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915045

ENGINEERING INVESTIGATIONS AT INACTIVE HAZARDOUS WASTE SITES

PHASE II INVESTIGATION

Pratt and Letchworth

City of Buffalo

Site No. 915045

Erie County

VOLUME 1

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, P.E., *Director*

By:

ENGINEERING-SCIENCE

VOLUME 1 - MAIN REPORT

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

PHASE II INVESTIGATIONS - PRATT AND LETCHWORTH
NYS SITE NUMBER 915045
ERIE COUNTY, NEW YORK

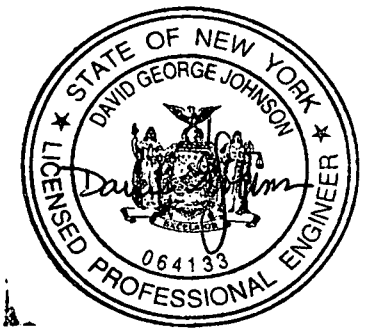
Prepared For:

DIVISION OF HAZARDOUS WASTE REMEDIATION
NEW YORK STATE
DEPARTMENT OF ENVIRONMENTAL CONSERVATION
50 WOLF ROAD
ALBANY, NEW YORK 12233-0001

Prepared By:

ENGINEERING-SCIENCE, INC.
290 ELWOOD DAVIS ROAD
LIVERPOOL, NEW YORK 13088

JUNE 1989



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SECTION 1

SECTION I

EXECUTIVE SUMMARY

SITE BACKGROUND

The Pratt and Letchworth site is located in the City of Buffalo, New York between Tonawanda Street and the north side of Scajaquada Creek. The site location is shown on the U.S.G.S. Buffalo, N.W., New York 7 1/2 minute quadrangle map (Figure I-1). Until August 28, 1988 the site was wholly owned by Amcast Industries of Dayton, Ohio. At that time, part of the site was sold to Tops Markets, Inc. Since that time, the remainder of the site has been sold to the 189 Tonawanda Street Corporation (Amcast Industries, 1989).

The site was used for manufacturing iron and steel products between 1848 and 1982. The site has been inactive since approximately 1981 (ES, 1985). Between 1949 and 1965, approximately 19,000 tons of foundry sand, 16,000 tons of slag plus cement and furnace brick waste were landfilled on-site along the banks of Scajaquada Creek. During a 1982 site investigation, heavy metals were detected in leachate from the foundry sands and clay soils near the creek, and phenols were detected in soil and fill samples. As recently as 1985, drums of liquids and liquid wastes, including lubricant and hydraulic oils, 1,1,1-trichloroethane, and alcohol-based binders containing naphtha and phosphoric acid, were stored on the surface of the landfill. Approximately 70 to 100 of these drums were found to be leaking, and were subsequently removed from the site.

PHASE II INVESTIGATION

The Phase II field investigation included electrical resistivity and magnetic surveys to define the site geologic conditions and to potentially identify the presence of buried steel drums or conductive contaminant plumes in the subsurface. Five groundwater monitoring wells were also installed. Surface water, groundwater, sediment, and soil sampling and analysis and air monitoring were conducted to determine whether hazardous substances are present at the Pratt and Letchworth site.

SITE ASSESSMENT

The geophysical surveys did not indicate the presence of buried drums, and no conductive contaminant plumes were identified. The geologic stratigraphy of the site can be summarized as dolomitic limestone bedrock overlain by unconsolidated deposits, which consist primarily of glacial till, lacustrine clay and alluvium. The lacustrine clays are 70 to 80 feet thick and

separate the limestone bedrock aquifer from a shallow, perched water table. The perched water table is discontinuous across the site, and may be hydraulically connected to Scajaquada Creek. Two wells were installed into the bedrock, and three were installed into the perched zone, and are referred to as shallow interface wells. The depth to water in monitoring wells at the site ranges from 2.5 to 20 feet below ground surface, with local groundwater flow toward the southeast and Scajaquada Creek.

Seven soil and waste samples were collected from soil borings located in the landfill area and analyzed for Hazardous Substance List (HSL) organic (volatile, semivolatile) compounds, HSL metals and cyanide. Thirty-nine HSL organic compounds were detected in those samples (Table IV-7). Twenty-five compounds were present in downgradient samples at concentrations which were more than three times the background soil concentration. These were primarily PAH compounds. Twenty-one HSL metals were detected in the soil/waste samples (Table IV-8). Six metals were present in downgradient samples at concentrations which were more than three times the background soil concentrations. Concentrations of cadmium and manganese were above published naturally-occurring ranges.

Three surface water samples were collected along the north bank of Scajaquada Creek and were analyzed for HSL organic (volatile, semivolatile) compounds, HSL metals, cyanide and TOX. Nine HSL organic compounds were detected in the surface water samples (Table IV-9). One Class B surface water standard, for tetrachloroethene, was exceeded. Seventeen HSL metals were also detected in the surface water samples (Table IV-10). The concentrations of lead and mercury in the downgradient samples exceeded the upgradient concentrations by more than three times. Class B standards or guidance values for six metals were exceeded in one or more samples. These results indicate that the site is potentially releasing hazardous substances to Scajaquada Creek.

Three sediment samples were collected at the surface water sample locations and analyzed for HSL organic (volatile, semivolatile, pesticide/PCBs) compounds, HSL metals, cyanide and TOX. Twenty-two HSL organic compounds were detected in the sediment samples (Table IV-11). Seventeen HSL organic compounds were present in downgradient samples at concentrations which were more than three times the upgradient concentrations, indicating releases potentially attributable to the site. Twenty-one HSL inorganics were detected in the sediment samples (Table IV-12). Antimony and cadmium were present in downgradient samples at concentrations which were in excess of published naturally occurring ranges. These two elements were undetected in the upgradient samples.

Five groundwater samples were collected at the Pratt and Letchworth site and were analyzed for HSL (volatile and semivolatile) compounds, HSL metals, and total organic halogens (TOX). Five HSL organic compounds were detected in the groundwater samples from the bedrock wells (Table IV-13). No releases of organic compounds were indicated by the bedrock well results. Twelve HSL metals were detected in the bedrock groundwater samples (Table IV-14). Based on these results there were no observed releases from the site. The concentrations of iron and magnesium exceeded the applicable standards or guidance values in both bedrock wells.

Seven HSL organic compounds were detected in the three shallow interface wells (Table IV-13). The concentrations were low; no observed releases were indicated by those results. Twenty-one HSL metals were detected in the groundwater samples from the shallow interface wells (Table IV-14). Because there is no upgradient shallow well, no background or upgradient data are available for comparison at this site. The aquifer supplying water to the shallow wells is not considered a drinking water supply, therefore Class GA standards may not be applicable. The analytical results indicate generally poor water quality.

Three surface soil samples were collected from the area where leaking drums had previously been found and were analyzed for HSL organic (volatile, semivolatile, pesticide/PCBs) compounds, HSL metals, cyanide, and TOX. Sixteen HSL organic compounds were detected in the surface soil samples (Table IV-15). The highest concentrations detected were for polynuclear aromatic hydrocarbons (PAHs) and PCBs. Nineteen HSL metals were detected in the surface soil samples (Table IV-16). Five metals were present in downgradient samples at concentrations which were more than three times the background concentrations. The concentration of antimony in all three samples from the spill area exceeded the published naturally-occurring range.

The Photovac air quality monitoring conducted during the site investigation did not detect volatile organic chemicals in the air or soils at concentrations above background levels.

In general, the types and concentrations of organic and inorganic compounds detected in various media at the site is consistent with its former use as a foundry for nearly 150 years. Groundwater in the bedrock does not appear to have been adversely affected by the site. However, the fill zone contains relatively high concentrations of PAHs and other compounds, and may be the source for hazardous substances entering Scajaquada Creek. The high concentrations of PCBs in the surface soils are unacceptable and require remediation.

HAZARD RANKING SYSTEM SCORE

In an attempt to establish the relative risk associated with this site, the Hazard Ranking System (HRS) was applied. As currently used by the NYSDEC, the HRS is employed to aid the evaluation of inactive hazardous waste sites in New York State. This system takes into account the types of wastes at the site, receptors, and transport routes to calculate a numerical score for the site. As stated in 40 CFR Subpart H Section 300.81, the HRS was developed for evaluating the relative potential of uncontrolled hazardous waste disposal facilities to cause human health or safety problems or ecological and environmental damage. It is assumed by the EPA that a uniform application of the ranking system in each state will permit EPA to identify releases of hazardous substances that pose the greatest hazard to human health and/or the environment.

Under the HRS, three numerical scores are computed to express the relative risk or danger from the site. These scores take into account the population at risk, the potential for contamination of drinking water supplies, for direct human contact, for destruction of sensitive ecological systems and other appropriate factors. The three scores are:

- S_M-reflects the potential for harm to humans or the environment from migration of a hazardous substance away from the facility by routes involving groundwater, surface water and 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.
- 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 for the Pratt and Letchworth site have been calculated as follows:

$S_M = 22.38$	$S_{GW} = 3.87$
$S_{FE} = 0.0$	$S_{SW} = 38.53$
$S_{DC} = 20.83$	$S_A = 0.0$

RECOMMENDATIONS

The Phase II investigation at the Pratt & Letchworth site was intended to determine whether the former oil spill area and extensive fill zone were contaminated and adversely impacting groundwater and surface water quality in the site vicinity. In general, the scope of the Phase II investigation at the Pratt and Letchworth site was adequate to provide a site contamination assessment. There is sufficient evidence of contamination on-site to warrant additional investigation, and a short-term remedial action. A major concern is the high levels of PCBs in soil samples near the former oil spill area. These soils should be remediated and further soil sampling and analysis should be conducted in surrounding areas in order to identify the full extent of PCB-contaminated areas. Additional sampling should be conducted in the following areas: 1) the former oil spill area, and 2) along roads or driveways where oil was deliberately spread. This effort may be aided by the use of information from past investigations, as well as the examination of historic aerial photographs. The Erie County Department of Environment and Planning may be able to assist in locating these photographs.

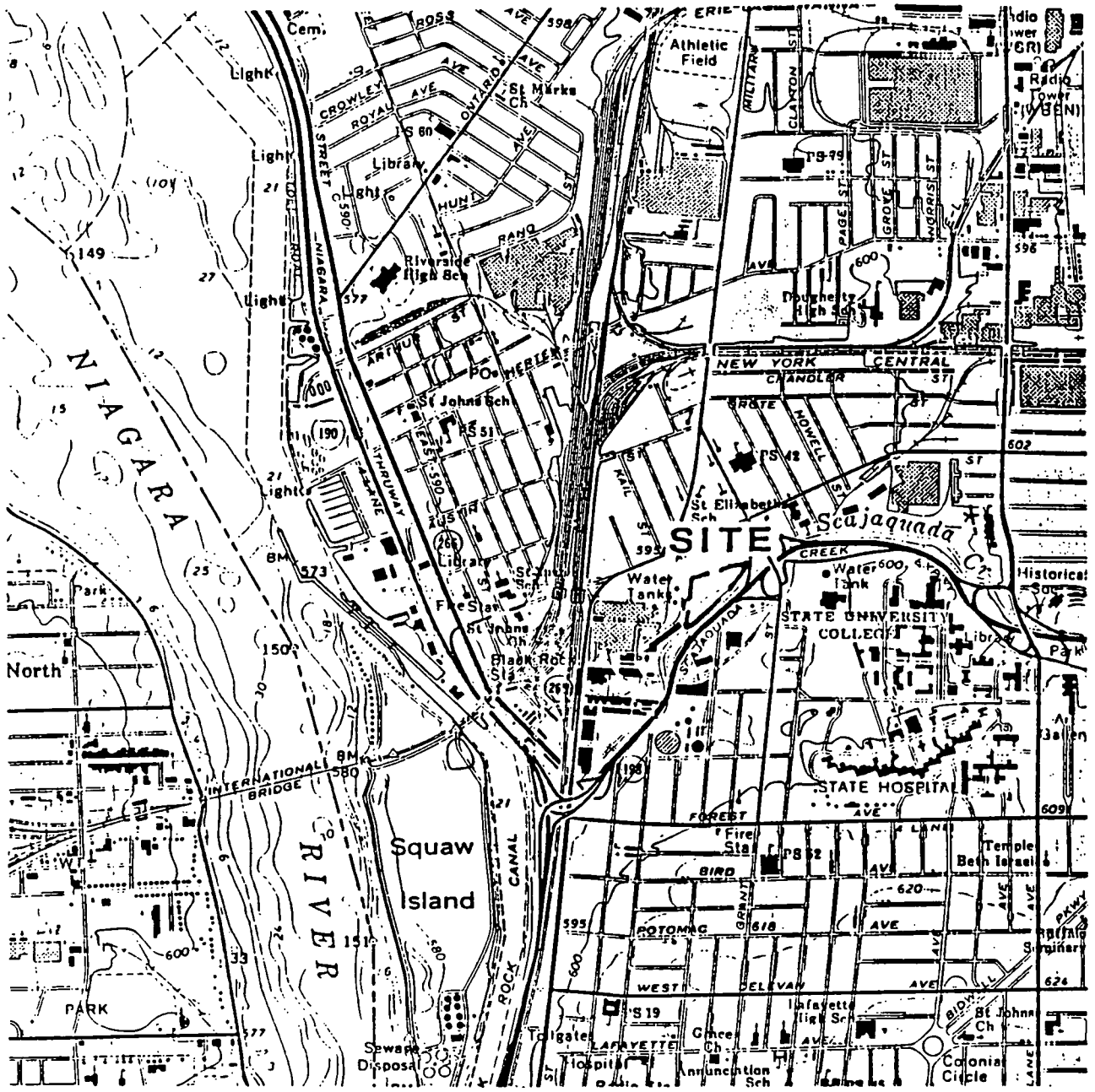
During February, 1988, a separate investigation at the site was conducted by Ecology and Environment, Inc. with NYSDEC personnel observing the work. During the excavation of several test pits, a concrete slab was encountered at a depth of about 4.5 feet near the center of the fill area (Figure I-2). The area of the slab is unknown, but is estimated to be at least 4400 square feet (NYSDEC, 1988). Based on observations made during the Phase II field work, there also may be a slab located beneath the former oil spill area. During surface soil sampling, a hard, flat surface was encountered at a depth of about eight inches in the former oil spill area (See Sampling Forms in Appendix D). The presence of a concrete slab could potentially inhibit the downward migration of contaminants, depending on the integrity of the slab. This should be investigated prior to or during

remediation of the oil spill area. The fill material is a source of contamination, based on the results of this Phase II investigation. Remediation of the fill zone to minimize or eliminate these contributions is recommended.

The site does not appear to be adversely impacting the bedrock aquifer. However, an adverse impact on the water quality of Scajaquada Creek was indicated by the sample results. The effect is not believed to significantly impact water quality in the Niagara River, which is a drinking water source for the region. However, since there were apparent releases of mercury, cobalt, and lead to the surface water, further investigation should be carried out as part of any subsequent investigation.

The analytical data suggest that the shallow water-bearing zone may have been impacted by the facility, although there was not a confirmed release due to the lack of an upgradient well. It is recommended that an upgradient or cross gradient well be installed, and further sampling be conducted, in order to establish whether or not releases have occurred. Additional water level measurements in the existing wells may also provide useful information in determining whether changes in vertical or horizontal flow gradients are occurring.

Finally, the impact of the site on plans for the "Scajaquada Pathway", a walkway/bicycle path along the north bank of Scajaquada Creek, should be considered as part of any future investigation for this site. The pathway, now under construction, presently extends from Delaware Park to Grant Street, and may ultimately be extended to connect with the Niagara Riverwalk. The current plan calls for locating a portion of the pathway over the fill area of this site.



LATITUDE: 42°56'06"
LONGITUDE: 78°53'45"

SCALE
0 1000 2000 3000 4000 FEET

REFERENCE: U.S.G.S. 7.5' Topographic Map
Buffalo NW, NY-ONT. (1965) Quadrangle

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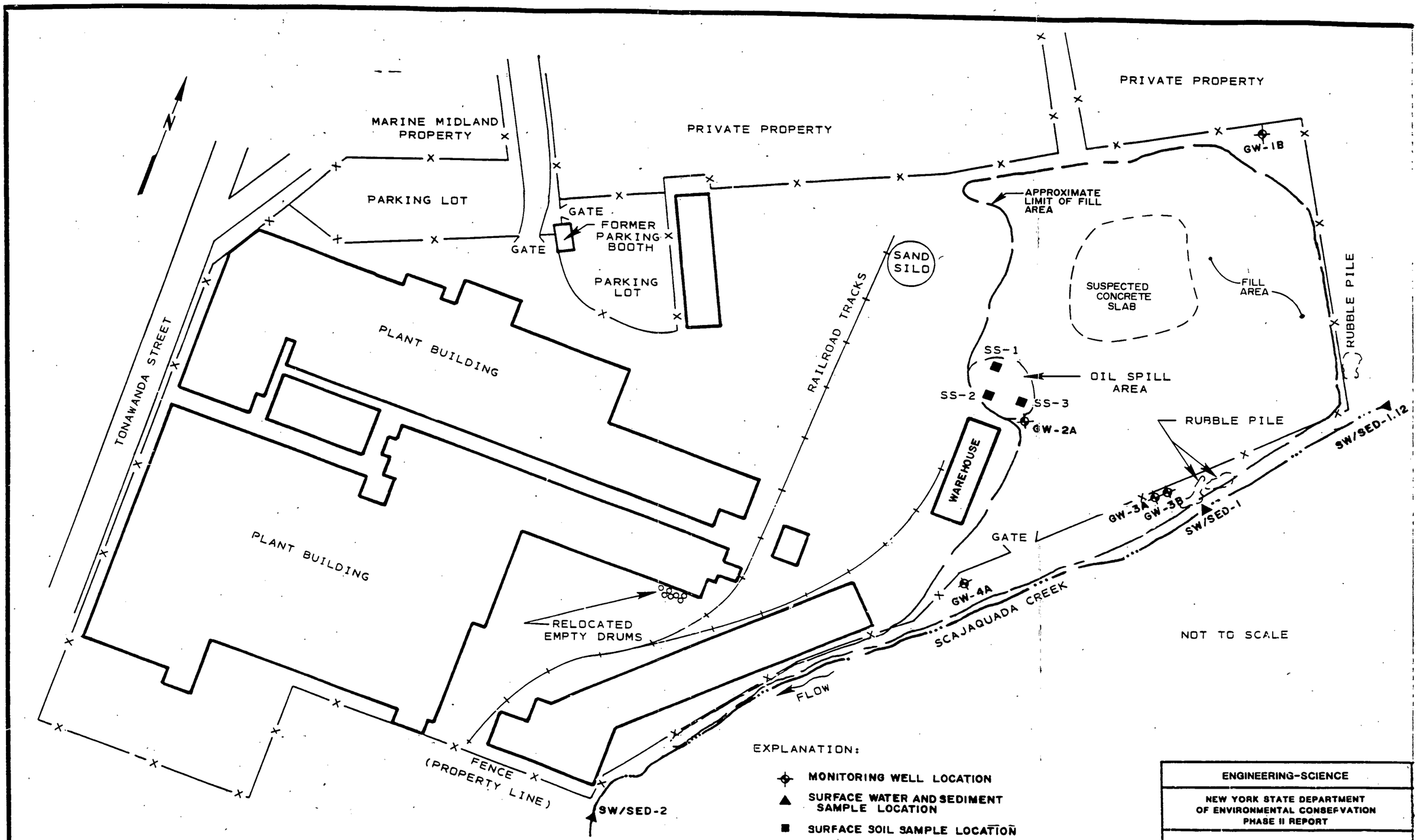
NEW YORK STATE DEPARTMENT
OF ENVIRONMENTAL CONSERVATION
PHASE II REPORT

SITE LOCATION MAP
PRATT & LETCHWORTH

FIGURE I-1



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NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
PHASE II REPORT

SITE PLAN
PRATT & LETCHWORTH

FIGURE I-2

SECTION II

PURPOSE

The objective of a Phase II investigation is to determine if hazardous wastes have been disposed of in the site, if contaminants exist in the various mediums (air, groundwater, surface water or soils) and whether or not threats to human health or the environment exist. Information gathered relative to the above will allow the Department to reclassify the site or if warranted delist it.

During the period 1949 to 1965, Pratt and Letchworth landfilled approximately 19,000 tons of foundry sand and 16,000 tons of slag along the banks of the Scajaquada Creek at the southeastern end of the facility property. Liquid wastes were also stored in drums on the former landfill site. These stored wastes included lubricant and hydraulic oils, 1,1,1-trichloroethane, and alcohol-based binders containing naphtha and phosphoric acid. In 1985, there were approximately 70 to 100 leaking drums present on-site (ES and D&M Site Inspection, 1985).

In 1982, sampling and analysis of the foundry sand and soil collected near the creek indicated detectable concentrations of heavy metals in the leachate, and phenols were detected in the dry samples. An analysis of sediments collected from the creek bank and adjacent to the fill area revealed detectable concentrations of heavy metals. These data provided evidence of potential soil and surface water contamination. No air or groundwater data for the site were available prior to this Phase II investgation. This Phase II investigation was designed to supplement existing data for the site.

SECTION III

SECTION III

SECTION III

SCOPE OF WORK

INTRODUCTION

Field work for the Phase II investigation at the Pratt and Letchworth site began in June, 1987 and was completed in October, 1988. The Phase II Work Plan dated April 28, 1986 and revised September 30, 1986 was approved by NYSDEC prior to commencing the field investigations. The Work Plan was later revised with NYSDEC approval, based on the preliminary findings of the field investigations.

The original Work Plan included seven monitoring wells. Based on the findings of the geophysical surveys and initial well borings, the locations were revised, the number of wells was reduced to five and the screen length for the overburden wells was altered. One additional surface water/sediment location was sampled. Seven soil and fill samples from four soil borings were added.

PHASE II SITE INVESTIGATION

The scope of the investigation is summarized in Table III-1 and is described below. All field work was performed or supervised by qualified Engineering-Science (ES) staff. Field procedures for the site investigation tasks are presented in Appendix A.

Geophysical Survey

A geophysical survey utilizing magnetic and electrical resistivity (ER) methods was performed at the Pratt and Letchworth site between June 25 and July 2, 1987. These surveys were conducted at various locations within and around the perimeter of the site. The results were used to determine the general geologic stratigraphy, locate buried materials, and to confirm placement of the monitoring wells within potentially conductive subsurface plumes. The geophysical survey methods and results are presented in Appendix B.

Monitoring Well Installations

Three fill/clay interface and two bedrock monitoring wells were installed around the perimeter of the site between October 26 and November 4, 1987 by Rochester Drilling Co., Inc. (Figure III-1). Wells were installed upgradient and downgradient of the oil spill area where leaking drums were previously found, and the foundry sand landfill areas as shown on Table III-2. The upgradient well for the fill area, GW-1B, monitors the upper portion of the bedrock. Downgradient

wells GW-2A, GW-3A, and GW-4A monitor the top of the water table, near the fill/clay interface. Downgradient well GW-3B monitors the upper portion of the bedrock.

The wells were drilled and constructed in accordance with NYSDEC guidelines. Soil samples were generally collected at intervals of five feet throughout the depth of the deepest well at each location. Soil samples were collected at intervals of two feet in the shallow wells. Nine soil samples were analyzed for grain-size characteristics, four for Atterberg Limits and two for permeability, by R&R International, Inc.

The monitoring wells were constructed with two-inch inside diameter threaded, flush-joint NSF-approved PVC pipe and slotted screen. For the bedrock well installations, the well is screened throughout most of the length of the corehole. For the interface wells, a quartz sandpack was backfilled around the screen. Bentonite slurry or pellet seals were used to isolate the screened sections from above. Water levels in the wells were measured on at least two dates following installation and well development. Well development generally consisted of removing water by the air-lift method utilizing compressed air. The monitoring wells were capped with a PVC cap and covered by a locking steel protective casing.

Field procedures for the monitoring well installations are presented in Appendix A. Boring logs, well schematics and geotechnical analyses results are included in Appendix C.

Surface Water and Sediment Sampling and Analysis

Two downgradient surface water and sediment samples (SW/SED-1, SW/SED-2) were collected on September 11, 1987 and an upgradient surface water/sediment location (SW/SED-1.12) was sampled on November 18, 1987. All surface water and sediment samples were analyzed for Hazardous Substance List (HSL) organic compounds (volatiles, semivolatiles, HSL metals, cyanide and total organic halogens (TOX). All analyses were performed by Nanco Labs, Inc. In addition, a trip blank and field (wash) blank were analyzed for HSL volatiles. Analyses and reporting were performed utilizing the applicable NYSDEC Superfund and Contract Laboratory Protocols dated June, 1986 and its latest amendments (NYSDEC CLP). On October 13, 1988, samples SED-1.12 and SED-2 were resampled by ES and analyzed for HSL pesticide/PCBs by York Laboratories using NYSDEC CLP methods.

All surface water and sediment samples were collected along the north bank of Scajaquada Creek. Samples SW/SED-1 and SW/SED-2 were collected adjacent to the fill area and downstream of the site, respectively (Figure III-1). Samples SW-1.12 and SED-1.12 were collected upstream of the site. Surface water samples were collected with decontaminated stainless steel beakers. Sediment samples were collected with decontaminated stainless steel spoons. The field procedures utilized are presented in Appendix A, and the analytical results are discussed in Section IV and listed in Appendix D.

Groundwater Sampling and Analysis

Groundwater samples were collected from each of the five Phase II monitoring wells on November 18, 1987. These samples were analyzed for HSL organic compounds, HSL metals and TOX by Nanco Labs, Inc. In addition, a trip blank and wash blank (GW-2B) were analyzed for HSL volatiles. Analyses and reporting were performed utilizing applicable NYSDEC CLP methods.

The upgradient well (GW-1B) is screened in the upper bedrock. Wells GW-2A, GW-3A and GW-4A are located downgradient of the oil spill or foundry sand landfill areas and are screened at the fill/clay interface. Downgradient well GW-3B is screened in the upper bedrock zone. Samples were collected with decontaminated teflon bailers and dedicated polypropylene line.

Field procedures for the groundwater sampling are presented in Appendix A. Analytical results are discussed in Section IV and listed in Appendix D.

Surface Soil Sampling and Analysis

Three surface soil samples (SS-1, SS-2, SS-3) were collected from the former oil spill area on September 11, 1987. These samples were analyzed for HSL volatiles, semivolatiles, metals, cyanide and TOX by Nanco Labs, Inc. In addition, a trip blank and field blank were analyzed for HSL volatiles. Analyses and reporting were performed utilizing applicable NYSDEC CLP methods. On October 13, 1988, the three locations were resampled by ES and analyzed for HSL pesticide/PCBs by York Laboratories using the NYSDEC CLP methods.

The surface soil samples were collected with a decontaminated stainless steel spoon. Field procedures are presented in Appendix A. Analytical results are discussed in Section IV and listed in Appendix D.

Waste Sampling and Analysis

Six waste samples and one background soil sample from soil borings were collected on November 3 and 4, 1987. The samples were collected by driving split-spoon samplers to a specific depth with a drilling rig. The samples were collected from the fill and underlying soil. These samples were analyzed for HSL volatiles, semivolatiles, metals, and cyanide by Nanco Labs, Inc. The field procedures are presented in Appendix A. The results are discussed in Section IV and listed in Appendix D.

The soil boring samples are identified by the prefix "SB". The well location from which the sample was collected, and whether the sample was fill (F) or soil (S) is also identified. For instance, the background soil sample was collected from a soil boring adjacent to the well GW-1B. The I.D. number for this sample is SB-1-S.12. The suffix .12 identifies the site as Pratt and Letchworth. Table III-3 presents the soil boring sample I.D. numbers, the well locations from which they were collected, the matrix (soil, fill or soil/fill interface), and the depth of the sample interval.

The analytical results for the Pratt and Letchworth site have been reviewed for conformance with NYSDEC CLP requirements and validated using USEPA guidance for organic

and inorganic analyses (USEPA, 1985). Various data qualifiers have been assigned to the analytical results, based on the referenced guidance.

TABLE III-1

SUMMARY OF PHASE II TASKS
PRATT AND LETCHWORTH

Tasks	Description of Task
Prepare and Update Work Plan	Reviewed the information in the Phase I report and supplemental data, conducted a site visit, examined aerial photography and prepared the Phase II work plan. Following completion of the geophysical surveys, the work plan was revised as needed with NYSDEC approval.
Conduct Records Search/Data Completion	Augmented Phase I information by contacting or visiting central and local offices of NYSDEC, NYSDOH, County DOH, NYSDOT, etc.
Site Reconnaissance	Checked locations and conditions of existing wells, examined terrain for accessibility by drill rigs, examined suitability for geophysical surveys, and determined appropriate locations of sampling points.
Conduct Geophysical Studies	Conducted ER and magnetic surveys.
Conduct Borings/Install Monitoring Wells	Installed five wells. Two borings were drilled to a depth of approximately 100 feet. Three borings were drilled to depths between 10 and 20 feet. Wells were constructed of 2-inch PVC pipe.

TABLE III-1 (CONTINUED)

Tasks	Description of Task
Soil Samples from Borings	Soil samples were collected at 5-foot intervals for deep well borings, and continuously for shallow well borings. Nine grain-size analyses, four Atterberg limits, and two permeability tests were performed as specified in the text.
Perform Sampling and Analysis	
Surface Water Samples	Three surface water samples were collected and analyzed for HSL metals, cyanide, HSL organics, and TOX.
Sediment Samples from Surface Waters	Three sediment samples were collected and analyzed for HSL metals, cyanide, HSL organics, and TOX.
Groundwater Samples	Five groundwater samples were collected and analyzed for HSL metals, HSL organics, and TOX.
Surface Soil Samples	Three surface soil samples were collected and analyzed for HSL metals, cyanide, HSL organics, and TOX.
Waste Samples	Six waste samples and one background solid sample were collected during drilling and were analyzed for HSL metals, and HSL organics.
Air Survey	Using the Photovac TIP-II, the potential presence of volatile organic compounds was monitored during on-site activities.
Conduct Site Assessment	A preliminary site contamination assessment was conducted to complete the final HRS and HRS documentation records.

TABLE III-1 (CONTINUED)

Tasks	Description of Task
Report Preparation	Prepared a final report containing significant Phase I information, additional field data, final HRS and HRS documentation records, and site assessments.
Project Management	Project coordination, administration and reporting.

TABLE III-2

MONITORING WELL LOCATIONS AND SPECIFICATIONS PRATT AND LETCHWORTH

Well Number	Unit Screened	Location	Total Depth (ft.)*	Screen Interval (ft.)*
GW-1B	Dolomitic Limestone	Upgradient	107.5	97.5 - 107.5
GW-2A	Fill/Clay Interface	Downgradient	9.5	4.5 - 9.5
GW-3A	Fill/Clay Interface	Downgradient	14.0	9.0 - 14.0
GW-3B	Dolomitic Limestone	Downgradient	97.0	87.0 - 97.0
GW-4A	Fill/Clay Interface	Downgradient	20.0	15.0 - 20.0

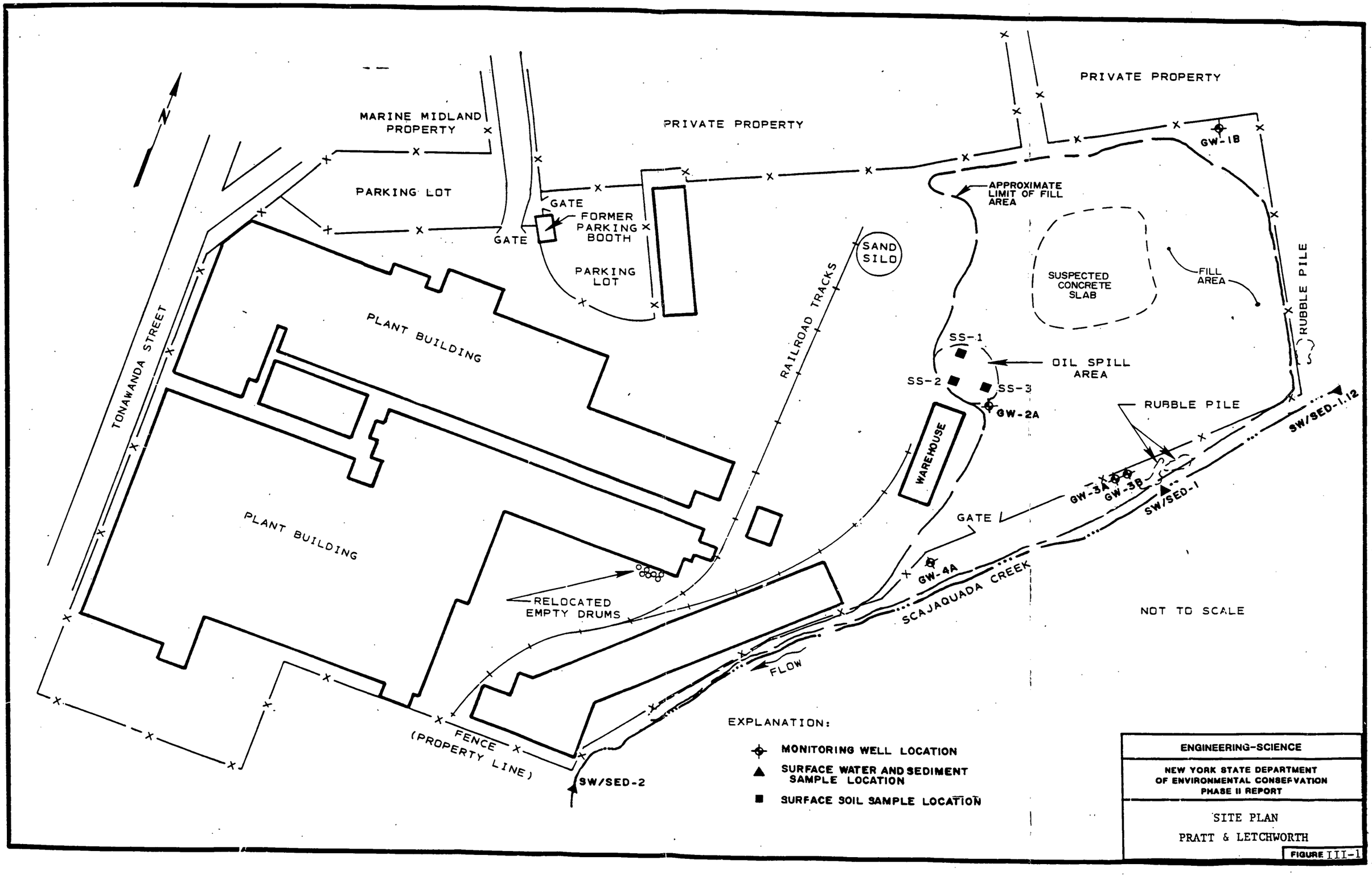
* Depth in feet below ground surface.

TABLE III-3

WASTE SAMPLE LOCATIONS
PRATT AND LETCHWORTH

Sample I.D.	Well Location	Matrix	Depth (ft.)*	Location
SB-1-S.12	GW-1B	Soil	4.0-6.0	Background Soil Sample
SB-2A-F.12	GW-2A	Fill	4.0-6.0	Downgradient-Spill Area
SB-2A-F&S.12	GW-2A	Fill/Soil Interface	6.0-7.5	Downgradient-Spill Area
SB-3A-F.12(2-8)	GW-3A	Fill	2.0-8.0	Downgradient-Landfill
SB-3A-F.12(12-14)	GW-3A	Fill	12.0-14.0	Downgradient-Landfill
SB-4A-F.12	GW-4A	Fill	2.0-12.0	Downgradient-Landfill
SB-4A-SF.12	GW-4A	Soil/Fill Interface	16.0-18.0	Downgradient-Landfill

* Depth in feet below ground surface.



ENGINEERING-SCIENCE

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION PHASE II REPORT

SITE PLAN

PRATT & LETCHWORTH

FIGURE III-1

SECTION IV

SECTION IV
SITE ASSESSMENT

SITE HISTORY

In 1848, Buffalo Malleable Iron Works purchased what is now known as the Pratt and Letchworth site, and built a plant to manufacture iron products. Another building was built adjacent to the existing plant by Buffalo Steel Company in 1860. At that time, a partnership called Pratt and Letchworth was formed between Buffalo Malleable and Buffalo Steel. This partnership owned the site until 1896. Ownership of the site between 1896 and 1923 is not well documented. In 1923, Dayton Malleable Iron Company acquired the site through a stock purchase. Pratt and Letchworth continued to operate the on-site plant as a subsidiary of Dayton Malleable. Pratt and Letchworth became an operating company in 1952 when Dayton Malleable became Dayton Malleable, Inc. (Smith and Schnacke, 1985).

From 1949 to 1965, Pratt and Letchworth landfilled approximately 1,200 tons of foundry sand per year and 1,000 tons of foundry slag per year into and adjacent to Scajaquada Creek. During the same period, about 14,000 gallons per year of lubricant and hydraulic oils were drummed and stored in the landfill area (NYSDEC, 1987). A facility inspection in 1978 by the NYSDEC found additional drummed wastes including foundry sand binders and 1,1,1-trichloroethane degreaser (NYSDEC, 1978). Pratt and Letchworth also generated cement and furnace brick wastes that were landfilled on-site. In addition, dust from air pollution control equipment was placed in containers and transported off-site by Downing Container Service (NYSDEC,1977).

In approximately 1981, the facility ceased operations when Dayton Malleable became Amcast Industries (ES, 1985). Since August 1988, part of the inactive site has been owned by Tops Markets, Inc. and the remainder is owned by the 189 Tonawanda Street Corporation.

A 1985 inspection of the site discovered several full drums of phosphoric acid and other drums with the company names: "Niagara Lubricant Company" and "Ashland Chemical" (ES and D&M Site Inspection, 1985). Pratt and Letchworth contracted with the Speedy Oil Company to haul the waste drums from the site (Barron, 1985). As of 1985, there were 100 to 150 drums stored on-site. Approximately 70 to 100 were full and found to be damaged or leaking (ES and D&M Site Inspection, 1985). Since that time, some drums have been removed from the site, while others have been placed inside the plant buildings.

On December 10, 1986, NUS Corporation conducted a site inspection of the Pratt and Letchworth site under a contract with USEPA. Seven soil, two surface water, and two sediment samples were collected. Aroclor 1016 and Aroclor 1260 were detected in on-site soil samples and in the sediments of Scajaquada Creek. Other hazardous substances detected include tetrachloroethene, trichloroethene, styrene, solvents, polynuclear aromatic hydrocarbons (PAHs),

and polychlorinated biphenyls (PCBs). Those results were presented in a report dated July 14, 1988 entitled "Final Draft Site Inspection Report Dayton Malleable Buffalo, New York". The results of the site inspection were in general agreement with the findings of this Phase II investigation as discussed later in this section.

REGIONAL SETTING

Regional Geology

The site is located in the Erie-Ontario Lowlands physiographic province. The site vicinity is underlain by sedimentary bedrock and a mantle of unconsolidated glacial deposits (LaSala, 1968). The bedrock consists mainly of shale, limestone and dolomite. These bedrock units were fine-grained sediments deposited in ancient seas during the Silurian and Devonian Periods, about 360 to 440 million years ago. These bedrock units are bedded or layered. The dip of the rocks (inclination of the bedding planes) is gently southward at 20 to 60 feet per mile. The Bertie Formation bedrock beneath the site is predominantly dolostone or dolomitic limestone and is approximately 50 to 60 feet thick.

Overlying bedrock are glacial deposits which originated during the Pleistocene, about 10,000-15,000 years ago, when an ice sheet retreated from the area. The glacial till consists of a wide range of particle sizes from boulders to clay, deposited by the overriding glacial ice. Lacustrine deposits in the area are generally silts and clays deposited in the pro-glacial lakes which covered this area. The lacustrine deposits are usually laminated or varved, having alternating layers of finer and coarser sediments.

Other unconsolidated sediments of the area are alluvium deposited along stream courses in Recent time. This is the case along Scajaquada Creek, where periodic flood events have deposited a mantle of alluvium, consisting mostly of fine sand and silt. The present land surface topography has been formed by the pre-glacial erosion of the bedrock and subsequent topographic modification by glaciation, and most recently by man.

Regional Hydrology

The site lies within the Niagara River drainage basin. Surface waters in this system ultimately reach the Atlantic Ocean via Lake Ontario and the St. Lawrence River. Scajaquada Creek, which forms the eastern boundary of the site, is classified by the NYSDEC as a Class B waterway (6NYCRR). Class B surface waters are designated as suitable for primary and secondary contact recreation and fishing. Scajaquada Creek is approximately 40 feet wide and flows southwesterly into the Niagara River via the Black Rock Canal.

Groundwater can be found locally in both the unconsolidated glacial deposits and the dolomitic limestone bedrock. In the vicinity of the site, the unconsolidated glacial deposits are primarily fine-grained lake sediments overlying a thin layer of glacial till. Both of these deposits generally have low permeability and yield little or no water to wells (LaSala, 1968). Greater

quantities of groundwater occur in the bedrock. Much of the groundwater is transmitted through fractures, such as horizontal and vertical joints, which are further widened by solution. The availability of groundwater in the limestone bedrock will vary widely, based on the occurrence of fractures and the size of the openings (LaSala, 1968).

In the City of Buffalo, and neighboring communities, the municipal water supply source is Lake Erie. Surface water sources provide most of the water used in the area. Some groundwater is used regionally for industrial purposes, and is obtained primarily from bedrock aquifers.

SITE GEOGRAPHY

Topography

The Pratt and Letchworth site is located in the northwestern part of the City of Buffalo, New York (population 357,870, Rand McNally, 1981). For over 100 years, the site was operated as a steel manufacturing facility. The facility property is a 28-acre parcel located on the north side of Scajaquada Creek (Figure IV-1). The property is bounded by Watts Street on the south, Tonawanda Street on the west, Amherst Street on the north and a bowling alley on the east (City of Buffalo, 1981).

A three- to five-acre area near the northeast end of the site was used for landfilling foundry sand and slag. The thickness of the fill varies from less than one foot in the northeast corner, to about 18 feet in the southeast portion of the landfilled area, near GW-4A (Figure IV-2). Fill materials occur over most of the site, particularly along the north bank of Scajaquada Creek.

The ground surface over most of the site is level due to the landfilling activities. The original ground surface probably dipped downward toward Scajaquada Creek. The present creek bank is quite steep, particularly near the southwestern part of the site. Large willow trees and underbrush cover most of the area along the creek bank. The landfilled portion of the site is covered by grass and tall weeds.

The maximum elevation difference on-site is approximately 20 feet. The north end of the site is at approximately 590 feet above mean sea level (AMSL); along Scajaquada Creek the elevation is about 570 feet AMSL (USGS, 1965).

There are two large buildings on-site formerly used for the manufacturing processes. These are located along Tonawanda Street and extend back to the east (Figure IV-2). A smaller, elongated building is located near Scajaquada Creek. A former scale house is located just west of the landfill area. A chain-link fence surrounds the site property and a guard is on-duty continuously to control the only active entrance to the site, along Tonawanda Street. There are areas where the fence is in disrepair, particularly on the east side of the site. Unauthorized access to the site is possible in those areas.

Soils

This discussion of site soils is based on the Soil Survey of Erie County (USDA, 1986) and soil borings conducted on-site as part of the Phase II investigation.

Most of the original ground surface has been covered with up to 18 feet of industrial fill. The fill is a mixture of foundry sand, cinders, and slag which is generally black to gray or white. The soil below the fill is a silty-clay. This soil is probably similar to the Odessa soil series which is mapped for neighboring areas. These soils have formed in glacial lake sediments with a high clay and silt content. Odessa soils are nearly level, somewhat poorly drained, and have generally low permeability estimated at 1×10^{-4} cm/sec (USDA, 1986).

SITE HYDROGEOLOGY

The information used to develop the discussions in this subsection included the Phase II geophysical survey, five monitoring well borings and installations, USGS topographic maps, NYS Geological Survey Maps and a regional groundwater report (LaSala, 1968). The geophysical survey results are presented in Appendix B, and the boring logs, well schematics and geotechnical analyses results are presented in Appendix C.

Geology

The site subsurface stratigraphy can be characterized as dolomitic limestone bedrock, overlain by 4 to 10 feet of glacial till, 70 to 80 feet of lacustrine silt and clay, and up to 18 feet of industrial fill at the surface. This is based on the boring log information summarized in Table IV-1. The locations of the wells are shown on Figure IV-3, with the location of cross section A-A' also identified. Cross section A-A' is presented on Figure IV-4.

Bedrock was drilled and sampled in well borings GW-1B and GW-3B. The dolomite limestone encountered is likely the Silurian-Age Bertie Formation. The upper 5 to 10 feet of the bedrock appeared weathered, brown, moderately to highly fractured, and contained chert and shaley partings. The bedrock became gray and was generally more competent with depth. The upper 20 feet of bedrock was sampled in GW-1B, and the upper 10 feet was sampled in GW-3B.

The glacial till overlying bedrock was sampled in well borings GW-1B and GW-3B. Table IV-2 presents the grain-size characteristics of selected overburden samples. The glacial till sample analyzed was predominantly fine sand and gravel. Numerous boulders were also encountered in drilling through this material. Visual observations of some of the gravel in the till samples indicated a high percentage of dolomitic limestone; however, some granitic material was present. The till was 10 feet thick at GW-1B, and 4 feet thick at GW-3B.

The lacustrine unit was encountered in all on-site well borings. The unit was completely penetrated in well borings GW-1B and GW-3B, with thicknesses of 81 and 69 feet, respectively. This material was in excess of 80 percent silt and clay in the six samples analyzed (Table IV-2).

This material is a brown to reddish-brown silty-clay deposited when a pro-glacial lake occupied the area more than 10,000 years ago. The upper portion of the unit is thinly bedded with gray fine sand seams. The unsaturated upper portion of the unit also has desiccation cracks, which are very thin fractures in the clay caused by the shrinking-swelling properties of the clay minerals. These desiccation cracks are often coated with a gray silt and are nearly vertical. Traces of fine gravel are found throughout the clay unit. The lower, saturated portion of the unit shows relatively strong laminations which are alternately gray and reddish-brown. The gray layers are generally coarser, silt-size particles. This unit has a very low permeability, on the order of 1×10^{-8} cm/sec as measured in the two samples analyzed (Appendix C).

The fill unit was encountered in all well borings and is visually evident over most of the site. The fill is thickest near Scajaquada Creek; 18 feet were encountered at GW-4A. The fill appears to be mostly black foundry sand mixed with demolition debris, bricks, cinders, slag and scrap metal.

Prior to initiating the well borings, electrical resistivity (ER) soundings were performed at the proposed well locations to help identify the subsurface stratigraphy. The results of the ER soundings were limited by the thick layer of foundry sand fill found over most of the site. The fill made installing the ER probes difficult due to its density, and apparently masked the ER response. Up to 20 feet of fill was interpreted from the ER sanding data, and up to 18 feet of fill was found in the borings. The thickness of the underlying lacustrine deposits was interpreted to be 20 to 24 feet, based on the ER soundings. The lacustrine deposits found in the borings were up to 80 feet thick. The depth to bedrock was interpreted to be approximately 50 feet, based on the sounding data. Bedrock was found at 85 and 93 feet in two well borings. The ER sounding data did indicate a significant thickness of fill at the proposed upgradient location (GW-1). Based on those results, it was determined that GW-1 should be moved to the east. The fill cover was only two feet thick in relocated well boring GW-1.

Groundwater Hydrology

Five groundwater monitoring wells were installed at the Pratt and Letchworth site to determine groundwater flow directions and to assess the groundwater quality. The locations of the wells are shown on Figure IV-3. Monitoring well construction data are presented on Table IV-3. Water level data are presented on Table IV-4. The wells monitor two water-bearing units. One unit is the fill/lacustrine clay (clay) interface at GW-2A, GW-3A, and GW-4A. The second unit is the upper portion of the bedrock, at GW-1B and GW-3B.

Based on information from two dates when water levels in the wells were measured, the groundwater at the clay/fill interface flows toward the southeast and likely discharges to Scajaquada Creek (Figure IV-5). The groundwater in the upper bedrock apparently flows toward the south, based on the two well measurement points.

Based on these groundwater flow directions, the locations of the wells in relation to the potential source areas can be further defined. GW-1B is considered the upgradient bedrock well, and GW-3B is considered the downgradient location for the landfill area. Because groundwater

was not encountered at the fill/clay interface near GW-1B, there is no upgradient well for that water-bearing zone. Wells screened at the fill/clay interface are all considered to be downgradient locations. GW-2A is downgradient of the oil spill and landfill areas; wells GW-3A and GW-4A are downgradient of the landfill area.

The water in the upper bedrock zone is partially confined by the overlying lacustrine clay unit. The water levels in GW-1B and GW-3B stabilize within the upper portion of the lacustrine unit (Figure IV-4). The difference in water level elevation between GW-1B and GW-3B on November 19, 1987 was .4 feet, over a horizontal distance of about 480 feet, resulting in a hydraulic gradient of .00083. This upper bedrock zone is considered the aquifer of concern due to its probable widespread occurrence beyond the site as compared to the localized occurrence of the fill/clay interface zone. There is some evidence of use for the bedrock aquifer by local industries, although not within close proximity of the site. The drinking water supply for the region is surface water from Lakes Erie and Ontario, and the Niagara River.

Groundwater within the fill/clay interface zone occurs under water table conditions. The depth to groundwater in this zone ranged from about 6 to 17 feet on November 19, 1987 (Table IV-4).

At GW-3A and 3B, wells monitor both water bearing zones at essentially the same location. At this location, 69 feet of lacustrine clay separate the fill/clay interface and bedrock. Permeability tests were conducted on two samples of the lacustrine clay at 22 and 67 feet below ground surface at GW-3B. The permeability for each sample was 1×10^{-8} cm/sec (Appendix C). Despite this very thick, low permeability layer, the water level elevations in GW-3A and GW-3B were the same on November 19, 1987. On February 18, 1988 a slight downward gradient was indicated, based on the elevation in GW-3B being 0.8 feet lower than in GW-3A. This, combined with observations of saturated clay beginning at depths of 20 to 25 feet in GW-3B, indicate some connection between the two water-bearing units monitored on-site. Although data are limited, it appears likely that downward groundwater flow through the overburden is significantly less than horizontal flow toward the southeast.

Surface Water Hydrology

The only surface water body associated with the site is Scajaquada Creek, which forms the southeastern site border and is about 40 feet wide. Scajaquada Creek flows west into the Niagara River via the Black Rock Canal, located about .5 miles from the site. Scajaquada Creek is classified by the NYSDEC as a Class B waterway (6 NYCRR).

SITE CONTAMINATION ASSESSMENT

Waste Characterization

Approximately 19,000 tons of foundry sand and 16,000 tons of foundry slag were landfilled on-site during the period from 1949 to 1965 (NYSDEC, 1983). It is suspected that some of the

foundry sands and slag may have contained phenolic-based binders. Liquid wastes including lubricant and hydraulic oils, 1,1,1-trichlorethane degreaser, and alcohol-based foundry sand binders containing naphtha and phosphoric acid were stored in drums on the surface of the landfill site (NYSDEC, 1978; ES and D&M Site Inspection, 1985). As of the 1985 inspection, there were approximately 100 to 150 drums stored on-site, including 70 to 100 drums which contained unidentified liquids. Many of these drums showed evidence of damage or leakage. Signs of waste spillage (i.e., stained ground) had also been observed near the drum storage area (NYSDEC, 1978; ES and D&M Site Inspection, 1985). In addition, the presence of alcohol-based binders may have posed a fire hazard at the time.

The foundry sand and slag wastes were landfilled into and adjacent to Scajaquada Creek, which is along the southern boundary of the Pratt and Letchworth property. Landfilling has apparently elevated the surrounding ground surface by approximately 18 feet and reduced the size of the creek from one which previously could accept small commercial boats to a shallow waterway less than 40 feet in width (ES and D&M Site Inspection, 1985).

Used motor oil and hydraulic oil were also apparently disposed on-site at a rate of five 55-gallon drums weekly (ITFHW). Some of this oil may have been spread on the site roads until the mid-1960s (Bowser-Morner, 1982).

On April 28, 1976, an oil spill occurred in Scajaquada Creek, originating from the Pratt and Letchworth site (CEDEQ, 1976). Information provided by the Pratt and Letchworth Company indicated that the erroneous opening of a valve caused the unintentional flow of oil into the creek. Pratt and Letchworth placed temporary booms across the creek to contain the spill. The Coast Guard and a private firm, the Elmwood Tank Company, were notified of the spill by the Pratt and Letchworth Company. A representative of the Elmwood Tank Company indicated that about 200 gallons of light quenching oil of low viscosity had been pumped out.

In 1982, a site investigation was authorized at the Pratt and Letchworth site by Robert Maynard of Smith and Schnacke (Bowser-Morner, 1982). That investigation included analysis of soil samples collected from near Scajaquada Creek, on the assumption that the migration of contaminants from the landfill would be intercepted at the clay soil layer exposed on the creek bank. Samples were also collected from the foundry sand overlying the sand-clay juncture and from the underlying clay layer. A sample of foundry sand at the surface of the fill was also taken. Extraction procedure toxicity tests were performed on the samples. A summary of the results is presented in Table IV-5. The sample locations are shown in Figure IV-6. These results indicate that the samples were not hazardous by characteristic with respect to arsenic, cadmium, and chromium and 40 CFR Part 261 Subpart C. Concentrations of leachate iron and nickel were higher in the clay soil than in either surface or sub-surface foundry sand sample.

A second round of sampling and analyses was requested by NYSDEC and performed by Bowser-Morner in the Fall of 1982. Analyses for phenol and TOX were run on the samples previously collected (Table IV-5). These results indicated that phenol was present in the fill and soil at concentrations of less than 0.6 ppm. Sediment samples were collected upstream, near the site,

and downstream of the site, and analyzed for PCBs, total concentrations of five metals and TOX. Those results are presented in Table IV-6. The sediment sample locations are shown on Figure IV-6. TOX and PCB concentrations were below detectable levels. Downstream concentrations of metals were not significantly (more than three times) higher than the concentrations in the upstream samples. All metals concentrations were within published naturally-occurring ranges for New York State or United States soils.

The following subsections summarize the results of the Phase II investigation sampling and analyses tasks. Whenever possible, samples were collected upstream or upgradient of the site to establish ambient or background conditions. These levels were compared to those found on-site, downstream or downgradient of the site. Concentrations downstream or downgradient of the site in excess of three times the upgradient concentration may indicate a release from a contaminant source located on-site. The value of three times is generally recognized by the USEPA and NYSDEC as constituting a "significantly higher" concentration for purposes of scoring an HRS observed release for a particular pathway. Therefore, reference is made to the number and types of analytes considered to be observed releases under each pathway, as discussed in the following subsections.

The analytical results have also been compared to applicable New York State standards or guidance values. Standards and guidance values are provided for the applicable surface water and groundwater classifications. Standards that have been promulgated for surface water appear in 6 NYCRR Parts 701 and 702, and for groundwater in Part 703. These regulations also provide authority for the use of guidance values when a standard does not exist for a given water classification. For groundwater, the standards and guidance values cited are for sources of drinking water. Sediment results have been compared to published naturally-occurring ranges in New York State or conterminous United States soils.

The field procedures utilized for the sampling are presented in Appendix A. A complete list of analytical results can be found in Appendix D.

Waste Contamination Assessment

Soil and waste samples were collected during the drilling of several well borings. These samples were analyzed for HSL volatiles, semivolatiles, metals, and cyanide. Sample SB-1S was taken from the natural soil near GW-1B. SB-1S is considered a background soil sample. Those samples taken from the fill (waste) are designated "F". Those samples taken from the fill/soil interface are designated "SF" or "F&S". When more than one sample was collected from a well boring, the depth is noted in parentheses. A complete list of the location and depth of each waste sample has been provided in Table III-3.

Thirty-nine HSL organic compounds were detected in the soil or waste samples (Table IV-7). Four of these - methylene chloride, acetone, benzo(a)pyrene and bis(2-ethylhexyl)phthalate - were also detected in laboratory blank samples. Consequently, most of the reported sample results for those compounds have been rejected. An exception is the acetone concentration in

SB-2A-F, which was in excess of 20 times the blank concentration. This indicates that acetone may be present in that sample. Approximately 25 compounds were present in downgradient samples at concentrations in excess of three times the background concentrations. The background sample SB-1S was relatively clean, with the exception of low concentrations of 2-butanone, 2-hexanone and di-n-butylphthalate. The most highly contaminated samples were taken from the fill: SB-2A-F, SB-3A-F(2-8), SB-3A-F(12-14), SB-4A-F and SB-4A-SF.

The compounds most frequently detected at relatively high concentrations are of a class known as polynuclear aromatic hydrocarbons (PAHs). PAHs form as a result of incomplete combustion of organic compounds. PAHs can be formed in any hydrocarbon combustion process and may be released from oil spills (Sittig, 1985). The highest concentrations of total PAHs were in samples from well borings 3A and 4A.

Among the other compounds present in the waste samples were phenol or phenolic compounds such as 4-methylphenol, 2-chlorophenol and 4-chloro-3-methylphenol. Phenol or phenolic compounds were detected in waste samples from well borings GW-3A and GW-4A, located near Scajaquada Creek.

Twenty-one HSL metals were reported in the soil and waste samples (Table IV-8). The concentrations of six metals in the fill samples are noteworthy. The concentrations of cadmium, chromium, copper, iron, lead and manganese in the fill samples were in excess of three times the background concentrations. Concentrations of cadmium, manganese and antimony exceeded the listed naturally-occurring ranges. The results indicate that the fill may be considered an on-site source of these five metals.

In summary, the results of the waste analyses indicate releases of 31 HSL organic and inorganic compounds potentially attributable to the site. These results have been used to compare the hazardous substances present in the waste with those present in the groundwater and surface water samples.

Given the historical industrial use of the site, the presence of PAHs and metals in the soil and fill samples is expected. In heavily industrialized areas, it would not be unusual to find background levels of PAHs in soils, due to the nature of the land use. As long as the PAHs are not migrating off-site, the presence of those compounds at the levels detected is not considered to be a significant problem. The presence of the phenolic compounds may be residual contamination from the use of phenolic-based binders in the foundry sand. The presence of phenolic compounds is of concern given their relatively high toxicity. However, since the phenolic compounds were present at levels below the contract-required detection limit, and at less than three times background concentrations, their presence in the waste is not considered to be a significant problem.

Surface Water Contamination Assessment

Three surface water samples were collected along the north side of Scajaquada Creek. SW-1.12 is the upgradient sample, collected east of the site (Figure IV-2). SW-1 was collected

adjacent to the landfill area, and SW-2 was collected downgradient of the landfill area. All three samples were analyzed for HSL volatiles, semivolatiles, metals, cyanide and TOX.

Nine HSL organic compounds were reported in the surface water samples (Table IV-9). Six of these compounds - methylene chloride, acetone, carbon disulfide, di-n-butylphthalate, bis(2-ethylhexyl)phthalate and benzo(a)pyrene - were also detected in laboratory blank samples. The presence of these compounds may be attributable to laboratory contamination. Three other compounds were detected at low concentrations. The concentration of phenol in SW-1 (adjacent to the landfill) was below the applicable Class B standard, but does indicate that phenol present in the fill may be entering Scajaquada Creek. The only location where a Class B guidance value was exceeded was at the upgradient location SW-1.12, for tetrachloroethene. No releases of organic compounds were indicated by the results.

Seventeen HSL metals were reported in the surface water samples (Table IV-10). The concentrations of lead, cobalt and mercury in SW-1 and lead in SW-2 were in excess of three times the upgradient value, indicating releases which are potentially attributable to the site. Class B standards or guidance values for six metals were exceeded in one or more samples. The standards for aluminum, iron and zinc were exceeded in all samples, including the upgradient location. This indicates a condition not attributable to the site. The standard for cobalt was exceeded in SW-1, adjacent to the landfill. Cobalt was not detected in the upgradient sample. The guidance value for mercury was exceeded in SW-1 and SW-2. Mercury was not detected in the upgradient sample. The concentrations of silver in SW-1 and SW-2 exceeded the Class B standard; however, the standard for silver refers to the ionic form. Since the analytical method used to generate these results provides concentrations of total silver, this may not be a violation of the standard.

In summary, the downgradient sample results for cobalt and mercury indicate violation of a Class B standard and guidance value, respectively. A comparison with upgradient concentrations indicates these concentrations may be attributable to the site. Comparison of upgradient and downgradient concentrations for lead also indicates the site may be the source for this surface water contaminant.

Sediment Contamination Assessment

Three sediment samples were collected at the same locations as the surface water samples. Sample SED-1.12 is the upgradient location; SED-1 and SED-2 are downgradient locations. The sediment samples were analyzed for HSL volatiles, semivolatiles, pesticide/PCBs metals, cyanide, and TOX.

Twenty HSL organic compounds were detected in the sediment samples (Table IV-11). Three of these - methylene chloride, acetone and benzo(a)pyrene - were also detected in laboratory blank samples. Those results may be attributed to laboratory contamination.

Seventeen HSL organic compounds were present in downgradient samples at concentrations in excess of three times the upgradient concentrations. This indicates releases

potentially attributable to the site. The concentrations of two polychlorinated biphenyl (PCB) compounds, Aroclor 1248 and Aroclor 1260 in SED-2 were the equivalent of 2 and 3 parts per million (ppm), respectively. Those concentrations are well below concentrations at which remedial action is usually undertaken. Two phenolic compounds, 2-chlorophenol and 4-chloro-3-methylphenol were reported in SED-1, adjacent to the landfill area. Phenol was also detected in the associated surface water sample location, SW-1. Phenol and other phenolic compounds were also detected in the waste samples from well boring 3A.

The number and concentrations of volatile organic compounds reported in SED-2 are noteworthy; they were either not detected in the waste samples, or were detected at lower concentrations. This may indicate a separate source for these compounds exists elsewhere on-site.

Twenty-one HSL inorganics were reported in the sediment samples (Table IV-12). The concentrations of eight elements were highest in the upgradient sample SED-1.12, indicating background conditions not attributable to the site. Most noteworthy is lead, which was present at a concentration well above the downgradient concentrations, and beyond the published naturally-occurring range.

For antimony and cadmium, the downgradient concentrations were in excess of the published naturally-occurring range, and were undetected in the upgradient sample. This indicates releases potentially attributable to the site with respect to these two compounds.

In summary, the types of HSL compounds detected in the sediment samples were generally consistent with those found in the waste and surface water samples. This was particularly true for the PAHs, phenolic compounds, antimony and cadmium.

Groundwater Contamination Assessment

Groundwater samples were collected from the five monitoring wells and analyzed for HSL volatile and semivolatile compounds, HSL metals and TOX. Sample GW-1B is the upgradient location for the bedrock zone, and GW-3B is the downgradient location. Samples GW-2A, GW-3A and GW-4A are all considered to be downgradient locations for the fill/clay interface zone.

Five HSL organic compounds were detected in the bedrock wells (Table IV-13). Three of these, methylene chloride, acetone and bis(2-ethylhexyl)phthalate, were also detected in laboratory blank samples. Those results were therefore attributed to laboratory contamination. For all HSL organic compounds detected in the bedrock wells, the concentrations were highest in the upgradient sample, GW-1B.

Seven HSL organic compounds were detected in the fill/clay interface wells (Table IV-13). Four compounds were also detected in the laboratory blank samples. Those results were attributed to laboratory contamination. Of the remaining compounds, the concentrations were low, and did not exceed any applicable standards or guidance values. Observed releases were not indicated by the results.

Twelve HSL metals were detected in the bedrock wells (Table IV-14). The concentrations for six metals were highest in the upgradient sample, GW-1B. The Class GA standard for iron, and the guidance value for magnesium were exceeded in both bedrock well samples.

Twenty HSL metals were detected in the fill/clay interface wells (Table IV-14). Since upgradient concentrations are not available for this zone, the results have been compared to Class GA standards and guidance values for this discussion. However, the fill/clay interface groundwater cannot be considered a Class GA drinking water supply, and therefore the standards and guidance values are not applied for regulatory purposes. Rather, the comparisons are made in an attempt to assess the quality of the groundwater in that zone.

Class GA standards for barium, cadmium, iron, lead and manganese were exceeded in one or more of the interface wells. Class GA guidance values for antimony, beryllium and magnesium were equalled or exceeded in one or more wells. The USEPA ambient water quality criterion for nickel was also exceeded in GW-3A and GW-4A.

Comparisons of the interface well and waste results for cadmium and lead are noteworthy. For both of these elements, the concentrations in the waste samples from GW-3A and GW-4A were relatively high. This was also the case for the groundwater concentrations in GW-3A and GW-4A.

Comparisons of the interface well and surface water results are also noteworthy. The concentrations of antimony, cadmium, chromium, lead and manganese were relatively high in the interface wells and in the downgradient surface water samples. This may indicate that groundwater at the fill/clay interface is discharging to Scajaquada Creek, as supported by the groundwater flow direction discussed in the subsection on groundwater hydrology.

In summary, the data does not indicate that the site is adversely impacting the groundwater quality in the upper bedrock. Although Class GA standards may not be applicable, comparing them to the groundwater at the fill/clay interface indicates very poor water quality. There is evidence to support that groundwater at the interface may be discharging to Scajaquada Creek with an adverse impact on the surface water quality.

Surface Soil Contamination Assessment

Three surface soil samples were collected from a former drum storage area, where leaking drums caused an oil spill. These soil samples were analyzed for HSL volatiles, semivolatiles, pesticide/PCBs, metals, cyanide and TOX. Sixteen HSL organic compounds were detected in the surface soil samples (Table IV-15). Three of these,methylene chloride, acetone and benzo(a)pyrene, were also detected in laboratory blank samples. Those sample concentrations have been attributed to laboratory contamination. Sample SS-1 contained mostly low concentrations of volatile organic compounds. Sample SS-2 contained mostly low concentrations of PAHs. Sample SS-3 was relatively clean with regard to the number of organic compounds detected. The most significant result for the surface soil samples was the presence of a PCB compound, Aroclor-1260 in all three samples. The concentration of Aroclor-1260 in SS-2 was the equivalent of 2,200 parts per million (ppm), well above the concentration at which remedial action

should be undertaken. The concentrations of Aroclor-1260 in the other samples was less than 10 ppm. Concentrations in that range normally do not require remediation.

Nineteen HSL inorganics were detected in the surface soil samples (Tables IV-16). The results for the background soil samples SB-1S have been included on this table for comparison purposes. The concentrations of six metals are most noteworthy. The concentration of cadmium in SS-1 exceeded the published naturally-occurring range, and was nearly five times the background value. The concentrations of antimony in SS-1, SS-2 and SS-3 exceeded the published naturally-occurring range. The concentrations of chromium, lead and manganese in SS-1 and copper in SS-3 were in excess of ten times the background values, but were within the published naturally-occurring ranges.

The surface soil results indicate contamination with PCBs, PAHs and volatile organic compounds, and potentially elevated concentrations of six metals. The results which are of most concern are the concentrations of PCBs. These results indicate that remedial action should be undertaken.

Contamination Assessment Summary

The soil boring sample results indicate the waste may be a source of PAHs, phenol, phenolic compounds, cadmium, chromium, copper, iron, lead, manganese and antimony. The surface water results indicate that cobalt, lead and mercury are being released from the site. The sediment results indicate that PCBs, phenolic compounds, PAH, antimony and cadmium are being released from the site. The surface soil results indicate residual contamination with PCBs, PAHs, cadmium, antimony, copper chromium, lead and manganese. No releases to the aquifer of concern were observed.

From these results, it is apparent that the fill zone is acting as a source of contamination and may require remediation. The data suggest that contaminants are migrating from the fill to the surface water and sediments via groundwater flow at the fill/clay interface. Residual soil contamination exists as a result of the former leaking drums.

At the present time, remediation of the PCB contaminated soils in the oil spill area should be required. There are indications that the contaminated soils are underlain by a concrete slab, which would inhibit downward migration of contaminants, and limit the amount of soil to be remediated.

Since the aquifer of concern is not indicated to be adversely affected by the site, remedial action on that pathway does not appear necessary. Despite the release of contaminants to Scajaquada Creek, there is not expected to be an impact on water quality in the Niagara River and the municipal water supply intakes located there. The rate of flow in the Niagara River is several orders of magnitude greater than Scajaquada Creek; dilution and dispension would likely negate any potential impacts at the contaminant concentrations detected in this Phase II investigation.

Soil samples collected in other parts of the fill area by NUS in 1986 contained .32 to 1.2 ppm of PCBs (NUS, 1988). Those results indicate that the PCB-contaminated soils are not confined to the former oil spill area, and that future investigations should define the potential for other areas of soils to be heavily contaminated with PCBs.

TABLE IV-1

STRATIGRAPHY SUMMARY
PHASE II WELL BORINGS
PRATT AND LETCHWORTH SITE

(Depth in feet below ground surface)

Stratigraphic Unit	GW-1B (497.3)*	GW-2A (495.0)*	GW-3A (486.5)*	GW-3B (486.4)*	GW-4A (491.5)*
Fill	0-2.0	0-7.5	0-12.0	0-12.0	0-18.0
Lacustrine Silty-Clay	2.0-83.0	7.5-10.0	12.0-15.0	12.0-81.0	18.0-21.0
Glacial Till	83.0-93.0			81.0-85.0	
Bedrock	93.0-108.0			85.0-97.0	

* Elevation of ground surface in feet, referenced to an assumed on-site datum.

TABLE IV-2

GRAIN SIZE CHARACTERISTICS
PRATT AND LETCHWORTH SITE

Well Boring Number	Sample Depth (ft.)	% Gravel	% Sand	Silt and Clay (%)	Classification	Stratigraphic Unit
GW-1B	0-2	9.1	77.3	13.6	SM	Fill
	15-17	5.2	3.9	90.9	CL	Lacustrine Clay
	40-42	0.0	0.7	99.3	CL	Lacustrine Clay
	75-77	3.5	12.5	84.0	CL	Lacustrine Clay
	90-92	23.5	67.0	9.5	SP-SM	Glacial Till
GW-3B	5-7	2.8	67.5	29.7	SM	Fill
	22-24.5	1.4	10.7	87.9	ML-CL	Lacustrine Clay
	40-42	0.0	0.4	99.6	CL	Lacustrine Clay
	67-69	0.0	0.8	99.2	CL	Lacustrine Clay

SM Silty sand

CL Clayey soil

SP Poorly graded sands

ML Silty soil

TABLE IV-3

MONITORING WELL DATA
PRATT AND LETCHWORTH SITE

Well I.D.	Ground Surface Elevation (Feet*)	Top of Bedrock Depth/Elevation (Feet/Feet*)	Top of Well Screen Depth/Elevation (Feet/Feet*)	Bottom of Well Screen Depth/Elevation (Feet/Feet*)
1B	497.3	93/404.3	97.5/399.8	107.5/389.8
2A	495.0	NE	4.5/490.5	9.5/485.5
3A	486.5	NE	9/477.5	14/472.5
3B	486.4	85/401.4	87/399.4	97/389.4
4A	491.5	NE	15/476.5	20/471.5

* Above an assumed on-site datum.

NE - Not encountered.

Note: Wells designated "A" monitor the fill/clay interface. Wells designated "B" monitor the upper bedrock.

TABLE IV-4

WATER LEVEL DATA
PRATT AND LETCHWORTH SITE

Well I.D.	Ground Surface Elevation (Feet*)	Top of PVC Well Pipe Elevation (Feet*)	Well Screen Interval Elevation (Feet*)	Water Level Data Date 11/19/87 Depth to Water Level (Feet**)	Water Level Data Date 11/19/87 Water Level Elevation (Feet*)	Water Level Data Date 2/18/88 Depth to Water Level (Feet**)	Water Level Data Date 2/18/88 Water Level Elevation (Feet*)
1B	497.3	500.2	399.8 - 389.8	23.1	477.1	23.1	477.1
2A	495.0	497.4	490.5 - 485.5	5.9	491.5	4.9	492.5
3A	486.5	488.9	477.5 - 472.5	12.2	476.7	11.7	477.2
3B	486.4	489.2	399.4 - 389.4	12.5	476.7	12.8	476.4
4A	491.5	494.2	476.5 - 471.5	16.8	477.4	16.7	477.5

* Above an assumed datum.

** Water level depth from top of PVC well pipe.

Note: Wells designated "A" monitor the fill/clay interface. Wells designated "B" monitor the upper bedrock.

TABLE IV-5

SUMMARY OF 1982 SOIL ANALYSES RESULTS

AT THE PRATT AND LETCHWORTH SITE

Parameter (units)	Sample Locations Surface Foundry Sand BM-1	 Subsurface Foundry Sand BM-2	 Clay Soil BM-3
Inorganic Constituents[a]			
Arsenic (ppm)	<0.03	<0.03	<0.03
Cadmium (ppm)	<0.01	0.06	0.05
Chromium (ppm)	<0.05	0.65	1.50
Iron (ppm)	<0.25	2.50	5.60
Nickel (ppm)	<0.25	0.30	1.00
Organic Constituent[a]			
PCB (ppm)	<1.0	<1.0	<1.0
Dry Weight Organic Constituents[b]			
TOX (plus PCB) (ppm)	<1.0	<1.0	<1.0
Phenol (ppm)	0.56	0.34	0.31

Source: Bowser and Morner Laboratory Reports to Smith and Schnacke, 8/31/82 and 11/22/82.

(a) Concentrations in leachate from EP Toxicity Test.

(b) Concentrations in dry weight of soil.

TABLE IV-6

SUMMARY OF 1982 SEDIMENT ANALYSES RESULTS AT THE PRATT AND LETCHWORTH SITE

(In PPM)

Parameter	Sample Collection Sites 1 Upstream	2 Midstream	3 Downstream
Inorganic Constituents			
Arsenic			
As Received	<0.4	<0.3	<0.3
Dry Basis	<0.5	<0.5	<0.5
Cadmium			
As Received	1.12	1.87	1.50
Dry Basis	1.59	2.91	2.35
Total Chromium			
As Received	27.1	26.7	36.7
Dry Basis	38.6	41.5	57.5
Total Iron			
As Received	10,700.0	18,300.0	8,532.0
Dry Basis	15,229.0	28,473.0	13,377.0
Nickel			
As Received	12.8	20.2	18.0
Dry Basis	18.2	31.4	28.2
TOX (plus PCBs)	<1.0	<1.0	<1.0

Source: Bowser and Morner Laboratory Reports to Smith and Schnacke, 11/22/82.

TABLE [illegible]
PRATT & LEITCHWORTH
SOIL BORING RESULTS
HSL ORGANIC COMPOUNDS (ug/kg)(a)

COMPOUND (b)	Sample Location SB-1S(c)	SB-2A-F	SB-2A-F&S	SB-3A-F(2-8)	SB-3A-F(12-14)	SB-4A-F	SB-4A-SF
Methylene Chloride	R	R	R	R	R	R	R
Acetone	R	460.2 B	321.5 BX	R	R	R	395.3 BX
Carbon Disulfide	---	---	---	---	---	---	3.4 J
2-Butanone	1.6 J	22.8	1.9 J	---	---	---	57.1
1,1,1-Trichloroethane	---	21.3	---	---	---	2.0 J	---
Benzene	---	R	---	---	---	R	R
2-Hexanone	3.1 J	---	2.5 J	---	---	---	---
Toluene	---	---	---	---	---	1.8 J	7.2 J
Ethylbenzene	---	---	---	2.9 J	---	---	4.1 J
Styrene	---	2.3 J	---	---	---	---	---
Total Xylenes	---	---	---	6.1 J	3.5 J	3.2 J	9.5
1,1-Dichloroethene	---	---	---	---	---	---	4.6 J
Trichloroethene	---	---	---	---	---	---	4.0 J
Naphthalene *	---	364.0 J	---	270.0 J	600.0 J	220.0 J	130.0 J
2-Methylnaphthalene	---	430.0 J	---	180.0 J	480.0 J	150.0 J	---
Acenaphthene *	---	115.0 J	---	380.0 J	270.0 J	200.0 J	170.0 J
Acenaphthylene *	---	---	---	---	190.0 J	110.0 J	120.0 J
Fluorene *	---	220.0 J	---	470.0 J	330.0 J	220.0 J	190.0 J
Phenanthrene *	---	1200.0	---	4500.0	2700.0	2600.0	1400.0
Anthracene *	---	140.0 J	---	1100.0	720.0 J	570.0 J	470.0 J
Fluoranthene *	---	---	---	4700.0	4000.0	4500.0	2400.0
Pyrene *	---	860.0	---	4900.0	4900.0	5000.0	3200.0
Benzo(g,h,i)Perylene *	---	---	---	950.0	1100.0	1200.0	960.0 J
Dibenz(a,h)Anthracene *	---	---	---	190.0 J	500.0 J	360.0 J	350.0 J
Benzo(a)Anthracene *	---	280.0 J	---	2000.0	2500.0	2600.0	1700.0
Chrysene *	---	410.0 J	---	2000.0	2600.0	2800.0	1600.0
Benzo(b)Fluoranthene *	---	330.0 J	---	1100.0	1800.0	1600.0	1100.0
Benzo(k)Fluoranthene *	---	390.0 J	---	1500.0	1700.0	---	1300.0
Benzo(a)Pyrene *	R	R	---	R	2700.0 BX	2800.0 BX	R
Indeno(1,2,3-cd)Pyrene *	---	---	---	810.0 J	1100.0	1100.0	960.0 J
Dibenzofuran	---	82.0 J	---	390.0 J	270.0 J	180.0 J	---
N-nitrosodiphenylamine (d)	---	---	---	370.0 J	---	---	740.0 J
3,3'-Dichlorobenzidine	--- X	--- X	--- X	--- X	640.0 JX	--- X	--- X
Di-n-Butylphthalate	45.0 J	48.0 J	---	71.0 J	100.0 J	130.0 J	---
bis(2-Ethylhexyl)Phthalate	R	R	---	R	R	R	R
Phenol	---	---	---	430.0 J	570.0 J	261.0 J	---
4-Methylphenol	---	---	---	---	170.0 J	---	---
2-Chlorophenol	---	---	---	---	110.0 J	---	---
4-Chloro-3-methylphenol	---	---	---	---	88.0 J	---	---
Total PAH's	---	4309.0	---	24870.0	27710.0	25880.0	16050.0

FOOTNOTES:
(a) See Appendix D for dilution factors.
(b) Only HSL organic compounds that were detected are presented.
(c) Background location.
(d) Cannot be separated from diphenalymine.
* PAH - Polynuclear Aromatic Hydrocarbons

DATA QUALIFIERS:
B: This flag is used when the analyte is found in the blank as well as a sample. It indicates possible/probable blank contamination and warns the data user to take appropriate action.
J: Indicates the presence of a compound that meets the identification criteria but the result is less than the specified detection limit but greater than zero.
---: Indicates that the compound was analyzed for but not detected. Refer to Appendix D for detection limit.
X: Data validation recommends this value be considered an estimate.
R: Data validation recommends this value be rejected.

TABLE IV-8
PRATT & LEICHWORTH
SOIL BORING RESULTS
HSL INORGANICS (mg/kg)

ANALYTE (a)	NATURALLY OCCURRING RANGES IN NYS SOILS (b)	Sample Location SB-1S(c)	SB-2A-F	SB-2A-F&S	SB-3A-F(2-8)	SB-3A-F(12-14)	SB-4A-F	SB-4A-SF
Aluminum		21809.5 X	5246.3 X	5007.3 X	3579.5 X	16282.1 X	7923.1 X	4458.8 X
Antimony	<1-10	--- R	--- R	--- R	--- R	--- R	32.3	35.9
Arsenic	0.1-100	4.4	11.7	1.9	---	3.3	---	6.3
Barium	10-500	141.0 X	55.9 X	49.8 X	[42.8]X	85.9 X	189.5 X	242.1 X
Beryllium	<1-15	[0.7]X	--- X	--- X	--- X	--- X	--- X	--- X
Cadmium	0.01-7 (d)	2.4	2.9	7.1	2.3	2.8	8.7	8.5
Calcium		54476.2 X	3804.9 X	7390.2 X	6359.0 X	5051.3 X	7025.6 X	22676.5 X
Chromium	1-2000	33.3 X	58.8 X	142.7 X	119.7 X	30.8 X	57.7 X	71.5 X
Cobalt	<3-70	12.4	---	---	---	---	---	---
Copper	1-700	21.0	48.3	156.1	162.1	90.8	154.4	105.9
Iron		32166.7 X	23975.6 X	65487.8 X	97076.9 X	16384.6 X	84897.4 X	95352.9 X
Lead	<10-700	---	37.1 X	25.9 X	75.4 X	425.6 X	202.6 X	70.9 X
Cyanide		---	0.1	0.2	0.2	---	0.3	0.6
Magnesium		17738.1 X	[975.6]X	1780.5 X	2307.7 X	[1179.5]X	1512.8 X	2000.0 X
Manganese	<2-7000	603.8 X	1778.3 X	11824.4 X	1014.9 X	170.0 X	1031.0 X	3544.1 X
Nickel	<5-7000	28.6 X	[8.0]X	12.7 X	85.6 X	15.9 X	43.3 X	--- X
Potassium		3857.1	[561.0]	---	---	2512.8	[948.7]	---
Silver		--- R	33.9	--- R	--- R	--- R	--- R	--- R
Sodium		[309.5]	[243.9]	[146.3]	[179.5]	[384.6]	[205.1]	[205.9]
Vanadium	20-500	33.8	[7.3]	23.4	[11.5]	[8.2]	---	55.0
Zinc	<5-3500	107.1 X	61.0 X	86.1 X	111.8 X	179.5 X	156.7 X	260.3 X

FOOTNOTES:

(a) Only HSL metals that were detected are presented. If the result is a value greater than or equal to the instrument detection limit but less than the contract-required detection limit, the value is reported in brackets (i.e.; [10]).
(b) USGS Professional Paper 1270 (1984): New York State Soils.
(c) Background location.
(d) Booz, Allen & Hamilton, Inc. (1983): Range in U.S. Soils.

DATA QUALIFIERS:

---: Indicates that the metal was analyzed for but not detected. Refer to Appendix D for detection limit.
X: Data validation recommends this value be considered an estimate.
R: Data validation recommends this value be rejected.

TABLE IV-9
PRATT & LEICHWORTH
SURFACE WATER RESULTS
HSL ORGANIC COMPOUNDS (ug/L)

COMPOUND (a)	NYS STANDARDS/ GUIDANCE VALUES (b)	Sample Location SW-1.12(c)	SW-1	SW-2
Methylene Chloride		--- R	2.6 JB	26.0 B
Acetone		--- R	6.5 JB	20.0 B
Carbon Disulfide		---	1.1 JB	2.3 JB
1,1,1-Trichloroethane		1.2 J	---	---
Tetrachloroethene	1.0 G	5.1	---	---
Phenol	5.0	---	4.1 J	---
Di-n-Butylphthalate		---	36.0 B	10.0 B
bis(2-Ethylhexyl)Phthalate	0.6	--- R	8.7 JB	---
Benzo(a)Pyrene	0.0012 G	---	11.0 B	11.0 B
Total Organic Halogens		---	---	18

FOOTNOTES:

(a) Only HSL organic compounds that were detected are presented.
(b) Referenced from; "Ambient Water Quality Standards and Guidance Values" for Class B surface waters, protection for fish and fish propogation, 6 NYCRR Parts 701 and 702, NYSDEC, 7/24/85, as amended through 4/1/87. The value presented is the standard except where noted by "G" in which case it is the guidance value. All units are ug/L.
(c) Upgradient location.

DATA QUALIFIERS:

B: This flag is used when the analyte is found in the blank as well as a sample. It indicates possible/probable blank contamination and warns the data user to take appropriate action.
J: Indicates the presence of a compound that meets the identification criteria but the result is less than the specified detection limit but greater than zero.
---: Indicates that the compound was analyzed for but not detected. Refer to Appendix D for detection limit.
R: Data validation recommends this value be rejected.

TABLE IV-10
PRATT & LEITCHWORTH
SURFACE WATER RESULTS
HSL INORGANICS (ug/L)

ANALYTE (a)	NYS STANDARDS/ GUIDANCE VALUES (b)	Sample Location SW-1.12(c)	SW-1	SW-2
Aluminum	100	400.0	405.0	433.0
Antimony		--- R	215.0	197.0
Arsenic	190 (d)	--- R	---	---
Barium		[70.0]	[45.0]	[32.0]
Calcium		163900.0 X	128970.0	123741.0
Chromium		---	19.0	16.0
Cobalt	5	---	[15.0]	---
Copper		---	[6.0]	[7.0]
Iron	300	768.0	435.0	633.0
Lead		13.7	46.9	61.8
Magnesium		20600.0	15002.0	14418.0
Manganese		---	56.0	65.0
Mercury	0.2 G	--- X	2.6	0.4
Potassium		---	[2631.0]	[2639.0]
Silver	0.1 (e)	--- R	99.0	93.0
Sodium		41300.0	42443.0	42532.0
Zinc	30	84.0 X	30.0	81.0

FOOTNOTES:

(a) Only HSL metals that were detected are presented. If the result is a value greater than or equal to the instrument detection limit but less than the contract-required detection limit, the value is reported in brackets (i.e.; [10]).
(b) Referenced from; "Ambient Water Quality Standards and Guidance Values" for Class B surface waters, protection for fish and fish propogation, 6 NYCRR Parts 701 and 702, NYSDEC, 7/24/85, amended 4/1/87. The value presented is the standard except where noted by "G" in which case it is the guidance value. All units are ug/L.
(c) Upgradient location.
(d) Dissolved arsenic form.
(e) Ionic silver.

DATA QUALIFIERS:

---: Indicates that the metal was analyzed for but not detected. Refer to Appendix D for detection limit.
X: Data validation recommends this value be considered an estimate.
R: Data validation recommends this value be rejected.

TABLE IV-11
PRATT & LEICHWORTH
SEDIMENT RESULTS
HSL ORGANIC COMPOUNDS (ug/kg)(a)

COMPOUND (b)	Sample Location SED-1.12(c)	SED-1	SED-2
Methylene Chloride	--- R	41.0 B	96.0 B
Acetone	--- R	83.0 B	10.0 B
Trichloroethene	---	---	60.0
1,1-Dichloroethane	---	---	140.0
1,1,1-Trichloroethane	---	13.0 J	47.0
Trans-1,2-Dichloroethene	---	---	16.0
Vinyl Acetate	---	---	220.0
bis(2-Ethylhexyl)Phthalate	---	---	2500.0 J
2-Chlorophenol	---	450.0	---
4-Chloro-3-Methylphenol	---	410.0	---
Anthracene *	---	190.0 J	---
Fluoranthene *	5900.0	1100.0	4000.0
Pyrene *	6700.0	130.0 J	2500.0 J
Acenaphthene *	---	230.0 J	---
Phenanthrene *	3800.0	1300.0	1200.0 J
Chrysene *	---	360.0	1800.0 J
Benzo(k)Fluoranthene *	---	150.0 J	1100.0 J
Benzo(a)Anthracene *	---	310.0 J	1200.0 J
Benzo(a)Pyrene *	---	410.0 B	4000.0 B
Benzo(b)Fluoranthene *	---	500.0	2100.0 J
Aroclor 1248	---	---	2800.0
Aroclor 1260	---	---	3100.0
Total PAH's	16400.0	4680.0	17900.0
Total Organic Halogens	---	---	23000

FOOTNOTES:

(a) See Appendix D for concentration/dilution factors.
(b) Only HSL organic compounds that were detected are presented.
(c) Upgradient location.
* PAH - Polynuclear Aromatic Hydrocarbons

DATA QUALIFIERS:

B: This flag is used when the analyte is found in the blank as well as a sample. It indicates possible/probable blank contamination and warns the data user to take appropriate action.
J: Indicates the presence of a compound that meets the identification criteria but the result is less than the specified detection limit but greater than zero.
---: Indicates that the compound was analyzed for but not detected. Refer to Appendix D for detection limit.
R: Data validation recommends this value be rejected.

TABLE IV-12
PRATT & LEICHWORTH
SEDIMENT RESULTS
HSL INORGANICS (mg/kg)

ANALYTE (a)	NATURALLY OCCURRING RANGES IN NYS SOILS (b)	Sample Location SED-1.12(c)	SED-1	SED-2
Aluminum		10000.0 X	5329.6	912.6
Antimony	<1-10	---	58.1	37.0
Arsenic	0.1-100	5.2 X	17.7	[1.3]
Barium	10-500	170.0	126.5	407.4
Beryllium	<1-15	--- X	[0.8]	---
Cadmium	0.01-7 (d)	--- X	11.9	13.0
Calcium		80200.0 X	11381.5	3705.9
Chromium	1-2000	50.0 X	99.6	107.8
Cobalt	<3-70	---	22.3	33.7
Copper	1-700	110.0	161.5	88.5
Iron		22700.0	26657.7	154270.0
Lead	<10-700	800.0 X	299.2	344.1
Magnesium		9820.0	2308.1	886.3
Manganese	<2-7000	490.0 X	949.2	731.5
Mercury	0.02-0.5	0.2	---	---
Nickel	<5-7000	33.2	48.1	48.9
Potassium		[2000.0]	[650.4]	---
Sodium		[1820.0]	---	---
Vanadium	20-500	[15.0]	46.2	49.3
Zinc	<5-3500	1820.0 X	408.5	391.9
Cyanide		@	---	0.2

FOOTNOTES:

(a) Only HSL metals that were detected are presented. If the result is a value greater than or equal to the instrument detection limit but less than the contract-required detection limit, the value is reported in brackets (i.e.; [10]).
(b) USGS Professional Paper 1270 (1984): New York State Soils.
(c) Upgradient location.
(d) Booz, Allen & Hamilton, Inc. (1983): Range in U.S. Soils.
(e) Dilution factor = 5.

DATA QUALIFIERS:

---: Indicates that the metal was analyzed for but not detected. Refer to Appendix D for detection limit.
@: Not analyzed.
X: Data validation recommends this value be considered an estimate.

TABLE IV-13
PRATT & LEITCHWORTH
GROUNDWATER RESULTS
HSL ORGANIC COMPOUNDS (ug/L)

COMPOUND (a)	NYS STANDARDS/ GUIDANCE VALUES (b)	Sample Location: Bedrock Wells GW-1B(c)	Bedrock Wells GW-3B	Fill/Clay Interface Wells GW-2A	Fill/Clay Interface Wells GW-3A	Fill/Clay Interface Wells GW-4A
Chloroethane		—	—	—	—	17.0
Methylene Chloride	50 G	— R	— R	— R	— R	— R
Acetone		— R	— R	— R	— R	— R
Carbon Disulfide	50 G	21.0	3.9 J	—	—	3.5 J
1,1-Dichloroethane	50 G	—	—	—	—	6.1
Benzene	ND (d)	—	—	— R	—	— R
Di-n-butylphthalate	770	16.0	—	—	—	—
bis(2-Ethylhexyl)Phthalate	4200	— R	— R	488.0 BX	— R	—
Total Organic Halogens		—	—	—	647	—

FOOTNOTES:

(a) Only HSL organic compounds that were detected are presented.
(b) Referenced from; "Ambient Water Quality Standards and Guidance Values" for Class GA groundwater drinking supply waters, 6 NYCRR Part 703, NYSDEC, 9/1/78, as amended through 4/1/87. The value presented is the standard except where noted by "G", in which case it is the guidance value. All units are ug/L.
(c) Upgradient location.
(d) ND = not detectable; i.e., the standard is the lower limit of detectability as defined by the NYSDEC.

DATA QUALIFIERS:

B: This flag is used when the analyte is found in the blank as well as a sample. It indicates possible/probable blank contamination and warns the data user to take appropriate action.
J: Indicates the presence of a compound that meets the identification criteria but the result is less than the specified detection limit but greater than zero.
---: Indicates that the compound was analyzed for but not detected. Refer to Appendix D for detection limit.
X: Data validation recommends this value be considered an estimate.
R: Data validation recommends this value be rejected.

TABLE IV-14
PRATT & LEITCHWORTH
GROUNDWATER RESULTS
HSL INORGANICS (ug/L)

ANALYTE (a)	NYS STANDARDS/ GUIDANCE VALUES (b)	Sample Location: Bedrock Wells GW-1B(c)	Bedrock Wells GW-3B	Fill/Clay Interface Wells GW-2A	Fill/Clay Interface Wells GW-3A	Fill/Clay Interface Wells GW-4A
Aluminum		4390.0	5720.0	15270.0	8110.0	59700.0
Antimony	3 G	--- R	--- R	--- R	642.0 X	--- R
Arsenic	25	--- R	[6.4]X	12.2 X	--- R	--- R
Barium	1000	[95.0]	[44.0]	[158.0]	765.0	2021.0
Beryllium	3 G	--- X	--- X	--- X	[3.0]X	--- X
Cadmium	10	---	---	---	6.0	13.0
Calcium		555000.0 X	537700.0 X	53900.0 X	418600.0	211000.0 X
Chromium		---	20.0	34.0	183.0	153.0
Cobalt		---	---	---	[48.0]	---
Copper	1000	---	---	55.0	519.0	883.0
Iron	300	8049.0	7620.0	23312.0	156500.0	312200.0
Lead	25	6.6	9.3	37.0	716.0	1021.0
Magnesium	35000 G	194700.0	219500.0	16700.0	294800.0	49700.0
Manganese	300	265.0	173.0	946.0	6753.0	11138.0
Mercury	2	---	--- X	--- X	0.6 X	1.2 X
Nickel	13.4 Z	--- X	---	---	167.0	93.0
Potassium		18400.0	16200.0	---	23200.0	---
Sodium		255000.0	171000.0	58400.0	120800.0	29200.0
Vanadium		---	---	---	139.0	258.0
Zinc	5000	70.0 X	168.0 X	115.0 X	923.0 X	1838.0 X

FOOTNOTES:

(a) Only HSL metals that were detected are presented. If the result is a value greater than or equal to the instrument detection limit but less than the contract-required detection limit, the value is reported in brackets (i.e.; [10]).

(b) Referenced from; "Ambient Water Quality Standards and Guidance Values" for Class GA groundwater drinking supply waters, 6 NYCRR Part 703, NYSDEC, 9/1/78, amended 4/1/87. The value presented is the standard except where noted by "G", in which case it is the guidance value. For Nickel (flagged "Z") the value presented is the ambient water quality criterion for human health, from "Quality Criteria for Water, 1986", USEPA, 5/1/87. All units are ug/L.

(c) Upgradient well location.

DATA QUALIFIERS:

---: Indicates that the metal was analyzed for but not detected. Refer to Appendix D for detection limit.
X: Data validation recommends this value be considered an estimate.
R: Data validation recommends this value be rejected.

TABLE IV-15
PRATT & LETCHWORTH
SURFACE SOIL RESULTS
HSL ORGANIC COMPOUNDS (ug/kg)

	Sample Location		
COMPOUND (a)	SS-1	SS-2	SS-3
Methylene Chloride	5.0 B	3.2 JB	5.3 B
Acetone	7.0 JB	21.0 B	---
2-Butanone	5.0 J	---	2.1 J
Tetrachloroethene	2.0 J	---	---
Toluene	88.0	---	---
Naphthalene	---	120.0 J	---
2-Methylnaphthalene	---	150.0 J	---
Phenanthrene *	---	360.0	---
Fluoranthene *	---	210.0 J	---
Pyrene *	---	220.0 J	---
3,3'-Dichlorobenzidine	---	---	1500.0 J(b)
Chrysene *	---	140.0 J	---
Benzo(b)Fluoranthene *	---	87.0 J	---
Benzo(k)Fluoranthene *	---	45.0 J	---
Benzo(a)Pyrene *	2200.0 JB	230.0 JB	2200.0 JB(b)
Aroclor 1260	7200.0 X	2200000.0 X	6900.0 X
Total PAH's	2200.0	1292.0	2200.0

FOOTNOTES:

(a) Only HSL organic compounds that were detected are presented.
(b) Concentration/dilution factor = 10.
* PAH - Polynuclear Aromatic Hydrocarbons

DATA QUALIFIERS:

B: This flag is used when the analyte is found in the blank as well as a sample. It indicates possible/probable blank contamination and warns the data user to take appropriate action.
J: Indicates the presence of a compound that meets the identification criteria but the result is less than the specified detection limit but greater than zero.
---: Indicates that the compound was analyzed for but not detected. Refer to Appendix D for detection limit.
X: Data validation recommends this result be considered an estimate.

TABLE IV-16
PRATT & LEICHWORTH
SURFACE SOIL RESULTS
HSL INORGANICS (mg/kg)

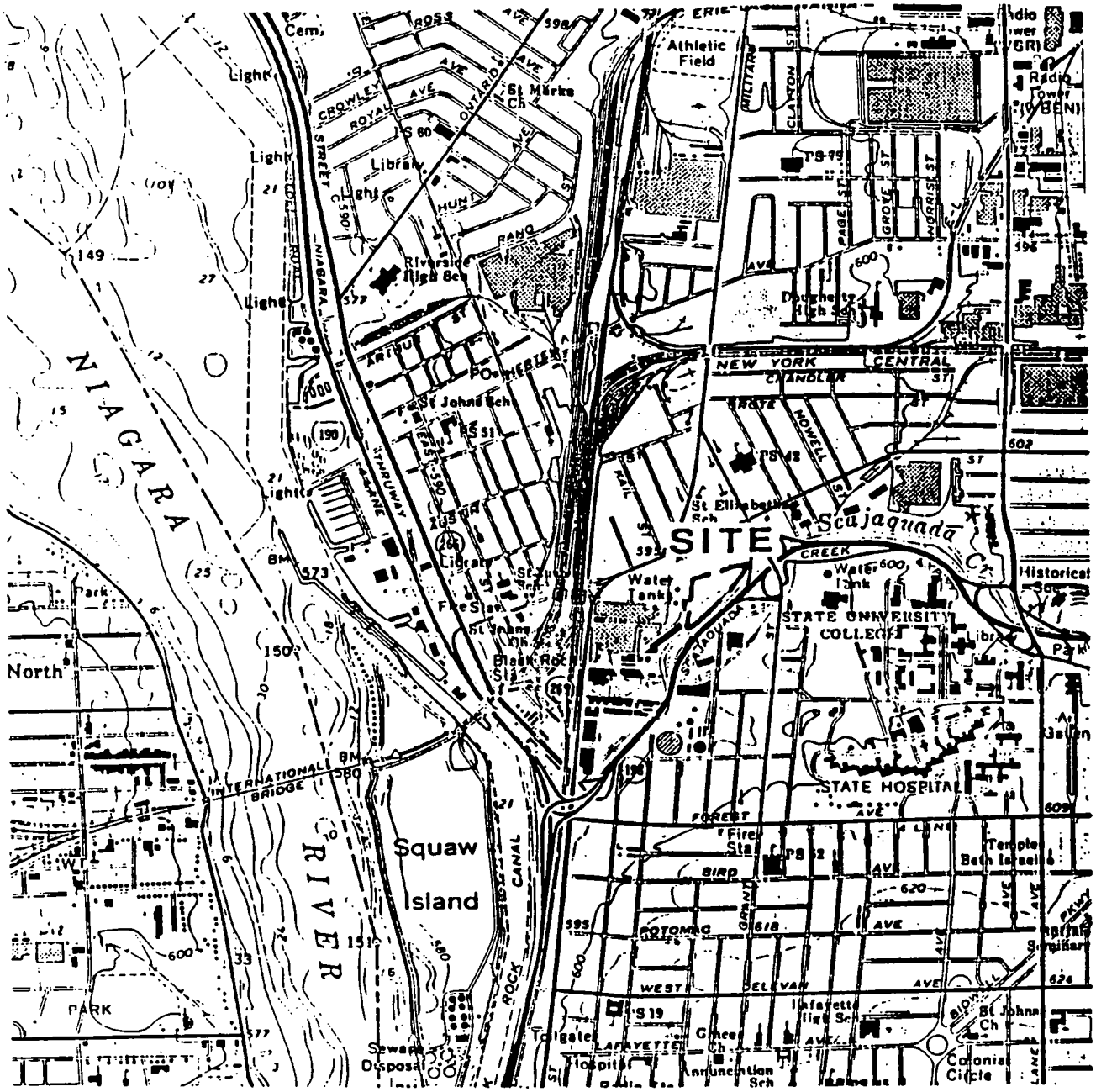
ANALYTE (a)	NATURALLY OCCURRING RANGES IN NYS SOILS (b)	Sample Location: Background SB-1S	Drum Storage Area: SS-1	SS-2	SS-3
Aluminum		21809.5 X	3408.6	5085.5	3413.6 P
Antimony	<1-10	--- R	76.4	52.5	39.8 P*N
Arsenic	0.1-100	4.4	[2.2]	7.0	3.0 SP*N(e)
Barium	10-500	141.0 X	73.1	[41.8]	58.2 P
Beryllium	<1-15	[0.7]X	[0.2]	[0.2]	[0.2]PN
Cadmium	0.01-7 (c)	2.4	11.7	5.2	6.2 PN
Calcium		54476.2 X	29681.2	12404.8	12546.4 P
Chromium	1-2000	33.3 X	428.1	282.3	85.3 PN
Cobalt	1-40	12.4	21.7	[8.9]	13.8 PN
Copper	1-700	21.0	82.6	29.1	214.2 PEN
Iron		32166.7 X	62697.9	14477.5	25051.3 P
Lead	<10-700	---	153.1	58.6	126.4 PN
Magnesium		17738.1 X	4730.0	2488.6	2070.2 P
Manganese	<2-7000	603.8 X	6595.2	5228.6	2009.8 P
Nickel	<5-7000	28.6 X	87.4	18.9	26.2 PN
Potassium		3857.1	[234.0]	[735.2]	[449.3]P
Vanadium	20-500	33.8	53.6	24.1	25.1 PN
Zinc	<5-3500	107.1 X	164.5	48.4	95.6 PEN
Cyanide		---	0.3	---	0.3 N

FOOTNOTES:

(a) Only HSL metals that were detected are presented. If the result is a value greater than or equal to the instrument detection limit but less than the contract-required detection limit, the value is reported in brackets (i.e.; [10]).
(b) USGS Professional Paper 1270 (1984): New York State Soils.
(c) Booz, Allen & Hamilton, Inc. (1983): Range in U.S. Soils.

DATA QUALIFIERS:

---: Indicates that the metal was analyzed for but not detected. Refer to Appendix D for detection limit.
X: Data validation recommends this value be considered an estimate.
R: Data validation recommends this value be rejected.



LATITUDE: 42°56'06"
LONGITUDE: 78°53'45"

SCALE

0 1000 2000 3000 4000 FEET

REFERENCE: U.S.G.S. 7.5' Topographic Map
Buffalo NW, NY-ONT. (1965) Quadrangle

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NEW YORK STATE DEPARTMENT
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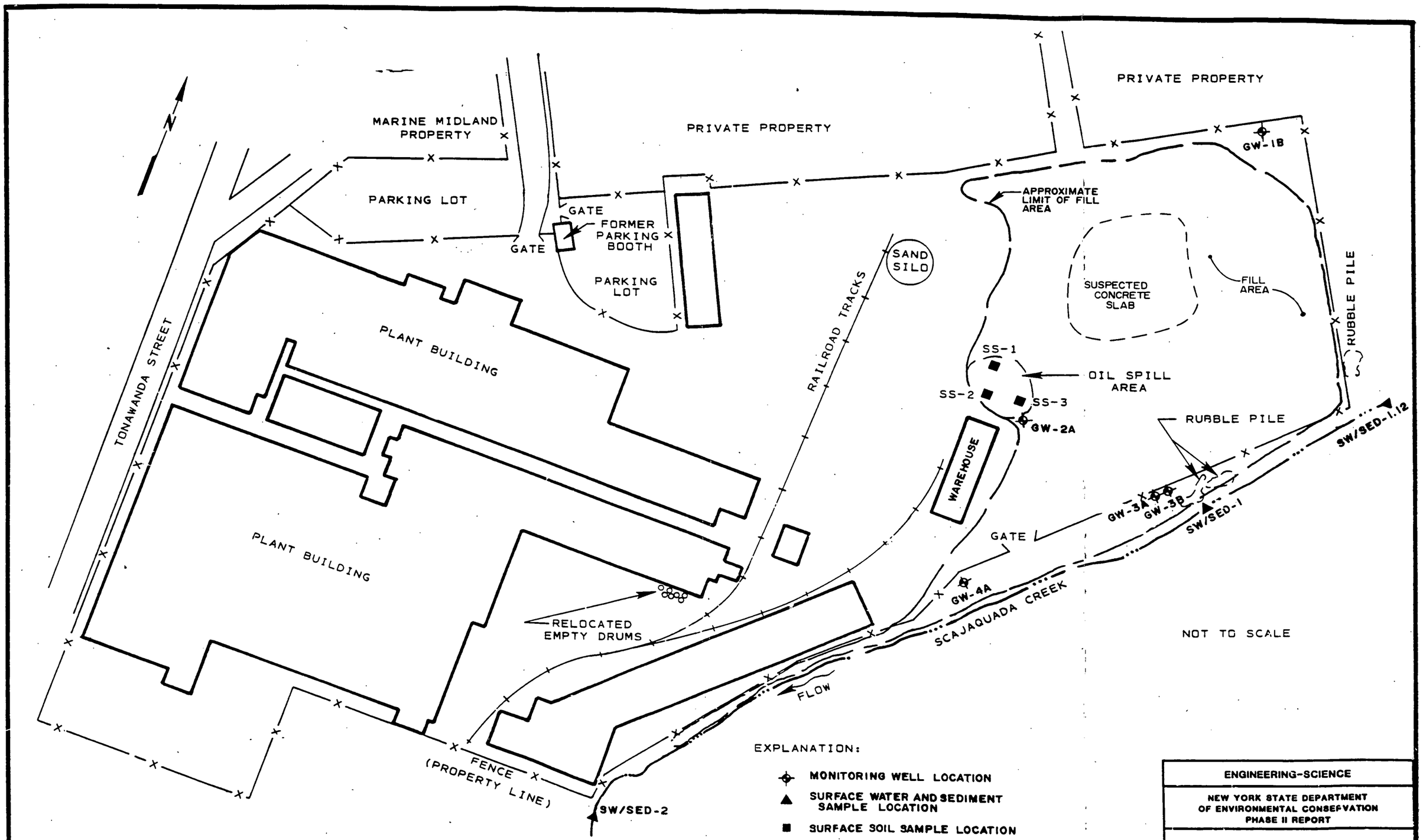
PHASE II REPORT

SITE LOCATION MAP
PRATT & LETCHWORTH

FIGURE IV-1



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SITE PLAN
PRATT & LETCHWORTH

FIGURE IV-2

A'

GW-1B

N

FENCE

GATE

FILL AREA

FENCE

SILO

OIL SPILL AREA

FENCE

GW-3A

GW-3B

GW-2A

SCALES

WAREHOUSE

CREEK

SCAJAQUADA

GATE

A

GW-4A

EXPLANATION:

MONITORING WELL LOCATION

A A' CROSS SECTION LOCATION

0 50 100 150 FEET

APPROXIMATE SCALE

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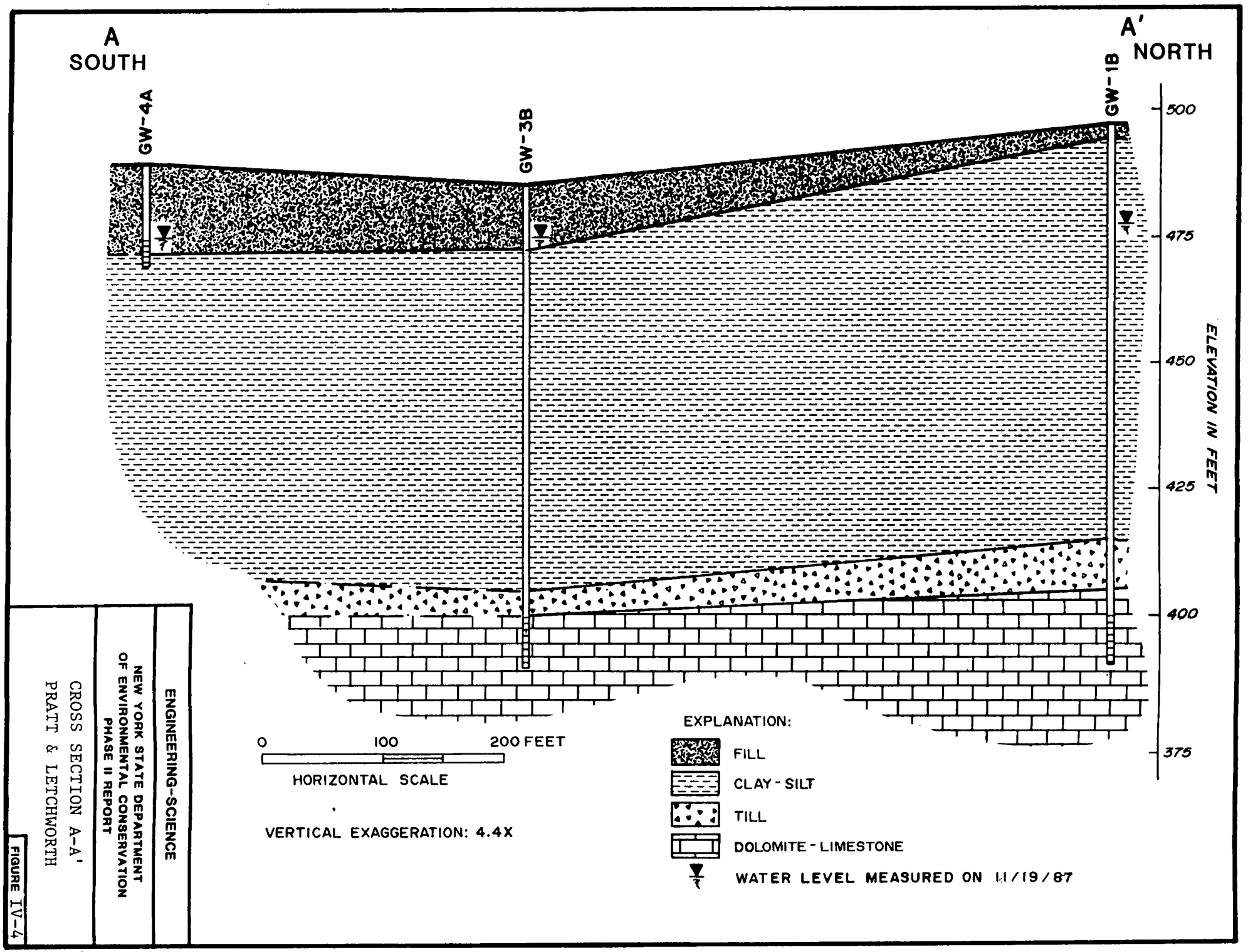
GEOLOGIC CROSS SECTION
LOCATION MAP
PRATT & LETCHWORTH

FIGURE IV-3



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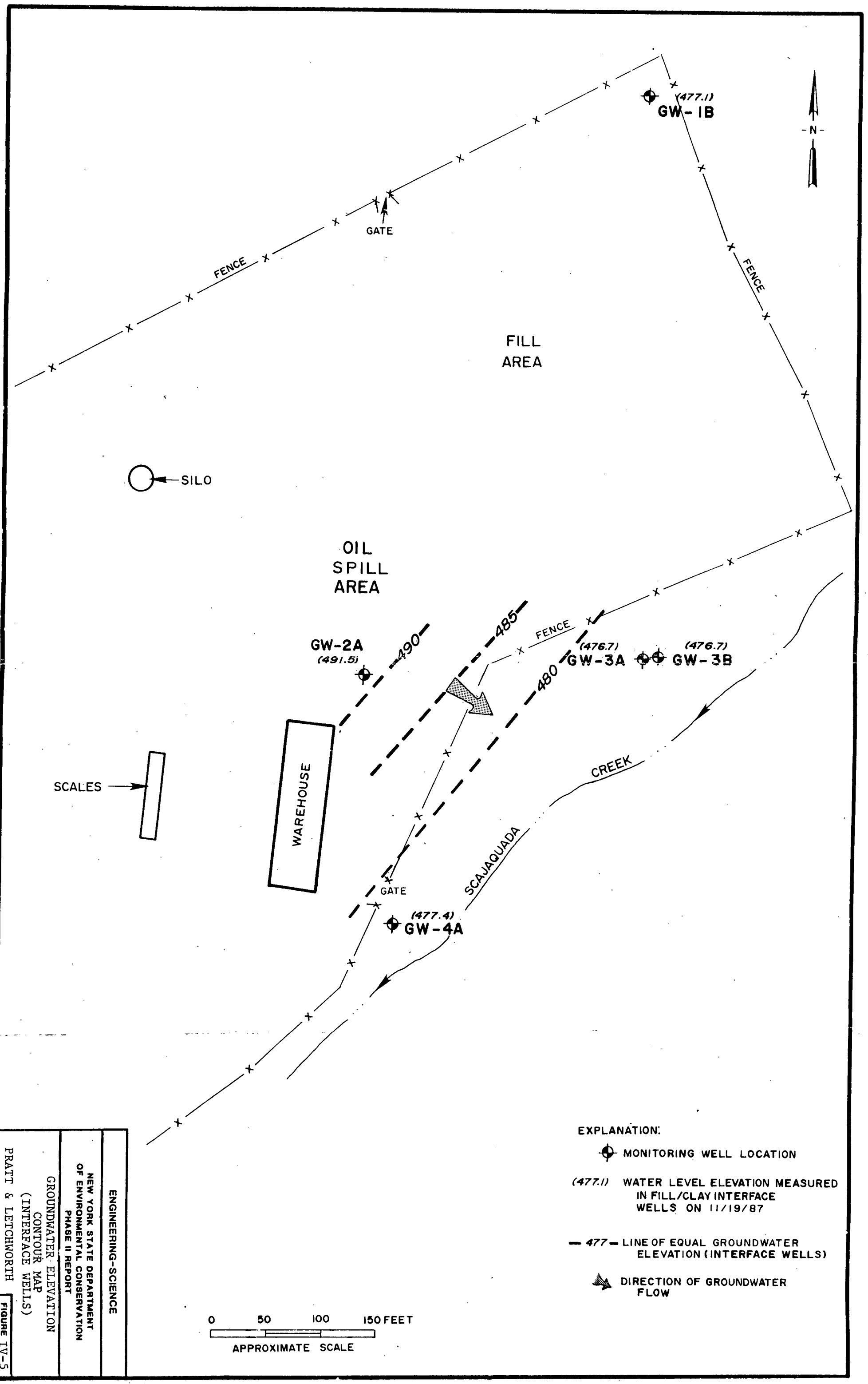
CROSS SECTION A-A'
PRATT & LETCHWORTH

FIGURE IV-4



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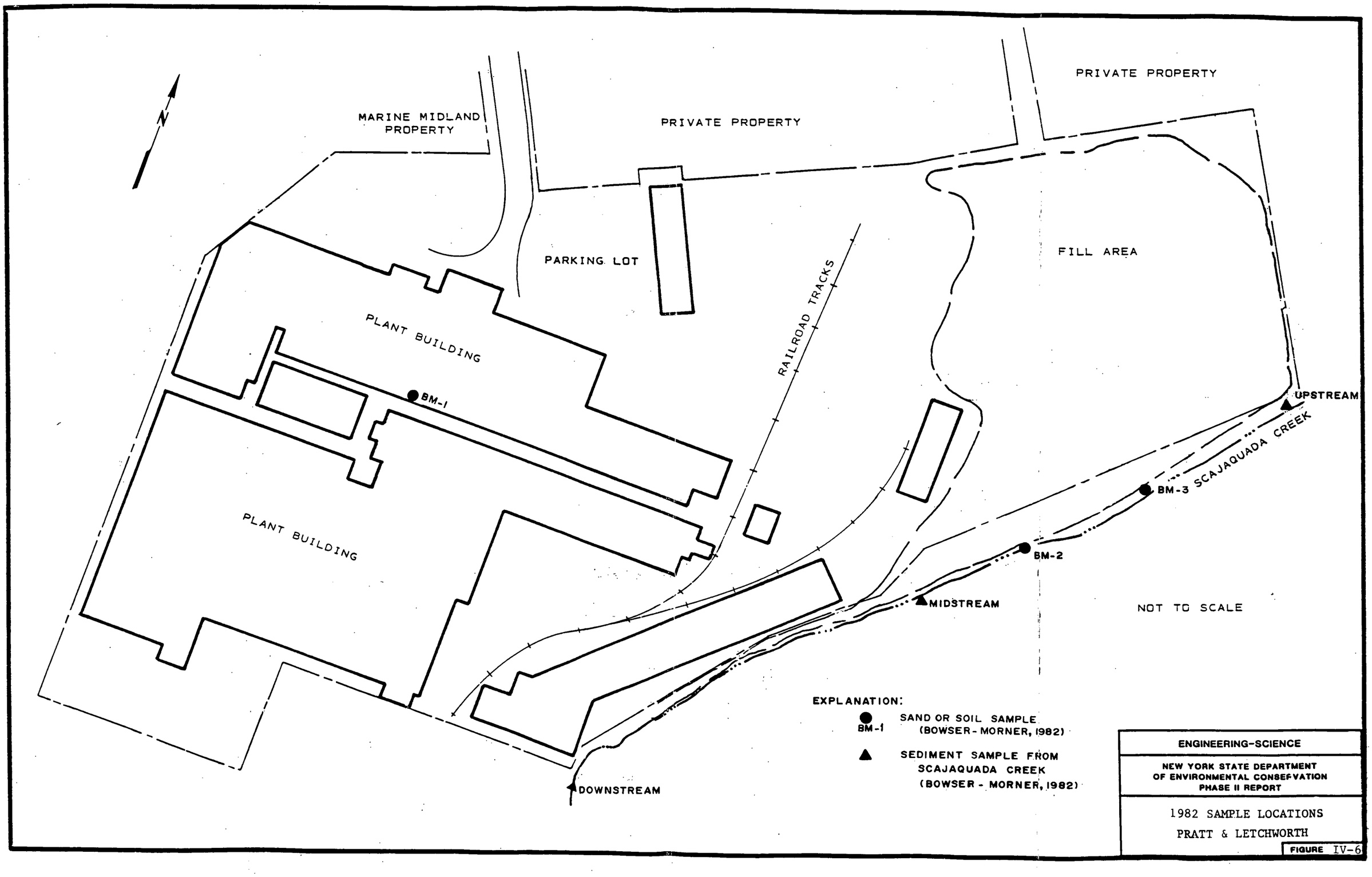
GROUNDWATER ELEVATION CONTOUR MAP (INTERFACE WELLS)

PRATT & LETCHWORTH

FIGURE IV-5



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1982 SAMPLE LOCATIONS
PRATT & LETCHWORTH

FIGURE IV-6

NARRATIVE

SECTION V

FINAL APPLICATION OF HAZARD RANKING SYSTEM

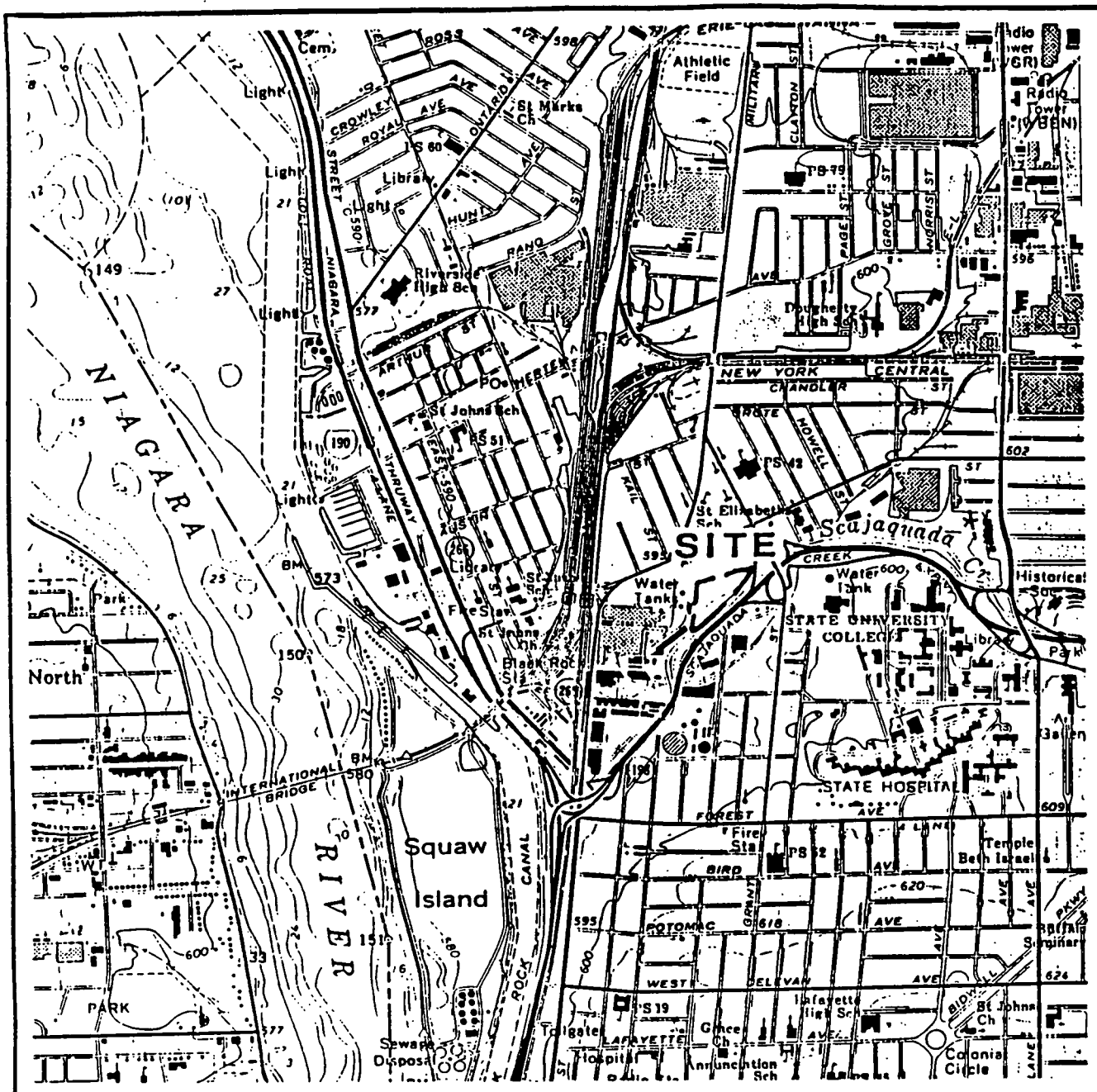
NARRATIVE SUMMARY

The Pratt and Letchworth site is situated within a 28-acre parcel located in the City of Buffalo, Erie County, New York. Pratt and Letchworth, later known as Dayton Malleable, Inc., operated an iron and steel manufacturing facility at the site from 1860 until 1982. The site has been inactive since 1982. From 1949 to 1965, approximately 19,000 tons of foundry sand and 16,000 tons of slag were landfilled in a three to five-acre area on-site, adjacent to Scajaquada Creek. During a site inspection in 1985, 70 to 100 drums stored on the ground surface were found to be leaking. Those drums were subsequently removed, and the spill area was covered with sand under arrangements made by the site owners.

During the Phase II investigation, surface water, sediments, soil, waste and groundwater samples were collected by ES and analyzed by Nanco Labs, Inc. and York Laboratories. These results indicate that Hazardous Substance List (HSL) compounds are present on-site. The results also indicate that three HSL metals are being released to the surface water pathway. The nearest surface water body is Scajaquada Creek, which is a New York State Class B waterway, used for recreation and fishing. Groundwater in the site vicinity is not used as a drinking water source, nor as an irrigation supply. The 173,500 people living within a three-mile radius of the site are served by a public water supply which has sources in Lake Erie and the Niagara River.

Surface soils in the vicinity of the oil spill area are contaminated with up to 2,200 ppm PCBs and will require remediation. The site is presently inactive and has 24-hour on-site security. However, the site is located in a mixed residential/commercial area and breaks in the fence surrounding the site can allow unauthorized access.

LOCATION



LATITUDE: 42°56'06"
LONGITUDE: 78°53'45"

SCALE

0 1000 2000 3000 4000 FEET

REFERENCE: U.S.G.S. 7.5' Topographic Map
Buffalo NW, NY-ONT. (1965) Quadrangle

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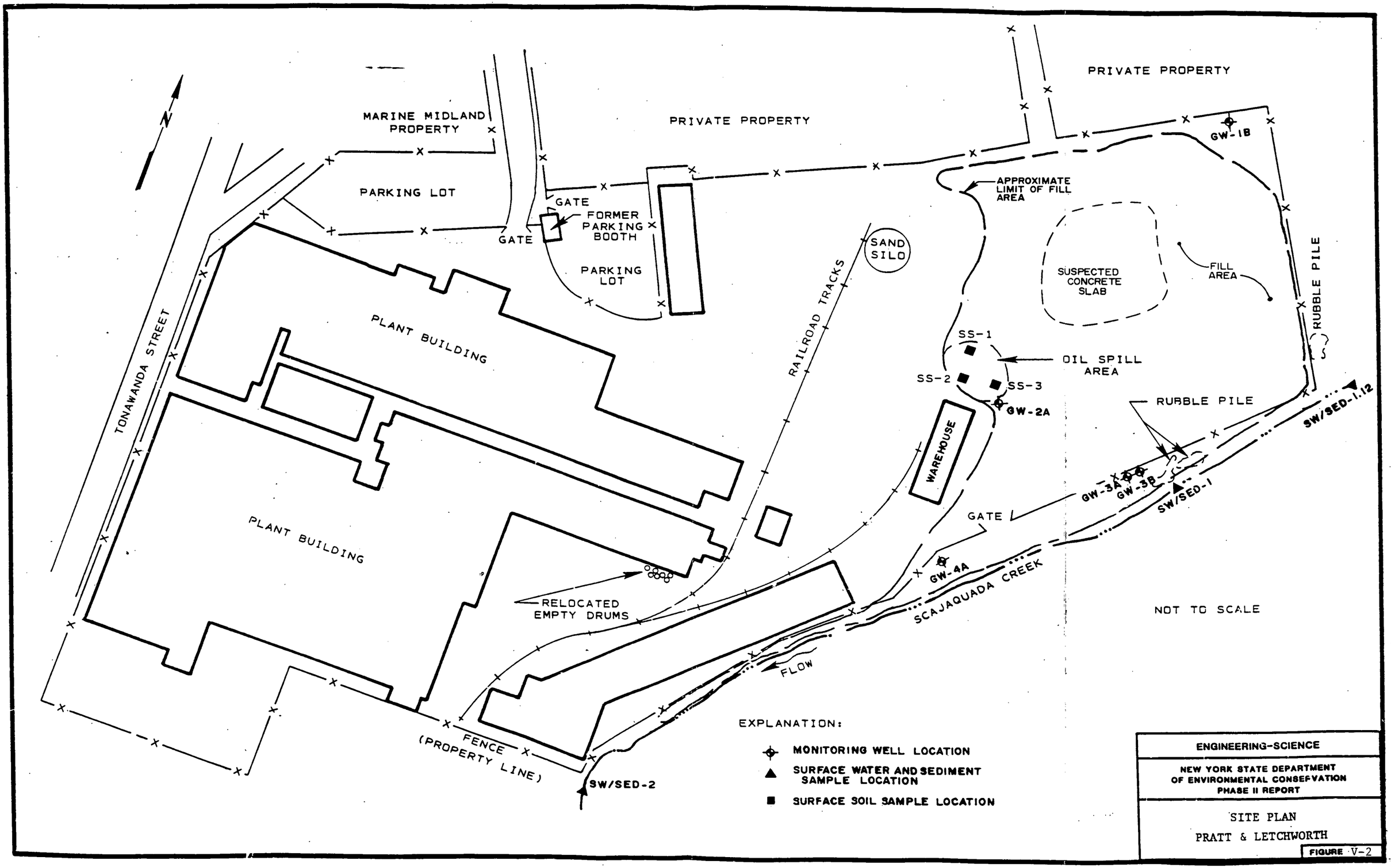
PHASE II REPORT

SITE LOCATION MAP
PRATT & LETCHWORTH

FIGURE V-1



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SITE PLAN

PRATT & LETCHWORTH

FIGURE V-2

HRS WORKSHEETS

Facility Name: Pratt & Letchworth Date: 12/8/88 revised 6/1/89

Ground Water Route Work Sheet

Rating Factor	Assigned Value (Circle One)	Multiplier	Score	Max. Score	Ref. (Section)
1 Observed Release	(0) 45	1	0	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	2	3	
Physical State	0 1 2 (3)	1	3	3	
Total Route Characteristics Score			13	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	3	9	
Distance to Nearest Well/Population Served	(0) 4 6 8 10 / 12 16 18 20 / 24 30 32 35 40	1	0	40	
Total Targets Score			3	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			2,223	57,330	
7 Divide line 6 by 57,330 and multiply by 100			S_{gw} = 3.87		

GROUND WATER ROUTE WORK SHEET

Facility Name: Pratt & Letchworth Date: 12/8/88 revised 6/1/89

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	0	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			11	15	
3 Containment	0 1 2 (3)	1	3	3	4.3
4 Waste Characteristics					4.4
Toxicity/Persistence	0 3 6 9 12 15 (18)	1	18	18	
Hazardous Waste Quantity	0 (1) 2 3 4 5 6 7 8	1	1	8	
Total Waste Characteristics Score			19	26	
5 Targets					4.5
Surface Water Use	0 1 2 (3)	3	9	9	
Distance to a Sensitive Environment	(0) 1 2 3	2	0	6	
Population Served/ Distance to Water Intake Downstream	0 4 6 8 10 12 16 18 (20) 24 30 32 35 40	1	20	40	
Total Targets Score			29	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			24,795	64,350	
7 Divide line 6 by 64,350 and multiply by 100			S_{sw} =	38.53	

SURFACE WATER ROUTE WORK SHEET

Facility Name: Pratt & Letchworth Date: 12/8/88

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

AIR ROUTE WORK SHEET

Facility Name: Pratt & Letchworth Date: 12/8/88

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

FIRE AND EXPLOSION WORK SHEET

Facility Name: Pratt & Letchworth Date: 12/8/88

Direct Contact Work Sheet					
Rating Factor	Assigned Value (Circle One)	Multi-plier	Score	Max. Score	Ref. (Section)
1 Observed Incident	(0) 45	1	0	45	8.1
If line 1 is 45, proceed to line 4 If line 1 is 0, proceed to line 2					
2 Accessibility	0 (1) 2 3	1	1	3	8.2
3 Containment	0 (15)	1	15		8.3
4 Waste Characteristics Toxicity	0 1 2 (3)	5	15	15	8.4
5 Targets					8.5
Population Within 1-Mile Radius	0 1 2 3 4 (5)	4	20	20	
Distance to a Critical Habitat	(0) 1 2 3	4	0	12	
Total Targets Score			20	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			4,500	21,600	
7 Divide line 6 by 21,600 and multiply by 100			S_{DC} = 20.83		

DIRECT CONTACT WORK SHEET

Facility Name: Pratt & Letchworth Date: 12/8/88 revised 6/1/89

Worksheet for Computing S_M

	S	S^2
Groundwater Route Score (S_{gw})	3.87	14.97
Surface Water Route Score (S_{sw})	38.52	1484.56
Air Route Score (S_a)	0	0
$S_{gw}^2 + S_{sw}^2 + S_a^2$		1499.53
$\sqrt{S_{gw}^2 + S_{sw}^2 + S_a^2}$		38.72
$\sqrt{S_{gw}^2 + S_{sw}^2 + S_a^2} / 1.73 = S_M =$		22.38

WORK SHEET FOR COMPUTING S_M

DOCUMENTATION RECORDS
FOR
HAZARD RANKING SYSTEM

INSTRUCTIONS: The purpose of these records is to provide a convenient way to prepare an auditable record of the data and documentation used to apply the Hazard Ranking System to a given facility. As briefly as possible summarize the information you used to assign the score for each factor (e.g., "Waste quantity = 4,230 drums plus 800 cubic yards of sludges"). The source of information should be provided for each entry and should be a bibliographic-type reference that will make the document used for a given data point easier to find. Include the location of the document and consider appending a copy of the relevant page(s) for ease in review.

FACILITY NAME: Pratt and Letchworth

LOCATION: 189 Tonawanda Street, Buffalo, Erie County, New York

GROUNDWATER ROUTE

1. OBSERVED RELEASE

Contaminants detected (5 maximum): **Assigned Value = 0**

Organic and metallic constituents were detected in the bedrock and shallow aquifers. The constituents detected in the bedrock aquifer cannot be attributed to the facility since concentrations in the downgradient well (GW-3B) did not exceed those in the upgradient well (GW-1B). The constituents detected in the shallow aquifer cannot be attributed to the facility since there is no upgradient well in the shallow aquifer (GW-3A and GW-4 are both downgradient). The score for observed release is therefore zero.

Rationale for attributing the contaminants to the facility:

As discussed above, the contaminants cannot be attributed to the facility.

***

2. ROUTE CHARACTERISTICS

Depth to Aquifer of Concern **Assigned Value = 3**

Name/description of aquifer(s) of concern:

Bedrock aquifer (ES, 1987. Phase II investigation boring logs).

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

A depth of 9.7 feet was measured in monitoring well GW-3B on November 19, 1987 (ES, 1988. Table IV-4).

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

The depth of the fill is 15 to 18 feet. Score = 3, 0 to 20 feet difference between lowest point of waste disposal and depth to aquifer of concern (Bowser-Morner Testing Laboratories, Inc., 1982).

Net Precipitation **Assigned Value = 2**

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

The mean annual precipitation is 36 inches (USDOC, 1979).

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

The mean annual lake evaporation is 27 inches (USDOC, 1979).

Net precipitation (subtract the above figures):

36 inches - 27 inches = net precipitation of 9 inches.

Permeability of Unsaturated Zone **Assigned Value = 2**

Soil type in unsaturated zone:

Soil in the unsaturated zone is predominantly foundry sand and fill materials. Foundry sand lies atop most of the eastern end of the site reaching depths of 15-18 feet in places (Bowser-Morner Laboratories, Inc., 1982 and ES, 1987, 1988).

Permeability associated with soil type:

10^{-3} - 10^{-5} cm/sec for silty sand (Freeze and Cherry, 1979).

Physical State **Assigned Value = 3**

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

Solid: foundry sands; slag

Liquid: hydraulic and lube oils

A score of 3 is assigned on the basis of liquid waste (NYSDEC, 1987).

***

3. CONTAINMENT

Containment **Assigned Value = 3**

Method(s) of waste or leachate containment evaluated:

Unlined landfill with no run-on control. (NYSDEC, 1987; Bowser-Morner Testing Laboratories, Inc. 1982; ES Field Investigations, 1987).

Method with highest score:

A score of 3 is assigned for an unlined landfill with no run-on control.

4. WASTE CHARACTERISTICS

Toxicity and Persistence **Assigned Value = 18**

Compound(s) evaluated:

Three surface soil and seven subsurface soil samples were collected and analyzed for volatile and semivolatile organics, pesticides, PCBs, and metals. All of the surface soil samples (SS-1 to SS-3) contained Aroclor 1260 (6900 - 2,200,000 ug/kg). Toluene (88 ug/kg) and phenanthrene (360 ug/kg) were also identified in these samples. Antimony (39.8 - 76.4 mg/kg) and cadmium (5.2 - 11.7 mg/kg) were also detected at levels which exceed the published naturally occurring ranges of

concentrations for soils in New York State and/or the United States (USGS, 1984; Booz Allen and Hamilton, Inc., 1983). Organic compounds were not detected in the upgradient subsurface soil sample (SB-1S) (Nanco Labs, Inc., 1987-88; York Laboratories, 1988).

Compound with highest score:

Cadmium has a toxicity/persistence rating of 18.

Hazardous Waste Quantity **Assigned Value = 1**

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):

Although the quantities of foundry sand, slag and oil disposed at the site have been estimated, it is not known what quantity of hazardous substances are present. Therefore, the minimum quantity score of 1 is assigned, since hazardous substances have been found at the site.

Basis of estimating and/or computing waste quantity:

Based on presence of hazardous substances in surface soil samples, the minimal quantity score of 1 is assigned.

***

5. TARGETS

Groundwater Use **Assigned Value = 1**

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

There is industrial groundwater use within a 3-mile radius of the facility. However, the well is screened in the Camillus shale which is not the aquifer of concern (NYSDOH, 1982; Koczaja, 1988; Parshall, 1988; LaSala, 1968). Not used, but usable Score = 1.

Distance to Nearest Well **Assigned Value (Matrix) = 0**

There are no wells drawing from the aquifer of concern within a 3-mile radius of the site (NYSDOH, 1982; Koczaja, 1988; Parshall, 1988; LaSala, 1968).

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

Not applicable: There are no wells drawing from the aquifer of concern.

Distance to above well or building:

Not applicable: There are no wells drawing from the aquifer of concern within a 3-mile radius of the site (NYSDOH, 1982; Koczaja, 1988; Parshall, 1988; LaSala, 1968).

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:

Not applicable: There are no wells drawing from the aquifer of concern within a 3-mile radius of the site (NYSDOH, 1982; Koczaja, 1988; Parshall, 1988; LaSala, 1968).

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):

Not applicable: There are no wells drawing from the aquifer of concern within a 3-mile radius of the site (NYSDOH, 1982; Koczaja, 1988; Parshall, 1988; LaSala, 1968).

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

Not applicable: There are no wells drawing from the aquifer of concern within a 3-mile radius of the site (NYSDOH, 1982; Koczaja, 1988; Parshall, 1988; LaSala, 1968).

SURFACE WATER ROUTE

1. OBSERVED RELEASE — Assigned Value = 45

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

Two downstream (SW-1 and SW-2) and one upstream (SW-1.12) surface water samples were analyzed for organic compounds and metals.

Compound	SW-1.12	SW-1	SW-2
Lead	13.7 ug/l	46.9 ug/l	61.8 ug/l
Mercury	<0.2 ug/l	2.6 ug/l	0.4 ug/l

(Nanco Laboratories, 1987-88)

Rationale for attributing the contaminants to the facility:

Mercury and lead were detected in downgradient samples at concentrations in excess of three times the upgradient concentration.

***

2. ROUTE CHARACTERISTICS

Facility Slope and Intervening Terrain — **Assigned Value = 0**

Average slope of facility in percent:

The average slope of the facility is 2% (ES, 1988). Based on elevation differences between wells.

Name/description of nearest downslope surface water:

The nearest downslope surface water is Scajaquada Creek (NYSDOT, 1975).

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

The average slope is 2% (ES, 1988).

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

The facility is not located either totally or partially in surface water (NYSDOT, 1975 and ES site investigations, 1987-88).

Is the facility completely surrounded by areas of higher elevation?

The facility is not completely surrounded by areas of higher elevation (NYSDOT, 1975).

1-Year 24-Hour Rainfall in Inches **Assigned Value = 2**

2.1 inches (US DOC, 1963).

Distance to Nearest Downslope Surface Water **Assigned Value = 3**

The site is adjacent to Scajaquada Creek. Distance is less than 100 feet (NYSDOT, 1975).

Physical State of Waste **Assigned Value = 3**

Both solid and liquid waste are found on-site (NYSDEC, 1987).

***

3. CONTAINMENT

Containment **Assigned Value = 3**

Method(s) of waste or leachate containment evaluated:

Wastes including foundry sand, slag, lube oil, and hydraulic oil were disposed on-site in an unlined landfill which is unevenly covered. No diversion system is present. Leakage from drums stored on the landfill surface was observed during a site visit in 1985 (ES and D&M, 1985).

Method with highest score:

A score of 3 is assigned; the wastes are deposited in an unlined, unevenly covered landfill which has no diversion system.

***

4. WASTE CHARACTERISTICS

Toxicity and Persistence **Assigned Value = 18**

Compound(s) evaluated

Lead (SW-2, 61.8 ug/l) and Mercury (SW-1, 2.6 ug/l) were detected in downgradient surface water samples.

Compound with highest score:

Lead and Mercury can be assigned scores of 18 (EPA, 1984).

Hazardous Waste Quantity **Assigned Value = 1**

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):

Although the quantities of foundry sand, slag and oil disposed at the site have been estimated, it is not known what quantity of hazardous substances are present. Since hazardous substances have been detected, the minimum quantity score of 1 is assigned.

Basis of estimating and/or computing waste quantity:

Based on the presence of hazardous substances in the surface soils and sediments, the minimal quantity score of 1 is assigned.

***

5. TARGETS

Surface Water Use **Assigned Value = 3**

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

1. Drinking water
2. Commercial shipping and navigation (Black Rock Canal, Tonawanda Canal).
3. Recreational boating and fishing.
4. Recreational green space (Riverside Park)

(NYSDOH, 1982; NYSDOT, 1975)

Is there tidal influence?

No. The site is not near the coast (NYSDOT, 1975).

Distance to a Sensitive Environment **Assigned Value = 0**

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

There is no 5-acre coastal wetland within 2 miles of the site; the site is not near the coast (NYSDOT, 1975).

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

There is no 5-acre fresh water wetland within 1 mile of the site (Farquhar, 1987).

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

There are no federally designated critical habitats of endangered species within the State of New York (Ozard, 1988).

Population Served by Surface Water **Assigned Value (Matrix) = 20**

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:

2.6 miles to Tonawanda Water District #1 intake; population served is 91,269 people (NYSDOH, 1982).

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

None; the site is in an industrial/residential/urban area (NYSDOT, 1975).

Total population served:

None; the site is in an industrial/residential/urban area (NYSDOT, 1975).

Name/description of nearest of above water bodies:

Niagara River (NYSDOT, 1975).

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

From the site, the distance to the Tonawanda Water District #1 intake on the Niagara River is 2.6 miles (NYSDOH, 1982).

AIR ROUTE

1. OBSERVED RELEASE

Contaminants detected: **Assigned Value = 0**

Readings above background were not detected during routine on-site monitoring for volatile organic vapors (ES Field Investigations, 1987, 1988).

Date and location of detection of contaminants:

Not applicable. No contaminants were detected.

Methods used to detect the contaminants:

Photovac-TIP.

Rationale for attributing the contaminants to the site:

No hazardous waste with the potential to impact the air pathway is known to exist on-site (NYSDEC, 1987 and Bowser-Morner Testing Laboratories, Inc., 1982).

***

2. WASTE CHARACTERISTICS

Reactivity and Incompatibility **Assigned Value = 0**

Most reactive compound:

No reactive compounds with the potential to impact the air pathway are known to exist on-site (NYSDEC, 1987 and Bowser-Morner Testing Laboratories, Inc., 1982).

Most incompatible pair of compounds:

No incompatible pairs of compounds with the potential to impact the air pathway are known to exist on-site (NYSDEC, 1987; Bowser-Morner Testing Laboratories, Inc., 1982).

Toxicity **Assigned Value = 0**

Most toxic compound:

No hazardous waste with the potential to impact the air pathway is known to exist on-site (NYSDEC, 1987; Bowser-Morner Testing Laboratories, Inc., 1982).

Hazardous Waste Quantity **Assigned Value = 0**

Total quantity of hazardous waste:

The score is zero because no hazardous wastes with the potential to impact the air pathway are known to exist on-site (NYSDEC, 1987; Bowser-Morner Testing Laboratories, Inc., 1982).

Basis of estimating and/or computing waste quantity:

Not applicable; see the comment above.

***

3. TARGETS

Population Within 4-Mile Radius **Assigned Value = 24**

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**

20,547 people (U.S. Census, 1980).

Distance to a Sensitive Environment **Assigned Value = 0**

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

The site is not near the coast (NYSDOT, 1975).

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

There is no 5-acre fresh water wetland within 1 mile of the site (Farquhar, 1987).

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

There are no federally designated critical habitats of endangered species within the State of New York (Ozard, 1988).

Land Use **Assigned Value = 3**

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

0.0 miles; the site is located in an industrial district (NYSDOT, 1975; ES Field Investigations, 1987).

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

There is no national or state park, forest, or wildlife reserve within 2 miles of the site (NYSDOT, 1975; ES Field Investigations, 1987).

Distance to residential area, if 2 miles or less:

<200 feet. The site is adjacent to residences (NYSDOT, 1975; ES Field Investigations, 1987).

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

There is no agricultural land within 1 mile of the site; the site is in an urban area (NYSDOT, 1975; ES Field Investigations, 1987).

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

There is no prime agricultural land within 1 mile of the site; the site is in an urban area (NYSDOT, 1975; ES Field Investigations, 1987).

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

There is no historic or landmark site within view of the site (U.S. Department of the Interior, National Park Service, 1983; Federal Register, 1983).

FIRE AND EXPLOSION

1. CONTAINMENT

Hazardous substances present: **Assigned Value = 1**

No information which indicates that fire and explosion has occurred (or could occur) at the site was discovered during the Phase II study (Phase II Record Search, 1987).

Type of containment, if applicable:

Not applicable.

***

2. WASTE CHARACTERISTICS

Direct Evidence **Assigned Value = 0**

Type of instrument and measurements:

No measurements of the potential for fire and explosion were taken on-site.

Ignitability **Assigned Value = 0**

Compound used:

No ignitable compounds are known to be present on-site (NYSDEC, 1987; Bowser-Morner Testing Laboratories, Inc., 1982).

Reactivity **Assigned Value = 0**

Most reactive compound:

No reactive compounds are known to be present on-site (NYSDEC, 1987; Bowser-Morner Testing Laboratories, Inc., 1982).

Incompatibility **Assigned Value = 0**

Most incompatible pair of compounds:

No incompatible compounds are known to exist on-site (NYSDEC, 1987; Bowser-Morner Testing Laboratories, Inc., 1982).

Hazardous Waste Quantity **Assigned Value = 0**

Total quantity of hazardous substances at the facility:

Ignitable and/or reactive waste is not known to be present on-site (NYSDEC, 1987; Bowser-Morner Testing Laboratories, Inc., 1982).

Basis of estimating and/or computing waste quantity:

Not applicable; see comment above.

***

3. TARGETS

Distance to Nearest Population **Assigned Value = 4**

Between 50 and 200 feet. There are buildings on-site and homes adjacent to the site (NYSDOT, 1975).

Distance to Nearest Building **Assigned Value = 3**

<50 feet. There are buildings on-site (ES Field Investigations, 1987).

Distance to Sensitive Environment **Assigned Value = 0**

Distance to wetlands:

There is no 5-acre fresh water wetland within 1 mile of the site (Farquhar, 1987).

Distance to critical habitat:

There are no federally designated critical habitats of endangered species within the State of New York (Ozard, 1988).

Land Use **Assigned Value = 3**

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

0.0 miles; the site is located in an urban/industrial/residential area (NYSDOT, 1975).

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

There is no national or state park, forest, or wildlife reserve within 2 miles of the site (NYSDOT, 1975).

Distance to residential area, if 2 miles or less:

<200 feet. There are residences adjacent to the site (NYSDOT, 1975).

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

There is no agricultural land within 1 mile of the site; the site is in an urban area (NYSDOT, 1975; ES Field Investigations, 1987).

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

There is no agricultural land within 1 mile of the site; the site is in an urban area (NYSDOT, 1975; ES Field Investigations, 1987).

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

There is no historic or landmark site within view of the site (U.S. Department of the Interior, National Park Service, 1983; Federal Register, 1983).

Population Within 2-Mile Radius **Assigned Value = 5**

76,966 people (U.S. Census, 1980).

Buildings Within 2-Mile Radius **Assigned Value = 5**

20,254 buildings, assuming a population of 76,966 people and 3.8 people per dwelling (EPA, 1984; U.S. Census, 1980).

DIRECT CONTACT

1. OBSERVED INCIDENT — Assigned Value = 0

Date, location, and pertinent details of incident:

Based on information revealed during the Phase II Study, there is not a confirmed instance in which contact with hazardous substances at the site has caused injury, illness or death to humans or animals. (Phase II Record Search, 1987).

***

2. ACCESSIBILITY — Assigned Value = 1

Describe type of barrier(s):

The site is surrounded by a fence and a guard is posted 24 hours per day. However, since there are breaks in the fence where someone could enter the site, a score of 1 is assigned (ES Field Investigations, 1987).

***

3. CONTAINMENT — Assigned Value = 15

Type of containment, if applicable:

Inadequately covered landfill (ES Field Investigations, 1987).

***

4. WASTE CHARACTERISTICS

Toxicity — **Assigned Value = 3**

Compounds evaluated:

Three surface soil and seven sub-surface soil samples were collected and analyzed for volatile and semivolatile organics, pesticides, PCBs, and metals. All of the surface soil samples contained Aroclor 1260 (6900 - 2,200,000 ug/kg). Toluene (88 ug/kg) and phenanthrene (360 ug/kg) were also identified in these samples. Antimony (39.8 - 76.4 mg/kg) and cadmium (5.2 - 11.7 mg/kg) were also detected at levels which exceed the published naturally occurring ranges of concentrations for soils in New York State and/or the United States (USGS, 1984; Booz Allen and Hamilton, Inc., 1983). Organic compounds were not detected in the single upgradient subsurface soil sample (SB-1S). (Nanco Laboratories, 1987-88 and York Laboratories, 1988).

Compound with highest score:

PCBs (Aroclor 1260) have scores of 3 (EPA, 1984).

5. TARGETS

Population within one-mile radius **Assigned Value = 5**

20,547 people (U.S. Census, 1980).

Distance to critical habitat (of endangered species) **Assigned Value = 0**

There are no federally designated critical habitats of endangered species within the State of New York (Ozard, 1988).

Site Inspection Report

PRATT & LETCHWORTH

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

EPA

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
NY	D002103828

II. SITE NAME AND LOCATION

01 SITE NAME (Legal, common, or descriptive name of site)	02 STREET, ROUTE NO., OR SPECIFIC LOCATION IDENTIFIER
Pratt & Letchworth	189 Tonawanda Street

03 CITY	04 STATE	05 ZIP CODE	06 COUNTY	07 COUNTY CODE	08 CONG DIST
Buffalo	NY	14207	Erie	029	37

09 COORDINATES LATITUDE	LONGITUDE
42° 56' 06"	78° 53' 45"

10 TYPE OF OWNERSHIP (Check one)
☒ A. PRIVATE ☐ B. FEDERAL _____ ☐ C. STATE ☐ D. COUNTY ☐ E. MUNICIPAL
☐ F. OTHER _____ ☐ G. UNKNOWN

III. INSPECTION INFORMATION

01 DATE OF INSPECTION	02 SITE STATUS	03 YEARS OF OPERATION
4 / 8 / 85 * (MONTH DAY YEAR)	☐ ACTIVE ☒ INACTIVE	1949 (BEGINNING YEAR) 1965 (ENDING YEAR) ___ UNKNOWN

04 AGENCY PERFORMING INSPECTION (Check all that apply)
☒ A. EPA ☐ B. EPA CONTRACTOR _____ (Name of firm) ☐ C. MUNICIPAL ☐ D. MUNICIPAL CONTRACTOR _____ (Name of firm)
☐ E. STATE ☒ F. STATE CONTRACTOR Engineering-Scienc (Name of firm) ☐ G. OTHER _____ (Specify)

05 CHIEF INSPECTOR	06 TITLE	07 ORGANIZATION	08 TELEPHONE NO.
S.Robert Steele II	Environmental Scientist	ES	(703) 571-7575
Eileen Gilligan	Geologist	D & M	(315) 638-2572
John P. McAuliffe	Environmental Engineer	ES	(315) 451-9560
			( )
			( )
			( )

13 SITE REPRESENTATIVES INTERVIEWED	14 TITLE	15 ADDRESS	16 TELEPHONE NO
Lee Barron	Maintenance	189 Tonawanda Buffalo, NY 14207	(716 873-0300
			( )
			( )
			( )
			( )
			( )
			( )

17 ACCESS GAINED BY (Check one)	18 TIME OF INSPECTION	19 WEATHER CONDITIONS
☒ PERMISSION ☐ WARRANT	1:30 PM	Overcast, rainy, 60° F

IV. INFORMATION AVAILABLE FROM

01 CONTACT	02 OF (Agency/Organization)	03 TELEPHONE NO.
George Moreau	Engineering-Science (ES)	(315 451-9560

04 PERSON RESPONSIBLE FOR SITE INSPECTION FORM	05 AGENCY	06 ORGANIZATION	07 TELEPHONE NO.	08 DATE
George Moreau		ES	315-451-9560	12 / 8 / 88 (MONTH DAY YEAR)

EPA FORM 2070-13 (7-81)

* updated 12/8/88

EPA

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

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
NY	D002153828

II. WASTE STATES, QUANTITIES, AND CHARACTERISTICS

01 PHYSICAL STATES (Check all that apply)

- [x] A. SOLID
- [ ] B. POWDER, FINES
- [x] C. SLUDGE
- [ ] D. OTHER (Specify)
- [ ] E. SLURRY
- [x] F. LIQUID
- [ ] G. GAS

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

- TONS: 16,000/224,000 gal.
- CUBIC YARDS: 50,000
- NO. OF DRUMS: 200

03 WASTE CHARACTERISTICS (Check all that apply)

- [x] A. TOXIC
- [x] B. CORROSIVE
- [ ] C. RADIOACTIVE
- [x] D. PERSISTENT
- [ ] 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	19,000	tons	foundry sand
OLW	OILY WASTE	224,000	gallons	hydraulic oil
SOL	SOLVENTS			
PSD	PESTICIDES			also foundry sand binder
OCC	OTHER ORGANIC CHEMICALS			TCE degreaser, phosphoric acid
IOC	INORGANIC CHEMICALS			16,000 tons slag, alcohol based
ACD	ACIDS			binders
BAS	BASES			
MES	HEAVY METALS			

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	1,1,1 Trichloroethane	71-55-6	drum	13.0-47.0	ppb
OCC	Phenols	108-95-2	landfill	0.31-0.56	ppm
MES	Chromium	7440-47-3	landfill	26.7-36.7	ppm
MES	Nickel	7440-02-0	landfill	12.8-20.2	ppm
MES	Cadmium	7440-43-9	landfill	1.59-2.35	ppm
ACD	Phosphoric Acid	7664-38-2	drum		
OCC	Aroclor 1260	11096-82-5	landfill	580 - 2,200,000	ppb
SOL	toluene	108-88-3	landfill	88	ppb
OCC	phenanthrene	85-01-8	landfill	360	ppb
MES	manganese	7439-96-5	landfill	11824.4	ppb

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)

1. NYSDEC,1987 inactive site profile report
2. NYSDEC, landfill inspection, 9/1/78
3. Pratt & Letchworth Site Laboratory Report #26903-882-294,Bowser-Morner,8/82
4. Laboratory Report, Additional testing at Pratt & Letchworth site by Bowser-Morner Testing Laboratories

-OVER-

5. ES and D&M site inspection. 4/18/85
6. Nanco Laboratories, Inc. 1987-88 Analytical Results
7. York Laboratories, Inc., 1988. Analytical results

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
NY	D002103828

II. HAZARDOUS CONDITIONS AND INCIDENTS

01 ☒ A. GROUNDWATER CONTAMINATION — 02 ☒ OBSERVED (DATE: 1987) ☐ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: 0 — 04 NARRATIVE DESCRIPTION

Due to unlined and uncovered landfill the potential exists since hazardous substances are present in the fill and in groundwater at the fill/clay interface.

01 ☐ B. SURFACE WATER CONTAMINATION — 02 ☒ OBSERVED (DATE: 1987) ☐ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: 91,269 — 04 NARRATIVE DESCRIPTION (phase II sampling)

Samples collected from Scajaquada Creek.. Downgradient concentrations of mercury and lead exceeded upgradient concentrations by more than three times. Surface water intake 2.6 miles downstream on Niagara River.

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

Readings above background were not detected during routine on site monitoring for organic vapors (ES field investigations, 1987).

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

No information which indicates that fire and explosion has occurred or could occur) at the site was discovered during the Phase II study.

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

Based on information revealed during the Phase II study, there is not a confirmed instance in which contact with hazardous substances at the site has caused injury, illness or death to humans or animals. However, there are breaks in the fence where someone could enter the site.

01 ☒ F. CONTAMINATION OF SOIL 15-20 — 02 ☒ OBSERVED (DATE: 1987) ☐ POTENTIAL ☐ ALLEGED
03 AREA POTENTIALLY AFFECTED: (Acres) — 04 NARRATIVE DESCRIPTION (phase II sampling)

Hazardous substances including heavy metals, volatile organics, PCB's and PAH's were detected in surface soil samples from the oil spill area and along Scajacuada Creek

01 ☒ G. DRINKING WATER CONTAMINATION — 02 ☐ OBSERVED (DATE:) ☒ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: 91,269 — 04 NARRATIVE DESCRIPTION

Drinking water intake located 2.6 miles downstream. Landfill is located adjacent to a tributary creek. (N.Y. State Atlas of Community Water Systems, 1982)

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

No-see comments under direct contact narrative.

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

Due to proximity to residential area. Unauthorized access to the site is possible.

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
NY	D002103828

II. HAZARDOUS CONDITIONS AND INCIDENTS (Continued)

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

None known
(ES field visits 1987)

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

None known
(ES field visits 1987)

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

There is no agricultural land within 1 mile of the site, the site is in an urban area.

01 ☒ M. UNSTABLE CONTAINMENT OF WASTES (Spills/Runoff/Standing liquids, Leaking drums) — 02 ☒ OBSERVED (DATE: 1985) ☐ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ 04 NARRATIVE DESCRIPTION

1985 site inspection showed spills, leakage seeps, leaking and bulging drums and exposed waste. During field investigations in 1987 for the Phase II study, there was no mention of drums or leachate areas.

01 ☐ N. DAMAGE TO OFFSITE PROPERTY — 02 ☐ OBSERVED (DATE: _____) ☒ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

During operation, foundry sand and slag were landfilled adjacent to and into Scajaquada Creek. (NYSDEC, 1983)

01 ☐ O. CONTAMINATION OF SEWERS, STORM DRAINS, WWTPs — 02 ☐ OBSERVED (DATE: _____) ☒ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

Unknown

01 ☐ P. ILLEGAL/UNAUTHORIZED DUMPING — 02 ☐ OBSERVED (DATE: _____) ☒ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

Unknown-potential for dumping due to open areas in fence.

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

None known

III. TOTAL POPULATION POTENTIALLY AFFECTED: 91,269

IV. COMMENTS

Total population potentially affected is the sum of the drinking water population and nearby residential population which could be potentially affected.

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

Site visit, 1985.
ES field investigations, 1987
NYSDEC, 1983, Inactive Site Profile Report

EPA

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

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
NY	D002103828

II. PERMIT INFORMATION

01 TYPE OF PERMIT ISSUED (Check all that apply)	02 PERMIT NUMBER	03 DATE ISSUED	04 EXPIRATION DATE	05 COMMENTS
☐ A. NPDES				
☐ B. UIC				
☒ C. AIR	1402001145	unknown	unknown	
☐ D. RCRA				
☐ E. RCRA INTERIM STATUS				
☐ F. SPCC PLAN				
☐ G. STATE (Specify)				
☐ H. LOCAL (Specify)				
☒ I. OTHER (Specify) SPDES	0031275	unknown	unknown	
☐ J. NONE				

III. SITE DESCRIPTION

01 STORAGE/DISPOSAL (Check all that apply)	02 AMOUNT	03 UNIT OF MEASURE
☐ A. SURFACE IMPOUNDMENT		
☐ B. PILES		
☒ C. DRUMS, ABOVE GROUND	200(as of 1985)	
☐ D. TANK, ABOVE GROUND		
☐ E. TANK, BELOW GROUND		
☒ F. LANDFILL	50,000	cubic yards
☐ G. LANDFARM	224,000	gallons
☐ H. OPEN DUMP		
☐ I. OTHER (Specify)		

04 TREATMENT (Check all that apply)

- ☐ A. INCENERATION
- ☐ B. UNDERGROUND INJECTION
- ☐ C. CHEMICAL/PHYSICAL
- ☐ D. BIOLOGICAL
- ☐ E. WASTE OIL PROCESSING
- ☐ F. SOLVENT RECOVERY
- ☐ G. OTHER RECYCLING/RECOVERY
- ☐ H. OTHER (Specify)

05 OTHER

☒ A. BUILDINGS ON SITE

8 on plant grounds

06 AREA OF SITE

landfill 3-5 (Acres)

07 COMMENTS

IV. CONTAINMENT

01 CONTAINMENT OF WASTES (Check one)

☐ A. ADEQUATE, SECURE ☐ B. MODERATE ☒ C. INADEQUATE, POOR ☐ D. INSECURE, UNSOUND, DANGEROUS

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

Foundry sands and hydraulic oil were landfilled along Scajacquada Creek and on the eastern end of the property; drums are still present in on-site buildings. The site is enclosed by a fence, but some wastes are outside of the fenced area.

V. ACCESSIBILITY

01 WASTE EASILY ACCESSIBLE: ☒ YES ☐ NO

02 COMMENTS

Some wastes are present just outside of the fenced property. In addition, there are several holes in the fence along Scajaquada Creek.

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

1. NYSDEC, Inactive Site Profile Report, 1983.
2. ES and D&M site inspection, 4/18/85
3. ES Field investigations, 1987-88

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 5 - WATER, DEMOGRAPHIC, AND ENVIRONMENTAL DATA

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
NY	D002103828

II. DRINKING WATER SUPPLY

01 TYPE OF DRINKING SUPPLY (Check as applicable)

	SURFACE	WELL
COMMUNITY	A. ☒	B. ☐
NON-COMMUNITY	C. ☐	D. ☐

02 STATUS

ENDANGERED	AFFECTED	MONITORED
A. ☐	B. ☐	C. ☐
D. ☐	E. ☐	F. ☐

03 DISTANCE TO SITE

A. 2.6 (mi)
B. _____ (mi)

III. GROUNDWATER

01 GROUNDWATER USE IN VICINITY (Check one)

☐ A. ONLY SOURCE FOR DRINKING ☐ B. DRINKING (Other sources available) COMMERCIAL, INDUSTRIAL, IRRIGATION (No other water sources available) ☒ C. COMMERCIAL, INDUSTRIAL, IRRIGATION (Limited other sources available) ☐ D. NOT USED, UNUSEABLE

02 POPULATION SERVED BY GROUND WATER 0

03 DISTANCE TO NEAREST DRINKING WATER WELL none within 3 miles of the site (mi)

04 DEPTH TO GROUNDWATER	05 DIRECTION OF GROUNDWATER FLOW	06 DEPTH TO AQUIFER OF CONCERN	07 POTENTIAL YIELD OF AQUIFER	08 SOLE SOURCE AQUIFER
3.3 (ft)	southeast	3.3 (ft)	unknown (gpd)	☐ YES ☒ NO

09 DESCRIPTION OF WELLS (Including useage, depth, and location relative to population and buildings)

There are no drinking water wells in the vicinity of the site. An industrial well at Dunlop is used for cooling water. This well is not in the aquifer concern.

10 RECHARGE AREA		11 DISCHARGE AREA	
☐ YES ☐ NO	COMMENTS: unknown	☐ YES ☐ NO	COMMENTS: unknown

IV. SURFACE WATER

01 SURFACE WATER USE (Check one)

☒ 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
Scajaquada Creek	☐	0.0 adjacent (mi)
Niagara River	☐	0.50 (mi)
Black Rock Canal	☐	0.50 (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. 20,547 NO. OF PERSONS	B. 76,966 NO. OF PERSONS	C. 173,509 NO. OF PERSONS

02 DISTANCE TO NEAREST POPULATION

0.0 adjacent (mi)

03 NUMBER OF BUILDINGS WITHIN TWO (2) MILES OF SITE

20,254

04 DISTANCE TO NEAREST OFF-SITE BUILDING

0.0 adjacent (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)

Older industrial/residential area
There are 3501 people and 1585 residences within ¼ mile of the facility

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 5 - WATER, DEMOGRAPHIC, AND ENVIRONMENTAL DATA

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
NY	D002103828

VI. ENVIRONMENTAL INFORMATION

01 PERMEABILITY OF UNSATURATED ZONE (Check one)

☒ A. $10^{-6} - 10^{-8}$ cm/sec ☐ B. $10^{-4} - 10^{-6}$ cm/sec ☒ C. $10^{-4} - 10^{-3}$ cm/sec ☐ D. GREATER THAN 10^{-3} cm/sec

clay soil silty-sand fill

02 PERMEABILITY OF BEDROCK (Check one)

☐ 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	
93' (ft)	15-18 (ft)	unknown	

06 NET PRECIPITATION	07 ONE YEAR 24 HOUR RAINFALL	08 SLOPE: SITE SLOPE	DIRECTION OF SITE SLOPE	TERRAIN AVERAGE SLOPE
9 (in)	2.1 (in)	2 %	S-SE	2.0 %

09 FLOOD POTENTIAL

SITE IS IN 500 YEAR FLOODPLAIN

10

☐ SITE IS ON BARRIER ISLAND, COASTAL HIGH HAZARD AREA, RIVERINE FLOODWAY

11 DISTANCE TO WETLANDS (5 acre minimum) source:NYSDEC Region 9 Fish & Wildlife, J. Farquahar 9/25/87

ESTUARINE	OTHER
A. more than 2 (mi)	B. none within 1 mile (mi)

12 DISTANCE TO CRITICAL HABITAT (of endangered species)

none within 1 mile (mi)

ENDANGERED SPECIES: _____

13 LAND USE IN VICINITY

DISTANCE TO:

COMMERCIAL/INDUSTRIAL	RESIDENTIAL AREAS; NATIONAL/STATE PARKS, FORESTS, OR WILDLIFE RESERVES	AGRICULTURAL LANDS: PRIME AG LAND	AG LAND
A. 0.0 (mi)	B. 0.01 (mi)	C. more than 2 (mi)	D. more than 1 (mi)

14 DESCRIPTION OF SITE IN RELATION TO SURROUNDING TOPOGRAPHY

Original ground surface sloped SE towards Scajaquada Creek. Filling on this site and on adjacent property has leveled the ground surface, and created steep creek banks about 18' high.

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

Freeze & Cherry, Groundwater 1979.
Erie Co. DEP, Division of Planning, Land Use Maps
NYS Wetlands Maps
USDOC National Climatic Center
USDOC Technical Paper No. 40
USGS Quad Sheets
Phase II Boring Logs
NYS Atlas of Community Water Systems Sources, 198

EPA FORM 2070-13 (7-81)

Letter from J. Ozard(NYSDEC Wildlife Resources Center) to M. Anatra(ES)-7/21/87
NYS DOT Quads(Buffalo, NW and NE, 1975) ES Field Sampling Records,1987.

EPA

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

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
NY	D002103828

II. SAMPLES TAKEN

SAMPLE TYPE	01 NUMBER OF SAMPLES TAKEN	02 SAMPLES SENT TO	03. ESTIMATED DATE RESULTS AVAILABLE
GROUNDWATER	5	Nanco Labs, RD6 Robinson lane, Wappinger Falls, NY	now
SURFACE WATER	3	"	now
WASTE	6	"	now
AIR			
RUNOFF			
SPILL			
SOIL (borings)	7	Nanco Labs	now
SOIL (surface)	3	"	now
VEGETATION			
OTHER sediment	3		

III. FIELD MEASUREMENTS TAKEN

01 TYPE	02 COMMENTS
(6/25-7/2 1987) Magnetic	Surveys were done to determine general geologic
Electrical Resistivity	stratigraphy, locate buried materials and to confirm
	placement of monitoring wells.

IV. PHOTOGRAPHS AND MAPS

01 TYPE ☐ GROUND ☒ AERIAL

02 IN CUSTODY OF Dames and Moore
(Name of organization or individual)

03 MAPS ☒ YES ☐ NO

04 LOCATION OF MAPS Engineering-Science

V. OTHER FIELD DATA COLLECTED (Provide narrative description)

A Photovac Tip II was used to screen for volatile organic compounds present in the air. This was performed as a health and safety measure for on-site field work. Soil samples and monitoring wells were also screened for volatile organic compounds.

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

ES field notes and data sheet 1987/1988

EPA

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

I. IDENTIFICATION
01 STATE | 02 SITE NUMBER

II. CURRENT OWNER(S)

01 NAME	02 D+B NUMBER	03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE	05 CITY	06 STATE	07 ZIP CODE
Tops Market, Inc.	unknown	60 Dingens Street	unknown	Buffalo	NY	14206
189 Tonawanda St. Corp.	unknown	189 Tonawanda Street	unknown	Buffalo	NY	14220

PARENT COMPANY (If applicable)

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

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

01 NAME	02 D+B NUMBER	03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE	05 CITY	06 STATE	07 ZIP CODE
Amcast Industries	unknown	P. O. Box 98	unknown	Dayton	OH	45401
Dayton Malleable Iron Company						
Buffalo Malleable Iron Works						

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

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

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

NYSDOH, 1989. Comments on Phase II Draft, 01/24/89.
Interview with Ray Blakely of Smith and Schnacke. 4/25/85.
NYSDEC files.

EPA FORM 2070-13 (7-81)

EPA

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

I. IDENTIFICATION
01 STATE | 02 SITE NUMBER

II. CURRENT OPERATOR (Provide if different from owner)

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

OPERATOR'S PARENT COMPANY (If applicable)

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

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

01 NAME: Pratt & Letchworth
02 D+B NUMBER:
03 STREET ADDRESS (P.O. Box, RFD #, etc.): 189 Tonawanda Street
04 SIC CODE:
05 CITY: Buffalo
06 STATE: NY
07 ZIP CODE: 14220
08 YEARS OF OPERATION: 1814-1981
09 NAME OF OWNER DURING THIS PERIOD:

PREVIOUS OPERATORS' PARENT COMPANIES (If applicable)

10 NAME: Amcast Industries
11 D+B NUMBER:
12 STREET ADDRESS (P.O. Box, RFD #, etc.): Box 98 3931 Dixie Drive
13 SIC CODE:
14 CITY: Dayton
15 STATE: OH
16 ZIP CODE: 45401

01 NAME: Dayton Malleable Iron Company
02 D+B NUMBER:
03 STREET ADDRESS (P.O. Box, RFD #, etc.):
04 SIC CODE:
05 CITY:
06 STATE:
07 ZIP CODE:
08 YEARS OF OPERATION:
09 NAME OF OWNER DURING THIS PERIOD:

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

01 NAME: Buffalo Malleable Iron Works
02 D+B NUMBER:
03 STREET ADDRESS (P.O. Box, RFD #, etc.):
04 SIC CODE:
05 CITY:
06 STATE:
07 ZIP CODE:
08 YEARS OF OPERATION:
09 NAME OF OWNER DURING THIS PERIOD:

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

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

Interview with Ray Blakely of Smith and Schnacke, 4/25/85.

EPA

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

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER

II. ON-SITE GENERATOR

01 NAME	02 D+B NUMBER
not applicable	
03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE
05 CITY	06 STATE / 07 ZIP CODE

Wastes were not brought to the disposal area. The transporters listed below were responsible for removing waste from the site for disposal.

III. OFF-SITE GENERATOR(S)

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

IV. TRANSPORTER(S)

01 NAME	02 D+B NUMBER	01 NAME	02 D+B NUMBER
Downing Container Service			
03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE	03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE
191 Glason Street			
05 CITY / 06 STATE / 07 ZIP CODE		05 CITY / 06 STATE / 07 ZIP CODE	
Buffalo / NY / 14203			
01 NAME	02 D+B NUMBER	01 NAME	02 D+B NUMBER
Speedy Oil Company			
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	
Buffalo / NY			

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

Interview with Ray Blakely of Smith and Schnacke, 4/25/85.

EPA

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

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
NY	D002103828

II. PAST RESPONSE ACTIVITIES

01 ☐ A. WATER SUPPLY CLOSED 04 DESCRIPTION no	02 DATE	03 AGENCY
01 ☐ B. TEMPORARY WATER SUPPLY PROVIDED 04 DESCRIPTION no	02 DATE	03 AGENCY
01 ☐ C. PERMANENT WATER SUPPLY PROVIDED 04 DESCRIPTION no	02 DATE	03 AGENCY
01 ☐ D. SPILLED MATERIAL REMOVED 04 DESCRIPTION no	02 DATE	03 AGENCY
01 ☐ E. CONTAMINATED SOIL REMOVED 04 DESCRIPTION no	02 DATE	03 AGENCY
01 ☐ F. WASTE REPACKAGED 04 DESCRIPTION no	02 DATE	03 AGENCY
01 ☐ G. WASTE DISPOSED ELSEWHERE 04 DESCRIPTION no	02 DATE	03 AGENCY
01 ☐ H. ON SITE BURIAL 04 DESCRIPTION no	02 DATE	03 AGENCY
01 ☐ I. IN SITU CHEMICAL TREATMENT 04 DESCRIPTION no	02 DATE	03 AGENCY
01 ☐ J. IN SITU BIOLOGICAL TREATMENT 04 DESCRIPTION no	02 DATE	03 AGENCY
01 ☐ K. IN SITU PHYSICAL TREATMENT 04 DESCRIPTION no	02 DATE	03 AGENCY
01 ☐ L. ENCAPSULATION 04 DESCRIPTION no	02 DATE	03 AGENCY
01 ☐ M. EMERGENCY WASTE TREATMENT 04 DESCRIPTION no	02 DATE	03 AGENCY
01 ☐ N. CUTOFF WALLS 04 DESCRIPTION no	02 DATE	03 AGENCY
01 ☐ O. EMERGENCY DIKING/SURFACE WATER DIVERSION 04 DESCRIPTION no	02 DATE	03 AGENCY
01 ☐ P. CUTOFF TRENCHES/SUMP 04 DESCRIPTION no	02 DATE	03 AGENCY
01 ☐ O. SUBSURFACE CUTOFF WALL 04 DESCRIPTION no	02 DATE	03 AGENCY

EPA

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

I. IDENTIFICATION
01 STATE: NY | 02 SITE NUMBER: D002103828

II PAST RESPONSE ACTIVITIES (Continued)

01 ☐ R. BARRIER WALLS CONSTRUCTED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
no

01 ☐ S. CAPPING/COVERING — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
no

01 ☐ T. BULK TANKAGE REPAIRED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
no

01 ☐ U. GROUT CURTAIN CONSTRUCTED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
no

01 ☐ V. BOTTOM SEALED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
no

01 ☐ W. GAS CONTROL — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
no

01 ☐ X. FIRE CONTROL — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
no

01 ☐ Y. LEACHATE TREATMENT — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
no

01 ☐ Z. AREA EVACUATED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
no

01 ☐ 1. ACCESS TO SITE RESTRICTED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
no- a fence encloses majority of the site, however,there is at least one opening in the fence line.

01 ☐ 2. POPULATION RELOCATED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
no

01 ☒ 3. OTHER REMEDIAL ACTIVITIES — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
leaking drums removed in 1985

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

ES and D & M site inspection, 4/18/85

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 11 - ENFORCEMENT INFORMATION

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
NY	D002103828

II. ENFORCEMENT INFORMATION

01 PAST REGULATORY/ENFORCEMENT ACTION ☐ YES ☒ NO

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

NYSDEC- Phase I and Phase II studies completed at site in 1985 and 1988, respectively.

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

letter from Vance Bryant(NYSDEC- Division of Env. Enforcement) to M. Anatra (ES)- 7/21/87

915045

ENGINEERING INVESTIGATIONS AT INACTIVE HAZARDOUS WASTE SITES

PHASE II INVESTIGATION

Pratt and Letchworth

City of Buffalo

Site No. 915045

Erie County

VOLUME 2

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, P.E., *Director*

By:

ENGINEERING-SCIENCE

REFERENCES

HRS REFERENCES*
PRATT AND LETCHWORTH SITE

1. ES, 1987. Boring logs for Pratt and Letchworth site, GW-1B, GW-2A, GW-3A, GW-3B, and GW-4A.

2. ES, 1988. Phase II Report, Pratt and Letchworth site, Table IV-4 and Figure IV-3.

3. Bowser-Morner Testing Laboratories, Inc., 1982. Pratt and Letchworth site, Buffalo, New York. Laboratory Report No. 26903-882-294. Prepared for Smith and Schnacke, Dayton, Ohio, August 31, 1982.

4. USDOC, 1979. U.S. Department of Commerce. Climatic Atlas of the United States. National Climatic Center, Asheville, NC.

5. Freeze and Cherry, 1979. Groundwater. Prentice-Hall, Inc., New Jersey, 604 pp.

6. NYSDEC, 1987. Inactive Hazardous Waste Disposal Site Report. Pratt and Letchworth site.

7. USGS, 1984. U.S. Geological Survey, Professional Paper 1270.

8. Booz Allen and Hamilton, Inc., 1983. USEPA Sludge Task Force, An Overview of the Contaminants of Concern in the Disposal and Utilization of Municipal Sewage Sludge, April 15, 1983.

9. Nanco Labs, Inc., 1987-88. Analytical results.

10. York Laboratories, Inc., 1988. Analytical results.

11. EPA, 1984. Uncontrolled Hazardous Waste Site Ranking System: A Users Manual (HW-10). United States Environmental Protection Agency.

12. NYSDOH, 1982. New York State Department of Health, Division of Environmental Protection, Bureau of Public Water Supply Protection, New York State Atlas of Community Water System Sources.

13. Koczaja, 1988. Personal Communication from Ron Koczaja of Erie County Department of Health to Michele Anatra of Engineering-Science, Inc., February 18, 1988.

14. Parshall, 1988. Telephone interview on use of industrial water well at Dunlop Tire Company dated July 7, 1988.

*All these references were used for HRS Documentation, while some of them were also used as General References.

15. LaSala, 1968. Groundwater Resources of the Erie-Niagara Basin, New York. Basin Planning Report ENB-3 State of New York Conservation Department Water Resources Commission.

16. NYSDOT, 1975. Topographic Maps: Buffalo NW Quadrangle, 7.5 minute Planimetric Series.

17. USDOC, 1963. U.S. Department of Commerce Technical Paper No. 40.

18. ES and Dames and Moore, 1985. Site Inspection Pratt and Letchworth site, April 18, 1985.

19. Farquhar, 1987. Region 9 NYSDEC Fish and Wildlife. Personal communication to Liz Dobson of Engineering-Science, Inc., September 2, 1987.

20. Ozard, 1988. NYSDEC Interview for Phase II Investigation, April 14, 1988.

21. U.S. Census Tract Data, 1980. Due to volume of material copies are not provided.

22. U.S. Department of the Interior, National Park Service, 1983. "National Register of Historic Places Annual Listing of Properties, January 1979 through December 1982", July 1983.

23. Federal Register, 1983. Part III, Department of the Interior, National Park Service, "National Registry of Natural Landmarks", March 1, 1983.

GENERAL REFERENCES**
PRATT AND LETCHWORTH SITE

24. Amcast, 1989. Telephone interview on May 4, 1989.

25. Barron, 1985. Personal communication with Lee Baron, Pratt and Letchworth, dated April 18, 1985.

26. CEDEQ, 1976. County of Erie Department of Environmental Quality Memorandum dated April 30, 1976.

27. City of Buffalo, 1981. Tax Maps 088.42, 088.35, 088.43, Erie County Division of Real Property Tax Services.

28. ES, 1985. Interview with a Mr. Reid, Security Officer at Pratt & Letchworth site, February 26, 1985.

29. ITFHW, no date. Interagency Task Force on Hazardous Wastes Questionnaire completed by Jack Stark, Operations Manager, Pratt and Letchworth Division of Dayton Malleable, Inc.

30. 6NYCRR. Volume E, Article 8, Part 837, Map 6.

31. NUS Corporation, 1988. Final Draft Site Inspection Report Dayton Malleable Buffalo, N.Y., dated July 14, 1988.

32. NYSDEC, 1987. New York State Hazardous Waste Survey, Pratt and Letchworth site dated March 2, 1977.

33. NYSDEC, 1978. Facility Inspection Report dated September 1, 1978.

34. NYSDEC, 1988. David Vitale's field notes, February 23, 1988.

35. Rand McNally, 1981. Worldmaster World Atlas, 1980 Census Edition, Rand McNally and Company, New York.

36. Sittig, 1985. Handbook of Toxic and Hazardous Chemicals and Carcinogens, 2nd edition, Noyes Publications, Park Ridge, New Jersey.

37. Smith and Schnacke, 1985. Interview with Ray Blakely of Smith and Schnacke on April 25,1985.

38. USDA, 1986. Soil Survey of Erie County, Soil Conservation Service, U.S. Department of Agriculture, Washington, DC.

** These references were not used for HRS Documentation. See also "HRS References" above.

39. USEPA, 1985. Laboratory Data Validation Functional Guidelines for Evaluating Organic Analyses (April 11, 1985); Pesticide/PCBs Analyses (May 28, 1985); and Inorganics Analyses (1985).

40. USGS, 1965. USGS Topographic Map, Buffalo, N.W. Quadrangle.

DRILLING CONTRACTOR:
Driller: Steve Kahn
Inspector: W. Lilley & G. Moreau
Rig Type: CME 55
Drilling Method: 4¼" ID HSA, NX Core

ENGINEERING-SCIENCE DRILLING RECORD

PROJECT NAME: DEC Phase II Pratt & Letch
PROJECT NO.: 540 12 12

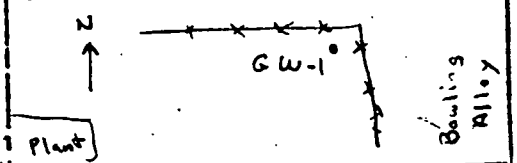
BORING NO.: GW-1B
Sheet: 1 of 5
Location: North East corner near Fence

GROUND WATER OBSERVATIONS

Water Level	38.0	18'8"	5.91
Time	1755 A	8:00 A	420 P
Date	10/27/87	10/30	11/2/87
Casing Depth	40	91'	91

Weather: Fair
Date/Time Start: 10/26/87 - 2:00 pm
Date/Time Finish: 11/2/87 - 4:00 pm

Plot Plan



Photovac Reading	SAMPLE DEPTHS	SAMPLE I.D.	SPT	FIELD IDENTIFICATION OF MATERIAL
0.5	0-2	S-1	4	Black Sand and Gravel, Trace Glass + Cinders (Fill) (moist)
	SS		6	
	Rec 16"		4	
			7	2.0'
0.0	5-7	S-2	6	Brown Silt, little Clay Trace of Gray Sand (Stiff) (moist) (Sand in vertical Veins)
	SS		15	
	Rec 24"		20	
			23	
.5-1.0	10-12	S-3	9	Brown Silt, some Clay Trace Gravel and Gray Sand (Soft) (moist)
	SS		14	
	Rec 24"		18	
			21	
1.0	15-17	S-4	4	Brown Silt, some Clay Trace Gravel and Gray Sand
	SS		7	
	Rec 24"		10	
			12	
0.5	20-22	S-5	6	
	SS		8	
	Rec 24		9	
			10	

WELL SCHEMATIC: Cement Bentonite Grout; 2" ID PVC Riser

Comments:

SPT - STANDARD PENETRATION TEST
D = DRY W = WASHED C = CORED
U = UNDISTURBED SS = SPLIT SPOON
P = PIT A = AUGER CUTTINGS

Soil Stratigraphy Summary: Fill to 2.0' over Brown Silt (lacustrine) To 35' over Brown Clay (Lacustrine) To 58' over Brown To Gray Silt - sand & Clay To 70.5 over Brown Clayey Silt To 83' over Gray Sandy Till

DRILLING CONTRACTOR:
Driller: Steve Kahn
Inspector: W. Lilley, G. Moreau
Rig Type: CME 55
Drilling Method: 4¼" ID HSA

ENGINEERING-SCIENCE DRILLING RECORD

PROJECT NAME: DEC Phase II - Pratt & Lebh
PROJECT NO.: S4012.12

BORING NO.: GW-1B
Sheet: 2 of 5
Location:

GROUND WATER OBSERVATIONS

Water Level			
Time			
Date			
Casing Depth			

Weather:
Date/Time Start:
Date/Time Finish:

Plot Plan: See Sheet No 1

Photovac Reading	SAMPLE DEPTHS	SAMPLE I.D.	SPT	FIELD IDENTIFICATION OF MATERIAL
0.5	25-27	S-6	4	Brown Silt, Some Clay
	SS		7	Trace Fine Gravel (Soft) (Moist)
	Rec 24"		9	
			10	
1.0	30-32	S-7	3	
	SS		6	
	Rec 24"		7	
			6	
				35'
0.2	35-36.5	S-8	2	Brown Clay, Little Silt
	SS		3	(Soft) (Moist)
	Rec 18"		3	
	40-42	S-9	3	
	SS		4	
			4	
			6	

WELL SCHEMATIC: Cement Bentonite Grout; 2" ID PVC Riser

Comments

SPT - STANDARD PENETRATION TEST
D = DRY W = WASHED C = CORED
U = UNDISTURBED SS = SPLIT SPOON
P = PIT A = AUGER CUTTINGS

Soil Stratigraphy Summary:

DRILLING CONTRACTOR:
Driller: Steve Kahn
Inspector: W. Lilley & G. Mineau
Rig Type: CME 55
Drilling Method: 4¼" ID HSA

ENGINEERING-SCIENCE DRILLING RECORD

PROJECT NAME: DEC Phase II - Pratt & Letch
PROJECT NO.: 54012.12

BORING NO.: GW-1B
Sheet: 3 of 5
Location:

GROUND WATER OBSERVATIONS

Water Level			
Time			
Date			
Casing Depth			

Weather:
Date/Time Start:
Date/Time Finish:

Plot Plan

Photovac Reading	SAMPLE DEPTHS	SAMPLE I.D.	SPT	FIELD IDENTIFICATION OF MATERIAL
	45-47	S-10	2	46.0
	SS		2	Reddish brown Silty Clay (CL)
			4	(Firm) (moist to wet)
			4	
	50-52	S-11	2	
	SS		4	
			6	
			8	
	55-57	S-12	1/24"	
	SS			
				58'
	60-62	S-13	2	Brown clayey-Silt Trace Coarse
	SS		4	Sand and Fine gravel (ML-CL)
			8	(Firm) (moist to wet)
			10	
	65-67	S-14	4	65.5'
	SS		5	Gray Sand-Silt-Clay little Fine
			8	Gravel (stiff) (moist) (ML)
			6	

WELL SCHEMATIC: Cement Bentonite Grout; 2" I.D. PVC Riser

Comments: Dropped Rods 30' while lowering Spoon S-12

SPT - STANDARD PENETRATION TEST
D = DRY W = WASHED C = CORED
U = UNDISTURBED SS = SPLIT SPOON
P = PIT A = AUGER CUTTINGS

Soil Stratigraphy Summary

DRILLING CONTRACTOR:
Driller: Steve Kahn
Inspector: W. Lilley & G. Moreau
Rig Type: CME 55
Drilling Method: 4¼" ID HSA

ENGINEERING-SCIENCE DRILLING RECORD

PROJECT NAME: DEC Phase II - Pratt
PROJECT NO.: 5401212

BORING NO.: GW-1B
Sheet: 4 of 5
Location:

GROUND WATER OBSERVATIONS

Water Level			
Time			
Date			
Casing Depth			

Weather:
Date/Time Start:
Date/Time Finish:

Plot Plan: See Sheet No 1

Photovac Reading	SAMPLE DEPTHS	SAMPLE I.D.	SPT	FIELD IDENTIFICATION OF MATERIAL
	70-72	S-15	4	70.5
	SS		6	Brown clayey-Silt Trace
			7	Coarse sand and Fine Gravel
			10	(moist) (Stiff)
	75-77	S-16	9	Brown clayey-Silt Trace coarse
	SS		25	Sand Trace to little Fine Gravel
			23	(moist) (very Stiff)
			40	
	80-82	S-17	3	Brown clayey-Silt
	SS		5	Trace Fine Sand
	Rec 24"		7	(soft) (moist)
			12	83'
	83-85	S-18	34	Grey Fine Sand, little Silt
	SS		36	
	Rec 0		36	
			41	

WELL SCHEMATIC: Cement Bentonite Grout; Bentonite Slurry; 2" ID PVC Riser; 78'

Comments: No Sample recovered

SPT - STANDARD PENETRATION TEST
D = DRY W = WASHED C = CORED
U = UNDISTURBED SS = SPLIT SPOON
P = PIT A = AUGER CUTTINGS

Soil Stratigraphy Summary:

DRILLING CONTRACTOR:
Driller: Steve Kahn
Inspector: W. Lilley & G. Mineau
Rig Type: CMESS
Drilling Method: 4¼" ID HSA
NX Cored from 91-108'

ENGINEERING-SCIENCE DRILLING RECORD

PROJECT NAME: DEC Phase II - Part H
PROJECT NO.: 5401212

BORING NO.: GW-1B
Sheet: 5 of 5
Location:

GROUND WATER OBSERVATIONS

Water Level			
Time			
Date			
Casing Depth			

Weather:
Date/Time Start:
Date/Time Finish:

Plot Plan: See Sheet No 1

Photovac Reading	SAMPLE DEPTHS	SAMPLE I.D.	SPT	FIELD IDENTIFICATION OF MATERIAL	WELL SCHEMATIC	Comments
	90'	S-19	100/6"	Gray Fine to Coarse Sand Some Gravel (wet)		Augers filling with sand
	SS			91'		Refusal Boulder at 91'
	Rec 6"			Boulders		
	91-101	C1		93'		
	C-1 =	10.0'				
	Rec =	7.4"				
	RQD =	29%				
				Brown Weathered Dolomite & Limestone Many Fractures		
	98-108	C-2				Rocking out to 96'
	C-2	10.0				Recoving 98 to 101' due to rocking out and caving
	Rec =	9.1'				
	RQD =	64.2%				
				Gray and Brown Dolomite & Limestone Black Shaly Parting Highly Fractured Weathered zone 102 - 102.5'		
				108' Boring Terminated		

WELL SCHEMATIC: Bentonite slurry; 2" ID PVC Riser (91. – 96); 2" ID PVC Well Screen #10 slot (97.5 – 107.5); Bedrock

SPT - STANDARD PENETRATION TEST
D = DRY W = WASHED C = CORED
U = UNDISTURBED SS = SPLIT SPOON
P = PIT A = AUGER CUTTINGS

Soil Stratigraphy Summary:

ENGINEERING-SCIENCE DRILLING RECORD

DRILLING CONTRACTOR:
Driller: Steve Kahn
Inspector: W. Lilley
Rig Type: CME 55
Drilling Method: 4¼ ID HSA

PROJECT NAME: Pratt & Letchworth
PROJECT NO.: 54012 12

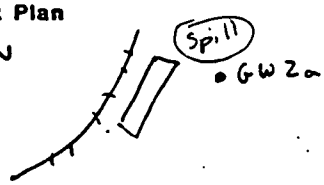
BORING NO.: GW 2A
Sheet: 1 of 1
Location: Spill area

GROUND WATER OBSERVATIONS

Water Level			
Time			
Date			
Sounding Depth			

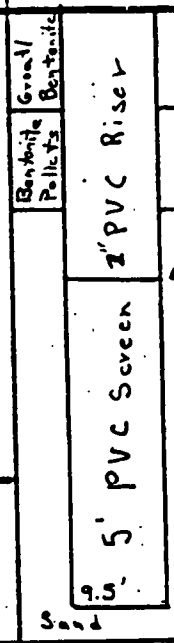
Weather: Fair
Date/Time Start: 11/3/87 1:00
Date/Time Finish: 11/3/87 5:00

Plot Plan



Headspace Reading	SAMPLE DEPTHS	SAMPLE I.D.	SPT	FIELD IDENTIFICATION OF MATERIAL
0.0	4-6		36	Black Sand & Gravel, some Silt (wet) (Fill)
	SS		19	
	Rec 24"		8	
			11	
0.0	6-8		7	
	SS		9	
	Rec 18"		10	
			15	7.5'
0.0	8-10		11	Brown silt, little Clay (moist)
	SS		11	
	Rec		22	
			22	
				Boring terminated at 10'

WELL SCHEMATIC



Comments: Waste Samples; SB2aF12; SB2aFS12

PT - STANDARD PENETRATION TEST
D = DRY W = WASHED C = CORED
U = UNDISTURBED SS = SPLIT SPOON
P = PIT A = AUGER CUTTINGS

Soil Stratigraphy Summary: Fill to 7.5' over Clayey Silt

DRILLING CONTRACTOR:
Driller: D. MILLER
Inspector: K. ISAKSEN
Rig Type: MOBILE 61
Drilling Method: 4¼" ID HSA

ENGINEERING-SCIENCE DRILLING RECORD

PROJECT NAME: PRATT & LETCHWORTH
PROJECT NO.: 5401Z.12

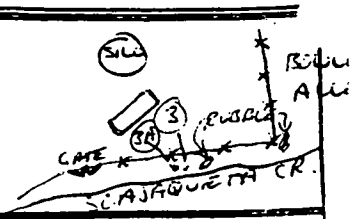
BORING NO. GW-3A (1)
Sheet 1 of 1
Location: AT RUBBLE PILE ALONG SCAJAQUEDA NEXT TO GW-3

GROUND WATER OBSERVATIONS

Water Level			
Time			
Date			
Casing Depth			

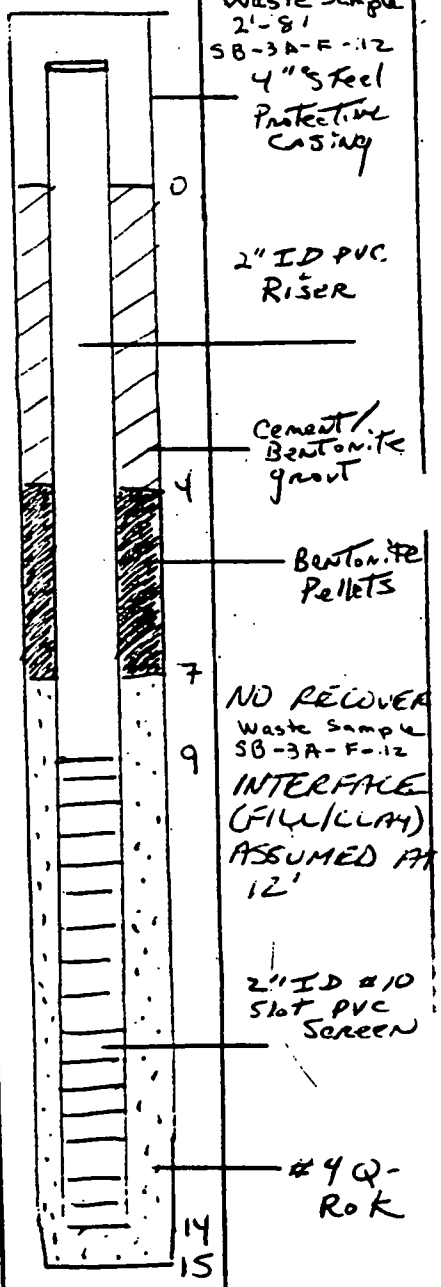
Weather: CLOUDY, 65°
Date/Time Start: 11/4/87 0830
Date/Time Finish: 11/4/87 1300

Plot Plan



Photovac Reading	SAMPLE DEPTHS	SAMPLE I.D.	SPT	FIELD IDENTIFICATION OF MATERIAL
0.0	0-2		2	2" BROWN SAND AND FILL MATERIAL
	REC = 15"		7	5" BROWN STIFF CLAY
			10	8" BLACK SILTY SAND
			8	
0.0	2-4		3	BLACK SILTY SAND AND FILL MATERIAL, SOME BROWN MOIST CLAY
	REC = 15"		4	
			2	
			3	
0.0	4-6		2	
	REC = 4"		2	
			3	
			4	
0.0	6-8		2	
	REC = 4"		3	
			3	
			3	
0.0	8-10		5	3" FOUNDRY SAND
	REC = 17"		5	14" BLACK WET CLAYEY SILT SOME SAND
			1	
			2	
0.0	10-12		2	
	REC = 0		3	
			3	
			3	12'
0.0	12-14		3	BROWN STIFF CLAY WITH ORGANICS
	REC = 18		7	
			11	
			16	
				15'
				Boring Terminated at 15'

WELL SCHEMATIC



Comments:
- Waste Sample 2'-8' SB-3A-F-12
- 4" Steel Protective Casing
- 2" ID PVC Riser
- Cement/Bentonite grout
- Bentonite Pellets
- NO RECOVER Waste Sample SB-3A-F-12 INTERFACE (FILL/CLAY) ASSUMED AT 12'
- 2" ID #10 Slot PVC Screen
- #4 Q-Rok

SPT - STANDARD PENETRATION TEST
D = DRY W = WASHED C = CORED
U = UNDISTURBED SS = SPLIT SPOON
P = PIT A = AUGER CUTTINGS

Soil Stratigraphy Summary: Fill to 12' over Brown Clay (lacustrine) to 15'

ENGINEERING-SCIENCE DRILLING RECORD

(1)

DRILLING CONTRACTOR:
Driller: D. MILLER
Inspector: K. ISAKOWER
Rig Type: MOBILE B1
Drilling Method: 4¼" ID HSA 2⅞" CORE

PROJECT NAME: PRATT & LETCHWORTH
PROJECT NO.: 5701212

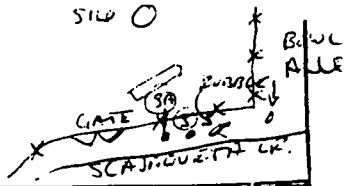
BORING NO.: GW-3B
Sheet: 1 of 5
Location: ADJACENT TO RUBBLE PILE ALONG SCAJAQUEDA CREEK

GROUND WATER OBSERVATIONS

Water Level			
Time			
Date			
Casing Depth			

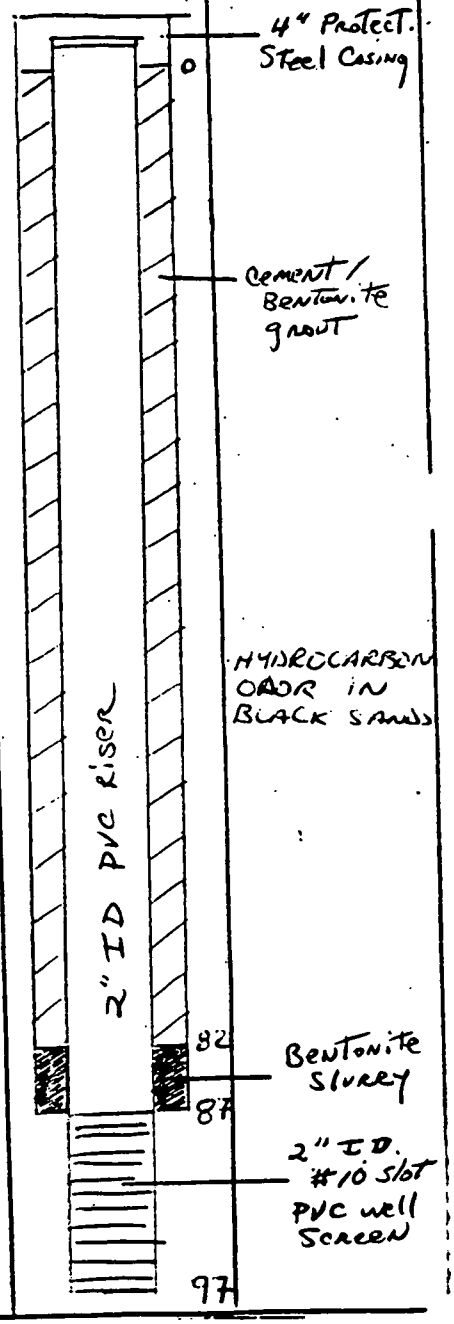
Weather:
Date/Time Start: 10/27 1300
Date/Time Finish:

Plot Plan



Photovac Reading	SAMPLE DEPTHS	SAMPLE I.D.	SPT	FIELD IDENTIFICATION OF MATERIAL
0.0	0-2	S-1	5	2" BLACK SILTY SAND
	REC = 9"		5	7" BROWN STIFF CLAY
			5	
			12	
0.0	5-7	S-2	3	BR. SILTY CLAY GRADING DOWN TO
	REC = 10"		2	BLACK FINE SANDS
			1	
			3	
0.0	10-12	S-3	4	10" BLACK SILTY SANDS WITH
	REC = 16"		2	SOME FOUNDRY SANDS, BRICK
			4	6" BROWN STIFF CLAYS
			4	12'
0.0	15-17	S-4	19	BROWN & RED STIFF CLAY
	REC = 22		17	TRACE GRAVEL
			21	
			28	

WELL SCHEMATIC NOT TO SCALE



Comments

SPT = STANDARD PENETRATION TEST
D = DRY W = WASHED C = CORED
U = UNDISTURBED SS = SPLIT SPOON
P = PIT A = AUGER CUTTINGS

Soil Stratigraphy Summary: Fill to 12' over Brown & Red Clay (lacustrine) to 81' over Glacial Till to 85' over Bedrock

DRILLING CONTRACTOR:
Driller: D. MILLER
Inspector: R. ISAKOWER
Rig Type: MOBILE 61
Drilling Method: 4¼" ID HSA

ENGINEERING-SCIENCE DRILLING RECORD

PROJECT NAME: PRATT & LETCHWORTH
PROJECT NO.: 5401212

BORING NO.: GW-3B
Sheet: 2 of 5
Location: AT RUBBLE PILE ALONG SCASA-QUETA.

GROUND WATER OBSERVATIONS

Water Level			
Time			
Date			
Casing Depth			

Weather:
Date/Time Start:
Date/Time Finish:

Plot Plan

Photovac Reading	SAMPLE DEPTHS	SAMPLE I.D.	SPT	FIELD IDENTIFICATION OF MATERIAL	WELL SCHEMATIC	Comments
0.0	20-22	S-5	5	BROWN STIFF CLAY TRACE GRAVEL		1ST RUN: NO RECOVERY. RESAMPLED SHELBY TUBE TAKEN AT 22'-24.5'
	REC = 22"		9			
	"		15			
	"		21			
0.0	25-27	S-6	5	3" BROWN STIFF CLAY		
	REC = 24"		10	21" BROWN AND RED WET "STICKY" CLAY, TRACE GRAVEL		
	"		7			
	"		10			
0.0	30-32	S-7	1*	BROWN AND RED WET "STICKY" CLAY, TRACE GRAVEL		*SPOON DROPPED INTO CLAY - NO HAMMER BLOWS NEEDED
	REC = 24"		1			
	"		1			
	"		1			
0.0	35-37	S-8	1*			
	REC = 24		1			
	"		1			
	"		1			

SPT - STANDARD PENETRATION TEST
D = DRY W = WASHED C = CORED
U = UNDISTURBED SS = SPLIT SPOON
P = PIT A = AUGER CUTTINGS

Soil Stratigraphy Summary:

DRILLING CONTRACTOR:
Driller: D. MILLER
Inspector: K. ISAKOWER
Rig Type: MOBILE 61
Drilling Method: 4¼" ID HSA

ENGINEERING-SCIENCE DRILLING RECORD

PROJECT NAME: PRATT & LETCHWORTH
PROJECT NO.: 54012.12

BORING NO.: GW-3B
Sheet: 3 of 5
Location: AT RUBBLE PILE ALONG SCAJAQUEDA

GROUND WATER OBSERVATIONS

Water Level			
Time			
Date			
Casing Depth			

Weather:
Date/Time Start:
Date/Time Finish:

Plot Plan

Photovac Reading	SAMPLE DEPTHS	SAMPLE I.D.	SPT	FIELD IDENTIFICATION OF MATERIAL	WELL SCHEMATIC	Comments
	40-42	S-9	1	BROWN AND RED WET "STICKY" CLAY.		
	REC = 24"		1			
			2			
			2			
	45-47	S-10	1*			
	REC = 24"		1			
			1			
			1			
	50-52	S-11	1*			
	REC = 24"		1			
			1			
	55-57	S-12	14	20" BROWN AND RED WET "STICKY" CLAY, TRACE GRAVEL		
	REC = 24"		1	4" BROWN STIFF CLAY, TRACE GRAVEL		
			1			
			1			

SPT = STANDARD PENETRATION TEST
D = DRY W = WASHED C = CORED
U = UNDISTURBED SS = SPLIT SPOON
P = PIT A = AUGER CUTTINGS

Soil Stratigraphy Summary:

DRILLING CONTRACTOR:
Driller: D. MILLER
Inspector: K. ISAKOWER
Rig Type: MOBILE 61
Drilling Method: 4¼" ID HSA

ENGINEERING-SCIENCE DRILLING RECORD

PROJECT NAME: PRATT & LETCHWORTH
PROJECT NO.: 5401212

BORING NO. GW-3B
Sheet 4 of 5
Location: AT RUBBLE PILE ALONG SOUTHSIDE

GROUND WATER OBSERVATIONS

Water Level			
Time			
Date			
Casing Depth			

Weather
Date/Time Start
Date/Time Finish

Plot Plan

Photovac Reading	SAMPLE DEPTHS	SAMPLE I.D.	SPT	FIELD IDENTIFICATION OF MATERIAL	WELL SCHEMATIC	Comments
	60-62	S-13	2	BROWN STIFF CLAY TRACE GRAVEL		
	REC=24		10			
	"		15			
	"		23			
	"					
	"					
	"					
	"					
	"					
	"					
	65-67	S-14	26	BROWN & RED WET "STICKY" CLAY,		
	REC=24"		29			
	"		31			
	"		44			
	"					
	"					
	"					SHELBY TUBE TAKEN AT 67-69.5
	"					
	"					
	"					
	"					
	70-72	S-15	1*			
	REC=24"		1			
	"		1			
	"		1			
	"					
	"					
	"					
	"					
	"					
	"					
	75-77	S-16	1			
	REC=24.		4			
	"		5			
	"		7			
	"					
	"					
	"					
	"					
	"					
	"					

SPT - STANDARD PENETRATION TEST
D = DRY W = WASHED C = CORED
U = UNDISTURBED SS = SPLIT SPOON
P = PIT A = AUGER CUTTINGS

Soil Stratigraphy Summary

DRILLING CONTRACTOR:
Driller: D. MILLER
Inspector: C. ISAKOWER
Rig Type: MOBILE B1
Drilling Method: 4¼" ID HSA 2⅞" CORE

ENGINEERING-SCIENCE DRILLING RECORD

PROJECT NAME: PRATT & LETCHWORTH
PROJECT NO.: 5401C.12

BORING NO. GW-3B
Sheet 5 of 5
Location AT RUBBLE PILE ALONG SCA/AQUEDUCT

GROUND WATER OBSERVATIONS

Water Level			
Time			
Date			
Casing Depth			

Weather
Date/Time Start
Date/Time Finish

Plot Plan

Photovac Reading	SAMPLE DEPTHS	SAMPLE I.D.	SPT	FIELD IDENTIFICATION OF MATERIAL	WELL SCHEMATIC	Comments
	80'-82'	S-17	1	21" BROWN AND RED WET "STICKY"		
	REC. = 24"		5	3" CLAY, TRACE GRAVEL		
	1		47			
	1		40	3" MOIST GRAY CLAY, SOME GRAVEL		
	1					
	1					
	1					
	1					
	1					
	1			85'		
	85'-95'			AUGER REFUSAL AT 85		
	C-1 = 10'			17" WEATHERED LIMESTONE		Roller bit 3⅞" 95-97 feet.
	REC. = 10"			105" WEATHERED DOLOMITE W/CALCITE CRYSTALS		
	RQD = 1					
	1					
	1					
	1					
	1					
	1					
	1					
	1					
	1					
	1					
	1					
	1					
	1					
	1					
	1					
	1			97'		
	1			Boring Terminated at 97.0 feet.		
	1					
	1					
	1					
	1					
	1					
	1					
	1					
	1					
	1					
	1					

SPT - STANDARD PENETRATION TEST
D = DRY W = WASHED C = CORED
U = UNDISTURBED SS = SPLIT SPOON
P = PIT A = AUGER CUTTINGS

Soil Stratigraphy Summary

DRILLING CONTRACTOR:
Driller: Steve Kahn
Inspector: W. Lilley
Rig Type: CME 55
Drilling Method: 4¼" ID HSA

ENGINEERING-SCIENCE DRILLING RECORD

PROJECT NAME: Pratt & Letchworth
PROJECT NO.: 54012 12

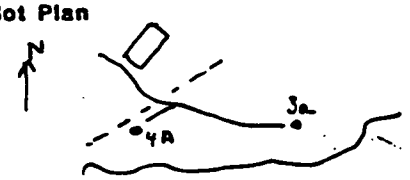
BORING NO.: GW-4A
Sheet: 1 of 2
Location: Back gate near stream to South

GROUND WATER OBSERVATIONS

Water Level			
Time			
Date			
Casing Depth			

Weather: Cloudy
Date/Time Start: 11/4/87 12:30
Date/Time Finish: 11/4/87 5:00

Plot Plan



Photovac Reading	SAMPLE DEPTHS	SAMPLE I.D.	SPT	FIELD IDENTIFICATION OF MATERIAL	WELL SCHEMATIC	Comments
0.0	0-2		3	Black Sand & Silt (Fill)		Waste Samples
	SS		19			
	Rec 6"		18			
			21			
0.0	2-4		7	Light Yellow Sand, Silt & Gravel (Fill) (Layers) (moist)		
	SS		13			SB4a F.12, M.D & M.S.D
	Rec 6"		10			
			3			
0.0	4-6		2			
	SS		1			
	Rec 11"		3			
			3			
0.0	6-8		3	Black & Yellow Sand, Silt & Clay (Fill) (moist)		
	SS		3			
	Rec 6"		4			
			4			
0.0	8-10		6	Black Sand & Silt (Fill) (wet)		
	SS		13			
	Rec 7"		11			
			6			
0.0	10-12		3			
	SS		3			
	Rec 20"		4			
			2			
0.0	12-14		3	Black & Brown Sand (Fill) (wet)		
	SS		12			
	Rec 20"		18			
			20			
0.0	14-16		15	Black Sand (wet)		
	SS		18			
	Rec 20"		21			
			20			
0.0	16-18		8	Black & White Sand (wet)		SB4a FS.12
	SS		6			
	Rec 10		3			
			2	18'		
0.0	19-21		4	Gray Silt & Clay (wet)		
	SS		6			

WELL SCHEMATIC: Cement/Bentonite; Bentonite Pellets; Sand; 2" PVC Riser; 2" PVC Screen #10 Slot; 11'; 13'; 15'; 20'

SPT - STANDARD PENETRATION TEST
D = DRY W = WASHED C = CORED
U = UNDISTURBED SS = SPLIT SPOON
P = PIT A = AUGER CUTTINGS

Soil Stratigraphy Summary: Fill to 18' over Silt & Clay to 21'.

DRILLING CONTRACTOR:
Driller: Steve Kahn
Inspector: W. Lilley
Rig Type: CME 55
Drilling Method: 4 ¼" ID HSA

ENGINEERING-SCIENCE DRILLING RECORD

PROJECT NAME: Pratt & Latchworth
PROJECT NO.: 54012 12

BORING NO. GW-4A (1)
Sheet 2 of 2
Location: Back gate near stream to south

GROUND WATER OBSERVATIONS

Water Level			
Time			
Date			
Casing Depth			

Weather:
Date/Time Start:
Date/Time Finish:

Plot Plan: See Sheet 1

Photovac Reading	SAMPLE DEPTHS	SAMPLE I.D.	SPT	FIELD IDENTIFICATION OF MATERIAL	WELL SCHEMATIC	Comments
					Sand	
				21' Boring Terminated at 21'.		

SPT - STANDARD PENETRATION TEST
D = DRY W = WASHED C = CORED
U = UNDISTURBED SS = SPLIT SPOON
P = PIT A = AUGER CUTTINGS

Soil Stratigraphy Summary:

TABLE IV-4

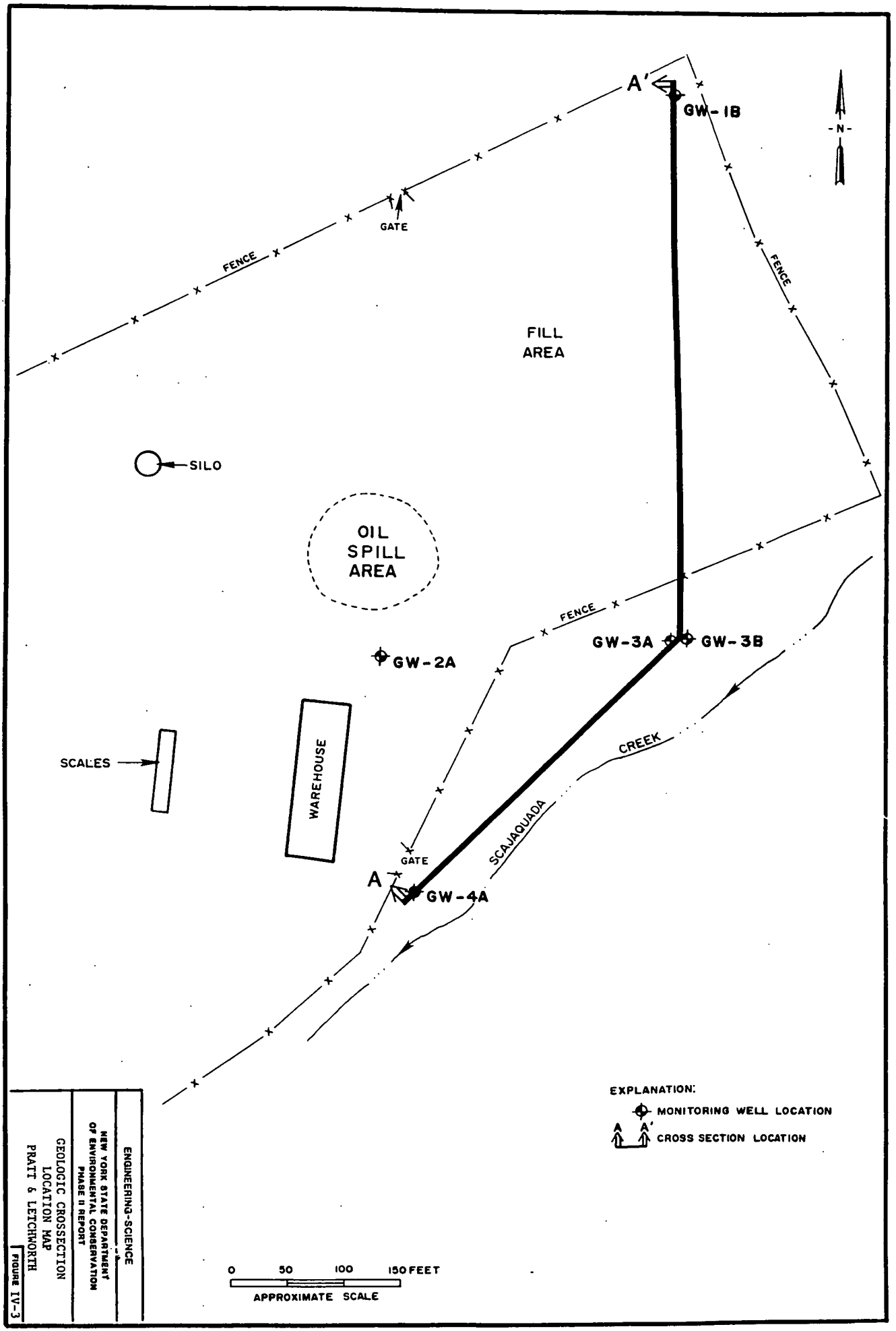
WATER LEVEL DATA
PRATT AND LETCHWORTH SITE

Well I.D.	Ground Surface Elevation (Feet*)	Top of PVC Well Pipe Elevation (Feet*)	Well Screen Interval Elevation (Feet*)	Water Level Data Date 11/19/87 Depth to Water Level (Feet**)	Water Level Data Date 11/19/87 Water Level Elevation (Feet*)	Water Level Data Date 2/18/88 Depth to Water Level (Feet**)	Water Level Data Date 2/18/88 Water Level Elevation (Feet*)
1B	497.3	500.2	399.8 - 389.8	23.1	477.1	23.1	477.1
2A	495.0	497.4	490.5 - 485.5	5.9	491.5	4.9	492.5
3A	486.5	488.9	477.5 - 472.5	12.2	476.7	11.7	477.2
3B	486.4	489.2	399.4 - 389.4	12.5	476.7	12.8	476.4
4A	491.5	494.2	476.5 - 471.5	16.8	477.4	16.7	477.5

* Above an assumed datum.

** Water level depth from top of PVC well pipe.

Note: Wells designated "A" monitor the fill/clay interface. Wells designated "B" monitor the upper bedrock.



ENGINEERING-SCIENCE

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
PHASE II REPORT

GEOLOGIC CROSSECTION
LOCATION MAP
PRATT & LETCHWORTH

FIGURE IV-3

(3)

Pratt and Letchworth Site,
Buffalo, New York

For

Smith & Schnacke
2000 Courthouse Plaza, NE
P.O. Box 1817
Dayton, Ohio 45401

Laboratory Report No. 26903-882-294

August 31, 1982

BOWSER-MORNER
Testing Laboratories, Inc.

(3)

BOWSER-MORNER Testing Laboratories, Inc.

Founded 1911

CORPORATE ADDRESS • 420 Davis Ave. • P.O. Box 51 • Dayton, Ohio 45401 • 513/253-8805

August 31, 1982

226-6550
Rob Blakely

Smith & Schnacke
2000 Courthouse Plaza, NE
P.O. Box 1817
Dayton, Ohio 45401

Attention: Mr. Robert Maynard

Re: Pratt and Letchworth Site,
Buffalo, New York

Gentlemen:

We are pleased to submit our report of the investigation at the above-referenced site. The purpose of this investigation was to make a visual reconnaissance of the site, obtain as much information relative to the site as possible, and to obtain samples for testing.

If there are any questions, or if we can be of further service, please contact us.

Respectfully submitted,

Bowser-Morner Testing Laboratories, Inc.

David C. Cowherd, M.S., P.E.
Vice President and
Chief Geotechnical Engineer

STATE OF OHIO
DAVID C. COWHERD
30871
REGISTERED PROFESSIONAL ENGINEER

DCC/mjj(#59)

1-Client
1-DMI, Inc.
3-NY DEC
2-File

TOLEDO DISTRICT • 122 S. St. Clair St. • P.O. Box 838 • Toledo, Ohio 43696 • 419/255-8200
KENTUCKY DISTRICT • Route 8 West • P.O. Box 636 • Maysville, Kentucky 41056 • 606/564-6711

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	III.	Probable Hydrologic Regime	I-3
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	Unified Soil Classification Test		II-1

I. AUTHORIZATION

Authorization to proceed with this project was given by Mr. Robert H. Maynard of Smith & Schnacke.

II. SITE RECONNAISSANCE

A. Observations On-Site

The Pratt and Letchworth site was visited by the writer on July 15, 1982. At that time a thorough visual reconnaissance was made. The site is located at 189 Tonawanda Street in Buffalo, New York. It fronts on Tonawanda Street, and is bordered on the rear by Scajaquada Creek. Adjacent to and east of the creek is New York Highway 198, and the site is near the intersection of Amherst Street and Tonawonda Street. The site at this present time is relatively flat. The specific site generally drains from the south and north to near the center of the site, and then to the east into the creek. It is obvious, however, that the area has been filled in the past with foundry sand, and that generally the slope was toward the creek, perhaps on a 2% to 3% grade before filling took place. The creek appears to be approximately 20 to 25 feet below the surface of the ground at the Pratt and Letchworth site. The depth of the creek was not ascertained at this location.

The site contains a fill of foundry sand over much of its eastern end. A small slag pile and various types of debris are situated at several locations over the site. The general topography in the area drains from east and west toward the creek and then south along the creek into the Niagara River approximately 1/2 mile away.

Based on the visual reconnaissance and discussions with personnel at the site, the following observations are made. There is 15 to 18 feet of foundry

sand in place on a portion of the site. The soil material below the foundry sand is a heavy red clay. An excavation which had been made inside a building was observed in which this clay had been excavated. A sample of the clay was obtained and brought to the laboratory for physical testing. Personnel at the site remember that past excavations on the site at least 20 feet in depth were totally within this clay material. There was no groundwater in any of these excavations and in all excavations at the site the red clay also was found to be present at shallow depths. The same red clayey soil was also observed in excavations at other places throughout the area. The oil used on the roads was compressor oil and hydraulic oil and not transformer oil.

General observations in the area indicate the red clayey material is underlain by limestone which is probably highly fractured. The depth is not known; however, some of the excavations on-site were taken to at least 20 feet depths without encountering rock. Piles were driven for the foundations for the drop forges, indicating that the rock may be relatively deep. Limestone rock is exposed in some of the cuts around the general area.

B. Published Information

Published geologic information indicates that this site is in a glacial ground moraine. The red material encountered on-site is not till however, and appears to be a residual soil. It may even be a clay shale as opposed to a clay. It would appear, therefore, based on the surficial information gained during this reconnaissance, that the specific area in question does not contain glacial till. The SCS soil data for the site is not of much use as it is listed on the soil survey of Erie County, New York, as unclassified city land.

III. PROBABLE HYDROLOGIC REGIME

The general flow of the creek is toward the south immediately at the site and generally toward the southwest over the area as a whole. The flow from the Scajaquada Creek enters the upper Black Rock harbor south and slightly west of the the site. As previously stated, the local surface flow is from the east and west into the creek area. Also as previously stated the general area has been filled with foundry sand and the area now is reasonably level. It is probable the original ground surface sloped toward the creek at 2% to 3%. The clay underlying the general area is relatively impermeable and will not transmit flow. There appeared to be some fissures in the clay; however, the clay is a swelling type and would swell and close the fissures upon the entry of water. It is, therefore, our opinion that the clay or clay shale stratum presents an aquaclude through which water is not seeping.

The probable hydrologic regime is as follows: surface water which falls or runs onto the sand seeps vertically down through the sand (which has a relatively high permeability), intercepts the clay layer, and then migrates horizontally toward the creek. The rate of migration is probably rapid, with water from the sand reaching the creek within two to three days after rainfall events. Water falling or running onto the fill site and down through the sand would have time to pick up any contaminants on the surface of the ground or in the sand and ultimately would carry them to the creek.

It is our understanding from personnel at the site that the roads were not oiled after the mid 1960's. If there were any contaminants in the oil material placed on the road, most of it would have run off as surface runoff. Some of that runoff could have seeped into the sand and flowed along the clay and sand interface over to its juncture with the creek.

Thus, we would expect any contaminants from the road oiling that might have been carried by the water would be found at the base of the sand at its juncture with the clay and the creek.

On the basis of this analysis and our test results, we believe it is unlikely that there has been any PCB contamination of the area from road oiling or disposal in the fill.

It is further our opinion that if there were any other pollutants present on-site, they would not have leached through the clay layer, as the clay forms an effective boundary to any further downward penetration of material. Any such contaminants would have migrated along the interface of the sand and clay layer and would be found at the juncture with the creek to the east.

IV. SAMPLING AND TESTING

Based on the probable hydrologic regime of the area, it is obvious that if there were any contaminants entering the creek, it should be at the juncture of the sand and clay. As stated above, the clay forms an effective boundary to any further downward penetration of any contaminants and these materials would migrate along the sand layer toward the creek. Based on this fact, it was decided to obtain samples of the sand from the creek bank just above the clay and samples of the clay just below the sand. (This interface is exposed at the creek bank). Samples were taken at the creek bank area. The surficial sand and clay were scraped away to expose an undisturbed juncture of the sand and clay. A 20-pound sample of the sand was taken just above the clay and a sample of the clay of approximately 20 pounds was taken just below the sand. In addition, a sample of sand (about

20 pounds) was taken from the surface of the sand fill. The samples were identified as follows:

1) foundry sand from surface of fill,

2) foundry sand just above the clay; and

3) clay soil.

These samples were shipped to Bowser-Morner and appropriate physical and chemical tests were performed on these materials. The physical testing of the clay yielded the following information.

TABLE 1

PARAMETER	VALUE
U.S.G.S. Classification	"CL" Silty Clay
Liquid Limit	43
Plastic Limit	25
Plasticity Index	18
% Clay	80
% Silt	17
% Sand	3

The grain size curve, including the hydrometer analysis, is included with this report for your convenience. It is obvious that the clay is a very heavy clay soil with a very low permeability.

The State of New York, Department of Environmental Conservation, requested that the samples be subjected to tests for PCB's, arsenic, cadmium, chromium, iron, and nickel. This was done and the following values were obtained.

TABLE 2

PARAMETER	SAMPLE NUMBER VALUE (ppm) #1	#2	#3
Arsenic	<0.03	<0.03	<0.03
Cadmium	<0.01	0.06	0.05
Chromium	<0.05	0.65	1.50
Iron	<0.25	2.50	5.60
Nickel	<0.25	0.30	1.00
PCB	<1.00	<1.00	<1.00

As a quality control check, a PCB "spiked" sample was submitted along with the other samples. This sample was "spiked" with 5 ppm of PCB and the reported value from the laboratory was 5.3 ppm. The following test procedures were utilized in the chemical testing.

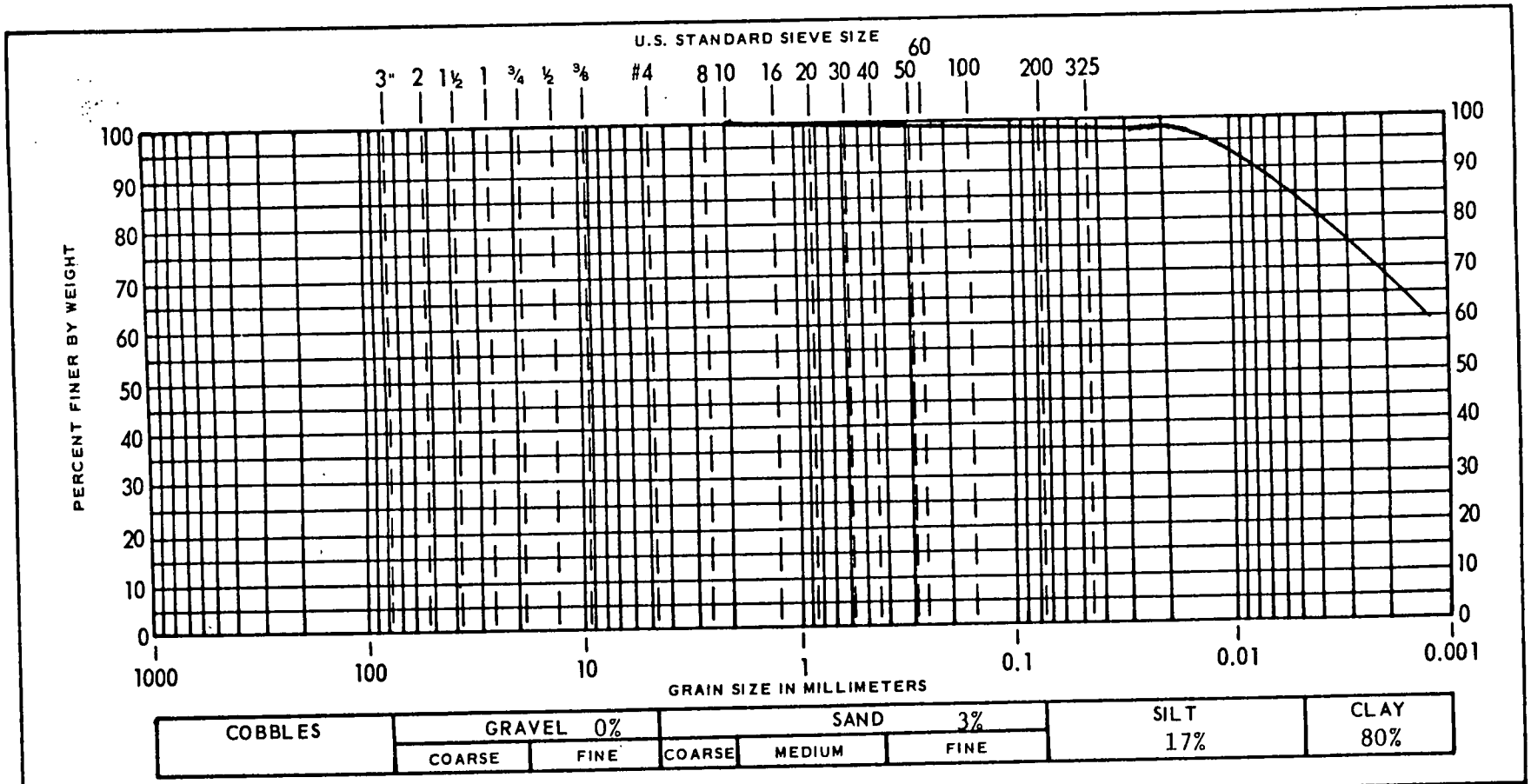
1) Leaching of metals from solid wastes in accordance with Federal Register, EP Toxicity, Vol. 45, No. 98/Monday, May 19, 1980/33127.
2) Quantitative determination of the leachable metal concentration by Atomic Absorption.
3) Quantitation of the polychlorinated biphenyls (PCB) in accordance with "Sampling Methods and Analytical Procedures Manual for PCB Disposal; Interim Report U.S. EPA, Office of Solid Waste, February 10, 1978.

The metals testing was performed by Bowser-Morner, while the PCB testing was performed by Pollution Control Science, Inc.

V. CONCLUSIONS

It is obvious from the above testing that there are no PCB's within detectable limits on the site, either near the surface of the sand, or at the juncture of the sand and clay. In addition, none of the metals measured are high, and the metals values noted from sampling the surface of the sand are all below detectable limits. It is probable that the somewhat higher values noted for the clay and the sand at their juncture and are due to the natural background levels within the clay, as these values are not at all unusual for background values for clay soils.

SOIL CLASSIFICATION SHEET



PROJECT	Smith & Schnacke Buffalo, N.Y.	NATURAL % MOISTURE	2.5
BORING NO.		LIQUID LIMIT	43
SAMPLE NO.		PLASTIC LIMIT	25
DEPTH		PLASTICITY INDEX	18
CLASSIFICATION	"CL" Silty Clay	COLOR	Reddish Brown
		REMARKS	"U.S.C.S."

BOWSER-MORNER
TESTING LABORATORIES, INC.

II-1

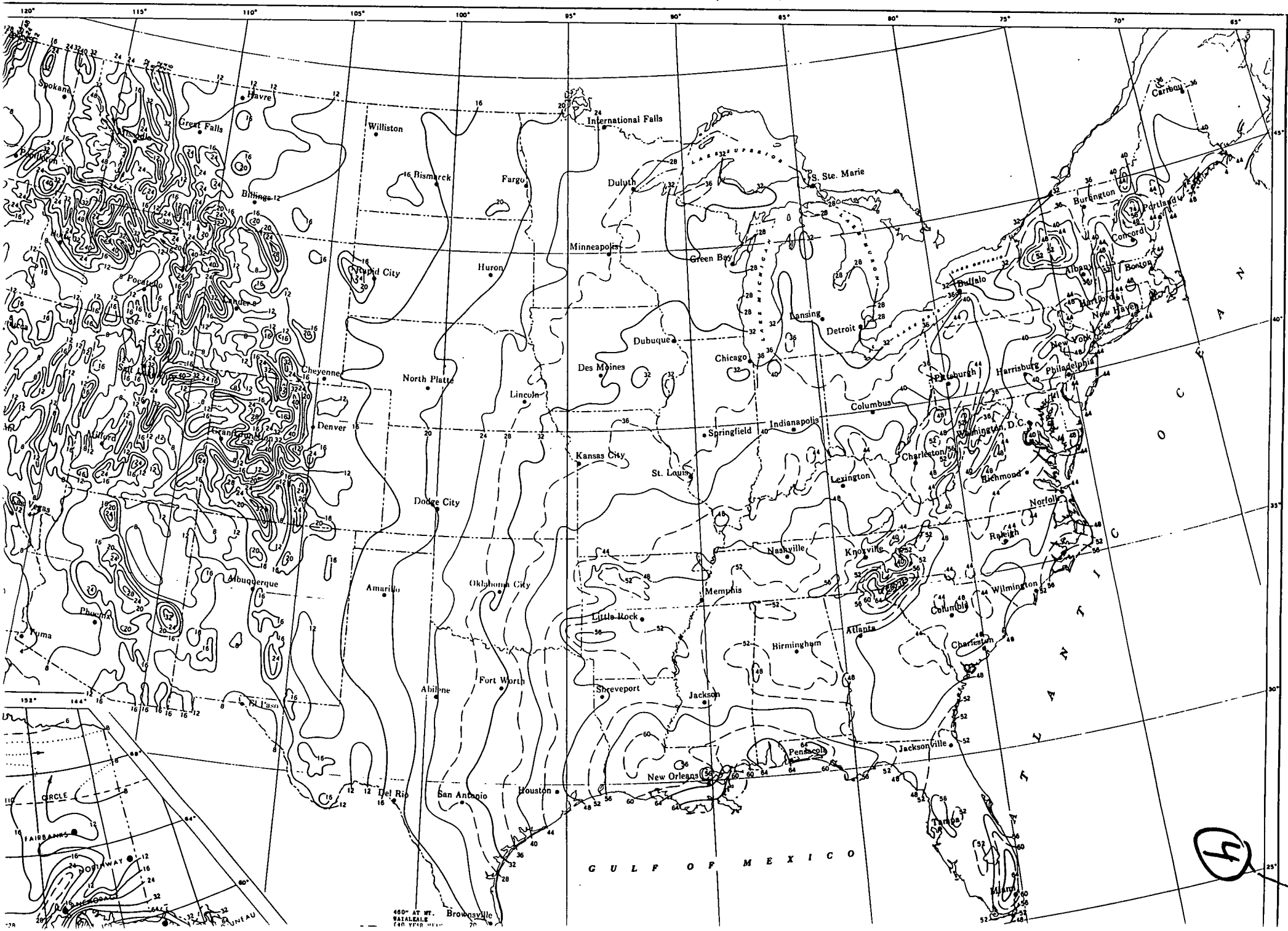
2A-34R

CLIMATIC ATLAS OF THE UNITED STATES

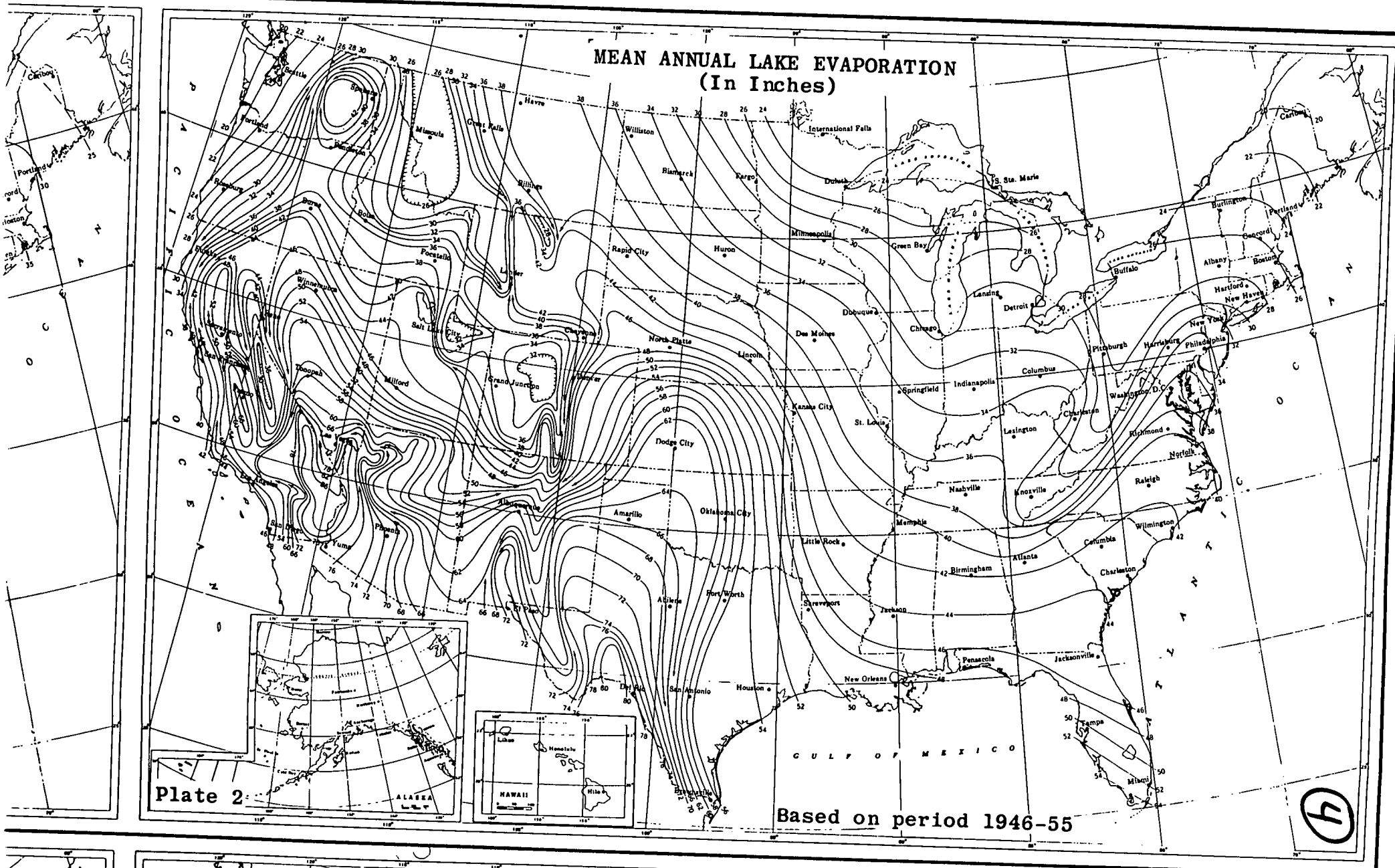
nvironmental Science Services Administration . Environmental Data Service

4

NORMAL ANNUAL TOTAL PRECIPITATION (Inches)



AN AND LAKE EVAPORATION



(5)

R. Allan Freeze

Department of Geological Sciences
University of British Columbia
Vancouver, British Columbia

John A. Cherry

Department of Earth Sciences
University of Waterloo
Waterloo, Ontario

GROUNDWATER

Prentice-Hall, Inc.
Englewood Cliffs, New Jersey 07632

Table 2.2 Range of Values of Hydraulic Conductivity and Permeability

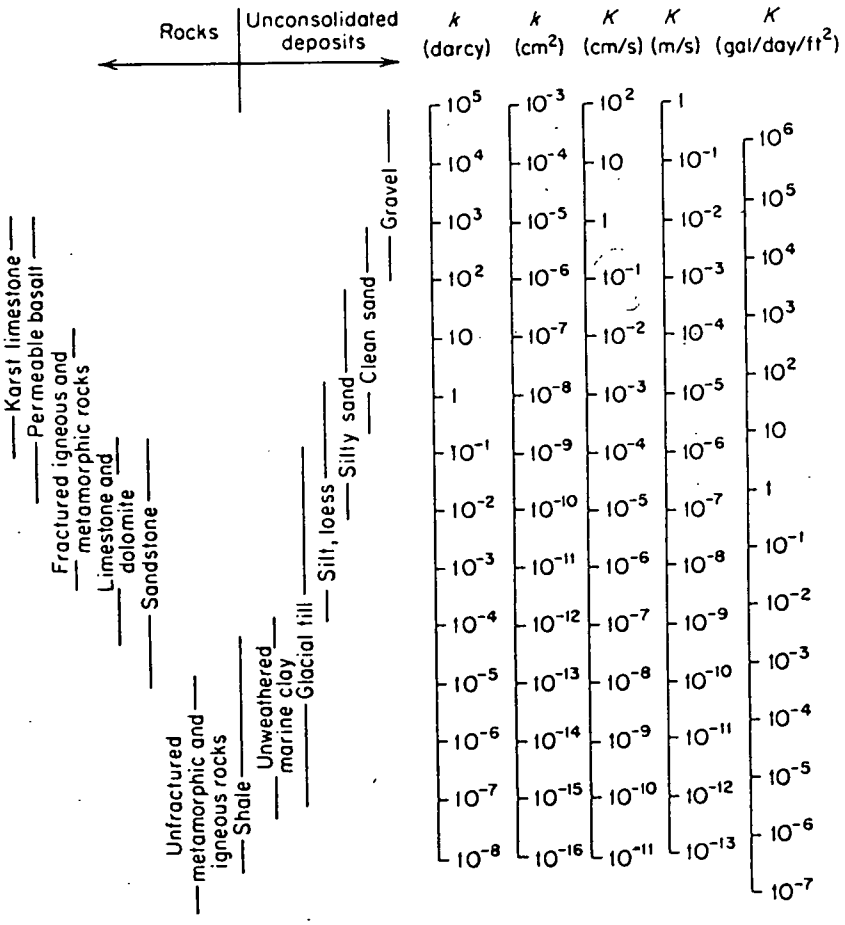


Table 2.3 Conversion Factors for Permeability and Hydraulic Conductivity Units

	Permeability, k*			Hydraulic conductivity, K		
	cm^2	ft^2	darcy	m/s	ft/s	gal/day/ft^2
cm^2	1	1.08×10^{-3}	1.01×10^{8}	9.80×10^{2}	3.22×10^{3}	1.85×10^{9}
ft^2	9.29×10^{2}	1	9.42×10^{10}	9.11×10^{5}	2.99×10^{6}	1.71×10^{12}
darcy	9.87×10^{-9}	1.06×10^{-11}	1	9.66×10^{-6}	3.17×10^{-5}	1.82×10^{1}
m/s	1.02×10^{-3}	1.10×10^{-6}	1.04×10^{5}	1	3.28	2.12×10^{6}
ft/s	3.11×10^{-4}	3.35×10^{-7}	3.15×10^{4}	3.05×10^{-1}	1	5.74×10^{5}
gal/day/ft^2	5.42×10^{-10}	5.83×10^{-13}	5.49×10^{-2}	4.72×10^{-7}	1.74×10^{-6}	1

*To obtain k in ft^2, multiply k in cm^2 by 1.08×10^{-3}.

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
DIVISION OF HAZARDOUS WASTE REMEDIATION
INACTIVE HAZARDOUS WASTE DISPOSAL REPORT

(6)

CLASSIFICATION CODE: 2a REGION: 9 SITE CODE: 915045
EPA ID:

NAME OF SITE : Pratt & Letchworth
STREET ADDRESS: Tonawanda Street
TOWN/CITY: COUNTY: ZIP:
Buffalo Erie 14220

SITE TYPE: Open Dump- Structure- Lagoon- Landfill-X Treatment Pond-
ESTIMATED SIZE: Acres

SITE OWNER/OPERATOR INFORMATION:
CURRENT OWNER NAME....: Pratt & Letchworth
CURRENT OWNER ADDRESS.: 189 Tonawanda St., Buffalo, NY
OWNER(S) DURING USE...: Pratt & Letchworth
OPERATOR DURING USE...: Pratt & Letchworth
OPERATOR ADDRESS.....: 189 Tonawanda, Buffalo, NY
PERIOD ASSOCIATED WITH HAZARDOUS WASTE: From 1949 To 1965

SITE DESCRIPTION;
The site was used to dispose of foundry sand, slag, lube, and hydraulic oil, paper and wood. Limited data on soil samples from the site indicates no contamination above acceptable limits. The same applies to sediment samples taken from the stream adjacent to the site during July 1982. However, the inspections by DEC during 1985 indicated spills of waste oil at the site. About 100 barrels containing oil were stored on the ground and many of them were leaking. Later, Pratt + Letchworth removed all barrels from the site. No groundwater analysis has been done to date. Due to the oil spill and high permeabilty of foundry sand disposed at the site there is some concern of groundwater contamination.
State Superfund Phase I investigation has been completed for this site. A Phase II investigation for this site is underway.

HAZARDOUS WASTE DISPOSED: TYPE	Confirmed-	Suspected-X QUANTITY (units)
Foundry sand		1200 ton/yr
Slag		1000 ton/yr
Lube & hydraulic oil		14,000 gal/yr

SITE CODE: 915045

(6)

ANALYTICAL DATA AVAILABLE:
Air- Surface Water- Groundwater- Soil-X Sediment-X None-

CONTRAVENTION OF STANDARDS:
Groundwater- Drinking Water- Surface Water- Air-

LEGAL ACTION:

TYPE..: none State- Federal-
STATUS: Negotiation in Progress- Order Signed-

REMEDIAL ACTION:

Proposed- Under design- In Progress- Completed-
NATURE OF ACTION: None

GEOTECHNICAL INFORMATION:
SOIL TYPE: Not known
GROUNDWATER DEPTH: Not Known

ASSESSMENT OF ENVIRONMENTAL PROBLEMS:

Limited data available from the analysis of soil and sediment samples indicates that there is no serious contamination of the soil or sediment in an adjacent stream. Groundwater contamination is suspected at the site. More investigation is necessary to assess the problem at the site.

ASSESSMENT OF HEALTH PROBLEMS:

Medium	Contaminants Available	Migration Potential	Potentially Exposed Population	Need for Investigation
Air	Unknown	Likely	Yes	High
Surface Soil	Unlikely	Highly Likely	No	Medium
Groundwater	Likely	Unlikely	Yes	Medium
Surface Water	Likely	Highly Likely	Yes	High

Health Department Site Inspection Date : 4/85

MUNICIPAL WASTE ID: 15-S-55

(7)

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

By HANSFORD T. SHACKLETTE *and* JOSEPHINE G. BOERNGEN

U.S. GEOLOGICAL SURVEY PROFESSIONAL PAPER 1270

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

UNITED STATES GOVERNMENT PRINTING OFFICE, WASHINGTON : 1984

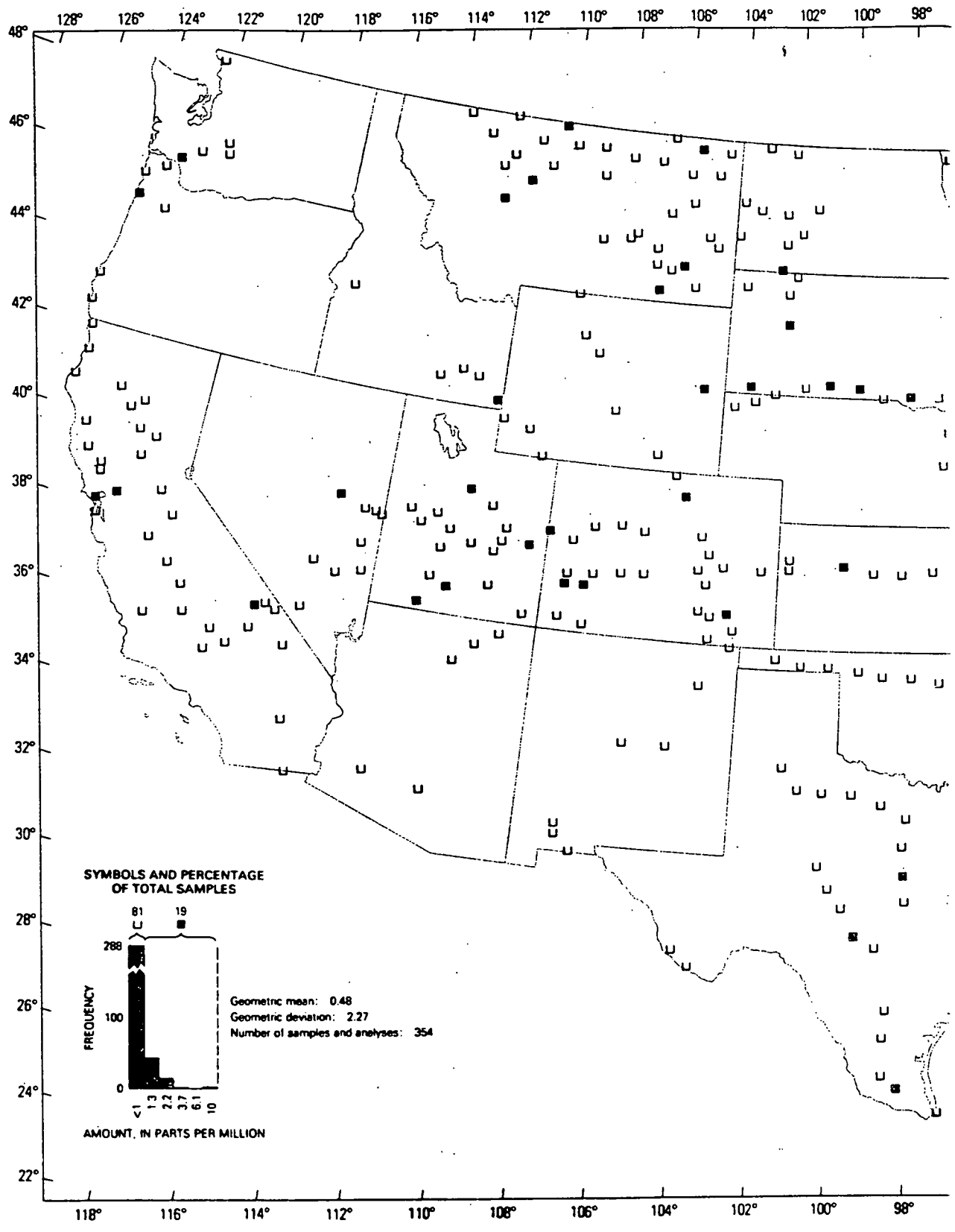
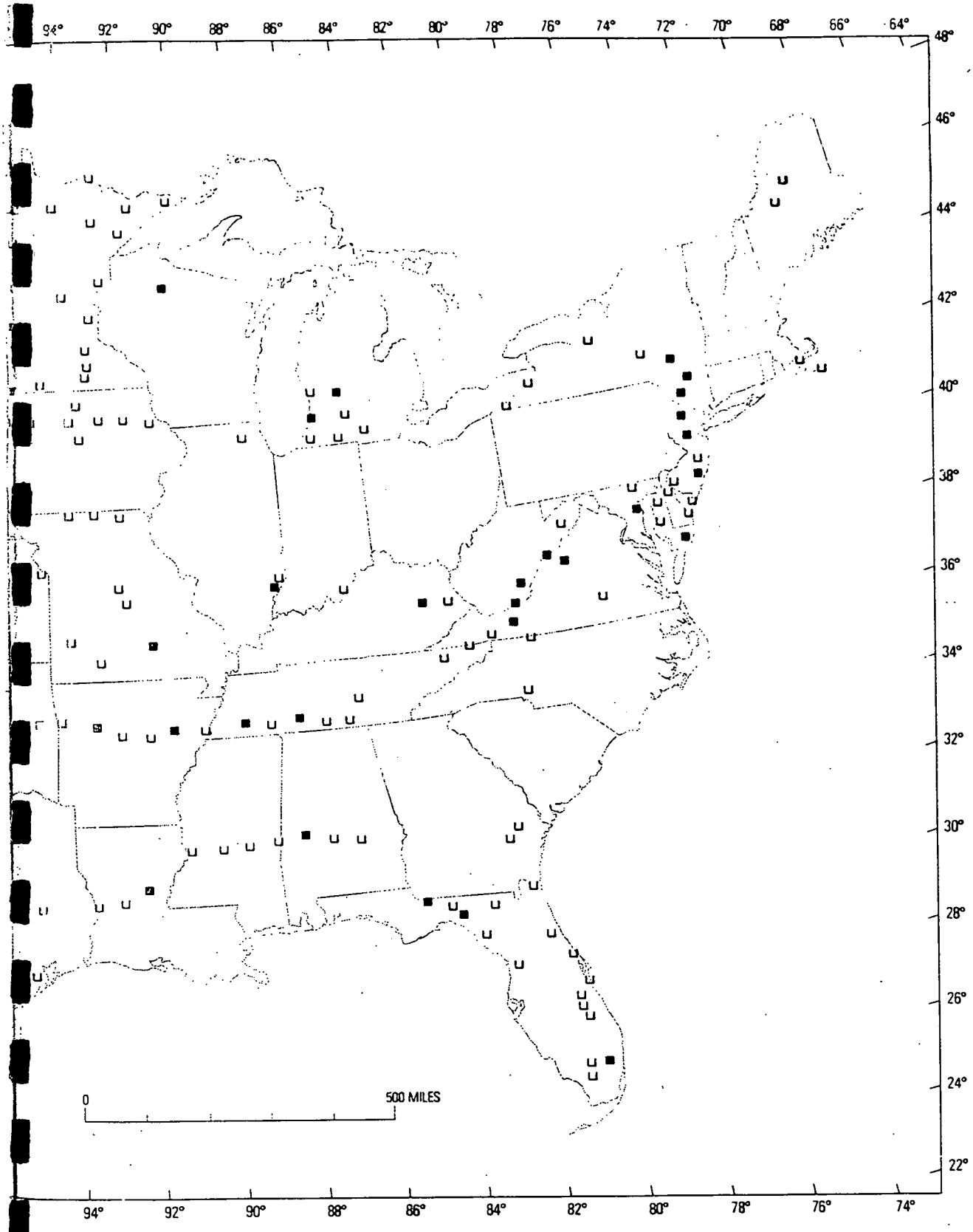


FIGURE 8.—Antimony content of surficial materials.


94°
92°
90°
88°
86°
84°
82°
80°
78°
76°
74°
72°
70°
68°
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64°
48°
46°
44°
42°
40°
38°
36°
34°
32°
30°
28°
26°
24°
22°
0
500 MILES

(8)

EPA

AN OVERVIEW OF THE CONTAMINANTS OF CONCERN IN THE DISPOSAL AND UTILIZATION OF MUNICIPAL SEWAGE SLUDGE

REVISED DRAFT

FEBRUARY 11, 1983

Updated

April 15, 1983

FOR
ENVIRONMENTAL PROTECTION AGENCY
SLUDGE TASK FORCE
WASHINGTON, D.C.

BOOZ·ALLEN & HAMILTON INC.

DRAFT

(4) Cadmium (Cd)

Cadmium concentrations in natural soils are quite low; they range from 0.01 to 7 ppm with 0.06 ppm considered normal (3). Given that the range of Cd concentrations in sludges is between 1 to 3,410 ppm, with the median at 13 ppm, modest applications of sludge containing a few ppm of Cd would enrich the soil to levels beyond those typically observed (4, 7). The chemistry of cadmium in soils appears to be influenced by soil organic matter, clay content and type, hydrous oxide content, soil pH, and redox potential. The solubility and plant availability of Cd, as with other cationic heavy metals, decreases with increasing pH. Soil cation exchange capacity (CEC) is also correlated to the availability of cadmium in the soil.

Crops differ widely in Cd uptake characteristics. Cadmium tends to accumulate in the foliar, or leafy portions of plants rather than in the grain, fruit or roots, and can be phytotoxic to some plant species at varying tissue concentrations. However, in terms of the potential for animal and human health concerns, crops may contain undesirable concentrations of cadmium in their tissues without showing visible symptoms of toxicity. Clearly, the food chain is not protected from excessive Cd concentrations by a soil-plant barrier (4).

Chronic exposure to Cd may result in the accumulation of tissue concentrations in man and animals which cause serious health effects, including renal tubular dysfunction manifested in proteinuria and other kidney function abnormalities (glucosuria, aminoaciduria, phosphaturia, etc.). Kjellstrom, Nordberg, and Friberg have developed sophisticated metabolic models for Cd ingestion in humans, which predict the probability of proteinuria for populations at various rates of Cd intake (8). Other potential carcinogenic, mutagenic, and teratogenic effects of cadmium are currently under investigation.

As with most other heavy metals, risks of groundwater contamination due to application of sludge borne cadmium are quite small. Cadmium is held strongly in the soil in most situations (a pH-dependent mechanism), and does not move readily from surface soils through the soil profile to groundwater. Surface drainage from sludge applications sites may contribute to cadmium contamination of surface waters, but this is also unlikely.

Cadmium is currently the heavy metal of greatest concern as a public health risk in the land application of sludge, and in some cases, as a potential, but as yet

(9)

ORGANICS ANALYSIS DATA SHEET
(PAGE 1)

SAMPLE NUMBER

Laboratory Name:NANCO LABORATORY INC.
Lab File ID No:>B2550
Sample Matrix: SOIL
Data Release Authorized By: P.J. Hunach

Case No: ENGINEERING SCIENCE
QC Report No: N/A
Contract No: N/A
Date Sample Received: 09/12/87

SS-1
PRATTE LETCHWORTH

VOLATILE COMPOUNDS

Concentration: (Low) Medium (Circle One)
Date Extracted/Prepared: 09/16/87
Date Analyzed:09/16/87
Conc/Dil Factor: 1 pH: 5.7
Percent Moisture: 16

CAS Number		ug/l or (ug/Kg) (Circle One)	CAS Number		ug/l or (ug/Kg) (Circle One)
74-87-3	Chloromethane	10.0 U	79-34-5	1,1,2,2-Tetrachloroethane	5.0 U
74-83-9	Bromomethane	10.0 U	78-87-5	1,2-Dichloropropane	5.0 U
75-01-4	Vinyl Chloride	10.0 U	10061-02-6	Trans-1,3-Dichloropropene	5.0 U
75-00-3	Chloroethane	10.0 U	79-01-6	Trichloroethene	5.0 U
75-09-2	Methylene Chloride	5.0 B	124-48-1	Dibromochloromethane	5.0 U
67-64-1	Acetone	7.0 JB	79-00-5	1,1,2-Trichloroethane	5.0 U
75-15-0	Carbon Disulfide	5.0 U	71-43-2	Benzene	5.0 U
75-35-4	1,1-Dichloroethene	5.0 U	10061-01-5	cis-1,3-Dichloropropene	5.0 U
75-34-3	1,1-Dichloroethane	5.0 U	110-75-8	2-Chloroethylvinylether	10.0 U
156-60-5	Trans-1,2-Dichloroethene	5.0 U	75-25-2	Bromoform	5.0 U
67-66-3	Chloroform	5.0 U	591-78-6	2-Hexanone	10.0 U
107-06-2	1,2-Dichloroethane	5.0 U	108-10-1	4-Methyl-2-Pentanone	10.0 U
78-93-3	2-Butanone	5.0 J	127-18-4	Tetrachloroethene	2.0 J
71-55-6	1,1,1-Trichloroethane	5.0 U	108-88-3	Toluene	88.0
56-23-5	Carbon Tetrachloride	5.0 U	108-90-7	Chlorobenzene	5.0 U
108-05-4	Vinyl Acetate	10.0 U	100-41-4	Ethylbenzene	5.0 U
75-27-4	Bromodichloromethane	5.0 U	100-42-5	Styrene	5.0 U
				Total Xylenes	5.0 U

Data Reporting Qualifiers

For reporting results to EPA, the following results qualifiers are used. Additional flags or footnotes explaining results are encouraged. However, the definition of each flag must be explicit.

VALUE
If the result is a value greater than or equal to the detection limit, report the value.

U
Indicates compound was analyzed for but not detected. Report the minimum detection limit for the sample with the U(e.g.10U based on necessary concentration dilution actions. (This is not necessarily the instrument detection limit.) The footnote should read U-Compound was analyzed for but not detected.The number is the minimum attainable detection limit for the sample.

J
Indicates an estimated value.This flag is used either when estimating a concentration for tentatively identified compounds where a 1 1 response is assumed or when the mass spectral data indicates the presence of a compound that meets the identification criteria but the result is less than the specified detection limit but greater than zero (e.g. 10J).

C
This flag applies to pesticide parameters where the identificatior has been confirmed by GC/MS Single component pesticides greater than or equal to 10 ng/ul in the final extract should be confirmed by GC/MS

B
This flag is used when the analyte is found in the blank as well as a sample. It indicates possible/probable blank contamination and warns the data user to take appropriate action.

OTHER
Other specific flags and footnotes may be required to properly define the results. If used, they must be fully described and such description attached to the data summary report.

ORGANIC ANALYSIS DATA SHEET
(PAGE 2)

(9)

LABORATORY NAME: NANCO LABS. INC.
CASE NO: ENGINEERING SCIENCE
PRATTE LETCHWORTH

SAMPLE NO.
SS-1

SEMIVOLATILE COMPOUNDS

Concentration: (Low) Medium (Circle One)
Date Extracted/Prepared: 09/22/87
Date Analyzed: 10/07/87
Conc/Dil Factor:----------> 10
Percent Moisture: 16

GPC Cleanup: Yes_____ No__XX__
Separatory Funnel Extraction: Yes_____
Continuous Liquid - Liquid Extraction: Yes___

CAS Number		ug/l or (ug/Kg) (Circle One)
108-95-2	Phenol	3300.0 U
111-44-4	bis(-2-Chloroethyl)Ether	3300.0 U
95-57-8	2-Chlorophenol	3300.0 U
541-73-1	1,3-Dichlorobenzene	3300.0 U
106-46-7	1,4-Dichlorobenzene	3300.0 U
100-51-6	Benzyl Alcohol	3300.0 U
95-50-1	1,2-Dichlorobenzene	3300.0 U
95-48-7	2-Methylphenol	3300.0 U
39638-32-9	bis(2-chloroisopropyl)Ether	3300.0 U
106-44-5	4-Methylphenol	3300.0 U
621-64-7	N-Nitroso-Di-n-Propylamine	3300.0 U
67-72-1	Hexachloroethane	3300.0 U
98-95-3	Nitrobenzene	3300.0 U
78-59-1	Isophorone	3300.0 U
88-75-5	2-Nitrophenol	3300.0 U
105-67-9	2,4-Dimethylphenol	3300.0 U
65-85-0	Benzoic Acid	16000.0 U
111-91-1	bis(-2-Chloroethoxy)Methane	3300.0 U
120-83-2	2,4-Dichlorophenol	3300.0 U
120-82-1	1,2,4-Trichlorobenzene	3300.0 U
91-20-3	Naphthalene	3300.0 U
106-47-8	4-Chloroaniline	3300.0 U
87-68-3	Hexachlorobutadiene	3300.0 U
59-50-7	4-Chloro-3-Methylphenol	3300.0 U
91-57-6	2-Methylnaphthalene	3300.0 U
77-47-4	Hexachlorocyclopentadiene	3300.0 U
88-06-2	2,4,6-Trichlorophenol	3300.0 U
95-95-4	2,4,5-Trichlorophenol	16000.0 U
91-58-7	2-Chloronaphthalene	3300.0 U
88-74-4	2-Nitroaniline	16000.0 U
131-11-3	Dimethyl Phthalate	3300.0 U
208-96-8	Acenaphthylene	3300.0 U
99-09-2	3-Nitroaniline	16000.0 U

CAS Number		ug/l or (ug/Kg) (Circle One)
83-32-9	Acenaphthene	3300.0 U
51-28-5	2,4-Dinitrophenol	16000.0 U
100-02-7	4-Nitrophenol	16000.0 U
132-64-9	Dibenzofuran	3300.0 U
121-14-2	2,4-Dinitrotoluene	3300.0 U
606-20-2	2,6-Dinitrotoluene	3300.0 U
84-66-2	Diethylphthalate	3300.0 U
7005-72-3	4-Chlorophenyl-phenylether	3300.0 U
86-73-7	Fluorene	3300.0 U
100-01-6	4-Nitroaniline	16000.0 U
534-52-1	4,6-Dinitro-2-Methylphenol	16000.0 U
86-30-6	N-Nitrosodiphenylamine (1)	3300.0 U
101-55-3	4-Bromophenyl-phenylether	3300.0 U
118-74-1	Hexachlorobenzene	3300.0 U
87-86-5	Pentachlorophenol	16000.0 U
85-01-8	Phenanthrene	3300.0 U
120-12-7	Anthracene	3300.0 U
84-74-2	Di-n-Butylphthalate	3300.0 U
206-44-0	Fluoranthene	3300.0 U
129-00-0	Pyrene	3300.0 U
85-68-7	Butylbenzylphthalate	3300.0 U
91-94-1	3,3'-Dichlorobenzidine	6600.0 U
56-55-3	Benzo(a)Anthracene	3300.0 U
117-81-7	bis(2-Ethylhexyl)Phthalate	3300.0 U
218-01-9	Chrysene	3300.0 U
117-84-0	Di-n-Octyl Phthalate	3300.0 U
205-99-2	Benzo(b)Fluoranthene	3300.0 U
207-08-9	Benzo(k)Fluoranthene	3300.0 U
50-32-8	Benzo(a)Pyrene	2200.0 JB
193-39-5	Indeno(1,2,3-cd)Pyrene	3300.0 U
53-70-3	Dibenz(a,h)Anthracene	3300.0 U
191-24-2	Benzo(g,h,i)Perylene	3300.0 U

(1) - Cannot be separated from diphenylamine

0000004

(9)

INORGANIC ANALYSIS DATA SHEET
FORM I

SMPL NO.: SS-1

Lab Name : NANCO LABORATORIES, INC.

Customer Name: Engineering Science

SOW NO. : N/A

Lab Receipt Date : 09/12/87

Lab Sample ID: 87-ES-2582

Date Reported: 11/5/87

Location ID: Pratt & Letchworth

ELEMENTS IDENTIFIED AND MEASURED

CONCENTRATION : LOW ___X___ MEDIUM _____

MATRIX : WATER _____ SOIL ___X___ SLUDGE _____ OTHER _____

UG/L OR MG/KG DRY WEIGHT (CIRCLE ONE)

1.	ALUMINUM	3408.6 P	13.	MAGNESIUM	4730.0 P	
2.	ANTIMONY	76.4 P*N	14.	MANGANESE	6595.2 P	(1:10)
3.	ARSENIC	[2.2]SF*N	15.	MERCURY	0.1 U C.V. N	
4.	BARIUM	73.1 P	16.	NICKEL	87.4 P N	
5.	BERYLLIUM	[0.2]P N	17.	POTASSIUM	[234.0]P	
6.	CADMIUM	11.7 P N	18.	SELENIUM	1.2 UF N	
7.	CALCIUM	29681.2 P	19.	SILVER	2.4 UP N	
8.	CHROMIUM	428.1 P N	20.	SODIUM	233.6 UP	
9.	COBALT	21.7 P N	21.	THALLIUM	1.2 UF N	
10.	COPPER	82.6 P E N	22.	VANADIUM	53.6 P N	
11.	IRON	62697.9 P	23.	ZINC	164.5 P E N	
12.	LEAD	153.1 P N		PERCENT SOLIDS (%)	84.0	
	CYANIDE	0.3 N				
	PHENOL	NR				

FOOTNOTES : FOR REPORTING RESULTS STANDARD RESULT QUALIFIERS ARE USED AS DEFINED ON PAGE 2.

COMMENTS : This sample was of a medium texture and brown/tan in coloration. The sample was oxidized for digestion procedure. MA analyzed at a 1:10 dilution

LAB MANAGER

(9)

SAMPLE NUMBER

ORGANICS ANALYSIS DATA SHEET

(PAGE 1)

Laboratory Name:NANCO LABORATORY INC.
Lab File ID No:>B2551
Sample Matrix: SOIL
Data Release Authorized By: P.L. Gilnach

Case No: ENGINEERING SCIENCE
QC Report No: N/A
Contract No: N/A
Date Sample Received: 09/12/87

SS-2
PRATTE LETCHWORTH

VOLATILE COMPOUNDS

Concentration: (Low) Medium (Circle One)
Date Extracted/Prepared: 09/16/87
Date Analyzed:09/16/87
Conc/Dil Factor: 1 pH: 7.4
Percent Moisture: 12

CAS Number		ug/l or (ug/Kg) (Circle One)	CAS Number		ug/l or (ug/Kg) (Circle One)
74-87-3	Chloromethane	10.0 U	79-34-5	1,1,2,2-Tetrachloroethane	5.0 U
74-83-9	Bromomethane	10.0 U	78-87-5	1,2-Dichloropropane	5.0 U
75-01-4	Vinyl Chloride	10.0 U	10061-02-6	Trans-1,3-Dichloropropene	5.0 U
75-00-3	Chloroethane	10.0 U	79-01-6	Trichloroethene	5.0 U
75-09-2	Methylene Chloride	3.2 JB	124-48-1	Dibromochloromethane	5.0 U
67-64-1	Acetone	21.0 B	79-00-5	1,1,2-Trichloroethane	5.0 U
75-15-0	Carbon Disulfide	5.0 U	71-43-2	Benzene	5.0 U
75-35-4	1,1-Dichloroethene	5.0 U	10061-01-5	cis-1,3-Dichloropropene	5.0 U
75-34-3	1,1-Dichloroethane	5.0 U	110-75-8	2-Chloroethylvinylether	10.0 U
156-60-5	Trans-1,2-Dichloroethene	5.0 U	75-25-2	Bromoform	5.0 U
67-66-3	Chloroform	5.0 U	591-78-6	2-Hexanone	10.0 U
107-06-2	1,2-Dichloroethane	5.0 U	108-10-1	4-Methyl-2-Pentanone	10.0 U
78-93-3	2-Butanone	10.0 U	127-18-4	Tetrachloroethene	5.0 U
71-55-6	1,1,1-Trichloroethane	5.0 U	108-88-3	Toluene	5.0 U
56-23-5	Carbon Tetrachloride	5.0 U	108-90-7	Chlorobenzene	5.0 U
108-05-4	Vinyl Acetate	10.0 U	100-41-4	Ethylbenzene	5.0 U
75-27-4	Bromodichloromethane	5.0 U	100-42-5	Styrene	5.0 U
				Total Xylenes	5.0 U

Data Reporting Qualifiers

For reporting results to EPA, the following results qualifiers are used. Additional flags or footnotes explaining results are encouraged. However, the definition of each flag must be explicit.

VALUE

If the result is a value greater than or equal to the detection limit, report the value.

U

Indicates compound was analyzed for but not detected. Report the minimum detection limit for the sample with the U(e.g.10U based on necessary concentration dilution actions. (This is not necessarily the instrument detection limit.) The footnote should read U-Compound was analyzed for but not detected.The number is the minimum attainable detection limit for the sample.

J

Indicates an estimated value.This flag is used either when estimating a concentration for tentatively identified compounds where a 1 1 response is assumed or when the mass spectral data indicates the presence of a compound that meets the identification criteria but the result is less than the specified detection limit but greater than zero (e.g. 10J).

C

This flag applies to pesticide parameters where the identification has been confirmed by GC/MS Single component pesticides greater than or equal to 10 ng/ul in the final extract should be confirmec by GC/MS

B

This flag is used when the analyte is found in the blank as well as a sample. It indicates possible/probable blank contamination and warns the data user to take appropriate action.

OTHER

Other specific flags and footnotes may be required to properly define the results. If used, they must be fully described and such description attached to the data summary report.

ORGANIC ANALYSIS DATA SHEET
(PAGE 2)

(9)

LABORATORY NAME: NANCO LABS. INC.
CASE NO: ENGINEERING SCIENCE
PRATTE LETCHWORTH

SAMPLE NO.
SS-2

SEMIVOLATILE COMPOUNDS

Concentration: (Low) Medium (Circle One)
Date Extracted/Prepared: 09/22/87
Date Analyzed: 10/07/87
Conc/Dil Factor:----------> 1
Percent Moisture: 12

GPC Cleanup: Yes_____ No__XX__
Separatory Funnel Extraction: Yes_____
Continuous Liquid - Liquid Extraction: Yes___

CAS Number		ug/l or (ug/Kg) (Circle One)
108-95-2	Phenol	330.0 U
111-44-4	bis(-2-Chloroethyl)Ether	330.0 U
95-57-8	2-Chlorophenol	330.0 U
541-73-1	1,3-Dichlorobenzene	330.0 U
106-46-7	1,4-Dichlorobenzene	330.0 U
100-51-6	Benzyl Alcohol	330.0 U
95-50-1	1,2-Dichlorobenzene	330.0 U
95-48-7	2-Methylphenol	330.0 U
39638-32-9	bis(2-chloroisopropyl)Ether	330.0 U
106-44-5	4-Methylphenol	330.0 U
621-64-7	N-Nitroso-Di-n-Propylamine	330.0 U
67-72-1	Hexachloroethane	330.0 U
98-95-3	Nitrobenzene	330.0 U
78-59-1	Isophorone	330.0 U
88-75-5	2-Nitrophenol	330.0 U
105-67-9	2,4-Dimethylphenol	330.0 U
65-85-0	Benzoic Acid	1600.0 U
111-91-1	bis(-2-Chloroethoxy)Methane	330.0 U
120-83-2	2,4-Dichlorophenol	330.0 U
120-82-1	1,2,4-Trichlorobenzene	330.0 U
91-20-3	Naphthalene	120.0 J
106-47-8	4-Chloroaniline	330.0 U
87-68-3	Hexachlorobutadiene	330.0 U
59-50-7	4-Chloro-3-Methylphenol	330.0 U
91-57-6	2-Methylnaphthalene	150.0 J
77-47-4	Hexachlorocyclopentadiene	330.0 U
88-06-2	2,4,6-Trichlorophenol	330.0 U
95-95-4	2,4,5-Trichlorophenol	1600.0 U
91-58-7	2-Chloronaphthalene	330.0 U
88-74-4	2-Nitroaniline	1600.0 U
131-11-3	Dimethyl Phthalate	330.0 U
208-96-8	Acenaphthylene	330.0 U
99-09-2	3-Nitroaniline	1600.0 U

CAS Number		ug/l or (ug/Kg) (Circle One)
83-32-9	Acenaphthene	330.0 U
51-28-5	2,4-Dinitrophenol	1600.0 U
100-02-7	4-Nitrophenol	1600.0 U
132-64-9	Dibenzofuran	330.0 U
121-14-2	2,4-Dinitrotoluene	330.0 U
606-20-2	2,6-Dinitrotoluene	330.0 U
84-66-2	Diethylphthalate	330.0 U
7005-72-3	4-Chlorophenyl-phenylether	330.0 U
86-73-7	Fluorene	330.0 U
100-01-6	4-Nitroaniline	1600.0 U
534-52-1	4,6-Dinitro-2-Methylphenol	1600.0 U
86-30-6	N-Nitrosodiphenylamine (1)	330.0 U
101-55-3	4-Bromophenyl-phenylether	330.0 U
118-74-1	Hexachlorobenzene	330.0 U
87-86-5	Pentachlorophenol	1600.0 U
85-01-8	Phenanthrene	360.0
120-12-7	Anthracene	330.0 U
84-74-2	Di-n-Butylphthalate	330.0 U
206-44-0	Fluoranthene	210.0 J
129-00-0	Pyrene	220.0 J
85-68-7	Butylbenzylphthalate	330.0 U
91-94-1	3,3'-Dichlorobenzidine	660.0 U
56-55-3	Benzo(a)Anthracene	330.0 U
117-81-7	bis(2-Ethylhexyl)Phthalate	330.0 U
218-01-9	Chrysene	140.0 J
117-84-0	Di-n-Octyl Phthalate	330.0 U
205-99-2	Benzo(b)Fluoranthene	87.0 J
207-08-9	Benzo(k)Fluoranthene	45.0 J
50-32-8	Benzo(a)Pyrene	230.0 JB
193-39-5	Indeno(1,2,3-cd)Pyrene	330.0 U
53-70-3	Dibenz(a,h)Anthracene	330.0 U
191-24-2	Benzo(g,h,i)Perylene	330.0 U

(1) - Cannot be separated from diphenylamine

INORGANIC ANALYSIS DATA SHEET
FORM I

SMPL NO.: SS-2

(9)

Lab Name : NANCO LABORATORIES, INC.
Customer Name: Engineering Science

SOW NO. : N/A
Lab Receipt Date : 09/12/87

Lab Sample ID: 87-ES-2583
Date Reported: 11/5/87

Location ID: Pratt & Letchworth

ELEMENTS IDENTIFIED AND MEASURED

CONCENTRATION : LOW __X__ MEDIUM _____

MATRIX : WATER _____ SOIL __X__ SLUDGE _____ OTHER _____

UG/L OR MG/KG DRY WEIGHT (CIRCLE ONE)

1.	ALUMINUM	5085.5 P		13.	MAGNESIUM	2488.6 P	
2.	ANTIMONY	52.5 P *N		14.	MANGANESE	5228.6 P	(1:10)
3.	ARSENIC	7.0 F *N		15.	MERCURY	0.1 U C.V. N	
4.	BARIUM	[41.8]P		16.	NICKEL	18.9 P N	
5.	BERYLLIUM	[0.2]P N		17.	POTASSIUM	[735.2]P	
6.	CADMIUM	5.2 P N		18.	SELENIUM	1.1 UF N	
7.	CALCIUM	12404.8 P		19.	SILVER	2.3 UP N	
8.	CHROMIUM	282.3 P N		20.	SODIUM	223.0 UP	
9.	COBALT	[8.9]P N		21.	THALLIUM	1.1 UF N	
10.	COPPER	29.1 P E N		22.	VANADIUM	24.1 P N	
11.	IRON	14477.5 P		23.	ZINC	48.4 P E N	
12.	LEAD	58.6 P N			PERCENT SOLIDS (%)	88.0	
	CYANIDE	0.1 U N					
	PHENOL	NR					

FOOTNOTES : FOR REPORTING RESULTS STANDARD RESULT QUALIFIERS ARE USED AS DEFINED ON PAGE 2.

COMMENTS : This sample was off-gas testing and black in color.
The sample was collected for digestion procedure.
Mn was analyzed at a 1:10 dilution

Deborah A. [illegible]

LAB MANAGER

ORGANICS ANALYSIS DATA SHEET
(PAGE 1)

(9)
SAMPLE NUMBER

Laboratory Name:NANCO LABORATORY INC.
Lab File ID No:>B2552
Sample Matrix: SOIL
Data Release Authorized By: P. L. Hirsch

Case No: ENGINEERING SCIENCE
QC Report No: N/A
Contract No: N/A
Date Sample Received: 09/12/87

SS-3
PRATTE LETCHWORTH

VOLATILE COMPOUNDS

Concentration: (Low) Medium (Circle One)
Date Extracted/Prepared: 09/16/87
Date Analyzed:09/16/87
Conc/Dil Factor: 1 pH: 7.0
Percent Moisture: 10

CAS Number		ug/l or (ug/Kg) (Circle One)
74-87-3	Chloromethane	10.0 U
74-83-9	Bromomethane	10.0 U
75-01-4	Vinyl Chloride	10.0 U
5-00-3	Chloroethane	10.0 U
75-09-2	Methylene Chloride	5.3 B
67-64-1	Acetone	10.0 U
75-15-0	Carbon Disulfide	5.0 U
75-35-4	1,1-Dichloroethene	5.0 U
75-34-3	1,1-Dichloroethane	5.0 U
156-60-5	Trans-1,2-Dichloroethene	5.0 U
67-66-3	Chloroform	5.0 U
107-06-2	1,2-Dichloroethane	5.0 U
78-93-3	2-Butanone	2.1 J
71-55-6	1,1,1-Trichloroethane	5.0 U
56-23-5	Carbon Tetrachloride	5.0 U
108-05-4	Vinyl Acetate	10.0 U
75-27-4	Bromodichloromethane	5.0 U

CAS Number		ug/l or (ug/Kg) (Circle One)
79-34-5	1,1,2,2-Tetrachloroethane	5.0 U
78-87-5	1,2-Dichloropropane	5.0 U
10061-02-6	Trans-1,3-Dichloropropene	5.0 U
79-01-6	Trichloroethene	5.0 U
124-48-1	Dibromochloromethane	5.0 U
79-00-5	1,1,2-Trichloroethane	5.0 U
71-43-2	Benzene	5.0 U
10061-01-5	cis-1,3-Dichloropropene	5.0 U
110-75-8	2-Chloroethylvinylether	10.0 U
75-25-2	Bromoform	5.0 U
591-78-6	2-Hexanone	10.0 U
108-10-1	4-Methyl-2-Pentanone	10.0 U
127-18-4	Tetrachloroethene	5.0 U
108-88-3	Toluene	5.0 U
108-90-7	Chlorobenzene	5.0 U
100-41-4	Ethylbenzene	5.0 U
100-42-5	Styrene	5.0 U
	Total Xylenes	5.0 U

Data Reporting Qualifiers

For reporting results to EPA, the following results qualifiers are used. Additional flags or footnotes explaining results are encouraged. However, the definition of each flag must be explicit.

VALUE
If the result is a value greater than or equal to the detection limit, report the value.

U
Indicates compound was analyzed for but not detected. Report the minimum detection limit for the sample with the U(e.g.10U based on necessary concentration dilution actions. (This is not necessarily the instrument detection limit.) The footnote should read U-Compound was analyzed for but not detected.The number is the minimum attainable detection limit for the sample.

J
Indicates an estimated value.This flag is used either when estimating a concentration for tentatively identified compounds where a 1 1 response is assumed or when the mass spectral data indicates the presence of a compound that meets the identification criteria but the result is less than the specified detection limit but greater than zero (e.g. 10J).

C
This flag applies to pesticide parameters where the identification has been confirmed by GC/MS Single component pesticides greater than or equal to 10 ng/ul in the final extract should be confirmed by GC/MS

B
This flag is used when the analyte is found in the blank as well as a sample. It indicates possible/probable blank contamination and warns the data user to take appropriate action.

OTHER
Other specific flags and footnotes may be required to properly define the results. If used, they must be fully described and such description attached to the data summary report.

ORGANIC ANALYSIS DATA SHEET
(PAGE 2)

(9)

LABORATORY NAME: NANCO LABS. INC.
CASE NO: ENGINEERING SCIENCE
PRATTE LETCHWORTH

SAMPLE NO.
SS-3

SEMIVOLATILE COMPOUNDS

Concentration: (Low) Medium (Circle One)
Date Extracted/Prepared: 09/22/87
Date Analyzed: 10/07/87
Conc/Dil Factor:----------> 10
Percent Moisture: 10

GPC Cleanup: Yes_____ No__XX__
Separatory Funnel Extraction: Yes_____
Continuous Liquid - Liquid Extraction: Yes__

CAS Number		ug/l or (ug/Kg) (Circle One)
108-95-2	Phenol	3300.0 U
111-44-4	bis(-2-Chloroethyl)Ether	3300.0 U
95-57-8	2-Chlorophenol	3300.0 U
541-73-1	1,3-Dichlorobenzene	3300.0 U
106-46-7	1,4-Dichlorobenzene	3300.0 U
100-51-6	Benzyl Alcohol	3300.0 U
95-50-1	1,2-Dichlorobenzene	3300.0 U
95-48-7	2-Methylphenol	3300.0 U
39638-32-9	bis(2-chloroisopropyl)Ether	3300.0 U
106-44-5	4-Methylphenol	3300.0 U
621-64-7	N-Nitroso-Di-n-Propylamine	3300.0 U
67-72-1	Hexachloroethane	3300.0 U
98-95-3	Nitrobenzene	3300.0 U
78-59-1	Isophorone	3300.0 U
88-75-5	2-Nitrophenol	3300.0 U
105-67-9	2,4-Dimethylphenol	3300.0 U
65-85-0	Benzoic Acid	16000.0 U
111-91-1	bis(-2-Chloroethoxy)Methane	3300.0 U
120-83-2	2,4-Dichlorophenol	3300.0 U
120-82-1	1,2,4-Trichlorobenzene	3300.0 U
91-20-3	Naphthalene	3300.0 U
106-47-8	4-Chloroaniline	3300.0 U
87-68-3	Hexachlorobutadiene	3300.0 U
59-50-7	4-Chloro-3-Methylphenol	3300.0 U
91-57-6	2-Methylnaphthalene	3300.0 U
77-47-4	Hexachlorocyclopentadiene	3300.0 U
88-06-2	2,4,6-Trichlorophenol	3300.0 U
95-95-4	2,4,5-Trichlorophenol	16000.0 U
91-58-7	2-Chloronaphthalene	3300.0 U
88-74-4	2-Nitroaniline	16000.0 U
131-11-3	Dimethyl Phthalate	3300.0 U
208-96-8	Acenaphthylene	3300.0 U
99-09-2	3-Nitroaniline	16000.0 U

CAS Number		ug/l or (ug/Kg) (Circle One)
83-32-9	Acenaphthene	3300.0 U
51-28-5	2,4-Dinitrophenol	16000.0 U
100-02-7	4-Nitrophenol	16000.0 U
132-64-9	Dibenzofuran	3300.0 U
121-14-2	2,4-Dinitrotoluene	3300.0 U
606-20-2	2,6-Dinitrotoluene	3300.0 U
84-66-2	Diethylphthalate	3300.0 U
7005-72-3	4-Chlorophenyl-phenylether	3300.0 U
86-73-7	Fluorene	3300.0 U
100-01-6	4-Nitroaniline	16000.0 U
534-52-1	4,6-Dinitro-2-Methylphenol	16000.0 U
86-30-6	N-Nitrosodiphenylamine (1)	3300.0 U
101-55-3	4-Bromophenyl-phenylether	3300.0 U
118-74-1	Hexachlorobenzene	3300.0 U
87-86-5	Pentachlorophenol	16000.0 U
85-01-8	Phenanthrene	3300.0 U
120-12-7	Anthracene	3300.0 U
84-74-2	Di-n-Butylphthalate	3300.0 U
206-44-0	Fluoranthene	3300.0 U
129-00-0	Pyrene	3300.0 U
85-68-7	Butylbenzylphthalate	3300.0 U
91-94-1	3,3'-Dichlorobenzidine	1500.0 J
56-55-3	Benzo(a)Anthracene	3300.0 U
117-81-7	bis(2-Ethylhexyl)Phthalate	3300.0 U
218-01-9	Chrysene	3300.0 U
117-84-0	Di-n-Octyl Phthalate	3300.0 U
205-99-2	Benzo(b)Fluoranthene	3300.0 U
207-08-9	Benzo(k)Fluoranthene	3300.0 U
50-32-8	Benzo(a)Pyrene	2200.0 JB
193-39-5	Indeno(1,2,3-cd)Pyrene	3300.0 U
53-70-3	Dibenz(a,h)Anthracene	3300.0 U
191-24-2	Benzo(g,h,i)Perylene	3300.0 U

(1) - Cannot be separated from diphenylamine

INORGANIC ANALYSIS DATA SHEET
FORM I

SMPL NO.: SS-3

(9)

Lab Name : NANCO LABORATORIES, INC.
Customer Name: Engineering Science

SOW NO. : N/A
Lab Receipt Date : 09/12/87

Lab Sample ID: 87-ES-2584
Date Reported: 11/5/87

Location ID: Pratt & Letchworth

ELEMENTS IDENTIFIED AND MEASURED

CONCENTRATION : LOW __X__ MEDIUM _____

MATRIX : WATER _____ SOIL __X__ SLUDGE ____ OTHER _____

UG/L OR (MG/KG DRY WEIGHT) (CIRCLE ONE)

1.	ALUMINUM	3413.6 P	13.	MAGNESIUM	2070.2 P
2.	ANTIMONY	39.8 P*N	14.	MANGANESE	2009.8 P
3.	ARSENIC	3.0 SF*N (1:5)	15.	MERCURY	0.1 U C.V. N
4.	BARIUM	58.2 P	16.	NICKEL	26.2 PN
5.	BERYLLIUM	[0.2]P N	17.	POTASSIUM	[449.3]P
6.	CADMIUM	6.2 P N	18.	SELENIUM	1.1 UFN
7.	CALCIUM	12546.4 P	19.	SILVER	2.2 UP N
8.	CHROMIUM	85.3 PN	20.	SODIUM	218.0 UP
9.	COBALT	13.8 P N	21.	THALLIUM	1.1 UF N
10.	COPPER	214.2 PEN	22.	VANADIUM	25.1 P N
11.	IRON	25051.3 P	23.	ZINC	95.6 PEN
12.	LEAD	126.4 PN		PERCENT SOLIDS (%)	90.0
	CYANIDE	0.3 N			
	PHENOL	NR			

FOOTNOTES : FOR REPORTING RESULTS STANDARD RESULT QUALIFIERS ARE USED AS DEFINED ON PAGE 2.

COMMENTS : This sample was a medium texture and brown/black in color. The sample was collected for ICP and furnace digestion procedures. As was analyzed at a 1:5 dilution.

LAB MANAGER

000005

INORGANIC ANALYSIS DATA SHEET
FORM I

SMPL NO.: SW-1(,12)

(9)

Lab Name : NANCO LABORATORIES, INC.

Customer Name: Engineering Science

SOW NO. : N/A

Lab Receipt Date : 11/19/87

Lab Sample ID: 87-EW-4278

Date Reported: 1/7/88

Location ID: Pratt & Letchworth

RESUBMITTED
MAR 2 8 1988

ELEMENTS IDENTIFIED AND MEASURED

CONCENTRATION : LOW __X__ MEDIUM _____

MATRIX : WATER __X__ SOIL _____ SLUDGE ____ OTHER _____

UG/L OR MG/KG DRY WEIGHT (CIRCLE ONE)

1. ALUMINUM	400.0 P	13. MAGNESIUM	20600.0 P
2. ANTIMONY	50.0 UPN	14. MANGANESE	15.0 UP
3. ARSENIC	3.0 UFN	15. MERCURY	0.2 UN CV
4. BARIUM	[70.0]P	16. NICKEL	25.0 UP
5. BERYLLIUM	2.0 UP N	17. POTASSIUM	3000.0 UP
6. CADMIUM	5.0 UP	18. SELENIUM	3.0 UFN
7. CALCIUM	163900.0 PE	19. SILVER	10.0 UPN
8. CHROMIUM	10.0 UP	20. SODIUM	41300.0 P
9. COBALT	30.0 UP	21. THALLIUM	2.0 UF
10. COPPER	15.0 UP	22. VANADIUM	25.0 UP
11. IRON	768.0 P	23. ZINC	84.0 P*
12. LEAD	13.7 F	PERCENT SOLIDS (%)	N/A
CYANIDE	NR		
PHENOL	NR		

FOOTNOTES : FOR REPORTING RESULTS STANDARD RESULT QUALIFIERS ARE USED AS DEFINED ON PAGE 2.

COMMENTS : This sample was a colorless liquid that remained colorless after OCP and furnace digestion procedures.

LAB MANAGER

0000002

INORGANIC ANALYSIS DATA SHEET
FORM I

SMPL NO.: SW-1

(9)

Lab Name : NANCO LABORATORIES, INC.

Customer Name: Engineering Science

SOW NO. : N/A

Lab Receipt Date : 09/12/87

Lab Sample ID: 87-EW-2580

Date Reported: 11/5/87

Location ID: Pratt & Letchworth

ELEMENTS IDENTIFIED AND MEASURED

CONCENTRATION : LOW __X__ MEDIUM ______

MATRIX : WATER __X__ SOIL ______ SLUDGE _____ OTHER ______

(UG/L) OR MG/KG DRY WEIGHT (CIRCLE ONE)

1.	ALUMINUM	405.0 P N	13.	MAGNESIUM	15002.0 P
2.	ANTIMONY	215.0 P	14.	MANGANESE	56.0 P
3.	ARSENIC	3.0 UF	15.	MERCURY	2.6 C.V.* N
4.	BARIUM	[45.0]P	16.	NICKEL	12.0 UP
5.	BERYLLIUM	0.6 UP N	17.	POTASSIUM	[2631.0]P
6.	CADMIUM	5.0 UP	18.	SELENIUM	5.0 UF N
7.	CALCIUM	128970.0 P	19.	SILVER	99.0 P
8.	CHROMIUM	19.0 P	20.	SODIUM	42443.0 P
9.	COBALT	[15.0]P	21.	THALLIUM	50.0 UF N (1:10)
10.	COPPER	[6.0]P	22.	VANADIUM	5.0 UP
11.	IRON	435.0 P N	23.	ZINC	30.0 P
12.	LEAD	46.9 SF N		PERCENT SOLIDS (%)	NA
	CYANIDE	10.0 U			
	PHENOL	NR			

FOOTNOTES : FOR REPORTING RESULTS STANDARD RESULT QUALIFIERS ARE USED AS DEFINED ON PAGE 2.

COMMENTS : This sample was - colorless liquid the remained colorless for digestion procedure. Tl was analyzed at - 1:10 dilution

[signature]

LAB MANAGER

0000003

(9)

INORGANIC ANALYSIS DATA SHEET

FORM I

SMPL NO.: SW-2

Lab Name : NANCO LABORATORIES, INC.

Customer Name: Engineering Science

SOW NO. : N/A

Lab Receipt Date : 09/12/87

Lab Sample ID: 87-EW-2581

Date Reported: 11/5/87

Location ID: Pratt & Letchworth

ELEMENTS IDENTIFIED AND MEASURED

CONCENTRATION : LOW ___X___ MEDIUM _____

MATRIX : WATER ___X___ SOIL _____ SLUDGE _____ OTHER _____

(UG/L) OR MG/KG DRY WEIGHT (CIRCLE ONE)

1.	ALUMINUM	433.0 P N	13.	MAGNESIUM	14418.0 P
2.	ANTIMONY	197.0 P	14.	MANGANESE	65.0 P
3.	ARSENIC	3.0 UF	15.	MERCURY	0.4 C.V. * N
4.	BARIUM	[32.0] P	16.	NICKEL	12.0 UP
5.	BERYLLIUM	0.6 UP N	17.	POTASSIUM	[2639.0] P
6.	CADMIUM	5.0 UP	18.	SELENIUM	5.0 UF N
7.	CALCIUM	123741.0 P	19.	SILVER	93.0 P
8.	CHROMIUM	16.0 P	20.	SODIUM	42532.0 P
9.	COBALT	13.0 UP	21.	THALLIUM	50.0 UF N (1:10)
10.	COPPER	[7.0] P	22.	VANADIUM	5.0 UP
11.	IRON	633.0 P N	23.	ZINC	81.0 P
12.	LEAD	61.8 SF N		PERCENT SOLIDS (%)	NA
	CYANIDE	10.0 U			
	PHENOL	NR			

FOOTNOTES : FOR REPORTING RESULTS STANDARD RESULT QUALIFIERS ARE USED AS DEFINED ON PAGE 2.

COMMENTS : This sample was a solution digest that remained colorless from ICP and furnace digestion procedures. Tl was analyzed at a 1:10 dilution.

LAB MANAGER

(10)

YORK LABORATORIES
A DIVISION OF YMC

REPORT TRANSMITTAL

REPORT NUMBER 30890-0092

DATE November 16, 1988

CLIENT

Engineering Science
290 Elwood Davis Road
Liverpool, NY 13088

ATTENTION Mr. George Moreau

The above referenced report is enclosed. Copies of this report and supporting data will be retained in our files in the event they are required for future reference.

If there are any questions concerning this report, please do not hesitate to contact us.

Any samples submitted to our Laboratory will be retained for a maximum of sixty (60) days from receipt of this report, unless other arrangements are desired.

200 MONROE TURNPIKE • MONROE, CONNECTICUT 06468 • (203) 261-4458

(10)

Soil

TABLE 2.6
30890-0092
ENGINEERING SCIENCE
EPA TCL PESTICIDES/PCB's

All results reported as ug/Kg.

	Sample Identification				
Dilution Factor	1.00	1.75	6.12	550.0	
Method Blank I.D.	1019 -B02	1019 -B02	1019 -B02	1019 -B02	
Compound	Method Blank	SED-4.14	SS-1	SS-2	Lower Limits of Detection with no Dilution
alpha BHC	U	U	U	U	8.0
beta BHC	U	U	U	U	8.0
delta BHC	U	U	U	U	8.0
gamma BHC	U	U	U	U	8.0
Heptachlor	U	U	U	U	8.0
Aldrin	U	U	U	U	8.0
Heptachlor Epoxide	U	U	U	U	8.0
Endosulfan I	U	U	U	U	8.0
Dieldrin	U	U	U	U	16
4,4' DDE	U	U	U	U	16
Endrin	U	U	U	U	16
Endosulfan II	U	U	U	U	16
4,4' DDD	U	U	U	U	16
Endosulfan Sulfate	U	U	U	U	16
4,4' DDT	U	U	U	U	16
Methoxychlor	U	U	U	U	80
Endrin Ketone	U	U	U	U	16
alpha Chlordane	U	U	U	U	80
gamma Chlordane	U	U	U	U	80
Toxaphene	U	U	U	U	160
Aroclor - 1016	U	U	U	U	80
Aroclor - 1221	U	U	U	U	80
Aroclor - 1232	U	U	U	U	80
Aroclor - 1242	U	U	U	U	80
Aroclor - 1248	U	U	U	U	80
Aroclor - 1254	U	U	U	U	160
Aroclor - 1260	U	U	7,200	2,200,000	160

U - See Appendix for definition.

Soil

TABLE 2.7
30890-0092
ENGINEERING SCIENCE
EPA TCL PESTICIDES/PCB's

All results reported as ug/Kg.

Sample Identification

Dilution Factor	1.00	5.62	288.0	1,380.0	
Method Blank I.D.	1019 -B02	1019 -B02	1019 -B02	1019 -B02	
Compound	Method Blank	SS-3	SS-1.11	SS-2.11	Lower Limits of Detection with no Dilution
alpha BHC	U	U	U	U	8.0
beta BHC	U	U	U	U	8.0
delta BHC	U	U	U	U	8.0
gamma BHC	U	U	U	U	8.0
Heptachlor	U	U	U	21,000	8.0
Aldrin	U	U	U	U	8.0
Heptachlor Epoxide	U	U	U	U	8.0
Endosulfan I	U	U	U	U	8.0
Dieldrin	U	U	U	U	16
4,4' DDE	U	U	U	U	16
Endrin	U	U	U	U	16
Endosulfan II	U	U	U	U	16
4,4' DDD	U	U	U	U	16
Endosulfan Sulfate	U	U	U	U	16
4,4' DDT	U	U	U	U	16
Methoxychlor	U	U	U	U	80
Endrin Ketone	U	U	U	U	16
alpha Chlordane	U	U	U	78,000	80
gamma Chlordane	U	U	U	92,000	80
Toxaphene	U	U	U	U	160
Aroclor - 1016	U	U	U	U	80
Aroclor - 1221	U	U	U	U	80
Aroclor - 1232	U	U	U	U	80
Aroclor - 1242	U	U	U	U	80
Aroclor - 1248	U	U	U	U	80
Aroclor - 1254	U	U	U	U	160
Aroclor - 1260	U	6,900	U	U	160

U - See Appendix for definition.

Soil

TABLE 2.8
30890-0092
ENGINEERING SCIENCE
EPA TCL PESTICIDES/PCB's

All results reported as ug/Kg.

	Sample Identification				
Dilution Factor	1.00	17.5	15.3	1.20	
Method Blank I.D.	1019 -B02	1019 -B02	1019 -B02	1019 -B02	
Compound	Method Blank	SW/ SED-1	SW/ SED-2	B-3MS	Lower Limits of Detection with no Dilution
alpha BHC	U	U	U	U	8.0
beta BHC	U	U	U	U	8.0
delta BHC	U	U	U	U	8.0
gamma BHC	U	U	U	27X	8.0
Heptachlor	U	U	U	34X	8.0
Aldrin	U	U	U	36X	8.0
Heptachlor Epoxide	U	U	U	U	8.0
Endosulfan I	U	U	U	U	8.0
Dieldrin	U	U	U	87X	16
4,4' DDE	U	U	U	U	16
Endrin	U	U	U	99X	16
Endosulfan II	U	U	U	U	16
4,4' DDD	U	U	U	U	16
Endosulfan Sulfate	U	U	U	U	16
4,4' DDT	U	U	U	100X	16
Methoxychlor	U	U	U	U	80
Endrin Ketone	U	U	U	U	16
alpha Chlordane	U	U	U	U	80
gamma Chlordane	U	U	U	U	80
Toxaphene	U	U	U	U	160
Aroclor - 1016	U	U	U	U	80
Aroclor - 1221	U	U	U	U	80
Aroclor - 1232	U	U	U	U	80
Aroclor - 1242	U	U	U	U	80
Aroclor - 1248	U	U	2,800	U	80
Aroclor - 1254	U	U	U	U	160
Aroclor - 1260	U	U	3,100	U	160

U, X - See Appendix for definition.

Gary Christopher

(11)

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

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

Table I (cont.)

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-Dichloro-ethylene	12	3
1, 2-trans-Dichloro-ethylene	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

Table I (cont.)

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

TABLE 4
WASTE CHARACTERISTICS VALUES FOR SOME COMMON CHEMICALS

CHEMICAL/COMPOUND	TOXICITY [1]	FLAMMABILITY [2]	REACTIVITY [3]	REACTIVITY [4]
Acetaldehyde	3	0	3	2
Acetic Acid	3	0	2	1
Acetone	2	0	3	0
Aldrin	3	3	1	0
Ammonia, Anhydrous	3	0	1	0
Aniline	3	1	2	0
Benzene	3	1	3	0
Carbon Tetrachloride	3	3	0	0
Chlordane	3	3	0*	0*
Chlorobenzene	2	2	3	0
Chloroform	3	3	0	0
Cresol-O	3	1	3	0
Cresol-M&P	3	1	1	0
Cyclohexane	2	2	3	0
Endrin	3	3	1	0
Ethyl Benzene	2	1	3	0
Formaldehyde	3	0	2	0
Formic Acid	3	0	2	0
Hydrochloric Acid	3	0	0	0
Isopropyl Ether	3	1	3	1
Lindane	3	3	1	0
Methane	1	1	3	0
Methyl Ethyl Ketone	2	0	3	0
Methyl Parathion in Xylene Solution	3	0Δ	3	2
Naphthalene	2	1	2	0
Nitric Acid	3	0	0	0
Parathion	3	0Δ	1	2
PCB	3	3	0Δ	0Δ
Petroleum, Kerosene (Fuel Oil No. 1)	3	1	2	0
Phenol	3	1	2	0
Sulfuric Acid	3	0	0	2
Toluene	2	1	3	0
Trichlorobenzene	2	3	1	0
α-Trichloroethane	2	2	1	0
Xylene	2	1	3	0

[1] Sax, N. I., Dangerous Properties of Industrial Materials, Van Nostrand Rheinhold Co., New York, 4th ed., 1975. The highest rating listed under each chemical is used.

[2] JRB Associates, Inc., Methodology for Rating the Hazard Potential of Waste Disposal Sites, May 5, 1980.

[3] National Fire Protection Association, National Fire Codes, Vol. 13, No. 49, 1977.

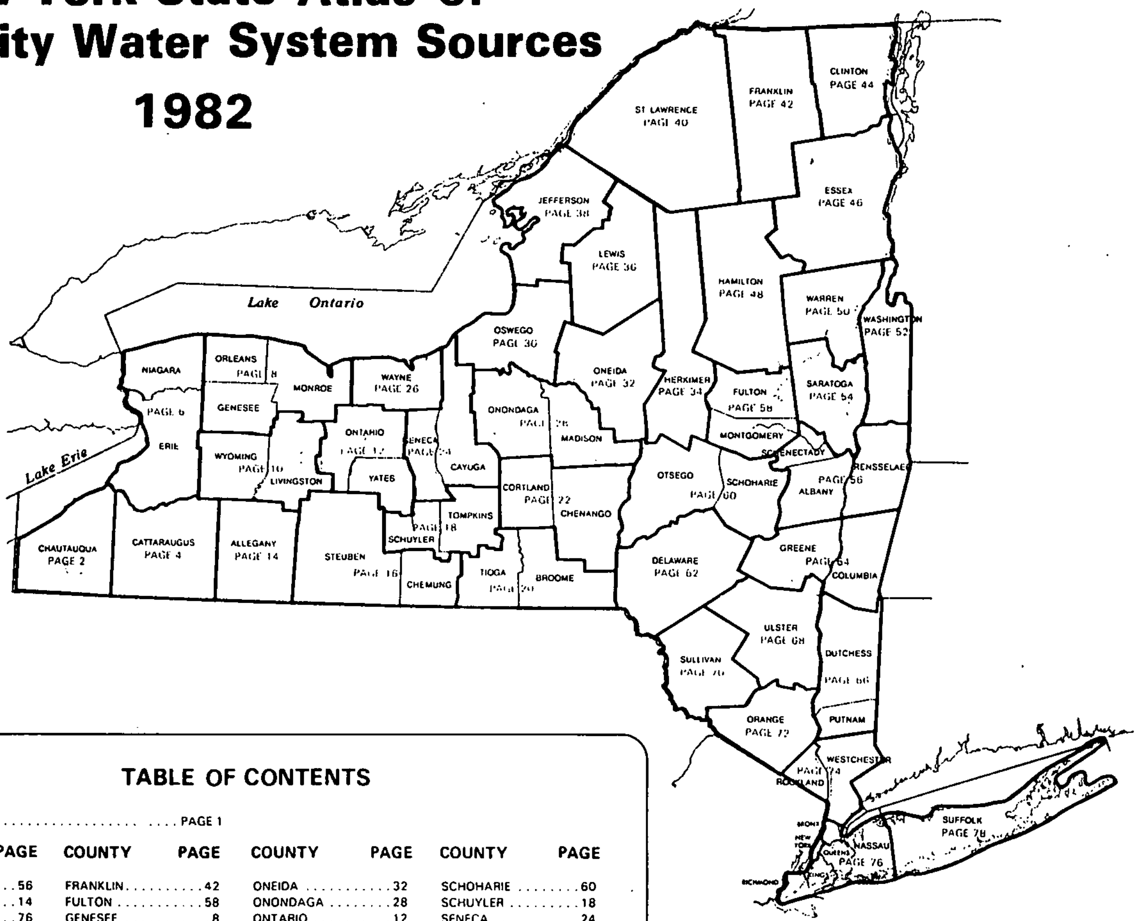
* Professional judgment based on information contained in the U.S. Coast Guard CHRIS Hazardous Chemical Data, 1978.

Δ Professional judgment based on existing literature.

New York State Atlas of Community Water System Sources

NEW YORK STATE
DEPARTMENT OF HEALTH

1982



LEGEND

BOUNDARIES AND PLACES

International
State
County
Town
Indian Reservation
City — Village
Unincorporated Place — Federal Reservation
Built-up Area (Over 25,000 population including any contiguous city or village)

CLASSIFICATION OF POPULATED PLACES

100,000 or more — YONKERS
50,000 to 100,000 — Levittown
12,500 to 50,000 — Poughkeepsie
2,500 to 12,500 — Hampton Bays
250 to 2,500
250 or less

TRANSPORTATION

Highways
Divided Highways — UNDER CONSTRUCTION
Full Control of Access
Partial or No Control of Access
Undivided Highway
Interchange — INTERCHANGE NUMBER — FULL — PARTIAL
Touring Route (State, U.S., Interstate) or State Parkway
Touring Route Markers
State; U.S.; Interstate

Railroads
Operating Line — Service Discontinued
Operator — DELAWARE AND HUDSON
Owner (If Other than Operator) — (PENN CENTRAL)
Company Having Trackage Rights — (CONRAIL)

Airports (Open to the Public, Military)
Runway under 4000' — Runway over 4000'

Rest Areas
Food, Gas, Rest Rooms — Rest Rooms
Gas, Rest Rooms — Parking Only

RECREATION FACILITIES

State or National Recreation Area
State Campground
State Boat Launching Site
State Canal Park
State Fish Hatchery
Other State Recreation Site

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BROOME	20	GREENE	64	ORANGE	72	STEUBEN	16
CATTARAUGUS	4	HAMILTON	48	ORLEANS	8	SUFFOLK	78
CAYUGA	24	HERKIMER	34	OSWEGO	30	SULLIVAN	70
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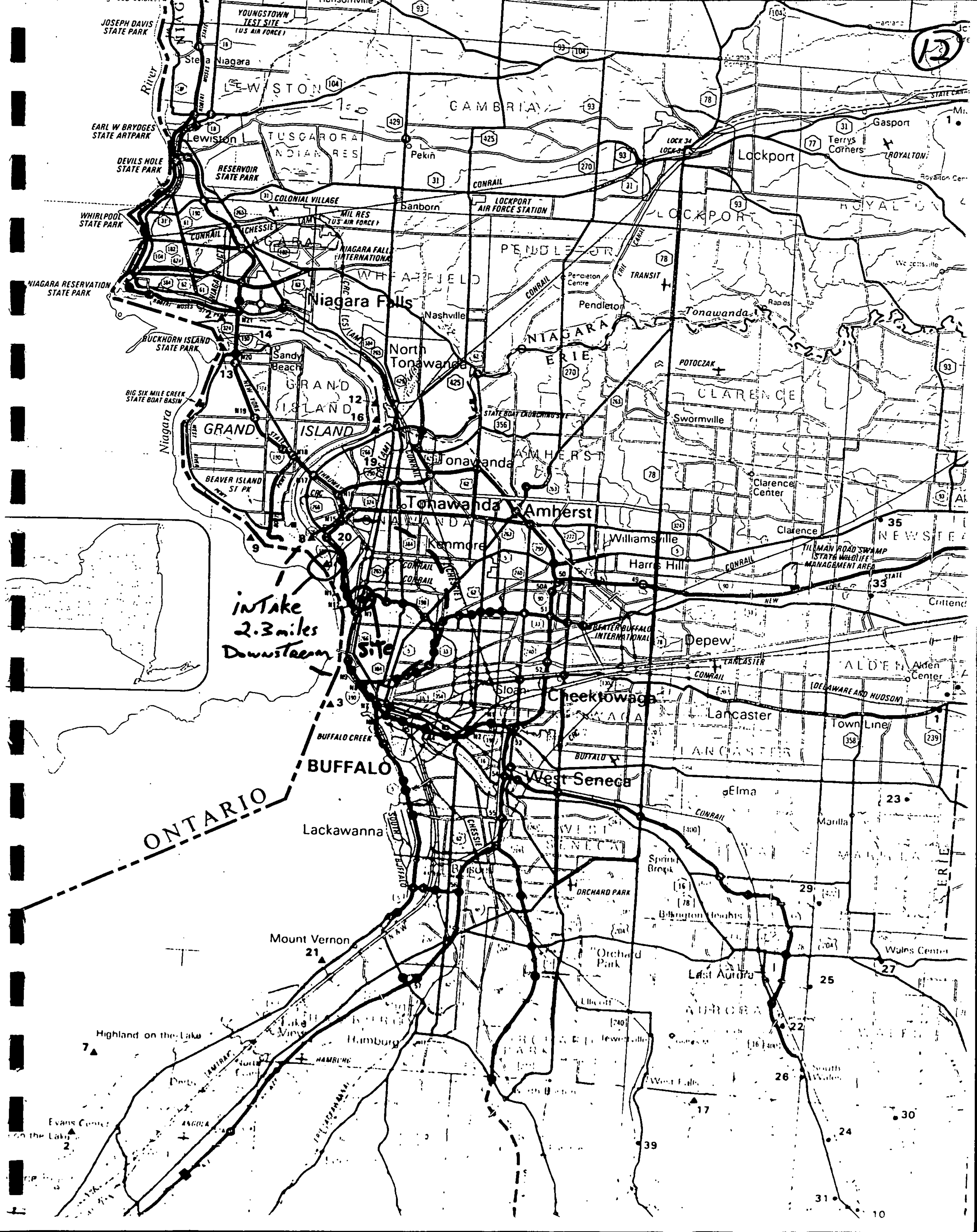
LOCATION OF COMMUNITY WATER SYSTEM SOURCES-1982

ERIE and NIAGARA COUNTIES

NEW YORK STATE DEPARTMENT OF HEALTH
DIVISION OF ENVIRONMENTAL PROTECTION
BUREAU OF PUBLIC WATER SUPPLY PROTECTION

12


JOSEPH DAVIS STATE PARK
YOUNGSTOWN TEST SITE (US AIR FORCE)
Stella Niagara
LEWISTON
CAMBRIA
EARL W BRYDGES STATE ARTPARK
Lewiston
TUSCARORA INDIAN RES
Pekin
DEVILS HOLE STATE PARK
RESERVOIR STATE PARK
COLONIAL VILLAGE
Sanborn
LOCKPORT AIR FORCE STATION
CONRAIL
Lockport
Gasport
Terrys Corners
ROYALTON
LOCKPORT
WHIRLPOOL STATE PARK
MIL RES (US AIR FORCE)
NIAGARA FALLS INTERNATIONAL
PENDLETON
WHEATFIELD
TRANSIT
NIAGARA RESERVATION STATE PARK
Niagara Falls
Nashville
Pendleton
Tonawanda
BUCKHORN ISLAND STATE PARK
North Tonawanda
NIAGARA
ERIE
POTOCZAK
Sandy Beach
GRAND ISLAND
CLARENCE
BIG SIX MILE CREEK STATE BOAT BASIN
STATE BOAT LAUNCHING SITE
Swormville
GRAND ISLAND
Niagara
Tonawanda
AMHERST
BEAVER ISLAND ST PK
Clarence Center
Tonawanda
Amherst
Clarence
NEWSTEAD
Kenmore
Williamsville
TILLMAN ROAD SWAMP STATE WILDLIFE MANAGEMENT AREA
Harris Hill
intake 2.3 miles Downstream
Site
GREATER BUFFALO INTERNATIONAL
Depew
LANCASTER
ALDEN
Alden Center
DELAWARE AND HUDSON
Sloan
Cheektowaga
Lancaster
Town Line
BUFFALO CREEK
BUFFALO
LANCASTER
BUFFALO
West Seneca
Elma
ONTARIO
Lackawanna
WEST SENECA
Marilla
MARILLA
Spring Brook
ORCHARD PARK
Billington Heights
Mount Vernon
Orchard Park
Wales Center
East Aurora
AURORA
Highland on the Lake
Hamburg
HAMBURG
South Wales
Evans Center
ANGOLA
West Falls
ERIE

ERIE COUNTY

ID NO	COMMUNITY WATER SYSTEM	POPULATION	SOURCE
Municipal Community			
	Akron Village (See No 1 Wyoming Co, Page 10)	3640	
1	Alden Village	3460	Wells
2	Angola Village	8500	Lake Erie
3	Buffalo City Division of Water	357870	Lake Erie
4	Caffee Water Company	210	Wells
5	Collins Water District #3	704	Wells
6	Collins Water Districts #1 and #2	1384	Wells
7	Erie County Water Authority (Sturgeon Point Intake)	375000	Lake Erie
8	Erie County Water Authority (Van DeWater Intake)	NA	Niagara River - East Branch
9	Grand Island Water District #2	9390	Niagara River
10	Holland Water District	1670	Wells
11	Lawtons Water Company	138	Wells
12	Lockport City (Niagara Co)		Niagara River - East Branch
13	Niagara County Water District (Niagara Co)		Niagara River - West Branch
14	Niagara Falls City (Niagara Co)		Niagara River - West Branch
15	North Collins Village	1500	Wells
16	North Tonawanda City (Niagara Co)		Niagara River - West Branch
17	Orchard Park Village	3671	Pipe Creek Reservoir
18	Springville Village	4169	Wells
19	Tonawanda City	18538	Niagara River - East Branch
20	Tonawanda Water District #1	91269	Niagara River
21	Wanakah Water Company	10750	Lake Erie
Non-Municipal Community			
22	Aurora Mobile Park	125	Wells
23	Bush Gardens Mobile Home Park	270	Wells
24	Circle B Trailer Court	50	Wells
25	Circle Court Mobile Park	125	Wells
26	Creekside Mobile Home Park	120	Wells
27	Donnelly's Mobile Home Court	99	Wells
28	Gowanda State Hospital	NA	Clear Lake
29	Hillside Estates	160	Wells
30	Hunters Creek Mobile Home Park	150	Wells
31	Knox Apartments	NA	Wells
32	Maple Grove Trailer Court	72	Wells
33	Millgrove Mobile Park	100	Wells
34	Perkins Trailer Park	75	Wells
35	Quarry Hill Estates	400	Wells
36	Springville Mobile Park	114	Wells
37	Springwood Mobile Village	132	Wells
38	Taylors Grove Trailer Park	39	Wells
39	Valley View Mobile Court	42	Wells
40	Villager Apartments	NA	Wells

(13)

ES ENGINEERING-SCIENCE COMPANIES

MEMORANDUM TO FILE

JOB NO. 5Y012. Allied, Pratt & Letchworth, McNaughton-Brooks

FILE DESIGNATION

DATE 2/18/88 TIME 11:00 AM

PHONE CALL FROM Michele Anatra PHONE NO.

PHONE CALL TO Ron Kozcaja, Erie Co. DOH [sic] Kozaja PHONE NO. 716-846-7677

CONFERENCE WITH

PLACE

SUBJECT Ground Water Use within 3-mile radii of the Allied Chemical site on Babcock Road, McNaughton-Brooks, and Pratt & Letchworth.

Everyone in the area is serviced by the city of Buffalo Public Water Supply. Mr Kozcaja stated that the only industrial well he was aware of was located at the Dunlap Plant in Tonawanda.

SIGNED Michele A. Anatra

(14)

INTERVIEW FORM

INTERVIEWEE/CODE Dan Marshall - Dunlop Tire /

TITLE - POSITION

ADDRESS Box 1109

CITY Buffalo STATE NY ZIP 14240

PHONE (716) 879 8412 RESIDENCE PERIOD ____ TO ____

LOCATION ____ INTERVIEWER George Moran

DATE/TIME July 7, 1988 / 8:20 am

SUBJECT: Well in use at Dunlop Tire Pratt & Letchworth S. Fe

REMARKS:

Dunlop has a well in use for industrial cooling purposes. The water runs through a trough and workers may come into contact with the water by check the temperature with their hands. The well water is not used as a drinking water source. About 20 people/day come into contact with the water. The depth of the well is 125 feet. Well is run only during summer months.

D. Marshall
Dunlop - Eng Mgr.
7/13/88

Please make any necessary corrections or additions and sign below:

15

GROUND-WATER RESOURCES OF THE ERIE-NIAGARA BASIN, NEW YORK

Prepared for the
Erie-Niagara Basin Regional Water Resources
Planning Board

by

A. M. La Sala, Jr.

UNITED STATES DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
in cooperation with
THE NEW YORK STATE CONSERVATION DEPARTMENT
DIVISION OF WATER RESOURCES

STATE OF NEW YORK
CONSERVATION DEPARTMENT
WATER RESOURCES COMMISSION

Basin Planning Report ENB-3
1968

MOREAU

		do.			Drl			--	do.			22.2	0-63		--						
258-813-1		do.	N. Loveland	--	Drl	11.7	3	--	Shale		900	8.1	6-26-63	--	--	A					
	-2	do.	do.	--	Drl	33	6	--	do.		900	12.1	6-26-63	Sw	--	U	Anal; iron; temp 48.8.				

Table 6.--Records of selected wells in the Erie-Niagara basin (Continued)

Well number	County	Owner	Year completed	Type of well	Depth of well (feet)	Diameter (inches)	Depth to bedrock (feet)	Water-bearing material	Altitude above sea level (feet)	Water level: Below land surface (feet)	Water level: Date	Method of lift	Estimated pumpage or flow (gallons per day)	Use	Remarks
258-815-1	Genesee	F. Peck	--	Drl	31	6	--	Shale	920	8.1	6-26-63	Sw	50	D	Anal; iron; temp 49.0; yield 12 gpm (r).
258-822-1	do.	E. Lewis	1964	Drl	41.6	6	41.6	Sand	870	9.1	8-19-64	Sw	400	Ag	Anal; H_2S; yield 11 gpm (r).
258-827-1	do.	E. Powenski	1952	Drl	36.5	6	a34	Limestone	835	31.3	8-19-64	Jet	250	D	H_2S; yield 7 gpm (r).
258-833-1	Erie	B. Fields	1960	Drl	62.6	6	a13	do.	775	p22.7	8-18-64	Sub	300	D	Anal.
258-837-1	do.	R. Bowman	1956	Drl	76.2	6	a22	do.	740	19.4	8-18-64	Jet	300	D	Do.
258-843-1	do.	W. Voss	--	Drl	62	8	--	Camillus Shale	615	Flow	--	--	5,000	A	Anal; H_2S; temp 50.8, 8-14-64; flows about 5 gpm at LS.
258-853-1	do.	Linde Div., Union Carbide Corp.	1944	Drl	r375	8	87	Camillus Shale and Lockport Dolomite	600	r,p115	1944	Tur	--	U	H_2S; drilled to 130-ft depth in 1943 and deepened in 1944; "black" water entering from Lockport Dolomite after deepening made well unusable; yield 3,000 gpm (r); pumping test, 1,090 gpm, dd 53 ft.
	-2	do.	do.	1944	Drl	r375	8	86	do.	600	r,p82	1944	Tur	--	U	H_2S; drilled to 157-ft depth in 1943 and deepened in 1944; water obtained at 90 ft from a gypsiferous zone in Camillus Shale and "black" water at 312 ft from the Lockport Dolomite which was first penetrated at 288 ft; yield from upper water-bearing zone 90 gpm, dd 22 ft; lower zone was not tested.
258-855-1	do.	Dunlop Tire & Rubber Co.	1943	Drl	r137	12	69	Camillus Shale	590	p36	10-27-52	Tur	--	I	H_2S; pumping rate 1,000 gpm (r); pumping test 500 gpm, swl 36 ft, dd 17 ft; this well and well 258-855-2 yield a combined total of 600,000 gpd.
	-2	do.	do.	1943	Drl	r139.7	--	71	do.	590	p54.3	7-16-64	Tur	--	I	H_2S; pumping rate about 1,000 gpm (r); pumping test 1,000 gpm, swl 36 ft, dd 26 ft; this well and well 258-855-1 yield a combined total of 600,000 gpd.
	-3	do.	do.	1952	Drl	r120	--	--	do.	592	p39	10-27-52	Tur	--	I	H_2S; pumping test 1,500 gpm, swl 39 ft, dd 38 ft.
259-809-1	Genesee	O-AT-KA Milk Products Cooperative, Inc.	1963	Drl	r60	20, 16	--	Sand and gravel	890	r15	4-27-62	Tur	1,000,000	I	Anal; screen, 13 1/8-inch diameter, 10 ft of 60-slot, 10 ft of 125-slot, from 40-60 ft; pumping rate about 1,200 gpm (r); pumping test 600 gpm, swl 15 ft, dd 1.5 ft (r).
	-2	do.	City of Batavia	1963	Drl	r69	16	--	do.	890	14.0	5- 8-63	Tur	--	PS	Anal; H_2S; screen, 16-inch telescope, 125-slot, 52.9-69 ft; pumping rate 1,000 gpm.
	-3	do.	do.	1962	Drl	54.1	8	--	do.	890	11.7	5- 6-63	--	--	T	Depth 61 ft (r); screen, 6-inch diameter, 100-slot, from 51-61 ft; pumping test 235 gpm, swl 18.3 ft, dd 0.5 ft (r); Ow.
	-4	do.	O-AT-KA Milk Products Cooperative, Inc.	1963	Drl	52.2	8	--	do.	890	p13.0	5- 7-63	--	--	T	
	-5	do.	City of Batavia	1962	Drl	60.2	8	--	do.	890	13.7	5- 8-63	--	400,000	T	Depth 70 ft (r); screen, 6-inch diameter, 100-slot, from 60-70 ft; pumping test (r), 235-259 gpm, swl 18.5 ft, dd 0.5 ft after 24 hours discharge.
	-6	do.	do.	1963	Drl	r75	16	--	do.	895	r14.2	5-27-63	Tur	--	PS	Screen, 16-inch diameter; test pumped at 1,000 gpm.
	-7	do.	do.	1963	Drl	r60	8	--	do.	890	r13.7	2-15-62	--	400,000	X, T	H_2S (r); pumping test 200 gpm, swl 13.7 ft, dd 4.4 ft after 24 hours discharge.
259-817-1	do.	D. Beals	1960	Drl	r33	--	--	do.	865	r3	1960	Sw	100	D	Anal; H_2S; yield 4 gpm (r).
259-818-1	do.	Bitterman Bros., Inc.	--	Drl	18.3	12, 6	--	do.	--	6.6	9-17-63	Sw	--	C, D	
259-820-1	do.	A. Winters	1960	Drl	22.6	6	--	Limestone	880	7.4	9-17-63	Sw	500	C, D	
259-822-1	do.	J. Daley	1956	Drl	70	6	--	Sand	900	27.1	8-19-64	Jet	200	D	Anal; H_2S.

This formation is hydrologically unique among the shale units in the region. Normally, because of its fine grain size and compact nature, shale does not yield much water to wells (typically less than 5 gpm). The Camillus Shale, however, is a significant water-bearing unit in this area due to the large amounts of gypsum contained in the formation. Because of its highly soluble nature, gypsum is easily removed by percollating ground waters, resulting in solution openings which are capable of storing large amounts of water.

This means, of course, that, like the Lockport Dolomite, water is found in localized zones within the unit rather than throughout the entire extent and thickness of the formation. Some of the thicker beds of gypsum may be expected to have a lateral extent of 3 to 4 miles.

Water reaches these zones by percolation through vertical fractures. The situation is therefore similar to the Lockport Dolomite, in which the primary function of vertical fractures is for recharge. Yields of successful wells tapping the Camillus Shale range from 300 gpm to 1,200 gpm. These large yields are due to the large amounts of water which are contained in the solution openings of the formation.

Ground water flow through the aquifer is toward Tonawanda Creek which is the major discharge point for this formation (Figure 13-5). Because of pumping effects, induced infiltration is occurring from Sawyer Creek along localized reaches.

Normal transmissibility values (T), range from 40,000 to 70,000 gpd/ft. In some areas, T is as low as 7,000 gpd/ft. This wide range in values is not dependent upon geographic location, but rather is a function of whether a given well intersects significant water-bearing openings. Low T-values can be expected where openings are not intersected.

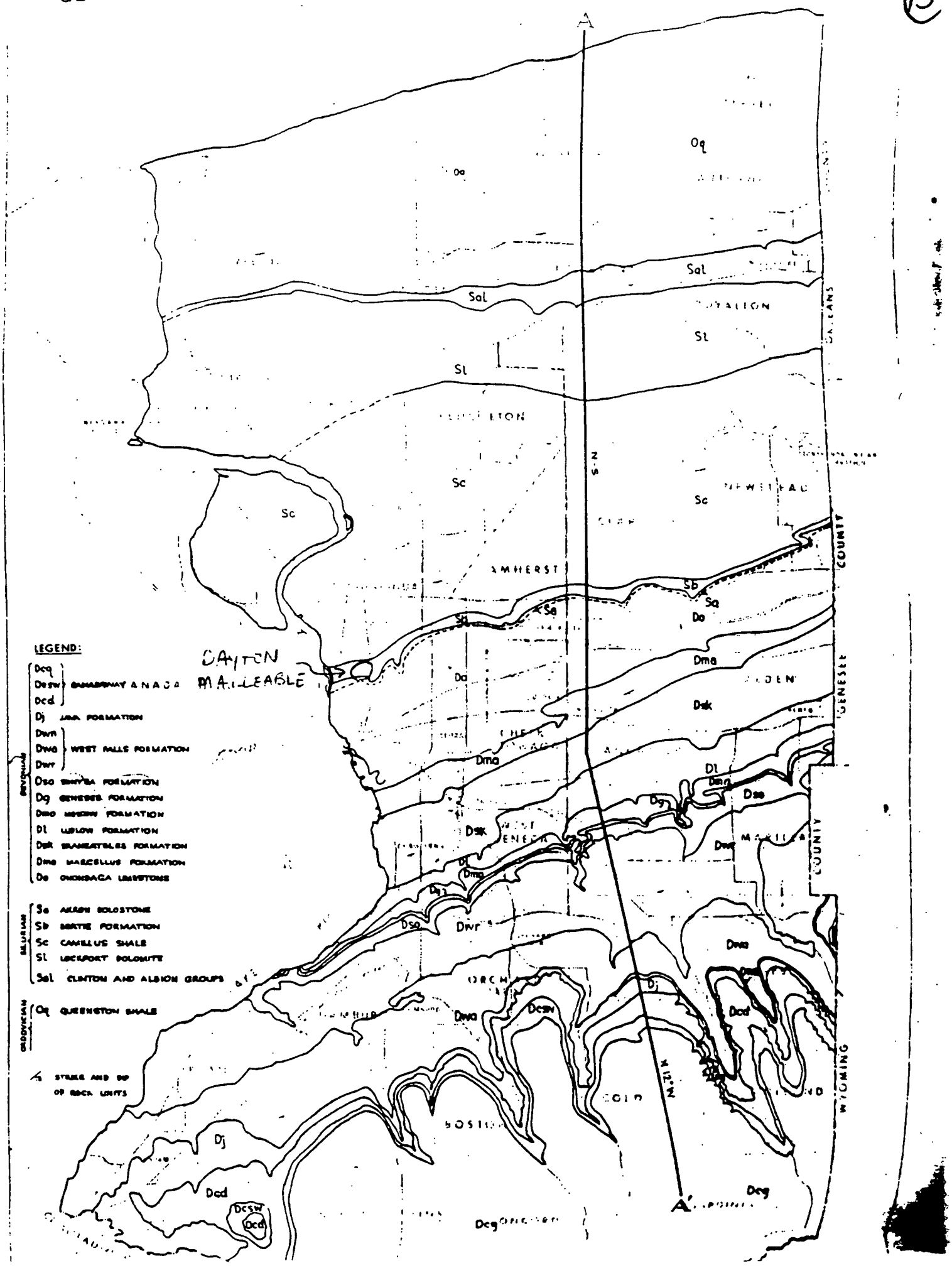
D. LIMESTONE UNIT

For hydrologic purposes, the Bertie, Akron, and Onodaga Formations can be collectively considered as a single aquifer, herein referred to as the Limestone Unit.

The total thickness of this southward dipping unit is roughly 174 feet, but variations occur locally. The composition, from the base to the top, consists of dolomite, dolomitic limestone with interbedded shale, greenish-grey and buff dolomite, limestone and cherty limestone.

The water-bearing characteristics are similar to the Lockport Dolomite. The greater solubility of this unit, however, has resulted in a more pronounced solution widening of the fractures. Principal zones of discharge are at the base of the unit where is contacts the Camillus shale, and a shaly zone about 20 feet above the base.

GENERALIZED GEOLOGIC MAP



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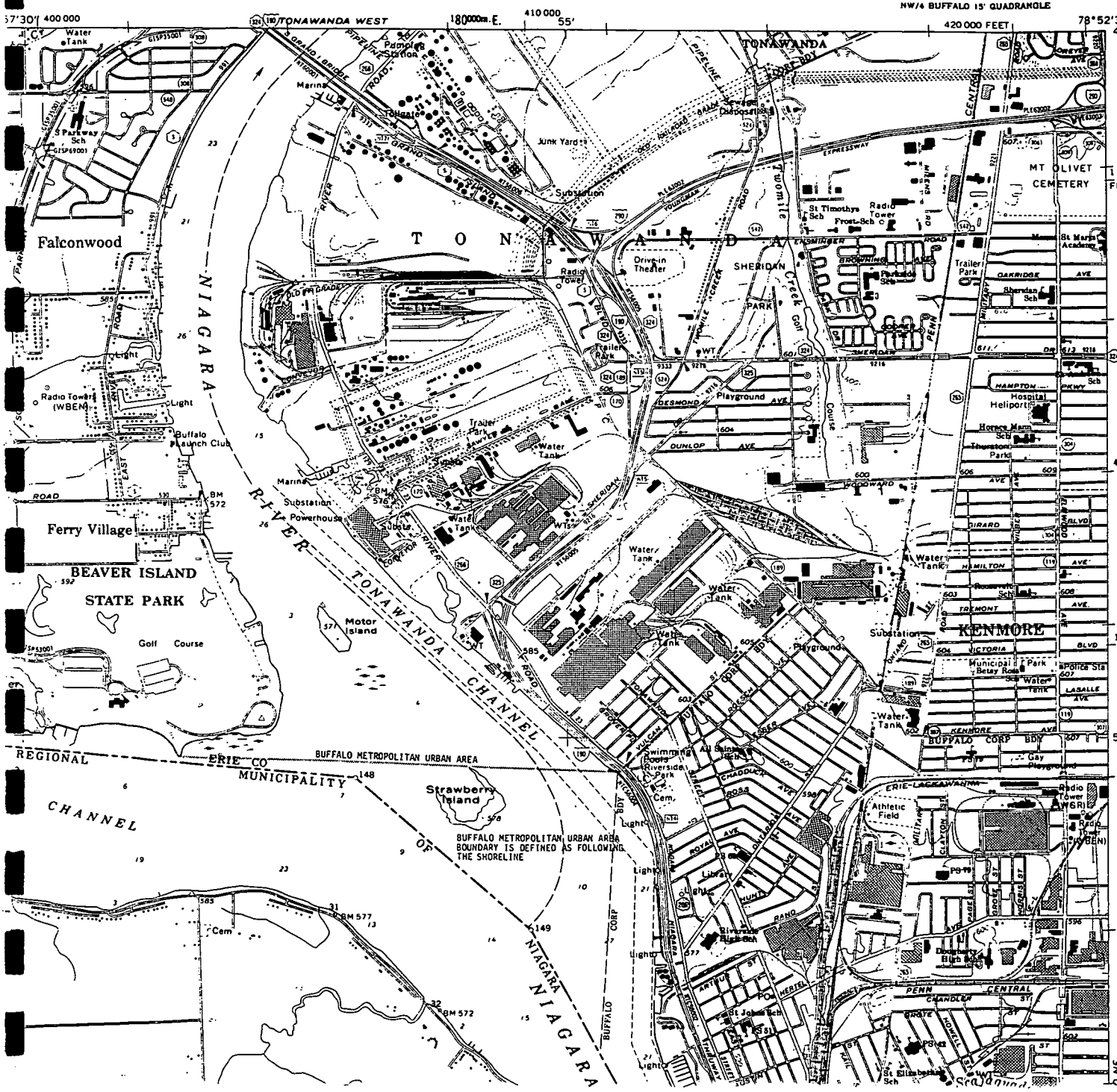
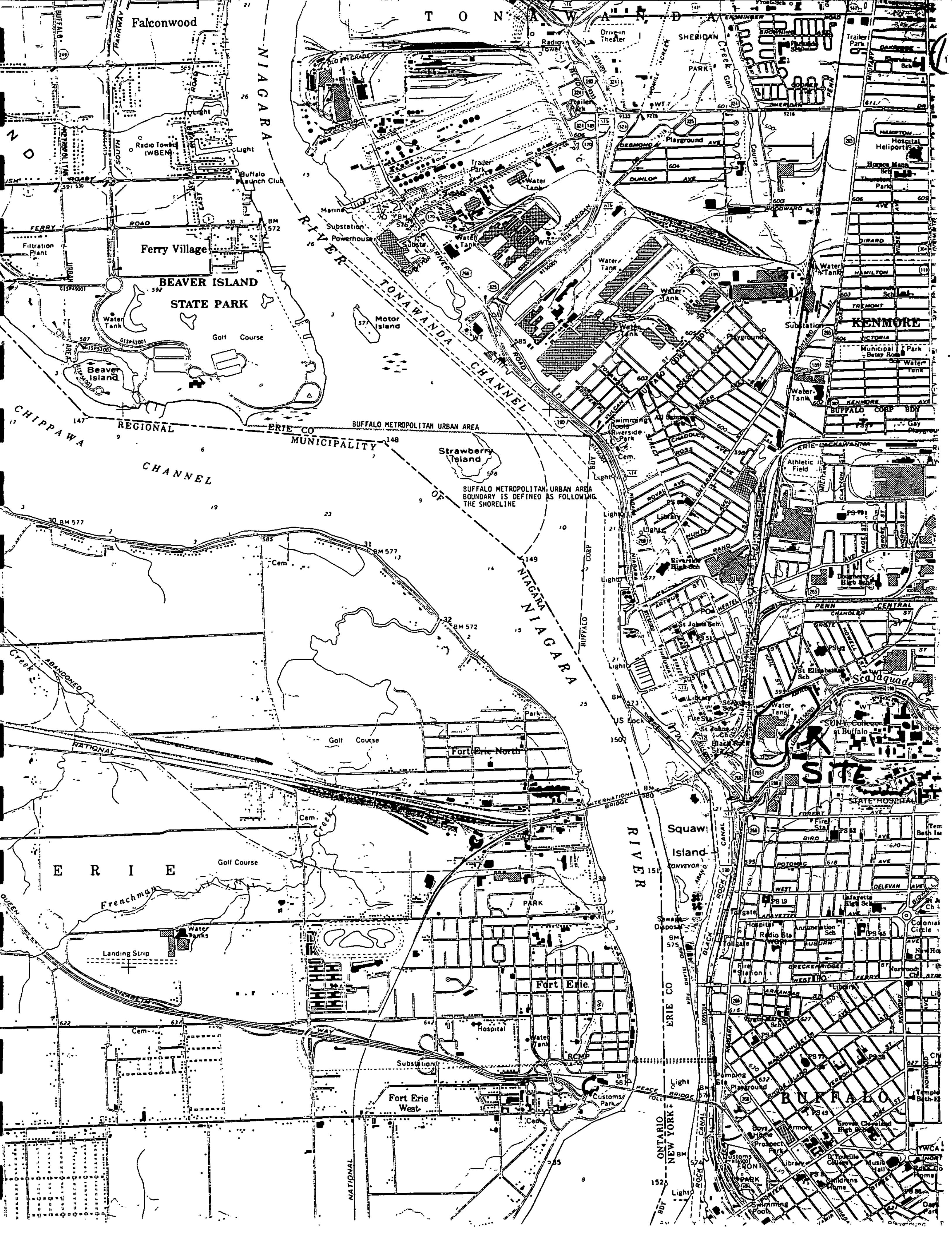
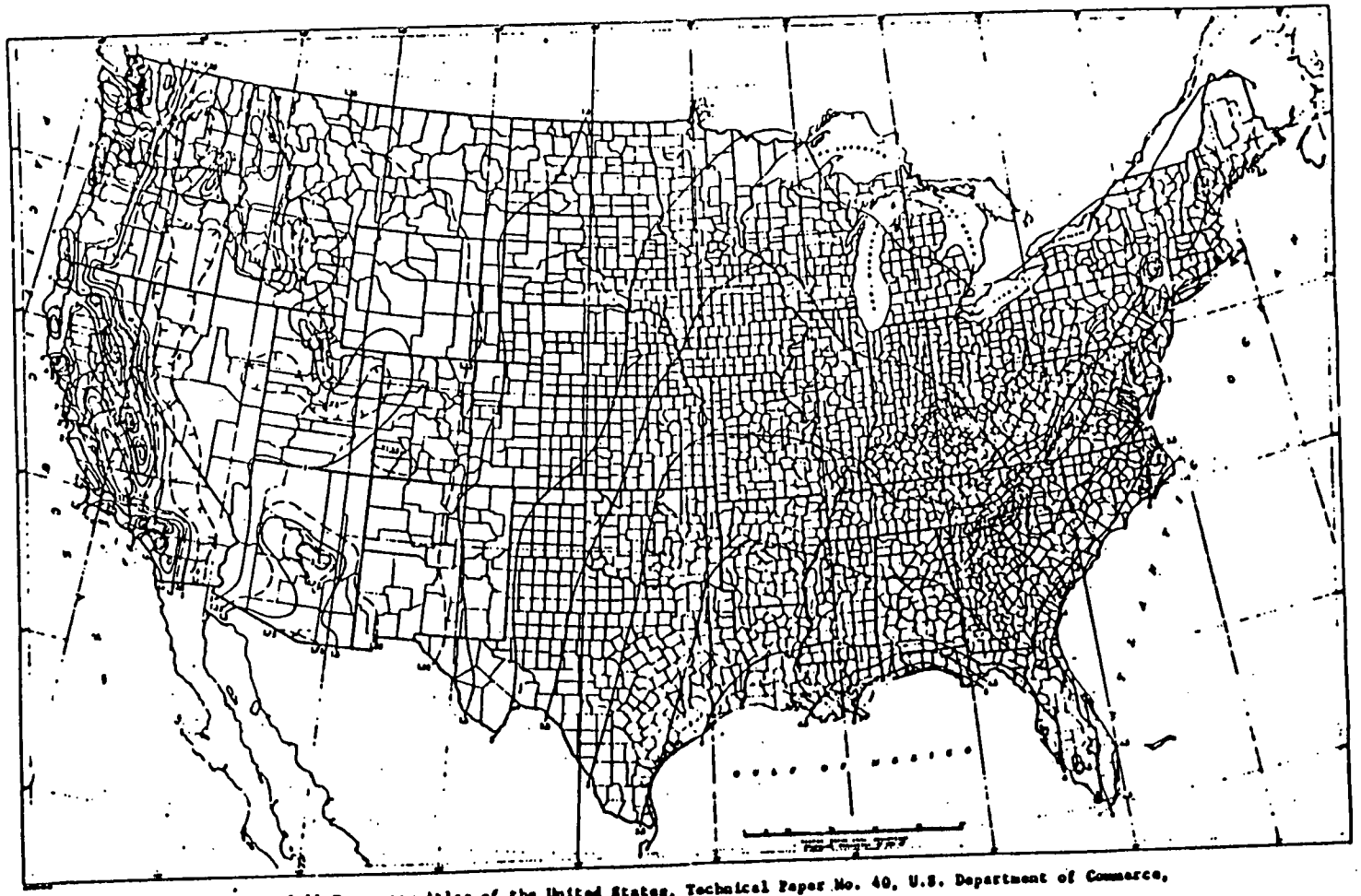
BUFFALO NW QUADRANGLE
NEW YORK—ONTARIO
7.5 MINUTE SERIES PLANIMETRIC
NW/4 BUFFALO 15' QUADRANGLE





TONAWANDA
Falconwood
Radio Tower (WBEN)
Buffalo Launch Club
Ferry Village
Filtration Plant
BEAVER ISLAND
STATE PARK
Golf Course
Beaver Island
Water Tank
NIAGARA RIVER
TONAWANDA CHANNEL
Motor Island
Strawberry Island
CHIPPAWA CHANNEL
REGIONAL MUNICIPALITY OF NIAGARA
ERIE CO
BUFFALO METROPOLITAN URBAN AREA
BUFFALO METROPOLITAN URBAN AREA BOUNDARY IS DEFINED AS FOLLOWING THE SHORELINE
SHERIDAN PARK
Drive-in Theater
Radio Tower
Trailer Park
Marina
Substation
Powerhouse
KENMORE
Municipal Park
Riverside Park
Riverside High Sch
Athletic Field
Penn Central
Scajaquada Cr
SUNY College at Buffalo
SITE
STATE HOSPITAL
US Lock
Squaw Island
INTERNATIONAL BRIDGE
Fort Erie North
Golf Course
ERIE
Frenchman Creek
Landing Strip
Water Tanks
NATIONAL
Fort Erie
Hospital
RCMP
Customs Park
Fort Erie West
Substation
PEACE BRIDGE
ONTARIO
NEW YORK
ERIE CO
BLACK ROCK CANAL
BUFFALO
Lafayette High Sch
Grover Cleveland High Sch
D'Youville College
Music Hall
Prospect Park
Front Park
Armory
Radio Sta (WGR)



Source: Rainfall Frequency Atlas of the United States, Technical Paper No. 40, U.S. Department of Commerce, U.S. Government Printing Office, Washington, D.C., 1963.

FIGURE 8
1-YEAR 24-HOUR RAINFALL
(INCHES)

Call on 3/25

CONTACT Mr Barron 716/873-0300

(18)

Site Inspection Checklist

Site Name PRATT & Letchworth

Site Location (Directions) 189 Tonawanda St, Buffalo, NY

Date/time 4/18/85 / 1:30 PM Weather Overcast, Warm 60°

Inspection Team John P. McAuliffe (ES) Dr. Eileen D. Gilligan (DTM)

Site Representatives Mr Lee Barron, Pratt + Letchworth (no card)

Other Parties No

SITE DESCRIPTION

____ 1. Prepare a site location sketch and site map (Figure 1) noting approximate area of site, site boundary, surface water features, streets, north arrow, access roads, containment or storage areas, impoundments, areas of contamination, odor and leachate or seepage areas, vegetative stress areas, monitoring well locations, areas of past waste surface water, sediment or soil sampling:

See attached site plan
Fill Area ~ 400 ft x 400 ft + Dumping along bank to fill stream
Squawaquada Creek, Swampy area, Oily seep
Oil stained Seep
SPDES outfall sampling

____ 2. Take 35mm photographs of significant site features. Provide a description and reference for each photo. Eileen took photos

a. _____

b. _____

c. _____

d. _____

e. _____

f. _____

g. _____

h. _____

i. _____

j. _____

8412J88

Site Map (Figure 1)

Interview w/ Lee Barron (has been w/ P+L for 22yrs, and is maintenance man at the facility)

1: Mr Barron was not aware of any on-site disposal in his 22yrs.

2. Recent environmental concerns:
   a. PCB transformers, still monitored quaterly w/ weekly inspections
   → b. 8/29/84 Barrels removed to Speedy Oil Service, Buffalo (m? only)
   c. SPDES Permit - last sampled 9/11/84 by URS

Outfall #	001	002	003
O + Grease	dry	dry	4.1
Iron	↓	↓	0.13
pH			18°c
temp			7.20

(Permit has been dropped according to Barron)

Results reported to: Daton Malleable Inc. ← Present Owner?

   d. 7/29/82 Samples taken of foundry sand, and from around the stream (Eileen has report info)

Results Reported to: Bonser Mormer
420 Davis Ave
Dayton, OH 45401

3. Past environmental concerns
   a. Dusts were trucked off-site during operations to:
      Niagara Sanitation
      Dowing Container Service
      191 Gason St. Buffalo, NY
   b: Barron did not know where other wastes were sent.

Site tour

1. Obvious dumping along the whole Squajaqueada River Bank
2. Barron said that the River had been much wider and filled in
3. Main fill area - see map
4. Drums identification difficult:
   a Niagara Lubricant Co.
   b. [illegible] - Chem Reg
   c. Phosphoric Acid "Corrosive" [illegible]

841 2J88

OBSERVATIONS

Site Status - Factory is completely shut down
Large scale dumping likely did not occure in the past 20 yrs.
Small scale dumping may have occured outside the fence, along the river more recently (maybe 10-20 truck loads, < 300 cy) e Drums present

Accessibility - Describe potential for direct contact at site (i.e. are there any fences, gates, security guard, natural barriers, etc.)
The site is completely fenced with the gate at all access roads locked. Maintenance or Security Person at site. Unauthorized access may be a problem along the river.

Waste types - Describe type quantity, and physical state of wastes present The fill area may cover ~4 acres to a depth of ~15' at the river. Drums were found around the site (100 - 150 empty, 70-100 full and leaking, inside and out, contents unknown)

Storage of wastes - Record number, condition and location of drums, tanks, surface impoundments, etc. See above and site map

Contamination - record any visual evidence of contamination

a. HNU Meter readings upwind and downwind Not used
b. Odor Not Obvious
c. Vegetative stress N/O
d. Drum/Tank leakage 70-100 inside and out (contents unknown)
e. Visible leachate, seepage Oil stained seep (Northern corner)
f. Surface discoloration Around existing or past drum storage areas
g. Surface water Wet Area west side of site

Containment - Record presence and characteristic features of natural or manmade containment measures such as dikes, barriers, pits, slurry walls, etc. Some drums are stored inside on broken concrete floors

(18)

Facility Management Practices - Describe based on personnel interviews and site visit See page 2 - interview notes

Remedial Actions - Record status and extent of any remedial activity such as:

~~a.~~ Liners, dike, barrier walls _____

~~b.~~ Monitoring wells _____

c. Access restrictions Fenced Plant

~~d.~~ Leachate/waste treatment _____

e. Drum/soil/waste removal Spady Oil Service removed drums

~~f.~~ Covers, Surface water diversions _____

Area land use - Note proximity of residental areas, industrial commercial entities and any environmentally sensitive areas Residential area directly north of site on Amherst St

Signature John McAuliffe

Date 4/19/85

8412J88

(19)

New York State Department of Environmental Conservation
FISH AND WILDLIFE DIVISION - REGION 9
600 Delaware Avenue, Buffalo, New York 14202-1073
(716) 847-4550

Thomas C. Jorling
Commissioner

September 2, 1987

Ms. Elizabeth M. Dobson
Engineering-Science
290 Elwood Davis Road
Liverpool, New York 13088

Dear Ms. Dobson:

This letter will serve as verification that I traced NYS designated wetland boundaries on the accompanying maps. The boundaries shown are from official Department of Environmental Conservation Maps promulgated on September 10, 1986 (Erie County) and December 5, 1984 (Niagara County).

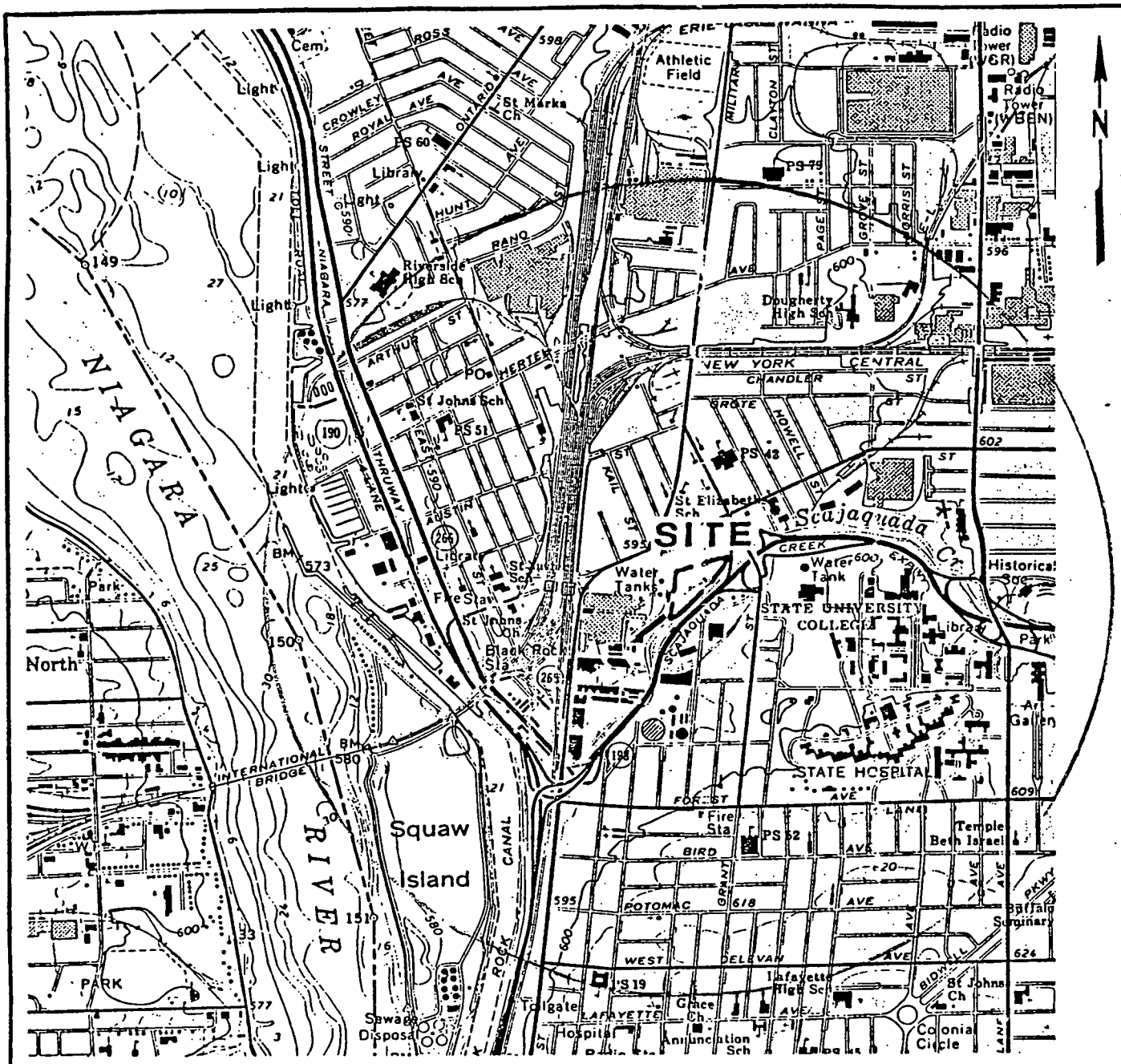
Very truly yours,

James F. Farquhar III
Fish and Wildlife Division

JFF:slm

cc: Mr. Gordon R. Batcheller

Enclosures



LATITUDE: 42°56'06"
LONGITUDE: 78°53'45"

Erie County

SCALE
0 1000 2000 3000 4000 FEET

REFERENCE: U.S.G.S. 7.5' Topographic Map
Buffalo NW, NY-ONT. (1965) Quadrangle

ENGINEERING-SCIENCE, INC.
IN ASSOCIATION WITH
DAMES & MOORE

NEW YORK STATE DEPARTMENT
OF ENVIRONMENTAL CONSERVATION
PHASE I REPORT

SITE LOCATION MAP
PRATT & LETCHWORTH

FIGURE iv-1

INTERVIEW FORM

INTERVIEWEE/CODE John W. Ozard /

TITLE - POSITION Senior Wildlife Biologist

ADDRESS WRC New York State DEC

CITY Delmar STATE NY ZIP 12054

PHONE (518) 439-7488 RESIDENCE PERIOD _____ TO _____

LOCATION phone conversation INTERVIEWER W. Bradford

DATE/TIME 4/14/88 / 11:00 AM

SUBJECT: Critical habitats in New York state.

REMARKS: There are no federally designated critical habitats of endangered species located within New York state.

I AGREE WITH THE ABOVE SUMMARY OF THE INTERVIEW: John W. Ozard

SIGNATURE: John W. OZARD

COMMENTS:

US CENSUS DATA, 1980

US Census Data used in the HRS scoring was obtained from various County Planning Offices. This data was not obtained from a report. The raw census data combined with County Planning Maps was used to estimate the population within 1, 2, 3, and 4 miles of the Phase II site being investigated. Because of the voluminous amount of data used, the data is not provided in this Appendix.

(22)

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

Federal Register

Tuesday
March 1, 1983

23

Part III

Department of the Interior

National Park Service

National Registry of Natural Landmarks

ES ENGINEERING-SCIENCE COMPANIES

(24)

MEMORANDUM TO FILE

JOB NO. 57012.12

FILE DESIGNATION Pratt-Letchworth

DATE 5/4/89 TIME 10:15

PHONE CALL FROM W. Bradford PHONE NO.

PHONE CALL TO Jim Hollander / Amcast PHONE NO (513) 298-5251

CONFERENCE WITH

PLACE

SUBJECT Current status of P&L — Ind. ownership

Spoke to Mr. Hollander's Secy. She confirmed that Tops Markets Inc. had purchased part of the P&L site. The remainder of the site has been sold to "189 Tonawanda Street Corp." She did not know the intended use for either portion, but assumed that Tops would build a market. The telephone number for "189... Corp" is (716) 873-0300. Amcast no longer owns any of the site.

SIGNED William L. Bradford

Site Map (Figure 1)

Interview w/ Lee Barron (has been w/ P+L for 22yrs, and is maintenance man at the facility)

1. Mr Barron was not aware of any on-site disposal in his 22 yrs.

2. Recent environmental concerns:
   - a. PCB transformers, still monitored quaterly w/ weekly inspections
   - b. 8/29/84 Barrels removed to Speedy Oil Service, Buffalo (non-haz.)
   - c. SPDES Permit - last sampled 9/11/84 by URS

Outfall #	001	002	003
O + Grease	dry	dry	4.1
Iron	↓	↓	0.13
pH			18°c
temp			7.20

(Permit has been dropped according to Barron)

Results reported to: Dayton Malleable Inc.

- d. 7/29/82 Samples taken of foundry sand, and from around the stream (Eileen has report info) — Present Owner?

Results Reported to: Bowser Morner
420 Davis Ave
Dayton, OH 45401

3. Past environmental concerns
   - a. Waste were trucked off-site during operations to:

Niagara Sanitation
Dowing Container Service
191 Gibson St. Buffalo, NY

   - b. Barron did not know where other wastes were sent.

Site tour

1. Obvious dumping along the whole Squajaqueada River Bank
2. Barron said that the River had been much wider and filled in
3. Main fill area - see map
4. Drums ~~identification difficult~~:
   - a. Niagara Lubricant Co.
   - b. United Barrel - Chem Reg " Corrosive " 8050 8051
   - c. ~~Phosphoric Acid~~
   - d. Ashland Chemical

B-4

8412J88

COUNTY OF ERIE

DEPARTMENT OF ENVIRONMENTAL QUALITY

MEMORANDUM

(26)

FROM Edythe Strait and Richard J. Urbanek DATE April 30, 1976

TO Fuad L. El-Ibrashi

SUBJECT Pratt and Letchworth, Oil Spill

At 7:00 a.m., April 28, 1976, the Pratt and Letchworth personnel noticed oil seeping into the Scajaquada Creek. The Pratt and Letchworth Company is located on Tonawanda Road and their backyard extends all the way to that Creek.

They called the Coast Guard and a private firm, The Elmwood Tank Company.

Pratt and Letchworth has two permanent booms that cover a large area of the Creek to a distance of about 15 feet from the bank. During this incident, they installed two other temporary booms all across the Creek. At 9:00 the Elmwood Tank people started pumping the oil out from the confinements of the boom. At 10:00 a.m. the Coast Guard came and took some samples. Our office was alerted to this matter by the Coast Guard at 9:30. Dick Urbanek and Edythe Strait left almost immediately and arrived around 10:15.

We noticed that a substantial amount of oil had already been pumped out from the confinement of one of the two permanent booms. The other permanent boom is located further upstream and was not involved in this spill.

Pratt and Letchworth had sent two crews, one in a boat and one on foot, to pack a large number of absorbent pads alongside the bank to absorb any oils that could have somehow escaped the booms. There was not much oil outside the permanent booms any way. The crews covered a distance of about 100 yards from the spill, both upstream and downstream. However, most of the oil was floating upstream due to the prevailing winds.

It is suspected that the oil originated from a 6,000 gallon tank located inside one of Pratt and Letchworth's buildings some distance away from the Creek. The tank is used for storage of a quenching oil.

Mr. Carl Hitchcock of Elmwood Tank said that they had pumped out about 200 gallons of a light quenching oil of low viscosity. This further indicates that the spill had occurred from that tank.

While we were there, Pratt and Letchworth had started to pump out the 6,000 gallon tank presumably to check for leaks. However, on contacting the Company the following day, they said that they never pumped out the whole tank because they found that it was not leaking.

They said that the cause of the spill was due to the erroneous opening of a valve, that caused the unintentional flow of oil into the Creek. The Pratt and Letchworth Company promised to send us a detailed explanation of the incident.

We left the site at 11:30. Dick Urbanek went back to the site of the spill at 1:00 p.m. and said that he saw the crews were still working at the spill.

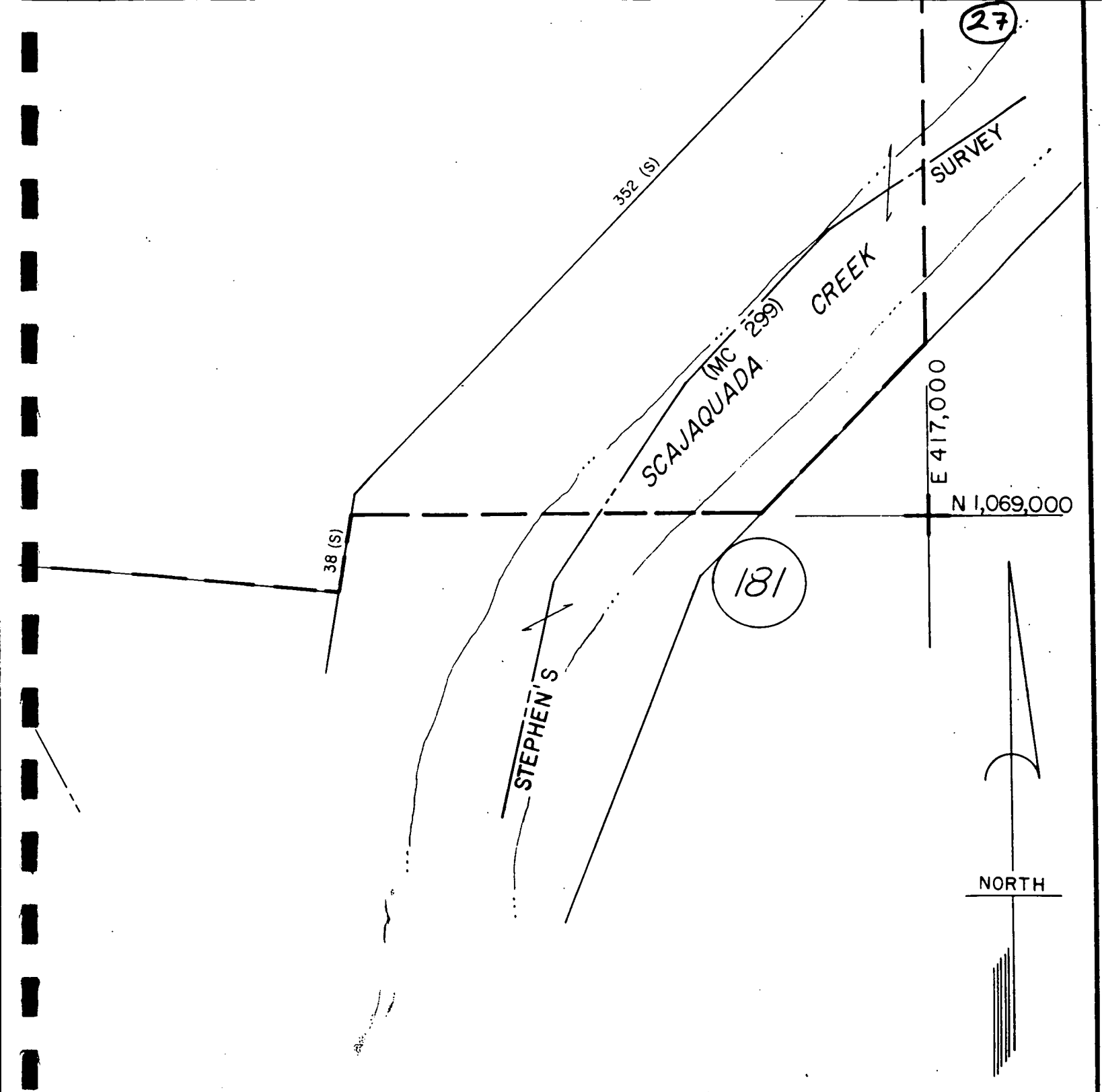
We spend a lot of time on spills. Can you ... authority?

(26)

Late in the day on April 29, 1976, Mr. Ibrashi was contacted by the Courier Express; and after consulting with Dick Urbanek, he gave the newspaper an account of the incident. This account appeared in their April 30 edition.

On April 29, 1976, Edythe Strait went back and took a sample from the dike and another from the tank and sent them to the lab for analysis.

ED/RJU/sz



NEW YORK STATE RESERVATION

088.34	088.34	088.35
088.41		088.43
088.49	088.50	088.51

SHEET INDEX

088.42

TAX MAP

CITY OF BUFFALO

ERIE COUNTY, NEW YORK

50 0 50

GRAPHIC SCALE
1" = 50'

MAP DATE 12-11-81 DAB

TD #8

(28)

INTERVIEW FORM

INTERVIEWEE/CODE Mr. Reid /

TITLE - POSITION Security OFFICER

ADDRESS 16 Reed Street

CITY Buffalo STATE NY ZIP 14212

PHONE(W) (716) 873-0300 RESIDENCE PERIOD 1963 TO present

LOCATION Telephone Interview INTERVIEWER S. Robert STEELE

DATE/TIME 26 February 1985 / 4:30 PM

SUBJECT: Pratt & Letchworth inactive disposal site

REMARKS: The MINER Industries and Pratt and Letchworth companies operated the foundary manufacturing operations at the Pratt and Letchworth site. The Pratt and Letchworth company operated the foundary at the site from 1814 until the foundry was closed in approximately 1981. Minor Industries operated at the site from at least the early 1960's (estimated) until the facility was closed. The Electric State Parts, of which Mr. Letchworth was part owner, owned the Pratt and Letchworth site during the years that the foundry was in operation until the plant was closed. The current owner of the Pratt and Letchworth site is Amcast Industries located in Dayton, OHIO. The foundry past operations was related to the manufacturing of railroad parts.

I AGREE WITH THE ABOVE SUMMARY OF THE INTERVIEW:

SIGNATURE:

COMMENTS:

(29)

INTERAGENCY TASK FORCE ON HAZARDOUS WASTES
M.P.O. Box 561
Niagara Falls, New York 14302
(716) 285-3057

I. General Information

1. Company Name: Pratt & Letchworth Division

Mailing Address: 189 Tonawanda Street, Buffalo, New York 14226
Street / City / State / Zip

Present Plant Location: [xxx] Same as Above

Street / City / State / Zip

2. If Subsidiary or Division, Name of Parent Company: Dayton Malleable, Inc

3. Person Responsible for Present Plant Operations: Kenneth Schroeder
Name

General Manager — 873-0300
Title / Telephone

4. Person Answering this Questionnaire: Jack R. Stark
Name

Operations Manager — 873-0300
Title / Telephone

II. Company History

1. Date Company Founded: 1848

Date and State of Incorporation: Pratt & Letchworth was purchased by Dayton Malleable in 1923. Dayton Malleable incorporated in the state of Ohio in 1869.

Date Company Began Operations in Erie or Niagara County: 1848

2. Other Company Names since 1930 (specify time periods): Dayton Malleable Iron Company changed its name to Dayton Malleable Inc. in 1973.

3. Other Plant Locations in Erie or Niagara County since 1930 (specify locations and time periods): None

4. Names of Companies Acquired which have Operated Plants in Erie or Niagara County since 1930 (specify name of company, date of acquisition, location of plant, and periods of operation): None

III. Company Personnel - See Separate Sheet

1. Identify all plant managers from 1930 to present. Indicate years of service in that position, last known address and telephone number.

2. Identify all plant purchasing agents from 1930 to present. Indicate years of service in that position, last known address and telephone number.

3. Identify all plant personnel with supervisory responsibility for treatment or disposal of industrial wastes from 1930 to present. Indicate years of service, last known address and telephone number.

IV. Industrial Waste Production, Treatment and Disposal

1. Processes Used at Plant (1930-1975) — Dates

a.	#1 Dry Sand Scrubbers - National Engineering Co	a. 1954
b.	#2 Dry Sand Scrubbers - National Engineering Co	b. 1967
c.		c.
d.		d.
e.		e.

2. Products (1930-1975)

a.	Malleable Castings	a. 1848-1900
b.	Railroad Steel Castings	b. 1900 - Present
c.	Forging Steel	c. About 1900 -Present
d.		d.
e.		e.

3. On Site Waste Treatment (1930-1975)

a.	#1 Dry Sand Reclaimer - National Engineering Co	a. 1954
b.	#2 Dry Sand Reclaimer - National Engineering Co	b. 1967
c.		c.
d.		d.
e.		e.

4. List all Waste Haulers since 1930 including Your Company

Name William E. Beck Trucking

Address Highgate Avenue, Buffalo, New York
(Street / City / State)

Telephone Unknown - 1949 thru estimate 1955 - Now deceased

Name Downing Container Service

Address 191 Ganson Street, Buffalo, New York 14203
(Street / City / State)

Telephone 853-6117

Pratt & Letchworth Division
189 Tonawanda Street
Buffalo, New York 14207
873-0300

0 1976

5. Identify all Treatment or Disposal Sites in Erie or Niagara County used since 1930 (use separate sheet for each site).

a. Name of Site: Pratt and Letchworth Division

b. Location: 189 Tonawanda Street, Buffalo, New York 14207

c. Owner or Operator: Owner

d. Time Period Site was Used: 1949 through 1965 (est.)

e. Describe Waste Types Treated or Disposed at this Site

	Physical State	Total Quantity	Type of Conta If Any
(1) Sand	Bulk	1200 ton year	-
(2) Slag	Bulk	1000 ton year	-
(3) Paper & Wood	Bulk	3000 cu yds year	-
(4) Oil- Motor & Hydraulic	Used	5-55 gal drums weekly	Drums
(5)			

f. Wastes Were [xxx] land disposed [xxx] incinerated [ ] reclaimed [ ] treated [ ] other (specify)

g. Names of waste haulers including your company transporting such wastes to this site, if a disposal site.

Pratt & Letchworth Div. — Name — 873-0300 Telephone

189 Tonawanda Street, Buffalo, New York 14207 — Street — City — State

Time Periods such Hauler Transported to this Site: 1949-1965 (est.)

Name — Telephone

Street — City — State

Time Periods such Hauler Transported to this Site:

h. List Names and Addresses of other Companies using this Site, if a disposal site.

Name of Company

Street — City — State

Time Periods such Other Company Used this Site:

Stream Classification

6 NYCRR Volume E

Site Name	Stream	Classif.	Standards	Reference Article	Reference Part #	Reference Map
Fordville	Delaware R	A	A(T) Trout	4	815	N-19
Quail Brook	Fall Kill	C	C	10	862	N-24
Norton	Mettawee R	C	C(T)	7	830	6:26
Copeland	Volatile Kill Trib.	D	D	10	863	K-25 SE
VanBuren	Waterbase Creek	D	D	14	897	6:14
	Oswego River	C	C	14	897	6:14
LeRoy	Mud River	D	D	5	821	J-8 NW
	Trib to Oatka Creek	D	D			
Ontario Bridge	Ishua Creek	C	C(T)	1	801	1
Buffalo Pumps	Niagara River	A*	A*	8	837	2
Pratt-Letchworth	Scajaquada Creek	B	B	8	837	6
MacNaughton-Brooks	Buffalo River	D	D	8	837	6
Thistle Ryder	Niagara River	A*	A*	8	837	1
Nash Rd	Sawyer Creek	D	D	8	837	2
Lancaster Rec.	N. Branch Plum Creek (Bottom)	D	D	8	837	7
Mina	French Creek Trib.	D	D	1	800	2
Fox Rd-Erie C	Jennings Creek	B	B	8	837	10
Allied	Buffalo R.	D	D	8	837	6
Ashland	Niagara R	A*	A*	8	837	6
	Two Mile Creek	B	B	8	837	2
Split Rock						
Onondaga L.						
SWOCO						

800 - French Creek D. Basin / 801 - Olean Creek / 837 L. Erie - N. River D. Basin / 897 Oswego River / 821 Lower Hudson 815 - Delaware R / 830 - Champlain - Mettawee Sub-basin

* - Special International boundary waters

(31)

02-8611-67-SR
REV. NO. 0

FINAL DRAFT
SITE INSPECTION REPORT
DAYTON MALLEABLE
BUFFALO, NEW YORK

COMPLETED

PREPARED UNDER

TECHNICAL DIRECTIVE DOCUMENT NO. 02-8611-67
CONTRACT NO. 68-01-7346

FOR THE

ENVIRONMENTAL SERVICES DIVISION
U.S. ENVIRONMENTAL PROTECTION AGENCY

JULY 14, 1988

NUS CORPORATION
SUPERFUND DIVISION

SUBMITTED BY:

Peter C. Babich

PETER C. BABICH
SITE MANAGER

REVIEWED/APPROVED BY:

Ronald M. Naman

RONALD M. NAMAN
FIT OFFICE MANAGER

(32)

ment Made 1/26/77 by Sam
or Phone Visit 3/2/77 by BWK
/ / by
Completed / / by BWK
Comments:

EDGAR JARAMILLO S.F. compl

Company Name PRATT & LETCHWORTH
Address 189 TONAWANDA ST.
BUFFALO, N.Y.
County Phone 873-0300
SIC Codes 1. 3.
2. 4.

New York State Hazardous Waste Survey
Department of Environmental Conservation
Division of Solid Waste Management
50 Wolf Road, Albany, N.Y. 12233 Telephone: (518) 457-6605

I. General Information

1. Company Name Pratt & Letchworth

Mailing Address 189 Tonawanda St Buffalo N.Y. 14207
Street City State Zip

Plant Location [X] Same as above

Street City State Zip

2. If Subsidiary, Name of Parent Company DAYTON [illegible]

3. Individual Responsible for Plant Operations MR JACK STOCK
Name

GENERAL MGR 873-0300
Title Phone

4. Individual Providing Information EDGAR JARAMILLO
Name

DRAFTSMAN
Title Phone

5. Department of Environmental Conservation Interviewer BWK

6. Standard Industrial Classification (SIC) Codes for Principal Products

Group Name	SIC Code (4 Digit)	Approximate % of [X] Production / / Value Added
a. PRIMARY METALS	3324	100
b.		
c.		
d.		

7. Processes Used at Plant
a. CASTING
b.
c.
d.
e.

8. Products
a. STEEL CASTINGS
b.
c.
d.
e.

ıste Characterization and Management Practice
.se separate form for each waste stream)

1. Waste Stream No. 1 (from Form I, Number 17)

2. Description of process producing waste [illegible] and ladles

3. Brief characterization of waste ______

4. Time period for which data are representative Jan 1, 1976 to Dec 31, 1976

5. a. Annual waste production 7,346 [X] tons/yr. [ ] gal./yr.

   b. Daily waste production ______ [ ] tons/day [ ] gal./day

   c. Frequency of waste production: [ ] seasonal [ ] occasional [ ] continual

   [ ] other (specify) ______

6. Waste Composition

   a. Average percent solids 100 % b. pH range __ to __

   c. Physical state: [ ] liquid, [ ] slurry, [ ] sludge, [X] solid,

   [ ] other (specify) ______

   d. Component

Component	Average Concentration	[ ] wet weight / [ ] dry weight
1. Slag		[ ] wt.% [ ] ppm
2. [illegible]		[ ] wt.% [ ] ppm
3. [illegible]		[ ] wt.% [ ] ppm
4.		[ ] wt.% [ ] ppm
5.		[ ] wt.% [ ] ppm
6.		[ ] wt.% [ ] ppm
7.		[ ] wt.% [ ] ppm
8.		[ ] wt.% [ ] ppm
9.		[ ] wt.% [ ] ppm
10.		[ ] wt.% [ ] ppm

materials and other chemicals used in manufacturing processes.

Sand	f. [illegible]
Bentonite	g. [illegible]
c. [illegible]	h. [illegible]
d. [illegible]	i.
e. [illegible]	j.

0. a. On Site Waste Water Treatment / /Yes /X/No

b. On Site Waste Water Treatment by July 1977 / /Yes /X/No

c. On Site Waste Water Treatment by July 1983 / /Yes /X/No

d. Industrial Sewer Discharge / /Yes /X/No Name of Sewage Treatment Plant ______

e. SPDES No. 0031225 NPDES No. ______

1. a. Air Pollution Control Devices /X/Yes / /No Types DRY TYPE DUST COLLECTORS

b. To Be Built / /Yes / /No by / /

c. Air 100 Emission Point Registration Numbers 140200 1145

2. a. Number of manufacturing employees 436 b. Manufacturing Floor Space 256,[illegible] sq.ft.

3. Attach a plat or sketch of the facility showing the location of on-site process waste storage (if available).

4. Attach flow diagrams of chemical processes including waste flow outputs (if available).

5. In-house waste treatment capabilities: NONE

6. Is there a currently used or abandoned landfill dump or lagoon on plant property? /X/Yes / /No

7. Industrial wastes produced or expected to be produced by plant.
1) BRICK FROM FURNACES + LADLES
2) SLAG " " } 1
3) CEMENTS
4) ORGANIC SOLIDS : PAPER WOOD DIRT [illegible]
5) DUST FROM DUST COLLECTORS ([illegible] CONTAINED)
6) Sand
7)
8)

8. Comments:

e. Analysis of composition is / /theoretical / /laboratory / /estimate
(attach copy of laboratory analysis if available)

f. Projected / /increase, / /decrease in volume from base year: ____% by July 1977;

____% by July 1983.

g. Hazardous properties of waste: / /flammable / /toxic / /reactive / /explosive
/ /corrosive /X/other (specify) NONE

7. On Site Storage

a. Method: / /drum, / /roll-off container, / /tank, / /lagoon, /X/other (specify) DOWNING BUCKET

b. Typical length of time waste stored____ / /days, / /weeks, / /months

c. Typical volume of waste stored____ / /tons, / /gallons

d. Is storage site diked? / /Yes /✓/No

e. Surface drainage collection / /Yes /✓/No

8. Transportation

a. Waste hauled off site by / /you /X/others

b. Name of waste hauler DOWNING CONTAINER SERVICE CO.

Address 191 GLENWOOD ST CHEEKTOWAGA
Street City
N.Y. 14203 (716) 853-3117
State Zip Code Phone

9. Treatment and Disposal

a. Treatment or disposal: / /on site /✓/off site

b. Waste is / /reclaimed / /treated /✓/land disposed / /incinerated

/ /other (specify)____

c. Off site facility receiving waste

Name of Facility____

Facility Operator____

Facility Location____
Street City
( )
State Zip Code Phone

ste Characterization and Management Practice
se separate form for each waste stream)

1. Waste Stream No. 2 (from Form I, Number 17)

2. Description of process producing waste _____

_____

_____

3. Brief characterization of waste _____

_____

_____

4. Time period for which data are representative _____ to _____

5. a. Annual waste production 2 000 /X/tons/yr. / /gal./yr.

b. Daily waste production _____ / /tons/yr. / /gal./yr.

c. Frequency of waste production: / /seasonal / /occasional / /continual

/ /other (specify) _____

6. Waste Composition

a. Average percent solids ____% b. pH range __ to __

c. Physical state: / /liquid, / /slurry, / /sludge, / /solid,

/ /other (specify) _____

d. Component	Average Concentration	/ /wet weight / /dry weight	
1. Paper		/ /wt.%	/ /ppm
2. Wood		/ /wt.%	/ /ppm
3. Dirt		/ /wt.%	/ /ppm
4. Bottles		/ /wt.%	/ /ppm
5.		/ /wt.%	/ /ppm
6.		/ /wt.%	/ /ppm
7.		/ /wt.%	/ /ppm
8.		/ /wt.%	/ /ppm
9.		/ /wt.%	/ /ppm
10.		/ /wt.%	/ /ppm

e. Analysis of composition is /_/theoretical /_/laboratory /_/estimate
(attach copy of laboratory analysis if available)

f. Projected /_/increase, /_/decrease in volume from base year: _____% by July 1977;

_____% by July 1983.

g. Hazardous properties of waste: /_/flammable /_/toxic /_/reactive /_/explosive
/_/corrosive /_/other (specify) NONE

8. On Site Storage

a. Method: /_/drum, /_/roll-off container, /_/tank, /_/lagoon, /_/other(specify) DOWNS

b. Typical length of time waste stored 2 /X/days, /_/weeks, /_/months

c. Typical volume of waste stored _____ /_/tons, /_/gallons

d. Is storage site diked? /_/Yes /X/No

e. Surface drainage collection /_/Yes /X/No

9. Transportation

a. Waste hauled off site by /_/you /X/others

b. Name of waste hauler DOWNS

Address _____
Street City

_____ ( )
State Zip Code Phone

10. Treatment and Disposal

a. Treatment or disposal: /_/on site /X/off site

b. Waste is /_/reclaimed /_/treated /X/land disposed /_/incinerated

/_/other (specify) _____

c. Off site facility receiving waste

Name of Facility _____

Facility Operator _____

Facility Location _____
Street City

_____ ( )
State Zip Code Phone

...te Characterization and Management Practices
...e separate form for each waste stream)

1. Waste Stream No. 3 (from Form I, Number 17)

2. Description of process producing waste Dust Collectors

3. Brief characterization of waste

4. Time period for which data are representative YR 1976 to

5. a. Annual waste production 2 400 [X] tons/yr. [ ] gal./yr.

b. Daily waste production [ ] tons/yr. [ ] gal./yr.

c. Frequency of waste production: [ ] seasonal [ ] occasional [ ] continual

[ ] other (specify)

6. Waste Composition

a. Average percent solids 10 % b. pH range __ to __

c. Physical state: [ ] liquid, [ ] slurry, [ ] sludge, [X] solid,

[ ] other (specify)

d. Component	Average Concentration	[ ] wet weight [ ] dry weight	
1.		[ ] wt.%	[ ] ppm
2.		[ ] wt.%	[ ] ppm
3.		[ ] wt.%	[ ] ppm
4.		[ ] wt.%	[ ] ppm
5.		[ ] wt.%	[ ] ppm
6.		[ ] wt.%	[ ] ppm
7.		[ ] wt.%	[ ] ppm
8.		[ ] wt.%	[ ] ppm
9.		[ ] wt.%	[ ] ppm
10.		[ ] wt.%	[ ] ppm

e. Analysis of composition is /_/theoretical /_/laboratory /_/estimate
(attach copy of laboratory analysis if available)

f. Projected /_/increase, /_/decrease in volume from base year: _____% by July 1977;

_____% by July 1983.

g. Hazardous properties of waste: /_/flammable /_/toxic /_/reactive /_/explosive
/_/corrosive /X/other (specify) NONE

8. On Site Storage DUNNING

a. Method: /_/drum, /_/roll-off container, /_/tank, /_/lagoon, /X/other (specify) BUCKET

b. Typical length of time waste stored _____ /_/days, /_/weeks, /_/months

c. Typical volume of waste stored _____ /_/tons, /_/gallons #1 1/wk

d. Is storage site diked? /_/Yes /X/No #2 5/wk

e. Surface drainage collection /_/Yes /X/No #4 4/wk

#5 1/mo.

9. Transportation

a. Waste hauled off site by /_/you /X/others

b. Name of waste hauler DUNNING Co.

Address _____
Street City

_____ ( )
State Zip Code Phone

10. Treatment and Disposal

a. Treatment or disposal: /_/on site /X/off site

b. Waste is /_/reclaimed /_/treated /X/land disposed /_/incinerated

/_/other (specify) _____

c. Off site facility receiving waste

Name of Facility _____

Facility Operator _____

Facility Location _____
Street City

_____ ( )
State Zip Code Phone

...to Characterization and Management Practices

...e separate form for each waste stream)

1. Waste Stream No. 1 (from Form I, Number 17)

2. Description of process producing waste Municipal waste

3. Brief characterization of waste Municipal sanitary

4. Time period for which data are representative _____ to _____

5. a. Annual waste production 11,000 ☒ tons/yr. / / gal./yr.

   b. Daily waste production _____ / / tons/yr. / / gal./yr.

   c. Frequency of waste production: / / seasonal / / occasional / / continual

   / / other (specify) _____

6. Waste Composition

   a. Average percent solids 10 % b. pH range __ to __

   c. Physical state: / / liquid, / / slurry, / / sludge, ☒ solid,

   / / other (specify) _____

d. Component	Average Concentration	/ / wet weight / / dry weight
1. _____	_____	/ / wt.% / / ppm
2. _____	_____	/ / wt.% / / ppm
3. _____	_____	/ / wt.% / / ppm
4. _____	_____	/ / wt.% / / ppm
5. _____	_____	/ / wt.% / / ppm
6. _____	_____	/ / wt.% / / ppm
7. _____	_____	/ / wt.% / / ppm
8. _____	_____	/ / wt.% / / ppm
9. _____	_____	/ / wt.% / / ppm
10. _____	_____	/ / wt.% / / ppm

e. Analysis of composition is /_/theoretical /_/laboratory /_/estimate
(attach copy of laboratory analysis if available)

f. Projected /_/increase, /_/decrease in volume from base year: _____% by July 1977;

_____% by July 1983.

g. Hazardous properties of waste: /_/flammable /_/toxic /_/reactive /_/explosive
/_/corrosive /X/other (specify) NONE

8. On Site Storage

a. Method: /_/drum, /_/roll-off container, /_/tank, /_/lagoon, /X/other (specify) TRUCK PICK UP

b. Typical length of time waste stored 1 /_/days, /X/weeks, /_/months

c. Typical volume of waste stored _____ /_/tons, /_/gallons (STORED IN BUILDING)

d. Is storage site diked? /_/Yes /X/No

e. Surface drainage collection /_/Yes /X/No

9. Transportation

a. Waste hauled off site by /X/you /_/others

b. Name of waste hauler Pratt & Lambert

Address _____
Street City

_____ ( )
State Zip Code Phone

10. Treatment and Disposal

a. Treatment or disposal: /_/on site /_/off site

b. Waste is /_/reclaimed /_/treated /X/land disposed /_/incinerated

/_/other (specify) _____

c. Off site facility receiving waste

Name of Facility Seneca [illegible]

Facility Operator [illegible] & Buffalo

Facility Location N. [illegible] Rd. [illegible]
Street City

N.Y. ( )
State Zip Code Phone

47-15-1 (5/78)

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
DIVISION OF SOLID WASTE MANAGEMENT
FACILITY INSPECTION

(33) Pratt & L

1 Trans. Type
1 ☐ Delete
2 ☐ Add
3 ☐ Change

2 Facility No. 7

Facility Name: PRATT & LETCHWORTH

Location (Town, etc.): BUFFALO (C) ERIE (CO)

Persons Interviewed & Titles: JACK STARK – GEN. MGR.

10 Date 15	16 Time 21	22 Inspector 36	37	38 Remarks 72
80V78	10:15	LoNG RA SET		

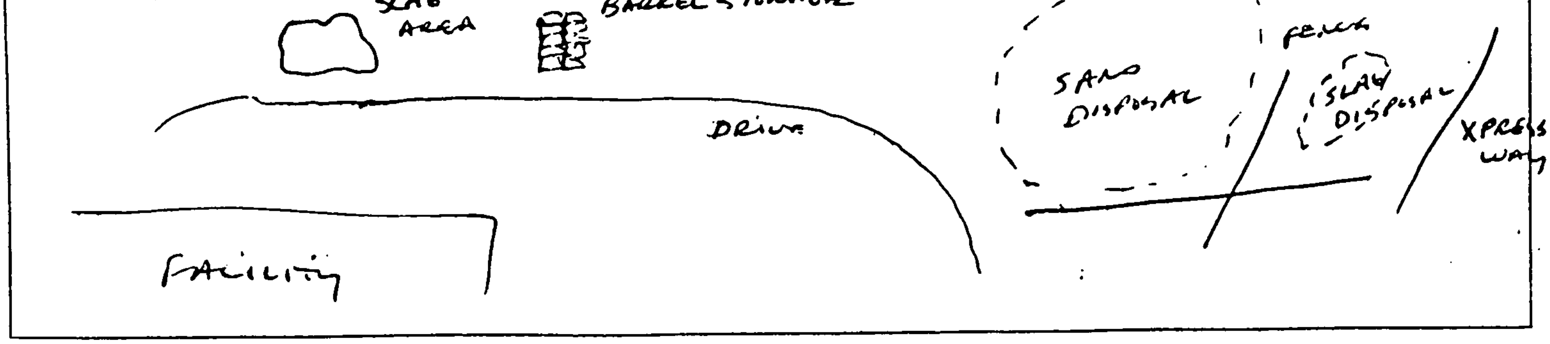
Instructions: At each question, use a soft pencil to blacken either the YES or NO box.

Question		(BAD) YES	(GOOD) NO
I. LEACHATE			
1. Is leachate visible on, or near the site?	22		X
2. Is leachate entering surface water?	23		X
*3. Is leachate known to be contravening groundwater standards?	24		X
4. Is refuse being placed into water?	25		X
II. BURNING			
*5. Is refuse burning without permit, or not under permit conditions?	26		X
6. Is there evidence of unapproved previous burning?	27		X
III. COVER			
7. Is previous day's refuse not covered?	28		X
8. Is refuse protruding through daily, intermediate or final cover?	29		X
9. Is intermediate or final cover not in place, or improperly applied?	30		X
10. Is wrong cover material used?	31		X
IV. GRADING			
11. Are there depressions, ponding, cracked cover, too steep slopes?	32	X	X
12. On completed areas, is the vegetative cover missing or inadequate?	33		X
13. Are there soil erosion or other drainage problems?	34		X
V. SEPARATION DISTANCES			
14. Is refuse closer than 50 feet to site boundaries?	35		X
*15. Is refuse known to be less than 5 feet above groundwater?	36		X
*16. Is refuse known to be less than ___ feet from surface water?	37		X
VI. NUISANCE CONDITIONS			
17. Are odors detectable off-site?	38		X
18. Is blowing dust or dirt excessive or a nuisance?	39		X
19. Are papers uncontrolled, or blowing off-site?	40		X
*20. Is methane gas known to be leaving the site?	41		X
21. Is noise excessive off-site?	42		X
VII. OPERATION CONTROL			
*22. Are Operation Permit conditions being violated?	43		X
23. Is refuse being deposited in a too large area?	44		X
24. Is refuse spread in layers thicker than 2 feet?	45		X
25. Is refuse being compacted poorly?	46		X
26. Is the working face height greater than 10 feet?	47		X
27. Is the working face steeper than a 3 to 1 slope?	48		X
28. Is the equipment on site not adequate for proper operation?	49		X
VIII. SAFETY AND HEALTH			
29. Are scavengers present?	50		X
30. Is salvaging uncontrolled or creating a nuisance?	51		X
31. Are rodents and insects not controlled?	52		X
32. Do unsafe conditions or equipment exist?	53		X
IX. ACCESS CONTROL			
33. Is access to the site improperly or inadequately controlled?	54		X
34. Is the site open without an attendant?	55		X
35. Is information about the site not posted? (hours of operation, etc.)	56		X
36. Is access to the operating area poor or unsafe?	57		X

22 ☐ 24 ☐ 26 ☐ 28 ☐ 30 ☐ 32 ☐ 34 ☐ 36 ☐ 38 ☐

*NOTE: For these questions, see the "Background Information Sheet" for this facility.

Site Sketch/Comments



NYSDEC, 1988

Pratt + Leichworth

Dave Vitale's Field Notes

DEC - VITALE

2/23/88 ON SITE 08:00 HRS E+E - TOPAZ, MCLAREN

BACK HOE ARRIVED @ 08:30 HRS

08:30 LOCATION OF TEST PITS BY E+E + DEC WITH AID OF MAGNETOMETER HNU SURVEY READINGS

09:00 HRS TP-1

3 FT BLACK FILL (FOUNDRY SAND) THEN REDDISH BROWN CLAY

09:30 HRS TP-2

5 FT BLACK FILL (FOUNDRY SAND)

BRIGHT YELLOW 3 x 1' LENSE ON SIDE WALL OF PIT - SAMPLE COLLECTED OF IT IN COMPOSITE

THEN REDDISH BROWN CLAY

10:15 HRS TP-3

8' PIT - ALL BLACK SAND (FOUNDRY TYPE) EXCEPT THE FIRST 1½' WHICH WAS FILL (WOOD BRICKS ETC) SECTION OF HARD YELLOW GRANULAR MATERIAL

11:15 HR TP-4

8' PIT - 3' OF FILL (WOOD BRICKS ETC.) MIXED WITH BLACK FOUNDRY SAND, REDD. BLACK FOUNDRY SANDS, SECTIONS OF WHITE SAND + CLAY SANDS.

11:30 HR STEAM CLEANER HOSE BROKEN - CREW WENT FOR REPAIR

12:00 SURFACE SAMPLE S-? TAKEN FROM LIGHT BROWISH RED STAINED AREA

12:45 TP-5

BEGAN TEST PIT CAME ACROSS CONCRETE SLAB AT 4½' - UNABLE TO GO ANY FURTHER THROUGH. BACKFILLED HOLE AND RELOCATED 15' AWAY. SECOND TEST PIT WAS THE SAME WITH REFUSAL (CONCRETE AT 4½')

MIX OF DEBRIS ON TOP 1' with topsoil and organic material

2' OF BLACK SAND (FOUNDRY?)

1' HEAVY LIGHT BROWN CLAY

½' BLACK SAND (FOUNDRY?)

13:30 HRS TP-6

CAME TO REFUSAL (CONCRETE) AT 4½'. WHILE BEGAN TO FILL TEST PIT PREDOMINANTLY FROM THE BOTTOM OF THE PIT TO A LEVEL OF APPROX 1½', THERE WAS A SIGNIFICANT "OILY" SHEEN DEVELOPING ON THE SURFACE.

2' BLACK SANDS (FOUNDRY) + ORGANIC MATTER

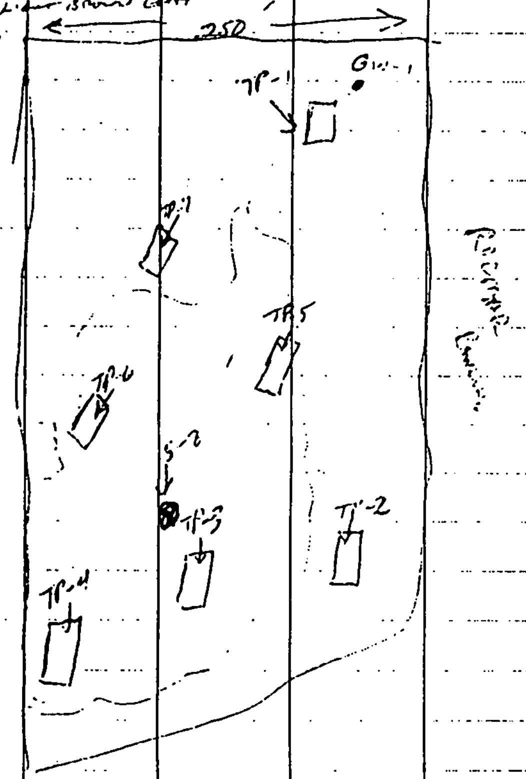
1' HEAVY LIGHT BROWN CLAY

½' BLACK SAND (FOUNDRY).

PIEZOMETER (2" PVC SCREEN + CASING SET IN PIT PRIOR TO BAC...

15:00 HRS
TP-1 — REFUSAL AT 4½' (CONCRETE)
½' ORGANIC MATTER, TOPSOIL — BLACK SAND
2½' GRAVEL SAND (FINE)
1' LIGHT BROWN CLAY

DARK GREEN HOUSE AT BOUNDARY ON STREET SIDE OF PROPERTY BEHIND FENCE



ALL TEST PITS WERE PHOTOGRAPHED BY E+E.

SOIL SAMPLES WERE COMPOSITE SAMPLED FROM SOIL AT VARIOUS LEVELS OFF SIDES OF THE PITS.

BACK HOE BUCKET STEAM CLEANED AT DECON AREA BETWEEN EACH HOLE (TEST PIT) AS WELL AS AFTER WORK WAS COMPLETED WHEN ENTIRE BACKHOE WAS STEAM CLEANED.

ALL TEST PITS WERE BACKFILLED WITH REMOVED MATERIAL IMMEDIATELY AFTER EVALUATION EXCEPT TP-1 WHICH WAS LEFT OPEN UNTIL THE FINAL PIT TO EVALUATE AND WATER LEVEL CHANGES.

16:30 FINAL DECON COMPLETE - WORK ENDED FOR DAY.

World Atlas

CENSUS EDITION

RAND McNALLY & COMPANY
Chicago / New York / San Francisco

[redacted] N.Y. 8,837
[redacted]town 500 ○
[redacted]nding 1,272 ○
[redacted]wood N.Y. 9,895
[redacted]ford PHIL- 1,448 ○
[redacted]ford Lakes PHIL- 4,958
[redacted] N.Y. 4,899
[redacted]ille PHIL- 15,000 ○
[redacted]tville PHIL- 3,972
[redacted]n N.Y. 13,762
[redacted]ssex N.Y. 13,480
[redacted]town N.Y. 16,000 ○
[redacted]land Park N.Y. 7,381
[redacted] 1,368
[redacted] N.Y. 21,089 ○
[redacted] 530
[redacted] N.Y. 7,136
[redacted] VINL- 24,815
[redacted] Hill N.Y. 3,557 ○
[redacted]fizpah 600 ○
[redacted]onmouth Beach N.Y. 3,318
[redacted]outh Junction N.Y. 950 ○
[redacted]air N.Y. 38,321
[redacted]e N.Y. 7,318
[redacted]e N.Y. 2,700 ○
[redacted]oonachie N.Y. 2,706
[redacted]oorestown PHIL- 15,596 ○
[redacted]organville N.Y. 900 ○
[redacted] Plains N.Y. 5,305
[redacted]own N.Y. 16,614
[redacted]in Lakes N.Y. 4,153
[redacted]inside N.Y. 7,118
[redacted] Arlington N.Y. 4,251
[redacted] Ephraim PHIL- 4,863
[redacted] Freedom N.Y. 1,621 ○
[redacted] Holly PHIL- 10,818 ○
[redacted] Hill PHIL- 550 ○
[redacted]al Park PHIL- 3,552
[redacted]nk N.Y. 1,500 ○
[redacted]e N.Y. 24,800 ○
Neptune City N.Y. 5,276
Nesco 430 ○
Netcong N.Y. 3,557
[redacted]x N.Y. 329,248
[redacted]runswick N.Y. 41,442
[redacted]gypt 1,769 ○
[redacted]d VINL- 1,563
Newfoundland N.Y. 900 ○
New Gretna 550 ○
New Milford N.Y. 16,876
New Providence N.Y. 12,426
[redacted] N.Y. 7,748
[redacted]nville VINL- 500 ○
[redacted] VINL- 800 ○
North Arlington N.Y. 16,587
North Bergen N.Y. 47,019 ▲ 47,019 ○
North Brunswick N.Y. 16,691 ○
North Caldwell N.Y. 5,832
[redacted] Cape May 3,812 ○
[redacted]field ATCY 7,795
[redacted] Haledon N.Y. 8,177
[redacted] Plainfield N.Y. 19,108
Northvale N.Y. 5,046
North Wildwood 4,714
Norwood N.Y. 4,413
[redacted] N.Y. 28,998
[redacted]hurst N.Y. 4,600 ○
[redacted]and N.Y. 13,443
[redacted]n PHIL- 4,223
Oak Valley PHIL- 7,000 ○
Ocean City ATCY 13,949
Ocean Gate N.Y. 1,385
Ocean Grove N.Y. 4,200 ○
[redacted]mport N.Y. 5,888
[redacted]nville ATCY 600 ○
[redacted]ansburg N.Y. 2,737
[redacted] Bridge N.Y. 13,100 ○
Old Tappen N.Y. 4,168
Oldwick N.Y. 450 ○
Oradell N.Y. 8,658
[redacted]nge N.Y. 31,136
[redacted]ord 1,411 ○
[redacted]ades Park N.Y. 13,732
[redacted]nyrs PHIL- 7,085
Paramus N.Y. 26,474
Parkertown 500 ○
Park Ridge N.Y. 8,515
[redacted]ppany N.Y. 7,488 ○
[redacted]saic N.Y. 52,463
[redacted]rson N.Y. 137,970
[redacted]lsboro PHIL- 6,944
[redacted]ricktown PHIL- 900 ○
Pemberton 1,198
Pennington PHIL- 2,109
Pennsauken PHIL- 36,394 ○
[redacted]ns Grove PHIL- 5,760
[redacted]nsville PHIL- 11,014 ○
[redacted]quannock N.Y. 5,900 ○
[redacted]rth Amboy N.Y. 38,951
Phillipsburg AL-B-E 16,647
Pine Hill PHIL- 8,684
Pinehurst ATCY 1,500 ○
[redacted]ewald 900 ○
[redacted]cataway N.Y. 36,418 ○
[redacted]man PHIL- 9,744
[redacted]infield N.Y. 45,555
Plainsboro N.Y. 800 ○
Pleasantville ATCY 13,435
Point Pleasant N.Y. 17,747
Point Pleasant Beach N.Y. 5,415
[redacted]mona ATCY 900 ○
[redacted]mpton Lakes N.Y. 10,660
[redacted]mpton Plains N.Y. 8,000 ○
[redacted]rt Elizabeth 500 ○
Port Monmouth N.Y. 3,600 ○
Port Morris N.Y. 600 ○
Port Norris 1,900 ○
[redacted]rt Reading N.Y. 4,800 ○
[redacted]rt Republic ATCY 837
[redacted]rinceton 12,035
[redacted]rinceton Junction N.Y. 2,000 ○
Princeton Township 13,651 ○
Prospect Park N.Y. 5,142
Quinton PHIL- 500 ○
[redacted]shway N.Y. 26,723
[redacted]mblewood PHIL- 3,600 ○
[redacted]msey N.Y. 12,899
[redacted]ancocas PHIL- 600 ○
[redacted]ancocas Woods PHIL- 1,400 ○
Raritan N.Y. 6,128
Red Bank N.Y. 12,031
Richland VINL- 800 ○
Ridgefield N.Y. 10,294
Ridgefield Park N.Y. 12,738
Ridgewood N.Y. 25,208
Ringoes PHIL- 650 ○
Ringwood N.Y. 12,625
Rio Grande 1,203 ○
Riverdale N.Y. 2,530
River Edge N.Y. 11,111
Riverside PHIL- 8,591 ○
Riverton PHIL- 3,068
River Vale N.Y. 8,883 ○
Riviera Beach N.Y. 2,000 ○
Robbinsville PHIL- 550 ○
Rochelle Park N.Y. 6,380 ○
Rockaway N.Y. 6,852
Rocky Hill 717
Roebling PHIL- 3,600 ○
Roosevelt 835
Roseland N.Y. 5,330
Roselle N.Y. 20,641
Roselle Park N.Y. 13,377
Rosenhayn VINL- 750 ○
Rumson N.Y. 7,623
Runnemede PHIL- 9,461
Rutherford N.Y. 19,068
Saddle Brook N.Y. 15,975 ○
Saddle River N.Y. 2,763
Salem PHIL- 6,959
Sayreville N.Y. 29,969
Scotch Plains N.Y. 22,279 ○
Sea Bright N.Y. 1,812
Seabrook BRDGT 1,569 ○
Sea Girt N.Y. 2,650
Sea Isle City 2,644
Seaside Heights N.Y. 1,802
Seaside Park N.Y. 1,795
Secaucus N.Y. 13,719
Sewaren N.Y. 2,600 ○
Sewell PHIL- 1,900 ○
Shiloh BRDGT 604
Ship Bottom 1,427
Shore Acres N.Y. 1,300 ○
Sicklerville PHIL- 850 ○
Silverton N.Y. 2,000 ○
Stackwood PHIL- 8,100 ○
Somerdale PHIL- 5,900
Somerset N.Y. 20,300 ○
Somers Point ATCY 10,330
Somerville N.Y. 11,973
South Amboy N.Y. 8,322
South Belmar N.Y. 1,566
South Bound Brook N.Y. 4,331
South Hackensack N.Y. 2,412 ○
South Orange N.Y. 16,971 ○
South Plainfield N.Y. 20,521
South River N.Y. 14,361
South Toms River N.Y. 3,954
Sparta N.Y. 6,262 ○
Spotswood N.Y. 7,840
Springfield N.Y. 15,740 ○
Spring Lake N.Y. 4,215
Spring Lake Heights N.Y. 5,424
Stanhope N.Y. 3,838
Stewartsville AL-B-E 900 ○
Stirling N.Y. 2,000 ○
Stockholm N.Y. 600 ○
Stockton PHIL- 643
Stone Harbor 1,187
Stratford PHIL- 8,005
Strathmore N.Y. 7,674 ○
Succasunna N.Y. 7,400 ○
Summit N.Y. 21,071
Surf City 1,571
Sussex 2,418
Sutton Park N.Y. 2,500 ○
Swedesboro PHIL- 2,031
Teaneck N.Y. 42,355 ○
Tenafly N.Y. 13,552
Thorofare PHIL- 1,400 ○
Three Bridges N.Y. 650 ○
Tinton Falls N.Y. 7,740
Titusville PHIL- 900 ○
Toms River N.Y. 7,303 ○
Totowa N.Y. 11,448
Towaco N.Y. 1,400 ○
Trenton PHIL- 92,124
Tuckahoe 650 ○
Tuckerton 2,472
Twin Rivers N.Y. 1,500 ○
Union N.Y. 53,077 ○
Union Beach N.Y. 6,354
Union City N.Y. 55,593
Upper Greenwood Lake N.Y. 1,505 ○
Upper Saddle River N.Y. 7,958
Ventnor City ATCY 11,704
Vernon N.Y. 900 ○
Verona N.Y. 14,166
Villas 3,155 ○
Vincentown PHIL- 800 ○
VINELAND VINL- 53,753
Waldwick N.Y. 10,802
Wallington N.Y. 10,741
Wanamassa N.Y. 4,000 ○
Wanaque N.Y. 10,025
Waretown 900 ○
Washington 6,429
Washington Crossing PHIL- 500 ○
Washington Township N.Y. 10,577 ○
Watchung N.Y. 5,290
Waterford Works PHIL- 600 ○
Wayne N.Y. 49,141 ○
Weehawken N.Y. 13,383 ○
Wenonah PHIL- 2,303
West Berlin PHIL- 3,300 ○
West Caldwell N.Y. 11,407
West Cape May 1,091
West Creek 500 ○
Westfield N.Y. 30,447
West Long Branch N.Y. 7,380
West Milford N.Y. 1,600 ○
Westmont PHIL- 5,700 ○
West New York N.Y. 39,194
West Orange N.Y. 39,510
West Paterson N.Y. 11,293
Westville PHIL- 4,786
Westwood N.Y. 10,714
Wharton N.Y. 5,435
Whippany N.Y. 6,800 ○
White Horse PHIL- 10,600 ○
White House Station N.Y. 1,019 ○
White Meadow Lake N.Y. 6,300 ○
Whitesboro 700 ○
Whiting 700 ○
Whitman Square PHIL- 2,600 ○
Wildwood 4,913
Wildwood Crest 4,149
Williamstown PHIL- 4,075 ○
Willingboro PHIL- 43,386 ○
Winfield N.Y. 2,184 ○
Winslow PHIL- 500 ○
Woodbine 2,809
Woodbridge N.Y. 14,200 ○
Woodbury PHIL- 10,353
Woodcliff Lake N.Y. 5,644
Woodlynne PHIL- 2,578
Woodport N.Y. 500 ○
Wood-Ridge N.Y. 7,929
Woodstown PHIL- 3,250
Wrightstown 3,031
Wyckoff N.Y. 16,039 ○
Yardville PHIL- 8,100 ○

COUNTIES

Atlantic	194,119
Bergen	845,385
Burlington	362,542
Camden	471,650
Cape May	82,266
Cumberland	132,866
Essex	850,451
Gloucester	199,917
Hudson	556,972
Hunterdon	87,361
Mercer	307,863
Middlesex	595,893
Monmouth	503,173
Morris	407,630
Ocean	346,038
Passaic	447,585
Salem	64,676
Somerset	203,129
Sussex	116,119
Union	504,094
Warren	84,429

NEW MEXICO

1980 Census ... 1,299,968

CITIES

Adobe Acres ALBU	2,600 ○
Agua Fria S.FE	850 ○
Alameda ALBU	6,000 ○
Alamogordo	24,024
ALBUQUERQUE ALBU	331,767
Alcalde	800 ○
Anthony ELP	1,728 ○
Arenas Valley	500 ○
Armijo ALBU	14,500 ○
Arroyo Seco	500 ○
Artesia	10,385
Aztec	5,512
Bayard	3,036
Belen	5,617
Bernalillo ALBU	2,763
Black Rock	500 ○
Bloomfield	4,881
Capitan	762
Carlsbad	25,496
Carrizozo	1,222
Cedar Crest	900 ○
Central	1,968
Chama	1,090
Chamisal	600 ○
Chimayo	1,300 ○
Church Rock	500 ○
Cimarron	888
Clayton	2,968
Cloudcroft	521
CLOVIS CLOV	31,194
Columbus	414
Cordova	600 ○
Crownpoint	900 ○
Cuba	609
Deming	9,964
Dexter	882
Dulce	900 ○
Edgewood	600 ○
El Prado	700 ○
Espanola	6,803
Estancia	830
Eunice	2,970
Fairacres LSCR	600 ○
Farmington	30,729
Five Points ALBU	4,100 ○
Flora Vista	500 ○
Fort Sumner	1,421
Fort Wingate	900 ○
Fruitland	700 ○
Gallup	18,161
Grants	11,451
Hagerman	936
Hanover	500 ○
Happy Valley	630 ○
Hatch	1,028
High Rolls Mountain Park	650 ○
Hobbs	28,794
Hurley	1,616
Isleta ALBU	1,800 ○
Jal	2,675
Jemez Pueblo	1,197 ○
Kirtland	1,500 ○
Laguna	800 ○
La Luz	800 ○
La Mesa	900 ○
LAS CRUCES LSCR	45,086
Las Vegas	14,322
Logan	735
Lordsburg	3,195
Los Alamos	17,100 ○
Los Lunas ALBU	3,525
Los Padillas ALBU	1,800 ○
Los Ranchos de Albuquerque ALBU	2,702
Los Trujillos	500 ○
Loving	1,355
Lovington	9,727
Magdalena	1,022
Melrose	649
Mescalero	900 ○
Mesilla LSCR	2,029
Mexican Springs	500 ○
Milan	3,747
Mora	900 ○
Moriarty	1,276
Mountainair	1,170
Mountain View ALBU	1,900 ○
New Laguna	600 ○
Ojo Caliente	500 ○
Organ	500 ○
Pajarito ALBU	1,500 ○
Paradise Hills ALBU	5,000 ○
Pecos	885
Penasco	900 ○
Placitas	450 ○
Pojoaque Valley	900 ○
Portales	9,940
Questa	608
Ramah	600 ○
Ranches of Taos	1,200 ○
Raton	8,225
Reserve	439
Rio Rancho ALBU	5,000 ○
ROSWELL RSWL	39,676
Ruidoso	4,260
Ruidoso Downs	949
San Antonio	500 ○
San Juan Pueblo	600 ○
San Rafael	560 ○
Santa Clara Pueblo	450 ○
Santa Cruz	600 ○
SANTA FE S.FE	48,899
Santa Rosa	2,469
Santo Domingo Pueblo	1,662 ○
Shiprock	7,000 ○
Silver City	9,887
Socorro	7,576
Springer	1,698
Sunland Park ELP	1,402 ○
Taos	3,369
Taos Pueblo	1,030 ○
Tatum	896
Tesuque S.FE	800 ○
Texico	958
Thoreau	950 ○
Tierra Amarilla	800 ○
Tohatchi	800 ○
Truth or Consequences	5,219
Tucumcari	6,765
Tularosa	2,536
Tyrone	950 ○
University Park LSCR	3,700 ○
Vaughn	737
Wagon Mound	416
Waterflow	500 ○
Williamsburg	433
Zuni	3,958 ○

COUNTIES

Bernalillo	419,700
Catron	2,720
Chaves	51,103
Colfax	13,706
Curry	42,019
De Baca	2,454
Dona Ana	96,340
Eddy	47,855
Grant	26,204
Guadalupe	4,496
Harding	1,090
Hidalgo	6,049
Lea	55,634
Lincoln	10,997
Los Alamos	17,599
Luna	15,585
McKinley	54,950
Mora	4,205
Otero	44,665
Quay	10,577
Rio Arriba	29,282
Roosevelt	15,695
Sandoval	34,799
San Juan	80,833
San Miguel	22,751
Santa Fe	75,306
Sierra	8,454
Socorro	12,969
Taos	18,862
Torrance	7,491
Union	4,725
Valencia	60,853

NEW YORK

1980 Census ... 17,557,288

CITIES

Accord	500 ○
Adams	1,701
Adams Center	800 ○
Addison	2,028
Afton	982
Akron	2,971
ALBANY A-S-T	101,727
Albertson N.Y.	11,200 ○
Albion ROCH	4,897
Alden BUF-	2,488
Alexandria Bay	1,265
Alfred	4,967
Allegany	2,078
Almond	568
Altamont A-S-T	1,292
Amagansett	1,800 ○
Amenia	1,157 ○
Amherst BUF-	66,100 ○
Amityville N.Y.	9,076
Amsterdam A-S-T	21,872
Andover	1,120
Angelica	982
Angola BUF-	2,292
Antwerp	749
Apalachin BING	1,233 ○
Aquebogue	1,300 ○
Arcade	2,052
Ardsley N.Y.	4,183
Arkport	811
Arkville	600 ○
Arlington POK	11,203 ○
Armonk N.Y.	5,900 ○
Athens	1,738
Atlanta	750 ○
Attica	2,659
AUBURN AUB	32,548
Aurora	926
Au Sable Forks	2,100 ○
Averill Park A-S-T	1,500 ○
Avoca	1,144
Avon ROCH	3,006
Babylon N.Y.	12,388
Bainbridge	1,603
Baldwin N.Y.	35,100 ○
Baldwinsville SYR	6,446
Ballston Spa A-S-T	4,711
Balmville NWBG	3,214 ○
Barker	535
Barryville	600 ○
Batavia	16,703
Bath	6,042
Bayberry SYR	5,900 ○
Bayport N.Y.	8,900 ○
Bay Shore N.Y.	31,200 ○
Bayville N.Y.	7,034
Beacon POK	12,937
Bedford Hills N.Y.	3,200 ○
Belfast	900 ○
Bellmore N.Y.	18,431 ○
Bellport N.Y.	2,809
Belmont	1,024
Bemus Point JMST	444
Bergen ROCH	976
Bethpage N.Y.	29,900 ○
Big Flats ELM-	2,500 ○
BINGHAMTON BING	55,860
Black River WATN	1,384
Blasdell BUF-	3,288
Blauvelt N.Y.	5,426 ○
Bloomingdale	608
Bohemia N.Y.	9,800 ○
Bolivar	1,345
Bolton Landing	1,500 ○
Boonville	2,344
Brant Lake	700 ○
Brentwood N.Y.	48,800 ○
Brewster N.Y.	1,650
Briarcliff Manor N.Y.	7,115
Bridgehampton	950 ○
Brighton ROCH	35,778 ○
Broadalbin A-S-T	1,415
Brockport ROCH	9,776
Brocton	1,418
Bronxville N.Y.	6,267
Brookfield	600 ○
Brookville N.Y.	3,290
Brownville WATN	1,099
BUFFALO BUF-	357,870
Burnt Hills A-S-T	2,000 ○
Cairo	725 ○
Caledonia ROCH	2,188
Callicoon	500 ○
Cambridge	1,820
Camden	2,667
Canajoharie	2,412
Canandaigua	10,419
Canaseraga	700
Canastota	4,773
Candor	917
Canisteo	2,679
Canton	7,055
Cape Vincent	785
Carle Place N.Y.	6,300 ○
Carthage	3,643
Cassadega	821
Castile	1,135
Castleton on Hudson A-S-T	1,627
Cato SYR	475
Catskill	4,718
Cattaraugus	1,200
Cayuga Heights ITH	3,170
Cazenovia SYR	2,599
Cedarhurst N.Y.	6,162
Celoron JMST	1,405
Centereach N.Y.	34,600 ○
Center Moriches N.Y.	4,000 ○
Central Bridge	500 ○
Central Islip N.Y.	26,000 ○
Central Square SYR	1,418
Central Valley N.Y.	1,200 ○
Chadwicks UT-R	1,500 ○
Champlain	1,410
Chappaqua N.Y.	5,100 ○
Chateaugay	869
Chatham A-S-T	2,001
Chaumont	620
Chautauqua	430 ○
Chazy	800 ○
Cheektowaga BUF-	100,400 ○
Chenango Bridge BING	2,500 ○
Chenango Forks BING	500 ○
Cherry Creek	677
Cherry Valley	684
Chester N.Y.	1,910
Chestertown	750 ○
Chili Center ROCH	5,300 ○
Chittenango SYR	4,290
Churchville ROCH	1,399
Cincinnatus	500 ○
Clayton	1,816
Cleveland SYR	855
Clifton Knolls A-S-T	4,000 ○
Clifton Springs	2,039
Clinton UT-R	2,107
Clyde	2,491
Clymer	500 ○
Cobleskill	5,272
Cohocton	902
Cohoes A-S-T	18,144
Cold Spring Harbor N.Y.	5,490 ○

(36)

HANDBOOK OF TOXIC AND HAZARDOUS CHEMICALS AND CARCINOGENS

Second Edition

by

Marshall Sittig

Princeton University

np NOYES PUBLICATIONS

Park Ridge, New Jersey, U.S.A.

(36)

landfills have been approved for PCB disposal. More recently treatment with metallic sodium has been advocated which yields a low molecular weight polyphenylene and sodium chloride.

References

(1) National Institute for Occupational Safety and Health, *Criteria for a Recommended Standard: Occupational Exposure to Polychlorinated Biphenyls,* NIOSH Doc. No. 77-225 (1977).
(2) U.S. Environmental Protection Agency, *Polychlorinated Biphenyls: Ambient Water Quality Criteria,* Washington, DC (1980).
(3) National Academy of Sciences, *Polychlorinated Biphenyls,* Washington, DC (1979).
(4) International Agency for Research on Cancer, *IARC Monographs on the Carcinogenic Risks of Chemicals to Humans,* Lyon, France, 7, 261 (1974) and 18, 43 (1978).
(5) World Health Organization, *Polychlorinated Biphenyls and Triphenyls,* Environmental Health Criteria No. 2, Geneva, Switzerland (1976).
(6) See Reference (A-62). Also see Reference (A-64).
(7) International Agency for Research on Cancer, *IARC Monographs on the Carcinogenic Risks of Chemicals to Humans,* Supplement 1, Lyon, France, p 41 (1979).
(8) Sax, N.I., Ed., *Dangerous Properties of Industrial Materials Report, 3,* No. 4, 95-100, New York, Van Nostrand Reinhold Co. (1983).
(9) Parmeggiani, L., Ed., *Encyclopedia of Occupational Health & Safety,* Third Edition, Vol. 2, pp 1753-55, Geneva, International Labour Office (1983).
(10) United Nations Environment Programme, *IRPTC Legal File 1983,* Vol. II, pp VII/644-60, Geneva, Switzerland, International Register of Potentially Toxic Chemicals (1984).

POLYNUCLEAR AROMATIC HYDROCARBONS

- Carcinogen (Benzo[a]pyrene) (Animal positive, IARC) (8)
- Hazardous wastes (EPA)
- Priority toxic pollutants (EPA)

Description: The polynuclear aromatic hydrocarbons constitute a class of materials of which benzo[a]pyrene is one of the most common and also the most hazardous.

Benzo[a]pyrene, $C_{20}H_{12}$, is a yellowish crystalline solid, melting at 179°C. It consists of five benzene rings joined together. Other polynuclear aromatics which are discussed in separate sections in this volume are as follows: acenaphthene, fluoranthene and naphthalene. A variety of abbreviations are in common use for the polynuclear aromatics as shown below:

Abbreviation	Compound Designated
A	Anthracene
BaA	Benzo[a]anthracene (1,2-benzanthracene)
BaP (also BP)	Benzo[a]pyrene (3,4-benzopyrene)
BbFL (also BbF)	Benzo[b]fluoranthene
BeP	Benzo[e]pyrene
BjFL (also BjF)	Benzo[j]fluoranthene
BkFL (also BkF)	Benzo[k]fluoranthene (11,12-benzofluoranthene)
BPR	Benzo[ghi]perylene (1,12-benzoperylene)
CH (also CR)	Chrysene
DBA	Dibenzo[ah]anthracene (1,2,5,6-benzanthracene)
DBAc	Dibenz[a,h] and [a,j] acridine
DBC	Dibenzocarbazole

(continued)

Abbreviation	Compound Designated
DBP	Dibenzopyrene
F	Fluorene
FL (also F)	Fluoranthene
IP	Indeno[1,2,3-cd] pyrene
P	Pyrene
PA (also Phen)	Phenanthrene
PR (also Per)	Perylene

Note: These abbreviations are not endorsed by any body such as the International Union of Chemistry; rather they are a form of shorthand used by authors for convenience, and they vary with the author.

Code Numbers: (For benzo[a] pyrene) CAS 50-32-8 RTECS DJ3675000

DOT Designation: —

Synonyms: PNAs, PAHs, PPAHs (Particulate Polycyclic Aromatic Hydrocarbons) and POMs (Polynuclear Organic Materials). (Benzo[a] pyrene is also known as BAP.)

Potential Exposures: PNAs can be formed in any hydrocarbon combustion process and may be released from oil spills. The less efficient the combustion process, the higher the PNA emission factor is likely to be. The major sources are stationary sources, such as heat and power generation, refuse burning, industrial activity, such as coke ovens, and coal refuse heaps. While PNAs can be formed naturally (lightning-ignited forest fires), impact of these sources appears to be minimal. It should be noted, however, that while transportation sources account for only about 1% of emitted PNAs on a national inventory basis, transportation-generated PNAs may approach 50% of the urban resident exposures.

Because of the large number of sources, most people are exposed to very low levels of PNAs. BAP has been detected in a variety of foods throughout the world. A possible source is mineral oils and petroleum waxes used in food containers and as release agents for food containers. FDA studies have indicated no health hazard from these sources.

The air pollution aspects of the carcinogenic polynuclear aromatic hydrocarbons (PAH) and of benzo[a] pyrene (BAP) in particular have been reviewed in some detail by Olsen and Haynes (1). The total emissions of benzo[a] pyrene (BAP) and some emission factors for BAP are as presented by Goldberg (2).

Permissible Exposure Limits in Air: A TLV of 0.2 mg/m^3 as benzene solubles has been assigned by ACGIH. These materials are designated by ACGIH as human carcinogens.

There have been few attempts to develop exposure standards for PAHs, either individually or as a class. In the occupational setting, a Federal standard has been promulgated for coke oven emissions, based primarily on the presumed effects of the carcinogenic PAH contained in the mixture as measured by the benzene soluble fraction of total particulate matter. Similarly, the American Conference of Governmental Industrial Hygienists recommends a workplace exposure limit for coal tar pitch volatiles, based on the benzene-soluble fraction containing carcinogenic PAH.

The National Institute for Occupational Safety and Health has also recommended a workplace standard for coal tar products (coal tar, creosote, and coal tar pitch), based on measurements of the cyclohexane-extractable fraction. These standards are summarized on the following page.

INTERVIEW FORM

Schnacke

INTERVIEWEE/CODE Ray Blakely (Smith & Schnacke)

TITLE - POSITION

ADDRESS 2000 Courthouse Plaza P.O Box 1817

CITY Dayton STATE Ohio ZIP 45401

PHONE (513) 226-6500 RESIDENCE PERIOD ____ TO ____

LOCATION ____ INTERVIEWER Sue Tiffany

DATE/TIME 4/25/85 1

SUBJECT: Pratt & Letchworth Phase I investigation

REMARKS: Obtain ownership information

1848 - Buffalo Malleable Iron Works purchase site

1860 - building adjacent to site & Pratt & Letchworth ownership formed at that time - until 1896

1923 - Dayton Malleable Iron Co. acquire site - stock purchase

Pratt & Letchworth - subsidiary of Dayton Malleable

Pratt & Letchworth - operating company in 1552 -

Dayton Malleable merge

I AGREE WITH THE ABOVE SUMMARY OF THE INTERVIEW:

SIGNATURE:

COMMENTS:

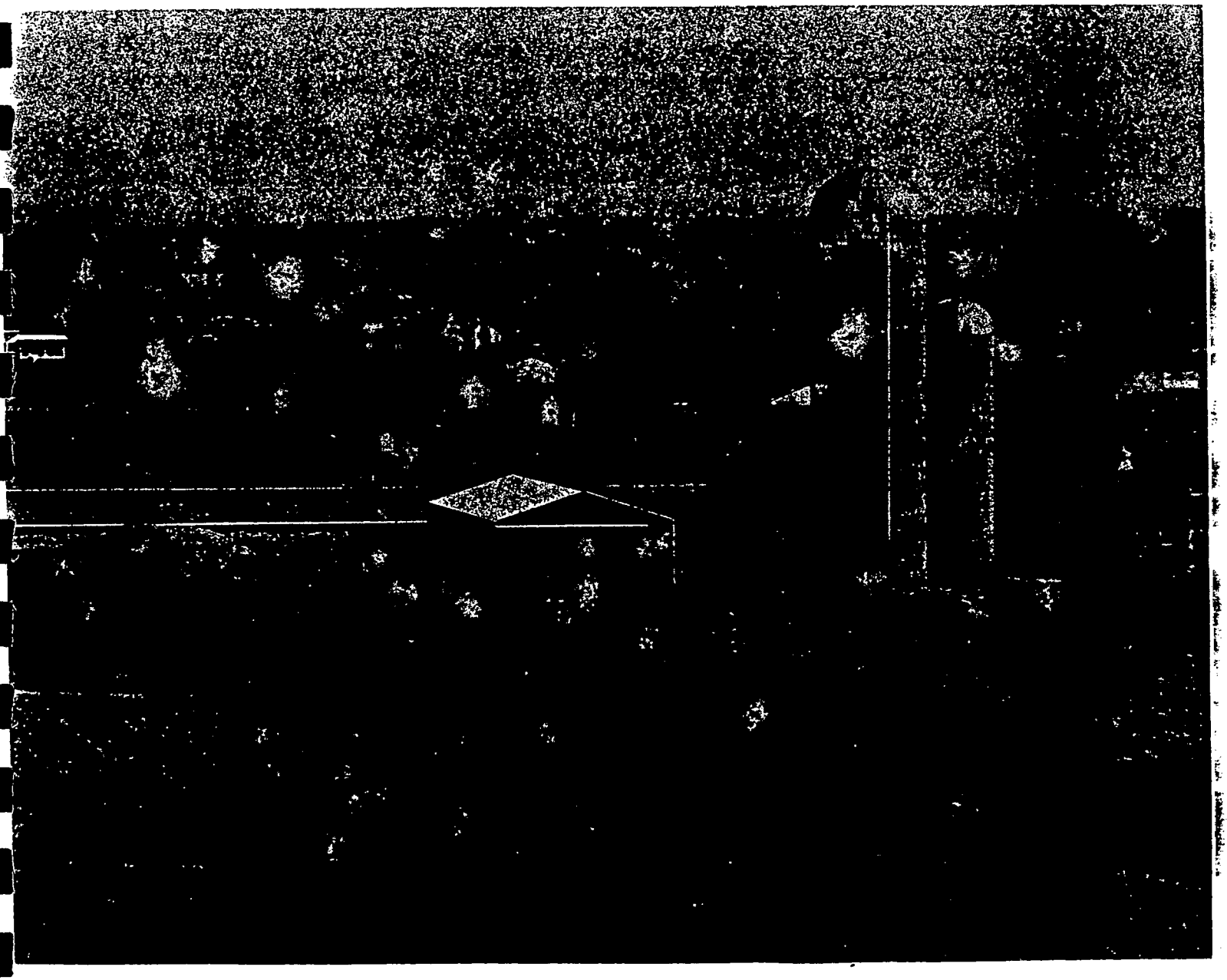
(38)

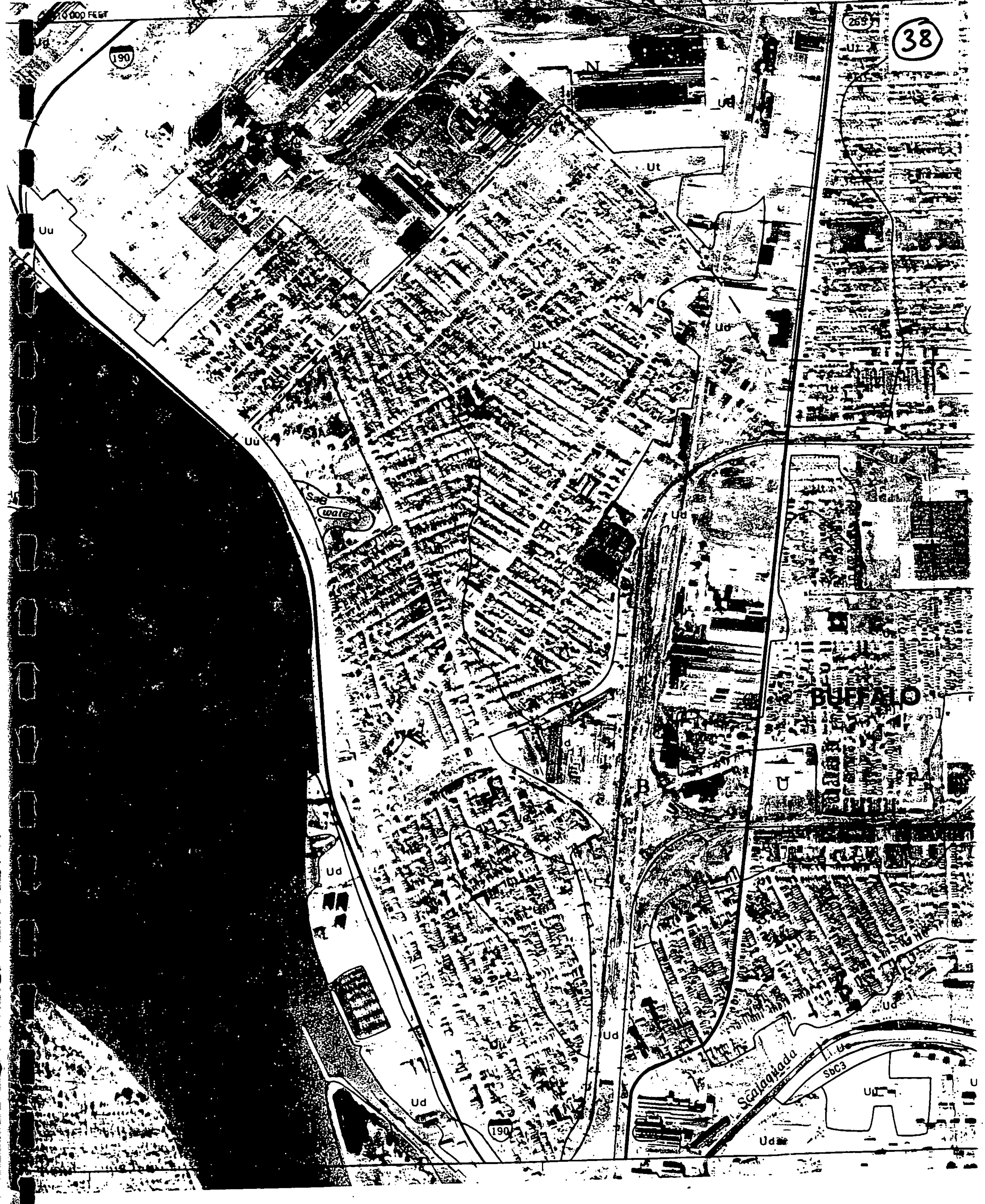
United States Department of Agriculture

Soil Conservation Service

In Cooperation with the Cornell University Agricultural Experiment Station

Soil Survey of Erie County, New York

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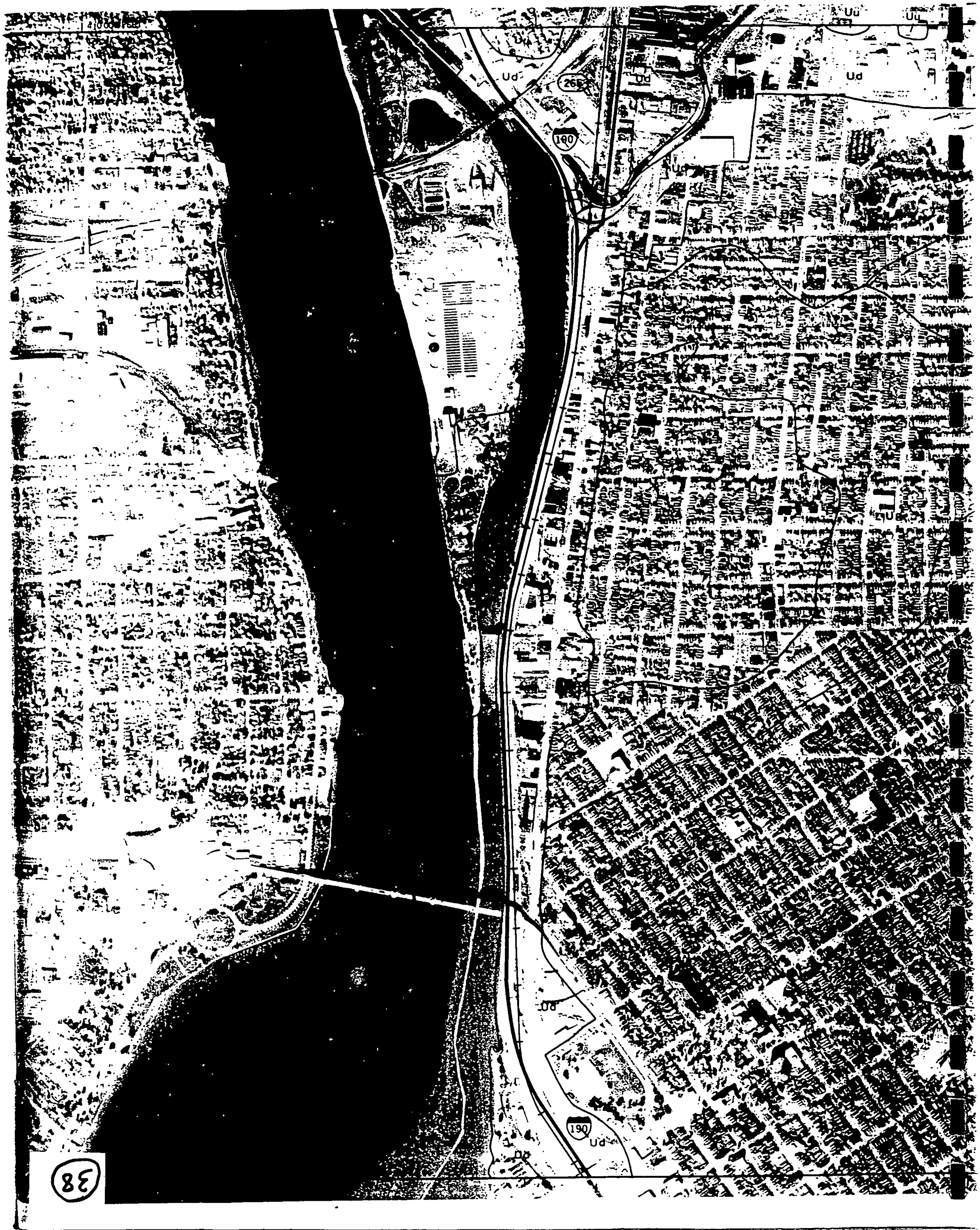
ERIE COUNTY, NEW YORK — SHEET



R-582-4-5-01

LABORATORY DATA VALIDATION

FUNCTIONAL GUIDELINES FOR EVALUATING ORGANICS ANALYSES

TECHNICAL DIRECTIVE DOCUMENT NO. HQ-8410-01
CONTRACT NO. 68-01-6699

Prepared for the

HAZARDOUS SITE CONTROL DIVISION
U. S. ENVIRONMENTAL PROTECTION AGENCY

Compiled by

Mike H. Carter

Prepared by

The USEPA Data Validation Work Group
Joan Fisk - EPA - Chairperson
Angelo Caraseo - EPA
Diana Pickens - EPA
Charles Sand - EPA
Myron Stephenson - EPA
Steven Stodola - EPA
Kenneth Baughman - LEMSCO

April 11, 1985
NUS CORPORATION
SUPERFUND DIVISION

Approved by:

Mike H. Carter
TDD Manager

Approved by:

Lawrence J. Perez, Jr.
Manager, EPA Support Staff

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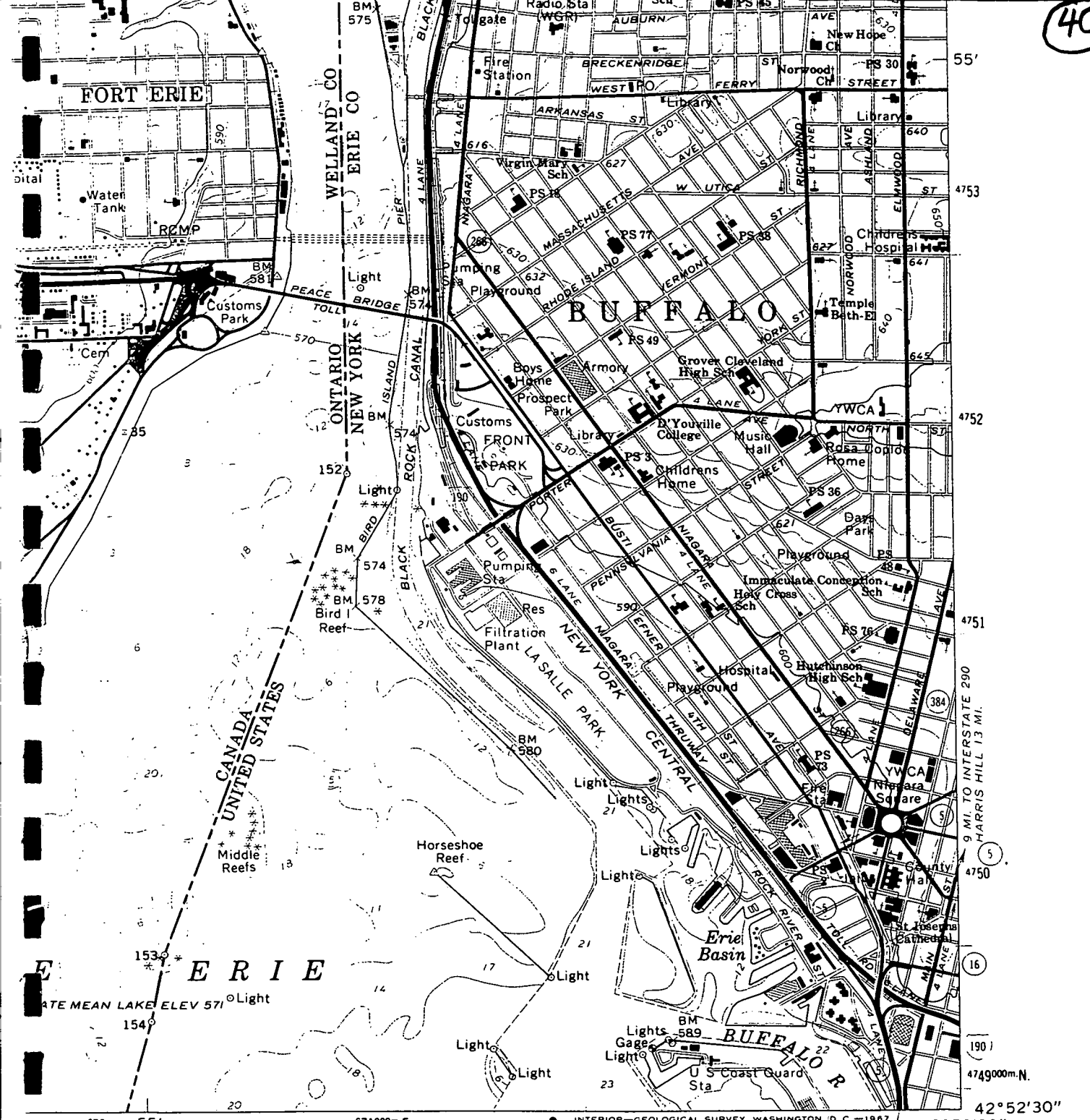
LABORATORY DATA VALIDATION

FUNCTIONAL GUIDELINES FOR EVALUATING INORGANICS ANALYSES

United States Environmental Protection Agency
Office of Emergency and Remedial Response



INTERIOR—GEOLOGICAL SURVEY, WASHINGTON, D. C.—1967

ROAD CLASSIFICATION

Heavy-duty ——— Light-duty ———

Medium-duty ——— Unimproved dirt - - - - - -

Interstate Route State Route

QUADRANGLE LOCATION

BUFFALO NW, N.Y.—ONT.

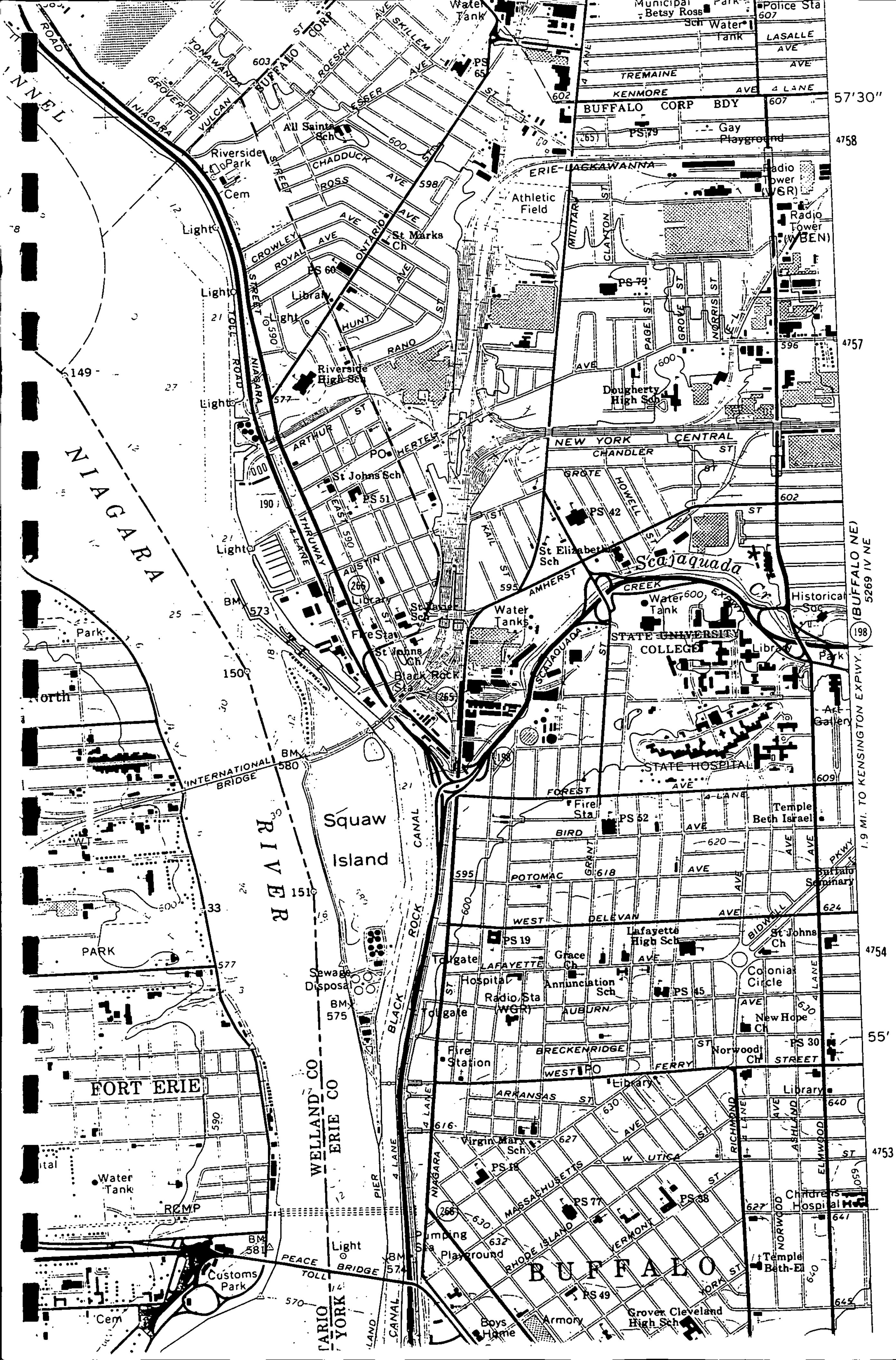
NW/4 BUFFALO 15' QUADRANGLE

N4252.5—W7852.5/7.5

1965

AMS 5269 IV NW—SERIES V821

40



Municipal Park
Betsy Ross Sch
Water Tank
Police Sta
LASALLE AVE
TREMAINE AVE
KENMORE AVE
4 LANE
57'30"
BUFFALO CORP BDY
PS 79
Gay Playground
4758
TONAWANDA
BUFFALO CORP
ROESCH AVE
SKILLEM AVE
PS 65
ESSER
GROVER PL
VULCAN
NIAGARA
All Saints Sch
Riverside Park
Cem
CHADDUCK AVE
ROSS AVE
ERIE-LACKAWANNA
Radio Tower (WGR)
Radio Tower (WBEN)
Athletic Field
MILITARY
CLAYTON ST
Light
CROWLEY
ROYAL AVE
ONTARIO
St Marks Ch
PS 60
Library
HUNT
RANO
PS 79
PAGE ST
GROVE ST
NORRIS ST
4757
Riverside High Sch
Dougherty High Sch
NIAGARA
ARTHUR ST
PO
HERTEL
NEW YORK CENTRAL
CHANDLER ST
GROTE ST
HOWELL
St Johns Sch
PS 51
PS 42
THRUWAY
4-LANE
AUSTIN
St Elizabeth Sch
Scajaquada Cr
AMHERST
CREEK EXPWY
Water Tank
Historical Soc
BUFFALO NE
5269 IV NE
Library
St Xavier Sch
Water Tanks
STATE UNIVERSITY COLLEGE
Library
Park
Fire Sta
St Johns Ch
Black Rock
SCAJAQUADA
Art Gallery
INTERNATIONAL BRIDGE
STATE HOSPITAL
FOREST AVE
Fire Sta
PS 52
Temple Beth Israel
BIRD AVE
Squaw Island
CANAL
RIVER
POTOMAC AVE
GRANT
Buffalo Seminary
PKWY
1.9 MI. TO KENSINGTON EXPWY.
WEST DELEVAN AVE
BIDWELL
PARK
PS 19
Lafayette High Sch
St Johns Ch
4754
Tollgate
LAFAYETTE AVE
Grace Ch
Sewage Disposal
Hospital
Annunciation Sch
PS 45
Colonial Circle
Radio Sta (WGR)
AUBURN
New Hope Ch
BLACK ROCK
Tollgate
BRECKENRIDGE
Norwood Ch
PS 30
55'
Fire Station
WEST
PO
FERRY STREET
FORT ERIE
ARKANSAS ST
Library
Library
WELLAND CO
ERIE CO
Virgin Mary Sch
W UTICA ST
4753
Water Tank
PS 18
MASSACHUSETTS
PS 77
PS 38
Childrens Hospital
RCMP
Pumping Sta
Playground
RHODE ISLAND
VERMONT
NORWOOD
Temple Beth-El
Light
PEACE BRIDGE
TOLL
Customs Park
BUFFALO
YORK ST
PS 49
Cem
ONTARIO
NEW YORK
Boys Home
Armory
Grover Cleveland High Sch
RICHMOND
ASHLAND
ELMWOOD