2021 Hazardous Waste Scanning Project

File Form Naming Convention.

(File_Type).*(Program)*.*(Site_Number)*.*(YYYY-MM-DD)*.*(File_Name)*.pdf

Note 1: Each category is separated by a period "."
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Specific File Naming Convention Label:

report.HW.932094.1987-04-01.Phase_1_Investigation.pdf

-932094

ENGINEERING INVESTIGATIONS AT INACTIVE HAZARDOUS WASTE SITES

PHASE I INVESTIGATION

Lockport Road Site Site No. 932094

Niagara County

DATE: April 1987

Prepared for:

New York State Department of Environmental Conservation

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

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

By:

Recra Environmental, Inc.

3/3441

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

Lockport Road Site
Wheatfield, Niagara County, New York
Site 932094

Prepared For

Division of Solid and Hazardous Waste
New York State Department of Environmental Conservation
50 Wolf Road
Albany, New York 12233-0001

Prepared By

Recra Environmental, Inc.
4248 Ridge Lea Road
Amherst, New York 14226

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1.0 EXECUTIVE SUMMARY

The Lockport Road site is located on Lockport Road about 200 yards east of Walmore Road in the Town of Wheatfield, Niagara County, New York (Figures 1 and 2). This site was originally referred to as the Walmore Road Site. The name change to Lockport Road Site serves to distinguish this site from a different site on Walmore Road, one-half mile south of Lockport Road. In 1965, an area measuring 50 feet by 300 feet located adjacent to Cayuga Creek, received approximately 2000 cubic yards of carbon dust, graphite waste and paper from Carborundum for the purpose of bringing a low-lying area up to grade. The Inter-Agency Task Force (IATF) report indicates that the site was also used by Bell Aerospace for disposal of scrapwood, flyash, and clay. At present, the site is an open field.

The Phase I Summary Report presented herein represents a compilation of available information regarding the Lockport Road Site. Information sources included the New York State Department of Environmental Conservation (NYSDEC) Region 9, Niagara County Department of Health, and various other sources. Recra Research, Inc. (Recra) personnel conducted a visit to the site on November 26, 1985.

The intent of the Hazard Ranking System (HRS) is to provide a method by which uncontrolled hazardous waste sites may be systematically assessed as to the potential risk they may pose to human health and the environment. The HRS is designed to provide a numerical value through an assessment of technical data and information, and relating that information with respect to:

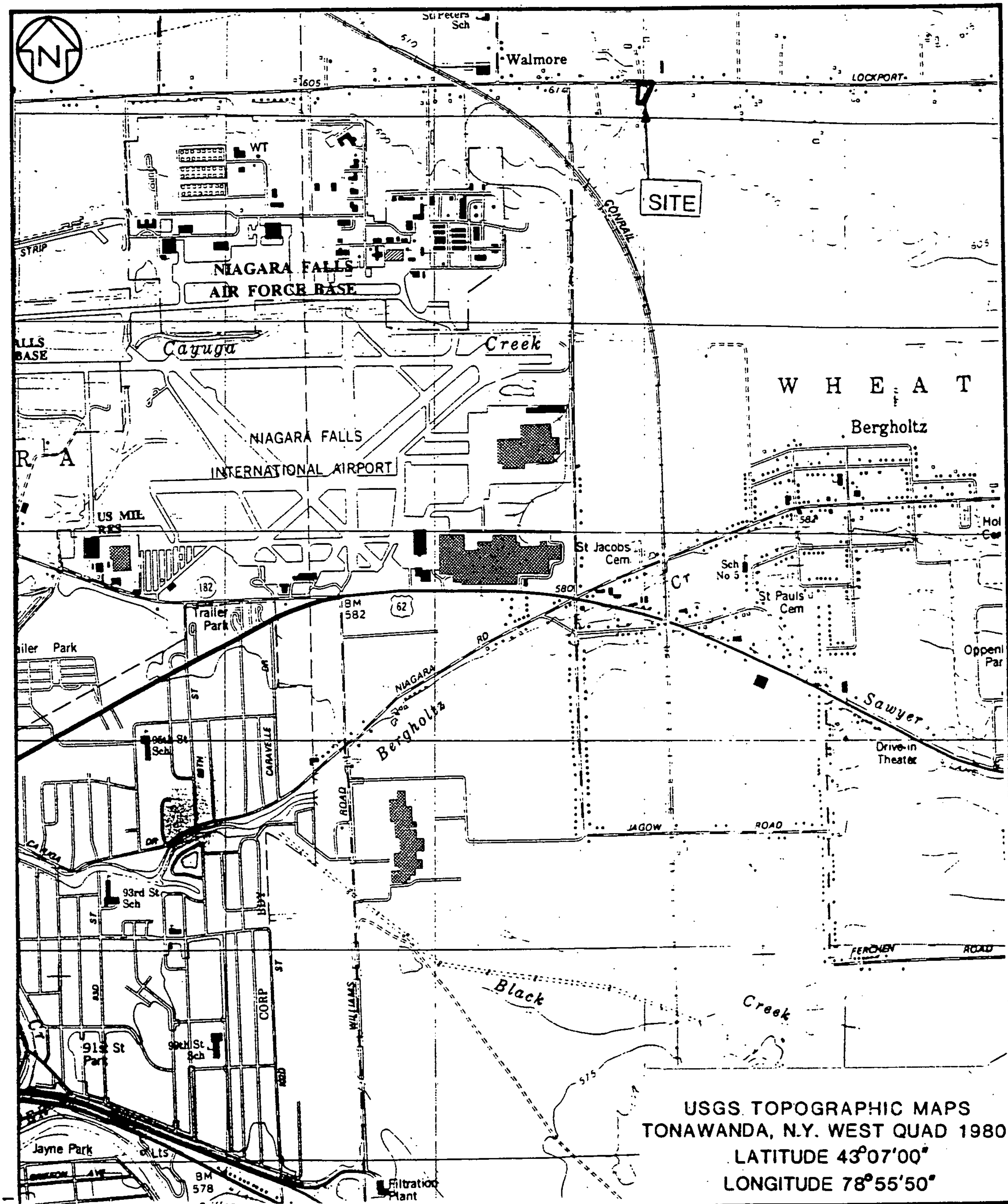
- o migration of hazardous substances from the site (S_m)
- o risk involved with direct contact (S_{dc})
- o the potential for fire and explosion (S_{fe}).

The risks involved with direct contact (S_{dc}) and the potential for fire and explosion (S_{fe}) are evaluated according to site specific information including toxicity of waste, waste quantity, site demographics, location with respect to sensitive habitats of wildlife, etc. Migration potential (S_m) is evaluated through the rating of factors associated with three routes or pathways: groundwater (S_{gw}), surface water (S_{sw}) and air (S_a). The scored value for each route is composited to determine the risk to humans and/or the environment from the migration of hazardous substances from the site (Sm).

Based on the available information, the Lockport Road Site was scored according to the Mitre Corporation Hazard Ranking System (HRS) and the following scores were obtained:

$S_m = 0$ ($S_{gw} = 0$; $S_{sw} = 0$; $S_a = 0$)
$S_{fe} = 0$
$S_{dc} = 0$

Because of limited waste disposal records and sampling data, a preliminary sampling and waste characterization should be performed. Composite soil and fill samples should be collected by hand auger across the site. In addition, surface water and sediment samples should be collected in Cayuga Creek, which receives runoff from the site. Samples should be analyzed for priority pollutant heavy metals, E.P. Toxicity metals, total phenolics, and scanned for organics. The results of this preliminary sampling should be used to determine the need for a complete Phase II study that would include monitoring well installation and groundwater testing.



61160-1

BRUNING

RECRA RESEARCH INC.
BUFFALO, NEW YORK

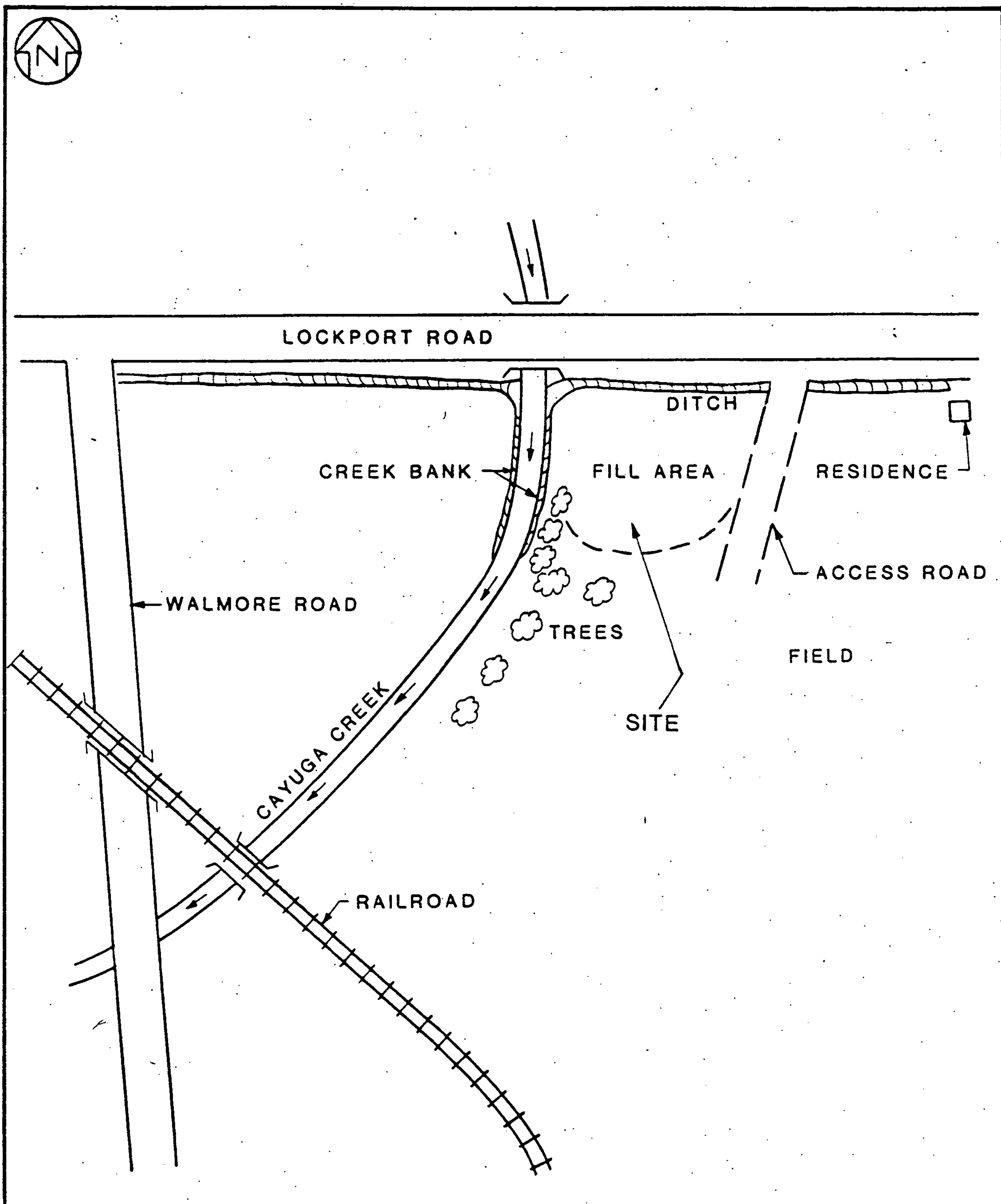
Scale: 1:24000		
	By	Date
Dwn.	MJS	12/85
Ckd.		
Ap'vd.		
Rev.		

LOCKPORT ROAD SITE
WHEATFIELD, N.Y.
N.Y.S. SUPERFUND
PHASE I

Project No. 5C280418

VICINITY MAP

A — FIGURE 1



RECRA RESEARCH INC. BUFFALO, NEW YORK	Scale: NTS			LOCKPORT ROAD SITE TOWN OF WHEATFIELD, N.Y. N.Y.S. SUPERFUND PHASE I	SITE MAP
		By	Date		
	Dwn.	MJS	3/86		
	Ckd.				
	Ap'vd.				
	Rev.			Project No. 5C280418	A FIGURE 2

BRUNING 61160-1

SECTION 2

2.0 PURPOSE

The objective of this Phase I investigation is to prepare a report for the Lockport Road site that provides a history and preliminary assessment of the site based on a review of available data, assigns a numerical value to the site through the use of the Hazard Ranking System (HRS), and develops a proposed Phase II work plan designed to address the data inadequacies identified during report preparation. The purpose of developing a Phase I report in this manner is to provide an objective assessment of the site and the potential impact it may pose to human health and the environment.

The Phase I objective was met through the following activities:

- site inspection.
- collection and review of available data for report preparation and preliminary scoring of the HRS.
- evaluation of data for completeness and identification of data inadequacies.
- development of a proposed Phase II work plan to address the data inadequacies identified.

The site inspection is an integral part of the Phase I report preparation and is conducted to confirm actual site conditions. Typically, the site visit is designed to note the general topography and geology of the site, evidence of waste disposal, form of waste disposal, visible signs of contaminant release to the environment (e.g. leachate), access to the site, and location of water resources, population centers, and sensitive environments such as wetlands.

SECTION 3

3.0 SCOPE OF WORK

In order to provide an accurate and thorough preliminary assessment of the Lockport Road site, Recra personnel conducted a search of state and county office files, a review of available general information concerning regional geography, geology and hydrogeology, and a site visit that included interviews with personnel associated with site operations.

The majority of the data comprising this report was obtained from NYSDEC Region 9 located at 600 Delaware Avenue, Buffalo, New York (716-847-4600) and the Niagara County Health Department located at 5467 Upper Mountain Road, Lockport, New York (716-439-6141). NYSDEC Region 9 also provided floodplain information and the location of wetlands and critical habitats of endangered species in the vicinity of the site.

Recra personnel conducted a site inspection on November 26, 1985 to identify the present condition of the site. Weather during the inspection was cloudy and 35° with no snow cover on the ground. No air monitoring was conducted at this time.

1- AB
2-GM
3-JH
4-JW

HSC Site Code	Site Name	PSA Consultant	PSA Contract Number	PSA Project Manager	PSA S-Dt	PSA S-Dt Stat	PSA T1 Wk Assign Date	Task 1 Drft Rep Received	Task 1 Regional Reviewer	Task 1 Prelim Rep Approv	PSA T1 Wk Assign End	PSA T2 Wk Assign S-Dt	PSA T3 Wk Assign S-Dt	PSA T4 Wk Assign S-Dt	PSA End	PSA End Stat
902011	Former City of Olean Landf	URS	D002340-3	BRAND	8910	ACT	891019	900821	LOCEY	901210	901210					
902012	Cuba Municipal Waste Dispo			BRAND	8910	ACT	891020	900626		900925	900925					
902014	Patton's Busy Bee Disposal			BRAND	8910	ACT	891019	900911	SUTTON	901210	901210				9012	ACT
932036	Carborundum Company, Globa			BRAND	8910	ACT	891020	900821	ERK	901212	901212					
961005	ETE Sanitation and Landfil			BRAND	8910	ACT	891020	900808	PIETRASZEK	901212	901212					
961006	Warsaw Village Landfill			BRAND	8910	ACT	891020	900626		900925	900925					
COUNT 6																
COUNT 6																
902008	Ballard Farm	ECJ	D002472-4	BOBERSKY	9003	ACT	900301	900723	DOSTER			901116	901116		9203	PLN
915035	Pennwalt-Lucidol Div.			BOBERSKY	9003	ACT	900301	900705	SCIASCIA			901116	901116		9106	PLN
932081	Griffon Park			BOBERSKY	9011	ACT	901116		SCIASCIA						9206	PLN
COUNT 3																
COUNT 3																
915064	Dresser Industries	ECJ	D002472-6	MADDINENI	9004	ACT	900424	900827	LOCEY							
915082	Stocks Pond			MADDINENI	9004	ACT	900424	900910	LOCEY							
915096	James Fox Landfill			MADDINENI	9004	ACT	900424	900830	SUTTON						9012	ACT
915107	Eden Sanitation Service, I			MADDINENI	9004	ACT	900424	900830	SUTTON						9012	ACT
915125	Central Autowrecking			MADDINENI	9004	ACT	900424	900906	LOCEY							
915126	Clinton-Bailey			MADDINENI	9004	ACT	900424	900907	SUTTON							
915131	Tifft and Hopkins			MADDINENI	9004	ACT	900424	900823	WALIA							
915132	LSB Warehouse			MADDINENI	9004	ACT	900424	900906	LOCEY							
915136	Sleepy Hollow Campgrounds			MADDINENI	9004	ACT	900424	900827	WALIA							
932001	SKW Alloy			MADDINENI	9004	ACT	900424	900907	ERK							
932016	Great Lakes Carbon			MADDINENI	9004	ACT	900424	900906	ERK							
932027	Witmer Road Site			MADDINENI	9004	ACT	900424	900816	WILDING							
932032	Guterl Specialty Steel Cor			MADDINENI	9004	ACT	900424	900822	HYDEN							
932034	Stauffer Chemical, North o			MADDINENI	9004	ACT	900424	900905	MAY	901121	901121					
932048B	Carborundum Corp, Bldg. 82			MADDINENI	9004	ACT	900424	900827	ERK						9012	ACT
932057	Robert Moses Parkway			MADDINENI	9004	ACT	900424	900830	BARKAT							
COUNT 16																
COUNT 16																
902013	Day Farm	DG	D002520-3	MATEUNAS	9004	ACT	900427									
905016	Boehmer Property			MATEUNAS	9004	ACT	900427									
905018	Route 242 site			MATEUNAS	9004	ACT	900427									
905020	Michael Wolfer			MATEUNAS	9004	ACT	900427									
907003	Dunkirk Landfill			MATEUNAS	9004	ACT	900427									
907009	Former Jamestown City Land			MATEUNAS	9004	ACT	900427									
915005	Aluminum Matchplate Corpor			MATEUNAS	9004	ACT	900427									
915007	Anaconda Company			MATEUNAS	9004	ACT	900427									
915010	Bisonite Paint Co.			MATEUNAS	9004	ACT	900427									

HSC Site Code	Site Name	PSA Consultant	PSA Contract Number	PSA Project Manager	PSA S-Dt	PSA S-Dt Stat	PSA T1 Wk Assign Date	Task 1 Drft Rep Received	Task 1 Regional Reviewer	Task 1 Prelim Rep Approv	PSA T1 Wk Assign End	PSA T2 Wk Assign S-Dt	PSA T3 Wk Assign S-Dt	PSA T4 Wk Assign S-Dt	PSA End	PSA End Stat
915011	Buffalo City-Hopkins St. L	DG	D002520-3	MATEUNAS	9004	ACT	900427									
915014	Chemical Leaman Tank Lines			MATEUNAS	9004	ACT	900427	901022	MAY							
915023	Exolon Corp.			MATEUNAS	9004	ACT	900427	901031	PIETRASZEK							
915048	Shanco Plastics and Chemic			MATEUNAS	9004	ACT	900427									
915050C	Spaulding Fibre			MATEUNAS	9004	ACT	900427									
915058	Winsmith Div. - UMC Corp.			MATEUNAS	9004	ACT	900427									

COUNT 15

COUNT 15

HSC Site Code	Site Name	PSA Consultant	PSA Contract Number	PSA Project Manager	PSA S-Dt	PSA S-Dt Stat	PSA T1 Wk Assign Date	Task 1 Drft Rep Received	Task 1 Regional Reviewer
915066	Westinghouse Electric Corp	DG	D002520-8	MATEUNAS	9009	ACT	900914	900920	FERON

COUNT 1

COUNT 1

HSC Site Code	Site Name	PSA Consultant	PSA Contract Number	PSA Project Manager	PSA S-Dt	PSA S-Dt Stat	PSA T1 Wk Assign Date
915019	E.I. DuPont Company	E&E	D002625-1	LAUZZE	9009	ACT	900928
915114	Clarence Ready Mix			LAUZZE	9009	ACT	900928
932003	Allied Chemical - Elberta			LAUZZE	9009	ACT	900928
932028	TAM Ceramics, Inc.			LAUZZE	9009	ACT	900928
932035	Union Carbide Corp., Carbo			LAUZZE	9009	ACT	900928
932059	Roblin Steel			LAUZZE	9009	ACT	900928
932071	Diamond Shamrock			LAUZZE	9009	ACT	900928
932074	J.T. Salvage			LAUZZE	9009	ACT	900928
932085A	64th Street - North			LAUZZE	9009	ACT	900928
932085B	64th Street - South			LAUZZE	9009	ACT	900928
932090	Niagara Frontier Transport			LAUZZE	9009	ACT	900928
932101	Walmore Road - Johnson Pro			LAUZZE	9009	ACT	900928

COUNT 12

COUNT 12

FINAL TOTALS
COUNT 53

***** E N D O F R E P O R T *****

4.0 SITE ASSESSMENT

4.1 Site History

The Lockport Road Site is located on Lockport Road about 200 yards east of Walmore Road in the Town of Wheatfield, New York (Ref. 1, 2 and 3). The site is currently owned by the Church of God (Wheatfield Tax Map). The site was originally referred to as the Walmore Road site. The name change to Lockport Road site serves to distinguish this site from a different site on Walmore Road one-half mile south of Lockport Road.

In 1965, an area measuring 60 feet by 300 feet, located adjacent to Cayuga Creek, received approximately 2000 cubic yards of carbon dust, graphite material and paper from Carborundum (Ref. 2, 12 and 13). Mr. Steve Washuta of Modern Disposal coordinated the placement of the fill material. The IATF report indicates that the site was also used by Bell Aerospace for disposal of scrapwood, flyash, and clay (Ref. 2 and 13). The property at the time when landfilling occurred was owned by Mr. Edward Struzik. Mr. Struzik had given Mr. Washuta permission to fill the low area adjacent to Cayuga Creek thereby bringing the area up to grade (Ref. 2 and 12). Mr. Don MacSwan, building inspector for the Town of Wheatfield, inspected the placement of the fill (Ref. 2 and 13). Mr. Ron Meall of Krehbiel Associates designed a sewer line which runs near or through the fill area. Nothing unusual was observed during the excavation (Ref. 2 and 12).

Recra personnel inspected the site on November 26, 1985 and noted rubble material from landfilling along the east bank of Cayuga Creek (Ref. 15). At present, the site is an open field.

4.2 Site Area Surface Features

4.2.1 Topography and Drainage

Topography surrounding the site is relatively flat. The immediate site area is generally level, with the western portion sloping toward Cayuga Creek at an approximate 4% grade (Ref. 1).

The site is located immediately adjacent to Cayuga Creek. The western portion of the site lies within the 100-year flood plain of Cayuga Creek (Ref. 11). Runoff from the site enters Cayuga Creek.

4.2.2 Environmental Setting

The Lockport Road site is located in an agricultural area (Ref. 2). The Niagara Falls Air Force base lies approximately one mile to the west and the city of Niagara Falls is located less than two miles southwest of the site (Ref. 1). The site is readily accessible as no entry control measures are present.

The site is located immediately adjacent to Cayuga Creek (Ref. 1). Cayuga Creek water is not used for drinking, industrial or primary contact recreational uses (Ref. 9). Cayuga Creek enters the Niagara River approximately six miles downstream from the site (Ref. 1 and 2). The City of Niagara Falls municipal water intakes are located in the Niagara River approximately two miles downstream from the mouth of Cayuga Creek

(Ref. 7). All residents in the area of the site are connected to a municipal water supply (Ref. 7). Twenty-three domestic wells have been identified in the area of the site, some of which may be used as an auxiliary drinking water supply (Ref. 18).

The nearest residence is about 700 feet east of the site. Approximately 25 residences lie within one mile of the site (Ref. 2).

New York State regulated wetlands TW-6, TW-26 and TW-4 are located approximately 2.5 miles south of the site (Ref. 10). There are no known critical habitats of endangered species located within one mile of the site (Ref. 10).

4.3 Site Hydrogeology

4.3.1 Geology

Bedrock first encountered underlying the site is reported to be the Lockport Dolomite (Ref. 2, 4 and 5). The Lockport Dolomite is a hard, resistant, gray, fine to coarse-grained dolomite (Ref. 4 and 5). The Lockport Dolomite is approximately 150 feet thick but thins to the north at the escarpment, where it is only 30 feet thick (Ref. 4). The rock units within the Lockport Dolomite are bedded and dip southward in the Niagara Falls area at about 30 to 40 feet per mile (Ref. 5). The bedding planes are flat except where they curve over ancient reef deposits, and range in thickness from a few inches to as much as eight feet. These beds thicken and thin laterally. Nodules of gypsum are commonly found in this unit (Ref. 5). In 1982, the U.S. Geological Survey drilled a well less than two miles southwest of the site and encountered bedrock at

20 feet (Ref. 4).

4.3.2 Soils

Soils found at the site are representative of the Hilton silt loam series (Ref. 17). The Hilton series consists of deep, moderately well drained, medium textured soils. These soils were formed in calcareous glacial till containing sandstone and limestone fragments. Permeability is moderately rapid in the upper part of Hilton soils and slow in the subsoil. The seasonal high water table can be found within 1.5 feet of the surface and is perched above the low permeability glacial till underlying the site. The Hilton soils are wet for brief but significant periods after prolonged wet weather.

4.3.3 Groundwater

Bedding-plane joints are the principal water-bearing openings in the Lockport Dolomite. Major water movement has been shown to occur within thin-bedded zones that are overlain by thick, massive beds (Ref. 4 and 5). These joints have typically been widened by the dissolution of rock by groundwater. In addition, a widespead water-bearing zone of fractured bedrock (weathered zone) exists in the upper 10 to 15 feet of the Lockport Dolomite. This zone follows the upper surface of the bedrock and is hydraulically connected to the overlying unconsolidated desposits (Ref. 5).

The transmissivity of the Lockport Dolomite has been calculated to range from 300 to 2,300 gallons per day per foot (Ref. 5).

In 1962, the U.S. Geological Survey encountered water-bearing zones in the unconsolidated deposits at between 10 and 13 feet below ground surface during drilling at the Niagara Falls International Airport (Ref. 4). The low permeability of the glacio-lacustrine deposits in the area results in a seasonal high water table which develops following wet periods. The direction of groundwater movement in the unconsolidated aquifer is generally toward major surface water bodies (Ref. 4). Shallow groundwater movement beneath the site is probably directed west towards Cayuga Creek (Ref. 4).

4.4 Previous Sampling and Analysis

4.4.1 Groundwater Quality Data

There is no groundwater quality data available for this site.

4.4.2 Surface Water Quality Data

There is no surface water quality data available for this site.

4.4.3 Air Quality Data

There is no air quality data available for this site.

4.4.4 Other Analytical Data

A soil sample collected from the site by NYSDEC personnel in 1982 showed low but detectable concentrations of arsenic (2.3 ug/g), chromium (10 ug/g), copper (46 ug/g), lead (43 ug/g), nickel (61 ug/g) and zinc (200 ug/g) (Ref. 13).

SECTION 5

5.0 PRELIMINARY APPLICATION OF THE HAZARD RANKING SYSTEM (HRS)

5.1 Narrative

The Lockport Road site is located on Lockport Road, about 200 yards east of Walmore Road in the Town of Wheatfield, Niagara County, New York (Ref. 1). The site was originally referred to as the Walmore Road site. The name change to Lockport Road site serves to distinguish the site from a different site on Walmore Road, one-half mile south of Lockport Road. The site covers a rectangular area approximately 50 feet by 300 feet (0.34 acre) immediately adjacent to Cayuga Creek (Ref. 2). The property is currently owned by the Church of God, according to a Town of Wheatfield tax map.

In 1965, approximately 2000 cubic yards of carbon dust, graphite waste and paper from Carborundum were landfilled at the site for the purpose of bringing a low lying area up to grade (Ref. 2, 12 and 13). Mr. Steve Washuta of Modern Disposal coordinated the placement of the fill material (Ref. 2 and 13). The IATF report indicates that the site was also used by Bell Aerospace for disposal of scrapwood, flyash, and clay (Ref. 2 and 13). The property at that time was owned by Mr. Edward Struzik who granted Mr. Washuta permission for the landfilling activity (Ref. 2 and 12). Placement of fill was inspected by Mr. Don MacSwan, building inspector for the Town of Wheatfield (Ref. 2 and 13). Mr. Ron Meall of Krehbiel Associates designed a sewer line which runs near or directly through the filled area. Nothing unusual was observed during the excavation (Ref. 2 and 12).

The western portion of the site is located within the 100-year flood plain of Cayuga Creek (Ref. 11). Cayuga Creek is a Class D water resource which is not used for drinking, industrial purposes, or primary contact recreational uses (Ref. 8 and 9). Runoff from the site drains into Cayuga Creek.

The low permeability of the glacio-lacustrine deposits in the area results in a seasonal high water table which develops in the upper soil following wet periods (Ref. 17). Shallow groundwater movement beneath the site probably is directed west towards Cayuga Creek (Ref. 4). All residents in the area of the site are connected to a municipal water supply (Ref. 7). Twenty-three domestic wells have been identified in the area of the site, some of which may be used as an auxiliary drinking water supply (Ref. 18).

The area surrounding the site is essentially agricultural (Ref. 2). About 25 residents are located within one mile of the site with the nearest about 700 feet to the east (Ref. 2). The site is readily accessible as no entry control measures are present.

New York State designated wetlands TW-6, TW-26 and TW-4 are located approximately 2.5 miles from the site (Ref. 10).

A site inspection was performed by Recra personnel on November 26, 1985 and evidence of rubble from landfilling was noted on the banks of Cayuga Creek adjacent to the site (Ref. 15).

5.2 HRS WORKSHEET

Facility name: Lockport Road Site

Location: Lockport Road near Walmore Road, Town of Wheatfield, New York

EPA Region: II

Person(s) in charge of the facility: Reverend Jack Hayes

9605 Colvin Boulevard

Niagara Falls, New York 14304

Name of Reviewer: Recra Research, Inc. Date: April 8, 1986

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.)

In 1965, the Lockport Road Site received approximately 2000 cubic yards of carbon dust, graphite waste, and paper from Carborundum. The site was reportedly also used by Bell Aerospace for disposal of scrapwood, flyash and clay. Landfilling was intended to bring a low lying area up to grade. The site is presently an open field lying adjacent to Cayuga Creek.

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

$S_{FE} = 0$

$S_{DC} = 0$

FIGURE 1
HRS COVER SHEET

Ground Water Route Work Sheet					
Rating Factor	Assigned Value (Circle One)	Multiplier	Score	Max. Score	Ref. (Section)
[1] Observed Release	(0) 45	1	0	45	3.1
If observed release is given a score of 45, proceed to line [4]. If observed release is given a score of 0, proceed to line [2].					
[2] Route Characteristics					3.2
Depth to Aquifer of Concern	0 1 2 (3)	2	6	6	
Net Precipitation	0 1 (2) 3	1	2	3	
Permeability of the Unsaturated Zone	0 (1) 2 3	1	1	3	
Physical State	0 1 (2) 3	1	2	3	
	Total Route Characteristics Score		11	15	
[3] Containment	0 1 2 (3)	1	3	3	3.3
[4] Waste Characteristics					3.4
Toxicity/Persistence	(0) 3 6 9 12 15 18	1		18	
Hazardous Waste Quantity	(0) 1 2 3 4 5 6 7 8	1		8	
	Total Waste Characteristics Score		0	26	
[5] Targets					3.5
Ground Water Use	0 1 (2) 3	3	6	9	
Distance to Nearest Well/Population Served	0 4 (6) 8 10 12 16 18 20 24 30 32 35 40	1	6	40	
	Total Targets Score		12	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	1	3	
1-yr. 24-hr. Rainfall	0 1 (2) 3	1	2	3	
Distance to Nearest Surface Water	0 1 2 (3)	2	6	6	
Physical State	0 1 (2) 3	1	2	3	
	Total Route Characteristics Score		11	15	
[3] Containment	0 1 2 (3)	1	3	3	4.3
[4] Waste Characteristics					4.4
Toxicity/Persistence	(0) 3 6 9 12 15 18	1	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	0	9	
Distance to a Sensitive Environment	(0) 1 2 3	2	0	6	
Population Served/Distance to Water Intake Downstream	(0) 4 6 8 10 12 16 18 20 24 30 32 35 40	1	0	40	
	Total Targets Score		0	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)	Multiplier	Score	Max. Score	Ref. (Section)
1 Observed Release	(0) 45	1	0	45	5.1
Date and Location:					
Sampling Protocol:					
If line 1 is 0, the S_a = 0. Enter on line 5. If line 1 is 45, then proceed to line 2.					
2 Waste Characteristics					5.2
Reactivity and Incompatibility	(0) 1 2 3	1	0	3	
Toxicity	(0) 1 2 3	3	0	9	
Hazardous Waste Quantity	(0) 1 2 3 4 5 6 7 8	1	0	8	
Total Waste Characteristics Score			0	20	
3 Targets					5.3
Population Within 4-Mile Radius	0 9 12 15 18 (21) 24 27 30	1	21	30	
Distance to Sensitive Environment	(0) 1 2 3	2	0	6	
Land Use	0 1 2 (3)	1	3	3	
Total Targets Score			24	39	
4 Multiply 1 x 2 x 3			0	35,100	
5 Divide line 4 by 35,100 and multiply by 100		S_a =	0		

FIGURE 9
AIR ROUTE WORK SHEET

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

FIGURE 11
FIRE AND EXPLOSION WORK SHEET

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

FIGURE 12
DIRECT CONTACT WORK SHEET

HRS DOCUMENTATION RECORDS

June 28, 1982

DOCUMENTATION RECORDS
FOR
HAZARD RANKING SYSTEM

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

FACILITY NAME: Lockport Road Site

LOCATION: 2284 Lockport Road, Wheatfield, New York

GROUND WATER ROUTE

1 OBSERVED RELEASE

Contaminants detected (5 maximum):

No Analytical Data

(Reference 2 and 13)

Rationale for attributing the contaminants to the facility:

N/A

* * *

2 ROUTE CHARACTERISTICS

Depth to Aquifer of Concern

Name/description of aquifers(s) of concern:

Water bearing zones occur in the unconsolidated overburden material, the overburden-bedrock interface and the Lockport Dolomite. The main aquifer of use is the Lockport Dolomite. (Reference 2,4,5, and 18)

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

Depth to seasonal high perched water table is 1.5 to 2.0 feet. Depth to permanent saturated zone in Lockport Dolomite is estimated between 12-20 feet. (Reference 2,17,and 18)

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

Depth of fill placed in a low-lying area adjacent to Cayuga Creek was reported to be approximately 6 to 8 feet, exact depth unknown (Reference 2 and 13)

Net Precipitation

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

33 inches (Reference 6)

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

26 inches (Reference 6)

Net precipitation (subtract the above figures):

7 inches

Permeability of Unsaturated Zone

Soil type in unsaturated zone:

Hilton silt loam series (a minor soil type in the Odessa-Lakemont-Ovid association). This soil is characterized as poorly to very poorly drained lacustrine clays and silts overlying glacial till (Reference 2,13, and 17).

Permeability associated with soil type:

$10^{-5} \geq 10^{-7}$ cm/sec (Reference 6)

Physical State

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

Powder or fine material (carbon dust from Carborundum and flyash from Bell Aerospace). (Reference 2,12,and 13).

* * *

3 CONTAINMENT

Containment

Method(s) of waste or leachate containment evaluated:

Landfill - no liner. (Reference 2 and 13).

Method with highest score:

Landfill - no liner. (Reference 6)

4 WASTE CHARACTERISTICS

Toxicity and Persistence

Compound(s) evaluated:

None; as listed in CERCLA Section 101(14), no substances defined as hazardous have been confirmed at the site based on limited analytical data (Reference 2 and 13).

Compound with highest score:

N/A

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):

N/A

Basis of estimating and/or computing waste quantity:

N/A

* * *

5 TARGETS

Ground Water Use

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

Lockport Dolomite potentially used as auxilliary drinking water source. (Reference 18).

Distance to Nearest Well

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

The nearest domestic well is located approximately 1.3 miles southeast of the site as indicated on map in reference 18.

Distance to above well or building:

Approximately 1.3 miles (Reference 18).

Population Served by Ground Water Wells Within a 3-Mile Radius

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

Identified 23 domestic wells, some of which may be used as an auxiliary drinking water supply (Reference 18)

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):

N/A

Total population served by ground water within a 3-mile radius:

23 wells x 3.8 people/family = 87 people
(Reference 6 and 18)

SURFACE WATER ROUTE

1 OBSERVED RELEASE

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

Surface water not sampled at this site

(Reference 2 and 13)

Rationale for attributing the contaminants to the facility:

N/A

* * *

2 ROUTE CHARACTERISTICS

Facility Slope and Intervening Terrain

Average slope of facility in percent:

< 1.0% (Reference 1)

Name/description of nearest downslope surface water:

Cayuga Creek-NYS Class D surface water, not used for drinking or primary contact recreation.(References 2,8, and 9).

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

Approximately 4.0% (Reference 1)

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

No

Is the facility completely surrounded by areas of higher elevation?

No

1-Year 24-Hour Rainfall in Inches

2.1 inches (Reference 6)

Distance to Nearest Downslope Surface Water

The site is immediately adjacent to Cayuga Creek (Reference 1)

Physical State of Waste

Powder or fine material (Reference 2, 12 and 13).

* * *

3 CONTAINMENT

Containment

Method(s) of waste or leachate containment evaluated:

Landfill - no diversion system. (Reference 2 and 13).

Method with highest score:

Landfill - no diversion system. (Reference 6)

4 WASTE CHARACTERISTICS

Toxicity and Persistence

Compound(s) evaluated

None; as listed in CERCLA Section 101(14), no substances defined as hazardous have been confirmed at the site based on limited analytical data. (Reference 2 and 13).

Compound with highest score:

N/A

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):

N/A

Basis of estimating and/or computing waste quantity:

N/A

* * *

5 TARGETS

Surface Water Use

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

Cayuga Creek is a NYS Class D surface water suitable for secondary contact recreation but not for drinking or primary contact recreation . There is no known usage of Cayuga Creek within 3 miles downstream of the site. (References 2, 8, and 9).

Is there tidal influence?

N/A

Distance to a Sensitive Environment

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

N/A

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

None in area of site (Reference 10)

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

N/A (Reference 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:

Intakes for the City of Niagara Falls, New York are located in the Niagara River approximately 6 miles downstream of site (References 2 and 7)

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

N/A

Total population served:

N/A

Name/description of nearest of above water bodies:

N/A

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

N/A

AIR ROUTE

1 OBSERVED RELEASE

Contaminants detected:

No analytical data available

Date and location of detection of contaminants

N/A

Methods used to detect the contaminants:

N/A

Rationale for attributing the contaminants to the site:

N/A

* * *

2 WASTE CHARACTERISTICS

Reactivity and Incompatibility

Most reactive compound:

N/A

Most incompatible pair of compounds:

N/A

Toxicity

Most toxic compound:

No documentation of hazardous substances having been disposed of at the site . (Reference 2 and 13).

Hazardous Waste Quantity

Total quantity of hazardous waste:

N/A

Basis of estimating and/or computing waste quantity:

N/A

* * *

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**

Greater than 10,000 (Reference 1)

Distance to a Sensitive Environment

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

N/A

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

None in area of site (Reference 10)

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

N/A (Reference 10).

Land Use

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

The Niagara Falls International Airport is located approximately 1 mile southwest of site (Reference 1)

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

N/A (Reference 1)

Distance to residential area, if 2 miles or less:

Less than 1/4 mile (Reference 1)

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

Less than 1 mile (Reference 19)

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

Less than 1 mile (Reference 19)

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

None Known

1 CONTAINMENT

Hazardous substances present:

N/A (Ref. 2 and 13)

Type of containment, if applicable:

None (Ref. 2 and 13)

* * *

2 WASTE CHARACTERISTICS

Direct Evidence

Type of instrument and measurements:

N/A

Ignitability

Compound used:

N/A

Reactivity

Most reactive compound:

N/A

Incompatibility

Most incompatible pair of compounds:

N/A

* * *

Hazardous Waste Quantity

Total quantity of hazardous substances at the facility:

No documentation of hazardous substances having been disposed of at this site. (Ref. 2 and 13)

Basis of estimating and/or computing waste quantity:

N/A

* * *

3 TARGETS

Distance to Nearest Population

Less than 1/4 mile (Ref. 1)

Distance to Nearest Building

Less than 500 feet (Ref. 1)

Distance to Sensitive Environment

Distance to wetlands:

None within one mile of the site (Ref. 10)

Distance to critical habitat:

None within one mile of the site (Ref. 10)

Land Use

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

The Niagara Falls International Airport is located approximately one mile southwest of the site (Ref. 1)

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

N/A (Ref. 1)

Distance to residential area, if 2 miles or less:

700 feet east on Walmore Road (Ref. 2)

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

Less than one mile (Ref. 19)

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

Less than one mile (Ref. 19)

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

None known

Population Within 2-Mile Radius

Greater than 5,000 (Ref. 1)

Buildings Within 2-Mile Radius

Greater than 500 (Ref. 1)

DIRECT CONTACT

1 OBSERVED INCIDENT

Date, location, and pertinent details of incident:

N/A

* * *

2 ACCESSIBILITY

Describe type of barrier(s):

No barriers to entry (Ref. Recra site visit - 11/26/85)

* * *

3 CONTAINMENT

Type of containment, if applicable:

No containment (Ref. 2 and 13)

* * *

4 WASTE CHARACTERISTICS

<u>Toxicity</u>

Compounds evaluated:

None; as listed in CERCLA Section 101(14), no substances defined as hazardous have been confirmed at the site based on limited analytical data. (Ref. 2 and 13)

Compound with highest score:

N/A

* * *

5 TARGETS

Population within one-mile radius

25 x 3.8 = 85 (Ref. 2 and 6)

Distance to critical habitat (of endangered species)

None within one mile of the site (Ref. 10)

EPA 2070-12

5.4 EPA PRELIMINARY ASSESSMENT
(FORM 2070-12)

EPA

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

I. IDENTIFICATION
01 STATE: NY | 02 SITE NUMBER: 932094

II. SITE NAME AND LOCATION

01 SITE NAME (Legal, common, or descriptive name of site): Lockport Road Site
02 STREET, ROUTE NO., OR SPECIFIC LOCATION IDENTIFIER: Lockport Road near Walmore Road
03 CITY: Town of Wheatfield
04 STATE: NY
05 ZIP CODE:
06 COUNTY: Niagara
07 COUNTY CODE:
08 CONG DIST:
09 COORDINATES LATITUDE: 43°07'14.9" LONGITUDE: 78°55'20.8"
10 DIRECTIONS TO SITE (Starting from nearest public road): From Route 62 turn north onto Walmore Road. Proceed approximately 1.5 miles and turn east onto Lockport Road. site is located approximately 0.2 mile east of intersection on south side of Lockport Road, immediately adjacent to east side of Cayuga Creek.

III. RESPONSIBLE PARTIES

01 OWNER (If known): Reverend Jack Hayes
02 STREET (Business, mailing, residential): 9605 Colvin Blvd.
03 CITY: Niagara Falls
04 STATE: NY
05 ZIP CODE: 14034
06 TELEPHONE NUMBER: (716) 283-4162
07 OPERATOR (If known and different from owner): N/A
08 STREET (Business, mailing, residential):
09 CITY:
10 STATE:
11 ZIP CODE:
12 TELEPHONE NUMBER: ( )
13 TYPE OF OWNERSHIP (Check one)
☒ A. PRIVATE ☐ B. FEDERAL: ______ (Agency name) ☐ C. STATE ☐ D. COUNTY ☐ E. MUNICIPAL
☐ F. OTHER: ______ (Specify) ☐ G. UNKNOWN
14 OWNER/OPERATOR NOTIFICATION ON FILE (Check all that apply)
☐ A. RCRA 3001 DATE RECEIVED: __/__/__ (MONTH DAY YEAR) ☐ B. UNCONTROLLED WASTE SITE (CERCLA 103 c) DATE RECEIVED: __/__/__ (MONTH DAY YEAR) ☒ C. NONE

IV. CHARACTERIZATION OF POTENTIAL HAZARD

01 ON SITE INSPECTION
☒ YES DATE: / / 81 (MONTH DAY YEAR)
☐ NO
BY (Check all that apply)
☐ A. EPA ☐ B. EPA CONTRACTOR ☒ C. STATE ☐ D. OTHER CONTRACTOR
☐ E. LOCAL HEALTH OFFICIAL ☐ F. OTHER: ______ (Specify)
CONTRACTOR NAME(S):
02 SITE STATUS (Check one)
☐ A. ACTIVE ☒ B. INACTIVE ☐ C. UNKNOWN
03 YEARS OF OPERATION: ____ BEGINNING YEAR | ____ ENDING YEAR ☒ UNKNOWN
04 DESCRIPTION OF SUBSTANCES POSSIBLY PRESENT, KNOWN, OR ALLEGED
graphite material, carbon dust and paper
05 DESCRIPTION OF POTENTIAL HAZARD TO ENVIRONMENT AND/OR POPULATION
Unknown

V. PRIORITY ASSESSMENT

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

VI. INFORMATION AVAILABLE FROM

01 CONTACT: PEDRO FIERRO
02 OF (Agency/Organization): RECRA ENVIRONMENTAL INC
03 TELEPHONE NUMBER: (716) 833-8203
04 PERSON RESPONSIBLE FOR ASSESSMENT: Kermit Studley
05 AGENCY:
06 ORGANIZATION: RECRA
07 TELEPHONE NUMBER: (716) 833-8203
08 DATE: 11/26/85 (MONTH DAY YEAR)

EPA FORM 2070-12 (7-81)

EPA

POTENTIAL HAZARDOUS WASTE SITE PRELIMINARY ASSESSMENT
PART 2 - WASTE INFORMATION

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
NY	932094

II. WASTE STATES, QUANTITIES, AND CHARACTERISTICS

01 PHYSICAL STATES *(Check all that apply)*

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

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

TONS ______
CUBIC YARDS 2000
NO. OF DRUMS ______

03 WASTE CHARACTERISTICS *(Check all that apply)*

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

III. WASTE TYPE

CATEGORY	SUBSTANCE NAME	01 GROSS AMOUNT	02 UNIT OF MEASURE	03 COMMENTS
SLU	SLUDGE			
OLW	OILY WASTE			
SOL	SOLVENTS			
PSD	PESTICIDES			
OCC	OTHER ORGANIC CHEMICALS			
IOC	INORGANIC CHEMICALS			
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
	None Known				

V. FEEDSTOCKS *(See Appendix for CAS Numbers)*

CATEGORY	01 FEEDSTOCK NAME	02 CAS NUMBER	CATEGORY	01 FEEDSTOCK NAME	02 CAS NUMBER
FDS	N/A		FDS		
FDS			FDS		
FDS			FDS		
FDS			FDS		

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

Niagara County Health Department Preliminary Investigation and Profile Report

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

EPA

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
NY	932094

II. HAZARDOUS CONDITIONS AND INCIDENTS

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

Unknown

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

Unknown

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

Unknown

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

N/A

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

Site is easily accessible

01 ☐ F. CONTAMINATION OF SOIL — 02 ☒ OBSERVED (DATE: 1982) ☐ POTENTIAL ☐ ALLEGED
03 AREA POTENTIALLY AFFECTED: ______ (Acres) 04 NARRATIVE DESCRIPTION

A soil sample collected by NYSDEC personnel in 1982 showed low but detectable concentrations of arsenic (12.3 μg/g), chromium (10 μg/g), copper (46 μg/g), lead (43 μg/g), nickel (<1 μg/g) and zinc (200 μg/g).

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

Unknown

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

Unknown

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

Unknown

EPA

POTENTIAL HAZARDOUS WASTE SITE PRELIMINARY ASSESSMENT

PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
NY	932094

II. HAZARDOUS CONDITIONS AND INCIDENTS *(Continued)*

01 ☐ J. DAMAGE TO FLORA — 02 ☐ OBSERVED (DATE: ______) ☐ POTENTIAL ☐ ALLEGED

04 NARRATIVE DESCRIPTION

Unknown

01 ☐ K. DAMAGE TO FAUNA — 02 ☐ OBSERVED (DATE: ______) ☐ POTENTIAL ☐ ALLEGED

04 NARRATIVE DESCRIPTION *(include name(s) of species)*

Unknown

01 ☐ L. CONTAMINATION OF FOOD CHAIN — 02 ☐ OBSERVED (DATE: ______) ☐ POTENTIAL ☐ ALLEGED

04 NARRATIVE DESCRIPTION

Unknown

01 ☐ M. UNSTABLE CONTAINMENT OF WASTES *(Spills/runoff/standing liquids/leaking drums)* — 02 ☐ OBSERVED (DATE: ______) ☐ POTENTIAL ☐ ALLEGED

03 POPULATION POTENTIALLY AFFECTED: ______ 04 NARRATIVE DESCRIPTION

Fill placed in a low area adjacent to Cayuga Creek

01 ☐ N. DAMAGE TO OFFSITE PROPERTY — 02 ☐ OBSERVED (DATE: ______) ☐ POTENTIAL ☐ ALLEGED

04 NARRATIVE DESCRIPTION

N/A

01 ☐ O. CONTAMINATION OF SEWERS, STORM DRAINS, WWTPs — 02 ☐ OBSERVED (DATE: ______) ☐ POTENTIAL ☐ ALLEGED

04 NARRATIVE DESCRIPTION

Unknown

01 ☐ P. ILLEGAL/UNAUTHORIZED DUMPING — 02 ☐ OBSERVED (DATE: ______) ☐ POTENTIAL ☐ ALLEGED

04 NARRATIVE DESCRIPTION

Unknown - permission granted by previous owner, Edward Struzik, in 1965 to dump carbon waste and inert industrial fill for the purpose of bringing a low area up-to-grade.

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

N/A

III. TOTAL POPULATION POTENTIALLY AFFECTED: Unknown

IV. COMMENTS

N/A

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

Niagara County Health Department files

EPA 2070-13

5.5 EPA SITE INSPECTION REPORT
(FORM 2070-13)

EPA

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

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
NY	932094

II. SITE NAME AND LOCATION

01 SITE NAME (Legal, common, or descriptive name of site)	02 STREET, ROUTE NO., OR SPECIFIC LOCATION IDENTIFIER
Lockport Road Site	Lockport Road near Walmore Road

03 CITY	04 STATE	05 ZIP CODE	06 COUNTY	07 COUNTY CODE	08 CONG DIST
Town of Wheatfield	NY		Niagara		

09 COORDINATES LATITUDE	LONGITUDE	10 TYPE OF OWNERSHIP (Check one)
43°07'14.9"	78°55'20.8"	☒ A. PRIVATE ☐ B. FEDERAL ☐ C. STATE ☐ D. COUNTY ☐ E. MUNICIPAL ☐ F. OTHER ☐ G. UNKNOWN

III. INSPECTION INFORMATION

01 DATE OF INSPECTION (MONTH DAY YEAR)	02 SITE STATUS	03 YEARS OF OPERATION
11/26/85	☐ ACTIVE ☒ INACTIVE	BEGINNING YEAR ___ ENDING YEAR ___ X UNKNOWN

04 AGENCY PERFORMING INSPECTION (Check all that apply)

☐ A. EPA ☐ B. EPA CONTRACTOR ______ (Name of firm) ☐ C. MUNICIPAL ☐ D. MUNICIPAL CONTRACTOR ______ (Name of firm)
☐ E. STATE ☒ F. STATE CONTRACTOR Recra Research, Inc. (Name of firm) ☐ G. OTHER ______ (Specify)

05 CHIEF INSPECTOR	06 TITLE	07 ORGANIZATION	08 TELEPHONE NO.
Thomas Connare	Environmental Scientist	Recra	(716) 833-8203
09 OTHER INSPECTORS	**10 TITLE**	**11 ORGANIZATION**	**12 TELEPHONE NO.**
Sheldon S. Nozik	Environmental Scientist	Recra	(716) 833-8203
			( )
			( )
			( )
			( )

13 SITE REPRESENTATIVES INTERVIEWED	14 TITLE	15 ADDRESS	16 TELEPHONE NO
Mr. Edward Struzik	Previous owner, mortgage holder	2284 Lockport Road Wheatfield, N.Y.	(716) 731-9561
			( )
			( )
			( )
			( )
			( )

17 ACCESS GAINED BY (Check one)	18 TIME OF INSPECTION	19 WEATHER CONDITIONS
☒ PERMISSION ☐ WARRANT	11:00 AM	35°F, Cloudy

IV. INFORMATION AVAILABLE FROM

01 CONTACT	02 OF (Agency/Organization)	03 TELEPHONE NO.
PEDRO FIERRO	RECRA ENVIRONMENTAL INC	(716) 833-8203

04 PERSON RESPONSIBLE FOR SITE INSPECTION FORM	05 AGENCY	06 ORGANIZATION	07 TELEPHONE NO.	08 DATE (MONTH DAY YEAR)
Kermit Studley		RECRA	(716) 833-8203	3/21/86

EPA FORM 2070-13 (7-81)

EPA

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

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
NY	932094

II. WASTE STATES, QUANTITIES, AND CHARACTERISTICS

01 PHYSICAL STATES (Check all that apply)

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

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

TONS ______

CUBIC YARDS 2000

NO. OF DRUMS ______

03 WASTE CHARACTERISTICS (Check all that apply)

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

III. WASTE TYPE

CATEGORY	SUBSTANCE NAME	01 GROSS AMOUNT	02 UNIT OF MEASURE	03 COMMENTS
SLU	SLUDGE			
OLW	OILY WASTE			
SOL	SOLVENTS			
PSD	PESTICIDES			
OCC	OTHER ORGANIC CHEMICALS			
IOC	INORGANIC CHEMICALS			
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
	NONE KNOWN				

V. FEEDSTOCKS (See Appendix for CAS Numbers)

CATEGORY	01 FEEDSTOCK NAME	02 CAS NUMBER	CATEGORY	01 FEEDSTOCK NAME	02 CAS NUMBER
FDS	N/A		FDS		
FDS			FDS		
FDS			FDS		
FDS			FDS		

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

Niagara County Health Department files

EPA FORM 2070-13 (7-81)

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

EPA

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
NY	932094

II. HAZARDOUS CONDITIONS AND INCIDENTS

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

Unknown

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

Unknown

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

Unknown

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

N/A

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

Site is easily accessible

01 ☐ F. CONTAMINATION OF SOIL — 02 ☒ OBSERVED (DATE: 1982) ☐ POTENTIAL ☐ ALLEGED
03 AREA POTENTIALLY AFFECTED: ______ (Acres) 04 NARRATIVE DESCRIPTION

A soil sample collected by NYSDEC personnel in 1982 showed low but detectable concentrations of arsenic (12.3 μg/g), chromium (10 μg/g), copper (46 μg/g), lead (43 μg/g), nickel (61 μg/g) and zinc (200 μg/g).

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

Unknown

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

Unknown

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

Unknown

EPA

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

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
NY	932094

II. HAZARDOUS CONDITIONS AND INCIDENTS (Continued)

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

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

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

01 ☐ M. UNSTABLE CONTAINMENT OF WASTES (Spills/Runoff/Standing liquids, Leaking drums) — 02 ☐ OBSERVED (DATE: ______) ☐ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: ______ 04 NARRATIVE DESCRIPTION
Fill placed in a low area adjacent to Cayuga Creek.

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

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

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

05 DESCRIPTION OF ANY OTHER KNOWN, POTENTIAL, OR ALLEGED HAZARDS
N/A

III. TOTAL POPULATION POTENTIALLY AFFECTED: Unknown

IV. COMMENTS
N/A

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

EPA

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

I. IDENTIFICATION

01 STATE: NY | 02 SITE NUMBER: 932094

II. PERMIT INFORMATION

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

III. SITE DESCRIPTION

01 STORAGE DISPOSAL (Check all that apply)	02 AMOUNT	03 UNIT OF MEASURE
☐ A. SURFACE IMPOUNDMENT		
☐ B. PILES		
☐ C. DRUMS, ABOVE GROUND		
☐ D. TANK, ABOVE GROUND		
☐ E. TANK, BELOW GROUND		
☒ F. LANDFILL	2000	CU YARDS
☐ G. LANDFARM		
☐ H. OPEN DUMP		
☐ I. OTHER (Specify)		

04 TREATMENT (Check all that apply)

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

05 OTHER

☐ A. BUILDINGS ON SITE N/A

06 AREA OF SITE

0.34 (Acres)

07 COMMENTS

Approximately 2000 cubic yards of carbon dust and fly ash were reportedly landfilled to fill a low area adjacent to Cayuga Creek.

IV. CONTAINMENT

01 CONTAINMENT OF WASTES (Check one)

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

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

N/A

V. ACCESSIBILITY

01 WASTE EASILY ACCESSIBLE: ☒ YES ☐ NO

02 COMMENTS

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

Niagara County Health Department files

EPA

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

I. IDENTIFICATION

01 STATE: NY | 02 SITE NUMBER: 932094

II. DRINKING WATER SUPPLY

01 TYPE OF DRINKING SUPPLY (Check as applicable)

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

02 STATUS

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

03 DISTANCE TO SITE

A. 6.0 (mi)
B. ______ (mi)

III. GROUNDWATER

01 GROUNDWATER USE IN VICINITY (Check one)

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

02 POPULATION SERVED BY GROUND WATER 87

03 DISTANCE TO NEAREST DRINKING WATER WELL 1.3 (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
Unknown (ft)	Unknown	Unknown (ft)	Unknown (gpd)	☐ YES ☐ NO

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

Domestic, industrial and observation

10 RECHARGE AREA

☐ YES ☐ NO COMMENTS

11 DISCHARGE AREA

☒ YES ☐ NO COMMENTS site is located adjacent to Cayuga Creek

IV. SURFACE WATER

01 SURFACE WATER USE (Check one)

☐ A. RESERVOIR, RECREATION DRINKING WATER SOURCE
☐ B. IRRIGATION, ECONOMICALLY IMPORTANT RESOURCES
☐ C. COMMERCIAL, INDUSTRIAL
☒ D. NOT CURRENTLY USED

02 AFFECTED/POTENTIALLY AFFECTED BODIES OF WATER

NAME:	AFFECTED	DISTANCE TO SITE
Cayuga Creek	☐	immediately adjacent (mi)
	☐	(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. ______ NO. OF PERSONS	B. ______ NO. OF PERSONS	C. >10,000 NO. OF PERSONS

02 DISTANCE TO NEAREST POPULATION 700 ft (mi)

03 NUMBER OF BUILDINGS WITHIN TWO (2) MILES OF SITE about 25 within 1 mile

04 DISTANCE TO NEAREST OFF-SITE BUILDING 700 ft (mi)

05 POPULATION WITHIN VICINITY OF SITE (Provide narrative description of nature of population within vicinity of site, e.g., rural, village, densely populated urban area)

Niagara County Health Department files
NYS Department of Environmental files
USGS topographic map - Tonowanda, N.Y. west

EPA FORM 2070-13 (7-81)

EPA

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

I. IDENTIFICATION
01 STATE: NY | 02 SITE NUMBER: 932094

VI. ENVIRONMENTAL INFORMATION

01 PERMEABILITY OF UNSATURATED ZONE (Check one)

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

02 PERMEABILITY OF BEDROCK (Check one)

☐ A. IMPERMEABLE (Less than 10^{-6} cm/sec) ☒ B. RELATIVELY IMPERMEABLE ($10^{-4} - 10^{-6}$ cm/sec) ☐ C. RELATIVELY PERMEABLE ($10^{-2} - 10^{-4}$ cm/sec) ☐ D. VERY PERMEABLE (Greater than 10^{-2} cm/sec)

03 DEPTH TO BEDROCK: Unknown (ft)
04 DEPTH OF CONTAMINATED SOIL ZONE: Unknown (ft)
05 SOIL pH: Unknown

06 NET PRECIPITATION: 7 (in)
07 ONE YEAR 24 HOUR RAINFALL: 2.1 (in)
08 SLOPE — SITE SLOPE: <1.0 % — DIRECTION OF SITE SLOPE: west — TERRAIN AVERAGE SLOPE: ~4.0 %

09 FLOOD POTENTIAL — SITE IS IN 100 YEAR FLOODPLAIN
10 N/A ☐ SITE IS ON BARRIER ISLAND, COASTAL HIGH HAZARD AREA, RIVERINE FLOODWAY

11 DISTANCE TO WETLANDS (5 acre minimum)
ESTUARINE N/A OTHER
A. ________ (mi) B. ________ (mi)

12 DISTANCE TO CRITICAL HABITAT (of endangered species): N/A (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. 1.0 (mi)	B. N/A (mi)	C. <2 (mi)	D. <1 (mi)

14 DESCRIPTION OF SITE IN RELATION TO SURROUNDING TOPOGRAPHY

The site is immediately adjacent to Cayuga Creek

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

Flood Insurance Rate Map, Panel 1 of 9, #3605130001, 7-16-81; USGS Topographic Map - Tonowanda, N.Y. west; NYSDEC wetlands & critical habitats documentation; uncontrolled Hazardous Waste Site Ranking System - Users Manual; Niagara County Health Department files

EPA

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

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
NY	932094

II. SAMPLES TAKEN N/A

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

III. FIELD MEASUREMENTS TAKEN N/A

01 TYPE	02 COMMENTS

IV. PHOTOGRAPHS AND MAPS None

01 TYPE ☐ GROUND ☐ AERIAL

02 IN CUSTODY OF ______________________ (Name of organization or individual)

03 MAPS ☐ YES ☐ NO

04 LOCATION OF MAPS ______________________

V. OTHER FIELD DATA COLLECTED (Provide narrative description)

N/A

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

EPA FORM 2070-13 (7-81)

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

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
NY	932094

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
Reverend Jack Hayes		9605 Colvin Boulevard		Niagara Falls	NY	

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
Edward Struzik		2284 Lockport Road		Wheatfield	N.Y.	

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)

Niagara County Health Department files

EPA	POTENTIAL HAZARDOUS WASTE SITE SITE INSPECTION REPORT PART 8 - OPERATOR INFORMATION	I. IDENTIFICATION 01 STATE: NY 02 SITE NUMBER: 932094

II. CURRENT OPERATOR (Provide if different from owner)

- 01 NAME: No longer in operation
- 02 D+B NUMBER:
- 03 STREET ADDRESS (P.O. Box, RFD #, etc.):
- 04 SIC CODE:
- 05 CITY:
- 06 STATE:
- 07 ZIP CODE:
- 08 YEARS OF OPERATION:
- 09 NAME OF OWNER:

OPERATOR'S PARENT COMPANY (If applicable)

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

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

- 01 NAME: Edward Struzik
- 02 D+B NUMBER:
- 03 STREET ADDRESS (P.O. Box, RFD #, etc.): 2284 Lockport Road
- 04 SIC CODE:
- 05 CITY: Wheatfield
- 06 STATE: N.Y
- 07 ZIP CODE:
- 08 YEARS OF OPERATION:
- 09 NAME OF OWNER DURING THIS PERIOD:

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

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

PREVIOUS OPERATORS' PARENT COMPANIES (If applicable)

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

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

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

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

Niagara County Health Department files

EPA

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

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
NY	932094

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
Airco Speer			
03 STREET ADDRESS (P.O. Box, RFD #, etc.)	**04 SIC CODE**	**03 STREET ADDRESS** (P.O. Box, RFD #, etc.)	**04 SIC CODE**
Packard Road at 47th Street			
05 CITY / 06 STATE	**07 ZIP CODE**	**05 CITY / 06 STATE**	**07 ZIP CODE**
Niagara Falls / N.Y.			
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
Modern Disposal Services Inc			
03 STREET ADDRESS (P.O. Box, RFD #, etc.)	**04 SIC CODE**	**03 STREET ADDRESS** (P.O. Box, RFD #, etc.)	**04 SIC CODE**
4746 Model City Road			
05 CITY / 06 STATE	**07 ZIP CODE**	**05 CITY / 06 STATE**	**07 ZIP CODE**
Model City / NY			
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)

Niagara County Health Department files

EPA

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

I. IDENTIFICATION
01 STATE: NY
02 SITE NUMBER: 932094

II. PAST RESPONSE ACTIVITIES

01 ☐ A. WATER SUPPLY CLOSED — 02 DATE ______ 03 AGENCY ______
04 DESCRIPTION
N/A

01 ☐ B. TEMPORARY WATER SUPPLY PROVIDED — 02 DATE ______ 03 AGENCY ______
04 DESCRIPTION
N/A

01 ☐ C. PERMANENT WATER SUPPLY PROVIDED — 02 DATE ______ 03 AGENCY ______
04 DESCRIPTION
N/A

01 ☐ D. SPILLED MATERIAL REMOVED — 02 DATE ______ 03 AGENCY ______
04 DESCRIPTION
N/A

01 ☐ E. CONTAMINATED SOIL REMOVED — 02 DATE ______ 03 AGENCY ______
04 DESCRIPTION
N/A

01 ☐ F. WASTE REPACKAGED — 02 DATE ______ 03 AGENCY ______
04 DESCRIPTION
N/A

01 ☐ G. WASTE DISPOSED ELSEWHERE — 02 DATE ______ 03 AGENCY ______
04 DESCRIPTION
N/A

01 ☐ H. ON SITE BURIAL — 02 DATE ______ 03 AGENCY ______
04 DESCRIPTION
N/A

01 ☐ I. IN SITU CHEMICAL TREATMENT — 02 DATE ______ 03 AGENCY ______
04 DESCRIPTION
N/A

01 ☐ J. IN SITU BIOLOGICAL TREATMENT — 02 DATE ______ 03 AGENCY ______
04 DESCRIPTION
N/A

01 ☐ K. IN SITU PHYSICAL TREATMENT — 02 DATE ______ 03 AGENCY ______
04 DESCRIPTION
N/A

01 ☐ L. ENCAPSULATION — 02 DATE ______ 03 AGENCY ______
04 DESCRIPTION
N/A

01 ☐ M. EMERGENCY WASTE TREATMENT — 02 DATE ______ 03 AGENCY ______
04 DESCRIPTION
N/A

01 ☐ N. CUTOFF WALLS — 02 DATE ______ 03 AGENCY ______
04 DESCRIPTION
N/A

01 ☐ O. EMERGENCY DIKING/SURFACE WATER DIVERSION — 02 DATE ______ 03 AGENCY ______
04 DESCRIPTION
N/A

01 ☐ P. CUTOFF TRENCHES/SUMP — 02 DATE ______ 03 AGENCY ______
04 DESCRIPTION
N/A

01 ☐ Q. SUBSURFACE CUTOFF WALL — 02 DATE ______ 03 AGENCY ______
04 DESCRIPTION
N/A

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

EPA

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
NY	932094

II PAST RESPONSE ACTIVITIES (Continued)

01 ☐ R. BARRIER WALLS CONSTRUCTED 02 DATE ______ 03 AGENCY ______
04 DESCRIPTION N/A

01 ☐ S. CAPPING/COVERING 02 DATE ______ 03 AGENCY ______
04 DESCRIPTION N/A

01 ☐ T. BULK TANKAGE REPAIRED 02 DATE ______ 03 AGENCY ______
04 DESCRIPTION N/A

01 ☐ U. GROUT CURTAIN CONSTRUCTED 02 DATE ______ 03 AGENCY ______
04 DESCRIPTION N/A

01 ☐ V. BOTTOM SEALED 02 DATE ______ 03 AGENCY ______
04 DESCRIPTION N/A

01 ☐ W. GAS CONTROL 02 DATE ______ 03 AGENCY ______
04 DESCRIPTION N/A

01 ☐ X. FIRE CONTROL 02 DATE ______ 03 AGENCY ______
04 DESCRIPTION N/A

01 ☐ Y. LEACHATE TREATMENT 02 DATE ______ 03 AGENCY ______
04 DESCRIPTION N/A

01 ☐ Z. AREA EVACUATED 02 DATE ______ 03 AGENCY ______
04 DESCRIPTION N/A

01 ☐ 1. ACCESS TO SITE RESTRICTED 02 DATE ______ 03 AGENCY ______
04 DESCRIPTION N/A

01 ☐ 2. POPULATION RELOCATED 02 DATE ______ 03 AGENCY ______
04 DESCRIPTION N/A

01 ☐ 3. OTHER REMEDIAL ACTIVITIES 02 DATE ______ 03 AGENCY ______
04 DESCRIPTION N/A

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

EPA

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

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
NY	932094

II. ENFORCEMENT INFORMATION

01 PAST REGULATORY/ENFORCEMENT ACTION ☐ YES ☒ NO

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

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

SECTION 6

6.0 ADEQUACY OF AVAILABLE DATA

In completing the Hazard Ranking Score (HRS), the Lockport Road site was found to have a migration potential (Sm) score of 0. This Sm score was based on the information acquired through a review of available literature. During the completion of the HRS, several data inadequacies were encountered. These inadequacies include:

- subsurface information beneath the site including depth to the water table and/or aquifer of concern, permeability of unconsolidated deposits, groundwater quality, and groundwater flow direction.
- sediment and surface water quality in Cayuga Creek in the area receiving surface runoff from the site.
- characterization, amount and areal extent of wastes landfilled at the site.

SECTION 7

7.0 PROPOSED PHASE II WORK PLAN

7.1 Project Objectives

The purpose and objective of this proposed Phase II investigation is to obtain a final HRS score for the site as defined under the auspices of the New York State Superfund program, and assess concerns regarding past disposal practices. The site investigation proposed herein is designed to generate data for the above identified tasks. The scope of this investigation may include:

- preliminary sampling and waste characterization
- surface water and sediment sampling
- air monitoring
- test bore drilling
- monitoring well installation
- insitu permeability testing
- groundwater sampling
- surveying and mapping
- chemical analytical testing
- laboratory geotechnical testing
- groundwater well survey
- data analysis and reporting
- characterizing the physical and chemical nature of the site
- final scoring of the site under the Hazard Ranking Score
- reporting.

7.2 Scope of Work

7.2.1 Preliminary Sampling and Waste Characterization

Limited records and sampling data do not indicate the presence of hazardous substances at the site. Prior to the initiation of a detailed Phase II investigation that would include monitoring well installation and groundwater testing, it is recommended that a preliminary sampling and waste characterization study be implemented at the site. If results of this study indicate contamination at the site, proceeding with the Phase II work plan outlined in the remainder of this section would be warranted.

In order to characterize the fill material and achieve a general indication of the vertical extent of past filling activities, five soil/fill samples should be collected by hand auger to a depth of five to six feet across the site (Figure 3). If obtaining deep samples by hand auger proves unfeasible, test pits may have to be excavated by backhoe. Samples obtained from each boring/test pit from the surface, mid point and terminus should be composited and analyzed for priority pollutant metals, E.P. Toxicity metals, total phenolics, and scanned for organics. One background soil sample should be collected from an area proximate to the site but known to be unexposed to fill material.

One surface water and sediment sample should be collected in Cayuga Creek both upstream and downstream of the point of entry of surface run-off from the site (Figure 3). The upstream sample should be taken north of Lockport Road. These samples should be analyzed for priority pollutant metals and total phenolics and scanned for organics.

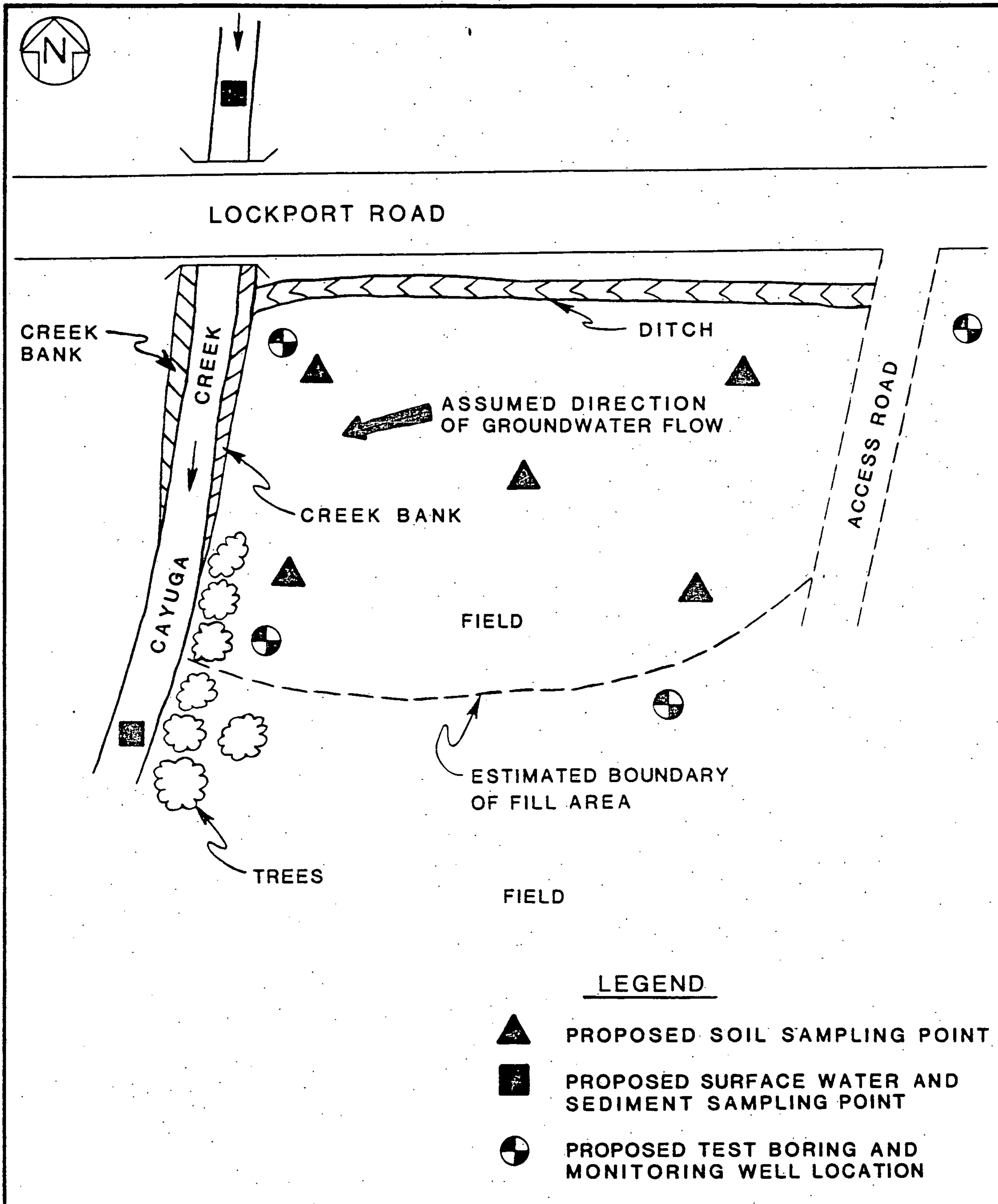
Air monitoring will be conducted when obtaining soil and sediment samples as outlined in Section 7.3.5 of this report.

7.2.2 Geophysical Survey

A geophysical survey will be conducted over the site where access and topography permit to define the vertical and horizontal extent of the fill material and establish the final location for monitoring well installation. The geophysical survey will be conducted using terrain conductivity techniques.

Terrain conductivity readings will be obtained using a Geonics Model EM 31 terrain conductivity meter. These measurements will be taken on a grid system which will be established across the site. The conductivity readings may serve to detect clusters of drums, tanks, cables, lateral fill variations, and contaminated groundwater plume geometry, if present.

All geophysical data and interpretations will be used to finalize the locations of proposed borings and monitoring wells. No borings or monitoring wells will be placed in the field until the final locations are determined by Recra in concurrence with NYSDEC. NYSDEC will be informed of any changes in boring and monitoring well location, should they be necessary. However, based upon current information, it is envisioned that one monitoring well will be placed upgradient of the site, and three along the downgradient area of site (Figure 3).



Scale: NTS	By	Date
Dwn.	DLS	11/86
Ckd.		
Ap'vd.		
Rev.		

LOCKPORT ROAD SITE
TOWN OF WHEATFIELD, N.Y.
N.Y.S. SUPERFUND PHASE II

Project No. 5C280418

PROPOSED PHASE II WORKPLAN MAP

A FIGURE 3

7.2.3 Test Borings

Four test borings will be advanced at the site (Figure 3). Based on a field review of the site, tentative locations for the borings will be selected by NYSDEC based on the recommendations of Recra.

Prior to initiating drilling activities, the drilling rig, augers, rods, split spoons, appurtenant equipment, well pipe and screens will be cleaned with steam. This cleaning procedure will also be used between each boring. These activities will be performed in a designated on-site decontamination area. Throughout and after the cleaning processes, direct contact between equipment and the ground surface will be avoided. Plastic sheeting and/or clean support structures will be used.

Test borings will be advanced with hollow stem augers, driven by truck mounted drilling equipment. During the drilling, an HNU photoionization detector will be used to monitor the gases exiting the hole. Auger cuttings will be contained from all downgradient borings. Soil samples will be collected using a two-inch outside diameter split-barrel sampler advanced in accordance with the standard penetration test procedure (ASTM D-1586). The sample barrel(s) will be cleaned prior to each use by the following procedure:

- o initially cleaned of all foreign matter
- o washed with a detergent and water mixture
- o rinsed with potable water
- o washed with acetone
- o rinsed with distilled water

o allowed to air dry.

An HNU dectector will be used to monitor the gases from each sample as the split barrel sampler is opened. All samples will be placed in pre-cleaned, teflon-lined screw cap glass jars. The cleaning of the sample jars will include:

o soap wash
o tap water rinse
o acetone rinse (pesticide grade)
o rinse with copious quantities of deionized water (at least six rinsings) until no residual acetone is detected.

Samples will be delivered daily under chain of custody control to the Recra Environmental Laboratories in Tonawanda, New York. A composite soil sample from each boring will be analyzed for priority polluntant metals and organics (Contract Laboratory Protocol), PCBs and total phenolics. GC/MS procedures will include the identification and quantification of all peaks 10% or greater than the nearest calibrating standard.

Split-spoon samples will be taken every five feet until the water table is reached unless there is a change in geologic material or overlying waste material is discovered through visual or HNU detection. Once encountered, continuous split-spoon sampling will be conducted through the shallow water-bearing zone. Geologic classification of split-spoon samples will be performed and boring logs maintained at Recra.

At a minimum, each boring log will include:

- date, test hole identification, and project identification.
- name of individual developing the log
- name of driller and assistant(s)
- drill make and model, auger size
- identification of alternative drilling methods used and justification thereof (e.g. rotary drilling with a specific bit type to remove a sand plug from within the hollow stem augers)
- depths recorded in feet and fractions thereof (tenths or inches), referenced to ground surface
- standard penetration test (ASTM D-1586) blow counts
- for samples, the length of the sample interval and the length of the sample recovered
- the first encountered water table along with the method of determination, referenced to ground surface
- drill and borehole characteristics, and
- sequential stratigraphic boundaries.

Selected split-spoon samples, obtained while sampling at five foot intervals or when a change in lithology has occurred, will be analyzed for Atterberg limits and moisture content. Analysis of a selected split-spoon samples from the encountered water-bearing material will be performed for grain size determination. In the event that the borehole/monitoring well must be left unattended prior to completion, the borehole/monitoring well will be properly secured to ensure its integrity.

7.2.4 Groundwater Monitoring and Sampling

Four monitoring wells will be installed at the location of the test borings (Figure 3). Wells will be constructed of 5-foot long, 2-inch

I.D. threaded flushjointed PVC screen and riser casing. Well screens will be installed with the top of the well screen located approximately one foot above the encountered groundwater table, dependent upon the major geologic changes encountered. All installations will include a washed and graded sand pack surrounding the screen and extending two feet above the screen top. A two-foot thick bentonite seal will be placed above the sand pack and the remaining annulus filled with bentonite/grout to within two feet of the ground surface. A four- to six-inch diameter steel casing with locking cap will be placed over each well and cemented in place.

Well development will be performed using a pump or bottom discharge bailer at each well no sooner than 48 hours after the well grouting has been completed. Bailing will utilize a pre-cleaned, dedicated galvanized steel bailer at each well. Pumping will utilize a surface peristaltic pump fitted with pre-cleaned, dedicated polyethylene tubing for each well.

Prior to water and sediment evacuation, static water level and well bottom measurements will be recorded at each well using an electric level sounder or fiberglass tape. These instruments will be cleaned prior to and after each use. The well water/sediment volume will also be calculated.

Well evacuation will be supplemented by:

- temperature, pH and specific conductance measurements
- evacuation volume measurement

- visual identification of water clarity or color, and
- visual identification of the physical characteristics of removed sediments.

The development process will continue until a stabilization of pH, specific conductance, temperature, and clarity (goal of ≤100 turbidity units) of discharge is achieved.

The well development is designed to correct any clogging of the water-bearing formation which may occur as a side effect of the drilling, and remove any drilling water (if used) from the water table such that each well will yield water which is representative of the insitu conditions. Static water level measurements will also be made following well development.

Groundwater sampling will be initiated one week after the well development has been completed. Each sample will be analyzed for priority pollutant metals and organics (Contact Laboratory Protocol), PCBs, total phenolics, hardness and specific conductance. GC/MS procedures will include the identification and quantificaton of all peaks 10% or greater than the nearest calibrating standard.

At each well location, initial static water level and well bottom measurements will be recorded using an electric level sounder and/or fiberglass tape which will be cleaned between each well. Well water will be evacuated prior to sample collection by bailing or pumping to dryness or removing a minimum of three equilibrated well water volumes. Precleaned dedicated galvanized steel bailers will be used for sampling at each well.

Permeability testing of the newly installed monitoring wells will be conducted following sampling. Initial static water level measurements will be made in each well followed by the injection of a weighted slug of specific volume. An instantaneous head displacement associated with the slug volume will be created and the subsequent decline in water level will be measured with an electric water level sounder. Once head conditions reach a static state, the slug will be removed and negative head condition will result relative to the initial static water level. The subsequent rise in water level will be measured with an electric water level sounder.

Data analysis will involve the determination of the coefficient of permeability. The analysis will utilize a technique provided by Harry R. Cedergren in Seepage, Drainage and Flow Nets, 2nd Edition, whereby the log of head ratio (dependent variable) is plotted with respect to elapsed time (independent variable). Data points for permeability determination are obtained from a linearization of this plot and utilized in an appropriate equation.

The testing will provide data on the permeability of the material at the top of the water table. These values will subsequently be utilized for determining approximate flow rates within the saturated zone, and extrapolated to approximate permeability in the unsaturated zone as required in the scoring under the HRS. This data will be useful in assessing the rate of groundwater flow in this area and as data input in evaluating potential remedial alternatives if required.

7.2.5 Air Monitoring

Air monitoring with an HNU photoionization detector will be performed as follows:

- o at upwind and downwind locations prior to any site work
- o during borings and monitoring well installations
- o for all split-spoon samples
- o for all surface soil and sediment samples
- o all measurements will be within the normal breathing zone
- o weather conditions including wind direction and speed (estimate) will be recorded during sampling.

7.2.6 Surveying

A map will be prepared showing the location and appropriate elevations (ground surface, top of monitoring well casing) for each boring, sampling location, and monitoring well installation and other key contour points as determined by Recra.

A licensed land surveyor will be used to establish the locations and elevations of each above-mentioned point, as follows:

- o Vertical Control - Elevations (0.01') will be established for the ground surface at the well, the top of monitoring well casing and at least one other permanent object in the vicinity of the boring and well. Elevations will be relative to a regional, local or project specific datum. USGS benchmarks will be used whenever available.

- Horizontal Control - Exploratory borings and monitoring wells will be located by ties (location and distance) to at least two nearby permanent objects. USGS benchmarks will be used whenever available.

7.3 Quality Assurance and Quality Control

An overall Quality Assurance Program is essential for the production of high-quality analytical data. Such a program requires precise control of laboratory activities. For the Quality Assurance Program in effect at the Laboratories of Recra, the reader is referred to a document previously submitted by Recra to NYSDEC entitled, "Operation Manual - Field and Analytical Services."

Analytical work conducted by the laboratory will follow Contract Laboratory Protocol.

7.4 Final Hazard Ranking System Score

Upon completion of all field work and laboratory analysis, the Final Hazard Ranking System score will be calculated per NYSDEC guidelines.

7.5 Phase II Report

Upon completion of the investigation, a Phase II report will be prepared in complete accordance with the NYSDEC Phase II report format. The Phase II report will include a plot plan drawing showing the following:

- groundwater gradient

- topographic relief
- sampling locations
- physical parameters and major contaminants/concentrations identified for each sampling location
- any contaminant plumes (based on geophysical and monitoring data).

Five copies of the draft final Phase II report and fifteen copies of the final Phase II report will be submitted.

7.6 Applicable Procedures and Standards

All work performed for this project, including but not necessarily limited to, borings, monitoring well installations, monitoring, sampling, surveying, chain of custody, sample preservation, sample extraction, sample analysis, and HRS scoring, will conform to all applicable standards, guidelines, and prescribed methods and practices of the U.S. Environmental Protection Agency (USEPA), the NYSDEC, and other applicable regulatory agencies. Any changes or modifications in these specifications will require approval by NYSDEC.

7.7 Estimated Cost

The estimated cost of preliminary sampling and waste characterization is based on collection and analysis of five composite soil samples, two surface water samples, and two sediment samples.

o Preliminary Sampling and Waste Characterization	$ 5,648.00

The estimated cost of the Phase II Work Plan is based on the placement of four monitoring wells in unconsolidated deposits to a depth of 20 feet below ground surface.

o Subsurface Investigation	$11,937.00
o Analyses	19,524.00*
o Preliminary Engineering, HRS Scoring and Report	8,000.00
o Geophysics	5,000.00
Total Phase II	$44,461.00

* Price for analyses includes Contract Laboratory Protocol for priority pollutant metals and/or organics. Prices will vary among contracted laboratories.

APPENDIX A

APPENDIX A

DATA SOURCES AND REFERENCES

REFERENCES

1. United States Geological Survey. 7.5 Minute Series Topographic Map, Tonawanda West, New York Quadrangle. 1980.

2. Preliminary Investigation and Profile Reports for 26 Suspected Disposal Sites in Niagara County, New York. Niagara County Health Department. March 1982.

3. Letter to Mr. Lawrence Clare, NYSDEC Region 9, Divison of Solid and Hazardous Waste, from Kermit Studley, Recra Research, Inc., March 10, 1986.

4. Preliminary Evaluation of Chemical Migration to Groundwater and the Niagara River from Selected Waste Disposal Sites. EPA (905/4-85-001). March 1985.

5. LaSalle, Jr., A.M. Ground-Water Resources of the Erie-Niagara Basin, New York: New York Water Resources Commission Basin Planning Report ENB-3, 114 p. 1968.

6. Uncontrolled Hazardous Waste Site Ranking System - a Users Manual. EPA. June 10, 1982.

7. New York State Atlas of Community Water System Sources. NYS Department of Health. 1982

8. State of New York Official Compilation of Codes, Rules and Regulations. Department of State. Title 6 Conservation, Volume C, Article 8, Part 837.

9. New York State Water Laws. Bureau of National Affairs, Inc. Washington, D.C. November 29, 1985.

10. Letter from Gordon R. Batcheller, NYSDEC Region 9, Senior Wildlife Biologist, to Sheldon S. Nozik, Recra Research, Inc. December 18, 1985.

11. Flood Insurance Rate Map, Panel #360513001, Town of Wheatfield, New York. Department of Housing and Urban Development, Federal Insurance Administration. July 16, 1981.

12. Niagara County Department of Health, Report of Investigation from Richard Abbott. November 17, 1981.

13. NYSDEC Region 9, Walmore Road Site Profile.

14. Record of Telephone Conversation from Paul A. Rydzynski, Recra Research, Inc., to Mr. Edward Struzik. November 26, 1985.

15. Site Inspection Field Notes, Recra Research, Inc. November 26, 1985

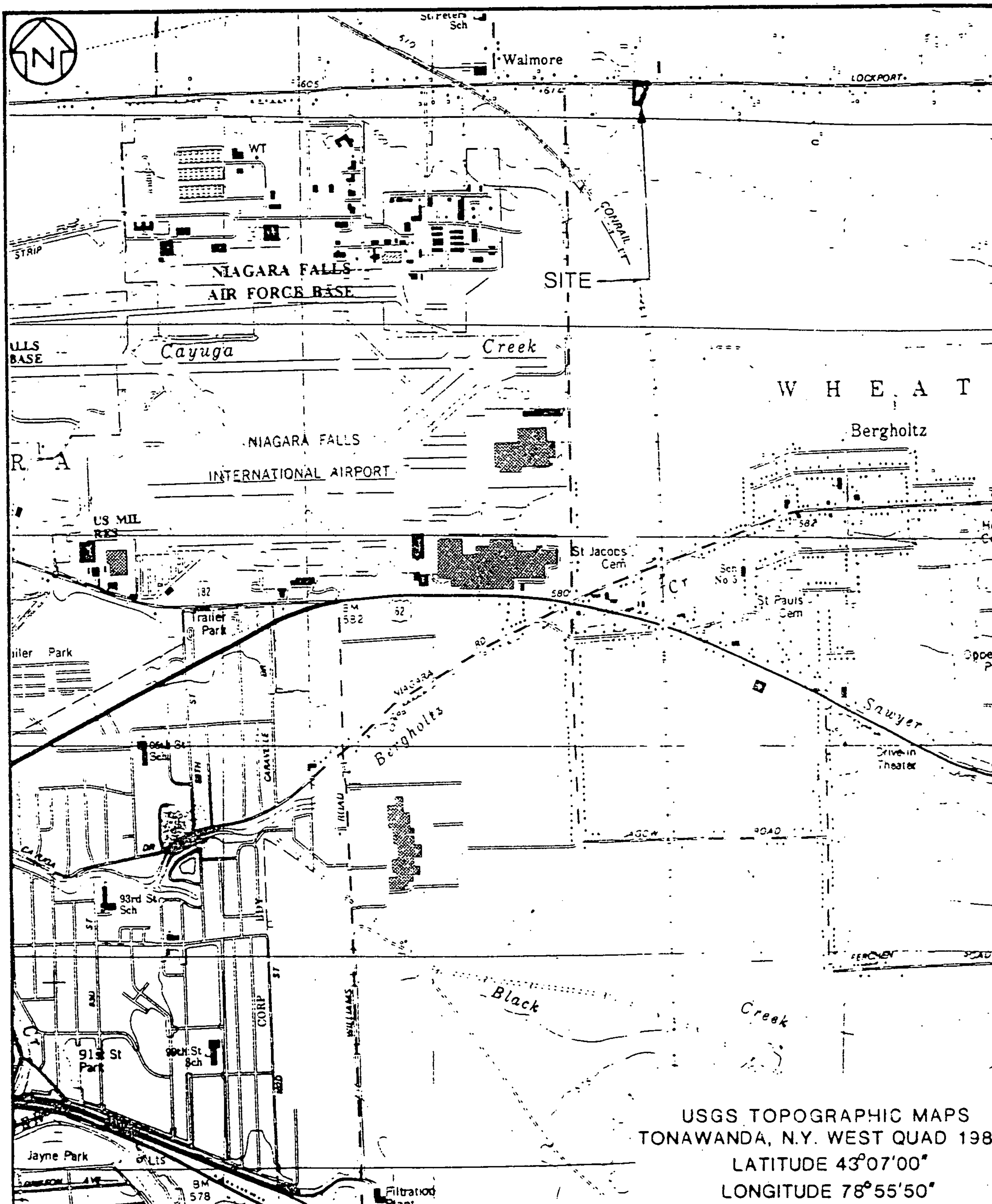
16. Sax, N.R. Dangerous Properties of Industrial Materials. Van Nostrand Reinhold Co., New York, 6th Ed. 1984.

17. Soil Survey of Niagara County, New York. United States Department of Agriculture, Soil Conservation Survey. October 1972.

18. Water Well Information for the Area Surrounding Niagara Falls Air Force Base. Provided by Ronald Gwozdek, Niagara County Health Department. February 20, 1986.

19. Letter of Documentation to Paul Lehman, Niagara County Cooperative Extention Service, from Thomas P. Connare, Recra Research, Inc. February 24, 1986.

REFERENCE 1



USGS TOPOGRAPHIC MAPS
TONAWANDA, N.Y. WEST QUAD 1980
LATITUDE 43°07'00"
LONGITUDE 78°55'50"

RECRA RESEARCH INC.
BUFFALO, NEW YORK

Scale: 1:24000		
	By	Date
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Ckd.		
Ap'vd.		
Rev.		

WALMORE ROAD SITE
WHEATFIELD, N.Y.
N.Y.S. SUPERFUND
PHASE I

VICINITY MAP

Project No. 5C280418

A FIGURE 1

BRUNING 61160-1

REFERENCE 2

NAME:

Walmore Road (DEC #932094)

LOCATION:

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

OWNERSHIP:

As of 1982, this site was owned by Mr. Edward Struzik, 2284 Lockport Road, Wheatfield, NY. However, arrangements are being made for purchase of the property by the Church of God for purposes of erecting a church here. The contact person is Reverend Jack A. Hayes, 9605 Colvin Boulevard, Niagara Falls, NY, 283-4162. 731-9561

HISTORY:

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

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

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

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

AERIAL PHOTOGRAPHS:

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

ANALYTICAL RESULTS:

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

SOILS/GEOLOGY:

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

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

GROUNDWATER:

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

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

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

SURFACE WATER:

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

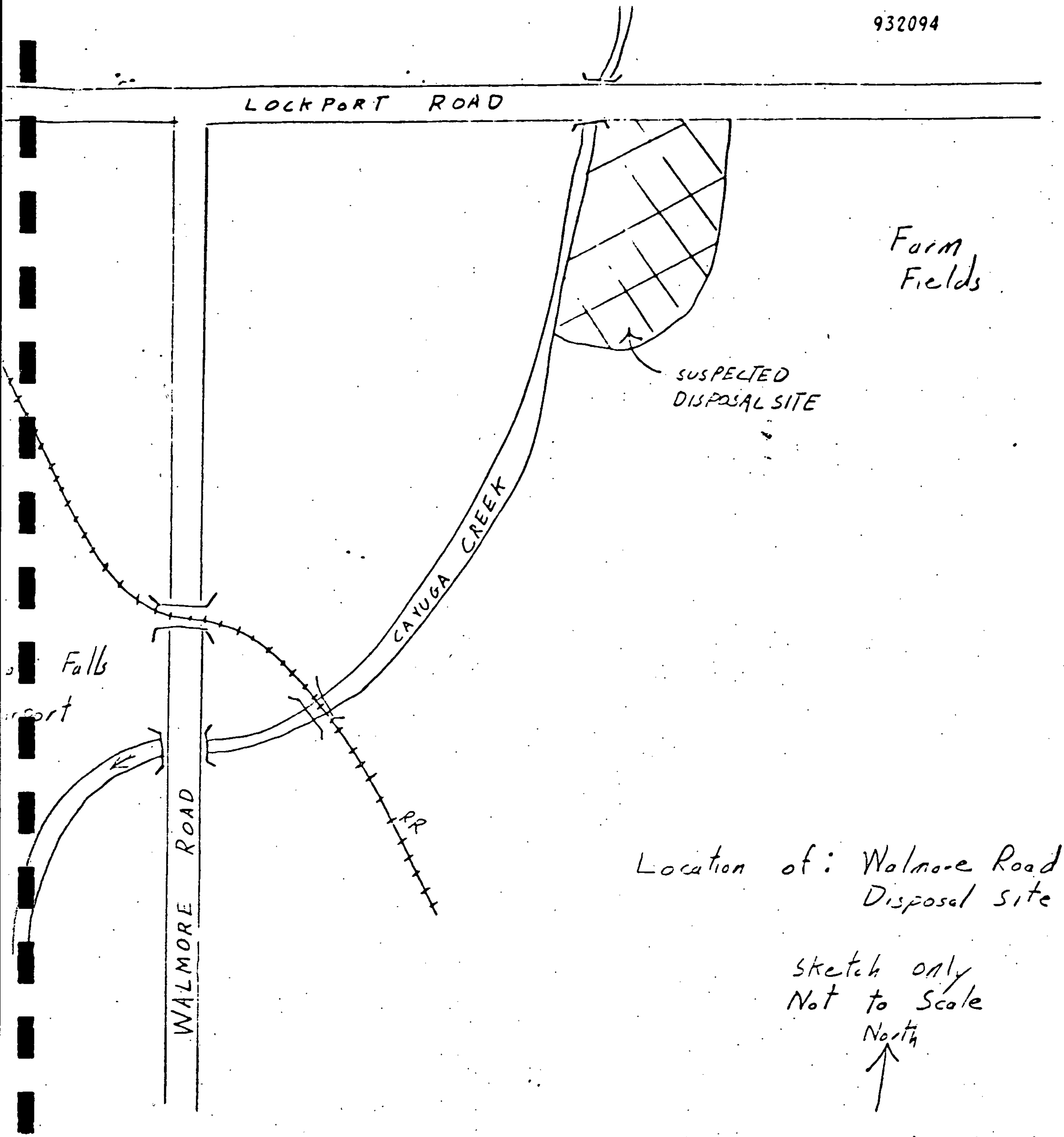
There are no downstream users of water from Cayuga Creek. Cayuga Creek enters the Niagara River six miles downstream.

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

FIRE/EXPLOSION/AIR QUALITY:

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

932094



Location of: Walmore Road Disposal Site

Sketch only
Not to Scale

[signature]
5/2/83

FIRE/EXPLOSION/AIR QUALITY - continued

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

DIRECT CONTACT:

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

CONCLUSIONS:

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

RECOMMENDATIONS:

No further action at this site is recommended.

REFERENCE 3

RECEIVED
12 1986
RECRA RESEARCH, INC.

RECRA RESEARCH, INC.
Hazardous Waste And Toxic Substance Control

March 10, 1986

Mr. Larry Clare
New York State Department of
Environmental Conservation
600 Delaware Avenue
Buffalo, NY 14202

Dear Mr. Clare:

Thank you for your assistance in clarifying which of two sites actually constitutes the "Walmore Road Site".

As part of the background search requirements for the NYSDEC Superfund investigations, we the consultants are required to have all of our interviews, personal or telephone, documented. Below is an account of our conversation on March 6, 1986. Would you please read the account, sign at the bottom, and return the original to me. This is only to serve as documentation that the conversation took place.

° A review of the available literature indicates the "Walmore Road Site" as being two distinct sites.

° The first site is located on 6373 Walmore Road while the second site is located on Lockport Road near Walmore Road.

° Since each site has a "slightly" different history, you recommended limiting the Phase I investigation to the Lockport Road near Walmore Road site and that you would have the 6373 Walmore Road site classified as a separately designated site.

Sincerely,

RECRA RESEARCH, INC.

Kermit Studley

Kermit Studley
Staff Geologist

KS/jlo

Laurence H Clare
Mr. Larry Clare

REFERENCE 4

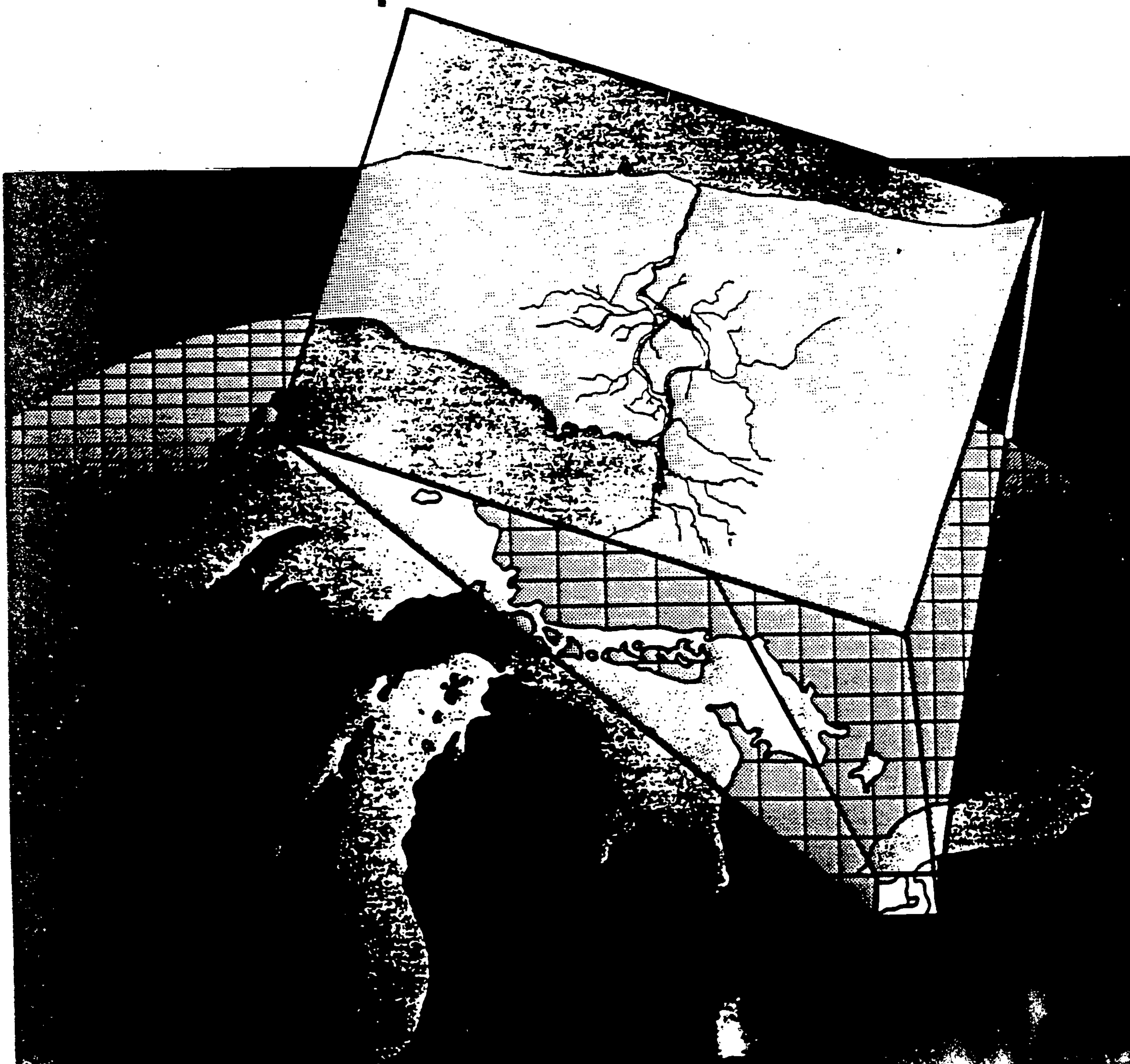
United States
Environmental Protection
Agency

Great Lakes National
Program Office
536 South Clark Street
Chicago, Illinois 60605

EPA-905/4-85-001
March 1985

EPA

Preliminary Evaluation Of Chemical Migration To Groundwater and The Niagara River from Selected Waste-Disposal Sites



NIAGARA FALLS AREA

Geology

The Niagara Falls study area (pl. 3) consists of unconsolidated Pleistocene and Holocene-age deposits of till, lacustrine clay and silt, and alluvial fine sand underlain by dolomite of middle Silurian age. The bedrock units studied are the Lockport Dolomite and the upper part of the Rochester Shale. The bedrock stratigraphy beneath this area is shown in figure 6; the distribution of unconsolidated deposits is shown in figure 7.

Bedrock Units.--The Lockport Dolomite is a hard and resistant calcium-magnesium carbonate sedimentary rock that crops out in the study area and forms the Niagara Escarpment north of Niagara Falls. In the northern part of the area, erosion has removed much of its upper part, leaving a thickness of only 30 ft at the escarpment, but the unit thickens to the south and, in the southern part of the city of Niagara Falls, it is 155 ft thick.

In 1982, the U.S. Geological Survey installed 11 observation wells in the upper part of the dolomite in the city of Niagara Falls and two open-hole wells through the entire thickness of the Lockport Dolomite adjacent to the gorge face. (Locations of the wells are shown on pl. 3.)

Unconsolidated Deposits.--A relatively thin layer of unconsolidated deposits, 3 to 35 ft thick, overlies bedrock (fig. 7). Along the upper Niagara River, in the southern part of Niagara Falls, fill and (or) alluvial fine sand overlie clay and till or bedrock; elsewhere lacustrine clay and silt overlie the bedrock. In the middle and northern parts of the area, a layer of till 5 to 20 ft thick overlies bedrock. The till consists of a silty clay or sandy matrix that was formed by the transport and lodgment of material beneath the flowing continental ice sheet (Muller, 1977) and is thus compacted and relatively impermeable.

In 1982, the U.S. Geological Survey drilled three test holes (SA-1, SA-2, and SA-3) to the top of the bedrock; the geologic logs are as follows:

Boring no.	Depth below land surface (ft)	Description
SA-1	0 - 3.0	Topsoil and fill
	3.0 - 18.0	Clay, pink
	18.0 - 24.0	Sand, clayey, with gravel
	24.0	Bedrock
SA-2	0 - 1.5	Topsoil
	1.5 - 6.5	Fill, black
	6.5 - 24.0	Clay, pink
	24.0 - 34.0	Clay and gravel (till?)
	34.0	Bedrock
SA-3	0 - 1.5	Topsoil
	1.5 - 16.5	Clay, pink
	16.5 - 20.0	Clay, pink, some gravel
	20.0	Bedrock

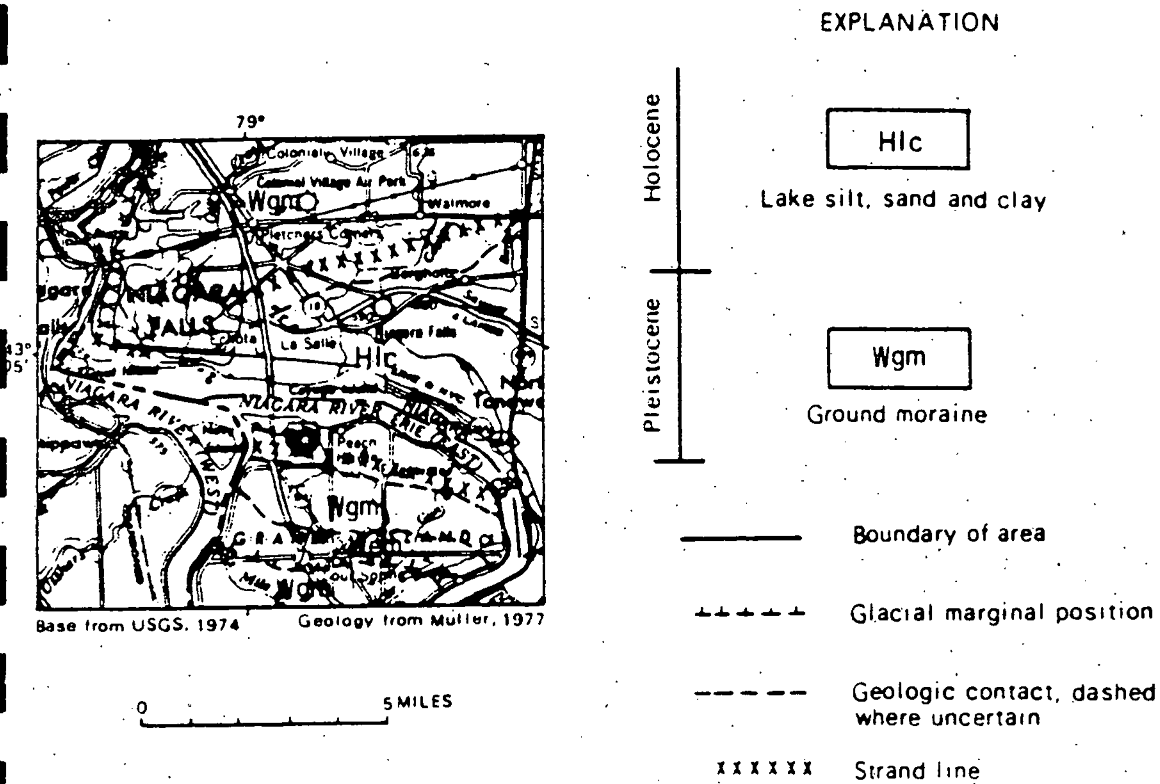
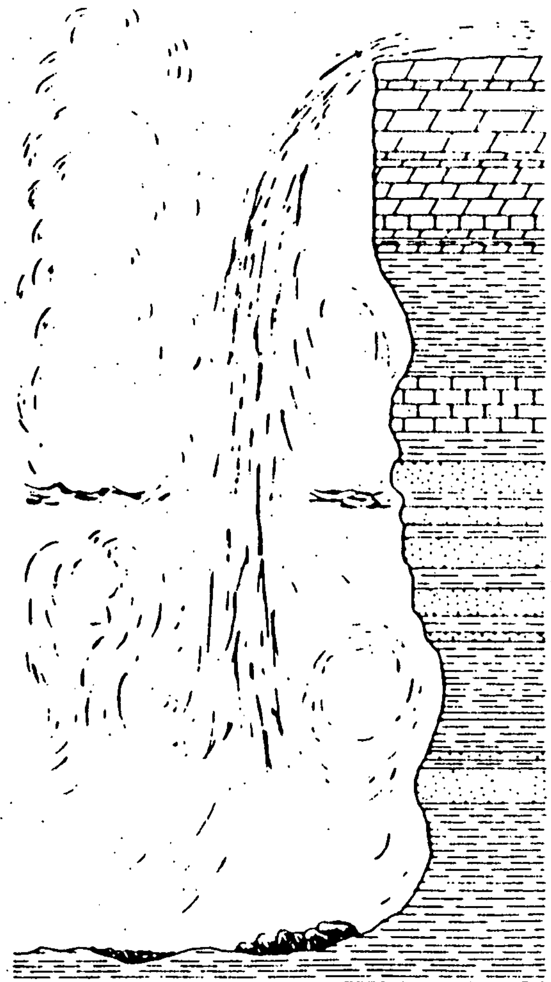


Figure 6. Geologic column of the Niagara Falls area.



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

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

Figure 7. Surficial geology of the Niagara Falls area

The Geological Survey drilled six other test holes (RMP-2 through RMP-6) along the Robert Moses Parkway in 1982. Test-hole locations are shown on pl. 3.

Aquifer Lithology and Water-Bearing Characteristics

The ground-water system within the Niagara Falls area (pl. 3) consists of the Lockport Dolomite and an overlying aquifer of unconsolidated deposits, as shown in the generalized geologic column of the area in figure 6.

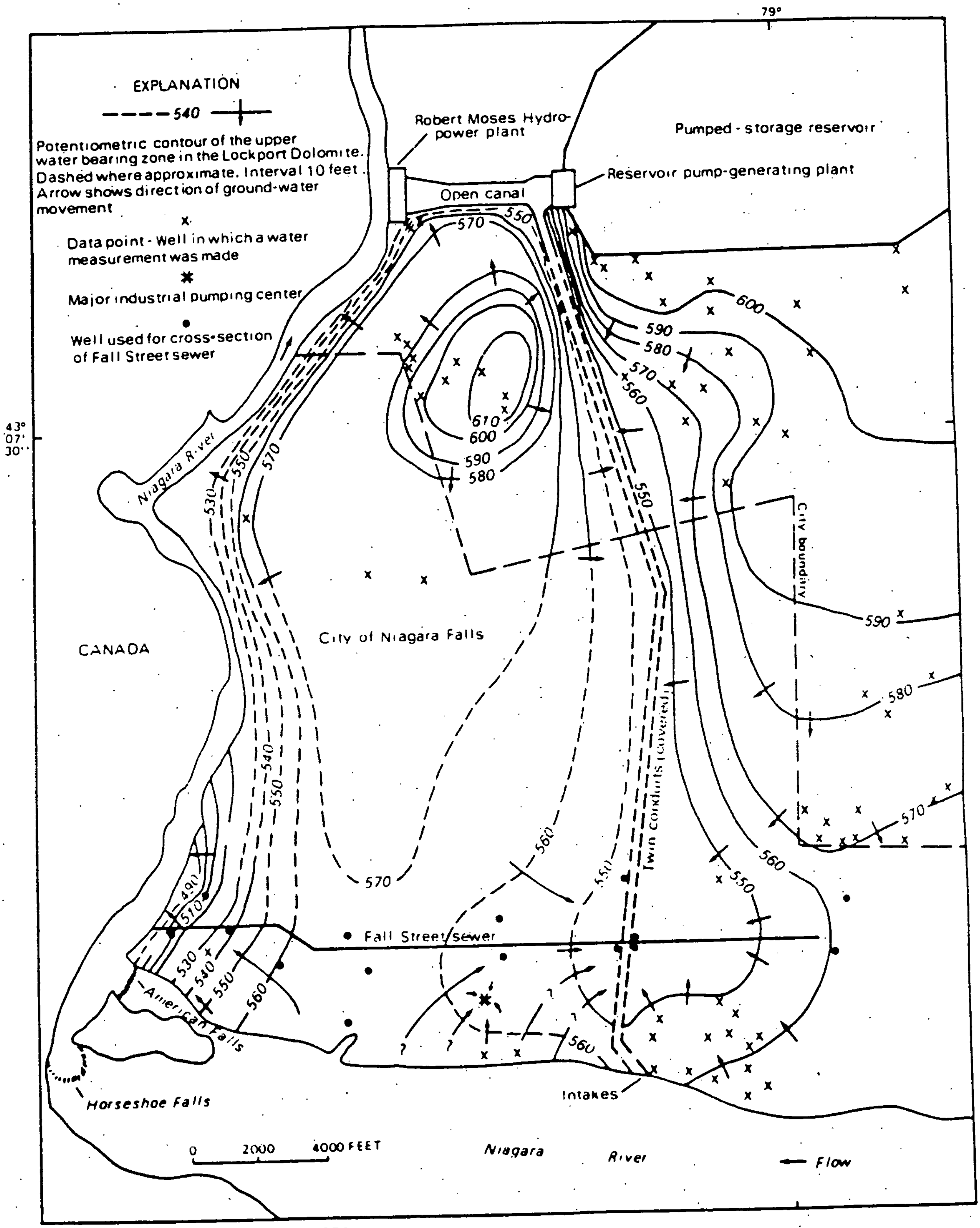
Bedrock aquifer.--The Lockport Dolomite consists of a predominantly fine crystalline matrix with some poorly connected vugs, mostly in the upper part, but few primary openings through which ground water can move. Significant ground-water movement occurs in secondary openings such as joints and fractures, and these may have been slightly widened by solution. The secondary openings are more numerous in the upper part of the dolomite as a result of weathering. Some joints and fractures have developed in the underlying Rochester Shale (fig. 6), but not nearly to the extent as in the Dolomite because the shale is less brittle. Little hydrologic information on the deeper rock units is available.

Most of the ground-water movement occurs along the horizontal bedding joints of the Lockport, in which Johnston (1964) identified seven major zones. Some movement also occurs in other thin-bedded zones (0.5 to 4 inches thick), which tend to be weaker and more likely to fracture than the more massive beds, which are 2 to 10 ft thick. Johnston (1964) noted that major water movement occurs within thin-bedded zones that are overlain by thick, massive beds.

Movement of ground water in vertical joints is greatest in the upper 10 to 15 ft of the Dolomite (weathered zone) and in the vicinity of the gorge wall. Tension-release joints have formed to about 200 ft inland from the gorge wall since the erosion of the supporting rock mass. These joints are probably significant avenues for downward flow of ground water to the Niagara River. The vertical joints near the gorge wall may explain the lack of seepage springs from the dolomite along the gorge wall. Ground water has been observed to seep out along the top of the underlying Rochester Shale and other deeper rock units.

Water levels in wells installed in the Lockport Dolomite at depths of 5 to 20 ft below the water table were used to compile a map showing the potentiometric surface of the upper water-bearing zones (fig. 8). The differences among potentiometric heads in deeper water-bearing zones could not be defined because not enough wells could be installed in each water-bearing zone nor grouted to seal off the effects of other zones. Johnston (1964) described the water-bearing bedding joints as being separated by essentially impermeable rock and considered them as distinct artesian aquifers. The horizontal joints are probably connected to some extent by vertical fractures, but little information is available to determine the extent of hydraulic connection.

An unlined storm-sewer tunnel, the Falls Street Tunnel, runs through the upper part of the Lockport Dolomite in the Niagara Falls area (fig. 8). The tunnel starts 1 mi east of the power conduits and 0.7 mi north of the upper Niagara River and extends westward to a gorge interceptor tunnel near the gorge wall just north of American Falls. Flow is then pumped to the Niagara Falls Wastewater Treatment Plant. The Tunnel is 3.5 mi long and slopes at an average rate of 20 ft/mi toward the gorge face.



Base from U.S. Geological Survey, 1974

Figure 8. Potentiometric surface of the upper water-bearing zones of the Lockport Dolomite and location of bedrock wells in the Niagara Falls area.

South of the Falls Street Tunnel and east of the power conduits, ground water in the upper water-bearing zones of the Lockport Dolomite moves northwest from the Niagara River to the tunnel and the power conduits. This reach of the tunnel is in the upper 15 ft of the Dolomite, which Johnston (1964) described as being the most permeable zone owing to weathering, small solution cavities, and relatively abundant vertical joints. At the east end of the tunnel, water levels at wells NFB-9 and 10 were 3 to 5 ft above the top of the tunnel, which indicates a relatively low slope in potentiometric surface, ranging 0.3 to 0.8 ft per 100 ft between the wells and the tunnel.

The potentiometric surface near the intersection of the conduits and the Falls Street Tunnel may be controlled by the water level in the forebay canal of the powerplant at the north end of the area (fig. 8). The backfill on top of the conduits may be more permeable than the dolomite, which would create a hydraulic connection between the forebay canal and conduit system. Water-level altitudes measured on March 2, 1983, at wells NFB-11, -12, and -13 adjacent to the conduits near the Falls Street Tunnel were 547.91, 546.41, and 547.80 ft, respectively. These altitudes are below that of the weir control (560 ft) at the sump station at Royal Ave., which would enable ground water in the backfill to move into the aqueducts if the water level were above 560 ft. Because the ground-water altitude in the backfill was below the weir control on that date, no flow into the conduits occurred at that time. A possible discharge area for ground water in the backfill may be the forebay canal, in which the water level usually fluctuates between 541 and 546 ft during the winter. During periods of low water levels in the forebay canal, ground water may be able to flow through the backfill above the conduits and discharge into the canal. Thus, the direction of ground-water flow in the immediate area may oscillate according to the water level in the forebay canal.

The Falls Street Tunnel is a significant ground-water discharge area in the vicinity of the conduits, where ground-water seepage (estimated 6 Mgal/d) into the tunnel has been observed at pipe joints where the tunnel crosses the conduits (Camp, Dresser, and McKee, 1982). Lesser ground-water seepage, mostly along the northern wall, has been observed along the entire length of the tunnel.

North of the Falls Street Tunnel and more than 1 mi east of the conduits, ground water flows southward from the Niagara Escarpment and pumped-storage reservoir toward the Falls Street Tunnel and the Niagara River. North of the Falls Street Tunnel and less than 1 mi east of the conduits, ground water also flows southwest toward the tunnel. Along a 1-mi-wide band along the east side of the conduits, ground water moves westward toward the conduits.

South of the Falls Street Tunnel and 0.75 mi west of the conduit, an industrial pumping center withdraws large quantities of ground water (2,000 to 4,000 gal/min). Johnston (1964) reports that part of the pumped water is induced river water from the Niagara River.

Water-level data are insufficient to indicate the effects of the industrial pumping center on the upper water-bearing zone of the dolomite. If the well field has a large cone of influence affecting the upper water zones, ground water probably moves radially into the well field. If the well field does not greatly effect the upper water-bearing zone, however, ground water may flow north-northeast from the river toward the conduits.

Approximately 0.75 mi west of the conduits, water levels in the shallow bedrock wells (NFB-7 and NFB-8, pl. 3) on either side of the Falls Street Tunnel were 20 ft above the top of the tunnel in December 1982, indicating that vertical downward flow of ground water into the tunnel is impeded by the massive, relatively unfractured rock units. West of the conduits, the tunnel dips below the fractured layer (upper 10 to 15 ft of the Lockport Dolomite) and penetrates less fractured and less weathered dolomite. In this area, ground water in the upper water-bearing zone flows over the top of the tunnel. Adjacent to shallow well NFB-7, a deeper well (NFB-7A) was installed and screened at the same depth as the bottom of the tunnel. The water level in the deeper well was 17.5 ft lower than that in the adjacent shallow well, which suggest that west of the conduits, the tunnel drains the water-bearing zones it intercepts but probably has little effect on the zones above or below. The same phenomenon was seen at another pair of wells (NFB-5 and 5A) 1.5 mi west of the conduits, in which the water level in the deeper well (NFB-5A) was 9 ft lower than that in the shallow well (NFB-5).

From 0.5 to 1.0 mi west of the industrial pumping center, water from the Niagara River recharges the Lockport Dolomite and flows northwestward to discharge at the gorge wall. Wells adjacent to the Niagara River at Prospect and Terrapin Points reveal a steeply declining potentiometric surface toward the Niagara River in the gorge. The steep potentiometric gradient within 200 ft of the gorge wall is probably due to the large drop of the river at the falls and the presence of vertical stress-release joints in the bedrock that allow ground water to move downward toward the lower river elevation.

In the northwest part of Niagara Falls, ground water flows radially outward from the apex of a ground-water mound south of the forebay canal. Discharge areas include the Niagara River to the west and northwest, the forebay canal to the north, the conduits to the east, and the city to the south. (The central part of the city has little water-level information to determine ground-water flow paths). A ground-water divide trending roughly north-south runs through the central part of the city. Ground water west of the divide flows toward the Niagara River, and ground water east of the divide flows east-southeast toward the conduits or possibly south to the industrial pumping center.

Unconsolidated aquifer.--The unconsolidated deposits (fig. 7) consist of till, lacustrine silt and clay, and alluvial fine sand overlying bedrock. The till has pebble to cobble clasts embedded in a clayey silt matrix. Permeability of till and lake deposits is low. During the test drilling of 1982, ground water was usually encountered 5 to 15 ft below land surface. The unconsolidated deposits were unsaturated in some areas to the north and along the gorge, where they are thin.

The low permeability of the deposits causes a seasonal water table to form in many places, particularly where fill and coarse-grained material overlie the till or clay. This perched water table usually develops mounds that discharge radially into topographic lows, drainage ditches, and streams.

The hydrologic properties of the unconsolidated aquifer are discussed in consultant reports referred to in the site descriptions in appendix C. The direction of ground-water movement in the aquifer is generally toward the major surface-water bodies--the Niagara River, Bergholtz Creek, and Cayuga Creeks (pl. 3).

91. TOWN OF NIAGARA, LOCKPORT ROAD LANDFILL (Literature review) NYSDEC 932089

General information and chemical-migration potential.--The Lockport Road landfill, in the city of Niagara Falls, has been used mainly for residential waste such as paper, glass, yard trimmings, metal, rags, plastics, garbage, and miscellaneous items.

Preliminary geologic and chemical data indicate a limited potential for contaminant migration; however, the potential is indeterminable at this time. The underlying silty clay may prevent vertical flow of contaminants to the fractured bedrock. Periodic water-quality monitoring at wells on the site would be needed to detect lateral migration of leachate from the site.

Geologic information.--The site consists of a lacustrine silty clay about 13 ft thick overlying bedrock of Lockport Dolomite (Wegman Co., Inc., 1978).

Hydrologic information.--Dunn Geoscience Corp. installed three monitoring wells, one upgradient and two downgradient from the landfill. Ground water was encountered from 3 to 7 ft below grade. Ground-water flow is probably westward toward Gill Creek.

Chemical information.--A water sample was taken from each monitoring well for heavy-metals analysis. Results indicated slightly elevated concentrations of all heavy metals except iron, which was as high as 530 μg/L.

Sources of data

Dunn Geoscience Corporation, 1981, Town of Niagara Sanitary Landfill, Facility No. 32S08, open dump inventory, ground-water quality evaluation, New York State Department of Environmental Conservation Resource Conservation Recovery Act: Albany, N.Y., Dunn Geoscience Corp., 16 p., 4 appendices, 1 map.

Leonard S. Wegman Co., Inc., 1978, Sanitary landfill report, Town of Niagara: 50 p., 4 appendices.

92. NIAGARA FRONTIER TRANSPORTATION AUTHORITY (USGS field reconnaissance) NYSDEC 932090

General information and chemical-migration potential.--The Niagara Frontier Transportation Authority site, in the town of Wheatfield, is a basin that has collected an unknown amount of phenolic spills from the adjacent abrasive plant.

The potential for contaminant migration is indeterminable.

Geologic information.--The site consists of unconsolidated deposits probably overlying Lockport bedrock. The U.S. Geological Survey drilled two boreholes on the site in 1982; the locations are shown in figure C-50. The geologic logs are as follows:

Boring no.	Depth (ft)	Description
1	0 - 3	Topsoil, brown.
	3 - 5.5	Clay, sandy, brown, tight.
	5.5 - 6.5	Clay, reddish, tight.
	6.5 - 8.0	Same.
	8.0 - 13.0	Same.
	13.0 - 15.0	Clay, reddish, wet, with some small gravel.
		SAMPLE: 13 - 15 ft.
2	0 - 3.5	Topsoil, brown.
	3.5 - 7.5	Clay, pinkish brown.
	7.5 - 10.0	Same, changing to greenish gray.
	10.0 - 15.0	Clay, pinkish, wet.
		SAMPLE: 14 - 15 ft.

Hydrologic information.--Ground water was encountered from 10 to 13 ft below land surface. The yield from the saturated zone was too low to warrant the installation of monitoring wells. The direction of ground-water flow is probably northward toward Cayuga Creek.

Chemical information.--The U.S. Geological Survey collected two soil samples for organic-compound analyses; results are given in table C-30. The samples contained three priority pollutants, all phthalates and all below 40 µg/kg, and two nonpriority pollutants.

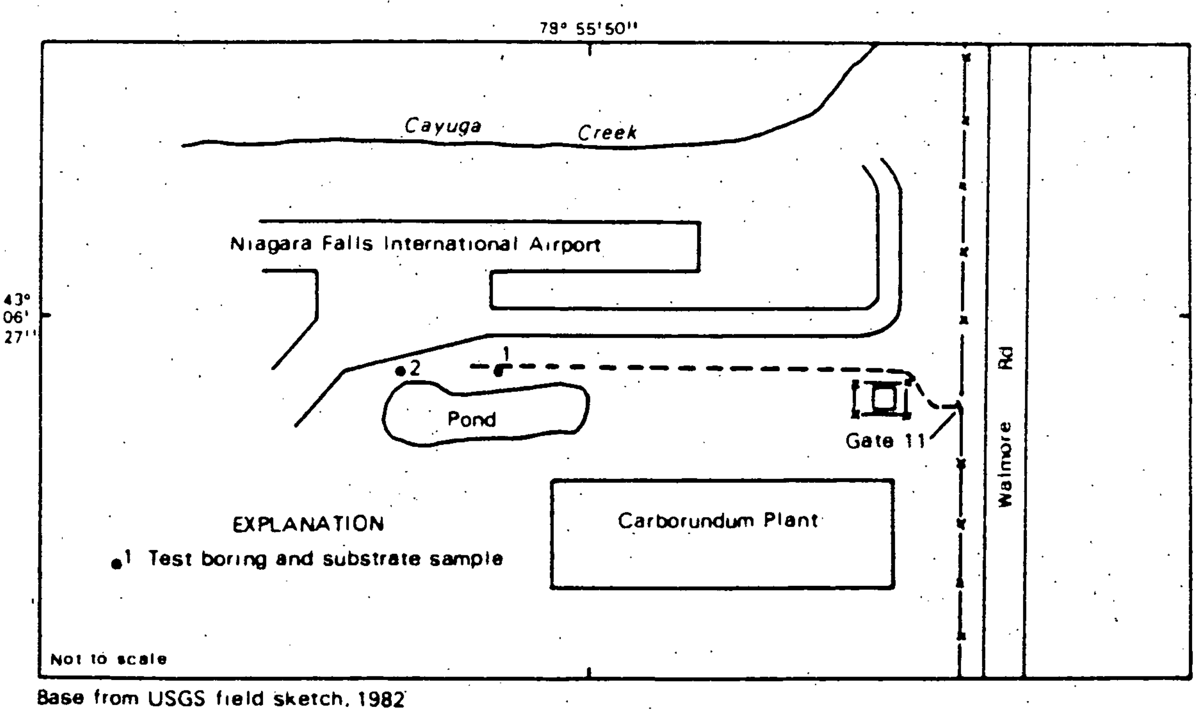


Figure C-50. Location of sampling holes at Niagara Frontier Transportation Authority, site 92, Niagara Falls.

Table C-30.--Analyses of substrate samples from Niagara Frontier Transportati Authority, site 92, Wheatfield, N.Y., July 27, 1982. [Locations shown in fig. C-50. Concentrations are in µg/kg, dashes indicate that compound was not found.]

	Sample number	
	1A	2A
Organic compounds		
Priority pollutants		
Bis(2-ethylhexyl) phthalate	35.7	--
Di-n-octyl phthalate	15.8	--
Diethyl phthalate	LT	--
Non-priority pollutants		
Acetone	38.1	--
Bis(2-ethylbutyl) phthalate[1]	570	--

[1] Tentative identification based on comparison with the National Bureau of Standards (NBS) library. No external standard was available. Concentration reported is semiquantitative and is based only on an internal standard. GC/MS spectra were examined and interpreted by GC/MS analysts.

94. NIAGARA RIVER--BELDEN SITE (USGS field reconnaissance) NYSDEC 932

General information and chemical-migration potential.--The Belden site, on th Niagara River in the town of Wheatfield, was used by the Goodyear Company for the deposition of fill, rubble, and thiazole polymer blends in unknown quantities. Leachate has been noted leaving this site in surface water, but the chemical composition is unknown.

Preliminary data indicate some potential for contaminant migration, but analyses of ground-water samples indicate low concentrations of contaminants. Additional analyses would be needed to define the extent of ground-water contamination and the potential for offsite migration. The potential for contaminant migration is indeterminable.

Geologic information.--The U.S. Geological Survey drilled two test holes on t site and installed two monitoring wells in 1982; the locations are shown it figure C-51. The geologic logs are on page 402.

Hydrologic information.--Ground water was encountered in both test holes. Th direction of ground-water flow is probably southwestward toward the river.

Chemical information.--A water sample was collected from each of the monitori wells and analyzed for organic compounds; results are given in table C-31. T samples contained two priority pollutants, both phthalates, at concentrations below the quantifiable detection limit, and four nonpriority pollutants as we as two possibly naturally occurring organic compounds.

REFERENCE 5

GROUND-WATER RESOURCES OF THE ERIE-NIAGARA BASIN, NEW YORK

Prepared for the
Erie-Niagara Basin Regional Water Resources
Planning Board

by

A. M. La Sala, Jr

UNITED STATES DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
in cooperation with
THE NEW YORK STATE CONSERVATION DEPARTMENT
DIVISION OF WATER RESOURCES

STATE OF NEW YORK
CONSERVATION DEPARTMENT
WATER RESOURCES COMMISSION

Basin Planning Report ENB-3
1968

System	Series	Group	Formation	Thickness in feet	Section	
Devonian	Upper	Conneaut Group of Chadwick (1934)		500		Shale, siltstone, and fine-grained sandstone. Top is missing in area.
Devonian	Upper	Canadaway Group of Chadwick (1933)	Undivided	600		Gray shale and siltstone, interbedded. (section broken to save space)
Devonian	Upper	Canadaway Group of Chadwick (1933)	Perrysburg	400-450		Gray to black shale and gray siltstone containing many zones of calcareous concretions. Lower 100 feet of formation is olive-gray to black shale and interbedded gray shale containing shaly concretions and pyrite.
Devonian	Upper		Java	90-115		Greenish-gray to black shale and some interbedded limestone and zones of calcareous nodules. Small masses of pyrite occur in the lower part.
Devonian	Upper		West Falls	400-520		Black and gray shale and light-gray siltstone and sandstone. The lower part is petroliferous. Throughout the formation are numerous zones of calcareous concretions, some of which contain pyrite and marcasite.
Devonian	Upper		Sonyea	45-85		Olive-gray to black shale.
Devonian	Upper		Genesee	10-20		Dark-gray to black shale and dark-gray limestone. Beds of nodular pyrite are at base.
Devonian	Middle	Hamilton	Moscow Shale	12-55		Gray, soft shale
Devonian	Middle	Hamilton	Ludlowville Shale	65-130		Gray, soft, fissile shale and limestone beds at top and bottom.
Devonian	Middle	Hamilton	Skaneateles Shale	60-90		Olive-gray, gray and black, fissile shale and some calcareous beds and pyrite. Gray limestone, about 10 feet thick is at the base.
Devonian	Middle	Hamilton	Marcellus Shale	30-55		Black, dense fissile shale.
Devonian	Middle	Unconformity	Onondaga Limestone	108		Gray limestone and cherty limestone.
Silurian	Cayuga		Akron Dolomite	8		Greenish-gray and buff fine-grained dolomite.
Silurian	Cayuga	Salina	Bertie Limestone	50-60		Gray and brown dolomite and some interbedded shale.
Silurian	Cayuga	Salina	Camillus Shale	400		Gray, red, and green thin-bedded shale and massive mudstone. Gypsum occurs in beds and lenses as much as 5 feet thick. Subsurface information indicates dolomite (or perhaps, more correctly, magnesian-lime mudrock) is interbedded with the shale (shown schematically in section). South of the outcrop area, at depth, the formation contains thick salt beds.
Silurian	Niagara		Lockport Dolomite	150		Dark-gray to brown, massive to thin-bedded dolomite, locally containing algal reef and gypsum nodules. At the base are light-gray limestone (Gasport Limestone Member) and gray shaly dolomite (DeCew Limestone Member).
Silurian	Niagara	Clinton	Rochester Shale	60		Dark-gray calcareous shale.

Figure 2.--Bedrock units of the Erie-Niagara basin.

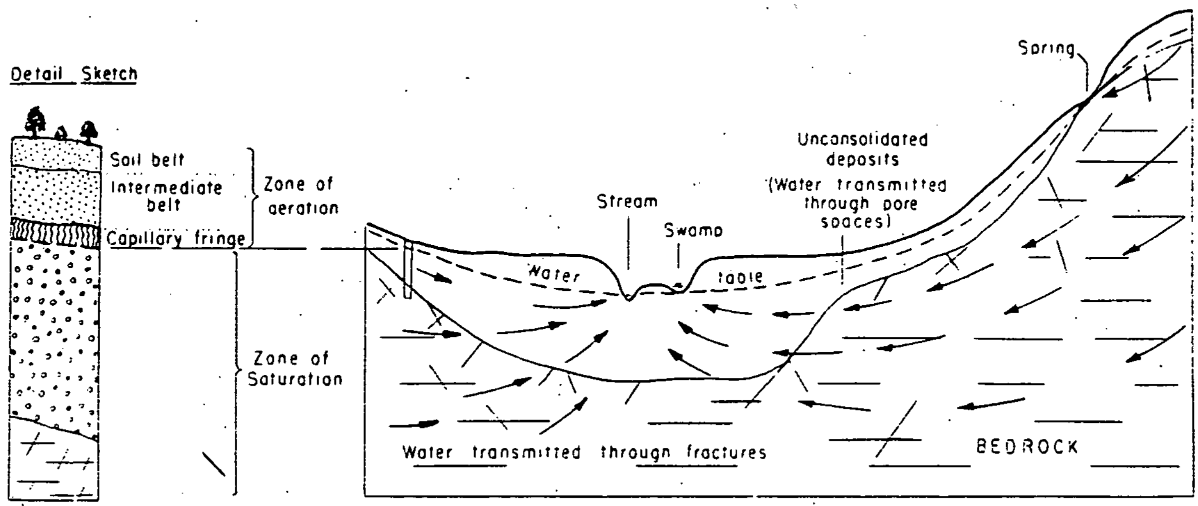


Figure 4.--Occurrence of ground water. Arrows show direction of ground-water movement.

The sediments composing the bedrock initially also contained pore spaces, but these pores were closed when the sediments were compacted and cemented. A solid piece of rock from any of the bedrock units in the area is nearly or completely impermeable. But in each of the units, masses of rock have separated along fractures. These fractures transmit ground water through the bedrock.

OCCURRENCE OF WATER IN BEDROCK

The principal water-bearing fractures in the bedrock are joints which are regularly arranged. They are caused by geologic forces acting through broad areas and occur in sets, all the joints of which are roughly parallel. In the Erie-Niagara basin, the rocks are cut typically by two sets of vertical joints. One set trends northeast and the other northwest, forming diamond-shaped patterns at the surface. These vertical joints are spaced from a few feet to perhaps 30 feet apart and may be 50 feet to a few hundred feet long at the surface. More important joints, however, are the horizontal ones that are parallel to the bedding planes of the rocks. These joints develop along planes of weakness between adjacent layers of rocks. The evidence suggests that bedding-plane joints are the principal water-bearing openings in the bedrock.

Faults, which are fractures along which adjacent masses of rock have been offset, may also provide openings for ground-water circulation. A fault trending south through Batavia is the only major one known in the area (pl. 2). However, other faults may exist but are not recognized because they are covered by the glacial deposits.

Still another factor in regard to the water-bearing openings in bedrock must be considered. Some of the rocks are relatively soluble in water; some are essentially insoluble. Ground water circulating through joints removes soluble material by dissolving it, thereby widening the joints and making them still better conduits for ground water. Such solution has enhanced considerably the water-bearing properties of the more soluble rocks.

On the basis of lithology and water-bearing properties, the numerous bedrock units in the Erie-Niagara basin can be divided into two groups: soluble bedrock and shale bedrock. Of the two, the soluble rocks are an important source of water, whereas the shale yields only small supplies.

The Lockport Dolomite, Camillus Shale, Bertie Limestone, Akron Dolomite, and Onondaga Limestone (fig. 2 and pl. 2) are composed of rock materials that are relatively soluble in water. Subsurface water has been relentlessly quarrying the rocks by solution, particularly during the 10,000 years or so since the ice sheet melted from the area. In more extensive and more weathered limestone terranes elsewhere, such as in Kentucky, this process has produced numerous caves and underground streams. In the Erie-Niagara basin, the same process is underway but has advanced only enough to widen considerably many of the water-bearing openings and to enhance the circulation of ground water.

Four of the five formations listed as soluble rocks are either limestone or dolomite. Limestone is composed mainly of the mineral calcite which is a natural form of calcium carbonate. Dolomite is composed of calcium-magnesium carbonate and is less soluble than limestone. Both rocks are attacked by acid. Water that percolates through soil generally dissolves carbon dioxide and, therefore, becomes a weak acid. The initial acidity gives ground water much of its ability to dissolve the carbonate rocks.

The fifth formation, the Camillus Shale, seems out of place listed with dolomite and limestone as a soluble rock. Shale is not by any stretch of the imagination a soluble rock. But the Camillus Shale is unique among the shale formations of the area because it contains a large proportion of gypsum, a calcium-sulfate mineral which is even more soluble than limestone. The gypsum is interbedded with and even diffused through the shale.

Except where removed by erosion, the soluble rocks lie one above another with the Lockport Dolomite on the bottom, the Camillus Shale in the middle, and the Bertie, Akron, and Onondaga on top. For hydrologic purposes the Bertie, Akron, and Onondaga can be considered to form a single aquifer or water-bearing unit, which is called the limestone unit. (These three formations are distinct in a geologic sense but not in a broad hydrologic sense.) All the soluble rocks dip (are inclined) southward at about 40 feet to the mile.

The soluble rocks are bounded top and bottom by shale formations of much lower permeability. The Rochester Shale is at the base of the Lockport Dolomite, and the Marcellus Shale overlies the Onondaga Limestone.

The water-bearing properties of the soluble rocks developed to a large degree in response to the composition of the rocks (lithology) and the primary sedimentary structures (bedding). The soluble rocks are composed of dense materials that are innately not water bearing. These rocks transmit water only through fractures and solution openings. The nature of the water-bearing openings can be studied both from exposures of the rocks and from data on wells. How good any unit is as a source of water can be judged from records of wells. All of these hydrologic properties and characteristics for each rock unit will be discussed in the following sections.

LOCKPORT DOLOMITE

Bedding and lithology

The lowest aquifer, the Lockport Dolomite, consists mainly of gray, fine- to coarse-grained dolomite. The Gasport Limestone Member near the base of the formation is a light-gray limestone. The thickness of the Lockport is approximately 150 feet. A general summary of the lithology and thickness of the lithologic units is given in figure 5.

The rock units within the Lockport are bedded and dip southward in the study area at 35 to 40 feet per mile. In the extensive exposures Johnston (1964, p. 22) observed in excavations for the Niagara Power Project at Niagara Falls, the beds ranged generally from 1 inch to 3 feet in thickness. In some zones, beds were only 1/4 inch thick. On the other hand, a few massive beds are as much as 8 feet thick at places. The beds thicken and thin laterally. Approximate positions of some fairly persistent zones of massive and thin beds are shown in figure 5 by the widths of the bands of lithologic symbols. The bedding planes are flat except at the few places where they curve over ancient reefs in the upper part of the formation. These reefs are massive (nonbedded) structures as much as 50 feet across and 20 feet thick. Nodules of gypsum 1/2 to 5 inches across are common in the dolomite. Particles composed of the sulfide minerals of zinc, lead, and iron are disseminated through the rock.

Water-bearing openings

With respect to water-bearing openings in the Lockport Dolomite near Niagara Falls, Johnston's (1964) report may be considered a type study for rocks of this sort. Johnston found that bedding-plane joints are the principal water-bearing openings in the Lockport. Vertical joints and voids from which gypsum nodules were dissolved are minor water-bearing openings.

Water-bearing bedding-plane joints can occur at any stratigraphic horizon in the Lockport Dolomite. However, those that are persistent commonly occur in zones of thin beds overlain by thick or massive beds. Johnston identified seven persistent water-bearing joints or zones (several closely spaced joints) in the Niagara Falls area. (His findings are summarized in figure 5.) These joints are continuous for some miles, but they are not water bearing everywhere. Where the joints are water bearing, they have been widened to some degree by the solution of rock by ground water. Some of the joints are open as much as 1/8 inch. Locally, solution along bedding joints has been great enough to cause the rock overlying the solution opening to settle.

The stratigraphic and hydrologic data for the Erie-Niagara basin are not sufficient to prove if Johnston's water-bearing bedding-plane joints extend beyond the Niagara Falls area. Well data and the examination of outcrops do indicate that at least similar sets of such joints transmit ground water in the Lockport Dolomite within the Erie-Niagara basin.

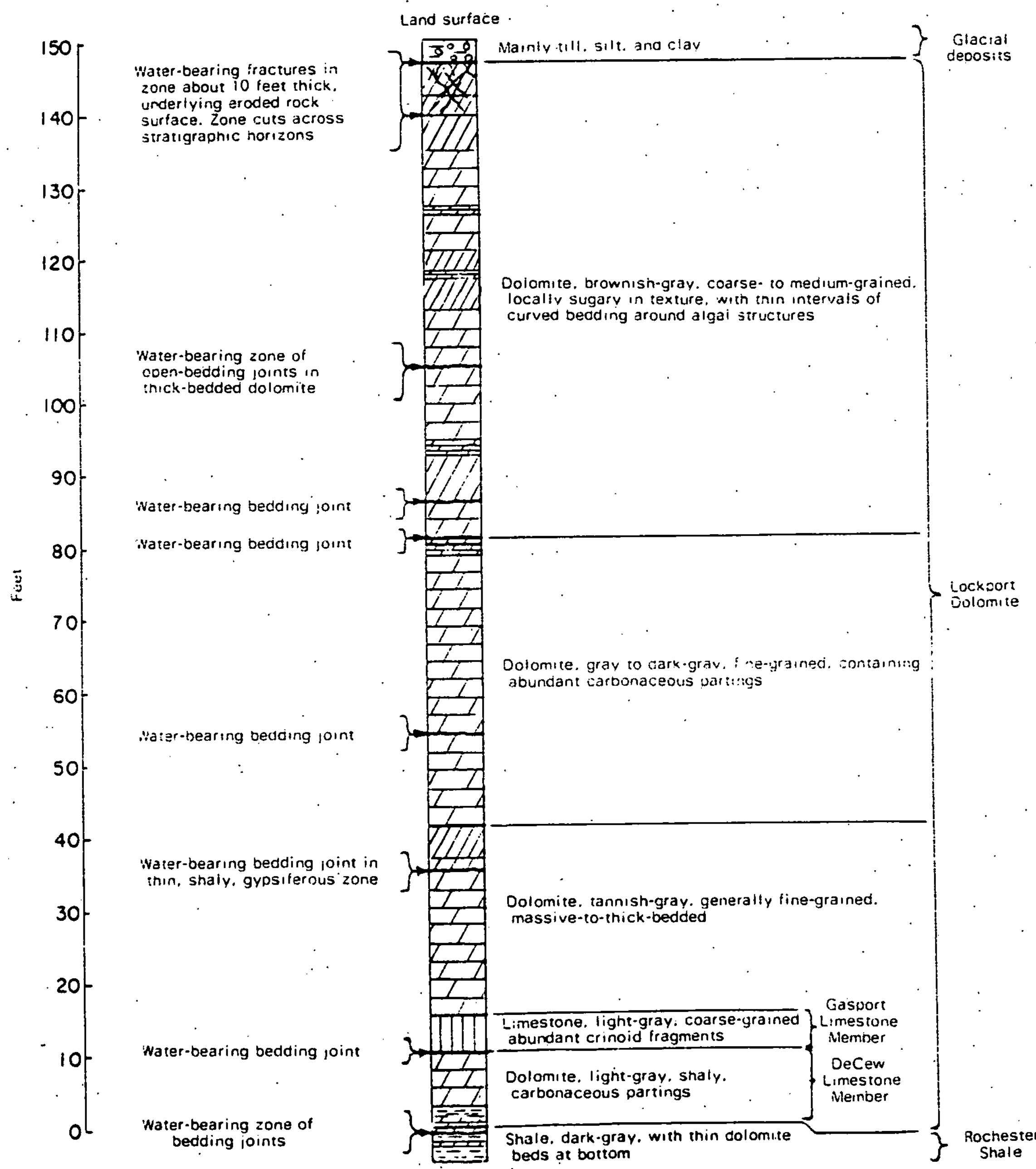


Figure 5.--Water-bearing zones in the Lockport Dolomite (adapted from Johnston, 1964).

In addition to the bedding-plane joints, a widespread water-bearing zone of highly fractured rock, perhaps 10 feet thick, lies at the top of the Lockport. This zone follows the upper surface of the rock in the outcrop area rather than a stratigraphic horizon and is hydraulically connected to the overlying glacial deposits.

A third zone of water-bearing openings is found where gypsum has been dissolved out of the Lockport Dolomite. The gypsum occur as nodules that are locally concentrated along bedding planes. Although gypsum forms a dense, impermeable rock, it is far more soluble than the enclosing rocks, whether shale, dolomite, or limestone. Only those gypsum zones actually exposed to circulating ground water can be widened by solution. The gypsum must be in contact with open fractures through which the water can move. If no open fractures exist, the gypsum is safe from being dissolved. Johnston (1964, fig. 8) observed a thin gypsum zone in the Lockport Dolomite which illustrates this fact. His water-bearing zone 3, a horizontal joint in a gypsiferous zone, was not open everywhere. (This is the zone about 35 feet above the base of the Lockport shown in figure 5.) Where the zone was closed to circulating water, the gypsum was intact.

Hydrologic characteristics

Although ground water moves through the soluble rocks toward Tonawanda Creek and its tributaries, the path of ground-water movement in each of the rock units is somewhat different. The water-bearing zones in the Lockport Dolomite receive water along the traces of their intersections with the surface or the overlying deposits. The water is discharged to small streams and swamps on the dip slope or flows into the Camillus Shale through the subsurface.

The zone of fracturing and solution that follows the upper surface of the soluble rocks is in hydraulic continuity with the glacial deposits. Water moves between this zone and the glacial deposits. Water enters the bedding joints where the joints come to the surface or where they intersect the glacial deposits or water-bearing fracture zone at the rock surface. Vertical joints also transmit some water but, at most places, they are not open to a significant degree. The occurrence of water at the gypsum mine portrayed in figure 6 indicates very restricted vertical circulation. Vertical joints are not present in the mine. Water finds its way through the roof of the mine only where roof bolts and cracks have intersected horizontal openings. Evidence was also presented by Johnston (1964, p. 29) to prove that horizontal joints in the Lockport Dolomite are not interconnected by vertical joints to any significant degree. Johnston was able to measure the head of water in various bedding joints in the Lockport. He found that the head declines in successively lower joints. The head differences are explained by the position of the joints and topography. The successively lower joints crop out at successively lower altitudes.

Hydraulic properties

The hydraulic properties of an aquifer are described by its coefficient of trasmissibility (T) and its coefficient of storage (S). The coefficient of transmissibility is a quantitative description of the rate at which an aquifer will transmit ground water. It is defined as the rate of flow, in gallons per day, through a vertical strip of the aquifer 1 foot wide and extending the full saturated thickness, under a hydraulic gradient of 1 foot per foot at the prevailing temperature of the water. The coefficient of storage of an aquifer describes the properties of an aquifer in releasing water from storage. It is defined as the volume of water the aquifer releases or takes into storage per unit surface area per unit change in the head normal to the surface. The storage coefficients of the bedrock units vary mainly with the volume of the openings in the rocks, which, in turn, vary mainly with the solubility of the rocks. The aquifer constants (T and S) are necessary to compute the quantities of water that can be obtained from an aquifer, the effect of pumping on ground-water levels, and the most favorable spacing of wells.

Pumping tests should be performed to determine the constants whereever ground water is to be intensively developed. The constants already determined in the Erie-Niagara basin show that the soluble rocks generally have moderate to high coefficients of transmissibility and low coefficients of storage. This means that wells in these formations will produce moderate to large yields but that the cones of depression around the wells will develop rapidly and extensively. (Cone of depression is defined as the depression in a water table or piezometric surface caused by pumping.) However, in large-yield wells in north Buffalo and the Tonawandas that are pumped either continuously or for prolonged periods, the water levels are generally stable. The stable pumping levels indicate that the rocks receive recharge from streams. Temperature data for wells near the Niagara River also indicate that recharge is received from the river, as will be explained later.

For the Lockport Dolomite, Johnston (1964, p. 33) calculated a coefficient of transmissibility of 2,300 gpd (gallons per day) per foot from data collected during dewatering of an 18,000-foot long conduit near Niagara Falls. This probably is a representative figure for the Lockport because of the extent of rock involved. Pumping tests on four wells in the Niagara Falls area gave transmissibilities of 300 to 1,000 gpd per foot and coefficients of storage of 0.00001 to 0.0003. The small transmissibility of 300 gpd per foot and small coefficient of storage of 0.00001 apply to the lower part of the Lockport.

Yields of wells

The data on yields of wells in the soluble rocks should be interpreted from the standpoint of hydrology and geology. They are not suitable for statistical treatment.

Many domestic-supply wells penetrate from 1 foot to a few feet into the soluble rocks and produce small but adequate yields. On the other hand, industrial wells that were intended to produce large supplies of water give a truer picture of the water-supply potential of the rocks. Data on industrial wells show that the Camillus Shale will yield as much as 1,200 gpm and the limestone unit as much as 300 gpm and probably more. But the data also show that the rocks produce low yields at places. This is shown by such wells as 301-848-1 which was drilled to obtain a large supply for an industry but which yielded only 30 gpm. The water-bearing zones obviously are unevenly distributed through the rocks. Factors that control the occurrence of the water-bearing zones cannot be evaluated at the present time to the extent necessary to predict exactly where the zones occur.

The Lockport Dolomite is the least productive unit of the soluble rocks. Within the Erie-Niagara basin yields of wells in the Lockport range from about 4 to 90 gpm. Depth of the wells range from 20 to 70 feet. Most of the deeper wells were drilled where the depth to bedrock is greatest. Domestic-supply wells generally are finished in the fracture zone at the rock surface or in a bedding joint within the uppermost 30 feet of the rock. It is usually not necessary to drill deeper into the Lockport if only a small supply is needed.

Drilling deeper in an attempt to intersect additional bedding-plane openings at depth would provide higher yields but, generally, at the expense of lower water levels and therefore higher pump lifts. Johnston (1964) collected data on a much larger number of wells along the outcrop belt of the Lockport Dolomite than were inventoried in the Erie-Niagara basin. He found that wells drawing water from the lower 40 feet of the Lockport (the northern part of the outcrop area) yield from 1/2 to 20 gpm and have an average yield of 7 gpm. Wells finished in the upper part of the Lockport (the southern part of the outcrop area) yield from 2 to 110 gpm and have an average yield of 31 gpm. Yields of as much as 50 or 100 gpm are possible from the Lockport in the Erie-Niagara basin but would be exceptional.

CAMILLUS SHALE

Bedding and lithology

The Camillus Shale lies above the Lockport Dolomite and crops out to the south of where the dolomite is exposed. Exposures of the Camillus Shale are rare in the Erie-Niagara basin because of the low relief of the outcrop area and the cover of glacial deposits. Geologists who have studied the Camillus in the study basin agree that it consists mostly of gray shale. (For example, see Buehler and Tesmer, 1963, p. 29-30.) Subsurface data, on the other hand, indicate that a considerable amount of gray limestone and dolomite is interbedded with the shale. Along with these carbonates, gypsum comprises a significant part of the Camillus Shale. Some of the gypsum beds are as much as 5 feet thick. Gypsum also occurs in the Camillus as thin lenses and veins. Table 1,

REFERENCE 6

DRAFT

UNCONTROLLED HAZARDOUS WASTE
SITE RANKING SYSTEM -
A USERS MANUAL

DRAFT

10 June 1982
(errata included)

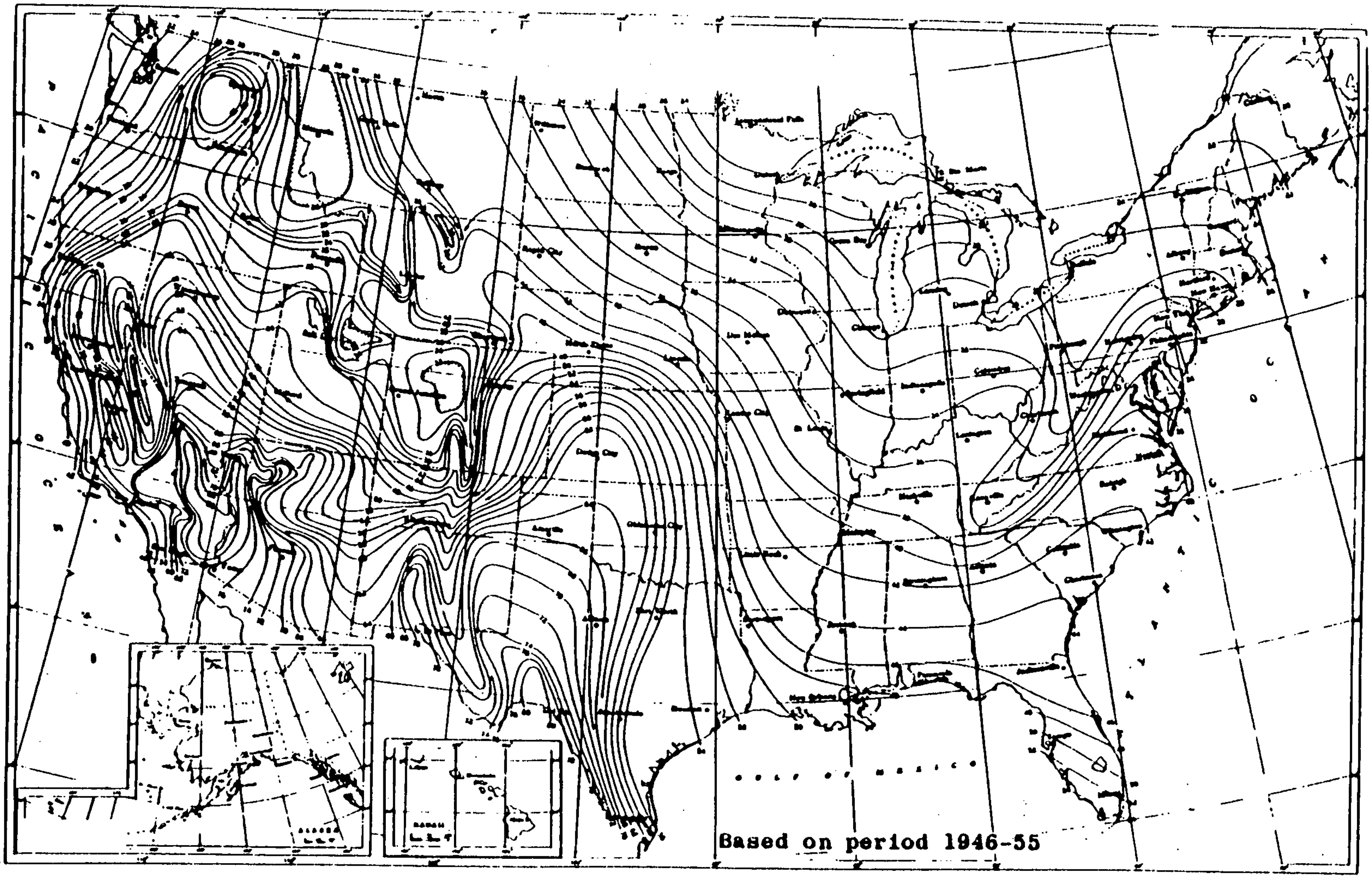


Figure 4

Mean Annual Lake Evaporation (In Inches)

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

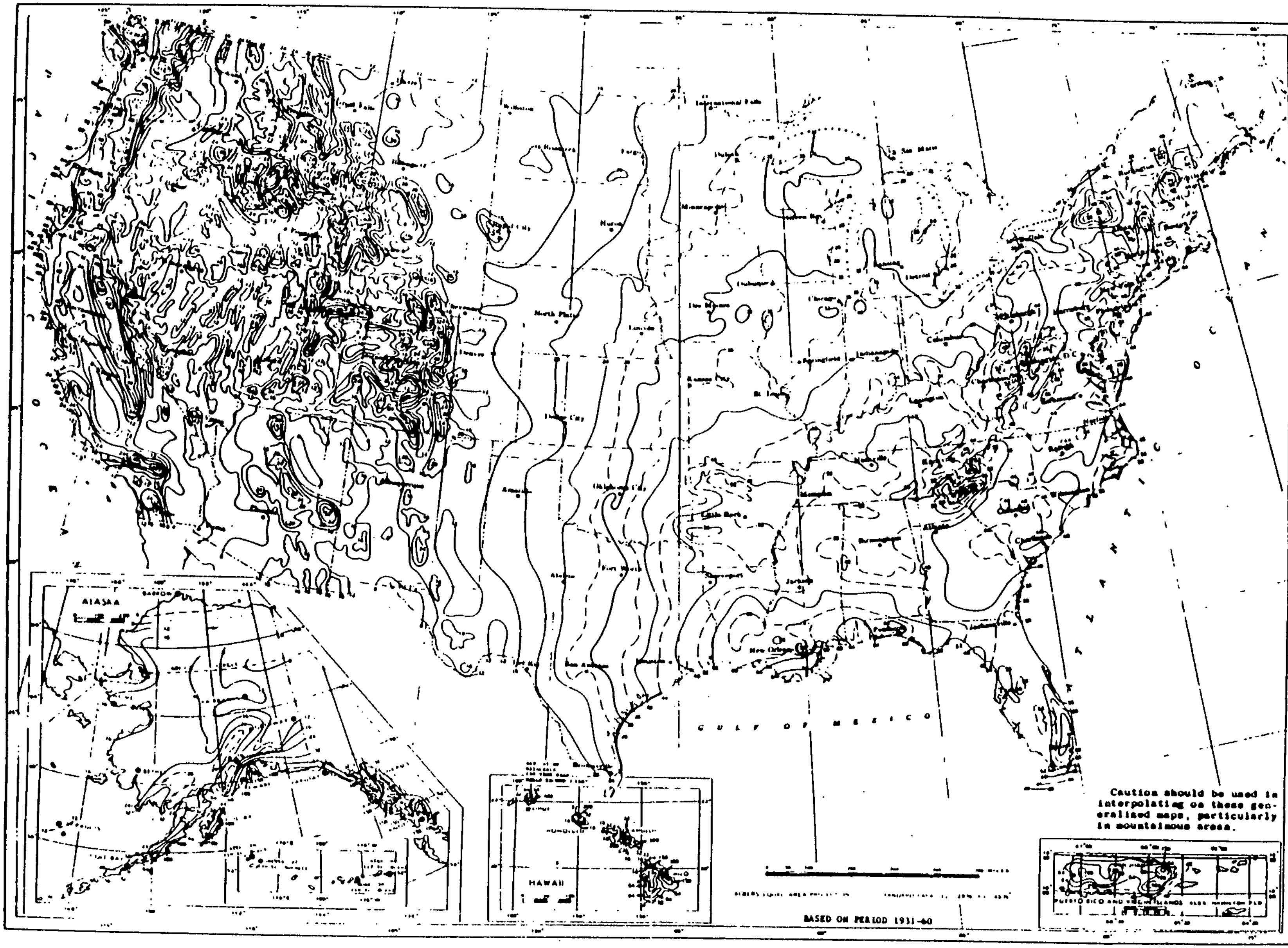


Figure 5

Normal Annual Total Precipitation (inches)

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

TABLE 2

PERMEABILITY OF GEOLOGIC MATERIALS*

TYPE OF MATERIAL	APPROXIMATE RANGE OF HYDRAULIC CONDUCTIVITY	ASSIGNED VALUE
Clay, compact till, shale; unfractured metamorphic and igneous rocks	$< 10^{-7}$ cm/sec	0
Silt, loess, silty clays, silty loams, clay loams; less permeable limestone, dolomites, and sandstone; moderately permeable till	$< 10^{-5} \geq 10^{-7}$ cm/sec	1
Fine sand and silty sand; sandy loams; loamy sands; moderately permeable limestone, dolomites, and sandstone (no karst); moderately fractured igneous and metamorphic rocks, some coarse till	$< 10^{-3} \geq 10^{-5}$ cm/sec	2
Gravel, sand; highly fractured igneous and metamorphic rocks; permeable basalt and lavas; karst limestone and dolomite	$> 10^{-3}$ cm/sec	3

*Derived from:

Davis, S. N., Porosity and Permeability of Natural Materials in Flow-Through Porous Media, R.J.M. DeWest ed., Academic Press, New York, 1969

Freeze, R.A. and J.A. Cherry, Groundwater, Prentice-Hall, Inc., New York, 1979

TABLE 3

CONTAINMENT VALUES FOR GROUND WATER ROUTE

Assign containment a value of 0 if: (1) all the hazardous substances at the facility are underlain by an essentially non permeable surface (natural or artificial) and adequate leachate collection systems and diversion systems are present; or (2) there is no ground water in the vicinity. The value "0" does not indicate no risk. Rather, it indicates a significantly lower relative risk when compared with more serious sites on a national level. Otherwise, evaluate the containment for each of the different means of storage or disposal at the facility using the following guidance.

A. Surface Impoundment

	Assigned Value
Sound run-on diversion structure, essentially non permeable liner (natural or artificial) compatible with the waste, and adequate leachate collection system	0
Essentially non permeable compatible liner with no leachate collection system; or inadequate freeboard	1
Potentially unsound run-on diversion structure; or moderately permeable compatible liner	2
Unsound run-on diversion structure; no liner; or incompatible liner	3

B. Containers

	Assigned Value
Containers sealed and in sound condition, adequate liner, and adequate leachate collection system	0
Containers sealed and in sound condition, no liner or moderately permeable liner	1
Containers leaking, moderately permeable liner	2
Containers leaking and no liner or incompatible liner	3

C. Piles

	Assigned Value
Piles uncovered and waste stabilized; or piles covered, waste unstabilized, and essentially non permeable liner	0
Piles uncovered, waste unstablized, moderately permeable liner, and leachate collection system	1
Piles uncovered, waste unstabilized, moderately permeable liner, and no leachate collection system	2
Piles uncovered, waste unstablized, and no liner	3

D. Landfill

	Assigned Value
Essentially non permeable liner, liner compatible with waste, and adequate leachate collection system	0
Essentially non permeable compatible liner, no leachate collection system, and landfill surface precludes ponding	1
Moderately permeable, compatible liner, and landfill surface precludes ponding	2
No liner or incompatible liner; moderately permeable compatible liner; landfill surface encourages ponding; no run-on control	3

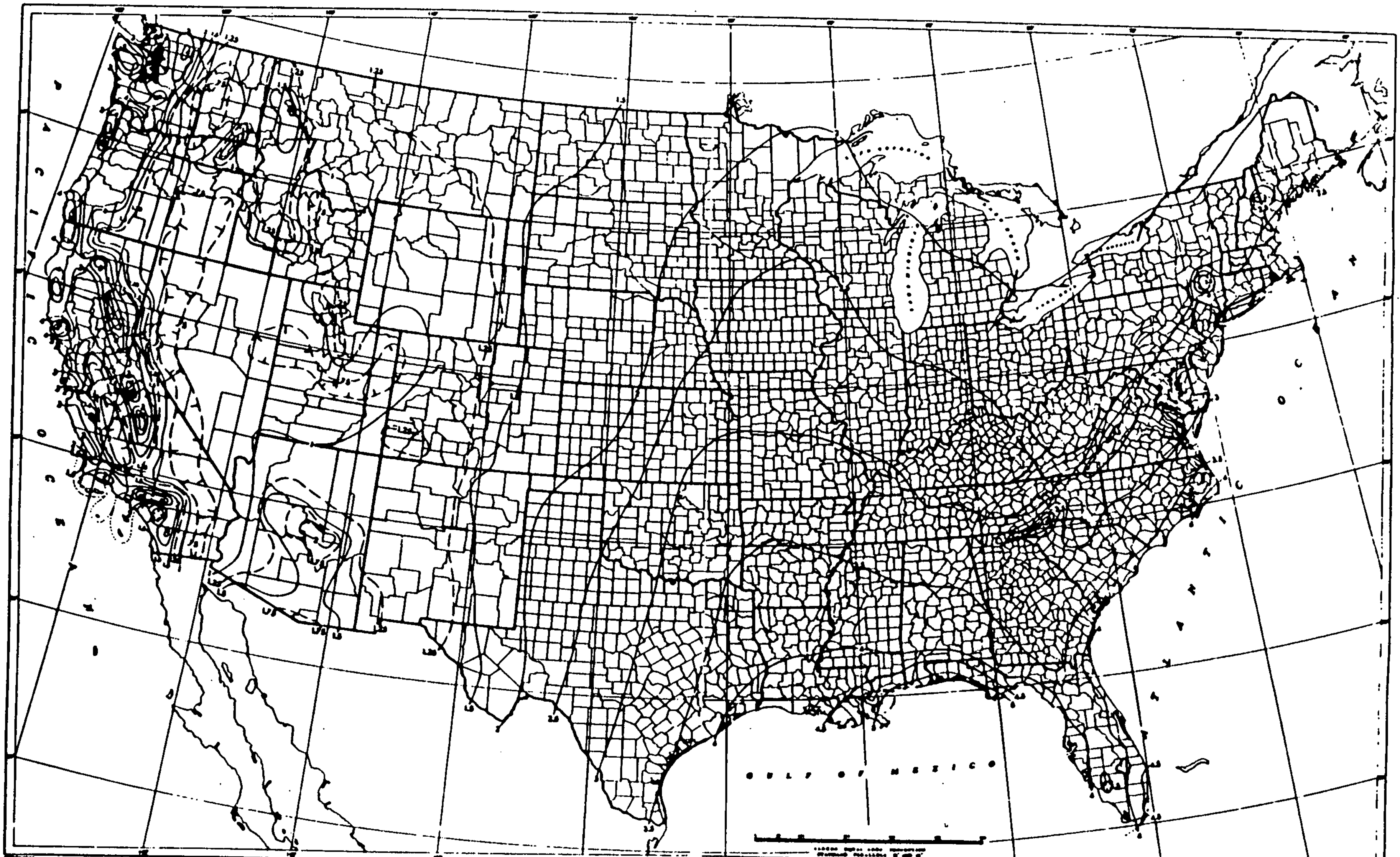


FIGURE 8

1-Year 24-Hour Rainfall (Inches)

Source: Rainfall Frequency Atlas of the United States, Technical Paper No. 40, U.S. Department of Commerce, U.S. Government Printing Office, Washington, D.C., 1963.

substance and the nearest occupied building not served by a public water supply (e.g., a farmhouse). If a discontinuity in the aquifer occurs between the hazardous substance and all wells, give this factor a score of 0, except where it can be shown that the contaminant is likely to migrate beyond the discontinuity. Figure 6 illustrates how the distance should be measured. Assign a value using the following guidance:

Distance	Greater than 3 miles	2 to 3 miles	1 to 2 miles	2001 feet to 1 mile	less than 2000 feet
Value	0	1	2	3	4

Population served by ground water is an indicator of the population at risk, which includes residents as well as others who would regularly use the water such as workers in factories or offices and students. Include employees in restaurants, motels, or campgrounds but exclude customers and travelers passing through the area in autos, buses, or trains. If aerial photography is used, and residents are known to use ground water, assume each dwelling unit has 3.8 residents. Where ground water is used for irrigation, convert to population by assuming 1.5 persons per acre of irrigated land. The well or wells of concern must be within three miles of the hazardous substances, including the area of known aquifer contamination, but the "population served" need not be. Likewise, people within three miles who do not use water from the aquifer of concern are not to be counted. Assign a value as follows:

TABLE 9

CONTAINMENT VALUES FOR SURFACE WATER ROUTE

Assign containment a value of 0 if: (1) all the waste at the site is surrounded by diversion structures that are in sound condition and adequate to contain all runoff, spills, or leaks from the waste; or (2) intervening terrain precludes runoff from entering surface water. Otherwise, evaluate the containment for each of the different means of storage or disposal at the site and assign a value as follows:

A. Surface Impoundment

	Assigned Value
Sound diking or diversion structure, adequate freeboard, and no erosion evident	0
Sound diking or diversion structure, but inadequate freeboard	1
Diking not leaking, but potentially unsound	2
Diking unsound, leaking, or in danger of collapse	3

B. Containers

	Assigned Value
Containers sealed, in sound condition, and surrounded by sound diversion or containment system	0
Containers sealed and in sound condition, but not surrounded by sound diversion or containment system	1
Containers leaking and diversion or containment structures potentially unsound	2
Containers leaking, and no diversion or containment structures or diversion structures leaking or in danger of collapse	3

C. Waste Piles

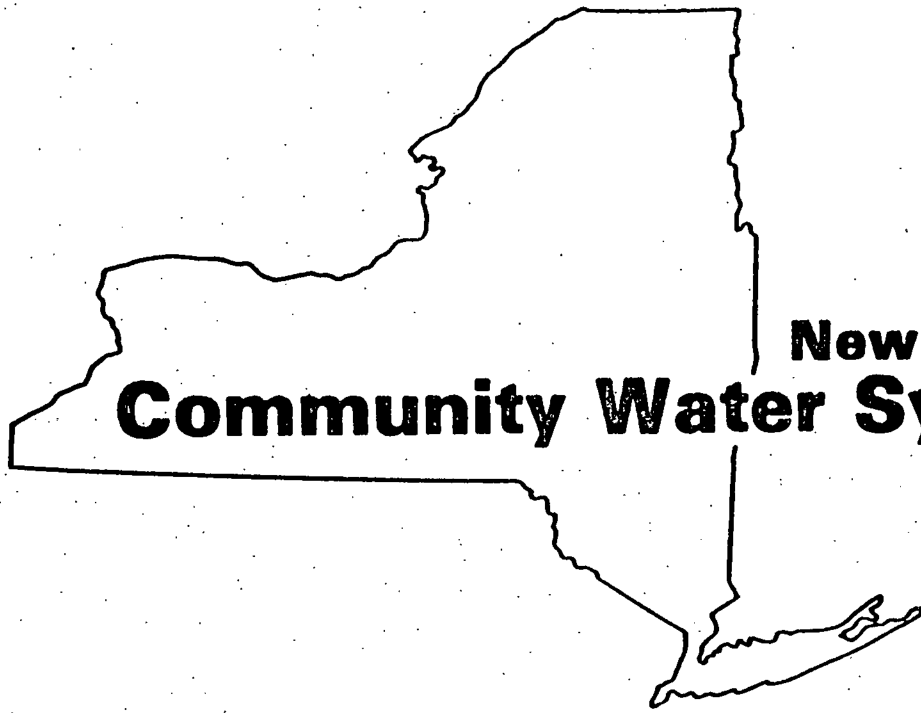
	Assigned Value
Piles are covered and surrounded by sound diversion or containment system	0
Piles covered, wastes unconsolidated, diversion or containment system not adequate	1
Piles not covered, wastes unconsolidated, and diversion or containment system potentially unsound	2
Piles not covered, wastes unconsolidated, and no diversion or containment or diversion system leaking or in danger or collapse	3

D. Landfill

	Assigned Value
Landfill slope precludes runoff, landfill surrounded by sound diversion system, or landfill has adequate cover material	0
Landfill not adequately covered and diversion system sound	1
Landfill not covered and diversion system potentially unsound	2
Landfill not covered and no diversion system present, or diversion system unsound	3

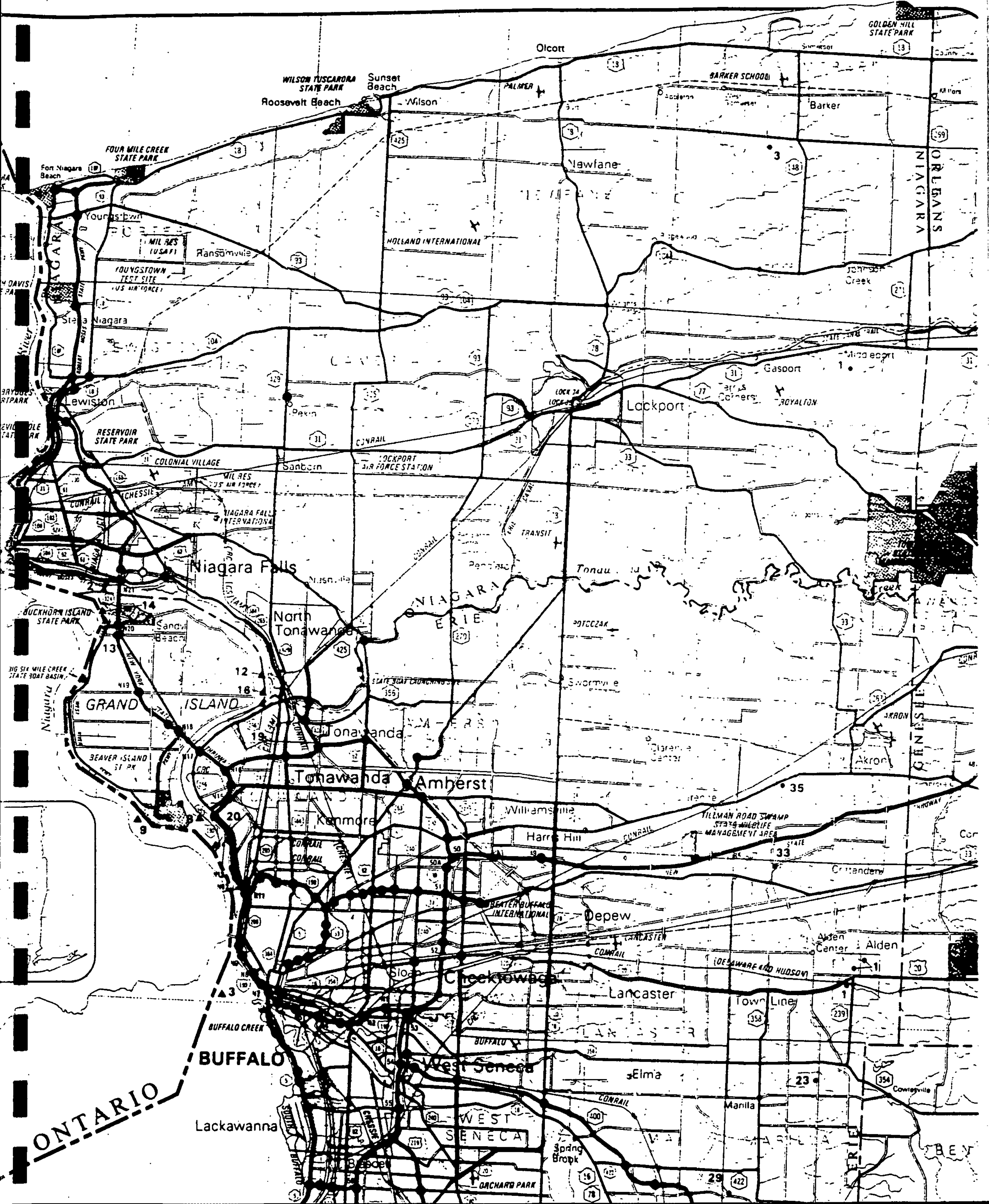
REFERENCE 7

DEC - 5



New York State Atlas of Community Water System Sources 1982

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



GOLDEN HILL STATE PARK
Olcott
WILSON TUSCARORA STATE PARK
Sunset Beach
Roosevelt Beach
Wilson
BARKER SCHOOL
Barker
FOUR MILE CREEK STATE PARK
Fort Niagara Beach
Newfane
Youngstown
HOLLAND INTERNATIONAL
Ransomville
YOUNGSTOWN TEST SITE
Stella Niagara
ORLEANS
NIAGARA
Gasport
Lewiston
RESERVOIR STATE PARK
Pekin
COLONIAL VILLAGE
Sanborn
LOCKPORT AIR FORCE STATION
Lockport
ROYALTON
CONRAIL
CHESSIE
TRANSIT
Niagara Falls
BUCKHORN ISLAND STATE PARK
North Tonawanda
NIAGARA
ERIE
Swormville
GRAND ISLAND
Tonawanda
BEAVER ISLAND ST. PK
Akron
Tonawanda
Amherst
Williamsville
Kenmore
Harris Hill
TILLMAN ROAD SWAMP STATE WILDLIFE MANAGEMENT AREA
Crittenden
GREATER BUFFALO INTERNATIONAL
Depew
Alden
Alden Center
Sloan
Cheektowaga
DELAWARE AND HUDSON
Lancaster
Town Line
BUFFALO CREEK
BUFFALO
West Seneca
Elma
Cowlesville
ONTARIO
Lackawanna
WEST SENECA
Marilla
Spring Brook
ORCHARD PARK

ERIE COUNTY

ID NO	COMMUNITY WATER SYSTEM	POPULATION	SOURCE
Municipal Community			
	Akron Village (See No 1 Wyoming Co, Page 10)	3640	
1	Alden Village	3460	Wells
2	Angola Village	8500	Lake Erie
3	Buffalo City Division of Water	357870	Lake Erie
4	Caffee Water Company	210	Wells
5	Collins Water District #3	704	Wells
6	Collins Water Districts #1 and #2	1384	Wells
7	Erie County Water Authority (Sturgeon Point Intake)	375000	Lake Erie
8	Erie County Water Authority (Van DeWater Intake)	NA	Niagara River - East Branch
9	Grand Island Water District #2	9390	Niagara River
10	Holland Water District	1670	Wells
11	Lawtons Water Company	138	Wells
12	Lockport City (Niagara Co)		Niagara River - East Branch
13	Niagara County Water District (Niagara Co)		Niagara River - West Branch
14	Niagara Falls City (Niagara Co)		Niagara River - West Branch
15	North Collins Village	1500	Wells
16	North Tonawanda City (Niagara Co)		Niagara River - West Branch
17	Orchard Park Village	3671	Pipe Creek Reservoir
18	Springville Village	4169	Wells
19	Tonawanda City	18538	Niagara River - East Branch
20	Tonawanda Water District #1	91269	Niagara River
21	Wanakah Water Company	10750	Lake Erie
Non-Municipal Community			
22	Aurora Mobile Park	125	Wells
23	Bush Gardens Mobile Home Park	270	Wells
24	Circle B Trailer Court	50	Wells
25	Circle Court Mobile Park	125	Wells
26	Creekside Mobile Home Park	120	Wells
27	Donnelly's Mobile Home Court	99	Wells
28	Gowanda State Hospital	NA	Clear Lake
29	Hillside Estates	160	Wells
30	Hunters Creek Mobile Home Park	150	Wells
31	Knox Apartments	NA	Wells
32	Maple Grove Trailer Court	72	Wells
33	Millgrove Mobile Park	100	Wells
34	Perkins Trailer Park	75	Wells
35	Quarry Hill Estates	400	Wells
36	Springville Mobile Park	114	Wells
37	Springwood Mobile Village	132	Wells
38	Taylors Grove Trailer Park	39	Wells
39	Valley View Mobile Court	42	Wells
40	Villager Apartments	NA	Wells

NIAGARA COUNTY

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

REFERENCE 8

STATE OF NEW YORK

OFFICIAL COMPILATION

OF

CODES, RULES AND REGULATIONS

MARIO M. CUOMO
Governor

GAIL S. SHAFFER
Secretary of State

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

TABLE I (contd.)

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

REFERENCE 9

Note 1: [Repealed]

CLASS D

Best usage of waters. These waters are suitable for secondary contact recreation, but due to such natural conditions as intermittency of flow, water conditions not conducive to propagation of game fishery or stream bed conditions, the waters will not support the propagation of fish.

Conditions related to best usage of waters. The waters must be suitable for fish survival.

Quality Standards for Class D Waters

Item: 1. pH.

Specifications: Shall be between 6.0 and 9.5.

Item: 2. Dissolved oxygen.

Specifications: Shall not be less than three milligrams per liter at any time.

Note 1: [Repealed]

701.20 Classes and standards for saline surface waters. The following items and specifications shall be the standards applicable to all New York Saline Surfaces Waters which are assigned the classification of SA, SB, SC or SD, in addition to the specific standards which are found in this Part under the heading of each such classification.

Quality Standards for Saline Surface Waters

Items: 1. Garbage, cinders, ashes, oils, sludge or other refuse.

Specifications: None in any waters of the marine district as defined by Environmental Conservation Law (§17-0105).

Item: 2. pH.

Specifications: The normal range shall not be extended by more than 0.1 pH unit.

Item: 3. Turbidity.

Specifications: No increase except from natural sources that will cause a substantial visible contrast to natural conditions. In cases of naturally turbid waters, the contrast will be due to increased turbidity.

Item: 4. Color.

Specifications: None from man-made sources that will be detrimental to anticipated best usage of waters.

Item: 5. Suspended, colloidal or settleable solids

Specifications: None from sewage, industrial wastes or other wastes which will cause deposition or be deleterious for any best usage determined for the specific waters which are assigned to each class.

Items: 6. Oil and floating substances.

Specifications: No residue attributable to sewage, industrial wastes or other wastes, nor visible oil film nor globules of grease.

Item: 7. Thermal discharges.

Specifications: (See Part 704 of this Title.)

CLASS SA

Best usage of waters. The waters shall be suitable for shellfishing for market purposes and primary and secondary contact recreation.

Quality Standards for Class SA Waters

Item: 1. Coliform.

Specifications: The median MPN value in any series of samples representative of waters in the shellfish growing area shall not be in excess of 70 per 100 ml.

Item: 2. Dissolved oxygen.

Specifications: Shall not be less than 5.0 mg/l at any time.

Items: 3. Toxic wastes and deleterious substances.

Specifications: None in amounts that will interfere with use for primary contact recreation or that will be injurous to edible fish or shellfish or the culture or propagation thereof, or which in any manner shall adversely affect the flavor, color, odor or sanitary condition thereof or impair the waters for any other best usage as determined for the specific waters which are assigned to this class.

CLASS SB

Best usage of waters. The waters shall be suitable for primary and secondary contact recreation and any other use except for the taking of shellfish for market purposes.

Quality Standards for Class SB Waters

Item: 1. Coliform

Specifications: The monthly median coliform value for 100 ml of sample shall not exceed 2,400 from a minimum of five examinations and provided that not more than 20 percent of the samples shall exceed a coliform value of 5,000 for 100 ml of sample and the monthly geometric mean fecal coliform value for 100 ml of sample shall not exceed 200 from a minimum of five eximinations. This standard shall be met during all periods when disinfection is practiced.

REFERENCE 10

New York State Department of Environmental Conservation
600 Delaware Avenue, Buffalo, NY 14202-1073 716/847-4550

RECEIVED
DEC 19 1985
RECRA RESEARCH, INC.

Henry G. Williams
Commissioner

December 18, 1985

Mr. Sheldon S. Nozik
RECRA Research, Inc.
4248 Ridge Lea Road
Amherst, NY 14226

Dear Mr. Nozik:

Tentative Erie County and final Niagara County freshwater wetlands are shown directly on your site maps for the Superfund sites you are studying. Please be sure to examine all the maps since I did not copy all wetland boundaries if a given area was shown on another map.

Also, our maps show only those wetlands which exceed 5 ha in size. We have no information compiled for wetlands less than 5 acres in size.

To my knowledge, we have no "critical habitats" within one mile of the sites in question. Further, I am not aware of endangered or threatened species occupying these sites.

If you need some specific information on the wetlands within your study area, you will need to come to Regional Headquarters to compile those data.

Sincerely,

Gordon R. Batcheller

Gordon R. Batcheller
Senior Wildlife Biologist
Region 9

GRB:ls

Enc.

cc: Mr. Pomeroy

RECRA RESEARCH, INC.
Hazardous Waste And Toxic Substance Control

December 13, 1985

Mr. James Pomeroy
Habit Protection Biologist
NYSDEC Fish and Wildlife Office
128 South Street
Olean, NY 14760

Dear Mr. Pomeroy:

As per our telephone conversation on December 3, 1985, enclosed are sections of the topographic maps for the NYSDEC Phase I Superfund sites we are presently working on. Below is a list of these sites:

1. Exolon Company
2. Pennwalt-Lucidal
3. Mollenberg-Betz Co.
4. Empire Waste
5. Bisonite Paint Co.
6. Stocks Pond
7. Aluminum Matchplate
8. Otis Elevator (Stimm Assoc.)
9. LaSalle Reservoir
10. Tonawanda City Landfill
11. Union Road Site
12. Central Auto Wrecking (Diarsonal Co.)
13. Procknal and Katra
14. Consolidated Freightway
15. U.S. Steel (Stimm Assoc.)
16. Ernst Steel
17. American Brass (Anaconda)
18. Erie-Lackawanna Site
19. Dresser Industries
20. W. Seneca Transfer Station
21. Old Land Reclamation
22. Northern Demolition
23. Lackawanna Landfill
24. South Stockton Landfill*
25. Chadakoin River Park*
26. Dunkirk Landfill*
27. Felmont Oil Co.*
28. NFTA**
29. Walmore Road Site**
30. Schreck's Scrapyard**

* Chautaugua County
** Niagara County

As part of the search requirements for the NYSDEC Superfund sites, each of these sites must be documented as follows:

- if there are any coastal wetlands within two (2) miles of the site
- if there are any freshwater wetlands within one (1) mile of the site (5 acre min.
- if there are any critical habitats within one (1) mile of the site (endangered species or wildlife refuges)

Continued . . .

4248 Ridge Lea Road, Amherst, New York 14226 Telephone (716) 838-6200

Would you please forward information on sites 1-10 as soon as possible, as we have a January 15, 1986 deadline for submittal of these reports to Albany.

Thank you very much for your assistance and promptness in these matters. Should you have any questions or comments, please do not hesitate to call.

Sincerely,

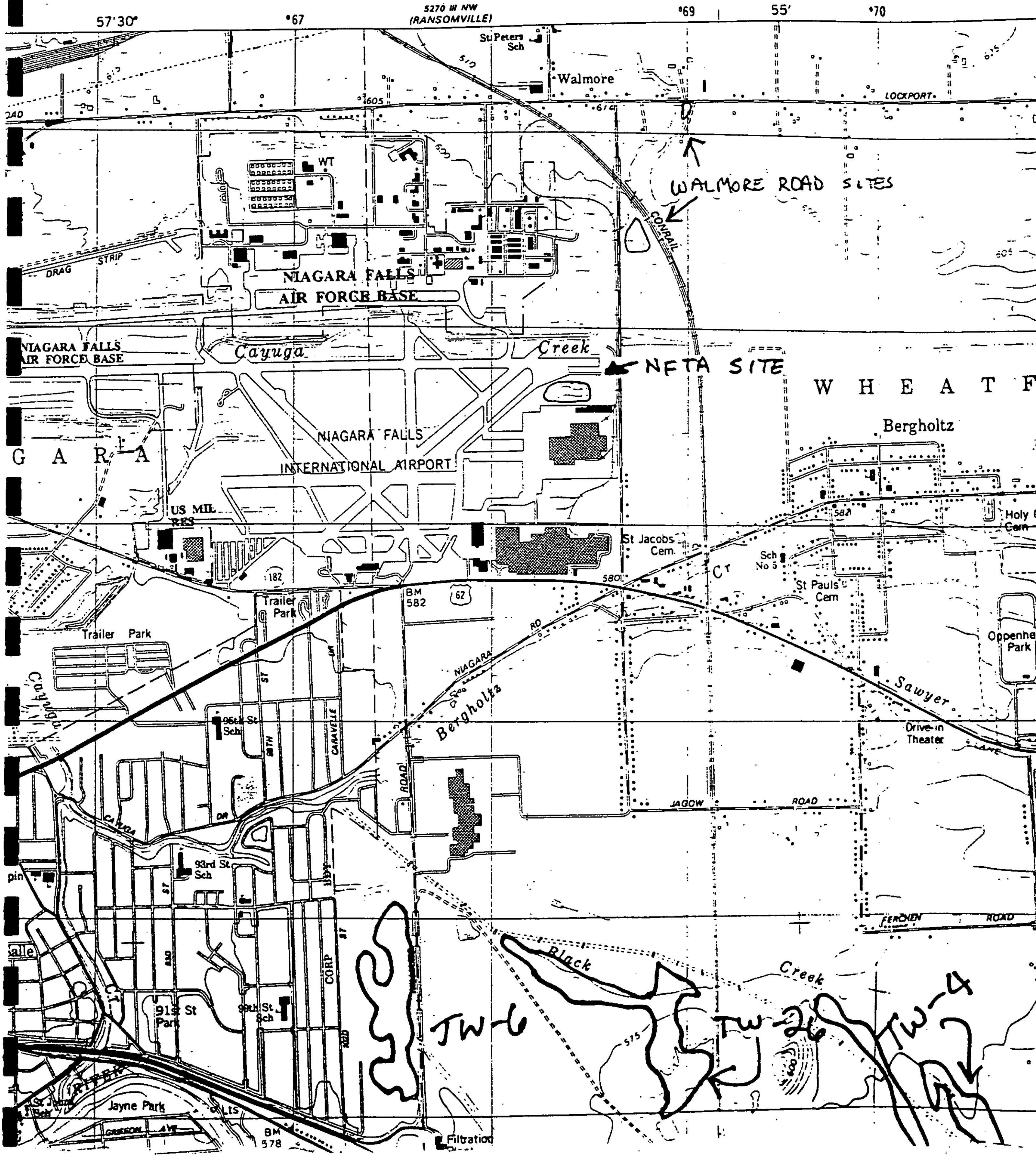
RECRA RESEARCH, INC.

Sheldon S. Nozik

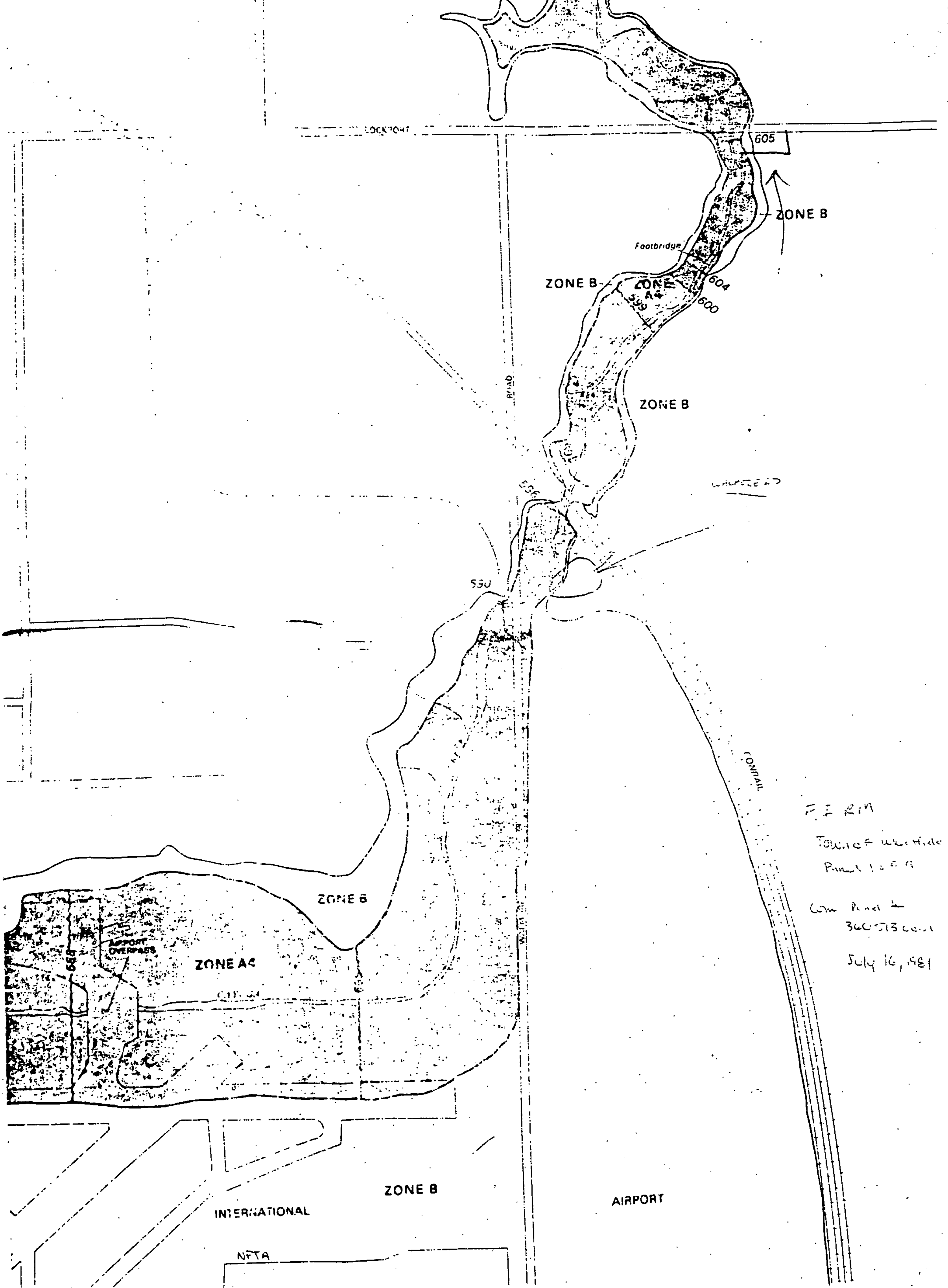
Sheldon S. Nozik
Environmental Specialist

SSN/jlo
Enclosure

STATE OF NEW YORK
DEPARTMENT OF TRANSPORTATION



REFERENCE 11


LOCKPORT
605
ZONE B
Footbridge
ZONE B
ZONE A4
599
604
600
ROAD
ZONE B
596
590
CONRAIL
ZONE B
ZONE A4
AIRPORT OVERPASS
ZONE B
INTERNATIONAL
AIRPORT
NFTA
FIRM
July 16, 1981

REFERENCE 12

Code Activity

Code Location

Service Request No.

Date Received Complaint

NIAGARA COUNTY
DEPARTMENT OF HEALTH

Service Request: Landfill

Originator of Complaint: Rev. Jack Hayes — Address: 9605 Colvin Blvd - N.F.

Owner: Edward Struzik — Address: 2284 Lockport Rd.

Occupant: landfill by creek at Walmore, Lockport Rd. — Address:

REPORT OF INVESTIGATION

Date	Hours	
11-17-81		Rev. Hayes contacted us on this date asking for information on possible landfill at Lockport + Walmore Rds.
	→	I contacted Edward Struzik (owner) and he told me that in early 1960 Steve Washuta dumped graphite waste in a low area by the creek to bring the area up to grade. Mr. Struzik gave permission for this to occur.
	→	I talked with Steve Washuta and he stated that in 1965 he dumped ≈2000 yards of graphite material, carbon dust and paper at the above address. The material was supposedly from Airco Spear.
	→	I contacted Ron Noll of Graybel associates who designed a sewer line ~~for~~ which went directly over the filled area or close proximity to it. To the best of his knowledge excavation did not reveal anything out of the ordinary i.e. drums, peculiarities etc.

Richard Abbott

Date Abated ______ By ______

REFERENCE 13

NAME OF SITE: Walmore Road

LOCATION: Lockport Road, Niagara County

CURRENT OWNER: Ed Strusik

HISTORY

In 1965, this site received approximately 2000 cubic yards of carbon dust from Carborundum. Bell Aerospace also sent scrap wood, fly ash, and clay to this site.

Mr. Steve Washuta of Modern Disposal was the person who coordinated the placement of the above-referenced fill material at this site. Mr. Don McSwan Building Inspector for the Town of Wheatfield, inspected the placement of the fill.

INVESTIGATION

This site is believed to be the site mentioned in the ITF report.

A soil sample boring was taken at Site 1 at a depth of 6 feet and analyzed for metals. Sites 2-4 were analyzed by our laboratory for carbon. Sites 3 and 4 being downstream and upstream respective samples were taken in adjacent creek. Site 2 was selected since carbon dust was observed at the ground surface.

SOIL AND GEOLOGICAL INFORMATION

This site is representative of the Hilton silt loam series, with a three to eight percent slope. The Hilton series consists of deep, moderately well drained, medium-textured soils. These soils were formed in calcereous glacial till, which contain sandstone and limestone fragments. Permeability is moderately rapid in the upper part of the Hilton soils and is slow in the subsoil.

The rock located in the substrata at this site is dolomitic limestone, classified in the Lockport Group.

This site received approximately 6-8 feet of fill in the middle sixties. Carbon dust was visually inspected at this site. This site is inactive and to date remains a vacant field.

SAMPLE RESULTS

Sites 2-4 were not analyzed for carbon, due to problems experienced by our laboratory. However, Site 1 was analyzed for metals and phenols for the soil sample obtained from our boring. There were no abnormally high concentrations for metals for the soil sample.

DISCUSSION

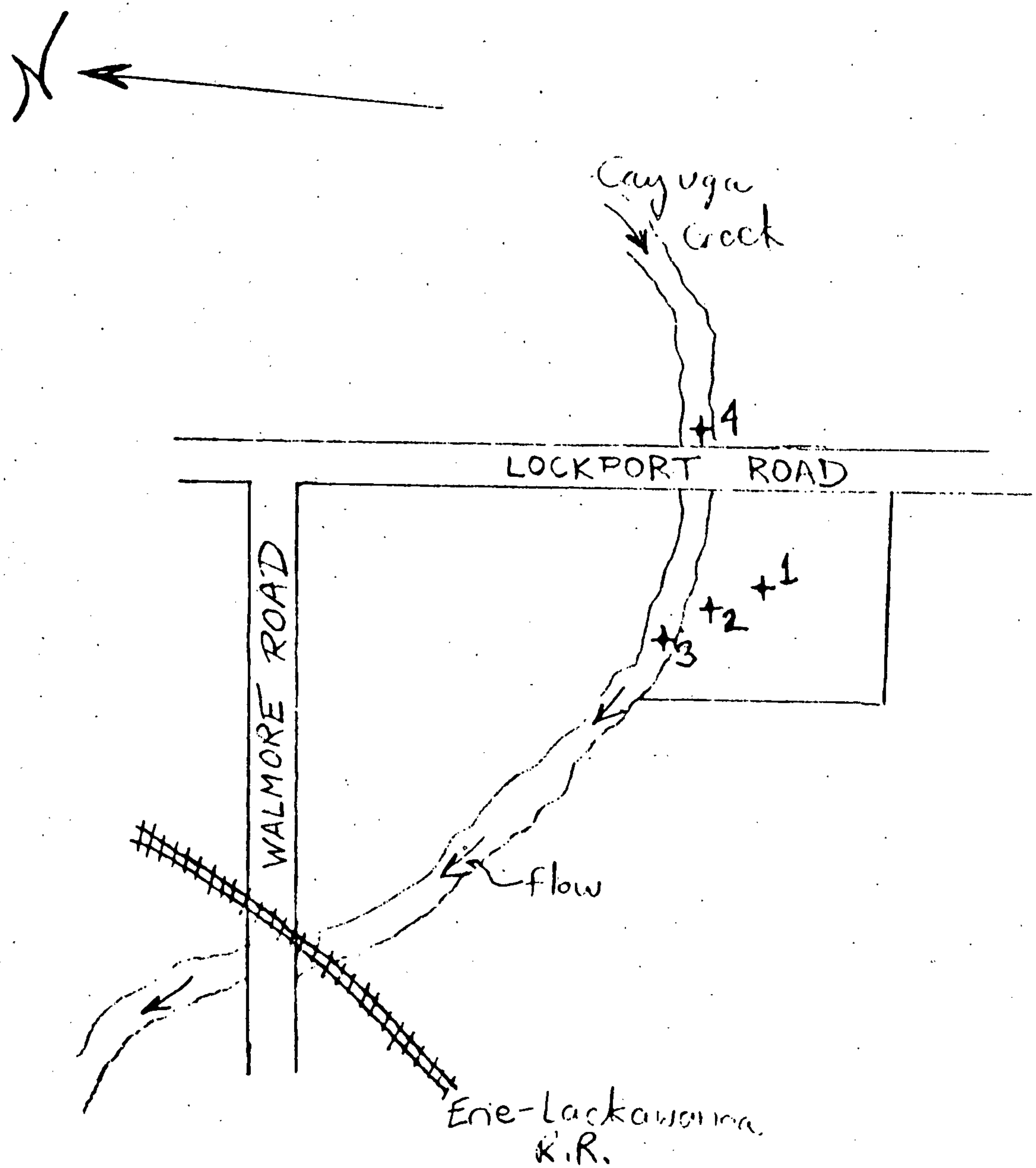
Site 2 was a leachate breakout of sorts, in which carbon dust was "kicked-out" by burrowing woodchucks. However, Sites 2-4 were not analyzed for carbon due to problems in laboratory procedures. Site 1, soil boring, was analyzed for metals and phenols in which no abnormally high levels were observed.

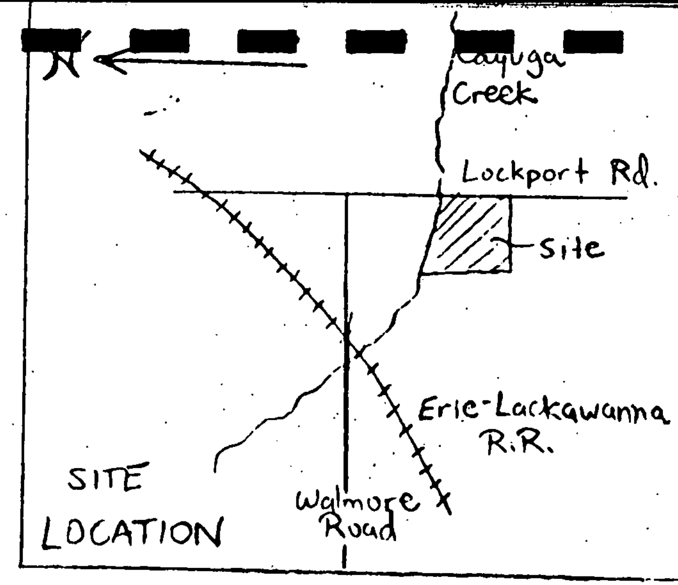
RECOMMENDATION

At Site 2, carbon dust was visually observed. In our discussions with the owner, this site was landfilled in excess of 8 feet. Based on our lone soil sample for the site, no abnormal concentrations for metals and phenols were detected. In reference to what this site received in ways of past landfill material and the limited information we obtained during our sampling program, this site is of limited concern in regard to any potential health hazard.

WALMORE ROAD - Soil Analyses

PARAMETER	UNITS OF MEASURE	SAMPLE IDENTIFICATION - Station #1
Arsenic	ug/g dry	2.3
Beryllium	ug/g dry	<0.2
Cadmium	ug/g dry	<0.1
Chromium	ug/g dry	10
Copper	ug/g dry	46
Lead	ug/g dry	43
Mercury	ug/g dry	<0.05
Nickel	ug/g dry	61
Selenium	ug/g dry	<0.2
Silver	ug/g dry	<0.2
Thallium	ug/g dry	<2
Antimony	ug/g dry	<4
Zinc	ug/g dry	200
Dry Weight	%	83
Phenolics	ug/g dry	1.7





WALMORE ROAD
Town of Wheatfield
Niagara County

REFERENCE 14

RECRA RESEARCH, INC.

RECORD OF TELEPHONE CONVERSATION

Date 11/25/85 Time 4 (am) (pm)

Line No. ______ By P.a.R.

Project Title Superfund Phase I
4th Round - Site # 29

Project No. 5C280418

~~Company~~ Walmore Rd.

Location ______

Individual Ed. Struzik

Title ______

Telephone No. ( ) 731-9561

Subject ______

Items Discussed

① Mr. Ed Stuzik's property along Lockport Rd. east of Walmore ~~Rd~~ road has already been sold to a church. Mr. Struzik holds the mortgage

② ~~[illegible]~~ Called Rev. Jack Hayes - no answer. (1-283-4162)

Comments or Action Required

Scheduled site visit by Tom Connare + Sheldon Nozik ~~[illegible]~~ at 11 AM on 11/26/85

Distribution ______

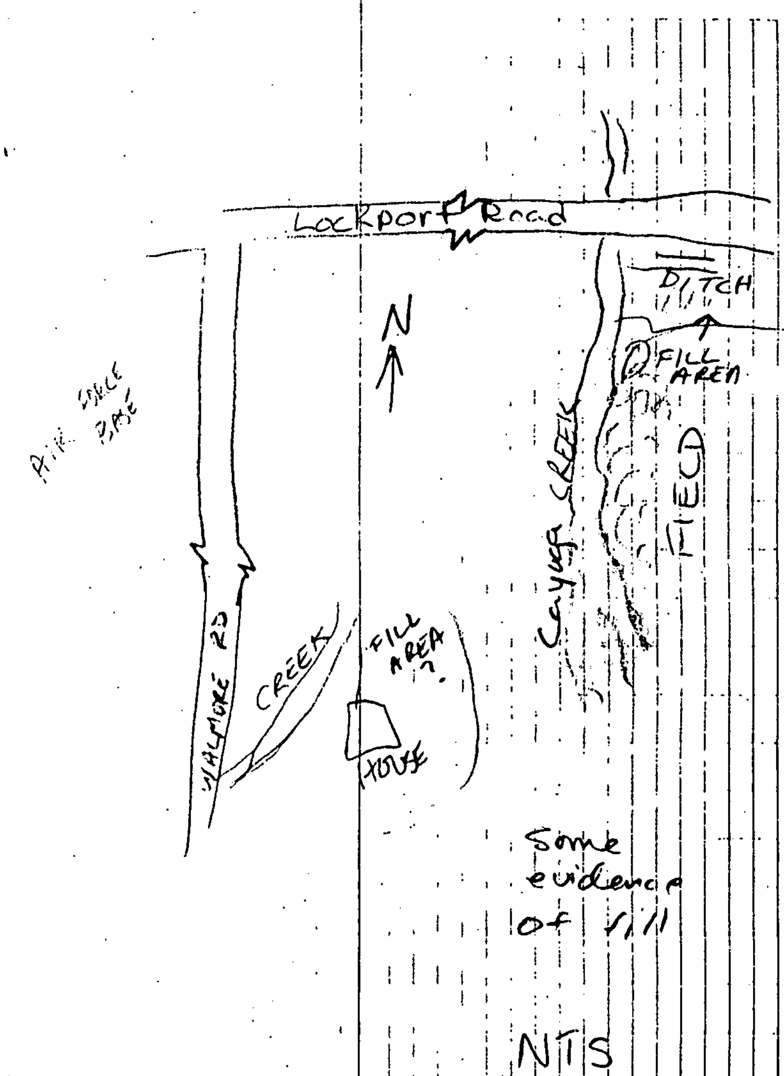
REFERENCE 15

11/26/85 Walmore Road

11:00 AM 35°, cloudy

(1) checked suspected site on Lockport Road evidence of carbon rubble down to creek edge

(2) checked 6373 Walmore Road new home, landscaped; no evidence of fill, letter (see file) indicates otherwise



REFERENCE 16

Dangerous Properties of Industrial Materials

Sixth Edition

N. IRVING SAX

Assisted by:

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

VNR VAN NOSTRAND REINHOLD COMPANY

NEW YORK CINCINNATI TORONTO LONDON MELBOURNE

KEY TO ABBREVIATIONS

(Refer to Introduction for Elaboration of Certain Definitions)

alc-alcohol
ALR-allergenic effects
AQTX-Aquatic Toxicity
asn-Aspergillus nidulans
BCM-blood clotting mechanism effects
bcs-Bacillus subtilis
BLD-blood effects
bmr-bone marrow
BPR-blood pressure effects
brd-bird (domestic or lab)
bwd-wild bird species
C-continuous
CARC-carcinogenic effects
cc-cubic centimeter
chd-child
ckn-chicken
CL-ceiling concentration
CNS-central nervous system effects
compds-compounds
crys-crystal
CUM-cumulative effects
CVS-cardiovascular effects
cyt-cytogenetic analysis
D-day
dck-duck
DDP-drug dependence effects
dec-decomposes
DEF-definition
dlt-dominant lethal test
dmg-Drosophila melanogaster
dnd-DNA damage
dnr-DNA repair
dns-unscheduled DNA synthesis
dom-domestic
DOT-Department of Transportation
dpo-Drosophila pseudo-obscura
emb-embryo
EPA-Environmental Protection Agency
esc-Escherichia coli
ETA-equivocal tumorigenic agent
eye-administration into eye (irritant)
EYE-eye effects (systemic)
fbr-fibroblast
frg-frog
g, gm-gram
GIT-gastrointestinal tract effects
GLN-glandular effects
gpg-guinea pig
grb-gerbil
H, hr-hour
ham-hamster
hla-HeLa cell
hma-host-mediated assay
hmn-human
I-intermittent
ial-intraaural
IARC-International Agency for Research on Cancer
iat-intraarterial
ice-intracerebral
icv-intracervical
idr-intradermal
idu-intraduodenal
ihl-inhalation
imm-immersion
imp-implant
ims-intramuscular
inf-infant
ipc-intraplacental
ipl-intrapleural
ipr-intraperitoneal
IRDS-primary irritation dose
irn-intrarenal
IRR-irritant effects (systemic)
isp-intraspinal
itr-intratracheal
ivg-intravaginal
ivn-intravenous
kg-kilogram (one thousand grams)
klp-Klebsiella pneumoniae
L-liter
LC50-lethal concentration 50 percent kill
LCLo-lowest published lethal concentration
LD50-lethal dose 50 percent kill
LDLo-lowest published lethal dose
leu-leukocyte
lel-low explosive limit
uel-upper explosive limit
lng-lung
lvr-liver
lym-lymphocyte
M-minute(s)
M3, m3-cubic meter(s)
mam-mammal (species unspecified)
mem-membrane
u, μ-micron
mg-milligram (one thousandth of a gram; 10-3 gram)
misc-miscible
mky-monkey
ml-milliliter
MLD-mild irritation effects
mm-millimeters
mma-microsomal mutagenicity assay
MMI-mucous membrane effects
mmo-mutation in microorganisms
mmol-millimole
mmr-mammary gland
mnt-micronucleus test
MOD-moderate irritation effects
mol-mole
mppcf-million particles per cubic foot
mrc-gene conversion and mitotic recombination
msc-mutation in somatic mammalian cells

MSK-musculo-skeletal effects
MTDS-mutation dose
MTH-mouth effects
mul-multiple routes
mumem-mucous membrane
mus-mouse
MUT-mutagen
NEO-neoplastic effects
ng-nanogram (one billionth of a gram; 10-9 gram)
nmol-nanomole
nsc-Neurospora crassa
nse-non-standard exposure
NTP-National Toxicology Program
OBS-obsolete
ocu-ocular
open-open irritation test
orl-oral
OSHA-Occupational Safety and Health Administration
otr-oncogenic transformation
ovr-ovary
par-parenteral
pg-picogram (one trillionth of a gram; 10-12 gram)
pgn-pigeon
Pk-peak concentration
pmol-picomole
PNS-peripheral nervous system effects
ppb-parts per billion (v/v)
pph-parts per hundred (v/v) (percent)
ppm-parts per million (v/v)
ppt-parts per trillion (v/v)
preg-pregnant
PSY-psychotropic effects
PUL-pulmonary system effects
qal-quail
RBC-red blood cell effects
rbt-rabbit
rec-rectal
REGS-standards and regulations
rns-rinsed with water
S, sec.-second(s)
sat-Salmonella typhimurium
sce-sister chromatid exchange
SCP-Standards Completion Program
scu-subcutaneous
SEV-severe irritation effects
skn-administration onto skin
SKN-skin effects (systemic)
sl-slightly
sln-sex chromosome loss and nondisjunction
slt-specific locus test
smc-Saccharomyces cerevisiae
sol-soluble
spm-sperm morphology
spont-spontaneous
sql-squirrel
srm-Serratia marcescens
ssp-Schizosaccharomyces pombe
SYS-systemic effects
TC-toxic concentration
TCLo-lowest published toxic concentration
TD-toxic dose
TDLo-lowest published toxic dose
TER-teratogenic effects
TFX-toxic effects
THR-Toxic hazard review
TLV-Threshold Limit Value
tod-toad
tox-toxic, toxicity
trk-turkey
trn-heritable translocation test
TWA-time weighted average
TXDS-toxic dose
µg, ug-microgram (one millionth of a gram; 10-6 gram)
umol-micromole
U, unk-unreported, unknown
UNS-toxic effects unspecified in source
W-week
WBC-white blood cell effects
wmn-woman
Y-year
%-percent

THR: HIGH scu. MOD ivn and ims.
Disaster Hazard: When heated to decomp it emits tox fumes of NO_x.

CARBON

CAS RN: 7440440 NIOSH #: FF 5250000
mf: C; mw: 12.01

Black crystals, powder or diamond form. mp: 3652°-3697° (subl), bp: approx 4200°, d(amorphous): 1.8-2.1, d(graphite): 2.25, d(diamond): 3.51, vap. press: 1 mm @ 3586°.

SYNS:

BLACK PEARLS	CHARCOAL BLACK
COLUMBIAN CARBON	C.I. 77266
CARBONE (ITALIAN)	PURIFIED CHARCOAL

TOXICITY DATA: 3-2	CODEN:
scu-rat TDLo: 167 mg/kg (8D preg)	TJADAB 4,327,71
ivn-mus LD50: 440 mg/kg	TXAPA9 24,497,73

TLV: Air: 3.5 mg/m3 DTLVS* 4,68,80.
OSHA Standard: Air: TWA 3500 ug/m3 (SCP-R) FEREAC 39,23540,74. Occupational Exposure to Carbon Black recm std: Air: TWA 3.5 mg/m3 NTIS**. "NIOSH Manual of Analytical Methods" VOL 3 S262. Reported in EPA TSCA Inventory, 1980.
THR: MOD ivn. Powder elemental C is mainly a nuisance dust and slightly irr in the form of graphite (one of the common forms of carbon), it can cause a dust irritation, particularly to the eyes. Carbon also occurs in the form of soot, carbon black. It can also cause conjunctivitis epithelial hyperplasia of cornea, as well as eczematous inflammation of eyelids. Some forms of carbon dust can cause irr of eyes and mu mem. See also carbon black, soot.
Fire Hazard: Slight, when exposed to heat.
Explosion Hazard: In the form of dust when exposed to heat or flame or (NH_4NO_3 + heat), (NH_4ClO_4 @ 240°), bromates, $Ca(OCl)_2$, chlorates, Cl_2, (Cl_2 + $Cr(OCl)_2$), ClO, F_2, iodates, IO_3, $(Pb(NO_3)_2$, $HgNO_3$, HNO_3, (oils + air), (K + air), Na_2S, $Zn(NO_3)_2$.
Incomp: air; metals; oxidants; unsaturated oils.

CARBON BLACK

A generic term applied to a family of high-purity colloidal carbons commercially produced by carefully controlled pyrolysis of gaseous or liquid hydrocarbons. Carbon blacks, including commercial colloidal carbons such as furnace blacks, lamp blacks and acetylene blacks, usually contain less than several tenths percent of extractible organic matter and less than one percent ash.

SYNS:

LAMP BLACK	FURNACE BLACK
ACETYLENE BLACK	

THR: LOW skn, ihl, orl. See also carbon. According to studies on laboratory test animals, as well as retrospective studies of employees in the carbon black industry, there are no physiologic effects from contact, inhalation or ingestion of carbon black. The only untoward effect of carbon black upon the environment is that in high concentrations it becomes a nuisance dust. While it is true that the tiny particulates of carbon black contain some molecules of carcinogenic materials, the carcinogens are apparently held tightly and are not eluted by hot or cold water, gastric juices or blood plasma.
Refs: Nau, C. A., Taylor, G. T., Lawrence, C. H., Properties and Physiological Effects of Thermal Carbon Black. *Journal of Occupational Medicine.* Nov. 1976, Vol 18, No. 11, pp. 732-734.
Nau, C. A., Neal, J., Stembridge, V. A., A Study of the Physiological Effects of Carbon Black. *Archives of Environmental Health,* Dec. 1960, Vol. 1, pp. 512-533, American Medical Association.

CARBONCHLORIDIC ACID PHENYL ESTER

CAS RN: 1885149 NIOSH #: FG 3850000
mf: $C_7H_5ClO_2$; mw: 156.57

SYNS:

FENYLESTER KYSELINY CHLORMRAVENCI (CZECH)	PHENYL CHLOROFORMATE

TOXICITY DATA: 3-2	CODEN:
skn-rbt 500 mg/24H MOD	28ZPAK -,163,72
eye-rbt 50 ug/24H SEV	28ZPAK -,163,72
orl-rat LD50: 1410 mg/kg	AIHAAP 30,470,69
ihl-rat LCLo: 44 ppm/4H	AIHAAP 30,470,69
skn-rbt LD50: 3970 mg/kg	AIHAAP 30,470,69

Reported in EPA TSCA Inventory, 1980.
THR: HIGH ihl. MOD orl, skn. A skn, eye irr. See also esters.
Disaster Hazard: When heated to decomp it emits tox fumes of Cl^-.

CARBON DIOXIDE

CAS RN: 124389 NIOSH #: FF 6400000
mf: CO_2; mw: 44.01

Colorless, odorless gas. mp: subl @ −78.5°, (−56.6° @ 5.2 atm), vap. d: 1.53.

SYNS:

ANHYDRIDE CARBONIQUE (FRENCH)	CARBONIC ANHYDRIDE
	DRY ICE
CARBONIC ACID GAS	KOHLENSAURE (GERMAN)

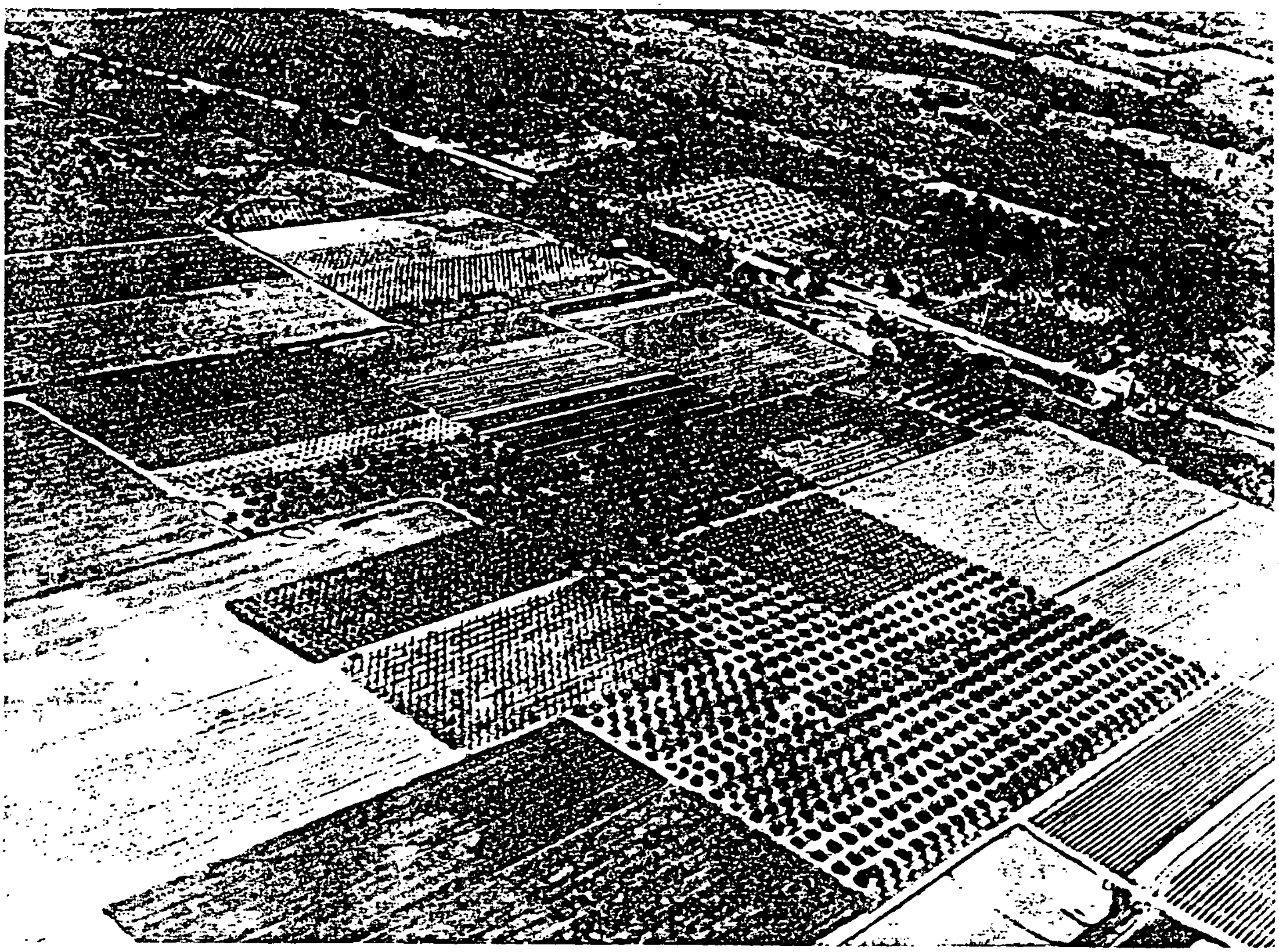
TOXICITY DATA: 3	CODEN:
ihl-rat TCLo: 6 pph/24H (10D preg)	CIRUAL 8,1218,60
ihl-rbt TCLo: 10 pph/(7-12D preg) TFX:TER	ZMOAAN 56,165,65
ihl-rbt TCLo: 13 pph/4H (9-12D preg)	ZMOAAN 56,165,65
ihl-rat TCLo: 6 pph/24H/(10D preg): TER	CIRUAL 8,1218,60
ihl-rbt TCLo: 10 pph/(7-12D preg): TER	ZMOAAN 56,165,65
ihl-hmn LCLo: 100000 ppm/1M	AOHYA3 17,159,74
ihl-rat LCLo: 657190 ppm/15M	MRLR** No. 23,50
ihl-mam LCLo: 90000 ppm/5M	AEPPAE 138,65,28

TLV: Air: 5000 ppm DTLVS* 4,69,80. *Toxicology Review:* EVHPAZ 11,163,75. OSHA Standard: Air: TWA 5000 ppm (SCP-R) FEREAC 39,23540,74. Occupa-

REFERENCE 17

SOIL SURVEY OF

Niagara County, New York



Soil Conservation Service
Farm & Home Center
4487 Lake Avenue
Lockport, New York 14094

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

Issued October 1972

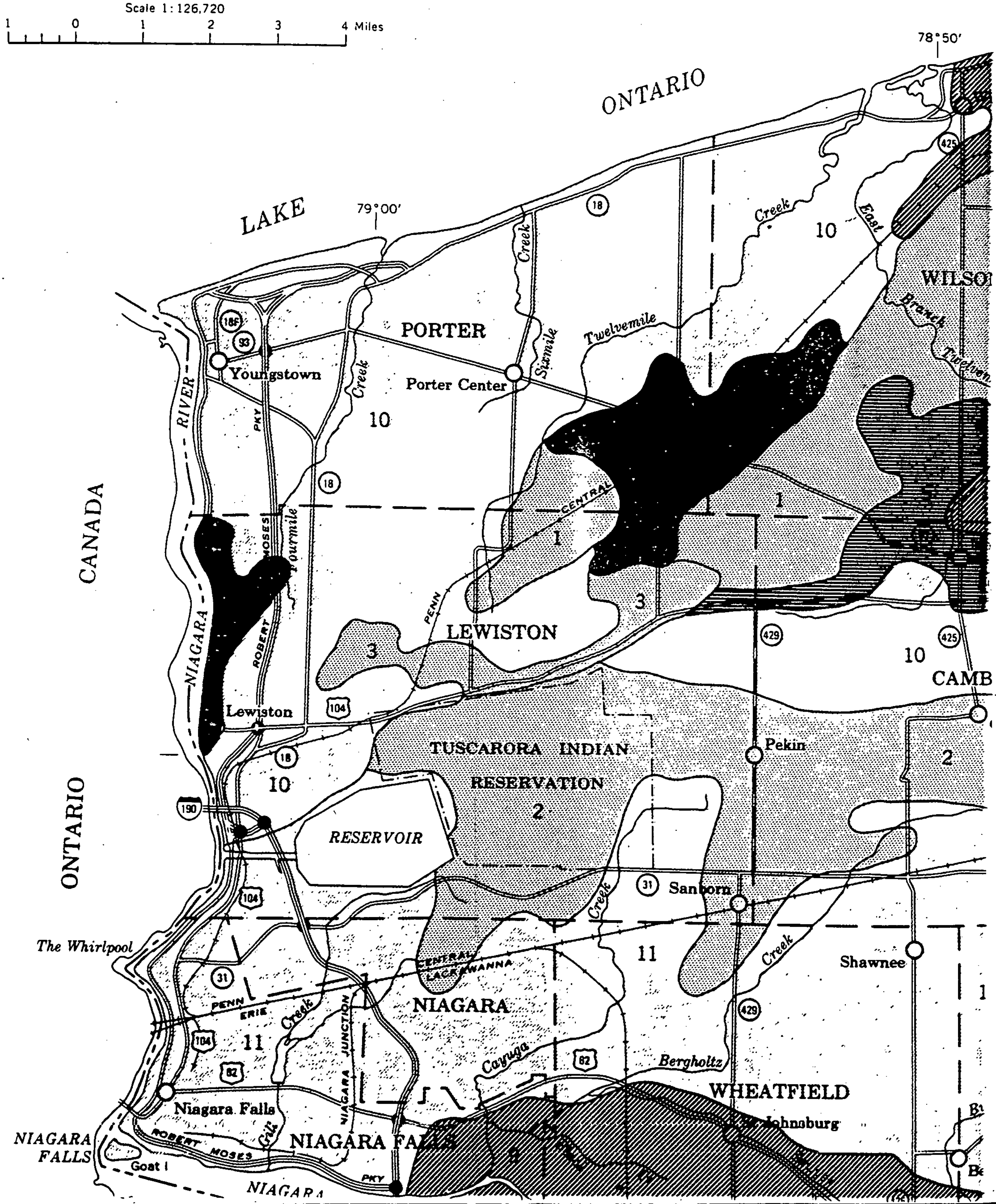
Kermit Stud

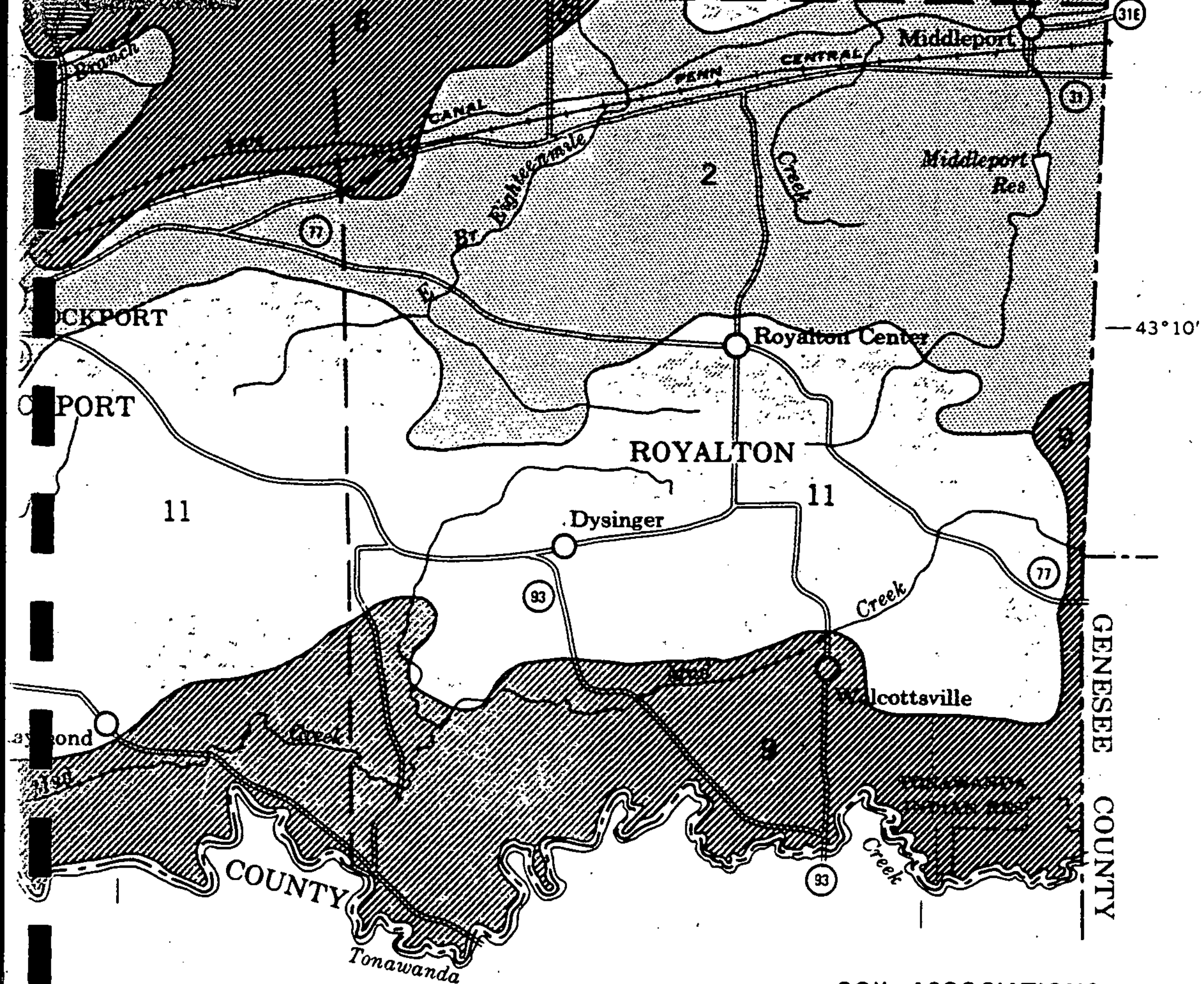
U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
CORNELL UNIVERSITY AGRICULTURAL EXPERIMENT STATION

GENERAL SOIL MAP

NIAGARA COUNTY, NEW YORK

Scale 1:126,720





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

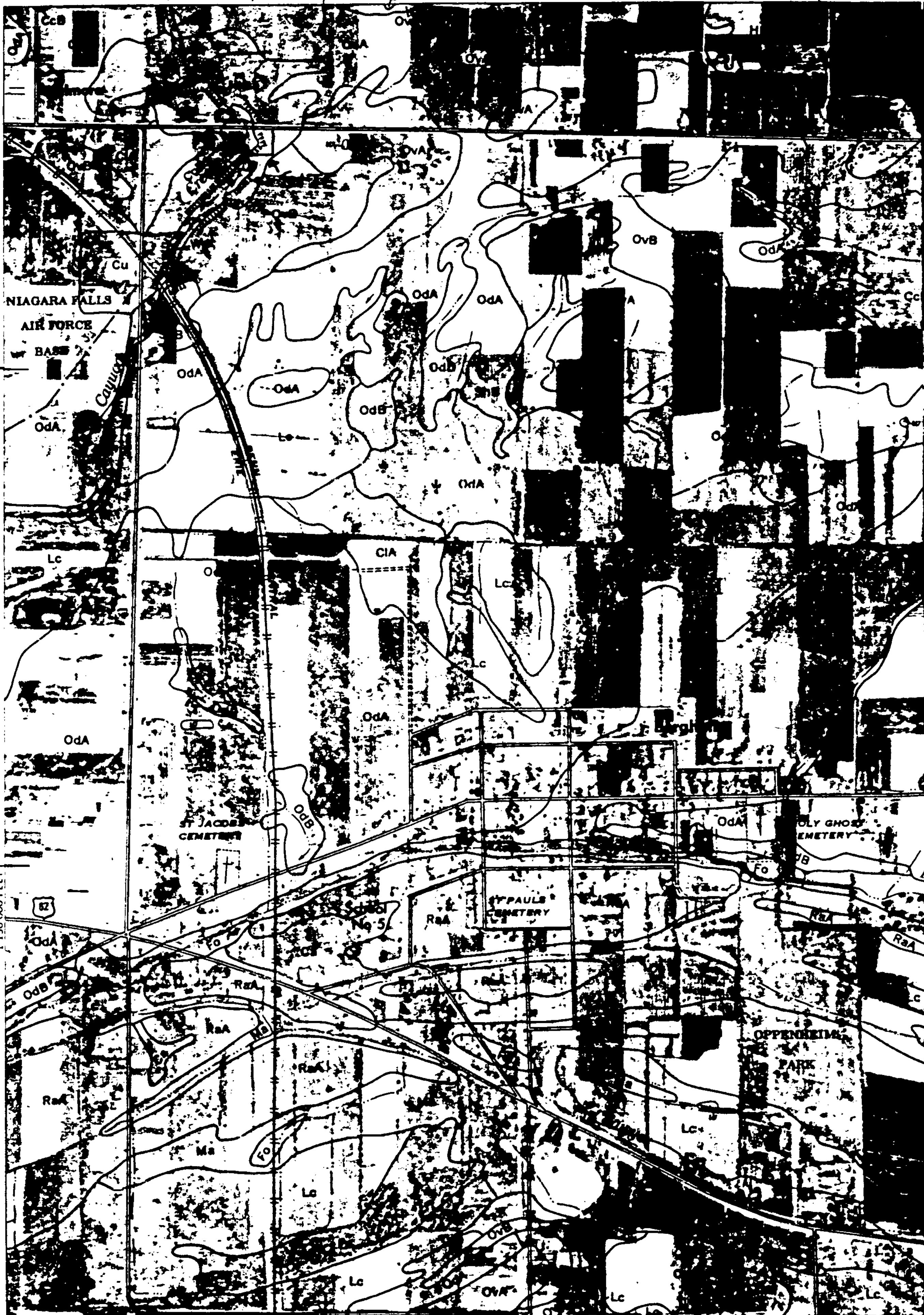
9 Canandaigua-Raynham-Rhinebeck association: Deep, somewhat poorly drained to very poorly drained soils having a dominantly medium-textured to fine-textured subsoil

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

(Joins sheet 45)



(Joins sheet 62)

N

Scale 1:15 840

1 Mile
0 ¼ ½ ¾ 1
5 000 Feet
0 1 000 2 000 3 000 4 000 5 000

(Joins sheet 52)

Hilton Series

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

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

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

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

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

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

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

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

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

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

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

The C horizon is generally firm or very firm gravelly fine sandy loam or loam, but it is stony or nongravelly in places. Hues range from 10YR to 2.5YR, value of the matrix is 4 or 5, and chromas range from 2 to 4. The C horizon is mottled in some profiles. It is calcareous.

Hilton soils formed in deposits similar to those of the well-drained Ontario, the somewhat poorly drained Appleton, and the poorly to very poorly drained Sun soils. Hilton soils have a coarser textured Bt horizon than Cazenovia and Cayuga soils. They are finer textured in the A horizon than Bombay soils. Hilton soils are better drained and have a coarser textured Bt horizon than Ovid and Churchville soils.

Hilton gravelly loam, 0 to 3 percent slopes (HgA).--This soil has the profile described as representative for the series. The soil occurs mostly in areas that range from less than 3 to about 30 acres in size and are normally oblong. These areas occupy the tops of knolls and foot slopes where water accumulates for short periods.

Most commonly included with this soil in mapping are areas of Appleton and Sun soils in wet spots or along drainways. Also included are areas of Howard or Phelps soils. Other inclusions are small areas of Cazenovia soils that contain more clay in the subsoil than this Hilton soil. Small areas of Bombay soils also are included, but these soils have less clay in the subsoil than the Hilton soil. The included Bombay soils are principally in the town of Newfane. In some places soils that have a nongravelly or very gravelly surface layer are included.

This soil is suited to most crops grown in the county and to pasture or trees. The gravel may interfere with some kinds of cultivation, and it is hard on machinery in many places. The gravel content may interfere with the growth of certain vegetable crops. Because runoff is slow, random drainage of included wet spots may be needed. (Capability unit IIw-2; woodland suitability group 2o1)

Hilton gravelly loam, 3 to 8 percent slopes (HgB).--This gently sloping soil is similar to the one described as representative but has a higher gravel content in places. Most areas of this soil range from less than 3 to about 10 acres in size. The soil occupies small knolls in a generally flat landscape or occurs in narrow strips along drainageways.

Most commonly included with this soil in mapping are wetter associates, such as the Appleton and Sun soils in drainways. Also included are areas of a Hilton soil that has less than 15 percent gravel in the surface layer. In some places, especially where this Hilton soil is associated with the Howard soils, there are small included areas of gravel deposits. Included areas of coarser textured Bombay soils are in the town of Newfane. Other inclusions are small areas where the soil is very gravelly, cobbly, or stony. Most of these inclusions are the result of the modification of the original glacial till by water, wind, or wave action.

This soil can be used for crops, pasture, or trees. It is suited to most crops grown in the county. The gravel interferes with some kinds of cultivation, and it is hard on machinery in many places. The gravel interferes with the growth of some vegetable root crops. Runoff is moderate, and erosion is a hazard, especially where slopes are long. Random drainage may be needed for included wet spots. (Capability unit IIe-3; woodland suitability group 2o1)

Hilton silt loam, 0 to 3 percent slopes (H1A).--This soil has a profile similar to that described as representative for the series, except that it lacks the gravelly loam surface layer. The surface or plow layer normally has some coarse fragments, mostly less than 15 percent by volume. The individual areas range from less than 5 to more than 100 acres in size. They occupy the tops of ridges and, in some places, make up the entire glacial till ridge.

Included in mapping, within large areas of this soil near Colonial Village in the southern part of Lewiston, are areas of Cayuga soils and areas of a soil that is less than 40 inches to limestone rock. Also included are areas of better drained Ontario soils on knolls or of wetter Appleton, Ovid, or Churchville soils in depressions or along drainageways. Other inclusions are fairly large areas of soils that are less than 6 feet to rock, especially near the limestone escarpment. Inclusions that have a gravelly or stony surface layer occur and are indicated on the soil map by the appropriate symbol.

This soil is suited to most crops grown in the county and to pasture and trees. The seasonal wetness may briefly delay planting. The soil is easily cultivated. It is not used so much for vegetables and fruit as the gravelly Hilton soils, because the largest areas are south of the escarpment, away from the climatic influence of Lake Ontario. Random drainage may be needed for included wet spots. (Capability unit IIw-2; woodland suitability group 2o1)

Hilton silt loam, 3 to 8 percent slopes (H1B).--This soil has a profile that is similar to the profile described as representative for the series, but it lacks the gravelly surface layer. The surface or plow layer normally contains some coarse fragments, but less than 15 percent by volume. This soil commonly occupies narrow strips along the side of a ridge similar to the one along Chestnut Ridge Road in the town of Royalton. It also is on small knolls in a generally flat landscape, and some large areas make up an entire ridge. Areas range from less than 5 to more than 50 acres in size.

Included in mapping are areas of the better drained Ontario soils on knolls. Also included, in the general area of Slayton Settlement Road, are areas of a soil that contains much more silt than this Hilton soil, as well as small areas of Collamer soils. Inclusions of Cayuga soils occur where clay caps the glacial till. Other inclusions are the wetter Appleton or Ovid soils along drainageways; some spots that have a gravelly or stony soil surface layer; and soils that are less than 40 inches deep to hard rock.

This soil is well suited to most crops grown in the county and to pasture or trees. Erosion is a serious hazard if this soil is cultivated and not protected. The seasonal wetness may briefly delay planting. Random drainage of included wetter soils normally is desirable, especially if this soil is used intensively for cultivated crops. Erosion control is needed on long slopes. This soil is especially well suited to hay and grain crops. (Capability unit IIe-3; woodland suitability group 2o1)

Hilton and Cayuga silt loams, limestone substratum, 0 to 3 percent slopes (HmA).--Areas of this undifferentiated group are all Hilton soil, all Cayuga soil, or some of both. The Hilton soil has a profile similar to that described as representative for the series, except that it lacks the gravelly surface layer. Both soils are underlain by hard bedrock, mainly 3 1/2 to 6 feet below the surface. They have more large stones or boulders in or on the surface layer than representative Hilton and Cayuga soils.

This mapping unit is near to the limestone escarpment. Most areas parallel the escarpment and are within 1 mile either to the north or south of the main escarpment area. One of the largest areas is between the villages of Pekin and Sanborn. Areas range from about 5 to 50 acres in size.

Most commonly included in mapping are areas of similar soils that are less than 40 inches deep to rock. One fairly large included area of these similar soils is east of Bond Lake. Another is between Gasport and Middleport and south of State Route 31. In this area the soil is underlain in many places by the softer Rochester shale formation instead of the hard Lockport dolomitic limestone. Also included are spots of better drained Ontario soils and areas of wetter Ovid soils. Both kinds of soil are over rock. Other inclusions are areas of soils that are coarser textured than either the Hilton or the Cayuga soil and areas of Cazenovia soils that are finer textured than the Hilton soils but coarser textured than the Cayuga. In areas close to the limestone escarpment, spots of shallow Farmington soils are common inclusions.

The soils in this mapping unit can be used for crops, pasture, or trees, though in most places they are not so desirable for cropping as the deeper Hilton and Cayuga soils. Limestone near the surface causes droughty spots. Stones and a few rock outcrops interfere with cultivation in some areas. The drainage of included wet spots is difficult because of stones or bedrock.

Corn, alfalfa, and small grains are the principal crops. Crops are generally not so well suited to these soils as they are to the deeper Hilton or Cayuga soils. (Capability unit IIw-2; woodland suitability group 2o1)

Hilton and Cayuga silt loams, limestone substratum, 3 to 8 percent slopes (HmB).--Areas of this undifferentiated group consist of Hilton silt loam, Cayuga silt loam, or both soils. The soils have profiles similar to those described for their respective series, except that hard bedrock is at a depth of 3 1/2 to 6 feet. Large stones or boulders are more common in areas of this mapping unit than in areas of typical Hilton or Cayuga soils.

Most commonly included in this mapping unit are small areas of similar soils that are less than 40 inches to hard rock. Major areas of these moderately deep or shallow included soils are near Bond Lake and along the escarpment between Gasport and Middleport. Also included are spots of better drained Ontario and of Ovid soils. Both kinds of soil are over rock.

The soils in this mapping unit can be used for crops and pasture, though they are not so desirable for these uses as normal Hilton or Cayuga soils. Limestone near the surface causes droughty spots. Stones and a few rock outcrops interfere with cultivation in some areas. (Capability unit IIe-3; woodland suitability group 2o1)

Howard Series

The Howard series consists of deep, well-drained to somewhat excessively drained, medium-textured, gravelly soils. These soils developed in glacial outwash or in glacial beach deposits of sand and gravel. The gravel deposits were derived from sandstone and some limestone and shale. These soils occupy the better drained parts of postglacial beaches and glacial outwash areas. Most of the acreage is north of U.S. Highway No. 104 (Ridge Road). Howard soils are level to sloping and have slopes of 0 to 15 percent.

In a representative profile, a level Howard soil has a dark-brown, slightly acid gravelly loam surface layer 8 inches thick. It is underlain by brown, friable, slightly acid gravelly loam 5 inches thick. The subsoil begins at a depth of 13 inches. The upper part consists of brown to dark-brown, friable, slightly acid gravelly loam that is 16 inches thick and contains tongues of the soil material from the layer above. Between depths of 24 and 29 inches, the subsoil is reddish-brown, firm, neutral gravelly loam. Between depths of 29 inches and 44 inches, the subsoil is brown to dark-brown, firm very gravelly loam that is sticky when wet and neutral. The calcareous substratum is at a depth of 44 inches and consists of grayish-brown, stratified sand and gravel.

The water table is generally below a depth of 40 inches in these soils. The depth to water depends upon the thickness of the gravel deposit and position in the landscape. The available moisture capacity is low to moderate. Rooting depth is generally unrestricted, and deep-rooted plants can obtain moisture below normal rooting depth. Permeability is moderately rapid in the surface layer and rapid in the subsoil.

Representative profile of Howard gravelly loam, 0 to 3 percent slopes, in the town of Newfane, 100 feet north of Hoffman Road and 400 yards east of Hess Road; cultivated area:

REFERENCE 18

* NEAREST DOMESTIC WELL TO LOCKPORT ROAD SITE

TABLE 3.5
WATER WELL DATA FOR NIAGARA FALLS AFRF AND VICINITY

Well ID	Owner &/or Location	Depth (feet) Well	Depth (feet) Casing	Hydrogeologic Unit(s) Tapped By Well	Water Level (feet) Below Land Surface	Water Level (feet) Date mm/dd/yr	Approximate Elevation Above NGVD	Use
3048571	Wendt Dairy	35	22	Sl	—	—	—	U
3058551	N. Moll 731-9505	25	—	Sl	7.4	10/20/60	562.6	U
3058552	N. Moll	20	18	Qsg and Sl	11.1	10/20/60	558.9	U
3059003	Union Carbide Chemical Co.	100	6	Sl	28	1940	549.0	A
3068531 ✓	E. Lass 731-9905	49	40	Sl	6.3	10/26/60	573.7	D
* 3068541 ✓	R. Jaeger	19	—	Qsg	—	—	—	D
3068591	C.Swearengen	28	—	Sl	12.1	8/8/60	595.9	U
3068592	W. Mick	49	—	Sl	34.6	8/8/60	589.4	U
3068593	L.Toni	31	—	Sl	13.9	6/2/61	591.1	D
3068594	Haggerty	40	—	Sl	28.4	10/5/60	576.6	U
3078591	—	75	12	Sl	10.3	11/15/62	602.7	O
3078593	W. Lozan	31	15	Sl	12.5	8/8/60	607.5	U
3078594	J. Patterson	34	—	Sl	34.0	8/7/60	575.0	U
3079006	A.W. Nuzum	55	10	Sl	12.3	6/2/61	589.7	C
3079007	E. Schul	25	—	Sl	15.8	8/8/60	584.2	U
3079008	Military Road School	45	—	Sl	14.8	6/2/61	596.2	I
3079009	L. Cora	26	—	Sl	17.4	6/2/61	583.6	U
3088541	W. Kroening	38	—	Sl	23.1	10/27/60	606.9	S
3088561	E. Hasley	38	—	Sl	27.9	10/27/60	612.1	D
3088571	F. Scholefield	38	—	Sl	13.4	8/7/60	616.6	U
3088572	A. Wittcapp	34	—	Sl	25.6	10/27/60	614.4	D
3088581	Colonial Village School	37	11	Sl	20.8	8/8/60	608.2	U
3088582	E. Heath 297-2286	44	—	Sl	25.1	8/7/60	612.9	D
3088583	W. Holland 297-1817	49	—	Sl	12.0	8/8/60	617.0	D
3088584	P. Wagner	33	13	Sl	16.5	11/2/61	613.5	D
3088585	NMPC	45	6	Sl	13.4	11/15/62	620.6	O
3088586	PASNY	61	10	Sl	1.0	11/15/62	620.0	PR
3088587	PASNY	61	10	Sl	2.6	11/15/62	620.4	PR
3088591	NMPC	65	11	Sl	20.0	11/15/62	586.0	O
3088593	NMPC	16	12	Sl	4.1	11/15/62	602.9	O
3088594	NMPC	100	16	Sl	8.4	11/15/62	602.6	O
3088595	NMPC	16	14	Qti	8.3	10/30/62	602.7	O
3088596	NMPC	68	19	Sl	11.7	11/15/62	602.3	O
3088598	PASNY	98	21	Sl	6.5	11/15/62	603.5	O
3088599	PASNY	11	8	Qti	9.8	10/30/62	600.2	O
30885910	—	100	12	Sl	6.0	11/15/62	604.0	O
30885911	—	74	15	Sl	7.7	11/15/62	604.3	O
30885913	J. Williams	24	22	Sl	15.8	8/8/60	597.2	D
B	Corps of Engineers	268	—	Sl, Sr, Sc, Sa	—	—	—	GO
C	Corps of Engineers	238	—	Sl, Sr, Sc, Sa	—	—	—	GO
D1	—	—	—	Sl	—	—	—	D
D2	—	—	—	Sl	—	—	—	D
D3	—	—	—	Sl	—	—	—	D
D4	—	—	—	Sl	—	—	—	D
2897	William Beutel & Sons	1,447	—	—	—	—	—	NG
	Love Canal Area (147 Wells)	—	—	Qd and Sl	—	—	—	O
C1 ✓	Carborundum Process Equipment Div. Plant	35	—	Sl	—	—	—	I
	Carborundum Walmore Road Plant (5 Wells)	—	—	Qd	—	—	—	O
	Bell Aerospace Plant (9 Wells)	—	—	Qd and Sl	—	—	—	O

NOTES:

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

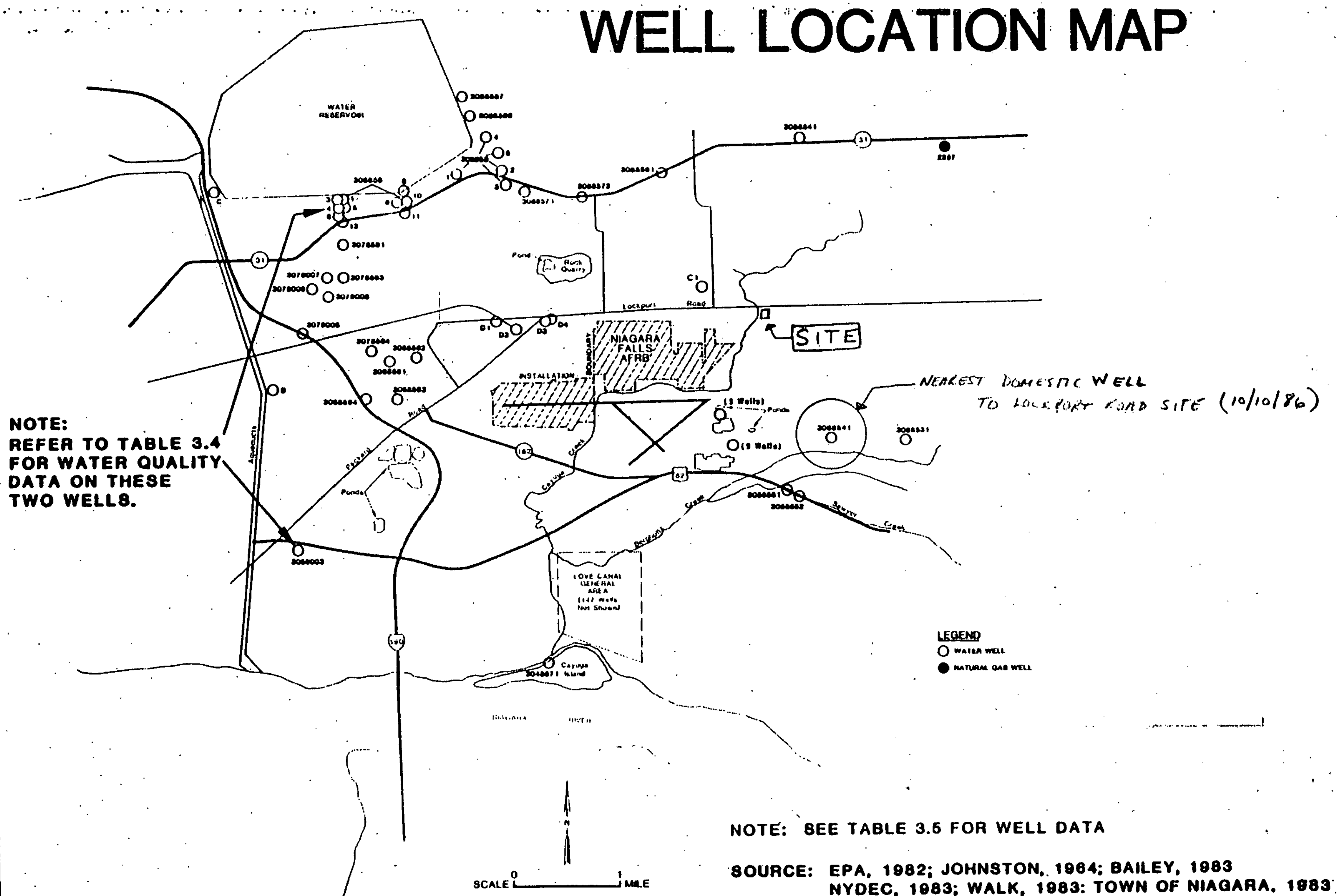
Hydrogeologic Unit(s) Tapped By Well
Qd = Pleistocene deposits, undifferentiated
Qsg = Pleistocene sand and gravel
Qt = Pleistocene glacial till
Sa = Albion Group
Sc = Clinton Group
Sl = Lockport Dolomite
Sr = Rochester Shale

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

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

NIAGARA FALLS AFRF

WELL LOCATION MAP



NOTE: SEE TABLE 3.5 FOR WELL DATA

SOURCE: EPA, 1982; JOHNSTON, 1964; BAILEY, 1983 NYDEC, 1983; WALK, 1983: TOWN OF NIAGARA, 1983

FIGURE 3.13

TCE WELL WATER SAMPLING

SAMPLE SITES:

1.	Norman Haseley	2063 Saunders Settlement Rd.	Town of Lewiston
2.	Ernest Haseley	2000 Saunders Settlement Rd.	Town of Lewiston
3.	Paul Forsyth	1937 Saunders Settlement Rd.	Town of Lewiston
4.	Glenn Walck	2466 Saunders Settlement Rd.	Town of Lewiston
5.	Donald Rosinski	5980 Tuscarora Rd.	Town of Lewiston
6.	Harold Haseley	5947 Tuscarora Rd.	Town of Lewiston
7.	James Candella	2099 Lockport Rd.	Town of Wheatfield
8.	Norman Mueller	9521 Lockport Rd.	Town of Niagara
9.	Howard Catlin	10205 Lockport Rd.	Town of Niagara
10.	Dorothy Walck	5982 Walmore Rd.	Town of Lewiston
11.	Barry Moll	6154 Walmore Rd.	Town of Wheatfield
12.	Melvin Pfohl	2053 Saunders Settlement Rd.	Town of Lewiston
13.	Andrew Trinka	6221 Walmore Rd.	Town of Wheatfield

REFERENCE 19

RECRA RESEARCH, INC.
Hazardous Waste And Toxic Substance Control

March 13, 1986

Mr. Paul Lehman
Niagara County Cooperative Extension Agency
4487 Lake Avenue
Lockport, NY 14094

Dear Mr. Lehman:

Thank you for your assistance in the Phase I Superfund investigation we are presently conducting with regard to the Walmore Road Site on Lockport Road near Walmore Road.

As part of the background search requirements for the NYSDEC Superfund investigations, we the consultants are required to have all of our interviews, personal or telephone, documented. Below is an account of our conversation on March 10, 1986. Would you please read the account, sign at the bottom, and return the original to me. This is only to serve as documentation that the conversation took place.

° According to information provided by the Soil Conservation Service, agricultural land is located within one mile and prime agricultural land within two miles of the Walmore Road Site on Lockport Road near Walmore Road, Town of Wheatfield, New York.

Thank you for your cooperation.

Sincerely,

RECRA RESEARCH, INC.

Kermit Studley
Staff Geologist

KS/jlo

Mr. Paul Lehman

4248 Ridge Lea Road, Amherst, New York 14226 Telephone (716) 838-6200

APPENDIX B

2/A1693

APPENDIX B

REVISED "HAZARDOUS WASTE DISPOSAL SITE REPORT"

(47-15-11 (10/83)

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

DIVISION OF SOLID AND HAZARDOUS WASTE

INACTIVE HAZARDOUS WASTE DISPOSAL SITE REPORT

PRIORITY CODE: 2a SITE CODE: 932094

NAME OF SITE: Lockport Road REGION: 9

STREET ADDRESS: 2284 Lockport Road

TOWN/CITY: Wheatfield COUNTY: Niagara

NAME OF CURRENT OWNER OF SITE: Reverend Jack Hayes (Church of God)

ADDRESS OF CURRENT OWNER OF SITE: 9605 Colvin Boulevard, Niagara Falls, NY 14034

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

ESTIMATED SIZE: 0.34 ACRES

SITE DESCRIPTION:

In 1965, the site received approximately 2,000 cubic yards of carbon dust, graphite material, and paper from Carborundum. Additionally, Bell Aerospace reportedly disposed of scrapwood, flyash, and clay at the site. NYSDEC collected soil samples in early 1982. Results indicate no abnormally high concentrations of metals and phenols in the soil.

HAZARDOUS WASTE DISPOSED: CONFIRMED [ ] SUSPECTED [ ]

TYPE AND QUANTITY OF HAZARDOUS WASTES DISPOSED:

TYPE	QUANTITY (POUNDS, DRUMS, TONS, GALLONS)
carbon dust	2,000 cubic yards
flyash	

TIME PERIOD SITE WAS USED FOR HAZARDOUS WASTE DISPOSAL:

________________, 19 65 TO ________________, 19 65

OWNER(S) DURING PERIOD OF USE: Mr. Edward Struzik

SITE OPERATOR DURING PERIOD OF USE: same as above

ADDRESS OF SITE OPERATOR: 2284 Lockport Road, Wheatfield, New York

ANALYTICAL DATA AVAILABLE: AIR [ ] SURFACE WATER [ ] GROUNDWATER [ ]
SOIL [X] SEDIMENT [ ] NONE [ ]

CONTRAVENTION OF STANDARDS: GROUNDWATER [ ] DRINKING WATER [ ]
SURFACE WATER [ ] AIR [ ]

SOIL TYPE: Hilton silt loam series

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: None

ASSESSMENT OF ENVIRONMENTAL PROBLEMS:

Limited data on the soil at this site does not indicate any evidence of environmental problems.

ASSESSMENT OF HEALTH PROBLEMS:

Insufficient information

PERSON(S) COMPLETING THIS FORM:

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
Recra Research, Inc.

NAME Kermit Studley

TITLE Staff Geologist

NAME ________________

TITLE ________________

DATE: ________________

NEW YORK STATE DEPARTMENT OF HEALTH

NAME ________________

TITLE ________________

NAME ________________

TITLE ________________

DATE: ________________