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ENVIRONMENTAL SITE ASSESSMENT
WITMER ROAD DRIVE-IN
4287 WITMER ROAD
TOWN OF NIAGARA, NEW YORK

FOR

ASTECO, INC. 4287 WITMER ROAD NIAGARA FALLS, NEW YORK 14305

> BTA-89-039A AUGUST, 1989

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# ENVIRONMENTAL SITE ASSESSMENT WITMER ROAD DRIVE-IN 4287 WITMER ROAD TOWN OF NIAGARA, NEW YORK

#### I. INTRODUCTION

#### A. General

Empire Soils Investigations, Inc. (ESI) was retained by ASTECO, Inc. to conduct an Environmental Site Assessment at their property located at 4287 Witmer Road, Town of Niagara, New York. A site location plan is presented as Drawing No. 1 in Appendix A. The environmental site assessment was conducted following detection of a suspicious subsurface material during geotechnical exploration as part of the proposed expansion of the existing building on-site.

#### B. Purpose and Scope

The environmental site assessment was initiated after a suspicious subsurface material was noticed in one (1) of the four (4) geotechnical boreholes for the proposed expansion. The environmental site assessment included a field reconnaissance and office investigation of the property, together with a field exploration program which consisted of test borings, test pits, and water sampling. More specifically, ESI completed the following scope of services for this Environmental Site Assessment:

- o Conducted a site walkover of the property;
- o Observed present uses of the adjoining properties;
- o Reviewed historical aerial photographs of the site;
- o Developed a history of past uses of the site;
- o Contacted government agencies to inquire about potential environmental concerns at the site;
- o Conducted a soil gas survey over the entire property to evaluate the potential presence of ionizable organic vapors;
- o Excavated test pits to examine the subsurface conditions and obtain samples;
- o Conducted an extensive boring program to further identify the subsurface conditions;
- o Obtained soil samples for analytical testing;
- o Obtained water samples for analytical testing;
- o Evaluated the data collected and;
- o Summarized the findings of the assessment in this report.

The opinions rendered in this report are based solely on the above scope of services. Limitations to this environmental site assessment are presented in Appendix B.

# II. SITE CONDITIONS/SITE HISTORY

# A. Physical Setting

The subject site is located at 4287 Witmer Road in the Town of Niagara, Niagara County, New York. Based on the property map, the subject property covers approximately 74,900 square feet (approximately 1.72 acres). A copy of the property map is shown as Drawing No. 2 in Appendix A. The property is bounded by Witmer Road to the north, Gill Creek to the east and vacant industrial

park land to the south and west. A 20.0 foot easement to the Town of Niagara for a sanitary sewer exists parallel to Witmer Road along the northern boundary of the site. A 20.0-foot public utility easement exists along the western boundary of the site of which 10.0-feet is on the subject property. An easement along Gill Creek exists with the Town of Niagara for cleaning and maintaining the creek.

A single story 75-foot by 40-foot office/laboratory building exists on the site as shown in Drawing No. 2. The building was built in 1987 and is occupied by ASTECO, an industrial hygiene testing firm. ESI did not inspect the interior of the building, as this was not included in the scope of services. However, ASTECO is a widely respected certified laboratory under stringent environmental and frequent regulatory inspection. The property is zoned for business based on the Town of Niagara Zoning Map. The surrounding property is zoned for business with the exception of the property across Gill Creek which is zoned residential.

# B. Site History

Information on site history was obtained from the Title Abstract obtained from the current owner, review of aerial photographs, the Town of Niagara Historian and an interview with the former Manager of the drive-in theater. The title search dates back to 1835 and the property was sold several times throughout the 1800's to various individuals. No indications of industrial activity or ownership by corporations or company's was found dur-

ing the 1800's. In the early 1900's, the property was known as the Schwitzer (Switzer) farm and consisted of 100-acre tract of land. In 1914 the property was sold to Jon (John) Rommel. According to the Town of Niagara Historian, Ms. Dorothy Rolling, Jon Rommel lived on the property which was farmland. Jon Rommel died in 1952 and his estate sold the property to Country Theatres Corporation on August 17, 1953. Ms. Rolling speculated that there is approximately six (6)-feet of fill on the site. The source of the fill material is unknown. According to Ms. Rolling, there may have been a saw mill on the creek at this site in the early 1800's.

A drive-in theater was present on the site from approximately 1953 to 1986. The theater may have been there as early as late 1951. The October 14, 1951 aerial photograph of the site shows the outline of the future drive-in parking area but the screen and projection buildings are not present. The drive-in theater is easily distinguishable on the 1958 and 1966 aerial photographs reviewed. Copies of all aerial photographs are presented in Appendix A as Drawing Nos. 3, 4, 5, and 6. The drive-in theater was owned by the following companies:

#### COMPANY NAME

#### DATE OWNED

Country Theatres Corporation	08/17/53	to	07/01/54
Falls Drive-In, Inc.	07/01/54	to	08/31/73
Cataract Theatre Corporation*	08/31/73	to	11/06/86

<sup>\*</sup> Falls Drive-In, Inc. merged with Cataract Theatre Corporation in 1973.

On November 6, 1986, the property was sold to Patrick Flain, Gordon J. Smith, Donald H. Smith, James Milne and Flain Development Corporation, doing business as Witmer Industrial Estate, a co-partnership. The current owner, ASTECO, Inc., bought the property on June 22, 1987. It should be noted that ASTECO owns only a small portion of the former drive-in property (i.e. the northeast corner).

Mr. Clark Vernor, the former Manager of the drive-in theater, was contacted to determine if he knew anything about the fill materials found on-site. Mr. Vernor did not remember any filling activities on the site and thought that these activities probably occurred when Jon Rommel owned the property. The building observed east of the drive-in theater, on what is now the subject property, was a storage building for the equipment and lawn mowers used by the drive-in.

# C. Aerial Photographs

ESI reviewed the available historical aerial photographs of the subject property. Photocopies of the aerial photographs reviewed are presented in Appendix A of this report. The aerial photographs reviewed were obtained from the U.S. Soil Conservation Service Office in Lockport, New York and the Niagara County Highway Department, Lockport Office. The aerial photographs reviewed were as follows:

DATE OF PHOTOGRAPH	PHOTOGRAPH NO.	SCALE
September 25, 1938	ARE-18-34	1" = 660'
October 14, 1951	ARE-5H-151	1" = 660'
August 2, 1958	ARE-1V-24	1" = 660'
June 12, 1966	ARE-2GG-50	1" = 660'

The interpretation of the aerial photographs is as follows:

# 1938 - AERIAL PHOTOGRAPH

The subject property is part of a larger farm property with the farm house and barns located approximately 500-feet west of the site along Witmer Road. The subject property was not under active cultivation at the time of the photograph. An access road from Witmer Road to what is now the ASTECO property is visible. The purpose of the access road is not apparent. There also appears to be two (2) small disturbed areas on the future drive-in site. One of these disturbed areas is on the subject property.

#### 1951 - AERIAL PHOTOGRAPH

The outline of the drive-in parking area is clearly visible. However, there is no ticket building, screen or projection building. The access road to the subject site is visible and there is a small house or out building adjacent to this access road near the present-day building location. A second access road from the farm buildings to the creek is visibly present south of the subject site. The subject property does not appear to be cultivated. An apparently wet area (darker area on photograph) is present between the structure on the site and the creek. This area roughly parallels the area investigated during the subsurface investigation. Disturbed land is present on the subject site and the properties southward along the creek.

#### 1958 - AERIAL PHOTOGRAPH

The drive-in theater is present with a ticket booth, screen and projection building. The access road and small shed or out building present in 1951 are still visible. There is a strip of disturbed land from near Witmer Road extending along the drive-in parking area's east side to the end of the drive-in parking area. This strip of disturbed land crosses the subject property and extends southward on to the adjacent properties.

Construction activities associated with the Power Authority water supply conduits is underway to the north and west. A similar disturbed area is visible, further east on Witmer Road at the site of the present-day New York State Police Headquarters Building.

# 1966 - AERIAL PHOTOGRAPH

The drive-in theater is still present. The access road and building is still present and the site of the disturbed area near the southern end of the drive-in theater has increased in size. No additional filling activities on the subject property are visible. It should be noted that the fill materials presented in 1958 have not been revegetated.

The Power Authority tunnel work appears to be completed and the Niagara Expressway is present to the west of the site.

#### III. SITE VISIT

#### A. General

Site visits were made to the site by an ESI environmental engineer and ESI environmental geologists between May 15 and June 21, 1989. The purpose of these site visits were to observe current conditions at the site with regards to potential environmental concerns, to conduct a soil gas survey, to monitor test pits and soil borings and to observe the uses of the adjacent properties. Representative photographs of the site are presented in Appendix C.

The property consists of a small office/laboratory building (40' x 75'), an asphalt driveway and parking lot, a front lawn area and an undeveloped area east and south of the building. There are no indications of underground storage tanks on the site. In addition, there are no ponds, pits or lagoons or other evidence of present day disposal of hazardous or non-hazardous materials on-site.

The walkover focused primarily on the fill materials present. Fill materials were observed on the surface of the undeveloped portion of the site and along the creek bank. This area is highly vegetated with grass and trees. Fill materials were also observed on the adjacent site to the south and the creek bank across Gill Creek. The nature and extent of the fill materials were investigated using a combination of test pits and subsurface borings. These subsurface explorations are discussed in Section V.

Fill materials observed on the surface included a lime-like material, broken glass, bricks, metal, concrete, one (1) crushed 55-gallon drum and porcelain pieces. The nature of the broken glass and recovered bottles from the test pits indicate that the fill is quite old. The glass is a mixture of types and colors. Indications of the age of the fill are the abundance of dark blue glass, white glass and uniquely shaped bottles not found in current wastes. An expert on glassware may be able to accurately date the age of the glass fill materials. Medicine type bottles,

a milk bottle and a Pepsi bottle were some of the bottles found buried in the fill materials.

Vegetation is present on these fill materials near the creek.

The focus of the majority of the subsurface exploration program is
the area of fill materials between the building and the creek.

# B. Adjacent Properties

As part of the environmental site assessment, ESI completed a brief visual reconnaissance of the adjacent properties to determine their present use. The property across Witmer Road to the north is a park and is on land used by the Power Authority during the construction of the reservoir. North of the park is a large water reservoir used for hydroelectric power generation.

The property to the east of the site is separated from the site by Gill Creek. Immediately across the creek is an undeveloped area with visible indications of man-made fill. Further east is a residential subdivision and New York State Police facility.

The properties to the south and west of the subject site were once part of the subject property and have only recently been subdivided. This land south and east of the site is vacant. However, an industrial park is planned for this land. It is believed that fill materials are present on these adjacent sites.

#### IV. REGULATORY AGENCY INFORMATION

#### A. General

ESI contacted Town of Niagara and Niagara County agencies to determine if there are any records of environmental concerns at the site. The following agencies or groups were contacted as part of this assessment: the Town of Niagara Tax Assessor, the Town of Niagara Town Clerk, Niagara County Health Department, Town of Niagara Historian and the Niagara County Environmental Management Council. In addition, historical aerial photographs were obtained and reviewed from the United States Soil Conservation Service and Niagara County Highway Department. The U.S. Environmental Protection Agency (USEPA) National Priorities List and the New York State Department of Environmental Conservation (NYSDEC) Registry of Inactive Hazardous Waste Sites were reviewed to determine if the subject property is a known hazardous waste disposal area.

The Town of Niagara Tax Assessor and the Town Clerk have no record of environmental concerns at the subject property. As stated previously, the Town Historian believes there is approximately six (6) feet of fill on the site.

Information obtained from the Niagara County Environmental Management Council land use maps on the subject property is as follows:

- It is not on a NYSDEC designated wetland.
- 2. No known historical buildings or historical sites are on the property.

- 3. There is a small marsh present across Gill Creek.
- 4. The surface soils have been identified by the Council as containing ground moraine.
- 5. The inactive land use of the site has been identified as brush.
- 6. The subject property and the properties south and west have been characterized as "made land" consisting of cut and fill materials. This includes all the land to the Niagara Expressway and Power Authority Tunnels.
- 7. The site has not been identified as a waste disposal site. The nearest known waste disposal site is approximately 3,750-feet (0.7 miles) south of the site.

The subject property is not on or immediately adjacent to any of the inactive hazardous waste sites listed by the NYSDEC in their registry of inactive hazardous waste sites or on the USEPA national priorities list.

The Niagara County Health Department Solid Waste section was contacted to determine if they have any information regarding environmental concerns on the subject property. According to Mr. Pat Dickey, the Department of Health is currently investigating the drainage from the lime-like materials on the property south of this site. The white-milky lime type runoff is to be sampled and tested by the Department of Health this summer. According to Mr. Dickey, the waste lime material is probably from SKW Alloys' predecessor company (Airco Alloys). There apparently is a large pile of this lime-like materials just west of the I-190 near Witmer Road.

It should be noted that information available in the files of regulatory agencies only reflects those site where inquiry and/or investigation by the NYSDEC, USEPA, local health/environmental departments or by input from the public at large that have revealed the possibility of hazardous waste and/or associated activities involving hazardous materials that have taken place at or near the subject site. It should be further noted that answers to inquiries of this nature only reflect the information currently available to these agencies.

#### V. SUBSURFACE EXPLORATION

# A. General

The impetuous for this Environmental Site Assessment was the detection of suspicious subsurface materials relatively high organic vapor measurements in one of the four borings during a geotechnical investigation of the property for a proposed building expansion. The subsurface exploration program was conducted in several phases. The components of the subsurface investigation consisted of a soil gas survey, test pits and boreholes. Each series of testing was designed to better define the limits of the contaminated fill material. Soil samples for analytical testing were also recovered during the subsurface exploration program.

# B. Soil Gas Survey

ESI conducted a soil gas survey across the entire subject property. A 50' x 50' grid was established across the entire property and one-half inch soil vent pipes were installed at each of the nodes of the grid. The pipes were installed to a depth of three (3) feet below grade and the surface around the vent pipes were sealed with bentonite to prevent migration of soil gases around the outside of the pipes. Each of the pipes were capped and labelled. Prior to sampling, the pipe was purged to remove the air from within the pipe and to draw the soil gases into the pipe.

Organic vapor measurements were taken using a photoionization detector (PID), manufactured by Hnu Systems, Inc. of Newton Highlands, Massachusetts. The PID used was a Hnu Model PI-101 with a 10.2 eV ultraviolet light source. The meter was calibrated prior to use in accordance with the manufacturers instructions. This PID was used throughout the study to determine the relative concentrations of ionizable organic vapors in the soil samples.

The results of the soil gas survey are presented on Drawing No. 7 in Appendix A. ESI uses soil gas surveys as a preliminary tool for locating boreholes, test pits and wells.

The soil gas survey did identify an area southeast of the building with elevated vapor readings. These conditions were further investigated with test pits and borings to better define the nature of the subsurface materials.

# C. Test Pits and Borehole Exploration

A test pit and a borehole exploration program was used to define the lateral extent of the organic vapor measurements. Of particular concern was to determine the westerly boundary of fill materials which contained the elevated organic vapor readings to evaluate the feasibility of the proposed building expansion.

The test pit field logs and subsurface boring logs are presented in Appendix D. The test pit and borehole exploration program was conducted in several phases to provide time to interpret the data between each phase. The program consisted of the following phases:

PHASE: 1 (April 12 to 13, 1989)

**DESCRIPTION:** Geotechnical borings for proposed easterly and

southerly expansion of the existing building.

FINDINGS: Elevated organic vapor readings (80-380 ppm) and

chemical odors in the fill materials four to

eight feet below grade in one of the boreholes.

SCOPE OF FIELD 4 Boreholes (B-1, B-2, B-3, and B-4)

INVESTIGATION:

PHASE:

2 (May 15, 1989)

DESCRIPTION:

Test pits were dug into the fill to determine the nature of the fill. The presence of glass in the fill suggested that a bottle may have been broken which contained paint thinner or a similar

material.

FINDINGS:

A resin-like sludge material with a dark red to black color was found in each of the test pits to be the source of the chemical odor and elevated organic vapor readings. The fill materials above the resin-like material contained broken glass and bottles. The type and colorings of indicate that the fill materials the bottles have been present for many years. Samples of the fill material were obtained for chemical

analyses.

SCOPE OF FIELD

3 Test Pits (TP-1, TP-2, and TP-3)

INVESTIGATION:

PHASE:

3 (May, 1989)

DESCRIPTION:

A soil gas survey was conducted on 50 x 50 grid over the entire site to identify the areas of elevated organic vapor readings soil.

FINDINGS:

Elevated organic vapor readings were found in the area surrounding Test Pits 1, 2, and 3. On the remaining portion of the site, the organic vapor readings were at or near background levels.

SCOPE OF FIELD

39 soil gas pipes were installed and sampled.

INVESTIGATION:

PHASE:

4 (June 3, 1989)

**DESCRIPTION:** 

The results of the soil gas survey were used to locate these borings to better define the lateral extent of the vapor producing resin-like fill material.

FINDINGS:

The material was found in some of the boreholes and not in other areas and the preliminary boundaries of the resin-like fill material were established.

SCOPE OF FIELD INVESTIGATION:

7 Borings (B-5, B-6, B-7, B-8, B-9, B-10 & B-11)

PHASE:

5 (June 6, 1989)

DESCRIPTION: hand driven

Additional holes were advanced using portable split-spoon sampling device due to the expected shallow depth of the resin-like material within the fill, and the difficult site access conditions.

FINDINGS:

The perimeter of the area containing the resin-like fill area was better defined.

NUMBER OF BOREHOLES: 8 boreholes (B-12, B-13, B-14, B-15, B-16, B-17, B-18 & B-19)

PHASE:

6 (June 5, 1989 and June 16, 1989)

DESCRIPTION:

Based on the borings, soil gas survey and test pits in Phases 1 through 5, it appeared that the resin-like material was limited to an area southeast of the existing building. Additional test pits were excavated east of the new proposed foundation in order to accurately determine the westerly boundary of the resin-like material.

FINDINGS:

The area was ringed with borings and test pits which defined the limits of the material to within approximately plus or minus 15-feet.

SCOPE OF FIELD INVESTIGATION:

8 boreholes (B-20, B-21, B-22, B-23, B-24, B-25, B-26, B-29,

6 test pits (TP-4, TP-5, TP-6, TP-7, TP-8 and TP-9)

PHASE: 8 (June 20 and 21, 1989)

DESCRIPTION: Additional borings were made adjacent to the

building to determine if the resin-like fill ma-

terials extend toward the building.

FINDINGS: The material was found near the northwest corner

of the building and beneath the parking lot near

the southeast corner of the building.

SCOPE OF FIELD 10 boreholes (B-27, B-28, B-30, B-31, B-32, B-33,

**INVESTIGATION:** B-34, B-35, B-36, B-37)

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PHASE: 9 (July 13 and 21, 1989)

DESCRIPTION: Additional borings were made in the area of

concern to obtain samples for hazardous waste

testing.

FINDINGS: Analytical Results Presented on Table 4

SCOPE OF FIELD 2 boreholes (B-38 and B-39)

INVESTIGATION:

A summary of the materials found in trace quantities in the miscellaneous fill above the resin-like material are listed below.

- Glass Bottles (broken and intact)
- Brick
- Wire Cable
- Metal
- Paper
- Wood
- Cobbles, boulders and gravel
- Porcelain
- Concrete
- Clay Pipe
- Cloth
- Cardboard
- Slag
- Cinders
- Lime
- Plastic
- Nail
- Tile
- Roots
- Black Charcoal-Like Wood

The overall findings of this extensive subsurface exploration program are as follows:

- o In all cases, the elevated organic vapor measurements were associated with the dark red to black resin-like material. Therefore, the contamination was able to be identified both visually and through the use of an organic vapor detector.
- o Estimates of the thickness of the resin-like material varies from borehole to borehole. The thickness ranged from a trace to approximately six (6)-inches and averaged approximately two (2)-inches. Accurate thickness of the resin-like material was difficult to determine due to poor recovery (approximately 75%) in most of the split-spoons. This relatively poor recovery primarily was due to the stones and bricks in the fill.
- o Based on an average thickness of two (2)-inches of resin-like material and an areal extent of 7,480 square feet, it is estimated that there is approximately 46 cubic yards of resin-like material (4-5 truck loads).

- o The fill materials in the area shown on Figure No. 7 have a distinct "magic marker" type odor.
- o Headspace measurements taken at the dark-red resin-like material resulted in organic vapor measurements of approximately 300 ppm (typical).
- o Ambient air organic vapor measurements on the site were 0 to 0.4 ppm which are typical for Western New York. There are no noticeable odors from the undisturbed fill areas on the site.
- o The resin-like fill materials varies from two (2) feet below the surface near the western side of the identified area to up to eight (8) feet. The thickness also varies from trace (spot) amounts to several inches.

# D. Chemical Analysis of Fill Materials

Due to the "magic marker" type odor from the resin-like fill materials, ESI obtained samples of this fill for chemical analysis. Samples were obtained from Test Pits 1, 2, and 3 and the results of the chemical analysis from these three (3) samples are presented on Table 1. The metals analyses are summarized on Table 2.

Ethylbenzene and xylene appear to be the major compounds present in the fill and are probably the source of the elevated organic vapor readings and the odor. These compounds are common commercial solvents (ethyl benzene 18th highest volume chemical produced in US and xylene 26th highest volume chemical produced in the US (condensed chemical dictionary).

Phenol and 2,4 dimethylphenol are the two (2) other major compounds detected in the fill. 2,4 Dimethylphenol is also known as xylenol. The commercial uses of these four (4) compounds are summarized on Table 3. The item that these four compounds have in

common is their use in the manufacturing of phenolic resins. The material causing the odor has a dark-red resin-like appearance. Based on the available information, the material of concern is probably a phenolic resin compound and the solvents were used to keep the resin from setting.

The other organic chemicals in the fill are present in concentrations near the level of detection or secondary type products associated with the four (4) primary compounds. For example, phenol is derived from coal tar and naphtalene, pyrene, and fluoranthene are also constituents of coals tar that would be expected to be contaminants of phenol. The presence of the BHC compounds, PCB-1254 and thrichlorethene are at levels slightly above the detection level and probably represent typical levels expected in uncontrolled fill.

Most metals detected in the fill were at or below the average abundance of these metals in the earth's crustal rocks. However, arsenic, barium, copper, lead, thallium and zinc were present in concentrations above those found in average crustal rocks. We note however, there is nothing to indicate that the fill materials contain concentrated sources of these metals. It is more likely that man-made fill materials contain traces of these metals above the average concentrations, as a result of paints, glassware, porcelain and metal objects buried within the fill.

ESI obtained three (3) additional samples of the soil from within the area of concern to determine if the materials present have the characteristics of a hazardous waste. These samples were tested to determine if they are ignitable, corrosive, reactive or fail the EP toxicity test criteria.

The samples were obtained from borings B-38 and B-39 as indicated on Drawing No. 7 ② in Appendix A. The samples were obtained on July 13 and 21, 1989. The first sample identified as SS-2-7-13 was obtained from a split spoon driven by an A.G. Penetrometer. The miscellaneous fill with various types of inclusions together with the dry summer-time conditions made obtaining additional samples with this method impractical. The other two samples were obtained using conventional drilling with hollow stem augers and by driving the split spoon to the desired depth and recovering the sample.

The results of the testing are presented on Table 4, along with a comparison with the established USEPA criterion for hazard-ous waste. The material samples (all three samples) is not corrosive, reactive, or ignitable; however, one of the three samples slightly exceeded the EP toxic criteria based on the lead concentration. The two other samples obtained in the area of conern did not exhibit the characteristics of hazardous waste.

Ignitability: The reported ignitability from the sample test from hole B-38 at a depth of two to three feet below the surface was 145-degrees F; however, the laboratory noted that there was

insufficient material available to perform the analysis properly. The preliminary testing indicates that the flash point is very close to the ignitability threshold limit of 140° F. The two samples obtained from boring B-39 at depths of 4' to 6' and 6' to 8' did not exhibit the characteristic of ignitability.

EP TOXICITY: Lead was measured in the sample from boring B-38 in a concentration slightly greater than the USEPA hazardous waste criterion; however, the lead concentrations in the two other samples were substantially less than the criterion. This variation in the EP toxicity lead concentrations could be due to the nature of the fill (variations), the presence of old glass, and paint in the fill, or other sources.

Samples tested for total lead content from the three test pits indicate lead concentrations above the average abundance in crustal rocks; however, this is attributed to the presence of man-made fill materials. Slightly elevated (0.084 mg/l) concentrations of lead were detected in the seep sample. However, the seep sample concentrations were below the water quality standard of 0.567 mg/l. In summary, one of the three samples slightly exceeded the EP toxicity test for lead. Also, lead above the natural background level was found; however, the lead concentration in the leachate was less than the established water quality standard.

TABLE 1
SUMMARY OF DETECTABLE ORGANIC COMPOUNDS
IN THE FILL MATERIALS SAMPLED FROM
TEST PITS 1, 2, AND 3

PARAMETER	TP-1	TP-2	TP-3	
Trichloroethene	ND	ND	0.950	
Toluene	ND	<0.5	1.3	
Ethylbenzene	<0.5	1,400	2.5	
Total Xylene	120	7,200	8.9	
2,4 Dimethylphenol	2.4	8.7	0.33	
Phenol	65	19.2	18.0	
Di-n-Butylphthalate *	0.47	0.60	<0.33	
1,2-Dichlorobenzene	0.43	0.43	<0.33	
Fluoranthene	0.33	<0.33	<0.33	
Napthalene	1.2	2.0	<0.33	
Pyrene	0.63	<0.33	<0.33	
1,2,4 Trichlorobenzene	1.2	0.97	<0.33	
Aldrin	<0.01	0.017	ND	
A-BHC	0.023	0.018	0.087	
B-BHC	<0.01	<0.01	0.047	
D-BHC	<0.01	<0.01	0.022	
G-BHC	<0.01	<0.01	0.013	
PCB-1254	<0.20	<0.02	0.68	

<sup>\* =</sup> Present in the preparation blank

COMPARISON OF FILL MATERIAL METALS

TABLE 2

CONCENTRATION WITH NATURALLY OCCURRING ELEMENTS

	CONC	ENTRATIO	N (mg/kg)	(ppm)
				AVERAGE
				ABUNDANCE
<u>PARAMETER</u>	TP-1	TP-2	<u>TP-3</u>	CRUSTAL ROCK
Aluminum	13,900	24,100	19,600	81,300
Antimony	<52.4	<50	<50.3	0.2
Arsenic	76.3	79.4	65.2	2
Barium	754	963	490	400
Beryllium	<5.2	<5	<5	2
Cadmium	<5.2	<5	<5	0.2
Calcium	43,000	22,400	36,800	36,300
Chromium	65.7	45.7	31.9	200
Cobalt	<15.7	23.4	17.3	23
Copper	271	119	132	45
Iron	57,400	40,500	37,400	50,000
Lead	1,080	309	239	16
Magnesium	16,100	11,600	12,800	20,900
Manganese	739	601	878	1,000
Nickel	42.5	65.1	46.4	80
Potassium	<5,240	<5,000	<5,030	25,900
Selenium	<52.4	<50	<50.3	0.9
Silver	<10.5	<10	<10.1	0.1
Sodium	1,370	1,130	1,120	28,300
Thallium	142	149	<101	1
Vandaium	34.3	45.7	37.4	110
Zinc	1070	405	431	65

#### TABLE 3

# COMMERCIAL USAGE OF PRIMARY ORGANIC COMPOUNDS DETECTED IN THE FILL

COMPOUND

USE

ETHYLBENZENE

Intermediate in production of styrene and resin solvent.

XYLENE

Aviation gasoline; protective coatings; solvent for alkyd resins, lacquers, enamels, rubber cement; synthesis of organic chemicals, production of benzoic acid, phthalic anhydride, isophthalic and terephthalic acids, dimethyl esters, and manufacturing dyes.

PHENOL

Phenolic resins; epoxy resins; nylon-6, 2,4,D, selective solvent for refining lubricating oils, adipic acid, salicylic acid, phenolphthalein, pentachlorophenol, acetophenetidine, picric acid, germicial paints, pharmaceuticals, laboratory reagents, dyes and indicators, slimicide, biocide, and general disinfectants.

2,4 DIMETHTLPHENOL (XYLENOL)

Disinfectants, solvents, pharmaceuticals, insecticides and fungicides, plasticizers, rubber chemicals, additives to lubricants and gasoline manufacturer of polyphenylene oxide, wetting agents, dyestuff and manufacturer of artificial resins.

# COMPARISON OF SOIL SAMPLES OBTAINED WITH THE USEPA HAZARDOUS WASTE CRITERIA

TABLE 4

	<u>Parameter</u>	<u>ss-2-</u>	-7 <b>-1</b> 3	B- _£	- 3-3	B- 		Hazard Wast <u>Crite</u>	e
_	Ignitiability	145	o F	>16	50 <sup>0</sup> F	>160° I	?	140 <sup>0</sup>	F
•	Corrosivity	7.4	s.u.	7.	. 8	8.2		pH pH	<2 >12.5
	Reactivity Total Releasa Hydrogen Cyan		mg/kg	<65 r	ng/kg	<53 mg/	/kg	250	mg/kg
•	Total Releasa Hydrogen Sulf		mg/kg	<65 r	ng/kg	<53 mg/	/kg	500	mg/kg
-	EP Toxicity: Arsenic Barium	<0.05 0.69	mg/l	3.1	mg/l	1.4	mg/l	100	mg/l
النت	Cadmium Chromium Lead	0.02 0.02 8.1		<0.01	mg/l	<0.01	mg/l	5.0	mg/l mg/l mg/l
<b>.</b>	Mercury Selenium Silver		mg/l mg/l	<0.05 <0.01	mg/l	<0.05 <0.01	mg/l mg/l	1.0 5.0	mg/l mg/l mg/l
•	Lindane Endrin Methoxychlor Toxaphene		mg/l mg/l	<0.00005	mg/l	<0.00005 <0.00005 <0.0001	mg/l mg/l	0.02 10.0	mg/l mg/l mg/l mg/l
_	2,4,D	<0.00005	mg/l	<0.00005	mg/l	<0.0001 <0.00005	mg/l	10.0	mg/l mg/l

# VI. SITE GEOLOGY

# A. General

In this section, the known site geological features are presented. Information in this section was obtained from the soil borings, test pits, the U.S. Soil conservation Service Soil Maps, Aerial Photographs, Historical Topographic Maps and Geologic Reference Materials as indicated.

# B. <u>Surface Soils</u>

The present surface conditions indicate that the site is relatively flat with a slight grade towards Gill Creek. However, this grade has been man-made with fill materials. Based on a review of the historical aerial photographs, historical topographic maps and the soil borings on the site, the original land surface was three (3) to twelve (12)-feet lower and a small tributary creek to Gill Creek cut across the property as shown in Drawing No. 8 in Appendix A. This tributary stream was filled in the 1940's or 1950's with the materials identified in the previous section. All soil borings were not advanced to native soils due to time constraints and the possibility of providing a migration pathway through the underlying soils.

The apparent valley fill area corresponds almost identically with the area of detected volatile material contamination. The indications are that an old stream bed lies under the northeast corner of the existing building and extends southeast towards Gill Creek near where the seep was found. Historical indications of

this tributary creek can be seen on the 1969 USGS map showing the wells and springs in the immediate vicinity of Niagara Falls, the 1972 U.S. Soil Conservation Service Soil Map and the 1951 Aerial Photograph.

The native silts and clay vary across the site depending on the location of the boreholes relative to the buried stream channel. Above the bedrock there is a red-brown or brown-black silty clay. This layer of silty clay is between four and ten feet thick and overlies the entire area. It is believed that this silty clay layer should act as a low permeability confining layer between the fill materials above and the Lockport Dolomite bedrock below.

Free standing water levels vary widely in the boreholes. The reason for these variations is unknown. It is believed that there is a perched water condition in the fill and that due to the impermeable nature of the underlying silty clay, the proximity of the creek and the "looseness" of the fill, that the perched water drains quickly towards the creek. This may explain the wide variations in free standing water levels.

The United States Department of Agriculture Soil Conservation Service identified the soils on the site in 1972 (Soil Survey of Niagara County, New York) as follows:

- Soils immediately along the creek as Wayland silt loam.
- Soils on the rest of the site were identified as Odessa silty clay loam on slopes from zero to six (0-6) percent.

The Wayland silt loam is found in floodplain and slack water areas of creeks in long narrow strips bordering the creek. The Odessa silty clay loam is a reddish-colored lacustrine deposit that is dominated by clay and silt.

#### C. Bedrock

The bedrock beneath this property is the Lockport Dolomite which is a dark grey to brown, massive to thin-bedded dolomite (Johnston). Based on the boring logs (B-1 through B-4), bedrock (refusal) was 16.5 to 18-feet below the ground surface. The thickness of the Lockport-Dolomite unit varies from 20-feet to 140-feet and is believed to be approximately 100-feet thick beneath the site (Johnston). The rock dips towards the south in the region at approximately 30-feet per mile (Johnston).

The ground water characteristics of the Lockport Dolomite have been well defined and generally consist of a zone of broken and fractured rock at the soil/bedrock interface and several open bedding joints at various depths. The layers between the fracture zones are generally characterized as impermeable zones. An observation well installed into the Lockport Dolomite near the southern end of the Drive-In parking area by the Power Authority in 1958 is reportedly affected by the level of water in Gill Creek and by the PASNY water conduits (Johnston). The well was drilled 55-feet into the Lockport Dolomite and reportedly has a yield of 45 gallons per minute (Johnston).

#### VII. WATER SAMPLING AND ANALYSIS

# A. General

In order to assess the potential environmental impact of the fill materials on the adjacent creek, ESI obtained water samples from three (3) locations. The water samples were analyzed for the NYSDEC target list compounds (organics and metals), pH, conductivity, total cyanide, phenolic and oil and grease. Water samples were obtained from Gill Creek upstream and downstream of the property, to determine the net impact on the stream, if any, from the property drainage. The sampling at all locations was conducted on June 19, 1989. The upstream sample was obtained from near the center of the creek immediately downstream of the bridge across Witmer Road. The downstream sample was obtained from near the center of the creek at the southern edge of the property.

A third sample was obtained from a seep found in the stream bank wall. The location of the seep and the other sampling locations is shown on Drawing No. 7 in Appendix A. The seep was found under a piece of three (3)-inch diameter rubber hose. It is possible that this rubber hose was somehow, in the past, part of the drainage of the fill materials. No water was observed draining from the hose. Based on the available subsurface information, the seep appears to be located at the former mouth of a filled tributary to Gill Creek and in an ideal position to intercept the perched water migrating through the fill materials.

The samples were taken using standard USEPA and NYSDEC protocols and procedures for obtaining water samples. Sample containers and preservation methods were in accordance with these proto-Proper chain-of-custody records were maincols and procedures. tained on all the samples. A copy of the chain-of-custody record is presented in Appendix E. The samples were sent to Huntingdon Analytical Services (HAS) in Middleport, New York for analysis. HAS is a New York State Department of Health certified laboratory (Certificate No. 10833). It should be noted that the metal samples were not filtered and although this is probably not a concern for the stream samples, the seep sample contained a large amount of soil and therefore, the metals concentration in the seep sample may overstate the actual concentrations present. stream was flowing clear at the time of sampling and near its normal level.

# B. <u>Water Sample Results</u>

The laboratory results are presented in Appendix E and summarized on Table 5. Only parameters with concentrations above the analytical detection limits in one or more of the samples are presented on Table 5.

The most important thing to note is the complete absence of the organic compounds in the seep or upstream and downstream creek samples. This indicates that no organic compounds are migrating from the fill and entering the water in Gill Creek. The complete absence of organic compounds in the water samples combined with that there is some mechanism present which is preventing migration of these materials or that the leachable materials have left the site. This mechanism may be the soil matrix, the resin matrix or the use of impermeable soils around the fill. Specifically, there were no organochlorine pesticides, PCB's, volatile compounds, base/neutral extractable compounds or acid extractable compounds detected in the water samples.

The pH and specific conductance measurements were well within the range of expected values. Table 5 compares the water quality of the samples with the NYSDEC water quality limitations. For most of the metals, there are no applicable standards for Class D streams. Relative to the water quality standards, there is a potential concern with the iron and zinc levels in the seep sample. The seep sample was not filtered to remove the suspended soil particles and therefore, the concentrations reported for all of the metals may overstate the actual concentrations in the seepage water. It should be noted that the upstream background concentration of iron is higher than the water quality standard.

TABLE 5
SUMMARY OF WATER QUALITY DATA
FROM THE 4287 WITMER ROAD SITE

PARAMETER	SEEP	UPSTREAM	DOWNSTREAM	WATER *** QUALITY STANDARD
ъи <b>+</b>	7.28	7.92	7.71	6.0 - 9.5
pH * Specific Conductance		,560.	1,570.	NS - 9.5
Aluminum	10.9	0.29	0.39	NS
Barium	0.47	0.05	0.06	NS
Cadmium ****	0.006		<0.01	
Calcium	409.	74.8	79.8	NS
			<0.02	2.42
Chromium ****	0.02			
Cobalt	0.020		<0.03	NS
Iron	6.78	0.45	0.84	0.3
Lead ****	0.084	<0.005	0.015	0.138
Magnesium	59.7	26.1	27.4	NS
Manganese	0.05	0.05	<0.01	NS
Mercury	0.0003	0.0003	0.0003	NS
Potassium	7.3	5.7	11	NS
Selenium	<0.005	0.006	<0.005	NS
Sodium	41.6	26.7	25.7	NS
Zinc ****	0.35	0.06	0.10	0.50
Phenolics	<0.005		0.007	0.005
Oil and Grease	<1.0	1.1	1.1	NS

# NOTES:

\* = pH Units

 $** = umho/cm^2$ 

NS = No Standard for Class D Streams

\*\*\* = 6NYCRR Part 701 - Appendix 31

\*\*\*\* = Assumed hardness of 150 mg/l

#### VIII. SUMMARY AND CONCLUSIONS

The conclusions presented in this report are subject to the limitation presented in Appendix B. An environmental site assessment was completed for ASTECO for the property located at 4287 Witmer Road in the Town of Niagara, New York. This environmental site assessment was limited to the data obtained by a site visit, a limited review of site history, a review of the available governmental information, a soil gas survey, a subsurface exploration program and limited soil and water sampling. Based on the limitations of this assessment and the information made available to ESI, the relevant findings and conclusions are presented below:

- o The subject site is located at 4287 Witmer Road, Town of Niagara, New York. A single story office/laboratory building with a parking area currently occupies the 1.72-acre site.
- o The property was part of a farm located approximately 500-feet west along Witmer Road until 1953. From 1953 to 1986, a drive-in theater occupied the site and the adjacent sites to the south and west.
- o In 1986, the land was sold to a developer and in 1987, ASTECO, Inc. bought the land and erected the current structure.
- o An access road to the portion of the site owned by ASTECO, Inc. was present in 1938.
- o Two (2) disturbed areas of land, on or near the subject property, were visible on the 1938 aerial photograph.
- o Filling or other land disturbance activities were present on the site in 1951. A small building identified as the drive-in maintenance shed was present on the property approximately where the current building is built.

- o Filling activities are clearly present in the 1958 and 1966 aerial photographs of the site. The fill was placed from near Witmer Road south in a narrow strip to the southern end of the drive-in. Based on a comparison of the aerial photographs and the site visit, this fill was probably the lime-like material currently found on portions of the site.
- o The site visit did not identify the presence of ponds, pits, lagoons or buried underground storage tanks that might indicate the presence of hazardous materials.
- o Fill materials were evident over essentially the entire site. The surface evidence of these fill materials consisted of broken glass, metal, bricks and lime-like materials coupled with the apparent man-made grades adjacent to Gill Creek.
- o The fill materials appear to be quite old based on the color and shapes of the broken glass and bottles found.
- o The adjacent property usage is commercial (business), residential (across the creek) and recreational. The land immediately south and east is vacant industrial park land.
- o The site is not on a NYSDEC designated wetland and there are no historical sites on the property.
- o The nearest known hazardous waste site is approximately 0.7 miles to the south.
- o The site has <u>not</u> been identified by the USEPA, NYSDEC, Niagara County Health Department or Niagara County Environmental Management Council as a hazardous waste site.
- o The Niagara County Health Department is currently conducting a limited study on the adjacent property to the south with respect to the runoff from the lime-like materials.
- o A soil gas survey was conducted to initially identify the limits of the elevated organic vapors in the fill. An area to the southeast of the building was identified which contains elevated organic vapors.
- o Thirty nine (39) boreholes were advanced and nine (9) test pits were dug to determine the nature and the extent of the fill materials with the elevated organic vapor measurements.

- A dark red to black resin-like material was identified in the fill materials as the source of elevated organic vapors.
- o The organic vapors have a distinct "magic marker" odor and are easily detectable with a photoionization detector with a 10.2 eV lamp.
- o The fill materials above the resin-like material consisted of a silty material with traces of miscellaneous other man-made debris.
- o The average thickness of the resin-like material is approximately two (2)-inches.
- o There is no evidence that this material is in drums on the site but appears to have been poured or spread on the site in the 1940's or 1950's and covered up.
- o The resin-like fill materials appear to have been placed in a former small tributary to Gill Creek and appear to be confined to this area.
- o Chemical analysis of the dark-red resin-like fill materials indicates that the primary chemical compounds present are ethylbenzene, xylene, phenol and 2,4 dimethyl phenol and that these compounds, principally ethylbenzene and xylene are the source of the "magic marker" like odor.
- o The dark-red resin-like material is believed to be a phenolic resin type compound.
- o Beneath the resin-like fill materials on this site, there is a red to brown silty clay layer approximately four to twelve (4-12) feet thick. The silty clay should act as an impermeable layer between the fill materials above and the bedrock below.
- o A perched type water condition is believed to be present in the fill materials. This perched water is believed to migrate into Gill Creek. A small seep was found in the creek bank at the projected location of the former tributary outlet.
- o Three discrete samples of the fill material in the area of concern were obtained and analyzed to determine if the material present exhibits the characteristics of a hazardous waste. The fill was tested to determine if it is corrosive, ignitable, reactive or EP toxic.

- o One of the three samples exceeded the EPA EP toxicity criteria for lead. The lead concentration measured was 8.1 mg/l and if this sample is representative, the fill would be considered a hazardous waste. However, since only one of the three samples exceeded the lead criteria, it is probably due to the presence of lead in the bottles, porcelain or paint encountered and not representative of the fill.
- o The sample that had the high lead level also was potentially ignitable, since the laboratory estimated the flash point at 145°F, which is only slightly above the hazardous waste criteria.
- o Most of the native soils beneath the site are believed to be the Odessa silty clay loam reddish-colored lacustrine deposit, however, along the creek bed floodplain, Wayland silts may be present.
- o The bedrock beneath the site is the Lockport Dolomite. The hydraulic characteristics of this rock are well documented and the first water bearing zone is probably in the fractured rock near the soil/bedrock interface.
- o Water samples from the creek and the seep indicate that the organic compounds present in the fill are not seeping into the creek.

In summary, ESI found a dark-red resin like material that produced an elevated organic vapor reading when exposed to the air. This resin-like material covers an area of approximately 7,480 square feet and is approximately on the average two (2)-inches thick. This resin-like material is believed to have been placed in a former tributary stream. The fill materials are believed to have been placed on this site in the 1940's or early 1950's when the site was a part of the Jon Rommel farm.

The human health and environmental concerns associated with this site are minimal unless the material is disturbed. There are no measurable organic vapors or noticeable odors from the undisturbed potions of the fill. The material is covered with one (1) to six (6)-feet of fill materials and therefore, dermal and ingestion exposures are not likely. No environmental impact of this material has been identified since the leachate sample did not contain any hazardous organic compounds. It is possible, although unlikely, that the bedrock aquifer beneath the fill may be impacted. ESI recommends the following actions with regard to this property.

- o The NYSDEC has verbally been notified of the preliminary results of this investigation on July 7, 1989. They should be provided with a copy of this report for their revision.
- A filtered seep sample should be analyzed for priority metals and iron to eliminate the sediment contribution to the metals found in the seep sample. A sample could not be obtained during July due to the dry weather conditions (no seepage present).
- o Monitoring wells (4) should be installed in the perched water table to identify the direction and quality of this ground water. A sample from each of these wells should be analyzed as a minimum for the volatile compounds and base/neutral extractable compounds, and lead. The monitoring well lcoations, depths and design should be approved to installation and sampling of wells.

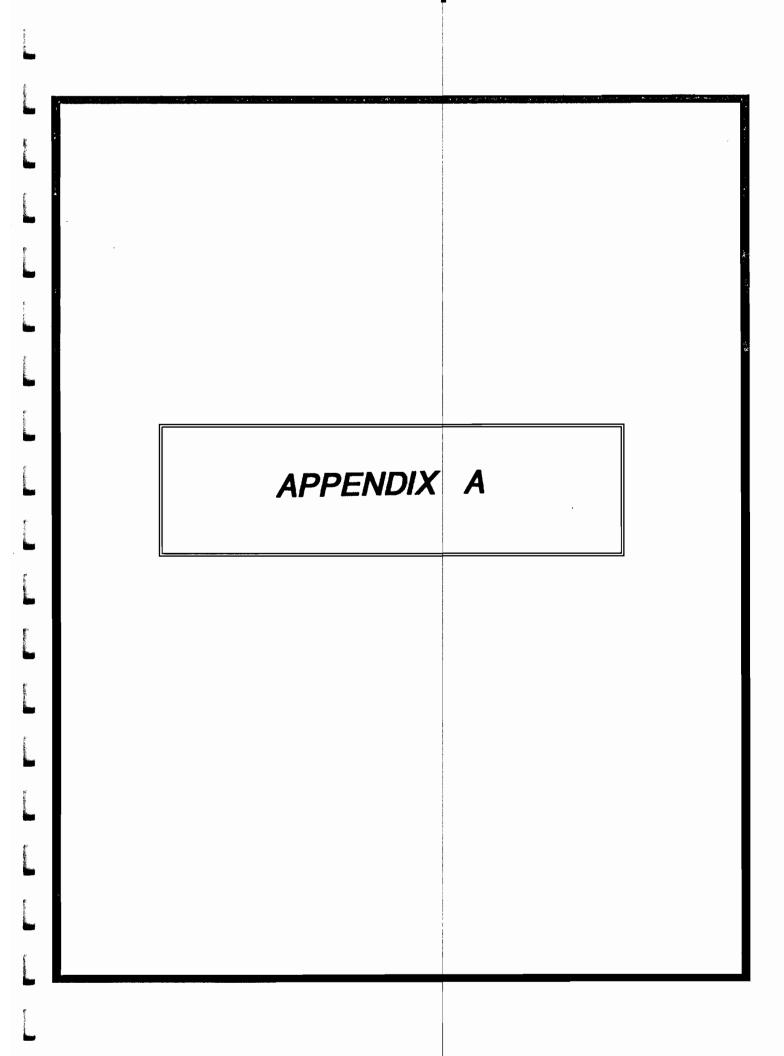
Respectively submitted, EMPIRE SOILS INVESTIGATIONS, INC.

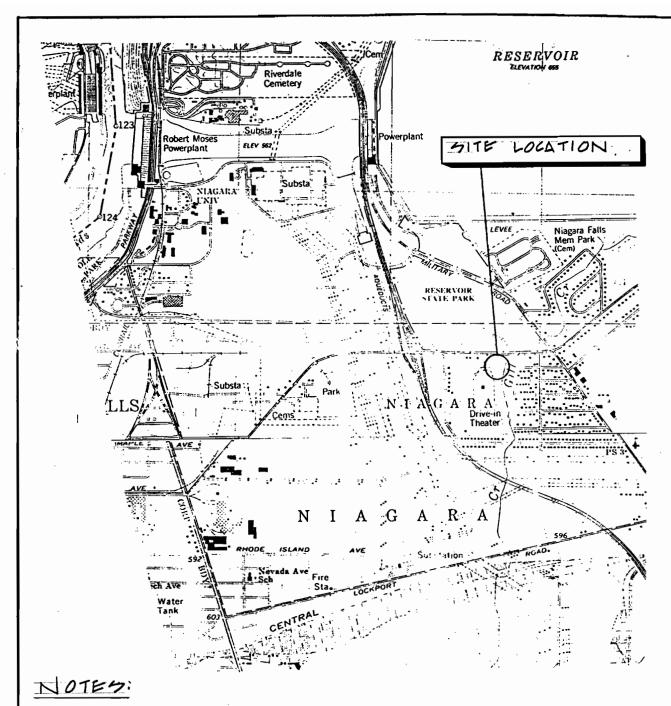
David M. Harty, P. F. Senior Environmental Eng

Stanley J. Has, Jr. Vice President

Manager - Western District

slw





- . THIS DEAWING IS FOR ILLUSTRATIVE PURPOSES
- ONLY
- · THIS PLAN WAS ADAPTED FROM A USGS
- QUADRANGLE MAPS. (LEWISTON IN.Y., ONT. (1980)
- ONT. N.Y (1965)

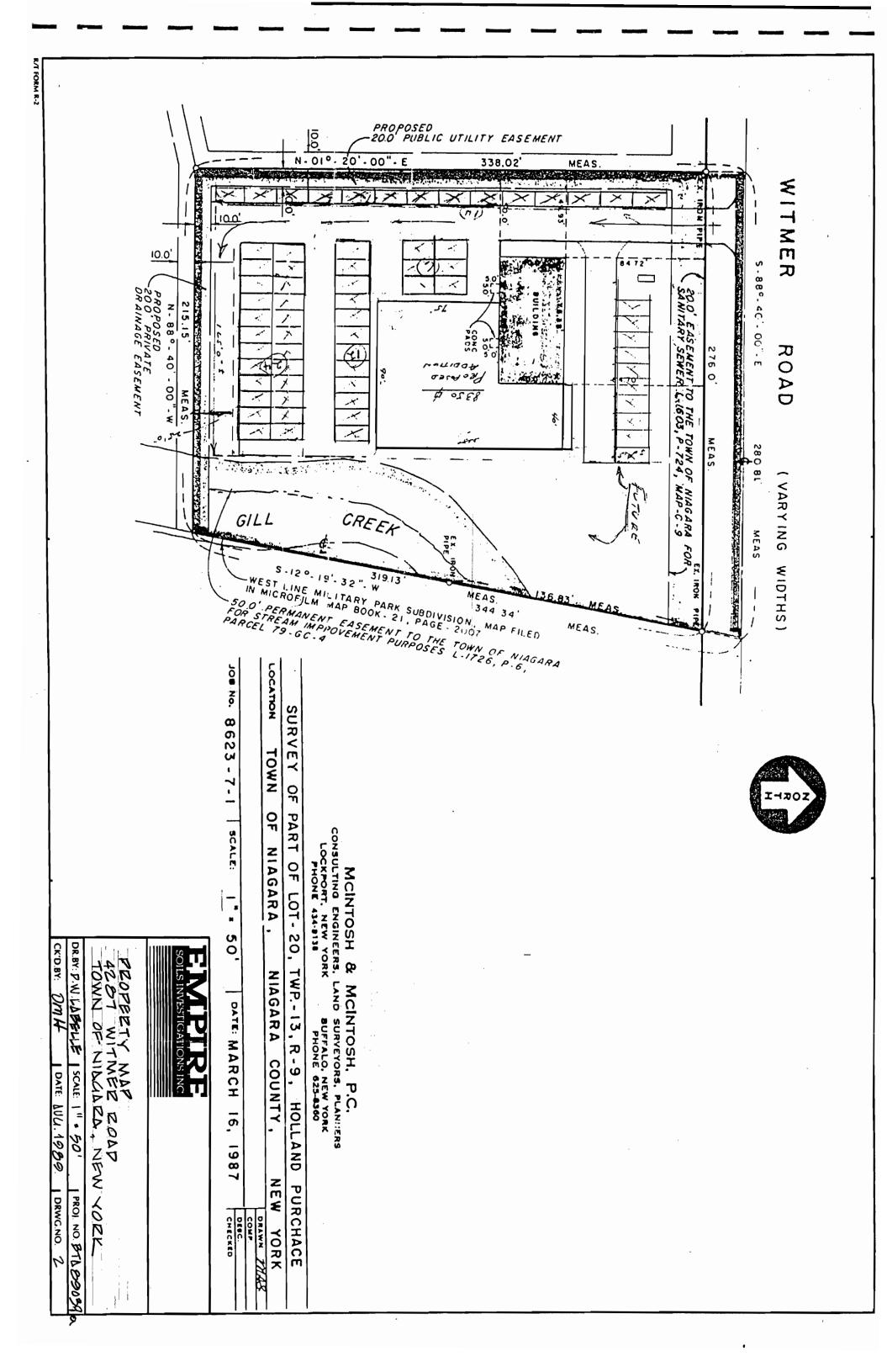
EMPIRE SOLS INVESTIGATIONS INC

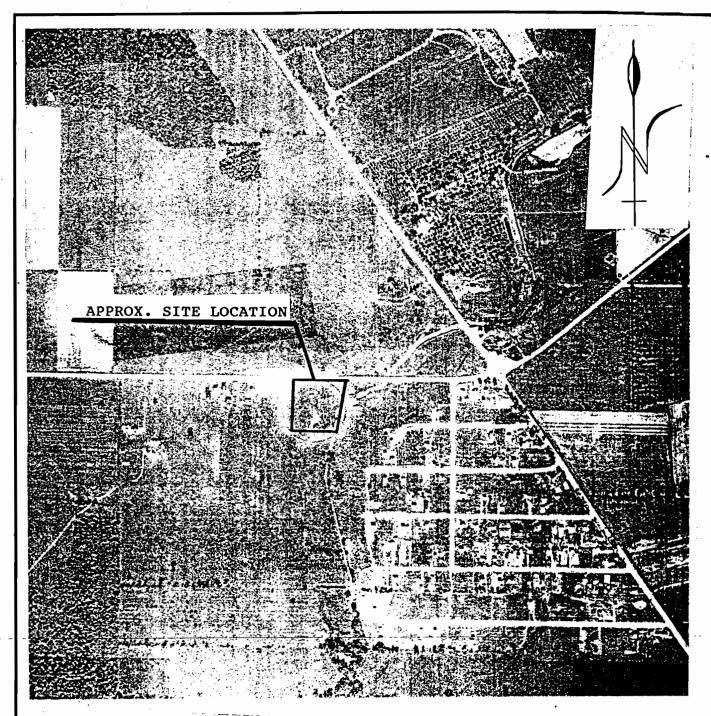
PLAN.

FNVIRONMENTAL SITE ASSESSMENT 4187 WITMER ROAD TOWN OF NIAGARA, N.Y.

DR.BY. D. W. LABELLE | SCALE: 1" ZOOO' | FROI NO. BTA 8939 A

CK'D.BY: DMH | DATE: AUG. 89' DRWG.NO.





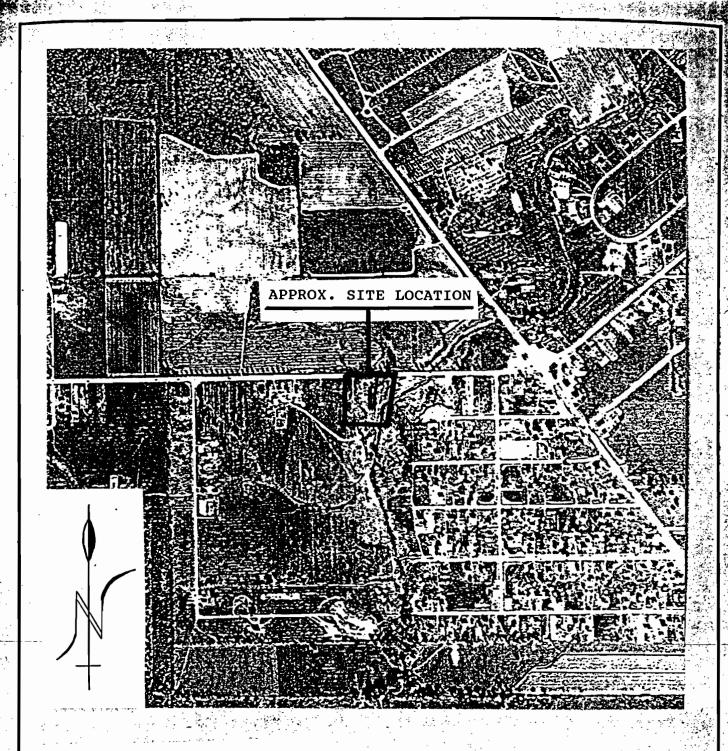
NOTE:
PHOTOGRAPH OBTAINED FROM
NIAGARA COUNTY HIGHWAY
DEPARTMENT LOCKPORT, NEW YORK
PHOTOGRAPH No. ARE-18-34



HISTORICAL AERIAL PHOTOGRAPH (1938)

ENVIRONMENTAL SITE ASSESSMENT 4287 WITMER ROAD TOWN OF NIAGARA, NEW YORK

DR.BY: - | SCALE: /"=660' | PROJ. NO. BTA-89-394 CK'D.BY: - | DATE: Sept. 25, 1938 | DRWG.NO. 3



### NOTE:

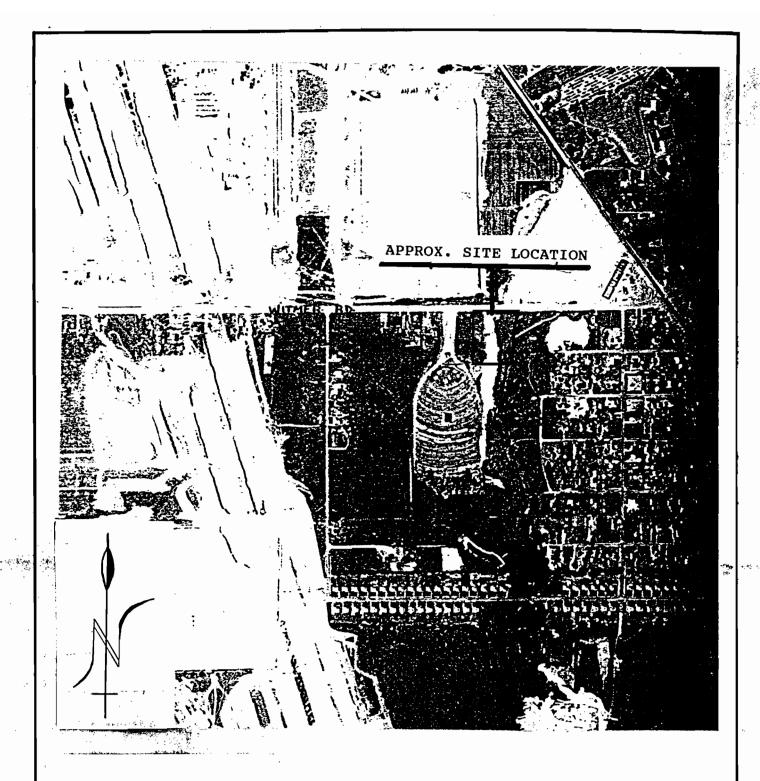
PHOTOGRAPH OBTAINED FROM U.S SOIL CONSE-RVATION SERVICE-LOCKPORT, NEW YORK PHOTO No. ARE-5H-151



HISTORICAL
AERIAL PHOTOGRAPH (1951)

ENVIRONMENTAL SITE ASSESSMENT 4248 WITMER ROAD TOWN OF NIAGARA, NEW YORK

:	DR.BY: —		SCALE: 1"=660'	1 PROI. NO. BTA-89-39A
	CK'D.BY:	;:::	1 DATE: Oct. 14,1951	I DRWG.NO.



#### NOTE:

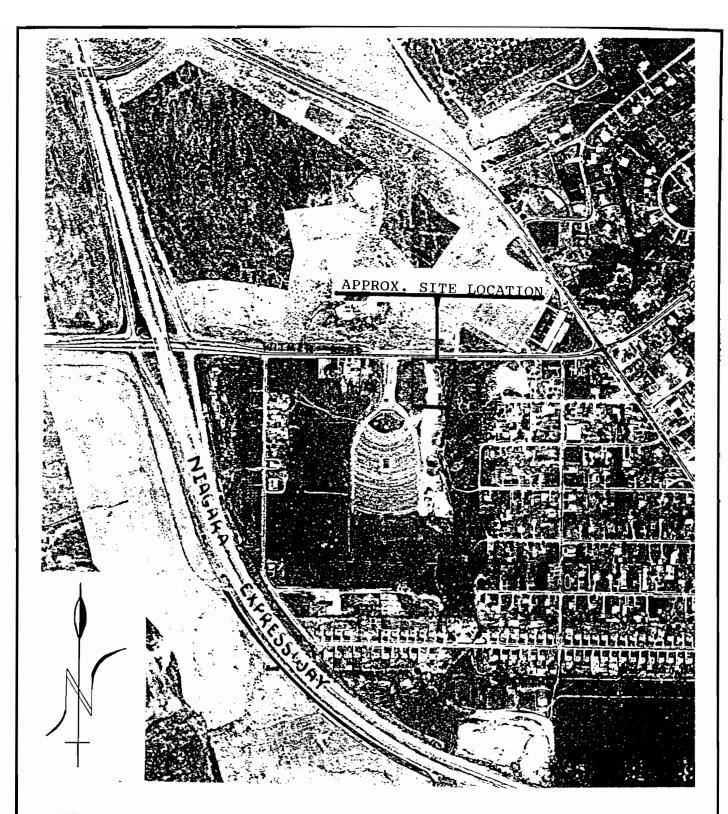
PHOTOGRAPH OBTAINED FROM THE U.S. SOIL CONSERVATION SERVICE, LOCKPORT, NEW YORK, PHOTO NUMBER ARE-IV-24



HISTORICAL AERIAL PHOTOGRAPH (1958)

ENVIRONMENTAL SITE ASSESSMENT ()
4287 WITMER ROAD
TOWN OF NIAGARA, NEW YORK

DR.BY: SAB | SCALE: | = 660' | PROJ. NO. BA-87-5/A CK'D.BY: DM H | DATE: ALG. 2, 1958 | DRWG.NO. 5



#### NOTE:

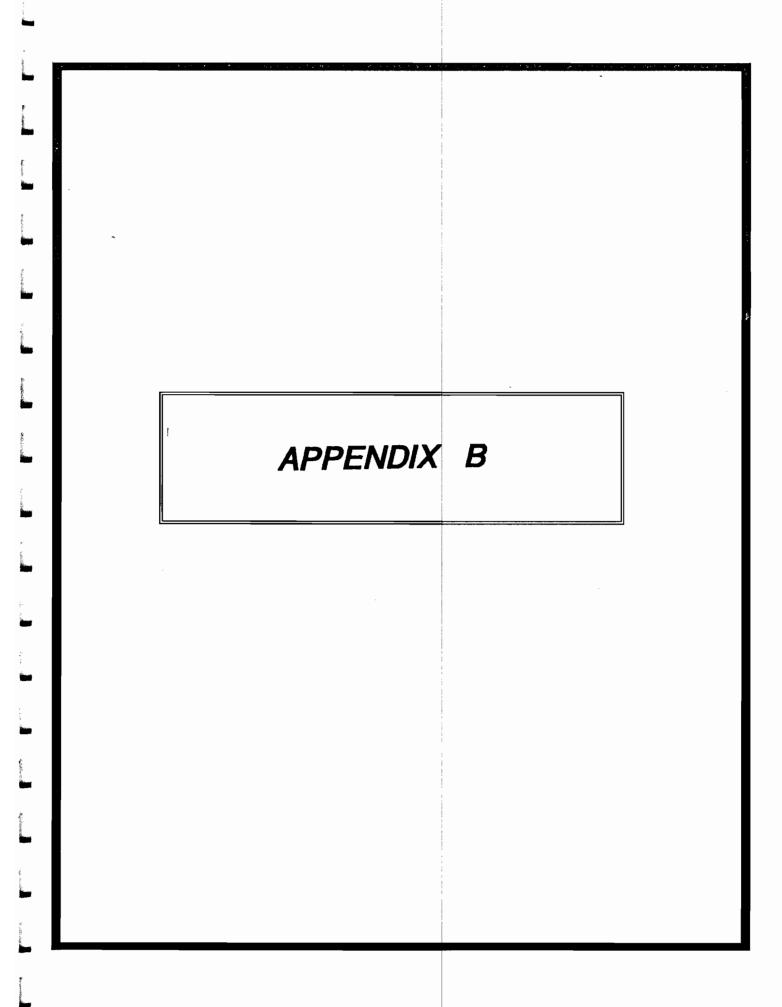
PHOTOGRAPH OBTAINED FROM THE U.S. SOIL CONSERVATION SER-VICE, LOCKPORT, NEW YORK, PHOTO NUMBER ARE-266-50



HISTORICAL AERIAL PHOTOGRAPH (1966)

ENVIRONMENTAL SITE ASSESSMENT 4287 WITMER ROAD TOWN OF NIAGARA, NEW YORK

DR.BY: SAB | SCALE: /4=660' | PROI. NO. BJA-89-39A CK'D.BY: DM H | DATE-JUNE 12, 1966 | DRWG.NO. 6



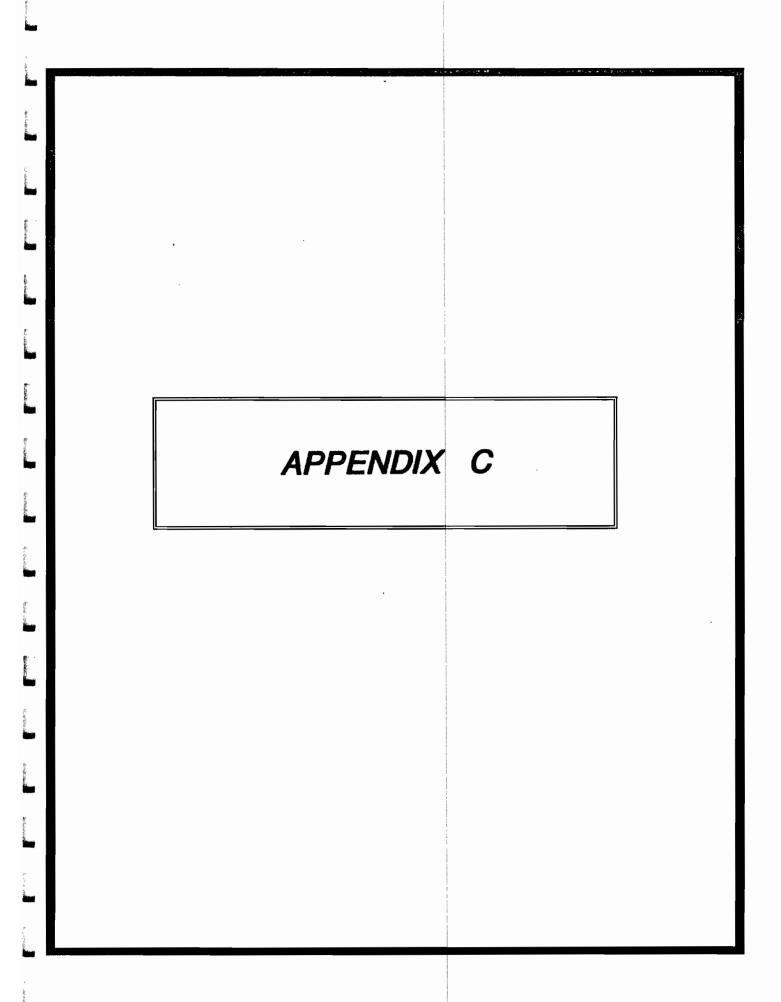
## APPENDIX B LIMITATIONS

- 1. Empire Soils Investigations, Inc. (ESI) environmental site assessment was completed in accordance with generally accepted practices of other consultants undertaking similar studies, and ESI observed that degree of care and skill generally exercised by other consultants under similar circumstances and budgetary conditions. ESI's findings and conclusions must be considered not as scientific certainties but as probabilities based on our professional judgement concerning the significance of the limited data gathered during the course of the environmental site assessment. Specifically, ESI does not and cannot represent that the site contains no hazardous material, petroleum products, or other latent conditions beyond that observed by ESI during this environmental site assessment.
- 2. ESI can assume no responsibility for the undetected presence of either unidentified potential conditions or other latent conditions.
- The observations described in this report were made under conditions stated therein. The conclusions presented in the report were based solely upon the services described therein and not on tasks and procedures beyond the scope of described services or the time and budgetary constraints imposed by the client.
- 4. In preparing this report, ESI has relied on certain information provided by the State, County and Town Officials and other parties referenced herein and on information contained in the files of state and local agencies made available to ESI at the time of the assessment.
- 5. Observations were made of the site and of structures on the subject site and on adjacent sites as indicated within the report. Where access to portions of the site or to structures on adjacent sites were limited or unavailable, ESI renders no opinion as to the presence of hazardous materials or to the presence of indirect evidence relating to hazardous material in that portion of the site or adjacent structures.
- 6. Unless otherwise specified in the report, ESI did not perform testing or analyses to determine the presence or concentrations of hazardous chemical compounds, asbestos, polychlorinated biphenyls (PCB's), or radon.

#### APPENDIX B

## (continued)

- 7. The purpose of this report was to assess the physical characteristics of the subject site with respect to the presence in the environment of hazardous material or oil. No specific attempt was made to check on the compliance of present or past owners or operators of the site with Federal, State or Local laws and regulations, environmental or otherwise.
- 8. Except as noted within the text of the report, no quantitative laboratory testing was performed as part of the site assessment. Where such analyses have been conducted by an outside laboratory, ESI has relied upon the data provided and has not conducted an independent evaluation of the reliability of these data.
- 9. This report has been prepared for the exclusive use of ASTECO, Inc. and its designated agents for the specific application to the identified site in accordance with generally accepted engineering practice. No other warranty, expressed or implied, is made. The environmental concerns noted in this report (if any) are applicable to the current identified proposed usage of the property.



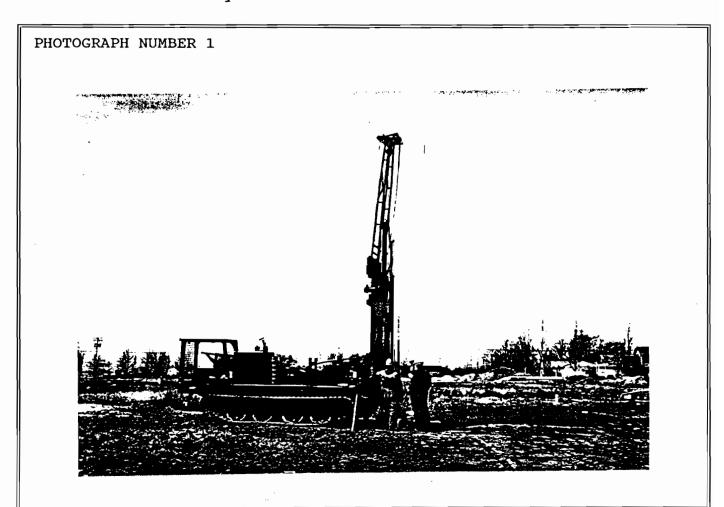


PROJECT: Environmental Site Assessment

PROJECT LOCATION: 4287 Witmer Road, Town of Niagara, New York

PROJECT NUMBER: BTA-89-039a DATE PHOTOGRAPHED: 4-13-89

PHOTOGRAPHED BY: L. Seymour PAGE 1



DESCRIPTION: Center of the property looking west.



PROJECT: Environmental Site Assessment

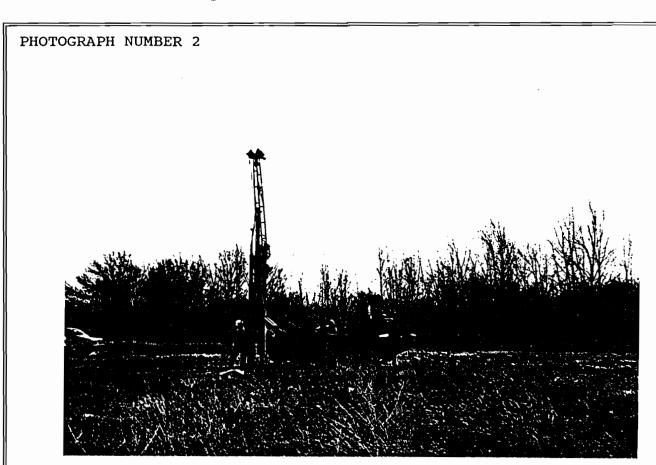
PROJECT LOCATION: 4287 Witmer Road, Town of Niagara, New York

PROJECT NUMBER: BTA-89-039a

DATE PHOTOGRAPHED: 4-13-89

PHOTOGRAPHED BY: L. Seymour

PAGE 2



DESCRIPTION: Center of the property looking east towards Gill Creek



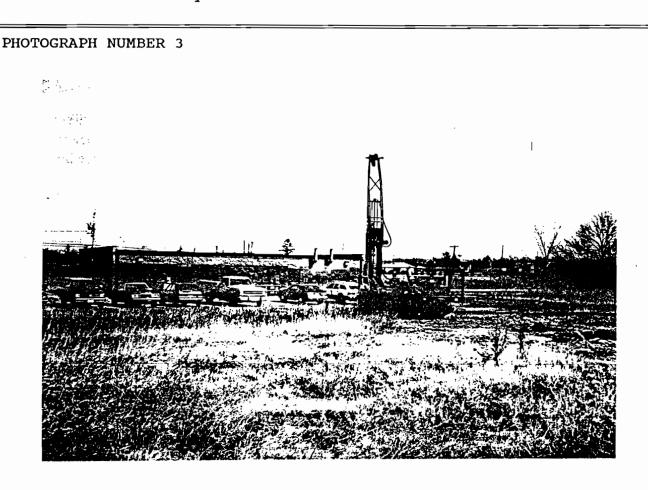
PROJECT: Environmental Site Assessment

PROJECT LOCATION: 4287 Witmer Road, Town of Niagara, New York

PROJECT NUMBER: BTA-89-039a

DATE PHOTOGRAPHED: 4-13-89

PHOTOGRAPHED BY: L. Seymour PAGE 3



DESCRIPTION: Rear of property looking northeast.

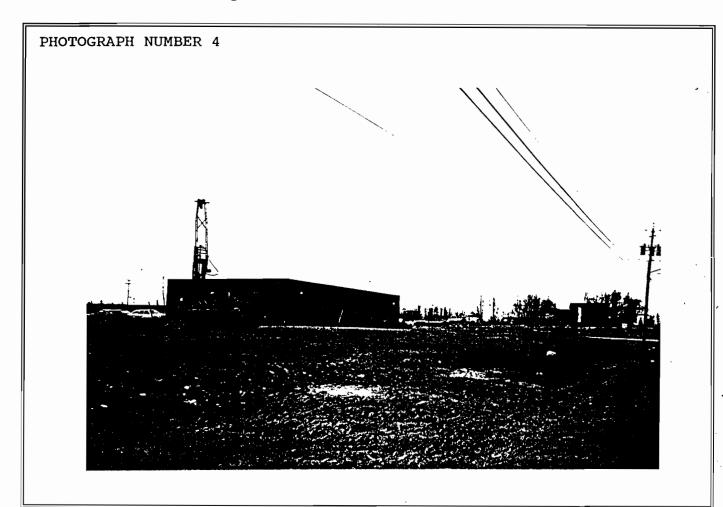


PROJECT: Environmental Site Assessment

PROJECT LOCATION: 4287 Witmer Road, Town of Niagara, New York

PROJECT NUMBER: BTA-89-039a DATE PHOTOGRAPHED: 4-13-89

PHOTOGRAPHED BY: L. Seymour PAGE 4



DESCRIPTION: Northeast corner of the property looking southwest.



PROJECT: Environmental Site Assessment

PROJECT LOCATION: 4287 Witmer Road, Town of Niagara, New York

PROJECT NUMBER: BTA-89-039a DATE PHOTOGRAPHED: 5-15-89

PHOTOGRAPHED BY: S. Babcock PAGE 5

## PHOTOGRAPH NUMBER 5



DESCRIPTION: Photograph taken from parking lot looking southeast

towards Gill Creek.



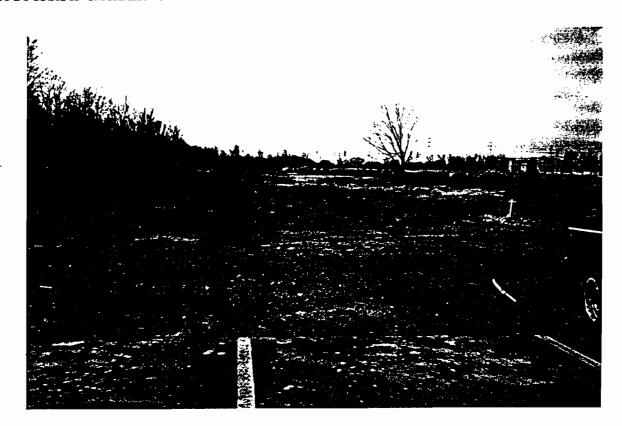
PROJECT: Environmental Site Assessment

PROJECT LOCATION: 4287 Witmer Road, Town of Niagara, New York

PROJECT NUMBER: BTA-89-039a DATE PHOTOGRAPHED: 4-13-89

PHOTOGRAPHED BY: L. Seymour PAGE 6

#### PHOTOGRAPH NUMBER 6



**DESCRIPTION:** Property looking south from parking lot. Property

line is approximately at the large tree on the right hand side of the photograph.



PROJECT: Environmental Site Assessment

PROJECT LOCATION: 4287 Witmer Road, Town of Niagara, New York

PROJECT NUMBER: BTA-89-039a DATE PHOTOGRAPHED: 5-15-89

PHOTOGRAPHED BY: S. Babcock PAGE 7

### PHOTOGRAPH NUMBER 7



**DESCRIPTION:** Test pit excavation material. Note black sludge-like material.



PROJECT: Environmental Site Assessment

PROJECT LOCATION: 4287 Witmer Road, Town of Niagara, New York

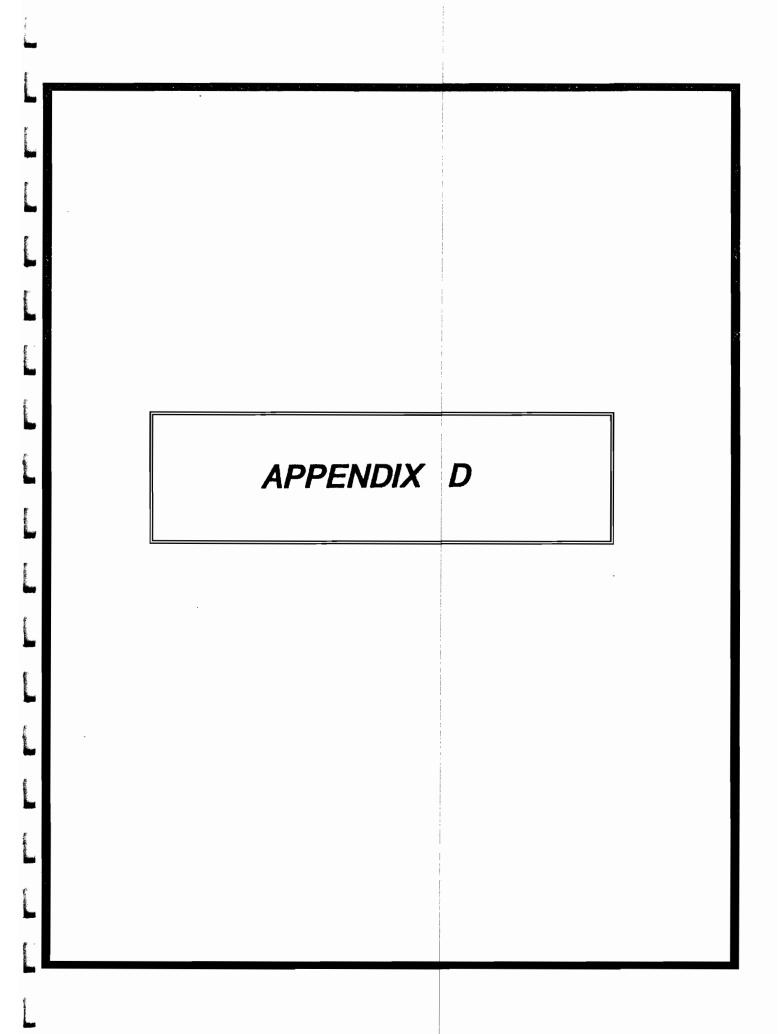
PROJECT NUMBER: BTA-89-039a DATE PHOTOGRAPHED: 5-15-89

PHOTOGRAPHED BY: S. Babcock PAGE 8

#### PHOTOGRAPH NUMBER 8



DESCRIPTION: Bottles recovered from test pit.



#### TEST PIT FIELD LOG TEST PIT NO. TP-1 **PROJECT** DESCRIPTION Proposed Asteco FILE NO. BTA-89-039 SOILS INVESTIGATIONS INC LOCATION 4287 Witmer Road DATE $\frac{5/15/89}{}$ EXCAVATION EQUIPMENT David Smith and Sons GROUND ELEV. ENGINEER S. Babcock CONTRACTOR \_\_ 10:00AM John Smith TIME STARTED OPERATOR . Overcast, 60-65°, WEATHER \_ MODEL MAKE TIME COMPLETED 11:37AM Winds 5-15SW CAPACITY PID BOULDER DESCRIPTION EXCAV. DEPTH SOIL COUNT in **EFFORT** QTY. CLASS. mag - 0'. TOPSOIL Ε BG Brown SILT and Clay, some f-c Sand, little gravel, tr. glass (broken and intact possible laboratory 5 sample jars), tr. brick, tr. wire cable, tr. metal, М A-C BG tr. paper, tr. wood, tr. cobbles, tr. boulders 4 (moist, FILL) М A-C BG Contains "little" possible laboratory sample jars 3'. (intact and broken), tr. porcelain A-C BG 5.0-2 E/M 10.0 Α Black SLUDGE, some f-c Sand, tr. gravel, tr. wood, tr. glass, (broken jars), tr. cobbles (moist-wet, 150-3 FILL) very strong chemical odor. E/M Α 160 6'-(wet) 3 130-E/M 140 A-B 140-Brown Clayey SILT, some f-c Sand, little glass 3 145 M/D (broken), tr. concrete (moist, FILL) strong A-B chemical odor 9'-Test Pit complete at 7.5' -10'-PID=Organic vapors measured with Photoionization Detector (PID). Measurements recorded in parts per million (ppm). - | | | '-BG=Background measurement PID=0.0-0.3ppm - 12'--13'--14'-**REMARKS:** Test pit walls unstable at completion. 1. Perched groundwater encountered at 4.5' from ground surface (slow perculation). Test pit backfilled with excavation spoil upon completion. TEST PIT PLAN LEGEND: **PROPORTIONS** ABBREVIATIONS, EXCAVATION USED F-FINE **EFFORT** - 8.0-BOULDER COUNT M - MEDIUM LETTER EASY -SIZE RANGE TRACE (TR.) 0 - 10 % C - COARSE MODERATE - M CLASSIFICATION DESIGNATION F/M-FINE TO MEDIUM DIFFICULT -D LITTLE (LI.) 10 - 20 % | F/C - FINE TO COARSE 6"-18" IGROUNDWATER SOME (SO.) 20-35% | V-VERI

AND

35-50% | BN.-BROWN

YEL. - YELLOW

ELAPSED

READING -

TIME TO 2 G.W.L

18" - 36"

36"AND LARGER

NORTH



PROJECT
DESCRIPTION Proposed Asteco
Addition
LOCATION 4287 Witmer Road

TEST PIT NO. <u>TP-2</u>
FILE NO. <u>BTA-89-039</u>
DATE \_\_\_\_5/15/89

WEATHER Overcast, 60-65°,
Winds 5-155W

EXCAVATION EQUIPMENT
contractor David Smith and Sons
operator John Smith
make Ford Model 4500
capacity 1/8 C.Y. REACH 14.0 FT.

TIME STARTED 11:47AM
TIME COMPLETED 12:35PM

l		Winds 5-155W CAPACITY 1/8 C.Y. REACH 14.0 FT			
	DEPTH	SOIL DESCRIPTION	EXCAV. EFFORT	BOULDER COUNT QTY. CLASS.	PID in ppm
Ì	$ ^{\circ}$ $ ^{\dagger}$	TOPSOIL	,	4	- PPIII
_		Brown SILT and Clay, some f-c Sand, tr. gravel,	E/M	A-B	BG
		tr. brick, tr. boulders, tr. glass (broken and intact, possible laboratory sample jars), tr.	M/D	15 A-B	BG_
<b></b>		wood, tr. metal, tr. concrete (moist, FILL) Metal 5 gallon drum encountered at 2.5'	M/D	10 A-C	BG
-	a'	Black SLUDGE, some f-c Silty Sand, tr. gravel, tr. cobbles, tr. boulder, tr. wood, tr. metal,	M/D	9 <b>-</b> 10 A-C	0.3- 0.5
	5'	Brown Clayey SILT, some glass (broken), little concrete, tr. organics (moist, FILL) strong	M/D	5-6 A-C	250 <b>-</b> 300
-	_ 6'—	chemical odor	M	5 A-B	250 <b>-</b> 270
	7'		М	6 A-B	270 <b>-</b> 280
	.	Test Pit complete at 6.5'			
-	—8'—	PID=Organic vapors measured with Photoionization Detector (PID). Measurements recorded in parts	-		
-	<b>−</b> 9' <del>-</del>	per million (ppm).			
	—ıoʻ—	BG=Background measurement PID=0.0-0.3ppm			
_	-11'-				
_	-12'-				
-	—ı3'—				
-	—ı4'—				
í	· · · · · · · · · · · · · · · · · · ·				

**REMARKS:** 

- 1. Test pit walls unstable at completion.
- 2. Little free standing water encountered at bottom of pit upon completion.
- Test pit backfilled with excavation spoil at completion.

TEST PIT PLAN LEGEND: PROPORTIONS ABBREVIATIONS, EXCAVATION USED F-FINE **EFFORT ←-**8.5 → BOULDER COUNT M - MEDIUM SIZE RANGE LETTER TRACE (TR.) 0 - 10% C- COARSE EASY -C - COARSE | MODERATE - M CLASSIFICATION DESIGNATION LITTLE(LI.) 10 - 20% F/C-FINE TO COARSE 6"-18" GROUNDWATER SOME (SO.) 20-35% | V-VERT 18" - 36" ELAPSED TIME TO 22 G.W.L READING NORTH AND 35-50% | BN.-BROWN 36 AND LARGER С

CAPACITY\_

EMPIRE SOLIS INVESTIGATIONS INC.

PROJECT
DESCRIPTION Proposed Asteco
Addition
LOCATION 4287 Witmer Road

TEST PIT NO. TP-3

FILE NO. BTA-89-039

DATE 5/15/89

WEATHER Overcast, 60-65°,
Winds 5-155W

EXCAVATION EQUIPMENT
CONTRACTOR David Smith and Sons
OPERATOR John Smith
MAKE Ford MODEL 4500

TIME STARTED 1:30PM
TIME COMPLETED 2:15PM

BOULDER PID EXCAV. COUNT DEPTH SOIL DESCRIPTION in **EFFORT** QTY. CLASS. ppm – റ'-TOPSOIL 8 E/M A-C BG Brown SILT and Clay, some f-c Sand, tr. gravel, tr. boulders, tr. cobbles, tr. brick, tr. concrete 150tr. glass (broken and intact, possible laboratory D A-C 160 sample jars), tr. wood, tr. clay pipe, tr. cloth, 8 140tr. cardboard, tr. paper (moist-wet, FILL) M/D A-C 150 Contains tr. wood fiber-like material, strong 7 300chemical odor M/D A-B 320 Black SLUDGE-like material, some f-c Sand, little wood, tr. glass, tr. paper, tr. cobble, tr. 170-<u>boulder (moi</u>st-wet, FILL) M/D A-B 180 Brown Clayey SILT, some glass (broken), little concrete, tr. organics, tr. cobbles, tr. boulders (moist, FILL) Test Pit complete at 4.5' PID=Organic vapors measured with Photoionization Detector (PID). Measurements recorded in parts per million (ppm). BG=Background measurement PID=0.0-0.3ppm

\_REMARKS:

-14'

- 1. Test pit walls unstable at completion.
- 2. Inflush of perched groundwater into test pit at 4.0'.
- Test pit backfilled with excavation spoil at completion.

TEST PIT PLAN	<u>LEGEND</u> :	PROPORTIONS	ABBREVIATIONS	EXCAVATION
↓ <del> </del> 7.0 <del> </del>	BOULDER COUNT	USED	F-FINE	<u>EFFORT</u>
<b>T</b> 3.0	ICI ASSIFICATION DESIGNATION	TRACE (TR.) 0 - 10%	M - MEDIUM C - COARSE	EASY — E MODERATE — M
1	6"-18" A	LITTLE(LI.) 10 - 20%	F/M-FINE TO MEDIUM F/C-FINE TO COARSE	DIFFICULT - D
- NORTH	18"-36" B	SOME (SO.) 20-35%	GR-GRAY	ELAPSED
	36"AND LARGER C	AND 35-50%	I DN - DDAWN	TIME TO 2 G.W.L.

,									_		
				TEST	PIT	FIELD	LOG				
	12.7	MI	DTI	) T		PROJEC	T:		TEST PI	T NO	TP-4
		SINVEST			DESCRIPTI	ON 5.0' Ea	st - 20'	South	FILE NO	BTA-89-0	039
ı						Asteco,		Falls_	DATE	6-9-89	
	ENC	CINEED		rises var –	EXCAV.	ATION EQU	IPMENT		GROUND EL	EV	
	WEATHE	SINEER .		70°	OPERATOR	John Smith	one 45		TIME STAR	TED9:	
	WEATHE	-R	Loudy		MAKE <u>Ford</u> CAPACITY 1/8	R C.Y. R	ODEL <u>45</u> EACH <u>12</u>		TIME COMP	LETED 9:	45
ı	DEPTH — 0'—			SOIL	DESCR	IPTION	I		EXCAV. EFFORT	PID	REMARK NO.
		0.4		IOPSOIL wn Clayey Si	ILT, some f-	-c Sand, tr	. gravel	, tr.		0.0	
	ı'		brio	ck, tr. rul	bber boot, t	tr. cable,	tr. reba	r, tr.		1.0*	
	<u> </u>		, .	metal (m	•	aspharence c	DICTELE,	LI. WULL	'	BG	
	3'		-cor	ntains Bla	ck Organic I	Decay throu	ighout (s	potted)		BG	
	<u> </u>									BG	
,	<b>—</b> 5'—				(about 6")					BG	
	— 6'—		7 Cont Brow	tains litt wn-Black	le f-m Sand				<u></u>	BG	
,	— 7'—		Cont	tains some	to "and" f-	-c gravel (	(wet, FIL	L)			
,	—8'—										
	— 9'—										
•	-10'-			*Note:	1.0 pm rea	ading taker	n on a sp	ot of			
•	i i'				dark Red material to 1.0' be	aterial app	proximate	ly 8"			<del>-</del>
•	— 12 <b>'</b> —										
	—ı3'—										
-	14'		Back	kground PII	0 = 0.0 - 0.4p	opm					
	REMAR	≀KS:							•	_	
	TEST	DIT DI	ΔΝΙ	LEGEN	n:		TIONS	APPREV			TION
	ILSI !	<u></u>				PROPOR USE		ABBREV	IAI IUNS	EXCAVA EFFO	
	1	77777		BOULDER SIZE RANGE			_	M - MEDIUR		EASY	<u>·``</u> — ε
•	T///		ľ	CLASSIFICATIO	ON DESIGNATION	TRACE (TR.)			TO MEDIUM	MODERATE DIFFICULT	
	1 (	)		6"-18" 18"-36"	A B	SOME (SO.)	1	F/C-FINE	Į.	GROUNDW	VATER
-	NOI VOLUME	ŘTH	C.Y.	36"AND LARG	_	AND	35-50%	GR GRAY BN BROW	I I	ELAPSED TIME TO 22 READING	<u>Z</u> G.w.L.

ENGINEER.

**PROJECT** 

DESCRIPTION 5.0' East + 46' South

TEST PIT NO. TP-5 FILE NO. BTA-89-039

6-9-89

LOCATION Asteco, Niagara Falls

EXCAVATION EQUIPMENT CONTRACTOR Dave Smith and Son

GROUND ELEV. TIME STARTED 9:45

DATE \_\_

WEATHE	D POLLIV DILLIV Ford 1600	ME STAR ME COMP	TED <u>9:45</u>	
DEPTH	SOIL DESCRIPTION	EXCAV. EFFORT	PID	REMARK NO.
' _	3" TOPSOIL  Brown Clayey SILT. some f-c Sand, tr. gravel, tr. brick, tr. tile, tr. metal, tr. wood, tr. brick, tr.		BG	
2'	lime, tr. glass, tr. rebar (moist, FILL)		BG	
·   3'			BG	
4'	-Becomes reddish-brown		BG	_
_ 5'—	Contains little f-m Gravel		BG	
_ e'—	Black f-m SAND, little Clayey Silt, tr. gravel, (moist-wet, FILL)		BG .	
7'-	Test Pit Complete at 7.0'			-
8'-				
-10'-				
11'-				
_  - 12'-				
13'				
-14'-	Background PID = 0.0-0.2 ppm			

**REMARKS:** 

'	TEST PIT P	<u>LAN</u>
	<b>↓ ├</b> ╾ →	
	T	
	NORTH	
١		~ v
	VOLUMF =	C.T.

LEGEND: BOULDER COUNT SIZE RANGE LETTER TRACE (TR.) 0 - 10% C- COARSE CLASSIFICATION DESIGNATION 6"-18"

8

C

18"-36"

36"AND LARGER

USED SOME (SO.) 20-35% | V-VERT

AND

**PROPORTIONS** 

F-FINE M - MEDIUM F/M-FINE TO MEDIUM DIFFICULT -- D LITTLE(LI.) 10 - 20 % F/C-FINE TO COARSE

35-50% | BN.-BROWN

I ABBREVIATIONS, **EXCAVATION EFFORT** EASY -GROUNDWATER TIME TO 22 G.W.L.

SOILS INVESTIGATIONS INC.
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PROJECT

DESCRIPTION 5' East + 71' South

LOCATION Asteco, Niagara Falls

TEST PIT NO. <u>TP-6</u>
FILE NO.BTA-89-039
DATE <u>6-9-89</u>

DEPTH	SOIL DESCRIPTION	EXCAV. EFFORT	PID	REMARK NO.
	5" TOPSOIL,  Reddish-Brown Clayey SILT, little f-m Sand, tr. gravel, tr. brick, tr. metal, tr. wood, tr. plastic,		BG	
2'-	tr. paper (tin can, plastic oil bottle) Becomes brown	_	BG	
3'-	Contains tr. lime		BG	
4'-	Contain Concrete blocks Water at 3.4'	-	BG	<u> </u>
5'	Brown f-c GRAVEL, little f-m Sand, tr. clayey Silt, tr. wood (wet, FILL) Contains tr. glass		BG	 
<u></u> 6'−			BG	<u> </u>
7'-	Black f-c SAND and Clayey Silt, tr. gravel, tr. wood, (wet, FILL)	-	BG	<u></u>
8'—	Black Organic Topsoil Layer (moist)  Test Pit Complete at 8.0'	_	BG	<u> </u>
9'-	rest fit complete at 6.0			
10'				_
-11'-				_
-12'-				_
13'-				_
14'—				

REMARKS:

TEST PIT P	LAN
<u> </u>	
1	
NORTH	
VOLUME =	CY

LEGEND:			
BOULDER C	OUNT		
SIZE RANGE CLASSIFICATION			
6"-18"	A		
18" - 36"	В		

36"AND LARGER

USED			
        LITTLE(LI.)	0 - 10%		
  LITTLE(LI.)	10 - 20 %		
SOME (SO.)	20-35%		
AND	35-50%		

**PROPORTIONS** 

ABBREVIATIONS
F-FINE
M-MEDIUM
C-COARSE
F/M-FINE TO MEDIUM DIFFICULT — D
F/C-FINE TO COARSE

GROUNDWATER

GR.- GRAY

BN.- BROWN
YEL.-YELLOW

GROUNDWATER

ELAPSED
TIME TO \$22 G.W.L.

IREADING

(HRS)

	TEST	PIT	FIELD	LOG	;			
SOILS IN	APTRE VESTIGATIONS INC.	LOCATION EXCAVA	ATION EQU Dave Smith	st + 56.5 Niagara F. NIPMENT and Son	alls (	FILE NO DATE	.EV	039
	Partly Sunny 75°	OPERATOR	John Smith C.Y. R	ODEL 45 EACH 12	<u>00</u> .	TIME STAR	TED11 LETED11	:25 :55
DEPTH	SOIL	DESCR	IPTION	1	-	EXCAV. EFFORT	PID	REMAR NO.
-0'-	3" TOPSOI Reddish -Brown gravel, tr. co Becomes brown	Clayey SILI			, tr.		BG	
— 2'—	Contains tr. g Plastic bottle	lass, tr. pl	lastic				BG	<del>                                     </del>
—3'—	Contains some	little f-c (	Gravel				BG	
— 4'—							BG	
— 5'—	Black Silty CL	AY, some f-r	m Sand, lit	tle-tr.	gravel,		BG	<u> </u>
— e'—	tr. wood (mois Contains wire,	st-wet, FILL)	)				BG	-
7'	mat Dit Gara						BG	ļ
_ 8'_	Test Pit Compl	ete at 7.0°						<u> </u>
<b>—</b> 9'—								ļ.,
-10'-								<u> </u>
-11'-								ļ
— 12'—								<u> </u>
—13'—							_	<u> </u>
—14'—	Da alamanan d	PID = 0.0-0	2					
REMARKS			-2 Odii			<u> </u>		<u> </u>
		-	-					
TEST PIT	6"-18"	COUNT E LETTER ON DESIGNATION	LITTLE(LI.)	O - 10 % 10 - 20 %	ABBREV F-FINE M-MEDIUM C-COARSI F/M-FINE F/C-FINE	A E TO MEDIUM TO COARSE	EFFO EASY — MODERATI DIFFICULT	RT — E E — M T — D
NORTH VOLUME = _	1 18"-36" C.Y. 36"AND LAR	B Ger c	SOME (SO.)		GRGRAY	'N i	ELAPSED TIME TO READING	<u>7</u> G.W.L

T	FST	PIT	FIFI	n	LOG
1	LJI		1 1	·	

EMPIRI	_
SOLIS INVESTIGATIONS IN	C
	=

PROJECT
DESCRIPTION 17' East and 72' South
LOCATION Asteco. Niagara Falls

TEST PIT NO. <u>TP-8</u>
FILE NO. <u>BTA-89-039</u>
DATE <u>6-9-89</u>

ENGINEER \_\_\_\_

EXCAVATION EQUIPMENT CONTRACTOR Dave Smith and Son OPERATOR John Smith

TIME STARTED \_\_\_\_\_\_\_

WEATHER Cloudy/Overcast

OPERATOR John Smith

MAKE Ford MODEL 4500

CAPACITY 1/8 C.Y. REACH 12 FT.

TIME STARTED 12:40

DEPTH	SOIL DESCRIPTION	EXCAV. EFFORT	PID	REMARK NO.
├-o'- <del> </del>	3" TOPSOIL			
<b>├</b> -'-	Brown Clayey SILT, some f-c Sand, tr. gravel, tr. concrete		*PID	
2'	-Concrete Slab on top of dark Red Material*		Reading high as	
	Test Pit Complete at 2.0'		mign as	25,
3'-				
4'				
5'				
— 6'—				
7'—	•			<del></del>
—8'—				-
9'—				
-10'-	·			
' ' '-				
12'—				-
13'				
14'	De character d DTD as 0.00.25 arms			
14 –	Background PID = 0.0-0.2 ppm			

**REMARKS:** 

TEST PIT PLAN	LEGEND:	PROPORTIONS	ABBREVIATIONS	EXCAVATION
<b>↓</b>	BOULDER COUNT	USED	F-FINE	<u>EFFORT</u>
	SIZE RANGE LETTER CLASSIFICATION DESIGNATION	TRACE (TR.) 0 - 10%	M - MEDIUM   C - COARSE	EASY — E
T	6"-18" A	TRACE (TR.) 0-10%	F/M-FINE TO MEDIUM F/C-FINE TO COARSE	OFFICULT -D
NORTH	18"-36" B	SOME (SO.) 20-35%	1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	IFI APSED
	TEMAND LABORD C	AND 35-50%	I BN BROWN	TIME TO \$2 G.W.L.

E M SOILS INVE	PIRE		PROJECTION Continuo Asteco.	uation So	1.6-8	FI	LE NO	T NO. <u>TP-</u> . <u>BTA-89-</u> 6-9-89	
ENGINEE	oudy/Overcast	EXCAL CONTRACTOR	ATION EQU Dave Smith John Smit	JIPMENT and Son h	500	GR:	OUND EL		
DEPTH	SOIL	DESC	RIPTION	1			EXCAV. EFFORT	PID	REMARK NO.
0'	3" TOPS Brown Clayey SI concrete -Concrete Slab	LT, some f		_				*PID Reading	
	Test Pit	Complete	at 2.0'					high as	1.25 <del>p</del> pm
- 4 - - 5'-									
- 6'- 7'-									
— 9'— — 8'—								-	
—ıo'— —ıı'—									-
— 12'— —13'—							_		
—14'—	Backgro	und PID =	0.0-0.2 ppm	ı					_
REMARKS:		-	<u>-</u>					• .	
TEST PIT F	BOULDER SIZE RANGE	COUNT LETTER N DESIGNATION A B	PROPOR USE TRACE (TR.) LITTLE(LI.) SOME (SO.)	0 - 10 %   10 - 20 %	ABBRE' F - FINE M - MEDIU C - COARS F/M - FINE F/C - FINE V - VERY GR GRAY BN BRO' YEL - YEL	M SE E TO	MEDIUM <sub>[</sub> COARSE	EXCAVA  EFFO  EASY  MODERATE  DIFFICULT  GROUNDW  ELAPSED  TIME TO 122  READING	RT — E — M — D /ATER

STARTE		/12/89		SOILS	MPTRE INVESTIGATIONS INC.	SURSURE	ACE LOC	HOLE NO.	B-1 98.9
FINISHE	•	/12/89		SOILD	111121131113113	30030KI7	TCL LOG	G. W. DEPTH	see not
SHEET		_OF1				BTA-89-039	400=		
PROJECT				<u>lding</u>	<u>Expansion</u>	LOCATION		tmer Road	
	AS <sup>*</sup>	TECO,	Inc.				lown of	Niagara, Ne	N York
F S S		BLOWS ON			SOU O	n nock			
SAMPLES	0 7	SAMPLER	$\overline{A}$			R ROCK ICATION		NO	TES
$\begin{bmatrix} 0 & 1 \\ 1 & 1 \end{bmatrix}$	V 0;	/12/1	8- N	PID					
	3	<u>3</u>	-	0.5-	TOPSOIL Red-Brn. Clayey	SILT. littl	e f-c	PID reading H	
<del>-                                    </del>	2:4	7	6	0.8	Sand, tr. slag,			PI-101	NO IIIOGET
_ <del>-</del>  / -	10	3	17	1.0	_ wood (moist, FII	_L )			
_	3 2	2		0.5-	Contains tr. par Gray-Black f-c	oer, tr. gar SAND and Cir	bage		
5	2	2	4	1.0	tr. slaq (wet,	FILL)	ide: 3 ,		
_ <b> </b>	1 1/1	.0		0.5-	BrnBlack organ				
<del>                                      </del>	-   -		+	0.8	_ Sand, tr. clay, _ loose)	tr. roots (	wet,		
7/ [	5 3	8	10	0.5- 0.8	Brn. Silty CLAY	, little f-c	Sand		
10-/-	+ • †			0.0	(moist, medium)				
	5 2 8	8	10	0.5-	Red-Brn. f-c SAI f-c Gravel (mois				
15 <del>-11</del>	7 4		12	0.8	Contains tr. fra	-	•	c	
-  _	4	10 10	<u> </u>	0.5-	Concarns cr. rre		. IT agment		
<u> </u>				3,12	Douing Complete	with Comple	Cnoon	Fuer should	
] [					Boring Complete refusal at 16.5		Spoon	Free stand recorded a	
20								Boring Com	
			+-						
-   -			+						
-									
4  -									
4  -			+						
			+						
4  -									
4  -	_		+						
1			+						
7									
			4						
4  -									
					• • •		I	W.S	
= No blo	ws to dr	rive2_	" spc	oon <u>12</u>		alling <u>30</u> "per	blow. CLASS		<u>sual by</u> ologist

DATE	EN/DIDE	B-2					
	ENTPTRE SOILS INVESTIGATIONS INC. SUBSURFACE LOG	I HOLE NO					
FINISHED 4/13/89		G. W. DEPTH See note					
SHEET1_OF1	BTA-89-039						
	Proposed Building Expansion LOCATION 4287 Witmer Road						
ASTECO, Inc.	Town of I	Niagara. New York					
E S S BLOWS ON	COLL OR BOCK						
11 H H H M W S S WAMPLER S WAMPLER O 6 12 18 N	SOIL OR ROCK CLASSIFICATION	NOTES					
=0 <del>                                     </del>	PID						
$\begin{array}{ c c c c c c c c c c c c c c c c c c c$	0.5- 1.0 Brn. f-c SAND and Silt, tr. slag,	PID readings obtain- ed using HNU model					
2 2 50/0.1	tr. wood (moist, FILL)	PI-101					
		No recovery Sample					
5 /3 1 2	80- Black f-c SAND and Clayey Silt, tr.	#2					
	glass (wet, FILL)	Driller notes auger- ing through cobbles					
$\begin{array}{ c c c c c c c c c c c c c c c c c c c$	300-	(FILL)					
/5 3 4	Red-Brn. Clayey SILT and f-c Sand	Strong chemical odor					
10 4 8 8	(moist, medium)	noted in Samples					
		#3, #4 and #5					
		Н					
/6 4 4	7- Red-Brn. Silty CLAY, tr. sand						
3 4 7	10 (moist, medium)	Slight chemical odor					
	4- Contains occasional Silt seams	noted in Samples #6 and #7					
	Red-Brn. f-c SAND, tr. silt (wet)	H					
1 7 13 100/0.3	2						
-20-	Boring Complete with Sample Spoon	Free standing water					
	refusal at 18.0'	recorded at 13.0' at					
		Boring Completion					
		İ					
		H					
		H					
		H					
		$\Box$					
		H					
		H					
		H					
		H					
		H					
		H					
N = No. blows to drive_2" spoo	on 12 "with 140 lb. pin wt. falling 30 "per blow. CLASSI	FICATION Visual by					
	ng" withlb. weight falling"per blow.	Geologist					
l .	ASTM D-1586 USING HOLLOW STEM AUGERS						

STARTED FINISHED	4 /10 /00	SOILS	INVESTIGATIONS INC. SUE	SSURFACE LOC	SURF. ELEV. <u>99.8</u>
SHEET	1 <sub>OF</sub> 1		DTA	-89-039	G. W. DEPTH see note
	Proposed B	uilding		4007 111	<u>l                                    </u>
PROJECT _	ASTECO, In		LXPans for LOCA		Niagara, New York
	ASTECO, III	· · · · · · · · · · · · · · · · · · ·		TOWN OI	n rayara, new rork
r Fi	BLOWS ON SAMPLER		SOIL OR ROO	~v	
SAMPLES SAMPLE NO	0 / 6 / 12 /		CLASSIFICATION		NOTES
	6 12 18	∾ PID			
1/ <u>1</u>	3 4	0.4-	TOPSOIL White LIME (moist, F	CTLL \	PID reading obtain- ed using HNU model
1/10		8 0.6	white the (moist, r	ILL)	PI-101
$-\frac{1}{2}$	3 3	0.4-	(wet)		
1/2	2 7	7 0.6	()		
$5-\sqrt{\frac{3}{3}}$		0.4-	Red-Brn. Clayey SILT	little f-c	
1/4	2 3	0.4-	Sand (moist, medium)		
		0 0.6			
/5	5 7	0.4-			
-10-1/	7 12 1	4 0.6			
'					
4					
+					
$-\frac{6}{1}$	2 4 4	0.4- 8 0.6	Gray and Red-Brn. la	minated Silty	No
15 <del>-1   -</del>	100/0.1	0.0	CLAY, tr. sand, occa	sional Silt	No recovery Sample
_2/	100/0.1		_partings (moist-wet,	medium)	
-			Boring Complete with	auger refusal	No free standing
			at 16.6' and Sample	Spoon refusal	water encountered a
-20			at 16.7'		Boring Completion
_					
_					
$\dashv \vdash$					
	<del>                                     </del>				
-					
7					
-					
		. 12	_" with 140 lb. pin wt. falling_	30	SIFICATIONVisual by

PROJECT	1 <sub>OF</sub> 1 Proposed	-   <del></del> Building	200711011	itmer Road
	ASTECO, I	nc.	Town o	f Niagara, New York
SAMPLE NO	BLOWS ON SAMPLER  6 12 18- 1 4	N PID 0.4-	SOIL OR ROCK CLASSIFICATION  TOPSOIL Red-Brn. f-c SAND and Clayey Silt,	NOTES PID readings obtair ed using HNU model
2 /3	7 12 9 5 3 3 2 2 3 4	11 0.6 0.4- 8 0.8 0.4- 5 0.9	tr. glass, tr. slag (moist, FILL)  Becomes brn. (moist-wet)	HN-101
/5	2 2 2 4 2 4 4 6	0.4- 4 0.6 0.4- 8 0.6	BrnBlack organic Clayey SILT, little f-c Sand (moist-wet, medium Becomes red-brn. (moist, medium)	)
5 7	2 2 2 2 4 7 0 100	0.4- 4 0.6 5- 17 10	Red-Brn. Silty CLAY, tr. sand (wet soft)  Red-Brn. SILT, tr. sand, occasiona Clay partings, tr. fractured rock fragments (moist, firm)	,
20-			Boring Complete at 17.0'	No free standing water encountered at Boring Completic Free standing water recorded at 5.0' or 4/13/89

STARTED 6-3-89  FINISHED 6-3-89  SHEET 1_0F_1	EMPIRE SUBSURFACE LOC	HOLE NO. B-5  SURF. ELEV. N/A  G. W. DEPTH SEE 1	otes_
PROJECT Asteco Propose		Witmer Road Falls, New York	
Expansion	Niagara	rails, New York	
OF BLOWS ON SAMPLER  O 6 12 18 N	SOIL OR ROCK CLASSIFICATION	NOTES	PID Breathin Space
1   2   10   12   12   22   2   18   50/1   5   7   21   11   11   11   11   11   11	# A' TOPSOIL  Brown Clayey SILT, some f-c Gravel, little-tr. sand, tr. cinders, tr. lime, tr. glass, tr. brick (moist, FILL)  Black Clayey SILT, some f-c Sand, tr. gravel, tr. glass, tr. cinders, (moist-wet, FILL)  Red-Brown Silty CLAY, little f-m Sand, tr. gravel (moist, medium)  Boring Complete at 10.0'	While Augeering driver pulled bricks  *No recovery on S-2  Free standing was observed at 3.8' Boring Completion BG = Background PID 0.0-0.3 ppm  PID = Organic vas measured with Phionization Detect (PID) measurement recorded in part per million (ppm)	BG BG BG BG BG Pors at
C = No blows to drive " casin	on 12 "with 140 lb. pin wt. falling 30 "per blow. CLASS  ng "with lb. weight falling "per blow.  ASTM D-1586 USING HOLLOW STEM AUGERS	GEOLOGIST	

DATE				
	.89	MPIRE	HOLE NO. B-6	1
STARTED 6-3	COTT	INVESTIGATIONS INC. SUBSURFACE LOC		
1111311111			C. W. DEPTH _ See no	otes
SHEET <u>1</u> 0	===		G. W. DEPTH	5005
PROJECT Asteco	Proposed Bu	ilding LOCATION Asteco V	Vitmer Road	
Expans	ion	NiagaraNiagara	Falls, New York	
BLC BLC	WS ON			DID
E Iŭi ž	APLER	SOIL OR ROCK	NOTES	PID Breatl
SAMPLE SAMPLE	PID PID	CLASSIFICATION	110123	Space
0	18- N BG	.25' TOPSOIL		
1 1 5	9	Brown-Orange f-c SAND, little		$_{\rm BG}$
2 3 8	-	Gravel, little broken Glass, tr.		
$\frac{2}{7} \frac{3}{4}$	15 5.5	cinders, tr. slag (moist, FILL)		BG H
3 3 12		Contains tr. wood		<del>- i</del> 1
5 11 13		Contains tr. brick, tr. wood, tr.		BG
4 4 4		plastic		
4 6	8 240	Black Clayey SILT, little f-m Sand,	*Picture #3	BG 🗎
5 3 5		little Roots, tr. leaves, tr. grass	taken	
10 12	15 50	Red-Brown Silty CLAY, little f-m	<b>,</b>	BG
		Sand, tr. gravel (moist, medium)		Ы
		Boring Complete at 10.0'	Free standing wa	ter H
		1011119 campiece de 10.0	encountered at 9	
4			at Boring Comple	tion
			BG = Background	
<del>                                      </del>		-	PID 0.0-0.3 ppm	H
			PID = organic va	mre H
			measured with Ph	
1 <del>-   -   -   -   -   -   -   -   -   - </del>			ionization Detec	
1			(PID) measuremen	
		1	recorded in part	
			per million (ppm	"
				Ц
				Ц
				Н
		-		H
1	1			$\dashv$
				H
-				-
				-
				H
				$\dashv$
				П
= No. blows to drive	2_" spoon_12	with 140 lb. pin wt. falling 30 per blow. CLASS	SIFICATION Visual b	
= No blows to drive_		i withlb. weight fallingi per blow STM D-1586 USING HOLLOW STEM AUGERS		

METHOD OF INVESTIGATION:

STARTED 6-3-89  FINISHED 6-3-89  SHEET 1 OF 1	EMPIRE SUBSURFACE LOG	HOLE NO. B-7 SURF. ELEV. N/A G. W. DEPTH See no	otes_		
PROJECT Asteco Propos Expansion		LOCATION Asteco Witmer Road Niagara Falls, New York			
11-H 12	SOIL OR ROCK CLASSIFICATION	NOTES	PID Breath Space		
1 2 8	2 Brown-Orange f-c SAND, little f-m Gravel, tr. clayey silt, tr. glass, tr. brick, tr. lime (moist, FILL) Contains tr. nail, tr. lime, tr. wood Becomes dark Red Contains little Brick .75' FILL Red-Brown Silty CLAY, little f-m Sand, tr. gravel, tr. roots (moist, medium) Boring Complete at 10.0'	No free standing water observed a Boring Completic BG = Background 0.0-0.3 ppm PID = Organic vameasured with Phionization Detect (PID) measurement recorded in part per million (ppm)	PID		
	oon 12 " with 140 lb. pin wt. falling 30 "per blow. CLASSI ing "with lb. weight falling "per blow.	FICATION Visual by Geologist	7		

DATE		MPIRE	HOLE NO. B-8	
STARTED 6-3-89	SOIL	SINVESTIGATIONS INC. SUBSURFACE LOC		
FINISHED 6-3-89	-		G. W. DEPTH See 1	notes
SHEETOF1	-   ====			
PROJECT <u>Asteco Pro</u>	osed Bu		Witmer Road	
Expansion		Niagara Niagara	Falls, New York	
BLOWS ON SAMPLER		SOIL OR ROCK		PID
1 N N N N N N N N N N N N N N N N N N N	PID	CLASSIFICATION	NOTES	Breat
0 6 12 18	N DO	TODOG TO		Space
1 3 5 10 15	BG L5	TOPSOIL Brown-Orange Clayey SILT, some f-m	PID in hole read	$ _{BG} _{H}$
/ 2 18 17	*	Sand, tr. gravel, tr. tile, tr.	4-8 ppm	
	27	roots, tr. brick, tr. glass (moist, FIIL)	*No recovery on S-2	BG
5 / 3 3 3	BG	**	Driver said prob-	
1 3	1	.5' Black SILT and f-c Sand, little Gravel (wet, FILL)	ably stone. ** Sample looked	BG
4 3 3 3 2 8	BG 5	Brown f-c SAND, some Clayey Silt,	like Topsoil	BG H
7 5 6 12	BG	tr. gravel (moist, loose)	possible fallen	- 100
	19	Red-Brown Silty CLAY, some f-c	in spoon from ground surface	BG
		Sand	Free standing war	tor
		Boring Complete at 10.0'	encountered at 6	
<del></del>		-	at Boring Comple	tion
		- ·	BG = Background I	ото Н
			0.0-0.3ppm	
_			PID = Organic va	
		_	measured with Ph	
		-	ionization Detec (PID) measuremen	
		1	recorded in part	s T
			per million (ppm	) [
		4		H
		-		Н
		+		-H
		_	•	-
4		-		+
		1		_
-		-		+
-				-
				H
= No. blows to drive 2	spoon_12	with $\frac{140}{}$ lb. pin wt. falling $\frac{30}{}$ "per blow. CLAS	SIFICATION VIBUAL by	
		" withIb. weight falling"per blow.	Geologist	

DATE  STARTED 6-3-89  FINISHED 6-3-89  SHEET 1 0F 1	SOILS	VIPIRE INVESTIGATIONS INC. SUBSURFACE LOC		notes
PROJECT Asteco Pro	posed Bui	LOCATION	tmer Road	
Expansion		Niagara F	alls, New York	
HI   SI   WY   SAMPLER   O   6   12   18   18   18   18   18   18   18	PID	SOIL OR ROCK CLASSIFICATION	NOTES	PID Breathir Space
1 3 7 7 7 2 7 13 22 20 5 7 3 3 4 4 3 4 5 4 7 5 30 17 11 14	BG 14 BG 33 8 0.4 9 0.8 28 0.8	Brown-Orange f-c SAND, some Silt, little Gravel, tr. roots, tr. wood, tr. glass, tr. slag (moist, FHLL) Contains little Glass Contains tr. furnace blast, tr. brick, tr. lime Contains tr. metal  Black f-c SAND, little Gravel, little Clayey Silt, tr. glass, tr. lime ( moist-wet, FHLL)  Red-Brown Silty CLAY, little f-m Sand, tr. gravel, occasional Silt seams (moist, hard)  Boring Complete at 10.0'	Free standing wencountered at 9.2' at Boring Completion  BG = Background 0.0-0.3 ppm  PID = Organic wence with Pionization Detection (PID) measurement recorded in part per million ppm	apors choto
			IFICATION <u>Visual b</u> Geologis	
		ASTM D-1586 USING HOLLOW STEM AUGERS		

STARTED 6-3-89  FINISHED 6-3-89  SHEET 1 OF 1	EMPIRE SOILS INVESTIGATIONS INC. SUBSURFACE LOG	C. W. DEPTH See no	otes						
PROJECT Asteco Proposed Building LOCATION Asteco Witmer Road Expansion Niagara Falls, New York									
11 H 12 N S 3 N SAMPLER 0 6 12 18 N	SOIL OR ROCK CLASSIFICATION	NOTES	PID Breat Space						
1 4 19 50/0 2 2100 5 / 3 1 2 13 4 7 4	BG Brown Clayey SILT, some f-c sand, tr. gravel, little Lime (moist, FILL) Contains tr. brick, tr. glass, tr. slag  BG 4.4' Brown-Gray Silty CLAY, little f-m Sand (wet, FILL) Brown-Red Clayey SILT and f-m Sand, tr. gravel, tr. organics (moist, very hard) Contains little f-m Sand (moist-wet, hard) Boring Complete at 12.0'	Augeering difficult  Water at 7.0'  Free standing was observed at 3.0 Boring Completion BG = Background 0.0-0.3 ppm  PID = Organic variable with Plantization Detection (PID) measurement recorded in particular per million (ppr	PID apors noto- ctor nts						
N = No. blows to drive" spo	on" withlb, pin wt. falling"per blow. CLASSI	FICATION	_						

SOIL OR ROCK   CLASSIFICATION   CLASSIFICATION   SOME   CLASSIFICATION   Some   Clayer Silt, tr. furnace slag, tr. glass, tr. roots, tr. gravel (moist, FILL)   Slack Clayer SILT, some f-c Sand, tr. gravel, tr. cinders, tr. glass, tr. roots, tr. metal (wet, FILL)   Soil or ROCK   CLASSIFICATION   Some   Clayer SILT, some   Sand, tr. gravel (moist, FILL)   Soil or ROCK   CLASSIFICATION   Soil or ROCK   CLASSIFICATION   Some   Clayer Silt, tr. furnace slag, tr. glass, tr. roots, tr. gravel (moist, FILL)   Soil or ROCK   CLASSIFICATION   Some   Clayer Silt, tr. furnace slag, tr. glass, tr. roots, tr. gravel (moist, FILL)   Soil or ROCK   CLASSIFICATION   Some   Clayer Silt, tr. furnace slag, tr. glass, tr. roots, tr. gravel (moist, FILL)   Soil or ROCK   CLASSIFICATION   Soil or ROCK   CLA	NOTES  p to 70 in hole  PID = 10 while  Augeering (PID	PID Breath Space BG BG-1.5
SOIL OR ROCK CLASSIFICATION  1 4 8	p to 70 in hole PID = 10 while Augeering (PID near ground	Breath: Space BG BG
1   4   8   .5' TOPSOIL   Red-Brown-Orange f-c SAND, some   Clayey Silt, tr. furnace slag, tr. glass, tr. roots, tr. gravel (moist, FILL)   S   16   16   21   350   End of tr. gravel, tr. cinders, tr. glass, tr. roots, tr. metal (wet, FILL)   3   7   10   300   Contains tr. plastic, little f-c   Gravel   Contain some broken Glass   .75 in S-5   Contains little f-m   SAND, tr. glass, Red-Brown Silty   SAND, tr. glass, Red-Brown Silty   In SAND,	PID = 10 while Augeering (PID near ground	BG BG
	Free standing was observed at 9.8% at Boring Completed BG= Background 0.0-0.3 ppm  PID = Organic varies with Prionization Detect (PID) measurement recorded in participart million (ppm)	etion PID apors hoto ctor nt ts m)

FIN	ART NISH	ED _	6-6-8 6-6-8	39	_	SOILS	INVESTIGATIONS INC. SUBSURFACE LOG	HOLE NO. <u>B-12</u> SURF. ELEV  G. W. DEPTH
					 - Pr	oposed	Building LOCATION Asteco-Wit	l mer Road
PRO.	JECT	「 <u> </u>	Expa	_		.oposc		ills, New York
					<i>,</i> 11	· · · · · ·	NIAGAIA 1	——————————————————————————————————————
н-ғт	SAMPLES	o N		VS ON IPLER			SOIL OR ROCK	NOTES
О DEPTH-FT	SAM	SAMPLE NO	6 6	12/18	z	PID	CLASSIFICATION	NOTES
0 =	7	1	6 7 12	16.		BG	Brown Clayey SILT, some f-c Sand,	
_	<b>/</b>						tr. gravel, tr. furnace slag, tr.	
	7	2				BG	brick Contains tr. wood	
_	Ц							
5 —	-			<u> </u>			Boring Complete at 4.0'	
_	-		.	ļ				Background PID =
								04 ppm
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10-				<u> </u>				
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	ام ا	dows *	o drivo	2	" cn'	non 12	$\frac{2}{2}$ with $\frac{140}{1}$ lb. pin wt. falling $\frac{30}{2}$ "per blow. CLASS"	IFICATION Visual by
								Geologist

METHOD OF INVESTIGATION:

	RTED ISHED	6	<u>-15</u>	<del>-</del> 89	_	SOILS	MPIRE INVESTIGATIONS INC. SUBSURFACE LOC	G. W. DEPTH <u>see not</u>
PROJI	ECT 1	Aste	200 ]	Pror	ose	d Buil	Lding Expansion LOCATION Asteco-W Niagara	itmer Road Falls, New York
DEPTH-FT	SAMPLES SAMPLE NO.	0/	BLOW SAMF	PLER	z	PID	SOIL OR ROCK CLASSIFICATION	NOTES
= 0 <del> </del>	1 2 3	9 22 4 18 6 11	17 12 13 15 9	10	39 31 20	BG BG BG	4" TOPSOIL  Brown-Black Clayey SILT, some f-c Sand, tr. gravel, tr. glass, tr. cinders, tr. slag, tr. roots, tr. brick, tr. lime (moist, FILL) Contains little f-c Gravel	
-10-	/ 4	16	15 15		31	BG	Brown-Red Silty CLAY, little f-m Sand, gr. gravel (moist, stiff) Contains occasional Gray f-m Sand lenses	
							Boring Complete at 8.0°	No free standing water observed at Boring Completion  Background (BG) PID = 0.0-0.4 ppm
							withlb. pin wt. fallingper blow. CLASwithlb. weight fallingper blow	SIFICATION Visual by Geologist

FIN	STARTED 6-6-89  FINISHED 6-6-89  SHEET 1 0F 1						SOIL	SINVESTIGATIONS INC.  SUBSURFACE LOC	HOLE NO	
PRO	JEC	Τ_			Pro ion		sed Bi	ilding LOCATION Asteco-Wit	mer koad 11s, New York	
	_		LX	Alls	1011			Niugara 1a	TIS, NEW TOTA	
H-FI	SAMPLES	E NO		BLOW			PID	SOIL OR ROCK	NOTES	
		SAMPLE NO	0/6	6/12	12/18	z	עניין	CLASSIFICATION	NOTES	
<sub>=</sub> 0 <u>=</u>	7	1	_ •	12	7 16		.6	Brown Clayey SILT, some f-c Sand,		
_	Ц							tr. gravel, tr. brick, tr. slag, tr. glass, contains dark red layer		
	/	2					6.6	<del></del> -1		
	1	3					325	Becomes red to dark red Brown-Red Silty CLAY, little f-c		
5 <b>-</b>	$\square$							sand, tr. slag (moist, FILL)		
							ļ	Boring Complete at 5.0'		
_								1 -	Background PID =	
10-									0.0-0.4 ppm	
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1 = N	lo b	olow.	to di	ive	2	" sne	on 12	with140_lb. pin wt. falling30per blow. CLASS	SIFICATION Visual by Geologist	

FIN	ART	IED .		-6- <u>8</u> -6-8		$ \begin{vmatrix} - \\ - \end{vmatrix}$	SOILS	INVESTIGATIONS INC.  SUBSURFACE LOG	HOLE NO
			A				osed F		Witmer Road alls, New York
DEPTH-FT.	SAMPLES	SAMPLE NO	0/	BLOW SAMI	rs on PLER	2	PID	SOIL OR ROCK CLASSIFICATION	NOTES
0=	/	2			16		6.7	Brown Clayey SILT, some f-c Sand, little f-m Gravel, tr. glass, tr. brick, tr. slag (moist, FILL) Contains tr. wood Becomes Brown-Orange	
5 / - -	<u>/</u>							Boring Complete at 6.0'	Background PID =
- - - -	-								0.0-0.4 ppm
-	-			-					
	-								
_	-								
	-								
	-								
= 2	o h	lows	to de	ive	2	" spr	oon 1	$\frac{12^n}{12^n}$ with $\frac{140}{12^n}$ lb. pin wt. falling $\frac{30}{12^n}$ per blow. CLASSII	FICATION Visual by

SHEETOF1	EMPIRE SUBSURFACE LOG	HOLE NO. B-16  SURF. ELEV  G. W. DEPTHsee_note
PROJECT Asteco Propo Expansion	<del></del>	itmer Road Falls, New York
DE BLOWS ON SAMPLER  O 6 12 18 N	SOIL OR ROCK CLASSIFICATION	NOTES
	Brown-Black-Orange Clayey SILT, some f-c Sand, tr. gravel, tr. wood, tr. roots, tr. glass, tr. furnace blast, tr. lime (moist, FILL)  Becomes dark red Red-Brown Silty CLAY, little f-m Sand, tr. gravel (moist, FILL)  Boring Complete at 6.0'	Background PID = 0.0-0.4 ppm
	on" withlb. pin wt. falling"per blow. CLASSII	FICATION

DATE  STARTED 6-6-  FINISHED		APIRE IVESTIGATIONS INC. SUBSURFACE LOC	HOLE NO. <u>B-17</u> SURF. ELEV  G. W. DEPTH Seeno
PROJECTAste		uilding LOCATION Asteco-Wi	tmer Road
	ension		alls, New York
	1 2 0 1	SOIL OR ROCK CLASSIFICATION	NOTES
1 2 5 3	4.0 BG	Brown-Black-Orange Clayey SILT and f-c Sand, tr. gravel, tr. roots, tr. glass, tr. wood, tr. furnace slag, tr. lime (moist, FILL) Brown-Orange Silty CLAY, some f-c Sand, tr. gravel, tr. brick, tr. lime (moist, FILL)	
		Soring Complete at 5.0'	Background PID = 0.0-0.4 ppm
	2 12	with 140 lb. pin wt. falling 30 "per blow. CLAS"	SIFICATION Visual by

Γ.	DATE											
			_			I	FI	MPTRE	HOLE NOB-18			
1	STAR	TED	6-	-6-8 -6-8	9	-	SOILS	MPTRE INVESTIGATIONS INC. SUBSURFACE LOC	SURE FLEV			
				-6-8				SOBSONIACE EGG				
SH	EET	_1		_OF_		-			G. W. DEPTH			
PR	OJE	CT _	1	Aste	co I	Prop	osed I	Building LOCATION Asteco-With	ner Road			
1_			F	<u>xpa</u>	nsio	on		Niagara Fal	lls, New York			
-	Т.	Τ.	Ι	BLOW	/S ON							
DEPTH-FT	SAMPLES	LE NO		SAMI			BLOW ON CASING C	SOIL OR ROCK	NOTES			
DEP	Š	SAMPLE	0/6	6/1	12/18-	N	BLO	CLASSIFICATION	110125			
0	+	1	/ °	12	10.	<u> </u>	BG	Brown-Black-Orange Clayey SILT, some				
	-//	<del>-</del>		-				f-c Sand, tr. gravel, tr. glass,	•			
		2					.9	tr. wood, tr. slag, tr. roots, tr.				
	7						-	lime (moist, FUL) Contains tr. brick				
5 -		3					.9					
β.	$\mathcal{I}$											
								Boring Complete at 6.0'				
	-			<u> </u>				BOTTING COMPTETE AT 0.0	Background PID =			
						_			0.0-0.4 ppm			
-	4			-					-			
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N =	No.	blow	s to d	rive		_" spe	oon	" withlb. pin wt. falling"per blow. CLASS	IFICATION			
c =	No.	blow	s to d	rive		_" ca	sing	" withlb. weight falling"per blow				
145	TUO	D 0E	IND/E	CTICA	TION							

STARTED 6-6-89  FINISHED 6-6-89  SHEET 1 0F 1	EMPIRE SOILS INVESTIGATIONS INC.  SUBSURFACE LOG	HOLE NO
PROJECT Asteco Propose	sed Building LOCATION Asteco-W	itmer Road Falls, New York
SAMPLER  0 6 12 18 N	SOIL OR ROCK CLASSIFICATION	NOTES
5 3	Brown Clayey SILT, some f-c Sand, little Gravel, tr. roots, tr. furnace slag (moist, FILL) Becomes red-brown Contains occasional f-m Sand lenses BG Brown-Gray f-c SAND, some Silty Clay (moist)	_
		Background PID = 04 ppm
	on 12 " with 140 lb. pin wt. falling 30 "per blow. CLASSIFI  " with lb. weight falling "per blow.	- ICATION <u>Visual by</u> Geologist

	DATE STARTED 6-16-89				-89		FI	MPIRE	HOLE NOB-20			
I I		TED	_	-16-		-	SOILS	INVESTIGATIONS INC. SUBSURFACE LOC				
			L			_			G. W. DEPTH <u>see note</u>			
PRO	JEC	T _	Ast	:eco.	Pro	pos	ed Bui	d Building Expansion LOCATION Asteco- Witmer Road Niagara Falls, New York				
DEPTH-FT.	SAMPLES	SAMPLE NO		BLOW SAMF	LER 12	z	PID	SOIL OR ROCK CLASSIFICATION	NOTES			
= 0=	7	3 4	53 28	16 31 100 15		36 128 26	BG BG	A" TOPSOIL  Brown-Black Clayey SILT, some f-c Sand, tr. gravel, tr. rock, tr. brick, tr. cinders (moist, FILL)  Red-Brown Silty CLAY, little f-m Sand, tr. wood, occasional Silt lenses (moist, FILL)  Contains tr. lime, tr. limestone rock, occasional cinder lenses  Red-Brown Silty CLAY, little f-m Sand, tr. gravel, contains occasional sand lenses (moist, stiff)  Boring Complete at 8.0'	Driller excavated with shovel, Limestone and Rock obstructions  Picture #5 & 6 of 5-1  No free standing water observed at Boring Completion  Background (BG) PID = 0.0-0.4 ppm			
-	-						10	140 20				
						-		" with140_lb. pin wt. falling30"per blow. CLASS " withlb. weight falling"per blow	GEOLOGIST			
				rive STIGA			ASTI	1 D-1586 USING HOLLOW STEM AUGERS				

STARTED 6-16-89  FINISHED 6-16-89  SHEET 1 OF 1	EMPIRE SOILS INVESTIGATIONS INC.	G. W. DEPTH <u>see note</u>
PROJECT Asteco Propos	ed Building Expansion LOCATION Asteco-Witz	lls, New York
12	SOIL OR ROCK CLASSIFICATION	NOTES
1 7 8 18 18 19 10 14	BG Contains some f-c Gravel, occasional wet Black Gravel  Contains tr. brick, tr. wood  Becomes orange-brown, contains occasional Silty Clay lenses  Brown-Black Silty CLAY, little f-m  Sand, tr. wood, tr. roots (moist, medium)  Boring Complete at 10.0'	No free standing water observed at Boring Completion  Background (BG) PID = 0.0-0.2 ppm
C = No. blows to drive cas	on_12" with_140_lb. pin wt. falling_30_"per blow. CLASSI ing" withlb. weight falling"per blow. ASTM_D-1586_USING_HOLLOW_STEM_AUGERS	Visual by Geologist



December 5, 1989

New York State Dept. of Environmental Conservation 600 Delaware Avenue Buffalo, New York 14202

Attention: Mr. Glenn May

Junior Engineering Geologist

Reference: Witmer Road Drive-In

4287 Witmer Road

BTA-89-39A

Dear Mr. May:

Attached are copies of the boring logs for boreholes B-22, B-23, B-24 and B-25 which were inadvertently left out of the report entitled "Environmental Site Assessment, Witmer Road Drive-In, 4287 Witmer Road, Town of Niagara, New York.

I apologize for the oversight and any inconvenience this may have caused.

Sincerely,

EMPIRE SOILS INVESTIGATIONS, INC.

David M. Harty, P.E.

Sr. Environmental Engineer

cc: Stan Blas

cam

DATE 6- STARTED 6- FINISHED 1	-16-89 -16-89 1	SOILS	INVESTIGATIONS INC. SUBSURFACE LOC	HOLE NO. B-22 SURF. ELEV C. W. DEPTH See Note		
PROJECT AST	eco - Prop	osed Bu	uilding LOCATION Asteco-Wit			
	Expansio	n	Niagara Fa			
SAMPLES SAMPLE NO	BLOWS ON SAMPLER	()	SOIL OR ROCK CLASSIFICATION	NOTES		
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	10 30 20 9 17 8 22 57	BG BG	Ta" TOPSOIL  Red-Brown-Black mottled Clayey SILT, Some f-c Sand, tr. gravel, tr. roots, tr. glass, tr. slag (cinders),tr. concrete, tr. brick (moist, FILL) Contains tr. lime  Becomes Red-Brown, contains occasional Silt partings, some f-m Gravel  Brown Black Silty CLAY, little f-m Sand, tr. roots, grass (moist, stiff)  Boring Complete at 10.0'	Water at approximat— ely 6.0'  Free standing water measured at 6.0' at Boring Completion.  PID = Organic vapor measurements taken with Photoionization Detector (PID). Measurements recorded in Parts Per Million (ppm).  BG = Background measurements = 0.0-0.3 ppm.		
	2 "	12		JEIGATION Visual by		
	trive " ca	asing	withlb. weight fallingoper blow. withlb. weight fallingoper blow. D-1586 Using Hollow Stem Augers. (2-1/4	Geologist		

METHOD OF INVESTIGATION.

DA	ΓE						T'I	ADIDE	D_22		
S	TAR	†ED	_6-	-16-	89	$-\mid$		MPIRE INVESTIGATIONS INC. SUBSURFACE LOC	HOLE NOB-23		
F	INIS	HED	_6-	-16-	89	_	SOILS	SUBSURFACE LOC			
SHE	ΕT		1_	_OF_	1_	_			G. W. DEPTH <u>See Note</u>		
PRO	DJEC	T _	Aste	2C0	- Pi	ropo	sed B	uilding LOCATION <u>Asteco - Witmer Road</u>			
							sion	Niagara Fa	ills, NY		
т № 2 BLOWS ON Ш											
TH-F1	SAMPLES	Z 31		SAME	PLER		10 PLE	SOIL OR ROCK	NOTES		
O DEPTH-FT	SA	SAMPLE	0/6	6/12	12/18:	z	PID SAMPLE	CLASSIFICATION			
E 0:	1/	1	4	9		28	BG	74" TOPSOIL			
	V		19	21		-		Red-Brown-Black mottled Clayey SILT,			
	17	2		33		59	20	some f-m Sand, tr. gravel, tr. brick, tr. cinders, tr. glass, tr. slag,	*Driller excavated		
	Υ,	ļ	26					tr. lime, tr. roots, (moist, FILL)	rebar and bricks		
5 –	- /	3_		13	/2	68	60	Contains Black WOOD, charcoal	+		
	1		55	100	ر.\		*	Contains dark red substance, app.	Н		
	1,							Dark red substance	*Driller notes un-		
	7	5	11	9		25	55 +	Becomes Black SLUDGE-like material -	able to obtain split		
10.	V,			29				Dark Red substance present at top	spoon, due to obstruc		
.	-	6		34		68	1	Red-Brown Silty CLAY, little f-c	tion.		
.	<del>/</del> -		34	30				Sand, tr. gravel (moist, very hard)	Augered to 8.0'		
•	+								Free standing water		
_								Boring Complete at 12.0'	measured at 8.0° at		
									Boring Completion		
.	1								Ц		
.	$\dashv$	ļ							PID = Organic vapor		
-	+							-	measurements taken     with Photoionization		
┞ '	1				<u> </u>				Detector (PID).		
'									Measurements recorded		
									in parts per million		
									(ppm).		
-	+								BG = Background —		
-	-	-							measurements = 0.0-		
	4		-						О.ОТ РРШ		
<u> </u>	_										
	+								H		
	+				-	-					
	+								H		
	4										
	-						_		H		
	-								H		
	+								H		
		L			2		1/	)	SISICATION Visual hv		
								2 " with 140 lb. pin wt. falling 30 "per blow. CLAS.	Geologist		
MET	HOE	OF	INVES	TICA	TION	: _A	otti n-	-1586 Using Hollow Stem Augers (2-1/4			

STARTED 6-16-89 FINISHED 6-16-89	EMPIRE SOILS INVESTIGATIONS INC	HOLE NO. B-24  SURF. ELEV  G. W. DEPTH See Note									
SHEET1_OF1_											
PROJECT <u>Asteco - Pr</u>	Expansion LOCATION Ast  Nia	gara Falls, NY									
11-H1 21	SOIL OR ROCK CLASSIFICATION	NOTES									
1 3 9 33 24 45 2 25 45 74 2 29 13	BG 12" TOPSOIL  Brown Clayey SILT, little f-m	nders,									
	poon 12 "with 140 lb. pin wt. falling 30 "per blo asing "with lb. weight falling "per blo asTM D-1586 Using Hollow Stem Augers	Geologist									

FIN	AR1	HED	6- 6- 1	16-8	39	_		SUBSURFACE LOG HOLE NOB- SURF. ELEV G. W. DEPTH SE			
PRO	JEC	Τ_	Ast	eco	<u>- P</u>	ropo	osed <u>B</u> nsion	Building LOCATION Asteco - Witmer Road			
						λραι	13 1011	Niagara Falls, NY			
OPTH-FT	SAMPLES	SAMPLE NO	0 6	BLOW SAME	PLER	z	PID SAMPLE	SOIL OR ROCK CLASSIFICATION NOTE	S		
-10-		1 2		7 17 20	18	18	BG	12" TOPSOIL   Brown Clayey SILT, some f-c Sand, tr. gravel, tr. glass, tr. cinders, tr. brick, tr. lime (moist, FILL)   Contains dark red substance app.   2 to 3" thick   Boring Complete at 4.0'   No free stan water measure Boring Complete with Photoion Detector (PIM Measurements in parts per (ppm).   BG = Backgrown measurements 0.8 ppm	ed at etion c vapor taken nization c recorded million c und		
-											
-											
N = 1	No	blow	s to d	rive_	2	_" spc	oon <u>12</u>	$2$ _" with $140$ _lb. pin wt. falling $30$ _"per blow. CLASSIFICATION ${ t Visua}$	1 by		
									gist		
METH	OD	= No blows to drive" casing" withlb. weight falling"per blowGeologist METHOD OF INVESTIGATION: <u>ASTM D-1586</u> Using Hollow Stem Augers. (2-1/4")									

Contains porcelain (china plate)piece  Becomes black Contains little-tr. f-m Sand  Boring Complete at 6.0'  No free standing water observed at Boring Completion  PID = Organic vapo measured with Photo ionization Detector (PID). Measurement recorded in parts per million (ppm).  Background (BG)	SHEET _	1		_1			C. W. DEPTH see note
SOIL OR ROCK CLASSIFICATION  NOTES  SOIL OR ROCK CLASSIFICATION  NOTES  SOIL OR ROCK CLASSIFICATION  NOTES	PROJECT	TA:	steco	Propo	sed Bui		·
10 2 8 5 10 4.2 Eromo Clayey SILT, little f-c Sand, tr. gravel, tr. brick, tr. lime, tr. cinders (moist, FILL) Contains occasional Lime lenses, tr. porcelain, tr. roots Contains porcelain (china plate)piece Becomes black Contains little-tr. f-m Sand  Boring Complete at 6.0'  No free standing water observed at Boring Completion PID = Organic vapon measured with Photoionization Detecto (PID). Measurement recorded in parts per million (ppm).  Background (BG) measurements = 0.00	H-FT PLES	ON N			<u> </u>	SOIL OR ROCK	
1 3 3 7 BG   Brown Clayey SILT, little f-c Sand, tr. gravel, tr. brick, tr. lime, tr. cinders (moist, FILL)   Contains occasional Lime lenses, tr. porcelain, tr. roots   Contains porcelain (china plate)piece   Becomes black   Contains little-tr. f-m Sand	_	SAMPL	6 12	12/ 18· N	PID		NOTES
		4 2 8 5 3 5	6 5 7 4	10	4.2	Brown Clayey SILT, little f-c Sand, tr. gravel, tr. brick, tr. lime, tr. cinders (moist, FILL) Contains occasional Lime lenses, tr. porcelain, tr. roots Contains porcelain (china plate)piec Becomes black Contains little-tr. f-m Sand	No free standing water observed at Boring Completion  PID = Organic vapors measured with Photo- ionization Detector (PID). Measurements recorded in parts per million (ppm).  Background (BG) measurements = 0.0-

SHEE						_	d Duil	Iding Ermangion Agraga	G. W. DEPTH <u>see not</u> -Witmer Road
PROJ	JECT		Ste		PLO	OSE	а вид	LOCATION	a Falls, New York
_	SAMPLES	SAMPLE NO	0/6	BLOW SAMI		N	PID	SOIL OR ROCK CLASSIFICATION	NOTES
= 0 <del>=</del> - - - - 5 <b>-</b>	$\coprod$	$\rightarrow$				37	BG BG	2" TOPSOIL Brown Clayey SILT, some f-c Sand, tr. gravel, tr. brick, tr. cinder, tr. lime (moist, FILL) Whitish-Gray f-c Sand, (Lime/Cement) little f-c Gravel (moist, FILL)	
_ _ _	-							Boring Complete at 4.0'	No free standing water at Boring Completion
-10- - - - - - - - - - - - - - - - - - -									PID = Organic vapors measured with Photo- ionization Dector (PID). Measurements recorded in parts per million (ppm). Background (BG) measurements = 0.0-0.4ppm
	-								
									•
	-								

SHEET _		OF_			eod Br	gilding Evnansion Astern-W	G. W. DEPTH <u>see note</u>	4
PROJECT Asteco Proposed B							Falls, New York	
	SAMPLE NO	BLOW SAMI	PLER	z	PID	SOIL OR ROCK CLASSIFICATION	NOTES	
5 /	1 5 22 27 35	7 2 40 2 21 3 17 2 10 8 6 6 6 4 20 3 24	2 5 1 1	56 17 11	BG- 0.9 BG- 1.0 BG- 3.5 BG- 1.0 BG	Brown Clayey SILT, little f-m Sand, tr. gravel, tr. broken rock, tr. brick, tr. glass, tr. cinders (moist, FILL)  Contains tr. dark red substance  Black f-c SAND, little Clayey Silt, tr. gravel, tr. wood, tr. cinders, tr. slag, tr. glass (moist, FILL)  Contains brick piece  Contains some Silty CLAY (sludge/tar-like.material), tr. dark red material  Contains tr. wood  Red-Brown Silty CLAY, some f-c Sand, tr. gravel, occasional Sand layer (moist, FILL)  Red-Brown Silty CLAY, little f-m Sand, tr. gravel, occasional Silt partings (moist, hard)  Boring Complete at 12.0"	No free standing water observed at Boring Completion PID = Organic vapors measured with Photoionization Detector (PID). Measurements recorded in parts per million (ppm). Background (BG) measurements = 0.0-0.4 ppm	

DATE   STARTED   G-16-89   SHELL   Tor.   Tor.   SUBSURFACE LOG   SUBSUR
SOIL OR ROCK   CLASSIFICATION   Specific
1 2 5
. 12 140 20 Vigual by

SHEET	Propose	ed Bui	lding Expansion LOCATION Asteco-	
				Falls, New York
SAMPLES	WS ON APLER	PID	SOIL OR ROCK CLASSIFICATION	NOTES
		BG BG	Contains tr. glass tr. slag, tr. brick, tr. procelain/china Black f-c SAND, some Silty Clay, little cinders (sludge/tar-like material), tr. gravel, tr. glass, tr. wood (moist, FILL) Contains tr. brick Red-Brown Silty CLAY, little f-m Sand, tr. gravel, occasional Sand lenses (moist, FILL) Red-Brown Silty CLAY, little f-m Sand, tr. gravel, occasional Silt partings (moist, hard) Boring Complete at 11.0'	Augered to 2.0' Dark Red substance present as coating on concrete and bri in hole while augering Augering difficult  No free standing water observed at Boring Completion  *PID reading of 2.5 ppm in hole at 1-2' while pulling up augers  PID = Organic vapor measured with Photo ionization Detector (PID). Measurements recorded in parts per million (ppm).  Background (BG) measurements = 0.0- 0.4 ppm

SHEET			1 Prov		d Dod	Iding Evangion Agtogo	G. W. DEPTH see note Witmer Road	4
PROJEC	AS	ceco	PIO	ose	u bui.	LOCATION	Falls, New York	
DEPTH-FT SAMPLES	LE NO		VS ON IPLER			SOIL OR ROCK	NOTES	1
ਨੂੰ   	SAMPLE	6 12	12/18	z	PID	CLASSIFICATION  2" TOPSOIL		╛
5		13 5 18 5 12	0/3	33 Ref	BG BG	Brown Clayey SILT, some f-c Sand, tr. gravel, tr. glass, tr. brick, tr. cinders, tr. roots (moist, FILL) Contains tr. broken rock, little-tr. black sludge-like material, tr.		1
10 T	5 4	6 16 3 8		32 9	5.0- 500 BG	rubber  Contains large piece of 2x4 wood  Dark Brown Silty CLAY, some Wood, little f-m Sand, tr. gravel, occasional Sand lenses (moist, FILL)	*Wood gave 500 ppm reading	<u> </u>
10 -	6 2 9			15	BG	Red-Brown Silty CLAY, little f-m Sand, tr. gravel (moist, medium)  Boring Complete at 12.0'	No free standing water observed at Boring Completion  PID = Organic vapors measured with Photoionization Detector (PID). Measurements recorded in parts per million (ppm).  Background (BG) measurements 0.0-0.4ppm	
-						with140lb. pin wt. falling30 "per blow. CLASS	Visual by	

HEET						=		G. W. DEPTH <u>see note</u>
PROJE	СТ _	Ast	.eco	Pro	opos -	ed Bu	ilding Expansion LOCATION <u>Asteco-Wit</u> Niagara Fa	mer Road 11s, New York
DEPTH-FT	SAMPLE NO	0 /	BLOW SAME			PID	SOIL OR ROCK CLASSIFICATION	NOTES
ا ا	`   ≾ // a	<b>∕</b> 6		18.	2		1" TOPSOIL	
1	/ 1 / 2	3 16 72			26 1 g	BG - 1.2 BG	Brown f-c SAND, some Clayey Silt, tr. broken rock, tr. gravel, tr.	H
_ 7	/ 3	11 35	7		31	BG	lime, tr. roots, tr. wood (moist, FILL) Contains tr. cinders	* Water at approx.
5-/		12	15				Brown-Black Silty CLAY, little f-m Sand, tr. gravel (moist, FILL)	No free standing
							Boring Complete at 6.0'	water observed at Boring Completion
-10-								PID = Organic vapors measured with Photo-ionization detector (PID). Measurements recorded in parts per million (ppm).
							· ·	Background (BG) measurements 0.0-0.4 ppm
. =								$-\frac{1}{1}$
_								
-								+
_								
. <u>-</u>								+
_								H
_								
-							·	H

SHEET 1 OF 1 PROJECT Asteco Propose	Ruilding Evnancion Actors	G. W. DEPTH <u>see note</u> —Witmer Road
PROJECT ASCECU PTOPOSE	Ecention	ra Falls, New York
S 3 1 dw	SOIL OR ROCK CLASSIFICATION	NOTES
1 2 6 14 8 14 100 Ref 2 45 60 .3 Ref 3 22 8 17 9 8	Brown Clayey SILT, some f-c Sand, tr. gravel, tr. glass, tr. dark re material, tr. brick, tr. lime, tr. wood, tr. cinders (moist, FILL)  Contains tr. broken limestone rock Contains little Silty Clay Contains little f-c Gravel  Red-Brown-Gray mottled Silty CLAY and f-c Sand, tr. gravel, tr. broken rock (moist, FILL)  Boring Complete at 10.1'	Driller notes pushing

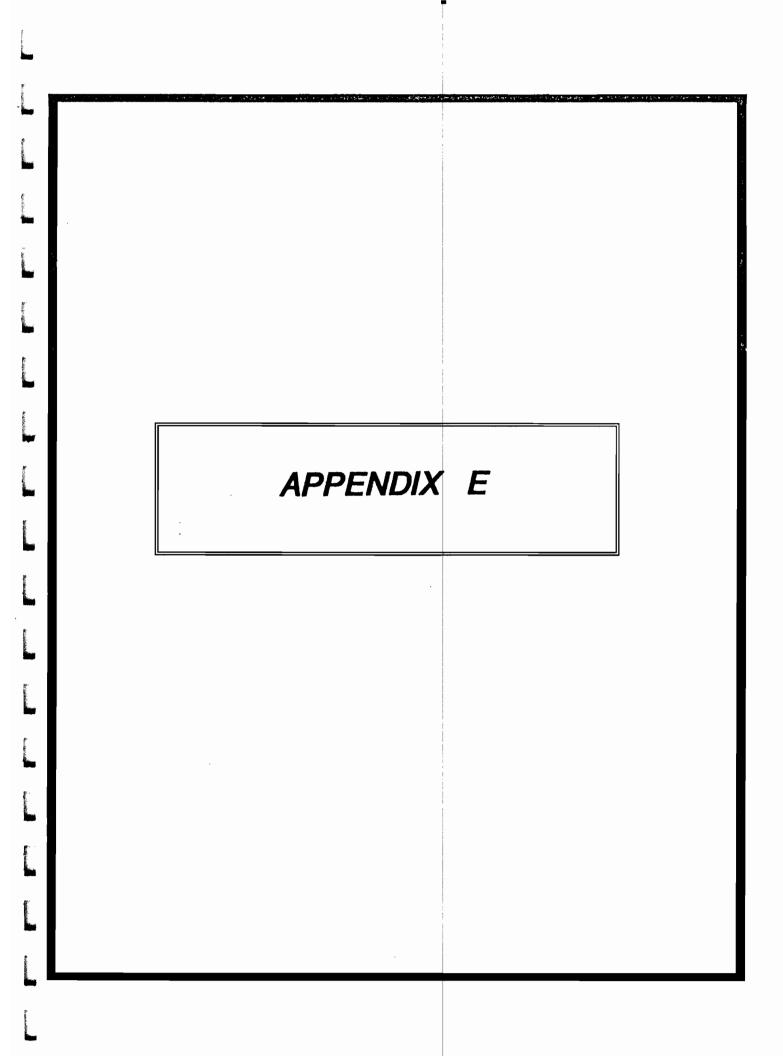
		HED		<u>21</u> OF_	_	_		INVESTIGATIONS INC. SUBSURFACE LOC	G. W. DEPTH see note
PRC	)JEC	T	Aste	eco 1	Prop	ose	d Buil	LOCATION	Titmer Road Falls, New York
DEPTH-FT	SAMPLES	SAMPLE NO	0/6	BLOW SAME	LER 12	z	PID	SOIL OR ROCK CLASSIFICATION	NOTES
0=	3	1	25			123	BG	4" ASHPAUTIC CONCRETE 7 2" GRAY CRUSHER RUN STONE r	_
-	7	2	91 21	58 26		41	BG	Whitish-Gray f-c SAND (cement/lime) little f-c Gravel (moist, FILL)	
-	<u>/</u>	3	15 17	19 29		38	BG		
5 <del>-</del>	1	4	9	7		25	BG	Prome Plank Cilty CTAV little for	Water in spoon at approx 6.0'
-	1/	5		15 4		10	BG	Brown-Black Silty CLAY, little f-c Sand, tr. gravel, tr. lime, occasion al Sand lenses (moist, FILL)	
10- -	1		6	5				Red-Brown Silty CLAY, little f-m Sand, tr. gravel (moist, medium)	Free Standing water
-	-							Boring Complete at 10.0'	observed at 2.5' PID = Organic vapor
_	1								measured with Photo ionization Detector (PID) measurements
-						_		•	recorded in parts per million (ppm)
									Background (BG) measurements =
-									0.0-0.4 ppm
-									
_	-								
-	   								
-	-								
-	-							·	
-	-								
-	-								
	_							140	
۷ =	Nο	blow	s to d	rive	3	_" spc	oon12		SIFICATION Visual by Geologist

DATE  STARTED6-21-  FINISHED6-21-  SHEET1OF	1 SOILS	MPIRE SUBSURFACE LOC	C. W. DEPTH see note								
PROJECT <u>Asteco</u>	Proposed Bu	sed Building Expansion LOCATION Asteco-Witmer Road Niagara Falls, New York									
6 12	***	SOIL OR ROCK CLASSIFICATION	NOTES E								
1 15 28 20 19 2 17 24 21 26 5	48 BG - 50	4" ASPHALTIC CONCRETE  12" GRAY CRISHER RIN STONE  Brown-Gray Silty CLAY, little f-c Sand, tr. gravel, Dark Red substance spotty to approx. ½" thick (moist, FILL)  Red-Brown Silty CLAY, little f-c Sand, tr. gravel, tr. wood (moist, FILL)  Boring Complete at 4.5'									
	casing	2 "with 140 lb. pin wt. falling 30 "per blow. CLAS  "with lb. weight falling "per blow.  IM D-1586 USING 44 HOLLOW STEM AUGERS	Geologist								

$ \begin{array}{c c} 0 & 3 \\ \hline  & 1 \\ \hline  & 1 \\ \hline  & 2 \\ \end{array} $	BLOWS ON SAMPLER    6	90 Br 25- Sa 50 da	SOIL OR ROCK CLASSIFICATION  4" ASPHALTIC CONCRETE 2" GRAY CRUSHER RUN STONE rown-Gray Clayey SILT, some f-c and, tr. broken rock (coated with ark red material) Dark Red	NOTES
0 3 1 1 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	17 31 4 13 27	90 Br 25- Sa 50 da	2" GRAY CRUSHER RUN STONE J rown-Gray Clayey SILT, some f-c and, tr. broken rock (coated with	-
5	5 14	ma	ark rod matorial) Dark Dod 📗	<u> </u>
.5		li	aterial present at 1.9'-2.0' ed-Brown-Black mottled Silty CLAY, ittle-some f-c Sand, tr. gravel, r. wood (moist, FILL)  oring Complete at 4.0'	No free standing water observed at Boring Completion  PID = Organic vapors measured with Photoionization Detector (PID). Measurements recorded in parts per million (ppm).  Background (BG) measurements = 0.0-0.4 ppm

DATE  STARTED6-21-89  FINISHED6-21-89  SHEET1OF1	SOILS	VIPIRE INVESTIGATIONS INC. SUBSURFACE LOG	G. W. DEPTH see note
PROJECT <u>Asteco Prop</u>	osed Bui		Falls, New York
HE S O SAMPLER  O 6 12 18	PID	SOIL OR ROCK CLASSIFICATION	NOTES
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	32 BG 34 BG 31 BG .5 BG	A" ASPHALTIC CONCRETE  12" GRAY CRUSHER RUN STONE  Brown-Black-Gray mottled Clayey  SILT, little f-c Sand, tr. gravel,  tr. lime, tr. cinder, tr. dark red  spot, tr. roots, tr. wood (moist,  FILL)  Whitish-Gray f-c SAND (Lime/Cement)  little f-c Gravel (moist, FILL)	
15-			No free standing water observed at Boring Completion  PID = Organic vapors measured with Photo- ionization Detector (PID). Measurements recorded in parts per million (ppm).  Background (BG) measurements = 0.0-0.4 ppm
	casing		Geologist

SAMPLES SAMPLE NO	Steco Propos BLOWS ON SAMPLER	sed Bui		Witmer Road
SAMPLE				Falls, New York
1   2	6 12 12 N	PID	SOIL OR ROCK CLASSIFICATION	NOTES
2 6	2 20 63 43 40 71 68 29 71 42 17		Brown Clayey SILT, little f-c Sand, tr. gravel, tr. broken rock, tr. glass, tr. cinder, tr. tiny red spot, tr. brick, tr. roots (moist, FILL)	* No recovery
			Boring Complete at 4.0'	No free standing water observed at Boring Completion
1.0-				Driller notes: Pushing rock or brick Hole closed and moved 3' to North (B-30) PID = Organic vapors measured with Photo- ionization Detector (PID), Measurements recorded in parts per million (ppm).  Background (BG) measurements = 0.0-0.4 ppm





## **HUNTINGDON ANALYTICAL SERVICES**

Division of **EMPIRE SOILS INVESTIGATIONS INC.** PO Box 250 Middleport New York 14105 Telephone (716) 735-3400 Telex 131246

Environmental Analytical Report for:

EMPIRE SOILS INVESTIGATIONS, INC. - HAMBURG

ASTECO (BTA-89-036)

HAS Ref. #30-215

June 26, 1989



### HUNTINGDON ANALYTICAL SERVICES ELAP #10833 ENVIRONMENTAL REPORT

HAS Reference Number: #30-215

June 26, 1989

#### Statement of Work Performed

I hereby declare that the work was performed under my supervision according to the procedures outlined by the following references and that this report provides a correct and faithful record of the results obtained.

- 40 CFR Part 136, "Guidelines Establishing Test Procedures for the Analysis of Pollutants Under the Clean Water Act," October 26, 1984 (Federal Register) U.S. Environmental Protection Agency.
- U.S. Environmental Protection Agency, "Test Methods of Evaluating Solid Waste Physical/Chemical Methods," Office of Solid Waste and Emergency Response, SW-846, 2nd Edition and 3rd Edition.
- New York State Department of Health, Analytical Toxicology Laboratory Handbook, August 1982.

Katherine A. Syracuse

Environmental Project Leader

#### REPORT CODE LEGEND:

<DL = Less than detection limit</pre>

ND = Not detected

NA = Not applicable

<LQ = Response not statistically significant
 from laboratory background values</pre>

INP = Information not provided

MB = Method Blank

HUNTINGDON ANALYTICAL SERVICES ENVIRONMENTAL

METHOD 8080
ORGANOCHLORINE PESTICIDES

SAMPLE IDENTIFICATION : TP-1 TP-2 METHOD BLANK |HAS SAMPLE #30-215 001 002 003 |DATE SAMPLED 5-15-89 5-15-89 | 5-15-89 | | INITIAL EXTRACTION DATE | 5-22-89 | 5-22-89 | 5-22-89 | 5-22-89 |RE-EXTRACTION DATE | 6-8-89 | 6-8-89 6-8-89 | INITIAL DATE ANALYZED 6-1-89 | 6-1-89 | 6-1-89 | 6-1-89 |DATE RE-ANALYZED 6-9-89 1 6-9-89 l 6-9-89 DETECTION LIMIT | RESULT | RESULT | RESULT | RESULT RESULT COMPOUND ug/g | ug/g | ug/g | 0.01 | <DL | 0.017 | A-BHC 0.01 | 0.023 | 0.018 | 0.087 | IB-BHC 0.047 | <DL | <DL 0.01 0.013 0.01 0.10 14.4-DDD 0.02 ND | ND 0.02 ND | 4.4-DDT 0.02 ND <DL DIELDRIN 0.02 ND ND 0.01 | 0.02 | ENDOSULFAN II ND | <DL <DL | | 0.02 | ND 0.02 IENDRIN ND | ND | 0.02 | ND | HEPTACHLOR 0.01 ND | HEPTACHLOR EPOXIDE | 0.01 | ND ENDRIN KETONE | 0.02 | ND ND <DL 

HUNTINGDON ANALYTICAL SENVIRONMENTAL			METHOD 808 POLYCHLORI		HENYLS	
SAMPLE IDENTIFICATION :		TP-1	TP-2	TP-3	METHOD BLANK	
HAS SAMPLE #30-215		001	002	003		
DATE SAMPLED		5-15-89	5-15-89	5-15-89		l
INITIAL EXTRACTION DATE	2	5-22-89	5-22-89	5-22-89	5-22-89	I
RE-EXTRACTION DATE		6-8-89	6-8-89	6-8-89	6-8-89	I
INITIAL DATE ANALYZED		6-1-89	6-1-89	6-1-89	6-1-89	I
DATE RE-ANALYZED		6-9-89	6-9-89	6-9-89	6-9-89	I
COMPOUND	DETECTION   LIMIT   ug/g	   RESULT   ug/g	   RESULT   ug/g	   RESULT     ug/g	RESULT	   RESULT   ug/g
PCB-1016	0.20	ND	ND	ND	ND	I
PCB-1221	0.20	ND	ND	ND	ND	1
PCB-1232	0.20	ND	ND	ND	ND	1
PCB-1242	0.20	ND	ND	ND	ND	I
PCB-1248	0.20	<dl< td=""><td>  <dl< td=""><td>0.68</td><td>  ND</td><td>1</td></dl<></td></dl<>	<dl< td=""><td>0.68</td><td>  ND</td><td>1</td></dl<>	0.68	ND	1
PCB-1254	0.20	ND	ND	ND	ND	1
PCB-1260	0.20	ND	ND	ND	ND	
		QUALITY C	ONTROL			
SURROGATE		% REC	% REC	% REC	% REC	% REC
DIBUTYL CHLORENDATE		   78	   47	J 56	81	

### HUNTINGDON ANALYTICAL SERVICES Analysis Data Sheet Method 8240 Target Compound List (TCL)

|TP-2 |TP-3 Sample Identification: TP-1 |Method Blk| HAS Sample # [215-001 1215-002 1215-003 |Method Blk| Date Sampled: |05/15/89 105/15/89 05/15/89 | NA Date Analyzed: 105/17/89 105/17/89 105/17/89 105/17/89 Holding Time (days): |2 12 | 2 | 2 Matrix: SOIL SOIL SOIL SOIL Dilution Factor: 1200 \* 11000 \* 11 \* |1 \* Compound | Detection | Results Results Results Results |Limit ug/kg| ug/kg ug/kg ug/kg ug/kg |Chloromethane 1000.0 ND ND ND ND Bromomethane 1000.0 ND ND ND ND |Vinyl Chloride 1000.0 ND ND ND ND |Chloroethane 1000.0 ND ND ND ND |Methylene Chloride <DL 500.0 <DL <LQ <LQ Acetone 10000.0 ND ND ND ND |Carbon Disulfide 500.0 ND ND ND ND 1,1-Dichloroethene 500.0 I ND ND ND ND |1,1-Dichloroethane 500.0 ND ND ND ND trans-1,2-Dichloroethene 500.0 ND ND ND ND500.0 |Chloroform ND ND ND ND |1,2-Dichloroethane\_ 500.0 ND ND ND ND 2-Butanone 10000.0 | <DL <DL | <DL <DL |1,1,1-Trichloroethane 500.0 ND ND ND ND |Carbon Tetrachloride 500.0 ND ND ND ND |Vinyl Acetate 5000.0 ND ND ND ND |Bromodichloromethane 500.0 I ND ND ND ND 11,1,2,2-Tetrachloroethane 500.0 I ND ND ND ND |1,2-Dichloropropane 500.0 | ND ND ND ND 500.0 trans-1,3-Dichloropropene ND ND ND ND |Trichloroethene 500.0 I ND ND 950 ND Dibromochloromethane 500.0 I ND ND ND ND |1,1,2-Trichloroethane 500.0 | ND ND ND ND 500.0 [ ND Benzene ND ND ND |cis-1,3-Dichloropropene 500.0 ND ND ND ND |2-Chloroethyl Vinyl Ether 1000.0 [ ND ND ND ND |Bromoform 500.0 ND ND ND ND 2-Hexanone 5000.0 ND ND ND ND 4-Methyl-2-pentanone 5000.0 ND ND ND ND |Tetrachloroethene 500.0 | ND ND ND 500.0 J <DL 1300 ND |Toluene Chlorobenzene 500.0 I <DL <DL <DL ND <DL |1400000.0 | 2500.0 I ND Ethyl Benzene 500.0 500.0 ND ND ND ND Styrene 120000.0 17200000.0 8900.0 ND |Total Xylene 500.0 96.0 | 95.0 82.0 | 145.0 Bromofluorobenzene 1,2-Dichloroethane-d4 112.0 110.0 I 86.0 102.0 90.0 | 109.0 107.0 150.0 |Toluene-d8

<sup>\*</sup>Method detection limit (MDL) for sample dependent upon analyte concentration/sample matrix and increases as a direct multiple of the dilution factor.

HUNTINGDON ANALYTICAL SERVICES
METHOD 8270 ANALYSIS DATA SHEET
SEMI-VOLATILE PRIORITY POLLUTANTS

### Acid Extractables

Sample Identi	fication:	TP-1	TP-2	TP-3
HAS	Sample #	215-001	215-002	215-003
Date	Sampled:	05/15/89	05/15/89	05/15/89
Date	Analyzed:	05/23/89	05/23/89	05/23/89
Holding Tim	e (days):	14	14	14
	Matrix:	SOIL	SOIL	SOIL
Dilutio	n Factor:	11	<b>j</b> 1	1
Compound	Detection	Result	Result	Result
	Limit	ug/Kg	ug/Kg	ug/Kg
4-Chloro-3-Methylphenol	330	ND	ND	ND
2-Chlorophenol	330	<dl< td=""><td>ND</td><td>  <dl< td=""></dl<></td></dl<>	ND	<dl< td=""></dl<>
2,4-Dichlorophenol	330	<dl< td=""><td><dl< td=""><td>ND</td></dl<></td></dl<>	<dl< td=""><td>ND</td></dl<>	ND
2,4-Dimethylphenol		2400.0	8700.0	330.
2,4-Dinitrophenol	<u> </u>  1600	ND	ND	ND
4,6-Dinitro-2-Methylphenol	<del></del> ,	ND	ND	ND
2-Nitrophenol	330	ND	<dl< td=""><td>  ND</td></dl<>	ND
4-Nitrophenol	1600	<dl< td=""><td>  <dl< td=""><td>  ND</td></dl<></td></dl<>	<dl< td=""><td>  ND</td></dl<>	ND
Pentachlorophenol	1600	<dl< td=""><td>  <dl< td=""><td>ND</td></dl<></td></dl<>	<dl< td=""><td>ND</td></dl<>	ND
Pheno1	330	[ 65000.0	19200.0	18000.
2,4,6-Trichlorophenol	I 330	<dl< td=""><td>ND</td><td><dl< td=""></dl<></td></dl<>	ND	<dl< td=""></dl<>
Surrogates	l	% Recovery	% Recovery	% Recovery
Pheno1-D5		51	41	5
2-Fluorophenol		47	44	5
	1	72	j 90	j 5

: •	Detection Limit	Result  ug/Kg	Result  ug/Kg	Result  ug/Kg	{ 
Acenaphthene	330	<dl< td=""><td>  <dl< td=""><td>  <dl< td=""><td></td></dl<></td></dl<></td></dl<>	<dl< td=""><td>  <dl< td=""><td></td></dl<></td></dl<>	<dl< td=""><td></td></dl<>	
Acenaphthylene	330	j <dl< td=""><td>, <dl< td=""><td>j <dl< td=""><td>i</td></dl<></td></dl<></td></dl<>	, <dl< td=""><td>j <dl< td=""><td>i</td></dl<></td></dl<>	j <dl< td=""><td>i</td></dl<>	i
Anthracene	330	<dl< td=""><td><dl< td=""><td>  <dl< td=""><td>Ĺ</td></dl<></td></dl<></td></dl<>	<dl< td=""><td>  <dl< td=""><td>Ĺ</td></dl<></td></dl<>	<dl< td=""><td>Ĺ</td></dl<>	Ĺ
Benzidine	1600	ND ND	ND	ND	İ
Benzo(a)Anthracene	330	<dl< td=""><td><dl< td=""><td>  <dl< td=""><td>Ĺ</td></dl<></td></dl<></td></dl<>	<dl< td=""><td>  <dl< td=""><td>Ĺ</td></dl<></td></dl<>	<dl< td=""><td>Ĺ</td></dl<>	Ĺ
Benzo(b)Fluoranthene	330	<dl< td=""><td><dl< td=""><td><dl< td=""><td>Ĺ</td></dl<></td></dl<></td></dl<>	<dl< td=""><td><dl< td=""><td>Ĺ</td></dl<></td></dl<>	<dl< td=""><td>Ĺ</td></dl<>	Ĺ
Benzo(k)Fluoranthene	330	<dl< td=""><td><dl< td=""><td><dl< td=""><td>į</td></dl<></td></dl<></td></dl<>	<dl< td=""><td><dl< td=""><td>į</td></dl<></td></dl<>	<dl< td=""><td>į</td></dl<>	į
Benzo(a)Pyrene	330	<dl< td=""><td>ND</td><td>(DL</td><td>Ĺ</td></dl<>	ND	(DL	Ĺ
Benzo(g,h,i)Perylene	330	<dl< td=""><td><dl< td=""><td>ND</td><td>į</td></dl<></td></dl<>	<dl< td=""><td>ND</td><td>į</td></dl<>	ND	į
bis(2-Chloroethoxy)Methane	330	ND	ND	<dl< td=""><td>į</td></dl<>	į
bis(2-Chloroethyl)Ether	330	j ND	ND	<dl< td=""><td>į</td></dl<>	į
bis(2-Chloroisopropyl)Ether	330	ND	<dl< td=""><td>ND</td><td>i</td></dl<>	ND	i
bis(2-Ethylhexyl)Phthalate	330	<dl< td=""><td>  <dl< td=""><td>  <dl< td=""><td>j</td></dl<></td></dl<></td></dl<>	<dl< td=""><td>  <dl< td=""><td>j</td></dl<></td></dl<>	<dl< td=""><td>j</td></dl<>	j

# HUNTINGDON ANALYTICAL SERVICES METHOD 8270 ANALYSIS DATA SHEET SEMI-VOLATILE PRIORITY POLLUTANTS

Compound	Detection	•	•	Result
	Limit	ug/Kg	ug/Kg	ug/Kg
Butylbenzylphthalate	_  330	ND	ND	ND
4-Bromophenyl-phenylether	330	ND	ND	l ND
2-Chloronaphthalene	330	ND	<dl< td=""><td>ND</td></dl<>	ND
4-Chlorophenyl-phenylether	330	<dl< td=""><td>  <dl< td=""><td>ND</td></dl<></td></dl<>	<dl< td=""><td>ND</td></dl<>	ND
Chrysene	330	<dl< td=""><td>  <dl< td=""><td>  <dl< td=""></dl<></td></dl<></td></dl<>	<dl< td=""><td>  <dl< td=""></dl<></td></dl<>	<dl< td=""></dl<>
Dibenz(a,h)Anthracene	330	<dl< td=""><td>ND</td><td>  ND</td></dl<>	ND	ND
Di-n-Butylphthalate	330	470.0	600.0	<dl< td=""></dl<>
1,2-Dichlorobenzene	j 330	430.0	430.0	<dl< td=""></dl<>
1,3-Dichlorobenzene	j 330	<dl< td=""><td>  <dl< td=""><td>j <dl< td=""></dl<></td></dl<></td></dl<>	<dl< td=""><td>j <dl< td=""></dl<></td></dl<>	j <dl< td=""></dl<>
1,4-Dichlorobenzene	_   330	<dl< td=""><td>j <dl< td=""><td>  <dl< td=""></dl<></td></dl<></td></dl<>	j <dl< td=""><td>  <dl< td=""></dl<></td></dl<>	<dl< td=""></dl<>
3,3'-Dichlorobenzidine	_   660	i ND	, ND	i ND
Diethylphthalate	i 330	<dl< td=""><td>  <dl< td=""><td>  <dl< td=""></dl<></td></dl<></td></dl<>	<dl< td=""><td>  <dl< td=""></dl<></td></dl<>	<dl< td=""></dl<>
Dimethyl Phthalate	-i 330	i <dl< td=""><td>  <dl< td=""><td>  <dl< td=""></dl<></td></dl<></td></dl<>	<dl< td=""><td>  <dl< td=""></dl<></td></dl<>	<dl< td=""></dl<>
2,4-Dinitrotoluene	-i 330	i ND	i ND	i ND
2,6-Dinitrotoluene	330	i ND	i ND	i ND
Di-n-Octyl Phthalate	i 330	i ND	ND	ND
1,2-Diphenylhydrazine	330	ND	ND	i ND
Fluoranthene	330	330.0	i <dl< td=""><td>i <dl< td=""></dl<></td></dl<>	i <dl< td=""></dl<>
Fluorene	i 330	<dl< td=""><td>ND</td><td>i <dl< td=""></dl<></td></dl<>	ND	i <dl< td=""></dl<>
Hexachlorobenzene	330	<dl< td=""><td>i ND</td><td>i <dl< td=""></dl<></td></dl<>	i ND	i <dl< td=""></dl<>
Hexachlorobutadiene	330	<dl< td=""><td>ND</td><td>ND</td></dl<>	ND	ND
Hexachlorocyclopentadiene	330	ND	i ND	ND
Hexachloroethane	330	ND	ND	ND
Indeno(1,2,3-cd)Pyrene	330	<dl< td=""><td>ND</td><td><dl< td=""></dl<></td></dl<>	ND	<dl< td=""></dl<>
Isophorone	330	ND	l ND	<dl< td=""></dl<>
Naphthalene	330	1200.0	2000.0	<dl< td=""></dl<>
Nitrobenzene	330	<dl< td=""><td>  <dl< td=""><td>ND</td></dl<></td></dl<>	<dl< td=""><td>ND</td></dl<>	ND
N-Nitrosodimethylamine	330	I ND	ND	ND
N-Nitrosodiphenylamine (1)	_  330   330	<dl< td=""><td>  <dl< td=""><td>  <dl< td=""></dl<></td></dl<></td></dl<>	<dl< td=""><td>  <dl< td=""></dl<></td></dl<>	<dl< td=""></dl<>
N-Nitroso-Di-n-Propylamine	- '	ND ND	<dl< td=""><td>l ND</td></dl<>	l ND
Phenanthrene	330	<dl< td=""><td>  <dl< td=""><td>  <dl< td=""></dl<></td></dl<></td></dl<>	<dl< td=""><td>  <dl< td=""></dl<></td></dl<>	<dl< td=""></dl<>
Pyrene	1 330	630.0	<dl< td=""><td>  <dl< td=""></dl<></td></dl<>	<dl< td=""></dl<>
1,2,4-Trichlorobenzene	330	1200.0	970.0	<dl< td=""></dl<>
	_  330			
Surrogates	1	% Recovery	% Recovery	% Recovery
d-5 Nitrobenzene	 	62	91	10:
2-Fluorobiphenyl	i	72	90	9
Terphenyl	-¦	120	120	140

# HUNTINGDON ANALYTICAL SERVICES METHOD 625 ANALYSIS DATA SHEET (Page 1 of 2) SEMI-VOLATILE PRIORITY POLLUTANTS

Sample Identification: PREP-BLANK

HAS Sample # PREP-BLANK

Date Sampled: NA

Date Prepared: 05/24/89

Extraction Holding Time (days): NA

Date Analyzed: 05/25/89

Analysis Holding Time (days): 1

Matrix: WATER

Dilution Factor: 1

### Acid Extractables

   Compound	Detection  Limit ug/l	Results  ug/l	
4-Chloro-3-Methylphenol	10	ND	١
2-Chlorophenol	10	<dl< td=""><td>- [</td></dl<>	- [
2,4-Dichlorophenol	10	ND	-
2,4-Dimethylphenol	10	ND	- 1
2,4-Dinitrophenol	50	ND	
4,6-Dinitro-2-Methylphenol_	50	ND	
2-Nitrophenol	10	ND	-1
4-Nitrophenol	50	ND	- 1
Pentachlorophenol	50	ND	- 1
Phenol	10	ND	
2,4,6-Trichlorophenol	10	ND	

Surrogate	١	% Rec.
Phenol-D5 2-Fluorophenol		54   98
2,4,6-Tribromophenol		72

			-
Acenaphthene	10	ND	١
Acenaphthylene	10	ND	ĺ
Anthracene	10	ND	l
Benzidine	50	ND	l
Benzo(a)Anthracene	10	ND	ļ
Benzo(b)Fluoranthene	10	ND	
Benzo(k)Fluoranthene	10	ND	l
Benzo(a)Pyrene	10	ND	ı
Benzo(g,h,i)Perylene	10	l ND	I
bis(2-Chloroethoxy)Methane	10	ND	I
bis(2-Chloroethyl)Ether	10	ND	l
bis(2-Chloroisopropyl)Ether_	10	l ND	I
bis(2-Ethylhexyl)Phthalate	10	ND	

METHOD 625 ANALYSIS DATA SHEET (Page 2 of 2)

Sample Identification: PREP-BLANK

HAS Sample # PREP-BLANK

I	Detection	Results
Compound	Limit ug/l	ug/1
Butylbenzylphthalate	10	ND i
4-Bromophenyl-phenylether_	10	ND I
2-Chloronaphthalene	10	ND
4-Chlorophenyl-phenylether_	10	ND
Chrysene	j <b>1</b> 0	ND
Dibenz(a,h)Anthracene	10	ND
Di-n-Butylphthalate	10	<dl td=""  <=""></dl>
1,2-Dichlorobenzene_	10	ND
1,3-Dichlorobenzene	10	ND
1,4-Dichlorobenzene	10	ND
3,3'-Dichlorobenzidine	20	ND
Diethylphthalate	10	ND
Dimethyl Phthalate	10	ND
2,4-Dinitrotoluene	10	ND
2,6-Dinitrotoluene	10	ND
Di-n-Octyl Phthalate	10	ND
1,2-Diphenylhydrazine	10	ND
Fluoranthene	10	ND
Fluorene	10	ND
Hexachlorobenzene	10	ND
Hexachlorobutadiene	10	ND
Hexachlorocyclopentadiene	10	ND
Hexachloroethane	10	ND
Indeno(1,2,3-cd)Pyrene	10	ND
Isophorone	10	ND
Naphthalene	10	ND
Nitrobenzene	10	ND
N-Nitrosodimethylamine	10	ND
N-Nitrosodiphenylamine (1)	10	ND i
N-Nitroso-Di-n-Propylamine	10	ND
Phenanthrene	10	ND
Pyrene	10	ND
1,2,4-Trichlorobenzene	10	ND
		·

Surrogate	l	% Rec.	
d-5 Nitrobenzene		84	
2-Fluorobiphenyl		83	
Terphenyl	i	130	Ī
	. <b></b>		_

Sample ID:TP-1

HAS Sample #30-215-001 Date Sampled: 05/15/89

ı	EPA	DATE	DATE	DETECTION	RESULT	I
ANALYTE	METHOD	PREPARED	ANALYZED	LIMIT	mg/kg	QC .
ALUMINUM	6010	  06/08/89	  06/14/89	131	13900	  *95
ANTIMONY	6010	06/08/89	06/14/89	52.4	<dl< td=""><td> <b>*</b>95</td></dl<>	<b>*</b> 95
ARSENIC		06/08/89	06/14/89	36.7	76.3	*95
BARIUM	6010	06/08/89	06/14/89	10.5	754	*95
BERYLLIUM	6010	06/08/89	06/14/89	5.24	<dl< td=""><td> *95</td></dl<>	*95
CADMIUM	6010	06/08/89	06/14/89	5.24	<dl< td=""><td> *95</td></dl<>	*95
CALCIUM		06/08/89	06/14/89	52.4	43000	*95
CHROMIUM	6010	06/08/89	06/14/89	j 10.5	65.7	*95
COBALT	6010	06/08/89	06/14/89	15.7	<dl< td=""><td> *95</td></dl<>	*95
COPPER	6010	06/08/89	06/14/89	10.5	271	*95
IRON	6010	06/08/89	06/14/89	j 21	57400	*95
LEAD	6010	06/08/89	06/14/89	52.4	1080	<b>*</b> 95
MAGNESIUM	6010	06/08/89	06/14/89	31.5	16100	*95
MANGANESE	6010	06/08/89	06/14/89	10.5	739	*95
NICKEL	6010	06/08/89	06/14/89	41.9	42.5	*95
POTASSIUM	6010	06/08/89	06/14/89	5240	<dl< td=""><td><b>*</b>95</td></dl<>	<b>*</b> 95
SELENIUM	6010	06/08/89	06/14/89	52.4	<dl< td=""><td> *95</td></dl<>	*95
SILVER	6010	06/08/89	06/14/89	10.5	<dl< td=""><td><b>*</b>95</td></dl<>	<b>*</b> 95
SODIUM	•	06/08/89	06/14/89	131	1370	<b>*</b> 95
THALLIUM	6010	06/08/89	06/14/89	j 105	142	<b>*</b> 95
VANADIUM	6010	06/08/89	06/14/89	26.2	34.3	<b> </b> *95
ZINC	6010	06/08/89	06/14/89	j 21	1070	<b>*</b> 95
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\*THIS INDICATES A 95% CONFIDENCE LIMIT ACHIEVED WITH AN EPA QUALITY CONTROL SOLUTION ANALYZED ALONG WITH YOUR SAMPLE.

ALL SOIL/SLUDGE SAMPLE RESULTS ARE BASED UPON DRY WEIGHT

Sample ID:TP-2

HAS Sample #30-215-002 Date Sampled: 05/15/89

	1	EPA	DATE	DATE	DETECTION	RESULT	1
	ANALYTE	METHOD	PREPARED	ANALYZED	LIMIT	mg/kg	i qc i
	j i		i	j	i		i i
	ALUMINUM	6010	06/08/89	06/14/89	125	24100	*95
	ANTIMONY	6010	06/08/89	06/14/89	50.0	<dl< td=""><td>j*95 j</td></dl<>	j*95 j
	ARSENIC	6010	06/08/89	06/14/89	35	79.4	<b>*</b> 95
	BARIUM	6010	06/08/89	06/14/89	10.0	963	i*95 i
-	BERYLLIUM	6010	06/08/89	06/14/89	j 5	<dl< td=""><td> *95  </td></dl<>	*95
	CADMIUM	6010	06/08/89	06/14/89	j 5	<dl< td=""><td>   <b>*</b>95  </td></dl<>	   <b>*</b> 95
	CALCIUM	6010	06/08/89	06/14/89	50.0	22400	<b> </b> *95
	CHROMIUM	6010	06/08/89	06/14/89	10.0	45.7	<b> </b> *95
****	COBALT	6010	06/08/89	06/14/89	15	23.4	<b> </b> *95
	COPPER	6010	06/08/89	06/14/89	10.0	119	<b> </b> *95
	IRON	6010	06/08/89	06/14/89	20.0	40500	<b>*</b> 95
-	LEAD	6010	06/08/89	06/14/89	50.0	309	*95
	MAGNESIUM	6010	06/08/89	06/14/89	30.0	11600	<b> </b> *95
	MANGANESE	6010	06/08/89	06/14/89	10.0	601	<b> </b> *95
****	NICKEL	6010	06/08/89	06/14/89	40.0	65.1	<b> </b> *95
	POTASSIUM	6010	06/08/89	06/14/89	J 5000	<dl< td=""><td><b> </b>*95  </td></dl<>	<b> </b> *95
	SELENIUM	6010	06/08/89	06/14/89	50.0	<dl< th=""><th> *95  </th></dl<>	*95
	SILVER	6010	06/08/89	06/14/89	10.0	<dl< td=""><td><b> </b>*95  </td></dl<>	<b> </b> *95
-	SODIUM	6010	06/08/89	06/14/89	125	1130	<b> </b> *95
	THALLIUM	6010	06/08/89	06/14/89	100.0	149	<b> </b> *95
	VANADIUM	6010	06/08/89	06/14/89	25	45.7	<b> </b> *95
-	ZINC	6010	06/08/89	06/14/89	20.0	405	*95
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\*THIS INDICATES A 95% CONFIDENCE LIMIT ACHIEVED WITH AN EPA QUALITY CONTROL SOLUTION ANALYZED ALONG WITH YOUR SAMPLE.

ALL SOIL/SLUDGE SAMPLE RESULTS ARE BASED UPON DRY WEIGHT

Sample ID:TP-3

HAS Sample #30-215-003 Date Sampled: 05/15/89

		· ·						-
-		EPA	DATE	DATE	DETECTION	RESULT		
_	ANALYTE	METHOD	PREPARED	ANALYZED	LIMIT	mg/kg	QC	ĺ
	ALUMINUM		06/08/89	06/14/89	126	19600	<b> </b> *95	
	ANTIMONY		06/08/89	06/14/89	50.3	<dl< td=""><td><b> </b>*95  </td><td></td></dl<>	<b> </b> *95	
	ARSENIC		06/08/89	06/14/89	35.2	65.2	<b> </b> *95	
	BARIUM			06/14/89	10.1	490	<b> </b> *95	
-	BERYLLIUM			06/14/89	5.03	<dl< td=""><td><b> </b>*95  </td><td></td></dl<>	<b> </b> *95	
	CADMIUM	6010	06/08/89	06/14/89	5.03	<dl< td=""><td><b> *</b>95  </td><td></td></dl<>	<b> *</b> 95	
	CALCIUM	6010	06/08/89	06/14/89	50.3	36800	*95	
	CHROMIUM	6010	06/08/89	06/14/89	10.1	31.9	<b> </b> *95	
	COBALT	6010	06/08/89	06/14/89	15.1	17.3	<b>*</b> 95	ĺ
	COPPER	6010	06/08/89	06/14/89	10.1	132	<b>*</b> 95	
	IRON	6010	06/08/89	06/14/89	20.1	37400	<b>*</b> 95	ĺ
	LEAD	6010	06/08/89	06/14/89	50.3	239	<b>*</b> 95	ĺ
	MAGNESIUM	6010	06/08/89	06/14/89	30.2	12800	<b>*</b> 95	
	MANGANESE	6010	06/08/89	06/14/89	10.1	878	<b> </b> *95	
-	NICKEL	6010	06/08/89	06/14/89	40.2	46.4	<b> </b> *95	
_	POTASSIUM	6010	06/08/89	06/14/89	5030	<dl< td=""><td><b>*</b>95</td><td></td></dl<>	<b>*</b> 95	
	SELENIUM	6010	06/08/89	06/14/89	50.3	<dl< td=""><td><b>*</b>95</td><td>ĺ</td></dl<>	<b>*</b> 95	ĺ
	SILVER	6010	06/08/89	06/14/89	10.1	<dl< td=""><td><b>*</b>95</td><td>ĺ</td></dl<>	<b>*</b> 95	ĺ
	SODIUM	6010	06/08/89	06/14/89	126	1120	*95	ĺ
	THALLIUM	6010	06/08/89	06/14/89	i 101	<dl< td=""><td> *95</td><td>ĺ</td></dl<>	*95	ĺ
	VANADIUM	6010	06/08/89	06/14/89	25.1	37.4	*95	ĺ
	ZINC	6010	06/08/89	06/14/89	20.1	431	*95	ĺ
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\*THIS INDICATES A 95% CONFIDENCE LIMIT ACHIEVED WITH AN EPA QUALITY CONTROL SOLUTION ANALYZED ALONG WITH YOUR SAMPLE.

ALL SOIL/SLUDGE SAMPLE RESULTS ARE BASED UPON DRY WEIGHT

NOTE: MATRIX SPIKE RECOVERIES ARE NOT APPLICABLE DUE TO HIGH LEVEL ANALYTE CONCENTRATIONS IN THE ORIGINAL SAMPLE.

Sample ID:METHOD BLANK
HAS Sample #30-215-MB
Date Sampled: NA

						. <b></b> .	
		EPA	DATE	DATE	DETECTION		
	ANALYTE	METHOD	PREPARED	ANALYZED	LIMIT	mg/1	QC
	  ALUMINUM	6010	  06/08/89	  06/12/89	0.125	<dl< th=""><th>    *95</th></dl<>	  *95
***	ANTIMONY	6010	106/08/89	106/12/89	0.123	<dl< td=""><td> *95  *95</td></dl<>	*95  *95
_	ARSENIC	6010	106/08/89	106/12/89	0.035	<dl< td=""><td> *95  *95</td></dl<>	*95  *95
	BARIUM	6010	106/08/89	06/12/89	0.033	<dl< td=""><td> *95</td></dl<>	*95
	BERYLLIUM	6010	106/08/89	106/12/89	0.005	<dl< td=""><td> *95</td></dl<>	*95
	•	6010	106/08/89	106/12/89	0.005	<dl< td=""><td>  ^95   <b>*</b>95</td></dl<>	^95   <b>*</b> 95
	CADMIUM		. , ,		0.005	1.88	^ 9 5   * 9 5
	CALCIUM	6010	106/08/89	106/12/89	•	1.00   <dl< td=""><td>  *95</td></dl<>	*95
***	CHROMIUM	6010	106/08/89	06/12/89	0.01		*95  *95
	COBALT	6010	106/08/89	106/12/89	0.015	<dl< td=""><td></td></dl<>	
	COPPER	6010	106/08/89	106/12/89	0.01	<dl< td=""><td> *95  *05</td></dl<>	*95  *05
	IRON	6010	106/08/89	06/12/89	0.02	0.06	<b> </b> *95
	LEAD	6010	106/08/89	06/12/89	0.05	<dl< td=""><td> <b>*</b>95</td></dl<>	<b>*</b> 95
	MAGNESIUM	6010	106/08/89	06/12/89	0.03	0.1	<b> </b> *95
	MANGANESE	6010	106/08/89	06/12/89	0.01	<dl< td=""><td><b> </b>*95</td></dl<>	<b> </b> *95
**	NICKEL	6010	106/08/89	06/12/89	0.04	<dl< td=""><td><b> </b>*95</td></dl<>	<b> </b> *95
	POTASSIUM	6010	106/08/89	06/12/89	5.0	<dl< td=""><td><b> </b>*95</td></dl<>	<b> </b> *95
	SELENIUM	6010	06/08/89	06/12/89	0.05	0.07	<b> </b> *95
	SILVER	6010	06/08/89	06/12/89	0.01	<dl< td=""><td><b> </b>*95</td></dl<>	<b> </b> *95
	SODIUM	6010	06/08/89	06/12/89	0.125	<dl< td=""><td><b> </b>*95</td></dl<>	<b> </b> *95
	THALLIUM	6010	06/08/89	06/12/89	0.1	<dl< td=""><td><b> </b>*95</td></dl<>	<b> </b> *95
	VANADIUM	6010	06/08/89	06/12/89	0.025	<dl< td=""><td><b> </b>*95</td></dl<>	<b> </b> *95
-	ZINC	6010	06/08/89	06/12/89	J 0.02	0.12	<b> </b> *95
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\*THIS INDICATES A 95% CONFIDENCE LIMIT ACHIEVED WITH AN EPA QUALITY CONTROL SOLUTION ANALYZED ALONG WITH YOUR SAMPLE.

# HUNTINGDON ANALYTICAL SERVICES ENVIRONMENTAL

Inorganic Wet Chemical Analyses

■ Analyte: % Total Solids

EPA Method No.: 160.3

Date Sampled: 5/15/89

-			Date	Date	Detection			
	HAS Sample #	Client I.D.	Prepared	Analyzed	Limit	Concentration	Units	QC in %
_		TP-1	6/8/89	6/9/89	0.1	73 I	ક	 
	  _30-215-002	TP-2	6/8/89	6/9/89	0.1	77	8	
-	30-215-003	TP-3	6/8/89	6/9/89	0.1	76	ક	

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	S-Sile i	S-SIGT South sort Av Hanburg, NY 14075	ork Ave		, . e . c		7.0.d
Project No.:	726	Proje	Project/Site Nat		i   	Container Size & Typ	
Samplers (Sign	(Signalure):	Danch	Daw Heres	#30-	R C C C C C C C C C C C C C C C C C C C	March 1 mg	Analysis Requested/ Remarks
<del>z</del> o-		Comp. Grab	blocerion TP-/	. 🖆 🗀			Target Combained list
	18/18/12:35	 ×	747	200	~	1	l
7-3 8/1/9 2:15	2.15	×	72-3	003	<u> </u>	1	
P3 348 5/199 2.15	7:15	×	172-3	1007	•		Tosh contract
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							-
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Relinquished	by: 0		Time:   Received		<b>S</b>	Relinquished by:	Date/ Time:   Received By:
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# **HUNTINGDON ANALYTICAL SERVICES**

Division of **EMPIRE SOILS INVESTIGATIONS INC.** PO Box 250 Middleport New York 14105 Telephone (716) 735-3400 Telex 131246

Environmental Analytical Report for:

EMPIRE SOILS INVESTIGATIONS, INC. - HAMBURG

ASTECO, INC. - Witmer Road (BTA-89-039)

HAS Ref. #30-319

June 29, 1989



### HUNTINGDON ANALYTICAL SERVICES ELAP #10833 ENVIRONMENTAL REPORT

HAS Reference Number: #30-319

June 29, 1989

### Statement of Work Performed

I hereby declare that the work was performed under my supervision according to the procedures outlined by the following references and that this report provides a correct and faithful record of the results obtained.

- 40 CFR Part 136, "Guidelines Establishing Test Procedures for the Analysis of Pollutants Under the Clean Water Act," October 26, 1984 (Federal Register) U.S. Environmental Protection Agency.
- U.S. Environmental Protection Agency, "Test Methods of Evaluating Solid Waste - Physical/Chemical Methods," Office of Solid Waste and Emergency Response, SW-846, 2nd Edition and 3rd Edition.
- New York State Department of Health, Analytical Toxicology Laboratory Handbook, August 1982.

Katherine A. Syracuse (

Environmental Project Leader

#### REPORT CODE LEGEND:

<DL = Less than detection limit</pre>

ND = Not detected

NA = Not applicable

<LQ = Response not statistically significant
 from laboratory background values</pre>

INP = Information not provided

MB = Method Blank

HUNTINGDON ANALYTICAL SERVICES ENVIRONMENTAL

METHOD 608 ORGANOCHLORINE PESTICIDES

|SAMPLE IDENTIFICATION : | UP -| DOWN - | METHOD STREAM STREAM |HAS SAMPLE #30-319 014 -----| DATE SAMPLED | 6-19-89 | 6-19-89 | 6-19-89 | | 6-23-89 | 6-23-89 | 6-23-89 | 6-23-89 | DATE ANALYZED | 6-23-89 | 6-23-89 | 6-23-89 | 6-23-89 | |DILUTION FACTOR 1.0 1.0 DETECTION RESULT | RESULT RESULT RESULT COMPOUND | ug/1 | ug/10.05 A-BHC 0.05 0.05 D-BHC 0.05 ND CHLORDANE 0.10 |4,4-DDE 0.10 14.4-DDT 0.10 0.10 ENDOSULFAN I 0.05 0.10 ENDOSULFAN SULFATE 0.10 0.10 |ENDRIN ALDEHYDE 0.10 HEPTACHLOR 0.05 0.05 |HEPTACHLOR EPOXIDE | TOXAPHENE 1.00 ENDRIN KETONE

# HUNTINGDON ANALYTICAL SERVICES ENVIRONMENTAL

## METHOD 608 POLYCHLORINATED BIPHENYLS

SAMPLE IDENTIFICATION :		SEEP 	UP -   STREAM	DOWN -   STREAM	METHOD   BLANK	   
HAS SAMPLE #30-319		013	014	015	 	l .
DATE SAMPLED		6-19-89	6-19-89	6-19-89	 	 
DATE PREPARED		6-23-89	6-23-89	6-23-89	6-23-89	
DATE ANALYZED		6-23-89	6-23-89	6-23-89	6-23-89	I !
DILUTION FACTOR		1.0	1.0	1.0	1.0	 
 	DETECTION   LIMIT   ug/l	   RESULT   ug/1	   RESULT   ug/l	   RESULT   ug/l	   RESULT   ug/1	
PCB-1016	0.5	ND	ND	ND	ND	 
PCB-1221	0.5	ND	ND	ND	ND	 
PCB-1232	0.5	ND	ND	ND	ND	
PCB-1242	0.5	ND	ND	ND	ND	 
PCB-1248	0.5	ND	ND	ND	ND	
PCB-1254	1.0	ND	ND	ND	ND	 
PCB-1260	1.0	ND	l ND	ND	ND	 

# QUALITY CONTROL

SURROGATE	•	•	•		•	•	% REC	
DIBUTYL CHLORENDATE				117				-

HUNTINGDON ANALYTICAL SERVICES Analysis Data Sheet Method 624 Target Compound List (TCL)

Sampled: nalyzed: (days): Matrix:	06/19/89  06/22/89  3  WATER  1   Results   ug/L   ND   ND   ND   ND   ND   ND	06/19/89  06/22/89  3  WATER  1 	06/19/89  06/22/89  3  WATER  1	SYSTEM BLK  NA  06/22/89  NA  WATER  1     Results   ug/L     ND   ND
malyzed: (days): Matrix: Factor: Detection Limit ug/L  10.0 10.0 10.0 10.0 5.0 100.0 5.0 5.0 5.0 5.0	06/22/89  3  WATER  1	06/22/89  3  WATER  1     Results   ug/L     ND   ND   ND   ND   ND	06/22/89   3   WATER   1 	06/22/89  NA  WATER  1     Results   ug/L     ND   ND
(days): Matrix: Factor: Detection Limit ug/L  10.0 10.0 10.0 5.0 100.0 5.0 5.0 5.0 5.0 5.0	3   WATER   1   Results   ug/L     ND   ND   ND   ND   ND   ND   ND	3   WATER   1 	3   WATER   1   Results     ug/L   ND   ND   ND   ND	NA  WATER  1     Results   ug/L     ND   ND
Matrix: Factor: Detection Limit ug/L 10.0 10.0 10.0 5.0 100.0 5.0 5.0 5.0 5.0	WATER  1   Results   ug/L     ND   ND   ND   ND   ND   ND   ND	WATER  1 	WATER  1 Results   ug/L ND ND ND ND	WATER  1 Results ug/L ND ND ND
Factor: Detection Limit ug/L  10.0 10.0 10.0 5.0 100.0 5.0 5.0 5.0 5.0 5.0	1   Results   ug/L     ND   ND   ND   ND   ND   ND   ND	1 	1   Results     ug/L       ND   ND   ND	1   Results   ug/L     ND   ND
Detection Limit ug/L  10.0 10.0 10.0 5.0 100.0 5.0 5.0 5.0 5.0 5.0	Results ug/L ND ND ND ND ND ND ND ND ND ND ND ND ND		Results   ug/L   ND   ND   ND   ND	Results ug/L ND ND ND
10.0 10.0 10.0 10.0 5.0 100.0 5.0 5.0 5.0	ug/L     ND   ND   ND   ND   ND   ND   ND	ug/L     ND   ND   ND   ND   ND	ug/L        ND     ND     ND	ug/L     ND   ND   ND
10.0 10.0 10.0 10.0 5.0 100.0 5.0 5.0 5.0	ug/L     ND   ND   ND   ND   ND   ND   ND	ug/L     ND   ND   ND   ND   ND	ug/L        ND     ND     ND	ug/L     ND   ND   ND
10.0 10.0 10.0 10.0 5.0 100.0 5.0 5.0 5.0	ND		ND   ND   ND   ND	ND ND ND
10.0 10.0 10.0 5.0 100.0 5.0 5.0 5.0	ND   ND   ND   ND   ND   ND	ND ND ND ND ND	ND ND ND	ND ND
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	  % RECOVERY	RECOVERY	  % RECOVERY	% RECOVER
		<u> </u>	 	   97.0
	·	96.0   96.0		97.0
	100.0	ט.מע ו	95.0	97.0
	5.0 50.0 5.0 5.0 5.0 5.0 5.0 5.0	5.0   ND 50.0   ND 50.0   ND 5.0   ND 5.0   ND 5.0   ND 5.0   ND 5.0   ND 5.0   ND 5.0   ND 5.0   ND 5.0   ND 5.0   ND 5.0   ND 5.0   ND 5.0   ND 5.0   ND 50.0   ND 50.0   ND 50.0   ND 50.0   ND 50.0   ND 50.0   ND 50.0   ND 50.0   ND 50.0   ND 50.0   ND 50.0   ND 50.0   ND 50.0   ND	5.0   ND   ND 50.0   ND   ND 5.0   ND   ND 5.0   ND   ND 5.0   ND   ND 5.0   ND   ND 5.0   ND   ND 5.0   ND   ND 5.0   ND   ND 5.0   ND   ND 5.0   ND   ND 5.0   ND   ND 5.0   ND   ND 5.0   ND   ND 5.0   ND   ND 5.0   ND   ND 5.0   ND   ND 50.0   ND   ND	5.0   ND   ND   ND   ND   SO.0   ND   ND   ND   ND   ND   SO   ND   ND   ND   ND   SO   ND   ND   ND   ND   SO   ND   ND   ND   ND   ND   SO   ND   ND   ND   ND   ND   SO   ND   ND   ND   ND   SO   ND   ND   ND   ND   SO   ND   ND   ND   ND   SO   ND   ND   ND   ND   SO   ND   ND   ND   ND   SO   ND   ND   ND   ND   SO.0   ND   ND   ND   ND   SO.0   ND   ND   ND   ND   SO.0   ND   ND   ND   ND   SO.0   ND   ND   ND   ND   SO.0   ND   ND   ND   ND   SO.0   ND   ND   ND   ND   SO   ND   ND   ND   ND   SO   ND   ND   ND   ND   SO   ND   ND   ND   ND   SO   ND   ND   ND   ND   SO   ND   ND   ND   ND   SO   ND   ND   ND   ND   SO   ND   ND   ND   ND   SO   ND   ND   ND   ND   SO   ND   ND   ND   ND   SO   ND   ND   ND   ND   SO   ND   ND   ND   ND   SO   ND   ND   ND   ND   ND   SO   ND   ND   ND   ND   SO   ND   ND   ND   ND   ND   SO   ND   ND   ND   ND   ND   SO   ND   ND   ND   ND   ND   SO   ND   ND   ND   ND   ND   ND   SO   ND   ND   ND   ND   ND   ND   ND   N

### HUNTINGDON ANALYTICAL SERVICES METHOD 625 ANALYSIS DATA SHEET SEMI-VOLATILE PRIORITY POLLUTANTS

# Acid Extractables

Sample Identifi		SEEP	UPSTREAM	DOWNSTREAM	PREP-BLANK
	Sample #	319-013	319-014	319-015	PREP-BLANK
	Sampled:	06/19/89	06/19/89	06/19/89	NA
	nalyzed:	06/23/89	06/23/89	06/23/89	06/23/89
Holding Time		0	10	0	0
	Matrix:	WATER	WATER	WATER	WATER
Dilution	Factor:	1	1	1	1
Compound	Detectio	n Result	Result	Result	Result
	Limit	ug/1	ug/1	ug/1	ug/l
4-Chloro-3-Methylphenol	10	ND	ND	<dl< td=""><td>  ND</td></dl<>	ND
2-Chlorophenol	10	<dl< td=""><td>  <dl< td=""><td><dl< td=""><td>  <dl< td=""></dl<></td></dl<></td></dl<></td></dl<>	<dl< td=""><td><dl< td=""><td>  <dl< td=""></dl<></td></dl<></td></dl<>	<dl< td=""><td>  <dl< td=""></dl<></td></dl<>	<dl< td=""></dl<>
2,4-Dichlorophenol	10	ND	ND	ND	ND
2,4-Dimethylphenol	10	ND	<dl< td=""><td>  ND</td><td>  ND</td></dl<>	ND	ND
2,4-Dinitrophenol	_  50	ND	ND	ND	ND
4,6-Dinitro-2-Methylphenol_	_J 50	ND	ND	ND	ND
2-Nitrophenol	_  10	ND	ND	ND	ND
4-Nitrophenol	_  50	ND	ND	ND	ND
Pentachlorophenol	_  50	ND	ND	ND	ND
Phenol	_  10	<dl< td=""><td>  <dl< td=""><td>  <dl< td=""><td>  ND</td></dl<></td></dl<></td></dl<>	<dl< td=""><td>  <dl< td=""><td>  ND</td></dl<></td></dl<>	<dl< td=""><td>  ND</td></dl<>	ND
2,4,6-Trichlorophenol	_  10	ND	ND	ND	<dl< td=""></dl<>
Surrogates	l	% Recovery	% Recovery	% Recovery	% Recovery
Phenol-D5		4	6   4	6   46	4
2-Fluorophenol	i	j 7	3   7:	3 j 74	j 7
2,4,6-Tribromophenol	i	j 7	6 į 8:	1 j 63	j 6

Compound	Detecti	on Result	Result	Result	Result	
1	Limit	ug/1	ug/1	ug/1	Jug/1	
Acenaphthene	10	ND	ND	ND	<dl< td=""><td></td></dl<>	
Acenaphthylene	10	, ND	ND	j ND	j ND	
Anthracene	10	j ND	i ND	j ND	i ND	
Benzidine	j 50	j ND	i ND	i ND	ND	
Benzo(a)Anthracene	10	<dl< td=""><td>  <dl< td=""><td>ND</td><td>ND</td><td></td></dl<></td></dl<>	<dl< td=""><td>ND</td><td>ND</td><td></td></dl<>	ND	ND	
Benzo(b)Fluoranthene	10	ND	j ND	<dl< td=""><td>  ND</td><td></td></dl<>	ND	
Benzo(k)Fluoranthene	10	ND	ND	ND	ND	
Benzo(a)Pyrene	10	ND	ND	ND	ND	
Benzo(g,h,i)Perylene	10	j ND	ND	j ND	ND	
bis(2-Chloroethoxy)Methane	10	j ND	ND	<dl< td=""><td>  ND</td><td></td></dl<>	ND	
bis(2-Chloroethyl)Ether	10	j ND	j ND	ND	ND	
bis(2-Chloroisopropyl)Ether	10	<dl< td=""><td><dl< td=""><td>  <dl< td=""><td>  <dl< td=""><td></td></dl<></td></dl<></td></dl<></td></dl<>	<dl< td=""><td>  <dl< td=""><td>  <dl< td=""><td></td></dl<></td></dl<></td></dl<>	<dl< td=""><td>  <dl< td=""><td></td></dl<></td></dl<>	<dl< td=""><td></td></dl<>	
bis(2-Ethylhexyl)Phthalate_	10	<dl< td=""><td>j nd</td><td>  <dl< td=""><td>  <dl< td=""><td></td></dl<></td></dl<></td></dl<>	j nd	<dl< td=""><td>  <dl< td=""><td></td></dl<></td></dl<>	<dl< td=""><td></td></dl<>	

## HUNTINGDON ANALYTICAL SERVICES METHOD 625 ANALYSIS DATA SHEET SEMI-VOLATILE PRIORITY POLLUTANTS

Compound		on Result		Result	Result
	Limit	ug/1	ug/l	ug/l	ug/l
Butylbenzylphthalate	10	<dl< td=""><td>  ND</td><td>  ND</td><td>l ND</td></dl<>	ND	ND	l ND
4-Bromophenyl-phenylether	10	ND ND	ND	l ND	ND
2-Chloronaphthalene	10	ND	l ND	ND	ND
4-Chlorophenyl-phenylether		ND	ND	ND	ND
Chrysene	-:	<dl< td=""><td>  ND</td><td>  ND</td><td>ND</td></dl<>	ND	ND	ND
Dibenz(a,h)Anthracene		<dl< td=""><td>ND</td><td>ND</td><td>ND</td></dl<>	ND	ND	ND
Di-n-Butylphthalate		<dl< td=""><td>  <dl< td=""><td>  <dl< td=""><td>  <dl< td=""></dl<></td></dl<></td></dl<></td></dl<>	<dl< td=""><td>  <dl< td=""><td>  <dl< td=""></dl<></td></dl<></td></dl<>	<dl< td=""><td>  <dl< td=""></dl<></td></dl<>	<dl< td=""></dl<>
1,2-Dichlorobenzene	10	ND	ND	ND	ND
1,3-Dichlorobenzene	1 10	ND	ND	l ND	l ND
1,4-Dichlorobenzene	1 10	ND	<dl< td=""><td>  <dl< td=""><td>  <dl< td=""></dl<></td></dl<></td></dl<>	<dl< td=""><td>  <dl< td=""></dl<></td></dl<>	<dl< td=""></dl<>
3,3'-Dichlorobenzidine	20	ND	l ND	ND ND	ND
Diethylphthalate	10	l ND	ND	ND	ND
Dimethyl Phthalate		<dl< td=""><td>ND</td><td>ND</td><td>ND</td></dl<>	ND	ND	ND
2,4-Dinitrotoluene	10	ND	ND	ND	ND
2,6-Dinitrotoluene	10	ND	l ND	ND	ND
Di-n-Octyl Phthalate	10	ND	<dl< td=""><td><dl< td=""><td><dl< td=""></dl<></td></dl<></td></dl<>	<dl< td=""><td><dl< td=""></dl<></td></dl<>	<dl< td=""></dl<>
1,2-Diphenylhydrazine		l ND	ND	ND	ND
Fluoranthene	10	<dl< td=""><td>ND</td><td>ND</td><td>ND</td></dl<>	ND	ND	ND
Fluorene	10	ND	ND	ND	ND
Hexachlorobenzene	10	ND	ND	ND	ND
Hexachlorobutadiene	10	ND	ND	ND	ND
Hexachlorocyclopentadiene	10	ND	ND	ND	ND
Hexachloroethane	10	ND	ND	ND	ND
Indeno(1,2,3-cd)Pyrene	10	<dl< td=""><td>ND</td><td>ND</td><td>ND</td></dl<>	ND	ND	ND
Isophorone		ND	ND	<dl< td=""><td>ND</td></dl<>	ND
Naphthalene	10	ND	l ND	ND	<dl< td=""></dl<>
Nitrobenzene	10	ND	ND	ND	ND
N-Nitrosodimethylamine	10	ND	i ND	ND	ND
N-Nitrosodiphenylamine (1)	10	ND	ND	ND	ND
N-Nitroso-Di-n-Propylamine	10	<dl< td=""><td>ND</td><td>ND</td><td>ND</td></dl<>	ND	ND	ND
Phenanthrene	10	<dl< td=""><td>ND</td><td>ND</td><td><dl< td=""></dl<></td></dl<>	ND	ND	<dl< td=""></dl<>
Pyrene	10	<dl< td=""><td>ND</td><td>i ND</td><td>j ND</td></dl<>	ND	i ND	j ND
1,2,4-Trichlorobenzene	j 10	ND	ND	ND .	, ND
Surrogates		% Recovery	% Recovery	% Recovery	% Recovery
d-5 Nitrobenzene	I	119	117	108	
2-Fluorobiphenyl	i	86		•	•
Terphenyl	i	88		•	•

Sample ID:SEEP HAS Sample #30-319-010 Date Sampled: 06/19/89

	EPA	DATE	DATE	DETECTION	•	
ANALYTE	METHOD	PREPARED	ANALYZED	LIMIT	mg/1	QC
ALUMINUM	6010	06/22/89	06/25/89	0.125	10.9	*95
ANTIMONY	6010	06/22/89	06/25/89	0.05	<dl< td=""><td><b>*</b>95</td></dl<>	<b>*</b> 95
ARSENIC	7060	06/22/89	06/24/89	0.01	<dl< td=""><td><b>*</b>95</td></dl<>	<b>*</b> 95
BARIUM	6010	06/22/89	06/25/89	0.01	0.47	<b>*</b> 95
BERYLLIUM	6010	06/22/89	06/25/89	0.005	<dl< td=""><td><b>*</b>95</td></dl<>	<b>*</b> 95
CADMIUM	6010	06/22/89	06/25/89	0.005	0.006	<b>*</b> 95
CALCIUM	6010	06/22/89	06/25/89	0.05	409	<b>*</b> 95
CHROMIUM	6010	06/22/89	06/25/89	0.01	0.02	<b>*</b> 95
COBALT	6010	06/22/89	06/25/89	0.015	0.020	<b>*</b> 95
COPPER	6010	06/22/89	06/25/89	0.01	0.05	<b>*</b> 95
IRON	6010	06/22/89	06/25/89	0.02	6.78	<b>*</b> 95
LEAD	7421	06/22/89	06/25/89	0.005	0.084	<b>*</b> 95
MAGNESIUM	6010	06/22/89	06/25/89	0.03	59.7	<b>*</b> 95
MANGANESE	6010	06/22/89	06/25/89	0.01	2.98	<b>*</b> 95
MERCURY	7470	06/22/89	06/22/89	0.0002	0.0003	<b> </b> *95
NICKEL	6010	06/22/89	06/25/89	0.04	<dl< td=""><td><b> </b>*95</td></dl<>	<b> </b> *95
POTASSIUM	6010	06/22/89	06/25/89	5.0	7.3	<b> </b> *95
SELENIUM	7740	06/22/89	06/25/89	0.005	<dl< td=""><td> *95</td></dl<>	*95
SILVER	6010	06/22/89	06/25/89	0.01	<dl< td=""><td> *95</td></dl<>	*95
SODIUM	6010	06/22/89	06/25/89	0.125	41.6	*95
THALLIUM	7841	06/22/89	06/25/89	0.01	<dl< td=""><td><b> </b>*95</td></dl<>	<b> </b> *95
VANADIUM	6010	06/22/89	06/25/89	0.025	<dl< td=""><td> *95</td></dl<>	*95
ZINC	6010	06/22/89	06/25/89	0.02	0.35	<b> </b> *95
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<sup>\*</sup>THIS INDICATES A 95% CONFIDENCE LIMIT ACHIEVED WITH AN EPA QUALITY CONTROL SOLUTION ANALYZED ALONG WITH YOUR SAMPLE.

Sample ID: UPSTREAM HAS Sample #30-319-011 Date Sampled: 06/19/89

	EPA	DATE	DATE	DETECTION		1
ANALYTE	METHOD	PREPARED	ANALYZED	LIMIT	mg/1	l QC
	6010	06 (00 (00	104 /05 /80	0.125	0,29	  *95
ALUMINUM		06/22/89	06/25/89	0.125	0.29   <dl< td=""><td> *95</td></dl<>	*95
ANTIMONY		06/22/89	106/25/89	•	•	1*95
ARSENIC		06/22/89	106/24/89	0.01	<dl   0.05</dl 	*95  *95
BARIUM			106/25/89	0.01		
BERYLLIUM			106/25/89	0.005	<dl< td=""><td> <del>*</del>95</td></dl<>	<del>*</del> 95
CADMIUM		06/22/89	106/25/89	0.005	<dl< td=""><td><b> </b>*95</td></dl<>	<b> </b> *95
CALCIUM		06/22/89	106/25/89	0.05	74.8	*95  *05
CHROMIUM	•		106/25/89	0.01	<dl< td=""><td> *95</td></dl<>	*95
COBALT	•	06/22/89	106/25/89	0.015	<dl< td=""><td>1<b>*</b>95</td></dl<>	1 <b>*</b> 95
COPPER			106/25/89	0.01	<dl< td=""><td> *95  -1:05</td></dl<>	*95  -1:05
IRON		06/22/89	106/25/89	0.02	0.45	<b>*95</b>
LEAD	•		106/25/89	0.005	≺DL	*95
MAGNESIUM	,		106/25/89	0.03	26.1	<del>*95</del>
MANGANESE			106/25/89	0.01	0.05	<b>*95</b>
MERCURY	•		106/22/89	0.0002	0.0003	<b> </b> *95
NICKEL	•		06/25/89	0.04	<dl< td=""><td>1*95</td></dl<>	1*95
POTASSIUM			106/25/89	5,0	5.7	<b>*</b> 95
SELENIUM			06/25/89	0.005	0.006	<b>1</b> *95
SILVER			106/25/89	0.01	<dl< td=""><td><b>*95</b></td></dl<>	<b>*95</b>
SODIUM	•	06/22/89	06/25/89	0.125	26.7	<b>*</b> 95
THALLIUM	•		106/25/89	0.01	<dl< td=""><td><b>*</b>95</td></dl<>	<b>*</b> 95
VANADIUM	•	• • •	06/25/89	0.025	<dl< td=""><td><b>*</b>95</td></dl<>	<b>*</b> 95
ZINC	6010	06/22/89	106/25/89	0.02	0.06	<b> </b> *95
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<sup>\*</sup>THIS INDICATES A 95% CONFIDENCE LIMIT ACHIEVED WITH AN EPA QUALITY CONTROL SOLUTION ANALYZED ALONG WITH YOUR SAMPLE.

Sample ID: DOWNSTREAM HAS Sample #30-319-012 Date Sampled: 06/19/89

ANALYTE	EPA METHOD	DATE PREPARED	DATE	DETECTION	•	MS REC	MSD REC	RPD
ANALITE	MEIROD	TREFARED	ANALYZED	LIMIT	mg/l	1	*KEC	KI D
ALUMINUM	6010	06/22/89	06/25/89	0.25	0.39	90.3	91.7	1.5
ANTIMONY	•	06/22/89	06/25/89	0.1	<dl< td=""><td>86.4</td><td>91.9</td><td>6.2</td></dl<>	86.4	91.9	6.2
ARSENIC	7060	C6/22/89	06/24/89	0.01	<dl< td=""><td>÷95</td><td></td><td></td></dl<>	÷95		
BARIUM	6010	06/22/89	06/25/89	0.02	0.06	91.2	92.5	1.3
BERYLLIUM	6010	06/22/89	06/25/89	0.01	<dl< td=""><td>94.2</td><td>95.2</td><td>1.0</td></dl<>	94.2	95.2	1.0
CADMIUM	•	06/22/89	06/25/89	0.01	i <dl< td=""><td>j 87.8</td><td>89.8</td><td>2.3</td></dl<>	j 87.8	89.8	2.3
CALCIUM	6010	06/22/89	06/25/89	0.1	79.8	85.6	84.0	<1.0
CHROMIUM	6010	06/22/89	06/25/89	0.02	<dl< td=""><td>91.0</td><td>92.3</td><td>1.4</td></dl<>	91.0	92.3	1.4
COBALT	6010	06/22/89	06/25/89	0.03	<dl< td=""><td>90.8</td><td>93.0</td><td>2.4</td></dl<>	90.8	93.0	2.4
COPPER	6010	06/22/89	06/25/89	0.02	<dl< td=""><td>90.6</td><td>90.7</td><td>&lt;1.0</td></dl<>	90.6	90.7	<1.0
IRON	6010	06/22/89	106/25/89	0.04	0.84	90.1	91.2	1.1
LEAD	7421	06/22/89	06/25/89	0.005	0.015	¥95		
Magnes Ium	6010	05/22/89	06/25/89	0.06	27.4	88.2	88.9	<1.0
Manganese	6010	06/22/89	06/25/89	0.02	0.05	90.5	90.4	<1.0.
MERCURY	7470	06/22/89	06/22/89	0.0002	0.0003	<b>*</b> 95		
NICKEL	6010	06/22/89	106/25/89	0.08	<dl< td=""><td>90.1</td><td>92.9</td><td>3.1</td></dl<>	90.1	92.9	3.1
POTASSIUM	6010	06/22/89	06/25/89	10	11	78.9	80.8	2.1
SELENIUM	7740	06/22/89	06/25/89	0.005	<dl< td=""><td>×95</td><td></td><td></td></dl<>	×95		
SILVER	6010	06/22/89	06/25/89	0.02	<dl< td=""><td>86.1</td><td>87.4</td><td>1.5</td></dl<>	86.1	87.4	1.5
SODIUM	6010	06/22/89	06/25/89	0.25	25.7	89.3	90.4	<1.0
THALLIUM	7841	06/22/89	06/25/89	0.01	<dl< td=""><td> <b>*</b>95</td><td></td><td></td></dl<>	<b>*</b> 95		
VANADIUM	6010	06/22/89	06/25/89	0.05	<di.< td=""><td>90.6</td><td>91.9</td><td>1.5</td></di.<>	90.6	91.9	1.5
ZINC	6010	06/22/89	106/25/89	0.04	0.10	91.6	91.8	<1.0
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<sup>\*</sup>THIS INDICATES A 95% CONFIDENCE LIMIT ACHIEVED WITH AN EPA QUALITY CONTROL SOLUTION ANALYZED ALONG WITH YOUR SAMPLE.

Sample ID: METHOD BLANK HAS Sample #30-319-MB Date Sampled: N/A

	EPA	DATE	DATE	DETECTION		1
ANALYTE	METHOD	PREPARED	ANALYZED	LIMIT	mg/l	l QC
ALUMINUM	6010	06/22/89	106/25/89	0.125	<dl< td=""><td>*95</td></dl<>	*95
ANTIMONY	6010	05/22/89	06/25/89	j 0.05 j	<dl< td=""><td>i<b>∗</b>95</td></dl<>	i <b>∗</b> 95
ARSENIC	7060	06/22/89	06/24/89	0.01	<dl< td=""><td><b>*9</b>5</td></dl<>	<b>*9</b> 5
BARIUM	6010	06/22/89	06/25/89	0.01	<dl< td=""><td><b>*</b>95</td></dl<>	<b>*</b> 95
BERYLLIUM	6010	06/22/89	06/25/89	0.005	<dl< td=""><td><b>*95</b></td></dl<>	<b>*95</b>
CADMIUM	6010	106/22/89	06/25/89	0.005	<dl< td=""><td><b>*95</b></td></dl<>	<b>*95</b>
CALCIUM	6010	06/22/89	06/25/89	0.05	0.19	<b>*95</b>
CHROMIUM	6010	106/22/89	06/25/89	0.01	<dl< td=""><td><b>*</b>95</td></dl<>	<b>*</b> 95
COBALT	6010	106/22/89	06/25/89	0.015	<dl< td=""><td><b>*95</b></td></dl<>	<b>*95</b>
COPPER	6010	06/22/89	106/25/89	0.01	0.01	<b>*95</b>
IRON	6010	106/22/89	06/25/89	0.02	0.06	<b>*</b> 95
LEAD	7421	106/22/89	06/25/89	0.005	<dl< td=""><td><b>*95</b></td></dl<>	<b>*95</b>
Magnesium	6010	106/22/89	[06/25/89	0.03	0.05	<b>*95</b>
Manganese	6010	106/22/89	06/25/89	0.01	<dl< td=""><td><b>*9</b>5</td></dl<>	<b>*9</b> 5
MERCURY	7470	06/22/89	106/22/89	[ 0.0002	<dl< td=""><td><b> </b>*95</td></dl<>	<b> </b> *95
NICKEL	6010	106/22/89	06/25/89	0.04	<dl< td=""><td><b> </b>*95</td></dl<>	<b> </b> *95
POTASSIUM	6010	06/22/89	106/25/89	5.0	<dl< td=""><td><b>*</b>95</td></dl<>	<b>*</b> 95
SELENIUM	7740	106/22/89	06/25/89	0.005	<dl< td=""><td><b>*</b>95</td></dl<>	<b>*</b> 95
SILVER	6010	[06/22/89	106/25/89	0.01	<dl< td=""><td><b>*9</b>5</td></dl<>	<b>*9</b> 5
SODIUM	6010	106/22/89	06/25/89	0.125	<dl< td=""><td><b>*</b>95</td></dl<>	<b>*</b> 95
THALLIUM	7841	06/22/89	106/25/89	0.01	<dl< td=""><td><b>*</b>95</td></dl<>	<b>*</b> 95
VANADIUM	6010	06/22/89	06/25/89	0.025	<dl< td=""><td><b>*</b>95</td></dl<>	<b>*</b> 95
ZINC	6010	106/22/89	06/25/89	0.02	<dl< td=""><td><b>*</b>95</td></dl<>	<b>*</b> 95
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<sup>\*</sup>THIS INDICATES A 95% CONFIDENCE LIMIT ACHIEVED WITH AN EPA QUALITY CONTROL SOLUTION ANALYZED ALONG WITH YOUR SAMPLE.

# HUNTINGDON ANALYTICAL SERVICES, INC. ENVIRONMENTAL

Inorganic Wet Chemical Analyses

Sample Identification: Seep

HAS Sample #30-319-007, 004, 001

Date Sampled: 6/19/89

Date Received: 6/20/89

		Date	Date	Detection			
Analyte	EPA Method	Prepared	Analyzed	Limit	Concentration	Units	QC in %
	ĺ		]	ĺ			
Total Cyanide	335.2	6/23/89	6/26/89	0.02	<dl< td=""><td>mg/l</td><td>*99</td></dl<>	mg/l	*99
i	ĺ			i			
Phenol	420.1	6/23/89	6/27/89	0.005	<dl< td=""><td>mg/l</td><td>*97</td></dl<>	mg/l	*97
	Ì			i			
Oil & Grease	413.1	6/26/89	6/26/89	1.0	<dl< td=""><td>mg/1</td><td>*82</td></dl<>	mg/1	*82

<sup>\*</sup>A known standard of the analyte of interest was analyzed along with this sample with the percent recovery indicated above.

# HUNTINGDON ANALYTICAL SERVICES, INC. ENVIRONMENTAL

Inorganic Wet Chemical Analyses

\_ Sample Identification: Upstream

HAS Sample #30-319-008, 005, 002

Date Sampled: 6/19/89

Date Received: 6/20/89

			Date	Date	Detection			
	Analyte	EPA Method	Prepared	Analyzed	Limit	Concentration	Units	QC in %
- i	İ		ĺ			I		
j	Total Cyanide	335.2	6/23/89	6/26/89	0.02	<dl_< th=""><th>mg/l</th><th>*99</th></dl_<>	mg/l	*99
i								1
	Phenol	420.1	6/23/89	6/27/89	0.005	<dl< th=""><th>mg/l</th><th>*97</th></dl<>	mg/l	*97
			i					İ
i	Oil & Grease	413.1	6/26/89	6/26/89	1.0	1.1	mg/l	*82

<sup>\*</sup>A known standard of the analyte of interest was analyzed along with this sample with the percent recovery indicated above.

# HUNTINGDON ANALYTICAL SERVICES, INC. ENVIRONMENTAL

Inorganic Wet Chemical Analyses

Sample Identification: Downstream

HAS Sample #30-319-009, 006, 003

Date Sampled: 6/19/89

Date Received: 6/20/89

-			Date	Date	Detection			
<u> </u>	Analyte	EPA Method	Prepared	Analyzed	Limit	Concentration	Units	QC in %
-								*99
i	Total Cyanide	335.2	6/23/89	6/26/89	0.02	<dl< th=""><th>mg/1</th><th>**105</th></dl<>	mg/1	**105
								ļ
	Phenol	420.1	6/23/89	6/27/89	0.005	0.007	mg/l	<u>*97</u>
			İ					
	Oil & Grease	413.1	6/26/89	6/26/89	1.0	1.1	mg/l	*82

<sup>\*</sup>A known standard of the analyte of interest was analyzed along with this sample with the percent recovery indicated above.

\*\*A matrix spike of this sample was analyzed with the percent recovery indicated above.



# **HUNTINGDON ANALYTICAL SERVICES**

Division of EMPIRE SOILS INVESTIGATIONS INC. PO Box 250 Middleport New York 14105 Telephone (716) 735-3400 Telex 131246

Environmental Analytical Report for:

EMPIRE SOILS INVESTIGATIONS, INC. - HAMBURG

ASTECO - Witmer Road (BTA-89-39a)

HAS Ref. #30-389

August 1, 1989



### HUNTINGDON ANALYTICAL SERVICES ELAP #10833 ENVIRONMENTAL REPORT

HAS Reference Number: #30-389

August 1, 1989

#### Statement of Work Performed

I hereby declare that the work was performed under my supervision according to the procedures outlined by the following references and that this report provides a correct and faithful record of the results obtained.

- 40 CFR Part 136, "Guidelines Establishing Test Procedures for the Analysis of Pollutants Under the Clean Water Act," October 26, 1984 (Federal Register) U.S. Environmental Protection Agency.
- U.S. Environmental Protection Agency, "Test Methods of Evaluating Solid Waste Physical/Chemical Methods," Office of Solid Waste and Emergency Response, SW-846, 2nd Edition and 3rd Edition.
- New York State Department of Health, Analytical Toxicology Laboratory Handbook, August 1982.

Katherine A. Syracuse

Assistant Lab Director, Environmental

### REPORT CODE LEGEND:

<DL = Less than detection limit</pre>

ND = Not detected

NA = Not applicable

<LQ = Response not statistically significant
 from laboratory background values</pre>

INP = Information not provided

MB = Method Blank

HUNTINGDON ANALYTICAL SERVICES ENVIRONMENTAL

METHOD 509A EP TOX PESTICIDES

SAMPLE IDENTIFICATION :	SS-2-7-13	METHOD BLANK
HAS SAMPLE #30-389	001	
COMPOUND	RESULT mg/l	RESULT mg/l
LINDANE	0.00005	<0.00005
ENDRIN	<0.00005	<0.00005
METHOXYCHLOR	<0.00005	<0.00005

<0.0010

TOXAPHENE ----- <0.0010

HUNTINGDON ANALYTICAL SERVICES ENVIRONMENTAL

METHOD 509B EP TOX HERBICIDES

SAMPLE IDENTIFICATION: SS-2-7-13 **METHOD** 

BLANK

001 HAS SAMPLE #30-389

COMPOUND RESULT RESULT

mg/1mg/1

2,4-D ----- <0.00005 <0.00005 <0.00005 SILVEX (2,4,5-TP) ----- <0.00005

SAMPLE #001 CONTAINS 0.00051 mg/l 2,4,5-T, A NON-EP TOX HERBICIDE.

### METALS ANALYSIS-EP TOX DATA SHEET

Sample ID: SS-2-7-13 HAS Sample #30-389-001 Date Sampled: 7-13-89

	. <b></b>	. <b></b>				- <b></b>	_
1 1	EPA	EPA	DATE	DETECTION	RESULT	QC	ı
ANALYTE	METHOD	LIMITS	ANALYZED	LIMIT	mg/l	ļ	ĺ
							ı
ARSENIC	6010	5.0 mg/1	7-25-89	0.05	<dl< td=""><td> *95</td><td>İ</td></dl<>	*95	İ
BARIUM	6010	100 mg/1	7-25-89	0.005	0.69	<b> </b> *95	Ì
CADMIUM	6010	1.0  mg/1	7-25-89	0.005	0.02	<b> </b> *95	ĺ
CHROMIUM	6010	5.0  mg/1	7-25-89	0.01	0.02	<b>*</b> 95	ĺ
LEAD	6010	5.0  mg/1	7-25-89	0.05	8.1	<b>*</b> 95	ĺ
MERCURY	7470	0.2  mg/1	7-24-89	0.002	<dl< td=""><td><b> </b>*95</td><td>Ĺ</td></dl<>	<b> </b> *95	Ĺ
SELENIUM	6010	1.0  mg/1	7-25-89	0.05	<dl< td=""><td><b> </b>*95</td><td></td></dl<>	<b> </b> *95	
SILVER	6010	5.0 mg/l	7-25-89	0.01	0.03	<b> </b> *95	
- i		l		1		l	I

\*THIS INDICATES A 95% CONFIDENCE LIMIT ACHIEVED WITH AN EPA QUALITY CONTROL SOLUTION ANALYZED ALONG WITH YOUR SAMPLE.

### METALS ANALYSIS-EP TOX DATA SHEET

Sample ID: METHOD BLANK HAS Sample #30-389-MB Date Sampled: NA

								_
	  ANALYTE	EPA METHOD	EPA	DATE ANALYZED	DETECTION	RESULT	QC	
•								i
	ARSENIC	6010	5.0 mg/l	7-25-89	0.05	<dl< th=""><th><b>*</b>95</th><th>Ĺ</th></dl<>	<b>*</b> 95	Ĺ
	BARIUM	6010	100 mg/l	7-25-89	0.005	0.01	<b>*</b> 95	ĺ
	CADMIUM	6010	1.0 mg/1	7-25-89	0.005	<dl< th=""><th><b>*</b>95</th><th></th></dl<>	<b>*</b> 95	
	CHROMIUM	6010	5.0  mg/1	7-25-89	0.01	<dl< th=""><th><b> </b>*95</th><th>١</th></dl<>	<b> </b> *95	١
	LEAD	6010	5.0  mg/1	7-25-89	0.05	<dl< th=""><th><b> </b>*95</th><th>l</th></dl<>	<b> </b> *95	l
	MERCURY	7470	0.2  mg/1	7-24-89	0.002	<dl< th=""><th><b>*</b>95</th><th></th></dl<>	<b>*</b> 95	
•	SELENIUM	6010	1.0  mg/1	7-25-89	0.05	<dl< th=""><th><b> *</b>95</th><th>l</th></dl<>	<b> *</b> 95	l
	SILVER	6010	5.0  mg/l	7-25-89	0.01	<dl< th=""><th><b>*</b>95</th><th>l</th></dl<>	<b>*</b> 95	l
				l	l			ŀ

\*THIS INDICATES A 95% CONFIDENCE LIMIT ACHIEVED WITH AN EPA QUALITY CONTROL SOLUTION ANALYZED ALONG WITH YOUR SAMPLE.

### HUNTINGDON ANALYTICAL SERVICES, INC. ENVIRONMENTAL

Inorganic Wet Chemical Analyses

■ Sample Identification: SS-2-7-13

HAS Sample #30-389-001

Date Sampled: 7/13/89

~			Date	Date	Detection	<u> </u>		
	Analyte	EPA Method	Prepared	Analyzed	Limit_	Concentration	Units	QC in %
	Corrosivity as			-			pН	
-	Leachable pH	SW-846 9045	7/21/89	7/21/89	0.1	7.4	units	*95
	Reactivity as:			<u> </u>				
-	Total Releaseable  _Hydrogen Sulfide		7/18/89	7/18/89	50	<dl< th=""><th>tmg/kg</th><th>**92</th></dl<>	tmg/kg	**92
	Total Releaseable    Hydrogen Cyanide	SW-846 9010	7/18/89	7/18/89	50	<dl< th=""><th>tmg/kg</th><th><b>*</b>*59</th></dl<>	tmg/kg	<b>*</b> *59
	Ignitability	SW-846_1010		7/31/89		††14 <u>5</u>	°F	
	% Solid	_160.3	<u>-</u> -	7/21/89	1.0	88	ક	 

†Results are based on dry weight of material as listed elsewhere in this report.

- ††There was insufficient sample available to perform analysis properly. Preliminary testing indicates that flash point is very close to the threshold limit of 140°F.
- \*This indicates a 95% confidence limit was achieved with an EPA Quality Control Check analyzed with this sample.
- \*\*A known standard of the analyte of interest was analyzed along with this sample with the percent recovery indicated above.

-		du 1/25/89
HUNTINGDON ANALYTICAL	SERVICES - CHAIM-OF-CUSTODY RECORD	AND ANALYTICAL REQUEST FORM
Client Name	)	Contact Day of Harby CEST. HAS QUOTE #
Address	Phone	
Project No. 39~	Project/Site Name:	Container Size & Type
Samplers (Signature):	HAS Ref #30.   No. o	
Date	KAS TO	
- 17/13	1 2-31 001	N See request sheet
		Hazardous Caterra
		Ignitubility
		(G1/03/10)
		EP Tox (Medals + Pesticules)
		Reachuit
Remanished by:	1 7/4/89 1 (20) (4. 26. 26. 20)	Re Japa Shed
IReVinguis Sed Soy:	Oste/ Time:   Received by:	Relinquished by:   Date/ Time: Received By:
Relinquished by:	Detel Time:   Regelmed for Leb	by:   Dote/ Time:   Remarks:



Division of **EMPIRE SOILS INVESTIGATIONS INC.** PO Box 250 Middleport New York 14105 Telephone (716) 735-3400 Telex 131246

Environmental Analytical Report for:

EMPIRE SOILS INVESTIGATIONS, INC. - HAMBURG

**ASTECO** 

HAS Ref. #30-407

August 9, 1989



### HUNTINGDON ANALYTICAL SERVICES ELAP #10833 ENVIRONMENTAL REPORT

HAS Reference Number: #30-407

August 9, 1989

#### Statement of Work Performed

I hereby declare that the work was performed under my supervision according to the procedures outlined by the following references and that this report provides a correct and faithful record of the results obtained.

- 40 CFR Part 136, "Guidelines Establishing Test Procedures for the Analysis of Pollutants Under the Clean Water Act," October 26, 1984 (Federal Register) U.S. Environmental Protection Agency.
- U.S. Environmental Protection Agency, "Test Methods of Evaluating Solid Waste Physical/Chemical Methods," Office of Solid Waste and Emergency Response, SW-846, 2nd Edition and 3rd Edition.
- New York State Department of Health, Analytical Toxicology Laboratory Handbook, August 1982.

Katherine A. Syracuse

Assistant Lab Director, Environmental

aluine O. Guaceese

#### REPORT CODE LEGEND:

<DL = Less than detection limit</pre>

ND = Not detected

NA = Not applicable

<LQ = Response not statistically significant
 from laboratory background values</pre>

INP = Information not provided

MB = Method Blank

# HUNTINGDON ANALYTICAL SERVICES ENVIRONMENTAL

METHOD 509A EP TOX PESTICIDES

S-3	S-4	METHOD BLANK
001	002	
RESULT mg/1	RESULT mg/l	RESULT mg/l
0.00013 <0.00005 <0.00005	<0.00005 <0.00005 <0.00005	<0.00005 <0.00005 <0.00005 <0.0010
	001  RESULT mg/1  0.00013 <0.00005 <0.00005	001 002  RESULT RESULT mg/1 mg/1  0.00013 <0.00005 <0.00005

# HUNTINGDON ANALYTICAL SERVICES ENVIRONMENTAL

METHOD 509B EP TOX HERBICIDES

SAMPLE IDENTIFICATION :	S-3	S-4	METHOD BLANK
HAS SAMPLE #30-407	001	002	
COMPOUND	RESULT	RESULT	RESULT
	mg/l	mg/l	mg/l
2,4-D	<0.00005	<0.00010	<0.00005
	<0.00005	<0.00005	<0.00005

### METALS ANALYSIS-EP TOX DATA SHEET

Sample Identification: S-3 7-21

HAS Sample #30-407-001 Date Sampled: 7-21-89

  ANALYTE	EPA  METHOD	EPA   LIMITS	DATE  ANALYZED	DETECTION    LIMIT	RESULT mg/1	QC  *	   
ARSENIC   BARIUM   CADMIUM   CHROMIUM   LEAD   MERCURY   SELENIUM   SILVER	6010  6010  6010  6010  7470	5.0 mg/1  100 mg/1  1.0 mg/1  5.0 mg/1  5.0 mg/1  0.2 mg/1  1.0 mg/1  5.0 mg/1	8-08-89   8-08-89   8-08-89   8-08-89   8-03-89   8-08-89   8-08-89	0.035     0.01     0.005     0.01     0.05     0.002     0.05	0.038 3.1 OL OL 0.38 OL OL OL	9   9   9   9   9   9	5   5   5   5   5   5

\*THIS INDICATES A 95% CONFIDENCE LIMIT ACHIEVED WITH AN EPA QUALITY CONTROL SOLUTION ANALYZED ALONG WITH YOUR SAMPLE.

### METALS ANALYSIS-EP TOX DATA SHEET

Sample Identification: S-4 7-21

HAS Sample #30-407-002 Date Sampled: 7-21-89

	EPA	EPA	DATE	DETECTION	RESULT	l QC	١
ANALYTE	METHOD	LIMITS	ANALYZED	LIMIT	mg/1	<b> </b> *	1
							ı
ARSENIC	6010	5.0 mg/1	8-08-89	0.035	0.048	95	١
BARIUM	6010	100 mg/1	8-08-89	0.01	1.4	95	I
CADMIUM	6010	1.0 mg/1	8-08-89	0.005	<dl< td=""><td>95</td><td>I</td></dl<>	95	I
CHROMIUM	6010	5.0 mg/1	8-08-89	0.01	<dl< td=""><td>95</td><td>Ī</td></dl<>	95	Ī
LEAD	6010	5.0 mg/1	8-08-89	0.05	0.08	95	
MERCURY	7470	0.2 mg/1	8-03-89	0.002	<dl< td=""><td>95</td><td>I</td></dl<>	95	I
SELENIUM	6010	1.0 mg/1	8-08-89	0.05	<dl< td=""><td>95</td><td>1</td></dl<>	95	1
SILVER	6010	5.0 mg/1	8-08-89	0.01	<dl< td=""><td>95</td><td>I</td></dl<>	95	I

\*THIS INDICATES A 95% CONFIDENCE LIMIT ACHIEVED WITH AN EPA QUALITY CONTROL SOLUTION ANALYZED ALONG WITH YOUR SAMPLE.

### METALS ANALYSIS-EP TOX DATA SHEET

Sample Identification: S-4 7-21

HAS Sample #30-407-002 DUP Date Sampled: 7-21-89

								_
1	EPA	EPA	DATE	DETECTION	RESULT	l	QC	I
ANALYTE	METHOD	LIMITS	ANALYZED	LIMIT	mg/1	*		ı
							·	ı
ARSENIC	6010	5.0 mg/1	8-08-89	0.035	0.048	İ	95	İ
BARIUM	6010	100 mg/1	8-08-89	0.01	0.38	l	95	ı
CADMIUM	6010	1.0  mg/1	8-08-89	0.005	<dl< td=""><td>İ</td><td>95</td><td>İ</td></dl<>	İ	95	İ
CHROMIUM	6010	5.0  mg/1	8-08-89	0.01	<dl< td=""><td>l</td><td>95</td><td>ı</td></dl<>	l	95	ı
LEAD	6010	5.0  mg/1	8-08-89	0.05	<dl< td=""><td>Ì</td><td>95</td><td>ĺ</td></dl<>	Ì	95	ĺ
MERCURY	7470	0.2  mg/1	8-03-89	0.002	<dl< td=""><td>ĺ</td><td>95</td><td>ĺ</td></dl<>	ĺ	95	ĺ
SELENIUM	6010	1.0  mg/1	8-08-89	0.05	<dl< td=""><td>ĺ</td><td>95</td><td>ĺ</td></dl<>	ĺ	95	ĺ
SILVER	6010	5.0 mg/1	8-08-89	0.01	<dl< td=""><td></td><td>95</td><td>١</td></dl<>		95	١

<sup>\*</sup>THIS INDICATES A 95% CONFIDENCE LIMIT ACHIEVED WITH AN EPA QUALITY CONTROL SOLUTION ANALYZED ALONG WITH YOUR SAMPLE.

### METALS ANALYSIS-EP TOX DATA SHEET

Sample Identification: METHOD BLANK

HAS Sample #30-407-MB Date Sampled: NA

								_
l	EPA	EPA	DATE	DETECTION	RESULT	l	QC	
ANALYTE	METHOD	LIMITS	ANALYZED	LIMIT	mg/l	*		ļ
								ı
ARSENIC	6010	5.0 mg/1	8-08-89	0.035	<dl< td=""><td></td><td>95</td><td></td></dl<>		95	
BARIUM	6010	100 mg/1	8-08-89	0.01	0.02		95	
CADMIUM	6010	$ 1.0~{ m mg/1} $	8-08-89	0.005	0.006		95	
CHROMIUM	6010	5.0  mg/1	8-08-89	0.01	<dl< td=""><td></td><td>95</td><td></td></dl<>		95	
LEAD	6010	5.0  mg/1	8-08-89	0.05	<dl< td=""><td></td><td>95</td><td>l</td></dl<>		95	l
MERCURY	7470	0.2  mg/1	8-03-89	0.002	<dl< td=""><td></td><td>95</td><td></td></dl<>		95	
SELENIUM	6010	1.0  mg/1	8-08-89	0.05	<dl< td=""><td></td><td>95</td><td></td></dl<>		95	
SILVER	6010	5.0 mg/l	8-08-89	0.01	<dl< td=""><td></td><td>95</td><td>I</td></dl<>		95	I

\*THIS INDICATES A 95% CONFIDENCE LIMIT ACHIEVED WITH AN EPA QUALITY CONTROL SOLUTION ANALYZED ALONG WITH YOUR SAMPLE.

## HUNTINGDON ANALYTICAL SERVICES, INC. ENVIRONMENTAL

Inorganic Wet Chemical Analyses

Sample Identification: S-3

HAS Sample #30-407-001

Date Sampled: 7/21/89

Date Received: 7/21/89

- 1			Date	Date	Detection			
_ i	Analyte	EPA Method	Prepared	Analyzed	Limit	Concentration	Units	QC in %
- i	Ignitability as							
ĺ	Flash Point	SW-846 1010		7/26/89		>160	° F	
ĺ	Corrosivity as						pН	
i i	Leachable pH	SW-846 9045	7/24/89	7/24/89		7.8	units	*100
i	_					ĺ		
ĺ	Reactivity:							
	Total Releaseable						mg/kg	
ĺ	H <sub>2</sub> S	SW-846 9030	7/24/89	7/24/89	65	** <dl< td=""><td>H<sub>2</sub>S</td><td></td></dl<>	H <sub>2</sub> S	
ĺ	Total Releaseable						mg/kg	
i	HCN	SW-846_9010	7/24/89	7/24/89	65	** <dl< td=""><td>HCN</td><td><u></u></td></dl<>	HCN	<u></u>
<b>-</b>								
j	% Solid	160.3	7/27/89	7/28/89	1.0	76	8	

\*A known standard of the analyte of interest was analyzed along with this sample with the percent recovery indicated above.

\*\*Results are based on dry weight of material as listed elsewhere in this report.

## HUNTINGDON ANALYTICAL SERVICES, INC. ENVIRONMENTAL

Inorganic Wet Chemical Analyses

■ Sample Identification: S-4

HAS Sample #30-407-002

Date Sampled: 7/21/89

Date Received: 7/21/89

			Date	Date	Detection			
-	Analyte	EPA Method	Prepared	Analyzed	Limit	Concentration	Units	QC in %
	Ignitability as					ĺ		
i	_Flash Point	SW-846_1010		7/26/89		>160	°F	
i	Corrosivity as					ĺ	pН	
	Leachable pH	SW-846 9045	7/24/89	7/24/89		8.2	units	*100
i						ĺ		
i	Reactivity:							
	Total Releaseable						mg/kg	
	H <sub>2</sub> S	SW-846 9030	7/24/89	7/24/89	53	**< <u>DL</u>	H <sub>2</sub> S	
i	Total Releaseable					ĺ	mg/kg	
Montes	_HCN	SW-846 9010	7/24/89	7/24/89	53	** <dl< td=""><td>HCN</td><td></td></dl<>	HCN	
_					1			
	% Solid	160.3	7/27/89	7/28/89	1.0	83	<u>8</u>	

<sup>\*</sup>A known standard of the analyte of interest was analyzed along with this sample with the percent recovery indicated above.

\*\*Results are based on dry weight of material as listed elsewhere in this report.

	HUNTINGDON ANALYTICAL	SERVICES - CHAIN-OF-CUSTODY RECORD AND	ANALYTICAL REQUEST FORM	Page
1610000 100 100 100 100 100 100 100 100	X 8 3 6	Witness Set Selient	D. 6	
(5) grant (200)   1445   1445   1410   1400	10		nteiner	
	(Signature)	HAS REF 130. 140. 01		# # # # # # # # # # # # # # # # # # #
3 791		Sample HAS tainers		
Contability   Contability	3 /21	1 100 , 9-,1	7	
Notational by:   Dose/ Time:   Received for tab by:   Dose/ Time:   Received	1/-	,8,		.3
Nquished by:   Date/ Time:   Received for tab by:   Date/ Time:   Date/ Time:   Received for tab by:   Date/ Time:   Received for tab by:   Date/ Time:   Dat				hour
Nquined by:   Dote/ Time:   Received for tab by:				Protivity.
Aquished by:   Date/ Ilme:   Recolved by:     Date/ Ilme:   Becef years				1 JAT 9
Nquished by:    Dete/ Time:   Received for Leb by:   Received for Leb by:   Received for Leb by:   Received for Leb by:   Received for Leb by:   Received for Leb by:   Received for Leb by:   Received for Leb by:   Received for Received for Leb by:   Received for Received for Received for Received for Received for Leb by:   Received for Received for Received for Received for Received for Received for Received for Received for Received for Received for Received for Received for Received for Received for Received for Received for Received for Received for Receive				0
Toguished by:   Dete/ Time:   Received by:   Refinquished by:   Dete/ Time:   Received for Leb by:   Dete/ Time:   Received for Leb by:   Dete/ Time:   Received by:   Dete/ Time:   Received by:   Dete/ Time:   Received by:   Dete/ Time:   Received for Leb by:   Dete/ Time:   Received for Leb by:   Dete/ Time:   Received for Leb by:   Dete/ Time:   Received for Leb by:   Dete/ Time:   Received for Leb by:   Dete/ Time:   Received for Leb by:   Dete/ Time:   Received for Leb by:   Dete/ Time:   Received for Leb by:   Dete/ Time:   Received for Leb by:   Dete/ Time:   Received for Leb by:   Dete/ Time:   Received for Leb by:   Dete/ Time:   Received for Leb by:   Dete/ Time:   Received for Leb by:   Dete/ Time:   Received for Leb by:   Dete/ Time:   Received for Leb by:   Dete/ Time:   Received for Leb by:   Dete/ Time:   Received for Leb by:   Dete/ Time:   Received for Leb by:   Dete/ Time:   Received for Leb by:   Dete/ Time:   Dete/ Time:   Received for Leb by:   Dete/ Time:   Det				
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Inquished by:   Date/ Time:   Received by:   Refinquished by:   Date/ Time:   Received inquished by:   Date/ Time:   Received for Lab by:   Date/ Time:   Remarks:	Inquished by	100 tel Time: Recoluse by	by:	156/15 Lecolyed BY:
by:   Date/ Time:   Received for Lab by:   Date/ Time;   R	inquished	ste/ Time:   Recolived	ρ <sub>γ</sub>	Received
		Date/ Time: Received for Lab by:	/ Time: R	