932090

ENGINEERING INVESTIGATIONS AT INACTIVE HAZARDOUS WASTE SITES

PHASE I INVESTIGATION

Niagara Frontier Transportation Authority **Site No. 932090**
Wheatfield **Niagara County**

DATE: March 1986

Prepared for:
New York State Department of Environmental Conservation

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

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

By:

Recra Environmental, Inc.

3/3324

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

Niagara Frontier Transportation Authority
Wheatfield, Niagara County, New York
Site #932090

Prepared For:

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

Prepared By:

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NIAGARA FRONTIER TRANSPORTATION AUTHORITY

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SECTION 1

1.0 EXECUTIVE SUMMARY

The Niagara Frontier Transportation Authority site is a 2.75 acre impounding reservoir located on the Niagara Falls International Airport in the Town of Wheatfield, New York. The site is owned by Carborundum Abrasives located 400 feet south of the site. Carborundum uses the impounding reservoir as a settling basin for storm and non-contact cooling water discharged from their facility. Carborundum manufactures sandpaper and abrasive grain material using raw materials including phenol and phenolic resins.

Water from the impounding reservoir discharges to a storm sewer which runs under airport property and enters Cayuga Creek 750 feet north of the site. This discharge is monitored in conjunction with a SPDES permit. Phenol levels have exeeded permit limits on several occasions. A phenol spill at Carborundum on December 19, 1978 resulted in a contamination problem in the impounding reservoir. Clean-up actions immediately ensued and phenol levels were eventually within permit limits. The U.S. Geological Survey conducted a site investigation in 1982 and found elevated levels of three priority pollutant organics (phthalates) in site soils at concentrations below 40 ppb.

No groundwater quality information is available for the site.

The Phase I effort included a compiling of information gathered from the New York State Department of Environmental Conservation, the Niagara

County Health Department, the New York State Health Department and personnel associated with site operations. Recra Research, Inc., 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 that a site 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 (Sm)
- o risk involved with direct contact (Sdc)
- o the potential for fire and explosion (Sfe).

The risks involved with direct contact (Sdc) and the potential for fire and explosion (Sfe) are evaluated according to site specific information including toxicity of waste, quantity, site demographics, location with respect to sensitive habitats of wildlife, etc. Migration potential (Sm) is evaluated through the rating of factors associated with three routing modes: groundwater (Sgw), surface water (Ssw) and Air (Sa). 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 information gathered during this investigation, the Niagara Frontier Transportation Authority site was scored according to the Mitre

Corporation Hazard Ranking System (HRS) and the following scores were obtained:

$S_m = 3.4$ ($S_{gw} = 2.0$, $S_{sw} = 5.5$, $S_a = 0$)

$S_{fe} = 0$

$S_{dc} = \cancel{0}\ 16.7$

A Phase II investigation at the Niagara Frontier Transportation Authority site is recommended to proceed in two steps with the second step contingent upon the findings of the first step. The preliminary step is the sampling and analysis of the pond water and sediment for phenol, priority pollutant metals, organics scan (FID) and volatile halogenated organic scan. If warranted, based upon the above analytical results, step two, which includes monitoring well installation and groundwater, surface water and sediment sampling and analysis, would be initiated.

SECTION 2

2.0 PURPOSE

The objective of this Phase I investigation is to prepare a report for the Niagara Frontier Transportation Authority that provides a history and preliminary asssessment 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:

- o site inspection
- o collection and review of available data for report preparation and preliminary scoring of the HRS.
- o evaluation of data for completeness and identification of data inadequacies.
- o 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, relative to water supplies, of 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 Niagara Frontier Transportation Authority site, Recra personnel conducted an intensive 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 an interview 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 an inspection of the site on November 26, 1985 to identify the present condition of the site. Weather during the inspection was freezing rain and 31°F, with no snow cover on the ground. No air monitoring was conducted at the time of the inspection due to the weather conditions.

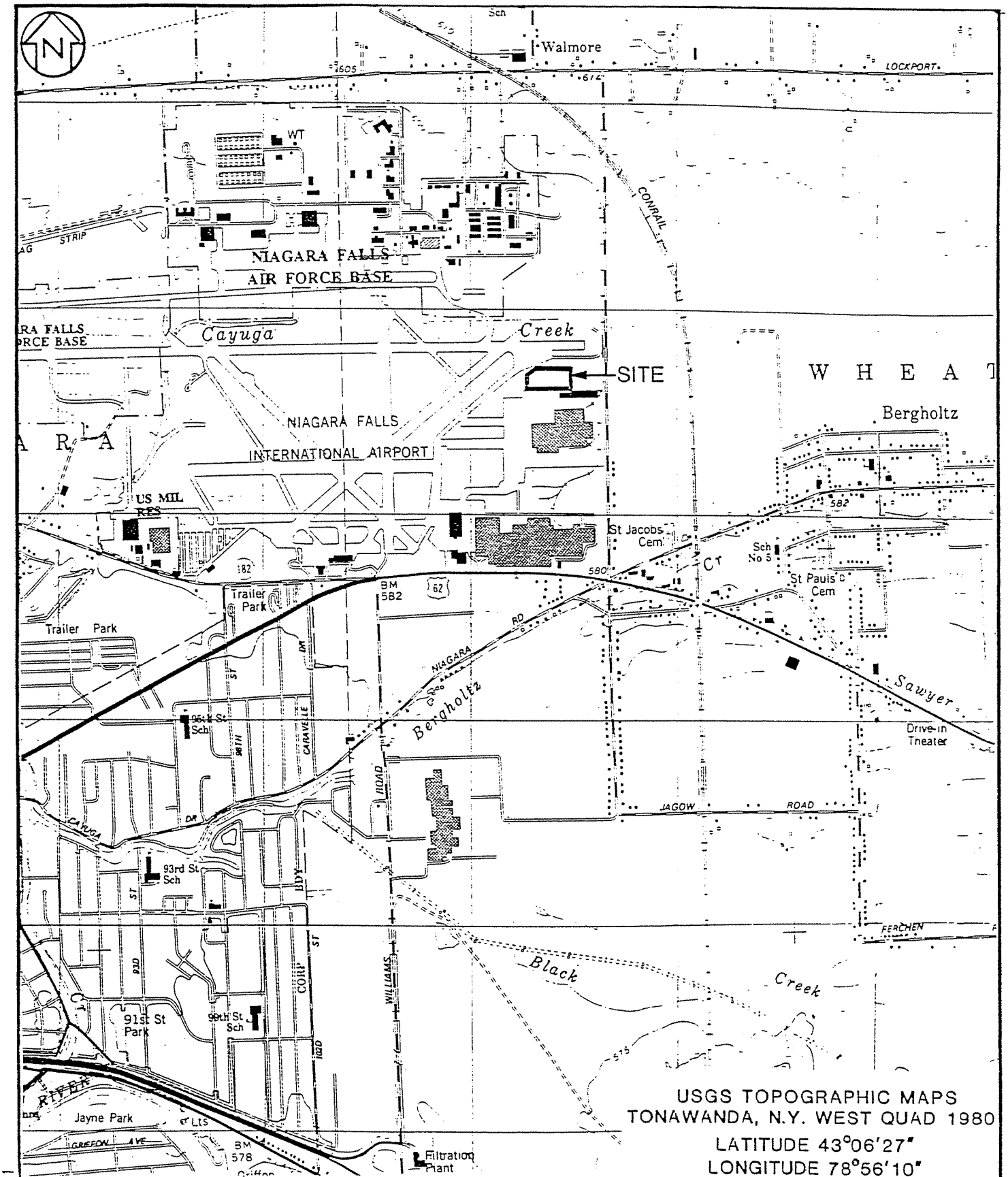
SECTION 4

4.0 SITE ASSESSMENT

4.1 Site History

The Niagara Frontier Transportation Authority (NFTA) site is a 2.75 acre impounding reservoir located on the Niagara Falls International Airport in the Town of Wheatfield, New York (Figures 1 and 2). The site is owned and operated by Carborundum Abrasives located on Walmore Road, Wheatfield, New York. The site is north of the Carborundum building complex on NFTA property. Carborundum has and continues to use the impounding reservoir as a settling basin for storm and non-contact cooling water discharged from their facility (Ref. 2, 16). The facility manufactures sandpaper and abrasive grain material using raw materials including phenol and phenolic resins (Ref. 16).

Water from the impounding reservoir discharges to a storm sewer which runs under airport property and enters Cayuga Creek approximately 750 feet north of the site (Ref. 2). This discharge is monitored in conjunction with SPDES Permit #NY0001716 (Ref. 16). Monitoring results indicate that permit limitations have been exceeded on a number of occasions, especially for phenol, BOD and solids (Ref. 2, 14). On December 19, 1978, a tank on the roof of the Carborundum plant spilled up to 6000 gallons of phenol (Ref. 2, 12, 13, 14). An estimated 10% of the spill drained to the impounding reservoir via a diversion sewer (Ref. 2, 12). Clean-up measures were immediately undertaken by Carborundum and monitoring conducted on April 25, 1979 indicated phenol levels were below the SPDES permit limits (Ref. 2, 12, 13).

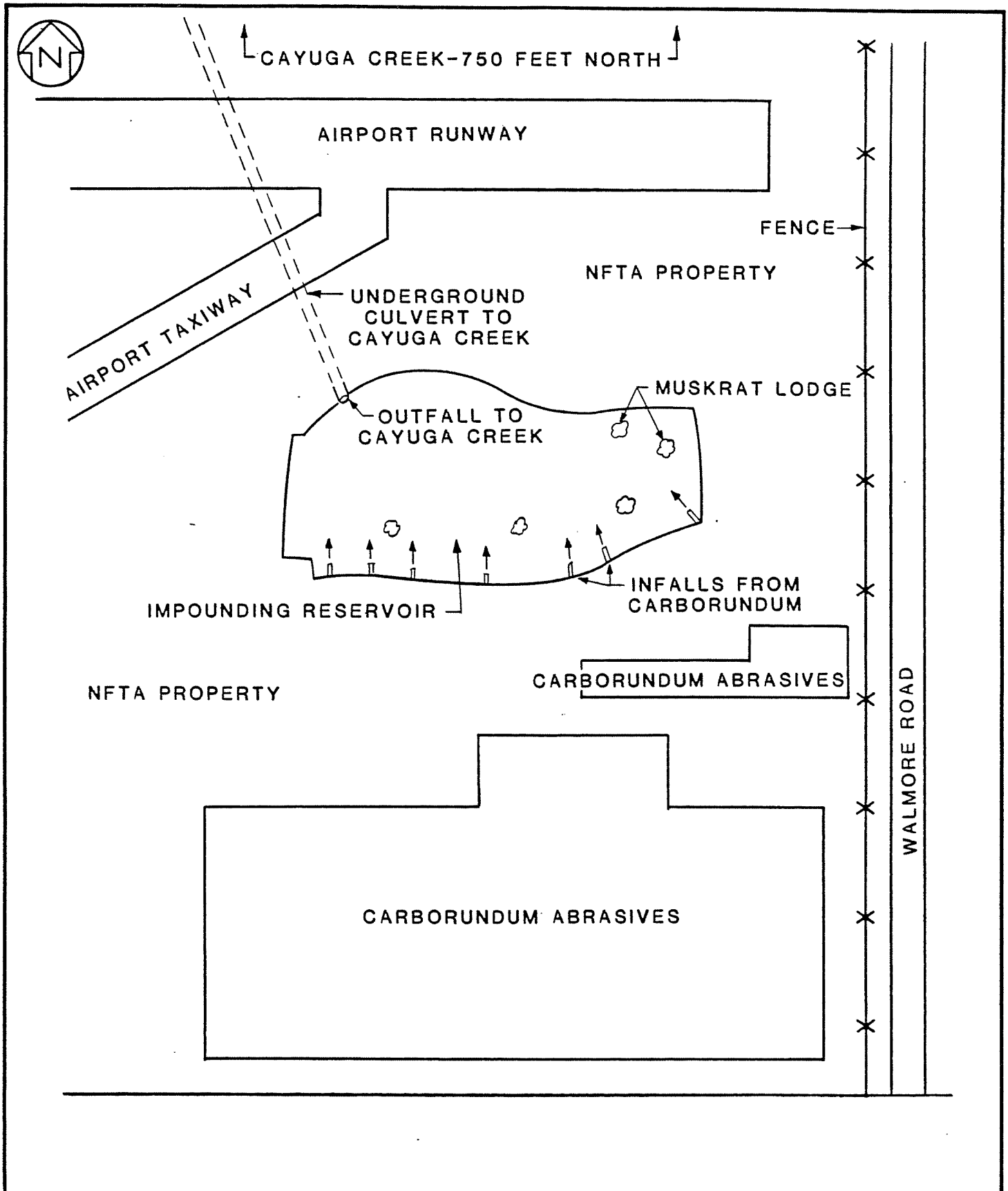


RECRA RESEARCH INC. BUFFALO, NEW YORK	Scale: 1:24000			NIAGARA FRONTIER TRANSPORTATION AUTHORITY WHEATFIELD, N.Y. N.Y.S. SUPERFUND PHASE I
		By	Date	
	Dwn.	MJS	12/85	
	Ckd.			
	Ap'vd.	TPC	2/86	
	Rev.			
	Project No. 5C280417			A FIGURE 1

VICINITY MAP

61160-1

BRUNING



RECRA RESEARCH INC. BUFFALO, NEW YORK	Scale: NTS		NIAGARA FRONTIER TRANSPORTATION AUTHORITY SITE TOWN OF WHEATFIELD NEW YORK	SITE MAP N.Y.S. SUPERFUND PHASE I
	By	Date		
Dwn.	MS	2/86		
Ckd.				
Ap'vd.				
Rev.			Project No. 5C280417	A FIGURE 2

BRUNING 61160-1

Niagara County Health Department personnel conducted a site inspection in January 1982. No visible signs of contamination were detected and ducks were observed congregating in the pond (Ref. 2). Recra Research, Inc., personnel inspected the site on November 26, 1985 and noted numerous ducks and muskrat lodges, and abundant aquatic vegetation.

4.2 Site Area Surface Features

4.2.1 Topography and Drainage

The impounding reservoir is located on the Niagara Falls International Airport. The airport and the surrounding environs are relatively flat (Ref. 1). Discharge from the impounding reservoir enters Cayuga Creek to the north through a storm sewer beneath the airport runways (Ref. 2). Storm water run-off from the airport also enters this storm sewer (Ref. 2).

The 100-year floodplain for Cayuga Creek lies less than 500 feet north of the site (Ref. 11).

4.2.2 Environmental Setting

As mentioned in Section 4.2.1, the site is located on the Niagara Falls International Airport. The Niagara Falls Air Force Base lies approximately one half mile northwest of the site (Ref. 1). A Wheatfield community is located less than a mile east-southeast and the City of Niagara Falls is located less than a mile southwest of the site (Ref. 1).

The Niagara River is located two miles south of the site, Bergholtz Creek, 3000 feet south of the site and Cayuga Creek, 750 feet north of

the site (Ref. 1). Discharge from the impounding reservoir enters Cayuga Creek. Cayuga Creek water is not used for drinking, industrial or primary contact recreational uses (Ref. 2, 8, 9). Cayuga Creek enters the Niagara River approximately four miles downstream of the impounding reservoir (Ref. 1, 2). The City of Niagara Falls municipal water intakes are located in the Niagara River approximately three miles downstream of the mouth of Cayuga Creek (Ref. 2, 7). All residents in the area of the site are connected to a municipal water supply (Ref. 2, 7). Some old domestic wells have been identified in the area of the site but these wells are not used for drinking water purposes (Ref. 18).

The nearest off-site building is the Carborundum Abrasives plant, 400 feet south of the site. Approximately 50 buildings lie within one mile of the site. About 500 buildings are located within two miles of the site (Ref. 2).

The Niagara Falls International Airport is fenced on all sides. Metal bars are placed across storm drains to prevent unauthorized entry through the drain system. Access to the property, including the impounding reservoir, is controlled by the airport (Ref. 2).

New York State regulated wetlands TW-6, TW-26 and TW-4 are located less than two miles south of the site (Ref. 10). The impounding reservoir provides habitat for fish, water fowl and muskrat. 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, 5). The Lockport Dolomite is a hard, resistant, gray, fine to coarse-grained dolomite (Ref. 4, 5). The thickness of the Lockport Dolomite is approximately 150 feet 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 a mile southwest of the site and encountered bedrock at 20 feet (Ref. 4).

Unconsolidated deposits in the area including the site are of glaciolacustrine origin (Ref. 4, 17). The U.S. Geological Survey drilled two test borings on the site in 1982. The boring logs indicated the presence of pinkish to reddish clayey deposits with some sand and gravel (Ref. 4).

4.3.2 Soils

Soils in the area including the site are classified as Odessa and Lakemont silty clay loam (Ref. 2). Both soil types are reddish and formed in lake-laid sediments with a high clay content (Ref. 17). Permeability of these soils is slow to very slow and seasonal high water

tables occur following periods of high precipitation. Ponding of water commonly occurs at these times as the soils are poorly drained.

The area immediately surrounding the site is airport runway indicating site soils have probably been disturbed. Sediments in the impounding reservoir may contain a large portion of settled solids from the Carborundum plant storm and cooling water discharge.

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, 5). These joints have typically been widened by the solution of rock by groundwater.

In addition, a widespread 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 deposits (Ref. 5).

Another water-bearing zone occurs where gypsum has been dissolved out by groundwater movement. The gypsum must be in contact with open fractures through which water can move (Ref. 5).

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

In the unconsolidated deposits, water-bearing zones were encountered during the U.S. Geological Survey drilling in 1982 (Ref. 4). The low permeability of the glacio-lacustrine deposits in the area results in seasonal high water tables developing following wet periods. The direction of groundwater movement in the unconsolidated aquifer is generally toward the major surface water bodies (Ref. 4). Groundwater movement beneath the site probably is directed north towards Cayuga Creek (Ref. 4).

4.4 Previous Sampling and Analyses

4.4.1 Groundwater Quality Data

During the site investigation by the U.S. Geological Survey in 1982, two test borings were advanced. The yield of groundwater from the saturated zone was too low to warrant the installation of monitoring wells (Ref. 4).

No groundwater quality information is known to exist for the site.

4.4.2 Surface Water Quality Data

The discharge from the impounding reservoir to Cayuga Creek is monitored for the parameters listed in Carborundum's SPDES Permit #NY-0001716 (Ref. 15). Permit effluent limitations have been exceeded on several occasions for phenol (Ref. 2, 14). Phenol limits have been set at 1.4 pounds per day average in the discharge (Ref. 2, 13). The current SPDES limitations for phenol are 0.005 mg/l (Ref. 15).

4.4.3 Air Quality Data

No air quality data is known to exist for the site.

4.4.4 Other Analytical Data

The U.S. Geological Survey collected two soil samples during the 1982 site investigation. These samples were analyzed for organic compounds. Three priority pollutants, all phthalates and all below 40 ppb, and two nonpriority pollutants (acetone and bis (2-ethylbutyl) phthalate) were detected in these samples (Ref. 4).

SECTION 5

5.0 PRELIMINARY APPLICATION OF THE HAZARD RANKING SYSTEM

5.1 Narrative

The Niagara Frontier Transporation Authority site is a 2.75 acre impounding reservoir located within the boundaries of the Niagara Falls International Airport in the Town of Wheatfield, New York (Ref. 1). The site is owned by Carborundum Abrasives, located on Walmore Road, 400 feet south of the site (Ref. 2). Carborundum has and continues to use the impounding reservoir as a settling basin for storm and non-contact cooling water discharged from their facility (Ref. 2, 16). Carborundum manufactures sandpaper and abrasive grain materials using raw materials including phenolic resins (Ref. 16).

Water from the impounding reservoir discharges to a storm sewer which runs under airport property and enters Cayuga Creek approximately 750 feet north of the site (Ref. 1). This discharge is monitored in conjunction with a SPDES permit (Ref. 16). Permit limitations for phenol (1.4 pounds per day average) have been exceeded on several occasions (Ref. 2, 14). On December 19, 1978, a tank on the roof of the Carborundum plant spilled up to 6000 gallons of phenol of which an estimated 10% drained to the impounding reservoir via a diversion sewer (Ref. 2, 12, 13, 14). Clean-up measures were immediately initiated by Carborundum and monitoring results from April 25, 1979 indicated phenol levels were within the SPDES permit limits (Ref. 2, 12, 13). Niagara County Health Department personnel inspected the site in January 1982 and found no visible signs of contamination (Ref. 2).

A site investigation by the U.S. Geological Survey in 1982 found elevated levels of three priority pollutant organics (phthalates) in site soils (Ref. 4).

Population centers are located within one mile of the site (Ref. 1). All residents in the site area are connected to a municipal water supply. Depth to bedrock beneath the site is estimated at 20 feet (Ref. 4). Groundwater probably occurs in the fractured zone of the Lockport Dolomite and seasonally in a perched water table in the unconsolidated deposits (Ref. 4, 5). Access to the site is controlled by the Niagara Falls International Airport (Ref. 2). No sensitive environments are located within one mile of the site (Ref. 10). The impounding reservoir provides habitat for fish, water fowl and muskrat.

5.2 HRS WORKSHEET

Facility name: Niagara Frontier Transportation Authority

Location: Town of Wheatfield, New York

EPA Region: 2

Person(s) in charge of the facility: Gerald F. McGee
Plant Engineer - Carborundum Abrasives Co.
Walmore Road, Wheatfield, New York

Name of Reviewer: Recra Research, Inc. Date: February 10, 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.)

Carborundum uses a 2.75 acre pond - impounding reservoir on NFTA property as a settling basin for storm and cooling water from plant operations prior to SPDES permitted discharge to Cayuga Creek. Values for phenol have exceeded SPDES limits in the past. A phenol spill occurred on December 19, 1978. The amount of phenol in pond sediments is unknown. Three priority pollutant organics (all phthalates) were detected in soil samples collected by the U.S. Geological Survey in 1982.

Scores: $S_M = 3.4$ ($S_{gw} = 2.0$ $S_{sw} = 5.5$ $S_a = 0$)

$S_{FE} = 0$

$S_{DC} = 16.7$

FIGURE 1
HRS COVER SHEET

Ground Water Route Work Sheet

Rating Factor	Assigned Value (Circle One)	Multi-plier	Score	Max. Score	Ref. (Section)
[1] Observed Release	(0) 45	1	0	45	3.1
If observed release is given a score of 45, proceed to line [4]. If observed release is given a score of 0, proceed to line [2]					
[2] Route Characteristics					3.2
Depth to Aquifer of Concern	0 1 2 (3)	2	6	6	
Net Precipitation	0 1 (2) 3	1	2	3	
Permeability of the Unsaturated Zone	0 (1) 2 3	1	1	3	
Physical State	0 (1) 2 3	1	1	3	
Total Route Characteristics Score			10	15	
[3] Containment	0 1 2 (3)	1	3	3	3.3
[4] Waste Characteristics					3.4
Toxicity/Persistence	0 3 6 9 (12) 15 18	1	12	18	
Hazardous Waste Quantity	0 (1) 2 3 4 5 6 7 8	1	1	8	
Total Waste Characteristics Score			13	26	
[5] Targets					3.5
Ground Water Use	0 (1) 2 3	3	3	9	
Distance to Nearest Well/Population Served	(0) 4 6 8 10 12 16 18 20 24 30 32 35 40	1	0	40	
Total Targets Score			3	49	
[6] If line [1] is 45, multiply [1] x [4] x [5] If line [1] is 0, multiply [2] x [3] x [4] x [5]			1170	57,330	
[7] Divide line [6] by 57,330 and multiply by 100		S_{gw} =	2.0		

FIGURE 2
GROUND WATER ROUTE WORK SHEET

Surface Water Route Work Sheet					
Rating Factor	Assigned Value (Circle One)	Multiplier	Score	Max. Score	Ref. (Section)
1 Observed Release	0 (45)	1	45	45	4.1
If observed release is given a value of 45, proceed to line 4. If observed release is given a value of 0, proceed to line 2.					
2 Route Characteristics					4.2
Facility Slope and Intervening Terrain	0 1 2 3	1		3	
1-yr. 24-hr. Rainfall	0 1 2 3	1		3	
Distance to Nearest Surface Water	0 1 2 3	2		6	
Physical State	0 1 2 3	1		3	
Total Route Characteristics Score				15	
3 Containment	0 1 2 3	1		3	4.3
4 Waste Characteristics					4.4
Toxicity/Persistence	0 3 6 9 (12) 15 18	1	12	18	
Hazardous Waste Quantity	0 (1) 2 3 4 5 6 7 8	1	1	8	
Total Waste Characteristics Score			13	26	
5 Targets					4.5
Surface Water Use	0 1 (2) 3	3	6	9	
Distance to a Sensitive Environment	(0) 1 2 3	2	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			6	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			3510	64,350	
7 Divide line 6 by 64,350 and multiply by 100			S_{sw} = 5.5		

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	9	9	
Hazardous Waste Quantity	0 (1) 2 3 4 5 6 7 8	1	1	8	
	Total Waste Characteristics Score		10	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})	2.0	4.0
Surface Water Route Score (S_{sw})	5.5	30.3
Air Route Score (S_a)	0	0
$S_{gw}^2 + S_{sw}^2 + S_a^2$		34.3
$\sqrt{S_{gw}^2 + S_{sw}^2 + S_a^2}$		5.9
$\sqrt{S_{gw}^2 + S_{sw}^2 + S_a^2} \,/\, 1.73 = S_M =$		3.4

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	5	5	
Distance to Nearest Building	0 1 2 (3)	1	3	3	
Distance to Sensitive Environment	(0) 1 2 3	1	0	3	
Land Use	0 1 2 (3)	1	3	3	
Population Within 2-Mile Radius	0 1 2 3 (4) 5	1	4	5	
Buildings Within 2-Mile Radius	0 1 2 3 (4) 5	1	4	5	
Total Targets Score			19	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	1	3	8.2
3 Containment	0 (15)	1	15	15	8.3
4 Waste Characteristics Toxicity	0 1 2 (3)	5	15	15	8.4
5 Targets					8.5
Population Within a 1-Mile Radius	0 1 2 3 (4) 5	4	16	20	
Distance to a Critical Habitat	(0) 1 2 3	4	0	12	
Total Targets Score			16	32	
6 If line 1 is 45, multiply 1 x 4 x 5 If line 1 is 0, multiply 2 x 3 x 4 x 5			3600	21,600	
7 Divide line 6 by 21,600 and multiply by 100			S_{DC} = 16.7		

FIGURE 12
DIRECT CONTACT WORK SHEET

June 28, 1982

5.3 HRS DOCUMENTATION RECORDS

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: Niagara Frontier Transportation Authority

LOCATION: Walmore Road, Town of Wheatfield, New York

GROUND WATER ROUTE

1 OBSERVED RELEASE

Contaminants detected (5 maximum):

No analytical data

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:

Seasonal perched water table in unconsolidated deposits
Weathered zone of the Lockport Dolomite.

(Ref. 2, 4, 5)

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

10 to 13 feet in unconsolidated deposits

(Ref. 4)

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

N/A

Net Precipitation

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

36 inches (Ref. 6)

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

27 inches (Ref. 6)

Net precipitation (subtract the above figures):

9 inches

Permeability of Unsaturated Zone

Soil type in unsaturated zone:

Odessa and Lakemont silty clay loam (Ref. 2)

Permeability associated with soil type:

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

Physical State

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

Solid, liquid (Ref. 2)

* * *

3 CONTAINMENT

Containment

Method(s) of waste or leachate containment evaluated:

Surface impoundment (Ref. 6)

Method with highest score:

No liner (Ref. 6)

4 WASTE CHARACTERISTICS

Toxicity and Persistence

Compound(s) evaluated:

Phenol (Ref. 2, 3, 12, 13, 14, 15, 16)

Compound with highest score:

Phenol (Ref. 6)

Hazardous Waste Quantity

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

Unknown

Basis of estimating and/or computing waste quantity:

N/A

* * *

5 TARGETS

Ground Water Use

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

None known (Ref. 2, 5, 18)

Distance to Nearest Well

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

N/A

Distance to above well or building:

N/A

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

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

None known (Ref. 2, 5)

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:

None known (Ref. 2, 5)

SURFACE WATER ROUTE

1 OBSERVED RELEASE

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

Phenol

Rationale for attributing the contaminants to the facility:

SPDES permit limitations for Phenol have been exceeded on several occasions. A Phenol spill occurred in the Carborundum plant on December 19, 1978 resulting in a discharge of high concentrations of Phenol into the impounding reservoir.

* * * (Ref. 2, 12, 13, 14, 15, 16)

2 ROUTE CHARACTERISTICS

Facility Slope and Intervening Terrain

Average slope of facility in percent:

Less than 3%

Name/description of nearest downslope surface water:

Cayuga Creek - NYS Class D surface water, not used for drinking or primary contact recreation, receives discharge from impounding reservoir.

(Ref. 1, 2, 9)

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

Discharge from the impounding reservoir enters Cayuga Creek via a culvert beneath the Niagara Falls International Airport.

(Ref. 2)

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

Yes

Is the facility completely surrounded by areas of higher elevation?

Facility is an impounding reservoir with a controlled outlet to Cayuga Creek.

(Ref. 2)

1-Year 24-Hour Rainfall in Inches

2.1 inches (Ref. 6)

Distance to Nearest Downslope Surface Water

Approximately 750 feet north to Cayuga Creek (Ref. 1)

Physical State of Waste

Solid in sediments; a portion is dissolved in impounding reservoir water

* * *

3 CONTAINMENT

Containment

Method(s) of waste or leachate containment evaluated:

Impounding reservoir is a settling basin for storm and cooling waters from the Carborundum plant prior to discharge into Cayuga Creek. Outlet may be dammed up if conditions permit.

(Ref. 2)

Method with highest score:

Impounding reservoir waters discharge into Cayuga Creek

4 WASTE CHARACTERISTICS

Toxicity and Persistence

Compound(s) evaluated

Phenol (Ref. 2, 3, 12, 13, 14, 15, 16)

Compound with highest score:

Phenol (Ref. 6)

Hazardous Waste Quantity

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

Unknown

Basis of estimating and/or computing waste quantity:

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.

(Ref. 8, 9)

Is there tidal influence?

None known

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:

New York State regulated wetlands TW-6, TW-26 and TW-4 are located between 1½ and 2 miles south of the site. The impounding reservoir provides habitat for fish, water fowl and muskrat

(Ref. 10)

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

N/A

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 City of Niagara Falls, NY are located approximately 7 miles downstream of impounding reservoir culvert entering Cayuga Creek.

(Ref. 2, 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:

Unknown

Most incompatible pair of compounds:

Unknown

Toxicity

Most toxic compound:

Phenol

Hazardous Waste Quantity

Total quantity of hazardous waste:

Unknown

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 (Ref. 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:

NYS regulated wetlands TW-6, TW-26 and TW-4 are located between 1½ and 2 miles south of the site. (Ref. 10)

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

N/A

Land Use

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

Impounding Reservoir is located on Niagara Frontier Transportation Authority, Niagara Falls International Airport property.

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

N/A

Distance to residential area, if 2 miles or less:

Niagara Falls Airforce Base lies approximately ½ mile northwest of the site. (Ref. 1)

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

FIRE AND EXPLOSION

1 CONTAINMENT

Hazardous substances present:

N/A

Type of containment, if applicable:

N/A

* * *

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:

Unknown

Basis of estimating and/or computing waste quantity:

N/A

* * *

3 TARGETS

Distance to Nearest Population

0 feet, industrial buildings and employees on site (Ref. 1)

Distance to Nearest Building

0 feet, industrial buildings on site (Ref. 1)

Distance to Sensitive Environment

Distance to wetlands:

NYS regulated wetlands TW-6, TW-26, and TW-4 are located 1½ and 2 miles south of the site. (Ref. 10)

Distance to critical habitat:

N/A

Land Use

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

Impounding Reservoir is located on Niagara Frontier Transportation Authority, Niagara Falls International Airport property.

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

N/A

Distance to residential area, if 2 miles or less:

Niagara Falls Air Force Base lies approximately ½ mile northwest of the site. (Ref. 1)

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

Approximately 4,000 (Ref. 1)

Buildings Within 2-Mile Radius

Approximately 1,000 (Ref. 1)

DIRECT CONTACT

1 OBSERVED INCIDENT

Date, location, and pertinent details of incident:

N/A

* * *

2 ACCESSIBILITY

Describe type of barrier(s):

Area is fenced on all sides and bars are placed across storm drains. Access to the site is controlled by the airport.

(Ref. 2)

* * *

3 CONTAINMENT

Type of containment, if applicable:

Impounding reservoir discharges to Cayuga Creek.

(Ref. 2, 3, 12, 13, 15, and 16)

* * *

4 WASTE CHARACTERISTICS

Toxicity

Compounds evaluated:

Phenol (Ref. 2, 3, 12, 13, 14, 15, and 16)

Compound with highest score:

Phenol (Ref. 6)

* * *

5 TARGETS

Population within one-mile radius

Approximately 1,000 (Ref. 1)

Distance to critical habitat (of endangered species)

N/A

EPA

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

I. IDENTIFICATION
01 STATE: NY | 02 SITE NUMBER: 932090

II. SITE NAME AND LOCATION

01 SITE NAME (Legal, common, or descriptive name of site)	02 STREET, ROUTE NO., OR SPECIFIC LOCATION IDENTIFIER				
NIAGARA FRONTIER TRANSPORTATION AUTHORITY	WALMORE ROAD				
03 CITY	**04 STATE**	**05 ZIP CODE**	**06 COUNTY**	**07 COUNTY CODE**	**08 CONG DIST**
WHEATFIELD	NY	14304	NIAGARA		
09 COORDINATES LATITUDE	**LONGITUDE**				
43 06 27.0	078 56 10.0				

10 DIRECTIONS TO SITE (Starting from nearest public road)
INTERSTATE 190 NORTH FROM GRAND ISLAND TO PINE AVENUE (ROUTE 62); EAST ON ROUTE 62; NORTH ON WALMORE ROAD; PLANT ON LEFT

III. RESPONSIBLE PARTIES

01 OWNER (If known)	02 STREET (Business, mailing, residential)			
CARBORUNDUM ABRASIVES COMPANY	WALMORE ROAD			
03 CITY	**04 STATE**	**05 ZIP CODE**	**06 TELEPHONE NUMBER**	
WHEATFIELD	NY	14304	(716) 695-8120	
07 OPERATOR (If known and different from owner)	**08 STREET** (Business, mailing, residential)			
SAME				
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 ☐ NO DATE 1 / 7 / 82 (MONTH DAY YEAR)
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
UNKNOWN (BEGINNING YEAR) | PRESENT (ENDING YEAR) ☐ UNKNOWN

04 DESCRIPTION OF SUBSTANCES POSSIBLY PRESENT, KNOWN, OR ALLEGED
PHENOL
PHENOLIC RESIN

05 DESCRIPTION OF POTENTIAL HAZARD TO ENVIRONMENT AND/OR POPULATION
SURFACE IMPOUNDMENT DISCHARGES TO CAYUGA CREEK WHICH ENTERS THE NIAGARA RIVER FOUR MILES FROM SITE

V. PRIORITY ASSESSMENT

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

VI. INFORMATION AVAILABLE FROM

01 CONTACT	02 OF (Agency/Organization)		03 TELEPHONE NUMBER
Pedro Ferro	RECRA RESEARCH INC		(716) 838 6200
04 PERSON RESPONSIBLE FOR ASSESSMENT	**05 AGENCY**	**06 ORGANIZATION**	**07 TELEPHONE NUMBER**	**08 DATE**
THOMAS P. CONNARE		SAME	( )	2 / 11 / 86 (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	932090

II. WASTE STATES, QUANTITIES, AND CHARACTERISTICS

01 PHYSICAL STATES (Check all that apply)

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

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

TONS: UNKNOWN
CUBIC YARDS:
NO. OF DRUMS:

03 WASTE CHARACTERISTICS (Check all that apply)

- [X] A. TOXIC
- [ ] B. CORROSIVE
- [ ] C. RADIOACTIVE
- [ ] D. PERSISTENT
- [X] 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

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)

References 2, 3

EPA

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

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
NY	932090

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

UNKNOWN

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

UNKNOWN

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

SURFACE IMPOUNDMENT DISCHARGES TO CAYUGA CREEK; SITE STORM SEWERS MAY BE CONTAMINATED

III. TOTAL POPULATION POTENTIALLY AFFECTED: UNKNOWN

IV. COMMENTS

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

References 2, 3

EPA

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

I. IDENTIFICATION
01 STATE: NY | 02 SITE NUMBER: 932590

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: UNKNOWN
04 NARRATIVE DESCRIPTION

SPDES PERMIT LIMIT FOR PHENOL HAS BEEN EXCEEDED ON SEVERAL OCCASIONS; MAJOR SPILL IN DECEMBER, 1978

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

NONE LIKELY

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

NONE LIKELY

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

UNKNOWN

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

IN 1982, USGS FOUND ELEVATED LEVELS OF 3 PRIORITY POLLUTANT ORGANICS (PHTHALATES) IN SITE SOILS

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

NONE LIKELY

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

5.5 EPA SITE INSPECTION REPORT
(Form 2070-13)

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

I. IDENTIFICATION
01 STATE: NY | 02 SITE NUMBER: 932090

II. SITE NAME AND LOCATION

01 SITE NAME (Legal, common, or descriptive name of site)	02 STREET, ROUTE NO., OR SPECIFIC LOCATION IDENTIFIER				
NIAGARA FRONTIER TRANSPORTATION AUTHORITY	WALMORE ROAD				
03 CITY	04 STATE	05 ZIP CODE	06 COUNTY	07 COUNTY CODE	08 CONG DIST
WHEATFIELD	NY	14304	NIAGARA		

09 COORDINATES: LATITUDE 43° 06' 32.0 | LONGITUDE 078° 56' 10.0

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

III. INSPECTION INFORMATION

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

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

05 CHIEF INSPECTOR	06 TITLE	07 ORGANIZATION	08 TELEPHONE NO.
THOMAS P CONNARE	ENVIRONMENTAL SCIENTIST	RECRA	(716)838-6200
09 OTHER INSPECTORS	10 TITLE	11 ORGANIZATION	12 TELEPHONE NO.
SHELDON NOZIK	ENVIRONMENTAL SCIENTIST	RECRA	(716)838-6200
			( )
			( )
			( )
			( )

13 SITE REPRESENTATIVES INTERVIEWED	14 TITLE	15 ADDRESS	16 TELEPHONE NO
TERRY LANDRUM	ENGINEER	NFTA	(716)297-4494
GERALD McGEE	PLANT ENGINEER	CARBORUNDUM ABRASIVES	(716)695-8120
			( )
			( )
			( )
			( )

17 ACCESS GAINED BY (Check one)	18 TIME OF INSPECTION	19 WEATHER CONDITIONS
☒ PERMISSION ☐ WARRANT	10:00 AM	31°F FREEZING RAIN

IV. INFORMATION AVAILABLE FROM

01 CONTACT	02 OF (Agency/Organization)	03 TELEPHONE NO.
GARY W. COX	RECRA RESEARCH INC	(716)838-6200

04 PERSON RESPONSIBLE FOR SITE INSPECTION FORM	05 AGENCY	06 ORGANIZATION	07 TELEPHONE NO.	08 DATE
THOMAS P CONNARE		SAME	SAME	11 26 85 (MONTH DAY YEAR)

EPA FORM 2070-13 (7-81)

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

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
NY	932090

II. WASTE STATES, QUANTITIES, AND CHARACTERISTICS

01 PHYSICAL STATES (Check all that apply)

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

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

TONS: UNKNOWN
CUBIC YARDS:
NO. OF DRUMS:

03 WASTE CHARACTERISTICS (Check all that apply)

- [X] A. TOXIC
- [ ] B. CORROSIVE
- [ ] C. RADIOACTIVE
- [ ] D. PERSISTENT
- [X] 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	UNKNOWN		PHENOL
BAS	BASES			
MES	HEAVY METALS			

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

01 CATEGORY	02 SUBSTANCE NAME	03 CAS NUMBER	04 STORAGE/DISPOSAL METHOD	05 CONCENTRATION	06 MEASURE OF CONCENTRATION

V. FEEDSTOCKS (See Appendix for CAS Numbers)

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

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

EPA FORM 2070-13 (7-81)

EPA

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

I. IDENTIFICATION
01 STATE: NY | 02 SITE NUMBER: 932090

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: UNKNOWN
04 NARRATIVE DESCRIPTION

SPDES PERMIT LIMIT FOR PHENOL HAS BEEN EXCEEDED ON SEVERAL OCCASIONS; MAJOR SPILL IN DECEMBER 1978

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

UNKNOWN

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

UNKNOWN

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

IN 1982, USGS FOUND ELEVATED LEVELS OF 3 PRIORITY POLLUTANT ORGANICS (PHTHALATES) IN SITE SOILS

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	92590

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

UNKNOWN

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

UNKNOWN

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

SURFACE IMPOUNDMENT DISCHARGES TO CAYUGA CREEK; SITE STORM SEWERS MAY BE CONTAMINATED

III. TOTAL POPULATION POTENTIALLY AFFECTED: UNKNOWN

IV. COMMENTS

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

References 2, 3

EPA

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

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
NY	932090

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) SPDES	NY-0001716	5/1/85	5/1/90	
☐ 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	UNKNOWN	
☐ B. PILES		
☐ C. DRUMS, ABOVE GROUND		
☐ D. TANK, ABOVE GROUND		
☐ E. TANK, BELOW GROUND		
☐ F. LANDFILL		
☐ 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)

05 OTHER

☒ A. BUILDINGS ON SITE
NIAGARA FALLS INTERNATIONAL AIRPORT

06 AREA OF SITE

2.75 (Acres)

07 COMMENTS

IV. CONTAINMENT

01 CONTAINMENT OF WASTES (Check one)

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

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

SURFACE IMPOUNDMENT SERVING AS SETTLING BASIN FOR CARBORUNDUM STORM AND COOLING WATER

V. ACCESSIBILITY

01 WASTE EASILY ACCESSIBLE ☐ YES ☒ NO

02 COMMENTS

SITE IS LOCATED ON NIAGARA FALLS INTERNATIONAL AIRPORT

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

REF 15 PERMIT TRANSMITTAL LETTER FROM NYSDEC

EPA

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

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
NY	932090

II. DRINKING WATER SUPPLY

01 TYPE OF DRINKING SUPPLY (Check as applicable)

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

02 STATUS

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

03 DISTANCE TO SITE

A. 7 (mi)
B. _____ (mi)

III. GROUNDWATER

01 GROUNDWATER USE IN VICINITY (Check one) N/A NOT USED, USEABLE

☐ 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 _____

03 DISTANCE TO NEAREST DRINKING WATER WELL _____ (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
10 - 13 (ft)	UNKNOWN	UNKNOWN (ft)	UNKNOWN (gpd)	☐ YES ☐ NO

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

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

IV. SURFACE WATER

01 SURFACE WATER USE (Check one)

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

SECONDARY CONTACT RECREATION (CLASS D WATERWAY)

02 AFFECTED/POTENTIALLY AFFECTED BODIES OF WATER

NAME:	AFFECTED	DISTANCE TO SITE
CAYUGA CREEK	☐	1/5 (mi)
NIAGARA RIVER	☐	4 (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. > 20,000 NO. OF PERSONS

02 DISTANCE TO NEAREST POPULATION

< 1/2 (mi)

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

500

04 DISTANCE TO NEAREST OFF-SITE BUILDING

400 FEET (X 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 FALLS AIRFORCE BASE 1/2 MILE NORTHWEST; INDUSTRIAL AREA TO THE SOUTH, AIRPORT NORTH AND WEST, AGRICULTURAL ACROSS WALMORE ROAD TO THE EAST

EPA

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

I. IDENTIFICATION

01 STATE: NY | 02 SITE NUMBER: 932090

VI. ENVIRONMENTAL INFORMATION

01 PERMEABILITY OF UNSATURATED ZONE (Check one)

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

02 PERMEABILITY OF BEDROCK (Check one)

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

03 DEPTH TO BEDROCK	04 DEPTH OF CONTAMINATED SOIL ZONE	05 SOIL pH	
20 (ft)	UNKNOWN (ft)	UNKNOWN	

06 NET PRECIPITATION	07 ONE YEAR 24 HOUR RAINFALL	08 SLOPE: SITE SLOPE	DIRECTION OF SITE SLOPE	TERRAIN AVERAGE SLOPE
9 (in)	2.1 (in)	< 3 %	SOUTHERLY	< 3 %

09 FLOOD POTENTIAL

SITE IS IN N/A YEAR FLOODPLAIN

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

11 DISTANCE TO WETLANDS (5 acre minimum)

ESTUARINE: A. _____ (mi)

OTHER: B. 1 1/2 - 2 (mi)

12 DISTANCE TO CRITICAL HABITAT (of endangered species)

N/A (mi)

ENDANGERED SPECIES: N/A

13 LAND USE IN VICINITY

DISTANCE TO:

COMMERCIAL/INDUSTRIAL	RESIDENTIAL AREAS; NATIONAL/STATE PARKS, FORESTS, OR WILDLIFE RESERVES	AGRICULTURAL LANDS: PRIME AG LAND	AG LAND
A. 1/10 (mi)	B. 1/5 (mi)	C. _____ (mi)	D. _____ (mi)

14 DESCRIPTION OF SITE IN RELATION TO SURROUNDING TOPOGRAPHY

SURFACE IMPOUNDMENT IS LOCATED ON NIAGARA FALLS INTERNATIONAL AIRPORT WHICH IS RELATIVELY FLAT.

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

USGS TOPOGRAPHIC MAP: TONAWANDA WEST, N.Y.
HRS USERS MANUAL
USGS GROUNDWATER STUDY 1982 (EPA 905/4.85.001)
NIAGARA COUNTY HEALTH DEPT SITE PROFILE (MIKE HOPKINS

EPA

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

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
NY	9320 90

II. SAMPLES TAKEN

SAMPLE TYPE	01 NUMBER OF SAMPLES TAKEN	02 SAMPLES SENT TO	03 ESTIMATED DATE RESULTS AVAILABLE
GROUNDWATER		NO SAMPLING BY RECRA	
SURFACE WATER			
WASTE			
AIR			
RUNOFF			
SPILL			
SOIL			
VEGETATION			
OTHER			

III. FIELD MEASUREMENTS TAKEN

01 TYPE	02 COMMENTS
	NONE

IV. PHOTOGRAPHS AND MAPS

01 TYPE ☐ GROUND ☑ AERIAL

02 IN CUSTODY OF NIAGARA COUNTY HEALTH DEPARTMENT
(Name of organization or individual)

03 MAPS
☐ YES
☐ NO

04 LOCATION OF MAPS

V. OTHER FIELD DATA COLLECTED (Provide narrative description)

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

EPA

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

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
NY	932090

II. CURRENT OWNER(S)

01 NAME	02 D+B NUMBER
CARBORUNDUM ABRASIVES	

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

05 CITY	06 STATE	07 ZIP CODE
WHEATFIELD	NY	14304

01 NAME	02 D+B NUMBER

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

05 CITY	06 STATE	07 ZIP CODE

01 NAME	02 D+B NUMBER

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

05 CITY	06 STATE	07 ZIP CODE

01 NAME	02 D+B NUMBER

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

05 CITY	06 STATE	07 ZIP CODE

PARENT COMPANY (If applicable)

08 NAME	09 D+B NUMBER
NONE	

10 STREET ADDRESS (P.O. Box, RFD #, etc.)	11 SIC CODE

12 CITY	13 STATE	14 ZIP CODE

08 NAME	09 D+B NUMBER

10 STREET ADDRESS (P.O. Box, RFD #, etc.)	11 SIC CODE

12 CITY	13 STATE	14 ZIP CODE

08 NAME	09 D+B NUMBER

10 STREET ADDRESS (P.O. Box, RFD #, etc.)	11 SIC CODE

12 CITY	13 STATE	14 ZIP CODE

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

01 NAME	02 D+B NUMBER

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

05 CITY	06 STATE	07 ZIP CODE

01 NAME	02 D+B NUMBER

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

05 CITY	06 STATE	07 ZIP CODE

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

01 NAME	02 D+B NUMBER

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

05 CITY	06 STATE	07 ZIP CODE

01 NAME	02 D+B NUMBER

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

05 CITY	06 STATE	07 ZIP CODE

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

EPA

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

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
NY	932090

II. CURRENT OPERATOR (Provide if different from owner)

01 NAME	02 D+B NUMBER
CARBORUNDUM ABRASIVES	

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

05 CITY	06 STATE	07 ZIP CODE
WHEAT FIELD	NY	14304

08 YEARS OF OPERATION	09 NAME OF OWNER
	SAME

OPERATOR'S PARENT COMPANY (If applicable)

10 NAME	11 D+B NUMBER
NONE	

12 STREET ADDRESS (P.O. Box, RFD #, etc.)	13 SIC CODE

14 CITY	15 STATE	16 ZIP CODE

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

01 NAME	02 D+B NUMBER

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

01 NAME	02 D+B NUMBER

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

05 CITY	06 STATE	07 ZIP CODE

08 YEARS OF OPERATION	09 NAME OF OWNER DURING THIS PERIOD

10 NAME	11 D+B NUMBER

12 STREET ADDRESS (P.O. Box, RFD #, etc.)	13 SIC CODE

14 CITY	15 STATE	16 ZIP CODE

01 NAME	02 D+B NUMBER

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

05 CITY	06 STATE	07 ZIP CODE

08 YEARS OF OPERATION	09 NAME OF OWNER DURING THIS PERIOD

10 NAME	11 D+B NUMBER

12 STREET ADDRESS (P.O. Box, RFD #, etc.)	13 SIC CODE

14 CITY	15 STATE	16 ZIP CODE

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

EPA FORM 2070-13 (7-81)

EPA

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

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
NY	923020

II. ON-SITE GENERATOR

01 NAME	02 D+B NUMBER
CARBORUNDUM ABRASIVES	

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

05 CITY	06 STATE	07 ZIP CODE
WHEATFIELD	NY	14304

III. OFF-SITE GENERATOR(S)

01 NAME	02 D+B NUMBER	01 NAME	02 D+B NUMBER

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

05 CITY	06 STATE	07 ZIP CODE	05 CITY	06 STATE	07 ZIP CODE

01 NAME	02 D+B NUMBER	01 NAME	02 D+B NUMBER

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

05 CITY	06 STATE	07 ZIP CODE	05 CITY	06 STATE	07 ZIP CODE

IV. TRANSPORTER(S)

01 NAME	02 D+B NUMBER	01 NAME	02 D+B NUMBER

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

05 CITY	06 STATE	07 ZIP CODE	05 CITY	06 STATE	07 ZIP CODE

01 NAME	02 D+B NUMBER	01 NAME	02 D+B NUMBER

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

05 CITY	06 STATE	07 ZIP CODE	05 CITY	06 STATE	07 ZIP CODE

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

EPA FORM 2070-13 (7-81)

EPA

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

I. IDENTIFICATION
01 STATE: NY | 02 SITE NUMBER: 932090

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 1978-1979 — 03 AGENCY _____
04 DESCRIPTION
RESPONSE TO PHENOL SPILL OF DECEMBER 19, 1978.

01 ☐ P. CUTOFF TRENCHES/SUMP — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION

01 ☐ Q. SUBSURFACE CUTOFF WALL — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION

EPA

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

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
NY	932090

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

PER THE DECEMBER 19, 1978 PHENOL SPILL :

- ALL FLUID DISCHARGING FROM THE POND WAS FILTERED WITH ACTIVATED CARBON
- POND WATER WAS PUMPED TO THE CITY SANITATION SYSTEM (WITH ACTIVATED CARBON SYSTEM) AT THE RATE OF 200 GPM ON WEEKENDS AND UP TO 100 GPM DURING THE WEEK
- POND TESTING CONTINUED UNTIL SATISFACTORY PHENOL LEVELS WERE ATTAINED

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

REF 12 : LETTER FROM R.G. BUSH, CARBORUNDUM TO PAUL FOERSCH, NYSDEC. JANUARY 16, 1979

EPA

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

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
NY	932090

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 Niagara Frontier Transportation Authority site was found to have a migration potential (Sm) score of 3.4. 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:

- o subsurface information including depth to the water table and/or aquifers of concern, permeability of unconsolidated deposits, groundwater quality, and groundwater flow direction.
- o sediment and surface water quality in Cayuga Creek in the area receiving discharge from the impounding reservoir.
- o impounding reservoir water and sediment analysis for phenol and phenolic compounds.
- o adverse effects, if any, on wildlife using the impounding reservoir as habitat.

SECTION 7

7.0 PROPOSED PHASE II WORK PLAN

This section outlines the recommended procedures and technical means by which a Phase II investigation may be conducted. Any work plan which is submitted to NYSDEC for conducting a Phase II type study must follow the guidelines established by NYSDEC and subsequently be approved by NYSDEC.

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:

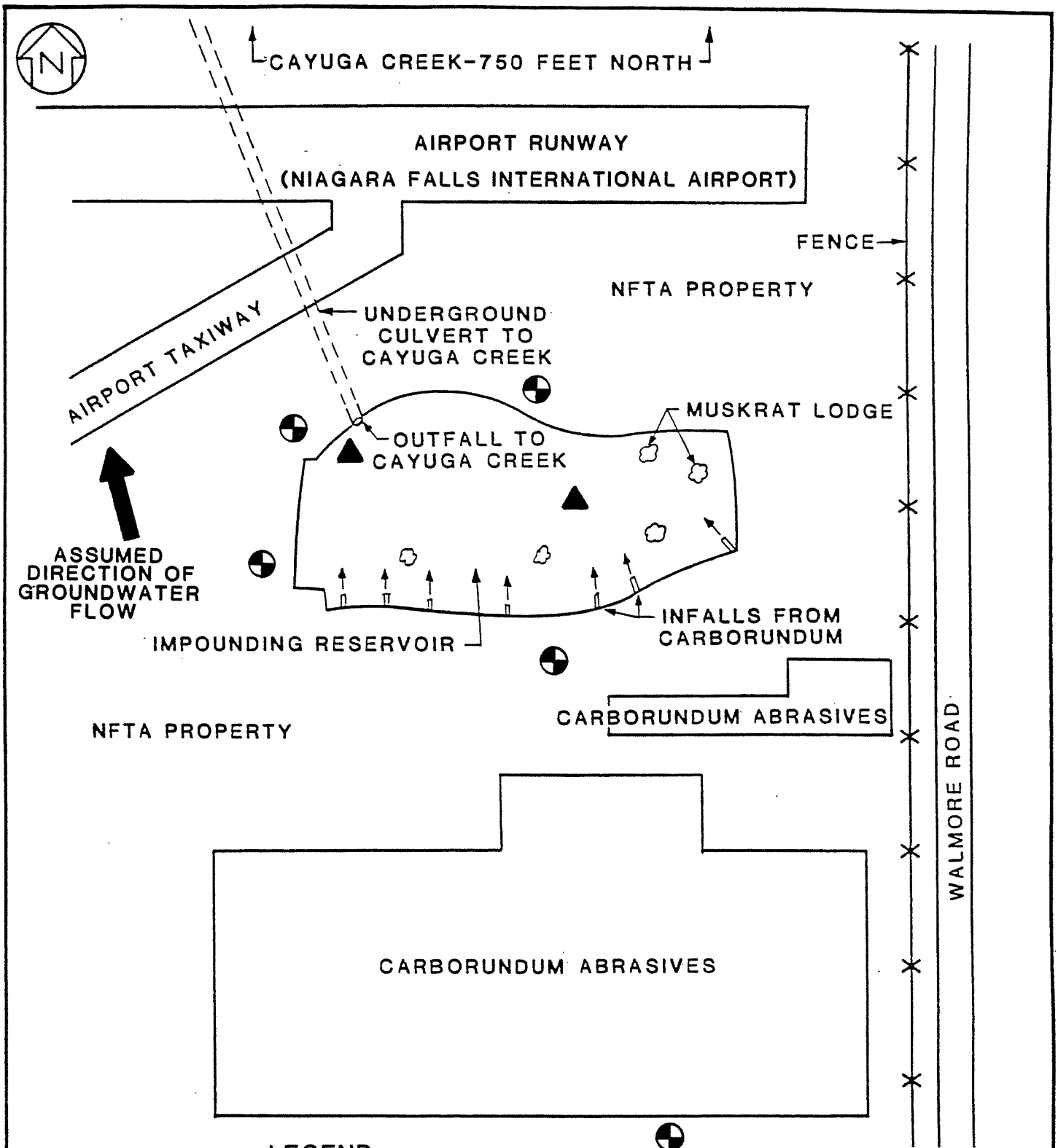
- o air monitoring
- o test bore drilling
- o monitoring well installation
- o in-situ permeability testing
- o groundwater, surface water, and sediment sampling
- o surveying and mapping
- o chemical analytical testing
- o laboratory geotechnical testing
- o groundwater well survey
- o data analysis and reporting

- o characterizing the physical and chemical nature of the site
- o scoring the site under the Hazard Ranking System
- o reporting.

7.2 Scope of Work

As a result of the cleanup/response action which was undertaken to address the 1978 phenol spill, it is questionable as to the continuing presence of an environmental hazard at this site. By April of 1979, phenol concentrations in the pond discharge was within the SPDES permit discharge limit and the phenol concentration within the sediments had exhibited a significant decrease in concentration, 24,995 to 6.99 ppm (Ref. 13). In light of this information, a two-step approach should be utilized in performing a future evaluation of this site.

The initial step involves the collection of two surface water and sediment samples from the impounding reservoir with one of the samples taken in the vicinity of the SPDES discharge point (Figure 3). These samples should be analyzed for total phenols and priority pollutant metals, and scanned for organics (FID) and volatile halogenated organics. Based on the results of these analyses, a decision to proceed with the Phase II investigation presented below will be made.



BRUNING 61160-1	Scale: NTS		NIAGARA FRONTIER TRANSPORTATION AUTHORITY SITE TOWN OF WHEATFIELD NEW YORK	PROPOSED SITE PHASE II WORKPLAN MAP
	By	Date		
	Dwn. MS	2/86		
	Ckd.			
	Ap'vd.			
	Rev.		Project No. 5C280417	A FIGURE 3

7.2.1 Test Borings

Five (5) 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, 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 cleaning 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:

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

- o rinsed with distilled water
- o allowed to air dry.

An HNU detector 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).

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 pollutant metals and organics (Contract Laboratory Protocol), PCBs and total phenolics.

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 by a Recra geologist.

At a minimum, each boring log will include:

- o date, test hole identification, and project identification
- o name of individual developing the log
- o name of driller and assistant(s)
- o drill make and model, auger size
- o 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)
- o depths recorded in feet and fractions thereof (tenths or inches), referenced to ground surface
- o standard penetration test (ASTM D-1586) blow counts
- o for samples, the length of the sample interval and length of the sample recovered
- o the first encountered water table along with the method of determination, referenced to ground surface
- o drill and borehole characteristics
- o sequential stratigraphic boundaries
- o HNu readings

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 sample 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.

7.2.2 Groundwater Monitoring and Sampling

Five (5) monitoring wells will be installed at the location of the test borings. 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, 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 pre-cleaned, dedicated PVC or stainless steel bailers 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 will be cleaned prior to and after each use. The well water/sediment volume will also be calculated.

Well evacuation will be supplemented by:

- o Temperature, pH, and specific conductance measurements
- o Evacuation volume measurement
- o Visual identification of water clarity and color
- o Visual identification of the physical characteristics of removed sediments

The development process will continue until a stabilization of pH, specific conductance, temperature, and clarity of discharge (goal of 100 turbidity units) 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 in-situ 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 (Contract Laboratory Protocol), PCBs, total phenolics, hardness and specific conductance. The GC/MS scan will include the identification and quantification 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. Pre-cleaned, dedicated PVC or stainless 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 a 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 materials 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.

7.2.3 Other Sampling

Sediment and surface water samples will be collected from the impounding reservoir (Figure 3) and in Cayuga Creek 50 feet upstream and 50 feet downstream of the confluence with the drainage channel from the impounding reservoir. Sediment and surface water samples will be analyzed for priority pollutant metals and organics (Contract Laboratory Protocol), PCBs, and total phenolics.

7.2.4 Air Monitoring

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

- o in at least one upwind and downwind location prior to any site work
- o during borings and monitoring well installations
- o for all split-spoon samples
- o for all surface water and sediment samples
- o weather conditions including wind speed and direction will be recorded.

7.2.5 Surveying

A map will be prepared showing the location and appropriate elevations (ground surface, top of monitor well casing) for each boring sampling

location monitor 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:

- Vertical Control - Elevations (0.01') will be established for the ground surface at the well, the top of monitor well casing (T.C.), 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 monitor 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."

Laboratory analyses 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's Phase II report format. The Phase II report will include a plot plan drawing showing the following:

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

Five (5) copies of the draft final Phase II report and fifteen (15) 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), 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 the Phase II Work Plan is described below. This estimate is based on the placement of five monitoring wells in unconsolidated deposits at 30 feet below ground surface.

o Preliminary Sampling and Analyses	$ 4,936.00
o Subsurface Investigation	14,937.00
o Analytical Testing	27,175.00*
o Preliminary Engineering, HRS Scoring, and Report	8,000.00
Total Phase II	$55,048.00

* Costs include Contract Laboratory Protocol for priority pollutant organics and metals. Costs will vary among contracted laboratories.

APPENDIX A

APPENDIX A

DATA SOURCES AND REFERENCES

NIAGARA FRONTIER TRANSPORTATION AUTHORITY

REFERENCES

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

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

3. Inactive Hazardous Waste Disposal Site Report. NYSDEC, Division of Solid and Hazardous Waste, Region 9. January 24, 1985.

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. LaSalla, Jr., A. M. Ground-Water Resources of the Erie-Niagara Basin, New York; Prepared for the Erie-Niagara Basin Regional Water Resources Planning Board. 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. Memorandum from Robert G. Bush, Carborundum to Alton K. Miller, Carborundum, Concerning Phenol Spill of December 19, 1978. Includes Letter from R.G. Bush to Paul Foersch, NYSDEC Region 9, Dated January 16, 1979. March 28, 1979.

13. Letter from Robert G. Bush, Carborundum, to Paul Foersch, NYSDEC Region 9, concerning Phenol Spill of December 19, 1978. May 7, 1979.

14. Letter from Gerald F. McGee, Carborundum to Paul E. Foersch, NYSDEC, Region 9, Concerning SPDES Permit #NY0001716 Exceedances. May 30, 1980.

15. SPDES Permit #NY0001716 Transmittal Letter from Steven J. Doleski, NYSDEC, Regulatory Affairs, Region 9, to Carborundum. Includes Permit Special Conditions, Effective May 1, 1985 to May 1, 1990.

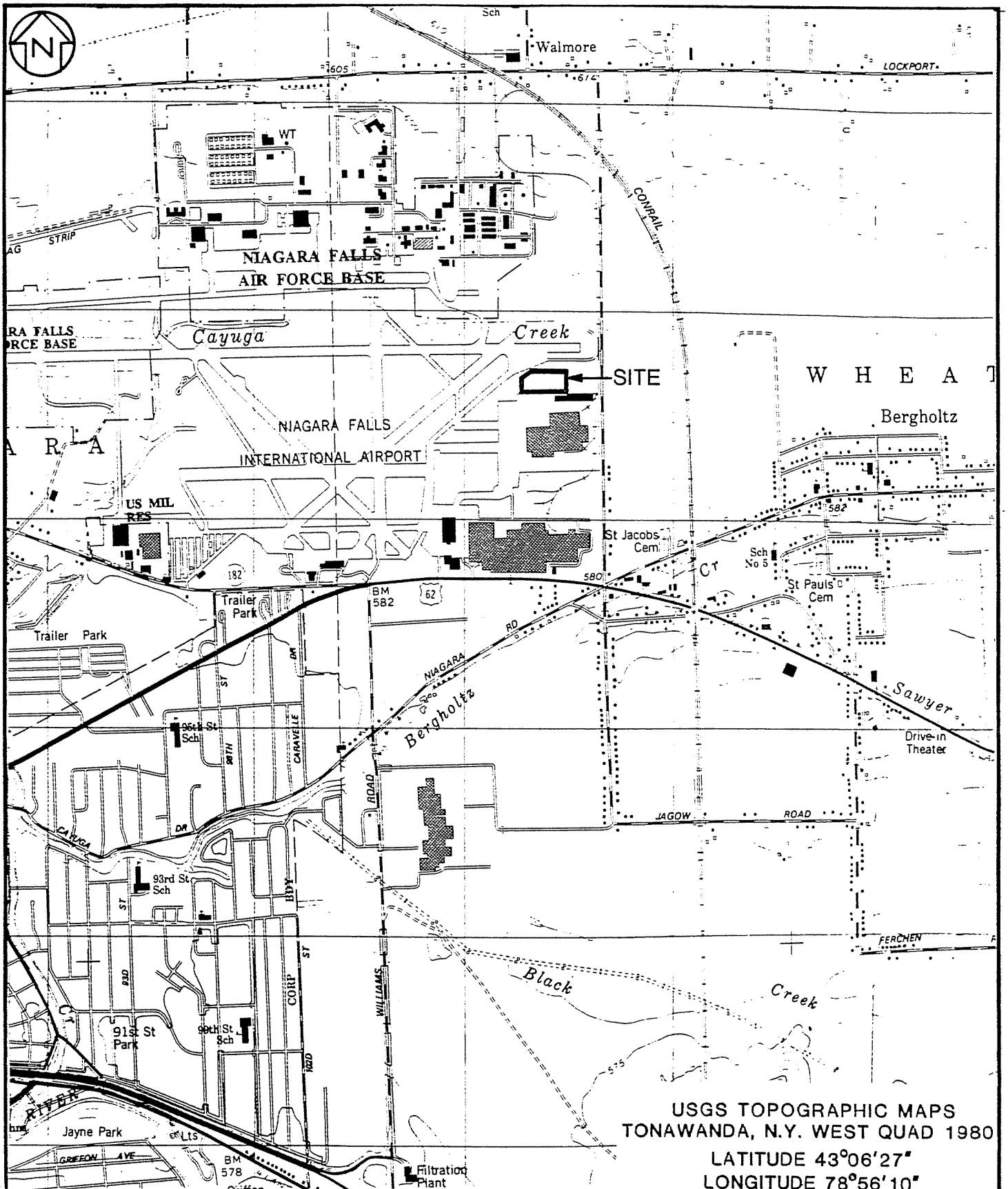
16. Interoffice Memorandum from Ronald Gwozdek, Niagara County Health Department, concerning Carborundum Company - Abrasives Division, Walmore Road, Inspection of June 25, 1985. August 5, 1985.

17. General Soil Map and Interpretations, Erie County, New York. U.S. Department of Agriculture, Soil Conservation Service. May 1979.

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 Extension Service, from Thomas P. Connare, Recra Research, Inc. February 24, 1986.

REFERENCE 1



USGS TOPOGRAPHIC MAPS
TONAWANDA, N.Y. WEST QUAD 1980
LATITUDE 43°06'27"
LONGITUDE 78°56'10"

61160-1

BRUNING

RECRA RESEARCH INC.
BUFFALO, NEW YORK

Scale: 1:24000		
	By	Date
Dwn.	MJS	12/85
Ckd.		
Ap'vd.	TPC	2/86
Rev.		

NIAGARA FRONTIER TRANSPORTATION AUTHORITY
WHEATFIELD, N.Y.
N.Y.S. SUPERFUND PHASE I

Project No. 5C280417

VICINITY MAP

A

REFERENCE 2

PRELIMINARY INVESTIGATION AND PROFILE REPORTS
FOR 26 SUSPECTED DISPOSAL SITES
IN NIAGARA COUNTY, NEW YORK.
NIAGARA COUNTY HEALTH DEPARTMENT.
March 1982.

NAME

NIAGARA FRONTIER TRANSPORTATION AUTHORITY (DEC #932090)

LOCATION

The disposal area is a shallow 2.75 acre pond located north of the Carborundum Coated Abrasives Plant, 400 feet west of Walmore Road.

A site sketch is attached.

OWNERSHIP

The pond is located on property owned by the Niagara Frontier Transportation Authority, Niagara Falls Airport. Correspondence should be addressed to Mr. Joseph Toromino, Assistant Manager, Niagara Falls Airport, Niagara Falls Boulevard, Town of Niagara.

Carborundum uses the pond in conjunction with its SPDES Permit. The contact at Carborundum is Mr. Gerald McGee.

HISTORY

Carborundum uses the pond on the airport property as a settling basin for storm and cooling water prior to discharge to a storm sewer which enters Cayuga Creek. The discharge is in conjunction with a SPDES Permit #NY0001716 issued to Carborundum. Carborundum monitors the discharge in terms of flow and the following parameters: BOD, TSS, TDS, Phenol, TKN, pH and temperature.

Records show that at least since the early 1970's, the pond water had a high phenol content. Reports from 1975 and 1976 indicate that a brown scum was found on the pond and that phenol odors were emitted.

On December 19, 1978 a phenol tank on the roof of the plant spilled up to 6,000 gallons of phenol. The phenol solidified, but later became liquid after contact with water. It is estimated by Carborundum that 90% of the spillage was pumped to sanitary sewers and 10% (600 gallons) entered the pond via roof drains.

Clean up measures taken by Carborundum included using 60 pound bags of activated carbon to adsorb the phenol in the effluent and pumping the pond water to the sanitary sewer at the rate of 100 gpm to 200 gpm until the phenol concentration in the discharge was below one part per million. The drain lines in the plant were cleaned by Chem Trol and high pressure flushed. The sewers were also flushed.

An inspection by Niagara County Health Department personnel was made in January, 1982. There were no visible signs of contamination. Birds congregate in the pond without noticeable ill effects.

RESULTS OF PREVIOUS SAMPLING

As a requirement for the SPDES Permit, Carborundum submits results of monitoring of discharge to DEC and the Niagara County Health Department on a monthly basis. Phenol standards (maximum 1.4 lb/day average or 2.8 lbs in any day) are frequently exceeded. Other parameters are generally met.

There is no record of sediment samples or soil samples being taken.

REVIEW OF AERIAL PHOTOGRAPHY

Examination of USDA aerial photographs taken in 1958 (ARE 3V-82) and 1966 (ARE-2V-31) revealed no information other than verifying that the pond and the plant were both present in 1958.

SOILS/GROUNDWATER

The USDA Soil Conservation Service, Soil Survey for Niagara County lists the soils in this area as Odessa and Lakemont silty clay loam. Both of these soil types are deep and somewhat poorly drained. Odessa soils are typically found on 0 to 2% grades. Lakemont soils are generally level to slightly depressional and are typically ponded during wet periods. Either soil type may support a perched water table above impervious substratum.

No boring records were found from jobs near this site. No other soil data was available.

The bedrock is Lockport Dolomite. The thickness of the Dolomite, the depth to water bearing zones and the direction of flow of the groundwater aquifers is unknown.

GROUNDWATER

As indicated above, the depth and direction of flow of bedrock aquifers is unknown. A perched water table is a possibility, but such an aquifer is expected to be localized.

There are no known drinking water or industrial wells located within three miles of the site. There are no known users of groundwater in this area.

SURFACE WATER

The discharge from the pond enters Cayuga Creek via a culvert beneath the airport runways. Storm water from the airport mixes with this discharge.

Cayuga Creek water is not used for drinking or industrial uses. Cayuga Creek enters the Niagara River four miles downstream from the pond. The City of Niagara Falls water intakes are located three miles downstream from the mouth of Cayuga Creek.

SURFACE WATER (continued)

There are no major wetland areas nearby other than the pond itself. The site is always flooded although it appears impossible for water to overflow to anywhere other than the storm culvert to Cayuga Creek.

AIR

There are no homes within one mile of this site. The nearest population is the Niagara Falls Air Force Base located slightly over one mile to the northwest. The surrounding area is industrial to the south, airport runways to the north and west and agricultural across Walmore Road to the east.

FIRE/EXPLOSION

The nearest off-site building is the Carborundum Plant 100 feet south. Only 50 buildings are within one mile (Carborundum, Bell, Airport, Air Force Base and along Pine Avenue). Roughly 500 are within 2 miles, primarily to the southeast. Several hundred mobile homes are within two miles.

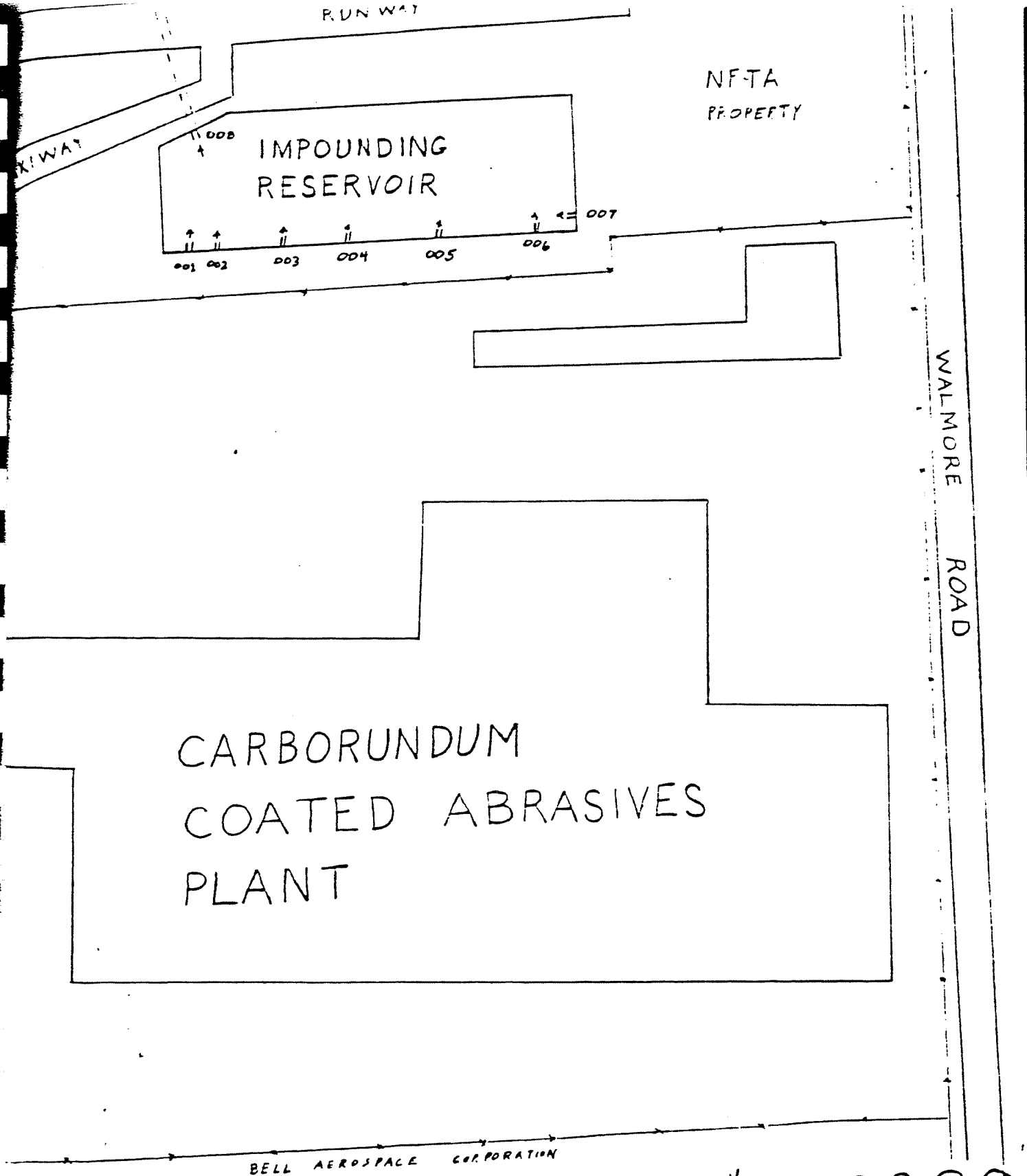
DIRECT CONTACT

The area is fenced from all sides. Bars have been placed across storm drains to prevent persons from entering the airport via storm drains. The site is on airport property and access is controlled by the airport.

CONCLUSIONS

The extent of contamination of the water and bottom sediments must be determined. Sediment samples near the shoreline are readily obtainable, as are water samples. Wells could be placed, if desired, around the perimeter of the site although access for drilling equipment may be difficult.

If significant contamination is found, the potential for pollution of Cayuga Creek, which enters the Niagara River, is high. Due to the nature of the site, perhaps it is better handled as a water pollution problem rather than as a solid waste disposal site. Any further action taken should not duplicate work done in conjunction with the SPDES Permit.



NFTA SITE - DEC # 932090

NOT TO SCALE

M. Hopkins 2/6/81

REFERENCE 3

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

CLASSIFICATION CODE: 2a **REGION: 9** **SITE CODE: 932090**

NAME OF SITE : Niagara Frontier Transportation Auth.
STREET ADDRESS: Niagara Falls Blvd.
TOWN/CITY: Wheatfield **COUNTY:** Niagara **ZIP:**

SITE TYPE: Open Dump- Structure- Lagoon-X Landfill- Treatment Pond-
ESTIMATED SIZE: 2.75 Acres

SITE OWNER/OPERATOR INFORMATION: 855-7300
CURRENT OWNER NAME....: NFTA
CURRENT OWNER ADDRESS.: Niagara Falls Blvd. Wheatfield (297 4494)
OWNER(S) DURING USE...: NFTA
OPERATOR DURING USE...: NFTA
OPERATOR ADDRESS.....: NF Int'l Airport, NF Blvd., NF NY
PERIOD ASSOCIATED WITH HAZARDOUS WASTE: From To

SITE DESCRIPTION:
Lagoon on NFTA property north of Carborundum. Storm drainage from Carborundum has contained phenol in the past and discharges into Cayuga Creek. The discharge is in conjunction with a SPDES permit issued to Carborundum.

HAZARDOUS WASTE DISPOSED: **Confirmed-X** Suspected -

TYPE	QUANTITY (units)
Phenol spills	Unknown

SITE CODE: 932090

ANALYTICAL DATA AVAILABLE:

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

CONTRAVENTION OF STANDARDS:

Groundwater- Drinking Water- Surface Water-X Air-

LEGAL ACTION:

TYPE..: State- Federal-
STATUS: In Progress- Completed-

REMEDIAL ACTION:

Proposed- Under Design- In Progress- Completed-
NATURE OF ACTION:

GEOTECHNICAL INFORMATION:
SOIL TYPE: Silty Clay Loam
GROUNDWATER DEPTH: Unknown

ASSESSMENT OF ENVIRONMENTAL PROBLEMS:

An inspection by Niagara County Health Department in January 1982 revealed no adverse environmental problems.

ASSESSMENT OF HEALTH PROBLEMS:

Insufficient Information

PERSON(S) COMPLETING THIS FORM:

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

NAME.: John S. Tygert, PE
TITLE: Sr. San. Eng.

NAME.: R. Olazagasti
TITLE: Solid Waste Management Spec.

DATE.: 01/24/85

NEW YORK STATE DEPARTMENT OF HEALTH

NAME.: R. Tramontano
TITLE: Bur. Tox. Sub. Assess.

NAME.:
TITLE:

DATE.: 01/24/85

REFERENCE 4

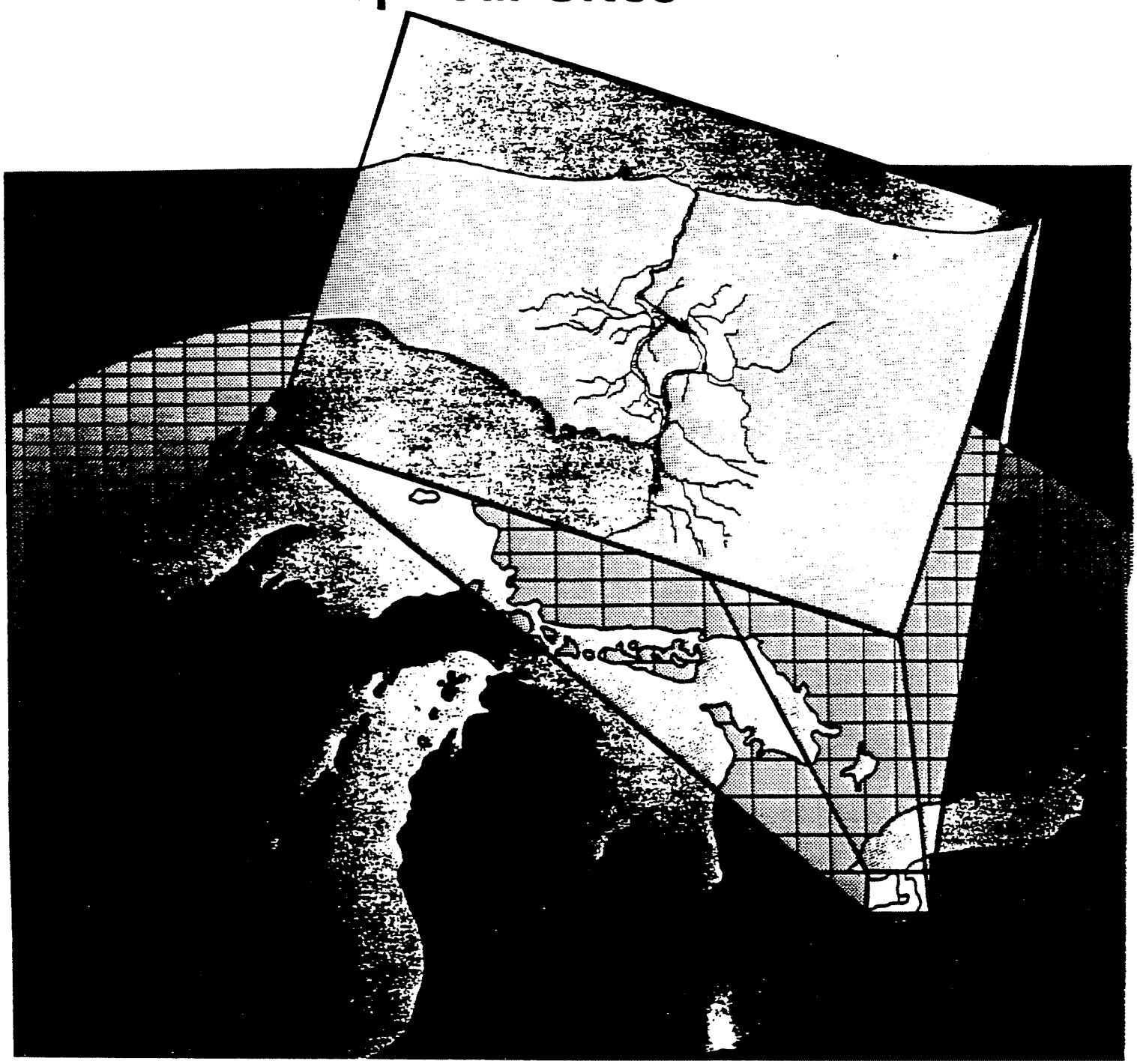
United States
Environmental Protection
Agency

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

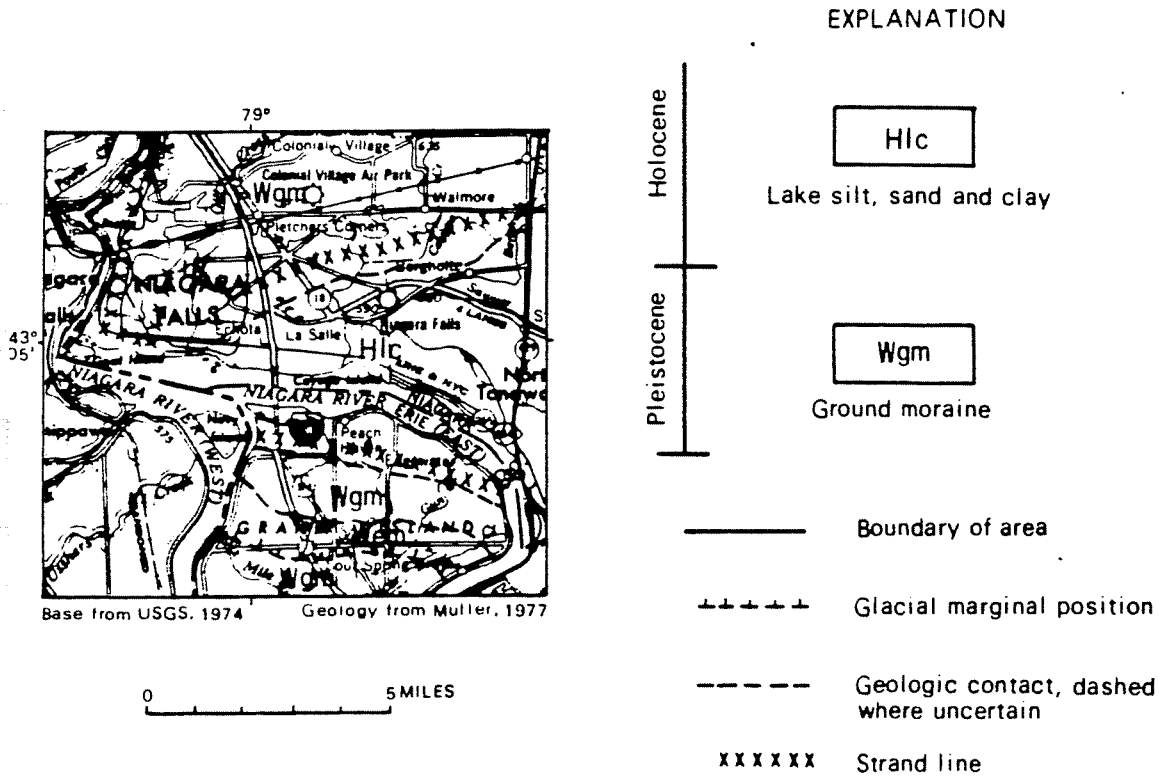
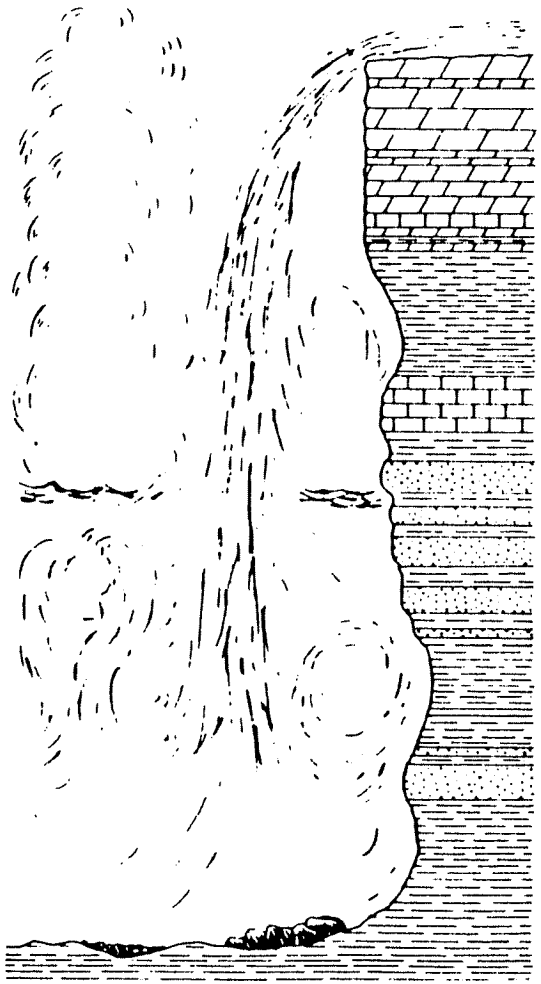


Figure 6. Geologic column of the Niagara Falls area.



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).
		Clinton	Rochester Shale	60	Dark-gray calcareous shale weathering light-gray to olive.
			Irondequoit Limestone	12	Light-gray to pinkish-white coarse-grained limestone.
			Reynales Limestone	10	White to yellowish-gray shaly limestone and dolomite.
			Neahga Shale of Sanford (1933)	5	Greenish-gray soft fissile shale.
	Lower	Albion	Thorold Sandstone	8	Greenish-gray shaly sandstone.
			Grimsby Sandstone of Williams (1914)	45	Reddish-brown to greenish-gray cross-bedded sandstone interbedded with red to greenish-gray shale.
			Unnamed unit	40	Gray to greenish-gray shale interbedded with light-gray sandstone.
			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.

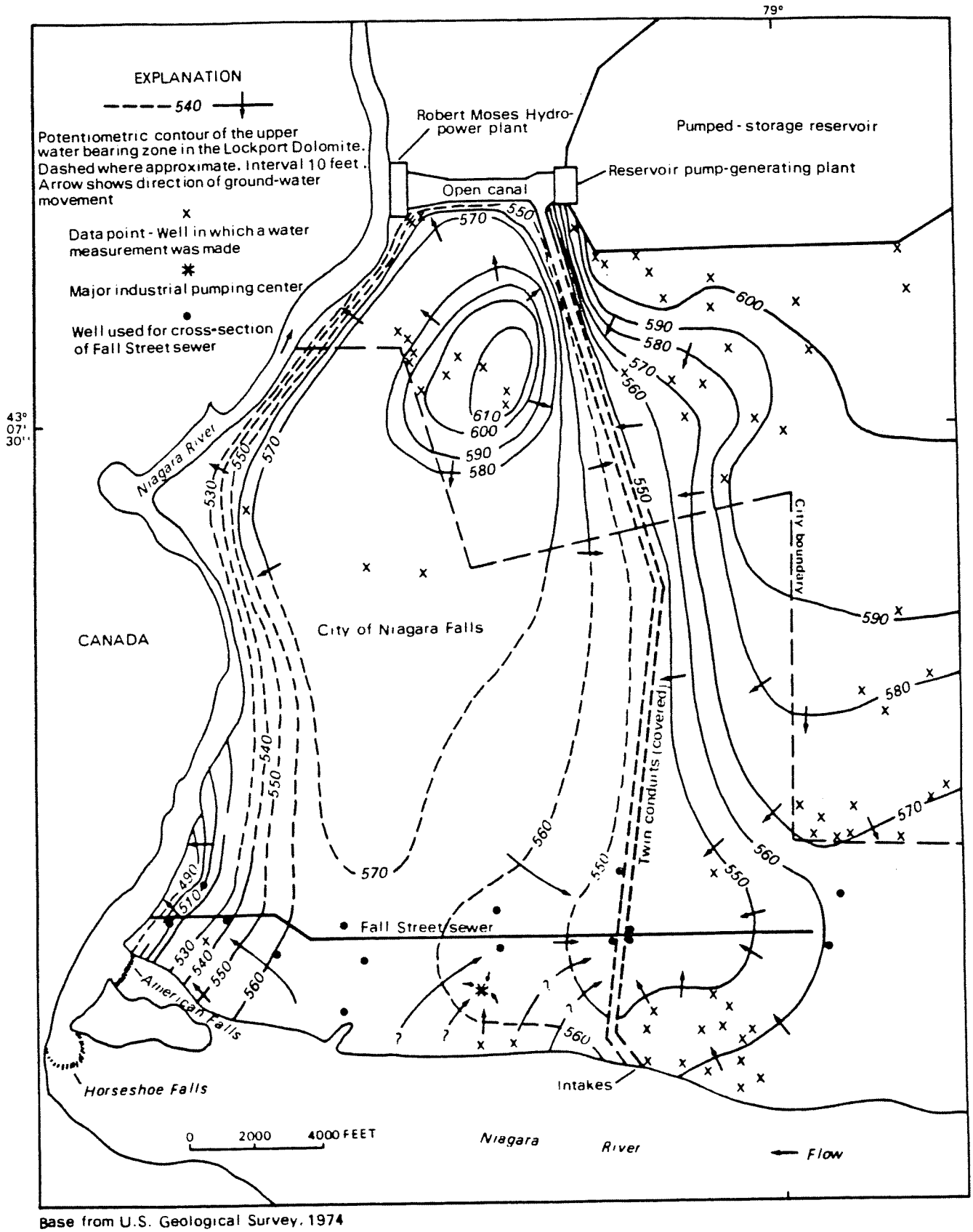


Figure 8. Potentiometric surface of the upper water-bearing zones of the Lockport Dolomite and location of bedrock wells in the Niagara Falls area.

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.

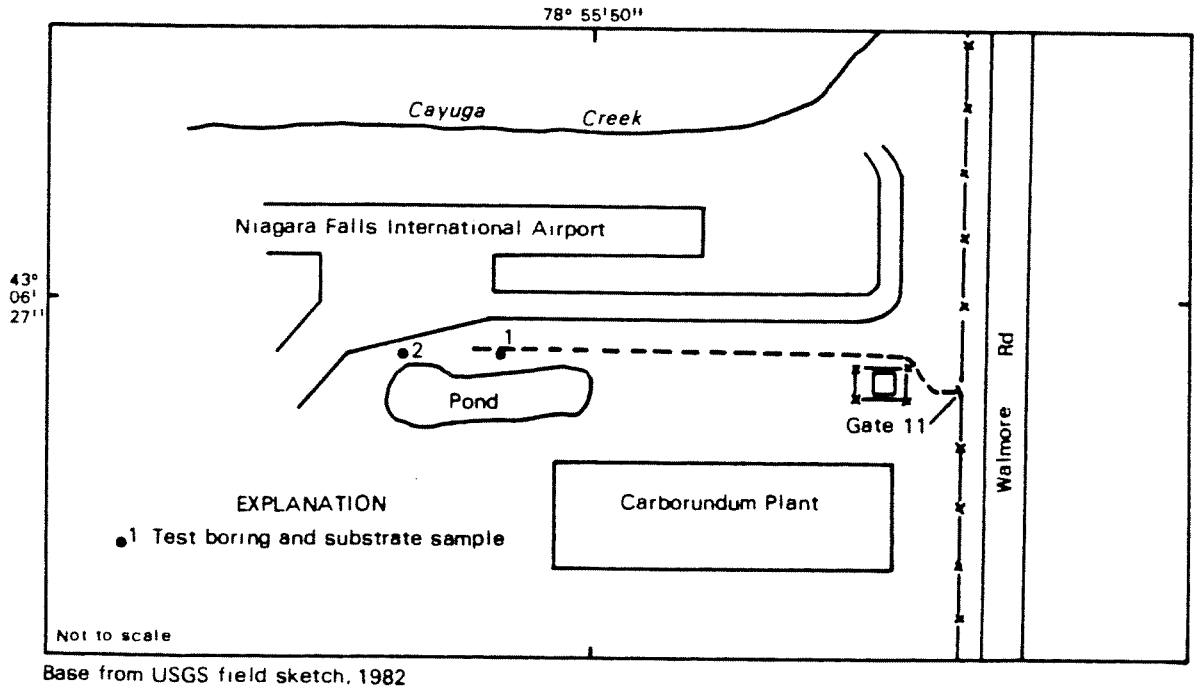


Figure C-50. Location of sampling holes at Niagara Frontier Transportation Authority, site 92, Niagara Falls.

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 tl 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. The 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. Th samples contained two priority pollutants, both phthalates, at concentrations below the quantifiable detection limit, and four nonpriority pollutants as wel 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

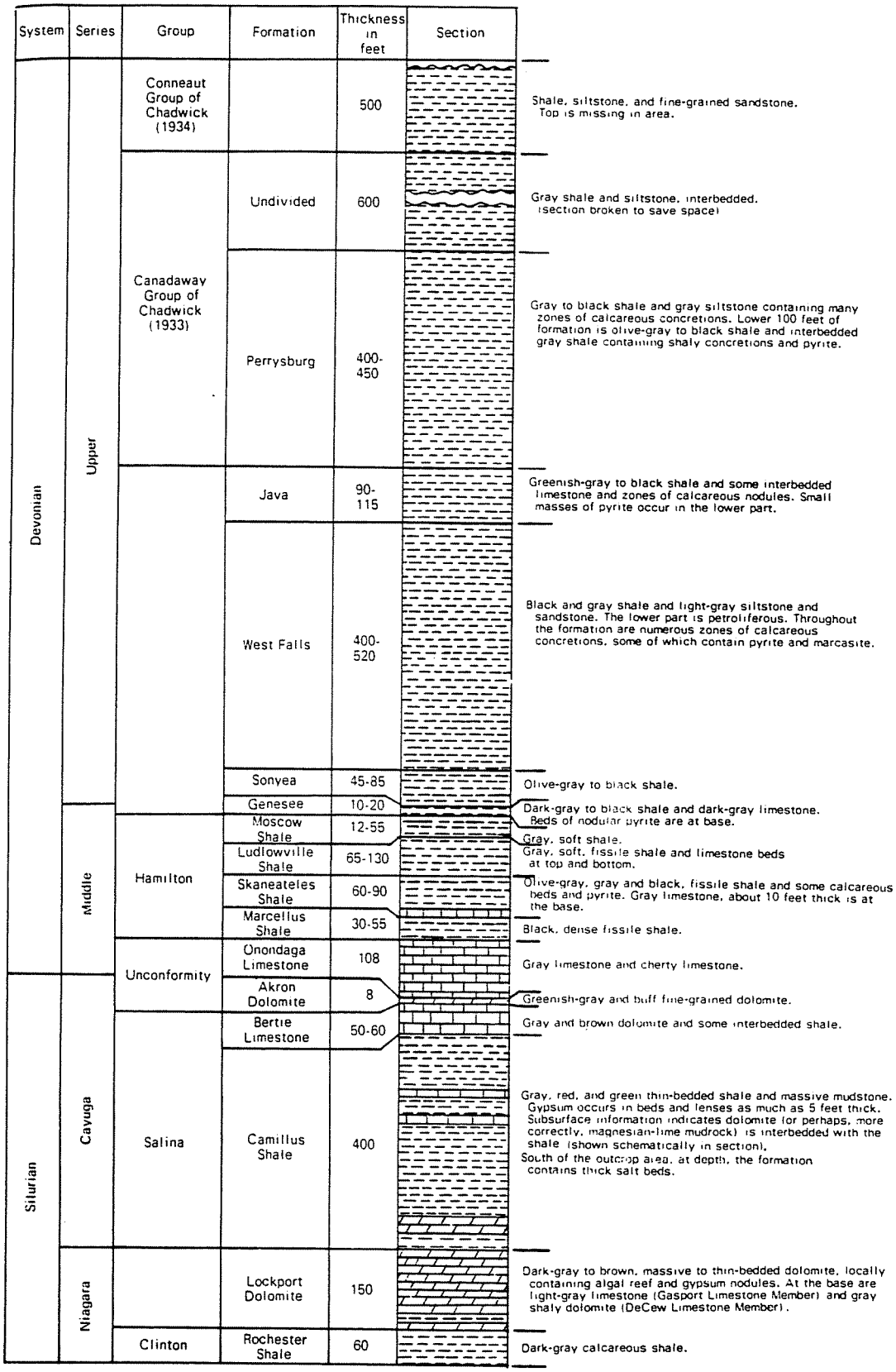


Figure 2.--Bedrock units of the Erie-Niagara basin.

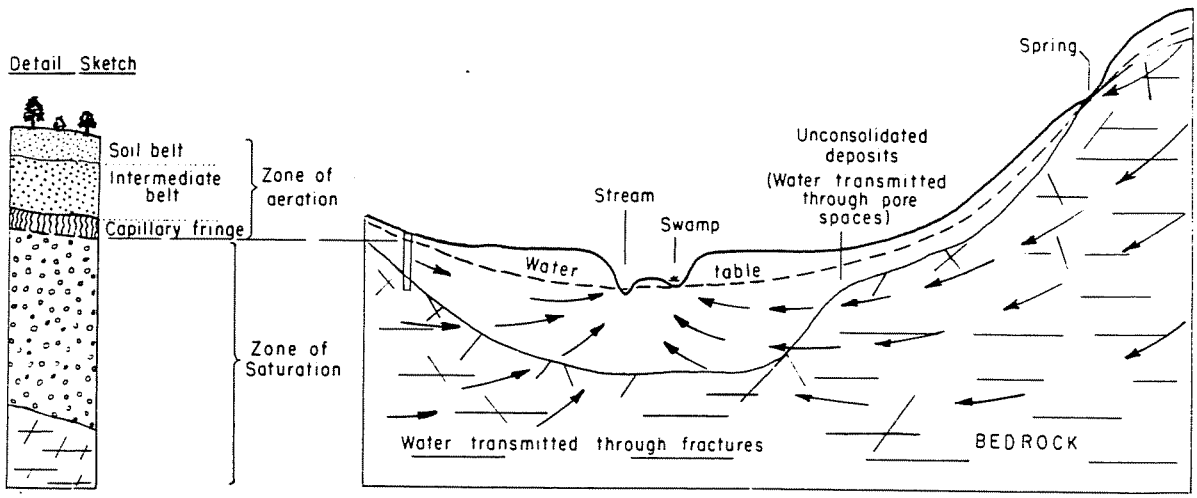


Figure 4.--Occurrence of ground water. Arrows show direction of ground-water movement.

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.

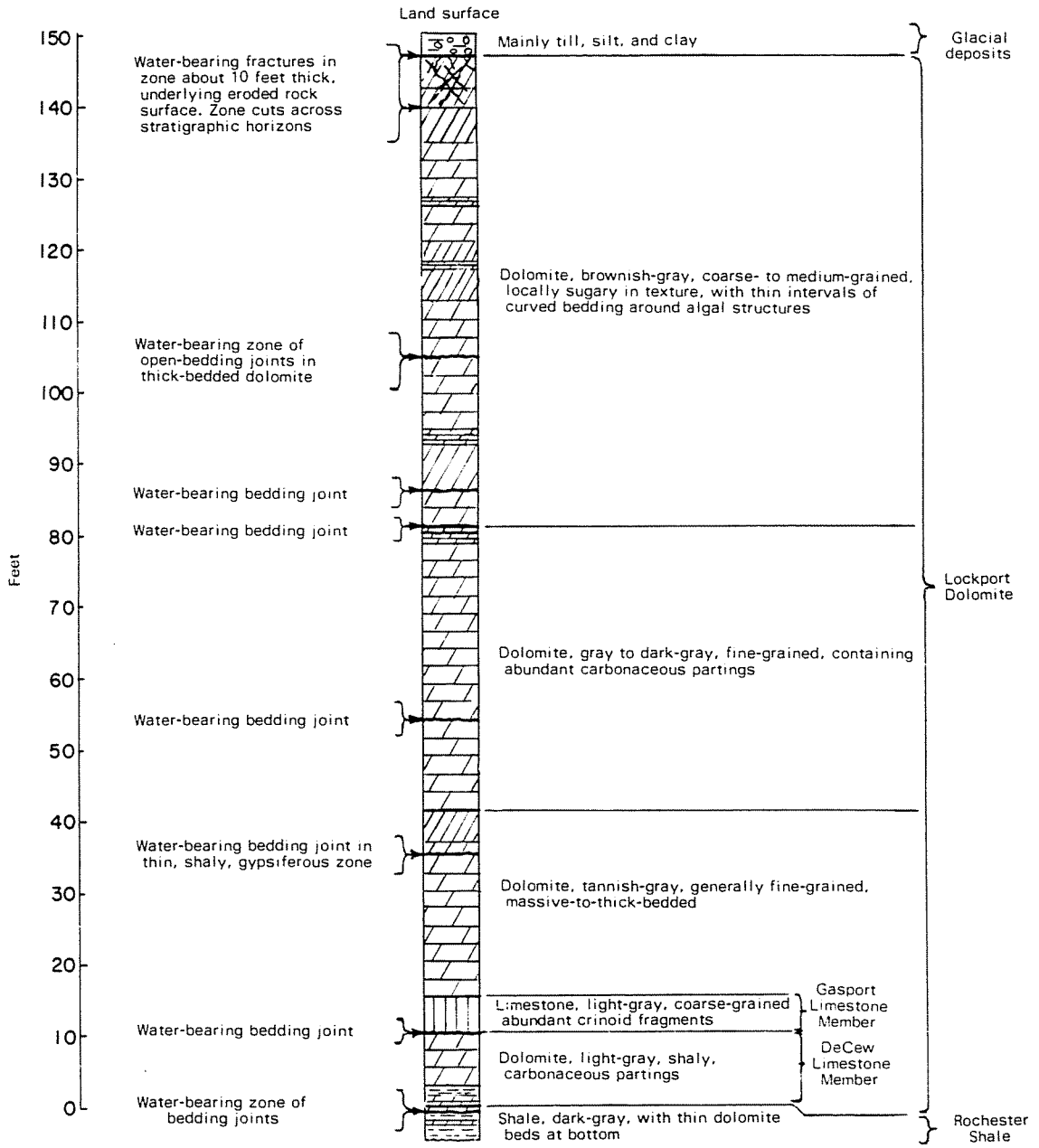


Figure 5.--Water-bearing zones in the Lockport Dolomite (adapted from Johnston, 1964).

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 wherever 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)

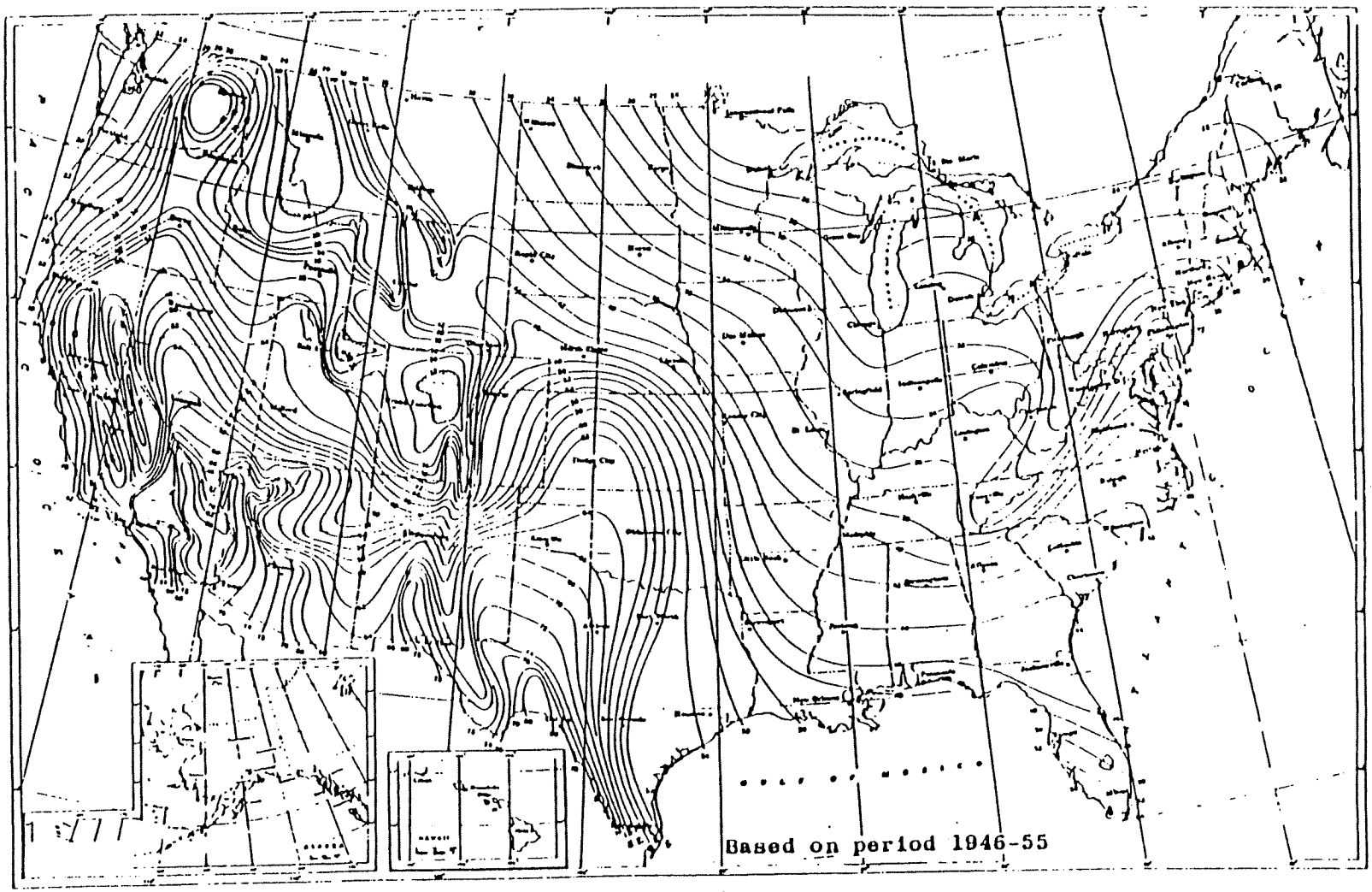


Figure 4

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.

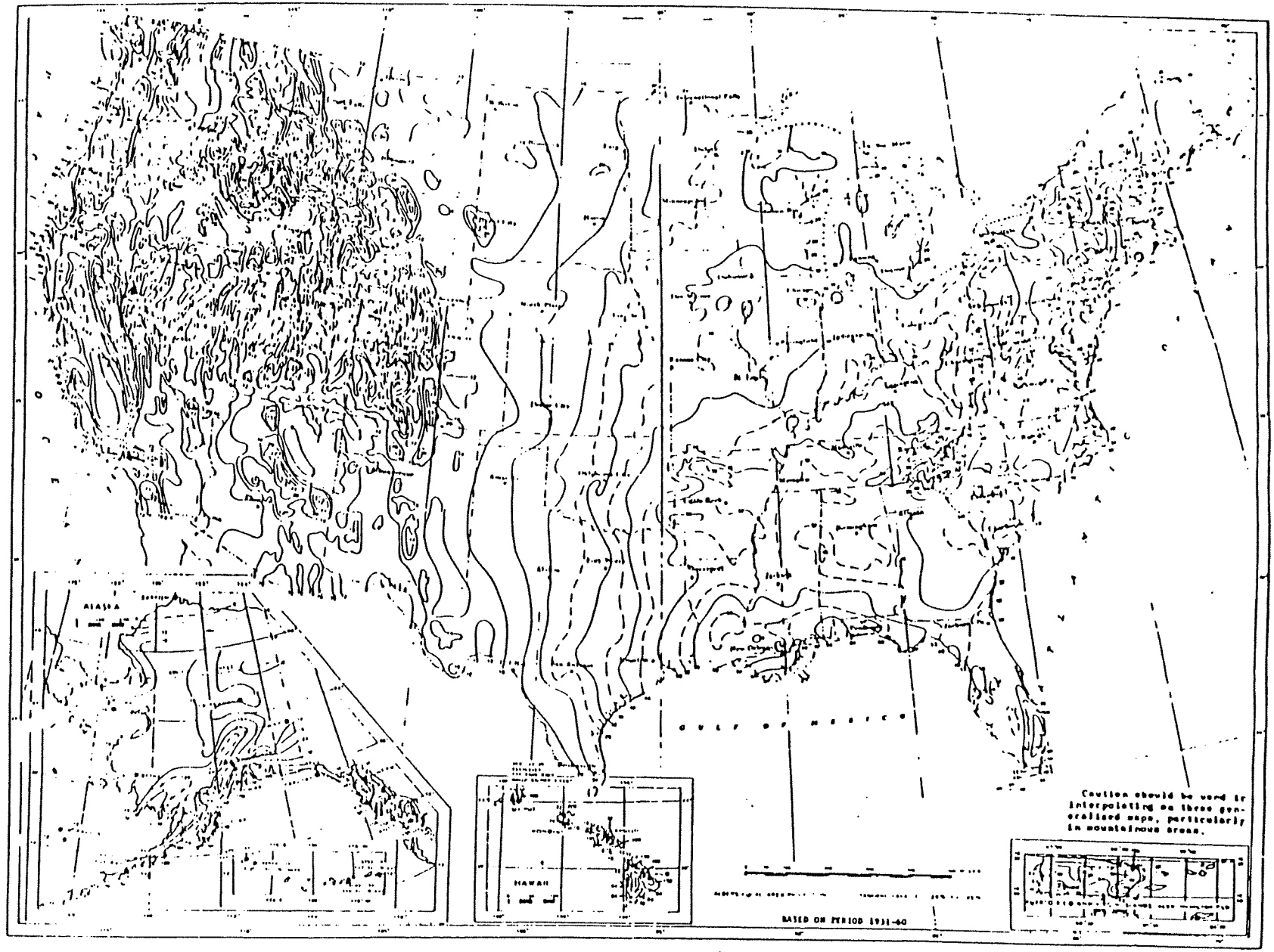


Figure 5

Normal Annual Total Precipitation (inches)

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

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

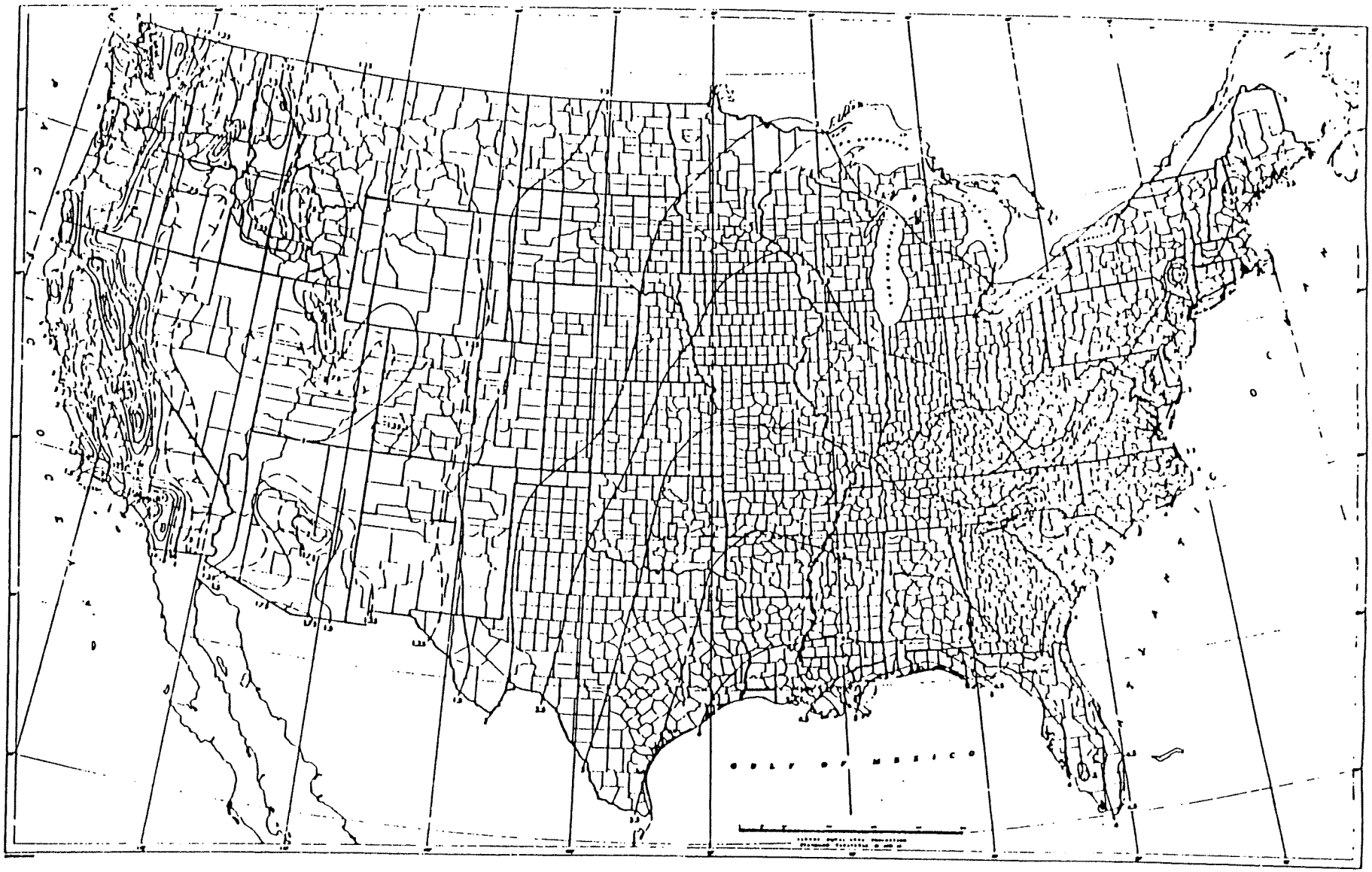


FIGURE 8

1-Year 24-Hour Rainfall (Inches)

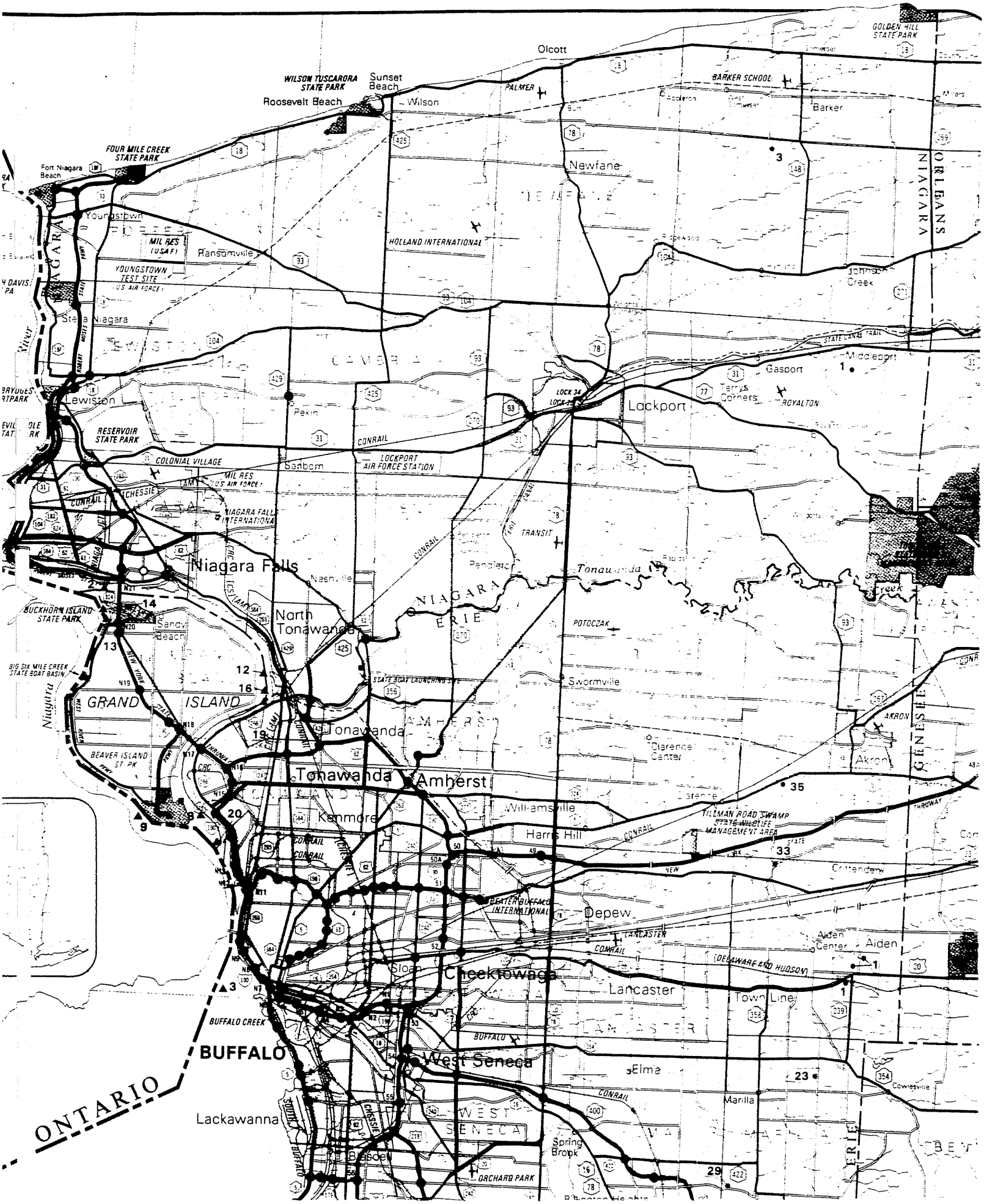
Source: Rainfall Frequency Atlas of the United States, Technical Paper No. 40, U.S. Department of Commerce, U.S. Government Printing Office, Washington, D.C., 1963.

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


Olcott
Sunset Beach
Wilson
Roosevelt Beach
Newfane
Barker
Youngstown
Ransomville
Lewiston
Pekin
Lockport
Gasport
Middleport
Niagara Falls
North Tonawanda
Tonawanda
Amherst
Kenmore
Williamsville
Harris Hill
Depew
Cheektowaga
Lancaster
Town Line
West Seneca
Elma
Marilla
Lackawanna
BUFFALO
ONTARIO
GRAND ISLAND
NIAGARA
ORLEANS
ERIE
GENESEE
FOUR MILE CREEK STATE PARK
WILSON TUSCARORA STATE PARK
GOLDEN HILL STATE PARK
BARKER SCHOOL
HOLLAND INTERNATIONAL
YOUNGSTOWN TEST SITE (U.S. AIR FORCE)
MIL RES (U.S.A.F.)
RESERVOIR STATE PARK
COLONIAL VILLAGE
LOCKPORT AIR FORCE STATION
LOCK 34
ROYALTON
TRANSIT
BUCKHORN ISLAND STATE PARK
BIG SIX MILE CREEK STATE BOAT BASIN
BEAVER ISLAND ST. PK.
STATE BOAT LAUNCHING SITE
POTOCZAK
TILLMAN ROAD SWAMP
BUFFALO CREEK
ORCHARD PARK
CONRAIL
NEW YORK STATE CANAL
STATE CANAL TRAIL
THRUWAY

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	
	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

1/88

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

837.4 Table I.

TABLE I

Classifications and Standards of Quality and Purity Which Are Assigned to All Surface Waters within the Lake Erie (East End) - Niagara River Drainage Basin; Erie, Niagara, Genesee, Orleans and Wyoming Counties, New York

Item No.	Waters Index Number	Name	Description	Map Ref. No.	Class	Standards
1	0-158	Niagara River American side	Waters from international boundary to American shore between confluence with Lake Ontario and Lake Erie. La tter point is defined as a line running due west from south end of Bird Island ier to international boundary. These waters include all bays, arms, and inlets thereof, but not trib. streams or Black Rock Canal.	1,2,6	A-Special (international boundary waters)	A-Special (international boundary waters)
2	Black Rock Canal	Black Rock Canal	Waters east of Sqaw Island and Bird Island ier between canal locks and a line from south end of Bird Island ier to Buffalo harbor light #6.	6	C	C
3	0-158-1 and 2	Tributaries of Niagara River	Enter Niagara River from east in Town of Lewiston approximately 4.5 and 7.0 miles respectively from mouth.	1	C	C
4	0-158-3	Fish Creek	Enters Niagara River from east approximately 2.0 miles north of Niagara-Lewiston town line.	1,2	D	D
5	0-158-4 and P 1	Tributary of Niagara River	Enters Niagara River from east approximately 0.7 mile north of Niagara-Lewiston town line.	1	D	D

REFERENCE 9

Item: 5. [Repealed]

Item: 6. [Repealed]

Note 1: [Repealed]

CLASS A

Best usage of waters. Source of water supply for drinking, culinary or food processing purposes and any other usages.

Conditions related to best usage of waters. The waters, if subjected to approved treatment equal to coagulation, sedimentation, filtration and disinfection, with additional treatment if necessary to reduce naturally present impurities will meet New York State Department of Health drinking water standards and will be considered safe and satisfactory for drinking water purposes.

Quality Standards for Class A Waters

Item: 1. Coliform.

Specifications: The monthly median coliform value for 100 ml of sample shall not exceed 5,000 from a minimum of five examinations and provided that not more than 20 percent of the samples shall exceed a coliform value of 20,000 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 examinations.

Item: 2. pH.

Specifications: Shall be between 6.5 and 8.5.

Item: 3. Total dissolved solids.

Specifications: Shall be kept as low as practicable to maintain the best usage of waters, but in no case shall it exceed 500 milligrams per liter.

Item: 4. Dissolved oxygen.

Specifications: For cold waers suitable for trout spawning, the DO concentration shall not less than 7.0 mg/l from other than natural conditions. For trout waters, the minimum daily average shall not be less than 6.0 mg/1. At no time shall the DO concentration be less than 5.0 mg/1. For nontrout waters, the minimum daily average shall not be less than 5.0 mg/1. At no time shall the DO concentration be less than 4.0 mg/1.

Item: 5. [Repealed]

Item: 6. [Repealed]

Note 1: [Repealed]

CLASS B

Best usage of waters. Primary contact recreation and any other uses except as a source of water supply for drinking, culinary or food processing purposes.

Quality Standards for Class B 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 examinations. This standard shall be met during all periods when disinfection is practiced.

Item: 2. pH.

Specifications: Shall be between 6.5 and 8.5.

Item: 3. Total dissolved solids.

Specifications: None at concentrations which will be detrimental to the growth and propagation of aquatic life. Waters having present levels less than 500 milligrams per liter shall be kept below this limit.

Item: 4. Dissolved oxygen.

*Specifications:*For cold waters suitable for trout spawning, the DO concentration shall not be less than 7.0 mg/1 from other than natural conditions. For trout waters, the minimum daily average shall not be less than 6.0 mg/1. At no time shall the DO concentration be less than 5.0 mg/1. For nontrout waters, the minimum daily average shall not be less than 5.0 mg/1. At no time shall the DO concentration be less than 4.0 mg/1.

Note 1: [Repealed]

CLASS C

Best usage of waters. Suitable for fishing and all other uses except as a source of water supply for drinking, culinary or food processing purposes and primary contact recreation.

Quality Standards for Class C Waters

Item: 1. Coliform.

Specifications: The monthly geometric mean total coliform value for 100 ml of sample shall not exceed 10,000 and the monthly geometric mean fecal coliform value for 100 ml of sample shall not exceed 2,000 from a minimum of five examinations. This standard shall be met during all periods when disinfection is practiced.

Item: 2. pH.

Specifications: Shall be between 6.5 and 8.5.

Item: 3. Total dissolved solids.

Specifications: None at concentrations which will be detrimental to the growth and propagation of aquatic life. Waters having present levels less than 500 milligrams per liter shall be kept below this limit.

Item: 4. Dissolved oxygen.

Specifications: For cold waters suitable for trout spawning, the DO concentration shall not be less than 7.0 mg/1 from other than natural conditions. For trout waters, the minimum daily average shall not be less than 6.0 mg/1. At no time shall the DO concentration be less than 5.0 mg/1. For nontrout waters, the minimum daily average shall not be less than 5.0 mg/1. At no time shall the DO concentration be less than 4.0 mg/1.

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 examinations. This standard shall be met during all periods when disinfection is practiced.

Item: 2. Dissolved oxygen.
Specifications: Shall not be less than 5.0 mg/l at any time.
Item: 3. Toxic wastes and deleterious substances.
Specifications: None in amounts that will interfere with use for primary contact recreation or that will be injurious 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 SC

Best usage of waters. The waters shall be suitable for fishing and all other uses except for primary contact recreation and for the taking of shellfish for market pruposes.

Quality Standards for Class SC Waters

Item: 1. Coliform
Specifications: The monthly geometric mean total coliform value for 100 ml of sample shall not exceed 10,000 and the monthly geometric mean fecal coliform value for 100 ml of sample shall not exceed 2,000 from a minimum of five examinations. This standard shall be met during all periods when disinfection in practiced.
Item: 2. Dissolved oxygen.
Specifications: Shall not be less than 5.0 mg/l at any time.
Item: 3. Toxic wastes and deleterious substances.
Specifications: None in amounts that will interfere with use for secondary contract recreation or that will be injurious 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 SD

Best usage of waters. All waters not primarily for recreational purposes, shellfish culture or the development of fish life and because of natural or man-made conditions cannot meet the requirements of these uses.

Quality Standards for Class SD Waters

Item: 1. Dissolved oxygen.
Specifications: Shall not be less than 3.0 mg/l at any time.
Item: 2. Toxic wastes and deleterious substances.
Specifications: None alone or in combination with other substances or wastes in sufficient amounts to prevent survival of fish life or impair the waters for any other best usage as determined for the specific waters which are assigned to this class.

PART 702
SPECIAL CLASSIFICATIONS AND STANDARDS

Section 702.1 Class A — Special (International boundary waters).
(GREAT LAKES WATER QUALITY AGREEMENT OF 1972)
Best usage of waters. Source of water supply for drinking, culinary or food processing purposes, primary contact recreation and other usages.
Conditions related to best usage. The waters, if subjected to approved treatment, equal to coagulation, sedimentation, filtration and disinfection with additional treatment, if necessary, to reduce naturally present impurities, meet or will meet New York State Department of Health drinking water standards and are or will be considered safe and satisfactory for drinking water purposes.

Quality Standards for Class A — Special Waters

(International Boundary Waters)
Item: 1. Coliform.
Specifications: The geometric mean of not less than five samples taken over not more than a 30-day period should not exceed 1,000 per 100 ml total coliform nor 200 per 100 ml fecal coliform.
Item: 2. Dissolved oxygen.
Specifications: In the rivers and upper waters of the lakes not less than 6.0 mg/l at any time. In hypolimnetic waters, it should be not less than necessary for the support of fish life, particularly cold water species.
Item: 3. Total dissolved solids.
Specifications: Should not exceed 200 milligrams per liter.
Item: 4. pH
Specifications: Should not be outside the range of 6.7 to 8.5.
Item: 5. Iron.
Specifications: Should not exceed 0.3 milligrams per liter as Fe.
Item: 6. Phosphorus
Specifications: Concentrations should be limited to the extent necessary to prevent nuisance growths of algae, weeds and slimes that are or may become injurious to any beneficial water use.
Item: 7. Radioactivity.

Specifications: Should be kept at the lowest practicable levels and in any event should be controlled to the extent necessary to prevent harmful effects on health.

Item: 8. Taste and odor-producing substances, toxic wastes and deleterious substances.

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

Item: 9. 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 this class.

Item: 10. Oil and floating substances.

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

Item: 11. Thermal discharges.

Specifications: (See Part 704 of this Title.)

To meet the water quality objectives referred to in the "Great Lakes Water Quality Agreement of 1972," the standards listed above shall be subject to revision from time to time after further hearings on due notice.

Note: [Repealed]

702.2 Class AA — Special (Lake Champlain drainage basin).

CLASS AA — SPECIAL

Best usage of waters. Any usage except for disposal of sewage, industrial wastes or other wastes.

Quality Standards for Class AA — Special Waters (Lake Champlain Drainage Basin)

Item: 1. Floating solids, settleable solids, oil, sludge deposits, toxic wastes, deleterious substances, colored or other wastes or heated liquids.

Specifications: None attributable to sewage, industrial waste or other wastes.

2. Sewage or waste effluents.

None into waters of this class.

702.3 Special classes and standards for the Lower Hudson River, Arthur Kill, Kill Van Kull, Harlem River, Raritan Bay and Lower East River drainage basins, New York Bay area, Nassau County including Long Island Sound, Suffolk County, Upper East River, Long Island Sound drainage basins, within Queens, Bronx and Westchester Counties and Jamaica Bay drainage basin within Kings and Queens Counties including a certain portion of Rockaway Inlet. (a) This section applies to the waters within the following areas, which constitute the Interstate Sanitation District:

(1) The drainage basin of the Lower Hudson River from the mouth to northern Westchester-Rockland county lines, except Saw Mill River and Sparkill Creek drainage basins.

(2) The drainage basins of Arthur Kill, Kill Van Kull, and Harlem River, and Raritan Bay.

(3) The drainage basin of Lower East River from the mouth to a line across East River north of Wards Island between Stony Point in Bronx County and Lawrence Point in Queens County.

(4) New York Bay including Gravesend Bay, Coney Island Creek, Atlantic Basin, Erie Basin, Gowanus Bay, Gowanus Canal, the Narrows and Atlantic Ocean waters off Coney Island lying westerly of a north-south line from Light Inlet at the southeasterly tip of Conel Island Peninsula to the south tip of Rockaway Point, thence along the jetty to Rockaway jetty light, thence due south to the New York-New Jersey boundary line.

(5) Nassau County including the waters of Long Island Sound between Nassau-Queens and Nassau-Suffolk county lines and the waters of Atlantic Ocean to the three mile limit between said county lines.

(6) The area within Suffolk County lying west of a north-south topographical limit line and its extensions to a point in Long Island Sound at the New York Connecticut State boundary line due north of Miller Place Beach and to Blue Point on the south mainland thence southward across Great South Bay to Water Island, thence three miles due south to a point in Atlantic Ocean at the south State boundary line.

(7) Certain tidal waters which are within the Upper East River and Long Island Sound drainage basins within Queens, Bronx and Westchester Counties.

(8) Jamaica Bay drainage basin within Kings and Queens Counties and including Rockaway Inlet east of a north-south line drawn from Light Inlet at the southeasterly tip of Coney Island peninsula near Manhattan Beach to the westerly shoreline west of Lookout Tower on Rockaway Point.

b. Said classes and standards of quality and purity applicable thereto are set forth hereinafter and designated Class I and Class II.

CLASS I

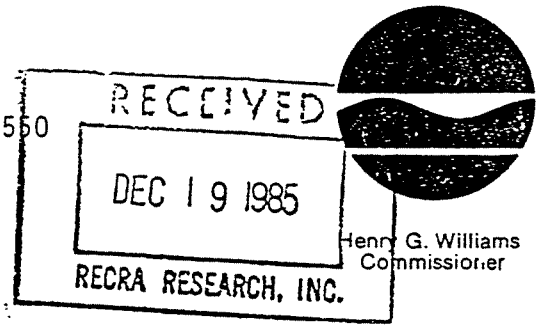
Best usage of waters. The waters shall be suitable for secondary contact recreation and any other usage except for primary contact recreation and shellfishing for market purposes.

Quality Standards for Class I Waters

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

REFERENCE 10

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



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 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.

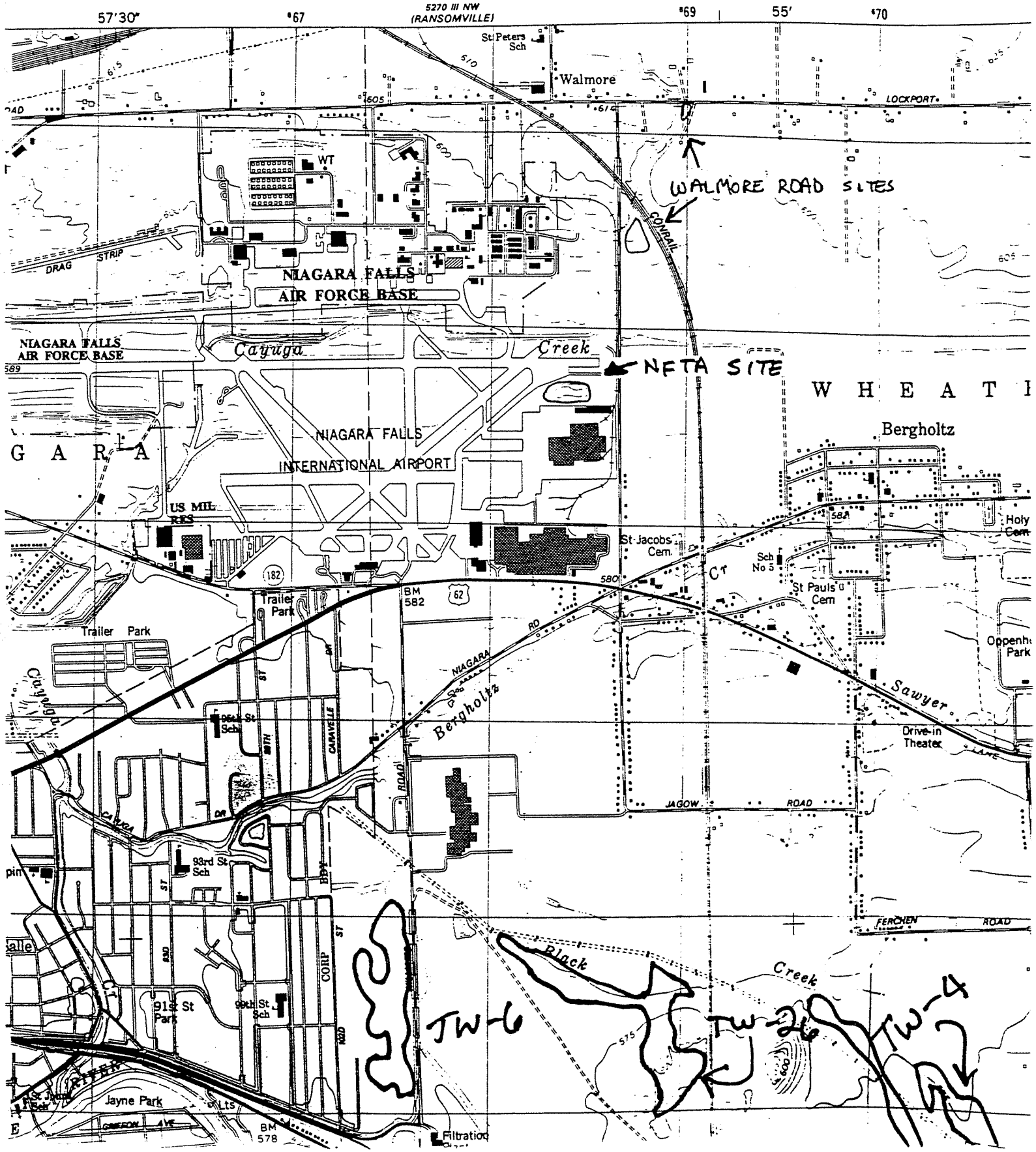
Sincerely,

RECRA RESEARCH, INC.

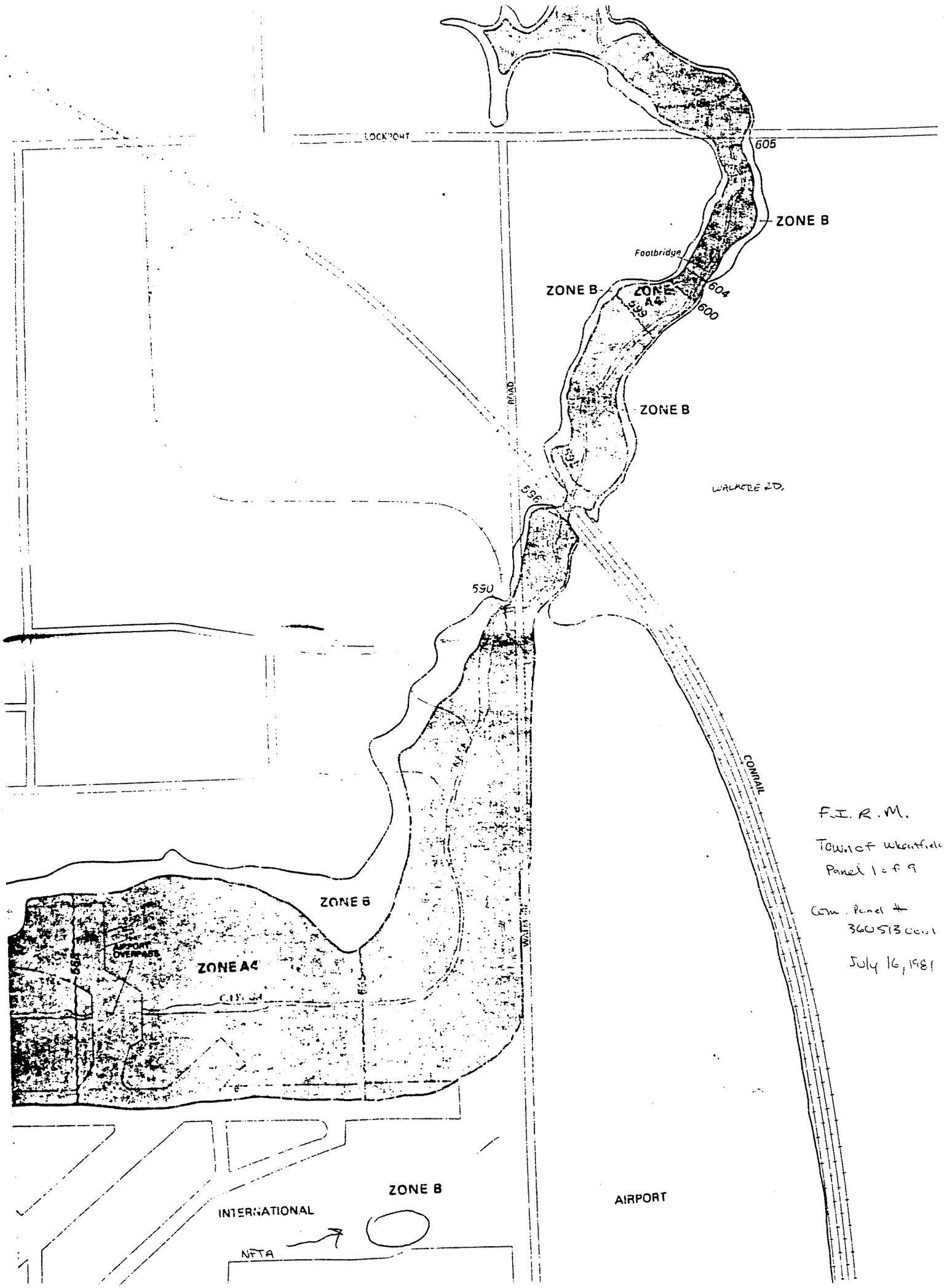
Sheldon S. Nozik
Environmental Specialist

SSN/jlo
Enclosure

STATE OF NEW YORK
DEPARTMENT OF TRANSPORTATION



REFERENCE 11


LOCKPORT
605
ZONE B
Footbridge
ZONE B
ZONE A4
604
600
593
ZONE B
ROAD
WALMORE RD.
590
CONRAIL
F.I.R.M.
Town of Wheatfield
Panel 1 of 9
Com. Panel #
360513 0001
July 16, 1981
ZONE B
AIRPORT OVERPASS
ZONE A4
ZONE B
INTERNATIONAL
AIRPORT
NFTA

REFERENCE 12

CARBORUNDUM

Memorandum

To:

A. Miller

Date:

March 28, 1979

From:

R. G. Bush

Copy to:

J.W. Golding

Subject:

SPDEC PERMIT NY0001716 PHENOL SPILL

Attached is a copy of Carborundum's report on the subject Phenol Spill sent to the New York DEC. We regret that a copy was not sent to the Niagara County Health Department office.

Since the January 16, 1979 report, the pumping of the pond water to the sanitary sewer has continued. The changing of the activated carbon cell bags at the outfall #8 has been done periodically with the last change done on 10 March 1979. Pumping will continue uninterrupted until the phenol level in the pond is approximately 0.8 ppm. The latest pond phenol level report is 21 March 1979 of which 1.5 ppm phenol for precarbon cell and 1.15 ppm phenol for postcarbon cell. At the first available opportunity the bottom sludge at the #6 and #7 area and adjacent to outfall #8 will be analyzed for phenol content. Once this level is reached, and if the sludge is at the same ppm level, all pumping and carbon filtration will be ceased. The D.E.C. and N.C.H.D. will then be notified that the pond is again at normal operating levels.

I will keep you informed of future progress.

RGB:fm
Att.

The Carborundum Company · Carborundum Center · Niagara Falls, New York 14302

January 16, 1979

Mr. Paul Foersch
New York State Department
of Environmental Conservation
485 Delaware Avenue
Buffalo, New York

Re: WHEATFIELD SPILL
NPDES NY-0001716
OUTFALL #7

Dear Paul:

As requested by your phone call on January 10, 1979, we provide the following account of the activity at our Wheatfield Plant.

Approximately 6000 gallons of phenol was accidentally spilled at the Wheatfield Plant on December 19, 1978. At ambient temperature, 100% phenol is a solid. It is highly soluble in water and vice-versa, and small amounts of water lowers the freezing point considerably. It will decompose under normal interaction with bacteria into non-toxic substances.

When it is stored, it is maintained at 135°F and recirculated from the bottom to the top of the tank to thoroughly mix and maintain temperature. Due to a freeze-up in the recirculating line at the top of the tank, fluid backed up the weigh tank drain; the weigh tank was filled and then the fluid was discharged out the vent to the roof.

When the phenol reached the roof, some of it solidified due to the outside temperature. When the surface was warm, it flowed to the downspout and to the sewer. An estimated 90% went to the sanitary sewer, the remaining 10% to a diversion sewer and hence to the pond which empties into Cayuga Creek. This occurred at 2:30 P.M.

The spill was reported at 4:30 P.M. to Mr. John Beecher of the New York State Department of Environmental Conservation. Shortly after 5:00 P.M., Mr. Robert Matthews, Director of Utilities for the City of Niagara Falls was notified.

The next day, a corporate task force met with representatives of the High Performance Plastics Division and the Coated Abrasives Division. A strategy was formulated. This strategy provided for:

1. Containment in the pond of as much of the contaminant as possible.

2. Filtration of all fluid exiting the pond to the creek with activated carbon.

3. Pumping to the sanitary sewer up to 200 gpm on weekends and up to 100 gpm during the week. The City sanitary system has an activated carbon system in its design for removal of phenol.

Starting on December 20th, the pond was tested for phenol at several points. A log of the test data was kept and used to determine migration through the pond. Pumping at inlet to the pond (#7) was started on December 20th; this prevented high concentrations of phenol from permeating the pond and removed phenol from the small portion of the pond where it was concentrated. In addition, we damned up the outlet to prevent migration of the phenol to Cayuga Creek. Later that day, the #7 inlet line was vacuumed out and liquids were sent to Chem-Trol for disposal. During the following two days, this line was mechanically cleaned.

An activated carbon filter cell* was designed for the outlet and installation was completed by December 22nd. This filter cell was used to remove phenol prior to discharge to Cayuga Creek. Sixty pound bags of activated carbon were used in the filter cell. These were filled and changed manually, as required.

The roof was cleaned with hot water; the sewer was flushed to remove trapped phenol. The material from this cleanup was sent to the City Treatment Plant. By January 3rd, waters reaching Cayuga Creek were down to 1 part/million of phenol. Downstream from the inlet, the concentration was measured at 0.18 ppm.

The combination of filtering water to the stream and pumping to the sewer was agreed to by State DEC personnel. This procedure was planned to be followed until such time as the concentration in the pond was low enough to meet Discharge Permit conditions of 1.4 pounds/day average discharge. When this condition is reached, the emergency spill procedures will be terminated.

Correction of the condition causing this spill was accomplished by repiping the circulating and return lines to the storage tank.

Very truly yours,

THE CARBORUNDUM COMPANY

R. G. Bush
Environmental Engineer

RGB/abm

*NOTE: A volume of 40,000 pounds of activated carbon was supplied on site for this occasion.

cc: R. G. Brandenburg
R. Morten

REFERENCE 13

The Carborundum Company · Carborundum Center · Niagara Falls, New York 14302

May 7, 1979

Mr. Paul Foersch
NYS Dept. of Environmental Conservation
584 Delaware Avenue
Buffalo, New York

Dear Paul:

A phenol spill occurred on December 19, 1978 at the Carborundum Company, Wheatfield Plant, on Walmore Road. The clean-up of the spill was managed by a task force of persons from Corporate, HPP, and CAD Divisions. These people were Messrs. Bush, Bullions, and McGee, respectively.

A meeting of the above was held on May 3, 1979 to review the status. The latest phenol readings, taken on April 25th, showed less than 0.1 ppm leaving the pond. This is equivalent to 0.04 pounds per day. The discharge permit allows 1.4 pounds per day average to be emitted. Test data of January 3rd indicates a dilution of approximately twenty times occurs between the pond discharge and the entrance water to Cayuga Creek after it passes beneath the airport runways. Fish were observed in the pond on April 26th and again on May 3rd; muskrat were active also.

Clean-up work will be concluded within the next two weeks. The last phenol tests are scheduled for May 9th and will be taken at the north shore opposite #5 inlet, at the southeast corner #6/#7 inlet, at the northwest corner #8 outlet, and on the south shore near #5 inlet. Prior to that date, the filter cell will have been removed, the pumps removed, and the pond will have a couple of days to settle into a normal activity.

Mr. Bullions will arrange for all necessary work for clean-up and for activated carbon disposal.

Sludge in the pond bottom will not be disturbed. Although 24,995 ppm of phenol was in the sludge at the #6/#7 area on January 10th, the current (April 4th) level dropped to 6.99 ppm. Warming by the sun has put the phenol into the solution and it has been collected and removed from the pond.

All repiping at the phenol storage tanks has been completed. A spill prevention plan for storage tanks will be included in work which is now being designed by Hibbard Engineers.

The project will be concluded with receipt of the May 9th test data and final disposition of the activated carbon. Complete test data will be reflected in the Quarterly Reports submitted under SPDES Permit #NYO 001716.

Sincerely,

Robert G. Bush P.E.

Robert G. Bush, P.E.
Principal Engineer

RGB/abm

cc: J. DeVald, NCHD
J. Beecher, DEC

REFERENCE 14

CARBORUNDUM

The Carborundum Company · Coated Abrasives Division · Post Office Box 477 · Niagara Falls, New York 14302

May 30, 1980

Mr. Paul E. Foersch, P.E.
Senior Sanitary Engineer
New York State Department
of Environmental Conservation
Region 9 Environmental Quality Office
584 Delaware Avenue
Buffalo, New York 14202

Re: SPDES No. NY0001716
Carborundum Company
Coated Abrasive Division
Permit Effluent Limitations

Dear Mr. Foersch:

In answer to your letter of April 16, 1980 regarding corrective action to alleviate problems of exceeding permit effluent limitations for the periods stated, problems have occurred at various times. The problems have been addressed accordingly, and reported with submitted quarterly reports. Reitorating the periods of question are as follows:

11/1/78 to 1/31/79	A phenol spill occurred and a cleanup was performed. Corrective repiping was done to prevent a possible re-occurrance.
2/1/79 to 4/30/79	Ph results were reported low. Resampling and investigation found that the test equipment malfunctioned. Total suspended solids of one outfall (#006) into the pond showed high test results. Subsequent samplings showed that it reduced to below allowable limits.
5/1/79 to 7/31/79	High phenol report was traced to a leak in a dam and diverted area of the sewer system. The dam was patched and also a backup dam has been installed.
8/1/79 to 10/31/79	BOD was higher than normal for all outfalls causing the total limit to be exceeded. Additional sampling was done to determine what caused the high BOD results, however, nothing was determined and subsequent sampling showed that the BOD values reduced to within allowable limits.
11/1/79 to 1/31/80	High BOD, phenol, and solids were detected and the cause was found to be a process sewer line that backed up into the storm sewer. It was corrected immediately. Additional work to completely remove this problem is in process.

2/1/80 to 4/30/80 High BOD and solids results were encountered during the last report period and at present the outfall trunk lines are being flushed out. Subsequent sampling will be done to characteristically determine what is the makeup constituents of the BOD and solid material in order to determine the source of contaminate entry.

Further details of the above-mentioned corrective actions have been reported in previously submitted quarterly reports.

Although incidents of exceeding the permit limitations have occurred during each of the recent report periods, almost every incident is of a different nature and/or parameter. The Coated Abrasive Division has in the past, and will continue to take steps to insure that the necessary corrective actions are taken to prevent re-occurrance of exceeding limits in the future.

Yours truly,

Gerald F. McGee

Gerald F. McGee
Facility Engineer

GFM:fd

cc: Mr. J. J. DeVald, Niagara County Health Department
Mr. R. G. Bush, Carborundum Corporate Engineering
Mr. A. G. Halliley, Carborundum CAD, Manager, Engineering
Mr. R. G. Raymond, Carborundum Corporate Counsel

REFERENCE 15

New York State Department of Environmental Conservation
Division of Regulatory Affairs-Region 9
600 Delaware Avenue, Buffalo, New York 14202-1073
716/847-4551

Henry G. Williams
Commissioner

PERMIT TRANSMITTAL LETTER

SPDES Facility ID No. NY-0001716
DRA #90-84-1240

Dear Permittee:

Enclosed is your permit which was issued in accordance with applicable provisions of the Environmental Conservation Law. The permit is valid for only that project, activity or operation expressly authorized. If modifications are desired after permit issuance, you must submit the proposed revisions and receive written approval from the Permit Administrator prior to initiating any change. If the Department determines that the modification represents a material change in the scope of the authorized project, activity, operation or permit conditions, you will be required to submit a new application for permit.

PLEASE REVIEW ALL PERMIT CONDITIONS CAREFULLY, INCLUDING ANY MONITORING REQUIREMENTS AND/OR COMPLIANCE SCHEDULE THAT MAY BE REQUIRED. IN PARTICULAR, IDENTIFY YOUR INITIAL RESPONSIBILITIES UNDER THIS PERMIT IN ORDER TO ASSURE TIMELY ACTION AND AVOID LATE REPORTING IF REQUIRED. SINCE FAILURE TO COMPLY PRECISELY WITH PERMIT CONDITIONS MAY BE TREATED AS A VIOLATION OF THE ENVIRONMENTAL CONSERVATION LAW, YOU ARE REQUESTED TO PROVIDE A COPY OF THE PERMIT TO THE PROJECT CONTRACTOR, FACILITY OPERATOR, AND OTHER PERSONS DIRECTLY RESPONSIBLE FOR PERMIT IMPLEMENTATION (IF ANY).

If you have any questions regarding the administrative processing of this permit or request for modification, please contact this office at the above address. Technical questions relating to specific permit conditions should be directed to Mr. Greg Sutton (847-4590).

Prior to issuance of this Permit, the Department considered all comments received on the Draft Permit and amended the Permit as necessary. A copy of the Department's response is attached.

Respectfully,

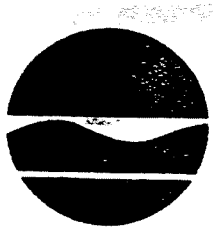
Paul Leuzman
FOR

Steven J. Doleski
Regional Permit Administrator

SMF:
cc: Region 9 Water
R.Hannaford, BWFD
NCHD ✓
ENCRPB
Dr.Baker, EPA
DRA #90-84-1240

Attachment(s)

New York State Department of Environmental Conservation
Division of Regulatory Affairs - Region 9
600 Delaware Avenue, Buffalo, NY 14202-1073
716/847-4551



Henry G. Williams
Commissioner

Response to Carborundum Abrasive's Comments on the Draft Permit

SPDES Facility ID No. NY-0001716 — Carborundum Abrasives Company

DRA # 90-84-1240 — Town of Wheatfield, Niagara County

1. The company requested review of the Draft Permit's monitoring frequency which was increased from the previously issued permit's monthly sampling and analysis. The Department, however, cannot grant a change because the effluent variability and discharge contamination levels are significant in relation to both existing and proposed effluent limits.

   The Department has changed the Oil and Grease monitoring requirement from a 24-hour composite sample to a grab sample, in accordance with EPA sampling guideline.

2. In response to the company's comment, the Department has changed the monitoring locations to account for the five separate flows into the impounding reservoir. Monitoring must be done upstream of the reservoir to measure the company's discharge to the ultimate receiving stream.

91-20-2 (7/84)

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

State Pollutant Discharge Elimination System (SPDES)
DISCHARGE PERMIT
Special Conditions (Part 1)

Industrial Code 2820
Discharge Class (CL) 08
Toxic Class (TX) 4
Major D.B. 01
Sub D.B. 01

Facility IDNumber: NY- 0001716
UPA Tracking Number: 90-84-1240
Effective Date (EDP): EDP - May 1, 1985
Expiration Date (ExDP): EDP+5yr - May 1, 1990
Modification Date(s):
Attachment(s): *General Conditions (Part II, 8/81)*

This SPDES permit is issued in compliance with Title 8 of Article 17 of the Environmental Conservation Law of New York State and in compliance with the Clean Water Act, as amended, (33 U.S.C. §1251 et. seq.) (hereinafter referred to as "the Act").

Attn: Gerald F. McGee, Facility Engineer

Permittee Name: Carborundum Abrasives Company

Street: P.O. Box 350

City: Niagara Falls State: New York Zip Code: 14304

is authorized to discharge from the facility described below:

Facility Name: Carborundum Abrasives Company

Location (C,T,V): Wheatfield (T) County: Niagara

Mailing Address (Street): P.O. Box 350

Mailing Address (City) Niagara Falls State: New York Zip Code: 14304

from Outfall No. 001 at: Latitude 43° 06' 11" & Longitude 79° 55' 50"

into receiving waters known as: Cayuga Creek, Class D

and: (list other Outfalls, Receiving Waters & Water Classification)

in accordance with the effluent limitations, monitoring requirements and other conditions set forth in this permit.

This permit and the authorization to discharge shall expire on midnight of the expiration date shown above and the permittee shall not discharge after the expiration date unless this permit has been renewed, or extended pursuant to law. To be authorized to discharge beyond the expiration date, the permittee shall apply for permit renewal as prescribed by Sections 17-0803 and 17-0804 of the Environmental Conservation Law and Parts 621, 752, and 755 of the Departments' rules and regulations.

PERMIT ADMINISTRATOR - Paul D. Eismann, Alternate Regional Permit Administrator

DATE ISSUED March 21, 1985

ADDRESS 600 Delaware Ave. Buffalo, NY 14202

Distribution: Region 9 Water, N.Hannaford, BWFD, DPA #90-84-1240, NCHD, ENCRPB, Dr.Baker, EPA

Paul D. Eismann
SIGNATURE

FINAL EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

During the Period Beginning EDP - May 1, 1985 .

and lasting until 5 years from EDP - May 1, 1990

the discharges from the permitted facility shall be limited and monitored by the permittee as specified below:

Outfall Number & Effluent Parameter	Discharge Limitations Daily Avg.	Daily Max.	Units	Minimum Monitoring Requirements: Measurement Frequency	Minimum Monitoring Requirements: Sample Type
001 (Non-Contact Cooling and Rainfall Runoff Wastewater)					
Flow[a]			mgd	Daily	Instantaneous
BOD_5[b]	5.0		mg/1	2/month	24 hr. comp.
Settleable Solids[c]		0.3	ml/1	Weekly	Grab
pH (range)[c]	(6.0-9.0)		SU	Weekly	Grab
Temperature[d]		90	Deg. F	Weekly	Grab
Oil & Grease[b]		15	mg/1	2/month	Grab
Ammonia (as NH_3)[b]		2.0	mg/1	2/month	24 hr. comp.
Phenols, Total[b]		0.005	mg/1	2/month	Grab
Zinc, Total[b]		0.3	mg/1	2/month	24 hr. comp.

a. Total flow associated with all separate wastewater discharges into the impounding reservoir. These separate discharges, shown on page 6 of the permit, were formerly known as outfalls 001, 004, 005, 006 and 007 respectively.

b. Concentration limits associated with this parameter shall be computed from the total poundage resulting from all separate wastewater discharges into the impounding reservoir and the total flow associated with same discharges.

c. Limit associated with this parameter shall be determined from a sample composed of flow proportioned grab samples of every separate discharge into the impounding reservoir.

d. Limit associated with this parameter shall be determined from a grab sample of impounding reservoir discharge.

Note: The permit application must list all the corrosion/scale inhibitors or biodical-type compounds used by the permittee. If use of new boiler/cooling water additives is intended, application must be made prior to use.

REFERENCE 16

10039 10R
10064
10067
10077

NIAGARA COUNTY HEALTH DEPARTMENT

MEMORANDUM

TO: The File and Region Nine Office **DATE:** August 5, 1985

FROM: Mr. Ronald Gwozdek R Gwozdek

SUBJECT: Industrial Inspection
Carborundum Company - Abrasives
Walmore Road, Niagara Falls
SPDES NY 0001716

Date of Inspection: June 25, 1985 10:00 A.M.

Persons Present: Ronald Gwozdek, Niagara County Health Department
Gerald McGee, Carborundum Abrasives Company

Weather: clear, sunny 80°F dry

The writer conducted an inspection of the above referenced facility on June 25, 1985. I met with Gerald McGee, Facilities Engineer, who assisted in completing form EPA 3560-3, and he accompanied me on a tour of the facility.

Nature of Business: The facility manufactures sandpaper from raw materials of cloth, paper, glue, resins (phenol/formaldehyde, phenol/ Furfural & phenol/zinc stearate resins), and abrasive grain material. (See attached flow diagram). Large diameter rolls of sandpaper are manufactured and further processed into sandpaper discs, sheets, rolls, and belts. The facility no longer manufactures resin on site.

The parent company, SOHIO, manufactures an Ekonol^{R} product in Building #W4 of the facility. The following raw materials are utilized in the process - parahydroxy benzoic acid (PABA), phenylacetate, and thermal 66, a heat transfer oil (See attached flow diagram).

Wastewater Generated: Six outfalls exist at the facility (001, 004, 005, 006, 007, 008). Outfalls 001, 004, and 006 accept storm water runoff. Outfall 005 accepts storm water runoff and air compressor non-contact cooling water. Outfall 007 contains storm water and cooling tower blowdown from Bldgs. 7 and 10. Outfall 008 is the discharge from the impounding reservoir to Cayuga Creek. The source of the cooling water at the facility is the Town of Wheatfield and City of Niagara Falls public water supply.

Bld #2 — 4 located

All sanitary sewage, process wastewater, and boiler blowdown discharges to the Niagara County Sewer District public sanitary sewage system.

All process wastewater generated at the sandpaper manufacturing process is discharged to the public sanitary sewer as noted on the attached flow diagram.

The Ekonol® manufacturing process produces two non-contact cooling water discharges which are directed to one of the facility's cooling towers which subsequently has an overflow to outfall 007. Non-contact cooling water generated consists of phenol condenser water and 1,1,1, trichlorethane cooling water. All contact by-products (phenol, acetic acid) are drained and disposed of at a hazardous waste processor.

Cooling Tower Blowdown: The two cooling towers located at Buildings 7 and 10 use the following water treatment chemicals manufactured by Alkin Murray Company: Dispersant 330, N.P.C. 75, V-7 Algecide.

The blowdown occurs at 3 g.p.m. rate to outfall 007. Application for approval of the above water treatment chemicals has been included in the SPDES Permit Renewal Application.

Flow Measurement: Flow measurement is conducted by the facility's private laboratory (Acts Testing). Each outfall contains a stainless steel weir, and all were calibrated in May of 1985.

Petroleum Storage: The facility has two 8,000 gallon above ground jet fuel storage tanks which are empty. The company jet has been sold, and the facility has no plans for the above two tanks. The facility also stores number 6 fuel oil in two above ground 100,000 and 200,000 gallon storage tanks. Each tank is on a cement pad and has an earthen dyke. An inspection of the dyke area at the time of the inspection showed no sign of petroleum leakage. An SPCC plan is available and is updated every three years.

Hazardous Raw Material Storage: All hazardous raw materials are stored in a room which has been divided into four cells. Each cell contains its own fireproof door. No floor drains are provided in any of the cells. Materials being stored include 1,1,1-trichlorethane, methylene chloride, zylene, denatured alcohol, ethylene glycol, phenol, zinc stearate, toluene, ethyl alcohol, methyl alcohol, acetone, and synthetic resins. All chemicals are stored and contained in 55 gallon drums.

Hazardous Waste Material Storage: Hazardous waste materials are being stored in 55 gallon drums outside on palates on top of a concrete pad. A review of the facility's manifest indicates that disposal is conducted within the 90 day maximum storage period. An inspection of the storage area revealed inconsistency with

INSP

labeling and storage requirements. A number of the drums were not labeled, and some of the drums were not sealed properly.

The facility will be notified of proper hazardous material storage requirement.

The facility no longer manufactures resins on the site. They are being purchased from an independent manufacturer. Both phenolic resin reactors have been removed from Building #W4 in addition to the grinding/crushing equipment, outside phenol and formalin storage tanks and associated piping. The only remaining product manufactured in Building #W4 is the Ekonol® process.

Deficiencies:

1) Storage of hazardous waste not in accordance with New York State law.

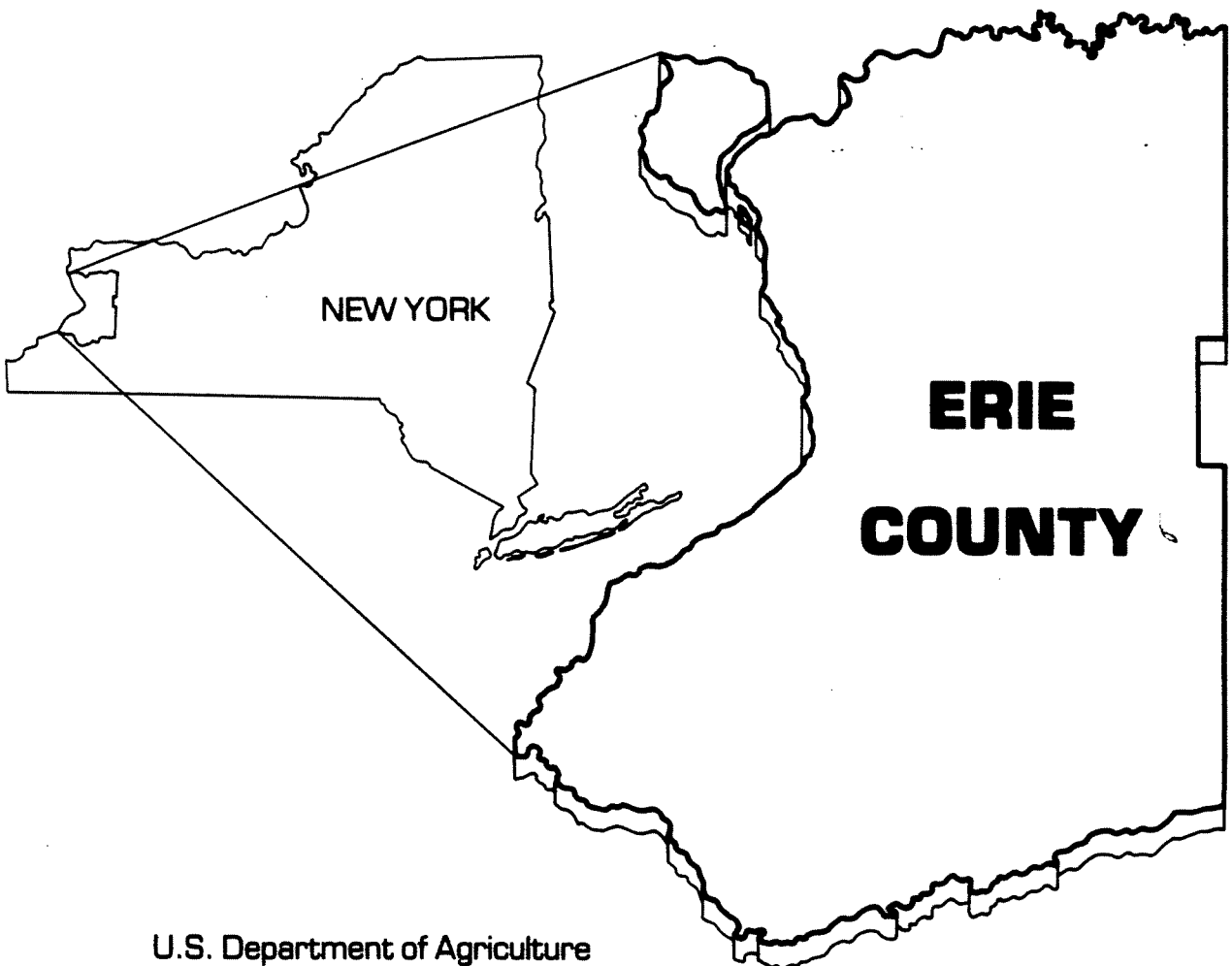
RG:ms

Scrap phenol resin spill site - INSP

Storm sewer cracked joint - INSP

REFERENCE 17

GENERAL SOIL MAP and INTERPRETATIONS



U.S. Department of Agriculture
Soil Conservation Service

in cooperation with

Cornell University Agricultural Experiment Station and
Erie County Soil and Water Conservation District

ERIE COUNTY SOIL & WATER
Conservation District
21 S. Grove Street
East Aurora, N. Y. 14052

23. LAKEMONT-CANADICE, LEVEL

Deep, poorly drained and very poorly drained, clayey soils, on lowland plains and in depressional areas

This general soil unit consist of level and nearly level soils in low basin-like areas scattered throughout the county. Slope ranges from 0 to 3 percent but is generally less than 2 percent.

This unit covers about 7,200 acres or 1.1 percent of the county. Lakemont soils make up 45 percent of the unit, Canadice soils about 20 percent, and soils of minor extent the remaining 35 percent.

Lakemont and Canadice soils formed in clayey, gravel and stone-free, lake-laid sediments. Lakemont soils are reddish in color while Canadice soils are more gray in color. Lakemont soils are poorly drained and very poorly drained, and Canadice soils are poorly drained. Both of these soils have a seasonal high water table at or near the soil surface for prolonged periods during the year. A few areas are ponded for brief periods in early spring. The rate of water movement (permeability) though these soils is very slow. The Canadice soils generally occur in the southern portion of the county, and commonly have lenses of gravelly glacial till in the substrata.

Soils of minor extent are those of the Getzville, Canandaigua, Cheektowaga, Palms, Odessa, and Rhinebeck series. Getzville soils occur where the lower part of the subsoil and substrata are sandy; Cheektowaga soils are in areas that have a sandy surface layer; and Canandaigua soils occur where the soil sediment is silty. Palms soils are in areas where decomposed organic deposits overlie mineral soils. Somewhat poorly drained Odessa and Rhinebeck soils are better drained than the major soils and occur on slight rises or benches scattered throughout this unit.

Most areas of this unit are now idle and reverting to brush. The major soils in this unit are difficult to drain because of very slow permeability in the subsoil layers and lack of good outlets. Addition of fill material to improve drainage is often hazardous because it can constrict natural water courses or the water retention abilities that these areas normally provide. Prolonged wetness and low soil strength are important soil features that affect most uses.

26. ODESSA, NEARLY LEVEL

Deep, somewhat poorly drained, clayey soils, on lowland plains

This general soil unit consist of nearly level soils on lowlands, primarily in the northern part of the county. Slope ranges from 0 to 3 percent.

This unit covers about 26,900 acres or 4.0 percent of the county. Odessa soils make up 75 percent of the unit and soils of minor extent the remaining 25 percent.

Odessa soils formed in reddish-colored sediments that have a high clay content. These soils are somewhat poorly drained, and have a seasonal high water table perched in the upper part of the subsoil during the spring and other excessively wet periods. Rate of water movement (permeability) through the soil is slow or very slow. Odessa soils generally lack rock fragments and are commonly neutral in reaction in the subsoil.

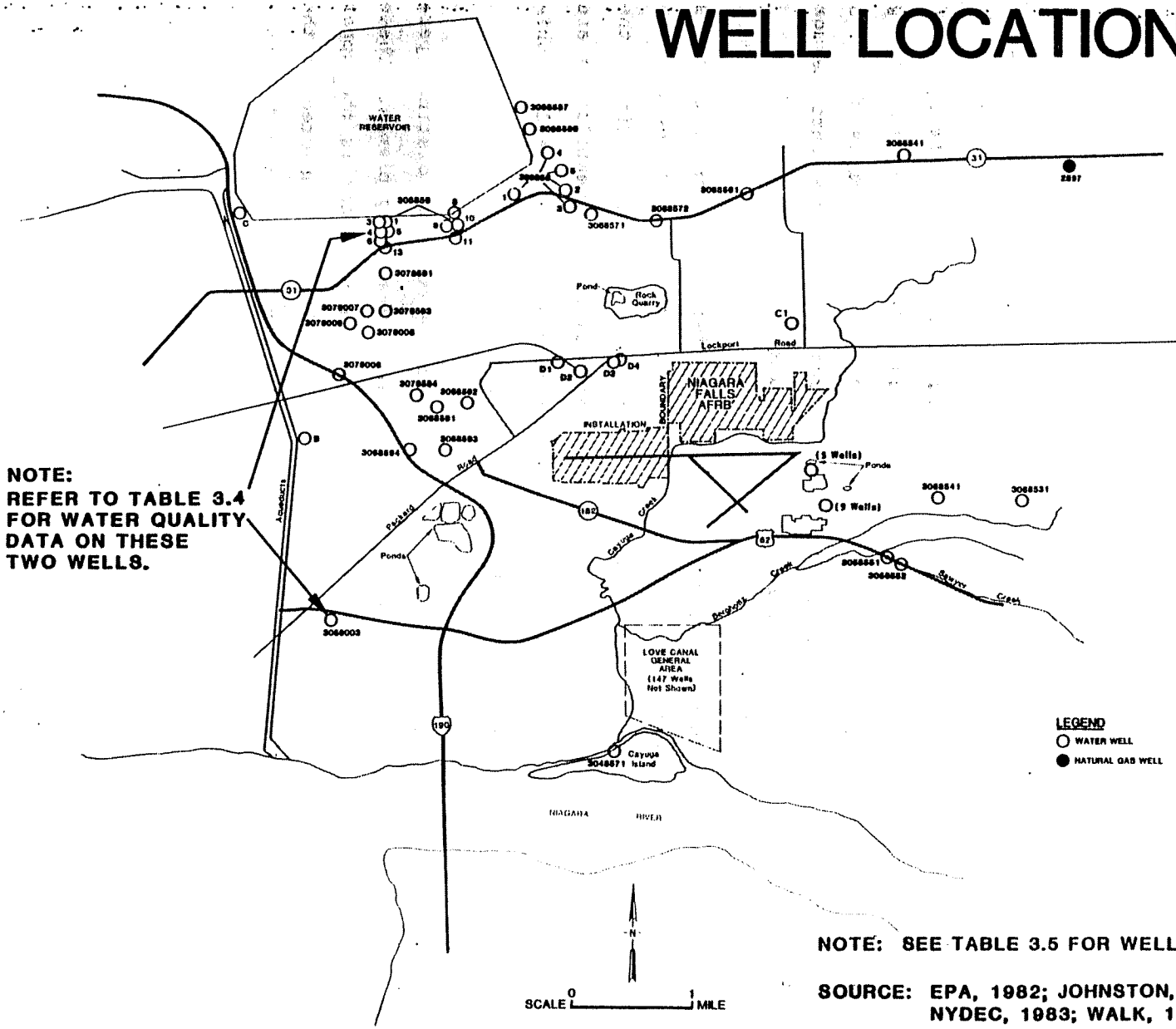
Soils of minor extent are those of the Schoharie, Lakemont, Niagara, Cosad, and Churchville series. Moderately well drained Schoharie soils are on knolls and on the crest of ridges. Poorly drained and very poorly drained Lakemont soils are in a few depressions and along some drainageways. Niagara soils occur where the soil sediments are silty, and Cosad soils are in areas that have a sandy mantle overlying clayey deposits. Churchville soils occur in a few areas where gravelly glacial till deposits are within 20 to 40 inches of the soil surface.

Most areas of this unit were originally cleared of forest and used in farming. A few areas are still used in farming, mainly for pasture, but many fields are now idle and reverting to brush cover. The dominant soils are somewhat difficult to manage because they are sticky when wet, and cloddy and hard when dry. Seasonal wetness, slow or very slow permeability, and clayey textures are the primary soil related features to consider for most uses. Some areas of this unit near the edge of Buffalo are undergoing suburban development. A fewer areas near Tonawanda Creek and Elliot Creek are subject to flooding.

REFERENCE 18

NIAGARA FALLS AFRF

WELL LOCATION MAP



NOTE:
REFER TO TABLE 3.4 FOR WATER QUALITY DATA ON THESE TWO WELLS.

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

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	Water Level (feet) Approximate Elevation Above NGVD	Use
3048571	Wendt Dairy	35	22	Sl	—	—	—	U
3058551	N. Moll	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	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	H. 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	44	—	Sl	25.1	8/7/60	612.9	D
3088583	W. Holland	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 Solomite
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.

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. ~~285-2658~~ ✓, 731-4294 NA	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. 731-9550 NA	Town of Wheatfield
12.	Melvin Pfohl	2053 Saunders Settlement Rd.	Town of Lewiston
13.	Andrew Trinka	6221 Walmore Rd. 731-9648	Town of Wheatfield

REFERENCE 19

RECRA RESEARCH, INC.

Hazardous Waste And Toxic Substance Control

February 26, 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 Carborundum Abrasives facility on 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 by telephone, documented. Below is an account of our conversation on February 24, 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 Carborundum Abrasives Company plant on Walmore Road, Town of Wheatfield, New York.

Thank you for your cooperation.

Sincerely,

RECRA RESEARCH, INC.

Thomas P. Connare

Thomas P. Connare
Environmental Scientist

TPC/jlo

Paul E. Lehman
Mr. Paul Lehman

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

APPENDIX B

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: 932090

NAME OF SITE: Niagara Frontier Transportation Authority REGION: 9

STREET ADDRESS: Niagara Falls Blvd.

TOWN/CITY: Wheatfield COUNTY: Niagara

NAME OF CURRENT OWNER OF SITE: NFTA

ADDRESS OF CURRENT OWNER OF SITE: Niagara Falls Blvd., Wheatfield

TYPE OF SITE: OPEN DUMP ☐ STRUCTURE ☐ LAGOON ☒

LANDFILL ☐ TREATMENT POND ☐

ESTIMATED SIZE: 2.75 ACRES

SITE DESCRIPTION:

Carborundum Abrasives on Walmore Road in the Town of Wheatfield discharges storm and cooling water from plant operations to a 2.75 acre surface impoundment on NFTA property. The impoundment discharges to Cayuga Creek in conjunction with a SPDES permit. Values for phenol have exceeded SPDES limits in the past.

HAZARDOUS WASTE DISPOSED: CONFIRMED ☒ SUSPECTED ☐

TYPE AND QUANTITY OF HAZARDOUS WASTES DISPOSED:

TYPE	QUANTITY (POUNDS, DRUMS, TONS, GALLONS)
Phenol spills	Unknown

TIME PERIOD SITE WAS USED FOR HAZARDOUS WASTE DISPOSAL:

_____, 19 ___ TO _____, 19 ___

OWNER(S) DURING PERIOD OF USE: NFTA

SITE OPERATOR DURING PERIOD OF USE: Carborundum Abrasives

ADDRESS OF SITE OPERATOR: Walmore Road, Town of Wheatfield, New York

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

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

SOIL TYPE: Silty Clay Loam

DEPTH TO GROUNDWATER TABLE: Unknown

LEGAL ACTION: TYPE: _____ STATE ☐ FEDERAL ☐

STATUS: IN PROGRESS ☐ COMPLETED ☐

REMEDIAL ACTION: PROPOSED ☐ UNDER DESIGN ☐
IN PROGRESS ☐ COMPLETED ☐

NATURE OF ACTION: _____

ASSESSMENT OF ENVIRONMENTAL PROBLEMS:

An inspection by Niagara County Health Department in January 1982 revealed no adverse environmental problems. The potential exists for contamination of Cayuga Creek which discharges to the Niagara River four miles downstream of site.

ASSESSMENT OF HEALTH PROBLEMS:

Insufficient information

PERSON(S) COMPLETING THIS FORM:

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

NAME Recra Research, Inc. Thomas P. Connare

TITLE Environmental Scientist

NAME _____

TITLE _____

DATE: February 21, 1986

NEW YORK STATE DEPARTMENT OF HEALTH

NAME _____

TITLE _____

NAME _____

TITLE _____

DATE: _____

JACK,
INCORPORATE IN OUR COPY + SEND
COPY TO NCHD

New York State Department of Environmental Conservation

MEMORANDUM

TO: Peter Buechi, Region 9
FROM: Raymond E. Lupe, Acting Section Chief, Western Investigation Section REL
SUBJECT: Phase I Final, Niagara Frontier Transportation Authority #932090
DATE: DEC 28 1987

On October 15, 1987, three (3) copies of the above-referenced report were sent to your office. Since this time, several errors have been noted and brought to the attention of the Department.

Please find attached an Errata Sheet(s) with the necessary corrections. For purposes of accuracy, it is requested you include the errata sheet(s) with each copy of the report.

Attachments

ERRATA SHEET

Name: Niagara Frontier Transportation
Site ID #: 932090
Prepared for NYSDEC, Date: March, 1986

Pages 1, 7, 16 - The listed pages state that the site is owned by Carborundum Abrasives, this is incorrect. The site is owned by Niagara Frontier Transporation Authority (NFTA) and Carborundum Abrasives utilizes the reservoir on this property.

Pages 1, 7, 14, 16 - The listed pages imply that discharge from the impounding reservoir is monitored, this is incorrect. The discharge monitored is that which enters into the reservoir from the Carborundum facility.

Page 3 - $S_{dc} = 0$ is incorrect. Should read $S_{dc} = 16.7$

EPA Forms 2070-12, 2070-13 - The owner's name and address as listed on the EPA forms are incorrect. The owner's name and address should read as follows:

Niagara Frontier Transportation Authority
Walmore Road
Wheatfield, NY 14204

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