2021 Hazardous Waste Scanning Project

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report.HW.932094.1992-02-01.Phase_2_Investigation.pdf

ENGINEERING INVESTIGATIONS AT INACTIVE HAZARDOUS WASTE SITES IN THE STATE OF NEW YORK

PHASE II INVESTIGATIONS

Lockport Road-Struzik Property
Town of Wheatfield, Niagara County
Site No. 932094

February 1992

Prepared for:

New York State Department of Environmental Conservation

50 Wolf Road, Albany, New York 12233

Thomas C. Jorling, Commissioner

Division of Hazardous Waste Remediation

Michael J. O'Toole, Jr., P.E., Director

Prepared by:

Ecology and Environment Engineering, P.C.

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BUFFALO CORPORATE CENTER
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1. EXECUTIVE SUMMARY

1.1 SITE DESCRIPTION AND BACKGROUND

The Lockport Road-Struzik Property site (Site No. 932094) is located on Lockport Road approximately 200 yards east of Walmore Road in the Town of Wheatfield, Niagara County, New York (see Figures 1-1 and 1-2). Originally called the Walmore Road site, the name was changed to differentiate this site from another site on Walmore Road, 0.5 mile south of Lockport Road. The site is bordered on the west by Cayuga Creek, on the east by the Niagara Falls Church of God access drive, on the north by Lockport Road, and on the south by woodlands. Although presently a level field sloping less than 1% southwest toward Cayuga Creek, dumping occurred in a lowland area adjacent to Cayuga Creek approximately 50 feet by 300 feet (0.34 acre) to a depth of 6 to 8 feet. Waste was deposited in 1965 when the property was owned by Edward Struzik (NUS 1987). The site was purchased in 1982 by the present owners, the Niagara Falls Church of God.

In a 1965 agreement with Edward Struzik, Modern Disposal company utilized the site as a repository for solid industrial wastes from Carborundum and Bell Aerospace. The deposition of these wastes was overseen by a representative of Modern Disposal and the building inspector for the Town of Wheatfield. Carborundum deposited approximately 2,000 cubic yards of waste including carbon dust, graphite waste, and paper to bring the lowland up to grade. The Interagency Task Force (IATF) indicates that Bell Aerospace also disposed of scrap wood and fly ash in the same area. No other waste disposal has been documented at this site.

In 1982, a soil sample was collected and analyzed by the New York State Department of Environmental Conservation (NYSDEC) and found to

contain low levels of arsenic, chromium, copper, lead, nickel, and zinc. All values were within the common ranges for soils and surficial materials of the Eastern United States (Shacklette and Boerngen 1984). The Phase I investigation was conducted for NYSDEC in 1982 by Recra Environmental, Inc. and included a site inspection and a file search. Using the site inspection and file information, a preliminary Hazard Ranking System (HRS) score was calculated.

1.2 PHASE II INVESTIGATION

In order to determine if hazardous waste was disposed of at the site, estimate the potential risk to human health and the environment, and to accurately calculate an HRS score, a number of investigative tasks were performed at the Lockport Road-Struzik Property site. The Phase II investigation begun by Ecology and Environment Engineering, P.C. (E & E) in April 1990 included a site reconnaissance, a geophysical survey, the drilling of three monitoring wells, and the collection and analysis of groundwater, surface water, surface soil, and waste at selected on-site locations.

Prior to the site inspection conducted as part of the site reconnaissance, a detailed file and record search was initiated to review existing data and identify data gaps. A limited air monitoring survey was conducted during the site reconnaissance using photoionization and flame ionization detectors. Two geophysical survey methods were used to optimize the selection of monitoring well locations and to reduce the risks of drilling into unknown terrain. The collection of groundwater, surface water, sediment, surface soil, and waste samples was conducted to determine the presence of contaminants and assess their potential for migration.

1.3 SITE ASSESSMENT

During the Phase II site reconnaissance, cement slabs, steel rebar, and graphite/carbon dust were observed. Air monitoring surveillance conducted during the site reconnaissance indicated the absence of organic vapors above background levels. The site inspection also revealed easy accessibility to the site, which is not secured by a fence or other means.

Total earth field magnetic (magnetometer) and electromagnetic terrain conductivity (EM-31) measurements both yielded anomalous readings that may represent near-surface ferromagnetic materials and/or conductive groundwater plumes. In addition, the EM-31 survey showed other anomalies that may be associated with the highly conductive graphite/carbon dust. Visual inspection of the site confirms the presence of metallic materials in the form of exposed steel rebar, drums, and graphite lumps within the fill area.

Subsurface soil borings (see Appendix C) provided information on the nature of the soils and the depths to bedrock, permitting a more complete assessment of the potential for contaminant migration. These logs indicate that 4 to 10 feet of fill are present at each of the three test boring locations. This fill consists of mixtures of clay, silt, and gravel, and a minor amount of debris such as glass, brick, and graphite dust. Natural soils observed during drilling consist of glacial deposits of silty clays, silts, and gravels with occasional sandy lenses. The soil boring logs indicate that the Lockport Dolomite, the bedrock beneath the site, occurs from 11 to 14 feet below ground surface.

During the Phase II investigation, one bedrock and two interface wells were installed at the site. Groundwater levels measured in August and September 1990 showed the water table ranges from 6 to 9 feet below ground surface and that groundwater flows to the west toward Cayuga Creek, the local discharge point.

Groundwater, surface water, sediment, surface soil, and waste samples were collected at the site and analyzed for full Target Compound List (TCL) parameters. Analytical results indicated elevated levels of metals, including cadmium, zinc, iron, lead, manganese, and sodium. Waste samples had elevated levels of arsenic, chromium, copper, lead, and vanadium when compared to site background samples. Beryllium, selenium, sodium, and thallium were detected in waste samples, but not in surface soils. When compared with background or upgradient levels, these metals concentrations were generally low and the potential threat from exposure also appears to be low. Hazardous wastes have not been documented at the site and although sampling during the Phase II investigation did detect hazardous constituents, it did not confirm the presence of hazardous waste at the site.

1.4 HAZARD RANKING SYSTEM SCORE

The HRS score was calculated to quantify the risks associated with the Lockport Road-Struzik Property site. The HRS is applied to inactive hazardous waste sites in New York State to prioritize those needing additional investigation and remediation. This system evaluates site characteristics, containment measures, waste types, and potential contaminant receptors.

Under the HRS, three numerical scores are computed to express the site's relative risk or damage to the population and the environment. The three scores are described below:

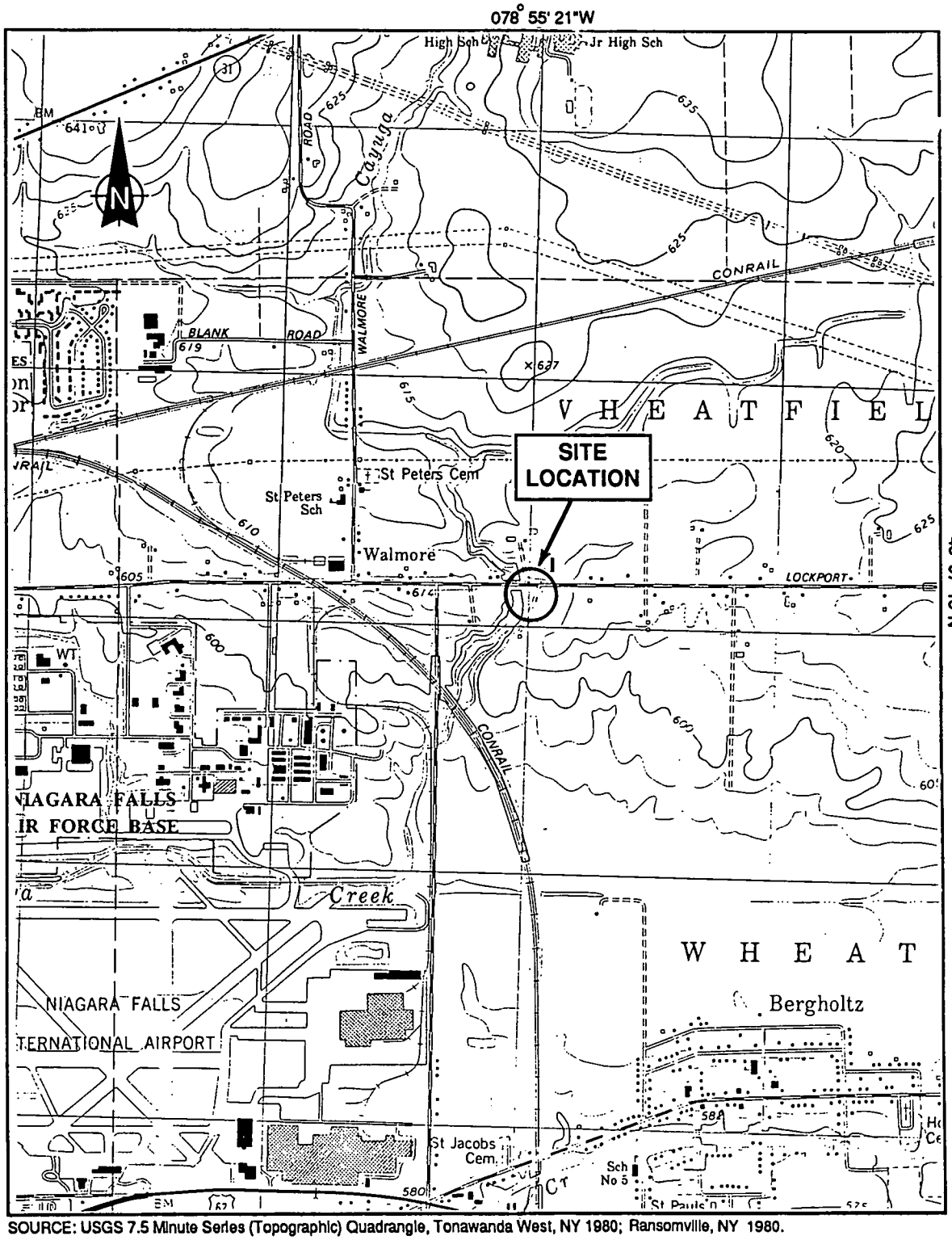
- S_M reflects the potential for harm to humans and/or the environment from migration of a hazardous substance away from the facility via groundwater, surface water, or air. It is a composite of the separate scores for each of the three routes (S_{gw} = groundwater route score, S_{sw} = surface water route score, and S_a = air route score);
- S_{FE} reflects the potential for harm from substances that can explode or cause fires; and
- S_{DC} reflects the potential for harm from direct contact with hazardous substances at the facility (i.e., no migration need be involved).

Based upon the results of the current Phase II investigation and previous studies, the HRS scores for the Lockport Road-Struzik Property site have been calculated as follows:

$S_M = 28.65$ ($S_{gw} = 49.22$; $S_{sw} = 5.85$; $S_a = 0$)

$S_{FE} = 0$

$S_{DC} = 25$



SOURCE: USGS 7.5 Minute Series (Topographic) Quadrangle, Tonawanda West, NY 1980; Ransomville, NY 1980.

Figure 1-1
SITE LOCATION, LOCKPORT ROAD-STRUZIK PROPERTY SITE

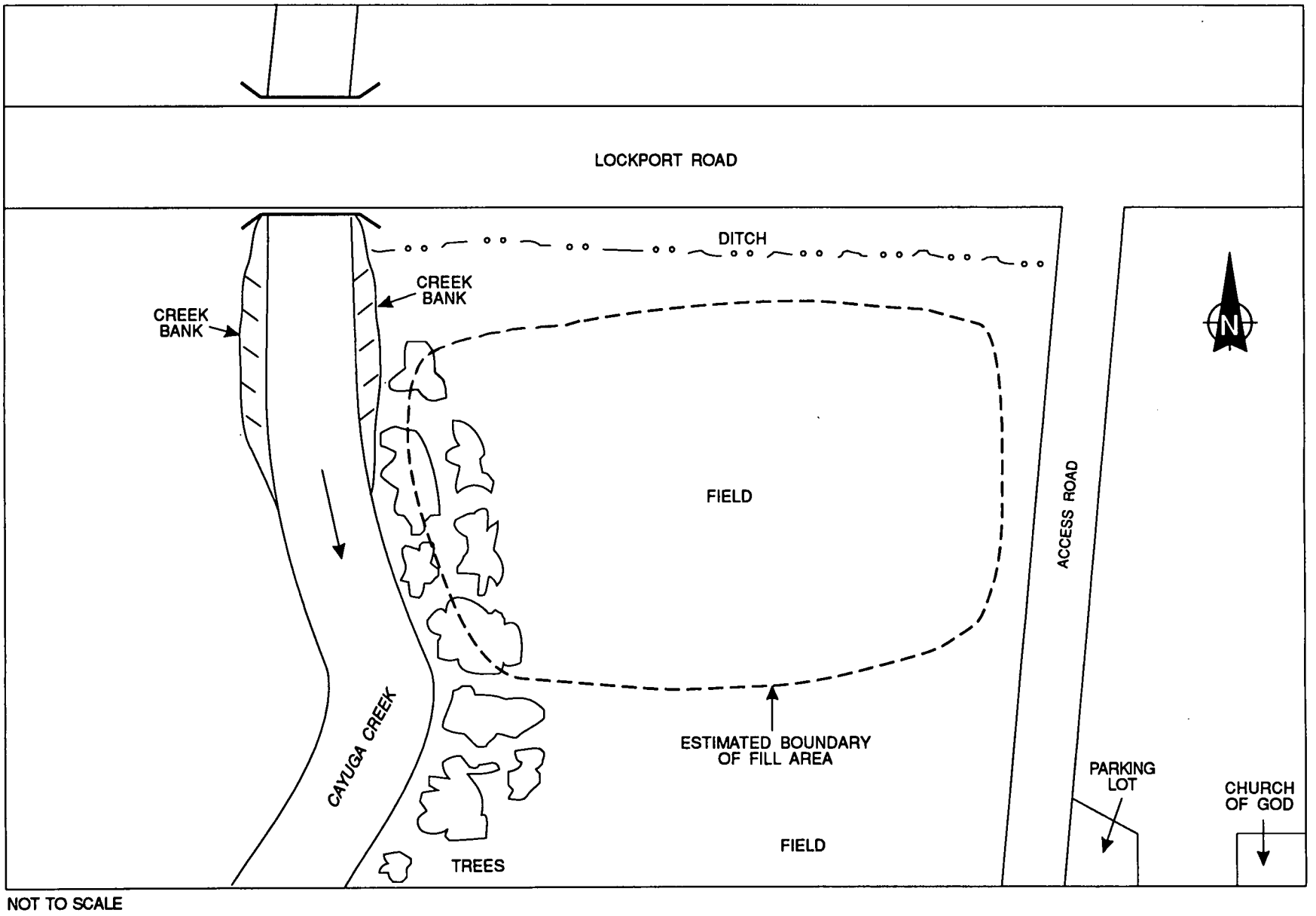


Figure 1-2
SITE MAP, LOCKPORT ROAD-STRUZIK PROPERTY LANDFILL

YQD3249

47-15-25 (11/90)-9d

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

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

ADDITIONS/CHANGES TO REGISTRY OF INACTIVE HAZARDOUS WASTE DISPOSAL SITES

1. Site Name	2. Site Number	3. Town	4. County
Lockport Road - Struzik Property	932094	Wheatfield	Niagara

5. Region	6. Classification	7. Activity
9	Current 2a /Proposed _____	[ ] Add [ ] Reclassify [ ] Delist [ ] Modify _____

8a. Describe location of site (attach USGS topographic map showing site location).
Lockport Road, Town of Wheatfield, east of intersection of Lockport and Walmore roads. An open field adjacent to the east side of Cayuga Creek and west of the Church of God at 2334 Lockport Road.

b. Quadrangle Tonawanda west c. Site latitude 43°07'15"N Longitude 078°55'21"W d. Tax Map Number 147.00-1-1.21

9a. Briefly describe the site (attach site plan showing disposal/sampling locations)
An approximate 0.34-acre open field directly adjacent to the east side of Cayuga Creek with a ditch flowing across the northern boundary of the site. The site slopes gently southwest. A sanitary sewer runs along the western side. In 1965, this area received approximately 2,000 cubic yards of carbon dust, graphite material, and paper from Carborundum under contract with Modern Disposal and with the permission of the owner at the time, Mr. Edward Struzik. Bell Aerospace may also have disposed of scrap wood, fly ash, and clay. The site is currently owned by the Niagara Falls Church of God.

e. Completed: [X] Phase I [X] Phase II [X] PSA [X] Sampling

10. Briefly list the type and quantity of the hazardous waste and the dates that it was disposed of at this site.
Carbon dust, graphite, and paper - 2,000 cubic yards - 1965
Scrap wood, fly ash, and clay - unknown quantity and date
Concrete debris and rebar - unknown quantity and date

11a. Summarized sampling data attached

[ ] Air [X] Groundwater [X] Surface Water [X] Soil [X] Waste [ ] EP Tox [ ] TCLP

b. List contravened parameters and values
Groundwater - NYSDEC Class GA standard exceeded for iron (≤26,800 µg/L), lead (155 µg/L), magnesium (≤111,000 µg/L), manganese (1,190 µg/L), sodium (≤172,000 µg/L), and zinc (≤1,490 µg/L).
Surface water - NYSDEC Class D aquatic standard exceeded for iron (3,220 µg/L).
Sediment - natural range for cadmium (0.01 to 0.7 mg/kg) exceeded (53.5 mg/kg).

12. Site impact data

a. Nearest surface water: Distance <100 ft. Direction west Classification NYS Class D

b. Nearest groundwater: Depth 7 ft. Flow direction SW [ ] Sole source [ ] Primary [ ] Principal

c. Nearest water supply: Distance 7,900 ft. Direction SE Active [X] Yes [ ] No

d. Nearest building: Distance 700 ft. Direction east Use residence

e. Crops/livestock on site? [ ] Yes [X] No

f. Exposed hazardous waste? [ ] Yes [X] No

g. Controlled site access? [ ] Yes [X] No

h. Documented fish or wildlife mortality? [ ] Yes [X] No

i. Impact on special status fish or wildlife resource? [ ] Yes [X] No

j. Within a State Economic Development Zone? [ ] Yes [X] No

k. For Class 2A: Code _____ Health model score _____

l. For Class 2: Priority category _____

m. HRS Score 28.65

n. Significant threat [ ] Yes _____ [X] No
[ ] Unknown

13. Site owner's name	14. Address	15. Telephone Number
Niagara Falls Church of God	2334 Lockport Road Town of Wheatfield 14304	(716) 731-6407

16. Preparer
James D. Griffis, CHMM, Ecology and Environment Engineering, P.C.
Name, title, and organization

2-12-91
Date

James D. Griffis
Signature

17. Approved

Name, title, and organization

Date

Signature

02[UZ]YQ2080:D3249/5544

2. PURPOSE

This Phase II investigation was conducted under contract to the NYSDEC Division of Hazardous Waste Remediation, Bureau of Hazardous Site Control. The purpose of the investigation was to determine if hazardous wastes have been disposed of at the site; if contaminants exist in the various media; if contaminants are migrating from the Lockport Road-Struzik Property site; and whether threats to human health and/or the environment exist.

The Phase II investigation was designed to supplement existing data for the Lockport Road-Struzik Property site and to update the HRS score. An initial study by NYSDEC in 1982 consisted of only one surface soil analysis. The Phase I investigation conducted by Recra Environmental, Inc. in 1987 did not include any sampling or analysis. This Phase II study provides additional sampling data (see Appendix D) and a geophysical survey (see Appendix B).

3. SCOPE OF WORK

3.1 INTRODUCTION

Field work for the Phase II investigation at the Lockport Road-Struzik Property site, Town of Wheatfield began in April 1990 and was completed by October 1990. A Quality Assurance Project Plan (QAPP) and general health and safety plan were submitted to NYSDEC for approval prior to the start of field work. A site-specific Health and Safety Plan was developed before field work was initiated.

The scope of work for the Phase II field investigation at the Lockport Road-Struzik Property site was prepared by NYSDEC. With the exception of the installation of two interface wells and one bedrock well instead of the proposed overburden wells, and other minor exceptions, all field activities were performed in accordance with this scope of work. Variations from the plan occurred as a result of judgments made in the field with the concurrence of NYSDEC representatives.

3.2 PHASE II SITE INVESTIGATION

3.2.1 Records Search/Data Compilation

Available information from state, county, and municipal files was collected and reviewed prior to the initiation of field work. Records from local and state agency files were reviewed to supplement the Phase I report prepared by Recra Environmental, Inc. in April 1987 and an analytical report prepared by NYSDEC in 1982. The data review permitted the proper completion of the field investigation, site assessment, and calculation of the final HRS score. Specific contacts are listed in Table 3-1.

3.2.2 Site Reconnaissance and Site Safety

On April 19, 1990, E & E personnel conducted a site reconnaissance. The purposes of the site visit were:

- To identify access problems;
- To identify locations for the groundwater monitoring wells, surface soil samples, and surface water samples;
- To conduct a limited air-monitoring study using an OVA and HNu photoionization detector;
- To visually inspect well locations and contact utility companies to determine whether underground utilities may impact the drilling program; and
- To identify a suitable drilling water supply.

While conducting the site reconnaissance tasks, several logistical items were identified as critical for conducting the Phase II investigation. These included:

- The presence of surface debris such as steel rebar and graphite fragments that would interfere with surface geophysical methods; and
- No air monitoring responses above background levels were observed during the site reconnaissance.

A site safety plan was developed that included a list of potential physical hazards and chemical dangers to human health posed by contaminants suspected to be at the site.

Prior to the beginning of any on-site activities, a site safety meeting was conducted by the site safety officer. Discussions included identification of specific contaminants found on site, potential routes of exposure, air monitoring action levels, drill rig safety procedures, and daily planned activities. All on-site personnel signed an attendance sheet acknowledging their presence and understanding of the topics covered. A site safety plan was available to all personnel on site at all times (see Appendix A).

3.2.3 Geophysical Survey

A geophysical survey was conducted at the Lockport Road-Struzik Property site on April 19, 1990. The geophysical investigation included an EM-31 survey (to measure electromagnetic terrain conductivity) and a portable proton magnetometer survey (to measure total earth magnetic field). The objectives of this study were:

- To reduce the risks associated with drilling into unknown terrain and wastes;
- To determine vertical and horizontal anomalies that might represent buried waste boundaries or underground utilities; and
- To optimize the locations of the monitoring wells.

Detailed methods and results are presented in the geophysical survey report provided in Appendix B.

3.2.4 Surface Soil Sampling

Four surface soil samples, S-1 through S-4, were collected at the site on September 21, 1990 (see Figure 3-1). In addition, a field duplicate, S-3D, was collected. The surface soil sampling sites were selected to give a general assessment of possible contaminant distribution across the site. Samples S-1 and S-4 were located beyond the fill area in the southeast and south, respectively, to obtain background samples. Sample S-2 was located in the southeast corner just north of the fill boundary. Sample S-3 was located in the northern section, between well locations GW-1 and GW-3.

All surface soil samples were collected from 0 to 12 inches below the ground surface using disposable stainless steel sampling equipment. Prior to use, the new dedicated sampling equipment was decontaminated using the following procedure:

- Washed with a detergent and water mixture;
- Rinsed with potable water;
- Rinsed with pesticide grade methanol;
- Rinsed with deionized water; and
- Allowed to air dry.

Samples were placed in the appropriate precleaned glass jars, packed in ice, and transported under proper chain-of-custody to E & E's Analytical Service Center (ASC) for analysis. The analyses for each sample consisted of TCL inorganics (metals and cyanide) and TCL organic compounds, including volatiles, base/neutral/acid extractables (BNAs), and pesticides/polychlorinated biphenyls (PCBs). These results are discussed in Section 4.5 and the data are included in Appendix D.

3.2.5 Subsurface Boring/Monitoring Well Installation

Two interface and one bedrock groundwater monitoring wells were installed at the Lockport Road-Struzik Property site between August 27 and August 29, 1990 by American Auger and Ditching under the supervision of E & E.

The drilling program was designed to obtain quality soil and water samples for environmental analysis while providing the maximum safety level for personnel working on site. Prior to and following drilling activities on site, the drill rig and equipment were decontaminated with high-pressure steam. This procedure was repeated between each drilling location to reduce the possibility of cross-contamination between boreholes.

Due to the lack of saturated overburden deposits at the site, the scope of work was revised to include interface or bedrock wells instead of the proposed overburden wells. Interface wells were installed at locations GW-2 and GW-3 along the creek, where water was encountered along the top of the bedrock. Water levels in these wells rose immediately above the bedrock surface due to the confining pressure of the overlying fine-grained deposits. Water was not encountered at the top of bedrock at the GW-1 location along the northeastern edge of the site and so a bedrock well was installed at this location.

Drilling through the overburden involved the advancement of 4.5-inch inside diameter (ID) hollow-stem augers through unconsolidated material. Soil samples were collected by split-spoon sampling in conjunction with a standard penetration test as outlined in ASTM D1586-84. A 2-foot by 2.5-inch outside diameter (OD) hardened steel sampler was driven in specified 2-foot depth intervals by a 140-pound hammer falling 30 inches. Soil sample depths, recoveries, descriptions, and other

pertinent information were recorded on the subsurface boring logs (see Appendix C) by the on-site geologist.

At location GW-1, split-spoon and auger refusal was followed by the coring of a rock socket into bedrock using an HQ (3 7/8-inch OD core barrel). A 5-foot rock socket was drilled, into which a 3-inch PVC casing was placed. The casing was pressure-grouted into place by pumping a grout mixture of 90% Portland cement and 10% bentonite through a tremie line. Following a set-up period of at least 24 hours, the bedrock was cored through the 3-inch casing into the water-bearing zone with an NQ (1 7/8-inch OD) core barrel. The monitored zone remained as an open bedrock hole, without the use of a screen. Core sample depths, recoveries, descriptions, and other pertinent information were recorded on the subsurface boring logs (see Appendix C) by the on-site geologist.

At each well location, a small decontamination station was set up consisting of a work table covered with plastic. After the pertinent information was logged, the split-spoon sampler was subjected to the following decontamination procedure:

- Initial cleaning of all foreign material; and
- Cleaning with high-pressure steam.

The plastic sheeting on the work table was changed after the completion of each borehole to prevent cross-contamination.

During the installation of the three monitoring wells, no visual evidence of contamination was observed and no response greater than 5 ppm above background level occurred on either the HNu or the OVA; therefore, no samples were collected for chemical analysis as per the work plan. Samples for grain-size analysis were collected from GW-1 (9 to 11 feet) and GW-3 (0 to 1.4 feet) and one sample for Atterburg Limits testing was collected from GW-2 (0 to 6 feet).

The interface wells (GW-2 and GW-3) were constructed of 2-inch ID schedule 40 polyvinyl chloride (PVC) casing and 10 feet of 2-inch ID 0.020-slot machine slotted schedule 40 PVC screen. A filter pack of quartz sand was poured to 2 feet above the top of the screen as the augers were withdrawn. A 2-foot seal of bentonite pellets was placed on top of the sand pack, and the remainder of the annulus around the casing

was filled with a grout mixture of 90% Portland cement and 10% bentonite. Both GW-2 and GW-3 were screened at least 4 feet into bedrock.

Surface casings in all wells stand approximately 2 feet above grade. Locking protective steel casings were grouted into place over each well to prevent tampering, and sloping concrete drainage pads were constructed to divert surface drainage away from the well.

Each monitoring well was later developed using a dedicated, precleaned bailer until a high degree of water clarity (less than 50 nephelometric turbidity units [NTUs]) was achieved or for a maximum of 2 hours, if a stabilization of temperature, pH, and specific conductance measurements had occurred.

3.2.6 Surface Water and Sediment Sampling

Three samples of surface water and associated sediment were collected from Cayuga Creek, which runs along the western boundary of the site. In order to determine upgradient concentrations for this stream, sample SW-1/SED-1 was collected upstream from the site, south of where the stream crosses Lockport Road. Sample SW-3/SED-3 was collected downstream of the filled area. Sample SW-2/SED-2 was collected approximately midway between sampling locations SW-1 and SW-3.

Sediment samples were collected using precleaned, dedicated stainless steel spoons and placed in the appropriate precleaned glass jars. Surface water samples were collected directly from the creek into the appropriate precleaned glass bottles. Surface water samples for metals and cyanide analysis were preserved with nitric acid and sodium hydroxide, respectively. The samples were packed in ice and transported under proper chain-of-custody to E & E's ASC. The analyses for each sample consisted of TCL inorganics and TCL organic compounds, including volatiles, BNAs, and pesticides/PCBs. These results are discussed in Section 4.5 and the data are included in Appendix D.

3.2.7 Groundwater Sampling

Groundwater samples were collected from each of the three wells installed at the site using dedicated, decontaminated PVC bailers and new dedicated nylon rope. Prior to sample collection, groundwater

levels and total depth-of-well measurements were obtained. An amount equaling three standing well volumes was calculated and purged from each monitoring well before sampling bottles were filled. Turbidity measurements were taken immediately following the collection of inorganic samples using a portable nephelometer. Samples were poured into appropriate precleaned glass bottles and packed in ice. Samples for metals and cyanide analysis were preserved with nitric acid and sodium hydroxide, respectively. At the end of the day, the samples were transported under proper chain-of-custody to E & E's ASC. The analyses for each sample consisted of TCL inorganics and TCL organic compounds. The results of these analyses are discussed in Section 4.5 and the data are included in Appendix D.

3.2.8 Waste Sampling

Two waste samples, W-1 and W-2, considered representative of the on-site waste, were collected from the Lockport Road-Struzik Property site. Sample W-1 was collected approximately 15 feet south of GW-3. Sample W-2 was collected from the center of the fill area. The two waste samples were collected, as indicated in the work plan, from within the estimated disposal area where fill material was observed at depths of approximately 2 to 6 inches below ground surface. Due to the limited number of samples and lack of information about disposal at the site, these samples are not considered to represent all possible hazardous waste present at the site.

Waste samples were collected using a precleaned, stainless steel spoon and placed in appropriate, precleaned, glass jars. The samples were packed in ice and transported under proper chain-of-custody to E & E's ASC. The analyses for each sample consisted of TCL inorganics and TCL organic compounds. These results are discussed in Section 4.5 and the data are included in Appendix D.

Table 3-1

SOURCES CONTACTED FOR THE NYSDEC PHASE II INVESTIGATION
AT THE LOCKPORT ROAD-STRUZIK PROPERTY SITE,
TOWN OF WHEATFIELD, NEW YORK

New York State Department of Environmental Conservation
Division of Regulatory Affairs
600 Delaware Avenue
Buffalo, New York 14202
Contact: Martin L. Doster
Telephone Number: 716/847-4585
Date: April 3, 1990
Information Gathered: File search.

New York State Department of Environmental Conservation
Bureau of Hazardous Site Control
50 Wolf Road
Albany, New York 12233
Contact: Mike Ryan and Jane Thapa
Telephone Number: 518/457-9538
Date: April 3-4, 1989
Information Gathered: File search for additional data and NYSDEC Phase I reports.

New York State Department of Environmental Conservation
Information Services/Significant Habitat Unit
Wildlife Resources Center
Delmar, New York 12054-9767
Contact: John Ozard
Telephone Number: 518/439-8391
Date: May 2, 1989
Information Gathered: Information on designated critical habitats with respect to NYSDEC Phase II sites.

New York State Department of Environmental Conservation
584 Delaware Avenue
Buffalo, New York 14202
Contact: Jaspal Singh Walia
Telephone Number: 716/847-4585
Date: April 3, 1990
Information Gathered: File search for NYSDEC Phase II report preparation.

New York State Department of Health
Regional Toxic Program Office
584 Delaware Avenue
Buffalo, New York 14202
Contact: Cameron O'Conner
Telephone Number: 716/847-4365
Date: March 24, 1989
Information Gathered: File search for NYSDEC Phase II report preparation.

New York State Department of Health
Bureau of Environmental Exposure
2 University Place
Room 205
Albany, New York 12203
Contact: Lani D. Rafferty
Telephone Number: 518/458-6306
Date: April 3-4, 1989
Information Gathered: Viewed site inspection reports for NYSDEC Phase II sites.

Table 3-1 (Cont.)

New York State Natural Heritage Program
700 Troy-Schenectady Road
Albany, New York 12110
Contact: Burrell Buffington
Telephone Number: 518/783-3932
Date: April 10, 1990
Information Gathered: Significant endangered habitats in areas adjacent to NYSDEC Phase II sites.

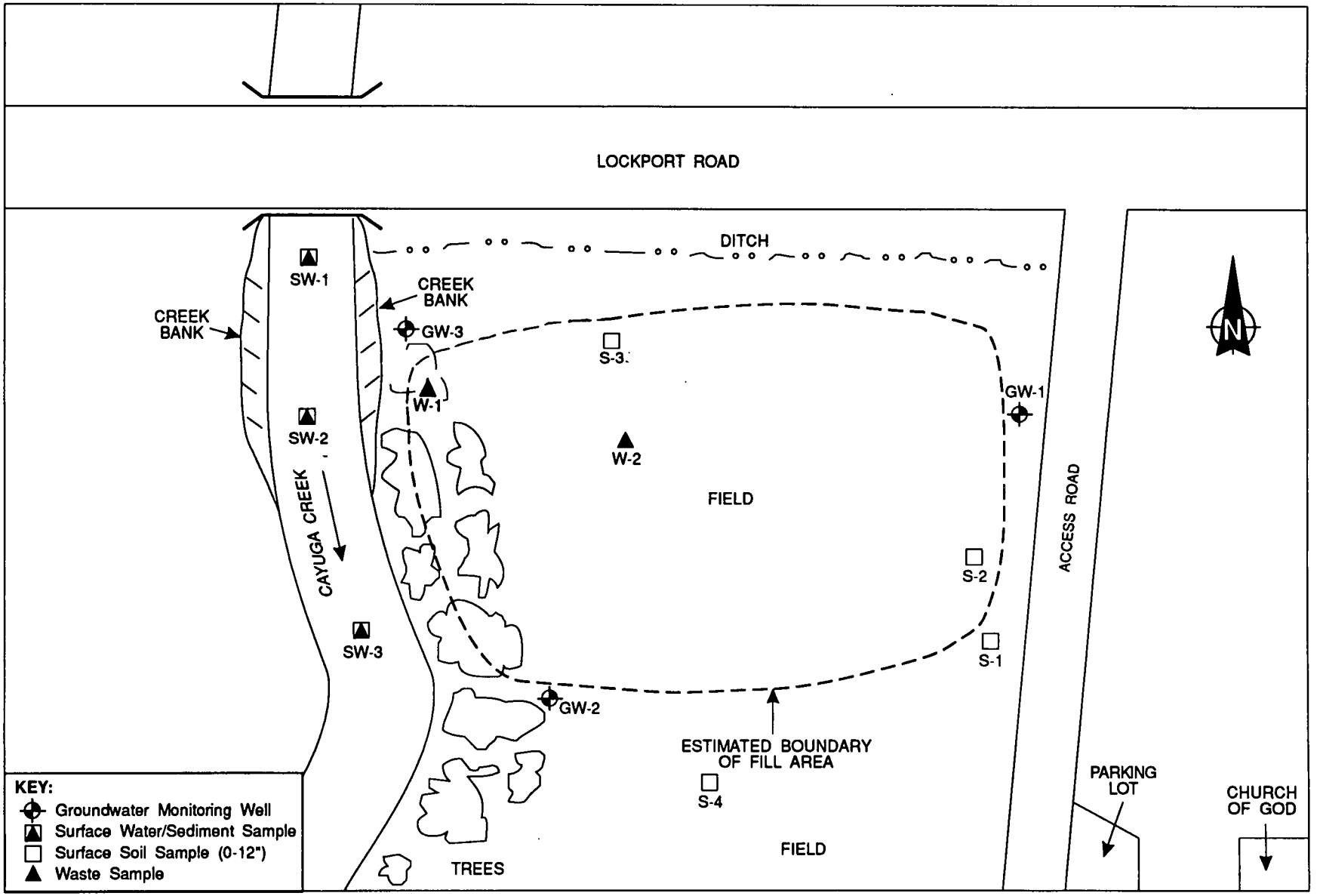
Niagara County Department of Health
10th and Falls Streets
Niagara Falls, New York
Contact: Paul Dicky
Telephone Number: 716/284-3128
Date: April 2, 1990
Information Gathered: Information about files pertaining to NYSDEC sites.

Niagara County Highway Department
225 South Niagara Street
Lockport, New York 14094
Contact: Carl Allen
Telephone Number: 716/439-6066
Date: April 3, 1990
Information Gathered: Aerial photographs of NYSDEC Phase II sites.

Town of Niagara Water Department
7105 Lockport Road
Niagara Falls, New York 14305
Contact: Don Woodcock
Telephone Number: 716/297-2150
Date: May 14, 1990
Information Gathered: Information concerning water usage in areas surrounding Niagara County NYSDEC Phase II sites.

USDA Soil Conservation Service
Cornell Cooperative Extension
4487 Lake Avenue
Lockport, New York 14094
Contact: Ed Oliver
Telephone Number: 716/434-4949
Date: April 3, 1990
Information Gathered: Soil survey, agriculture districts and prime farmland, aerial photos for Phase II sites.

02[UZ]YO3080:D3249/5558/21



NOT TO SCALE

Figure 3-1
GROUNDWATER MONITORING WELL AND SAMPLING LOCATIONS, LOCKPORT ROAD-STRUZIK PROPERTY SITE

YQ324931

4. SITE ASSESSMENT

4.1 SITE HISTORY

The Lockport Road-Struzik Property site is located on Lockport Road approximately 200 yards east of Walmore Road in the Town of Wheatfield, Niagara County, New York. Originally called the Walmore Road site, the name was changed to differentiate this site from another site on Walmore Road, 0.5 mile south of Lockport Road. The site is bordered on the west by Cayuga Creek, on the east by the Niagara Falls Church of God access drive, on the north by Lockport Road, and on the south by woodlands. In addition, a sanitary sewer lies along the western border, and a ditch runs along the northern border. Currently the site is a level field sloping less than 1% southwest toward Cayuga Creek. Dumping occurred in a lowland area adjacent to Cayuga Creek approximately 50 feet by 300 feet (0.34 acre) in 1965 when the site was owned by Edward Struzik. The site was purchased in 1982 by the present owners, the Niagara Falls Church of God.

In 1965, to bring the lowland area adjacent to the creek up to grade, Edward Struzik gave permission to the Modern Disposal company to utilize the site as a repository for solid industrial wastes from Carborundum and Bell Aerospace. The deposition of these wastes was overseen by a representative of Modern Disposal and the building inspector for the Town of Wheatfield. Carborundum deposited approximately 2,000 cubic yards of waste including carbon dust, graphite waste, and paper. The IATF indicates that Bell Aerospace also disposed of scrapwood, fly ash, and clay in the same area. No other waste disposal has been documented at this site; however, the results of unauthorized dumping have recently been observed (NUS 1987).

Previous investigations included a soil analysis by NYSDEC in 1982 and the 1987 Lockport Road-Struzik Property Phase I investigation prepared by Recra Environmental, Inc. The soil sample analyzed by NYSDEC contained low levels of arsenic, chromium, copper, lead, nickel, and zinc, which were within reported ranges for soils in the Eastern United States (Shacklette and Boerngen 1984). The Phase I investigation consisted of a site inspection and a file search. Using this information, preliminary HRS scores were calculated which suggested that direct contact with contaminated soil and surface water was the primary concern at the Lockport Road-Struzik Property site.

4.2 REGIONAL GEOLOGY AND HYDROGEOLOGY

The regional geology and hydrogeology of the Niagara Falls region are the result of the interaction between Pleistocene surficial features and the geology of the bedrock that lies beneath these unconsolidated sediments. Pleistocene glaciation ended approximately 12,000 years ago with the melting of the Wisconsin Continental ice sheet, which was the last of a series of continental glaciations to sweep over this area. The glaciers widened pre-existing valleys and deposited widespread accumulations of till. The melting ice produced large volumes of water that formed large lakes that remained until drained or filled in. During this period, extensive lacustrine and fluvial sediments were deposited across the Niagara region.

One of several glacial melt lakes in the Niagara region, Lake Tonawanda, filled the area between the Niagara escarpment to the north and the Onondaga escarpment to the south. It drained north over the escarpment at what is currently Lewiston. During the initial phase, extensive lacustrine deposits of clay and silt accumulated within this basin. In addition, beach ridge sands and fluvial gravel and sand deposits developed along the edges of the lake. With the final draining of the lake, a shallow east-west trending trough approximately 10 to 15 miles in width, was created. Today, it is currently drained along its axis by Tonawanda Creek (Buehler and Tesmer 1963).

Beneath these Pleistocene deposits are several hundred feet of Silurian and Ordovician sedimentary rocks. Almost horizontal, these rocks dip gently to the south at approximately 30 feet per mile (Buehler

and Tesmer 1963, Johnston 1964) (see Figure 4-1). Since the altitude and relief actually increase to the south, younger units are exposed progressively to the south. In the area north of the Niagara Escarpment, the bedrock is the Ordovician Queenston Shale. To the south of the Niagara escarpment, the Silurian Lockport Dolomite forms the bedrock. These sediments formed in the shallow seas that occurred across much of the United States during these periods (Buehler and Tesmer 1963).

The bedrock surface is approximately parallel to the land surface throughout most of the Niagara Falls area. South of the Niagara escarpment, the top of the bedrock lies 5 to 15 feet below the land surface. Local exceptions to this occur beneath isolated hills and ridges south of Medina where depths may reach 40 feet. North of the escarpment, the bedrock may be up to 90 feet below the surface. The few irregularities seem to be minor features shaped by glacial or preglacial erosion. No major drainage channels of preglacial origin are known in the area (Buehler and Tesmer 1963).

The hydrology of the Niagara Region is controlled by the interaction between two types of aquifers and the Niagara River. According to Johnston (1964), the two aquifers consist of Pleistocene glacial deposits and bedrock aquifers. The Pleistocene aquifers consist of sand and gravel deposits, lacustrine clays, silts and fine sands, and glacial till. Of these three units, only the sand and gravel units are generally permeable enough to form supplies adequate for domestic use. A product of fluvial or beach processes, these units are thin and intermittent and thus do not form an important regional source of water. Due to their much finer grain size, the lacustrine deposits have very low hydraulic conductivity (10^{-4} to 10^{-6} cm/sec), and generally water will be found only in thin sand layers, making them of limited use. In the till, the water generally occurs within sand lenses and in the "washed zone" at the top of the bedrock. This washed zone often directly overlies a fractured zone at the top of the bedrock, thus forming a continuous aquifer with the bedrock. The return from this aquifer may be extensive depending on the hydraulic conductivity of the bedrock (Johnston 1964).

In the region between the two escarpments, which includes the Niagara Falls area, the Lockport Dolomite is the principal bedrock aquifer. Within the Lockport, there are seven principal water-bearing zones parallel to bedding formed by dissolution along bedding joints. These water-bearing zones are typically thin bedded zones that are separated by thick massive beds. In addition, water also occurs within cavities formed by gypsum dissolution and in vertical fractures that occur particularly in the upper 10 to 15 feet of weathered bedrock. This upper zone is hydraulically connected to the overlying overburden in the washed zone at the interface between them. Dissolution makes these units more permeable than the surrounding rocks by forming open conduits. Thus, groundwater movement is several orders of magnitude greater along these planes than vertical percolation through the formation at rates of only 10^{-6} cm/sec. The Rochester shale beneath acts as a confining layer since it is essentially impermeable. Beneath the Rochester, the limestones and sandstones of the Clinton and Albion groups also act as bedding plane aquifers. Beneath these units, the Queenston shale has water only in the upper fractured zone. Below this zone it is essentially impermeable, acting as an aquiclude (Johnston 1964, LaSala 1968).

The groundwater movement in the bedrock and overburden aquifers is controlled by two different factors. The Niagara River is the principal control for the general direction of groundwater and surface water (stream) movement throughout the Niagara Region. In general, surface water and bedrock groundwater flow west-southwest toward the river. The overburden aquifers including the washed zone at the bedrock-overburden interface are generally controlled by local surface water bodies that act as discharge points. Thus, the local gradient may or may not follow the regional direction (Johnston 1966, LaSala 1968).

4.3 SITE GEOGRAPHY

4.3.1 Topography

The Lockport Road-Struzik Property site is located in the Town of Wheatfield, Niagara County, New York. It lies on the Lake Tonawanda plain within the Erie-Ontario lowland topographic province formed during the last Pleistocene glacial stage. These lowlands are characterized by

a low, flat-lying topography resulting from preglacial erosion of the bedrock and subsequent modification by glaciation. In the Lake Tonawanda plain this is marked by generally flat terrain within the lake basin with beach ridges and moraines forming areas of low relief (Buehler and Tesmer 1963, Johnston 1964).

The ground surface at the Lockport Road-Struzik Property site reflects this general trend. The site itself and the area surrounding it are generally flat, showing no appreciable relief with a consistent elevation of approximately 605 feet above mean sea level. The main portion of the site is mowed by Church of God workers. The western section of the site slopes gently west toward Cayuga Creek, which flows south adjacent to the site. Vegetation in this area consists of trees, scrub, and shrubs along Cayuga Creek. Two to 3 miles north-northwest and southwest are state-regulated wetlands (RV-12 and RV-13, RV-4, and TW-1 and TW-3, respectively), but none lies directly downstream from the site along this branch of Cayuga Creek.

4.3.2 Soils

The soils in the vicinity of the Lockport Road-Struzik Property site are the silty loams of the glacial-till derived Hilton Series and the alluvial soils of the Wayland Series. This association consists of level or nearly level soils on the Lake Tonawanda Plain south of the Niagara escarpment. All of these soils are deep, moderately to poorly drained, having a medium textured upper section that grades into a fine textured or moderately fine textured subsoil that is dominantly reddish in color. The Hilton Series is the principal soil around the Lockport Road-Struzik Property site with minor Wayland occurring along Cayuga Creek (USDA 1972).

The Hilton soils are deep, moderately well drained, medium textured soils that formed from calcareous glacial tills containing sandstone and limestone fragments. They are nearly level to gently sloping and occur throughout the area. These soils are gravelly silts and clays to silty clays having brown gravelly silt topsoils (ML, CL, or SM) and clay subsoils (CL). Their medium to fine grain size incurs moderate drainage in the upper section and very poor drainage characteristics in the subsoils. The upper section has permeabilities ranging from 10^{-4} through

10^{-3} cm/sec. The poor drainage in the lower unit is caused by these low permeabilities that are generally less than 10^{-4} cm/sec. Consequently, seasonal water tables are high during wet periods ranging from 1.5 to 2 feet below the surface, and the Hilton soils are wet for brief but significant periods following prolonged wet weather. Due to the presence of carbonate bedrock and the calcareous nature of the till itself, the pHs are high, ranging from slightly acidic (6.1) to alkaline (8.3), and generally increase with depth (USDA 1972).

The Wayland soils are deep, poorly to very poorly drained, medium textured soils. They occur in level to nearly level recent alluvial deposits in areas farthest from the main flow of water, but within the flood plain. These soils are silts to silty clays (ML or CL) having a dark gray silty loam topsoil (ML or OL) that grades into a red-brown, silty clay (ML or CL). The low permeabilities (10^{-5} to 10^{-4} cm/sec) cause seasonally high water tables ranging from 0 to 6 inches below the surface, and flooding generally occurs at least once a year. The close proximity to carbonate bedrocks also cause high pHs, ranging from slightly acidic (6.1) to slightly alkaline (greater than 7.6), increasing with depth (USDA 1972).

Examination of the subsurface soil boring logs and the geotechnical analyses suggests that the soils on site are consistent with the classifications described above. The red-brown color, angular clasts, and mixtures of clay, gravel, and silt noted in the subsurface boring logs (see Appendix C) are consistent with a glacial till and hence with the till-derived Hilton series soils. The presence of a poorly sorted till mixture is also supported by the geotechnical analyses, which show a poorly sorted particle size distribution in GW-1 and GW-3, consistent with a glacially-derived Hilton series soil. The plastic silt (ML) indicated for GW-2 is consistent with the higher clay content and lower permeabilities of the Hilton series subsoils. The dry to moist nature of these soils also suggests low to moderate permeabilities that are typical of the Hilton series soils.

4.4 SITE HYDROGEOLOGY

Groundwater monitoring wells, USGS topographic maps, geological survey maps, and regional groundwater reports were used to develop this discussion. The soil boring logs are included in Appendix C.

4.4.1 Geology

Examination of the subsurface soil boring logs indicates that the geology of the Lockport Road-Struzik Property site consists of 11 to 14 feet of unconsolidated sediments overlying the Lockport Dolomite. The stratigraphy consists of approximately 4 to 10 feet of industrial fill that consists of mixtures of clay, silt, and gravel, and a minor amount of debris such as glass, brick, and graphite. Beneath this fill is 2 to 4 feet of glacial till consisting of silty clays, silts, and gravels with occasional sandy lenses. The dry nature of the soils suggests a low permeability that is consistent with Hilton series soils (USDA 1972).

The Lockport Dolomite, which underlies these sediments, is an early Silurian dolostone. As described in subsurface boring logs, the Lockport is a dark gray, fractured, fossiliferous dolostone with secondary mineralization and secondary porosity resulting from the dissolution of fossils and other minerals (see Appendix C).

4.4.2 Hydrogeology

Groundwater

Three groundwater monitoring wells were installed at the Lockport Road-Struzik Property site to determine the quality and direction of groundwater flow. Well locations are shown in Figure 3-1. Monitoring well construction data are presented in Table 4-1. Groundwater level data are presented in Table 4-2.

The upper clays and silts at the site were dry and relatively impermeable during August 1990 when the wells were installed. No water was found until the bedrock was encountered. This suggests that the aquifer monitored in this investigation is in the highly fractured zone at the top of the bedrock. Based on the fractured nature of the upper part of the Lockport Dolomite and the measured water level elevations, it is assumed that the interface zone monitored by GW-2 and GW-3 is hydraulically connected to the fractured bedrock zone monitored by GW-1. The rising of the water levels above the top of the bedrock surface is due to the confining pressure of the overlying fine-grained deposits.

The direction of groundwater flow as determined from measured water level elevations appears to be to the west toward Cayuga Creek, the assumed local groundwater discharge point.

Within 3 miles of the site, groundwater in the Lockport Dolomite is used for drinking water and irrigation of lawns and small garden plots. Groundwater users within 3 miles include members of the Tuscarora Indian Nation for whom groundwater is the sole source of water. Impacts of the site on downgradient groundwater quality are assumed to be minimal since shallow bedrock groundwater (monitored by wells installed during the Phase II investigation) discharges to Cayuga Creek directly adjacent to the site.

Surface Water

Cayuga Creek, a Class D stream, forms the western border of the Lockport Road-Struzik Property site. Like most of the streams in the area, it has a small drainage area and thus low flow rates during prolonged periods with little or no precipitation (Johnston 1964). This is due to the relatively impermeable sediments that discharge insufficient groundwater to maintain the stream during dry periods (Johnston 1964). The impermeable nature of the soils also causes high groundwater tables during periods of prolonged precipitation (USDA 1972). Runoff flows directly into Cayuga Creek and indirectly into the creek by a ditch that runs across the northern boundary of the site. From Cayuga Creek, the water flows south, joins with Burgholtz Creek, and eventually flows into the Niagara River approximately 6 stream miles south of the site.

4.5 SITE CONTAMINATION ASSESSMENT

Analytical data for the contamination assessment are presented in Appendix D on EPA Contract Laboratory Program (CLP) data summary forms for TCL organics (volatiles, BNAs, and pesticides/PCBs) and inorganics (metals and cyanide) for all soil, sediment, and water, and waste samples. Detected compounds and concentration ranges are listed in Tables 4-3 through 4-8.

All CLP data packages were reviewed to determine whether qualified data were acceptable for intended use. In general, common laboratory

contaminants, including methylene chloride, acetone, and phthalate esters, are considered background contamination and not evaluated if levels in the field samples are less than 10 times the method blank level. Organic analytical results below the contract-required quantitation limit are not included in the summary tables at the end of this section but are presented in Appendix D. Inorganic results above the instrument detection limit but below the contract-required detection limit are presented in the summary tables as well as in Appendix D. Any necessary qualifications based on data validation review are noted in the summary tables and Appendix D.

4.5.1 Surface Soil

Four surface soil samples (S-1, S-2, S-3, and S-4) were collected for TCL inorganic and organic analyses as part of the Phase II investigation. Table 4-3 presents a summary of inorganics detected in the soil samples and a comparison to the common range for soils in the Eastern United States and Table 4-4 lists the organics detected in surface soils.

Inorganic analysis shows that concentrations of metals in surface soil samples do not exceed common ranges in soils of the Eastern United States (see Table 4-3) (Shacklette and Boerngen 1984, Dragun 1988). Only calcium concentrations in S-2 and S-3 are significantly greater (more than three times) than the concentrations in background samples S-1 and S-4. Sodium was detected in sample S-3 only.

TCL organic analyses detected various polynuclear aromatic hydrocarbons (PAHs) and two volatile organic compounds in surface soils at the site (see Table 4-4). Total PAH concentrations in surface soils ranged from 3,600 µg/kg in S-4 to 29,000 µg/kg in S-3. Dibenzofuran is included in total PAHs since it is commonly formed from incomplete combustion and is often associated with PAHs. PAHs are ubiquitous at the site. Sample S-3 shows the only volatile contamination with minor amounts of toluene (7 µg/kg) and 1,1,1-trichloroethane (7 µg/kg).

4.5.2 Surface Water and Sediment Samples

Three samples of surface water and associated sediment (SW-1/SED-1, SW-2/SED-2, and SW-3/SED-3) were collected for TCL inorganic and organic

analysis as part of the Phase II investigation for the Lockport Road-Struzik Property site. Table 4-5 presents a summary of inorganics detected in the surface water samples and a comparison to NYSDEC Class D standards. Table 4-6 lists the inorganics detected in the sediments and a comparison to the common soil range for the Eastern United States.

Examination of TCL inorganic analyses for surface water samples indicated iron and zinc concentrations exceeded NYSDEC Class D standards (NYSDEC 1990) (see Table 4-5). The upgradient sample, SW-1, located in the northwest section of the site, north of the confluence of the ditch and Cayuga Creek, consistently showed the highest levels of inorganics. SW-1 and SW-2 exceeded the NYSDEC Class D standard for iron with concentrations of 675 µg/L and 3,220 µg/L, respectively. All three samples exceeded the NYSDEC Class D standard for zinc (1,050 µg/L) with concentrations ranging from 2,060 µg/L in SW-3 to 3,450 µg/L in SW-1.

The upgradient sample, SW-1, was the only surface water sample containing organics. Organics detected in SW-1 consisted of PAHs with a total concentration of 87 µg/L.

Examination of TCL inorganic analyses for sediment samples indicated only cadmium and zinc concentrations exceeded common ranges for soils in the Eastern United States (Dragun 1988, Shacklette and Boerngen 1984) (see Table 4-6). Sample SED-2 exceeded the common range for cadmium with a concentration of 53.5 mg/kg. SED-2 also exceeded the common range for zinc with a concentration of 18,100 mg/kg. Concentrations of cadmium and zinc in SED-2 were significantly above (more than three times) the level in SED-1, the upstream sample. Cobalt was detected in only SED-3 at a concentration of 4.6 mg/kg.

TCL organic analyses of sediment samples showed that only the upgradient sample, SED-1 contained low levels of PAHs. Sample SED-1 shows a total PAH concentration of 2,000 µg/kg.

4.5.3 Groundwater Samples

Three groundwater samples, GW-1 (the upgradient well), GW-2, and GW-3, were collected from three monitoring wells for TCL inorganic and organic analysis as part of the Phase II investigation of the Lockport Road-Struzik Property site. No TCL organic compounds were found above quantitation limits in groundwater samples from the site. The

inorganics detected for the groundwater samples and a comparison to the NYSDEC Class GA standard are provided in Table 4-7.

Examination of TCL inorganic analytical results indicated that lead, iron, manganese, zinc, magnesium, and sodium concentrations exceeded NYSDEC Class GA standards in groundwater samples (see Table 4-7). Sodium and magnesium were detected above Class GA standards in all three groundwater samples, iron was above standards in GW-2 and GW-3, zinc concentrations were above standards in GW-1 and GW-3, and lead and manganese concentrations were above standards in GW-3 only. Located in the northwest portion of the site, south of the confluence of the ditch and Cayuga Creek, GW-3 showed the highest concentrations of inorganics, with concentrations of aluminum, barium, calcium, iron, lead, manganese, sodium, and zinc significantly above upgradient concentrations. Cadmium, chromium, cobalt, copper, nickel, and vanadium were detected in only GW-3. Concentrations of aluminum, calcium, iron, and manganese were significantly above upgradient levels in GW-2 in the southwest corner of the site.

4.5.4 Waste Samples

Two waste samples (W-1 and W-2) were collected for TCL inorganic and organic analyses as part of the Phase II investigation at the Lockport Road-Struzik Property site. The inorganics detected in the waste samples and a comparison to the natural range for soils in the Eastern United States are listed in Table 4-8.

Examination of TCL inorganic analyses for waste samples shows that no concentrations of metals exceeded the common ranges for soils and other surficial materials in the Eastern United States (see Table 4-8) (Shacklette and Boerngen 1984, Dragun 1988). W-2 exceeds the site soil background (S-4) for arsenic, chromium, copper, lead, and vanadium by up to 10 times. Levels of nickel in W-1 and W-2 exceed the level in the background sample with concentrations of 41.1 mg/kg and 121 mg/kg, respectively.

Concentrations of inorganics in waste samples were compared to levels in surface soils. Levels of arsenic, copper, lead, nickel, and vanadium in W-2 were significantly above concentrations in background soil samples. Beryllium, selenium, sodium, and thallium were detected in waste samples only.

TCL organic analyses of waste samples indicate only low levels of PAHs. W-1 and W-2 have total PAH concentrations of 5,700 µg/kg and 3,500 µg/kg, respectively.

4.5.5 Drilling Water

Water from two different sources was used during drilling at the Lockport Road-Struzik Property site. Water from the Town of Royalton was utilized to drill both GW-1 and GW-2. This water remained from the drilling operations at the Town of Royalton Landfill during the current Phase II investigation and, thus, the analyses for this source from the Town of Royalton Landfill Phase II investigation were utilized for comparison. Examination of the full TCL analysis indicated that only iron (380 µg/L) exceeds the NYSDEC Class GA standard (NYSDEC 1990). The presence of chloroform, dibromochloromethane, and bromodichloromethane is attributed to standard chlorination procedures performed to render the municipal water supply potable.

A water sample, DW-1, was taken from the tank on the drill rig to test the water used during the drilling of GW-3. This water was obtained from the Church of God adjacent to the site. The results of a full TCL analysis indicate iron and manganese concentrations (888 µg/L and 567 µg/L, respectively) exceeded the NYSDEC Class GA standard (300 µg/L) for these elements. Minor concentrations of di-n-butylphthalate (18 µg/L) also appeared. The presence of chloroform and bromodichloromethane is attributed to standard chlorination procedures performed to render the municipal water supply potable.

4.5.6 Contamination Assessment Summary

The principal concern with respect to public health and the environment at the Lockport Road-Struzik Property site is the minimal potential threat posed by direct contact with surface soils, sediment, and waste containing elevated levels of metals.

PAHs are found at low concentrations in surface soil, surface water, sediment, and waste. PAHs are formed from the incomplete combustion of organic material and can be released to the environment through the combustion of fossil fuels from various activities including power generation and automobile engine combustion. Concentrations of

PAHs at the Lockport Road-Struzik Property site are typical of urban/industrial areas and may also be related to the fly ash allegedly disposed of at the site. Due to their presence at levels typical for urban areas, PAHs are not considered a concern at the site.

Metals detected in groundwater samples above standards and significantly above upgradient levels include iron in GW-2 and GW-3, and lead, manganese, sodium, and zinc in GW-3. The high turbidity found in wells GW-2 and GW-3 (greater than 200 NTUs) may result in elevated concentrations of metals detected due to the natural metals contents associated with the presence of clay and mineral particles in the samples. The effect would be greater in the downgradient interface wells at the site because the screens of these wells are partially in fine grained materials. The high concentrations of certain metals in the wells at the site may also be associated with their installation into the Lockport Dolomite, which is composed primarily of calcium magnesium carbonates and calcium carbonates with other minor mineral phases such as halite and sulfides of lead, zinc, and iron (LaSala 1968). Dissolution of these minerals and/or their presence as particulate matter may cause elevated concentrations of sodium, magnesium, lead, iron, and zinc.

Groundwater potentially affected by waste at the site immediately enters the Cayuga Creek adjacent to the site. Analysis of surface water samples from this creek shows no metals significantly above the upstream sample levels. Sediment samples from the creek, however, show cadmium and zinc at levels significantly above common ranges for the Eastern United States and upstream concentrations. Therefore, inorganics in groundwater related to waste disposal at the site do not seem to be of concern, nor do they seem to be adversely affecting surface water quality. However, they may be causing increased metals concentrations in sediment adjacent to the site.

Although all metals concentrations in waste samples were below common ranges, several metals were found in waste samples at significantly higher concentrations than in the background samples. These metals include arsenic, copper, lead, nickel, and vanadium. In addition, beryllium, selenium, and tallium were found only in waste samples. Therefore, waste disposal at the site seems to have caused

increased levels of metals at the site. However, since none of the levels found during Phase II sampling was above common ranges, the threat appears to be minimal.

The summation of these data suggests that although several inorganics are found at elevated levels compared to upgradient or background levels at the site, the concentrations remained at low levels. Therefore, the potential risks associated with these contaminants appear to be low.

4.6 RECOMMENDATIONS

Minimal threats to human health and the environment posed by the Lockport Road-Struzik Property site include direct dermal contact and indirect ingestion of contaminated surface soils, surface water, and sediments at the site. Considering the generally low contaminant concentrations and the absence of documented hazardous waste disposal at this site, E & E recommends that this site be referred to NYSDEC's Division of Solid Waste for appropriate action. Various actions that could be taken to reduce the potential for exposure include restriction of site access and removal of exposed debris. Presently, the area has unrestricted access so fencing is recommended to restrict unauthorized use. Exposed debris such as rebar and carbon dust should be removed from the site and surface soils in the central portion of the site near S-3 and W-2 should be excavated. Once these materials have been removed, the entire site should receive proper closure according to 6 NYCRR Part 360 of the state codes for proper closure of a landfill (Rules and Regulations, December 31, 1988). Under proper closure, the site should be covered with a low permeability clay cap to prohibit surface water intrusion, and the cap should be revegetated to reduce erosion.

Table 4-1

MONITORING WELL CONSTRUCTION DATA

Well	Feet of Screen	Feet of Riser	Thickness of Bentonite (feet)	Total Depth of Well (feet)	Stick-up Height (feet)
GW-1	[a]	18	[b]	21.5	1.5
GW-2	7	11	1	16.5	1.5
GW-3	10	10	1	18.0	2.0

02[UZ]YQ2080:D3249/5559/25

[a]Open bedrock well - no screen used.
[b]Well grouted 4 feet into bedrock.

Table 4-2

MONITORING WELL AND GROUNDWATER TABLE ELEVATIONS

Well Number	Bottom of Well Elevation	Ground Elevation	PVC Riser Elevation	Top of Casing Elevation	Water Level Elevation (1990)	
					8/29	9/20
GW-1	584.20	605.70	607.65	607.63	596.30	595.90
GW-2	585.40	601.90	603.42	603.52	595.47	595.50
GW-3	585.45	603.45	605.45	605.42	596.45	595.70

02[UZ]YQ2080:D3249/5562/19

Note: All elevations are expressed in feet above mean sea level.

Table 4-3

SURFACE SOIL INORGANIC ANALYSIS SUMMARY

Inorganic Detected	Range for Surface Soils on Site (mg/kg)	Common Range for Eastern U.S. Soils (mg/kg)[a]	Sample Exceeding Common Range	
			Sample Number	Concentration (mg/kg)
Aluminum	10,800 - 13,200	7,000 - >100,000	--	--
Arsenic	2.1 - 3.1	<0.1 - 73	--	--
Barium	88.1 - 106	10 - 1,500	--	--
Cadmium	3.1 - 4.3	0.01 - 7.0[b]	--	--
Calcium	4,850 - 68,800	100 - 280,000	--	--
Chromium	16.6 - 18.9	1 - 1,000	--	--
Cobalt	9.2 - 10.3	0.1 - 70	--	--
Copper	11.2 - 18.6	<1 - 700	--	--
Iron	19,300 - 24,100	100 - >100,000	--	--
Lead	14.7 - 26.1	<10 - 300	--	--
Magnesium	4,790 - 21,800	50 - 50,000	--	--
Manganese	530 - 899	<2 - 7,000	--	--
Nickel	16.3 - 21.1	<5 - 700	--	--
Potassium	946 - 1,640	50 - 37,000	--	--
Sodium	126	500 - 50,000	--	--
Vanadium	21.4 - 27.6	<7 - 300	--	--
Zinc	96.7 - 150	<5 - 2,900	--	--

[UZ]YQ2080:D3249/5563/23

[a]Shacklette and Boerngen 1984.
[b]Ranges from Dragun 1988.

Table 4-4

SURFACE SOIL ORGANIC ANALYSIS SUMMARY

Organic Compound Detected	Sample Result (µg/kg)			
	S-1	S-2	S-3	S-4
1,1,1-trichloroethane	--	--	7	--
Toluene	--	--	7	--
Total PAHs	20,000	--	29,000	3,600

02[UZ]YQ2080:D3249/5564/30

Key:

PAHs = Polynuclear aromatic hydrocarbons

Table 4-5

SURFACE WATER INORGANIC ANALYSIS SUMMARY

Inorganics Detected	Range for Surface Water (µg/L)	NYSDEC Class D Surface Water Standards (µg/L)[a]	Sample Exceeding Standard	
			Sample Number	Concentration (µg/L)
Aluminum	ND - 1,920	NA	--	--
Barium	[79.2] - [100]	NA	--	--
Cadmium	ND - 9.2	19.7[b]	--	--
Calcium	105,000 - 113,000	NA	--	--
Cobalt	ND - [17.2]	110[c]	--	--
Iron	[62] - 3,220	300	SW-1 SW-2	3,220 675
Lead	[9] - 415	505[b]	--	--
Magnesium	34,500 - 35,900	NA	--	--
Manganese	38.1 - 914	NA	--	--
Nickel	[13.3] - [16.8]	5,470[b]	--	--
Potassium	[3,500] - [4,140]	NA	--	--
Selenium	ND - [1.4]	NA	--	--
Sodium	29,600 - 33,200	NA	--	--
Zinc	2,060 - 3,450	1,050[b]	SW-1 SW-2 SW-3	3,450 2,320 2,060

[UZ]YQ2080:D3249/5565/23

[a]NYSDEC Ambient Water Quality and Guidance Values Standards for Class D (Freshwater) Aquatic Guidelines. NYSDEC Water Quality Standards and Guidance Values, September 25, 1990 Revision, Division of Water Technical and Operational Guidance Series (1.1.1).

[b]Standards are a function of the hardness of the water (H = 2.5 [Ca ppm] c+ 4.1 [Mg ppm]) and apply only to the acid-soluble form (see NYSDEC TOGS 1.1.1 September 1990 for formulas).

[c]Guidance value only

Key:

NA = No applicable standard
ND = Not detected above instrument detection limit (IDL).
[] = Inorganic analyte present. As values approach the IDL, the quantitation may not be accurate.

Table 4-6

SEDIMENT INORGANIC ANALYSIS SUMMARY

Inorganic Detected	Range for Site Surface Soils (mg/kg)	Common Ranges for Soils/ Surface Materials of Eastern United States[a]	Sample Exceeding Common Range	
		Common Range for Eastern U.S. Soils (mg/kg)	Sample Number	Concentration (mg/kg)
Aluminum	3,980 - 8,060	7,000 - >100,000	--	--
Arsenic	[1.1] - [1.5]	<1.1 - 73	--	--
Barium	[27.6] - 69	10 - 1,500	--	--
Cadmium	1.6 - 53.5	0.01 - 7.0[b]	SED-2	53.5
Calcium	11,800 - 114,000	100 - 280,000	--	--
Chromium	6.7 - 10.3	1 - 1,000	--	--
Cobalt	ND - [4.6]	0.1 - 70	--	--
Copper	8 - 9.8	<1 - 700	--	--
Iron	8,220 - 12,200	100 - >100,000	--	--
Lead	10.3 - 26.1	<10 - 300	--	--
Magnesium	6,760 - 59,500	50 - 50,000	--	--
Manganese	225 - 511	<2 - 7,000	--	--
Nickel	[7.1] - 11.9	<5 - 700	--	--
Potassium	[392] - [695]	50 - 37,000	--	--
Sodium	[263] - [391]	500 - 50,000	--	--
Vanadium	[8.1] - [13.3]	<7 - 300	--	--
Zinc	605 - 18,100	<5 - 2,900	SED-2	18,100

[UZ]YQ2080:D3249/5567/20

[a]Shacklette and Boerngen 1984, unless otherwise specified.

[b]Ranges from Dragun 1988.

Key:

ND = Not detected above instrument detection limit (IDL).
[] = Inorganic analyte present. As values approach the IDL, quantitation may not be accurate.

Table 4-7

GROUNDWATER INORGANIC ANALYSIS SUMMARY

Inorganic Detected	Range Detected on Site (µg/L)	NYSDEC Class GA Water Standards[a] (µg/L)	Sample Exceeding Concentration Range	
			Sample Number	Concentration (µg/L)
Aluminum	[67] - 15,900	NA	--	--
Arsenic	ND - [2.8]	25	--	--
Barium	[76] - 246	1,000	--	--
Cadmium	ND - 5.9	10	--	--
Calcium	151,000 - 323,000	NA	--	--
Chromium	ND - 39.8	50	--	--
Cobalt	ND - 16.1	NA	--	--
Copper	ND - 43	200	--	--
Iron	214 - 26,800	300	GW-2 GW-3	3,880 26,800
Lead	3.4 - [155]	25	GW-3	[155][b]
Magnesium	45,400 - 111,000	35,000[c]	GW-1 GW-2 GW-3	50,400 45,400 111,000
Manganese	54.5 - 1,190	300	GW-3	1,190
Nickel	ND - [36.2]	NA	--	--
Potassium	[3,020] - 6,920	NA	--	--
Sodium	24,800 - 172,000	20,000	GW-1 GW-2 GW-3	24,800 26,000 172,000
Vanadium	ND - [28.3]	NA	--	--
Zinc	90.2 - 1,490	300	GW-1 GW-3	493 1,490

[UZ]YQ2080:D3249/5569/24

[a]All data from NYS Ambient Water Quality Standards and Guidance Values, September 25, 1990 Revision, Division of Water Technical and Operation Guidance Series (1.1.1).
[b]Lead analysis in GW-3 required 100-fold dilution, thus increasing the detection limit.
[c]Guidance value only.

Key:

NA = No applicable standard.
ND = Not detected above instrument detection limit (IDL).
[] = Inorganic analyte present. As values approach the IDL, quantitation may not be accurate.

Table 4-8

WASTE INORGANIC ANALYSIS SUMMARY

Inorganic Detected	Range Detected on Site (mg/kg)	Common Ranges for Soils/ Surface Materials of Eastern United States[a]	Sample Exceeding Common Range	
			Sample Number	Concentration (mg/kg)
Aluminum	718 - 3,280	7,000 - >100,000	--	--
Arsenic	[1.6] - 36.5	<0.1 - 73	--	--
Barium	[22.7] - 49.9	10 - 1,500	--	--
Beryllium	ND - [0.58]	<1 - 7	--	--
Cadmium	ND - 3.8	0.01 - 7.0[b]	--	--
Calcium	6,370 - 31,900	100 - 280,000	--	--
Chromium	11.8 - 50.4	1 - 1,000	--	--
Cobalt	[4] - [9.1]	0.3 - 70	--	--
Copper	19 - 131	<1 - 700	--	--
Iron	5,020 - 17,900	100 - >100,000	--	--
Lead	[5.9] - 92.8	<10 - 300	--	--
Magnesium	[423] - 1,830	50 - 50,000	--	--
Manganese	51.3 - 301	<2 - 7,000	--	--
Nickel	41.1 - 121	<5 - 700	--	--
Potassium	ND - [187]	50 - 37,000	--	--
Selenium	[0.47] - 1.6	<0.1 - 3.9	--	--
Sodium	ND - [132]	500 - 50,000	--	--
Thallium	6.5 - 9.5	NA	--	--
Vanadium	26.9 - 87.3	<7 - 300	--	--
Zinc	17 - 143	<5 - 2,900	--	--

[UZ]YQ2080:D3249/5560/17

[a] Shacklette and Boerngen 1984.

[b] Ranges from Dragun 1988.

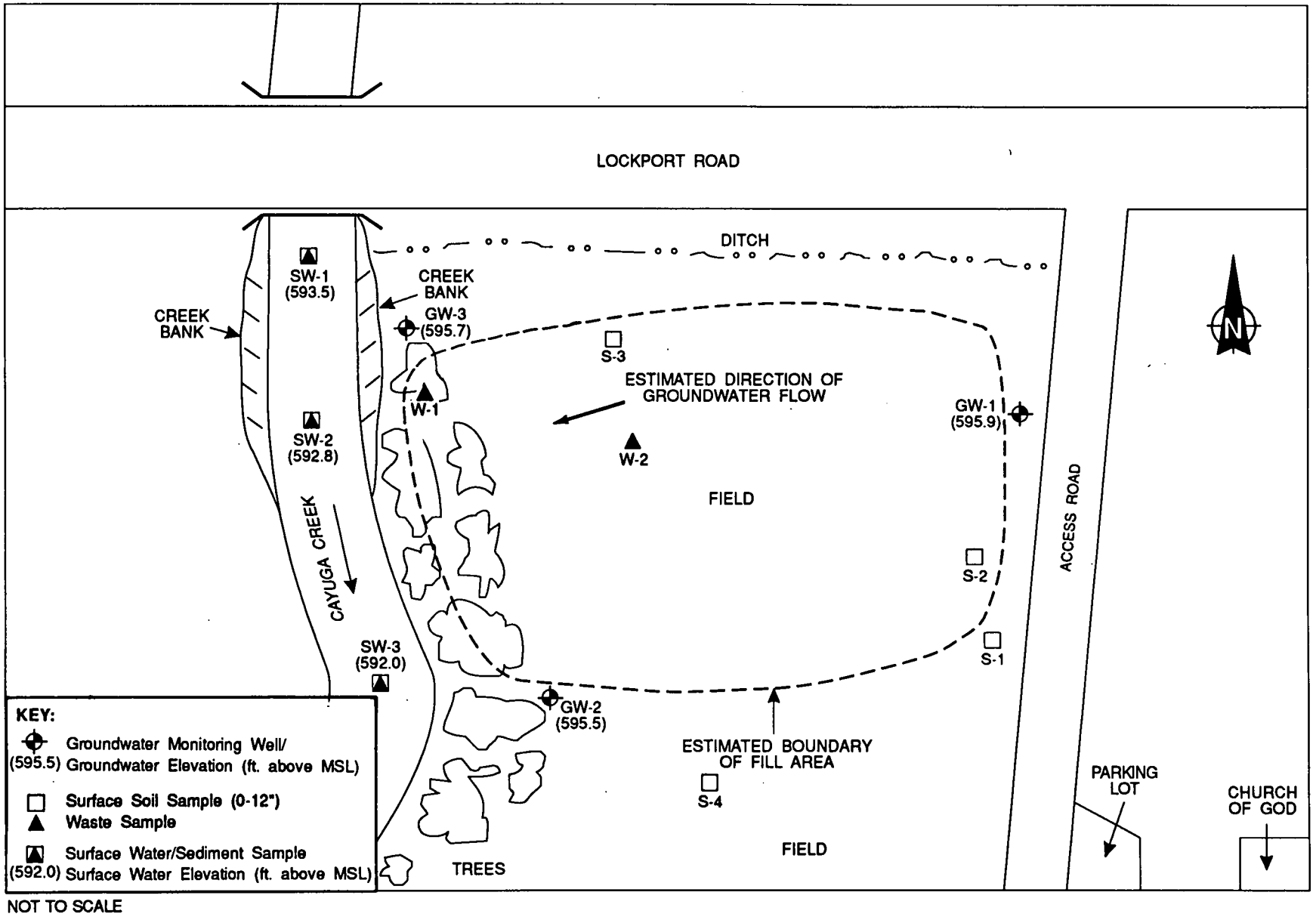
Key:

NA = No applicable range.
ND = Not detected above instrument detection limit (IDL).
[] = Inorganic analyte present. As values approach the IDL, quantitation may not be accurate.

System		Group	Formation	Thickness 1/ (feet)	Description
Silurian	Middle		Lockport Dolomite	150	Dark-gray to brown, massive to thin-bedded dolomite, locally containing algal reefs and small, irregularly shaped masses of gypsum. At the base is light-gray, coarse-grained limestone (Gasport Limestone Member) and gray shaley dolomite (DeCew Limestone Member of Williams, 1919).
		Clinton	Rochester Shale	60	Dark-gray calcareous shale weathering light-gray to olive.
			Irondequoit Limestone	12	Light-gray to pinkish-white coarse-grained limestone.
			Reynales Limestone	10	White to yellowish-gray shaley limestone and dolomite.
			Neahga Shale of Sanford (1933)	5	Greenish-gray soft fissile shale.
	Lower	Albion	Thorold Sandstone	8	Greenish-gray shaley sandstone.
			Grimsby Sandstone of Williams (1914)	45	Reddish-brown to greenish-gray cross-bedded sandstone interbedded with red to greenish-gray shale.
			Unnamed unit	40	Gray to greenish-gray shale interbedded with light-gray sandstone.
			Whirlpool Sandstone	20	White, quartzitic sandstone.
Ordovician	Upper		Queenston Shale	1,200	Brick-red sandy to argillaceous shale.

1/ Average figure for area. Thickness at falls is not necessarily the same.

Figure 4-1
BEDROCK UNITS OF NIAGARA COUNTY AFTER JOHNSTON, 1964



NOT TO SCALE

Figure 4-2
LOCKPORT ROAD-STRUZIK PROPERTY SITE, GROUNDWATER MAP

YQ324942'

5. FINAL APPLICATION OF THE HAZARDOUS RANKING SYSTEM

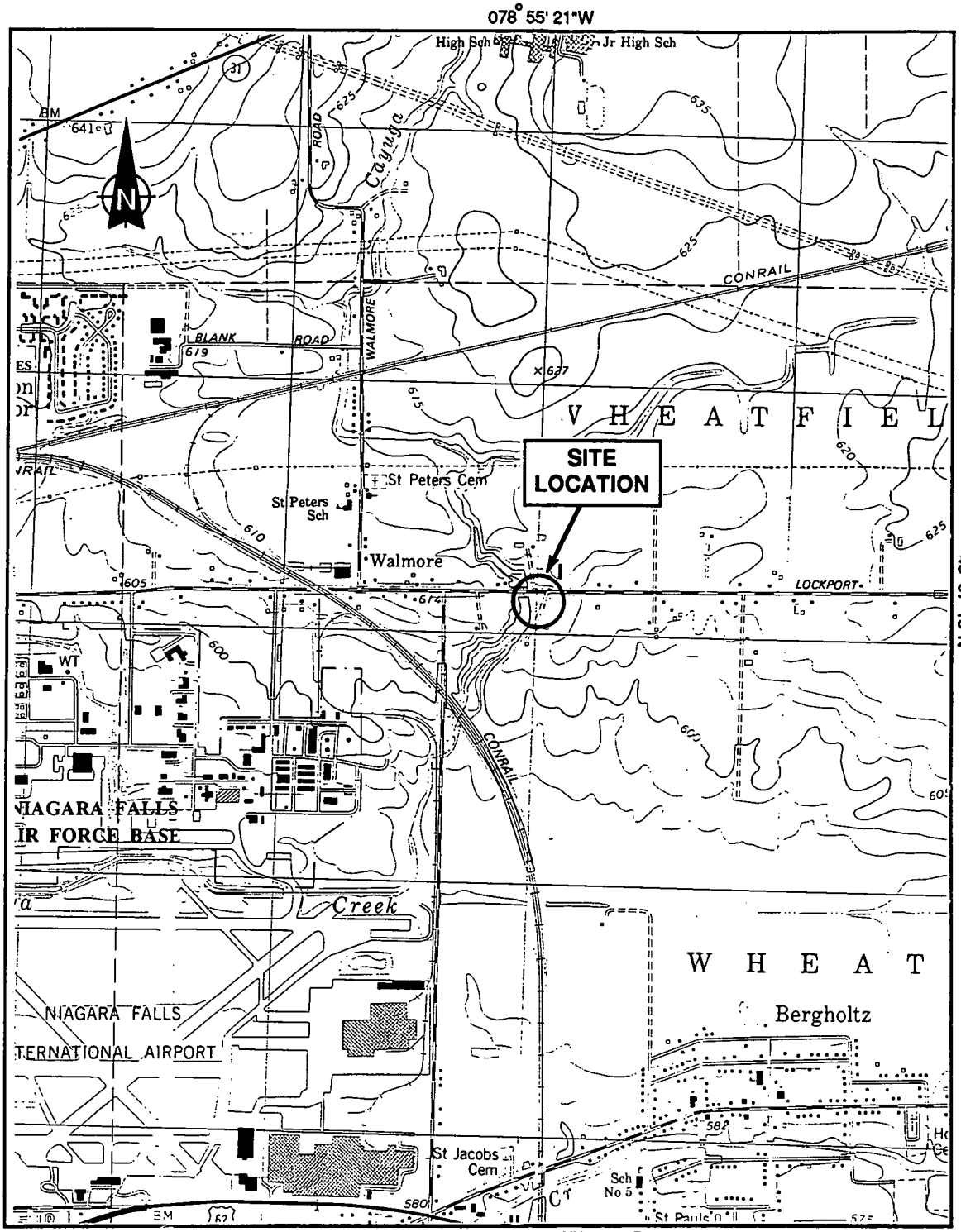
5.1 NARRATIVE SUMMARY

The Lockport Road-Struzik Property site occupies an area approximately 50 by 300 feet adjacent to Cayuga Creek on Lockport Road approximately 200 yards east of Walmore Road, Town of Wheatfield, Niagara County, New York (see Figure 5-1). It has been owned since 1982 by Niagara Falls Church of God. Edward Struzik owned the land in 1965 when Modern Disposal dumped 2,000 cubic yards of waste from Carborundum on the property, including carbon dust, graphite waste, and paper. Also at this time, dumping of scrapwood, fly ash, and clay from Bell Aerospace occurred.

Groundwater, surface water/sediment, surface soil, and waste sampling was conducted by E & E in 1990 under contract to NYSDEC.

Groundwater samples contained concentrations of iron, lead, manganese, sodium, and zinc above NYSDEC GA standards and significantly above upgradient levels. Surface water samples did not contain any organics or inorganics upstream significantly above concentrations or above NYSDEC Class D surface water standards. Sediment samples contained concentrations of cadmium and zinc above common ranges and significantly above upstream levels. Surface soil samples contained very low levels (less than 10 ppb) of 1,1,1-trichloroethane and toluene but no inorganics above common ranges. Waste samples contained concentrations of arsenic, copper, lead, nickel, and vanadium significantly above background soil samples but below common ranges. Beryllium, selenium, sodium, and thallium were detected in waste but not surface soil samples.

Cayuga Creek, a Class D stream, flows south directly into the Niagara River approximately 6 miles south of the site. The area is generally rural residential with about 300 people living within 1 mile of the site.



SOURCE: USGS 7.5 Minute Series (Topographic) Quadrangle, Tonawanda West, NY 1980; Ransomville, NY 1980.

Figure 5-1
SITE LOCATION, LOCKPORT ROAD-STRUZIK PROPERTY SITE

FIGURE 1

H R S C O V E R S H E E T

Facility Name: Lockport Road-Struzik Property

Location: 2334 Lockport Road, Wheatfield, New York

EPA Region: 2

Person(s) in Charge of Facility: Reverend Lawrence Bell

Church of God, Niagara Falls

2334 Lockport Road, Wheatfield, New York

(716) 731-6407

Name of Reviewer: Sandra Lare Date: 10/90

General Description of the Facility:

(For example: landfill, surface impoundment, pile, container; types of hazardous substances; location of the facility; contamination route of major concern; types of information needed for rating; agency action; etc.)

Now an open field owned by the Church of God, the Lockport Road-Struzik Property Site west of 2334 Lockport Road, Wheatfield, New York is an area approximately 50 feet by 300 feet, located directly adjacent to (east of) Cayuga Creek. In 1965, approximately 2,000 cubic yards of carbon dust, graphite material, and paper were landfilled at the site; to bring the low-lying area up to grade. It is suspected that scrap wood, fly ash, and clay have also been disposed of there. The potential for surface water contamination and public access to contaminants are routes of major concern.

Scores: S_M = 28.65 (S_{gw} = 49.22, S_{sw} = 5.85, S_a = 0)

S_{FE} = 0

S_{DC} = 25

02[UZ]YQ2080:D3249/5549

Ground Water Route Work Sheet						
Rating Factor	Assigned Value (Circle One)		Multi-plier	Score	Max. Score	Ref. (Section)
1 Observed Release	0	(45)	1	45	45	3.1
If observed release is given a score of 45, proceed to line 4. If observed release is given a score of 0, proceed to line 2.						
2 Route Characteristics						3.2
Depth to Aquifer of Concern	0 1 2 (3)		2	6	6	
Net Precipitation	0 1 (2) 3		1	2	3	
Permeability of the Unsaturated Zone	0 (1) 2 3		1	1	3	
Physical State	0 1 (2) 3		1	2	3	
Total Route Characteristics Score				11	15	
3 Containment	0 1 2 (3)		1	3	3	3.3
4 Waste Characteristics						3.4
Toxicity/Persistence	0 3 6 9 12 15 (18)		1	18	18	
Hazardous Waste Quantity	0 (1) 2 3 4 5 6 7 8		1	1	8	
Total Waste Characteristics Score				19	26	
5 Targets						3.5
Ground Water Use	0 1 2 (3)		3	9	9	
Distance to Nearest Well/Population Served	0 4 6 8 10 12 16 18 20 (24) 30 32 35 40		1	24	40	
Total Targets Score				33	49	
6 If line 1 is 45, multiply 1 x 4 x 5 If line 1 is 0, multiply 2 x 3 x 4 x 5				28,215	57,330	
7 Divide line 6 by 57,330 and multiply by 100			S_{gw} = 49.22			

FIGURE 2
GROUND WATER ROUTE WORK SHEET

Surface Water Route Work Sheet					
Rating Factor	Assigned Value (Circle One)	Multi-plier	Score	Max. Score	Ref. (Section)
1 Observed Release	(0) 45	1	0	45	4.1
If observed release is given a value of 45, proceed to line 4. If observed release is given a value of 0, proceed to line 2.					
2 Route Characteristics					4.2
Facility Slope and Intervening Terrain	0 (1) 2 3	1	1	3	
1-yr. 24-hr. Rainfall	0 1 (2) 3	1	2	3	
Distance to Nearest Surface Water	0 1 2 (3)	2	6	6	
Physical State	0 1 (2) 3	1	2	3	
Total Route Characteristics Score			11	15	
3 Containment	0 1 2 3	1	3	3	4.3
4 Waste Characteristics					4.4
Toxicity/Persistence	0 3 6 9 12 15 (18)	1	18	18	
Hazardous Waste Quantity	0 (1) 2 3 4 5 6 7 8	1	1	8	
Total Waste Characteristics Score			19	26	
5 Targets					4.5
Surface Water Use	0 1 (2) 3	3	6	9	
Distance to a Sensitive Environment	(0) 1 2 3	2	0	6	
Population Served/Distance to Water Intake Downstream	(0) 4 6 8 10 / 12 16 18 20 / 24 30 32 35 40	1	0	40	
Total Targets Score			6	55	
6 If line 1 is 45, multiply 1 x 4 x 5 / If line 1 is 0, multiply 2 x 3 x 4 x 5			3,762	64,350	
7 Divide line 6 by 64,350 and multiply by 100		S_{SW} = 5.85			

FIGURE 7
SURFACE WATER ROUTE WORK SHEET

Air Route Work Sheet					
Rating Factor	Assigned Value (Circle One)	Multi-plier	Score	Max. Score	Ref. (Section)
[1] Observed Release	(0) 45	1	0	45	5.1
Date and Location:					
Sampling Protocol:					
If line [1] is 0, the S_a = 0. Enter on line [5]. If line [1] is 45, then proceed to line [2].					
[2] Waste Characteristics					5.2
Reactivity and Incompatibility	(0) 1 2 3	1	0	3	
Toxicity	(0) 1 2 3	3	0	9	
Hazardous Waste Quantity	0 (1) 2 3 4 5 6 7 8	1	1	8	
	Total Waste Characteristics Score		1	20	
[3] Targets					5.3
Population Within 4-Mile Radius	0 9 12 (15) 18 21 24 27 30	1	15	30	
Distance to Sensitive Environment	(0) 1 2 3	2	0	6	
Land Use	(0) 1 2 3	1	0	3	
	Total Targets Score		15	39	
[4] Multiply [1] x [2] x [3]			0	35,100	
[5] Divide line [4] by 35,100 and multiply by 100		S_a =	0		

FIGURE 9
AIR ROUTE WORK SHEET

	s	s^2
Groundwater Route Score (S_{gw})	49.22	2422.61
Surface Water Route Score (S_{sw})	5.85	34.22
Air Route Score (S_a)	0	0
$S_{gw}^2 + S_{sw}^2 + S_a^2$		2456.83
$\sqrt{S_{gw}^2 + S_{sw}^2 + S_a^2}$		49.57
$\sqrt{S_{gw}^2 + S_{sw}^2 + S_a^2} \,/\, 1.73 = S_M =$		28.65

FIGURE 10
WORKSHEET FOR COMPUTING S_M

The site has not been certified as a significant fire and explosion hazard according to the fire marshal.

Fire and Explosion Work Sheet

Rating Factor	Assigned Value (Circle One)	Multiplier	Score	Max. Score	Ref. (Section)
1 Containment	(1) 3	1	1	3	7.1
2 Waste Characteristics					7.2
Direct Evidence	(0) 3	1	0	3	
Ignitability	(0) 1 2 3	1	0	3	
Reactivity	(0) 1 2 3	1	0	3	
Incompatibility	(0) 1 2 3	1	0	3	
Hazardous Waste Quantity	0 (1) 2 3 4 5 6 7 8	1	1	8	
Total Waste Characteristics Score			1	20	
3 Targets					7.3
Distance to Nearest Population	0 1 2 (3) 4 5	1	3	5	
Distance to Nearest Building	0 (1) 2 3	1	1	3	
Distance to Sensitive Environment	(0) 1 2 3	1	0	3	
Land Use	0 1 2 (3)	1	3	3	
Population Within 2-Mile Radius	0 1 2 3 (4) 5	1	4	5	
Buildings Within 2-Mile Radius	0 1 2 (3) 4 5	1	3	5	
Total Targets Score			14	24	
4 Multiply 1 x 2 x 3				1,440	
5 Divide line 4 by 1,440 and multiply by 100		S_{FE} =			

FIGURE 11
FIRE AND EXPLOSION WORK SHEET

Direct Contact Work Sheet					
Rating Factor	Assigned Value (Circle One)	Multi-plier	Score	Max. Score	Ref. (Section)
1 Observed Incident	(0) 45	1	0	45	8.1
If line 1 is 45, proceed to line 4 If line 1 is 0, proceed to line 2					
2 Accessibility	0 1 2 (3)	1	3	3	8.2
3 Containment	0 (15)	1	15	15	8.3
4 Waste Characteristics Toxicity	0 1 2 (3)	5	15	15	8.4
5 Targets					8.5
Population Within a 1-Mile Radius	0 1 (2) 3 4 5	4	8	20	
Distance to a Critical Habitat	(0) 1 2 3.	4	0	12	
	Total Targets Score		8	32	
6 If line 1 is 45, multiply 1 x 4 x 5 If line 1 is 0, multiply 2 x 3 x 4 x 5			5,400	21,600	
7 Divide line 6 by 21,600 and multiply by 100		S_{DC} = 25			

FIGURE 12
DIRECT CONTACT WORK SHEET

DOCUMENTATION RECORDS

FOR

HAZARD RANKING SYSTEM

Instructions: As briefly as possible summarize the information you used to assign the score for each factor (e.g., "Waste quantity = 4,320 drums plus 80 cubic yards of sludges"). The source of information should be provided for each entry and should be a bibliographic-type reference. Include the location of the document.

Facility Name: Lockport Road-Struzik Property

Location: 2384 Lockport Road, Wheatfield, New York

Date Scored: October 1990

Person Scoring: Sandra Lare

Primary Source(s) of Information (e.g., EPA region, state, FIT, etc.):

Hazards Ranking System Manual, Lockport Road Phase I Report, Niagara County Department of Health, Phase II Investigation Logbooks.

Factors Not Scored Due to Insufficient Information:

None

Comments or Qualifications:

None

1. OBSERVED RELEASE

Contaminants detected (3 maximum):

Lead, iron, and manganese plus other metals were detected in groundwater samples.
Ref. 24, 25

Rationale for attributing the contaminants to the facility:

Downgradient values for GW-3 are more than three times upgradient GW-1, and are commonly associated with industrial wastes.

Ref. 19

* * *

2. ROUTE CHARACTERISTICS

Depth to Aquifer of Concern

Name/description of aquifer(s) of concern:

Lockport Dolomite is the main aquifer of use, consisting of fine to coarse grained dolostone with nodules of gypsum up to 5 inches across. The Lockport is approximately 150 feet thick.

Water bearing zones occur in the fractured top 10 feet of the Lockport Dolomite, and along several bedding planes throughout the aquifer.
Ref. 4, 5

Depth(s) from the ground surface to the highest seasonal level of the saturated zone [water table(s)] of the aquifer of concern:

Depth to the seasonal high water table is approximately 18 inches.

Normal depth to water-bearing zone of aquifer is 10 to 15 feet.
Ref. 5, 6

Depth from the ground surface to the lowest point of waste disposal/storage:

Depth of fill is approximately 6 to 8 feet, or more.
Ref. 2, 10

Net Precipitation

Mean annual or seasonal precipitation (list months for seasonal):

33 inches
Ref. 1

Mean annual or seasonal evaporation (list months for seasonal):

26 inches
Ref. 1

Net precipitation (subtract the above figures):

7 inches

Permeability of Unsaturated Zone

Soil type in unsaturated zone:

Wayland series soils consist of deep, poorly drained medium textured silt loam. The majority of the site contains soil of the Hilton series: deep moderately-drained, medium textured soils, with loam textures ranging from gravelly to silty to sandy. Geotechnical analysis classified on-site soils as claylike silt and silty sand.
Ref. 6, 8, 9

Permeability associated with soil type:

10^{-5} to 10^{-7} cm/sec
Ref. 1

Physical State

Physical state of substances at time of disposal (or at present time for generated gases):

Carbon dust and fly ash would be in the "powder or fine material" category. Also, paper, scrapwood, and graphite material would be "solid and stabilized."
Ref. 1, 2

* * *

3. CONTAINMENT

Containment
Method(s) of waste or leachate containment evaluated:

Landfill with no liner, no runoff or run-on diversion or control. Although one protruding drum was found, it is believed that most of the fill consists of uncontained waste and dirt.
Ref. 2, 12, 19

Method with highest score:

Above, Score = 3
Ref. 1

4. WASTE CHARACTERISTICS

Toxicity and Persistence

Compound(s) evaluated:

Iron, lead, manganese
Ref. 24

Compound with highest score:

Iron, lead, manganese all score a value of 18 for groundwater.
Ref. 1, 23

Hazardous Waste Quantity

Total quantity of hazardous substances at the facility, excluding those with a containment score of 0. (Give a reasonable estimate even if quantity is above maximum.):

Factor scored greater than zero due to hazardous substances detected in groundwater, sediment, surface soil, and waste from the site.
Ref. 24

Basis of estimating and/or computing waste quantity:

No statistically significant basis for estimating hazardous waste quantity. Hazardous waste disposal has not been documented at the site.

* * *

5. TARGETS

Groundwater Use

Use(s) of aquifer(s) of concern within a 3-mile radius of the facility:

Although most residences within 3 miles are connected to the Niagara County Water District (that uses Niagara River water), there are a number that are assumed to use well water for domestic uses (drinking). The Tuscarora Indian Reservation, 1.5 miles north of the site, uses wells and springs as their main source of water.
Ref. 2, 15, 16, 17, 26

Distance to Nearest Well

Location of nearest well drawing from aquifer of concern or occupied building not served by a public water supply:

Nearest two domestic wells are approximately 1.5 to 1.75 miles southeast of the site.
Ref. 2

Distance to above well or building:

Approximately 1.5 to 1.75 miles.
Ref. 2

Population Served by Groundwater Wells Within a 3-Mile Radius

Identified water-supply well(s) drawing from aquifer(s) of concern within a 3-mile radius and populations served by each:

About 14 domestic wells are identified within a 3-mile radius.

The portion of the Tuscarora Indian Reservation within 3 miles has 16 residences using wells and springs as their main source of water (according to well maps in Ref. 5).

Ref. 2, 5, 16, 18, 26

Computation of land area irrigated by supply well(s) drawing from aquifer(s) of concern within a 3-mile radius, and conversion to population (1.5 people per acre):

Groundwater is used on the Tuscarora Reservation to irrigate lawns and small garden plots, but is not used for commercial irrigation. A total of 2,350 acres are within 3 miles of the site, assuming all land is irrigated.

Ref. 18, 26

Total population served by groundwater within a 3-mile radius:

14 wells x 3.8 people/family = 53 people

16 Indian residences x 3.8 people/family = 61 people
2,350 acres irrigated x 1.5 people/acre = 3,525 people

53 + 61 + 3,525 = 3,638 people

1. OBSERVED RELEASE

Contaminants detected in surface water at the facility or downhill from it (5 maximum):

No observed release. Although PAHs, zinc, iron, and other contaminants were found in surface water samples, amounts were not significantly higher than upstream samples.
Ref. 24, 25

Rationale for attributing the contaminants to the facility:

NA

* * *

2. ROUTE CHARACTERISTICS

Facility Slope and Intervening Terrain

Average slope of facility in percent:

Less than 1%
Ref. 2, 3

Name/description of nearest downslope surface water:

Cayuga Creek; NYS Class D surface water, not a drinking water or primary recreation source.
Ref. 7

Average slope of terrain between facility and above-cited surface water body in percent:

Approximately 4%
Ref. 2, 3

Is the facility located either totally or partially in surface water?

No

Is the facility completely surrounded by areas of higher elevation?

No
Ref. 18

1-Year 24-Hour Rainfall in Inches

2.1 inches
Ref. 1, 2

Distance to Nearest Downslope Surface Water

The site directly borders Cayuga Creek, less than 1,000 feet.
Ref. 1, 2, 18

Physical State of Waste

Powder or fine material, and solid waste.
Ref. 1, 2

* * *

3. CONTAINMENT

Containment

Method(s) of waste or leachate containment evaluated:

Landfill is topsoil covered, but there is no runoff diversion system, no liner, and the intervening terrain is such that runoff would lead directly into Cayuga Creek.
Ref. 2, 10, 18

Method with highest score:

Above, score = 3
Ref. 1

4. WASTE CHARACTERISTICS

Toxicity and Persistence

Compound(s) evaluated:

Zinc and iron

Compound with highest score:

Zinc and iron--score 18
Ref. 1, 23

Hazardous Waste Quantity

Total quantity of hazardous substances at the facility, excluding those with a containment score of 0. (Give a reasonable estimate even if quantity is above maximum.):

Factor scored greater than zero due to hazardous substances detected in groundwater, sediment, surface soil, and waste samples from the site.
Ref. 24

Basis of estimating and/or computing waste quantity:

No statistically significant basis for estimating hazardous waste quantity. Hazardous waste disposal has not been documented at the site.

* * *

5. TARGETS

Surface Water Use

Use(s) of surface water within 3 miles downstream of the hazardous substance:

Cayuga Creek is a NYS Class D surface water, suitable for secondary contact recreation but not for drinking or primary contact recreation. There is no other known usage of Cayuga Creek within 3 miles downstream from site.
Ref. 2, 7, 10, 18

Is there tidal influence?

No

Distance to a Sensitive Environment

Distance to 5-acre (minimum) coastal wetland, if 2 miles or less:

None within 2 miles
Ref. 14, 18

Distance to 5-acre (minimum) fresh-water wetland, if 1 mile or less:

None within 1 mile
Ref. 14, 18

Distance to critical habitat of an endangered species or national wildlife refuge, if 1 mile or less:

None within 1 mile
Ref. 11

Population Served by Surface Water

Location(s) of water-supply intake(s) within 3 miles (free-flowing bodies) or 1 mile (static water bodies) downstream of the hazardous substance and population served by each intake:

The nearest intakes are the City of Niagara Falls intakes, located approximately 6 miles downstream from the site, in the Niagara River. None is within 3 miles.
Ref. 17, 18

Computation of land area irrigated by above-cited intake(s) and conversion to population (1.5 people per acre):

NA--greater than 3 miles
Ref. 17, 18

Total population served:

NA--greater than 3 miles

Name/description of nearest of above water bodies:

NA--greater than 3 miles

Distance to above-cited intakes, measured in stream miles:

>6 miles

1. OBSERVED RELEASE

Contaminants detected:

No air samples collected.

Date and location of detection of contaminants:

NA

Methods used to detect the contaminants:

NA

Rationale for attributing the contaminants to the site:

NA

* * *

2. WASTE CHARACTERISTICS

Reactivity and Incompatibility

Most reactive compound:

NA

Most incompatible pair of compounds:

NA

Toxicity

Most toxic compound:

NA

Hazardous Waste Quantity

Total quantity of hazardous waste:

Factor scored greater than zero due to hazardous substances detected in groundwater, sediment, surface soil, and waste from the site.
Ref. 24

Basis of estimating and/or computing waste quantity:

No statistically significant basis for estimating hazardous waste quantity. Hazardous waste disposal has not been documented at the site.

* * *

3. TARGETS

Population Within 4-Mile Radius

Circle radius used, give population, and indicate how determined:

0 to 4 mi	0 to 1 mi	0 to 1/2 mi	0 to 1/4 mi
	247 - 300		

Counted 65 residences in 1 mile radius x 3.8 = 247, plus leeway for people on base at Niagara Falls Air Force Base.
Ref. 1, 18

Distance to a Sensitive Environment

Distance to 5-acre (minimum) coastal wetland, if 2 miles or less:

None within 2 miles
Ref. 14, 18

Distance to 5-acre (minimum) fresh-water wetland, if 1 mile or less:

None within 1 mile
Ref. 14, 18

Distance to critical habitat of an endangered species, if 1 mile or less:

None within 1 mile
Ref. 11

Land Use

Distance to commercial/industrial area, if 1 mile or less:

Active commercial zone is across Lockport Road, to the northeast about 0.25 mile.
Ref. 11, 14, 18

Distance to national or state park, forest, wildlife reserve, if 2 miles or less:

None within 2 miles
Ref. 11, 14, 18

Distance to residential area, if 2 miles or less:

Residences are located within 0.25 mile of the site.
Ref. 14, 18

Distance to agricultural land in production within past 5 years, if 1 mile or less:

Active agricultural land exists within 0.25 mile or less of the site.
Ref. 14, 18

Distance to prime agricultural land in production within past 5 years, if 2 miles or less:

Prime agricultural land is 0.25 to 0.5 mile east of the site.
Ref. 14, 18

Is a historic or landmark site (National Register of Historic Places and National Natural Landmarks) within the view of the site?

No
Ref. 20

FIRE AND EXPLOSION

1. CONTAINMENT

Hazardous substances present:

Site has not been certified as a significant fire and explosion hazard according to fire marshal.
Ref. 22

Type of containment, if applicable:

NA

* * *

2. WASTE CHARACTERISTICS

Direct Evidence

Type of instrument and measurements:

NA

Ignitability

Compound used:

NA

Reactivity

Most reactive compound:

NA

Incompatibility

Most incompatible pair of compounds:

NA

Hazardous Waste Quantity

Total quantity of hazardous substances at the facility:

Factor scored greater than zero due to hazardous substances detected in groundwater, sediment, surface soil, and waste from the site.
Ref. 24

Basis of estimating and/or computing waste quantity:

No statistically significant basis for estimating hazardous waste quantity. Hazardous waste disposal has not been documented at the site.

* * *

3. TARGETS

Distance to Nearest Population

0.25 mile
Ref. 14, 18

Distance to Nearest Building

0.25 mile
Ref. 14, 18

Distance to a Sensitive Environment

Distance to wetlands:

None within 2 miles
Ref. 14, 18

Distance to critical habitat:

None within 1 mile
Ref. 11

Land Use

Distance to commercial/industrial area, if 1 mile or less:

0.25 mile
Ref. 14, 18

Distance to national or state park, forest, or wildlife reserve, if 2 miles or less:

None within 2 miles
Ref. 11, 14, 18

Distance to residential area, if 2 miles or less:

0.25 mile
Ref. 14, 18

Distance to agricultural land in production within past 5 years, if 1 mile or less:

0.25 mile or less
Ref. 14, 18

Distance to prime agricultural land in production within past 5 years, if 2 miles or less:

0.25 to 0.5 mile
Ref. 14, 18

Is a historic or landmark site (National Register of Historic Places and National Natural Landmarks) within the view of the site?

No
Ref. 20

Population Within 2-Mile Radius

3.8 x 1,200 buildings = 4,560
Ref. 18

Buildings Within 2-Mile Radius

1,200
Ref. 18

1. OBSERVED INCIDENT

Date, location, and pertinent details of incident:

No incident has been recorded in which direct contact with substances at the site has resulted in death, injury, or illness to humans or animals.
Ref. 2, 12, 10

* * *

2. ACCESSIBILITY

Describe type of barrier(s):

No barriers to the site to prevent access.
Score = 3
Ref. 13

* * *

3. CONTAINMENT

Type of containment, if applicable:

None
Score = 15
The grass-covered landfill has carbon dust and chunks visible on the surface in some areas, and a protruding drum.
Ref. 19

* * *

4. WASTE CHARACTERISTICS

Toxicity

Compounds evaluated:

Waste samples revealed cadmium and zinc.
Ref. 24

Compound with highest score:

Cadmium with a score of 3.
Ref. 1

* * *

5. TARGETS

Population Within One-Mile Radius

247 - 300 people

Distance to Critical Habitat (of endangered species)

Greater than 1 mile
Ref. 11

REFERENCES

If the entire reference is not available for public review in the EPA regional files on this site, indicate where the reference may be found.

Reference Number	Description of the Reference
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20	National Conference of State Historic Preservation Officers, 1989, National Register of Historic Places, 1966 - 1988. Document Location: Ecology and Environment Engineering, P.C., Buffalo, New York.
21	Shacklette, H.T. and J.G. Boerngen, 1984, "Element Concentrations in Soils and Other Surficial materials of the Conterminous United States," U.S. Geological Survey Professional Paper 1270. Document Location: Ecology and Environment Engineering, P.C., Buffalo, New York.
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02[UZ]YQ2080:D3249/5546

Linda Fare
~~Donald Johnson~~
Personal Copy

Uncontrolled Hazardous Waste Site Ranking System

A Users Manual
(HW-10)

Originally Published in
the July 16, 1982, *Federal Register*

United States
Environmental Protection
Agency

1984

REFERENCE NO. 2

932094 IGINEERING INVESTIGATIONS AT INACTIVE HAZARDOUS WASTE SITES

PHASE I INVESTIGATION

Lockport Road Site Site No. 932094
Niagara County

DATE: April 1987

Prepared for:
New York State Department of Environmental Conservation

50 Wolf Road, Albany, New York 12233
Henry G. Williams, *Commissioner*

Division of Solid and Hazardous Waste
Norman H. Nosenchuck, P.E., *Director*

By:

Recra Environmental, Inc.

NEAREST DOMESTIC WELL
TO LOCKPORT ROAD SITE

TABLE 3.5
WATER WELL DATA FOR NIAGARA FALLS AFRF AND VICINITY

	Owner &/or Location	Depth (feet) Well	Depth (feet) Casing	Hydrogeologic Unit(s) Tapped By Well	Water Level (feet) Below Land Surface	Water Level (feet) Date mm/dd/yr	Water Level (feet) Approximate Elevation Above NGVD	Use
71	Wendt Dairy	35	22	Sl	—	—	—	U
51	H. Moll	25	—	Sl -	7.4	10/20/60	562.6	U —
52	H. Moll	20	18	Qsg and Sl -	11.1	10/20/60	558.9	U —
53	Union Carbide Chemical Co.	100	6	Sl	28	1940	549.0	A
31 ✓	E. Lass	49	40	Sl -	6.3	10/26/60	573.7	D —
41 ✓	R. Jaeger	19	—	Qsg -	—	—	—	D —
51	C.Swearengen	28	—	Sl	12.1	8/8/60	595.9	U
52	W. Mick	49	—	Sl	34.6	8/8/60	589.4	U
53	L.Toni	31	—	Sl	13.9	6/2/61	591.1	D
54	Haggerty	40	—	Sl	28.4	10/5/60	576.6	U
91	—	75	12	Sl	10.3	11/15/62	602.7	O
93	W. Lozan	31	15	Sl	12.5	8/8/60	607.5	U
94	J. Patterson	34	—	Sl	34.0	8/7/60	575.0	U
06	A.W. Nuzum	55	10	Sl	12.3	6/2/61	589.7	C
07	E. Schul	25	—	Sl	15.8	8/8/60	584.2	U
08	Military Road School	45	—	Sl	14.8	6/2/61	596.2	I
09	L. Cora	26	—	Sl	17.4	6/2/61	583.6	U
41	W. Kroening	38	—	Sl -	23.1	10/27/60	606.9	S —
61	H. Easley	38	—	Sl -	27.9	10/27/60	612.1	D —
71	F. Scholefield	38	—	Sl -	13.4	8/7/60	616.6	U —
72	A. Wittcapp	34	—	Sl -	25.6	10/27/60	614.4	D —
81	Colonial Village School	37	11	Sl	20.8	8/8/60	608.2	U
82	E. Heath	44	—	Sl -	25.1	8/7/60	612.9	D —
83	Holland	49	—	Sl -	12.0	8/8/60	617.0	D —
84	Wagner	33	13	Sl	16.5	11/2/61	613.5	D
85	PC	45	6	Sl -	13.4	11/15/62	620.6	O —
86	PASNY	61	10	Sl	1.0	11/15/62	620.0	PR
87	PASNY	61	10	Sl	2.6	11/15/62	620.4	PR
91	NMPC	65	11	Sl	20.0	11/15/62	586.0	O
93	NMPC	16	12	Sl	4.1	11/15/62	602.9	O
94	NMPC	100	16	Sl	8.4	11/15/62	602.6	O
95	NMPC	16	14	Qti	8.3	10/30/62	602.7	O
96	NMPC	68	19	Sl	11.7	11/15/62	602.3	O
98	PASNY	98	21	Sl	6.5	11/15/62	603.5	O
99	PASNY	11	8	Qti	9.8	10/30/62	600.2	O
5910	—	100	12	Sl	6.0	11/15/62	604.0	O
5911	—	74	15	Sl	7.7	11/15/62	604.3	O
5913	J. Williams	24	22	Sl	15.8	8/8/60	597.2	D
	Corps of Engineers	268	—	Sl, Sr, Sc, Sa	—	—	—	GO
	Corps of Engineers	238	—	Sl, Sr, Sc, Sa	—	—	—	GO
	—	—	—	Sl	—	—	—	D —
	—	—	—	Sl	—	—	—	D —
	—	—	—	Sl	—	—	—	D —
	—	—	—	Sl	—	—	—	D —
	William Beutel & Sons	1,447	—	—	—	—	—	NG
	Love Canal Area (147 Wells)	—	—	Qd and Sl	—	—	—	O
	Carborundum Process Equipment Div. Plant	35	—	Sl	—	—	—	I —
	Carborundum Walmore Road Plant (5 Wells)	—	—	Qd	—	—	—	O —
	Bell Aerospace Plant (9 Wells)	—	—	Qd and Sl	—	—	—	O —

Use
- A = Abandoned
- C = Commercial
- D = Domestic
- GO = Geological Observation
- I = Industrial
- NG = Natural Gas
- O = Observation
- PR = Pressure Relief
- U = Unused

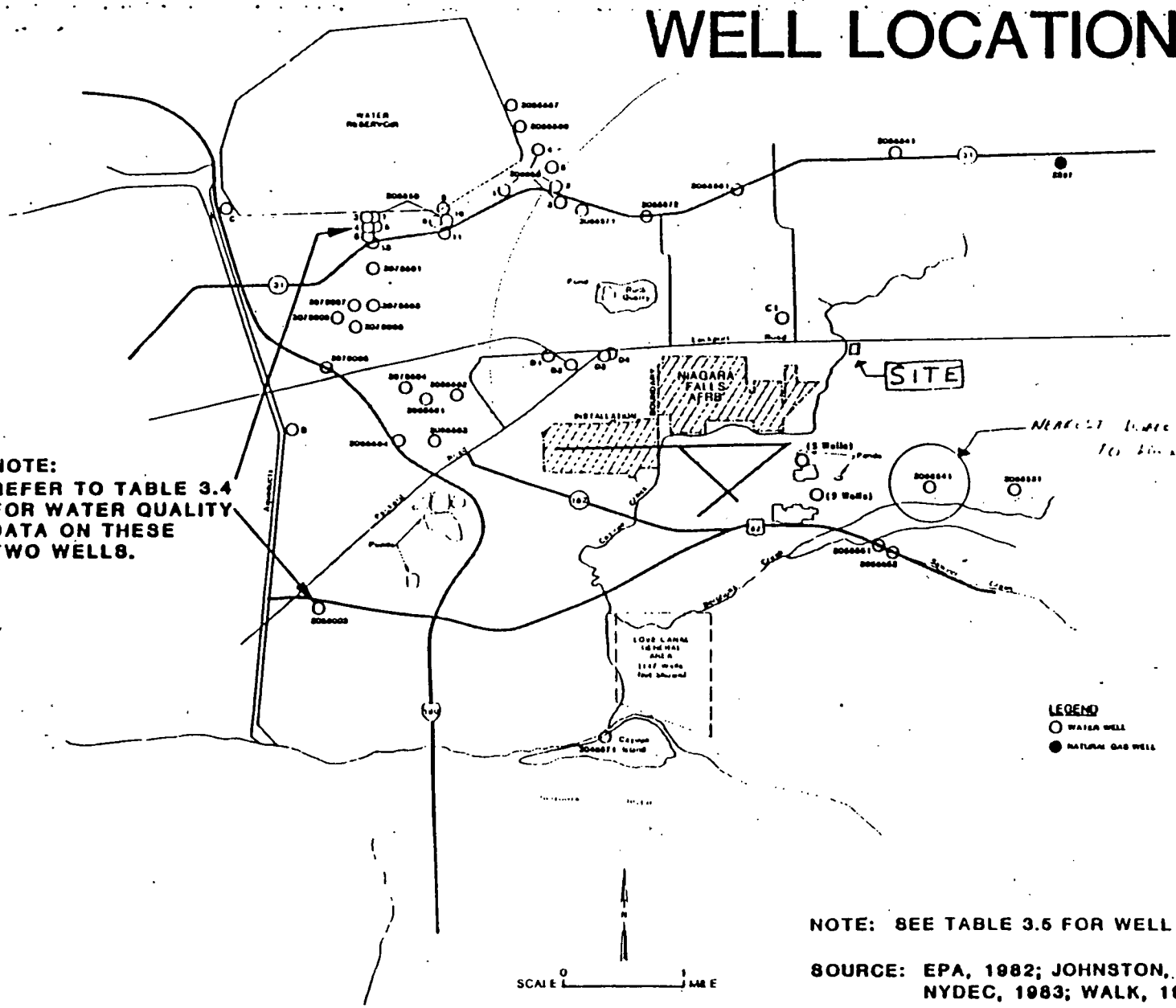
OWNER and/or Location
- NMPC = Niagara Mohawk Power Corporation
- PASNY = Power Authority of the state of New York

Hydrogeologic Unit(s) Tapped By Well
- Qd = Pleistocene deposits, undifferentiated
- Qsg = Pleistocene sand and gravel
- Qt = Pleistocene glacial till
- Sa = Albion Group
- Sc = Clinton Group
- = Lockport Dolomite
- = Rochester Shale

rces: Johnston, 1967; EPA, 1982; Bailey, 1983; NYDEC, 1983; Walk, 1983; Town of Niagara, 1983.

NIAGARA FALLS AFRF

WELL LOCATION MAP



NOTE: SEE TABLE 3.5 FOR WELL DATA

SOURCE: EPA, 1982; JOHNSTON, 1984; BAILEY, 1983
NYDEC, 1983; WALK, 1983: TOWN OF NIAGARA, 1983

FIGURE 3.13

FILE; LOCKPORT RD
STRUZIK PROPERTY
932094

NUS CORPORATION
A Halliburton Company

COMPLETED

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
EXECUTIVE SUMMARY

Walmore Road Dump Site Name	NYD000514463 EPA Site ID Number
Wheatfield, New York Address	02-8706-29 TDD Number

Date of Site Visit: 8/5/87

DRAFT

SITE DESCRIPTION

The Walmore Road Dump is located in Wheatfield, Niagara County, New York. This 0.34-acre site is situated in an agricultural section of Wheatfield. The Niagara Falls Air Force Base lies approximately 1 mile to the west, and the City of Niagara Falls is located less than 2 miles southwest of the site. Cayuga Creek, which is adjacent to the western boundary, enters the Niagara River approximately 6 miles downstream from the site.

In 1965, an area located adjacent to Cayuga Creek received approximately 2,000 cubic yards of carbon dust, graphite material, and paper from Carborundum bringing it up to grade. It is also suspected that this site was used by Bell Aerospace for the disposal of scrap wood, fly ash, and clay. Mr. Edward Struzik, who owned the property at the time, gave Mr. Steve Washuta, of the Modern Disposal Company, permission to fill the area with carbon dust. In 1982, the property was sold to the Church of God, which plans to begin construction of a church there in late 1987.

Low levels of arsenic, chromium, copper, lead, nickel, and zinc were detected in a soil sample collected on site by the New York State Department of Environmental Conservation in 1982. NUS Corporation Region 2 FIT, conducted a site investigation on August 5, 1987 and collected 7 soil and 2 surface water samples.

HAZARD RANKING SCORE: No score pending analytical results.

Prepared by: Elizabeth Torpey
of NUS Corporation

Date: 09/15/87

and environment 5-33

GEOLOGIC MAP OF NEW YORK

1970

Niagara Sheet

Scale 1:250,000

5 0 5 10 15 Statute Miles 20

REFERENCE NO. 5

GROUND WATER IN THE NIAGARA FALLS AREA, NEW YORK

With Emphasis on the Water-Bearing Characteristics of the Bedrock

BY

RICHARD H. JOHNSTON

GEOLOGIST

U.S. GEOLOGICAL SURVEY

STATE OF NEW YORK

CONSERVATION DEPARTMENT

WATER RESOURCES COMMISSION

BULLETIN GW-53

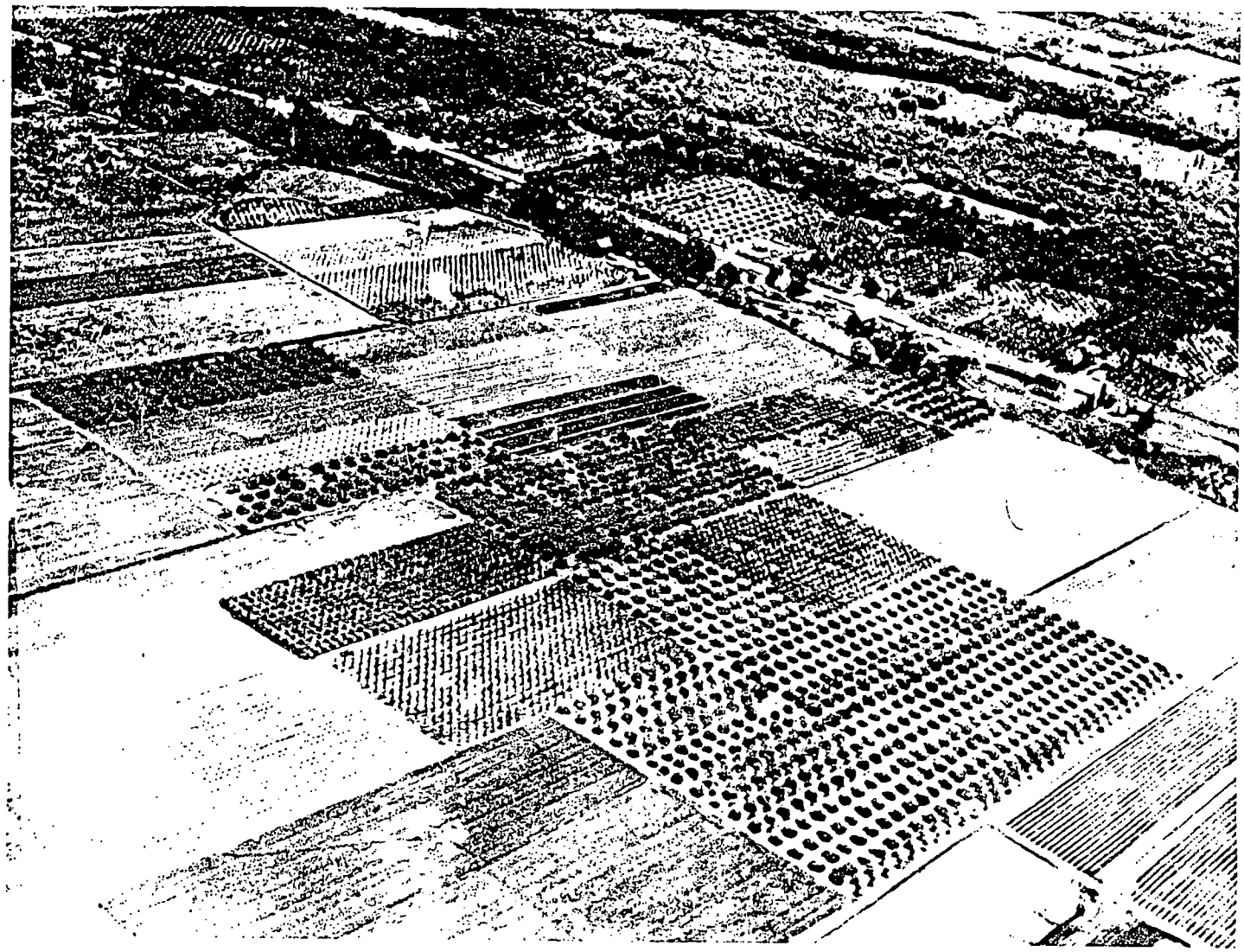
1964

5-35

REFERENCE NO. 6

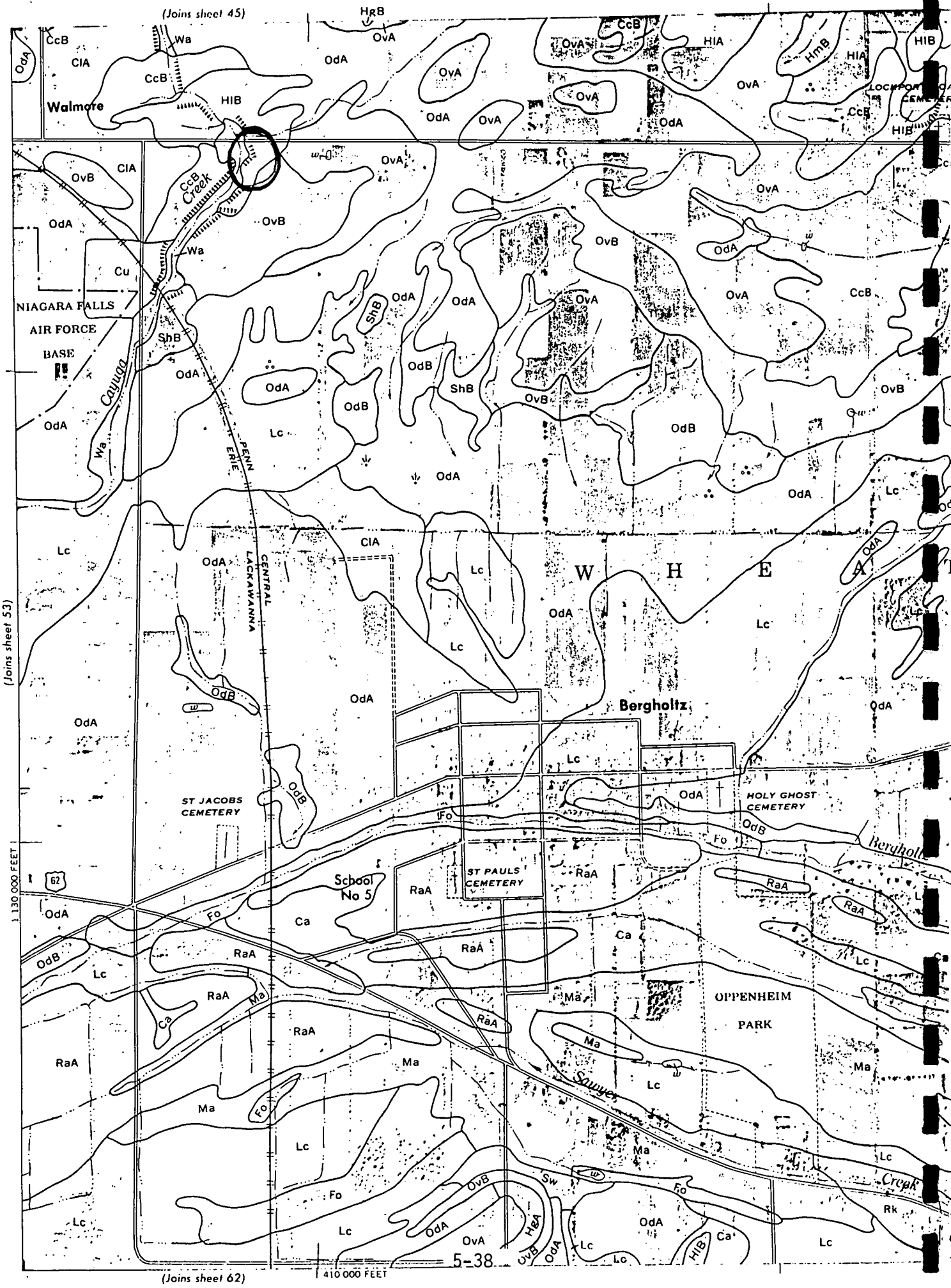
SOIL SURVEY OF

Niagara County, New York



United States Department of Agriculture
Soil Conservation Service
In cooperation with
Cornell University Agricultural Experiment Station

Issued October 1972


(Joins sheet 45)
Walmore
NIAGARA FALLS AIR FORCE BASE
Cayuga Creek
PENN CENTRAL
LACKAWANNA
ERIE
Bergholtz
ST JACOBS CEMETERY
ST PAULS CEMETERY
HOLY GHOST CEMETERY
School No 5
OPPENHEIM PARK
Sawyer Creek
(Joins sheet 53)
(Joins sheet 62)
1 130 000 FEET
410 000 FEET
Scale 1:15 840
5 000 Feet
1 000
2 000
3 000
4 000
5 000

Hilton Series

The Hilton series consists of deep, moderately well drained, medium-textured soils. These soils formed in calcareous glacial till containing sandstone and limestone fragments. They are nearly level to gently sloping and are on the till plain in all parts of the county. The largest acreage is in three general areas of the county. One is parallel to the limestone escarpment, another is in the west-central part of Newfane, and the other is near the southeastern part of Somerset.

A representative profile of a Hilton soil has a dark-brown gravelly loam surface layer 9 inches thick. The surface layer is underlain by brown, friable loam that has a few light yellowish-brown mottles and is 6 inches thick. This layer is medium acid and contains some angular and semirounded rock fragments. At a depth of 15 inches, it merges with a reddish-brown subsoil that is firm heavy loam and contains reddish-yellow mottles. The subsoil also contains semirounded rock fragments, is slightly acid in the upper part, and is neutral in the lower part. At a depth of 30 inches a calcareous substratum occurs. It is a reddish-brown gravelly light loam that is about 20 percent semirounded fragments.

Permeability is moderate or moderately rapid in the upper part of Hilton soils and is moderately slow or slow in the lower part of the subsoil and in the substratum. The seasonal high water table rises to within 18 inches of the surface and is perched above the slowly permeable underlying glacial till. The Hilton soils are wet for brief but significant periods after prolonged wet weather. The depth of soil available for rooting is restricted mainly to the uppermost 15 to 24 inches early in the growing season, but as the water table drops, a few fine roots extend to as much as 40 inches below the surface or to the depth of the underlying glacial till. The available moisture capacity is high. In some areas there are enough coarse fragments to interfere with tillage and other cultural operations. These soils generally are well suited to most crops grown in the county.

Representative profile of Hilton gravelly loam, 0 to 3 percent slopes, in the town of Somerset, 100 feet south of West Somerset Road and three-tenths of a mile west of its junction with Hartland Road; cultivated area:

Ap--0 to 9 inches, brown to dark-brown (10YR 4/3) gravelly loam, pale brown (10YR 6/3) when dry; weak, fine and medium, granular structure; friable; abundant fine roots; 15 to 20 percent coarse fragments; medium acid; clear, smooth boundary. 6 to 10 inches thick.

A2--9 to 15 inches, brown (10YR 5/3) light loam; few, fine, faint, light yellowish-brown (10YR 6/4) mottles; weak, thin, platy structure or massive; friable; plentiful fine roots; about 10 percent coarse fragments; medium acid; clear, irregular boundary. 0 to 8 inches thick.

B&A--15 to 19 inches, reddish-brown (5YR 5/3) loam; moderate, medium and coarse, subangular blocky structure; firm; interfingering of brown (10YR 5/3) silt and very fine sand coatings that are thickest in upper part; patchy clay films on about 10 percent of ped faces; plentiful roots; about 10 percent coarse fragments; slightly acid; clear, wavy boundary. 2 to 6 inches thick.

B2t--19 to 30 inches, reddish-brown (5YR 5/3) heavy loam; common, medium, distinct, reddish-yellow (7.5YR 6/6) mottles; moderate, medium and coarse, subangular blocky structure; firm; thin clay films on about 20 percent of ped faces and thicker films in the pores; few clay flows along vertical channels; plentiful roots in upper part of horizon and few roots in lower part; about 10 percent coarse fragments; slightly acid in upper part, neutral in lower part; clear, wavy boundary. 8 to 17 inches thick.

C--30 to 60 inches, reddish-brown (5YR 5/3) gravelly light loam; weak, medium and thin, platy structure; firm; about 20 percent coarse fragments; no roots; calcareous.

Thickness of the solum and depth to carbonates range from 24 to 36 inches. Bedrock is at a depth of more than 40 inches. Content of coarse fragments ranges from less than 5 percent to as much as 35 percent in any horizon. Coarse fragments typically are more than 5 percent throughout the solum and are more than 10 percent in the underlying glacial till. The Ap horizon ranges from gravelly loam to silt loam. It is 10YR or 7.5YR in hue and, when moist, 3 or 4 in value. Chroma is 2 or 3. When the Ap horizon is dry, values are more than 5.5. Reaction ranges from medium acid to neutral. The A2 horizon ranges from fine sandy loam or gravelly fine sandy loam to loam or gravelly loam. It ranges from 10YR to 5YR in hue and has a matrix value of 4 or 5 and a chroma of 4 or 3. The A2 horizon is faintly mottled in some places. It has platy or weak, blocky structure, or it is massive. Reaction is medium acid to slightly acid. The A2 horizon is absent in some places where the soil is plowed deeply or is eroded.

In the B&A horizon, the A part has the same range in color, texture, and other characteristics as the A2 horizon, and the B part has the same range as the B horizon. The B horizon is loam or silt loam averaging 18 to 27 percent clay. Hue ranges from 10YR to 2.5YR, value of the matrix is 4 or 5, and chroma is 3 or 4. In the B horizon the chroma of mottles is more than the chroma of the matrix. Mottles of low chroma are present in some profiles, but mottles that have a chroma of 2 do not occur in the upper 10 inches of the B2t horizon. Clay films are patchy or nearly continuous on the ped surfaces of some profiles. The B horizon has moderate, medium or coarse, blocky structure. It ranges from medium acid to neutral.

The C horizon is generally firm or very firm gravelly fine sandy loam or loam, but it is stony

to a depth of 40 inches, the content of clay ranges from 5 to 18 percent. The average is less than 40 percent.

horizon has a hue of 10YR or 7.5YR, value and chroma of 1 or 2. Chroma is 2 or more than 60 percent of the matrix in the A2 but chroma is more than 2 in more than 40 of the matrix of some horizons between the and a depth of 30 inches.

horizon ranges mainly from 10YR to 5YR includes GY gray hues; value is 5 or 6 is 0 or 1. Texture ranges from fine to silt loam. The B22 horizon ranges to 5YR in hue, from 4 to 6 in value, and to 4 in chroma. Texture ranges from fine to silt loam.

horizon ranges from 10YR to 5YR in hue, to 6 in value, and from 2 to 4 in chroma. ranges from sandy loam to loam.

soils formed in deposits similar to those moderately well drained Bombay soils, the mod- well drained Hilton soils, the somewhat drained Appleton soils, and the somewhat drained to poorly drained Massena soils. Sun similar to Lamson soils in texture and but formed mainly in glacial till. Less in the B horizon of Sun soils than is in the Canandaigua soils.

silt loam (Sw).--This nearly level soil oc- low areas in the glacial till plain. Slopes than 4 percent. The soil also occurs in surrounded by better drained soils. from less than 5 to more than 100 acres They are roughly oblong and in many places a northeast-southwest direction. In a few they are in narrow strips along drainageways. ability is moderate in the surface layer and slow or slow in the substratum. Runoff slow, and this soil is ponded at times. commonly included with this soil in mapping of Appleton, Hilton, Massena, Canandaigua, soils. Because areas of Sun silt loam of the limestone escarpment are slightly finer than areas in the northern part of the. the Hilton, Appleton, and Canandaigua are commonly included soils in the southern of the county. Massena and Lamson soils are common inclusions in the northern parts of . In some included areas, the surface la- dark. Inclusions that have a sandy and surface layer are generally indicated on by the appropriate symbols.

areas of this soil can be used for and trees and for wetland wildlife. If ade- drained, this soil can be used for most cul- crops. The growing of fruit is questionable. a suitable outlet for drainage is difficult places. Locally, stones are a limitation to ability unit IIw-1; woodland suitability

Wayland Series

The Wayland series consists of deep, poorly drained to very poorly drained, medium-textured soils. These level to nearly level soils formed in recent alluvial deposits. They are of limited extent in the county and generally occur mainly along the major creeks. They occupy positions that are farthest from the main flow of water but are yet within the flood plain. Slopes are less than 3 percent.

A representative profile of a Wayland soil has a very dark grayish brown silt loam surface layer 8 inches thick. The upper part of the subsoil is friable, dark-gray silt loam. It contains many yellowish-red mottles, is neutral, and extends to a depth of 18 inches. The lower part of the subsoil is between depths of 18 inches and 30 inches and consists of firm, brown silt loam. It is neutral and contains many strong-brown and reddish-yellow mottles. The substratum is between depths of 30 and 50 inches. It is firm, mottled, reddish-brown silty clay loam that is neutral to moderately alkaline.

The Wayland soils have a seasonal high water table and are usually flooded at least once each year. The water table is at the surface early in spring and in other excessively wet periods. Many areas are subject to frequent flooding. Roots are limited by the depth to the water table. Most roots are confined to the dark surface layer. The available moisture capacity is moderate.

Representative profile of Wayland silt loam in the town of Lockport, 350 yards east of State Route 78 and two-fifths mile south of Wicks Road; woodland:

Ap--0 to 8 inches, very dark grayish brown (10YR 3/2) silt loam; dark gray (10YR 4/1) when dry; moderate, medium, granular structure; very friable; neutral; clear, wavy boundary. 6 to 9 inches thick.

B21g--8 to 18 inches, dark-gray (10YR 4/1) silt loam; many (about 35 percent), medium, distinct, yellowish-red (5YR 5/6) mottles; weak, coarse, granular structure; friable; neutral; clear, wavy boundary. 8 to 20 inches thick.

B22g--18 to 30 inches, brown (7.5YR 5/2) silt loam; many (about 35 percent), medium, distinct, strong-brown (7.5YR 5/8) and reddish-yellow (7.5YR 6/8) mottles; very weak, coarse, subangular blocky structure; firm; neutral; clear, wavy boundary. 6 to 18 inches thick.

IIC--30 to 50 inches, reddish-brown (5YR 4/3) silty clay loam; many, fine and medium, distinct, yellowish-red (5YR 4/6) mottles; weak, thick, platy structure; firm; neutral to moderately alkaline.

Thickness of the silty deposit over variable material ranges from 20 to 40 inches. The dominant range is 24 to 36 inches. Reaction is neutral to a depth of 20 inches and is neutral to moderately alkaline below 20 inches.

The Ap horizon ranges from 7.5YR to 2.5 in hue and is 2 or less in chroma. Value is 2 or 3 when the Ap horizon is moist and is less than 6 when it is dry. Thickness of the Ap horizon is less than one-third the depth to carbonates.

The C horizon ranges from 2.5Y to 4YR in hue and from 4 to 6 in value. Chroma is 1 or 2 to a depth of 30 inches and ranges from 1 to 4 below 30 inches. Mottles are generally higher chroma but are less than 35 percent of the matrix to a depth of 30 inches. The C horizon ranges from silt loam to silty clay loam. Average clay content between the Ap horizon and a depth of 40 inches ranges from 18 to 35 percent. Below a depth of 40 inches, the material is variable. Many profiles are underlain by red shale.

The Wayland soils formed in deposits similar to those of the well-drained Hamlin soils. The Wayland soils are more uniform in texture than Alluvial land and have a more developed profile.

Wayland silt loam (Wa).--This soil is in the lower areas of the flood plains and is normally in slack-water areas at the outer edge of these plains. Areas range from about 5 to 25 acres in size. In many places these areas are long, narrow strips in the flood plains.

Included with this soil in mapping are areas of drier soils that formed in similar materials. Also included are small spots of Hamlin soils. Alluvial land is included in many areas. In some included areas, red shale bedrock is at a depth of less than 40 inches. In a few areas south of the limestone escarpment, included soils are moderately deep to limestone bedrock.

Where this soil is undrained, it is suited to pasture and trees or to wildlife. Most areas are too small to be profitably drained. These areas are difficult to drain because of their position in the landscape. Drained areas should be protected from flooding. (Capability unit IIIw-6; woodland suitability group 4w1)

FORMATION, MORPHOLOGY, AND CLASSIFICATION OF SOILS

Soils are formed through the interaction of five major factors--climate, plant and animal life, parent material, relief, and time. The relative influence of each factor generally varies from place to place. Local variations in soils are the result of differences in kind of parent material and in relief and drainage. In places one factor may dominate the formation of a soil and determine most of its properties.

Factors of Soil Formation

The five factors of soil formation, as they relate to the formation of soils in Niagara County, are discussed in the following pages.

Climate

Climate, particularly temperature and precipitation, is one of the most influential soil-forming factors. To a large degree, climate determines the weathering of mineral materials. It also affects the growth of vegetation and the leaching and translocation of weathered materials. In Niagara County the climate was cool and humid during the period of soil formation in which organic matter has accumulated in the surface layer of the soils. For more detailed information on present climate, see the section "General Nature of the County."

Plant and Animal Life

All living organisms, including plants, animals, bacteria, and fungi, are important in the formation of soils. The kinds and amounts of vegetation are generally responsible for the content of organic matter and the color of the surface layer and for the amount of plant nutrients in the soils. Animals, such as earthworms, cicada, and burrowing animals, help keep the soil open and porous. Bacteria and fungi decompose the vegetation, and decomposition releases nutrients for plant food. In Niagara County the native forests have had more influence on soil formation than any other living organism.

By clearing the forests and cultivating the land, man has also greatly influenced the changes that occur in soils. He has added fertilizers, mixed some soil horizons, and even moved soil materials from place to place.

Parent Material

Parent material is the unconsolidated masses in which the soils formed. It determines the mineralogical and chemical composition of the soils and, to a large extent, the rate that soils form.

In Niagara County soils have formed in glacial till, glacial outwash, glaciolacustrine materials, recent stream alluvium, and organic materials. Most of the materials in which the soils formed were left after the glaciers melted 10,000 to 15,000 years ago. Alluvial and organic materials are of recent origin and are being deposited at the present time. Soils formed in glacial till are the most extensive in the county and have a wide range of characteristics. The Ontario, Hilton, Appleton, and Sun soils are examples of soils derived from glacial till. Soils formed in glacial outwash are generally loamy and commonly are underlain by stratified sand and gravel. Examples of soils of this kind are in the Howard and Phelps series.

The soils that formed in lacustrine materials have a surface layer ranging from loamy fine sand to silty clay loam. Examples of soils formed in coarse-textured lacustrine material are in the Colonie, Elnora, and Claverack series. Examples of soils

REFERENCE NO. 7

ref 7

STATE OF NEW YORK

OFFICIAL COMPILATION

OF

CODES, RULES AND REGULATIONS

MARIO M. CUOMO
Governor

GAIL S. SHAFFER
Secretary of State

5-43

Published by
DEPARTMENT OF STATE
162 Washington Avenue
Albany, New York 12231

1/89

TABLE I (contd.)

Item No.	Waters Index Number	Name	Description	Map Ref. No.	Class	Standards
13	0-158-7	Tributary of Niagara River	Enters Niagara River (Little River) from northwest at S. 86th Street, Niagara Falls, New York.	2	C	C
14	0-158-8 portion as described	Cayuga Creek	Enters Niagara River (Little River) from north at 87th Street, Niagara Falls, New York. Mouth to trib. 2 which is approximately 500 feet north of Homestead Avenue, town of Niagara.	2	C	C
15	0-158-8 portion as described	Cayuga Creek	From trib. 2 which is approximately 500 feet north of Homestead Avenue, Town of Niagara to source.	2	D	D
16	0-158-8-1 and tribs. as shown on reference map	Bergholtz Creek	Enters Cayuga Creek from east at Cayuga Drive, Niagara Falls, New York.	2	D	D
17	0-158-8-2,3,4 and 5	Tributaries of Cayuga Creek	Enter Cayuga Creek west, north and east at points north of Niagara Falls city line.	2	D	D
18	0-158-9,10 and 11 and trib. as shown	Tributaries of Niagara River	Enter Niagara River from north and east within City of North Tonawanda, New York	2	D	D

REFERENCE NO. 8

SEE APPENDIX C OF THIS REPORT

SUBSURFACE BORING LOGS

REFERENCE NO. 9

SEE APPENDIX E OF THIS REPORT

REFERENCE NO. 10

(ref 10)

doc#1198P

STATE ID # 932094 A (North)
STATE CLASS. 2a
DOH RANKING ____
DEC RANKING ____
HRS SCORE ____

BUREAU OF TOXIC SUBSTANCE ASSESSMENT
HAZARDOUS WASTE SITE INSPECTION REPORT

Identifying Information

SITE NAME: Walmore Rd - Lockport Rd site

ADDRESS: Lockport Rd at Cayuga Creek crossing Wheatfield

OWNER: Edward Struzik

ADDRESS & PHONE NO.: 2254 Lockport Rd, Wheatfield NY [illegible] (716)

LOCAL CONTACT: Edward Struzik

ADDRESS & PHONE NO.: 5 Main St, Niagara Falls, NY [illegible] (716)

DEC REGION: 9 DOH REGION: Buffalo COUNTY: Niagara TOWN: Wheatfield

QUADRANGLE MAP: Tonawanda West & Ransomville Quads

INSPECTORS & DATE: Wm Gilday w/ M. Hopkins of NCHD 05/15/85
WMG

Site Data

SIZE (acres): ~1/3 TERRAIN: Hilly ____ Flat X area of Cayuga Cr [illegible]

SUBURBAN: Bergholtz village [illegible] URBAN: ____ RURAL: X farms w/ scattered residences

INDUSTRIAL: X MUNICIPAL: ____ OTHER: ____

ACTIVE: ____ INACTIVE: X

KNOWN AND SUSPECTED USERS: Airco - Speer waste disposed by Modern Disposal Services

CONTAMINANTS OF CONCERN:		KNOWN CONTAMINATION:	On Site	Off Site
Soil Vapor	____	Air	UNK	UNK
Soil Contact	____	Groundwater	UNK	?
Groundwater	____	Surface Water	UNK	____
GW VAP	____	Drinking Water	UNK	____
		Surface Soil	No	____
		Sub Surface Soil	UNK	?
		SOIL VAP	UNK	UNK

Site Status

Inspection: DEC, NCHD

Investigation: Surface soil sample by DEC

Negotiation: No

Litigation: No

Remediation: No

Agencies Involved:

DOH Minimal

DEC sampling inspections

DOL No

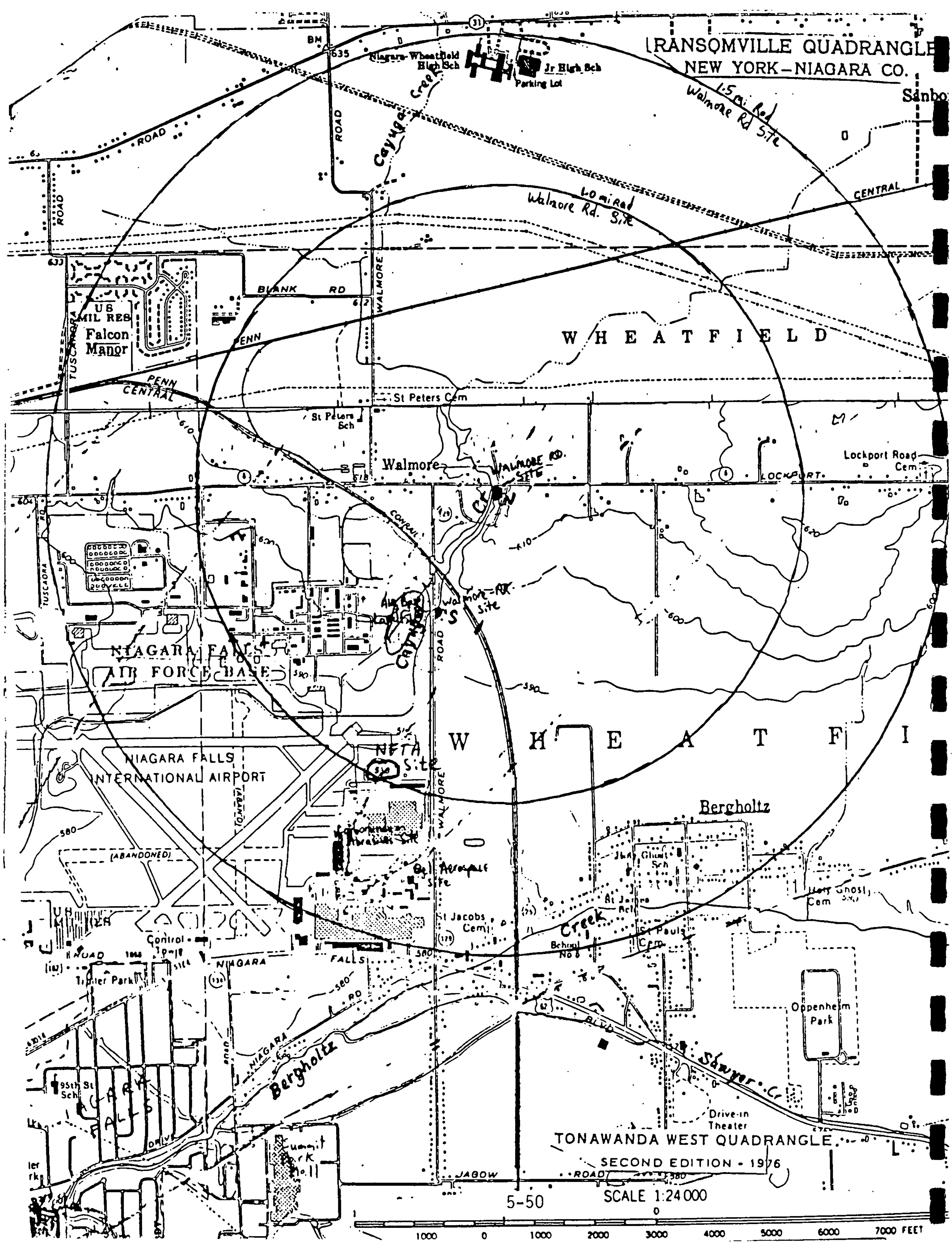
EPA No

County inspections, Part ? Report

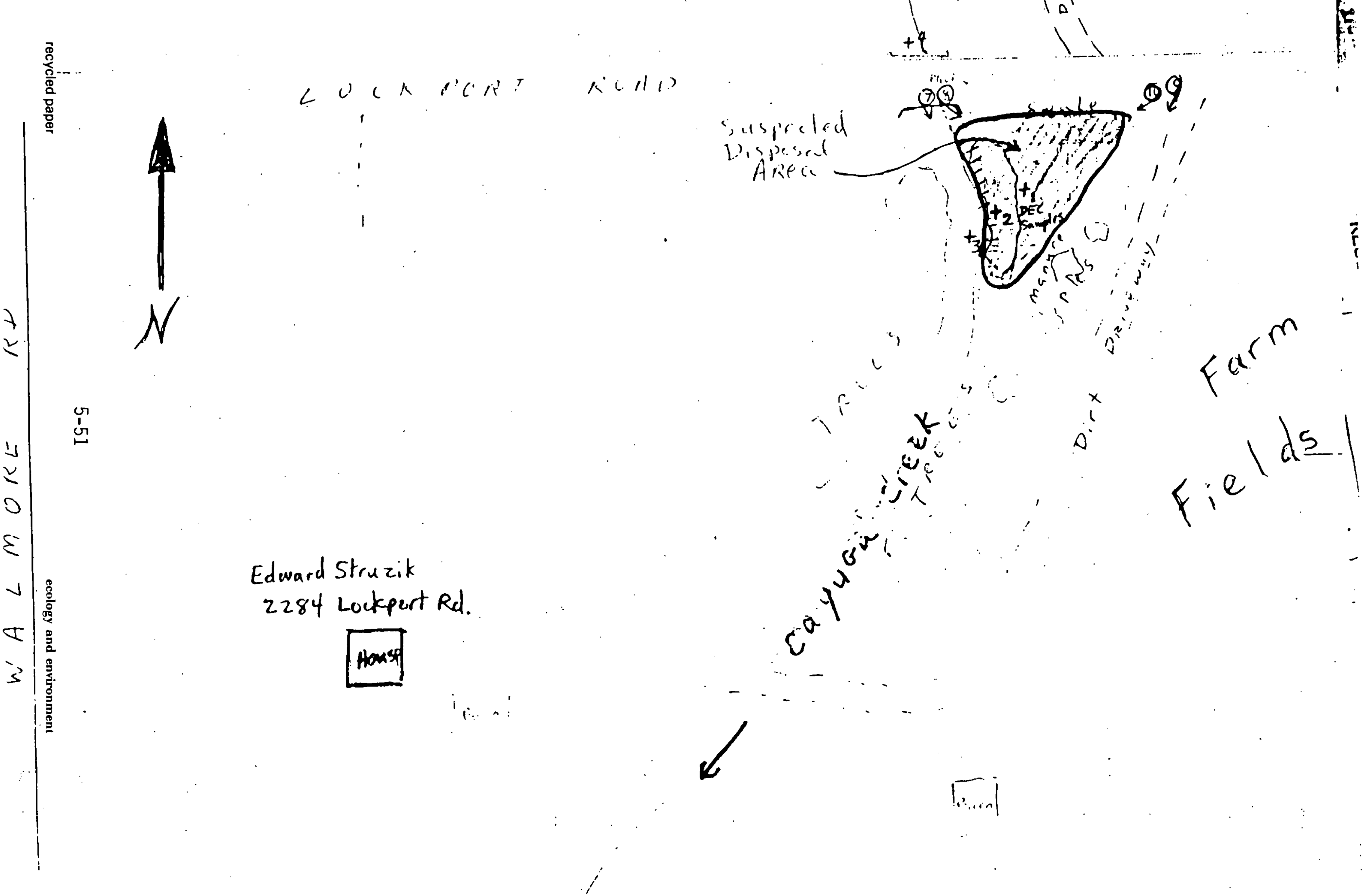
Comments

This site has been confused (since the IATF report) with another at 6373 Hickman Rd. This site on Cayuga Ck is presumably only carbon dust and some paper waste, and may not be very toxic. Surface soil samples indicate non-hazardous waste - although further sampling would confirm or negate this. The site is a hillside along Cayuga Creek and may eventually be used to erect a Church of God meeting hall. Both NCHD and DEC consider this site to be low priority.

One potential route of exposure not addressed is through the milk of cows fed the corn grown on-site


RANSOMVILLE QUADRANGLE
NEW YORK-NIAGARA CO.
1.5 mi Rad
Walmore Rd Site
1.0 mi Rad
Walmore Rd. Site
Niagara-Wheatfield High Sch
Jr High Sch
Parking Lot
Cayuga Creek
BLANK RD
WALMORE
CENTRAL
PENN CENTRAL
US MIL RES
Falcon Manor
TUSCARORA
W H E A T F I E L D
St Peters Cem
St Peters Sch
Walmore
WALMORE RD. SITE
LOCKPORT
Lockport Road Cem
CONRAIL
Walmore Rd Site
Cayuga
NIAGARA FALLS AIR FORCE BASE
NIAGARA FALLS INTERNATIONAL AIRPORT
NFTA Site
W H E A T F I
Bergholtz
Bell Aerospace Site
St Jacobs Cem
St Pauls Cem
Holy Ghost Cem
Creek
Control Tower
Tinter Park
NIAGARA FALLS RD
Bergholtz
Sawyer Cr
Oppenheim Park
Drive-in Theater
95th St Sch
Summit Park Mall
JAGOW ROAD
TONAWANDA WEST QUADRANGLE
SECOND EDITION - 1976
SCALE 1:24 000
1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

WALMORE-LOCKPORT RD. Site
#932094 A (North)



ecology and environment

5-51

recycled paper

NAME:

~~Walmore Road~~ LOCKPORT RD - (DEC #932094) NORTH

LOCATION:

The Registry lists the location as Walmore Road near the railroad overpass. However, field investigation did not confirm the presence of a disposal site at this location. A site was found 1200 feet to the northeast; south of Lockport Road and east of Cayuga Creek, where industrial disposal had occurred. It is suspected that this is the site listed as the Walmore Road Site. A site sketch is attached.

OWNERSHIP:

As of 1982, this site was owned by Mr. Edward Struzik, 2284 Lockport Road, Wheatfield, NY. However, arrangements are being made for purchase of the property by the Church of God for purposes of erecting a church here. The contact person is Reverend Jack A. Hayes, 9605 Colvin Boulevard, Niagara Falls, NY, 283-4162.

HISTORY:

Carbon waste and inert industrial fill was used to raise a low area during the middle 1960's. Steve Washuta of Modern Disposal reportedly placed carbon dust here in 1965. This material came from Airco-Speer according to Mr. Washuta. A 1981 DEC inspection report indicates that 2000 cubic yards of carbon dust from Carborundum was placed here in 1965. It is suspected that this material is in fact the material deposited by Mr. Washuta.

The IATF report indicates that the Walmore Road site was used by Bell Aerospace for disposal of scrap wood, flyash and clay.

The fill was apparently placed to fill a low area adjacent to Cayuga Creek. The fill is said to be 6 feet to 8 feet in depth. Mr. Struzik owned the property when the property was filled and gave his permission to Mr. Washuta to fill it. Mr. Don MacSwan, Building Inspector for the Town of Wheatfield, inspected the placement of the fill and may have additional information in this matter. Mr. Ron Meall of Graybell Associates designed a sewer line which runs near or through the filled area and was unaware of anything unusual found in the excavations.

Currently, the site is an open field. Reverend Hayes intends to build a church on this site at a future date.

AERIAL PHOTOGRAPHS:

USDA Photos ARE 3V-82 (1958) and ARE 2V-31 (1966) were examined. Although interpretation was difficult, it appeared the area was not yet completely filled in 1966. It appears likely that a rectangular area 50 feet by 300 feet immediately adjacent to the creek would have been the only area filled.

ANALYTICAL RESULTS:

A soil sample collected by DEC personnel in 1982 showed low but detectable concentrations of Arsenic (2.3 ug/g), chromium (10 ug/g), copper (46 ug/g), lead (43 ug/g), nickle (61 ug/g) and zinc (200 ug/g). Additional samples were taken at this time but these were not analyzed.

SOILS/GEOLOGY:

Soils are listed as belonging to the Odesa - Lakemont Ovid association in the Soil Survey for Niagara County (U. S. Soil Conservation Service, 1966). Specifically, the site is listed as Hilton series (a minor soil type in the Odesa - Lakemont - Ovid association). Typically, soils of this association are somewhat poorly to very poorly drained and composed of Lacustrine clays and silts over Glacial Till. Experience with other sites in this area would also indicate native soil are likely to have been clay over till. It is noted that the soils at this site may have been classified prior to filling with wastes.

Bedrock is Lockport Dolomite. The depth to bedrock is expected to be 12 feet to 20 feet.

GROUNDWATER:

No specific information on groundwater flows was found. It is expected from experience with other nearby sites that the overburden aquifers may not be capable of producing significant yields. The bedrock-overburden interface may or may not produce significant yields. The Lockport Formation typically has several water bearing zones at various depths.

Any shallow groundwater is expected to enter Cayuga Creek. Regionally, bedrock aquifers tend to flow toward the south. However, specific data confirming these assumptions is not available.

It is not known if there are any wells in this area.

SURFACE WATER:

The site is immediately adjacent to Cayuga Creek. Runoff from the site apparently enters the creek.

There are no downstream users of water from Cayuga Creek. Cayuga Creek enters the Niagara River six miles downstream.

This site is not in a 100-year flood plain and is not adjacent to designated wetlands.

FIRE/EXPLOSION/AIR QUALITY:

The potential for contaminants becoming airborne, for fire or for explosion to occur is considered small. The site is covered and the waste material is relatively non-flammable and inert.

FIRE/EXPLOSION/AIR QUALITY - continued

The surrounding area is essentially agricultural. About 25 residences are located within one mile with the nearest being about 700 feet east on Walmore Road.

DIRECT CONTACT:

Access to the site is now restricted. The wastes are covered and are believed to be non-hazardous.

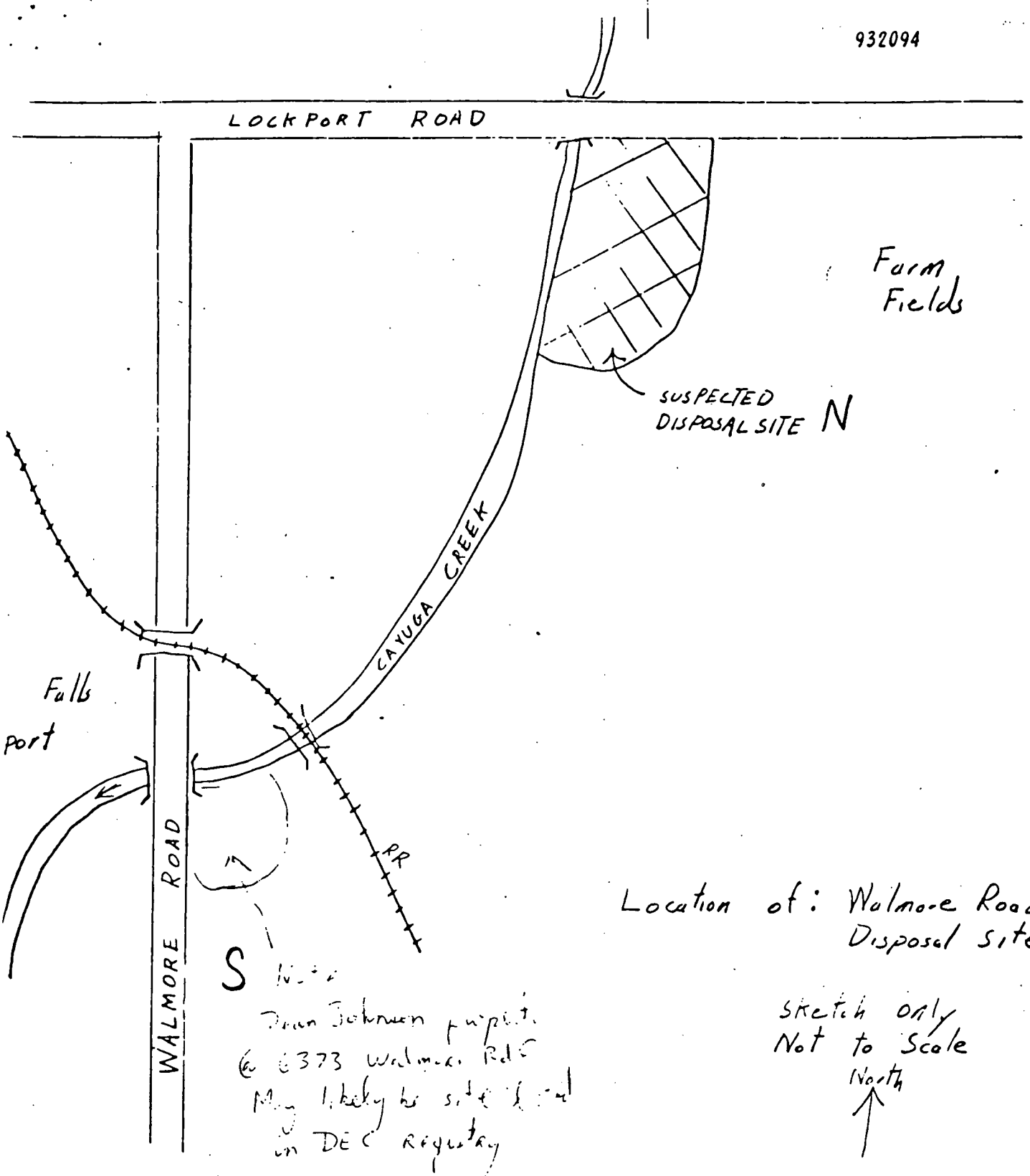
CONCLUSIONS:

This site received about 2000 cubic yards of carbon dust during the mid 1960's to raise a low area. No hazardous substances are known to be present.

RECOMMENDATIONS:

No further action at this site is recommended.

932094



Location of: Walmore Road Disposal site

sketch only
Not to Scale
North

Michael E Hopkins
5/2/83

INTERVIEW ACKNOWLEDGMENT FORM

SITE NAME:	Lockport Road	I.D. NUMBER:	932094
PERSON CONTACTED:	Burrell Buffington	DATE:	4/10/90
AFFILIATION:	NY Natural Heritage Program	PHONE NUMBER:	518-783-3932
ADDRESS:	700 Troy-Schenectudy Road Albany, NY 12110	CONTACT PERSON(S):	Judy Vangalio Ralinda Leichner
TYPE OF CONTACT:	map search		

INTERVIEW SUMMARY

No significant habitats were found within 1.5 miles of the site after looking at the Significant Habitat Maps prepared by the Habitat Inventory Unit for the NYSDEC Division of Fish and Wildlife, Bureau of Wildlife.

No endangered species, wildlife management or wildlife refuge areas are located within 1.5 miles of the site. This was based on the Natural Heritage Maps.

ACKNOWLEDGMENT

I have read the above transcript and I agree that it is an accurate summary of the information verbally conveyed to Ecology and Environment, Inc. interviewer(s) (as revised below, if necessary).

Revisions (please write in any corrections needed to above transcript)

Signature: Burrell Buffington Date: 4/25/90

NIAGARA COUNTY
DEPARTMENT OF HEALTH

Code Activity ..... NCI 15
Code Location .....
Service Request No. .....
Date Received Complaint .....

ice Request Landfill

naror of Complaint Rev. Jack Hayes Address 9605 Colvin Blvd - N.F.

er Edward Struzik Address 2284 Lockport Rd.

pant landfill by creek at Nelmore Address Lockport Rd.

Hours	REPORT OF INVESTIGATION
1-17-81	Rev. Hayes contacted us on this date asking for information on possible landfill at Lockport + Nelmore Rds.
→	I contacted Edward Struzik (owner) and he told me that in early 1960 Steve Washuta dumped graphite waste in a low area by the creek to bring the area up to grade. Mr. Struzik gave permission for this to occur.
→	I talked with Steve Washuta and he stated that in 1965 he dumped ≈2000 yards of graphite material, carbon dust and paper at the above address. The material was supposedly from Carbo Spear.
→	I contacted Ron Moll of Graybel associates who designed a sewer line for which went directly over the filled area or close proximity to it. To the best of his knowledge excavation did not reveal anything out of the ordinary i.e. drums, pecularities etc. Richard Abbott

Date Abated ..... By .....

ref 13

To: James Griffis

From: R. Meyers

Subject: Lockport Rd. Phase II, site Recon/Geophysical

DATE: May 4th, 1990.

A site recon. and geophysical survey were done at the Lockport Rd. Phase II site by R. Meyer, R. Leichner, and M. Welch on April 19th, 1990. Prior to the site recon. we meet with the reverend Bell and discussed future site activities. The reverend gave his permission to carry out any and all field activities when necessary. During the site recon. all ova reading were zero, except for a reading of 2ppm recorded in the sanitary sewer located on site. No physical obstructions are present on site which would cause access problems for the drill rig or sampling crews. During the recon. a single empty metal drum and numerous large graphite/carbon hunks were seen along creek bed/property border.

The Geophysical Surveys provided some high readings which are to be expected due to the high conductivity of graphite/carbon debris. The area will be cleared with the utility companies prior to drilling.

INTERVIEW ACKNOWLEDGMENT FORM

SITE NAME:	Lockport Road	I.D. NUMBER:	932094
PERSON CONTACTED:	Sue Casey	DATE:	3/30/90
AFFILIATION:	Niagara County Environmental Mgmt. Council	PHONE NUMBER:	716-439-6170
ADDRESS:	County Courthouse Lockport, NY	CONTACT PERSON(S):	Judy Vangalio Kirsten Neumaier Ralinda Leichner

TYPE OF CONTACT: personal interview and file search

INTERVIEW SUMMARY

We were informed that the Highway Department, located at 225 S. Niagara Street, Lockport, NY had aerial photos of the county over several years. We were also told that the Health Department at 5467 Upper Mountain Road, Lockport, NY might have water information and that we could pickup a directory of county phone numbers in the legislative offices at the Courthouse.

We gathered land use information from maps at this office on 3/30, 4/3 and 4/4/90.

ACKNOWLEDGMENT

I have read the above transcript and I agree that it is an accurate summary of the information verbally conveyed to Ecology and Environment, Inc. interviewer(s) (as revised below, if necessary).

Revisions (please write in any corrections needed to above transcript)

Signature: Christine J. Richardson Date: 4/24/90

ref 15

INTERVIEW ACKNOWLEDGMENT FORM

SITE NAME:	Lockport Road Landfill	I.D. NUMBER:	932094
PERSON CONTACTED:	Mr. Paul Dickey	DATE:	4/2/90
AFFILIATION:	Niagara County Department of Health	PHONE NUMBER:	284-3126
ADDRESS:	10th and Falls St. Niagara Falls	CONTACT PERSON(S):	J. Vangalio R. Leichner

TYPE OF CONTACT: personal interview and file search

INTERVIEW SUMMARY

Mr. Dickey believes that most residences within 3 miles are on public water, but the Bell Aerospace and Carborundum well surveys may show some private wells in the general area. Information about wells on the Indian Reservation to the north will be difficult. The Department of Health has no jurisdiction and therefore no information on water sources on the Reservation.

A review of the Department of Health file yielded the following information:

- Mr. Steve Washuta of Modern Disposal coordinated the placement of fill at the site in the 1960s;
- A soil sample collected by the DEC in 1982 showed low but detectable concentrations of arsenic, chromium, copper, lead, nickel and zinc;
- Soils at the site are the Hilton Series, Odesa - Lakemont - Avid Association;
- Bedrock is the Lockport Dolomite which is found at a depth of 12 to 20 feet;
- Groundwater flow is to the south. Overburden aquifers may not be capable of producing significant yields. Any shallow groundwater is expected to enter Cayuga Creek.

Mr. Dickey recommended subsurface ~~water~~ waste samples in the actual fill area to further characterize the waste. Also, the Department of Health requests a call prior to any fieldwork at the site.

(HAZARDOUS WASTES HAVE NOT yet been documented At this site)

ACKNOWLEDGMENT

I have read the above transcript and I agree that it is an accurate summary of the information verbally conveyed to Ecology and Environment, Inc. interviewer(s) (as revised below, if necessary).

Revisions (please write in any corrections needed to above transcript)

Signature: _____ Date: May 1, 1990

N. TONA.
693-4262

TOWN OF WHEATFIELD WATER DISTRICT

Sherwood D. Herman
Water Superintendent

3113 NIAGARA FALLS BOULEVARD
N. TONAWANDA, NEW YORK 14120

xc: YQ-2000
Meyers

April 25, 1990

To Whom It May Concern:

According to our records, the following residences are not supplied water by the Town of Wheatfield. We assume their water requirements are supplied by wells.

Mrs. Walck
2083 Lockport Rd.
Niagara Falls, NY 14304

Ronald Fritz
2469 Lockport Rd.
Sanborn, NY 14132

Carl Goerss
3454 Lockport Rd.
Sanborn, NY 14132

R. Billing
3660 Lockport Rd.
Sanborn, NY 14132

F. Wrazin
3601 Lockport Rd.
Sanborn, NY 14132

Roy Kunselman
3846 Lockport Rd.
Sanborn, NY 14132

A. Kaufman
3892 Lockport Rd.
Sanborn, NY 14132

W. Hauck
3920 Lockport Rd.
Sanborn, NY 14132

G. LeRoy
3926 Lockport Rd.
Sanborn, NY 14132

Mr./Mrs. Sadowski
3942 Lockport Rd.
Sanborn, NY 14132

D. Churpita
7496 Townline Rd.
No.Tonawanda, NY 14120

A. Barney
6080 Shawnee Rd.
Sanborn, NY 14132

E. Labuszewski
6765 Shawnee Rd.
No. Tonawanda, NY 14120

S. Labuszewski
6777 Shawnee Rd.
No.Tonawanda, NY 14120

Erv Wendt
6913 Shawnee Rd.
No.Tonawanda, NY 14120

Mr./Mrs. Masters
3260 Hoover Rd.
Sanborn, NY 14132

L. Hoover
6022 Hoover Rd.
Sanborn, NY 14132

John Nagy
6689 Nash Rd.
No.Tonawanda, NY 14120

R. Zastrow
7116 Nash Rd.
No.Tonawanda, NY 14120

E. Diehe
3125 Niagara Falls Blvd.
No.Tonawanda, NY 14120

A. Priest
6185 Ward Rd.
Sanborn, NY 14132

W. Smith
6827 Ward Rd.
No.Tonawanda, NY 14120

Yours truly,

S. D. Herman

Sherwood D. Herman
Water Superintendent

5-67

REFERENCE NO. 16

ref 16

INTERVIEW ACKNOWLEDGMENT FORM

SITE NAME:	Lockport Road	I.D. NUMBER:	932094
PERSON CONTACTED:	Woody Herman	DATE:	April 20, 1990
AFFILIATION:	Wheatfield Water District	PHONE NUMBER:	693-4262
ADDRESS:	3113 Niagara Falls Blvd. N. Tonawanda, NY 14120	CONTACT PERSON(S):	Judy Vangalio
TYPE OF CONTACT:	phone interview		

INTERVIEW SUMMARY

Generally, the people in the Town of Wheatfield are supplied with public water that is provided by the Town of Niagara. The intake is located in the water branch of the Niagara River. There is well use in one house located on Lockport Road near the Town of Niagara Line. Mr. Herman will send the address of the well user.

No one in the Town of Wheatfield irrigates.

ACKNOWLEDGMENT

I have read the above transcript and I agree that it is an accurate summary of the information verbally conveyed to Ecology and Environment, Inc. interviewer(s) (as revised below, if necessary).

Revisions (please write in any corrections needed to above transcript)

Should read "Niagara County Water District."

Should read - West

Signature: L. P. Herman Date: May 25, 1990

ref 17

INTERVIEW ACKNOWLEDGMENT FORM

SITE NAME:	Lockport Road Landfill	I.D. NUMBER:	932094
PERSON CONTACTED:	Ronald Gwozdek	DATE:	4-2-90
		PHONE NUMBER:	439-6109
AFFILIATION:	Niagara County Health Department		
ADDRESS:	5467 Upper Mountain Rd.	CONTACT PERSON(S):	J. Vangalio R. Leichner
TYPE OF CONTACT:	Personal Interview		

INTERVIEW SUMMARY

Mr. Gwozdek told us that there is only one municipal well in the county which is in the Town of Royalton, Village of Middleport. The rest of the county is on municipal water from the Niagara River. We had copies made of a file containing test data from the Village of Middleport well.

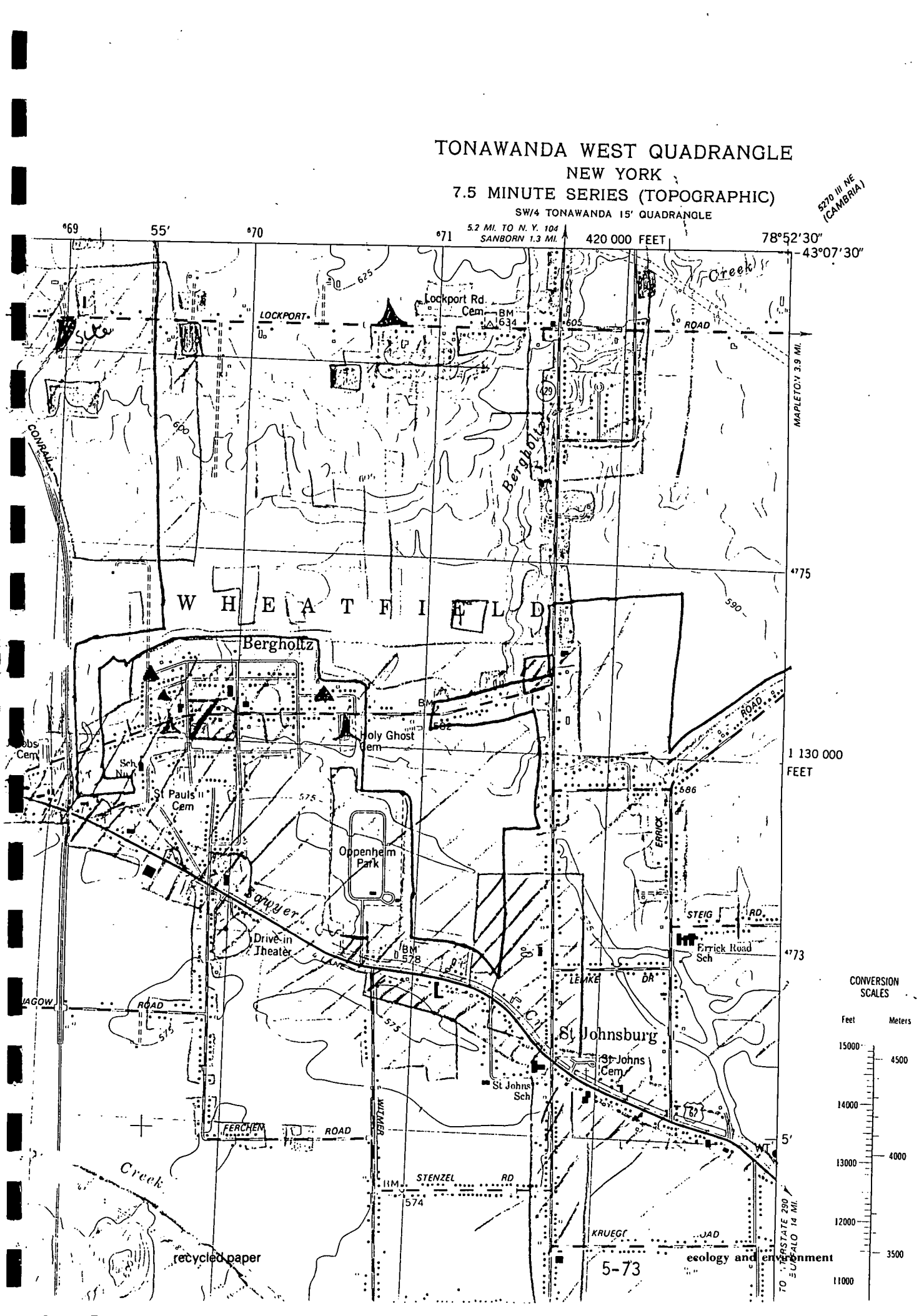
Water intakes for Niagara County are on U.S.G.S. maps. The Niagara Falls quad shows the Niagara Falls and Niagara County intakes. The Tonawanda West Quad shows the Lockport and North Tonawanda intakes and also the Tonawanda intakes which are not in Niagara County. Mr. Gwozdek recommended that we contact Mr. Paul Dickey, of the Department of Health in Niagara Falls, for specific water information relating to hazardous waste sites. The Department of Health has no list of people using well water because they test wells only on request. Mr. Gwozdek suggested that we contact the Town Water Superintendents to find out who is connected to the water supply. He provided us with a list of the water superintendents.

ACKNOWLEDGMENT

I have read the above transcript and I agree that it is an accurate summary of the information verbally conveyed to Ecology and Environment, Inc. interviewer(s) (as revised below, if necessary).

Revisions (please write in any corrections needed to above transcript)

Signature: Ronald Gwozdek Date: 04-16-90



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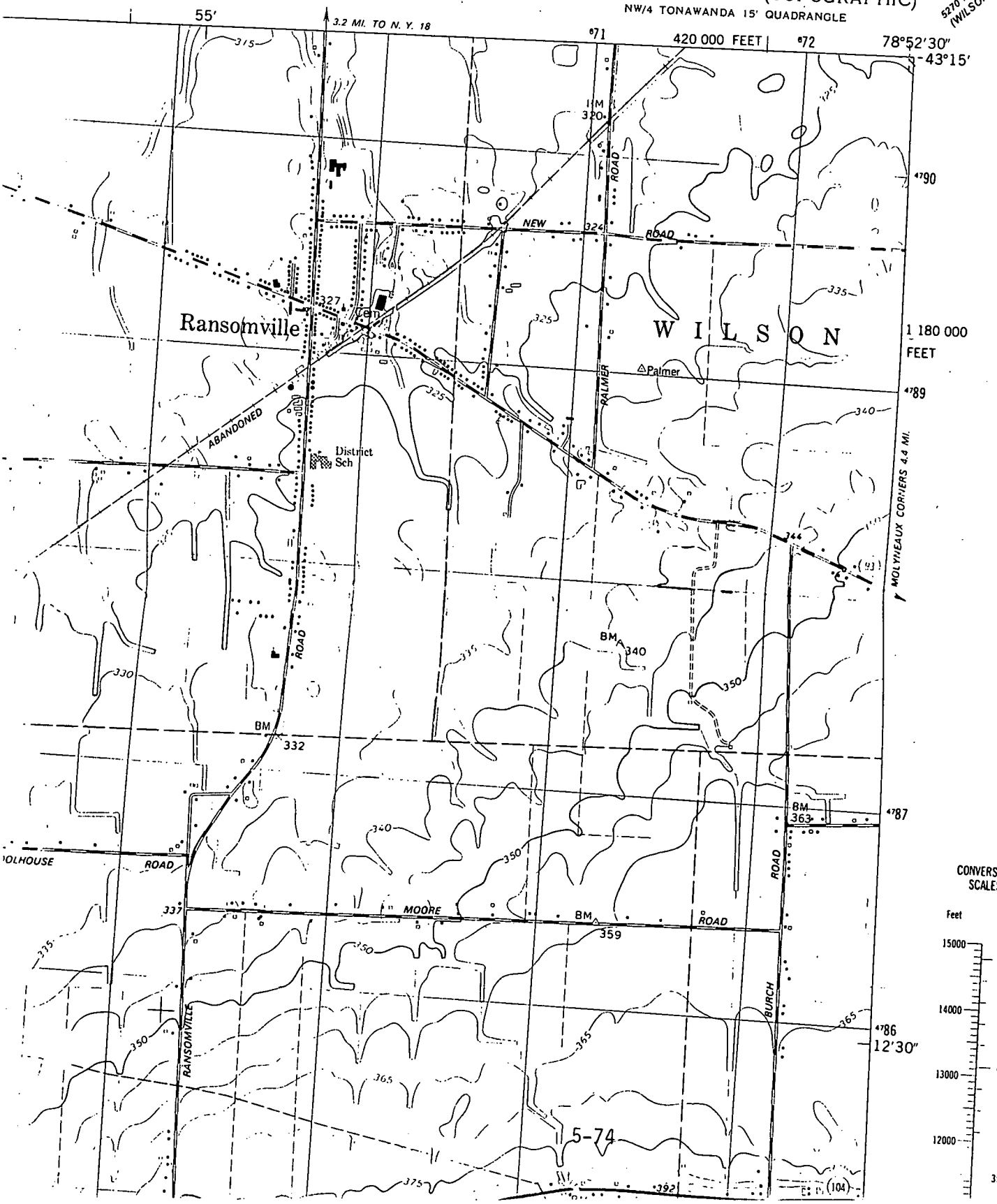
RANSOMVILLE QUADRANGLE
NEW YORK–NIAGARA CO.
7.5 MINUTE SERIES (TOPOGRAPHIC)
NW/4 TONAWANDA 15' QUADRANGLE



REFERENCE NO. 19

FIELD NOTEBOOKS

SEE APPENDIX G OF THIS REPORT

REFERENCE NO. 20

NATIONAL REGISTER OF HISTORIC PLACES 1966-1988

NATIONAL CONFERENCE OF
STATE HISTORIC PRESERVATION OFFICERS
Washington, D.C.

NATIONAL PARK SERVICE
Washington, D.C.

AMERICAN ASSOCIATION FOR
STATE AND LOCAL HISTORY
Nashville, Tennessee

New York County—Continued

Stuyvesant Square Historic District, Roughly bounded by Nathan D. Perleman Pl., 3rd Ave., E. 18th and E. 15th Sts., New York, 11/21/80, C, 80002723
Surrogate's Court, 31 Chambers St., New York, 1/29/72, C, NHL, 72000888
Sutton Place Historic District, 1—21 Sutton Pl. & 4—16 Sutton Sq., New York, 9/12/85, C, 85002294
Theodore Roosevelt Birthplace National Historic Site, 28 E. 20th St., New York, 10/15/66, B,c,e, 66000054
Third Judicial District Courthouse, 425 Avenue of the Americas, New York, 11/09/72, C, NHL, 72000875
Tiffany and Company Building, 401 5th Ave., New York, 6/02/78, A,C, NHL, 78001886
Tilden, Samuel J., House, 14—15 Gramercy Park South, New York, 5/11/76, B,C, NHL, 76001251
Town Hall, 113—123 W. 43rd St., New York, 4/23/80, A,C, 80002724
Trinity Chapel Complex, 15 W. 25th St., New York, 12/16/82, C,a, 82001205
Trinity Church and Graveyard, Broadway and Wall St., New York, 12/08/76, A,C,a,d, NHL, 76001252
Tudor City Historic District, Roughly bounded by Fourty-third St., First Ave., Fourty-first St., and Second Ave., New York, 9/11/86, C, 86002516
Turtle Bay Gardens Historic District, 226-246 E. 49th St. and 227-245 E. 48th St., New York, 7/21/83, A,C, 83001750
Tweed Courthouse, 52 Chambers St., New York, 9/25/74, B,C, NHL, 74001277
U.S. Customhouse, Bowling Green, New York, 1/31/72, C, NHL, 72000889
U.S. General Post Office, 8th Ave. between 31st and 33rd Sts., New York, 1/29/73, C, 73002257
US Courthouse, 40 Foley Sq., New York, 9/02/87, A,C, 87001596
USS INTREPID (aircraft carrier), Intrepid Sq., New York, 1/14/86, A,g, NHL, 86000082
Union Theological Seminary, W. 120th St. and Broadway, New York, 4/23/80, A,C,a, 80002725
United Charities Building Complex, 105 E. 22nd St,. 289 Park Ave. S. and 111-113 E. 22nd St., New York, 3/28/85, B,C, 85000661
University Club, 1 W. 54th St., New York, 4/16/80, C, 80002726
University Settlement House, 184 Eldridge St., New York, 9/11/86, A, 86002515
Upper East Side Historic District, Roughly bounded by 3rd and 5th Aves., 59th and 79th Sts., New York, 9/07/84, C, 84002803
Van Rensselar, Stephen, House, 149 Mulberry St., New York, 6/16/83, C, 83001751
Vanderbilt, Mrs. Graham Fair, House, 60 E. 93rd St., New York, 10/29/82, C, 82001206
Villard Houses, 29 1/2 50th St., 24—26 E. 51st St., and 451, 453, 455, and 457 Madison Ave., New York, 9/02/75, B,C,a, 75001210
WAVERTREE, Pier 17, foot of Fulton St., New York, 6/13/78, A,C, 78001887
Waldo, Gertrude Rhinelander, Mansion, 867 Madison Ave., New York, 5/06/80, C, 80002727
Warburg, Felix M., Mansion, 1109 5th Ave., New York, 10/29/82, C, 82001207
Watson, James, House, 7 State St., New York, 7/24/72, C,a, 72000891
Webster Hotel, 40 W. 45th St., New York, 9/07/84, C, 84002806
West 67th Street Artists' Colony Historic District, 1—39 and 40—50 W. 67th St., New York, 7/11/85, A,C, 85001522
West 73rd-74th Street Historic District, 73rd, 74th Sts. and Columbus Ave., New York, 9/08/83, C, 83001752
West 76th Street Historic District, W. 76th St., New York, 7/24/80, C, 80002728
West End Collegiate Church and Collegiate School, W. End Ave. and W. 77th St., New York, 5/06/80, C,a, 80002729
Westchester House, 541—551 Broome St., New York, 3/20/86, A,C, 86000450
Woolworth Building, 233 Broadway, New York, 11/13/66, A,C, NHL, 66000554
Yiddish Art Theatre, 189 Second Ave., New York, 9/19/85, A,C, 85002427

Niagara County

Adams Power Plant Transformer House, Buffalo Ave. near Portage Rd., Niagara Falls, 6/11/75, A,C, NHL, 75001212
Deveaux School Historic District, 2900 Lewiston Rd., Niagara Falls, 6/05/74, A,a, 74001281
Fort Niagara Light [U.S. Coast Guard Lighthouses and Light Stations on the Great Lakes TR], Niagara River, Youngstown, 7/19/84, A,C, 84002809
Frontier House, 460 Center St., Lewiston, 7/08/74, A,C, 74001278
Herschell, Allan, Carousel Factory, 180 Thompson St., North Tonawanda, 4/18/85, A,C, 85000856
Holley-Rankine House, 525 Riverside Dr., Niagara Falls, 10/04/79, B,C, 79003793
Lewiston Mound, Address Restricted, Lewiston vicinity, 1/21/74, D, 74001279
Lewiston Portage Landing Site, Address Restricted, Lewiston vicinity, 7/18/74, A,D, 74001280
Lockport Industrial District, Bounded roughly by Erie Canal, Gooding, Clinton, and Water Sts., Lockport, 11/11/75, A,C, 75001211
Lowertown Historic District, Roughly bounded by Erie Canal and New York Central RR, Lockport, 6/04/73, A,C, 73001225
Moore, Benjamin C., Mill, Pine St. on the Erie Canal, Lockport, 6/19/73, A,C, 73001226
Niagara Falls Public Library, 1022 Main St., Niagara Falls, 6/05/74, A,C, 74001282
Niagara Reservation, Niagara Reservation, Niagara Falls, 10/15/66, A, NHL, 66000555
Old Fort Niagara, N of Youngstown on NY 18, Youngstown vicinity, 10/15/66, A,D, NHL, 66000556
Riviera Theatre, 27 Webster St., North Tonawanda, 3/20/80, A,C, 80002731
Thirty Mile Point Light [U.S. Coast Guard Lighthouses and Light Stations on the Great Lakes TR], Niagara River, Somerset, 7/19/84, A,C, 84003922
U.S. Customhouse, 2245 Whirlpool St., Niagara Falls, 7/16/73, A,C, 73001227
Union Station, 95 Union Ave., Lockport, 12/02/77, A,C, 77000966
Whitney Mansion, 335 Buffalo Ave., Niagara Falls, 1/17/74, B,C, 74001283
Williams, Johann, Farm, 10831 Cayuga Dr., Niagara Falls, 1/10/80, A,C,a, 80002730

Oneida County

Arsenal House, 514 W. Dominick St., Rome, 7/18/74, A,C, 74001284
Boonville Historic District, Schuyler, Post, W. Main and Summit Sts., Boonville, 11/16/79, A,C, 79001608
Clinton Village Historic District, North, South, East, West Park Rows, Marvin, Williams, Chestnut, Fountain, College and Utica Sts., Clinton, 6/14/82, A,C, 82003389
Conkling, Roscoe, House, 3 Rutger St., Utica, 5/15/75, B, NHL, 75001214
Erwin Library and Pratt House, 104 and 106 Schuyler St., Boonville, 8/14/73, A,B,C, 73001228
First Baptist Church of Deerfield, Herkimer Rd., Utica, 7/11/85, C,a,d, 85001497
First Congregational Free Church, 177 N. Main St., Oriskany Falls, 1/25/79, A,C,a, 79001609
First Presbyterian Church, 1605 Genesee St., Utica, 11/03/88, C,a, 88002172
Five Lock Combine and Locks 37 and 38, Black River Canal, NY 46, Boonville, 3/20/73, A,C, 73001229
Floyd, Gen. William, House, W side of Main St., Westernville, 7/17/71, B, NHL, 71000549
Fort Stanwix National Monument, Bounded by Dominick, Spring, Liberty, and James Sts., Rome, 10/15/66, A,e, NHL, 66000057
Fountain Elms, 318 Genesee St., Utica, 11/03/72, B,C, 72001599
Gansevoort-Bellamy Historic District, Roughly bounded by Liberty, Stuben, and Huntington Sts. to Bissel, Rome, 11/12/75, C,a,g, 75001213
Hamilton College Chapel, Hamilton College campus, Clinton, 11/03/72, A,C,a, 72000892
Jervis Public Library, 613 N. Washington St., Rome, 11/04/82, B,C, 82001208
Lower Genesee Street Historic District, Roughly bounded by Genesee, Liberty, Seneca, and

REFERENCE NO. 21

Element Concentrations in Soils and Other Surficial Materials of the Conterminous United States

By HANSFORD T. SHACKLETTE and JOSEPHINE G. BOERNGEN

U.S. GEOLOGICAL SURVEY PROFESSIONAL PAPER 1270

An account of the concentrations of 50 chemical elements in samples of soils and other regoliths

UNITED STATES GOVERNMENT PRINTING OFFICE, WASHINGTON : 1984

1, unlike the geometric means shown in table 2, are estimates of geochemical abundance (Miesch, 1967).

Arithmetic means are always larger than corresponding geometric means (Miesch, 1967, p. B1) and are estimates of the fractional part of a single specimen that consists of the element of concern rather than of the typical concentration of the element in a suite of samples.

Concentrations of 46 elements in samples of this study are presented in table 2, which gives the determination ratios, geometric-mean concentrations and deviations, and observed ranges in concentrations. The analytical data for most elements as received from the laboratories were transformed into logarithms because of the tendency for elements in natural materials, particularly the trace elements, to have positively skewed

TABLE 2.—*Mean concentrations, deviations, and ranges of elements in samples of soils and other surficial materials in the conterminous United States*

[Means and ranges are reported in parts per million (μg/g), and means and deviations are geometric except as indicated. Ratio, number of samples in which the element was found in measurable concentrations to number of samples analyzed. <, less than; >, greater than]

Element	Conterminous United States			Western United States (west of 96th meridian)					Eastern United States (east of 96th meridian)				
	Mean	Deviation	Estimated arithmetic mean	Ratio	Mean	Deviation	Observed range	Estimated arithmetic mean	Ratio	Mean	Deviation	Observed range	Estimated arithmetic mean
Al, percent	4.7	2.48	7.2	661:770	5.8	2.00	0.5 - >10	7.6	450:477	3.3	2.87	0.7 - >10	5.7
As	5.2	2.23	7.2	720:730	5.5	1.98	<0.10 - 97	7.0	521:527	4.8	2.56	<0.1 - 73	7.4
B	26	1.97	33	506:778	23	1.99	<20 - 300	29	475:541	31	1.88	<20 - 150	38
Ba	440	2.14	580	778:778	380	1.72	70 - 5,000	670	541:541	290	2.35	10 - 1,500	420
Be	.63	2.38	.92	310:778	.68	2.30	<1 - 15	.97	169:525	.55	2.53	<1 - 7	.85
Br	.56	2.50	.85	113:220	.52	2.74	<0.5 - 11	.86	78:128	.62	2.18	<0.5 - 5.3	.85
C, percent	1.6	2.57	2.5	250:250	1.7	2.37	0.16 - 10	2.5	162:162	1.5	2.88	0.06 - 37	2.6
Ca, percent	.92	4.00	2.4	777:777	1.8	3.05	0.06 - 32	3.3	514:514	.34	3.08	0.01 - 28	.63
Ce	63	1.78	75	81:683	65	1.71	<150 - 300	75	70:689	63	1.85	<150 - 300	76
Co	6.7	2.19	9.1	698:778	7.1	1.97	<3 - 50	9.0	403:533	5.9	2.57	<0.3 - 70	9.2
Cr	37	2.37	54	778:778	41	2.19	3 - 2,000	56	541:541	33	2.60	1 - 1,000	52
Cu	17	2.44	25	778:778	21	2.07	2 - 300	27	523:533	13	2.80	<1 - 700	22
F	210	3.34	430	598:610	280	2.52	<10 - 1,900	440	390:435	130	4.19	<10 - 3,700	360
Fe, percent	1.8	2.38	2.6	776:777	2.1	1.95	0.1 - >10	2.6	539:540	1.4	2.87	0.01 - >10	2.5
Ga	13	2.03	17	767:776	16	1.68	<5 - 70	19	431:540	9.3	2.38	<5 - 70	14
Ge	1.2	1.37	1.2	224:224	1.2	1.32	0.58 - 2.5	1.2	130:131	1.1	1.45	<0.1 - 2.0	1.2
Hg	.038	2.52	.089	729:733	.046	2.33	<0.01 - 4.6	.065	534:534	.081	2.52	0.01 - 3.4	.12
I	.75	2.63	1.2	169:246	.79	2.55	<0.5 - 9.6	1.2	90:151	.68	2.81	<0.5 - 7.0	1.2
K, percent[1]	1.5	.79	None	777:777	1.8	.71	0.19 - 6.3	None	537:537	1.2	.79	0.005 - 3.7	--
La	30	1.92	37	462:777	30	1.89	<30 - 200	37	294:316	29	1.98	<30 - 200	37
Li	20	1.85	24	731:731	22	1.58	5 - 130	25	479:527	17	2.16	<5 - 140	22
Mg, percent	.44	3.28	.90	777:778	.74	2.21	0.03 - >10	1.0	528:528	.21	3.55	0.005 - 5	.46
Mn	330	2.77	550	777:777	380	1.98	30 - 5,000	480	537:540	260	3.82	<2 - 7,000	640
Mo	.59	2.72	.97	57:774	.85	2.17	<3 - 7	1.1	32:524	.32	3.93	<3 - 15	.79
Na, percent	.59	3.27	1.2	744:744	.97	1.95	0.05 - 10	1.2	363:449	.25	4.55	<0.05 - 5	.78
Nb	9.3	1.75	11	418:771	8.7	1.82	<10 - 100	10	322:498	10	1.65	<10 - 50	12
Nd	40	1.68	46	120:538	36	1.76	<70 - 300	43	109:332	46	1.58	<70 - 300	51
Ni	13	2.31	19	767:778	15	2.10	<5 - 700	19	443:540	11	2.64	<5 - 700	18
P	260	2.67	430	524:524	320	2.33	40 - 4,500	460	390:382	200	2.93	<20 - 6,800	360
Pb	16	1.86	19	712:778	17	1.80	<10 - 700	20	422:541	14	1.95	<10 - 300	17
Rb	58	1.72	67	221:224	69	1.50	<20 - 210	74	107:131	43	1.94	<20 - 160	53
S, percent	.12	2.04	.16	34:224	.13	2.37	<0.08 - 4.8	.19	20:131	.10	1.34	<0.08 - 0.31	.11
Sb	.48	2.27	.67	35:223	.47	2.15	<1 - 2.6	.62	31:131	.52	2.18	<1 - 8.8	.76
Sc	7.5	1.82	8.9	685:778	8.2	1.74	<5 - 50	9.6	389:526	6.5	1.90	<5 - 30	8.0
Se	.26	2.46	.39	590:733	.23	2.43	<0.1 - 4.3	.34	449:534	.30	2.44	<0.1 - 3.9	.45
Si, percent[1]	31	6.48	None	250:250	30	5.70	15 - 44	None	156:156	34	6.64	1.7 - 45	--
Sn	.89	2.36	1.3	218:224	.90	2.11	<0.1 - 7.4	1.2	123:131	.86	2.81	<0.1 - 10	1.3
Sr	120	3.10	240	770:778	200	2.16	10 - 3,000	270	501:540	51	3.61	<5 - 700	120
Ti, percent	.24	1.89	.29	777:777	.22	1.78	0.05 - 2.0	.26	540:540	.28	2.00	0.007 - 1.5	.35
Th	8.6	1.53	9.4	195:195	9.1	1.49	2.4 - 31	9.8	102:102	7.7	1.58	2.2 - 23	8.6
U	2.3	1.73	2.7	224:224	2.5	1.45	0.68 - 7.9	2.7	130:130	2.1	2.12	0.29 - 11	2.7
V	58	2.25	80	778:778	70	1.95	7 - 500	88	516:541	43	2.51	<7 - 300	66
Y	21	1.78	25	759:778	22	1.66	<10 - 150	25	477:541	20	1.97	<10 - 200	25
Yb	2.6	1.79	3.1	754:764	2.6	1.63	<1 - 20	3.0	452:486	2.6	2.06	<1 - 50	3.3
Zn	48	1.95	60	766:766	55	1.79	10 - 2,100	65	473:482	40	2.11	<5 - 2,900	52
Zr	180	1.91	230	777:778	160	1.77	<20 - 1,500	190	539:541	220	2.01	<20 - 2,000	290

[1]Means are arithmetic, deviations are standard.

INTERVIEW ACKNOWLEDGMENT FORM

SITE NAME:	Lockport Road	I.D. NUMBER:	932094
PERSON CONTACTED:	Dennis Stoelting	DATE:	3/12/91
AFFILIATION:	Assistant Chief Bergholz Fire Department	PHONE NUMBER:	(716) 731-5005
ADDRESS:	c/o Stoelting Machines 2285 Niagara Falls Blvd. Niagara Falls, NY 14304	CONTACT PERSON(S):	Sandy Lare

TYPE OF CONTACT: Telephone Interview

INTERVIEW SUMMARY:

Mr. Stoelting said that the Bergholtz Fire Department does not consider the Lockport Road site (located on Lockport Road, just east of the Walmore Road intersection, on the south side of the road) to pose an unusual or significant fire or explosion hazard.

ACKNOWLEDGMENT

I have read the above transcript and I agree that it is an accurate summary of the information verbally conveyed to Ecology and Environment, Inc. interviewer(s) (as revised below, if necessary).

Revisions (please write in any corrections needed to above transcript)

Signature: Dean Stoelting Date: 3/16/91

Dangerous Properties of Industrial Materials

Sixth Edition

N. IRVING SAX

Assisted by:
Benjamin Feiner/Joseph J. Fitzgerald/Thomas J. Haley/Elizabeth K. Welsburger

5-85

recycled paper

ecology and environment

VNR VAN NOSTRAND REINHOLD COMPANY
NEW YORK CINCINNATI TORONTO LONDON

REFERENCE NO. 24

LAB ANALYTICAL DATA

SEE APPENDIX D OF THIS REPORT

REFERENCE NO. 25

This booklet contains New York State water quality regulations which were initially promulgated in 1950. Numerical standards for groundwater (Part 703) were last revised in 1978, and major revisions were made to the surface water regulations (Part 701) in 1985. Presented here are the complete regulations with revisions through March 31, 1986 as published in the New York State Official Compilation of Codes, Rules and Regulations. Please note that printing errors in the equations for calculating ammonia standards (Appendix 31, page 502.34) have been corrected by the Department of Environmental Conservation.

5-88

PART 700

TESTS OR ANALYTICAL DETERMINATIONS

(Statutory authority: Environmental Conservation Law, § 17-0303)

Sec.
700.1 Collection of samples

Sec.
700.2 Tests or analytical determinations

Historical Note

Part repealed, new filed: April 28, 1972; Feb. 25, 1974 eff. 30 days after filing.

Section 700.1 Collection of samples. In making any tests of analytical determinations to determine compliance or noncompliance of sewage, industrial wastes or other waste discharges with established standards, samples shall be collected in such manner and at such locations as are approved by the commissioner. In approving such locations the commissioner shall be guided by the fact that:

(a) there must be prompt mixing of the discharge with the receiving waters;

(b) the mixing will not interfere with biological communities to a degree which is damaging to the ecosystem; and

(c) the mixing will not diminish other beneficial uses disproportionately.

Historical Note

Sec. repealed, new filed: April 28, 1972; Feb. 25, 1974 eff. 30 days after filing.

700.2 Tests or analytical determinations. Tests or analytical determinations to determine compliance or noncompliance with standards shall be made in accordance with:

(a) *Standard methods for the Examination of Water and Wastewater* (see section 705.2 of this Title);

(b) *Methods for Chemical Analysis of Water and Wastes* (see section 705.2), prepared by Environmental Protection Agency (EPA);

(c) *Water Standards of the American Society for Testing and Materials (ASTM)* (see section 705.2 of this Title); or

(d) by other methods approved by the commissioner and the administrator as giving results equal to or superior to methods listed in any of the other documents.

Historical Note

Sec. repealed, new filed: April 28, 1972; Feb. 25, 1974; amd. filed Nov. 5, 1984 eff. Nov. 5, 1984. Amended (a)-(c).

REFERENCE NO. 26

HAUDENOSAUNEE
TUSCARORA NATION
2006 MT. HOPE ROAD — VIA: LEWISTON, NEW YORK 14092

November 25, 1987

Mr. Dennis Sutton
Ecology and Environment, Inc.
195 Sugg Road
P.O. Box D
Buffalo, New York 14225

Dear Mr. Sutton:

This letter is in reply to your letter dated October 15, 1987, at which time you requested information to various items or questions in your letter.

It must be noted our main source of water is from wells or springs. No record is kept on the yield of these sources of water. The depth of the wells to our knowledge varies from 25 to 100 feet, depending on location within the Tuscarora Nation. Also the only irrigation from our wells or springs is not as may be used in commercial farming. Our people water their lawns or small garden plots. I hope this answers your questions, as Chief Edison Mt. Pleasant has spoke to you on the population.

Thank you for your cooperation in this matter and we will be looking forward to hearing from you on any impact assessment from former hazardous waste sites you may obtain or gather.

ONEH!

Chief Leo R. Henry

Chief Leo R. Henry, CLERK
Tuscarora Nation

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT

EPA

PART 1 - SITE LOCATION AND INSPECTION INFORMATION

I. IDENTIFICATION

01 State	02 Site Number
NY	932094

II. SITE NAME AND LOCATION

01 Site Name (Legal, common, or descriptive name of site)	02 Street, Route No., or Specific Location Identifier
Lockport Road-Struzik Property	On Lockport Road east and adjacent to Cayuga Creek in the Town of Wheatfield, Niagara Couty East of Walmore Road

03 City	04 State	05 Zip Code	06 County	07 County Code	08 Cong. Dist.
Town of Wheatfield	NY	14304	Niagara	32	32nd

09 Coordinates Latitude	Longitude	10 Type of Ownership (Check One)
43° 07' 14.9"	78° 55' 20.8"	[X] A. Private [ ] B. Federal [ ] C. State [ ] D. County [ ] E. Municipal [ ] F. Other _____ [ ] G. Unknown

III. INSPECTION INFORMATION

01 Date of Inspection	02 Site Status	03 Years of Operation
4 / 19 / 90 (Month Day Year)	[ ] Active [X] Inactive	1965 (Beginning Year) | 1965 (Ending Year) [ ] Unknown

04 Agency Performing Inspection (Check all that apply)
[ ] A. EPA [ ] B. EPA Contractor _____ (Name of Firm) [ ] C. Municipal
[ ] D. Municipal Contractor _____ (Name of Firm) [ ] E. State [X] F. State Contractor E & E Engineering, P.C. (Name of Firm)
[ ] G. Other (Specify) _____

05 Chief Inspector	06 Title	07 Organization	08 Telephone No.
B. Meyers	Geologist	E & E Engineering, P.C.	(716) 684-8060
09 Other Inspectors	10 Title	11 Organization	12 Telephone No.
R. Leichner	Geologist - SSO	E & E Engineering, P.C.	(716) 684-8060
M. Welch	Geologist	E & E Engineering, P.C.	(716) 684-8060
			( )
			( )
			( )

13 Site Representatives Interviewed	14 Title	15 Address	16 Telephone No.
Rev. L. Bell		2334 Lockport Road	(716) 731-6407
			( )
			( )
			( )
			( )

17 Access Gained by (Check one)	18 Time of Inspection	19 Weather Conditions
Permission	1225 - 1606	Cool and overcast

IV. INFORMATION AVAILABLE FROM

01 Contact	02 Agency/Organization	03 Telephone No.
J. Walia	NYSDEC	(716) 847-4585

04 Person Responsible for Site Inspection Form	05 Agency	06 Organization	07 Telephone No.	08 Date
Carol Waddell-Sheets		E & E Engineering, P.C.	(716) 684-8060	11 / 15 / 90 (Month Day Year)

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT

EPA

PART 2 - WASTE INFORMATION

I. IDENTIFICATION

01 State	02 Site Number
NY	932094

II. WASTE STATES, QUANTITIES, AND CHARACTERISTICS

01 Physical States (Check all that apply)

[ ] A. Solid
[X] B. Powder, Fines
[ ] C. Sludge
[ ] D. Other _____ (Specify)
[ ] E. Slurry
[ ] F. Liquid
[ ] G. Gas

02 Waste Quantity at Site (Measure of waste quantities must be independent)

Tons _____
Cubic Yards 2,000
No. of Drums _____

03 Waste Characteristics (Check all that apply)

[X] A. Toxic
[ ] B. Corrosive
[ ] C. Radioactive
[X] D. Persistent
[ ] E. Soluble
[ ] F. Infectious
[ ] G. Flammable
[ ] H. Ignitable
[ ] I. Highly volatile
[ ] J. Explosive
[ ] K. Reactive
[ ] L. Incompatible
[ ] M. Not applicable

III. WASTE TYPE

Category	Substance Name	01 Gross Amount	02 Unit of Measure	03 Comments
SLU	Sludge			
OLW	Oily waste			
SOL	Solvents			
PSD	Pesticides			
OCC	Other organic chemicals			
IOC	Inorganic chemicals	Unknown		
ACD	Acids			
BAS	Bases			
MES	Heavy Metals	Unknown		

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

01 Category	02 Substance Name	03 CAS Number	04 Storage/Disposal Method	05 Concentration	06 Measure of Concentration
IOC	Arsenic	7440-37-1	Landfill	2.3	µg/g
MES	Chromium	7440-47-3	Landfill	10.0	µg/g
MES	Copper	7440-50-8	Landfill	46.0	µg/g
MES	Lead	7439-92-1	Landfill	43.0	µg/g
MES	Nickel	7440-02-0	Landfill	61.0	µg/g
MES	Zinc	7440-50-8	Landfill	200.0	µg/g

V. FEEDSTOCKS (See Appendix for CAS Numbers)

Category	01 Feedstock Name	02 CAS Number	Category	01 Feedstock Name	02 CAS Number
FDS			FDS		
FDS			FDS		
FDS			FDS		
FDS			FDS		

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

NYS Department of Environmental Conservation Region 9 files
Recra Environmental, Inc. Phase I Investigation 1987
Ecology and Environment Engineering, P.C. 1990 Site Inspection

02[UZ]YQ2080:D3249/5556

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT

EPA

PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS

I. IDENTIFICATION

01 State	02 Site Number
NY	932094

II. HAZARDOUS CONDITIONS AND INCIDENTS

01 [X] A. Groundwater Contamination
03 Population Potentially Affected <120
02 [X] Observed (Date 9/20&21/90) [ ] Potential [ ] Alleged
04 Narrative Description

01 [X] B. Surface Water Contamination
03 Population Potentially Affected 300
02 [ ] Observed (Date _____) [X] Potential [ ] Alleged
04 Narrative Description:

Site is adjacent to Cayuga Creek and thus runoff from the site may contaminate the creek.

01 [ ] C. Contamination of Air
03 Population Potentially Affected 0
02 [ ] Observed (Date _____) [ ] Potential [ ] Alleged
04 Narrative Description:

No organic vapor analyzer or HNu photoionization detector readings above background levels so hazard is assumed to be minimal.

01 [ ] D. Fire/Explosive Conditions
03 Population Potentially Affected _____
02 [ ] Observed (Date _____) [ ] Potential [ ] Alleged
04 Narrative Description:

01 [X] E. Direct Contact
03 Population Potentially Affected Unknown
02 [ ] Observed (Date _____) [X] Potential [ ] Alleged
04 Narrative Description:

Potential exists through contact with contaminated surface soil and surface water. Site access is not controlled. Leachate was observed August 5, 1987 during a NUS Corporation investigation.

01 [X] F. Contamination of Soil
03 Area Potentially Affected 0.34 acre
02 [ ] Observed (Date _____) [X] Potential [ ] Alleged
04 Narrative Description:

Graphite dust and a drum were observed during the site inspection.

01 [X] G. Drinking Water Contamination
03 Population Potentially Affected <120
02 [ ] Observed (Date _____) [X] Potential [ ] Alleged
04 Narrative Description:

There are approximately 30 wells that are probably in use for at least auxiliary drinking sources.

The main source of water within the Tuscarora Nation is from wells and springs.

01 [ ] H. Worker Exposure/Injury
03 Workers Potentially Affected _____
02 [ ] Observed (Date _____) [ ] Potential [ ] Alleged
04 Narrative Description:

01 [ ] I. Population Exposure/Injury
03 Population Potentially Affected _____
02 [ ] Observed (Date _____) [ ] Potential [ ] Alleged
04 Narrative Description:

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT

EPA

PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS (Cont.)

I. IDENTIFICATION

01 State	02 Site Number
NY	932094

II. HAZARDOUS CONDITIONS AND INCIDENTS (Cont.)

01 [X] J. Damage to Flora — 02 [ ] Observed (Date _____) [X] Potential [ ] Alleged
04 Narrative Description:

If contaminants are present in surface water, the potential exists for damage to flora in the immediate area. In addition, damage from irrigation could extend the area to include the farms surrounding the site.

01 [X] K. Damage to Fauna — 02 [ ] Observed (Date _____) [X] Potential [ ] Alleged
04 Narrative Description:

The potential for contamination exists through consumption of contaminated flora or drinking of contaminated surface water.

01 [X] L. Contamination of Food Chain — 02 [ ] Observed (Date _____) [X] Potential [ ] Alleged
04 Narrative Description:

Possible if contaminants enter chain through either flora or direct ingestion of contaminated water.

01 [X] M. Unstable Containment of Wastes (Spills/Runoff/Standing liquids, Leaking drums) — 02 [X] Observed (Date 8/5/87) [ ] Potential [ ] Alleged
03 [ ] Population Potentially Affected 57 — 04 Narrative Description:

Leachate was observed during a 1987 NUS Corporation region 2 FIT (field investigation team) site investigation.

01 [X] N. Damage to Offsite Property — 02 [ ] Observed (Date _____) [X] Potential [ ] Alleged
04 Narrative Description:

01 [X] O. Contamination of Sewers, Storm/ Drains, WWTPs — 02 [ ] Observed (Date _____) [X] Potential [ ] Alleged
04 Narrative Description:

A sanitary sewer runs across the southern boundary of the property. If contaminants are present in the surface water they may contaminate this sewer line.

01 [ ] P. Illegal/Unauthorized Dumping — 02 [ ] Observed (Date _____) [ ] Potential [ ] Alleged
04 Narrative Description:

05 Description of Any Other Known, Potential, or Alleged Hazards

III. TOTAL POPULATION POTENTIALLY AFFECTED 0 - 1 mile - 300

IV. COMMENTS

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

NYSDEC
NUS Corporation: Site Inspection Report 1987
Recra Environmental, Inc. Phase I Investigation 1987
Ecology and Environment Engineering, P.C. 1990 Site Reconnaissance

02[UZ]YQ2080:D3249/5556

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT

EPA

PART 4 - PERMIT AND DESCRIPTIVE INFORMATION

I. IDENTIFICATION

01 State	02 Site Number
NY	932094

II. PERMIT INFORMATION

01 Type of Permit Issued (Check all apply)	02 Permit Number	03 Date Issued	04 Expiration Date	05 Comments
[ ] A. NPDES NA				
[ ] B. UIC				
[ ] C. AIR				
[ ] D. RCRA				
[ ] E. RCRA Interim Status				
[ ] F. SPCC Plan				
[ ] G. State (Specify)				
[ ] H. Local (Specify)				
[ ] I. Other (Specify)				
[X] J. None				

III. SITE DESCRIPTION

01 Storage Disposal (Check all that apply)	02 Amount	03 Unit of Measure
[ ] A. Surface Impoundment		
[ ] B. Piles		
[ ] C. Drums, Above Ground		
[ ] D. Tank, Above Ground		
[ ] E. Tank, Below Ground		
[X] F. Landfill	2,000	cubic yards
[ ] G. Landfarm		
[ ] H. Open dump		
[ ] I. Other (Specify)		

04 Treatment (Check all that apply)

[ ] A. Incineration
[ ] B. Underground Injection
[ ] C. Chemical/Physical
[ ] D. Biological
[ ] E. Waste Oil Processing
[ ] F. Solvent Recovery
[ ] G. Other Recycling Recovery
[ ] H. Other _____ (specify)

05 Other

[ ] A. Buildings On Site

06 Area of Site

0.34 Acres

07 Comments

IV. CONTAINMENT

01 Containment of Wastes (Check one)

[ ] A. Adequate, Secure [ ] B. Moderate [X] C. Inadequate, Poor [ ] D. Insecure, Unsound, Dangerous

02 Description of Drums, Diking, Liners, Barriers, etc.

No barriers or liners installed, one drum observed.

V. ACCESSIBILITY

01 Waste Easily Accessible: [X] Yes [ ] No

02 Comments:
No fencing around site, which is easily accessible from Lockport Road and less accessible from Walmore Road across Cayuga Creek.

VI. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)
NYSDEC
Recra Environmental, Inc. Phase I Investigation 1987
Ecology and Environment Engineering, P.C. 1990 Site Inspection

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT

EPA

PART 5 - WATER, DEMOGRAPHIC, AND ENVIRONMENTAL DATA

I. IDENTIFICATION

01 State	02 Site Number
NY	932094

II. DRINKING WATER SUPPLY

01 Type of Drinking Supply (Check as applicable)

	Surface	Well
Community	A. [X]	B. [ ]
Non-community	C. [ ]	D. [X]

02 Status

Endangered	Affected	Monitored
A. [ ]	B. [ ]	C. [ ]
D. [ ]	E. [ ]	F. [ ]

03 Distance to Site

A >6 (mi)

B _____ (mi)

III. GROUNDWATER

01 Groundwater Use in Vicinity (Check one)

[ ] A. Only Source for Drinking

[X] B. Drinking (Other sources available) Commercial, industrial, irrigation (No other water sources available)

[ ] C. Commercial, industrial, irrigation (Limited other sources available)

[ ] D. Not Used, Unusable

02 Population Served by Groundwater 120

03 Distance to Nearest Drinking Water Well 1.5 (mi)

04 Depth to Groundwater	05 Direction of Groundwater Flow	06 Depth to Aquifer of Concern	07 Potential Yield of Aquifer	08 Sole Source Aquifer
20 (ft)	West	20 (ft)	300 - 2,300 (gpd)	[ ] Yes [X] No

09 Description of Wells (including usage, depth, and location relative to population and buildings)

One large diameter well 3/4 mile from site used to water lawns.
Tuscarora Indian Reservation - unknown number of wells 1.5 miles from the site.

10 Recharge Area		11 Discharge Area	
[ ] Yes	Comments:	[X] Yes	Comments: Site is adjacent to Cayuga Creek so when groundwater table is high, it will discharge to Cayuga Creek.
[X] No		[ ] No	

IV. SURFACE WATER

01 Surface Water (Check one)

[ ] A. Reservoir, Recreation, Drinking Water Source

[ ] B. Irrigation, Economically Important Resources

[ ] C. Commercial, Industrial

[X] D. Not Currently Used

02 Affected/Potentially Affected Bodies of Water

Name:	Affected	Distance to Site
Cayuga Creek	[X]	Adjacent (mi)
Bergholtz Creek	[ ]	5 (mi)
Niagara River	[ ]	6 (mi)

V. DEMOGRAPHIC AND PROPERTY INFORMATION

01 Total Population Within

One (1) Mile of Site	Two (2) Miles of Site	Three (3) Miles of Site
A. 300	B. 4,560	C. 20,916
No. of Persons	No. of Persons	No. of Persons

02 Distance to Nearest Population

700 feet (mi)

03 Number of Buildings Within Two (2) Miles of Site

1,200

04 Distance to Nearest Off-Site Home

700 (mi)

05 Population Within Vicinity of Site (Provide narrative description of nature of population within vicinity of site, e.g., rural, village, densely populated urban area)

The site is surrounded by mostly agricultural areas with sporadic residences.

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT

EPA

PART 5 - WATER, DEMOGRAPHIC, AND ENVIRONMENTAL DATA (Cont.)

I. IDENTIFICATION

01 State	02 Site Number
NY	932094

VI. ENVIRONMENTAL INFORMATION

01 Permeability of Unsaturated Zone (Check one)

[ ] A. 10^{-6} - 10^{-8} cm/sec [X] B. 10^{-4} - 10^{-6} cm/sec [ ] C. 10^{-4} - 10^{-3} cm/sec [ ] D. Greater than 10^{-3} cm/sec

02 Permeability of Bedrock (Check one)

[ ] A. Impermeable (Less than 10^{-6} cm/sec) [X] B. Relatively Impermeable (10^{-4} - 10^{-6} cm/sec) [ ] C. Relatively Permeable (10^{-2} - 10^{-4} cm/sec) [ ] D. Very Permeable (Greater than 10^{-2} cm/sec)

03 Depth to Bedrock	04 Depth of Contaminated Soil Zone	05 Soil pH
15 - 20 (ft)	6 - 8'	6.1 - 7.6

06 Net Precipitation	07 One Year 24-Hour Rainfall	08 Site Slope	Direction of Site Slope	Terrain Average Slope
7 (in)	2.1 (in)	1.0 %	West	4.0 %

09 Flood Potential

Site is in 100 Year Floodplain

10 [ ] Site is on Barrier Island, Coastal High Hazard Area, Riverine Floodway

11 Distance to Wetlands (5 acre minimum)

ESTUARINE: A. >6 (mi)

OTHER: B. >1 (mi)

12 Distance to Critical Habitat (of endangered species)

>1.5 (mi)

Endangered Species: N/A

13 Land Use in Vicinity

Distance to:

COMMERCIAL/INDUSTRIAL	RESIDENTIAL AREA; NATIONAL/STATE PARKS, FORESTS, OR WILDLIFE RESERVES	AGRICULTURAL LANDS: PRIME AG LAND	AGRICULTURAL LANDS: AG LAND
A. 1.0 (mi)	B. 0.14 (mi)	C. >2 (mi)	D. 0.1 (mi)

14 Description of Site in Relation to Surrounding Topography

The site is a field located in a heavily agricultural area of Niagara Falls. Farms for the production of feed crops such as corn, hay, oats, and small grains are located six miles north and southeast of the site. Cayuga Creek runs adjacent to site on west side.

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

NYSDEC
Recra Environmental, Inc. Phase I Investigation 1987
Niagara County Health Department Files
NUS Corporation: Hazardous Waste Site Inspection Report 1987

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POTENTIAL HAZARDOUS WASTE SITE SITE INSPECTION REPORT EPA PART 6 - SAMPLE AND FIELD INFORMATION	I. IDENTIFICATION	
	01 State NY	02 Site Number 932094

II. SAMPLES TAKEN - No samples taken during S.I.

Sample Type	01 Number of Samples Taken	02 Samples Sent to	03 Estimated Date Results Available
Groundwater			
Surface Water	2	York Laboratories	12/87
Waste			
Air			
Runoff			
Spill			
Soil	7	CompuChem Labs	12/87
Vegetation			
Other			

III. FIELD MEASUREMENTS TAKEN

01 Type	02 Comments
HNu	No readings above background level.
OVA	No readings above background level.
Minirad	No readings above background level.

IV. PHOTOGRAPHS AND MAPS

01 Type [X] Ground [ ] Aerial

02 In Custody of Ecology and Environment Engineering, P.C.
(Name of Organization or Individual)

03 Maps
[X] Yes
[ ] No

04 Location of Maps
Ecology and Environment Engineering, P.C.

V. OTHER FIELD DATA COLLECTED (Provide narrative description of sampling activities)

Observations in Field Logbook - Ecology and Environment Engineering, P.C., April 19, 1990

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

NYSDEC
Recra Environmental, Inc. Phase I Investigation 1987
Ecology and Environment Engineering, P.C. Site Inspection 1990
NUS Corporation Site Inspection Report 1987

02[UZ]YQ2080:D3249/5556

EPA

POTENTIAL HAZARDOUS WASTE SITE SITE INSPECTION REPORT

PART 7 - OWNER INFORMATION

I. IDENTIFICATION	
01 State NY	02 Site Number 932094

II. CURRENT OWNER(S) / PARENT COMPANY (if applicable)

01 Name	02 D+B Number	08 Name	09 D+B Number
Niagara Falls Church of God			
03 Street Address (P.O. Box, RFD #, etc.)	**04 SIC Code**	**10 Street Address (P.O. Box, RFD #, etc.)**	**11 SIC Code**
2334 Lockport Road			

05 City	06 State	07 Zip Code	12 City	13 State	14 Zip Code
Wheatfield	NY	14304			

01 Name	02 D+B Number	08 Name	09 D+B Number
03 Street Address (P.O. Box, RFD #, etc.)	**04 SIC Code**	**10 Street Address (P.O. Box, RFD #, etc.)**	**11 SIC Code**

05 City	06 State	07 Zip Code	12 City	13 State	14 Zip Code

01 Name	02 D+B Number	08 Name	09 D+B Number
03 Street Address (P.O. Box, RFD #, etc.)	**04 SIC Code**	**10 Street Address (P.O. Box, RFD #, etc.)**	**11 SIC Code**

05 City	06 State	07 Zip Code	12 City	13 State	14 Zip Code

01 Name	02 D+B Number	08 Name	09 D+B Number
03 Street Address (P.O. Box, RFD #, etc.)	**04 SIC Code**	**10 Street Address (P.O. Box, RFD #, etc.)**	**11 SIC Code**

05 City	06 State	07 Zip Code	12 City	13 State	14 Zip Code

III. PREVIOUS OWNER(S) (List most recent first) / IV. REALTY OWNER(S) (if applicable, most recent first)

01 Name	02 D+B Number	01 Name	02 D+B Number
Edward Struzik			
03 Street Address (P.O. Box, RFD #, etc.)	**04 SIC Code**	**03 Street Address (P.O. Box, RFD #, etc.)**	**04 SIC Code**
2284 Lockport Road			

05 City	06 State	07 Zip Code	05 City	06 State	07 Zip Code
Wheatfield	NY	14304			

01 Name	02 D+B Number	01 Name	02 D+B Number
03 Street Address (P.O. Box, RFD #, etc.)	**04 SIC Code**	**03 Street Address (P.O. Box, RFD #, etc.)**	**04 SIC Code**

05 City	06 State	07 Zip Code	05 City	06 State	07 Zip Code

01 Name	02 D+B Number	01 Name	02 D+B Number
03 Street Address (P.O. Box, RFD #, etc.)	**04 SIC Code**	**03 Street Address (P.O. Box, RFD #, etc.)**	**04 SIC Code**

05 City	06 State	07 Zip Code	05 City	06 State	07 Zip Code

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

NYSDEC, Niagara County Tax Maps
NUS Corporation Site Inspection Report 1987

02[UZ]YQ2080:D3249/5556

EPA	POTENTIAL HAZARDOUS WASTE SITE SITE INSPECTION REPORT PART 8 - OPERATOR INFORMATION - NA	I. IDENTIFICATION 01 State: NY 02 Site Number: 932094

II. CURRENT OPERATOR (if different from Owner)

01 Name	02 D+B Number
03 Street Address (P.O. Box, RFD #, etc.)	04 SIC Code

05 City	06 State	07 Zip Code

08 Years of Operation	09 Name of Owner

OPERATOR'S PARENT COMPANY (if applicable)

10 Name	11 D+B Number
12 Street Address (P.O. Box, RFD #, etc.)	13 SIC Code

14 City	15 State	16 Zip Code

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

PREVIOUS OPERATORS' PARENT COMPANIES (if applicable)

01 Name	02 D+B Number	10 Name	11 D+B Number
03 Street Address (P.O. Box, RFD #, etc.)	04 SIC Code	12 Street Address (P.O. Box, RFD #, etc.)	13 SIC Code

05 City	06 State	07 Zip Code	14 City	15 State	16 Zip Code

08 Years of Operation	09 Name of Owner During This Period

01 Name	02 D+B Number	10 Name	11 D+B Number
03 Street Address (P.O. Box, RFD #, etc.)	04 SIC Code	12 Street Address (P.O. Box, RFD #, etc.)	13 SIC Code

05 City	06 State	07 Zip Code	14 City	15 State	16 Zip Code

08 Years of Operation	09 Name of Owner During This Period

01 Name	02 D+B Number	10 Name	11 D+B Number
03 Street Address (P.O. Box, RFD #, etc.)	04 SIC Code	12 Street Address (P.O. Box, RFD #, etc.)	13 SIC Code

05 City	06 State	07 Zip Code	14 City	15 State	16 Zip Code

08 Years of Operation	09 Name of Owner During This Period

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

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POTENTIAL HAZARDOUS WASTE SITE SITE INSPECTION REPORT EPA PART 9 - GENERATOR/TRANSPORTER INFORMATION	I. IDENTIFICATION	
	01 State NY	02 Site Number 932094

II. ON-SITE GENERATOR

01 Name N/A	02 D+B Number	
03 Street Address (P.O. Box, RFD #, etc.)	04 SIC Code	
05 City	06 State	07 Zip Code

III. OFF-SITE GENERATOR(S)

01 Name Carborundum	02 D+B Number	01 Name	02 D+B Number
03 Street Address (P.O. Box, RFD #, etc.)	04 SIC Code	03 Street Address (P.O. Box, RFD #, etc.)	04 SIC Code
05 City	06 State / 07 Zip Code	05 City	06 State / 07 Zip Code
01 Name Bell Aerospace	02 D+B Number	01 Name	02 D+B Number
03 Street Address (P.O. Box, RFD #, etc.) P. O. Box 1	04 SIC Code	03 Street Address (P.O. Box, RFD #, etc.)	04 SIC Code
05 City Niagara Falls	06 State NY / 07 Zip Code 14240	05 City	06 State / 07 Zip Code

IV. TRANSPORTER(S) - NA

01 Name Modern Disposal Service, Inc.	02 D+B Number	01 Name	02 D+B Number
03 Street Address (P.O. Box, RFD #, etc.) 4746 Model City Road	04 SIC Code	03 Street Address (P.O. Box, RFD #, etc.)	04 SIC Code
05 City Model City	06 State NY / 07 Zip Code	05 City	06 State / 07 Zip Code
01 Name	02 D+B Number	01 Name	02 D+B Number
03 Street Address (P.O. Box, RFD #, etc.)	04 SIC Code	03 Street Address (P.O. Box, RFD #, etc.)	04 SIC Code
05 City	06 State / 07 Zip Code	05 City	06 State / 07 Zip Code

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

NYSDEC
NUS Corporation: Site Inspection Report 1987

POTENTIAL HAZARDOUS WASTE SITE SITE INSPECTION REPORT EPA PART 10 - PAST RESPONSE ACTIVITIES	I. IDENTIFICATION	
	01 State NY	02 Site Number 932094

II. PAST RESPONSE ACTIVITIES

01 [ ] A. Water Supply Closed 04 Description: N/A	02 Date _____	03 Agency _____
01 [ ] B. Temporary Water Supply Provided 04 Description: N/A	02 Date _____	03 Agency _____
01 [ ] C. Permanent Water Supply Provided 04 Description: N/A	02 Date _____	03 Agency _____
01 [ ] D. Spilled Material Removed 04 Description: N/A	02 Date _____	03 Agency _____
01 [ ] E. Contaminated Soil Removed 04 Description: N/A	02 Date _____	03 Agency _____
01 [ ] F. Waste Repackaged 04 Description: N/A	02 Date _____	03 Agency _____
01 [ ] G. Waste Disposed Elsewhere 04 Description: N/A	02 Date _____	03 Agency _____
01 [ ] H. On-Site Burial 04 Description: N/A	02 Date _____	03 Agency _____
01 [ ] I. In Situ Chemical Treatment 04 Description: N/A	02 Date _____	03 Agency _____
01 [ ] J. In Situ Biological Treatment 04 Description: N/A	02 Date _____	03 Agency _____
01 [ ] K. In Situ Physical Treament 04 Description: N/A	02 Date _____	03 Agency _____
01 [ ] L. Encapsulation 04 Description: N/A	02 Date _____	03 Agency _____
01 [ ] M. Emergency Waste Treatment 04 Description: N/A	02 Date _____	03 Agency _____
01 [ ] N. Cutoff Walls 04 Description: N/A	02 Date _____	03 Agency _____
01 [ ] O. Emergency Diking/Surface Water Diversion 04 Description: N/A	02 Date _____	03 Agency _____
01 [ ] P. Cutoff Trenches/Sump 04 Description:	02 Date _____	03 Agency _____

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POTENTIAL HAZARDOUS WASTE SITE SITE INSPECTION REPORT EPA PART 10 - PAST RESPONSE ACTIVITIES (Cont.)	I. IDENTIFICATION	
	01 State NY	02 Site Number 932094

II. PAST RESPONSE ACTIVITIES (Cont.)

01 [ ] Q. Subsurface Cutoff Wall 04 Description: N/A	02 Date _____	03 Agency _____
01 [ ] R. Barrier Walls Constructed 04 Description: N/A	02 Date _____	03 Agency _____
01 [ ] S. Capping/Covering 04 Description: N/A	02 Date _____	03 Agency _____
01 [ ] T. Bulk Tankage Repaired 04 Description: N/A	02 Date _____	03 Agency _____
01 [ ] U. Grout Curtain Constructed 04 Description: N/A	02 Date _____	03 Agency _____
01 [ ] V. Bottom Sealed 04 Description: N/A	02 Date _____	03 Agency _____
01 [ ] W. Gas Control 04 Description: N/A	02 Date _____	03 Agency _____
01 [ ] X. Fire Control 04 Description: N/A	02 Date _____	03 Agency _____
01 [ ] Y. Leachate Treatment 04 Description: N/A	02 Date _____	03 Agency _____
01 [ ] Z. Area Evacuated 04 Description: N/A	02 Date _____	03 Agency _____
01 [ ] 1. Access to Site Restricted 04 Description: N/A	02 Date _____	03 Agency _____
01 [ ] 2. Population Relocated 04 Description: N/A	02 Date _____	03 Agency _____
01 [ ] 3. Other Remedial Activities 04 Description: N/A	02 Date _____	03 Agency _____

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

NYSDEC
NUS Corporation: Site Inspection Report 1987

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POTENTIAL HAZARDOUS WASTE SITE SITE INSPECTION REPORT EPA PART 11 - ENFORCEMENT INFORMATION	I. IDENTIFICATION	
	01 State NY	02 Site Number 932094

II. ENFORCEMENT INFORMATION

01 Past Regulatory/Enforcement Action [ ] Yes [X] No

02 Description of Federal, State, Local Regulatory/Enforcement Action

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

NYSDEC
NUS Corporation: Hazardous Waste Site Inspection Report
Recra Phase I Report

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APPENDIX A

SITE-SPECIFIC SAFETY PLAN

522

ecology and environment, inc.

SITE SAFETY PLAN

Version 988

A. GENERAL INFORMATION

Project Title: Lockport Rd. Site, Phase II, NYSDEC Project No.: YQ-2000

TDD/Pan No.:

Project Manager: Robert Meyers Project Dir.: James Griffis

Location(s): Lockport Road - 200 yards east of Walmore Road, Town of Wheatfield, Niagara County, New York

Prepared by: Robert Meyers Date Prepared: 4-18-90 through 4-24-90

Approval by: C. Foley Date Approved: 4-27-90

Site Safety Officer Review: Date Reviewed:

Scope/Objective of Work: Phase II investigation - Site Recon/Geophysical Survey, sampling (soil, water), monitoring well installation

Proposed Date of Field Activities: 4-19-90 through 8-30-90

Background Info: Complete: [X] Preliminary (No analytical data available) [ ]

Documentation/Summary:

Overall Chemical Hazard:	Serious [ ]	Moderate [ ]
	Low [X]	Unknown [ ]
Overall Physical Hazard	Serious [ ]	Moderate [ ]
	Low [X]	Unknown [ ]

B. SITE/WASTE CHARACTERISTICS

Waste Type(s):

Liquid [ ]	Solid [X]	SIudge [ ]	Gas/Vapor [ ]

Characteristic(s):

Flammable/ Ignitable [ ]	Volatile [ ]	Corrosive [ ]	Acutely Toxic [X]
Explosive [ ]	Reactive [ ]	Carcinogen [ ]	Radioactive* [ ]

Other: Low level heavy metals

Physical Hazards:

Overhead [ ]	Confined* Space [ ]	Below Grade [ ]	Trip/Fall [ ]
Puncture [ ]	Burn [ ]	Cut [ ]	Splash [ ]
Noise [ ]	Other: Level open field, grass covered		

*Requires completion of additional form and special approval from the Corporate Health/Safety group. Contact RSC or HQ.

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Site History/Description and Unusual Features (see Sampling Plan for detailed description): Level open field with buried carbon dust and scrap wood/paper.

Locations of Chemicals/Wastes: Adjacent to Cayuga Creek at the corner of Walmore Road and Lockport Road in Wheatfield, Niagara County.

Estimated Volume of Chemicals/Wastes: 2,000 cubic yards

Site Currently in Operation Yes: [ ] No: [X]

C. HAZARD EVALUATION

List Hazards by Task (i.e., drum sampling, drilling, etc.) and number them. (Task numbers are cross-referenced in Section D)

Physical Hazard Evaluation:

Task 1 - Environmental sampling, both soil and water

Task 2 - Drilling/well installation

Task 3 - Site recon/geophysical survey

Chemical Hazard Evaluation:

Compound	PEL/TWA	Route of Exposure	Acute Symptoms	Odor Threshold	Odor Description
Arsenic Chromium Copper Lead Nickel Zinc	SEE HAZARD EVALUATION SEETS				

Note: Complete and attach a Hazard Evaluation Sheet for major known contaminant.

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D. SITE SAFETY WORK PLAN

Site Control: Attach map, use back of this page, or sketch of site showing hot zone, contamination reduction, zone, etc.

Perimeter identified? [Y] Site secured? [N]

Work Areas Designated? [Y] Zone(s) of Contamination Identified? [Y]

Personnel Protection (TLD badges required for all field personnel):

Anticipated Level of Protection (Cross-reference task numbers to Section C):

	A	B	C	D
Task 1				X
Task 2				X
Task 3				X
Task 4				

(Expand if necessary)

Modifications: Disposable booties with Level D for recon., steam cleaning activities will require dermal protection.

Action Levels for Evacuation of Work Zone Pending Reassessment of Conditions:

- Level D: O_2 <19.5% or >25%, explosive atmosphere >10% LEL, organic vapors above background levels, particulates >0.1 mg/m^3, other _____.
- Level C: O_2 <19.5% or >25%, explosive atmosphere >25% LEL_3 (California-20%), unknown organic vapor (in breathing zone) >5 ppm, particulates >_____ mg/m^3, other _____.
- Level B: O_2 <19.5% or >25%, explosive atmosphere >25% LEL (California-20%), unknown organic vapors (in breathing zone) >500 ppm, particulates >_____ mg/m^3, other _____.
- Level A: O_2 <19.5% or >25%, explosive atmosphere >25% LEL (California-20%), unknown organic vapors >500 ppm, particulates >_____ mg/m^3, other _____.

Air Monitoring (daily calibration unless otherwise noted):

Contaminant of Interest	Type of Sample (area, personal)	Monitoring Equipment	Frequency of Sampling
Any possible organics	Area	OVA and HNu	Continuous
Particulates	Area	Miniram	Continuous

(Expand if necessary)

Decontamination Solutions and Procedures for Equipment, Sampling Gear, etc.:

Steam cleaning before and after each use.

Personnel Decon Protocol: Following disposal of expendables crew will wash face/hands ASAP.

Decon Solution Monitoring Procedures, if Applicable: N/A

Special Site Equipment, Facilities, or Procedures (Sanitary Facilities and Lighting Must Meet 29 CFR 1910.120):

None

Site Entry Procedures and Special Considerations: None

Work Limitations (time of day, weather conditions, etc.) and Heat/Cold Stress Requirements:

Daylight hours only - not during electrical storm.

*Folding chairs located in the shade for cooling down during breaks.

General Spill Control, if applicable: N/A

Investigation-Derived Material Disposal (i.e., expendables, decon waste, cuttings):

TBD by NYSDEC

Sample Handling Procedures Including Protective Wear:

Samplers will wear splash protection and protective gloves.

Team Member*	Responsibility
R. Meyers	Team Leader
TBD	Site Safety Officer
TBD	Team member

*All entries into exclusion zone require Buddy System use. All E & E field staff participate in medical monitoring program and have completed applicable training per 29 CFR 1910.120. Respiratory protection program meets requirements of 29 CFR 1910.134, and ANSI Z88.2 (1980).

E. EMERGENCY INFORMATION

(Use supplemental sheets, if necessary)

LOCAL RESOURCES

(Obtain a local telephone book from your hotel, if possible)

Ambulance 911

Hospital Emergency Room _____

Poison Control Center Lifeline (716) 275-5151

Police (include local, county sheriff, state) 911

_____

Fire Department 911

Airport Buffalo International or Niagara Falls International

Agency Contact (EPA, State, Local USCG, etc.) DEC - Abul Barkat

Local Laboratory E & E ASC

UPS/Fed. Express _____

Client Contact NYSDEC - Abul Barkat

Site Contact Reverend Bell: 731-5151

SITE RESOURCES

Site Emergency Evacuation Alarm Method _____

Water Supply Source TBD

Telephone Location, Number TBD

Cellular Phone, if available _____

Radio _____

Other _____

EMERGENCY CONTACTS

1. Dr. Raymond Harbison (Univ. of Florida) ..... (501) 221-0465 or (904) 462-3277, 3281
   Alachua, Florida (501) 370-8263 (24 hours)
2. Ecology and Environment, Inc., Safety Director
   Paul Jonmaire ..... (716) 684-8060 (office)
   (716) 655-1260 (home)
3. Regional Office Contact ..... _____ (home)
   _____ (office)
4. FITOM, TATOM, or Office Manager ..... _____ (home)
5. E & E Corporate Equipment Warehouse ..... (716) 681-9788
   (716) 681-4356 (FAX)

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MEDTOX HOTLINE

1. Twenty-four hour answering service: (501) 370-8263

   What to report:

   - State: "this is an emergency."
   - Your name, region, and site.
   - Telephone number to reach you.
   - Your location.
   - Name of person injured or exposed.
   - Nature of emergency.
   - Action taken.

2. A toxicologist, (Dr. Raymond Harbison or associate) will contact you. Repeat the information given to the answering service.

3. If a toxicologist does not return your call within 15 minutes, call the following persons in order until contact is made:

   a. **24 hour hotline - (716) 684-8940**
   b. Corporate Safety Director - Paul Jonmaire - home # (716) 655-1260
   c. Assistant Corp. Safety Officer - Steven Sherman - home # (716) 688-0084

EMERGENCY ROUTES

(NOTE: Field Team must Know Route(s) Prior to Start of Work)

Directions to hospital (include map) Take Walmore Road north to Saunders - Settlement Road. Turn left, go approximately 3 miles, then turn right onto Military Road. Mount St. Mary's is approximately 2 miles down Military Road on the left-hand side of the road, just past the intersection of Military and Upper Mountain Road.

Emergency Egress Routes to Get Off-Site N/A

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F. EQUIPMENT CHECKLIST

PROTECTIVE GEAR

Level A	No.
SCBA	
SPARE AIR TANKS	
ENCAPSULATING SUIT (Type _____)	
SURGICAL GLOVES	
NEOPRENE SAFETY BOOTS	
BOOTIES	
GLOVES (Type _____)	
OUTER WORK GLOVES	
HARD HAT	
CASCADE SYSTEM	
5-MINUTE ESCAPE COOLING VEST	
Level C	
ULTRA-TWIN RESPIRATOR	X
POWER AIR PURIFYING RESPIRATOR	
CARTRIDGES (Type GMC-H)	X
5-MINUTE ESCAPE MASK	
PROTECTIVE COVERALL (Type TYVEK)	X
RAIN SUIT	
BUTYL APRON	
SURGICAL GLOVES	X
GLOVES (Type Surgical)	X
OUTER WORK GLOVES	
NEOPRENE SAFETY BOOTS	
HARD HAT WITH FACE SHIELD	
BOOTIES	X
HARDHAT	X

Level B	No.
SCBA	
SPARE AIR TANKS	
PROTECTIVE COVERALL (Type _____)	
RAIN SUIT	
BUTYL APRON	
SURGICAL GLOVES	
GLOVES (Type _____)	
OUTER WORK GLOVES	
NEOPRENE SAFETY BOOTS	
BOOTIES	
HARD HAT WITH FACE SHIELD	
CASCADE SYSTEM	
MANIFOLD SYSTEM	
Level D	
ULTRA-TWIN RESPIRATOR (Available)	X
CARTRIDGES (Type GMC-H)	
5-MINUTE ESCAPE MASK (Available)	
PROTECTIVE COVERALL (Type TYVEK)	X
RAIN SUIT	
NEOPRENE SAFETY BOOTS	
BOOTIES	X
WORK GLOVES	X
HARD HAT WITH FACE SHIELD	X
SAFETY GLASSES	X
*Saraneks used for steam cleaning	

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INSTRUMENTATION	No.
OVA	X
THERMAL DESORBER	
O2/EXPLOSIMETER W/CAL. KIT	X
PHOTOVAC TIP	
HNu (Probe 10.2 ev)	X
MAGNETOMETER	X
PIPE LOCATOR	
WEATHER STATION	
DRAEGER PUMP, TUBES	
BRUNTON COMPASS	X
MONITOX CYANIDE	
HEAT STRESS MONITOR	
NOISE EQUIPMENT	
PERSONAL SAMPLING PUMPS	
PARTICULATE MONITOR	X
RADIATION EQUIPMENT	
DOCUMENTATION FORMS	
PORTABLE RATEMETER	
SCALER/RATEMETER	
NaI Probe	
ZnS Probe	
GM Pancake Probe	
GM Side Window Probe	
MICRO R METER	
ION CHAMBER	
ALERT DOSIMETER	
POCKET DOSIMETER	
FIRST AID EQUIPMENT	
FIRST AID KIT	X
OXYGEN ADMINISTRATOR	
STRETCHER	
PORTABLE EYE WASH	X
BLOOD PRESSURE MONITOR	
FIRE EXTINGUISHER	X

DECON EQUIPMENT	No.
WASH TUBS	X
BUCKETS	
SCRUB BRUSHES	X
PRESSURIZED SPRAYER (Steam)	X
DETERGENT (Type)	
SOLVENT (Type)	
PLASTIC SHEETING	X
TARPS AND POLES	
TRASH BAGS	X
TRASH CANS	
MASKING TAPE	
DUCT TAPE	X
PAPER TOWELS	X
FACE MASK SANITIZER	
FOLDING CHAIRS In shade	X
STEP LADDERS	
DISTILLED WATER	X
SAMPLING EQUIPMENT	
8 OZ. BOTTLES	X
HALF-GALLON BOTTLES	X
VOA BOTTLES	X
STRING	
HAND BAILERS	X
THIEVING RODS WITH BULBS	
SPOONS	X
KNIVES	
FILTER PAPER	
PERSONAL SAMPLING PUMP SUPPLIES	

VAN EQUIPMENT	No.
TOOL KIT	
HYDRAULIC JACK	
LUG WRENCH	
TOW CHAIN	
VAN CHECK OUT	
Gas	
Oil	
Antifreeze	
Battery	
Windshield Wash	
Tire Pressure	
MISCELLANEOUS	
PITCHER PUMP	
SURVEYOR'S TAPE	
100 FIBERGLASS TAPE	X
300 NYLON ROPE	
NYLON STRING	
SURVEYING FLAGS	X
FILM	X
WHEEL BARROW	
BUNG WRENCH	
SOIL AUGER	
PICK	
SHOVEL	
CATALYTIC HEATER	
PROPANE GAS	
BANNER TAPE	
SURVEYING METER STICK	
CHAINING PINS & RING	
TABLES	
WEATHER RADIO	
BINOCULARS	
MEGAPHONE	

MISCELLANEOUS (Cont.)	No.
SHIPPING EQUIPMENT	
COOLERS	X
PAINT CANS WITH LIDS, 7 CLIPS EACH	
VERMICULITE	
SHIPPING LABELS	
DOT LABELS: "DANGER"	
"UP"	
"INSIDE CONTAINER COMPLIES ..."	
"HAZARD GROUP"	
STRAPPING TAPE	X
BOTTLE LABELS	X
BAGGIES	X
CUSTODY SEALS	X
CHAIN-OF-CUSTODY FORMS	X
FEDERAL EXPRESS FORMS	
CLEAR PACKING TAPE	X

DATE : 4/24/90
JOB NO: YQ-2000

CHEMICAL NAME: Arsenic

SYN : Metallic arsenic, Arsenic 75, Organic Arsenic
CAS NO: 7440-38-2 FORMULA: As
DOT CLASS: 1558/POISON

CHEMICAL PROPERTIES

Phys St: Solid
Mol Wt : 74.9
Sp Gr : 5.72
Odor : none

Boil Pt: 1139.0 °F
Melt Pt: 1500.8 °F
Frz Pt : —

Ionz Pot : —
Vap Press: 1.0 mmHg
Odr Thr : —

Fl Pt: —
LFL : —
UFL : —

INCOMPAT/REACT: heat, acids, oxidizing agents, halogens, air sensitive
SOLUBILITY : water-insoluble; nitric acid

TOXICOLOGICAL PROPERTIES

Exposure Limits: TLV-TWA (ACGIH): 0.0(5)42ppm
STEL: —
PEL (OSHA): 0.1635ppm
IDLH: —

OTHER PROPERTIES :
Tox Data: INHAL :
DERMAL :
ORAL : man TDLo: 7857 mg/kg/55Y
CARCIN : human positive
MUTAGEN : exper
REPRO TOX: exper
AQUATIC :
OTHER TOX: TARGET ORGANS: liver,kidneys,skin,lung,lymphat sys
ROUTES OF EXP: Ingestion, Eye(Ocular), Dermal Absorption, Skin Contact, Inhalation

PERSONAL PROTECTIVE MEASURES

RESPIRATORS : APR: dusty/windy condit or known high concent or >1 but <5ppm; SCBA: >5ppm
C/ DGE TYPE : GMC-H or APR (NACAL)
PROTECTIVE CLOTHING: Coverall: Tyvek Gloves: Butyl, Neoprene
SPEC PRECAUTIONS : OSHA Regulated Carcinogen

FIRST AID

INHALATION: move to fresh air, give O2/CPR if nec. SEEK MEDICAL ATTENTION
EYE/SKIN : Remove cont. clothes, flush w/water 15 min. SEEK MEDICAL ATTENTION
INGESTION : Rinse mouth w/water, treat for shock, SEEK MEDICAL ATTENTION

SYMPTOMS

ACUTE : dermatitis,nose/throat irritation,mild bronchitis,headache,dizzy,fatigue,pale/blue face,diff breath,abd pain,diarrhea,trembling of arms/legs, convulsions, pulmonary edema
CHRONIC: loss of apetite,cramps,nausea,constipation,diarrhea,liver damage,blood,kidney & nervous syst. disturb, poss. skin cancer, lymphatic system affected.

DISPOSAL, FIRE, SPILLS (see attached sheet)

DISPOSAL: P
FIRE: 11,13
DECOMPOSITION PRODUCTS: arsenic oxides
LEAKS & SPILLS: 4,6,7,9

REFERENCES CONSULTED

NIOSH/OSHA Pocket Guide, ACGIH TLV Booklet, RTECS
OTHER REFERENCES: Sigma-Aldrich, Handbook of Poisoning, Emerg Resp Guide, OSHA

CHEMICAL CLASSIFICATION: Non-metal/Metalloid

LAST REVISION DATE: 04/19/89

DATE : 4/24/90
JOB NO: YQ-2000

SYN : Insoluble salts
CAS NO: 7440 47-3
DOT CLASS:

CHEMICAL NAME: Chromium-metal

FORMULA: Cr

CHEMICAL PROPERTIES

Phys St:
Mol Wt : 52.00
Sp Gr : 7.20
Odor : none

Boil Pt: 4784.00°F
Melt Pt: 3432.00°F
Frz Pt : 3389.00°F

Ionz Pot : --
Vap Press: --
Odr Thr : --

Fl Pt: 0.000°F
LFL : --
UFL : --

INCOMPAT/REACT: strong oxidizers, powdered metal is explosive
SOLUBILITY : insoluble

TOXICOLOGICAL PROPERTIES

Exposure Limits: TLV-TWA (ACGIH): 0.23 ppm
STEL: --
PEL (OSHA): 0.47 ppm
IDLH: 235.07 ppm

OTHER PROPERTIES :
Tox Data: INHAL : -
DERMAL : -
ORAL : -
CARCIN : -
MUTAGEN : -
REPRO TOX: -
AQUATIC : -
OTHER TOX: TARGET ORGANS: Respiratory System
ROUTES OF EXP: Ingestion, Eye(Ocular), Skin Contact, Inhalation

PERSONAL PROTECTIVE MEASURES

RESPIRATORS : APF: dusty/windy condit or known high concent or >1 but <5ppm; SCBA: >5ppm
CARTRIDGE TYPE : GMC-H, AFC3 (RACAL)
PROTECTIVE CLOTHING: Coverall: Tyvek Gloves: Butyl
SPEC PRECAUTIONS :

FIRST AID

INHALATION: move to fresh air, artf resp if nec, SEEK MEDICAL ATTENTION
EYE/SKIN : Flush w/water 15 min, wash skin w/soap & water, SEEK MEDICAL ATTENTION.
INGESTION : Give 1g cups of water, induce vomiting, SEEK MEDICAL ATTENTION

SYMPTOMS

ACUTE : conctact dermatitis, ulceration of skin/nasal mucosa, irritation of eyes/mucous membranes

CHRONIC: pulmonary disease

DISPOSAL, FIRE, SPILLS (see attached sheet)

DISPOSAL: F
DECOMPOSITION PRODUCTS:
FIRE: 13
LEAKS & SPILLS: 3,4,6-9

REFERENCES CONSULTED

NIOSH/OSHA Pocket Guide, ACGIH TLV Booklet
OTHER REFERENCES: NIOSH Guides, Sigma-Aldrich, OSHA

CHEMICAL CLASSIFICATION: Heavy metal

LAST REVISION DATE:
04/18/89

CHEMTOX DATA

---------- IDENTIFIERS ----------

CHEMTOX RECORD: 125
NAME: COPPER
SYNONYMS: NONE
CAS: 7440-50-8
FORMULA: Cu
CHEMICAL CLASS: Metal

LAST UPDATE OF THIS RECORD: 03/31/90

RTECS: GL5325000
MOL WT: AT. WT. = 63.546

See other identifiers listed below under Regulations.

---------- PROPERTIES ----------

PHYSICAL DESCRIPTION: YELLOW TO BROWN COLORED METAL

BOILING POINT:	2597 K	2323.8 C	4214.9 F
MELTING POINT:	1356 K	1082.8 C	1981.1 F
FLASH POINT:			
AUTO IGNITION:		NA	
VAPOR PRESSURE:	1MM @ 1628 C		
UEL:	NA		
LEL:	NA		
VAPOR DENSITY:	No data		
SPECIFIC GRAVITY:			
DENSITY:	8.92		
WATER SOLUBILITY:	INSOLUBLE		

INCOMPATIBILITIES: ACETYLENE

REACTIVITY WITH WATER: No data on water reactivity
REACTIVITY WITH COMMON MATERIALS: No data
STABILITY DURING TRANSPORT: No Data
NEUTRALIZING AGENTS: No data
POLYMERIZATION POSSIBILITIES: No data

TOXIC FIRE GASES: None reported other than possible unburned vapors

ODOR DETECTED AT (ppm):
ODOR DESCRIPTION:
% ODOR DETECTION: No data

---------- REGULATIONS ----------

DOT HAZARD CLASS: No class given
DOT GUIDE:
DOT ID NUMBER:
DOT SHIPPING NAME:
CG NUMBER:

CLEAN AIR ACT:
RCRA WASTE NUMBER:
RCRA REF:
DESIGNATION: D 5000 pounds (2270 kg)
RQ TPQ VALUE: Not listed
SARA Sect. 312 categories:

Acute toxicity: adverse effect to

target organs.

IN SARA Sect. 313: Yes

NFPA CODES:
HEALTH HAZARD (BLUE): Unspecified
FLAMMABILITY (RED) : Unspecified
REACTIVITY (YELLOW): Unspecified
SPECIAL : Unspecified

---------- TOXICITY DATA ----------

TARGET ORGANS: RESP SYSTEM, SKIN, EYES, INCREASED RISK OF WILSON'S DISEASE
SYMPTOMS: Source:

CONC IDLH: NA ppm

ACGIH TLV: 0.2 mg/M3 Fume
ACGIH STEL: Not specified

OSHA PEL: Transitional Limits:
PEL = (fume - 0.1) (Dusts and mists - 1)mg/M3
Final Rule Limits:
TWA = (Fume - 0.1) (Dusts and mists -1) mg/M3

CARCINOGEN?: N STATUS:

CARCINOGEN LISTS:
IARC: Not listed
NIOSH: Not listed
NTP: Not listed
ACGIH: Not listed.

HUMAN TOXICITY DATA: (Source: NIOSH RTECS)
orl-hmn TDLo:120 ug/kg PHRPA6 73,910,50
GASTROINTESTINAL
Nausea or vomiting

LD50 value: Not in RTECS 1988

OTHER SPECIES TOXICITY DATA: (Source: NIOSH RTECS 1988)

ipr-mus LD50:3500 ug/kg

Reproductive toxicity (1988 RTECS):
This chemical is a mammalian reproductive toxin.

---------- PROTECTION AND FIRST AID ----------

PROTECTION SUGGESTED:
FROM THE CHRIS MANUAL:

RECOMMENDED RESPIRATION PROTECTION Source: NIOSH POCKET GUIDE (85-114)
OSH (COPPER)
5 mg/M3: Any dust and mist respirator except single-use respirators. * Substance reported to cause eye irritation or damage may require eye protection.
.0 mg/M3: Any dust and mist respirator except single-use and quarter-mask respirators. * Substance reported to cause eye irritation or damage may require eye protection. / Any supplied-air respirator. *

Substance reported to cause eye irritation or damage may require eye protection. / Any self-contained breathing apparatus. * Substance reported to cause eye irritation or damage may require eye protection.
mg/M3: Any powered air-purifying respirator with a dust and mist filter. * Substance reported to cause eye irritation or damage may require eye protection. / Any supplied-air respirator operated in a continuous flow mode. * Substance reported to cause eye irritation or damage may require eye protection.
50 mg/M3: Any air-purifying full facepiece respirator with a high-efficiency particulate filter. / Any self-contained breathing apparatus with a full facepiece. / Any supplied-air respirator with a full facepiece. / Any powered air-purifying respirator with a tight-fitting facepiece and a high-efficiency particulate filter. * Substance reported to cause eye irritation or damage may require eye protection.
1000 mg/M3: Any supplied-air respirator with a half-mask and operated in a pressure-demand or other positive pressure mode. * Substance reported to cause eye irritation or damage may require eye protection.
2000 mg/M3: Any supplied-air respirator with a full facepiece and operated in a pressure-demand or other positive pressure mode.
EMERGENCY OR PLANNED ENTRY IN UNKNOWN CONCENTRATIONS OR IDLH CONDITIONS.: Any self-contained breathing apparatus with full facepiece and operated in a pressure-demand or other positive pressure mode. / Any supplied-air respirator with a full facepiece and operated in pressure-demand or other positive pressure mode in combination with an auxiliary self-contained breathing apparatus operated in pressure-demand or other positive pressure mode.
ESCAPE: Any air-purifying full facepiece respirator with a high-efficiency particulate filter. / Any appropriate escape-type self-contained breathing apparatus.

---------- INITIAL INCIDENT RESPONSE ----------

US Department of Transportation Guide to Hazardous Materials Transport Information - Publication DOT 5800.4 (1987).
DOT SHIPPING NAME:
DOT ID NUMBER:
No guide information for this compound.

DATE : 4/24/90
JOB NO: PG-2000

...ection of Chemicals
Region V - Chicago

SYN : White lead, Plumbum, Inorganic Lead
CAS NO: 7439-92-1
DOT CLASS:
FORMULA: Pb

CHEMICAL NAME: Lead

CHEMICAL PROPERTIES

Phys St: Solid
Mol Wt : 207.00
Sp Gr : 11.30
Odor : none
Boil Pt: 3164.00°F
Melt Pt: 620.00°F
Frz Pt : --
Ionz Pot : --
Vap Press: --
Odr Thr : --
Fl Pt: --
LFL : --
UFL : --
INCOMPAT/REACT: strong oxidizers, peroxides, active metals
SOLUBILITY :

TOXICOLOGICAL PROPERTIES

Exposure Limits: TLV-TWA (ACGIH): 0.01 ppm
STEL: --
PEL (OSHA): --
IDLH: --
OTHER PROPERTIES : PEL - 50ug/m3
Tox Data: INHAL : -
DERMAL : -
ORAL : rat TLLo: 750mg/kg
CARCIN : indefinite
MUTAGEN : -
REPRO TOX: exper teratogen
AQUATIC : -
OTHER TOX: TARGT ORGNS: GI Trct,CNS,Kid,Bld,Gingival Tissue
ROUTES OF EXP: Ingestion, Eye(Ocular), Skin Contact, Inhalation

PERSONAL PROTECTIVE MEASURES

RESPIRATORS : APR: dusty/windy condit or known high concent or >1 but <5ppm; SCBA: >5ppm
CARTRIDGE TYPE : GMC-H, AP3 (NIOSH)
PROTECTIVE CLOTHING: Coverall: Saranex Gloves: Nitrile
SPEC PRECAUTIONS :

FIRST AID

INHALATION: move to fresh air, artf resp if nec, SEEK MEDICAL ATTENTION
EYE/SKIN : flush w/water 15 minutes, wash skin with soap/water, SEEK MEDICAL ATTENTION
INGESTION : give water, induce vomiting, SEEK MEDICAL ATTENTION IMMEDIATELY

SYMPTOMS

ACUTE : cumulative neurotoxin (prolong expos), stomach distress, vomtg, diarrhea, black stools, anemia, nervous system effects
CHRONIC: alimentary: abdm pain/discomf,constptn,diarrh neuromusc: musc weaknss,joint/musc pain,dizzy,insom, encephalic: brain involvment, stupor, coma,death-rare reprod: poison to m/f germ cells

DISPOSAL, FIRE, SPILLS (see attached sheet)

DISPOSAL: P
FIRE: 13
DECOMPOSITION PRODUCTS: toxic fumes of lead
LEAKS & SPILLS: 7,8,10

REFERENCES CONSULTED

NIOSH/OSHA Pocket Guide, ACGIH TLV Booklet, RTECS
OTHER REFERENCES: Sigma-Aldrich, OSHA 1910., Handbook of Poisoning

CHEMICAL CLASSIFICATION: Heavy Metal

LAST REVISION DATE: 04/18/89

DATE : 4/24/90
JOB NO: YQ-2000

CHEMICAL NAME: Nickel

SYN : Synonyms vary depending on specific compound
CAS NO: 7440-02-0 FORMULA: Ni
DOT CLASS:

CHEMICAL PROPERTIES

Phys St: Solid | Boil Pt: 5130.00°F | Ionz Pot : -- | Fl Pt: --
Mol Wt : 58.70 | Melt Pt: 2831.00°F | Vap Press: -- | LFL : --
Sp Gr : 8.90 | Frz Pt : 2651.00°F | Odr Thr : -- | UFL : --
Odor : none

INCOMPAT/REACT: heat,strong acids,oxidizers,sulfur,titanium,ammonium nitrate,potassium perchlorate,hydrazoic acid
SOLUBILITY : insoluble

TOXICOLOGICAL PROPERTIES

Exposure Limits: TLV-TWA (ACGIH): 0.41 ppm PEL (OSHA): 0.41 ppm
STEL: -- IDLH: --

OTHER PROPERTIES : IRRITANT
Tox Data: INHAL : -
DERMAL : -
ORAL : rat ldlo: 150mg/kg
CARCIN : Animal posit, human susp
MUTAGEN : exper
REPRO TOX: exper teratogen
AQUATIC : -
OTHER TOX: TARGET ORGANS: Nasal Cavities, Lungs, Skin
ROUTES OF EXP: Ingestion, Eye(Ocular), Skin Contact, Inhalation

PERSONAL PROTECTIVE MEASURES

RESPIRATORS : AFR: dusty/windy condit or known high concent or >1 but <5ppm; SCBA: >5ppm
AIR GE TYPE : GMC-H or APR (NIOSH)
PROTECTIVE CLOTHING: Coverall: Saranex Gloves: Nitrile
SPEC PRECAUTIONS :

FIRST AID

INHALATION: move to fresh air, CPR if nec, SEEK MEDICAL ATTENTION
EYE/SKIN : flush w/water 15 min, wash skin with soap/water, SEEK MEDICAL ATTENTION
INGESTION : DO NOT INDUCE VOMITING, SEEK MEDICAL ATTENTION

SYMPTOMS

ACUTE : irritation of skin/eyes/mucous membranes of upper resp tract, naus/vomt, giddiness, headache

CHRONIC: dermatitis resulting from skin sensitization; cancer of lung & nasal passages in nickel refining employees

DISPOSAL, FIRE, SPILLS (see attached sheet)

DISPOSAL: P
FIRE: 2
LEAKS & SPILLS: 3,4,6-9
DECOMPOSITION PRODUCTS: nickel carbonyl, oxides of nitrogen

REFERENCES CONSULTED

NIOSH/OSHA Pocket Guide, Merck Index, ACGIH TLV Booklet
OTHER REFERENCES: NIOSH Guides, Sigma-Aldrich

CHEMICAL CLASSIFICATION: Metal

LAST REVISION DATE: 05/10/89

ecology and environment, inc.

HAZARD EVALUATION OF CHEMICALS

Chemical Name Zinc Date 4-24-90

DOT Name/U.N. No. UN1436 Job No. YQ2000

CAS Number

References Consulted (circle):

NIOSH/OSHA Pocket Guide Verschueren Merck Index Hazardline Chris (Vol. II)

Toxic and Hazardous Safety Manual ACGIH (Other:) OHS Data base

Chemical Properties: (Synonyms: Blue Powder, C.I 77945, JASAD)

Chemical Formula ZN Molecular Weight 65.37

Physical State Solid Solubility (H_2O) Insoluble Boiling Point 1665°F

Flash Point Non-flammable Vapor Pressure/Density [illegible] 709°F Freezing Point 787°F

Specific Gravity 7.14 Odor/Odor Threshold Flammable Limits

Incompatabilities Acids, Sodium Peroxide, Chlorine, Water, Sulfer [illegible]

Biological Properties:

TLV-TWA — PEL None established Odor Characteristic

IDLH Not specified Human Aquatic Rat/Mouse "

Route of Exposure eye, skin contact, Inhalation

Carcinogen Teratogen Mutagen

Handling Recommendations: (Personal protective measures)

Prevent repeated or prolonged SKIN CONTACT, WEAR impervious clothing, gloves & FAceshield

Monitoring Recommendations:

Disposal/Waste Treatment:

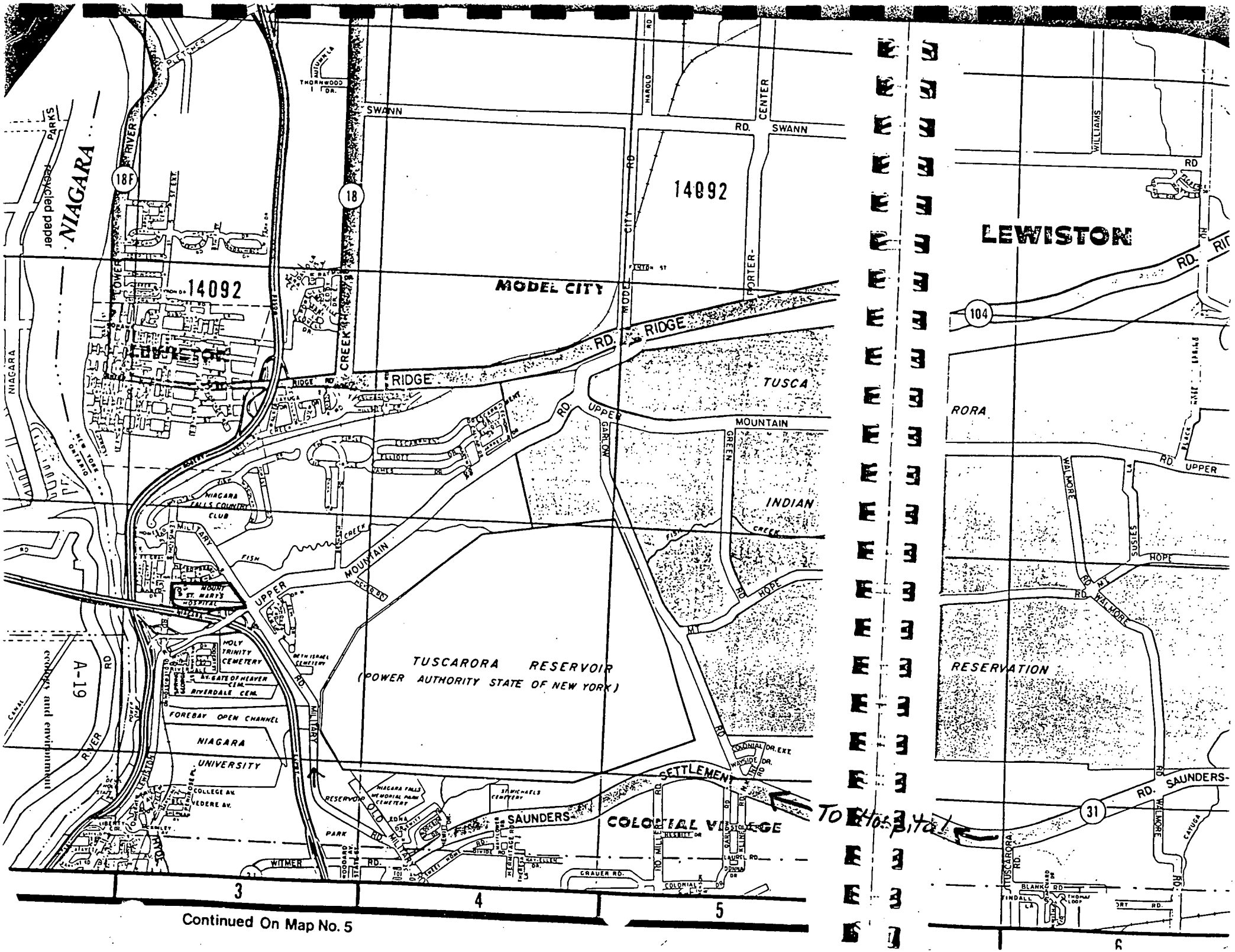
Place CONTAMINATED clothing in closed drums - for storage until laundered or disposal

Health Hazards and First Aid:

If it gets in EYES wash with large Amounts of water, get medical Attention immediately

Symptoms: Acute: Skin irritation, thirst, coughing, Muscular Ache, Fever, NAUSEA

Chronic: None specified



Continued On Map No. 5

SITE SAFETY PLAN

A. GENERAL INFORMATION

SITE: LOCK PORT ROAD N.Y. I.D. No. #932094

LOCATION: WHEATFIELD / NIAGARA CONTACT: T.S. MANICKAM (518) 457-0639

PLAN PREPARED BY: T.S. MANICKAM DATE: 11-5-87

APPROVED BY:

BUREAU SAFETY OFFICER: _____ DATE: _____

SECTION CHIEF: _____ DATE: _____

WORK SCOPE: TO VISIT THE SITE FOR ASSESING FIELD CONDITIONS AND TO SELECT SAMPLING POINTS FOR SURFACE WATER, GROUNDWATER, SOIL AND WASTE SAMPLES FOR WORKPLAN PREPARATION FOR PHASE II INVESTIGATION

PROPOSED DATE OF INVESTIGATION: 11-11-1987

BACKGROUND REVIEW: Complete: _____ Preliminary: X

OVERALL HAZARD: Serious: _____ Moderate: _____

Low: _____ Unknown: X

B. SITE/WASTE CHARACTERISTICS

WASTE TYPE(S): Liquid _____ Solid X Sludge _____ Gas _____

CHARACTERISTIC(S): Corrosive _____ Ignitable _____ Radioactive _____

Volatile _____ Toxic _____ Reactive _____ Unknown X Other _____

FACILITY FUNCTION: OPEN DUMP - Received carbon dust, graphite waste and paper from Carborundum. Used by Ball Aerospace for disposal of scrapwood, fly ash and clay.

Principal Disposal Method (type and location): open dump.

Unusual Features (dike integrity, power lines, terrain, etc.) —

Status: (active, inactive, unknown) —

History: (Worker or non-worker injury; complaints from public; previous agency action): _____

HAZARDOUS/TOXIC MATERIAL (known or suspected, contaminated media or in storage container, etc.)

A soil sample collected by NYSDEC ~~Sha~~ C1982) showed low but detectable concentrations of arsenic, Chromium, Copper, lead, nickel and zinc.

HAZARD ASSESSMENT (toxic and pharmacologic effects, reactivity, stability flammability, and operational concerns, sampling, decontaminating, etc.)

—

C. SITE SAFETY WORK PLAN

PERIMETER ESTABLISHMENT: Map/Sketch attached X Site secured? No

Perimeter Identified? X Zone(s) of Contamination Identified? —

PROPOSED ON-SITE ACTIVITEIS: To inspect the site, assess field conditions and select surfacewater, groundwater, soil and waste ~~samples for~~ sampling locations for work plan preparation for Phase II investigation.

RECOMMENDED LEVEL OF PROTECTION: Level C

*Modifications: If HNU Meter or PHOTOVAC READING SHOWS A VALUE LESS THAN OR EQUAL TO BACKGROUND, LEVEL D PROTECTION WILL BE USED.

Monitoring Equipment and Materials:

HNU OR PHOTOVAC

DECONTAMINATION AND DISPOSAL:

Decontamination Procedure: ( ) level to be utilized

_____ Level A - Segretated equipment drop, boot cover and glove wash, boot cover and glove rinse, tape removal, boot cover removal, outer glove removal, suit/safety boot wash, suit safety boot rinse, (Tank Change), safety boot removal, suit and hard hat removal, inner glove wash, inner glove removal, inner clothing removal, field wash, redress.

_____ Level B - Segregated equipment drop, boot cover and glove wash, boot cover and glove rinse, tape removal, boot cover removal, outer glove removal, suit/safety boot wash, suit/SCBA/boot/glove/rinse, (Tank Change) safety boot removal, (splash siut removal) SCBA backpack removal, inner glove wash, inner glove rinse, facepiece removal, inner glove removal, inner clothing removal, field wash, redress.

_____ Level C - Segregated equipment drop, boot cover and glove wash, boot cover and glove rinse, tape removal, boot cover removal, outer glove removal suit/safety boot wash, suit/safety boot rinse (Canister or Mask Change), safety boot removal, splash suit removal, inner glove wash, inner glove rinse, facepiec removal, inner glove removal, inner clothing removal, field wash, redress.

X Level D - Segregated equipment drop, boot and glove wash, boot and glove rinse.

_____ *Modifications (specify) _____

* If modified in the field, be sure to attach statement to file copy upon return to office.

D. PERSONNEL & RESPONSIBILITIES

D.E.C.

1. T.S. MANICKAM, NYSDEC, CENTRAL OFFICE
2. LARRY ALDEN " "
3.
4.
5.
6.
7.
8.

OTHER

1.
2.
3.
4.
5.

E. EMERGENCY PLANNING

HOSPITAL: MT. ST. MARY'S HOSPITAL. (716) 297-4800
5300 MILTARY ROAD, LEWISTON.

AMBULANCE: 911

POLICE: 911

FIRE: 911

POISON CONTROL CENTER: VIRGINIA HARRIS (315) 476-7529

RADIO:

TELEPHONE:

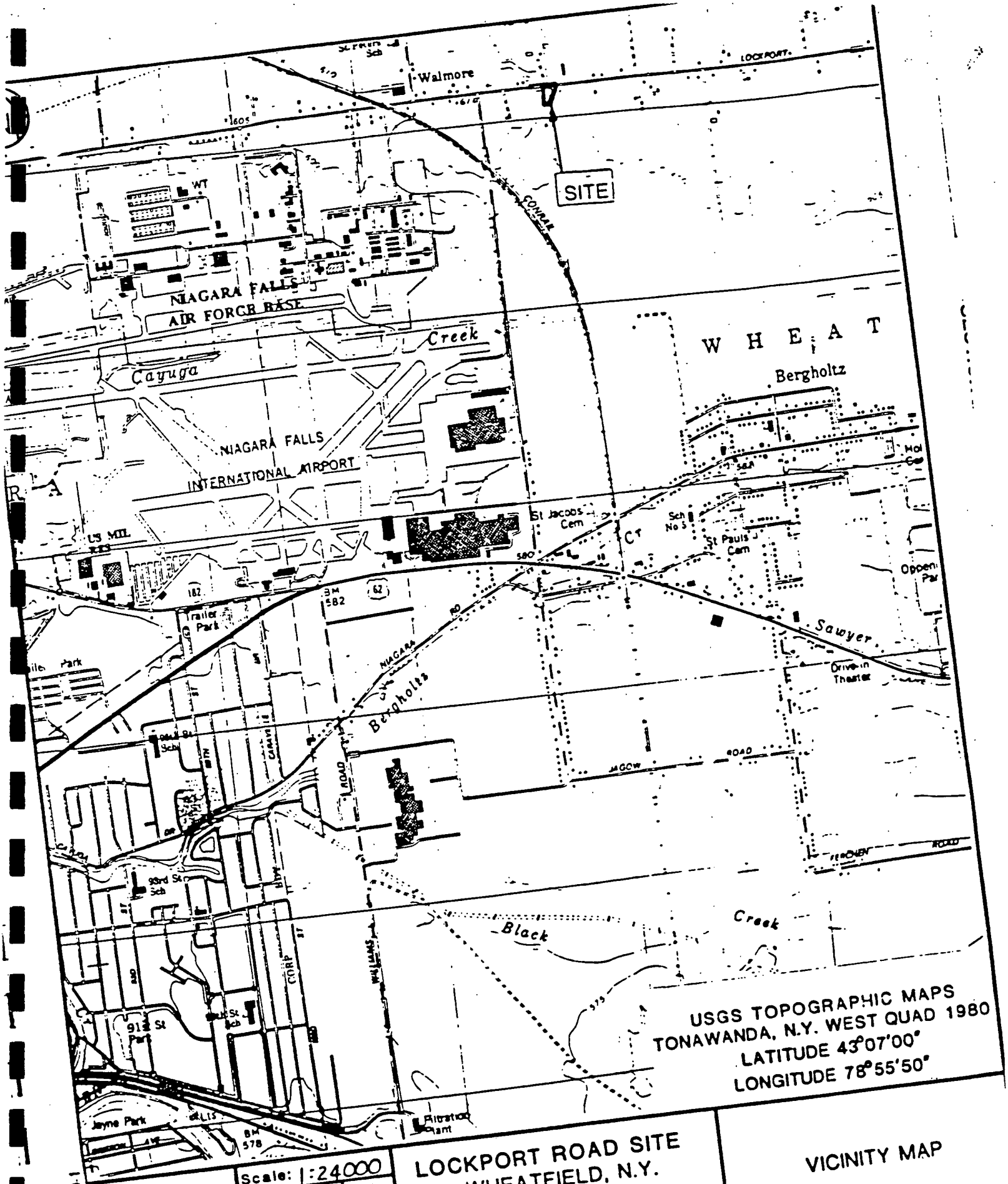
WATER SUPPLY:

D.E.C. REGIONAL CONTACT: PETER BUECHI (716) 847-4585

ROUTE TO HOSPITAL (Attach Map)

FOLLOW LOCKPORT ROAD (ROUTE 6 W) TOWARDS WEST. NEAR PLETCHERS CORNERS, IT INTERSECT ROUTE 265. FOLLOW ROUTE 265 N. AFTER PASSING ROUTE 11) YOU WILL SEE THE HOSPITAL ON LEFT. FOLLOW THE SIGN.

	Phone #
D.E.C. OFFICE -	(518) 457-0740
BC: Charles Goddard -	(518) 457-0740
~~BSC: Alan C. Woodard~~	~~(518) 457-0944~~
SC: Walter Demick -	(518) 457-9538
SC: Marsden Chen -	(518) 457-0639
SC: Roberto Olazagasti -	(518) 457-0747
SC: John Rankin -	(518) 457-0927



Scale: 1:24000	LOCKPORT ROAD SITE WHEATFIELD, N.Y. N.Y.S. SUPERFUND PHASE I A-25	VICINITY MAP
By / Date Dwn. MJS 12/85 Ck'd. Ap'vd.	Project No. 5C280418	A FIGURE 1

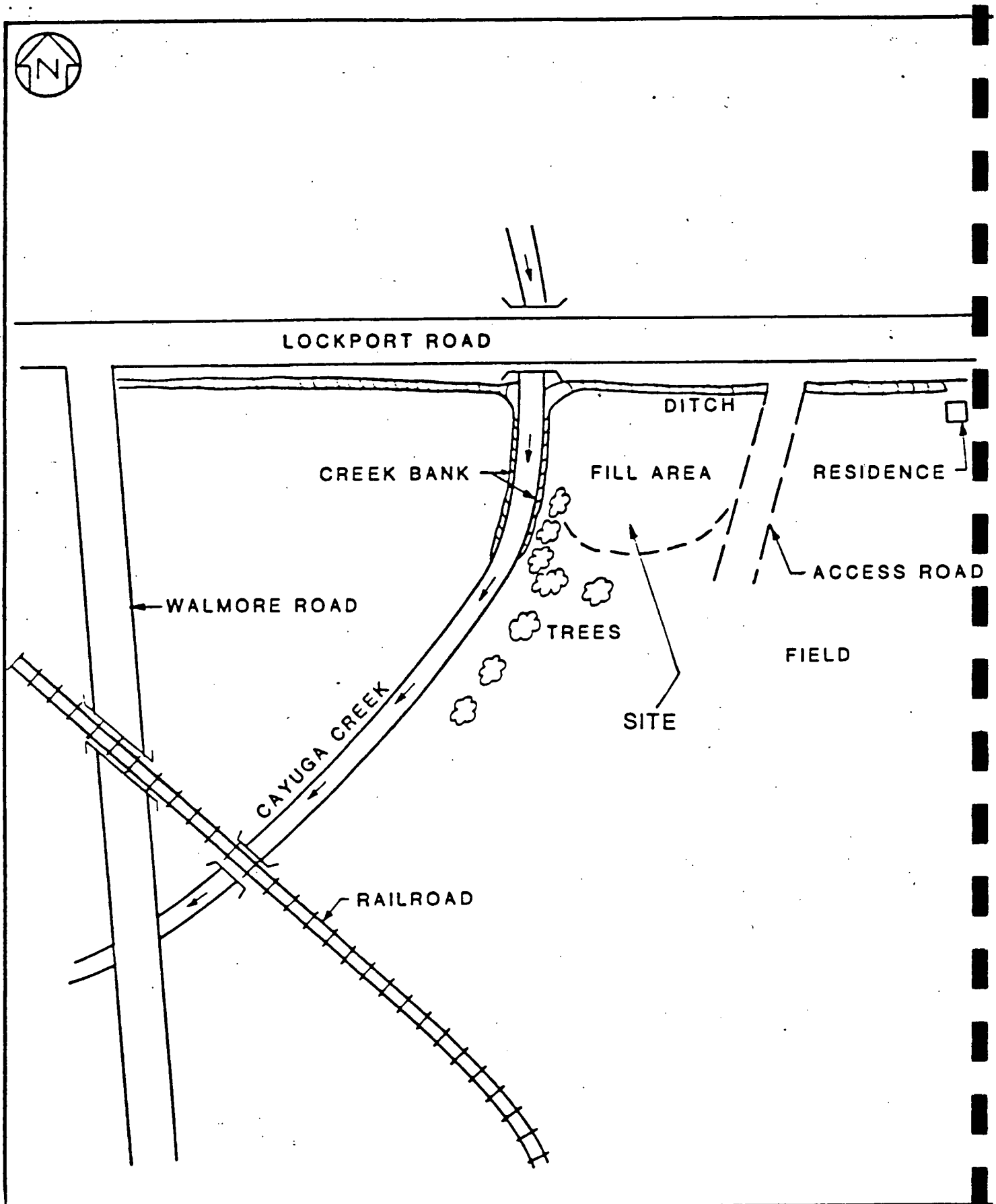
61160-1

recycled paper

ecology and environment

NG

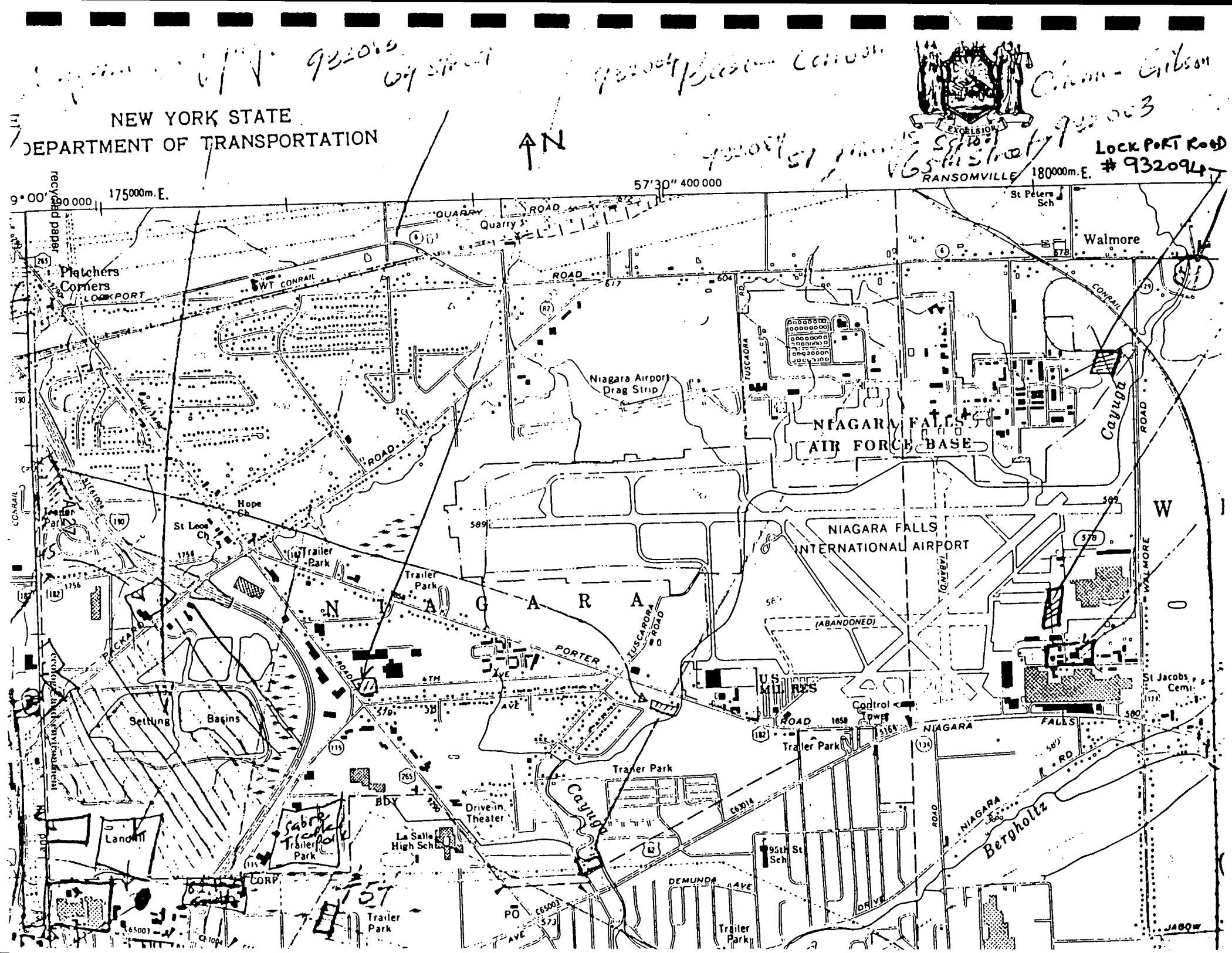
INC.

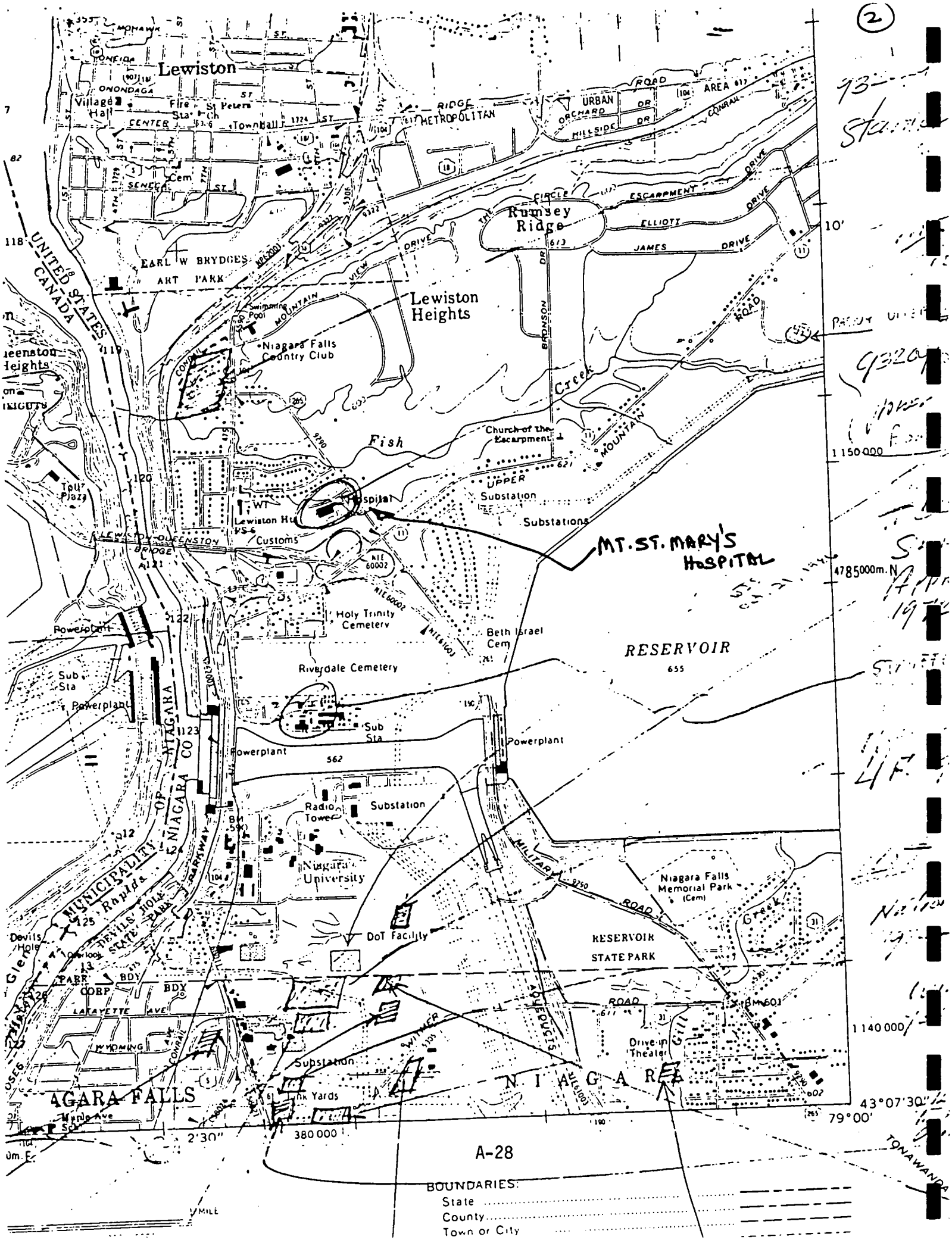


Scale: NTS	LOCKPORT ROAD SITE TOWN OF WHEATFIELD, N.Y. N.Y.S. SUPERFUND PHASE I	SITE MAP A-26
By / Date: JS 3/86		
Rev.	Project No. 5C280418	A	FIGURE 2

REGRATEL ... INC.
BUFFALO, NEW YORK

61160-1


NEW YORK STATE
DEPARTMENT OF TRANSPORTATION
N
recycled paper
9°00'
190 000
175000m.E.
57'30"
400 000
RANSOMVILLE
180000m.E.
LOCK PORT Road
932094
St Peters Sch
Walmore
QUARRY ROAD
Quarry
Fletchers Corners
LOCKPORT
WT CONRAIL
ROAD
TUSCARORA ROAD
Niagara Airport Drag Strip
NIAGARA FALLS AIR FORCE BASE
Cayuga ROAD
CONRAIL
Hope Ch
St Leos Ch
Trailer Park
NIAGARA FALLS INTERNATIONAL AIRPORT
(ABANDONED)
WILMORE
PORTER ROAD
6TH AVE
Settling Basins
US MILES
Control Tower
NIAGARA FALLS
Trailer Park
Drive-in Theater
Cayuga
La Salle High Sch
95th St Sch
NIAGARA RD
Bergholtz
Landfill
CORP
DEMUNDA AVE
PO
Trailer Park
St Jacobs Cemi
JABOW


Lewiston
Village Hall
Fire Sta
St Peters
Town Hall
CENTER
ONONDAGA
ONEIDA
MOHAWK
SENECA
Cem
RIDGE
METROPOLITAN
URBAN
ORCHARD
DR
HILLSIDE
ROAD
AREA
CONRAIL
Rumsey Ridge
THE CIRCLE
ESCARPMENT
DRIVE
ELLIOTT
JAMES
EARL W BRYDGES
ART PARK
VIEW
MOUNTAIN
Swimming Pool
Lewiston Heights
Niagara Falls Country Club
BRONSON
Creek
Fish
Church of the Escarpment
UPPER
Substation
Substations
Hospital
MT. ST. MARY'S HOSPITAL
UNITED STATES
CANADA
Toll Plaza
WT
Lewiston Hu
Customs
LEWISTON QUEENSTON BRIDGE
NIE 60002
Holy Trinity Cemetery
Beth Israel Cem
RESERVOIR
655
Riverdale Cemetery
Powerplant
Sub Sta
NIAGARA
MUNICIPALITY OF NIAGARA CO
Rapids
PARKWAY
562
Radio Tower
Niagara University
MILITARY
Niagara Falls Memorial Park (Cem)
DEVILS HOLE STATE PARK
Devils Hole
Overlook
DoT Facility
RESERVOIR STATE PARK
PARK
BDY
CORP
LAFAYETTE AVE
WYOMING
CONRAIL
Drive-in Theater
Substation
Yards
NIAGARA FALLS
Hyde Park
Blvd
TONAWANDA
2'30"
380 000
1 150 000
1 140 000
4785000m.N
43°07'30"
79°00'
A-28
BOUNDARIES:
State
County
Town or City

APPENDIX B

GEOPHYSICAL SURVEY

ENGINEERING INVESTIGATIONS AT INACTIVE HAZARDOUS WASTE SITES IN THE STATE OF NEW YORK

PHASE II INVESTIGATIONS GEOPHYSICAL SURVEY

Lockport Road-Struzik Property
Town of Wheatfield, Niagara County
Site No. 932094

July 1990

Prepared for:

New York State Department of Environmental Conservation

50 Wolf Road, Albany, New York 12233

Thomas C. Jorling, Commissioner

Division of Hazardous Waste Remediation

Michael J. O'Toole, Jr., P.E., Director

Prepared by:

Ecology and Environment Engineering, P.C.

ENGINEERING INVESTIGATIONS AT INACTIVE HAZARDOUS WASTE SITES IN THE STATE OF NEW YORK

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Prepared by:

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5	CONCLUSIONS AND RECOMMENDATIONS	5-1
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B	MAGNETOMETER AND EM31 SURVEY CONTOUR MAPS	B-1

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1. INTRODUCTION

This geophysical investigation report for the Lockport Road-Struzik Property Landfill site (I.D. No. 932094) on Lockport Road in Wheatfield, New York, was prepared by Ecology and Environment Engineering, P.C. (E & E), under contract to the New York State Department of Environmental Conservation (NYSDEC). The geophysical investigation consisted of an EM31 (electromagnetic terrain conductivity) survey and a portable proton magnetometer (total earth field magnetic) survey. This report includes field data (Appendix A) and contour maps (Appendix B) for the geophysical survey performed at this site on April 19, 1990 as part of the Phase II Investigation. Additionally, interpretations of the data generated, along with conclusions, are provided in this report.

2. OBJECTIVES

The geophysical survey program at the Lockport Road-Struzik Property Landfill site was designed to achieve several general goals. The main objectives of the geophysical methods used were to optimize the locations of the three proposed groundwater monitoring wells; reduce the risks associated with drilling into unknown terrain and wastes; reduce overall project time and cost; improve the accuracy and confidence of the investigation; identify the existence and boundaries of buried waste or groundwater contamination plumes; and determine vertical and horizontal anomalies.

3. METHODS

For the purpose of performing ground conductivity (EM13) and geomagnetic (magnetometer) surveys, grid coordinates were established in locations that correspond to the three proposed on-site groundwater monitoring wells.

Survey grids 1 through 3 included the proposed locations of monitoring wells GW-1 through GW-3 as follows:

Geophysical Survey Grid No.	Proposed Monitoring Well Included
1	GW-1
2	GW-2
3	GW-3

The X and Y axes of each survey grid were oriented east-west and north-south, respectively. Survey grid coordinate 0,0 is located in the southwest corner of each contour map. Semi-permanent wooden stakes mark the proposed well locations for reference during fieldwork.

The dimensions (40 feet by 40 feet) and station spacing (10 feet) were identical for each survey grid. Both horizontal and vertical dipole readings in north-south and east-west orientations were recorded at each survey grid node while performing the electromagnetic ground con-

ductivity survey using the Geonics, Ltd., EM31 Ground Conductivity Meter. The effective depths of penetration provided by the EM31 in the vertical and horizontal dipole modes is $\leq$18 feet and $\leq$9 feet, respectively. These depths were considered adequate to delineate any buried materials that may be encountered while drilling. Magnetometer readings were recorded at each node in either the north-south or east-west orientations using the EG+G Unimag II (Model G-846) Portable Proton Magnetometer.

All conductivity and magnetic field data were recorded in two separate logbooks dedicated to this site investigation. Magnetometer data were reduced by using background station readings to correct these values for diurnal variation, when the variation was greater than 10 gammas during the survey. EM31 conductivity data were averaged for north-south orientation for both vertical and horizontal dipole positions. The reduced geophysical data (see Appendix A) were then plotted and contoured for each survey (see Appendix B).

4. DATA INTERPRETATION

The purpose of interpreting the results of the magnetometer and EM31 surveys is to provide a probable explanation for anomalous geophysical contours. The presence of buried utilities, metal objects, wastes, and contaminant plumes is often manifested as relatively elevated or decreased station readings and gradient values. The following interpretations are based on the contour maps generated from magnetometer and EM31 data listed in Tables A-1 and A-2 of Appendix A. Survey grids 1 through 3 encompass each of the three groundwater monitoring well locations as proposed by NYSDEC in the Phase II Investigation Work Plan for the Lockport Road Landfill site (see Figure 4-1).

The following discussion provides details of each of the three survey grids:

Survey Grid Area No. 1

A review of magnetometer data contours at survey grid No. 1 indicates that this 1,600-square-foot survey area contains two significant geomagnetic anomalies: an extremely low reading (52,345 gammas) and a relatively high reading (57,254 gammas) at coordinates 10,10 and 40,40, respectively. Since there are no anomalous ground conductivity readings from the EM31 survey near coordinate 40,40, the apparent anomaly may have been caused by a very small, shallow, ferromagnetic object. In contrast, the low magnetometer reading obtained at coordinate 10,10 is consistent with the EM31 values obtained in the southwest quadrant of the survey grid, which increase rapidly from 100 millimhos/meter to 685 millimhos/meter.. Because the exact cause of the elevated values is unknown, the southwest quadrant of survey grid No. 1 should be avoided.

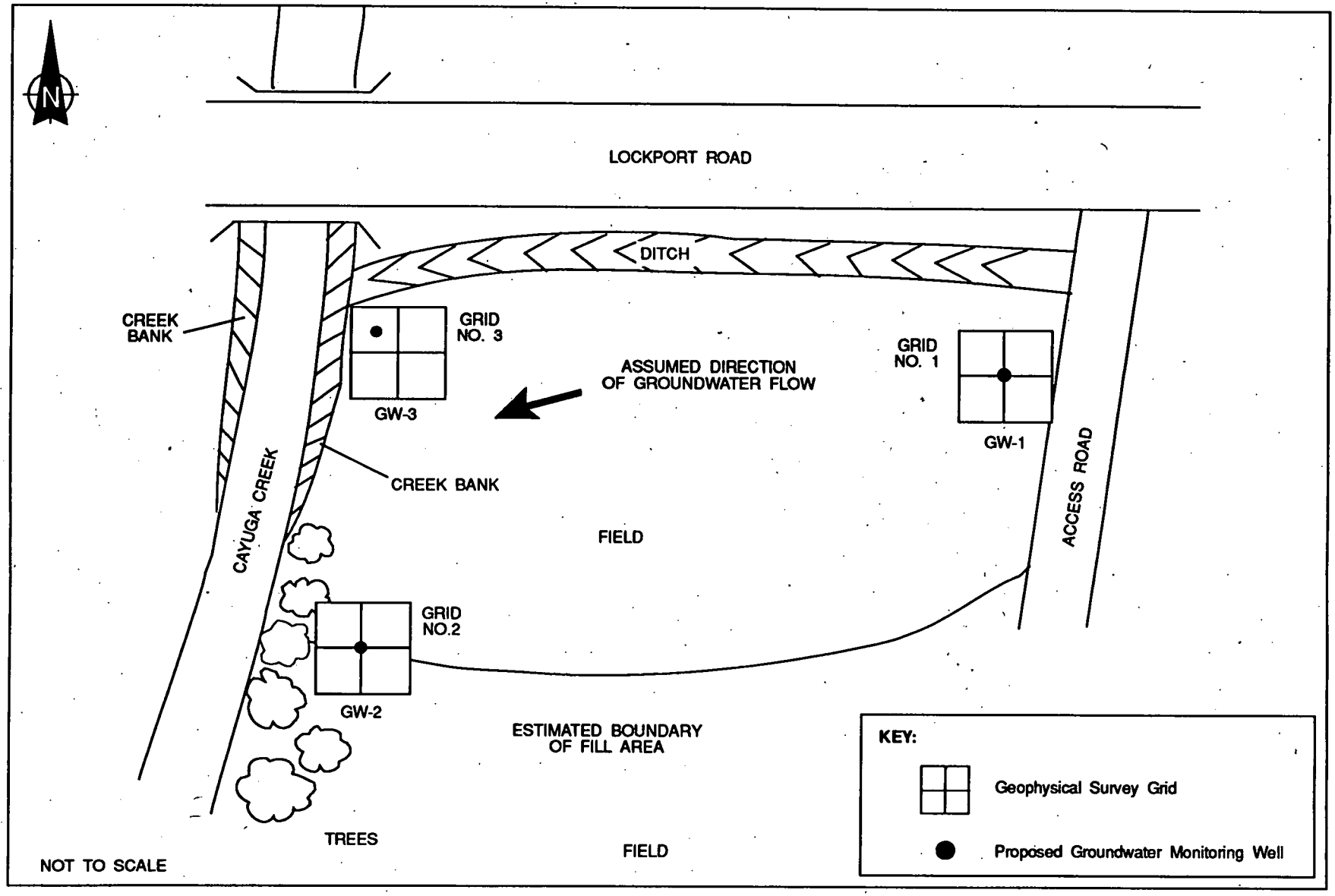


Figure 4-1
GEOPHYSICAL SURVEY GRID AND PROPOSED MONITORING WELL LOCATIONS, LOCKPORT ROAD-STRUZIK PROPERTY SITE

The installation of proposed monitoring well GW-1 at the location indicated on the contour maps is acceptable because the location exhibited no evidence of subsurface metal debris or buried utilities during the geophysical survey. The well location may also be moved to any area within the survey grid, except for the southwest quadrant or coordinate 40,40.

Survey Grid Area No. 2

A review of magnetometer data contours at survey grid No. 2 indicates that this 1,600-square-foot survey area has three relatively minor geomagnetic anomalies. All three anomalies are located in the northern half of the grid, and appear to be three separate small shallow areas of metal debris or graphite dust.

In contrast, the EM31 survey data clearly show a steady increase in electromagnetic conductivity values in the northeast quadrant of the grid. The electromagnetic conductivity values range from 10.5 millimhos/meter to 242.5 millimhos/meter, with the unacceptably high values all located in the extreme northeast corner of the grid. These elevated EM31 values may be due to either the presence of a sanitary sewer directly north of the grid or the nature of the site's fill material (carbon/graphite dust), which tends to be highly conductive.

The installation of proposed monitoring well GW-2 at the location indicated on the contour map is acceptable. If field conditions dictate, GW-2 may be moved to any location within the southern half of the survey grid except coordinate 30,20.

Survey Grid Area No. 3

A review of magnetometer data contours at survey grid No. 3 indicates that this 1,600-square-foot survey area has one geomagnetic anomaly of concern. The anomalous area is located along the northern edge of the survey grid and is probably caused by the nearby municipal water lines. Two other minor anomalies are located at coordinates 30,20 and 30,10, the sources of which are uncertain.

The electromagnetic conductivity values measured with the EM31 range from 16.5 to 500 millimhos/meter, increasing from west to east, with the highest values along the eastern edge of the survey grid. The

elevated EM31 values are most likely due to the highly conductive nature of the site's fill material (carbon/graphite dust), while the cause of the geomagnetic anomalies in the eastern half of the grid may be shallow buried metallic debris. The risk of drilling into any shallow ferrous material or buried utilities within the western half of survey grid No. 3 is expected to be minimal.

The installation of proposed monitoring well GW-3 at the location indicated on the contour map is acceptable. If field conditions dictate, GW-3 may also be moved to any location south or west within the survey grid.

5. CONCLUSIONS AND RECOMMENDATIONS

Based upon the interpretations of the data discussed in Section 4, the proposed locations of the three groundwater monitoring wells are acceptable with only minor adjustments.

Prior to drilling, the local underground-utility locating service was contacted to indicate possible public utilities buried in the vicinity of each of the drill sites. Any adjustments in well location made in the field were chosen based on the discussion in Section 4 and were confirmed with a NYSDEC representative prior to the commencement of drilling.

APPENDIX A

MAGNETOMETER AND EM31 SURVEY DATA

Table A-1

MAGNETOMETER READINGS
LOCKPORT ROAD-STRUZIK PROPERTY LANDFILL

GRID NO. 1

Station #	Magnetometer Readings (Gammas)	Corrected Data* (Gammas)
0,0	56,583	56,519
0,10	56,289	56,227
0,20	56,327	56,266
0,30	56,062	56,003
0,40	56,282	56,225
10,40	56,275	56,222
10,30	56,143	56,091
10,20	56,567	56,517
10,10	56,393	53,345
10,0	56,487	56,439
20,0	56,423	56,387
20,10	56,297	56,261
20,20	56,276	56,242
20,30	56,279	56,245
20,40	56,472	56,438
30,40	56,540	56,508
30,30	55,774	55,744
30,20	56,107	56,079
30,10	56,564	56,537
30,0	56,571	56,544
40,0	56,476	56,453
40,10	56,273	56,252
40,20	56,287	56,267
40,30	56,550	56,532
40,40	57,272	57,254

[UZ]YQ2080:D3249/6734/31

*Data have been corrected for natural magnetic fluctuations (i.e., drift) by using the data obtained at an off-site base station.

Table A-1 (Cont.)

MAGNETOMETER READINGS
LOCKPORT ROAD-STRUZIK PROPERTY LANDFILL

GRID NO. 2

Station #	Magnetometer Readings (Gammas)	Corrected Data* (Gammas)
0,0	56,613	56,611
0,10	56,710	56,708
0,20	56,830	56,827
0,30	57,459	57,455
0,40	56,375	56,370
10,40	55,378	55,372
10,30	56,764	56,757
10,20	56,743	56,735
10,10	56,732	56,724
10,0	56,606	56,597
20,0	56,632	56,623
20,10	56,602	56,592
20,20	56,787	56,777
20,30	56,480	56,469
20,40	56,205	56,194
30,40	56,672	56,660
30,30	56,517	56,505
30,20	57,023	57,010
30,10	56,356	56,343
30,0	56,671	56,657
40,0	56,623	56,609
40,10	56,584	56,569
40,20	56,461	56,446
40,30	56,635	56,619
40,40	57,243	57,227

[UZ]YQ2080:D3249/6734/31

*Data have been corrected for natural magnetic fluctuations (i.e., drift) by using data obtained at an off-site base station.

Table A-1 (Cont.)

MAGNETOMETER READINGS
LOCKPORT ROAD-STRUZIK PROPERTY
LANDFILL

GRID NO. 3

Station #	Magnetometer* Readings (Gammas)
0,0	56,583
0,10	56,613
0,20	56,492
0,30	56,367
0,40	56,327
10,40	57,707
10,30	56,485
10,20	56,739
10,10	56,632
10,0	56,437
20,0	56,494
20,10	56,726
20,20	56,442
20,30	56,882
20,40	57,108
30,40	57,821
30,30	56,451
30,20	56,131
30,10	57,082
30,0	56,768
40,0	56,467
40,10	56,647
40,20	56,866
40,30	56,932
40,40	57,937

[UZ]YQ2080:D3249/6734/31

*Data have not been corrected for natural magnetic fluctuations (i.e., drift) due to nominal changes in background data obtained at an off-site base station.

Table A-2

AVERAGE GROUND CONDUCTIVITY READINGS
WITH EM31
LOCKPORT ROAD-STRUZIK PROPERTY LANDFILL

Survey Grid No. 1

Station #	Vertical Dipole (millimhos/meter)	Horizontal Dipole (millimhos/meter)
0,0	685.0	630.0
0,10	487.5	447.5
0,20	275.0	430.0
0,30	125.0	187.5
0,40	145.0	69.0
10,40	109.5	36.0
10,30	109.0	95.0
10,20	125.0	230.0
10,10	165.0	327.5
10,0	302.5	405.0
20,0	122.0	135.0
20,10	84.5	135.0
20,20	104.0	84.0
20,30	78.5	59.5
20,40	84.0	35.0
30,40	63.0	37.5
30,30	45.0	54.0
30,20	70.0	47.0
30,10	53.5	58.5
30,0	67.5	50.5
40,0	43.0	36.5
40,10	46.0	40.0
40,20	48.5	33.0
40,30	54.5	30.5
40,40	55.0	45.5

[UZ]YQ2080:D3249/6735/29

Table A-2 (Cont.)

AVERAGE GROUND CONDUCTIVITY READINGS
WITH EM31
LOCKPORT ROAD-STRUZIK PROPERTY LANDFILL

Survey Grid No. 2

Station #	Vertical Dipole (millimhos/meter)	Horizontal Dipole (millimhos/meter)
0,0	12.0	10.5
0,10	14.0	12.5
0,20	15.5	14.5
0,30	18.0	21.5
0,40	27.0	30.5
10,40	32.0	37.5
10,30	25.0	26.0
10,20	16.5	18.5
10,10	15.5	14.0
10,0	13.5	12.5
20,0	15.5	14.5
20,10	18.0	17.0
20,20	19.5	20.0
20,30	27.5	27.5
20,40	42.0	42.5
30,40	70.0	87.0
30,30	33.0	38.0
30,20	18.5	23.0
30,10	17.5	20.0
30,0	15.5	18.0
40,0	16.5	17.0
40,10	20.0	16.0
40,20	26.5	22.0
40,30	40.0	62.5
40,40	195.0	242.5

[UZ]YQ2080:D3249/6735/29

Table A-2 (Cont.)

AVERAGE GROUND CONDUCTIVITY READINGS
WITH EM31
LOCKPORT ROAD-STRUZIK PROPERTY LANDFILL

Survey Grid No. 3

Station#	Vertical Dipole (millimhos/meter)	Horizontal Dipole (millimhos/meter)
0,0	23.0	38.5
0,10	23.5	20.5
0,20	24.0	16.5
0,30	22.5	17.5
0,40	25.0	21.5
10,40	29.0	27.0
10,30	35.5	34.5
10,20	38.5	33.0
10,10	45.0	47.5
10,0	69.5	135.0
20,0	215.0	180.0
20,10	66.0	125.0
20,20	55.5	91.0
20,30	50.0	98.5
20,40	38.5	87.5
30,40	117.5	130.0
30,30	240.0	200.0
30,20	235.0	167.5
30,10	197.5	205.0
30,0	320.0	240.0
40,0	277.5	390.0
40,10	385.0	385.0
40,20	500.0	335.0
40,30	425.0	310.0
40,40	170.0	185.0

[UZ]YQ2080:D3249/6735/29

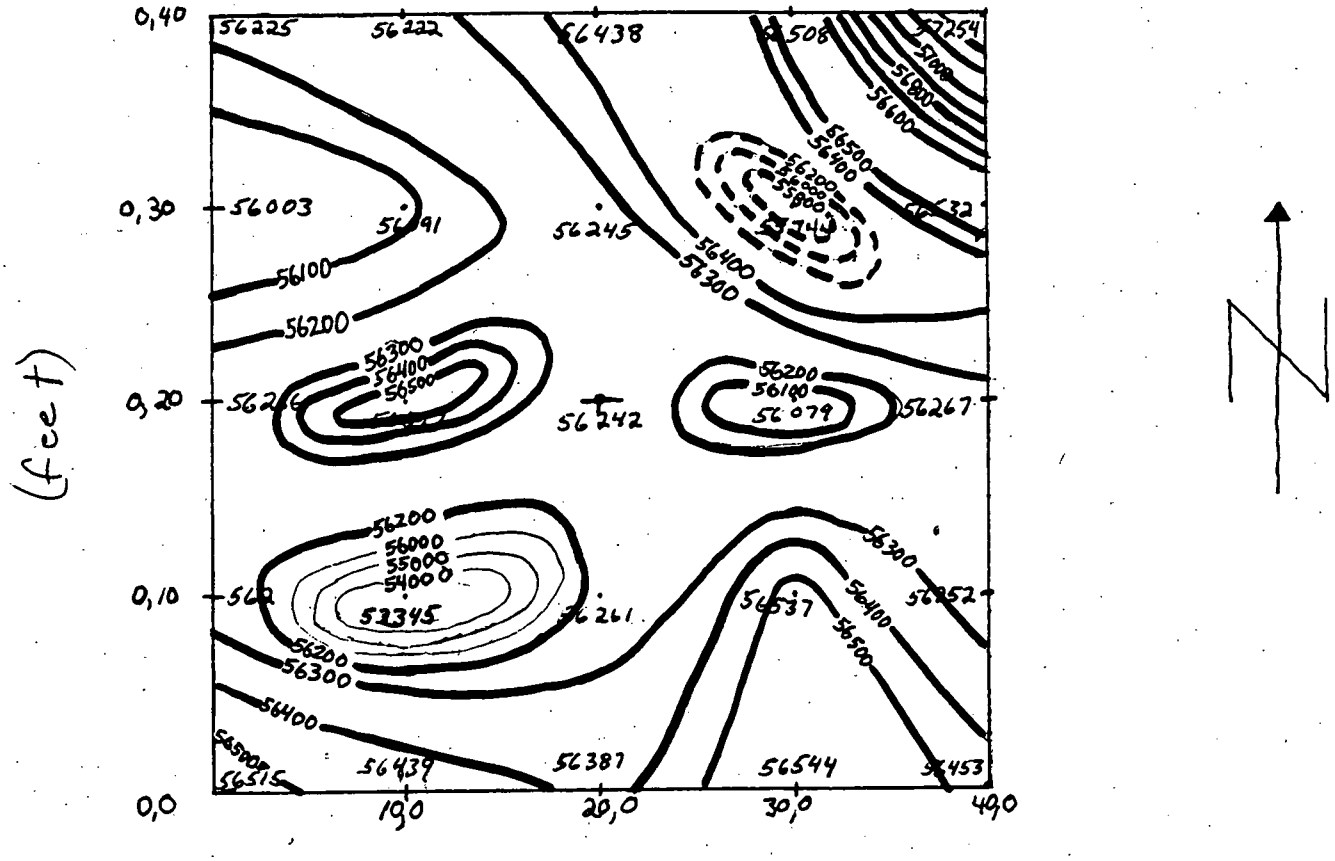
APPENDIX B

MAGNETOMETER AND
EM31 SURVEY CONTOUR MAPS

LOCK PORT ROAD
Site No. 932094

MAGNETOMETER SURUEY

GRID No. 1



(feet)

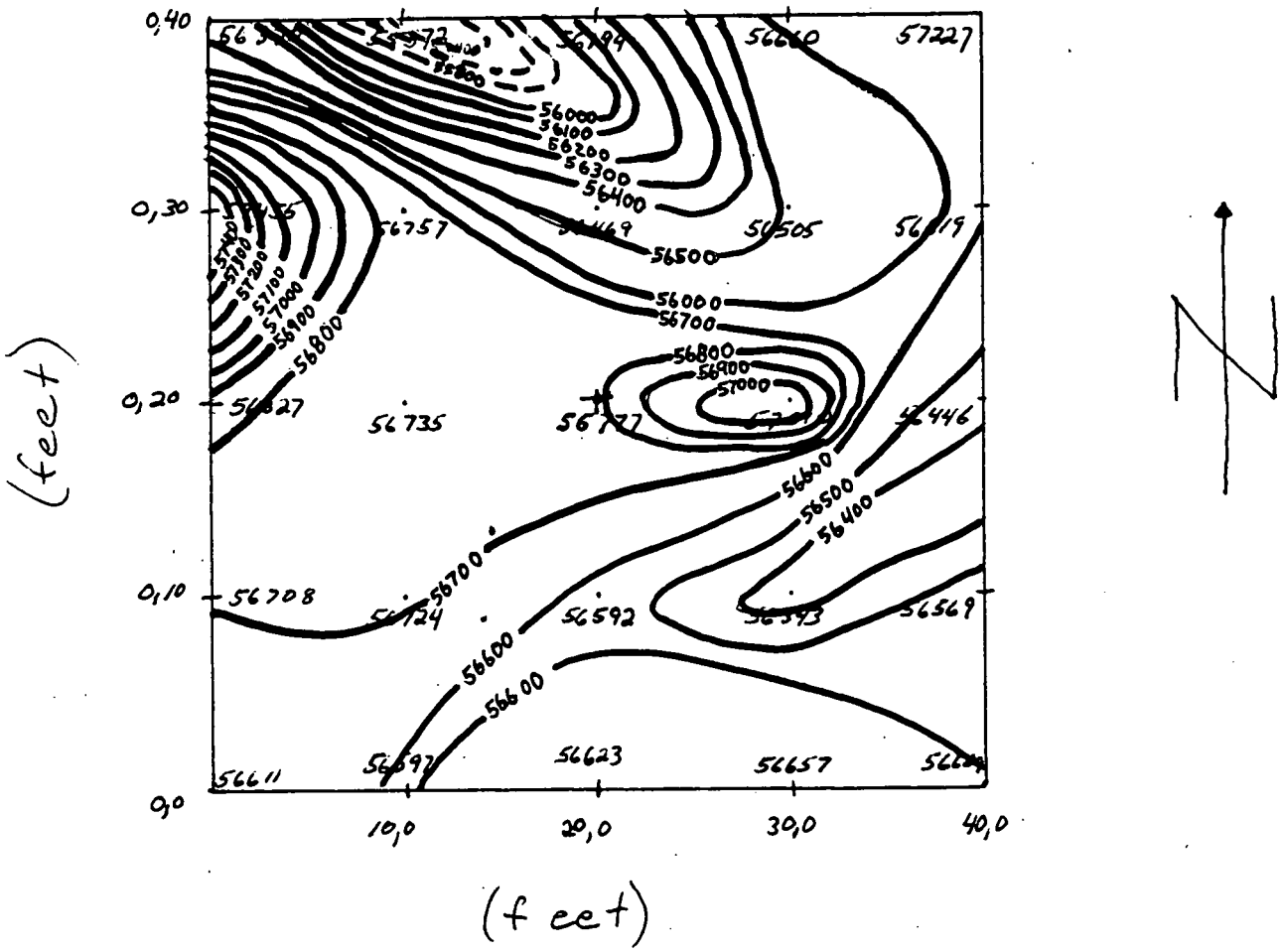
— Contour Interval = 100 gammas
-- Contour Interval = 200 gammas
— Contour Interval = 1000 gammas
Proposed Well Location = +

Note- Corrected data used to contour Grid No. 1

LOCKPORT ROAD
Site No. 932094

MAGNETOMETER SURVEY

GRID No. 2



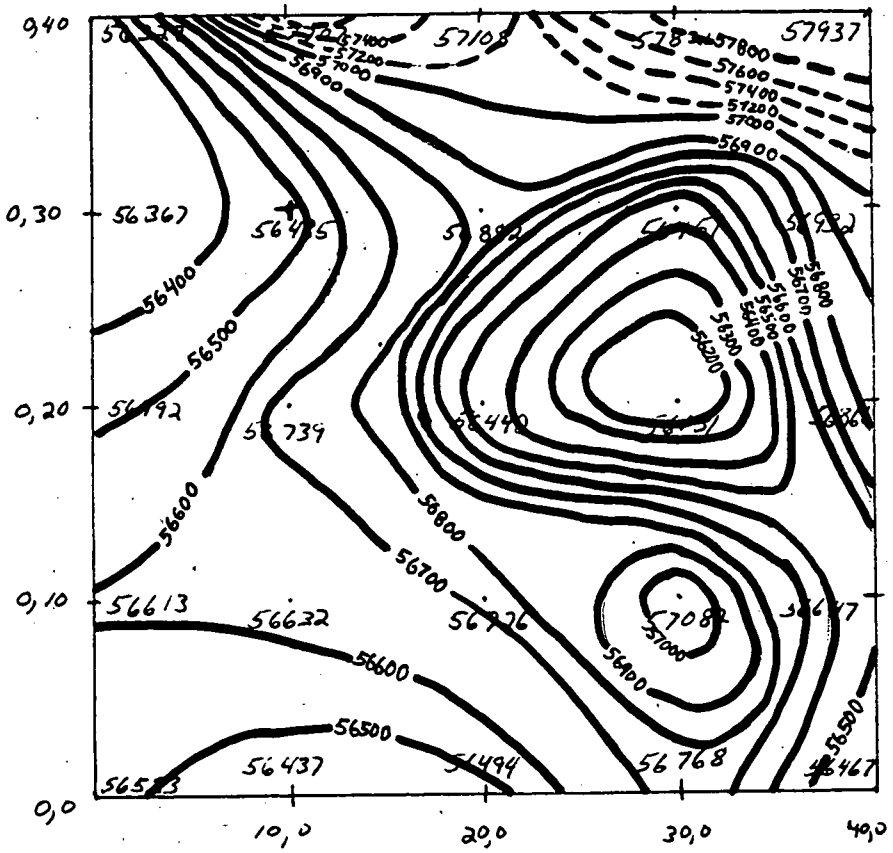
— Contour Interval = 100 gammas
– – Contour Interval = 200 gammas
Proposed Well Location = ⊤

Note: Corrected data used to contour Grid No. 2.

LOCKPORT ROAD
Site No. 932094

MAGNETOMETER SURVEY

GRID No. 3



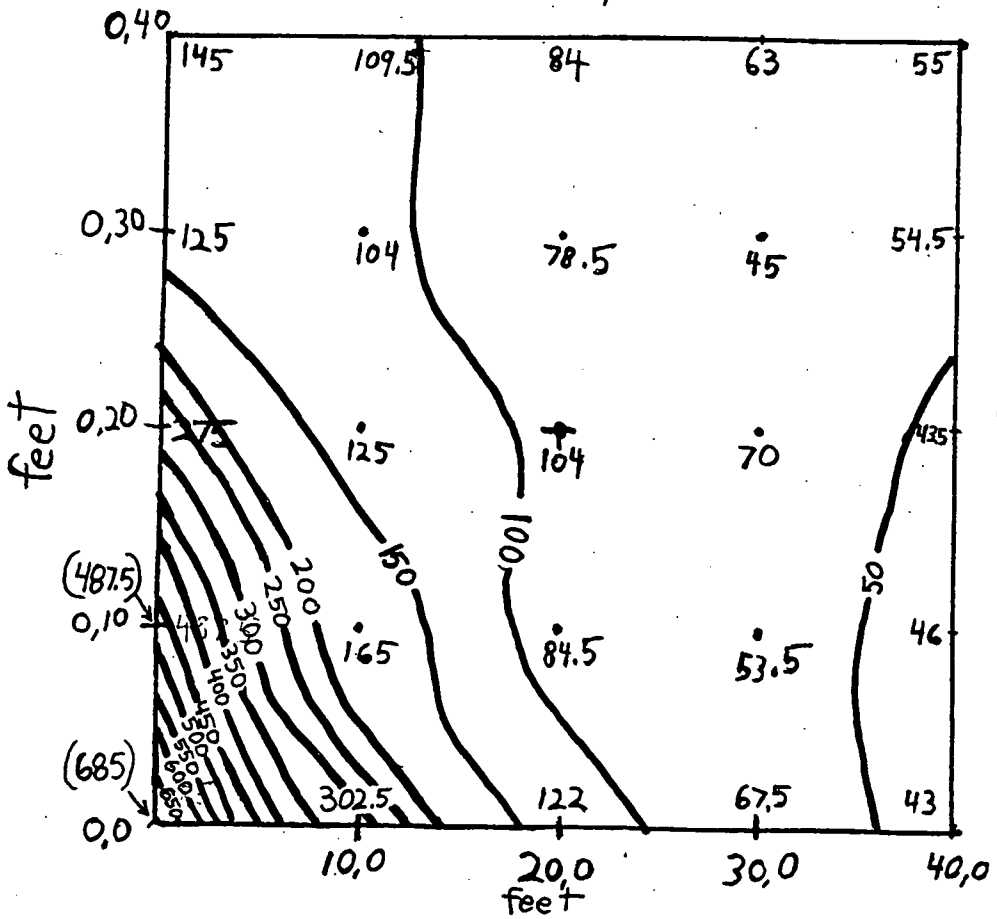
Contour Interval = 100 gammas
Contour Interval = 200 gammas
Proposed Well Location = +

Note - Actual readings used to contour Grid No. 3

Lockport Rd. Landfill

EM31 Survey Grid No. 1

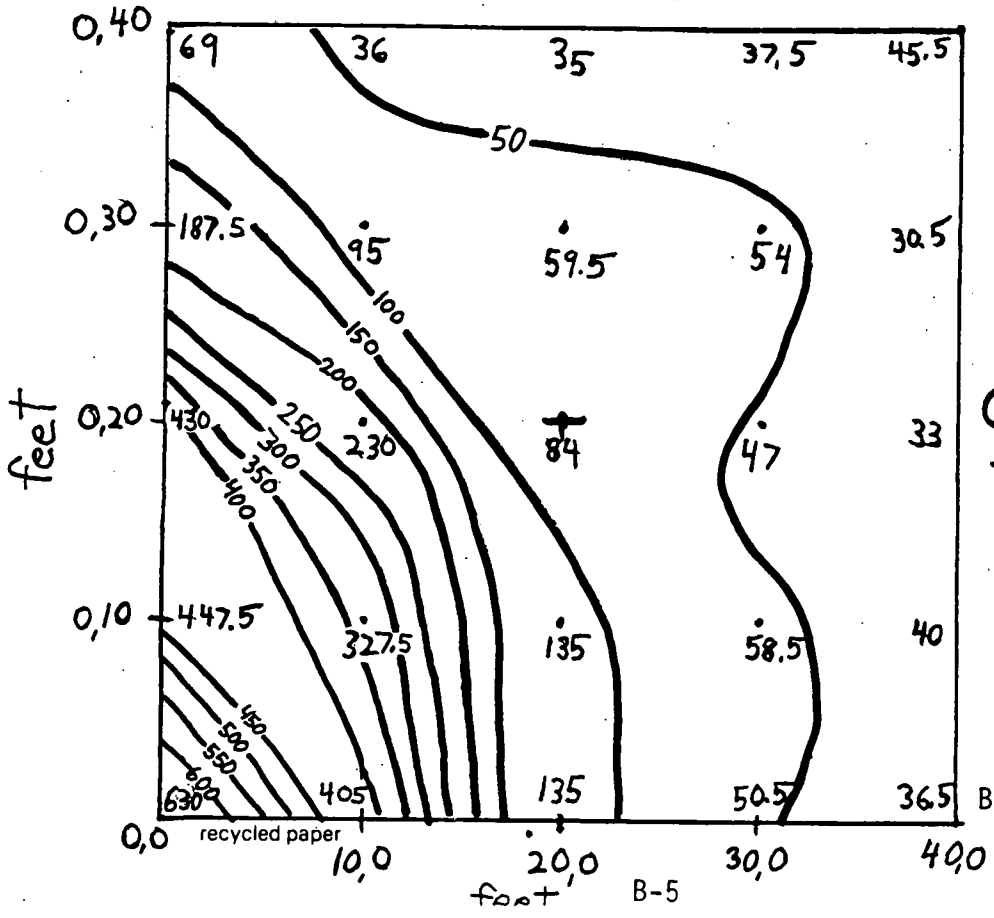
Vertical Dipole



C.I. = 50 millimhos/meter

T = Proposed well location

Horizontal Dipole

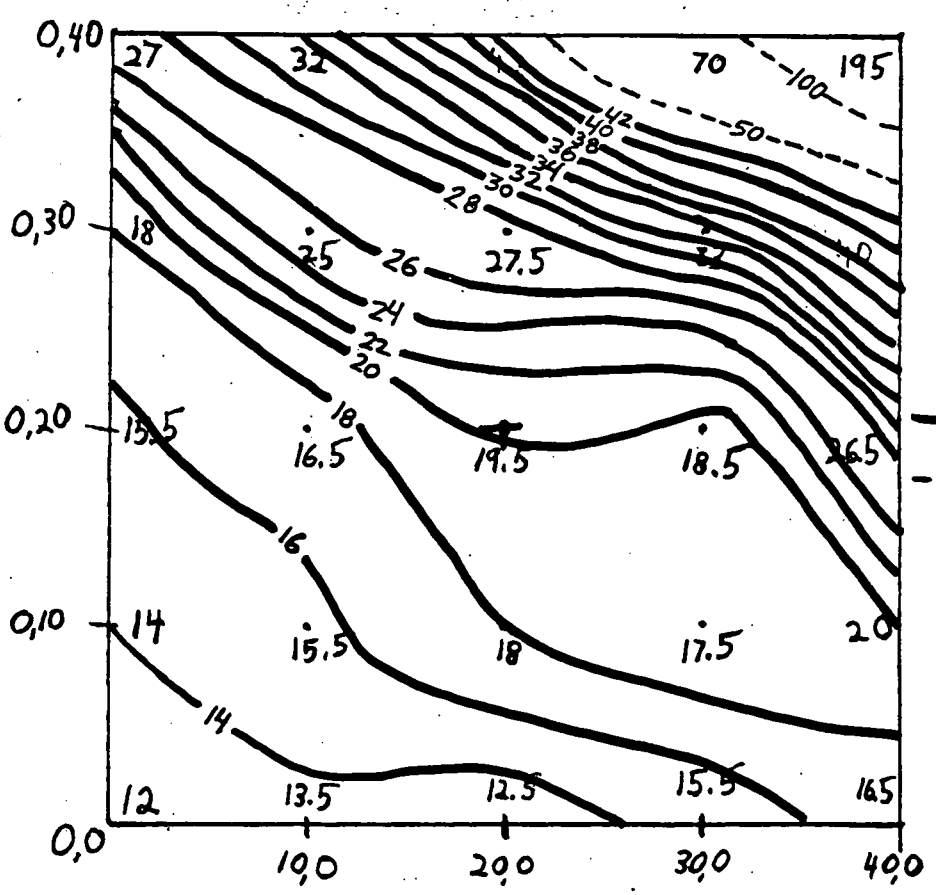


C.I. = 50 millimhos/meter

T = Proposed well location

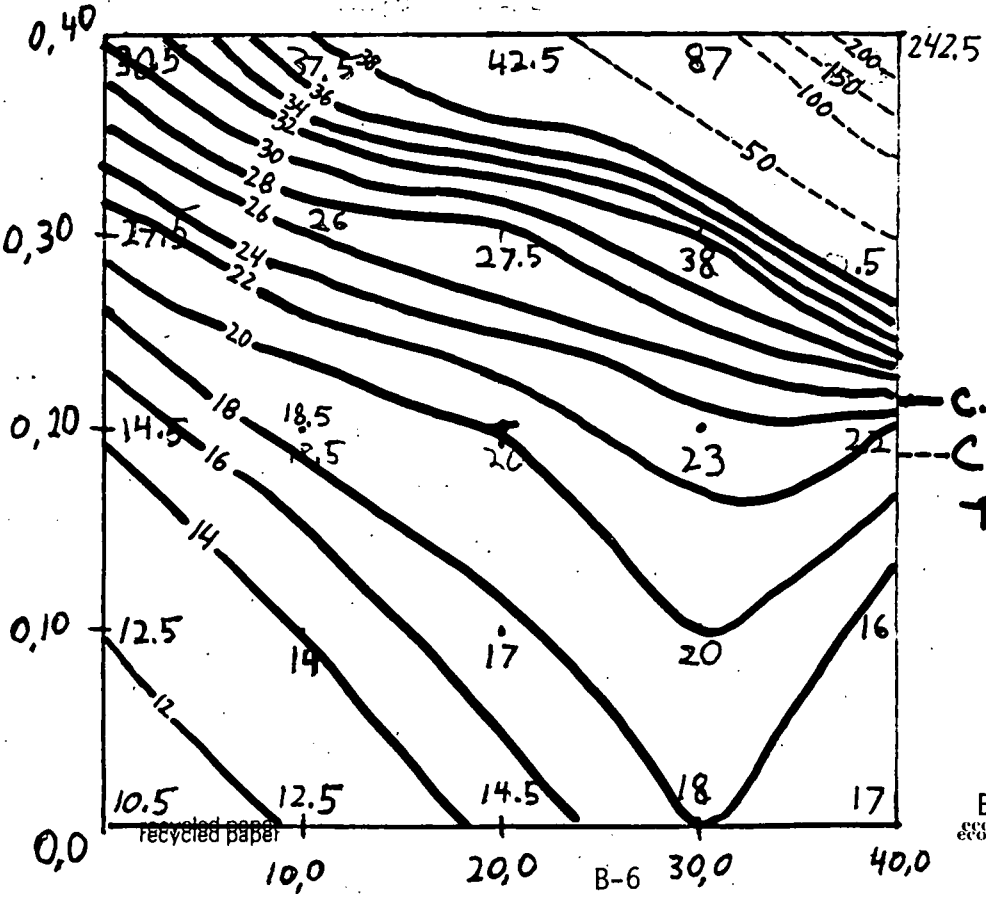
Lockport Rd. Landfill
EM31 Survey Grid No. 2

Vertical Dipole



—— C.I. = 2 millimhos/meter
--- C.I. = 50 millimhos/meter
† = Proposed well location

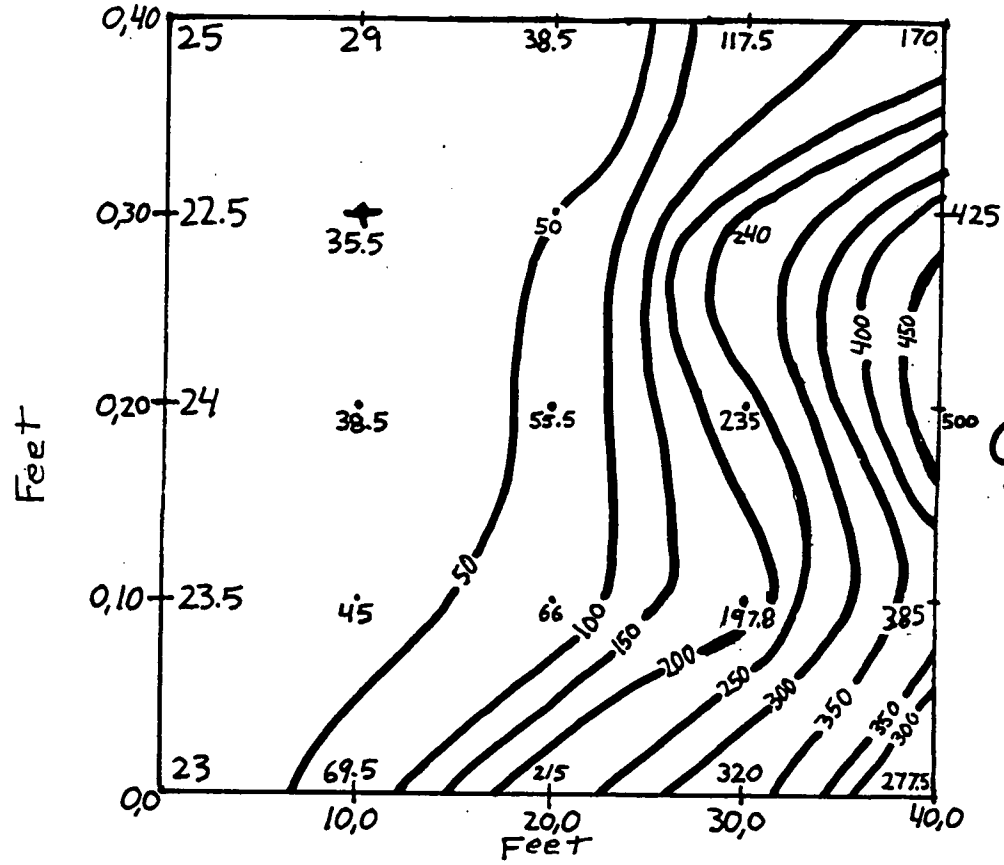
Horizontal Dipole



—— C.I. = 2 millimhos/meter
--- C.I. = 50 millimhos/meter
† = Proposed well location

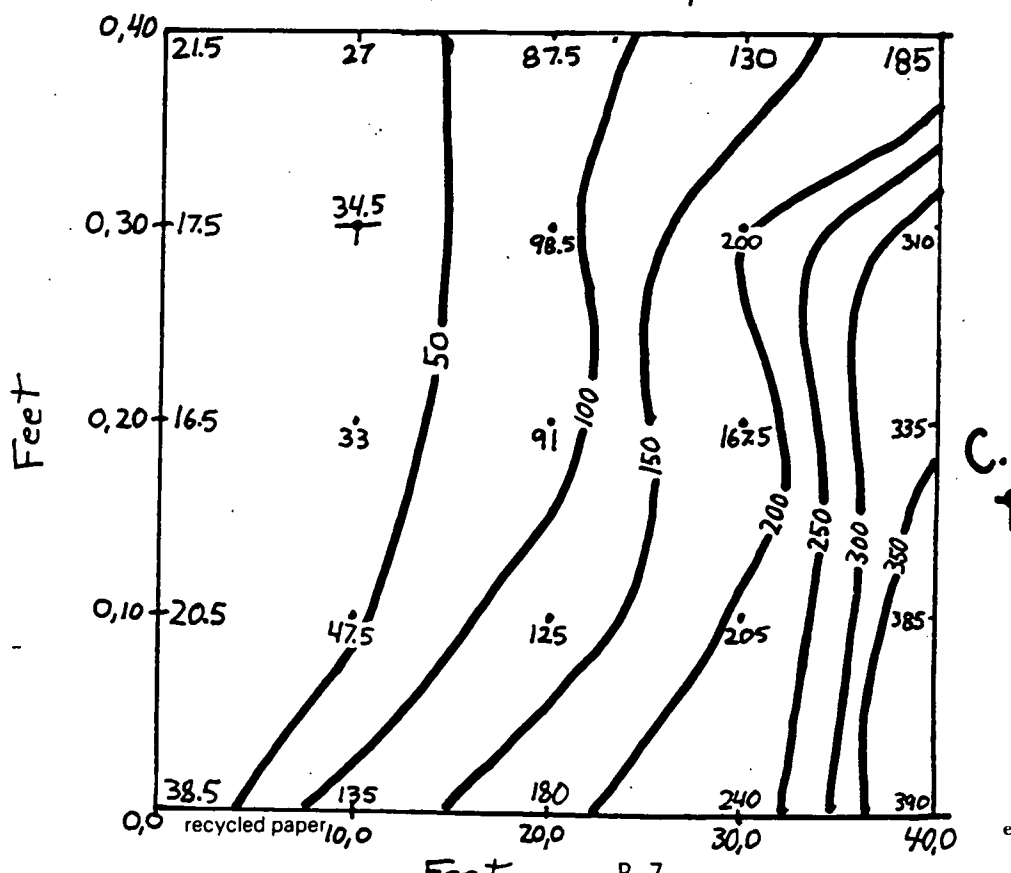
Lockport Rd. Landfill
Vertical Dipole

EM31 Survey
Grid No. 3



C.I. = 50 millimhos/meter
† = Proposed well location

Horizontal Dipole



C.I. = 50 millimhos/meter
† = Proposed well location

APPENDIX C

SUBSURFACE BORING LOGS

Ref 6

DATE STARTED 8-22-90
FINISHED
SHEET 1 OF

E + E DRILLING AND TESTING CO., INC.
SUBSURFACE LOG

HOLE NUMBER GW-1
SURFACE ELEVATION
GROUNDWATER DEPTH

PROJECT LOCKPORT ROAD LANDFILL YQ-2040
LOCATION TOWN OF WHEATFIELD

DEPTH – FT	WELL DIAGRAM	OVA SAMPLE TYPE	SAMPLE NO.	BLOWS ON SAMPLER 0/6 6/12 12/18 18/24	PROFILE Cl Si Sd Gr	FIELD IDENTIFICATION OF SOILS	NOTES
0	3" PVC CASING; CEMENT GROUT; OVERBURDEN			9 / 6 / 17 / 20		S-1 0-2' REC 1.6' FILL SILT, CLAY(?) SOME GLASS THRU	ON 8-22-90 AT 1580 BEGAN DRILLING USING A MOBILE DRILL B-57 16 4¼" ID AUGERS + 2'x2" SPLIT SPOONS
1							
2				4 / 31			
3							
4				6 / 14		S-2 4'-6' REC. 1.8	OUT AT 1534
5		0		14 / 17		4'-5.1' = SILTY CLAY DAMP AT BASE; W/GRAVEL 5.1-6.0 GRAVEL, CRYSTALLINES + CARBONATE COATED PEBBLES	
6							
7							
8							
9							

C-2

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CLASSIFICATION/BY Jim Richard

DATE
STARTED 8-27-90
FINISHED 8-29-90
SHEET 2 OF 3

E + E DRILLING AND TESTING CO., INC.
SUBSURFACE LOG

HOLE NUMBER GW-1
SURFACE ELEVATION
GROUNDWATER DEPTH ( )

PROJECT LOCKPORT ROAD LANDFILL YQ-2040
LOCATION TOWN OF WHEATFIELD NIAGARA COUNTY, NEW YORK

DEPTH – FT	WELL DIAGRAM	OVA / SAMPLE TYPE	SAMPLE NO.	BLOWS ON SAMPLER 0-6 / 12-18	6-12 / 18-24	PROFILE (Cl Sl Sd Gr)	FIELD IDENTIFICATION OF SOILS	NOTES
9				13	13		S-3 | 9-11' | REC 2.0' 9-9.6 SILT & CLAY DRK GRAY & BRN 9.6-10.0 GRAVEL, CRYSTALLINE WHITE GREY, ANGULAR, UP TO 2" DIAM.	1555
10		0	3	13	21	CLAYEY SILT	10.0-11.0 – CLAY & SILT, RED, DAMP. HARD, TIGHT. (NATURAL).	
11		0	4	8	50 / 3	REFUSAL AT 11.5'	S-4 | 11-11.75 | REC 0.7 11-11.5 CLAYEY SILT, w/ GRAVEL 11.5'-11.75 ROCK, CRYSTALINE LOOKING, LT. GRAY, WHITE EFFERVESES w/ 10% HCL DOLOMITE? LOCKPORT? OR BOULDER	1615 REFUSAL AT 11.5' WITH AQ CORE DRY
13	3" PVC CASING; CEMENT GROUT; OVERBURDEN	0	1			DOLOSTONE ROCK	RUN #1 | 10.5'-15.5' | REC. 4.8' 100% DOLOSTONE DARK GREY VERY FOSSILIFEROUS (CORALS) RQD: 1.45 0.90 1.65 + 0.60 4.60 ÷ 4.8 = .958 x 100 = 95.8%	
15		0	2				RUN #2 | 15.5-16.5 | REC 0.9' DOLOSTONE, DARK GRAY, SOME MINERIZATION, 1 FRACTURE AT 15.7' MINERALIZED, RQD - 83%	DRY HOLE AT 15.5' CORE RUN OUT AT 1725 ON 8-29-90 AT 1230 BEGAN NQ CORING
17	OPEN NQ CORE HOLE						RUN #3 | 16.5- | REC. 4.75 DOLOSTONE AS ABOVE, 3 PIECES OF CORE RQD = 100%	1255

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ecology and environment

DATE
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FINISHED 8-29-90
SHEET 3 OF 3

E + E DRILLING AND TESTING CO., INC.
SUBSURFACE LOG

HOLE NUMBER GW-1
SURFACE ELEVATION
GROUNDWATER DEPTH

PROJECT LOCKPORT ROAD LF
Y12-2040

LOCATION TOWN OF WHEATFIELD
NIAGARA CO. NY

DEPTH – FT	WELL DIAGRAM	OVA SAMPLE TYPE	SAMPLE NO.	BLOWS ON SAMPLER 0/6 6/12 12/18 18/24	PROFILE Cl Sl Sd Gr	FIELD IDENTIFICATION OF SOILS	NOTES
12	3" NQ CORE HOLE					SEE PAGE 2 FOR ROCK DESCRIPTION	AT 1305 CHECKED WATER AT 21.5' WATER RECOVERY ≈ 1'/MIN WILL STOP CORING AT 21.5' TOTAL DEPTH 1315
20	BEDROCK FILL	03			DOLOSTONE ROCK		
21					T.D. = 21.5'		
22							
23							
24							
25							
26							

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CLASSIFICATION/BY Jim Redmond

DATE

STARTED 8-28-90

FINISHED 8-29-90

SHEET 1 OF 2

E + E DRILLING AND TESTING CO., INC.
SUBSURFACE LOG

HOLE NUMBER GW-2

SURFACE ELEVATION

GROUNDWATER DEPTH

PROJECT Lockport Rd. Land Fill YQ2040

LOCATION Town of Wheatfield Niag. Co. New York

DEPTH – FT	SAMPLE TYPE	SAMPLE NO.	BLOWS ON SAMPLER 0/6, 6/12	12/18, 18/24	PROFILE (Cl Sl Sd Gr)	FIELD IDENTIFICATION OF SOILS	NOTES
		1	2, 3	6, 8		SS #1 1.5' Recov. 0-2' 0-1.1' med. brn. clay w/ silt + gravel (fill). Contains minor fragments of glass + brick. 1.1-1.5' Gravel fill.	Moist from surface infiltration OVA = 0
		2	6, 5	5, 5		SS #2 0.2' Recov. 2-4' Apparently hit some gravel + pushed the sample. Recovered is same as 0-1.1'	OVA = 0
		3	3, 3	2, 6		SS #3 0.8' Recov. 4-6' Still pushing stones. 0-0.8' reddish brown clay w/ silt + gravel. Contains some graphite.	Moist OVA = 0
		4	3, 2	3, 4		SS #4 1.2' Rec. 6-8' 0-0.8 same as SS#3. 0.8-1.0 Same as 0-0.8 but mottled w/ black. 1.0-1.2' Black silt w/ clay. Black from graphite + decaying organic matter.	Moist OVA = 0
		5	4, 6	6, 12		SS#5 0.8' Rec. 8-10' same as 0-0.8' SS#4 but contain up to 1" limestone gravel	Moist OVA = 0
		6	4, 7	10, 17		SS#6 1.6' Rec. 10-12' same as SS#5	Moist OVA = 0
		7	5, 10	50		SS#7 1.6' Rec. 12-13.3' same as SS#6 but sandier near bedrock. Also slightly wet near bedrock. ~~SS Refusal @ 13.3'~~	OVA = 0 Moist
						Bedrock @ 12.3'. Miscalculation in split spoons. Probably mostly cave in in last spoon.	

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DATE

STARTED 8-28-90

FINISHED 8-29-90

SHEET 2 OF 2

E + E DRILLING AND TESTING CO., INC.
SUBSURFACE LOG

HOLE NUMBER GW-2

SURFACE ELEVATION

GROUNDWATER DEPTH

PROJECT Lockport Rd. YQ2040

LOCATION TOWN OF WHEATFIELD NIAGARA CO, New York

DEPTH – FT	WELL DIAGRAM	SAMPLE TYPE	SAMPLE NO.	BLOWS ON SAMPLER 0/6, 6/12, 12/18, 18/24	PROFILE Cl Sl Sd Gr	FIELD IDENTIFICATION OF SOILS	NOTES
						CORE RUN #1 12.3-16.5' 100% Recov. Competent Lockport dolomite. Heavily weathered @ 1.0' w/ dissolution + secondary mineralization including calcite + an unknown amber mineral. Fractures @ 1.0', 3.5' Dissolution of fossils + cavities throughout.	

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DATE
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E + E DRILLING AND TESTING CO., INC.
SUBSURFACE LOG

HOLE NUMBER GW-3
SURFACE ELEVATION
GROUNDWATER DEPTH

PROJECT Lockport Rd. Landfill YQ2040

LOCATION

DEPTH – FT	WELL DIAGRAM	SAMPLE TYPE	SAMPLE NO.	BLOWS ON SAMPLER (0/6, 6/12, 12/18, 18/24)	PROFILE (Cl Si Sd Gr)	FIELD IDENTIFICATION OF SOILS	NOTES
5			1	4 4 / 18 18		Spoon #1 1.9' Recovery 0-2' OVA = 0ppm 0-1.4' Fill. silt w/ clay. contains some limestone gravel + some graphite mixed in. Limestone gravel layer @ 1.4' Graphite from 1.4-1.9'	Slightly moist from surface infiltration
7' 8' 10			2	10 9 / 4 4		Spoon #2 0' Recovery. 4-6' Probably pushed some gravel. from cutting appears to be repeated layers of silty Fill, gravel seam, + graphite.	Dry to most cuttings.
15			3	13 24 / 14 10		Spoon #3 1.2' Recovery 9-11' 0-0.1' Gravel 0.1-0.2' Med. brown silt w/ clay (as in spoon #1) 0.2-0.4' Graphite 0.4-1.2' Till composed of silt, sand + gravel.	DRY "
20	TD=18.8' Top of Bedrock @ 13.5' screened interval 8.0-18.0'		4	50		Spoon #4 13.5' Apparent auger refusal at bedrock but will try to spoon because there is saturated silt w/ sand coming up around the augers. Lockport Dolomite 50 blows for 4". All ~~limestone~~. (~~or maybe dolomite~~). Unweathered.	wet @ ~13'
						Core Run #1 13.5-18.5' 5.0' Rec. 0-0.5' Highly fractured, weathered dolomite 0.5-5.0' Weathered dolomite (grey) with fractures @ 1.7', 2.8', + 3.6'. Dissolution cavities throughout. Dissolved Fossils (esp. coral) throughout. Also contains secondary mineralization - crystals of calcite, purple fluorite and an unknown amber hexagonal crystal	

C-7

CLASSIFICATION/BY ecologist

APPENDIX D

ANALYTICAL DATA SUMMARY SHEETS FROM WATER AND SOIL SAMPLES

DATA SUMMARY FORM: VOLATILES 1

Site Name: Lockport Road Landfill

Case #: 9002-166 Sampling Date(s): _____

WATER SAMPLES (ug/L)

To calculate sample quantitation limit: (CRQL * Dilution Factor)

	Sample No.	GW-1		GW-2		GW-3		SW-1		SW-2		SW-3		VBLKW1		VBLKW3		SW-3MS	
	Dilution Factor	1.0		1.0		1.0		1.0		1.0		1.0		1.0		1.0		1.0	
	Location																		
CRQL	COMPOUND																		
10	Chloromethane																		
10	Bromomethane																		
10	*Vinyl Chloride																		
10	Chloroethane																		
5	*Methylene Chloride	3	B	4	B	3	B	3	B	4	B	3	B	13		5		4	B
10	Acetone													32		10			
5	Carbon Disulfide																		
5	*1,1-Dichloroethene																		
5	1,1-Dichloroethane																		
5	*Total-1,2-Dichloroethene																		
5	Chloroform																		
5	*1,2-Dichloroethane																		
10	*2-Butanone																		
5	*1,1,1-Trichloroethane																		
5	*Carbon Tetrachloride																		
10	Vinyl Acetate																		
5	Bromodichloromethane																		

CRDL = Contract Required Detection Limit *Action Level Exists SEE NARRATIVE FOR CODE DEFINITIONS

revised 12/88

DATA SUMMARY FORM: V O L A T I L E S 1

Site Name: Lockport Road Landfill

WATER SAMPLES (ug/L)

Case #: 9002-166 Sampling Date(s): _____

To calculate sample quantitation limit: (CRQL * Dilution Factor)

	Sample No.	GW-3,4SD		DW-1																	
	Dilution Factor	1.0		1.0																	
	Location																				
CRQL	COMPOUND																				
10	Chloromethane																				
10	Bromomethane																				
10	*Vinyl Chloride																				
10	Chloroethane																				
5	*Methylene Chloride	4	B	10	B																
10	Acetone																				
5	Carbon Disulfide																				
5	*1,1-Dichloroethene																				
5	1,1-Dichloroethane																				
5	*Total-1,2-Dichloroethene																				
5	Chloroform			23																	
5	*1,2-Dichloroethane																				
10	*2-Butanone																				
5	*1,1,1-Trichloroethane																				
5	*Carbon Tetrachloride																				
10	Vinyl Acetate																				
5	Bromodichloromethane			10	J																

CRDL = Contract Required Detection Limit *Action Level Exists SEE NARRATIVE FOR CODE DEFINITIONS

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DATA SUMMARY FORM: V O L A T I L E S 2

Site Name: Lockport Road Landfill

WATER SAMPLES (ug/L)

Case #: 9006-166 Sampling Date(s): _____

To calculate sample quantitation limit: (CRQL * Dilution Factor)

	Sample No.	SW-3MSD	DW-1									
	Dilution Factor	1.0	1.0									
	Location											
CRQL	COMPOUND											
5	*1,2-Dichloropropane											
5	Cis-1,3-Dichloropropene											
5	Trichloroethene											
5	Dibromochloromethane		4 J									
5	1,1,2-Trichloroethane											
5	*Benzene											
5	Trans-1,3 Dichloropropene											
5	Bromoform											
10	4-Methyl-2-pentanone											
10	2-Hexanone											
5	*Tetrachloroethene											
5	1,1,2,2-Tetrachloroethane											
5	*Toluene											
5	*Chlorobenzene											
5	*Ethylbenzene											
5	*Styrene											
5	*Total Xylenes											

CRDL = Contract Required Detection Limit

*Action Level Exists

SEE NARRATIVE FOR CODE DEFINITIONS

revised 12/88

DATA SUMMARY FORM: V O L A T I L E S 1

Site Name: Lockport Road Landfill

SOIL SAMPLES (ug/Kg)

Case #: 9002-166 Sampling Date(s): _____

To calculate sample quantitation limit:
(CRQL * Dilution Factor) / ((100 - % moisture)/100)

CRQL	COMPOUND	S-1		S-2		S-3		S-3D		S-4		SED-1		SED-2		SED-3			
	Sample No.	S-1		S-2		S-3		S-3D		S-4		SED-1		SED-2		SED-3			
	Dilution Factor	1.0		1.0		1.0		1.0		1.0		1.0		1.0		1.0			
	% Moisture	16		12		13		13		16		30		26		30			
	Location							Field Duplicate											
10	Chloromethane																		
10	Bromomethane																		
10	Vinyl Chloride																		
10	Chloroethane																		
5	Methylene Chloride	5	B	4	B	5	B	10	B	4	B	5	B	3	B	5	B		
10	Acetone	16	B	11	B	8	B	10	B	3	B	29	B	11	B				
5	Carbon Disulfide																		
5	1,1 Dichloroethene																		
5	1,1-Dichloroethane																		
5	Total-1,2 Dichloroethene																		
5	Chloroform																		
5	1,2-Dichloroethane																		
10	2 Butanone																		
5	1,1,1-Trichloroethane							7											
5	Carbon Tetrachloride																		
10	Vinyl Acetate																		
5	Bromodichloromethane																		

CRDL = Contract Required Detection Limit

SEE NARRATIVE FOR CODE DEFINITIONS

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DATA SUMMARY FORM: V O L A T I L E S 2

Site Name: Lockport Road Landfill

SOIL SAMPLES (ug/Kg)

Case #: 9002-166 Sampling Date(s): _____

To calculate sample quantitation limit:
(CRQL * Dilution Factor) / ((100 - % moisture)/100)

	Sample No.	S-1		S-2		S-3		S-3D		S-4		SED-1		SED-2		SED-3			
	Dilution Factor	1.0		1.0		1.0		1.0		1.0		1.0		1.0		1.0			
	% Moisture	16		12		13		13		16		30		26		30			
	Location							Field duplicate											
CRQL	COMPOUND																		
5	1,2-Dichloropropane																		
5	Cis-1,3-Dichloropropene																		
5	Trichloroethene																		
5	Dibromochloromethane																		
5	1,1,2-Trichloroethane																		
5	Benzene																		
5	Trans-1,3-Dichloropropene																		
5	Bromoform																		
10	4-Methyl 2 pentanone							10	J										
10	2 Hexanone																		
5	Tetrachloroethene																		
5	1,1,2,2 Tetrachloroethane					7		3	J										
5	Toluene																		
5	Chlorobenzene																		
5	Ethylbenzene																		
5	Styrene																		
5	Total Xylenes					1	J	3	J										

CRQL = Contract Required Quantitation Limit

SEE NARRATIVE FOR CODE DEFINITIONS

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DATA SUMMARY FORM: VOLATILES 2

Site Name: Lockport Road Landfill

Case #: 9002-166 Sampling Date(s): _____

SOIL SAMPLES (ug/Kg)

To calculate sample quantitation limit:
(CRQL * Dilution Factor) / ((100 - % moisture)/100)

	Sample No.	W-1		W-1RE		W-2		W-2RE		VBLKS1		VBLKS2		VBLKS3		VBLKS4		
	Dilution Factor	1.0		1.0		1.0		1.0		1.0		1.0		1.0		1.0		
	% Moisture	17		17		11		11		—		—		—		—		
	Location	More acceptable				More acceptable												
CRQL	COMPOUND																	
5	1,2-Dichloropropane		UJ															
5	Cis-1,3-Dichloropropene		I															
5	Trichloroethene		I															
5	Dibromochloromethane		I															
5	1,1,2-Trichloroethane		I															
5	Benzene	14	J															
5	Trans-1,3-Dichloropropene		I															
5	Bromoform		I															
10	4-Methyl-2-pentanone		I															
10	2-Hexanone		I				UJ											
5	Tetrachloroethene		I				I											
5	1,1,2,2-Tetrachloroethane		I				I											
5	Toluene	14	J			3	J											
5	Chlorobenzene		UJ				UJ											
5	Ethylbenzene		I			6	J											
5	Styrene		I				UJ											
5	Total Xylenes	2	J			13	J	18										

CRQL = Contract Required Quantitation Limit

SEE NARRATIVE FOR CODE DEFINITIONS

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DATA SUMMARY FORM: V O L A T I L E S 1

Site Name: Lockport Road Landfill

SOIL SAMPLES (ug/Kg)

Case #: 9002-166 Sampling Date(s): _____

To calculate sample quantitation limit:
(CRQL * Dilution Factor) / ((100 - % moisture)/100)

	Sample No.	W-1		W-1RE		W-2		W-2RE		VBLKS1		VBLKS2		VBLKS3		VBLKS4			
	Dilution Factor	1.0		1.0		1.0		1.0		1.0		1.0		1.0		1.0			
	% Moisture	17		17		11		11		—		—		—		—			
	Location	more acceptable				more acceptable													
CRQL	COMPOUND																		
10	Chloromethane		UJ																
10	Bromomethane																		
10	Vinyl Chloride																		
10	Chloroethane																		
5	Methylene Chloride	9	B	11	B	5	B	7	B	4	J	4	J	6		3	J		
10	Acetone	41	B			7	B					7	J	12		5	J		
5	Carbon Disulfide		UJ																
5	1,1 Dichloroethene																		
5	1,1-Dichloroethane																		
5	Total-1,2 Dichloroethene																		
5	Chloroform									1	J					2	J		
5	1,2-Dichloroethane																		
10	2 Butanone																		
5	1,1,1-Trichloroethane																		
5	Carbon Tetrachloride																		
10	Vinyl Acetate																		
5	Bromodichloromethane																		

CRDL = Contract Required Detection Limit

SEE NARRATIVE FOR CODE DEFINITIONS

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DATA SUMMARY FORM: V O L A T I L E S 1

Site Name: Lockport Road Landfill

SOIL SAMPLES (ug/Kg)

Case #: 9002-166 Sampling Date(s): _____

To calculate sample quantitation limit:
(CRQL * Dilution Factor) / ((100 - % moisture)/100)

	Sample No.	S-4MS	S-4MSD							
	Dilution Factor	1.0	1.0							
	% Moisture	16	16							
	Location									
CRQL	COMPOUND									
10	Chloromethane									
10	Bromomethane									
10	Vinyl Chloride									
10	Chloroethane									
5	Methylene Chloride	4	B	7	B					
10	Acetone	6	B	12	B					
5	Carbon Disulfide									
5	1,1-Dichloroethene									
5	1,1-Dichloroethane									
5	Total-1,2 Dichloroethene									
5	Chloroform									
5	1,2-Dichloroethane									
10	2-Butanone									
5	1,1,1-Trichloroethane									
5	Carbon Tetrachloride									
10	Vinyl Acetate									
5	Bromodichloromethane									

CRDL = Contract Required Detection Limit

SEE NARRATIVE FOR CODE DEFINITIONS

revised 12/88

DATA SUMMARY FORM: V O L A T I L E S 2

Site Name: Lockport Road Landfill

SOIL SAMPLES (ug/Kg)

Case #: 9002-166 Sampling Date(s): _____

To calculate sample quantitation limit:
(CRQL * Dilution Factor) / ((100 - % moisture)/100)

	Sample No.	S-4 MS	S4MSD							
	Dilution Factor	1.0	1.0							
	% Moisture	16	16							
	Location									
CRQL	COMPOUND									
5	1,2-Dichloropropane									
5	Cis-1,3-Dichloropropene									
5	Trichloroethene									
5	Dibromochloromethane									
5	1,1,2-Trichloroethane									
5	Benzene									
5	Trans-1,3-Dichloropropene									
5	Bromoform									
10	4-Methyl 2 pentanone									
10	2 Hexanone									
5	Tetrachloroethene									
5	1,1,2,2 Tetrachloroethane									
5	Toluene									
5	Chlorobenzene									
5	Ethylbenzene									
5	Styrene									
5	Total Xylenes									

CRQL = Contract Required Quantitation Limit

SEE NARRATIVE FOR CODE DEFINITIONS

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DATA SUMMARY FORM: B N A S 1

Site Name: Lockport Road Landfill

Case #: 9002-166 Sampling Date(s): _____

WATER SAMPLES
(ug/L)

To calculate sample quantitation limit:
(CRQL * Dilution Factor)

	Sample No.	DW-1		GW-1		GW-2		GW-3		SW-1		SW-2		SW-3		SBLKW1		SBLKW2	
	Dilution Factor	1.0		1.0		1.0		1.0		1.0		1.0		1.0		1.0		1.0	
	Location																		
CRQL	COMPOUND																		
10	Phenol																		
10	bis(2-Chloroethyl)ether																		
10	2-Chlorophenol																		
10	*1,3-Dichlorobenzene																		
10	*1,4-Dichlorobenzene																		
10	Benzyl Alcohol																		
10	1,2-Dichlorobenzene																		
10	2-Methylphenol																		
10	bis(2-Chloroisopropyl)ether																		
10	4-Methylphenol																		
10	N-Nitroso-di-n propylamine																		
10	Hexachloroethane																		
10	Nitrobenzene																		
10	Isophorone																		
10	2-Nitrophenol																		
10	2,4-Dimethylphenol																		
50	Benzoic Acid																		
10	bis(2-Chloroethoxy)methane																		
10	2,4-Dichlorophenol																		
10	1,2,4-Trichlorobenzene																		
10	Naphthalene																		
10	4-Chloroaniline																		

CRDL = Contract Required Detection Limit

*Action Level Exists

SEE NARRATIVE FOR CODE DEFINITIONS

revised 12/88

DATA SUMMARY FORM: B N A S 2

Site Name: Lockport Road Landfill

WATER SAMPLES (ug/L)

Case #: 9002-166 Sampling Date(s): _____

To calculate sample quantitation limit: (CRQL * Dilution Factor)

CRQL	COMPOUND	Sample No.	DW-1		GW1		GW-2		GW-3		SW-1		SW-2		SW-3		SBLKW1		SBLKW2	
		Dilution Factor	1.0		1.0		1.0		1.0		1.0		1.0		1.0		1.0		1.0	
		Location																		
10	Hexachlorobutadiene																			
10	4-Chloro-3-methylphenol																			
10	2-Methylnaphthalene																			
10	Hexachlorocyclopentadiene																			
10	2,4,6-Trichlorophenol																			
50	2,4,5-Trichlorophenol																			
10	2-Chloronaphthalene																			
50	2-Nitroaniline																			
10	Dimethylphthalate																			
10	Acenaphthylene																			
10	2,6 Dinitrotoluene																			
50	3-Nitroaniline																			
10	Acenaphthene										1	J								
50	2,4-Dinitrophenol																			
50	4-Nitrophenol																			
10	Dibenzofuran																			
10	2,4-Dinitrotoluene																			
10	Diethylphthalate				5	B					6	B	6	B	6	B			4	J
10	4-Chlorophenyl-phenylether																			
10	Fluorene										2	J								
50	4-Nitroaniline																			
50	4,6-Dinitro-2-methylphenol																			

CRDL = Contract Required Detection Limit

*Action Level Exists

SEE NARRATIVE FOR CODE DEFINITIONS

revised 12/88

DATA SUMMARY FORM: B N A S 3

Site Name: Lockport Road Landfill

Case #: 9007-166 Sampling Date(s): _____

WATER SAMPLES (ug/L)

To calculate sample quantitation limit: (CRQL * Dilution Factor)

CRDL	COMPOUND	Sample No.	DW-1		GW-1		GW-2		GW-3		SW-1		SW-2		SW-3		SBLK W1		SBLK W2	
		Dilution Factor	1.0		1.0		1.0		1.0		1.0		1.0		1.0		1.0		1.0	
		Location																		
10	N Nitrosodiphenylamine																			
10	4-Bromophenyl-phenylether																			
10	*Hexachlorobenzene																			
50	*Pentachlorophenol																			
10	Phenanthrene										17		2	J						
10	Anthracene										4	J								
10	Di-n-butylphthalate		18																	
10	Fluoranthene										22		2	J						
10	Pyrene										17		2	J						
10	Butylbenzylphthalate																			
20	3,3 Dichlorobenzidine																			
10	Benzo(a)anthracene										10									
10	Chrysene										11									
10	bis(2 Ethylhexyl)phthalate		12	B	3	B	3	B	2	B	3	B	3	B	4	B	8	J	3	J
10	Di-n-octylphthalate																			
10	Benzo(b)fluoranthene										10									
10	Benzo(k)fluoranthene										4	J								
10	Benzo(a)pyrene										8	J								
10	Indeno(1,2,3-cd)pyrene										5	J								
10	Dibenz(a,h)anthracene										1	J								
10	Benzo(g,h,i)perylene										5	J								

CRDL = Contract Required Detection Limit *Action Level Exists SEE NARRATIVE FOR CODE DEFINITIONS

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DATA SUMMARY FORM: B N A S 1

Site Name: Lockport Road Landfill

Case #: 9002-166 Sampling Date(s): _____

WATER SAMPLES
(ug/L)

To calculate sample quantitation limit:
(CRQL * Dilution Factor)

CRQL	COMPOUND	Sample No.	SBLKW3	SBLKW4	GW2MS	GW2MSD					
		Dilution Factor	1.0	1.0	1.0	1.0					
		Location									
10	Phenol										
10	bis(2-Chloroethyl)ether										
10	2 Chlorophenol										
10	*1,3-Dichlorobenzene										
10	*1,4-Dichlorobenzene										
10	Benzyl Alcohol										
10	1,2-Dichlorobenzene										
10	2 Methylphenol										
10	bis(2 Chloroisopropyl)ether										
10	4 Methylphenol										
10	N Nitroso di n propylamine										
10	Hexachloroethane										
10	Nitrobenzene										
10	Isophorone										
10	2 Nitrophenol										
10	2,4-Dimethylphenol										
50	Benzoic Acid										
10	bis(2-Chloroethoxy)methane										
10	2,4-Dichlorophenol										
10	1,2,4-Trichlorobenzene										
10	Naphthalene										
10	4-Chloroaniline										

CRDL = Contract Required Detection Limit

*Action Level Exists

SEE NARRATIVE FOR CODE DEFINITIONS

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DATA SUMMARY FORM: B N A S 2

Site Name: Lockport Road Landfill

WATER SAMPLES (ug/L)

Case #: 9002-166 Sampling Date(s): _____

To calculate sample quantitation limit: (CRQL * Dilution Factor)

CRQL	COMPOUND	Sample No.	SB1KW3	SB4KW3	GW-2MS	GW-2MSD					
		Dilution Factor	1.0	1.0	1.0	1.0					
		Location									
10	Hexachlorobutadiene										
10	4-Chloro-3-methylphenol										
10	2-Methylnaphthalene										
10	Hexachlorocyclopentadiene										
10	2,4,6-Trichlorophenol										
50	2,4,5-Trichlorophenol										
10	2-Chloronaphthalene										
50	2-Nitroaniline										
10	Dimethylphthalate										
10	Acenaphthylene										
10	2,6 Dinitrotoluene										
50	3-Nitroaniline										
10	Acenaphthene										
50	2,4-Dinitrophenol										
50	4-Nitrophenol										
10	Dibenzofuran										
10	2,4-Dinitrotoluene										
10	Diethylphthalate										
10	4-Chlorophenyl-phenylether										
10	Fluorene										
50	4-Nitroaniline										
50	4,6-Dinitro-2-methylphenol										

CRDL = Contract Required Detection Limit

*Action Level Exists

SEE NARRATIVE FOR CODE DEFINITIONS

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DATA SUMMARY FORM: B N A S 3

Site Name: Lockport Road Landfill

WATER SAMPLES (ug/L)

Case #: 9002-166 Sampling Date(s): _____

To calculate sample quantitation limit: (CRQL * Dilution Factor)

	Sample No.	SBLKW3		SBLKW4		GW-3MS		GW-3MSD											
	Dilution Factor	1.0		1.0		1.0		1.0											
	Location																		
CRDL	COMPOUND																		
10	N Nitrosodiphenylamine																		
10	4-Bromophenyl-phenylether																		
10	*Hexachlorobenzene																		
50	*Pentachlorophenol																		
10	Phenanthrene																		
10	Anthracene																		
10	Di-n-butylphthalate																		
10	Fluoranthene																		
10	Pyrene																		
10	Butylbenzylphthalate																		
20	3,3 Dichlorobenzidine																		
10	Benzo(a)anthracene																		
10	Chrysene																		
10	bis(2 Ethylhexyl)phthalate	2	J	3	J	3	J	3	B										
10	Di-n-octylphthalate																		
10	Benzo(b)fluoranthene																		
10	Benzo(k)fluoranthene																		
10	Benzo(a)pyrene																		
10	Indeno(1,2,3-cd)pyrene																		
10	Dibenz(a,h)anthracene																		
10	Benzo(g,h,i)perylene																		

CRDL = Contract Required Detection Limit

*Action Level Exists

SEE NARRATIVE FOR CODE DEFINITIONS

revised 12/88

DATA SUMMARY FORM: B N A S 1

Site Name: Lockport Road Landfill

Case #: 9002-166 Sampling Date(s): _____

SOIL SAMPLES (ug/Kg)

To calculate sample quantitation limit:
(CRQL * Dilution Factor) / ((100 - % moisture)/100)

CRQL	COMPOUND	Sample No.	S-1		S-2		S-3		S-3D		S-4		SED-1		SED-2		SED-3		W-1	
		Dilution Factor	1.0		1.0		1.0		1.0		1.0		1.0		1.0		1.0		1.0	
		% Moisture	16		12		13		13		16		30		26		30		17	
		Location							Field Duplicate											
330	Phenol							UL												UL
330	bis(2-Chloroethyl)ether																			
330	2-Chlorophenol																			
330	1,3-Dichlorobenzene																			
330	1,4-Dichlorobenzene																			
330	Benzyl Alcohol																			
330	1,2 Dichlorobenzene																			
330	2-Methylphenol																			
330	bis(2-Chloroisopropyl)ether																			
330	4-Methylphenol																			
330	N-Nitroso-di-n-propylamine																			
330	Hexachloroethane																			
330	Nitrobenzene																			
330	Isophorone																			
330	2-Nitrophenol																			
330	2,4-Dimethylphenol																			
1600	Benzoic Acid																			
330	bis(2-Chloroethoxy)methane																			
330	2,4-Dichlorophenol																			
330	1,2,4-Trichlorobenzene																			
330	Naphthalene		250	J			740		320	J									1300	
330	4-Chloroaniline							UL												UL

CRQL = Contract Required Quantitation Limit

SEE NARRATIVE FOR CODE DEFINITIONS

revised 12/88

DATA SUMMARY FORM: B N A S 2

Site Name: Lockport Road Landfill

SOIL SAMPLES (ug/Kg)

Case #: 9002-166 Sampling Date(s): _____

To calculate sample quantitation limit:
(CRQL * Dilution Factor) / ((100 - % moisture)/100)

CRQL	COMPOUND	Sample No.	S-1		S-2		S-3		S-3D		S-4		SED-1		SED-2		SED-3		W-1	
		Dilution Factor	1.0		1.0		1.0		1.0		1.0		1.0		1.0		1.0		1.0	
		% Moisture	16		12		13		13		16		30		26		30		17	
		Location							Field duplicate											
330	Hexachlorobutadiene							UL												UL
330	4-Chloro-3-methylphenol							UL												UL
330	2 Methylnaphthalene		83	J			310	J	160	J									750	
330	Hexachlorocyclopentadiene							UL												UL
330	2,4,6-Trichlorophenol							|											|	|
1600	2,4,5-Trichlorophenol							|											|	|
330	2-Chloronaphthalene							|											|	|
1600	2-Nitroaniline							|											|	|
330	Dimethylphthalate							I												I	I
330	Acenaphthylene						110	J	54	J									49	J
330	2,6-Dinitrotoluene							UL												UL
1600	3 Nitroaniline							UL												UL
330	Acenaphthene		750		39	J	1600		350	J	120	J	86	J					320	J
1600	2,4-Dinitrophenol							UL												UL
1600	4-Nitrophenol							UL												UL
330	Dibenzofuran		120	J			610		320	J			67	J					170	J
330	2,4-Dinitrotoluene							UL												UL
330	Diethylphthalate		120	J				I												I
330	4-Chlorophenyl-phenylether							I												I
330	Fluorene		120	J			970		490				110	J					85	J
1600	4-Nitroaniline							UL												UL
1600	4,6-Dinitro-2-methylphenol							UL												UL

CRQL = Contract Required Quantitation Limit

SEE NARRATIVE FOR CODE DEFINITIONS

revised 12/88

DATA SUMMARY FORM: B N A S 3

Site Name: Lockport Road Landfill

SOIL SAMPLES (ug/Kg)

Case #: 9002-166 Sampling Date(s): _____

To calculate sample quantitation limit:
(CRQL * Dilution Factor) / ((100 - % moisture)/100)

CRQL	COMPOUND	Sample No.		S-1		S-2		S-3		S-3D		S-4		SED-1		SED-2		SED-3		W-1	
		Dilution Factor		1.0		1.0		1.0		1.0		1.0		1.0		1.0		1.0		1.0	
		% Moisture		16		12		13		13		16		30		26		30		17	
		Location								Field duplicate											
330	N-Nitrosodiphenylamine								UL												UL
330	4-Bromophenyl-phenylether																				UL
330	Hexachlorobenzene																			77	J
1600	Pentachlorophenol																				UL
330	Phenanthrene		1700		120	J	5800		2900		350	J	760							1500	
330	Anthracene		540				1800		900		100	J	180	J						250	J
330	Di-n-butylphthalate							UL													UL
330	Fluoranthene		2600		190	J	4900		2800		660		730							1300	
330	Pyrene		2600		200	J	3600		1800		470		500							870	
330	Butylbenzylphthalate						51	J												360	J
1600	3,3-Dichlorobenzidine							UL													UL
330	Benzo(a)anthracene		2300		150	J	2300		1200		460		320	J						120	J
330	Chrysene		2100		150	J	2000		1000		460		300	J						170	J
330	bis(2 Ethylhexyl)phthalate		92	B	84	B	750	B	74	B	53	B	83	B	54	B	57	B	470	B
330	Di-n-octylphthalate							UL													UL
330	Benzo(b)fluoranthene		2300		180	J	2100		1500		970		400	J						56	J
330	Benzo(k)fluoranthene																				
330	Benzo(a)pyrene		2300		140	J	1800		1100		580		230	J							
330	Indeno(1,2,3-cd)pyrene		1500		100	J	1000		700		380	J	140	J							
330	Dibenz(a,h)anthracene		370	J			310	J	200	J	90	J									
330	Benzo(g,h,i)perylene		1200		83	J	800		590		320	J	120	J							

CRQL = Contract Required Quantitation Limit

SEE NARRATIVE FOR CODE DEFINITIONS

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DATA SUMMARY FORM: B N A S 1

Site Name: Lockport Road Landfill SOIL SAMPLES (ug/Kg)

Case #: 9002-166 Sampling Date(s): _____

To calculate sample quantitation limit:
(CRQL * Dilution Factor) / ((100 - % moisture)/100)

	Sample No.	W-2		SBLK61		SBLK62		SBLK63		SBLK64		S-1MS		S-1MSD		S-3MS		S-3MSD	
	Dilution Factor	1.0		1.0		1.0		1.0		1.0		1.0		1.0		1.0		1.0	
	% Moisture	11		—		—		—		—		16		16		13		13	
	Location																		
CRQL	COMPOUND																		
330	Phenol	260	J																
330	bis(2-Chloroethyl)ether																		
330	2-Chlorophenol																		
330	1,3-Dichlorobenzene																		
330	1,4-Dichlorobenzene																		
330	Benzyl Alcohol																		
330	1,2 Dichlorobenzene																		
330	2-Methylphenol	190	J																
330	bis(2-Chloroisopropyl)ether																		
330	4-Methylphenol																		
330	N-Nitroso-di-n-propylamine																		
330	Hexachloroethane																		
330	Nitrobenzene																		
330	Isophorone																		
330	2-Nitrophenol																		
330	2,4-Dimethylphenol																		
1600	Benzoic Acid																		
330	bis(2-Chloroethoxy)methane																		
330	2,4-Dichlorophenol																		
330	1,2,4-Trichlorobenzene																		
330	Naphthalene	1400										42	J	120	J	170	J	210	J
330	4-Chloroaniline																		

CRQL = Contract Required Quantitation Limit

SEE NARRATIVE FOR CODE DEFINITIONS

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DATA SUMMARY FORM: B N A S 2

Site Name: Lockport Road Landfill

Case #: 9002-166 Sampling Date(s): _____

SOIL SAMPLES (ug/Kg)

To calculate sample quantitation limit:
(CROL * Dilution Factor) / ((100 - % moisture)/100)

	Sample No.	W-2		SBLKS1		SBLKS2		SBLKS3		SBLKS4		S-1MS		S-1MSD		S-3MS		S-3MSD	
	Dilution Factor	1.0		1.0		1.0		1.0		1.0		1.0		1.0		1.0		1.0	
	% Moisture	11		—		—		—		—		16		16		13		13	
	Location																		
CROL	COMPOUND																		
330	Hexachlorobutadiene																		
330	4-Chloro-3-methylphenol																		
330	2-Methylnaphthalene	880												44	J	73	J	90	J
330	Hexachlorocyclopentadiene																		
330	2,4,6-Trichlorophenol																		
1600	2,4,5-Trichlorophenol																		
330	2-Chloronaphthalene																		
1600	2-Nitroaniline																		
330	Dimethylphthalate																		
330	Acenaphthylene															45	J	57	J
330	2,6-Dinitrotoluene																		
1600	3-Nitroaniline																		
330	Acenaphthene	390																	
1600	2,4-Dinitrophenol																		
1600	4-Nitrophenol																		
330	Dibenzofuran	130	J											73	J	180	J	230	J
330	2,4-Dinitrotoluene																		
330	Diethylphthalate	90	J									68	J	64	J				
330	4-Chlorophenyl-phenylether																		
330	Fluorene	89	J									40	J	140	J	310	J	410	
1600	4-Nitroaniline																		
1600	4,6-Dinitro-2-methylphenol																		

CROL = Contract Required Quantitation Limit

SEE NARRATIVE FOR CODE DEFINITIONS

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DATA SUMMARY FORM: B N A S 3

Site Name: Lockport Road Landfill

SOIL SAMPLES (ug/Kg)

Case #: 9002-166 Sampling Date(s): _____

To calculate sample quantitation limit:
(CRQL * Dilution Factor) / ((100 - % moisture)/100)

CRQL	COMPOUND																					
Sample No.		W-2		SBLKS1		SBLKS2		SBLKS3		SBLKS4		S-1MS		S-1MSD		S-3MS		S-3MSD				
Dilution Factor		1.0		1.0		1.0		1.0		1.0		1.0		1.0		1.0		1.0				
% Moisture		11		-		-		-		-		16		16		13		13				
Location																						
330	N-Nitrosodiphenylamine																					
330	4-Bromophenyl phenylether																					
330	Hexachlorobenzene	59	J																			
1600	Pentachlorophenol																					
330	Phenanthrene	790										330	J	1200		2100		2700				
330	Anthracene	71	J									95	J	370		540		870				
330	Di-n-butylphthalate	49	J																			
330	Fluoranthene	330	J									540		2000		2100		2800				
330	Pyrene	300	J																			
330	Butylbenzylphthalate																					
1600	3,3 Dichlorobenzidine																					
330	Benzo(a)anthracene											420		1600		1100		1200				
330	Chrysene											420		1500		1000		1200				
330	bis(2 Ethylhexyl)phthalate	140	B	57	J	38	J	58	J	450		69	B	130	B	770	B	640	B			
330	Di-n-octylphthalate																					
330	Benzo(b)fluoranthene											530		2000		1200		1900				
330	Benzo(k)fluoranthene															810		1000				
330	Benzo(a)pyrene											440		1600		1100		1400				
330	Indeno(1,2,3-cd)pyrene											300	J	1200		640		810				
330	Dibenz(a,h)anthracene											70	J	280	J	190	J	230				
330	Benzo(g,h,i)perylene											240	J	950		540		660				

CRQL = Contract Required Quantitation Limit

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BNA

DATA SUMMARY FORM: TENTATIVELY IDENTIFIED COMPOUNDS

Site Name: Lockport Road Landfill

Case #: 9002-166 Sampling Date: _____

WATER SAMPLES (ug/L)

To calculate sample quantitation limit: (CRQL * Dilution Factor)

CRQL	COMPOUND	Sample No.									
	Dilution Factor	GW-3 1.0									
	Location										
	CAS # 108930 Cyclohexanol	15	J								

CRQL = Contract Required Quantitation Limit

DATA SUMMARY FORM: P E S T I C I D E S A N D P C B S

Site Name: Lockport Road Landfill

Case #: 9002-166 Sampling Date(s): _____

WATER SAMPLES (ug/L)

To calculate sample quantitation limit: (CRQL * Dilution Factor)

CRQL	COMPOUND	Sample No.	DW-1		GW-1		GW-2		GW-3		SW-1		SW-2		SW-3		PBLKW1		PBLKW2	
		Dilution Factor	1.0		1.0		1.0		1.0		1.0		1.0		1.0		1.0		1.0	
		Location																		
0.05	alpha-BHC																			
0.05	beta-BHC																			
0.05	delta-BHC																			
0.05	*Gamma-BHC (Lindane)																			
0.05	*Heptachlor																			
0.05	Aldrin																			
0.05	Heptachlor Epoxide																			
0.05	Endosulfan I																			
0.10	Dieldrin																			
0.10	4,4'-DDE																			
0.10	*Endrin																			
0.10	Endosulfan II																			
0.10	4,4'-DDD																			
0.10	Endosulfan Sulfate																			
0.10	4,4'-DDT																			
0.5	*Methoxychlor																			
0.10	Endrin ketone																			
0.5	*Alpha-Chlordane																			
0.5	*Gamma-Chlordane																			
1.0	*Toxaphene																			
0.5	*Aroclor-1016																			
0.5	*Aroclor-1221																			
0.5	*Aroclor-1232																			
0.5	*Aroclor-1242																			
0.5	*Aroclor-1248																			
1.0	*Aroclor-1254																			
1.0	*Aroclor-1260																			

CRDL = Contract Required Detection Limit

*Action Level Exists

SEE NARRATIVE FOR CODE DEFINITIONS

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DATA SUMMARY FORM: P E S T I C I D E S A N D P C B S

Site Name: Lockport Road Landfill

Case #: 9002-166 Sampling Date(s): _____

WATER SAMPLES (ug/L)

To calculate sample quantitation limit: (CRQL * Dilution Factor)

CRQL	COMPOUND	Sample No.	GW-2MS	GW-2MSD															
		Dilution Factor	1.0	1.0															
		Location																	
0.05	alpha-BHC																		
0.05	beta-BHC																		
0.05	delta-BHC																		
0.05	*Gamma-BHC (Lindane)																		
0.05	*Heptachlor																		
0.05	Aldrin																		
0.05	Heptachlor Epoxide																		
0.05	Endosulfan I																		
0.10	Dieldrin																		
0.10	4,4'-DDE																		
0.10	*Endrin																		
0.10	Endosulfan II																		
0.10	4,4'-DDD																		
0.10	Endosulfan Sulfate																		
0.10	4,4'-DDT																		
0.5	*Methoxychlor																		
0.10	Endrin ketone																		
0.5	*Alpha-Chlordane																		
0.5	*Gamma-Chlordane																		
1.0	*Toxaphene																		
0.5	*Aroclor-1016																		
0.5	*Aroclor-1221																		
0.5	*Aroclor-1232																		
0.5	*Aroclor-1242																		
0.5	*Aroclor-1248																		
1.0	*Aroclor-1254																		
1.0	*Aroclor-1260																		

CRDL = Contract Required Detection Limit

*Action Level Exists

SEE NARRATIVE FOR CODE DEFINITIONS

revised 12/88

DATA SUMMARY FORM: PESTICIDES AND PCBS

Site Name: Lockport Road Landfill

SOIL SAMPLES (ug/Kg)

Case #: 1002-166 Sampling Date(s): _____

To calculate sample quantitation limit:
(CRQL * Dilution Factor) / ((100 - % moisture)/100)

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	Sample No.	S-1	S-2	S-3	S-3D	S-4	SED-1	SED-2	SED-3	
	Dilution Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
	% Moisture	16	12	13	13	16	30	26	30	
	Location									
CRQL	COMPOUND									
8	alpha-BHC									
8	beta-BHC									
8	delta-BHC									
8	Gamma-BHC (Lindane)									
8	Heptachlor									
8	Aldrin									
8	Heptachlor Epoxide									
8	Endosulfan I									
16	Dieldrin									
16	4,4'-DDE									
16	Endrin									
16	Endosulfan II									
16	4,4'-DDD									
16	Endosulfan Sulfate									
16	4,4' DDT									
80	Methoxychlor									
16	Endrin ketone									
80	Alpha-Chlordane									
80	Gamma-Chlordane									
160	Toxaphene									
80	Aroclor-1016									
80	Aroclor-1221									
80	Aroclor-1232									
80	Aroclor-1242									
80	Aroclor-1248									
160	Aroclor-1254									
160	Aroclor-1260									

CRQL = Contract Required Quantitation Limit

SEE NARRATIVE FOR CODE DEFINITIONS

revised 12/88

DATA SUMMARY FORM: PESTICIDES AND PCBS

Site Name: Lockport Road Landfill

SOIL SAMPLES (ug/Kg)

Case #: 9002.166 Sampling Date(s): _____

To calculate sample quantitation limit:
(CRQL * Dilution Factor) / ((100 - % moisture)/100)

	Sample No.	W-1	W-2	PBLKS1	PBLKS2	PBLKS3	PBLKS4	S-1MS	S-1MSD	
	Dilution Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
	% Moisture	17	11	—	—	—	—	16	16	
	Location									
CRQL	COMPOUND									
8	alpha-BHC									
8	beta-BHC									
8	delta-BHC									
8	Gamma-BHC (Lindane)									
8	Heptachlor									
8	Aldrin									
8	Heptachlor Epoxide									
8	Endosulfan I									
16	Dieldrin									
16	4,4'-DDE									
16	Endrin									
16	Endosulfan II									
16	4,4'-DDD									
16	Endosulfan Sulfate									
16	4,4' DDT									
80	Methoxychlor									
16	Endrin ketone									
80	Alpha-Chlordane									
80	Gamma-Chlordane									
160	Toxaphene									
80	Aroclor-1016									
80	Aroclor-1221									
80	Aroclor-1232									
80	Aroclor-1242									
80	Aroclor-1248									
160	Aroclor-1254									
160	Aroclor-1260									

CRQL = Contract Required Quantitation Limit

SEE NARRATIVE FOR CODE DEFINITIONS

revised 12/88

DATA SUMMARY FORM: I N O R G A N I C S

Site Name: Lockport Road Landfill

Case #: 9202-166 Sampling Date(s): _____

WATER SAMPLES (ug/L)

*Due to dilution, sample quantitation limit is affected. See dilution table for specifics.

CRDL	ANALYTE	Sample No.	DW-1	GW-1	GW-2	GW-3	SW-1	SW-2	SW-3			
		Dilution Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0			
		Location			Dilution for Lead: 5.0	Dilution for Lead: 100						
200	Aluminum		2590	[67]	2430	15900	1920	451				
60	Antimony											
10	*Arsenic		[2.6]	[2.2]		[2.8]						
200	Barium		[31.2]	[76.0]	[98.3]	246	[100]	[80.8]	[79.2]			
5	Beryllium											
5	*Cadmium					5.9	9.2					
5000	Calcium		34300	20300	151000	323000	113000	105000	110000			
10	*Chromium		12.6			39.8						
50	Cobalt					[16.1]	[17.2]					
25	Copper		31.4			43						
100	Iron		888	214	3880	26800	3220	675	[62]			
5	*Lead		17.6	3.4	[14.2] J	[65]	415	56	[2.0]			
5000	Magnesium		7780	50400	45400	111000	35900	39500	35700			
15	Manganese		567	54.5	216	1190	914	165	38.1			
0.2	Mercury											
40	*Nickel					[36.2]	[163]	[168]	[13.3]			
5000	Potassium		[1380]	[4360]	[3020]	[6920]	[4140]	[3500]	[3520]			
5	Selenium							[1.4]				
10	Silver											
5000	Sodium		10600	24800	26000	72000	29600	31600	33200			
10	Thallium											
50	Vanadium					[28.3]						
20	Zinc		40.3	493	902	1490	3450	2320	2060			
10	*Cyanide											

CRDL = Contract Required Detection Limit

*Action Level Exists

SEE NARRATIVE FOR CODE DEFINITIONS

revised 12/88

DATA SUMMARY FORM: I N O R G A N I C S

Site Name: Lockport Road Landfill

Case #: 9002-166 Sampling Date(s): _____

SOIL SAMPLES (mg/Kg)

•Due to dilution, sample quantitation limit is affected. See dilution table for specifics.

CRDL	ANALYTE	S-1		S-2		S-3		S-3D		S-4		SED-1		SED-2		SED-3		W-1		W-2	
	Dilution Factor	1.0		1.0		1.0		1.0		1.0		1.0		1.0		1.0		1.0		1.0	
	% Solids	84.2		87.7		87.4		87.1		84.1		70.5		73.7		70		83.4		89.3	
	Location																				
40	Aluminum	12900		12400		10800		10800		13200		3980		4770		8060		718		3280	
12	Antimony		UL		UL		UL		UL		UL		UL		UL		UL		UL		UL
2	Arsenic	2.5		[2.1]		[2.3]		2.8		3.1		[1.5]		[1.1]		[1.2]		[1.6]		36.5	
40	Barium	102		103		88.1		82.5		106		[41.1]		[27.6]		69		[22.7]		49.9	
1	Beryllium																			[0.58]	
1	Cadmium	3.7		3.8		3.1		4.0		4.3		1.6		53.5		2.6				3.8	
1000	Calcium	11500		42700		68800		38800		4850		114000		30600		11800		6370		31900	
2	Chromium	17.3		18.9		16.6		17.3		17.5		8.2		6.7		10.3		11.8		50.4	
10	Cobalt	[9.9]		[10.3]		[9.2]		[10.1]		[10.2]						[4.6]		[4.0]		[9.1]	
5	Copper	11.2		18.6		18.2		19.3		11.5		9.8		8.1		8.0		19.0		137	
20	Iron	22200		21800		19300		20700		24100		8220		9040		12200		5020		17900	
1	*Lead	14.7		26.1		20.4		19.5		16.4		26.1		23.9		10.3		[5.9]		92.8	
1000	Magnesium	8300		15600		21800		13300		4790		59500		15600		6760		[423]		1830	
3	Manganese	687		530		767		522		899		511		303		225		51.3		301	
0.2	Mercury																				
8	Nickel	16.3		19.8		21.1		20.6		17.4		[8.5]		[7.1]		11.9		41.1		121	
1000	Potassium	[346]		1640		1310		1400		[199]		[459]		[392]		[695]				[87]	
1	Selenium																	[0.47]		1.6	
2	Silver																				
1000	Sodium					[126]						[376]		[391]		[263]				[132]	
2	Thallium																	6.5		9.5	
10	Vanadium	25.6		23.6		21.4		22.4		27.6		[8.1]		[8.4]		[13.3]		26.9		87.3	
4	Zinc	150		96.7		120		130		128		605		18100		626		17		143	
2	Cyanide																				

CRDL = Contract Required Detection Limit *Action Level Exists SEE NARRATIVE FOR CODE DEFINITIONS

revised 12/88

APPENDIX E

GEOTECHNICAL ANALYSIS

1810 North 12th Street
P.O. Box 2186
Toledo, Ohio 43603
(419) 241-7175
Fax # (419) 241-1808

Registered
Engineers,
Chemists and
Geologists

William F. Boyle, president
Thomas R. Uhler, P.E., vice president
Technical Services
Richard L. Johnson, P.E., chief
Geotechnical Division

I ed in 1927

Toledo Testing Laboratory

September 26, 1990

Mr. Bob Meyers
Ecology and Environment, Inc.
368 Pleasantview Drive
Lancaster, New York 14086

RE: LABORATORY TESTING
OF SUBMITTED SOIL SAMPLES
LOCKPORT ROAD LANDFILL, PHASE II
YOUR PROJECT NO.: YQ-2040
YOUR P.O. NO. 54964
T.T.L. JOB NO. 11420

Dear Mr. Meyers:

Please find enclosed the results of laboratory analyses completed on submitted soil samples from the Lockport Road Landfill, Phase II project per your referenced purchase order number. These samples were received at our office on September 19, 1990.

If you should have any questions or comments, or if we can be of any further assistance please feel free to contact us.

Very truly yours,

TOLEDO TESTING LABORATORY
Steven L. Bouws
Geotechnical Engineer

Richard L. Johnson
Chief Geotechnical Engineer

RLJ/SLB/dmr

Project No. 11420

TOLEDO TESTING LABORATORY, INC.

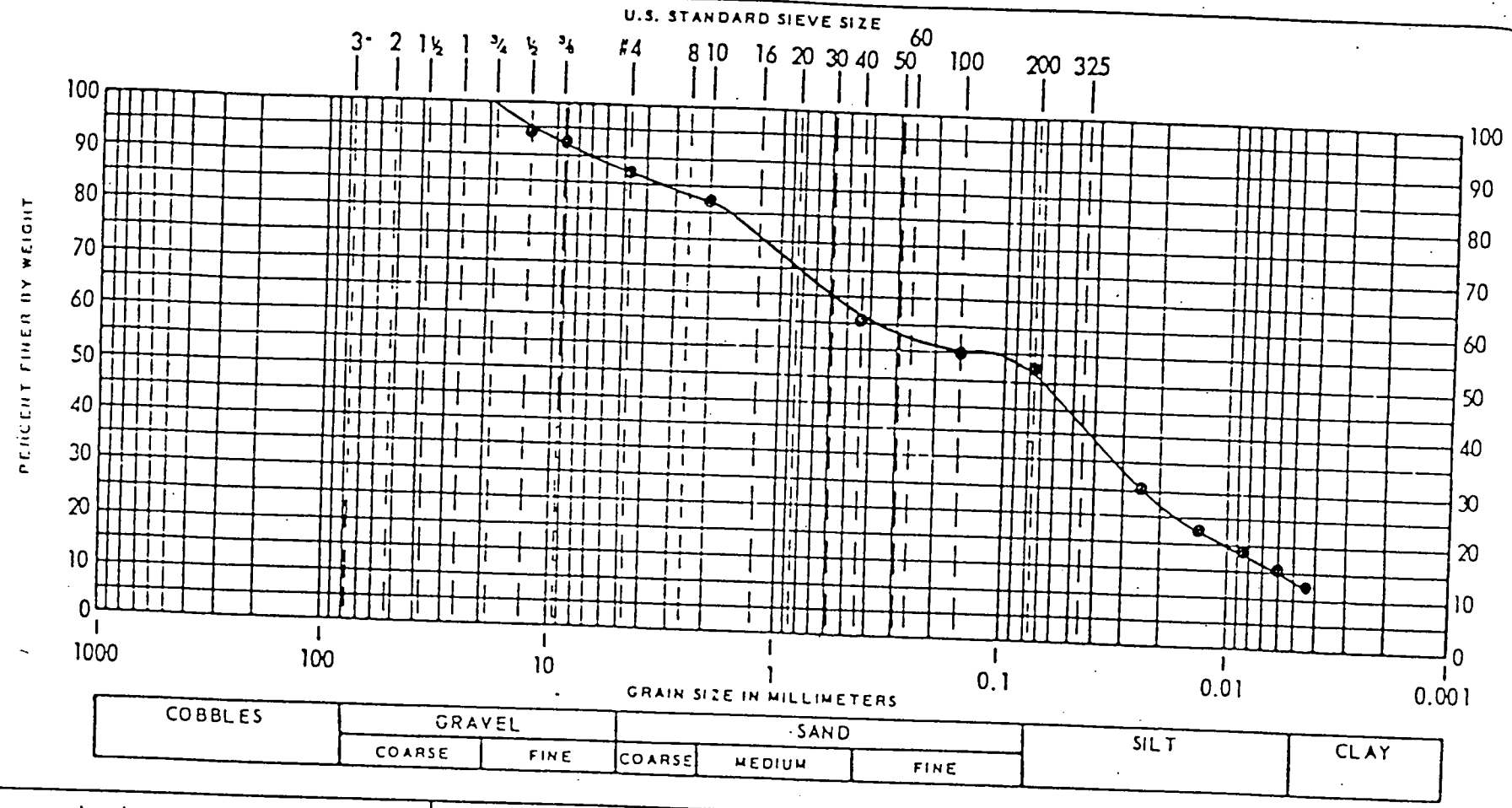
Sheet 1 Of 1

TABULATION OF TEST DATA

Test Boring or Test Pit Number	Sample Number	Depth of Sample Tip	Elevation of Sample Tip	Standard Penetration (Number of Blows/Foot Unless Otherwise Stated)	Natural Water Content (Percent of Dry Weight)	In-Place Dry Density (Pounds per Cubic Foot)	Unconfined Compressive Strength (PSF)		Particle Size Distribution							Atterberg Limits			Group Designation and Index (AASHTO)
									Gravel (Percent)	Coarse Sand (Percent)	Medium Sand (Percent)	Fine Sand (Percent)	Silt (Percent)	Clay (Percent)	Colloids (Percent)	Liquid Limit (Percent)	Plastic Limit (Percent)	Plasticity Index (Percent)	
	GW-01-01	9'-11'							14	6	9	12	36	23					
	GW-02-01	0'-6'														39	19	20	A-7-6
	GW-03-01	0'-1.4'							12	5	22	8	39	14					

Figure 1

SOIL CLASSIFICATION SHEET



PROJECT Lockport Road Landfill, Phase II, Your Project No. YQ-2040

BORING NO.

SAMPLE NO. GW-U3-01

DEPTH 0.0' to 1.4'

CLASSIFICATION Silty sand, little clay and gravel

NATURAL % MOISTURE

LIQUID LIMIT

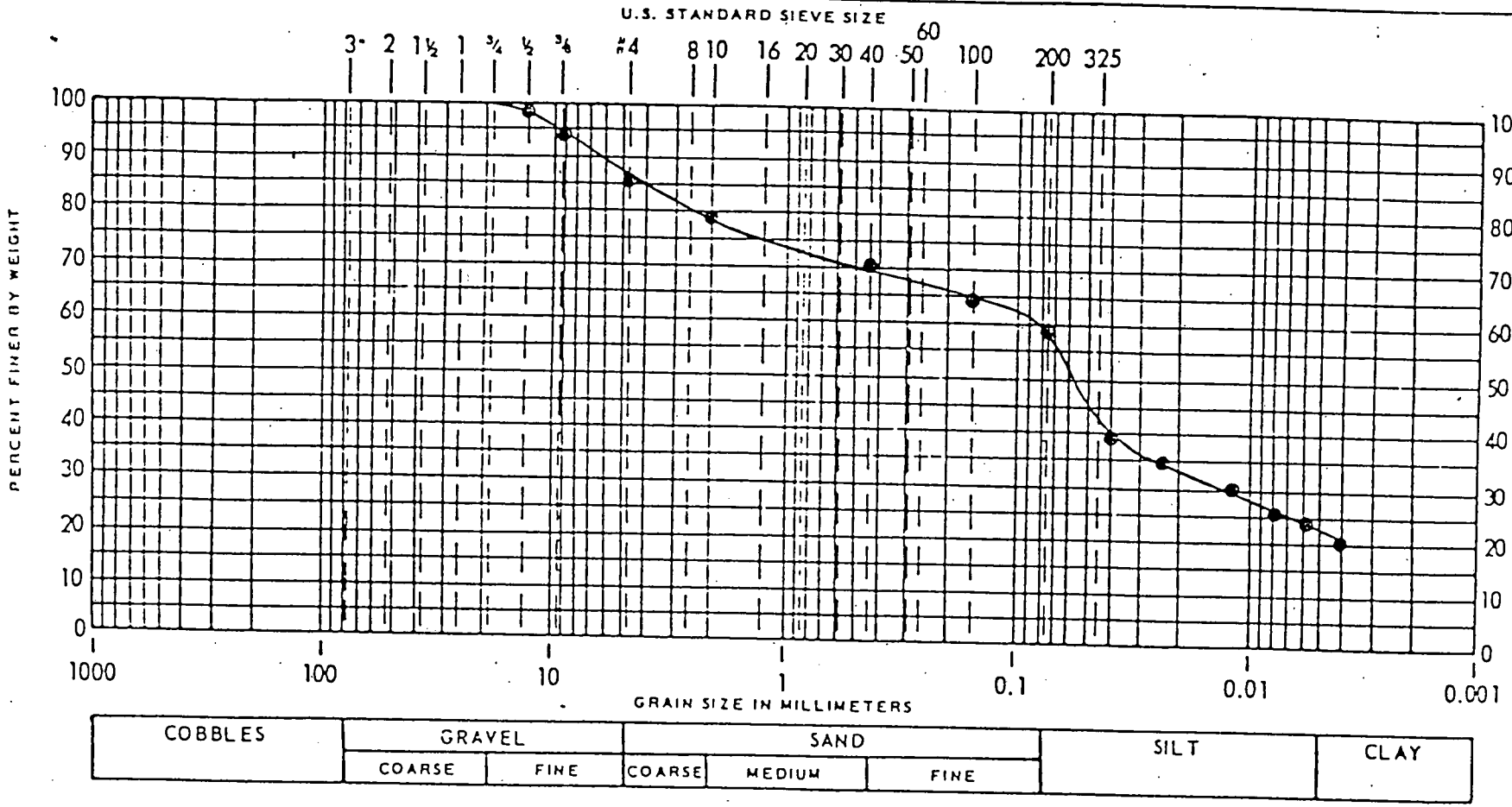
PLASTIC LIMIT

PLASTICITY INDEX

COLOR Dark brown

REMARKS Your P.O. No. 54964
T.T.L. Job No. 11420

Toledo Testing Laboratory, Inc.



PROJECT Lockport Road Landfill, Phase II, Your Project No. YQ-2040

BORING NO.

SAMPLE NO. GW-01-01

DEPTH 9.0' to 11.0'

CLASSIFICATION Clayey silt, some sand, little gravel

NATURAL % MOISTURE

LIQUID LIMIT

PLASTIC LIMIT

PLASTICITY INDEX

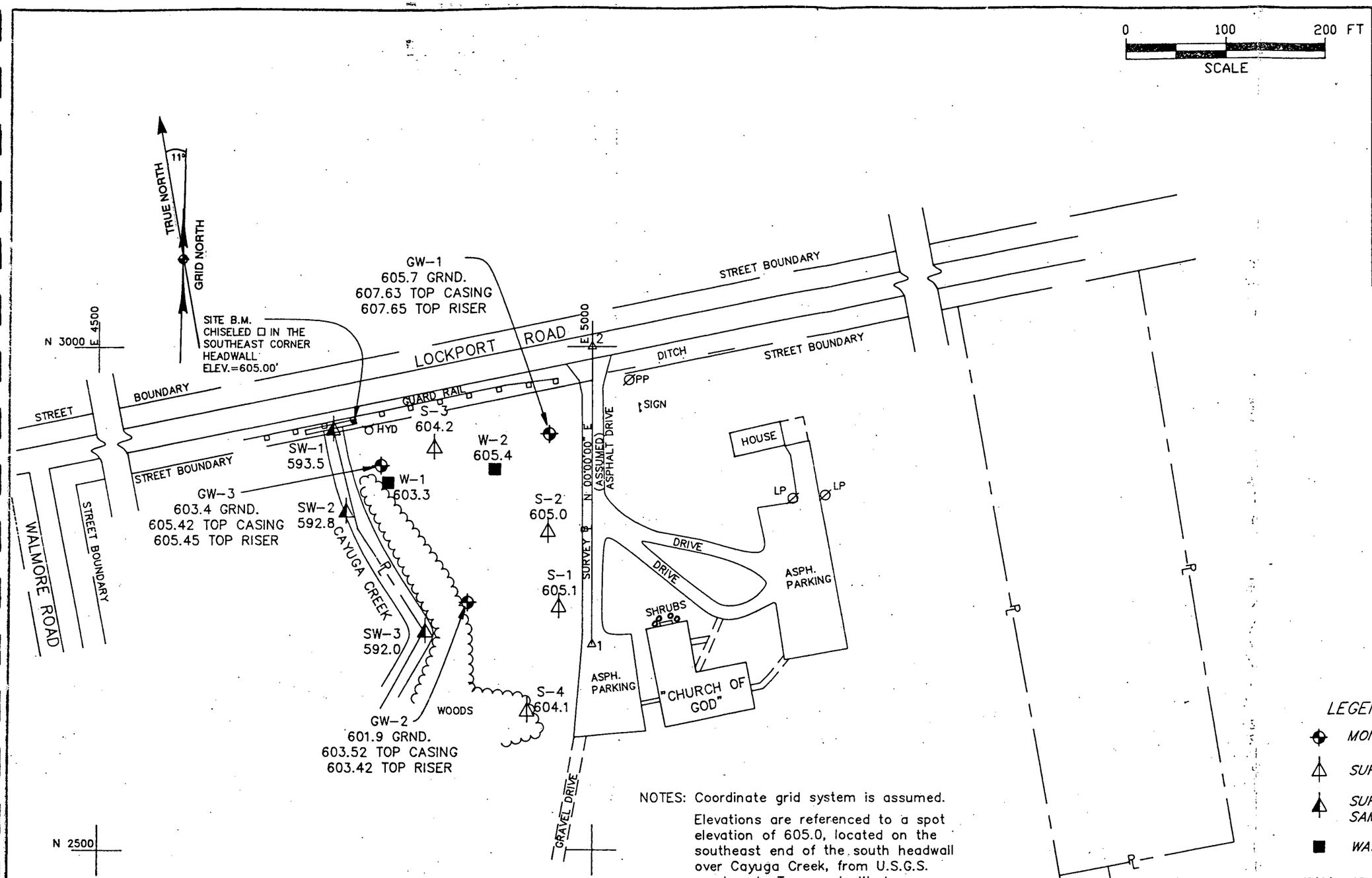
COLOR Brown

REMARKS Your P.O. No. 54964
T.T.L. Job No. 11420

Toledo Testing Laboratory, Inc.

APPENDIX F

LOCKPORT ROAD SITE SURVEY MAP



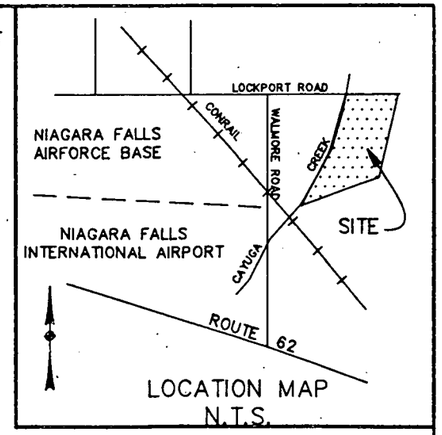
NOTES: Coordinate grid system is assumed.

Elevations are referenced to a spot elevation of 605.0, located on the southeast end of the south headwall over Cayuga Creek, from U.S.G.S. quadrangle Tonawanda West.

Site benchmark is a chiseled square in the southeast corner of south headwall over Cayuga Creek, elevation= 605.00'.

Baseline points 1 & 2 are PK nails.

Property lines shown are approximate and were derived from portions of tax maps supplied by Ecology and Environment, Eng.,P.C.



LOCATION MAP
N.T.S.

COORDINATE LIST		
NAME	NORTH	EAST
GW-1	2913	4957
GW-2	2746	4875
GW-3	2882	4787
SW-1	2917	4738
SW-2	2837	4752
SW-3	2716	4832
S-1	2741	4965
S-2	2815	4954
S-3	2899	4841
S-4	2637	4934
W-1	2865	4794
W-2	2879	4902
PK 1	2704.48	5000.00
PK 2	3000.00	5000.00

LEGEND

- MONITORING WELL
- SURFACE SOIL SAMPLE LOCATION
- SURFACE WATER/SEDIMENT SAMPLE LOCATION
- WASTE PILE SAMPLE LOCATION

REVISED: 05/10/91 LABEL NORTH ARROW, ADDED BAR SCALE, CHANGED TITLE
REVISED: 04/15/91 CHANGED COORDINATES FOR S-2

ENGINEERING INVESTIGATIONS AT LOCKPORT ROAD-STRUZIK PROPERTY Site No.932094

New York State Department of Environmental Conservation

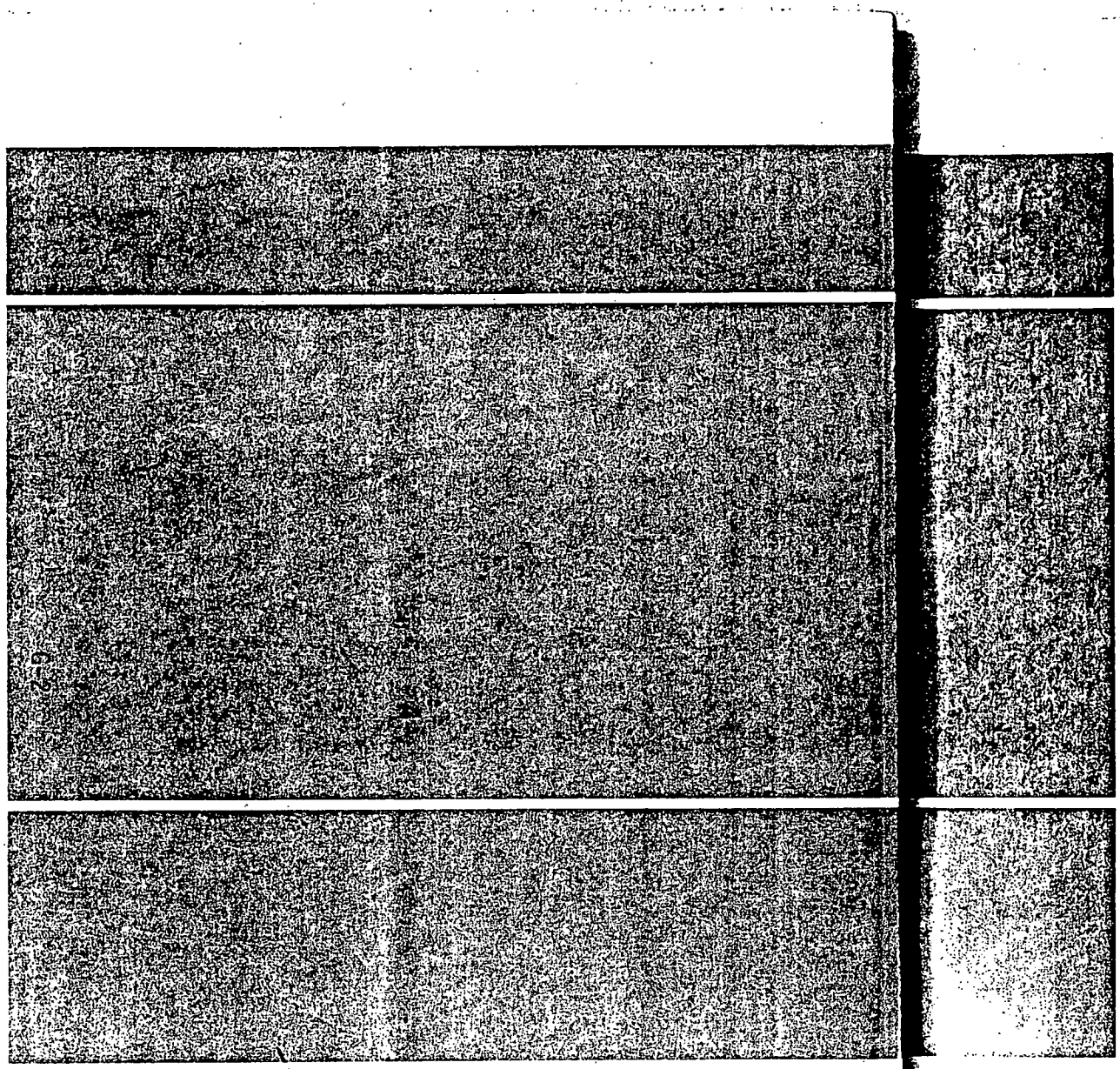
Prepared for:
Ecology and Environment Eng., P.C.
368 Pleasantview Drive
Lancaster, New York 14086

Prepared by:
OM P. POPLI, P.E.,P.L.S.
2140 South Clinton Avenue
Rochester, New York 14618
Tel. No. 716-442-6940

DATE	SCALE	SHEET
03/18/91	1"=100'	1

APPENDIX G

FIELD NOTEBOOKS



ecology and environment, inc.
International Specialists in the Environment

Job Number YQ-2020

SITE RECONNAISSANCE
Lockport Rd.

ecology and environment, inc.
Recycled Paper/569058

APRIL 19, 1990

WEATHER CLEAR & SUNNY ~60° F
STEADY 10-20 mph WEST WIND

1100 B. MEYERS, R. LEICHNER, AND M. WELCH DEPART EQE FOR WAREHOUSE TO PICK-UP SUPPLIES

1225 CREW ARRIVES ON-SITE. BOB MEYERS SPOKE WITH REV BELL ABOUT TODAY'S WORK PLANS. REV. BELL POINTED OUT PROPERTY BOUNDARIES.

1240 CREW READIES EQUIPMENT FOR THE SITE RECON AND GEOPHYSICAL SURVEYS

1250 SITE SAFETY MEETING HELD

EQE CREW PRESENT:

RAM BOB MEYERS - PROJ. MAN. GEOLOGIST
MW MICHAEL WELCH - SSO. GEOLOGIST
RL RALINDA LEICHNER - GEOLOGIST

TOPICS DISCUSSED INCLUDED

- CHEMICAL AND PHYSICAL HAZARDS
- SITE LAYOUT
- TODAY'S OBJECTIVES
- HOSPITAL ROUTE (INT. ST. MARY'S)

Michael Welch

APRIL 19, 1990

PREVIOUS ENTRY CONTINUED

- INSTRUMENTS CHECKED AND CALIBRATED FOR BACKGROUND READINGS.

1257 END OF SAFETY MEETING

1254 OVA BACKGROUND READING EQUALS 2 ppm

1300 SITE RECON BEGINS.

SITE IS A SMALL OPEN GRASSY AREA. SITE GENTLE SLOPES TOWARD THE SOUTHWEST. CAYUGA CREEK BORDERS THE WESTERN PORTION OF THE STUDY AREA.

1302 SANITARY SEWER ALONG WESTERN SITE BOUNDARY. OVA READING IS 2 ppm ABOVE BACKGROUND (AB)
CONCRETE AND STEEL REBAR PROTUDES FROM SURFACE

DUE WEST OF THE SEWER AND JUST DOWNSLOPE NEAR CAYUGA CREEK A PROTRUDING DRUM AND CARBON FILL DEBRIS IS NOTED. OVA READING EQUALS 0 ppm AB.

Michael Welch

APRIL 9, 1992

1310 GW-2 LOCATRN STAKED ~30' NW OF SANITARY SEWER

1315 NO READINGS ABOVE BACKGROUND ALONG THE ENTIRE SITE PERIMETER

1320 GW-3 STAKED AT NORTHWEST CORNER OF SITE AT THE TOP OF THE STREAM BANK / FILL SLOPE.

1325 GW-1 STAKED IN NORTHEAST CORNER OF THE SITE

1335 BOB MEYERS DECIDES TO MOVE GW-2 FURTHER SOUTH TO THE ACTUAL SOUTHERN FILL BOUNDARY. GW-2 IS ~50' DUE SOUTH OF SANITARY SEWER.

G-4

1340 CREW STAKES OUT GRID FOR GEOPHYSICAL SURVEY AROUND GW-2 PICTURE TAKING OF GRID FACING NW (1ST PICTURE) GW-2 PROPOSED LOCATION @ NODE (20, 20)

1340 CREW STAKES OUT SURVEY GRID AROUND GW-3. PROPOSED WELL GW-3 LOCATED AT NODE (10, 30) (2ND PICTURE) Typical Well

APRIL 9, 1992

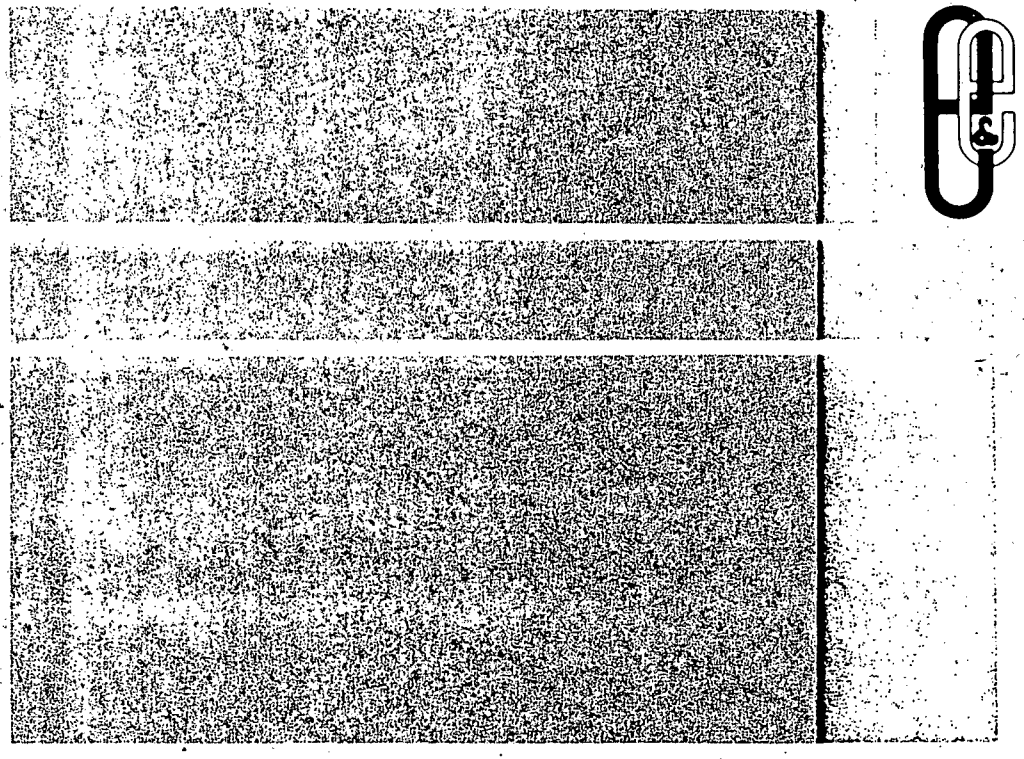
1400 CREW STAKES OUT SURVEY GRID AROUND GW-1. PROPOSED GW-1 LOCATION AT NODE (20, 20)

1530 2-photos Taken-getting picture of Grid-1
*Next Photo will be frame #6

1606 Crew departs site after completing Geophysical surveys @ Grids 1, 2, and 3. Head for office to put equipment on charge.

Robert A. Meyers

mag. survey Log.



ecology and environment, inc.
International Specialists in the Environment

Job Number YQ-2030

Lockport Rd.
NYSDEC Phase II

Magnetometer Survey Log.

mag. survey

2 4-19-90

Grid-~~2~~3 (GW-~~2~~3 location)

*Note - Grid has a true N-S, E-W orientation

Time	Node	Reading	comment
1419	BG	56473	Background area
	BG	56476	is located
	BG	56497	west of the NW
	BG	56498	corner of Church
1420	BG	56498	BG = Background
1422	0,0	56583	
	0,10	56613	Parallel to Creek
	0,20	56492	
	0,30	56367	
	0,40	56327	Next to corner creek ditch
	10,40	57707	fire hydrant, 20' N
	10,30	56485	GW-3 location
	10,20	56739	
	10,10	56632	
	10,0	56437	
1428	20,0	56494	
	20,10	56726	
	20,20	56442	
	20,30	56882	
	20,40	57108	Y axis = 40 → along ditch
1432	30,40	57821	ditch
	38,30	56451	
	30,20	56131	

Robert a Meyer

4-19-90

Grid-3 Cont

3

Time	Node	Reading	comment
	30,10	57082	
	30,0	56768	
1434	40,0	56467	
	40,10	56647	
	40,20	56866	
	40,30	56932	
1436	40,40	57937	Next to ditch
1439	B.G.	56495	Background
	B.G.	56490	
	B.G.	56509	
	B.G.	56503	
1440	B.G.	56495	

4-19-90

Robert a Meyer

G-6

4-19-90

Mag. Grid-2

Time	Node	Reading	comment
1442	BG	56498	Same BG
	BG	56480	location as
	BG	56501	Grid-3
	BG	56507	
1444	BG	56505	
1446	0,0	56613	
	0,10	56710	
	0,20	56830	
	0,30	57459	
	0,40	56375	
	10,40	55378	
	10,30	56764	
	10,20	56743	
	10,10	56732	
1451	10,0	56606	
	20,0	56632	
	20,10	56602	
1453	20,20	56787	GW-2
	20,30	56480	
	20,40	56205	
	30,40	56672	
	30,30	56517	
	30,20	57023	

4-19-90

mag. Grid-2 cont

Time	Node	Reading	Comment
	30,10	56356	
1456	30,0	56671	
	40,0	56623	
	40,0	56584	
	40,20	56461	
	40,30	56635	
1458	40,40	57243	
1459	BG	56540	Background
	BG	56504	
	BG	56523	
	BG	56500	
	BG	56506	

Robert a Meyer 4-19-90

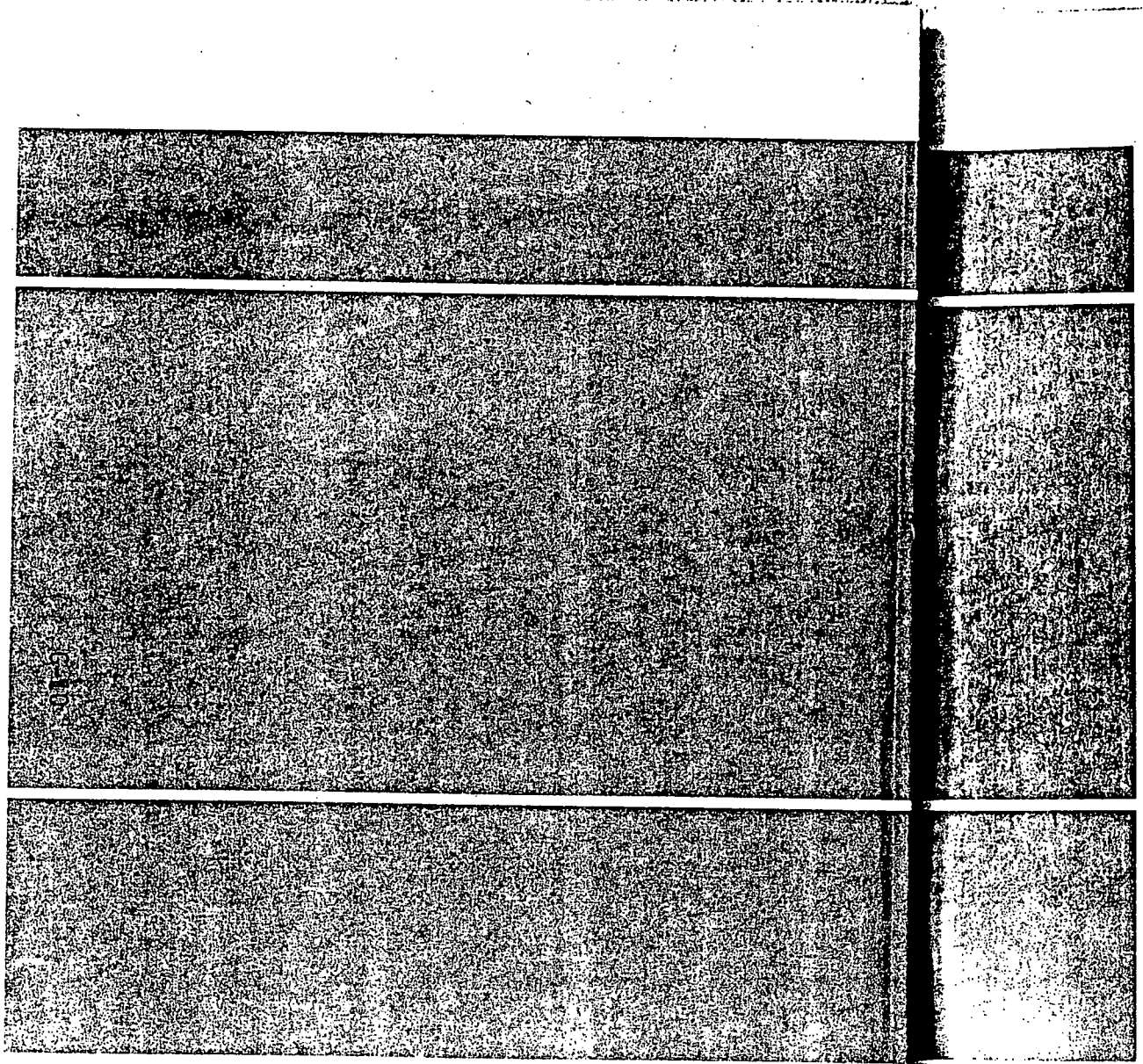
4-19-90 Mag. Grid-1

Time	Node	Reading	Comment
1513	BG	56508	Background
	BG	56498	
	BG	56499	
	BG	56517	
1515	BG	56514	

mag. Grid-1 con't 4-19-90

Time	Node	Reading	Comment
1523	40,40	57272	NEAR ROAD INTERSECTION
	30,30	56,530	
	20,20	56,287	
	10,10	56,273	
1526	00,00	56,476	
1528	30,0	56,571	
	30,10	56,564	
	30,20	56,507	
	30,30	55,774	
1531	30,40	56,540	
1532	20,40	56,472	
	20,30	56,279	
	20,20	56,276	
	20,10	56,297	
1533	20,0	56,423	
1539	86	56,553	BACKGROUND
		56,553	
		56,574	
1540		56,535	
		56,561	

TIME	NODE	READING	COMMENT
1540	10, 0	56487	
	10, 10	56393	
	10, 20	56567	
	10, 30	56143	
1543	10, 40	56275	
1545	0, 40	56,284	
	0, 30	56,062	
	6, 20	56, 327	
	0, 10	56, 288	
1549	0, 0	56, 583	



ecology and environment, inc.
International Specialists in the Environment

Job Number YQ 2030

EM Survey
Lockport Road

ecology and environment, inc.

GW-1 & GW-2

N

0,40 10,40 20,40 30,40 40,40

0,30 10,30 20,30 30,30 40,30

0,20 10,20 20,20 30,20 40,20

0,10 10,10 20,10 30,10 40,10

0,0 10,0 20,0 30,0 40,0

GW-3

N

0,40 10,40 20,40 30,40 40,40

0,30 10,30 20,30 30,30 40,30

0,20 10,20 20,20 30,20 40,20

0,10 10,10 20,10 30,10 40,10

0,0 10,0 20,0 30,0 40,0

4/19/90

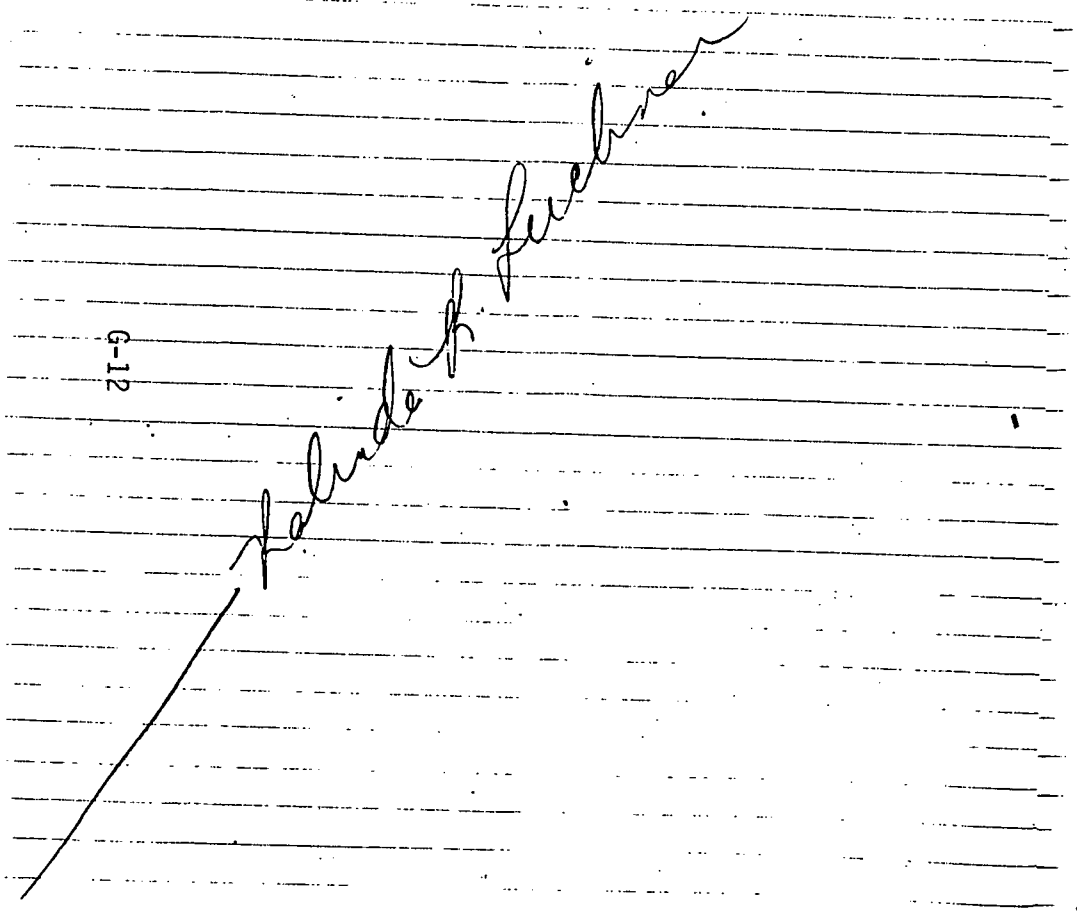
1413 Background station 90' RL of NW RL corner of church
15 vertical
13.5 horizontal
for both N-S and E-W

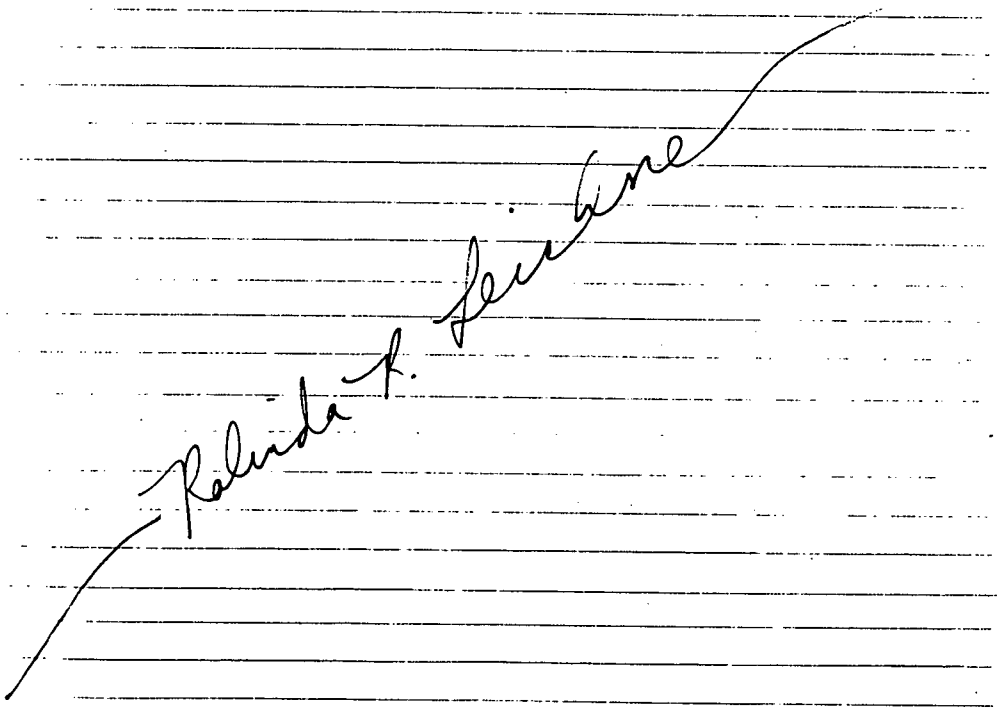
1420 GW-2

Node	N-S Vert.	N-S Horiz.	E-W vert.	E-W Horiz	Comment
0,0	12	11	12	10	along creek
0,10	15	13	13	12	"
0,20	16	16	15	13	"
0,30	19	24	17	19	"
0,40	30	34	24	27	"
10,40	33	38	31	37	near sewer
10,30	26	26	24	26	
10,20	16	19	17	18	
10,10	16	15	15	13	
10,0	14	13	13	12	
20,0	16	15	15	14	
20,10	18	17	18	17	
20,20	19	18	20	22	Proposed GW-3 well lo
20,30	29	25	26	30	
20,40	45	38	39	47	near sewer
30 RL,40	75	100	65	74	near sewer
30,30	34	36	32	40	
30,20	18	21	19	25	
30,10	18	21	17	19	
30,0	16	19	15	17	
40,0	17	17	16	17	
40,10	21	16	19	16	
40,20	26	20	27	24	
40,30	38	49	42	76	
40,40	190	245	200	240	

Rabinder Leicher

4/19/90
1441 Finish GW-2 grid.
Anomalous readings in mounded area in southern half of ~~site~~ grid.
GW-2 grid oriented N-S/E-W with 0,0 at SW corner
Eastern line along creek bank, northern line closest to sewer.
Readings came down from high at node 40,40 to mid 100's less than 10' from sewer
Readings approach background in leveler southern half of grid.





4/19/90

GW-3

Node	N-S Vert.	N-S Horiz.	E-W Vert	E-W Horiz.	Comments
0,0	25	19	21	28	Along Creek
0,10	27	25	20	16	"
0,20	25	19	23	14	"
0,30	21	18	24	17	"
0,40	23	20	27	23	"
10,40	24	30	34	24	Near ditch
10,30	34	35	37	24	Proposed well location GW-6
10,20	39	41	38	25	
10,10	48	46	42	49	
10,0	62	125	77	145	
20,0	200	175	230	185	
20,10	70	140	62	110	
20,20	63	130	48	52	
20,30	60	145	40	52	
20,40	41	110	36	65	Near ditch
30,40	95	110	140	150	"
30,30	280	190	200	210	
30,20	300	190	170	145	
30,10	245	210	150	200	
30,0	310	260	330	220	
40,0	275	420	280	360	
40,10	390	390	380	380	
40,20	520	340	480	330	
40,30	430	300	420	320	
40,40	90	150	250	220	Near ditch

Calibrated by Fletcher

5/14 GW-3 grid finished. Grid oriented N-S/E-W with 0,0 node in SW corner. Eastern line was along creek bank and northern line was along ditch running parallel with Lockport Rd.
Calibrated by Fletcher

4/19/90

1516 GW-1

	N-S		E-W		
Node	Vert.	Horiz	Vert.	Horiz	Comments
0,0	660	560	710	700	
0,10	420	445	555	450	
0,20	250	430	300	430	
0,30	95	175	155	200	
0,40	130	68	160	70	Along ditch
10,40	94	34	125	38	close to sewer
10,30	100	70	118	120	
10,20	135	270	115	190	
10,10	140	300	190	355	
10,0	350	400	255	410	
20,0	82	170	62	100	
20,10	84	150	85	120	
20,20	110	90	98	78	Proposed well location GW-
20,30	83	51	74	68	
20,40	74	32	94	38	Along ditch Near Sewer
30,40	54	30	72	45	
30,30	40	48	50	60	
30,20	72	52	68	42	
30,10	53	59	54	58	
30,0	64	51	71	50	
40,0	42	38	44	35	
40,10	46	38	46	42	
40,20	48	34	49	32	
40,30	52	25	57	36	
40,40	46	22	64	34	

1544 Finish GW-1 grid. Oriented N-S/E-W with OP node at SW corner. Northern line

Rolinda Fletcher

Rolinda Fletcher

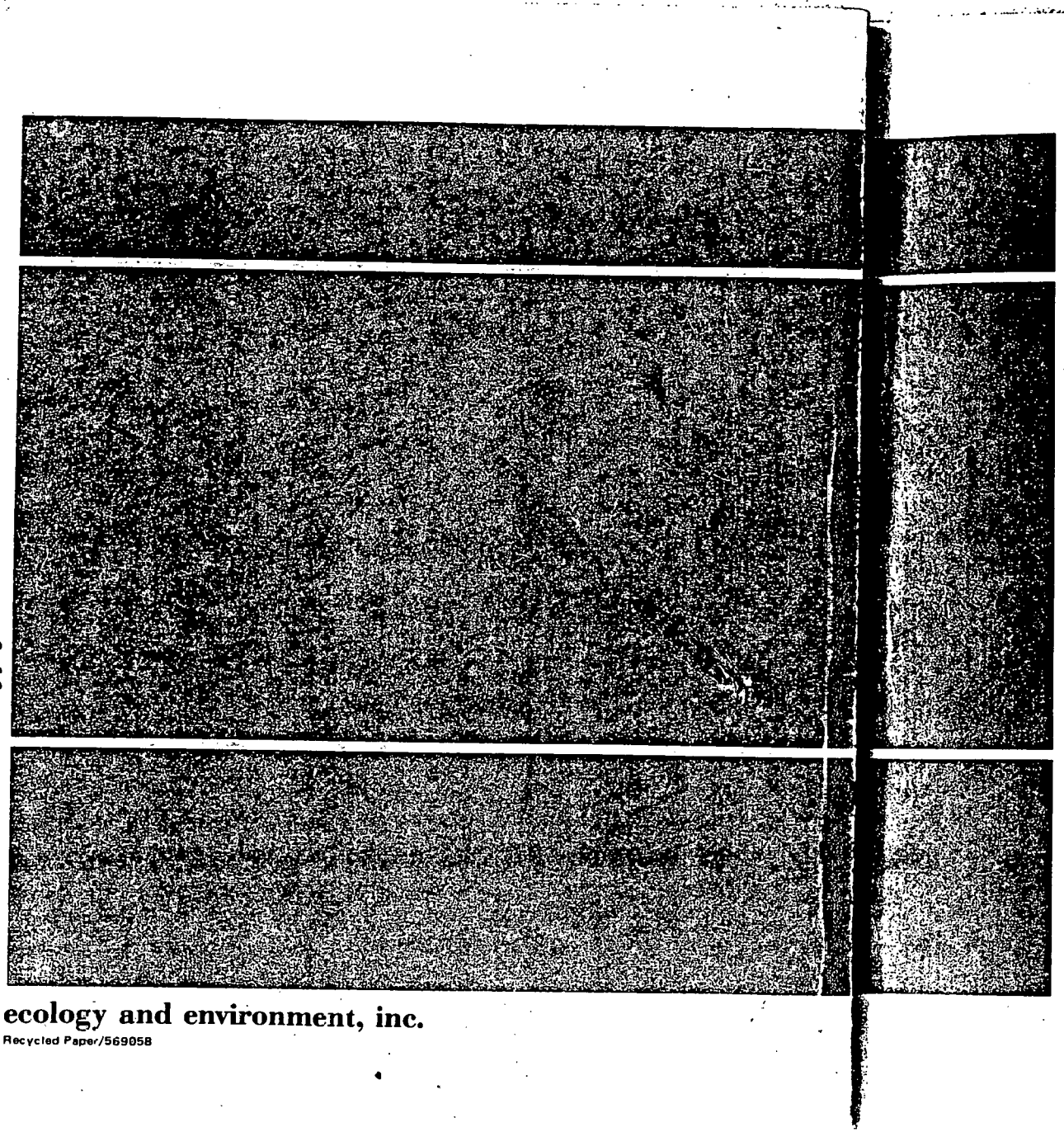
G-14

4/17/90

along ditch parallel to Lockport Rd.

Kalinda K. Leichner

Kalinda K. Leichner



ecology and environment, inc.
International Specialists in the Environment

Job Number YQ-2040

LOCKPORT ROAD LANDFILL
(NYSDEC PHASE II)

DRILLING

ecology and environment, inc.

8-27-90 MON YQ-204 J.R.

0915 JIM RICHERT, EYE GEOLOGIST
JOHN HOOD EYE HEALTH + SAFETY
~~DEBBIE RACE~~ EYE HEALTH + SAFETY TRAINEE

DEPART HEADQUARTERS.

0930 RICHERT + RACE PICK UP RENTAL VAN FROM ACTION RENTAL.

0945 RICHERT, RACE + HOOD MEET AT EQUIPMENT WAREHOUSE TO PICK UP EQUIP.

1015 EYE DEPARTS WAREHOUSE TO ROYALTON LANDFILL SITE - YQ-204 TO MEET DRILLERS.

JR 1130 EYE ARRIVES AT ROYALTON LANDFILL. DRILLERS ARE HERE AND READY TO MOVE TO SITE.

1140 EYE AND DRILLERS DEPART TO SITE

1215 DRILLERS + EYE ARRIVES ON SITE

1220 All WALK SITE & TO LOCATE 3 WELL STAKES

1230 EYE DEPARTS TO PHONE + DRILLERS TO LUNCH

1240 RICHERT MAKES 3 PHONE CALLS.

① MRS. BELL (REVEREND BELLS WIFE) SITE CONTACT REV NOT HOME BUT MAY VISIT SITE SOON

② WHEATFIELD WATER DISTRICT 693-4763
THEY SAID TO USE WATER FROM A HYDRANT THE DRILLERS will NEED A PERMIT WHICH CAN BE OBTAINED AT 3113 NIAGARA FALLS BLVD BEFORE 4:30 P.M.

③ TOWN OF WHEAT FIELD SEWER DEPT. 692-350 RICHERT DJR LEAVES A MESSAGE ON RECORD FOR A REPRESENTATIVE TO COME OUT ON SITE + MARK THE LOCATION OF SANITARY SEWER LINE J. Richert.

8-27-90 MONDAY YQ-204 J.R.

1310 EYE ARRIVES BACK ON SITE.

1315 SITE CONTACT, REV. BELL ARRIVES ON SITE GIVES OK TO DRILL, STORE RIG + EQUIP. REV. BELL SHOWS RICHERT + DRILLERS THE LOCATION OF KNOWN BURIED UTILITIES. HE SAYS ALL 3 LOCATIONS ARE CLEAR. TO THE BEST OF THE REV. BELL'S KNOWLEDGE.

1330 NIAGARA CO. WATER AUTHORITY REP. DAVID HASELEY ARRIVES ON SITE + GIVES THE OK FOR ALL 3 PROPOSED WELL LOCATIONS, HOWEVER IT APPEARS THAT GW-2 MAY BE OVER OR CLOSE TO THE NYS TRENDING SEWER LINE.

1340 JANE THAPA OF NYSDEC ARRIVES ON SITE

1355 THAPA DEPARTS TO PHONE

1400 EYE DEPARTS TO BUY GATERADE + DRIVE ROUTE TO HOSPITAL. + TRY TO SPEAK TO A SEWER AUTHORITY REP NO PERSONAL ANSWER

1430 EYE ARRIVES BACK ON SITE - ST. MARY'S HOSPITAL IS 20 MINUTES AWAY. THAPA IS ON SITE

1445 EYE CONDUCTS A SITE SAFETY MEETING
WEATHER: SUNNY + HOT + HUMID 85°F
WINDS OUT OF WEST. 10-15 mPH
GOALS FOR TODAY MOBILIZE TO SITE COMMENCE DRILLING TASK

1500 EYE UNPACKS + STARTS UP OVA, MMI, EXPLOSIMETER, RAD-MINI + MINI-RAM.

1520 BEGIN DRILLING AT GW-1

DRILLERS ARE LEE PENROD DRILLER
AND ~~DERRICK~~ JR DEREK GRIEVE HELPER

G-17

8-27-90 MONDAY YQ-2040 1/2

AT 1615 HIT REFUSAL AT 11.5' NO WATER IN HOLE, will CORE w/ HQ SIZE

1702 BEGIN CORING HQ SIZE CORE AT=11.5'

1720 GETTING WATER RETURNS

1748 DRILLER PUMPS WATER + CHECKS FOR A WATER RISE

1749.5 WATER CAME up 0.1'

1751.5 WATER CAME up ANOTHER 0.1'

1900 WATER STOPPED ENTERING HOLE

1805 DRY ON BOTTOM, meaning that did enter hole must have been from tubing etc.

will set 3" PVC casing into rock socket + make hole a bedrock well

1815 DRILLERS BEGIN SETTING 3" PVC

1848 JANE THAPA OF NYSDEC DEPARTS SITE FOR THE DAY.

1852 HOLE w/ 3" PVC GROUTED TO SURFACE

1900 WELL is COMPLETED + LOCKED.

1906 EtE DEPARTS SITE FOR DAY.

1940 EtE ARRIVES AT H.Q.

1945 PUT OVA, HNU, EXPLOSIMETER, + MINI-RAM ON CHARGE AT EMERGENCY RESPONSE CENTER of H.Q.

1955 ALL DEPART HQ TO EQUIP. WAREHOUSE.

2010 EtE ARRIVES AT EtE EQUIP. WAREHOUSE

2015 EtE DEPART WAREHOUSE TO HOME.

J. Rechert

G-18

TUESDAY 28 AUGUST 1990

WEATHER: Overcast, very humid, expected high 85°F, chance of T-storms.

PERSONNEL: Rick Wott - E+E FTL/Geologist
Debbie Race - E+E SSO Trainee

0800 Rick + Debbie met @ E+E + loaded up the equipment. Find Tom Siener to get safety officer. Dink Lee is supposed to join us.

0900 Can't find Dink so Debbie + I leave. Stop to purchase ice + supplies.

0950 Arrive @ Lockport Rd. site.

1015 Begin drilling GW-3.
American Augers Drilling: Lee Penrod
Derek Grieve
NYSDEC Albany - Jane Thapa
Begin by Augering w/ 4.5" augers. + split spooning.

1040 Dink Lee arrives. E+E SSO.

1130 Hit bedrock @ 13.5'. Will core 5' + see if we have water (there was ~1/2' of saturated soil on top of bedrock). If there is no bedrock water in the top 5' we will grout in the 3" pvc casing.

1140 Begin HQ core run #1. 13.5-18.5'

1213 End core run #1.
Lee pumps drilling water from hole + checks water level. water is raising 0.2'/10 sec. @ 14' BGS.

1240 WL: 8.7' BGS + still rising slowly. Will set 10' of screen + 10' of riser. Using 2" ID schedule 40 PVC risers

1250 After deconning the screen + riser, drillers pull HQ bit out of hole. HQ cuts a 4" hole.

1255 Begin pouring sand. will pour sand to 7'.

R. Wott 8-28-90

TUESDAY 28 AUGUST 1990

1335 Finished pouring 2' of bentonite pellets. There was plenty of standing water in the hole for them to hydrate. Let them sit + hydrate for a while.

1400 Finished pouring cement/5% bentonite grout to surface + top it off w/ a protective casing.

1405 Drillers pull away from the well + begin decon.

1450 Finish decon + move to GW-2. Drilling location was moved approx. 10' E of stake due to sewer line near stake

1510 Begin GW-2. Will spoon continuously due because it is downgradient

1600 Hit bedrock @ ~~13.3'~~ 12.3', set in HQ core bit.

1616 Begun coring.

1640 Finish coring - cored to 16.5'

1645 Begin pumping water from hole to check for recharge.

After pumping out drill water, managed to pump a steady rate of 2.3 gpm.

1700 WL = 8.0' BGS.

Will set 7' of screen.

1710 Thunder + Lightning begin. Will set well tomorrow.

1730 All leave site.

1810 Rick returns to E+E + sets equipment on charge

E.W. Ward

WED 8-29-90 YQ-2040 J.R.

0700 RICHERT + LE MEET AT E+E HEADQUARTERS + PACK UP AIR MONITORING EQUIPT LEFT ON CHARGE OVERNIGHT.

0715 E+E (RICHERT + LE) DEPARTS HEADQUARTERS TO SITE

0750 E+E ARRIVES ON SITE - DRILLING CO. ON SITE

0800 DRILLERS BEGIN CONSTRUCTING WELL GW-2

TOTAL DEPTH = 16.5' JR

BEDROCK IS AT 12.3' JR

A 7' PVC SCREEN IS AT 16.5 TO 9.5'

SAND PACK is 16.5' UP TO 8.5'

WEATHER: SUNNY, CLEAR, COOL, CALM 65°F

FORECAST SUNNY, HIGH of 75°F

GOALS FOR TODAY: ① CONSTRUCT GW-2 AS AN INTERFACE WELL

② FINISH CORING (NQ size) GW-1 A BEDROCK WELL

③ BEGIN DEVELOPMENT OF WELL GW-3

④ COLLECT A DRILLING WATER SAMPLE.

0802 DEBBIE RACE OF E+E HEALTH + SAFETY TRAINEE

0810 JANE THAPA OF NYSDEC ARRIVES ON SITE.

0822 E+E DEPARTS TO PHONE TO CALL REV. BELL TO ASK IF WE CAN GET WATER FOR DRILLING FROM HIS CHURCH

0830 RICHERT SPEAKS WITH REV. BELL WHO SAID THE DRILLERS CAN GET WATER FROM THE CHURCH ITS COUNTY WATER, + HE will BE OUT ON SITE AT 0900 TO OPEN CHURCH FOR WATER OUTLET.

0845 E+E ARRIVES AT TOPS MARKET TO BUY ICE + GATORAID + PAPER TOWELS.

0900 ARRIVE AT SITE, REV. BELL CONNECTS WATER HOSE IN CHURCH + SAID WATER IS COUNTY WATER SYSTEM FED, NYSDEC REP. GIVE APPROVAL TO USE THIS SOURCE FOR DRILLING SOURCE.

0905 until GW-2 is COMPLETED.

J. Richert

8-29-90 WED YQ-2040 J.R.

0910 DRILLERS BEGIN FILLING WATER TANK + well simultaneously & steam clean.

0915 NOTE: UP TO THIS POINT, ALL WATER USED BY DRILLERS ON THIS SITE WAS OBTAINED ~~FROM~~ FROM THE TOWN OF ROYALTON FROM THE PREVIOUS PHASE II SITE YQ-2000 ROYALTON LAND FILL. THIS WATER SOURCE WAS SAMPLED FOR THAT JOB + WILL NOT BE RE-SAMPLED FOR THIS SITE. FOR THIS REASON IT IS IMPORTANT THAT THE ANALYTICAL RESULTS FOR THE ROYALTON SOURCE BE INCLUDED IN THIS SITES FINAL REPORT IN ADDITION TO THE ANALYTICAL RESULTS OF THIS SITES WATER SOURCE (THE CHURCH HOSE). BOB

0940 STEAM CLEANER WAND IS BROKEN, DRILLERS DEPART SITE TO BUY A PART.

0950 RICK WATT of EVE ARRIVES ON SITE TO DELIVER BOTTLES FOR DRILL WATER SAMPLE AND A CARDBOARD BOX FOR CORES.

1020 RICHERT DECONS'S BAILER & ROPE w/ ISP, METHANOL + DI WATER

1030 NYSDEC REP GIVES VERBAL APPROVAL TO DEVELOPE GW-3 NOW INSTEAD of AT 1400 (24 HRS AFTER COMPLETION)

1035 DRILLER ARRIVES ON SITE, w/ PART TO FIX STEAM CLEANER.

1040 EVE ARRIVES AT GW-3, CAP IS LIFTED OFF + OVA READS 1 PPM ABOVE BACKGROUND

1045 SEARCH OF VAN, REVEALS THAT PH/TEMP/COND METER AND TURBIDITY METERS ARE NOT IN VAN.

1050 RICHERT CALLS EQUIPT. WAREHOUSE, TAKES TO ED. + GAVE MESSAGE TO PETE TO HAVE METERS READY, WE WILL SEND DEBBIE RACE TO PICK UP METERS. J. Richert

8-29-90 WED. YQ-2040 J.R.

1100 DEBBIE RACE DEPARTS in REC CAR TO PICK UP METERS.

1105 CHECK GW-3 WATER AT 7.0' BGS TOTAL DEPTH IS 17.9' = A 10.9' WATER COLUMN. 1 WELL VOLUME = 2.1 GALLONS

1155 SAME THARA DEPARTS SITE FOR LUNCH

1155 OVA FROM GW-1 = ORPM. DRILLERS SET UP OVER GW-1 + GET READY TO CORE

1230 DEBBIE RACE RETURNS ON SITE w/ FULOVA + DEVELOPMENT METERS. AT ≈ 1220 DEC REP RETURNS ON SITE.

1230 GW-1 BEGIN NQ CORING AT 15.5' CORED OUT ≈ 2' of SOLID GROUT BEFORE REACHING BOTTOM. Recovered 11" of BOLOMITE IN 2 PIECES

330 MOVE TO GW-3 TO DEVELOPE WATER LEVEL IS AT 7.0'

1340 BEGAN DEVELOPING WELL GW-3

TIME	VOL GAL	TEMP. °F	PH	CONDUCT X 1000	TURB NTU's	COMMENTS
1340	0	69.3	7.47	1.96	>200	
1345	1	66.5	7.40	1.65	>200	
1348	3	65.2	7.32	1.72	>200	
1352	5	65.0	7.23	1.87	>200	
1400	10	65.5	7.23	1.98	>200	
1408	15	62.5	7.17	2.05	>200	
1415	20	66.7	7.20	2.03	>200	
1423	25	66.5	7.20	2.08	>200	
1431	30	66.0	7.30	2.06	>200	
1437	35	64.2	7.20	2.02	>200	
1444	40	65.0	7.20	2.16	>200	
1453	45	68.4	7.13	2.10	>200	

J. Richert

G-20

WED 8-29-90 YQ-2040 JR.

GW-3 development (continued)

Time	Vol gal	Temp °F	pH	Conduct X1000	Turbid NTU	comments
1509	50	65.0	7.40	2.07	>200	
1517	55	68.0	7.18	2.14	>200	
1525	60	66.0	7.20	2.23	>200	
1533	65	68.0	7.20	2.36	>200	
1540	70	68.8	7.34	2.26	>200	

1450 check water level of GW-1 at 9.4' bgs
TOTAL DEPTH 21.5' = 12.1' of water or 4.44 GALLONS.

1455 BEGIN DEVELOPING GW-1
JR

TIME	VOL GAL	TEMP °F	PH	COND x1000	TURBIDITY	COMMENTS
1455	0	65	7.02	1.57	131	INITIAL
1459	1	64.9	7.62	1.50	153	
1501	2	64.5	7.63	1.50	173	
15:03	3	61.9	7.42	1.55	113	
1508	5	61.0	7.50	1.75	>200	
1521	7.5	61.5	7.20	1.83	98	
1534	10	62.0	7.45	1.86	77	
1548	12.5	64.0	7.29	1.88	67	
16:03	15	63.0	7.24	1.94	42	
1620	17.5	63.0	7.24	1.99	35	
1635	20	62.0	7.30	1.97	~~61~~ 54	END DEVELOPING

Cont

WED. 8-29-90 YQ-2040 JR.

1700 NYSDEC & ETE DEPART SITE FOR DAY
1701 DRILLWATER SAMPLE WAS COLLECTED FROM TANK ON BOX TRUCK AT 1545
1720 ARRIVE AT ACTION VAN RENTAL TO CLOSEOUT CHARGE TO YQ-2040 & OPEN FOR NEXT JOB
1755 DELIVER WATER SAMPLE DW-1 TO ETE'S ASC.
1605 FILL UP GAS TANK OF VAN
1610 ARRIVE AT ETE ASC.

JR

Thursday 30 August 1990

WEATHER: Clear, calm, 90% humid, 80°F

PERSONNEL: Rick Watt - FTL
Lee Penrod - American Auger - Driller
Derek Grieve - " " - Helper

0730 Rick arrives @ E&E to pick up van & equipment.

0750 Rick arrives @ ESC to transfer equipment to Machias job # for this afternoon & to have the HNu repaired.

0900 Rick arrives on site. Drillers are packing up their gear. Derek installs weep holes in protective casing while Rick & Lee set up to develop GW-2.

0915 Jane Thapa (NYSDEC) arrives on site.

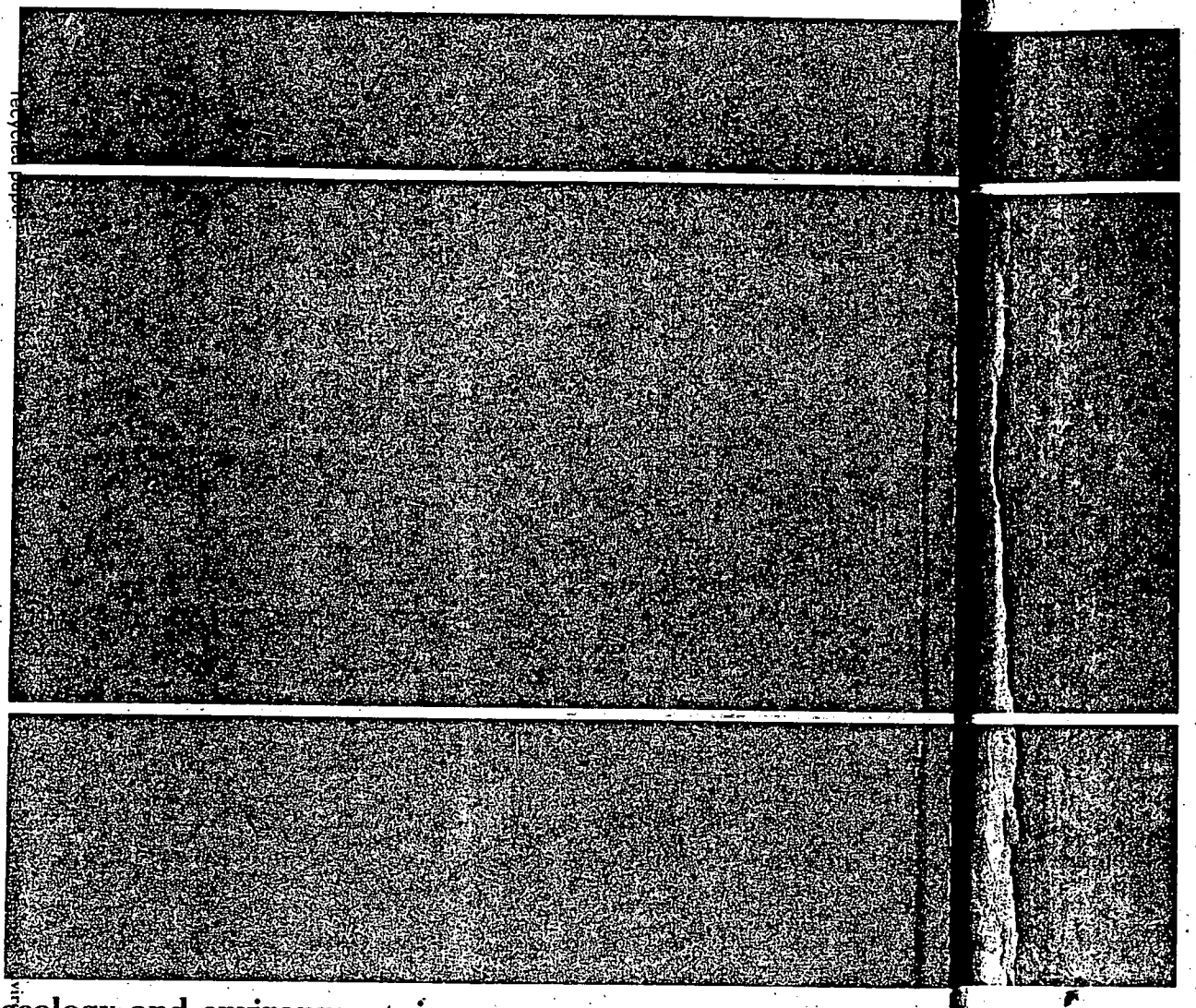
TIME	VOLUME	TEMP.	pH	COND.	TURBIDITY	
0930	INITIAL	59.4	6.87	1240	>200	
0933	1 gal	59.6	7.44	1008	>200	
0935	2 gal	59.2	7.50	1023	>200	
0936	3 gal	58.6	7.55	1052	>200	
0939	5 gal	58.6	7.23	1026	>200	
1002	7.5 gal	58.8	6.85	1179	>200	
1040	10 gal	63.1	6.53	1090	>200	
1111	12.5 gal	70.5	7.08	1455	>200	
1130	13.5 gal	69.7	7.15	1440	>200	Complete

Thursday 30 August 1990

0920 Initial water level = 7.95' TOC
TD = 18.25' TOC
∴ 1 well Volume = 1.7 gal

1135 Pack up equipment to leave site.

1230 Rick returns to E&E



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Site Safety Log

Job Number YQ 2040

Lockport Road Landfill -
Chemical Road Yard

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8-27-90 Lockport Landfill

12:15 Team arrived on site. Members were Jim Richter, Debbie Race, John Head. Weather is hot, humid ≈ 70°F, Sunny w/ light variable winds. American Augers D. Iching is the drill team. They have 1 driller & 1 helper on-site.

12:30 Team scouts the site for location of drilling stake sites that were predetermined. Cone can't be found. Jim will call Reverend Bell (Site contact) for location of MW-2

1300 Jim calls Rev. Bell & reaches his wife. She will pass message to him when he arrives. Team returns to site

1315 Team located MW-2. All well locations are found.

1320 Rev. Bell arrives on site & O.K.s drilling activities. Points out utility locations. Jim also called Water Dept. They will come out as soon as possible.

1330 Drillers begin setting up rig and unloading it off of flat bed truck

1340 Water dept. officials arrive on site.

1345 Jane Thom arrived from DEC. She will speak w/ Jim.

1350 Stakes aren't in way of water line

1405 Drillers begin decanning drill rig.

1415 Team drove route to hospital & picked up gasoline @ local shops on Military Rd. It was about 8 miles & 10 min.

1445 Drillers are ready to begin.

8-27-90 Lockport Landfill

1500 Conducted a site safety meeting.

1615 Brother Head, Race, Richter calibrated monitoring equipment. Background levels are < 1ppm on OVA & HNU. Minirad background is .00 mg/m³. Minirad @ 0 mR/hr.

1530 Sample S1 split spoon sample was taken. It had no elevated organic vapor readings w/ OVA (< 1ppm) and HNu (< 1ppm).

1545 Sample S2 split spoon sample was taken. It had no elevated organic vapor readings w/ OVA & HNu were < 1ppm (4' → 6')

1555 Sample S3 split spoon sample was taken (9'-11'). It had no elevated organic vapor readings w/ OVA & HNu. (both < 1ppm)

1615 Sample S4 split spoon taken (11' → 11.75'). No elevated organic vapor reading w/ OVA or HNu. (both < 1ppm.) Drillers had refusal @ 11.75' Considering core drilling. WC

1625 Jim ran water level indicator into drill hole. No water.

1630 Drillers are preparing for HQ size core drilling.

1655 Drillers have put together drilling bit & are getting ready to begin coring.

1730 Drillers stopped drilling & pulled out core. No OVA reading in hole or from sample. Hole is 15.5'. They are 5' into beg. bedrock.

4

8-27-90 Lockport Road

1745 Drillers began pumping water from drill hole.

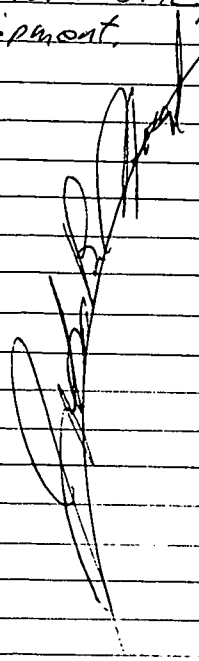
1750 Drillers began checking hole for water level.

1815 Jim decided that their wasn't any water level reached. Drillers will install well & grout hole.

1830 Workers inserted PVC pipe into hole & began grouting pipe hole.

1900 Workers installed permanent cap & locked cover.

1915 Team left site, went to office to change equipment.



G-25

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9/28/90 Lock port Rd Landfill

0955 Team arrived on site: Rick Watt, Debbie Race weather humid, overcast, ~80°F, ~~no wind~~ light variable wind. Driller has already set up rig at GW-3

1005 Instruments (OVA, HNU) calibrated.

1015 Driller begins.

1020 First Split Spoon taken. No elevated readings with OVA.

1145 Split spoon #2, No elevated readings with OVA and HNU

1120 Split Spoon #3. No readings with OVA above background.

1130 Drillers prepare to do core drilling

1145 Core drilling begins - 13.5'

2:0 Drillers pull out core, Hole depth is 18.5' No OVA readings from hole or sample. Driller pumps water from hole and checks water level, water slowly rising. Driller begins ~~#~~ installation of interface well.

1505 Well is completed. Driller moves rig and begins deconning

1450 Deconning is finished. Driller moves rig to GW-2 location.

1515 Split Spoon #1. No elevated OVA or HNU readings

~~1520~~ Split Spoons #2 to #7, No elevated OVA readings

1400 Hit Bedrock ~~13.5 Ft.~~ 12 ft.

DJ Race

6

8/28/90 Lockport Rd Landfill

1615 Coring Begins.
1635 Driller pulls core (4.5 ft long).
1645 Drillers pump water from hole, then check recharge rate.
1710 Shutting down because of Lightning. Will install well tomorrow.
1725 Left site.

Deborah Race

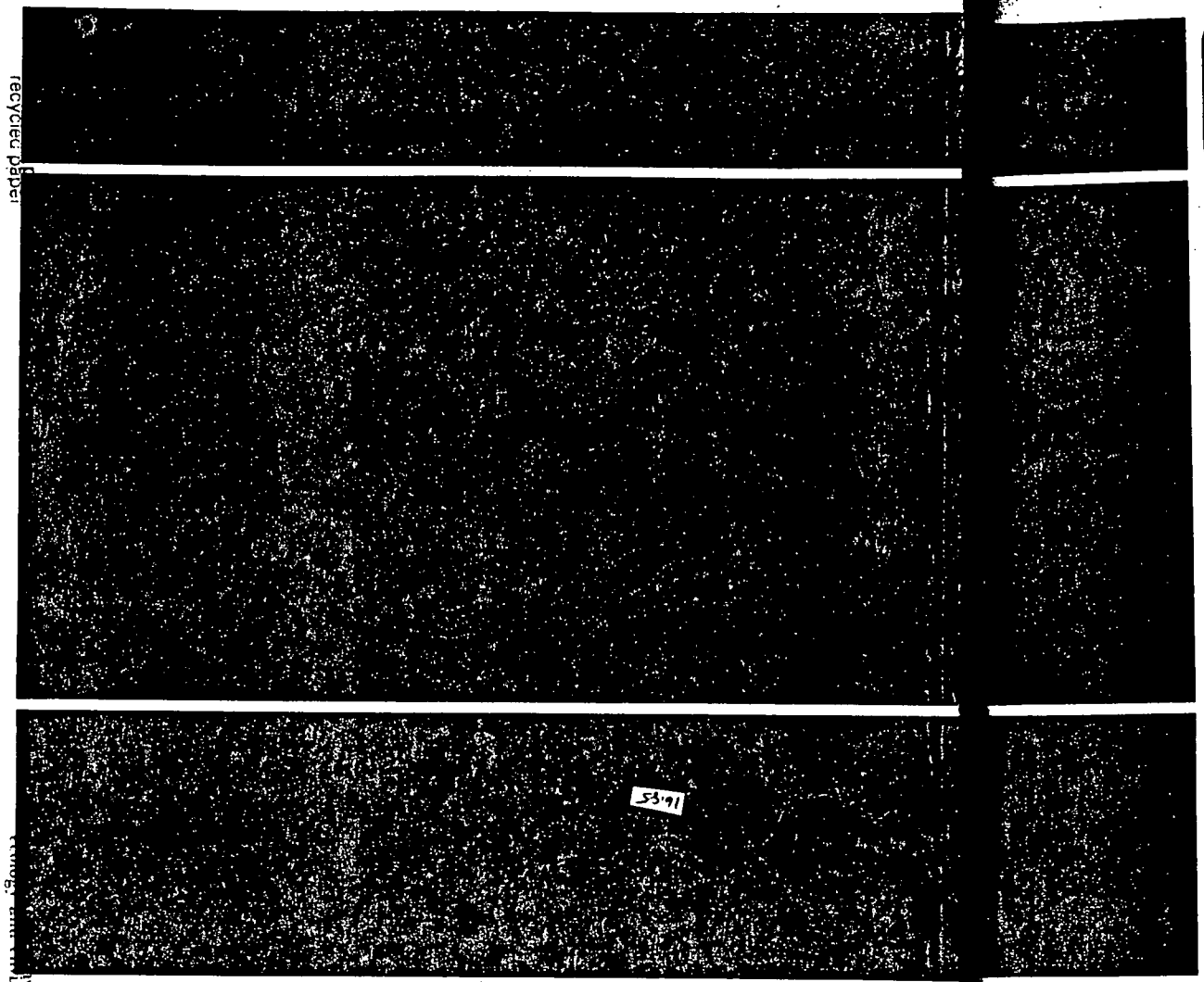
8/29/90 Lockport Rd Landfill

0750 Team arrived at site. Members are Jim Richter, Dinh Le, and Debbie Race.
Weather is cool ~70°F. Clear, Sunny. Light variable winds.
Drillers were on site when we arrived.
Driller begins installation of well.
0810 Jane Thapa of DEC arrived at site.
0900 Well has been completed. Driller moved rig. Driller decons equipment.
Driller left site to buy a part.
1 Driller moved rig to GW-1
1230 Driller begins ~~drilling~~ coring. Hnu reading 0
1240 OVA reading of core is 0 PPM.

1340 Begin developing GW-3
0 gal Sample Hnu reading is 0
1 gal Sample Hnu reading is 0
at well Hnu reading is 0
1455 Begin developing GW-1
1540 Finished developing GW-3
1630 Finished developing GW-1,
1650 Left site

Deborah Race

G-26



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Job Number YQ-2060

Lockport Rd Landfill
Sampling

Wednesday 9/20/90 Clouds + sunshine/expect high 65°

0830 Field team of Bob Meyers and Scott Straus met and discussed plans/supplies for sampling effort.

0900 Field team left HQ to go to warehouse to pick up supplies.

1000 Left warehouse for Lockport Landfill and pick up [illegible].

1115 On site, ready to purge wells.

TIME	TEMP	COND (x100)	PH	TURBIDITY	WELL #	COMMENTS	GALLONS REMOVED	T.D.	W.L. (TOC) TOP OF CASING
1145	64.3	10.93	7.27	.8	1	Clear	0	21.5	11.2
1157	64.1	10.56	7.32	10.9	1	"	3		
1227	63.2	9.77	7.27	23.8	1	"	6		

1120 Calibrated HNU to 56 ppm / 9.8 span / 10.2 EV Probe

1125 HNU: 400 ppm in well. We backed off.

1127 HNU: 4 ppm in well.

1130 9.8 BGS: WL FOR WELL #1, One well Vol = 1.9 gals

1159 GW-1 Bailed dry after 4 gal. Removed.

1159 HNU: 0 pp in Breathing Zone / 5-10 ppm on top of well.

1200 Labeled bottles

1221 W.L.: 12.13 BGS for GW-1

1235-1245 Collected Sample GW-1-01

1245-1255 Cleaned up area

1255 Moved to GW-2

1300 HNU: 650 ppm in hole / 0 ppm in breathing zone

1305 Scouted SW + SED 1-3 sample locations

1325 Scott Strauss goes to take surface water & Sediment Samples 1, 2 & 3 in Cayuga Cr. @ locations shown on site map and marked with wooden stakes. Bob Meyers begins purging well GW-2.

Robert A. Meyers

recycled paper

ecology and environment

G-28

Wednesday 9-20-90

Well GW-2 Purging

W.L. = 6.35 3 vol = 5 gal

Time	Temp	Ph	Cond	Turb	gallons Removed	Comments
1345	64°	7.19	844	>200	0	Cldy Brown, silty
1352	62.2	7.35	784	>200	2½	Cloudier, siltier
1357	62.1	7.39	784	>200	5.0	" "

1400 Pack up & head to GW-3 location, will sample GW-2 Tommorow.

1400 Water level was 15.4' BGS after purging 3 well Vol.

1410 Arrive @ GW-3 location, T.D. = 18.0'

W.L. = 7.7' BGS 3 vol = 5 gallons

Time	Temp	Ph	Cond	Turb	gallons Removed	Comments
1430	68.6	6.90	1453	>200	0	Cldy. Brn.
1434	64.2	6.97	1444	>200	2½	Same
1440	61.4	6.95	1421	>200	5.0	Same

1419 HNU Read 190 ppm in the hole, 0 ppm in the Breathing zone.

1438 Scott Strauss returns from taking Samples SW-1, 2, 3 & SED 1, 2, 3.

1441 W.L. = 7.92' BGS After purging.

1445-1510 Packed up samples an cleaned area.

1510 Went to the Lab to drop off samples.

1550 Arrived at Lab with samples

1610 Arrived back at office to put equipment on charge and pickup additional supplies

Scott Strauss 9/20/90

9-21-90 Friday weather: 68°, calm, Partly Sunny

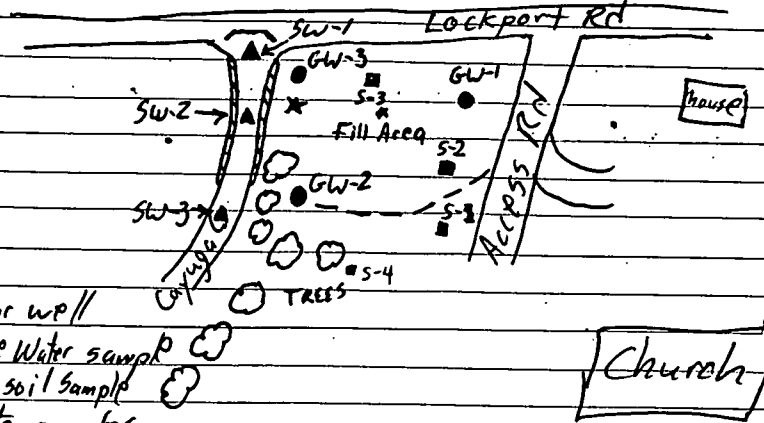
0804 Arrive @ office to gather supplies and organize. (B. Meyers & S. Strauss)

0915 Depart for site

0930 Arrive on site, after getting ice ect,

1010 Vent wells;
GW-2 HNU read zero in BZ
" " 20ppm in hole
GW-3 HNU read zero in BZ
" " 52ppm " hole
Will allow to vent then sample

1113 Scott Strauss will take H_2O samples from GW-2&3 while B. Meyers marks sample locations for surface soil & waste samples & begins taking the samples.
▲ SW-1,2,3, locations staked & flagged
■ Surface Soil #1-4, marked with orange painted rocks/bricks
★ Waste samples W-1&2,
W-1, ~15' south of GW-3
W-2, disturbed area in center of fill area.



● Monitor well
▲ Surface Water sample
■ Surface soil Sample
★ Waste samples

1124 W.L. @ GW-2, 6.49' BGS
1200 Finished Taking water sample & duplicate GW-2-01, Also Scott Strauss lost Bailer & Rope down into well GW-2
1215 Bob Meyers Takes waste Sample, W-1 ~~Waste-01~~ ~ 15' due south of GW-3
1220 W.L. @ GW-3, = 7.90' BGS
1222 HNU read zero off sample W-1 and in the hole from which W-1 came, ~ 2' deep.

GW-3 X100

TIME	TEMP	PH	COND	TURB	COMMENTS
1230	70.2	6.83	14.35	>200	Cloudy/Brown

1230 Collected Sample GW-3-01
1255 Collected Samples GW-2-01 / GW-2-01 MS/MSD at 1150

GW-2 X100

TIME	TEMP	PH	COND	TURB	COMMENTS
1155	69.2	7.36	8.62	7200	Cloudy

1250 Take sample GW-2

1305 Take Sample S-3 & S-3D
HNU read zero
* immediately put on ice as all samples.
1320 Take Sample S-2, HNU read zero
1325 Take Sample S-1, HNU read zero
1351 Take Sample S-4, HNU read zero, will custody seal and complete packing samples for delivery to E&E ASC & C.O.C ect.
1431 Completed clean up, head to Lab & Warehouse, return equip, Van ect.