YP-2080 D3314

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

PHASE II INVESTIGATIONS

Conrail
Site Number 851002
Town of Hornellsville, Steuben County

May 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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STATE OF NEW YORK
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1. EXECUTIVE SUMMARY

1.1 SITE DESCRIPTION AND BACKGROUND

The Conrail site (Site No. 851002) is an inactive landfill located on Ice House Road in the Town of Hornellsville, Steuben County, New York (see Figure 1-1). The 20-acre landfill site, located in a rural area, lies approximately 1.5 miles south of the City of Hornell and 1.5 miles north of the Town of Canisteo. The landfill is bordered by undeveloped land on the north, freshwater wetlands to the immediate south, west, and east (NYSDEC 1985b), and a rail car terminal farther to the east. The Canisteo River and its associated floodplain lie west and south of the site (see Figure 1-2). The site is currently owned by the Consolidated Railway Corporation (Conrail) and was previously owned by various other railroad companies. In 1976, Conrail inadvertently landfilled on a portion of the property southeast of the site owned by Richard LaValley (Herington 1981).

The landfill has been used for refuse disposal since 1940 and was owned by the Erie Railroad until 1962. The landfill was owned by the Erie Lackawanna Railroad from 1962 to 1975. In 1975, the site was sold to Conrail and remained an active disposal site until 1978.

The New York State Community Right-to-Know (RTK) and NYSDEC Hazardous Waste Disposal Questionnaire documents, prepared by Morrison-Knudsen-Hornell Industrial Complex, indicate that the Erie Lackawanna Railroad, a former owner of the site, disposed of unknown quantities of oily sludge and solvents at the site from pre-1952 until 1976. In addition, the RTK documents show that Conrail, present owners of the site, continued the disposal of unknown quantities of oily sludge, solvents, and paint filters from 1976 to July 1977. The landfill also was used for the disposal of train wreckage and demolition debris, rubbish, spoiled produce, and other rejected shipping goods. The site was known to have received 55-gallon drums (contents unknown) and used batteries (NYSDEC 1985a, Herington 1981). It was alleged that sludge containing polychlorinated biphenyls (PCBs) from a Westinghouse facility in Sharon, Pennsylvania was disposed of on site from 1940 to 1976 (Schmied 1983). However, no records exist to support this allegation.

Conrail began limited remediation of the site in 1982 with the removal of 31 55-gallon drums containing alkaline liquid, nonchlorinated solvents, flammable solids, and nonspecified liquid and solid hazardous wastes (Duopp 1982). One or two drums containing carbon-zinc air cell signal batteries were also removed at this time (Flint 1990). Contaminated soil was removed in 1983, and the area was capped with soil. In 1985, Frontier Chemical Waste Process removed approximately 24,750 pounds of mercury cell batteries (NYSDEC 1985a), and in 1989, 79 alkaline storage batteries that had been illegally dumped, but were not leaking, were removed from the site (NYSDEC 1989).

Previous investigations at the Conrail site began in August of 1983 with the collection of a limited number of surface water, sediment, and leachate samples by the New York State Department of Environmental Conservation (NYSDEC). Analyses indicated elevated metals concentrations and the presence of PCBs in one soil sample at a concentration of 300 parts per billion (ppb). In October 1986, additional soil samples collected at the site by NYSDEC revealed PCB concentrations ranging from 8 to 210 ppb.

A Phase I investigation that included a site inspection in December 1986 was conducted by Engineering-Science, Inc. for NYSDEC. The site inspection report noted that the property was not secured from public access and described potentially adverse impacts of the landfill on the wetlands located directly to the south and east. Air monitoring performed with a photoionization detection (HNu) unit did not indicate the presence of volatile organic vapors in ambient air during the site inspection. Upon review of the Phase I study and other agency file information, NYSDEC concluded that further investigation of the site was warranted.

1.2 PHASE II INVESTIGATION

In an effort to evaluate the extent of contamination at the site, determine the potential risk to human health and the environment, and accurately calculate a final Hazard Ranking System (HRS) score, a number of investigative tasks were performed at the Conrail site. The Phase II field investigation begun by Ecology and Environment Engineering, P.C. (E & E) in May 1990 included work under the following four main tasks:

- Site reconnaissance;
- Geophysical survey employing a magnetometer and EM31;
- Drilling and installation of two overburden groundwater monitoring wells and installation of three well points within the wetlands areas; and
- Collection and analysis of waste, surface soil, surface water/sediment, subsurface soil, and groundwater samples at selected on-site and adjacent property locations.

Prior to the site inspection conducted as part of the site reconnaissance, E & E performed a detailed record and file search to review existing data and identify data gaps, and a limited air monitoring survey with an HNu, organic vapor analyzer (OVA), and a Minirad radiation monitor. Two geophysical survey methods, which employed a magnetometer and EM31, were used to optimize the selection of the two monitoring well and three well point locations. Through the identification and delineation of the total geomagnetic and terrain conductivity gradients, the risks associated with drilling into unknown material were greatly reduced. E & E collected and analyzed waste, soil, sediment, and water samples to determine the presence of contaminants at the site and assess their environmental implications.

1.3 SITE ASSESSMENT

The 20-acre site is located east of the Canisteo River Valley, directly south of a Conrail switching yard. The landfill is located within the 100-year floodplain boundary for the Canisteo River and is bordered by a regulated freshwater wetland (HR-8) to the south, west, and east (NYSDEC 1985b). It appears that prior to filling, the site itself was also freshwater wetlands. Surface and shallow groundwater movement is primarily southwest toward various points of discharge along the river.

The installations of the five groundwater wells at the site were completed in unconsolidated materials. This overburden consisted of deep, silt loam soil that formed as recent alluvium on the river floodplain. The depth to the shallow water table was measured prior to well sampling from at or slightly above the ground surface in the wetlands to 5.91 feet below the ground surface directly north of the site. Beneath the site, the total depth of overburden is estimated to be greater than 60 feet where bedrock of the Wiscoy formation (Java group) is encountered. The Wiscoy consists of sandstone and soft shale members of Upper Devonian Age. Bedrock formations in this area dip gently to the south. It is undetermined if this aquifer is hydrologically connected with the bedrock aquifer due to the considerable depth of the overburden and because the drilling program did not include bedrock monitoring wells.

During the Phase II site reconnaissance, an extensive tour of the Conrail site revealed that fill materials were exposed on the steeply sloping south and east perimeters. Cover was thin or nonexistent in numerous areas, particularly where the soil had fallen through gaps between buried rail ties. An orange-colored leachate seep was observed at the base of the southeast slope of the landfill. The site was not secure as evidenced by an abundance of foot and deer paths. Trail bike tracks were also noted. Flourishing vegetation was observed on the landfill and in the wetland areas directly south and east. A large group of dead willow trees that occupy the wetlands appear to have been dead for a long time. The trees' deaths have been attributed to a lack of oxygen caused by the impoundment of standing water around their trunks.

The geophysical survey performed at the site indicated the presence of several total earth magnetic field and terrain conductivity anomalies. These anomalies may be associated with ferrous and other conductive metal debris disposed of in and around the landfill. An abundance of indiscriminate dumping of household refuse, including tires and appliances, was observed on the north side of the landfill along Ice House Road.

Geologic logs from the drilling portion of the Phase II investigation indicate that assorted fill material is present below monitoring well GW-1 from approximately 0 to 8 feet below the ground surface (see Appendix C). This fill consists of coal, crushed brick, and wood fragments with a creosote odor. The installation of typical monitoring wells at locations south and east of the landfill was prohibited by standing water. Although subsurface logs were not generated for these wetland locations, detailed notes were recorded in the field notebook during the installation of the three monitoring well points. Palustrine and alluvial deposits were noted where subsurface soil could be observed beneath the wetlands; fill material was not present. An iridescent orange leachate seep was observed at the base of the landfill slope within 15 feet of well point GW-5.

Groundwater, surface water, sediment, surface (0 to 6 inches) waste and soil, and subsurface (0 to 8 feet) soil samples were collected at the Conrail site. All samples collected were analyzed for Target Compound List (TCL) volatile and semivolatile organic compounds, pesticides, PCBs, and TCL inorganics including 23 metals and cyanide.

Volatile organic analyses detected the presence of tetrachloroethene (PCE) in excess of the NYSDEC Class C surface water guidance value for this solvent in one surface water sample collected at the site. Class C standards were used due to the proximity of the Canisteo River, a Class C stream. Other volatile organic compounds were also detected in surface and subsurface soil, and sediment samples collected. Semivolatile organic analyses indicated the prevalence of polynuclear aromatic hydrocarbons (PAHs) in surface and subsurface soil, surface waste, and sediment samples collected. These PAH compounds are generally associated with coal tar and the combustion of fossil fuels, and some may be related to the presence of creosote-treated lumber in the landfill. Although PAHs also were detected in groundwater samples, the concentrations were almost entirely below the NYSDEC Class GA groundwater standards and guidance values for the respective compounds. Additionally, the PCB Aroclor-1260 was detected in each of the four surface waste samples collected and in a surface soil sample.

Inorganic analyses of water samples collected at the site detected a number of metals at concentrations that exceeded the NYSDEC Class C surface water standards and guidance values. One surface water sample exceeded the Class C standard for aluminum, copper, iron, lead, vanadium, and zinc. The concentrations of the majority of the 18 metals detected in the groundwater samples exceeded the NYSDEC Class GA standards. Efforts to reduce groundwater turbidity prior to and during sampling were unsuccessful; hence, the elevated levels of inorganic parameters may be indicative of suspended solids present in the samples.

Concentrations of numerous metals, including arsenic, chromium, and lead were detected in surface and subsurface soil, waste, and sediment samples above regional background ranges for soils. A low level of cyanide was detected in one surface soil sample.

Air monitoring conducted during the initial site reconnaissance as well as during other on-site activities did not reveal the presence of any combustible gas, hydrogen sulfide gas, or volatile organic vapors related to the landfill.

Located within a rural setting, most of the land in proximity to the site is included in the Conrail right-of-way, is residential, or is used for limited farming. The population within the immediate vicinity of the site obtains water from privately owned wells. Municipal water authorities supply the more densely populated nearby communities. Surface water utilization in this area consists of limited recreational use, including fishing. There is no known use of surface water for irrigation or livestock purposes. Therefore, the most likely potential contaminant receptors are people living southeast and southwest of the site since groundwater flows southwest towards the river which, in turn, flows southeast.

The extent of groundwater contamination at the site appears minimal. The extent of surface water contamination is restricted to high levels of iron and other inorganics in the northeast wetlands area and low concentrations of PCE along the drainage channel west of the site. Elevated organic contamination also is present in the northeast wetlands area where the 1982 drum removal occurred. More significant organic and inorganic contamination is associated with on-site surface soil and waste, and the unrestricted access enabling direct contact with this material is of concern.

The hazardous substance contamination detected at the site is consistent with that expected based on the site's former usage as an industrial landfill. However, the contaminants detected cannot be directly linked to the documented hazardous waste disposed of at the site. Possible threats to human health or the environment posed by the contamination also are not linked to the hazardous waste disposal. Mitigative measures can be taken to reduce the risks posed by the presence of these hazardous substances.

1.4 HAZARD RANKING SYSTEM SCORE

The HRS score was compiled to quantify risks associated with the site. The HRS is applied to inactive hazardous waste sites in New York State to prioritize those needing additional investigation and remediation. The 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:

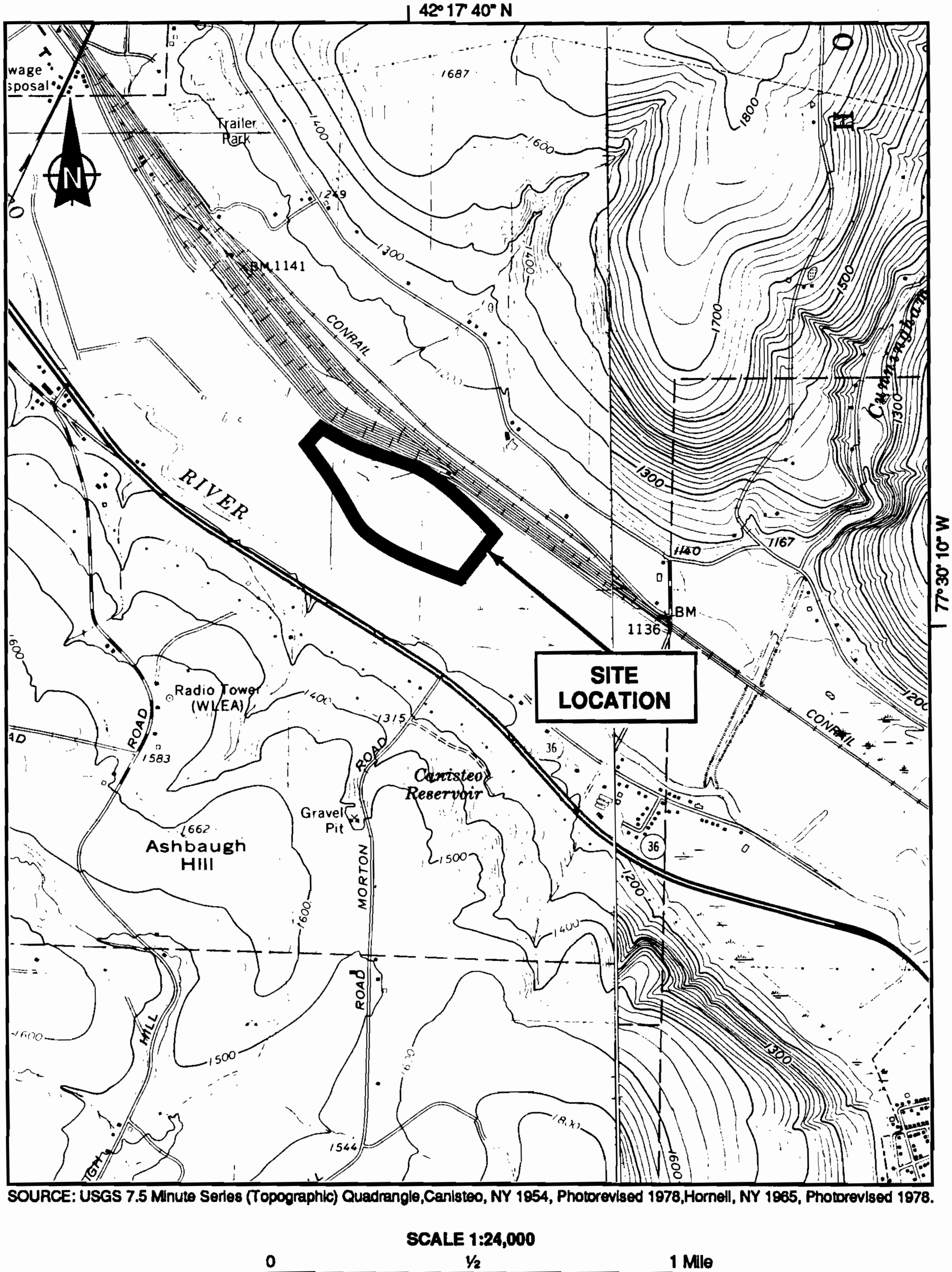
- S_M reflects the potential for harm to humans or the environment from migration of a hazardous substance away from the facility via groundwater, surface water, or air. It is a composite of separate scores for each of the three routes (S_{gw} = groundwater route score, S_{sw} = surface water route score, 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 on the results of this and previous studies, the HRS scores for the Conrail site have been calculated as follows:

S_M = 39.03 (S_{gw} = 65.62; S_{sw} = 15.94; S_a = 0)

S_{FE} = 0

S_{DC} = 25.0



SOURCE: USGS 7.5 Minute Series (Topographic) Quadrangle,Canisteo, NY 1954, Photorevised 1978,Hornell, NY 1965, Photorevised 1978.

SCALE 1:24,000

0 ½ 1 Mile

0 .5 1 Kilometer

Figure 1-1
SITE LOCATION MAP, CONRAIL SITE

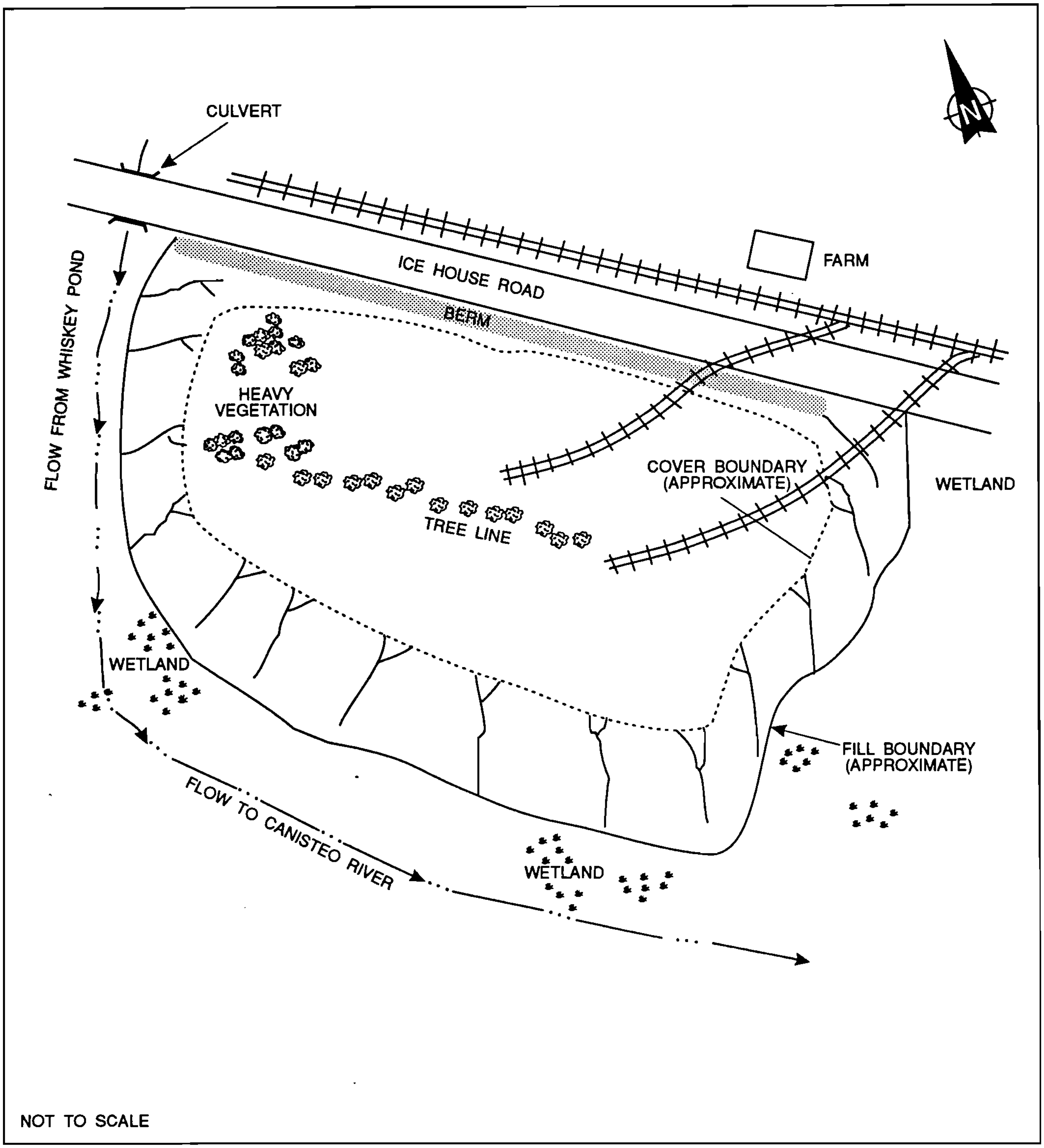


Figure 1-2
SITE SKETCH, CONRAIL SITE, HORNELLSVILLE, NEW YORK

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

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

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

ADDITIONS/CHANGES TO REGISTRY OF INACTIVE HAZARDOUS WASTE DISPOSAL SITES

1. Site Name	2. Site Number	3. Town	4. County
Conrail	851002	Hornellsville	Steuben

5. Region: 8
6. Classification: Current 2a /Proposed 3
7. Activity: [ ] Add [X] Reclassify [ ] Delist [ ] Modify ____

8a. Describe location of site (attach USGS topographic map showing site location).

Northeast bank of Canisteo River, directly south of Ice House Road and Conrail switching yard.

b. Quadrangle Hornell, NY c. Site latitude 42°17'40"N Longitude 77°30'10"W d. Tax Map Number 150.00 / 151.05

9a. Briefly describe the site (attach site plan showing disposal/sampling locations)

Landfill located in a rural area bordered by undeveloped land to the north, wetlands to the south and east and the Canisteo River Floodplain to the west. Fill consists of rejected shipping goods and railroad wastes. Formerly operated by the Erie Railroad and Erie Lackawanna Railroad.

b. Area 20 acres c. EPA ID number NYD980528434 d. PA/SI [X] Yes [ ] No

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

Pre 1952 - July 1977: Unknown quantities of oily sludge, paint filters, and solvents.

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:

Arsenic to 263 μg/L
Barium to 6,040 μg/L
Cadmium to 136 μg/L
Chromium to 782 μg/L
Copper to 979 μg/L
Iron to 121,000 μg/L
Lead to 1,190 μg/L
Sodium to 352,000 μg/L
Zinc to 3,560 μg/L

Surface Water:

PCE to 7 μg/L
Iron to 84,100 μg/L
Aluminum to 2,580 μg/L
Copper to 26.7 μg/L
Lead to 13.0 μg/L
Vanadium to 27.8 μg/L
Zinc to 185 μg/L

12. Site impact data

a. Nearest surface water: Distance <50 ft. Direction Southeast Classification C

b. Nearest groundwater: Depth <5 ft. Flow direction SW [ ] Sole source [ ] Primary [ ] Principal

c. Nearest water supply: Distance 2,650 ft. Direction North Active [X] Yes [ ] No

d. Nearest building: Distance 1,350 ft. Direction North Use Residence

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

f. Exposed hazardous waste? [X] Yes [ ] 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 39.03

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

02[UZ]YP2080:D3314/6340

13. Site owner's name Consolidated Rail Corporation Richard LaValley	14. Address: 15 North 32nd Street, Philadelphia, Pennsylvania Canisteo Road RD #3 Hornell, New York	15. Telephone Number (215) 596-2922

16. Preparer

James D. Griffis, CHMM, Ecology and Environment Engineering, P.C.

Name, title, and organization

4-28-92

Date

James D. Griffis

Signature

17. Approved

Name, title, and organization

Date

Signature

02[UZ]YP2080:D3314/6340

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 and determine if contaminants are migrating from the Conrail site with a resulting impact on human population and/or the environment. Information gathered relative to the Conrail site will allow NYSDEC to reclassify the site or, if warranted, delist it.

The Phase II investigation was designed to supplement existing data for the site and update the HRS score. A previous investigation by Engineering-Science, Inc. in 1988 did not include any sample collection or analysis; therefore, only limited sample analyses conducted by NYSDEC in 1983 and 1986 were available for the Conrail site prior to the Phase II study. Consequently, soil, surface water, sediment, waste, and groundwater sampling and analysis for full TCL analytical parameters were implemented in the Phase II investigation scope of work. Additionally, air monitoring and geophysical surveying for the presence of buried waste had not been conducted prior to the Phase II study.

3. SCOPE OF WORK

3.1 INTRODUCTION

The Phase II investigation at the Conrail site began in May 1990 and fieldwork was completed in November 1990. The Phase II investigation was performed in accordance with a site-specific Phase II work plan written by NYSDEC. A site-specific health and safety plan was prepared and submitted to NYSDEC prior to the commencement of any field activities. Appendix A includes the site-specific safety plan and a drilling safety checklist. A Quality Assurance Project Plan (QAPP) was submitted to NYSDEC for approval prior to the commencement of field activities.

3.2 PHASE II SITE INVESTIGATION

3.2.1 Records Search/Data Compilation

E & E collected and reviewed available information from state, county, and municipal files prior to the initiation of field work. Records from regional and state agency files were reviewed to supplement the Phase I report prepared by Engineering-Science, Inc. in 1988. This data review allowed for the proper completion of the field investigation and 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 May 24, 1990, E & E personnel conducted a site reconnaissance. The purposes of the site visit were:

- To conduct a limited air monitoring survey using a photoionization detector, OVA, combustible gas meter, and radiation detection unit;

- o To identify the proposed monitoring well and sample locations for the subsequent collection of surface soil, water, and sediment samples;

- o To identify potential drilling-rig access problems; and

- o To identify and approve for use a suitable drilling water supply.

While conducting the site reconnaissance, E & E personnel discovered several significant logistical factors relevant to the Phase II investigation. These included:

- o Drilling-rig access at the proposed location of monitoring well GW-3 was impossible due to the prevalence of large fallen trees that blocked all routes. Off-site routes of entry access to the proposed GW-3 location from over the landfill was prohibited by steep landfill slopes;

- o Additionally, drill-rig access to the proposed locations of monitoring wells GW-4 and GW-5 would be greatly hindered due to abundant surface water at these wetland locations and the steeply sloping landfill;

- o The site was not secured against trespassers, as evidenced by a number of foot paths and other signs of activity; and

- o Landfill cover material was extremely thin or nonexistent in many areas, significantly increasing the risk of inadvertent exposure to fill material or accidental fall hazards.

E & E recommended to NYSDEC that monitoring well points be installed in place of standard well construction at the proposed locations for GW-3, GW-4, and GW-5. Well points are installed without the use of a drill-rig and are manufactured according to ASTM specifications. The lack of site security and precarious surface conditions would require additional caution on behalf of on-site personnel.

A site-specific safety plan was developed that included pertinent emergency phone numbers, a map showing the route to the nearest hospital, and a list of potential dangers to human health posed by contaminants suspected to be present at the site (see Appendix A).

Prior to the commencement of any on-site activities, a site safety meeting was conducted by the site safety officer. Discussions included the identification of specific contaminants previously found on site, potential routes of personal exposure, air monitoring instrumentation action levels, and a review of the planned activities and objectives. All on-site personnel signed an attendance sheet, acknowledging their presence and understanding of the topics covered. The site-specific safety plan was available to all personnel on site at all times.

3.2.3 Geophysical Survey

A geophysical investigation was conducted at the Conrail site on May 24 and 25, 1990. The geophysical investigation consisted of an EM31 (electromagnetic terrain conductivity) survey and a portable proton magnetometer (total earth field magnetics) survey. The objectives of the geophysical methods used were to optimize the locations of the five 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. Detailed geophysical survey methodologies and results are presented in the geophysical survey report included as Appendix B.

3.2.4 Subsurface Boring/Monitoring Well Installation

E & E supervised the installation of two shallow groundwater monitoring wells at locations directly north of the Conrail site on October 4 and 5, 1990 (see Figure 3-1). Monitoring well GW-1 was installed adjacent to the northeast corner of the landfill and GW-2 was installed at a central location along the north boundary of the landfill. Both GW-1 and GW-2 were installed in the overburden off the south side of the Ice House Road and can be considered upgradient monitoring locations for the shallow overburden aquifer.

The wells were drilled and constructed in accordance with NYSDEC guidelines. Split-spoon samples were taken at 5-foot intervals within unsaturated materials and continuously within the saturated zone within the GW-1 and GW-2 subsurface borings according to the procedures detailed in ASTM Designation D 1586-84, "Standard Method for Penetration Test and Split-Barrel Sampling of Soils." Split-spoon sample recoveries were retained for geotechnical analysis and one sample from each borehole was retained for chemical analysis as described in Section 3.2.6.

The monitoring wells were constructed with 2-inch inside diameter (ID) threaded, flush-joint, polyvinyl chloride (PVC) pipe and 4.5- to 5-foot-long, 0.01-inch machine-slotted screens. A sand pack was placed around the screen and casing to a depth of approximately 2 feet above the top of the well screen. A minimum 1-foot-thick seal of tamped bentonite was placed directly on the sand pack. A bentonite cement grout was pumped into the remaining annular space to the ground surface. The monitoring wells were completed with a vented PVC cap, locking steel protective casing, and concrete drainage pad. Appendix C contains the subsurface boring logs, and Appendix G contains the results of the geotechnical analyses.

After completion of the monitoring wells, but no sooner than 24 hours after grouting was completed, the wells were developed by hand bailing until stabilization of pH, temperature, specific conductance, and clarity of the water were achieved. The bailers were pre-cleaned and dedicated to each well during development.

The drill rig and all tools and equipment including split-spoons were decontaminated prior to and following each use, between wells, and at the completion of site activities by:

- Removal of foreign matter; then
- Sanitization with a high pressure steam cleaner.

On October 5, 1990, a sample of the water used for decontamination was collected (DW-1). This water was obtained with the permission of Conrail from a hydrant adjacent to the depot building along Ice House Road.

3.2.5 Monitoring Well Point Installation

Due to the inaccessibility of the proposed locations of monitoring wells GW-3, GW-4, and GW-5 as detailed in Section 3.2.2, well points were substituted. The use of schedule 5, 2-inch ID, stainless steel well points at the previously proposed monitoring well locations was reviewed and approved by NYSDEC.

The three well points were installed in the wetlands surrounding the site on October 8, 1990. A portable power auger was used to advance a borehole approximately 4 to 5 feet below the ground surface (BGS), then the well points were driven to their final depth. Prior to each well point installation, split-spoon samples were driven by hand beyond the augered depth in order to describe the subsurface stratigraphy and obtain a sample for geotechnical and chemical analyses. Subsurface logs are presented in the field notebook in Appendix H.

The final construction of the well points consisted of 2-inch ID stainless-steel riser and 5-foot lengths of 0.006-inch screen. Approximately 1 foot of sand was placed at the top of each screened interval except for well GW-5, which collapsed around the well point. The 0.006-inch screen slot size was used in an attempt to minimize silt infiltration to the well because a sand pack could not be emplaced around the screen. Well point total depths ranged from 8.29 to 10.18 feet.

In agreement with the on-site NYSDEC representative and Albany NYSDEC, well point development was not performed due to the likelihood that an abundance of palustrine silt material would be drawn into the well.

All equipment used for well point installation was decontaminated according to the procedures outlined in Section 3.2.4.

3.2.6 Subsurface Soil Sampling and Analysis

One subsurface soil sample was collected from each monitoring well and well point boring installed at the site between October 4 and 8, 1990. Samples were collected with a split-spoon sampler prior to well installation. Sample B-1 was collected from the 6- to 8-foot depth interval of GW-1; B-2 from the 6- to 8-foot depth interval of GW-2; B-3 from the 2- to 4-foot depth interval of GW-3; B-4 from the 4- to 6-foot depth interval of GW-4; and B-5 from the 2- to 4-foot depth interval of GW-5. These samples were collected from the zones exhibiting the highest photoionization detector reading or most visual evidence of staining in each boring.

Soil was composited from the depth intervals listed above. The soil was then placed in appropriate sample containers using new, precleaned, dedicated, stainless steel spoons. The spoons were decontaminated prior to use by:

- o Washing with a solution of trisodium phosphate and water;
- o Rinsing with potable water;
- o Rinsing with pesticide-quality methanol;
- o Rinsing with deionized water; and
- o Allowing to air dry.

All samples were preserved on ice and delivered to E & E's Analytical Services Center (ASC) under proper chain-of-custody procedures for full TCL analysis according to NYSDEC's Contract Laboratory Protocol (CLP), November 1987. Results are discussed in Section 4.5 and data summary forms are provided in Appendix D.

3.2.7 Groundwater Sampling and Analysis

No sooner than 7 days after monitoring well and well point installation was completed, groundwater samples were collected from each of the five wells. Prior to groundwater sampling, at least three volumes of standing water were removed to purge the well properly. Each groundwater sample was analyzed for full TCL organic compounds, metals, and cyanide by E & E's ASC. Samples collected for total metals analysis were preserved by adding concentrated nitric acid until the pH was lowered to less than 2 standard units. Samples for cyanide analysis were preserved by the addition of sodium hydroxide (NaOH) until the pH of the sample was raised to greater than 12 standard units. Analyses and reporting were performed in accordance with the NYSDEC CLP.

Samples were collected using dedicated PVC bailers with new polypropylene line. Turbidity measurements were taken immediately following the collection of the inorganic samples using a portable nephelometer. Results are discussed in Section 4.5 and data summary forms are provided in Appendix D.

3.2.8 Surface Soil Sampling and Analysis

Four surface soil samples, S-1, S-2, S-3, and S-4, were collected from the 0- to 6-inch depth interval at various locations on the site (see Figure 3-1). A new, precleaned, stainless steel spoon was used to collect each of the surface soil samples and prevent cross-contamination. All spoons were decontaminated prior to use by the procedures outlined in Section 3.2.6.

All surface soil samples were analyzed for full TCL organic compounds, metals, and cyanide according to the NYSDEC CLP. The sample containers were filled directly to minimize the loss of any volatile constituents potentially present. Results are discussed in Section 4.5 and data summary forms are provided in Appendix D.

3.2.9 Waste Material Sampling and Analysis

Four surface waste samples (W-1, W-2, W-3, and W-4) were collected from the 0- to 6-inch depth interval from visually suspicious areas on the landfill (see Figure 3-1). The surface waste samples were collected in the same manner as detailed in Section 3.2.8. Decontamination of sampling equipment was performed prior to use according to the procedures outlined in Section 3.2.6.

All surface waste samples were analyzed for full TCL organic compounds, metals, cyanide, and EP Toxicity metals. Results are discussed in Section 4.5 and data summary forms are provided in Appendix D.

3.2.10 Surface Water/Sediment Sampling and Analysis

Four surface water and corresponding sediment samples (SW/SD-1, SW/SD-2, SW/SD-3, and SW/SD-5) were collected at various locations south, east, and west of the landfill (see Figure 3-1). Surface water was absent at an additional sampling location (SW-4) southeast of the landfill; however, a sediment sample (SD-4) was collected for analysis.

Samples SW-1 and SD-1 were intended to represent conditions upgradient of the landfill while the remaining surface water and sediment samples were representative of downgradient areas southwest, southeast, and east of the landfill.

All surface water samples were collected directly into appropriate containers while sediment samples were transferred by the use of new stainless steel sampling spoons, which were decontaminated prior to use according to the procedures outlined in Section 3.2.6.

All surface water and sediment samples were analyzed for full TCL organic compounds, metals, and cyanide according to the NYSDEC CLP. Results are discussed in Section 4.5 and data summary forms are provided in Appendix D.

Table 3-1

SOURCES CONTACTED FOR THE NYSDEC PHASE II INVESTIGATION AT THE CONRAIL SITE

Agencies Contacted	
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:	(518) 457-9538
Date:	April 3-4, 1989
Information Gathered:	File search for additional data and NYSDEC Phase II 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) 439-7488
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 Division of Solid Waste, Region 8 6274 East Avon-Lima Road Avon, New York 14414	
Contact:	Kathy Kirsch
Telephone:	(716) 226-2466
Date:	April 11, 1990
Information Gathered:	Wetlands file data
New York State Department of Environmental Conservation Division of Solid Waste, Region 8 6274 East Avon-Lima Road Avon, New York 14414	
Contact:	Mammohan Mehta
Telephone:	(716) 226-2466
Date:	April 11, 1989
Information Gathered:	File search for Phase II reports
New York State Department of Health Bureau of Environmental Exposure 2 University Place - Room 205 Albany, New York 12203	
Contact:	Lani D. Rafferty
Telephone:	(518) 458-6306
Date:	April 3-4, 1989
Information Gathered:	Viewed site inspection reports for NYSDEC Phase II sites
Southern Tier Central Regional Planning and Development 53 Bridge Street Corning, New York	
Contact:	Jennifer Fais
Telephone:	(607) 962-5092
Date:	April 4, 1990
Information Gathered:	Soils and aquifer/groundwater well data
Steuben County Soil Conservation Service 3 Pultney Square East Bath, New York 14810	
Contact:	Dave Dupont
Telephone:	(607) 776-9631
Date:	May 19, 1989
Information Gathered:	Viewed maps and files for Phase II reports

[UZ]YP2080:D3314/6325/30

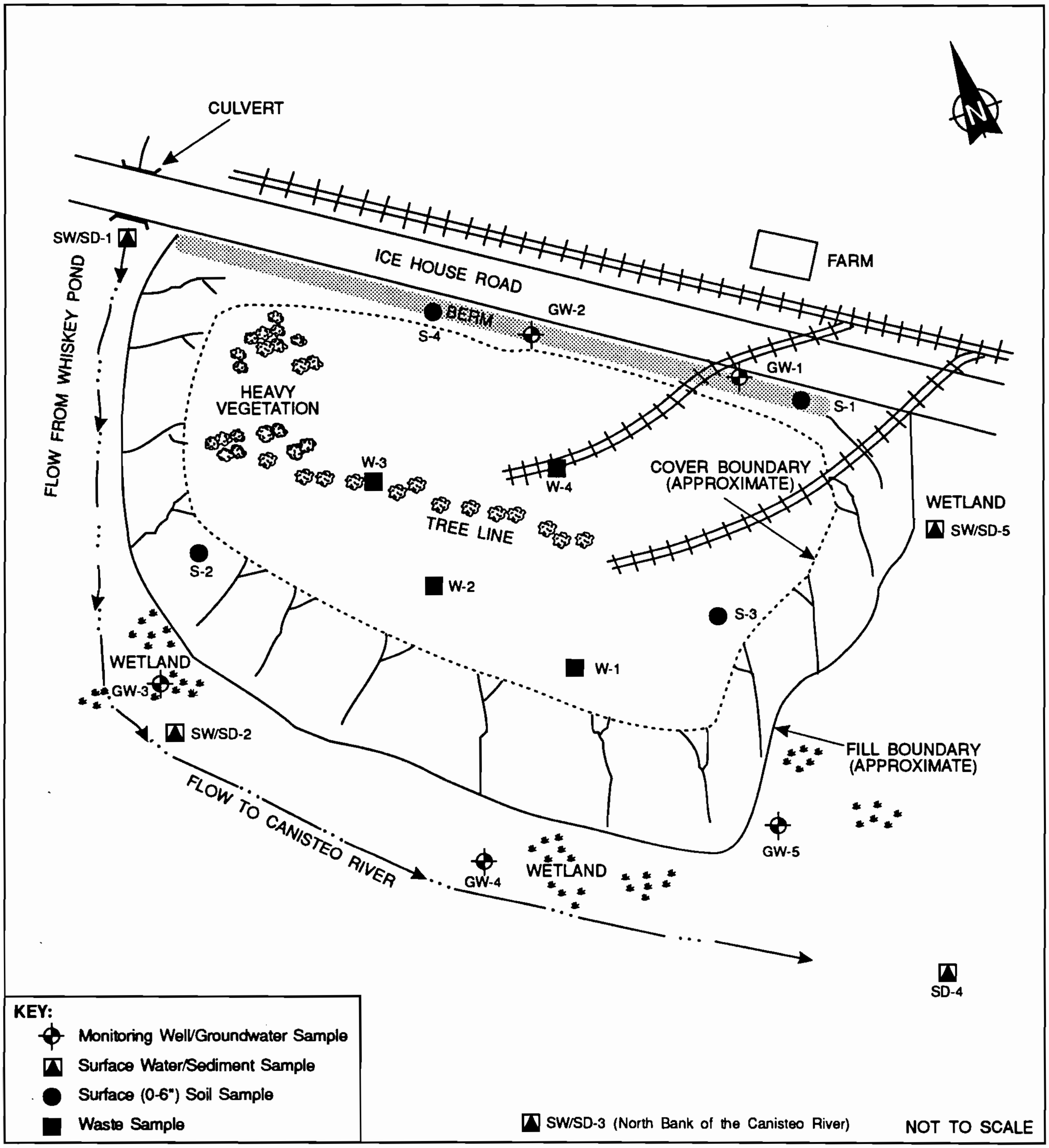


Figure 3-1
GROUNDWATER MONITORING WELL AND SAMPLING LOCATIONS, CONRAIL SITE

4. SITE ASSESSMENT

4.1 SITE HISTORY

The 20-acre Conrail site was utilized as a disposal area from approximately 1940 to 1978. During this period, demolition debris, spent batteries, 55-gallon drums, train wreckage debris, and wastes from railroad cars were disposed of on site (Schmied 1983). Wastes from a railroad maintenance and refueling facility in the City of Hornell also were disposed of at the Conrail site. Some of this waste was documented to be hazardous by Morrison-Knudsen-Hornell Industrial Complex in a NYSDEC hazardous waste disposal questionnaire submittal dated August 29, 1984.

Currently the site is owned by Conrail. However, a small portion of the landfill is on the property of Richard LaValley, who owns the area to the southeast of the site. In 1976, Conrail inadvertently filled a small portion of Mr. LaValley's land (Herington 1981). From the period of 1940 to 1962, the site was owned by the Erie Railroad. In 1962, the landfill became the property of the Erie Lackawanna Railroad, which in turn sold the site to Conrail in 1975. From 1940 to 1975, the site was reportedly used primarily for the disposal of small quantities of wastes including rubbish, spoiled produce, and rejected shipping goods. The volume of dumping continued in 1975 when Conrail took control of the landfill and was replacing most of its tracks. After 1975, materials disposed of at the landfill were primarily railroad ties and box car and gondola car contents (Herington 1981). The unloading of these materials from rail cars was accomplished by utilizing a series of rail spurs connecting the main section of track with the landfill. These landfill entry spurs were moved south incrementally as respective areas to the north were filled to capacity (Flint 1990). The process was ongoing as this landfill was Conrail's major site for the disposal of wreckage from rail accidents in this part of the country. Other various wastes disposed of at the landfill included 55-gallon drums containing unknown substances, empty pails, batteries, brush, and garbage (Jackson 1983). The New York State Community RTK and NYSDEC Hazardous Waste Disposal Questionnaire documents indicate the disposal of unknown quantities of oily sludge and solvents at the site by the Erie Lackawanna Railroad from before 1952 until 1976. In addition, unknown quantities of oily sludge, solvents, and paint filters were disposed of at the site by Conrail between 1976 and July 1977.

Soil, surface water, sediment, and leachate sampling was conducted by NYSDEC in 1983 for organic and inorganic analyses. Results of organic analyses indicated that sediment collected on the east side of the landfill contained a detectable level of PAH compounds (Jackson 1983). Inorganic analyses showed greater concentrations of metals parameters in sediment downgradient of the site. Surface water quality was consistently below the NYSDEC Class D standards, with no appreciable increase in samples collected at downgradient locations.

It was alleged that sludge containing PCBs from an industrial source in Sharon, Pennsylvania was disposed of at the landfill between 1940 and 1976 (Schmied 1983). Sampling was conducted by NYSDEC in 1985 and 1986 to investigate the presence of the sludge; however, concentrations were not found to exceed 0.30 ppm (Leary and Ferrar 1985). The PCB levels associated with the contaminated sludge from the Sharon, Pennsylvania source are 40,000 ppm (Bailey 1987). Therefore, NYSDEC concluded that the dissimilar wastes found at the Conrail site are not of the alleged industrial origin in Sharon, Pennsylvania (Bailey 1987). It is important to note that no documents exist indicating that the sludge was disposed of on site.

Site remedial measures were implemented between 1982 and 1989 by contractors retained by Conrail. In 1982, SCA Chemical Services removed 31 55-gallon drums of material from the northeast corner of the landfill. These drums contained alkaline liquid, nonchlorinated solvents, flammable solids, and nonspecified liquid and solid hazardous wastes (Duopp 1982). In addition, one or two drums containing carbon-zinc air cell signal batteries were removed at this time (Flint 1990). In 1983, top debris, consisting mainly of railroad tie butts and paper rolls, was removed from the site and disposed of at the Bath County Landfill (Flint 1985). The site was then capped with cover soil removed from Cunningham Creek, located directly east of the landfill (Flint 1990). In 1985, Frontier Chemical Waste Process removed approximately 24,750 pounds of mercury-cell storage batteries from the landfill (NYSDEC 1985a), and in 1989 78 alkaline storage batteries that had been dumped illegally, but were not leaking, were removed from the site (NYSDEC 1989).

The site was inspected in December 1985 by Engineering-Science, Inc. as part of a Phase I investigation conducted for NYSDEC. Observations made during this inspection included the lack of site security, a high incidence of indiscriminate public dumping, and leachate flow to wetland areas. The Phase I investigation report recommended that a Phase II investigation be conducted to obtain a groundwater quality determination and supplement the existing analytical data base for the site.

In May 1990, E & E initiated a Phase II investigation for NYSDEC. During the Phase II site inspection, a lack of site security noted earlier was confirmed, although the observance of leachate seeps was minimal. Other observations included the sparsity of landfill cover in many areas and the abundance of randomly dumped appliances and other debris on the north side of the landfill. Vegetation at the landfill and in wooded areas west and wetlands east and south of the landfill did not appear to be adversely affected.

4.2 REGIONAL GEOLOGY AND HYDROGEOLOGY

Steuben County is situated within the Appalachian Plateau physiographic province and is entirely underlain by rock formations of Upper Devonian Age. The county is primarily mantled by glacial till ranging from 1 to 165 feet in thickness. The till consists of unconsolidated, poorly sorted clay, silt, and/or sand deposits of relatively low permeability. Recent deposits are generally confined to stream and river valleys and are composed of oxidized, non-calcareous, fine sand to gravel in larger valleys. These deposits may be overlain by silt and range in thickness from 1 to 3 feet. Kame deposits, such as kame terraces and kame deltas, as well as eskers, are found in the county.

held with calcareous cement. The kame deposits exhibit lateral variability in sorting and coarseness with thickness ranging from 3 to 9 feet. Outcropping of bedrock generally occurs along stream-cut valleys.

The bedrock in the region is almost exclusively shale with interbedded sandstone and limestone beds. The rock units strike east-west and dip gently south-southwest approximately 40 feet per mile. Although the bedrock dips southward, the land surface increases in elevation to the south. Therefore, the bedrock units are progressively younger from north to south.

Four distinct bedrock groups have been identified in Steuben County. The oldest units comprise the West Falls group and are, in ascending order, Beers Hill Shale, Gardeau formation, Nunda formation, lower Beers Hill Shale, and West Hill formation. The West Falls group is approximately 520 feet thick and consists of black and gray shales and light gray sandstones. The lower portion is petroliferous. Throughout the group are numerous zones of calcareous concretions, some of which contain pyrite and marcasite.

Overlying the West Falls group is the Wiscoy formation of the Java group. The Wiscoy is a greenish-gray to black shale with some interbedded limestone and zones of calcareous nodules. Small masses of pyrite occur in the basal part of this 115-foot thick unit.

The Machias formation of the Canadaway group overlies the Wiscoy formation. The Machias consists of the Hume Shale, Canisteo Shale, Caneada Shale, and Rushford Sandstone members. The Machias is approximately 400 feet thick within the Wellsville quadrangle in neighboring Allegany County.

The Machias formation is followed by the Germania formation of the Conneaut group. The Germania is approximately 70 feet thick and consists of thin, fine-grained, green sandstones interbedded with red shales.

Significant amounts of groundwater occur principally in the glacial overburden; very little groundwater is found in the impermeable shale bedrock units that exist throughout the county. Some water transmission occurs in small fractures in the bedrock, but no wells of significant yield are found in these units (LaSala 1968).

The depth of the Precambrian basement increases from approximately 7,000 feet at the northern border of Steuben County to nearly 12,000 feet at its southern border with Pennsylvania.

Bedrock joint systems have been recorded within the Corning 15-minute United States Geological Survey (USGS) quadrangle of Steuben County (Isachsen and McKendree 1977). The joint sets are described in two degrees of prominence, greatest prominence and intermediate prominence.

Joint sets with greatest prominence exhibit strike directions ranging from north 25° west to north 40° west; dip angles of these joints are not documented. Joint sets with intermediate prominence exhibit strike directions ranging from north 50° east to east-west; dip angles of these joint sets are vertical or nearly vertical. These joint sets represent paths of least resistance for fluid travel and may be useful in determining the possible direction of groundwater contaminant migration.

4.3 SITE GEOGRAPHY

4.3.1 Topography

The Conrail site is located within the Allegany Plateau physiographic province in Steuben County. This area is characterized as a naturally dissected plateau with significant relief. Within the county, elevations range from 714 to 2,400 feet above mean sea level. The county is made up of rolling uplands and flat-topped hills separated by steep-sided stream and river valleys that drain the area in a subdendritic pattern (Bloom 1978).

The landfill has an average elevation of approximately 1,940 feet above sea level (USGS 1965). The 20-acre landfill surface is now somewhat hummocky due to uneven grading and inconsistent cover. Prior to fill deposition, the land beneath the landfill was a level, low lying floodplain area within a wetland. An earthen berm approximately 4 feet high separates Ice House (access) Road and the Conrail switching yard from the north area of the landfill. Landfill relief at the east, west, and south sides of the site is variable between 5 to 15 feet over the surrounding terrain. Abundant concrete, rip-rap, rail ties, and assorted scrap are exposed along the entire southern border of the landfill and to a lesser extent on the east and west borders. This material is in direct contact with the New York State freshwater wetlands that separate the southern and eastern borders of the landfill from the Canisteo River approximately 1,200 feet from the site. An unnamed intermittent stream originating from Whiskey Pond provides some local surface water drainage, flowing in a southerly direction along the western boundary of the landfill.

4.3.2 Soils

Beneath the fill material and around the perimeter of the site, the natural soils are characterized by the United States Department of Agriculture (USDA) as soils of the Howard-Chenango-Middlebury association. Soils of this association are nearly level, moderately well to somewhat poorly drained, deep soils that formed in recent alluvium on floodplains. Soil series found on the site are the Middlebury and Wayland. The available water capacity of the Middlebury series is moderate to high and the permeability is moderate. The available water capacity of the Wayland series is high and permeability is low. Soil units within these series are the Middlebury silt loam and the Wayland silt loam. The Middlebury unit is a nearly level silt loam found in slight depressions on floodplains throughout Steuben County. The Middlebury unit occurs parallel to streams and is subject to flooding, mostly in the spring. The Wayland unit is nearly level in low areas of floodplains along major rivers and streams. Included with this soil in mapping were small areas of soils that formed in alluvial deposits that have layers of gravel within a depth of 40 inches.

Where monitoring wells and well points were installed around the perimeter of the site, soil and overburden were described in the field from split-spoon samples. These soil descriptions are included in the subsurface logs in Appendix C. Geotechnical results are included in Appendix G. Data collected during monitoring well installation indicate that the alluvial soils encountered consist of lateral horizons of clay, silt, and sand deposits. The texture and thickness of individual horizons are variable, resulting from deposition during high water events in the Canisteo River.

4.4 SITE HYDROGEOLOGY

The information used to develop the discussion in this subsection includes the Phase II geophysical survey, five monitoring well borings and installations, USGS topographic maps, geological survey maps, and regional groundwater reports.

The geophysical survey results are presented in Appendix B, drilling logs in Appendix C, and geotechnical analyses results in Appendix G.

4.4.1 Geology

The stratigraphy at the site can be characterized as a greater than 60-foot blanket of alluvial soil interspersed with glacial till over a southward dipping sedimentary bedrock sequence approximately 12,000 feet in thickness. The bedrock beneath the site is the Upper Devonian Age Java group. The Java is described as a gray to black shale with interbedded limestone beds and calcareous nodules.

The Wiscoy (sandstone and shale) is expected to be the uppermost formation with the Java group beneath the site. Since bedrock monitoring wells were not within the scope of work for this investigation, this bedrock type and depth are not confirmed.

Overburden deposits observed during monitoring well and well point installations consisted of alluvial silty clay and decaying organic (palustrine) material. More detailed descriptions of the overburden can be found in the drilling logs in Appendix C.

4.4.2 Hydrology

Groundwater

Two groundwater monitoring wells and three well points were installed into the overburden at the Conrail site to determine the quality and the direction of groundwater flow. Monitoring well construction data are presented in Table 4-1. Appendix C contains the boring logs for monitoring wells GW-1 and GW-2. No boring logs are included for wells GW-3, GW-4, and GW-5 since these wells were constructed using a portable power auger for 4 to 5 feet and then driven to their final depths. However, the design of the well points is depicted in the field notebook presented in Appendix H.

The two monitoring wells and three well points penetrate and monitor the shallow water table. Since deeper bedrock wells were not drilled as part of this investigation, it is not known if the bedrock aquifer is hydrologically connected to the upper water table. Based on water level data collected in association with sampling the groundwater on November 2, 1990, groundwater flow is generally to the southwest toward the Canisteo River. The gradient of groundwater flow is relatively shallow at a slope of approximately less than 1%. Survey elevations of the wells and groundwater depths are listed in Table 4-2. Figure 4-1 shows the locations of the groundwater monitoring wells along with the potentiometric surface elevation contours of the shallow water table. A survey of the location and relative elevation of each monitoring well and sample point was performed after all field work was completed. A copy of this survey map is included in Appendix F.

Surface Water

The site is located adjacent to a Class II New York State freshwater wetlands designated HR-B. Generally, surface water drains to the southeast off of the site and into the wetlands. These wetlands are periodically drained/flooded by the Canisteo River. The Canisteo River is located approximately 1,200 feet south of the site. The landfill is located within the 100-year floodplain of this river. An intermittent stream originating from Whiskey Pond that borders the west side of the landfill provides a portion of local surface water drainage and flows in a southerly direction before discharging to the Canisteo River.

4.5 SITE CONTAMINATION ASSESSMENT

Analytical data for the site contamination assessment are presented in Appendix D. For TCL organic and inorganic compounds, all positive reported values and qualifiers for samples, field quality control (QC) samples, and laboratory matrix spike/matrix spike duplicate (MS/MSD) samples are presented on data summary forms.

All CLP data packages were reviewed to determine whether qualified data were acceptable for the intended use. In general, common laboratory contaminants, including methylene chloride, acetone, and phthalate compounds, are considered background contamination and not evaluated if the values are qualified with a "B" and levels are less than five times the detection limit. TCL organic compound values reported below the contract required quantitation limit (CRQL) are not included in the summary tables in this section, but are included in the data summary forms in Appendix D. Compounds qualified with a "J" are estimated values above or below the CRQL.

For organic contaminants, general classes of compounds such as PAHs were identified on tables in the text and the concentrations are reported as totals. Individual compounds and their concentrations are included on the data summary forms in Appendix D.

4.5.1 Subsurface Soil Samples

A subsurface soil sample was collected at each of the monitoring well and well point borings established at the site (see Figure 3-1). The subsurface soil samples were collected with a split-spoon sampler at depth-specific intervals ranging from 2 to 8 feet below the ground surface. The subsurface soil samples were analyzed for TCL organics and inorganics (see Tables 4-3 and 4-4). Organic analyses of the subsurface soil samples indicate the organic compound 1,1,1-trichloroethane was detected at 8 ppb in subsurface boring B-3 (2 to 4 feet). Total PAHs were detected above and below quantitation limits at estimated total concentrations of 10,726 µg/kg, and 795 µg/kg in subsurface samples B-2 (6 to 8 feet) and B-5 (2 to 4 feet), respectively. PAHs were present at concentrations below quantitation limits in B-3. PAHs are commonly found in industrialized areas where concentrations may be as high as 650,000 µg/kg (Edwards 1983). Toluene and total xylenes were also present at low levels in sample B-2 (6 to 8 feet). 2-butanone was detected at concentrations below quantitation limits in B-1, collected at 6 to 8 feet directly upgradient of the northern border of the landfill.

Inorganic analyses of the subsurface boring samples indicate the presence of arsenic, cadmium, calcium, chromium, copper, iron, lead, magnesium, and nickel at levels that exceed the regional background concentration ranges (see Table 4-4). With the exception of calcium and magnesium, subsurface soil sample B-2 was consistently found to contain the highest concentrations of the above inorganics, including arsenic at 39.8 mg/kg and lead at 404 mg/kg. Sample B-2 was collected from the boring used for the installation of GW-2 located directly upgradient of the northeastern corner of the landfill (see Figure 3-1).

4.5.2 Groundwater Samples

Five groundwater samples were collected from the site, one from each of the two newly installed groundwater monitoring wells and one from each of the three new well points shown in Figure 4-1. All samples were analyzed for full TCL organic compounds, including volatile organics, BNAs, PCBs/pesticides, metals, and cyanide.

No organic constituents were detected in the groundwater above NYSDEC Class GA groundwater standards. However, several PAH compounds were present in GW-2 below quantitation limits including naphthalene, 2-methylnaphthalene, acenaphthene, phenanthrene, anthracene, fluoranthene, pyrene, and chrysene, as well as dibenzofuran. While chrysene, a known carcinogen, was detected below quantitation limits in GW-2, it was detected at a concentration above the NYSDEC guidance value of 0.002 µg/L for Class GA groundwater. The only other organic compound detected in the groundwater was isophorone in GW-5 below quantitation limits. According to the potentiometric surface map generated for the shallow water table at the site, monitoring well GW-2 is considered directly upgradient of the landfill (see Figure 4-1). Monitoring well GW-5 is located downgradient of the landfill in the wetlands area.

Several inorganic elements were detected in groundwater samples collected at the site in concentrations exceeding NYSDEC Class GA standards including arsenic, barium, cadmium, chromium, copper, iron, lead, manganese, sodium, and zinc (see Table 4-5). The geographic distribution of the metals exceeding respective standards is somewhat random. Groundwater samples collected at monitoring wells up- and downgradient of the landfill exceeded the standards for three or more parameters. The groundwater sample collected from downgradient monitoring well GW-5, however, was consistently found to contain the highest concentration of inorganics exceeding Class GA standards. A 24-hour period transpired between well purging and sampling due to post well evacuation turbidities in excess of 50 nephelometric turbidity units (NTUs). The high aluminum and iron concentration ranges indicated by the inorganic analyses are indicative of the high particulate suspension levels in the samples.

4.5.3 Surface Soil Samples

Four surface soil samples (0 to 6 inches) were collected from locations on and directly north of the landfill (see Figure 3-1). Organic analysis of the surface soil indicated the presence of 2-butanone below quantitation limits at 3 and 2 µg/L in samples S-2 and S-3, respectively. In addition, N-Nitrosodiphenylamine was present in sample S-3 below quantitation limits. PAHs were detected both above and below quantitation limits at estimated total concentrations ranging from 820 to 204,000 µg/kg and were found in all four of the surface soil samples. PAHs are commonly found in industrialized areas where concentrations may be as high as 650,000 µg/kg (Edwards 1983). Additionally, the PCB Aroclor-1260 was found at an estimated concentration of 1,800 µg/kg in sample S-3 (see Table 4-6).

Inorganic analysis of the surface soil samples indicates the presence of 13 metals including arsenic, chromium, lead, mercury, and zinc at levels exceeding the regional background concentration ranges (see Table 4-7).

4.5.4 Surface Waste Samples

Four surface waste samples (0 to 6 inches) were collected at locations on the landfill (see Figure 3-1). These waste sampling locations were selected based on the observation of suspicious or hazardous appearing materials on the landfill surface. Organic analysis of the waste samples indicated the presence of hexachlorobenzene at 520 µg/kg in W-3 and butylbenzylphthalate in W-1 at an estimated concentration of 830 µg/kg as indicated on Table 4-8. Additionally, isophorone, pentachlorophenol, and butylbenzyl phthalate were detected below quantitation limits in W-3. Butylbenzylphthalate was also present in sample W-4 at concentrations below quantitation limits. This compound is a common field and laboratory contaminant. PAH compounds were present in each of the four waste samples collected with estimated totals above and below quantitation limits ranging from 32,000 to 55,000 µg/kg. PAHs in industrialized areas are common, with concentrations as great as 650,000 µg/kg (Edwards 1983). Additionally, the PCB Aroclor-1260 was found in each of the waste samples ranging in concentration from 850 to 3,000 µg/kg.

Inorganic analysis of waste samples indicates the presence of 15 metals at levels that exceed regional background concentration ranges (see Table 4-9). For several inorganics, concentrations in all four samples exceeded the regional background ranges. These parameters included arsenic (20.4 to 38.1 mg/kg); cadmium (6.5 to 22.7 mg/kg); chromium (56.3 to 106 mg/kg); copper (191 to 274 mg/kg); iron (36,500 to 119,000); lead (310 to 593 mg/kg); mercury (.48 to .85 mg/kg); and zinc (430 to 1,180 mg/kg).

EP Toxicity analysis of the waste samples indicates that no metals are leaching from the waste (i.e., all results were nondetect).

4.5.5 Surface Water/Sediment Samples

Four surface water samples, SW-1, SW-2, SW-3, and SW-5, were collected from the site and analyzed for TCL organics and inorganics (see Figure 3-1). No surface water was present at SW-4. The chlorinated organic compound PCE was detected in two surface water samples at concentrations exceeding the NYSDEC Class C surface water standard (see Table 4-10). PCE was detected at a concentration of 7 ppb in sample SW-1 and below quantitation limits but above surface water standards in SW-2 at an estimated concentration of 2 ppb. The location where SW-1 was collected is considered upgradient (surface water entering the site); and SW-2 is located directly downgradient of SW-1. Acenaphthene, a PAH compound, was detected below quantitation limits in sample SW-5.

All of the surface water samples collected at each location for inorganic analysis (one upgradient and three downgradient) exceeded the NYSDEC Class C standard for iron (see Table 4-11). Other inorganics that exceeded Class C standards include aluminum (SW-2 and SW-5), copper (SW-5), lead (SW-5), vanadium (SW-5), and zinc (SW-5). Surface water sample SW-5, collected from the wetlands directly adjacent to the northeast corner of the landfill, was found to consistently contain the highest concentration of each of the six inorganics that exceeded the standards.

Sediment samples were collected from locations corresponding to the four surface water sample points. In addition, a fifth sediment sample, SD-4, was collected southeast of the landfill. Organic analysis of sediment collected indicated the presence of 2-butanone at levels below quantitation limits in samples SED-3 and SED-4 taken at south and east locations downgradient from the landfill (see Table 4-12). PCE was present below quantitation limits in sediment sample SED-1, the upgradient sampling location. Several PAHs were present below quantitation limits in sediment samples SED-2 and SED-3. PAHs were present above and below quantitation limits at an estimated total of 111,790 µg/kg in SED-5. Each of these sediment samples was collected in wetland areas downgradient of the landfill. PAHs are common in industrialized areas where concentrations may be as high as 650,000 µg/kg (Edwards 1983).

Inorganic analysis of sediment samples collected at the site indicated the presence of arsenic, cadmium, calcium, copper, iron, nickel, and zinc at levels exceeding regional background concentration ranges (see Table 4-13). Sediment sample SED-5, collected from the wetlands located directly adjacent to the northeast corner of the landfill, was found to consistently contain the highest concentrations of these seven inorganic analytes.

4.6 CONCLUSIONS AND RECOMMENDATIONS

4.6.1 Conclusions

Based on the review of the existing historical data and the analytical data generated during the Phase II investigation, several conclusions can be drawn for the Conrail site. The community RTK Program and a generator form completed by Morrison-Knudsen Company of Hornell, New York, indicate that from pre-1952 until 1976, the Erie Lackawanna Railroad disposed of unknown quantities of oily sludge and solvents at the site. In addition, Conrail disposed of unknown quantities of oil sludge, paint filters, and solvents at the site between 1976 and July 1977.

Historical data identify hazardous waste, namely 31 drums of alkaline liquid, nonchlorinated solvents, flammable solids, and nonspecified liquid and solid waste, that was initially disposed of at the Conrail site but was removed in 1982 by SCA Chemical Services for proper disposal at their Model City facility in Niagara County, New York. Additional hazardous waste (sludge containing high levels of PCBs from an industrial facility in Sharon, Pennsylvania) was allegedly disposed of at the Conrail site. However, NYSDEC concluded from results of their sampling that the wastes at the Conrail site were not those from the Sharon, Pennsylvania source. In addition, there is no documentation indicating that this sludge was disposed of on site (Bailey 1987).

The Phase II investigation identified numerous hazardous substances that are consistent with the site's past usage. The discovery of these hazardous substances does not confirm the disposal of hazardous waste at the site. However, these hazardous substances pose a potential threat to the existing nearby population and environment if left unattended. The following paragraphs summarize these findings.

The PCB Aroclor-1260 was detected in landfill surface soil and waste at concentrations up to an order of magnitude higher (0.85 to 3 ppm) than sampling conducted by NYSDEC in 1985 and 1987 (0.008 to 0.3 ppm). Although the PCB concentrations are less than or equal to 3 ppm, the surface soil and waste material samples may not represent worst-case scenarios. Public and wildlife access to the landfill is not restricted; therefore, the low levels of PCBs may be a concern at this location.

Fill material was observed during the split-spoon sampling conducted during the installation of monitoring well GW-2. PAH contamination, toluene, and xylenes were present in the subsurface soil sample collected at 6 to 8 feet below the ground surface. Groundwater sampling results indicate that metals concentrations in wells GW-1 and/or GW-2 exceed NYSDEC standards for cadmium, iron, lead, manganese, sodium, and zinc. Nine PAH compounds including chrysene, a known carcinogen, were detected in the GW-2 groundwater sample. These factors suggest that although wells GW-1 and GW-2 were installed north of the 4-foot landfill berm, they are within a former fill boundary. Groundwater samples analyzed for inorganic parameters from other locations show the highest levels of metals contamination in monitoring well GW-5, which is located directly east of the northeast corner of the landfill. This area is of surface water, sediment, and subsurface soil and the inorganic contamination of groundwater at this general sampling location is associated with the documented disposal of 31 55-gallon drums of assorted hazardous materials at or near this area. In addition, PAHs are commonly found in industrialized areas where concentrations may be as great as 650,000 µg/kg (Edwards 1983). This contamination may also represent the suspected radial flow of surface and groundwater from the portion of the landfill in proximity to the wetlands area.

While the chlorinated solvent PCE was detected in the upgradient surface water sample at 7 ppb, the compound was detected at 2 ppb directly downgradient, and not detected at locations farther downgradient. The presence of PCE at 7 ppb in the upgradient surface water sample is probably associated with railroad switching yard operations or another source north of the landfill. Metals concentrations found in the surface and subsurface soil, surface waste material, and sediment were typically above the regional range of background soils for this area (Boerngen and Shacklette 1981). Metals concentrations found in groundwater collected at the site exceed NYSDEC GA standards for 10 inorganic parameters at locations up- and downgradient of the landfill. Metals concentrations in the downgradient surface water samples were generally above those measured at the upgradient location at the site. The surface water sample collected directly east of the northeast corner of the landfill exhibited the highest concentration of aluminum, copper, iron, lead, vanadium, and zinc at the site. This surface water sample exceeded NYSDEC standards for ambient surface water for each of the six aforementioned inorganic parameters.

4.6.2 Recommendations

Potential harm to human health and the environment by the hazardous substances present at the Conrail site could result from direct contact with surface soil and waste material at the landfill and with surface water and sediment downgradient of the site. Therefore, various actions are recommended to prevent these consequences from occurring. The placement of a low-permeability clay cap over the landfill would reduce the risk of direct contact and decrease the volume of leachate that the site generates and, consequently, the potential for the migration of the risk of direct contact and decrease the volume of leachate that the site generates and, consequently, the potential for the migration of contaminants to the adjacent wetlands environment. Particular attention should be paid to ensure proper cover at the presently exposed south landfill boundary so that the potential for landfill erosion during Canisteo River flood events is reduced. Areas where settling has occurred should be filled before the area is capped.

At a minimum, the construction of an 8-foot-high chain-link fence across the north side of the landfill along Ice House Road would restrict the landfill and surrounding downgradient areas to the south and east of the site from trespassers and wildlife that have accessed these areas in the past. This measure would substantially reduce the risk for direct contact with contamination on and around the landfill, as well as restrict indiscriminate illegal dumping by the local community. Access from the south and east is limited due to the presence of wetlands.

Further hydrogeologic investigation of this site, including the installation of an additional overburden upgradient well north of the railroad switching yard to better define background water quality, is warranted.

The RTK hazardous waste questionnaire filed by Morrison-Knudsen Company and a 1968 aerial photograph of the area both suggest that disposal may have occurred east of the known site on the north side of the tracks. In addition, the aerial photograph suggests additional disposal in an area northwest of the site, also on the south side of the tracks. Further investigation of these areas should be considered.

Contaminants detected at the site are consistent with those expected based on the site's former usage as an industrial landfill. However, the contaminants detected cannot be linked directly to the documented hazardous waste disposed of at the site. Possible threat to human health or the environment posed by the hazardous substance contamination at the site is not linked to the disposal of hazardous waste. If mitigative measures detailed above are taken, the risks posed by the presence of hazardous substances will be reduced. In light of this, but not overlooking the documented hazardous waste disposal, E & E recommends that NYSDEC reclassify the site to Class 3 in the State's Registry of Inactive Hazardous Waste Disposal Sites.

Table 4-1

MONITORING WELL AND WELL POINT CONSTRUCTION DATA

Well Number	Screen (Feet)	Riser (Feet)	Thickness of Bentonite (Feet)	Total Depth (Feet)	Stick-up Height (Feet)
Monitoring Wells					
GW-1	5.0	7.17	1.0	10.0	2.17
GW-2	4.5	7.60	1.5	10.3	1.80
Well Points					
GW-3	5.0	7.0	1.0	10.18	1.82
GW-4	5.0	6.0	0.5	8.29	2.71
GW-5	5.0	6.0	0.5	8.47	2.53

02[UZ]YP2080:D3314/6326/29

Source: Ecology and Environment Engineering, P.C., 1991.

Table 4-2

MONITORING WELL AND GROUNDWATER ELEVATIONS

Well Number	Ground Elevation	Elevation of Top of PVC Casing	Depth to Groundwater from Ground Surface	Groundwater Elevation
GW-1	1,130.7	1,132.87	1.56	1,129.14
GW-2	1,135.1	1,136.90	5.91	1,129.19
GW-3	1,128.8	1,130.62	0.83	1,127.97
GW-4	1,127.2	1,129.91	0.14	1,127.06
GW-5	1,126.7	1,129.23*	0.08**	1,126.78

[UZ]YP2080:D3314/6332/24

Notes: Vertical control elevations generated from benchmark monument stamped R133 - Elevation 1,136.00' from U.S.G.S. Quadrangle, Hornell, New York.

Site benchmark is chiselled square S.E. corner of site tower - elevation 1,134.04'.

An electronic water level meter marked in 0.02 foot intervals was used to measure groundwater depths to the nearest 0.01 foot.

*Top of PVC cap
**Above ground

Source: Ecology and Environment P.C., 1991.

Table 4-3

SUBSURFACE SOIL (2 TO 8 FEET) ORGANIC ANALYSIS

Organic Parameter	Range for Subsurface Soils (2-8 Feet) on site (µg/kg)	Specific Sample Concentration: Location/ Depth	Specific Sample Concentration: Level (µg/kg)
1,1,1-Trichloroethane	ND - 8J	B-3 (2'- 4')	8J
Toluene	ND - 15J	B-2 (6'- 8')	15J
Total Xylenes	ND - 21J	B-2 (6'- 8')	21J
Total PAHs*	ND - 10,726J	B-2 (6'- 8') B-5 (2'- 4')	10,726J 795J

02[UZ]YP2080:D3314/6333/32

* = Sum of polynuclear aromatic hydrocarbon (PAH) compounds detected in sample.

Key:

(µg/kg) = Micrograms per kilogram or parts per billion
ND = Not detected
J = Analyte(s) present. Reported value may not be accurate or precise.

Source: Ecology and Environment P.C., 1991

Table 4-4

SUBSURFACE SOIL (2 TO 8 FEET) INORGANIC ANALYSIS

Inorganic Parameter	Range for Surface Soils (2-8 Feet) on Site (mg/kg)	Regional Range of Background(a) Concentrations (mg/kg)	Sample Exceeding Concentration Range: Location	Sample Exceeding Concentration Range: Level (mg/kg)
Aluminum	3,070 - 15,000	70,000		
Arsenic	[1.6]L - 39.8L	7.2 - 16	B-2	39.8L
Barium	[24.4] - 209	300		
Beryllium	ND - [0.26]	<1 - 7(b)		
Cadmium	1.5K - 26.8K	<1 - 1(c)	B-1 B-2 B-3 B-4 B-5	1.5K 26.8K 4.5K 3.3K 3.1K
Calcium	2,740 - 56,200	600 - 3,500	B-1 B-2 B-3 B-5	56,200 33,200 4,780 6,980
Chromium	6.5 - 43.9	30	B-2	43.9
Cobalt	[4.7] - [12.1]	7 - 15		
Copper	13.7 - 1,075	15 - 20	B-2 B-3 B-5	1,075 23.7 31.1
Iron	11,600 - 114,500	15,000 - 30,000	B-2	114,500
Lead	8.0J - 404J	15 - 30	B-2 B-3	404J 33.4J
Magnesium	4,370 - 15,450	3,000 - 7,000	B-1 B-2	15,450 13,700
Manganese	188K - 930K	300 - 1,500		
Nickel	9.6K - 72.8K	10 - 30	B-2	72.8
Potassium	[368] - [3,817]	12,000 - 21,000		
Selenium	ND - [4.4]	<0.1 - 3.9(b)		
Sodium	[127.8] - [1,100]	3,000 - 7,000		
Vanadium	[7.7] - 38.6	50 - 70		

02[UZ]YP2080:D3314/6334/24

Key at end of table.

Table 4-4 (Cont.)

Inorganic Parameter	Range for Surface Soils (0-6 Inches) on Site (mg/kg)	Regional Range of Background(a) Concentrations (mg/kg)	Sample Exceeding Concentration Range	
			Location	Level (mg/kg)
Zinc	51.4 - 215	75 - 85	B-2 B-4	215 92.7

02[UZ]YP2080:D3314/6334/24

Key:

(mg/kg) = milligrams per kilogram or parts per million
(a) Based on surface soil data collected in Steuben, Tioga, and Tompkins counties, New York, and Tioga County, Pennsylvania (Boerngen and Shacklette 1981).
(b) Guidelines for Soils/Surface Materials of the Eastern United States (Shacklette and Boerngen 1984).
(c) Uncultivated B Horizon - Eastern United States (Connor and Shacklette 1975).
[] = Inorganic analyte present. As values approach IDL the quantitation may not be accurate.
L = Analyte present. Reported value may be biased low. Actual value expected to be higher.
ND = Not detected.
K = Analyte present. Reported value may be biased high. Actual value expected to be lower.
J = Analyte present. Reported value may not be accurate or precise.

Source: Ecology and Environment P.C., 1991

Table 4-5

GROUNDWATER INORGANIC ANALYSIS

Inorganic Detected	Range Detected in Samples (μg/L)	NYSDEC Standards for Class GA Groundwater (μg/L)	Comment	Sample Exceeding Standard	
				Sample Number	Concentration (μg/L)
Aluminum	609 - 57,800J	No regulatory limit	Levels often high		
Arsenic	[2.4] - 263	25		GW-3 GW-4 GW-5	30.6 28.6 263
Barium	[93.2] - 6,040J	1,000		GW-5	6,040J
Cadmium	15.1 - 136	10		GW-1 GW-5	15.1 136
Calcium	70,500J - 302,000J	No regulatory limit	Levels often high		
Chromium	12.2 - 782J	50		GW-1 GW-3 GW-5	59.8 72.2 782J
Cobalt	[15.5] - 363	No regulatory limit			
Copper	[12.8] - 979J	200		GW-5	979J
Iron	6,720 - 121,000	300		GW-1 GW-2 GW-3 GW-4 GW-5	106,000 6,720 55,600 40,005 121,000
Lead	12.8J - 1,190	25		GW-1 GW-5	52 1,190
Magnesium	15,300 - 243,000	No regulatory limit	Levels often high		
Manganese	2,250J - 12,900J	300		GW-1J GW-2J GW-3J GW-4J GW-5J	5,020 2,250 4,560 6,030 12,900
Nickel	[9.6] - 1,490J	No regulatory limit			
Potassium	[2,300] - 69,500	No regulatory limit	Levels often high		
Selenium	ND - [1.6]	10	All samples below regulatory limit		

02[UZ]YP2080:3314/6336/17

Key at end of table.

Table 4-5 (Cont.)

Inorganic Detected	Range Detected in Samples (μg/L)	NYSDEC Standards for Class GA Groundwater (μg/L)	Comment	Sample Exceeding Standard	
				Sample Number	Concentration (μg/L)
Sodium	20,800J - 352,000J	20,000	Levels often high	GW-1	32,100J
				GW-2	20,000J
				GW-3	157,000J
				GW-4	217,000J
				GW-5	352,000J
Vanadium	[10.7] - 645J	No regulatory limit			
Zinc	29.9 - 3,560J	300		GW-1	424J
				GW-5	3,560J

02[UZ]YP2080:3314/6336/17

Key:

(μg/L) = micrograms per liter or parts per billion

J = Analyte present. Reported value may not be accurate or precise.
[] = Inorganic analyte present. As values approach IDL the quantitation may not be accurate.

Source: Ecology and Environment P.C., 1991

Table 4-6

SURFACE SOIL (0 TO 6 INCHES) ORGANIC ANALYSIS

Organic Parameter	Range for Surface Waste (0 to 6 Inches) On Site (µg/kg)	Specific Sample Concentration	
		Location	Level (µg/kg)
N-Nitrosodiphenylamine	ND - 180J	S-3	180J
Total PAHs*	822 - 204,439	S-1	822
		S-2	78,820
		S-3	59,610
		S-4	204,439
Aroclor-1260 PCBs**	ND - 1,800J	S-3	1,800J

02[UZ]YP2080:D3314/6338/29

* = Sum of polynuclear aromatic hydrocarbon (PAH) compounds detected in sample.
** = Polychlorinated biphenyls (PCBs)

Key:

(µg/kg) = Micrograms per kilogram or parts per billion
ND = Not detected
J = Analyte(s) present. Reported value may not be accurate or precise.

Source: Ecology and Environment P.C., 1991

Table 4-7

SURFACE SOIL (0 TO 6 INCHES) INORGANIC ANALYSIS

Inorganic Parameter	Range for Surface Soils (0-6 Inches) On Site (mg/kg)	Regional Range of Background(a) Concentrations (mg/kg)	Sample Exceeding Concentration Range: Location	Sample Exceeding Concentration Range: Level (mg/kg)
Aluminum	3,280 - 9,820	70,000		
Arsenic	6.8L - 30.6L	7.2 - 16	S-3	28.8L
			S-4	30.6L
Barium	65.4 - 375	300	S-4	375
Cadmium	2.5K - 9.7K	<1 - 1(b)	S-1	3.2K
			S-2	2.5K
			S-3	9.7K
			S-4	6.3K
Calcium	3,610 - 38,500	600 - 3,500	S-1	38,500
			S-2	3,610
			S-3	20,500
			S-4	15,200
Chromium	14.1 - 86.9	30	S-3	86.9
Cobalt	[8.3] - [11.2]	7 - 15		
Copper	23.8 - 2,440	15 - 20	S-1	33.9
			S-2	23.8
			S-3	316
			S-4	2,440
Iron	24,200 - 49,700	15,000 - 30,000	S-3	47,900
			S-4	49,700
Lead	20.8J - 3,590J	15 - 30	S-1	38.1J
			S-3	448J
			S-4	3,590J
Magnesium	3,280 - 15,500	3,000 - 7,000	S-1	15,500
Manganese	363K - 1,200K	300 - 1,500		
Mercury	0.31L - 0.81L	0.03 - 0.37	S-3	0.81L
Nickel	22.6K - 58.4K	10 - 30	S-3	58.4K
			S-4	45.1K
Potassium	[244] - [1,190]	12,000- 21,000		
Selenium	ND - [4.0]	<0.1 - 3.9(c)	S-4	[4.0]
Sodium	[150] - [219]	3,000 - 7,000		
Vanadium	[13.6] - 19.8	50 - 70		

02[UZ]YP2080:D3314/6337/24

Key at end of table.

Table 4-7 (Cont.)

Inorganic Parameter	Range for Surface Soils (0-6 Inches) On Site (mg/kg)	Regional Range of Background(a) Concentrations (mg/kg)	Sample Exceeding Concentration Range Location	Level (mg/kg)
Zinc	75.5 - 932	75 - 85	S-1	80.3
			S-2	75.5
			S-3	932
			S-4	286
Cyanide	ND - 2.6	No guideline		

02[UZ]YP2080:D3314/6337/24

Key:

(mg/kg) = milligrams per kilogram or parts per million

(a) Based on surface soil data collected in Steuben, Tioga, and Tompkins counties, New York, and Tioga County, Pennsylvania (Boerngen and Shacklette 1981).
(b) Cultivated and uncultivated B Horizon - Eastern United States (Connor and Shacklette 1975).
(c) Guidelines for Soils/Surface Materials of the Eastern United States (Shacklette and Boerngen 1984).
J = Analyte(s) present. Reported value may not be accurate or precise.
L = Analyte present. Reported value may be biased low. Actual value expected to be higher.
K = Analyte present. Reported value may be biased high. Actual value expected to be lower.
[] = Inorganic analyte present. As values approach IDL the quantitation may not be accurate.
ND = Not detected.

Source: Ecology and Environment P.C., 1991

Table 4-8

SURFACE WASTE (0 TO 6 INCHES) ORGANIC ANALYSIS

Organic Parameter	Range for Surface Waste (0 - 6 Inches) On Site (μg/kg)	Specific Sample Concentration	
		Location	Level (μg/kg)
Hexachlorobenzene	ND - 520	W-3	520
Butylbenzylphthalate	ND - 830J	W-1	830J
Total PAHs*	32,250J - 54,830J	W-1	44,750
		W-2	37,340J
		W-3	32,250J
		W-4	54,830J
Aroclor-1260 (PCBs)**	850 - 3,000	W-1	2,400
		W-2	850
		W-3	3,000
		W-4	2,200

02[UZ]YP2080:D3314/6339/29

* = Sum of polynuclear aromatic hydrocarbon (PAH) compounds detected in sample.

** = Polychlorinated biphenyls (PCBs)

Key:

(μg/kg) = Micrograms per kilogram or parts per billion

ND = Not detected

J = Analyte(s) present. Reported value may not be accurate or precise.

Source: Ecology and Environment P.C., 1991

Table 4-9

SURFACE WASTE INORGANIC ANALYSIS

Inorganic Parameter	Range for Surface Waste Soil (0-6 Inches) On Site (mg/kg)	Regional Range of Background(a) Concentrations (mg/kg)	Sample Exceeding Concentration Range: Location	Sample Exceeding Concentration Range: Level (mg/kg)
Aluminum	2,450 - 5,610	70,000		
Arsenic	20.4L - 38.1L	7.2 - 16	W-1	20.4L
			W-2	20.4L
			W-3	38.1L
			W-4	36.4L
Barium	113K - 472K	300	W-1	472K
Beryllium	ND - 4.6	<1 - 7(b)		
Cadmium	6.5K - 22.7K	<1 - 1(c)	W-1	13.8K
			W-2	10.5K
			W-3	22.7K
			W-4	6.5K
Calcium	11,300J - 60,400J	600 - 3,500	W-1	16,300J
			W-2	14,800J
			W-3	60,400J
			W-4	11,300J
Chromium	56.3K - 106K	30	W-1	106K
			W-2	78.7K
			W-3	84.7K
			W-4	56.3K
Cobalt	[4.3] - 25.2	7 - 15	W-1	25.2
Copper	191K - 274K	15 - 20	W-1	191K
			W-2	201K
			W-3	274K
			W-4	241K
Iron	36,500 - 119,000	15,000 - 30,000	W-1	67,000
			W-2	39,500
			W-3	119,000
			W-4	36,500
Lead	310K - 593K	15 - 30	W-1	593K
			W-2	388K
			W-3	560K
			W-4	310K
Magnesium	2,160J - 20,200J	3,000 - 7,000	W-3	20,200J
Manganese	645J - 1,720J	300 - 1,500	W-3	1,720J
Mercury	0.48 - 0.85	0.03 - 0.37	W-1	0.48
			W-2	0.63
			W-3	0.85
			W-4	0.63
Nickel	21.0K - 55.1K	10 - 30	W-1	55.1K
			W-2	46.5K
			W-3	42.3K
Potassium	[407] - [734]	12,000 - 21,000		

02[UZ]YP2080:D3314/6327/24

Key at end of table.

Table 4-9 (Cont.)

Inorganic Parameter	Range for Surface Waste Soil (0-6 Inches) On Site (mg/kg)	Regional Range of Background(a) Concentrations (mg/kg)	Sample Exceeding Concentration Range: Location	Sample Exceeding Concentration Range: Level (mg/kg)
Selenium	[0.29] - [0.80]	<0.1 - 3.9(c)		
Silver	[2.0] - 2.8	<0.5 - 3(d)		
Sodium	[258] - [535]	3,000 - 7,000		
Vanadium	[11.2] - 89.6	50 - 70	W-3	89.6
Zinc	430K - 1,180K	75 - 85	W-1	842K
			W-2	743K
			W-3	1,180K
			W-4	430K
Cyanide	ND - 3.1	No guideline		

02[UZ]YP2080:D3314/6327/24

Key:

(mg/kg) = milligrams per kilogram or parts per million

(a) Based on surface soil data collected in Steuben, Tioga, and Tompkins counties, New York, and Tioga County, Pennsylvania (Boerngen and Shacklette 1981).
(b) Guidelines for Soils/Surface Materials of the Eastern United States (Shacklette and Boerngen 1984).
(c) Cultivated and uncultivated B Horizon - Eastern United States (Connor and Shacklette 1975).
(d) Uncultivated B Horizon - Missouri (Connor and Shacklette 1975).
[ ] = Inorganic analyte present. As values approach IDL quantitation may not be accurate.
J = Analyte(s) present. Reported value may not be accurate or precise.
K = Analyte present. Reported value may be biased high. Actual value expected to be lower.
ND = Not detected.

Source: Ecology and Environment P.C., 1991

Table 4-10

SURFACE WATER ORGANIC ANALYSIS

Compound	Range Detected (μg/L)	NYSDEC Ambient Water Standard* (μg/L)	Sample Exceeding Standard	
			Sample Number	Concentration (μg/L)
Tetrachloroethene (PCE)	ND - 7	1GV	SW-1 SW-2	7 2J

[UZ]YP2080:D3314/6328/19

Note: (μg/L) = Micrograms per liter or parts per billion.

*Class A, A-S, AA, AA-S, B, C value used.

Key:

J = Analyte(s) present. Reported value may not be accurate or precise.
ND = Not detected.
GV = State guidance value taken from New York State Ambient Water Quality Standards and Guidance Values, September 25, 1990.

Source: Ecology and Environment P.C., 1991

Table 4-11

SURFACE WATER INORGANIC ANALYSIS

Inorganic Parameter	Range (µg/L)	NYSDEC Regulatory Limit* (µg/L)	Comment	Sample Exceeding Limit: Location	Sample Exceeding Limit: Level (µg/L)
Aluminum	ND - 2,580	100		SW-2 SW-5	[157] 2,580
Arsenic	ND - 32.1	140**			
Barium	[56.9] - 788J	No regulatory limit			
Calcium	48,200J - 76,000 J	No regulatory limit	Levels often high		
Chromium	ND - 13.1	312.2**	All samples below regulation limit		
Copper	ND - 26.7	18.2**		SW-5	26.7
Iron	342 - 84,100	300		SW-1 SW-2 SW-3 SW-5	342 657 545 84,100
Lead	ND - 13.0	6.1**		SW-5	13.0
Magnesium	10,900 - 48,000	No regulatory limit			
Manganese	51.8 - 1,190J	No regulatory limit			
Nickel	ND - [9.7]	140**	All samples below regulatory limit		
Potassium	[2,030] - 16,800	No regulatory limit			
Sodium	12,900 - 40,000J	No regulatory limit			
Vanadium	ND - [27.8]	14		SW-5	[27.8]
Zinc	[4.6] - 185	30		SW-5	185

02[UZ]YP2080:D3314/6329/16

*Class A, A-S, AA, AA-S, B, C Value used.
**Based on surface water hardness as determined by calcium and magnesium concentrations.

Key:

(µg/L) = micrograms per liter or parts per billion

ND = Not detected.
[] = Inorganic analyte present. As values approach IDL the quantitation may not be accurate.
J = Analyte present. Reported value may not be accurate or precise.

Source: Ecology and Environment P.C., 1991

Table 4-12

SEDIMENT ORGANIC ANALYSIS

Organic Parameter	Range for Sediment On Site ($\mu g/kg$)	Specific Sample Concentration	
		Location	Level ($\mu g/kg$)
Total PAHs*	ND - 111,790J	SED-5	111,790J

02[UZ]YP2080:D3314/6330/32

* = Sum of polynuclear aromatic hydrocarbon (PAH) compounds detected in sample.

Key:

($\mu g/kg$) = Micrograms per kilogram or parts per billion
ND = Not detected
J = Analyte(s) present. Reported value may not be accurate or precise.

Source: Ecology and Environment P.C., 1991

Table 4-13

SEDIMENT INORGANIC ANALYSIS

Inorganic Parameter	Range for Site Sediment (mg/kg)	Regional Range of Background(a) Concentrations (mg/kg)	Sample Exceeding Concentration Range	
			Location	Level (mg/kg)
Aluminum	5,810 - 10,800	70,000		
Arsenic	5.2L - 27.5L	7.2 - 16	SED-5	27.5L
Barium	[33.2] - 179	300		
Cadmium	ND - 3K	<1 - 1(b)	SED-4	3.0K
Calcium	5,440 - 20,600	600 - 3,500	SED-1 SED-2 SED-3 SED-4 SED-5	6,510 7,450 8,400 5,440 20,600
Chromium	7.2 - 20.8	30		
Cobalt	[3.9] - [7.4]	7 - 15		
Copper	13.1 - 36.7	15 - 20	SED-5	36.7
Iron	17,200 - 40,700	15,000 - 30,000	SED-5	40,700
Lead	10.1J - 29.9J	15 - 30		
Magnesium	3,460 - 4,650	3,000 - 7,000		
Manganese	315K - 533K	300 - 1,500		
Nickel	12K - 31.8K	10 - 30	SED-5	31.8K
Potassium	[431] - [1,620]	12,000 - 21,000		
Sodium	[146] - [443]	3,000 - 7,000		
Vanadium	[7.8] - [14.4]	50 - 70		
Zinc	52.4 - 253	75 - 85	SED-5	253

02[UZ]YP2080:D3314/6331/27

Key:

(mg/kg) = Milligrams per kilogram or parts per million

(a) Based on surface soil data collected in Steuben, Tioga, and Tompkins counties, New York, and Tioga County, Pennsylvania (Boerngen and Shacklette 1981).
(b) Cultivated and uncultivated B horizon - Eastern United States (Connor and Shacklette 1975).
L = Analyte present. Reported value may be biased low. Actual value expected to be lower.
[] = Inorganic analyte present. As values approach IDL the quantitation may not be accurate.
J = Analyte present. Reported value may not be accurate or precise.
K = Analyte present. Reported value may be biased high. Actual value expected to be lower.

Source: Ecology and Environment P.C., 1991

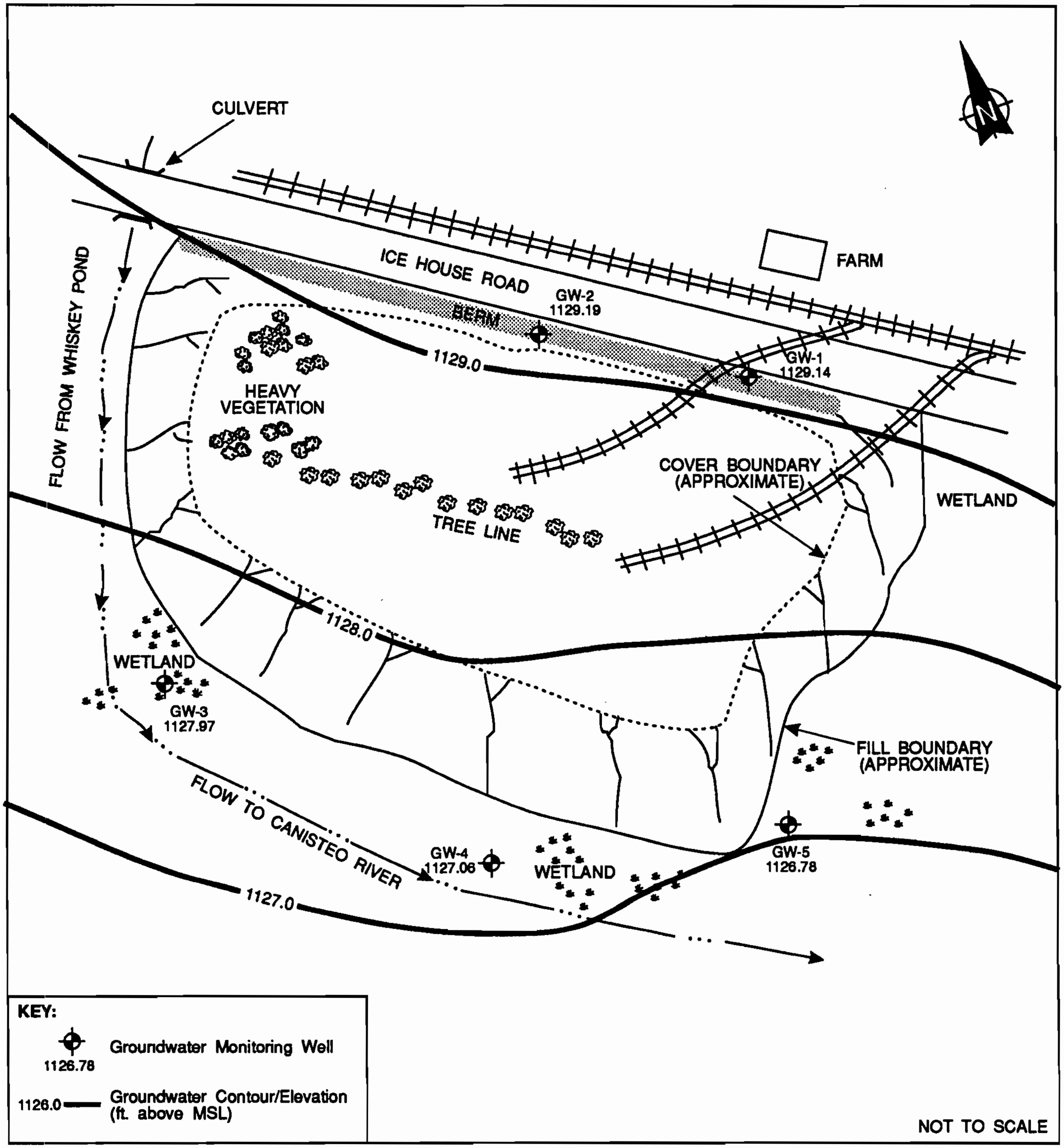


Figure 4-1
GROUNDWATER ELEVATIONS FOR SHALLOW WATER TABLE

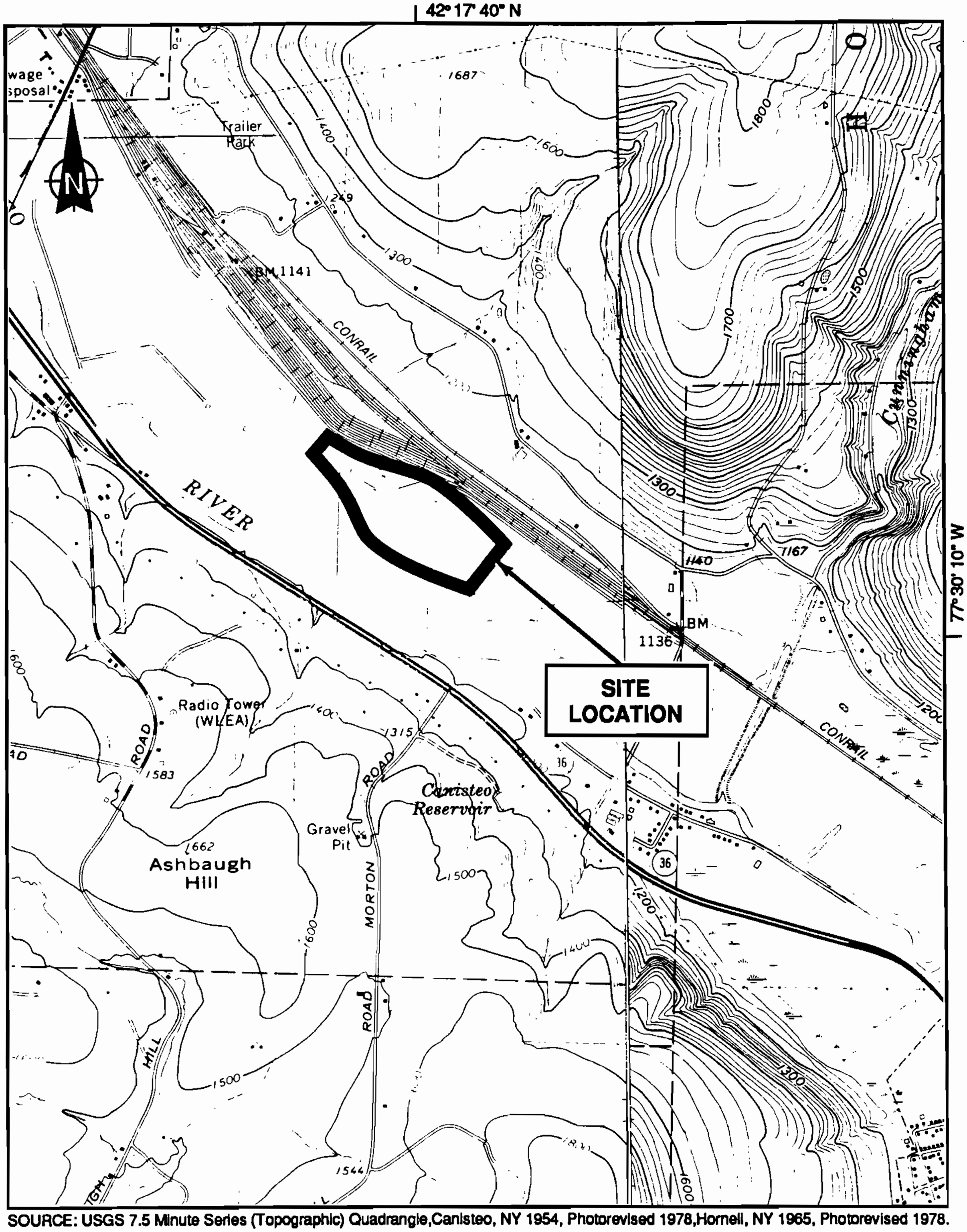
YP2962B

5. FINAL APPLICATION OF HAZARD RANKING SYSTEM

5.1 NARRATIVE SUMMARY

The Conrail site is a 20-acre inactive landfill located on the floodplain of the Canisteo River in Hornellsville, Steuben County, New York (see Figure 5-1). The landfill was operational from approximately 1940 to 1978. During the earlier years of operation, 1940 to 1962, the site was owned by the Erie Railroad and then by the Erie Lackawanna Railroad until 1975. Activities included the disposal of rubbish, spoiled produce, and rejected shipping goods. In 1975, Conrail took over the site, and disposal activities continued. Conrail used the site for the disposal of numerous miscellaneous wastes including railroad ties, 55-gallon drums, large storage batteries, garbage, and a multitude of wreckage from various railroad accidents throughout the northeast (Herington 1981, Jackson 1983). These disposal practices continued until 1978 when operations at the landfill ceased. The Community RTK Program and a hazardous waste questionnaire filed by Morrison-Knudsen Company of Hornell, New York, current owner of other former Conrail properties in the area, document the disposal of unknown quantities of oily sludge and solvents at the site by the Erie Lackawanna Railroad from before 1952 until 1976. In addition, unknown quantities of oily sludge, paint filters, and solvents were disposed of at the site by Conrail from 1976 until July 1977. Remedial action conducted at the site by contractors retained by Conrail includes the removal of drums and waste batteries, excavation of surface debris, and capping of the site in 1982 to 1983 (Flint 1990). Recent Phase II investigation sampling indicated the presence of low level PCBs (less than or equal to 3 ppm) in surface soil and waste samples collected at the landfill. Additionally, PAH and inorganic contaminants have been identified in surface water, sediment, and subsurface soil samples collected from selected locations downgradient (some in wetlands) of the landfill. Low concentrations of chlorinated organic solvents PCE and TCA have also been detected in surface water and a subsurface soil sample, respectively.

A Conrail switching yard is located directly north of the site. The Canisteo River is located approximately 1,000 feet southwest of the landfill. The landfill is within the 100-year floodplain for the river, and New York State-designated freshwater wetlands are located east and south of the landfill. The landfill is equidistant from the City of Hornell and the Town of Canisteo, 1.5 miles northwest and southeast of the site, respectively.



SOURCE: USGS 7.5 Minute Series (Topographic) Quadrangle, Canisteo, NY 1954, Photorevised 1978, Hornell, NY 1965, Photorevised 1978.

SCALE 1:24,000

0 ½ 1 Mile

0 .5 1 Kilometer

Figure 5-1
SITE LOCATION MAP, CONRAIL SITE

FIGURE 1

HRS COVER SHEET

Facility Name: Conrail Site/Conrail Demolition Landfill

Location: Town of Hornellsville, Steuben County, New York

EPA Region: II

Person(s) in Charge of Facility: Consolidated Railway Corporation

109 Loder Street

Hornell, New York 14803

Name of Reviewer: Ecology and Environment Engineering, P.C. 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.)

The Conrail site is a 20-acre landfill that began operations about 1940. The landfill was initially owned by the Erie Railroad and later the Erie Lackawanna Railroad until the property was acquired by Consolidated Rail Corporation (Conrail) in 1975. Operation of the landfill ceased in 1978. Wastes dumped at the site included spoiled produce, rejected shipping goods, demolition debris, metal scrap, batteries, and 55-gallon drums (removed in 1982). It was alleged that PCB sludges from Westinghouse in Sharon, PA were also dumped at the site, but soil samples collected by NYSDEC in 1985 and 1986 showed PCB levels much lower than those of the alleged source. The RTK program documents the disposal of unknown quantities of oily sludges and solvents at the site by the Erie Lackawanna Railroad from before 1952 until 1976. Additionally, unknown quantities of oily sludge, paint filters, and solvents were disposed of at the site by Conrail between 1976 and July 1977. The site is located within the boundaries of a New York State designated freshwater wetlands area and the 100-year floodplain of the Canisteo River.

Scores: $S_M = 39.03$ ($S_{gw} = 65.62$ $S_{sw} = 15.94$ $S_a = 0$)

$S_{FE} = 0$

$S_{DC} = 25.0$

Ground Water Route Work Sheet					
Rating Factor	Assigned Value (Circle One)	Multiplier	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	3	3	
	Total Route Characteristics Score		12	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	35	40	
	Total Targets Score		44	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			37,620	57,330	
7 Divide line 6 by 57,330 and multiply by 100			S_{gw} = 65.62		

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	45	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	3	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	3	3	
	Total Route Characteristics Score		14	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	6	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		12	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			10,800	64,350	
7 Divide line 6 by 64,350 and multiply by 100		S_{sw} = 15.94			

FIGURE 7
SURFACE WATER ROUTE WORK SHEET

Air Route Work Sheet					
Rating Factor	Assigned Value (Circle One)	Multiplier	Score	Max. Score	Ref. (Section)
1 Observed Release	0 45	1	0	45	5.1
Date and Location: 10/90, 11/90 Conrail site, Hornellsville					
Sampling Protocol: HNu photoionization unit for detection of volatile organic vapors					
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	21	30	
Distance to Sensitive Environment	0 1 2 3	2	6	6	
Land Use	0 1 2 3	1	3	3	
Total Targets Score			30	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})	65.62	4,305.98
Surface Water Route Score (S_{sw})	15.94	254.21
Air Route Score (S_a)		0
$S_{gw}^2 + S_{sw}^2 + S_a^2$		4,560.19
$\sqrt{S_{gw}^2 + S_{sw}^2 + S_a^2}$		67.53
$\sqrt{S_{gw}^2 + S_{sw}^2 + S_a^2}\,/\,1.73 = S_M =$		39.03

FIGURE 10
WORKSHEET FOR COMPUTING S_M

*Site not considered a fire or explosion threat by Fire Chief.

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

FIGURE 11
FIRE AND EXPLOSION WORK SHEET

Direct Contact Work Sheet					
Rating Factor	Assigned Value (Circle One)	Multiplier	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} = 25.0		

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: Conrail Site

Location: Town of Hornellsville, Steuben County

Date Scored: February 1991

Person Scoring: D. Race

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

New York State Department of Environmental Conservation NYSDEC Region 8 file. NYSDEC Phase II Investigation results for the Conrail site.

Factors Not Scored Due to Insufficient Information:

N/A

Comments or Qualifications:

G R O U N D W A T E R   R O U T E

1. OBSERVED RELEASE

Contaminants detected (3 maximum):

Arsenic, chromium, lead

Ref. 26

Rationale for attributing the contaminants to the facility:

These and other heavy metals were detected in the downgradient wells at concentrations greater than three times the concentrations in the upgradient wells.

Ref. 26

* * *

2. ROUTE CHARACTERISTICS

Depth to Aquifer of Concern

Name/description of aquifer(s) of concern:

In this area, the water table is at or near the surface most of the year. The aquifer of concern exists in the glacial overburden overlying bedrock. This aquifer supplies water to the Village of Canisteo and private wells in the area.
Refs. 1, 2

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

0 to 6 feet. Ground surface at the landfill is elevated above that of the surrounding wetlands.
Refs. 1, 3, 4

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

Unknown, possibly as much as 50 feet, definitely below 6 feet.

Ref. 3   Assigned value = 3.

Net Precipitation

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

36 inches
Ref. 5

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

27 inches
Ref. 5

Net precipitation (subtract the above figures):

9 inches
Assigned value = 2.

Permeability of Unsaturated Zone

Soil type in unsaturated zone:

Wayland silt loam. Boring logs indicate silty clay with layers of sand.
Ref. 1

Permeability associated with soil type:

10^{-5} to 10^{-7} cm/sec. Assigned value = 1.
Ref. 6

Physical State

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

Solids, sludges, and liquids.
Ref. 7 Assigned value = 3.

* * *

3. CONTAINMENT

Containment

Method(s) of waste or leachate containment evaluated:

Landfill has no liner. Leachate has been observed flowing from the south face.
Refs. 3, 18

Method with highest score:

Assigned value = 3.

4. WASTE CHARACTERISTICS

Toxicity and Persistence

Compound(s) evaluated:

Arsenic, chromium, lead, and other heavy metals.

Ref. 8

Compound with highest score:

All score 18, highest value.
Refs. 6, 8 Assigned value = 18

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.):

Unknown quantities of oily sludge, paint filters, and solvents.
Ref. 7

Basis of estimating and/or computing waste quantity:

RTK indicates disposal of unknown quantities of hazardous waste.

Assigned value = 1

* * *

5. TARGETS

Groundwater Use

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

The aquifer is used as both a public and private drinking water source. The Village of Canisteo's main source of water is a well located in the Village. This is currently supplemented by spring water from the Canisteo Reservoir; however, after 1993, wells will be the sole source of water for the Village of Canisteo. The Canisteo well also serves Belle Haven Hamlet, 1 mile northwest of Canisteo on Route 36. Other areas outside the City of Hornell use private wells as only potable water source.
Refs. 2, 14, 15

Distance to Nearest Well

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

The farm located north of the site across the railroad tracks uses spring water not well water. Belle Haven Hamlet gets its water from the Village of Canisteo. The next nearest buildings not served by a public water supply are houses directly north of the site, along County Route 29.
Refs. 14, 16

Distance to above well or building:

Approximately 2,000 feet.
Ref. 16 Assigned value = 4

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:

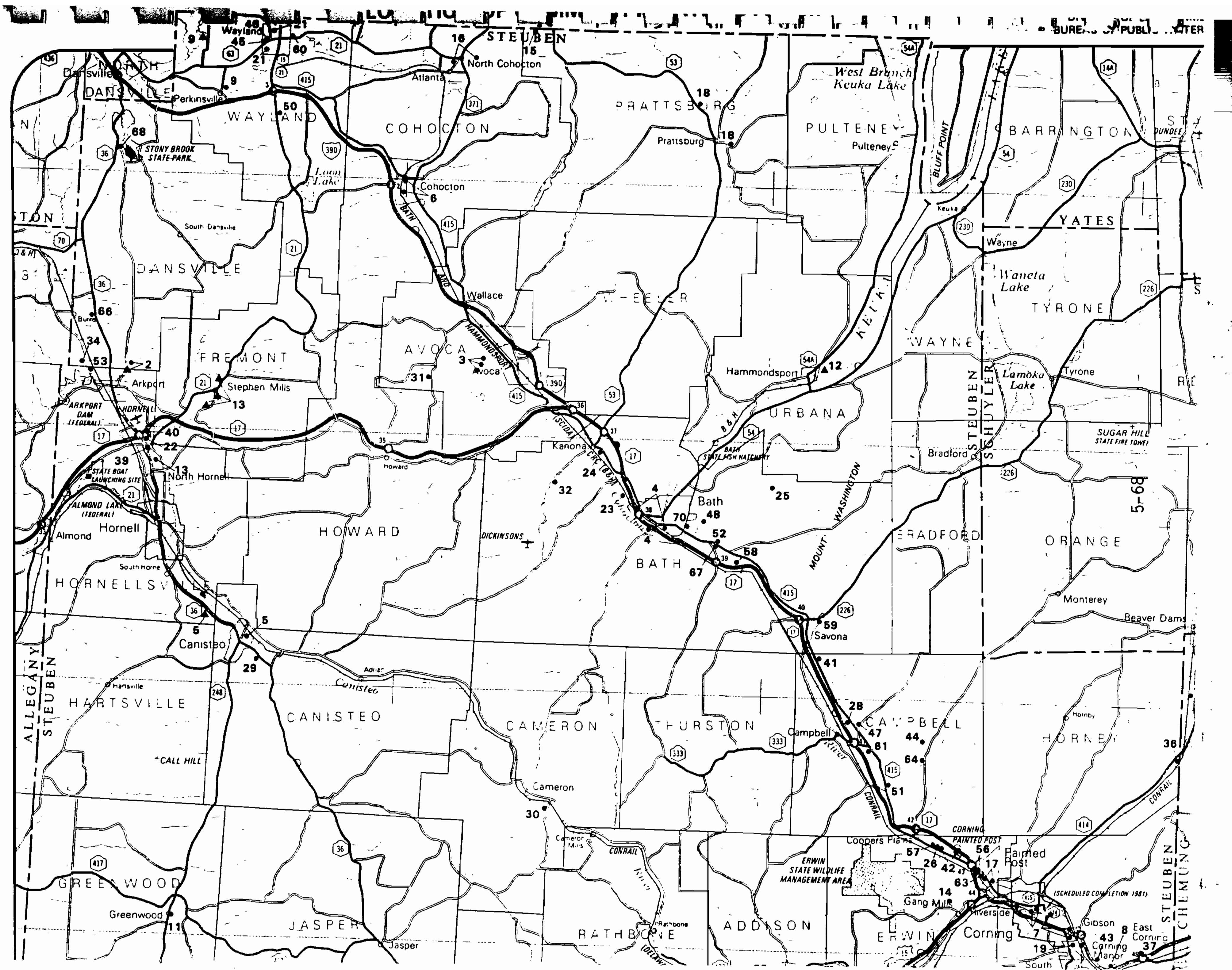
Public well that serves the Village of Canisteo and Belle Haven Hamlet is located in the village on Depot Street, within the diked area south of the Canisteo River. Other residences outside the City of Hornell (which uses water from reservoirs and wells north of the city) and within a three-mile radius of the site use private wells.
Refs. 2, 14

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):

None
Ref. 17

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

Village of Canisteo population 2,730. Outlying residences 375 x 2.8 persons/residence = 1,425. Total = 2,730 + 1,425 = 4,155.
Refs. 14, 15, 16 Assigned value = 4


STEUBEN
North Cohocton
Atlanta
Wayland
Dansville
NORTH DANSVILLE
Perkinsville
WAYLAND
COHOCTON
PRATTSBURG
Prattsburg
PULTENEY
Pulteney
West Branch Keuka Lake
BLUFF POINT
BARRINGTON
DUNDEE
STONY BROOK STATE PARK
Loon Lake
Cohocton
BATH
South Dansville
Keuka
YATES
Wayne
Waneta Lake
TYRONE
DANSVILLE
Wallace
HAMMONDSPORT
WHEELER
KEUKA
AVOCA
Avoca
FREMONT
Stephen Mills
Arkport
Burns
Hammondsport
WAYNE
Lamoka Lake
Tyrone
URBANA
ARKPORT DAM (FEDERAL)
HORNELL
Kanona
B & H
BATH STATE FISH HATCHERY
SUGAR HILL STATE FIRE TOWER
Bradford
STEUBEN
SCHUYLER
Howard
STATE BOAT LAUNCHING SITE
North Hornell
ALMOND LAKE (FEDERAL)
Almond
Hornell
Bath
MOUNT WASHINGTON
HOWARD
DICKINSONS
BRADFORD
ORANGE
5-68
South Hornell
HORNELLSVILLE
Monterey
Beaver Dams
Canisteo
Savona
Adrian
Canisteo
Hartsville
HARTSVILLE
CANISTEO
CAMERON
THURSTON
CAMPBELL
Campbell
River
Hornby
HORNBY
ALLEGANY
STEUBEN
CALL HILL
CONRAIL
Cameron
Cameron Mills
CONRAIL
CORNING PAINTED POST
Coopers Plains
Painted Post
ERWIN STATE WILDLIFE MANAGEMENT AREA
GREENWOOD
Greenwood
Gang Mills
Riverside
(SCHEDULED COMPLETION 1981)
STEUBEN
CHEMUNG
JASPER
Jasper
RATHBONE
Rathbone
ADDISON
ERWIN
Corning
Gibson
East Corning
Corning Manor
South

STEUBEN COUNTY

ID NO	COMMUNITY WATER SYSTEM	POPULATION	SOURCE
	Municipal Community		
1	Addison Village	2100	Wells
2	Arkport Village	787	Limekiln Creek, Wells
3	Avoca Village	1250	Wells (Springs)
4	Bath Village	6100	Wells
5	Canisteo Village	2730	Wells, Springs
6	Cohocton Village	926	Wells
7	Corning City	12953	Wells
8	Corning Manor Water District	300	Wells
9	Dansville Village (Livingston Co, Page 10)		Little Mill Creek Reservoir, Wells
10	Gibson Water District	500	Wells
11	Greenwood Water Company	200	Wells
12	Hammondsport Village	1180	Keuka Lake
13	Hornell City	11150	Seeley Creek Reservoirs, Wells
14	Morningside Heights Water District	600	Wells
15	Naples Village (Ontario Co, Page 12)		Wells
16	North Cohocton Water District	225	Wells
17	Painted Post Village	2700	Wells
18	Prattsburg Water District	800	Wells
19	South Corning Village	1400	Wells
20	Troupsburg Water District	200	Wells
21	Wayland Village	2300	Wells
	Non-Municipal Community		
22	Ames Trailer Court	18	Wells
23	Bath VA Hospital	1500	Wells
24	Brookside Trailer Court	18	Wells
25	Brookwood Mobile Home Court	54	Wells
26	Burroughs Mobile Home Court	20	Wells
27	Butlers Brown Hollow Mobile Park	81	Wells
28	Campbell Estates Inc	237	Wells
29	Canisteo Trailer Park	30	Wells
30	Carol's Country Court	117	Wells
31	Castle Creek Trailer Park	42	Wells
32	Chamberlain's Trailer Park	87	Wells
33	Clark's Wagon Wheel Mobile Home Court	36	Wells
34	Country Estates Court	72	Wells
35	Erwin Grove Trailer Park	57	Wells
36	Four Fourteen Estates Inc	204	Wells
37	Goff Road Mobile Homes	75	Wells
38	Graham's Trailer Court	30	Wells
39	Green Acres Mobile Home Court #1	200	Wells
40	Green Acres Mobile Home Court #2	18	Wells
41	Green Meadows Acres	120	Wells
42	Hall's Mobile Home Agency Inc	435	Wells
43	Hanwell Village	114	Wells
44	Hidden Forest Homes Inc	333	Wells
45	Hidden Inn Trailer Park	30	Wells
46	Hidden Inn Trailer Court	69	Wells
47	Horton's Mobile Home Court	42	Wells
48	J & M's Green Acres Mobile Court	171	Wells
49	Ken's Mobile Home Park	45	Wells
50	La Petite River Crest Mobile Home Park	60	Wells
51	McIntire Trailer Park	45	Wells
52	Moore Haven Trailer Park	72	Wells
53	Pine Knoll Trailer Park	78	Wells
54	Pleasant Valley Mobile Home Park	66	Wells
55	Port Belinda Recreational Camp Grounds	178	Wells
56	Rambler Mobile Court	60	Wells
57	Resue's Mobile Home Park	60	Wells
58	Rumsey Trailer Court	15	Wells
59	Savona Estates	144	Wells
60	Scura Mobile Home Park	102	Wells
61	Seager's Mobile Home Park	72	Wells
62	Sorber's Trailer Court	60	Wells
63	Stiker's, Erwin Court	15	Wells
64	Stoke's Trailer Park	48	Wells
65	Terwilliger Trailer Court	18	Wells
66	The Meadows	168	Wells
67	Uram's Trailer Park	36	Wells
68	Whitfords Trailer Court	36	Wells
69	Wildwood Mobile Home Park	33	Wells
70	William Street Motor Court	60	Wells

SURFACE WATER ROUTE

1. OBSERVED RELEASE

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

Arsenic, barium, iron, manganese, and zinc
Ref. 26

Rationale for attributing the contaminants to the facility:

The above heavy metals were detected downgradient at concentrations greater than three times the concentrations detected upgradient.

* * *

2. ROUTE CHARACTERISTICS

Facility Slope and Intervening Terrain

Average slope of facility in percent:

0% to 3% on surface of landfill, but 100% at the south slope.
Refs. 3, 16

Name/description of nearest downslope surface water:

Freshwater wetland HR-8 is immediately adjacent to the landfill. A small stream flows along the west and south edges of the landfill toward the Canisteo River, a Class C stream, which is about 500 feet away.
Refs. 3, 16

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

0 to 3%
Ref. 16

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

The facility is located in New York State freshwater wetland HR-8.
Ref. 19

Is the facility completely surrounded by areas of higher elevation?

No.
Ref. 16 Assigned value = 3.

1-Year 24-Hour Rainfall in Inches

2.4 inches.
Ref. 20 Assigned value = 2.

Distance to Nearest Downslope Surface Water

Wetlands area and small stream are adjacent to the landfill. Canisteo River is about 500 feet south.
Refs. 3, 16

Physical State of Waste

Solids, sludges, liquids.
Ref. 7 Assigned value = 3.

* * *

3. CONTAINMENT

Containment

Method(s) of waste or leachate containment evaluated:

Cover is thin and waste (demolition debris, pails, drum) is exposed in some areas.
Refs. 3, 4, 18

Method with highest score:

Inadequate cover, no diversion.
Assigned value = 3.

4. WASTE CHARACTERISTICS

Toxicity and Persistence

Compound(s) evaluated:

Arsenic, barium, iron, manganese, and zinc.
Ref. 8

Compound with highest score:

All have toxicity/persistence, score = 18.
Refs. 6, 8 Assigned value = 18.

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.):

Unknown quantities of oily sludge, paint filters, and solvents.
Ref. 7

Basis of estimating and/or computing waste quantity:

RTK indicates disposal of unknown quantities of hazardous waste.
Assigned value = 1.

* * *

5. TARGETS

Surface Water Use

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

Recreation (fishing).
Ref. 14 Assigned value = 2.

Is there tidal influence?

No.
Ref. 16

Distance to a Sensitive Environment

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

Western New York is not a coastal area.
Ref. 16 Assigned value = 0.

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

The site is located in a New York State freshwater wetlands HR-8.
Ref. 19

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

None within 1 mile.
Refs. 16, 21

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:

None within 3 miles.
Refs. 2, 14

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

None.
Ref. 17

Total population served:

None.

Name/description of nearest of above water bodies:

NA

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

NA

AIR ROUTE

1. OBSERVED RELEASE

Contaminants detected:

No significant readings were obtained using HNu meter to monitor air during E & E site visits.
Refs. 3, 4

Date and location of detection of contaminants:

NA

Methods used to detect the contaminants:

HNu meter.
Refs. 3, 4

Rationale for attributing the contaminants to the site:

NA Assigned value = 0.

* * *

2. WASTE CHARACTERISTICS

Reactivity and Incompatibility

Most reactive compound:

NA No reactive compounds are known to be at the site.
Ref. 7

Most incompatible pair of compounds:

NA No incompatible compounds are known to be at the site.
Ref. 7 Assigned value = 0.

Toxicity

Most toxic compound:

Solvents have been disposed of on site, but their physical state and potential impact on the air route is unknown.
Ref. 7

Hazardous Waste Quantity

Total quantity of hazardous waste:

Unknown quantities of oily sludge, paint filters, and solvents.
Ref. 7

Basis of estimating and/or computing waste quantity:

RTK indicates disposal of unknown quantities of hazardous waste.
Assigned value = 1.

* * *

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

11,614, based on Gems data base
Ref. 22

Distance to a Sensitive Environment

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

Western New York is not a coastal area.
Ref. 16   Assigned value = 0.

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

The site is located in a New York State freshwater wetlands HR-8.
Ref. 19   Assigned value = 3.

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

None within 1 mile.
Refs. 16, 21   Assigned value = 0.

Land Use

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

Site is adjacent to Conrail shipping yards.
Ref. 16   Assigned value = 3.

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

NA
Refs. 16, 21   Assigned value = 0.

Distance to residential area, if 2 miles or less:

2,000 feet north of site.
Ref. 16

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

<.5 mile west of the site.
Refs. 16, 17   Assigned value = 2.

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

<.5 mile west of the site.
Refs. 16, 17   Assigned value = 3.

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

No.
Refs. 23, 24

F I R E   A N D   E X P L O S I O N

1. CONTAINMENT

Hazardous substances present:

No fire hazard at site.
Ref. 26

Type of containment, if applicable:

NA

* * *

2. WASTE CHARACTERISTICS

<u>Direct Evidence</u>

Type of instrument and measurements:

O_2/explosimeter readings gave no indication of ignitability or explosion potential.
Ref. 3

<u>Ignitability</u>

Compound used:

NA

<u>Reactivity</u>

Most reactive compound:

NA

<u>Incompatibility</u>

Most incompatible pair of compounds:

NA

<u>Hazardous Waste Quantity</u>

Total quantity of hazardous substances at the facility:

Unknown quantities of oily sludge, paint filters, and solvents.
Ref. 7

Basis of estimating and/or computing waste quantity:

RTK indicates disposal of unknown quantities of hazardous waste.

* * *

3. TARGETS

Distance to Nearest Population

Nearest occupied building is about 1,500 feet from site.
Ref. 16

Distance to Nearest Building

1,500 feet
Ref. 16

Distance to a Sensitive Environment

Distance to wetlands:

The site is located in a New York State freshwater wetlands HR-8.
Ref. 19

Distance to critical habitat:

NA
Ref. 21

Land Use

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

The site is adjacent to Conrail switching yards.
Ref. 16

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

None within 2 miles.
Refs. 16, 21

Distance to residential area, if 2 miles or less:

2,000 feet north of site.
Ref. 16

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

<.5 mile west of the site.
Refs. 16, 17

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

<.5 mile.
Refs. 16, 17

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

No.
Refs. 23, 24

Population Within 2-Mile Radius

2,312
Ref. 22

Buildings Within 2-Mile Radius

801
Ref. 22

DIRECT CONTACT

1. OBSERVED INCIDENT

Date, location, and pertinent details of incident:

NA. No incidents on record.

* * *

2. ACCESSIBILITY

Describe type of barrier(s):

Public access to the site is not restricted.
Refs. 3, 11

* * *

3. CONTAINMENT

Type of containment, if applicable:

32 drums of hazardous waste and 32 partially crushed empty drums were removed in 1982. In 1983, top debris was removed, and the landfill was covered with clean soil. The cover is thin and waste (railroad ties, pails, etc.) is exposed in some areas. Status and containment of documented hazardous wastes unknown.
Refs. 4, 7, 12, 13

* * *

4. WASTE CHARACTERISTICS

<u>Toxicity</u>

Compounds evaluated:

PCBs detected in soil at concentrations from 0.008 to 0.3 ppm. (NYSDEC has stated that these levels do not indicate concentrated PCB contamination.) Metals (lead, mercury) and batteries seen at the site, removed in 1982.
Refs. 9, 10, 12

Compound with highest score:

Both have toxicity, score = 3.
Ref. 8 Assigned value = 3.

* * *

5. TARGETS

<u>Population Within One-Mile Radius</u>

(80 occupied buildings within a 1-mile radius) x (3.8 persons/building) = 304.
Refs. 6, 16 Assigned value = 2.

<u>Distance to Critical Habitat (of endangered species)</u>

NA
Ref. 21

R E F E R E N C E S

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
1	U.S. Department of Agriculture, 1973, Soil Survey of Steuben County, New York. Document location: Ecology and Environment Engineering, P.C., Lancaster, New York.
2	Keefe, L., January 9, 1986, personal communication, District Director, New York State Department of Health, Hornell District Office, Hornell, New York. Document location: Ecology and Environment Engineering, P.C., Lancaster, New York.
3	Ecology and Environment Engineering, P.C., Drilling Log, October 4 through 10, 1990, Conrail Site, Hornellsville, New York, Appendix H, this report. Document location: Ecology and Environment Engineering, P.C., Lancaster, New York.
4	__________, Sampling Log, November 1 through 9, 1990, YP2060, Conrail Site, Hornellsville, New York, Appendix H, this report. Document location: Ecology and Environment Engineering, P.C., Lancaster, New York.
5	U.S. Department of Commerce, 1983, Climatic Atlas of the United States. Document location: Ecology and Environment Engineering, P.C., Lancaster, New York.
6	U.S. Environmental Protection Agency, 1984, Uncontrolled Hazardous Waste Site Ranking System, A Users Manual (HW-10). Document location: Ecology and Environment Engineering, P.C., Lancaster, New York.
7	New York State Department of Environmental Conservation, 1985, Community Right-to-Know, Volume III, Past Hazardous Waste Disposal Practices, January 1952 to December 1981. Document location: Ecology and Environment Engineering, P.C., Lancaster, New York.
8	Sax, N.I., Dangerous Properties of Industrial Materials, Van Nostrand Reinhold Company, 6th Edition, 1984. Document location: Ecology and Environment Engineering, P.C., Lancaster, New York.
9	Lacey, J., and J. Sciascia, January 29, 1987, Sampling Results for Westinghouse Conrail Site, Hornellsville (851002), New York. Document location: Ecology and Environment Engineering, P.C., Lancaster, New York.
10	Bailey, G., February 13, 1987, memorandum to Bureau of Hazardous Site Control, Conrail Demolition/Debris Site, Hornellsville, Steuben County, Site No. 851002. Document location: Ecology and Environment Engineering, P.C., Lancaster, New York.
11	Herington, C., January 8, 1981, NYSDEC Senior Engineering Technician, Memorandum to Frank Shattuck, Regional Solid Waste Engineer. Document location: Ecology and Environment Engineering, P.C., Lancaster, New York.
12	Flint, G., December 13, 1985, personal communication, Supervisor of Structures, Conrail, Hornell, New York. Document location: Ecology and Environment Engineering, P.C., Lancaster, New York.
13	New York State Department of Environmental Conservation, January 21, 1982, Hazardous Waste Manifest, Consolidated Rail Corporation, Hornell, New York. Document location: Ecology and Environment Engineering, P.C., Lancaster, New York.
14	Pierce, C., November 27, 1990, personal communication, Superintendent, Village of Canisteo, Steuben County, New York. Document location: Ecology and Environment Engineering, P.C., Lancaster, New York.

Reference Number	Description of the Reference
15	New York State Department of Health, 1982, Community Water System Sources, Chemung and Steuben Counties. Document location: Ecology and Environment Engineering, P.C., Lancaster, New York.
16	U.S. Geological Survey, 1978, Hornell, New York and Canisteo, New York Quadrangles, 7.5-Minute Series, (Topographic), Washington, D.C. Document location: Ecology and Environment Engineering, P.C., Lancaster, New York.
17	Dupont, D., November 26, 1990, personal communication, District Soil Conservationist, Steuben County Soil Conservation Service, Bath, New York. Document location: Ecology and Environment Engineering, P.C., Lancaster, New York.
18	Jackson, D., and D. Boger, August 18, 1983, Sampling Report, Conrail Demolition, Hornellsville (T), Steuben (C), Site No. 8-51-002. Document location: Ecology and Environment Engineering, P.C., Lancaster, New York.
19	New York State Department of Environmental Conservation, November 13, 1985, New York State Freshwater Wetlands Map. Document location: Ecology and Environment Engineering, P.C., Lancaster, New York.
20	U.S. Department of Commerce, 1961, <u>Rainfall Frequency Atlas</u>. Document location: Ecology and Environment Engineering, P.C., Lancaster, New York.
21	Buffington, B., December 5, 1990 letter, Significant Habitat Unit, New York State Department of Environmental Conservation. Document location: Ecology and Environment Engineering, P.C., Lancaster, New York.
22	U.S. Environmental Protection Agency, Office of Pesticides and Toxic Substances Exposure Evaluation, <u>Graphical Exposure Modeling System</u>. Document location: Ecology and Environment Engineering, P.C., Lancaster, New York.
23	U.S. Department of the Interior, July 1983, National Register of Historic Places. Document location: Ecology and Environment Engineering, P.C., Lancaster, New York.
24	U.S. Department of the Interior, March 1, 1983, National Registry of Natural Landmarks. Document location: Ecology and Environment Engineering, P.C., Lancaster, New York.
25	Donovan, M., December 3, 1990, personal communication, Fire Chief, South Hornell Fire Department, Hornell, New York. Document location: Ecology and Environment Engineering, P.C., Lancaster, New York.
26	Ecology and Environment Engineering, P.C., 1991, Analytical Data, Appendix D, this report. Document location: Ecology and Environment Engineering, P.C., Lancaster, New York.

REFERENCE 1

SOIL SURVEY OF

Steuben County, New York

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

Ap—0 to 10 inches; very dark brown (10YR 2/2) silt loam; strong medium granular structure; friable; neutral; abrupt smooth boundary.

A1—10 to 13 inches; black (10YR 2/1) silt loam; weak medium subangular blocky structure; very sticky; mildly alkaline; abrupt wavy boundary.

IIC—13 to 60 inches; gray (5Y 5/1) marl; massive; friable; moderately alkaline; calcareous.

Depth to bedrock is more than 5 feet. Depth to marl or to friable material impregnated with carbonates ranges from 12 to 20 inches.

The A1 or Ap horizon has hue of 10YR, value of 2, and chroma of 1 or 2. Reaction ranges from slightly acid to mildly alkaline.

The C horizon has hue of 2.5Y or 10YR, value of 3 to 5, and chroma of 1 or 2. It ranges from loam to silty clay loam and is moderately alkaline and calcareous. Some profiles do not have a C horizon.

The IIC horizon has hue of 10YR to 5Y, value of 5 to 7, and chroma of 1 or 2. It is moderately alkaline calcareous marl.

Warners soils are near Canandaigua and Edwards soils. Warners soils formed in marl material, which is lacking in Canandaigua soils. Warners soils have a mineral surface layer and Edwards soils have an organic surface layer.

We—Warners silt loam. This is a nearly level soil in depressions on flood plains. It formed in alluvial deposits along streams that are charged with lime, which is precipitated out in the form of marl. In their natural condition these areas are ponded or have ground water within a few inches of the surface. The areas are generally round and are 10 to 40 acres in size.

Included with this soil in mapping were small areas of Edwards soils and Canandaigua soils.

This soil is used mainly for woodland or wildlife habitat. Wetness is the major limitation to farming because the soil lies in areas that are difficult to drain. Wetness and the hazard of flooding severely limit nonfarm uses. Capability subclass IIIw; woodland subclass 5w.

Wayland Series

The Wayland series consists of deep, very poorly drained and poorly drained silty soils that formed in alluvium that was derived mainly from slightly acid soil material. These soils are in level or depressed slack-water areas on flood plains and are subject to periodic flooding.

In a representative profile the surface layer is very dark grayish brown silt loam about 8 inches thick. The subsurface layer is mottled, grayish brown friable silt loam to a depth of 17 inches. From a depth of 17 to 31 inches the subsoil is gray silt loam that is distinctly mottled. From a depth of 31 to 47 inches the substratum is a light gray prominently mottled silt loam that is slightly acid. Below a depth of 47 inches the substratum is grayish colored stratified layers of silt and very fine sand.

The available water capacity is high. Permeability is slow in the solum and substratum. A water table that controls the root zone is at or near the surface for most of the year. If the soils are not limed, the surface layer is slightly acid.

Representative profile of Wayland silt loam, in a pasture in the town of Howard, adjacent to County Route 27, about 3 miles south of the hamlet of Howard:

Ap—0 to 8 inches; very dark grayish brown (10YR 3/2) silt loam; dark yellowish brown (10YR 3/4) root stains; weak fine subangular blocky structure; friable; many fine roots; no coarse fragments; medium acid; abrupt smooth boundary.

A2g—8 to 17 inches; grayish brown (10YR 5/2) silt loam; common medium distinct brown to dark brown (7.5YR 4/4) mottles; weak medium and fine subangular blocky structure; friable; common fine roots; few patchy clay films; no coarse fragments; slightly acid; clear wavy boundary.

B21g—17 to 25 inches; gray (5Y 5/1) silt loam; many coarse distinct yellowish brown (10YR 5/4) mottles; moderate coarse prismatic structure; firm; few fine roots; few fine pores; grayish brown (2.5Y 5/2) prism coats; no coarse fragments; medium acid; abrupt wavy boundary.

B22g—25 to 31 inches; gray (5Y 5/1) silt loam; many medium and coarse distinct brown to dark brown (10YR 4/3) and dark yellowish brown (10YR 4/4) mottles; strong coarse prismatic structure parting to moderate coarse subangular blocky; firm; few fine roots; common fine pores; no coarse fragments; slightly acid; abrupt wavy boundary.

C1g—31 to 47 inches; light gray (N 6/0) silt loam; many coarse prominent yellowish brown (10YR 5/8) mottles; massive; firm; few fine roots; few fine pores; no coarse fragments; slightly acid; abrupt smooth boundary.

IIC2g—47 to 60 inches; gray (N 5/0) silt and very fine sand; stratified; firm; slightly acid; occasional thin gravel strata.

Depth to contrasting gravelly or sandy material is more than 40 inches. Depth to rock is more than 5 feet. Reaction ranges from medium acid to mildly alkaline in the solum and the upper part of the substratum and from slightly acid to moderately alkaline in the lower part of the substratum.

The A1 and Ap horizons have hue of 10YR or 2.5Y, value of 2 or 3, and chroma of 1 or 2.

The B horizon has hue of 10YR through 5Y, value of 4 to 6, and chroma of 1 or 2. It ranges from silt loam to silty clay loam.

The C horizon is neutral, light gray or gray (N 6/0 or N 5/0), or it has hue of 10YR to 5Y, value of 4 to 6, and chroma of 1 or 2. It ranges from silt loam to silty clay loam to a depth of 40 inches.

Wayland soils are in drainage sequence with well drained Tioga soils and moderately well drained and somewhat poorly drained Middlebury soils.

Wn—Wayland silt loam. This is a nearly level soil in low areas of flood plains along major rivers and streams. The areas are long and narrow and range from 5 to 100 acres in size.

Included with this soil in mapping were small areas of soils that formed in alluvial deposits that have layers of gravel within a depth of 40 inches. Also included were small spots of Middlebury, Palms, or Edwards soils, and an area in the vicinity of Arkport, of a mineral soil approximately 20 inches deep over muck.

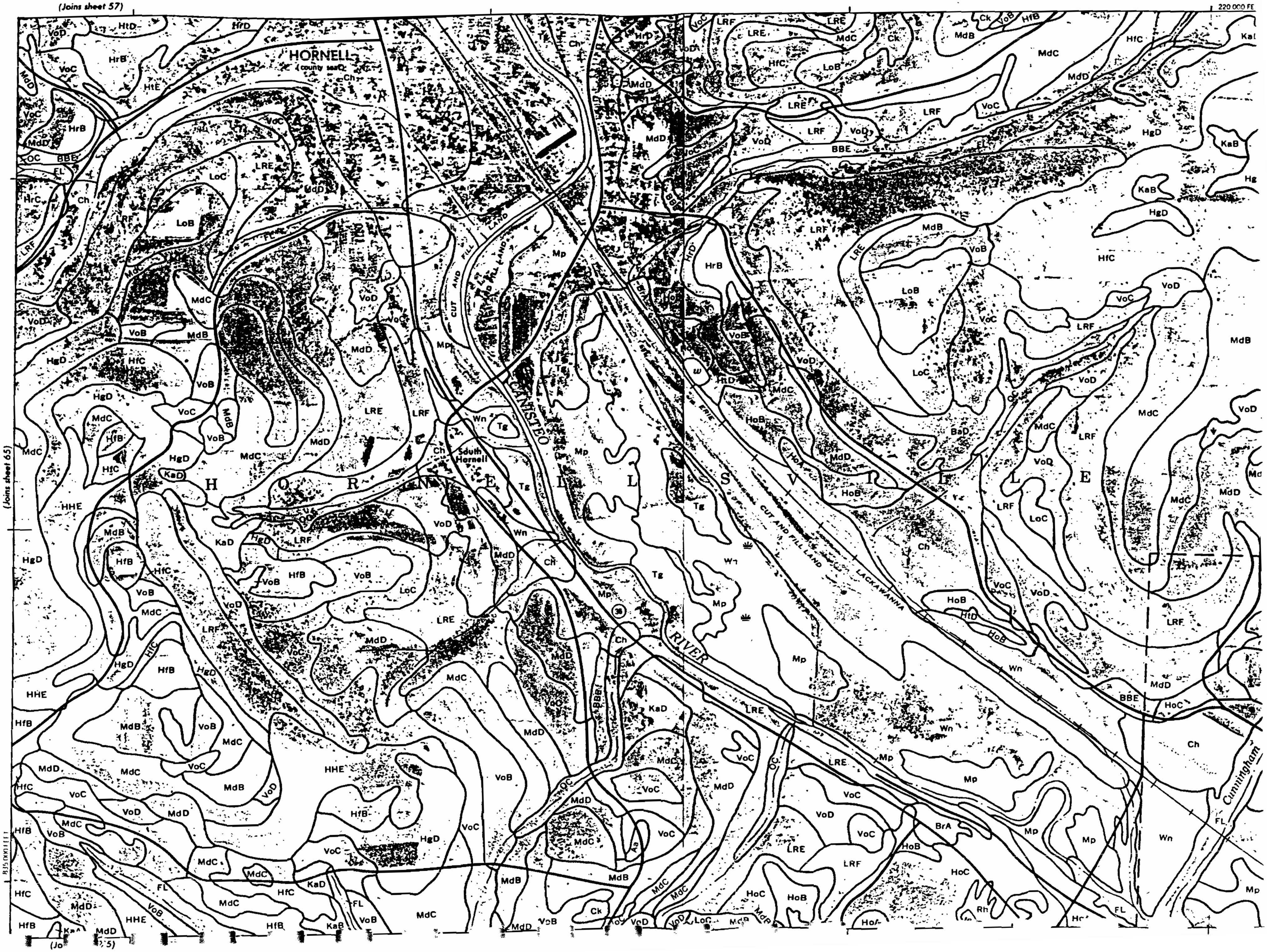
If the soil is not drained, it is better suited to permanent pasture or trees. Some isolated areas can be drained and used for row crops, if suitable outlets are available. The dominant vegetation consists of water-tolerant grasses, sedges, and trees. Wetness and the hazard of flooding are the major limitations to farming and most nonfarm uses. Capability subclass IIIw; woodland subclass 4w.

Wellsboro Series

The Wellsboro series consists of deep, moderately well drained soils that formed in glacial till that was

66

N


(Joins sheet 57)
220 000 FE
(Joins sheet 65)
HORNELL
(county seat)
South Hornell
H O R N E L L S V I L L E
CANISTEO RIVER
CUT AND FILL LAND
ERIE
LACKAWANNA
Cunningham
Scale 1:15 840
5 000 Feet
0
1 000
2 000
3 000
4 000
5 000

5-28

REFERENCE 2

INTERVIEW FORM

INTERVIEWEE/CODE: Lawrence Keefe

TITLE-POSITION: District Director, NYSDH, Hornell District Office

ADDRESS: Steuben County DOH, 282 Canisteo Street

CITY: Hornell, NY 14843

PHONE: 607-324-5120

LOCATION: Phone Interview INTERVIEWER: Cordone

DATE/TIME: 1/9/86 - 1330

SUBJECT: Groundwater/Surface Water Targets for Conrail and Lindley Landfill Sites

REMARKS:

Conrail Site:

- Hornell receives water from several reservoirs located north of the city (outside of the 3 mile radius from the Conrail site).
- The village of Canisteo's main source of water is from a well (estimated depth 60') located within the village limits. This source is supplemented by a spring-fed reservoir located to the northwest of the village.
- The populated area* just northeast of Canisteo receives drinking water from the Village of Canisteo.
- The populated area east of the Canisteo Reservoir uses private well water.
- Other areas outside of the Village of Hornell or Canisteo (and within the 3 mile Conrail site radius) are using private well water as potable water.
- The population of South Hornell uses private well water as potable water.
- Most private wells in the valley are 30 to 60 feet deep.

Lindley Landfill

- All areas within the 3 mile radius of the site (including Presho) draw potable water from private wells.

* This is Belle Haven Hamlet - along old Route 36.

INTERVIEW FORM

HORNELL DISTRICT OFFICE

INTERVIEWEE/CODE Lawrence Keefe /

TITLE - POSITION District Director, NYSDOH, Hornell District Office

ADDRESS Steuben County DOH, 282 Canisteo Street

CITY Hornell STATE N.Y. ZIP 14843

PHONE (607) 324 5120 RESIDENCE PERIOD ____ TO ____

LOCATION phone interview INTERVIEWER L. Cordone

DATE/TIME 1/9/86 / 1330 hrs

SUBJECT: Ground Water / Surface Water Targets for Conrail and Lindley Landfill Sites.

REMARKS: Conrail Site:

- Hornell recieves water from several reservoirs located north of the city (outside of the 3 mile radius from the Conrail site)
- The village of Canisteo's main source of water is from a well (estimated depth 60') located within the village limits. This source is supplemented by a spring-fed reservior located to the northwest of the village.
- * - The populated area just northeast of Canisteo receives drinking water from the village of Canisteo.
- The populated area east of the Canisteo Reservoir uses private well water
- other areas outsite of the villag of Hornell or Canisteo (and within the 3 mile Conrail site radius) are using private well water as potable water.
- The population of South Hornell use's private well water as potable water.
- most private wells in the valley are 30 to 60 ft deep.

Lindley Landfill - all areas within the three mile radius of the site (including Presho) draw potable water from private wells.

I agree with the above interview summary:

Signature/Title: Lawrence R Keefe DISTRICT DIRECTOR

Comments: * THIS IS BELLE HAVEN HAMLET - ALONG OLD ROUTE 36

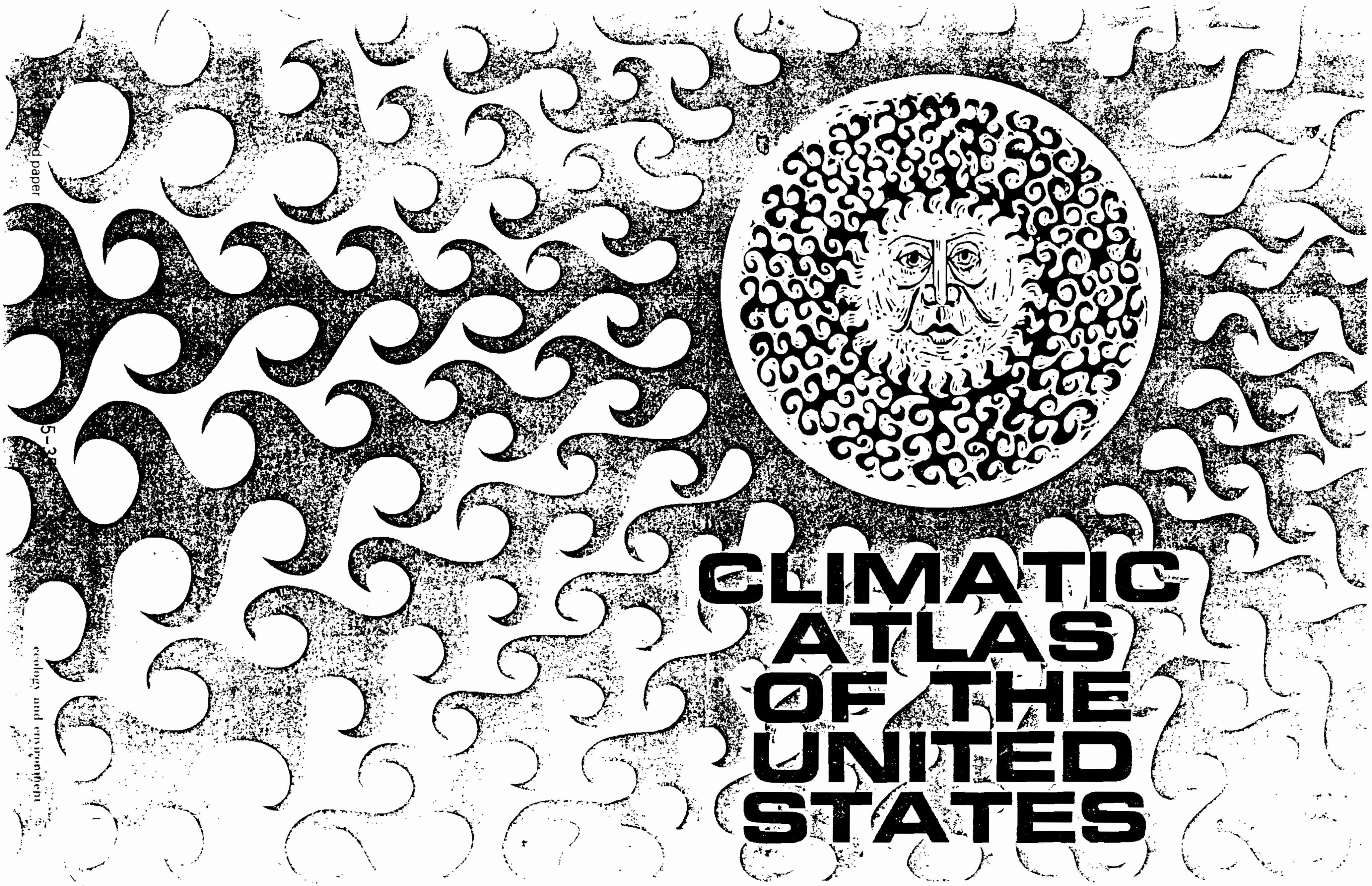
REFERENCE 3

FIELD NOTEBOOKS - DRILLING
(APPENDIX H OF THIS REPORT)

REFERENCE 4

FIELD NOTEBOOKS - SAMPLING
(APPENDIX H OF THIS REPORT)

REFERENCE 5



U.S. DEPARTMENT OF COMMERCE . Environmental Science Services Administration . Environmental Data Service

REFERENCE 6

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 7

SITE DESCRIPTION: WATERLOO LANDFILL,STEEL RD,WATERLOO NY 13165 — SITE CODE: 8-50-502 T

WASTE DESCRIPTION	QUANTITY	U	L	S	D	GENERATOR NAME	ID
WASTE PAINT FLAMMABLE LIQUIDS	20.00	T	X	-	X	HARTMAN MATERIAL HANDLING SYSTEMS	GX800345

SITE DESCRIPTION: UNKNOWN — SITE CODE: 8-51-000 U

WASTE DESCRIPTION	QUANTITY	U	L	S	D	GENERATOR NAME	ID
PCB CAPACITORS,RAGS AND OTHER DEBRIS CONTAMINATED W/ PCBS	0.18	T	-	X	X	NEW YORK STATE ELECTRIC & GAS COR	G0813427

SITE DESCRIPTION: EDWARD ALLEN LANDFILL,TOWN OF CORNING,STEUBEN COUNTY — SITE CODE: 8-51-001

WASTE DESCRIPTION	QUANTITY	U	L	S	D	GENERATOR NAME	ID
ELECTROPLATING WASTE TREATMENT SLUDGE	63.00	T	X	-	-	NY WESTINGHOUSE ELECTRIC CORP	G0813338
INORGANICS,SOLVENTS,HEAVY METALS,WASTE OILS			X	X	-	CORNING GLASS WORKS (MAIN PLT)	G0813387
WASTE TREATMENT PLANT SLUDGE W/LEAD PHOSPHATE AND CADMIUM	2,387.00	T	X	-	-	NY WESTINGHOUSE ELECTRIC CORP	G0813338

SITE DESCRIPTION: ERIE-LAKAWANA RR,1 MORRISON-KNUDSEN DR,HORNELL NY 14843 — SITE CODE: 8-51-002

WASTE DESCRIPTION	QUANTITY	U	L	S	D	GENERATOR NAME	ID
OIL SLUDGE,SOLVENTS			X	X	-	MORRISON-KNUDSEN-HORNELL INDUSTRI	GX801152
OILY SLUDGE,PAINT FILTERS,SOLVENTS			X	X	-	MORRISON-KNUDSEN-HORNELL INDUSTRI	GX801152

SITE DESCRIPTION: TOWN OF ERWIN LANDFILL, ERWIN, NY 14830 — SITE CODE: 8-51-003

WASTE DESCRIPTION	QUANTITY	U	L	S	D	GENERATOR NAME	ID
INORGANICS,HEAVY METALS			X	X	-	CORNING GLASS WORKS (MAIN PLT)	G0813387

SITE DESCRIPTION: URBANA LANDFILL,HAMMONDSPORT NY — SITE CODE: 8-51-007

WASTE DESCRIPTION	QUANTITY	U	L	S	D	GENERATOR NAME	ID

Cowanag - 70
RTK GX801152

NEW YORK STATE DEPARTMENT OF EN
DIVISION OF SOLID AND HA

GENERATOR FORM
PART - I

50 WOLF ROAD
ALBANY, NEW YORK 12233

HAZARDOUS WASTE DISPOSAL QUESTIONNAIRE

PLEASE COMPLETE AND RETURN TO THE ABOVE ADDRESS, ATTENTION: RTK PROCESSING UNIT, ROOM 525

COMPANY NAME

ICS #: 0101155

ICS CODE
EPA ID NUMBER

COMPANY MAILING ADDRESS MORRISON-KNUDSEN-HORNELL INDUST

STATE | ZIP CODE

PLANT NAME (if different) 1 MORRISON-KNUDSEN D

CONTACT NAME | TELEPHONE

PLANT ADDRESS (if different) STREET HORNELL | CITY NY 14843 | STATE | ZIP CODE

PRINCIPAL BUSINESS OF PLANT

PLEASE ANSWER THE FOLLOWING QUESTIONS:

CHECK ONE

1. SINCE JANUARY 1, 1952 THRU DECEMBER 31, 1981, HAVE YOU OR ANY PREVIOUS OWNERS/OPERATORS OF THIS FACILITY GENERATED ANY HAZARDOUS WASTE (SEE INSTRUCTIONS) AT YOUR PRESENT FACILITY, PLANT, PROPERTY, ETC?

☒ YES
☐ NO

IF THE ANSWER IS **YES** COMPLETE QUESTIONS **1, 2, 3, 4** AND **GENERATOR FORM PART - II**
IF THE ANSWER IS **NO** COMPLETE QUESTIONS 1 AND 4 AND RETURN THIS FORM

2. HAS THE FACILITY AT THIS LOCATION CHANGED ITS NAME OR IDENTIFICATION BECAUSE THERE WAS A CHANGE IN OWNERSHIP, CORPORATE NAME OR OPERATOR NAME, ETC. IF YES LIST THE NAMES BY WHICH THIS FACILITY HAS BEEN IDENTIFIED SINCE JANUARY 1, 1952 TO THE PRESENT.

☒ YES
☐ NO

NAME, ADDRESSES, AND TELEPHONE NUMBERS	DATES
Morrison-Knudsen Company	Mar 83 - Present
General Electric Company	Nov 78 - Mar 83
Conrail Railroad	1976 - July 77
Erie-Lakawana Railroad	Pre 1952-1976

3. DESCRIBE THE DOCUMENTS FROM WHICH DATA THAT IS INCLUDED ON PART-II WAS OBTAINED (SEE INSTRUCTIONS).

DOCUMENT DESCRIPTION	DATES
No documents available - Information obtained from employees, former companies and owners. (SEE ATTACHED SHEET)	N.A.

4. I HEREBY CERTIFY THAT TO THE BEST OF MY KNOWLEDGE AND BELIEF THAT INFORMATION SUPPLIED IS TRUE AND COMPLETE. FALSE STATEMENTS SUBMITTED ON THIS DOCUMENT ARE PUNISHABLE PURSUANT TO SECTION 210.45 OF THE PENAL LAW.

Morrison-Knudsen Company, Inc. Hornell Industrial Complex
NAME OF OWNER/OPERATOR, PARTNER OFFICER OR AUTHORIZED REPRESENTATIVE | TITLE | 8/29/84 DATE

SIGNATURE | BUSINESS PHONE

Eastern Area Manager
Manager Plant Engineer

NAME	ICS NUMBER - EPA ID NUMBER		
Morrison-Knudsen Co.	010115		
ADDRESS: 1 Morrison-Knudsen Drive			
CITY: Hornell	STATE: NY	ZIP: 14843	

GENERATOR FORM

PART - II

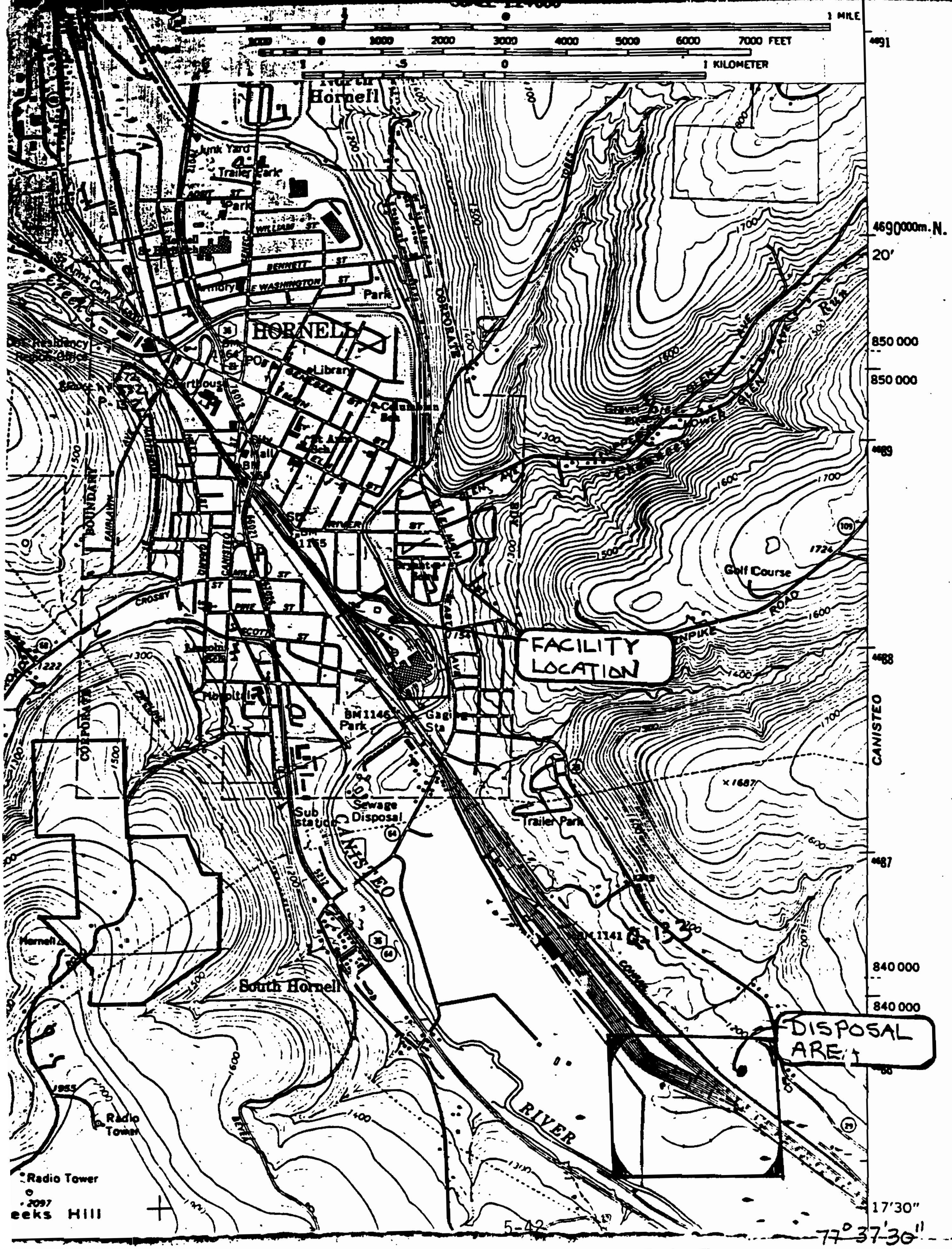
DATE August

DEC 2 0 1984

1. HAZARDOUS WASTE DISPOSAL SITE (SEE INSTRUCTIONS)	2. DESCRIPTION OF HAZARDOUS WASTES DEPOSITED AT THIS LOCATION (SEE INSTRUCTIONS)	3. EPA WASTE CODE	4. WASTE DISPOSED OF QUANTITY OF WASTE (TONS)	FORM: LIQUID	FORM: SOLID	FORM: DRUMS	5. WASTE DISPOSAL DATES	6. TRANSPORTER HAZARDOUS WA (SEE INSTRUCTI
1. Morrison Knudsen Company	Corrosive Liquid, NOS	D002	40	✓			Mar 83	9A-076 Haz-O-Waste
- Haz-O-Waste Corporation	Corrosive Solid, NOS	D002	12		✓	✓	to	
Wampsville, N.Y.	Flammable Liquid, NOS	D001	14	✓		✓	Present	9A-090 CECOS Intern
- CECOS International Buffalo, N.Y.	Flammable Solid, NOS	D001	1	✓		✓		
2. General Electric Company	Waste Water, Non Hazardous	--	215	✓			Nov 78	SCA Chemical Inc.
	Settling Pond Sludge	--	440		✓			
- SCA Chemical Services Inc.	Oily Sand	--	50		✓		to	
	Hazardous Solids	--	5		✓			9A-081
	Flammable Liquids	D001	10	✓		✓	Mar 83	
3. Conrail (See attached map)	Oily Sludge	--			✓			
	Paint Filters	D001	Unknown		✓		1976 (2)	Conrail RR
	Solvents (Estimated)	F002		✓			July 77	9A-152
		F003						
4. Erie-Lakawana R.R. (See attached map)	Oily Sludge	--			✓		Pre 1952-	
	Solvents (Estimated)	F002	Unknown	✓			1976 (1)	Erie-Lakawana
		F003						

(SEE ATTACHMENT 1 FOR ADDITIONAL DESCRIPTION)

DP obo with Jim Clare 12/17/84


1 MILE
1000 0 1000 2000 3000 4000 5000 6000 7000 FEET
1 KILOMETER
North Hornell
Junk Yard
Trailer Park
Park
BENNETT ST
Armory
E WASHINGTON ST
Park
HORNELL
Courthouse
Library
CROSBY
SCOTT ST
Hospital
BM 1146
Park
Gage Sta
Sub station
Sewage Disposal
CANISTEO
RIVER
Trailer Park
South Hornell
Radio Tower
Radio Tower
2097
eeks Hill
FACILITY LOCATION
DISPOSAL AREA
Golf Course
TURNPIKE ROAD
CANISTEO
4691
4690000m. N.
20'
850 000
850 000
4689
4688
4687
840 000
840 000
17'30"
77°37'30"

MORRISON-KNUDSEN COMPANY, INC.

August 29, 1984

New York State Department
of Environmental Conservation
RTK Processing Unit
Room 525
50 Wolf Road
Albany, NY 12233

RE: Hazardous Waste Disposal Questionnaire

Genetlemen:

Attached please find the referenced questionnaire completed for Morrison-Knudsen's Hornell Industrial Complex.

The following information is a summary of data collected through discussion with former Conrail and Erie Lakawana Railroad Company enployees:

- Previous to 1967, liquid waste material generated at the facility was discharged directly to the Canisteo River. 52-67

- In 1967, an oil/water separator system, with evaporation logoons and sludge drying beds, was constructed on the facility site (see attached map).

- Since 1967 through 1978, liquid wastes were discharged to the oil/water separator tanks. The oil was siphoned off for reuse, and the sludge from the tank bottoms was transferred to sand bottomed drying beds. The accumulated sludge was removed and disposed of at the disposal area south of the facility (see attached map). The liquid, i.e. water, was transferred to the evaporation-percolation lagoons for final treatment, i.e. evaporation and percolation. Solid waste material was disposed of at the disposal area south of the facility (see attached map) through 1978. 67-78

MORRISON-KNUDSEN COMPANY, INC.

error [- ~~Since 1978 through 1982, no industrial activity and no waste generation occurred.~~] ~~78-82~~

- In 1982, the waste water lagoons and sludge drying beds were closured under an approved USEPA Closure Plan. The closure was inspected and certified by LaBella Associates, P.C.

Sincerely yours,

James E. Claire

James E. Claire
Manager Plant Engineer

/mjc

Attachment

REFERENCE 8

Dangerous Properties of Industrial Materials

Sixth Edition

N. IRVING SAX

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

VNR VAN NOSTRAND REINHOLD COMPANY
NEW YORK CINCINNATI TORONTO LONDON MELBOURNE

TABLE I

EPA Hazard Ranking System Waste Characteristics Values (Toxicity/Persistence Matrix)

Chemical/Compound	Ground Water and Surface Water Pathway Values	Air Pathway Values
Acenapthene	9	3
Acetaldehyde	6	6
Acetic Acid	6	6
Acetone	6	6
2-Acetylaminoflourene	18	9
Aldrin	18	9
Ammonia	9	9
Aniline	12	9
Anthracene	15	9
Arsenic	18	9
Arsenic Acid	18	9
Arsenic Trioxide	18	9
Asbestos	15	9
Barium	18	9
Benzene	12	9
Benzidine	18	9
Benzoapyrene	18	9
Benzopyrene, NOS	18	9
Beryllium & Compounds NOS	18	9
Beryllium Dust, NOS	18	9
Bis (2-Chloroethyl) Ether	15	9
Bis (2-Ethylhexyl Phthalate	12	3
Bromodichloromethane	15	6
Bromoform	15	6
Bromomethane	15	9
Cadmium	18	9
Carbon Tetrachloride	18	9
Chlordane	18	9
Chlorobenzene	12	6
Chloroform	18	6
3-Chlorophenol	12	6
4-Chlorophenol	15	9
2-Chlorophenol	12	6
Chromium	18	9
Chromium, Hexavalent (Cr^{+6})	18	9

recycled paper

Chemical/Compound	Ground Water and Surface Water Pathway Values	Air Pathway Values
Chromium, Trivalent (Cr^{+3})	15	6
Copper & Compounds, NOS	18	9
Creosote	15	6
Cresols	9	6
4-Cresol	12	9
Cupric chloride	18	9
Cyanides (soluble salts), NOS	12	9
Cyclohexane	12	6
DDE	18	9
DDT	18	9
Diaminotoluene	18	6
Dibromochloromethane	15	6
1, 2-Dibromo, 3-chloropropane	18	9
Di-N-Butyl-Phthalate	18	6
1, 4-Dichlorobenzene	15	6
Dichlorobenzene, NOS	18	6
1, 1-Dichloroethane	12	6
1, 2-Dichloroethane	12	9
1, 1-Dichloroethene	15	9
1, 2-cis-Dichloroethylene	12	3
1, 2-trans-Dichloroethylene	12	3
Dichloroethylene, NOS	12	3
2, 4-Dichlorophenol	18	6
2, 4-Dichlorophenoxyacetic Acid	18	9
Dicyclopentadiene	18	9
Dieldrin	18	9
2, 4-Dinitrotoluene	15	9
Dioxin	18	9
Endosulfan	18	9
Endrin	18	9
Ethylbenzene	9	6
Ethylene Dibromide	18	9
Ethylene Glycol	9	6
Ethyl Ether	15	3
Ethylmethacrylate	12	6

Chemical/Compound	Ground Water and Surface Water Pathway Values	Air Pathway Values
Fluorine	18	9
Formaldehyde	9	9
Formic Acid	9	6
Heptachlor	18	9
Hexachlorobenzene	15	6
Hexachlorobutadiene	18	9
Hexachlorocyclohexane, NOS	18	9
Hexachlorocyclopentadiene	18	9
Hydrochloric Acid	9	6
Hydrogen Sulfide	18	9
Indene	12	6
Iron & Compounds, NOS	18	9
Isophorone	12	6
Isopropyl Ether	9	3
Kelthane	15	6
Kepone	18	9
Lead	18	9
Lindane	18	9
Magnesium & Compounds, NOS	15	6
Manganese & Compounds, NOS	18	9
Mercury	18	9
Mercury Chloride	18	9
Methoxychlor	15	6
4, 4-Methylene-Bis-(2-Chloroaniline)	18	9
Methylene Chloride	12	6
Methyl Ethyl Ketone	6	6
Methyl Isobutyl Ketone	12	6
4-Methyl-2-Nitroaniline	12	9
Methyl Parathion	9	9
2-Methylpyridine	12	6
Mirex	18	9

Chemical/Compound	Ground Water and Surface Water Pathway Values	Air Pathway Values
Naphthalene	9	6
Nickel & Compounds, NOS	18	9
Nitric Acid	9	9
Nitroaniline, NOS	18	9
Nitrogen Compounds, NOS	12	0
Nitroguanidine	12	9
Nitrophenol, NOS	15	9
m-Nitrophenol	15	
o-Nitrophenol	12	
p-Nitrophenol	15	
Nitrosodiphenylamine	12	6
Parathion	9	9
Pentachlorophenol (PCP)	18	9
Pesticides, NOS	18	9
Phenanthrene	15	9
Phenol	12	9
Phosgene	9	9
Polybrominated Biphenyl (PBB), NOS	18	9
Polychlorinated Biphenyls (PCB), NOS	18	9
Potassium Chromate	18	9
Radium & Compounds, NOS	18	9
Radon & Compounds, NOS	15	9
RDX (Cyclonite)	15	
2, 4-D, Salts & Esters	18	9
Selenium	15	9
Sevin (Carbaryl)	18	9
Sodium Cyanide	12	9
Styrene	9	6
Sulfate	9	0
Sulfuric Acid	9	9
2, 4, 5-T	18	9
1, 1, 2, 2-Tetrachloroethane	18	9
Tetrachloroethane, NOS	18	9
1, 1, 2, 2-Tetrachloroethene	12	6

Chemical/Compound	Ground Water and Surface Water Pathway Values	Air Pathway Values
Tetraethyl Lead	18	9
Tetrahydrofuran	15	6
Thorium & Compounds, NOS	18	9
Toluene	9	6
TNT	12	
Toxaphene	18	9
Tribromomethane	18	9
1, 2, 4-Trichlorobenzene	15	6
1, 3, 5-Trichlorobenzene	15	6
1, 1, 1-Trichloroethane	12	6
1, 1, 2-Trichloroethane	15	6
Trichloroethane, NOS	15	6
Trichloroethene	12	6
1, 1, 1-Trichloropropane	12	6
1, 1, 2-Trichloropropane	12	6
1, 2, 2-Trichloropropane	12	6
1, 2, 3-Trichloropropane	15	9
Uranium & Compounds, NOS	18	9
Varsol	12	6
Vinyl Chloride	15	9
Xylene	9	6
Zinc & Compounds, NOS	18	9
Zinc Cyanide	18	9

REFERENCE 9

RECEIVED
JAN 3 ? 1987
BUREAU OF ...
DIVISION ...
HAZARDOUS WASTE

Jeffrey Lacey
Joe Sciascia
Sampling Results for Westinghouse Conrail Site - Hornellsville. (851002)

January 29, 1987

The following are analytical results for Soil Samples collected on 10/28/86.

Sample No.	Total PCB's (PPM)	Sample No.	PCB's (PPM)
1	0.08	12	0.04
2	0.03	13	0.01
3	0.01	14	0.02
	(Clordane 0.01 PPM)	15	0.14
4	N.D.	16	0.027
	(Clordane 0.19 PPM)	17	0.01
5	0.01	18	0.01
6	0.13	19	0.02
7	0.21	20	0.02
8	0.008	21	0.17
9	0.04		
10	0.03		
11	0.15		

According to reports received from the Pennsylvania Department of Environmental Resources sludge from the Westinghouse, Sharon, Pa. plant was found to contain PCB's in the 40,000 PPM range. The levels we found in an area thought to be used for disposal by the retired site operator, Jesse Barnard, are substantially lower and not indicative of concentrated PCB contamination. The levels of PCB's found at this site probably are comparable with those found in unpaved roadways and perhaps roadside drainage ditches and below any action levels that I am aware of.

My understanding is that DEE became involved with the site because of the possible PCB disposal. Under the circumstances, it may now be appropriate to refer the project back to the region for possible futher phased assessment.

Please advise

cc: Carl Hoffman, BSHW

JS:ac

REFERENCE 10

Beg 8

Delahunt 2-25
Mehta 2/25

New York State Department of Environmental Conservation

MEMORANDUM

TO: Charles Goddard - Bureau Hazardous Site Control, Albany
FROM: Glen Bailey - Div. Environmental Enforcement, Buffalo
SUBJECT: Conrail Demolition/Debris Site, Hornellsville, Steuben County
Site #851002

DATE: 2/13/87

Glen R. Bailey

On October 19, 1983, the Buffalo Field Unit of the Division of Environmental Enforcement was assigned the matter of an investigation to locate the site of alleged disposal of sludges from an air pollution control wet scrubber at a Westinghouse facility in Sharon, Pennsylvania. The allegations were referred to this Department from the Pennsylvania DER through Walter Demick. DER and USEPA were then involved in clean-up actions related to these sludges at the Sharon facility, where the sludges were found to contain up to 40,000 mg/kg of PCBs.

The best information available indicated that these sludges had been transported by the Erie Lackawanna Railroad for years. The sludges had been allegedly piled at a railroad access area where they weathered and dried, and were then loaded via a clam shell bucket into gondola cars and transported to an unknown location in New York State for disposal. Based upon the results of extensive investigation by this division, with the assistance of the Bureau of Environmental Conservation Investigations, we concluded that the most likely location for such disposal to have occurred was at Conrail's Hornellsville site.

This conclusion was based upon information obtained from individual employee's recollections and upon the normal operating practices of the Erie Lackawanna Railroad during the period involved. Due to the current status of the Erie Lackawanna Railroad, and due to the extensive loss of records during the floods of 1972, no documentation was found to support the actual location of disposal. However, some of the employees interviewed recalled the disposal of similar substances at described locations at the Hornellsville site.

On May 1, 1985, staff from this office went to the site, and based upon the general area of deposition identified on-site by a former employee, attempted to collect soil samples for PCB analysis. These samples were collected by hand, and due to the extent of cover and debris in the area, the samples were no deeper than four feet from the surface. The analytical results reflected trace levels of PCBs (0.3 mcg/g) in the samples. Due to the known history of this site and the suspected levels of PCBs in the sludges allegedly disposed of, these results were inconclusive.

On October 28, 1986, Staff from this office again went to the site, and again consulted on-site with former employees to identify the most probable area of relevant past disposal. At this time arrangements had been made with Conrail to have a backhoe and operator on-site to facilitate sampling at the depths of probable disposal. Composite samples were collected from twenty-one locations from depths at three to seven feet from the surface. The analytical results from these samples were not significantly different than the results from the previous sampling.

Based upon this information, it is reasonable to conclude that this site does not contain PCB contamination similar to that found at the alleged source in Sharon, Pennsylvania. The Division of Environmental Enforcement is concluding its investigation in this matter.

Please continue to address this site in a routine manner without regard to the alleged PCB-contaminated sludges. If further assistance by this Division is necessary, please follow your normal routine for such a referral.

GRB:jb

cc: David Engel
Vance Bryant
Norman Nosenchuck
Eric Seiffer
Paul Schmied
Frank Shattuck

REFERENCE 11

7-1-6

M E M O R A N D U M

NYSDEC, Region #8

TO: Frank Shattuck, Regional Solid Waste Engineer

FROM: Carol Herington, Senior Engineering Technician

RE: Conrail Demolition Landfill - H.
Hornellsville (T), Steuben County

DATE: January 8, 1981

On Tuesday, December 30, 1980, I met with Richard LaValle of the Hornell area regarding the old Conrail Demolition Landfill south of the City of Hornell. Mr. LaValle has been a resident of the area for 50 years and his family has owned property in the valley for nearly 100 years. Mr. LaValle currently owns property immediately adjacent to the southeast face of the Conrail Landfill. In 1976, Mr. LaValle was informed by Conrail that they had inadvertently filled on his property. Conrail requested permission to continue filling but Mr. LaValle refused. They also asked Mr. LaValle "what he wanted" but he said he would need some time to assess the damages. This was one of Mr. LaValle's main reasons for contacting us. He would like our assistance with some "formula" for assessing the existing and/or potential damages from the landfill and its contents.

Mr. LaValle was also of great assistance in supplying me with information regarding the Conrail Landfill. He can remember dumping at the site for 40 years. When Erie-Lackawanna owned the site, there was some small scale dumping. Major dumping began when Conrail took over around 1975. This also marks the time when Conrail was replacing most of its tracks. LaValle mainly remembers railroad ties being buried at the landfill. He also recalls a clean-out track into the landfill where they emptied boxcars, gondola cars, etc. This landfill was also Conrail's major site for disposal of wreckage from major rail accidents in this part of the country. Mr. LaValle recalls seeing brown, oily leachate southeast of the landfill and in 1952, the water in a ditch which used to divide Erie (now Conrail) property from LaValle's land was frequently covered with an oily scum. This ditch has since been filled. Mr. LaValle also agreed to try and find any other neighbors or ex-Conrail employees that might be willing to talk to us.

We then conducted an inspection (see attached reports) of the Conrail Landfill. I noted numerous deficiencies which you will find listed below.

1. Access to site unlimited evidence of very recent dumping of household wastes.

2. Site never received proper cover, grading and seeding as per Conrail's January 1979 closure plans.

3. No submission of written engineering report with information regarding the nature of materials in the landfill, as per D.E.C. orders in 1978. Specific requests were for bills of lading.

4. No sampling done by Conrail.

5. There is evidence of adverse effect on the environment. A wooded swamp along the south-east corner of the landfill has a large "swath" of dead willow trees.

In addition to these obvious problems, I noted several indicators of possible hazardous materials. Along with literally thousands of railroad ties, I noted several 55 gallon drums in the south and southeast landfill faces. I also saw several 10 gallon pails, some with a "Karmac" label with asbestos and asphalt as ingredients and 10 to 12 large triple-cell batteries sitting on the ground around the landfill.

We seem to have some clear Part 360 violations at this site as well as some good background data regarding suspected in-place toxics.

Please advise me of your recommendations for "next step" action.

sh
cc: Paul Schmied with attachment
David Knowles with attachment

REFERENCE 12

INTERVIEW FORM

INTERVIEWEE/CODE George Flint /

TITLE - POSITION Supervisor of Structures.

ADDRESS Loder Street

CITY Hornell STATE NY ZIP 14843

PHONE (607) 324-2989 RESIDENCE PERIOD 1977 TO present

LOCATION Conrail Bldg. INTERVIEWER Cordone

DATE/TIME 12/13/85 / 11:30

SUBJECT: Conrail Landfill

REMARKS: The Conrail site was initially owned/used by the Erie Railroad in the 1920's/30's. ~~Th~~ The site was used by ~~both~~ the Erie-Lackawanna railroad in 1962. It was then taken over by Conrail in 1976. The site received mainly railroad tie butts and dirt from excavations. In 1983 Bakers of Jerico Hill was contracted to remove top debris from the landfill and cover it with soil ~~for~~ from Cunningham creek (Conrail Property). The removed debris (tie butts and paper rolls ..etc) were taken to the Bath County landfill. In 1982 SCA Chemical Services Inc. removed 32 barrels of organic waste liquid and 32 empty barrels. Also removed were signal batteries. This was done by a Niagara-based outfit. The site has been inactive since 1976. Bakers of Jerrico Hill constructed a berm on the north side of the creek (flowing behind the site) to prevent flooding of the wetland area.

I agree with the above interview summary:

Signature/Title: G. Flint S.S

Comments:

INTERVIEW FORM

INTERVIEWEE/CODE: George Flint

TITLE-POSITION: Supervisor of Structures

ADDRESS: Loder Street

CITY: Hornell, NY 14843

PHONE: 607-324-7989

LOCATION: Conrail Building INTERVIEWER: Cordone

DATE/TIME: 12/13/85, 11:30

SUBJECT: Conrail Landfill

REMARKS:

The Conrail site was initially owned/used by the Erie Railroad in the 1920'/30's. The site wa used by the Erie-Lakawana railroad in 1962. It was then taken over by Conrail in 1976. The site received mainly railroad tie butts and dirt from excavations. In 1983, Bakers of Jerrico Hill was contracted to remove top debris from the landfill and cover it with soil from Cunningham Creek (Conrail property). The removed debris (tie butts and paper rolls, etc.) were taken to the Bath County landfill. In 1982, SCA Chemical Services, Inc. removed 32 barrels of organic waste liquid and 32 empty barrels. Also removed were signal batteries. This was done by a Niagara-based outfit. The site has been inactive since 1976. Bakers of Jerrico Hill constructed a berm on the north side of the creek (flowing behind the site) to prevent flooding of the wetland area.

REFERENCE 13

From George Flint's Files

REMOVE THIS STUB AFTER GENERATOR COMPLETES PART A

48-14-1 (4/81)

See cover sheet for instructions

PLEASE TYPE

STATE OF NEW YORK
DEPARTMENT OF ENVIRONMENTAL CONSERVATION
HAZARDOUS WASTE MANIFEST

DOCUMENT NO. NY 216466 2

Part A:

GENERATOR NAME: CONSOLIDATED RAIL CORPORATION — PHONE: 607-324-7989 — EPA ID NO. NYD982[illegible]9

SITE ADDRESS: EAST AVENUE EXTENTION, HORNEL, N.Y. 14843

TRANSPORTER NO. 1: SCA CHEMICAL SERVICES, INC. — PHONE: 716-754-8231 — NYD049836679

SITE ADDRESS: 1550 BALMER Rd., MODEL CITY, NY 14107

TRANSPORTER NO. 2 — PHONE

SITE ADDRESS

TREATMENT, STORAGE OR DISPOSAL (TSD) FACILITY: SCA CHEMICAL SERVICES INC — PHONE: 716-754-8231 — NYD049836[illegible]9

SITE ADDRESS: 1550 BALMER Rd., MODEL CITY, N.Y. 14107

THIS FORM IS NO. ____ OF A TOTAL OF ____ THE FIRST MANIFEST DOCUMENT NO. IS NY

	PROPER US DOT SHIPPING NAME	US DOT HAZARD CLASS	UN/NA NUMBER	FORM	NET QUANTITY	UNITS	CONTAINERS NO.	CONTAINERS TYPE	EPA HAZ CODE	EPA WASTE TYPE
1	ALKALINE LIQUID PH 7 12.5	CORROSIVE	NA 1719	01		01	1	01	C	D00[illegible]
2	HAZARDOUS WASTE LIQUID NOS	ORM-E	NA 9189	01		01	8	01	-	-
3	SOLVENTS NOS NON-CALORINATED	FLAMABLE	UN 1993	01			19	01	I	D00[illegible]
4	FLAMABLE SOLIDS NOS	FLAMMABLE	UN 1325	02			1	01	I	D001
5	HAZARDOUS WASTE SOLID NOS	ORM-E	NA 9189	02			2	01	-	-
6										

SPECIAL HANDLING INSTRUCTIONS INCLUDING CONTAINER EXEMPTION (i.e. IDENTIFICATION OF ADDITIONAL WASTES INCLUDED IN SHIPMENT OF A NONHAZARDOUS NATURE WHICH DO NOT HAVE TO BE MANIFESTED)

32 Empty Partially crushed 55 gal drums
18 New empty 80 gallon overpack drums.

GENERATOR'S CERTIFICATION This is to certify that the herein named materials are properly classified, described, packaged, marked and labeled and are in proper condition for transportation according to the applicable regulations of the Department of Transportation and the EPA. The wastes described herein we consigned to the transporter named. The TSD Facility can and will accept the shipment of hazardous waste, and has a valid permit to do so. This shipment also conforms with all applicable State regulations. I certify that the foregoing is true and correct.

GENERATOR'S SIGNATURE: Joseph M. Dusop

Please type name also

5-64

DATE SHIPPED: 12 21 82 (Mo. Day Yr.)

EXPECTED ARRIVAL: 12 21 82 (Mo. Day Yr.)

TRANSPORTER NO. 1 SIGNATURE "To the best of my knowledge the contents of the shipment I have accepted for transport conforms with the description on this manifest."

TRANSPORTER NO. 1 PERMIT NUMBER

ecology and environment

DATE RECEIVED: 12 21 8[illegible]

REFERENCE 14

ecology and environment, inc.
BUFFALO CORPORATE CENTER
368 PLEASANTVIEW DRIVE, LANCASTER, NEW YORK 14086, TEL. 716/684-8060
International Specialists in the Environment

November 30, 1990

Mr. Clement Pierce
Superintendent
Village of Canisteo
33 Main Street
Canisteo, NY 14823

Dear Mr. Pierce:

During the course of Ecology and Environment, Inc.'s (E & E's) work for the New York State Department of Environmental Conservation, it was necessary to contact you for information regarding the sources of drinking water within three miles of the Conrail site in Hornellsville. Please review the following information and certify that it is correct to the best of your knowledge.

- The main source of drinking water in Canisteo is a public well located on Depot Street, within the village limits south of the Canisteo River. The well is 63 feet deep. This source is greatly supplemented by water from the Canisteo Reservoir, which is located about one mile northwest of the village.

- After 1993, wells will be the sole source of drinking water in Canisteo.

- Belle Haven Hamlet, located 1 mile northwest of Canisteo, receives drinking water from the Village of Canisteo.

- The village supplies water to about 1,000 residences.

- The farm just to the north of the Conrail site uses spring water, not well water.

- The Canisteo River is not used as a water source and has limited recreational use, mainly fishing.

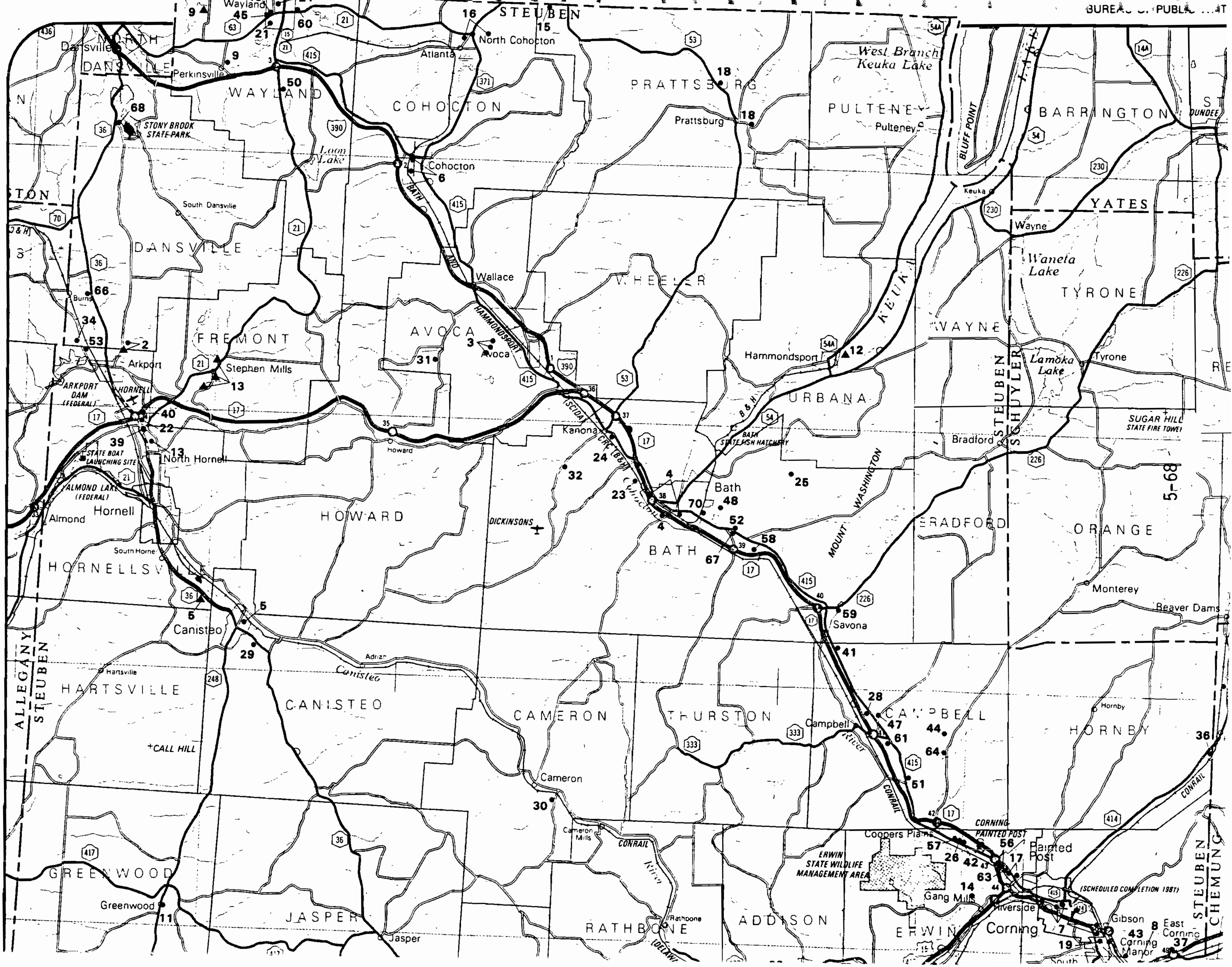
The preceding information is correct to the best of my knowledge.

Clement Pierce　　　　12/11/90
Signature　　　　Date

REFERENCE 15

LO[illegible]ATION OF COMMUNITY WATER SYSTEM SOURCES-1982

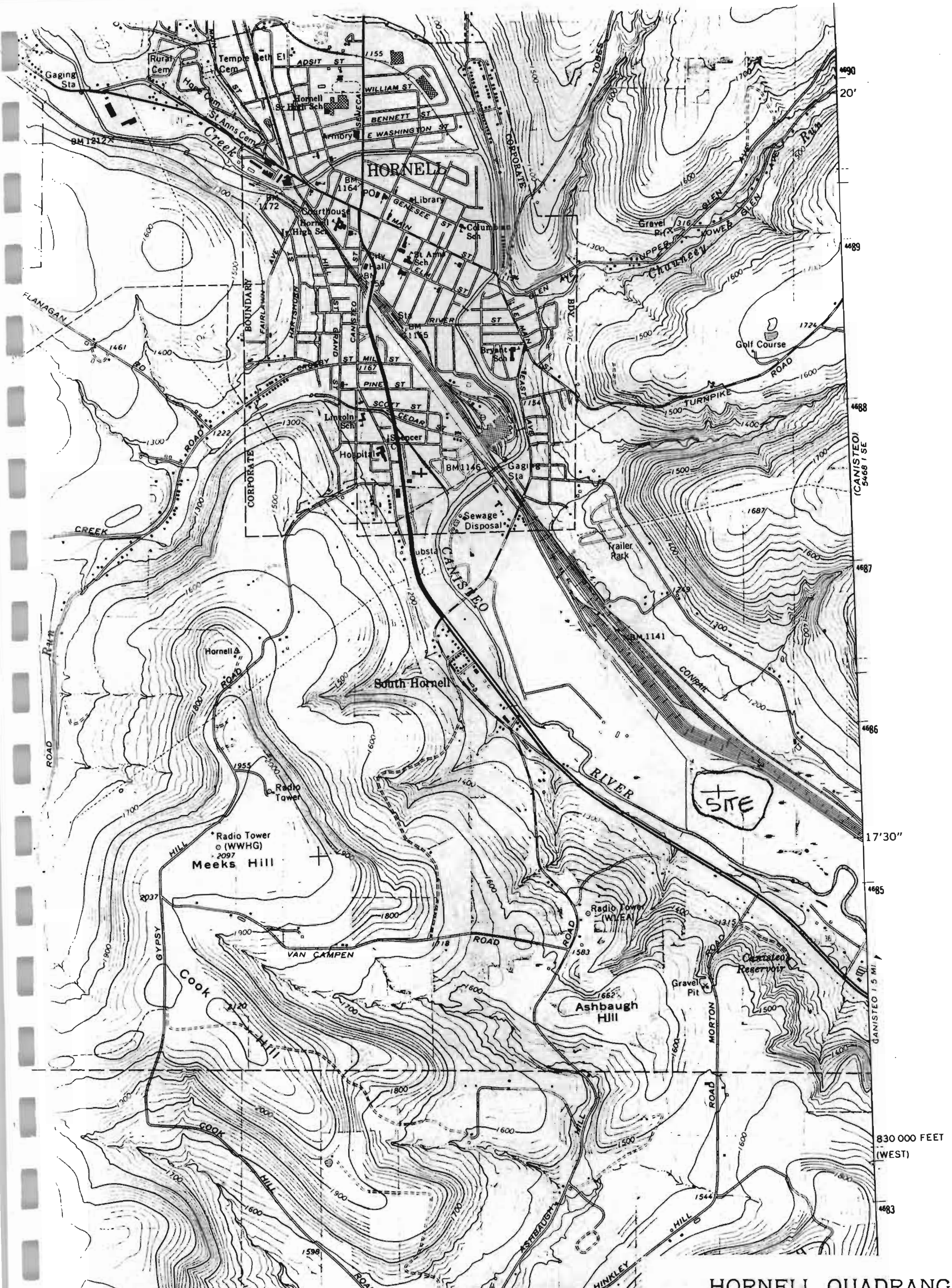
DIVISION OF ENVIRON[illegible]
BUREAU OF PUBLIC [illegible]



STEUBEN COUNTY

ID NO	COMMUNITY WATER SYSTEM	POPULATION	SOURCE
	Municipal Community		
1	Addison Village	2100	Wells
2	Arkport Village	787	Limekiln Creek, Wells
3	Avoca Village	1250	Wells (Springs)
4	Bath Village	6100	Wells
5	Canisteo Village	2730	Wells, Springs
6	Cohocton Village	926	Wells
7	Corning City	12953	Wells
8	Corning Manor Water District	300	Wells
9	Dansville Village (Livingston Co, Page 10)		Little Mill Creek Reservoir, Wells
10	Gibson Water District	500	Wells
11	Greenwood Water Company	200	Wells
12	Hammondsport Village	1180	Keuka Lake
13	Hornell City	11150	Seeley Creek Reservoirs, Wells
14	Morningside Heights Water District	600	Wells
15	Naples Village (Ontario Co, Page 12)		Wells
16	North Cohocton Water District	225	Wells
17	Painted Post Village	2700	Wells
18	Prattsburg Water District	800	Wells
19	South Corning Village	1400	Wells
20	Troupsburg Water District	200	Wells
21	Wayland Village	2300	Wells
	Non-Municipal Community		
22	Ames Trailer Court	18	Wells
23	Bath VA Hospital	1500	Wells
24	Brookside Trailer Court	18	Wells
25	Brookwood Mobile Home Court	54	Wells
26	Burroughs Mobile Home Court	20	Wells
27	Butlers Brown Hollow Mobile Park	81	Wells
28	Campbell Estates Inc	237	Wells
29	Canisteo Trailer Park	30	Wells
30	Carol's Country Court	117	Wells
31	Castle Creek Trailer Park	42	Wells
32	Chamberlain's Trailer Park	87	Wells
33	Clark's Wagon Wheel Mobile Home Court	36	Wells
34	Country Estates Court	72	Wells
35	Erwin Grove Trailer Park	57	Wells
36	Four Fourteen Estates Inc	204	Wells
37	Goff Road Mobile Homes	75	Wells
38	Graham's Trailer Court	30	Wells
39	Green Acres Mobile Home Court #1	200	Wells
40	Green Acres Mobile Home Court #2	18	Wells
41	Green Meadows Acres	120	Wells
42	Hall's Mobile Home Agency Inc	435	Wells
43	Hanwell Village	114	Wells
44	Hidden Forest Homes Inc	333	Wells
45	Hidden Inn Trailer Park	30	Wells
46	Hidden Inn Trailer Court	69	Wells
47	Horton's Mobile Home Court	42	Wells
48	J & M's Green Acres Mobile Court	171	Wells
49	Ken's Mobile Home Park	45	Wells
50	La Petite River Crest Mobile Home Park	60	Wells
51	McIntire Trailer Park	45	Wells
52	Moore Haven Trailer Park	72	Wells
53	Pine Knoll Trailer Park	78	Wells
54	Pleasant Valley Mobile Home Park	66	Wells
55	Port Belinda Recreational Camp Grounds	178	Wells
56	Rambler Mobile Court	60	Wells
57	Resue's Mobile Home Park	60	Wells
58	Rumsey Trailer Court	15	Wells
59	Savona Estates	144	Wells
60	Scura Mobile Home Park	102	Wells
61	Seager's Mobile Home Park	72	Wells
62	Sorber's Trailer Court	60	Wells
63	Stiker's, Erwin Court	15	Wells
64	Stoke's Trailer Park	48	Wells
65	Terwilliger Trailer Court	18	Wells
66	The Meadows	168	Wells
67	Uram's Trailer Park	36	Wells
68	Whitfords Trailer Court	36	Wells
69	Wildwood Mobile Home Park	33	Wells
70	William Street Motor Court	60	Wells

REFERENCE 16



HORNELL QUADRANGLE
NEW YORK
7.5 MINUTE SERIES (TOPOGRAPHIC)

REFERENCE 17

ecology and environment, inc.
BUFFALO CORPORATE CENTER
368 PLEASANTVIEW DRIVE, LANCASTER, NEW YORK 14086, TEL. 716/684-8060
International Specialists in the Environment

December 3, 1990

Mr. David Dupont
Steuben County
Soil Conservation Service
3 Pulteney Square East
Bath, New York 14810

Dear Mr. Dupont:

During the course of Ecology and Environment, Inc.'s (E & E's) work for the New York State Department of Environmental Conservation, it was necessary to contact you for information regarding location of agricultural land and irrigation usage in the vicinity of the Conrail site in Hornellsville. Please review the following information and certify that it is correct to the best of your knowledge.

- The Conrail site is located in a freshwater wetland.
- The nearest prime agricultural land is located to the west of the site on the east side of the river, within 1/2 mile of the site.
- Prime agricultural land is also located about 3000 feet east of the site.
- Irrigation is not practiced in the area.

The preceding information is correct to the best of my knowledge.

David P. Dupont — Signature 1/15/91 — Date

Thank you very much for your time and cooperation. Please return this correspondence using the posted, pre addressed envelope provided. If you have any questions regarding the above, please call me at (716) 684-8060, ext. 2519.

Yours truly,

Deborah J. Race

Deborah J. Race

DJR/wf
L/YP2010
[ENV]647

SCS-CPA-015
12-85

PRIME Ag. LAND
CURRENTLY
CROPLAND

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL MAP

Owner ______ Operator ______
County ______ State ______
Soil survey sheet (s) or code nos. ______ Aproximate scale 1" = 1320'

N

Prepared by U. S. Department of Agriculture, Soil Conservation Service cooperating with ______ Conservation District

STEUBEN COUNTY, NEW YORK

PRIME FARMLAND - MAPPING UNITS

AlA - Alton gravelly fine sandy loam, 0 to 3 percent slopes

AlB - Alton gravelly fine sandy loam, undulating

BrA - Braceville gravelly silt loam, 0 to 3 percent slopes

BrB - Braceville gravelly silt loam, 3 to 8 percent slopes

CbB - Canaseraga silt loam, 2 to 6 percent slopes

HoA - Howard gravelly loam, 0 to 3 percent slopes

HoB - Howard gravelly loam, undulating

HrB - Howard-Madrid complex, undulating

MaB - Madrid fine sandy loam, undulating

Mp - Middlebury silt loam

NgB - Niagara silt loam, 2 to 6 percent slopes

Sc - Scio silt loam

Tg - Tioga silt loam

Un - Unadilla silt loam

REFERENCE 18

SAMPLING REPORT

Conrail Demolition
Hornellville (T), Steuben (C)

Sampling Date: August 18, 1983
Priority Code: E
Site Code: 8-51-002

BY: Deborah Jackson
Senior Engineering Technician

David Boger
DEC Intern

Division of Solid & Hazardous Waste
Region 8

August 29, 1983

General Site Information

The Conrail Demolition Landfill is located south of Cedar Street on a Conrail access road, south of the City of Hornell, in the Town of Hornellville, Steuben County.

The site topography is a flat, low-lying area which is adjacent to a protected wetland. The dump is bordered to the north by railroad tracks and to the south by the Canisteo River and wetlands. Surface water flows generally to the south towards the wetlands and Canisteo River. Groundwater flow is generally believed to flow south.

Background Site Information

The site was originally owned and used by Erie Lackawana until 1975; then it was taken over by Conrail and used until 1976.

The operation consisted of dumping railroad ties, empty pails, fifty-five gallon drums, batteries, brush and garbage into the wetlands for fill.

In 1976, this operation was prohibited by the U.S. Army Corps of Engineers and the Department of Environmental Conservation because it was located in a protected wetlands.

Conrail was then instructed to remove as much solid waste as possible to the Bath Landfill, have the drums and batteries tested and removed to a hazardous waste disposal site, cover the remaining area with two feet of cover material, and establish a vegetative cover.

To date, the drums have been removed and cover material has been applied. However, the slopes are inadequate and more work is necessary to properly close the site.

Sampling Information

The site area was inspected and sampled on August 18, 1983, by Debbie Jackson and David Boger from DEC.

Sample Listing:

83-229-01: East side of fill - leachate sample in area of dead cattails and railroad ties. Leachate is an orangish-red color with an oil sheen on top. pH = 6.9. Analyzed for pp organics, metals.

83-229-02: Sediment sample on east side of fill. Analyzed for metals.

83-229-03: Sediment sample taken from the south side of the fill near dead vegetation. Analyzed for metals.

83-229-04: Creek sample - downstream. pH = 7.7. Analyzed for pp organics, metals.

83-229-05: Sediment sample from downstream creek. Area has no aquatic vegetation. Analyzed for metals.

83-229-06: Creek sample from upstream. Area has aquatic vegetation. pH = 7.9. Analyzed for pp organics, metals.

83-229-07: Creek sediment and upstream sample. Analyzed for metals.

Samples were taken between 11:30 a.m. and 1:00 p.m. on a hot, cloudy day. Delivery to the mobile lab occurred before 3:00 p.m. No preservatives were added to the samples in the field.

General Inspection

The site was pretty much covered with vegetation; although, quite a lot of solid waste, i.e., railroad ties and batteries, were exposed on the fill edges. Debris was also found in the wetland area where leachate seepage was occurring.

Recommendations

The solid waste should be cleared out of the wetlands and the proper cover and grading should be applied to the exposed areas. Also, a leachate drainage network should be installed to prevent leachate seepage into the wetlands.

recycled paper

ecology and environment

NYS DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Division of Solid Waste

Mobile Laboratory

Facility: Conrail Hornell

Sample Type:

Date Sampled: 8/17/83

Sampling Site		Leachate East Side	Sediment East Side	Soil South Side	Downgrade Liquid	Downgrade Sediment	Upgrade creek Liquid
Lab. Number		83-229-01	83-229-02	83-229-03	83-229-04	83-229-05	83-229-06
Parameter	Units						
pH	SU						
conductivity	ohms						
Cd	mg/l	<0.01	1.40	0.35	<0.01	0.15	<0.01
Fe	mg/l						
Zn	mg/l	0.01	430.00	38.5	<0.01	21.5	<0.01
Cr	mg/l	<0.01	19.75	1.35	0.01	2.70	0.01
Pb	mg/l	0.03	171.00	23.75	0.04	40.00	0.03
Ni	mg/l	0.03	11.90	1.70	<0.01	2.05	0.01
Cu	mg/l	<0.01	39.00	14.45	0.01	9.80	0.01
GC/MS		neg scan	Presence of polynuclear aromatic indicated.	neg scan	neg scan	neg scan	neg scan

NYS DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Division of Solid Waste

Mobile Laboratory

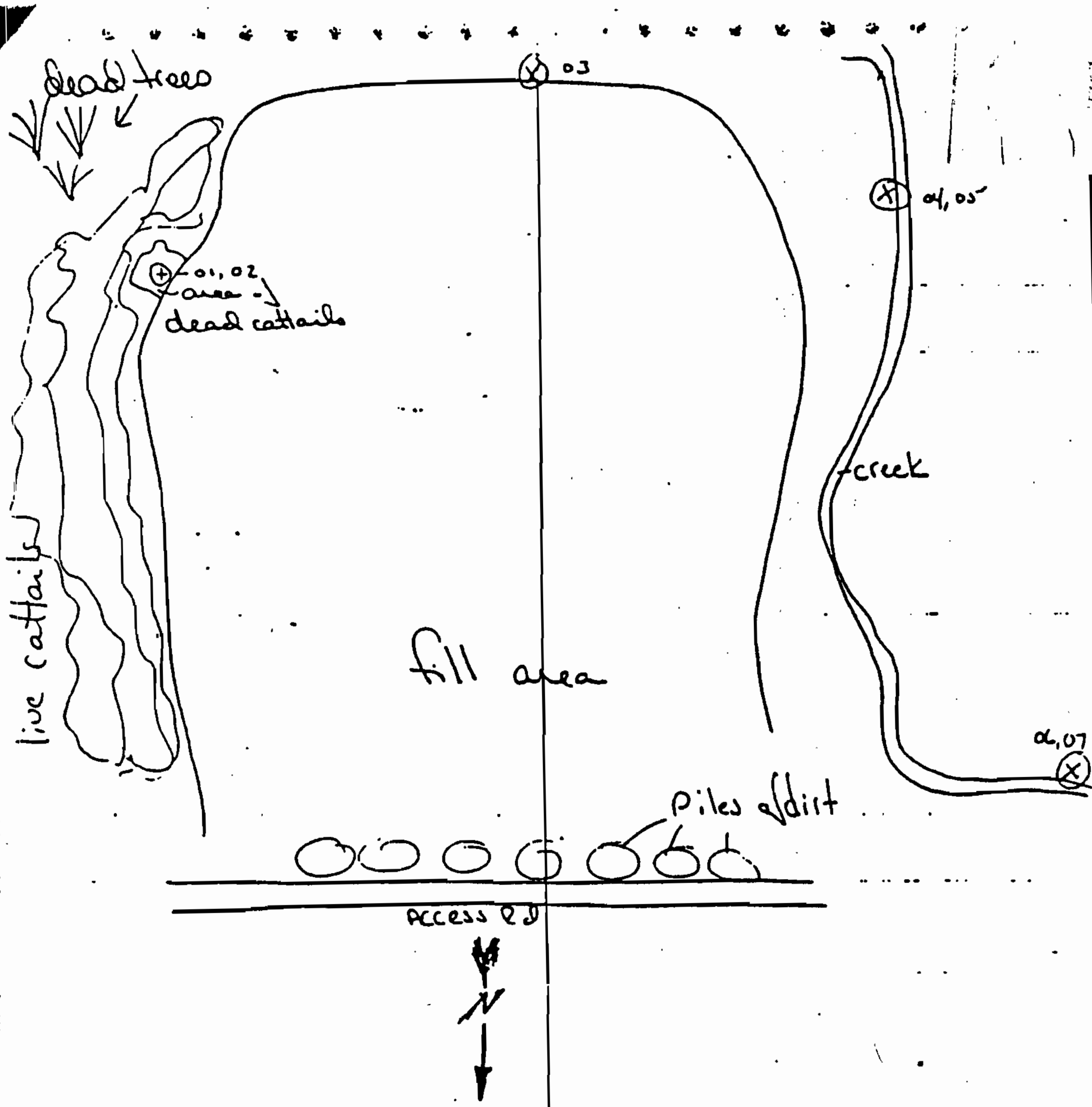
Facility: Conrail Hornell

Sample Type:

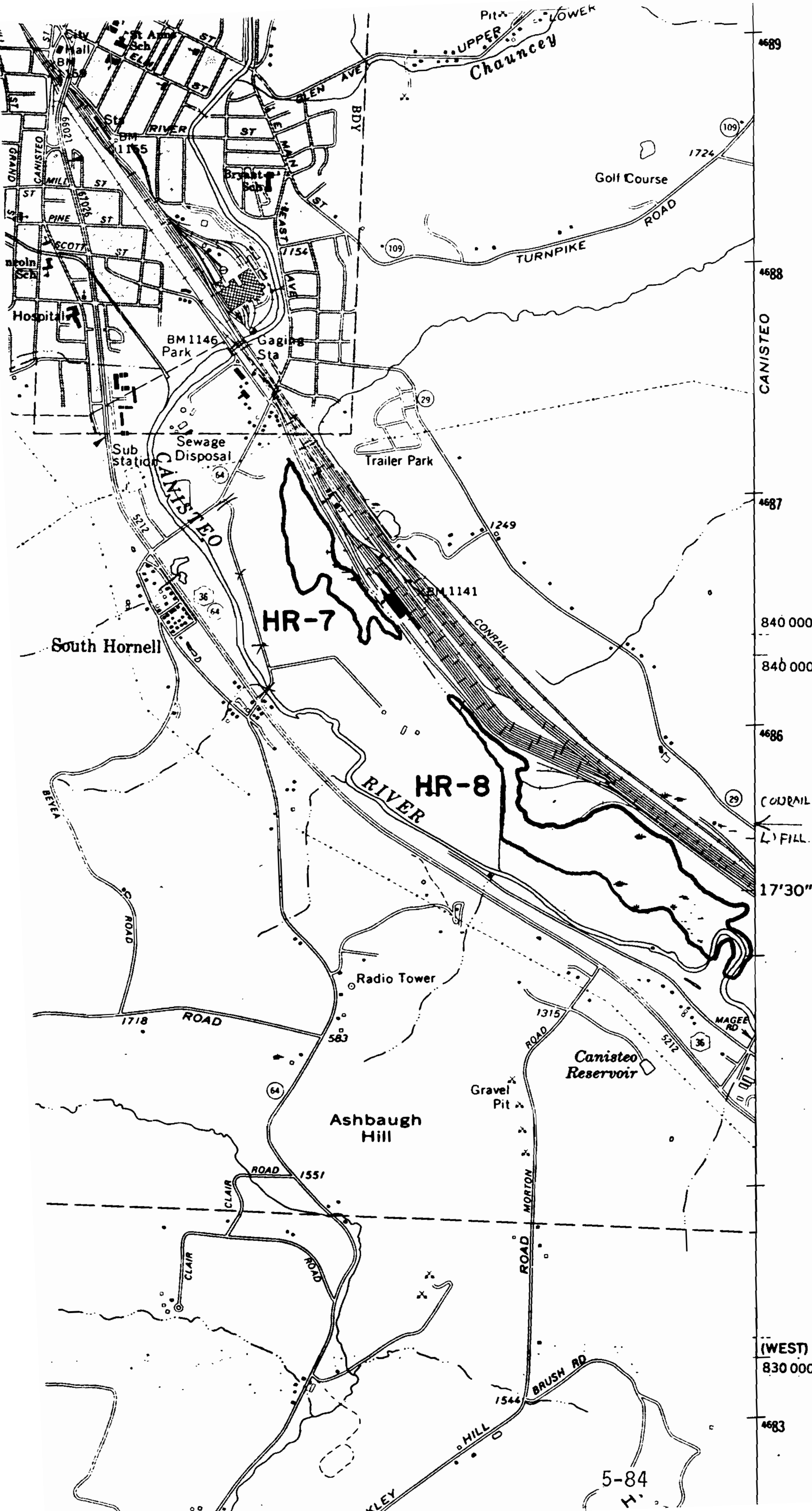
Date Sampled: 8/17/83

Sampling Site		Upgrade creek sediment					
Lab. Number		83-229-07					
Parameter	Units						
pH	SU						
..nductivity	ohms						
Cd	mg/l	0.15					
Fe	mg/l						
Zn	mg/l	18.0					
Cr	mg/l	0.50					
Pb	mg/l	10.15					
Ni	mg/l	1.05					
Cu	mg/l	2.35					
GC/MS		neg scan					

recycled paper
ecology and environment


dead trees
01,02
area
dead cattails
live cattails
03
creek
fill area
Piles of dirt
Access Rd
N

REFERENCE 19



New York State
Freshwater Wetlands Map

Steuben County
Map 13 of 33

This map was promulgated, pursuant to Article 24 of the Environmental Conservation Law (The Freshwater Wetlands Act) on November 13, 1986 by the Commissioner of New York State Department of Environmental Conservation.

LEGEND:

Approximate wetland boundary

U Upland inclusion

AA-00 Wetland identification code

NOTES:

This map indicates the approximate location of the actual boundaries of wetlands regulated according to the Freshwater Wetlands Act.

Map information other than the wetland boundaries was prepared by the New York State Department of Transportation and the United States Geological Survey. The locational information provided on the map is for reference only. Marsh symbols do not necessarily indicate the location of a regulated wetland.

Adjacent areas of the regulated wetlands are those areas within 100 feet of the boundary of the wetland. These areas are subject to regulation pursuant to the Freshwater Wetlands Act but are not delineated on this map. An adjacent area may be extended by special order of the Commissioner of the New York State Department of Environmental Conservation or the local regulatory authority.

Copies of Freshwater Wetlands Maps are available from the regional offices of the Department of Environmental Conservation. Maps are available for inspection at these offices and local government clerk's offices.

REVISIONS

REFERENCE 20

TMENT OF COMMERCE
:ES, Secretary

WEATHER BUREAU
F. W. REICHELDERFER, Chief

TECHNICAL PAPER NO. 40

RAINFALL FREQUENCY ATLAS OF THE UNITED STATES

for Durations from 30 Minutes to 24 Hours and Return Periods from 1 to 100 Years

Prepared by
DAVID M. HERSHFIELD
Cooperative Studies Section, Hydrologic Services Division

for

Engineering Division, Soil Conservation Service
U.S. Department of Agriculture

21

REFERENCE 21

New York State Department of Environmental Conservation

Information Services
700 Troy-Schenectady Road
Latham, New York 12110-2400

Thomas C. Jorling
Commissioner

December 5, 1990

Ms. Deborah J. Race
Ecology and Environment, Inc.
368 Pleasantview Drive
Lancaster, New York 14086

Dear Ms. Race:

We have reviewed the Significant Habitat Program and the Natural Heritage Program files with respect to your request for biological information concerning the Phase II Conrail Site in the Town of Hornellsville, Steuben County.

We did not identify any potential impacts on endangered, threatened, or special concern wildlife species, rare plant, animal or natural community occurrences, or other significant habitats.

The absence of data does not necessarily mean that rare or endangered elements, natural communities or other significant habitats do not exist on or adjacent to the proposed site, but rather that our files currently do not contain any information which indicates the presence of these. Our files are continually growing as new habitats and occurrences of rare species and communities are discovered. In most cases, site-specific or comprehensive surveys for plant and animal occurrences have not been conducted. For these reasons, we cannot provide a definitive statement on the presence or absence of species, habitats or communities. This information should not be substituted for on-site surveys that may be required for environmental assessment.

This response applies only to known occurrences of rare animals, plants and natural communities and/or significant wildlife habitats. You should contact our regional office(s), Division of Regulatory Affairs, at the address(es) on the enclosed list for information regarding any regulated areas or permits that may be required (e.g., regulated wetlands) under state law.

If this proposed project is still active one year from now we recommend that you contact us again so that we can update this response.

Sincerely,

Burrell Buffington

Burrell Buffington
Significant Habitat Unit

Enc.

5-88

New York Heritage Program is supported in
part by The Nature Conservancy

REFERENCE 22

YP2010 11/20/90

GEMS Census Data Retrieval

U.S. EPA Office of Pesticides and Toxic Substances (OPTS)
Exposure Evaluation Division

CONRAIL LANDFILL
LATITUDE 42:17:40 LONGITUDE 77:38:10 1980 HOUSING

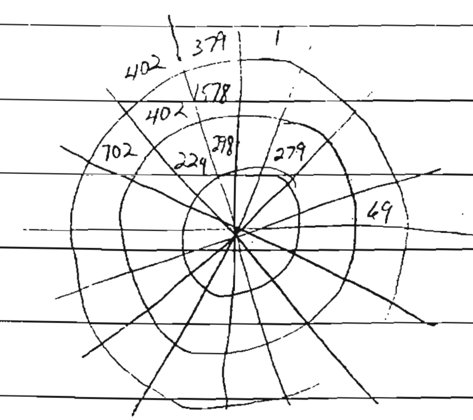
KM	0.00-1.61 (1 mile)	1.61-3.22 (2 mile)	3.22-4.83	4.83-6.44	SECTOR TOTALS
S 1	0	0	0	0	0
S 2	0	279	0	0	279
S 3	0	0	0	0	0
S 4	0	0	69	0	69
S 5	0	0	0	0	0
S 6	0	0	0	0	0
S 7	0	0	0	0	0
S 8	0	0	0	0	0
S 9	0	0	0	0	0
S10	0	0	0	0	0
S11	0	0	0	0	0
S12	0	0	0	0	0
S13	0	0	0	0	0
S14	0	0	702	0	702
S15	0	224	402	402	1028
S16	0	298	1578	379	2255
RING TOTALS	0	801	2751	781	4333

NO. OF BUILDINGS WITHIN 2 MILES = 0 + 801 = 801

press RETURN to continue

5-90

SEE NOTE ON RADII AND SECTORS



YP 2010   11-20-90   GEMS Census Data Retrieval

CONRAIL LANDFILL
LATITUDE 42:17:40 LONGITUDE 77:38:10 1980 POPULATION

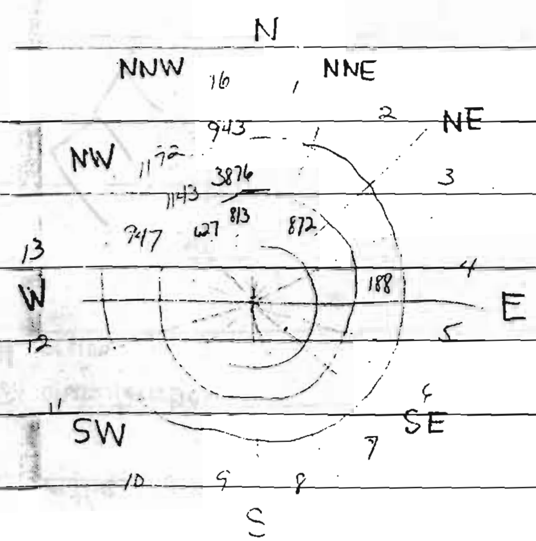
KM	0.00-1.61	1.61-3.22	3.22-4.83	4.83-6.44	SECTOR TOTALS
S 1	0	0	0	0	0
S 2	0	872	0	0	872
S 3	0	0	0	0	0
S 4	0	0	188	0	188
S 5	0	0	0	0	0
S 6	0	0	0	0	0
S 7	0	0	0	0	0
S 8	0	0	0	0	0
S 9	0	0	0	0	0
S10	0	0	0	0	0
S11	0	0	0	0	0
S12	0	0	0	0	0
S13	0	0	0	0	0
S14	0	0	1980	0	1980
S15	0	627	1143	1172	2942
S16	0	813	3876	943	5632
RING TOTALS	0	2312	7187	2115	11614

press RETURN to continue

0-1	0
1-2	2312
2-3	7187
3-4	pop 2115

NOTE: SECTORS ARE BASED ON THE 16 STANDARD COMPASS POINTS:

S1 = N	S9 = S
S2 = NNE	S10 = SSW
S3 = NE	S11 = SW
S4 = ENE	S12 = WSW
S5 = E	S13 = W
S6 = ESE	S14 = WNW
S7 = SE	S15 = NW
S8 = SSE	S16 = NNW



RING RADII ARE:

MILES	KM
1	1.609
2	3.218
3	4.827
4	6.436

GEMS Environmental Data Locator (ENVIRLOC)
Soil /HUCODE Data Retrieval

STATE : NEW YORK

LATITUDE : 42:17:40 LONGITUDE : 77:38:10
THE STATION IS INSIDE H.U. 2050104 ← U.S.G.S. Hydrologic Unit (H.U.) Code for the region

← Approximate soil characteristics for site region

GROUND WATER ZONE	:	6			
RUNOFF SOIL TYPE	:	2			
EROSION	:	9.7110E-04			CM/MONTH
DEPTH TO GROUND WATER BETWEEN	:	1.0000E+02	AND	3.0000E+02	
FIELD CAPACITY FOR TOP SOIL	:	7.2000E-02			
EFFECTIVE POROSITY BETWEEN	:	8.0000E-02	AND	2.5000E-01	
SEEPAGE TO GROUNDWATER BETWEEN	:	9.2660E+01	AND	2.7800E+03	CM/MONTH
DISTANCE TO DRINKING WELL	:	2.3000E+04			CM

Press RETURN for menu ...

REFERENCE 23

NATIONAL REGISTER OF HISTORIC PLACES

ANNUAL LISTING OF PROPERTIES

JANUARY 1979 THROUGH DECEMBER 1982

U.S. DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

JULY 1983

REFERENCE 24

NSV02, 1983

federal register

Tuesday
March 1, 1983

Part III

Department of the Interior

National Park Service

National Registry of Natural Landmarks

REFERENCE 25

We have not received a signed copy to date.

ecology and environment, inc.
BUFFALO CORPORATE CENTER
368 PLEASANTVIEW DRIVE, LANCASTER, NEW YORK 14086, TEL. 716/684-8060
International Specialists in the Environment

December 3, 1990

Mr. Michael Donovan
Fire Chief
South Hornell Fire Dept.
P.O. Box 361
Hornell, NY 14843

Dear Mr. Donovan:

During the course of Ecology and Environment, Inc.'s (E & E's) work for the New York State Department of ENvironmental Conservation, it was necessary to contact you for information regarding the fire or explosion threat presented by the Conrail site in Hornellsville. Please review the following information and certify that it is correct to the best of your knowledge.

Signature ______________________ Date ______________

- There is no apparent threat of fire or explosion at the Conrail landfill site.

The preceding information is correct to the best of my knowledge.

Thank you very much for your time and cooperation. Please return this correspondence using the posted, pre-addressed envelope provided. If you have any questions regarding the above, please contact me at (716) 684-8060.

Yours truly,

Deborah J. Race

DJR/wf
L/YP2010
[ENV]675

REFERENCE 26

ANALYTICAL DATA SUMMARY FORMS

(APPENDIX D OF THIS REPORT)

POTENTIAL HAZARDOUS WASTE SITE SITE INSPECTION REPORT EPA PART 1 - SITE LOCATION AND INSPECTION INFORMATION	I. IDENTIFICATION 01 State NY	02 Site Number 851002

II. SITE NAME AND LOCATION

01 Site Name (Legal, common, or descriptive name of site)	02 Street, Route No., or Specific Location Identifier
Conrail (landfill)	South side of Ice House Road

03 City	04 State	05 Zip Code	06 County	07 County Code	08 Cong. Dist.
Town of Hornellsville	NY	14843	Steuben	51	34

09 Coordinates Latitude	Longitude	10 Type of Ownership (Check One)
42° 17′ 40″	077° 38′ 10″	[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
5 / 24 / 90 (Month Day Year)	[ ] Active [X] Inactive	~1940 (Beginning Year) | 1978 (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 [ ] F. State Contractor Ecology and Environment Engineering, P.C. (Name of Firm)
[ ] G. Other (Specify) ______

05 Chief Inspector	06 Title	07 Organization	08 Telephone No.
Don Johnson	Geologist	Ecology and Environment Engineering, P.C.	(716)684-8060
09 Other Inspectors	**10 Title**	**11 Organization**	**12 Telephone No.**
Gene Florentino	Geologist	Ecology and Environment Engineering, P.C.	(716)684-8060
Rick Watt	Geologist	Ecology and Environment Engineering, P.C.	(716)684-8060
John Hood	Corporate Health and Safety	Ecology and Environment Engineering, P.C.	(716)684-8060

13 Site Representatives Interviewed	14 Title	15 Address	16 Telephone No.
Mr. George Flint	Supervisor of Structures	109 Loder Street	(607)324-7989
			( )
			( )
			( )
			( )

17 Access Gained by (Check one)	18 Time of Inspection	19 Weather Conditions
Permission	1055 hrs	Partly sunny, 55°F, strong winds from NW

IV. INFORMATION AVAILABLE FROM

01 Contact	02 Agency/Organization	03 Telephone No.
Walter Demick	NYSDEC	(518)457-9538

04 Person Responsible for Site Inspection Form	05 Agency	06 Organization	07 Telephone No.	08 Date
Jim Griffis	NA	E & E	(716)684-8060	2 / 7 / 91 (Month Day Year)

02[UZ]YP2080:D3314/6341

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT

PART 2 - WASTE INFORMATION

I. IDENTIFICATION	
01 State	02 Site Number
NY	851002

II. WASTE STATES, QUANTITIES, AND CHARACTERISTICS

01 Physical States (Check all that apply)

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

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

Tons Unknown
Cubic Yards Unknown
No. of Drums 32

03 Waste Characteristics (Check all that apply)

[X] A. Toxic
[X] B. Corrosive
[ ] C. Radioactive
[X] D. Persistent
[X] E. Soluble
[ ] F. Infectious
[X] 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	Unknown	NA	NA
PSD	Pesticides			
OCC	Other organic chemicals	Unknown	NA	NA
IOC	Inorganic chemicals	Unknown	NA	NA
ACD	Acids			
BAS	Bases			
MES	Heavy Metals	Unknown	NA	NA

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
SOL	PCE		Unknown	7 ppb	Organic analysis
SOL	1,1,1-TCA		Unknown	4-8 ppb	Organic analysis
OCC	PCB		Unknown	0.08-3 ppm	Organic analysis
OCC	PAH		Unknown	55-111,790 ppb	Organic analysis
MES	As, Cr, Pb, and Zn		Unknown		Inorganic analysis

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)

NYSDEC 1985; Flint 1990; E & E laboratory report for Phase II study.

02[UZ]YP2080:D3314/6341

POTENTIAL HAZARDOUS WASTE SITE SITE INSPECTION REPORT EPA PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS	I. IDENTIFICATION	
	01 State NY	02 Site Number 851002

II. HAZARDOUS CONDITIONS AND INCIDENTS

01 [X] A. Groundwater Contamination 02 [X] Observed (Date 11/2/90) [ ] Potential [ ] Alleged
03 Population Potentially Affected 4,155 04 Narrative Description
The direct discharge of leachate to surface water surrounding the landfill is documented. Organic and inorganic contamination was higher in the shallow groundwater samples downgradient of the landfill as indicated in laboratory analysis from the Phase II study groundwater. Approximately 4,155 people live within a 3-mile radius and use groundwater.

01 [X] B. Surface Water Contamination 02 [X] Observed (Date 11/2/90) [ ] Potential [ ] Alleged
03 Population Potentially Affected 304 04 Narrative Description:
The direct discharge of leachate to surface water surrounding the landfill is known. Organic and inorganic contamination was higher in a surface water sample collected downgradient of the landfill as indicated in laboratory analysis from the Phase II study. Surface water is used only for recreational purposes within a 3-mile radius of the site. Unknown how many people live downstream of site - GEMS data base says 0 within 3 miles - therefore use population within 1 mile who may contact wetlands near site.

01 [ ] C. Contamination of Air 02 [ ] Observed (Date ________) [ ] Potential [ ] Alleged
03 Population Potentially Affected ________ 04 Narrative Description:
No contamination of air at this site has been observed.

01 [ ] D. Fire/Explosive Conditions 02 [ ] Observed (Date ________) [ ] Potential [ ] Alleged
03 Population Potentially Affected ________ 04 Narrative Description:
No fire/explosive conditions are known to exist at this site at this time.

01 [X] E. Direct Contact 02 [X] Observed (Date 5/24/90) [ ] Potential [ ] Alleged
03 Population Potentially Affected 304 04 Narrative Description:

On-site surface soil and waste samples were shown to contain PCBs, PAHs, and heavy metals above regional background levels. Population potentially affected based on 1-mile radius.

01 [X] F. Contamination of Soil 02 [X] Observed (Date 11/2/90) [ ] Potential [ ] Alleged
03 Area Potentially Affected 304 04 Narrative Description:

Surface and subsurface soil samples contained PCBs, PAHs, and/or heavy metals including arsenic, chromium, and lead. Approximately 304 people live within a 1-mile radius.

01 [X] G. Drinking Water Contamination 02 [X] Observed (Date 11/2/90) [ ] Potential [ ] Alleged
03 Population Potentially Affected 4,155 04 Narrative Description:
Local residents use private wells as a water supply and the Town of Canisteo uses municipal groundwater wells downgradient of the site. Approximately 4,155 people live within a 3-mile radius.

01 [ ] H. Worker Exposure/Injury 02 [ ] Observed (Date ________) [ ] Potential [ ] Alleged
03 Workers Potentially Affected ________ 04 Narrative Description:
No worker exposure/injury is documented.

01 [X] I. Population Exposure/Injury 02 [ ] Observed (Date ________) [X] Potential [ ] Alleged
03 Population Potentially Affected 4,155 04 Narrative Description:
No population exposure/injury is documented. Used population potentially affected by groundwater contamination which also includes the population within 1 mile who may be exposed by direct contact.

02[UZ]YP2080:D3314/6341

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	851002

II. HAZARDOUS CONDITIONS AND INCIDENTS (Cont.)

01 [X] J. Damage to Flora 02 [ ] Observed (Date ______) [X] Potential [ ] Alleged
04 Narrative Description:
No damage to flora in the area is believed to be attributed to the landfill, but may occur based on contaminant types detected on site.

01 [X] K. Damage to Fauna 02 [ ] Observed (Date ______) [X] Potential [ ] Alleged
04 Narrative Description:
No damage to fauna is documented, but may occur based on contaminant types detected on site.

01 [X] L. Contamination of Food Chain 02 [ ] Observed (Date ______) [X] Potential [ ] Alleged
04 Narrative Description:
No damage to the food chain is observed or documented, but may occur based on contaminant types detected.

01 [X] M. Unstable Containment of Wastes (Spills/Runoff/Standing liquids, Leaking drums) 02 [X] Observed (Date 5/24/90) [ ] Potential [ ] Alleged
03 [X] Population Potentially Affected Unknown 04 Narrative Description:
Leachate seeps were observed during the 5/24/90 site inspection by E & E.

01 [X] N. Damage to Off-site Property 02 [X] Observed (Date 5/24/90) [ ] Potential [ ] Alleged
04 Narrative Description:
It is indicated on the site survey map that Conrail disposed of waste beyond the corporation's east property boundary, onto the property of R. LaValley. Unknown, if site is impacting on the Canisteo River since no river sampling was performed.

01 [ ] O. Contamination of Sewers, Storm/ Drains, WWTPs 02 [ ] Observed (Date ______) [ ] Potential [ ] Alleged
04 Narrative Description:
No such contamination has been documented.

01 [X] P. Illegal/Unauthorized Dumping 02 [X] Observed (Date 1976-1978) [ ] Potential [ ] Alleged
04 Narrative Description:
The Conrail landfill was operated until 1978 following an order to cease operations by the U.S. Army Corps of Engineers and NYSDEC in 1976. Scavenger dumping of household wastes was observed during the Phase II field investigation.

05 Description of Any Other Known, Potential, or Alleged Hazards
Landfill access is presently unrestricted, waste material is exposed in selected locations.

III. TOTAL POPULATION POTENTIALLY AFFECTED Unknown

IV. COMMENTS

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

E & E Site Inspection Logbook
Engineering-Sciences Phase I Investigation Report 1988
E & E Analytical Results, Phase II Investigation

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EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT

PART 4 - PERMIT AND DESCRIPTIVE INFORMATION

I. IDENTIFICATION	
01 State	02 Site Number
NY	851002

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)				
[ ] J. None				

III. SITE DESCRIPTION

01 Storage Disposal (Check all that apply)	02 Amount	03 Unit of Measure	04 Treatment (Check all that apply)	05 Other
[ ] A. Surface Impoundment			[ ] A. Incineration	[X] A. Buildings On Site
[ ] B. Piles			[ ] B. Underground Injection	Old weigh house foundation (1961)
[ ] C. Drums, Above Ground			[ ] C. Chemical/Physical	
[ ] D. Tank, Above Ground			[ ] D. Biological	
[ ] E. Tank, Below Ground			[ ] E. Waste Oil Processing	
[X] F. Landfill	20-acre	NA	[ ] F. Solvent Recovery	06 Area of Site
[ ] G. Landfarm			[ ] G. Other Recycling Recovery	
[ ] H. Open dump			[ ] H. Other ______ (specify)	20 Acres
[ ] I. Other ______ (Specify)				

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 drums currently observed; waste cover is non-existent in selected area; 4-foot barrier dike across north side of facility.

V. ACCESSIBILITY

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

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

E & E Site Inspection Logbook 1990

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EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT

PART 5 - WATER, DEMOGRAPHIC, AND ENVIRONMENTAL DATA

I. IDENTIFICATION

01 State: NY
02 Site Number: 851002

II. DRINKING WATER SUPPLY

01 Type of Drinking Supply (Check as applicable)

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

02 Status

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

03 Distance to Site

A 2.5 (mi)
B 0.2 (mi)

III. GROUNDWATER

01 Groundwater Use in Vicinity (Check one)

[X] A. Only Source for Drinking

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

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

[ ] D. Not Used, Unusable

02 Population Served by Groundwater 4,356

03 Distance to Nearest Drinking Water Well <0.50 (mi)

04 Depth to Groundwater <10 (ft)

05 Direction of Groundwater Flow southwest

06 Depth to Aquifer of Concern <10 (ft)

07 Potential Yield of Aquifer ____ (gpd)

08 Sole Source Aquifer Unknown
[X] Yes [ ] No

09 Description of Wells (including usage, depth, and location relative to population and buildings)
Village of Canisteo utilizes a municipal well located within the village boundaries. Estimated depth is 30 to 60 feet. All other residents outside the City of Hornell or the Town of Canisteo utilize residential wells.

10 Recharge Area
[ ] Yes
[ ] No
Comments:

11 Discharge Area
[X] Yes
[ ] No
Comments: Wetlands south and east of site discharge to the Canisteo River.

IV. SURFACE WATER

01 Surface Water (Check one)

[X] A. Reservoir, Recreation Drinking Water Source

[ ] B. Irrigation, Economically Important Resources

[ ] C. Commercial, Industrial

[ ] D. Not Currently Used

02 Affected/Potentially Affected Bodies of Water

Name:	Affected	Distance to Site
New York State designated freshwater wetlands	[X]	<0.10 (mi)
Canisteo River	[ ]	<0.25 (mi)
	[ ]	(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. 304	B. 2,312	C. 9,499
No. of Persons	No. of Persons	No. of Persons

02 Distance to Nearest Population 0.2 (mi)

03 Number of Buildings Within Two (2) Miles of Site 801

04 Distance to Nearest Off-Site Home 0.2 (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)
Site is located in a rural area 1.5 miles southeast of the City of Hornell and 1.5 miles northwest of the Town of Canisteo.

02[UZ]YP2080:D3314/6341

EPA	POTENTIAL HAZARDOUS WASTE SITE SITE INSPECTION REPORT PART 5 - WATER, DEMOGRAPHIC, AND ENVIRONMENTAL DATA (Cont.)	I. IDENTIFICATION 01 State: NY 02 Site Number: 851002

VI. ENVIRONMENTAL INFORMATION

01 Permeability of Unsaturated Zone (Check one)

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

02 Permeability of Bedrock (Check one)

[X] A. Impermeable (Less than 10^{-6} cm/sec) [ ] 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
~60 (ft)	at surface	

06 Net Precipitation	07 One Year 24-Hour Rainfall	08 Site Slope	Direction of Site Slope	Terrain Average Slope
9 (in)	2.4 (in)	0 - 3 %	south	0 - 3 %

09 Flood Potential	10
Site is in 100 Year Floodplain	[X] Site is on Barrier Island, Coastal High Hazard Area, Riverine Floodway

11 Distance to Wetlands (5 acre minimum)	12 Distance to Critical Habitat (of endangered species)
ESTUARINE NA — A. ____ (mi) OTHER — B. 0.10 (mi)	>1 (mi) Endangered Species: none known

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 (mi)	B. >1 (mi)	C. 0.02 (mi)	D. >2 (mi)

14 Description of Site in Relation to Surrounding Topography

Site is located within the 100-year floodplain for the Canisteo River and is directly north and west of a New York State-designated freshwater wetlands. Surface and shallow groundwater flow direction is to the southeast. A small, intermittent tributary stream borders the south border of the landfill and discharges directly into the Canisteo River.

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

E & E Site Inspection Logbook 1990

National Oceanic and Atmospheric Administration, Uncontrolled Hazardous Waste Site Ranking Systems Users Manual 1982

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EPA	POTENTIAL HAZARDOUS WASTE SITE SITE INSPECTION REPORT PART 6 - SAMPLE AND FIELD INFORMATION	I. IDENTIFICATION 01 State: NY 02 Site Number: 851002

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	5	Ecology & Environment's Analytical Services Center	1/91
Surface Water	4	Ecology & Environment's Analytical Services Center	1/91
Waste	4	Ecology & Environment's Analytical Services Center	1/91
Air	--		
Runoff	--		
Spill	--		
Soil	9	Ecology & Environment's Analytical Services Center	1/91
Vegetation	--		
Other	5 (sediment)	Ecology & Environment's Analytical Services Center	1/91

III. FIELD MEASUREMENTS TAKEN

01 Type	02 Comments
Geophysics	EM31 and Magnetometer
HNu/OVA	Any readings above background level were attributed to methane.
02/Explosimeter	No reported readings
Rad-Mini	No reported readings

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. (topo, survey, tax maps)

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

- All five wells were sampled for groundwater quality.
- Four surface water samples were collected and analyzed.
- Five sediment samples were collected and analyzed.
- Four surface soil samples were collected and analyzed.
- Four surface waste samples were collected and analyzed.
- Five subsurface soil samples were collected and analyzed.

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

E & E Phase II activities

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POTENTIAL HAZARDOUS WASTE SITE SITE INSPECTION REPORT EPA PART 7 - OWNER INFORMATION	I. IDENTIFICATION	
	01 State NY	02 Site Number 851002

II. CURRENT OWNER(S)			PARENT COMPANY (if applicable)		
01 Name Consolidated Rail Corporation		02 D+B Number	08 Name		09 D+B Number
03 Street Address (P.O. Box, RFD #, etc.) 109 Loder Street		04 SIC Code	10 Street Address (P.O. Box, RFD #, etc.)		11 SIC Code
05 City Hornell	06 State NY	07 Zip Code 14843	12 City	13 State	14 Zip Code
01 Name Richard LaValley		02 D+B Number	08 Name		09 D+B Number
03 Street Address (P.O. Box, RFD #, etc.) Canisteo Road RD #3		04 SIC Code	10 Street Address (P.O. Box, RFD #, etc.)		11 SIC Code
05 City Hornell	06 State NY	07 Zip Code 14843	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 Erie-Lackawanna Railroad		02 D+B Number	01 Name		02 D+B Number
03 Street Address (P.O. Box, RFD #, etc.) (No longer in business)		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 Erie Railroad		02 D+B Number	01 Name		02 D+B Number
03 Street Address (P.O. Box, RFD #, etc.) (No longer in business)		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)

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POTENTIAL HAZARDOUS WASTE SITE SITE INSPECTION REPORT EPA PART 8 - OPERATOR INFORMATION - NA	I. IDENTIFICATION 01 State: NY 02 Site Number: 851002

II. CURRENT OPERATOR (if different from Owner) / OPERATOR'S PARENT COMPANY (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				

III. PREVIOUS OPERATOR(S) (List most recent first; provide only if different from owner) / PREVIOUS OPERATORS' PARENT COMPANIES (if applicable)

01 Name Erie-Lackawanna Railroad		02 D+B Number	10 Name		11 D+B Number
03 Street Address (P.O. Box, RFD #, etc.) (no longer in business)		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 1962 to 1975	09 Name of Owner During This Period Erie-Lackawanna Railroad				
01 Name Erie Railroad		02 D+B Number	10 Name		11 D+B Number
03 Street Address (P.O. Box, RFD #, etc.) (no longer in business)		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 1940 to 1962	09 Name of Owner During This Period Erie Railroad				
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)

Flint 5/24/90; Jackson 1983

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EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT

PART 9 - GENERATOR/TRANSPORTER INFORMATION

I. IDENTIFICATION	
01 State NY	02 Site Number 851002

II. ON-SITE GENERATOR - NA

01 Name Consolidated Rail Corporation		02 D+B Number
03 Street Address (P.O. Box, RFD #, etc.) 109 Loder Street		04 SIC Code
05 City Hornell	06 State NY	07 Zip Code 14843

III. OFF-SITE GENERATOR(S) - NA

01 Name Consolidated Rail Corporation		02 D+B Number	01 Name Erie Railroad		02 D+B Number
03 Street Address (P.O. Box, RFD #, etc.) 109 Loder Street		04 SIC Code	03 Street Address (P.O. Box, RFD #, etc.) (No longer in business)		04 SIC Code
05 City Hornell	06 State NY	07 Zip Code 14843	05 City	06 State	07 Zip Code
01 Name Erie-Lackawanna Railroad		02 D+B Number	01 Name		02 D+B Number
03 Street Address (P.O. Box, RFD #, etc.) (No longer in business)		04 SIC Code	03 Street Address (P.O. Box, RFD #, etc.)		04 SIC Code
05 City	06 State	07 Zip Code	05 City	06 State	07 Zip Code

IV. TRANSPORTER(S) - NA

01 Name Consolidated Rail Corporation		02 D+B Number	01 Name		02 D+B Number
03 Street Address (P.O. Box, RFD #, etc.) 109 Loder Street		04 SIC Code	03 Street Address (P.O. Box, RFD #, etc.)		04 SIC Code
05 City Hornell	06 State NY	07 Zip Code 14843	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)

Flint 5/24/90

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EPA — POTENTIAL HAZARDOUS WASTE SITE SITE INSPECTION REPORT PART 10 - PAST RESPONSE ACTIVITIES	I. IDENTIFICATION 01 State: NY 02 Site Number: 851002

II. PAST RESPONSE ACTIVITIES

01 [ ] A. Water Supply Closed 02 Date ________ 03 Agency ________
04 Description:
No such response activity.

01 [ ] B. Temporary Water Supply Provided 02 Date ________ 03 Agency ________
04 Description:
No such response activity.

01 [ ] C. Permanent Water Supply Provided 02 Date ________ 03 Agency ________
04 Description:
No such response activity.

01 [ ] D. Spilled Material Removed 02 Date ________ 03 Agency ________
04 Description:
No such response activity.

01 [ ] E. Contaminated Soil Removed 02 Date ________ 03 Agency ________
04 Description:
No such response activity.

01 [ ] F. Waste Repackaged 02 Date ________ 03 Agency ________
04 Description:
No such response activity.

01 [X] G. Waste Disposed Elsewhere 02 Date 12/28; 2/85 03 Agency NYSDEC
04 Description: Thirty-two 55-gallon drums containing alkaline liquid, flammable solids, and other hazardous constituents in 1982. Hg cell storage batteries (65,000 lbs.)

01 [ ] H. On-Site Burial 02 Date ________ 03 Agency ________
04 Description:
No such response activity.

01 [ ] I. In Situ Chemical Treatment 02 Date ________ 03 Agency ________
04 Description:
No such response activity.

01 [ ] J. In Situ Biological Treatment 02 Date ________ 03 Agency ________
04 Description:
No such response activity.

01 [ ] K. In Situ Physical Treament 02 Date ________ 03 Agency ________
04 Description:
No such response activity.

01 [ ] L. Encapsulation 02 Date ________ 03 Agency ________
04 Description:
No such response activity.

01 [ ] M. Emergency Waste Treatment 02 Date ________ 03 Agency ________
04 Description:
No such response activity.

01 [ ] N. Cutoff Walls 02 Date ________ 03 Agency ________
04 Description:
No such response activity.

01 [ ] O. Emergency Diking/Surface Water Diversion 02 Date ________ 03 Agency ________
04 Description:
No such response activity.

01 [ ] P. Cutoff Trenches/Sump 02 Date ________ 03 Agency ________
04 Description:
No such response activity.

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EPA	POTENTIAL HAZARDOUS WASTE SITE SITE INSPECTION REPORT PART 10 - PAST RESPONSE ACTIVITIES (Cont.)	I. IDENTIFICATION 01 State: NY 02 Site Number: 851002

II. PAST RESPONSE ACTIVITIES (Cont.)

01 [ ] Q. Subsurface Cutoff Wall 02 Date ________ 03 Agency ________
04 Description:
No such response activity.

01 [ ] R. Barrier Walls Constructed 02 Date ________ 03 Agency ________
04 Description:
No such response activity.

01 [X] S. Capping/Covering 02 Date 1983 03 Agency ________
04 Description: Surface debris was excavated and removed to the Bath Landfill. Landfill was capped with soil from another on-site location.

01 [ ] T. Bulk Tankage Repaired 02 Date ________ 03 Agency ________
04 Description:
No such response activity.

01 [ ] U. Grout Curtain Constructed 02 Date ________ 03 Agency ________
04 Description:
No such response activity.

01 [ ] V. Bottom Sealed 02 Date ________ 03 Agency ________
04 Description:
No such response activity.

01 [ ] W. Gas Control 02 Date ________ 03 Agency ________
04 Description:
No such response activity.

01 [ ] X. Fire Control 02 Date ________ 03 Agency ________
04 Description:
No such response activity.

01 [ ] Y. Leachate Treatment 02 Date ________ 03 Agency ________
04 Description:
No such response activity.

01 [ ] Z. Area Evacuated 02 Date ________ 03 Agency ________
04 Description:
No such response activity.

01 [X] 1. Access to Site Restricted 02 Date 1981-1985 03 Agency ________
04 Description: Access to the site was partially reduced by the implementation of a 4-foot earthen berm across the north side of the landfill.

01 [ ] 2. Population Relocated 02 Date ________ 03 Agency ________
04 Description:
No such response activity.

01 [ ] 3. Other Remedial Activities 02 Date ________ 03 Agency ________
04 Description: An earthen berm was constructed on the east side of the intermittent stream flowing along the western edge of the landfill to prevent high waters from contacting the landfill.

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

Flint 5/24/90; NYSDEC 12/82; NYSDEC 12/85; Flint 12/13/85

02[UZ]YP2080:D3314/5002

EPA **POTENTIAL HAZARDOUS WASTE SITE** **SITE INSPECTION REPORT** **PART 11 - ENFORCEMENT INFORMATION**	**I. IDENTIFICATION** 01 State: NY 02 Site Number: 851002

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)

02[UZ]YP2080:D3314/5002

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APPENDIX A

SITE-SPECIFIC SAFETY PLAN

ecology and environment, inc.

S I T E   S A F E T Y   P L A N

Version 988

A. GENERAL INFORMATION

Project Title: NYSDEC Phase II

Project No.: YP-2000

TDD/Pan No.: --

Project Manager: Donald Johnson

Project Dir.: James Griffis

Location(s): Conrail Property - Hornellsville, Steuben County, New York

Prepared by: Donald Johnson

Date Prepared: 5/10/90

Approval by: C. Foley

Date Approved: 5/10/90

Site Safety Officer Review: ______

Date Reviewed: ______

Scope/Objective of Work: Environmental investigation including leachate, surface water and sediment sampling, and subsurface boring and monitoring well establishment.

Proposed Date of Field Activities: May through September 1990.

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

Documentation/Summary:

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

B. SITE/WASTE CHARACTERISTICS

Waste Type(s):

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

Characteristic(s):

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

Other: ______

Physical Hazards:

Overhead [X]	Confined* Space [ ]	Below Grade [ ]	Trip/Fall [X]
Puncture [X]	Burn [ ]	Cut [ ]	Splash [X]
Noise [X]	Other: ______		

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

02[UZ]YP2030:D2962/4796

Site History/Description and Unusual Features (see Sampling Plan for detailed description): Twenty-acre site has undergone limited remediation, including removal of drums, waste batteries and contaminated soil, and capping.

Locations of Chemicals/Wastes: Unknown, however, several leachate seeps have been observed on the south slope of the landfill.

Estimated Volume of Chemicals/Wastes: Unknown, however, disposal of wastes reportedly began around 1940 and continued through 1978.

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: 1) Site Reconnaissance - Trip/fall, direct dermal contact, 2) Geophysical Survey - Trip/fall, direct dermal contact, 3) Surface and subsurface soil and water sampling - trip/fall, direct dermal contact, 4) Drilling/Well Installation - Physical hazards associated with drilling including: overhead, trip/fall, noise, splash, direct dermal and/respiratory contact potential.

Chemical Hazard Evaluation:

Compound	PEL/TWA	Route of Exposure	Acute Symptoms	Odor Threshold	Odor Description
PCB	0.09 ppm-skin	Eye/skin, ingestion, inhalation	Refer to hazard evaluation sheet	0.0095 ppm	Pleasant, butter like
Zn	10 mg/m3	Eye/skin, inhalation	Skin irritation, thirst, coughing, nausea	--	--
Cr	(0.5 mg/m3) 0.23 ppm	Eye/skin, ingestion, inhalation	Contact dermatitis, eye mucous membrane irritation	--	--
Pb	0.01 ppm	Eye/skin, ingestion	Cummulative neurotoxin-associated effects	--	--
Ni	0.41 ppm (1 mg/m3)	Eye/skin, lung and nasal passages	Dermatitis, lung cancer	--	--
Cu	0.1 ppm (1 mg/m3)	Eye/skin, inhalation	Wilson's disease, reproductive toxin-associated effects	--	--

*For additional information regarding the compounds listed above please refer to the hazard evaluation sheets attached.

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

02[UZ]YP2030:D2962/4796

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	X
Task 4			X	X

(Expand if necessary)

Modifications: Dermal and respiratory protection will be upgraded during drilling/decon/sampling if action levels dictate.

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 >_____ mg/m^3, other ______________.
- Level C: O_2 <19.5% or >25%, explosive atmosphere >25% LEL (California–20%), unknown organic vapor (in breathing zone) >5 ppm, particulates >0.05% 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
PCB(s), heavy metals	Area	Mini RAM,	Periodic – as
		*OVA, HNu,	dictated by
		Mini RAD,	scope of work
		explosimenter/	(e.g., dusty
		O2 Monitor	drilling
			conditions)

*Will be on site at all times.

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

All sampling equipment will be disposable with the exception of split-spoon samplers. All split-spoons will initially be cleaned of all foreign matter and sanitized with a steam cleaner.

OR

1) Initially cleaned of all foreign matter, 2) washed with detergent and water, 3) rinsed with potable water, 4) rinsed with hexane or pesticide grade methanol, 5) rinsed with distilled water, 6) allowed to air dry.

02[UZ]YP2030:D2962/4796

Personnel Decon Protocol: Level D, with potential to upgrade to C (Level) if air monitoring dictates respiratory protection during steam decon or solvent decon. Wear saranax if needed to prevent contaminated soil from contacting skin.

Decon Solution Monitoring Procedures, if Applicable: OVA, HNu in breathing zone of personnel.

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

N/A

Site Entry Procedures and Special Considerations: At no time will the railroad tracks directly north of the site be crossed or occupied during train usage.

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

As noted above and heat stress/stroke will be carefully avoided with work breaks and beverages provided as needed by the site safety officer. See Safety Alert for Lymes Disease for additional precautions.

General Spill Control, if applicable: N/A

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

All investigation derived waste will be double bagged, labeled as contaminated or non-contaminated, and stored in a secure location until appropriate disposal arrangements are made. All protective wear will be rendered unusable.

Sample Handling Procedures Including Protective Wear:

All samples to be packaged and shipped in accordance with applicable DOT regulations. Level D or higher level of protective wear will be worn during sample packaging.

Team Member*	Responsibility
Donald Johnson	Team Leader
Scott Thorsell	Site Safety Officer

*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).

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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 607/324-3900 @ St. James Mercy Hospital

Poison Control Center Lifeline 716/275-5151

Police (include local, county sheriff, state) 911

Fire Department 911

Airport

Agency Contact (EPA, State, Local USCG, etc.) NYSDEC, Valerie Lauzze @ 518/457-9538

Local Laboratory Ecology and Environment Engineering, P.C., Analytical Services Center (ASC)

UPS/Fed. Express --

Client Contact see agency contact (above)

Site Contact Conrail Field Representative Mr. Dave Rowe @ 315/432-5867

SITE RESOURCES

Site Emergency Evacuation Alarm Method Verbal

Water Supply Source To be determined

Telephone Location, Number To be determined

Cellular Phone, if available N/A

Radio N/A

Other N/A

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 .... N/A (home)
   N/A (office)
4. FITOM, TATOM, or Office Manager .... N/A (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) Access Magee Road southeast of the site, turn right. Follow Magee Road southwest to Seneca Street, turn left. Follow Seneca Street northwest into South Hornell. Look for hospital sign on left side of street. Hospital is located one block west of Seneca Street, at 411 Canisteo Street (see attached map).

Emergency Egress Routes to Get Off-Site A new access road is located directly northeast of the site parallel to the Conrail tracks. The access road connects to Magee Road southeast of the site.

St. James Mercy Hospital
411 Canisteo Street
Hornell, NY 14843-2197
607/324-3900

02[UZ]YP2030:D2962/4796

F. EQUIPMENT CHECKLIST

PROTECTIVE GEAR

Level A	No.	Level B	No.
SCBA		SCBA	
SPARE AIR TANKS		SPARE AIR TANKS	
ENCAPSULATING SUIT (Type _____________)		PROTECTIVE COVERALL (Type _____________)	
SURGICAL GLOVES		RAIN SUIT	
NEOPRENE SAFETY BOOTS		BUTYL APRON	
BOOTIES		SURGICAL GLOVES	
GLOVES (Type _________________________)		GLOVES (Type _________________________)	
OUTER WORK GLOVES		OUTER WORK GLOVES	
HARD HAT		NEOPRENE SAFETY BOOTS	
CASCADE SYSTEM		BOOTIES	
5-MINUTE ESCAPE COOLING VEST		HARD HAT WITH FACE SHIELD	
		CASCADE SYSTEM	
		MANIFOLD SYSTEM	
Level C		**Level D**	
ULTRA-TWIN RESPIRATOR	X	ULTRA-TWIN RESPIRATOR (Available)	X
POWER AIR PURIFYING RESPIRATOR		CARTRIDGES (Type GMC-H)	X
CARTRIDGES (Type GMC-H)	X	5-MINUTE ESCAPE MASK (Available)	
5-MINUTE ESCAPE MASK		PROTECTIVE COVERALL (Type Saranak)	X
PROTECTIVE COVERALL (Type ______)	X	RAIN SUIT	X
RAIN SUIT	X	NEOPRENE SAFETY BOOTS	
BUTYL APRON		BOOTIES	X
SURGICAL GLOVES	X	WORK GLOVES	X
GLOVES (Type Scorpio)	X	HARD HAT WITH FACE SHIELD	X
OUTER WORK GLOVES	X	SAFETY GLASSES	X
NEOPRENE SAFETY BOOTS			
HARD HAT WITH FACE SHIELD	X		
BOOTIES	X		
HARDHAT	X		

02[UZ]YP2030:D262/4797

INSTRUMENTATION	No.	DECON EQUIPMENT	No.
OVA		WASH TUBS	X
THERMAL DESORBER		BUCKETS	X
O2/EXPLOSIMETER W/CAL. KIT	X	SCRUB BRUSHES	X
PHOTOVAC TIP		PRESSURIZED SPRAYER	
HNu (Probe 10.2 eV, 11.7 eV)	X	DETERGENT (Type Alconox)	X
MAGNETOMETER	X	SOLVENT (Type Hexane or Methanol)	X
PIPE LOCATOR		PLASTIC SHEETING	X
WEATHER STATION		TARPS AND POLES	
DRAEGER PUMP, TUBES ______		TRASH BAGS	X
BRUNTON COMPASS	X	TRASH CANS	
MONITOX CYANIDE		MASKING TAPE	
HEAT STRESS MONITOR		DUCT TAPE	X
NOISE EQUIPMENT ______		PAPER TOWELS	X
PERSONAL SAMPLING PUMPS		FACE MASK SANITIZER	X
		FOLDING CHAIRS	
		STEP LADDERS	
		DISTILLED WATER	X
RADIATION EQUIPMENT			
DOCUMENTATION FORMS			
PORTABLE RATEMETER			
SCALER/RATEMETER		**SAMPLING EQUIPMENT**	
NaI Probe		8 OZ. BOTTLES	X
ZnS Probe		HALF-GALLON BOTTLES	X
GM Pancake Probe		VOA BOTTLES	X
GM Side Window Probe		STRING	X
MICRO R METER		HAND BAILERS	X
ION CHAMBER		THIEVING RODS WITH BULBS	
ALERT DOSIMETER		SPOONS	X
POCKET DOSIMETER		KNIVES	
TLD BADGES	X	FILTER PAPER	
FIRST AID EQUIPMENT		PERSONAL SAMPLING PUMP SUPPLIES	
FIRST AID KIT	X		
OXYGEN ADMINISTRATOR			
STRETCHER			
PORTABLE EYE WASH	X		
BLOOD PRESSURE MONITOR			
FIRE EXTINGUISHER	X		

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

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

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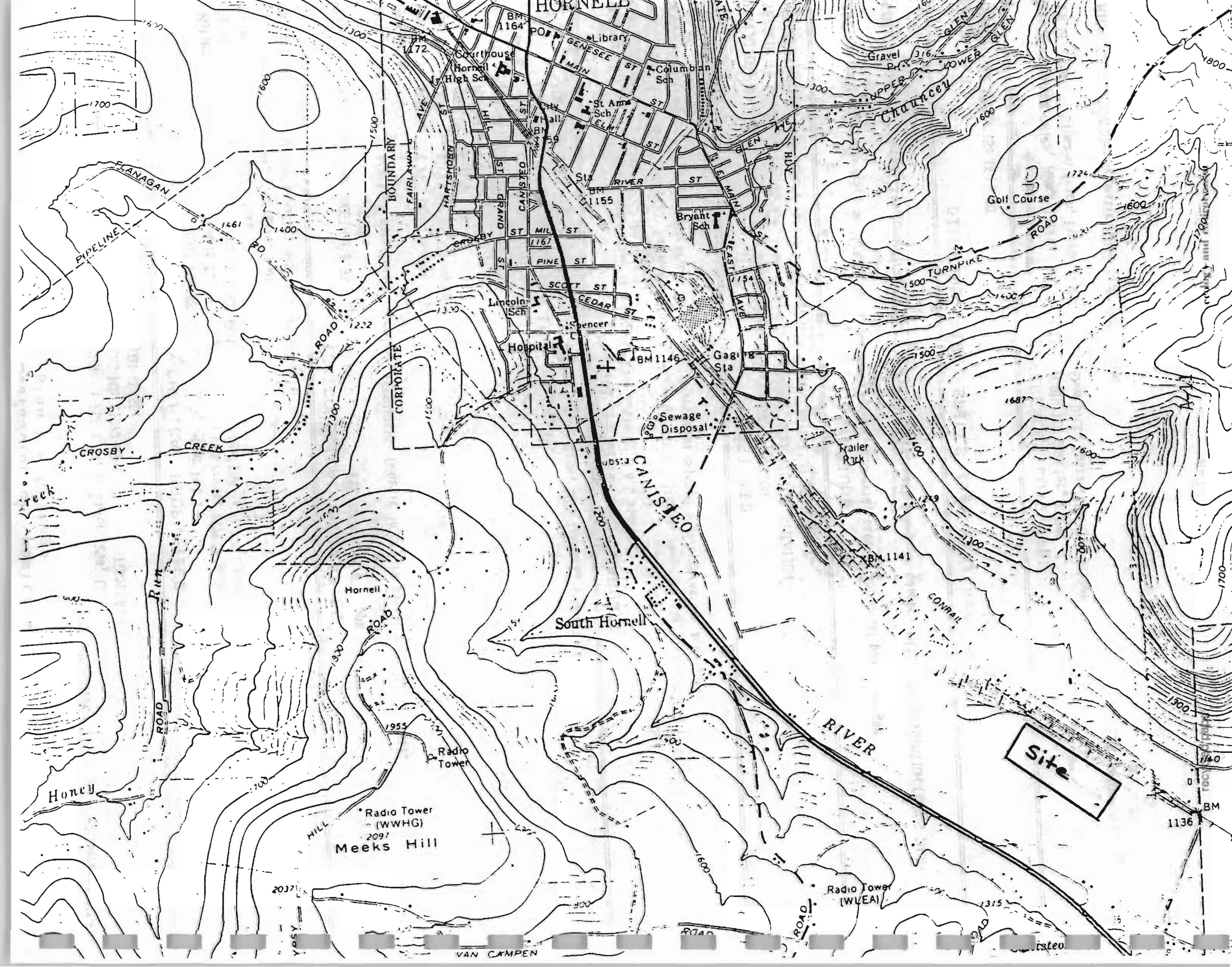

HORNELL
Library
Courthouse
Columbian Sch
St Ann's Sch
City Hall
Bryant Sch
Lincoln Sch
Spencer
Hospital
Gaging Sta
Sewage Disposal
Trailer Park
Golf Course
Gravel Pit
Chauncey
CANISTEO
RIVER
CONRAIL
South Hornell
Hornell
Radio Tower
Radio Tower (WWHG)
Meeks Hill
Radio Tower (WLEA)
Honey Run
CROSBY CREEK
FLANAGAN
PIPELINE
TURNPIKE ROAD
CORPORATE BOUNDARY
VAN CAMPEN
Site

Hazard Evaluation of Chemicals
Region V - Chicago

DATE : / /
JOB NO: ______________

CHEMICAL NAME: Polychlorinated Biphenyl 1254
SYN : PCB 1254, Arochlor 1254, Chlorodiphenyl, Chlorinated Biphenyl
CAS NO: 11097-69-1 FORMULA: C12RCl5
DOT CLASS:

CHEMICAL PROPERTIES

Phys St: Liquid | Boil Pt: 689.00°F | Ionz Pot : -- | Fl Pt: 2??.00°F
Mol Wt : 326.00 | Melt Pt: -- | Vap Press: 0.00006mmHg | LFL : --
Sp Gr : 1.50 | Frz Pt : 432.00°F | Odr Thr : 0.0095 ppm | UFL : --

Odor : pleasant, butter like
INCOMPAT/REACT: strong oxidizers, heat
SOLUBILITY : insoluble-water; most organic solvents

TOXICOLOGICAL PROPERTIES

Exposure Limits: TLV-TWA (ACGIH): 0.03 - ppm SKIN PEL (OSHA): 0.03 ppm SKIN
STEL: -- IDLH: --

OTHER PROPERTIES : Affect male/female reproduct, PERSISTENT, Genetic injury in animal experiments, TOXIC

Tox Data: INHAL : -
DERMAL : rat TDlo: 4mg/kg; ETA
ORAL : rat LD50: 1295mg/kg
CARCIN : YES
MUTAGEN : exper
REPRO TOX: exper teratogen
AQUATIC : .278ppm/96hr/bluegill/TLm/fresh water
OTHER TOX: TARGET ORGANS: Skin, Liver, Resp Sys, Eyes
ROUTES OF EXP: Ingestion, Eye(Ocular), Dermal Absorption, Skin Contact, Inhalation

PERSONAL PROTECTIVE MEASURES

RESPIRATORS : To be determined on a case-by-case basis by H & S Staff.
CARTRIDGE TYPE : GMC-H or AP3 (RACAL)
PROTECTIVE CLOTHING: Coverall: Saranex Gloves: Neoprene, Viton Boots: Neoprene for soil sampling in known concent.
SPEC PRECAUTIONS : High concentrations in air are dangerous to exposed skin/eyes/mucous membranes.

FIRST AID

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

SYMPTOMS

ACUTE : irritation of eyes/nose/throat, can cause vomtg, edema, anorexia, nausea, abdominal pain, fatigue

CHRONIC: chloracne, dermatitis, jaundice, dark urine, liver/kidney/heart damage or cancer, INCREASED CHLORINATION EQUALS INCREASED TOXICITY

DISPOSAL, FIRE, SPILLS (see attached sheet)

DISPOSAL: D,0 FIRE: 7 LEAKS & SPILLS:
DECOMPOSITION PRODUCTS: HCl, CO

REFERENCES CONSULTED

NIOSH/OSHA Pocket Guide, Merck Index, Chris(vol. III), ACGIH TLV Booklet, RTECS
OTHER REFERENCES: Sigma-Aldrich, Poison Handbook, Cond Chem Dict, Cassarett, Kirk-Othmer

CHEMICAL CLASSIFICATION: Aromatic Halogenated Hydrocarbon

LAST REVISION DATE: 05/10/89

Hazard Evaluation of Chemicals
Region V - Chicago

DATE : / /
JOB NO: ______________

CHEMICAL NAME: Polychlorinated Biphenyl 1242
SYN : PCB 1242, Arochlor 1242, Chlorodiphenyl
CAS NO: 53469-21-9 FORMULA: C12H7Cl3
DOT CLASS: 2315

CHEMICAL PROPERTIES

ys St: Liquid Boil Pt: 617.00°F Ionz Pot : -- Fl Pt: 349.00°F
Mol Wt : 258.00 Melt Pt: — Vap Press: 0.001 mmHg LFL : —
Sp Gr : 1.30 Frz Pt : -2.00°F Odr Thr : 0.0095 ppm UFL : —
or : pleasant, butter like
INCOMPAT/REACT: strong oxidizers
SOLUBILITY : insoluble

TOXICOLOGICAL PROPERTIES

Exposure Limits: TLV-TWA (ACGIH): 0.09 ppm SKIN PEL (OSHA): 0.07 ppm SKIN
STEL: -- IDLH: 0.47 ppm
ER PROPERTIES : affects male/female reproduction, Genetic injury to animals in experiments, FLISIS, TOXIC
Tox Data: INHAL : human Tclo: 10mg/m3
DERMAL : -
ORAL : rat LD50: 4250mg/kg
CARCIN : human suspect
MUTAGEN : animal positive
REPRO TOX: teratogen
AQUATIC : Tlm 96: .278 ppm
OTHER TOX: TARGET ORGANS: Skin, Liver, Resp Sys, Eyes
ROUTES OF EXP: Ingestion, Eye(Ocular), Dermal Absorption, Skin Contact, Inhalation

PERSONAL PROTECTIVE MEASURES

RESPIRATORS : To be determined on a case-by-case basis by H & S Staff.
CARTRIDGE TYPE : GMC-H or AP3 (RACAL)
PROTECTIVE CLOTHING: Coverall: Saranex Gloves: Neoprene, Viton Boots: Neoprene for soil sampling in known conc.
SPEC PRECAUTIONS : High concentrations in air are dangerous to exposed skin, eyes, mucous membranes.

FIRST AID

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

SYMPTOMS

ACUTE : irritation of skin/eyes/nose/throat, can cause vomiting, edema, anorexia, nausea, abdominal pain, fatigue, pigmentation of skin & nails
CHRONIC: chloracne,acute/chronic may cause liver damage/cancer,heart/kidney edema; reprod: orl ing may be embryotoxic causg stillbirth,grey-brn skin,incr. eye dischrg to babies born to women exposd during preg

DISPOSAL, FIRE, SPILLS (see attached sheet)

DISPOSAL: D,0 FIRE: 7 LEAKS & SPILLS:
DECOMPOSITION PRODUCTS: HCl, CO

REFERENCES CONSULTED

NIOSH/OSHA Pocket Guide, Merck Index, Chris(vol. III), ACGIH TLV Booklet, RTECS
OTHER REFERENCES: Sigma-Aldrich, Poison Handbook

CHEMICAL CLASSIFICATION: Halogen Cmpd, Aromatic, Polycyclic

LAST REVISION DATE:
05/10/89

ecology and environment, inc.

HAZARD EVALUATION OF CHEMICALS

Chemical Name Zinc Date

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

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 1mmHg 909°F Freezing Point 787°F

Specific Gravity 7.14 Odor/Odor Threshold Flammable Limits

Incompatabilities Acids, sodium Peroxide, chlorine, water, sulfer

Biological Properties:

TLV-TWA As zinc Oxide: 10mg/m3 PEL 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

Hazard Evaluation of Chemicals
Region V - Chicago

recycled paper

DATE : / /
JOB NO: ______________

CHEMICAL NAME: Chromium-meta

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

CHEMICAL PROPERTIES

Phys St:
Mol Wt : 52.00
Sp Gr : 7.20
Odor : none
Boil Pt: 4784.00F
Melt Pt: 3452.00F
Frz Pt : 3339.00F
Ionz Pot : --
Vap Press: --
Odr Thr : --
Fl Pt: 0.22F
LFL : --
UFL : --
INCOMPAT/REACT: strong oxidizers, powdered metal is explosive
SOLUBILITY : insoluble

TOXICOLOGICAL PROPERTIES

Exposure Limits: TLV-TWA (ACGIH): 0.23 ppm PEL (OSHA): 0.47 ppm
STEL: -- IDLH: 235.57 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 : APR: dusty/windy condit or known high concent or >1 but <5ppm; SCBA: >5ppm
CARTRIDGE TYPE : GMC-H, AP3 (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 lg amts 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 FIRE: 13 LEAKS & SPILLS: 3,4,6-9
DECOMPOSITION PRODUCTS:

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

Hazard Evaluation of Chemicals
Region V - Chicago

DATE : / /

JOB NO: ______

CHEMICAL NAME: Lead

SYN : White lead, Plumbum, Inorganic Lead

CAS NO: 7439 92-1 FORMULA: Pb

DOT CLASS:

CHEMICAL PROPERTIES

Phys St: Solid
Boil Pt: 3164.00F
Ionz Pot : --
Fl Pt: --

Mol Wt : 207.00
Melt Pt: 620.00F
Vap.Press: --
LFL : --

Sp Gr : 11.30
Frz Pt : --
Odr Thr : --
UFL : --

Odor : none

INCOMPAT/REACT: strong oxidizers, peroxides, active metals

SOLUBILITY :

TOXICOLOGICAL PROPERTIES

Exposure Limits: TLV-TWA (ACGIH): 0.01 ppm PEL (OSHA): --

STEL: -- IDLH: --

OTHER PROPERTIES : PEL - 50ug/m3

Tox Data: INHAL : -

DERMAL : -

ORAL : rat TDLo: 790mg/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 (RACAL)

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 weakness,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 LEAKS & SPILLS: 7,8,10

DECOMPOSITION PRODUCTS: toxic fumes of lead

REFERENCES CONSULTED

NIOSH/OSHA Pocket Guide, ACGIH TLV Booklet, RTECS

OTHER REFERENCES: Sigma-Aldrich, OSHA 1910., Handbook of Poisoning

LAST REVISION DATE: 04/18/89

CHEMICAL CLASSIFICATION: Heavy Metal

DATE : / /
JOB NO:

CHEMICAL NAME: Nicke

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

CHEMICAL PROPERTIES

Phys St: Solid
Mol Wt : 58.70
Sp Gr : 8.90
Odor : none

Boil Pt: 5130.00°F
Melt Pt: 2651.00°F
Frz Pt : 2651.00°F

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

Fl Pt: --
LFL : --
UFL : --

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
STEL: --
PEL (OSHA): 0.41 ppm
IDLH: --

OTHER PROPERTIES : IRRITANT
Tox Data: INHAL : -
DERMAL : -
ORAL : rat ldlo: 156mg/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 : APR: dusty/windy condit or known high concent or >1 but <5ppm; SCBA: >5ppm
CARTRIDGE TYPE : GMC-H or AP3 (RACAL)
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: F
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

CHEMTOX DATA

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

CHEMTOX RECORD 125 LAST UPDATE OF THIS RECORD: [illegible]
NAME: COPPER
SYNONYMS: NONE
CAS: 7440-50-8 RTECS: GL5325000
FORMULA: Cu MOL WT: AT. WT. = 63.546
CHEMICAL CLASS:Metal

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:
100 % ODOR DETECTION: No data

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

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

CLEAN AIR ACT:
EPA WASTE NUMBER:
CERCLA REF:
RQ DESIGNATION: D 5000 pounds (2270 kg)
SARA TPQ VALUE: Not listed
SARA Sect. 312
categories:
Acute toxicity: adverse effect to

target organs.

LISTED 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:~~ Final Rule 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 73,910,58
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)
OSHA (COPPER)
mg/M3: Any dust and mist respirator except single-use respirators. *
Substance reported to cause eye irritation or damage may require eye
protection.
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.
25 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.

DISCLAIMER: The data shown above on this chemical represents a best effort on the part of the compilers of the CHEMTOX database to obtain useful, accurate, and factual data. The use of these data shall be in accordance with the guidelines and limitations of the user's CHEMTOX license agreement.
The COMPILERS of the CHEMTOX database shall not be held liable for inaccuracies or omissions within this database, or in any of its printed or displayed output forms.

ecology and environment, inc.

SAFETY ALERT

No. 4-89 LYME DISEASE SAFETY ALERT July, 1989 (Revision of 5-88 Safety Alert)

This Safety Alert is being circulated to inform field personnel about Lyme disease. Lyme disease is caused by the bacterium Borrelia burgdorferi, which is carried by at least two species of ticks. The deer tick, Ixodes daminim, has been named a carrier in the east and the black-legged tick, I. pacificus, has been named a carrier in the west. People can be bitten by an infected tick at any time of the year, but June and July are the months to be particularly vigilant.

In most cases the first symptom is a rash which appears similar to a bulls eye at the site of the tick bite. The rash may appear on other parts of the body as well, and it is often accompanied or followed by flu-like symptoms such as fever, muscle aches, headache, and stiff neck. The rash does not always appear after being bitten by the tick.

Lyme disease may result in more serious health problems if left untreated. Pain and swelling of the joints - especially the knees - arthritis, debilitating fatigue, and disorders of the heart may occur. The nervous system can also be affected. Treatment of the disease with antibiotics during the early stages is simple and effective. If personnel experience symptoms such as those cited above, or an unexplained illness, see your physician and explain the nature of your work.

Lyme disease has been reported in 43 states. The hot spots: east coast states from Massachusetts to New Jersey; Wisconsin and Minnesota; and, to a lesser extent, California and Oregon. The deer tick can pass on the bacterium while in the nymph and adult stages. Because the immature stage is so small, the tick bite can occur without the human host being aware they were bitten. In addition, an increase in the tick population has been noted in some parts of the country.

Those personnel who are collecting samples in the field, especially in or near wooded areas, should be particularly vigilant to avoid exposure to the ticks which may carry this disease. Precautions include:

- Wear light-colored socks, long pants and a long-sleeved shirt so that the dark ticks stand out more readily.

- Tuck in your shirt and pull your socks up over the pant cuffs. Ticks most commonly affix themselves to the feet, ankles and legs.

- Depending on the nature of the sampling, you may want to apply an insect repellent to your shoes, socks, and pant cuffs. A repellent with "deet" (n,n' diethyl-m-toluamide) is considered the most effective against ticks.*

- While outside, check your clothes often for ticks. If you find any, remove them. When you come home, inspect yourself thoroughly for ticks, paying special attention to the groin, back, armpits and head.

- If you find a tick embedded on your body, use a fine tweezers to grasp it as close to the skin as you can and gently pull it out, making sure that the mouth parts do not remain in the skin.

- If you later suffer a rash or flu-like symptoms, see your physician.

The federal government has not yet made Lyme disease a major priority for control or eradication of the bacteria. It is up to people to be aware of the existence and symptoms of the disease.

* It should be noted that use of "deet" may interfere with the results of sampling for some organic chemicals.

SA 4-89.373

APPENDIX B

GEOPHYSICAL SURVEY

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

PHASE II INVESTIGATIONS
GEOPHYSICAL SURVEY

Conrail Site
Site Number 851002
Town of Hornellsville, Steuben County

April 1991

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

Prepared by:

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LIST OF FIGURES

1. INTRODUCTION

This geophysical investigation report for the Conrail site (I.D. No. 851002) south of Cedar Street on Ice House Road in the Town of Hornellsville, Steuben County, 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 magnetics) survey. This report includes field data (Appendix A) and contour maps (Appendix B) for the geophysical survey performed at this site on May 24 and 25, 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 Conrail site was designed to achieve several general goals. The main objectives of the geophysical methods used were to optimize the locations of the five 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 (EM31) and geomagnetic (magnetometer) surveys, grid coordinates were established in locations which correspond to the five proposed, groundwater monitoring wells.

Survey grids 1 through 5 included the proposed locations of monitoring wells GW-1 through GW-5 as follows:

Geophysical Survey Grid No.	Proposed Monitoring Well Included
1	GW-1
2	GW-2
3	GW-3
4	GW-4
5	GW-5

All geophysical survey grids were 1,600 square feet in area with the exception of grid no. 2, which was (1,200 square feet due to space limitations). The X and Y axes of each survey grid were oriented approximately east-west and north-south, respectively. Precise compass orientations were obtained for each of the survey grid axes. These orientations are indicated on the geophysical contour maps (see Appendix B). Survey grid coordinate 0,0 is located in the southwest corner of each contour map. Semi-permanent metal stakes mark the proposed monitoring well locations for reference during drilling. Any subsequent adjustment of monitoring well locations will be referenced to the remaining metal stake.

Horizontal and vertical dipole readings in north-south and east-west orientations were recorded at each mode while performing the electromagnetic ground conductivity survey with a Geonics, Ltd., EM31 instrument. The effective depths of penetration provided by the EM31 in the vertical and horizontal dipole modes are $\leq$18 feet and $\leq$9 feet, respectively. Geomagnetic readings were recorded at each mode in both north-south and east-west orientations using an EG+G Geometrics (Model G-856) Portable Proton Magnetometer. The response of the magnetometer is proportional to the mass of the ferrous target. The effective depths of the EM31 and magnetometer were considered adequate to delineate any buried materials that may be encountered while drilling.

All geophysical field data were initially recorded in two logbooks dedicated to this site investigation. Magnetometer data were collected at a north-south orientation at each grid station. All magnetometer readings averaging station readings for north-south and east-west orientations were corrected for diurnal variation based on background station readings. EM31 ground conductivity data were averaged for north-south and east-west orientations for the vertical and horizontal dipole positions. The reduced geophysical data were then plotted and contoured for each magnetometer and EM31 survey (see Appendix A and B).

4. DATA INTERPRETATION

EM31 and Magnetometer Interpretations

The purpose of interpreting the results of the EM31 and magnetometer surveys at the Conrail site is to provide a probable explanation for anomalous data contours. The presence of buried waste, metal objects, and utilities are often manifest as relatively increased or decreased nodal readings and gradient values.

The following interpretations are based on the geophysical contour maps (see Appendix B) generated from the electromagnetic ground conductivity and geomagnetic field measurements listed in Appendix A. These five geophysical survey grids encompass the five proposed groundwater monitoring well locations as proposed by NYSDEC in the Phase II Investigation Work Plan for the site (see Figure 4-1).

The following discussion provides details of each of the five geophysical survey grids.

Survey Grid Area No. 1. A review of magnetometer data obtained at this survey location indicates that geomagnetic field intensities range from 55,696 to 56,123 gammas. The steepest geomagnetic gradient was observed across the northwest and southwest quadrants of the survey grid. This increase in gradient is attributed to the northeast border of the landfill, which is adjacent to the west side of the survey grid. The geomagnetic gradient is gentler at the central and east portions of survey grid no. 1.

Electromagnetic ground conductivity measurements obtained in survey grid no. 1 range from 17 (horizontal dipole) to 20.5 millimhos/meter (vertical dipole). An area of increasing ground conductivity in the southwest corner of the survey grid is depicted by vertical dipole contour intervals of relatively narrow width located concentrically about survey node 0,0. Additionally, the highest EM-31 measurement in the horizontal dipole was obtained at the 0,0 node. This ground conductivity anomaly is attributed to small, conductive material (9 to 18 feet in depth) in proximity to the 0,0 survey node. The remainder of this survey grid exhibits a relatively flat ground conductivity gradient.

The installation of proposed groundwater monitoring well GW-1 at the location designated on the geophysical contour maps is acceptable. The well location may be adjusted to anywhere within the central and east portions of survey grid no. 1. The west and southwest corner area of the grid no. 1 should be avoided due to the ground conductivity anomalies identified in those areas.

Survey Grid Area No. 2. The survey grid area at this location was limited to 1,200 square feet due to the proximity of the access (Ice House) road to the landfill berm at the proposed drilling location of GW-2. A review of magnetometer data obtained at this survey location indicates that geomagnetic field intensities range from 55,765 to 58,323 gammas. The steepest geomagnetic gradient was observed in proximity to survey nodes 0,20 and 40,0, located in the northwest and southeast areas of the grid, respectively. These increases in gradient are attributed to high-power electrical transmission lines, which are located very near the aforementioned coordinates. The geomagnetic gradient is gentler across the southwest and central portions of survey grid no. 2.

Electromagnetic ground conductivity measurements obtained in survey grid no. 2 range from 35.0 (horizontal and vertical dipoles) to 77.0 millimhos/meter (vertical dipole). An area of increasing ground conductivity was observed at survey nodes 40,10 and 40,20 on the east border of the vertical and horizontal survey grids, respectively. This increase in ground conductivity gradient is depicted by contour intervals of relatively narrow width located concentrically about the 40,10 and 40,20 survey nodes. These ground conductivity anomalies are attributed to shallow (<18 feet) subsurface conductive material or the power lines previously mentioned. The remainder of this survey grid exhibits a relatively flat ground conductivity gradient.

The installation of proposed groundwater monitoring well GW-2 at the location designated on the geophysical survey map is acceptable.

The well location may be adjusted to anywhere within the central and west portions of survey grid no. 2. The east border of this survey grid should be avoided due to the ground conductivity anomalies identified at the 40,10 and 40,20 survey nodes. Although it is suspected that these anomalies are the result of power lines' interference, it is also possible that the anomalies represent subsurface drilling hazards.

Survey Grid Area No. 3. A review of magnetometer data obtained at this survey location indicates that geomagnetic field intensities range from 55,920 to 56,963 gammas. Although the geomagnetic gradient is flat over the majority of this survey grid, an isolated measurement of relatively high magnetic field intensity was obtained at survey node 20,40. This northern border of survey grid no. 3 is located adjacent to the southwest edge of the landfill. Therefore, the higher geomagnetic reading can be attributed to ferrous metal buried within the fill material.

Electromagnetic ground conductivity measurements obtained in survey grid no. 3 range from 56.5 (horizontal dipole) to 173.5 millimhos/meter (vertical dipole). A steeper ground conductivity gradient is exhibited by the vertical dipole measurements; however, both dipoles indicate magnetic field intensities steadily increasing towards the northeast corner of the grid. These ground conductivity contour patterns do not indicate the presence of conductive material at isolated locations beneath the survey grid, but suggest that the proximity of the northern edge of survey grid no. 3 to the border of the landfill affects instrumentation readings.

The installation of proposed monitoring well GW-3 at the location designated on the geophysical contour maps is acceptable. The well location may be adjusted to anywhere within the survey grid with the exception of the northern edge of grid due to the proximity of this area to the southwestern border of the landfill.

Survey Grid Area No. 4. Due to the presence of an extensive wetland at the proposed location for monitoring well GW-4, it was not possible to conduct geophysical surveys beyond the southern-central border of the landfill. Even though drilling through fill material is not an acceptable course of action, magnetometer and EM-31 surveys were performed on the edge of the landfill above the proposed location for installation of GW-4 to characterize the nature of subsurface fill material.

A review of magnetometer data obtained at this location indicates that geomagnetic field intensity range from 55,610 to 56,870 gammas. This range is somewhat narrower and the geomagnetic gradient flatter than normally exhibited above landfill material. This may indicate that the presence of buried ferrous material at this location is not extensive.

Electromagnetic ground conductivity measurements obtained in survey grid no. 4 range from 20.5 (horizontal dipole) to 36.5 millimhos/meter (vertical dipole). The ground conductivity gradient is gentle across the grid in the horizontal and vertical dipoles. Consistently lower ground conductivity values are exhibited along the southern edge of the survey grid. These lower ground conductivity readings are attributed to the proximity of the southern survey nodes to the southern-central border of the landfill.

The installation of monitoring well GW-4 at the location proposed in the site work plan is not possible due to impractical drilling rig access. Alternative methods for installing GW-4 are discussed in Section 5.

Survey Grid Area No. 5. Due to the presence of an extensive wetland at the proposed location for monitoring well GW-5, it was not possible to conduct geophysical surveys beyond the southeast corner of the landfill. As with survey grid no. 4, magnetometer and EM-31 surveys were performed on the edge of the landfill above the proposed location for installation of GW-5 to characterize the nature of subsurface fill material.

A review of magnetometer data obtained at this survey location indicates that geomagnetic field intensities range from 55,718 to 59,100 gammas. This wide range of intensity values and steep geomagnetic gradient throughout the survey grid are attributable to an abundant and random distribution of ferrous material in the surrounding landfill.

Electromagnetic ground conductivity measurements obtained in survey grid no. 5 range from 29 (horizontal dipole) to 50 millimhos/meter (vertical dipole). The ground conductivity gradient is gentle across the survey grid, suggesting that the EM-31 instrument is less sensitive than the magnetometer to overall interference from the surrounding landfill. Large masses of buried conductive materials, if present beneath the survey grid would exhibit more pronounced effects on the EM-31 data.

The installation of monitoring well GW-5 at the location proposed in the site work plan is not possible due to impractical drilling rig access. Alternative methods for installing GW-5 are discussed in Section 5.

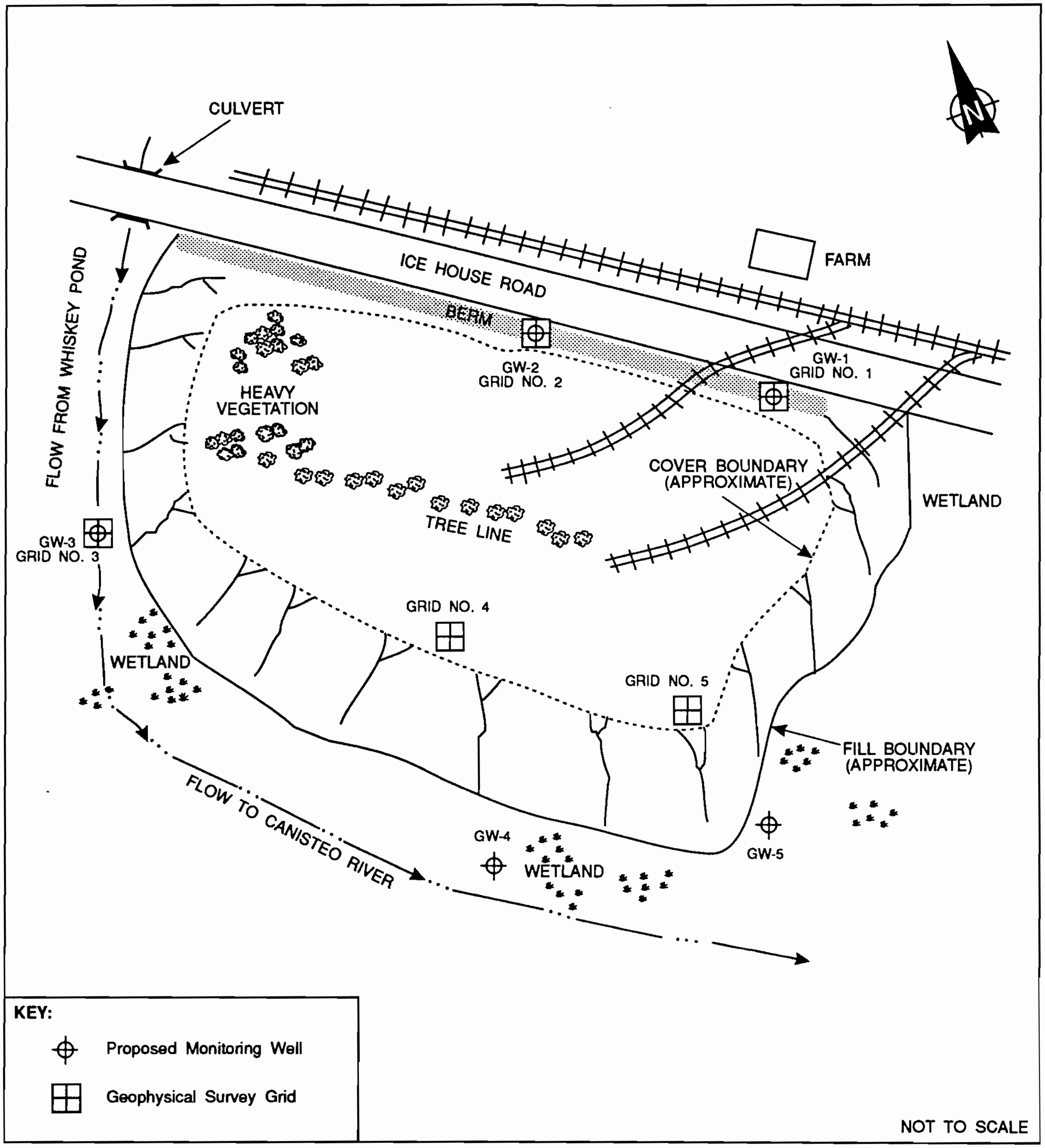


Figure 4-1
GEOPHYSICAL SURVEY GRIDS AND PROPOSED GROUNDWATER MONITORING WELL LOCATIONS, CONRAIL SITE, HORNELLSVILLE, NEW YORK

5. CONCLUSIONS AND RECOMMENDATIONS

Based upon the interpretations of the geophysical survey results discussed in Section 4, particular care was taken when selecting the placement of the five proposed monitoring wells at the Conrail Landfill site.

Groundwater monitoring wells GW-1 and GW-2 were installed at the locations indicated on the geophysical contour maps (Appendix B). Although the proposed location for GW-3 was in a relatively dry area, drilling rig access was limited due to the steep slope of the landfill and was impractical without the extensive use of a bulldozer. If any well locations required adjustment to facilitate rig access, those locations exhibiting significant geophysical anomalies, as identified in Section 4, were avoided.

Due to the presence of wetlands and steep landfill slopes in proximity to the proposed locations of GW-3, GW-4, and GW-5, well "points" were recommended and utilized in place of typical monitoring well construction. Well "points" were installed at the locations depicted in Figure 3-1 of the Phase II Report.

Prior to drilling, an underground-utility locating service was contacted to indicate possible public utilities buried in the vicinity of the drill sites. Particular care was taken to avoid the power lines that border the access road when drilling GW-1 and GW-2.

All proposed well locations were confirmed with a NYSDEC representative prior to the commencement of drilling.

APPENDIX A

MAGNETOMETER AND EM31 SURVEY DATA

Table A-1

AVERAGE NORTH-SOUTH/EAST-WEST GROUND CONDUCTIVITY READINGS WITH EM31

CONRAIL SITE

Survey Grid No. 1

Station #	Vertical Dipole (millimhos/meter)	Horizontal Dipole (millimhos/meter)
0,0	31.5	20.5
0,10	25.5	17.0
0,20	25.5	17.5
0,30	24.5	17.0
0,40	25.0	17.5
10,0	27.5	19.5
10,10	25.0	17.5
10,20	24.0	17.0
10,30	25.0	17.0
10,40	26.0	19.0
20,0	26.0	19.5
20,10	25.0	17.5
20,20	24.0	17.5
20,30	25.0	18.5
20,40	26.0	18.0
30,0	25.0	17.5
30,10	25.0	17.0
30,20	25.5	17.5
30,30	25.0	19.0
30,40	27.0	17.5
40,0	24.5	17.0
40,10	24.5	17.0
40,20	25.0	17.5
40,30	25.0	17.5
40,40	25.5	18.0

02[UZ]YP2030:D2962/3603/30

Table A-1 (Cont.)

AVERAGE NORTH-SOUTH/EAST-WEST GROUND CONDUCTIVITY READINGS WITH EM31

CONRAIL SITE

Survey Grid No. 2

Station #	Vertical Dipole (millimhos/meter)	Horizontal Dipole (millimhos/meter)
0,0	35.0	38.0
0,10	43.0	37.0
0,20	36.0	43.0
0,30	39.5	35.0
10,0	47.0	45.0
10,10	39.0	44.5
10,20	37.0	49.0
10,30	45.0	36.0
20,0	60.0	43.0
20,10	47.0	53.0
20,20	47.5	53.5
20,30	46.5	42.0
30,0	57.0	52.0
30,10	52.0	54.5
30,20	58.0	54.5
30,30	60.0	41.0
40,0	53.5	55.0
40,10	77.0	44.0
40,20	53.0	73.5
40,30	61.5	52.5

02[UZ]YP2030:D2962/3603/30

Table A-1 (Cont.)

AVERAGE NORTH-SOUTH/EAST-WEST
GROUND CONDUCTIVITY READINGS
WITH EM31

CONRAIL SITE

Survey Grid No. 3

Station #	Vertical Dipole (millimhos/meter)	Horizontal Dipole (millimhos/meter)
0,0	89.0	62.0
0,10	86.5	57.0
0,20	87.0	56.5
0,30	91.5	57.0
0,40	112.5	72.0
10,0	95.0	66.0
10,10	98.5	68.0
10,20	98.0	67.0
10,30	107.5	70.0
10,40	125.0	95.0
20,0	105.0	71.5
20,10	109.0	73.5
20,20	111.0	77.5
20,30	122.0	84.5
20,40	149.0	106.0
30,0	110.5	78.0
30,10	123.0	83.5
30,20	122.0	89.0
30,30	138.0	105.0
30,40	166.0	117.5
40,0	113.0	77.5
40,10	120.5	86.0
40,20	132.0	100.0
40,30	140.0	107.5
40,40	173.5	121.5

02[UZ]YP2030:D2962/3603/30

Table A-1 (Cont.)

AVERAGE NORTH-SOUTH/EAST-WEST GROUND CONDUCTIVITY READINGS WITH EM31

CONRAIL SITE

Survey Grid No. 4

Station #	Vertical Dipole (millimhos/meter)	Horizontal Dipole (millimhos/meter)
0,0	23.5	20.5
0,10	29.0	25.0
0,20	32.0	24.0
0,30	32.5	27.5
0,40	33.5	32.0
10,0	21.5	21.0
10,10	29.5	24.0
10,20	31.0	25.5
10,30	32.5	27.0
10,40	32.0	30.0
20,0	25.5	24.0
20,10	31.0	27.5
20,20	34.0	26.5
20,30	34.5	28.0
20,40	36.5	29.5
30,0	26.5	25.5
30,10	32.0	27.5
30,20	33.0	28.0
30,30	35.5	29.0
30,40	34.5	31.0
40,0	24.0	26.0
40,10	32.0	27.0
40,20	32.0	28.5
40,30	34.0	28.5
40,40	33.5	36.0

02[UZ]YP2030:D2962/3603/30

Table A-1 (Cont.)

AVERAGE NORTH-SOUTH/EAST-WEST GROUND CONDUCTIVITY READINGS WITH EM31

CONRAIL SITE

Survey Grid No. 5

Station #	Vertical Dipole (millimhos/meter)	Horizontal Dipole (millimhos/meter)
0,0	40.0	32.0
0,10	43.0	35.0
0,20	40.0	40.0
0,30	43.0	41.0
0,40	43.5	41.5
10,0	37.5	32.0
10,10	42.0	32.0
10,20	43.5	38.0
10,30	47.5	43.5
10,40	42.5	45.0
20,0	42.0	31.0
20,10	43.5	31.0
20,20	45.0	33.5
20,30	45.0	39.0
20,40	50.0	44.5
30,0	32.5	33.5
30,10	30.0	34.5
30,20	50.0	31.5
30,30	48.5	36.0
30,40	50.0	42.5
40,0	39.0	29.0
40,10	45.5	29.0
40,20	29.0	41.0
40,30	40.0	44.5
40,40	48.0	43.0

02[UZ]YP2030:D2962/3603/30

Table A-2

AVERAGE NORTH-SOUTH/EAST-WEST MAGNETOMETER READINGS

CONRAIL SITE

Grid No. 1

Station #	Average N-S/E-W (Gammas)	Corrected Data* (Gammas)
0,0	55,823	55,839
0,10	55,756	55,771
0,20	55,681	55,696
0,30	56,048	56,062
0,40	55,933	55,946
10,0	55,869	55,879
10,10	55,903	55,914
10,20	56,003	56,014
10,30	55,895	55,907
10,40	55,816	55,829
20,0	56,006	56,015
20,10	56,005	56,014
20,20	56,036	56,044
20,30	56,085	56,093
20,40	55,722	55,729
30,0	56,104	56,108
30,10	56,013	56,017
30,20	56,097	56,102
30,30	56,047	56,053
30,40	56,011	56,017
40,0	55,994	55,997
40,10	55,937	55,940
40,20	55,993	55,995
40,30	56,122	56,123
40,40	56,060	56,061

[UZ]YP2030:D2962/3602/30

*Data has been corrected for natural magnetic fluctuations (i.e., drift) by using data obtained at an offsite base station.

Table A-2 (Cont.)

AVERAGE NORTH-SOUTH/EAST-WEST MAGNETOMETER READINGS

CONRAIL SITE

Grid No. 2

Station #	Average N-S/E-W (Gammas)	Corrected Data* (Gammas)
0,0	56,069	56,068
0,10	56,387	56,384
0,20	55,769	55,765
0,30	56,402	56,397
10,0	56,021	56,011
10,10	56,366	56,357
10,20	56,447	56,439
10,30	56,277	56,272
20,0	56,461	56,450
20,10	56,310	56,297
20,20	56,658	56,644
20,30	56,361	56,346
30,0	57,246	57,226
30,10	56,454	56,435
30,20	56,418	56,400
30,30	56,420	56,404
40,0	58,345	58,323
40,10	56,888	56,865
40,20	56,392	56,368
40,30	55,964	55,939

[UZ]YP2030:D2962/3602/30

*Data has been corrected for natural magnetic fluctuations (i.e., drift) by using data obtained at an offsite base station.

Table A-2 (Cont.)

AVERAGE NORTH-SOUTH/EAST-WEST
MAGNETOMETER READINGS

CONRAIL SITE

Grid No. 3

Station #	Average N-S/E-W (Gammas)	Corrected Data* (Gammas)
0,0	56,019	56,019
0,10	56,144	56,145
0,20	56,052	56,053
0,30	56,097	56,098
0,40	55,991	55,992
10,0	56,049	56,052
10,10	56,132	56,135
10,20	56,094	56,097
10,30	56,060	56,062
10,40	55,942	55,944
20,0	56,164	56,167
20,10	56,035	56,039
20,20	56,065	56,069
20,30	56,038	56,042
20,40	55,958	56,963
30,0	56,049	56,055
30,10	56,117	56,123
30,20	56,096	56,102
30,30	56,024	56,029
30,40	55,915	55,920
40,0	56,153	56,160
40,10	56,042	56,049
40,20	56,071	56,078
40,30	56,050	56,058
40,40	55,912	55,920

[UZ]YP2030:D2962/3602/30

*Data has been corrected for natural magnetic fluctuations (i.e., drift) by using data obtained at an offsite base station.

Table A-2 (Cont.)

AVERAGE NORTH-SOUTH/EAST-WEST MAGNETOMETER READINGS

CONRAIL SITE

Grid No. 4

Station #	Average N-S/E-W (Gammas)	Corrected Data* (Gammas)
0,0	56,535	56,538
0,10	56,429	56,255
0,20	56,183	56,192
0,30	56,239	56,251
0,40	56,256	56,272
10,0	56,469	56,500
10,10	56,423	56,271
10,20	56,047	56,072
10,30	56,073	56,095
10,40	56,082	56,101
20,0	56,472	56,506
20,10	56,172	56,209
20,20	55,908	55,948
20,30	55,928	55,971
20,40	55,949	55,996
30,0	56,271	56,333
30,10	56,074	56,133
30,20	55,554	55,610
30,30	56,093	56,146
30,40	56,240	56,290
40,0	56,705	56,770
40,10	56,230	56,298
40,20	55,805	55,876
40,30	56,330	56,404
40,40	56,792	56,870

[UZ]YP2030:D2962/3602/30

*Data has been corrected for natural magnetic fluctuations (i.e., drift) by using data obtained at an offsite base station.

Table A-2 (Cont.)

AVERAGE NORTH-SOUTH/EAST-WEST MAGNETOMETER READINGS

CONRAIL SITE

Grid No. 5

Station #	Average N-S/E-W (Gammas)	Corrected Data* (Gammas)
0,0	55,716	55,718
0,10	55,978	55,981
0,20	56,502	56,507
0,30	55,797	55,804
0,40	56,099	56,107
10,0	55,738	55,754
10,10	56,549	56,564
10,20	56,978	56,991
10,30	57,028	57,040
10,40	56,530	56,540
20,0	56,027	56,045
20,10	57,152	57,172
20,20	59,079	59,100
20,30	58,228	58,251
20,40	56,733	56,758
30,0	56,016	56,049
30,10	55,941	55,972
30,20	56,206	56,236
30,30	57,808	57,836
30,40	57,028	57,054
40,0	55,326	55,361
40,10	58,579	58,615
40,20	55,141	55,179
40,30	56,008	56,048
40,40	57,643	57,684

[UZ]YP2030:D2962/3602/30

*Data has been corrected for natural magnetic fluctuations (i.e., drift) by using data obtained at an offsite base station.

APPENDIX B

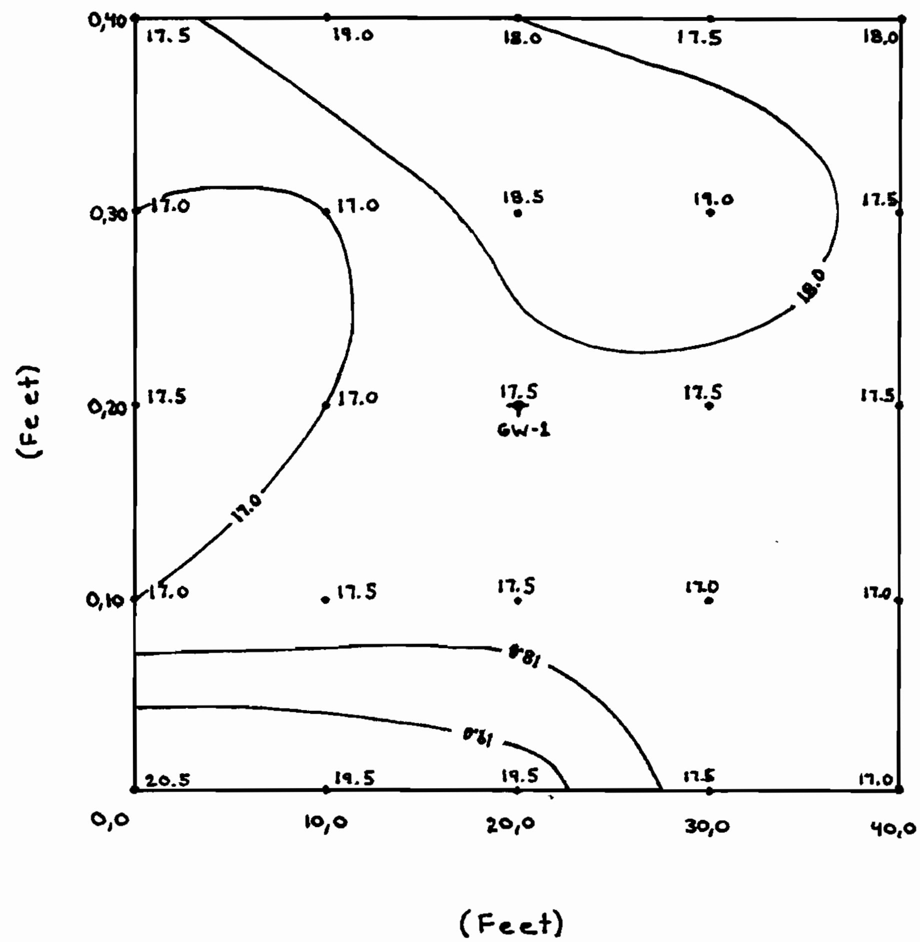
MAGNETOMETER AND
EM31 SURVEY CONTOUR MAPS

CONRAIL

EM-31 SURVEY

GRID NO.1

Horizontal Dipole
(millimhos/meter)



C.I. = 1.0 millimhos/meter

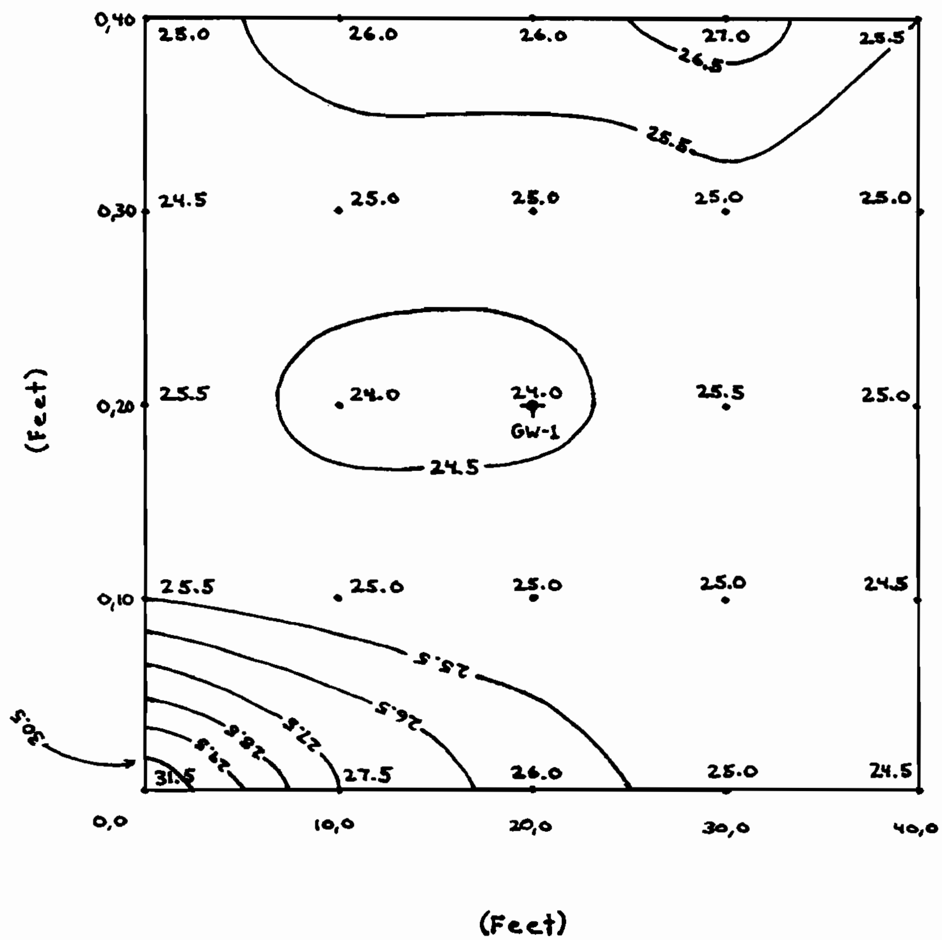
✝ Proposed Well Location

CONRAIL

EM-31 SURVEY

GRID NO. 1

Vertical Dipole
(millimhos/meter)



C. I. = 1.0 millimos/meter

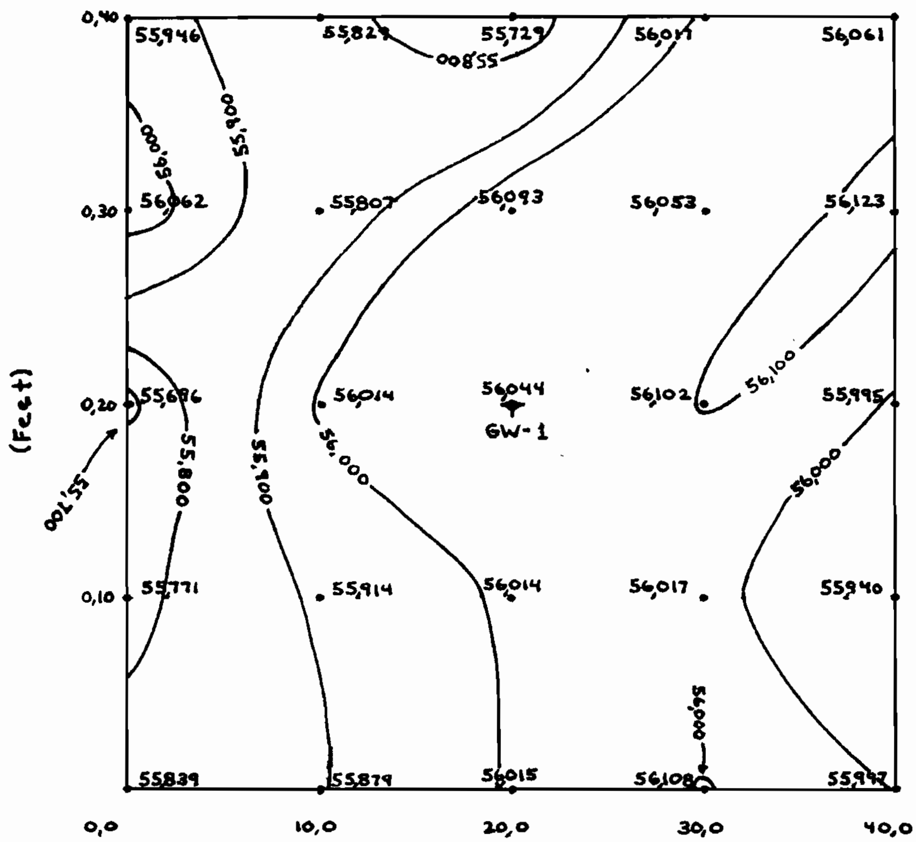
✦ Proposed Well Location

CONRAIL

MAGNETOMETER

GRID NO. 1

(gammas)



(Feet)

C. I. = 100.0 gammas

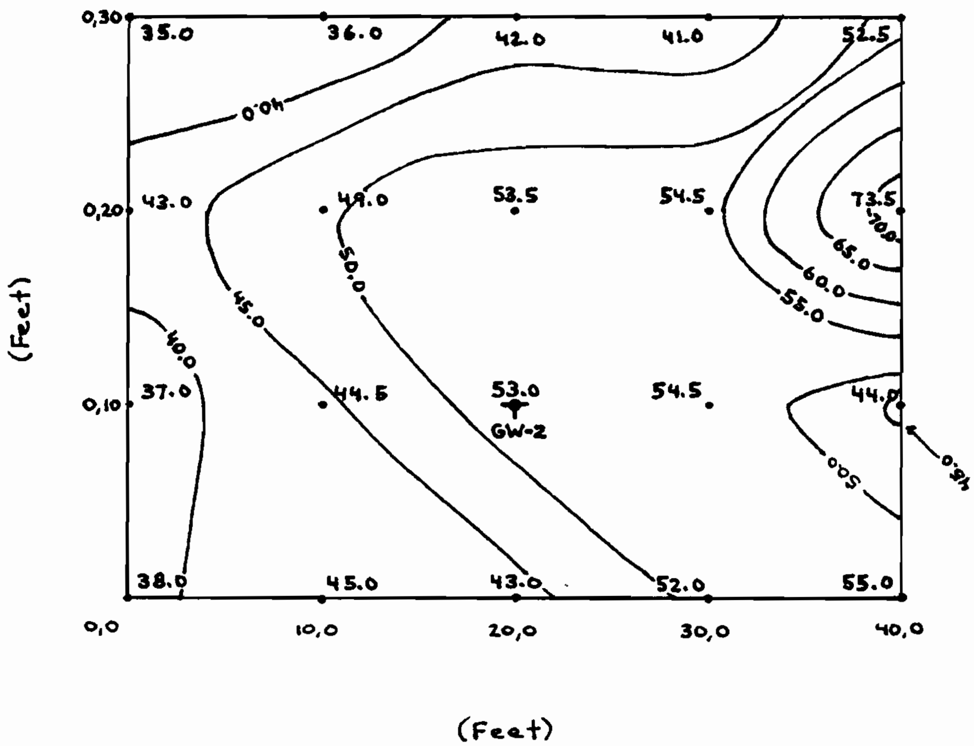
✦ Proposed Well Location

CONRAIL

EM-31 SURVEY

GRID NO. 2

Horizontal Dipole
(millimhos/meter)



C. I. = 5 millimhos/meter

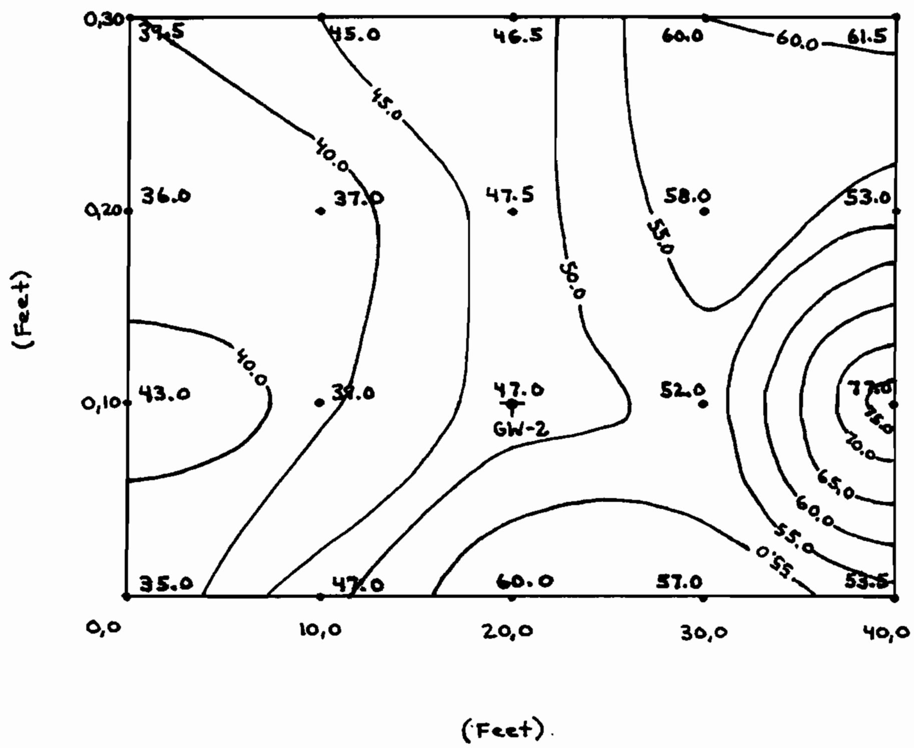
Proposed Well Location

CONRAIL

EM-31 SURVEY

GRID NO. 2

Vertical Dipole
(millimhos/meter)



C. I. = 5.0 millimhos/meter

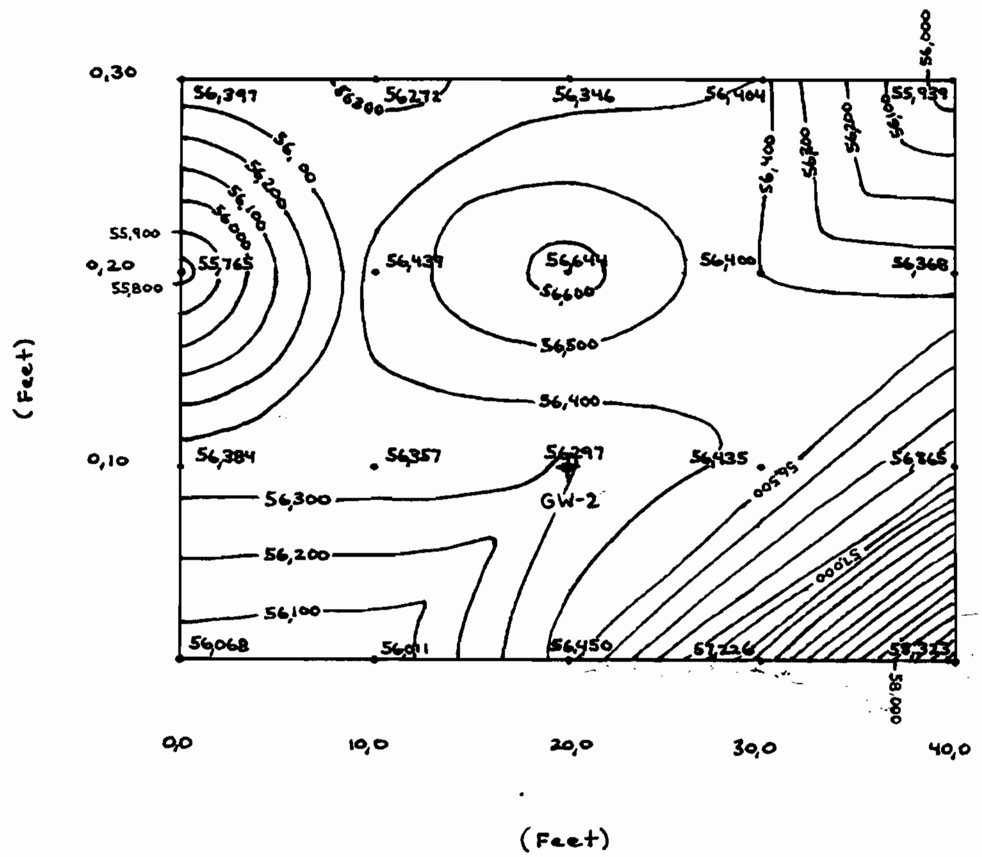
✦ Proposed Well Location

CONRAIL

MAGNETOMER

GRID NO. 2

(gammas)



C. I. = 100.0 gammas

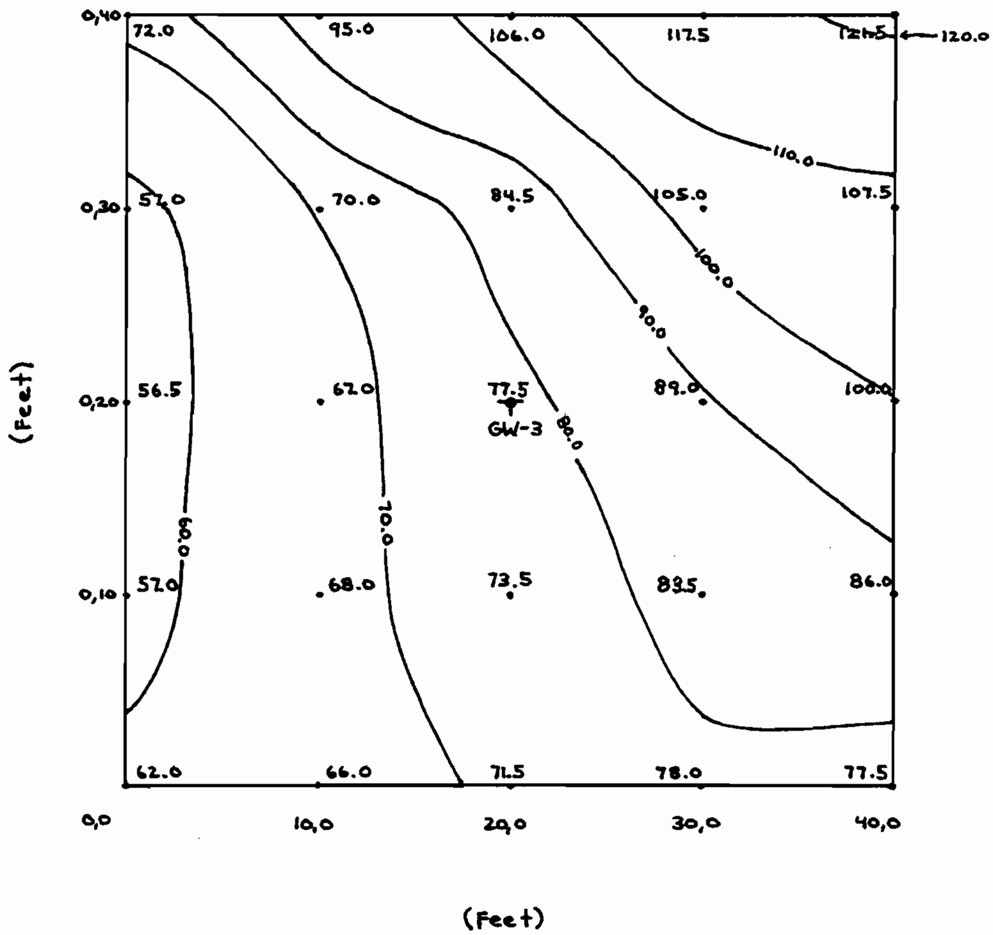
Proposed Well Location

CONRAIL

EM-31 SURVEY

GRID NO. 3

Horizontal Dipole
(millimhos/meter)



C. I. = 10.0 millimhos/meter

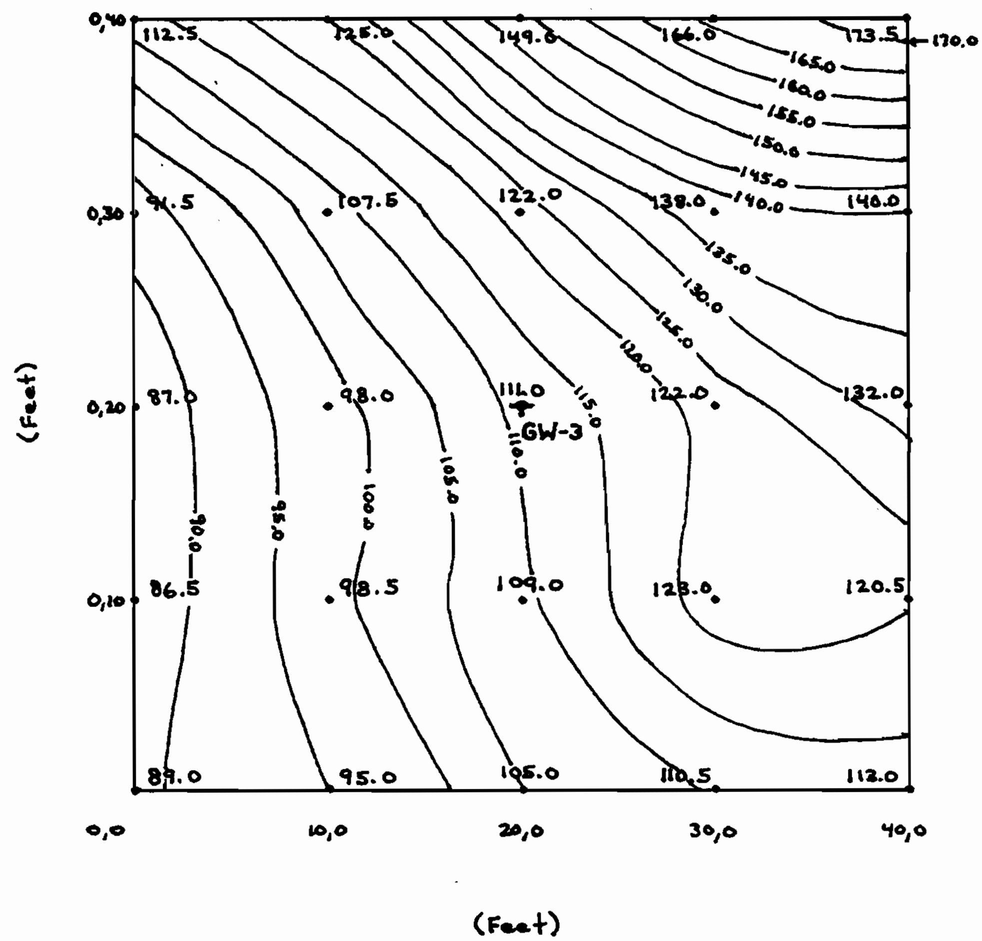
✝ Proposed Well Location

CONRAIL

EM-31 SURVEY

GRID NO. 3

Vertical Dipole
(millimhos/meter)



C. I. = 5.0 millimhos/meter

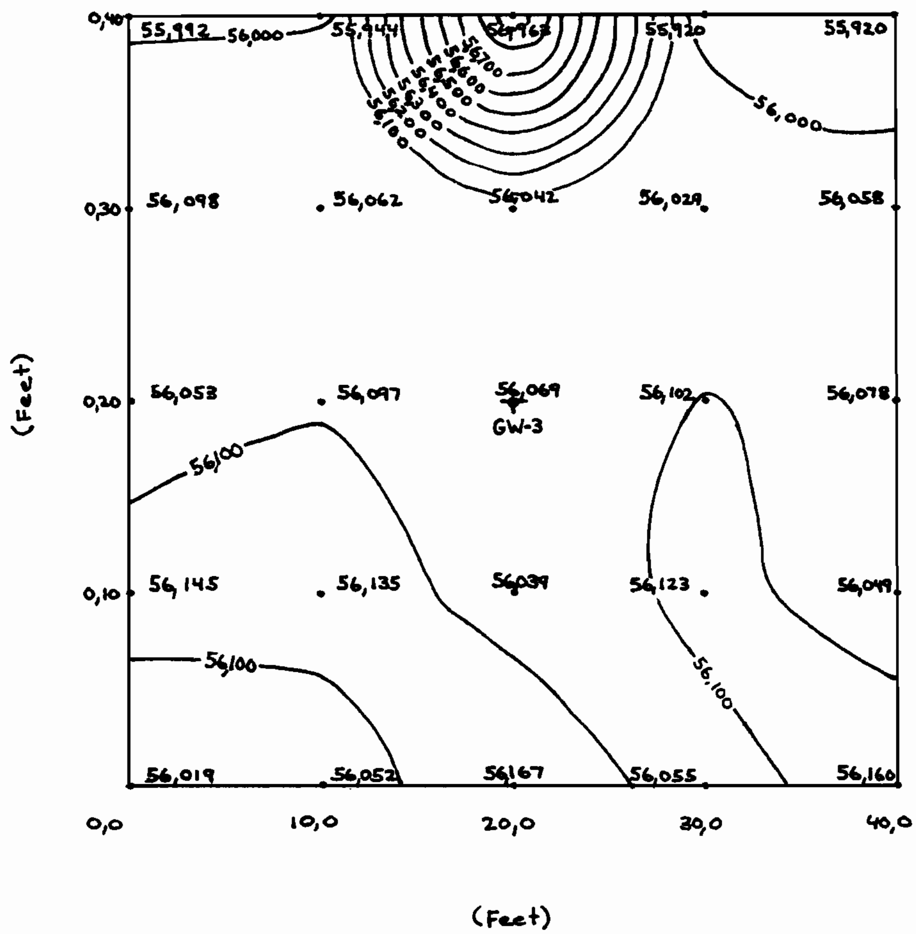
✝ Proposed Well Location

CONRAIL

MAGNETOMETER

GRID NO. 3

(gammas)



C. I. = 100.0 gammas

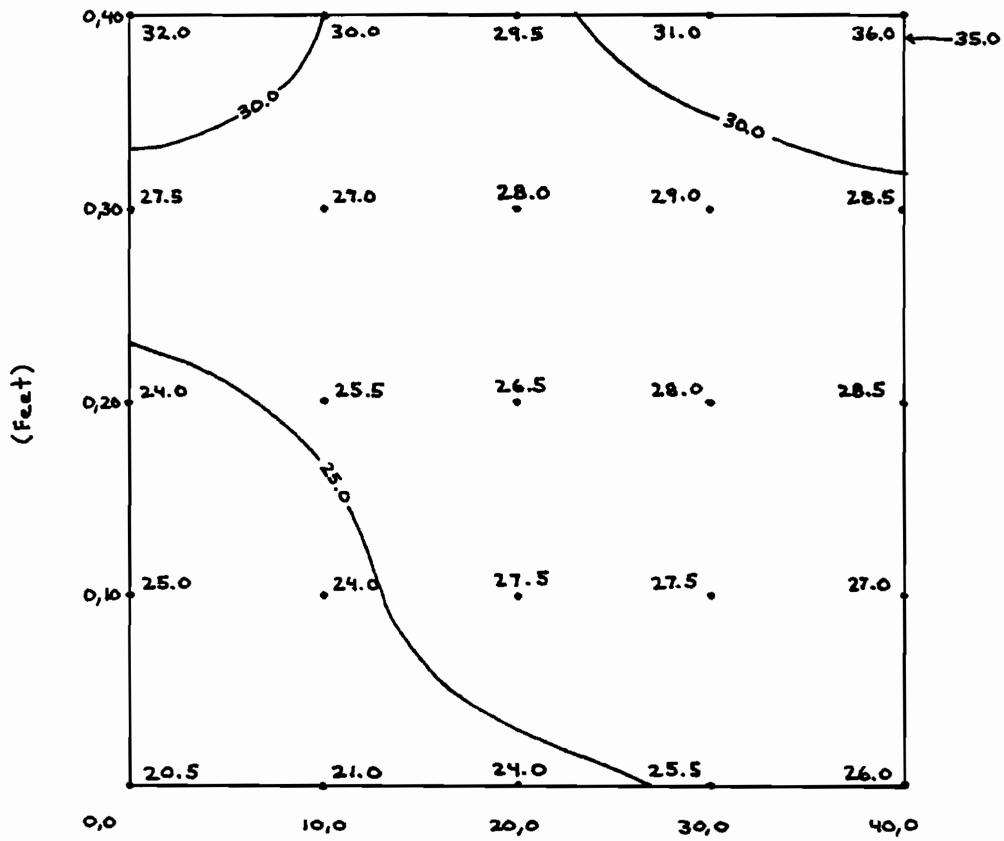
✝ Proposed Well Location

CONRAIL

EM-31 SURVEY

GRID NO. 4.

Horizontal Dipole
(millimhos/meter)



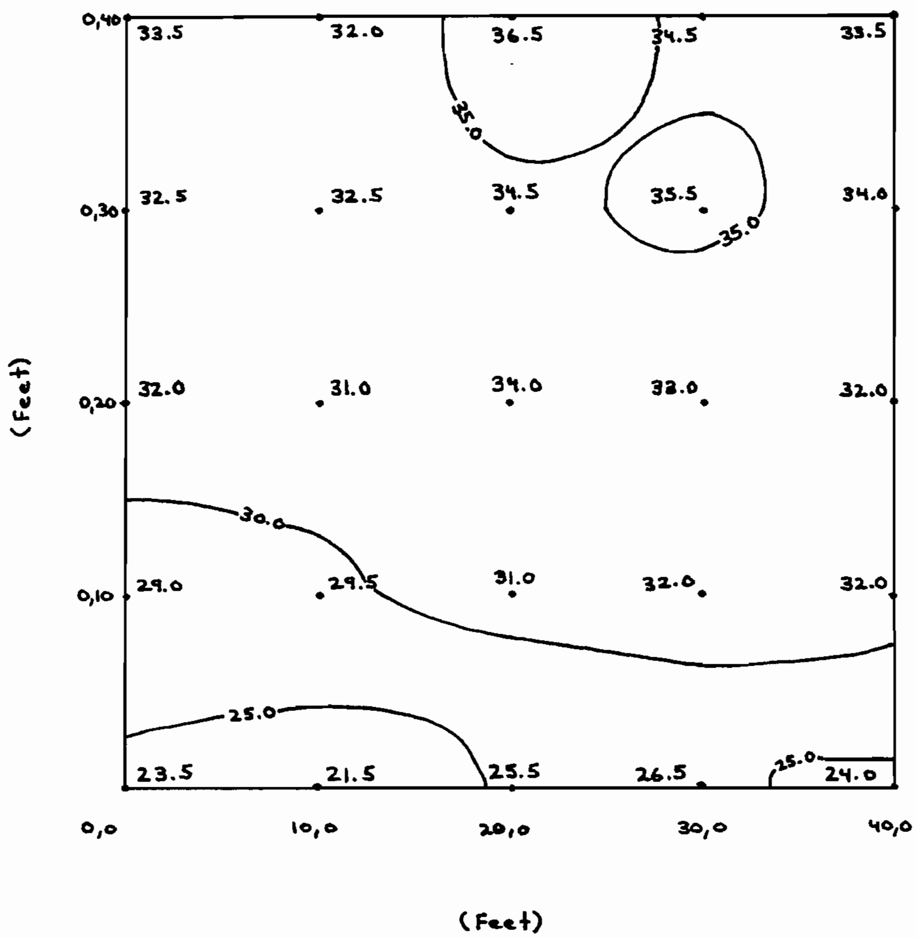
C. I. = 5.0 millimhos/meter

CONRAIL

EM-31 SURVEY

GRID NO. 4

Vertical Dipole
(millimhos/meter)



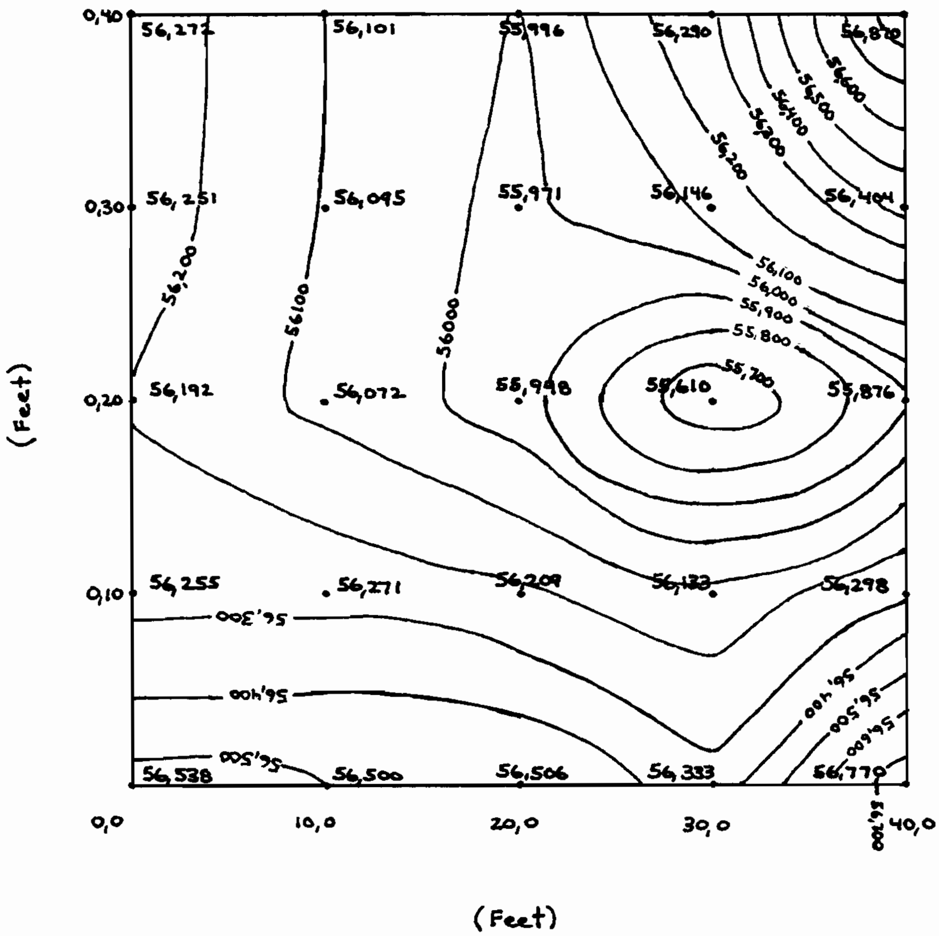
C. I. = 5.0 millimhos/meter

CONRAIL

MAGNETOMETER

GRID NO. 4

(gammas)



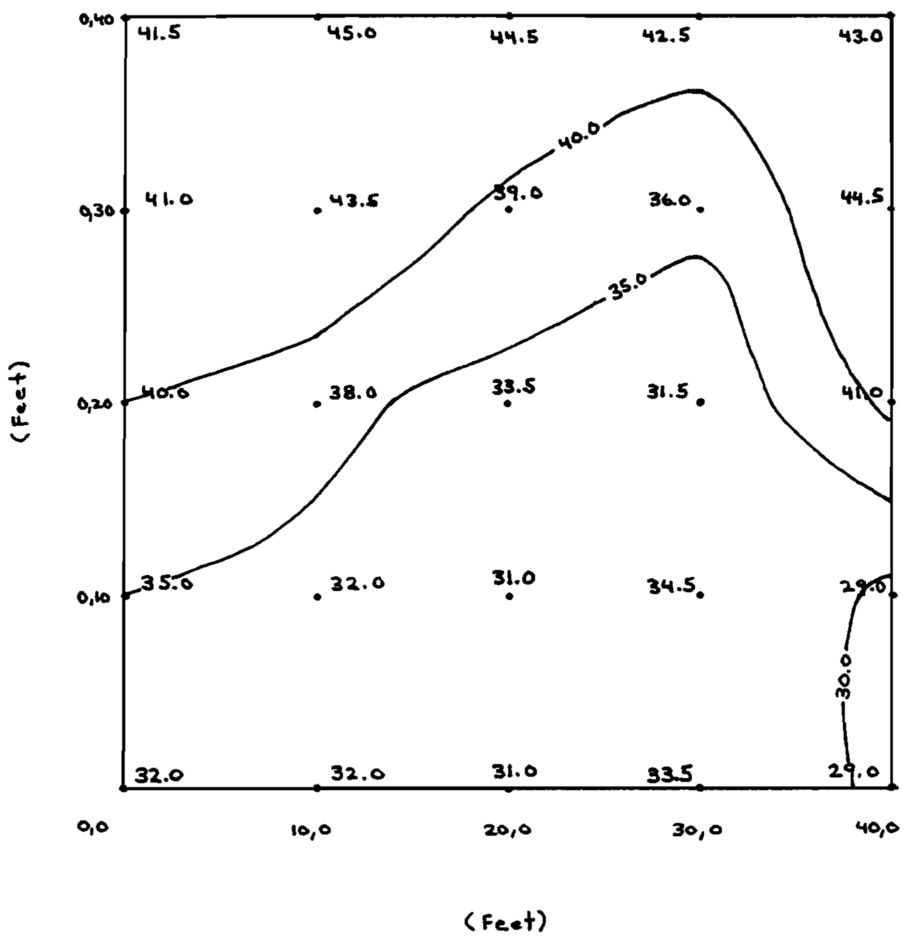
C. I. = 100.0 gammas

CONRAIL

EM-31 SURVEY

GRID NO. 5

Horizontal Dipole
(millimhos/meter)



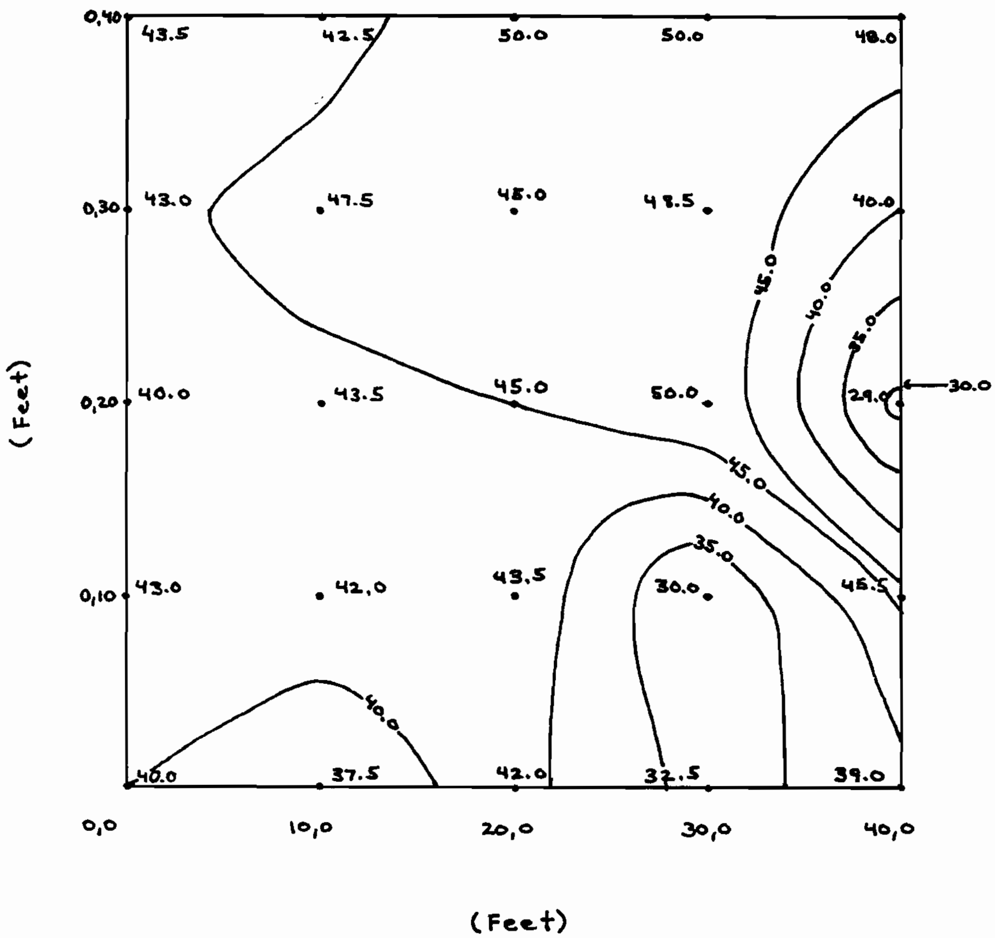
C. I. = 5.0 millimhos/meter

CONRAIL

EM-31 SURVEY

GRID NO. 5

Vertical Dipole
(millimhos/meter)



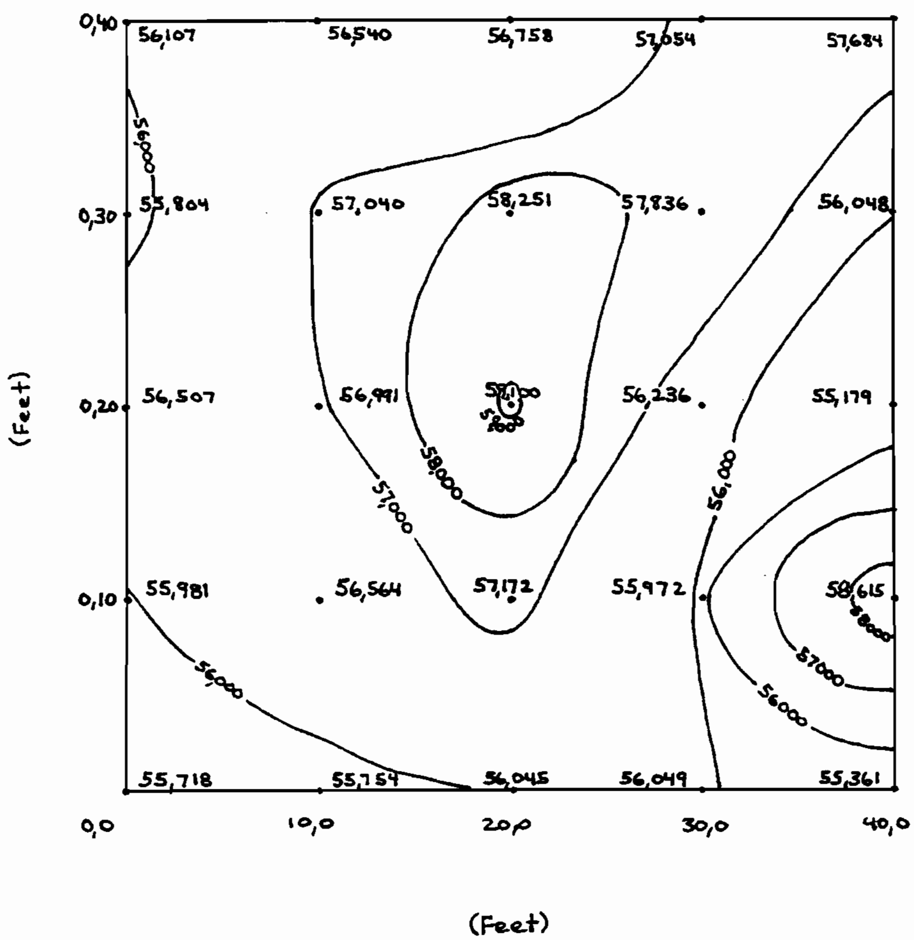
C.I. = 5.0 millimhos/meter

C O N R A I L

M A G N E T O M E T E R

G R I D N O. 5

(g a m m a s)



C. I. = 1,000.0 g a m m a s

APPENDIX C

DRILLING LOGS FOR TWO GROUNDWATER MONITORING WELLS

E + E DRILLING AND TESTING CO., INC.
SUBSURFACE LOG

DATE
STARTED 10-5-90
FINISHED 10-5-90
SHEET 1 OF 1

HOLE NUMBER GW-1
SURFACE ELEVATION
GROUNDWATER DEPTH ( )

PROJECT Conrail Site
YP2040

LOCATION Along Icehouse Rd
near E boundary.

DEPTH – FT	SAMPLE TYPE	SAMPLE NO.	BLOWS ON SAMPLER 0–6	6–12	12–18	18–24
0	SS	1	3	4	4	2
5	SS	2	7	3	3	3
	SS	3	1	1	2	6
	SS	4	15	5	4	3
10	SS	5	5	4	3	4

WELL DIAGRAM

TD= 10.0'
SCREEN 5.0-10.0'
Sand 4.0-10.0'
Seal 3.0-4.0'
grout 0-3.0'

PROFILE Cl Sl Sd Gr

FIELD IDENTIFICATION OF SOILS

SS #1 0-2' 0.9' Recovery
0-0.4' Dark brown to black organic-rich silt with clay (damp).
0.4-0.9' Light brown fine to medium sand with minor (<10%) to subangular coarse sand + 1 gravel size subang. fragment (wet but unsaturated). Alluvial deposits

SS #2 4-6' Ran spoon down twice due to poor recovery in 1st spoon. 1st spoon was primarily material in the auger bit from 2-4' + consisted of 0.2' of light brown clayey fine sand (moist) followed by 0.3' medium to coarse sand w/ gravel. Gravel (20-25%) is angular chert + limestone and rounded red + tan sandstone. 2nd spoon retrieved 0.6' of saturated fine to coarse sand w/ minor gravel.

SS #3 6-8' 1.3' Recovery.
~~0-1.2'~~ 0-0.3' wet, medium to coarse sand of alluvial origin (subround).
0.3-0.6' Light brown clay-rich fine to medium sand (wet)
0.6-1.3' Black clayey silt w/ grey clay mottles @ bottom. Silt is mildly cohesive and is only damp.

SS #4 8-10' No recovery on 1st + 2nd try, but 3rd try was 1.7' of black gravelly, sandy, clayey silt (saturated). Fine portion is moderately cohesive. Approx. 50% silt, 30% clay + 20% coarse sand + gravel.

SS #5 10-12' 1.5' Recovery.
0-0.6' same as SS #4
0.6-1.5' only damp now - tighter. Silt + clay portion higher w/ only <15% sand + no gravel.

NOTES

PM = PhotovacMicrotip (10.6 eV)

Damp to wet
HNu = 0
OVA = 0
PM = 0

OVA = 1.5 ppm
HNu = 0 ppm
MOIST TO WET

SATURATED TO DAMP
HNu = 0 ppm
OVA = 7 ppm

SATURATED
HNu = 0 ppm

SATURATED TO MOIST.

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DATE

STARTED 10-4-90

FINISHED 10-5-90

SHEET 1 OF 1

E + E DRILLING AND TESTING CO., INC.
SUBSURFACE LOG

HOLE NUMBER GW-2

SURFACE ELEVATION

GROUNDWATER DEPTH ~7.2'

PROJECT Conrail Site
YP2040

LOCATION Adjacent to Icehouse Rd. near center of N. boundary.

DEPTH – FT	WELL DIAGRAM	SAMPLE TYPE	SAMPLE NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	18/24	PROFILE Cl Sl Sd Gr
		SS	1	3	2	2	4	
5		SS	2	11	9	4	4	
		SS	3	3	2	2	5	
		SS	4	5	2	2	2	
	TD=10.3'	SS	5	3	3	3	2	
	screen 5.8-10.3'							
15	sand 5.0-10.3'							
	seal 3.5-5.0'							
	grout 0-3.5'							

FIELD IDENTIFICATION OF SOILS

SS #1 0-2' 1.3' Recovery
All is black mottled w/ reddish brown coal rich soil (Fill). Reddish brown portion is silt-size & may be soil or crushed brick. Black is coal dust. Also contains numerous angular coal fragments to coarse sand size.

SS #2 4-6' 0.6' Recovery.
Same as SS#1 but with wood fragments - appear to be RR tie frags.

SS #3 6-8' 1.4' Recovery
Saturated black coarse sand w/ silt. Creosote odor.

SS #4 8-10' 0.3' Recovery.
Same as #3 w/ wood fragments. In end of shoe is mottled grey & tan clay. (Saturated)

SS #5 10-12' 1.6' Recovery.
0.3' Wood as above (probably stuck in auger bit. Remaining 1.3' is damp clay mottled light grey, tan and black. Clay is highly cohesive & moderately high plasticity.

NOTES

SS #1: Moist from surface infiltr. OVA: 2 ppm HNu < 1 ppm

SS #2: DAMP HNu = OVA = 0 P.M. = 17 ppm

SS #3: Saturated

SS #4: SATURATED

SS #5: DAMP.

P.M.: Photovac Microtip 10.6 eV lamp

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APPENDIX D

ANALYTICAL DATA SUMMARIES

GLOSSARY OF DATA QUALIFIERS

CODES RELATING TO IDENTIFICATION

B = Not detected substantially above the level reported in laboratory or field blanks.

R = Unreliable result. Analyte may or may not be present in the sample. Supporting data necessary to confirm results.

CODES RELATING TO QUANTITATION

J = Analyte present. Reported value may not be accurate or precise.

K = Analyte present. Reported value may be biased high. Actual value expected to be lower.

L = Analyte present. Reported value may be biased low. Actual value expected to be higher.

[]= Inorganic analyte present. As values approach the IDL the quantitation may not be accurate.

UJ = Not detected, quantitation limit may be inaccurate or imprecise.

UL = Not detected, quantitation limit is probably higher.

DATA SUMMARY FORM: V O L A T I L E S 1

WATER SAMPLES
(ug/L)

Site Name: Conrail Site

Case #: 9002-436 Sampling Date(s): ________

To calculate sample quantitation limit:
(CRQL * Dilution Factor)

CRQL	Sample No.	DW-1	DW-1RE	GW-1	GW-2	GW-3	GW-4	GW-5	SW-1	SW-2
	Dilution Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
	Location	more acceptable								
CRQL	COMPOUND									
10	Chloromethane									
10	Bromomethane									
10	*Vinyl Chloride									
10	Chloroethane									
5	*Methylene Chloride	4 B	2 B	5 B	5 B	5 B	5 B	10 B	6 B	6 B
10	Acetone		20	28 B	17 B	19 B	19 B	48 B	27 B	28 B
5	Carbon Disulfide									
5	*1,1-Dichloroethene									
5	1,1-Dichloroethane									
5	*Total-1,2-Dichloroethene									
5	Chloroform	29	35							
5	*1,2-Dichloroethane									
10	*2-Butanone									
5	*1,1,1-Trichloroethane									
5	*Carbon Tetrachloride									
10	Vinyl Acetate									
5	Bromodichloromethane	7	10							

CRDL = Contract Required Detection Limit *Action Level Exists SEE NARRATIVE FOR CODE DEFINITIONS

revised 12/88

DATA SUMMARY FORM: VOLATILES 2

Site Name: Conrail Site

WATER SAMPLES
(ug/L)

Case #: 9002-436 Sampling Date(s): ____________

To calculate sample quantitation limit:
(CRQL * Dilution Factor)

	Sample No.	DW-1		DW-1RE		GW-1		GW-2		GW-3		GW-4		GW-5		SW-1		SW-2	
	Dilution Factor	1.0		1.0		1.0		1.0		1.0		1.0		1.0		1.0		1.0	
	Location	more acceptable																	
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															7		2	J
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

WATER SAMPLES (ug/L)

Site Name: Conrail Site

Case #: 9002-436 Sampling Date(s): ______

To calculate sample quantitation limit: (CRQL * Dilution Factor)

CRQL	COMPOUND	SW-3		SW-5		VBLKW2		VBLKW1		VBLKW3		SW-1MS		SW-1MSD					
	Dilution Factor	1.0		1.0		1.0		1.0		1.0		1.0		1.0					
	Location																		
10	Chloromethane																		
10	Bromomethane																		
10	*Vinyl Chloride																		
10	Chloroethane																		
5	*Methylene Chloride	8	B	7	B	3	J	5		10		5	B	7	B				
10	Acetone	17	B	17	B	5	J			19		24	B	28	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 *Action Level Exists SEE NARRATIVE FOR CODE DEFINITIONS

revised 12/88

DATA SUMMARY FORM: V O L A T I L E S 2

Site Name: Conrail Site

WATER SAMPLES
(ug/L)

Case #: 9002-436 Sampling Date(s): ______

To calculate sample quantitation limit:
(CRQL * Dilution Factor)

CRQL	Sample No.	SW-3	SW-5	VBLKW2	VBLKW1	VBLKW3	SW-1MS	SW-1MSD		
	Dilution Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0		
	Location									
CRQL	COMPOUND									
5	*1,2-Dichloropropane									
5	Cis-1,3 Dichloropropene									
5	Trichloroethene									
5	Dibromochloromethane									
5	1,1,2 Trichloroethane					1 J				
5	*Benzene									
5	Trans-1,3 Dichloropropene									
5	Bromoform									
10	4-Methyl-2-pentanone									
10	2-Hexanone									
[illegible]	*Tetrachloroethene						7	8		
[illegible]	1,1,2,2-Tetrachloroethane					2 J				
[illegible]	*Toluene									
[illegible]	*Chlorobenzene									
5	*Ethylbenzene									
5	*Styrene									
5	*Total Xylenes					1 J				

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: Conrail Site

SOIL SAMPLES
(ug/Kg)

Case #: 9002-436 Sampling Date(s): ______

To calculate sample quantitation limit:
(CRQL * Dilution Factor) / ((100 - % moisture)/100)

CRQL	Sample No.	B-1		B-2		B-3		B-4		B-5		B-2RE		S-1		S-2		S-3	
	Dilution Factor	1.0		1.0		1.0		1.0		1.0		1.0		1.0		1.0		1.0	
	% Moisture	14		26		28		21		52		26		25		32		20	
	Location			more acceptable than B2RE															
CRQL	COMPOUND																		
10	Chloromethane				UJ		UJ												
10	Bromomethane				↓		↓												
10	Vinyl Chloride				↓		↓												
10	Chloroethane				↓		↓												
5	Methylene Chloride	15	B	42	B	4	B	6	B	12	B	42	B	28	B	29	B	24	B
10	Acetone	48	B	99	B	22	B	49	B	130	B	90	B	74	B	160	B	163	B
5	Carbon Disulfide				UJ		UJ												
5	1,1 Dichloroethene				↓		↓												
5	1,1-Dichloroethane				↓		↓												
5	Total-1,2 Dichloroethene				↓		↓												
5	Chloroform				↓		↓												
5	1,2-Dichloroethane				↓		↓												
10	2 Butanone	9	J		↓		↓									3	J	2	J
5	1,1,1 Trichloroethane				↓	8	J												
5	Carbon Tetrachloride				↓		UJ												
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: Conrail Site

SOIL SAMPLES
(ug/Kg)

Case #: 9002-436 Sampling Date(s): ____________

To calculate sample quantitation limit:
(CRQL * Dilution Factor) / ((100 - % moisture)/100)

CRQL	COMPOUND	B-1	B-2	B-3	B-4	B-5	B-2RE	S-1	S-2	S-3
	Sample No.	B-1	B-2	B-3	B-4	B-5	B-2RE	S-1	S-2	S-3
	Dilution Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
	% Moisture	14	26	28	21	52	26	25	32	20
	Location		more acceptable than B-2RE							
5	1,2-Dichloropropane		UJ	UJ						
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		15 J							
5	Chlorobenzene		UJ							
5	Ethylbenzene									
5	Styrene									
5	Total Xylenes		21 J							

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: Conrail Site

SOIL SAMPLES
(ug/Kg)

Case #: 9002-436 Sampling Date(s): ______

To calculate sample quantitation limit:
(CRQL * Dilution Factor) / ((100 - % moisture)/100)

	Sample No.	S-4		SED-1		SED-2		SED-3		SED-4		SED-5		W-1		W-2		W-3	
	Dilution Factor	1.0		1.0		1.0		1.0		1.0		1.0		1.0		1.0		1.0	
	% Moisture	15		22		36		29		30		70		25		21		20	
	Location																		
CRQL	COMPOUND																		
10	Chloromethane																		
10	Bromomethane																		
10	Vinyl Chloride																		
10	Chloroethane																		
5	Methylene Chloride	22	B	17	B	21	B	24	B	19	B	53	B	18	B	13	B	15	B
10	Acetone	54	B	48	B	52	B	66	B	58	B	95	B	21	B	23	B	23	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							3	J	3	J								
5	1,1,1 Trichloroethane																		
5	Carbon Tetrachloride																		
10	Vinyl Acetate																		
5	Bromodichloromethane																		

CRDL = Contract Required Detection Limit

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DATA SUMMARY FORM: V O L A T I L E S 2

Site Name: Conrail Site

SOIL SAMPLES
(ug/Kg)

Case #: 9002-436 Sampling Date(s): ______

To calculate sample quantitation limit:
(CRQL * Dilution Factor) / ((100 - % moisture)/100)

	Sample No.	S-4	SED-1	SED-2	SED-3	SED-4	SED-5	W-1	W-2	W-3
	Dilution Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
	% Moisture	15	22	36	29	30	70	25	21	20
	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		4 J							
5	1,1,2,2-Tetrachloroethane									
5	Toluene									
5	Chlorobenzene									
5	Ethylbenzene									
5	Styrene									
5	Total Xylenes									

CRQL = Contract Required Quantitation Limit

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DATA SUMMARY FORM: V O L A T I L E S 1

Site Name: Conrail Site

SOIL SAMPLES
(ug/Kg)

Case #: 9002-436 Sampling Date(s): ______

To calculate sample quantitation limit:
(CRQL * Dilution Factor) / ((100 - % moisture)/100)

CRQL	Sample No.	W-4		VBLKS3		VBLKS1		VBLKS2		VBLKS5		VBLKS4		VBLKS6		VBLKS7		VBLKS8	
	Dilution Factor	1.0		1.0		1.0		1.0		1.0		1.0		1.0		1.0		1.0	
	% Moisture	20		—		—		—		—		—		—		—		—	
	Location																		
CRQL	COMPOUND																		
10	Chloromethane																		
10	Bromomethane																		
10	Vinyl Chloride																		
10	Chloroethane																		
5	Methylene Chloride	12	B	6		6		6		4	J	4	J	16		13		20	
10	Acetone	29	B	11		8	J	13		15		4	J	18		39		39	
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

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DATA SUMMARY FORM: V O L A T I L E S 2

SOIL SAMPLES
(ug/Kg)

Site Name: Conrail Site

Case #: 9002-4316 Sampling Date(s): ________

To calculate sample quantitation limit:
(CRQL * Dilution Factor) / ((100 - % moisture)/100)

	Sample No.	W-4		VBLKS3		VBLKS1		VBLKS2		VBLKS5		VBLKS4		VBLKS6		VBLKS7		VBLKS8	
	Dilution Factor	1.0		1.0		1.0		1.0		1.0		1.0		1.0		1.0		1.0	
	% Moisture	28		—		—		—		—		—		—		—		—	
	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

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DATA SUMMARY FORM: V O L A T I L E S 1

Site Name: Conrail Site

Case #: 9002-436 Sampling Date(s): ____

SOIL SAMPLES
(ug/Kg)

To calculate sample quantitation limit:
(CRQL * Dilution Factor) / ((100 - % moisture)/100)

CRQL	Sample No.	VBLK59		B-3MS		S-4MS		B-3MSD		S-4MSD									
	Dilution Factor	1.0		1.0		1.0		1.0		1.0									
	% Moisture	—		28		15		28		15									
	Location																		
CRQL	COMPOUND																		
10	Chloromethane																		
10	Bromomethane																		
10	Vinyl Chloride																		
10	Chloroethane																		
5	Methylene Chloride	10		9	B	15	B	12	B	17	B								
10	Acetone	10		16	B	34	B	21	B	45	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				7											
5	Carbon Tetrachloride																		
10	Vinyl Acetate																		
5	Bromodichloromethane																		

CRDL = Contract Required Detection Limit

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DATA SUMMARY FORM: V O L A T I L E S 2

SOIL SAMPLES
(ug/Kg)

Site Name: Conrail Site

Case #: 9002-436 Sampling Date(s): ____________

To calculate sample quantitation limit:
(CRQL * Dilution Factor) / ((100 - % moisture)/100)

	Sample No.	VBLK59	B-3MS	S-4MS	B-3MSD	S-4MSD				
	Dilution Factor	1.0	1.0	1.0	1.0	1.0				
	% Moisture	—	28	15	28	15				
	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

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DATA SUMMARY FORM: B N A S 1

WATER SAMPLES
(ug/L)

Site Name: Conrail Site

Case #: 9002-436 Sampling Date(s):

To calculate sample quantitation limit:
(CRQL * Dilution Factor)

CRQL	Sample No. / Dilution Factor / Location / COMPOUND	DW-1	GW-1	GW-2	GW-3	GW-4	GW-5	SW-1	SW-2	SW-3
	Dilution Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
10	Phenol	UL								
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						1 J			
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			8 J						
10	4-Chloroaniline	UL								

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

WATER SAMPLES
(ug/L)

Site Name: Conrail Site

Case #: 9002-436 Sampling Date(s): ____

To calculate sample quantitation limit:
(CRQL * Dilution Factor)

CRQL	Sample No.	DW-1		GW-1		GW-2		GW-3		GW-4		GW-5		SW-1		SW-2		SW-3	
	Dilution Factor	1.0		1.0		1.0		1.0		1.0		1.0		1.0		1.0		1.0	
	Location																		
CRQL	COMPOUND																		
10	Hexachlorobutadiene		UL																
10	4-Chloro-3-methylphenol																		
10	2-Methylnaphthalene					3	J												
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					3	J												
50	2,4-Dinitrophenol																		
50	4-Nitrophenol																		
10	Dibenzofuran					3	J												
10	2,4-Dinitrotoluene																		
10	Diethylphthalate																		
10	4-Chlorophenyl-phenylether																		
10	Fluorene																		
50	4-Nitroaniline																		
50	4,6 Dinitro-2-methylphenol		UL																

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: Conrail Site

Case #: 9002-436 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		GW-4		GW-5		SW-1		SW-2		SW-3	
	Dilution Factor	1.0		1.0		1.0		1.0		1.0		1.0		1.0		1.0		1.0	
	Location																		
CRDL	COMPOUND																		
10	N Nitrosodiphenylamine		UL																
10	4 Bromophenyl phenylether																		
10	*Hexachlorobenzene																		
50	*Pentachlorophenol																		
10	Phenanthrene					7	J												
10	Anthracene					2	J												
10	Di n butylphthalate			7	B	1	B	7	B	3	B			6	B	5	B	3	B
10	Fluoranthene					5	J												
10	Pyrene					3	J												
10	Butylbenzylphthalate																		
20	3,3 Dichlorobenzidine																		
10	Benzo(a)anthracene																		
10	Chrysene		UL			1	J												
10	bis(2 Ethylhexyl)phthalate	4	B	6	B	8	B	9	B	6	B	3	B	6	B	6	B	6	B
10	Di-n-octylphthalate		UL																
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		UL																

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: Conrail Site

WATER SAMPLES
(ug/L)

Case #: 9002-436 Sampling Date(s):

To calculate sample quantitation limit:
(CRQL * Dilution Factor)

CRQL	Sample No.	SW-5	SBLKW1	SBLKW2	SBLKW3	SW-1	SW-1MSD			
	Dilution Factor	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									

CRQL = Contract Required Detection Limit *Action Level Exists SEE NARRATIVE FOR CODE DEFINITIONS

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DATA SUMMARY FORM: B N A S 2

WATER SAMPLES
(ug/L)

Site Name: Conrail Site

Case #: 9002-436 Sampling Date(s): ____________

To calculate sample quantitation limit:
(CRQL * Dilution Factor)

	Sample No.	SW-5		SBLKW1		SBLKW2		SBLKW3		SW-1		SW-1MSD							
	Dilution Factor	1.0		1.0		1.0		1.0		1.0		1.0							
	Location																		
CRQL	COMPOUND																		
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	2	J																
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

WATER SAMPLES
(ug/L)

Site Name: Conrail Site

Case #: 9002-436 Sampling Date(s): ____

To calculate sample quantitation limit:
(CRQL * Dilution Factor)

CRDL	Sample No.	SW-5		SBLKW1		SBLKW2		SBLKW3		SW-1		SW-1MSD							
	Dilution Factor	1.0		1.0		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	4	B			9	J	1	J	11	B	7	B						
10	Fluoranthene																		
10	Pyrene																		
10	Butylbenzylphthalate																		
20	3,3 Dichlorobenzidine																		
10	Benzo(a)anthracene																		
10	Chrysene																		
10	bis(2 Ethylhexyl)phthalate	5	B	3	J	7	J	4	J	7	B	8	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: Conrail Site

SOIL SAMPLES (ug/Kg)

Case #: 9002-436 Sampling Date(s): ________

To calculate sample quantitation limit:
(CRQL * Dilution Factor) / ((100 - % moisture)/100)

	Sample No.	B-1		B-3		B-4		B-5		B-2		S-1		S-2		S-3		S-4	
	Dilution Factor	1.0		1.0		1.0		1.0		1.0		1.0		2.0		5.0		5.0	
	% Moisture	14		28		81		52		26		25		31		20		15	
	Location																		
CRQL	COMPOUND																		
330	Phenol																		
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									1600						400	J	180	J
330	4-Chloroaniline																		

CRQL = Contract Required Quantitation Limit

SEE NARRATIVE FOR CODE DEFINITIONS

revised 12/88

DATA SUMMARY FORM: B N A S 2

Site Name: Conrail Site

SOIL SAMPLES
(ug/Kg)

Case #: 9002-436 Sampling Date(s): ______

To calculate sample quantitation limit:
(CRQL * Dilution Factor) / ((100 - % moisture)/100)

	Sample No.	B-1		B-3		B-4		B-5		B-2		S-1		S-2		S-3		S-4	
	Dilution Factor	1.0		1.0		1.0		1.0		1.0		1.0		2.0		5.0		5.0	
	% Moisture	14		28		21		52		26		25		31		20		15	
	Location																		
CRQL	COMPOUND																		
330	Hexachlorobutadiene																		
330	4 Chloro-3-methylphenol																		
330	2 Methylnaphthalene							85	J	890				50	J	460	J	260	J
330	Hexachlorocyclopentadiene																		
330	2,4,6-Trichlorophenol																		
1600	2,4,5-Trichlorophenol																		
330	2-Chloronaphthalene																		
1600	2 Nitroaniline																		
330	Dimethylphthalate																		
330	Acenaphthylene													1200		260	J	79	J
330	2,6 Dinitrotoluene																		
1600	3 Nitroaniline																		
330	Acenaphthene							400	J	550				140	J	240	J	1200	J
1600	2,4 Dinitrophenol																		
1600	4-Nitrophenol																		
330	Dibenzofuran							140	J	590						330	J	420	J
330	2,4 Dinitrotoluene																		
330	Diethylphthalate																		
330	4-Chlorophenyl-phenylether																		
330	Fluorene							170	J	480				230	J	310	J	1400	J
1600	4-Nitroaniline																		
1600	4,6 Dinitro 2 methylphenol																		

CRQL = Contract Required Quantitation Limit

SEE NARRATIVE FOR CODE DEFINITIONS

revised 12/88

DATA SUMMARY FORM: B N A S 3

Site Name: Conrail Site

SOIL SAMPLES
(ug/Kg)

Case #: 9002-436 Sampling Date(s): ____________

To calculate sample quantitation limit:
(CRQL * Dilution Factor) / ((100 - % moisture)/100)

CRQL	Sample No.	B-1		B-3		B-4		B-5		B-2		S-1		S-2		S-3		S-4	
	Dilution Factor	1.0		1.0		1.0		1.0		1.0		1.0		2.0		5.0		5.0	
	% Moisture	14		28		21		52		26		23		31		20		15	
	Location																		
CRQL	COMPOUND																		
330	N-Nitrosodiphenylamine															180	J		
330	4-Bromophenyl phenylether																		
330	Hexachlorobenzene																		
1600	Pentachlorophenol																		
330	Phenanthrene									2100		81	J	1900		3600		12000	
330	Anthracene									410	J			1500		710	J	13000	
330	Di-n-butylphthalate											310	B	400	B	450	B	440	B
330	Fluoranthene			73	J					820		170	J	11000		7800		36000	J
330	Pyrene			57	J					710		140	J	12000		7700		42000	J
330	Butylbenzylphthalate															300	J	1200	J
1600	3,3 Dichlorobenzidine																		
330	Benzo(a)anthracene									360	J	91	J	10000		5300		25000	
330	Chrysene									410	J	130	J	9800		5200		22000	
330	bis(2-Ethylhexyl)phthalate	94	B	120	B	150	B	260	B	100	B	490	B	600	B	740	B	610	B
330	Di-n-octylphthalate																		
330	Benzo(b)fluoranthene			95	J					750				12000		8800		25000	
330	Benzo(k)fluoranthene													3800		2700		11000	
330	Benzo(a)pyrene									320	J	81	J	6300		5200		18000	
330	Indeno(1,2,3-cd)pyrene									300	J	70	J	3500		3200		8800	
330	Dibenz(a,h)anthracene									86	J			1900		1200	J	2800	
330	Benzo(g,h,i)perylene									360	J	59	J	3500		4500		16000	

CRQL = Contract Required Quantitation Limit

SEE NARRATIVE FOR CODE DEFINITIONS

revised 12/88

DATA SUMMARY FORM: B N A S 1

Site Name: Conrail Site

Case #: 9000-436 Sampling Date(s): ____________

SOIL SAMPLES
(ug/Kg)

To calculate sample quantitation limit:
(CRQL * Dilution Factor) / ((100 - % moisture)/100)

CRQL	Sample No.	SED-1	SED-2	SED-3	SED-4	SED-5	W-1	W-2	W-3	W-4
	Dilution Factor	1.0	1.0	1.0	1.0	2.0	2.0	2.0	1.0	5.0
	% Moisture	21	36	29	30	70	25	21	20	20
	Location									
	COMPOUND									
330	Phenol									
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								72 J	
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					1300 J	1800	230 J	460	600 J
330	4-Chloroaniline									

CRQL = Contract Required Quantitation Limit

SEE NARRATIVE FOR CODE DEFINITIONS

revised 12/88

DATA SUMMARY FORM: B N A S 2

Site Name: Conrail Site

SOIL SAMPLES (ug/Kg)

Case #: 9002-436 Sampling Date(s): ________

To calculate sample quantitation limit:
(CRQL * Dilution Factor) / ((100 - % moisture)/100)

CRQL	Sample No.	SED-1	SED-2	SED-3	SED-4	SED-5	W-1	W-2	W-3	W-4
	Dilution Factor	1.0	1.0	1.0	1.0	2.0	2.0	2.0	1.0	5.0
	% Moisture	21	36	29	30	70	25	21	20	20
	Location									
CRQL	COMPOUND									
330	Hexachlorobutadiene									
330	4-Chloro-3-methylphenol									
330	2-Methylnaphthalene					400 J	780 J	230 J	480	700 J
330	Hexachlorocyclopentadiene									
330	2,4,6-Trichlorophenol									
1600	2,4,5-Trichlorophenol									
330	2-Chloronaphthalene									
1600	2-Nitroaniline									
330	Dimethylphthalate									
330	Acenaphthylene					1300 J	390 J	340 J	300 J	200 J
330	2,6-Dinitrotoluene									
1600	3-Nitroaniline									
330	Acenaphthene					850 J	250 J	110 J	180 J	200 J
1600	2,4-Dinitrophenol									
1600	4-Nitrophenol									
330	Dibenzofuran					640 J	590 J	210 J	340 J	460 J
330	2,4-Dinitrotoluene									
330	Diethylphthalate									
330	4-Chlorophenyl-phenylether									
330	Fluorene					1500 J	800 J	160 J	220 J	300 J
1600	4-Nitroaniline									
1600	4,6-Dinitro-2-methylphenol									

CRQL = Contract Required Quantitation Limit

SEE NARRATIVE FOR CODE DEFINITIONS

revised 12/88

DATA SUMMARY FORM: B N A S 3

Site Name: Conrail Site

SOIL SAMPLES
(ug/Kg)

Case #: 9002-436 Sampling Date(s): ________

To calculate sample quantitation limit:
(CRQL * Dilution Factor) / ((100 - % moisture)/100)

CRQL	COMPOUND	SED-1		SED-2		SED-3		SED-4		SED-5		W-1		W-2		W-3		W-4	
	Dilution Factor	1.0		1.0		1.0		1.0		2.0		2.0		2.0		1.0		5.0	
	% Moisture	21		36		29		30		70		25		21		20		20	
	Location																		
330	N-Nitrosodiphenylamine																		
330	4-Bromophenyl phenylether																		
330	Hexachlorobenzene															520			
1600	Pentachlorophenol															71	J		
330	Phenanthrene					70	J			7800		2400		2100		2000		3400	
330	Anthracene									4000		700	J	360	J	650		870	J
330	Di-n-butylphthalate	790	B	540	B	380	B	470	B	900	B	280	B	190	B	160	B	280	B
330	Fluoranthene			55	J	120	J			22000		4000		4600		2500		8600	
330	Pyrene					98	J			25000		7300		1400		4300		5900	
330	Butylbenzylphthalate											830	J			250	J	220	J
1600	3,3 Dichlorobenzidine																		
330	Benzo(a)anthracene					49	J			13000		3200		3100		2400		4700	
330	Chrysene					61	J			15000		4600		3700		3300		5700	
330	bis(2-Ethylhexyl)phthalate	480	B	580	B	650	B	550	B	1300	B	900	B	230	B	260	B	310	B
330	Di-n-octylphthalate																		
330	Benzo(b)fluoranthene					59	J			18000		6000		4500		4500		10000	
330	Benzo(k)fluoranthene									11000		2800		2200		1600			
330	Benzo(a)pyrene					49	J			13000		3500		3300		3000		4900	
330	Indeno(1,2,3-cd)pyrene									9200		3100		2600		2700		4100	
330	Dibenz(a,h)anthracene									2700		840	J	700	J	880		1100	J
330	Benzo(g,h,i)perylene									7400		2900		2300		2500		3600	

CRQL = Contract Required Quantitation Limit

SEE NARRATIVE FOR CODE DEFINITIONS

revised 12/88

DATA SUMMARY FORM: B N A S 1

Site Name: Control Site

SOIL SAMPLES
(ug/Kg)

Case #: 9002-436 Sampling Date(s): ____

To calculate sample quantitation limit:
(CRQL * Dilution Factor) / ((100 - % moisture)/100)

	Sample No.	SBLKS1		SBLKS2		SBLKS3		SBLKS4		SBLKS5		SBLKS6		SBLKS7		SBLKS8		B-3MS	
	Dilution Factor	1.0		1.0		1.0		1.0		1.0		1.0		1.0		1.0		1.0	
	% Moisture	—		—		—		—		—		—		—		—		28	
	Location																		
CRQL	COMPOUND																		
330	Phenol																		
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																		
330	4-Chloroaniline																		

CRQL = Contract Required Quantitation Limit

SEE NARRATIVE FOR CODE DEFINITIONS

revised 12/88

DATA SUMMARY FORM: B N A S 2

SOIL SAMPLES
(ug/Kg)

Site Name: Conrail Site

Case #: 9002-436 Sampling Date(s): ____________

To calculate sample quantitation limit:
(CRQL * Dilution Factor) / ((100 - % moisture)/100)

	Sample No.	SBLKS1	SBLKS2	SBLKS3	SBLKS4	SBLKS5	SBLKS6	SBLKS7	SBLKS8	B-3MS
	Dilution Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
	% Moisture	–	–	–	–	–	–	–	–	28
	Location									
CRQL	COMPOUND									
330	Hexachlorobutadiene									
330	4-Chloro-3-methylphenol									
330	2-Methylnaphthalene									
330	Hexachlorocyclopentadiene									
330	2,4,6-Trichlorophenol									
1600	2,4,5-Trichlorophenol									
330	2-Chloronaphthalene									
1600	2-Nitroaniline									
330	Dimethylphthalate									
330	Acenaphthylene									
330	2,6-Dinitrotoluene									
1600	3-Nitroaniline									
330	Acenaphthene									
1600	2,4-Dinitrophenol									
1600	4-Nitrophenol									
330	Dibenzofuran									
330	2,4-Dinitrotoluene									
330	Diethylphthalate									
330	4-Chlorophenyl-phenylether									
330	Fluorene									
1600	4-Nitroaniline									
1600	4,6-Dinitro-2-methylphenol									

CRQL = Contract Required Quantitation Limit

SEE NARRATIVE FOR CODE DEFINITIONS

revised 12/88

DATA SUMMARY FORM: B N A S 3

Site Name: Conrail Site

SOIL SAMPLES (ug/Kg)

Case #: 902-436 Sampling Date(s): ______

To calculate sample quantitation limit:
(CRQL * Dilution Factor) / ((100 - % moisture)/100)

CRQL	COMPOUND	SBLKS1	SBLKS2	SBLKS3	SBLKS4	SBLKS5	SBLKS6	SBLKS7	SBLKS8	B-3MS
	Dilution Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
	% Moisture	—	—	—	—	—	—	—	—	28
	Location									
330	N-Nitrosodiphenylamine									
330	4-Bromophenyl phenylether									
330	Hexachlorobenzene									
1600	Pentachlorophenol									
330	Phenanthrene									
330	Anthracene									
330	Di-n-butylphthalate					470	300 J	78 J	57 J	
330	Fluoranthene									
330	Pyrene									
330	Butylbenzylphthalate									
1600	3,3-Dichlorobenzidine									
330	Benzo(a)anthracene									
330	Chrysene									
330	bis(2-Ethylhexyl)phthalate		67 J	90 J	97 J	420	380 J	130 J	96 J	77 B
330	Di-n-octylphthalate									
330	Benzo(b)fluoranthene									53 J
330	Benzo(k)fluoranthene									
330	Benzo(a)pyrene									
330	Indeno(1,2,3-cd)pyrene									
330	Dibenz(a,h)anthracene									
330	Benzo(g,h,i)perylene									

CRQL = Contract Required Quantitation Limit

SEE NARRATIVE FOR CODE DEFINITIONS

revised 12/88

DATA SUMMARY FORM: B N A S 1

Site Name: Conrail Site

SOIL SAMPLES (ug/Kg)

Case #: 9002.436 Sampling Date(s): ________

To calculate sample quantitation limit:
(CRQL * Dilution Factor) / ((100 - % moisture)/100)

	Sample No.	S-4mS	W-2mS	S-4mSD	B-3mSD	W-2mSD					
	Dilution Factor	5.0	2.0	5.0	1.0	2.0					
	% Moisture	15	21	15	28	21					
	Location										
CRQL	COMPOUND										
330	Phenol										
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	180 J	230 J	150 J		200 J					
330	4-Chloroaniline										

CRQL = Contract Required Quantitation Limit

SEE NARRATIVE FOR CODE DEFINITIONS

revised 12/88

DATA SUMMARY FORM: B N A S 2

SOIL SAMPLES
(ug/Kg)

Site Name: Conrail Site

Case #: 9002-436 Sampling Date(s): ____

To calculate sample quantitation limit:
(CRQL * Dilution Factor) / ((100 - % moisture)/100)

	Sample No.	S-4MS		W-2MS		B-3MSD		S-4MSD		W-2MSD									
	Dilution Factor	5.0		2.0		1.0		5.0		2.0									
	% Moisture	15		21		28		15		21									
	Location																		
CRQL	COMPOUND																		
330	Hexachlorobutadiene																		
330	4-Chloro-3-methylphenol																		
330	2-Methylnaphthalene	270	J	230	J			210	J	200	J								
330	Hexachlorocyclopentadiene																		
330	2,4,6-Trichlorophenol																		
1600	2,4,5-Trichlorophenol																		
330	2-Chloronaphthalene																		
1600	2-Nitroaniline																		
330	Dimethylphthalate																		
330	Acenaphthylene	56	J	380	J			51	J	260	J								
330	2,6-Dinitrotoluene																		
1600	3-Nitroaniline																		
330	Acenaphthene																		
1600	2,4-Dinitrophenol																		
1600	4-Nitrophenol																		
330	Dibenzofuran	290	J	240	J			130	J	190	J								
330	2,4-Dinitrotoluene																		
330	Diethylphthalate																		
330	4-Chlorophenyl-phenylether																		
330	Fluorene	730	J	220	J			170	J	140	J								
1600	4-Nitroaniline																		
1600	4,6-Dinitro-2-methylphenol																		

CRQL = Contract Required Quantitation Limit

SEE NARRATIVE FOR CODE DEFINITIONS

revised 12/88

DATA SUMMARY FORM: B N A S 3

SOIL SAMPLES
(ug/Kg)

Site Name: Conrail Site

Case #: 9002-436 Sampling Date(s): ____

To calculate sample quantitation limit:
(CRQL * Dilution Factor) / ((100 - % moisture)/100)

	Sample No.	S-4MS		W-2MS		B-3MSD		S-4MSD		W-2MSD									
	Dilution Factor	5.0		2.0		1.0		5.0		2.0									
	% Moisture	15		21		28		15		21									
	Location																		
CRQL	COMPOUND																		
330	N-Nitrosodiphenylamine																		
330	4-Bromophenyl phenylether																		
330	Hexachlorobenzene																		
1600	Pentachlorophenol																		
330	Phenanthrene	7100		2200				2100		1700									
330	Anthracene	6500		640	J			1800	J	470	J								
330	Di-n-butylphthalate	490	B	130	B			520	B	340	B								
330	Fluoranthene	21000		5300				9800		3800									
330	Pyrene																		
330	Butylbenzylphthalate			290	J					220	J								
1600	3,3 Dichlorobenzidine	670	J					350	J										
330	Benzo(a)anthracene	13000		3600				16000		2500									
330	Chrysene	13000		4200				6500		3800									
330	bis(2 Ethylhexyl)phthalate	520	B	240	B	89	B	330	B	290	B								
330	Di-n-octylphthalate																		
330	Benzo(b)fluoranthene	12000		4800		76	J	8900		3400									
330	Benzo(k)fluoranthene	8700		2700				4600		2100									
330	Benzo(a)pyrene	11000		3600				6700		2700									
330	Indeno(1,2,3-cd)pyrene	4900		2700				3100		2200									
330	Dibenz(a,h)anthracene	1700	J	830	J			940	J	600	J								
330	Benzo(g,h,i)perylene	3800		2600				2400		2100									

CRQL = Contract Required Quantitation Limit

SEE NARRATIVE FOR CODE DEFINITIONS

revised 12/88

DATA SUMMARY FORM: T E N T A T I V E L Y I D E N T I F I E D C O M P O U N D S

Site Name: Conrail Site

Case #: 902-436 Sampling Date: ______

SOIL SAMPLES
(ug/Kg)

To calculate sample quantitation limit:
(CRQL * Dilution Factor) / ((1 - % moisture/100)

	Sample No.	B-2	S-4	SED-3	W-1	W-2	W-3	SBLKS5		
	Dilution Factor	1.0	5.0	1.0	2.0	2.0	1.0	1.0		
	% Moisture	26	15	29	25	21	20	—		
	Location									
CRQL	COMPOUND									
	CAS# 90120 1-methyl-naphthalene	810 J			750 J		420 J			
	CAS# 203645 4H-Cyclopenta[def] phenanthrene		5100 J							
	CAS# 128370 2,6-bis(1,1-dimethylethyl)-4			230 BJ				130 J		
	CAS# 486259 9H-fluoren-9-one				1020 J	380 J	290 J			

CRQL = Contract Required Quantitation Limit

DATA SUMMARY FORM: PESTICIDES AND PCBS

Site Name: Conrail Site

Case #: 9002-436 Sampling Date(s): ______

WATER SAMPLES
(ug/L)

To calculate sample quantitation limit:
(CRQL * Dilution Factor)

CRQL	Sample No.	DW-1	GW-1	GW-2	GW-3	GW-4	GW-5	SW-1	SW-2	SW-3
	Dilution Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
	Location									
CRQL	COMPOUND									
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: Cement Site

WATER SAMPLES
(ug/L)

Case #: 9002-436 Sampling Date(s):

To calculate sample quantitation limit:
(CRQL * Dilution Factor)

CRQL	Sample No. / COMPOUND	SW-5	PBLKW2	PBLKW1	PBLKW3	SW-1MS	SW-1MSD			
	Dilution Factor	1.0	1.0	1.0	1.0	1.0	1.0			
	Location		Associated with DW-1							
0.05	alpha-BHC		0.09							
0.05	beta BHC									
0.05	delta BHC		0.28							
0.05	*Gamma-BHC (Lindane)		0.26							
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									

CRQL = Contract Required Detection Limit

*Action Level Exists

SEE NARRATIVE FOR CODE DEFINITIONS

revised 12/88

DATA SUMMARY FORM: P E S T I C I D E S A N D P C B S

Site Name: Conrail Site

SOIL SAMPLES
(ug/Kg)

Case #: 9002-436 Sampling Date(s): ______

To calculate sample quantitation limit:
(CRQL * Dilution Factor) / ((100 - % moisture)/100)

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	Sample No.	B-1		B-3		B-4		B-5		B-2		S-1		S-2		S-3		S-4	
	Dilution Factor	1.0		1.0		1.0		1.0		1.0		1.0		10.0		10.0		100	
	% Moisture	14		28		21		52		26		25		32		20			
	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															1800	J		

CRQL = Contract Required Quantitation Limit

SEE NARRATIVE FOR CODE DEFINITIONS

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DATA SUMMARY FORM: PESTICIDES AND PCBS

Site Name: Conrail Site

SOIL SAMPLES
(ug/Kg)

Case #: 9002-436 Sampling Date(s): ______

To calculate sample quantitation limit:
(CRQL * Dilution Factor) / ((100 - % moisture)/100)

CRQL	Sample No.	SED-1	SED-2	SED-3	SED-4	SED-5	W-1	W-2	W-3	W-4
	Dilution Factor	1.0	1.0	1.0	1.0	10.0	10.0	4.0	10.0	5.0
	% Moisture	22	36	29	30	70	25	21	20	20
	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						2400	850	3000	2200

CRQL = Contract Required Quantitation Limit

SEE NARRATIVE FOR CODE DEFINITIONS

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ecology and environment

DATA SUMMARY FORM: P E S T I C I D E S A N D P C B S

Site Name: Conrail Site

SOIL SAMPLES
(ug/Kg)

Case #: 9002-436 Sampling Date(s): ____________

To calculate sample quantitation limit:
(CRQL * Dilution Factor) / ((100 - % moisture)/100)

	Sample No.	PBLKS1	PBLKS2	PBLKS3	PBLKS4	PBLKS5	PBLKS6	PBLKS7	PBLKS8	B-3MS
	Dilution Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
	% Moisture	—	—	—	—	—	—	—	—	28
	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: P E S T I C I D E S A N D P C B S

Site Name: Conrail Site

SOIL SAMPLES
(ug/Kg)

Case #: 9000-436 Sampling Date(s): ______

To calculate sample quantitation limit:
(CRQL * Dilution Factor) / ((100 - % moisture)/100)

	Sample No.	S-4MS	W-2MS	B-3MSD	S-4MSD	W-2MSD					
	Dilution Factor	10	4	1.0	10	4					
	% Moisture	15	21	28	15	21					
	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		1800			2500					

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: Conrail Site

Case #: 9002-436 Sampling Date(s): ____________

WATER SAMPLES
(ug/L)

+Due to dilution, sample quantitation limit is affected.
See dilution table for specifics.

	Sample No.	DW-1		GW-1		GW-2		GW-3		GW-4		GW-5		SW-1		SW-2		SW-3		SW-5	
	Dilution Factor	1.0		1.0		1.0		1.0		1.0		1.0		1.0		1.0		1.0		1.0	
	Location																				
CRDL	ANALYTE																				
200	Aluminum	319		57800	J	609		21600	J	3850	J	56000	J			[157]		[140]		25800	
60	Antimony																				
10	*Arsenic	[2.1]		8.4		[2.4]		30.6		28.6		263								32.1	
200	Barium	[40.1]		531	J	[93.2]		452		217		6040	J	[59.4]		[56.9]		[66]		788	J
5	Beryllium											24.1									
5	*Cadmium			15.1								136									
5000	Calcium	37700	J	255000	J	128000	J	70500	J	116000	J	302000	J	75700	J	71300	J	48200	J	76000	J
10	*Chromium			59.8				72.2		12.2		782	J							13.1	
50	Cobalt			[33.6]				[15.5]				363									
25	Copper	[15.1]		118		34.4		40.7		[12.8]		979	J							26.7	
100	Iron	2540	K	121000		6720		55600		40006		1060000		342		657		545		84100	
5	*Lead	3.2	B	52		17.7		12.8	J	3.2	B	1190						[1.1]	B	13.0	
5000	Magnesium	8230		80800		23300		15300		61700		243000		15600		14800		10900		48000	
15	Manganese	264	J	5020	J	2250	J	4560	J	6030	J	12900	J	51.8		154	J	88.2		1190	J
0.2	Mercury																				
40	*Nickel			95.1		[12.6]		181		[9.6]		1490	J					[9.7]			
5000	Potassium	[1640]		7860		[3360]		[3050]		[2300]		69500		[2650]		[3180]		[2030]		16800	
5	Selenium					[1.6]															
10	Silver																				
5000	Sodium	11900		32100	J	20600	J	1570000	J	217000	J	352000	J	12900		21700	J	18700	J	40000	J
10	Thallium																				
50	Vanadium			81.5				[41]		[10.7]		645	J							[27.8]	
20	Zinc	87.7	B	424	J	106		137		29.9		3560	J	[12.2]		[4.6]		[5.5]		185	
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: Conrail Site

Case #: 9002-436 Sampling Date(s): ____________

SOIL SAMPLES
(mg/Kg)

*Due to dilution, sample quantitation limit is affected. See dilution table for specifics.

CRDL	ANALYTE																				
	Sample No.	B-1		B-3		B-4		B-5		B-2		S-1		S-2		S-3		S-4		SED-1	
	Dilution Factor	1.0		1.0		1.0		1.0		1.0		1.0		1.0		1.0		1.0		1.0	
	% Solids	86.1		71.9		78.9		48.5		74.4		75.1		68.6		80.5		84.7		78.6	
	Location																				
40	Aluminum	4280		12300		15000		13100		3070		9820		8850		4610		3280		5810	
12	Antimony		UJ		UJ		UJ		UJ		UJ		UJ		UJ		UJ		UJ		UJ
2	Arsenic	4.5	L	8.9	L	[1.6]	L	10.5	L	39.8	L	6.8	L	8.0	L	28.8	L	30.6	L	6.7	L
40	Barium	[24.4]		121		132		179		209		65.4		79.4		157		375		[33.2]	
1	Beryllium					[0.26]															
1	Cadmium	1.5	K	4.5	K	3.3	K	3.1	K	26.8	K	3.2	K	2.5	K	9.7	K	6.3	K		
1000	Calcium	56200		4780		2740		6980		33200		38500		3610		20500		15200		6510	
2	Chromium	6.5		14		15.3		13.8		43.9		14.4		14.1		86.9		26.9		7.2	
10	Cobalt	[4.7]		[10.8]		[10.2]		[6.0]		[12.1]		[9.1]		[11.2]		[8.8]		[8.3]		[5.6]	
5	Copper	13.7		23.7		18.2		31.1		1075		33.9		23.8		316		2446		13.1	
20	Iron	11600		28300		18800		18100		114500		24200		25600		47900		49700		17800	
1	*Lead	8.0	J	33.4	J	13.9	J	17.5	J	404	J	38.1	J	20.8	J	448	J	3590	J	10.1	J
1000	Magnesium	15450		5450		4370		4600		13700		15500		3280		4640		4700		3460	
3	Manganese	254.4	K	555	K	188	K	220	K	930	K	497	K	490	K	1200	K	363	K	315	K
0.2	Mercury		UL		UL		UL		UL		UL		UL		UL	0.81	L	0.31	L		UL
8	Nickel	9.6	K	24.0	K	26.2	K	23.9	K	72.8	K	25.4	K	22.6	K	58.4	K	45.1	K	14.6	K
1000	Potassium	[3817]		[919]		[763]		[1950]		[368]		[1020]		[1190]		[777]		[244]		[431]	
1	Selenium							[0.45]		[4.4]		[0.56]				[0.25]		[4.0]			
2	Silver																				
1000	Sodium	[127.8]		[1100]		[497]		[1070]		[212]		[198]		[150]		[219]		[188]		[146]	
2	Thallium																				
10	Vanadium	[7.7]		14.6		12.7		[15.8]		38.6		16.4		[13.6]		19.8		18		[9.1]	
4	Zinc	51.4		83.8		92.7		68.9		215		80.3		73.5		932		286		65.3	
2	Cyanide													1.7		2.6					

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: Control Site

Case #: 9002-436 Sampling Date(s): ____________

SOIL SAMPLES
(mg/Kg)

•Due to dilution, sample quantitation limit is affected.
See dilution table for specifics.

CRDL	ANALYTE	SED-2		SED-3		SED-4		SED-5		W-1		W-2		W-3		W-4	
	Dilution Factor	1.0		1.0		1.0		1.0		1.0		1.0		1.0		1.0	
	% Solids	64		71.4		69.6		30.4		75.3		79.3		79.8		79.9	
	Location																
40	Aluminum	6150		6820		9600		10800		5610		4620		4430		2450	
12	Antimony		UJ		UJ		UJ		UJ								
2	Arsenic	5.4	L	5.2	L	6.7	L	27.5	L	20.4	L	20.4	L	38.1	L	36.4	L
40	Barium	[49.3]		57.7		84.2		179		472	K	153	K	172	K	113	K
1	Beryllium													4.6			
1	Cadmium					3.0	K			13.8	K	10.5	K	22.7	K	6.5	K
1000	Calcium	7450		8400		5440		20600		16300	J	14800	J	60400	J	11300	J
2	Chromium	7.4		8.7		16.1		20.8		106	K	78.7	K	84.7	K	56.3	K
10	Cobalt	[3.9]		[4.2]		[7.4]		[6.9]		25.2		[5.2]		[9.8]		[4.3]	
5	Copper	14.3		15.6		17.6		36.7		191	K	201	K	274	K	241	K
20	Iron	17200		18200		23900		40700		6700	J	39500		119000		36500	
1	*Lead	12.0	J	27.6	J	13.2	J	29.9	J	593	K	388	K	560	K	310	K
1000	Magnesium	3170		3980		4650		4610		4150	J	3440	J	2020	J	2160	J
3	Manganese	412	K	391	K	533	K	379	K	1240	J	875	J	1720	J	645	J
0.2	Mercury		UL		UL		UL		UL	0.48		0.63		0.85		0.63	
8	Nickel	13.3	K	12.0	K	19.4	K	31.8	K	55.1	K	46.5	K	42.3	K	21.0	K
1000	Potassium	[526]		[611]		[818]		[1620]		[638]		[734]		[407]		[522]	
1	Selenium									[0.29]		[0.66]		[0.44]		[0.80]	
2	Silver									[2.0]		[2.2]		[2.4]		2.8	
1000	Sodium	[214]		[255]		[154]		[443]		[301]		[260]		[535]		[258]	
2	Thallium																
10	Vanadium	[7.8]		[9.0]		[12.4]		[14.4]		40.5		22.7		89.6		[11.2]	
4	Zinc	52.4		58.5		65.9		253		842	K	743	K	1180	K	430	K
2	Cyanide									3.1							

CRDL = Contract Required Detection Limit *Action Level Exists SEE NARRATIVE FOR CODE DEFINITIONS

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EP TOXICITY RESULTS

Results of Analysis of EP Toxicity Extracts Job Number :9002.728

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : YP-2000 CONRAIL SITE - PHASE II
SAMPLE ID LAB :EE-90-91095 MATRIX: SOLID
SAMPLE ID CLIENT: W-1 UNITS : MG/L

PARAMETER		RESULTS	Q	DETECTION LIMIT	REGULATORY LEVEL
Mercury		ND		0.00080	0.20
Arsenic	(ICP)	ND		0.50	5.0
Barium	(ICP)	ND		5.0	100
Cadmium	(ICP)	ND		0.10	1.0
Chromium	(ICP)	ND		0.50	5.0
Lead	(ICP)	ND		0.50	5.0
Selenium	(ICP)	ND		0.50	1.0
Silver	(ICP)	ND		0.50	5.0

QUALIFIERS: C = COMMENT ND = NOT DETECTED
J = ESTIMATED VALUE B = ALSO PRESENT IN BLANK
L = PRESENT BELOW STATED DETECTION LIMIT

Results of Analysis of EP Toxicity Extracts Job Number :9002.728

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : YP-2000 CONRAIL SITE - PHASE II
SAMPLE ID LAB :EE-90-91096 MATRIX: SOLID
SAMPLE ID CLIENT: W-2 UNITS : MG/L

PARAMETER		RESULTS	Q	DETECTION LIMIT	REGULATORY LEVEL
Mercury		ND		0.00080	0.20
Arsenic	(ICP)	ND		0.50	5.0
Barium	(ICP)	ND		5.0	100
Cadmium	(ICP)	ND		0.10	1.0
Chromium	(ICP)	ND		0.50	5.0
Lead	(ICP)	ND		0.50	5.0
Selenium	(ICP)	ND		0.50	1.0
Silver	(ICP)	ND		0.50	5.0

QUALIFIERS: C = COMMENT ND = NOT DETECTED
J = ESTIMATED VALUE B = ALSO PRESENT IN BLANK
L = PRESENT BELOW STATED DETECTION LIMIT

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Results of Analysis of EP Toxicity Extracts Job Number :9002.728

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : YP-2000 CONRAIL SITE - PHASE II
SAMPLE ID LAB :EE-90-91097 MATRIX: SOLID
SAMPLE ID CLIENT: W-3 UNITS : MG/L

PARAMETER		RESULTS	Q	DETECTION LIMIT	REGULATORY LEVEL
Mercury		ND		0.00080	0.20
Arsenic	(ICP)	ND		0.50	5.0
Barium	(ICP)	ND		5.0	100
Cadmium	(ICP)	ND		0.10	1.0
Chromium	(ICP)	ND		0.50	5.0
Lead	(ICP)	ND		0.50	5.0
Selenium	(ICP)	ND		0.50	1.0
Silver	(ICP)	ND		0.50	5.0

QUALIFIERS: C = COMMENT ND = NOT DETECTED
J = ESTIMATED VALUE B = ALSO PRESENT IN BLANK
L = PRESENT BELOW STATED DETECTION LIMIT

Results of Analysis of EP Toxicity Extracts Job Number :9002.728

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : YP-2000 CONRAIL SITE - PHASE II
SAMPLE ID LAB :EE-90-91098 MATRIX: SOLID
SAMPLE ID CLIENT: W-4 UNITS : MG/L

PARAMETER		RESULTS	Q	DETECTION LIMIT	REGULATORY LEVEL
Mercury		ND		0.00080	0.20
Arsenic	(ICP)	ND		0.50	5.0
Barium	(ICP)	ND		5.0	100
Cadmium	(ICP)	ND		0.10	1.0
Chromium	(ICP)	ND		0.50	5.0
Lead	(ICP)	ND		0.50	5.0
Selenium	(ICP)	ND		0.50	1.0
Silver	(ICP)	ND		0.50	5.0

QUALIFIERS: C = COMMENT ND = NOT DETECTED
J = ESTIMATED VALUE B = ALSO PRESENT IN BLANK
L = PRESENT BELOW STATED DETECTION LIMIT

APPENDIX E

PHOTOGRAPHIC LOG

Ecology and Environment Engineering, P.C.

P H O T O G R A P H I C   R E C O R D

Client: New York State Dept. of Environmental Conservation (NYSDEC)   E & E Job No.: YP2000

Camera: Make Fuji - 35 mm   SN: N/A

Photographer: D. Johnson   Date/Time: 5-25-90

Lens: Type 50 mm   SN: N/A   Frame No.: 1

Comments: Photographers view east from Ice House (access) road including old landfill operation weighing station foundation. Railroad tracks are located directly northeast of the foundation. Note: Date 1961 is inscribed in corner of foundation.

02[UZ]YP2080:D3314/4798

Ecology and Environment Engineering, P.C.

PHOTOGRAPHIC RECORD

Client: New York State Dept. of Environmental Conservation (NYSDEC) E & E Job No.: YP2000

Camera: Make Fuji - 35 mm SN: N/A

Photographer: D. Johnson Date/Time: 5-25-90

Lens: Type 50 mm SN: N/A Frame No.: 2

Comments: Photographers view southwest from Ice House (access) road including landfill berm located on east side of Conrail site. Berm is approximately 4 feet in height at this location. Note: "No Dumping" sign attached to telephone pole.

02[UZ]YP2080:D3314/4798

Ecology and Environment Engineering, P.C.

PHOTOGRAPHIC RECORD

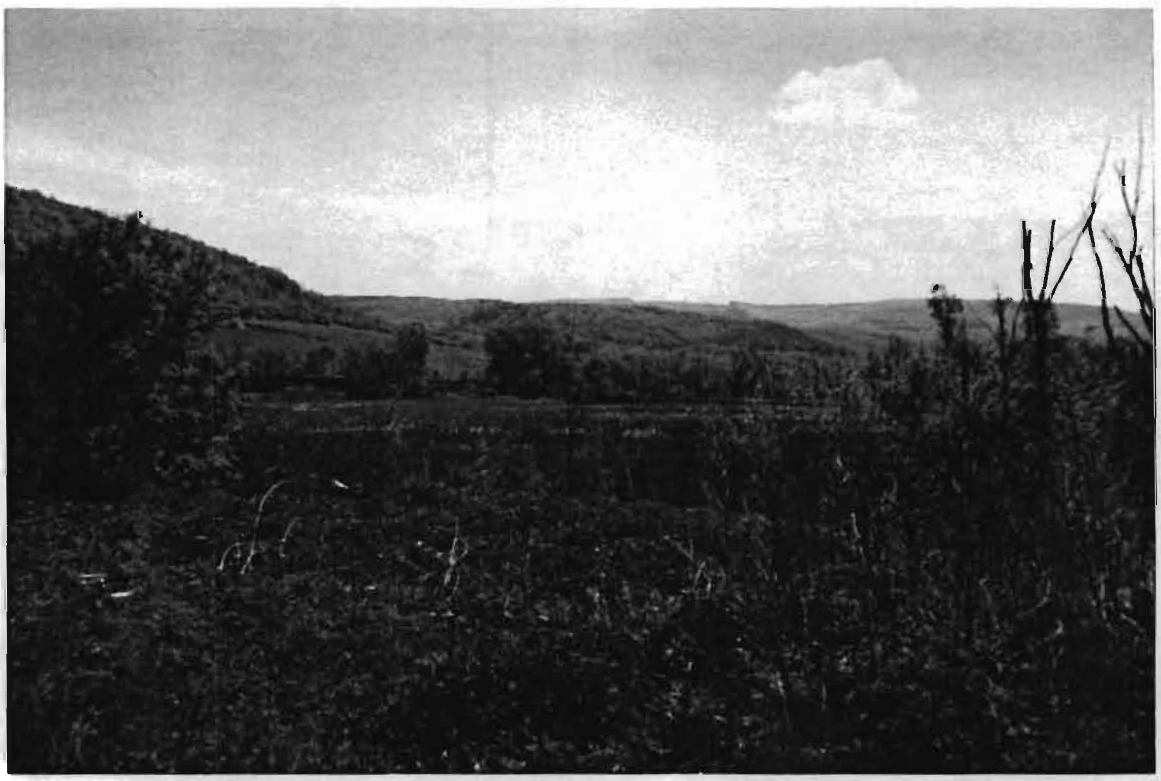
Client: New York State Dept. of Environmental Conservation (NYSDEC) E & E Job No.: YP2000

Camera: Make Fuji - 35 mm SN: N/A

Photographer: D. Johnson Date/Time: 5-25-90

Lens: Type 50 mm SN: N/A Frame No.: 3

Comments: Photographer's view east from landfill of low, intermittently saturated surrounding area (Canisteo River floodplain). Note: proposed location of groundwater monitoring well point GW-5: and photo includes wetlands area HR-8 as regulated according to the Freshwater Wetlands Act (1985).



02[UZ]YP2080:D3314/4798

Ecology and Environment Engineering, P.C.

PHOTOGRAPHIC RECORD

Client: New York State Dept. of Environmental Conservation (NYSDEC) E & E Job No.: YP2000

Camera: Make Fuji - 35 mm SN: N/A

Photographer: D. Johnson Date/Time: 5-25-90

Lens: Type 50 mm SN: N/A Frame No.: 4

Comments: Photographers view southeast from landfill of low, highly saturated surrounding area (floodplain) in closer proximity to Canisteo River than frame no. 3. Note: Entire area is heavily vegetated; and photo includes wetlands area HR-8 as regulated according to the Freshwater Wetlands Act (1985).

02[UZ]YP2080:D3314/4798

Ecology and Environment Engineering, P.C.

P H O T O G R A P H I C   R E C O R D

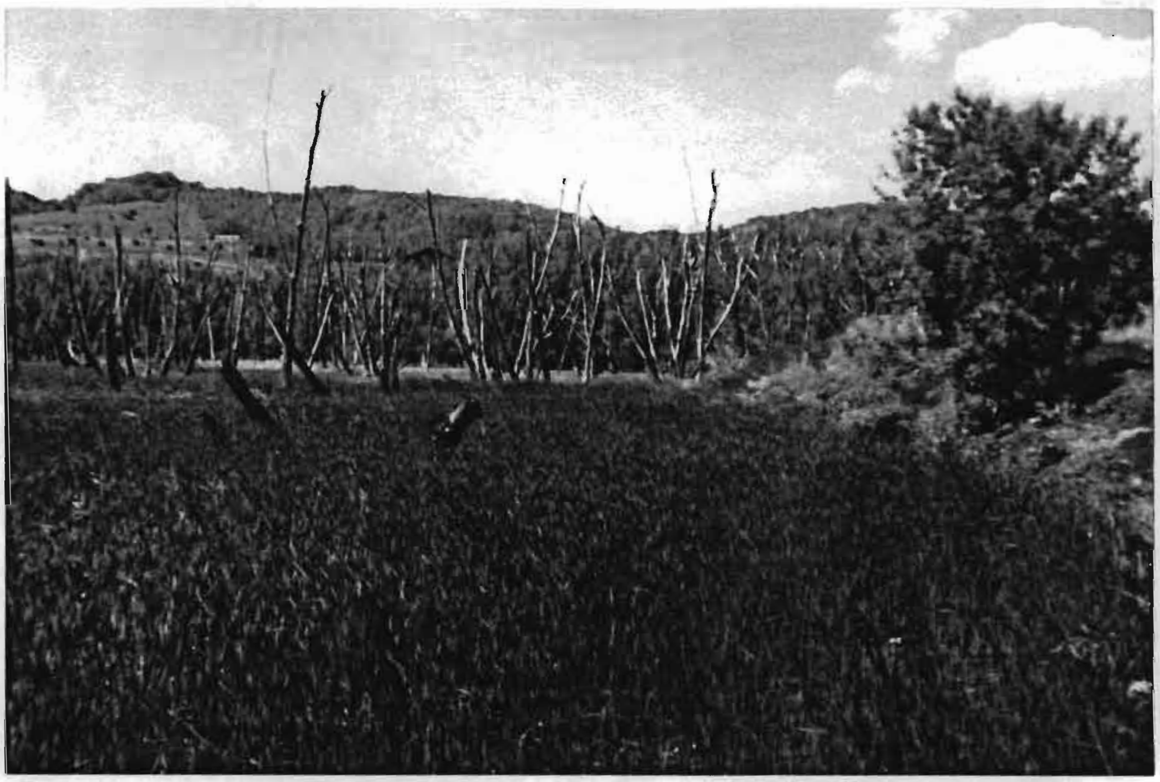
Client: New York State Dept. of Environmental Conservation (NYSDEC) E & E Job No.: YP2000

Camera: Make Fuji - 35 mm SN: N/A

Photographer: D. Johnson Date/Time: 5-25-90

Lens: Type 50 mm SN: N/A Frame No.: 5

Comments: Photographers view southwest from southeast extent of landfill. Approximately 15 feet of relief exhibited by landfill at this boundary. Note: proposed location of groundwater monitoring well point GW-4; and photo includes wetlands area HR-8 as regulated according to the Freshwater Wetlands Act (1985).



02[UZ]YP2080:D3314/4798

Ecology and Environment Engineering, P.C.

P H O T O G R A P H I C   R E C O R D

Client: New York State Dept. of Environmental Conservation (NYSDEC)   E & E Job No.: YP2000

Camera: Make Fuji - 35 mm   SN: N/A

Photographer: D. Johnson   Date/Time: 5-25-90

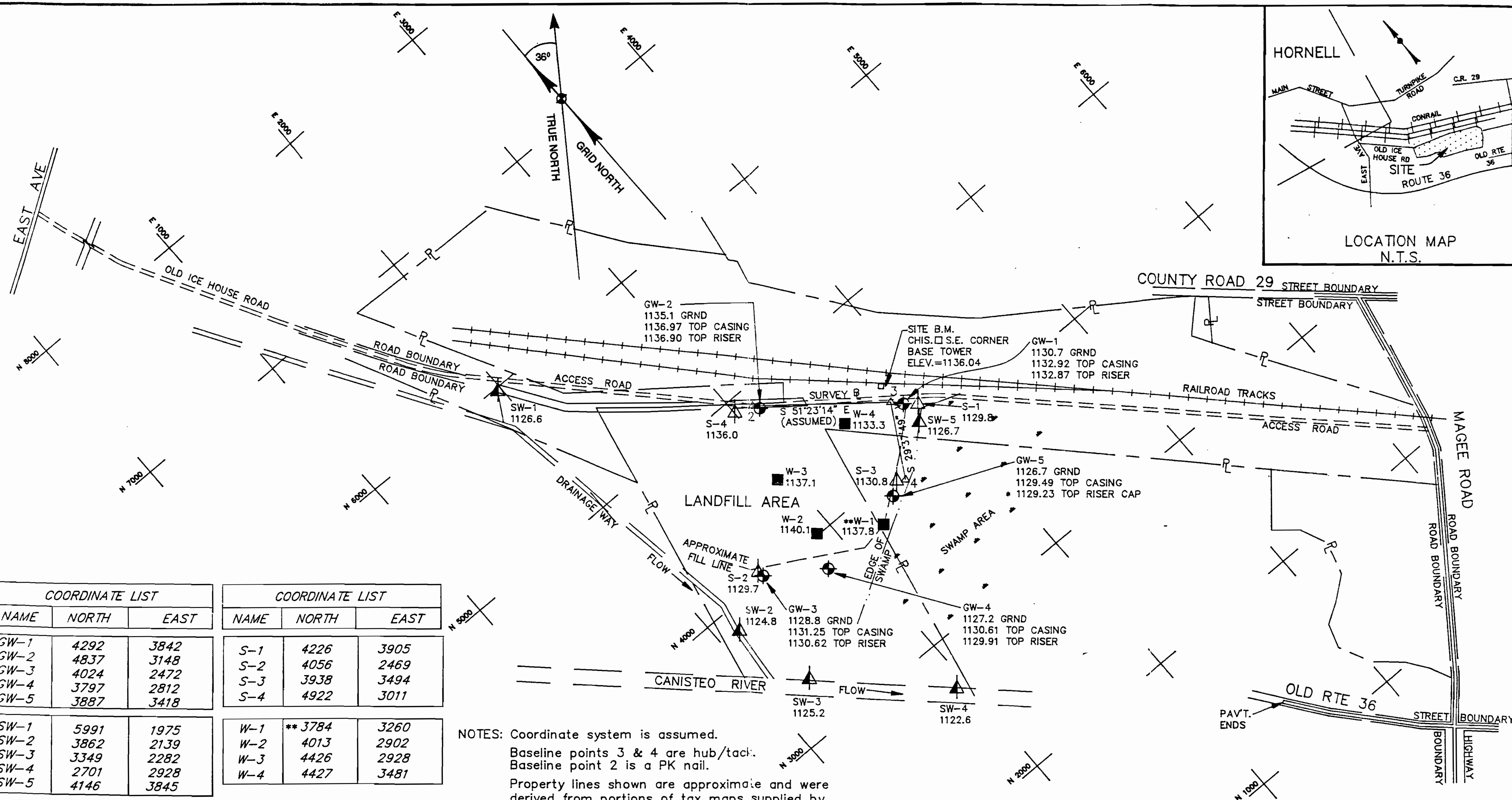
Lens: Type 50 mm   SN: N/A   Frame No.: 6

Comments: Photographer's view southwest corner of site from south central extent of landfill. Standing surface water is clearly visible. Note: Southwest corner of site is proposed location for groundwater monitoring well point GW-3; and photo includes wetlands area HR-8 as regulated according to the Freshwater Wetlands Act (1985).

02[UZ]YP2080:D3314/4798

APPENDIX F

CONRAIL SITE SURVEY MAP



COORDINATE LIST

NAME	NORTH	EAST
GW-1	4292	3842
GW-2	4837	3148
GW-3	4024	2472
GW-4	3797	2812
*GW-5	3887	3418
SW-1	5991	1975
SW-2	3862	2139
SW-3	3349	2282
SW-4	2701	2928
SW-5	4146	3845
PK 2	4882.41	3117.58
HUB 3	4346.43	3788.69
HUB 4	3914.71	3543.14

COORDINATE LIST

NAME	NORTH	EAST
S-1	4226	3905
S-2	4056	2469
S-3	3938	3494
S-4	4922	3011
W-1	** 3784	3260
W-2	4013	2902
W-3	4426	2928
W-4	4427	3481

NOTES: Coordinate system is assumed.

Baseline points 3 & 4 are hub/tack. Baseline point 2 is a PK nail.

Property lines shown are approximate and were derived from portions of tax maps supplied by Ecology & Environment, Eng.,P.C.

Elevations are referenced to monument R133, elevation 1136' per U.S.G.S. quadrangle Canisteo.

Site benchmark is a chiseled '□' at the southeast corner concrete base for tower, elevation=1136.04.

* Could not remove riser cap, elevation is top of cap.

** Approximate location for W-1, could not find in field.

LEGEND

- MONITORING WELL
- SURFACE SOIL SAMPLE LOCATION
- SURFACE WATER/SEDIMENT SAMPLE LOCATION
- LEACHATE SAMPLE LOCATION
- WASTE PILE SAMPLE LOCATION

REVISED: 04/24/91 CHANGED COORDINATE SYSTEM, ADDED RVIER, REMOVED L-1

ENGINEERING INVESTIGATIONS AT CONRAIL Site No. 851002

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
02/26/91	1"=600'	1

APPENDIX G

GEOTECHNICAL ANALYSIS

Project No. 11420	TOLEDO TESTING LABORATORY, INC.	Sheet 1 Of 1

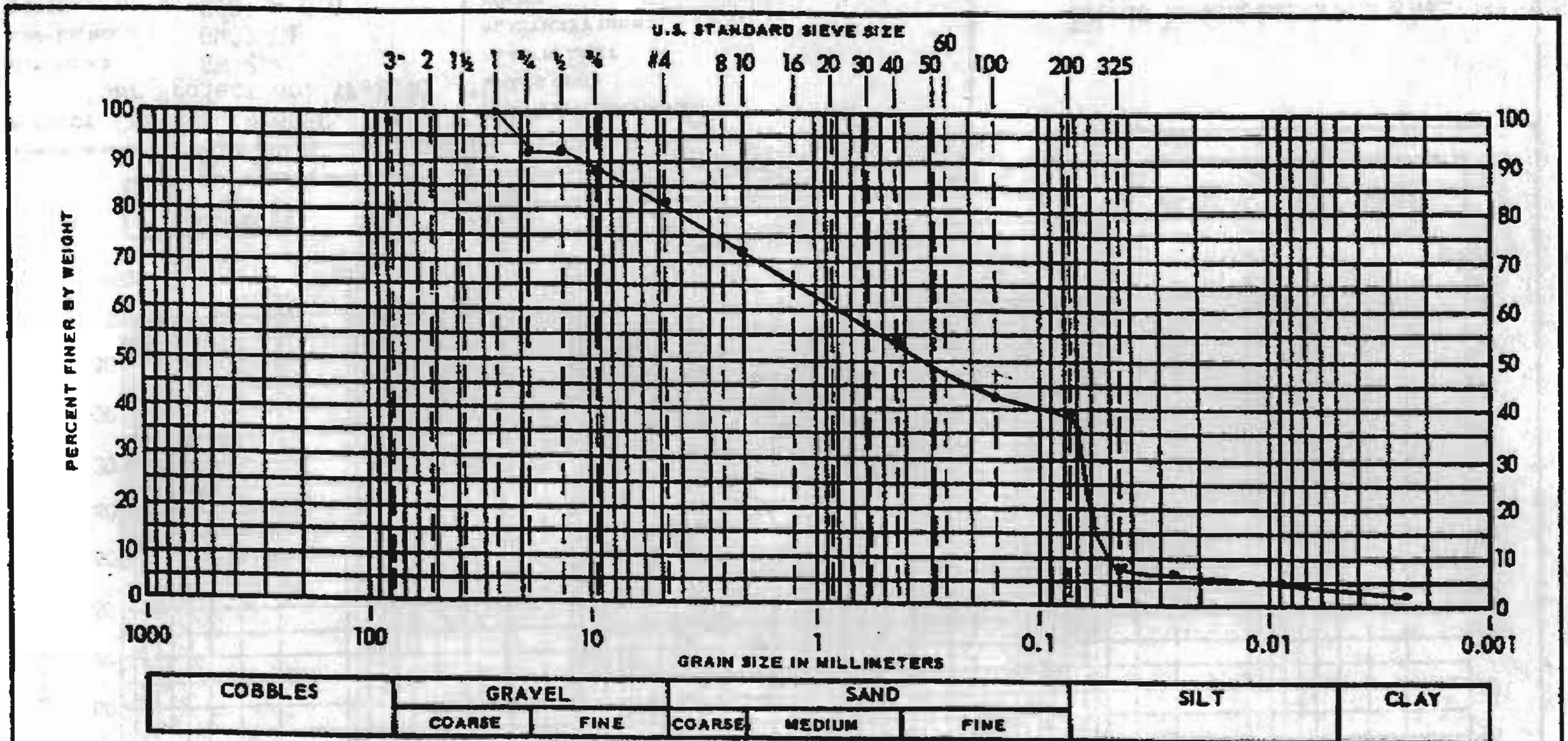
TABULATION OF TEST DATA

Test Boring or Test Pit Number	Sample Number	Depth of Sample	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: Gravel (Percent)	Coarse Sand (Percent)	Medium Sand (Percent)	Fine Sand (Percent)	Silt (Percent)	Clay (Percent)	Colloids (Percent)	Atterberg Limits: Liquid Limit (Percent)	Plastic Limit (Percent)	Plasticity Index (Percent)	Unified Soil Classification System Designation
GW-1	GW01-01	4'-7'							19	10	17	15	36	3					
GW-1	GW01-02	7'-8'														43	25	18	CL
GW-2	GW02-01	2'-6'							19	18	24	16	19	4					
GW-2	GW02-02	10'-12'														37	22	15	CL
GW-3	GW03-01	4'-5'														50	28	22	CL/CH
GW-4	GW04-01	4'-6'														51	29	22	MH/CH
GW-5	GW05-01	1'-3'														48	30	18	ML

G-2

Figure 1

SOIL CLASSIFICATION SHEET



PROJECT Conrail, NYSDEC, Phase 2
Your Project No. YP-2040
BORING NO. GW-1
SAMPLE NO. GW01-01
DEPTH 4.0' - 7.0'
CLASSIFICATION

NATURAL % MOISTURE
LIQUID LIMIT
PLASTIC LIMIT
PLASTICITY INDEX
COLOR
REMARKS Your P.O. No. 54964
T.T.L. Job No. 11420

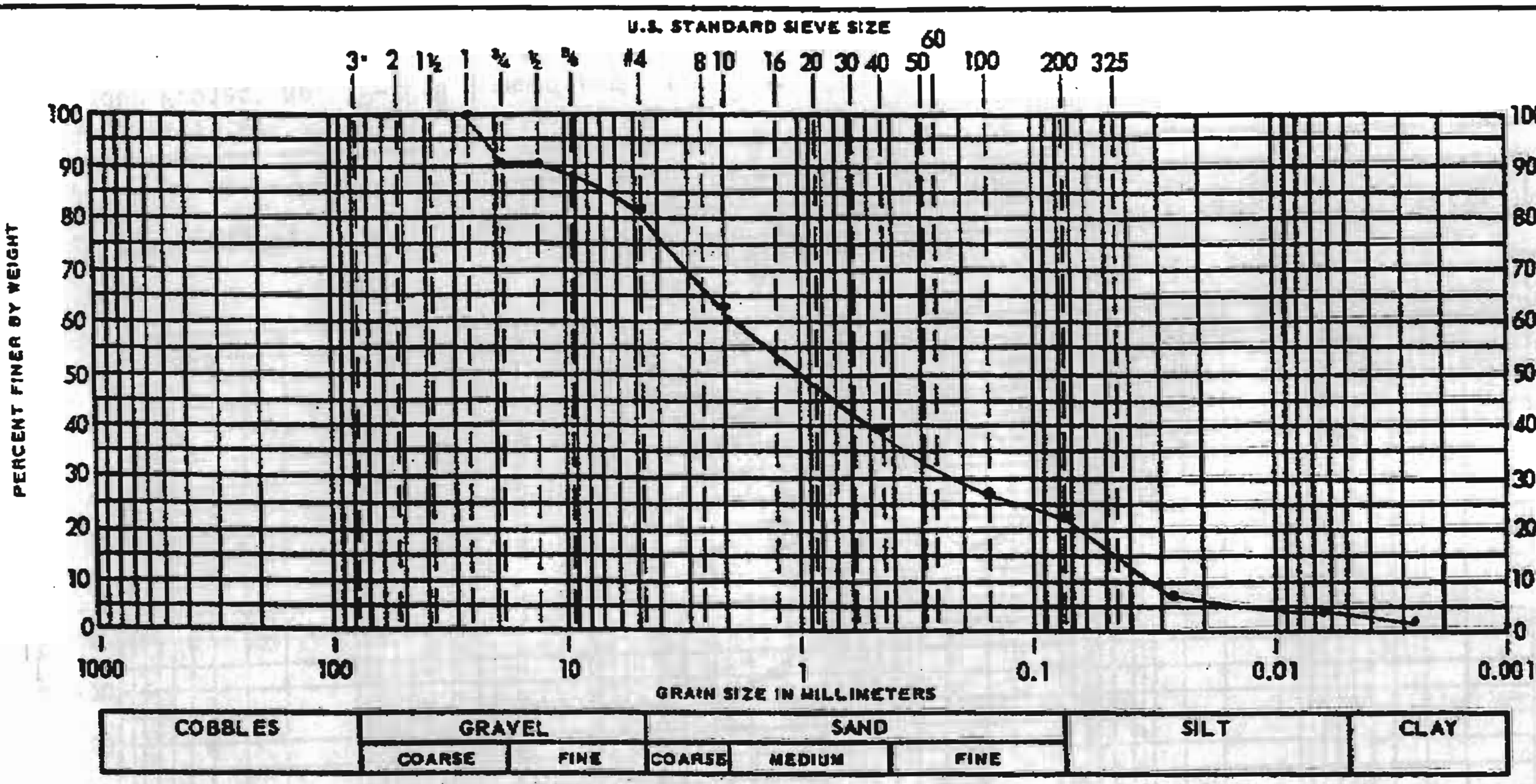
Toledo Testing Laboratory, Inc.

recycled paper

ecology and environment

Figure 2

SOIL CLASSIFICATION SHEET



PROJECT Conrail, NYSDEC, Phase 2
Your Project No. YP-2040

BORING NO. GW-2

SAMPLE NO. GW02-01

DEPTH 2.0' - 6.0'

CLASSIFICATION

NATURAL % MOISTURE

LIQUID LIMIT

PLASTIC LIMIT

PLASTICITY INDEX

COLOR

REMARKS Your P.O. No. 54964
T.T.L. Job No. 11420

Toledo Testing Laboratory, Inc.

Figure 3

APPENDIX H

FIELD NOTEBOOKS

THURSDAY 4 OCTOBER 1990 YP2040

1650 Augered to 2ft OVA reading of 4 → 6ppm, HNu < 1ppm.

1653 Continued Augering to 4Ft. 0 → 4ppm on OVA <1 on HNu, Bob's (NEC) photovac micro tip was reading 2 → 4ppm in hole. (10.6 EV ionization potential)

1705 Augered to 6Ft. 1ppm in hole, Bob's Photovac read 0ppm. Will take 6 → 8' split spoon.

1710 Split spoon from 6 → 8' read 5 → 10ppm on OVA + photovac, 1 → 3 ppm on HNu, fluctuated to 8ppm once. Collected 2 VOA* samples for TCL 4 ½ 8oz

1720 Split spoon from 8' → 10' read 0 → 1ppm on OVA. Photovac read 5ppm. Piece of apparent Rai(l)road tie read 7ppm on Photovac, 1 → 2ppm on OVA.

1725 Augered to 10Ft. Readings were 5 → 10ppm in hole on OVA, HNu & Photovac. Soils are reading < 1ppm. Slight creosote odor.

1740 Split spoon 10' → 12'. No readings on any instrument.

1748 Pull up the augers 3' to see if water enters hole

1750 Water @ 7.5' BGS.

* SAMPLE @ 1710 to full TCL/TAL, But only got ½ 8-oz jar.

John Hood will deliver sample to ASC as he is leaving tonight + Don Johnson will join us tomorrow.

1840 All leave site after completing C-O-C + paperwork

R. Watt 10-4-90

THURSDAY 4 OCTOBER 1990 YP2040

EQUIPMENT USED:

OVA	01-01-014
HNu	01-02-002
O_2/CG/H_2S meter	01-03-007-15
WL indicator	13-03-010
Brunton Compass	05-01-002
100' Measuring tape	05-02-002
Turbidimeter	02-03-003
pH/cond./temp. meter	02-01-011
Van	ZDX-144
1st Aid Kit	02-02-004
Rad mini	08-01-002

R. Watt 10-4-90

FRIDAY 5 OCTOBER 1990 YP2040

WEATHER: Sunny, clear, calm 55°/70°F

PERSONNEL: Rick Watt - E&E FTL
Don Johnson - E&E SSO
Lee Penrod - Amer. Auger Driller
Derek Grieve - Amer. Auger Helper
Bob Long - NYSDEC rep. (Reg. 8)

0735 Rick stops to purchase ice + batteries.
0745 Rick, Lee, Derek, + Bob arrive on site.
0755 Scout out locations of 3 well points to see if 4-wheel drive vehicle can be used for access.
0835 Return from hike over the landfill. Located only GW-3 but we walked the entire boundary. Can probably access all 3 locations from GW-1 area. On the cover surface back near GW-3 we saw assorted debris including wood (RR ties), scrap metal (ferrous), coal, concrete, etc. There are also numerous deer + animal trails throughout + also many large animal (fox?) burrows throughout the fill area.
Lee goes to call Rocky.
0915 Lee returns. Rick collects drill water sample DW-1
0920 GW-2 WL = 7.2' BGS.
Will set 4.5' of screen from 6-10.5'. Bentonite pellet seal from 3.5-5' + grout 0-3.5'.
screen: 2" ID, 0.010" slot, schedule 40 PVC
riser: 2" ID, threaded, flush joint, schedule 40 PVC.
0930-0940 Derek decons screen + riser
0940 Drillers set 3 7/8" roller bit + begin water rotary in order to clean out the auger bit.
0950 Complete water rotary. Set well. TD = 10.3' BGS
1030 Complete well with locking steel casing (5')
Don Johnson arrives.

R. Watt 10-5-90

FRIDAY 5 OCTOBER 1990 YP2040

1031 Bob Long leaves to make a phone call.
1035 - 1105 Decon rig + all equipment.
1115 Begin GW-1. Bob Long returns.
1126 - OVA response at MW-1 boring, SS-1 = 0 ppm above background (0.8 ppm)
Explosimeter reads = 8% LEL
O_2 reading = 21.1%
H_2S reading = 0.4 ppm

1130 - Hollow stem auger readings @ 2' below ground surface = 1.25 ppm
Explosimeter = 003 ≈ 3% LEL
O_2 = 21.1%
H_2S = 0.3 ppm

1153 - OVA response @ SS-3 (6'-8') Sample B-1 7 ppm (above background)
No HNU response, therefore, assumed to be a methane indication w/ OVA
6 ppm OVA response @ HSA
Explosimeter - 005 ≈ 5% LEL
O_2 = 21.2%
H_2S = 0.3 ppm

1210 - OVA response in HSA @ 10.0' below ground surface = 4 ppm, No HNU response
0% LEL
21.1% O_2
0 ppm H_2S

R. Watt 10-5-90

FRIDAY 5 OCTOBER 1990 YP2040

1255 After flushing out auger bit w/ 3 7/8" roller bit, set well to 10'.
2" ID 0.010" slot sch.40 PVC screen 10-5'
2" ID, threaded, flush joint, sch. 40 PVC riser.
Sand (#3) 4-10.5'
Bentonite seal 3-4'
Grout 0-3'

* collected 2 geotechnical samples:
GW01-01 4-7' GRAIN SIZE
GW01-02 7-8' ATTERBERGS.

1300 Derek begins decon while Lee completes well.
1410 GW-1 completed as listed above + with locked steel protective casing (5' long)
Drillers pack up. (Completed decon @ 1340).
Don + Rick search for GW-4 + GW-5
Bob Long off site.
1430 Don + Rick return - have located 4+5.
Drillers nearly through packing.
1515 All leave site - Don + Rick head to HQ.
1710 Return to HQ

R. Watt 10-5-90

H-6

MONDAY 8 OCTOBER 1990 YP2040

WEATHER: Overcast, occassional showers, light W wind, 55°F
PERSONNEL: Rick Watt - E+E FTL
John Hood - E+E SSO
Lee Penrod - American Auger Driller
Rocky Baye - American Auger Driller
Derek Grieve - American Auger Helper
Bob Long - NYSDEC rep. (Reg. 8 - Avon)
OBJECTIVE: INSTALL WELL POINTS GW-3, GW-4, + GW-5

0800-1010 - Rick + John mobilize
1010-1208 - Travel to site. Drillers + NYSDEC already on site. Drillers are unloading. They have brought a power hand auger, a 4x4 pickup, and a 4 wd ATV w/ trailer to access GW-3, 4, +5.
1230 Derek begins decon of equipment. Rocky + Lee walk to GW-3 to find easiest access route. John goes to call office. Upon return, conduct safety mtg.
1330 Finish unloading gear @ GW-3
1333 Begin boring
1339 Collect split spoon from ~~@~~ 2-4'
Collect sample B-3 (2-4') Full TCL/TAL
OVA read >1000ppm in hole. 0 in breathing zone.
3 → 10ppm on cuttings.
1350 From cuttings - 0-5' is brown moist clayey silt
Down near 5' we hit grey silty clay.
Hit water @ 5.0' BGS
Stopped augering @ 5' - will have to drive the well the rest of the way.
1400 Collect geo tech. sample GW03-01 (4-5') Atterberg.
1410 Lee + Derek go to decon + to mix grout.
The well point is now driven.

R. Watt 10-8-90

MONDAY 8 OCTOBER 1990 YP2040

Well materials used:
screen : schedule 5 stainless steel, 0.006" slot, 2" ID
riser : sch. 5 stainless, 2" ID

screen ~~4.8-9.8'~~ 5-10'
sand : 4.0-5.0'
seal : 3.0-4.0' (bentonite pellets)
grout : 0-3.0'
Furnished w/ locking steel protective casing (5').

1500 GW-3 completed. Move to GW-4
1520 Begin augering.
1530 Auger to 44" collect splitspoon 44"-~~68~~ 72".
Water @ 24" BGS.
we hit water near 3-3.5' but it came up to 24".
1540 Collect sample B-4 (4-6') TCL/TAL
Collect geotech sample GW04-01 (4-6') (Atterberg)
FROM CUTTINGS:
0-2' brown ~~si~~ clayey silt (moist)
2-3 or 3.5' grey clayey silt (moist)
4-6' motled grey + brown clay (damp)
1545 Drillers cut riser.
Agree w/ Bob Long re: well design.
use same materials as above.
screen : 3-8'
sand : 2.5'-44"
seal : 2-2.5' (Bentonite pellets.)
grout : 0-2'
1615 Complete GW-4.
Derek goes to decon.

R. Watt 10-8-90

H-7

MONDAY 8 OCTOBER 1990 YP2040

1655 Begin augering GW-5.
OVA reading 30-40 ppm in breathing zone due to "swamp gases" - methane derived from decaying organic matter.
From cuttings: 0-6" black decaying organic material.
6"-5' wet grey clay
5-6' Dark brown clayey silt (damp.

There is surface standing water @ this location. Nearby, the water has an oil sheen, & there is apparently an orange leachate seep within 15' of GW-5.

With auger hole to 3', water comes up to near surface. Continue augering to 4' BGS.

1700 Drive split spoon 4-6'.
Collect sample B-5 (4-6') Full TCL/TAL
Collect geotech. sample GW05-01 (1-3') Atterbergs

1745 GW-5 completed with materials as described above:
screen : 8.0-3.0'
sand : N/A *
seal : 2-2.5'
grout : 0-2'

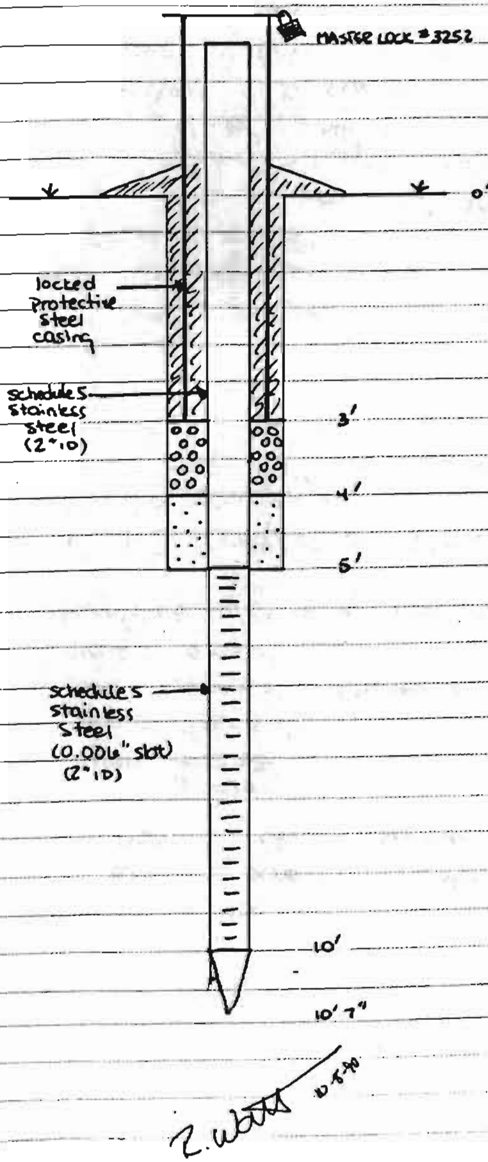
* No sand was used because the hole collapsed around the riser to 2.5' BGS.

1825 After 1/2 hr decon, all leave site

R. Watt 10-8-90

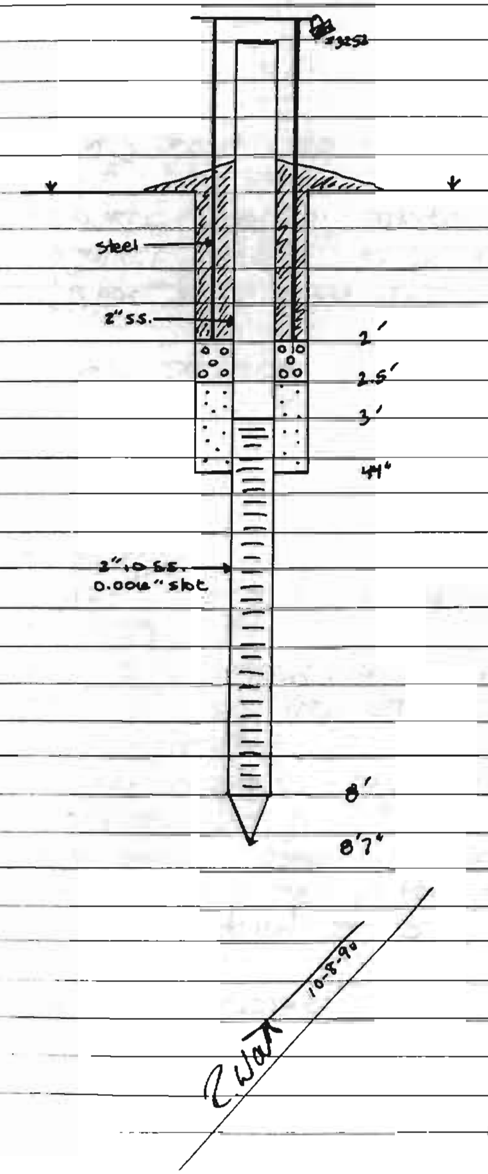
MONDAY 8 OCTOBER 1990 YP2040

GW-3 well diagram:



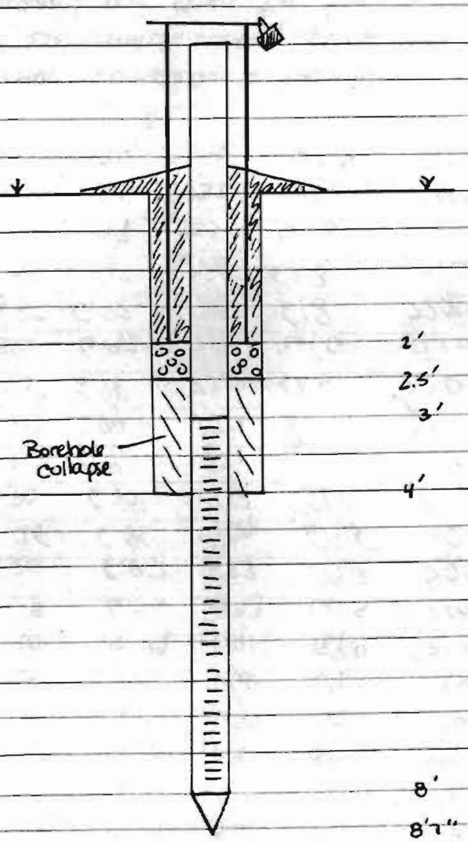
MONDAY 8 OCTOBER 1990 YP2040

GW-4 well diagram:



MONDAY 8 OCTOBER 1990 4P2040

GW-5 well diagram:



R. Watt 10-8-90

H-9

TUESDAY 9 OCTOBER 1990 4P2040

WEATHER: Overcast, calm, 50°F. Chance of showers.

PERSONNEL: Rick Watt - E&E FTL
John Hood - E&E SSO
Rocky Baye
Lee Penrod } American Auger
Derek Grieve

OBJECTIVE: Well development.

0755 All arrive on site. Prepare to develop GW-1 + GW-2.

0815 Rick calls HQ regarding development of GW-3, 4 + 5. Bob Long (NYSDEC) agreed yesterday that they should not be developed. The reason is that 1) no filter pack exists around the screen; 2) no water was introduced to the ground 3) removing large volumes of water + surging the well points will bring a lot of fine materials into the screen creating a void outside the screen. The surrounding fine material (its all silt + clay) will then collapse into the void creating a slurry which will fill up the screen.

0850	GW-1	WL = 4.9' TOC	2.65' BGS
		TD = 12.6' TOC	10.35' BGS
0857	GW-2	WL = 9.45' TOC	7.5' BGS
		TD = 12.65' TOC	10.7' BGS

0910 Begin well development

1125 GW-1 + GW-2 are developed.

1135 Rocky + ~~Bob~~ Rick go to call Val Lauzze, NYSDEC Albany. After conferring w/ Walt Demick, Val agrees that we should not develop the well points for the reasons stated above. Continue packing equipment. Rick put orange flagging tape in the trees near the well points so that the samplers could find them.

R. Watt 10-9-90

TUESDAY 9 OCTOBER 1990 YP2040

GW-2

TIME	GALLONS PURGED	pH	COND. (µS/cm)	TEMP. (°F)	TURBIDITY (NTU)	
0912	0	7.10	535	58.6	>200	Water is black
0914	1	6.88	599	58.8	>200	
0916	2	6.78	653	59.3	>200	There's only 2' of standing
0918	3	6.77	655	59.2	>200	water, but ~~we get~~ The static
0920	5	6.82	666	59.9	>200	level is not dropping as
0928	10	6.79	671	59.9	>200	we bail
0935	15	6.76	699	60.3	>200	
0945	20	6.87	693	60.3	>200	
0955	25	6.86	704	60.5	>200	
1003	30	6.90	713	61.0	>200	
1011	35	6.93	721	61.2	>200	
1019	40	6.94	720	61.4	>200	
1026	45	6.94	771	61.5	>200	
1030	50	6.92	717	61.6	>200	
1043	55	6.98	718	61.8	>200	
1051	60	6.95	726	61.8	>200	
1056	65	6.99	723	62.0	>200	
1103	70	6.93	732	62.1	>200	
1111	75	6.96	719	62.5	>200	

Development complete - Turbidity still >200 but water cleared up considerably from the start. However, it has not cleared up over the last 20-25 gallons

Z. Watt 10-9-90

TUESDAY 9 OCTOBER 1990 YP2040

~~GW-2~~ GW-1

TIME	GALLONS PURGED	pH	COND (µS/cm)	TEMP. (°F)	TURBIDITY (NTU)
0919	∅ Started				
1120	117*	7.16	796	62.4	>200
1124	120	7.17	776	62.4	>200
	3m				
	5m				

* Rocky began bailing GW-1 while we were @ GW-2. He didn't know that we took readings on the water. When we arrived after completing GW-2, he had bailed 117 gal. He said the water was black + sediment laden to start. It is still >200 NTU but has cleared up considerably. However it has not cleared up any over the last 40 gal. or so.

1330 All leave site. Drillers head to next site in Macedon. John + Rick head to E+E ESC + ASC.

1515 Arrive back in Buffalo.

Z. Watt 10-9-90

ecology and environment, inc.
International Specialists in the Environment

Job Number YP2060

CONRAIL SITE
HORNELLSVILLE, NY

SAMPLING LOGBOOK

THURSDAY NOVEMBER 1, 1990

0645 C. EICH LEAVES HOME IN RENTAL VAN LIC# ZEY530 TO PICK UP M. WITNAUER

0700 C. EICH + M. WITNAUER LEAVE FOR E+E ESC.

0735 PICK UP HNU, pH/TEMP. METER, COND. METER, TURBID. METER, WATER LEVEL IND. BAILERS + DISPOSABLES.

0800 DEPART ESC FOR CONRAIL SITE.

WEATHER: SUNNY, 55°, WINDS LIGHT.

EQUIPMENT: RENTAL VAN

pH METER	02-01-030
COND. METER	02-01-033
TURBID. METER	02-03-002
WATER LEVEL IND.	13-03-11
HNU	

1030 ARRIVE ON-SITE, INFORMED CONRAIL PERSONNEL OF OUR PRESENCE + PURPOSE OF TRIP. (PURGE 5 WELLS TODAY AND COLLECT GW, SW + SOIL SAMPLES TOMORROW.)

Chad Eil 11-1-90

11-1-90

1045 CALIBRATED HNU TO 54 ppm @ SPAN OF 9.1 w/ 10.2 EV PROBE

STANDARDIZED TURBIDITY METER w/ 0.4 NTU STANDARD.

BACKGROUND HNU READING AT N.E. CORNER OF SITE 0.2 ppm. (NEAR WELL GW-1)

pH + COND. METERS WERE CALIBRATED AT ESC. DONNED TYVEKS, BOOTIES + GLOVES.

1100 OPENED GW-1 - 0 ppm ABOVE BACKGROUND ON HNU

W.L. 3.73' TOC (PVC)

TD 12.15' TOC

~4 GALS TO PURGE

1112 BEGAN PURGING GW-1

	TEMP	pH	COND (μMOHMS)	TURB.	COMMENTS
	16.8°C	6.65	921	>200	RUSTY COLOR
1124	14.3°C	6.69	870	>200	4 GALS PURGED DARK BROWN.

1141 AT WELL GW-5 - 0 ppm ON HNU.

W.L. ~1" ABOVE GROUND SURFACE

T.D. 10.0' TOC

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1144 BEGAN PURGING GW-5

TEMP	pH	COND (umohms)	TURB
16.8°C	6.80	1696	>200

PURGED ~1.5 GALS OF WATER + MUD. WELL STILL HAS ~1' OF MUD STILL IN IT. BAILED DOWN TO MUD. NO WATER LEFT FOR END READINGS.

1211 AT WELL GW-4 - 0ppm ON HNu
W.L 2.85' TOC (INNER STEEL)
T.D 10.27' TOC (" ")
T.D. 7.6' BGS
W.L. ~.3' BGS

1218 BEGAN PURGING GW-4

	TEMP	pH	COND	TURB	COMMENTS
	14.5°C	6.61	1637	>200	GREENISH BLACK
1224	11.6°C	6.63	1616	>200	" " 4 GALS PURGED

1231 AT GW-3. 0ppm ON HNu
W.L. 2.65' TOP OF INNER CASING.
T.D. 11.5' " " " "
W.L. 0.75' BGS
T.D. 9.65' BGS

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~5 GALS TO PURGE

TIME	TEMP	pH	COND	TURB	COMMENTS
1239	13.9°C	6.46	1726	>200.	ORANGY COLOR

1240 ~2 GALS PURGED + WENT DRY.
~3"-4" OF SOUPY MUD IN BOTTOM OF WELL + BAILER. BAILED OUT AS MUCH MUD AS POSSIBLE.
NO WATER LEFT FOR FINAL READINGS.

1259 AT WELL GW-2 - 0ppm ON HNu
W.L.: 7.71' TOC (INNER)
TD. 12.15' TOC "
TD 10.33' BGS
W.L. 5.9' BGS
~3.5 GALS TO PURGE

TIME	TEMP	pH	COND (umohms)	TURB	COMM.
1305	16.8°C	6.50	1020	>200	BLACK
1310	15.9°C	6.48	799	>200	" 3.5 GALS PURGED

PACKING UP TO DEPART SITE.
1325 LEFT SITE.
STOPPED FOR LUNCH
1610 ARRIVED AT E+E ESC.

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H-13

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FRIDAY NOVEMBER 2, 1990
WEATHER: PTLY SUNNY, WARM. WINDS LT.
SAME EQUIPMENT + PERSONNEL AS 11/1
0655 M. WITNAUER PICKED UP C. EICH IN RENTAL VAN
DROVE TO E+E ASC TO GET SAMPLE BOTTLES + PRESERVATIVES
0720 DROVE TO E+E ESC TO GET COOLERS, VERMIC. + REMAINING BOTTLES.
0800 DEPART FOR SITE.
1000 ARRIVE ON-SITE, STOPPED FOR ICE ON WAY.
LABELED BOTTLES FOR 1ST SET OF SAMPLES TO BE COLLECTED
CALIBRATED HNu, pH METER + TURBIDITY METER.
1040 DONNED TYVEKS, BOOTS + GLOVES + WALKED BACK TO GW-~~4~~ 3
1057 AT GW-3. 0ppm ON HNu
W.L. 2.68' TOC, 0.8' BGS

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11/2/90
1100 COLLECTED SAMPLE GW-3
pH TEMP COND TURB.

1110 COLLECTED SAMPLE SW-2
SOUTH OF GW-3 ~ 150 YDS.
1116 COLLECTED SAMPLE SED-2
1127 COLLECTED SAMPLE S-2.
N OF GW-3 FROM SIDE OF EMBANKMENT UNDERNEATH RR TIES PROTRUDING FROM EMBANKMENT.
1134 AT GW-4. 0 ppm ON HNu
W.L. 2.95' TOC
0.3' BGS
1140 COLLECTED SAMPLE GW-4
pH TEMP COND TURB
1150 COLLECTED SAMPLE SW-3
FROM CREEK SOUTH OF SITE
1153 COLLECTED SAMPLE SED-3
WALKED SAMPLES BACK TO VAN + PACKAGED THEM
1250 COLLECTED SAMPLE SW-1 MS/MSD
S. OF ACCESS RD. AT POINT WHERE STREAM FLOWS UNDER RD.

[signature] 11-2-90

STREAM IS NOT VISIBLE NORTH
OF ACCESS RD., NOR ON SOUTH SIDE
OF R.R. TRACKS 11-2-90

1300 COLLECTED SAMPLE SED-1
PACKAGED SAMPLES
1339 AT WELL GW-5. 0ppm
ON HNU
W.L. 7.95" TOC
1343 BEGAN SAMPLING GW-5
WALKED S.E. BEYOND
WETLAND. LOCATED SEVERAL
SMALL DEPRESSIONS (STREAM-LIKE)
BETWEEN WETLAND + CANISTER
1402 RIVER. COLLECTED SAMPLE SED-4
FROM POINT WHERE 2-3 SMALL
DITCHES COME TOGETHER
NO WATER FOR SW SAMPLE.
1420 COLLECTED METALS VOA'S + 1/3
OF CN BOTTLE FROM GW-5.
WILL LET RECHARGE
WALKED SOUTHERN EDGE OF
LANDFILL + SAW NO ACTIVE
OR INACTIVE LEACHATE SEEPS
NO LOCATION NOTICED FOR SOIL
OR SEDIMENT LEACHATE SAMPLE
EITHER
1435 COLLECTED SAMPLE SW-5 + SED-5
RUSTY COLOR OIL-LIKE SHEEN, R.R.
TIES NEAR. RUST COLOR SLIME 11-2-90

11/2/90
1440 OPENED GW 1. 0ppm ON
HNU COLLECTED SAMPLE GW-1
WL 3.83' TOC, 1.7' BGS
pH TEMP COND TURB >200
1500 Opened GW-2 0ppm on
Hnu
WL 7.71' TOC 5.8' BGS
Ph Temp Cond Turb>200
1506 COLLECTED SAMPLE S-1
BACKGROUND, ~~WEST~~ RE EAST
OF GW-1, + ~6' NORTH
OF 1ST TELEPHONE POLE.
(S-1 LOCATION IN WORKPLAN IS
IN THE MIDDLE OF THE SWAMP)
1512 GOING BACK TO GW-5
1520 COLLECTED SAMPLE S-3
FROM PILE OF FILL-LIKE MATERIAL
(BROKEN GLASS, BRICKS, SLAG CHUNKS ETC).
NEXT TO R.R. TIES + SCRAP METAL.
1526 AT GW-5. MAYBE 3" OF WATER
IN WELL. (~1 HR TO RECHARGE).
NOT ENOUGH WATER TO GET ANY
MORE SAMPLE
1530 Package samples and clean
up equipment, to leave WI
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H-15

11/2/90

Still have to collect Soil-4 and will grab it on the way out

1601 Chad collects sample S-4 about 75 yds. North of GW-2 near junked, large appliances

1605 LEAVE SITE FOR ASC.

1910 DROPPED SAMPLES AT LAB. ESC CLOSED. LEFT EQUIPMENT AT LAB.

1920 DROPPED OFF VAN.

Chad 11-2-90

FRIDAY NOVEMBER 9, 1990

0655 J. RANER + C. EICH MEET AT E+E ESC. EQUIPMENT PICKED UP YESTERDAY CALIBRATED. STANDARDIZED TURBIDITY + pH/TEMP COND. METERS. CALIBRATED HNU

0745 DEPART FOR SITE. DRIVING C. EICH'S PERSONAL VEHICLE.

1030 ARRIVE ON-SITE. PREPARE EQUIPMENT. C.E + J.R DON LEVEL D (TYVEK, GLOVES, RUBBER BOOTS).

1050 AT WELL GW-5 TO GET PEST/PCB + BNA SAMPLES. W.L IN GW-5 - 5.85' TOC T.D. - 11.75' TOC.

pH	Temp	Cond	Turb
7.20	49.1°F	2530	< 200

COULD ONLY GET ENOUGH WATER FOR 1-80 OZ AMBER - BOTH ANALYSIS

1109 COLLECTED SAMPLE W-1. FILL MATERIAL / SOIL COLLECTED FROM BACKSIDE OF LANDFILL ALONG PATH FROM GW-5 TO GW-4

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11-9-90

1117 COLLECTED SAMPLE W-2. WASTE/SOIL SAMPLE. FILL MATERIAL PILE CONTAINING METAL DEBRIS. NEAR SECTION OF TELEPHONE POLE. ALONG PATH, ~~BEHI~~ CE WEST OF GW-4, WEST OF PATH

1132 COLLECTED SAMPLE W-3 WHITISH/GRAY ASHY-SAND MATERIAL MIXED WITH DARKER FILL MATERIAL, ON SOUTH SIDE OF HEAVILY VEGETATED PORTION OF SITE. IN APPROX THE CENTER OF AREA BETWEEN ACCESS RD + CLEARED PATH

1142 COLLECTED SAMPLE W-4 SOIL / FILL MATERIAL FROM PILE CONTAINING METAL DEBRIS AND R.R. TIES.

FLAGGED ALL SAMPLE LOCATIONS w/ FLAGGING TAPE.

WENT BACK TO VAN TO PACKAGE SAMPLES.

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1215 ALL SAMPLES CUSTODY SEALED + PUT ON ICE

1225 LEFT SITE

1345 DROPPED SAMPLES OFF AT LAB

1400 DROVE TO ESC TO DROPPE OFF EQUIPMENT

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