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VCP - v
BCP - c

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915026

ENGINEERING INVESTIGATIONS AT INACTIVE HAZARDOUS WASTE SITES

PHASE I INVESTIGATION

NFTA (Port Facility) — Site No. 915026

City of Buffalo — Erie County

Date: January 1986

Prepared for:

New York State Department of Environmental Conservation

50 Wolf Road, Albany, New York 12233

Henry G. Williams, *Commissioner*

Division of Solid and Hazardous Waste

Norman H. Nosenchuck, P.E., *Director*

By:

ENGINEERING-SCIENCE

In Association With

DAMES & MOORE

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

NIAGARA FRONTIER TRANSPORTATION AUTHORITY - PORT OF BUFFALO

NYS SITE NUMBER 915026

CITY OF BUFFALO

ERIE COUNTY

NEW YORK STATE

Prepared For

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

Prepared By

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DATE OF SUBMITTAL: JANUARY, 1986

NIAGARA FRONTIER TRANSPORTATION AUTHORITY - PORT OF BUFFALO

TABLE OF CONTENTS

SECTION I

EXECUTIVE SUMMARY

NIAGARA FRONTIER TRANSPORTATION AUTHORITY - PORT OF BUFFALO

This report, prepared for the New York State Department of Environmental Conservation (NYSDEC), presents the results of the Phase I investigation for the Niagara Frontier Transportation Authority (NFTA) site (NYS Site Number 915026, EPA Site Number D00514000) located in the City of Buffalo, Erie County, New York (see Figure I-1).

SITE BACKGROUND

The 120-acre NFTA site, which is known as the Port of Buffalo, is owned by the NFTA and operated by their Seaport Division. The site is currently used to off-load and store bulk materials including road salt, potash, coal, and coke.

The NFTA site was formed by the placement of fill materials including harbor dredgings from the Buffalo Harbor (US Army Corps of Engineers); office, cafeteria and plant refuse, paint residues (Ford Motor Company); foundry sands, blast furnace slag (Chevrolet plant); and fill materials from construction excavations (various construction contractors). Four soil samples were collected at the NFTA site and analyzed for heavy metals. Several metals including cadmium, chromium, copper, iron and lead were detected but in concentrations that did not exceed background levels (USGS, 1983). Because of the large volume of fill (3,215,000 cubic yards) the extent of contamination at the site is unknown. Volatile organics were detected on-site during the ES and D&M site inspection at concentrations that exceeded background levels (160 ppm). A plot plant of the NFTA site is presented in Figure I-2.

ASSESSMENT

In an attempt to quantify the risk associated with this site, the Hazard Ranking Scoring system (HRS) was applied as currently being used by the New York State DEC to evaluate abandoned hazardous waste sites in New York State. This system takes into account the types of wastes at the site, receptors, and transport routes to apply a numerical ranking of the site. As stated in 40 CFR Subpart H Section 300.81, the HRS scoring system was developed to be used in evaluating the relative potential of uncontrolled hazardous substance facilities to cause health or safety problems or ecological or environmental damage. It is assumed by the EPA that a uniform application of the ranking system in each state will permit EPA to identify those releases of hazardous substances that pose the greatest hazard to humans or the environment.

Under the HRS, three numerical scores are computed for each site, to express the relative risk or danger from the site, taking into account the population at risk, the potential for contamination of drinking water supplies, for direct human contact, and 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 or air. It is a composite of separate scores for each of the three routes (S_{GW} = groundwater route score, S_{SW} = surface water route score, and S_A = air route score).

- S_{FE} reflects the potential for harm from substances that can explode or cause fires.

- S_{DC} reflects the potential for harm from direct contact with hazardous substances at the facility (i.e., no migration need be involved).

The preliminary HRS score was:

S_M	=	7.12	S_A	=	0
S_{GW}	=	3.88	S_{FE}	=	0
S_{SW}	=	11.69	S_{DC}	=	50.00

These scores reflect the large volume of potentially toxic material disposed on this site. In addition, the large population in the vicinity of the site results in a high direct contact score.

RECOMMENDATIONS

The following recommendations are made for the completion of Phase II:

- Geophysical study consisting of a magnetometry survey in the southern portion of the site.

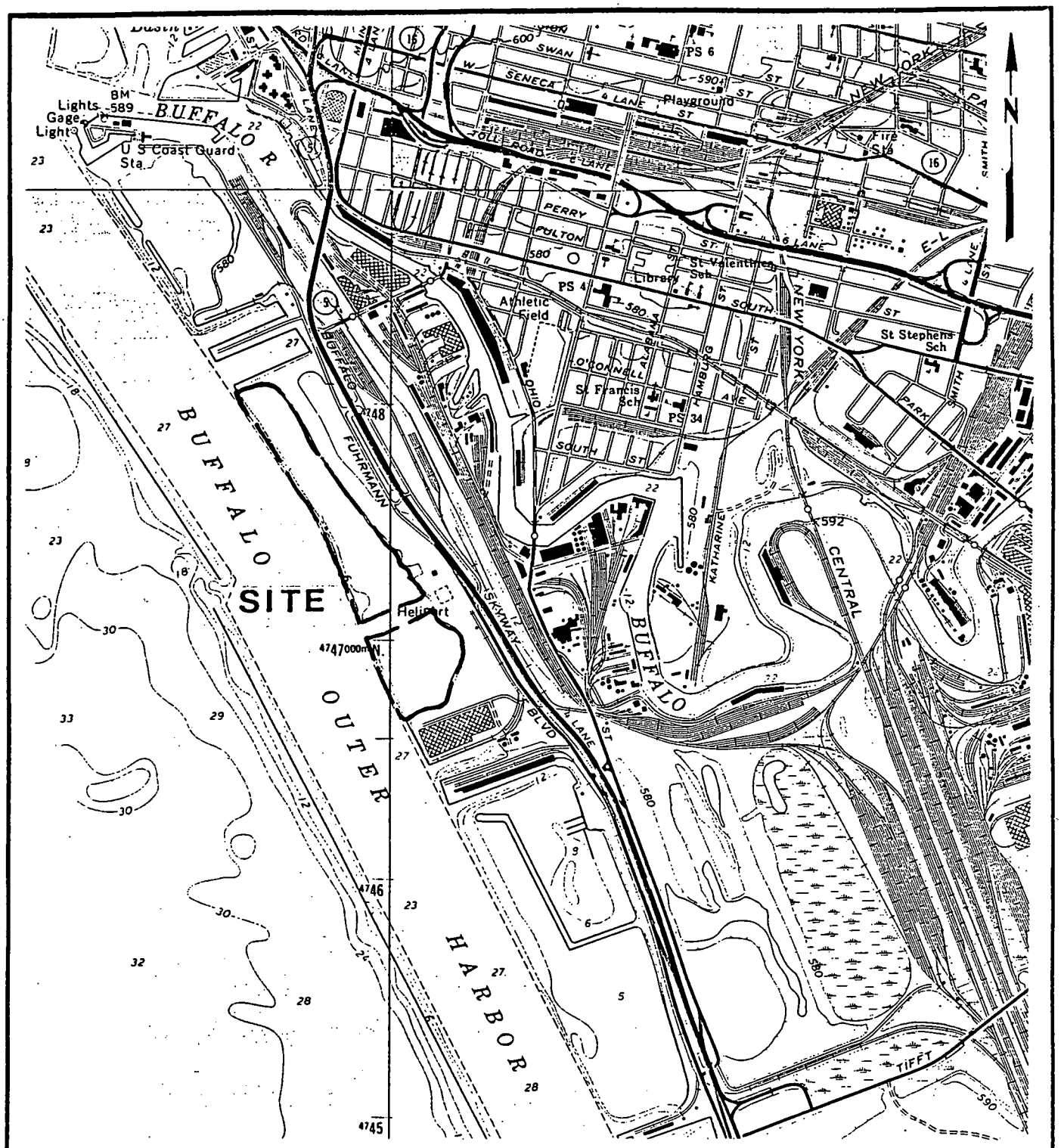
- Drill forty auger holes to determine the volume and characteristics of fill materials on-site.

- Based on results of the auger hole drilling program and geophysical survey, install ten groundwater monitoring stations. Note that the locations of the monitoring wells will be determined during the Phase II program.

- Waste sampling consisting of ten soil borings in area where air contamination (HNu meter) was identified during site inspection.

- Analyses to include priority pollutants.

The estimated manhour requirement to complete Phase II are 1,014, while the estimated cost is $94,432.



LATITUDE: 42°52'04"
LONGITUDE: 78°52'38"

SCALE

0 1000 2000 3000 4000 FEET

REFERENCE: U.S.G.S. 7.5' Topographic Map
Buffalo SE, NY (1965), Buffalo NE, NY (1965)
and Buffalo NW, NY-ONT. (1965) Quadrangles

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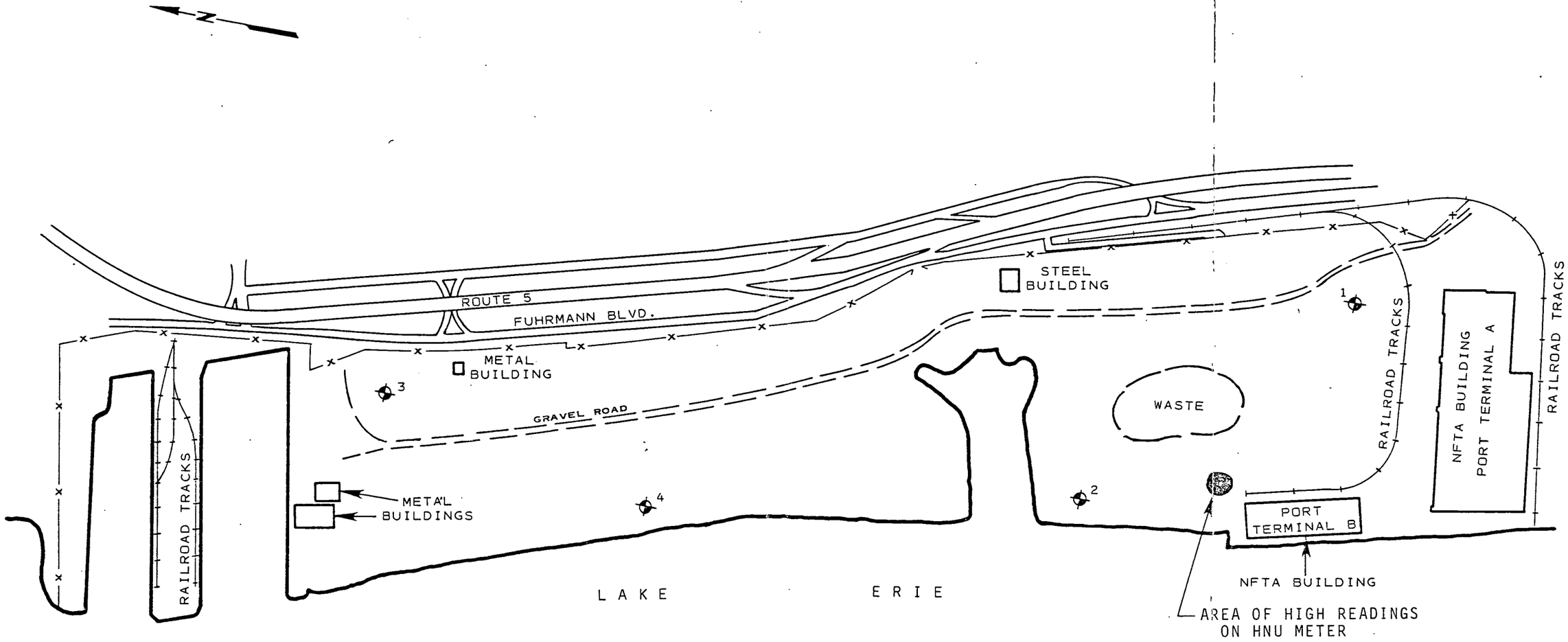
SITE LOCATION MAP
NIAGARA FRONTIER PORT AUTHORITY

FIGURE I-1



NOT TO SCALE

EXPLANATION:

1 USGS BORING, 1982

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PLOT PLAN

NIAGARA FRONTIER PORT AUTHORITY

FIGURE I-2

SECTION II

PURPOSE

The purpose of the Phase I investigation at the Niagara Frontier Transportation Authority (NFTA) site was to assess the hazard to the environment caused by the present condition of the site. This assessment is based on the Hazard Ranking System, which involves the compilation and rating of numerous geological, toxicological, environmental, chemical, and demographic factors and the calculation of an HRS score. Details of HRS implementation are included in Section V. During the initial portion of the investigation, available data and records, combined with information collected from a site inspection, were reviewed and evaluated. The investigation at this site focused on the contaminants present in the fill materials used on-site. Based on this initial evaluation of the NFTA site, a Phase II Work Plan has been prepared for collecting any additional data needed to complete the HRS score. In addition, a cost estimate for the recommended Phase II work is provided.

SECTION III

SCOPE OF WORK

The scope of work for the New York State Inactive Site Investigation Program (Phase I) was to collect and review all available information necessary for the documentation and preparation of a Hazard Ranking System score and a Phase II work plan and cost estimate if required. The work activities performed included data collection and review, a site inspection, and interviews with knowledgeable individuals of past and present disposal activities at the site.

The sources contacted during this Phase I investigation included government agencies (federal, state and local), present site owners and operators, and any other individuals that may have knowledge of the site, as identified during the performance of the investigation. These sources are listed in Appendix A. The intent of the list is to identify all persons, departments, and/or agencies contacted during the third round of the Phase I investigations even though useful information may not have been collected from each source contacted.

SECTION IV

SITE ASSESSMENT

SITE HISTORY

The Niagara Frontier Transportation Authority, Seaport Division building, located at 901 Fuhrmann Blvd., Buffalo, NY, was formerly owned by the Ford Motor Company during the 1940's. The fill area located north of the Ford plant site was alledgedly use by Ford to dispose of cafeteria, office and general plant refuse. Unknown quantities of furnace casting sands from the Chevrolet plant located in Buffalo, NY were also disposed of in the Ford fill area (NYSDEC, 1983). In the 1950's, the U.S. Army Corps of Engineers contracted the Great Lake Dredge and Dock Company to dredge the Buffalo Outer Harbor Shipping Channel and dike in the area adjacent to the Ford Assembly plant. The harbor dredgings excavated in the vicinity of the Union and Lackawanna Canals were placed in what is now the southern section (48 acres) of the NFTA site. The dredgings removed from the outer harbor channel were used to fill the northern section (72 acres) of the NFTA site. An estimated 2,130,000 cubic yards of dredged materials were used as fill to form the NFTA site. Also, an estimated 155,000 tons of blast furnace slag from Bethlehem steel was used as fill material at the site. (Borkowski, 1985). The harbor dredging and filling operations were completed in 1964.

In approximately 1950, the Niagara Frontier Port Authority was chartered by the State of New York to develop and operate the Buffalo Harbor Operations. The Niagara Frontier Port Authority (NFPA) became the Niagara Frontier Transportation Authority (NFTA) in 1967. During the 1950's, the NFPA acquired the 120-acre fill area from the U.S. Army Corps of Engineers. Because the southern section of the fill area was a

low wetland, additional fill operations were conducted between 1965 and 1979. An estimated 930,000 cubic yards of fill was trucked in by various off-site contractors from construction excavations in the City of Buffalo (NFTA, 1985). No records exist with regard to the fill activities.

The north section of the NFTA is presently used for the storage of bulk materials including road salt, potash, coal, coke, etc. These raw materials are unloaded from ships for distribution by truck and rail. The waterfront portion of the southern section of the NFTA site is also used for bulk storage of raw materials. With the exception of a small storage area in the southern section of the site, the remaining portion of the site is unused and undeveloped.

SITE TOPOGRAPHY

The NFTA site is located along an approximate one-mile segment of the shore of Lake Erie in the City of Buffalo, Erie County, New York State. This site is composed primarily of "made land". At the present time, the ground surface is relatively flat and approximately 6 feet above lake level. Within the site are three large boat slips and four buildings, two of which are occupied by tenants (the northern end and the center of the site). The NFTA has offices and operations in the two buildings at the southern end of the site (the southernmost of which is the old Ford building).

The rectangular 120-acre site is located in an industrial section of the City of Buffalo. West of the site is the Buffalo Harbor, which is a protected part of Lake Erie. North of the site is property owned by the Power Authority State of New York (PASNY) and used for ice boom storage in the summer months. North of the PASNY property is the Times Beach disposal area. South of the site is a continuation of NFTA property, on which is located the municipal small boat harbor, and, further south, additional dredging disposal areas. To the east of the site is Fuhrmann Boulevard and the Route 5 Skyway. Further east are the remains of a ship canal and numerous railroad tracks.

The depth of water in the Buffalo Harbor adjacent to the site is maintained by dredging at 27 feet. The site is actively used as a bulk storage area for offloading dry products from large merchant ships. Therefore, the surface of the site, although relatively flat, contains several large (greater than 50 feet in height) mounds of dry products such as salt and potash.

Local Sensitive Environments

The Niagara River is located along the migration pathway of three endangered species: peregrine falcon, bald eagle, and golden eagle. The river and its major tributaries may provide a wintering-over area for these birds; an adult eagle was observed on the upper Niagara River in late December 1984. In addition, these rivers may provide potential breeding areas for these endangered birds, but this has never been confirmed.

The Upper Niagara River is a major wintering area for many common water fowl, including greater scaup, canvas back and common golden eye ducks, thousands of common merganseirs, terns and gulls. This open water wintering area is created by the ice boom at the source of the Niagara River, which keeps the water surface open downriver as far as the Peace Bridge.

The river supports a large water fowl population because of its year-round rich fishing grounds, especially at the source of the river and north of Grand Island. In addition, Tonawanda Creek and Black Rock Canal (adjacent to Squaw Island) are mallard nesting areas.

Wetlands also provide habitats for waterfowl. The best wetland in the Upper Niagara area is on Buckhorn Island (north end of Grand Island). Another important wetland occurs adjacent to the site at Times Beach. Nearby, the Tifft Farms Nature Preserve is the largest cattail preserve in Erie County and provided a habitat for the osprey ("bird of interest" to NYSDEC)

The fish population within the Niagara River is part of the larger Lake Erie fish population. The threatened lake sturgeon occurs in Lake Erie and the Niagara River. It is a deep water benthic fish, which may occasionally ingest bottom sediments. It commonly occurs off Sturgeon Pt. (southeast shore of Lake Erie), and is caught occasionally in the Niagara River. Blue pike, a cool water fish, previously existed in Lake Erie, but has been classified as legally extinct since the 1970's. There is not a consensus of opinion regarding the reason for its extinction.

The effects of contamination on the fish and wildlife populations of the Niagara River are largely unknown. An ongoing toxicological study of the common golden eye duck, which feeds on mollusks, is aimed at assessing the impact of known and suspected contaminants on the health of this population.

SITE HYDROLOGY

This summary is based on information from USGS topographic maps, NYS Museum & Science Service Bedrock Geology map, La Sala (1968) USGS drilling information (1982), and Erie County DEP Site Profile Report (1982), and US Army Corps of Engineers (1985).

Regional Geology and Hydrology

The site is located in the Erie-Ontario lowlands physiographic province. The bedrock of this region is predominantly limestone, dolostone, and shale. Most of the rocks are deep aquifers with regional flow to the south.

In the recent past, most of New York State, including the site, has been repeatedly covered by a series of continental ice sheets. The activity of the glacier widened preexisting valleys and deposited widespread accumulations of till. The melting of ice, ending approximately 12,000 years ago, produced large volumes of meltwater; this water subsequently shaped channels and deposited thick accumulations of stratified, granular sediments.

As glacial ice retreated from the region, meltwater formed lakes in front of the ice margin. The Erie County region is covered by lake sediments; the most recent being from Lake Warren (a larger predecessor to Lake Ontario and Lake Erie). The sediments consist of blanket sands and beach ridges which are occasionally underlain by lacustrine silts and clays (indicating quiet, deeper water deposition).

Granular deposits in this region frequently act as shallow aquifers, whereas lacustrine clays, as well as tills, often inhibit groundwater movement. However, fine-grained, water-lain sediments, such as silts and clays, frequently contain horizontal laminations and sand seams. These internal features facilitate lateral groundwater movement through otherwise low permeability materials.

Site Hydrogeology

The bedrock beneath the site is expected to be Onondaga limestone, occurring at a depth of 70 to 80 feet. Several industrial wells withdraw groundwater from this unit; the water is withdrawn at a typical rate of 35,000 gallons per day and is high in H_2S. Other analyses of this water measured:

Parameter	Quantity
Sulfate	104 ppm
Chloride	334 ppm
Ca/Mg hardness	338 ppm
Specific Conductance	1750 umhos
pH	7.2

The nearest industrial well to the site is 0.4 mile away (LaSala, 1968).

Soil stratigraphy is expected to be:

Soil Type	Depth
Mixed sand fill	0 - 15'
Green lacustrine sand, silt and clay	70 - 80'
Top of rock	Approx. 70 - 80'

The natural sandy soil in the shallow subsurface of this site is probably slightly permeable (assumed 10^{-3} cm/sec to 10^{-5} cm/sec for HRS scoring) and may form a shallow soil/fill aquifer, hydraulically connected with the Buffalo Harbor. The water table within this fill material probably occurs at a depth of approximately 6 feet.

If a sufficiently thick clay layer exists below the sand, then this shallow aquifer may not be hydrologically connected to the bedrock aquifer. The occurrence of a clay unit on this site is speculative and not documented on boring logs.

SITE CONTAMINATION

In the 1950's, the U.S. Army Corps of Engineers disposed of dredgings from the Buffalo Outer Harbor Shipping Channel in the area that is now called the NFTA (Seaport Division) site. An estimated 2,130,000 cubic yards of dredged material were used as fill to form the site. Furnace slag (150,000 tons) from Bethlehem Steel was also used as fill material on-site during this period (Borkowski, 1985). Prior to these filling operations (lated 1940's), an unknown quantity of general plant refuse from the Ford Motor Company plant was also placed on-site (NYSDEC, 1983).

From 1965 to 1979, an estimated 930,000 cubic yards of fill was trucked in by various off-site contractors from construction excavations in the City of Buffalo (Wawzyniak, 1985). The portion of the NFTA site where high HNu meter readings were noted were filled by materials trucked in during this time period. No recent fill operations have been conducted at the site.

The USGS drilled four test borings at the NFTA site in August 1982. The location of the borings is presented in Figure IV-1. From each boring, a soil sample was collected and analyzed for cadmium, chromium, copper, iron and nickel. The data results are presented in Table IV-1. The concentrations of heavy metals detected were not above concentrations of samples collected from undisturbed areas not affected by waste disposal sites (USGS, 1983). The concentration of lead in natural soils is 2 ppm to 200 ppm with 10 ppm as the median value (USEPA, 1983). Therefore, the lead concentration (60 ppm) found at NFTA are not unusually high.

The U.S. Army Corps of Engineers, Buffalo District, through the Great Lakes Laboratory of the State University College at Buffalo, conducts periodic analytical studies of sediment, water and elutriate water from the Buffalo Harbor. The harbor dredgings used for fill at the NFTA site came from the portion of the Buffalo Harbor where samples were collected for the on-going harbor studies. Therefore, the concentration of contaminants detected in the sediment samples collected to date should be representative of pollutant concentrations in the sediments previously dredged and used as fill at the NFTA site.

The U.S. Army Corps of Engineers Buffalo Harbor Study analyzed samples collected from three major areas including the Buffalo River, Buffalo Harbor and Black Rock Canal. The analyses performed included thirty-one organic compounds and heavy metals. Report summaries prepared by the U.S. Army Corps of Engineers, Buffalo District for the analytical work performed in 1972 and 1981 are provided in the Appendices.

Analytical results (EP Toxicity) conducted by RECRA Research in 1979 of Chevrolet foundary sands (core and waste sands) disposed at other sites, indicate that the materials are non-hazardous (RECRA Research, 1979). Samples of the Chevrolet foundry sands disposed on the NFTA site were not collected and analyzed for these results. However, the data was obtained from samples provided by Chevrolet for analysis

prior to disposal at another Phase I site (Land Reclaimation). These results should be indicative of waste Chevrolet foundry sands disposed on the NFTA site. These results are provided in the Appendix.

HNU meter readings taken during the site inspection conducted by Engineering-science and Dames & Moore in March 1985, detected volatile organics in the southern section of the NFTA site adjacent to the storage area. The HNU meter readings were in the 10-20 ppm range in several areas and a maximum reading of 160 ppm was observed. The background volatile readings noted during the site inspection were 4 ppm. It is assumed, therefore, that if the background HNU meter readings were 4 ppm, then off-site sources (i.e., coke ovens) were not affecting the downwind meter readings. The areas of the NFTA site with HNU meter readings in excess of background levels are presented in Figure VI-1.

TABLE IV-1

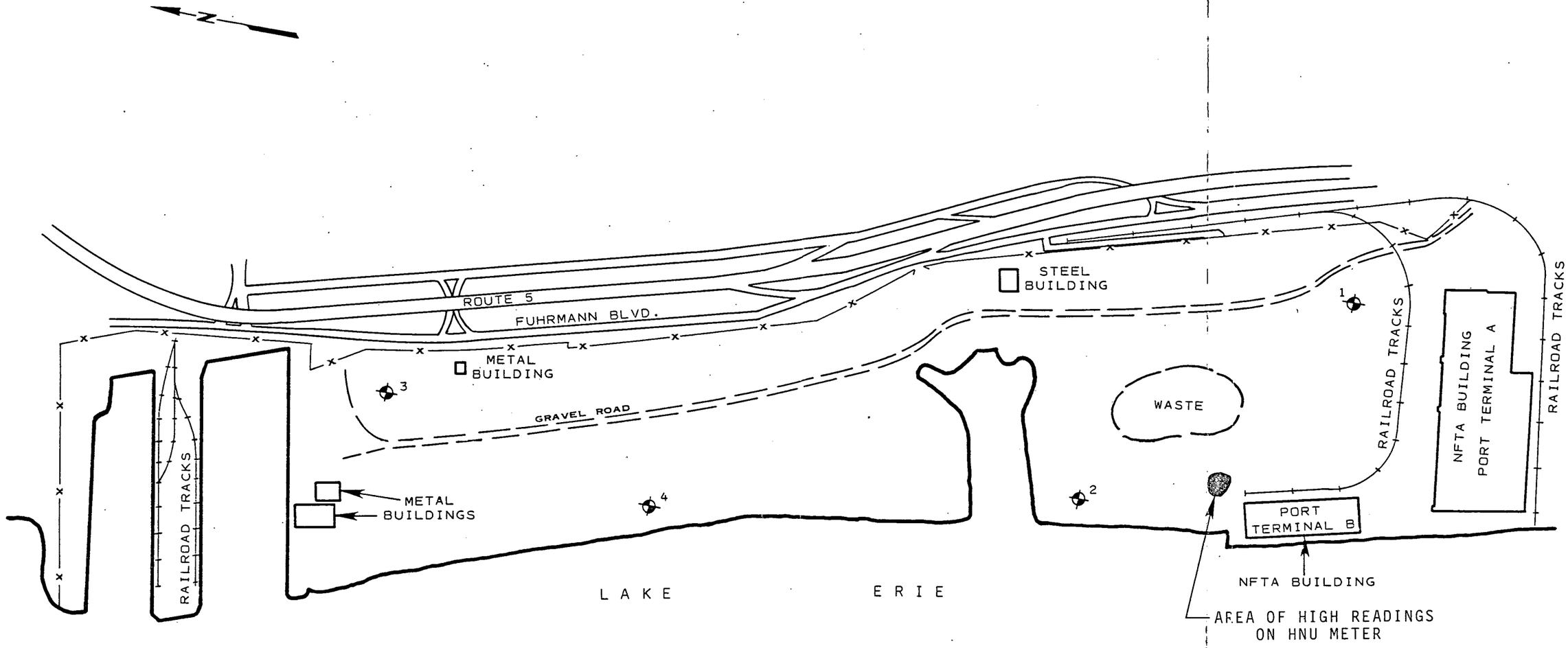
ANALYSES OF SUBSTRATE SAMPLES FROM NIAGARA FRONTIER PORT AUTHORITY SITE

	Sample number and depth below land surface (ft)			
	1	2	3	4
Parameter	13.0	13.0	26.5	8.0
Inorganic constituents (ug/kg)				
Cadmium	---[a]	---	1,000	---
Chromium	1,000	2,000	1,000	---
Copper	---	1,000	38,000	---
Iron	58,000	270,000	340,000	130,000
Lead	---	---	60,000	---
Nickel	---	---	---	---

SOURCE: USGS, 1983.

[a] Indicates compound was not found.

Note: Samples collected on 8/5/82.



NOT TO SCALE

EXPLANATION:

1 USGS BORING, 1982

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PLOT PLAN

NIAGARA FRONTIER PORT AUTHORITY

FIGURE IV-1

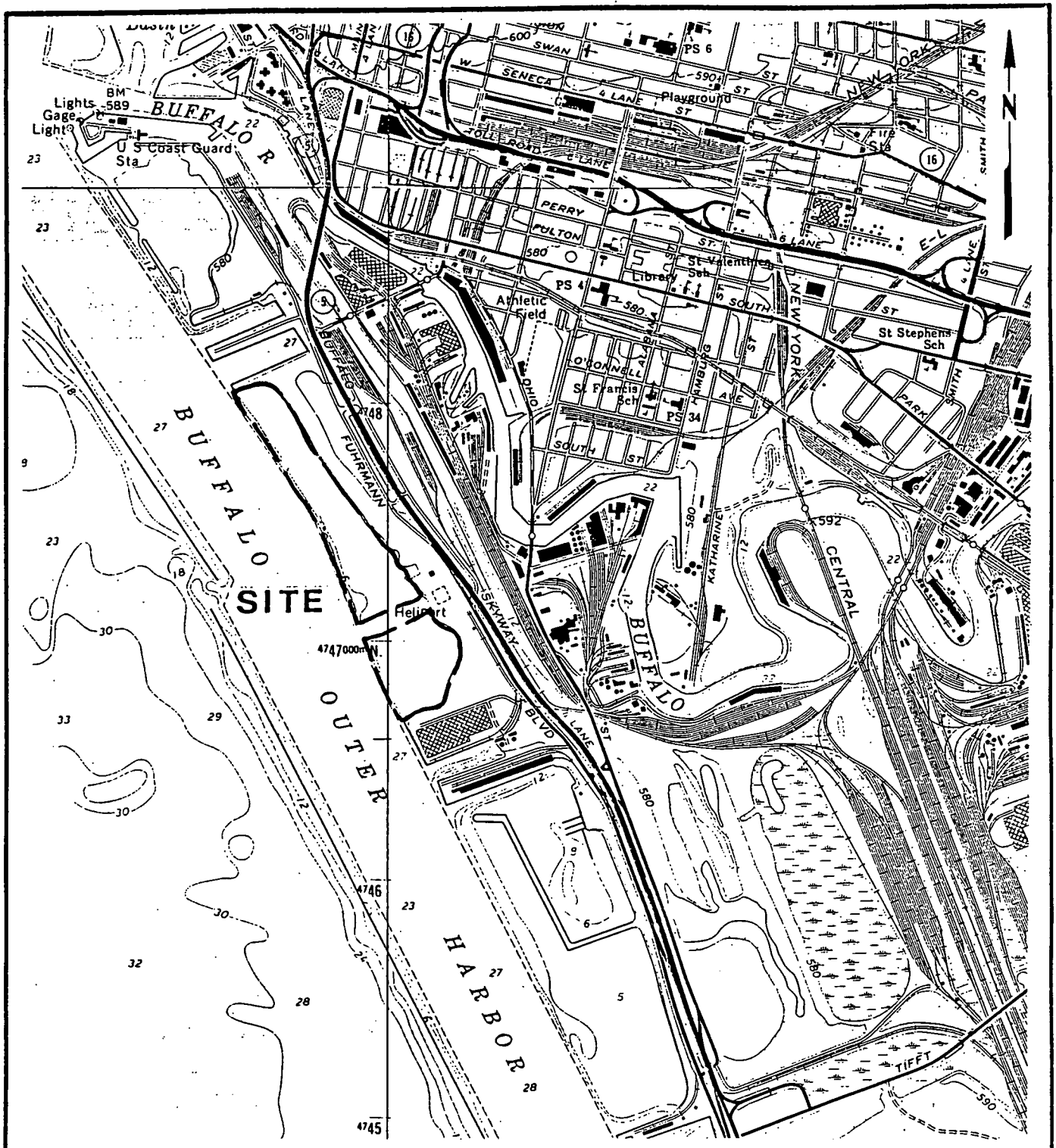
NARRATIVE

PRELIMINARY APPLICATION OF HAZARD RANKING SYSTEM

NARRATIVE SUMMARY

The Niagara Frontier Transportation Authority (NFTA) site is in the City of Buffalo, Erie County, New York. The NFTA 120-acre site borders the Buffalo Harbor and is north of the old Ford plant. The site was formed by the placement of fill material from several sources. On-site disposal activities included the disposal of general plant refuse and foundry sand from the Chevrolet plant located east of the Ford plant site. From approximately 1950 through 1964, the U.S. Army Corps of Engineers, through a dredging contractor, conducted dredging operations of the outer Buffalo Harbor. The dredged material (approximately 2,130,000 cubic yards) was used to dike and fill the area north of the Ford Assembly plant (Borkowski, 1985). The NFTA acquired the fill site during the 1950's and conducted fill operations in the southern section of the site from approximately 1965 through 1979. The additional fill (estimated 930,000 cy) was trucked in by local construction contractors from excavation work sites in the Buffalo area (Wawzyniak, 1985). The site is currently owned by the NFTA and operated by their Seaport Division. The site is used to store bulk materials unloaded from ships for distribution by truck and rail. With the exception of a small storage area used to dispose of non-combustible materials, no disposal activities presently occur on-site.

The USGS collected four soil samples on-site which were analyzed for heavy metals including cadmium, chromium, copper, iron and lead. However, the concentration of metals detected were not above background levels (USGS, 1983). HNu meter readings taken on-site detected volatile organics in several areas in the southern section of the site. The meter readings ranged from 10-20 ppm to a high of 160 ppm (site inspection conducted by ES and D&M, 3/20/85). Neither surface water nor groundwater samples have been collected from the site.



LATITUDE: 42°52'04"
LONGITUDE: 78°52'38"

SCALE

0 1000 2000 3000 4000 FEET

REFERENCE: U.S.G.S. 7.5' Topographic Map
Buffalo SE, NY (1965), Buffalo NE, NY (1965)
and Buffalo NW, NY-ONT. (1965) Quadrangles

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PHASE I REPORT

SITE LOCATION MAP
NIAGARA FRONTIER PORT AUTHORITY

FIGURE ii-1

HRS COVER SHEET

Facility Name: Niagara Frontier Transportation Authority

Location: 910 Fuhrmann Blvd., Buffalo, NY 14203

EPA Region: II

Person(s) in charge of the facility: Mr. J. D. Latona (Director)

183 Ellicott St., Buffalo, NY

Name of Reviewer: S. Robert Steele, II Date: 4/3/85

General Description of the Facility:

The NFTA 120-acre site was formed with dredgings excavated from the Buffalo Harbor under a U.S. Army Corps of Engineers project. Other materials used as fill on-site included blast furnace slag, foundry casing sands and miscellaneous plant refuse. Heavy metals including cadmium, chromium, copper, iron and lead were detected in low concentrations (below background) on-site by the USGS. No groundwater or surface water samples have been collected and analyzed from the site. HNu meter readings taken on-site etected volatile organics in the southern section of the site ranging from 10 to 160 ppm.

Scores: S_M = 7.12 (S_{gw} = 3.88 S_{sw} = 11.69 S_a = 0)

S_{FE} = 0

S_{DC} = 50.00

Facility Name: NFTA - Port of Buffalo Date: 5/21/85

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} = 3.88		

GROUND WATER ROUTE WORK SHEET

Facility Name: NFTA - Port of Buffalo Date: 5/21/85

Surface Water Route Work Sheet

Rating Factor	Assigned Value (Circle One)	Multiplier	Score	Max. Score	Ref. (Section)
1 Observed Release	(0) 45	1	0	45	4.1
If observed release is given a value of 45, proceed to line 4. If observed release is given a value of 0, proceed to line 2.					
2 Route Characteristics					4.2
Facility Slope and Intervening Terrain	(0) 1 2 3	1	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	6	9	
Distance to a Sensitive Environment	0 1 2 (3)	2	6	6	
Population Served/ Distance to Water	(0) 4 6 8 10	1	0	40	
Intake Downstream	12 16 18 20 24 30 32 35 40				
Total Targets Score			12	55	
6 If line 1 is 45, multiply 1 x 4 x 5 If line 1 is 0, multiply 2 x 3 x 4 x 5			7,524	64,350	
7 Divide line 6 by 64,350 and multiply by 100			S_{sw} = 11.69		

SURFACE WATER ROUTE WORK SHEET

Facility Name: NFTA - Port of Buffalo Date: 5/21/85

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: 3/20/85 at southern section of site, readings 0-160 ppm					
Sampling Protocol: HNu meter reading taken above contaminated soil					
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	21	30	
Distance to Sensitive Environment	0 1 2 (3)	2	6	6	
Land Use	0 1 2 (3)	1	3	3	
Total Targets Score			30	39	
[4] Multiply [1] x [2] x [3]			0	35,100	
[5] Divide line [4] by 35,100 and multiply by 100			S_a = 0		

AIR ROUTE WORK SHEET

Facility Name: NFTA - Port of Buffalo Date: 5/21/85

Worksheet for Computing S_M

	S	S^2
Groundwater Route Score (S_{gw})	3.88	15.05
Surface Water Route Score (S_{sw})	11.69	136.66
Air Route Score (S_a)	0.00	0.00
$S_{gw}^2 + S_{sw}^2 + S_a^2$		151.71
$\sqrt{S_{gw}^2 + S_{sw}^2 + S_a^2}$		12.32
$\sqrt{S_{gw}^2 + S_{sw}^2 + S_a^2} / 1.73 = S_M =$		7.12

WORK SHEET FOR COMPUTING S_M

Facility Name: NFTA-Port of Buffalo Date: 5/21/85

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

FIRE AND EXPLOSION WORK SHEET

Facility Name: NFTA-Port of Buffalo Date: 5/21/85

Direct Contact Work Sheet					
Rating Factor	Assigned Value (Circle One)	Multi-plier	Score	Max. Score	Ref. (Section)
1 Observed Incident	(0) 45	1	0	45	8.1
If line 1 is 45, proceed to line 4 If line 1 is 0, proceed to line 2					
2 Accessibility	0 1 2 (3)	1	3	3	8.2
3 Containment	0 (15)	1	15		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	16	20	
Distance to a Critical Habitat	(0) 1 2 3	4	0	12	
Total Targets Score			16	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			10800	21,600	
7 Divide line 6 by 21,600 and multiply by 100			S_{DC} = 50.00		

DIRECT CONTACT WORK SHEET

DOCUMENTATION RECORDS
FOR
HAZARD RANKING SYSTEM

FACILITY NAME: Niagara Frontier Transportation Authority - Port of Buffalo

LOCATION: 910 Fuhrmann Blvd, City of Buffalo, Erie County, NY

GROUNDWATER ROUTE

1. OBSERVED RELEASE

Contaminants detected (5 maximum):

No groundwater samples have been analyzed. However, substrate samples analyzed by the USGS have indicated the presence of heavy metals. (NYSDEC Registry Sheet, 12/83).

Rationale for attributing the contaminants to the facility:

No groundwater samples have been analyzed.

* * *

2. ROUTE CHARACTERISTICS

Depth to Aquifer of Concern

Name/description of aquifer(s) of concern:

Shallow soil/fill aquifer which is hydraulically connected with the Buffalo Harbor (USGS, 1983). Note: bedrock aquifer (Onondaga Limestone) occurs at a depth of 70-80 feet (LaSala, 1968).

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

Groundwater was encountered at 13-14 feet (USGS, 1983).

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

Approximtely 14 feet (USGS, 1983).

Net Precipitation

(US Dept. of Commerce, National Climatic Center, Climatic Atlas of the United States, 1979)

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

Mean annual precipitation is 36".

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

Mean annual lake evaporation is 27".

Net precipitation (subtract the above figures):

9" (36' - 27' = 9").

Permeability of Unsaturated Zone

Soil type in unsaturated zone:

Fill material consisting of casting sands, demolition debris and dredged lake bottom sediments, and miscellaneous debris including cafeteria, office, and plant refuse, and paint sludges (USGS, 1983 and NYSDEC Registry Sheet, 12/83).

Permeability associated with soil type:

Clayey Sand: 10^{-3} to 10^{-5} cm/sec (Freeze, R.A. and J.A. Cherry, Groundwater, 1979)

Physical State

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

Solid, liquid (USGS, 1983 and NYSDEC Registry Sheet, 12/83).

3. CONTAINMENT

Containment

Method(s) of waste or leachate containment evaluated:

Dredgings, clean fill and furnace sands and slag were used as fill material to form the NFTA site (Wawrzyniak, NFTA, 1985; NYSDEC Registry, 1983; and Borkowski, US Army Corps of Engineers, 3/27/85).

Method with highest score:

Land recovery project; no liner; landfill surface encourages ponding; no run-on control - 3.

4. WASTE CHARACTERISTICS

Toxicity and Persistence

Compound(s) evaluated:

Heavy metals (cadmium, chromium, copper, iron, lead) (suspected) (USGS, 1983). Note: heavy metals were found in low concentrations (below background). Organic constituents may also be disposed on-site as indicated by HNU meter readings taken on-site, however, the type of waste is unknown.

Compound with highest score:

Heavy metals (toxicity = 3, persistence = 3) - 18

Hazardous Waste Quantity

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

The quantity of fill material potentially containing wastes placed at the NFTA site exceeds the upper limit of tons used in the HRS rating system. However, the quantity of hazardous waste disposed on-site is unknown.

Basis of estimating and/or computing waste quantity:

An estimated 3,039,000 cubic yards of material including river dredgings (2,130,000 cubic yards), blast furnace slag (155,000 cubic yards), foundry sand (unknown) and soil fill (754,000 cubic yards) were used as fill to form the 120-acre Buffalo site. The only data available to score the level of contamination at the site are four USGS soil samples collected during the Niagara River Toxics Study, 1983. These data are insufficient to score the large volume of material filled on-site. (NYSDEC Registry, 1983; Borkowski, U.S. Army Corps of Engineers, 1985; and, Wawzyniak, NFTA, 1985). Therefore, because the quantity of hazardous waste disposed on-site is unknown, 1 to 10 cubic yards of hazardous waste is assumed to be disposed of on-site.

5. TARGETS

Groundwater Use

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

Public water supply in use within 3 mile radius of site; no private drinking water wells (Violanti, 1985). Groundwater is not used, but usable.

Distance to Nearest Well

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

Not applicable.

Distance to above well or building:

Not applicable.

Population Served by Ground Water 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:

None within 3 miles (Violanti, 1985).

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

None (Violanti, 1985).

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

None (Violanti, 1985).

SURFACE WATER ROUTE

1. OBSERVED RELEASE

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

No surface water samples analyzed for contamination (USGS, 1983).

Rationale for attributing the contaminants to the facility:

Not tested.

* * *

2. ROUTE CHARACTERISTICS

(USGS Topographic Maps, Buffalo NW, NY-ONT 1965; Buffalo NE, NY; Buffalo SE, NY 1965)

Facility Slope and Intervening Terrain

Average slope of facility in percent:

Less than 1.0%

Name/description of nearest downslope surface water:

Buffalo Outer Harbor in Lake Erie.

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

Less than 1.0%

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

No. Site was used as a fill area for dredged lake bottom sediments in order to extend shoreline. The Buffalo Outer Harbor borders the site but site is not located in the surface water (ES and D&M Site Visit, 3/20/85).

Is the facility completely surrounded by areas of higher elevation?

No.

1-Year 24-Hour Rainfall in Inches

2.1" (USDOC Technical Paper No. 40)

Distance to Nearest Downslope Surface Water

0.0 mile, site is adjacent to Lake Erie.

Physical State of Waste

Solid, liquid (USGS, 1983).

* * *

3. CONTAINMENT

Containment

Method(s) of waste or leachate containment evaluated:

Harbor dredgings, clean fill and furnace sands and slag were used as fill materials to form the 120-acre NFTA site. (Interview with Jerry Wawrzyniak, NFTA, during ES and D&M site inspection, 3/20/85).

Method with highest score:

Land recovery project; landfill not covered and no diversion system is present.

4 WASTE CHARACTERISTICS

Toxicity and Persistence

Compound(s) evaluated

Heavy metals (cadmium, chromium, copper, iron, lead) (toxicity = 3, persistence) - 3 (USGS, 1983.) Note: heavy metals were found in low concentrations (below background). Organic constituents may also be disposed on-site as indicated by HNU meter readings taken on-site; however, the type of waste is unknown.

Compound with highest score:

Heavy metals (suspected) (toxicity = 3, persistence = 3) - 18.

Hazardous Waste Quantity

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

The quantity of fill material potentially containing wastes placed at the NFTA site exceeds the upper limit of tons/cubic yards used in the HRS rating system. However, the quantity of hazardous wastes disposed on-site is unknown.

Basis of estimating and/or computing waste quantity:

An estimated 3,039,000 cubic yards of materials including river dredgings, (2,130,000 cubic yards), blast furnace sand and slag (155,000 cubic yards) and clean fill (754,000 cubic yards) were used as fill at the 120-acre NFTA site. Insufficient data are available to score the fill material used on-site (NYSDEC Registry, 1985; Borkowski, US Army Corps of Engineers, 1985; and Wanrzywiak, NFTA, 1985). Therefore, because the quantity of hazardous waste disposed on-site is unknown, 1 to 10 cubic yards of hazardous waste is assumed to be on-site.

* * *

5. TARGETS

Surface Water Use

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

Industrial and commercial shipping, recreation, United States Coast Guard Station (ES and D&M Site Visit, 1985).

Is there tidal influence?

No.

Distance to a Sensitive Environment

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

None within 2 miles (western NYS not a coastal area).

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

Adjacent to Times Beach (Sneider and Wilkinson, 1985).

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

None within 1 mile (Sneider and Wilkinson, 1985).

Population Served by Surface Water

(NYS Atlas of Community Water System Sources, 1982)

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

None within 3 miles.

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

None within 3 miles.

Total population served:

None.

Name/description of nearest of above water bodies:

Not applicable.

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

Not applicable.

AIR ROUTE

1. OBSERVED RELEASE

Contaminants detected:

HNU meter readings were taken during the site inspection conducted by ES and D&M and detected volatile organics on-site. Background readings were in the 4 ppm range. However, data cannot be used as an observed release since no confirmed organic contaminants have been measured in site leachate or groundwater samples.

Date and location of detection of contaminants:

HNU meter readings taken during the site inspection conducted by ES and D&M, 3/20/85, detected volatile organics in the 160 ppm range in southern section (42-acre tract) off the NFTA Site. HNu meter readings in the northern section of the site were in the 2-3 ppm range.

Methods used to detect the contaminants:

HNU meter probe held above soil suspected of being contaminated (Site Inspection conducted by ES and D & M, 3/20/85).

Rationale for attributing the contaminants to the site:

HNU meter readings

* * *

2. WASTE CHARACTERISTICS

Reactivity and Incompatibility

Most reactive compound:

Source of volatile organics detected on-site is unknown.

Most incompatible pair of compounds:

Not applicable, no known incompatible compounds are known to be disposed on-site.

Toxicity

Most toxic compound:

The chemical waste detected by the HNU meter during the ES and D&M site visit is unkown. Therefore, the toxicity of the material can not be scored.

Hazardous Waste Quantity

Total quantity of hazardous waste:

The amount of hazardous waste disposed on-site that could potentially affect the air pathway is unknown.

Basis of estimating and/or computing waste quantity:

Not applicable. See above comment.

* * *

3 TARGETS

Population Within 4-Mile Radius

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

(0 to 4 mi) 0 to 1 mi 0 to 1/2 mi 0 to 1/4 mi

171,814 people (Compiled from 1980 US Bureau of the Census Data).

Distance to a Sensitive Environment

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

None within 2 miles (western NYS not a coastal area).

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

0.0 (adjacent) (Sneider and Wilkinson, 1985).

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

None within 1 mile (Sneider and Wilkinson, 1985).

Land Use

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

0.0 mile, site is located in a commercial/industrial district (ES and D&M Site Inspection, 1985).

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

0.8 miles to Tifft Farms Nature Preserve (USGS Topographic Maps: Buffalo NW, NY-Ont-1965; Buffalo NE, NY - 1965; Buffalo SE, NY - 1965).

Distance to residential area, if 2 miles or less:

1 mile (USGS Topographic Maps: Buffalo NW, NY-Ont-1965; Buffalo NE, NY - 1965; Buffalo SE, NY - 1965).

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

None within 1 mile (USGS Topographic Maps: Buffalo NW, NY-Ont-1965; Buffalo NE, NY - 1965; Buffalo SE, NY - 1965).

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

None within 2 miles (USGS Topographic Maps: Buffalo NW, NY-Ont-1965; Buffalo NE, NY - 1965; Buffalo SE, NY - 1965).

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

No.

FIRE AND EXPLOSION

1. CONTAINMENT

Hazardous substances present:

No information was discovered during the Phase I study which indicates that a fire and explosion situation existed or presently exists at the site.

Type of containment, if applicable:

* * *

2. WASTE CHARACTERISTICS

Direct Evidence

Type of instrument and measurements:

No measurements to determine the fire and explosion potential were taken on-site.

Ignitability

Compound used:

No ignitable compounds are known to exist on-site.

Reactivity

Most reactive compound:

No reactive compounds are known to exist on-site.

Incompatibility

Most incompatible pair of compounds:

No incompatible compounds are known to exist on-site.

Hazardous Waste Quantity

Total quantity of hazardous substances at the facility:

Not applicable, no wastes which have a fire and explosion potential are known to be disposed on-site.

Basis of estimating and/or computing waste quantity:

Not applicable, see above comment.

* * *

3. TARGETS

Distance to Nearest Population

A residential area is within 1 mile of the site (USGS Topographic Maps: Buffalo NW, NY-ONT-1965; Buffalo NE, NY-1965; Buffalo SE, NY-1965).

Distance to Nearest Building

A NFTA Building is located on-site (ES and D&M Site Visit, 3/20/85).

Distance to Sensitive Environment

Distance to wetlands:

A fresh-water wetland, Time Beach, is located adjacent to the NFTA site (Sneider and Wilkinson, NYS Department of Fish and Wildlife, 1985).

Distance to critical habitat:

Land Use

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

0.0 miles, site is located in a commercial/industrial district (ES and D&M Site Visit, 3/20/85).

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

0.8 miles to Tifft Farms Nature Preserve (USGS Topographic Maps: Buffalo NW, NY-ONT-1965; Buffalo NE, NY-1965; Buffalo SE, NY-1965).

Distance to residential area, if 2 miles or less:

1 mile (USGS Topographic Maps: Buffalo NW, NY-ONT-1965; Buffalo NE, NY-1965; Buffalo SE, NY-1965).

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

None within 1 mile (USGS Topographic Maps: Buffalo NW, NY-ONT-1965; Buffalo NE, NY-1965; Buffalo SE, NY-1965).

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

None within 2 miles (USGS Topographic Maps: Buffalo NW, NY-ONT-1965; Buffalo NE, NY-1965; Buffalo SE, NY-1965).

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

No.

Population with 2-Mile Radius

20,959 people (US Census Data, 1980).

Buildings Within 2-Mile Radius

5,516 buildings (USGS Topographic Maps: Buffalo NW, NY-ONT-1965; Buffalo NE, NY-1965; Buffalo SE, NY-1965).

DIRECT CONTACT

1. OBSERVED INCIDENT

Date, location, and pertinent details of incident:

No information was found during the Phase I investigation which indicated that an instance in which contact with a hazardous substance at the site has caused injury, illness or death to humans, or domestic or wild animals.

* * *

2. ACCESSIBILITY

Describe type of barrier(s):

Security guard, barrier does not completely surround the facility (ES and D&M Site Visit, 3/20/85).

* * *

3. CONTAINMENT

Type of containment, if applicable:

Hazardous substance is accessible to direct contact. The entire site is a filled area and the type and quantity of hazardous waste on-site is unknown (ES and D&M Site Visit, 3/20/85).

* * *

4. WASTE CHARACTERISTICS

Toxicity

Compounds evaluated:

Heavy metals (cadmium, chromium, copper, iron and lead). Note: heavy metals were found in low concentrations (below background). Organic constituents may be disposed on-site as indicated by HNU meter readings taken on-site. However, the type of wastes on-site is unknown.

Compound with highest score:

Heavy metals (toxicity = 3, persistence = 3) - 18.

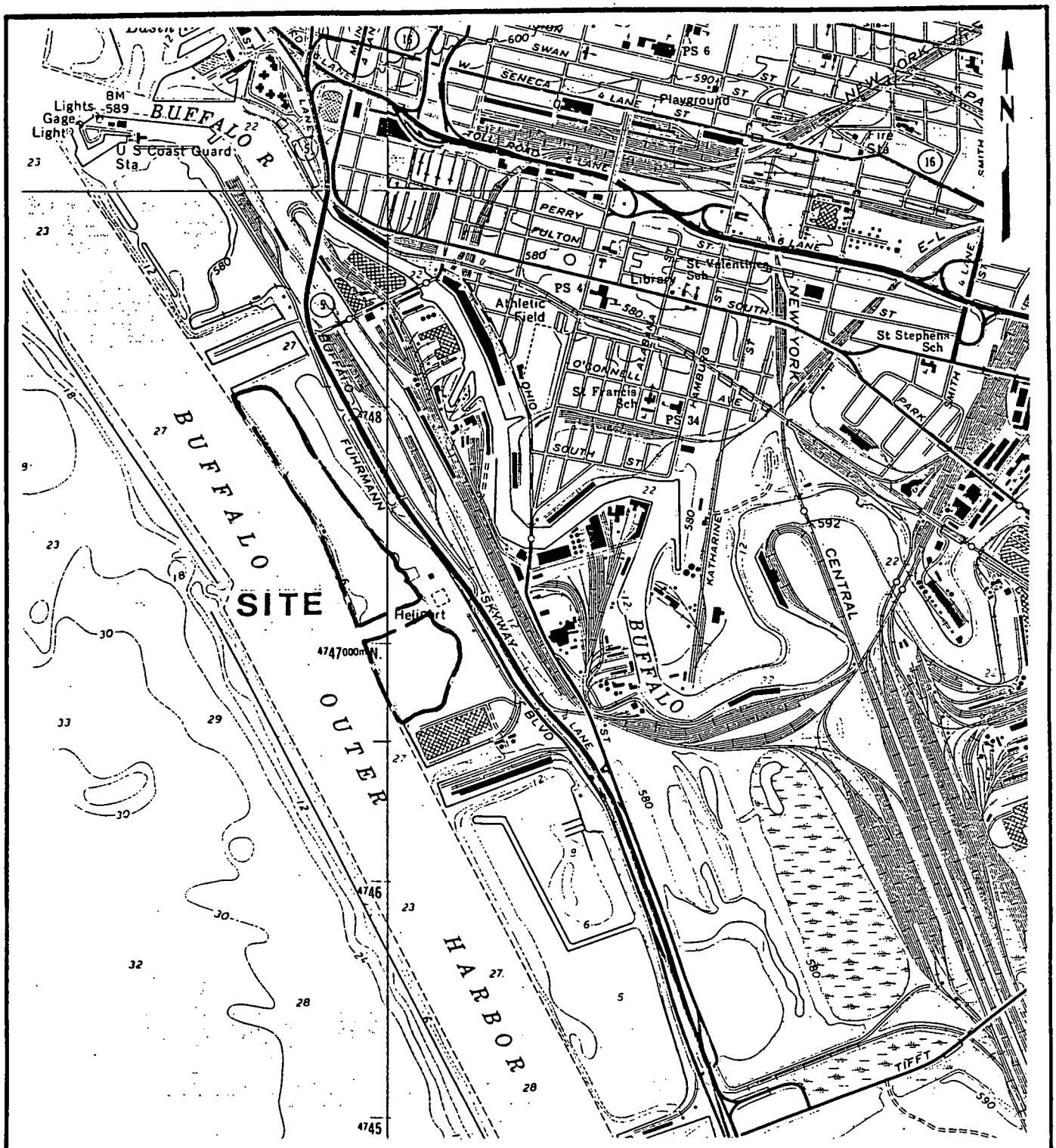
5. TARGETS

Population within one-mile radius

3,277 people (US Census Data, 1980).

Distance to critical habitat (of endangered species)

None within 1 mile of site (Sneider and Wilkinson, NYS Dept. of Fish and Wildlife, 1985).



LATITUDE: 42°52'04"
LONGITUDE: 78°52'38"

SCALE
0 1000 2000 3000 4000 FEET

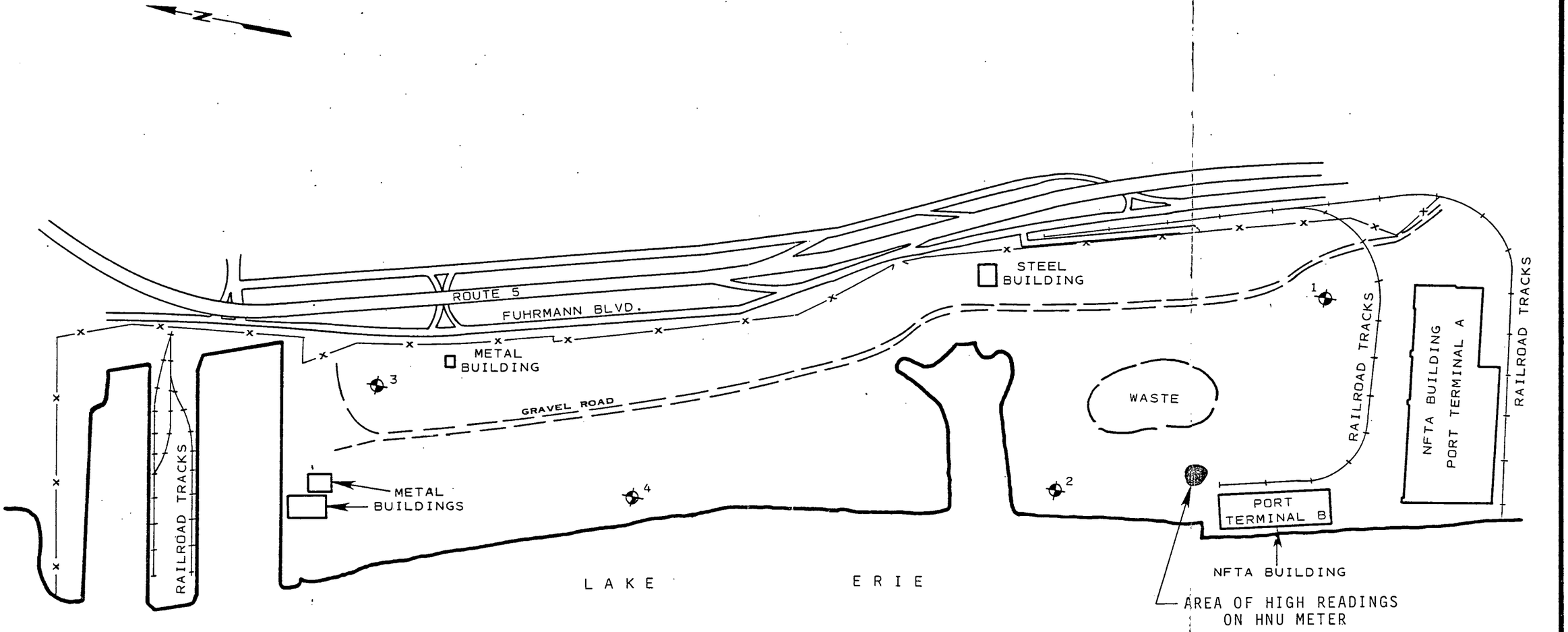
REFERENCE: U.S.G.S. 7.5' Topographic Map
Buffalo SE, NY (1965), Buffalo NE, NY (1965)
and Buffalo NW, NY-ONT. (1965) Quadrangles

ENGINEERING-SCIENCE, INC.
IN ASSOCIATION WITH
DAMES & MOORE

NEW YORK STATE DEPARTMENT
OF ENVIRONMENTAL CONSERVATION
PHASE I REPORT

SITE LOCATION MAP
NIAGARA FRONTIER PORT AUTHORITY

FIGURE IV-1



NOT TO SCALE

EXPLANATION:

1 USGS BORING, 1982

ENGINEERING-SCIENCE, INC.
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DAMES & MOORE

NEW YORK STATE DEPARTMENT
OF ENVIRONMENTAL CONSERVATION
PHASE I REPORT

PLOT PLAN

NIAGARA FRONTIER PORT AUTHORITY

FIGURE iv-2

HRS REFERENCES

1. Code of Federal Regulations, Protection of Environment, No. 40, Parts 190 to 399, 1983.

2. ES and D&M Site Inspection, March/April, 1985.

3. Freeze, R. A., and Cherry, J. A., Groundwater, 1985.

4. LaSala, Groundwater Resources of the Erie-Niagara Basin, New York, 1968.

5. NYS Atlas of Community Water System Sources, NYS Department of Health, 1982.

6. NYSDEC, Inactive Hazardous Waste Disposal Sites Registry Sheet, 12/83.

7. NYS Museum and Science Service Bedrock Geology Map, Map and Chart Series, No. 15 (compiled by Rickard, L. V., and Fisher, D. W.).

8. NYS Museum and Science Service Bedrock Geology Map, Map and Chart Series, No. 28 (compiled by Muller, Ernest, H.), 1977.

9. Sneider, Jim and Wilkinson, Mike, NYSDEC Division of Fish and Wildlife, Personal Communication, 1/10/85 through 1/11/85.

10. US Census Data, 1980.

11. US Department of Commerce. "Climtic Atlas of the United States". 1979.

12. US Department of Commerce Technical Paper No. 40. "Rainfall Frequency Atlas of the United States". 1963.

13. USEPA, "An Overview of the Contaminants of Concern in the Disposal and Utilization of Muncipal Sewage Sludge", Draft Report, 1983).

14. USGS Topographic Maps: Buffalo, NW-NY, 1965; Buffalo NE-NY, 1965; Buffalo SE-NY, 1965 (Provided in Report).

15. USGS, Draft Report of Preliminary Evaluation of Chemical Migration to the Niagara River from Hazardous Waste Disposal Sites in Erie and Niagara Counties, 1983.

16. Violanti, Louis, NYS Department of Health, Buffalo Region, Personal Communication, 10/8/85.

17. Wawzyniak, J., Niagara Frontier Transportation Authority (Seaport Division), Personal Communication, 20 March 1985.

Protection of Environment

REF-1

40

PARTS 190 to 399

Revised as of July 1, 1983

CONTAINING
A CODIFICATION OF DOCUMENTS
OF GENERAL APPLICABILITY
AND FUTURE EFFECT

AS OF JULY 1, 1983

With Ancillaries

Published by
the Office of the Federal Register
National Archives and Records Service
General Services Administration

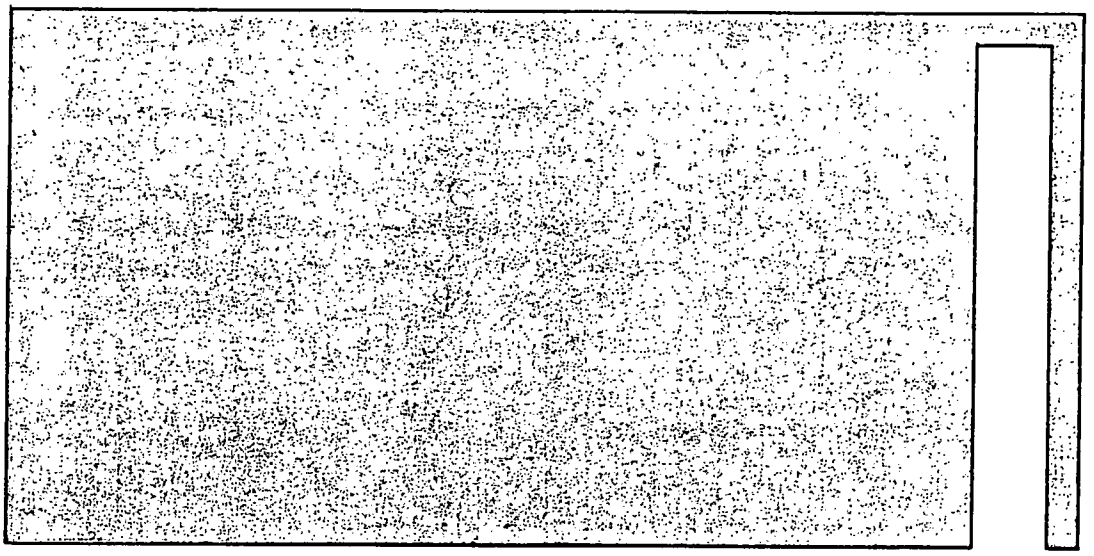
as a Special Edition of
the Federal Register

REF-2

ES AND D&M SITE INSPECTION

Observations made during the ES and D&M Site Inspections are provided on US EPA Forms 2070-12 and 2070-13. Field notes were used to complete these EPA Forms, and are not included herein.

REF-3



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GROUNDWATER

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

(1979)

(Freeze, 1979)

Table 2.2 Range of Values of Hydraulic Conductivity and Permeability

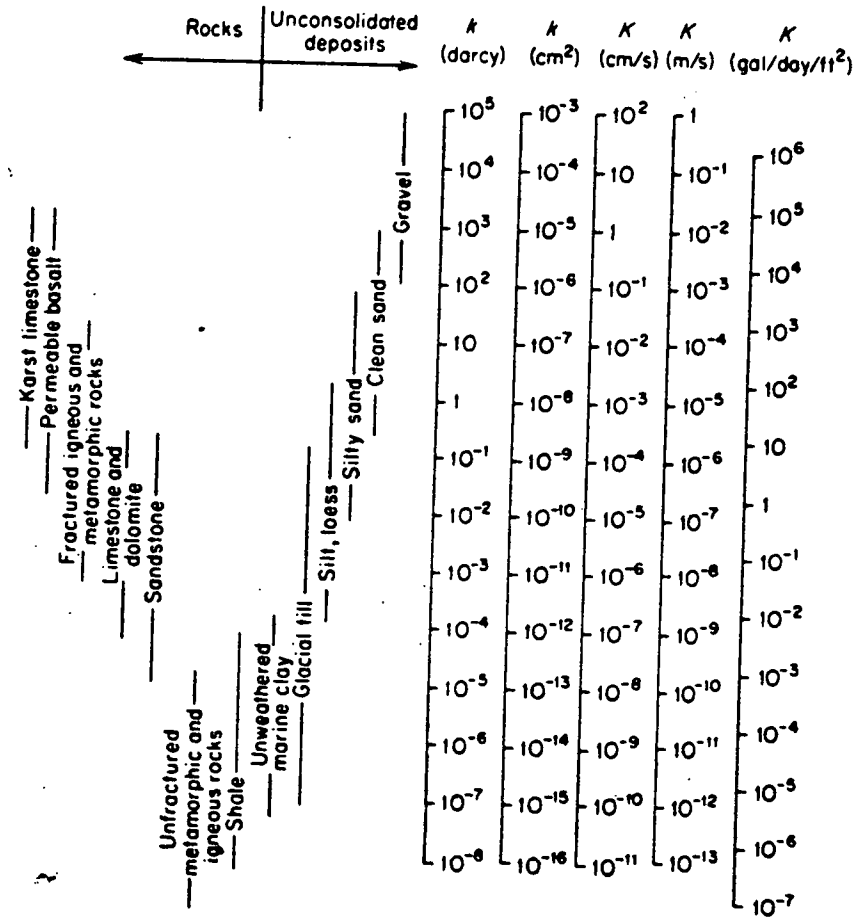


Table 2.3 Conversion Factors for Permeability and Hydraulic Conductivity Units

	Permeability, k*			Hydraulic conductivity, K		
	cm^2	ft^2	darcy	m/s	ft/s	U.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	6.46×10^{5}
U.S. gal. day/ft^2	5.42×10^{-10}	5.83×10^{-13}	5.49×10^{-2}	4.72×10^{-7}	1.55×10^{-6}	1

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

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

(LaSala, 1968)

elds of wells

The Camillus Shale is by far the most productive bedrock aquifer in he area. Except in the vicinity of Buffalo and Tonawanda, where industrial wells produce from 300 to 1,200 gpm, no attempt has been made to obtain large supplies from the formation. However, the inflow of water o gypsum mines near Clarence Center and Akron indicate that large upplies are not necessarily restricted to the Buffalo and the Tonawanda area. Two examples of large flows of water encountered in gypsum mining have already been mentioned. Pumpage from gypsum mines near Clarence enter (including the mine mentioned previously) is substantial. The ater pumped is discharged to Got Creek. On July 2, 1963, the creek had a flow of 2.1 mgd (million gallons per day) about half a mile downstream rom the mines, that was due almost entirely to the pumpage. Water for ndustrial use is pumped from a flooded, abandoned gypsum mine at Akron. This pumpage, at a rate of 500 to 700 gpm, has had no appreciable effect n the water level in the mine.

Probably the larger solution openings are most common in discharge areas near Tonawanda Creek and its tributaries and near the Niagara River; he flow of ground water becomes concentrated as it approaches the streams o which it discharges. Other discharge areas, such as low-lying swampy areas and headwaters of small streams that have perennial flow, are likely laces to drill wells.

LIMESTONE UNIT

edding and lithology

The term "limestone unit" in this report is applied to a sequence of limestone and dolomite overlying the Camillus Shale. The limestone unit ncludes the Bertie Limestone at the base, the Akron Dolomite, and the nondaga Limestone at the top. The lithology and thickness of these units are shown in figure 7. The Bertie Limestone and the Akron Dolomite are ilurian in age and are separated from the overlying Onondaga Limestone of evonian age by an unconformity or erosional contact.

The Bertie Limestone is mainly dolomite and dolomitic limestone but ontains interbedded shale particularly in the thin-bedded lower part of the formation. The middle part is brown, massive dolomite, and the upper part is gray dolomite and shale whose beds are of variable thickness. The otal thickness of the formation is about 55 feet (Buehler and Tesmer, 963, p. 30-31).

The Akron Dolomite is composed of greenish-gray and buff dolomite eds varying from a few inches to about a foot in thickness. The upper contact of the Akron is erosional and is often marked by remnants of shallow stream channels. Thin lenses of sandy sediments lie in the ottoms of some channels. The thickness of the formation is generally etween 7 and 9 feet (Buehler and Tesmer, 1963, p. 33-34).

(LaSala, 1968)

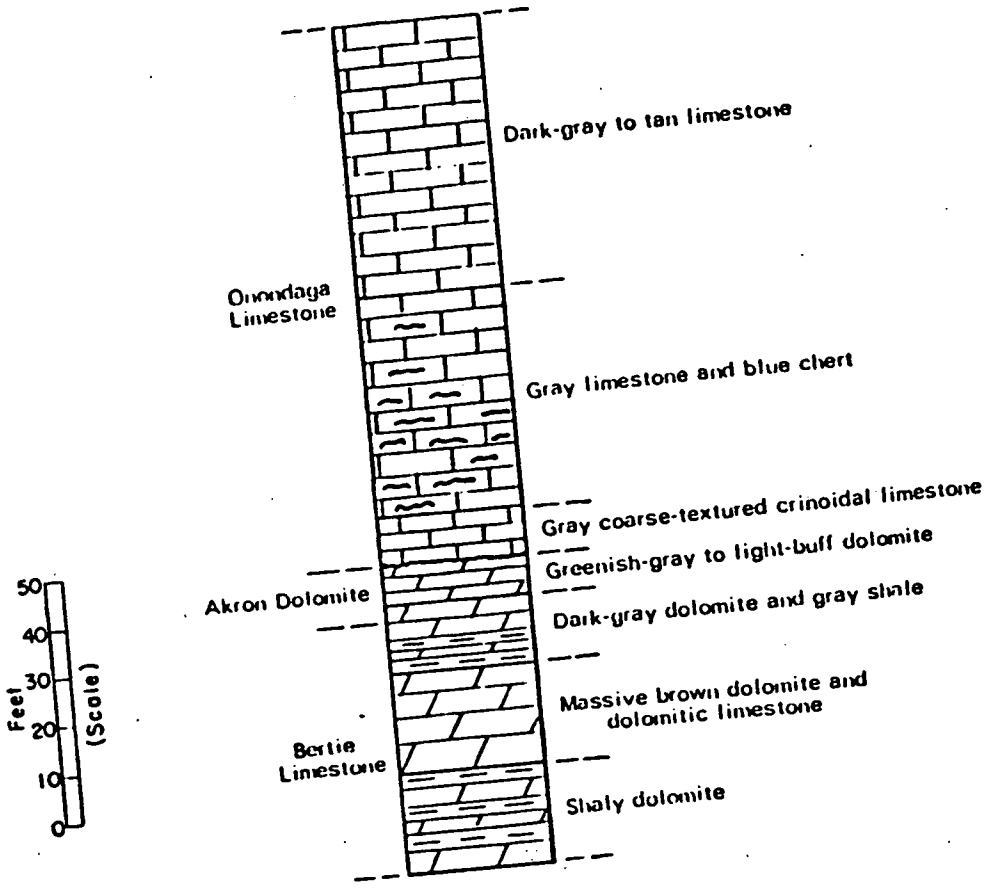


Figure 7.--Lithology of the limestone unit.

The Onondaga Limestone, about 110 feet thick, makes up the greatest thickness of the limestone unit. The formation consists of three members. The lowest member is a gray coarse-grained limestone, generally only a few feet thick. At places this member grades laterally into reef deposits which increases its thickness (Buehler and Tesmer, 1963, p. 35-36).

The middle member of the Onondaga is a cherty limestone. In some zones the chert exceeds the amount of limestone. The unit is probably 40-45 feet thick.

The upper unit is a dark-gray to tan limestone of varying texture and is probably about 50-60 feet thick.

Water-bearing openings

The limestone unit contains water-bearing openings that are similar to those of the Lockport Dolomite. Because the limestone unit is more soluble, however, solution widening of the openings appears to be more

(LaSala, 1968)

unced. The types of water-bearing joints in the limestone can be
at the falls of Murder Creek at Akron. Not all of the flow of
r Creek plunges over the falls. A considerable part of the flow
lates into the limestone unit upstream from the falls and discharges
bedding joints both at the face and along the sides of the falls.
principal zones of discharge are at the base of the Bertie, and at a
ct of a shaly zone and overlying thick-bedded dolomite 20 feet above
ase.

The falls at Akron also illustrate in an exaggerated way the role of
cal joints. Water from Murder Creek percolates into the rock through
ution-widened vertical joints before reaching the bedding-plane joints.
continuous and concentrated flow of water in the creek has widened
vertical joints to an unusual degree. Vertical joints are ordinarily
y narrow. They probably are most effective in aiding the movement of
r to the bedding joints where the bedding joints are close to the
surface.

Locally, solution along bedding joints in the limestone unit has been
t enough to cause the rock overlying the solution opening to settle.
ling of this type probably accounts for at least some of the small
pressions in the outcrop belt of the Onondaga Limestone. A collapsed
tion zone in the Onondaga Limestone discharges a large volume of water
a quarry (257-840-A) near Harris Hill. About 3,000 gpm is pumped
om the quarry, and most of the water is reported to come from the
ution zone.

The limestone unit is cut by a fault on the east side of Batavia.
ults cutting limestone are likely to cause shattering along the fault
thus, create a permeable water-bearing zone.

rologic and hydraulic characteristics

The limestone unit is similar to the Lockport Dolomite in structure.
ever, its hydrology is different. The limestone unit is cut trans-
sely by Tonawanda Creek and Tts major tributaries. Small tributaries
low across it in northerly and westerly directions. The limestone unit
eceives water in the interstream areas by percolation into joints. The
er is discharged laterally to the streams and at places along the
rth-facing scarp or enters the Camillus Shale at depth.

The coefficient of transmissibility of the limestone unit probably
ges from about 300 to 25,000 gpd per foot. Specific capacity data are
iven in table 3. Drillers' reports indicate high transmissibilities for
e limestone unit in Williamsville which probably arise from relatively
ense circulation of ground water near Ellicott Creek. The coefficients
transmissibility given in table 3 were computed from specific capacity
ata by the method described by Walton (1962, p. 12-13).

New York State Atlas of Community Water System Sources

1982

NEW YORK STATE
DEPARTMENT OF HEALTH

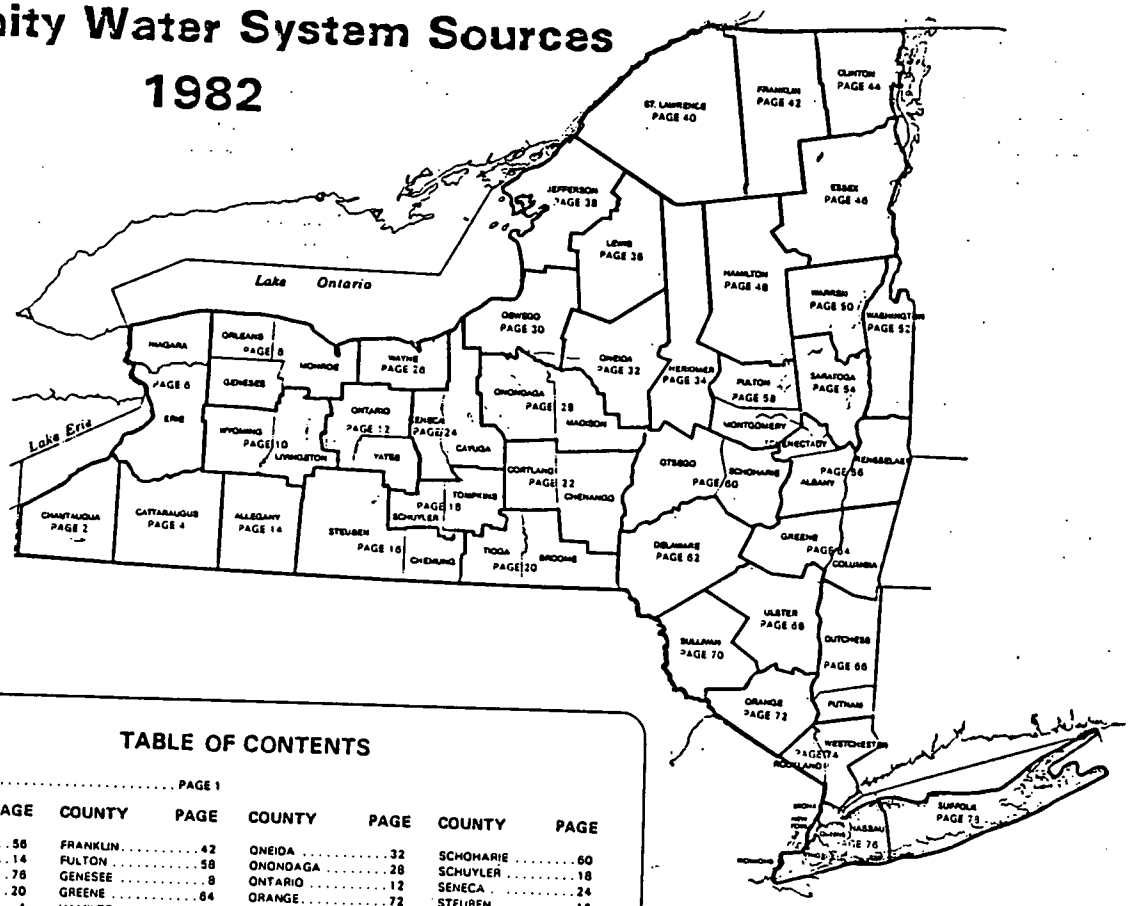


TABLE OF CONTENTS

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 ..... Socorro
250 or less ..... Lamar

TRANSPORTATION

Highways
- Divided Highways
  - Full Control of Access
  - Partial or No Control of Access
- Undivided Highway
- Interchange
- Touring Route (State, U.S., Interstate) or State Parkway
- Touring Route Markers
  - State; U.S., Interstate

Railroads
- Operating Line
- Service Discontinued
- Operator
- Owner (If Other than Operator)
- Company Having Trackage Rights

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

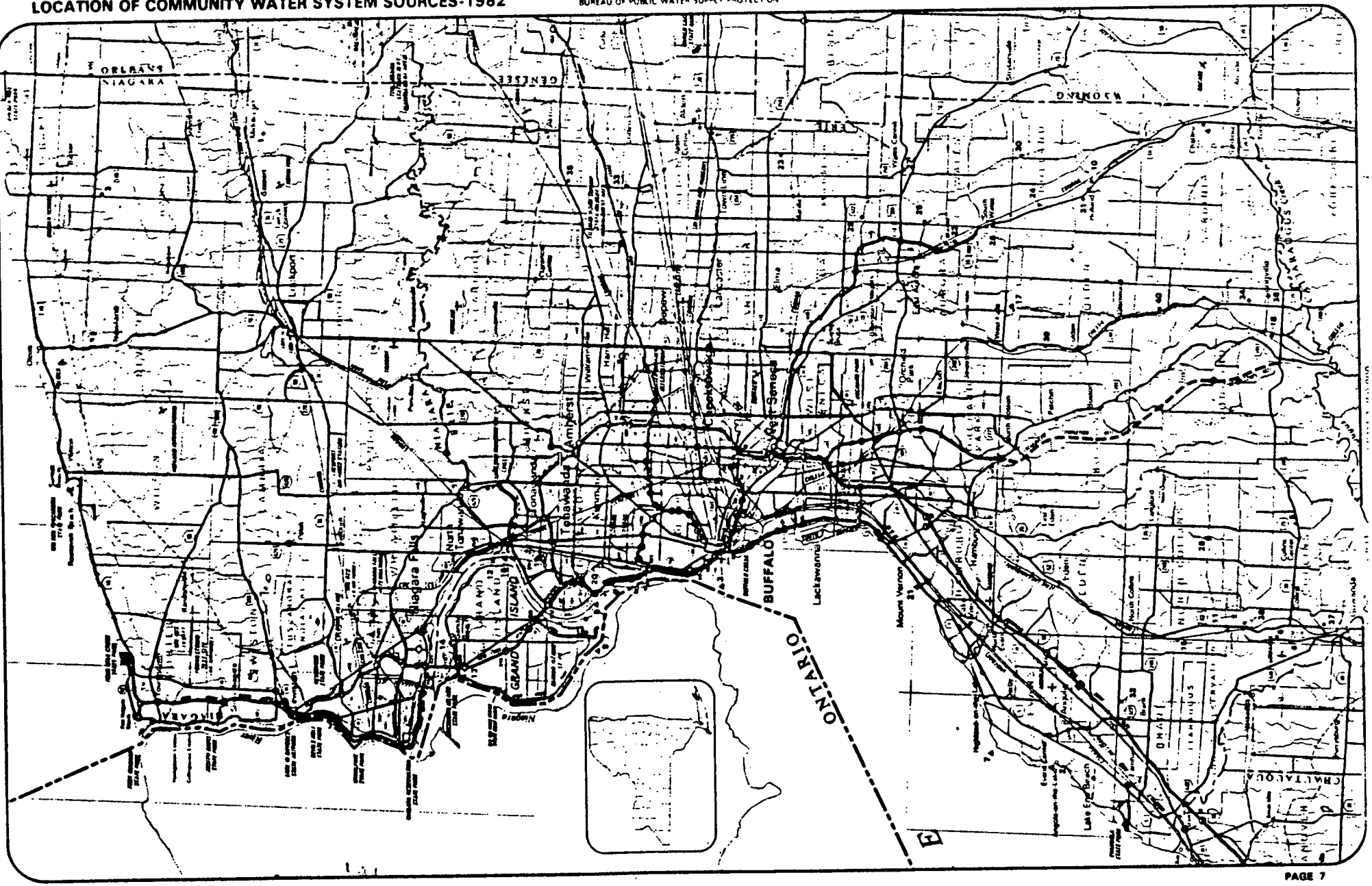
State or National Recreation Area
State Campground
State Boat Launching Site
State Canal Park
State Fish Hatchery
Other State Recreation Site

(NYSDOH, 1982)

NEW YORK STATE DEPARTMENT OF HEALTH
DIVISION OF ENVIRONMENTAL PROTECTION
BUREAU OF PUBLIC WATER SUPPLY PROTECTION

LOCATION OF COMMUNITY WATER SYSTEM SOURCES-1982

ERIE and NIAGARA COUNTIES



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

NIAGARA COUNTY

ID NO	COMMUNITY WATER SYSTEM	POPULATION	SOURCE
	Municipal Community		
	Lockport City (See No 12, Erie Co)	25000	
1	Middleport Village	2000	Wells (Springs)
	Niagara County Water District (See No 13, Erie Co)	48	
2	Niagara Falls City (See also No 14 Erie Co)	77384	Niagara River - East Branch
	North Tonawanda City (See No 16 Erie Co)	36000	
	Non-Municipal Community		
3	Country Estates Mobile Village	28	Wells

(NYSDOH, 1985)

(47-15-11 (10/83)

(NYSDEC, 1983)

REF-6

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

DIVISION OF SOLID AND HAZARDOUS WASTE

INACTIVE HAZARDOUS WASTE DISPOSAL SITE REPORT

PRIORITY CODE: 2a SITE CODE: 915026

NAME OF SITE: Niagra Frontier Port Authority REGION: 9

STREET ADDRESS: 910 Fuhrmann Blvd.

TOWN/CITY: Buffalo COUNTY: Erie

NAME OF CURRENT OWNER OF SITE: Niagra Frontier Port Authority

ADDRESS OF CURRENT OWNER OF SITE: 18 Ellicott St., Buffalo, NY 14205

TYPE OF SITE: OPEN DUMP [X] STRUCTURE [ ] LAGOON [ ]
LANDFILL [ ] TREATMENT POND [ ]

ESTIMATED SIZE: _____ ACRES

SITE DESCRIPTION:

The site was used by a Ford Assembly plant to dispose of an unknown quantity of cafeteria, office, and plant refuse including paint sludges. The site was also used to dispose of dredged lake bottom material and demolition debris by Corps of Engineers. Also an unknown amount of casting sand was disposed by Chevrolet.
U.S.G.S. took soil samples in August 1982.
Erie County's analysis of leachate sample taken during June 1981 indicated Toluene in detectable amount. The site is reported to be adequately closed.

HAZARDOUS WASTE DISPOSED: CONFIRMED [X] SUSPECTED [ ]

TYPE AND QUANTITY OF HAZARDOUS WASTES DISPOSED:

TYPE	QUANTITY (POUNDS, DRUMS, TONS, GALLONS)
Paint sludges, foundry sand	Unknown

(NYSDEC, 1983)

TIME PERIOD SITE WAS USED FOR HAZARDOUS WASTE DISPOSAL:

Unknown, 19 ___ TO Unknown, 19 ___

OWNER(S) DURING PERIOD OF USE: Niagra Frontier Port Authority

SITE OPERATOR DURING PERIOD OF USE: Niagra Frontier Port Authority

ADDRESS OF SITE OPERATOR: 18 Ellicott St., Buffalo, NY 14205

ANALYTICAL DATA AVAILABLE: AIR ☐ SURFACE WATER ☐ GROUNDWATER ☐
SOIL ☒ SEDIMENT ☐ NONE ☐

CONTRAVENTION OF STANDARDS: GROUNDWATER ☐ DRINKING WATER ☐
SURFACE WATER ☐ AIR ☐

SOIL TYPE: Fill material over sand

DEPTH TO GROUNDWATER TABLE: 14 ft

LEGAL ACTION: TYPE: None STATE ☐ FEDERAL ☐
STATUS: IN PROGRESS ☐ COMPLETED ☐
REMEDIAL ACTION: PROPOSED ☐ UNDER DESIGN ☐
IN PROGRESS ☐ COMPLETED ☐

NATURE OF ACTION: None

ASSESSMENT OF ENVIRONMENTAL PROBLEMS:

No evidence of any major environmental problem.

ASSESSMENT OF HEALTH PROBLEMS:

[illegible]

PERSON(S) COMPLETING THIS FORM:

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

NAME Abul Barkat
TITLE Sr. Sanitay Engr.
NAME Peter Buechi
TITLE Assoc. Sanitary Engr.
DATE: November 15, 1983

NEW YORK STATE DEPARTMENT OF HEALTH

NAME R. Tramontano
TITLE Bur. Tox. Subst. Assess.
NAME
TITLE
DATE: 12/83

GEOLOGIC MAP OF NEW YORK

1970

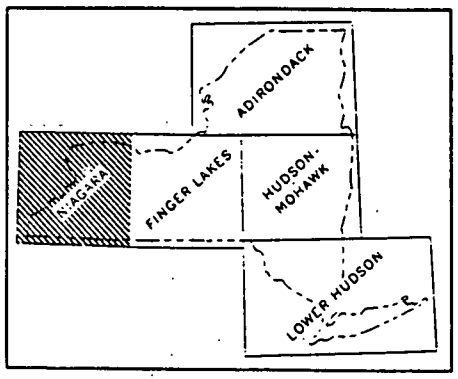
Niagara Sheet

Scale 1:250,000

5 0 5 10 15 Statute Miles 20

5 0 5 10 15 20 25 Kilometers 30

CONTOUR INTERVAL 100 FEET



Topographic Base from AMS Quadrangles 1:250,000 scale.

NEW YORK STATE MUSEUM AND SCIENCE SERVICE

MAP AND CHART SERIES NO. 15

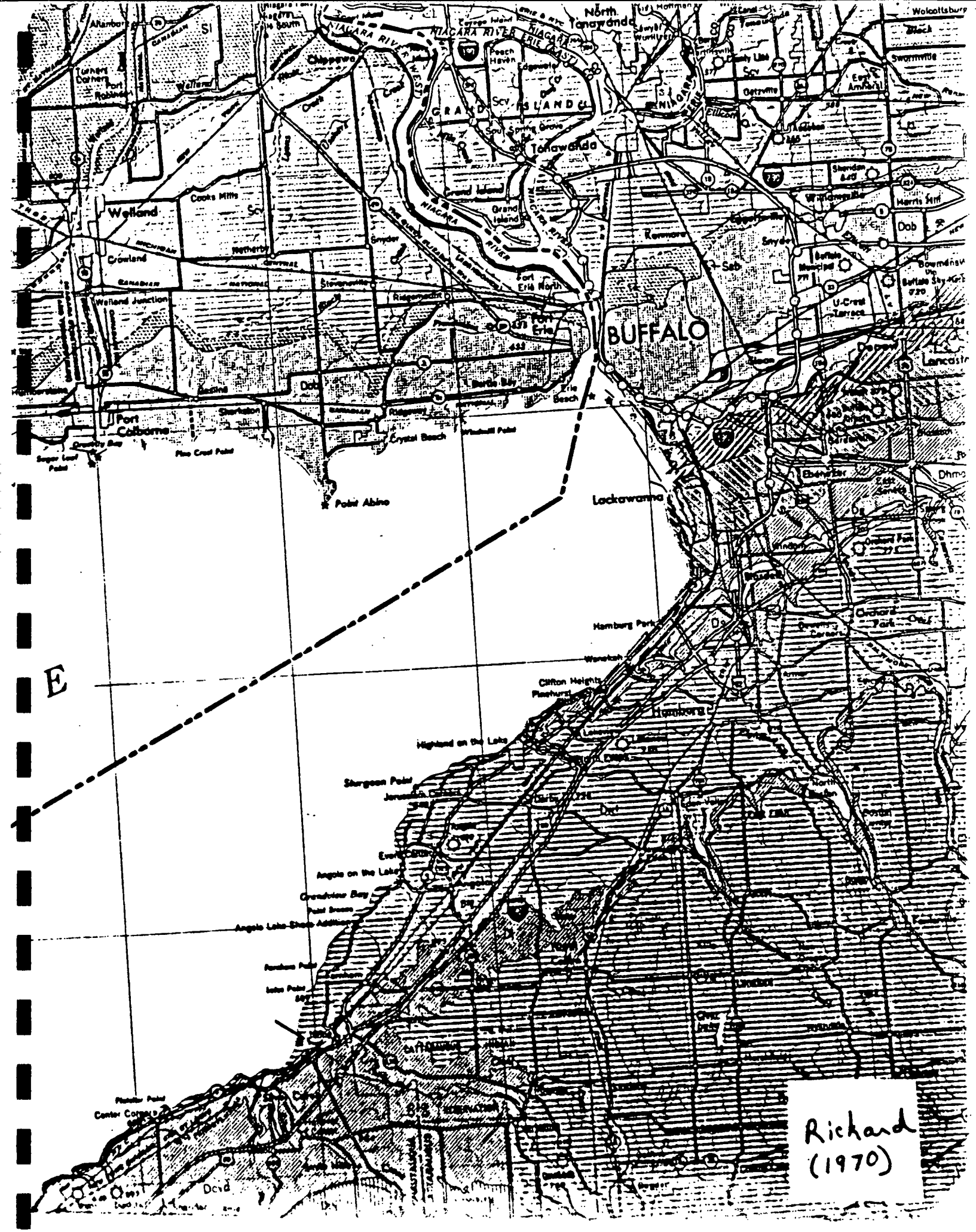
COMPILED AND EDITED BY

Lawrence V. Rickard

Donald W. Fisher

March, 1970

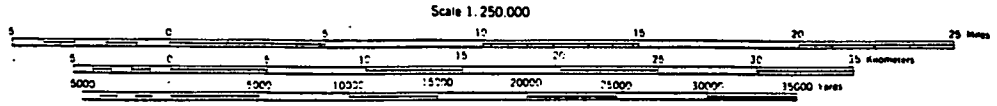
REF-7

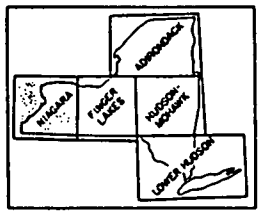

BUFFALO
Tonawanda
North Tonawanda
Welland
Port Colborne
Fort Erie
Grand Island
Lackawanna
Hamburg
Orchard Park
Point Abino
Crystal Beach
Erie Beach
Ridgeway
Stevensville
Cooks Mills
Crowland
Welland Junction
Chippawa
Port Robinson
Turners Corners
Sturgeon Point
Angola on the Lake
Highland on the Lake
Clifton Heights
Wanakah
Hamburg Park
Eggertsville
Kenmore
Snyder
Amherst
Williamsville
Harris Hill
Swormville
Akron
Lancaster
Depew
Cheektowaga
Sloan
Black Rock
Riverside
Peach Haven
Edgewater
Spring Grove
Niagara River
Niagara River Parkway
Welland River
Welland Canal
Erie Canal
Niagara River Erie Canal
Grand Island
Grand Island Scv
Tonawanda Scv
Cooks Mills Scv
Dob
Sab
Dg
Dhmo
E
Richard
(1970)

QUATERNARY GEOLOGY OF NEW YORK, NIAGARA SHEET

by Ernest H. Muller

Muller, Ernest H. (1977)
New York State Museum and Science Service
Map and Chart Series Number 28





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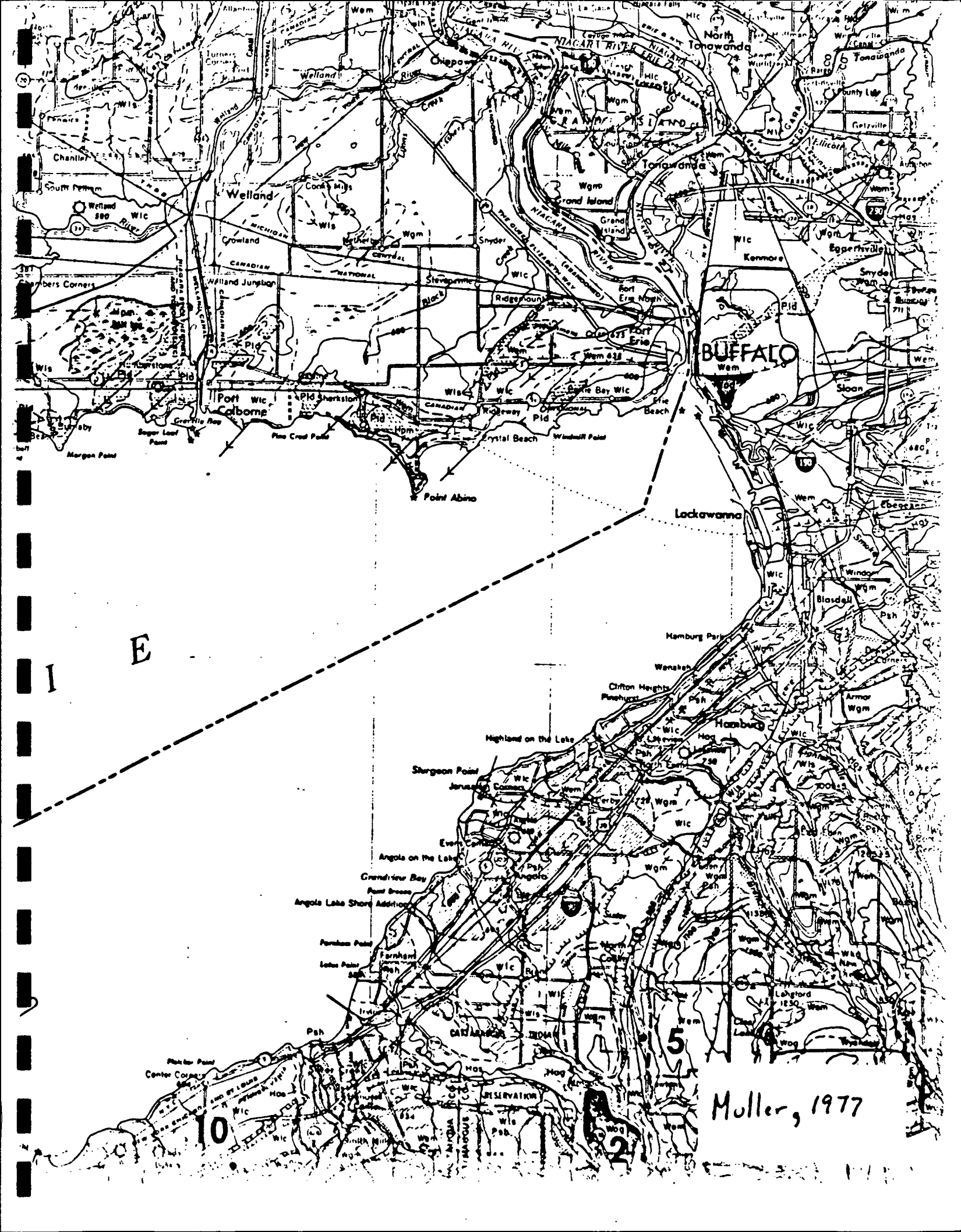

BUFFALO
Welland
Port Colborne
Point Abino
Lackawanna
Hamburg
Muller, 1977

REF-9

INTERVIEW FORM

INTERVIEWEE/CODE Jim Snyder Mike Wilkerson /
TITLE - POSITION NYSDEC, Div of Fish & Wildlife
ADDRESS Delaware Ave.
CITY Buffalo STATE NY ZIP
PHONE ( ) RESIDENCE PERIOD TO
LOCATION SW DEC office INTERVIEWER Eileen Hilligan
DATE/TIME 1/10/85 & 1/11/85
SUBJECT: Phase I site information

REMARKS: The above-named interviewees provided us with the following information regarding our Phase I site. (see attached list)

1) Wetlands in Niagara Co. & proximity to site
2) Types of fish & wildlife in Erie/Niagara area
3) Use by fish & wildlife of Niagara River & tributaries
4) Sensitive environments & proposed wetlands in the Erie/Niagara area

At the NFTA (Port Facility site) -
Times Beach wetland is adjacent
there are no critical habitats within 1 mile

I AGREE WITH THE ABOVE SUMMARY OF THE INTERVIEW:

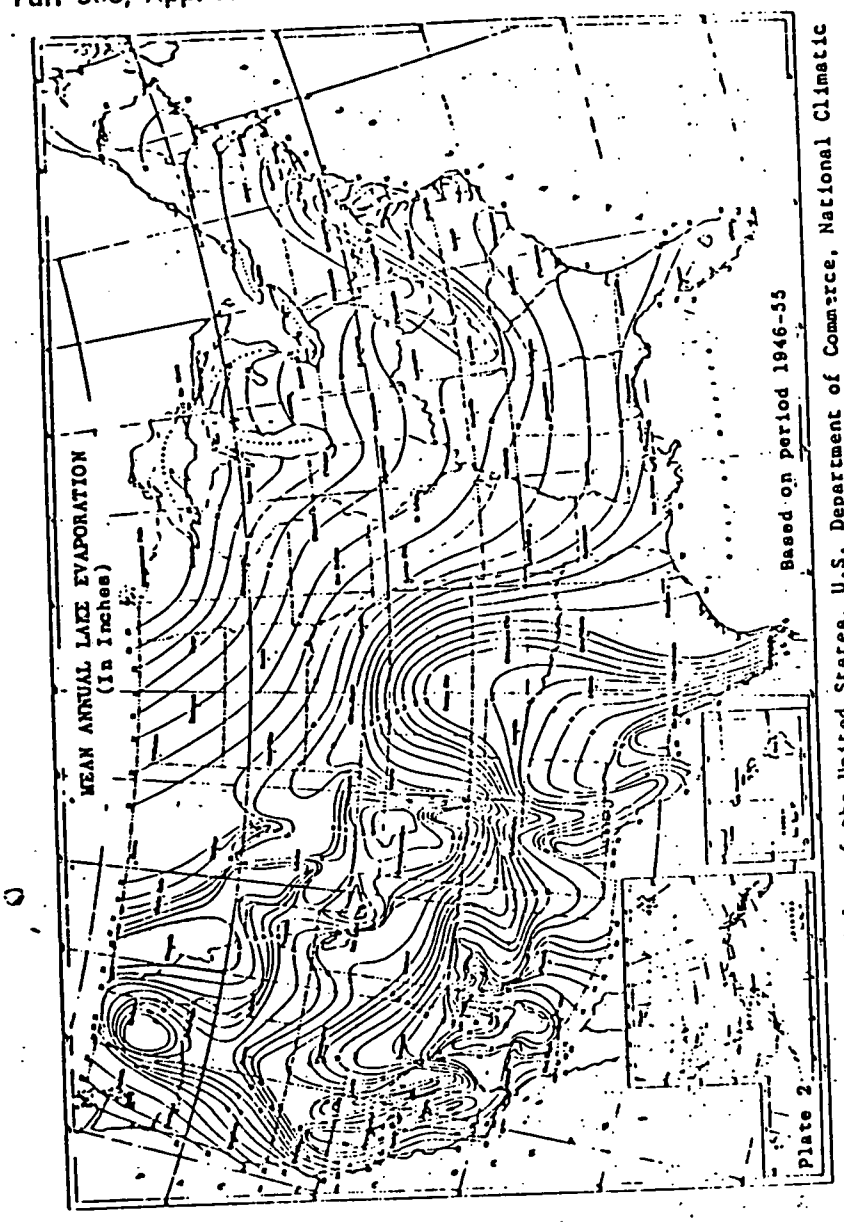
SIGNATURE: James R. Snyder - Sr. Wildlife Biologist
Michael A. Wilkerson - Conservation Biologist (Cty Biol.)

COMMENTS: No discussion of wetland / wildlife regarding Mine Landfill site - referred to Glenn Coffin

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 I site being investigated. Because of the voluminous amount of data used, the data is not provided in this Appendix.

REF-11



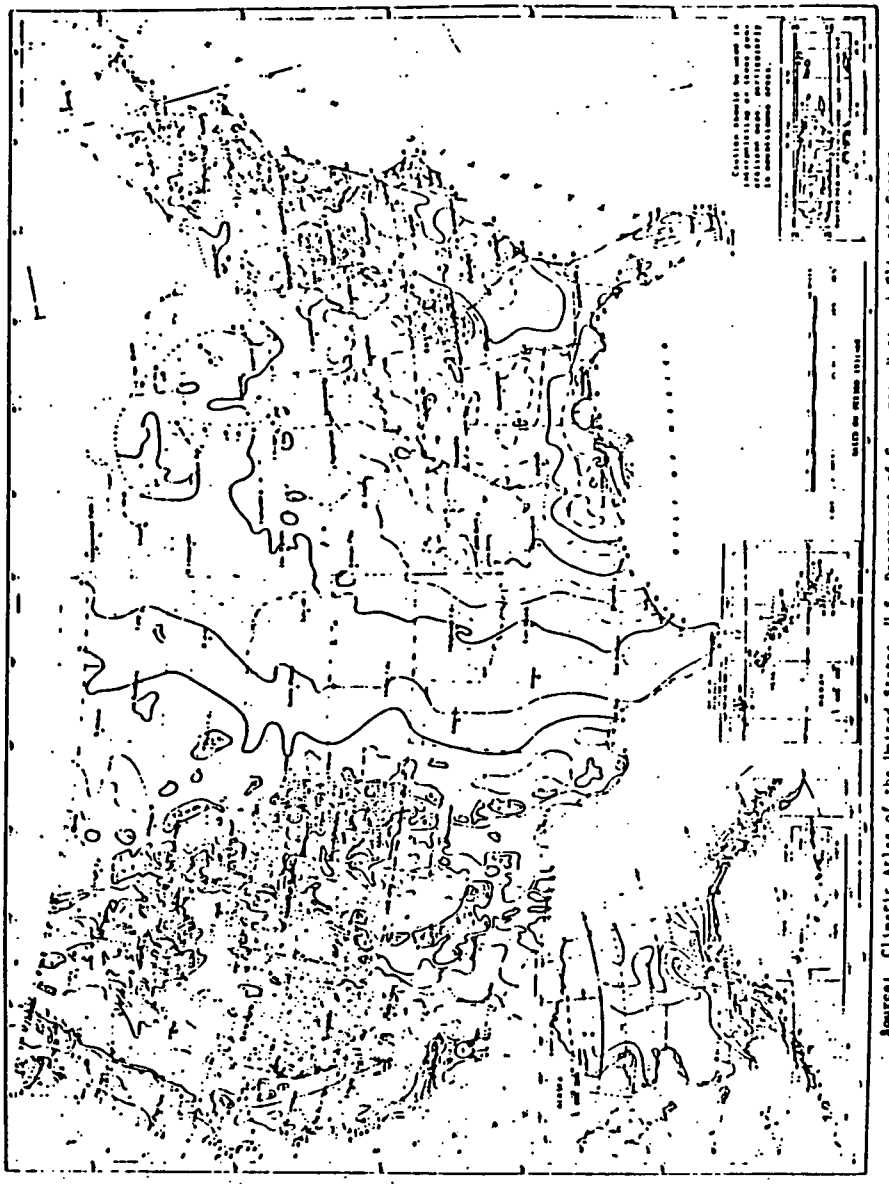
Source: Climatic Atlas of the United States, U.S. Department of Commerce, National Climatic Center, Ashville, N.C., 1979.

Figure 4

Mean Annual Lake Evaporation (In Inches)

USDOC, "Climatic Atlas of the United States," 1979.

REF-11

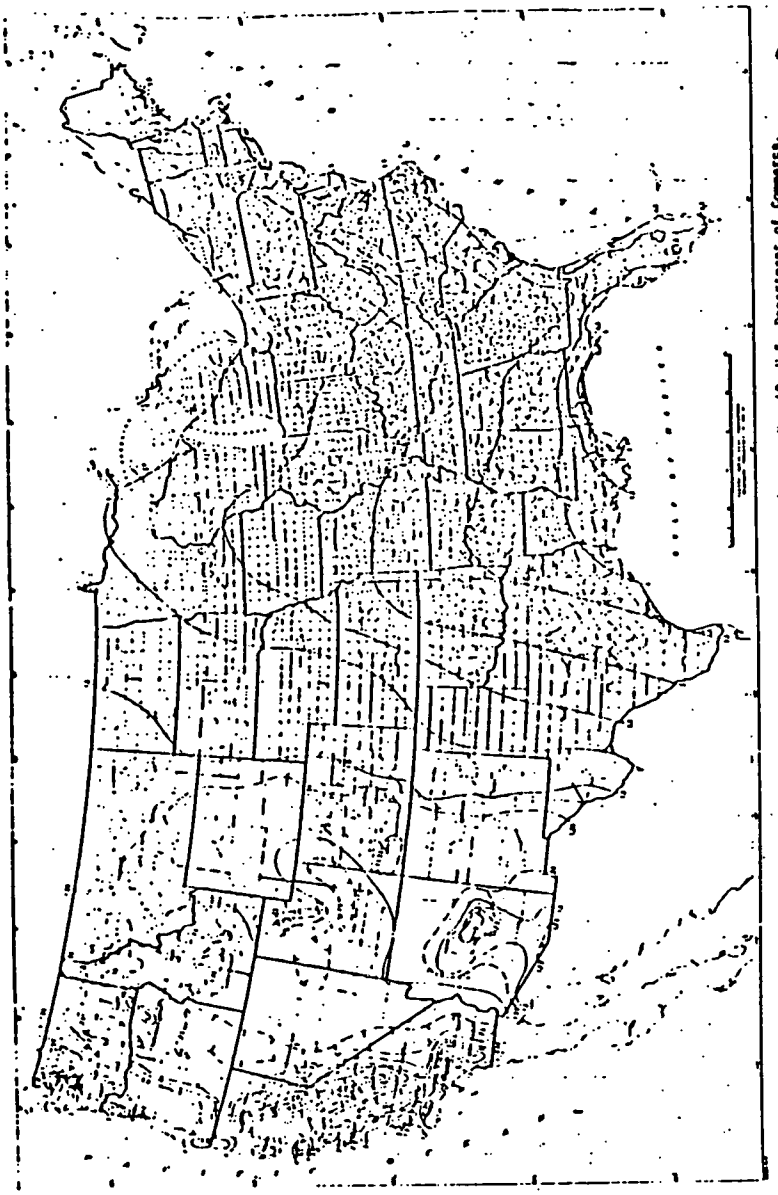


Source: Climatic Atlas of the United States, U.S. Department of Commerce, National Climatic Center, Asheville, N.C., 1979.

Figure 5
Normal Annual Total Precipitation (inches)

"USDOC, "Climatic Atlas of the United States," 1979

REF-12



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)

USDOC, "Rainfall Frequency Atlas of the United States", Technical Paper #40, 1963

REF-13

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.

Overall, and despite its frequency of occurrence in municipal sludge, cyanide "does not constitute an important or widespread environmental/health problem" for the land application of municipal sludges (14) (Class I).

(9) Iron (Fe)

Most soils contain large quantities of iron; the addition of sludge containing high amounts of Fe will not appreciably increase the concentration of this element in the soil (2). Fertilization with sludge containing Fe may even raise iron in deficient plants to normal levels (4). There is no evidence of iron toxicity to animals due to consumption of intrinsic plant Fe; however, high concentrations (11 to 13 percent) of external iron on forages from spray-applied sludge do comprise a toxicity risk to animals (4). Iron toxicity in animals is complex because of its interactions with other metals. Sludge which is simultaneously high in iron and low in copper may induce adverse health effects to grazing animals if applied directly to forages.

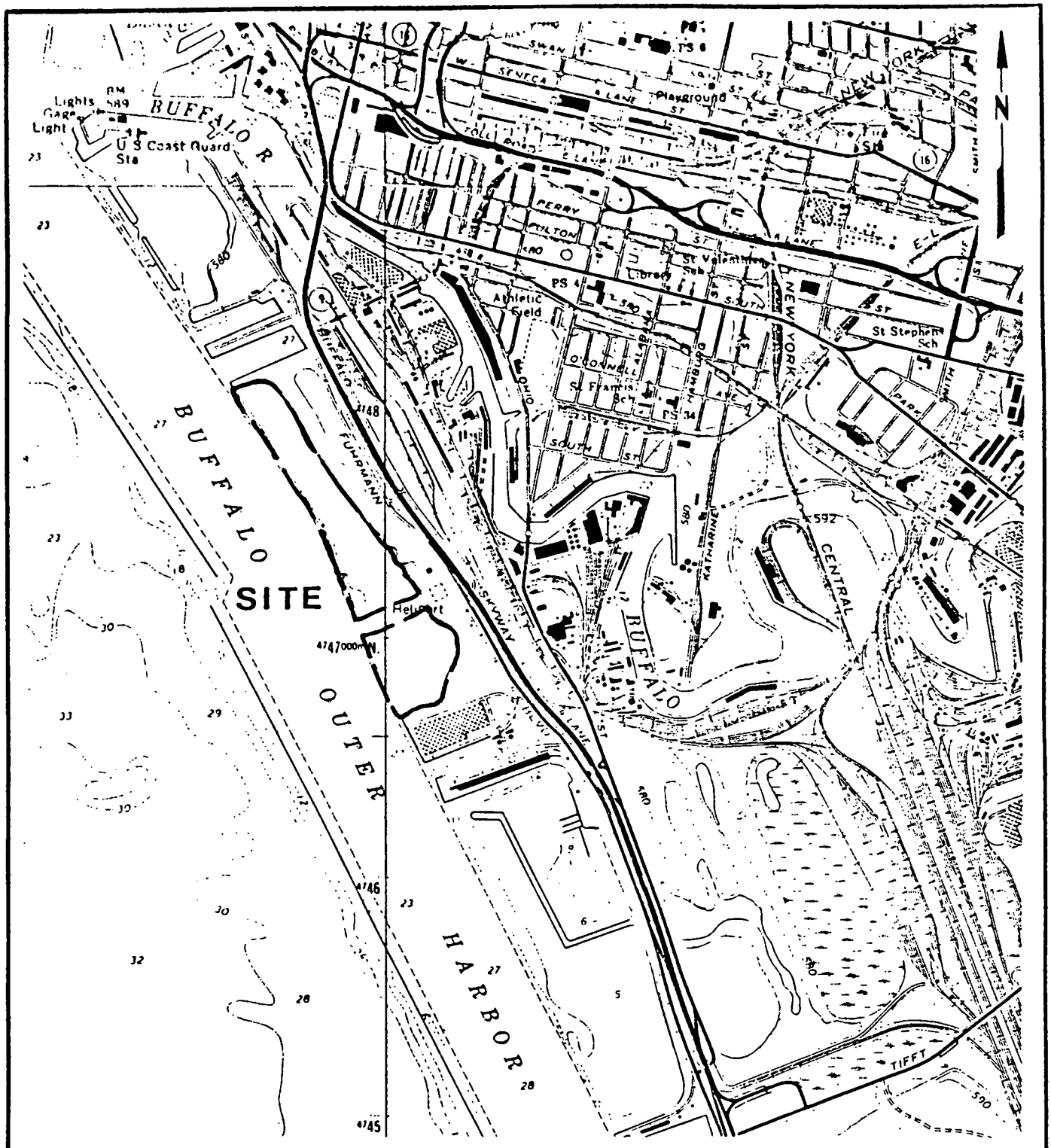
With the potential for risk to animal health being limited to very select situations, iron contamination via land-applied sewage sludges should be considered a contamination problem of secondary concern (Class II).

(10) Lead (Pb)

The range of lead in natural soils is 2 to 200 ppm with 10 ppm as the most common value (3). Lead in sewage sludge ranges from 13 to 26,000 ppm with a typical median value of 500 ppm (4). Soluble lead added to soils reacts with clays, phosphates, carbonates, hydroxides, sesquioxides and organic matter; these complexes are less soluble (2). Plants take up lead in the ionic form from soils. The amount of lead uptake decreases with increases in pH, cation exchange capacity, and available phosphorus (2). Lead is not normally translocated to above ground portions or to seeds. Lead in sewage sludge has never been observed to cause phytotoxicity (2,4). Soil lead content would have to approach 1 percent and pH fall below 5 before effects on plant growth could be detected (2). Because of its high affinity for soils, the potential for lead contamination of groundwater is remote.

Lead poisoning of animals and humans due to consumption of Pb-contaminated soil is well documented. Lead toxicity usually causes anemia and nervous disorders with

REF-14



LATITUDE: 42°52'04"
LONGITUDE: 78°52'38"

SCALE
0 1000 2000 3000 4000 FEET

REFERENCE: U.S.G.S. 7.5' Topographic Map
Buffalo SE, NY (1965), Buffalo NE, NY (1965)
and Buffalo NW, NY-ONT. (1965) Quadrangles

ENGINEERING-SCIENCE, INC.
IN ASSOCIATION WITH
DAMES & MOORE

NEW YORK STATE DEPARTMENT
OF ENVIRONMENTAL CONSERVATION
PHASE I REPORT

SITE LOCATION MAP
NIAGARA FRONTIER PORT AUTHORITY

NF PA USGS 1983 draft

REF-15

Loc. Niagara Frontier Port Authority 915026

General information and contaminant-migration potential

The Niagara Frontier Port Authority site is located at the Buffalo outer harbor and is shown on plate 1.

The site was used by an automotive assembly plant to dispose of an unknown quantity of cafeteria, office, and plant refuse, including paint sludges. The site also contains dredged lake-bottom material and demolition debris as well as an unknown amount of casting sands deposited by a different automobile manufacturer.

Hydrologic data suggest that chemical migration would most likely be toward the Buffalo harbor. The chemical data, however, do not indicate high concentrations of contaminants on the site and suggest that horizontal migration may not be taking place. Additional data would be needed to evaluate vertical migration. A map showing the locations of _____ is given in fig. _____.

Figure (caption on next page) belongs near here.

Geologic information

The site consists of fill material overlying clayey sand. The U.S. Geological Survey drilled four test borings in August 1982. Locations of the borings are shown in figure ____; logs are as follows:

Figure (caption on next page) belongs near here.

Boring no.	Depth (ft)	Description
1	0 - 10.0	Rock debris, fill
	10.0 - 16.5	Sand, fine to medium, tan to gray-green at 14 ft, wet
		SAMPLE: 13 ft
2	0 - 5.0	Fill debris
	5.0 - 6.0	Sand, light blue-green, damp
	6.0 - 11.5	Sand, clayey, tan
	11.5 - 13.0	No return, looks like clay at 12-13 ft, gray, wet
		SAMPLE: 12-13 ft

USGS, 1983

Boring no.	Depth (ft)	Description
3	0 - 1.5	Lime, smells like paint
	1.5 - 3.0	Same
	3.0 - 6.5	Sand, tan to black, gravel and debris, wet at top
	6.5 - 11.5	Same, with some clay
	11.5 - 16.5	Same with more debris: bricks, glass, etc.
	16.5 - 21.5	Hit hard zone at 17 ft; another at about 19 ft
	21.5 - 26.5	No return--sample off bit
		SAMPLE: 26.5 ft
4	0 - 1.5	Brown sand
	1.5 - 5.0	Same
	5.0 - 8.0	Sand, fine to medium, light brown, wet
	8.0 - 11.5	Sand, olive green, some clay, wetter

Hydrologic information

Ground water was encountered at 13 to 14 ft below land surface (590 ft above NGVD); thus, water-table altitude is 576 to 577 ft above NGVD. The direction of ground-water flow is most likely westward toward the Buffalo harbor.

Chemical information

A soil sample was collected from each test boring and analyzed for cadmium, chromium, copper, iron, lead, nickel, and phenols. Results are given in table ____. None of the heavy metal concentrations were above concentrations of samples taken from undisturbed areas not affected by waste-disposal sites.

Table goes near here.

Sources of data

USGS, 1983

Table .--Analyses of substrate samples from Niagara Frontier Port Authority, Buffalo, N.Y., August 5, 1982. (Locations shown in Fig. . Concentrations are in µg/Kg; dashes indicate compound was not found.)

	Sample number and depth below land surface (ft)			
	1	2	3	4
	13.0	13.0	26.5	8.0
Inorganic constituents				
Cadmium	--	--	1,000	--
Chromium	1,000	2,000	1,300	--
Copper	--	1,000	38,000	--
Iron	58,000	270,000	340,000	130,000
Lead	--	--	60,000	--
Nickel	--	--	--	--

REF-16

INTERVIEW FORM

INTERVIEWEE/CODE Louis Violanti /

TITLE - POSITION NYS Department of Health

ADDRESS Delaware Ave

CITY Buffalo STATE N.Y. ZIP

PHONE (716) 847-4500 RESIDENCE PERIOD TO

LOCATION interview on phone INTERVIEWER Lisa A. Pyron

DATE/TIME 10/8/95 @ 12:15 p.m.

SUBJECT: NFTA Site, ~~Surf~~ Groundwater Use in adjacent area

REMARKS: There are no private wells within a three mile radius of the site that draw from the aquifer according to Mr. Violanti Homes are supplied with municipal water. Industry in the area may draw water for cooling etc.

I AGREE WITH THE ABOVE SUMMARY OF THE INTERVIEW:

SIGNATURE

COMMENTS:

REF:17

INTERVIEW FORM

INTERVIEWEE/CODE Jerry Wawrzyniak /

TITLE - POSITION Supervisor of maintenance Seaport Division

ADDRESS Port of Buffalo, 901 Fuhrmann Blvd

CITY Buffalo STATE NY ZIP 14203

PHONE (716) 855-7411 RESIDENCE PERIOD _____ TO _____

LOCATION Site Inspection NFTA site INTERVIEWER S. Robert STEELE II

DATE/TIME 3/20/85 / 11:15 AM

SUBJECT: PHASE I INVESTIGATION OF NFTA Site adjacent to the Port of Buffalo.

REMARKS: The NFPA purchase the Port Authority Site from the U.S. Army Corp of Engineers in the early 1950's. The Corp of Engineers filled approximately 100 acres with fill from off-site. From 1965 throughout 1979 Numerous contractors brought fill material from off-site to be used to fill the low lying southern section of the site. Approximately 12 feet of fill material was placed in the 35 acre southern section.

The NFPA changed name to the NFTA in 1967. The NFTA is the current owner of the site filled in by the US Corp of Engineers.

No detailed records were kept of the contractors that brought fill material in from off-site. Generally the fill material was brought from construction excavations in the Buffalo area.

I AGREE WITH THE ABOVE SUMMARY OF THE INTERVIEW:

SIGNATURE: Jerome E Wawrzyniak

COMMENTS:

POTENTIAL HAZARDOUS WASTE SITE
PRELIMINARY ASSESSMENT
PART 1 - SITE INFORMATION AND ASSESSMENT

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
NY	D000514000

II. SITE NAME AND LOCATION

01 SITE NAME (Legal, common, or descriptive name of site)	02 STREET, ROUTE NO., OR SPECIFIC LOCATION IDENTIFIER
Niagara Frontier Port Authority	910 Fuhrmann Blvd

03 CITY	04 STATE	05 ZIP CODE	06 COUNTY	07 COUNTY CODE	08 CONG DIST
Buffalo	NY	14203	ERIE	029	37

09 COORDINATES LATITUDE	LONGITUDE
425204.	0785238.

10 DIRECTIONS TO SITE (Starting from nearest public road)

III. RESPONSIBLE PARTIES

01 OWNER (If known)	02 STREET (Business, mailing, residential)
Niagara Frontier Port Authority	182 Ellicott Street P.O Box 5008

03 CITY	04 STATE	05 ZIP CODE	06 TELEPHONE NUMBER
Buffalo	NY	14205	(716) 855-7225

07 OPERATOR (If known and different from owner)	08 STREET (Business, mailing, residential)
NFTA - SEAPORT DIVISION	Port of Buffalo, 901 Fuhrmon Blvd

09 CITY	10 STATE	11 ZIP CODE	12 TELEPHONE NUMBER
Buffalo	NY	14203	(716) 855-7411

13 TYPE OF OWNERSHIP (Check one)
☐ A. PRIVATE ☐ B. FEDERAL: _____ (Agency name) ☑ C. STATE ☐ D. COUNTY ☐ E. MUNICIPAL
☐ F. OTHER: _____ (Specify) ☐ G. UNKNOWN

14 OWNER/OPERATOR NOTIFICATION ON FILE (Check all that apply)
☐ A. RCRA 3001 DATE RECEIVED: ___/___/___ (MONTH DAY YEAR) ☐ B. UNCONTROLLED WASTE SITE (CERCLA 103 c) DATE RECEIVED: ___/___/___ (MONTH DAY YEAR) ☐ C. NONE

IV. CHARACTERIZATION OF POTENTIAL HAZARD

01 ON SITE INSPECTION
☑ YES DATE 3 20 85 (MONTH DAY YEAR)
☐ NO

BY (Check all that apply)
☐ A. EPA ☐ B. EPA CONTRACTOR ☐ C. STATE ☐ D. OTHER CONTRACTOR
☐ E. LOCAL HEALTH OFFICIAL ☐ F. OTHER: _____ (Specify)
CONTRACTOR NAME(S): Engineering - Science

02 SITE STATUS (Check one)	03 YEARS OF OPERATION		
☐ A. ACTIVE ☑ B. INACTIVE ☐ C. UNKNOWN	1950's (BEGINNING YEAR)	1979 (ENDING YEAR)	☐ UNKNOWN

04 DESCRIPTION OF SUBSTANCES POSSIBLY PRESENT, KNOWN, OR ALLEGED
During the 1950's, the U.S. Army CORPS of Engineers recovered land with dredgings from the Buffalo Harbor. Misc. WASTES including Ford plant refuse, foundary sands paint sludges and Chevrolet casting sands were allegedly disposed on-site

05 DESCRIPTION OF POTENTIAL HAZARD TO ENVIRONMENT AND/OR POPULATION
HNU meter readings taken during the ES and DEM Site inspection detected concentrations of volatile organics as high as 160 ppm. These readings occurred in the southern section, adjacent to junk storage area

V. PRIORITY ASSESSMENT

01 PRIORITY FOR INSPECTION (Check one. If high or medium is checked, complete Part 2 - Waste Information and Part 3 - Description of Hazardous Conditions and Incidents)
☐ A. HIGH (Inspection required promptly) ☑ B. MEDIUM (Inspection required) ☐ C. LOW (Inspect on time available basis) ☐ D. NONE (No further action needed, complete current disposition form)

VI. INFORMATION AVAILABLE FROM

01 CONTACT	02 OF (Agency/Organization)	03 TELEPHONE NUMBER
S. Robert STEELE, II	Engineering - Science (ES)	(703) 591-7575

04 PERSON RESPONSIBLE FOR ASSESSMENT	05 AGENCY	06 ORGANIZATION	07 TELEPHONE NUMBER	08 DATE
S. Robert STEELE, II		ES	SAME	4 2 85 (MONTH DAY YEAR)

EPA FORM 2070-12 (7-81)

EPA

POTENTIAL HAZARDOUS WASTE SITE
PRELIMINARY ASSESSMENT
PART 2 - WASTE INFORMATION

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
NY	0000514000

II. WASTE STATES, QUANTITIES, AND CHARACTERISTICS

01 PHYSICAL STATES (Check all that apply)

- ☐ A. SOLID
- ☐ B. POWDER, FINES
- ☐ C. SLUDGE
- ☐ D. OTHER Harbor dredgings (Specify)
- ☐ E. SLURRY
- ☐ F. LIQUID
- ☐ G. GAS

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

- TONS: ____
- CUBIC YARDS: 3,215,000
- NO. OF DRUMS: ____

03 WASTE CHARACTERISTICS (Check all that apply)

- ☑ A. TOXIC
- ☐ B. CORROSIVE
- ☐ C. RADIOACTIVE
- ☑ D. PERSISTENT
- ☐ E. SOLUBLE
- ☐ F. INFECTIOUS
- ☐ G. FLAMMABLE
- ☐ H. IGNITABLE
- ☐ I. HIGHLY VOLATILE
- ☐ J. EXPLOSIVE
- ☐ K. REACTIVE
- ☐ L. INCOMPATIBLE
- ☐ M. NOT APPLICABLE

III. WASTE TYPE

CATEGORY	SUBSTANCE NAME	01 GROSS AMOUNT	02 UNIT OF MEASURE	03 COMMENTS
~~SLU~~ (1)	~~SLUDGE~~ River dredgings	2,130,000	cubic yards	From Buffalo harbor
OLW	OILY WASTE			
~~SOL~~ (2)	~~SOLVENTS~~ Blast furnace slag	155,000	tons	From Bethlehem Steel
PSD	PESTICIDES			
OCC	OTHER ORGANIC CHEMICALS			
IOC	INORGANIC CHEMICALS			
~~ACD~~ (3)	~~ACIDS~~ Foundary casting sands	Unknown		From Chevrolet plant
BAS	BASES			
~~MES~~	~~HEAVY METALS~~ Excavated fill	930,000	cubic yds	Fill from off-site excavations (Est)

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
(1)	PCB (suspected)	1336-36-3			
(2)	Phenol (suspected)	108-95-2			
(2)	Hexane (suspected)	110-54-3			
(2)	Cyanide (suspected)	57-12-5			
(3)	phenolic compounds	108-95-2			
1 & 3	Heavy metals				
	cadmium	7440-43-9		1,000	mg/kg
	chromium	7440-47-3		1,000	mg/kg
	copper	7440-50-8		38,000	mg/kg
	Iron	15438-31-0		58,000-340,000	mg/kg
	Lead	7439-92-1		60,000	mg/kg

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)

Interview with Jerry Wawrzyniak, NFTA, during site inspection conducted by ES and O&M, 3/20/85

Interview with Donald E. Borkowski, U.S. Army Corps of Engineers, 3/27/85

EPA

POTENTIAL HAZARDOUS WASTE SITE
PRELIMINARY ASSESSMENT
PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER

II. HAZARDOUS CONDITIONS AND INCIDENTS

01 [X] A. GROUNDWATER CONTAMINATION — 02 ☐ OBSERVED (DATE: _____) — [X] POTENTIAL — ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: 0 — 04 NARRATIVE DESCRIPTION

potential exists for contaminants to enter the groundwater

01 [X] B. SURFACE WATER CONTAMINATION — 02 ☐ OBSERVED (DATE: _____) — [X] POTENTIAL — ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ — 04 NARRATIVE DESCRIPTION

Due to the proximity to Lake Erie, surface water may be directly affected by contaminants

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

HNU meter readings indicated volatile organics at contrations ranging from NO to 160 ppm.

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

NO

01 ☐ E. DIRECT CONTACT — 02 ☐ OBSERVED (DATE: _____) — ☐ POTENTIAL — ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: 3,277 — 04 NARRATIVE DESCRIPTION

The site does not have barriers which completly surround the facility. The potential for direct contact with hazardous waste exist as indicated by HNU readings taken on-site

01 [X] F. CONTAMINATION OF SOIL — 02 ☐ OBSERVED (DATE: _____) — [X] POTENTIAL — ☐ ALLEGED
03 AREA POTENTIALLY AFFECTED: _____ (Acres) — 04 NARRATIVE DESCRIPTION

A portion of the site had high HNU meter readings. Insufficient waste characterization information exists to determine if or how much of the site is contaminated.

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

NO

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

NO

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

NO

EPA

POTENTIAL HAZARDOUS WASTE SITE
PRELIMINARY ASSESSMENT
PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS

I. IDENTIFICATION

01 STATE	02 SITE NUMBER

II. HAZARDOUS CONDITIONS AND INCIDENTS *(Continued)*

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

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

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

01 ☒ M. UNSTABLE CONTAINMENT OF WASTES *(Spills/runoff/standing liquids/leaking drums)* — 02 ☐ OBSERVED (DATE: _____) — ☒ POTENTIAL — ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ 04 NARRATIVE DESCRIPTION
Site is unlined, consists of dredged material from the Buffalo Harbor and various industrial wastes.

01 ☐ N. DAMAGE TO OFFSITE PROPERTY — 02 ☐ OBSERVED (DATE: _____) — ☐ POTENTIAL — ☐ ALLEGED
04 NARRATIVE DESCRIPTION
NO

01 ☐ O. CONTAMINATION OF SEWERS, STORM DRAINS, WWTPs — 02 ☐ OBSERVED (DATE: _____) — ☐ POTENTIAL — ☐ ALLEGED
04 NARRATIVE DESCRIPTION
NO

01 ☐ P. ILLEGAL/UNAUTHORIZED DUMPING — 02 ☐ OBSERVED (DATE: _____) — ☐ POTENTIAL — ☐ ALLEGED
04 NARRATIVE DESCRIPTION
NO

05 DESCRIPTION OF ANY OTHER KNOWN, POTENTIAL, OR ALLEGED HAZARDS
NO

III. TOTAL POPULATION POTENTIALLY AFFECTED: Unknown

IV. COMMENTS

V. SOURCES OF INFORMATION *(Cite specific references, e. g., state files, sample analysis, reports)*
Site visit, 1985

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

I. IDENTIFICATION
01 STATE: NY | 02 SITE NUMBER: D000514000

II. SITE NAME AND LOCATION

01 SITE NAME (Legal, common, or descriptive name of site)	02 STREET, ROUTE NO., OR SPECIFIC LOCATION IDENTIFIER
Niagara Frontier Port Authority	910 Fuhrmann Blvd

03 CITY	04 STATE	05 ZIP CODE	06 COUNTY	07 COUNTY CODE	08 CONG DIST
Buffalo	NY	14203	ERIE	029	37

09 COORDINATES: LATITUDE 42 52 04.__ | LONGITUDE 078 52 38.__

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
3 20 85 (MONTH DAY YEAR)	☐ ACTIVE ☑ INACTIVE	1950 (BEGINNING YEAR) 1979 (ENDING YEAR) ___ UNKNOWN

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

05 CHIEF INSPECTOR	06 TITLE	07 ORGANIZATION	08 TELEPHONE NO.
S. Robert STEELE, II	Environmental Scientist	ES	(703) 591-7575
09 OTHER INSPECTORS	10 TITLE	11 ORGANIZATION	12 TELEPHONE NO.
Eileen Gilligan	Geologist	DEC	(315) 638-2572
			( )
			( )
			( )
			( )

13 SITE REPRESENTATIVES INTERVIEWED	14 TITLE	15 ADDRESS	16 TELEPHONE NO
Sharon West	Munger Special Projects	182 Ellicott Street Buffalo, NY 14205	(716) 855-7225
Jerry Wawrzyniak	Maint Supervisor	901 Fuhrmann Blvd Buffalo, NY 14203	(716) 855-7411
			( )
			( )
			( )
			( )

17 ACCESS GAINED BY (Check one)	18 TIME OF INSPECTION	19 WEATHER CONDITIONS
☑ PERMISSION ☐ WARRANT	11:15 AM	Cold, windy

IV. INFORMATION AVAILABLE FROM

01 CONTACT	02 OF (Agency/Organization)	03 TELEPHONE NO.
S. Robert STEELE II	Engineering - Science (ES)	(703) 591-7575

04 PERSON RESPONSIBLE FOR SITE INSPECTION FORM	05 AGENCY	06 ORGANIZATION	07 TELEPHONE NO.	08 DATE
S. Robert STEELE II		ES	SAME	3 20 85 (MONTH DAY YEAR)

EPA FORM 2070-13 (7-81)

EPA

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

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
NY	000514000

II. WASTE STATES, QUANTITIES, AND CHARACTERISTICS

01 PHYSICAL STATES (Check all that apply)

- ☐ A. SOLID
- ☐ B. POWDER, FINES
- ☐ C. SLUDGE
- ☐ D. OTHER (Specify) Harbor dredgings
- ☐ E. SLURRY
- ☐ F. LIQUID
- ☐ G. GAS

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

- TONS: ____
- CUBIC YARDS: 3,215,000
- NO. OF DRUMS: ____

03 WASTE CHARACTERISTICS (Check all that apply)

- ☐ A. TOXIC
- ☐ B. CORROSIVE
- ☐ C. RADIOACTIVE
- ☐ D. PERSISTENT
- ☐ E. SOLUBLE
- ☐ F. INFECTIOUS
- ☐ G. FLAMMABLE
- ☐ H. IGNITABLE
- ☐ I. HIGHLY VOLATILE
- ☐ J. EXPLOSIVE
- ☐ K. REACTIVE
- ☐ L. INCOMPATIBLE
- ☐ M. NOT APPLICABLE

III. WASTE TYPE

CATEGORY	SUBSTANCE NAME	01 GROSS AMOUNT	02 UNIT OF MEASURE	03 COMMENTS
~~SLU~~ (1)	~~SLUDGE~~ River dredgings	2,130,000	Cubic yds	
OLW	OILY WASTE			
~~SOL~~ (2)	~~SOLVENTS~~ Blast furnace slag	155,000	TONS	From Bethlahem Steel
PSD	PESTICIDES			
OCC	OTHER ORGANIC CHEMICALS			
IOC	INORGANIC CHEMICALS			
~~ACD~~ (3)	ACIDS Foundry Casting Sands	unknown		From Chevrolet plant
BAS	BASES			
MES	HEAVY METALS Excavated Fill	930,000	Cubic yds	Fill from off-site excavations (Est)

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
(1)	PCB (suspected)	1336-36-3			
(2)	Phenol (suspected)	108-95-2			
(2)	Hexane (suspected)	110-54-3			
(2)	Cyanide (suspected)	57-12-5			
(3)	phenolic compounds (suspected)	108-95-2			
1 & 3	Heavy metals				
	Cadmium	7440-43-9		1,000	Mg / Kg
	Chromium	7440-47-3		1,000	Mg / Kg
	Copper	7440-50-8		38,000	Mg / Kg
	Iron	15438-31-0		58,000 - 340,000	Mg / Kg
	Lead	7439-92-1		60,000	Mg / Kg

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)

Interview with Jerry Wawrzynak, NFTA during site inspection conducted by ES and O&M, 3/20/85

Interview with Donald E Barkowski, U.S Army Corps of Engineers, 3/27/85

EPA

POTENTIAL HAZARDOUS WASTE SITE
PRELIMINARY ASSESSMENT
PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER

II. HAZARDOUS CONDITIONS AND INCIDENTS

01 [X] A. GROUNDWATER CONTAMINATION — 02 ☐ OBSERVED (DATE: _____) — [X] POTENTIAL — ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ — 04 NARRATIVE DESCRIPTION

potential exists for contaminants to enter the groundwater

01 ☐ B. SURFACE WATER CONTAMINATION — 02 ☐ OBSERVED (DATE: _____) — [X] POTENTIAL — ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ — 04 NARRATIVE DESCRIPTION

Due to the proximity to Lake Erie, surface water may be directly affected by contaminants

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

HNU meter readings indicated volatile organics at contrations ranging from ND to 160 ppm.

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

NO

01 ☐ E. DIRECT CONTACT — 02 ☐ OBSERVED (DATE: _____) — ☐ POTENTIAL — ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: 3,277. — 04 NARRATIVE DESCRIPTION

The site does not have barriers which completely surround the facility. The potential for direct contact with hazardous substances exists as indicated by HNU meter readings

01 [X] F. CONTAMINATION OF SOIL — 02 ☐ OBSERVED (DATE: _____) — [X] POTENTIAL — ☐ ALLEGED
03 AREA POTENTIALLY AFFECTED: _____ (Acres) — 04 NARRATIVE DESCRIPTION

A portion of the site had high HNU meter readings. Insufficient waste characterization information exists to determine if or how much of the site is contaminated.

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

NO

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

NO

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

NO

EPA

POTENTIAL HAZARDOUS WASTE SITE
PRELIMINARY ASSESSMENT
PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS

I. IDENTIFICATION

01 STATE	02 SITE NUMBER

II. HAZARDOUS CONDITIONS AND INCIDENTS (Continued)

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

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

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

01 ☒ M. UNSTABLE CONTAINMENT OF WASTES (Spills/runoff/standing liquids/leaking drums) — 02 ☐ OBSERVED (DATE: _____) — ☒ POTENTIAL — ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ 04 NARRATIVE DESCRIPTION
Site is unlined, consists of dredged material from the Buffalo Harbor and various industrial wastes.

01 ☐ N. DAMAGE TO OFFSITE PROPERTY — 02 ☐ OBSERVED (DATE: _____) — ☐ POTENTIAL — ☐ ALLEGED
04 NARRATIVE DESCRIPTION
NO

01 ☐ O. CONTAMINATION OF SEWERS, STORM DRAINS, WWTPs — 02 ☐ OBSERVED (DATE: _____) — ☐ POTENTIAL — ☐ ALLEGED
04 NARRATIVE DESCRIPTION
NO

01 ☐ P. ILLEGAL/UNAUTHORIZED DUMPING — 02 ☐ OBSERVED (DATE: _____) — ☐ POTENTIAL — ☐ ALLEGED
04 NARRATIVE DESCRIPTION
NO

05 DESCRIPTION OF ANY OTHER KNOWN, POTENTIAL, OR ALLEGED HAZARDS
NO

III. TOTAL POPULATION POTENTIALLY AFFECTED: UNKNOWN

IV. COMMENTS

V. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)
Site visit, 1985

EPA

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

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
NY	0 0 0 5 1 4 0 0 0

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				NO disposal practices presently occur at the NFTA Site.
☐ B. UIC				
☐ C. AIR				
☐ D. RCRA				
☐ E. RCRA INTERIM STATUS				
☐ F. SPCC PLAN				
☐ G. STATE (Specify)				
☐ H. LOCAL (Specify)				
☐ I. OTHER (Specify)				
☐ J. NONE				

III. SITE DESCRIPTION

01 STORAGE/DISPOSAL (Check all that apply)	02 AMOUNT	03 UNIT OF MEASURE
☐ A. SURFACE IMPOUNDMENT		
☐ B. PILES		
☐ C. DRUMS, ABOVE GROUND		
☐ D. TANK, ABOVE GROUND		
☐ E. TANK, BELOW GROUND		
☒ F. LANDFILL		
☐ G. LANDFARM		
☐ H. OPEN DUMP		
☐ I. OTHER land recovery (Specify)	2,285,000	cu. yds

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 NONE (Specify)

05 OTHER

- ☒ A. BUILDINGS ON SITE

06 AREA OF SITE

(Est) 100 (Acres)

07 COMMENTS

The U.S. Corps of Engineers dikked in the fill area in the 1950's using dredgings from the Buffalo Harbor. The land was turned over to the NFAA who later became the NFTA. The NFTA subsequent filled in the low lying areas of the southern section of the site with fill material and construction debris brought to the site by off-site contractors

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.

Fill materials were disposed directly in the low lying fill area. The fill was not used for disposal purposes but rather as a land recovery project.

V. ACCESSIBILITY

01 WASTE EASILY ACCESSIBLE: ☒ YES ☐ NO

02 COMMENTS

Although the site has a 24-hour security system, the site is not completely enclosed with a barrier to prevent unauthorized entry.

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

Interview with Jerry Wawrzyniak, NFTA, during site inspection conducted by ES and O&M, 3/20/85.

Interview with Donald E Borkowski, U.S. Army Corps of Engineers, 3/27/85

EPA

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

I. IDENTIFICATION
01 STATE: NY | 02 SITE NUMBER: D000514022

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. > 1 (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: Unknown

03 DISTANCE TO NEAREST DRINKING WATER WELL: UNKNOWN (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
13-14 (ft)	NW	unknown (ft)	unknown (gpd)	☐ YES ☐ NO

09 DESCRIPTION OF WELLS (Including useage, depth, and location relative to population and buildings)
There are NO municipal water supply wells in this area. Two industrial water supply wells are located within 1 mile of the site

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
LAKE ERIE	☐	0.0 (mi)
NIAGARA RIVER	☐	~3.0 (mi)
	☐	(mi)

V. DEMOGRAPHIC AND PROPERTY INFORMATION

01 TOTAL POPULATION WITHIN

ONE (1) MILE OF SITE	TWO (2) MILES OF SITE	THREE (3) MILES OF SITE
A. 3,277 NO. OF PERSONS	B. 20,959 NO. OF PERSONS	C. 68,652 NO. OF PERSONS

02 DISTANCE TO NEAREST POPULATION: 2 - 3 (mi)

03 NUMBER OF BUILDINGS WITHIN TWO (2) MILES OF SITE: 5,516

04 DISTANCE TO NEAREST OFF-SITE BUILDING: 0.0 (mi) NFTA building is located on-site

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)
A residential area is located approximately 1 mile from the site.

EPA

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

I. IDENTIFICATION
01 STATE: NY | 02 SITE NUMBER: D000514000

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

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	
Unknown (ft)	≥ 26.5 (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)	< 1.0 %	W	< 1.0 %

09 FLOOD POTENTIAL
SITE IS IN >100 YEAR FLOODPLAIN

10
☐ SITE IS ON BARRIER ISLAND, COASTAL HIGH HAZARD AREA, RIVERINE FLOODWAY

11 DISTANCE TO WETLANDS (5 acre minimum)

ESTUARINE	OTHER
A. > 2 (mi)	B. 0.0 (mi)

12 DISTANCE TO CRITICAL HABITAT (of endangered species)
MIGRATORY BIRDS > 1 (mi)
ENDANGERED SPECIES: Aquila Chrysaetos, Haliaeetos leucocephalus, Falco Peregrines

13 LAND USE IN VICINITY

DISTANCE TO:

COMMERCIAL/INDUSTRIAL	RESIDENTIAL AREAS; NATIONAL/STATE PARKS, FORESTS, OR WILDLIFE RESERVES	AGRICULTURAL LANDS: PRIME AG LAND	AGRICULTURAL LANDS: AG LAND
A. 0.0 (mi)	B. 0.3 (mi)	C. > 2 (mi)	D. > 1 (mi)

14 DESCRIPTION OF SITE IN RELATION TO SURROUNDING TOPOGRAPHY

The NFTA site is located along the shoreline of the Buffalo Harbor. The site consists 120 acres of filled land. The ground surface is flat except for occasional piles of dry bulk products.

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

ES and OGM site visit, 3/20/85
LASALA, 1968
USGS Boring logs, Site Probe Report
USGS Topographic maps

EPA

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

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
NY	D 000514000

II. SAMPLES TAKEN

SAMPLE TYPE	01 NUMBER OF SAMPLES TAKEN	02 SAMPLES SENT TO	03 ESTIMATED DATE RESULTS AVAILABLE
GROUNDWATER			
SURFACE WATER			
WASTE			
AIR			
RUNOFF			
SPILL			
SOIL			
VEGETATION			
OTHER			

III. FIELD MEASUREMENTS TAKEN

01 TYPE	02 COMMENTS
HNU	HNU readings were taken above the ground in the fill area.
	Readings at the Northern section were in the 2-3 ppm range.
	In the Southern section (39 acres tract), the HNU readings
	ranged from 2-3 ppm to a high of 160 ppm

IV. PHOTOGRAPHS AND MAPS

01 TYPE ☑ GROUND ☐ AERIAL

02 IN CUSTODY OF Engineering - Science
(Name of organization or individual)

03 MAPS ☐ YES ☑ NO

04 LOCATION OF MAPS
Site plan of the landfill area was obtained from the NFTA

V. OTHER FIELD DATA COLLECTED (Provide narrative description)

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

Site Inspection by ES and O&M, 3/20/85

EPA FORM 2070-13 (7-81)

EPA

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

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
NY	D 000514000

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
Niagara Frontier Transp. Authority		182 Ellicott Street		Buffalo	NY	14205

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
NFTA CHARTERED by NYS						

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
U.S. Corps of Engineers		1776 Niagara Street		Buffalo	NY	14207

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)

Interview with Jerry Wawrzyniak, NFTA, during site inspection conducted by ES and O&M, 3/20/85

EPA

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

I. IDENTIFICATION
01 STATE: NY | 02 SITE NUMBER: D 000514000

II. CURRENT OPERATOR (Provide if different from owner)

01 NAME	02 D+B NUMBER
Niagara Frontier Transportation Authority	

03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE
910 Fuhrman Blvd	

05 CITY	06 STATE	07 ZIP CODE
Buffalo	NY	14205

08 YEARS OF OPERATION	09 NAME OF OWNER
1950's - present	Niagara Frontier Port Authority

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	02 D+B NUMBER
FORD MOTOR Company	

03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE
910 Fuhrman Blvd	

05 CITY	06 STATE	07 ZIP CODE
Buffalo	NY	14205

08 YEARS OF OPERATION	09 NAME OF OWNER DURING THIS PERIOD
1940's - 50's	SAME

PREVIOUS OPERATORS' PARENT COMPANIES (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

01 NAME	02 D+B NUMBER
U.S Corp of Engineers	

03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE
1776 Niagara Street	

05 CITY	06 STATE	07 ZIP CODE
Buffalo	NY	14207

08 YEARS OF OPERATION	09 NAME OF OWNER DURING THIS PERIOD
1950's	SAME

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	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 Jerry Wawrzyniak, NFTA, during site inspection conducted by ES and O&M, 3/20/85

EPA

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

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
NY	000514000

II. ON-SITE GENERATOR

01 NAME	02 D+B NUMBER
NONE	

03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE

05 CITY	06 STATE	07 ZIP CODE

NO hazardous wastes are generated on-site that require disposal. Part of the southern section is used for the storage of non-combustible items from the NFTA, Seaport Division

III. OFF-SITE GENERATOR(S)

01 NAME	02 D+B NUMBER	01 NAME	02 D+B NUMBER
NONE			
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
NONE			
03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE	03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE
05 CITY	06 STATE / 07 ZIP CODE	05 CITY	06 STATE / 07 ZIP CODE
01 NAME	02 D+B NUMBER	01 NAME	02 D+B NUMBER
03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE	03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE
05 CITY	06 STATE / 07 ZIP CODE	05 CITY	06 STATE / 07 ZIP CODE

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

Site Inspection conducted by ES and OEM, 3/20/85

EPA

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

I. IDENTIFICATION
01 STATE: NY | 02 SITE NUMBER: 3000514 00

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 ☐ Q. 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	02 SITE NUMBER
NY	D 000514000

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: Site is partially enclosed by fence and 24 hour security is maintained

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

01 ☐ 3. OTHER REMEDIAL ACTIVITIES — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION:

NO remedial actions have taken place in response to past disposal practices at this site.

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

Site inspection conducted by ES and DEM, 3/20/85

EPA FORM 2070-13 (7-81)

EPA

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

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
NY	D000514000

II. ENFORCEMENT INFORMATION

01 PAST REGULATORY/ENFORCEMENT ACTION ☐ YES ☑ NO — NO Action taken

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

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

NYSDEC, Environmental Enforcement

NYS. Attorney Generals Office

SECTION VI

ASSESSMENT OF DATA ADEQUACY AND RECOMMENDATIONS

ASSESSMENT OF DATA ADEQUACY

A summary assessment of the adequacy of existing data for completion of the HRS score is presented in Table VI-1. Based on this assessment, the following Phase II work plan and cost estimate has been prepared.

PHASE II WORK PLAN

Objectives

The objectives of the proposed Phase II activities are:

- To collect additional field data necessary to identify the occurrence and extent of contamination and to determine if any imminent health hazard exists.

- To perform a conceptual evaluation of remedial alternatives and estimate budgetary costs for the most likely alternative.

- To prepare a site investigation report including final HRS score.

The additional field data required to complete this investigation are described as follows:

Geophysical Survey - A geophysical study consisting magnetometry survey will be conducted as necessary on the southern part of the site on a grid system to aid in determining the area of buried materials and in delineating the limits of the contaminated area.

Auger Holes - Forty auger holes will be drilled to a depth of 25 feet to determine the volume and characteristics of site fill materials. (Note: the NFTA site is approximately 120 acres).

Groundwater - Based on the results of the auger hole drilling program and the geophysical survey, the need for groundwater monitoring wells will be determined. For the purposes of the cost estimates, 10 groundwater monitoring wells are assumed to be installed on-site.

Waste - Ten samples from the soil borings will be analyzed for priority pollutants.

Air - An air monitoring survey with an OVA is recommended on a grid system in the southern sector of the site to identify the air contaminants. At areas of high contamination, an air sample will be collected and analyzed for organics (GC/MS). We will assume one such area for cost estimating purposes.

TASK DESCRIPTION

The proposed Phase II tasks are described in Table VI-2 as required under the site specific health and safety plan and quality assurance plan which must be submitted prior to initiation of field activities. The proposed monitoring well and sampling location are presented in Figure VI-1.

COST ESTIMATE

The estimated man-hours required for the Phase II project are presented in Table VI-3 and the estimated project costs by tasks are presented in Table VI-4. The estimate total cost for this project is $94,432.

TABLE VI-1

ASSESSMENT OF DATA ADEQUACY

HRS Data Requirement	Comments on Data
Observed Release	
Groundwater	Insufficient data to score release
Surface Water	Insufficient data to score release.
Air	Insufficient data to score release.
Route Characteristics	
Groundwater	Inadequate for HRS score, estimate of soil types and depth to aquifer of concern
Surface Water	Data adequate for HRS score
Air	Inadequate data on waste characteristics
Containment	Data adequate for HRS score
Waste Characteristics	Inadequate information for waste quantity, waste volumes estimated
Targets	Data adequate for HRS score
Observed Incident	Data adequate for HRS score
Accessibility	Data adequate for HRS score

TABLE VI-2

PHASE II WORK PLAN - TASK DESCRIPTION

Tasks		Description of Task
II-A	Update Work Plan	Review the information in the Phase I report, conduct a site visit, and revise the Phase II work plan.
II-B	Conduct Geophysical Studies	Conduct magnetometer survey.
II-C	Conduct Boring/Install Monitoring Wells	10 monitoring wells will be installed based on the results of the auger hole drilling program and geophysical study. The borings will be drilled to a depth of approximately 25 to 30 feet, as determined during the field work. Wells will be constructed of 2" PVC pipe.
II-D	Construct Test Pits/Auger Holes	40 auger holes are to be drilled to a maximum depth of 25 feet to determine the volume and characteristics of the fill material.
II-E	Perform Sampling & Analysis	
	Soil samples from borings	10 soil samples from borings are to be collected and analyzed for priority pollutants.
	Soil samples from surface soils	No further studies necessary.
	Soil samples from auger holes/test pits	No further studies necessary.
	Sediment samples from surface water	No further studies necessary.
	Groundwater samples	10 groundwater samples are to be collected and analyzed for priority pollutants.
	Surface water samples	No further studies necessary.

TABLE VI-2 (Continued)

PHASE II WORK PLAN - TASK DESCRIPTION

Tasks		Description of Task
	Air samples	Using the OVA determine the presence of organic contaminants.
	Waste samples	Ten samples from the auger holes will be collected for priority pollutant analysis.
II-F	Calculate Final HRS	Based on the field data collected in Tasks II-B - II-E, complete the HRS form.
II-G	Conduct Site Assessment	Prepare final report containing significant Phase I information, additional field data, final HRS and HRS documentation records, and site assessments. The site assessment will consist of a conceptual evaluation of alternatives and a preliminary cost estimate of the most probable alternative.
II-H	Project Management	Project coordination, administration and reporting.

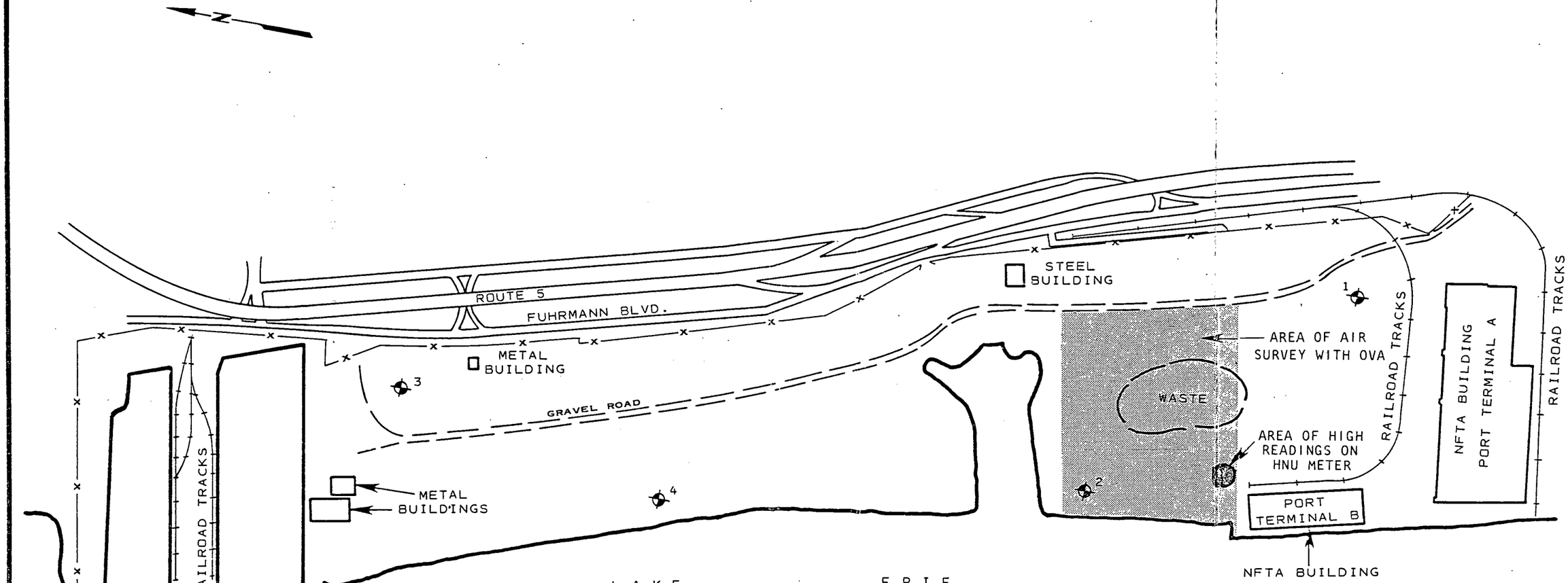
TABLE VI-3
PERSONNEL RESOURCES BY TASK
PHASE II HRS SITE INVESTIGATION (SITE: NFTA)

TASK DESCRIPTION	TEAM MEMBERS, MANHOURS													
	PIC	TRB	PM	DPM	PCM	QAM	HSM	FTL	FT	RAAL	RAAT	SS	TOTAL HOURS	TOTAL $
II-A UPDATE WORK PLAN	1	1	8	4		4	4	16		8		28	74	1144.1
II-B CONDUCT GEOPHYSICAL STUDIES			4	1			4	8	120			40	177	1761.23
II-C CONDUCT BORING/INSTALL MONITORING WELLS			16	8			8	16	160			40	248	2850.56
II-D CONSTRUCT TEST PITS/AUGER HOLES			8	16		4	4	20	80			24	156	2094.68
II-E PERFORM SAMPLING AND ANALYSIS														
SOIL SAMPLES FROM BORINGS													0	0
SOIL SAMPLES FROM SURFACE SOILS													0	0
SOIL SAMPLES FROM TEST PITS AND AUGER HOLES													0	0
SEDIMENT SAMPLES FROM SURFACE WATER													0	0
GROUND-WATER SAMPLES			1	1			1	1	40			4	48	490.48
SURFACE WATER SAMPLES													0	0
AIR SAMPLES			1	1			1	1	4			4	12	155.68
WASTE SAMPLES			4	4		2	2	4	40			16	72	837.7
II-F CALCULATE FINAL HRS			4	4				4	4	2		4	22	394.56
II-G CONDUCT SITE ASSESSMENT	2	2	8	2				24	32	12	40	50	172	2217.02
II-H PROJECT MANAGEMENT	2		6	2	3	4	4					12	33	529.88
TOTALS	5	3	60	43	3	14	28	94	480	22	40	222	1014	12475.89

TABLE VI-4
COST ESTIMATE BREAKDOWN BY TASK
PHASE II HRS SITE INVESTIGATION (SITE: NFTA)

TASK DESCRIPTION	DIRECT LABOR HOURS	DIRECT LABOR COST	OTHER DIRECT COSTS (ODC), $ LAB ANALYSIS	TRAVEL AND SUBSISTANCE	SUPPLIES	EQUIP. CHARGES	SUBCON-TRACTORS	MISC.	SUBTOTAL ODC	TOTAL ($)
II-A UPDATE WORK PLAN	74	$1,144.10		$200.00	$50.00	$50.00		$50.00	$350.00	$1,494.10
II-B CONDUCT GEOPHYSICAL STUDIES	177	$1,761.23		$1,500.00	$50.00	$325.00		$25.00	$1,900.00	$3,661.23
II-C CONDUCT BORING/INSTALL MONITORING WELLS	248	$2,850.56		$1,000.00	$50.00	$200.00		$50.00	$1,300.00	$4,150.56
II-D CONSTRUCT TEST PITS/AUGER HOLES	156	$2,094.68		$700.00	$250.00	$100.00	$19,500.00		$20,550.00	$22,644.68
II-E PERFORM SAMPLING AND ANALYSIS										
SOIL SAMPLES FROM BORINGS	0	$0.00							$0.00	$0.00
SOIL SAMPLES FROM SURFACE SOILS	0	$0.00							$0.00	$0.00
SOIL SAMPLES FROM TEST PITS AND AUGER HOLES	0	$0.00							$0.00	$0.00
SEDIMENT SAMPLES FROM SURFACE WATER	0	$0.00							$0.00	$0.00
GROUND-WATER SAMPLES	48	$490.48	$12,000.00		$500.00	$150.00		$100.00	$12,750.00	$13,240.48
SURFACE WATER SAMPLES	0	$0.00							$0.00	$0.00
AIR SAMPLES	12	$155.68	$1,600.00		$100.00	$500.00		$50.00	$2,250.00	$2,405.68
WASTE SAMPLES	72	$837.70	$16,000.00		$100.00	$500.00		$50.00	$16,650.00	$17,487.70
II-F CALCULATE FINAL HRS	22	$394.56				$150.00			$150.00	$544.56
II-G CONDUCT SITE ASSESSMENT	172	$2,217.02			$750.00	$300.00		$75.00	$1,125.00	$3,342.02
II-H PROJECT MANAGEMENT	33	$529.88	$1,200.00	$300.00	$150.00	$50.00		$50.00	$1,750.00	$2,279.88
TOTALS	1014	$12,475.89	$30,800.00	$3,700.00	$2,000.00	$2,325.00	$19,500.00	$450.00	$58,775.00	$71,250.89

OVERHEAD=	$17,815.57
SUBTOTAL=	$89,066.46
FEE=	$5,365.59
TOTAL PROJECT COST=	$94,432.05



NOT TO SCALE

EXPLANATION:

1 USGS BORING, 1982

NOTE: Proposed locations for soil borings and air samples not shown.

ENGINEERING-SCIENCE, INC.
IN ASSOCIATION WITH
DAMES & MOORE

NEW YORK STATE DEPARTMENT
OF ENVIRONMENTAL CONSERVATION
PHASE I REPORT

PROPOSED SAMPLING LOCATIONS

NIAGARA FRONTIER PORT AUTHORITY

FIGURE VI-1

APPENDIX A

REFERENCES

Sources Contacted

Documentation

SOURCES CONTACTED FOR

NIAGARA FRONTIER TRANSPORTATION AUTHORITY SITE INVESTIGATION

CONTACT	DATE CONTACTED	PERSON CONTACTED	TELEPHONE NUMBER	LOCATION	INFORMATION COLLECTED
USEPA Headquarters, Superfund Office	4/2/85	Hamid Saebfed	(202) 382-4839	401 M Street, NW Washington, D.C. 20460	Reviewed list of sites to determine if additional information was available
USEPA - Region II, OERR	3/22/85	Mel Hauptman	(212) 264-7681	Room 402 26 Federal Plaza NY, NY 10278	General information from site files.
NYSDEC - Division of Solid and Hazardous	12/19/84	Marsden Chen	(518) 457-0639	50 Wolf Road Albany, NY 12233	General information from site files.
NYSDEC - Division of Water	12/19/84	Sal Pagano	(518) 457-6675	50 Wolf Road Albany, NY 12233	Mr. Pagano set up meetings with three bureaus within Division of Water.
NYSDEC - Division of Water SPDES Files	12/20/84	Bob Hannaford	(518) 457-6716	50 Wolf Road Albany, NY 12233	Reviewed SPDES Files for permit numbers and conditions.
NYSDEC - Division of Water DMR Files	12/21/84	George Hansen	(518) 457-2010	50 Wolf Road Albany, NY 12233	Reviewed DMR files for discharge violations.
NYSDEC - Division of Air Toxics	12/21/84	Art Fossa	(518) 457-7454	50 Wolf Road Albany, NY 12233	Reviewed site list to identify sites with potential air emissions.
NYSDEC - Division of Monitoring and Assessment	12/21/84	Bill Berner Frank Estabrook Fred Van Alstyne	(518) 457-7363	50 Wolf Road Albany, NY 12233	Reviewed geology and monitoring information for specific sites.

SOURCES CONTACTED FOR NIAGARA FRONTIER TRANSPORTATION AUTHORITY SITE INVESTIGATION

CONTACT	DATE CONTACTED	PERSON CONTACTED	TELEPHONE NUMBER	LOCATION	INFORMATION COLLECTED
NYSDEC - Division of Environmental Enforcement	12/20/84	Kevin Walters	(518) 457-4346	50 Wolf Road Albany, NY 12233	Reviewed list of sites to determine if legal action has occurred in the past, is in progress, and/or is scheduled in the near future.
NYS - Dept. of Law Attorney General's Office	1/7/85	Val Washington	(518) 473-3105	Empire State Plaza Justice Building Albany, NY 12233	Reviewed list of sites to determine if legal action has occurred in the past, is in progress, and/or is scheduled in the near future.
NYS - Dept. of Law Attorney General's Office	1/3/85	Albert Bronson	(716) 847-7196	Buffalo State Office Bldg. Buffalo, NY 14202	Reviewed list of sites to determine if legal action has occurred in the past, is in progress, and/or is scheduled in the near future.
NYSDEC - Division of Solid and Hazardous Waste	1/7/85	Peter Buechi Ahmad Tayyebi Jack Tygert Larry Clare	(716) 847-4585	600 Delaware Ave. Buffalo, NY 14202	Collected general information from site files.
NYSDEC - Region 9 Division of Air	1/8/85	Henry Sandonato Robert Armbrust	(716) 847-4565	600 Delaware Ave. Buffalo, NY 14202	Collected information concerning previous air emissions from inactive disposal sites.

SOURCES CONTACTED FOR NIAGARA FRONTIER TRANSPORTATION AUTHORITY SITE INVESTIGATION

CONTACT	DATE CONTACTED	PERSON CONTACTED	TELEPHONE NUMBER	LOCATION	INFORMATION COLLECTED
NYSDEC - Regional Attorney	1/10/85	Peter J. Burke	847-4551	600 Delaware Ave. Buffalo, NY 14202	Reviewed list of sites t determine if legal actio has occurred in the past is in progress, and/or i scheduled in the near future.
NYS Dept. of Health, Buffalo Region, Public Health Engineering	1/8/85	Lou Violanti	(716) 847-4500	584 Delaware Ave. Buffalo, NY 14202	Collected information from site files.
NYSDEC - Region 9 Division of Fish and Wildlife	1/10/85 & 1/11/85	Mike Wilkinson Jim Sneider	(716) 847-4600	600 Delaware Ave. Buffalo, NY 14202	Collected information from site files
Erie County, Division of Environmental Control, Dept. of Environment & Planning	1/10/85	Don Campbell Ron Koczaja	(716) 846-6271 (716) 846-6370	95 Franklin Street Buffalo, NY 14202	Collected information f Erie County site files. Obtained additional info mation through interview
Erie County, Division of Economic Development and Planning	4/2/85	Mike Alspaugh	(716) 846-6013	95 Franklin Street Buffalo, NY 14202	Obtained 1980 U.S. Census Data.

SOURCES CONTACTED FOR NIAGARA FRONTIER TRANSPORTATION AUTHORITY SITE INVESTIGATION

CONTACT	DATE CONTACTED	PERSON CONTACTED	TELEPHONE NUMBER	LOCATION	INFORMATION COLLECTED
Niagara Frontier Transportation Authority	3/20/85	Sharon West	(716) 855-7225	NFTA 182 Ellicot Street	Set up site inspection and discussed site ownership.
Niagara Frontier Transportation Authority	3/20/85	Jerry Wawrzyniak	(716) 855-7411	Port of Buffalo 901 Fuhrmann Blvd. Buffalo, NY 14203	Site inspection and interview of past waste disposal practices and site ownership.
U.S. Army Corps of Engineers - Buffalo Division	3/27/85	D. E. Borkowski	(716) 876-5454	1776 Niagara Street Buffalo, NY 14207	Information regarding U.S. Army Corps of Engineers; dredging operations of the Buffalo Harbor.
U.S. Army Corps of Engineers - Buffalo Division	3/27/85	Richard Leonard	(716) 876-5454	1776 Niagara Street Buffalo, NY 14207	Collected and discussed analytical data of river water and sediments in the Buffalo Harbor.
U.S. Army Corps of Engineers - Buffalo Division	4/17/85	Richard Leonard	(716) 876-5454	1776 Niagara Street Buffalo, NY 14207	Collected and discussed boring information from Buffalo Harbor and Buffalo River.

REFERENCES

18. Borkowski, D., US Army Corps of Engineers, Chief Maintenance and Operations Branch, Personal Communication, March 27, 1985.

19. ECDEP Site Profile Report, 1982.

20. RECRA Research, Inc. Analytical Data Report, Chevrolet Sand Wastes - Leachate Tests, 29 March 1979.

21. US Army Corps of Engineers, Completion of Boring Logs from Buffalo Harbor and Buffalo River, 1985.

22. US Army Corps of Engineers, Buffalo River, Buffalo Harbor and Black Rock Channel Sediment Quality (Summary), 27 January 1982.

23. US Army Corps of Engineers, Buffalo River, Buffalo River and Black Rock Channel Sediment Quality (Summary), 1972.

INTERVIEW FORM

INTERVIEWEE/CODE DONALD E CARKOWSKI / U.S CORPS OF ENGINEERS

TITLE - POSITION Chief, maintenance and Operations Branch

ADDRESS 1776 Niagara Street

CITY Buffalo STATE NY ZIP 14207

PHONE (716) 876-5454 RESIDENCE PERIOD _____ TO _____

LOCATION Buffalo District, US. Corp of Eng. INTERVIEWER S. Robert STEELE, II

DATE/TIME 3/27/85 /

SUBJECT: NFTA fill area located between Fuhrmann Blvd and the Buffalo Harbor.

REMARKS: The U.S. Army Corps of Engineers contracted the Great Lake Dredge and Dock Company to dredge the Shipping lane of the Buffalo Harbor. The contract called for approximately 2,130,000 cubic yards of dredge material to be removed and used as fill for land which is presently owned by the NFTA. The dredging operations began in the 1950's and were completed by about 1964. Also approximately 155,000 tons of blast furnance slag from Bethlehem Steel was used as fill material. The harbor dredgings removed adjacent to the Bethlehem Steel plant were used to fill the 39 acre southern section of the NFTA property. The dredgings removed from the main Shipping channel of the harbor were used to fill the northern NFTA section.

I AGREE WITH THE ABOVE SUMMARY OF THE INTERVIEW:

SIGNATURE:

COMMENTS:

ECDEP, 1982

REF-19

N. F. P. A.

901 FUHRMANN BOULEVARD

BUFFALO, NEW YORK

SITE # 915026

Prepared by Erie County
Department of Environment and
Planning
September 1982

ECDEP, 1982

N F P A

901 FUHRMANN BLVD.

BUFFALO, N.Y.

DEC SITE # 915026

BACKGROUND

The Interagency Task Force, in Volume III of Hazardous Waste Disposal Sites In New York State, reported that the former Ford Corp. assembly plant burned cafeteria, office and plant refuse, and paint sludge at this site. Harbor dredgings, construction and demolition material, and casting sand have also been used as fill on NFPA property. An "F" classification has been assigned to the site by the Task Force. This classification indicates that no further action is required. Investigation has shown that no in-place toxics are present in dangerous amounts and that the site does not pose a toxics hazard.

GENERAL INFORMATION

The Interagency Task Force reported that the Ford Motor Corp. burned waste materials at their assembly plant from 1924 - 1957. They also reported that harbor and lake dredgings provided the bulk of the fill material used in creating the Port Authority's bulk storage area. Construction and demolition material and foundry sands were also used as fill.

AERIAL PHOTOGRAPHY

Review of aerial photos and historical maps has shown that the

ECDEP, 1982

NFPA property was reclaimed from Lake Erie since 1909.

Photos from 1927 indicate that the Ford Assembly Plant was not in existence at that time. The land area which accommodated the Ford facility was not in existence at that time either. Aerial photos from 1960 indicate that very little land area was available adjacent to the Ford Plant for waste disposal.

By 1979 the present harbor shoreline had been created.

SAMPLING

The USGS recently (Summer 1982) completed a drilling and sampling program at the N.F.P.A. site. Results of the USGS survey have not yet been released.

CONCLUSIONS

From the review of historical maps and aerial photos, it has been concluded that the majority of NFPA land has been reclaimed from Lake Erie. The photo review indicates that the majority of land filling operations took place during the period 1927 through 1960.

Aerial photos have shown that contrary to the Task Force data, neither the Ford Assembly Plant nor the land it eventually occupied was in existence prior to 1927.

Of the materials alledgedly burned at the assembly plant, the paint residues would have resulted in an ash which may be of concern. It is unknown

ECDEP, 1982

if the ash remained on site or was ultimately disposed elsewhere. The land area adjacent to the plant which would have been available for burning or disposal was limited in size.

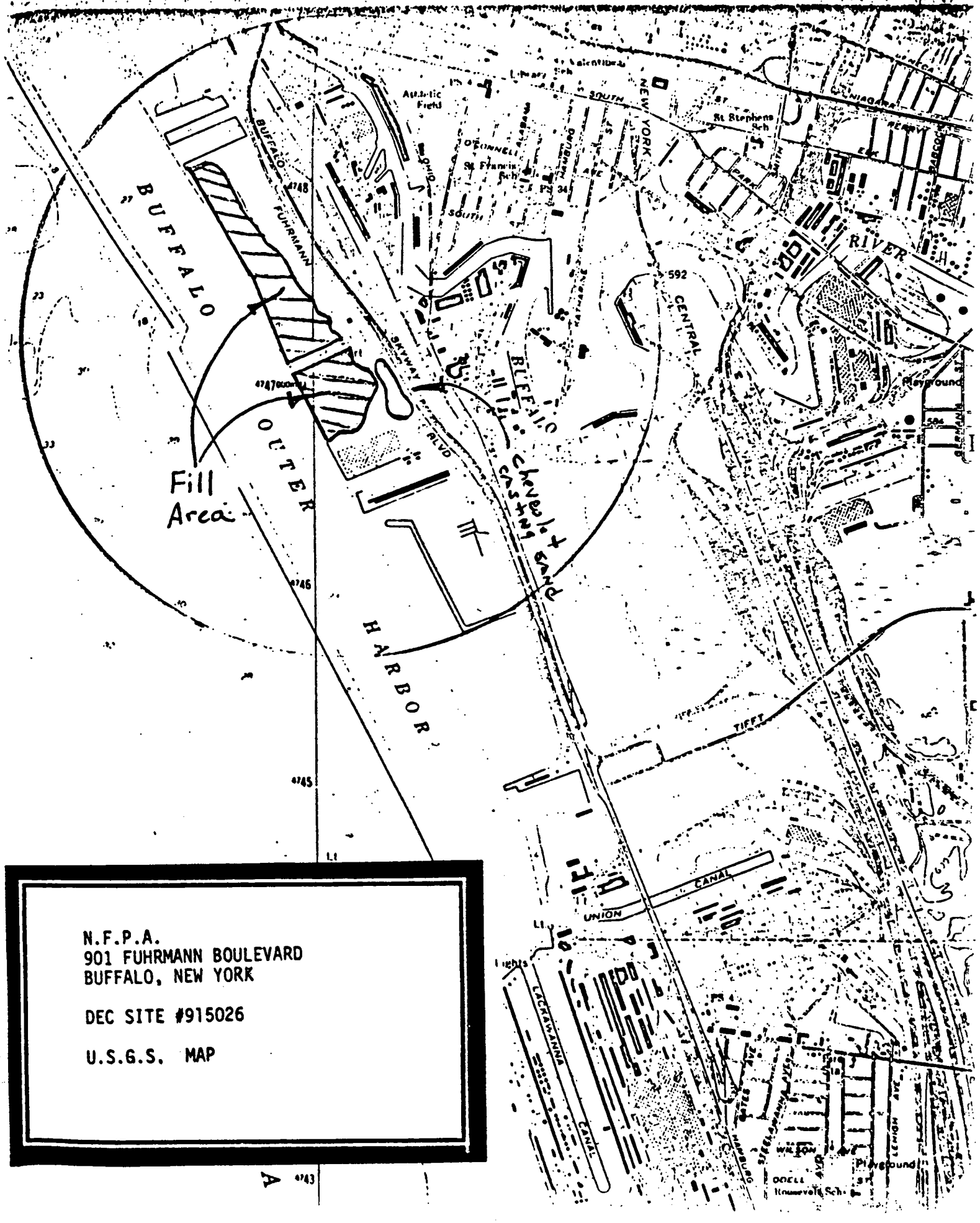
The Port Authority has stated that the majority of fill material used to develop the port consisted of lake silts and sands mixed with construction and demolition material. Foundry sands were also used to create the port facility. This material is considered to be relatively clean. Buffalo River dredge material was not disposed of in the port area. River dredging disposal was restricted to the Times Beach site. The Buffalo River sediments are known to be contaminated. A separate profile report was prepared for Times Beach.

Based on the data known it has been concluded that the NPFA site did not receive substantial volumes of industrial, municipal, or commercial wastes and poses little threat to the environment.

RECOMMENDATION

We concur with the Task Force evaluation and classification of the site and do not recommend any further action or study.

ECDEP, 1982



N.F.P.A.
901 FUHRMANN BOULEVARD
BUFFALO, NEW YORK

DEC SITE #915026

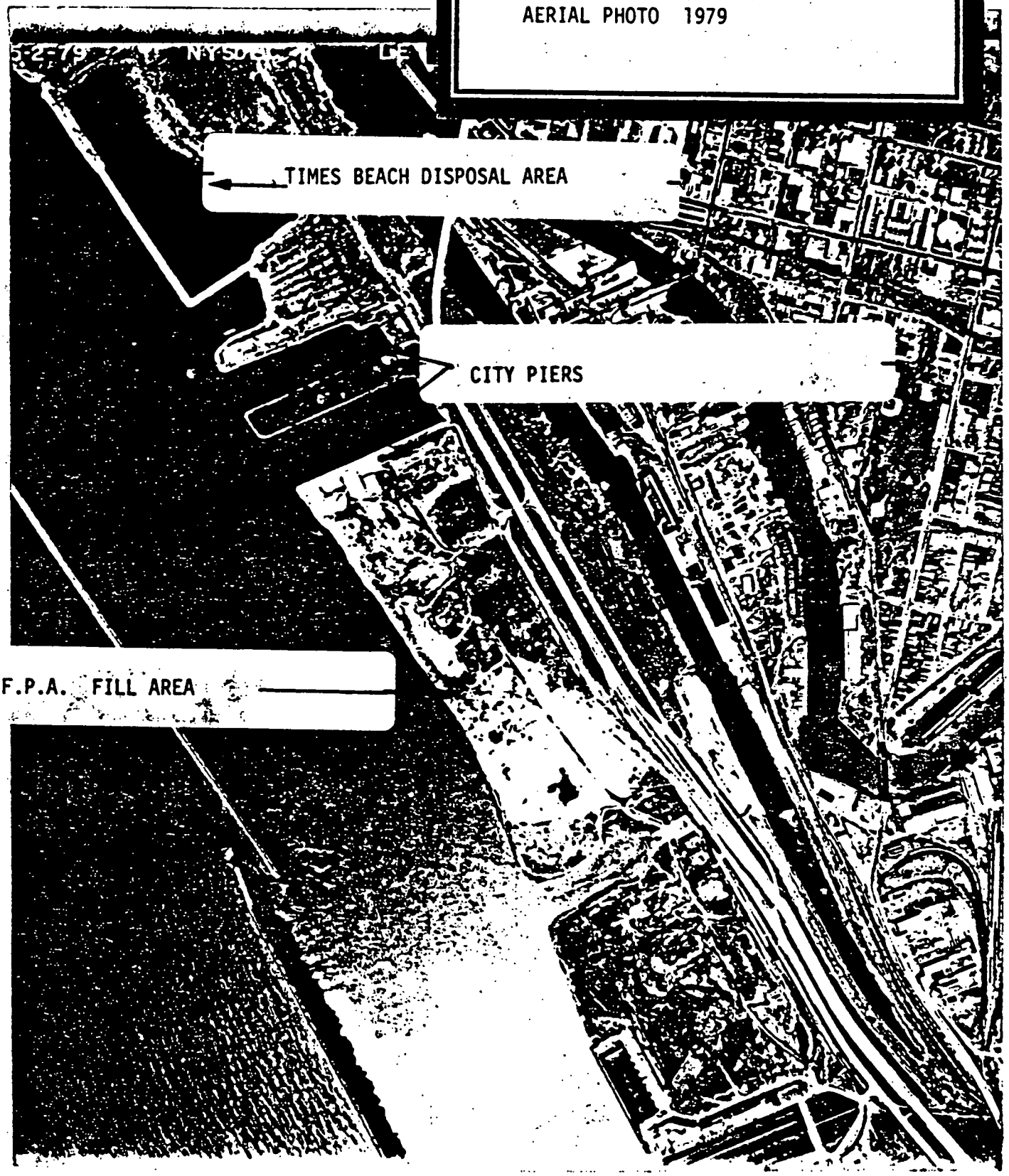
U.S.G.S. MAP

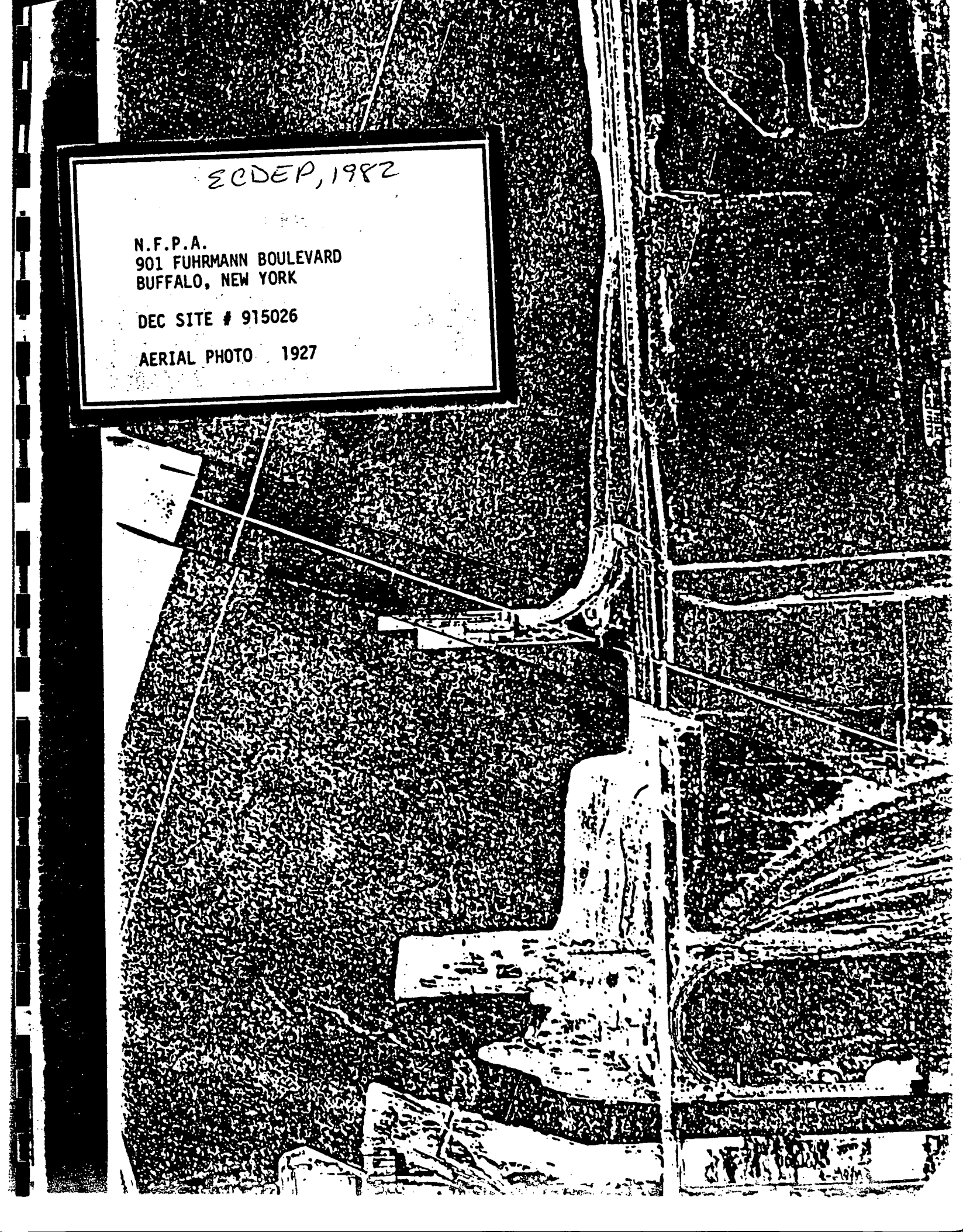
N.F.P.A.
901 FUHRMANN BOULEVARD
BUFFALO, NEW YORK

DEC SITE # 915026

AERIAL PHOTO 1979

ECDEP
1982




ECDEP, 1982
N.F.P.A.
901 FUHRMANN BOULEVARD
BUFFALO, NEW YORK
DEC SITE # 915026
AERIAL PHOTO 1927

ANALYTICAL REPORT (RECRA, 1979)

CHEVROLET SAND WASTES
New York State Department of Environmental Conservation
Leachate Testing

REF-20

Report Date: 3/28/79
Sample Date: 3/14/79

	SAMPLE IDENTIFICATION			
	SOLID WASTE MATERIAL		LEACHATE	
PARAMETER	UNITS OF MEASURE	VALUE	UNITS OF MEASURE	VALUE
Density	g/cc	2.2	-	-
Total Solids (103°C)	%	88.7	-	-
Volatile Solids (550°C)	%	3.0	-	-
Fixed Solids (550°C)	%	97.0	-	-
Phenols	µg/g (dry)	1.9	mg/l	0.029
Total Grease & Oils	µg/g (dry)	3,110	-	-
Polar Grease & Oils	µg/g (dry)	1,130	-	-
Hydrocarbon Grease & Oils	µg/g (dry)	1,980	-	-
Total Halogenated Organics	µg/g (dry) as Cl; Lindane Standard	1.02	-	-
Total Organic Carbon	-	-	mg/l	20
Chromium	µg/g (dry)	40.8	mg/l	<0.004
Copper	µg/g (dry)	42.2	mg/l	0.006
Iron	µg/g (dry)	13,500	mg/l	0.06
Lead	µg/g (dry)	200	mg/l	<0.03
Zinc	µg/g (dry)	875	mg/l	0.013
pH	-	-	Standard Units	8.36
Conductance	-	-	µmhos/cm	340

COMMENTS: Four samples were composited to form the solid material for analysis. All samples were labeled "Chevy Sand" and three were dated 3/14/79. The remaining sample did not have a sampling date. A New York State Leaching Potential Test was performed on the composite sample and the leachate was filtered through a 0.45µ filter. Total metals analyses was performed on the solid material while the leachate metals are soluble metals. All analyses were performed according to U.S. Environmental Protection Agency methodologies. Values reported as "less than" indicate working detection limits for the particular sample/parameter.

FOR RECRA RESEARCH, INC.: Robert Y. Taylor

DATE 3/29/79

RECRA RESEARCH, INC. 111 Wales Avenue / Tonawanda, New York 14150 / (716) 692-7620

(RECRA, 1979)

ANALYTICAL REPORT

CHEVROLET CORE SANDS
New York State Department of Environmental Conservation
Leachate Testing

Report Date: 3/28/79
Sample Date: 3/14/79

	SAMPLE IDENTIFICATION			
	SOLID WASTE MATERIAL		LEACHATE	
PARAMETER	UNITS OF MEASURE	VALUE	UNITS OF MEASURE	VALUE
Density	g/cc	2.5	-	-
Total Solids (103°C)	%	95.2	-	-
Volatile Solids (550°C)	%	1.4	-	-
Fixed Solids (550°C)	%	98.6	-	-
Phenols	µg/g (dry)	7.6	mg/l	0.323
Total Grease & Oils	µg/g (dry)	3,550	-	-
Polar Grease & Oils	µg/g (dry)	650	-	-
Hydrocarbon Grease & Oils	µg/g (dry)	2,900	-	-
Total Halogenated Organics	µg/g (dry) as Cl; Lindane Standard	<0.01	-	-
Total Organic Carbon	-	-	mg/l	560
Chromium	µg/g (dry)	46.4	mg/l	0.012
Copper	µg/g (dry)	51.8	mg/l	0.004
Iron	µg/g (dry)	21,000	mg/l	0.17
Lead	µg/g (dry)	<2.1	mg/l	<0.03
Zinc	µg/g (dry)	9.0	mg/l	0.20
pH	-	-	Standard Units	7.99
Conductance	-	-	µmhos/cm	390

COMMENTS: Two samples, Core # 1-3/14/79 and Core # 2-3/14/79 were composited and analyzed for the above parameters. A New York State Leaching Potential Test was performed on the composite sample and the leachate was filtered through a 0.45µ filter. Total metals analysis was performed on the solid material while the leachate metals are soluble metals. All analyses were performed according to U. S. Environmental Protection Agency methodologies. Values reported as "less than" indicate working detection limits for the particular sample/parameter.

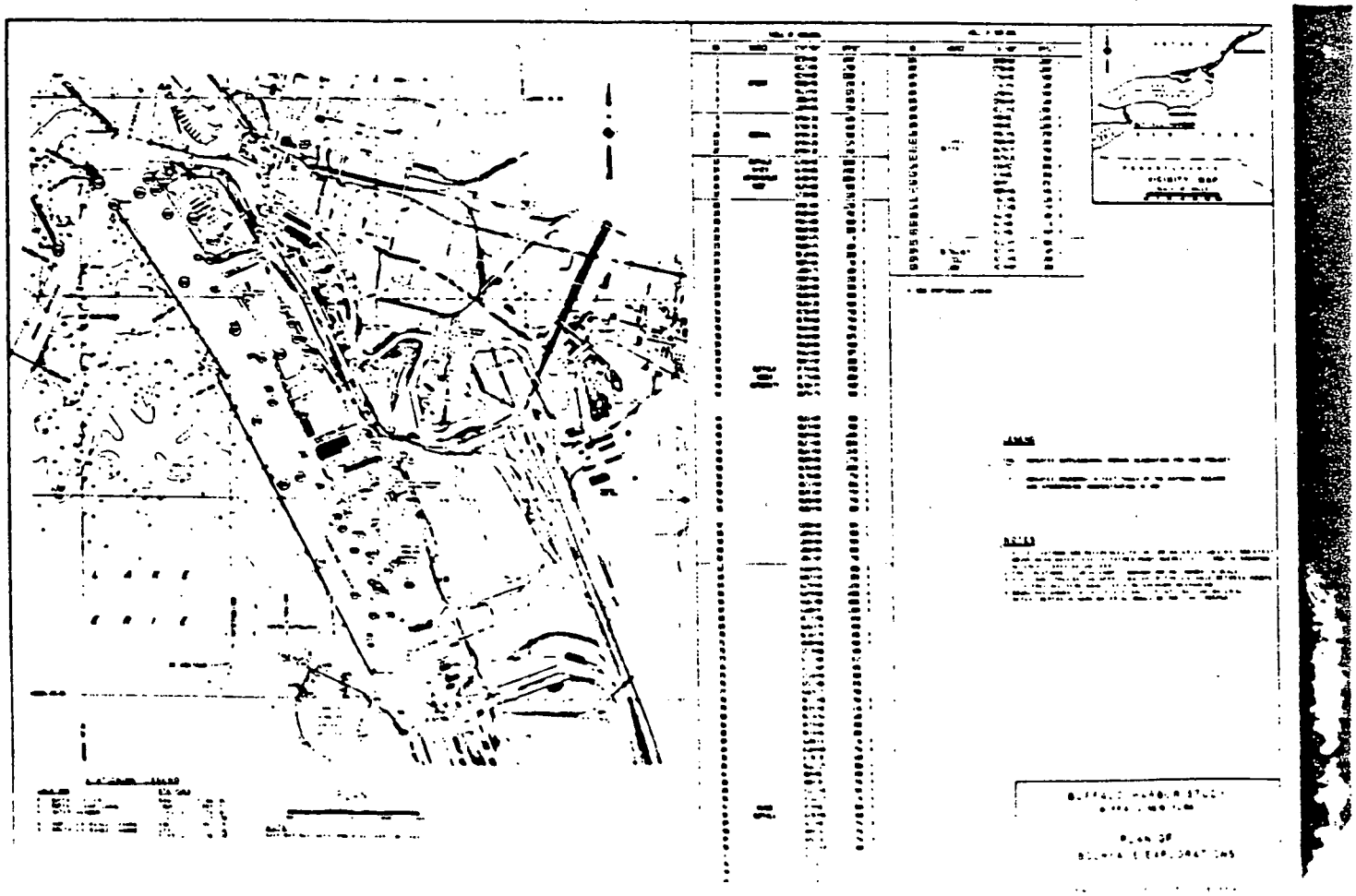
FOR RECRA RESEARCH, INC. Robert K Lyell

DATE 3/29/79

RECRA RESEARCH, INC. 111 Wales Avenue / Tonawanda, New York 14150 / (716) 692-7620

(US Army, 1985)

REF-21



USArmy, 1763

DATE
STARTED 3-5-73
FINISHED 3-6-73
SHEET 1 OF 3

EMPIRE SOILS INVESTIGATIONS, INC.

SUBSURFACE LOG

HOLE NO B-29
SURF ELEV 9.0
C W DEPTH

PROJECT Kelly Island Sanitary Sewer
LOCATION Buffalo, New York

DEPTH IN FEET	SAMPLES	SAMPLE NO	BLOWS ON SAMPLER 0"/6"	6"/12"	12"/18"	N	BLOWS PER FOOT CASING C	SOIL OR ROCK CLASSIFICATION	Rec. in Inches	NOTES
0							30	BLACKTOP & CONCRETE		
							17			
							11			
							9			
5							9	FILL: CLAY, some Silt (Moist-Medium) grading to SILT, SAND & GRAVEL, trace cinders	12	
		1	3	5	9	14	12			
							10			
							11			
							11		18	
10							10			
		2	5	4	4	8	12			
							14	(Wet-Loose)		
							14			
							13			
15							14			
		3	2	4	5	9	16	Gray & brown CLAY, some Silt, trace roots	18	
							16			
							27			
							36	(Moist-Medium)		
20							20			
		4	4	7	12	19	23	Gray & brown SILT, some fine to coarse Sand, little fine to coarse gravel, trace clay	18	
							26			
							55			
							53			
25							34	(Wet-Firm)		
		5	4	8	7	15	33	Reddish-brown CLAY, some Silt, trace fine gravel in #5	18	
							28			
							31			
							37			
30							26			
		6	1	2	2	4	33	becomes brown & gray in #6	18	
							33			
							33			
							38	becomes moist & varved		Note #1: WOR = Wt. of Rods
							29		18	
35										
		7	WOR			0	38			
							26			
							34			
							49			
40							19			

N = No blows to drive 2 "spoon 12 "with 140 lb pin wt falling 30 "per blow
C = No blows to drive 2 1/2 casing 12 "with 300 lb weight falling 24 "per blow
METHOD OF INVESTIGATION Cased Boring: 2 1/2" Casing

CLASSIFICATION Visual by Laboratory Technician

STARTED 3-5-73
FINISHED 3-6-73
SHEET 2 OF 3

EMPIRE SOILS INVESTIGATIONS, INC.

SUBSURFACE LOG

HOLE NO B-29 cont'd
SURF ELEV 9.0
G W DEPTH

PROJECT Kelly Island Sanitary Sewer
LOCATION Buffalo, New York

DEPTH IN FT	SAMPLES	SAMPLE NO	BLOWS ON SAMPLER 0 to 6 in	6 to 12 in	12 to 18 in	18 to 24 in	BLOWS PER 6 IN CASING C	SOIL OR ROCK CLASSIFICATION	Rec in Inches	NOTES
40		8	1	2	2	4	40	becomes wet & reddish brown	18	
							34			
							40			
							43			
45							44			
		9	1	1	1	2	40		18	
							36			
							37			
							52			
50							40			
		10	1	2	2	4	55		18	
							49			
							51			
							48			
55							53		18	
		11	1	1	1	2	48			
							41			
							50			
							52			
60							47			
		12	1	1	2	3	53		18	
							36			
							58			
							45			
65							52	trace gravel below 65'	18	
		13	1	1	3	4	54			
							45			
							56			
							52			
70							42			
		14	3	3	2	5	48	(Wet-Medium to Very Soft)	18	
							50			
							62			
							69			
75							58			Note #2: * indicates coring time in min/ft.
		15	3	4	9	13	50		11	
							83			
							225/7		*	
80									7	Cored 79.0' - 82.0'

N = No. blows to drive 2 "spoon 12 "with 140 lb pin wt. falling 30 "per blow
C = No. blows to drive 2 1/2 casing 12 "with 300 lb weight falling 24 "per blow
METHOD OF INVESTIGATION Cased Boring: 2 1/2" Casing

CLASSIFICATION Visual by Laboratory Technician

USArmy, 1985

STARTED 3-5-73
FINISHED 3-6-73
SHEET 3 OF 3

EMPIRE SOILS INVESTIGATIONS, INC.

SUBSURFACE LOG

HOLE NO B-29 cont'd
SURF ELEV 9.0
C. W DEPTH

PROJECT Kelly Island Sanitary Sewer
LOCATION Buffalo, New York

ELEVATION	DEPTH	SAMPLES	SAMPLE NO.	BLOWS ON SAMPLER 0" / 6" / 12" / 18"	BLOWS PER FT. CASING, C	SOIL OR ROCK CLASSIFICATION	NOTES
80						Gray, medium hard, weathered LIMESTONE	Run #1, 100% Rec. B Core
						Bottom of Hole @ 82.0'	
85							

N = no blows to drive 2 "spoon 12 "with 140 lb pin wt falling 30 "per blow
C = no blows to drive 2 1/2 casing 12 "with 300 lb weight falling 24 "per blow
METHOD OF INVESTIGATION Cased Boring; 2 1/2" Casing

CLASSIFICATION Visual by Laboratory Technician

USArmy, 1985

EMPIRE SOILS INVESTIGATIONS, INC.

SUBSURFACE LOG

3-2-73
3-5-73
1 of 1

HOLE NO B-30
SURF ELEV 10.7
G W DEPTH See note #1

PROJECT Kelly Island Sanitary Sewer
LOCATION Buffalo, New York

DEPTH IN FT	SAMPLES	SAMPLE NO	BLOWS ON SAMPLER 0" / 6" / 12" / 18"	BLOWS PER FT CASING	SOIL OR ROCK CLASSIFICATION	Rec. in Inches	NOTES
0				28	CONCRETE & BLACKTOP 19"		
				27	FILL: CINDERS, SAND, CONCRETE & ROCK FRAGMENTS	12	
				19			
				20			
				22			
5			1 2 2 2 4	70	grading to SAND & GRAVEL, trace silt & cinders		
				29			
				17		10	
				6			
				7			
10			2 9 6 3 9	23			
				22			
				20			
				42	(Wet-Loose)	18	
				23			
15			3 1 3 3 6	13	Brown & gray fine SAND, some Silt		
				11			
				10			
				17	(Wet-Loose)	18	Note #1: began losing drill water @ 23.0'
				21			
20			4 7 9 9 18	33	Gray & brown SILT & CLAY (Moist-Stiff)		
				40			
				41	grading to fine to coarse SAND & GRAVEL, trace to little silt	18	
			9 31 21 21 42		(Wet-Compact)		
25					Bottom of Hole @ 25.0'		

N = No blows to drive 2 "spoon 12 "with 140 lb pin wt falling 30 "per blow
C = No blows to drive 2 1/2 casing 12 "with 300 lb weight falling 24 "per blow
METHOD OF INVESTIGATION Cased Boring: 2 1/2" Casing

CLASSIFICATION Visual by Laboratory Technician

USArmy, 1985

DATE
STARTED 3-1-73
FINISHED 3-1-73
SHEET 1 OF 1

EMPIRE SOILS INVESTIGATIONS, INC.

SUBSURFACE LOG

HOLE NO B-31
SURF ELEV 8.4
C W DEPTH

PROJECT Kelly Island Sanitary Sewer
LOCATION Buffalo, New York

DEPTH IN FEET	SAMPLES	SAMPLE NO	BLOWS ON SAMPLER 0-6 / 6-12 / 12-18 / 18-24	BLOWS PER FT OR CASING C	SOIL OR ROCK CLASSIFICATION	Rec. in Inches	NOTES
0				24	CONCRETE & BLACKTOP 18"		
				8	FILL: CONCRETE, SAND & SILT	5	
				8			
				13			
				40			
5				150			
		1	100	66	grading to Oil-soaked SAND, GRAVEL & CINDERS	4	
				90			
				210			
10				63			
		2	4 8 12 20	23			
				36			
				32			
				38	(Moist to Wet-Very Compact to Firm)	18	
15				28	Gray & brown SILT & CLAY, trace embedded coarse sand & fine gravel, trace roots		
		3	4 5 12 17	26			
				24			
				21			
				30			
20				31	(Moist-Stiff)	18	
		4	1 3 3 6	24	Brown & gray SILT, some fine Sand, little clay		
				26			
				26	(Wet-Loose)		
					Brown & gray, fine to coarse SAND & GRAVEL, trace silt	7	
25		5	20 20 14 34		(Wet-Compact)		
					Bottom of Hole @ 25.0'		

N = No blows to drive 2 "spoon 12 "with 140 lb pin wt falling 30 "per blow
C = No blows to drive 2 1/2 "casing 12 "with 300 lb weight falling 24 "per blow
METHOD OF INVESTIGATION Cased Boring: 2 1/2" Casing

CLASSIFICATION Visual by Laboratory Technician

US Army, 1985

EMPIRE SOILS INVESTIGATIONS, INC.

SUBSURFACE LOG

Started 3-1-73
Finished 3-6-73
Sheet 1 of 2

Hole No B-32
Surf Elev 8.4
C w Depth

Project Kelly Island Sanitary Sewer
Location Buffalo, New York

Depth in Ft	Samples	Sample No	Blows on Sampler 0 / 6 in / 12 in / 18 in	Blows per ft or Casing C	Soil or Rock Classification	Rec. in Inches	Notes
0					TOPSOIL 3"		Note #1: Water level observation At completion Water @ 21.5'
		1	19 24	10 34	46		
					24		
					18		
					11		
					10	18	
5						12	
		2	4 7	10 17	13		
					20		
					12		
					19		
					19		
10					becomes wet	15	
		3	10 14	13 27	35		
					34		
					(Moist to Wet-Compact to Firm)		
					18		
					Gray & brown SILT, some Clay		
					11		
					trace roots w/seam of silty fine		
15					12		
					sand in #5	18	
		4	2 2	3 5	10		
					18		
					14		
					14		
					16	14	
20							
		5	1 1	2 3	8		
					11		
					(Moist-Soft)		
					11		
					16		
					24		
25					Brown & gray, fine to coarse	13	
		6	9 8	9 17	11		
					SAND, trace fine gravel, trace		
					24		
					32		
					silt, trace roots		
					27		
					33		
30					(Wet-Firm)		
		7	1 2	2 4	11	18	
					Reddish-brown CLAY, some Silt		
					13		
					14		
					17		
					13		
35							
		8	1 1	1 2	16	18	
					13		
					14		
					16		
40					19		

N = No blows to drive 2" spoon 12" with 140 lb pin wt falling 30" per blow
C = No blows to drive 2 1/2" casing 12" with 300 lb weight falling 24" per blow

Classification Visual by Laboratory Technician

Method of Investigation Cased Boring: 2 1/2" Casing

US Army, 1985

STARTED 3-1-73
FINISHED 3-6-73
SHEET 2 OF 2

EMPIRE SOILS INVESTIGATIONS, INC.

SUBSURFACE LOG

HOLE NO B-32 cont'd
SURF ELEV 8.4
G. W DEPTH

PROJECT Kelly Island Sanitary Sewer
LOCATION Buffalo, New York

DEPTH IN FT	SAMPLES	SAMPLE NO	BLOWS ON SAMPLER 0-6	6-12	12-18	18-24	BLOWS PER FT CASING, C	SOIL OR ROCK CLASSIFICATION	Rec. in Inches	NOTES
40		9	1	1	1	2	15		18	
							19			
							20			
							20			
45							20	silt seams below 45'		
		10	2	2	5	7	22		17	
							26			
							59			
							61			
50							90			
		11	5	4	4	8	68		16	
							67			
							72			
							60			
55							77			
		12	4	2	2	4	64		18	
							58			
							53			
							53			
							44			
60								trace fine gravel in #13		
		13	3	2	2	4	33			
							29	(Wet-Soft)		
							29			
							40			
65							40			
		14	2	2	2	4	98	Brown & gray CLAY, some Silt, some fine to coerse Sand, trace fine gravel		
							130			
							19⅓6	(Wet-Soft)		
								Gray, hard, sound LIMESTONE		Cored 68.5' - 71.8' Run #1, 100% Rec. B Core
70								Bottom of Hole @ 71.8'		
75										

N = No blows to drive 2 "spoon 12 "with 140 lb gun wt falling 30 "per blow
C = No blows to drive 2 1/2 "casing 12 "with 300 lb weight falling 24 "per blow
METHOD OF INVESTIGATION Cased Boring: 2 1/2" Casing

CLASSIFICATION Visual by Laboratory Technician

(US Army Corps of Eng. 1982)
REF - 22

NCEPD-ER
File

To Date Report: On Buffalo River, Buffalo Harbor, and Black Rock Channel Sediment Quality
Ch, Env Res Br

27 Jan 82
Bennett/ds/2180

1. Historical Data Collection Activities. Early sediment sampling of Buffalo Harbor and the Black Rock Canal was conducted by the USEPA in 1967, 1969, 1970 and 1972. Sediment analyses were conducted in 1967 and 1969 for volatile solids, chemical oxygen demand, total nitrogen, and oil and grease. In 1970, tests were conducted for mercury. According to the 1972 EPA Report, all sediments tested through 1969 were grossly polluted. In 1972, EPA tested for the same parameters previously listed and conducted additional analyses for lead and zinc. Tests were performed at 11 stations throughout the Federal channels. The conclusion reached by EPA for the 1972 sediments was that they were still grossly polluted although levels of pollution had decreased since 1970.

2. In 1981, the Buffalo District contracted with Great Lakes Lab, SUNY College, Buffalo, NY, to conduct a wide series of physical and chemical tests on sediments from the Federal channels at Buffalo, NY. Thirty-nine sediment samples were collected. The purpose of the sampling was to update the 1972 data to see if there were any major improvements in sediment quality which might allow unrestricted open-lake dumping of dredged material of Buffalo Harbor sediments, or whether containment of the sediments should be continued. Thirteen locations as shown in the enclosed map were sampled. Substances looked for included mercury, lead, manganese, nickel, arsenic, cadmium, chromium, copper, aluminum, iron, chemical oxygen demand (COD), total kjeldahl nitrogen (TKN), oil and grease, phosphorus, phenols, cyanide, ammonia, volatile solids, PCB's, pesticides, and phthalates.

3. Results of 1981 Testing.

a. Organics - Of the 31 organic compounds analyzed for in the Buffalo River, Buffalo Harbor, and Black Rock Canal, the following were not detected; endrin, 2, 4-D, heptachlor epoxide, and dieldrin. Aldrin, methoxychlor, and ethylhexyl phthalate were found at one location each.

(1) Of the three major areas sampled (i.e., Buffalo River, Buffalo Harbor, Black Rock Canal), the harbor was found to contain the lowest number of organic pollutants (i.e., six).

For comparison, a reference site was located lakeward of the outer breakwall to represent ambient lake sediments. Samples from this area contained eight of the organic pollutants analyzed for. The location of the reference site is shown on Figure 1.

(2) The most frequently detected organics identified in this program included DCPA, DDT, Di-N-Butyl Phthalate, and PCB's found at all river, harbor, and Black Rock Canal stations. DDT and its breakdown products (DDE) were generally found at low levels (less than 0.1 ug/g) reflecting the residual levels of this one-time frequently used insecticide. PCB's were frequently encountered at low levels ranging from 0.1-1.0 ug/g. Sediments are generally not considered highly polluted unless PCB levels exceed 10 ug/g. Pollution classification levels for other organic substances in sediments have not yet been established.

(3) Other frequently encountered organics included BHC found at 11 sites, mirex found at 10 sites, trifluralin and endosulfan found at eight sites, heptachlor at seven sites, and chlordane at six sites. Except for Site 46, BHC and mirex were found at concentrations of less than 0.1 ug/g. Trifluralin and endosulfan were measured generally within the concentration range of 0.05 to 1.0 ug/g. Heptachlor and chlordane were measured at low levels.

(US Army Corps of Eng. 1982

(4) The greatest number of organic pollutants (i.e., 14) and generally the highest organic pollutant concentrations were found at Sampling Site 46 located near the confluence of the Scajaquada Creek with the Black Rock Canal. It appears that the Scajaquada Creek may be the source of the many organic pollutants found in this area of the Black Rock Channel.

b. Metals and Other Inorganics - The sampled sediments at all locations were also analyzed for content of metals of environmental concern (i.e., relatively high toxicity) including arsenic, cadmium, chromium, lead, mercury, nickel, and copper. Selected metals of relatively low toxicity including aluminum, iron, manganese, and zinc were also analyzed.

(1) One method of assessing chemical quality of Great Lake sediments is to compare concentrations to the average concentrations in sediments from Great Lakes harbors as a whole. Using these criteria, the data shows the harbor area has elevated levels of arsenic, lead, iron, manganese, and zinc when compared to other Great Lakes harbors. Levels of cadmium, chromium, copper and nickel are comparable to other Great Lakes harbors. Mercury levels are less than 1 ug/g in the harbor area.

(2) The Buffalo River was found to have elevated levels of arsenic, copper, lead, iron, and zinc when compared to other Great Lakes harbors. Levels of cadmium, chromium, nickel, and manganese are comparable to other Great Lakes harbors. The Black Rock Canal had elevated levels of chromium, copper, lead, iron and zinc. Site 46 near the confluence of the Scajaquada Creek, which had the highest organic pollutant levels, also had the highest measured levels of cadmium, chromium, copper, lead, nickel and zinc.

(3) Mercury levels were found to be 1 ug/g or less at all sampling locations except for anomalously high levels found in two samples. Since other samples taken at these locations measured less than 1 ug/g, the significance of the elevated measurements is somewhat questionable.

(4) The harbor, Buffalo River, and Black Rock Canal generally exhibited moderate levels of ammonia, COD, volatile solids, and TKN. The Buffalo River had elevated levels of cyanide compared to other Great Lakes harbors, but generally less than 0.5 ug/g. Phosphorus levels were elevated at all sampling locations. The highest levels of ammonia, cyanide, oil and grease, and TKN were recorded at Sampling Site 46.

4. Comparison of 1972 and 1981 Sediment Quality Data. None of the organics analyzed in the 1981 sampling program were looked for in 1972, except for oil and grease. Therefore, comparisons of organic contamination cannot be made. Analyses which were made in both 1972 and 1981 include mercury, lead, zinc, volatile solids, COD, TKN, and oil and grease.

a. Except for the two anomalous high mercury concentrations in two samples previously discussed, measured mercury levels were generally less in 1981 than in 1972. On the other hand, measured levels of lead and zinc in sediments of the harbor, river, and Black Rock Canal increased significantly over the same timeframe.

(USArmy Corps of Eng., 1982)

NCBPD-ER
SUBJECT: To Date Report: On Buffalo River, Buffalo Harbor, and Black Rock Channel Sediment Quality

b. Levels of volatile solids and TKN remained about the same comparing the 1972 and 1981 data. Harbor, river and Black Rock Channel sediments exhibited overall significant decreases in COD.

c. Measured oil and grease levels in the harbor sediment samples significantly increased in contrast to the Black Rock Canal which experienced decreased oil and grease levels. Levels of oil and grease in some Buffalo River samples increased, but decreased in others.

5. Conclusions.

a. Comparison of 1981 sediment data with 1972 data indicates that there has not been overall improvement of sediment quality. The data indicates that there may have been deterioration with respect to lead, zinc, and oil and grease levels. Chemical Oxygen Demand of the sediments appears to have decreased and overall mercury levels appear to be less in 1981. Chemical analyses techniques have improved over the past 10 years and may account for higher measured levels in 1982.

b. As discussed previously, there is significant organic contamination of the river, harbor, and Black Rock Channel sediments. Confinement of dredge sediments from these Federal navigation channels should be continued as an alternative to open-lake disposal. The Corps of Engineers estimates that there is sufficient capacity at the existing diked disposal facility for the next 10 years.

c. An important ancillary finding of the 1981 sampling program was the strong evidence from sampling location 46 that the Scajaquada Creek is a highly significant source of organic and heavy metal pollutant discharge to the Black Rock Canal. It is not likely that the sediments move from the channel into the Niagara River.

1 Incl
as

JAMES H. BENNETT, Chief
Environmental Resources Branch

CF:
✓ NCBPD-ER
NCBDE
NCBED
NCBPD
NCBCO

(1972, US Army Corps of Engineers)

REF - 23

Buffalo Harbor, including Black Rock Canal

Buffalo Harbor sediments remain grossly polluted although the level of pollution has decreased since 1969. The Black Rock Canal contains higher levels of pollution and the outer Harbor has slightly lower levels than the Buffalo River. Biological examination supports these conclusions in that the Biotic Index values for the Black Rock Canal and Buffalo River stations were between 1.9 and 2.0, indicating that the macroinvertebrate populations in these locations consisted almost entirely of pollution tolerant organisms. The lower Biotic Index range (1.37 to 1.98) at the stations in the Outer Harbor indicates a community of less pollution tolerant organisms than in the other two areas, although it should be noted that no pollution intolerant organisms were found there. The chemical data are tabulated and summarized in the following six tables.

In the Outer Harbor, all samples exceeded the EPA criteria with regard to total Kjeldahl nitrogen and oil-grease, and half the samples exceeded the criteria for COD and mercury. The remaining criteria (lead, zinc and volatile solids) were not exceeded. These results show a considerable improvement in the quality of the harbor sediments, as both volatile solids and COD concentrations in 1972 were approximately one-half of their 1967-69 levels, and TKN was two-thirds of previous levels. This improvement is somewhat offset by the fact that oil-grease and mercury have increased, although the reported increase in the latter may be due more to refinements in laboratory analytical techniques than to increased concentrations in the sediments.

The sediments of the Buffalo River show a pattern similar to those in the Outer Harbor. Three out of four samples exceeded EPA criteria for COD, TKN, and oil-grease, with the average level of each of these parameters exceeding the criteria. The average for mercury also exceeded the criteria, mainly due to the concentration of 14.4 mg/kg found at station #29. The summary of Buffalo River sediment data shows that the level of pollution in the sediments has continued to decrease from the level found in 1967.

In the grossly polluted Black Rock Canal, all of the samples equaled or exceeded the EPA criteria for TKN, oil-grease, and mercury. The average values for the entire canal also exceeded the EPA criteria for volatile solids and COD. As high as the present levels of pollution are in the Black Rock Canal, they do show a significant decrease from previous concentrations, especially in the case of oil-grease. The highest concentrations of most of the pollutants were still being found near the south end of Squaw Island at station 44, which is very nearly the midpoint of the canal.

(US Army Corps of Engineers, 1972)

Niagara River Harbors at Tonawanda and Cayuga Islands

The June 1972 Niagara River sediment survey included two stations near the south end of Tonawanda Island and two off the west end of Cayuga Island. The Cayuga sediments were much more polluted than the Tonawanda sediments. EPA criteria were exceeded at Cayuga Island for mercury, zinc, nitrogen, chemical oxygen demand and volatile solids. Near the mouth of Tonawanda Creek, the concentration of chemical oxygen demand and volatile solids exceeded EPA criteria.

In the Little River at Cayuga Island, the macroinvertebrate communities were predominately pollution tolerant with the Tubificidae making up nearly the entire populations. Samples were composed of sand, ooze, vegetation and oil and had an odor of decomposition.

The macroinvertebrate communities at the Tonawanda stations were overwhelmingly pollution tolerant and consisted almost entirely of the sludgeworm family Tubificidae. Samples were composed of sand, gravel, ooze and vegetation.

The apparent marginal pollution of the sediments at Tonawanda Island warrants further investigation including volume determinations before a final decision is made concerning acceptability for lake disposal. The sediments at Cayuga Island were found to be unacceptable for open water disposal.

APPENDIX B

PROPOSED NYS REGISTRY SHEET

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
DIVISION OF SOLID AND HAZARDOUS WASTE
INACTIVE HAZARDOUS WASTE DISPOSAL SITE REPORT

CLASSIFICATION CODE: 2a **REGION: 9** **SITE CODE: 915026**

NAME OF SITE : Niagara Frontier Transportation Authority - Port of Buffalo
STREET ADDRESS: 910 Fuhrmann Blvd.

TOWN/CITY:	**COUNTY:**	**ZIP:**
Buffalo	**Erie**	**14205**

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

SITE OWNER/OPERATOR INFORMATION:
CURRENT OWNER NAME....: Niagara Frontier Transportation Authority
CURRENT OWNER ADDRESS.: 18 Ellicott St., Buffalo, NY 14205
OWNER(S) DURING USE...: Niagara Frontier Transportation Authority
OPERATOR DURING USE...: Niagara Frontier Transportation Authority
OPERATOR ADDRESS.....: 18 Ellicott St, Buffalo, NY 14205
PERIOD ASSOCIATED WITH HAZARDOUS WASTE: From 1940 **To** 1979

SITE DESCRIPTION:

The fill area north of the Ford plant site used by Ford to dispose of cafeteria, office and general plant refuse. Unknown quantities of furnace casting sands from the Chevrolet plant were also disposed of in the Ford fill area. Dredgings (estimated 2,130,000 cubic yards) removed from the Buffalo Outer Harbor Channel wereused to fill the northern section of the site.

Additional fill operations were conducted between 1965 and 1979. An estimated 930,000 cubic yards of fill was trucked in by various off-site contractors from construction excavations in the City of Buffalo. Also, an estimated 155,000 tons of blast furnace slag from Bethelehem Steel was used as fill.

HAZARDOUS WASTE DISPOSED: Confirmed-X Suspected -

TYPE	QUANTITY (units)
Paint sludges, foundry sand	Unknown

SITE CODE: 915026

ANALYTICAL DATA AVAILABLE:

Air- Surface Water- Groundwater- Soil-X Sediment- None-

CONTRAVENTION OF STANDARDS:

Groundwater- Drinking Water- Surface Water- Air-

LEGAL ACTION:

TYPE..: None x State- Federal-
STATUS: In Progress- Completed-

REMEDIAL ACTION:

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

GEOTECHNICAL INFORMATION:
SOIL TYPE: Fill material over sand, silt, clay
GROUNDWATER DEPTH: 14 feet

ASSESSMENT OF ENVIRONMENTAL PROBLEMS:

No evidence of any major environmental problem.

ASSESSMENT OF HEALTH PROBLEMS:

Insufficient information

PERSON(S) COMPLETING THIS FORM:

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION	NEW YORK STATE DEPARTMENT OF HEALTH
NAME.: Abul Barkat	NAME.: R. Tramontano
TITLE: Senior Sanitary Engineer	TITLE: Bur. Tox. Subst. Assess.
NAME.: Peter Buechi	NAME.:
TITLE: Assoc.Sanitary Engineer	TITLE:
DATE.: 01/24/85	DATE.: 01/24/85