932003

ENGINEERING INVESTIGATIONS AT INACTIVE HAZARDOUS WASTE SITES

PHASE I INVESTIGATION

Allied Chemicals–Elberta Works | **Site No. 932003**

Town Of Wilson | **Niagara County**

Prepared for:

New York State Department of Environmental Conservation

50 Wolf Road, Albany, New York 12233

Thomas C. Jorling, *Commissioner*

Division of Hazardous Waste Remediation

Michael J. O'Toole, P.E., *Director*

By:

ENGINEERING–SCIENCE

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

ALLIED CHEMICAL - ELBERTA WORKS

NYS SITE NUMBER 932003

TOWN OF WILSON

NIAGARA COUNTY

NEW YORK STATE

Prepared For

Division of Hazardous Waste Remediation
NEW YORK STATE
DEPARTMENT OF ENVIRONMENTAL CONSERVATION
50 WOLF ROAD
ALBANY, NEW YORK 12233-0001

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DATE OF SUBMITTAL: January, 1988

ALLIED CHEMICAL - ELBERTA WORKS

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SECTION I

EXECUTIVE SUMMARY

ALLIED CHEMICALS - ELBERTA WORKS

This report, prepared for the New York State Department of Environmental Conservation (NYSDEC), presents the results of the Phase I Investigation for the Allied Chemicals - Elberta Works site (NYS Site Number 932003, no EPA Site Number given) located in the Town of Wilson, Niagara County, New York (see Figure I-1).

SITE BACKGROUND

The one-acre Allied Chemical - Elberta Works site is located within the 3-acre Allied Chemical facility (see figure I-2) and is currently owned by Welland Chemicals (Nixon, 12/13/85). The former landfill disposal areas are located under a portion of a warehouse and parking lot on the Welland Chemical property (Lanzo, 5/21/85). From 1950 to early 1977 (Lanzo, 5/21/85), an estimated 12 tons per year of aluminum chloride, refractory material containing graphite, and wastes containing trace amounts of asbestos were disposed of on-site (NYSDEC, Registry Sheet, 1/24/85). Therefore, the estimated quantity of wastes landfilled on-site is 324 tons.

No groundwater, soil or surface water monitoring have been conducted at the Elberta Works facility to assess the environmental impact of the former landfill disposal areas (NYSDEC, Registry Sheet, 1/24/85).

In addition to the two landfill areas, there are two closed lagoons and two existing lagoons located at the Elberta Works facility. These lagoons are located east of the disposal sites in question and were not evaluated as part of this Phase I Investigation. Groundwater wells were

reportedly installed upgradient and downgradient of the lagoons. These wells are located such that groundwater monitoring results from collected samples cannot be used to assess the former landfill disposal areas (Calspan Advanced Technology Center, 10/79). Also note that there is a discrepancy as to the location of the on-site groundwater monitoring wells (Calspan Advanced Technology Center, 1979; Lewandowksi, 8/17/82). Therefore, the well locations were not depicted on the site plot plan, Figure I-1.

ASSESSMENT

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

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

- S_M reflects the potential for harm to humans or the environment from migration of a hazardous substance away from the facility by routes involving groundwater, surface water or air. It is a

composite of separate scores for each of the three routes (S_{GW} = groundwater route score, S_{SW} = surface water route score, and S_A = air route score).

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

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

- The preliminary HRS score is:

S_M = 8.81	S_A = 0
S_{GW} = 15.07	S_{FE} = 0
S_{SW} = 2.24	S_{DC} = 0

  These scores reflect the toxicity of wastes buried on-site and the fact that the waste is not adequately contained.

RECOMMENDATIONS

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

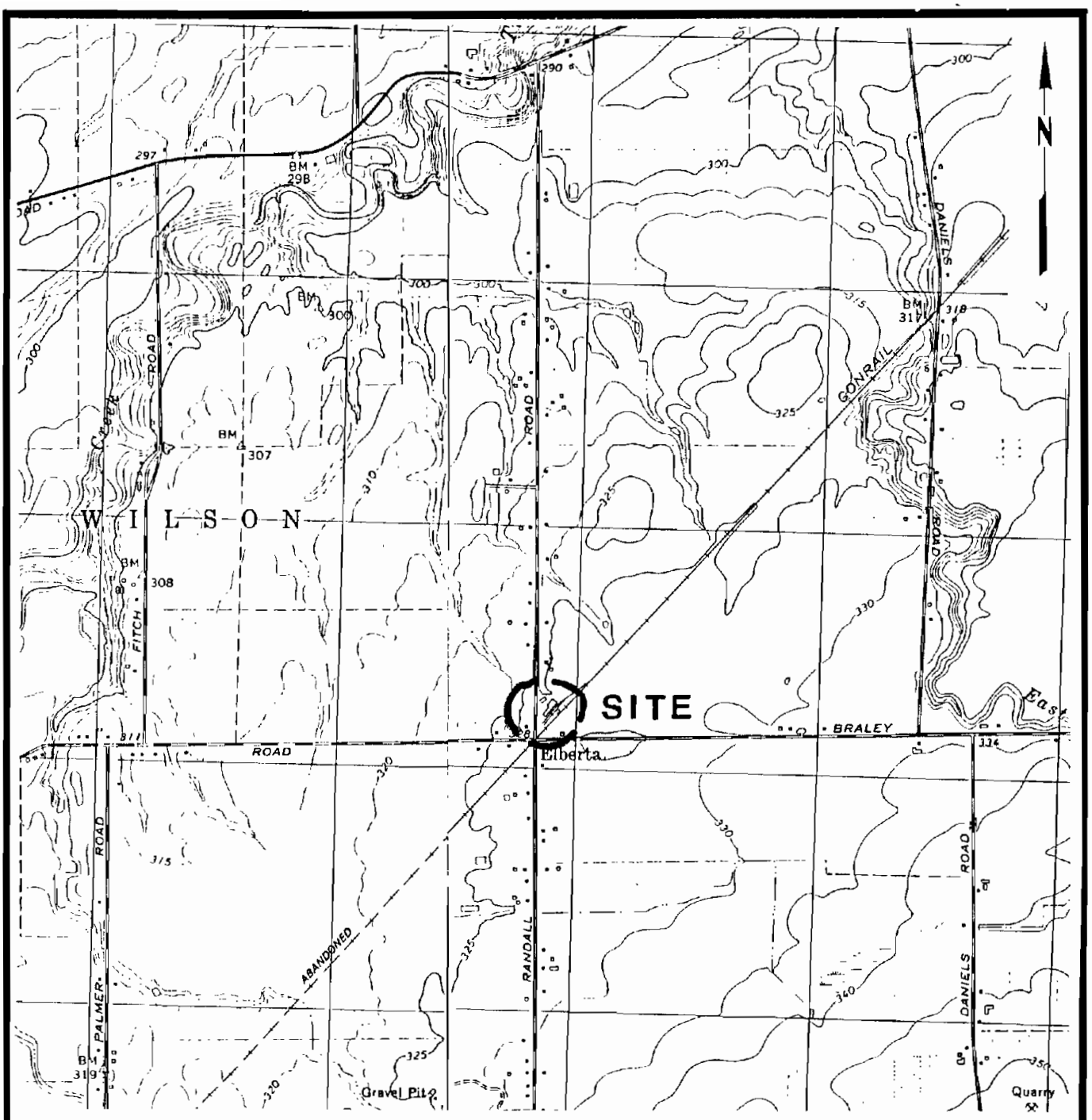
- Geophysical Survey Study consisting of electrical resistivity and magnetometer surveys

- Groundwater monitoring system consisting of 1 upgradient and 2 downgradient wells based on results of geophysical surveys.

- Soil/waste sampling consisting of three sampling locations including one location at each former disposal area and a background location. Two composite samples to be collected at each location at depths of 6-12 inches and 18-24 inches.

- Analyses to include hazard substance list (HSL) metals, asbestos and aluminum.

The estimated man-hour requirements to complete Phase II are 1,250 hours, while the estimated cost is $81,007.



LATITUDE: 43°15'51" N
LONGITUDE: 78°52'00" W

SCALE

0 1000 2000 3000 4000 FEET

REFERENCE: U.S.G.S. 7.5' Topographic Map
Wilson, NY (1979) and Sixmile Creek,
NY (1974) Quadrangles

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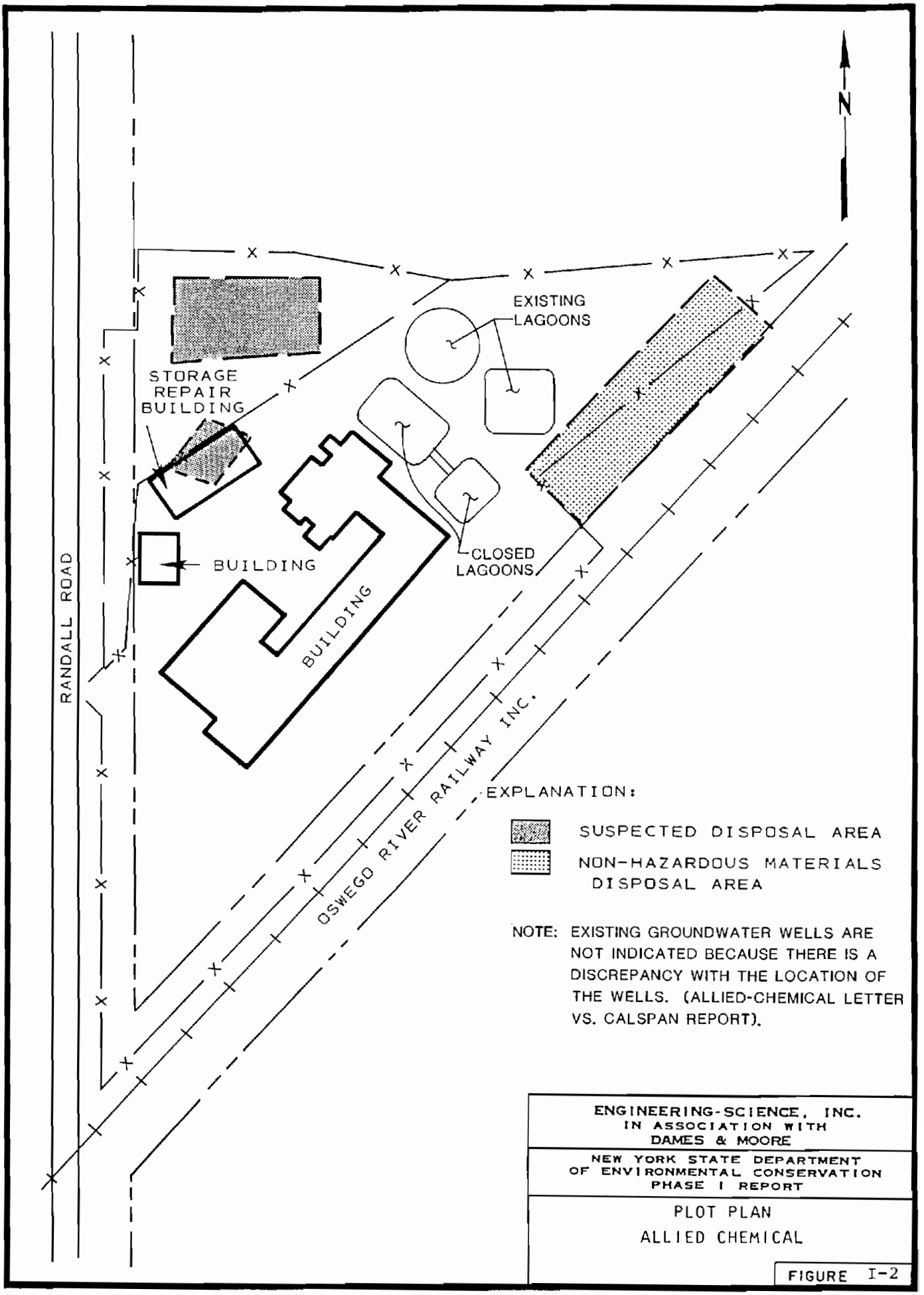
PHASE I REPORT

SITE LOCATION MAP
ALLIED CHEMICAL - ELBERTA WORKS

FIGURE I-1


N
EXISTING LAGOONS
STORAGE REPAIR BUILDING
BUILDING
BUILDING
CLOSED LAGOONS
RANDALL ROAD
OSWEGO RIVER RAILWAY INC.
EXPLANATION:
SUSPECTED DISPOSAL AREA
NON-HAZARDOUS MATERIALS DISPOSAL AREA
NOTE: EXISTING GROUNDWATER WELLS ARE NOT INDICATED BECAUSE THERE IS A DISCREPANCY WITH THE LOCATION OF THE WELLS. (ALLIED-CHEMICAL LETTER VS. CALSPAN REPORT).
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PHASE I REPORT
PLOT PLAN
ALLIED CHEMICAL
FIGURE I-2

SECTION II
PURPOSE

The purpose of the Phase I investigation at the Allied Chemical - Elberta Works site was to assess the hazard to the environment caused by the present condition of the site. This assessment is based on the Hazard Ranking System, which involves the compilation and rating of numerous geological, toxicological, environmental, chemical, and demographic factors and the calculation of an HRS score. During the initial portion of the investigation, available data and records, combined with information collected from a site inspection, were reviewed and evaluated. The investigation at this site focused on the disposal of industrial wastes including aluminum chloride, refractory wastes and waste containing trace amounts of asbestos. Based on this initial evaluation of the Allied Chemical - Elberta Works site, a Phase II Work Plan has been prepared for collecting any additional data needed to complete the HRS score. In addition, a cost estimate for the recommended Phase II work is provided.

SECTION III
SCOPE OF WORK

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

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

SECTION IV

SITE ASSESSMENT

SITE HISTORY

The Allied Chemical-Elberta Works facility, an approximately three-acre area, was owned by Allied Chemicals (1956-1983) and Elberta Chemicals (1945-1956) during the period that the site was used for waste disposal. In 1983, DAL Specialties purchased and operated the facility until July 1985, at which time Welland Chemicals acquired DAL Specialties Company. Currently, the chemical manufacturing facility which includes the former landfill disposal area is not in operation and is owned by Welland Chemicals (Nixon, 12/13/85).

From 1950 to 1977, an estimated 12 tons per year of aluminum chloride, refractory material containing graphite, and wastes containing trace amounts of asbestos were disposed of at the Allied Chemical site (NYSDEC, Registry Sheet, 1/24/85; Lanzo, 5/21/85). There were two on-site areas which were used for the disposal of wastes (see Figure IV-1. The estimated quantity of waste landfilled on-site is 324 tons. Presently, the disposal areas have been partially covered by a warehouse or asphalt parking lot (ES and D&M Site Inspection, 12/13/85; Lanzo, 5/21/85). In addition to the two former landfill disposal areas, there are two closed lagoons and two operating lagoons located at the Elberta Works facility. The lagoons received cooling waters from the manufacturing area. These facilities are located to the east of the former landfill disposal areas (see Figure IV-1). As the lagoons were not used for the past disposal of wastes generated at the Elberta Works facility, they were not evaluated as part of the Phase I Investigation.

SITE TOPOGRAPHY

The Allied Chemical-Elberta Works site is located on the northeast corner of Randall and Braley Roads in the Town of Wilson, Niagara County, New York. The plant property encompasses approximately three acres, however, actual waste burial sites are believed to be confined to two areas totaling less than one acre. The plant property, including the two landfill disposal areas is entirely fenced. A locked gate restricts unauthorized access. The surrounding land use is agricultural and rural residential. The nearest residence is approximately 300 feet west of the site. Agricultural land is located within 500 feet of the site (ES and D&M Site Inspection, 12/13/85).

Wastes are reported to have been buried in two shallow trenches, each approximately 40 feet by 100 feet (Hopkins, 11/20/85). Both burial areas are on the western edge of the property, adjacent to Randall Road. The trenches have since been covered by the construction of a storage building and paved parking lot (ES and D&M Site Inspection, 12/13/85; Lanzo, 5/21/85).

Surface water run-off in the vicinity of the landfill areas would be primarily to the south. The majority of the run-off is diverted by storm drains to the existing on-site cooling ponds. Other surface water run-off may enter roadside stream ditches. Discharge from these ditches would eventually be into Twelve Mile Creek, approximately 0.5 miles northwest of the site (USGS Topographic Map: Wilson Quadrangle, 1979).

Municipal water is available in the vicinity of the Elberta Works facility; however, several houses along both Randall and Braley Roads have private wells (Smith, 5/9/86). The nearest downgradient well is approximately 150 feet north of the site (NYSDOH, 1982). An estimated 50 people utilize private groundwater wells within a 3-mile radius of the Elberta Works facility (based on house count using USGS Topographic Map: Wilson Quadrangle 1979; Smith, 5/9/86).

Local Sensitive Environment

There are no NYSDEC registered wetlands or critical habitats within 1 mile of this site (Ozard, 1/17/86; McMurry, 1/3/86).

SITE HYDROLOGY

Regional Geology and Hydrology

The site is located in the Erie-Ontario lowlands physiographic province. The bedrock of this region is predominantly limestone, dolostone, and shale. Most of the rocks are deep aquifers with regional flow to the south (NYS Museum and Science Service Bedrock Geology Map).

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

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

Granular deposits in this region frequently act as shallow aquifers whereas lacustrine clays, as well as till, often inhibit groundwater movement. However, fine-grained, water-lain sediments, such as silts and clays, frequently contain horizontal laminations and sand seams. These internal features facilitate lateral groundwater movement through otherwise low permeability materials. (Johnston, 1964, and LaSala, 1968)

Site Hydrogeology

Bedrock beneath the site is reported to be Queenstone shale (NYS Museum & Science Service, 1970). Depth to bedrock is approximately 30 to 40 feet based on on-site boring logs (Calspan Advanced Technology Center, 10/79). Soil boring logs from on-site monitoring wells show bedrock to be overlain by a silty clay loam to ground surface, with zones of sandy loam. This loam was absent in a boring on the southeast corner of the site where the soils were primarily sands and gravel. The generalized soil survey for this area identifies the soil type as ovid silt loam. Characteristic of this soil type is seasonal high water tables at a depth of less than one foot and slow permeability, assumed to be 10^{-5} cm/sec to 10^{-7} cm/sec. (USDA, Soil Survey of Niagara County, New York, 10/72).

The aquifer of concern is expected to occur in the overburden at depths of less than 20 feet in the sand and gravel zones. Groundwater flow in this aquifer is to the northwest (Calspan Advanced Technology Center, 10/79).

SITE CONTAMINATION

From 1950 to 1977 an estimated 324 tons of waste materials including aluminum chloride, graphite-laden refractory material, and wastes containing trace amounts of asbestos were landfilled in two on-site disposal areas (Lanzo, 5/21/85). Presently, the former waste disposal areas are partially covered by a warehouse and a parking lot. No groundwater, soil or surface water monitoring has been conducted at the site to date to assess the environmental impact of the former landfill disposal areas (NYSDEC, Registry Sheet, 1/24/85).

Groundwater samples were obtained from monitoring wells located upgradient and downgradient of the on-site lagoons located east of the land disposal areas. These wells are located such that analytical results from these samples cannot necessarily be attributed to the disposal sites in question (Calspan Advanced Technology Center, 10/79).

HNu meter readings were taken during the site inspection conducted by ES and D&M, 12/13/85 and these measurements did not detect volatile organics at concentrations above background levels of 1 ppm.

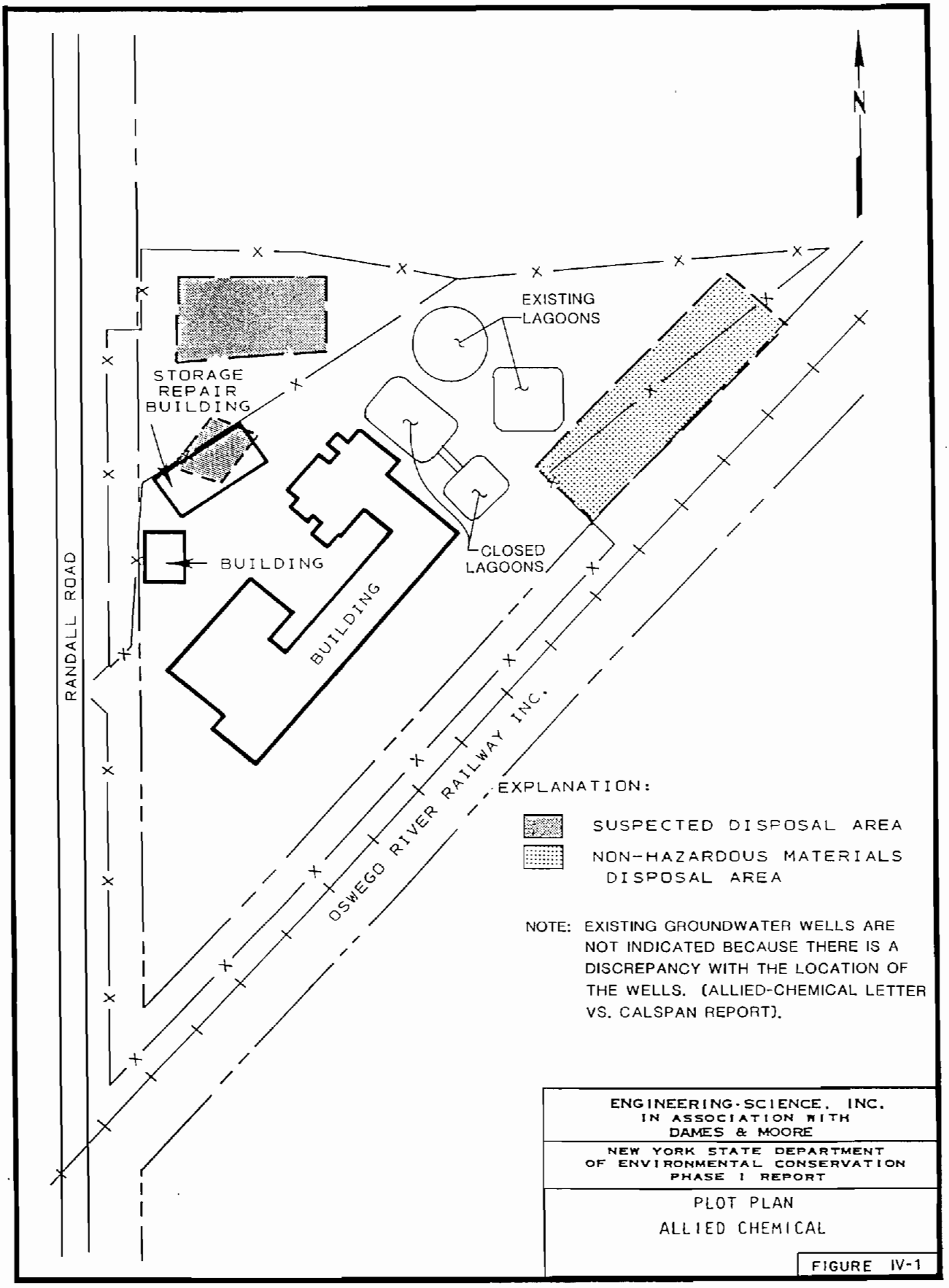
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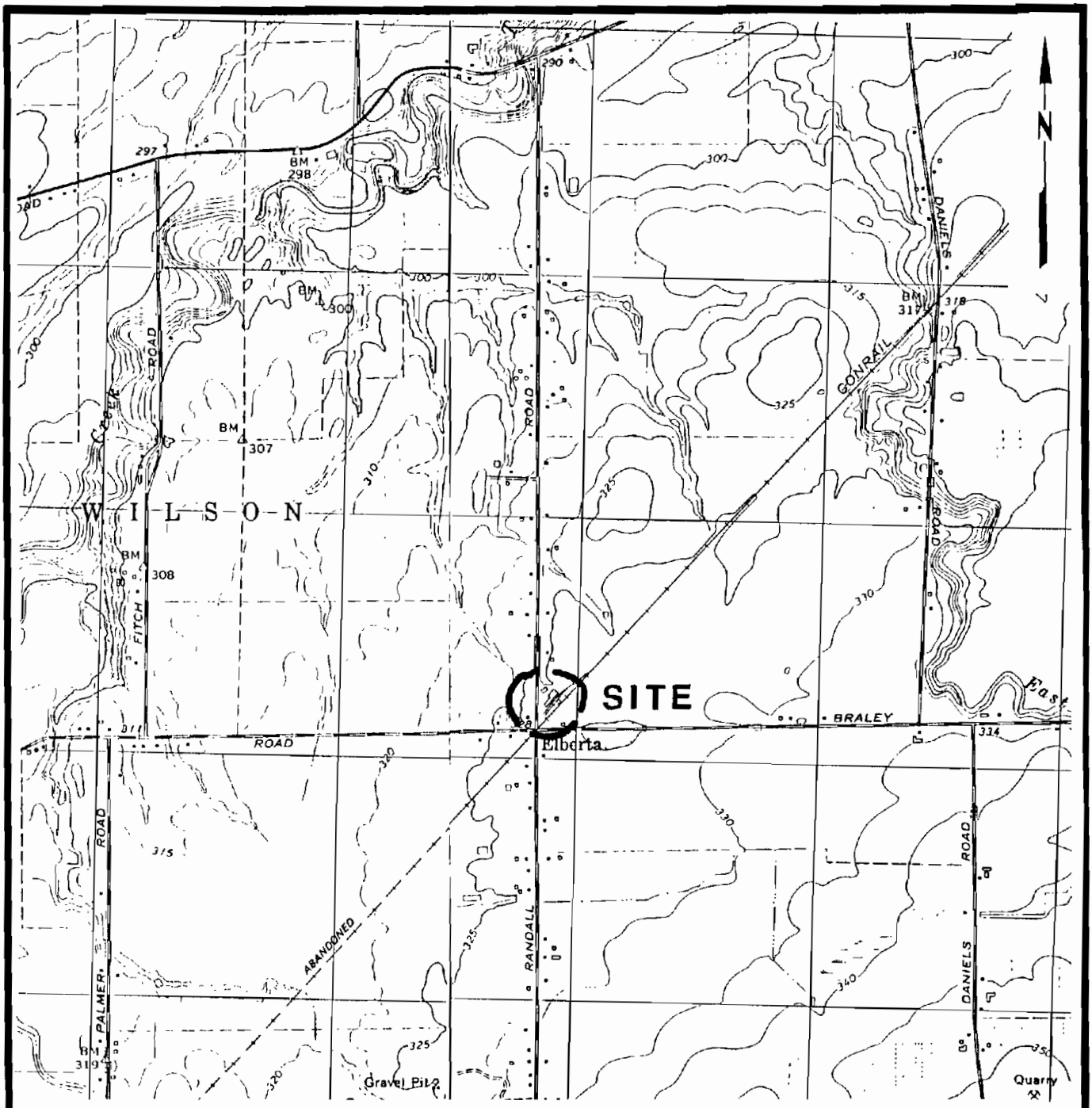
FIGURE IV-1



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PHASE I REPORT

SITE LOCATION MAP
ALLIED CHEMICAL - ELBERTA WORKS

FIGURE V-1

HRS COVER SHEET

Facility Name: Allied Chemical - Elberta Works

Location: Randall and Braley Roads, West of RR track
Town of Wilson, Niagara County, New York

EPA Region: II

Person(s) in charge of the facility: Colin Nixon

Name of Reviewer: Cathy J. Bosma Date: 1-14-86

General description of the facility:

From 1950 to 1977, an estimated 324 tons of wastes including aluminum chloride, graphite-laden refractory material and materials containing traces of asbestos were disposed of at two small disposal areas on-site. These materials were landfilled in two trenchs within a one-acre site. Presently, the former disposal areas are partially covered by a building and a parking lot. Residences within 1/4 mile of the site utilize drinking water wells. No groundwater, soil, or surface water monitoring has been conducted to assess the landfill disposal areas.

Scores: $S_M = 8.81$ ($S_{GW} = 15.07$ $S_{SW} = 2.24$ $S_A = 0$)
$S_{FE} = 0$
$S_{DC} = 0$

Facility Name: Allied - Elberta Works Date: 1/14/86

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	0	3	
Total Route Characteristics Score			9	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	15	18	
Hazardous Waste Quantity	0 1 2 3 4 (5) 6 7 8	1	5	8	
Total Waste Characteristics Score			20	26	
5 Targets					3.5
Ground Water Use	0 1 (2) 3	3	6	9	
Distance to Nearest Well/Population Served	0 4 6 8 (10) 12 16 18 20 24 30 32 35 40	1	10	40	
Total Targets Score			16	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			8,640	57,330	
7 Divide line 6 by 57,330 and multiply by 100			S_{gw} = 15.07		

GROUND WATER ROUTE WORK SHEET

Facility Name: Allied- Alberta Works Date: 1/14/86

Surface Water Route Work Sheet

Rating Factor	Assigned Value (Circle One)	Multiplier	Score	Max. Score	Ref. (Section)
1 Observed Release	(0) 45	1	0	45	4.1
If observed release is given a value of 45, proceed to line 4. If observed release is given a value of 0, proceed to line 2.					
2 Route Characteristics					4.2
Facility Slope and Intervening Terrain	(0) 1 2 3	1	0	3	
1-yr. 24-hr. Rainfall	0 1 (2) 3	1	2	3	
Distance to Nearest Surface Water	0 (1) 2 3	2	2	6	
Physical State	(0) 1 2 3	1	0	3	
Total Route Characteristics Score			4	15	
3 Containment	0 1 2 (3)	1	3	3	4.3
4 Waste Characteristics					4.4
Toxicity/Persistence	0 3 6 9 12 (15) 18	1	15	18	
Hazardous Waste Quantity	0 1 2 3 4 (5) 6 7 8	1	5	8	
Total Waste Characteristics Score			20	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			1,440	64,350	
7 Divide line 6 by 64,350 and multiply by 100			S_{sw} = 2.24		

SURFACE WATER ROUTE WORK SHEET

Facility Name: Allied - Alberta Works Date: 1/14/96

Air Route Work Sheet					
Rating Factor	Assigned Value (Circle One)	Multi-plier	Score	Max. Score	Ref. (Section)
[1] Observed Release	0 45	1	(0)	45	5.1
Date and Location:					
Sampling Protocol:					
If line [1] is 0, the S_a = 0. Enter on line [5] . If line [1] is 45, then proceed to line [2] .					
[2] Waste Characteristics					5.2
Reactivity and Incompatibility	0 1 2 3	1		3	
Toxicity	0 1 2 3	3		9	
Hazardous Waste	0 1 2 3 4 5 6 7 8	1		8	
	Total Waste Characteristics Score			20	
[3] Targets					5.3
Population Within 4-Mile Radius	0 9 12 15 18 21 24 27 30	1		30	
Distance to Sensitive Environment	0 1 2 3	2		6	
Land Use	0 1 2 3	1		3	
	Total Targets Score			39	
[4] Multiply [1] x [2] x [3]				35,100	
[5] Divide line [4] by 35,100 and multiply by 100			S_a = 0		

AIR ROUTE WORK SHEET

Facility Name: Allied - Elberta Works Date: 1/14/86

Worksheet for Computing S_M

	S	S^2
Groundwater Route Score (S_{gw})	15.07	227.10
Surface Water Route Score (S_{sw})	2.24	5.02
Air Route Score (S_a)	0.0	0.0
$S_{gw}^2 + S_{sw}^2 + S_a^2$		232.12
$\sqrt{S_{gw}^2 + S_{sw}^2 + S_a^2}$		15.24
$\sqrt{S_{gw}^2 + S_{sw}^2 + S_a^2} / 1.73 = S_M =$		8.81

WORK SHEET FOR COMPUTING S_M

Facility Name: Allied - Alberta works Date: 1/14/96

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

FIRE AND EXPLOSION WORK SHEET

Facility Name: Allied - Alberta Works Date: 1/14/96

Direct Contact Work Sheet					
Rating Factor	Assigned Value (Circle One)	Multi-plier	Score	Max. Score	Ref. (Section)
1 Observed Incident	(0) 45	1	0	45	8.1
If line 1 is 45, proceed to line 4 If line 1 is 0, proceed to line 2					
2 Accessibility	0 1 (2) 3	1	2	3	8.2
3 Containment	(0) 15	1	0		8.3
4 Waste Characteristics Toxicity	0 1 (2) 3	5	10	15	8.4
5 Targets					8.5
Population Within 1-Mile Radius	0 1 (2) 3 4 5	4	8	20	
Distance to a Critical Habitat	(0) 1 2 3	4	0	12	
Total Targets Score			8	32	
6 If line 1 is 45, multiply 1 x 4 x 5 If line 1 is 0, multiply 2 x 3 x 4 x 5			0	21,600	
7 Divide line 6 by 21,600 and multiply by 100			S_{DC} = 0		

DIRECT CONTACT WORK SHEET

DOCUMENTATION RECORDS
FOR
HAZARD RANKING SYSTEM

FACILITY NAME: Allied Chemical - Elberta Works

LOCATION: Randall and Braley Roads, Town of Wilson, Niagara County, New York

GROUND WATER ROUTE

1. OBSERVED RELEASE

Contaminants detected (5 maximum):

Although elevated levels of aluminum and chloride were detected in downgradient wells, these levels were generally lower than samples taken from upgradient wells. Also, because the wells were placed to monitor the on-site lagoons, contaminants detected in the groundwater can not necessarily be attributed to the two landfill disposal areas. Therefore, no observed release can be scored for the site.
(Calspan, Advanced Technology Center, 10/79; Lewandowski, 8/17/82)

Rationale for attributing the contaminants to the facility:

Because the groundwater monitoring wells were placed to monitor the on-site lagoons, groundwater contamination cannot be attributed to the two on-site landfill disposal areas.

* * *

2. ROUTE CHARACTERISTICS

Depth to Aquifer of Concern

Name/description of aquifer(s) of concern:

Aquifer occurring in the overburden.
(Calspan Advanced Technology Center, 10/79)

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

Ranges from 2.3 to 6.0 feet to water table.
(Calspan Advanced Technology Center, 10/79)

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

Estimated to be 2 to 8 feet, based on dimensions of on-site lagoons.
(Calspan Advanced Technology Center, 10/79)

Net Precipitation

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

Mean annual precipitation is 36"
(Rainfall Frequency Atlas of the United States, Technical paper no. 40, U.S. Government Printing Office, Washington, D.C., 1963)

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

Mean annual lake evaporation is 27"
(Climatic Atlas of the United States, US Department of Commerce, National Climatic Center, 1979)

Net precipitation (subtract the above figures):

36" - 27" = 9" net precipitation
(Climatic Atlas of the United States, US Department of Commerce, National Climatic Center, 1979)

Permeability of Unsaturated Zone

Soil type in unsaturated zone:

Silty to clayey loam.
(Calspan Advanced Technology Center, 10/79)

Permeability associated with soil type

10^{-5} cm/sec to 10^{-7} cm/sec
(Freeze, R.A. and J.A. Cherry, Groundwater, 1979)

Physical State

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

Refractory materials, traces of graphite, aluminum chloride, asbestos and neoprene seals are reported to have been landfilled on-site. Solid, consolidated materials (HRS = 0)
(NYSDEC, Registry Sheet, 1/24/85; Nixon, 12/13/85)

3. CONTAINMENT

Containment

Method(s) of waste or leachate containment evaluated:

Landfill sites are unlined and do not have run-on control systems. Note that a portion of the disposal sites is presently covered with either on-site buildings or an asphalt parking lot.
(NYSDEC, Registry Sheet, 1/24/85; Lanzo, 5/21/85)

Method with highest score:

Unlined landfill, depth of cover is unknown.
(NYSDEC, Registry Sheet, 1/24/85; Lanzo, 5/21/85)

4. WASTE CHARACTERISTICS

Toxicity and Persistence

Compound(s) evaluated:

Aluminum chloride (toxicity - 2; persistence - 2)
Graphite (non-hazardous)
Asbestos (toxicity - 2; persistence - 3)
(NYSDEC, Registry Sheet, 1/2/485; Nixon, 12/13/85)

Compound with highest score:

Asbestos (HRS = 15)
(Sax, N.I., Dangerous Properties of Industrial Materials, 1984)

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):

An estimated 324 tons of wastes were landfilled at the two on-site disposal sites
(NYSDEC, Registry Sheet, 1/24/85; Lanzo, 5/21/85)

Basis of estimating and/or computing waste quantity:

An estimated 12 tons/year of wastes were disposed of on-site from approximately 1950 to 1977 (Lanzo, 5/21/85). The wastes included both hazardous (aluminum chloride and asbestos) and non-hazardous wastes (graphite). For purposes of HRS scoring, the total quantity of waste landfilled on-site is scored because the wastes are intermixed in the two disposal areas and therefore the wastes are hazardous.

NOTE: only trace amounts of aluminum chloride and asbestos are reported to be present in the waste (Nixon 12/13/85).

5. TARGETS

Ground Water Use

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

Drinking water with municipal water supply available from unthreatened sources, minimal hookup requirements.
(Smith, Town of Wilson Water Department, 5/9/86)

Distance to Nearest Well

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

Groundwater well on Randall Road.
(Smith, Town of Wilson Water Department, 5/9/86)

Distance to above well or building:

150 feet north of site.
(Smith, Town of Wilson Water Department 5/9/86; USGS Topographic maps: Wilson (1979) and Six Mile Creek (1947) Quadrangles)

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:

An estimated 13 houses are located within 3 miles of the Elberta Works facility which utilize water supply wells (estimated based on house count using USGS topographic map: Six Mile Creek and Wilson Quadrangles; Smith, Town of Wilson Water Department, 5/9/86)

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):

Groundwater obtained from the aquifer of concern is not known to be used for irrigation within a 3-mile radius of the site (Smith, 5/9/86)

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

Fifty people (estimate made based on house count of residences not provided water service using USGS topographic maps: Six Mile Creek (1974) and Wilson (1979) Quadrangles).

SURFACE WATER ROUTE

1. OBSERVED RELEASE

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

No surface monitoring conducted at the site to date.
(NYSDEC Registry Sheet, 1/24/85)

Rationale for attributing the contaminants to the facility:

Not applicable, no surface water monitoring conducted at the site
(NYSDEC, Registry Sheet, 1/24/85)

2. ROUTE CHARACTERISTICS

Facility Slope and Intervening Terrain

Average slope of facility in percent:

Less than 3%.
(ES and D&M Site Inspection, 12/13/85)

Name/description of nearest downslope surface water:

Twelve Mile Creek.
(USGS Topographic Map: Six Mile Creek (1974) and Wilson (1979) Quadrangles)

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

1%.
(ES and D&M Site Inspection, 12/13/85)

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

No.
(ES and D&M Site Inspection, 12/13/85)

Is the facility completely surrounded by areas of higher elevation?

No.
(USGS Topographic Maps; Six Mile Creek (1974) and Wilson (1979) Quadrangles).

1-Year 24-Hour Rainfall in Inches

2.1"
(Climate Atlas of the United States, U.S. Department of Commerce, National Climatic Center, 1979)

Distance to Nearest Downslope Surface Water

Approximately 1/2 mile to Twelve Mile Creek.
(USGS Topographic Map, Six Mile Creek and Wilson Quadrangles, 1979)

Physical State of Waste

Refractory materials, traces of graphite, aluminum chloride, asbestos and neoprene seals are reported to have been landfilled on-site, solid, consolidated materials (HRS = 0)
(NYSDEC, Registry Sheet, 1/24/85; Nixon, 12/13/85)

3. CONTAINMENT

Containment

Method(s) of waste or leachate containment evaluated:

Site is partially covered with existing storage building and asphalt parking lot. Disposal trenches were covered; however, the adequacy of the cover system is unknown.
(ES and D&M Site Inspection, 12/13/85; Lanzo, 5/21/85)

Method with highest score:

Landfill not adequately covered and no diversion system present
(ES and D&M Site Inspection, 12/13/85; Lanzo, 5/21/85)

4. WASTE CHARACTERISTICS

Toxicity and Persistence

Compounds(s) evaluated:

Aluminum Chloride (toxicity - 2; persistence -2)
Graphite (non-hazardous)
Asbestos (toxicity -2; persistence -3)
(NYDEC, Registry Sheet, 1/24/85; Nixon, 12/13/85)

NOTE: only trace amounts of aluminum chloride and asbestos are reported to be present in the waste.

Compound with highest score:

Asbestos (HRS =15)
(Sax, N.I., Dangerous Properties of Industrial Materials, 1984)

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):

An estimated 324 tons of wastes were landfilled at the two on-site disposal sites
(NYSDEC, Registry Sheet, 1/24/85; Lanzo, 5/21/85)

Basis of estimating and/or computing waste quantity;

An estimated 12 tons/year of wastes were disposed of on-site from approximately 1950 to 1977 (Lanzo, 5/21/85; NYSDEC, Registry Sheet, 1/24/85). The wastes included both hazardous (aluminum chloride and asbestos) and non-hazardous wastes (graphite). For purposes of HRS Scoring, the total quantity of waste landfilled on-site is scored because the wastes are intermixed in the two disposal areas and therefore the wastes are hazardous.

* * *

5. TARGETS

Surface Water Use

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

Twelve Mile Creek and Lake Ontario: recreational use.
(USGS Topographic Map: Wilson (1979) and Six Mile Creek (1974 Quadrangles).

Is there tidal influence?

No, site is not located in a coastal area
(USGS Topographic Maps: Wilson (1979) and Six Mile Creek (1974) Quadrangles)

Distance to a Sensitive Environment (NYSDEC, Region 9, 1986)

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

Site is not located in a coastal area
(USGS Topographic Maps: Wilson (1979) and Six Mile Creek (1974) Quadrangles)

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

There are no fresh-water wetlands within one mile of the site **(McMurry, 1/3/86)**

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

There are no federally designated critical habitats in New York State **(Ozard, 1/17/86).**

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:

There are no water supply intakes located within 3 miles of the site.
(NYSDOH, NYS Atlas of Community Water System Sources, 1982)

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

There are no water-supply intakes within 3-miles of the site
(NYSDOH, NYS Atlas of Community Water System Sources, 1982)

Total population served:

Not applicable, surface water not used for irrigational purposes

Name/description of nearest of above water bodies:

Twelve Mile Creek
(USGS Topographic Map: Wilson (1979) and Six Mile Creek (1974) Quadrangles)

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

Not applicable. There are no water-supply intakes within 3-miles of the site
(NYSDOH, NYS Atlas of Community Water System Sources, 1982)

AIR ROUTE

1. OBSERVED RELEASE

Contaminants detected: HNu meter readings taken on-site did not detect volatile organics above background concentrations of 1 ppm (ES/D&M site visit, April, 1986)

Date and location of detection of contaminants:

Upwind and downwind meter readings taken during ES/D&M site visit, April 1986.

Methods used to detect the contaminants:

HNu meter.

Rationale for attributing the contaminants to the site:

Based on HNu meter readings taken on-site, contaminants are not attributed to the site.

* * *

2. WASTE CHARACTERISTICS

Reactivity and Incompatibility

Most reactive compound:

No reactive compounds with the potential to impact the air pathway are known to exist on-site.
(NYSDEC, Registry Sheet, 1/24/85)

Most incompatible pair of compounds:

No incompatible compounds with the potential to impact the air pathway are known to exist on-site
(NYSDEC, Registry Sheet, 1/24/85)

Toxicity

Most toxic compound:

Hazardous wastes including aluminim chloride end asbestos are reported to be landfilled on-site (Nixon, 12/13/85; NYSDEC, Registry Sheet, 1/24/85). These landfilled materials do not pose a threat via the air pathway.

Hazardous Waste Quantity

Total quantity of hazardous waste:

An estimated 12 tons per year of wastes were landfilled on-site from approximately 1950 to 1977 (Lanzo, 5/21/85). However, these materials do not pose a threat via the air pathway.

Basis of estimating and/or computing waste quantity:

For HRS scoring purposes, the hazardous wastes landfilled on-site are not scored because they are not accessible via the air pathway.

* * *

3. TARGETS

Population Within 4-Mile Radius

Underline 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

386 people **(US Bureau of the Census)**

Distance to a Sensitive Environment

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

The site is not located in a coastal area.
(USGS Topographic Maps: Wilson (1979) and Six Mile Creek (1974) Quadrangle)

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

There are no fresh-water wetlands within 1 mile of the site.
(McMurry, 1/3/86)

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

There are no federally designated critical habitats in New York State
(Ozard, 1/17/86)

Land Use

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

There are no known commercial/industrial areas within 1 mile of the site
(USGS Topographic Maps: Wilson (1979) and Six Mile Creek (1974) Quadrangles)

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

None.
(USGS Topographic Maps: Wilson (1979) and Six Mile Creek (1974) Quadrangles)

Distance to residential area, if 2 miles or less:

164 ft. to residence across Randall Road.
(Hudson, NYSDOH, Bureau of Toxic Substance Assessment, 12/30/85)

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

164 ft.
(Hudson, NYSDOH, Bureau of Toxic Substance Assessment, 12/30/85)

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

164 ft.
(Hudson, NYSDOH, Bureau of Toxic Substance Assessment, 12/30/85)

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

No.
(U.S. Department of Interior, National Park Service, "National Register of Historic Places" and "National Natural Landmarks", 1983).

FIRE AND EXPLOSION

1. CONTAINMENT

Hazardous substances present:

Based on review of information during the Phase I investigation of this site, no evidence of past or present fire and explosion hazard exists at the site.
(Phase I Record Search, 1985)

Type of containment, if applicable:

Not applicable.

* *

2. WASTE CHARACTERISTICS

Direct Evidence

Type of instrument and measurements:

Measurements were not taken on-site to determine the potential for a fire or explosion.

Ignitability

Compound used:

No ignitable compounds are known to exist on-site.
(NYSDEC, Registry Sheet, 1/24/85).

Reactivity

Most reactive compound:

No reaction compound with the potential to create a fire or explosion is known to exist on-site.
(NYSDEC, Registry Sheet, 1/24/85)

Incompatibility

Most incompatible pair of compounds:

No incompatible compounds are known to exist on-site.
(NYSDEC, Registry Sheet, 1/24/85)

Hazardous Waste Quantity

Total quantity of hazardous substances at the facility:

Hazardous wastes with the potential to create a fire/explosion hazard are not known to exist on-site.
(NYSDEC, Registry Sheet, 1/24/85)

Basis of estimating and/or computing waste quantity:

For HRS Scoring, the hazardous waste quantity score is zero because no hazardous wastes with the potential to create a fire/explosion are known to exist on-site.

* * *

3. TARGETS

Distance to Nearest Population

Residential area is located approximately 164 feet from site
(Hudson, NYSDOH, Bureau of Toxic Substance Assessment, 12/30/85)

Distance to Nearest Building

Building is located on-site.
(ES and D&M Site Inspection, 12/13/85)

Distance to Sensitive Environment

Distance to wetlands:

There are no wetlands within 2-miles of the site.
(McMurry, 1/3/86).

Distance to critical habitat:

There are no federally designated critical habitats, within New York State.
(Ozard, 1/17/86)

Land Use

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

There are no known commerical/industrial areas within 1 mile of the site.
(USGS Topographic Maps: Wilson (1979) and Six Mile Creek (1974) Quandrangles)

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

None.
(USGS Topographic Map, Six Mile Creek (1974) and Wilson (1979) Quadrangles)

Distance to residential area, if 2 miles or less:

164 feet to residence across Randall Road

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

164 feet.
(Hudson, NYSDOH, Bureau of Toxic Substance Assessment, 12/30/85)

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

164 feet.
(Hudson, NYSDOH, Bureau of Toxic Substance Assessment, 12/30/85)

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

No.
(U.S. Department of Interior, National Park Services, "National Register of Historic Places" and "National Natural Landmarks", 1983)

Population with 2-Mile Radius

1,194 people
(1980 U.S Census Data)

Buildings Within 2-Mile Radius

314 buildings (estimate based on house cont using USGS Topographic Maps)

DIRECT CONTACT

1. OBSERVED INCIDENT

Date, location, and pertinent details of incident:

Based on review of information during the Phase I Investigation for this site, there is no confirmed instance in which contact with hazardous substances at the site has caused injury, illness or death to humans or animals.

* * *

2. ACCESSIBILITY

Describe type of barrier(s):

A barrier surrounds the site, but no separate means to control entry exists at the site.
(ES and D&M Site Inspection, 12/13/85)

* * *

3. CONTAINMENT

Type of containment, if applicable:

Hazardous wastes are covered and a warehouse and parking lot partially cover the former disposal site (Lanzo, 5/21/85). Therefore, for this HRS scoring, hazardous wastes are not accessible to direct contact.

* * *

4. WASTE CHARACTERISTICS

Toxicity

Compounds evaluated:

Aluminum Chloride (toxicity = 2)
Graphite (non-hazardous)
Asbestos (toxicity = 2)
(NYSDEC, Registry Sheet, 1/24/85; Nixon, 12/13/85)
NOTE: Aluminum Chloride and asbestos were reported to be present only in trace amounts

Compound with highest score:
Asbestos = 2
(Sax, N.I., Dangerous Properties of Industrial Materials, 1984)

5. TARGETS

Population within one-mile radius

386 people
(U.S. Census Data, 1980)

Distance to critical habitat (of endangered species)

There are no federally designated critical habitats in New York State.
(Ozard, 1/17/86)

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10. New York State, Department of Environmental Conservation, Inactive Hazardous Waste Disposal Site Report (Registry Sheet), 1/24/85.

11. New York State, Department of Health, New York State Atlas of Community Water System Sources, 1982

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18. U.S. Department of Interior, National Park Service, "National Register of Historic Places" and "National Natural Landmarks", 1983.

19. U.S. Geological Survey, Topographic Map: Wilson Quadrangle, 1979; Six Mile Creek Quadrangle, 1974.

*For general references, See Appendix A

CALSPAN ADVANCED TECHNOLOGY CENTER

GROUND WATER MONITORING
ALLIED ELBERTA WORKS
RANSOMVILLE, NEW YORK

R. P. Leonard and S. R. Nathanson

Calspan Report No. 209
Purchase Order No. 068 22805

October, 1979

Prepared for:

Allied Chemical Corporation
Industrial Chemicals Division
Post Office Box 218
Ransomville, New York

1/30/80

Comments discussed with DEC-9 and will be incorporated into DEC-9 comments which will be transmitted to the company.

A DIVISION OF CALSPAN CORPORATION
AN ARVIN COMPANY P.O. BOX 400 BUFFALO, NEW YORK 14225

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SECTION 1

INTRODUCTION

The Allied Chemical Elberta Works produces aluminum chloride by chlorination of aluminum metal. The manufacturing process employs cooling water which is discharged to a small lagoon (45' x 50' x 8'deep), and then recycled after sufficient cooling. A smaller pond (12' x 18' x 2' deep) receives floor washdown and sump water. Both lagoons are dug into the natural soils and are unlined.

Calspan was retained by Allied to direct installment of monitoring wells in the vicinity of the lagoons for the purpose of evaluating impact of the lagoons on groundwater quality. To this end four monitoring wells were installed, sampled and analyzed over the period extending from February 1979 to September 1979. Results of the sampling and analyses are presented and discussed in this report.

REF-1

SECTION 2

TOPOGRAPHY, SOILS AND GEOLOGY

The Allied Chemical Elberta works is located within the Lake Ontario Lake plain. The topography on and in the vicinity of the plant is very flat. Because of flat topography and soils of somewhat low permeability, drainage of the site is somewhat poor to poor. During wet seasons of the year soils will be water saturated to within a few feet or less of the surface.

Surficial unconsolidated deposits are of glacial origin. The uppermost deposits are glacial lake laid silts and fine sands of somewhat low permeability. The depth of this mantle is highly variable ranging from less than one foot to 5 to 10 feet in depth. Water permeability is slow.

Beneath the lake-land deposits there are thick deposits of silt loam glacial till extending to Bedrock. The permeability of these deposits is quite low because of the compact nature of the glacial till. This till is naturally high in lime content resulting in neutral to slightly alkaline reaction of soil water, as will be noted in sampling well water quality data presented in Section 4. Soil boring logs taken at the time the monitoring wells were installed are enclosed as Appendix A to this report.

Bedrock underlying the glacial till is red highly impermeable Queenstown shale. This bedrock formation is about 1200 feet thick. The Queenstown shale occurs at approximately the 40 foot depth. Neither the glacial till or the Queenstown shale are considered good aquifers. The nearest mapped aquifer occurs in the vicinity of Ransomville 1 to 2 miles southwest of the plant location. At the present time municipal water systems rather than wells are used for water supply.

REF-1

SECTION 3

GROUND WATER MONITORING, WELL DESIGN AND INSTALLATION

On February 2, 1979 four monitoring wells were placed in the vicinity of the two small ponds on the Elberta Plant property. The locations of these wells is shown in Figure 1.

Design of the well installations is shown in Figure 2. Four inch PVC pipe with horizontal slots along the lower 5' was used for all wells. Pea gravel and sand was packed around the bottom and sides of each well as shown in Figure 2 so as to provide good conduction of water to the wells. All bore holes were backfilled with bentonite with cement collars to prevent surface water movement to the slotted portion of the PVC. (The purpose of the well was to collect ground water samples rather than surface water.)

Depths of well tip emplacement at the various locations were as follows:

TW-1	20'
TW-2	20'
TW-3	19'
TW-4	14'7"

Ground elevations and elevations of the tops of the well standpipes are given below:

TW-1	323.40	327.22
TW-2	323.40	327.62
TW-3	324.90	328.45
TW-4	326.20	329.72

REF-1

~~Z~~

1" = 200'

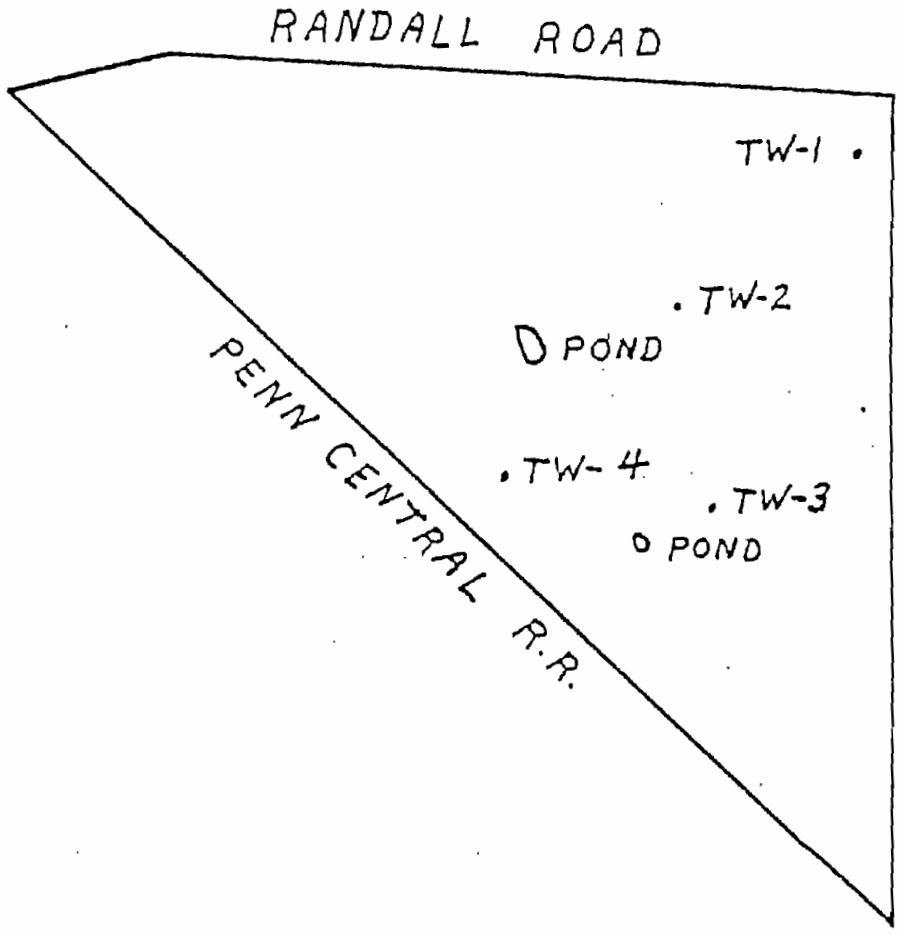


FIGURE 1

LOCATIONS OF MONITORING WELLS

REF-1

MONITORING
WELL
ALLIED CHEMICAL
ELBERTA, NEW YORK

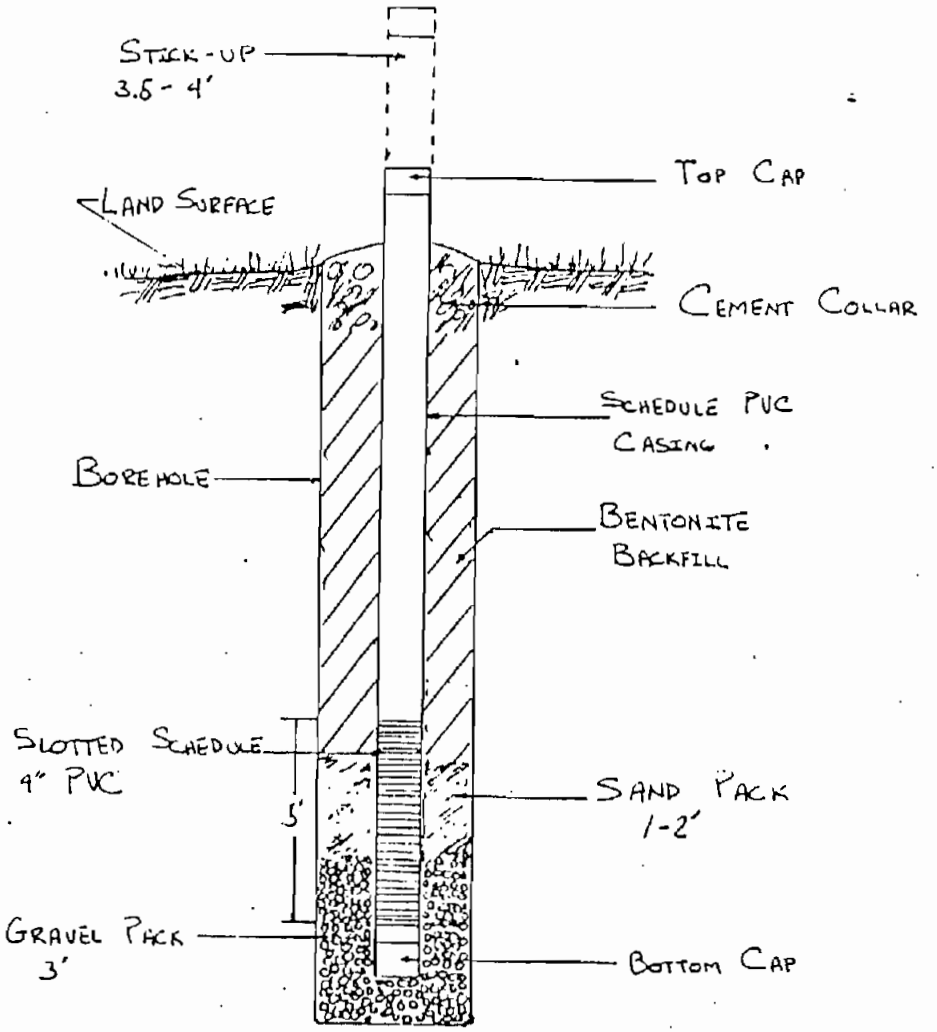


FIGURE 2

MONITORING WELL DESIGN

REF-1

SECTION 4
GROUND WATER HYDROLOGY AND QUALITY

Table 1 is a record of ground water elevations taken once a month over the six month study period. The average depth to the water table from the ground surface for each of the wells was as follows:

TW-1	6.0'
TW-2	4.6'
TW-3	3.6'
TW-4	2.3'

Depths to water tables fluctuated from as little as one foot to 6.5 ft. over the study period.

Figure 3 plots the average water table elevations for the monitoring wells. It is obvious from Figure 3 that direction of ground water flow is southeast to northwest. This is the direction of regional ground water flow in this vicinity of Niagara County.

Ground Water Quality

Tables 2 through 5 are records of monitoring well ground water quality for each month of the sampling period. Table 6 is a compilation of average data for all of the wells.

As discussed previously, the neutral to slightly alkaline reactions of the ground water reflects the natural high lime content of the glacial till and lake-laid deposits.

Figures 4 through 6 show average chloride, conductivity and iron levels in monitoring wells relative to pond locations. It is difficult to ascertain whether or not the elevated chloride concentrations are attributable to the pond water or natural sources. The highest chloride concentrations were observed in TW-4. This well is upstream of the ponds, but it is not impossible that chloride iron could have migrated from the pond against a hydraulic gradient by diffusions processes. It will be noted in comparing

REF-1

TABLE 1

GROUND WATER ELEVATIONS

Month	TW-1	TW-2	TW-3	TW-4
2/79	321.01	320.45	321.95	323.51
3/79	315.24	315.64	322.24	324.39
4/79	-	319.87	321.87	323.39
5/79	318.76	320.12	322.03	322.74
8/79	316.64	318.58	320.20	323.55
9/79	315.84	318.04	320.24	325.70
Average	317.50	318.78	321.42	323.88

REF-1

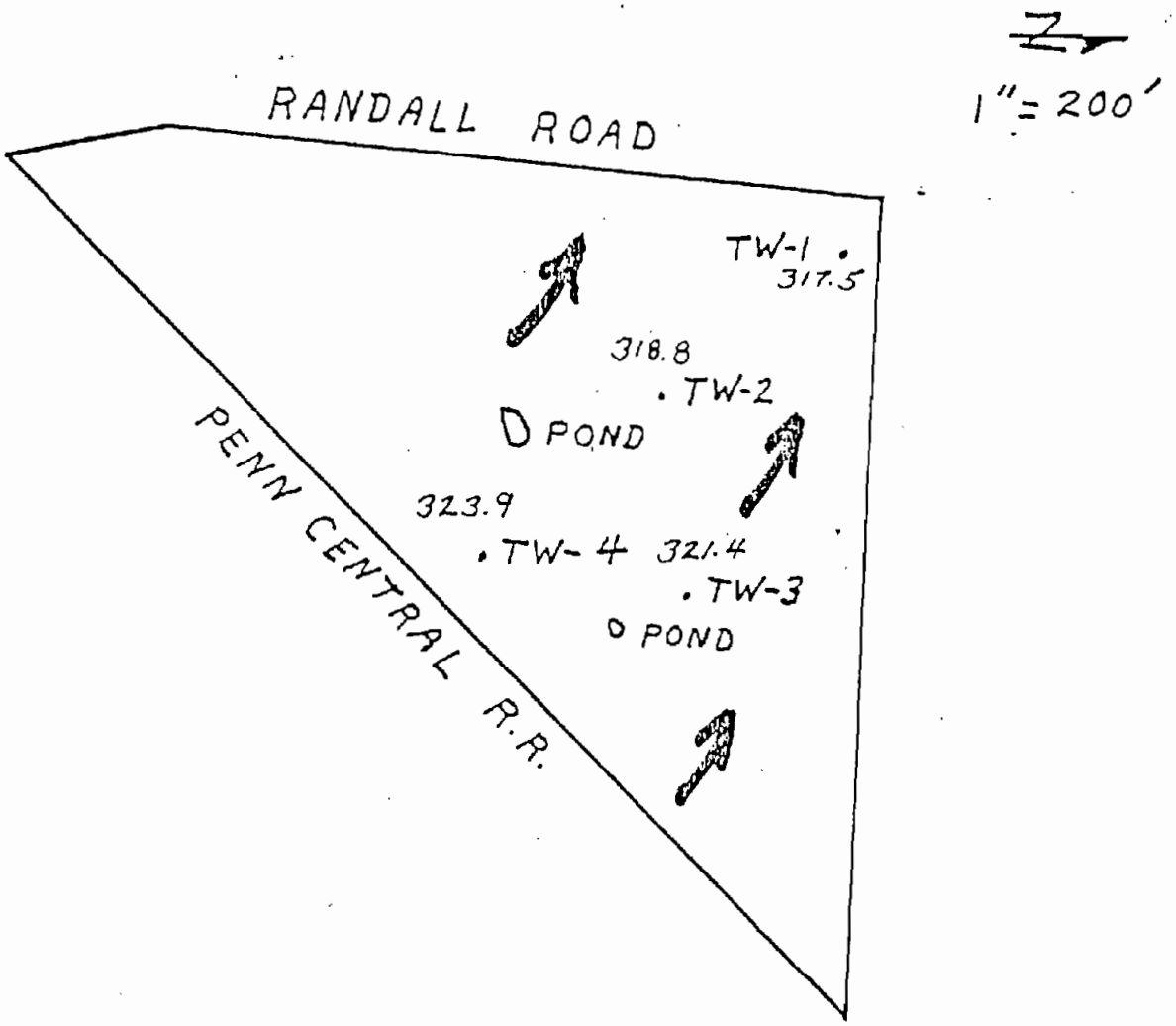


FIGURE 3

AVERAGE WATER TABLE ELEVATIONS
(FEB.-SEPT. 1979) AND DIRECTION OF GROUND WATER MOVEMENT

REF-1

TABLE 2

GROUND WATER QUALITY

TW-1

Date	pH	Conductivity mhos	TDS mg/l	Chloride mg/l	Aluminum mg/l	Iron mg/l
2/79	7.25	3800	1690	685	0.15	0.15
3/79	7.45	3600	2530	962	0.10	0.12
5/79	7.50	2800	2720	788	<0.10	0.20
6/79	7.60	3050	2730	750	<0.10	0.41
8/79	7.05	3000	2100	566	<0.10	0.64
9/79	7.40	2400	1770	535	<0.10	4.20

REF-1

TABLE 3

GROUND WATER QUALITY

TW-2

Date	pH	Conductivity mhos	TDS mg/l	Chloride mg/l	Aluminum mg/l	Iron mg/l
2/79	7.45	3000	1280	590	<0.10	0.05
3/79	7.45	3800	2030	927	0.10	0.14
4/79	7.90	1150	860	73	0.30	0.61
6/79	7.80	3700	2580	990	0.10	0.30
8/79	7.25	3850	2450	962	<0.10	2.40
9/79	7.45	3550	2550	967	0.10	2.30

REF-1

TABLE 4

GROUND WATER QUALITY

TW-3

Date	pH	Conductivity mhos	TDS mg/l	Chloride mg/l	Aluminum mg/l	Iron mg/l
2/79	8.10	800	496	33	0.20	0.07
3/79	7.90	1100	682	52	0.20	0.13
4/79	7.65	3100	2180	1000	<0.10	0.22
6/79	8.10	1500	1040	103	0.10	0.47
8/79	7.70	1700	984	73	<0.10	0.22
9/79	7.75	1400	942	77	<0.10	0.80

REF-1

TABLE 5

GROUND WATER QUALITY

TW-4

Date	pH	Conductivity mhos	TDS mg/l	Chloride mg/l	Aluminum mg/l	Iron mg/l
2/79	7.45	4900	2620	289	0.10	0.15
3/79	7.35	5000	4040	1660	0.10	0.19
4/79	6.95	4100	4690	1720	<0.10	0.90
6/79	7.45	5500	4510	1720	0.10	0.55
8/79	6.65	4400	4740	1380	<0.10	0.70
9/79	6.60	4150	4910	1480	0.10	1.30

REF-1

TABLE 6

AVERAGE GROUND WATER QUALITY

2/79 - 9/79

TW No.	pH	Conductivity mhos	TDS mg/l	Chloride mg/l	Aluminum mg/l	Iron mg/l
1	7.38	3108	2257	714	<0.10	0.95
2	7.55	3175	1958	752	<0.13	0.32
3	7.87	1600	1054	223	<0.13	0.32
4	7.08	4675	4252	1375	<0.10	0.63

REF-1

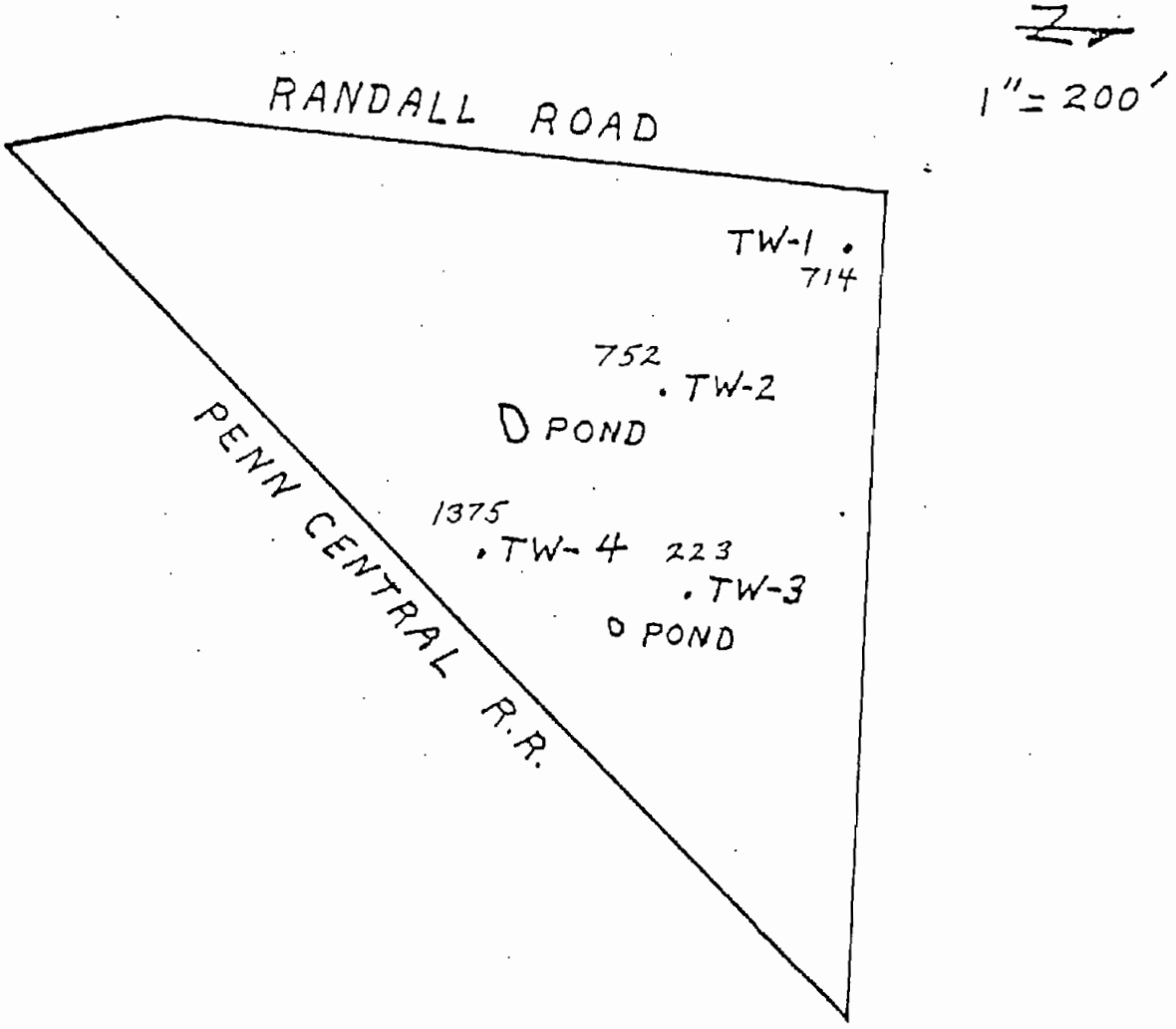


FIGURE 4

AVERAGE CHLORIDE CONCENTRATIONS (ppm)

(FEB. - -SEPT. 1979)

REF-1

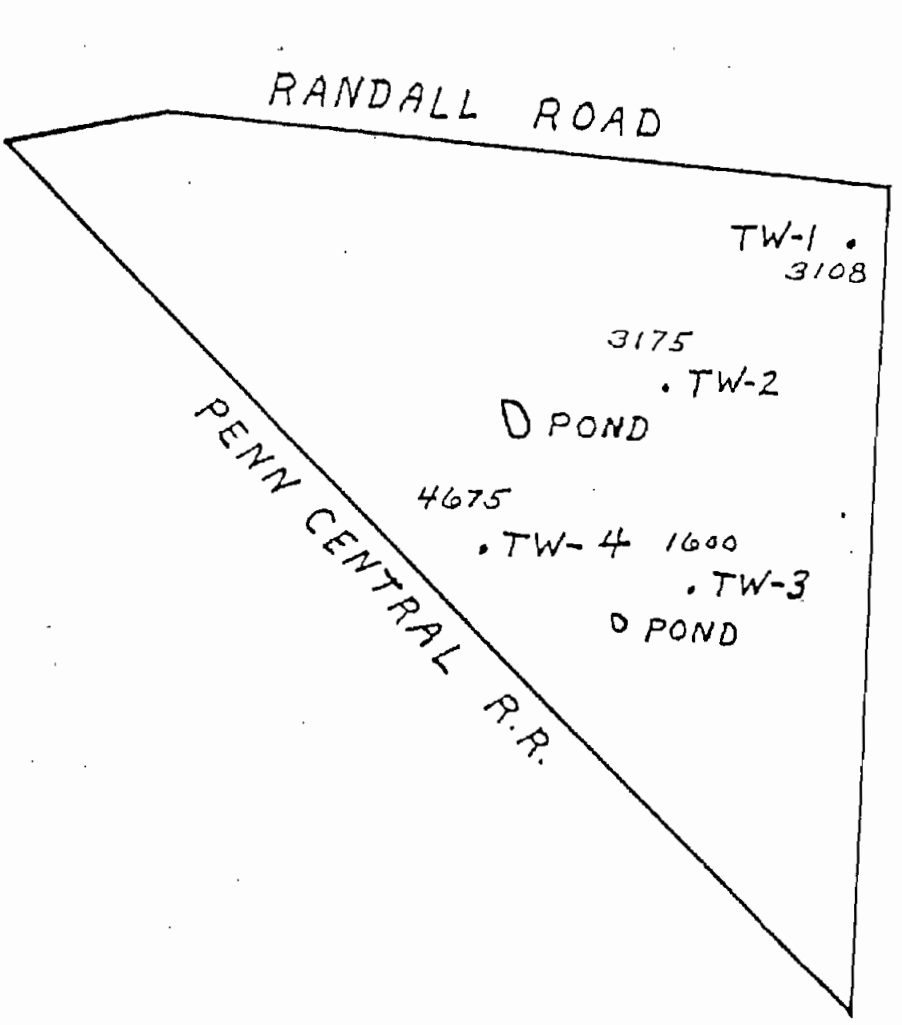


FIGURE 5

AVERAGE CONDUCTIVITIES (mhos)

(FEB. - SEPT. 1979)

REF-1

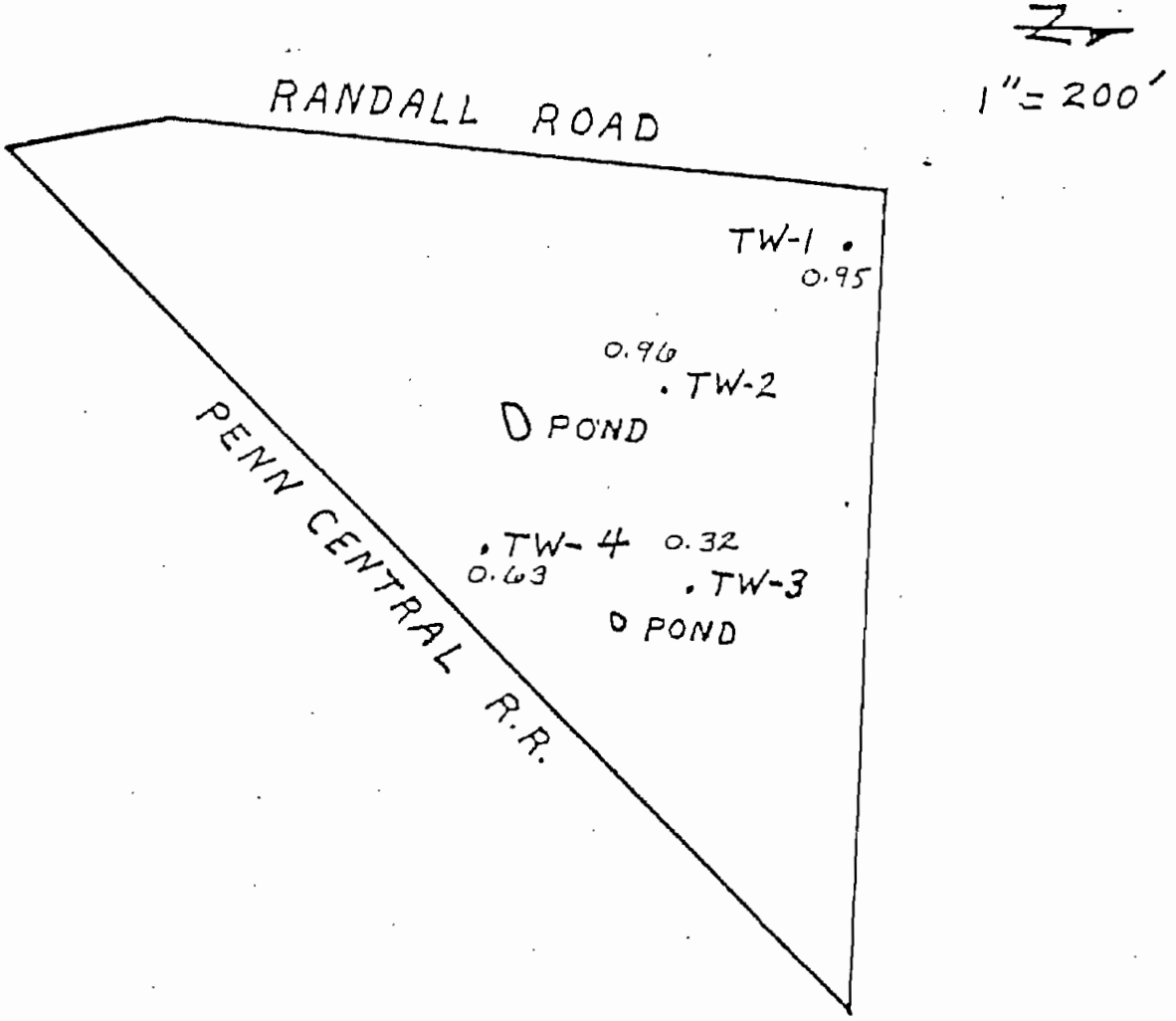


FIGURE 6

AVERAGE IRON CONCENTRATIONS (ppm)

(FEB. - SEPT. 1979)

Figures 4 and 5 that chloride concentrations and conductivities were related to each other (i.e., wells with higher chloride showed higher conductivities.

Available data on well water quality in the vicinity of the Elberta Plant was sought. The only data found was from a well located on Ransom Road 1.75 miles from the Elberta site.[1] This well is drilled into the underlying Queenstown shale (71' below ground surface). It was noted that water from this well is too salty to drink or contains more than 500 ppm chloride. The monitoring wells installed at the Elberta site were not installed in the bedrock. They were installed in a poor aquifer glacial till at about 20 ft. depth. A high chloride content of the glacial till is not normally expected, but possible influence of the high salt bedrock cannot be ruled out. An additional monitoring well further south (i.e., further upstream) would have been useful in ascertaining whether the ponds were sources of chlorides in the monitoring wells. To do this would require the placement of a well south of the Elberta property line.

Iron concentrations in downstream wells were lower than wells in the vicinity of the pond. It is doubtful if the ponds had any influence on iron concentrations measured in monitoring wells. Aluminum concentrations were uniformly low in all monitoring wells and usually below levels of sensitive measurement (i.e., <0.10 mg/l).

---

[1] "Groundwater in the Niagara Falls Area, New York", Richard H. Johnston U. S. Geological Survey, 1964. Well I.D. No. 314-854-1.

REF-1

APPENDIX A

SOIL BORING LOGS 2/2/79

ELBERTA ALLIED WORKS

TW-1

0-20'	silt loam, glacial till
	water at 5'
	well installed at 20'

TW-2

0-3'	silty clay loam, lake laid
3-10'	fine sandy loam, lake laid
10-13'	silty clay loam, lake laid
13-20'	silt loam, glacial till
20-28'	fine sandy loam, glacial till
	refusal at 28'
	water at 2'
	well installed at 20'

TW-3

0-8'	silt loam, lake laid
7-20'	silt loam, glacial till
	water at 16'
	well installed at 19'

TW-4

0-2.5'	sand and gravel fill
2.5-6.5'	silts and fine sands
6.5-8.5'	stone and gravel
9-14.5'	silt and fine sands, lake laid
	water at 3'
	well installed at 14.5'

ES AND D&M SITE INSPECTION

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

REF-3
FREEZE/Cherry, 1979

GROUNDWATER

R. Allan Freeze/John A. Cherry

REF-3
Freeze+Cherry, 1979.

Table 2.2 Range of Values of Hydraulic Conductivity and Permeability

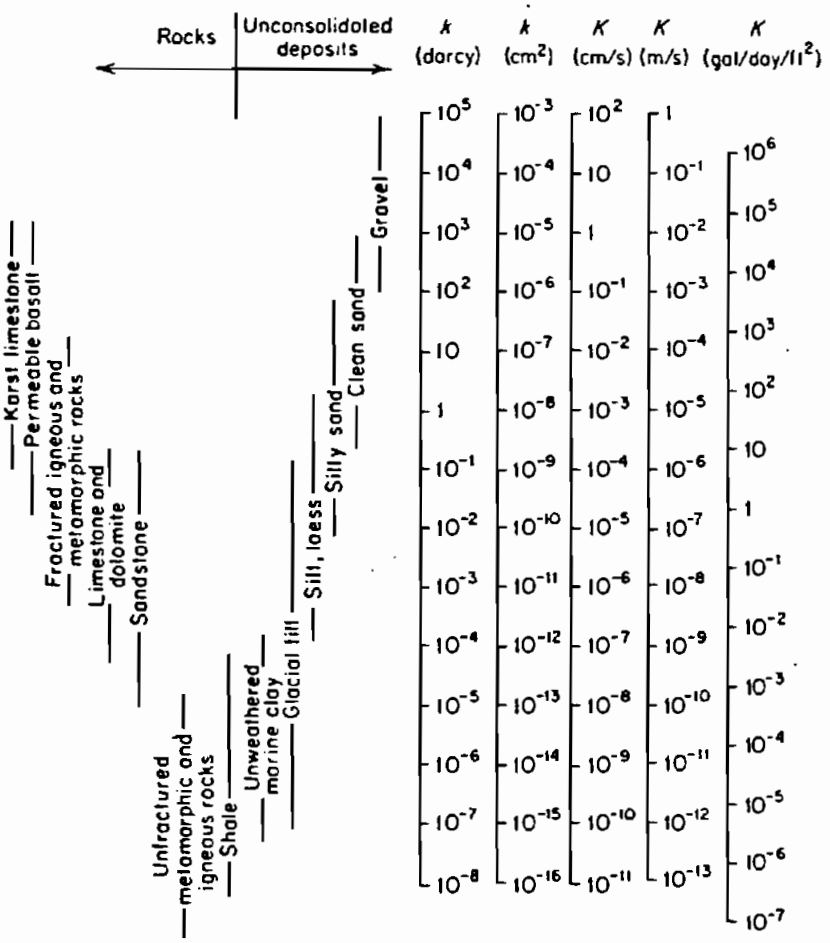


Table 2.3 Conversion Factors for Permeability and Hydraulic Conductivity Units

	Permeability, k*			Hydraulic conductivity, K		
	cm²	ft²	darcy	m/s	ft/s	U.S. gal/day/ft²
cm²	1	1.08×10^{-3}	1.01×10^{8}	9.80×10^{2}	3.22×10^{3}	1.85×10^{9}
ft²	9.29×10^{2}	1	9.42×10^{10}	9.11×10^{5}	2.99×10^{6}	1.71×10^{12}
darcy	9.87×10^{-9}	1.06×10^{-11}	1	9.66×10^{-6}	3.17×10^{-5}	1.82×10^{1}
m/s	1.02×10^{-3}	1.10×10^{-6}	1.04×10^{5}	1	3.28	2.12×10^{6}
ft/s	3.11×10^{-4}	3.35×10^{-7}	3.15×10^{4}	3.05×10^{-1}	1	6.46×10^{5}
U.S. gal/day/ft²	5.42×10^{-10}	5.83×10^{-13}	5.49×10^{-2}	4.72×10^{-7}	1.55×10^{-6}	1

*To obtain k in ft², multiply k in cm² by 1.08×10^{-3}.

REF-4

FROM HUDSON, 1985

Interviewee: Charley Hudson

Title/Position: NYSDOH Bureau of Toxic Substance Assessment

city/state Albany NY

Phone - (518) 473-8427

Location: NYSDOH office Interviewer: S. Powers

Date/Time 12/30/85 10:30 AM

Subject: Allied Chemical 932003

Remarks: Notes from NYSDOH site inspection report. *

Inspected by R. Tvers, B. Gilday 8/28/85

one or two employees use site

ponds will be removed when facility converted to storage area ponds currently have metal sludges

fence around entire site

Groundwater flow to NW

Aquifer in overburden layer 15' deep

GW drinking well 50 m = 164' N it is 30' deep (estimated)

have found Al in GW monitoring wells in overburden layer

well #	concentration of Al
3	0.22 ppm
2	0.27 ppm

prevailing wind from SSW

Surface Water - Twelve Mile (feed by groundwater)

700 m No known usage 164' ≈ ¼ mile

20 acres of agricultural land 50 m away

File also contains many memos & complete analytical data from monitoring wells.

I agree with the above summary:

Signature: [illegible]

Comments:

Ref 4

INTERVIEW FORM

INTERVIEWEE/CODE Charley Hudson /

TITLE - POSITION NYSDOH Bureau of Toxic Substance Assessment

ADDRESS Albany, NY

CITY _____ STATE _____ ZIP _____

PHONE (518) 473-8427 RESIDENCE PERIOD _____ TO _____

LOCATION NYSDOH office INTERVIEWER S. Powers

DATE/TIME 12/30/85 / 10:30 a.m.

SUBJECT: AlliedChemical 932003

REMARKS: Notes from NYSDOH Site Inspection Report*

Inspected by R.Tuers, B. Gilding 8/28/85

One or two employees use site.

ponds will be removed when facility converted to storage area; ponds currently have metal sludges.

fence around entire site

Groundwater flow to NW Aquifer in overburden layer 15 ft deep ~~GW drinking well 50 —~~ 164 ft N it is 30 ft deep (estimated)

Have found AL in GW monitoring wells in ~~overburden layer~~

Well#3 0.22 ppm concentration

Well#2 0.27 ppm "

prevailing wind from SSW; Surface water - Twleve Mile Creek (feed by ~~ground water~~)

700 m No known usage

20 acres of agricultural land 50 m = 164 ft ~~away. File also contains many memos~~ and complete analytical data from monitoring wells.

I AGREE WITH THE ABOVE SUMMARY OF THE INTERVIEW:

*This report is not in final form so DOH did not want copies

SIGNATURE: /s/ CH

COMMENTS:

REF-5

LANZO, 1985

DAL specialties, inc.

3119 Randall Road
Ransomville, New York 14131
Telephone 716-751-9071

May 21, 1985

Mr. Peter Buechi
Assoc. Sanitary Engineer
NYSDEC
600 Delaware Ave.
Buffalo, NY 14202

Dear Mr. Buechi:

Your letter of 4-3-85 notifying us of the inclusion of the Elberta Works plant in the registry of inactive hazardous waste disposal sites in New York State has been noted to include a number of mistakes. As you requested during our phone conversation of May 20, 1985, the errors in the computer printout are detailed below.

1. CURRENT OWNER: The current owner of the site is DAL Specialties Inc., not Allied Chemical Corp.

2. SITE TYPE: The area where the hazardous waste was previously disposed is not currently an open dump. The area is now covered by a warehouse which has a concrete floor and by a black topped parking lot.

3. PERIOD ASSOCIATED WITH HAZARDOUS WASTE: Although the exact dates of the use of the area for the disposal of hazardous waste are not known, it is known that its use started in the early 1950's and ended by early 1977.

4. SITE DESCRIPTION: The four (4) on-site monitoring wells are in good condition. Samples are taken regularly and the results are reported to the Niagara County Health Department and to the NYSDEC.

This facility is in the process of being sold. All chemical operations are being shut down. Please contact me before June 15, 1985 if any additional information is required to correct the errors detailed above.

Yours truly,

James Lanzo

cc: C. Dickens
C. Nixon
G. Kanelis
J. Tygert-NYSDEC

REF-6
LaSala, 1968

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

GEOLOGY AND TOPOGRAPHY

The Erie-Niagara basin is underlain by layers of sedimentary bedrock which are largely covered with unconsolidated deposits. Descriptions of the various bedrock units are given in figure 2. The bedrock consists mainly of shale, limestone, and dolomite; the Camillus Shale contains a large amount of interbedded gypsum. All the bedrock units were built up by fine-grained sediments deposited in ancient seas during the Silurian and Devonian Periods and, therefore, are bedded or layered. The dip of the rocks (inclination of the bedding planes) is gently southward at from 20 to 60 feet per mile, but the average dip is between 30 and 40 feet per mile. The dip is so gentle that it is hardly perceptible in outcrops.

The unconsolidated deposits are mostly glacial deposits formed during Pleistocene time about 10,000-15,000 years ago when an ice sheet covered the area. The glacial deposits consist of: (1) till, which is a nonsorted mixture of clay, silt, sand, and stones deposited directly from the ice sheet; (2) lake deposits, which are bedded clay, silt, and sand that settled out in lakes fed by the melting ice; and (3) sand and gravel deposits, which were laid down in glacial streams. The glacial sand and gravel deposits are of both the ice-contact and outwash types, as will be explained later in the report. The glacial deposits generally are less than 50 feet thick in the northern part of the basin. They are considerably thicker in some valleys in the southern part and reach a maximum known thickness of 600 feet near Chaffee. Other unconsolidated deposits are alluvium formed by streams in Recent times and swamp deposits formed by accumulation of decayed plant matter in poorly drained areas.

Relief of the present land surface is due to preglacial erosion of the bedrock and subsequent topographic modification by glaciation. In contrast to the southward dip of the rocks, the land surface rises to the south largely because preglacial erosion was more vigorous in the northern part of the basin. The shale in the southern part of the basin is somewhat more resistant to erosion than the rocks in the northern part of the basin but not significantly so. Figure 3 shows the relationship of the topography and rock structure and delineates the two topographic provinces of the basin: the Erie-Ontario Lowlands and the Appalachian Uplands. The rocks crop out in belts which trend generally east-west. The bedrock geologic map, plate 2, shows that the outcrop belts bend around to the southwest near Lake Erie. They assume this direction mainly because relatively intense erosion in the Erie-Ontario Lowland near Lake Erie has exposed the rock at lower elevations than farther east. The Lockport Dolomite and the Onondaga Limestone, because they are relatively resistant to erosion, form low ridges in the northern part of the basin. Tonawanda, Murder, and Ellicott Creeks descend the escarpment of the Onondaga at falls and cataracts.

In the hilly southern half of the basin (the Appalachian Uplands), preglacial valleys, deepened by glacial erosion, are cut into the shale. The valleys are partly filled with glacial deposits so that some of the present streams flow 200 to 600 feet above the bedrock floors of the valleys as shown in figure 3.

REF-7
Lewandowski, 1982

Allied Chemical

Delaware Valley Works
Marcus Hook, Pennsylvania 19061
(302) 798-0621

August 17, 1982

Mr. Paul Foersch
New York State Department of Conservation
600 Delaware Avenue
Buffalo, New York 14202

Re: Allied Chemical Company
Elberta Works

Dear Mr. Foersch:

In our telephone conversation of August 10, 1982 regarding Allied's Elberta Works cooling water ponds you suggested a written proposal be submitted for review.

The Plant's existing cooling water ponds were installed around 1945 by the Elberta Chemical Company (Allied acquired the plant in April 1956) and have lost their original capacity through the years. The Works utilizes the two unlined ponds for cooling purposes. One pond receives and recycles cooling water and the other receives water from the process area, there is a common pipeline between the two ponds.

Allied proposes to dig two new ponds adjacent to the existing ones, see Attachment 1. The ponds would be approximately 40 feet in diameter and 12 feet deep and be constructed of existing earth. A groundwater study prepared for Allied in 1979 by Calspan Advanced Technology Center indicated the soils were of low permeability. This study was sent to Mr. Robert G. Speed of the NYSDEC on December 19, 1979. The report also went on to say the groundwater quality is slightly alkaline due to the natural high lime content of the glacial till and lake-laid deposits. Also high levels of chlorides can be found in this groundwater due to the bed rock formation. Results of groundwater monitoring since 1979 do not give any indication of contamination from the existing ponds. The low permeability of the soils and natural alkalinity of the groundwater should negate the need for lining the proposed pond.

The water from the existing ponds would be pumped into the new ones, Attachment 2 is an analyses of the water. There will be no discharge to surface waters.

The existing ponds will be filled with the soil from the proposed ponds, Attachment 3 is an analyses of the muds from these ponds.

The results are well within the RCRA EP toxicity limits, i.e. non-hazardous.

Based on this proposal, I believe no permits or approvals by your agency are required. Please advise if you agree with this determination.

If you have any questions or need further information please call me at (215) 485-1857.

Very truly yours,

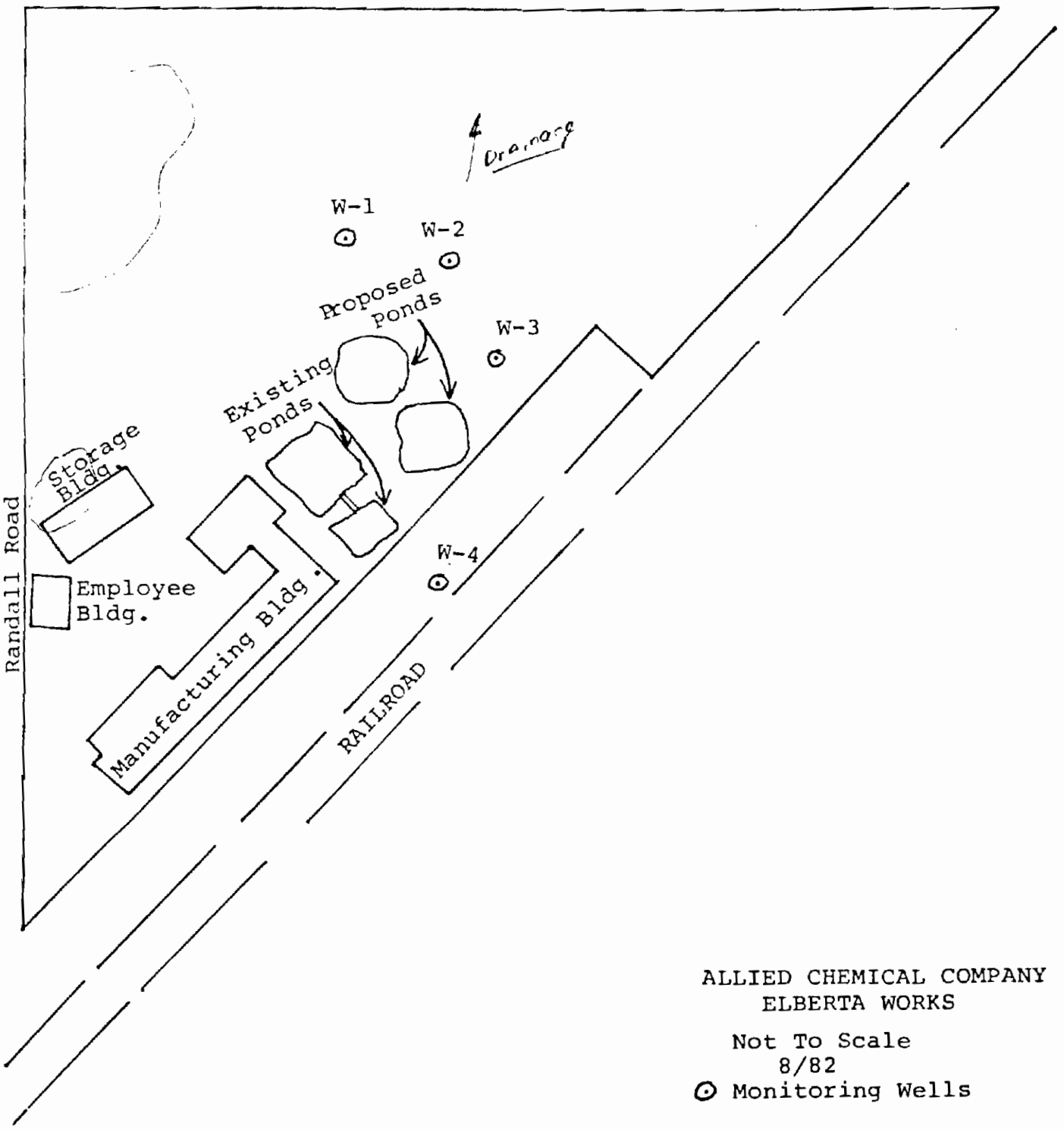
J. P. Lewandowski
Environmental Supervisor
Pollution Control

JPL/ld
Attach.

cc: Mr. Tom Chrispoffel

REF-7

ATTACHMENT 1



ALLIED CHEMICAL COMPANY
ELBERTA WORKS

Not To Scale
8/82
⊙ Monitoring Wells

REF-7

ATTACHMENT 2

Allied Chemical Company
Elberta Works
July 13, 1982

11A

Parameter	North Pond Water (mg/l)	South Pond Water (mg/l)
Arsenic	<0.002	<0.002
Barium	<0.1	<0.01
Cadmium	<0.005	<0.005
Chromium	0.02	0.02
Lead	<0.02	<0.02
Mercury	<0.001	<0.001
Selenium	<0.003	<0.003
Silver	<0.01	<0.01
pH (initial)	10.9	11.1

REF-7

ATTACHMENT 3

Allied Chemical Company
Elberta Works
July 13, 1982

NH

Parameter	Cold Sludge* (mg/l)	Hot Sludge* (mg/l)
Arsenic	<0.002	<0.002
Barium	<0.1	<0.1
Cadmium	<0.005	<0.005
Chromium	0.01	0.02
Lead	<0.02	<0.02
Mercury	<0.001	<0.001
Selenium	<0.003	<0.003
Silver	<0.01	<0.01
pH (initial)	8.9	9.1

* EP Toxicity Leachate

REF-3

McMurry, 1986

INTERVIEW FORM

INTERVIEWEE/CODE Mike McMurry /

TITLE - POSITION Environmental Analyst

ADDRESS 600 Delaware Avenue

CITY Buffalo STATE NY ZIP 14202

PHONE (716) 847-4551 RESIDENCE PERIOD TO

LOCATION DEC Regulatory Affairs-Buffal INTERVIEWER Eric NYE-DIM

DATE/TIME 1/3/86 /

SUBJECT: Wetlands and Flood Info. -Region 9

REMARKS: Met with Mike who gave me access to both wetland and floodway maps for the local region

Also left site locations for the identification of wildlife critical habitat and National Wildlife Refuges.

There are no wetlands within 2 miles of the site

I agree with the above interview summary:

Signature/Title:

Comments:

REF-8

INTERVIEW FORM

INTERVIEWEE/CODE ~~MC Murry~~ Mc Murry MIKE ~~MACMURRY~~ /

TITLE - POSITION ENVIRONMENTAL ANALYST

ADDRESS 600 Delaware Ave

CITY Buffalo STATE N.Y. ZIP 14202

PHONE (716) ~~649-8775~~ 847-4551 . RESIDENCE PERIOD _____ TO _____

LOCATION DEC REGULATORY AFFAIRS, BUFFALO INTERVIEWER ERIC NYE - DEM

DATE/TIME 1/3/96 /

SUBJECT: WETLANDS & FLOOD INFO - REGION 9

REMARKS: MET WITH MIKE WHO GAVE ME ACCESS TO BOTH WETLAND AND FLOODWAY MAPS FOR THE LOCAL REGION

~~X~~ ALSO LEFT SITE LOCATIONS FOR THE IDENTIFICATION OF WILDLIFE CRITICAL HABITAT & NATIONAL WILDLIFE REFUGES

I agree with the above interview summary:

Signature/Title: Michael J. McMurry, Environmental Analyst

Comments:

REF. 9

NYS WETLANDS MAPS

NYS Wetlands Maps were reviewed during the Phase I investigation. Individual maps for each site were not obtained and are, therefore, not included in the Phase I reports. Site specific information collected concerning the location of a wetland within 1 mile of a given site is recorded in the documentation section of each report.

REF-10

NYSDEC, 1985

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: 932003

NAME OF SITE : Allied Chemical - Elberta Works
STREET ADDRESS: Randall Road, West of Railroad Tracks - North of Braley Rd.
TOWN/CITY: COUNTY: ZIP:
Wilson Niagara

SITE TYPE: Open Dump-X Structure- Lagoon- Landfill- Treatment Pond-
ESTIMATED SIZE: -1 (Acres

SITE OWNER/OPERATOR INFORMATION:
CURRENT OWNER NAME....: Allied Chemical Corporation
CURRENT OWNER ADDRESS.: Randall Road, Wilson, NY
OWNER(S) DURING USE...: Allied Chemical Corporation 14131
OPERATOR DURING USE...: Same
OPERATOR ADDRESS.....: Same as Above
PERIOD ASSOCIATED WITH HAZARDOUS WASTE: From Unkno n To Unknown

SITE DESCRIPTION:
This site was a burial area for refractory materials and aluminum chloride. Any hydrochloric acid formed would likely have been leached away. The four on site monitoring wells are either buried or in poor repair.

HAZARDOUS WASTE DISPOSED: Confirmed-X Suspected -

TYPE	QUANTITY (units)
Refractory Material with Graphite	12 Ton/Yr
Aluminum Chloride	Trace

SITE CODE: 932003

ANALYTICAL DATA AVAILABLE:

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

CONTRAVENTION OF STANDARDS:

Groundwater- Drinking Water- Surface Water- Air-

LEGAL ACTION:

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

REMEDIAL ACTION:

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

GEOTECHNICAL INFORMATION:
SOIL TYPE: Clay
GROUNDWATER DEPTH: About 1'

ASSESSMENT OF ENVIRONMENTAL PROBLEMS:

No significant environmental problems identified.

ASSESSMENT OF HEALTH PROBLEMS:

Insufficient information.

PERSON(S) COMPLETING THIS FORM:

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION	NEW YORK STATE DEPARTMENT OF HEALTH
NAME.: Robert Senior	NAME.: R. Tramontano
TITLE: Senior Sanitary Engr.	TITLE: Bur. Tox. Subst. Assess.
NAME.: Peter Buechi	NAME.:
TITLE: Associate Sanitary Engr.	TITLE:
DATE.: 01/24/85	DATE.: 01/24/85

New York State Atlas of Community Water System Sources 1982

NEW YORK STATE DEPARTMENT OF HEALTH

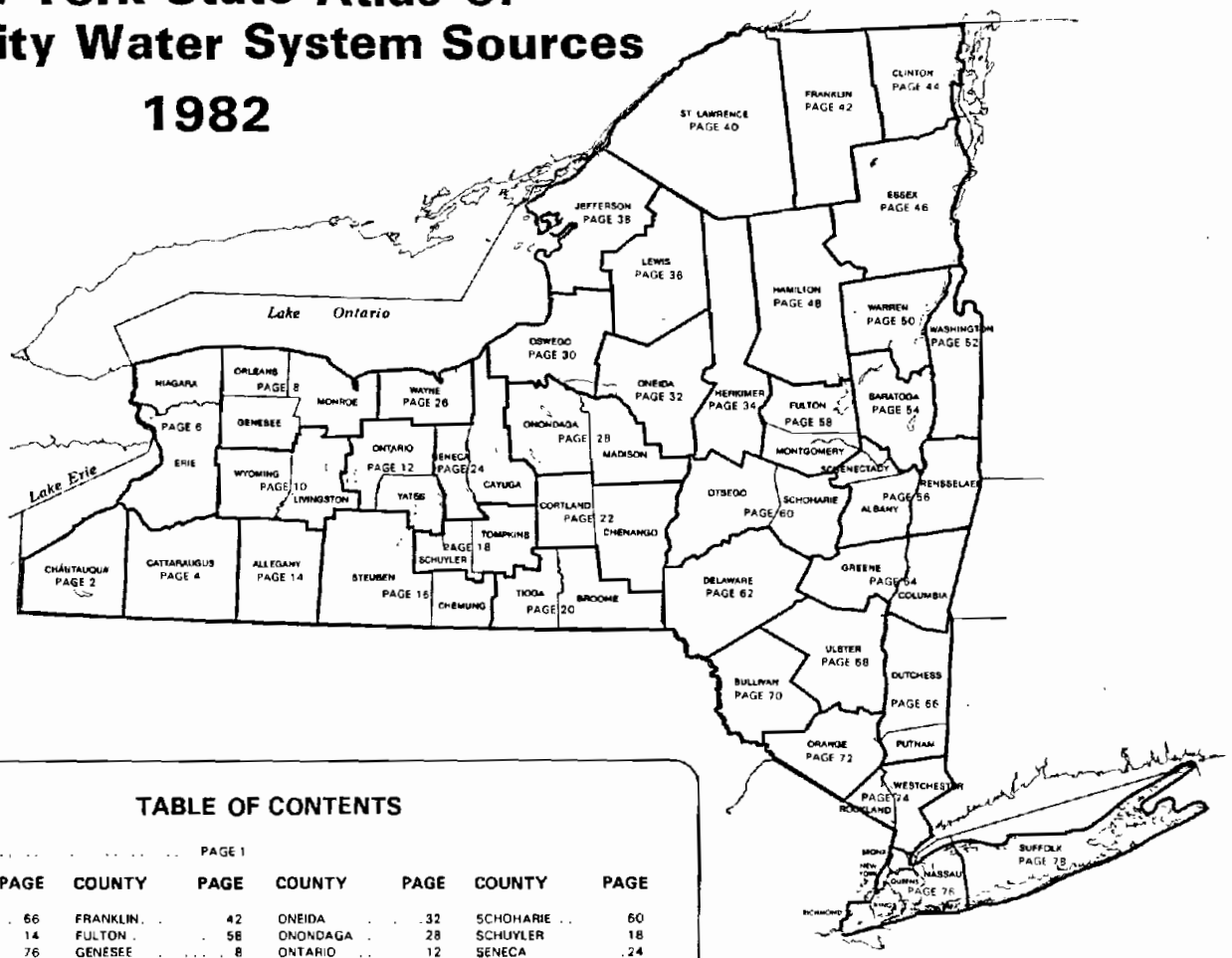


TABLE OF CONTENTS

LEGEND

BOUNDARIES AND PLACES

International
State
County
Town
Indian Reservation
City
Village
Unincorporated Place
Federal Reservation

Built-up Area (Over 25,000 population including any contiguous city or village)

CLASSIFICATION OF POPULATED PLACES

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

TRANSPORTATION

Highways
- Divided Highways (UNDER CONSTRUCTION)
  - Full Control of Access
  - Partial or No Control of Access
- Undivided Highway
- Interchange (25 INTERCHANGE NUMBER; TOLL; PARTIAL)
- Touring Route (State U.S. Interstate) or State Parkway
- Touring Route Markers: State, U.S., Interstate

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

Airports (Open to the Public, Military)
- Runway under 4000'
- Runway over 4000'

Rest Areas
- Food, Gas, Rest Rooms
- Gas, Rest Rooms
- Rest Rooms
- Parking Only

RECREATION FACILITIES

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

ERIE COUNTY

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

NIAGARA COUNTY

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

REF-11

REF-11

LOCATION OF COMMUNITY WATER SYSTEM SOURCES-1982

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

ERIE and NIAGARA COUNTIES

REF-12

OZARO, 1986

INTERVIEW FORM

INTERVIEWEE/CODE John Ozard /

TITLE - POSITION Senior Wildlife Biologist, Significant Habitat Unit

ADDRESS NYSDEC Wildlife Resources Center, Building 8

CITY Delmar STATE NY ZIP 12054

PHONE (518) 439-7486 RESIDENCE PERIOD ____ TO ____

LOCATION phone conversation INTERVIEWER Lisa A. Ryan

DATE/TIME Jan. 17, 1986 / 3:00 p.m.

SUBJECT: Sensitive environments in NY

REMARKS: There are no federally designated critical habitats of endangered species located within New York State

There are 16 map sets (1:250000) which show icologically significant areas within the state and copies will be sent to us for future use.

I AGREE WITH THE ABOVE SUMMARY OF THE INTERVIEW:

SIGNATURE: /s/ John W. Ozard

COMMENTS: The 1:250000 scale maps show state potent, significant wildlife habitats.

REF 12

INTERVIEW FORM

INTERVIEWEE/CODE John Oglesd /
TITLE - POSITION Senior Wildlife Biologist, Significant Habitat Unit
ADDRESS NYSDEC Wildlife Resources Center, Building 8
CITY Delmar STATE N.Y. ZIP 12054
PHONE (518) 439-7486 RESIDENCE PERIOD ____ TO ____
LOCATION phone conversation INTERVIEWER Lisa A. Ryan
DATE/TIME Jan 17, 1986 @ 3:00
SUBJECT: Sensitive Environments in N.Y.

REMARKS:

- There are no federally designated critical habitats of endangered species located within New York State.

- There are 16 map sets (1:250000) which show ecologically significant areas within the state and copies will be sent to us for future use.

I AGREE WITH THE ABOVE SUMMARY OF THE INTERVIEW:

SIGNATURE:

COMMENTS:

Dangerous Properties of Industrial Materials

Sixth Edition

N. IRVING SAX

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

VNR VAN NOSTRAND REINHOLD COMPANY
New York

SYN: ETHYL ESTER OF N-ACETYL-DL-SARCOSYLYL-DL-VALINE

TOXICITY DATA:	3	CODEN:
orl-rat LD50:59 mg/kg		FATOAO 33,472,70
ipr-rat LD50:187 mg/kg		PCJOAU 12,25,78
ims-rat LD50:17 mg/kg		FATOAO 33,472,70
rec-rat LD50:40 mg/kg		FATOAO 33,472,70

THR: HIGH orl, ipr, ims, rec. See also esters.

ASBESTOS

CAS RN: 1332214 NIOSH #: CI 6475000

Generic name for naturally occurring mineral silicate fibres of the Serpentine and Amphibole series (IARC** 14,11,77).

SYNS:

ACTINOLITE	ASBESTOS FIBER
AMIANTHUS	ASCARITE
AMOSITE	CHRYSOTILE
AMPHIBOLE	CROCIDOLITE
ANTHOPHYLLITE	TREMOLITE
ASBESTOSE (GERMAN)	

TOXICITY DATA:	3	CODEN:
ihl-hmn TDLo:2.8 fibers/cc/5y		ENVRAL 23,292,80
ipl-rat TDLo:100 mg/kg:ETA		BJCAAI 41,918,80
itr-rat TDLo:13 mg/kg:ETA		ENVRAL 21,63,80
ihl-hmn TCLo:1.2 fibers/cc/19Y-C:PUL		ARDSBL 104,576,71

Carcinogenic Determination: Human Positive IARC** 14,1,77.

TLV: Air: 0.2 fb/cc DTLVS* 4,27,80. *Toxicology Review:* JPMSAE 64,1435,75; PEDIAU 57(4),462,76; JOCMA7 15(10),808,73; CANCAR 39,1792,77; 85CVA2 5,55,70; 31BYAP -,92,74; ZHPMAT 166, 113,78; NOSYBW 40,311,77; PEXTAR 12,102,69; NTIS** CONF-691001. OSHA Standard: Air: TWA 2 fb/cc; CL 10 fb/cc FEREAC 40,27073,75. Occupational Exposure to Asbestos recm std: Air: TWA 100000 fb/m3;CL 500000 fb/m3/15M NTIS**. "NIOSH Manual of Analytical Methods" VOL 1 239,245, VOL 5 309#. NIOSH Current Intelligence Bulletin 5, 1975. Reported in EPA TSCA Inventory, 1980.

THR: A CARC in hmn. An exper ETA. A hmn PUL. The essential lesion produced by asbestos dust is a diffuse fibrosis which probably begins as a "collar" about the terminal bronchioles. Usually, at least 4 to 7 years of exposure are required before a serious degree of fibrosis results. There is apparently less predisposition to tuberculosis than is the case with silicosis. Prolonged inhal can cause cancer of the lung, pleura and peritoneum, and has exper produced cancers of the peritoneum, intestine, bronchus and oropharynx. Clinically, the most striking sign is shortness of breath of gradually increasing intensity, often associated with a dry cough. In the early stages physical signs are absent or slight; in the later stages rales may be heard, and in long standing cases there is frequently clubbing of the fingers. In early stages of the disease the chest x-rays reveal a groundglass or granular change, chiefly in the lower lung fields; as the condition progresses the heart outline becomes "shaggy," and irregular patches of mottled shadowing may be seen. "Asbestos bodies" may be found in the sputum. At autopsy, the pleurae are thickened and adherent and thick subpleural fibrous plaques are often present. Where the disease is far advanced there are usually large areas of fibrosis, with emphysematous changes in the apices and bases. The alveolar walls are thickened, and the characteristic "asbestos bodies" are found. A common air contaminant. For further information see Vol. 1, No. 1 of *DPIM Report.*

ASCARIDOLE

CAS RN: 512856 NIOSH #: OT 0175000
mf: $C_{10}H_{16}O_2$; mw: 168.26

Colorless unstable liquid. mp: 3.3°, bp: 40° @ 2 mm; 115° @ 15 mm, d: 1.011 @ 13°/15°.

SYNS:

ASCARISIN	1,4-PEROXIDO-P-MENTHENE-2

TOXICITY DATA:	3	CODEN:
orl-dog LDLo:250 mg/kg		JPETAB 24,359,25
skn-mus TDLo:25 gm/kg/42W-I:NEO		JNCIAM 35,707,65
skn-mus TD:38 gm/kg/63W-I:ETA		14JTAF -,275,64
orl-rat LDLo:250 mg/kg		NCNSA6 5,24,53

THR: An exper NEO, ETA. HIGH orl. See oil of chenopodium and peroxides, organic.

Fire Hazard: Mod, by spont chemical reaction. An oxidizer.

Explosion Hazard: Explodes when heated above 130° or when exposed to organic acids.

Disaster Hazard: Dangerous; when heated it emits tox fumes and may explode; reacts with reducing materials.

ASCOFURANONE

CAS RN: 38462043 NIOSH #: CU 5181000

SYN: BENZALDEHYDE, 3-CHLORO-4,6-DIHYDROXY-2-METHYL-5-(3-METHYL-7-(TETRAHYDRO-5,5-DIMETHYL-4-OXO-2-FURANYL)-2,6-OCTADIENYL)-, (S-(E,E))-

TOXICITY DATA:	2	CODEN:
ipr-rat LD50:1350 mg/kg		JANTAJ 26,681,73
ipr-mus LD50:2220 mg/kg		JANTAJ 26,681,73

THR: MOD ipr. See also aldehydes.

Disaster Hazard: When heated to decomp it emits tox fumes of Cl^-.

L-ASCORBIC ACID

CAS RN: 50817 NIOSH #: CI 7650000
mf: $C_6H_8O_6$; mw: 176.14

White crystals, sol in water, slightly sol in alcohol, insol in ether, chloroform, benzene, petroleum ether; oils and fats. mp: 192°.

SYNS:

ASCORBIC ACID	CEVITAMIN
L(+)-ASCORBIC ACID	3-KETO-L-GULOFURANOLACTONE
ASCORBUTINA	
CEVITAMIC ACID	

INTERVIEW FORM

INTERVIEWEE/CODE Mark Smith /

TITLE - POSITION Town of Wilson Water Dept.

ADDRESS 3360 Wilson - Cambria Rd.

CITY Town of Wilson STATE NY ZIP 14172

PHONE (716) 751-6213 RESIDENCE PERIOD ____ TO ____

LOCATION phone interview INTERVIEWER Larry Keefe - Dames & Moore

DATE/TIME 5/9/86 / 2:00 p.m.

SUBJECT: Municipal water supply in the Town of Wilson

REMARKS: Municipal water is available along Randall Road - both north and south of Brailey Rd.

- from the corner of Brailey and Randall Rd east to Daniels Rd municipal water is not presently available.

- from the corner of Brailey and Randall starting 150 yards west of Randall for a distance of approx. 4700 feet along Brailey Rd. municipal waster is not available

- Municipal water is available along Daniels Rd.

- There are some residences not using municipal water where readily available - exact number is unknown

- The Allied Chemical Plant is on municipal water

- Town of Wilson Water District purchases its water from Niagara County Water District.

I AGREE WITH THE ABOVE SUMMARY OF THE INTERVIEW:

SIGNATURE:

COMMENTS:

REF-14

-mile, 1986

INTERVIEW FORM

INTERVIEWEE/CODE MARK SMITH /

TITLE - POSITION TOWN OF WILSON WATER DEPT

ADDRESS 33607 WILSON - CAMBRIA RD

CITY TOWN OF WILSON STATE NY ZIP 14172

PHONE (716) 751-6213 RESIDENCE PERIOD ____ TO ____

LOCATION PHONE INTERVIEW INTERVIEWER LARRY KEEFE - JAMES M MOORE

DATE/TIME 5/9/86 / 2:00 P

SUBJECT: MUNICIPAL WATER SUPPLY IN THE TOWN OF WILSON

REMARKS: - municipal water is available along Randall Rd - both north & south of Brailey RD

- From the corner of Brailey & Randall east to Daniels Rd municipal water is not presently available

- from the corner of Brailey & Randall ~~West~~ thirty 150 yards west of Randall for a distance of approx 4000 feet along Brailey Rd municipal water is not available.

- Municipal water is available along Daniels RD

- There are some residences not using municipal water where readily available - exact number is unknown

- The Allied Chemical Plant is on municipal water. The Town of Wilson Water District purchases its water from the Niagara County Water District

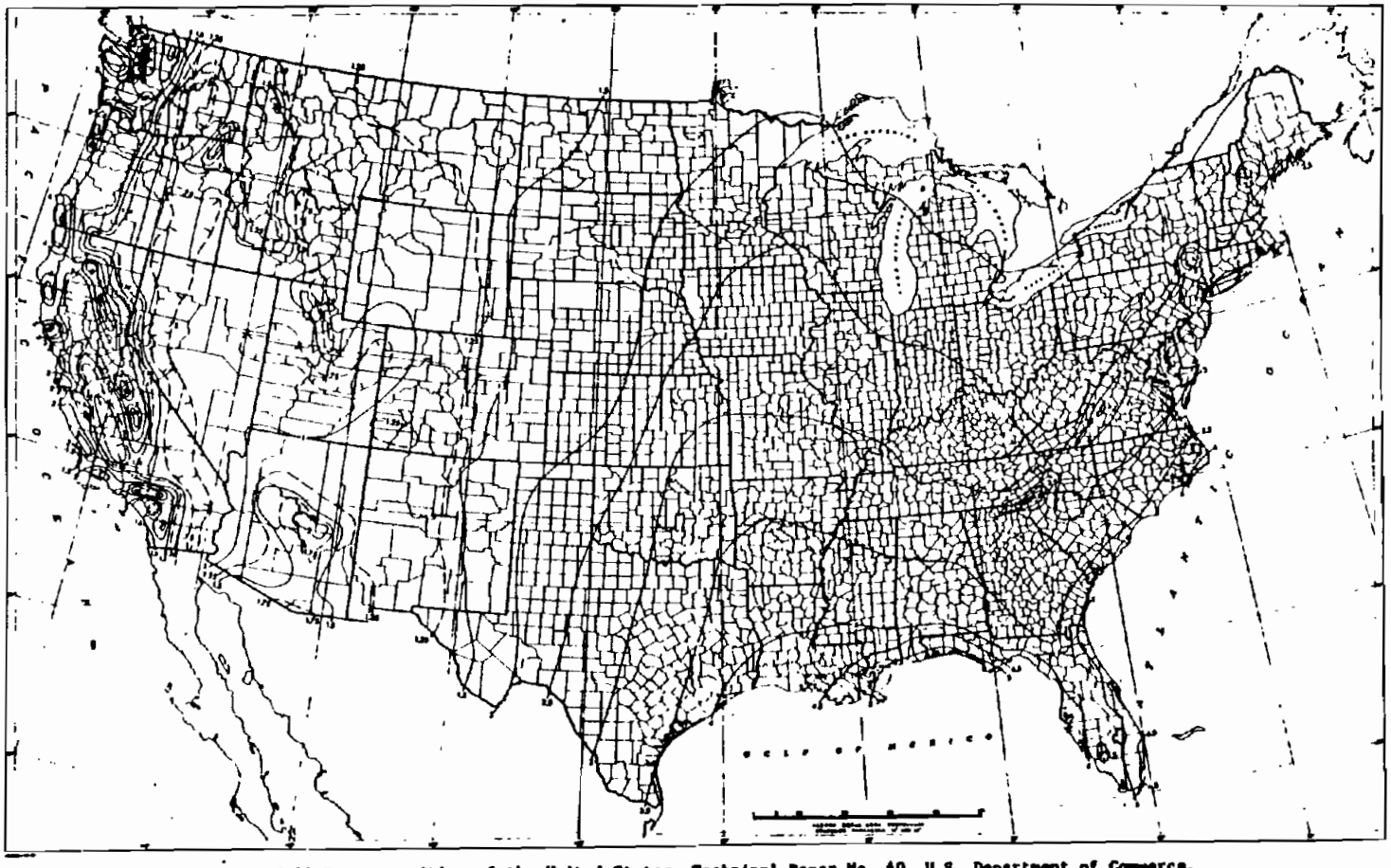
I agree with the above interview summary:

Signature/Title:

Comments:

US CENSUS DATA, 1980

US Census Data used in the HRS scoring was obtained from various County Planning Offices. This data was not obtained from a report. The raw census data combined with County Planning Maps was used to estimate the population within 1, 2, 3, and 4 miles of the Phase I site being investigated. Because of the voluminous amount of data used, the data is not provided in this Appendix.

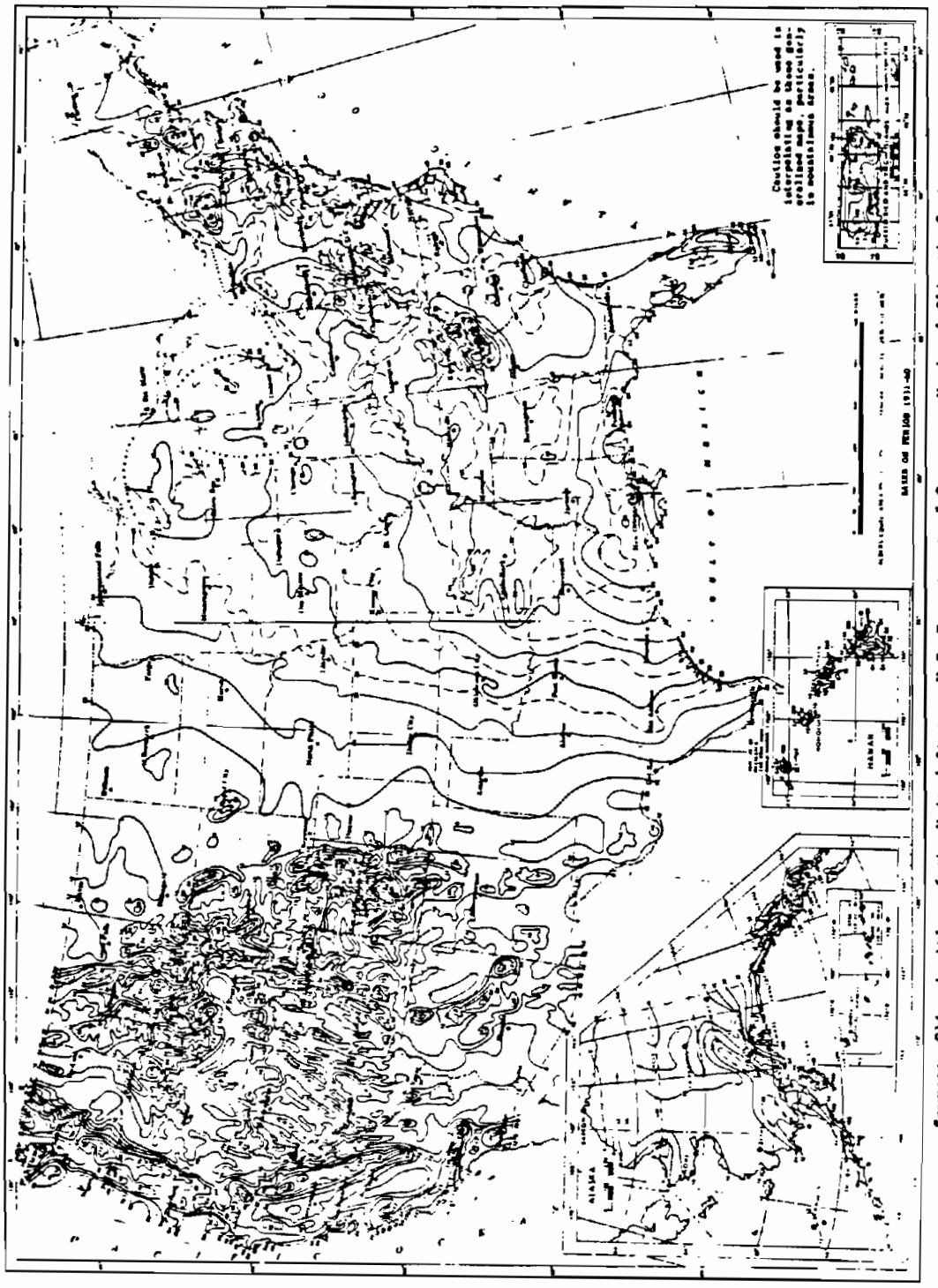


Source: Rainfall Frequency Atlas of the United States, Technical Paper No. 40, U.S. Department of Commerce, U.S. Government Printing Office, Washington, D.C., 1963.

FIGURE 8
1-YEAR 24-HOUR RAINFALL
(INCHES)

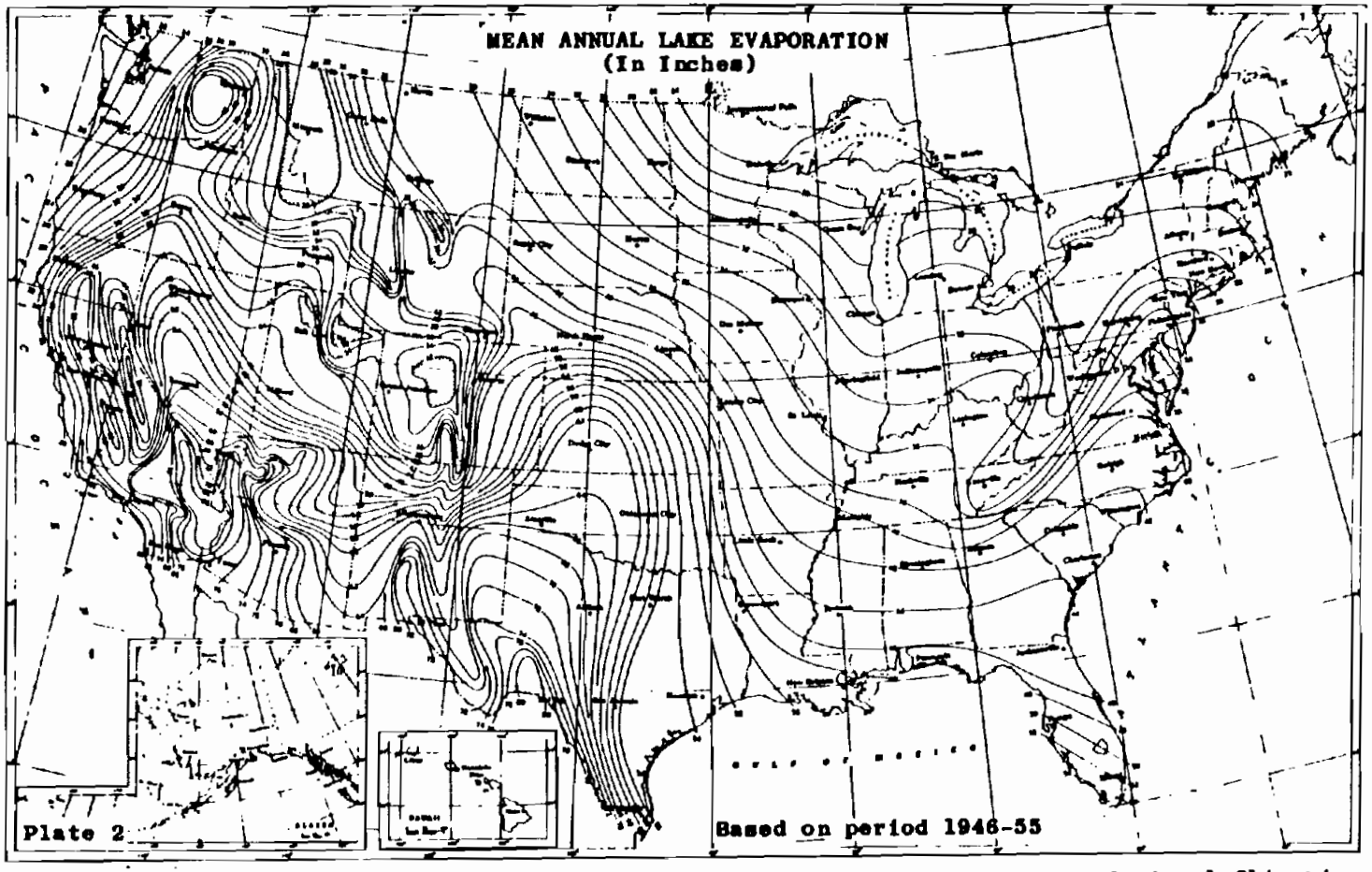
USDC, 1963
REF 16

REF-17
USDOC, 1979



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

FIGURE 5
NORMAL ANNUAL TOTAL PRECIPITATION (INCHES)



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

FIGURE 4
MEAN ANNUAL LAKE EVAPORATION
(IN INCHES)

USDOC, 1979
REF-17

USDOI, 1983

Federal Register

Tuesday
March 1, 1983

18

Part III

Department of the Interior

National Park Service

National Registry of Natural Landmarks

USDOI, 1983

(18)

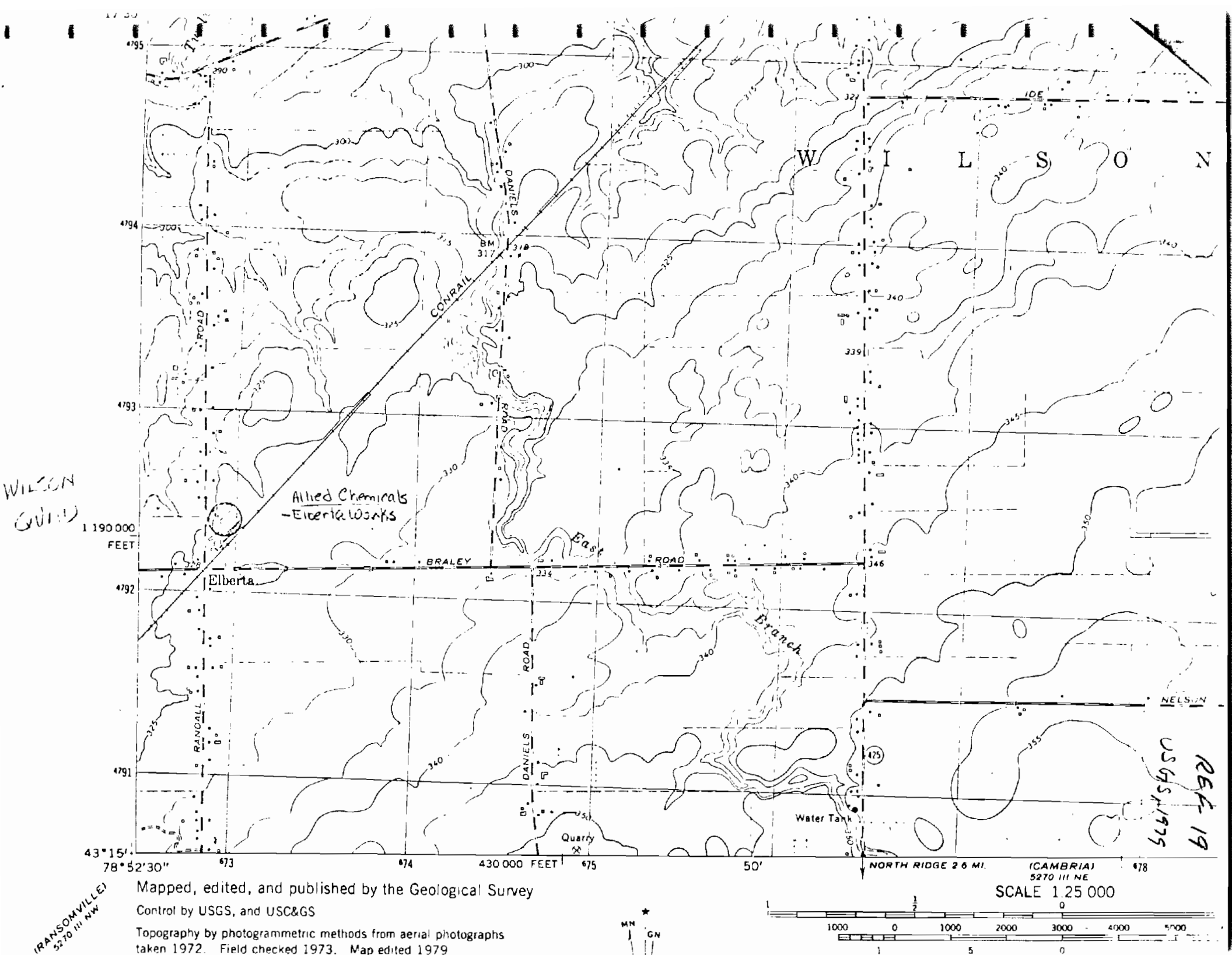
NATIONAL REGISTER OF HISTORIC PLACES

ANNUAL LISTING OF PROPERTIES

JANUARY 1979 THROUGH DECEMBER 1982

U.S. DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

JULY 1983


WILSON
DANIELS ROAD
CONRAIL
BM 317
RANDALL ROAD
Allied Chemicals
-Elberta Works
BRALEY ROAD
Elberta
East Branch
DANIELS ROAD
RANDALL ROAD
NELSON
Water Tank
Quarry
4795
4794
4793
4792
4791
1 190 000 FEET
43°15'
78°52'30"
673
674
430 000 FEET
675
50'
678
NORTH RIDGE 2.6 MI.
(CAMBRIA) 5270 III NE
(RANSOMVILLE) 5270 III NW
Mapped, edited, and published by the Geological Survey
Control by USGS, and USC&GS
Topography by photogrammetric methods from aerial photographs taken 1972. Field checked 1973. Map edited 1979
MN
GN
SCALE 1:25 000
1000 0 1000 2000 3000 4000 5000
REF 19
USGS 1975

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

EPA

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

II. SITE NAME AND LOCATION

01 SITE NAME (Legal, common, or descriptive name of site)	02 STREET, ROUTE NO., OR SPECIFIC LOCATION IDENTIFIER
Allied Chemical - Elberta Works	Randall and Braley Roads

03 CITY	04 STATE	05 ZIP CODE	06 COUNTY	07 COUNTY CODE	08 CONG. DIST.
T. Wilson	NY		Niagara	063	32

09 COORDINATES — LATITUDE: 43 15 51.N | LONGITUDE: 78 52 00.W

10 DIRECTIONS TO SITE (Starting from nearest public road): Corner of Randall and Braley Roads (NE Corner); west of RR tracks

III. RESPONSIBLE PARTIES

01 OWNER (If known)	02 STREET (Business, mailing, residential)
Welland Chemicals Ltd.	Scott Road

03 CITY	04 STATE	05 ZIP CODE	06 TELEPHONE NUMBER
Sarnia, Ontario Canada		N7T 7J7	(519) 336-2287

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 DATE 12/13/85 (MONTH DAY YEAR) ☐ NO

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

02 SITE STATUS (Check one)
☐ A. ACTIVE ☒ B. INACTIVE ☐ C. UNKNOWN

03 YEARS OF OPERATION
approx. 1950 (BEGINNING YEAR) | 1977 (ENDING YEAR) ☐ UNKNOWN

04 DESCRIPTION OF SUBSTANCES POSSIBLY PRESENT, KNOWN, OR ALLEGED
Aluminum Chloride, asbestos, refractory mat'l containing graphite.

05 DESCRIPTION OF POTENTIAL HAZARD TO ENVIRONMENT AND/OR POPULATION
Contamination of local drinking water wells.

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 (Inspection 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
Cathy J. Bosma	Engineering-Science (ES)	(703) 591-7575

04 PERSON RESPONSIBLE FOR ASSESSMENT	05 AGENCY	06 ORGANIZATION	07 TELEPHONE NUMBER	08 DATE
Cathy J. Bosma		same	( )	1/14/86 (MONTH DAY YEAR)

EPA

POTENTIAL HAZARDOUS WASTE SITE
PRELIMINARY ASSESSMENT
PART 2 - WASTE INFORMATION

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
NY	

II. WASTE STATES, QUANTITIES, AND CHARACTERISTICS

01 PHYSICAL STATES (Check all that apply)

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

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

TONS 324

CUBIC YARDS _____

NO OF DRUMS _____

03 WASTE CHARACTERISTICS (Check all that apply)

- ☐ A TOXIC
- ☐ B CORROSIVE
- ☐ C RADIOACTIVE
- ☐ D PERSISTENT
- ☐ E SOLUBLE
- ☐ F INFECTIOUS
- ☐ G FLAMMABLE
- ☐ H IGNITABLE
- ☐ I HIGHLY VOLATILE
- ☐ J EXPLOSIVE
- ☐ K REACTIVE
- ☐ L INCOMPATIBLE
- ☐ 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
	Estimated 324 tons of wastes were disposed of in two on-site disposal areas. Wastes included trace amounts of asbestos, graphite and aluminum chloride containing materials.				

V. FEEDSTOCKS (See Appendix for CAS Numbers)

CATEGORY	01 FEEDSTOCK NAME	02 CAS NUMBER	CATEGORY	01 FEEDSTOCK NAME	02 CAS NUMBER
FDS			FDS		
FDS			FDS		
FDS			FDS		
FDS			FDS		

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

NYSDEC, Registry Sheet, 1985

Nixon, Welland chemicals, 12/13/85

EPA

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

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
NY	—

II. HAZARDOUS CONDITIONS AND INCIDENTS

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

IF PRESENT, ALUMINUM CHLORIDE MAY CONTAMINATE GROUNDWATER.

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

LOW POTENTIAL; MOST WASTES BURNED IN CONTACT WITH EITHER BUILDING OR PAVEMENT. No surface water bodies are present within one mile of the site; therefore there is no potential for surface water contamination.

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

LOW POTENTIAL SINCE [illegible]

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

NO EXPLOSIVE OR FLAMMABLE CONDITIONS

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

LOW POTENTIAL SINCE [illegible]

01 ☐ F. CONTAMINATION OF SOIL — 02 ☐ OBSERVED (DATE: _____) — ☒ POTENTIAL — ☐ ALLEGED
03 AREA POTENTIALLY AFFECTED: < 1 (Acres) — 04 NARRATIVE DESCRIPTION

No soil analytical data exists for the site; however because of the nature of wastes burned on site (aluminum chlorides), the potential exists that the soil may be contaminated.

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

IF GROUNDWATER IS CONTAMINATED, DRINKING WATER WELLS MAY BE CONTAMINATED AS WELL.

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

NO RECORD OF INJURY

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

NO RECORD OF INJURY

EPA

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

I. IDENTIFICATION

01 STATE: NY | 02 SITE NUMBER:

II. HAZARDOUS CONDITIONS AND INCIDENTS (Continued)

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

NONE REPORTED

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

NONE REPORTED

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

NONE REPORTED

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

III. TOTAL POPULATION POTENTIALLY AFFECTED: _____

IV. COMMENTS

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

NYSDEC, INACTIVE HAZARDOUS WASTE DISPOSAL SITE REPORT, 1983
NCHD, INTERVIEW W/ M. HOPKINS, 1985

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

EPA

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
NY	

II. SITE NAME AND LOCATION

01 SITE NAME (Legal, common, or descriptive name of site)	02 STREET, ROUTE NO., OR SPECIFIC LOCATION IDENTIFIER
Allied Chemical - Elberta Works	NE corner of Randall & Braley.

03 CITY	04 STATE	05 ZIP CODE	06 COUNTY	07 COUNTY CODE	08 CONG DIST
T. Wilson	NY		Niagara	063	32

09 COORDINATES LATITUDE	LONGITUDE
43 15 21.N	78 52 00.W

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
12 13 85 (MONTH DAY YEAR)	☐ ACTIVE ☒ INACTIVE	Approx. 1950 (BEGINNING YEAR) 1977 (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 _____ (Name of firm) ☒ G. OTHER Engineering Science and Dames & Moore (Specify)

05 CHIEF INSPECTOR	06 TITLE	07 ORGANIZATION	08 TELEPHONE NO.
Cathy J. Bosma	Civil Engineer	ES	(703) 591-7575
09 OTHER INSPECTORS	10 TITLE	11 ORGANIZATION	12 TELEPHONE NO.
Larry Keefe	Geologist	DEM	(315) 638-2575
			( )
			( )
			( )
			( )

13 SITE REPRESENTATIVES INTERVIEWED	14 TITLE	15 ADDRESS	16 TELEPHONE NO
Colin Nixon	General Manager	Scott Road, Sarnia, Ontario	(519) 336-3287
			( )
			( )
			( )
			( )
			( )

17 ACCESS GAINED BY (Check one)	18 TIME OF INSPECTION	19 WEATHER CONDITIONS
☒ PERMISSION ☐ WARRANT	1:00 pm	Flurries, Snow Covered, Overcast

IV. INFORMATION AVAILABLE FROM

01 CONTACT	02 OF (Agency/Organization)	03 TELEPHONE NO.
Cathy J. Bosma	Engineering-Science (ES)	(703) 591-7575

04 PERSON RESPONSIBLE FOR SITE INSPECTION FORM	05 AGENCY	06 ORGANIZATION	07 TELEPHONE NO.	08 DATE
Cathy J. Bosma		same		1 14 86 (MONTH DAY YEAR)

EPA FORM 2070-13 (7-81)

EPA

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

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
NY	

II. WASTE STATES, QUANTITIES, AND CHARACTERISTICS

01 PHYSICAL STATES *(Check all that apply)*

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

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

TONS 324
CUBIC YARDS _____
NO. OF DRUMS _____

03 WASTE CHARACTERISTICS *(Check all that apply)*

☐ A. TOXIC ☐ E. SOLUBLE ☐ I. HIGHLY VOLATILE
☐ B. CORROSIVE ☐ F. INFECTIOUS ☐ J. EXPLOSIVE
☐ C. RADIOACTIVE ☐ G. FLAMMABLE ☐ K. REACTIVE
☐ D. PERSISTENT ☐ H. IGNITABLE ☐ 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
	AN Estimated 324 tons of wastes were disposed of				
	in two on-site disposal areas. Wastes included				
	trace amounts of asbestos, graphite and				
	aluminum chloride containing materials				

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

CATEGORY	01 FEEDSTOCK NAME	02 CAS NUMBER	CATEGORY	01 FEEDSTOCK NAME	02 CAS NUMBER
FDS			FDS		
FDS			FDS		
FDS			FDS		
FDS			FDS		

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

NYSDEC, Registry Sheet, 1985
Nixon, Welland Chemicals, 12/13/85

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	02 SITE NUMBER
NY	—

II. HAZARDOUS CONDITIONS AND INCIDENTS

01 ☒ A. GROUNDWATER CONTAMINATION — 02 ☐ OBSERVED (DATE: _____) — ☒ POTENTIAL — ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: 50 — 04 NARRATIVE DESCRIPTION
If present, aluminum chloride may contaminate groundwater.

01 ☐ B. SURFACE WATER CONTAMINATION — 02 ☐ OBSERVED (DATE: _____) — ☐ POTENTIAL — ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ — 04 NARRATIVE DESCRIPTION
Very low potential since all wastes are covered with either buildings or pavement.

01 ☐ C. CONTAMINATION OF AIR — 02 ☐ OBSERVED (DATE: _____) — ☐ POTENTIAL — ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ — 04 NARRATIVE DESCRIPTION
Very low potential, all wastes covered

01 ☐ D. FIRE/EXPLOSIVE CONDITIONS — 02 ☐ OBSERVED (DATE: _____) — ☐ POTENTIAL — ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ — 04 NARRATIVE DESCRIPTION
No incidence of fire or explosive conditions

01 ☐ E. DIRECT CONTACT — 02 ☐ OBSERVED (DATE: _____) — ☐ POTENTIAL — ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ — 04 NARRATIVE DESCRIPTION
NOT LIKELY, AREA IS FENCED WITH LOCKED GATE

01 ☒ F. CONTAMINATION OF SOIL — 02 ☐ OBSERVED (DATE: _____) — ☒ POTENTIAL — ☐ ALLEGED
03 AREA POTENTIALLY AFFECTED: 1 (Acres) — 04 NARRATIVE DESCRIPTION
If present, aluminum chloride may contaminate adjacent soils.

01 ☒ G. DRINKING WATER CONTAMINATION — 02 ☐ OBSERVED (DATE: _____) — ☒ POTENTIAL — ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: 50 — 04 NARRATIVE DESCRIPTION
Groundwater used by some nearby residences for drinking water.

01 ☐ H. WORKER EXPOSURE/INJURY — 02 ☐ OBSERVED (DATE: _____) — ☐ POTENTIAL — ☐ ALLEGED
03 WORKERS POTENTIALLY AFFECTED: _____ — 04 NARRATIVE DESCRIPTION
NO RECORD OF EXPOSURE/INJURY.

01 ☐ I. POPULATION EXPOSURE/INJURY — 02 ☐ OBSERVED (DATE: _____) — ☐ POTENTIAL — ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ — 04 NARRATIVE DESCRIPTION
NONE

EPA

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

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

HAZARDOUS CONDITIONS AND INCIDENTS (Continued)

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

NONE NOTICED.

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

NONE NOTICED

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

LOW POTENTIAL, BUT CONTAMINATION MAY OCCUR SINCE SOME
NIGHT OF FAUNA MAY INTERACT WITH GROUNDWATER

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

NO UNSTABLE CONTAINMENT.

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

NONE OBSERVED/NOTED.

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

UNLIKELY, SINCE WASTES ARE COVERED.

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

UNLIKELY, NONE NOTED. RESTRICTED ACCESS TO SITE.

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

III. TOTAL POPULATION POTENTIALLY AFFECTED: _____

IV. COMMENTS

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

ESDM SITE INSPECTION, 1985
TOWN OF WILSON WATER DEPT, INTERVIEW, 1986

EPA

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

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
NY	

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	None			
☐ B. UIC				
☐ C. AIR				
☐ D. RCRA				
☐ E. RCRA INTERIM STATUS				
☐ F. SPCC PLAN				
☐ G. STATE (Specify)				
☐ H. LOCAL (Specify)				
☐ I. OTHER (Specify)				
☐ J. NONE				

III. SITE DESCRIPTION

01 STORAGE/DISPOSAL (Check all that apply)	02 AMOUNT	03 UNIT OF MEASURE
☐ A. SURFACE IMPOUNDMENT		
☐ B. PILES		
☐ C. DRUMS, ABOVE GROUND		
☐ D. TANK, ABOVE GROUND		
☐ E. TANK, BELOW GROUND		
☐ F. LANDFILL		
☐ G. LANDFARM		
☑ H. OPEN DUMP	324	tons
☐ I. OTHER (Specify)	Now covered	

04 TREATMENT (Check all that apply)
- ☐ A. INCINERATION
- ☐ 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

06 AREA OF SITE
1 (Acres)

07 COMMENTS
Approx. 324 tons of aluminum chloride, refractory matl w/ graphite and asbestos were disposed on site. Matl has been covered by building and parking lots

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.
No drums
Portion of waste covered by bldg & parking lot.

V. ACCESSIBILITY

01 WASTE EASILY ACCESSIBLE: ☐ YES ☑ NO
02 COMMENTS
Facility fenced & locked.
No Guard.

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

ES and DEM Site Visit 12-13-85.
NYSDEC Site Registry Sheets, 1980-1985.
Nixon, Welland Chemicals, 12/13/85

EPA

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

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

II. DRINKING WATER SUPPLY

01 TYPE OF DRINKING SUPPLY (Check as applicable)	SURFACE	WELL
COMMUNITY	A. ☒	B. ☐
NON-COMMUNITY	C. ☐	D. ☒

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

03 DISTANCE TO SITE
A. 23 (mi)
B. 150 feet (mi)

III. GROUNDWATER

01 GROUNDWATER USE IN VICINITY (Check one)

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

02 POPULATION SERVED BY GROUND WATER ~ 50
03 DISTANCE TO NEAREST DRINKING WATER WELL 150 feet (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
2-6 (ft)	NW	2-6 (ft)	UNKNOWN (gpd)	☐ YES ☐ NO UNKNOWN

09 DESCRIPTION OF WELLS (Including usage, depth, and location relative to population and buildings)
PRIVATE DRINKING WELLS, ESTIMATED TO BE IN AQUIFER OVERLYING (30'), NEAREST WELL KNOWN TO BE MILE N OF SITE ON RIDGE ROAD. MUNICIPAL WATER AVAILABLE, BUT ESTIMATED 50 PERSON USING PRIVATE WELLS.

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

IV. SURFACE WATER

01 SURFACE WATER USE (Check one)

☒ A. RESERVOIR, RECREATION DRINKING WATER SOURCE (SYRACUSE RES. 6) ☐ B. IRRIGATION, ECONOMICALLY IMPORTANT RESOURCES ☐ C. COMMERCIAL, INDUSTRIAL ☐ D. NOT CURRENTLY USED

02 AFFECTED/POTENTIALLY AFFECTED BODIES OF WATER

NAME:	AFFECTED	DISTANCE TO SITE
TWELVE MILE CREEK	☐	1.5 (mi)
	☐	(mi)
	☐	(mi)

V. DEMOGRAPHIC AND PROPERTY INFORMATION

01 TOTAL POPULATION WITHIN

ONE (1) MILE OF SITE	TWO (2) MILES OF SITE	THREE (3) MILES OF SITE
A. 386 NO. OF PERSONS	B. 1194 NO. OF PERSONS	C. 3746 NO. OF PERSONS

02 DISTANCE TO NEAREST POPULATION: (mi)

03 NUMBER OF BUILDINGS WITHIN TWO (2) MILES OF SITE: 314

04 DISTANCE TO NEAREST OFF-SITE BUILDING: (mi)

05 POPULATION WITHIN VICINITY OF SITE (Provide narrative description of nature of population within vicinity of site, e.g., rural, village, density populated urban area)
SITE IS LOCATED IN A RURAL AREA OF NORTHEAST ONONDAGA COUNTY, PRIMARILY FARM LANDS; SPARSELY POPULATED. VERY LIMITED COMMERCIAL/INDUSTRIAL PROPERTIES.

EPA

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

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

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)

QUEENSTONE SHALE

03 DEPTH TO BEDROCK	04 DEPTH OF CONTAMINATED SOIL ZONE	05 SOIL pH	
30-40 (ft)	2-8 (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)	0-3 %	S	0-3 %

09 FLOOD POTENTIAL

SITE IS IN 7500 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. 1.5 (mi)

12 DISTANCE TO CRITICAL HABITAT (of endangered species)

>3 (mi)

ENDANGERED SPECIES: _____

13 LAND USE IN VICINITY

DISTANCE TO:

COMMERCIAL/INDUSTRIAL	RESIDENTIAL AREAS; NATIONAL/STATE PARKS, FORESTS, OR WILDLIFE RESERVES	AGRICULTURAL LANDS: PRIME AG LAND	AG LAND
A. >3 (mi)	B. 300 feet (mi)	C. _____ (mi)	D. 500 feet (mi)

14 DESCRIPTION OF SITE IN RELATION TO SURROUNDING TOPOGRAPHY

SITE IS LOCATED IN NORTHEAST NIAGARA COUNTY, THE SURROUNDING LAND IS GENERALLY FLAT, SLOPING GENTLY TO THE NORTH WEST. STREAMS NEAR THE SITE EITHER FLOW DIRECTLY INTO LAKE ONTARIO TO THE NORTH OR VIA TWELVE MILE CREEK TO THE NORTH WEST.

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

CALSPAN, GROUNDWATER MONITORING REPORT, 1977
ES&DM SITE INSPECTION, 1985
TOWN OF WILSON WATER DEPT, INTERVIEW, 1986
NYSDOH, SITE INSPECTION REPORT-DIRECT, 1985
USGS TOPOGRAPHIC MAP, SEARLE CREEK & WILSON QUADRANGLES

EPA

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

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

II. SAMPLES TAKEN

SAMPLE TYPE	01 NUMBER OF SAMPLES TAKEN	02 SAMPLES SENT TO	03. ESTIMATED DATE RESULTS AVAIL.
GROUNDWATER		None	
SURFACE WATER			
WASTE			
AIR			
RUNOFF			
SPILL			
SOIL			
VEGETATION			
OTHER		None	

III. FIELD MEASUREMENTS TAKEN

01 TYPE	02 COMMENTS
HNU	Volatile organics not detected above background concentrations of 1 ppm

IV. PHOTOGRAPHS AND MAPS

01 TYPE ☒ GROUND ☐ AERIAL

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

03 MAPS ☒ YES ☐ NO

04 LOCATION OF MAPS: Site Map of site was updated during site investigation.

V. OTHER FIELD DATA COLLECTED (Provide narrative description)

None

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

ES and D&M Site Inspection 12-13-85

EPA

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

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
NY	—

II. CURRENT OWNER(S) / PARENT COMPANY (If applicable)

01 NAME	02 D+B NUMBER	08 NAME	09 D+B NUMBER
Welland Chemicals Ltd			
03 STREET ADDRESS (P.O. Box, RFD #, etc.)	**04 SIC CODE**	**10 STREET ADDRESS (P.O. Box, RFD #, etc.)**	**11 SIC CODE**
Scott Road, Sarnia			
05 CITY / 06 STATE	**07 ZIP CODE**	**12 CITY / 13 STATE**	**14 ZIP CODE**
Ontario Canada			

01 NAME	02 D+B NUMBER	08 NAME	09 D+B NUMBER
03 STREET ADDRESS (P.O. Box, RFD #, etc.)	**04 SIC CODE**	**10 STREET ADDRESS (P.O. Box, RFD #, etc.)**	**11 SIC CODE**
05 CITY / 06 STATE	**07 ZIP CODE**	**12 CITY / 13 STATE**	**14 ZIP CODE**

01 NAME	02 D+B NUMBER	08 NAME	09 D+B NUMBER
03 STREET ADDRESS (P.O. Box, RFD #, etc.)	**04 SIC CODE**	**10 STREET ADDRESS (P.O. Box, RFD #, etc.)**	**11 SIC CODE**
05 CITY / 06 STATE	**07 ZIP CODE**	**12 CITY / 13 STATE**	**14 ZIP CODE**

01 NAME	02 D+B NUMBER	08 NAME	09 D+B NUMBER
03 STREET ADDRESS (P.O. Box, RFD #, etc.)	**04 SIC CODE**	**10 STREET ADDRESS (P.O. Box, RFD #, etc.)**	**11 SIC CODE**
05 CITY / 06 STATE	**07 ZIP CODE**	**12 CITY / 13 STATE**	**14 ZIP CODE**

III. PREVIOUS OWNER(S) (List most recent first) / IV. REALTY OWNER(S) (If applicable; list most recent first)

01 NAME	02 D+B NUMBER	01 NAME	02 D+B NUMBER
DAL Specialties			
03 STREET ADDRESS (P.O. Box, RFD #, etc.)	**04 SIC CODE**	**03 STREET ADDRESS (P.O. Box, RFD #, etc.)**	**04 SIC CODE**
3119 Randall Road			
05 CITY / 06 STATE	**07 ZIP CODE**	**05 CITY / 06 STATE**	**07 ZIP CODE**
Ransomville / NY	14131		

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

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

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

ES and D&M Site Visit 12-13-85

EPA

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

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

II. CURRENT OPERATOR (Provide if different from owner)

01 NAME	02 D+B NUMBER	04 SIC CODE
Welland Chemicals Ltd. (~~Tioxide~~)		

03 STREET ADDRESS (P.O. Box, RFD #, etc.)	05 CITY	06 STATE	07 ZIP CODE
Scott Road, Sarnia	Ontario Canada	—	

08 YEARS OF OPERATION	09 NAME OF OWNER
1985-1986	Colin Nixon

OPERATOR'S PARENT COMPANY (If applicable)

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

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

01 NAME	02 D+B NUMBER	04 SIC CODE
DAL Specialties		

03 STREET ADDRESS (P.O. Box, RFD #, etc.)	05 CITY	06 STATE	07 ZIP CODE
3119 Randall Road	Ransomville	NY	14131

08 YEARS OF OPERATION	09 NAME OF OWNER DURING THIS PERIOD
1983-1985	James Lanzo

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	04 SIC CODE
Allied Chemicals		

03 STREET ADDRESS (P.O. Box, RFD #, etc.)	05 CITY	06 STATE	07 ZIP CODE
Randall Road	Wilson	NY	14131

08 YEARS OF OPERATION	09 NAME OF OWNER DURING THIS PERIOD
1956-1983	

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	04 SIC CODE
Elberta Chemical		

03 STREET ADDRESS (P.O. Box, RFD #, etc.)	05 CITY	06 STATE	07 ZIP CODE
Randall Road	Wilson	NY	14131

08 YEARS OF OPERATION	09 NAME OF OWNER DURING THIS PERIOD
1945-1956	

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)

ES and D&M Site Visit, 12-13-85.

EPA

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

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
NY	

II. ON-SITE GENERATOR

01 NAME	02 D+B NUMBER
Elberta Chemical and Allied Chemical	

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

05 CITY	06 STATE	07 ZIP CODE
Wilson	NY	14131

III. OFF-SITE GENERATOR(S)

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

IV. TRANSPORTER(S)

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

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

ES and D&M Site Visit 12-3-85

EPA

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

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
NY	—

II. PAST RESPONSE ACTIVITIES

01 ☐ A. WATER SUPPLY CLOSED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
NA to disposal site. Lagoons on site are currently being cleaned up

01 ☐ B. TEMPORARY WATER SUPPLY PROVIDED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION

01 ☐ C. PERMANENT WATER SUPPLY PROVIDED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION

01 ☐ D. SPILLED MATERIAL REMOVED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION

01 ☐ E. CONTAMINATED SOIL REMOVED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION

01 ☐ F. WASTE REPACKAGED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION

01 ☐ G. WASTE DISPOSED ELSEWHERE — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION

01 ☐ H. ON SITE BURIAL — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION

01 ☐ I. IN SITU CHEMICAL TREATMENT — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION

01 ☐ J. IN SITU BIOLOGICAL TREATMENT — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION

01 ☐ K. IN SITU PHYSICAL TREATMENT — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION

01 ☐ L. ENCAPSULATION — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION

01 ☐ M. EMERGENCY WASTE TREATMENT — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION

01 ☐ N. CUTOFF WALLS — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION

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

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

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

EPA

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

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
NY	

II PAST RESPONSE ACTIVITIES (Continued)

01 ☐ R. BARRIER WALLS CONSTRUCTED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
NA

01 ☐ S. CAPPING/COVERING — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION

01 ☐ T. BULK TANKAGE REPAIRED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION

01 ☐ U. GROUT CURTAIN CONSTRUCTED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION

01 ☐ V. BOTTOM SEALED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION

01 ☐ W. GAS CONTROL — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION

01 ☐ X. FIRE CONTROL — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION

01 ☐ Y. LEACHATE TREATMENT — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION

01 ☐ Z. AREA EVACUATED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION

01 ☐ 1. ACCESS TO SITE RESTRICTED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION

01 ☐ 2. POPULATION RELOCATED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION

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

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

EPA

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

I. IDENTIFICATION	
01 STATE: 04	02 SITE NUMBER: —

II. ENFORCEMENT INFORMATION

01 PAST REGULATORY/ENFORCEMENT ACTION ☐ YES ☒ NO

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

Unknown

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

SECTION VI

ASSESSMENT OF DATA ADEQUACY AND RECOMMENDATIONS

ASSESSMENT OF DATA ADEQUACY

A summary assessment of the adequacy of existing data for completion of the HRS score is presented in Table VI-1. Insufficient information is presently available to complete an HRS score for this site.

PHASE II WORK PLAN

Objectives

The objectives of the Phase II activities are:

- To collect additional field data necessary to identify the occurrence and extent of contamination and to determine if any imminent health hazard exists.
- To perform a conceptual evaluation of remedial alternatives and estimate budgetary costs for the most likely alternative.
- To prepare a site investigation report including final HRS score.

TABLE VI-1

ASSESSMENT OF DATA ADEQUACY

HRS Data Requirement	Comments on Data
Observed Release	
Groundwater	Inadequate to score an observed release
Surface Water	Inadequate to score an observed release
Air	Adequate for HRS score; no observed release
Route Characteristics	
Groundwater	Inadequate for HRS score
Surface Water	Adequate for HRS score
Air	Adequate for HRS score
Containment	Adequate for HRS score
Waste Characteristics	Adequate for HRS score
Targets	Adequate for HRS score
Observed Incident	Adequate for HRS score
Accessibility	Adequate for HRS score

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

Geophysical Survey - A geophysical study consisting of electrical resistivity and electromagnetic surveys is recommended. The electrical resistivity survey will be performed at various locations within and beyond the perimeter of the site to investigate site stratigraphy, delineate significant discontinuities and assess the presence and location of contaminant plumes. An electromagnetic survey will be conducted as necessary on a grid system to aid in delineating the limits of the contaminated area.

Soil/Waste - Soil/waste sampling consisting of three sampling locations is recommended. Soil/waste samples will be taken from a boring at each of the former waste disposal areas; and a background sample collected from a boring placed in an area not previously used for waste disposal. Two composite samples will be collected at each sampling location, at depths of 6-12 inches and 18-24 inches. The soil/waste samples will be analyzed for asbestos, aluminum and HSL metals.

Groundwater - A groundwater monitoring system consisting of 3 wells is recommended. Borings will be drilled to a maximum depth of 30 feet; soil samples will be taken every 5 feet or more frequently if a change in soil lithology is encountered. The wells will be placed in the aquifer of concern and constructed of 2" PVC pipe. The groundwater samples will be analyzed for HSL metals and organics. In addition, sieve and hydrometer analyses will be performed on representative samples.

Air - An air monitoring survey with an HNU meter is recommended to test the air quality above the site.

TASK DESCRIPTION

The proposed Phase II tasks are described in Table VI-2.

COST ESTIMATE

The estimated man-hours required for the Phase II project are presented in Table VI-3 and the estimated project costs are presented by task in Table VI-4.

HEALTH AND SAFETY PLAN

The Health and Safety Plan will be submitted as a separate document.

QUALITY ASSURANCE PLAN

The Quality Assurance Plan will be submitted as a separate document.

TABLE VI-2

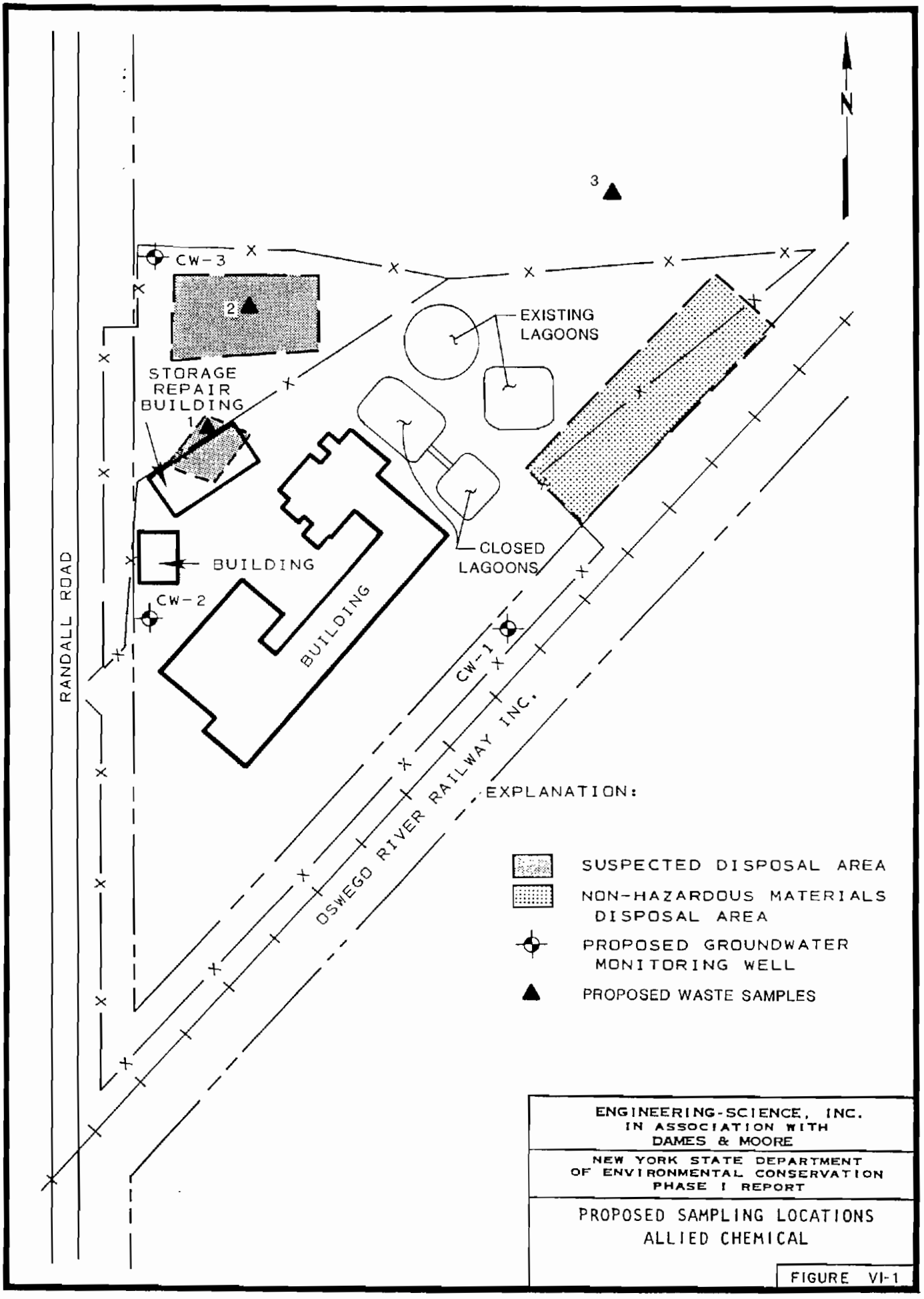
PHASE II WORK PLAN - TASK DESCRIPTION

	Task	Description of Task
II-A	Update Work Plan	Review the information in the Phase I report, conduct a site visit, and revise the Phase II work plan.
II-B	Conduct Geophysical Studies	Conduct resistivity and electromagnetic surveys.
II-C	Conduct Boring/Install Monitoring Wells	Install 1 upgradient and 2 downgradient wells. The wells are to be located at a depth of approximately 30 feet and constructed of 2" PVC pipe.
II-D	Construct Test Pits/Auger Holes	No further construction of test pits/ auger holes necessary.
II-E	Perform Sampling & Analysis	
	Soil samples from borings	Soil samples collected at 5 foot intervals during drilling and at changes in subsurface lithologies. Perform one grain size analysis and permeability test per subsurface lithology change.
	Soil samples from surface soils	No further studies necessary.
	Soil samples from auger holes	3 soil samples are to be collected and analyzed for asbestos, aluminum and HSL metals.
	Sediment samples from surface water	No further studies necessary.
	Groundwater samples	3 groundwater samples are to be collected and analyzed for asbestos, aluminum and HSL metals.

TABLE VI-2, Continued

PHASE II WORK PLAN - TASK DESCRIPTION

Task		Description of Task
	Surface water samples	No further studies necessary.
	Air samples	Using the HNu, determine the presence of organics.
	Waste samples	No further sampling necessary.
II-F	Calculate Final HRS	Based on the field data collected in Tasks II-B - II-E, complete the HRS form.
II-G	Conduct Site Assessment	Prepare final report containing Phase I report, additional field data, final HRS and HRS documentation records, and site assessments. The site assessment will consist of a conceptual evaluation of alternatives and a preliminary cost estimate of the most probable alternative.
II-H	Project Management	Project coordination, administration and reporting.


N
3
CW-3
2
EXISTING
LAGOONS
STORAGE
REPAIR
BUILDING
1
BUILDING
CW-2
BUILDING
CLOSED
LAGOONS
CW-1
RANDALL ROAD
OSWEGO RIVER RAILWAY INC.
EXPLANATION:
SUSPECTED DISPOSAL AREA
NON-HAZARDOUS MATERIALS
DISPOSAL AREA
PROPOSED GROUNDWATER
MONITORING WELL
PROPOSED WASTE SAMPLES
ENGINEERING-SCIENCE, INC.
IN ASSOCIATION WITH
DAMES & MOORE
NEW YORK STATE DEPARTMENT
OF ENVIRONMENTAL CONSERVATION
PHASE I REPORT
PROPOSED SAMPLING LOCATIONS
ALLIED CHEMICAL
FIGURE VI-1

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
PHASE II INVESTIGATION
COST ESTIMATE

SITE ID #: 932003
SITE NAME: ALLIED CHEMICAL-ELBERTA WORKS
CONSULTANT: ENGINEERING SCIENCE

TABLE VI-3

TASK DESCRIPTION	ESTIMATED HOURS OF DIRECT TECHNICAL LABOR (DTL) L1	L2	L3	L4	L5	L6	L7	L8	L9	L10	TOTAL HOURS	TOTAL COST
II-A UPDATE WORKPLAN	4	24	4	12	4	72	32	40	24	52	268	3801.20
II-B CONDUCT GEOPHYSICAL STUDIES	2	4				40		80	8	8	142	1877.20
II-C CONDUCT BORING/INSTALL MONITORING WELLS	4	8				80		8	10	10	120	1821.20
II-D CONSTRUCT TEST PITS/ AUGER HOLES	2	4				16		16			38	601.20
II-E SAMPLING AND ANALYSIS											0	0.00
Soil samples from borings											0	0.00
Soil samples from surface soils											0	0.00
Soil samples from auger holes/test pits											0	0.00
Sediment samples from surface water											0	0.00
Groundwater samples		2				24		24			50	700.80
Surface water samples											0	0.00
Air samples											0	0.00
Waste samples		6				36		36			78	1126.80
II-F CALCULATE FINAL HRS SCORE	8	16	4	2	8	48	40	16	8	8	158	2528.20
II-G CONDUCT SITE ASSESSMENT	2	40	4		8	80	40	8	60	100	342	4570.80
II-H PROJECT MANAGEMENT	4	30	4		16						54	1249.60
TOTAL HOURS	26	134	16	14	36	396	112	228	110	178		
HOURLY RATE $	33.40	25.20	22.00	19.70	17.00	15.10	13.30	12.00	9.60	8.60		
DIRECT LABOR COSTS $	868.40	3376.80	352.00	275.80	612.00	5979.60	1489.60	2736.00	1056.00	1530.80		

TOTAL DTL COSTS	18277.00
INDIRECT LABOR COSTS	21566.86
TOTAL LABOR COSTS	39843.86
PROFIT (15%)	5976.58
TOTAL PRICE	45820.44

5/30/86

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
PHASE II INVESTIGATION
COST ESTIMATE

SITE ID #: 932003
SITE NAME: ALLIED CHEMICAL-ELBERTA WORKS
CONSULTANT: ENGINEERING SCIENCE

TABLE VI-4

TASK DESCRIPTION	DIRECT LABOR HOURS	DIRECT LABOR COST($)	SUBCONTR. COSTS $	SUPP.& EQUIP. $	MISC. $	TRAVEL & PER DIEM $	TOTALS $
II-A UPDATE WORKPLAN	268	3801.20		237	210	260	4508.20
II-B CONDUCT GEOPHYSICAL STUDIES	142	1877.20		940	60	960	3837.20
II-C CONDUCT BORING/INSTALL MONITORING WELLS	120	1821.20	11550	970	60	820	15221.20
II-D CONSTRUCT TEST PITS/ AUGER HOLES	38	601.20	7500	250	60	600	9011.20
II-E SAMPLING AND ANALYSIS	0	0.00	5400	171	30	411	6012.00
Soil samples from borings	0	0.00					0.00
Soil samples from surface soils	0	0.00					0.00
Soil samples from test pits/ auger holes	0	0.00					0.00
Sediment samples from surface water	0	0.00					0.00
Groundwater samples	50	700.80					700.80
Surface water samples	0	0.00					0.00
Air samples	0	0.00					0.00
Waste samples	78	1126.80					1126.80
II-F CALCULATE FINAL HRS SCORE	158	2528.20		50	75		2653.20
II-G CONDUCT SITE ASSESSMENT	342	4570.80		750	1000	265	6585.80
II-H PROJECT MANAGEMENT	54	1249.60		1000	40		2289.60
SUBTOTAL	1250	18277.00	24450.00	4368.00	1535.00	3316.00	
INDIRECT LABOR (118% DTL)		21566.86					
PROFIT (%)		15	5	5	5	0	
PROFIT ($)		5976.58	1222.50	218.40	76.75		
TOTAL COSTS ($)		45820.44	25672.50	4586.40	1611.75	3316.00	81007.09

5/30/86

APPENDIX A

REFERENCES

SOURCES CONTACTED DOCUMENTATION

SOURCES CONTACTED DOCUMENTATION

nNYSDEC4:11

SOURCES CONTACTED SUMMARY SHEET
ALLIED CHEMICAL - ELBERTA WORKS

Person Contacted/ Location	Telephone	Date	Information Collected
Glenn Hardcastle USEPA Headquarters, Superfund Office 401 M Street, SW Washington, DC 20469	202-382-5617	12/19/85	Reviewed list of sites to determine if additional information was available.
John Anderson USEPA-Region II EPA Information Office 345 3rd St. Suite 530 Niagara Falls, NY 14305	716-285-8842	01-06-86	General information from site files.
Charley Hudson NYSDEC - Div. of Envir. Enforcement Empire State Plaza Corning Tower Albany, NY 12237	518-474-2121	12-30-85	Draft Reports
Kevin Walters NYSDEC-Div. of Envir. Enforcement 50 Wolf Road Albany, NY 12233	518-457-4346	12-30-85	Reviewed list of sites to determine legal actions taken.
Walt Demick NYSDEC-Div. of Solid & Haz. Waste 50 Wolf Road Albany, NY 12233	518-457-0639		General information from site files.
Bob Hannaford NYSDEC-Div. of Water SPDES Files 50 Wolf Road Albany, NY 12233	518-457-6716		Reviewed SPDES files for permit numbers and conditions.

SOURCES CONTACTED SUMMARY SHEET (Continued)
ALLIED CHEMICAL - ELBERTA WORKS

Person Contacted/ Location	Telephone	Date	Information Collected
Val Washington NYS-Dept. of Law, Attorney General's Office Empire State Plaza Justice Building Albany, NY 12233	518-473-3105		Reviewed list of sites to determine if legal action has occurred in the past, is in progress, and/or is scheduled in the near future.
Jeff T. Lacey Peter Burke Glenn Bailey NYSDEC-Div. of Environmental Enforcement 600 Delaware Ave. Buffalo, NY 14202	716-847-4582	12-27-85	Reviewed list of sites to determine legal actions taken.
Peter Buechi Ahmad Tayyebi Bob Mitrey Larry Clare NYS-Region 9 Division of Solid & Hazardous Waste 600 Delaware Ave. Buffalo, NY 14202	716-847-4585	11-14-85	Collected information from site files.
Lou Violanti NYS-Regional Dept. of Health 584 Delaware Ave. Buffalo, NY 14202	716-847-4500	11-15-85	Sent site information to Peter Buechi.
Henry Sondonato Robert Armbrust Dick Dybowski Larry Stiller Jackie DiPronio NYSDEC-Region 9 Div. of Air 600 Delaware Ave. Buffalo, NY 14202	716-847-4565	11-15-85	Air emissions permits for sites.

SOURCES CONTACTED SUMMARY SHEET (Continued)
ALLIED CHEMICAL - ELBERTA WORKS

Person Contacted/ Location	Telephone	Date	Information Collected
Mike Wilkenson Jim Sneider NYSDEC-Region 9 Div. of Fisheries and Wildlife 600 Delaware Ave. Buffalo, NY 14202	716-847-4600	11-14-85	Endangered species information.
Mike McMurry Gordon Batcheller NYSDEC-Region 9 Div. of Regulatory Affairs 600 Delaware Avenue Buffalo, NY 14202	716-847-4551	01-08-86	Wetlands, critical habitat.
Marion Pfohl Spencer Schofield Erie and Niagara County Regional Planning Board 3103 Sheraton Dr. Amherst, NY 14226	716-837-2035	12-20-85	Census data, general site information.
Mike Hopkins Niagara County - Dept. of Health Tenth and East Falls St. Niagara Falls, NY 14302	716-284-3124	11-20-85 12-12-85	Collected information from Niagara County site file. Obtained additional information through interview.
Joanne Elsworth Niagara County - Envir. Mgmt. Div. 59 Park Avenue Lock Port, NY 14094	716-439-6033	12-20-85	Census data, general information.
Colin Nixon Welland Chemicals Scott Road Sarnia, Ontario Canada	519-336-2287	12-13-85	Site visit: ownership, disposal practices, etc.

GENERAL REFERENCES

GENERAL REFERENCES

20. Hopkins, M., Niagara County Health Department, Interview for Phase I Investigation, 11/20/85.

21. Johnston, R.H., Ground Water in the Niagara Falls Area, NYS Conservation Department, Water Resources Commission, New York, 1964.

22. Nixon, C., Welland Chemicals, Interview for Phase I Investigation, 12/13/85.

23. New York State Museum and Science Service, Geologic Map of New York, Niagara Sheet, 1970.

24. United States Department of Agriculture, Soil Conversation Services, Soil Survey of Niagara County, New York, 10/72.

*Does not include "HRS References" which are provided directly after the HRS Documentation Records in Section V.

REF 20

ES ENGINEERING-SCIENCE
INTERVIEW FORM

Interviewee/Code Mike Hopkins /

Title-Position Miagara County Health Department

Address

City **State** **Zip**

Phone ( ) **Residence Period** **to**

Location **Interviewer** Cathy J. Bosma

Date/Time 11/20/85 / 9:00am

Subject: Allied Chemicals - Elberta Works

Remarks: As of February, 1985. The site owner was DAL Specialites. Mr. Hopkins believes that ownership has since changed.

The waste material is buried on-site at the aluminum chloride plant in a shallow trench, with dimensions of 4' by 100'. The quanitity of waste is unknown. The site may be paved or gravelled over.

Site topography: flat, 5-15 ft of clayey soil, over glacial till, over Queenston shale.

Soil survey: geared toward agricultural use. Has approximately 2 foot depth of soil.

Mr.Hopkins was not aware of other reports on the site. It was reported that the disposal was a one time occurence. Mr. Hopkins also thought that thelast plant manager was Carl Stigant.

I agree with the above summary of the interview:

I agree with the above summary of the interview:

Signature: /s/ M. Hopkins

Comments:

GROUND WATER IN THE NIAGARA FALLS AREA, NEW YORK

With Emphasis on the Water-Bearing Characteristics of the Bedrock

BY

RICHARD H. JOHNSTON

GEOLOGIST

U.S. GEOLOGICAL SURVEY

STATE OF NEW YORK

CONSERVATION DEPARTMENT

WATER RESOURCES COMMISSION

BULLETIN GW-53

1964

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

CLINTON AND ALBION GROUPS

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

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

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

QUEENSTON SHALE

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

REF-21

Water-bearing characteristics

Ground water occurs principally within a fractured and weathered zone at the top of the shale. This zone, according to drillers, is generally less than one foot thick. The unweathered Queenston Shale is less permeable than the overlying rocks in the Clinton and Albion Groups and much less permeable than the Lockport Dolomite.

Information obtained from wells drilled into the Queenston Shale, particularly data on yields, usually gives a misleading impression of the water-bearing properties of the formation. In general, the reported yields are too high because most wells penetrating the Queenston draw water from both the Queenston and the overlying unconsolidated deposits. This results from the fact that well drillers in the area commonly end the casing of wells a short distance above the top of the Queenston. Thus, a well in the Queenston with a reported yield of 10 gpm may derive 5 gpm from the unconsolidated deposits, 4 3/4 gpm from the weathered and fractured part of the Queenston, and 1/4 gpm from the unweathered part. The average of the reported yield of the wells drawing from the Queenston Shale listed in table 7 is 7 gpm. This average does not include some domestic and farm wells also listed in the table which have been abandoned for lack of adequate yields. The average yield of wells penetrating the Queenston, which are known also to penetrate a gravelly zone immediately above the Queenston, is 19 gpm.

Considerable difficulty is experienced in developing adequate water supplies in areas where the fractured zone at the top of the Queenston is dry. Such is the case near the village of Newfane, where the Queenston is overlain by less than 10 feet of surficial deposits and the water table lies below the top of rock. Well 316-843-2, a 6-inch-diameter drilled well located in this area, is inadequate to supply one family. Depth to rock at the well is 8 feet and the static water level is 16 feet below land surface (8 feet below the top of the rock). Well 316-843-1, a 48-inch-diameter dug well located about 100 feet to the east of well -2, also has a static water level 16 feet below land surface and is barely adequate to supply one family. In this area, where the fractured zone at the top of the Queenston is dry, the relatively small amount of water needed by one family can be obtained only through the use of a large-diameter well.

Chemical character of the water

Ground water in the Queenston Shale is very hard and locally is highly mineralized. The water is generally not satisfactory for most uses without treatment. The average dissolved-solids content of water in the Queenston is 2,600 ppm and ranges from 533 to 8,920 ppm. As shown in table 2, the hardness of water samples from the Queenston ranges from 219 to 1,910 ppm and averages 883 ppm. Softening of such water is desirable for many uses.

The chloride concentration of water from the Queenston Shale ranges from 90 to 3,150 ppm, the average being 646 ppm (table 2). Water containing more than 500 ppm chloride is salty to the taste. Wells yielding salty

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

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

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

OCCURRENCE OF WATER IN UNCONSOLIDATED DEPOSITS

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

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

REF-22
Nixon, 1985

INTERVIEW FORM

INTERVIEWEE/CODE: Colin ~~[illegible]~~ Nixon / 1

TITLE - POSITION: Willard [illegible]

ADDRESS:

CITY: Wilson   STATE: NY   ZIP:

PHONE: (519) 336-2257   RESIDENCE PERIOD ____ TO ____

LOCATION: Randall's [illegible]   INTERVIEWER: Cathy [illegible] / Jerry [illegible]

DATE/TIME: 12-13-85 / 1:00 pm

SUBJECT: Phase I - Site Investigations

REMARKS: Willard Chemicals Inc bought share of DAL Specialties July 1985. Willard Chemicals ran the site up until between 1956-1983.

Site is believed to contain these wastes - refractory mill, small amounts of graphite, traces of asbestos and aluminum chloride.

Plant manufactured aluminum chloride which if reacted with water would form HCl.

Site is believed to be located under the parking lot and the warehouse. Four test wells have been placed by [illegible] one upgradient and 3 downgradient. RCRA Research treated water & sludge from the old ponds which are now lined with limestone rock and filled. DEC report says the monitoring wells were in poor condition however Mr. Nixon says they are in good shape. They are PVC wells. There is no way the aluminum chloride would still be in existence because of its chemical activity. Not sure whether they [illegible] on wells.

I AGREE WITH THE ABOVE SUMMARY OF THE INTERVIEW:

SIGNATURE: [signature]

COMMENTS:

INTERVIEW FORM

INTERVIEWEE/CODE Colin Nixon /

TITLE - POSITION Welland Chemical Ltd.

ADDRESS

CITY Wilson STATE NY ZIP

PHONE Canada (519) 336-2287 RESIDENCE PERIOD TO

LOCATION Randall & Braley Road INTERVIEWER Cathy Bosma/Larry Keefe

DATE/TIME 12/13/85 / 1:00 p.m.

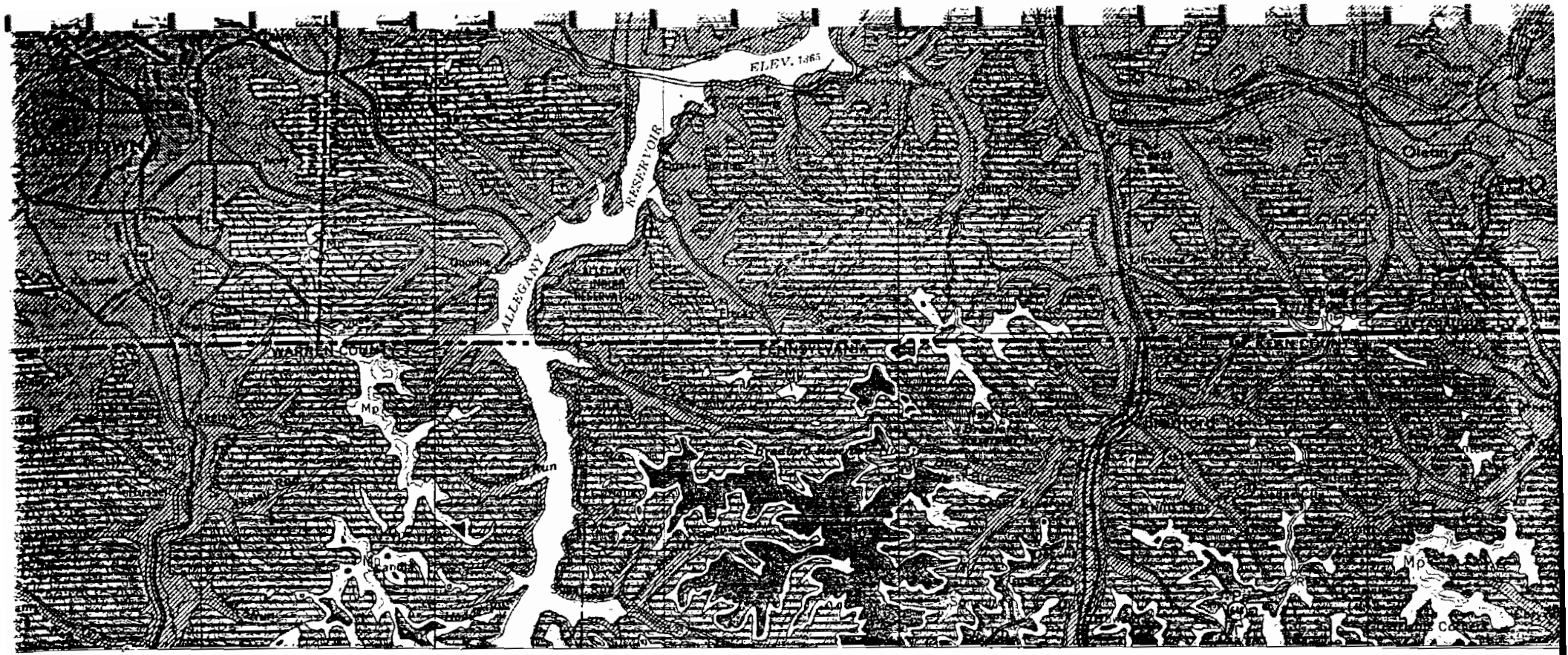
SUBJECT: Phase I - Site Investigations

REMARKS: Welland Chemical Inc bought shares of DAL Specialties July 1985. Allied Chemicals ran the site approx. between 1955-1983. Site is believed to contain these wastes: refractory material, small amounts of graphite, traces of asbestos and aluminum chloride. Plant manufactured aluminum chloride which if reacted with water would form HCl. Site is believed to be located under the parking lot and the warehouse. Four test wells have been placed by Calspan, one upgradient and 3 downgradient. RECRA Research tested water and sludge from the old ponds which are now lined with limestone rock and filled. DEC report says the monitoring wells were in poor condition; however, Mr. Nixon says they are in good shape. They are PVC wells. This is no way the aluminum chloride could still be in existence because of it chemical activity. Not sure whether public water is supplied by city or wells.

I AGREE WITH THE ABOVE SUMMARY OF THE INTERVIEW:

SIGNATURE: /s/ C. Nixon

COMMENTS:



GEOLOGIC MAP OF NEW YORK

1970

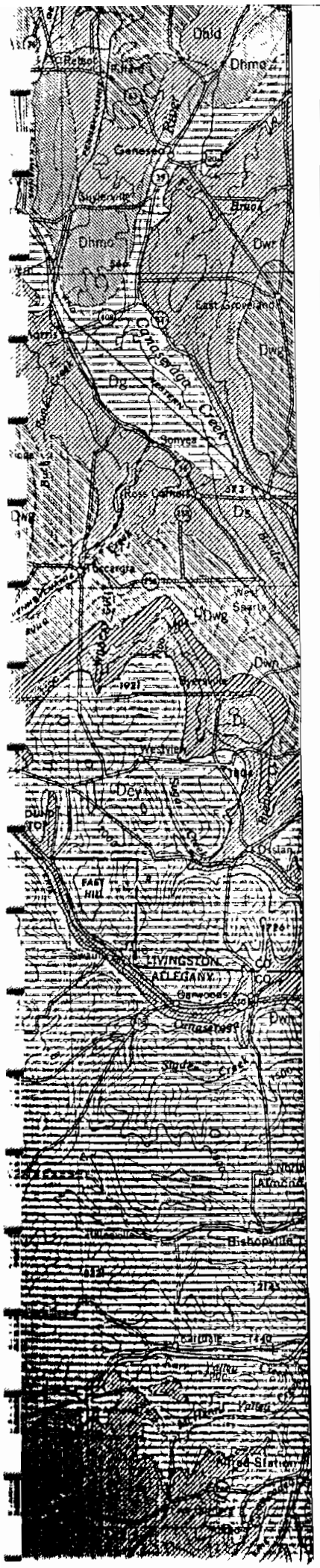
Niagara Sheet

Scale 1:250,000

5 0 5 10 15 Statute Miles 20

5 0 5 10 15 20 25 Kilometers 30

CONTOUR INTERVAL 100 FEET



REF-23

PALEOZOIC

Middle Devonian

Lower Devonian

Upper Silurian

Lower Silurian

Upper Ordovician

Ds

Dg

Dhmo

Dhld

Dhsk

Dhmr

Dob

Do

Sab

Scv

Sl

Scl

Sr

Sik

Sm

Oq

GENESEE GROUP
10-150 ft. (3-45 m.)

Dg — West River Shale; Genundewa Limestone; Penn Yan and Geneseo Shales; North Evans Limestone.

HAMILTON GROUP
200-500 ft. (60-150 m.)

Dhmo — Moscow Formation—Windom and Kashong Shales, Menteth Limestone Members.

Dhld — Ludlowville Formation—Deep Run Shale, Tichenor Limestone, Wanakah and Ledyard Shales, Centerfield Limestone Members.

Dhsk — Skaneateles Formation—Levanna Shale, Stafford Limestone Members.

Dhmr — Marcellus Formation—Oatka Creek Shale Member.

ONONDAGA AND BOIS BLANC LIMESTONES
150 ft. (45 m.)

Dob — In New York: Onondaga Limestone—Seneca, Morehouse (cherty), and Clarence Limestone Members, Edgecliff cherty Limestone Member, local coral bioherms; Bois Blanc Limestone—sandy, thin, discontinuous.
In Ontario: Dundee Limestone; Lucas Formation—dolostone, limestone (Anderdon); Amherstburg Formation—limestone, dolostone, sandstone (Sylvania); Bois Blanc Formation—dolostone, limestone, sandstone (Springvale).

Do — Oriskany Sandstone.

AKRON DOLOSTONE AND SALINA GROUP
400-700 ft. (120-210 m.)

Sab — Akron Dolostone; Bertie Formation—dolostone, shale.

Scv — Camillus, Syracuse, and Vernon Formations—shale, dolostone, salt, and gypsum.

LOCKPORT GROUP
150-200 ft. (45-60 m.)

Sl — Guelph, Oak Orchard, Eramosa, and Goat Island Dolostones; Gasport Limestone—local bioherms.

CLINTON GROUP
100-150 ft. (30-45 m.)

Scl — Decew Dolostone; Rochester Shale; Irondequoit and Merriton Limestones.

Sr — Decew Dolostone; Rochester Shale.

Sik — Irondequoit Limestone; Rockway Dolostone; Hickory Corners Limestone; Neahga Shale; Kodak Sandstone.

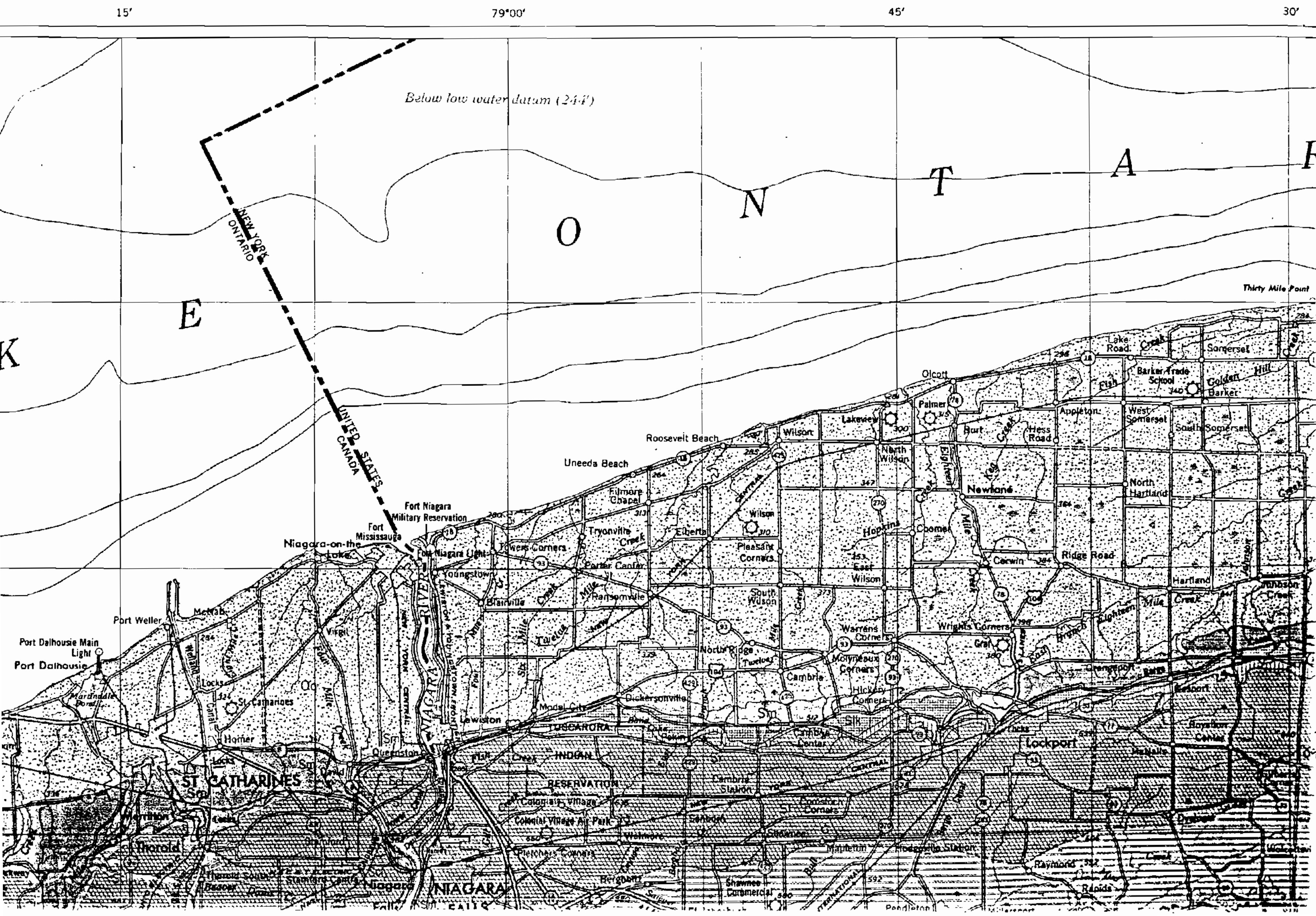
MEDINA GROUP AND QUEENSTON FORMATION
800 ft. (250 m.)

Sm — Thorold Sandstone; Grimsby Formation—sandstone, shale; Power Glen and Cabot Head Shales; Whirlpool Sandstone.

Oq — Queenston Shale.

MAP SYMBOLS

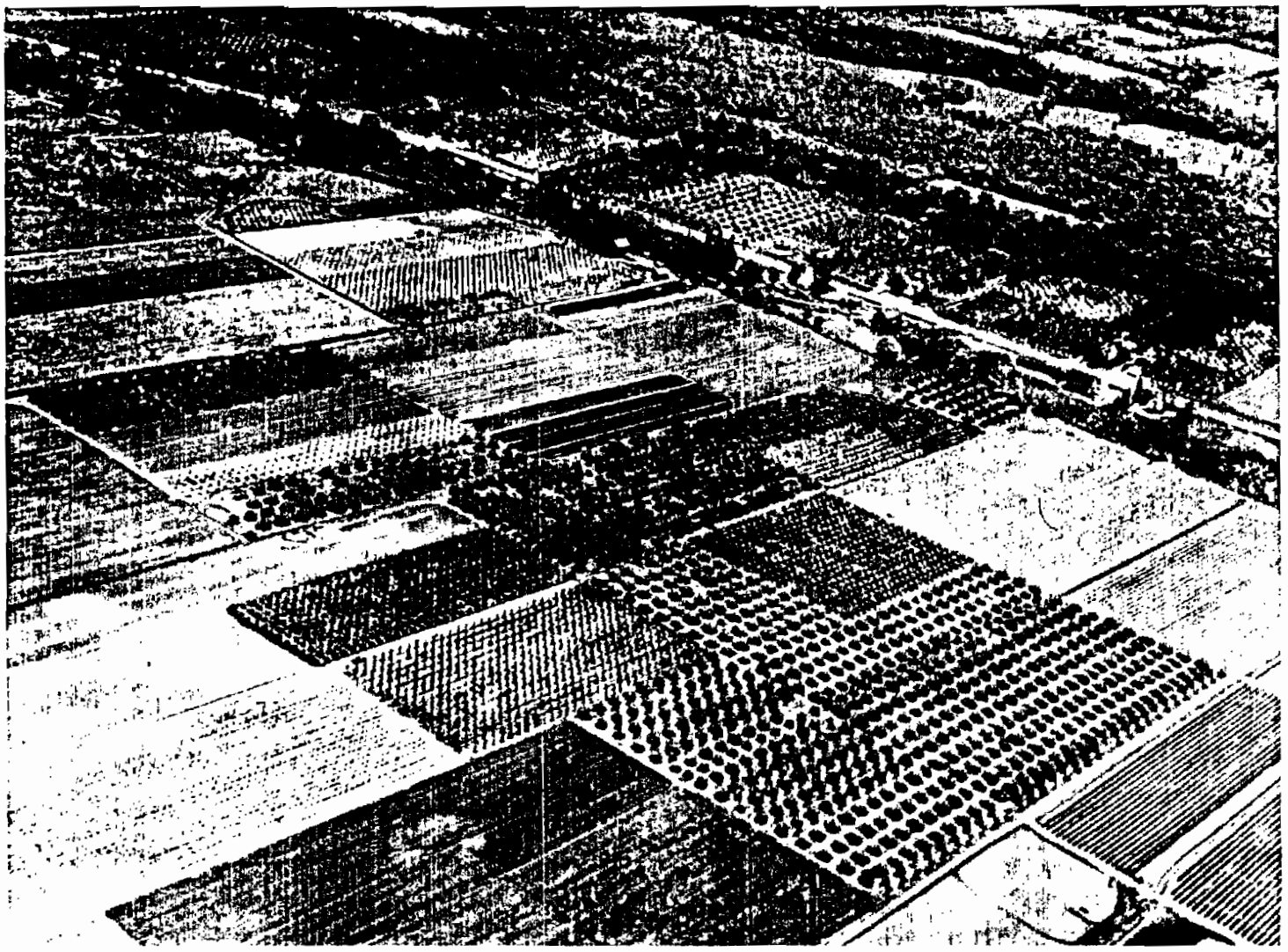
THE UNIVERSITY OF THE STATE OF NEW YORK
THE STATE EDUCATION DEPARTMENT



REF-24
USDA, 1972

SOIL SURVEY OF

Niagara County, New York



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

Issued October 1972

NIAGARA COUNTY, NEW YORK — SHEET NUMBER 20

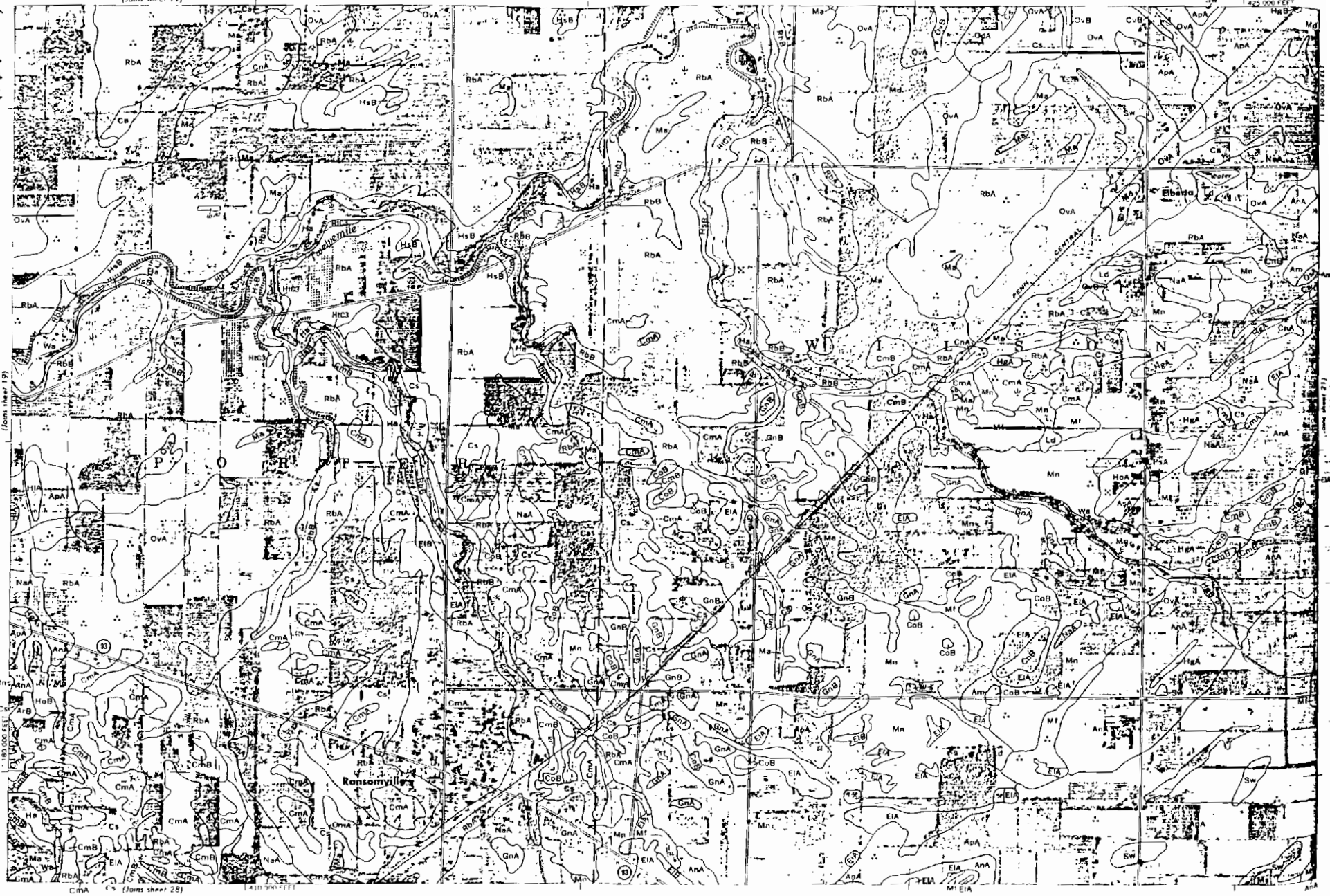


TABLE 7.--ESTIMATED ENGINEERING PROPERTIES OF SOILS--Continued

Soil series and map symbols	Depth to bedrock	Depth to seasonal high water table	Depth from surface (typical profile)	Classification		Classification--Con.	Coarse fraction greater than 3 inches	Percentage passing sieve--				Permeability	Available moisture capacity	Reaction
				Dominant USDA textures	Unified	AASHO		No. 4 (4.7 mm.)	No. 10 (2.0 mm.)	No. 40 (0.42 mm.)	No. 200 (0.074 mm.)			
	Feet	Feet	Inches				Percent					Inches per hour	Inches per inch of depth	pH
Minoa: Mn	6+	½-1	0-20	Very fine sandy loam, loamy fine sand.	SM or ML	A-2 or A-4	-----	80-100	75-100	45-100	15-90	0.63-6.3	0.06-0.20	5.6-7.3
			20-30	Loamy very fine sand with lenses of loam.	SM or ML	A-2 or A-4	-----	80-100	75-100	45-100	15-90	0.63-6.3	0.06-0.20	5.6-7.3
			30-50	Stratified very fine sand and silt.	(1/)	(1/)	(1/)	(1/)	(1/)	(1/)	(1/)	(1/)	(1/)	--------
Niagara: NaA, NaB	6+	½-1	0-13	Silt loam and very fine sandy loam.	ML or CL	A-4	----	90-100	85-100	60-100	35-90	0.63-2.0	0.12-0.20	6.1-7.3
			13-50	Silt loam with thin lenses of clay.	CL	A-4 or A-6	----	95-100	90-100	80-100	65-95	<0.63	---------	6.6-7.6+
Odessa: OdA, OdB	6+	½-1	0-8	Silty clay loam	ML or OL, CL	A-4 or A-6	----	95-100	90-100	80-100	65-95	0.20-2.0	0.15-0.20	6.1-7.3
			8-56	Silty clay to clay	CL or CH	A-6 or A-7	----	95-100	90-100	85-100	75-100	<0.20	0.13-0.17	6.1-7.6+
Ontario: OnB, OnC, OnC3, OnD3, OoA, OoB. Mapping units OoA and OoB have the same properties as the other units, except they are underlain by limestone bedrock at a depth of 3½ to 6 feet.	6+	3+	0-14	Loam	SM or ML	A-2 or A-4	0-10	75-90	70-90	50-90	30-80	0.63-2.0	0.10-0.20	5.6-7.3
			14-54	Gravelly loam to fine sandy loam.	SM, SC, ML, or CL	A-2 or A-4	5-10	55-90	55-90	35-85	20-70	<0.63	0.10-0.20	5.6-7.6+
Otisville: OsA, OsB	6+	3+	0-9	Gravelly sandy loam	SM	A-1-b or A-2 or A-4	----	65-85	60-85	40-70	10-45	>6.3	0.05-0.12	5.1-7.3
			9-28	Gravelly loamy sand	SW or SM	A-2 or A-1-b	----	65-90	60-85	25-65	10-30	>6.3	0.02-0.06	5.6-7.3
			28-50	Stratified sand and gravel	SW-SM or SM	A-1-b	----	60-80	55-80	10-65	0-25	>6.3	---------	6.1-7.6+
Ovid: OvA, OvB, OwA, OwB Mapping units OwA and OwB have the same properties as the other units, except they are underlain by limestone bedrock at a depth of 3½ to 6 feet.	6+	½-1	0-11	Silt loam	ML-SC or CL	A-4	0-5	95-100	90-100	75-95	45-90	0.63-2.0	0.14-0.20	5.6-7.3
			11-24	Silty clay loam to clay loam.	CL	A-4 or A-6	0-5	80-90	75-90	70-90	60-80	<0.63	0.13-0.16	6.1-7.6+
			24-50	Loam till	ML-SC or CL	A-4	0-5	75-85	65-85	55-80	40-65	<0.20	---------	7.6+
Phelps: PsA	6+	1½-2	0-30	Gravelly loam to gravelly fine sandy loam.	ML, CL, SM or SC	A-2 or A-4	0-5	65-85	60-85	40-85	25-75	0.63-6.3	0.09-0.14	5.6-7.3
			30-50	Stratified fine sand and gravel.	(1/)	(1/)	(1/)	(1/)	(1/)	(1/)	(1/)	(1/)	(1/)	(1/)
Raynham silt loam: RaA, RaB	6+	½-1½	0-25	Silt loam	ML or CL	A-4	----	100	100	85-100	50-95	0.63-2.0	0.15-0.20	5.6-7.3
			25-50	Very fine sandy loam to loamy very fine sand with layers of silt and fine sand.	ML or SM	A-4	----	100	100	85-95	45-85	0.63-6.3	0.11-0.16	6.1-7.6+

See footnotes at end of table.

TABLE 8.--INTERPRETATION OF ENGINEERING PROPERTIES OF SOILS--Continued

Soil series and map symbols	Suitability as source of--			Soil features affecting--	
	Topsoil	Granular material	Fill material	Highway location	Embankment foundations
Otisville: OsA, OsB---	Unsuitable to poor: low available moisture capacity and low organic-matter content; generally too gravelly.	Good: cemented in places.	Good: underlain by sand or lake-laid silt and clay or till in places.	Subgrade in cuts subject to differential frost heave; silt, clay, or till in deep cuts in places, which may be wet or cause seepage.	Generally adequate strength for moderately high embankments; in places underlain by wet silt and clay.
Ovid: OvA, OvB----------	Good to fair: clayey and some gravel in places.	Unsuitable---	Fair: seasonally wet; moderate shrink-swell potential.	Seasonal high water table; subgrade subject to differential frost heave; cut slopes unstable; clayey material hinders hauling operations where wet.	Generally adequate strength for high embankments.
OwA, OwB----------	Good to fair: clayey and some gravel in places.	Unsuitable: possible source of dolomite limestone for crushing at a depth below 3 1/2 to 6 feet.	Fair: seasonally wet; moderate shrink-swell potential; limited soil yields over bedrock.	Seasonal high water table; subgrade subject to differential frost heave; cut slopes unstable; clayey material hinders hauling operations where wet; some cuts partly in rock and partly in soil; seepage at rock surface on rock subgrade; rock swell on pressure release in places.	Generally adequate strength for high embankments.
Phelps: PsA----------	Poor: gravelly---	Generally good: in places shallow over lacustrine or till deposits; cemented in places.	Good: gravelly and sandy deposits; highly erodible where dominantly sandy; underlying deposits variable.	Seasonal high water table; cut slopes and subgrade below water table; subject to differential frost heave; may encounter soft, wet, weak silt and clay in deep cuts in places.	Generally adequate strength for moderately high embankments; variable compressibility of underlying material.

Soil features affecting--Continued						
Foundations for low buildings	Ponds		Drainage	Irrigation	Terraces and diversions	Waterways
	Reservoir	Embankment				
Generally moderate bearing strength; compressible under vibratory loads; some areas underlain by till or weak, soft, bottom sediments of variable compressibility.	Rapid permeability.	Good stability and shear strength for outside shells; rapid permeability.	Excessively drained; drainage not needed.	High water-intake rate; low available moisture capacity.	Gravelly and sandy material; rapid permeability.	Gravelly and sandy material; rapid permeability; excessively drained.
Seasonal high water table; moderately high bearing capacity; moderate shrink-swell potential in places; compressibility variable.	Seasonal high water table; moderately slow to slow permeability.	Good stability; slow permeability; clayey material hinders hauling operations where wet.	Seasonal high water table at a depth of 1/2 to 1 foot; moderately slow or slow permeability at a depth below about 11 inches; cut slopes unstable.	Moderate water-intake rate; moderate available moisture capacity; seasonal high water table at a depth of 1/2 to 1 foot.	Slow permeability at a depth below about 24 inches.	Subject to prolonged flow.
Seasonal high water table; moderately high bearing capacity; moderate shrink-swell potential in places; variable compressibility; hard bedrock at a depth of 3 1/2 to 6 feet; rock swell on pressure release in places.	Seasonal high water table; moderately slow and slow permeability; limestone bedrock at a depth of 3 1/2 to 6 feet.	Good stability; slow permeability; clayey material hinders hauling operations where wet; limited soil yield over the bedrock.	Seasonal high water table at a depth of 1/2 to 1 foot; moderately slow to slow permeability below a depth of about 11 inches; cut slopes unstable; limestone bedrock to a depth of 6 feet.	Moderate water-intake rate; moderate available moisture capacity; seasonal high water table at a depth of 1/2 to 1 foot.	Slow permeability at a depth below about 20 inches; limestone bedrock at a depth below 3 1/2 to 6 feet; shallow in places.	Subject to prolonged flow; limestone bedrock along grade line in places.
Generally moderately high bearing capacity; settlement under vibratory loads in places; underlain by weak silt and clay in places; seasonal high water table.	Seasonal high water table; rapid permeability.	Good stability and shear strength for outside shell; rapid permeability.	Drainage not generally needed except in small wet areas; seasonal high water table at a depth of 1 1/2 to 2 feet.	Moderate to high water-intake rate; moderate available moisture capacity.	Gravelly and sandy subsoil and substratum; rapid permeability.	Seasonal high water table at a depth of 1 1/2 to 2 feet; sand and gravel at a depth of about 30 inches.

REF-SY

Ovid Series

The Ovid series consists of deep, somewhat poorly drained soils. These soils formed in calcareous glacial till. The glacial till is generally modified somewhat by glacial lake sediments of silt and clay. Ovid soils are level to gently sloping. Slopes range from 0 to 8 percent.

A representative profile of an Ovid soil has a dark grayish-brown silt loam surface layer. The surface layer contains less than 5 percent stone fragments, is neutral, and is 6 inches thick. It is underlain by friable, pale-brown silt loam that is distinctly mottled and contains less than 5 percent stone fragments. This layer is neutral and 5 inches thick. The subsoil is between depths of 11 and 24 inches. It consists of firm, mottled, reddish-brown silty clay loam. The subsoil contains between 5 and 10 percent stone fragments and is neutral. The substratum is at a depth of 24 inches. It consists of very firm, reddish-brown heavy loam. It contains about 15 percent stone fragments and is calcareous.

These soils have a seasonal high water table that rises to just below the surface layer early in spring and in excessively wet periods. The water table is usually perched above the moderately slowly permeable to slowly permeable subsoil and the slowly permeable glacial till. Roots are confined mainly to the surface layer early in spring. As the water table falls, some roots extend downward to the very firm, calcareous glacial till, but most roots are confined to the uppermost 20 inches of soil. Because of the fairly shallow rooting depth, the available moisture capacity is only moderate.

Representative profile of Ovid silt loam, 0 to 2 percent slopes, 300 yards east of Miller Road and about one-half mile south of State Route 31; idle area:

Ap--0 to 6 inches, dark grayish-brown (10YR 4/2) silt loam, light brownish-gray (10YR 6/2) to light-gray (10YR 7/2) when dry; moderate, fine, subangular blocky structure; friable; less than 5 percent coarse fragments; abundant roots; neutral; abrupt, smooth boundary. 5 to 8 inches thick.

A2--6 to 11 inches, pale-brown (10YR 6/3) silt loam; few, medium, distinct, strong-brown (7.5YR 5/6) to yellowish-brown (10YR 5/6) mottles; weak, fine to very fine, subangular blocky structure; friable; less than 5 percent coarse fragments; plentiful roots; neutral; clear, wavy boundary. 4 to 6 inches thick.

B2t--11 to 20 inches, reddish-brown (5YR 4/3) silty clay loam; few, fine, faint, reddish-brown (5YR 4/4) mottles and distinct, yellowish-red (5YR 4/6) mottles, and few, medium, distinct, light brownish-gray (10YR 6/2) mottles; moderate, medium, angular blocky structure in weak medium prisms; firm; dark reddish-gray (5YR 4/2) ped coats; clay films evident in pores; some greenish-gray (5GY 5/1) ped coats in lower part; few roots; between 5 and 10 percent coarse fragments; neutral; clear, wavy boundary. 6 to 20 inches thick.

B3--20 to 24 inches, reddish-brown silty clay loam, similar to B2t horizon but weakly calcareous; clear, wavy boundary. 0 to 5 inches thick.

C--24 to 50 inches, reddish brown (5YR 4/3) heavy loam; moderate, medium, platy structure; very firm; approximately 15 percent coarse fragments; calcareous.

Thickness of the solum ranges from 20 to 36 inches. Depth to carbonates ranges from 18 to 36 inches. Bedrock is at a depth of more than 40 inches. The solum is medium acid to mildy alkaline. Content of coarse fragments ranges from 1 to 25 percent and typically increases with depth. A chroma of 2 or less is dominant on ped faces, but chroma of more than 2 is dominant on the matrix from top of the A2 horizon to a depth of 30 inches.

The Ap horizon is 10YR or 7.5YR in hue and 2 or 3 in chroma. The Ap horizon is 3 or 4 in value when moist and more than 5.5 when dry. The A2 horizon is absent in some profiles. Where present, the A2 horizon is 10YR or 7.5YR in hue, ranges from 4 to 6 in value, and is 2 or 3 in chroma. Mottles are distinct or prominent. The Bt horizon has hues ranging from 7.5YR to 2.5YR, value of 4 or 5, and chroma of 3 or 4. Ped faces have a dominant chroma of 2 or less. The clay content of the Bt horizon averages between 28 and 35 percent. The Bt horizon is generally clay loam or silty clay loam. Carbonates are present in the lower part of some, but not all, profiles.

The C horizon above a depth of 40 inches is comparable in color to the Bt horizon, but its texture is generally slightly coarser. Structure is typically platy.

Ovid soils formed in deposits similar to those of the moderately well drained to well drained Cazenovia soils. Ovid soils are wetter than Hilton soils and have a finer textured Bt horizon. They have a coarser textured Bt horizon than Churchville soils. Ovid soils have a coarser textured Bt horizon than Lockport soils and are more than 3 1/2 feet to rock. Ovid soils are better drained than Sun soils.

Ovid silt loam, 0 to 2 percent slopes (OvA).--This soil has the profile described as representative for the series. It is in large, nearly level areas that normally are near the beds of old postglacial lakes. These areas are at a slightly higher elevation than the lakebed proper. Areas range from about 5 to more than 100 acres in size. The average-sized area is 20 acres or more. The areas normally are roughly oblong.

Most commonly included with this soil in mapping are areas of Churchville, Cazenovia, Cayuga, and Appleton soils. Churchville and Cayuga soils are included in areas where clay caps the underlying glacial till. Cazenovia soils are similar to this Ovid soil but are better drained. Appleton soils are similar to this Ovid soil in drainage but are

coarser textured. Brown inclusions of similarly textured soils are common north of the limestone escarpment. Some areas near the limestone escarpment have inclusions of soils that are moderately deep to limestone. Gravelly or stony areas are generally indicated on the soil map by the appropriate symbols.

This soil is suited to grain, hay, pasture, and trees. Under good management, it can be used for other crops such as vegetables and fruit. Dominant management needs on this soil are adequate systems of surface and subsurface drainage. The maintenance of tilth may be difficult if this soil is cropped intensively. Locally, gravel or stones hinder cultivation and the growth of certain crops. (Capability unit IIIw-1; woodland suitability group 3w2)

Ovid silt loam, 2 to 6 percent slopes (OvB).--This soil has a profile similar to that described as representative for the series, except that the surface layer is thinner in some places, more coarse fragments are in the surface layer in many places, and the subsoil is generally directly under the plow layer. This soil occupies undulating areas near beds of old glacial lakes. In many places it occurs along drainageways where the landscape is dissected. Areas range from about 5 to 50 acres in size. The average-sized area is about 10 acres. In many places the areas are roughly oblong.

Most commonly included with this soil in mapping are areas of Cazenovia, Cayuga, and Churchville soils. The Cazenovia soil is similar to this Ovid soil but better drained. The Cayuga soil is finer textured in the upper part and better drained, and the Churchville is finer textured. Coarser textured Hilton and Appleton soils are minor inclusions. Brown inclusions of similarly textured soils are common north of the limestone escarpment. Some areas near the limestone escarpment have inclusions of soils that are moderately deep to limestone. Gravelly or stony areas are generally indicated on the soil map by the appropriate symbols.

This soil is suited to grain, hay, pasture, and trees. Under good management, it can be used for vegetables, fruit, and other crops. Dominant management needs are surface and subsurface drainage. Some erosion control measures are necessary if this soil is used intensively. In intensively cultivated areas the maintenance of good tilth is difficult. Locally, gravel or stones hinder the growth and cultivation of certain crops. (Capability unit IIIw-5; woodland suitability group 3w2)

Ovid silt loam, limestone substratum, 0 to 3 percent slopes (OwA).--This soil differs from Ovid silt loam, 0 to 2 percent slopes, because it is underlain by limestone bedrock at a depth ranging from 3 1/2 to 6 feet. In most places this soil contains larger coarse fragments than Ovid silt loam, 0 to 2 percent slopes. This soil occupies areas near the limestone escarpment or other areas where limestone bedrock is at a depth of 3 1/2 to 6 feet. Areas range from about 5 to 50 acres in size. They are roughly oblong in most places.

Commonly included with this soil in mapping are areas of Churchville soils that occur where lake-laid clay caps the glacial till. Commonly included are small areas of a soil that is less than 3 1/2 feet to bedrock. In other included areas bedrock is at a depth of more than 6 feet. In a few places areas of the coarser textured Appleton soils are included. In some included areas south of the villages of Gasport and Middleport, the soil is underlain by gray shale rather than hard dolomitic limestone.

This soil is not so well suited to crops as Ovid silt loam, 0 to 2 percent slopes. In many places it has slightly finer texture, more stones, and bedrock within 6 feet of the surface. It can be used for most crops grown in the area, but it is not so well suited as the deeper Ovid soils. Vegetables or fruit generally are not suited. Drainage is needed but is difficult to establish in many places because of the stones and bedrock. (Capability unit IIIw-1; woodland suitability group 3w2)

Ovid silt loam, limestone substratum, 3 to 8 percent slopes (OwB).--This soil has a profile that differs from the one described as representative for the series mainly because bedrock is at a depth ranging from 3 1/2 to 6 feet. In most places this soil contains larger coarse fragments than the soil with the profile described as representative. It occupies areas near the limestone escarpment or other areas where the limestone bedrock is at a depth of 3 1/2 to 6 feet. Areas range from about 5 to 50 acres in size. They generally are roughly oblong and are parallel to the escarpment areas.

Included with this soil in mapping are some fairly large areas of Churchville soils where lake-laid clay caps the glacial till. Commonly included are small areas that are less than 3 1/2 feet to bedrock. In some places soils that are more than 6 feet to rock are included. The better drained Cazenovia, Hilton, and Cayuga soils are minor inclusions. Some areas of this soil south of the villages of Gasport and Middleport are underlain by gray shale rather than hard dolomitic limestone.

This soil is not so well suited to crops as Ovid silt loam, 0 to 2 percent slopes. In many places, texture is slightly finer, the soil contains more stones, and bedrock is within 6 feet of the surface. This soil can be used for most crops grown in the area but is not so well suited as the deeper Ovid soils. Vegetables or fruits generally are not suited. Drainage is needed but, in many places, is difficult to establish because of stones and bedrock. Also, there is a moderate hazard of erosion if this soil is cultivated and not protected. (Capability unit IIIw-5; woodland suitability group 3w2)

Phelps Series

The Phelps series consists of deep, moderately well drained, medium-textured, gravelly soils. These soils formed in neutral to mildly alkaline glacial outwash and glacial beach deposits of sand and

459-801 O - 72 - 12

APPENDIX B

PROPOSED UPDATED NYS REGISTRY

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

CLASSIFICATION CODE: **REGION:** 9 **SITE CODE:** 932003

NAME OF SITE : Allied Chemical - Elberta Works
STREET ADDRESS: 3119 Randall Road
TOWN/CITY: Ransomville **COUNTY:** Niagara **ZIP:**

SITE TYPE: Open Dump-X Structure- Lagoon- Landfill- Treatment Pond-
ESTIMATED SIZE: less than 1 Acres

SITE OWNER/OPERATOR INFORMATION:
CURRENT OWNER NAME....: Welland Chemicals
CURRENT OWNER ADDRESS.: Scott Road, Sarnia, Ontario, Canada
OWNER(S) DURING USE...: Allied Chemical Corporation
OPERATOR DURING USE...: Same as above
OPERATOR ADDRESS.....: Same as above
PERIOD ASSOCIATED WITH HAZARDOUS WASTE: From 1950 To 1972 or 1977

SITE DESCRIPTION:

The site was a burial area for refractory materials and trace amoounts of aluminum chloride. Any hydrochloric acid formed would likely have been leached away. The four on-site monitoring wells are in good condition. Groundwater samples are collected on a regular basis and analyzed for chloride and aluminum. These samples only reflect the lagoons located on site and not the disposal area.

HAZARDOUS WASTE DISPOSED: Confirmed-X Suspected -

TYPE	QUANTITY (units)
Refractory Material with Graphite	12 tons/year
Aluminum Chloride	Trace

SITE CODE:

ANALYTICAL DATA AVAILABLE:

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

CONTRAVENTION OF STANDARDS:

Groundwater- Drinking Water- Surface Water- Air-

LEGAL ACTION: None

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

REMEDIAL ACTION: None

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

GEOTECHNICAL INFORMATION:
SOIL TYPE: Clay
GROUNDWATER DEPTH: About one (1) foot (seasonal)

ASSESSMENT OF ENVIRONMENTAL PROBLEMS:
No significant environmental problems identified.

ASSESSMENT OF HEALTH PROBLEMS:

PERSON(S) COMPLETING THIS FORM:

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION		NEW YORK STATE DEPARTMENT OF HEALTH	
NAME.:	Robert Senior	NAME.:	R. Tramontano
TITLE:	Senior Sanitary Engineer	TITLE:	Bur. Tox. Subst.
NAME.:	Peter Buechi	NAME.:	
TITLE:	Associate Sanitary Engineer	TITLE:	
DATE.:	November 21, 1983	DATE.:	