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Environmental PRODUCTS & SERVICES, INC.

170 Cooper Avenue, Suite 100 Tonawanda, NY 14150
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August 13, 1996

FILE COPY

Mr. James Cooke
New York State Department of Environmental Conservation
270 Michigan Avenue
Buffalo, New York 14203

RE: Subsurface Investigation Report
Spill No. 9213441
Gastown Sportsmen's Club
154 East Niagara Street
Tonawanda, New York

Dear Mr. Cooke:

Environmental Products & Services, Inc. is pleased to submit to the New York State Department of Environmental Conservation the enclosed *Subsurface Investigation Report* detailing site activities, operations, and findings including laboratory analytical results for the site referenced above.

Please accept my personal apology for the delay in delivering this report to you. If you have any questions concerning this report please feel free to contact me or Mr. David Ellsworth at 716-447-4700. We appreciate this opportunity and look forward to working with you on future projects.

Very truly yours,

ENVIRONMENTAL PRODUCTS & SERVICES, INC.

David H. Coulter, Branch Manager
Buffalo Branch

7139.1113.DHC
DHC/dc

cc: File

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SUBSURFACE INVESTIGATION REPORT

**Gastown Sportsmen's Club
154 East Niagara Street
Tonawanda, New York**

Prepared For:

**New York State Department of Environmental Conservation
270 Michigan Avenue
Buffalo, New York**

Prepared By:

**Environmental Products & Services, Inc.
170 Cooper Avenue, Suite 100
Tonawanda, New York**

August 1996



Environmental
PRODUCTS & SERVICES, INC.

SUBSURFACE INVESTIGATION REPORT

Gastown Sportsmen's Club
154 East Niagara Street
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Prepared For:

New York State Department of Environmental Conservation
270 Michigan Avenue
Buffalo, New York

Submitted By:

Environmental Products & Services, Inc.
170 Cooper Avenue, Suite 100
Tonawanda, New York

August 1996

7139.1113.DHC



Environmental
PRODUCTS & SERVICES, INC.

EXECUTIVE SUMMARY

- o In response to the reported infiltration of petroleum and/or creosote into the sump of the Gastown Sportmen's Club located at 154 East Niagara Street in Tonawanda, New York, the New York State Department of Environmental Conservation (NYSDEC) directed Environmental Products & Services, Inc. to perform a subsurface investigation including:
 - o drilling 26 subsurface borings on the project site, and adjacent properties,
 - o assessing soil and groundwater conditions through the collection, and subsequent field examination and description, of continuous soil samples,
 - o assessing soil and groundwater conditions through the collection, and subsequent laboratory analysis, of soil and groundwater samples,
 - o converting five (5) of the borings to micro-monitoring wells,
 - o preparation of a subsurface investigation report.
- o The predominant lithology encountered on site included glacial sediments consisting of yellow/brown silty clay overlying a fine to medium grained sand. Underlying the sand layer is a thin sand and gravel unit overlying a fairly impermeable red/brown clay.
- o Depth to groundwater on site ranged from 4.58 to 6.11 feet below top-of-casing.
- o Environmental Products & Services, Inc. partially delineated a subsurface petroleum and creosote accumulation in the project area.
- o Laboratory analysis indicates the presence, in three (3) of the four (4) soil samples submitted, of volatile and semi-volatile organics in concentrations exceeding the Toxicity Characteristic Leaching Procedure (TCLP) Alternative Guidance Values (AGV) as listed in the NYSDEC's *STARS Memo #1 - Petroleum-Contaminated Soil Guidance Policy*.



RECOMMENDATIONS

- o This subsurface investigation has been fairly extensive and valuable information has been compiled on subsurface conditions on site including lithology, groundwater, and chemical contaminant presence and concentrations. However, several issues remain unresolved including:
 - o groundwater conditions and flow direction,
 - o complete vertical and horizontal delineation of the petroleum and/or creosote accumulation,
 - o the relationship between the petroleum and creosote (i.e. are there two separate and distinct problems on site or two parts of the same problem?),
 - o the best response for remediating this site, particularly with regard to the Gastown Sportsmen's Club's basement sump.
- o Environmental Products & Services, Inc. recommends the following tasks be considered:
 - o a detailed records search (if not previously completed) of the three sites to determine present and/or past underground storage tanks, spills, and property usage,
 - o the drilling and installation of additional borings and/or monitoring wells to completely delineate groundwater conditions/flow direction and the extent of the contamination, especially horizontally within the southern half of the project site.
- o Pending additional information, Environmental Products & Services, Inc. recommends that, in order to prevent further contamination from migrating into the Gastown Sportsmen's Club's basement sump, a barrier, either hydraulic (i.e. groundwater pump and treatment) or physical (slurry wall or sheet piling) or a combination of the two, be considered. This situation involves both a floating (petroleum) and sinking (creosote) contaminant. At first, it seems unlikely that the creosote should be detected in the sump however, it appears the creosote does possess some floating characteristics, thereby allowing it to migrate to the basement. Site-wide, the problem is more prevalent and a remediation response will need to be larger in scale and address possible source areas (i.e. groundwater pump and treatment, excavation, etc.).



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Appendix B: Laboratory Analytical Results (June 4, 6, and 11, 1996)



1.0 INTRODUCTION

Environmental Products & Services, Inc. was contracted by the New York State Department of Environmental Conservation (NYSDEC), Region 9 to perform a subsurface investigation at the Gastown Sportsmen's Club, and adjacent properties, in Tonawanda, New York (see Figure 1). The investigation consisted of drilling borings for the purposes of assessing soil and groundwater conditions related to a reported infiltration of petroleum and/or creosote into the sump and tiles in the club's basement.

Laboratory analysis of water samples collected previously from the sump indicated concentrations of petroleum and creosote. Test pits had been previously excavated to a maximum depth of approximately 12 feet below grade in the parking area to the west of the club. According to the NYSDEC representative, no petroleum or creosote were observed in the excavation.

2.0 SITE DESCRIPTION

The project site is located at 154 East Niagara Street, near the intersection with Carney Street, in Tonawanda, New York. The property is utilized as a social club. The topography of the property is relatively flat-lying with a gradual northerly downward slope toward Tonawanda Creek. Adjacent property to the west is owned by the Niagara Frontier Transportation Authority (NFTA). This property was a former International Railway Company railbed. The right of way was purchased by the NFTA which removed the track bed to the surrounding grade level. A portion of the property is leased to the Gastown Sportsmen's Club for parking. An AT&T fiber optic underground cable is located within this parking area approximately 25 feet west of the club.

To the west of the NFTA property is an industrial site purchased by Mr. Jack Holler in 1964. An aluminum casting company, a machine shop, and an industrial cleaning company currently occupy this property. The site was formerly owned by Iroquois Gas Corporation from 1957-1964. Republic Light, Heat, and Power operated a coal gasification facility on the property from 1921-1957.

Residential property is located to the south of the project site. Ellicott Creek is located within 1/2 mile of the site, to the south and southwest.

3.0 DRILLING INVESTIGATION

The drilling investigation was divided into three (3) phases; the Gastown Sportsmen's Club property, the NFTA property, and the Holler property. The primary goals of the investigation were to locate and delineate the areal extent of the petroleum and/or creosote contamination, collect soil and groundwater samples for laboratory analysis, and characterize the local geology including subsurface lithology and groundwater flow.



3.1 Methodology/Soil Borings

From June 3-7, and 10, 1996, Environmental Products & Services, Inc. drilled a total of 26 borings (see Figure 1). The boring locations were determined by the Environmental Products & Services, Inc. on-site geologist and through consultation with the NYSDEC representative. Each boring was drilled to depth utilizing Environmental Products & Services, Inc. Concord Model 9200 Series, a truck-mounted, hydraulically-controlled drill rig similar to a Geoprobe® system. This particular unit utilizes both direct-push technology and/or rotating augers. A pre-cleaned two-inch inside diameter stainless steel spoon with a clear acetate "zero contamination" liner was inserted for the collection of continuous soil samples over the entire length of each boring. Following a visual inspection and lithologic description by Environmental Products & Services, Inc. on-site geologist (see Appendix A), each soil sample was field examined with a Microtip II photoionization detector (PID) for volatile organic compounds (VOC's) using head-space methodology (see Appendix A). Based on the PID results and visual and olfactory examination, four (4) soil and three (3) groundwater samples were collected in laboratory-grade sample jars or vials, sealed, individually labeled, and transported, under standard chain-of-custody protocol, to Environmental Laboratory Services, Inc. in North Syracuse, New York for analysis of volatile and/or semi-volatile organics using EPA Methods 8021 and 8270 (Base/Neutrals), respectively (see Appendix B).

Decontamination procedures were implemented on all drilling and sampling equipment prior to, and between, each boring and/or sample acquisition. Contaminated (as determined in the field using a PID) drilling spoils (cuttings) and cores were temporarily stored on site in DOT-approved 55-gallon steel drums pending transportation and disposal at a licensed facility.

Each boring, with the exception of SB-13, SB-14, SB-15, SB-17, and SB-23, was subsequently plugged and sealed at grade. Borings SB-13, SB-14, SB-15, SB-17, and SB-23 were converted into micro-monitoring wells.

3.2 Methodology/Micro-monitoring Well Construction

Each micro-monitoring well was constructed of one-inch diameter Schedule 40 PVC well screen (.010 slot size) and riser with flush-threaded joints. An appropriately sized silica sand pack was placed in the annular space between the borehole and the well screen. The screened interval was determined on a well specific basis. Please refer to Appendix A for well completion details. A bentonite seal was placed between grade and the top of the sand pack to prevent the infiltration of surface water. Each micro-monitoring well was finished with a limited access, flush-mount, aluminum road box.



3.3 Gastown Sportsmen's Club Property

On June 3, 1996, Environmental Products & Services, Inc. drilled 12 soil borings (SB-1 through SB-12) on the south side of the Gastown Sportsmen's Club (see Figure 1). The borings ranged in depth from approximately 8-24 feet below grade.

The lithology encountered consisted of a mottled yellow-brown silty clay overlying (at approximately 8.0 feet below grade) a yellow-brown to gray, medium to fine-grained sand (see Appendix A). Borings SB-1 and SB-3 encountered a resistant gray, rounded to subrounded, fine gravel and coarse-grained sand layer at approximately 19-20 feet below grade. In SB-3, a red-brown clay was underlying the gravel at approximately 20-21 feet below grade.

Groundwater was encountered at approximately 6.5-8.0 feet below grade. Petroleum odor was detected in borings SB-1, 3, 4, 6, and 7 at depths ranging from approximately 6-20 feet below grade. An iridescent sheen was observed in SB-3, 6, and 7 at approximately 6.0-8.5 feet below grade. PID field analysis did not conclusively indicate VOC concentrations above background levels in any of the soil borings. However, based on the visual and olfactory observations, SB-3 was offset a few feet and re-drilled on June 4, 1996 to facilitate collection of soil (S-1) and groundwater (S-1) samples for laboratory analysis.

3.4 NFTA Property

On June 4-5, 1996, Environmental Products & Services, Inc. drilled seven (7) soil borings (SB-13 through SB-19) on this property to the west and north of the Gastown Sportsmen's Club (see Figure 1). The borings ranged in depth from approximately 20-24 feet below grade.

The lithology encountered was consistent with that seen in borings SB-1 through SB-12 except that miscellaneous fill material was present to a depth of approximately 2-5 feet below grade (see Appendix A).

Groundwater was encountered at approximately 7.0-10.0 feet below grade. Petroleum odor and sheen was detected in borings SB-13 and 16 at depths ranging from approximately 8.0-10.0 feet below grade. Creosote oil was observed in SB-13, 14, 15, 16, and 17 at depths ranging from 12.0-24.0 feet below grade. PID field analysis indicated VOC concentrations above background levels in SB-16 and 17 (the PID was inoperational during borings SB-13 through 15) ranging from 7.8-55.0 parts-per-million (ppm). PID field analysis did not indicate VOC concentrations above background levels in SB-18 or 19.

Soil (S-2, S-3) and groundwater (S-5) samples were collected from SB-13 and submitted for laboratory analysis.



Soil borings SB-13, 14, 15, and 17 were converted to micro-monitoring wells.

3.5 Holler Property

On June 6-7, and 10, 1996, Environmental Products & Services, Inc. drilled seven (7) soil borings (SB-20 through SB-26) on this property to the west of the NFTA property (see Figure 1). The borings ranged in depth from approximately 12-24 feet below grade.

The lithology encountered was consistent with that seen on the other properties. Miscellaneous fill material was present to a depth of approximately six (6) feet below grade (see Appendix A).

Groundwater was encountered at approximately 6.0-12.0 feet below grade. Petroleum odor was detected in borings SB-24 and 25 at depths ranging from approximately 3.5-10.0 feet below grade. Creosote odor was detected in SB-21, 22, 23, and 25 at depths ranging from approximately 4.0-24.0 feet below grade. Creosote oil was observed in SB-21, 22, 23, and 25 at depths ranging from 7.2-24.0 feet below grade. PID field analysis indicated VOC concentrations above background levels in SB-21 and 25 (the PID was inoperational during boring SB-22 and may have been adversely affected by rainy weather during SB-23 and 24) ranging from 20.0-54.0 ppm. PID field analysis did not indicate VOC concentrations above background levels in SB-20 or 26.

Soil (S-4) and groundwater (S-6) samples were collected from SB-21 and 23, respectively, and submitted for laboratory analysis.

Soil boring SB-23 was converted to a micro-monitoring well.

3.6 Surveying and Gauging

From June 11-14, 1996 the site was surveyed by Environmental Products & Services, Inc. including soil boring and micro-monitoring well locations and top-of-casing elevations. All survey data was referenced to a relative datum point of 100 feet above mean sea level.

Depth to groundwater and the presence and thickness of free-phase product (if applicable) was determined for each micro-monitoring well on June 14, 1996.

4.0 HYDROGEOLOGIC DATA

4.1 Site Geology

During the drilling of the 26 borings and installation of the five (5) micro-monitoring wells, the composition of the overburden was accurately documented by an Environmental Products & Services, Inc. geologist (see Appendix A). Miscellaneous fill of varying thickness overlies



Pleistocene glacial sediments. These sediments were probably deposited in glacial Lake Tonawanda. The predominant lithology of these glacial sediments consists of yellow/brown silty clay of varying thickness (approximately five (5) feet near the central portion of the project site to almost 20 feet near Tonawanda Creek) overlying a fine to medium grained sand. This sand layer is up to 14 feet thick in the center of the project site and pinches out toward Tonawanda Creek. Underlying the sand layer is a thin sand and gravel unit ranging in thickness from a few inches to approximately one (1) foot. This sand and gravel unit overlies a red/brown clay of unknown thickness.

4.2 Site Hydrogeology

Depth to groundwater and depth to free-phase product measurements were recorded from each on-site micro-monitoring well on June 14, 1996. Depth to groundwater ranged from 4.58 (MW-23) to 6.11 (MW-15) feet below top-of-casing. Free-phase product was not encountered in any of the micro-monitoring wells on June 14. Groundwater elevation contours were developed from the June 14 gauging data and are depicted on Figure 1. Groundwater within the overburden material underlying the project site appears to be migrating locally in a south-southeasterly direction. It should be noted that the project site is located in close proximity to two creeks; one immediately to the north and the other within 1/2 mile to the south-southwest. The five (5) micro-monitoring wells are probably too closely grouped to provide definitive groundwater flow direction information. Additional data points are necessary to accurately determine this site's groundwater flow.

Petroleum and/or creosote was detected/observed in several borings on the project site (see Figure 1 & Appendix A). A partially delineated petroleum and creosote accumulation extends eastward from the Holler property to the Gastown Sportsmen's Club. Petroleum sheen was observed on site from approximate depths of 6.0-10.0 feet below grade while a petroleum odor was detected from approximate depths of 3.5-20.0 feet below grade. Creosote oil was observed on site from approximate depths of 7.2-24.0 feet below grade.

5.0 LABORATORY ANALYTICAL RESULTS

Based on field screening utilizing a PID as well as visual and olfactory examinations by Environmental Products & Services, Inc. on-site geologist, soil and groundwater samples were collected from selected borings and/or micro-monitoring wells on June 4, 6, and 11, 1996.

On June 4, 1996, soil sample, S-1 was collected from boring #3 at a depth of approximately 6.0-8.0 feet below grade. Groundwater sample, S-1 was also collected from this boring. Soil samples, S-2 and S-3, were collected from boring #13 at a depth of approximately 8.0-9.0 feet below grade and 19.0-20.0 feet below grade, respectively. Both S-1 samples and S-2 were analyzed using EPA Method 8021 while S-3 was analyzed using EPA Methods 8021 and 8270 (Base/Neutrals). Laboratory analysis performed on the acquired samples verified



the presence of chemical constituents (see Appendix B). In the case of soil samples, S-1 and S-3, some of these chemical constituents were detected at concentrations exceeding the Toxicity Characteristic Leaching Procedure (TCLP) Alternative Guidance Values (AGV) as identified in Tables 1 and 2 of the NYSDEC's *STARS Memo #1 - Petroleum-Contaminated Soil Guidance Policy* (see Table 1). Chemical constituents were detected in S-1 (groundwater) and S-2, but not at concentrations exceeding the TCLP AGV. It should be noted that these TCLP AGV's were developed for contaminated soil and are not necessarily applicable for groundwater.

On June 6, 1996, soil sample, S-4 was collected from boring #21 at a depth of approximately 11.0-12.0 feet below grade. This sample was analyzed using EPA Methods 8021 and 8270 (Base/Neutrals). Laboratory analysis performed on the acquired sample verified the presence of chemical constituents (see Appendix B), most of them at concentrations substantially exceeding the TCLP AGV (see Table 1).

On June 11, 1996, groundwater samples, S-5 and S-6, were collected from micro-monitoring wells, MW-13 and MW-23, respectively. Both samples were analyzed using EPA Methods 8021 and 8270 (Base/Neutrals). Laboratory analysis performed on the acquired samples verified the presence of chemical constituents (see Appendix B) however, the TCLP AGV's were developed for contaminated soil and are not necessarily applicable for groundwater.



6.0 SUMMARY

- o In response to the reported infiltration of petroleum and/or creosote into the sump of the Gastown Sportmen's Club located at 154 East Niagara Street in Tonawanda, New York, the New York State Department of Environmental Conservation (NYSDEC) directed Environmental Products & Services, Inc. to perform a subsurface investigation including:
 - o drilling 26 subsurface borings on the project site, and adjacent properties,
 - o assessing soil and groundwater conditions through the collection, and subsequent field examination and description, of continuous soil samples,
 - o assessing soil and groundwater conditions through the collection, and subsequent laboratory analysis, of soil and groundwater samples,
 - o converting five (5) of the borings to micro-monitoring wells,
 - o preparation of a subsurface investigation report.
- o The predominant lithology encountered on site included glacial sediments consisting of yellow/brown silty clay overlying a fine to medium grained sand. Underlying the sand layer is a thin sand and gravel unit overlying a fairly impermeable red/brown clay.
- o Depth to groundwater on site ranged from 4.58 to 6.11 feet below top-of-casing.
- o Environmental Products & Services, Inc. partially delineated a subsurface petroleum and creosote accumulation in the project area.
- o Laboratory analysis indicates the presence, in three (3) of the four (4) soil samples submitted, of volatile and semi-volatile organics in concentrations exceeding the Toxicity Characteristic Leaching Procedure (TCLP) Alternative Guidance Values (AGV) as listed in the NYSDEC's *STARS Memo #1 - Petroleum-Contaminated Soil Guidance Policy*.



FIGURES



TABLES



Table 1

Laboratory Analytical Results

(exceeding the Toxicity Characteristic Leaching Procedure (TCLP) Alternative Guidance Values (AGV))

(June 4, 6, 11, 1996)

NYSDEC/Gastown Sportsmen's Club
154 East Niagara Street, Tonawanda, NY

Sample I.D.	Chemical Constituent	Concentration (in ppb)	TCLP AGV (in ppb)
S-1 (soil)	n-butylbenzene	472	100
	sec-butylbenzene	119	100
	naphthalene	384	200
	n-propylbenzene	227	100
	1,2,4-trimethylbenzene	202	100
	1,3,5-trimethylbenzene	195	100
S-3 (soil)	n-butylbenzene	158	100
	ethylbenzene	228	100
	naphthalene	20,300	200
	1,2,4-trimethylbenzene	196	100
	anthracene	10,600	1,000
	benzo(a)anthracene	2,700	0.04
	benzo(b)fluoranthene	1,100	0.04
	benzo(k)fluoranthene	1,700	0.04
	benzo(g,h,i)perylene	1,400	0.04
	benzo(a)pyrene	2,800	0.04
	chrysene	3,600	0.04
	fluoranthene	6,600	1,000
	ideno(1,2,3-cd)pyrene	1,100	0.04
	naphthalene	13,800	200
	phenanthrene	14,700	1,000
	pyrene	9,100	1,000
S-4 (soil)	n-butylbenzene	5,570	100
	sec-butylbenzene	8,720	100
	ethylbenzene	32,000	100
	n-propylbenzene	3,800	100
	1,2,4-trimethylbenzene	26,000	100
	1,3,5-trimethylbenzene	11,800	100
	total xylenes	30,700	100
	acenaphthene	75,700	400
	anthracene	95,500	1,000
	benzo(a)anthracene	45,200	0.04
	benzo(b)fluoranthene	18,100	0.04
	benzo(k)fluoranthene	28,400	0.04
	benzo(g,h,i)perylene	22,700	0.04
	benzo(a)pyrene	47,000	0.04
	chrysene	45,800	0.04
	fluoranthene	141,000	1,000
	fluorene	84,100	1,000
	ideno(1,2,3-cd)pyrene	18,600	0.04
	naphthalene	596,000	200
	phenanthrene	286,000	1,000
	pyrene	168,000	1,000

APPENDIX A
Subsurface Logs



Environmental PRODUCTS & SERVICES, INC.		Subsurface Log		Hole No.: 1 Sheet 1 of 1		Date Started: 06/03/96 Date Finished: 06/03/96	
Client: NYSDEC Gastown Sportsmen's Club Location: Tonawanda, N.Y.		Method of Investigation: Direct push method, Geoprobe tooling, 2-inch diameter, 4-foot long soil probe.					
Project No.: B1113 Proj. Mgr: D. Ellsworth Geologist: T. Burmeier				Drilling Co.: Environmental Products & Services Driller: R. Varno Drill Rig: Concord 9200		Weather: 65-70 degrees F, light rain	

Depth (ft.)	Sample					Sample Description	Field Analytical Readings	Well Details	Groundwater and Other Observations
	No.	Depth (ft.)	Blows /6"	"N"	Recovery (ft.)				
0	S1	0-4			3.0	0.0'-0.5' TOP SOIL. 0.5'-4.0' Tan to light brown, moist, silty CLAY, trace sand. Changes to dark gray, silty CLAY, some black coal.			NO ODOR OBSERVED IN SAMPLES 0'-19.8'
5	S2	4-8			3.5	4.0'-4.4' Medium gray CLAY. 4.4'-7.8' Medium yellow/brown, firm to soft, moist to very moist, silty CLAY.			
10	S3	8-12			4.0	7.8'-10.3' Medium yellow/brown, fine to medium SAND. Becomes medium gray, fine SAND (10.3' -15.4').			SAMPLES WET AT 8.0'
15	S4	12-16			4.0				
20	S5	16-20			3.5	15.4'-15.6' Medium gray, sandy CLAY. 15.6'-19.8' Gray, fine to medium SAND.		19.8'-20' FAINT PETROLEUM ODOR	
						19.8'-20' Rounded GRAVEL.			REFUSAL ON GRAVEL @ 20'
									20' = BOTTOM OF BORING

Sample Types: S=Split Spoon: 2" R= Rock Core: _____ N = ASTM D1586	Backfill Well Key Cement Sand Native Fill Bentonite
---	---

MEMORANDUM

TO: Dave Ellsworth
FROM: Tim Osier
DATE: July 24, 1996
SUBJECT: Subsurface Investigation at Gastown Sportmen's Club, Tonawanda, New York

This memorandum is to advise you of the issues of concern regarding the MGP site at the Gastown Sportsmen's Club property in Tonawanda, New York. The three main issues that must be determined are:

1. Are there two distinct problems at the site or is the floating oil and the DNAPL coal tar residue two parts of the same problem?
2. What is the full vertical and horizontal extent of the subsurface involvement?
3. What is the best method to prevent the problem from effecting the sump in the Sportsmen's Club building?

The following tasks should be performed to provide information and answer issue one:

- Determine the presence or past presence of underground storage tanks.
- Do an historical search of the site to determine all past uses for the site.
- Determine if a fingerprint analysis is necessary on the sump oil and floating sheen.
- Determine the types of analyses completed on the different phases in the

basement sump.

- Obtain the results of any analyses performed of the basement sump.

The following tasks should be performed to provide information and answer issue two:

- Determine if there are sumps in other buildings in the area that have similar problems.
- Install at least one up-gradient background well to the west of the foundry building.
- Add at least one-double cased boring to determine if the coal tar oil has migrated down through the lower clay layer.
- Add more borings to the west and east to delineate the outer edges of the complete horizontal plume.
- Determine why the soil samples in boring 13 had no exceedences, but had a sheen on the water table.

The following tasks should be performed to provide information and answer issue three:

- Obtain water elevations in the basement sump and Tonawanda Creek.
- Determine the water elevation in the area of borings 20, 21, and 24.
- Add at least one upgradient background well to the west of the old MGP site.

The above information is needed to determine the natural flow of groundwater in the area, the full horizontal and vertical extent of the plume, and the best method to prevent the flow of oils into the basement sump. Some of the possible methods to prevent contamination in the basement sump are a hydraulic barrier, excavation, and/or a slurry wall.

TRO/mm

8433.TO.814

cc: Mark Wilder, Environmental Products & Services, Inc.
Dave Coulter, Environmental Products & Services, Inc.

Issues to address for MGP site in Buffalo

- x ① Water levels - Stream (2 points) + Sump in Sportsman's Club. -
- ② Is there actually 2 problems on the site or is the oil in the sump coming from MGP problem?
- ③ Was there any underground storage tanks on-site? -
- ④ Historical use of the property - do a history check.
- ⑤ Are the problems in the sumps - of nearby homes?
- ⑥ Do a 310 analysis to determine the source of the problem.
determine fingerprint of sump oil + floating "sheen" is necessary
- ⑦ Install more water level points to determine x-sectional water table
convert at least one to upgradient/background monitoring well
- * ⑧ Need more borings to determine the westerly horizontal extent.
propose on map -
- * ⑨ Double case some deeper borings and monitoring wells to determine the vertical extent.
- ⑩ Permanent monitoring wells to determine water table fluctuations.
find out what analyses
- ⑪ Obtain the analytical results of the sump water
- B. ⑫ Obtain the analytical results of the oil sample from the sump
- ⑬ Obtain the analytical results of the oil adhering to the walls of the sump.
- * ⑭ Why is there a no CH designation on borings 20 + 24, but the notes say there was black staining on the soil from the first two attempts on boring 24.
- ⑮ Why no water levels for borings 20, 21, or 24?
- ⑯ Boring 13 had no excursions in the 8-9 ft interval, however, there was an observed sheen.

David

7-24-96

I Spoke with Tim O'Sien this morning @ 7:50 AM, Regarding the info sent to He and Mark, I inquired as to the Status of deliverables for DEC Construction report.

- * Prior to my vacation on 7/8, 9-96 I spoke to Tim O. He had received all related materials and would have recommendations back to me asap. did not happen
- * to date nothing has been done. I told him this morning we absolutely had to have boring logs, as well as any thing else they were providing.
- * I am not pleased with the Service we have received, Corp. Geo. was involved because they insisted they be involved.
- * Tim promised logs + Recommendations Repeatedly hasn't produced.
- * Tim promised it would be done today
- * if you speak to Mark, I would appreciate it if you would communicate my frustration over the lack of support, and remind him they were only involved because they did not

trust our abilities (DHC TB DE) to do an investigation and produce a report. Had we done this on our own I believe it would have been delivered prior to this.

* Mark & Tim were supposed to have been in Buffalo today 7/24 they are not coming - didn't call ahead to reschedule.

* I will do my best to accommodate their schedule. However, work is coming in the door, and we need to do it if they would like to reschedule I need some advance notice so that I can be prepared.

* We have sent inf. for Cattaraugus County land fill 16 (analysis) today for pricing etc.

Thanks
Sincerely
Dana



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NYS DEC REGION 9 - BUFFALO
270 MICHIGAN AVE.

PROJECT #: 963828
RECEIVED: 06/12/96

BUFFALO NY 14203-2999
ATTN: MR. JIM COOKE

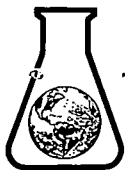
PIN #: SP92556
SPILL #: 9213441
SPILL SITE: 154 EAST NIAGARA STREET
TONAWANDA, NY

P.O. # D100712
CLIENT JOB NUMBER: B1113

TEST PERFORMED	RESULTS	UNITS	DATE PERFORMED	METHOD NUMBER	PERFORMED BY
SAMPLE #: 106051 CLIENT SAMPLE ID: B1327 S-5 HOLE #13			DATE SAMPLED: 06/11/96		
VOL. ORGANICS - EPA 8021 STARS LIST		UG/L	06/17/96	EPA 8021	SKW
BENZENE	<1.0				
N-BUTYLBENZENE	1.3				
SEC-BUTYLBENZENE	<1.0				
TERT-BUTYLBENZENE	<1.0				
CUMENE (ISOPROPYLBENZENE)	<1.0				
CYMENE (4-ISOPROPYLTOLUENE)	<1.0				
ETHYLBENZENE	<1.0				
NAPHTHALENE	7.8				
N-PROPYLBENZENE	<1.0				
TOLUENE	<1.0				
1,2,4-TRIMETHYLBENZENE	<1.0				
1,3,5-TRIMETHYLBENZENE	<1.0				
TOTAL XYLENES	<1.0				
MTBE	<1.0				

S-5 =
SB-13

SAMPLE #: 106053 CLIENT SAMPLE ID: B1327 S-5 HOLE #13			DATE SAMPLED: 06/11/96		
SEMIVOL. ORGANICS - B/N STARS LIST		UG/L	06/13/96	EPA 8270	DJ
ACENAPHTHENE	<1.0				
ANTHRACENE	<1.0				
BENZO(A)ANTHRACENE	<1.0				
BENZO(B)FLUORANTHENE	<1.0				
BENZO(K)FLUORANTHENE	<1.0				
BENZO(G,H,I)PERYLENE	<1.0				
BENZO(A)PYRENE	<1.0				
CHRYSENE	<1.0				
DIBENZ(A,H)ANTHRACENE	<1.0				
FLUORANTHENE	2.2				
FLUORENE	2.2				
INDENO(1,2,3-CD)PYRENE	<1.0				
NAPHTHALENE	<1.0				



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NYS DEC REGION 9 - BUFFALO
270 MICHIGAN AVE.

PROJECT #: 963828
RECEIVED: 06/12/96

BUFFALO NY 14203-2999
ATTN: MR. JIM COOKE

PIN #: SP92556
SPILL #: 9213441
SPILL SITE: 154 EAST NIAGARA STREET
TONAWANDA, NY

P.O. # D100712
CLIENT JOB NUMBER: B1113

TEST PERFORMED	RESULTS	UNITS	DATE PERFORMED	METHOD NUMBER	PERFORMED BY
SAMPLE #: 106053 CLIENT SAMPLE ID: B1327 S-5 HOLE #13			DATE SAMPLED: 06/11/96		
SEMIVOL. ORGANICS - B/N STARS LIST		UG/L	06/13/96	EPA 8270	DJ
PHENANTHRENE	4.1				
PYRENE	2.3				
SAMPLE #: 106054 CLIENT SAMPLE ID: B1327 S-6 HOLE #23			DATE SAMPLED: 06/11/96		
VOL. ORGANICS - EPA 8021 STARS LIST		UG/L	06/18/96	EPA 8021	SKW
BENZENE	<5.0				
N-BUTYLBENZENE	7.6				
SEC-BUTYLBENZENE	<5.0				
TERT-BUTYLBENZENE	<5.0				
CUMENE (ISOPROPYLBENZENE)	<5.0				
CYMENE (4-ISOPROPYLTOLUENE)	<5.0				
ETHYLBENZENE	7.0				
NAPHTHALENE	128				
N-PROPYLBENZENE	<5.0				
TOLUENE	<5.0				
1,2,4-TRIMETHYLBENZENE	19.0				
1,3,5-TRIMETHYLBENZENE	8.4				
TOTAL XYLENES	33.9				
MTBE	<5.0				
SAMPLE #: 106055 CLIENT SAMPLE ID: B1327 S-6 HOLE #23			DATE SAMPLED: 06/11/96		
SEMIVOL. ORGANICS - B/N STARS LIST		UG/L	06/13/96	EPA 8270	DJ
ACENAPHTHENE	<1.0				
ANTHRACENE	2.3				
BENZO(A)ANTHRACENE	<1.0				
BENZO(B)FLUORANTHENE	<1.0				
BENZO(K)FLUORANTHENE	<1.0				
BENZO(G,H,I)PERYLENE	<1.0				

56
SB-23



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NYS DEC REGION 9 - BUFFALO
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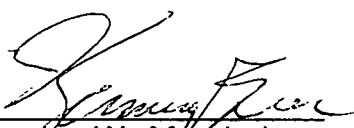
PROJECT #: 963828
RECEIVED: 06/12/96

BUFFALO NY 14203-2999
ATTN: MR. JIM COOKE

PIN #: SP92556
SPILL #: 9213441
SPILL SITE: 154 EAST NIAGARA STREET
TONAWANDA, NY

P.O. # D100712
CLIENT JOB NUMBER: B1113

TEST PERFORMED	RESULTS	UNITS	DATE PERFORMED	METHOD NUMBER	PERFORMED BY
SAMPLE #: 106055 CLIENT SAMPLE ID: B1327 S-6 HOLE #23			DATE SAMPLED: 06/11/96		
SEMIVOL. ORGANICS - B/N STARS LIST		UG/L	06/13/96	EPA 8270	DJ
BENZO(A)PYRENE	<1.0				
CHRYSENE	<1.0				
DIBENZ(A,H)ANTHRACENE	<1.0				
FLUORANTHENE	4.7				
FLUORENE	7.0				
INDENO(1,2,3-CD)PYRENE	<1.0				
NAPHTHALENE	<1.0				
PHENANTHRENE	9.1				
PYRENE	3.4				

for 
Douglas W. Mendrala
Laboratory Director

06/19/96
Date

All tests performed under NYS ELAP Laboratory Certification # 11375 unless otherwise stated.

**Environmental**

PRODUCTS & SERVICES, INC.

Jim Cook

(315) 471-0503 / (800) 843-8265

CHAIN OF CUSTODY RECORD

EPS LAB LOG NO. 1327

JOB NUMBER: <u>B1113</u>	PIN NUMBER: <u>72550</u>	LABORATORY: <u>ELS</u>	REPORTING REQUIREMENTS (other than mail) ☒ PHONE NO. <u>716-447-4700</u> ☐ FAX NO.:
P.O. NUMBER: <u>N/A</u>	SPILL NUMBER: <u>9213441</u>	ADDRESS:	
		PHONE NO.:	

TURN AROUND TIME
(CALL AHEAD FOR
APPROVAL FOR RUSH)24-HOUR ☐
48-HOUR ☐
NORMAL ☒
OTHER ☐LAB
APPROVAL BY: _____

CONTAINER TYPE:

V - VOA VIALS
G - GLASS
P - PLASTIC
O - OTHER _____SPECIAL DETECTION
LIMITS ☐ ☒
Yes No
(Specify)SPECIAL QA/QC LEVEL
Yes ☐ No ☒
(Specify)WASTE SAMPLE
Yes ☐ No ☐

SAMPLE TYPE:

G - GRAB
C - COMPOSITE
W - WIPE
SS - SURFACE SCRAPE
O - OTHER (SPECIFY)ANALYSIS RE-
QUESTED

SITE ADDRESS

154 E.
NIAGARA ST
TONAWANDA,
NY

SPECIAL INSTRUCTIONS

COMMENTS/
SAMPLING

POINT(S)

HOLE #13
HOLE #13
HOLE #13
HOLE #23
HOLE #23
HOLE #23Sample(s)
State of
Origin:CT ☐
DE ☐
MA ☐
MD ☐
NH ☐
NJ ☐
NY ☒
PA ☐
RI ☐
VT ☐
— ☐Lab Use
OnlySAMPLE I.D./
DESCRIPTION

DATE	TIME	CONTAINER	MATRIX	TYPE (ENTER CODE)	PRESERVATIVE
------	------	-----------	--------	-------------------------	--------------

Number

Size

Type (Enter Code)

Groundwater

Soil

Sludge

Other

HCl

HNO₃H₂SO₄

Ice (4°C)

Teflon Liner

Filtered

Other

CORROS ☐ FLASH ☐ REACT ☐ pH ☐TCPL: METALS ☐ VOA ☐ SEMI-VOA ☐TCPL: PEST ☐ HERB ☐TOTAL METALS ☐ SPECIFY:OIL AND GREASE: EPA 413.1 ☐PH: GRO ☐ DRO ☐ TPH ☐TPH: EPA 418.1 (IR) ☐ NYS DOH 310-13 (GC) ☐EPA 503.1 ☐ EPA 524 ☐ W/MTBE ☐EPA 601 ☐ EPA 8010 ☐ EPA 802 ☒ W/MTBE ☐EPA 602 ☐ EPA 8020 ☐ BTEX ☐ W/MTBE ☐EPA 608 ☐ EPA 8080 ☐ PCB ONLY ☐EPA 624 ☐ EPA 8240 ☐ EPA 8260 ☐EPA 625 ☐ EPA 8270 ☒ EPA 8270 BN ☐

EPS CONTACT:

PHONE NO.:

CUSTODY TRANSFERS

RELINQUISHED BY: (SAMPLER)	DATE	TIME	RECEIVED BY:	DATE	TIME
<u>Tom Bruner</u>	<u>9/11/96</u>	<u>15:30</u>			
RELINQUISHED BY:			RECEIVED BY:		
RELINQUISHED BY:			RECEIVED AT LAB BY: <u>[Signature]</u>	<u>6-12-96</u>	<u>8:00</u>

White - LABORATORY

Canary - CORPORATE ENVIRONMENTAL

Pink - PROJECT COORDINATOR

Goldenrod - BRANCH FILE

2202.ENV.202.9506



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NYS DEC REGION 9 - BUFFALO
270 MICHIGAN AVE.

PROJECT #: 963803
RECEIVED: 06/10/96

BUFFALO NY 14203-2999
ATTN: MR. JIM COOKE

PIN #: SP92556
SPILL #: 9213441
SPILL SITE: 154 E. NIAGARA STREET
TONAWANDA, NY

P.O. # D100712
CLIENT JOB NUMBER: B1113

TEST PERFORMED	RESULTS	UNITS	DATE PERFORMED	METHOD NUMBER	PERFORMED BY
SAMPLE #: 105981 CLIENT SAMPLE ID: B1325 S-4 HOLE #21, 11-12' DATE SAMPLED: 06/06/96					
VOL. ORGANICS - EPA 8021 STARS LIST		MG/KG DRY WT.	06/20/96	EPA 8021	SKW
BENZENE	<0.313				
N-BUTYLBENZENE	5.57				
SEC-BUTYLBENZENE	8.72				
TERT-BUTYLBENZENE	<0.313				
CUMENE (ISOPROPYLBENZENE)	<0.313				
CYMENE (4-ISOPROPYLTOLUENE)	<0.313				
ETHYLBENZENE	32.0				
NAPHTHALENE	<0.313				
N-PROPYLBENZENE	3.80				
TOLUENE	<0.313				
1,2,4-TRIMETHYLBENZENE	26.0				
1,3,5-TRIMETHYLBENZENE	11.8				
TOTAL XYLENES	30.7				
MTBE	<0.313				

SAMPLE #: 105982 CLIENT SAMPLE ID: B1325 S-4 HOLE #21, 11-12' DATE SAMPLED: 06/06/96

SOLIDS, TOTAL	80	PERCENT	06/11/96	EPA 160.3	SKW
SEMIVOL. ORGANICS - B/N STARS LIST		MG/KG DRY WT.	06/14/96	EPA 8270	DJ
ACENAPHTHENE	75.7				
ANTHRACENE	95.5				
BENZO(A)ANTHRACENE	45.2				
BENZO(B)FLUORANTHENE	18.1				
BENZO(K)FLUORANTHENE	26.4				
BENZO(G,H,I)PERYLENE	22.7				
BENZO(A)PYRENE	47.0				
CHRYSENE	45.8				
DIBENZ(A,H)ANTHRACENE	<12.0				
FLUORANTHENE	141				
FLUORENE	84.1				



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NYS DEC REGION 9 - BUFFALO
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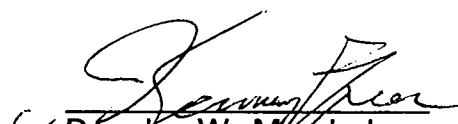
PROJECT #: 963803
RECEIVED: 06/10/96

BUFFALO NY 14203-2999
ATTN: MR. JIM COOKE

P.O. # D100712
CLIENT JOB NUMBER: B1113

PIN #: SP92556
SPILL #: 9213441
SPILL SITE: 154 E. NIAGARA STREET
TONAWANDA, NY

TEST PERFORMED	RESULTS	UNITS	DATE PERFORMED	METHOD NUMBER	PERFORMED BY
SAMPLE #: 105982 CLIENT SAMPLE ID: B1325 S-4 HOLE #21, 11-12' DATE SAMPLED: 06/06/96					
SEMIVOL. ORGANICS - B/N STARS LIST		MG/KG DRY WT.	06/14/96	EPA 8270	DJ
INDENO(1,2,3-CD)PYRENE	18.6				
NAPHTHALENE	596				
PHENANTHRENE	286				
PYRENE	168				


for Douglas W. Mendrala
Laboratory Director

06/21/96
Date

All tests performed under NYS ELAP Laboratory Certification # 11375 unless otherwise stated.

Environmental

PRODUCTS & SERVICES, INC.

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CHAIN OF CUSTODY RECORD

EPS LAB LOG NO. 1325

[illegible]



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NYS DEC REGION 9 - BUFFALO
270 MICHIGAN AVE.

PROJECT #: 963768
RECEIVED: 06/05/96

BUFFALO NY 14203-2999
ATTN: MR. JIM COOKE

PIN #: SP92556
SPILL #: 9213441
SPILL SITE: 154 E. NIAGARA STREET
TONAWANDA, NY

P.O. # D100712
CLIENT JOB NUMBER: B1113

TEST PERFORMED	RESULTS	UNITS	DATE PERFORMED	METHOD NUMBER	
SAMPLE #: 105909 CLIENT SAMPLE ID: B1322 S-1 GROUNDWATER DATE SAMPLED: 06/04/96					
VOL. ORGANICS - EPA 8021 STARS LIST		UG/L	06/07/96	EPA 8021	S-1 = SKW SB-3
BENZENE	<0.7				
N-BUTYLBENZENE	2.5				
SEC-BUTYLBENZENE	2.3				
TERT-BUTYLBENZENE	<1.0				
CUMENE (ISOPROPYLBENZENE)	<1.0				
CYMENE (4-ISOPROPYLTOLUENE)	<1.0				
ETHYLBENZENE	1.1				
NAPHTHALENE	<1.0				
N-PROPYLBENZENE	<1.0				
TOLUENE	<1.0				
1,2,4-TRIMETHYLBENZENE	<1.0				
1,3,5-TRIMETHYLBENZENE	<1.0				
TOTAL XYLENES	<1.0				
MTBE	<1.0				
SAMPLE #: 105910 CLIENT SAMPLE ID: B1322 S-1 GROUNDWATER DATE SAMPLED: 06/04/96					
SEMIVOL. ORGANICS - B/N STARS LIST		UG/L	06/13/96	EPA 8270	DJ
ACENAPHTHENE	3.5				
ANTHRACENE	<1.0				
BENZO(A)ANTHRACENE	<1.0				
BENZO(B)FLUORANTHENE	<1.0				
BENZO(K)FLUORANTHENE	<1.0				
BENZO(G,H,I)PERYLENE	<1.0				
BENZO(A)PYRENE	<1.0				
CHRYSENE	<1.0				
DIBENZ(A,H)ANTHRACENE	<1.0				
FLUORANTHENE	<1.0				
FLUORENE	4.0				
INDENO(1,2,3-CD)PYRENE	<1.0				
NAPHTHALENE	<1.0				



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PROJECT #: 963768
RECEIVED: 06/05/96

BUFFALO NY 14203-2999
ATTN: MR. JIM COOKE

PIN #: SP92556
SPILL #: 9213441
SPILL SITE: 154 E. NIAGARA STREET
TONAWANDA, NY

P.O. # D100712
CLIENT JOB NUMBER: B1113

TEST PERFORMED	RESULTS	UNITS	DATE PERFORMED	METHOD NUMBER	PERFORMED BY
SAMPLE #: 105910 CLIENT SAMPLE ID: B1322 S-1 GROUNDWATER DATE SAMPLED: 06/04/96					
SEMIVOL. ORGANICS - B/N STARS LIST		UG/L	06/13/96	EPA 8270	DJ
PHENANTHRENE	1.1				
PYRENE	<1.0				
SAMPLE #: 105911 CLIENT SAMPLE ID: B1322 S-1 SOIL DATE SAMPLED: 06/04/96					
VOL. ORGANICS - EPA 8021 STARS LIST		MG/KG DRY WT.	06/07/96	EPA 8021	SKW
BENZENE	<0.014				
N-BUTYLBENZENE	0.472				
SEC-BUTYLBENZENE	0.119				
TERT-BUTYLBENZENE	<0.080				
CUMENE (ISOPROPYLBENZENE)	<0.080				
CYMENE (4-ISOPROPYLTOLUENE)	<0.080				
ETHYLBENZENE	<0.080				
NAPHTHALENE	0.384				
N-PROPYLBENZENE	0.227				
TOLUENE	<0.080				
1,2,4-TRIMETHYLBENZENE	0.202				
1,3,5-TRIMETHYLBENZENE	0.195				
TOTAL XYLENES	<0.080				
MTBE	<0.080				
SAMPLE #: 105912 CLIENT SAMPLE ID: B1322 S-1 SOIL DATE SAMPLED: 06/04/96					
SOLIDS, TOTAL	79	PERCENT	06/06/96	EPA 160.3	SKW
SEMIVOL. ORGANICS - B/N STARS LIST		MG/KG DRY WT.	06/17/96	EPA 8270	DJ
ACENAPHTHENE	<0.061				
ANTHRACENE	<0.061				
BENZO(A)ANTHRACENE	<0.061				
BENZO(B)FLUORANTHENE	<0.061				



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SPILL #: 9213441
SPILL SITE: 154 E. NIAGARA STREET
TONAWANDA, NY

P.O. # D100712
CLIENT JOB NUMBER: B1113

TEST PERFORMED	RESULTS	UNITS	DATE PERFORMED	METHOD NUMBER	PERFORMED BY
SAMPLE #: 105912 CLIENT SAMPLE ID: B1322 S-1 SOIL			DATE SAMPLED: 06/04/96		
SEMIVOL. ORGANICS - B/N STARS LIST		MG/KG DRY WT.	06/17/96	EPA 8270	DJ
BENZO(K)FLUORANTHENE	<0.061				
BENZO(G,H,I)PERYLENE	<0.061				
BENZO(A)PYRENE	<0.061				
CHRYSENE	<0.061				
DIBENZ(A,H)ANTHRACENE	<0.061				
FLUORANTHENE	<0.061				
FLUORENE	<0.061				
INDENO(1,2,3-CD)PYRENE	<0.061				
NAPHTHALENE	<0.061				
PHENANTHRENE	<0.061				
PYRENE	<0.061				
SAMPLE #: 105913 CLIENT SAMPLE ID: B1322 S-2 SOIL			DATE SAMPLED: 06/04/96		
VOL. ORGANICS - EPA 8021 STARS LIST		MG/KG DRY WT.	06/08/96	EPA 8021	SKW
BENZENE	<0.014				
N-BUTYLBENZENE	<0.080				
SEC-BUTYLBENZENE	<0.080				
TERT-BUTYLBENZENE	<0.080				
CUMENE (ISOPROPYLBENZENE)	<0.080				
CYMENE (4-ISOPROPYLTOLUENE)	<0.080				
ETHYLBENZENE	<0.080				
NAPHTHALENE	<0.080				
N-PROPYLBENZENE	<0.080				
TOLUENE	<0.080				
1,2,4-TRIMETHYLBENZENE	<0.080				
1,3,5-TRIMETHYLBENZENE	<0.080				
TOTAL XYLENES	<0.080				
MTBE	<0.080				



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PROJECT #: 963768
RECEIVED: 06/05/96

BUFFALO NY 14203-2999
ATTN: MR. JIM COOKE

PIN #: SP92556
SPILL #: 9213441
SPILL SITE: 154 E. NIAGARA STREET
TONAWANDA, NY

P.O. # D100712
CLIENT JOB NUMBER: B1113

TEST PERFORMED	RESULTS	UNITS	DATE PERFORMED	METHOD NUMBER	PERFORMED BY
SAMPLE #: 105914 CLIENT SAMPLE ID: B1322 S-2 SOIL			DATE SAMPLED: 06/04/96		
SOLIDS, TOTAL	83	PERCENT	06/06/96	EPA 160.3	SKW
SEMIVOL. ORGANICS - B/N STARS LIST		MG/KG DRY WT.	06/13/96	EPA 8270	DJ
ACENAPHTHENE	<0.060				
ANTHRACENE	<0.060				
BENZO(A)ANTHRACENE	<0.060				
BENZO(B)FLUORANTHENE	<0.060				
BENZO(K)FLUORANTHENE	<0.060				
BENZO(G,H,I)PERYLENE	<0.060				
BENZO(A)PYRENE	<0.060				
CHRYSENE	<0.060				
DIBENZ(A,H)ANTHRACENE	<0.060				
FLUORANTHENE	0.070				
FLUORENE	<0.060				
INDENO(1,2,3-CD)PYRENE	<0.060				
NAPHTHALENE	<0.060				
PHENANTHRENE	<0.060				
PYRENE	0.11				

SAMPLE #: 105915 CLIENT SAMPLE ID: B1322 S-3 CREASOTE			DATE SAMPLED: 06/04/96		
SOLIDS, TOTAL	82	PERCENT	06/06/96	EPA 160.3	SKW
VOL. ORGANICS - EPA 8021 STARS LIST		MG/KG DRY WT.	06/12/96	EPA 8021	SKW
BENZENE	<0.014				
N-BUTYLBENZENE	0.158				
SEC-BUTYLBENZENE	<0.080				
TERT-BUTYLBENZENE	<0.080				
CUMENE (ISOPROPYLBENZENE)	<0.080				
CYMENE (4-ISOPROPYLTOLUENE)	<0.080				
ETHYLBENZENE	0.228				
NAPHTHALENE	20.3				



Environmental
LABORATORY SERVICES

7280 Caswell Street, Hancock Air Park, North Syracuse, NY 13212
(315) 458-8033, FAX (315) 458-0249, (800) 842-4667

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• Connecticut
• Delaware
• Maryland
• Massachusetts
• New Hampshire
• New Jersey
• New York
• Pennsylvania
• Rhode Island

NYS DEC REGION 9 - BUFFALO
270 MICHIGAN AVE.

PROJECT #: 963768
RECEIVED: 06/05/96

BUFFALO NY 14203-2999
ATTN: MR. JIM COOKE

PIN #: SP92556
SPILL #: 9213441
SPILL SITE: 154 E. NIAGARA STREET
TONAWANDA, NY

P.O. # D100712
CLIENT JOB NUMBER: B1113

TEST PERFORMED	RESULTS	UNITS	DATE PERFORMED	METHOD NUMBER	PERFORMED BY
SAMPLE #: 105915 CLIENT SAMPLE ID: B1322 S-3 CREASOTE DATE SAMPLED: 06/04/96					
VOL. ORGANICS - EPA 8021 STARS LIST		MG/KG DRY WT.	06/12/96	EPA 8021	SKW
N-PROPYLBENZENE	<0.080				
TOLUENE	<0.080				
1,2,4-TRIMETHYLBENZENE	0.196				
1,3,5-TRIMETHYLBENZENE	0.095				
TOTAL XYLENES	<0.080				
MTBE	<0.080				
SEMIVOL. ORGANICS - B/N STARS LIST		MG/KG DRY WT.	06/14/96	EPA 8270	DJ
ACENAPHTHENE	<0.61				
ANTHRACENE	10.6				
BENZO(A)ANTHRACENE	2.7				
BENZO(B)FLUORANTHENE	1.1				
BENZO(K)FLUORANTHENE	1.7				
BENZO(G,H,I)PERYLENE	1.4				
BENZO(A)PYRENE	2.8				
CHRYSENE	3.6				
DIBENZ(A,H)ANTHRACENE	<0.61				
FLUORANTHENE	6.6				
FLUORENE	<0.61				
INDENO(1,2,3-CD)PYRENE	1.1				
NAPHTHALENE	13.8				
PHENANTHRENE	14.7				
PYRENE	9.1				



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TONAWANDA, NY

P.O. # D100712
CLIENT JOB NUMBER: B1113

for Douglas W. Mendrala
for Douglas W. Mendrala
Laboratory Director

06/19/96
Date

All tests performed under NYS ELAP Laboratory Certification # 11375 unless otherwise stated.

Environmental

PRODUCTS & SERVICES, INC.

DEC contact Jim Cooke

(315) 471-0503 / (800) 843-8265

CHAIN OF CUSTODY RECORD

EPS LAB LOG NO. 1522

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Environmental PRODUCTS & SERVICES, INC.		Subsurface Log		Hole No.:4 Sheet 1 of 1		Date Started: 06/03/96 Date Finished: 06/03/96	
Client: NYSDEC Gastown Sportsmen's Club			Method of Investigation: Direct push method, Geoprobe tooling, 2-inch diameter, 4-foot long soil probe.				
Location: Tonawanda, N.Y.							
Project No.: B1113 Proj. Mgr: D. Ellsworth Geologist: T. Burmeier			Drilling Co.: Environmental Products & Services Driller: R. Varno Drill Rig: Concord 9200			Weather: 65-70 degrees F, light rain	

Depth (ft.)	Sample					Sample Description	Field Analytical Readings	Well Details	Groundwater and Other Observations
0	No.	Depth (ft.)	Blows /6"	"N"	Recovery (ft.)				
	S1	0-4			3.8	0.0'-1.8' TOP SOIL, trace coal.	MICROTIP PID AFFECTED BY RAIN		FAINT PETROLEUM ODOR OBSERVED IN SAMPLES 6.0' - 6.5' SAMPLES WET AT 6.5'
						1.8'-4.4' Yellow/brown, firm, slightly moist, silty CLAY.			
5	S2	4-8			3.4	4.4'-5.5' Sandy CLAY.			
						5.5'-9.3' Medium gray/brown, mottled, loose, clayey, fine SAND.			
	S3	8-12			4.0	9.3'-10.1' Yellow/brown, firm, silty CLAY.			
10						10.1'-11.3' Yellow, medium SAND.			
						11.3'-12.0' Gray, medium SAND.			
15									
20									

Sample Types:

S=Split Spoon: 2"

R= Rock Core:

N = ASTM D1586

Backfill Well Key

Cement	Native Fill
Sand	Bentonite

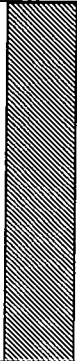
Environmental PRODUCTS & SERVICES, INC.						Subsurface Log		Hole No.: 5 Sheet 1 of 1	Date Started: 06/03/96 Date Finished: 06/03/96
Client: NYSDEC Gastown Sportsmen's Club Location: Tonawanda, N.Y.						Method of Investigation: Direct push method, Geoprobe tooling, 2-inch diameter, 4-foot long soil probe.			
Project No.: B1113 Proj. Mgr: D. Ellsworth Geologist: T. Burmeier						Drilling Co.: Environmental Products & Services Driller: R. Varno Drill Rig: Concord 9200			Weather: 65-70 degrees F, light rain
Depth (ft.)	Sample					Sample Description	Field Analytical Readings	Well Details	Groundwater and Other Observations
	No.	Depth (ft.)	Blows /6"	"N"	Recovery (ft.)				
0	S1	0-4			4.0	0.0'-2.0' TOP SOIL, trace coal .	MICROTIP PID AFFECTED BY RAIN		NO ODOR OBSERVED IN SAMPLES 0.0' - 12.0'
						2.0'-8.0' Light gray/brown to yellow/brown to red/brown, firm to soft, silty CLAY.			
5	S2	4-8			3.6				
	S3	8-12			4.0	8.0'-9.5' Yellow/red, silty CLAY with loose, very fine sand.			
						9.5'-11.0' Yellow/brown, mottled, silty CLAY.			
10						11.0'-12.0' Medium gray/brown, fine SAND.			
15									12' = BOTTOM OF BORING

Sample Types:
 S=Split Spoon: 2"
 R= Rock Core: _____
 N = ASTM D1586

Backfill Well Key

Cement
 Native Fill

Sand
 Bentonite

Environmental PRODUCTS & SERVICES, INC.		Subsurface Log		Hole No. : 6 Sheet 1 of 1		Date Started: 06/03/96 Date Finished: 06/03/96			
Client: NYSDEC Gastown Sportsmen's Club Location: Tonawanda, N.Y.			Method of Investigation: Direct push method, Geoprobe tooling, 2-inch diameter, 4-foot long soil probe.						
Project No.: B1113 Proj. Mgr: D. Ellsworth Geologist: T. Burmeier			Drilling Co.: Environmental Products & Services Driller: R. Varno Drill Rig: Concord 9200			Weather: 65-70 degrees F, light rain			
Depth (ft.)	Sample					Sample Description	Field Analytical Readings	Well Details	Groundwater and Other Observations
	No.	Depth (ft.)	Blows /6"	"N"	Recovery (ft.)				
0	S1	0-4			2.5	0.0'-1.5' TOP SOIL, trace coal. 1.5'-6.5' Tan, yellow/brown, mottled, firm to soft, silty CLAY.	MICROTIP PID AFFECTED BY RAIN		PETROLEUM ODOR AND SHEEN OBSERVED AT 6.7'
5	S2	4-8			4.0	6.5'-8.0' Grades to medium gray.			8' = BOTTOM OF BORING
10									
15									
20									

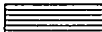
Sample Types:

S=Split Spoon: 2"

R= Rock Core:

N = ASTM D1586

Backfill Well Key

 Cement	 Native Fill
 Sand	 Bentonite

Environmental PRODUCTS & SERVICES, INC.		Subsurface Log		Hole No.: 7 Sheet 1 of 1	Date Started: 06/03/96 Date Finished: 06/03/96				
Client: NYSDEC Gastown Sportsmen's Club Location: Tonawanda, N.Y.		Method of Investigation: Direct push method, Geoprobe tooling, 2-inch diameter, 4-foot long soil probe.							
Project No.: B1113 Proj. Mgr: D. Ellsworth Geologist: T. Burmeier		Drilling Co.: Environmental Products & Services Driller: R. Varno Drill Rig: Concord 9200		Weather: 65-70 degrees F, light rain					
Depth (ft.)	Sample					Sample Description	Field Analytical Readings	Well Details	Groundwater and Other Observations
	No.	Depth (ft.)	Blows /6"	"N"	Recovery (ft.)				
0	S1	0-4			3.4	0.0'-2.0' TOP SOIL.	MICROTIP PID AFFECTED BY RAIN		PETROLEUM ODOR AND SHEEN OBSERVED AT 6.8'
						2.0'-6.0' Yellow/brown and gray, firm to soft, slightly moist, silty CLAY.			
5	S2	4-8			4.0	6.0'-8.0' Grades to sandy CLAY.			
10									8' = BOTTOM OF BORING
15									8' = BOTTOM OF BORING
20									8' = BOTTOM OF BORING

Sample Types:

S=Split Spoon: 2"

R= Rock Core:

N = ASTM D1586

Backfill Well Key

Cement

Sand

Native Fill

Bentonite

[illegible]

[illegible]

[illegible]

Environmental PRODUCTS & SERVICES, INC.						Subsurface Log				Hole No.: 11 Sheet 1 of 1	Date Started: 06/03/96 Date Finished: 06/03/96	
Client: NYSDEC Gastown Sportsmen's Club Location: Tonawanda, N.Y.						Method of Investigation: Direct push method, Geoprobe tooling, 2-inch diameter, 4-foot long soil probe.						
Project No.: B1113 Proj. Mgr: D. Ellsworth Geologist: T. Burmeier						Drilling Co.: Environmental Products & Services Driller: R. Varo Drill Rig: Concord 9200				Weather: 65-70 degrees F, light rain		
Depth (ft.)	Sample					Sample Description	Field Analytical Readings	Well Details	Groundwater and Other Observations			
	No.	Depth (ft.)	Blows /6"	*N*	Recovery (ft.)							
0	S1	0-4			3.6	0.0'-2.0' TOP SOIL. 2.0'-8.0' Yellow/brown, mottled, silty CLAY. Grades to medium gray at 4.0'.	MICROTIP PID AFFECTED BY RAIN		NO ODOR OR SHEEN OBSERVED 0.0' - 8.0'			
5	S2	4-8			1.2	8' = BOTTOM OF BORING						
10												
15												
20												

Sample Types:
 S=Split Spoon: _____ 2"
 R= Rock Core: _____
 N = ASTM D1586

Backfill Well Key

	Cement		Native Fill
	Sand		Bentonite

[illegible]

[illegible]

Environmental PRODUCTS & SERVICES, INC.		Subsurface Log		Hole No.:14 Sheet 1 of 1		Date Started: 06/04/96 Date Finished: 06/04/96			
Client: NYSDEC Gastown Sportsmen's Club			Method of Investigation: Direct push method, Geoprobe tooling, 2-inch diameter, 4-foot long soil probe.						
Location: Tonawanda, N.Y.			Project No.: B1113 Proj. Mgr: D. Ellsworth Geologist: T. Burmeier			Drilling Co.: Environmental Products & Services Driller: R. Varno Drill Rig: Concord 9200			
					Weather: 65 degrees F, cloudy				
Depth (ft.)	Sample					Sample Description	Field Analytical Readings	Well Details	Groundwater and Other Observations
	No.	Depth (ft.)	Blows /6"	"N"	Recovery (ft.)				
0	S1	0-4			3.3	0.0'-0.5' GRAVEL FILL. 0.5'-4.0' Medium yellow/brown, silty CLAY.			
5	S2	4-8			3.2	4.0'-10.0' Tan, yellow/brown, mottled, sandy, silty CLAY.			
	S3	8-12			4.0				
10						10.0'-15.0' Yellow/brown, loose, fine to medium SAND.			SAMPLES WET AT 10.0'
	S4	12-16			4.0				
15						15.0'-16.0' Medium gray, fine, clayey SAND.			
	S5	16-20			4.0	16.0'-22.5' Gray, loose, wet, fine SAND. Grades to yellow/brown, firm, medium to fine SAND from 18.0'-19.0'.			
20	S6	20-22			4.0				Free oily substance 19.5' - 22.5'
						22.5'-22.7' Dark gray GRAVEL. 22.7'-24.0' Reddish brown, soft CLAY.			Strong petroleum odor in gravel
									24' = BOTTOM OF BORING

Sample Types:
 S=Split Spoon: 2"
 R= Rock Core:
 N = ASTM D1586

Backfill Well Key

Cement
 Sand

Native Fill
 Bentonite

[illegible]

[illegible]

Environmental PRODUCTS & SERVICES, INC.		Subsurface Log		Hole No.:17 Sheet 1 of 1	Date Started: 06/05/96 Date Finished: 06/05/96				
Client: NYSDEC Gastown Sportsmen's Club Location: Tonawanda, N.Y.		Method of Investigation: Direct push method, Geoprobe tooling, 2-inch diameter, 4-foot long soil probe.							
Project No.: B1113 Proj. Mgr: D. Ellsworth Geologist: T. Burmeier			Drilling Co.: Environmental Products & Services Driller: R. Varno Drill Rig: Concord 9200		Weather: 55 degrees F, cloudy and windy				
Depth (ft.)	Sample					Sample Description	Field Analytical Readings	Well Details	Groundwater and Other Observations
	No.	Depth (ft.)	Blows /6"	"N"	Recovery (ft.)				
0	S1	0-4			3.4	0.0'-0.5' GRAVEL FILL. 0.5'-3.1' White to green GRANULAR MATERIAL.			
						3.1'-4.2' Light brown to yellow/brown, silty CLAY.			
5	S2	4-8			4.0	4.2'-8.0' Black to dark gray/green SILT.			
	S3	8-12			4.0	8.0'-9.2' Medium gray, silty CLAY.			
10						9.2'-11.0' Black to dark gray/green, silty CLAY.			
	S4	12-16			4.0	11.0'-19.5' Gray/green to yellow/brown, mottled, fine SAND.			SAMPLES WET WITH BLACK WATER AT 10.5'
						13.5'-16.0' Zone of tan, loose, fine SAND.			
15									
	S5	16-20			4.0	16.0'-19.5' Non-cohesive.			Free oily substance 16.0' - 22.0'
20						19.5'-20.0' Medium brown CLAY.			
	S6	20-22			3.0	20.0'-22.0' Loose, fine SAND.			
						22.0'-24.0' Reddish brown, soft CLAY, some scattered 2" diameter pebbles.			
									24' = BOTTOM OF BORING

Sample Types:

S=Split Spoon: _____ 2"

R= Rock Core: _____

N = ASTM D1586

Backfill Well Key

Cement

Sand

Native Fill

Bentonite

Environmental PRODUCTS & SERVICES, INC.		Subsurface Log		Hole No.: 18		Date Started: 06/05/96			
				Sheet 1 of 1		Date Finished: 06/05/96			
Client: NYSDEC Gastown Sportsmen's Club Location: Tonawanda, N.Y.			Method of Investigation: Direct push method, Geoprobe tooling, 2-inch diameter, 4-foot long soil probe.						
Project No.: B1113 Proj. Mgr: D. Ellsworth Geologist: T. Burmeier			Drilling Co.: Environmental Products & Services Driller: R. Varno Drill Rig: Concord 9200			Weather: 55 degrees F, cloudy and windy			
Depth (ft.)	Sample					Sample Description	Field Analytical Readings	Well Details	Groundwater and Other Observations
	No.	Depth (ft.)	Blows /6"	"N"	Recovery (ft.)				
0	S1	0-4			3.2	0.0' - 2.2' Crushed GRAVEL FILL.			NO ODOR DETECTED 0.0'-24.0'
						2.2' - 3.0' CLAY FILL.			
						3.0' - 3.5' COAL.			
						3.5' - 5.0' Green/gray CLAY, some wood.			
5	S2	4-8			4.0	5.0' - 6.2' Yellow/brown, crumbly SILT, non-cohesive.			
						6.2' - 9.0' Green/gray, silty CLAY, grades to dark gray/black.			
	S3	8-12			4.0	9.0' - 11.0' Light green/gray mottled, dense CLAY.			
10						11.0' - 12.0' Yellow/brown CLAY.			
	S4	12-16			0.5	12.0' - 17.5' Medium gray, loose, fine SAND.			
15									
	S5	16-20			3.0	17.5' - 20.0' Medium gray/brown, soft CLAY.			
20									
	S6	20-24			4.0	20.0' - 21.5' Medium gray/brown SAND.			
						21.5' - 22.5' SAND and subrounded GRAVEL.			
						22.5' - 24.0' Reddish brown, soft CLAY.			
								24' = BOTTOM OF BORING	

Sample Types:

S=Split Spoon: 2"

R= Rock Core:

N = ASTM D1586

Backfill Well Key

Cement	Native Fill
Sand	Bentonite

[illegible]

Environmental PRODUCTS & SERVICES, INC.		Subsurface Log		Hole No.: 20		Date Started: 06/06/96	
				Sheet 1 of 1		Date Finished: 06/06/96	
Client: NYSDEC Gastown Sportsmen's Club			Method of Investigation: Direct push method, Geoprobe tooling, 2-inch diameter, 4-foot long soil probe.				
Location: Tonawanda, N.Y.							
Project No.: B1113 Proj. Mgr: D. Ellsworth Geologist: T. Burmeier			Drilling Co.: Environmental Products & Services Driller: T. Osier Drill Rig: Concord 9200			Weather: 68-80 degrees F, sunny	

Depth (ft.)	Sample					Sample Description	Field Analytical Readings	Well Details	Groundwater and Other Observations		
	No.	Depth (ft.)	Blows /6"	"N"	Recovery (ft.)						
0	S1	0-4			2.3	0.0'-1.1' GRAVEL FILL. 1.1'-4.5' COAL, white GRANULATED MATERIAL, black SILT FILL.			NO ODOR 0.0' - 24.0'		
5	S2	4-8			3.5	4.5'-6.0' Yellow/brown, mottled, dense CLAY.					
	S3	8-12			4.0	6.0'-8.0' Gray/brown to yellow/brown, mottled, soft, silty CLAY with interbedded, thin, fine SAND layers. 8.0'-9.4' Tan, yellow/brown, silty CLAY.					
10						9.4'-12.0' Yellow/brown, soft to dense, silty SAND.					
	S4	12-16			4.0	12.0'-13.4' Yellow/brown, loose, wet, fine SAND.					
15						13.4'-16.0' Medium gray/brown, silty CLAY with fine sand.					
	S5	16-20			4.0	16.0'-19.1' Yellow/brown, loose, fine SAND.					
20						19.1'-19.9' Gray/brown, sandy SILT.					
	S6	20-24			4.0	19.9'-20.0' Subangular GRAVEL, 2" in diameter. 20.0'-23.2' Medium to fine SAND.					
						23.2'-23.4' GRAVEL and SAND. 23.4'-24.0' Reddish brown CLAY.					
									24' = BOTTOM OF BORING		

Sample Types: S=Split Spoon: 2" R= Rock Core: N = ASTM D1586	Backfill Well Key Cement Sand Native Fill Bentonite
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Environmental PRODUCTS & SERVICES, INC.		Subsurface Log		Hole No.: 21 Sheet 1 of 1		Date Started: 06/06/96 Date Finished: 06/06/96			
Client: NYSDEC Gastown Sportsmen's Club Location: Tonawanda, N.Y.			Method of Investigation: Direct push method, Geoprobe tooling, 2-inch diameter, 4-foot long soil probe.						
Project No.: B1113 Proj. Mgr: D. Ellsworth Geologist: T. Burmeier			Drilling Co.: Environmental Products & Services Driller: T. Osier Drill Rig: Concord 9200			Weather: 68 to 80 degrees F, sunny			
Depth (ft.)	Sample					Sample Description	Field Analytical Readings	Well Details	Groundwater and Other Observations
	No.	Depth (ft.)	Blows /6"	"N"	Recovery (ft.)				
0	S1	0-4			2.6	0.0'-5.8' CINDERS, FILL.	MICROTIP PID		HYDROCARBON ODOR OBSERVED AT 5.8'- 8.0'
5	S2	4-8			2.3	5.8'-8.0' Black, soft SILT.	20.0-30.0 ppm		SATURATED WITH OILY SUBSTANCE AT 8.0' TO 12.0'
	S3	8-12			3.6	8.0'-11.0' Black PEBBLY MATERIAL.	20.0-30.0 ppm		
10						11.0'-12.0' Tan, soft SILT.			
									12' = BOTTOM OF BORING
15									
									
20									
									
									
									
									
									
									
									
									
									
									
									
									

[illegible]

Environmental PRODUCTS & SERVICES, INC.		Subsurface Log		Hole No.:23 Sheet 1 of 1		Date Started: 06/07/96 Date Finished: 06/07/96			
Client: NYSDEC Gastown Sportsmen's Club Location: Tonawanda, N.Y.		Method of Investigation: Direct push method, Geoprobe tooling, 2-inch diameter, 4-foot long soil probe.							
Project No.: B1113 Proj. Mgr: D. Ellsworth Geologist: T. Burmeier				Drilling Co.: Environmental Products & Services Driller: T. Osier Drill Rig: Concord 9200		Weather: 68 to 75 degrees F, cloudy and rainy			
Depth (ft.)	Sample					Sample Description	Field Analytical Readings	Well Details	Groundwater and Other Observations
	No.	Depth (ft.)	Blows /6"	"N"	Recovery (ft.)				
0	S1	0-4			1.4	0.0'-4.0' Crushed GRAVEL, BRICK, and tan silty CLAY FILL.			
5	S2	4-8			3.2	4.0'-8.0' Light brown, silty CLAY. Grades to black or gray/green at 7.2'.			
	S3	8-12			0.0				
10						12.0'-15.5' Yellow/brown, soft, silty CLAY.			
	S4	12-16			4.0				
15						15.5'-20.0' Medium gray/brown, fine SAND. Becomes wet at 16.0'. Grades to silty SAND at 18.0'.			
	S5	16-20			4.0				
20						20.0'-20.8' Gray/green, very soft, silty CLAY. 20.8'-21.2' Coarse SAND and rounded GRAVEL. 21.2'-24.0' Reddish brown, very soft CLAY.			
	S6	20-24			4.0				

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Environmental PRODUCTS & SERVICES, INC.		Subsurface Log		Hole No.:26 Sheet 1 of 1		Date Started: 06/10/96 Date Finished: 06/10/96			
Client: NYSDEC Gastown Sportsmen's Club Location: Tonawanda, N.Y.			Method of Investigation: Direct push method, Geoprobe tooling, 2-inch diameter, 4-foot long soil probe.						
Project No.: B1113 Proj. Mgr: D. Ellsworth Geologist: T. Burmeier			Drilling Co.: Environmental Products & Services Driller: T. Osier Drill Rig: Concord 9200			Weather: 75 degrees F, overcast			
Depth (ft.)	Sample					Sample Description	Field Analytical Readings	Well Details	Groundwater and Other Observations
	No.	Depth (ft.)	Blows /6"	"N"	Recovery (ft.)				
0	S1	0-4			3.1	0.0'-1.5' Medium brown TOP SOIL.			NO HYDROCARBON ODOR AT 0.0' - 20.0'
						1.5'-4.5' Medium brown SILT and tan granular material.			
5	S2	4-8			4.0	4.5'-8.0' Medium brown to yellow/brown SILT. Grades to sandy SILT at 7.0'.			
	S3	8-12			4.0	8.0'-16.0' Medium gray/brown, silty CLAY, some plant debris and sandy interbeds with fossil fragments at 12.0'.			
10									
	S4	12-16			4.0				
15									
	S5	16-20			4.0	16.0'-17.8' Dark gray/brown, very soft CLAY and SAND.			
						17.8'-19.5' Dark gray/brown SILT, numerous fossil fragments.			
						19.5'-19.7' GRAVEL.			
20						19.7'-20.0' Reddish brown, soft CLAY.			
								20.0' = BOTTOM OF BORING	

Sample Types:

S=Split Spoon: 2"

R= Rock Core:

N = ASTM D1586

Backfill Well Key

Cement

Sand

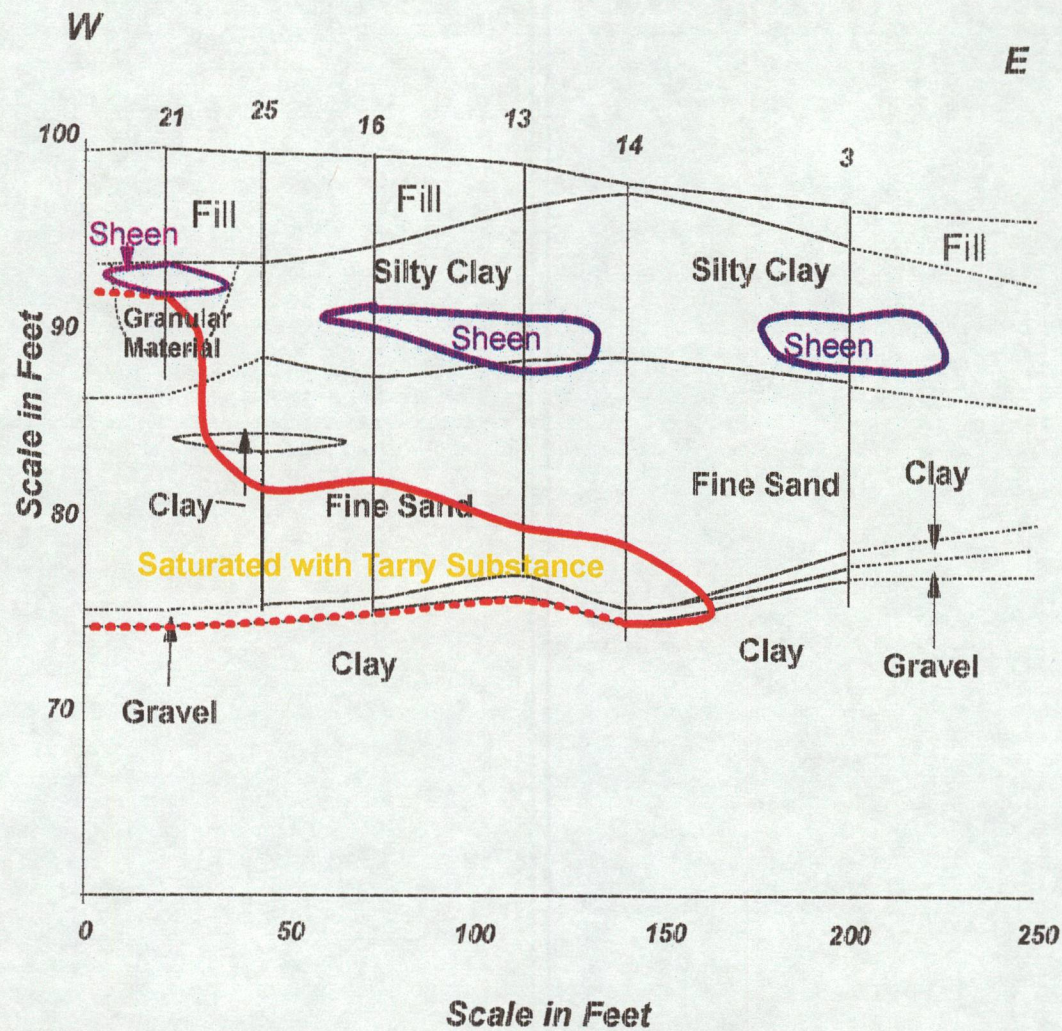
Native Fill

Bentonite

APPENDIX B

Laboratory Analytical Results (June 4, 6, and 11, 1996)





ENVIRONMENTAL PRODUCTS & SERVICES, INC.

DATE: July, 1996

PROJECT
NO.:

Geologic Cross Section
B to B'

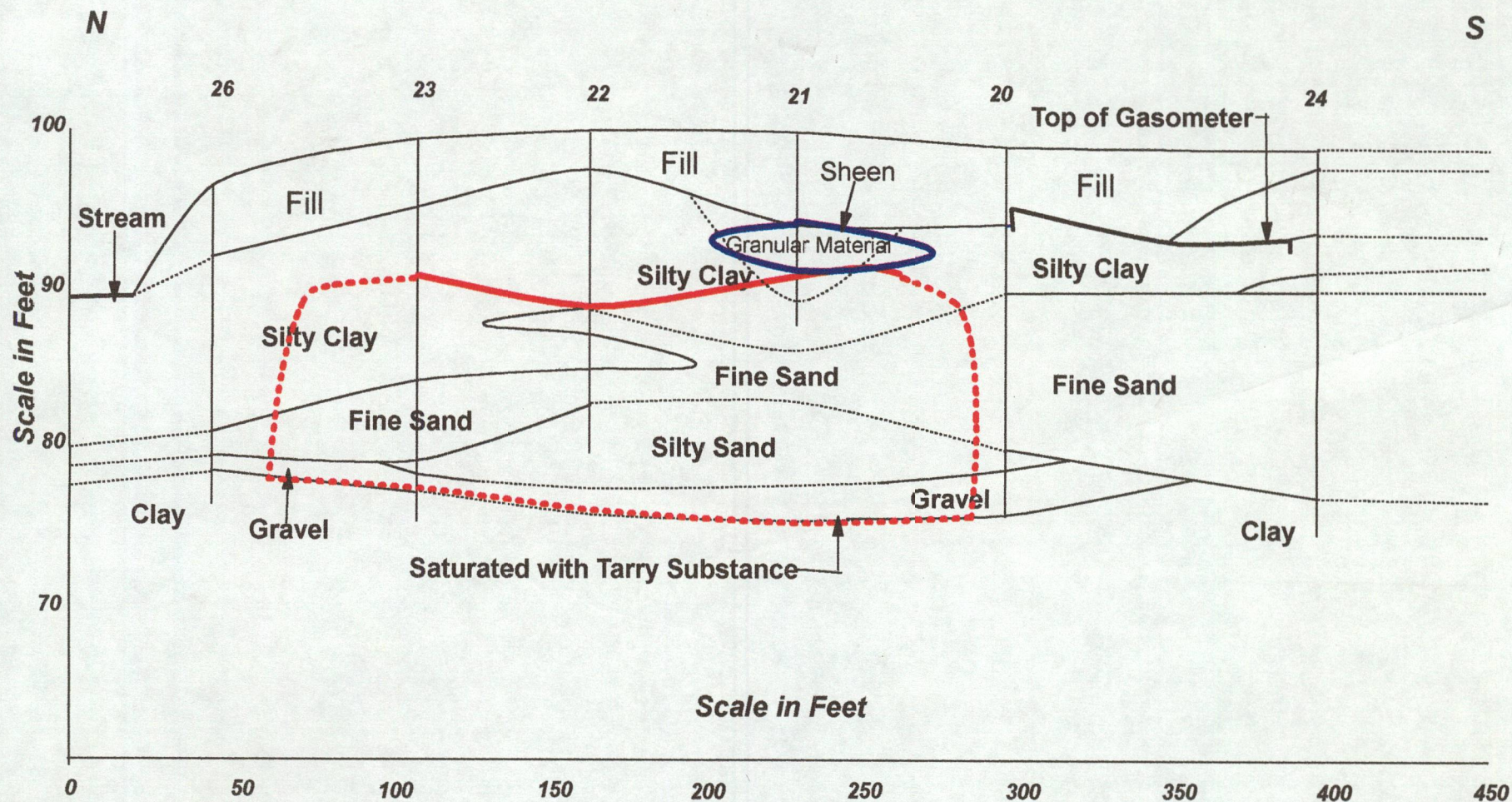
Holler and NFTA Properties

SCALE: 1 inch = 50 feet

FIGURE
NO.: 2

DRAWN
BY: Geoscience

LOCATION: Tonawanda, NY



ENVIRONMENTAL PRODUCTS & SERVICES, INC.

DATE: July, 1996

PROJECT NO.:

Geologic Cross Section A to A'

Holler and NFTA Properties

SCALE: 1 inch = 50 feet

FIGURE NO.: 1

DRAWN BY: Geoscience

LOCATION: Tonawanda, NY

Bed in Section
S | W

