-DICHLOROPROPANE	NE	0.2 U	5 U	5 U	0.2 U	5 U	0.2 U	5 U	5 U	5 U
TRICHLOROETHENE	5	0.2 U	5 U	5 U	0.2 U	5 U	0.2 U	5 U	5 U	5 U
DIBROMOCHLOROMETHANE	50 *	0.2 U	5 U	5 U	0.2 U	5 U	0.2 U	5 U	5 U	5 U
1,1,2-TRICHLOROETHANE	5	0.2 U	5 U	5 U	0.2 U	5 U	0.2 U	5 U	5 U	5 U
BENZENE	ND	0.48	5 U	5 U	0.2 U	5 U	0.2 U	5 U	5 U	5 U
TRANS-1,3-DICHLOROPROPANE	NE	0.2 U	5 U	5 U	0.2 U	5 U	0.2 U	5 U	5 U	5 U
BROMOFORM	50 *	1 U	5 U	5 U	1 U	5 U	1 U	5 U	5 U	5 U
4-METHYL-2-PENTANONE	NE		10 U	10 U		10 U		10 U	10 U	10 U
2-HEXANONE	50 *		10 U	10 U		10 U		10 U	10 U	10 U
TETRACHLOROETHENE	5	0.2 U	5 U	5 U	0.2 U	5 U	0.2 U	5 U	5 U	5 U
1,1,2,2-TETRACHLOROETHENE	5	0.2 U	5 U	5 U	0.2 U	5 U	0.2 U	5 U	5 U	5 U
TOLUENE	5	0.2 U	5 U	5 U	0.2 U	5 U	0.2 U	5 U	5 U	5 U
CHLOROBENZENE	5	0.2 U	5 U	5 U	0.2 U	5 U	0.2 U	5 U	5 U	5 U
ETHYLBENZENE	5	0.2 U	5 U	5 U	0.2 U	5 U	0.2 U	5 U	5 U	5 U
STYRENE	5		5 U	5 U		5 U		5 U	5 U	5 U
TOTAL XYLENES	5	0.2 U	5 U	5 U	0.2 U	5 U	0.2 U	5 U	5 U	5 U

TABLE 15
NIAGARA FALLS
GROUND WATER
VOLATILE ORGANICS ANALYSES

	NYS GA STANDARDS	MW-6D 9/91	MW-6DB 6/91	MW-6DB 9/91	MW-7S 6/91	MW-7S 9/91	MW-7D 6/91	BL DUP MW-7D 6/91	MW-7D 9/91
CHLOROMETHANE	NE	0.4 U	10 U	0.4 U	10 U	0.4 U	10 U	10 U	0.4 U
BROMOMETHANE	NE	0.4 U	10 U	0.4 U	10 U	0.4 U	10 U	10 U	0.4 U
VINYL CHLORIDE	2	0.4 U	10 U	0.4 U	10 U	0.4 U	10 U	10 U	0.4 U
CHLOROETHANE	NE	0.4 U	10 U	0.4 U	10 U	0.4 U	10 U	10 U	0.4 U
METHYLENE CHLORIDE	5	0.2 U	5 U	0.2 U	5 U	0.2 U	5 U	5 U	0.2 U
ACETONE	NE		10 U		10 U		10 U	10 U	
CARBON DISULFIDE	NE		5 U		5 U		5 U	5 U	
1,1-DICHLOROETHENE	5	0.2 U	5 U	0.2 U	5 U	0.2 U	5 U	5 U	0.2 U
1,1-DICHLOROETHANE	5	0.2 U	5 U	0.2 U	5 U	0.2 U	5 U	5 U	0.2 U
1,2-DICHLOROETHENE (TOTAL)	5	0.2 U	5 U	0.2 U	5 U	0.2 U	5 U	5 U	0.2 U
CHLOROFORM	100	0.2 U	5 U	0.2 U	5 U	0.2 U	5 U	5 U	0.2 U
1,2-DICHLOROETHANE	5	0.2 U	5 U	0.2 U	5 U	0.2 U	5 U	5 U	0.2 U
2-BUTANONE	NE		10 U		10 U		10 U	10 U	
1,1,1-TRICHLOROETHANE	5	0.2 U	5 U	0.2 U	5 U	0.2 U	5 U	5 U	0.2 U
CARBON TETRACHLORIDE	5	0.2 U	5 U	0.2 U	5 U	0.2 U	5 U	5 U	0.2 U
VINYL ACETATE	2		10 U		10 U		10 U	10 U	
BROMODICHLOROMETHANE	50 *	0.2 U	5 U	0.2 U	5 U	0.2 U	5 U	5 U	0.2 U
1,2-DICHLOROPROPANE	5	0.2 U	5 U	0.2 U	5 U	0.2 U	5 U	5 U	0.2 U
CIS-1,3-DICHLOROPROPANE	NE	0.2 U	5 U	0.2 U	5 U	0.2 U	5 U	5 U	0.2 U
TRICHLOROETHENE	5	0.2 U	5 U	0.2 U	5 U	0.2 U	5 U	5 U	0.2 U
DIBROMOCHLOROMETHANE	50 *	0.2 U	5 U	0.2 U	5 U	0.2 U	5 U	5 U	0.2 U
1,1,2-TRICHLOROETHANE	5	0.2 U	5 U	0.2 U	5 U	0.2 U	5 U	5 U	0.2 U
BENZENE	ND	0.2 U	5 U	0.2 U	0.8 J	0.2 U	5 U	5 U	0.2 U
TRANS-1,3-DICHLOROPROPANE	NE	0.2 U	5 U	0.2 U	5 U	0.2 U	5 U	5 U	0.2 U
BROMOFORM	50 *	1 U	5 U	1 U	5 U	1 U	5 U	5 U	1 U
4-METHYL-2-PENTANONE	NE		10 U		10 U		10 U	10 U	
2-HEXANONE	50 *		10 U		10 U		10 U	10 U	
TETRACHLOROETHENE	5	0.2 U	5 U	0.2 U	5 U	0.2 U	5 U	5 U	0.2 U
1,1,2,2-TETRACHLOROETHENE	5	0.2 U	5 U	0.2 U	5 U	0.2 U	5 U	5 U	0.2 U
TOLUENE	5	0.2 U	5 U	0.2 U	5 U	0.2 U	5 U	5 U	0.2 U
CHLOROBENZENE	5	0.2 U	5 U	0.2 U		6	5	5 U	2.7
ETHYLBENZENE	5	0.2 U	5 U	0.2 U	5 U	0.2 U	5 U	5 U	0.2 U
STYRENE	5		5 U		5 U		5 U	5 U	
TOTAL XYLENES	5	0.2 U	5 U	0.2 U	5 U	0.2 U	5 U	5 U	0.2 U

TABLE 15
NIAGARA FALLS
GROUND WATER
VOLATILE ORGANICS ANALYSES

	NYS GA STANDARDS	MW-8S 6/91	MW-8S 9/91	MW-8D 6/91	MW-8D 9/91	MW-8DB 6/91	MW-8DB 9/91	MW-10S 6/91	MW-10D 6/91	MW-10D 9/91
CHLOROMETHANE	NE	10 U	0.4 U	10 U	0.4 U	10 U	0.4 U	10 U	10 U	0.4 U
BROMOMETHANE	NE	10 U	0.4 U	10 U	0.4 U	10 U	0.4 U	10 U	10 U	0.4 U
VINYL CHLORIDE	2	10 U	0.4 U	10 U	0.4 U	10 U	0.4 U	10 U	10 U	0.4 U
CHLOROETHANE	NE	10 U	0.4 U	10 U	0.4 U	10 U	0.4 U	10 U	10 U	0.4 U
METHYLENE CHLORIDE	5	5 U	0.2 U	5 U	0.2 U	5 U	0.2 U	5 U	5 U	0.2 U
ACETONE	NE	4 J		4 U		10 U		2 J	10 U	
CARBON DISULFIDE	NE	5 U		5 U		3 J		5 U	5 U	
1,1-DICHLOROETHENE	5	5 U	0.2 U	5 U	0.2 U	5 U	0.2 U	5 U	5 U	0.2 U
1,1-DICHLOROETHANE	5	5 U	0.2 U	5 U	0.2 U	5 U	0.2 U	5 U	5 U	0.2 U
1,2-DICHLOROETHENE (TOTAL)	5	5 U	0.2 U	5 U	0.2 U	5 U	0.2 U	5 U	5 U	0.2 U
CHLOROFORM	100	5 U	0.2 U	5 U	0.2 U	5 U	0.2 U	5 U	5 U	0.2 U
1,2-DICHLOROETHANE	5	5 U	0.2 U	5 U	0.2 U	5 U	0.2 U	5 U	5 U	0.2 U
2-BUTANONE	NE	10 U		10 U		10 U		10 U	10 U	
1,1,1-TRICHLOROETHANE	5	5 U	0.2 U	5 U	0.2 U	5 U	0.2 U	5 U	5 U	0.2 U
CARBON TETRACHLORIDE	5	5 U	0.2 U	5 U	0.2 U	5 U	0.2 U	5 U	5 U	0.2 U
VINYL ACETATE	2	10 U		10 U		10 U		10 U	10 U	
BROMODICHLOROMETHANE	50 *	5 U	0.2 U	5 U	0.2 U	5 U	0.2 U	5 U	5 U	0.2 U
1,2-DICHLOROPROPANE	5	5 U	0.2 U	5 U	0.2 U	5 U	0.2 U	5 U	5 U	0.2 U
CIS-1,3-DICHLOROPROPANE	NE	5 U	0.2 U	5 U	0.2 U	5 U	0.2 U	5 U	5 U	0.2 U
TRICHLOROETHENE	5	5 U	0.2 U	5 U	0.2 U	5 U	0.2 U	5 U	5 U	0.2 U
DIBROMOCHLOROMETHANE	50 *	5 U	0.2 U	5 U	0.2 U	5 U	0.2 U	5 U	5 U	0.2 U
1,1,2-TRICHLOROETHANE	5	5 U	0.2 U	5 U	0.2 U	5 U	0.2 U	5 U	5 U	0.2 U
BENZENE	ND	5 U	0.2 U	5 U	0.2 U	5 U	0.2 U	5 U	5 U	0.2 U
TRANS-1,3-DICHLOROPROPANE	NE	5 U	0.2 U	5 U	0.2 U	5 U	0.2 U	5 U	5 U	0.2 U
BROMOFORM	50 *	5 U	1 U	5 U	1 U	5 U	1 U	5 U	5 U	1 U
4-METHYL-2-PENTANONE	NE	10 U		10 U		10 U		10 U	10 U	
2-HEXANONE	50 *	10 U		10 U		10 U		10 U	10 U	
TETRACHLOROETHENE	5	5 U	0.2 U	5 U	0.2 U	5 U	0.2 U	5 U	5 U	0.2 U
1,1,2,2-TETRACHLOROETHENE	5	5 U	0.2 U	5 U	0.2 U	5 U	0.2 U	5 U	5 U	0.2 U
TOLUENE	5	5 U	0.2 U	5 U	0.2 U	5 U	0.2 U	5 U	5 U	0.2 U
CHLOROBENZENE	5	5 U	0.2 U	3 J	3.3	5 U	0.2 U	5 U	5 U	0.2 U
ETHYLBENZENE	5	5 U	0.2 U	5 U	0.2 U	5 U	0.2 U	5 U	5 U	0.2 U
STYRENE	5	5 U		5 U		5 U		5 U	5 U	
TOTAL XYLENES	5	5 U	0.2 U	5 U	0.2 U	5 U	0.2 U	5 U	5 U	0.2 U

TABLE 15
NIAGARA FALLS
GROUND WATER
VOLATILE ORGANICS ANALYSES

	NYS GA STANDARDS	MW-10DB 6/91	MW-10DB 9/91	MW-11 6/91	MW-11D 9/91	MW-11D 6/91	MW-11DB 9/91	MW-12S 6/91	BL DUP MW-12S 6/91
CHLOROMETHANE	NE	10 U	0.4 U	10 U	0.4 U	10 U	0.4 U	10 U	10 U
BROMOMETHANE	NE	10 U	0.4 U	10 U	0.4 U	10 U	0.4 U	10 U	10 U
VINYL CHLORIDE	2	10 U	0.4 U	10 U	0.4 U	10 U	0.4 U	10 U	10 U
CHLOROETHANE	NE	10 U	0.4 U	10 U	0.4 U	10 U	0.4 U	10 U	10 U
METHYLENE CHLORIDE	5	5 U	0.2 U	5 U	0.2 U	5 U	0.2 U	5 U	5 U
ACETONE	NE	10 U		10 U		10 U		6 J	6 J
CARBON DISULFIDE	NE	5 U		5 U		5 U		5 U	5 U
1,1-DICHLOROETHENE	5	5 U	0.2 U	5 U	0.2 U	5 U	0.2 U	5 U	5 U
1,1-DICHLOROETHANE	5	5 U	0.2 U	5 U	0.2 U	5 U	0.2 U	5 U	5 U
1,2-DICHLOROETHENE (TOTAL)	5	5 U	0.2 U	5 U	0.2 U	5 U	0.2 U	5 U	5 U
CHLOROFORM	100	0.3 J	0.2 U	5 U	0.2 U	0.3 J	0.2 U	5 U	5 U
1,2-DICHLOROETHANE	5	5 U	0.2 U	5 U	0.2 U	5 U	0.2 U	5 U	5 U
2-BUTANONE	NE	10 U		10 U		10 U		10 U	10 U
1,1,1-TRICHLOROETHANE	5	5 U	0.2 U	5 U	0.2 U	5 U	2	5 U	5 U
CARBON TETRACHLORIDE	5	5 U	0.2 U	5 U	0.2 U	5 U	0.2 U	5 U	5 U
VINYL ACETATE	2	10 U		10 U		10 U		10 U	10 U
BROMODICHLOROMETHANE	50 *	5 U	0.2 U	5 U	0.2 U	5 U	0.2 U	5 U	5 U
1,2-DICHLOROPROPANE	5	5 U	0.2 U	5 U	0.2 U	5 U	0.2 U	5 U	5 U
CIS-1,3-DICHLOROPROPANE	NE	5 U	0.2 U	5 U	0.2 U	5 U	0.2 U	5 U	5 U
TRICHLOROETHENE	5	5 U	0.2 U	5 U	0.2 U	5 U	0.2	5 U	5 U
DIBROMOCHLOROMETHANE	50 *	5 U	0.2 U	5 U	0.2 U	5 U	0.2 U	5 U	5 U
1,1,2-TRICHLOROETHANE	5	5 U	0.2 U	5 U	0.2 U	5 U	0.2 U	5 U	5 U
BENZENE	ND	5 U	0.2 U	5 U	0.2 U	5 U	0.52	5 U	5 U
TRANS-1,3-DICHLOROPROPANE	NE	5 U	0.2 U	5 U	0.2 U	5 U	0.2 U	5 U	5 U
BROMOFORM	50 *	5 U	1 U	5 U	1 U	5 U	1 U	5 U	5 U
4-METHYL-2-. ENTANONE	NE	10 U		10 U		10 U		10 U	10 U
2-HEXANONE	50 *	10 U		10 U		10 U		10 U	10 U
TETRACHLOROETHENE	5	0.5 J	0.27	5 U	0.2 U	5 U	0.52	5 U	5 U
1,1,2,2-TETRACHLOROETHENE	5	5 U	0.2 U	5 U	0.2 U	5 U	0.2 U	5 U	5 U
TOLUENE	5	5 U	0.2 U	5 U	0.2 U	5 U	0.2 U	5 U	5 U
CHLOROBENZENE	5	5 U	0.2 U	5 U	0.2 U	5 U	0.2 U	5 U	5 U
ETHYLBENZENE	5	5 U	0.2 U	5 U	0.2 U	5 U	0.28	5 U	5 U
STYRENE	5	5 U		5 U		5 U		5 U	5 U
TOTAL XYLENES	5	5 U	0.2 U	5 U	0.2 U	5 U	1.4	5 U	5 U

TABLE 15
NIAGARA FALLS
GROUND WATER
VOLATILE ORGANICS ANALYSES

	NYS GA STANDARDS	MW-12S 9/91	MW-12D 6/91	MW-12D 9/91	MW-13S 6/91	MW-13S 9/91	MW-13D 6/91	MW-13D 9/91	MW-14 6/91
CHLOROMETHANE	NE	0.4 U	10 U	0.4 U	10 U	0.4 U	10 U	0.4 U	10 U
BROMOMETHANE	NE	0.4 U	10 U	0.4 U	10 U	0.4 U	10 U	0.4 U	10 U
VINYL CHLORIDE	2	0.4 U	10 U	0.4 U	10 U	0.4 U	10 U	0.4 U	10 U
CHLOROETHANE	NE	0.4 U	10 U	0.4 U	10 U	0.4 U	10 U	0.4 U	10 U
METHYLENE CHLORIDE	5	0.2 U	5 U	0.2 U	5 U	0.2 U	5 U	0.2 U	5 U
ACETONE	NE		10 U		10 U		10 U		10 U
CARBON DISULFIDE	NE		5 U		5 U		5 U		5 U
1,1-DICHLOROETHENE	5	0.2 U	5 U	0.2 U	5 U	0.2 U	5 U	0.2 U	5 U
1,1-DICHLOROETHANE	5	0.2 U	5 U	0.2 U	5 U	0.2 U	5 U	0.2 U	5 U
1,2-DICHLOROETHENE (TOTAL)	5	0.2 U	5 U	0.2 U	5 U	0.2 U	5 U	0.2 U	5 U
CHLOROFORM	100	0.2 U	5 U	0.2 U	5 U	0.2 U	5 U	0.2 U	2 J
1,2-DICHLOROETHANE	5	0.2 U	5 U	0.2 U	5 U	0.2 U	5 U	0.2 U	5 U
2-BUTANONE	NE		10 U		10 U		10 U		10 U
1,1,1-TRICHLOROETHANE	5	0.2 U	5 U	0.2 U	5 U	0.2 U	5 U	0.2 U	5 U
CARBON TETRACHLORIDE	5	0.2 U	5 U	0.2 U	5 U	0.2 U	5 U	0.2 U	5 U
VINYL ACETATE	2		10 U		10 U		10 U		10 U
BROMODICHLOROMETHANE	50 *	0.2 U	5 U	0.2 U	5 U	0.2 U	5 U	0.2 U	5 U
1,2-DICHLOROPROPANE	5	0.2 U	5 U	0.2 U	5 U	0.2 U	5 U	0.2 U	5 U
CIS-1,3-DICHLOROPROPANE	NE	0.2 U	5 U	0.2 U	5 U	0.2 U	5 U	0.2 U	5 U
TRICHLOROETHENE	5	0.2 U	5 U	0.2 U	5 U	0.2 U	5 U	0.2 U	5 U
DIBROMOCHLOROMETHANE	50 *	0.2 U	5 U	0.2 U	5 U	0.2 U	5 U	0.2 U	5 U
1,1,2-TRICHLOROETHANE	5	0.2 U	5 U	0.2 U	5 U	0.2 U	5 U	0.2 U	5 U
BENZENE	ND	0.2 U	5 U	0.2 U	5 U	0.2 U	5 U	0.2 U	5 U
TRANS-1,3-DICHLOROPROPANE	NE	0.2 U	5 U	0.2 U	5 U	0.2 U	5 U	0.2 U	5 U
BROMOFORM	50 *	1 U	5 U	1 U	5 U	1 U	5 U	1 U	5 U
4-METHYL-2-PENTANONE	NE		10 U		10 U		10 U		10 U
2-HEXANONE	50 *		10 U		10 U		10 U		10 U
TETRACHLOROETHENE	5	0.2 U	5 U	0.2 U	5 U	0.2 U	5 U	0.2 U	5 U
1,1,2,2-TETRACHLOROETHENE	5	0.2 U	5 U	0.2 U	5 U	0.2 U	5 U	0.2 U	5 U
TOLUENE	5	0.2 U	5 U	0.2 U	5 U	0.2 U	5 U	0.2 U	5 U
CHLOROBENZENE	5	0.2 U	5 U	0.2 U	5 U	0.2 U	5 U	0.2 U	5 U
ETHYLBENZENE	5	0.2 U	5 U	0.2 U	5 U	0.2 U	5 U	0.2 U	5 U
STYRENE	5		5 U		5 U		5 U		5 U
TOTAL XYLENES	5	0.2 U	5 U	0.2 U	5 U	0.2 U	5 U	0.2 U	5 U

TABLE 15
NIAGARA FALLS
GROUND WATER
VOLATILE ORGANICS ANALYSES

	NYS GA STANDARDS	MW-14S 9/91	MW-15S 6/91	MW-15S 9/91	MW-16S 6/91	MW-16S 9/91	EQBLK 6/12/91	EQBLK 6/13/91	EQBLK2 9/91
CHLOROMETHANE	NE	0.4 U	10 U	0.4 U	10 U	0.4 U	10 U	10 U	0.4 U
BROMOMETHANE	NE	0.4 U	10 U	0.4 U	10 U	0.4 U	10 U	10 U	0.4 U
VINYL CHLORIDE	2	0.4 U	10 U	0.4 U	10 U	0.4 U	10 U	10 U	0.4 U
CHLOROETHANE	NE	0.4 U	10 U	0.4 U	10 U	0.4 U	10 U	10 U	0.4 U
METHYLENE CHLORIDE	5	0.2 U	5 U	0.2 U	5 U	0.2 U	5 U	5 U	0.2 U
ACETONE	NE		10 U		10 U		10 U	10 U	
CARBON DISULFIDE	NE		5 U		5 U		5 U	5 U	
1,1-DICHLOROETHENE	5	0.2 U	5 U	0.2 U	5 U	0.2 U	5 U	5 U	0.2 U
1,1-DICHLOROETHANE	5	0.2 U	5 U	0.2 U	5 U	0.2 U	5 U	5 U	0.2 U
1,2-DICHLOROETHENE (TOTAL)	5	0.2 U	5 U	0.2 U	5 U	0.2 U	5 U	5 U	0.2 U
CHLOROFORM	100	0.27	5 U	0.2 U	5 U	0.2 U	5 U	5 U	0.2 U
1,2-DICHLOROETHANE	5	0.2 U	5 U	0.2 U	5 U	0.2 U	5 U	5 U	0.2 U
2-BUTANONE	NE		10 U		10 U		10 U	10 U	
1,1,1-TRICHLOROETHANE	5	0.2 U	5 U	0.2 U	5 U	0.2 U	5 U	5 U	1.3 U
CARBON TETRACHLORIDE	5	0.2 U	5 U	0.2 U	5 U	0.2 U	5 U	5 U	0.2 U
VINYL ACETATE	2		10 U		10 U		10 U	10 U	
BROMODICHLOROMETHANE	50 *	0.2 U	5 U	0.2 U	5 U	0.2 U	5 U	5 U	0.2 U
1,2-DICHLOROPROPANE	5	0.2 U	5 U	0.2 U	5 U	0.2 U	5 U	5 U	1.4
CIS-1,3-DICHLOROPROPANE	NE	0.2 U	5 U	0.2 U	5 U	0.2 U	5 U	5 U	0.2 U
TRICHLOROETHENE	5	0.2 U	5 U	0.2 U	5 U	0.2 U	5 U	5 U	0.2 U
DIBROMOCHL ROMETHANE	50 *	0.2 U	5 U	0.2 U	5 U	0.2 U	5 U	5 U	0.2 U
1,1,2-TRICHLOROETHANE	5	0.2 U	5 U	0.2 U	5 U	0.2 U	5 U	5 U	0.2 U
BENZENE	ND	0.2 U	5 U	0.52	5 U	0.2 U	5 U	5 U	0.2 U
TRANS-1,3-DICHLOROPROPANE	NE	0.2 U	5 U	0.2 U	5 U	0.2 U	5 U	5 U	0.2 U
BROMOFORM	50 *	1 U	5 U	1 U	5 U	1 U	5 U	5 U	1 U
4-METHYL-2-PENTANONE	NE		10 U		10 U		10 U	10 U	
2-HEXANONE	50 *		10 U		10 U		10 U	10 U	
TETRACHLOROETHENE	5	0.2 U	5 U	0.2 U	5 U	0.2 U	5 U	5 U	0.2 U
1,1,2,2-TETRACHLOROETHENE	5	0.2 U	5 U	0.2 U	5 U	0.2 U	5 U	5 U	0.2 U
TOLUENE	5	0.2 U	5 U	0.2 U	5 U	0.2 U	5 U	5 U	0.2 U
CHLOROBENZENE	5	0.2 U	5 U	0.2 U	5 U	0.2 U	0.9 J	1 J	12
ETHYLBENZENE	5	0.2 U	5 U	0.2 U	5 U	0.2 U	5 U	5 U	0.2 U
STYRENE	5		5 U		5 U		5 U	5 U	
TOTAL XYLENES	5	0.2 U	5 U	0.2 U	5 U	0.2 U	5 U	5 U	0.2 U

TABLE 15
NIAGARA FALLS
GROUND WATER
VOLATILE ORGANICS ANALYSES

	NYS GA STANDARDS	EQBLK3 9/91	TRPBLK 6/10/91	TRPBLK 6/11/91	TRPBLK 6/12/91	TRPBLK 6/13/91	TRPBLK1 9/91	TRPBLK2 9/91	TRPBLK3 9/91
CHLOROMETHANE	NE	0.4 U	10 U	10 U	10 U	10 U	0.4 U	0.4 U	0.4 U
BROMOMETHANE	NE	0.4 U	10 U	10 U	10 U	10 U	0.4 U	0.4 U	0.4 U
VINYL CHLORIDE	2	0.4 U	10 U	10 U	10 U	10 U	0.4 U	0.4 U	0.4 U
CHLOROETHANE	NE	0.4 U	10 U	10 U	10 U	10 U	0.4 U	0.4 U	0.4 U
METHYLENE CHLORIDE	5	0.2 U	5 U	1 J	1 J	2 J	0.2 U	0.2 U	0.2 U
ACETONE	NE		10 U	10 U	10 U	10 U			
CARBON DISULFIDE	NE		5 U	5 U	5 U	5 U			
1,1-DICHLOROETHENE	5	0.2 U	5 U	5 U	5 U	5 U	0.2 U	0.2 U	0.2 U
1,1-DICHLOROETHANE	5	0.2 U	5 U	5 U	5 U	5 U	0.2 U	0.2 U	0.2 U
1,2-DICHLOROETHENE (TOTAL)	5	0.2 U	5 U	5 U	5 U	5 U	0.2 U	0.2 U	0.2 U
CHLOROFORM	100	0.2 U	5 U	5 U	5 U	5 U	0.2 U	0.2 U	0.2 U
1,2-DICHLOROETHANE	5	0.2 U	5 U	5 U	5 U	5 U	0.2 U	0.2 U	0.2 U
2-BUTANONE	NE		10 U	10 U	10 U	10 U			
1,1,1-TRICHLOROETHANE	5	0.2 U	5 U	5 U	5 U	5 U	0.2 U	0.2 U	0.2 U
CARBON TETRACHLORIDE	5	0.2 U	5 U	5 U	5 U	5 U	0.2 U	0.2 U	0.2 U
VINYL ACETATE	2		10 U	10 U	10 U	10 U			
BROMODICHLOROMETHANE	50 *	0.2 U	5 U	5 U	5 U	5 U	0.2 U	0.2 U	0.2 U
1,2-DICHLOROPROPANE	5	1.6	5 U	5 U	5 U	5 U	0.2 U	0.2 U	0.2 U
CIS-1,3-DICHLOROPROPANE	NE	0.2 U	5 U	5 U	5 U	5 U	0.2 U	0.2 U	0.2 U
TRICHLOROETHENE	5	0.2 U	5 U	5 U	5 U	5 U	0.2 U	0.2 U	0.2 U
DIBROMOCHLOROMETHANE	50 *	0.2 U	5 U	5 U	5 U	5 U	0.2 U	0.2 U	0.2 U
1,1,2-TRICHLOROETHANE	5	0.2 U	5 U	5 U	5 U	5 U	0.2 U	0.2 U	0.2 U
BENZENE	ND	0.2 U	5 U	5 U	5 U	5 U	0.2 U	0.2 U	0.2 U
TRANS-1,3-DICHLOROPROPANE	NE	0.2 U	5 U	5 U	5 U	5 U	0.2 U	0.2 U	0.2 U
BROMOFORM	50 *	1 U	5 U	5 U	5 U	5 U	1 U	1 U	1 U
4-METHYL-2-PENTANONE	NE		10 U	10 U	10 U	10 U			
2-HEXANONE	50 *		10 U	10 U	10 U	10 U			
TETRACHLOROETHENE	5	0.2 U	5 U	5 U	5 U	5 U	0.2 U	0.2 U	0.2 U
1,1,2,2-TETRACHLOROETHENE	5	0.2 U	5 U	5 U	5 U	5 U	0.2 U	0.2 U	0.2 U
TOLUENE	5	0.2 U	5 U	5 U	5 U	5 U	0.2 U	0.2 U	0.2 U
CHLOROBENZENE	5	10	5 U	5 U	5 U	5 U	0.2 U	0.2 U	0.2 U
ETHYLBENZENE	5	0.2 U	5 U	5 U	5 U	5 U	0.2 U	0.2 U	0.2 U
STYRENE	5		5 U	5 U	5 U	5 U			
TOTAL XYLENES	5	0.2 U	5 U	5 U	5 U	5 U	0.2 U	0.2 U	0.2 U

TABLE 16
NIAGARA FALLS
GROUND WATER
SEMI-VOLATILE ANALYSES
ANALYZED 6/91

	NYS CLASS GA STANDARDS	MW-1D	MW-1S	MW-2DB	MW-2D	MW-2S	MW-4D	MW-4S	MW-5D	MW-6DB	MW-6D	MW-6S	MW-
Phenol	1	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12
bis(2-Chloroethyl) ether	1	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12
2-Chlorophenol	NE	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12
1,3-Dichlorobenzene	5	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12
1,4-Dichlorobenzene	4.7	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12
Benzyl Alcohol	NE	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12
1,2-Dichlorobenzene	4.7	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12
2-Methylphenol	NE	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12
bis(2-Chloroisopropyl) ether	NE	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12
4-Methylphenol	NE	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12
n-Nitroso-di-n-propylamine	NE	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12
Hexachloroethane	NE	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12
Nitrobenzene	5	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12
Isophorone	50 *	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12
2-Nitrophenol	NE	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12
2,4-Dimethylphenol	NE	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12
Benzoic Acid	NE	62 U	62 U	62 U	62 U	62 U	62 U	62 U	62 U	62 U	62 U	62 U	62
bis(2-Chloroethoxy)methane	NE	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12
2,4-Dichlorophenol	1	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12
1,2,4-Trichlorobenzene	5	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12
Naphthalene	10 *	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12
4-Chloroaniline	NE	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12
Hexachlorobutadiene	5	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12
4-Chloro-3-methylphenol	NE	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12
2-Methylnaphthalene	NE	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12
Hexachlorocyclopentadiene	5	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12
2,4,6-Trichlorophenol	NE	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12
2,4,5-Trichlorophenol	NE	62 U	62 U	62 U	62 U	62 U	62 U	62 U	62 U	62 U	62 U	62 U	62
2-Chloronaphthalene	5	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12
2-Nitroaniline	NE	62 U	62 U	62 U	62 U	62 U	62 U	62 U	62 U	62 U	62 U	62 U	62
Dimethyl phthalate	50 *	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12
Acenaphthylene	NE	12 U	3 J	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12
2,6-Dinitrotoluene	5	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12
3-Nitroaniline	NE	62 U	62 U	62 U	62 U	62 U	62 U	62 U	62 U	62 U	62 U	62 U	62
Acenaphthene	20 *	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12

NOTES: All values reported in ug/L (ppb).
U - Compound was analyzed but not detected.
J - Indicates an estimated value. (GC/MS only)
* - Guidance value.

TABLE 16
NIAGARA FALLS
GROUND WATER
SEMI-VOLATILE ANALYSES
ANALYZED 6/91

	NYS CLASS GA STANDARDS	MW-1D	MW-1S	MW-2DB	MW-2D	MW-2S	MW-4D	MW-4S	MW-5D	MW-6DB	MW-6D	MW-6S	MW-
2,4-Dinitrophenol	NE	62 U	62 U	62 U	62 U	62 U	62 U	62 U	62 U	62 U	62 U	62 U	62
4-Nitrophenol	NE	62 U	62 U	62 U	62 U	62 U	62 U	62 U	62 U	62 U	62 U	62 U	62
Dibenzofuran	NE	12 U	3 J	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12
2,4-Dinitrotoluene	NE	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12
Diethylphthalate	50 *	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12
4-Chlorophenyl-phenylether	NE	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12
Fluorene	50 *	12 U	5 J	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12
4-Nitroaniline	NE	62 U	62 U	62 U	62 U	62 U	62 U	62 U	62 U	62 U	62 U	62 U	62
4,6-Dinitro-2-methylphenol	NE	62 U	62 U	62 U	62 U	62 U	62 U	62 U	62 U	62 U	62 U	62 U	62
n-Nitrosodiphenylamine	50 *	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12
4-Bromophenyl-phenylether	NE	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12
Hexachlorobenzene	0.35	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12
Pentachlorophenol	1	62 U	62 U	62 U	62 U	62 U	62 U	62 U	62 U	62 U	62 U	62 U	62
Phenanthrene	50 *	12 U	2 J	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12
Anthracene	50 *	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12
di-n-Butylphthalate	NE	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12
Fluoranthene	50 *	12 U	4 J	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12
Pyrene	50 *	12 U	3 J	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12
Butylbenzylphthalate	50 *	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12
3,3'-Dichlorobenzidine	NE	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25
Benzo(a)anthracene	0.002 *	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12
Chrysene	0.002 *	12 U	1 J	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12
bis(2-Ethylhexyl)phthalate	50	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12
di-n-Octylphthalate	0.5	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12
Benzo(b)fluoranthene	0.002 *	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12
Benzo(k)fluoranthene	0.002 *	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12
Benzo(a)pyrene	ND	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12
Indeno(1,2,3-cd)pyrene	0.002 *	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12
Dibenzo(a,h)anthracene	NE	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12
Benzo(g,h,i)perylene	NE	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12

TABLE 16
NIAGARA FALLS
GROUND WATER
SEMI-VOLATILE ANALYSES
ANALYZED 6/91

	NYS CLASS GA STANDARDS	7D	BL DUP MW-7D	MW-7S	MW-8DB	MW-8D	MW-8S	MW-10DB	MW-10D	MW-10S	MW-11DB	MW-11D	MW-12D
Phenol	1	U	12 U	12 U	12 U	12 U	12 U	11 U	10 U	12 U	10 U	10 U	12 U
bis(2-Chloroethyl) ether	1	U	12 U	12 U	12 U	12 U	12 U	11 U	10 U	12 U	10 U	10 U	12 U
2-Chlorophenol	NE	U	12 U	12 U	12 U	12 U	12 U	11 U	10 U	12 U	10 U	10 U	12 U
1,3-Dichlorobenzene	5	U	12 U	6 J	12 U	12 U	12 U	11 U	10 U	12 U	10 U	10 U	12 U
1,4-Dichlorobenzene	4.7	U	12 U	6 J	12 U	12 U	12 U	11 U	10 U	12 U	10 U	10 U	12 U
Benzyl Alcohol	NE	U	12 U	12 U	12 U	12 U	12 U	11 U	10 U	12 U	10 U	10 U	12 U
1,2-Dichlorobenzene	4.7	U	12 U	12 U	12 U	12 U	12 U	11 U	10 U	12 U	10 U	10 U	12 U
2-Methylphenol	NE	U	12 U	12 U	12 U	12 U	12 U	11 U	10 U	12 U	10 U	10 U	12 U
bis(2-Chloroisopropyl) ether	NE	U	12 U	12 U	12 U	12 U	12 U	11 U	10 U	12 U	10 U	10 U	12 U
4-Methylphenol	NE	U	12 U	12 U	12 U	12 U	12 U	11 U	10 U	12 U	10 U	10 U	12 U
n-Nitroso-di-n-propylamine	NE	U	12 U	12 U	12 U	12 U	12 U	11 U	10 U	12 U	10 U	10 U	12 U
Hexachloroethane	NE	U	12 U	12 U	12 U	12 U	12 U	11 U	10 U	12 U	10 U	10 U	12 U
Nitrobenzene	5	U	12 U	12 U	12 U	12 U	12 U	11 U	10 U	12 U	10 U	10 U	12 U
Isophorone	50 *	U	12 U	12 U	12 U	12 U	12 U	11 U	10 U	12 U	10 U	10 U	12 U
2-Nitrophenol	NE	U	12 U	12 U	12 U	12 U	12 U	11 U	10 U	12 U	10 U	10 U	12 U
2,4-Dimethylphenol	NE	U	12 U	12 U	12 U	12 U	12 U	11 U	10 U	12 U	10 U	10 U	12 U
Benzoic Acid	NE	U	62 U	62 U	62 U	62 U	62 U	56 U	50 U	62 U	50 U	50 U	62 U
bis(2-Chloroethoxy)methane	NE	U	12 U	12 U	12 U	12 U	12 U	11 U	10 U	12 U	10 U	10 U	12 U
2,4-Dichlorophenol	1	U	12 U	12 U	12 U	12 U	12 U	11 U	10 U	12 U	10 U	10 U	12 U
1,2,4-Trichlorobenzene	5	U	12 U	12 U	12 U	12 U	12 U	11 U	10 U	12 U	10 U	10 U	12 U
Naphthalene	10 *	U	12 U	12 U	12 U	12 U	12 U	11 U	10 U	12 U	10 U	10 U	12 U
4-Chloroaniline	NE	U	12 U	12 U	12 U	12 U	12 U	11 U	10 U	12 U	10 U	10 U	12 U
Hexachlorobutadiene	5	U	12 U	12 U	12 U	12 U	12 U	11 U	10 U	12 U	10 U	10 U	12 U
4-Chloro-3-methylphenol	NE	U	12 U	12 U	12 U	12 U	12 U	11 U	10 U	12 U	10 U	10 U	12 U
2-Methylnaphthalene	NE	U	12 U	12 U	12 U	12 U	12 U	11 U	10 U	12 U	10 U	10 U	12 U
Hexachlorocyclopentadiene	5	U	12 U	12 U	12 U	12 U	12 U	11 U	10 U	12 U	10 U	10 U	12 U
2,4,6-Trichlorophenol	NE	U	12 U	12 U	12 U	12 U	12 U	11 U	10 U	12 U	10 U	10 U	12 U
2,4,5-Trichlorophenol	NE	U	62 U	62 U	62 U	62 U	62 U	56 U	50 U	62 U	50 U	50 U	62 U
2-Chloronaphthalene	5	U	12 U	12 U	12 U	12 U	12 U	11 U	10 U	12 U	10 U	10 U	12 U
2-Nitroaniline	NE	U	62 U	62 U	62 U	62 U	62 U	56 U	50 U	62 U	50 U	50 U	62 U
Dimethyl phthalate	50 *	U	12 U	12 U	12 U	12 U	12 U	11 U	10 U	12 U	10 U	10 U	12 U
Acenaphthylene	NE	U	12 U	12 U	12 U	12 U	12 U	11 U	10 U	12 U	10 U	10 U	12 U
2,6-Dinitrotoluene	5	U	12 U	12 U	12 U	12 U	12 U	11 U	10 U	12 U	10 U	10 U	12 U
3-Nitroaniline	NE	U	62 U	62 U	62 U	62 U	62 U	56 U	50 U	62 U	50 U	50 U	62 U
Acenaphthene	20 *	U	12 U	12 U	12 U	12 U	12 U	11 U	10 U	12 U	10 U	10 U	12 U

TABLE 16
NIAGARA FALLS
GROUND WATER
SEMI-VOLATILE ANALYSES
ANALYZED 6/91

	NYS CLASS GA STANDARDS	7D	BL DUP MW-7D	MW-7S	MW-8DB	MW-8D	MW-8S	MW-10DB	MW-10D	MW-10S	MW-11DB	MW-11D	MW-12D
2,4-Dinitrophenol	NE	U	62 U	62 U	62 U	62 U	62 U	56 U	50 U	62 U	50 U	50 U	62 U
4-Nitrophenol	NE	U	62 U	62 U	62 U	62 U	62 U	56 U	50 U	62 U	50 U	50 U	62 U
Dibenzofuran	NE	U	12 U	12 U	12 U	12 U	12 U	11 U	10 U	12 U	10 U	10 U	12 U
2,4-Dinitrotoluene	NE	U	12 U	12 U	12 U	12 U	12 U	11 U	10 U	12 U	10 U	10 U	12 U
Diethylphthalate	50 *	U	12 U	12 U	12 U	12 U	12 U	11 U	10 U	12 U	10 U	10 U	12 U
4-Chlorophenyl-phenylether	NE	U	12 U	12 U	12 U	12 U	12 U	11 U	10 U	12 U	10 U	10 U	12 U
Fluorene	50 *	U	12 U	12 U	12 U	12 U	12 U	11 U	10 U	12 U	10 U	10 U	12 U
4-Nitroaniline	NE	U	62 U	62 U	62 U	62 U	62 U	56 U	50 U	62 U	50 U	50 U	62 U
4,6-Dinitro-2-methylphenol	NE	U	62 U	62 U	62 U	62 U	62 U	56 U	50 U	62 U	50 U	50 U	62 U
n-Nitrosodiphenylamine	50 *	U	12 U	12 U	12 U	12 U	12 U	11 U	10 U	12 U	10 U	10 U	12 U
4-Bromophenyl-phenylether	NE	U	12 U	12 U	12 U	12 U	12 U	11 U	10 U	12 U	10 U	10 U	12 U
Hexachlorobenzene	0.35	U	12 U	12 U	12 U	12 U	12 U	11 U	10 U	12 U	10 U	10 U	12 U
Pentachlorophenol	1	U	62 U	62 U	62 U	62 U	62 U	56 U	50 U	62 U	50 U	50 U	62 U
Phenanthrene	50 *	U	12 U	12 U	12 U	12 U	12 U	11 U	10 U	12 U	10 U	10 U	12 U
Anthracene	50 *	U	12 U	12 U	12 U	12 U	12 U	11 U	10 U	12 U	10 U	10 U	12 U
di-n-Butylphthalate	NE	U	12 U	12 U	12 U	12 U	12 U	11 U	10 U	12 U	10 U	10 U	12 U
Fluoranthene	50 *	U	12 U	12 U	12 U	12 U	12 U	11 U	10 U	12 U	10 U	10 U	12 U
Pyrene	50 *	U	12 U	12 U	12 U	12 U	12 U	11 U	10 U	12 U	10 U	10 U	12 U
Butylbenzylphthalate	50 *	U	12 U	12 U	12 U	12 U	12 U	11 U	10 U	12 U	10 U	10 U	12 U
3,3'-Dichlorobenzidine	NE	U	25 U	25 U	25 U	25 U	25 U	22 U	20 U	25 U	20 U	20 U	25 U
Benzo(a)anthracene	0.002 *	U	12 U	12 U	12 U	12 U	12 U	11 U	10 U	12 U	10 U	10 U	12 U
Chrysene	0.002 *	U	12 U	12 U	12 U	12 U	12 U	11 U	10 U	12 U	10 U	10 U	12 U
bis(2-Ethylhexyl)phthalate	50	U	12 U	12 U	12 U	12 U	12 U	11 U	10 U	12 U	10 U	10 U	12 U
di-n-Octylphthalate	0.5	U	12 U	12 U	12 U	12 U	12 U	11 U	10 U	12 U	10 U	10 U	12 U
Benzo(b)fluoranthene	0.002 *	U	12 U	12 U	12 U	12 U	12 U	11 U	10 U	12 U	10 U	10 U	12 U
Benzo(k)fluoranthene	0.002 *	U	12 U	12 U	12 U	12 U	12 U	11 U	10 U	12 U	10 U	10 U	12 U
Benzo(a)pyrene	ND	U	12 U	12 U	12 U	12 U	12 U	11 U	10 U	12 U	10 U	10 U	12 U
Indeno(1,2,3-cd)pyrene	0.002 *	U	12 U	12 U	12 U	12 U	12 U	11 U	10 U	12 U	10 U	10 U	12 U
Dibenzo(a,h)anthracene	NE	U	12 U	12 U	12 U	12 U	12 U	11 U	10 U	12 U	10 U	10 U	12 U
Benzo(g,h,i)perylene	NE	U	12 U	12 U	12 U	12 U	12 U	11 U	10 U	12 U	10 U	10 U	12 U

TABLE 16
NIAGARA FALLS
GROUND WATER
SEMI-VOLATILE ANALYSES
ANALYZED 6/91

	NYS CLASS GA STANDARDS	MW-12S	BL DUP MW-12S	MW-13D	MW-13S	MW-14S	MW-15S	MW-16S	EQBLK 6/12/91	EQBLK 6/13/91
Phenol	1	12 U	14 U	12 U	12 U	12 U	12 U	14 U	12 U	12 U
bis(2-Chloroethyl) ether	1	12 U	14 U	12 U	12 U	12 U	12 U	14 U	12 U	12 U
2-Chlorophenol	NE	12 U	14 U	12 U	12 U	12 U	12 U	14 U	12 U	12 U
1,3-Dichlorobenzene	5	12 U	14 U	12 U	12 U	12 U	12 U	14 U	12 U	12 U
1,4-Dichlorobenzene	4.7	12 U	14 U	12 U	12 U	12 U	12 U	14 U	12 U	12 U
Benzyl Alcohol	NE	12 U	14 U	12 U	12 U	12 U	12 U	14 U	12 U	12 U
1,2-Dichlorobenzene	4.7	12 U	14 U	12 U	12 U	12 U	12 U	14 U	12 U	12 U
2-Methylphenol	NE	12 U	14 U	12 U	12 U	12 U	12 U	14 U	12 U	12 U
bis(2-Chloroisopropyl) ether	NE	12 U	14 U	12 U	12 U	12 U	12 U	14 U	12 U	12 U
4-Methylphenol	NE	12 U	14 U	12 U	12 U	12 U	12 U	14 U	12 U	12 U
n-Nitroso-di-n-propylamine	NE	12 U	14 U	12 U	12 U	12 U	12 U	14 U	12 U	12 U
Hexachloroethane	NE	12 U	14 U	12 U	12 U	12 U	12 U	14 U	12 U	12 U
Nitrobenzene	5	12 U	14 U	12 U	12 U	12 U	12 U	14 U	12 U	12 U
Isophorone	50 *	12 U	14 U	12 U	12 U	12 U	12 U	14 U	12 U	12 U
2-Nitrophenol	NE	12 U	14 U	12 U	12 U	12 U	12 U	14 U	12 U	12 U
2,4-Dimethylphenol	NE	12 U	14 U	12 U	12 U	12 U	12 U	14 U	12 U	12 U
Benzoic Acid	NE	62 U	72 U	62 U	62 U	62 U	62 U	72 U	62 U	62 U
bis(2-Chloroethoxy)methane	NE	12 U	14 U	12 U	12 U	12 U	12 U	14 U	12 U	12 U
2,4-Dichlorophenol	1	12 U	14 U	12 U	12 U	12 U	12 U	14 U	12 U	12 U
1,2,4-Trichlorobenzene	5	12 U	14 U	12 U	12 U	12 U	12 U	14 U	12 U	12 U
Naphthalene	10 *	12 U	14 U	12 U	12 U	12 U	12 U	14 U	12 U	12 U
4-Chloroaniline	NE	12 U	14 U	12 U	12 U	12 U	12 U	14 U	12 U	12 U
Hexachlorobutadiene	5	12 U	14 U	12 U	12 U	12 U	12 U	14 U	12 U	12 U
4-Chloro-3-methylphenol	NE	12 U	14 U	12 U	12 U	12 U	12 U	14 U	12 U	12 U
2-Methylnaphthalene	NE	12 U	14 U	12 U	12 U	12 U	12 U	14 U	12 U	12 U
Hexachlorocyclopentadiene	5	12 U	14 U	12 U	12 U	12 U	12 U	14 U	12 U	12 U
2,4,6-Trichlorophenol	NE	12 U	14 U	12 U	12 U	12 U	12 U	14 U	12 U	12 U
2,4,5-Trichlorophenol	NE	62 U	72 U	62 U	62 U	62 U	62 U	72 U	62 U	62 U
2-Chloronaphthalene	5	12 U	14 U	12 U	12 U	12 U	12 U	14 U	12 U	12 U
2-Nitroaniline	NE	62 U	72 U	62 U	62 U	62 U	62 U	72 U	62 U	62 U
Dimethyl phthalate	50 *	12 U	14 U	12 U	12 U	12 U	12 U	14 U	12 U	12 U
Acenaphthylene	NE	12 U	14 U	12 U	12 U	12 U	12 U	14 U	12 U	12 U
2,6-Dinitrotoluene	5	12 U	14 U	12 U	12 U	12 U	12 U	14 U	12 U	12 U
3-Nitroaniline	NE	62 U	72 U	62 U	62 U	62 U	62 U	72 U	62 U	62 U
Acenaphthene	20 *	12 U	14 U	12 U	12 U	12 U	12 U	14 U	12 U	12 U

TABLE 16
NIAGARA FALLS
GROUND WATER
SEMI-VOLATILE ANALYSES
ANALYZED 6/91

	NYS CLASS GA STANDARDS	MW-12S	BL DUP MW-12S	MW-13D	MW-13S	MW-14S	MW-15S	MW-16S	EQBLK 6/12/91	EQBLK 6/13/91
2,4-Dinitrophenol	NE	62 U	72 U	62 U	62 U	62 U	62 U	72 U	62 U	62 U
4-Nitrophenol	NE	62 U	72 U	62 U	62 U	62 U	62 U	72 U	62 U	62 U
Dibenzofuran	NE	12 U	14 U	12 U	12 U	12 U	12 U	14 U	12 U	12 U
2,4-Dinitrotoluene	NE	12 U	14 U	12 U	12 U	12 U	12 U	14 U	12 U	12 U
Diethylphthalate	50 *	12 U	14 U	12 U	12 U	12 U	12 U	14 U	12 U	12 U
4-Chlorophenyl-phenylether	NE	12 U	14 U	12 U	12 U	12 U	12 U	14 U	12 U	12 U
Fluorene	50 *	12 U	14 U	12 U	12 U	12 U	12 U	14 U	12 U	12 U
4-Nitroaniline	NE	62 U	72 U	62 U	62 U	62 U	62 U	72 U	62 U	62 U
4,6-Dinitro-2-methylphenol	NE	62 U	72 U	62 U	62 U	62 U	62 U	72 U	62 U	62 U
n-Nitrosodiphenylamine	50 *	12 U	14 U	12 U	12 U	12 U	12 U	14 U	12 U	12 U
4-Bromophenyl-phenylether	NE	12 U	14 U	12 U	12 U	12 U	12 U	14 U	12 U	12 U
Hexachlorobenzene	0.35	12 U	14 U	12 U	12 U	12 U	12 U	14 U	12 U	12 U
Pentachlorophenol	1	62 U	72 U	62 U	62 U	62 U	62 U	72 U	62 U	62 U
Phenanthrene	50 *	12 U	14 U	12 U	12 U	12 U	12 U	14 U	12 U	12 U
Anthracene	50 *	12 U	14 U	12 U	12 U	12 U	12 U	14 U	12 U	12 U
di-n-Butylphthalate	NE	12 U	14 U	12 U	12 U	12 U	12 U	14 U	12 U	12 U
Fluoranthene	50 *	12 U	14 U	12 U	12 U	12 U	12 U	14 U	12 U	12 U
Pyrene	50 *	12 U	14 U	12 U	12 U	12 U	12 U	14 U	12 U	12 U
Butylbenzylphthalate	50 *	12 U	14 U	12 U	12 U	12 U	12 U	14 U	12 U	12 U
3,3'-Dichlorobenzidine	NE	25 U	29 U	25 U	25 U	25 U	25 U	29 U	25 U	25 U
Benzo(a)anthracene	0.002 *	12 U	14 U	12 U	12 U	12 U	12 U	14 U	12 U	12 U
Chrysene	0.002 *	12 U	14 U	12 U	12 U	12 U	12 U	14 U	12 U	12 U
bis(2-Ethylhexyl)phthalate	50	12 U	14 U	12 U	12 U	12 U	12 U	14 U	12 U	12 U
di-n-Octylphthalate	0.5	12 U	14 U	12 U	12 U	12 U	12 U	14 U	12 U	12 U
Benzo(b)fluoranthene	0.002 *	12 U	14 U	12 U	12 U	12 U	12 U	14 U	12 U	12 U
Benzo(k)fluoranthene	0.002 *	12 U	14 U	12 U	12 U	12 U	12 U	14 U	12 U	12 U
Benzo(a)pyrene	ND	12 U	14 U	12 U	12 U	12 U	12 U	14 U	12 U	12 U
Indeno(1,2,3-cd)pyrene	0.002 *	12 U	14 U	12 U	12 U	12 U	12 U	14 U	12 U	12 U
Dibenzo(a,h)anthracene	NE	12 U	14 U	12 U	12 U	12 U	12 U	14 U	12 U	12 U
Benzo(g,h,i)perylene	NE	12 U	14 U	12 U	12 U	12 U	12 U	14 U	12 U	12 U

TABLE 17
NIAGARA FALLS
GROUND WATER
PESTICIDES/PCB'S ANALYSES

	NYS GA STANDARD	MW-1S 6/91	MW-1D 6/91	MW-2S 6/91	MW-2D 6/91	MW-2DB 6/91	MW-3D 6/91	MW-4S 6/91	MW-4S 9/91
ALDRIN	ND	0.06 U	0.07 U	0.06 U	0.07 U	0.05 U	0.05 U	0.06 U	0.004 U
ALPHA-BHC	NE	0.06 U	0.07 U	0.06 U	0.07 U	0.05 U	0.05 U	0.06 U	0.004 U
BETA-BHC	NE	0.06 U	0.07 U	0.06 U	0.07 U	0.05 U	0.05 U	0.06 U	0.004 U
DELTA-BHC	NE	0.06 U	0.07 U	0.06 U	0.07 U	0.05 U	0.05 U	0.06 U	0.004 U
GAMMA-BHC	NE	0.06 U	0.061 J	0.06 U	0.07 U	0.05 U	0.05 U	0.038 J	0.004 U
CHLORDANE	0.1	0.6 U	0.7 U	0.6 U	0.7 U	0.5 U	0.5 U	0.6 U	0.07 U
4,4-DDD	ND	0.2 U	0.2 U	0.2 U	0.2 U	0.1 U	0.1 U	0.2 U	0.01 U
4,4-DDE	ND	0.2 U	0.2 U	0.2 U	0.2 U	0.1 U	0.1 U	0.2 U	0.01 U
4,4-DDT	ND	0.2 U	0.2 U	0.2 U	0.2 U	0.1 U	0.1 U	0.2 U	0.01 U
DIELDRIN	ND	0.2 U	0.2 U	0.2 U	0.2 U	0.1 U	0.1 U	0.2 U	0.01 U
ENDOSULFAN I	NE	0.06 U	0.07 U	0.06 U	0.07 U	0.05 U	0.05 U	0.06 U	0.004 U
ENDOSULFAN II	NE	0.2 U	0.2 U	0.2 U	0.2 U	0.1 U	0.1 U	0.2 U	0.01 U
ENDOSULFAN SULFAT	NE	0.2 U	0.2 U	0.2 U	0.2 U	0.1 U	0.1 U	0.2 U	0.01 U
ENDRIN	ND	0.2 U	0.2 U	0.2 U	0.2 U	0.1 U	0.1 U	0.2 U	0.01 U
ENDRIN ALDEHYDE		0.2 U	0.2 U	0.2 U	0.2 U	0.1 U	0.1 U	0.2 U	
ENDRIN KETONE	NE	0.2 U	0.2 U	0.2 U	0.2 U	0.1 U	0.1 U	0.2 U	0.02 U
HEPTACHLOR	ND	0.06 U	0.07 U	0.06 U	0.07 U	0.05 U	0.05 U	0.06 U	0.004 U
HEPTACHLOR EPOXID	ND	0.06 U	0.07 U	0.06 U	0.07 U	0.05 U	0.05 U	0.06 U	0.004 U
METHOXYCHLOR	35	0.6 U	0.7 U	0.6 U	0.7 U	0.5 U	0.5 U	0.6 U	0.02 U
AROCLOR-1016	0.1	0.6 U	0.7 U	0.6 U	0.7 U	0.5 U	0.5 U	0.6 U	
AROCLOR-1221	0.1	0.6 U	0.7 U	0.6 U	0.7 U	0.5 U	0.5 U	0.6 U	
AROCLOR-1232	0.1	0.6 U	0.7 U	0.6 U	0.7 U	0.5 U	0.5 U	0.6 U	
AROCLOR-1242	0.1	0.6 U	0.7 U	0.6 U	0.7 U	0.5 U	0.5 U	0.6 U	
AROCLOR-1248	0.1	0.6 U	0.7 U	0.6 U	0.7 U	0.5 U	0.5 U	0.6 U	
AROCLOR-1254	0.1	2 U	2 U	2 U	2 U	1 U	1 U	2 U	
AROCLOR-1260	0.1	2 U	2 U	2 U	2 U	1 U	1 U	2 U	
TOXAPHENE	ND	2 U	2 U	2 U	2 U	1 U	1 U	2 U	

All values reported in ug/L (ppb).
U - Compound was analyzed but not detected.
J - Indicates an estimated value (GC/MS only).

TABLE 17
NIAGARA FALLS
GROUND WATER
PESTICIDES/PCB'S ANALYSES

	NYS GA STANDARD	MW-4D 6/91	MW-4D 9/91	MW-5D 6/91	MW-5D 9/91	MW-6S 6/91	MW-6D 6/91	MW-6D 9/91
ALDRIN	ND	0.07 U	0.004 U	0.07 U	0.004 U	0.07 U	0.07 U	0.004 U
ALPHA-BHC	NE	0.07 U	0.004 U	0.07 U	0.004 U	0.07 U	0.07 U	0.004 U
BETA-BHC	NE	0.07 U	0.004 U	0.07 U	0.004 U	0.09	0.07 U	0.004 U
DELTA-BHC	NE	0.07 U	0.004 U	0.07 U	0.004 U	0.07 U	0.07 U	0.004 U
GAMMA-BHC	NE	0.054 J	0.004 U	0.14	0.004 U	0.046 J	0.086	0.004 U
CHLORDANE	0.1	0.7 U	0.07 U	0.7 U	0.07 U	0.7 U	0.7 U	0.07 U
4,4-DDD	ND	0.2 U	0.01 U	0.2 U	0.01 U	0.2 U	0.2 U	0.01 U
4,4-DDE	ND	0.2 U	0.01 U	0.2 U	0.01 U	0.2 U	0.2 U	0.01 U
4,4-DDT	ND	0.2 U	0.01 U	0.2 U	0.01 U	0.2 U	0.2 U	0.01 U
DIELDRIN	ND	0.2 U	0.01 U	0.2 U	0.01 U	0.2 U	0.2 U	0.01 U
ENDOSULFAN I	NE	0.07 U	0.004 U	0.07 U	0.004 U	0.07 U	0.07 U	0.004 U
ENDOSULFAN II	NE	0.2 U	0.01 U	0.2 U	0.01 U	0.2 U	0.2 U	0.01 U
ENDOSULFAN SULFAT	NE	0.2 U	0.01 U	0.2 U	0.01 U	0.2 U	0.2 U	0.01 U
ENDRIN	ND	0.2 U	0.01 U	0.2 U	0.01 U	0.2 U	0.2 U	0.01 U
ENDRIN ALDEHYDE		0.2 U		0.2 U		0.2 U	0.2 U	
ENDRIN KETONE	NE	0.2 U	0.02 U	0.2 U	0.02 U	0.2 U	0.2 U	0.02 U
HEPTACHLOR	ND	0.07 U	0.004 U	0.07 U	0.004 U	0.07 U	0.07 U	0.004 U
HEPTACHLOR EPOXID	ND	0.07 U	0.004 U	0.07 U	0.004 U	0.07 U	0.07 U	0.004 U
METHOXYCHLOR	35	0.7 U	0.02 U	0.7 U	0.02 U	0.7 U	0.7 U	0.02 U
AROCLOR-1016	0.1	0.7 U		0.7 U		0.7 U	0.7 U	
AROCLOR-1221	0.1	0.7 U		0.7 U		0.7 U	0.7 U	
AROCLOR-1232	0.1	0.7 U		0.7 U		0.7 U	0.7 U	
AROCLOR-1242	0.1	0.7 U		0.7 U		0.7 U	0.7 U	
AROCLOR-1248	0.1	0.7 U		0.7 U		0.7 U	0.7 U	
AROCLOR-1254	0.1	2 U		2 U		2 U	2 U	
AROCLOR-1260	0.1	2 U		2 U		2 U	2 U	
TOXAPHENE	ND	2 U		2 U		2 U	2 U	

TABLE 17
NIAGARA FALLS
GROUND WATER
PESTICIDES/P B'S ANALYSES

	NYS GA STANDARD	MW-6DB 6/91	MW-7S 6/91	MW-7S 9/91	BL DUP MW-7S 9/91	MW-7D 6/91	BL DUP MW-7D 6/91	MW-8S 6/91	MW-8S 9/91
ALDRIN	ND	0.07 U	0.07 U	0.071	0.067	0.07 U	0.07 U	0.07 U	0.004 U
ALPHA-BHC	NE	0.07 U	0.064 J	0.81	0.089	0.07 U	0.07 U	0.07 U	0.004 U
BETA-BHC	NE	0.07 U	0.07 U	0.093	0.016	0.07 U	0.07 U	0.07 U	0.004 U
DELTA-BHC	NE	0.07 U	0.07 U	0.017	0.004 U	0.07 U	0.07 U	0.07 U	0.004 U
GAMMA-BHC	NE	0.12	0.33 U	0.004 U	0.004 U	0.07 U	0.16	0.049 J	0.004 U
CHLORDANE	0.1	0.7 U	0.7 U	0.007 U	0.07 U	0.7 U	0.7 U	0.7 U	0.07 U
4,4-DDD	ND	0.2 U	0.2 U	0.001 U	0.01 U	0.2 U	0.2 U	0.2 U	0.01 U
4,4-DDE	ND	0.2 U	0.2 U	0.001 U	0.01 U	0.2 U	0.2 U	0.2 U	0.01 U
4,4-DDT	ND	0.2 U	0.2 U	0.001 U	0.01 U	0.2 U	0.2 U	0.2 U	0.01 U
DIELDRIN	ND	0.2 U	0.2 U	0.001 U	0.01 U	0.2 U	0.2 U	0.2 U	0.01 U
ENDOSULFAN I	NE	0.07 U	0.07 U	0.034	0.046	0.07 U	0.07 U	0.07 U	0.004 U
ENDOSULFAN II	NE	0.2 U	0.2 U	0.001 U	0.01 U	0.2 U	0.2 U	0.2 U	0.01 U
ENDOSULFAN SULFAT	NE	0.2 U	0.2 U	0.001 U	0.01 U	0.2 U	0.2 U	0.2 U	0.01 U
ENDRIN	ND	0.2 U	0.2 U	0.013	0.014	0.2 U	0.2 U	0.2 U	0.01 U
ENDRIN ALDEHYDE		0.2 U	0.2 U			0.2 U	0.2 U	0.2 U	
ENDRIN KETONE	NE	0.2 U	0.2 U	0.02 U	0.02 U	0.2 U	0.2 U	0.2 U	0.02 U
HEPTACHLOR	ND	0.07 U	0.07 U	0.004 U	0.004 U	0.07 U	0.07 U	0.07 U	0.004 U
HEPTACHLOR EPOXID	ND	0.07 U	0.07 U	0.008	0.008	0.07 U	0.07 U	0.07 U	0.004 U
METHOXYCHLOR	35	0.7 U	0.7 U	0.02 U	0.02 U	0.7 U	0.7 U	0.7 U	0.02 U
AROCLOR-1016	0.1	0.7 U	0.7 U			0.7 U	0.7 U	0.7 U	
AROCLOR-1221	0.1	0.7 U	0.7 U			0.7 U	0.7 U	0.7 U	
AROCLOR-1232	0.1	0.7 U	0.7 U			0.7 U	0.7 U	0.7 U	
AROCLOR-1242	0.1	0.7 U	0.7 U			0.7 U	0.7 U	0.7 U	
AROCLOR-1248	0.1	0.7 U	0.7 U			0.7 U	0.7 U	0.7 U	
AROCLOR-1254	0.1	2 U	2 U			2 U	2 U	2 U	
AROCLOR-1260	0.1	2 U	2 U			2 U	2 U	2 U	
TOXAPHENE	ND	2 U	2 U			2 U	2 U	2 U	

TABLE 17
NIAGARA FALLS
GROUND WATER
PESTICIDES/PCB'S ANALYSES

	NYS GA STANDARD	MW-8D 6/91	MW-8DB 6/91	MW-10S 6/91	MW-10D 6/91	MW-10D 6/91	MW-11D 6/91	MW-11DB 6/91	MW-12S 6/91	BL DUP MW-12S 6/91
ALDRIN	ND	0.07 U	0.004 U	0.09 U	0.07 U	0.07 U	0.05 U	0.06 U	0.05 U	0.06 U
ALPHA-BHC	NE	0.07 U	0.004 U	0.09 U	0.07 U	0.07 U	0.05 U	0.06 U	0.05 U	0.06 U
BETA-BHC	NE	0.07 U	0.004 U	0.09 U	0.07 U	0.07 U	0.05 U	0.06 U	0.05 U	0.06 U
DELTA-BHC	NE	0.07 U	0.004 U	0.09 U	0.07 U	0.07 U	0.05 U	0.06 U	0.05 U	0.06 U
GAMMA-BHC	NE	0.045 J	0.004 U	0.09 U	0.07 U	0.07 U	0.05 U	0.06 U	0.05 U	0.06 U
CHLORDANE	0.1	0.7 U	0.07 U	0.9 U	0.7 U	0.7 U	0.5 U	0.6 U	0.5 U	0.6 U
4,4-DDD	ND	0.2 U	0.01 U	0.2 U	0.2 U	0.2 U	0.1 U	0.2 U	0.1 U	0.2 U
4,4-DDE	ND	0.2 U	0.01 U	0.2 U	0.2 U	0.2 U	0.1 U	0.2 U	0.1 U	0.2 U
4,4-DDT	ND	0.2 U	0.01 U	0.2 U	0.2 U	0.2 U	0.1 U	0.2 U	0.1 U	0.2 U
DIELDRIN	ND	0.2 U	0.01 U	0.2 U	0.2 U	0.2 U	0.1 U	0.2 U	0.1 U	0.2 U
ENDOSULFAN I	NE	0.07 U	0.004 U	0.09 U	0.07 U	0.07 U	0.05 U	0.06 U	0.05 U	0.06 U
ENDOSULFAN II	NE	0.2 U	0.01 U	0.2 U	0.2 U	0.2 U	0.1 U	0.2 U	0.1 U	0.2 U
ENDOSULFAN SULFAT	NE	0.2 U	0.01 U	0.2 U	0.2 U	0.2 U	0.1 U	0.2 U	0.1 U	0.2 U
ENDRIN	ND	0.2 U	0.01 U	0.2 U	0.2 U	0.2 U	0.1 U	0.2 U	0.1 U	0.2 U
ENDRIN ALDEHYDE		0.2 U		0.2 U	0.2 U	0.2 U	0.1 U	0.2 U	0.1 U	0.2 U
ENDRIN KETONE	NE	0.2 U	0.02 U	0.2 U	0.2 U	0.2 U	0.1 U	0.2 U	0.1 U	0.2 U
HEPTACHLOR	ND	0.07 U	0.004 U	0.09 U	0.07 U	0.07 U	0.05 U	0.06 U	0.05 U	0.06 U
HEPTACHLOR EPOXID	ND	0.07 U	0.004 U	0.09 U	0.07 U	0.07 U	0.05 U	0.06 U	0.05 U	0.06 U
METHOXYCHLOR	35	0.7 U	0.02 U	0.9 U	0.7 U	0.7 U	0.5 U	0.6 U	0.5 U	0.6 U
AROCLOR-1016	0.1	0.7 U		0.9 U	0.7 U	0.7 U	0.5 U	0.6 U	0.5 U	0.6 U
AROCLOR-1221	0.1	0.7 U		0.9 U	0.7 U	0.7 U	0.5 U	0.6 U	0.5 U	0.6 U
AROCLOR-1232	0.1	0.7 U		0.9 U	0.7 U	0.7 U	0.5 U	0.6 U	0.5 U	0.6 U
AROCLOR-1242	0.1	0.7 U		0.9 U	0.7 U	0.7 U	0.5 U	0.6 U	0.5 U	0.6 U
AROCLOR-1248	0.1	0.7 U		0.9 U	0.7 U	0.7 U	0.5 U	0.6 U	0.5 U	0.6 U
AROCLOR-1254	0.1	2 U		2 U	2 U	2 U	1 U	2 U	1 U	2 U
AROCLOR-1260	0.1	2 U		2 U	2 U	2 U	1 U	2 U	1 U	2 U
TOXAPHENE	ND	2 U		2 U	2 U	2 U	1 U	2 U	1 U	2 U

TABLE 17
NIAGARA FALLS
GROUND WATER
PESTICIDES/PCB'S ANALYSES

	NYS GA STANDARD	MW-12D 6/91	MW-13S 6/91	MW-13S 9/91	MW-13D 6/91	MW-14S 6/91	MW-15S 6/91	MW-16S 6/91	MW-16S 9/91
ALDRIN	ND	0.06 U	0.05 U	0.004 U	0.08 U	0.07 U	0.05 U	0.07 U	0.004 U
ALPHA-BHC	NE	0.06 U	0.05 U	0.004 U	0.08 U	0.07 U	0.05 U	0.07 U	0.008
BETA-BHC	NE	0.06 U	0.022 J	0.004 U	0.08 U	0.07 U	0.05 U	0.051 J	0.011
DELTA-BHC	NE	0.06 U	0.05 U	0.004 U	0.08 U	0.07 U	0.05 U	0.07 U	0.004 U
GAMMA-BHC	NE	0.06 U	0.05 U	0.004 U	0.08 U	0.07 U	0.05 U	0.07 U	0.004 U
CHLORDANE	0.1	0.6 U	0.5 U	0.07 U	0.8 U	0.7 U	0.5 U	0.7 U	0.08 U
4,4-DDD	ND	0.2 U	0.1 U	0.01 U	0.2 U	0.2 U	0.1 U	0.2 U	0.01 U
4,4-DDE	ND	0.2 U	0.1 U	0.01 U	0.2 U	0.2 U	0.1 U	0.2 U	0.01 U
4,4-DDT	ND	0.2 U	0.1 U	0.01 U	0.2 U	0.2 U	0.1 U	0.2 U	0.01 U
DIELDRIN	ND	0.2 U	0.1 U	0.01 U	0.2 U	0.2 U	0.1 U	0.2 U	0.01 U
ENDOSULFAN I	NE	0.06 U	0.05 U	0.004 U	0.08 U	0.07 U	0.05 U	0.07 U	0.004 U
ENDOSULFAN II	NE	0.2 U	0.1 U	0.01 U	0.2 U	0.2 U	0.1 U	0.2 U	0.01 U
ENDOSULFAN SULFAT	NE	0.2 U	0.1 U	0.01 U	0.2 U	0.2 U	0.1 U	0.2 U	0.01 U
ENDRIN	ND	0.2 U	0.1 U	0.01 U	0.2 U	0.2 U	0.1 U	0.2 U	0.01 U
ENDRIN ALDEHYDE		0.2 U	0.1 U		0.2 U	0.2 U	0.1 U	0.2 U	
ENDRIN KETONE	NE	0.2 U	0.1 U	0.02 U	0.2 U	0.2 U	0.1 U	0.2 U	0.02 U
HEPTACHLOR	ND	0.06 U	0.05 U	0.004 U	0.08 U	0.07 U	0.05 U	0.07 U	0.004 U
HEPTACHLOR EPOXID	ND	0.06 U	0.05 U	0.004 U	0.08 U	0.07 U	0.05 U	0.07 U	0.004 U
METHOXYCHLOR	35	0.6 U	0.5 U	0.02 U	0.8 U	0.7 U	0.5 U	0.7 U	0.02 U
AROCLOR-1016	0.1	0.6 U	0.5 U		0.8 U	0.7 U	0.5 U	0.7 U	
AROCLOR-1221	0.1	0.6 U	0.5 U		0.8 U	0.7 U	0.5 U	0.7 U	
AROCLOR-1232	0.1	0.6 U	0.5 U		0.8 U	0.7 U	0.5 U	0.7 U	
AROCLOR-1242	0.1	0.6 U	0.5 U		0.8 U	0.7 U	0.5 U	0.7 U	
AROCLOR-1248	0.1	0.6 U	0.5 U		0.8 U	0.7 U	0.5 U	0.7 U	
AROCLOR-1254	0.1	2 U	1 U		2 U	2 U	1 U	2 U	
AROCLOR-1260	0.1	2 U	1 U		2 U	2 U	1 U	2 U	
TOXAPHENE	ND	2 U	1 U		2 U	2 U	1 U	2 U	

TABLE 17
NIAGARA FALLS
GROUND WATER
PESTICIDES/PCB'S ANALYSES

	NYS GA STANDARD	EQBLK 6/91		EQBLK 6/91	
ALDRIN	ND	0.06	U	0.07	U
ALPHA-BHC	NE	0.06	U	0.07	U
BETA-BHC	NE	0.06	U	0.07	U
DELTA-BHC	NE	0.06	U	0.07	U
GAMMA-BHC	NE	0.06	U	0.035	J
CHLORDANE	0.1	0.6	U	0.7	U
4,4-DDD	ND	0.2	U	0.2	U
4,4-DDE	ND	0.2	U	0.2	U
4,4-DDT	ND	0.2	U	0.2	U
DIELDRIN	ND	0.2	U	0.2	U
ENDOSULFAN I	NE	0.06	U	0.07	U
ENDOSULFAN II	NE	0.2	U	0.2	U
ENDOSULFAN SULFAT	NE	0.2	U	0.2	U
ENDRIN	ND	0.2	U	0.2	U
ENDRIN ALDEHYDE		0.2	U	0.2	U
ENDRIN KETONE	NE	0.2	U	0.2	U
HEPTACHLOR	ND	0.06	U	0.07	U
HEPTACHLOR EPOXID	ND	0.06	U	0.07	U
METHOXYCHLOR	35	0.6	U	0.7	U
AROCLOR-1016	0.1	0.6	U	0.7	U
AROCLOR-1221	0.1	0.6	U	0.7	U
AROCLOR-1232	0.1	0.6	U	0.7	U
AROCLOR-1242	0.1	0.6	U	0.7	U
AROCLOR-1248	0.1	0.6	U	0.7	U
AROCLOR-1254	0.1	2	U	2	U
AROCLOR-1260	0.1	2	U	2	U
TOXAPHENE	ND	2	U	2	U

TABLE 18
NIAGARA FALLS
GROUND WATER
INORGANIC ANALYSES

	NYS CLASS GA STANDARDS	NYS DRINKING WATER STANDARDS**	MW-1S TOTAL 6/91	MW-1S TOTAL 9/91	BL DUP MW-1S TOTAL 9/91	MW-1S SOLUBLE 6/91	MW-1S SOLUBLE 9/91	BL DUP MW-1S SOLUBLE 9/91	MW-1D TOTAL 6/91
ALUMINUM	NE		9.92			0.058 U			1.3
ANTIMONY	0.003 #		0.005 U			0.005 U			0.005 U
ARSENIC	0.025	0.05	0.011			0.005 U			0.005 U
BARIUM	1	1	0.347			0.071 B			0.03 U
BERYLLIUM	0.003 #		0.005 U			0.005 U			0.005 U
CADMIUM	0.01	0.01	0.005 U			0.005 U			0.005 UJ
CALCIUM	NE		233			185 B			330
CHROMIUM	0.05	0.05	0.062 J	0.075	0.064	0.01 U	0.01 UJ	0.01 UJ	0.01 U
CHROMIUM HEXAVALENT				0.14 J	0.01 J		0.01 J	0.01 J	
COBALT	NE		0.02 U			0.02 U			0.02 U
COPPER	0.2	1	0.09			0.009 B			0.012 U
IRON	0.3	0.3	27.7 J			3.7 J			1.733 J
LEAD	0.025	0.05	0.62 J	0.75	0.61 J	0.022 *	0.006	0.003 U	0.01 J
MAGNESIUM	35 #		50.1			45.7			7.883
MANGANESE	0.3	0.3	0.52 J			0.066 EN			0.058 J
MERCURY	0.002	0.002	0.001			0.0002			0.0002 U
NICKEL	NE		0.041			0.02 U			0.02 U
POTASSIUM	NE		12.1			1.33 B			6.334
SELENIUM	0.01	0.01	0.005 U			0.005 UN			0.005 U
SILVER	0.05	0.05	0.005 U			0.005 U			0.008
SODIUM	20	NL	14			17.7			124.4
THALLIUM	0.004 #		0.005 UJ			0.005 U			0.005 U
VANADIUM	NE		0.03 U			0.03 U			0.03 U
ZINC	0.3	5	1.4			0.066			0.06 U
CYANIDE	0.1		0.01 U			0.01 U			0.01 U
pH			7.4			7.4			7.3
CONDUCTIVITY			880			880			1970
TURBIDITY			>100			FILTERED			5

NOTES: Conductivity measured in umho/cm.
Turbidity measured in NTU's.
All other values reported in mg/l (ppm)
– Guidance value
NL – No designated limit
** – NYCRR 10, Subpart 5
U – Indicates element was analyzed for but not detected.
J – Indicates an estimated value. (GC/MS only)
* – Indicates duplicate analysis is not within control limits.
B – Indicates a value greater than or equal to the instrument detection limit but less than the contract required detection limit.

E – Indicates a value estimated or not reported due to the presence of interference.
N – Indicates spike sample recovery is not within control limits.
W – Post digestion spike for Furnace AA analysis is out of control limits (85–115%), while sample absorbance is less than 50% of spike absorbance.

TABLE 18
NIAGARA FALLS
GROUND WATER
INORGANIC ANALYSES

	NYS CLASS GA STANDARDS	NYS DRINKING WATER STANDARDS**	MW-1D TOTAL 9/91	MW-1D SOLUBLE 9/91	MW-2S TOTAL 6/91	MW-2S TOTAL 9/91	MW-2S SOLUBLE 6/91	MW-2S SOLUBLE 9/91	MW-2D TOTAL 6/91	MW-2D TOTAL 9/91
ALUMINUM	NE				6.07 J		0.05 U		0.949 J	
ANTIMONY	0.003 #				0.005 U		0.005 U		0.005 U	
ARSENIC	0.025	0.05			0.006		0.005 U		0.005 U	
BARIUM	1	1			0.111		0.063		0.03 U	
BERYLLIUM	0.003 #				0.005 U		0.005 U		0.005 U	
CADMIUM	0.01	0.01			0.005 UJ		0.005 U		0.005 U	
CALCIUM	NE				294		248		394	
CHROMIUM	0.05	0.05	0.016 J	0.01 UJ	0.049 J	0.023	0.01 U	0.01 UJ	0.01 U	0.02
CHROMIUM HEXAVALENT			0.01 UJ	0.01 J		0.015 J		0.014 J		0.017 J
COBALT	NE				0.02 U		0.02 U		0.02 U	
COPPER	0.2	1			0.06		0.006		0.021	
IRON	0.3	0.3			17.11 J		0.197		1.752	
LEAD	0.025	0.05			0.025 J		0.003 U		0.024 J	
MAGNESIUM	35 #				83.8		73.4		104	
MANGANESE	0.3	0.3			0.491 J		0.218		0.087 J	
MERCURY	0.002	0.002			0.0002 U		0.0002 U		0.0002 U	
NICKEL	NE				0.032		0.02 U		0.02 U	
POTASSIUM	NE				15.3		16.11		7.151 J	
SELENIUM	0.01	0.01			0.005 U		0.005 U		0.005 U	
SILVER	0.05	0.05			0.006 U		0.006 U		0.006 U	
SODIUM	20	NL			20.8		20.19		125.5	
THALLIUM	0.004 #				0.005 UJ		0.005 U		0.005 UJ	
VANADIUM	NE				0.03 U		0.03 U		0.03 U	
ZINC	0.3	5			0.158 J		0.027		0.04	
CYANIDE	0.1				0.047 U		0.01 U		0.01 U	
pH					6.9		6.9		7.1	
CONDUCTIVITY					1220		1220		1930	
TURBIDITY					>100		FILTERED		78	

TABLE 18
NIAGARA FALLS
GROUND WATER
INORGANIC ANALYSES

	NYS CLASS GA STANDARDS	NYS DRINKING WATER STANDARDS**	MW-2D SOLUBLE 6/91	MW-2D SOLUBLE 9/91	MW-2DB TOTAL 6/91	MW-2DB TOTAL 9/91	MW-2DB SOLUBLE 9/91	MW-4S TOTAL 6/91	MW-4S TOTAL 6/91
ALUMINUM	NE		0.05 U		0.056 J			1.35	15.6 J
ANTIMONY	0.003 #		0.005 U		0.005 U			0.005 U	0.005 U
ARSENIC	0.025	0.05	0.005 U		0.005 U			0.005 U	0.011
BARIUM	1	1	0.03 U		0.03 U			0.03 U	0.238
BERYLLIUM	0.003 #		0.005 U		0.005 U			0.005 U	0.005 U
CADMIUM	0.01	0.01	0.005 U		0.005 UJ			0.005 U	0.005 UJ
CALCIUM	NE		384		417.5			240	308
CHROMIUM	0.05	0.05	0.01 U	0.01 UJ	0.01 U	0.012 J	0.01 UJ	0.0103 U	0.0416 J
CHROMIUM HEXAVALENT				0.016 J		0.016 J	0.015 J		
COBALT	NE		0.02 U		0.02 U			0.02 U	0.02 U
COPPER	0.2	1	0.007		0.011			0.0113	0.062 U
IRON	0.3	0.3	0.345		0.304 J			2.03	35.6 J
LEAD	0.025	0.05	0.003 U		0.006 J			0.013	0.0986 J
MAGNESIUM	35 #		99.51		73.91			94.3	66
MANGANESE	0.3	0.3	0.034		0.021 J			0.0698	0.718 J
MERCURY	0.002	0.002	0.0002 U		0.0002 U			0.0002 U	0.0003
NICKEL	NE		0.03 U		0.02 U			0.02 U	0.0615
POTASSIUM	NE		8.163		7.252			5.39	8.72
SELENIUM	0.01	0.01	0.005 U		0.005 U			0.005 U	0.005 U
SILVER	0.05	0.05	0.006 U		0.006 U			0.005 U	0.007 J
SODIUM	20	NL	110.4		89.12			97.5	69
THALLIUM	0.004 #		0.005 U		0.005 UJ			0.005 U	0.005 UJ
VANADIUM	NE		0.03 U		0.03 U			0.03 U	0.03 U
ZINC	0.3	5	0.005 U		0.024 U			0.082	1.28 J
CYANIDE	0.1		0.01 U		0.01 U				0.01 U
pH			7.1		7.2			7.4	6.8
CONDUCTIVITY			1930		>2000			1820	1040
TURBIDITY			FILTERED		2			12	>100

TABLE 18
NIAGARA FALLS
GROUND WATER
INORGANIC ANALYSES

	NYS CLASS GA STANDARDS	NYS DRINKING WATER STANDARDS**	MW-4S TOTAL 9/91	MW-4S SOLUBLE 6/91	MW-4S SOLUBLE 9/91	MW-4D TOTAL 6/91	MW-4D TOTAL 9/91	MW-4D SOLUBLE 6/91	MW-4D SOLUBLE 9/91	MW-5D TOTAL 6/91
ALUMINUM	NE			0.05 U		15.7 J		0.05 U		9.84 J
ANTIMONY	0.003 #			0.005 U		0.005 U		0.005 U		0.005 U
ARSENIC	0.025	0.05		0.005 U		0.008		0.005 U		0.005 U
BARIUM	1	1		0.107		0.147		0.03 U		0.109
BERYLLIUM	0.003 #			0.005 U		0.005 U		0.005 U		0.005 U
CADMIUM	0.01	0.01		0.005 U		0.005 UJ		0.005 U		0.005 U
CALCIUM	NE			203		812		54.4		364
CHROMIUM	0.05	0.05	0.061	0.01 U	0.01 U	0.053 J	0.03	0.01 U	0.013	0.026 J
CHROMIUM HEXAVALENT			0.011 J		0.013 J		0.014 J		0.01 J	
COBALT	NE			0.02 U		0.02 U		0.02 U		0.02 U
COPPER	0.2	1		0.007		0.05 U		0.011		0.042 U
IRON	0.3	0.3		0.071		27.4 J		0.113		10.6 J
LEAD	0.025	0.05	0.12 W	0.003 U	0.003 U	0.0433 J		0.003 U		0.07 J
MAGNESIUM	35 #			38.97		215		112.7		143
MANGANESE	0.3	0.3		0.04		0.836 J		0.015		0.336 J
MERCURY	0.002	0.002		0.0002 U		0.0002 U		0.0002 U		MISSING
NICKEL	NE			0.02 U		0.0211		0.02 U		0.02 U
POTASSIUM	NE			4.811		15.2		10.66		8.54
SELENIUM	0.01	0.01		0.005 U		0.005 U		0.005 U		0.005 U
SILVER	0.05	0.05		0.006		0.018 J		0.017		0.006 U
SODIUM	20	NL		66.06		250		232.4		97
THALLIUM	0.004 #			0.005 U		0.005 UJ		0.005 U		0.005 U
VANADIUM	NE			0.03 U		0.0362		0.03 U		0.03 U
ZINC	0.3	5		0.137		0.252 J		0.005 U		0.14 J
CYANIDE	0.1			0.01 U		0.01 U		0.01 U		---
pH				6.8		7.0		7.0		7.6
CONDUCTIVITY				1040		>2000		>2000		1970
TURBIDITY				FILTERED		>100		FILTERED		>100

TABLE 18
NIAGARA FALLS
GROUND WATER
INORGANIC ANALYSES

	NYS CLASS GA STANDARDS	NYS DRINKING WATER STANDARDS**	MW-5D SOLUBLE 6/91	MW-6S TOTAL 6/91	MW-6S SOLUBLE 6/91	MW-6D TOTAL 6/91	MW-6D TOTAL 9/91	MW-6D SOLUBLE 9/91	MW-6DB TOTAL 6/91	MW-6DB TOTAL 9/91
ALUMINUM	NE		0.05 U	50.5 J	0.05 U	0.256 J			0.394	
ANTIMONY	0.003 #		0.005 U	0.005 U	0.005 U	0.005 U			0.005 U	
ARSENIC	0.025	0.05	0.005 U	0.014	0.005 U	0.005 U			0.005 U	
BARIUM	1	1	0.03 U	0.346	0.05	0.03 U			0.03 U	
BERYLLIUM	0.003 #		0.005 U	0.005 U	0.005 U	0.005 U			0.005 U	
CADMIUM	0.01	0.01	0.005 U	0.005 U	0.005 U	0.005 U			0.005 UJ	
CALCIUM	NE		240	544	301	576			843	
CHROMIUM	0.05	0.05	0.01 U	0.094 J	0.01 U	0.01 UJ	0.018 J	0.014 J	0.01 UJ	0.022
CHROMIUM HEXAVALENT							0.02 UJ	0.018 UJ		0.02 UJ
COBALT	NE		0.02 U	0.044	0.02 U	0.02 U			0.02 U	
COPPER	0.2	1	0.014	0.156	0.01	0.028 UJ			0.024 UJ	
IRON	0.3	0.3	0.03 U	95.3 J	0.03 U	0.744 J			0.951 J	
LEAD	0.025	0.05	0.003	0.078 J	0.004	0.012 J			0.005 J	
MAGNESIUM	35 #		91.4	142	57	146			122	
MANGANESE	0.3	0.3	0.013	1.58 J	0.006	0.035 J			0.045 J	
MERCURY	0.002	0.002	MISSING	0.0002 U	0.0002 U	0.0002 U			0.0002 U	
NICKEL	NE		0.02 U	0.126	0.02 U	0.02 U			0.02 U	
POTASSIUM	NE		4.978	15.8	10.195	12.6			7.201	
SELENIUM	0.01	0.01	0.005 U	0.005 U	0.005 U	0.005 U			0.005 U	
SILVER	0.05	0.05	0.006 U	0.006 U	0.006 U	0.006 U			0.006 U	
SODIUM	20	NL	110	27	26	145			230	
THALLIUM	0.004 #		0.005 U	0.005 U	0.005 U	0.005 UJ			0.005 UJ	
VANADIUM	NE		0.03 U	0.118	0.03 U	0.03 U			0.03 U	
ZINC	0.3	5	0.005 U	0.404 J	0.029	0.022 U			0.026 U	
CYANIDE	0.1		---	0.01 U	0.01 U	0.01 U			0.01 U	
pH			7.6	7.4	7.4	7.0			6.8	
• CONDUCTIVITY			1970	1190	1190	>2000			>2000	
TURBIDITY			FILTERED	>100	FILTERED	48			17	

TABLE 18
NIAGARA FALLS
GROUND WATER
INORGANIC ANALYSES

	NYS CLASS GA STANDARDS	NYS DRINKING WATER STANDARDS**	MW-6DB SOLUBLE 9/91	MW-7S TOTAL 6/91	MW-7S TOTAL 9/91	BL DUP MW-7S TOTAL 9/91	MW-7S SOLUBLE 6/91	MW-7S SOLUBLE 9/91	BL DUP MW-7S SOLUBLE 9/91	MW-7D TOTAL 6/91
ALUMINUM	NE			10.4 J			0.05 U			3.171 J
ANTIMONY	0.003 #			0.34	0.075 R	0.15 R	0.07	0.022 R	0.11 R	0.005 U
ARSENIC	0.025	0.05		0.012			0.005 U			0.005 U
BARIUM	1	1		0.339			0.046			0.03 U
BERYLLIUM	0.003 #			0.005 U			0.005 U			0.005 U
CADMIUM	0.01	0.01		0.005 U			0.005 U			0.005 UJ
CALCIUM	NE			202			136			514
CHROMIUM	0.05	0.05	0.02	1.12 J	1.94 J	3.46 J	0.01 U	0.01 U	0.01 UJ	0.0208 J
CHROMIUM HEXAVALENT			0.021 UJ		0.068 J	0.054 J		0.01 U	0.01 UJ	
COBALT	NE			0.0002 U			0.02 U			0.02 U
COPPER	0.2	1		0.182			0.01 U			0.057 U
IRON	0.3	0.3		29 J			12.03			4.66 J
LEAD	0.025	0.05		1.04 J	0.979	2.4 J	0.004	0.386 J	0.005 U	0.0169 J
MAGNESIUM	35 #			30.5			20.3			137
MANGANESE	0.3	0.3		0.52 J	1.01 J	0.749	0.415	0.003 U	0.372 J	0.157 J
MERCURY	0.002	0.002		0.0006		0.0208	0.0002 U		0.0002 U	0.0002 U
NICKEL	NE			0.0503			0.02			0.02 U
POTASSIUM	NE			6.25			5.189			10
SELENIUM	0.01	0.01		0.005 U			0.005 U			0.005 U
SILVER	0.05	0.05		0.006 U			0.006 U			0.006 U
SODIUM	20	NL		28			28			230
THALLIUM	0.004 #			0.005 UJ			0.005 U			0.005 UJ
VANADIUM	NE			0.03 J			0.03 U			0.03 U
ZINC	0.3	5		1.54 J			0.009			0.168 J
CYANIDE	0.1			0.267			0.01 U			0.01 U
pH				6.7			6.7			6.7
CONDUCTIVITY				920			920			>2000
TURBIDITY				>100			FILTERED			>100

TABLE 18
NIAGARA FALLS
GROUND WATER
INORGANIC ANALYSES

	NYS CLASS GA STANDARDS	NYS DRINKING WATER STANDARDS**	BL DUP MW-7D TOTAL 6/91	MW-7D TOTAL 9/91	MW-7D SOLUBLE 6/91	BL DUP MW-7D SOLUBLE 6/91	MW-7D SOLUBLE 9/91	MW-8S TOTAL 6/91	MW-8S TOTAL 9/91
ALUMINUM	NE		13.4 J		0.05 U	0.05 U	0.05 U	1.372 J	
ANTIMONY	0.003 #		0.005 U	0.005 R	0.005 U	0.005 U	0.005 U	0.005 U	
ARSENIC	0.025	0.05	0.006		0.005 U	0.005 U	0.005 U	0.01	
BARIUM	1	1	0.0934		0.03 U	0.03 U	0.03 U	0.195	
BERYLLIUM	0.003 #		0.005 U		0.005 U	0.005 U	0.005 U	0.005 U	
CADMIUM	0.01	0.01	0.005 UJ		0.005 U	0.005 U	0.005 UJ	0.005 U	
CALCIUM	NE		586		427	521 UJ	521	192	
CHROMIUM	0.05	0.05	0.0676 J	0.026	0.01 U	0.01	0.01 UJ	0.073 J	0.028
CHROMIUM HEXAVALENT				0.01 UJ		UJ			0.023 J
COBALT	NE		0.02 U		0.02 U	0.02 U	0.02 U	0.02 U	
COPPER	0.2	1	0.059 U		0.021	0.017 J	0.017 J	0.028 UJ	
IRON	0.3	0.3	20.2 J		0.035	0.0328	0.0328	14.03 J	
LEAD	0.025	0.05	0.089 J	0.022	0.004	0.007 J	0.007 J	0.004 J	
MAGNESIUM	35 #		180		144	182	182	92.4	
MANGANESE	0.3	0.3	0.687 J	0.286	0.017	0.0178 J	0.0178 J	0.16 J	0.162
MERCURY	0.002	0.002	0.0002 U		0.0002 U	0.002 U	0.0002 U	0.0005	
NICKEL	NE		0.0412	0.0002 U	0.02 U	0.02 U	0.02 U	0.033	
POTASSIUM	NE		11.9		9.658	8.92	8.92	8.981	
SELENIUM	0.01	0.01	0.005 U		0.005 U	0.005 U	0.005 U	0.005 U	
SILVER	0.05	0.05	0.006 U		0.006 U	0.006 U	0.006 U	0.006 U	
SODIUM	20	NL	235		220	230	230	2200	
THALLIUM	0.004 #		0.005 UJ		0.005 U	0.005 UJ	0.005 UJ	0.005 UJ	
VANADIUM	NE		0.03 U		0.03 U	0.03 U	0.03 U	0.062	
ZINC	0.3	5	0.218 J		0.005 U	0.005 U	0.005 U	0.06 U	
CYANIDE	0.1		0.01 U		0.01 U			0.038	
pH					6.7			7.1	
CONDUCTIVITY					>2000			>2000	
TURBIDITY					FILTERED			41	

TABLE 18
NIAGARA FALLS
GROUND WATER
INORGANIC ANALYSES

	NYS CLASS GA STANDARDS	NYS DRINKING WATER STANDARDS**	MW-8S SOLUBLE 9/91	MW-8D TOTAL 6/91	MW-8D TOTAL 9/91	MW-8D SOLUBLE 6/91	MW-8D SOLUBLE 9/91	MW-8DB TOTAL 6/91	MW-8DB TOTAL 9/91	MW-8DB SOLUBLE 9/91
ALUMINUM	NE			9.57 J		0.05 U		0.05 U		
ANTIMONY	0.003 #			0.005 U		0.005 U		0.005 U		
ARSENIC	0.025	0.05		0.007		0.005 U		0.005 U		
BARIUM	1	1		0.0571		0.03 U		0.03 U		
BERYLLIUM	0.003 #			0.005 U		0.005 U		0.005 U		
CADMIUM	0.01	0.01		0.005 U		0.005 U		0.005 U		
CALCIUM	NE			898		653		628		
CHROMIUM	0.05	0.05	0.024 J	0.0334 J	0.044	0.01 U	0.018 J	0.01 UJ	0.019 J	0.022 J
CHROMIUM HEXAVALENT			0.022 J		0.01 UJ		0.01 UJ		0.01 UJ	0.012 UJ
COBALT	NE			0.02 U		0.02 U		0.02 U		
COPPER	0.2	1		0.067 U		0.024		0.02 UJ		
IRON	0.3	0.3		13.3 J		0.03 U		0.178 J		
LEAD	0.025	0.05		0.132 J		0.003		0.004 J		
MAGNESIUM	35 #			308		153		120.5 J		
MANGANESE	0.3	0.3	0.141 J	0.7 J		0.015		0.025 J		
MERCURY	0.002	0.002		0.0002 U		0.0002 U		0.0002 U		
NICKEL	NE			0.0247		0.02 U		0.02 U		
POTASSIUM	NE			15.2		11.76		12.41		
SELENIUM	0.01	0.01		0.005 UJ		0.005 U		0.005 U		
SILVER	0.05	0.05		0.006 U		0.006 U		0.006 U		
SODIUM	20	NL		315 J		360		285		
THALLIUM	0.004 #			0.005 UJ		0.005 U		0.005 UJ		
VANADIUM	NE			0.03 U		0.03 U		0.03 U		
ZINC	0.3	5		0.372 J		0.005 U		0.02 U		
CYANIDE	0.1			0.01 U		0.01 U		0.01 U		
pH				7.0		7.0		6.6		
CONDUCTIVITY				>2000		>2000		>2000		
TURBIDITY				>100		FILTERED		21		

TABLE 18
NIAGARA FALLS
GROUND WATER
INORGANIC ANALYSES

	NYS CLASS GA STANDARDS	NYS DRINKING WATER STANDARDS**	MW-10S TOTAL 6/91	MW-10D TOTAL 6/91	MW-10D TOTAL 9/91	MW-10D SOLUBL 9/91	MW-10DB TOTAL 6/91	MW-10D TOTAL 9/91	MW-10D SOLUBL 9/91	MW-11D TOTAL 6/91	MW-11D TOTAL 9/91
ALUMINUM	NE		2.615	0.051 J			0.56 J			0.496 J	
ANTIMONY	0.003 #		0.005 U	0.005 U			0.005 U			0.005 U	
ARSENIC	0.025	0.05	0.005 U	0.005 U			0.005 U			0.005 U	
BARIUM	1	1	0.123	0.03 U			0.03 U			0.035	
BERYLLIUM	0.003 #		0.005 U	0.005 U			0.005 U			0.005 U	
CADMIUM	0.01	0.01	0.005 U	0.005 UJ			0.005 UJ			0.005 UJ	
CALCIUM	NE		255.6	455.9			633			444	
CHROMIUM	0.05	0.05	0.019	0.01 U	0.016 J	0.011 J	0.013 J	0.024	0.02	0.01 U	0.01 J
CHROMIUM HEXAVALENT					0.014 UJ	0.02 UJ		0.014 UJ	0.012 UJ		0.016 J
COBALT	NE		0.02 U	0.02 U			0.02 U			0.02 U	
COPPER	0.2	1	0.011	0.008			0.013			0.009	
IRON	0.3	0.3	3.434	0.201 J			1.109 J			0.36 J	
LEAD	0.025	0.05	0.026	0.003 J			0.018 J			0.009 J	
MAGNESIUM	35 #		97.13	112.5			143.5			117.5	
MANGANESE	0.3	0.3	0.201	0.024 J			0.073 J			0.026 J	
MERCURY	0.002	0.002	0.0002 U	0.0002 U			0.0002 U			0.0002 U	
NICKEL	NE		0.02 U	0.02 U			0.02 U			0.02 U	
POTASSIUM	NE		2.65	20.21			9.017			12.03	
SELENIUM	0.01	0.01	0.005 U	0.005 U			0.005 U			0.005 U	
SILVER	0.05	0.05	0.005 U	0.005 U			0.005 U			0.006 U	
SODIUM	20	NL	137.2	1464			188.6			146.8	
THALLIUM	0.004 #		0.005 U	0.005 UJ			0.005 UJ			0.005 UJ	
VANADIUM	NE		0.03 U	0.03 U			0.03 U			0.03 U	
ZINC	0.3	5	0.07	0.013 U			0.074 J			0.1 J	
CYANIDE	0.1		0.01 U	0.01 U			0.01 U			0.01 U	
pH			7.3	7.0			6.7			7.4	
CONDUCTIVITY			1860	>2000			>2000			>2000	
TURBIDITY			48	6			25			13	

TABLE 18
NIAGARA FALLS
GROUND WATER
INORGANIC ANALYSES

	NYS CLASS GA STANDARDS	NYS DRINKING WATER STANDARDS**	MW-11D SOLUBLE 9/91	MW-11DB TOTAL 6/91	MW-11DB TOTAL 9/91	MW-11DB SOLUBLE 9/91	MW-12S TOTAL 6/91	MW-12S TOTAL 9/91	MW-12S SOLUBLE 9/91	MW-12D TOTAL 6/91	MW-12D TOTAL 9/91
ALUMINUM	NE			0.148 J			0.179 J			4.53 J	
ANTIMONY	0.003 #			0.005 U			0.005 U			0.005 U	
ARSENIC	0.025	0.05		0.005			0.005 U			0.005 U	
BARIUM	1	1		0.03 U			0.082			0.044	
BERYLLIUM	0.003 #			0.005 U			0.005 U			0.005 U	
CADMIUM	0.01	0.01		0.005 UJ			0.005 UJ			0.005 UJ	
CALCIUM	NE			449.5			444			364	
CHROMIUM	0.05	0.05	0.01 U	0.01 U	0.017 J	0.016	0.01 U	0.018 J	0.016 J	0.016 J	0.025
CHROMIUM HEXAVALENT			0.014 J		0.01 J	0.016 J		0.016 UJ	0.016 UJ		0.019 UJ
COBALT	NE			0.02 U			0.02 U			0.02 U	
COPPER	0.2	1		0.016			0.013			0.026	
IRON	0.3	0.3		0.649 J			1.41 J			6.856 J	
LEAD	0.025	0.05		0.047 J			0.003 U			0.051 J	
MAGNESIUM	35 #			114			211.8			112.8	
MANGANESE	0.3	0.3		0.038 J			0.808 J			0.212 J	
MERCURY	0.002	0.002		0.0002 U			0.0002 U			0.0002 U	
NICKEL	NE			0.02 U			0.02 U			0.02 U	
POTASSIUM	NE			8.158			11.1			7.727	
SELENIUM	0.01	0.01		0.005 U			0.005 U			0.005 U	
SILVER	0.05	0.05		0.006 U			0.006 U			0.006 U	
SODIUM	20	NL		146.2			81.18			130.4	
THALLIUM	0.004 #			0.005 UJ			0.005 UJ			0.005 UJ	
VANADIUM	NE			0.03 U			0.03 U			0.03 U	
ZINC	0.3	5		0.21 J			0.022 J			0.12 J	
CYANIDE	0.1			0.01 U			0.01 U			0.01 U	
pH				6.6			7.2			7.4	
CONDUCTIVITY				>2000			>2000			>2000	
TURBIDITY				23			3			>100	

TABLE 18
NIAGARA FALLS
GROUND WATER
INORGANIC ANALYSES

	NYS CLASS GA STANDARDS	NYS DRINKING WATER STANDARDS**	MW-14S TOTAL 6/91	MW-14S TOTAL 9/91	MW-14S SOLUBLE 6/91	MW-14S SOLUBLE 9/91	MW-15S TOTAL 6/91	MW-15S TOTAL 9/91	MW-15S SOLUBLE 9/91	MW-16S TOTAL 6/91	MW-16S TOTAL 9/91
ALUMINUM	NE		24.6 J		0.05 U		0.578 J			10.86 J	
ANTIMONY	0.003 #		0.005 U		0.005 U		0.005 U			0.005 U	
ARSENIC	0.025	0.05	0.01		0.005 U		0.005 U			0.01	
BARIUM	1	1	0.328		0.095		0.071			0.234	
BERYLLIUM	0.003 #		0.005 U		0.005 U		0.005 U			0.005 U	
CADMIUM	0.01	0.01	0.005 UJ		0.005 U		0.005 U			0.005 UJ	
CALCIUM	NE		262		102		185			282.9	
CHROMIUM	0.05	0.05	0.0379 J	0.012 J	0.01 U	0.01 UJ	0.01 U	0.01 UJ	0.01 UJ	0.031 J	0.01 UJ
CHROMIUM HEXAVALENT				0.018 UJ		0.019 UJ		0.01 UJ	0.015 UJ		0.018 UJ
COBALT	NE		0.02 U		0.02 U		0.02 U			0.02 U	
COPPER	0.2	1	0.0514 U		0.006		0.009 U			0.062	
IRON	0.3	0.3	39.4 J		0.03 U		0.0755 J			43.45 J	
LEAD	0.025	0.05	0.025 J		0.003 U		0.021 J			0.26 J	0.64 J
MAGNESIUM	35 #		80.8		55.04		45.74			60.24	
MANGANESE	0.3	0.3	1.46 J		0.145		0.066 J			0.806 J	0.702
MERCURY	0.002	0.002	0.0002 U		0.0002 U		0.0002 U			0.0041	0.0076
NICKEL	NE		0.0615		0.02 U		0.02 U			0.039	
POTASSIUM	NE		8.92		3.325		1.329			11.74	
SELENIUM	0.01	0.01	0.005 U		0.005 U		0.005 U			0.005 U	
SILVER	0.05	0.05	0.006 U		0.005 U		0.005 U			0.005 U	
SODIUM	20	NL	18.3		15.89		17.68			63.55	
THALLIUM	0.004 #		0.005 UJ		0.005 U		0.005 UJ			0.005 UJ	
VANADIUM	NE		0.0469		0.03 U		0.03 U			0.03 U	
ZINC	0.3	5	0.15 J		0.007		0.066 U			0.0595 J	
CYANIDE	0.1		0.01 U		0.01 U		0.01 U			0.01 U	
pH			7.5		7.5		7.0			6.7	
CONDUCTIVITY			750		750		970			990	
TURBIDITY			>100		FILTERED		7			>100	

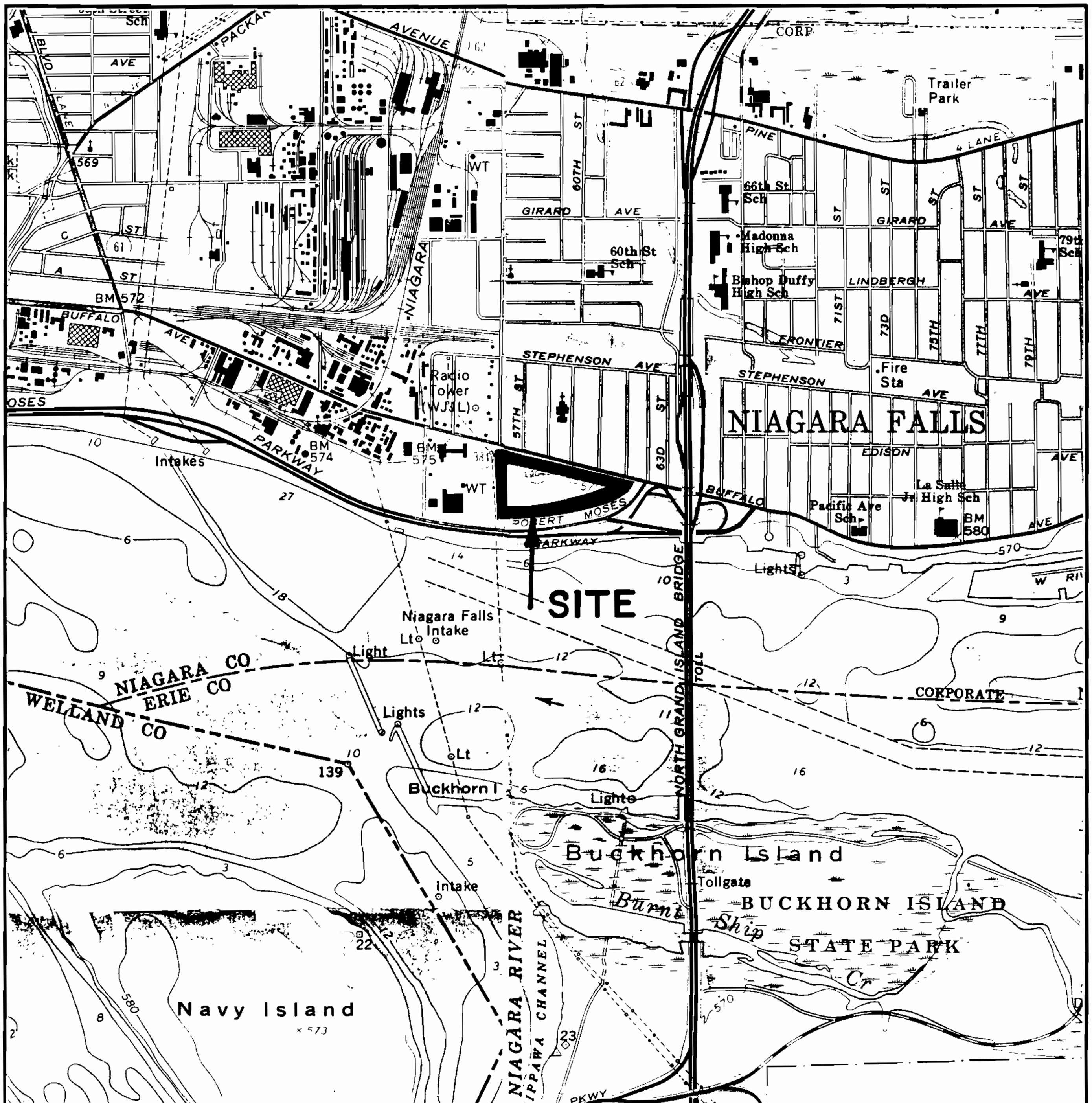
TABLE 18
NIAGARA FALLS
GROUND WATER
INORGANIC ANALYSES

	NYS CLASS GA STANDARDS	NYS DRINKING WATER STANDARDS**	BL DUP MW-16S TOTAL 9/91	MW-16S SOLUBLE 6/91	MW-16S SOLUBLE 9/91	BL DUP MW-16S SOLUBLE 9/91	EQBLK TOTAL 6/11/91	EQBLK TOTAL 6/13/91	EQBLK2 TOTAL 9/91
ALUMINUM	NE			0.05 U			0.05 U	0.05 U	
ANTIMONY	0.003 #			0.005 U			0.005 U	0.005 U	0.005 R
ARSENIC	0.025	0.05		0.005 U			0.005 U	0.005 U	
BARIUM	1	1		0.087			0.03 U	0.03 U	
BERYLLIUM	0.003 #			0.005 U			0.005 U	0.005 U	
CADMIUM	0.01	0.01		0.005 U			0.005 U	0.005 U	
CALCIUM	NE			255.6			1.4	4.73	
CHROMIUM	0.05	0.05	0.012 J	0.01 U	0.01 UJ	0.01 UJ	0.01 U	0.01 UJ	0.01 UJ
CHROMIUM HEXAVALENT			0.012 J		0.02 UJ	0.018 J			0.012 J
COBALT	NE			0.02 U			0.02 U	0.02 U	
COPPER	0.2	1		0.01			0.005 U	0.018	
IRON	0.3	0.3		19.24			0.03 U	0.03 U	
LEAD	0.025	0.05	0.44	0.004	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U
MAGNESIUM	35 #			52.75			0.2 U	0.094	
MANGANESE	0.3	0.3		0.552	0.298 J		0.005 U	0.005 UJ	0.01 UJ
MERCURY	0.002	0.002	0.0067	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.002 U
NICKEL	NE			0.02 U			0.02 U	0.02 U	
POTASSIUM	NE			9.22			0.172	0.184	
SELENIUM	0.01	0.01		0.005 U			0.005 U	0.005 U	
SILVER	0.05	0.05		0.005 U			0.006 U	0.006 U	
SODIUM	20	NL		62.13			3 U	3 U	
THALLIUM	0.004 #			0.005 U			0.005 U	0.005 UJ	
VANADIUM	NE			0.03 U			0.03 U	0.03 U	
ZINC	0.3	5		0.007			0.006 J	0.023 J	
CYANIDE	0.1			0.01 U			0.01 U	0.01 U	
pH				6.7					
CONDUCTIVITY				990					
TURBIDITY				FILTERED					

TABLE 18
NIAGARA FALLS
GROUND WATER
INORGANIC ANALYSES

	NYS CLASS GA STANDARDS	NYS DRINKING WATER STANDARDS**	EQBLK2 SOLUBLE 9/91	EQBLK1 TOTAL 9/91	EQBLK1 SOLUBLE 9/91
ALUMINUM	NE				
ANTIMONY	0.003 #		0.005 R		
ARSENIC	0.025	0.05			
BARIUM	1	1			
BERYLLIUM	0.003 #				
CADMIUM	0.01	0.01			
CALCIUM	NE				
CHROMIUM	0.05	0.05	0.01 UJ	0.01 U	0.01 U
CHROMIUM HEXAVALENT			0.014 J	0.01 U	0.01 U
COBALT	NE				
COPPER	0.2	1			
IRON	0.3	0.3			
LEAD	0.025	0.05	0.003 U	0.03 U	0.003 UJ
MAGNESIUM	35 #				
MANGANESE	0.3	0.3	0.01 UJ		
MERCURY	0.002	0.002	0.002 U		
NICKEL	NE				
POTASSIUM	NE				
SELENIUM	0.01	0.01			
SILVER	0.05	0.05			
SODIUM	20	NL			
THALLIUM	0.004 #				
VANADIUM	NE				
ZINC	0.3	5			
CYANIDE	0.1				
pH					
CONDUCTIVITY					
TURBIDITY					

Figures



BUFFALO AVENUE SITE
NIAGARA FALLS, NEW YORK

SITE LOCATION MAP

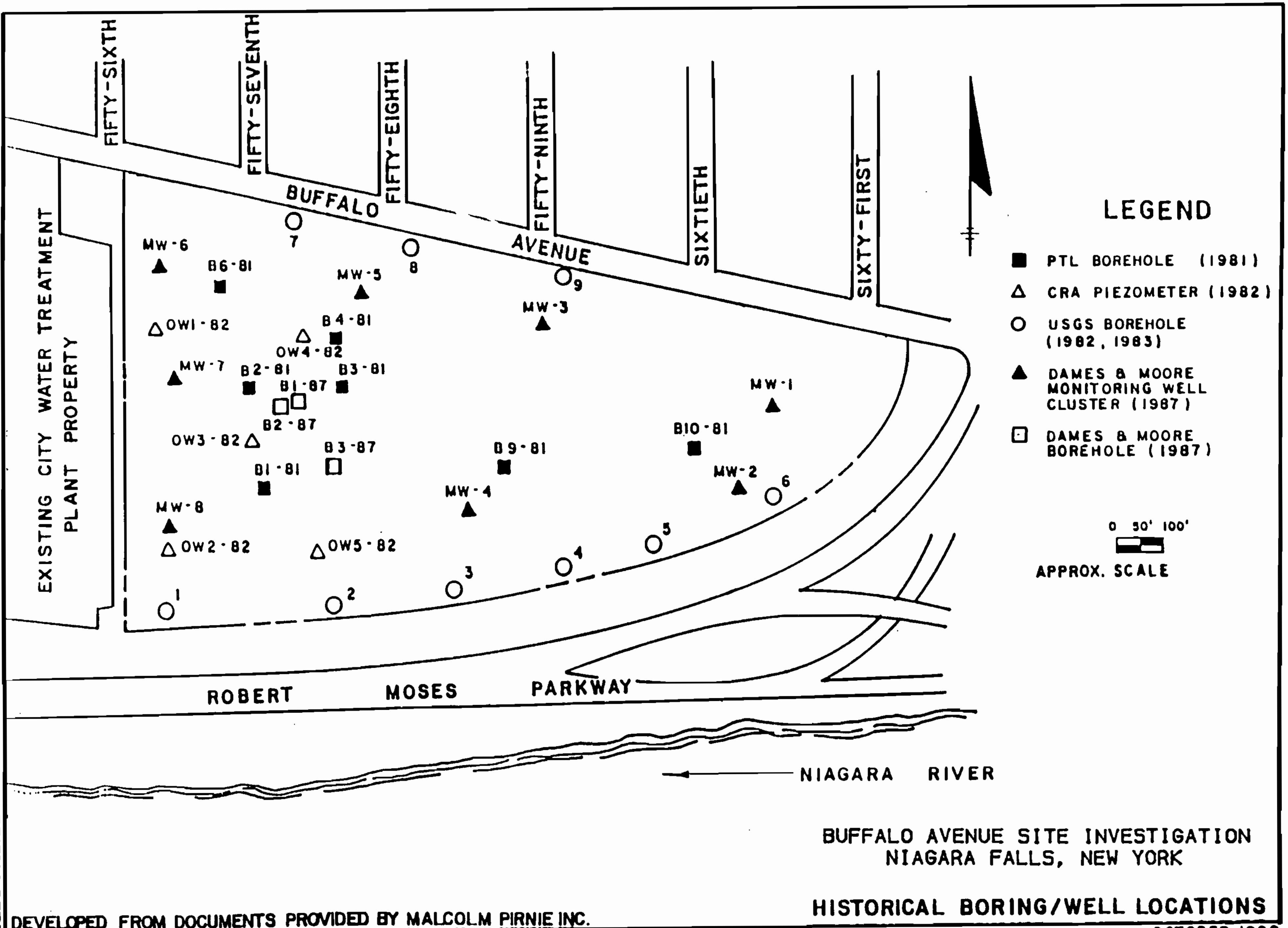
0 2000 4000

SCALE IN FEET

ADAPTED FROM U.S.G.S. NIAGARA FALL, NEW YORK AND TONAWANDA WEST QUADRANGLE 7.5 MINUTE SERIES

10/18/91
1736.046.278
NIAGARAFALLS6R

FIGURE 3



DEVELOPED FROM DOCUMENTS PROVIDED BY MALCOLM PIRNIE INC.

BUFFALO AVENUE SITE INVESTIGATION
NIAGARA FALLS, NEW YORK

HISTORICAL BORING/WELL LOCATIONS

CITY OF NIAGARA FALLS, NEW YORK OCTOBER 1990

O'BRIEN & GERE ENGINEERS, INC.

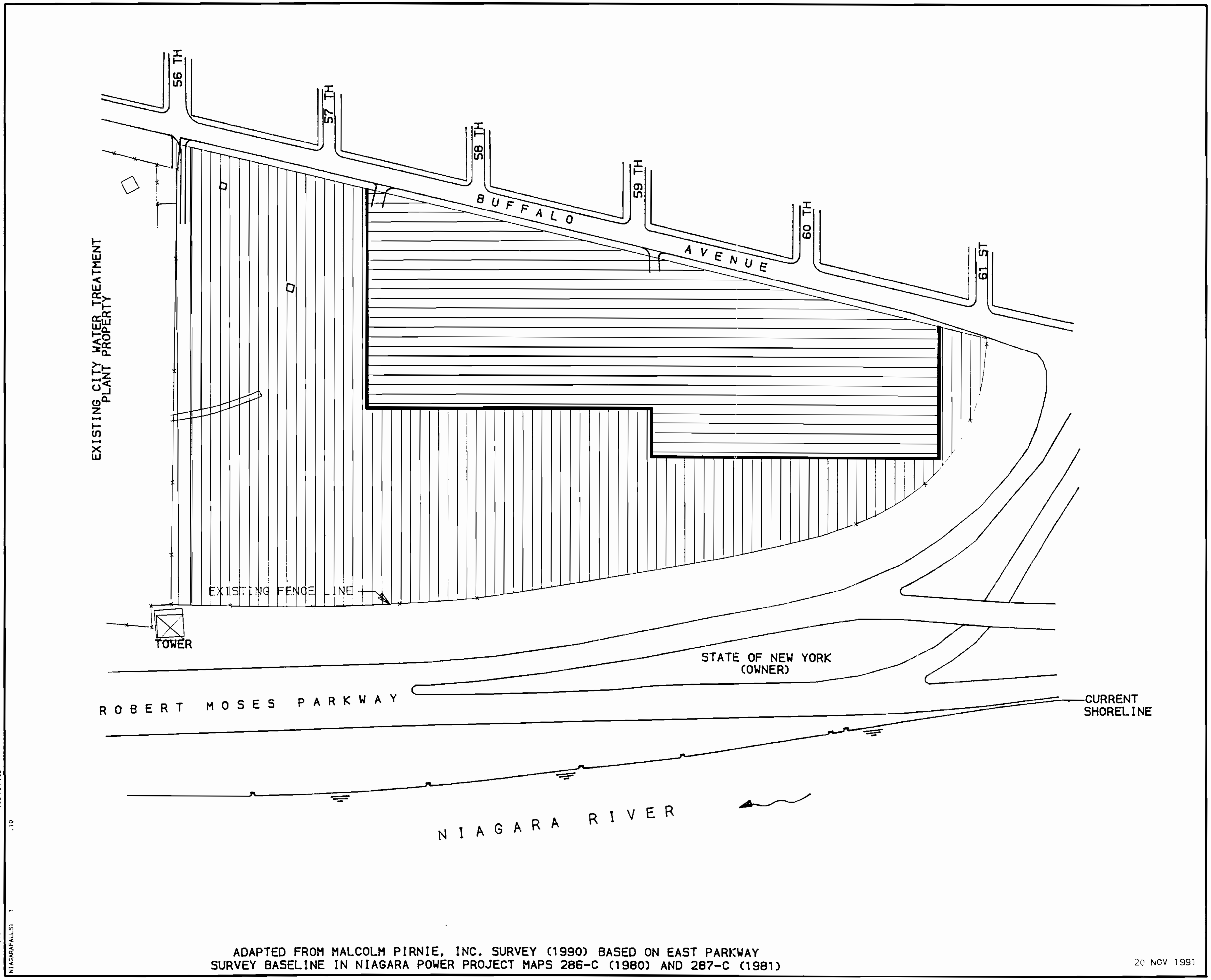


FIGURE 2

BUFFALO AVENUE SITE INVESTIGATION
NIAGARA FALLS, NEW YORK

LEGEND

10 - ACRE PORTION OF SITE

15.8 - ACRE PORTION OF SITE

STUDY AREA LOCATION MAP

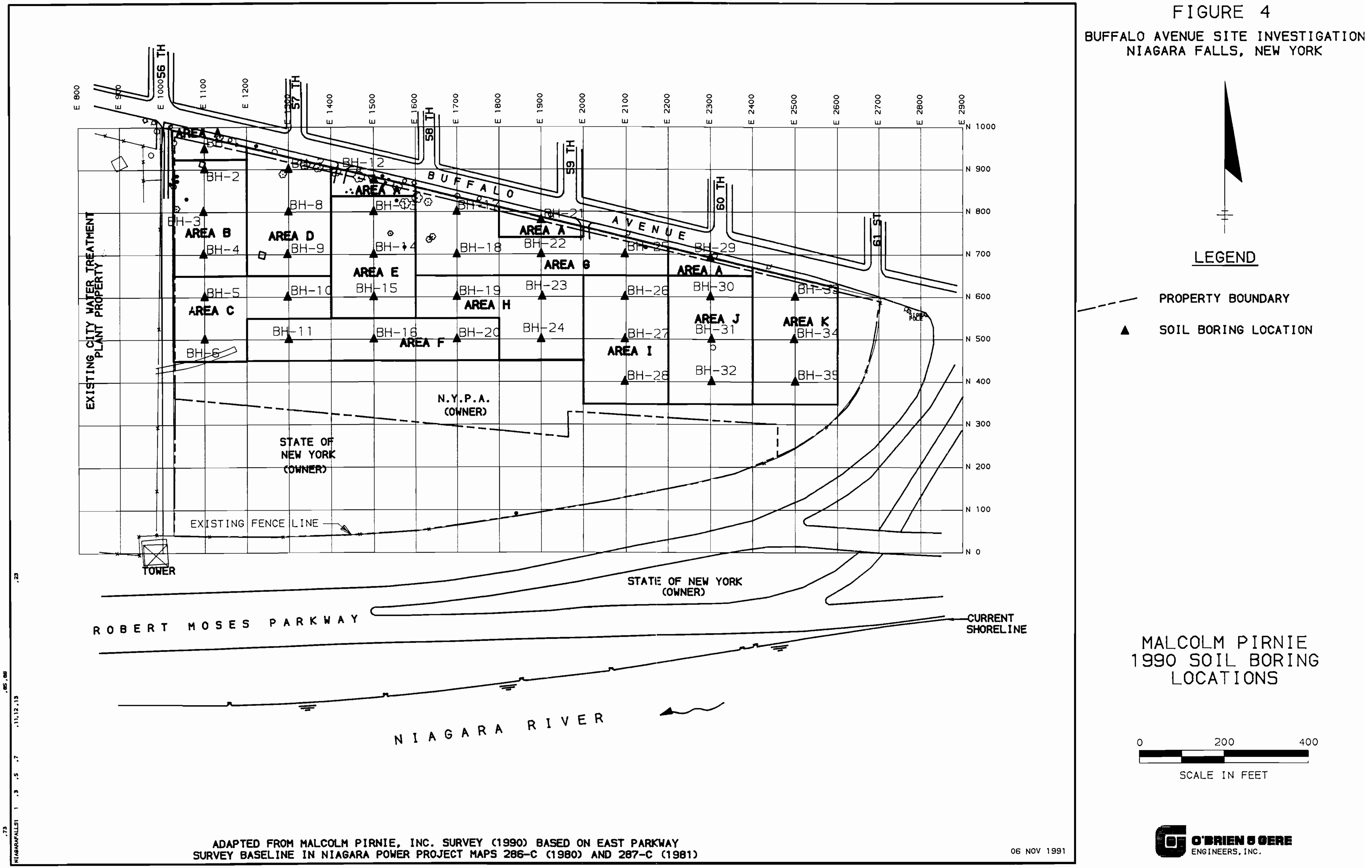
0 200 400
SCALE IN FEET

1736.046.278

O'BRIEN & GERE ENGINEERS, INC.

FIGURE 4

BUFFALO AVENUE SITE INVESTIGATION
NIAGARA FALLS, NEW YORK

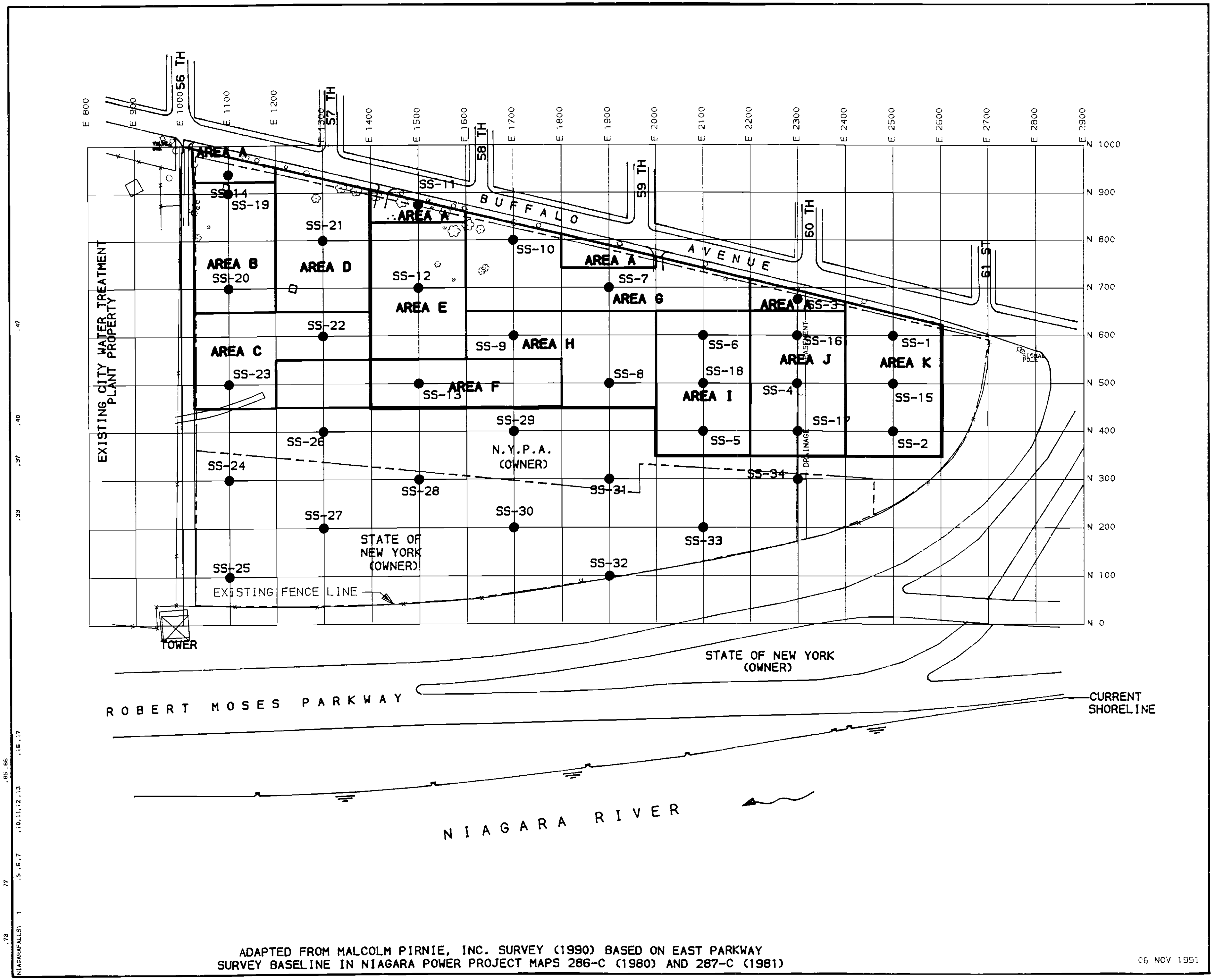


MALCOLM PIRNIE
1990 SOIL BORING
LOCATIONS

O'BRIEN & GERE ENGINEERS, INC.

FIGURE 5

BUFFALO AVENUE SITE INVESTIGATION
NIAGARA FALLS, NEW YORK



LEGEND

AREA A — MALCOLM PIRNIE STUDY AREA

● — SURFACE SOIL SAMPLING LOCATIONS

━ — BOUNDARY OF 10 - ACRE SITE

- - - — PROPERTY BOUNDARY

SURFACE SOIL
SAMPLING LOCATIONS

0 200 400
SCALE IN FEET

O'BRIEN & GERE ENGINEERS, INC.

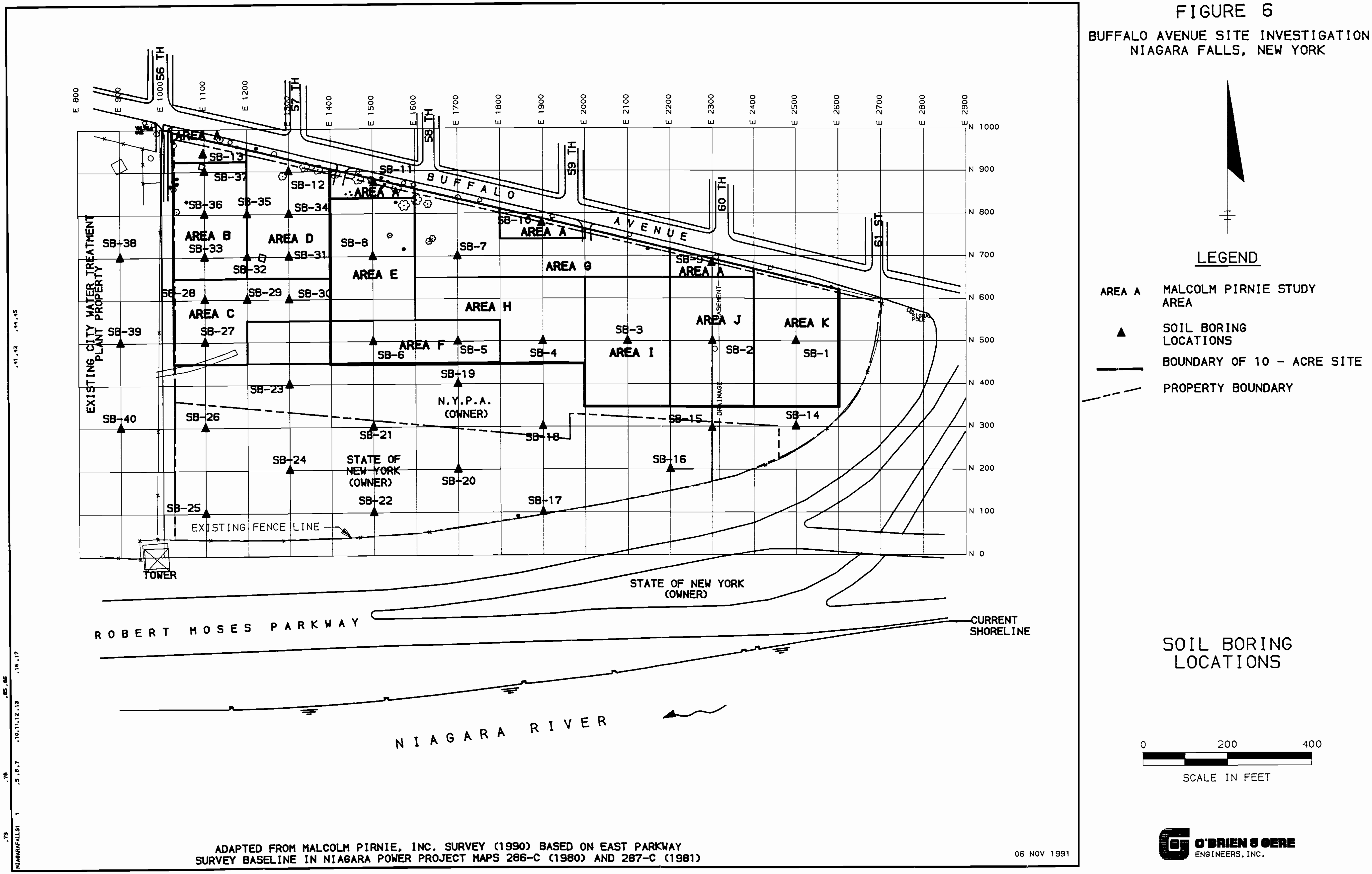


FIGURE 6

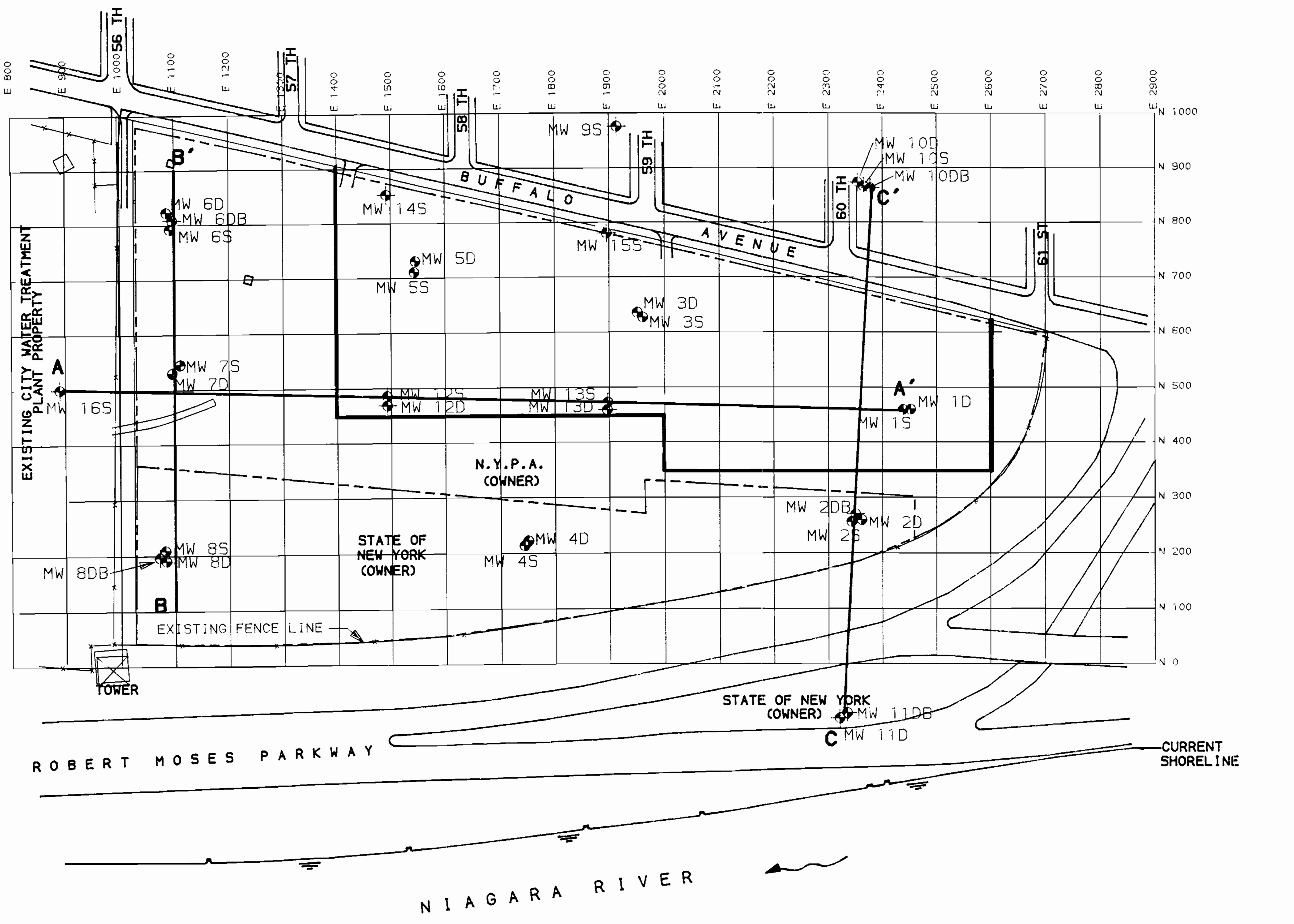
BUFFALO AVENUE SITE INVESTIGATION
NIAGARA FALLS, NEW YORK

SOIL BORING LOCATIONS

ADAPTED FROM MALCOLM PIRNIE, INC. SURVEY (1990) BASED ON EAST PARKWAY SURVEY BASELINE IN NIAGARA POWER PROJECT MAPS 286-C (1980) AND 287-C (1981)

FIGURE 7

BUFFALO AVENUE SITE INVESTIGATION
NIAGARA FALLS, NEW YORK



ADAPTED FROM MALCOLM PIRNIE, INC. SURVEY (1990) BASED ON EAST PARKWAY
SURVEY BASELINE IN NIAGARA POWER PROJECT MAPS 286-C (1980) AND 287-C (1981)

06 NOV 1991

LEGEND

- MONITOR WELL INSTALLED BY OBG
- EXISTING MONITOR WELL
- BOUNDARY OF 10 - ACRE SITE
- A—A' GEOLOGIC CROSS-SECTION
- PROPERTY BOUNDARY

MONITORING WELL LOCATION MAP

0 200 400
SCALE IN FEET

O'BRIEN & GERE ENGINEERS, INC.

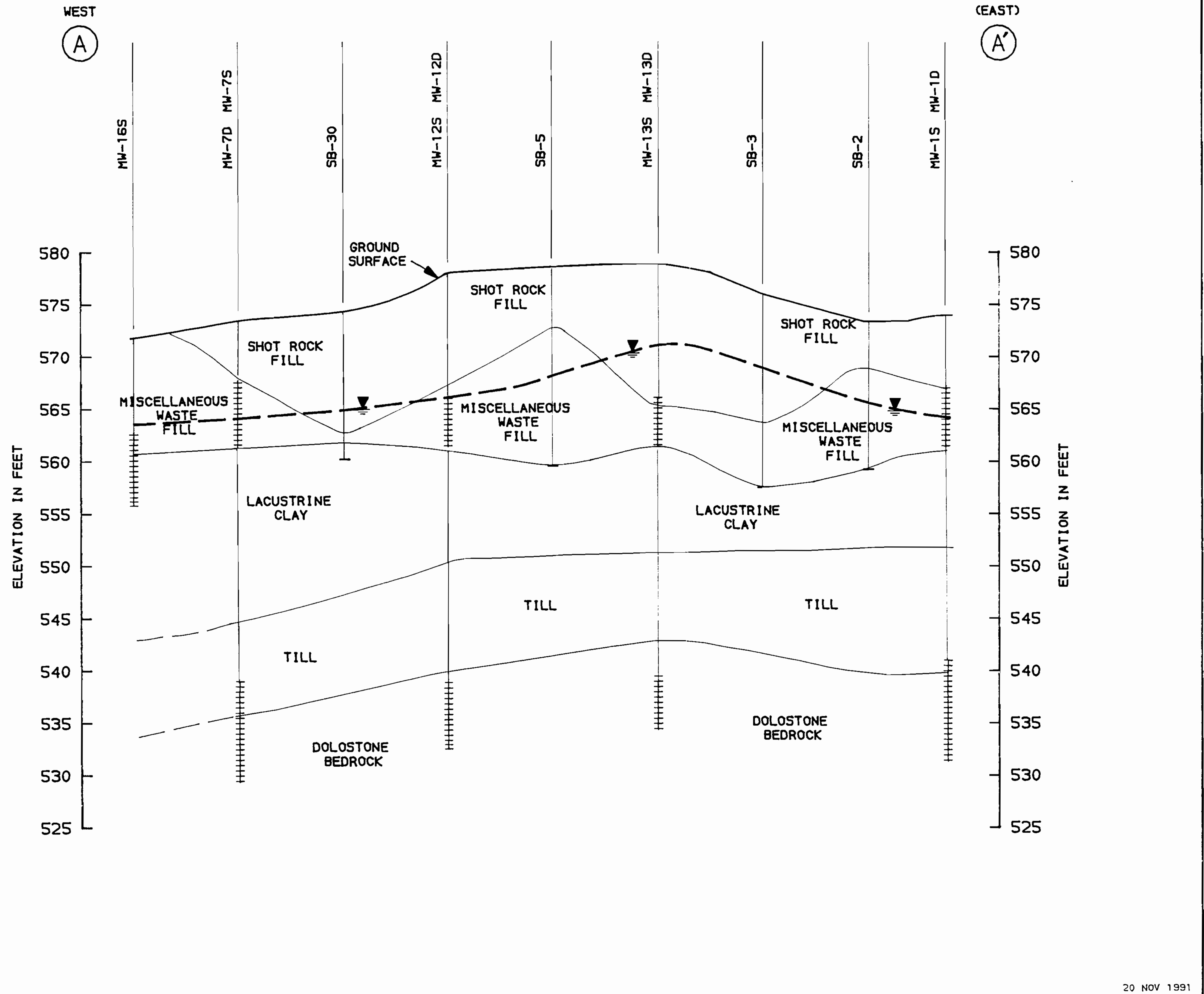


FIGURE 8

BUFFALO AVENUE SITE INVESTIGATION
NIAGARA FALLS, NEW YORK

LEGEND

- MW-1S: LOCATION OF MONITORING WELL MW-1S
- SB-2: LOCATION OF SOIL BORING SB-2
- GROUND WATER LEVEL ON 7/18/91
- STRATIGRAPHIC BOUNDARY (DASHED WHERE INFERRED)

GEOLOGIC CROSS SECTION A-A'

NOTE: VERTICAL EXAGGERATION = 20X

200 0 200
APPROX. HORIZ. SCALE IN FEET

1736.046.278

O'BRIEN & GERE ENGINEERS, INC.

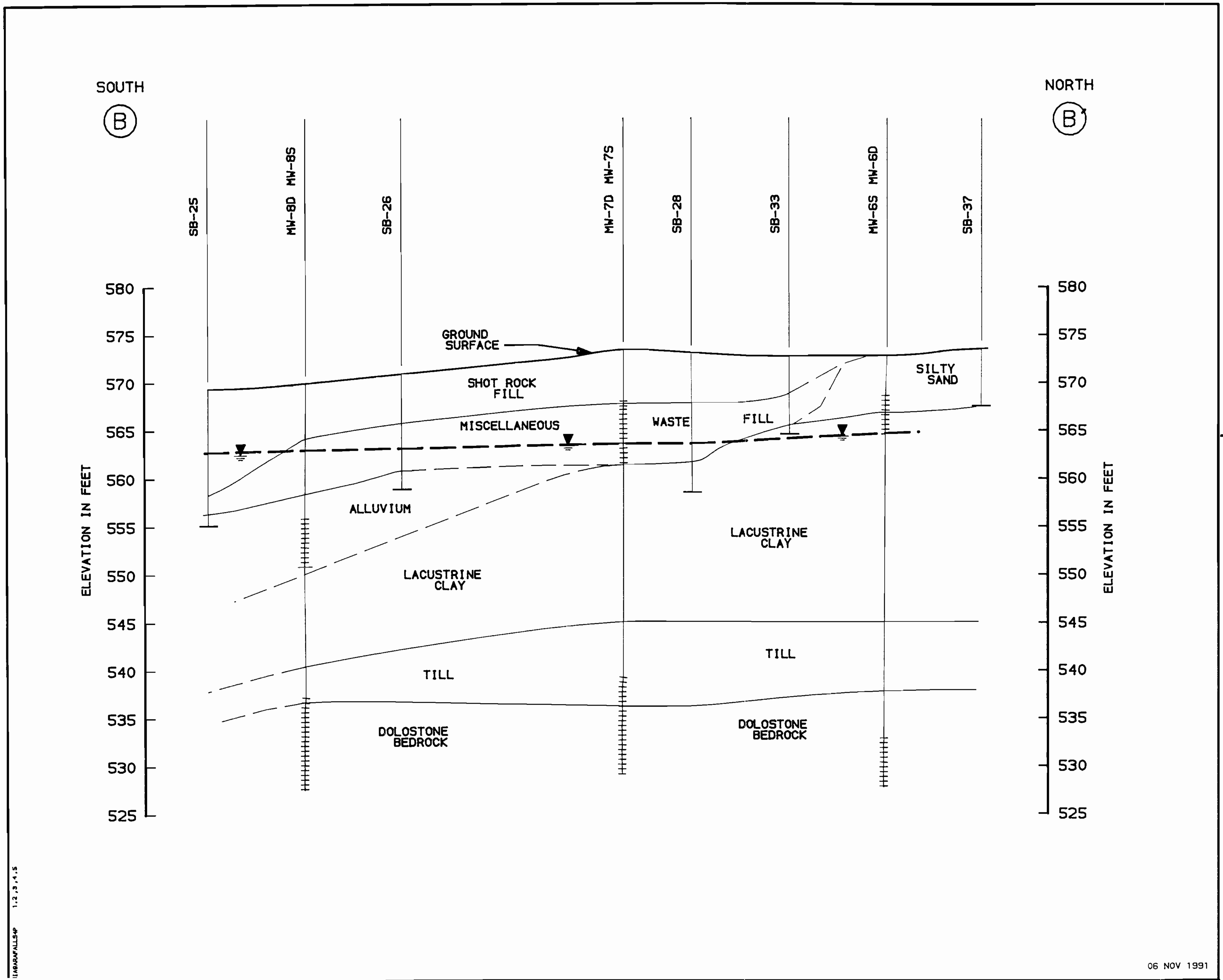


FIGURE 9

BUFFALO AVENUE SITE INVESTIGATION
NIAGARA FALLS, NEW YORK

LEGEND

- MW-8D — LOCATION OF MONITORING WELL MW-8D
- SB-25 — LOCATION OF SOIL BORING SB-25
- GROUND WATER LEVEL ON 7/18/91
- STRATIGRAPHIC BOUNDARY (DASHED WHERE INFERRED)

GEOLOGIC CROSS SECTION
B-B'

NOTE: VERTICAL EXAGGERATION = 10X

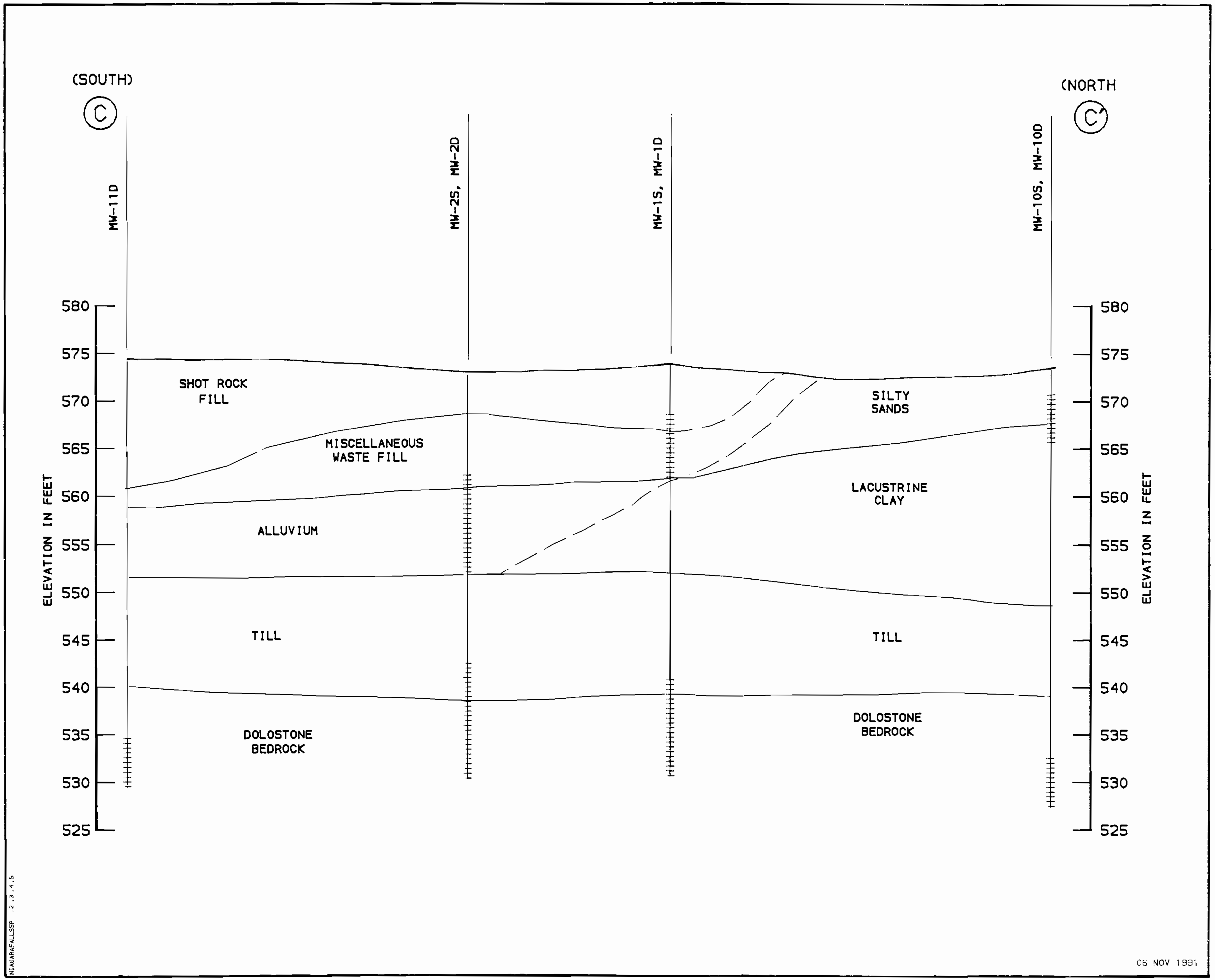
100 0 100
APPROX. HORIZ. SCALE IN FEET

1736.046.278

O'BRIEN & GERE ENGINEERS, INC.

FIGURE 10

BUFFALO AVENUE SITE INVESTIGATION
NIAGARA FALLS, NEW YORK



LEGEND

MW-11D — LOCATION OF MONITORING WELL MW-11D

STRATIGRAPHIC BOUNDARY (DASHED WHERE INFERRED)

GEOLOGIC CROSS SECTION
C-C'

NOTE: VERTICAL EXAGGERATION = 10X

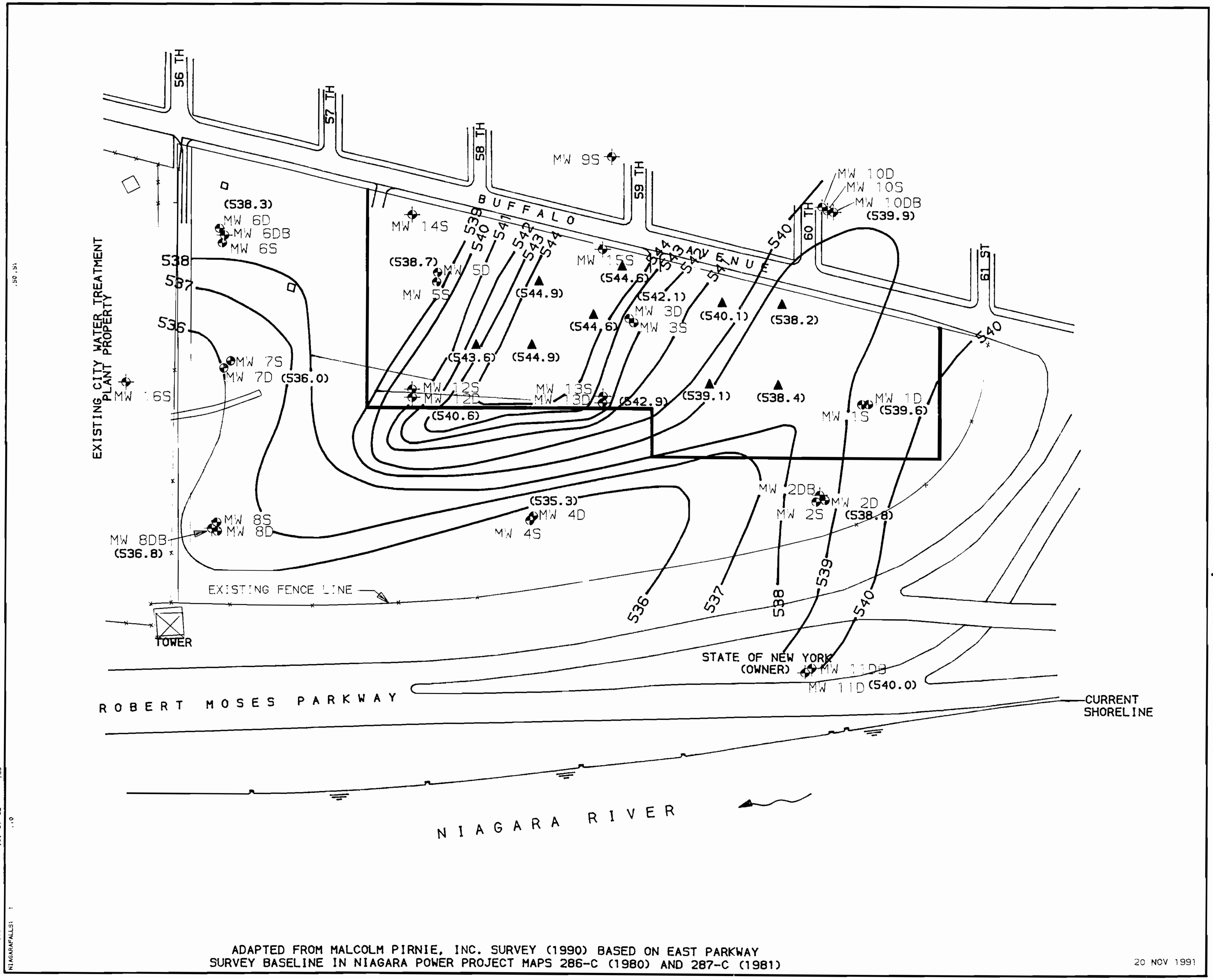
100 0 100
APPROX. HORIZ. SCALE IN FEET

1736.046.278

O'BRIEN & GERE ENGINEERS, INC.

FIGURE 11

BUFFALO AVENUE SITE INVESTIGATION
NIAGARA FALLS, NEW YORK



LEGEND

- MONITORING WELL INSTALLED BY OBG
- EXISTING MONITORING WELL
- ▲ SOIL BORING COMPLETED BY OB&G IN 8/91 FOR STRUCTURAL INFORMATION
- BOUNDARY OF 10 - ACRE SITE
- (539.6) TOP OF BEDROCK ELEVATION
- 539 BEDROCK CONTOUR (DASHED WHERE INFERRED)

BEDROCK TOPOGRAPHY MAP

0 200 400

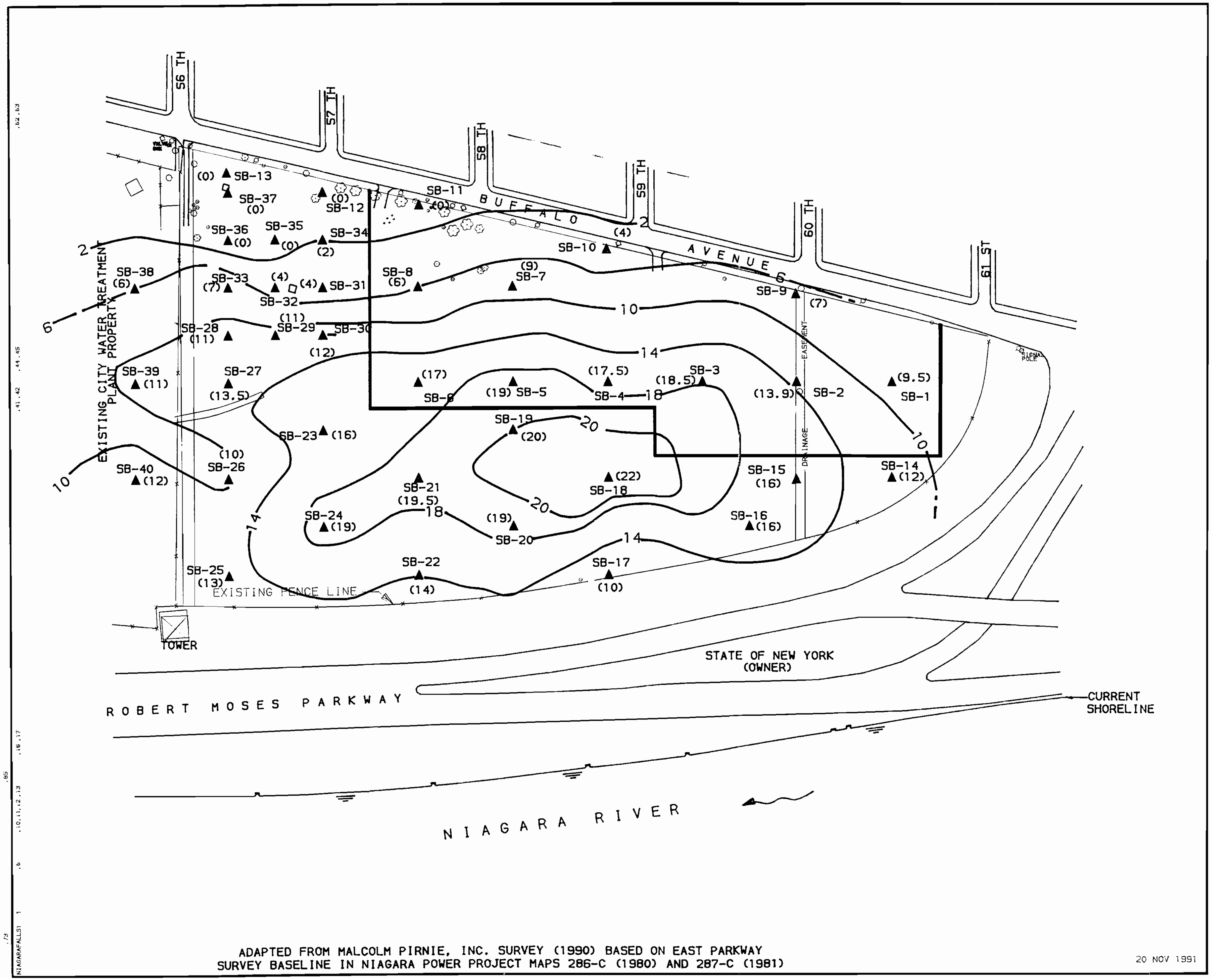
SCALE IN FEET

736.045.278

O'BRIEN & GERE ENGINEERS, INC.

FIGURE 12

BUFFALO AVENUE SITE INVESTIGATION
NIAGARA FALLS, NEW YORK



LEGEND

AREA A	MALCOLM PIRNIE STUDY AREA
SB-1 ▲	SOIL/FILL BORING SAMPLING LOCATIONS
———	BOUNDARY OF 10 - ACRE SITE
SB-1 ▲ (9)	FILL THICKNESS OF 9 FEET AT BORING SB-1
—— 4	FILL THICKNESS CONTOUR

FILL THICKNESS MAP

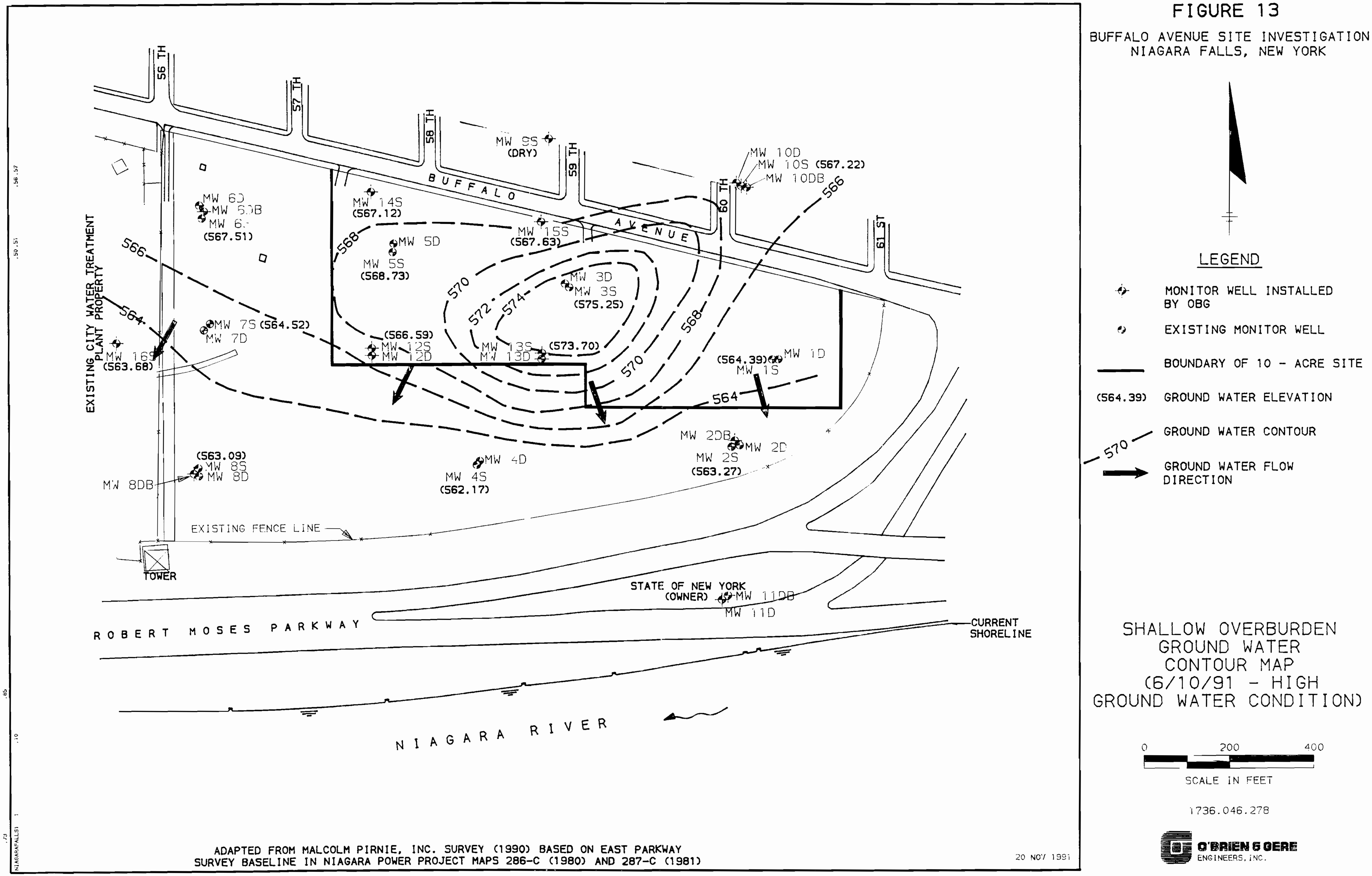
0 200 400
SCALE IN FEET

1736.046.278

O'BRIEN & GERE ENGINEERS, INC.

FIGURE 13

BUFFALO AVENUE SITE INVESTIGATION
NIAGARA FALLS, NEW YORK



SHALLOW OVERBURDEN GROUND WATER CONTOUR MAP (6/10/91 - HIGH GROUND WATER CONDITION)

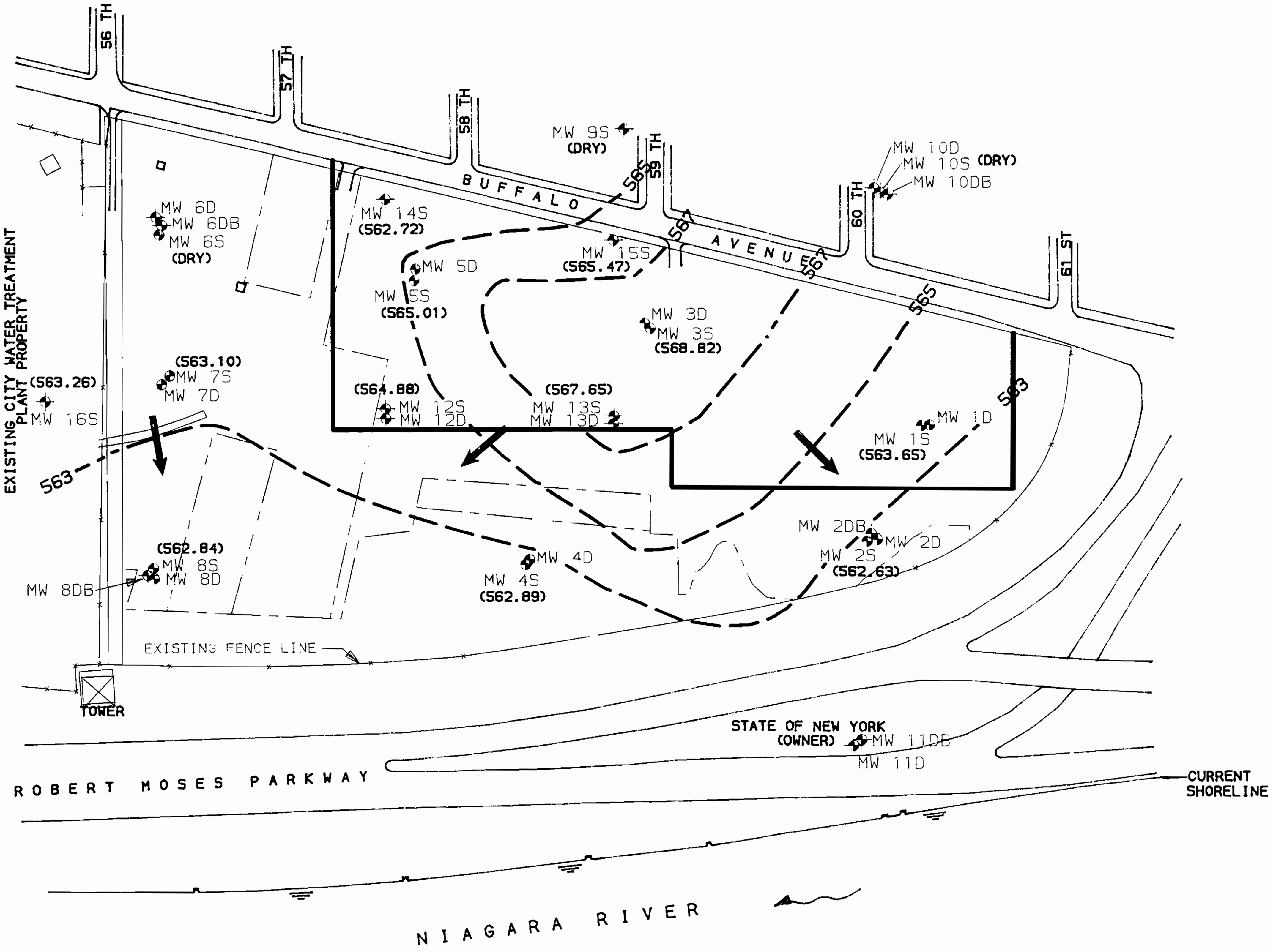
0 200 400
SCALE IN FEET

1736.046.278

O'BRIEN & GERE ENGINEERS, INC.

FIGURE 14

BUFFALO AVENUE SITE INVESTIGATION
NIAGARA FALLS, NEW YORK



ADAPTED FROM MALCOLM PIRNIE, INC. SURVEY (1990) BASED ON EAST PARKWAY SURVEY BASELINE IN NIAGARA POWER PROJECT MAPS 286-C (1980) AND 287-C (1981)

11 OCT 1991

LEGEND

- MONITOR WELL INSTALLED BY OBG
- EXISTING MONITOR WELL
- BOUNDARY OF 10 - ACRE SITE
- (563.65) GROUND WATER ELEVATION
- 567 GROUND WATER CONTOUR (DASHED WHERE INFERRED)
- GROUND WATER FLOW DIRECTION

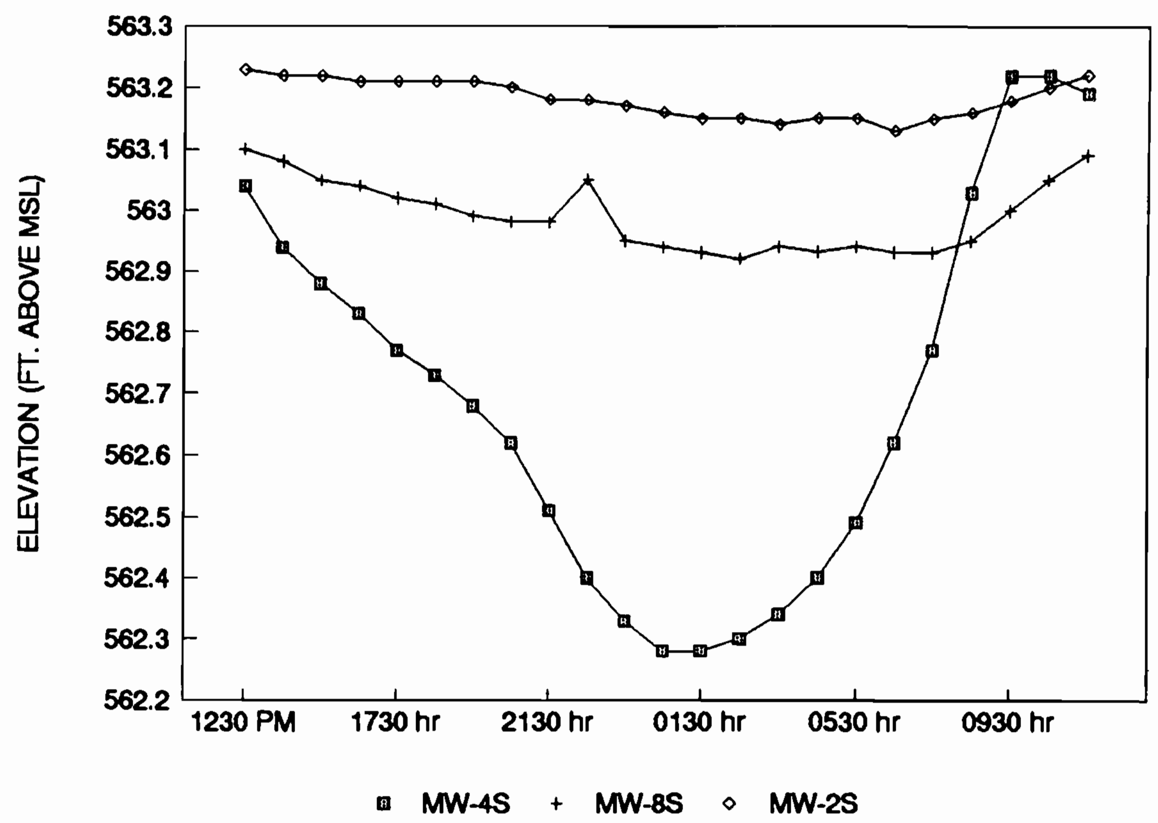
SHALLOW OVERBURDEN GROUND WATER CONTOUR MAP (9/16/91 - LOW GROUND WATER CONDITION)

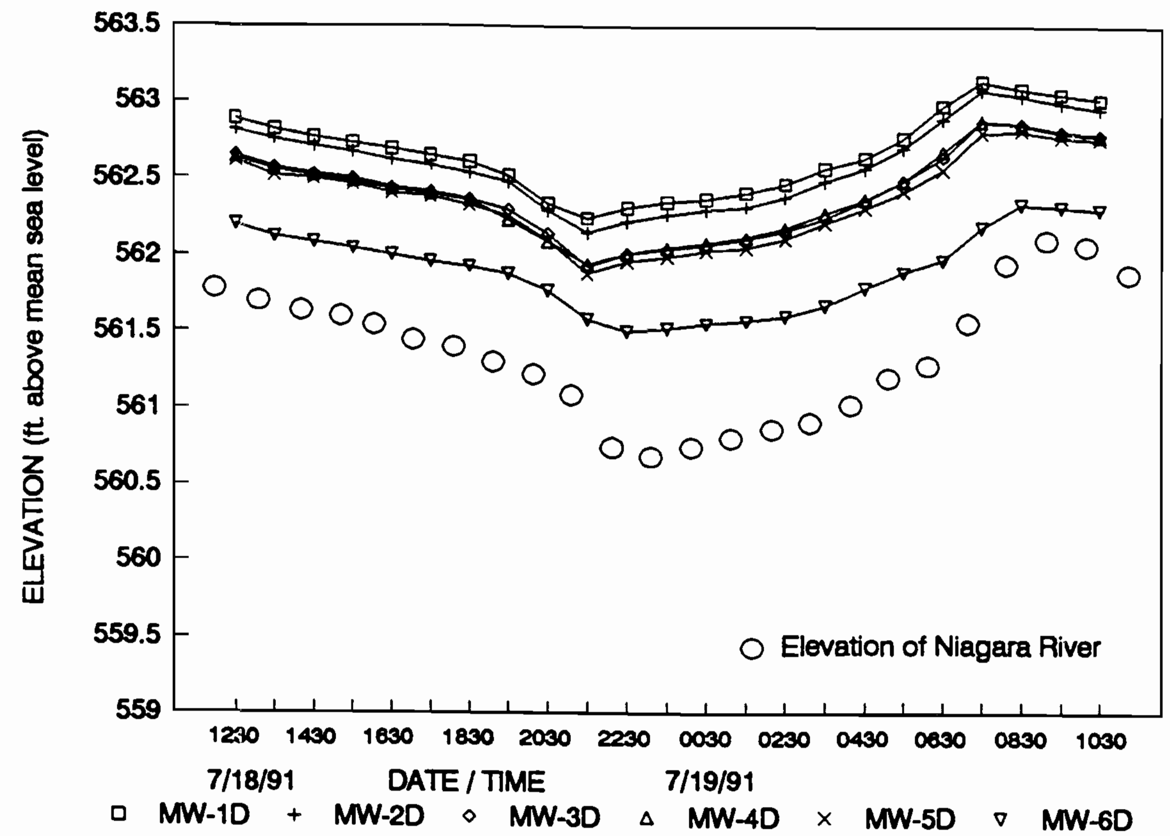
0 200 400
SCALE IN FEET

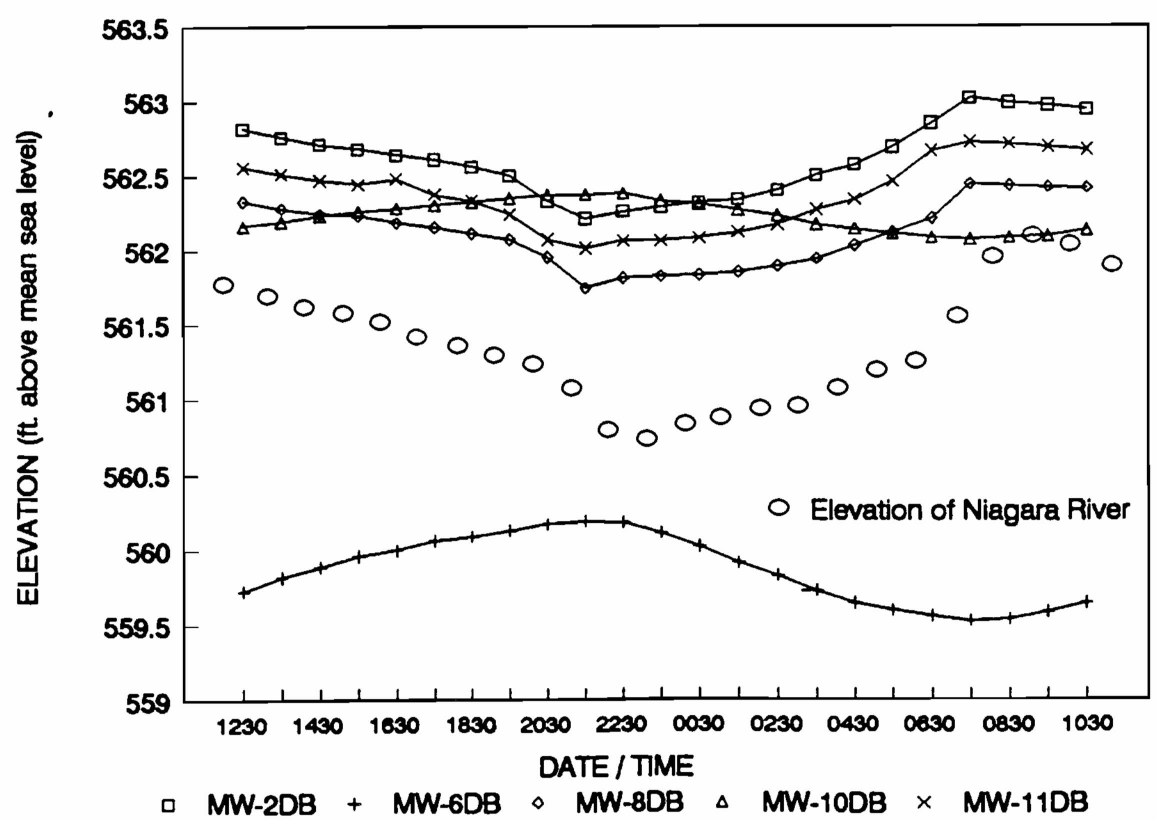
O'BRIEN & GERE ENGINEERS, INC.

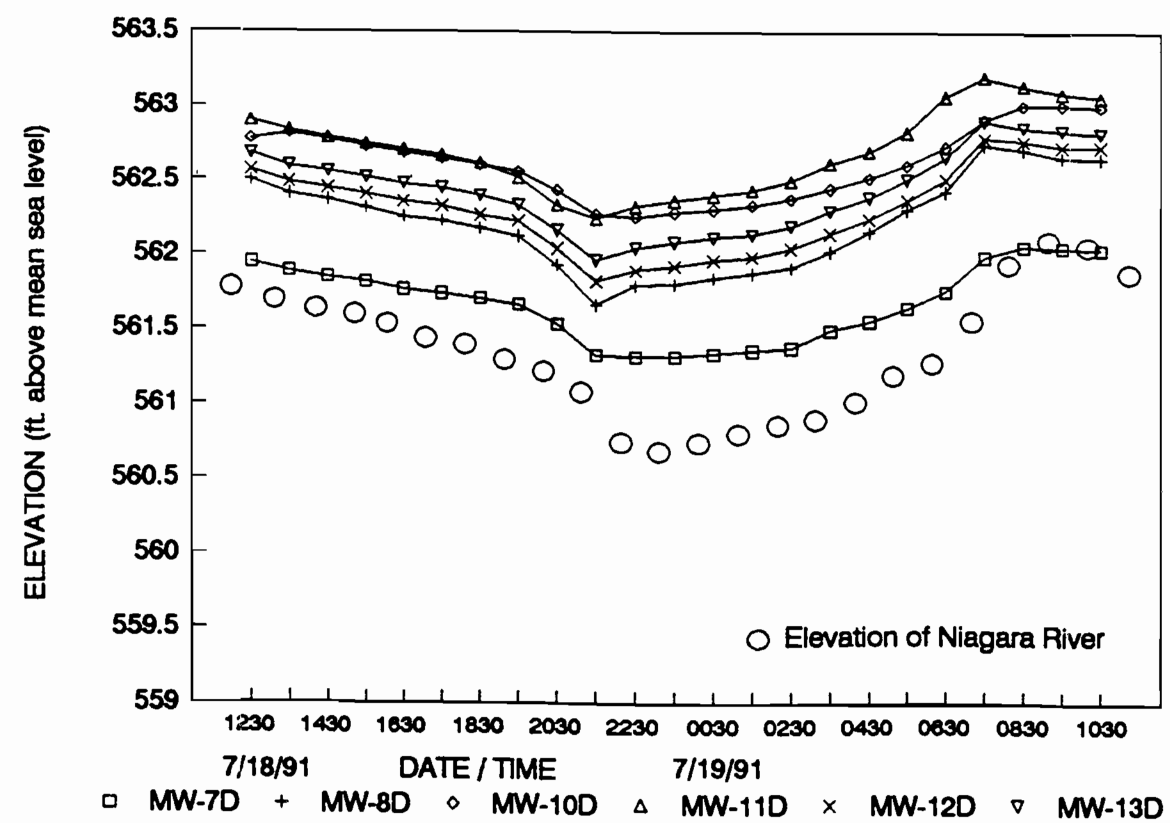
FIGURE 15

BUFFALO AVENUE SITE INVESTIGATION
NIAGARA FALLS, NEW YORK









SOURCES OF DATA: O'Brien & Gere Engineers 24-Hour monitoring event 7/18/91 and 7/19/91,
NYPA Niagara River Stage monitoring 7/18/91 and 7/19/91.

05 NOV 1991

NIAGARAFALLSEP 1,2,3,4,5

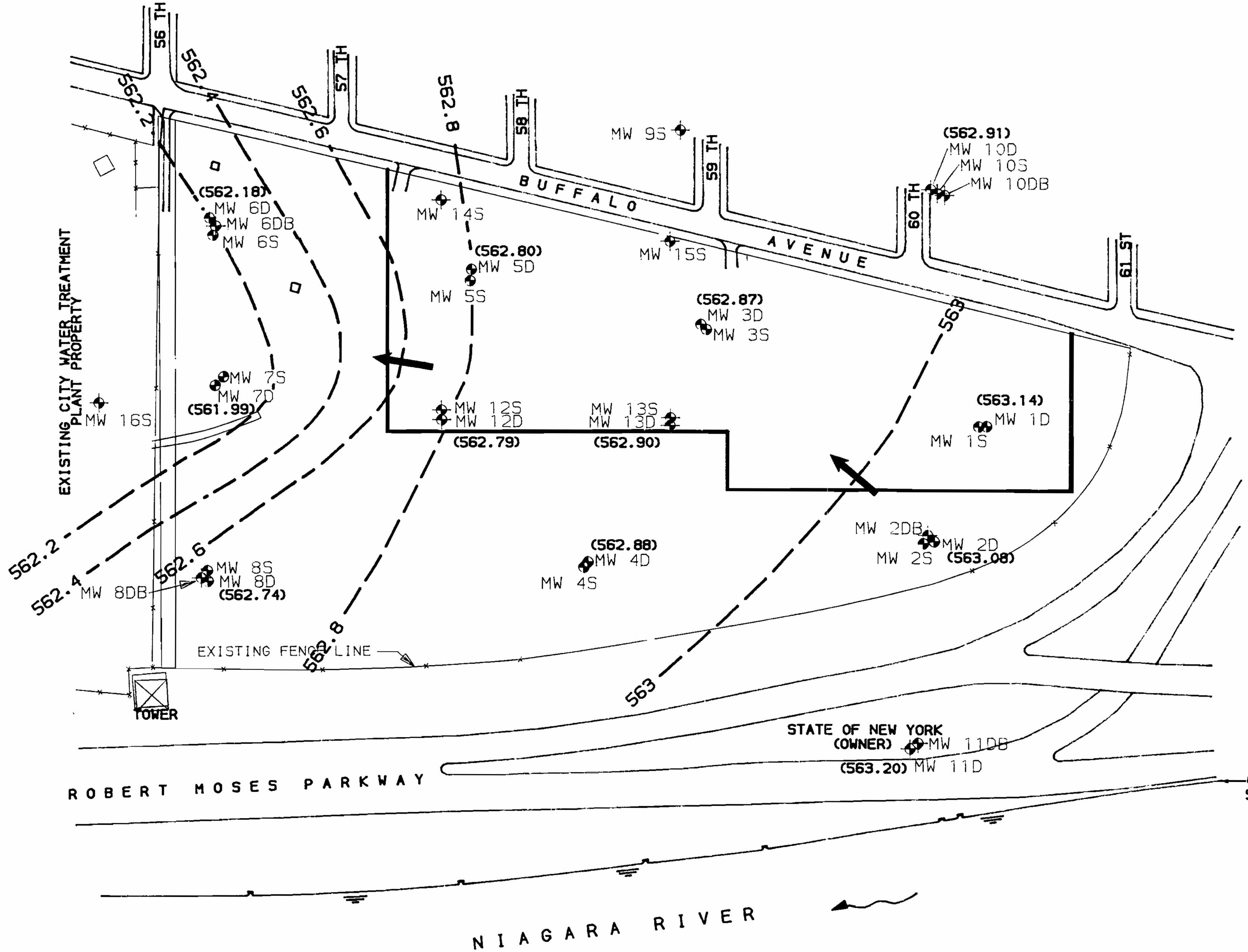
GROUND WATER /
NIAGARA RIVER
HYDROGRAPHS

1736.046.278

O'BRIEN & GERE
ENGINEERS, INC.

FIGURE 16

BUFFALO AVENUE SITE INVESTIGATION
NIAGARA FALLS, NEW YORK



ADAPTED FROM MALCOLM PIRNIE, INC. SURVEY (1990) BASED ON EAST PARKWAY
SURVEY BASELINE IN NIAGARA POWER PROJECT MAPS 286-C (1980) AND 287-C (1981)

06 NOV 1991

LEGEND

⌖	MONITOR WELL INSTALLED BY OBG
◐	EXISTING MONITOR WELL
———	BOUNDARY OF 10 - ACRE SITE
(563.14)	GROUND WATER ELEVATION
— 570 —	POTENTIOMETRIC SURFACE CONTOUR
➞	GROUND WATER FLOW DIRECTION

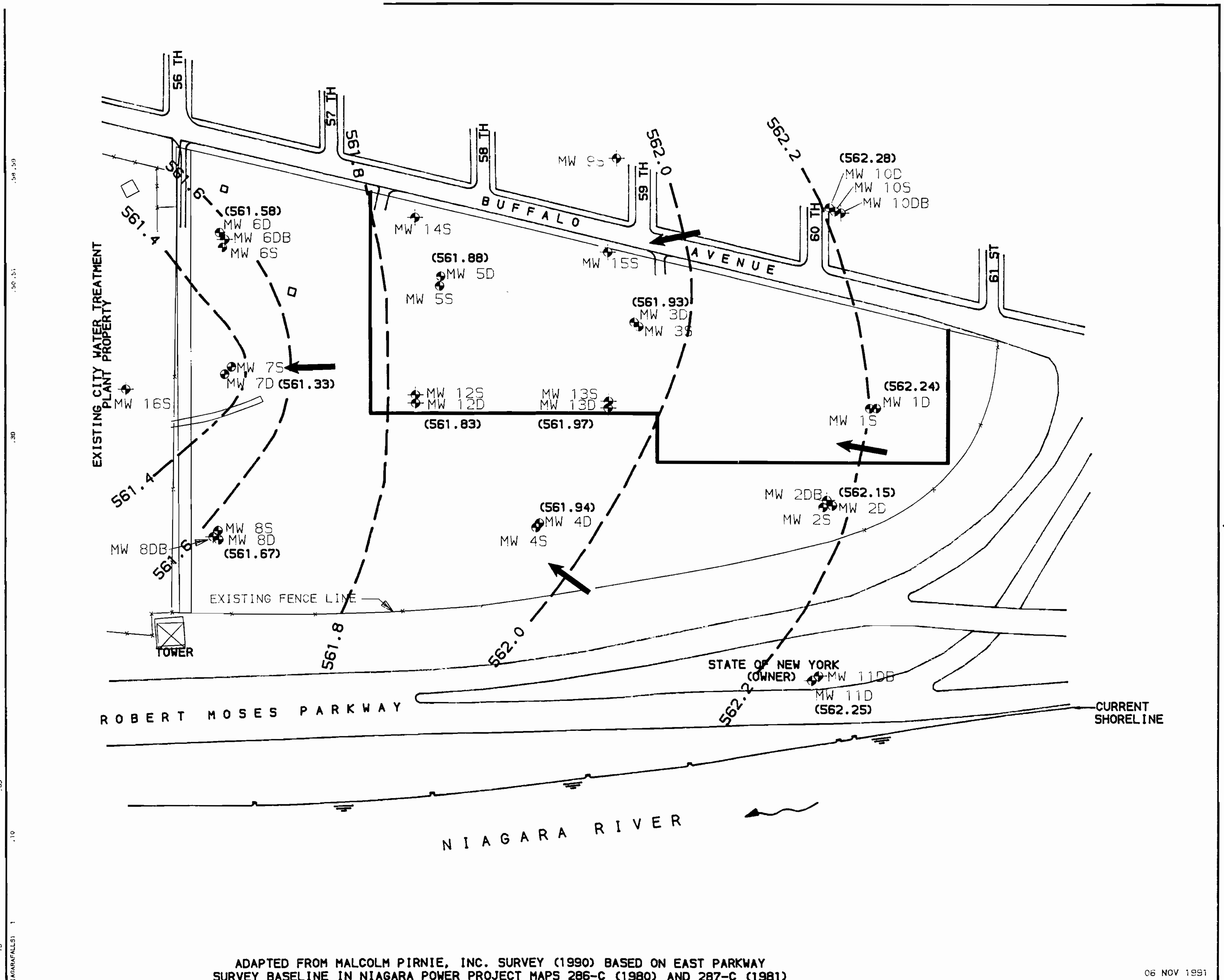
UPPER BEDROCK
GROUND WATER
POTENTIOMETRIC
SURFACE MAP
(7/19/91 - HIGH
GROUND WATER
CONDITION)

0 200 400
SCALE IN FEET

O'BRIEN & GERE ENGINEERS, INC.

FIGURE 17

BUFFALO AVENUE SITE INVESTIGATION
NIAGARA FALLS, NEW YORK



LEGEND

- MONITOR WELL INSTALLED BY OBG
- EXISTING MONITOR WELL
- BOUNDARY OF 10 - ACRE SITE
- (562.24) GROUND WATER ELEVATION
- 561 POTENTIOMETRIC SURFACE CONTOUR
- GROUND WATER FLOW DIRECTION

UPPER BEDROCK GROUND WATER POTENTIOMETRIC SURFACE MAP (7/18/91 - LOW GROUND WATER CONDITION)

0 200 400
SCALE IN FEET

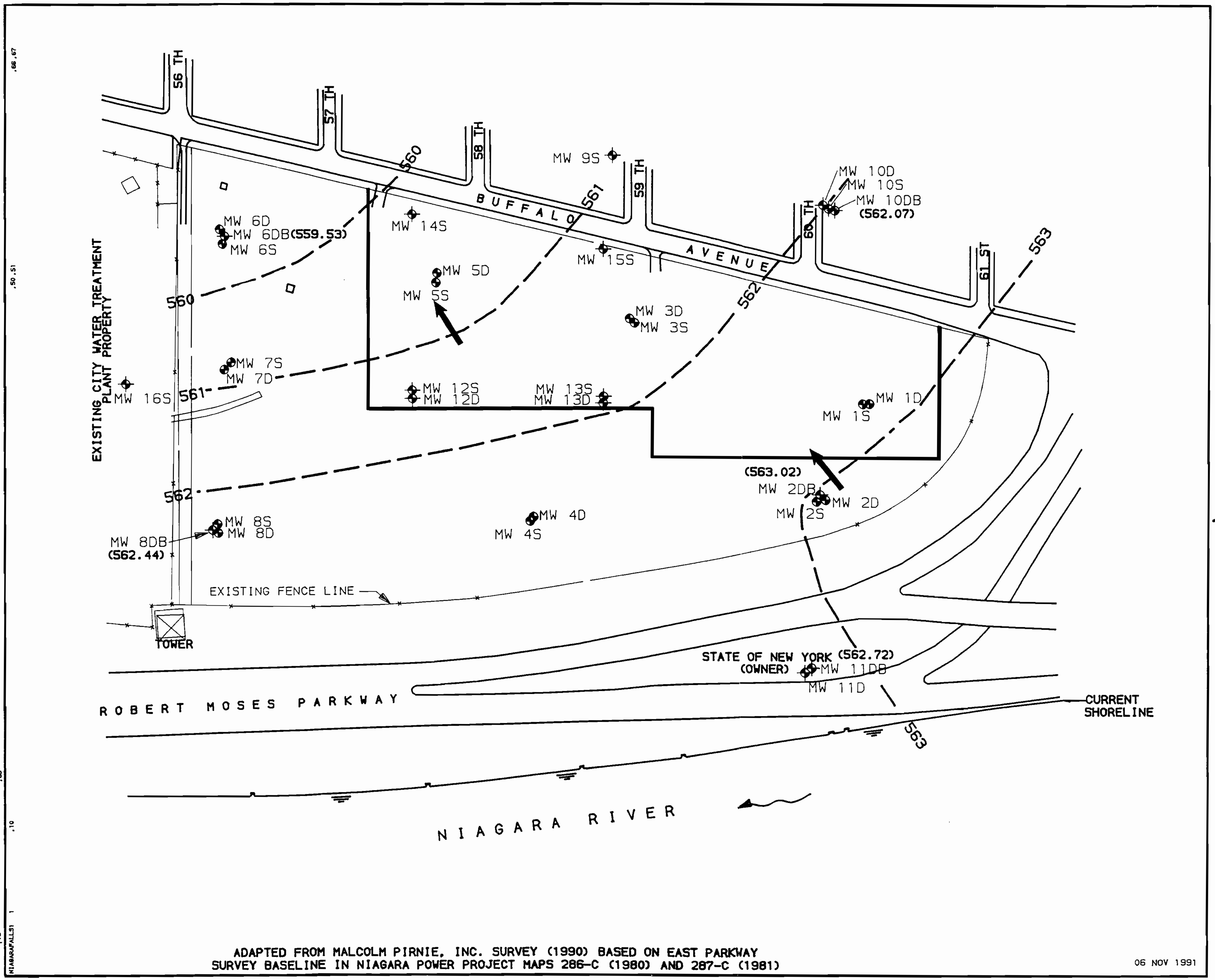
O'BRIEN & GERE ENGINEERS, INC.

ADAPTED FROM MALCOLM PIRNIE, INC. SURVEY (1990) BASED ON EAST PARKWAY SURVEY BASELINE IN NIAGARA POWER PROJECT MAPS 286-C (1980) AND 287-C (1981)

06 NOV 1991

FIGURE 18

BUFFALO AVENUE SITE INVESTIGATION
NIAGARA FALLS, NEW YORK



LEGEND

- MONITOR WELL INSTALLED BY OBG
- EXISTING MONITOR WELL
- BOUNDARY OF 10 - ACRE SITE
- (563.02) GROUND WATER ELEVATION
- 560 POTENTIOMETRIC SURFACE CONTOUR
- GROUND WATER FLOW DIRECTION

DEEP BEDROCK GROUND WATER POTENTIOMETRIC SURFACE MAP (7/19/91 - HIGH GROUND WATER CONDITION)

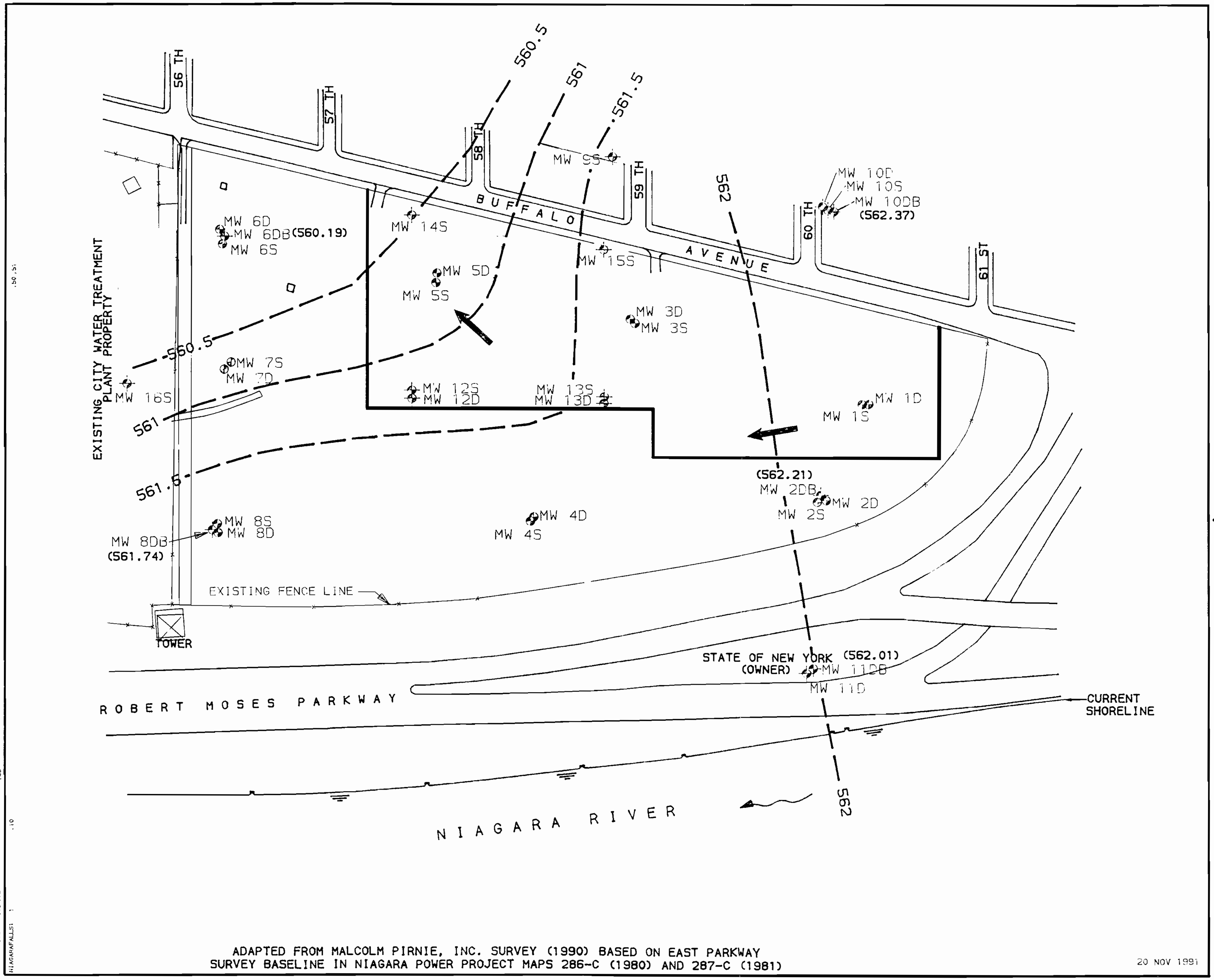
0 200 400

SCALE IN FEET

O'BRIEN & GERE ENGINEERS, INC.

FIGURE 19

BUFFALO AVENUE SITE INVESTIGATION
NIAGARA FALLS, NEW YORK



LEGEND

- MONITOR WELL INSTALLED BY OBG
- EXISTING MONITOR WELL
- BOUNDARY OF 10 - ACRE SITE
- (562.37) GROUND WATER ELEVATION
- 561 POTENTIOMETRIC SURFACE CONTOUR
- GROUND WATER FLOW DIRECTION

DEEP BEDROCK GROUND WATER POTENTIOMETRIC SURFACE MAP (7/18/91 - LOW GROUND WATER CONDITION)

0 200 400
SCALE IN FEET

1736.046.278

O'BRIEN & GERE ENGINEERS, INC.