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ENGINEERING INVESTIGATIONS AT INACTIVE HAZARDOUS WASTE SITES

PRELIMINARY SITE ASSESSMENT

Griffon Park Site
City of Niagara Falls

Site No. 932081
Niagara County

24

Prepared for:
New York State
Department of
Environmental Conservation
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PRELIMINARY SITE ASSESSMENT REPORT
VOLUME I

GRIFFON PARK SITE
NIAGARA COUNTY, NEW YORK

SITE NO. 932081

Submitted to:

New York State Department of Environmental Conservation
Albany, New York

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GRIFFON PARK SITE
PRELIMINARY SITE ASSESSMENT REPORT
VOLUME I

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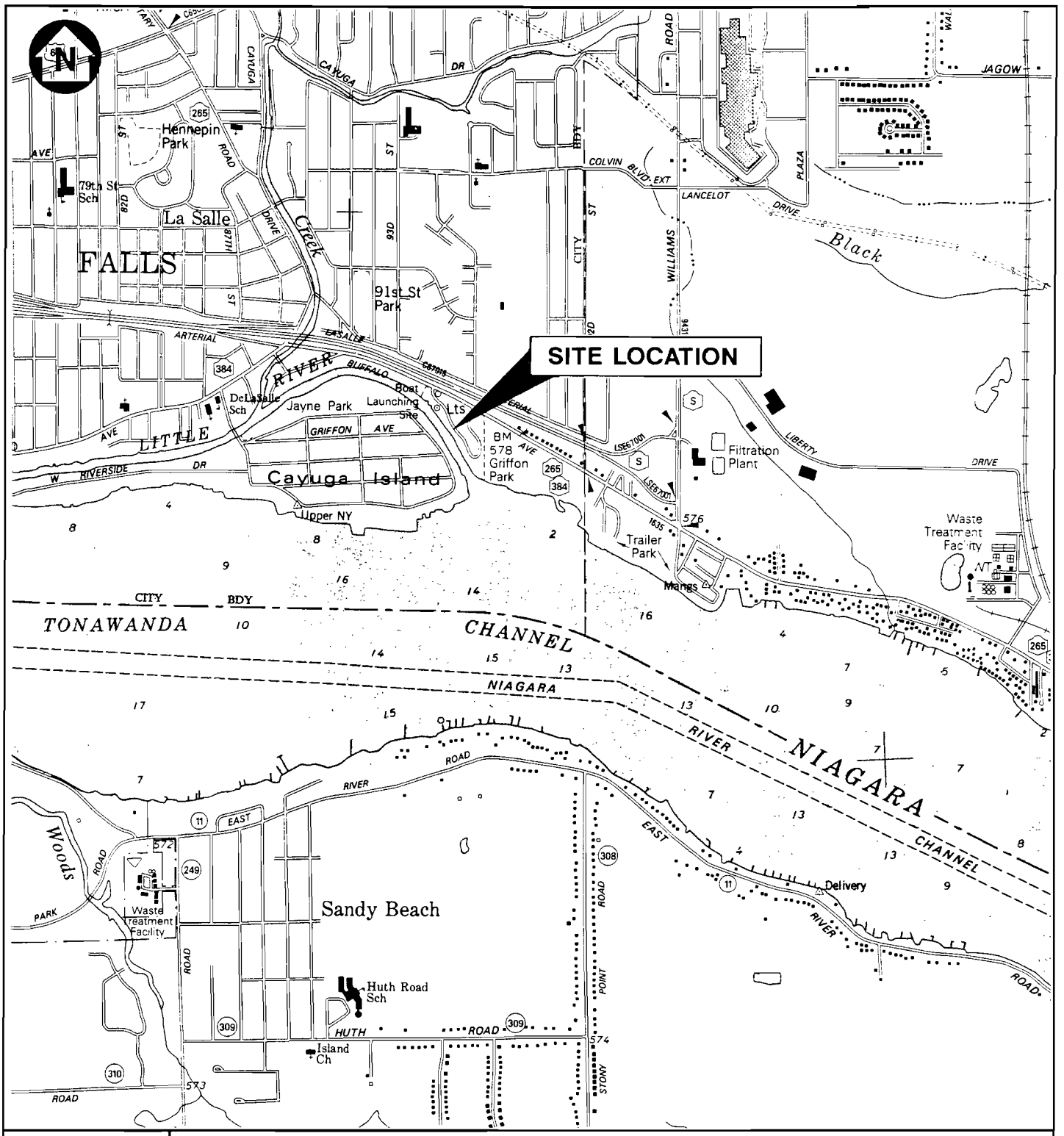
EXECUTIVE SUMMARY

The Griffon Park site, Site No. 932081, is located on Buffalo Avenue in Niagara Falls, New York (Figure 1). Griffon Park is a municipal park owned by the City of Niagara Falls (City). The 12.8-acre park consists of a paved parking area with a boat ramp to the Little River and an open grassy area with some trees (Figure 2). Before the City acquired the property in 1938, it was a wetland.

Records indicate the City used the site for refuse disposal beginning in 1949. The City abandoned the dump in 1953; however, the site was used intermittently between 1953 and 1970 as a burning ground for trees and for the disposal of incinerator residue and noncombustibles. The City developed the site into a municipal park with a parking area, boat launch, and three baseball diamonds in the mid-1970s. The baseball diamonds and sections of an access road through the site were removed by the City in 1991.

A number of previous investigations have been conducted at the site. Several borings were completed on-site in 1982 by the U.S. Geological Survey. Surface soil and groundwater were sampled at Griffon Park as part of the 102nd Street Landfill Superfund Site Remedial Investigation. Other investigations included a U.S. Environmental Protection Agency Preliminary Assessment and a New York State Department of Environmental Conservation (NYSDEC) Phase I investigation. These investigations did not include the sampling and analysis of the waste materials that were disposed on-site. These previous investigations concluded there was insufficient information about the site and further study was recommended.



QUADRANGLE LOCATION

SOURCE: N.Y.S. DEPARTMENT OF TRANSPORTATION, TONAWANDA WEST QUADRANGLE DATED 1989, 7.5 MINUTE SERIES.

SITE NO: 932081
LOCATION: CITY OF NIAGARA FALLS
NIAGARA COUNTY

SCALE IN FEET
0 2,000 4,000

FIGURE 1
SITE LOCATION MAP
GRIFFON PARK
PRELIMINARY SITE ASSESSMENT
NEW YORK STATE DEC

ABB Environmental Services

The Griffon Park site is a suspected inactive hazardous waste site listed by NYSDEC on the Registry of Inactive Hazardous Waste Disposal Sites. As of this Preliminary Site Assessment (PSA), the site is listed as a Class 2a site indicating insufficient information to document hazardous waste disposal and assess the significance of potential risks to public health or the environment. ABB Environmental Services (formerly E.C. Jordan Co.) under contract to NYSDEC, conducted a PSA to evaluate whether the wastes disposed of at the Griffon Park site are hazardous and to assess the significance of potential risks to public health and the environment.

The PSA of the Griffon Park site included a records search and field investigation. The field investigation included eight test borings to sample subsurface fill material. Two of the eight borings were completed as monitoring wells. Subsurface soil samples were analyzed for Target Compound List (TCL) volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs), pesticides, polychlorinated biphenyls (PCBs), and inorganics, as well as hazardous waste characteristics including Extraction Procedure (EP) Toxicity (metals only), reactivity, ignitability, and corrosivity. The results of these analyses were used to establish whether hazardous wastes, as defined by Title 6 of New York Codes, Rules, and Regulations (NYCRR) Part 371, were disposed of at the site. Analytical results only provided one indication of potential hazardous waste disposal: only one subsurface soil sample failed EP Toxicity testing for lead.

NYSDEC regulations pertaining to Inactive Hazardous Waste Sites (6 NYCRR Part 375) set forth a number of definitions of significant threat. For the purposes of this PSA investigation, significant threat would need to be established by the contravention of environmental quality standards. Groundwater is the only media

present at the site for which there are promulgated standards. Ten groundwater samples were collected from the two newly installed monitoring wells and eight existing on-site wells. Groundwater samples were analyzed for TCL VOCs, SVOCs, pesticides, PCBs, and inorganics. Contravention of standards was evaluated by comparing groundwater analytical results to the New York State class GA groundwater quality standards. Groundwater analytical results detected two VOCs, one SVOC, and five inorganic elements at concentrations that exceeded New York State class GA groundwater quality standards. The VOCs exceeding class GA groundwater quality standards were detected in monitoring wells located adjacent to the 102nd Street Landfill Superfund Site. Based on interpreted groundwater flow conditions, these VOCs may be migrating from the 102nd Street Landfill. The SVOC exceedance was an isolated detection at a concentration only slightly above the standard.

Only one of 16 subsurface soil samples failed EP Toxicity testing for lead; all other samples tested for EP Toxicity were well below the regulatory limit for lead and all EP Toxicity elements. There were single detections of organic compounds that exceeded New York State class GA groundwater quality standards, but these compounds could not be evaluated as attributable to Griffon Park due to the proximity of the monitoring wells to the 102nd Street Landfill Site or because of the isolated detection of the compounds. Iron, manganese, magnesium, sodium, and zinc were detected at concentrations greater than New York State class GA groundwater quality standards, but these elements are common in landfill leachate and do not pose a threat to public health or the environment at the concentrations detected.

Characteristics testing of subsurface soil samples and chemical analysis of groundwater samples do not provide data supporting that a consequential amount of hazardous waste was disposed on the site or that any waste materials pose a significant threat to public health or the environment.

Based on this evaluation of data developed during the PSA investigation at the Griffon Park site, it is recommended that the site be delisted and removed from NYSDEC's Registry of Inactive Hazardous Waste Sites (see Registry Site Classification Decision Form).

Original-BHSC
Copy-REGION
Copy-DEE
Copy-DOH
Copy-PREPARER

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
DIVISION OF HAZARDOUS WASTE REMEDIATION

REGISTRY SITE CLASSIFICATION DECISION

1. SITE NAME	2. SITE NO	3. TOWN/CITY/VILLAGE	4. COUNTY
Griffon Park	932081	City of Niagara Falls	Niagara

5. REGION 9

6. CLASSIFICATION Current 2a ☒ Proposed: Delist ☐ Unchanged ☐ Modify

7. LOCATION OF SITE (Attached U.S.G.S Topographic Map showing site location)

a. Quadrangle: Tonowanda West
b. Site Latitude: 43° 04' 02"N Longitude: 78° 57' 08"W
c. Tax Map Number

8. BRIEFLY DESCRIBE THE SITE (Attach site plan showing disposal/sampling locations)

The Griffon Park site is located on Buffalo Avenue in Niagara Falls, New York. The 12.8-acre park consists of a paved parking area with a boat ramp to the Little River and an open grassy area with some trees.

a. Area 12.8 acres b. EPA ID Number D980506703

c. Completed (X) Phase I ( ) Phase II (X) PSA ( ) RI/FS (X) PA/SI ( ) Other

9. HAZARDOUS WASTES DISPOSED

There is no documented evidence of disposal of consequential amounts of hazardous waste (as defined by 6 NYCRR Part 371) at Griffon Park.

10. ANALYTICAL DATA AVAILABLE

a. ( ) Air (X) Groundwater ( ) Surface Water (X) Soil ( ) Waste (X) EPTox ( ) TCLP

b. Contravention of Standards or Guidance Values

One sample collected in 1993 failed EP Toxicity for lead. Tetrachloroethene, total xylenes, and bis(2-ethylhexyl)phthalate were detected at concentrations greater than New York State class GA groundwater quality standards (6 NYCRR Parts 700-705). However, these compounds were not evaluated as attributable to the site. Iron, manganese, magnesium, sodium and zinc were detected in groundwater at concentrations exceeding New York State class GA groundwater quality standards.

11. JUSTIFICATION FOR CLASSIFICATION DECISION

Based on the information developed during the PSA investigation, hazardous waste disposal has not been documented at the Griffon Park site and the wastes present do not pose a potential threat to public health or the environment.

12. SITE IMPACT DATA

a. Nearest surface water: Distance adjacent ft. Direction south Classification Little Niagara River
b. Nearest groundwater: Depth 5 ft. Flow Direction south ( ) Sole Source ( ) Primary ( ) Principal
c. Nearest water supply: Distance 3 mi. Direction southwest Active (X)Yes ( )No
d. Nearest building: Distance 200 ft. Direction west Use

e. In State Economic Development Zone? ( )Y (X)N
f. Crops or livestock on site? ( )Y (X)N
g. Documented fish or wildlife mortality? ( )Y (X)N
h. Impact on special status fish or wildlife resource? ( )Y (X)N
i. Controlled site access? ( )Y (X)N
j. Exposed hazardous waste? ( )Y (X)N
k. HRS Score –
l. For Class 2: Priority Category –

13. SITE OWNER'S NAME	14. ADDRESS	15. TELEPHONE NUMBER
City of Niagara Falls	City Hall, Main Street, Niagara Falls, NY	(716) 286-4390

16. PREPARER

Cornelia B. Morin 11/15/93
Signature Date

Cornelia B. Morin, Environmental Scientist
ABB Environmental Services
Name, Title, Organization

17. APPROVED

Signature Date

Name, Title, Organization

1.0 PURPOSE

ABB Environmental Services (ABB-ES) is submitting this Preliminary Site Assessment (PSA) Report to the New York State Department of Environmental Conservation (NYSDEC) for continuing work on the PSA at the Griffon Park site located in Niagara Falls, New York (see Figure 1). This report was prepared in response to Work Assignment No. D002472-4.2 and in accordance with the requirements of the NYSDEC Superfund Standby Contract (NSSC) No. D002472, dated November 1989, between NYSDEC and ABB-ES (formerly E.C. Jordan Co.).

The Griffon Park site is a suspected inactive hazardous waste site recognized in the NYSDEC Registry of Inactive Hazardous Waste Disposal Sites in New York (NYSDEC, 1992b). The site, No. 932081, was assigned a Class 2a classification because of insufficient information regarding the nature of waste disposal when the park location was used as a dump. Upon completion of the PSA Data Records Search and Assessment in 1992, a recommendation could not be made to reclassify the site because the information collected and reviewed by ABB-ES was insufficient to document the disposal of hazardous waste at the site or to establish whether the site posed any potential significant threat to public health or the environment (E.C. Jordan Co., 1992a).

ABB-ES completed preparation of Site Work Plans for the Griffon Park site, in May 1993 (ABB-ES, 1993). ABB-ES prepared a scope of work for the field investigation program to develop data necessary to reclassify the site according to guidelines set forth under Title 6 of the New York Codes, Rules, and Regulations (NYCRR) Part 375 (NYSDEC, 1992c). The PSA activities were conducted to

produce a recommendation to reclassify the Griffon Park site to one of the following categories:

Class 2 - Hazardous waste sites presenting a significant threat to public health or the environment, defined by NYSDEC as sites that had a release(s) resulting in violation of NYSDEC environmental quality standards and guidelines.

Class 3 - Hazardous waste sites not presenting a significant threat to public health or the environment.

Delist - Sites where hazardous waste disposal is not documented.

Task 4 sampling locations are shown in Figure 2. The Task 4 investigation included:

- Collection of 16 subsurface soil samples to provide data to assess whether materials disposed of at the site are hazardous as defined by New York State Hazardous Waste Regulations 6 NYCRR Part 371 (NYSDEC, 1992a).

- Drilling and installation of two monitoring wells. Development of the two new monitoring wells and eight existing on-site wells. Collection of 10 groundwater samples from new and existing monitoring wells. Comparison of groundwater analytical results to New York State class GA groundwater quality standards, set forth

under 6 NYCRR Parts 700 - 705 (NYSDEC, 1991a), to establish whether there has been a contravention of these standards.

- Development of a base map from a site survey, illustrating the locations of test borings, monitoring wells, and major site characteristics.

PSA activities are reported in two volumes. Volume I presents the project purpose, description of the field investigation scope of work, the results of field investigation activities, and final recommendation for reclassification of the site. Included in Volume I is Appendix A, Site Inspection Report U.S. Environmental Protection Agency (USEPA) Form 2070-13. Volume II contains field data records and laboratory results.

2.0 SCOPE OF WORK

2.1 SITE WALKOVER

ABB-ES personnel conducted a site walkover at Griffon Park on April 15, 1992, as part of the PSA Data Records Search and Assessment. Because PSA Site Work Plan preparation was initiated shortly after completion of the records search, an additional site walkover was not conducted as part of the Work Plan preparation effort. Results of the initial PSA site walkover are presented in Subsection 3.4.

2.2 FILE REVIEWS

In February 1992, ABB-ES personnel reviewed records pertaining to the Griffon Park site. Results of the records search are included in the PSA Data Records Search and Assessment Technical Memorandum (E.C. Jordan Co., 1992a) and are summarized in Subsection 3.4. ABB-ES did not review any additional file information during preparation of this report.

2.3 SOIL BORING EXPLORATIONS

Drilling of test borings and installation of monitoring wells on the Griffon Park site was completed by ABB-ES' drilling subcontractor, Parratt-Wolff, Inc. (Parratt Wolff) of West Syracuse, New York. Glenn Daukas and Tony Delano of ABB-ES provided oversight. Also on-site during the drilling program were Ralph Keating and Tom Reamon of the NYSDEC Central Office, Abul Barkat, NYSDEC Region 9, and Douglas Oscar and Jon Williams of Conestoga-Rovers &

Associates, Inc. (CRA), environmental consultant to Occidental Chemical Corporation (OCC).

ABB-ES personnel conducted the field investigation in accordance with the scope of work set forth in the Site Work Plan (ABB-ES, 1993), specifications in the NSSC Program Quality Assurance Project Plan (QAPP) (E.C. Jordan Co., 1992b), and the site-specific QAPP (ABB-ES, 1993). The health and safety procedures for all on-site activities conformed with the NSSC Program Health and Safety Plan (HASP) (E.C. Jordan Co., 1992c) and the site-specific HASP (ABB-ES, 1993). Environmental sampling was conducted using Level C dermal personal protective equipment.

Eight test borings were advanced on the Griffon Park site, with two of the eight test borings completed as monitoring wells. The placement, purpose of, and rationale for these borings and wells are discussed in the following subsections.

2.3.1 Soil Borings

The drilling program was conducted from June 28 through July 1, 1993. Eight borings, designated TB-101 through TB-108, were drilled to collect subsurface soil samples (see Figure 2). Two borings, TB-101 and TB-102, were completed as monitoring wells. The eight borings were advanced through fill and into glacial alluvium using 4.25-inch inside diameter (ID) hollow-stem augers. Samples were collected every 2 feet with a 3-inch outside diameter, 2-foot-long split-spoon sampler driven by a 140-pound hammer dropped 30 inches, following American Society for Testing and Materials Standard D-1586. Drill cuttings were placed in 55-gallon containers staged on wooden pallets on-site. Test borings TB-103

through TB-108, not completed as monitoring wells, were tremie backfilled with grout to the ground surface.

Subsurface samples were collected and documented following procedures set forth in the Program QAPP. Each borehole and a description of each split-spoon sample were recorded on a Soil Boring Log (see Volume II). Samples were screened for the presence of volatile organic compounds (VOCs) in the field with a Photovac TIP photoionization detector (PID) meter. Readings were at, or below, background levels. Screening results were recorded on the Soil Boring Logs. Descriptions of the subsurface soil samples and analyses are presented in Subsection 2.4.1. Descriptions of the soils encountered during drilling are discussed in Subsection 3.3. Results of the laboratory analyses of subsurface soil samples are presented in Subsection 3.5.1.

Throughout the drilling program, ABB-ES personnel regularly monitored the air in the breathing zone at each borehole and at the perimeter of the exclusion zone for VOCs with a PID, and upwind and downwind of each borehole for particulates using MIE Miniram® PDM-3 aerosol monitors. Concentrations of VOCs and particulates in the breathing zone were below the action levels required for an upgrade to Level C respiratory protection throughout the program. In addition, ABB-ES personnel monitored for potential oxygen-deficient and combustible atmospheres using an Industrial Scientific® Model MX-241 oxygen/lower explosive limit meter during the drilling program. Field parameters were recorded by ABB-ES personnel in the field log. Unsafe working conditions were not encountered during the field investigation.

2.3.2 Monitoring Well Installation

Test borings TB-101 and TB-102 were completed as monitoring wells, designated MW-101 and MW-102 (see Figure 2). Monitoring well MW-101 was located toward the southwest side of the site. The direction of groundwater flow in the fill at the site is interpreted to flow from the northeast to the southwest. MW-101 was placed to monitor groundwater directly downgradient of, or directly within, suspected waste disposal areas. MW-102 was located in the northeast corner of the site as an upgradient monitoring well to provide data on the quality of groundwater entering the site.

During drilling, groundwater was encountered between 6 and 8 feet below ground surface (bgs) in both borings. Because of the shallow depth to groundwater, ABB-ES and NYSDEC personnel made a field decision to complete the wells with 5-foot-long well screens instead of 10-foot-long screens as specified in the Site Work Plan. The 5-foot screen allowed for the monitored interval of the well to straddle the water table with room for proper installation including the sand pack extending above the well screen and a 2-foot seal. Installation diagrams of existing on-site water table wells (i.e., OW49-86, OW51-86, OW54-86, and OW56-86), provided by Doug Oscar of CRA, indicated these wells were also completed with 5-foot screens.

The monitoring wells were completed using 2-inch ID, threaded flush-jointed, Schedule 40 polyvinyl chloride riser with a 5-foot length of 0.010-inch machine-slotted well screen. The bottom of the well screen was placed approximately 10 feet bgs to allow 4 feet of screen below the water table and 1 foot above. A silica sand filter pack was installed extending from the bottom of

the boring to 1 foot above the top of the well screen. The sand pack was overlain by a 2-foot bentonite seal. The bentonite was hydrated before backfilling the remainder of the boring with sand to the ground surface. Each well was completed with a flush-mount protective casing concreted in place. The monitoring well installation for each well is illustrated on the Well Installation Diagrams included in Volume II.

2.3.3 Well Development

Using bailers, the two new wells and eight existing on-site wells were developed by Parratt-Wolff under the supervision of ABB-ES. Groundwater recharge to the wells was too slow the allow development with pumps because the pumps removed water faster than infiltration into the wells. In accordance with the Site Work Plan, development water was allowed to flow onto the ground downgradient of each well location. The pH, specific conductivity, temperature, and turbidity of development water were measured periodically during the development of each well.

2.4 ENVIRONMENTAL SAMPLING

The following subsections describe PSA sampling program completed at the Griffon Park site.

2.4.1 Subsurface Soil Sampling

Subsurface soil samples were collected continuously during drilling of the eight test borings for up to eight samples from each boring, depending on the final

depth drilled. Two subsurface soil samples per boring were selected for submission to NYTEST Environmental Inc. (NYTEST), ABB-ES' analytical services subcontractor. Samples with signs of contamination were selected for laboratory analysis based on visual observations and PID meter readings. The depths of the samples submitted for laboratory analysis and a brief description of the materials sampled are summarized in Table 1. Of the two analytical samples selected from each boring, one sample was submitted to be analyzed for Target Compound List (TCL), VOCs, semivolatile organic compounds (SVOCs), pesticides, polychlorinated biphenyls (PCBs), inorganics, and hazardous waste characteristics testing including Extraction Procedure (EP) Toxicity (metals only), ignitability, reactivity, and corrosivity. The second analytical sample was analyzed solely for hazardous waste characteristics testing of EP Toxicity (metals only), ignitability, reactivity, and corrosivity. The parameters analyzed for each sample are summarized in Table 1.

2.4.2 Groundwater Sampling

Before mobilizing for groundwater sampling, several modifications were made to the groundwater sampling program presented in the Site Work Plan (ABB-ES, 1993). When the monitoring wells were developed during the drilling program, the turbidity of development water did not attain the criteria of 50 Nephelometric Turbidity Units (NTUs). Because of the high levels of turbidity, ABB-ES recommended collecting both unfiltered and filtered samples for inorganic analyses from any wells where the turbidity was greater than 50 NTUs at the time of sampling. ABB-ES also recommended collecting a sample for Total Suspended Solids (TSS) analysis to quantify the amount of particulates in the unfiltered samples. This approach was approved by NYSDEC and is in accordance with

Table 1
Subsurface Soil Sample Description

Griffon Park Site
City of Niagara Falls, New York

Sample Location	Boring Depth (feet bgs)	Sample Depth (feet bgs)	Description	TCL VOC	TCL SVOC	TCL P/PCB	TCL Inorg	Haz Waste Char[1]
TB-101	10	2-4	Brown, fine to medium sand, little coarse sand, trace gravel, fill. Orange/brown, medium to coarse sand, some gravel, ash, clinkers, fill.					X
		8-10	Black/white sand and gravel fill, garbage. Gray, fine sand and silt, trace clay, alluvium, natural.	X	X	X	X	X
TB-102	10	2-4	Black/white, medium, coarse sand and gravel, ash and clinkers with light blue tint, fill.					X
		4-6	Black, medium sand and silt, trace to little gravel, fill. Linoleum tiles. Orange/white silt and medium, coarse sand, little gravel.	X	X	X	X	X
TB-103	14	8-10	Black sand and silt, woodchips, glass fragments, fill.	X	X	X	X	X
		10-12	Black sand and silt, glass and wood fragments, rags, fill.					X
TB-104	16	2-4	Wood fragment in tip of spoon; black/orange fine to coarse fill.	X	X	X	X	X
		8-10	Black, coarse to medium sand and slag, fill. Gray/black fine sand and silt, trace clay, alluvium, natural.					X
TB-105	14	2-4	Red/brown, medium to coarse sand, oxide staining, glass fragments, slag. Gray gravel, coarse and trace cobbles. Black, fine sand, little silt, organic material.					X
		8-10	Black sand and gravel, glass fragments, fill. Black, silty sand, trace clay, organic, natural alluvium.	X	X	X	X	X
TB-106	10	4-6	Brown, medium to fine sand and silt, glass fragments. White/black coarse sand, trace gravel, ash clinkers.					X
		6-8	Light orange/brown, medium to coarse sand and gravel, little silt, ash, woodchips, glass, moist.	X	X	X	X	X

(continued)

Table 1
Subsurface Soil Sample Description

Griffon Park Site
City of Niagara Falls, New York

Sample Location	Boring Depth (feet bgs)	Sample Depth (feet bgs)	Description	TCL VOC	TCL SVOC	TCL P/PCB	TCL Inorg	Haz Waste Char[1]
TB-107	8	2-4	Orange/brown coarse sand and gravel fill.	X	X	X	X	X
		6-8	Black/gray, medium to coarse sand and gravel, fill.					X
TB-108	10	0-2	Topsoil, glass. White/orange coarse sand and gravel fill, glass fragments.					X
		4-6	Brown, medium to coarse sand, little gravel, clinkers, trash. White/ brown coarse sand and gravel trash.	X				
		8-10	Black coarse sand and gravel.		X	X	X	X

NOTES:

[1] Hazardous Waste Characteristics include Extraction Procedure Toxicity (metals only), ignitability, reactivity, and corrosivity.

bgs = below ground surface
haz = hazardous
Inorg = inorganic
P/PCB = pesticides/polychlorinated biphenyl
TCL = Target Compound List
SVOC = semivolatile organic compound
VOC = volatile organic compound

NYSDEC's Technical and Administrative Guidance Memorandum No. HWR-88-4015: Alteration of Groundwater Samples Collected for Metals Analysis (NYSDEC, 1988).

On July 19, 1993, ABB-ES personnel returned to the site to collect groundwater samples from 10 monitoring wells including the two newly installed wells and eight existing on-site wells. The monitoring wells sampled, their approximate depths, and screened intervals are summarized in Table 2. Before purging and sampling each well, the groundwater level was measured. A minimum of three volumes of water were purged from each well before sampling. Field measurements of temperature, pH, specific conductivity, and turbidity were measured for each well volume of purged water. Field measurements were recorded on Groundwater Field Sample Data Records (see Volume II). Groundwater samples were collected with decontaminated Teflon bailers following the procedures described in the Program QAPP. Groundwater samples were sent to NYTEST to be analyzed for TCL VOCs, SVOCS, pesticides, PCBs, inorganics, and TSS. Analytical results are presented and discussed in Subsection 3.5.2.

Wells where the turbidity was greater than 50 NTUs, or could not be measured because of equipment problems at the time of sampling, were: OW49-86, LC-5A, LC-5B, MW-101, and MW-102. Both unfiltered and filtered groundwater samples were collected for inorganic analyses from these wells. The parameters analyzed for each groundwater sample are summarized on Table 2. Filtered samples were collected using dedicated, disposable filters.

Table 2
Summary of Monitoring Wells Sampled

Griffon Park
City of Niagara Falls, New York

Well Identification	Approximate Depth[1] (bgs)	Approximate Screened Interval[1] (bgs)	TCL VOC	TCL SVOC	TCL P/PCB	TCL Dis Inorg	TCL Total Inorg	TSS
OW49-86	10	5 - 10	X	X	X	X	X	X
OW50-86	10	5 - 10	X	X	X	NS	X	X
OW53-86	25	15 - 25	X	X	X	NS	X	X
OW54-86	10	5 - 10	X	X	X	NS	X	X
OW55-86	25	15 - 25	X	X	X	NS	X	X
OW57-86	30	15 - 25	X	X	X	NS	X	X
LC-5A	15	5 - 10	X	X	X	X	X	X
LC-5B	50	40 - 50	X	X	X	X	X	X
MW-101	10	5 - 10	X	X	X	X	X	X
MW-102	10	5 - 10	X	X	X	X	X	X

NOTES:

[1] Well depths and screened intervals, for OW-designated monitoring wells, are based on 102nd Street Landfill Superfund Site Remedial Investigation Report Cross-Section Figure 3.10 and 3.11 and Stratigraphy Summary, Table 3-1.

bgs = below ground surface
Dis = dissolved (filtered sample)
Inorg = inorganic
NS = Not sampled; filtered inorganic samples were not collected.
P/PCB = pesticides/polychlorinated biphenyl
TCL = Target Compound List
SVOC = semivolatile organic compound
VOC = volatile organic compound

2.5 LABORATORY ANALYSIS AND DATA VALIDATION

The laboratory analytical program, described in detail in the Site Work Plan (ABB-ES, 1993), was designed to provide the data necessary to establish whether hazardous wastes, as defined by 6 NYCRR Part 371 (NYSDEC, 1992a), are present at the site. In addition, the purpose of collecting and analyzing groundwater samples was to provide the necessary data to evaluate whether the wastes disposed of on-site pose a significant threat to human health or the environment, as defined by 6 NYCRR Part 375 (NYSDEC, 1992c). The analytical procedures used for subsurface soils and groundwater comply with the NYSDEC Analytical Services Protocols (ASP) (NYSDEC, 1991b).

Subsurface soil samples were analyzed for TCL VOCs, SVOCS, pesticides, PCBs, and inorganics, as well as EP Toxicity (metals only), ignitability, reactivity, and corrosivity. Groundwater samples were analyzed for TCL VOCs, SVOCs, pesticides, PCBs, and inorganics. Selected groundwater samples were analyzed for dissolved inorganics (i.e., the samples were filtered when collected) and TSS. Quality control samples included field duplicates, equipment rinsate blanks, trip blanks, and matrix spike/matrix spike duplicate samples. Samples were analyzed by ABB-ES' laboratory subcontractor NYTEST. NYTEST generated analytical results in accordance with protocols specified by NYSDEC for the New York State Superfund Program. The Quality Control procedure outlined in the NYSDEC ASP provided a preliminary level of data quality assurance.

Data validation was performed on the laboratory deliverables by experienced data reviewers and the project chemist. The analytical protocols generated data of

USEPA Level III and IV data quality, adequate to support risk assessment, site characterization, evaluations of remediation alternatives, and engineering design.

Analytical results are included in Volume II in three tables:

- Table 1 Laboratory Report of Analysis - presents analytical results and qualifiers as reported by the laboratory.
- Table 2 Validation Summary Table - presents analytical results with the appropriate data validation qualifiers.
- Table 3 Summary Table - presents only those validated data results for compounds detected.

Analytical data qualifiers appear on each data table in Volume II, as appropriate, and have been applied by the laboratory or data validator. Data evaluation and Data Usability Sections are included in Volume II, Supporting Documentation.

Analytical data developed by ABB-ES during the PSA field investigation meet the data quality objectives set forth in the site-specific QAPP and are suitable for site reclassification. A complete list of laboratory analytical data is presented in Volume II. Data validation and usability documentation are included therein.

2.6 ELEVATION SURVEY AND BASE MAP PREPARATION

An elevation survey of the site was performed by Om P. Popli Associates Inc. (Popli) after completion of the field investigation. The site map was prepared

indicating the location of adjacent properties, site boundaries, key site features, exploration locations, and monitoring wells.

Vertical elevation accuracy was ± 0.01 foot and horizontal accuracy was to ± 0.1 foot. Horizontal locations were based on the New York State Plane Coordinate System (West Zone) provided by the City Engineer of Niagara Falls. Vertical elevations were tied to mean sea level as established by the 1929 General Adjustment.

Surveyed items located by Popli included the following:

- horizontal location of eight test borings, including two completed as monitoring wells;
- horizontal location of 11 existing on-site monitoring wells;
- vertical elevation of borings;
- vertical elevation of monitoring wells including top of the riser, top of the protective casing, and ground surface; and
- major site characteristics including the locations of paved areas, gravel road, boat launch area, and wooded areas.

The survey map and accompanying Survey Control Report are included in Volume II.

3.0 SITE ASSESSMENT

3.1 SITE HISTORY

Griffon Park is a municipal park owned by the City of Niagara Falls (City) (see Figure 1). The 12.8-acre park consists of a paved parking area with a boat ramp to the Little River (see Figure 2). Aside from the boat launch area, the park is an open grassy area with some trees. The site was a wetland before 1938, when the City acquired the property from the Angevine family (LeRoy Callender, 1988).

Records indicate the site was used to dump and burn forestry wastes as early as 1943. Refuse disposal began in 1949; by mid-1950, the site was used full-time by the City for municipal refuse disposal. The City abandoned the dump in 1953; however, the site was used intermittently between 1953 and 1970 as a burning ground for trees and for the disposal of incinerator residue and noncombustibles (LeRoy Callender, 1988; CRA, 1990). The City developed the site into a municipal park with a parking area, boat launch, and three baseball diamonds in the mid-1970s. The baseball diamonds and sections of an access road through the site were removed by the City in 1991. The areas of the former baseball diamonds and access road are now grass-covered. Several concrete slabs, presumably part of the baseball diamonds (i.e., dugouts), were not removed. As of the 1992 PSA Data Records Search and Assessment, only the boat launch facilities on the Little River were open for public use.

3.2 SITE DESCRIPTION

Griffon Park is bordered by Buffalo Avenue to the north, the 102nd Street Landfill to the east, the Little River and Niagara River to the south, and residential properties to the west (see Figure 2). The site is relatively flat with a gradual slope toward the Niagara and Little rivers. The average elevation in the park is 572 feet. The elevation of the Little River is approximately 563 feet.

Surface runoff from Griffon Park flows toward the eastern border of the site where runoff collects and drains into Little River. Surface runoff from the western border of the 102nd Street Landfill also flows to the eastern side of Griffon Park and drains to the Little River. The southern border of the site is located within the 100-year flood zone of the Niagara and Little rivers (LeRoy Callender, 1988).

3.3 SITE GEOLOGY AND HYDROGEOLOGY

The Griffon Park site was previously a wetland that was filled with municipal refuse and covered with topsoil and sandy clay layers. The U.S. Geological Survey (USGS) drilled four test borings on the site in 1982. The geologic logs indicated that the top 11.5 to 16.5 feet of unconsolidated material consisted of a mixture of clay, sand, soil, and fill. Groundwater was encountered at a depth between 4.5 and 6.5 feet bgs in USGS borings. These findings are consistent with conditions encountered during the PSA field investigation.

In 1986, ten wells were drilled and installed at Griffon Park, as part of the 102nd Street Landfill Superfund Site Remedial Investigation (RI). Boring logs for these

wells and the logs of the eight borings advanced during the PSA investigation indicate fill between 6 inches and 2 feet bgs. The fill is described as fly ash, cinders, glass, plastic, burned paper, and ashes. All borings encountered native fine sandy silt, with some vegetation, was encountered between 8 and 9 feet bgs.

Based on findings of the 102nd Street Landfill Superfund Site RI, groundwater in the fill was interpreted to flow from northeast to southwest. Before beginning the PSA drilling program, ABB-ES field personnel tried to confirm groundwater flow direction by measuring water levels in all existing monitoring wells. However, because the wells are screened at different depths, and are located close to each other, it was difficult to clearly establish the direction of groundwater flow before drilling. The water level elevations appeared consistent with the interpreted flow of groundwater in the fill, as established during the 102nd Street Landfill Superfund Site RI. The interpreted direction of groundwater flow, in the fill, is illustrated on Figure 2.

Geology in and around the site was characterized through deep borings drilled during the 102nd Street Landfill Superfund Site RI. The major geologic deposits, listed in order of occurrence beginning immediately beneath the fill deposits, are as follows:

- Alluvial river deposits consisting of gray silty sand with traces of clay underlie the fill. The alluvium ranges in thickness to 32 feet.

- Glaciolacustrine deposits consisting of varved gray, brown, or red-brown silty clays lie under the alluvium. This unit is

approximately 28 feet thick; however, it is absent in portions of the area including the southeast portion of Griffon Park.

- Glacial till deposits consisting of red-brown sandy silt with some gravel and traces of clay underlie the glaciolacustrine deposits.

- Lockport Group dolomite bedrock underlies the unconsolidated deposits (CRA, 1990).

The major bedrock aquifer in the Niagara Falls area is the Lockport Group dolomite. Groundwater occurs in the Lockport Group in bedding plane joints and fractures, vertical joints, and small cavities created by gypsum dissolution. Groundwater in this bedrock group occurs mainly in the fractures along bedding planes that have been widened by mineral dissolution. Groundwater yields from this aquifer range from 5 to 150 gallons per minute. Larger supplies of groundwater may be found in areas adjacent to the Niagara River because of infiltration from the river. The bedrock aquifer flow is toward the Niagara River (CRA 1990). Bedrock was not encountered in the PSA test borings or USGS borings. Based on bedrock wells installed during the 102nd Street Landfill Superfund Site RI, bedrock is approximately 40 to 50 feet bgs at the Griffon Park site.

3.4 PREVIOUS INVESTIGATIONS

The Griffon Park site has been investigated by a number of agencies from 1982 to this PSA investigation. Limited sampling and analysis at the site was conducted as part of a 1982 USGS investigation. An extensive surface soil and groundwater

sampling program was conducted as part of the 102nd Street Landfill Superfund Site RI. Other investigations of the site, that did not include sampling and analysis, included a USEPA Preliminary Assessment conducted by NUS Corporation (NUS), a NYSDEC Phase I Investigation conducted by LeRoy Callender, P.C., Niagara County Department of Health (NCDH) site visits, and the 1992 PSA Data Records Search and Assessment. The following subsections summarize information developed by the various agencies during the different investigations.

U.S. Geological Survey Investigation. In 1982, the USGS, in cooperation with NYSDEC, drilled four borings and installed one monitoring well on the Griffon Park site. The USGS collected a groundwater sample from the monitoring well and three soil samples from the remaining borings. These samples were submitted for laboratory analysis of inorganic and organic compounds.

Analyses of the groundwater sample detected concentrations of lead, chromium, and iron exceeding USEPA criteria for drinking water and New York State groundwater standards. The analyses of soil samples detected copper concentrations exceeding those in background soils. Organic compounds detected in soils was di-n-butyl phthalate, detected at concentrations less than the quantifiable detection limit, 2-butoxyethoxyethanol, 4-(1,1-dimethylethyl)-phenol, and 4-nitrophenol.

USEPA Preliminary Assessment. The purpose of the 1983 USEPA Preliminary Assessment of Griffon Park by NUS was to quantify the risks associated with the site. The assessment consisted of a site inspection and compilation of information and data to complete the USEPA Potential Hazardous Waste Site Preliminary

Assessment and Site Inspection Report. Analytical samples were not collected as part of this investigation. NUS findings indicated that additional data were required to establish the presence or absence of toxic substances (NUS, 1983).

Niagara County Department of Health. The NCDH has made numerous site visits to Griffon Park to investigate regular reports of a leachate seep at the southeastern corner of the site. The leachate seep was first reported in the late 1970s, flowing from the bank sloping down to Little River. A sample of the seep was collected in June of 1979 and analyzed for a limited number of analytes. While this seep has been the focus of subsequent investigations of Griffon Park, NYSDEC records reviewed by ABB-ES personnel indicated that the leachate is attributable to the 102nd Street Landfill and will be addressed as part of the final remediation of that site.

Phase I Investigation. The purpose of the Phase I Investigation by LeRoy Callender, P.C., was to assess whether Griffon Park posed a hazard to the environment. The investigation consisted of: (1) obtaining available records about the site from federal, state, county, and local agencies; (2) obtaining information on site topography, geology, surface water and groundwater uses, previous assessments of contamination, and local demographics; (3) interviewing site owners, operators, and other groups or individuals knowledgeable about the site; (4) inspecting the site; and (5) preparing a preliminary Hazard Ranking Score based on the assessment of available data. The Phase I report concluded there was not adequate information available to clearly confirm, or deny, the presence of contamination in surface water, groundwater, or surface soils (LeRoy Callender, 1988).

Remedial Investigation, 102nd Street Landfill Superfund Site. The 102nd Street Landfill Superfund Site, adjacent to Griffon Park (see Figure 1), was operated as a disposal site for industrial wastes by OCC, the Olin Corporation (Olin), and their predecessors. A comprehensive RI program was developed for the site by the USEPA, New York State, and OCC/Olin. Sampling and analysis of groundwater and surface soil from Griffon Park was conducted as part of this RI.

Two objectives of the RI tasks were to characterize the nature and extent of chemicals originating and migrating off-site and to collect analytical surface soil data from affected off-site areas. As part of this investigation, OCC installed 10 monitoring wells in Griffon Park during 1985 and 1986. The wells were sampled and analyzed for the 102nd Street Landfill site-specific parameters (see Appendix B) from 1986 to 1988. There were only infrequent, single detections of a limited number of 102nd Street Landfill parameters in these samples.

Surface soil from Griffon Park was sampled and analyzed as part of the RI comprehensive off-site soil survey. Samples were collected along a grid extending to 125 feet west from the 102nd Street Landfill/Griffon Park boundary. Surface soil samples were collected to 18 inches bgs and analyzed for the 102nd Street Landfill site-specific parameters. Organic compounds, including total tetrachlorodibenzo-p-dioxin at 4.1 parts per billion (ppb) and pentachlorobenzene at 118 ppb were detected in samples from an area adjacent to the 102nd Street Landfill. Organic contamination, attributable to the 102nd Street Landfill, has been detected in an area approximately 50 feet wide, to the west of the common site boundary at Buffalo Avenue, to approximately 125 feet wide at the river. This contamination is being addressed as part of the final remediation of the 102nd Street Landfill.

Mercury was the only inorganic element reported in surface soil. Low concentrations of mercury were detected in most surface soil samples with the highest concentration detected at 2.31 milligrams per kilogram.

PSA Task 1 Investigation. On April 15, 1992, ABB-ES personnel completed a site walkover of Griffon Park. Mr. Robert Buzzelli of the NCDH accompanied ABB-ES personnel on the site walkover. Mr. Buzzelli informed ABB-ES personnel that the baseball diamonds were removed by the City in 1991, and that aside from use of the boat launch area, Griffon Park does not receive much use. However, during the site walkover, the ABB-ES team observed several people walking dogs around the site.

A small pool of standing water, apparently a seep, was observed next to the boat launch area. This area contained algae and a layer of foamy scum. Mr. Buzzelli said NCDH received a report of this seep during the spring of 1991 and the department collected a sample and submitted it for analysis at a NCDH laboratory. Laboratory results detected the presence of coli and bacillus bacteria indicating the presence of raw human or animal wastes, probably from sewage (Buzzelli, 1991). Records did not indicate whether any chemical data were available. Mr. Buzzelli said that because of the nature of the liquid and the close proximity to a public area, the NCDH will be pursuing this matter.

3.5 CONTAMINATION ASSESSMENT

The following subsections present the analytical results from environmental samples collected from the Griffon Park site. Evaluation of the data is limited to the project purposes of: (1) establishing whether hazardous waste was disposed of

at the site and (2) evaluating whether those wastes pose any potential significant threat to public health or the environment. Because there is no documentation that listed wastes were disposed of at the site, hazardous waste is established based on the results of characteristics testing of EP Toxicity (metals only), ignitability, reactivity, and corrosivity. Significant threat is evaluated by comparing groundwater analytical results to New York State class GA groundwater quality standards.

3.5.1 Subsurface Soil Analytical Results

Two subsurface soil samples each were collected from eight test borings, TB-101 through TB-108, for a total of 16 samples. All 16 samples were analyzed for hazardous waste characteristics of EP Toxicity, reactivity, ignitability, and corrosivity. Only eight samples, one from each boring, were submitted for laboratory analysis of TCL VOCs, SVOCs, pesticides, PCBs, and inorganics (see Table 1). Results of subsurface soil sample analyses are summarized in Table 3.

All samples passed the characteristics test for ignitability, reactivity, and corrosivity. One sample collected from between 2 and 4 feet bgs at TB-102 failed EP Toxicity testing for lead. Lead was detected at 34,600 micrograms per liter (μg/L) in the extract of this sample. This concentration exceeds the EP Toxicity regulatory limit of 5,000 μg/L for lead.

Barium, cadmium, chromium, lead, mercury, selenium, and silver were all detected in the extract of at least one of the 16 samples. However, the concentrations detected were all below the EP Toxicity regulatory limit for these elements.

Table 3
Subsurface Soil Sampling Data

Griffon Park
City of Niagara Falls, New York

Compound	CRQL/ CRDL	TB-101 2-4 ft bgs	TB-101 8-10 ft bgs	TB-102 2-4 ft bgs	TB-102 4-6 ft bgs	TB-103 8-10 ft bgs	TB-103 10-12 ft bgs	TB-104 2-4 ft bgs	TB-104 8-10 ft bgs	TB-105 2-4 ft bgs
TCL Volatile Organic Compounds (µg/kg)										
Methylene Chloride	5	NA	--	NA	13 J	--	NA	--	NA	NA
Acetone	10	NA	140 J	NA	--	100 J	NA	--	NA	NA
Tetrachloroethene	3	NA	--	NA	--	--	NA	--	NA	NA
Toluene	10	NA	4 J	NA	9 J	--	NA	--	NA	NA
TCL Semivolatile Organic Compounds (µg/kg)								--		
2,2'-oxybis(1-Chloropropane)	330	NA	150 J	NA	--	--	NA	--	NA	NA
Naphthalene	330	NA	--	NA	--	--	NA	--	NA	NA
N-Nitrosodiphenylamine	330	NA	120 J	NA	--	--	NA	--	NA	NA
Phenanthrene	330	NA	150 J	NA	--	170 J	NA	--	NA	NA
Anthracene	330	NA	--	NA	--	--	NA	410 J	NA	NA
Di-n-butylphthalate	330	NA	--	NA	--	--	NA	--	NA	NA
Fluoranthene	330	NA	210 J	NA	--	150 J	NA	580 J	NA	NA
Pyrene	330	NA	170 J	NA	--	--	NA	590 J	NA	NA
Butylbenzylphthalate	330	NA	--	NA	--	130 J	NA	--	NA	NA
Benzo(a)Anthracene	330	NA	120 J	NA	--	--	NA	--	NA	NA
Chrysene	330	NA	140 J	NA	--	--	NA	--	NA	NA
bis(2-Ethylhexyl)phthalate	330	NA	860	NA	53 J	1900	NA	--	NA	NA
Di-n-octylphthalate	330	NA	86 J	NA	--	--	NA	--	NA	NA
Benzo(b)Fluoranthene	330	NA	90 J	NA	--	--	NA	--	NA	NA
TCL Pesticides/PBCs (µg/kg)										
alpha-BHC	1.7	NA	--	NA	--	--	NA	160	NA	NA
beta-BHC	1.7	NA	--	NA	--	--	NA	190 D	NA	NA
delta-BHC	1.7	NA	--	NA	--	--	NA	26	NA	NA
gamma-BHC (Lindane)	1.7	NA	--	NA	--	--	NA	100	NA	NA
4,4'-DDE	3.3	NA	4.3 J	NA	--	190	NA	--	NA	NA
Endrin	3.3	NA	--	NA	--	--	NA	10 J	NA	NA
4,4'-DDD	3.3	NA	12	NA	--	91 J	NA	53 J	NA	NA
4,4'-DDT	3.3	NA	--	NA	--	170	NA	--	NA	NA
Methoxychlor	17	NA	--	NA	--	--	NA	--	NA	NA
alpha-Chlordane	1.7	NA	--	NA	--	13 J	NA	--	NA	NA
Aroclor-1254	33	NA	--	NA	--	320 J	NA	89 J	NA	NA

Table 3
Subsurface Soil Sampling Data

Griffon Park
City of Niagara Falls, New York

Compound	CRQL/ CRDL	TB-101 2-4 ft bgs	TB-101 8-10 ft bgs	TB-102 2-4 ft bgs	TB-102 4-6 ft bgs	TB-103 8-10 ft bgs	TB-103 10-12 ft bgs	TB-104 2-4 ft bgs	TB-104 8-10 ft bgs	TB-105 2-4 ft bgs
TCL Inorganic Compounds (mg/kg)										
Aluminum	40	NA	16900	NA	5170	7340	NA	13800	NA	NA
Antimony	12	NA	--	NA	--	--	NA	--	NA	NA
Arsenic	2	NA	11.3 J	NA	8.6 J	19.0 J	NA	11.2 J	NA	NA
Barium	40	NA	97.9 J	NA	194 J	230 J	NA	697 J	NA	NA
Beryllium	1	NA	0.80 J	NA	0.40 J	0.64 J	NA	0.49 J	NA	NA
Cadmium	1	NA	4.1 J	NA	--	1.4 J	NA	3.0	NA	NA
Calcium	1000	NA	6830	NA	66000	18100	NA	42300	NA	NA
Chromium	2	NA	43.1 J	NA	26.5 J	52.4 J	NA	69.1 J	NA	NA
Cobalt	10	NA	12.4 J	NA	14.8	12.5 J	NA	17.5	NA	NA
Copper	5	NA	67.0 J	NA	51.7 J	261 J	NA	511 J	NA	NA
Iron	20	NA	31100 J	NA	23300 J	69800 J	NA	58200 J	NA	NA
Lead	0.6	NA	121	NA	443 J	2050 J	NA	1010 J	NA	NA
Magnesium	1000	NA	6520	NA	5780	5080	NA	5400	NA	NA
Manganese	3	NA	234	NA	667	445	NA	636	NA	NA
Mercury	0.04	NA	0.60 J	NA	7.1 J	4.0 J	NA	0.99 J	NA	NA
Nickel	8	NA	51.3	NA	20.1 J	36.9 J	NA	64.6	NA	NA
Potassium	1000	NA	2220 J	NA	871 J	--	NA	1830	NA	NA
Selenium	1	NA	--	NA	--	--	NA	--	NA	NA
Silver	2	NA	--	NA	--	--	NA	2.2 J	NA	NA
Sodium	1000	NA	--	NA	--	417 J	NA	1640	NA	NA
Vanadium	10	NA	36.3	NA	19.2	8.8 J	NA	29.4	NA	NA
Zinc	4	NA	254 J	NA	443	539	NA	2170	NA	NA
EP Toxicity (µg/L)										
Barium 100,000 µg/L	31.2	932	878	2580	774	1760	1470	2260	801	2720
Cadmium 1,000 µg/L	4.1	--	17.5 J	10.8 J	19.3 J	--	--	37.5	5.1 J	18.8 J
Chromium 5,000 µg/L	7.0	--	--	--	--	14.6	--	--	--	--
Lead 5,000 µg/L	45.2	--	337	34600	2880	3920	1160	1020	79.4	2470
Mercury 200 µg/L	0.2	--	--	--	--	--	--	--	--	--
Selenium 1,000 µg/L	120	--	--	--	--	--	--	--	--	--
Silver 5,000 µg/L	5.8	--	--	--	--	6.6 J	--	--	--	--
Hazardous Waste Characteristics										
Ignitability (degree F): <140°F[1]	--	--	--	--	--	--	--	--	--	--
Corrosivity (pH): ≤2 or ≥12.5[1]	--	7.97	7.36	7.85	7.66	7.49	7.53	7.97	7.23	7.64
Reactivity-Cyanide (mg/kg) 250 mg/kg	1	--	--	--	--	--	--	--	--	--
Reactivity-Sulfide (mg/kg) 500 mg/kg	1	--	--	--	--	--	--	--	--	--

Table 3
Subsurface Soil Sampling Data

Griffon Park
City of Niagara Falls

Compound	CRQL/ CRDL	TB-105 8-10 ft bgs	TB-106 4-6 ft bgs	TB-106 6-8 ft bgs	TB-107 2-4 ft bgs	TB-107 DUP 2-4 ft bgs	TB-107 6-8 ft bgs	TB-108 0-2 ft bgs	TB-108 4-6 ft bgs	TB-108 8-10 ft bgs
TCL Volatile Organic Compounds (µg/kg)										
Methylene Chloride	5	--	NA	--	--	--	NA	NA	--	NA
Acetone	10	--	NA	--	--	--	NA	NA	--	NA
Tetrachloroethene	3	--	NA	--	--	4 J	NA	NA	--	NA
Toluene	10	--	NA	--	--	--	NA	NA	--	NA
TCL Semivolatile Organic Compounds (µg/kg)										
2,2'-oxybis(1-Chloropropane)	330	--	NA	--	--	--	NA	NA	NA	--
Naphthalene	330	53000	NA	--	--	--	NA	NA	NA	--
N-Nitrosodiphenylamine	330	--	NA	--	--	--	NA	NA	NA	140 J
Phenanthrene	330	910 J	NA	--	70 J	190 J	NA	NA	NA	200 J
Anthracene	330	--	NA	--	--	53 J	NA	NA	NA	--
Di-n-butylphthalate	330	--	NA	--	50 J	50 J	NA	NA	NA	140 J
Fluoranthene	330	930 J	NA	--	120 J	260 J	NA	NA	NA	330 J
Pyrene	330	--	NA	--	82 J	210 J	NA	NA	NA	190 J
Butylbenzylphthalate	330	--	NA	--	--	--	NA	NA	NA	--
Benzo(a)Anthracene	330	--	NA	--	--	81 J	NA	NA	NA	120 J
Chrysene	330	--	NA	--	--	96 J	NA	NA	NA	230 J
bis(2-Ethylhexyl)phthalate	330	10000	NA	--	830 J	2000 J	NA	NA	NA	2700
Di-n-octylphthalate	330	--	NA	--	--	--	NA	NA	NA	--
Benzo(b)Fluoranthene	330	--	NA	--	--	--	NA	NA	NA	--
TCL Pesticides/PBCs (µg/kg)										
alpha-BHC	1.7	--	NA	--	--	--	NA	NA	NA	--
beta-BHC	1.7	--	NA	4.5 J	--	--	NA	NA	NA	--
delta-BHC	1.7	--	NA	--	--	--	NA	NA	NA	--
gamma-BHC (Lindane)	1.7	--	NA	--	--	--	NA	NA	NA	--
4,4'-DDE	3.3	--	NA	8.3 J	7.0 J	--	NA	NA	NA	8.0 J
Endrin	3.3	--	NA	--	--	--	NA	NA	NA	--
4,4'-DDD	3.3	39 J	NA	--	15 J	--	NA	NA	NA	37 J
4,4'-DDT	3.3	--	NA	7.1 J	13 J	9.1 J	NA	NA	NA	23 J
Methoxychlor	17	37 J	NA	--	--	--	NA	NA	NA	--
alpha-Chlordane	1.7	--	NA	--	--	--	NA	NA	NA	--
Aroclor-1254	33	--	NA	--	45 J	93 J	NA	NA	NA	41 J

Table 3
Subsurface Soil Sampling Data

Griffon Park
City of Niagara Falls

Compound	CRQL/ CRDL	TB-105 8-10 ft bgs	TB-106 4-6 ft bgs	TB-106 6-8 ft bgs	TB-107 2-4 ft bgs	TB-107 DUP 2-4 ft bgs	TB-107 6-8 ft bgs	TB-108 0-2 ft bgs	TB-108 4-6 ft bgs	TB-108 8-10 ft bgs
TCL Inorganic Compounds (mg/kg)								--		
Aluminum	40	14500	NA	5410	9660	6370	NA	NA	NA	5640
Antimony	12	--	NA	--	105	73.4	NA	NA	NA	--
Arsenic	2	48.8 J	NA	8.8 J	20.2 J	16.6 J	NA	NA	NA	10.0 J
Barium	40	1400 J	NA	565 J	678 J	347 J	NA	NA	NA	519 J
Beryllium	1	1.1 J	NA	--	0.85 J	0.40 J	NA	NA	NA	--
Cadmium	1	--	NA	--	17.3 J	1.1 J	NA	NA	NA	4.1 J
Calcium	1000	88000	NA	32600	13700	10800	NA	NA	NA	9070
Chromium	2	75.2 J	NA	28.2 J	96.6 J	53.2 J	NA	NA	NA	56.1 J
Cobalt	10	29.3	NA	12.8 J	24.2	15.4	NA	NA	NA	13.7 J
Copper	5	870 J	NA	85.2 J	818 J	276 J	NA	NA	NA	174 J
Iron	20	95200 J	NA	45700 J	78000 J	66600 J	NA	NA	NA	47900 J
Lead	0.6	2540 J	NA	383 J	2170 J	2300 J	NA	NA	NA	240
Magnesium	1000	22200	NA	5920	2570	2540	NA	NA	NA	1870
Manganese	3	1470	NA	330	457	383	NA	NA	NA	345
Mercury	0.04	2.1 J	NA	0.63 J	3.6 J	1.0 J	NA	NA	NA	0.78 J
Nickel	8	90.0 J	NA	32.7	77.6	51.7	NA	NA	NA	30.1
Potassium	1000	3400	NA	--	1330	642 J	NA	NA	NA	802 J
Selenium	1	10.7 J	NA	--	--	--	NA	NA	NA	1.6 J
Silver	2	9.8 J	NA	--	8.2 J	--	NA	NA	NA	1.7 J
Sodium	1000	1380 J	NA	--	594 J	425 J	NA	NA	NA	--
Vanadium	10	36.9	NA	22.4	35.8	27.8	NA	NA	NA	16.8
Zinc	4	2270	NA	560	17600 J	1650 J	NA	NA	NA	1130 J
EP Toxicity (µg/L)										
Barium 100,000 µg/L	31.2	2060	360	415	1640	1660	1090	1550	NA	1186
Cadmium 1,000 µg/L	4.1	25 J	30 J	18.3 J	21.2	21.7	--	106	NA	33
Chromium 5,000 µg/L	7.0	--	--	--	--	--	--	7	NA	11.5
Lead 5,000 µg/L	45.2	1040	898	658	701	552	3410	206	NA	1060
Mercury 200 µg/L	0.2	--	--	--	--	--	--	0.2	NA	--
Selenium 1,000 µg/L	120	--	--	--	--	--	--	120	NA	--
Silver 5,000 µg/L	5.8	--	--	--	--	--	--	6	NA	--
Hazardous Waste Characteristics										
Ignitability (degree F): <140°F[1]	--	--	--	--	--	--	--	--	NA	--
Corrosivity (pH): ≤2 or ≥12.5[1]	--	7.76	7.29	7.88	7.63	7.46	7.25	7.85	NA	7.38
Reactivity-Cyanide (mg/kg) 250 mg/kg	1	--	--	--	--	--	--	--	NA	--
Reactivity-Sulfide (mg/kg) 500 mg/kg	1	--	--	--	--	--	--	--	NA	--

NOTES:

[1] Criteria of hazardous waste characteristics as set forth in 6 NYCRR Part 371, January 31, 1992.

bgs	= below ground surface	NA	= not analyzed
CRQL	= Contract Required Quantitation Limit (organics)	R	= value rejected
CRDL	= Contract Required Detection Limit (inorganics)	TCL	= Target Compound List
D	= diluted	µg/kg	= micrograms per kilogram
J	= estimated	µg/L	= micrograms per liter
mg/kg	= milligrams per kilogram	--	= not detected

Four VOCs, methylene chloride, acetone, tetrachloroethene, and toluene were detected at estimated concentrations. Methylene chloride was detected in TB-102, from 4 to 6 feet bgs, at 13 J micrograms per kilogram (μg/kg). Acetone was detected at 140 J μg/kg in TB-101, from 8 to 10 feet bgs, and in TB-103, from 8 to 10 feet bgs, at 100 J μg/kg. Tetrachloroethane was detected in TB-107 DUP, from 2 to 4 feet bgs, at 4 J μg/kg. Toluene was detected at 4 J μg/kg in TB-101, from 8 to 10 feet bgs, and in TB-102, from 4 to 6 feet bgs, at 9 J μg/kg.

As many as 13 SVOCs were detected in subsurface samples analyzed for the TCL, except for the sample collected from 6 to 8 feet bgs at TB-106, where no SVOCs were detected. Eleven different pesticide/PCB compounds were detected in subsurface samples analyzed for the TCL, except for the sample collected from 4 to 6 feet bgs at TB-102, where no pesticides or PCBs were detected. SVOC and pesticide/PCB results are summarized in Table 3.

Inorganic concentrations detected in subsurface soil samples analyzed for the TCL were compared to background ranges of inorganic concentrations of soils of the eastern United States and New York State (Table 4). Elements detected above the background range of concentrations of inorganics in the soil of New York State included arsenic, barium, cadmium, calcium, chromium, iron, magnesium, nickel, and zinc. Elements detected above the background range of concentrations of inorganics in soils of both the eastern United States and New York State included aluminum, copper, lead, mercury, and selenium.

Table 4
Ranges of Background Inorganic Concentrations in Soil

Griffon Park
City of Niagara Falls, New York

COMPOUND	NEW YORK REGION[1] (mg/kg)	EASTERN UNITED STATES[2] (mg/kg)
Aluminum	1,000 – 25,000	7,000 – > 10,000
Arsenic	3 – 12	<0.1 – 73
Barium	15 – 600	10 – 1,500
Beryllium	0 – 1.75	<1 – 7
Cadmium	0.01 – 2	NA
Calcium	130 – 35,000	100 – 280,000
Chromium	1.5 – 40	1 – 1,000
Cobalt	2.5 – 60	<0.3 – 70
Copper	< 1 – 15	<1 – 700
Iron	17,500 – 25,000	10 – >100,000
Lead	10 – 37	<10 – 300
Magnesium	1,700 – 6,000	50 – 50,000
Manganese	50 – 5,000	<2 – 7,000
Mercury	0.042 – 0.066	0.01 – 3.4
Nickel	0.5 – 25	<5 – 700
Potassium	8,500 – 43,000	50 – 37,000
Selenium	<0.1 – 0.125	<0.1 – 3.9
Silver	NA	NA
Sodium	6,000 – 8,000	< 50 – 50,000
Vanadium	25 – 60	<7 – 300
Zinc	37 – 60	<20 – 2,900

NOTES:

[1] Concentrations obtained from "Background Concentrations of 20 Elements in Soils with Special Regard for New York State" (no date). Paper prepared by E. Carol McGovern, NYSDEC Wildlife Resouces Center.

[2] Shacklette, M.T. and J.G. Boerngen, 1984. "Element Concentrations in Soils and Other Surficial Materials of the Conterminous United States"; USGS Professional Paper 1270.

mg/kg = milligrams per kilogram
NA = Not Available

3.5.2 Groundwater Analytical Results

Ten groundwater samples and one duplicate were collected from the existing and newly installed monitoring wells at Griffon Park (see Table 2). All groundwater samples were analyzed for TCL VOCS, SVOCs, pesticides, PCBS, inorganics, and TSS. Additional samples were collected, including a filtered sample for inorganic analysis from wells where the turbidity of the groundwater was greater than 50 NTUs after purging or could not be measured due to equipment problems. This included monitoring wells OW49-86, LC-5A, LC-5B, MW-101, and MW-102. Analytical results are summarized in Table 5.

Concentrations of VOCs, SVOCs, pesticides, dissolved inorganics (i.e., filtered samples), and total inorganics detected in groundwater were compared to New York State class GA groundwater quality standards set forth under 6 NYCRR Part 703 (NYSDEC, 1991a). Class GA groundwater is defined as suitable as a source of potable drinking water. Class GA standards, for the compounds detected in groundwater samples, are listed in Table 5.

Concentrations of two VOCs and one SVOC, exceeding the Class GA standards, were detected in single occurrences. Tetrachloroethene was detected at 12 μg/L in OW50-86, exceeding the standard of 5 μg/L. Total xylenes were detected at 22 μg/L in OW49-86, exceeding the standard of 5 μg/L. Results of TCL SVOC analysis showed that the standard of 50 μg/L for bis(2-ethylhexyl)phthalate was exceeded in LC-5B, where this compound was detected at 54 μg/L.

Table 5
Groundwater Sampling Data

Griffon Park
City of Niagara Falls, New York

Compound[1]	CRQL/ CRDL	CLASS GA	OW49-86	OW49-86 DUP	OW50-86	OW54-86	OW55-86	OW56-86	OW57-86	LC-5A	LC-5B	MW-101	MW-102
TCL Volatile Organic Compounds (µg/L)													
Tetrachloroethene	10	5	--	--	12	--	--	--	--	--	--	--	--
Toluene	10	5	5 J	--	--	--	--	--	--	--	--	--	2 J
Chlorobenzene	10	5	2 J	--	--	--	--	--	--	--	--	--	--
Ethylbenzene	10	5	3 J	--	--	--	--	--	--	--	--	--	--
Total Xylenes	10	5	22 J	--	--	--	--	--	--	--	--	--	--
TCL Semivolatile Organic Compounds (µg/L)													
bis(2-Ethylhexyl)phthalate	10	50	--	--	--	10	--	--	--	--	54	--	--
TCL Pesticides/PCBs (µg/L)													
alpha-BHC	0.05	-	--	--	--	--	--	--	--	--	--	--	0.11 J
beta-BHC	0.05	-	--	--	--	--	--	--	--	0.045 J	--	--	0.11 J
TCL Dissolved Inorganic Compounds (µg/L) (Filtered)													
Antimony	60	-	108	54.6 J	NA	NA	NA	NA	NA	32.2 J	--	--	93.6
Barium	200	1000	134 J	202 J	NA	NA	NA	NA	NA	101 J	--	816	42.6 J
Cadmium	5	10	--	--	NA	NA	NA	NA	NA	7.6	--	--	5.7
Calcium	5000	-	494000	508000 J	NA	NA	NA	NA	NA	270000	505000	274000	573000
Cobalt	50	-	--	--	NA	NA	NA	NA	NA	--	--	--	34.9 J
Iron	100	300[1]	R	9190	NA	NA	NA	NA	NA	7290	--	45700	5510
Magnesium	5000	-	177000	181000	NA	NA	NA	NA	NA	55900	173000	58300	94800
Manganese	15	300[1]	490 J	460	NA	NA	NA	NA	NA	470	21.1	988	5050
Nickel	40	-	--	--	NA	NA	NA	NA	NA	--	--	--	30.9 J
Potassium	5000	-	257000	315000 J	NA	NA	NA	NA	NA	21200	13500	14900	52100
Selenium	5	10	R	R	NA	NA	NA	NA	NA	R	R	R	R
Silver	10	50	9.7 J	--	NA	NA	NA	NA	NA	--	--	--	--
Sodium	5000	20000	222000	267000 J	NA	NA	NA	NA	NA	147000	323000	68800	188000
Zinc	20	300	--	--	NA	NA	NA	NA	NA	--	--	--	2160
Cyanide	10	100	10.0	10.0	NA	NA	NA	NA	NA	--	--	--	--
TCL Total Inorganic Compounds (µg/L) (Unfiltered)													
Aluminum	200	-	--	103 J	175 J	121 J	128 J	141 J	194 J	60.3 J	60.4 J	--	518
Antimony	60	-	107	85.7	80.2	88.6	--	40.0 J	64.6	--	57.9 J	--	96.0
Arsenic	10	25	--	--	--	--	--	--	--	5.9 J	--	--	--
Barium	200	1000	186 J	136 J	97.4 J	493	437	499	500	111 J	--	733	60.9 J
Calcium	5000	-	452000	421000 J	478000	305000	292000	261000	211000	305000	476000	246000	570000
Cobalt	50	-	--	--	--	--	--	--	--	--	--	--	33.3 J
Copper	25	200	--	--	--	--	--	--	--	--	--	--	14.0 J
Iron	100	300[2]	R	11200	42900	11200	30800	17700	62100	13200	--	41800	6850
Lead	3	25	--	--	--	--	--	15.9	--	--	--	--	--
Magnesium	5000	-	191000	173000	138000	63100	67100	61000	71000	52300	162000	55000	97500
Manganese	15	300[2]	421 J	435	342	673	560	611	555	528	22.0	903	4690
Mercury	0.2	2	--	--	0.53	--	--	0.21	--	--	--	--	0.30
Potassium	5000	-	288000	252000 J	1130000	34800	64600	24600	21500	17200	12900	16800	50700
Selenium	5	10	R	R	R	R	R	R	R	R	R	R	R
Silver	10	50	6.1 J	--	--	--	--	--	--	--	--	--	--
Sodium	5000	20000	262000	218000 J	2730000	80500	84100	101000	121000	127000	301000	63300	187000
Zinc	20	300	--	--	--	--	--	205	--	--	--	13.8 J	1880
Cyanide	10	100	--	10.0 J	10.0 J	--	--	--	--	--	--	--	--
Total Suspended Solids (mg/L)													
TSS	1	-	50	NA	176	44	89	64	172	42	8	114	21

NOTES:

[1] TCL compounds that were non-detects in all samples are not listed.

[2] When both iron and manganese are present the Class GA standard for the total of both compounds is 500 µg/L.

CRDL = Contract Required Detection Limit (inorganics)
CRQL = Contract Required Quantitation Limit (organics)
NA = not analyzed
TCL = Target Compound List
-- = not detected
mg/L = milligrams per liter
R = value rejected
µg/L = micrograms per liter
- = no standard promulgated

The VOCs exceeding class GA groundwater quality standards, tetrachloroethene and total xylenes, were detected in monitoring wells OW49-86 and OW50-86. Both wells are located on the eastern side of Griffon Park, near the boundary with the 102nd Street Landfill Superfund Site. As described in Subsection 3.3, groundwater flow is interpreted to be northeast to southwest, from the 102nd Street Landfill Superfund Site across Griffon Park. Under these groundwater flow conditions these VOCs may potentially be migrating from the 102nd Street Landfill Superfund Site. It is not possible to establish whether the contravention of standards in the two wells is attributable to the Griffon Park site.

It may also not be possible to attribute the contravention of standards for bis(2-ethylhexyl)phthalate to the site because the concentration is only slightly above the standard and is an isolated detection of this compound. Bis(2-ethylhexyl)phthalate is a common laboratory contaminant; however, the concentrations reported have undergone data validation and have been evaluated as valid results.

The inorganic elements antimony, iron, magnesium, manganese, sodium, and zinc were detected at concentrations exceeding the class GA standards for these elements, for both filtered and unfiltered samples. A summary of the standards, the concentration of these elements detected in upgradient well MW-102, the range of concentrations detected, and the number of wells where the concentrations exceeded the standards is provided in Table 6.

Table 6
Summary of Groundwater Standard Exceedances

Griffon Park
City of Niagara Falls, New York

WELL	COMPOUND	CONCENTRATION µg/L	CLASS GA µg/L
ORGANICS			
OW49-86	Total Xylenes	22	5
OW50-86	Tetrachloroethene	12	5
LC-5B	bis(2-Ethylhexyl)phthalate	54	50

COMPOUND	CLASS GA µg/L	MW-102 µg/L	RANGE OF CONCENTRATIONS µg/L	NO. WELLS EXCEEDING CLASS GA
DISSOLVED INORGANICS				
Iron	300	5510	5510 - 45700	4/5
Magnesium	35000 G	94800	55900 - 181000	5/5
Manganese	300	5050	490 - 5050	4/5
Sodium	20000	188000	68800 - 323000	5/5
Zinc	300	2160	2160	1/5
NON-FILTERED INORGANICS				
Iron	300	6850	6850 - 62100	9/10
Magnesium	35000 G	97500	52300 - 191000	10/10
Manganese	300	4690	342 - 4690	9/10
Sodium	20000	187000	63300 - 2730000	10/10
Zinc	300	1880	1880	1/10

NOTES:
µg/L = migrograms per liter

4.0 CONCLUSIONS AND RECOMMENDATIONS

The following subsections further evaluate the findings presented in Section 3.0 against the purpose of the PSA investigation at the Griffon Park site to establish whether hazardous waste was disposed of at the park.

4.1 HAZARDOUS WASTE DEPOSITION

Disposal of hazardous waste at Griffon Park must be established based on the definitions set forth under the NYSDEC regulation for the Identification and Listing of Hazardous Waste, 6 NYCRR Part 371. This regulation requires documentation of a listed hazardous waste disposed of at the site, or a material, (i.e., a subsurface sample of fill) would have to fail one of the hazardous waste characteristics tests, either EP Toxicity, ignitability, reactivity, or corrosivity (NYSDEC, 1992a).

The PSA records search, and previous investigations, did not identify documentation that a listed hazardous waste was disposed of on-site. Therefore, establishment of the disposal of hazardous waste was limited to results of characteristics testing. None of the samples collected at Griffon Park failed the characteristics tests for ignitability, reactivity or corrosivity. Of 16 subsurface soil samples submitted for characteristics testing, one sample failed EP Toxicity analysis for lead. Lead was detected in the extract of a sample collected from TB-102, between 2 to 4 feet bgs, at a concentration of 34,600 μg/L, more than six times the EP Toxicity regulatory limit of 5,000 μg/L for lead. While lead was detected in the extract of other samples, the concentrations were below the regulatory limit. Although this single failure of EP Toxicity is indicative of the

presence of a toxic material, evaluation of the entire set of EP Toxicity data does not indicate consequential disposal of hazardous wastes.

The results of analyses of subsurface soil samples for TCL VOCs, SVOCs, pesticides, PCBs, and inorganics did not detect any significant chemical contamination. All but one sample passed testing for characteristics of hazardous waste. These results do not justify a finding that hazardous waste was disposed of at the Griffon Park site.

4.2 SIGNIFICANT THREAT DETERMINATION

NYSDEC regulations pertaining to Inactive Hazardous Waste Sites, 6 NYCRR Part 375, set forth a number of definitions of significant threat (NYSDEC, 1992c). For purposes of the PSA investigation, a significant threat would be established by the contravention of environmental quality regulations. Significant threat was evaluated by comparing groundwater analytical results to New York State class GA groundwater quality standards set forth under 6 NYCRR Parts 700 - 705 (NYSDEC, 1991a).

Exceedances of class GA groundwater quality standards included three organic compounds and five inorganic compounds. As discussed in Subsection 3.5.2, the organic compounds detected at concentrations greater than standards may not be attributed to Griffon Park. The VOCs were detected in monitoring wells adjacent to the 102nd Street Landfill Superfund Site. The SVOC that exceeded standards was detected at a concentration only slightly above the standard and was an isolated occurrence. The inorganic compounds detected at concentrations greater than standards included iron, magnesium, manganese, sodium, and zinc. These

inorganics are typical of municipal landfill leachate. Although class GA standards are set for protection of groundwater suitable as a source of public water, these compounds do not commonly pose a significant threat to public health. The more stringent New York State and federal Maximum Contaminant Levels, for protection of drinking water supplies, have only promulgated secondary standards for these compounds to protect the aesthetic quality of drinking water.

4.3 RECOMMENDATIONS

Information collected during the Griffon Park PSA investigation does not document the presence of listed or characteristics hazardous wastes as defined by 6 NYCRR Part 371. The results of groundwater sampling and analysis do not indicate chemical contamination that poses any significant threat to public health or the environment. Based on these results, it is recommended that the Griffon Park Site be delisted from NYSDEC's Registry of Inactive Hazardous Waste Sites in New York.

ABB-ES	ABB Environmental Services
ASP	Analytical Services Protocols
bgs	below ground surface
City	City of Niagara Falls
CRA	Conestoga-Rovers & Associates, Inc.
EP	Extraction Procedure
HASP	Health and Safety Plan
ID	inside diameter
NCDH	Niagara County Department of Health
NSSC	NYSDEC Superfund Standby Contract
NTU	Nephelometric Turbidity Units
NUS	NUS Corporation
NYCRR	New York Codes, Rules, and Regulations
NYSDEC	New York State Department of Environmental Conservation
NYTEST	NYTEST Environmental, Inc.
OCC	Occidental Chemical Corporation
Olin	Olin Corporation
Parratt-Wolff	Parratt-Wolff, Inc.
PCBs	polychlorinated biphenyls
PID	photoionization detector
Popli	Om P. Popli Associates
ppb	parts per billion
PSA	Preliminary Site Assessment
QAPP	Quality Assurance Project Plan
RI	Remedial Investigation
SVOCs	semivolatile organic compounds
TCL	Target Compound List
TSS	Total Suspended Solids

USEPA	U.S. Environmental Protection Agency
USGS	U.S. Geologic Survey
VOCs	volatile organic compounds
µg/kg	micrograms per kilogram
µg/L	micrograms per liter

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Buzzelli, Robert, 1991. Robert Buzzelli, Assistant Public Health Engineer, Niagara County Health Department; Correspondence to Mr. David Brooks, City of Niagara, Department of Planning and Development; May 31, 1991.

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E.C. Jordan Co., 1992a. *Technical Memorandum, Preliminary Site Assessment Task 1: Data Records Search and Assessment, Griffon Park Site.* Prepared for the New York Department of Environmental Conservation, Albany, New York. May.

E.C. Jordan Co., 1992b. *Program Quality Assurance Project Plan.* Prepared for the New York Department of Environmental Conservation, Albany, New York. June.

E.C. Jordan Co., 1992c. *Program Quality Health and Safety Plan, Part II, Revision 1.* Prepared for the New York Department of Environmental Conservation, Albany, New York. June.

LeRoy Callender, P.C. (LeRoy Callender), 1988. *Engineering Investigations at Hazardous Waste Site, Phase I Investigation, Griffon Park, Site No. 932081, City of Niagara Falls, Niagara County.* Prepared for New York State Department of Environmental Conservation. May.

New York State Department of Environmental Conservation (NYSDEC), 1988. *Division Technical Administrative Guidance Memorandum Policy Regarding Alteration of Groundwater Samples Collected for Metals Analysis.* HWR-88-4015. September 30.

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Shacklette, M.T. and J.G. Boerngen, 1984. *Element Concentrations in Soils and Other Surficial Materials of the Conterminous United States*. USGS Professional Paper 1270.

U.S. Environmental Protection Agency, 1985. *Preliminary Evaluation of Chemical Migration to Groundwater and the Niagara River from Selected Waste Disposal Sites.*

APPENDIX A

SITE INSPECTION REPORT - USEPA FORM 2070-13

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 1 - SITE LOCATION AND INSPECTION INFORMATION

EPA

I. IDENTIFICATION	
01 STATE: New York	01 SITE NUMBER: D980506703

II. SITE NAME AND LOCATION

01 SITE NAME (Legal, common, or descriptive name of site)	02 STREET, ROUTE NO., OR SPECIFIC LOCATION IDENTIFIER
Griffon Park	Buffalo Avenue between 95th and 97th Street

03 CITY	04 STATE	05 ZIP CODE	06 COUNTY	07 COUNTY CODE	08 CONG. DIST
Niagara Falls	New York	14302	Niagara	63	32

09 COORDINATES LATITUDE	LONGITUDE	10 TYPE OF OWNERSHIP (Check one)
43° 04' 02".N	78° 57' 08".W	_ A. PRIVATE _ B. FEDERAL _____ _ C. STATE _ D. COUNTY X E. MUNICIPAL _ F. OTHER _____ _ G. UNKNOWN

III. INSPECTION INFORMATION

01 DATE OF INSPECTION	02 SITE STATUS	03 YEARS OF OPERATION
06 / 28 / 93 (MONTH DAY YEAR)	_ ACTIVE X INACTIVE	1949 (BEGINNING YEAR) mid-1970's (ENDING YEAR) _____ UNKNOWN

04 AGENCY PERFORMING INSPECTION (Check all that apply)
_ A. EPA _ B. EPA CONTRACTOR _____ (Name of firm) _ C. MUNICIPAL _ D. MUNICIPAL CONTRACTOR _____ (Name of firm)
_ E. STATE X F. STATE CONTRACTOR ABB Environmental Services (Name of firm) _ G. OTHER _____ (Specify)

05 CHIEF INSPECTOR	06 TITLE	07 ORGANIZATION	08 TELEPHONE NO.
Glenn L. Daukas	Geologist	ABB Environmental Services	(207) 775-5401
09 OTHER INSPECTORS	10 TITLE	11 ORGANIZATION	12 TELEPHONE NO.
Ralph Keating, P.E.	Environmental Engineer	NYSDEC	(518) 457-9538
Tom Reamon	Environmental Engineer	NYSDEC	(518) 457-9538
Abul Barkat	Environmental Engineer	NYSDEC	(716) 851-7200
Tony Delano, P.E.	Environmental Engineer	ABB Environmental Services	(207) 775-5401
Douglas Oscar		Conestoga-Rovers & Associates, Inc.	(716) 283-6720

13 SITE REPRESENTATIVES INTERVIEWED	14 TITLE	15 ADDRESS	16 TELEPHONE NO.
			( )
			( )
			( )
			( )
			( )
			( )

17 ACCESS GAINED BY (Check one)	18 TIME OF INSPECTION	19 WEATHER CONDITIONS
■ PERMISSION □ WARRANT	7:00 a.m.	

IV. INFORMATION AVAILABLE FROM

01 CONTACT	02 OF (Agency/Organization)	03 TELEPHONE NO.
Ralph Keating	New York State Department of Environmental Conservation	(518) 457-9538

04 PERSON RESPONSIBLE FOR SITE INSPECTION FORM	05 AGENCY	06 ORGANIZATION	07 TELEPHONE NO.	03 DATE
Cornelia B. Morin		ABB Environmental Services	(207) 775-5401	10/05/93 (MONTH DAY YEAR)

EPA FORM 2070-13 (7-81)

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 2 - WASTE INFORMATION

EPA

I. IDENTIFICATION	
01 STATE	01 SITE NUMBER
New York	D980506703

II. WASTE STATES, QUANTITIES, AND CHARACTERISTICS

01 PHYSICAL STATES (Check all that apply)

_ A. SOLID
_ B. POWDER, FINES
_ C. SLUDGE
X D. OTHER Unknown (Specify)
_ E. SLURRY
_ F. LIQUID
_ G. GAS

02 WASTE QUANTITY AT SITE (Measures of waste quantities must be independent)

TONS Unknown
CUBIC YARDS Unknown
NO. OF DRUMS Unknown

03 WASTE CHARACTERISTICS (Check all that apply)

_ A. TOXIC
_ B. CORROSIVE
_ C. RADIOACTIVE
_ D. PERSISTENT
X Unknown
_ E. SOLUBLE
_ F. INFECTIOUS
_ G. FLAMMABLE
_ H. IGNITABLE
_ I. HIGHLY VOLATILE
_ J. EXPLOSIVE
_ K. REACTIVE
_ L. INCOMPATIBLE
_ M. NOT APPLICABLE

III. WASTE TYPE

CATEGORY	SUBSTANCE NAME	01 GROSS AMOUNT	02 UNIT OF MEASURE	03 COMMENTS
SLU	SLUDGE	unknown		The site was a municipal landfill used by the City of Niagara Falls.
OLW	OILY WASTE	unknown		
SOL	SOLVENTS	unknown		
PSD	PESTICIDES	unknown		
OCC	OTHER ORGANIC CHEMICALS	unknown		
IOC	INORGANIC CHEMICALS	unknown		
ACD	ACIDS	unknown		
BAS	BASES	unknown		
MES	HEAVY METALS	unknown		

IV. HAZARDOUS SUBSTANCES (See Appendix for most frequently cited CAS Numbers)

01 CATEGORY	02 SUBSTANCE NAME	03 CAS NUMBER	04/STORAGE/DISPOSAL METHOD	05 CONCENTRATION	06 MEASURE OF CONCENTRATION
OCC	Acetone	67-64-1	Soil	ND-140J	µg/kg
OCC	Methylene Chloride	75-09-2	Soil	ND-13J	µg/kg
OCC	Tetrachloethene	127-18-4	Soil	ND-4J	µg/kg
OCC	Toluene	108-88-3	Soil	ND-9J	µg/kg
OCC	2,2'-oxybis(1-chloropropane)	-	Soil	ND-150J	µg/kg
OCC	Naphthalene	91-20-3	Soil	ND-53,000	µg/kg
OCC	N-Nitrosodiphenylamine	86-30-6	Soil	ND-140J	µg/kg
OCC	Phenanthrene	85-01-8	Soil	ND-910J	µg/kg
OCC	Anthracene	120-12-7	Soil	ND-410J	µg/kg
OCC	Di-n-butylphthalate	84-74-2	Soil	ND-140J	µg/kg
OCC	Fluoranthene	206-44-0	Soil	ND-930J	µg/kg
OCC	Pyrene	129-00-0	Soil	ND-590J	µg/kg
OCC	Butylbenzylphthalate	85-68-7	Soil	ND-130J	µg/kg
OCC	Benzo(a)anthracene	56-55-3	Soil	ND-120J	µg/kg
OCC	Chrysene	218-01-9	Soil	ND-230J	µg/kg
SEE ATTACHED LIST					

V. FEEDSTOCKS (See Appendix for CAS Numbers)

CATEGORY	01 FEEDSTOCK NAME	02 CAS NUMBER	CATEGORY	01 FEEDSTOCK NAME	02 CAS NUMBER
FDS			FDS		
FDS			FDS		
FDS			FDS		
FDS			FDS		

VI. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

Preliminary Site Assessment Report, November 1993, ABB Environmental Services, and references cited herein.

EPA	POTENTIAL HAZARDOUS WASTE SITE SITE INSPECTION REPORT PART 2 - WASTE INFORMATION	I. IDENTIFICATION	
		01 STATE New York	01 SITE NUMBER D980506703

II. WASTE STATES, QUANTITIES, AND CHARACTERISTICS

IV. HAZARDOUS SUBSTANCES (continued) (See Appendix for most frequently cited CAS Numbers)

01 CATEGORY	02 SUBSTANCE NAME	03 CAS NUMBER	04/STORAGE/DISPOSAL METHOD	05 CONCENTRATION	06 MEASURE OF CONCENTRATION
OCC	bis(2-Ethylhexyl)phthalate	117-81-7	Soil	ND-2700	µg/kg
OCC	Di-n-octylphthalate	117-84-0	Soil	ND-86J	µg/kg
OCC	Benzo(b)Fluoranthene	205-99-2	Soil	ND-90J	µg/kg
PSD	alpha-BHC	319-84-6	Soil	ND-160	µg/kg
PSD	beta-BHC	319-85-7	Soil	ND-190D	µg/kg
PSD	delta-BHC	-	Soil	ND-26	µg/kg
PSD	gamma-BHC (Lindane)	58-89-9	Soil	ND-100	µg/kg
PSD	4,4'-DDE	72-55-9	Soil	ND-190	µg/kg
PSD	Endrin	72-20-8	Soil	ND-10J	µg/kg
PSD	4,4'-DDD	72-54-8	Soil	ND-91J	µg/kg
PSD	4,4'-DDT	50-29-3	Soil	ND-170	µg/kg
PSD	Methoxyclor	72-43-5	Soil	ND-37J	µg/kg
PSD	alpha-Chlordane	57-74-9	Soil	ND-13J	µg/kg
OCC	Aroclor-1254	11097-69-1	Soil	ND-320J	µg/kg
IOC	Aluminum	7429-90-5	Soil	5170-16900	mg/kg
IOC	Antimony	7440-36-0	Soil	ND-105	mg/kg
IOC	Arsenic	7440-38-2	Soil	8.6J - 48.8J	mg/kg
IOC	Barium	7440-39-3	Soil	97.9J - 1400J	mg/kg
IOC	Beryllium	7440-41-7	Soil	0.40J - 1.1J	mg/kg
IOC	Cadmium	7440-43-9	Soil	ND - 17.3J	mg/kg
IOC	Calcium	-	Soil	6830 - 88000	mg/kg
IOC	Chromium	7440-47-3	Soil	26.5J - 96.6J	mg/kg
IOC	Cobalt	7440-48-4	Soil	12.4J - 29.3	mg/kg
IOC	Copper	7440-50-8	Soil	51.7J - 870J	mg/kg
IOC	Iron	7439-89-6	Soil	23300J - 95200J	mg/kg
IOC	Lead	7439-92-1	Soil	121-2540J	mg/kg
IOC	Magnesium	-	Soil	1870-22200	mg/kg
IOC	Manganese	7439-96-5	Soil	234-1470	mg/kg
IOC	Mercury	7439-97-6	Soil	0.60J - 7.1J	mg/kg
IOC	Nickel	7440-02-6	Soil	20.1J - 90.0J	mg/kg
IOC	Potassium	-	Soil	ND-3400	mg/kg
IOC	Selenium	7782-49-2	Soil	ND-10.7J	mg/kg
IOC	Silver	7440-22-4	Soil	ND-9.8J	mg/kg
IOC	Sodium	-	Soil	ND-1640	mg/kg
IOC	Vanadium	7440-62-2	Soil	8.8J - 36.9	mg/kg
IOC	Zinc	7440-66-6	Soil	254J - 17600J	mg/kg
OCC	Tetrachloroethene	127-18-4	Water	ND-12	µg/L
OCC	Toluene	108-88-3	Water	ND-5J	µg/L
OCC	Chlorobenzene	108-90-70	Water	ND-2J	µg/L

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POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 2 - WASTE INFORMATION

I. IDENTIFICATION	
01 STATE: New York	01 SITE NUMBER: D980506703

II. WASTE STATES, QUANTITIES, AND CHARACTERISTICS

IV. HAZARDOUS SUBSTANCES (continued) (See Appendix for most frequently cited CAS Numbers)

01 CATEGORY	02 SUBSTANCE NAME	03 CAS NUMBER	04/STORAGE/DISPOSAL METHOD	05 CONCENTRATION	06 MEASURE OF CONCENTRATION
OCC	Ethylbenzene	100-41-4	Water	ND-3J	µg/L
OCC	Total Xylenes	-	Water	ND-22J	µg/L
OCC	bis(2-Ethylhexyl)phthalate	117-81-7	Water	ND-54	µg/L
PSD	alpha-BHC	319-84-6	Water	ND-0.11J	µg/L
PSD	beta-BHC	319-85-7	Water	ND-0.11J	µg/L
IOC	Aluminum	7429-90-5	Water	ND-518	µg/L
IOC	Antimony	7440-36-0	Water	ND-107	µg/L
IOC	Arsenic	7440-38-2	Water	ND-5.9J	µg/L
IOC	Barium	7440-39-3	Water	ND-733	µg/L
IOC	Calcium	-	Water	211000-570000	µg/L
IOC	Cobalt	7440-48-4	Water	ND-33.3J	µg/L
IOC	Copper	7440-50-8	Water	ND-14.0J	µg/L
IOC	Iron	7439-89-6	Water	ND-62100	µg/L
IOC	Lead	7439-92-1	Water	ND-15.9	µg/L
IOC	Magnesium	-	Water	52300-191000	µg/L
IOC	Manganese	7439-96-5	Water	22.0-4690	µg/L
IOC	Mercury	7439-97-6	Water	ND-0.53	µg/L
IOC	Potassium	-	Water	12900-1130000	µg/L
IOC	Silver	7440-22-4	Water	ND-6.1J	µg/L
IOC	Sodium	-	Water	63300-2730000	µg/L
IOC	Zinc	7440-66-6	Water	ND-1880	µg/L
IOC	Cyanide	57-12-5	Water	ND-10.0J	µg/L

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POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT

PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS

I. IDENTIFICATION	
01 STATE	01 SITE NUMBER
New York	D980506703

II. HAZARDOUS CONDITIONS AND INCIDENTS

01 X A. GROUNDWATER CONTAMINATION — 02 X OBSERVED (DATE: 10/93) _ POTENTIAL _ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: 0 — 04 NARRATIVE DESCRIPTION

Two volatile organic compounds, one semivolatile organic compound, and five inorganic elements were detected at concentrations that exceed New York State Class GA Groundwater Quality Standards.

01 _ B. SURFACE WATER CONTAMINATION — 02 _ OBSERVED (DATE:) _ POTENTIAL _ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: 0 — 04 NARRATIVE DESCRIPTION

Groundwater discharges tc the Little and Niagara Rivers. However, it is anticipated that the volume of groundwater when mixed with the volume of river water would not result in an impact to surface water quality.

01 _ C. CONTAMINATION OF AIR — 02 _ OBSERVED (DATE:) _ POTENTIAL _ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: — 04 NARRATIVE DESCRIPTION

N/A

01 _ D. FIRE/EXPLOSIVE CONDITIONS — 02 _ OBSERVED (DATE:) _ POTENTIAL _ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: — 04 NARRATIVE DESCRIPTION

N/A

01 _ E. DIRECT CONTACT — 02 _ OBSERVED (DATE:) _ POTENTIAL _ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: — 04 NARRATIVE DESCRIPTION

Wastes are covered with approximately 6 to 24 inches of soil.

01 X F. CONTAMINATION OF SOIL — 02 X OBSERVED (DATE: 10/93) X POTENTIAL _ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: 0 — 04 NARRATIVE DESCRIPTION

Low concentrations of volatile organic compounds, semivolatile organic compounds, pesticides, and one PCB were detected in subsurface soil samples.

01 _ G. DRINKING WATER CONTAMINATION — 02 _ OBSERVED (DATE:) _ POTENTIAL _ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: — 04 NARRATIVE DESCRIPTION

N/A

01 _ H. WORKER EXPOSURE/INJURY — 02 _ OBSERVED (DATE:) _ POTENTIAL _ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: — 04 NARRATIVE DESCRIPTION

N/A

01 _ I. POPULATION EXPOSURE/INJURY — 02 _ OBSERVED (DATE:) _ POTENTIAL _ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: — 04 NARRATIVE DESCRIPTION

N/A

EPA	POTENTIAL HAZARDOUS WASTE SITE SITE INSPECTION REPORT PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS	I. IDENTIFICATION 01 STATE: New York 01 SITE NUMBER: D980506703

II. HAZARDOUS CONDITIONS AND INCIDENTS (Continued)

01 _ J. DAMAGE TO FLORA — 02 _ OBSERVED (DATE: _____) _ POTENTIAL _ ALLEGED
04 NARRATIVE DESCRIPTION

N/A

01 _ K. DAMAGE TO FAUNA — 02 _ OBSERVED (DATE: _____) _ POTENTIAL _ ALLEGED
04 NARRATIVE DESCRIPTION (Include name(s) of species)

N/A

01 _ L. CONTAMINATION OF FOOD CHAIN — 02 _ OBSERVED (DATE: _____) _ POTENTIAL _ ALLEGED
04 NARRATIVE DESCRIPTION

N/A

01 _ M. UNSTABLE CONTAINMENT OF WASTES (Spills/Runoff/Standing liquids, Leaking drums) — 02 _ OBSERVED (DATE: _____) _ POTENTIAL _ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ — 04 NARRATIVE DESCRIPTION

N/A

01 _ N. DAMAGE TO OFFSITE PROPERTY — 02 _ OBSERVED (DATE: _____) _ POTENTIAL _ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ — 04 NARRATIVE DESCRIPTION

N/A

01 _ O. CONTAMINATION OF SEWERS, STORM DRAINS, WWTPs — 02 _ OBSERVED (DATE: _____) _ POTENTIAL _ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ — 04 NARRATIVE DESCRIPTION

N/A

01 _ P. ILLEGAL/UNAUTHORIZED DUMPING — 02 _ OBSERVED (DATE: _____) _ POTENTIAL _ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ — 04 NARRATIVE DESCRIPTION

N/A

05 DESCRIPTION OF ANY OTHER KNOWN, POTENTIAL, OR ALLEGED HAZARDS

N/A

III. TOTAL POPULATION POTENTIALLY AFFECTED: 0

IV. COMMENTS

Waste materials are covered by approximately 6 to 24 inches of soil. Data does not indicate any significant impact to groundwater quality. Because the surrounding area is supplied with public drinking water and drinking water wells are not likely to be installed in the park area it is highly unlikely groundwater would be used for a drinking water source. Overall, there is little, to no, potential for direct contact or exposure to wastes disposed at the site.

V. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

Preliminary Site Assessment Report, November 1993, ABB Environmental Services, and references cited therein

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 4 - PERMIT AND DESCRIPTIVE INFORMATION

I. IDENTIFICATION	
01 STATE	01 SITE NUMBER
New York	D980506703

II. PERMIT INFORMATION

01 TYPE OF PERMIT ISSUED (Check all that apply)	02 PERMIT NUMBER	03 DATE ISSUED	04 EXPIRATION DATE	05 COMMENTS
_ A. NPDES				
_ B. UIC				
_ C. AIR				
_ D. RCRA				
_ E. RCRA INTERIM STATUS				
_ F. SPCC PLAN				
_ G. STATE (specify)				
_ H. LOCAL (specify)				
_ I. OTHER (specify)				
X J. NONE				

III. SITE DESCRIPTION

01 STORAGE/DISPOSAL (check all that apply)	02 AMOUNT	03 UNIT OF MEASURE
_ A. SURFACE IMPOUNDMENT		
_ B. PILES		
_ C. DRUMS, ABOVE GROUND		
_ D. TANK, ABOVE GROUND		
_ E. TANK, BELOW GROUND		
X F. LANDFILL	unknown	
_ G. LANDFARM		
_ H. OPEN DUMP		
_ I. OTHER (specify)		

04 TREATMENT (check all that apply)

_ A. INCINERATION
_ B. UNDERGROUND INJECTION
_ C. CHEMICAL/PHYSICAL
_ D. BIOLOGICAL
_ E. WASTE OIL PROCESSING
_ F. SOLVENT RECOVERY
_ G. OTHER RECYCLING/RECOVERY
X H. OTHER None (specify)

05 OTHER
_ A. BUILDINGS ONSITE

06 AREA OF SITE
12.8 (acres)

07 COMMENTS

The site was a wetland before the City of Niagara Falls acquired the property in 1938. The City used the site for disposal of municipal waste. Natural soils are covered with approximately 6 feet of waste material, that is in turn covered with 6 to 24 inches of soil.

IV. CONTAINMENT

01 CONTAINMENT OF WASTES (check one)

_ A. ADEQUATE, SECURE X B. MODERATE _ C. INADEQUATE, POOR _ D. INSECURE, UNSOUND, DANGEROUS

02 DESCRIPTION OF DRUMS, DIKING, LINERS, BARRIERS, ETC.

Waste material is covered with 6 to 24 inches of soil.

V. ACCESSIBILITY

01 WASTE EASILY ACCESSIBLE: _ YES X NO
02 COMMENTS

VI. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

Preliminary Site Assessment Report, November 1993, ABB Environmental Services, and references cited therein.

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT

EPA

PART 5 - WATER, DEMOGRAPHIC, AND ENVIRONMENTAL DATA

I. IDENTIFICATION

01 STATE	01 SITE NUMBER
New York	D980506703

II. DRINKING WATER SUPPLY

01 TYPE OF DRINKING SUPPLY (check as applicable)	SURFACE	WELL	02 STATUS			03 DISTANCE TO SITE
			ENDANGERED	AFFECTED	MONITORED	
COMMUNITY	A. X	A. _	A. _	B. _	C. _	A. approx. 3 (mi)
NON-COMMUNITY	B. _	B. _	D. _	E. _	F. _	B. _____ (mi)

III. GROUNDWATER

01 GROUNDWATER USE IN VICINITY (check one)

_ A. ONLY SOURCE FOR DRINKING
_ B. DRINKING (other sources available) COMMERCIAL, INDUSTRIAL, IRRIGATION (No other water sources available)
_ C. COMMERCIAL INDUSTRIAL IRRIGATION (Limited other sources available)
X D. NOT USED, UNUSABLE

02 POPULATION SERVED BY GROUNDWATER	03 DISTANCE TO NEAREST DRINKING WATER WELL
0	unknown (mi)

04 DEPTH TO GROUNDWATER	05 DIRECTION OF GROUNDWATER FLOW	06 DEPTH TO AQUIFER OF CONCERN	07 POTENTIAL YIELD OF AQUIFER	08 SOLE SOURCE AQUIFER
4-6 (ft)	southwest	approx. 30 (ft)	1500 (gpd)	_ YES X NO

09 DESCRIPTION OF WELLS (including usage, depth, and location relative to population and buildings)

No known drinking water wells are in the area. Groundwater monitoring wells associated with the Love Canal and 102nd Street Landfill Superfund sites, are located to the north and east of Griffon Park.

10 RECHARGE AREA		11 DISCHARGE AREA	
_ YES X NO	COMMENTS	X YES _ NO	COMMENTS Groundwater may be discharging to adjacent Little and Niagara rivers

IV. SURFACE WATER

01 SURFACE WATER USE (Check one)

X A. RESERVOIR, RECREATION DRINKING WATER SOURCE
_ B. IRRIGATION, ECONOMICALLY IMPORTANT RESOURCES
_ C. COMMERCIAL INDUSTRIAL
_ D. NOT CURRENTLY USED

02 AFFECTED/POTENTIALLY AFFECTED BODIES OF WATER

NAME:	AFFECTED	DISTANCE TO SITE
Niagara River	_	Adjacent (mi)
Little River	_	Adjacent (mi)
Lake Ontario	_	12 (mi)

V. DEMOGRAPHIC AND PROPERTY INFORMATION

01 TOTAL POPULATION WITHIN

ONE (1) MILE OF SITE	TWO (2) MILES OF SITE	THREE (3) MILES OF SITE
A. 16,000 NO. OF PERSONS	B. 30,000 NO. OF PERSONS	C. 80,000 NO. OF PERSONS

02 DISTANCE TO NEAREST POPULATION: 0.1 (mi)

03 NUMBER OF BUILDINGS WITHIN TWO (2) MILES OF SITE	04 DISTANCE TO NEAREST OFF-SITE BUILDING
Approx. 5,000	0.1 (mi)

05 POPULATION WITHIN VICINITY OF SITE (Provide narrative description of nature of population within written vicinity of site, e.g., rural, village, densely populated urban area)

Over 10,000 people live within 2 miles of Griffon Park. Several thousand buildings are within 2 miles of the site. Nearest off-site building is located 200 feet west of the park.

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT

EPA

PART 5 - WATER, DEMOGRAPHIC, AND ENVIRONMENTAL DATA

I. IDENTIFICATION

01 STATE	01 SITE NUMBER
New York	D980506703

VI. ENVIRONMENTAL INFORMATION

01 PERMEABILITY OF UNSATURATED ZONE (Check one)

_ A. 10^{-6} - 10^{-8} cm/sec _ B. 10^{-4} - 10^{-6} cm/sec X C. 10^{-4} - 10^{-3} cm/sec _ D. GREATER THAN 10^{-3} cm/sec

02 PERMEABILITY OF BEDROCK (Check one)

_ A. IMPERMEABLE (less than 10^{-6} cm/sec) X B. RELATIVELY IMPERMEABLE (10^{-4} - 10^{-6} cm/sec) _ C. RELATIVELY PERMEABLE (10^{-2} - 10^{-4} cm/sec) _ D. VERY PERMEABLE (Greater than 10^{-2} cm/sec)

03 DEPTH TO BEDROCK	04 DEPTH OF CONTAMINATED SOIL ZONE	05 SOIL Ph	
40-50 (ft)	6 (ft)	unknown	

06 NET PRECIPITATION	07 ONE YEAR 24 HOUR RAINFALL	08 SLOPE		
		SITE SLOPE	DIRECTION OF SITE SLOPE	TERRAIN AVERAGE SLOPE
32 (in)	2.5 (in)	5 %	South	2 %

09 FLOOD POTENTIAL

SITE IS IN 100 YEAR FLOODPLAIN

10 X SITE IS ON RIVERINE FLOODWAY

11 DISTANCE TO WETLANDS (5 acre minimum)

ESTUARINE: A. 0.1 (mi) OTHER: B. N/A (mi)

12 DISTANCE TO CRITICAL HABITAT (of endangered species)

N/A (mi)

ENDANGERED SPECIES: N/A

13 LAND USE IN VICINITY

DISTANCE TO:

COMMERCIAL/INDUSTRIAL	RESIDENTIAL AREAS; NATIONAL/STATE PARKS, FORESTS, OR WILDLIFE RESERVES	AGRICULTURAL LANDS PRIME AG LAND	AGRICULTURAL LANDS AG LAND
A. 2 (mi)	B. 0.1 (mi)	C. N/A (mi)	D. N/A (mi)

14 DESCRIPTION OF SITE IN RELATION TO SURROUNDING TOPOGRAPHY

Griffon Park is bordered by Buffalo Avenue to the north, the 102nd Landfill to the east, the Little River and Niagara River to the south, and residential properties to the west. The site is relatively flat with a gradual slop toward the Niagara and Little rivers. The average elevation in the park is 572 feet. The elevation of the Little River is approximately 563 feet.

Surface runoff from Griffon Park flows toward the eastern border of the site where runoff collects and drains into Little River. Surface runoff from the western border of the 102nd Street Landfill also flows to the eastern site of Griffon Park and drains to the Little River. The southern border of the site is located within the 100-year flood zone of the Niagara and Little rivers.

VII. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

Preliminary Site Assessment Report, November 1993, ABB Environmental Services, and references cited therein.

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 6 - SAMPLE AND FIELD INFORMATION

I. IDENTIFICATION	
01 STATE	01 SITE NUMBER
New York	D980506703

II. SAMPLES TAKEN

SAMPLE TYPE	01 NUMBER OF SAMPLES TAKEN	02 SAMPLES SENT TO	03 ESTIMATED DATE RESULTS AVAILABLE
GROUNDWATER	10	NYTEST Environmental, Inc.	9/93
SURFACE WATER	--		
WASTE	16	NYTEST Environmental. Inc.	9/93
AIR	--		
RUNOFF	--		
SPILL	--		
SOIL	--		
VEGETATION	--		
OTHER	--		

III. FIELD MEASUREMENTS TAKEN

01 TYPE	02 COMMENTS

IV. PHOTOGRAPHS AND MAPS

01 TYPE X GROUND _ AERIAL

02 IN CUSTODY OF Ralph Keating, NYSDEC
(Name of organization or individual)

03 MAPS
X YES
_ NO

04 LOCATION OF MAPS
Ralph Keating, NYSDEC

V. OTHER FIELD DATA COLLECTED (Provide narrative description)

VI. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

Preliminary Site Assessment Report, November 1993, ABB Environmental Services, and references cited therein.

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POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 7 - OWNER INFORMATION

I. IDENTIFICATION	
01 STATE	01 SITE NUMBER
New York	D980506703

II. CURRENT OWNER(S)

01 NAME	02 D+B NUMBER	03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE	05 CITY	06 STATE	07 ZIP CODE
City of Niagara Falls	N/A	City Hall, Main Street	N/A	Niagara Falls	New York	14302

PARENT COMPANY (If applicable)

08 NAME	09 D+B NUMBER	10 STREET ADDRESS (P.O. Box, RFD #, etc.)	11 SIC CODE	12 CITY	13 STATE	14 ZIP CODE
N/A						

III. PREVIOUS OWNER(S) (List most recent first)

01 NAME	02 D+B NUMBER	03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE	05 CITY	06 STATE	07 ZIP CODE
N/A						

IV. REALTY OWNER(S) (If applicable; list most recent first)

01 NAME	02 D+B NUMBER	03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE	05 CITY	06 STATE	07 ZIP CODE
N/A						

V. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

Preliminary Site Assessment Report, November 1993, ABB Environmental Services, and references cited therein.

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POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 8 - OPERATOR INFORMATION

I. IDENTIFICATION

01 STATE	01 SITE NUMBER
New York	D980506703

II. CURRENT OPERATOR (Provide if different from owner)

01 NAME	02 D+B NUMBER
N/A	
03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE
05 CITY	06 STATE / 07 ZIP CODE
08 YEARS OF OPERATION	09 NAME OF OWNER

OPERATOR'S PARENT COMPANY (If applicable)

10 NAME	11 D+B NUMBER
N/A	
12 STREET ADDRESS (P.O. Box, RFD #, etc.)	13 SIC CODE
14 CITY	15 STATE / 16 ZIP CODE

III. PREVIOUS OPERATOR(S) (List most recent first; provide only if different from owner)

01 NAME	02 D+B NUMBER
N/A	
03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE
05 CITY	06 STATE / 07 ZIP CODE
08 YEARS OF OPERATION	09 NAME OF OWNER

PREVIOUS OPERATOR'S PARENT COMPANIES (If applicable)

10 NAME	11 D+B NUMBER
N/A	
12 STREET ADDRESS (P.O. Box, RFD #, etc.)	13 SIC CODE
14 CITY	15 STATE / 16 ZIP CODE

01 NAME	02 D+B NUMBER
03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE
05 CITY	06 STATE / 07 ZIP CODE
08 YEARS OF OPERATION	09 NAME OF OWNER

10 NAME	11 D+B NUMBER
12 STREET ADDRESS (P.O. Box, RFD #, etc.)	13 SIC CODE
14 CITY	15 STATE / 16 ZIP CODE

01 NAME	02 D+B NUMBER
03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE
05 CITY	06 STATE / 07 ZIP CODE
08 YEARS OF OPERATION	09 NAME OF OWNER

10 NAME	11 D+B NUMBER
12 STREET ADDRESS (P.O. Box, RFD #, etc.)	13 SIC CODE
14 CITY	15 STATE / 16 ZIP CODE

IV. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

Preliminary Site Assessment Report, November 1993, ABB Environmental Services, and references cited therein.

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POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 9 - GENERATOR/TRANSPORTER INFORMATION

I. IDENTIFICATION	
01 STATE	01 SITE NUMBER
New York	D980506703

II. ON-SITE GENERATOR

01 NAME	02 D+B NUMBER
N/A	
03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE
05 CITY	06 STATE / 07 ZIP CODE

III. OFF-SITE GENERATOR(s)

01 NAME	02 D+B NUMBER	01 NAME	02 D+B NUMBER
N/A			
03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE	03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE
05 CITY	06 STATE / 07 ZIP CODE	05 CITY	06 STATE / 07 ZIP CODE
01 NAME	02 D+B NUMBER	01 NAME	02 D+B NUMBER
03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE	03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE
05 CITY	06 STATE / 07 ZIP CODE	05 CITY	06 STATE / 07 ZIP CODE

IV. TRANSPORTER(S)

01 NAME	02 D+B NUMBER	01 NAME	02 D+B NUMBER
N/A			
03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE	03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE
05 CITY	06 STATE / 07 ZIP CODE	05 CITY	06 STATE / 07 ZIP CODE
01 NAME	02 D+B NUMBER	01 NAME	02 D+B NUMBER
03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE	03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE
05 CITY	06 STATE / 07 ZIP CODE	05 CITY	06 STATE / 07 ZIP CODE

IV. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

Preliminary Site Assessment Report, November 1993, ABB Environmental Services, and references cited therein.

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POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 10 - PAST RESPONSE ACTIVITIES

I. IDENTIFICATION	
01 STATE	01 SITE NUMBER
New York	D980506703

II. PAST RESPONSE ACTIVITIES

01 _ A. WATER SUPPLY CLOSED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION

N/A

01 _ B. TEMPORARY WATER SUPPLY PROVIDED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION

N/A

01 _ C. PERMANENT WATER SUPPLY PROVIDED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION

N/A

01 _ D. SPILLED MATERIAL REMOVED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION

N/A

01 _ E. CONTAMINATED SOIL REMOVED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION

N/A

01 _ F. WASTE REPACKAGED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION

N/A

01 _ G. WASTE DISPOSED ELSEWHERE — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION

N/A

01 _ H. ON SITE BURIAL — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION

N/A

01 _ I. IN SITU CHEMICAL TREATMENT — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION

N/A

01 _ J. IN SITU BIOLOGICAL TREATMENT — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION

N/A

01 _ K. IN SITU PHYSICAL TREATMENT — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION

N/A

01 _ L. ENCAPSULATION — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION

N/A

01 _ M. EMERGENCY WASTE TREATMENT — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION

N/A

01 _ N. CUTOFF WALLS — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION

N/A

01 _ O. EMERGENCY DIKING/SURFACE WATER DIVERSION — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION

N/A

01 _ P. CUTOFF TRENCHES/SUMP — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION

N/A

01 _ Q. SUBSURFACE CUTOFF WALL — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION

B/A

EPA	POTENTIAL HAZARDOUS WASTE SITE SITE INSPECTION REPORT PART 10 - PAST RESPONSE ACTIVITIES	I. IDENTIFICATION 01 STATE: New York 01 SITE NUMBER: D980506703

II. PAST RESPONSE ACTIVITIES (Continued)

01 _ R. BARRIER WALLS CONSTRUCTED 04 DESCRIPTION N/A	02 DATE	03 AGENCY
01 _ S. CAPPING/COVERING 04 DESCRIPTION N/A	02 DATE	03 AGENCY
01 _ T. BULK TANKAGE REPAIRED 04 DESCRIPTION N/A	02 DATE	03 AGENCY
01 _ U. GROUT CURTAIN CONSTRUCTED 04 DESCRIPTION N/A	02 DATE	03 AGENCY
01 _ V. BOTTOM SEALED 04 DESCRIPTION N/A	02 DATE	03 AGENCY
01 _ W. GAS CONTROL 04 DESCRIPTION N/A	02 DATE	03 AGENCY
01 _ X. FIRE CONTROL 04 DESCRIPTION N/A	02 DATE	03 AGENCY
01 _ Y. LEACHATE TREATMENT 04 DESCRIPTION N/A	02 DATE	03 AGENCY
01 _ Z. AREA EVACUATED 04 DESCRIPTION N/A	02 DATE	03 AGENCY
01 _ 1. ACCESS TO SITE RESTRICTED 04 DESCRIPTION N/A	02 DATE	03 AGENCY
01 _ 2. POPULATION RELOCATED 04 DESCRIPTION N/A	02 DATE	03 AGENCY
01 _ 3. OTHER REMEDIAL ACTIVITIES 04 DESCRIPTION N/A	02 DATE	03 AGENCY

IV. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

Preliminary Site Assessment Report, November 1993, ABB Environmental Services, and references cited therein.

EPA	POTENTIAL HAZARDOUS WASTE SITE SITE INSPECTION REPORT PART 11 - ENFORCEMENT INFORMATION	I. IDENTIFICATION	
		01 STATE	01 SITE NUMBER
		New York	D980506703

II. ENFORCEMENT INFORMATION

01 PAST REGULATORY/ENFORCEMENT ACTION _ YES X NO

02 DESCRIPTION OF FEDERAL, STATE, LOCAL REGULATORY/ENFORCEMENT ACTION

Investigations completed to date include:

- Sampling and analysis conducted by the USGS in 1982.
- USEPA Site Inspection conducted by NUS Corporation in 1983.
- Sampling and analysis conducted as part of the Remedial Investigation of the 102nd Street Landfill Superfund site in 1986.
- Phase I investigation conducted by LeRoy Callender, P.C. in 1988.
- Preliminary Site Assessment conducted for the New York State Department of Environmental Conservation by ABB Environmental Services between 1992 and 1993.

III. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

Preliminary Site Assessment Report, November 1993, ABB Environmental Services, and references cited therein.

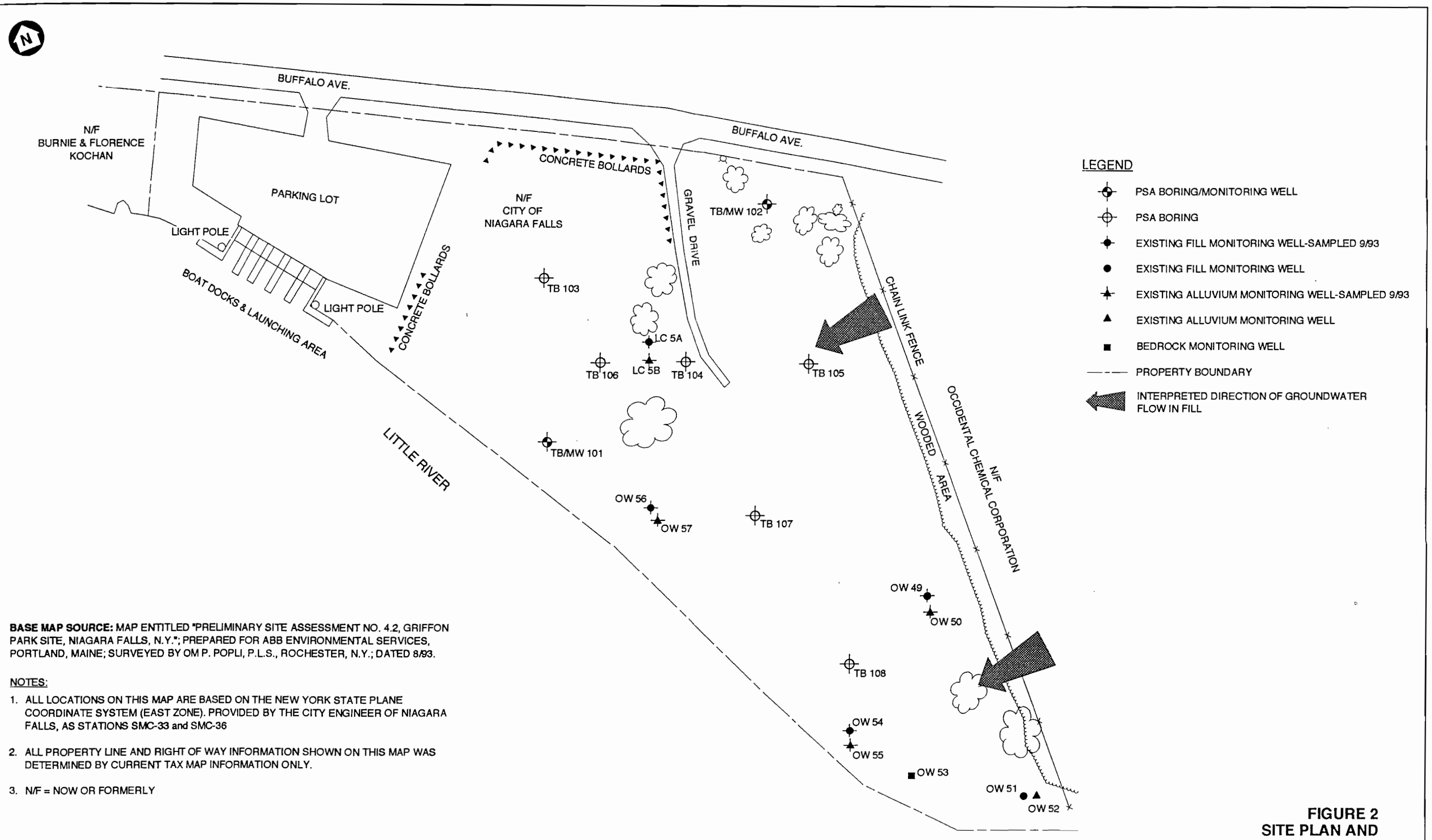
APPENDIX B

SITE-SPECIFIC GROUNDWATER PARAMETERS 102nd STREET LANDFILL SUPERFUND SITE RI

SITE-SPECIFIC GROUNDWATER PARAMETERS
102nd STREET SUPERFUND SITE LANDFILL RI

PARAMETER

Benzene
Toluene
Monochlorobenzene
2-Monochlorotoluene
4-Monochlorotoluene
1,2-Dichlorobenzene
1,4-Dichlorobenzene
1,2,3-Trichlorobenzene
1,2,4-Trichlorobenzene
1,2,3,4-Tetrachlorobenzene
1,2,4,5-Tetrachlorobenzene
Hexachlorobenzene
alpha Hexachlorocyclohexane
beta Hexachlorocyclohexane
gamma Hexachlorocyclohexane
delta Hexachlorocyclohexane
2,5-Dichloroaniline
3,4-Dichloroaniline
Phenol
2-Chlorophenol
4-Chlorophenol
2,4-Dichlorophenol
2,5-Dichlorophenol
2,4,5-Trichlorophenol
2,4,6-Trichlorophenol
2-Chlorobenzoic acid
3-Chlorobenzoic acid
4-Chlorobenzoic acid
General Parameters
Arsenic



BASE MAP SOURCE: MAP ENTITLED "PRELIMINARY SITE ASSESSMENT NO. 4.2, GRIFFON PARK SITE, NIAGARA FALLS, N.Y."; PREPARED FOR ABB ENVIRONMENTAL SERVICES, PORTLAND, MAINE; SURVEYED BY OM P. POPLI, P.L.S., ROCHESTER, N.Y.; DATED 8/93.

NOTES:

1. ALL LOCATIONS ON THIS MAP ARE BASED ON THE NEW YORK STATE PLANE COORDINATE SYSTEM (EAST ZONE). PROVIDED BY THE CITY ENGINEER OF NIAGARA FALLS, AS STATIONS SMC-33 and SMC-36
2. ALL PROPERTY LINE AND RIGHT OF WAY INFORMATION SHOWN ON THIS MAP WAS DETERMINED BY CURRENT TAX MAP INFORMATION ONLY.
3. N/F = NOW OR FORMERLY

SCALE IN FEET
0 120 240

FIGURE 2
SITE PLAN AND SAMPLING LOCATIONS
GRIFFON PARK SITE
NEW YORK STATE DEC

ABB Environmental Services

9308035D