932077

ND-2900 D1630

ENGINEERING INVESTIGATIONS AT INACTIVE HAZARDOUS WASTE SITES

PHASE I INVESTIGATION

TOWN OF LOCKPORT LANDFILL, SITE NUMBER 932077
TOWN OF LOCKPORT, NIAGARA COUNTY

September 1989

Prepared for:

New York State Department of Environmental Conservation
50 Wolf Road, Albany, New York 12233
Thomas C. Jorling, Commissioner

Division of Hazardous Waste Remediation
Michael J. O'Toole, Jr., P.E., Director

Prepared by:

Ecology and Environment Engineering, P.C.

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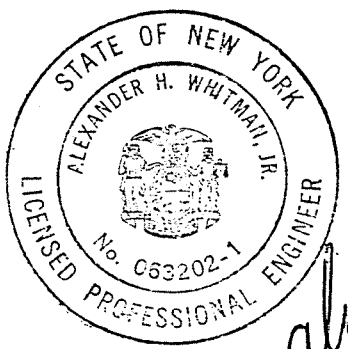

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ecology and environment
engineering, p.c.
BUFFALO CORPORATE CENTER
368 PLEASANTVIEW DRIVE, LANCASTER, NEW YORK 14086, TEL. 716/684-8060

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1. EXECUTIVE SUMMARY

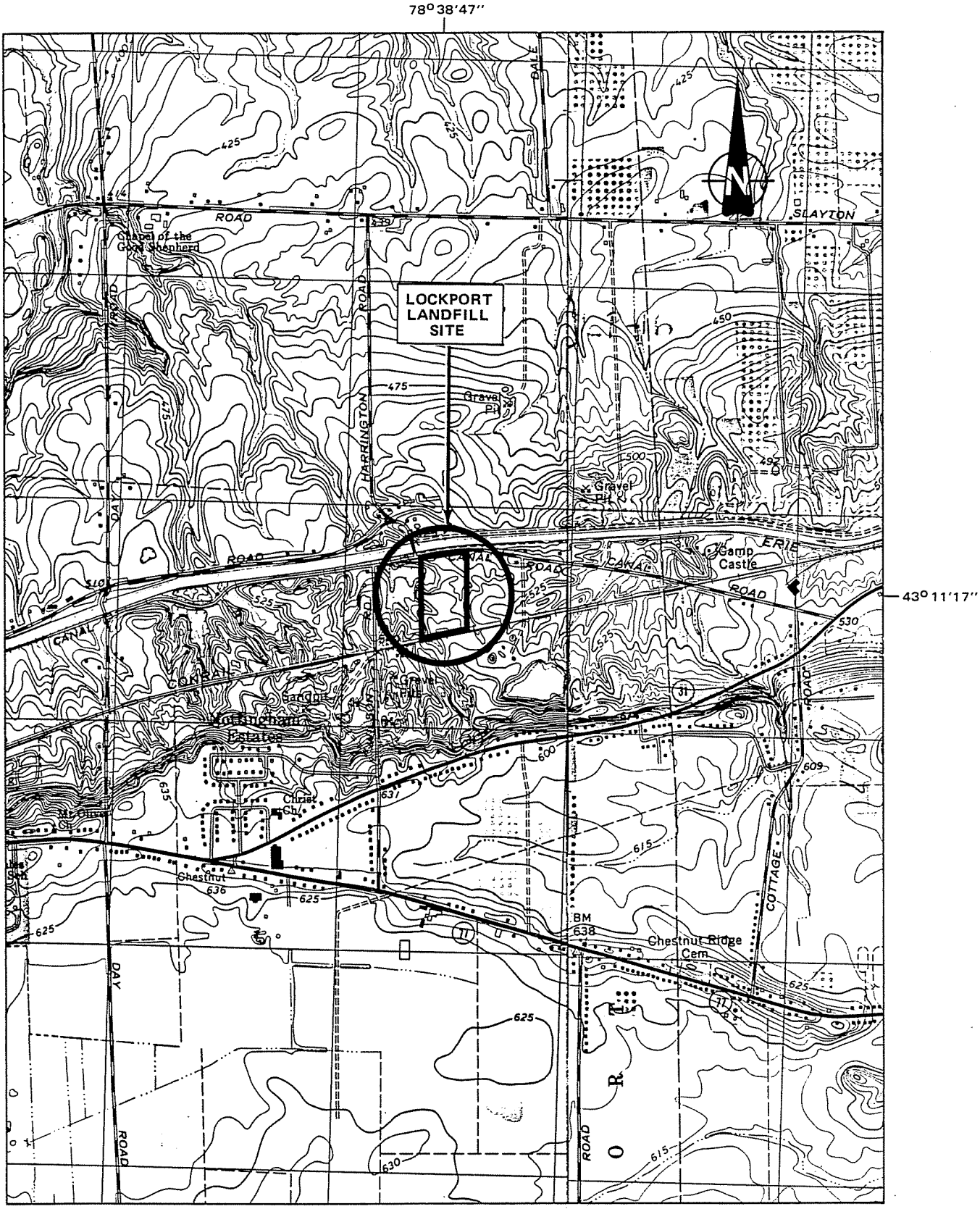
1.1 SITE BACKGROUND

The Town of Lockport Landfill is an 18.5-acre site in the Town of Lockport, New York, (see Figures 1-1 and 1-2), owned by the Town of Lockport since 1948 and operated as a town dump between 1948 and 1961. This site is no longer used by the town for disposal. The site was open exclusively to town residents for disposal of household trash only. Proof of residency was checked by a guard at the gate. The site was open on Friday and Saturday of each week. Additionally, during the time when the site was in operation, the Town of Lockport had very few industries. Therefore, the presence of hazardous waste on-site is considered unlikely.

Prior to its use as a landfill, this site was used as a source of gravel. Evidence of soil and gravel removal includes the presence of isolated mounds and low-lying excavated areas. The site was covered at some point by the town to alleviate a rodent problem.

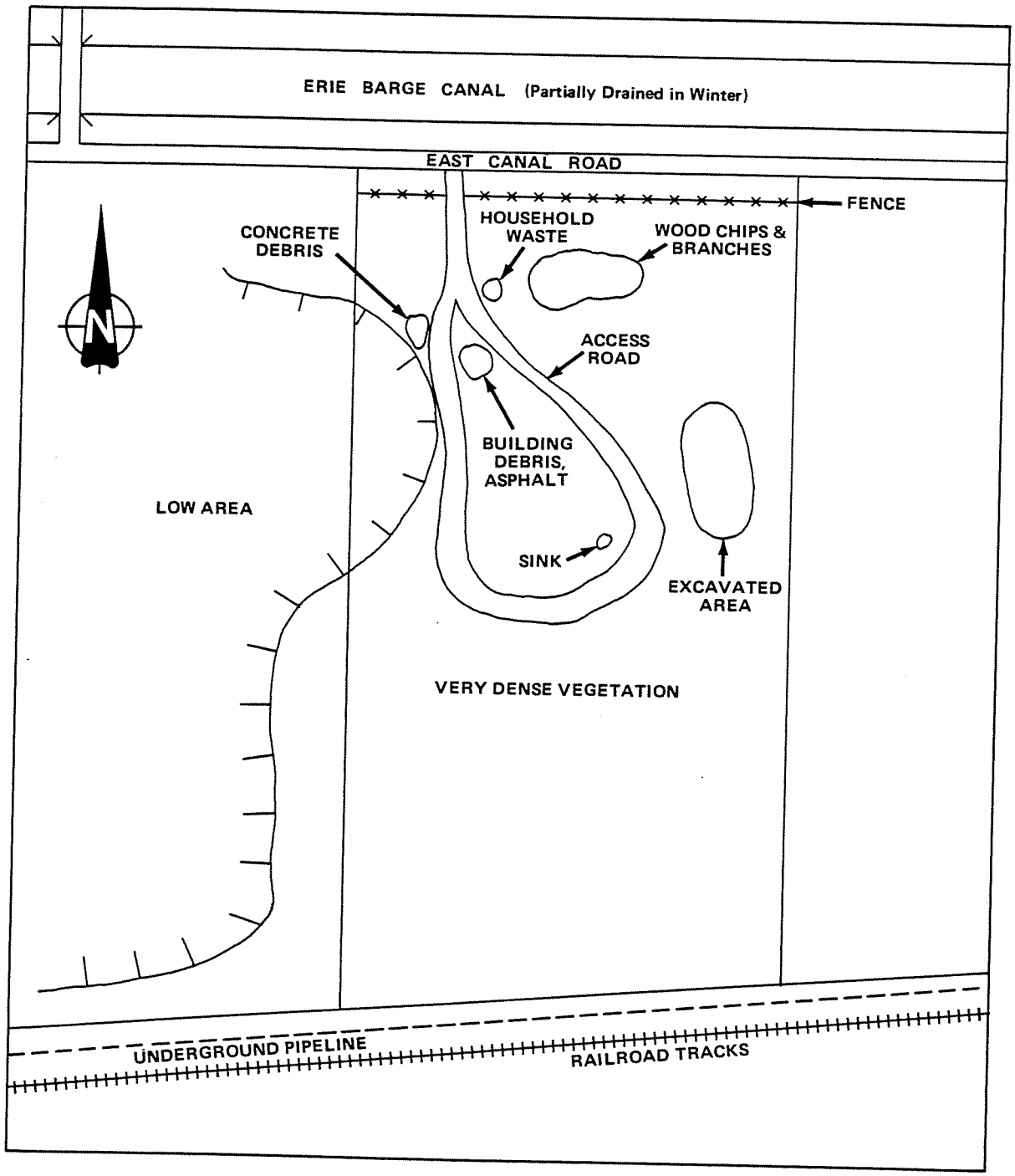
1.2 PHASE I EFFORTS

On June 17, 1987, Ecology and Environment, Inc., (E & E) personnel conducted a physical inspection of the site in support of this investigation. Prior to the inspection, all available state, federal, and municipal files were reviewed, and individuals having knowledge of the site were contacted. The site inspection consisted of a walk-over survey around the perimeter and into adjacent areas of the site. Of interest to the inspection were:



SOURCE: U.S.G.S. 7.5 Minute Series (Topographic) Quadrangles, Lockport, N.Y., 1980 and Gasport, N.Y., 1979.

Figure 1–1 LOCATION MAP



NOT TO SCALE

Figure 1–2 SITE MAP - TOWN OF LOCKPORT LANDFILL

- o Overall site conditions; and
- o Evidence of former landfilling operations.

1.3 ASSESSMENT

In general, the site appeared to be free of any recent landfill activity. The former landfill area is covered with soil and overgrown with scrub and heavy vegetation. The following was noted on-site: concrete debris, scrap asphalt, a discarded couch and sink, tree trimmings, and wood-chip piles. No readings above background were detected on an HNu photoionization air monitor.

1.4 HRS SCORE

A preliminary application of the Hazard Ranking System (HRS) has been made to quantify the risk associated with this site. As the Phase I investigation is limited in scope, not all the information needed to fully evaluate the site is available. An HRS score was completed on the basis of the available data. Absence of necessary data may result in an unrealistically low HRS score.

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

- o 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).

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

- o 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:

$S_M = 0$ ($S_{GW} = 0$; $S_{SW} = 0$; $S_A = 0$)
S_{FE} = not scored
$S_{DC} = 0$

2. PURPOSE

This Phase I investigation was conducted under contract to the New York State Department of Environmental Conservation (NYSDEC) Superfund Program. The purpose of this investigation was to provide a preliminary evaluation of the potential environmental or public health hazards associated with past disposal activities at the former Town of Lockport Landfill. This initial investigation consisted of a detailed file review of available information and a site inspection. This evaluation includes both a narrative description and preliminary HRS score. The investigation at this site focused on determining whether the site was used for disposal of hazardous waste.

3. SCOPE OF WORK

The Phase I effort involved:

- The review of all available information from state, municipal, and private files;
- Interviews with individuals knowledgeable about the site; and
- A physical inspection of the site.

State files reviewed were maintained by NYSDEC Region 9 in Buffalo, New York. County files reviewed were maintained by the Niagara County Health Department.

Mr. Michael Hopkins of the Niagara County Health Department was contacted in person on May 1, 1987, to discuss information maintained in the county files. Mr. Floyd Snyder, Town of Lockport Supervisor, interviewed on June 17, 1987, provided considerable historical information about the site.

A site inspection was conducted by E & E personnel on June 17, 1987. No samples were collected by E & E, although monitoring of air quality was performed using an HNu photoionizing organic vapor detector. Photographs were taken and are included in Appendix A. A physical inspection of the site and review of pertinent USGS 7.5-minute topographic maps was completed. A summary of agencies contacted, along with contact persons and addresses, is presented in Table 3-1.

Table 3-1

SOURCES CONTACTED FOR PHASE I INVESTIGATION OF
TOWN OF LOCKPORT LANDFILL SITE

New York State Department of Environmental Conservation, Region 9
600 Delaware Avenue, Buffalo, New York 14202
Telephone Number: (716) 847-4585

- Division of Solid Hazardous Waste
  Contact: Lawrence Clare, Ahmed Tayyebi;
  Date Contacted: May 8, 1987

- Division of Regulatory Affairs
  Contact: Paul Eismann
  Date Contacted: May 8, 1987, and June 2, 1987
  Information: Permits; wetlands information.

- Division of Environmental Enforcement
  Contact: Joann Gould
  Date Contacted: May 6, 1987
  Information: Enforcement actions

- Division of Water
  Contact: Rebecca Anderson
  Date Contacted: June 2, 1987
  Information: Floodplain locations

- Bureau of Wildlife
  Contact: James R. Snider
  Date Contacted: June 2, 1987
  Information: Critical habitat locations

Niagara County Health Department
10th and East Falls Street, Niagara Falls, New York, 14302
Telephone Number: (716) 284-3128
Contact: Michael Hopkins, Paul Dicky
Dates Contacted: May 1, 1987 and May 5, 1987
Information: Inspection and profile reports.

Lockport Water Department
Lockport Municipal Building, Lockport, New York 14094
Telephone Number: (716) 439-6678
Contact: James McCann
Date Contacted: June 10, 1987
Information: Details of the drinking water supply in the City and Town of Lockport.

Town of Lockport
Town Hall
P.O. Box 848, 6560 Dysinger Road, Lockport, New York 14094
Telephone Number: (716) 439-9520
Contact: Floyd Snyder, Town Supervisor
Date Contacted: June 17, 1987
Information: Historical information about site.

4. SITE ASSESSMENT

4.1 SITE HISTORY

The Town of Lockport Landfill was used as a municipal disposal area from 1948 to 1961. The site was used as a gravel and sand source by a private operator prior to being used as a landfill.

During the time the site was used as a landfill, it was open to town residents only, for the disposal of household trash. The dump was open on Friday and Saturday of each week and a guard checked for proof of residency (Snyder 1987). The Town of Lockport had very few industries during the time the landfill was in operation. Currently, access to the site is unrestricted.

4.2 SITE TOPOGRAPHY

This site is located on the Ontario Plain approximately 1/2 mile north of the Niagara Escarpment. The escarpment presents the most topographic relief in the area, running in an east to west direction and rising approximately 100 feet near this site. The area south of the escarpment is characterized by very low relief, except in its eastern part where small knobby hills and long low ridges rise above the former lake plain. The area to the north of the escarpment is generally flat with little relief and slopes gently toward Lake Ontario, approximately 12 miles to the north.

The Erie Canal is approximately 100 feet to the north of the site. The Niagara River is approximately 21 miles to the west. Site elevation is approximately 530 feet above sea level. The site is not

in a floodplain, and the nearest wetland is approximately 1 mile to the southwest. The site is located in a rural/residential area northeast of the City of Lockport.

4.3 SITE HYDROLOGY

4.3.1 Regional Geology and Hydrology

The Town of Lockport landfill is located in an area that is underlain by the Clinton Group bedrock. These rocks are composed mainly of Rochester shale, but also contain thin limestone and shale units. The limestone units are the most permeable units, but the impermeable Rochester shale limits recharge to these units. Wells in the Clinton Group are usually adequate for domestic supply only. Water from the Clinton Group member is highly mineralized and hardness is highest in the Niagara Falls area.

Sand and gravel deposits are considered the aquifer of concern at this site. The sand and gravel deposits which occur in limited extent were deposited by sediment-laden melt-water streams from receding glaciers, and overlie the Rochester shale bedrock. These deposits vary in thickness and yield small amounts of water. Groundwater usually occurs at a thin zone at the base of the sand and gravel since their high permeability permits rapid drainage and the Rochester shale acts as a confining layer.

4.3.2 Site Hydrogeology

The soils at the site are of the Niagara-Collamer association. These soils consist of deep, somewhat poorly drained to moderately well drained, soils having a medium-textured or moderately fine-textured subsoil. Natural drainage is apparently slow as evidenced by wetter areas in localized depressions on the site. Soil permeability ranges from 0.20 to 6.3 inches per hour (Higgins et al. 1972). The nature of the fill present at the site is expected to affect soil permeability.

Little specific hydrogeologic information is available for this site. No area residents currently use well water. Wells within 1/2 mile northeast of the site provide the following information (Johnston 1964):

- Well depths of five wells range from 10 feet to a reported depth of 80 feet;

- The water-bearing material in four of the five wells is Pleistocene sand and gravels;

- The water-bearing material in the deepest well was reported to be Queenston Shale;

- One well from which the water-bearing material is Pleistocene Sand had a reported yield of 200 gallons per minute;

- None of these wells are currently used for water supply.

Groundwater is likely to occur in the unconsolidated deposits on site. The slope is low, but flow is expected to be toward the Erie Canal, which is located immediately north of the site. This shallow water is probably hydraulically connected to the canal water. The site is located on a kame deposited by melt-water streams from receding glaciers and averages 60 to 70 feet deep.

Glacial till, approximately 0 to 10 feet thick, comprises the greater part of the superficial deposits on the Ontario Plain.

The presence of glacial deposits may impede downward flow of groundwater but there are insufficient data to adequately assess the hydraulic gradients and dominant flow patterns at this site.

4.3.3 Hydraulic Connections

The aquifer of concern for the purposes of this report consists of the unconsolidated Pleistocene deposits on site. This is underlain by the Clinton Group, consisting of Rochester Shale, Irondequoit Limestone, Reynales Limestone, Neahga Shale, and Thorold Sandstone. The position of the relatively impermeable Rochester Shale at the top of the Clinton Group drastically limits recharge to the more permeable limestones and sandstones below. Therefore, it can be assumed that there is little hydraulic connection between the aquifer of concern and underlying formations.

For purposes of HRS scoring, the aquifer of concern consists of the unconsolidated Pleistocene deposits. This aquifer is expected to be encountered at 10 feet below ground level.

4.4 SITE CONTAMINATION

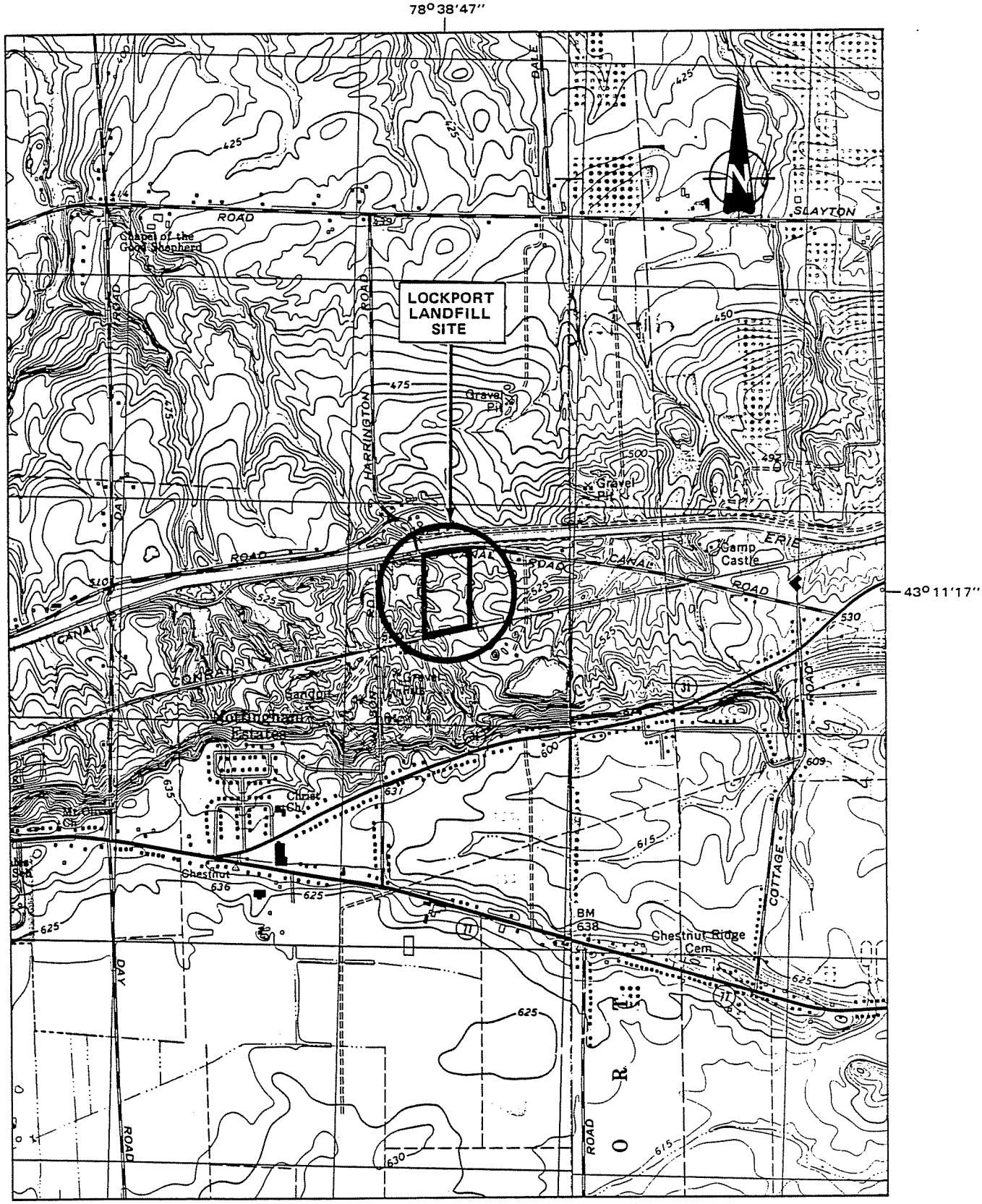
As far as it can be determined, no sampling of any kind has been conducted at the site. No hazardous waste is documented or reported to have been disposed on site. Due to the controlled access to the site during the period of operation, disposal was most likely limited to household trash. Household trash may, however, contain hazardous wastes such as paints, paint thinners, solvents, pesticides, and detergents. Municipal landfills have been known to generate toxic leachate. Although the site is currently open and accessible, no evidence of surficial industrial waste disposal was observed during a site inspection by E & E on June 17, 1987. Most of the site was overgrown with dense vegetation such that travel on foot was difficult. Air monitoring with an HNu photoionizing detector was performed while on site, and no readings above background were noted.

5. PRELIMINARY APPLICATION OF THE HAZARD RANKING SYSTEM

5.1 NARRATIVE SUMMARY

The Town of Lockport Landfill site covers approximately 18.5 acres in the Town of Lockport, Niagara County, New York (see Figure 5-1). It is located just below the Niagara escarpment and is adjacent to the Erie Barge Canal. The Niagara River is approximately 21 miles to the west. Site elevation is about 530 feet above sea level. The site is not in a floodplain and the nearest wetland is approximately 1 mile to the southwest. No area residents currently use well water. A little over 2,000 people live within 1 mile of the site. The site was used by town residents from 1948 to 1960 for disposal of household trash. The site has been closed since 1961. Controlled access to the site during the years of operation makes the presence of hazardous industrial wastes unlikely.

5.2



SOURCE: U.S.G.S. 7.5 Minute Series (Topographic) Quadrangles, Lockport, N.Y., 1980 and Gasport, N.Y., 1979.

Figure 5–1 LOCATION MAP

FIGURE 1

HRS COVER SHEET

Facility Name: Town of Lockport Landfill

Location: East Canal Road, Lockport, New York

EPA Region: 11

Person(s) in Charge of Facility: Mr. Floyd Snyder, Town Supervisor

Town of Lockport

6560 Dysinger Road, Lockport, New York

Name of Reviewer: Dennis Sutton Date: July 7, 1987

General Description of the Facility:

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

This 18-acre site was used as a municipal dump between 1948 and 1961. It was used by town residents exclusively and proof of residency was checked by a guard at the gate. During this time period the Town of Lockport had very few industries. Therefore, hazardous waste is not suspected to be present at this site.

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

S_{FE} = not scored

S_{DC} = 0

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Ground Water Route Work Sheet					
Rating Factor	Assigned Value (Circle One)	Multi-plier	Score	Max. Score	Ref. (Section)
1 Observed Release	(0) 45	1	0	45	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	1	3	
Permeability of the Unsaturated Zone	0 1 (2) 3	1	2	3	
Physical State	0 (1) 2 3	1	1	3	
Total Route Characteristics Score			10	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	0	18	
Hazardous Waste Quantity	(0) 1 2 3 4 5 6 7 8	1	0	8	
Total Waste Characteristics Score			0	26	
5 Targets					3.5
Ground Water Use	(0) 1 2 3	3	0	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			0	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			0	57,330	
7 Divide line 6 by 57,330 and multiply by 100		S_{gw} =	0		

FIGURE 2
GROUND WATER ROUTE WORK SHEET

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

FIGURE 7
SURFACE WATER ROUTE WORK SHEET

Air Route Work Sheet					
Rating Factor	Assigned Value (Circle One)	Multi-plier	Score	Max. Score	Ref. (Section)
[1] Observed Release	(0) 45	1	0	45	5.1
Date and Location:	June 17, 1987; Lockport Landfill, Lockport, N.Y.				
Sampling Protocol:	HNu photoionization detector				
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		3	
Toxicity	0 1 2 3	3		9	
Hazardous Waste Quantity	0 1 2 3 4 5 6 7 8	1		8	
	Total Waste Characteristics Score			20	
[3] Targets					5.3
Population Within 4-Mile Radius	0 9 12 15 18 21 24 27 30	1		30	
Distance to Sensitive Environment	0 1 2 3	2		6	
Land Use	0 1 2 3	1		3	
	Total Targets Score			39	
[4] Multiply [1] x [2] x [3]				35,100	
[5] Divide line [4] by 35,100 and multiply by 100		S_a = 0			

FIGURE 9
AIR ROUTE WORK SHEET

	S	S^2
Groundwater Route Score (S_{gw})	0	0
Surface Water Route Score (S_{sw})	0	0
Air Route Score (S_a)	0	0
$S_{gw}^2 + S_{sw}^2 + S_a^2$		0
$\sqrt{S_{gw}^2 + S_{sw}^2 + S_a^2}$		0
$\sqrt{S_{gw}^2 + S_{sw}^2 + S_a^2} \,/\, 1.73 = S_M =$		0

FIGURE 10
WORKSHEET FOR COMPUTING S_M

Fire and Explosion Work Sheet					
Rating Factor	Assigned Value (Circle One)	Multi-plier	Score	Max. Score	Ref. (Section)
1 Containment	1 3	1		3	7.1
2 Waste Characteristics					7.2
Direct Evidence	0 3	1		3	
Ignitability	0 1 2 3	1		3	
Reactivity	0 1 2 3	1		3	
Incompatibility	0 1 2 3	1		3	
Hazardous Waste Quantity	0 1 2 3 4 5 6 7 8	1		8	
Total Waste Characteristics Score				20	
3 Targets					7.3
Distance to Nearest Population	0 1 2 3 4 5	1		5	
Distance to Nearest Building	0 1 2 3	1		3	
Distance to Sensitive Environment	0 1 2 3	1		3	
Land Use	0 1 2 3	1		3	
Population Within 2-Mile Radius	0 1 2 3 4 5	1		5	
Buildings Within 2-Mile Radius	0 1 2 3 4 5	1		5	
Total Targets Score				24	
4 Multiply 1 x 2 x 3				1,440	
5 Divide line 4 by 1,440 and multiply by 100			S_{FE} = Not scored		

FIGURE 11
FIRE AND EXPLOSION WORK SHEET

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

FIGURE 12
DIRECT CONTACT WORK SHEET

DOCUMENTATION RECORDS
FOR
HAZARD RANKING SYSTEM

Instructions: As briefly as possible summarize the information you used to assign the score for each factor (e.g., "Waste quantity = 4,230 drums plus 800 cubic yards of sludges"). The source of information should be provided for each entry and should be a bibliographic-type reference. Include the location of the document.

Facility Name: Town of Lockport Landfill

Location: East Canal Road, Lockport, New York

Date Scored: July 6, 1987

Person Scoring: Dennis Sutton

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

E & E Site Visit
Lockport Town Supervisor - personal communication
Niagara County Health Department files

Factors Not Scored Due to Insufficient Information:

Fire and Explosion Score is not computed because the site has not been declared a fire hazard by a fire marshal.

Comments or Qualifications:

According to available information this site was used for household trash only, during 1948 to 1961. It was used exclusively by the Town of Lockport residents and hazardous waste is not suspected on site. No samples have been taken at this site. HRS score was completed on the basis of available information.

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GROUNDWATER ROUTE

1. OBSERVED RELEASE

Contaminants detected (3 maximum):

None reported

Rationale for attributing the contaminants to the facility:

NA

* * *

2. ROUTE CHARACTERISTICS

Depth to Aquifer of Concern

Name/description of aquifer(s) of concern:

Unconsolidated Pleistocene deposits
Ref. No. 6

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

Unknown

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

Unknown

Net Precipitation

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

31 in/yr
Ref. No. 1

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

27 in/yr
Ref. No. 1

Net precipitation (subtract the above figures):

4 in/yr

Permeability of Unsaturated Zone

Soil type in unsaturated zone:

Gravelly loam; silty loam, silty sand
Ref. No. 5

Permeability associated with soil type:

10^{-3} to 10^{-5} cm/sec
Ref. No. 1

Physical State

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

Solid, unconsolidated
Ref. No. 2, 8, 1

* * *

3. CONTAINMENT

Containment

Method(s) of waste or leachate containment evaluated:

No methods used
Ref. No. 2

Method with highest score:

No liner
Ref. No. 8

4. WASTE CHARACTERISTICS

Toxicity and Persistence

Compound(s) evaluated:

None known

Compound with highest score:

NA

Hazardous Waste Quantity

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

Unknown

Basis of estimating and/or computing waste quantity:

NA

* * *

5. TARGETS

Groundwater Use

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

None
Ref. No. 8, 7

Distance to Nearest Well

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

NA
Ref. No. 8, 7

Distance to above well or building:

NA
Ref. No. 8, 7

Population Served by Groundwater Wells Within a 3-Mile Radius

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

None known
Ref. No. 8, 7

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):

NA
Ref. No. 8, 7

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

None known
Ref. No. 8, 7

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SURFACE WATER ROUTE

1. OBSERVED RELEASE

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

None observed

Rationale for attributing the contaminants to the facility:

NA

* * *

2. ROUTE CHARACTERISTICS

Facility Slope and Intervening Terrain

Average slope of facility in percent:

2%
Ref. No. 11

Name/description of nearest downslope surface water:

Erie Canal
Ref. No. 11

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

2%
Ref. No. 11

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

No
Ref. No. 11

Is the facility completely surrounded by areas of higher elevation?

No
Ref. No. 11

1-Year 24-Hour Rainfall in Inches

2.5
Ref. No. 1

Distance to Nearest Downslope Surface Water

200 ft
Ref. No. 11

Physical State of Waste

Solid, unconsolidated
Ref. No. 8

* * *

3. CONTAINMENT

Containment

Method(s) of waste or leachate containment evaluated:

None
Ref. No. 2

Method with highest score:

NA

4. WASTE CHARACTERISTICS

Toxicity and Persistence

Compound(s) evaluated:

None evaluated

Compound with highest score:

NA

Hazardous Waste Quantity

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

Unknown

Basis of estimating and/or computing waste quantity:

NA

* * *

5. TARGETS

Surface Water Use

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

Recreation
Ref. No. 7

Is there tidal influence?

No
Ref. No. 11

Distance to a Sensitive Environment

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

NA

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

0.7 mile
Ref. No. 9

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

NA
Ref. No. 10

Population Served by Surface Water

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

NA - intakes in Niagara River
Ref. No. 7, 11

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

NA

Total population served:

NA

Name/description of nearest of above water bodies:

NA

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

NA

AIR ROUTE

1. OBSERVED RELEASE

Contaminants detected:

None observed

Date and location of detection of contaminants:

NA

Methods used to detect the contaminants:

NA

Rationale for attributing the contaminants to the site:

NA

* * *

2. WASTE CHARACTERISTICS

Reactivity and Incompatibility

Most reactive compound:

None known

Most incompatible pair of compounds:

None known

Toxicity

Most toxic compound:

Unknown

Hazardous Waste Quantity

Total quantity of hazardous waste:

Unknown

Basis of estimating and/or computing waste quantity:

NA

* * *

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

2,154
Ref. No. 4

Distance to a Sensitive Environment

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

NA
Ref. No. 11

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

.7 mile
Ref. No. 9

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

NA
Ref. No. 10

Land Use

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

NA
Ref. No. 11

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

NA
Ref. No. 11

Distance to residential area, if 2 miles or less:

100 ft
Ref. No. 11

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

1/2 mile
Ref. No. 11, 5

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

1/2 mile
Ref. No. 11, 5

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

No
Ref. No. 3

FIRE AND EXPLOSION

1. CONTAINMENT

Hazardous substances present:

None detected

This section not scored. Site has not been declared a fire hazard by a fire marshal. Ref. No. 7

Type of containment, if applicable

NA

* * *

2. WASTE CHARACTERISTICS

Direct Evidence

Type of instrument and measurements:

No measurement taken

Ignitability

Compound used:

NA

Reactivity

Most reactive compound:

NA

Incompatibility

Most incompatible pair of compounds:

NA

Hazardous Waste Quantity

Total quantity of hazardous substances at the facility:

Unknown

Basis of estimating and/or computing waste quantity:

NA

* * *

3. TARGETS

Distance to Nearest Population

NA

Distance to Nearest Building

NA

Distance to a Sensitive Environment

Distance to wetlands:

NA

Distance to critical habitat:

NA

Land Use

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

NA

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

NA

Distance to residential area, if 2 miles or less:

Na

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

NA

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

NA

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

NA

Population Within 2-Mile Radius

NA

Buildings Within 2-Mile Radius

NA

DIRECT CONTACT

1. OBSERVED INCIDENT

Date, location, and pertinent details of incident:

None noted

* * *

2. ACCESSIBILITY

Describe type of barrier(s):

Site access road is fenced
Ref. No. 2

* * *

3. CONTAINMENT

Type of containment, if applicable:

NA

* * *

4. WASTE CHARACTERISTICS

Toxicity

Compounds evaluated:

None known

Compound with highest score:

NA

* * *

5. TARGETS

Population within one-mile radius

2,154
Ref. No. 4

Distance to critical habitat (of endangered species)

NA
Ref. No. 10

REFERENCES

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

Reference Number	Description of the Reference
1	Barrett K.W., S.S. Chang, S.A. Hans, A.M. Platt, 1982, Uncontrolled Hazardous Waste Site Ranking System Users Manual, MITRE Corporation Document location: Ecology and Environment, Inc., Buffalo, New York.
2	Ecology and Environment, Inc., June 12, 1987, Site Inspection logbook and photo log. Document location: Ecology and Environment, Inc., Buffalo, New York.
3	The National Register of Historic Places, 1976. Document location: Ecology and Environment, Inc., Buffalo, New York.
4	Graphical Exposure Modeling System, June 1987, Environmental Protection Agency, Office of Pesticides and Toxic Substances, Federal Plaza, New York, New York. Document location: Ecology and Environment, Inc., Buffalo, New York.
5	Higgins, B.A., P.S. Puglia, R.P. Leonard, T.D. Yoakun, W.A. Wirtz, 1972; Soil Survey of Niagara County, New York, USDA Soil Conservation Service. Document location: Ecology and Environment, Inc., Buffalo, New York.
6	Johnson, Richard H., 1964, Groundwater in the Niagara Falls Area, New York, State of New York Conservation Department, Water Resource Commission, Bulletin GW-53. Document location: Ecology and Environment, Inc., Buffalo, New York.
7	Hopkins, Michael, June 1987, personal communication, Niagara County Health Department, Niagara Falls, New York.
8	Snyder, Floyd, Town Supervisor, Town of Lockport, June 17, 1987, personal communication.
9	New York State Department of Environmental Conservation (NYSDEC), wetlands maps, Region 9 NYSDEC offices, Buffalo, New York.
10	Snider, James, wildlife biologist, personal communication, June 1987, NYSDEC Region 9, Buffalo, New York.
11	USGS 7.5 minute topographical map, 1980, Lockport, NY quad. Document location: Ecology and Environment, Inc., Buffalo, New York.

REFERENCE NO. 1

Uncontrolled Hazardous Waste Site Ranking System

A Users Manual

Kris W. Barrett
S. Steven Chang
Stuart A. Haus
Andrew M. Platt

August 1982

MTR-82W111

SPONSOR:
U.S. Environmental Protection Agency
CONTRACT NO.:
68-01-6278

The MITRE Corporation
Metrek Division
1820 Dolley Madison Boulevard
McLean, Virginia 22102

recycled paper

ecology and environment

REFERENCE NO. 2

6/17/87

1300 Weather - Clear, warm (80°F)
Winds 5-10 mph

Town of Lockport
Phase I NYDEC investigation

6/17/87

1305 Arrive at Lockport Town Hall on Old Beattie Rd in the Town of Lockport to meet with Bob Albright - Town Engineer

1315 Spoke with Mr Albright concerning site history, he referred me to Floyd Snyder who was not in the office at this time. It is decided to visit the site at this time and attempt to speak to after site inspection

1335 arrive at Land fill site on Canal Street
personnel on site } Sutton C+E
Sandquist E+E
B. Albright - Lockport

5-26

6/17/87

1340 ~~Area~~ Area is completly overgrown with brush + vegetation, area is fenced ~~but~~ gate is open at all times

Frame #1 showing entrance to site

entrance road is standard gravel - poorly drained

1349

Mr Albright leaves site

1345 noted debris - broken concrete building material, top soil, brush, blacktop scraps

Frame #2 shows concrete debris look west from access road

an old couch was noted discarded on site along with some household trash

~~Frame #~~

6/17/87

1347 frame #3 showing building debris looking south from access road.

Access road shows very little sign of traffic

1349 Frame #4 showing old discarded sink

1350 Frame #5 showing area of sand and gravel excavation looking east

soil is sandy in areas - deer tracks noted no stressed vegetation noted

area is difficult to observe due to thickness of vegetation

6/17/87

1355 Frame 6 showing low wet area in center of land fill area

runoff channels noted in sandy area of landfill area

1400 Frame #7 showing thickness and size of vegetation and trees on site

1405 Frame #8 showing brush waste (chips) disposed on site. Looking north west

1410 Frame #9 showing more Tree brush waste

1415 Frame #10 showing gate snake on site ?

1415 Frame # 11 showing ashphalt waste on site

6/17/87

Frame # 12 showing household waste on site.

1420 Leave site to go back to Town Hall

1445 met with Floyd Snyder Town Supervisor He stated

- Landfills used from 1948-1960
- He personally closed dumps in 1961
- no industry in 40's & 50's
  - household waste only
  - no wells on site
  - no wells in area at this time
  - no industrial wastes placed at all on site
- previous owner used it as gravel pit.

- household trash buried on site for 20 yrs - dumps used by residents of ~~Hoo~~ Olds Lockport only - therefore no industrial wastes

- Gate was manned, locked when not in use, Guard checked for proof of residency

1507 Recieved letter from Mr Snyder confirming the above

5-29 1520 leave site.

REFERENCE NO. 3

The National Register of Historic Places

1976

ene Lewishon to carry forward their work in drama and dance with local children. *Multiple public/private:* NHL.

NIAGARA COUNTY

Lewiston. **FRONTIER HOUSE**, 460 Center St., 1824–1826. Stone, 3 1/2 stories, rectangular; gabled roof with stepped gables, paired chimneys, and balustrade; off-center and center entrances, full-width front porch with hipped roof, regular fenestration, oval windows in gables; N kitchen wings. Federal elements. Built as a tavern for Joshua Fairbanks and Benjamin and Samuel Barton, local prominent businessmen. *Private.*

Lewiston. **LEWISTON MOUND**, Lewiston State Park, Hopewellian affinities (c. 160). Oval burial mound. Partially investigated. *County.*

Lewiston vicinity. **LEWISTON PORTAGE LANDING SITE**, Prehistoric–19th C.. Gently sloping ravine leading from river remains of path used by travelers to avoid Niagara Falls. Archeological explorations yielded artifacts from Indian to British occupation, indicating this was a heavily used access point to a vital overland route. *State.*

Lockport. **LOWERTOWN HISTORIC DISTRICT**, Roughly bounded by Erie Canal and New York Central RR., 19th–20th C.. Primarily residential district, with some religious and commercial buildings and warehouses; facing the canal are 2 1/2-story brick and stone residences with Greek Revival and Italianate elements built in the 1830's; off the canal are 1–2-story frame structures with additions and modern siding built mid-19th C. and some stone structures: notable are the Gothic Revival former Christ Episcopal Church (1854) and the Italianate Vine Street School (1864). Systematic development of the village began after canal opened; district was Lockport's social, commercial, and industrial center, 1830's–1860's. *Multiple public/private:* HABS.

Lockport. **MOORE, BENJAMIN C., MILL (LOCKPORT CITY HALL; HOLLY WATER WORKS)** , Pine St. on the Erie Canal, 1864. Coursed rubble, 2 1/2 stories over basement on sloping site, trapezoidal shape, hipped roof sections with cross gables, interior chimney; front center entrance with transom and pediment on pilasters, triple round arched windows in gables, rock-faced stone lintels and sills, ashlar quoins; interior altered; rear 2-story addition 1893. Built as a flour mill, converted c. 1885 to a water pumping plant; adapted as city hall 1893; one of few survivors of 25 industrial buildings once clustered along this section of Erie Canal. *Municipal.*

Niagara Falls. **DEVEAUX SCHOOL COMPLEX**, 2900 Lewiston Rd., 1855–1888. Educational complex; contains 3 connected structures–Van Rensselaer Hall (1855–1857), Patterson Hall (1866), and Munro Hall (1888); and outbuildings–barn, shed, and gymnasium. Gothic Revival elements. Founded by Judge Samuel DeVeaux as an Episcopal school for poor and orphaned boys; later became a prominent preparatory school; closed, 1971. *Private.*

Niagara Falls. **NIAGARA FALLS PUBLIC LIBRARY**, 1022 Main St., 1902–1904, E. E. Joralemon, architect. Stone, yellow brick; 1 story, rectangular with semielliptical rear bow, flat roof with parapet, slightly projecting center entrance bay with pedimented double doorway, pedimented windows, string courses; fine interior detail intact. Neo-Classical Revival elements. One of many public libraries endowed by Andrew Carnegie. *Public.*

Niagara Falls. **NIAGARA RESERVATION**, 1885. Includes the falls, Goat Island and other islets, paths, and an observation tower. In establishing a reservation of over 400 acres, New York became the first state to use eminent domain powers to acquire land for aesthetic purposes. *State:* NHL.

Niagara Falls. **SHREDDED WHEAT OFFICE BUILDING**, 430 Buffalo Ave., 1900. Steel frame, brick; 5 stories, rectangular, flat roof, center entrance, 5 paired window bays, segmental arched basement windows, wide parapet; interior featured 4th-floor auditorium and 5th-floor cafeteria; doubled glazed windows. Commercial style. Administrative office building of original Shredded Wheat factory complex, developed by Henry D. Perky. *Private.*

Niagara Falls. **U.S. CUSTOMHOUSE**, 2245 Whirlpool St., 1863. Stone, 2 1/2 stories, square, hipped roof, arched window and door openings on W facade; built into railroad embankment, S side opens onto railroad tracks; renovated, 1928. Continues to serve as customs office for trains from Canada. *Private:* HABS.

Niagara Falls. **WHITNEY MANSION**, 335 Buffalo Ave., 1849–1851. Limestone, 2 1/2 stories, L-shaped, intersecting gabled roof sections; original section has off-center entrance with full-width Ionic portico; 19th C. side addition has front bay window and gabled dormer with 3 round arched windows. Greek Revival. Built according to 1830's design by Solon Whitney, son of Gen. Parkhurst Whitney, village founder and prominent hotel and tavern owner. *Private.*

Youngstown vicinity. **OLD FORT NIAGARA**, N of Youngstown on NY 18, 1678. Complex of stone buildings bounded by stone walls, earthworks, and a moat; restored. Original fort built in 1678; altered 1725–1726 and 1750–1759. Held alternately by French, British, and Americans in struggle for control of continent; strategically located in commanding the Great Lakes from Lake Erie to Ontario and in covering approaches to western NY. *State:* NHL.

ONEIDA COUNTY

Boonville. **ERWIN LIBRARY AND PRATT HOUSE**, 104 and 106 Schuyler St., 1890, C. L. Vivian (Erwin Library); 1875, J. B. Lathrop (Pratt House). Erwin Library: limestone, 1 story, gabled and hipped roofs; square tower with pyramidal roof contains recessed arched entrance. Romanesque. Pratt House: brick, 3 stories, mansard roof with dormers and central tower crowned with iron cresting and spire, ornate bracketed cornices and metal lintels; original interior wall coverings, fixtures, and woodwork. Second Empire. *Private.*

Boonville. **FIVE LOCK COMBINE AND LOCKS 37 AND 38, BLACK RIVER CANAL (BOONVILLE GORGE PARK)** , NY 46, 19th–20th C.. Section of the abandoned Black River Canal (built mid-19th C.) running through rugged terrain of Boonville Gorge; contains locks 37 and 38 and a 5-lock combine (locks 39–43); canal was 42' deep; locks, 90' by 15', which accommodate 70-ton boats, were built 1895–early 1900's. Canal built to connect Black River Valley to Erie Canal provided water supply for Erie Canal, allowed expansion of valley's lumbering industry, and fostered growth of towns. *State/county:* HAER.

Clinton. **HAMILTON COLLEGE CHAPEL**, Hamilton College campus, 1827, Philip Hooker, architect. Coursed rubble, 3 stories, rectangular, low pitched roof, interior chimney, modillion cornice, front and rear parapet; front slightly projecting 4-story clock tower with 3-stage frame belfry–2 stories, each with columns and entablature, surmounted by octagonal cupola; front center double-door entrance with round arched window above, flanked by tall round arched windows, blind decorative frame panels; limestone ashlar quoins, lintels, and sills; side elevations with 3 tiers of windows; apse added 1897; interior altered. Federal. Multipurpose classroom and chapel building designed by Philip Hooker; unusual 3-story interior plan attributed to John H. Lothrop, a trustee. *Private.*

Clinton. **ROOT, ELIHU, HOUSE**, 101 College Hill Rd., 1817. Frame, clapboarding; 2 stories, irregular shape, gabled roof, interior chimneys, pedimented arched portico, off-center entrance with semielliptical fanlight and side lights, 2-story pilasters dividing bays in flush-sided main facade, pedimented rear porch; side additions; restored, 1900's. Federal. Home of Elihu Root, U.S. Secretary of War largely credited with conceptual foundation for 20th C. development of American Army, Secretary of State, U.S. senator, and winner of 1912 Nobel Peace Prize. *Private; not accessible to the public:* NHL.

Rome. **ARSENAL HOUSE**, 514 W. Dominick St., c. 1813–1814. Brick, 2 1/2 stories, rectangular, gabled roof, pairs of bridged interior end chimneys above single gable steps, central pedimented gable with elliptical window, 2 vertical elliptical windows in gabled ends between chimneys, stone sills and lintels; later front porch with large modillion blocks, chamfered

REFERENCE NO. 4

DRAFT

GRAPHICAL EXPOSURE MODELING SYSTEM

(GEMS)

USER'S GUIDE

VOLUME 1. CORE MANUAL

Prepared for:

U.S. ENVIRONMENTAL PROTECTION AGENCY
OFFICE OF PESTICIDES AND TOXIC SUBSTANCES
EXPOSURE EVALUATION DIVISION
Task No. 3-2
Contract No. 68023970
Project Officer: Russell Kinerson
Task Manager: Loren Hall

Prepared by:

GENERAL SCIENCES CORPORATION
6100 Chevy Chase Drive, Suite 200
Laurel, Maryland 20707

Submitted: February, 1987

1. INTRODUCTION

The Graphical Exposure Modeling System (GEMS) is an interactive computer system developed by General Sciences Corporation under the auspices of the Modeling Section in the Exposure Evaluation Division (EED), Office of Toxic Substances (OTS) of the Environmental Protection Agency (EPA). It provides a simple interface to environmental modeling, physiochemical property estimation, statistical analysis, and graphic display capabilities, with data manipulation which supports all of these functions. An overview of the basic GEMS components is shown in Figure 1-1. The system is installed on the OTS VAX 11/780 computer in Research Triangle Park, North Carolina, and is accessible through dial-up lines.

GEMS is being developed to support integrated exposure analyses at OTS. Its purpose is to provide environmental researchers and analysts with a set of sophisticated tools to perform exposure assessments of toxic substances without requiring them to become familiar with most aspects of computer science or programming.

GEMS is designed under a unique concept which integrates the computerized tools of graphics, mapping, statistics, file management, and special functions such as modeling and physiochemical property estimation, under a user-oriented and simple-to-learn interface. GEMS prompts the user or provides a menu for each action to be performed. The following features provide users with great flexibility during the GEMS execution:

- HELP commands - When you are using the GEMS system, you may not always have a user's manual readily available and/or you may need to see the format and type of a command or an answer before you enter it. Various HELP commands are available in GEMS which provide such information.

- Recovering from errors - If you enter a command or a response incorrectly, the system issues an error message and reprompts you for the correct information.

- Built-in defaults for model execution - GEMS is designed to guide inexperienced users through the execution of selected models. Default responses are usually available when you cannot specify a choice or supply an input to a prompt during model execution.

- Data management of modeling results - Data generated from execution of the SESOIL, ISC, SWIP, or AT123D models may be stored automatically in GEMS. These data may be accessed or analyzed via GEMS' file management, graphics, and statistics operations.

The purpose of this document is to describe GEMS from the user's point of view. It is intended as a comprehensive guide to the use of GEMS for personnel who have no specialized knowledge of computer programming. However, a working knowledge of environmental modeling is necessary for complete and accurate use of the system.

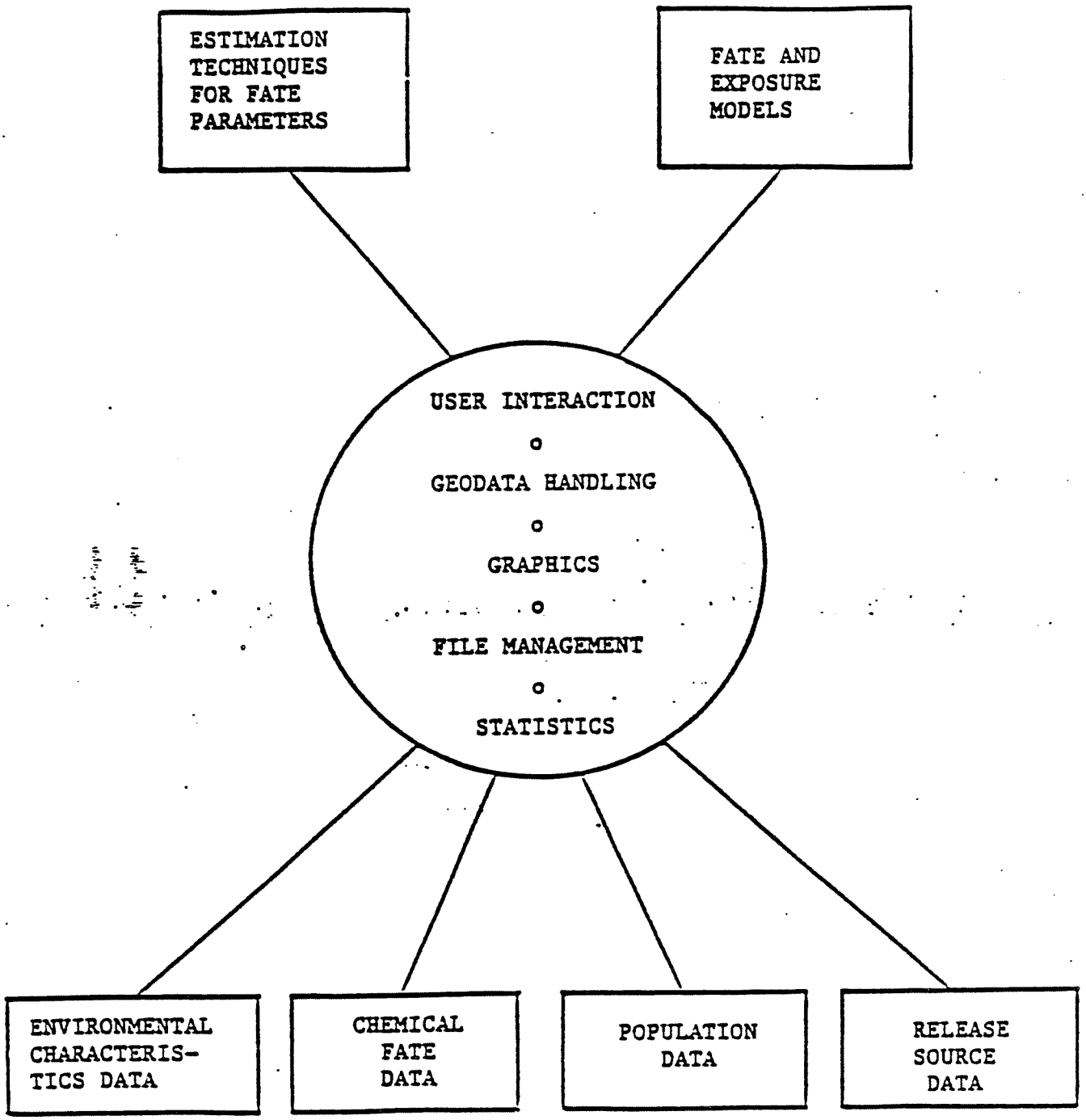


FIGURE 1-1. Components of the Graphical Exposure Modeling System (GEMS)

Since the last draft of the GEMS User's Guide, completed in June, 1984, the GEMS system has gone through a number of modifications and enhancements. It is no longer feasible to hold all sections in one single volume. This revised user's guide is designed in a modular fashion of six separate volumes described briefly below. In addition, GEMS has been adapted to function on an IBM PC/XT or AT. This prototype called PCGEMS has many of the same capabilities of the mainframe GEMS. These include environmental modeling procedures such as ENPART and AT123D as well as property estimation procedures such as CLOGP and AUTOCHEM. The prototype PCGEMS works in large part through interface with the OTS VAX 11/780 on which GEMS resides, a user's guide for PCGEMS will be available in the near future.

Volume 1: Core-Manual

This volume is a reference manual and introduction for first-time users. In addition to Section 1 - Introduction, a functional description of GEMS is presented in Section 2, a detailed guide to the use of the system is presented in Section 3, and summaries of the VAX operating environment and system and frequently used utilities are presented in Section 4. Two sample runs are given in the attachment to provide users with information in order to interact with the GEMS system, to generate a dataset, and subsequently, produce a map from the dataset.

Volume 2: Modeling

This volume consists of all GSC prepared user's manuals to GEMS models, grouped according to media. User's manuals are available for the following models: SESOIL, AT123D, SWIP, ENPART, TOX-SCREEN, INPUFF, and ISC/GAMS. A user's manual for EXAMS II model will be available later this year. Refer to Section 2.2 for further information.

Volume 3: Graphics and Geodata Handling

This volume contains two GEMS operations, Graphics and Geodata Handling. The Graphics operation contains a variety of graphics procedures which may be used to display results from modeling runs or from datasets. The Geodata Handling operation contains procedures that perform geographic data manipulation and generate maps of U.S. states or counties. Refer to Section 2.3 for further information.

Volume 4: Data Manipulation

This volume contains descriptions of GEMS system-installed datasets and two GEMS operations - File Management, and Utilities. Refer to Section 2.4 for further information.

Volume 5: Estimation

This volume consists of user's manuals for SFILES, FAP, CLOGP, and AUTOCHEM. These estimation programs may be used to provide estimated physiochemical properties for model input or for other environmental fate analyses. Refer to Section 2.5 for further information.

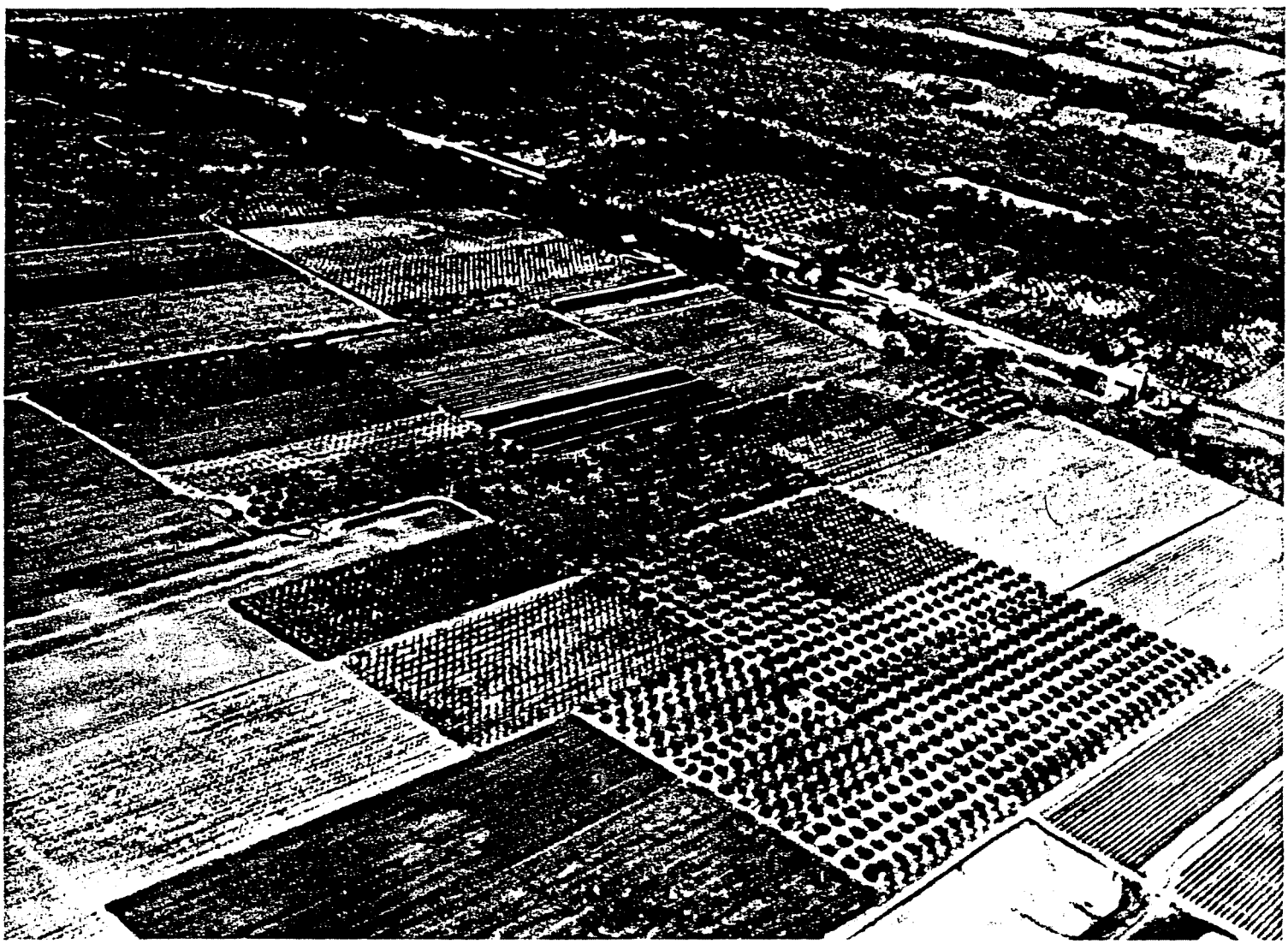
Volume 6: Statistics

This volume contains information on the GEMS Statistics operation which includes the Descriptive Statistics procedure and procedures to produce simple or multiple regression and contingency tables. Refer to Section 2.6 for further information.

REFERENCE NO. 5

SOIL SURVEY OF

Niagara County, New York



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

Issued October 1972

Natural drainage and slow permeability are the two most limiting factors for community development. Sanitary sewers and an adequate drainage system are needed. Because the soils in most of this association are underlain by firm glacial till, bearing strength and soil stability are generally favorable for foundations.

About 75 percent of the association is open land. The remaining 25 percent is scattered farm woodlots or idle land that is reverting to forest. Openland wildlife is plentiful in many areas. Pheasants and rabbits are the most commonly hunted wildlife species. The potential for wetland wildlife is good. Many dug-out ponds are in this association. Marsh occurs in the northern part of Hartland. Recreation consists mostly of hunting and fishing. Scenic areas are few.

2. Hilton-Ovid-Ontario association

Deep, well-drained to somewhat poorly drained soils having a medium-textured or moderately fine textured subsoil

This association occurs in nearly level to strongly sloping areas in which till deposits are dominant (fig. 3). One continuous area occupies the central part of the county. The association crosses the county in a general east-west direction. A limestone escarpment is prominent, and there is a sandy delta in an area that begins near the city of Lockport and extends eastward to the village of Gasport.

The Hilton-Ovid-Ontario association occupies about 15 percent of the county. About 24 percent of this association is Hilton soils, 14 percent is Ovid soils, 7 percent is Ontario soils, and the remaining 55 percent is soils of minor extent.

The Hilton soils are deep, moderately well drained, and medium textured. They have a gravelly loam or silt loam surface layer, have a heavy loam or silt loam subsoil, and are underlain by calcareous loamy glacial till. In some areas limestone bedrock is at a depth of 3 1/2 to 6 feet. These areas have large stones above the bedrock in many places. Hilton soils are nearly level or gently sloping. They commonly are at intermediate elevations on the glacial till plain. In a few places, they are on fairly large lateral moraines or small drumlins.

The Ovid soils are deep and somewhat poorly drained, and they have a moderately fine textured subsoil. Typically, they have a silt loam surface layer, have a silty clay loam subsoil, and are underlain by heavy loam glacial till. They are nearly level to gently sloping and occur at a slightly lower elevation than the Hilton soils. In some places Ovid soils are along drainageways. Some areas of Ovid soils are underlain by limestone bedrock at a depth of 3 1/2 to 6 feet.

The Ontario soils are deep, well drained, and medium textured. Typically, they have a loam surface layer, have a heavy loam subsoil, and are underlain by calcareous loamy glacial till. Ontario soils are nearly level to strongly sloping. They occupy the higher elevations, such as the tops and sides of drumlins or lateral moraines. In places the Ontario soils have limestone bedrock at a depth of 3 1/2 to 6 feet. In these areas they are nearly level or gently sloping and contain some large stones.

The minor soils are mainly of the Appleton, Cazenovia, Cayuga, Churchville, Sun, and Arkport series. The Appleton and Cazenovia soils are intermingled with the major soils on the till plain. The Cayuga and Churchville soils are along the fringes of the till plain where lacustrine sediments cap the till. Sun soils are in depressions, and Arkport soils are mainly on the sandy delta between the city of Lockport and the village of Gasport. Also, Rock land occurs in small areas.

This association has a medium value for farming. In much of the area, farming competes with nonfarm uses. Most of the city of Lockport and the villages of Sanborn, Gasport, and Middleport are in this association. Many estate-type homes are near the limestone escarpment.

Dairying is the major farm use. In the sandy area along the escarpment between Lockport and Gasport, fruit growing is fairly intensive. The 1958 Conservation Needs Inventory indicates that about 50 percent of the association is cropland, 15 percent is forest or woodland, 10 percent is urbanized, and the remaining 25 percent is pasture and miscellaneous open land.

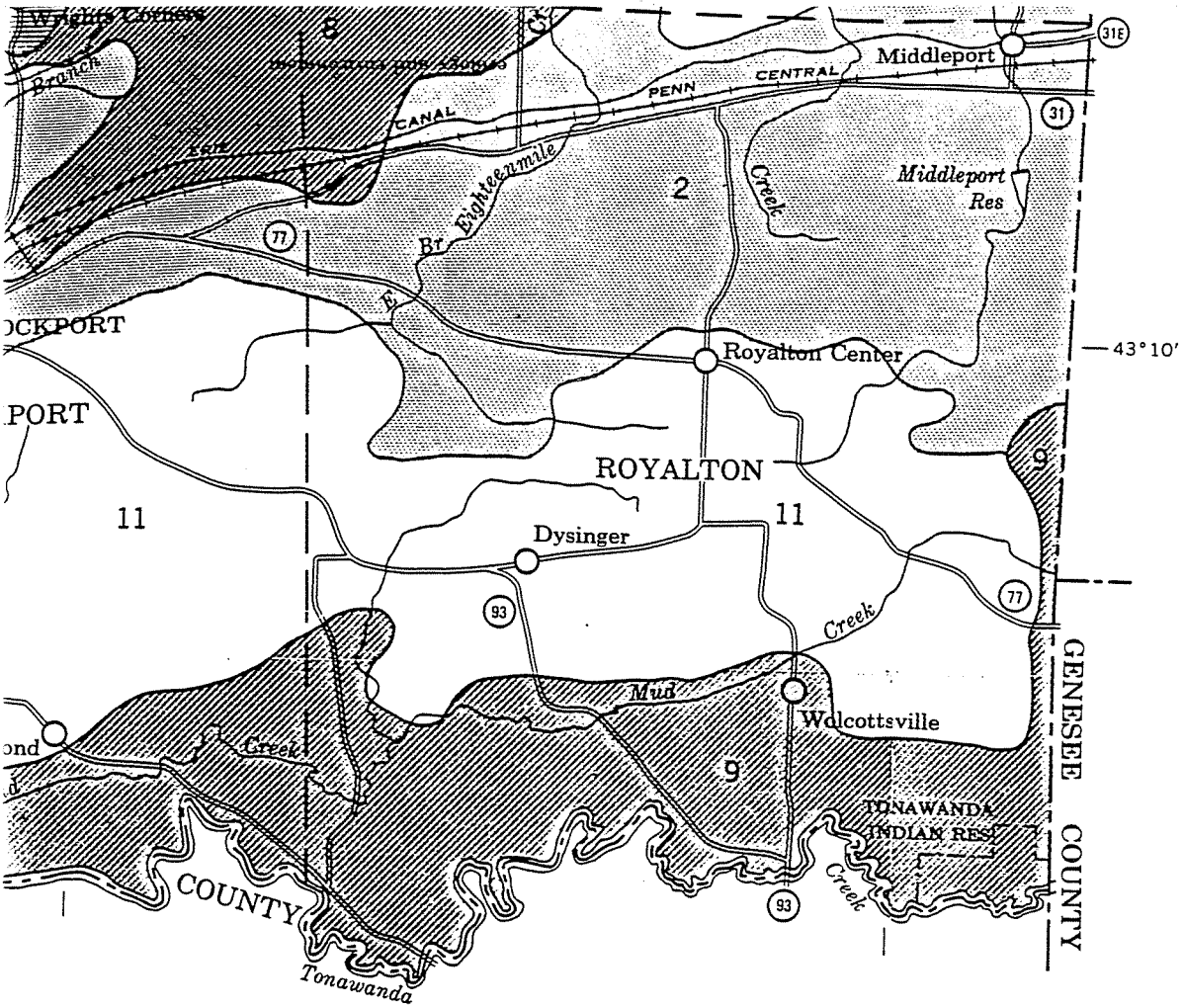
In places stones and bedrock are limitations for farming and urban development. Natural drainage is a limitation in the wetter areas. Slope and erosion are concerns, mainly near the escarpment. In many places installing artificial drainage is difficult because of stones and underlying bedrock.

This association has a high potential for dairying, raising livestock, and part-time farming. Stones and depth to bedrock are limitations to use locally. Lime needs generally are low. Vegetable growing is mostly restricted to the relatively stone-free, level or nearly level soils. Fruit is more susceptible to frost damage than in areas closer to Lake Ontario.

Wet areas, stones, and bedrock near the surface are the most limiting factors for urban development. Sanitary sewers are needed for concentrated housing developments. In many places underground installations are costly. Most soils in this association have adequate strength for building foundations. The association contains some of the most scenic sites for homes in the county.

This association contains five county parks and most of the Tuscarora Indian Reservation. Also, there are several municipal parks and playgrounds. Some of the most scenic views in the county are in this association. Especially near the scenic escarpment, there is a potential for more hiking, nature, and horseback-riding trails.

ecology and environment



SOIL ASSOCIATIONS

AREAS DOMINATED BY SOILS FORMED IN GLACIAL TILL

1 — Appleton-Hilton-Sun association: Deep, moderately well drained to very poorly drained soils having a medium-textured subsoil

2 — Hilton-Ovid-Ontario association: Deep, well-drained to somewhat poorly drained soils having a medium-textured or moderately fine textured subsoil

3 — Lockport-Ovid association: Moderately deep and deep, somewhat poorly drained soils having a fine textured or moderately fine textured subsoil

AREAS DOMINATED BY SOILS FORMED IN GRAVELLY GLACIAL OUTWASH OR IN BEACH AND BAR DEPOSITS

4 — Howard-Arkport-Phelps association: Deep, somewhat excessively drained to moderately well drained soils having a medium-textured to moderately coarse textured subsoil, over gravel and sand

5 — Otisville-Altmar-Fredon-Stafford association: Deep, excessively drained to poorly drained soils having a dominantly medium-textured to coarse-textured subsoil, over gravel and sand

AREAS DOMINATED BY SOILS FORMED IN LAKE-LAID SANDS

6 — Minoa-Galen-Elnora association: Deep, somewhat poorly drained and moderately well drained soils having a medium-textured, moderately coarse textured, or coarse textured subsoil, over fine and very fine sand

7 — Claverack-Cosad-Elnora association: Deep, moderately well drained and somewhat poorly drained soils having a coarse-textured subsoil, over clay or fine sand

AREAS DOMINATED BY SOILS FORMED IN LAKE-LAID SILTS AND VERY FINE SANDS

8 — Niagara-Collamer association: Deep, somewhat poorly drained and moderately well drained soils having a medium-textured to moderately fine textured subsoil

9 — Canandaigua-Raynham-Rhinebeck association: Deep, somewhat poorly drained to very poorly drained soils having a dominantly medium-textured to fine-textured subsoil

AREAS DOMINATED BY SOILS FORMED IN LAKE-LAID CLAYS AND SILTS

10 — Rhinebeck-Ovid-Madalin association: Deep, somewhat poorly drained to very poorly drained soils having a fine textured or moderately fine textured subsoil that is dominantly brown or olive in color

11 — Odessa-Lakemont-Ovid association: Deep, somewhat poorly drained to very poorly drained soils having a fine textured or moderately fine textured subsoil that is dominantly reddish in color

REFERENCE NO. 6

GROUND WATER IN THE NIAGARA FALLS AREA, NEW YORK

With Emphasis on the Water-Bearing Characteristics of the Bedrock

BY

RICHARD H. JOHNSTON

GEOLOGIST

U.S. GEOLOGICAL SURVEY

STATE OF NEW YORK

CONSERVATION DEPARTMENT

WATER RESOURCES COMMISSION

BULLETIN GW-53

1964

million. However, the ability of the reservoir water to dissolve dolomite, and thus to increase its bicarbonate content, is roughly equal to the dissolving ability of rain water. This results from the fact that the ability of water to dissolve dolomite and limestone is largely dependent upon its carbon-dioxide content which is roughly equal in both rain water and the reservoir water. Because of this, water infiltrating into the Lockport from the reservoir has a "headstart" of 125 ppm bicarbonate. Therefore, an increase in bicarbonate content, such as that observed in the four wells listed in the preceding table, may represent the arrival at the wells of water from the reservoir.

CLINTON AND ALBION GROUPS

The Clinton and Albion Groups are a series of shales, sandstones, and limestones which crop out along a narrow belt parallel to the Niagara escarpment. The Clinton rocks are composed principally of the dark-gray Rochester Shale, but also contain two thin limestones and a thin shale unit. The Albion Group consists of two thin sandstones which are separated by a sequence of alternating shale and sandstone. The names and distinguishing lithologic features of the formations making up the Clinton and Albion Groups are given in figure 5.

The Clinton and Albion Groups are little utilized as sources of ground water, mainly because they are overlain everywhere, except along the Niagara escarpment, by the more productive Lockport Dolomite. Accordingly, not much is known about their water-bearing properties. In general, the limestones and sandstones are the most permeable units in the Clinton and Albion Groups. The abundance of both vertical and bedding joints in outcrops and quarries in the limestones and sandstones suggests that they are as permeable as the Lockport. However, the position of the relatively impermeable Rochester Shale at the top of the Clinton Group drastically limits recharge to the more permeable sandstones and limestones below. As a result the uppermost part of the more permeable limestone units in the Clinton Group is dry in many places. Because of the lack of recharge, the average yield of wells in the Clinton and Albion Groups is only 2 to 3 gpm which is adequate only for small domestic and farm supplies.

The water in the Clinton and Albion rocks is highly mineralized and very hard. As shown in table 2, the average hardness and chloride content of water from the Clinton and Albion Groups is the highest in the Niagara Falls area.

QUEENSTON SHALE

The Queenston Shale consists mostly of brick-red, sandy shale and thin beds of greenish-gray shale and greenish-gray sandstone. The thickness of the Queenston is 1,200 feet. However, only 200 feet are exposed in the area; the remainder of the formation crops out under Lake Ontario.

recycled paper
ecology and environment

water from the Queenston are usually found in two areas--(1) in a band about two miles wide immediately north of the Niagara escarpment, and (2) in areas immediately adjacent to streams. Both these areas are believed to be places of ground-water discharge--that is, areas where ground water is moving upward from the Queenston to discharge naturally.

The origin of the salty water in the Queenston is unknown. In commenting on a similar occurrence of salty water in the bedrock in northern St. Lawrence County, N. Y., Trainer and Salvas (1962, p. 103) suggest three causes for the salty water in that area: (1) connate water, (2) the Champlain Sea, and (3) evaporite deposits. They conclude that the Champlain Sea, which covered the area about 10 or 20 thousand years ago, is the most likely source. This source is not applicable to the Niagara area, however, because the Champlain Sea did not extend into the area. Furthermore, it is unlikely that the salty water in the Niagara area is derived from evaporite beds because no such deposits are known to exist in the Queenston. Nor do any salt beds occur in the bedrock formations overlying the Queenston Shale (fig. 5) in the Niagara Falls area. The nearest salt beds occur about 40 miles to the southeast in the Salina Group which overlies the Lockport Dolomite. However, it is very improbable that salty water from the Salina beds has entered the Queenston Shale because (1) the salt beds themselves act as impermeable barriers to water moving downward from the Salina to the Queenston, and (2) it is more likely that salty water from the Salina would be discharged at points between the outcrop areas of the two formations.

Although direct evidence is lacking, the writer believes that the salty water in the Queenston Shale is most likely derived from connate water. The discharge of connate water begins as soon as a deeply buried bed is brought up into the zone of circulating ground water. The Queenston rocks were deposited as a sea-bottom clay about 350 million years ago, and have been deeply buried throughout most of the intervening time. During some thousands of years of Recent geologic time, connate water has been flushed from the upper several hundred feet of the Queenston. However, it is probable that flushing of the deeper part of the formation is continuing at present.

OCCURRENCE OF WATER IN UNCONSOLIDATED DEPOSITS

The unconsolidated deposits in the Niagara Falls area are not important sources of water. These deposits may be classified into two types based on their water-bearing properties: (1) coarse-grained materials of high permeability (sand and gravel), and (2) fine-grained materials of very low permeability (glacial till and lake deposits). The unconsolidated deposits in the Niagara Falls area are predominantly of the fine-grained type. However, the lack of sand and gravel deposits in the Niagara Falls area, other than a few deposits of very limited thickness and extent, has severely limited the development of large ground-water supplies in the area. Most large ground-water supplies in New York State are derived from sand and gravel deposits.

Table 2 shows selected chemical constituents from wells tapping unconsolidated deposits. Water from the different types of unconsolidated deposits is not easy to differentiate on the basis of quality because many

wells tap more than one type of deposit. Thus, water samples from such wells are mixtures of water from two or more deposits. In general, water from the unconsolidated deposits is very hard, but not so highly mineralized as water from the bedrock. A complete analysis of water from well 312-859-1, which taps both till and lake deposits, is listed in table 9. This is a calcium bicarbonate water, very hard (568 ppm of total hardness) containing a moderately high chloride content (105 ppm). Water from the unconsolidated deposits generally has a wide range in chloride content. Those wells which yield water with a high chloride content are probably affected either by (1) local pollution, or by (2) upward discharge of saline water from the underlying bedrock.

SAND AND GRAVEL

Sand and gravel is found in small isolated hills and in a narrow "beach ridge" which crosses the area along an east-west line (pl. 3). The sand and gravel deposits are of limited areal extent, generally thin, and occur as topographic highs. The deposits commonly consist of two lithologic types: (1) fine-grained reddish-brown sand, and (2) coarse sand and pebbles with a matrix of fine to medium sand. The origin of both the beach ridge and small hills of sand and gravel is associated with glaciation in the Niagara Falls area. The small hills are kames, i.e. hills of sand and gravel formed originally against an ice front by deposition from sediment-laden melt-water streams. The long, narrow beach ridge is believed to represent a former shore line of glacial Lake Iroquois. This large lake, the predecessor of the present Lake Ontario, existed in the Niagara Falls area near the end of the Ice Age. The sand and gravel composing the beach ridge apparently was produced from pre-existing material by wave action at the shore which winnowed out most of the silt and clay originally contained in the glacial deposit.

Although the sand and gravel deposits in the Niagara Falls area are much more permeable than the other unconsolidated deposits or the bedrock, their occurrence as small topographic highs permits them to drain rapidly. As a result, ground water generally occurs only within a thin zone at the base of the sand and gravel. This is shown in the cross section of the beach ridge in figure 12. It can be seen that the water table is only a few feet above the base of the sand and gravel. Extensive pumping of any of the wells shown would quickly dewater the sand and gravel. In general, wells in the beach ridge and kames will yield only the small amounts of water required for domestic and small-farm needs.

Moderate supplies of ground water can be obtained from a sand and gravel deposit (probably a kame) just east of Lockport, N. Y. (pl. 3). This is the largest sand and gravel deposit in the area, measuring 1 1/2 by 3/4 miles in size. The thickness of the deposit is highly variable because of the hummocky nature of the land surface, but probably averages 60-70 feet. Some notion of the ability of this deposit to yield water is shown by the yield of 165 gpm pumped from a sand pit during excavation. One large-diameter supply well has been constructed in this deposit. This well (311-838-3) was reportedly pumped at a rate of 200 gpm for 24 hours in 1956.

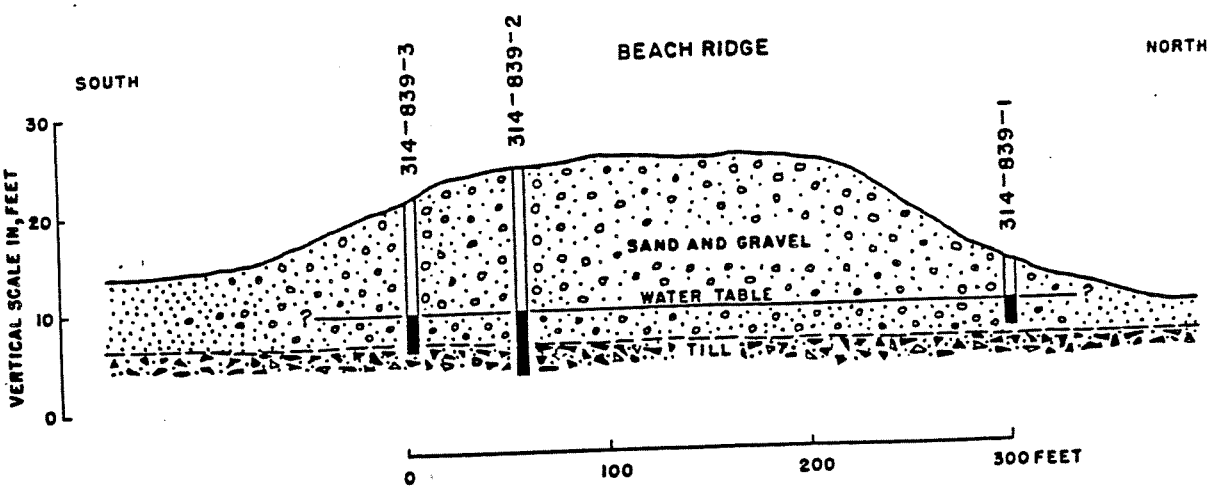


Figure 12.--Cross section of sand and gravel "beach ridge" through wells 314-839-1, -2, and -3.

LAKE DEPOSITS

Lake deposits consisting of silt, clay, and fine sand occur throughout the Niagara Falls area. These deposits are predominantly composed of laminated silt and clay which is characteristically dense and compact. Thin beds of fine sand (locally called quicksand) occur in the lake deposits. The clay, silt, and sand were deposited in lakes which existed in the area at the close of the Pleistocene Epoch (10,000 to 15,000 years ago). The lakes, which formed in the wake of the melting ice sheet, provided large bodies of quiet water for the slow accumulation of fine-grained deposits. Thus, the lake deposits are found at the surface nearly everywhere in the Niagara Falls area. The deposits are thinnest in the area south of the Niagara escarpment where they rarely exceed 20 feet in thickness. On the lake plain north of the escarpment the deposits average 30 to 40 feet in thickness; however, locally they vary from 0 to 90 feet in thickness. The greater thickness on the lake plain results from the persistence of a lake in this area (glacial Lake Iroquois) after the area south of the escarpment was above water.

The silt and clay have extremely low permeability and yield little water to wells. The thin beds of fine sand have comparatively greater permeability. Wells which tap only clay and silt will yield less than 100 gpd; those wells tapping sand beds yield more water and are usually adequate for domestic or very small agricultural needs. The lake deposits are utilized for water supplies only in the lake plain (north of the Niagara escarpment); to the south of the escarpment the deposits are too thin and are underlain by the much more permeable Lockport Dolomite.

The impermeable nature of the silt and clay was shown by a recovery test conducted on well 315-859-1. This well is believed to penetrate only clay and silt. After being pumped dry, the well required 4 1/2 months for

the water level to rise to its static level 13 feet above the bottom. The permeability of the clay and silt, as calculated from the recovery data, was 0.04 gallons per day per square foot. The well was originally intended to provide water for a domestic supply, but was inadequate. In contrast, well 315-859-2, which is located about 500 feet to the south, provides an adequate domestic supply. This well undoubtedly penetrates a thin bed of sand.

GLACIAL TILL

A thin veneer of glacial till lies between the lake deposits described above and the bedrock throughout nearly all of the Niagara Falls area. The till is a mixture containing mostly sandy silt with boulders, pebbles, and some clay. The till was deposited directly by the ice sheet and is composed of rock which was quarried by the advancing ice, then ground up, and "plastered down" beneath the ice. The till cover in the Niagara Falls area is generally less than 10 feet thick. The greatest thickness of till (30 to 40 feet) is found in the moraines in the eastern part of the area. These features are the low ridges which trend approximately east-west located in the area southeast of Lockport and south of Medina (pl. 3). The moraines are composed of debris which was piled up in front of the advancing ice front. The moraines in the Niagara Falls area are believed to represent four minor readvances of the ice sheet during its retreat from the area (Kindle and Taylor, 1913, p. 10).

The poorly sorted nature of the till causes it to have very low permeability. An indication of the low permeability was obtained from a "slug" test on well 309-900-8. This well penetrates 7.5 feet of lake clay and silt and 1.5 feet of glacial till, and is cased through the lake deposits. The permeability of the till at this well was determined to be 23 gallons per day per square foot. This value for permeability may be too high because the well bottomed at the top of the Lockport Dolomite. Thus an open joint in the rock could have contributed to the yield of the well. However, the value for permeability may be representative of the "washed till-top of rock" aquifer tapped by many dug wells in the Niagara Falls area.

Yields adequate for domestic needs are obtained from till wells which tap: (1) sand lenses within the till, (2) the relatively permeable ("washed") zone at the top of rock, or (3) the sandy till making up the moraines. Wells which do not tap these more permeable horizons in the till are often inadequate to supply even domestic needs. Such inadequate wells yield less than 100 gpd.

separating Lake Erie from Lake Ontario. The winds are thus less moisture-laden than if they had passed over the lakes. Even those winds which may be moisture-laden (from evaporated lake water) may retain most of their moisture until they reach the more hilly areas east of Lake Ontario. The Niagara escarpment appears to have a local effect on the amount of precipitation also. As can be seen from the precipitation data given in table 5, Lewiston (elevation 320 feet), which is located below the escarpment, receives less precipitation than Lockport (elevation 520 feet), which is at the escarpment. Table 5 also shows that precipitation is fairly evenly distributed throughout the year. Within a given year, however, large variations from the average figures listed may occur. Note that the minimum monthly precipitation for each month during the 25-year period is between 1/2 and 1/20 the average precipitation for that month. However, the minimum annual precipitation (1941) is more than 1/2 the average annual precipitation. Average annual temperature is 48°F at Lewiston. The length of the growing season averages 160 days.

GROUND WATER

A part of the rain and snow falling on the Niagara Falls area seeps into the ground and continues downward to the water table to become ground water. The ground water is in constant, but generally very slow, movement from points of recharge to points of discharge. Ultimately all ground water in the area is discharged into Lake Ontario or the Niagara River either directly or via small tributary streams. The Niagara Falls area is, in effect, a peninsula-shaped catchment area in which the ground-water reservoir is being repeatedly replenished by precipitation, and constantly discharging to the surrounding surface-water bodies. This section of the report describes: (1) recharge to the unconsolidated deposits and the bedrock, (2) movement and discharge of ground water in the area, and (3) changes in storage in the ground-water reservoir as shown by water-level fluctuations.

RECHARGE

The source of nearly all the ground-water recharge in the Niagara Falls area is precipitation; however, a small amount of recharge also occurs in the area beneath and immediately adjacent to the Niagara Power Project reservoir by infiltration from the reservoir. Recharge of ground water means simply the addition of water (or quantity added) to the zone of saturation (Meinzer, 1923, p. 46). The rate and amount of recharge depends mainly upon the permeability of the soil, the amount of precipitation, and the soil-moisture condition at the time of precipitation. The rate of infiltration of water into the soil increases with increase of permeability. In the relatively small part of the Niagara Falls area underlain by sand and gravel, infiltration rates are greatest. However, throughout most of the area underlain by glacial till and lake clays and silts infiltration rates are low and surface runoff is high.

SPRINGS

Springs are not widely utilized as ground-water supplies in the Niagara Falls area. Springs are common along the Niagara escarpment but rarely occur elsewhere in the area. (See plates 1 and 3.)

Most of the springs along the escarpment originate near the base of the Lockport Dolomite. The source is nearly always seepage from bedding joints at the contact between the DeCew Limestone Member of Williams (1919) and the Gasport Limestone Member of the Lockport (water-bearing zone 2 in fig. 8). The springs occur where vertical joints intersect the water-bearing zone. Enlargement of both vertical and bedding joints is common at the springs, and in some cases has proceeded to the point where small caves have developed.

Springs are uncommon along the cliffs of the Niagara River Gorge. This lack of springs probably results from the development of extensive open vertical joints parallel to the face of the gorge. These joints drain water readily from the Lockport Dolomite through the underlying rocks and talus to the river. (See figure 6.)

Notable exceptions to the lack of springs along the gorge are springs 309-902-2Sp and -3Sp which are located just south of the Niagara escarpment (pl. 1). These springs are located in caves developed by solution of the shaly dolomite of the DeCew Member of Williams (1919) of the Lockport. The source of the springs, like the source of most springs along the escarpment, are bedding joints at the contact between the DeCew and Gasport Members (water-bearing zone 2 in fig. 8). Extensive solution features, such as sink holes, exist in the area drained by these two springs. Fish Creek, which crosses the area, loses water as it flows across the bedrock, and apparently contributes a major part of the water discharging from the springs. Dye introduced into Fish Creek reappeared at the springs, 1,000 feet away, 38 minutes after introduction (personal communication from C. P. Benziger of Uhl, Hall & Rich). The yield of these springs is therefore highly variable; the yields varying from about 15 gpm during dry periods to reportedly thousands of gallons per minute following heavy rains or periods of melting snow. The water from springs 309-902-2Sp and -3Sp is polluted by nearby septic tanks as shown by the strong odor of sewage and the sudsy character of the water.

The yield of single springs in the Niagara Falls area ranges from about 2 to 30 gpm during the dry parts of the year. The yields of most springs increase following rains but not nearly so much as the increase noted for springs 309-902-2Sp and -3Sp in the discussion above. Spring 310-859-6Sp is the only spring in the area utilized as a water supply on a year-round basis. This spring provides an adequate domestic supply for a trailer court with eight families.

PRESENT UTILIZATION

An estimated 10 mgd (million gallons per day) of ground water was obtained from wells in the Niagara Falls area during 1961-62. This figure contrasts with an estimated 60 mgd of water obtained from surface sources

REFERENCE NO. 7

NIAGARA COUNTY

HEALTH DEPARTMENT
HUMAN RESOURCES BUILDING
MAIN POST OFFICE BOX 428
10th AND EAST FALLS STREET
NIAGARA FALLS, NEW YORK 14302

October 8, 1987

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

Dear Dennis:

Attached are the signed interview forms you request. Please note that I added several comments as footnotes for clarification.

Contact me with any questions at 284-3126.

Sincerely,

Michael Hopkins
Assistant Public
Health Engineer

MH:lj

Attach.

ecology and environment, inc.
195 SUGG ROAD, P.O. BOX D, BUFFALO, NEW YORK 14225, TEL. 716-632-4491, TELEX 91-9183
International Specialists in the Environment

October 2, 1987

Mr. Michael Hopkins
Niagara County Department
of Health
10th and East Falls Street
Niagara Falls, New York 14302

Dear Mr. Hopkins:

On several occasions during the course of the Phase 1 investigations, E & E has contacted the Niagara County Department of Health to obtain information in regard to various characteristics of the sites under investigation. The DEC requires that all information contained in Phase 1 reports be fully documented. We ask you to review the information your department has provided, as presented in this letter, and sign this document to acknowledge that you have provided this information and that it (with any corrections or qualifications) is correct to the best of your knowledge.

Ross Steel

1) No hazardous waste is expected to be on site.
2) Groundwater is not used for irrigation within a 3-mile radius of the site.
3) Surface water within 3 miles of this site is used for commercial, industrial, and recreational purposes.
4) The drinking water intakes are upstream of site.

Dussault Foundry

1) There is no use of groundwater within 3 miles of site.
2) The surface water within 3 miles downstream of site is used for recreation (Erie Canal). (* 1)

* Town of Lockport Landfill

1) There is no use of groundwater within 3 miles of site.
2) The Erie Canal (surface water) is used for recreation near this site. (* 1)
3) The drinking water intakes are located in the Niagara River located upstream of this site. (* 2)

SKW Landfill

1) The drinking water surface intakes are located upstream of this site.
2) Groundwater is used within a 3 mile radius of this site for drinking water. *3
3) The surface water downstream (Niagara River) is used for recreation (Maid of Mist, fishing).

Diamond Shamrock

1) There is no groundwater used within a 3 mile radius of this site.

Roblin Street

1) There is no use of groundwater within a 3 mile radius of this site, drinking or irrigation.

Electro Minerals U. S. (formerly Carborundum Bldg. 82)

1) The water supply intakes are located upstream of this site.

Frontier Bronze

1) There is no suspected hazardous waste disposal present at this site.
2) Groundwater for drinking purposes is used by a neighborhood approximately 2.5 miles to the NW, at the intersection of Pennsylvania and Witmer Road. Two families, roughly 8 people, use groundwater for drinking purposes. *2

Walmore Road

1) The well on site is used for irrigation. *5
2) Approximately 1 acre of area is irrigated by this groundwater well.
3) There is no use of surface water 3 miles downstream of this site.

New York Power Authority Road Site

1) Hazardous waste is not suspected to be disposed of on site.
2) There is no land irrigated with groundwater within 3 miles of site.

I would also like you to confirm the fact that no fire official has declared any of the following sites a fire or explosion hazard: *6

- o SKW Alloys Landfill - Witmer Road, Town of Niagara.
- o Dussault Foundry - Washburn Street, Lockport.
- o Frontier Bronze - New Road, City of Niagara Falls.
- o Staufer Chemical, North Love Canal - Town of Lewiston.

- o Electro Minerals, U.S., Inc., (formerly Carobrundum Bldg. #82), Buffalo Avenue, City of Niagara Falls.
- o Ross Steel Co. - Pine Avenue, Niagara Falls (now the site of the New York Power Authority water intake conduit right-of-way).
- o Roblin Steel Company - Oliver Street, North Tonawanda.
- o LaSalle Expressway - specifically near Love Canal.
- o Diamond Shamrock, now Occidental Petroleum Corp., Ohio Street, Lockport, New York.
- * o Town of Lockport Landfill - East Canal Street, Lockport, New York.
- o Power Authority Road Site - New Road, Lewiston, New York (across from Hyde Park Landfill).
- o 64 Street South (owned by Russo Chevrolet) - 64th and Niagara Falls Blvd., Niagara Falls.
- o Walmore Road, 6373 Walmore Road, Town of Wheatfield, New York.

I certify that I provided the above information to Ecology and Environment, Inc., and It is correct to the best of my knowledge.
Subject to, foot notes & comments provided

Signature

10/7/87
Date

Please find maps enclosed to assist you in locating these sites. If you have any questions regarding the above, please contact me at 633-9881.

Thank you very much for your time and assistance in our ongoing investigations.

Sincerely,

Dennis Sutton

oio

Footnotes:

1) The Erie Barge Canal is intermittent in the Lockport area. This section is dewatered during the winter months.

2) The drinking water supply is over 10 miles away.

3) We believe that 4 families use groundwater for drinking at Witmer and Pennsylvania Avenue. These homes may be connected to public water in the future. A line is now available for hook up.

4) It is noted that the wells referred to in #3 are seperated from the Frontier Bronze site by the PASNY Conduits which should be a total sink and barrier to groundwater flow.

5) The irrigation well referred to is used only casually and occasionally to water fruit trees.

6) We are unaware of a fire official certifying any site in Niagara County to be a fire or explosion hazard. We do not feel that any of the sites listed constitues a fire threat.

7) I assume that the location drawings provided are only approxiamte site locations. Most overestimate the site area.

REFERENCE NO. 8

TOWN OF LOCKPORT

P.O. Box 848
Town Hall - 6560 Dysinger Road
LOCKPORT, NEW YORK 14094

17 June 1987

Mr. Dennis G. Sutton
Ecology and Environment, Inc.
195 Sugg Road
P.O. Box D
Buffalo, N.Y. 14225

Dear Mr. Sutton,

I, Floyd D. Snyder, Supervisor of the Town of Lockport for the past 26 years, am writing this letter to describe the situation of the previously-used solid waste site on the East Canal Road in the Town of Lockport.

I have lived, for the last 42 years, directly across the canal from this site, and have full knowledge of its use.

In 1948, the Town of Lockport acquired the site as a used gravel pit. The Town of Lockport, having a zoning ordinance at the time that no gravel be taken out below 2' of the water level (within 2' of the water level) , ensured that the site did not have any standing water on it, and was a well-drained site. The Town of Lockport opened it up for the Town of Lockport residents to bring their own garbage there on Friday and Saturday of each week. The Town supervised and made sure no garbage was coming from any other town in Niagara County. At this time, the Town of Lockport did not have any industries, so the entire use of the site was for home-use waste.

The Town of Lockport closed the site in or about 1961, and it has been closed ever since. In 1965, the Town of Lockport extended its waterlines so that all houses in the area had municipal water which comes from the Niagara County Water District (Niagara River).

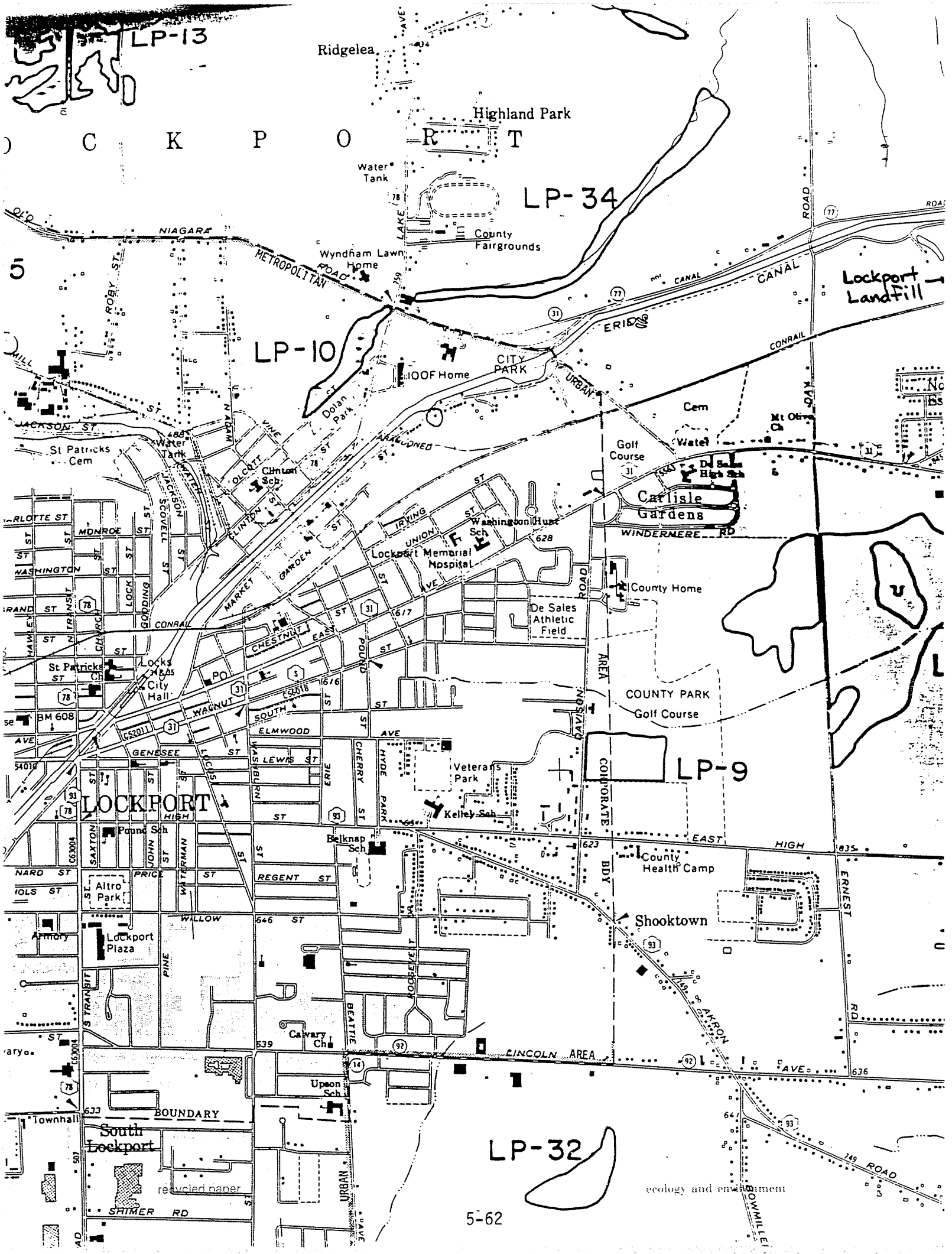
The only problem that I know of during the years that the Town was using the site was a rodent problem, but after the site was covered, this problem was eliminated.

If my office can be of any further assistance, please do not hesitate to call me.

Sincerely,

Floyd D. Snyder
Supervisor

REFERENCE NO. 9



Freshwater Wetlands Classification Sheet

December 5, 1984

Niagara County
Map 10 of 18
Lockport Quadrangle

Wetlands Identification Code	Municipality	Classification
LP-1	Newfane	II
LP-2	Newfane	II
LP-3	Newfane	III
LP-4	Newfane, Lockport Town	II
LP-5	Lockport Town, City of Lockport	I
LP-7	Lockport Town	II
LP-8	Pendleton, Lockport Town	II
LP-9	Lockport Town, City of Lockport	II
LP-10	Lockport Town, City of Lockport	I
LP-12	Lockport Town	II
LP-13	Lockport Town	II
LP-14	Lockport Town	II
LP-15	Lockport Town	II
LP-16 (formerly LP, GA-16)	Lockport Town	III
LP-17 (formerly LP, NW-17)	Newfane	III
LP-18 (formerly LP, NW-18)	Newfane	III
LP-19 (formerly LP, CB-19)	Pendleton	II
LP-20 (formerly LP, CC-20)	Pendleton	II
LP-21 (formerly LP, CC-21)	Pendleton	II
LP-22 (formerly LP, GA-22)	Royalton, Lockport Town	III
LP-23	Lockport Town	II
LP-24	Lockport Town	II
LP-26	Newfane	III
LP-27	Newfane	III
LP-29	Newfane	II
LP-30	Lockport Town	II
LP-31	Newfane	III
LP-32	Lockport Town	III
LP-33 (formerly LP, CC-33)	Lockport Town	II
LP-34	Lockport Town	II
LP-35	Lockport Town	II
LP-36	Lockport Town	II
LP-37	Lockport Town	II
NW-24 (formerly NW, LP-24)	Newfane	III

Gate
HARTLAND
Gasport
STATE
Water Tank
COUNTY PARK
Ridgeemuelle
SETTLEMENT
CONRAIL
TELEGRAPH
KAYNER
ORANGEPORT
ORANGEPORT ROAD
Orangeport Ch
Orangeport
YORK
SLAYTON
HUMPHREY
ROAD
BROOKS
Drive-in Theater
NEW
Camp Castle
LP-16
Sandpit
CONRAIL
LOCKPORT
1 170 000
12'30"
479 000m. N.
1 160 000
Lockport Landfill

Code	Municipality	Classification
GA-1	Royalton	II
GA-2	Royalton	III
GA-3	Royalton	III
GA-4	Royalton	II
GA-5	Royalton	III
GA-6	Royalton	II
GA-7 (formerly Ga, ME, WO-7)	Royalton	III
GA-8	Hartland	III
GA-9	Hartland	III
GA-10 (formerly GA, WO-10)	Royalton	III
GA-11	Royalton	III
GA-12	Royalton	II
GA-13	Royalton	II
GA-14	Royalton	III
GA-15	Royalton	II
GA-17	Royalton	II
GA-19	Royalton	III
GA-20 (formerly GA, ME-20)	Royalton	II
GA-21	Royalton	III
GA-22	Royalton	III
BA-32 (formerly BA, GA-32)	Hartland	III
LP-16 (formerly LP, GA-16)	Lockport Town	III
LP-22 (formerly LP, GA-22)	Lockport Town, Royalton	III
WO-4 (formerly WO, GA-4)	Royalton	III
WO-33 (formerly WO, GA-33)	Royalton	III

REFERENCE NO. 10

CONTACT REPORT

AGENCY	:	New York State Department of Environmental Conservation, Region 9
ADDRESS	:	600 Delaware Ave., Buffalo, NY 14202
PHONE	:	(716)847-4550
PERSON CONTACTED	:	James Snider, Senior Wildlife Biologist
TO	:	Jon Sundquist
DATE	:	June 2, 1987
SUBJECT	:	Critical Wildlife habitats near potential hazardous waste sites in Niagara County

In preparation of Phase 1 reports on potential hazardous waste sites in New York for the NYSDEC, information about nearby critical wildlife habitats is necessary. The following information is provided by Mr. James Snider of the Bureau of Wildlife, NYSDEC Region 9.

Except for the seasonal appearance of migratory birds, including, possibly the bald eagle, there are no critical habitats of endangered species within 2 miles of the suspected waste sites listed below:

- SKW Alloys
  Witmer Road at Maryland Ave.
  Niagara Falls, NY
- Dussault Foundries
  2 Washburn Street
  Lockport, NY
- North Love Canal
  Near Cleghorn Drive
  Lewiston, NY
- Carborundum Building 82
  Buffalo Ave.
  Niagara Falls, NY
- Ross Steel Company
  4237 Pine Ave.
  Niagara Falls, NY
- Frontier Bronze
  4870 Packard Rd.
  Niagara Falls, NY
- Roblin Steel
  101 East Ave.
  N. Tonawanda, NY

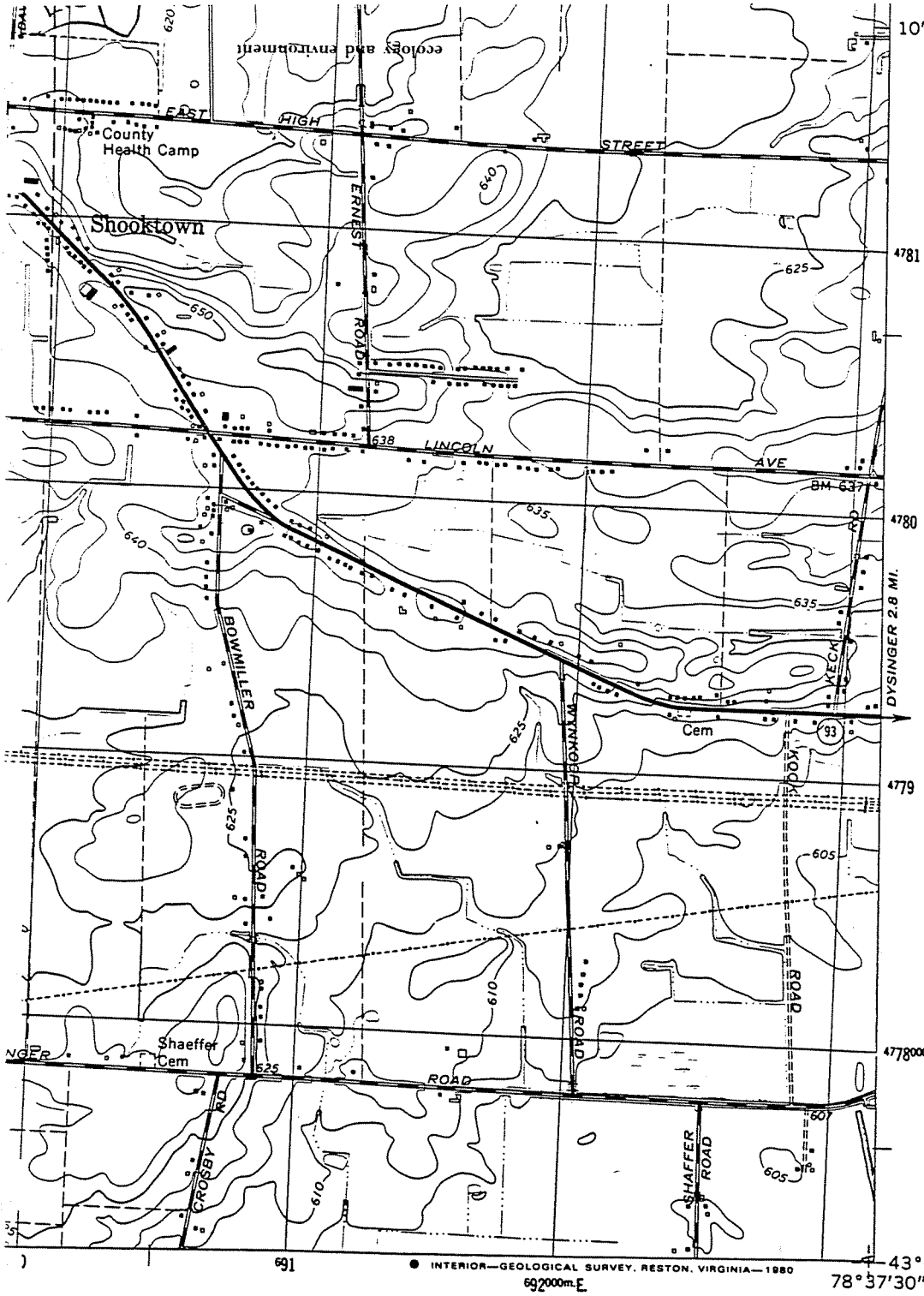
- LaSalle Expressway
  Niagara Falls, NY
- Diamond Shamrock
  Ohio Ave.
  Lockport, NY
- Town of Lockport Landfill
  Canal Road
  Lockport, NY
- Power Authority Road
  Lewiston, NY
- 64th Street South
  Chevy Place
  Niagara Falls, NY
- Walmore Road
  Walmore Rd., 0.5 miles south of Lockport Road
  Wheatfield, NY

James R. Linder
Signature

July 27, 1987
Date

recycled paper ecology and environment

REFERENCE NO. 11



3	.9144
4	1.2192
5	1.5240
6	1.8288
7	2.1336
8	2.4384
9	2.7432
10	3.0480

To convert feet to meters multiply by .3048

To convert meters to feet multiply by 3.2808

ROAD CLASSIFICATION

Primary highway, hard surface

Secondary highway, hard surface

Light-duty road, hard or improved surface

Unimproved road

Interstate Route U. S. Route State Route

(WOLCOTTSVILLE) 5270 II SE

QUADRANGLE LOCATION

LOCKPORT, N. Y.

NW/4 LOCKPORT 15' QUADRANGLE

N4307.5—W7837.5/7.5

1980

DMA 5270 II NW—SERIES V821

EPA

POTENTIAL HAZARDOUS WASTE SITE SITE INSPECTION REPORT

PART 1 - SITE LOCATION AND INSPECTION INFORMATION

I. IDENTIFICATION	
01 State: NY	02 Site Number: 932077

II. SITE NAME AND LOCATION

01 Site Name (Legal, common, or descriptive name of site)	02 Street, Route No., or Specific Location Identifier				
Town of Lockport Landfill	South of East Canal Road (near Groff Road)				
03 City	**04 State**	**05 Zip Code**	**06 County**	**07 County Code**	**08 Cong. Dist.**
Lockport	NY	14094	Niagara		

09 Coordinates Latitude	Longitude	10 Type of Ownership (Check one)
43 11 17.	078 38 47.	[ ] A. Private [ ] B. Federal _____ [ ] C. State [ ] D. County [X] E. Municipal [ ] F. Other _____ [ ] G. Unknown

III. INSPECTION INFORMATION

01 Date of Inspection	02 Site Status	03 Years of Operation
6 / 17 / 87 (Month Day Year)	[ ] Active [X] Inactive	1948 (Beginning Year) 1961 (Ending Year) [ ] Unknown

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

05 Chief Inspector	06 Title	07 Organization	08 Telephone No.
Dennis Sutton	Geologist	E & E	(716) 684-8060
09 Other Inspectors	10 Title	11 Organization	12 Telephone No.
Jon Sundquist	Chemical Engineer	E & E	(716) 684-8060
			( )
			( )
			( )
			( )

13 Site Representatives Interviewed	14 Title	15 Address	16 Telephone No.
Floyd Snyder	Town Supervisor	6560 Dysinger Road	(716) 439-9520
Robert Albright	Building Inspector	6560 Dysinger Road	(716) 439-9526
Luther Stebbins	Code Enforcement	6560 Dysinger Road	(716) 439-9527
			( )
			( )

17 Access Gained By (Check one)	18 Time of Inspection	19 Weather Conditions
[X] Permission [ ] Warrant	13:35	Clear, warm (80°F) winds - 5-10 mph

IV. INFORMATION AVAILABLE FROM

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

04 Person Responsible for Site Inspection Form	05 Agency	06 Organization	07 Telephone No.	08 Date
M. Farrell	E & E		(716) 684-8060	7 / 2 / 87 (Month Day Year)

*Ecology and Environment, Inc.

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT

PART 2 - WASTE INFORMATION

I. IDENTIFICATION	
01 State NY	02 Site Numb 932077

II. WASTE STATES, QUANTITIES, AND CHARACTERISTICS

01 Physical States (Check all that apply)

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

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

Tons unknown
Cubic Yards _____
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
[X] M. Not applicab

III. WASTE TYPE

Category	Substance Name	01 Gross Amount	02 Unit of Measure	03 Comments
SLU	Sludge			Site was used for disposal of house-
OLW	Oily waste			hold trash only.
SOL	Solvents			
PSD	Pesticides			
OCC	Other organic chemicals			
IOC	Inorganic chemicals			
ACD	Acids			
BAS	Bases			
MES	Heavy Metals			

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

01 Category	02 Substance Name	03 CAS Number	04 Storage/Disposal Method	05 Concentration	06 Measure of Concentration

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)

D16)

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT

PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS

I. IDENTIFICATION

01 State	02 Site Number
NY	932077

II. HAZARDOUS CONDITIONS AND INCIDENTS

01 [ ] A. Groundwater Contamination — 02 [ ] Observed (Date _____) — [X] Potential [ ] Alleged
03 Population Potentially Affected: unknown — 04 Narrative Description:

No known wells in use in area.

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

Potential is low - Hazardous waste is not suspected on site.

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

Potential is low - landfill is covered with soil and vegetation.

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

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

Potential is low - site is fenced, no hazardous waste is suspected to be on site. Site has soil and vegetation cover.

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

Potential exists but suspected to be low - no liner used at landfill.

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

Potential is low - drinking water supply obtained from Niagara River.

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

No workers on site.

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

Potential is low - site is fenced, area is covered with soil and vegetation.

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POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT

PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS

I. IDENTIFICATION	
01 State NY	02 Site Number 932077

II. HAZARDOUS CONDITIONS AND INCIDENTS (Cont.)

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

None - vegetation is dense.

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

None expected.

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

None expected.

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

Site used as municipal landfill only - waste is covered, no liner was used.

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

None.

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

No storm sewers on or near site.

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

Site is presently accessible.

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

III. TOTAL POPULATION POTENTIALLY AFFECTED unknown

IV. COMMENTS

This site was used as a municipal landfill for Town of Lockport residents only during 1948 - 1960 and at that time little industry existed in the town.

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

Town Supervisor Floyd Snyder - personal communication 6/17/87. E & E site inspection - 6/17/87.

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POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT

PART 4 - PERMIT AND DESCRIPTIVE INFORMATION

01 State	02 Site Number
NY	932077

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 hazardous waste suspected
[ ] B. UIC				to be landfilled at this
[ ] C. AIR				facility.
[ ] D. RCRA				
[ ] E. RCRA Interim Status				
[ ] F. SPCC Plan				
[ ] G. State (Specify)				
[ ] H. Local (Specify)				
[ ] I. Other (Specify)				
[X] J. None				

III. SITE DESCRIPTION

01 Storage Disposal (Check all that apply)	02 Amount	03 Unit of Measure	04 Treatment (Check all that apply)	05 Other
[ ] A. Surface Impoundment			[ ] A. Incineration	[ ] A. Buildings On Site
[ ] B. Piles			[ ] B. Underground Injection	
[ ] C. Drums, Above Ground			[ ] C. Chemical/Physical	
[ ] D. Tank, Above Ground			[ ] D. Biological	
[ ] E. Tank, Below Ground			[ ] E. Waste Oil Processing	
[X] F. Landfill	unknown		[ ] F. Solvent Recovery	06 Area of Site
[ ] G. Landfarm			[ ] G. Other Recycling Recovery	
[ ] H. Open Dump			[ ] H. Other (Specify)	18 1/2 Acres
[ ] I. Other (Specify)				

07 Comments

IV. CONTAINMENT

01 Containment of Wastes (Check one)
[ ] A. Adequate, Secure [X] B. Moderate [ ] C. Inadequate, Poor [ ] D. Insecure, Unsound, Dangerous

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

No liners in place.

V. ACCESSIBILITY

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

Garbage is covered by soil and thick vegetation.

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

E & E site inspection 6/17/87.

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT

01 State	02 Site Number
NY	932077

PART 5 - WATER, DEMOGRAPHIC, AND ENVIRONMENTAL DATA

II. DRINKING WATER SUPPLY

01 Type of Drinking Supply (Check as applicable)	Surface	Well	02 Status: Endangered	Affected	Monitored	03 Distance to Site
Community	A. [X]	B. [ ]	A. [ ]	B. [ ]	C. [X]	A 18 (mi)
Non-community	D. [ ]	D. [ ]	D. [ ]	E. [ ]	F. [ ]	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)
[X] D. Not Used, Unuseable

02 Population Served by Groundwater 0

03 Distance to Nearest Drinking Water Well NA (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
5-10 (ft)	north	10 (ft)	unknown (gpd)	[ ] Yes [X] No

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

No known wells in use in area.

10 Recharge Area		11 Discharge Area	
[X] Yes	Comments:	[ ] Yes	Comments:
[ ] No		[X] No	

IV. SURFACE WATER

01 Surface Water (Check one)

[X] A. Reservoir Recreation Drinking Water Source
[ ] B. Irrigation Economically Important Resources
[ ] C. Commercial, Industrial
[ ] D. Not Currently Used

02 Affected/Potentially Affected Bodies of Water

Name:	Affected	Distance to Site
Erie Canal	[ ]	250 ft
	[ ]	(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. 2,154 No. of Persons	B. 9,680 No. of Persons	C. 24,441 No. of Persons

02 Distance to Nearest Population: <1/4 (mi)

03 Number of Buildings Within Two (2) Miles of Site: 3,651

04 Distance to Nearest Off-Site Building: 600 ft

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

Site is in a rural setting with residential areas nearby.

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POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT

PART 5 - WATER, DEMOGRAPHIC, AND ENVIRONMENTAL DATA

I. IDENTIFICATION

01 State	02 Site Number
NY	932077

VI. ENVIRONMENTAL INFORMATION

01 Permeability of Unsaturated Zone (Check one)

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

02 Permeability of Bedrock (Check one)

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

03 Depth to Bedrock	04 Depth of Contaminated Soil Zone	05 Soil pH
60-70 (ft)	unknown (ft)	5.6 - 7.3

06 Net Precipitation	07 One Year 24-Hour Rainfall	08 Slope Site Slope	Direction of Site Slope	Terrain Average Slope
4 (in)	2.5 (in)	1.5 %	north	1.5 %

09 Flood Potential

Site is in NA Year Floodplain

10

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

11 Distance to Wetlands (5 acre minimum)

ESTUARINE: A. _____ (mi)

OTHER: B. _____ (mi)

12 Distance to Critical Habitat (of Endangered Species)

NA (mi)

Endangered Species: _____

13 Land Use in Vicinity

Distance to:

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

14 Description of Site in Relation to Surrounding Topography

The site is located at the foot of the Niagara escarpment, two miles east of the city of Lockport and immediately south of the Erie canal. The topography is slightly rolling in the immediate vicinity of the site but quite flat further north or south.

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

Higgins et al., Soil Survey of Niagara County, USDA Soil Conservation Service, 1972
USGS 7.5 minute topographical map, Lockport Quadrangle
New York State Department of Environmental Conservation, Region 9 wetland maps
Johnston, R., Groundwater in the Niagara Falls Area, New York, State of New York Conservation Department, Water Resources Commission, Bulletin GW-53, 1964

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT

PART 6 - SAMPLE AND FIELD INFORMATION

I. IDENTIFICATION	
01 State NY	02 Site Number 932077

II. SAMPLES TAKEN

Sample Type	01 Number of Samples Taken	02 Samples Sent to	03 Estimated Date Results Available
Groundwater		No samples taken	
Surface Water			
Waste			
Air			
Runoff			
Spill			
Soil			
Vegetation			
Other			

III. FIELD MEASUREMENTS TAKEN

01 Type	02 Comments
Air Monitoring	An HNu photo ionizing detector was used while on site - no readings above background were noted.

IV. PHOTOGRAPHS AND MAPS

01 Type [ ] Ground [ ] Aerial

02 In Custody of _____ (Name of organization or individual)

03 Maps [X] Yes [ ] No

04 Location of Maps: Town of Lockport, Town Supervisor Office

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

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

E & E site inspection 6/17/87

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POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT

PART 7 - OWNER INFORMATION

I. IDENTIFICATION	
01 State NY	02 Site Number 932077

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
Town of Lockport		6560 Dysinger Road, P.O. Box 848		Lockport	NY	14094

PARENT COMPANY (If applicable)

08 Name	09 D+B Number	10 Street Address (P.O. Box, RFD #, etc.)	11 SIC Code	12 City	13 State	14 Zip Code

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

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

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)

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT

PART 8 - OPERATOR INFORMATION

I. IDENTIFICATION	
01 State NY	02 Site Number 932077

II. CURRENT OPERATOR (Provide if different from owner) / **OPERATOR'S PARENT COMPANY (If applicable)**

01 Name Town of Lockport		02 D+B Number	10 Name		11 D+B Number
03 Street Address (P.O. Box, RFD #, etc.) 6560 Dysinger Road, P.O. Box 848		04 SIC Code	12 Street Address (P.O. Box, RFD #, etc.)		13 SIC Code
05 City Lockport	06 State NY	07 Zip Code 14094	14 City	15 State	16 Zip Code
08 Years of Operation	09 Name of Owner				

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

01 Name		02 D+B Number	10 Name		11 D+B Number
03 Street Address (P.O. Box, RFD #, etc.)		04 SIC Code	12 Street Address (P.O. Box, RFD #, etc.)		13 SIC Code
05 City	06 State	07 Zip Code	14 City	15 State	16 Zip Code
08 Years of Operation	09 Name of Owner During This Period				
01 Name		02 D+B Number	10 Name		11 D+B Number
03 Street Address (P.O. Box, RFD #, etc.)		04 SIC Code	12 Street Address (P.O. Box, RFD #, etc.)		13 SIC Code
05 City	06 State	07 Zip Code	14 City	15 State	16 Zip Code
08 Years of Operation	09 Name of Owner During This Period				
01 Name		02 D+B Number	10 Name		11 D+B Number
03 Street Address (P.O. Box, RFD #, etc.)		04 SIC Code	12 Street Address (P.O. Box, RFD #, etc.)		13 SIC Code
05 City	06 State	07 Zip Code	14 City	15 State	16 Zip Code
08 Years of Operation	09 Name of Owner During This Period				

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

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POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT

PART 9 - GENERATOR/TRANSPORTER INFORMATION

I. IDENTIFICATION	
01 State: NY	02 Site Number: 932077

II. ON-SITE GENERATOR

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

III. OFF-SITE GENERATOR(S)

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

IV. TRANSPORTER(S)

01 Name	02 D+B Number	01 Name	02 D+B Number
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)

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT

PART 10 - PAST RESPONSE ACTIVITIES

I. IDENTIFICATION	
01 State NY	02 Site Numbe 932077

II. PAST RESPONSE ACTIVITIES

01 [ ] A. Water Supply Closed — 02 Date _____ — 03 Agency _____
04 Description:

01 [ ] B. Temporary Water Supply Provided — 02 Date _____ — 03 Agency _____
04 Description:

01 [ ] C. Permanent Water Supply Provided — 02 Date _____ — 03 Agency _____
04 Description:

01 [ ] D. Spilled Material Removed — 02 Date _____ — 03 Agency _____
04 Description:

01 [ ] E. Contaminated Soil Removed — 02 Date _____ — 03 Agency _____
04 Description:

01 [ ] F. Waste Repackaged — 02 Date _____ — 03 Agency _____
04 Description:

01 [ ] G. Waste Disposed Elsewhere — 02 Date _____ — 03 Agency _____
04 Description:

01 [ ] H. On Site Burial — 02 Date _____ — 03 Agency _____
04 Description:

01 [ ] I. In Situ Chemical Treatment — 02 Date _____ — 03 Agency _____
04 Description:

01 [ ] J. In Situ Biological Treatment — 02 Date _____ — 03 Agency _____
04 Description:

01 [ ] K. In Situ Physical Treatment — 02 Date _____ — 03 Agency _____
04 Description:

01 [ ] L. Encapsulation — 02 Date _____ — 03 Agency _____
04 Description:

01 [ ] M. Emergency Waste Treatment — 02 Date _____ — 03 Agency _____
04 Description:

01 [ ] N. Cutoff Walls — 02 Date _____ — 03 Agency _____
04 Description:

01 [ ] O. Emergency Diking/Surface Water Diversion — 02 Date _____ — 03 Agency _____
04 Description:

01 [ ] P. Cutoff Trenches/Sump — 02 Date _____ — 03 Agency _____
04 Description:

01 [ ] Q. Subsurface Cutoff Wall — 02 Date _____ — 03 Agency _____
04 Description:

D16:

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT

PART 10 - PAST RESPONSE ACTIVITIES

I. IDENTIFICATION	
01 State NY	02 Site Number 932077

II. PAST RESPONSE ACTIVITIES (Cont.)

01 [ ] R. Barrier Walls Constructed 02 Date _____ 03 Agency _____
04 Description:

01 [ ] S. Capping/Covering 02 Date _____ 03 Agency _____
04 Description:

01 [ ] T. Bulk Tankage Repaired 02 Date _____ 03 Agency _____
04 Description:

01 [ ] U. Grout Curtain Constructed 02 Date _____ 03 Agency _____
04 Description:

01 [ ] V. Bottom Sealed 02 Date _____ 03 Agency _____
04 Description:

01 [ ] W. Gas Control 02 Date _____ 03 Agency _____
04 Description:

01 [ ] X. Fire Control 02 Date _____ 03 Agency _____
04 Description:

01 [ ] Y. Leachate Treatment 02 Date _____ 03 Agency _____
04 Description:

01 [ ] Z. Area Evacuated 02 Date _____ 03 Agency _____
04 Description:

01 [ ] 1. Access to Site Restricted 02 Date _____ 03 Agency _____
04 Description:

01 [ ] 2. Population Relocated 02 Date _____ 03 Agency _____
04 Description:

01 [ ] 3. Other Remedial Activities 02 Date _____ 03 Agency _____
04 Description:

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

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT

PART 11 - ENFORCEMENT INFORMATION

I. IDENTIFICATION	
01 State NY	02 Site Number 932077

II. ENFORCEMENT INFORMATION

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

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

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

D163

6. ASSESSMENT OF DATA ADEQUACY AND RECOMMENDATIONS

No sampling has been performed at this site. Therefore, a limited ground- and surface-water sampling program is recommended. The purpose of the program is to verify that hazardous wastes have not been disposed in the landfill and to determine if leachate is migrating off site. Samples should be analyzed for priority pollutants and the hazardous waste characteristics of ignitability, corrosivity, reactivity, and EP toxicity.

The sample collection program should not be high priority since groundwater in the area is not used for drinking. The landfill currently is covered with an unknown depth of soil which supports lush vegetation. The Erie Canal is located downstream and may be a receptor for leachate migration. The canal is not used as a drinking water supply; however, it is used for recreation. It is also recommended that site access be restricted to prevent illegal dumping.

7. REFERENCES

Barrett, K.W., S.S. Chang, S.A. Hans, A.M. Platt, 1982, Uncontrolled Hazardous Waste Site Ranking System Users Manual, MITRE Corporation.

Ecology and Environment, Inc., June 12, 1987, Site Inspection and Photo Logbook.

Federal Emergency Management Agency flood maps.

Higgins, B.A., P.S. Puglia, R.P. Leonard, T.D. Youkum, W.A. Witz (1972), Soil Survey of Niagara County, New York, USDA Soil Conservation Service.

Johnston, R.H. (1964), Groundwater in the Niagara Falls Area, New York, State of New York Conservation Department, Water Resources Commission, Bulletin GW-53.

New York State Department of Environmental Conservation wetlands maps, Region 9, Buffalo, New York.

Snyder, Floyd, Lockport Town Supervisor, personnal communication, June 17, 1987.

Appendices

APPENDIX A

PHOTOGRAPHIC RECORD

ecology and environment, inc.

PHOTOGRAPHIC RECORD

Client: NYSDEC

E & E Job No.: ND2031

Camera: Make

SN: 2387486

Photographer: Jon Sundquist

Date/Time: 6/17/87 13:40

Lens: Type:

SN:

Frame No.: 1

Comments*: View from Canal Road looking south down landfill access road.

Photographer: Jon Sundquist

Date/Time: 6/17/87 13:45

Lens: Type:

SN:

Frame No.: 2

Comments*: View west from site access road (approximately 40 yds from Canal Road) showing concrete debris.

*Comments to include location

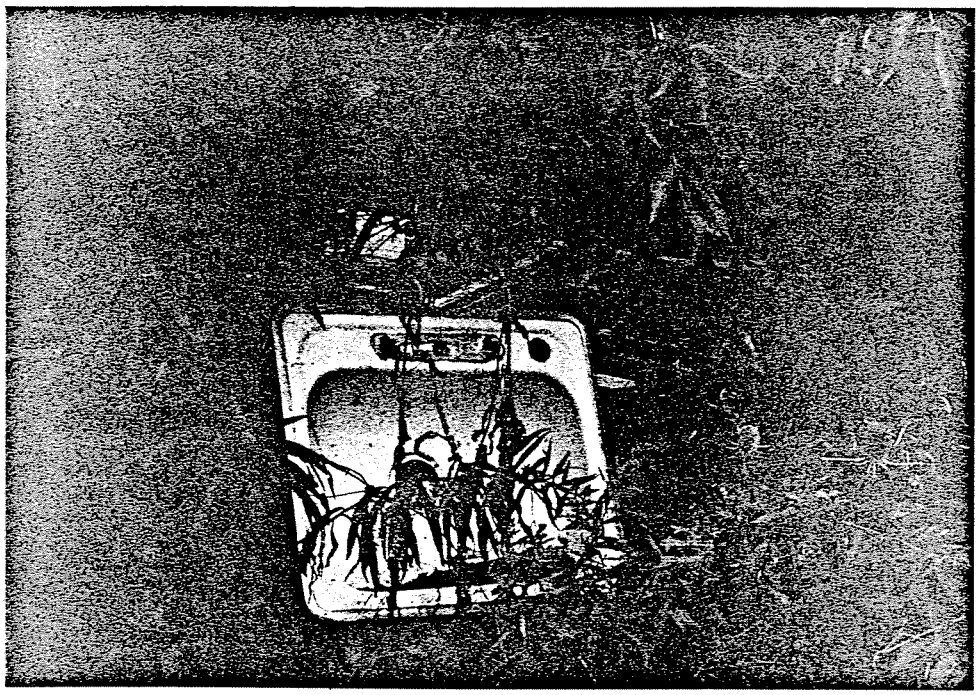
D1624

ecology and environment, inc.

PHOTOGRAPHIC RECORD

Client: NYSDEC E & E Job No.: ND2031

Camera: Make SN: 2387486



Photographer: Jon Sundquist

Date/Time: 6/17/87 13:44

Lens: Type:

SN:

Frame No.: 4

Comments*: Discarded sink on site

Photographer: Jon Sundquist

Date/Time: 6/17/87 13:50

Lens: Type:

SN:

Frame No.: 5

Comments*: Photo showing former sand and gravel excavation area looking east toward Erie Canal.

*Comments to include location

D1624

ecology and environment, inc.

PHOTOGRAPHIC RECORD

Client: NYSDEC

E & E Job No.: ND2031

Camera: Make

SN: 2387486

Photographer: Jon Sundquist

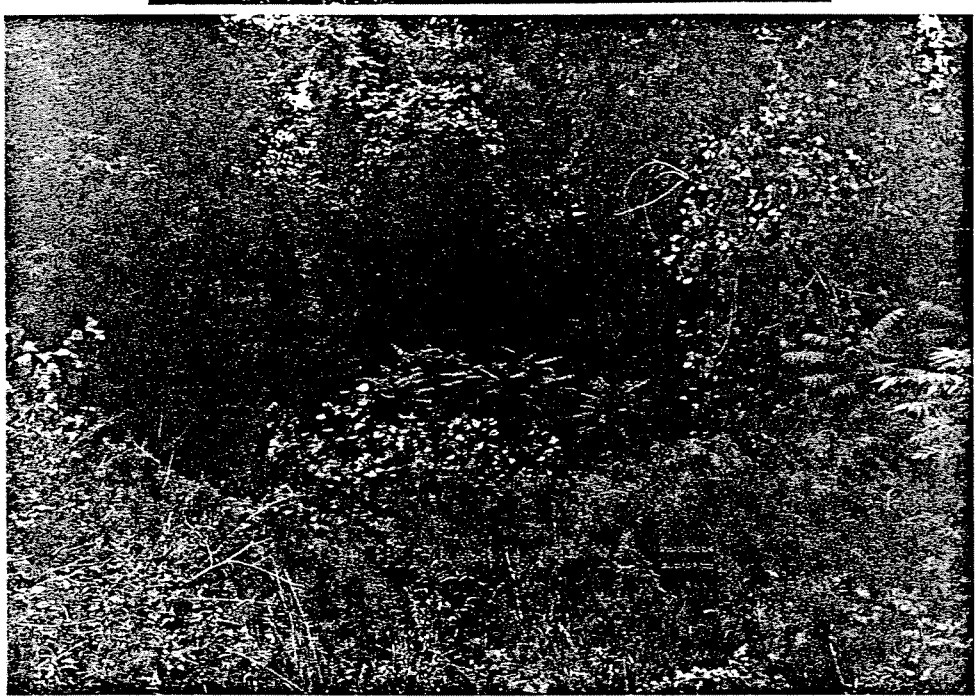
Date/Time: 6/17/87 13:55

Lens: Type:

SN: -

Frame No.: 6

Comments*: Photo showing low wet area in center of land-fill area.



Photographer: Jon Sundquist

Date/Time: 6/17/87 14:00

Lens: Type:

SN:

Frame No.: 7

Comments*: Photo notes type and amount of vegetation on site.

*Comments to include location

D1624

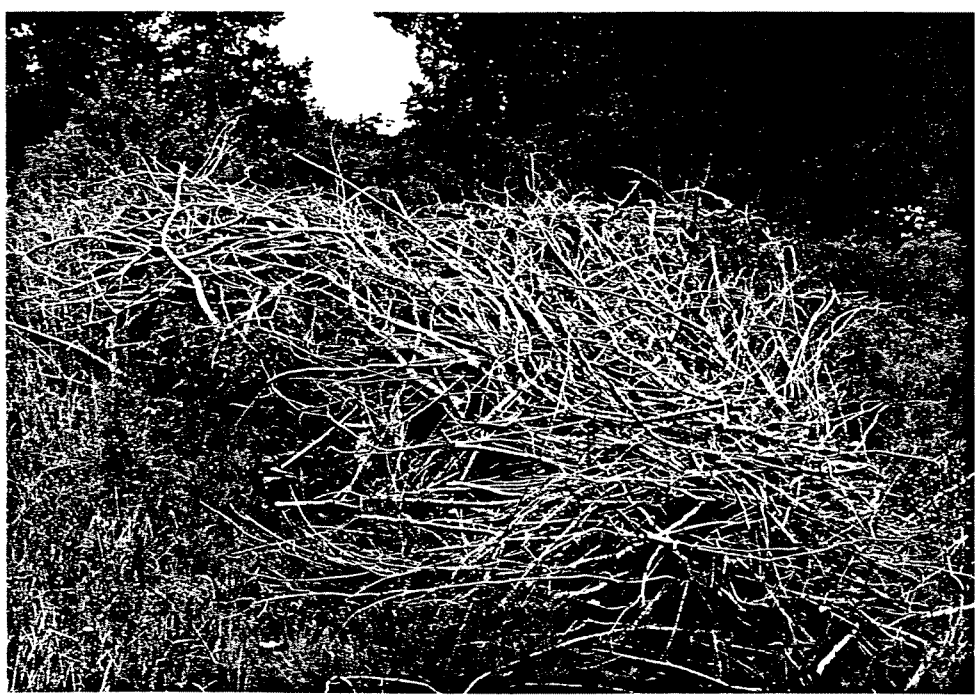
ecology and environment, inc.

PHOTOGRAPHIC RECORD

Client: NYSDEC E & E Job No.: ND2031

Camera: Make SN: 2387486

Photographer: Jon Sundquist
Date/Time: 6/17/87 14:05
Lens: Type:
SN:
Frame No.: 8
Comments*: Photo shows brush waste (wood chips) disposed of on site. View looking northwest from site.



Photographer: Jon Sundquist
Date/Time: 6/17/87 14:10
Lens: Type:
SN:
Frame No.: 9
Comments*: Photo notes tree brush deposited on site.

*Comments to include location

ecology and environment, inc.

PHOTOGRAPHIC RECORD

Client: NYSDEC

E & E Job No.: ND2031

Camera: Make

SN: 2387486

Photographer: Jon Sundquist

Date/Time: 6/17/87 14:15

Lens: Type:

SN:

Frame No.: 11

Comments*: Ashphalt waste disposed of on site.

Photographer: Jon Sundquist

Date/Time: 6/17/87 14:17

Lens: Type:

SN:

Frame No.: 12

Comments*: Household waste disposed of on site.

*Comments to include location

D1624

APPENDIX B

UPDATED NYSDEC INACTIVE HAZARDOUS WASTE DISPOSAL SITE REGISTRY FORM

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

DIVISION OF SOLID AND HAZARDOUS WASTE

INACTIVE HAZARDOUS WASTE DISPOSAL SITE REPORT

Priority Code: 2a Site Code: 932077

Name of Site: Town of Lockport Landfill Region: 9

Street Address: East Canal Street

Town/City: Town of Lockport County: Niagara

Name of Current Owner of Site: Town of Lockport

Address of Current Owner of Site: 6560 Dysinger Road, Lockport

Type of Site: [ ] Open Dump [ ] Structure [ ] Lagoon
[X] Landfill [ ] Treatment Pond

Estimated Size: 18.4 acre(s)

Site Description: Landfill used for municipal waste. No hazardous waste disposed of on site.

Hazardous Waste Disposed: [ ] Confirmed [ ] Suspected

Type and Quantity of Hazardous Wastes Disposed:

Type	Quantity (Pounds, Drums, Tons, Gallons)

D1630

Time Period Site was Used for Hazardous Waste Disposal:

None , 19___ To _____ , 19____

Owner(s) During Period of Use: Town of Lockport

Site Operator During Period of Use: Town of Lockport

Address of Site Operator: 6560 Dysinger Road

Analytical Data Available: [ ] Air [ ] Surface Water [ ] Groundwater
[ ] Soil [ ] Sediment [X] None

Contravention of Standards: [ ] Groundwater [ ] Drinking Water
[ ] Surface Water [ ] Air

Soil Type: Sandy silts, silty clays, sandy loam

Depth to Groundwater Table: Unknown

Legal Action: Type: None [ ] State [ ] Federal

Status: [ ] In Progress [ ] Completed

Remedial Action: [ ] Proposed [ ] Under Design
[ ] In Progress [ ] Completed

Nature of Action: NA

Assessment of Environmental Problems:

None

Assessment of Health Problems:

None

Person(s) Completing This Form:

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION		NEW YORK STATE DEPARTMENT OF HEALTH	
Name:	_____	Name:	_____
Title:	_____	Title:	_____
Name:	_____	Name:	_____
Title:	_____	Title:	_____
Date:	_____	Date:	_____

D1630

NATIONAL FLOOD INSURANCE PROGRAM

FIRM
FLOOD INSURANCE RATE MAP

TOWN OF
LOCKPORT,
NEW YORK
NIAGARA COUNTY

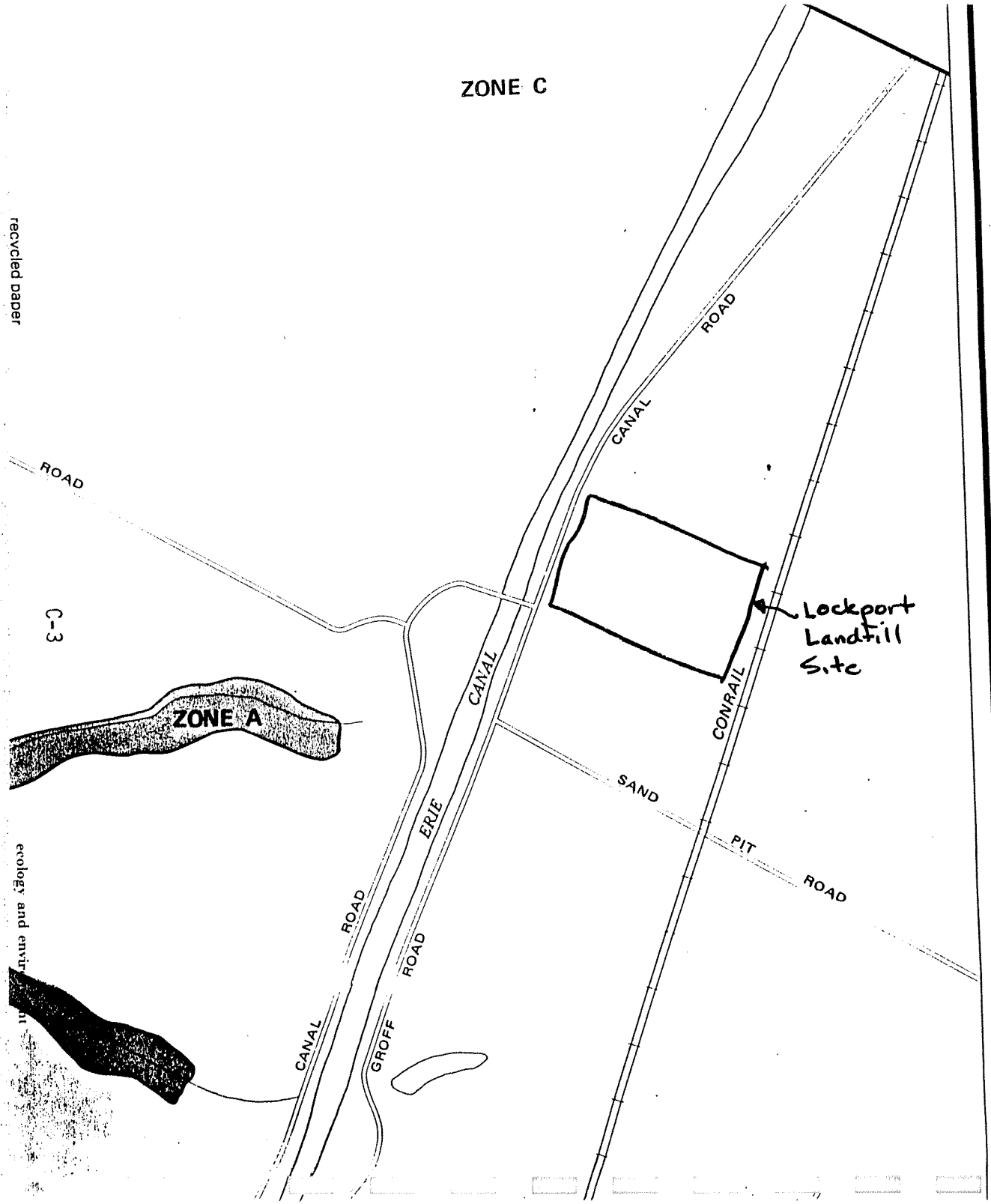
PANEL 5 OF 39
(SEE MAP INDEX FOR PANELS NOT PRINTED)

COMMUNITY-PANEL NUMBER
361013 0005 B

EFFECTIVE DATE:
SEPTEMBER 2, 1981

federal emergency management agency
federal insurance administration

recycled paper ecology and environment



all planimetric features outside special flood hazard areas.

For adjoining map panels, see separately printed Index To Map Panels.

INITIAL IDENTIFICATION:
OCTOBER 22, 1976

FLOOD HAZARD BOUNDARY MAP REVISIONS:

FLOOD INSURANCE RATE MAP EFFECTIVE:
SEPTEMBER 2, 1981

FLOOD INSURANCE RATE MAP REVISIONS:

Refer to the FLOOD INSURANCE RATE MAP EFFECTIVE date shown on this map to determine when actuarial rates apply to structures in the zones where elevations or depths have been established.

To determine if flood insurance is available in this community, contact your insurance agent, or call the National Flood Insurance Program at (800) 638-6620.

APPROXIMATE SCALE

800 0 800 FEET