932003

FINAL

SB-5202 D3416

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

PRELIMINARY SITE ASSESSMENT
TASK I

Allied Chemical - Elberta Works Site
Site Number 932003
Town of Wilson, Niagara County

August 1991

DEPARTMENT OF ENVIRONMENTAL CONSERVATION • NEW YORK STATE •

Prepared for:

New York State Department of Environmental Conservation

50 Wolf Road, Albany, New York 12233
Thomas C. Jorling, Commissioner

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

Prepared by:

Ecology and Environment Engineering, P.C.

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1. EXECUTIVE SUMMARY

The Allied Chemical-Elberta Works site (Site I.D. No. 932003) is located at 3119 Randall Road in the Town of Wilson, Niagara County, New York (see Figures 1-1 and 1-2). From 1945 to 1985 aluminum chloride was manufactured on site by reacting chlorine gas with aluminum ingots. The wastes produced from this process, including aluminum chloride, refractory material containing graphite, and wastes containing trace amounts of asbestos, were landfilled on the property (Ref. 1). The exact amount of waste in the landfill is not clear due to conflicting sources of information. During the Phase I investigation, James Lanzo of DAL Specialties, a former owner of the site (1983-1985), stated that an estimated 324 tons of waste were landfilled from 1950 to 1977. However, during the Preliminary Site Assessment, Mr. George Kanelis, Manager of Environmental Administration for Allied Signal, reported that 1,500 tons of waste was landfilled from 1956 to 1972 (Ref. 2). In addition to the landfill, four on-site lagoons received wastes from the process area (Ref. 15). In 1979, four groundwater monitoring wells were installed on the Allied Chemical Site by Calspan Advanced Technology Center. These wells were observed and photodocumented by the inspection team. The purpose of the monitoring wells was to evaluate the impact of the lagoons, which received wastes from the manufacturing of aluminum chloride, on groundwater quality (Ref. 13). The Calspan Report results indicated that aluminum concentrations were low in all four monitoring wells and usually below levels of sensitive measurement (i.e., <0.10 mg/L) (Ref. 13).

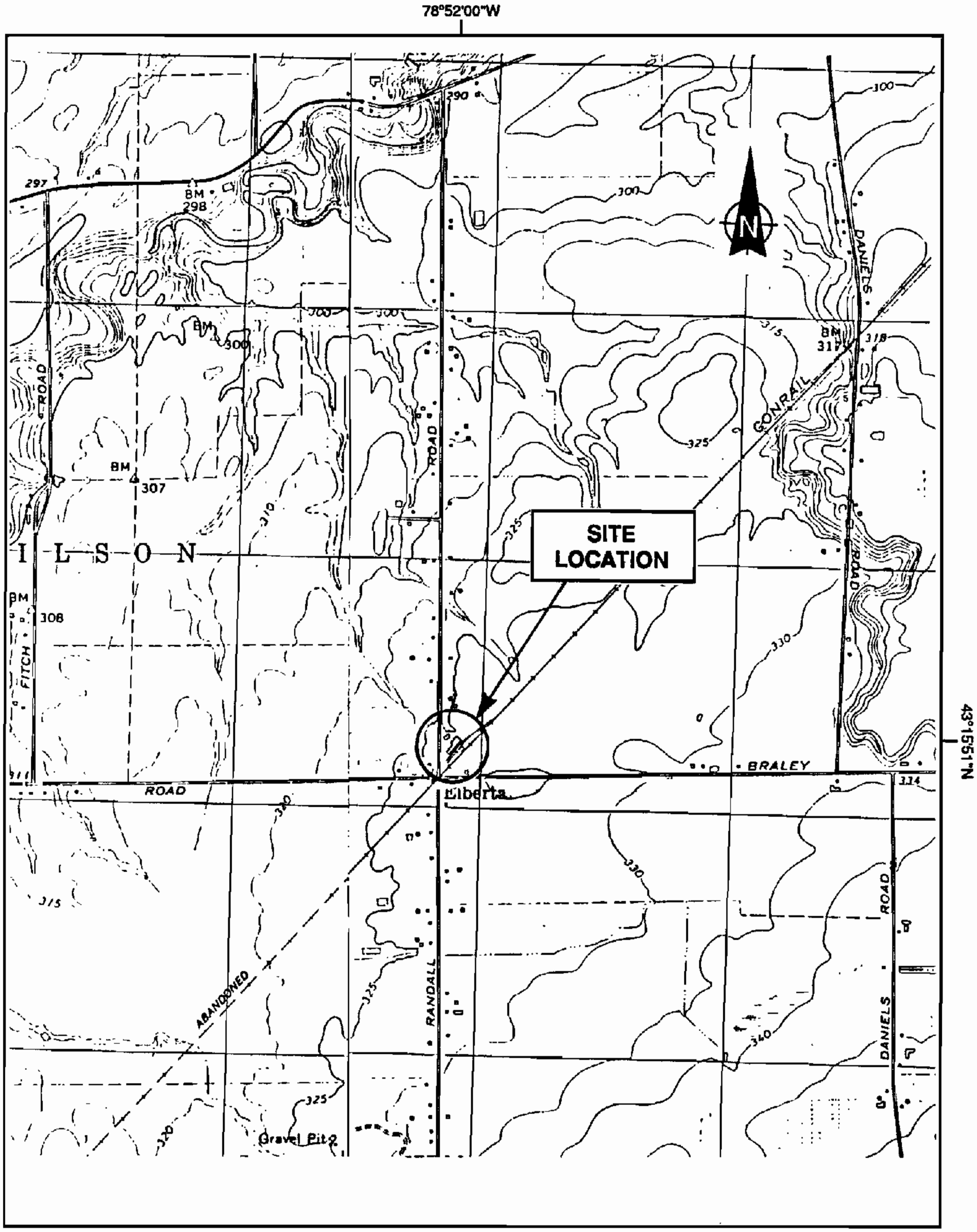
In 1945, the Elberta Chemical Works Company began producing aluminum chloride. In April 1956, Allied chemical acquired the plant and continued the aluminum chloride operations. In 1982, DAL Specialties bought the property and also produced aluminum chloride. In 1985, Welland Chemical of Ontario acquired DAL Specialties and ceased operations at the plant. From 1985 to 1989 the site remained vacant. In 1989, EVA Corporation, owned by Ronald Fedkiw, bought the property to operate his pet supply business. One building on the property is used as a warehouse for the pet supplies; the remaining buildings are vacant (Ref. 3).

Currently, the entire site is fenced with a locked gate. The area used as the landfill has been covered by a building and asphalt, and the four lagoons have dried up. Approximately 2,882 people live within a 3-mile radius of the site. Municipal water is the primary source for potable water in the study area. Private wells are present within 3 miles but the current uses are unknown (Ref. 18).

On April 29, 1991, a site inspection was conducted along the site perimeter from outside the fence since the current owner was out of town. Ecology and Environment Engineering, P.C. (E & E) environmental analysts Linda Fischer and Scott Glinski, and NYSDEC Region 9 Engineer Yavuz Erk conducted the inspection. No readings above background levels were noted on the Hnu and minirad. Photographs taken during the site inspection are presented as Figure 1-3. In 1988, a site inspection was conducted by the United States Environmental Protection Agency. Rusted drums labeled aluminum chloride were observed on site (Ref. 18).

A characteristic of aluminum chloride, which was landfilled on site, is that it is violently reactive and gives off a great deal of heat when combined with water (Ref. 4). According to 6 NYCRR Part 371.3, a waste that reacts violently with water is considered a hazardous waste (Ref. 5). For the aluminum chloride waste to exhibit reactivity it must not be hydrated. A telephone interview with Mr. George Kanelis, Manager of Environmental Administration for Allied Signal, Inc., formerly Allied Chemical, revealed that at the time of the landfilling, the aluminum chloride was anhydrous, thus making it a hazardous waste (Ref. 16). Mr. Kanelis also stated in previous correspondence with NYSDEC (Ref. 17) that there is no evidence that the aluminum chloride was placed in drums prior to landfilling (Ref. 19). Drummed aluminum chloride was shipped off site from 1979 to 1981 as hazardous waste by DAL Specialties (Ref. 19). The area in which the aluminum chloride waste was landfilled is now covered with asphalt and a vacant building. It is possible that the aluminum chloride may have already come in contact with water and dissipated into aluminum hydroxide and hydrochloric acid (HCL).

Disposal of aluminum chloride has been confirmed at this site, but the hazardous nature of the waste could not be substantiated in writing. If the aluminum chloride was anhydrous and placed in drums prior to landfilling, the waste would be considered hazardous. If the aluminum chloride was hydrated or not containerized prior to disposal, it would probably no longer be reactive and; therefore, not a hazardous waste. E & E recommends further investigation, including soil, groundwater, and surface water sampling, be performed in the landfill area to determine if a significant threat to human health or the environment is posed by the aluminum chloride on site.



SOURCE: USGS 7.5 Minute Series (Topographic) Quadrangle: Wilson, NY, 1979, and Sixmile Creek, NY (1974).

SCALE

0 1000 2000 3000 4000 FEET

Figure 1-1
LOCATION MAP, ALLIED CHEMICAL-ELBERTA WORKS SITE

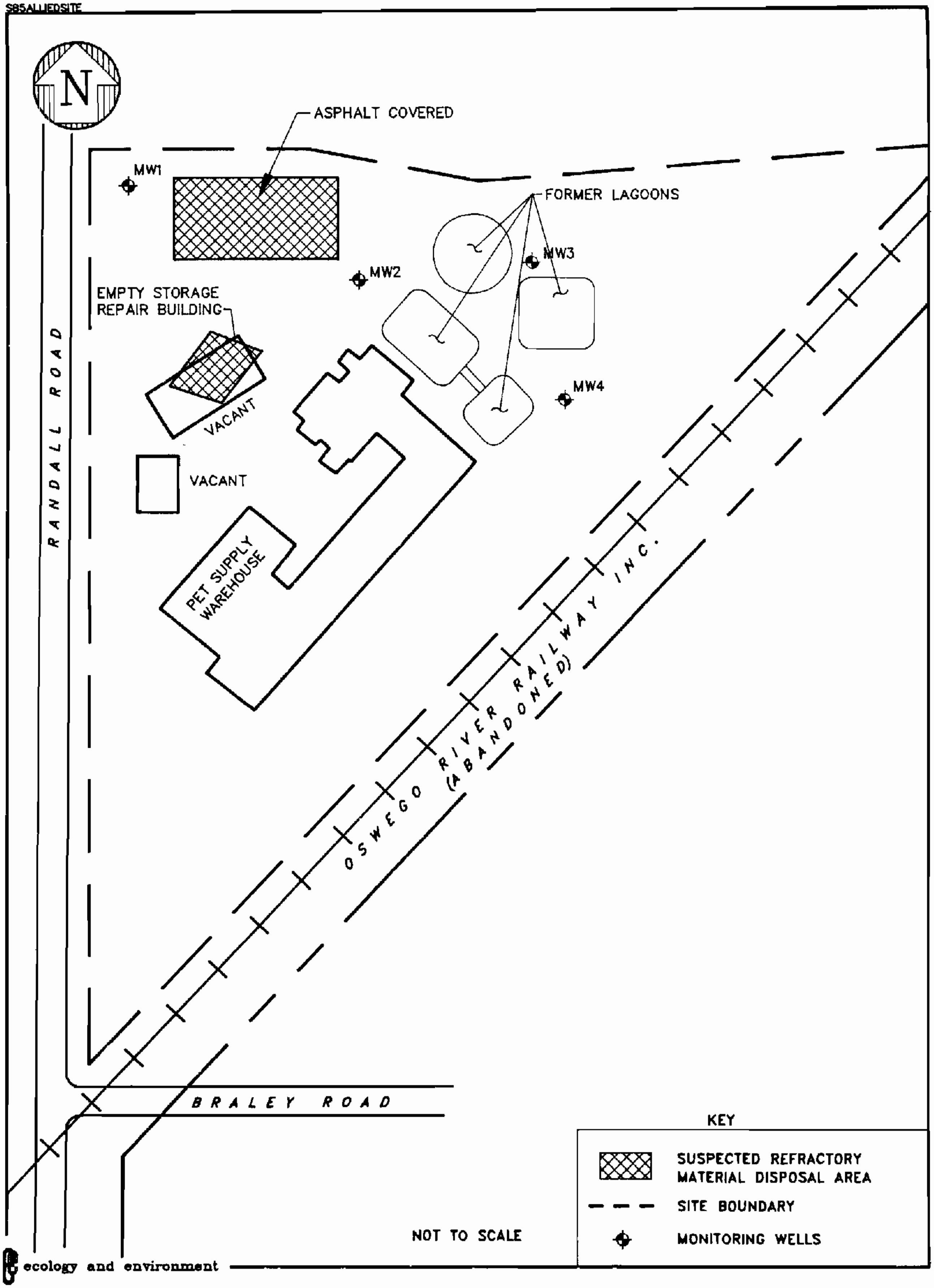
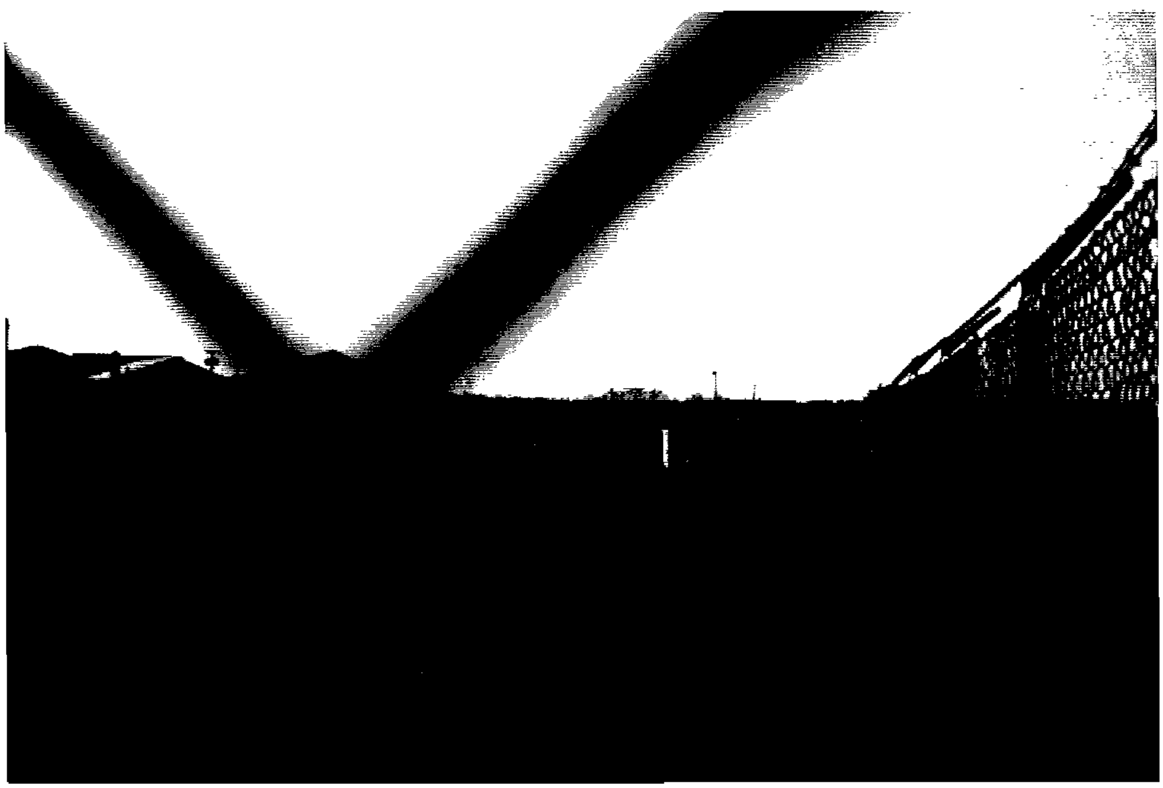


Figure 1-2 SITE MAP, ALLIED CHEMICAL - ELBERTA WORKS SITE

FIGURE 1-3
PHOTOGRAPHIC LOGS

ecology and environment engineering, p.c.
PHOTOGRAPHIC RECORD

Client: NYSDEC	E & E Job No.: SB5200
Site: Allied Chemical	
Camera: Make Kodak 35mm	SN Disposable
Lens Type --	SN --
	Photographer: Linda Fischer Date: 4/29/91
	Time: 1:30 p.m. Frame No.: 11
	Comments*: Standing outside the fence on the fence abandoned railroad tracks. Direction southeast, monitoring well 3 location.
	*Comments to include location.



02:3416PHOTO-06/21/91-D1

ecology and environment engineering, p.c.
PHOTOGRAPHIC RECORD

Client: NYSDEC	E & E Job No.: SB5200
Site: Allied Chemical	
Camera: Make Kodak 35mm	SN Disposable
Lens Type --	SN –
	Photographer: Linda Fischer Date: 4/29/91
	Time: 1:30 p.m. Frame No.: 12
	Comments*: Photo taken while standing on the abandoned railroad tracks. Direction north: debris and pallets scattered behind buildings.
	*Comments to include location.

02:3416PHOTO-06/21/91-D1

ecology and environment engineering, p.c.
PHOTOGRAPHIC RECORD

Client: NYSDEC		E & E Job No.: SB5200	
Site: Allied Chemical			
Camera: Make	Kodak 35mm	SN	Disposable
Lens Type	--	SN	--
		Photographer: Linda Fischer	Date: 4/29/91
		Time: 1:30 p.m.	Frame No.: 13

Comments*: Facing south the suspected landfilling of refractory material, now covered with asphalt.

*Comments to include location.

02:3416PHOTO-06/21/91-D1

ecology and environment engineering, p.c.
PHOTOGRAPHIC RECORD

Client: NYSDEC	E & E Job No.: SB5200
Site: Allied Chemical	
Camera: Make Kodak 35mm	SN Disposable
Lens Type --	SN --
	Photographer: Linda Fischer Date: 4/29/91
	Time: 1:30 p.m. Frame No.: 14
	Comments*: Direction east, suspected area of landfill covered with asphalt.
	*Comments to include location.

02:3416PHOTO-05/21/91-D1

ecology and environment engineering, p.c.
PHOTOGRAPHIC RECORD

Client: NYSDEC	E & E Job No.: SB5200
Site: Allied Chemical	
Camera: Make Kodak 35mm	SN Disposable
Lens Type --	SN --
	Photographer: Linda Fischer Date: 4/29/91
	Time: 1:30 p.m. Frame No.: 15
	Comments*: Standing on Randall Road, looking east to corner of property: office building and warehouse.
	*Comments to include location.

47-15-25 (11/90)-9d

Original - BHSD
Copy - REGION
Copy - DEE
Copy - DOH
Copy - PREPARER

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
DIVISION OF HAZARDOUS WASTE REMEDIATION

ADDITIONS/CHANGES TO REGISTRY OF INACTIVE HAZARDOUS WASTE DISPOSAL SITES

1. Site Name	2. Site Number	3. Town	4. County
Allied Chemical-Elberta Works	932003	Wilson	Niagara

5. Region: 9
6. Classification: Current 2a /Proposed ______
7. Activity: [ ] Add [ ] Reclassify [ ] Delist [ ] Modify ______

8a. Describe location of site (attach USGS topographic map showing site location).
The Allied Chemical-Elberta Works site is located in Niagara County, in the Town of Wilson, at the northeast corner of the intersection of Randall and Braley roads.
b. Quadrangle 7.5-minute c. Site latitude 43° 15' 51" N Longitude 78° 52' 00" W d. Tax Map Number 049.00.1-23-80

9a. Briefly describe the site (attach site plan showing disposal/sampling locations)
The Allied Chemical-Elberta Works site manufactured aluminum chloride from 1945 to 1985. Allied Chemicals landfilled on site an estimated 324 to 1,500 tons of waste aluminum chloride, and refractory materials, containing graphite material in two areas. These two areas are now covered by pavement and a building.
b. Area 3 acres c. EPA ID number NYD002128544 d. PA/SI [X] Yes [ ] No
e. Completed: [X] Phase I [ ] Phase II [ ] PSA [ ] Sampling

10. Briefly list the type and quantity of the hazardous waste and the dates that it was disposed of at this site.

From 1956 to 1977 an estimated 324 to 1,500 tons of aluminum chloride processing waste was landfilled on the property in two areas.

11a. Summarized sampling data attached

[ ] Air [X] Groundwater [ ] Surface Water [ ] Soil [ ] Waste [ ] EP Tox [ ] TCLP

b. List contravened parameters and values

None.

12. Site impact data

a. Nearest surface water: Distance .5 mile Direction S Classification Class D
b. Nearest groundwater: Depth 2-6 ft. Flow direction NW [ ] Sole source [ ] Primary [ ] Principal
c. Nearest water supply: Distance 10 mi. Direction N Active [X] Yes [ ] No
d. Nearest building: Distance on-site ft. Direction ______ Use Storage/Warehouse
e. Crops/livestock on site? [ ] Yes [X] No
f. Exposed hazardous waste? [ ] Yes [X] No
g. Controlled site access? [X] Yes [ ] No
h. Documented fish or wildlife mortality? [ ] Yes [X] No
i. Impact on special status fish or wildlife resource? [ ] Yes [X] No
j. Within a State Economic Development Zone? [ ] Yes [X] No
k. For Class 2A: Code ______ Health model score ______
l. For Class 2: Priority category ______
m. HRS Score ____
n. Significant threat [ ] Yes ______ [ ] No [X] Unknown

13. Site owner's name	14. Address	15. Telephone Number
Ronald Fedkiw, EVA Corporation	3119 Randall Road, Ransomville, New York 14131	(716) 751-6243

16. Preparer

Linda Fischer Ecology and Environment Engineering, P.C.
Name, title, and organization

May 10, 1991
Date

Josephine H. Burton for Linda Fischer
Signature

17 Approved

______
Name, title, and organization

______
Date

______
Signature

2. PURPOSE

Task 1 of the Preliminary Site Assessment (PSA), Data Records Search and Assessment, was conducted by Ecology and Environment Engineering, P.C. (E & E) under contract to the New York State Department of Environmental Conservation (NYSDEC) Superfund Standby Contract (Contract No. D002526).

Task 1 involves the search for proof of disposal of hazardous waste and proof of a significant threat to human health or the environment. Additional investigation may also be recommended.

The purpose of the PSA is to provide the information for NYSDEC to reclassify the site according to the following classifications:

- **Class 2.** Hazardous waste sites presenting a significant threat to the public health or the environment;
- **Class 3.** Hazardous waste sites not presenting a significant threat to the public health or the environment; and
- **Delist.** Sites where hazardous waste disposal cannot be documented.

The Allied Chemical-Elberta Works site is currently classified as 2a (and not the above classifications) because there is insufficient information to document hazardous waste disposal and/or assess the significance of potential risks to public health or the environment.

3. SCOPE OF WORK

Task 1 of the Preliminary Site Assessment at the Allied Chemical-Elberta Works site comprised several interrelated subtasks as follows.

File Reviews and Data Search

An extensive data search was conducted utilizing state, county, municipal, and site-specific sources. This information was compiled from existing data as well as new sources, and a preliminary characterization of the site was developed after review.

Sources contacted during the Preliminary Site Assessment are listed in Table 3-1.

Site Inspection

A site inspection from the site perimeter only was conducted on April 29, 1991 in order to assess the site surface characteristics and observe evidence (if any) of hazardous substances or wastes, photograph the site, conduct preliminary air monitoring, and confirm information obtained from the initial data search. A United States Environmental Protection Agency (EPA) Site Inspection Report (EPA Form 2070-13) was completed following the site inspection.

Participants of the site inspection included:

Name	Title	Affiliation
Linda Fischer	Environmental Analyst	E & E
Scott Glinski	Environmental Analyst	E & E
Yavuz Erk	Environmental Engineer	NYSDEC

At the time of the site inspection, the areas indicated as lagoons on Figure 1-2 were completely dried up and vegetated with high grass. Also, there was no evidence of stressed vegetation or leaching in the entire site.

Table 3-1

SOURCES CONTACTED FOR THE NYSDEC PSA
ALLIED CHEMICAL-ELBERTA WORKS SITE
WILSON, NEW YORK

Allied-Signal, Inc. 101 Columbia Road Morristown, New Jersey 07962 Contact: George Kanelis, Manager, Environmental Administration Telephone: 201/455-2000 Date: May 7, 1991 Information: History of ownership, manufacturing process performed by Allied Chemical.
EVA Corporation 3119 Randall Road Ransomville, New York 14131 Contact: Ronald Fedkiw Telephone: 716/751-6243 Date: May 8, 1991 Information: Current use of site.
New York State Department of Environmental Conservation Division of Hazardous and Solid Waste 584 Delaware Avenue Buffalo, New York 14202 Contact: Yavuz Erk Telephone: 716/847-4585 Date: April 22, 1991 Information Gathered: File search.
New York State Department of Environmental Conservation Bureau of Hazardous Site Control 50 Wolf Road Albany, New York 12233 Contact: Valerie Lauzze Telephone: 518/457-9538 Date: April 17-18, 1991 Information Gathered: File search.
New York State Department of Health Bureau of Environmental Exposure 2 University Plaza Room 205 Albany, New York 12203 Contact: Andy Carlson Telephone: 518/458-6309 Date: April 16-17, 1991 Information Gathered: File search.

Table 3-1

SOURCES CONTACTED FOR THE NYSDEC PSA
ALLIED CHEMICAL-ELBERTA WORKS SITE
WILSON, NEW YORK

Niagara County Environmental Management Council County Courthouse, Lockport, New York 14094 Contact: Joann Ellsworth Telephone: 716/439-6170 Date: April 25, 1991 Information: Information on land use, wetlands, flood plains, zoning, waterlines.
Niagara County Department of Health 10th and Falls Streets Niagara Falls, New York Contact: Paul Dicky Telephone: 716/284-3128 Date: April 25, 1991 Information Gathered: File information.
Niagara County Highway Department 225 South Niagara Street Lockport, New York 14094 Contact: Gary Hinton Telephone: 716/439-6066 Date: April 26, 1991 Information Gathered: Aerial photographs from 1938, 1951, 1955, 1966, 1982.
Niagara County Department of Planning County Office Building Lockport, New York Contact: Rick Seekins Telephone: 716/439-6033 Date: April 25, 1991 Information Gathered: 1990 Census data.
Niagara County Real Property Tax Director County Courthouse, Lockport, New York 14094 Contact: Hazel Hasley Telephone: 716/439-6111 Date: April 25, 1991 Information Gathered: Tax maps and site ownership history.
Town of Wilson Water Department 3360 Wilson Road Wilson, New York 14172 Contact: Mark Smith Telephone: 716/751-6213 Date: April 24, 1991 Information Gathered: Information concerning water usage surrounding site.

Table 3-1

SOURCES CONTACTED FOR THE NYSDEC PSA
ALLIED CHEMICAL-ELBERTA WORKS SITE
WILSON, NEW YORK

United States Department of Agriculture Soil Conservation Service Cornell Cooperative Extension 4487 Lake Avenue Lockport, New York 14094 Contact: Darcy Tone Telephone: 716/434-4949 Date: April 30, 1991 Information Gathered: Soil survey, agriculture districts, and prime farmland.
Welland Chemicals, Ltd. Scott Road, Ontario, Canada Contact: Alex Ballantyne Telephone: 519/336-2287 Date: April 19, 1991 Information Gathered: Information regarding sale of property in 1989.

4. SITE ASSESSMENT

4.1 SITE HISTORY

The Allied Chemical-Elberta Works site, an approximately 3-acre area, is located in the Town of Wilson, Niagara County, New York. Elberta Chemical Works Company operated the plant from 1945 to 1956 and produced aluminum chloride. The aluminum chloride manufacturing process involved reacting chlorine gas with aluminum ingots to make aluminum chloride. In 1956, Allied Chemical acquired the Elberta Chemical Works Company and continued plant operations until 1983. In 1983, DAL Specialties bought the plant, and also continued aluminum chloride production. Welland Chemicals acquired DAL Specialties in 1985 and ceased all operations at the site (Ref. 6). From 1985 to 1989, when EVA Corporation, owned by Ronald Fedkiw, took title to the property, the site was unoccupied. Currently, Mr. Fedkiw uses one building to warehouse pet supplies including food and equipment (Ref. 3).

The section of the property under investigation is the northwest portion in which wastes generated in the processing of aluminum chloride were landfilled.

The exact amount of aluminum chloride waste that was landfilled on site is unknown. During the Phase I investigation, James Lanzo, owner of DAL Specialties (1983-1985), stated that an estimated 324 tons of waste were landfilled from 1950 to 1977. However, during the Preliminary Site

Assessment it was discovered that 1,500 tons of waste was landfilled from 1956 to 1972 (Ref. 17).

In addition to the landfill area, four lagoons were utilized for the containment of cooling and floor drain waters from the aluminum chloride manufacturing area. These lagoons were located east of the landfill area. Today, these former lagoons are completely vegetated.

4.2 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 3 acres; however, actual waste burial sites are believed to be confined to two areas totaling less than 1 acre. The plant property, including the two landfill disposal areas is entirely fenced. A locked gate restricts unauthorized access. The site is well vegetated with tall grass and cattails. No stressed vegetation was noted. 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 (Ref. 7).

Surface water runoff in the vicinity of the landfill areas is primarily to the northwest and could enter roadside stream ditches. Discharge from these ditches would eventually be into Twelve Mile Creek, approximately 0.5 mile northwest of the site (Ref. 8).

The surrounding residences use primarily municipal water supplied from the Niagara River for drinking water. Private wells are known to exist in the area but their current uses and condition are unknown (Ref. 18). There are no wetlands or critical habitats within a 1-mile radius of the site (Ref. 9).

4.3 SITE HYDROLOGY

Niagara County lies within the Central Lowland physiographic province. Specifically, it lies in the Eastern Lake section and occupies part of the Huron and Ontario Plains (Ref. 10).

This area, known as the Niagara Frontier, is relatively flat and broken by two east-west trending escarpments: the Niagara Escarpment and the Onondaga Escarpment. The site lies on the flat area between these escarpments called the Tonawanda Plain. This was the site of the postglacial Lake Tonawanda (Ref. 11).

Sediments in this area consist mainly of lacustrine deposits and glacial tills. The lacustrine deposits (i.e., silts and clays that settled to the bottom of the postglacial lake) are generally olive and brownish sediments overlying a red clay. The olive and brownish lacustrine sediments were deposited in glacial Lake Tonawanda following the Wisconsin Ice Age. These sediments blanket a red clay that was deposited following an earlier ice age in glacial Lake Lundy which at one time covered the entire county. Glacial till also occupies a large part of the surface area in the county and underlies most areas of lake sediments. The glacial till deposits consist of ground moraines, drumlins, eskers, and terminal moraines. Ground moraines occupy the low undulating till plain and are approximately 10 to 15 feet thick. Drumlins are rounded hills of bedrock or till that were molded beneath the ice and are elongated in the direction of ice flow. Drumlins in Niagara County are very subdued due to modification by the glacial lakes. Eskers are thin elongated ridges of pebbly till trending northeast-southwest. These ridges may be related to giant flutings (furrows or grooves cut by glaciers) in the underlying Queenston shale. The terminal moraines have a general east-west trend and were formed when the ice stagnated for a long period of time. Other deposits, consisting of glacial outwash and beach deposits, exist in large belts (up to 8 miles in length) and are generally 1 to 10 feet thick (Ref. 10).

Surface drainage of the Ontario Plain is northward into Lake Ontario and soil drainage is relatively poor. Surface drainage of the Huron Plain is southward into Tonawanda Creek and is also not well developed (Ref. 10).

The lacustrine sediments and glacial till of the Niagara Frontier are underlain by sedimentary rocks varying in thickness from 1,980 to 4,200 feet and are Ordovician, Silurian, and Devonian in age. The lower part of the Ordovician system is composed primarily of limestones and dolostones. The upper part is composed of massive shales, interbedded with thin sandstone layers. These are in turn overlain by the red shales of the Queenston formation.

The Silurian system is composed of the Medina, Clinton, Lockport, and Salina groups. The Medina group consists of sandstones, shales, and siltstones. These are overlain by the limestones, shales, and dolostones of the Clinton, which in turn are overlain by the dolostones of the Lockport group. Above the Lockport are shales, siltstones, and dolostones, and gypsum, anhydrite, and salt beds of the Salina group. The poorly drained Tonawanda Plain is formed on the weathered surface of the Lockport and Salina groups.

The Devonian system overlies Silurian rocks to the south of Niagara County. The formation at the Devonian-Silurian contact is the Onondaga limestone which is a massive cherty limestone that outcrops across most of northern Erie County (Ref. 11).

The county's municipal water district draws its water from the Niagara River. However, some rural residents depend on both bedrock and overburden wells. The site is located north of the Niagara Escarpment. The bedrock wells north of the Niagara Escarpment are dug or drilled into the Queenston shale. The yields of water are often inadequate during extended dry periods and may contain high levels of salt or sulfate. Shallow dug wells and springs are common in the three most permeable of the 11 soil associations in Niagara County: the Otisville-Altmar-Fredon-Stafford association, the Howard-Arkport-Phelps association, and the Hilton-Ovid-Ontario association. The Hilton-Ovid-Ontario association is located in the vicinity of the site (Ref. 10). The shallow wells are less desirable than bedrock wells due to increasing pollution of shallow groundwater, primarily by seepage (Ref. 10). There are no shallow wells in use in the vicinity of the site; however, a swimming pond located west of the site is reportedly spring fed (Ref. 14).

Bedrock beneath the site is reported to be Queenston shale (Ref. 12). Depth to bedrock is approximately 30 to 40 feet based on on-site boring logs (Ref. 13). 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 1 foot and slow permeability, assumed to be 10^{-5}cm/sec to 10^{-7} cm/sec (Ref. 10).

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 (Ref. 13).

In February 1979, four monitoring wells were installed by Calspan Advanced Technology Center to evaluate the impact of the lagoons in the groundwater quality. The depths of these wells range from 14.7 to 20 feet. These wells are located such that analytical results from these samples cannot necessarily be attributed to the landfill area (Ref. 13). From February to September 1979, groundwater samples were collected and analyzed for aluminum, chloride, conductivity, TDS, and iron. The results are presented in Table 4-1.

From these sample results it was difficult to ascertain if the elevated chloride concentrations were due to the lagoon water or natural sources (Ref. 13).

4.4 CONTAMINATION ASSESSMENT

Conflicting sources indicate that 324 to 1,500 tons of hazardous anhydrous aluminum chloride processing waste were disposed of on site. The Phase I investigation revealed that 324 tons of waste were disposed of on-site. The Preliminary Site Assessment Investigation discovered that up to 1,500 tons of waste were disposed of. Presently, the area of disposal is covered with a building and asphalt. No soil or surface water monitoring has been conducted at the site to assess if a threat to human health and/or the environment exists.

Table 4-1

AVERAGE GROUNDWATER QUALITY

February through September 1979

Monitoring Well	pH	Conductivity mhos	TDS mg/L	Chloride mg/L	Aluminum mg/L	Iron mg/L
1	7.38	3,108	2,257	714	<0.10	0.95
2	7.55	3,175	1,958	752	<0.13	0.32
3	7.87	1,600	1,054	223	<0.13	0.32
4	7.08	4,675	4,252	1,375	<0.10	0.63

Source: Calspan Corporation 1979

5. ASSESSMENT OF DATA ADEQUACY AND RECOMMENDATIONS

5.1 HAZARDOUS WASTE DEPOSITION

From 324 to 1,500 tons of reportedly anhydrous aluminum chloride processing waste and refractory material were disposed of at the former Allied Chemical-Elberta Works site (Ref. 16). According to 6 NYCRR Part 371.3 one of the characteristics of a hazardous waste is reactivity. Anhydrous aluminum chloride is violently reactive when combined with water and thus is considered a hazardous waste. Available information shows no evidence that the aluminum chloride was placed in drums prior to its disposal. If the waste was not drummed prior to disposal, the waste has probably reacted with the groundwater and is no longer reactive.

5.2 SIGNIFICANT THREAT DETERMINATION

No analytical results are available to make an accurate determination of the degree of threat to human health or the environment. In April 1991, the New York State Department of Health (NYSDOH) performed an on-site evaluation and surrounding residence inspection and found no residences using wells for potable water (Ref. 14). A 1988 site inspection conducted by USEPA identified private wells in the area but uses of the water were not confirmed (Ref. 18).

There are no wetlands or critical habitats located within a 1-mile radius of the site (Ref. 9).

The entire site is fenced including a locked gate. Therefore, direct contact with the waste is unlikely (Ref. 7). The area of landfilled waste has been covered by a building and asphalt. The area where the lagoons were located is dry and vegetated with high grass.

5.3 RECOMMENDATIONS

Presently, there is insufficient data to warrant reclassification of the site. There has been no testing of the area that received the aluminum chloride processing waste and refractory material. It is also unknown whether the aluminum chloride was drummed prior to disposal (Ref. 17). It is recommended that NYSDEC perform soil, groundwater, and surface water sampling in the landfill area.

APPENDIX A

REFERENCES

1. New York State Department of Environmental Conservation Phase I Investigation, 1988, Engineering-Science, Inc. and Dames & Moore.

2. Kanelis, George, May 7, 1991, Allied-Signal, Inc., telephone interview.

3. Fedkiw, Ronald, May 8, 1991, EVA Corporation, telephone interview.

4. The Merck Index, 1983, Tenth Edition, Properties of Aluminum Chloride.

5. New York Code of Rules and Regulations, 6 NYCRR Part 371.3, Characteristics by Hazardous Waste.

6. Ballantyne Alan, April 19, 1991, Welland Chemicals, telephone interview.

7. Ecology and Environment Engineering, P.C., April 29, 1991, site Inspection for PSA.

8. United States Geological Survey, 1979, 7.5-minute Topographic Map: Wilson Quadrangle.

9. Ellsworth, Joanne, April 25, 1991, Niagara County Environmental Management Council, Wetlands Map.

10. United States Department of Agriculture, 1972, Soil Survey of Niagara County, New York.

11. Tesmer, I.H., 1981, Colossal Cataract, State University of New York Press.

12. New York State Museum and Science Service, 1970, Niagara Sheet.

13. Calspan Advanced Technology Center, October 1979, Groundwater Monitoring, Allied Chemical-Elberta Works, Buffalo, New York.

14. VanValkenburg, Mark, May 5, 1991, New York State Department of Health, Water Use Adjacent to Allied Chemical-Elberta Works Site.

15. Lewandowski, J.P., August 17, 1982, Letter to NYSDEC regarding Allied's Elberta Works cooling ponds.

16. Kanelis, George, August 26, 1991, Allied Signal, Inc., telephone interview.

17. _________, June 24, 1991, Allied Signal, Inc., letter to Valerie Lauzze, New York State Department of Environmental Conservation.

18. United States Environmental Protection Agency, 1988, Final Draft Site Inspection Report, Allied Corporation/Syracuse Research Lab, Ransomville, New York.

19. New York State Department of Environmental Conservation Hazardous Waste Disposal Site Report, Allied Chemical Corp. - Elberta Works.

REFERENCE 1

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

REFERENCE 2

SEE APPENDIX C

Telephone Interview with George Kanelis

REFERENCE 3

SEE APPENDIX C

Telephone Interview with Ronald Fedkiw

REFERENCE 4

(1955); Kollonitsch, Fuchs, *Nature* **176**, 1081 (1955); Hinkamp, U.S. pat. **2,854,312** (1958 to Ethyl Corp.); Schechter, U.S. pat. **2,913,306** (1959 to Callery Chem.); from trimethylaluminum and diborane: Schlesinger *et al., J. Am. Chem. Soc.* **61**, 536 (1939).

Liquid. mp −64.5°; bp 44.5°; bp_{119} 0°. Reacts vigorously with water and hydrogen chloride to liberate hydrogen; ignites in air; decomposes slowly even at room temp evolving hydrogen. Forms addn products with dimethyl ether, trimethylamine and ammonia.

USE: Reducing agent; prepn of borohydrides of heavy metals; fuel for jet engines and rockets.

324. Aluminum Bromide. $AlBr_3$; mol wt 266.72. Al 10.11%, Br 89.89%. Prepd from aluminum and bromine: Nicholson *et al., Inorg. Syn.* **3**, 30 (1950).

White to yellowish-red very hygroscopic lumps, mp 97°; bp reported within the range 250-270°; d_4^{18} 3.205. Fumes strongly in air; combines with water *with violence. Keep tightly closed and protect from moist*[illegible] organic solvents such as benzene, nitrobenzene, toluene, xylene, simple hydrocarbons.

Hexahydrate, colorless to slightly yellow deliquesc crystals. mp 93°; d 2.5. Sol in water, alcohol, ether, carbon disulfide. *Keep well closed.*

USE: *Anhydrous* form as acid catalyst in organic syntheses. It is similar to anhydr $AlCl_3$ but is more reactive and more sol in organic media.

325. Aluminum *tert*-Butoxide. *2-Methyl-2-propanol aluminum salt.* $C_{12}H_{27}AlO_3$; mol wt 246.32. C 58.51%, H 11.05%, Al 10.95%, O 19.49%. $Al[OC(CH_3)_3]_3$. Prepd from aluminum *tert*-butyl alcohol and mercuric chloride: Wayne, Adkins, *Org. Syn.* **coll. vol. III**, 48 (1955).

Powder; can be recryst from benzene. Sublimes at 180°. Pure compd does not melt or decomp upon heating up to 300° in a sealed tube, but traces of moisture or *tert*-butyl alc cause it to melt at 160-200°. Very sol in organic solvents; approx 9 g dissolves in 5 g ethyl propionate at 120°.

USE: Reagent for oxidation of alcohols to ketones; in dealcoholation of orthoesters.

326. Aluminum Calcium Hydride. *Calcium tetrahydroaluminate;* calcium aluminum hydride. Al_2CaH_8; mol wt 102.10. Al 52.85%, Ca 39.26%, H 7.89%. $Ca(AlH_4)_2$. Prepd by the interaction of aluminum chloride and calcium hydride in tetrahydrofuran: Schwab, Wintersberger, *Z. Naturforsch.* **8b**, 690 (1953); Conn, Taylor, U.S. pat. **2,999,005** (1961 to Merck & Co.).

Slate-gray mass. The dry pulverized material can ignite spontaneously in moist air and is best handled under dry nitrogen. Reacts violently with water, the ensuing conflagration resembles a display of fireworks. Slightly less violent reaction with alcohols. Sol in dry tetrahydrofuran; practically insol in dry ether, dioxane, benzene.

USE: Reducing agent for aldehydes, ketones, acid chlorides. Also in the reduction of esters to alcohols, nitriles to amines, aromatic nitro compounds to azo compounds.

327. Aluminum Carbide. C_3Al_4; mol wt 143.91. Al 74.96%, C 25.04%. Al_4C_3. Prepd by heating aluminum powder with carbon: Becher in *Handbook of Preparative Inorganic Chemistry* **vol. 1**, G. Brauer, Ed. (Academic Press, New York, 2nd ed., 1963) p 832.

Yellow hexagonal crystals or powder. mp 2100°; decomposes above 2200°. d 2.36. Decomposed by water with evolution of methane (fire hazard).

USE: In generating methane; reducing metal oxides; in manuf of aluminum nitride.

328. Aluminum Cesium Sulfate. $AlCsO_8S_2$; mol wt 352.01. Al 7.66%, Cs 37.76%, O 36.36%, S 18.22%. $CsAl(SO_4)_2$. Prepn: *Gmelin's, Aluminum* (8th ed.) **35B**, pp 529-531 (1934).

Dodecahydrate, *cesium alum.* Crystals; mp reported from 105-122°. Slightly sol in cold, freely in hot water; practically insol in alcohol.

329. Aluminum Chlorate. $AlCl_3O_9$; mol wt 277.35. Al 9.73%, Cl 38.35%, O 51.92%. $Al(ClO_3)_3$. Occurs as hexahydrate and nonahydrate. Prepn: *Gmelin's Aluminum* (8th ed.) **35B**, 216-217 (1934).

Nonahydrate, ***mallebrin.*** Deliquesc crystals. Freely sol in water; sol in alc. *Keep well closed.*

USE: Disinfectant; ClO_2 manuf; prevention of yellowing of acrylic fibers.

THERAP CAT: Antiseptic, astringent.

330. Aluminum Chloride. $AlCl_3$; mol wt 133.34. Al 20.23%, Cl 79.77%. Prepd from aluminum metal in a heated stream of HCl gas: Gattermann-Wieland, *Praxis des Organischen Chemikers* (de Gruyter, Berlin, 40th ed., 1961) p 295; H. J. Becher in *Handbook of Preparative Inorganic Chemistry*, **vol. 1**, G. Brauer, Ed. (Academic Press, New York, 2nd ed., 1963) p 812. Manuf: Faith, Keyes & Clark's *Industrial Chemicals*, F. A. Lowenheim, M . K. Moran, Eds. (Wiley-Interscience, New York, 4th ed., 1975) pp 72-75. Monograph: C. A. Thomas, *Anhydrous Aluminum Chloride in Organic Chemistry*, A.C.S. Monograph Series no. 87 (Reinhold, New York, 1941).

White when pure; ordinarily gray or yellow to greenish. Fumes in air; strong odor of HCl; when heated in [illegible] quantities volatilizes without melting. Combines with water *with explosive violence* and liberation of much heat. Freely sol in many organic solvents, such as benzophenone, benzene nitrobenzene, carbon tetrachloride, chloroform. *Keep tightly closed and protected from moisture.* For physical properties *see* C. A. Thomas, *loc. cit.*

Hexahydrate, ***Aluwets, Anhydrol, Driclor.*** Colorless crystals, or white or slightly yellow deliquesc, cryst powder; odorless or slight HCl odor. One gram dissolves in 0.9 ml water, 4 ml alc; sol in ether, glycerol, propylene glycol. *Keep well closed.*

USE: The ***anhydrous*** form suitable as an acid catalyst, esp in Friedel-Crafts type reactions; in cracking of petroleum; in manuf rubbers, lubricants. The ***hexahydrate*** form used in preserving wood; disinfecting stables, slaughterhouses, etc.; in deodorants and antiperspirant preparations; refining crude oil; dyeing fabrics; manuf parchment paper. *Caution: Anhydrous* form is a strong irritant.

THERAP CAT: The *hexahydrate* as a topical astringent.

331. Aluminum Diacetate. *Bis(aceto-O)hydroxyaluminum; hydroxybis(acetato)aluminum;* basic aluminum acetate; aluminum subacetate; aluminum hydroxyacetate; Lenicet; Casil; Essitol. $C_4H_7AlO_5$; mol wt 162.08. C 29.64%, H 4.36%, Al 16.64%, O 49.36%. $Al(OH)(CH_3CO_2)_2$. Prepd from aluminum hydroxide and acetic acid or from sodium acetate and aluminum chloride hexahydrate: Hood, Ihde, *J. Am. Chem. Soc.* **72**, 2094 (1950). Other methods of prepn: *Gmelin's Aluminum* (8th ed.) **35B**, p 296 (1934). Also prepd in aq solution, *see* Aluminum Subacetate Solution.

White curdy precipitate or white amorphous powder. Material that has been oven-dried at 110° is practically insoluble in water. Freshly prepared material forms numerous hydrates and is quite sol in water. Greatest soly is obtained by formation in solution. The pharmacist's stock soln (*see* Aluminum Subacetate Solution) contains about 8% $Al(OH)(CH_3CO_2)_2$, while commercial solns used for waterproofing, contain 22 to 25% $Al(OH)(CH_3CO_2)_2$. When heated, the salt loses acetic acid, and aluminum to oxygen bonding occurs, resulting in a very insol compd of disputed nature, *see Gmelin's, loc. cit.* and Thomas, *Paper Trade J.* **100**, 36 (1935). Aq solns are generally acid to litmus; gradually become turbid and gelatinous. Sometimes a more basic salt precipitates out and settles to the bottom of the container. Increasing the pH to a marked degree will clear up an old soln due to formation of sodium acetate and sodium aluminate. Urea and thiourea have been suggested as stabilizers for aq solns.

USE: Manuf color lakes; mordant in dyeing; in waterproofing and fireproofing fabrics (solns for these purposes are known as ***red liquor*** or ***mordant rouge*** because they were originally used for preparing red color lakes); in antiperspirant formulations; as disinfectant by embalmers.

THERAP CAT: Dusting powder.

332. Aluminum Ethoxide. Aluminum ethylate. $C_6H_{15}AlO_3$; mol wt 162.15. C 44.44%, H 9.33%, Al 16.63%, O 29.60%. $Al(OC_2H_5)_3$. Prepd by reacting aluminum powder with absolute ethanol in xylene using small amounts of mercuric chloride and iodine as catalysts: Meerwein, Schmidt, *Ann.* **444**, 232 (1925); *Newer Methods of Preparative Organic Chemistry* (Interscience, New York, 1948) p 132; *see also*

REFERENCE 5

(3) The commissioner will use the criteria for listing specified in this subdivision to establish the exclusion limits referred to in section 372.1(e) of this Title.

(4) Whenever the commissioner proposes to list a solid waste as a hazardous waste where such solid waste has not been so listed by the administrator, the listing of the solid waste shall be subject to the approval of the State Environmental Board.

(Wastes listed in accordance with these criteria will be designated toxic wastes.)

Historical Note

Sec. filed May 14, 1985 eff. 60 days after filing.

371.3 Characteristics of hazardous waste. (a) *General.*

(1) A solid waste, as defined in section 371.1(c) of this Part, which is not excluded from regulation as a hazardous waste under section 371.1(e), is a hazardous waste if it exhibits any of the characteristics identified in this section.

> *Note:* Section 372.2(a) of this Title sets forth the generator's responsibility to determine whether his waste exhibits one or more of the characteristics identified in this section.

(2) A hazardous waste which is identified by a characteristic in this section, but is not listed as a hazardous waste in section 371.4 of this Part, is assigned the EPA hazardous waste number given for that characteristic by this section.

(3) For purposes of this section, the commissioner will consider a sample obtained using any of the applicable sampling methods specified in Appendix 19, *infra,* to be a representative sample.

> *Note:* A person who desires to employ an alternative sampling method to those listed in Appendix 19 is required to obtain prior written approval from the commissioner.

(b) *Characteristic of ignitability.* (1) A solid waste exhibits the characteristic of ignitability if a representative sample of the waste has any of the following properties:

(i) It is a liquid, other than an aqueous solution containing less than 24 percent ethyl alcohol by volume, and has a flash point less than 60°C (140°F). Flash point must be determined by a Pensky-Martens Closed Cup Tester, using the test method specified in the American Society for Testing and Materials (ASTM) Standard D-93-79 or D-93-80; or a Setaflash Closed Cup Tester, using the test method specified in ASTM Standard D-3278-78; or as determined by an equivalent test method approved by the commissioner as set forth in section 370.3(b) of this Title (see section 370.1[e]).

(ii) It is not a liquid and is capable under standard temperature and pressure, of causing fire through friction, absorption of moisture or spontaneous chemical changes and, when ignited, burns so vigorously and persistently that it creates a hazard.

(iii) It is an ignitable compressed gas, as defined in 49 CFR 173.300 (see section 370.1[e] of this Title), and as determined by the test methods described in that regulation or equivalent test methods approved by the commissioner as set forth in section 370.3(b) of this Title.

(iv) It is an oxidizer as defined in 49 CFR 173.151 (see section 370.1[e] of this Title).

(2) A solid waste that exhibits the characteristic of ignitability, but is not listed as a hazardous waste in section 371.4 of this Part, has the EPA hazardous waste number of D001.

(c) *Characteristic of corrosivity.* (1) A solid waste exhibits the characteristic of corrosivity if a representative sample of the waste has either of the following properties:

(i) it is aqueous and has a pH less than or equal to 2 or greater than or equal to 12.5. The pH must be determined by a pH meter using either test method 5.2 specified in the *Test Methods for the Evaluation of Solid Waste, Physical/Chemical Methods* (1980), EPA publication number SW-846 or an equivalent test method approved by the commissioner as set forth in section 370.3(b) of this Title (see section 370.1[e]); or

(ii) it is a liquid and corrodes steel (SAE 1020) at a rate greater than 6.35 mm (0.250 inch) per year at a test temperature of 55°C (130°F). Corrosion rate must be determined by the test method specified in the National Association of Corrosion Engineers (NACE) Standard TM-01-69 as standardized in *Test Methods for the Evaluation of Solid Waste, Physical/Chemical Methods* (see section 370.1[e]), or an equivalent test method approved by the commissioner as set forth in section 370.3(b).

(2) A solid waste that exhibits the characteristics of corrosivity, but is not listed as a hazardous waste in section 371.4 of this Part, has the EPA hazardous waste number of D002.

(d) *Characteristic of reactivity.* (1) A solid waste exhibits the characteristic of reactivity if a representative sample of the waste has any of the following properties:

(i) it is normally unstable and readily undergoes violent change without detonating;

(ii) it reacts violently with water;

(iii) it forms potentially explosive mixtures with water;

(iv) when mixed with water, it generates toxic gases, vapors or fumes in a quantity sufficient to present a danger to human health or the environment;

(v) it is a cyanide- or sulfide-bearing waste which, when exposed to pH conditions between 2 and 12.5, can generate toxic gases, vapors or fumes in a quantity sufficient to present a danger to human health or the environment;

(vi) it is capable of detonation or explosive reaction if it is subjected to a strong initiating source or if heated under confinement;

(vii) it is readily capable of detonation or explosive decomposition or reaction at standard temperature and pressure; and

(viii) it is a forbidden explosive, a class A explosive or a class B explosive as defined in 49 CFR 173.51 and 173.53 (see section 370.1[e] of this Title).

(2) A solid waste that exhibits the characteristic of reactivity, but is not listed as a hazardous waste in section 371.4 of this Part, has the EPA hazardous waste number of D003.

(e) *Characteristic of EP toxicity.* (1) A solid waste exhibits the characteristic of EP toxicity if, using the test methods described in Appendix 20, *infra*, or equivalent methods approved by the commissioner under the procedures set forth in section 370.3(b), the extract from a representative sample of the waste contains any of the contaminants listed in Table 1 at a concentration equal to or greater than the respective value given in that table. Where the waste contains less than 0.5 percent filterable solids, the waste itself, after filtering, is considered to be the extract for the purposes of this section.

REFERENCE 6

SEE APPENDIX C

REFERENCE 7

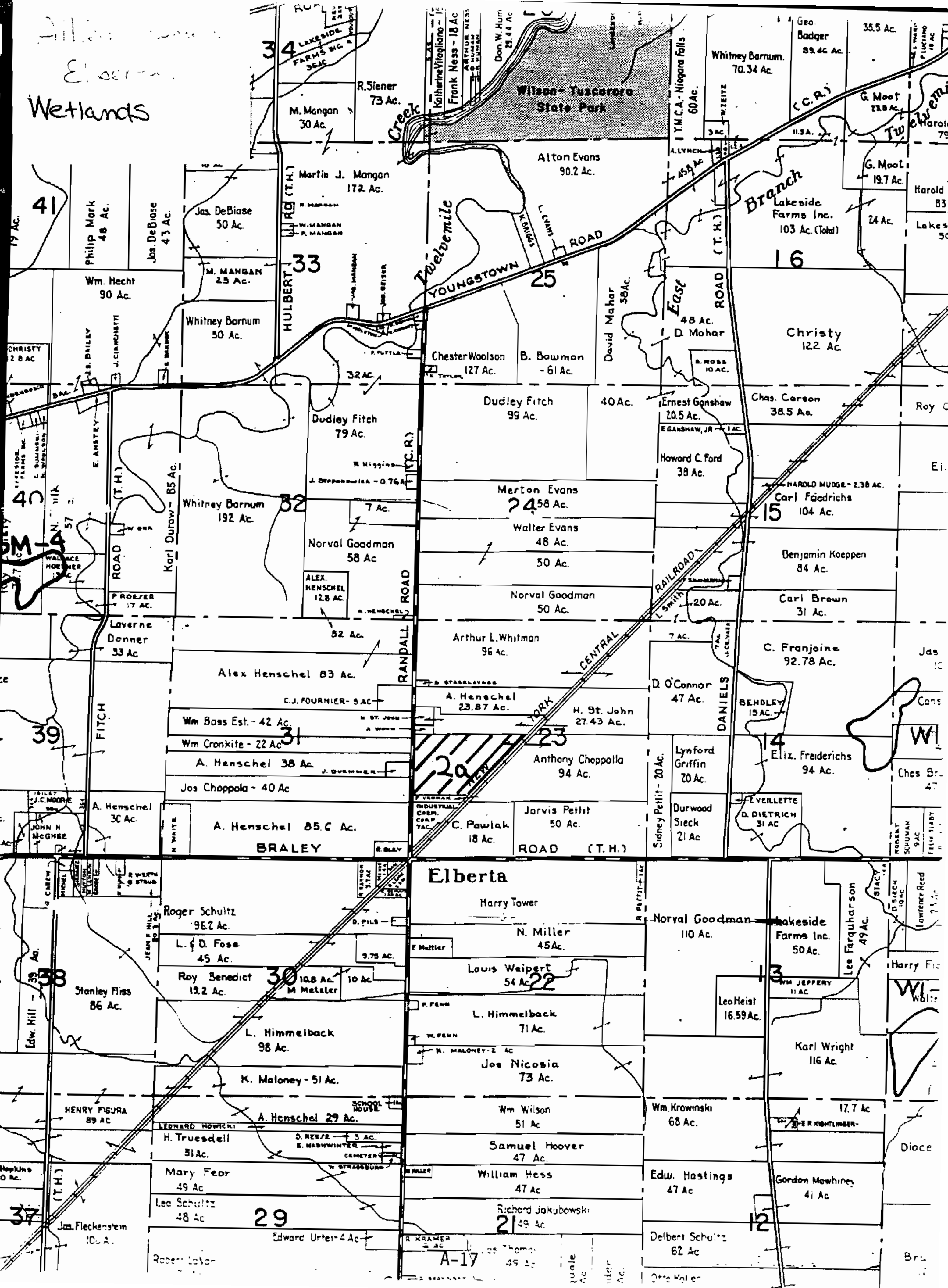
ECOLOGY AND ENVIRONMENT ENGINEERING, P.C.
SITE INSPECTION

Observations made during the site inspection for the Allied Chemical-Elberta Works site are provided on USEPA Form 2070-13 (see Appendix B).

REFERENCE 8

SEE FIGURE 1-1

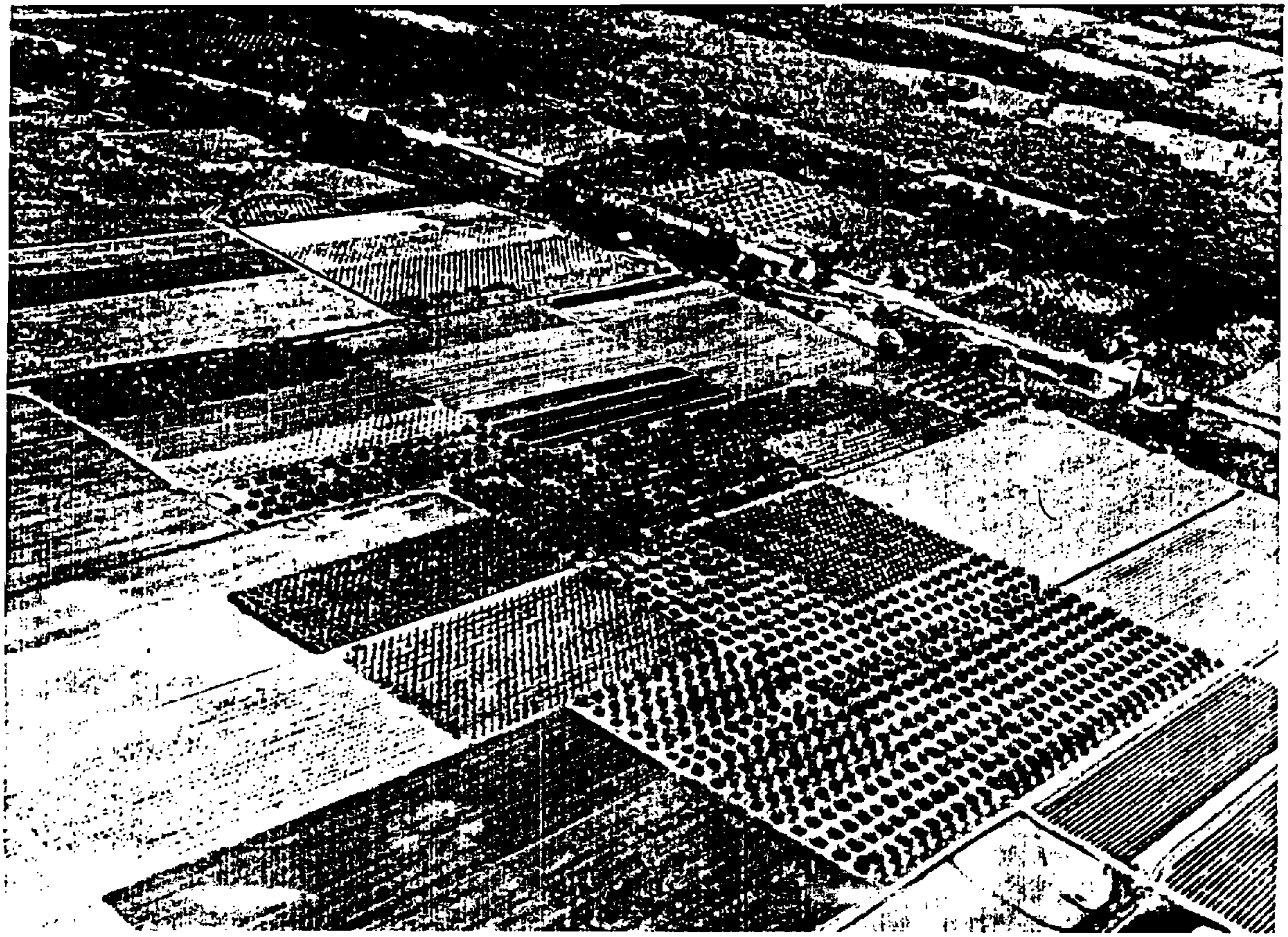
REFERENCE 9


Wetlands
Wilson-Tuscarora State Park
Twelvemile Creek
East Branch
Youngstown Road
Hulbert Road (T.H.)
Randall Road
Fitch Road (T.H.)
Daniels Road (T.H.)
Braley Road (T.H.)
New York Central Railroad
Elberta
Alton Evans 90.2 Ac.
Martin J. Mangan 172 Ac.
R. Siener 73 Ac.
M. Mangan 30 Ac.
Whitney Barnum 70.34 Ac.
Geo. Badger 89.46 Ac.
Lakeside Farms Inc. 103 Ac. (Total)
Jos. DeBiase 50 Ac.
Philip Mark 48 Ac.
Jos. DeBiase 43 Ac.
Wm. Hecht 90 Ac.
Whitney Barnum 50 Ac.
Chester Woolson 127 Ac.
B. Bowman 61 Ac.
David Mahar 58 Ac.
D. Mahar 48 Ac.
Christy 122 Ac.
Dudley Fitch 99 Ac.
Dudley Fitch 79 Ac.
Ernest Ganshaw 20.5 Ac.
Chas. Carson 38.5 Ac.
Howard C. Ford 38 Ac.
Merton Evans 58 Ac.
Walter Evans 48 Ac.
Carl Friedrichs 104 Ac.
Whitney Barnum 192 Ac.
Karl Durow 85 Ac.
Norval Goodman 58 Ac.
Norval Goodman 50 Ac.
Benjamin Koeppen 84 Ac.
Carl Brown 31 Ac.
Laverne Donner 33 Ac.
Arthur L. Whitman 96 Ac.
C. Franjoine 92.78 Ac.
Alex Henschel 83 Ac.
A. Henschel 23.87 Ac.
H. St. John 27.43 Ac.
D. O'Connor 47 Ac.
Wm Bass Est. - 42 Ac.
Wm Cronkite - 22 Ac.
A. Henschel 38 Ac.
Jos Choppola - 40 Ac.
Anthony Choppolla 94 Ac.
Lynford Griffin 20 Ac.
Eliz. Freiderichs 94 Ac.
A. Henschel 30 Ac.
A. Henschel 85.C Ac.
C. Pawlak 18 Ac.
Jarvis Pettit 50 Ac.
Sidney Pettit - 20 Ac.
Durwood Sieck 21 Ac.
Harry Tower
N. Miller 45 Ac.
Roger Schultz 96.2 Ac.
L. & D. Fose 45 Ac.
Roy Benedict 19.2 Ac.
Stanley Fliss 86 Ac.
Louis Weipert 54 Ac.
L. Himmelback 71 Ac.
L. Himmelback 98 Ac.
Norval Goodman 110 Ac.
Lakeside Farms Inc. 50 Ac.
Lee Farquharson 49 Ac.
Leo Heist 16.59 Ac.
Karl Wright 116 Ac.
Joe Nicosia 73 Ac.
K. Maloney - 51 Ac.
A. Henschel 29 Ac.
Henry Figura 89 Ac
H. Truesdell 31 Ac.
Wm Wilson 51 Ac
Wm. Krowinski 68 Ac.
Samuel Hoover 47 Ac.
Mary Fear 49 Ac
William Hess 47 Ac
Edw. Hastings 47 Ac
Gordon Mewhiney 41 Ac
Lee Schultz 48 Ac
Richard Jakubowski 49 Ac
Jas. Fleckenstein
Edward Urter - 4 Ac
Delbert Schultz 62 Ac
Wm. McLaughlin - 46 Ac.
Edw. Hill - 39 Ac.
A-17

REFERENCE 10

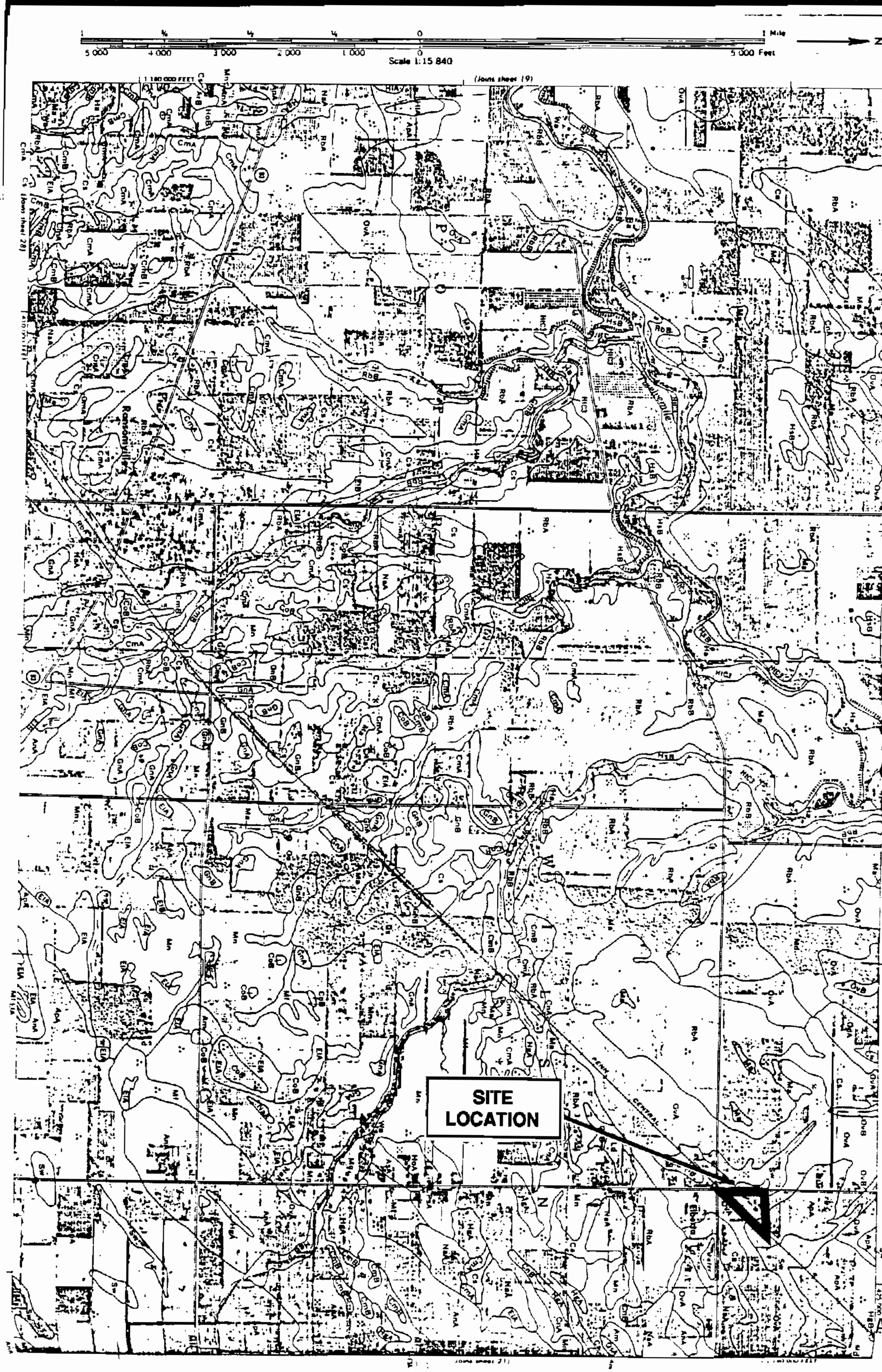
SOIL SURVEY OF

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: Dominant USDA textures	Classification: Unified	Classification--Con.: AASHO	Coarse fraction greater than 3 inches	Percentage passing sieve--: No. 4 (4.7 mm.)	No. 10 (2.0 mm.)	No. 40 (0.42 mm.)	No. 200 (0.074 mm.)	Permeability	Available moisture capacity	Reaction
	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 8-56	Silty clay loam-------------- Silty clay to clay-----------	ML or OL, CL CL or CH	A-4 or A-6 A-6 or A-7	---- ----	95-100 95-100	90-100 90-100	80-100 85-100	65-95 75-100	0.20-2.0 <0.20	0.15-0.20 0.13-0.17	6.1-7.3 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 14-54	Loam------------------------- Gravelly loam to fine sandy loam.	SM or ML SM, SC, ML, or CL	A-2 or A-4 A-2 or A-4	0-10 5-10	75-90 55-90	70-90 55-90	50-90 35-85	30-80 20-70	0.63-2.0 <0.63	0.10-0.20 0.10-0.20	5.6-7.3 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 11-24	Silt loam-------------------- Silty clay loam to clay loam.	ML-SC or CL CL	A-4 A-4 or A-6	0-5 0-5	95-100 80-90	90-100 75-90	75-95 70-90	45-90 60-80	0.63-2.0 <0.63	0.14-0.20 0.13-0.16	5.6-7.3 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 25-50	Silt loam-------------------- Very fine sandy loam to loamy very fine sand with layers of silt and fine sand.	ML or CL ML or SM	A-4 A-4	---- ----	100 100	100 100	85-100 85-95	50-95 45-85	0.63-2.0 0.63-6.3	0.15-0.20 0.11-0.16	5.6-7.3 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-- Topsoil	Granular material	Fill material	Soil features affecting-- 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 series and map symbols	Soil features affecting--Continued Foundations for low buildings	Ponds: Reservoir	Ponds: Embankment	Drainage	Irrigation	Terraces and diversions	Waterways
Otisville: OsA, OsB---	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.
Ovid: OvA, OvB-------------	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.
OwA, OwB-------------	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 24 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.
Phelps: PsA-----------	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.

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 ‹s 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

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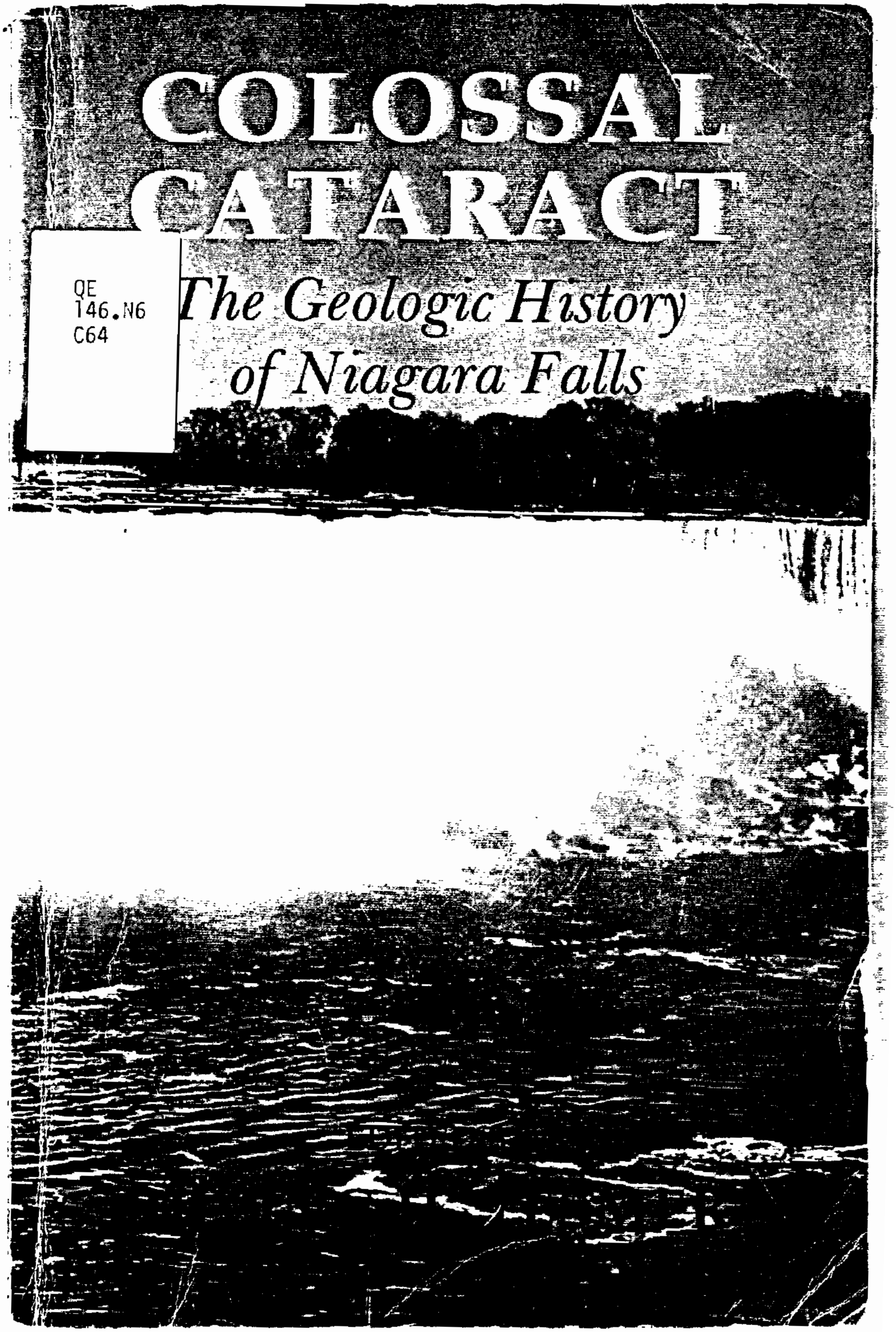
REFERENCE 11


COLOSSAL
CATARACT
The Geologic History
of Niagara Falls
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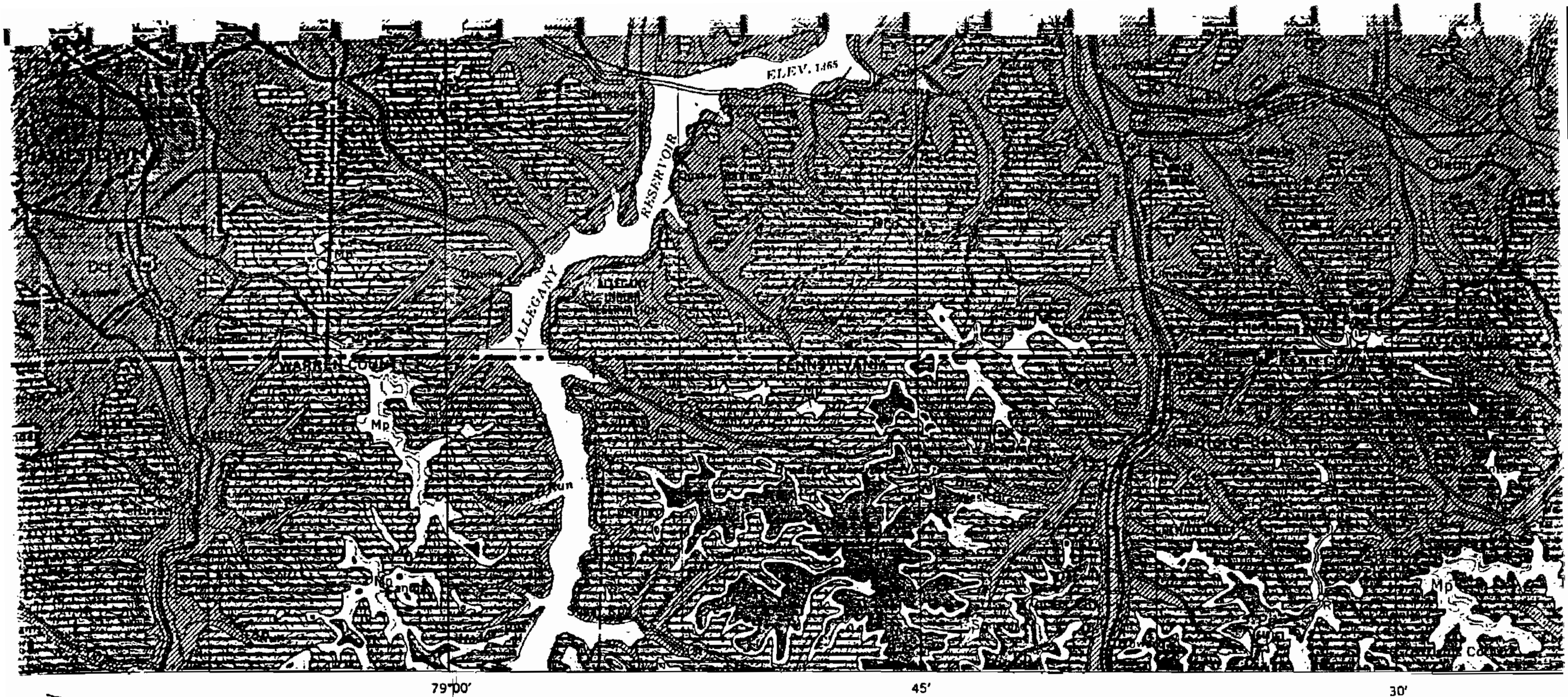


GEOLOGIC MAP OF NEW YORK

1970

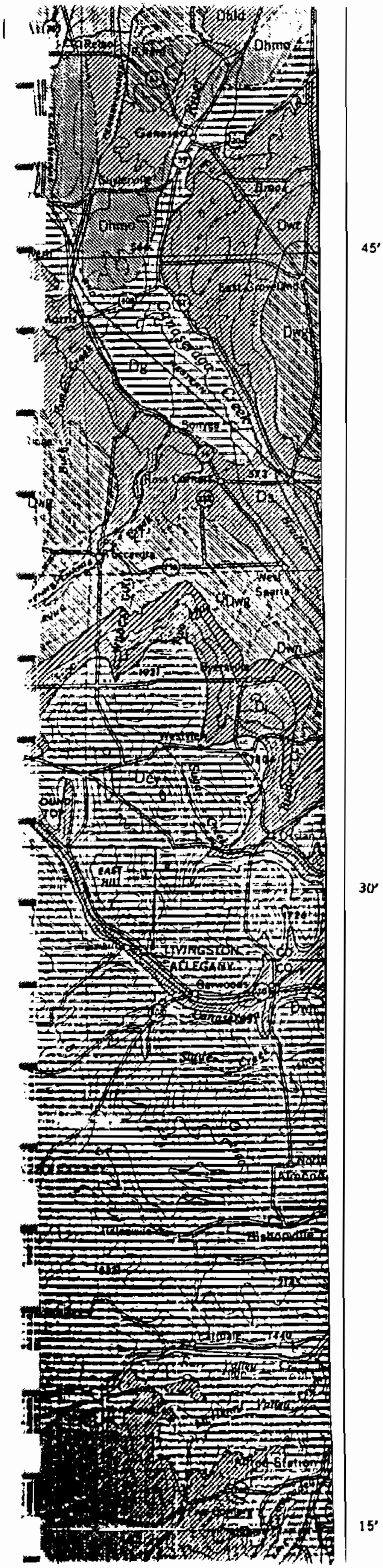
Niagara Sheet

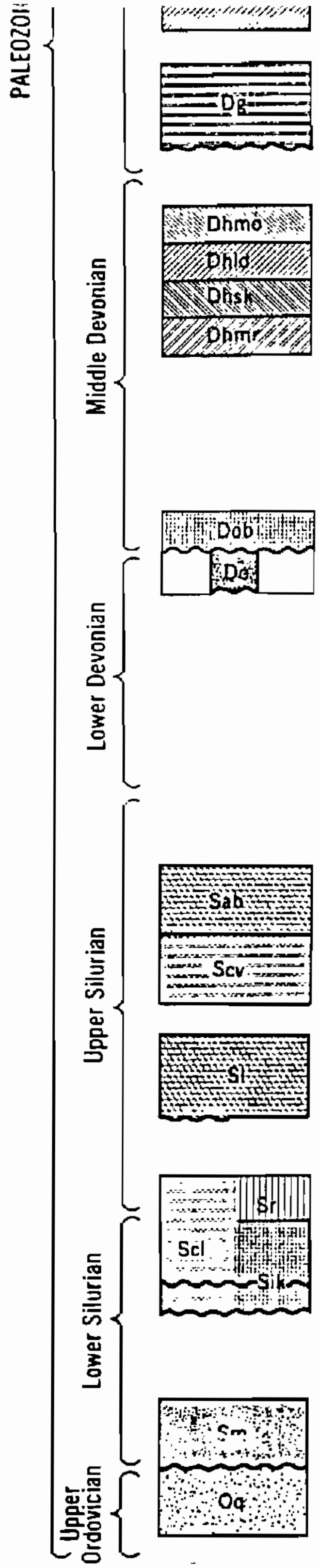
Scale 1:250,000

5 0 5 10 15 Statute Miles 20

5 0 5 10 15 20 25 Kilometers 30

CONTOUR INTERVAL 100 FEET





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.

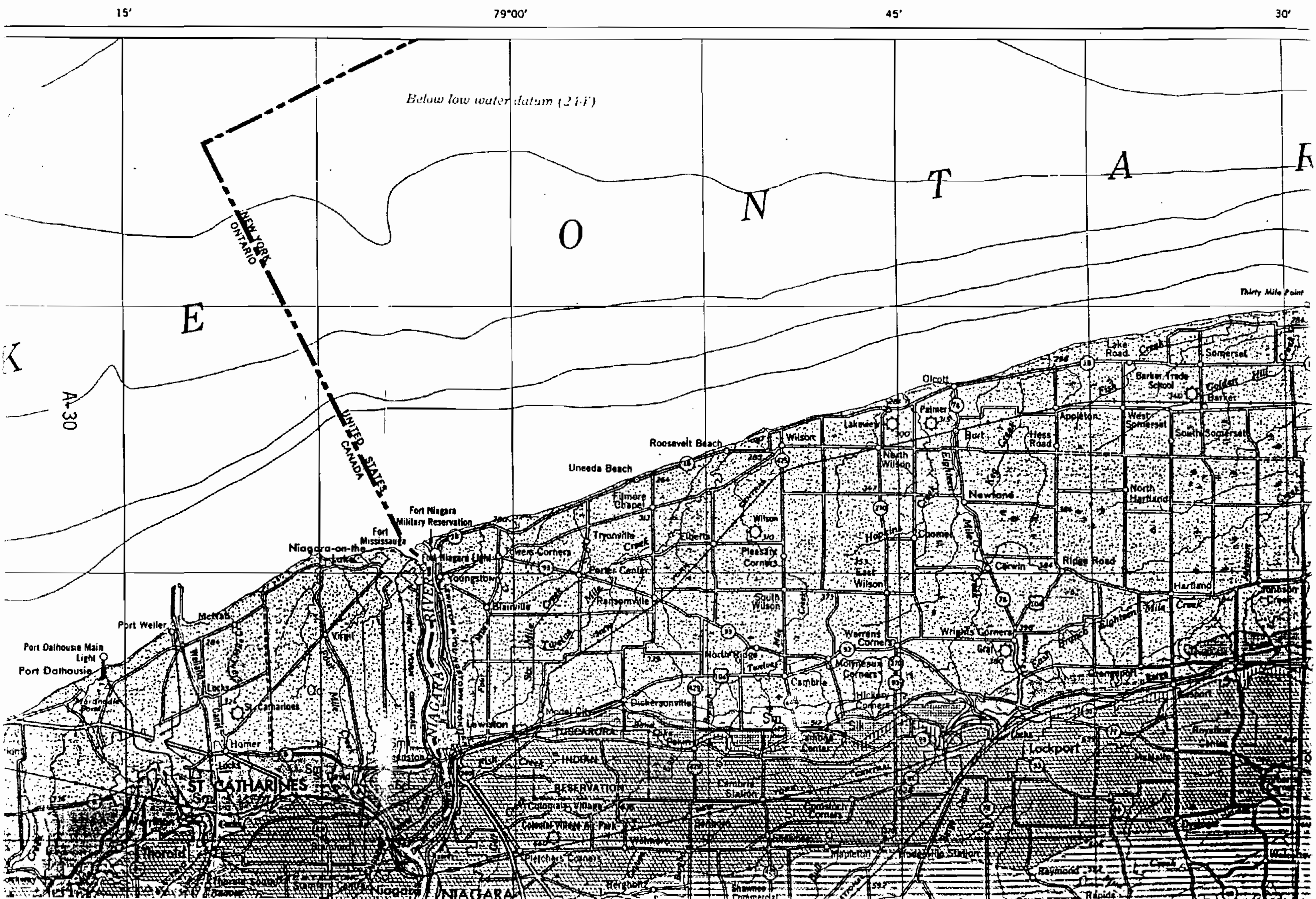
Sik — Irondequoit Limestone; Rockway Dolostone; Hickory Corners Limestone; Neahga Shale; Kodak Sandstone.

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


15'
79°00'
45'
30'
Below low water datum (244')
L A K E   O N T A R
NEW YORK
ONTARIO
UNITED STATES
CANADA
Thirty Mile Point
Olcott
Roosevelt Beach
Uneeda Beach
Fort Niagara Military Reservation
Fort Mississauga
Niagara-on-the-Lake
Port Weller
Port Dalhousie Main Light
Port Dalhousie
Youngstown
Lewiston
Ransomville
Wilson
Newfane
Lockport
Barker
Somerset
Appleton
Burt
North Hartland
Hartland
Cambria
Wrights Corners
TUSCARORA INDIAN RESERVATION
ST CATHARINES
NIAGARA RIVER

REFERENCE 13

ALLIED CHEMICAL Calspan, 1979
ALBERTA, WORKS

D04.6 JOY

MAR 26 1980

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

4/30/80
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.

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.

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

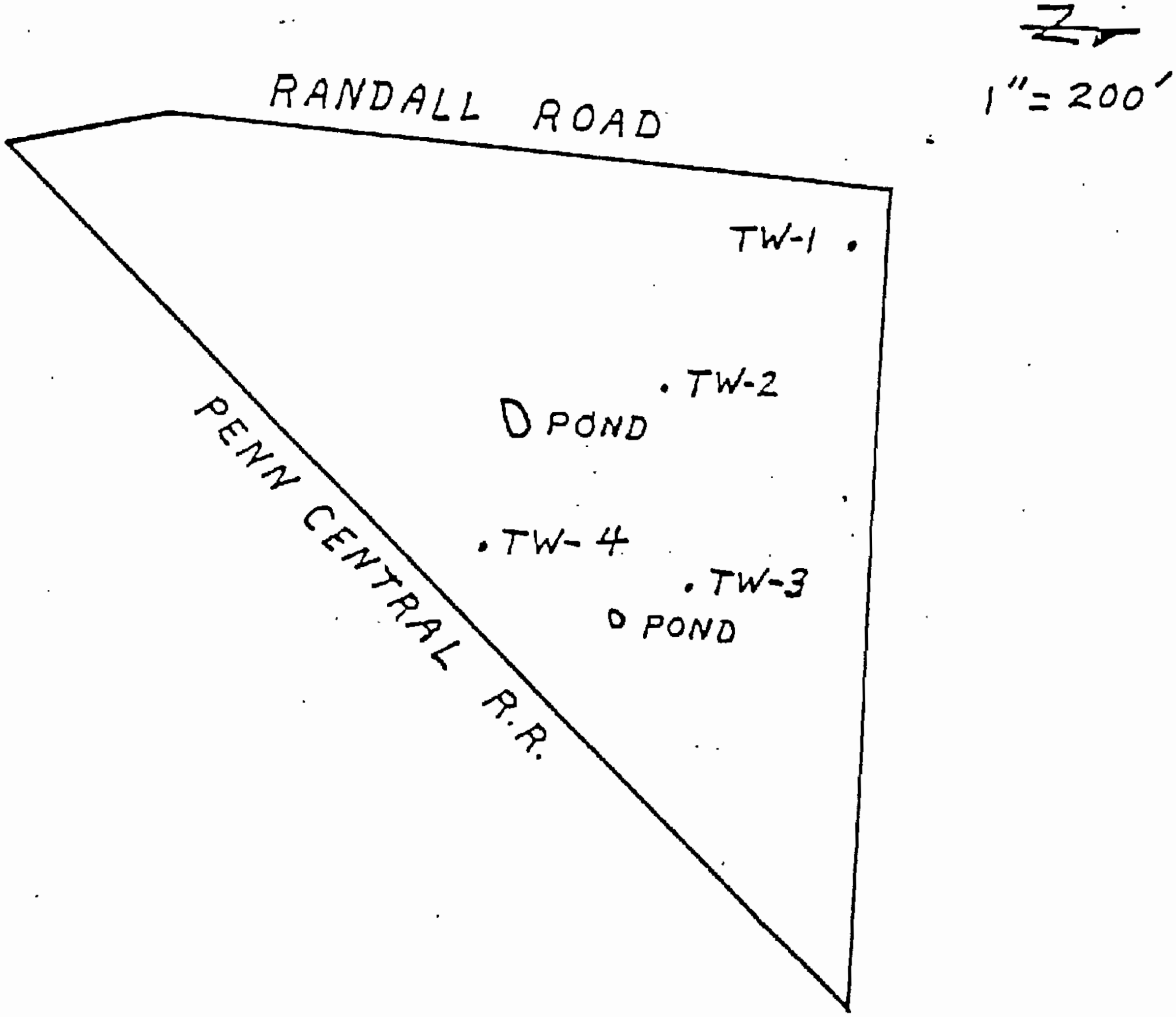


FIGURE 1
LOCATIONS OF MONITORING WELLS

REF-1

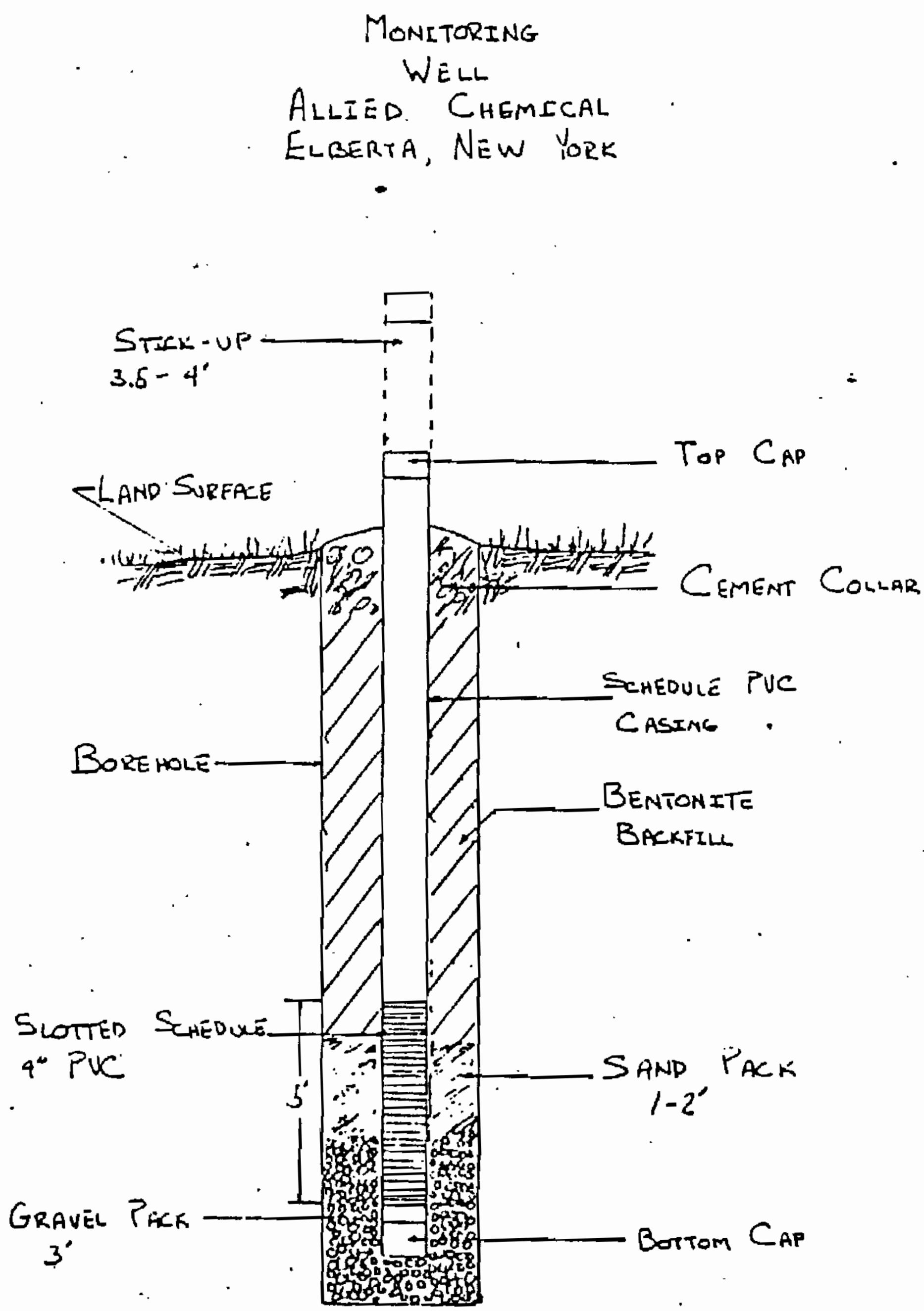


FIGURE 2

MONITORING WELL DESIGN

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

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

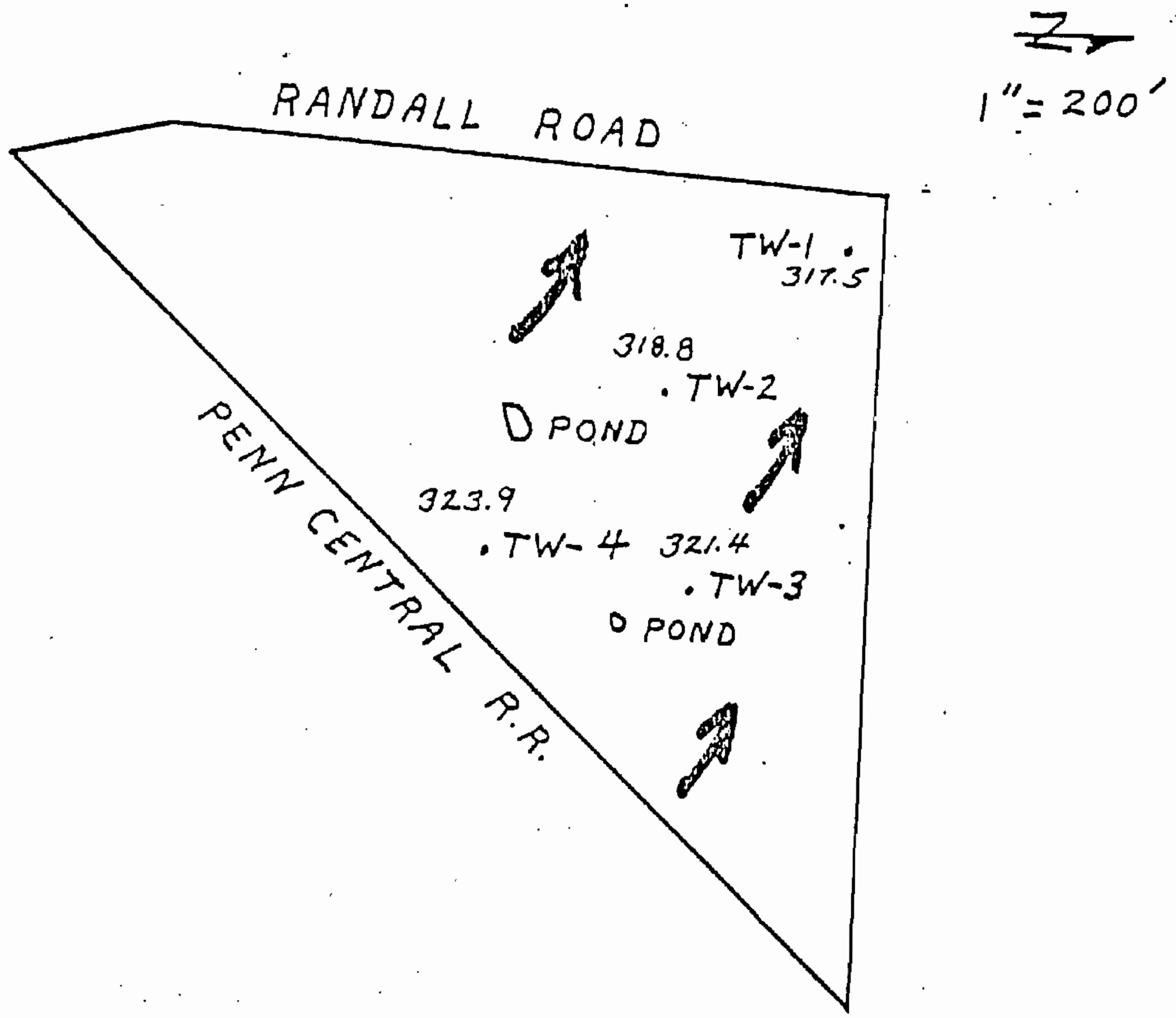


FIGURE 3

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

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

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

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

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

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

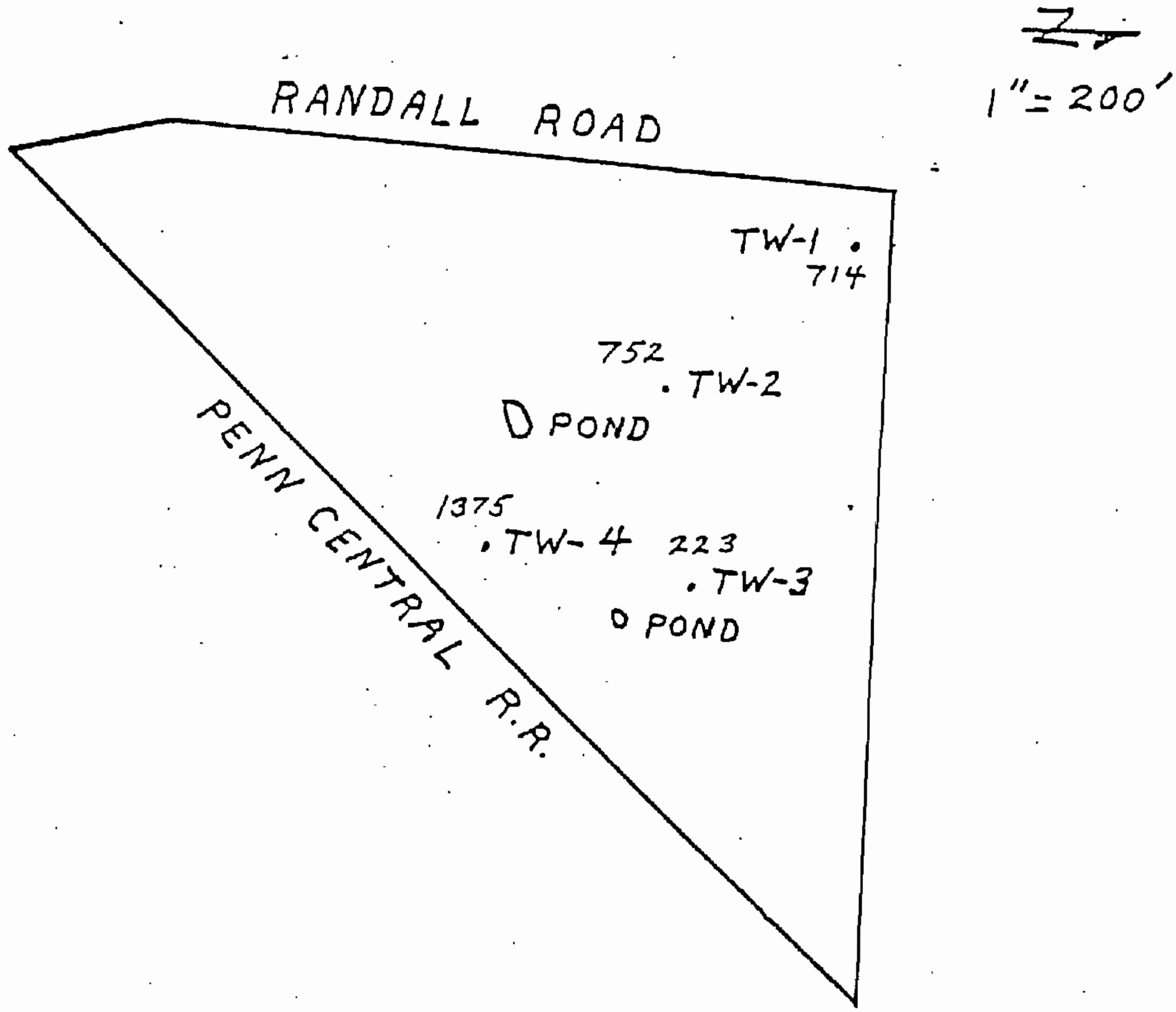


FIGURE 4
AVERAGE CHLORIDE CONCENTRATIONS (ppm)
(FEB. --SEPT. 1979)

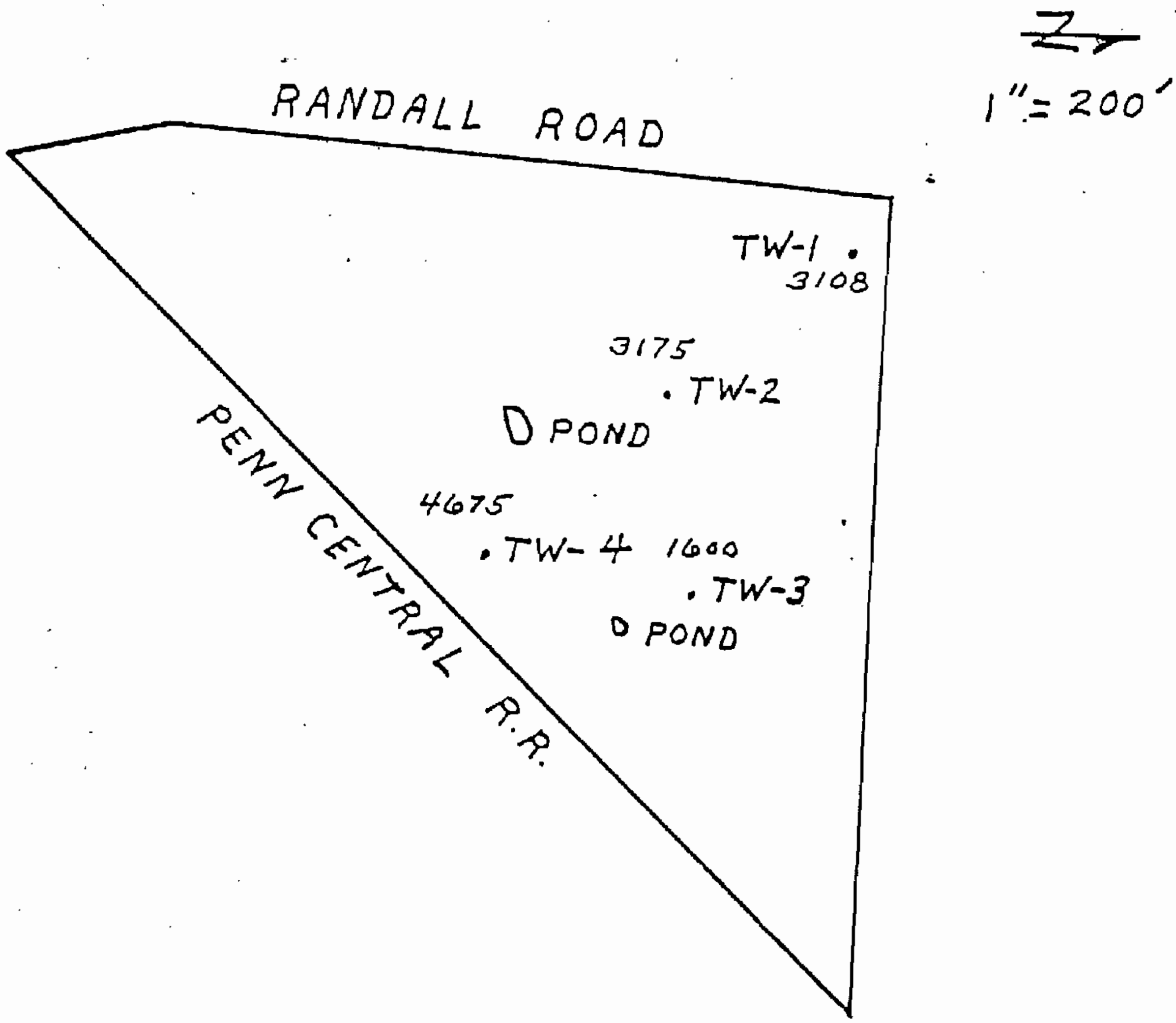


FIGURE 5
AVERAGE CONDUCTIVITIES (mhos)
(FEB. - SEPT. 1979)

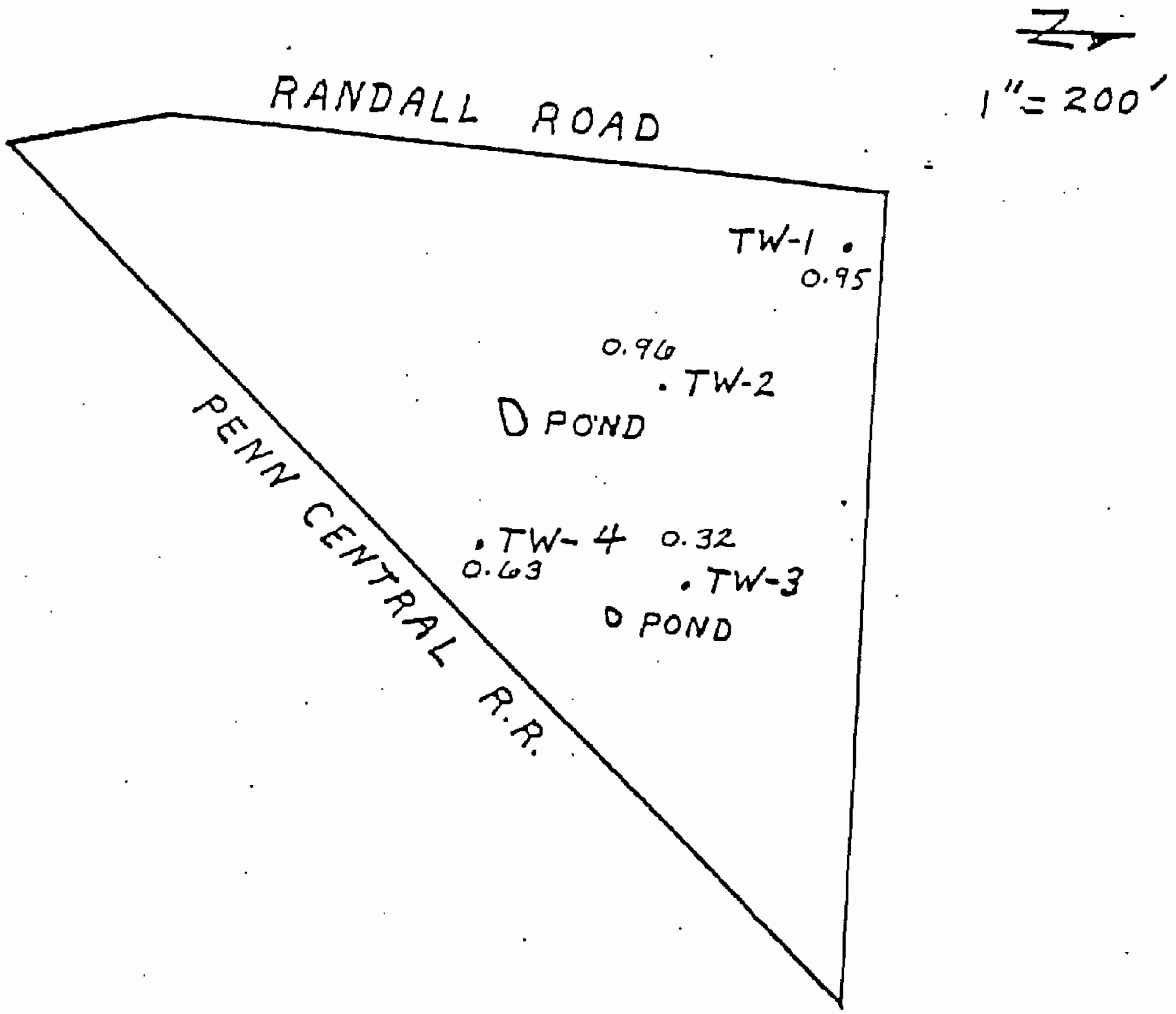


FIGURE 6
AVERAGE IRON CONCENTRATIONS (ppm)
(FEB. - SEPT. 1979)

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.

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'

REFERENCE 14

file

STATE OF NEW YORK - DEPARTMENT OF HEALTH

INTEROFFICE MEMORANDUM

TO:	Allison C. Wakeman, P.E., Chief Niagara County Section
FROM:	Mark E. VanValkenburg, Program Research Specialist II Bureau of Environmental Exposure Investigation
SUBJECT:	Water Use Adjacent to Allied Chemical-Elberta Works Site #932003 Town of Wilson, Niagara County
DATE:	May 3, 1991

MEVV

On Thursday April 25th, Dawn Hettrick and I performed an informal water use survey in close proximity to this listed site because outdated file records indicated that a residence within 150 feet (3087 Randall Road) might still be using well water as a drinking water source. I completed the survey on Monday April 29th.

All residences in the immediate vicinity of the former Allied Chemical-Elberta Works plant are connected to the Town water supply. This information was gathered from residents, neighbors, and by observing water meters attached to homes. No use of groundwater was identified although residents at 3109 Braley Road claim that their swimming pond is spring-fed. It appears household wells have been abandoned. The survey results are as follows:

4/25/91,	3119 Randall Rd., former Plant site, Paul Fedkiw-owner, 716-751-6243, Town water.
4/25/91,	3128 Randall Rd., Connie Bley residence, across Randall Rd. from site, Town water for 15 yrs., well abandoned, no plans to use.
4/25/91,	3087 Randall Rd., Fred Vroman residence, immediately north of site, Town water for 25 yrs., well abandoned, no plans to use.
4/25/91,	3077 Randall Rd., Frank Cipolla residence, Town water, never a well.
4/29/91,	3076 Randall Rd., Joseph Choppolla residence, 716-751-6837, Town water, well abandoned, no plans to use.
4/29/91,	3061 Randall Rd., Tony Cipolla residence, Town water, well abandoned, no plans to use, (according to his brother, Joseph Choppolla).

Allison C. Wakeman, P.E., Chief

4/29/91,	3062 Randall Rd., Jack Duemmer residence, Town water, well abandoned, no plans to use.
4/29/91,	3109 Braley Rd., Donna Graham residence, 716-751-9136, Town water, well disconnected, plan to reconnect well within 2 yrs. to use for garden watering and small pool filling, 15-20 ft. deep farm pond in backyard used for swimming by family and relatives, reportedly spring fed and cold, no fish, no complaints, pond is directly due west of site.
4/29/91,	3090 Braley Rd., Mildred Mattoon residence, Town water, well observed, no plans to use.
4/29/91,	3112 Braley Rd., Cobb residence, no access, water meter observed on westside of dwelling.
4/29/91,	3166 Randall Rd., Cassick residence, no access, water meter observed on southside of dwelling.
4/29/91,	3181 Randall Rd., Gerald Tower residence, due south of site, no access, water meter observed on northside of dwelling.

See attached map for location of dwellings in relation to site.

Also on April 25th, Dawn and I briefly toured the site with owner, Paul Fedkiw of Fedco Enterprises. Only he and occasionally his son work there. The front portion of the old manufacturing building is used as a warehouse (neighbors think for pet supplies). That is the only structure currently used onsite. We observed the overgrown area where the cooling ponds used to exist behind the manufacturing building. The suspected hazardous waste disposal area on the site's northside is indeed covered by paving. The site appears to be completely enclosed by a high chain-link fence and gate. Mr. Fedkiw said that he wishes to renovate the building structures but does not want to invest the money without knowing the NYSDEC's plans for the site. I advised him to contact DEC Region 9 to discuss the matter.

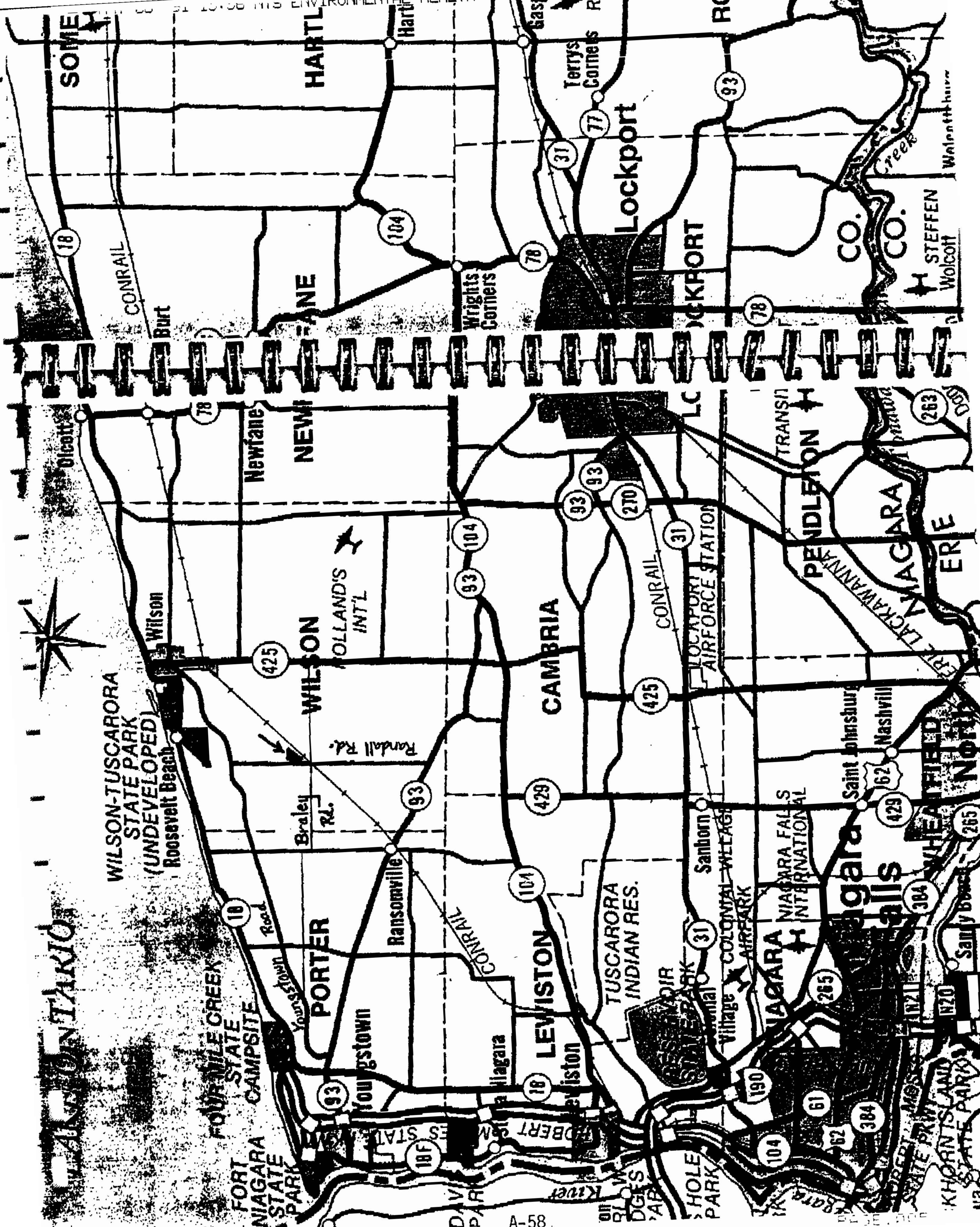
During a May 2nd telephone call with DEC Project Manager, Yavuz Erk, I was informed that a Preliminary Site Assessment Task 1 is underway by Ecology and Environment (E&E), the State's consultant. According to Mr. Erk, E&E attempted a site visit on April 29th but the site was closed. I passed on the owner information to assist Mr. Erk.

Allison C. Wakeman, P.E., Chief

jlh/11230291

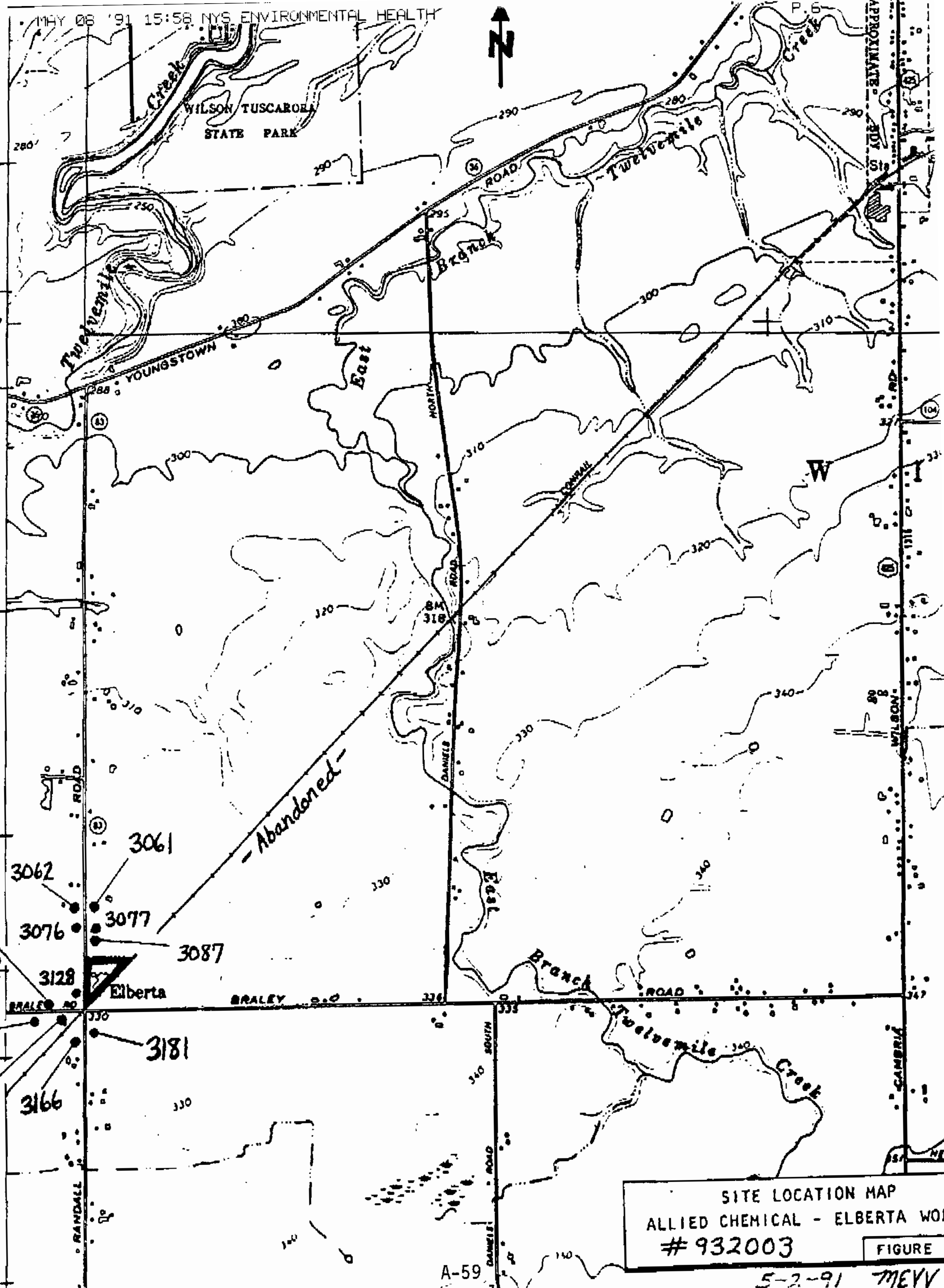
Attachment

cc: Mr. Tramontano
Ms. Hettrick
Dr. Smith-Blackwell - Western Region
Mr. Devald - Niagara County HD
Mr. Sciascia - DEC - Region 9


ONTARIO
WILSON-TUSCARORA STATE PARK (UNDEVELOPED)
Roosevelt Beach
Wilson
Olcott
Burt
Newfane
NEWFANE
WILSON
OLLAND'S INT'L
Randall Rd.
Braley Rd.
Ransomville
PORTER
Youngstown Road
Youngstown
FOUR MILE CREEK STATE CAMPSITE
FORT NIAGARA STATE PARK
LEWISTON
Lewiston
Niagara
CAMBRIA
TUSCARORA INDIAN RES.
CONRAIL
LOCKPORT AIRFORCE STATION
Sanborn
NIAGARA FALLS INTERNATIONAL
COLONIAL VILLAGE AIRPARK
Saint Johnsburg
Nashville
Wrights Corners
Lockport
LOCKPORT
Terrys Corners
HARTLAND
SOMERSET
PENDLETON
NIAGARA
ERIE
LACKAWANNA
TRANSIT
STEFFEN Wolcott
Niagara Falls
River

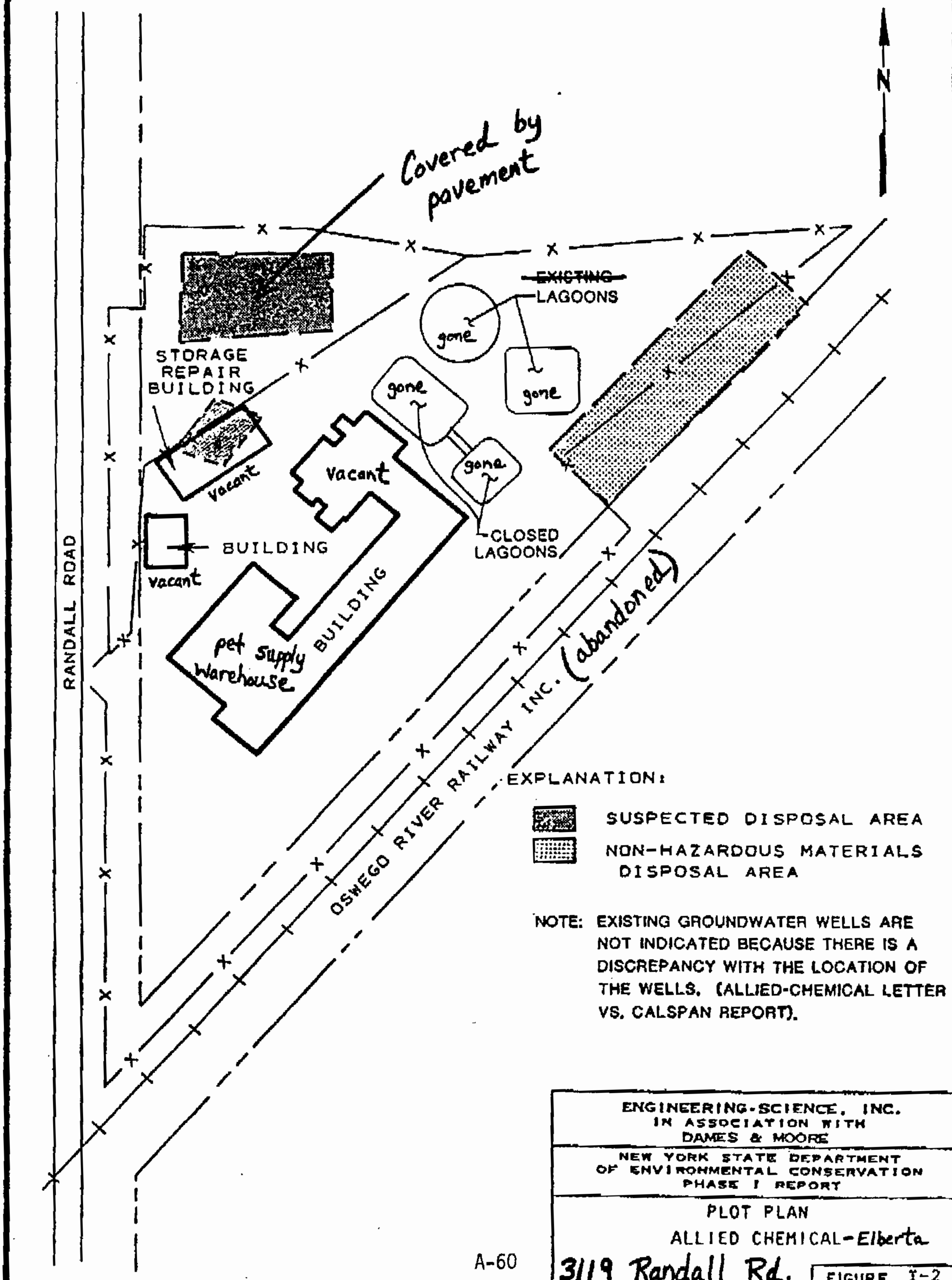
MAY 8 '91 11:40

MAY 08 '91 15:58 NYS ENVIRONMENTAL HEALTH P.6



SITE LOCATION MAP
ALLIED CHEMICAL - ELBERTA WO
#932003
FIGURE

5-2-91 MEVV



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

NEW YORK STATE DEPARTMENT
OF ENVIRONMENTAL CONSERVATION
PHASE I REPORT

PLOT PLAN
ALLIED CHEMICAL-Elberta
3119 Randall Rd.

FIGURE I-2

5-2-91 MEVV

REFERENCE 15

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.

An ALLIED Company

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,

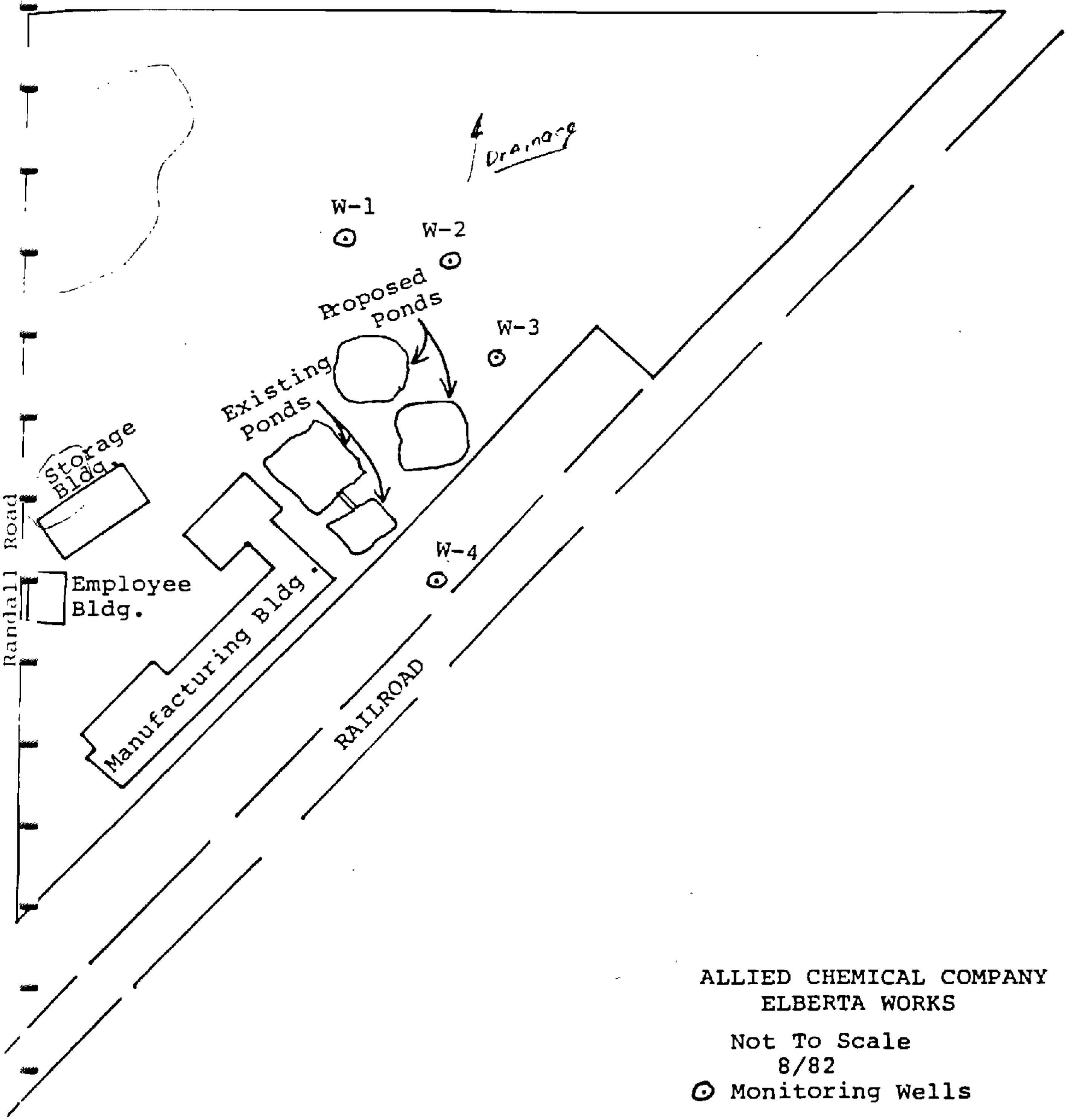
J. P. Lewandowski

J. P. Lewandowski
Environmental Supervisor
Pollution Control

JPL/ld
Attach.

cc: Mr. Tom Chrispoffel

ATTACHMENT 1



ALLIED CHEMICAL COMPANY
ELBERTA WORKS

Not To Scale
8/82
⊙ Monitoring Wells

ATTACHMENT 2

Allied Chemical Company
Elberta Works

July 13, 1982

NA

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

REFERENCE 16

INTERVIEW ACKNOWLEDGMENT FORM

SITE NAME: Former Allied Chemical-Elberta Works

PERSON CONTACTED: Mr. George Kanelis

AFFILIATION: Allied Signal, Inc.

ADDRESS: 101 Columbia Road, Morristown, New Jersey 07960

TYPE OF CONTACT: Telephone interview

I.D. NUMBER: 932003

DATE: 8/26/91

PHONE NUMBER: (201) 455-4907

CONTACT PERSON(S): Chad Eich

INTERVIEW SUMMARY:

At the time of disposal, the aluminum chloride was in an anhydrous state.

ACKNOWLEDGMENT

I have read the above transcript and I agree that it is an accurate summary of the information verbally conveyed to Ecology and Environment Engineering, P.C. interviewer(s) (as revised below, if necessary).
Revisions: (please write in any corrections needed to the above transcript)

Signature ______________________ Date ______________

REFERENCE 17

Allied Signal

Allied-Signal Inc.
Engineered Materials Sector
P.O. Box 1139R
Morristown, NJ 07962-1139

June 24, 1991

Ms. Valerie Lauzze
New York State Department of Environmental Conservation
Bureau of Hazardous Site Control
Division of Hazardous Waste Remediation
50 Wolf Road
Albany, NY 12233

Re: Former Allied Chemical
Elberta Works
Ransomville, NY
NYSDEC ID No. 932003

Dear Ms. Lauzze:

Confirming our telephone conversation of June 21, 1991 and in response to your letter dated June 13, 1991, a search of our records revealed the following information:

1. Elberta Chemical Co. manufactured aluminum chloride from 1945-1956.

2. Allied acquired the site in 1956 and manufactured aluminum chloride until 1982.

3. The property was sold to DAL Specialties, Inc. on November 10, 1982.

4. From 1956 through 1972, Allied disposed of approximately 1500 tons of solid waste in two on-site areas. The solid waste included refractory material, graphite, small amounts of aluminum chloride and asbestos, and scrap rubber sealed bins. The two areas have since been covered with a paved parking lot and the construction of a warehouse.

5. It is not known for certain but there is no evidence in our records that aluminum chloride was disposed of on-site in drums.

6. On March 29, 1982, the NYSDEC inspected the plant site regarding on-site disposal of hazardous wastes. No significant environmental problems were observed. The inspection was based upon a hazardous waste disposal site report for the plant contained in the Interagency Task Force Report (attached.)

We trust that the foregoing information will be of assistance in your investigation.

Sincerely,

George Kanelis

George Kanelis

jw
Attachment

REFERENCE 18

U.S. ENVIRONMENTAL PROTECTION AGENCY
REGION II
ENVIRONMENTAL SERVICES DIVISION

FINAL DRAFT
SITE INSPECTION REPORT
ALLIED CORPORATION/ SYRACUSE RESEARCH LAB
RANSOMVILLE, NEW YORK

DECEMBER 29, 1988

REVIEWED BY:

SANDRA L. HANSEN
ENVIRONMENTAL ENGINEER

APPROVED BY:

AMY J. BROCHU
ACTING REGIONAL PROJECT OFFICER

SITE NAME:	Allied Corporation, Syracuse Research Lab aka Elberta Chemical Works	**EPA ID NO.:**	NYD002128544
		LATITUDE:	43° 15' 55" N
ADDRESS:	3119 Randall Road Ransomville, New York 14131	**LONGITUDE:**	078° 52' 12" W
		BLOCK AND LOT:	49.00-1-80

1.0 SITE SUMMARY

Allied Corporation, Syracuse Research Lab is an inactive, privately owned facility located at 3119 Randall Road, Ransomville, Niagara County, New York. It is situated in a sparsely populated rural area in the northwestern part of Niagara County. The 3-acre Allied Chemical facility encompasses the 1-acre former Allied Chemical-Elberta Works Site, which produced aluminum chloride from approximately 1945 to 1985.

Conflicting data are available for dates of the facility's activity. Ownership was passed from Elberta Chemical Company to Allied Chemical Company in 1956. D.A.L. Specialties, Inc. bought the site in approximately 1983. The present owner of the facility is Welland Chemical, LTD., which officially closed the site in 1986.

The site consists of four lagoons and a former landfill, all unlined. Two of the lagoons were used for noncontact cooling water recirculation, and water from other parts of the facility was pumped or directed into all of the lagoons. Four monitoring wells were installed in 1977 to monitor groundwater in the lagoon area. The wells were placed upgradient and downgradient of the lagoons and sampled regularly. Results were sent to the New York State Department of Environmental Conservation (NYSDEC) and the Niagara County Health Department (NCHD). Up until 1983, the lagoons discharged intermittently to Twelvemile Creek. The facility stopped discharging when D.A.L. Specialties was told that it would need a permit to continue to do so. Due to significant rainfall in 1984, the original lagoons reached maximum capacity. The facility requested permission from the NYSDEC to discharge water; the water was sampled and discharge permitted from the new lagoons on a one-time basis. In 1985, the lagoon water was discharged and the lagoons were sampled, treated, and backfilled under a NYSDEC site closure plan.

The former landfill was in operation from 1950 to between 1972 and 1977. During this period, an estimated 264 to 324 tons of process waste including aluminum chloride, graphite-laden refractory material, and traces of asbestos were disposed of in the landfill. The landfill is now covered partially by a warehouse and a parking lot. Allied Chemical Corporation began landfilling its waste at the Wilson Town Dump when the on-site landfill ceased operation.

During operations under D.A.L. Specialties, the annual hazardous waste "wet chloride" generated was estimated to be approximately 100 tons. This was placed in 55-gallon drums and hauled off site for disposal. The sanitary wastewater was treated by an on-site subsurface system consisting of a septic tank and adsorption field. Waste dross (waste product or impurity from processing the aluminum) was sold. Also, Allied used approximately 110 gallons per year of the following cleaning solvents: 1,1,1-trichloroethane, trichloroethylene, and tetrachloroethylene.

The potential for groundwater contamination is low due to the low permeability of the unsaturated zone. However, groundwater within 3 miles of the site is used for drinking by approximately 50 people. Groundwater is also used for minor irrigation. Municipal water is available for most of the population within a 3-mile radius from sources located over 15 miles from the site. Twelvemile Creek and Lake Ontario, located 1.6 and 3.8 miles from the site, respectively, are used for swimming, fishing, and boating.

There is no apparent threat of fire, nor is there potential for direct contact. No analysis or monitoring of the former landfill area had been done prior to the NUS site inspection. NUS prepared a preliminary assessment for the site on March 23, 1987.

On February 17, 1988, NUS FIT 2 conducted a site inspection during which five soil, one tap water, and two monitoring well samples were collected. Analytical data are discussed in Section 4.0. Analysis of the monitoring well and soil samples collected on site indicate the presence of various metals in concentrations above the concentrations found in the designated upgradient, off-site samples. No organics were detected in significant concentrations in any of the samples. During this inspection rusted drums labeled "aluminum chloride" were found on site. Also, some local residents downgradient of the site on Randall Road claimed that chlorine was released into their roadside ditches and that it had a strong odor.

Ref. Nos. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 15, 16, 17

The facility had the capability to direct roof rainwater to the lagoons or to the roadside ditch. The lagoons also received water from the washdown of the aluminum chloride packing room and from two catch basins which serviced the truck loading station via two sump pumps. Blowdown from a boiler was discharged to the lagoons, and runoff from the former landfill area may have also migrated into the lagoons.

Up until1983, the lagoons discharged intermittently to Twelvemile Creek, until a permit was required to continue doing so, and discharge was discontinued. However, due to significant rainfall in 1984, the lagoons were permitted by the NYSDEC to discharge on a one-time basis. Closure of the lagoons in 1985 included batch, monitored releases of lagoon water only, and the lagoons were sampled, treated, and backfilled under the NYSDEC site closure plan.

Ref. Nos. 1, 2, 6, 7, 15

2.3 GROUNDWATER ROUTE

Wells in the area are tapped into the fractured zone at the top of the Queenston Shale Aquifer and into the unconsolidated sand and gravel glacial deposits. Soil boring logs from the on-site monitoring wells reported that the unsaturated zone is composed of silty clay loam to silty loam. This soil type has a low permeability, approximately 10^{-5} cm/sec, and is a semiconfining layer. The aquifer of concern has a permeability a few magnitudes greater than the overlying strata. No aquifer interconnections are known. Groundwater flow in the area is north toward Lake Ontario. Depth to the water table ranges from 2 to 16 feet on the site, and the depth to bedrock is approximately 40 feet below ground surface. (See Table 3.) The groundwater quality is slightly alkaline due to the naturally high lime content of the glacial till and lake-laid deposits.

Several houses along both Randall and Braley Roads have private wells. The nearest downgradient well is approximately 150 feet north of the site. An estimated 50 people use groundwater for drinking within 3 miles of the site. Groundwater is also used for minor irrigation. However, municipal water is available in most areas. Also noted during the NUS FIT 2 site inspection was that many people in the area were not using their wells.

Groundwater has been monitored around the lagoon area and has shown no apparent contamination. No groundwater monitoring has been done in the landfill area. Annual net precipitation is 11 inches per year.

During the NUS FIT 2 site inspection, samples were collected from two on-site monitoring wells downgradient of the lagoons, and from one upgradient well located 0.6 mile south of the site; this latter sample was a tap water sample. Analytical data reveal the presence of aluminum in the monitoring wells in concentrations of approximately 46,000 ug/L and 69,000 ug/L, but none was detected in the tap water sample. In the wells concentrations of iron, magnesium, and manganese were significantly greater than concentrations detected in the tap water, and arsenic, beryllium, chromium, cobalt, lead, nickel, and vanadium were detected in the monitoring wells and not in the tap water sample.

Ref. Nos. 1, 4, 6, 8, 12, 13, 14, 17

2.4 SURFACE WATER ROUTE

The site is relatively flat, with slopes of less than 3 percent. Runoff from the site is collected in a roadside drainage ditch on Randall Road that eventually discharges into Twelvemile Creek, approximately 1.6 miles north of the site. The slope between the site and Twelvemile Creek is also less than 3 percent. Surface water runoff from the landfill area may have migrated to the lagoons or roadside ditches. In the past, the lagoons overflowed intermittently, and on two occasions, in 1984 (during significant rainfall) and 1985 (during closure), discharge of lagoon water to the drainage ditch was permitted by the NYSDEC.

Drinking water comes from the Niagara River with intakes in Wheatfield, New York, located over 15 miles from the site. The only downstream surface water within 3 miles of the site is Twelvemile Creek, which is used for boating, fishing, and swimming. Lake Ontario is located approximately 3.8 stream miles from the site.

The 1-year 24-hour rainfall in the vicinity of the site is 2.0 inches.

During the site inspection by NUS FIT 2, some local residents downgradient of the site on Randall Road claimed that chlorine was released into their roadside ditches and that it had a strong odor.

Ref. Nos. 1, 6, 8, 11, 14, 15

2.5 AIR ROUTE

No readings above background were detected in the ambient air on the HNu or OVA prior to disturbance of the waste sources and during sampling at the site inspection conducted on February 17, 1988. There are no historical landmarks within view of the site.

During the site inspection by NUS FIT 2, some local residents downgradient of the site on Randall Road claimed that chlorine was released into their roadside ditches and that it had a strong odor.

Ref. Nos. 6, 11

ALLIED CORP. SYRACUSE RES. LAB
RANSOMVILLE, NEW YORK
TDD# 02-8801-10
SITE MANAGER: AL CHEREPON
LOGBOOK# 0176
FEBRUARY 5, 1988

02-8301-10 Allied Corp Syracuse Res. Lab 7/7/83
NYP5

4

SITE INSPECTION - WED. - 2/17/88

0600 CREW MEETS TO Load Truck, Fill up decon water.

0800 ARRIVE AT SITE, MR. Glin Nixon waiting for us. Conducteded representative interview, CREW SET up post. WEATHER ~26°F, ~5 mph wind from WEST. overcast.
MR. NIXON said operations shut down in 1985. He gave me Two reports of results From closure plan, lagoon samples which were sampled for priority pollutants. He also gave us a copy of map showing building and well and lagoon locations.
He pointed out old landfill areas, which buildings were for what purpose, and one area where the aluminum chloride was stored Temporarily, where drainage was located, water Table presently ~ 3', and The entire land owned by Co. is ~ 25 acres but The facility was only ~ 3 acres.
I Told him what we would be doing, samples To be taken, and how To get a copy of results. He said he wanted us To fill one jar for each of The Two wells we were To sample as a split sample For him. One well was frozen, but we won't need To sample That one. No Locking caps on wells.

0900 Finished with interview, sampling tools being decontaminated, safety meeting held, and crew preparing for Level B Recon. Pete Babich calibrating OVA + HNu.

0940 PETE BABICH 307172 SCBA Back up
Mark Ellis 192059 SCBA
KEN Bajdan 428550 SCBA HNu 469747-G
ON AIR FOR Level B Recon OVA 307135-E
Cal. mini 428520

0943 Photo 1 - GRW #1, bailer.

[signature] Alan [signature] 2/17/88

0955 Photo 2 – Level B Recon – Ellis + Bogdan on air at well #3 near former lagoon area.
No readings above background.
Water level 4' ~~above~~ from top of casing
Casing ~ 3.5' above GL.
Bottom of well ~ 11' from top of casing

1000 Photo 3, 4, 5 Panoramic view of site as seen from ~~area~~ of former lagoons. Looking south.
Ellis + Bogdan – Level B Recon.
Checking drums in low area
No readings above background on OVA, HNU

1008 Checking measurements on well #2 – /outside fence area.
Depth to water ~ 7' from top of casing
Total depth of well ~ 23' from top of casing
Casing is 4' above GL.

1010 Off air, finished with Level B Recon.
1020 Back at command post.

1030 Richard Hillman, former Allied worker, drove up, told us some further background info.
(he lives on rd 425)

J. Gilliland + T. Varner, doing tap samples and background soil sample, off site.

1100 Setting up at well location to evacuate 3-5 volumes.

Alan Cherepon 2/17/88

[illegible]

1103 Evacuated ~5 gallons, well dry, shut off pump to allow well to recharge.

water level .5' below ground surface.
12.5' of water column
4" diameter wells
6.5 gallons/10' + 1.3/2' + .33/.5'

12.5' column = 8.13 gallons x 3 = 24.39 or
~25 gallons for 3 volums.

1115 well recharging slow, only pumped out a very small volume 2nd time pumping. will let it recharge further before sampling. Evacuated ~8 gallons, or 1 volume

1130 Going to take soil sample S1 on other side of Main Building, but no place to take it. All paved. Will go to location for S2 + S3, and have those samples become S1 + S2.

1145. Augers won't go through frozen ground, will try to losen with pick.
Mr. Colin Nixon came back to site, said R. Riccio from NUS Edison called and wanted to speak to us. Will call after 1300 when she gets back from lunch.

1150 Mr. Nixon leaving site, said to leave his duplicate well samples inside building + lock up.

1200 After attempting to use pick, we could not penetrate but about 3"-4" of soil, ground too frozen due to lack of snow cover this year.

[signature] Alan [signature] 2/07/[illegible]

ied Corp. Syracuse Res. Lab — 02-8801-10
endum to field log book — 2-17-88

0 T. Varner and G Gilliland leave site to collect an upgradient tap water sample and off-site soil sample.

1 Arrive at 3166 Randall Rd., 0.1 mile ~~south~~ and on the opposite side of the road from the site, the house of Dennis Cassick. Mrs. Cassick tells us that they are on public water supply and there is no private well hook-up. She agrees to let us get a soil sample from her yard. Phone # 751-6771

0 T. Varner and G. Gilliland collect soil sample NYP5-$-8, approximately 25 feet west of Randall Road and 5 feet south of the driveway. There are no photos taken because A. Cheregon has the cameras.

8 We arrive at 3285 Randall Rd., 0.6 mile south of the site and on the same side of the road, house of J. Schultz. She says the tap on the back of the house delivers water from their private well and it is ok for us to sample it. Phone# 791-3667.

0 T. Varner turns on the tap to let it evacuate for 15 minutes while G. Gilliland gets cameras and sample bottles and gloves from the truck.

Gerald V. Gilliland 2-17-88

ed Corp. Syracuse Res. Lab

02-8801-10
2-17-88

2 The well is approximately 8 feet south of the back corner of the house. It is approximately 10 feet deep and 2 feet in diameter; it was installed by Mr. Schultz (grandfather). A pipe leads from the well to a storage tank and pump in the basement, which pumps the water through the tap. They use the water for watering lawn + gardens; their drinking water is from public supply.

5 G. Gilliland collects GW-1 from the tap ~~at~~ 3285 Randall Rd. Photograph

0 G. Gilliland collects GW-1A (the environmental duplicate) from the tap at 3285 Randall Rd. Photograph

5 T. Varner and G. Gilliland go back to the site to drop off samples

8 T. Varner and G. Gilliland arrive at site, drop off S-8 and GW-1 and GW-1A; we will now try to find ~~at~~ a downgradient tap water sample.

45 We have tried every house along Randall Rd. within 0.6 mile ~~upgradient~~ downgradient of the site. A lot of houses have inactive private wells which do not have pumps attached to them any longer. The wells are all between 20 and 30 feet deep and from 3 to 5 feet in diameter. It would be impractical to ... to pump enough volume out of all of these wells to evacuate d;

REFERENCE 19

HAZARDOUS WASTE DISPOSAL SITES REPORT
NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Code: F
Site Code: 932003
Name of Site: Allied Chemical Corp.-Elberta Works Region: 9
County: Niagara Town/City Ransomville
Street Address: Randall Road west of railroad tracks.

Status of Site Narrative:

This was a former burial site for refractory materials and aluminum chloride until six to seven years ago. Any hydrochloric acid formed would have been leached away by now. Plans have been made to convert this into a parking lot.

Type of Site: Open Dump ☐ Landfill ☒ Structure ☐ Treatment Pond(s) ☐ Lagoon(s) ☐ Number of Ponds ___ Number of Lagoons ___

Estimated Size 50 x 30 ft.

Hazardous Wastes Disposed? Confirmed ☒ Suspected ☐

*Type and Quantity of Hazardous Wastes:

TYPE	QUANTITY (Pounds, drums, tons, gallons)
Refractory material with graphite and traces of aluminum chloride.	12 ton/year

*Use additional sheets if more space is needed.

Name of Current Owner of Site: Allied Chemical
Address of Current Owner of Site: Ransomville

Time Period Site Was Used for Hazardous Waste Disposal:
unknown , To , 1973+

Is site Active ☐ Inactive ☒ for landfill.
(Site is inactive if hazardous wastes were disposed of at this site and site was closed prior to August 25, 1979)

Types of Samples: Air ☐ Groundwater ☐ None ☒
Surface Water ☐ Soil ☐

Remedial Action: Proposed ☐ Under Design ☐
In Progress ☐ Completed ☐
Nature of Action:

Status of Legal Action: ______ State ☐ Federal ☐

Permits Issued: Federal ☐ Local Government ☐ SPDES ☐
Solid Waste ☐ Mined Land ☐ Wetlands ☐ Other ☐

Assessment of Environmental Problems:

No significant environmental problems.

Assessment of Health Problems:

Health problems not known.

Persons Completing this Form:

G. D. Knowles	Ronald Tramontano
New York State Department of Environmental Conservation	New York State Department of Health
Date April 16, 1980	Date April 16, 1980

1/15/80
CTN:c1

GENERATOR FORM

PART - II

G

NAME	ICS NUMBER - EPA ID NUMBER
DA cialties Inc.	0100396
ADDRESS 31 Kandall Road	
CITY Ra omville,	STATE N.Y. ZIP 14131

DATE 8/16/84

1 HAZARDOUS WASTE DISPOSAL SITE (SEE INSTRUCTIONS)	2 DESCRIPTION OF HAZARDOUS WASTES DEPOSITED AT THIS LOCATION (SEE INSTRUCTIONS)	3 EPA WASTE CODE	4 WASTE DISPOSED OF QUANTITY OF WASTE (TONS)	FORM	5 WASTE DISPOSAL DATES	6 TRANSPORTER OF HAZARDOUS WASTE (SEE INSTRUCTIONS)
CECOS Int. Niagara Falls, N.Y.	Waste aluminum Chloride	D003	Not available ≈ 50 tons/yr	X	1979 - 1981	Various unknown
SCA Niagara Falls, N.Y.	Waste Aluminum Chloride	D003	Not available ≈ 50 tons/yr	X	" "	Various unknown

Note: ... manufactured $AlCl_3$ since 1969, so most likely waste was generated (possibly 100 tons/yr) Prior to 1979, waste disposal practices were unknown. After 1979, alternated use of Cecos and SCA for disposal sites, but transporters are unknown.

(...ed: Clifford J. Dickens 10/30/84

A-86

Derivation: (a) By passing bromine over heated aluminum; (b) reaction of hydrobromic acid with aluminum hydroxide.
Containers: Glass jars; air-tight drums.
Hazard: The anhydrous form reacts violently with water and is corrosive to skin.
Uses (anhydrous): Bromination, alkylation, and isomerization catalyst in organic synthesis.
Shipping regulations: (anhydrous) (Rail, Air) Corrosive label.

aluminum bronze. An alloy containing 86–96.1% copper, 2.3–10.5% aluminum, and small amounts of iron and tin. Characterized by high strength, ductility, hardness and resistance to shock, fatigue, most chemicals, and sea water.
Powder: Also called gold bronze powder. An alloy of 90% copper and 10% aluminum reduced from leaf form to powder, polished mechanically, and coated with stearic acid. Available in the following grades: litho, molding, printing-ink, and radiator. Used as pigment in paints and inks.

aluminum n-butoxide $Al(OC_4H_9)_3$.
Properties: Yellow to white crystalline solid; m.p. 101.5° C (pure) and 88–96° C (commercial); sp. gr. 1.0251 (20° C); b.p. 290–310° C (30 mm). Soluble in aromatic, aliphatic and chlorinated hydrocarbons.
Uses: Ester exchange catalyst; defoamer ingredient; hydrophobic agent; intermediate.

aluminum carbide Al_4C_3.
Properties: Yellow crystals or powder; decomposes in water with liberation of methane. Sp. gr. 2.36. Stable to 1400° C.
Derivation: By heating aluminum oxide and coke in an electric furnace.
Grades: Technical.
Containers: Iron drums.
Uses: Generating methane; catalyst; metallurgy; drying agent; reducing agent.
Hazard: Dangerous fire risk. Keep dry.
Shipping regulations: (Air) Flammable Solid label and Dangerous When Wet label.

aluminum carbonate. A basic carbonate of variable composition; formula sometimes given as $Al_2O_3 \cdot CO_2$. White lumps or powder, insoluble in water, dissolves in hot hydrochloric acid or sulfuric acid. Formerly used as mild astringent, styptic. Normal aluminum carbonate $Al_2(CO_3)_3$ is not known as an individual compound.

"Aluminum Chelate."[34] Trademark for a group of compounds based on aluminum.
BEA-1: Chemically modified aluminum secondary butoxide.
Properties: Pale yellow liquid; sp. gr. 1.030 (21° C); aluminum content 8.9–9.1%.
PEA-1: Chemically modified aluminum isopropylate.
Properties: Pale yellow liquid; sp. gr. 1.035 (25° C); aluminum content 9.5–10.0%.
PEA-2: Chemically modified aluminum isopropylate.
Properties: Pale yellow; soluble in aromatic, aliphatic and chlorinated hydrocarbons; aluminum content 7.8–7.9%.
Uses: Curing of epoxy, phenolic, castor oil alkyds and high molecular weight polymers which are hydroxyl or carboxyl bearing; textile hydrophobing in solvent based systems, adhesion promotion.

aluminum chlorate $Al(ClO_3)_3$.
Properties: Colorless crystals; deliquescent; soluble in water and alcohol.
Hazard: Oxidizing material; keep out of contact with combustible materials.
Uses: Disinfectant; color control of acrylic resins.
Shipping regulations: (Rail, Air) Chlorates, n.o.s., Oxidizer label.

aluminum chloride, anhydrous * $AlCl_3$.
Properties: White or yellowish crystals; sp. gr. (25° C) 2.44; m.p. 190° C (2.5 atm); sublimes readily at 178° C; the vapor consists of double molecules, Al_2Cl_6. Soluble in water.
Derivation: (a) By reaction of purified gaseous chlorine with molten aluminum; (b) by reaction of bauxite with coke and chlorine at about 875° C. This product is used to make the hydrate.
Impurities: (a) Ferric chloride, free aluminum; insolubles.
Grades: Technical; reagent.
Containers: Drums; car lots.
Hazard: Moderately toxic by ingestion and inhalation. Strong irritant to tissue. Reacts violently with water, evolving HCl.
Uses: Ethylbenzene catalyst; dyestuff intermediate; detergent alkylate; ethyl chloride; pharmaceuticals and organics (Friedel-Crafts catalyst); butyl rubber; petroleum refining; hydrocarbon resins; nucleating agent for titanium dioxide pigments.
Shipping regulations: (Air) Corrosive label.

aluminum chloride hydrate $AlCl_3 \cdot 6H_2O$.
Properties: White or yellowish deliquescent crystalline powder; nearly odorless; sweet, astringent taste; sp. gr. 2.4; m.p., decomposes. Soluble in water and alcohol. The water solution is acid.
Derivation: By crystallizing the anhydrous form from hydrochloric acid solution.
Grades: Technical, C.P., N.F. See also aluminum chloride solution.
Uses: Pharmaceuticals and cosmetics, pigments; roofing granules, special papers; photography; textile (wool).

aluminum chloride solution 32° Bé. Special grade of a solution containing only 0.005% iron as impurity, and having an acid reaction but containing no free acid.
Containers: Carboys; tank cars, tank trucks.
Uses: Antiperspirants; roofing granules.

aluminum chlorohydrate. $[Al_2(OH)_5Cl]_x$. An ingredient of commercial antiperspirant and deodorant

APPENDIX B

SITE INSPECTION REPORT
(EPA FORM 2070-13)

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT

PART 1 - SITE LOCATION AND INSPECTION INFORMATION

I. IDENTIFICATION

01 State	02 Site Number
NY	932003

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	3119 Randall Road

03 City	04 State	05 Zip Code	06 County	07 County Code	08 Cong. Dist.
Town of Wilson	NY	14131	Niagara	063	32

09 Coordinates
Latitude: 4 3° 1 5' 5 1" N
Longitude: 78° 52' 00" W"

10 Type of Ownership (check one)
[X] 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
4 / 29 / 91 (Month Day Year)	[ ] Active [X] Inactive	1945 (Beginning Year) / 1985 (Ending Year) [ ] Unknown

04 Agency Performing Inspection (check all that apply)
[ ] A. EPA [ ] B. EPA Contractor ______ (name of firm) [ ] C. Municipal [ ] D. Municipal Contractor ______ (name of firm)
[ ] E. State [X] F. State Contractor Ecology and Environment Engineering, P.C. (name of firm) [ ] G. Other ______ (specify)

05 Chief Inspector	06 Title	07 Organization	08 Telephone No.
Linda Fischer	Environmental Analyst	E & E	(716) 684-8060

09 Other Inspectors	10 Title	11 Organization	12 Telephone No.
Scott Glinski	Land Use Planner	E & E	(716) 684-8060
Yavuz Erk	Sanitary Engineer	NYSDEC	(716) 847-4585
			( )
			( )

13 Site Representatives Interviewed	14 Title	15 Address	16 Telephone No.
Not available			( )
			( )
			( )
			( )

17 Access Gained by (check one)	18 Time of Inspection	19 Weather Conditions
[ ] Permission [ ] Warrant — Walked site perimeter only	13:15	Clear, 65°F

IV. INFORMATION AVAILABLE FROM

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

04 Person Responsible for Site Inspection Form	05 Agency	06 Organization	07 Telephone No.	08 Date
Linda Fischer		E & E	(716) 684-8060	4 / 29 / 91 (Month Day Year)

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT

PART 2 - WASTE INFORMATION

I. IDENTIFICATION

01 State	02 Site Number
NY	932003

II. WASTE STATES, QUANTITIES, AND CHARACTERISTICS

01 Physical States (check all that apply)

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

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

Tons 1,500
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
[X] 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			
OOC	Other organic chemicals			
IOC	Inorganic chemicals			
ACD	Acids	Aluminum Chloride		Reacts violently with water
BAS	Bases			
MES	Heavy metals			

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

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

V. FEEDSTOCKS (see Appendix for CAS Numbers)

Category	01 Feedstock Name	02 CAS Number	Category	01 Feedstock Name	02 CAS Number
FDS			FDS		
FDS			FDS		
FDS			FDS		
FDS			FDS		

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

Telephone interview - Mr. G. Kanelis - Environmental Administrator

POTENTIAL HAZARDOUS WASTE SITE SITE INSPECTION REPORT PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS	I. IDENTIFICATION	
	01 State NY	02 Site Number 932003

II. HAZARDOUS CONDITIONS AND INCIDENTS

01 [ ] A. Groundwater Contamination — 02 [ ] Observed (date __________) — [ ] Potential — [ ] Alleged
03 Population Potentially Affected _______ — 04 Narrative Description:

None reported.

01 [ ] B. Surface Water Contamination — 02 [ ] Observed (date __________) — [ ] Potential — [ ] Alleged
03 Population Potentially Affected _______ — 04 Narrative Description:

01 [ ] C. Contamination of Air — 02 [ ] Observed (date __________) — [ ] Potential — [ ] Alleged
03 Population Potentially Affected _______ — 04 Narrative Description:

Air monitoring with an HNu photoionization detector resulted in no readings above background levels.

01 [ ] D. Fire/Explosive Conditions — 02 [ ] Observed (date __________) — [ ] Potential — [ ] Alleged
03 Population Potentially Affected _______ — 04 Narrative Description:

01 [ ] E. Direct Contact — 02 [ ] Observed (date __________) — [ ] Potential — [ ] Alleged
03 Population Potentially Affected _______ — 04 Narrative Description:

Site is fenced with locked gate.

01 [ ] F. Contamination of Soil — 02 [ ] Observed (date __________) — [ ] Potential — [ ] Alleged
03 Area Potentially Affected _______ — 04 Narrative Description:

01 [ ] G. Drinking Water Contamination — 02 [ ] Observed (date __________) — [ ] Potential — [ ] Alleged
03 Population Potentially Affected None — 04 Narrative Description:

All surrounding residences use municipal water supply.

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

None reported

01 [ ] I. Population Exposure/Injury — 02 [ ] Observed (date __________) — [ ] Potential — [ ] Alleged
03 Population Potentially Affected _______ — 04 Narrative Description:

None reported

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT

PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS

I. IDENTIFICATION

01 State	02 Site Number
NY	932003

II. HAZARDOUS CONDITIONS AND INCIDENTS (Cont.)

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:

None noticed

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

01 [ ] M. Unstable Containment of Wastes (spills/runoff/standing liquids, leaking drums) — 02 [ ] Observed (date ________) [ ] Potential [ ] Alleged
03 Population Potentially Affected: ________
04 Narrative Description:

No unstable containment

01 [ ] N. Damage to Off-site 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:

None reported

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

None reported

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

III. TOTAL POPULATION POTENTIALLY AFFECTED 141 - 1-mile radius

IV. COMMENTS

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

Ecology and Environment Engineering, P.C. site inspection outside of fenced area, April 29, 1991. Niagara County Health Department Files, NYSDEC Files

POTENTIAL HAZARDOUS WASTE SITE SITE INSPECTION REPORT

PART 4 - PERMIT AND DESCRIPTIVE INFORMATION

I. IDENTIFICATION

01 State	02 Site Number
NY	932003

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. Drum, Aboveground		
[ ] D. Tank, Aboveground		
[ ] E. Tank, Belowground		
[X] F. Landfill	1,500	Tons
[ ] G. Landfarm		
[X] H. Open Dump		
[ ] I. Other ______ (specify)		

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
[X] H. Other None (specify)

05 Other

[X] Buildings On Site

3

06 Area of Site

3 Acres

07 Comments

IV. CONTAINMENT

01 Containment of Wastes (check one)

[ ] A. Adequate, Secure [X] B. Moderate [ ] C. Inadequate, Poor [ ] D. Insecure, Unsound, Dangerous

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

Site is completely fenced. Land disposal area covered with asphalt.

V. ACCESSIBILITY

01 Waste Easily Accessible [ ] Yes [X] No

02 Comments

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

Ecology and Environment Engineering, P.C. site inspection 4/29/91

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT

PART 5 - WATER, DEMOGRAPHIC, AND ENVIRONMENTAL DATA

I. IDENTIFICATION

01 State: NY

02 Site Number: 932003

II. DRINKING WATER SUPPLY

01 Type of Drinking Supply (check as applicable)

	Surface	Well
Community	A. [X]	B. [ ]
Non-community	C. [ ]	D. [ ]

02 Status

Endangered	Affected	Monitored
A. [ ]	B. [ ]	C. [ ]
D. [ ]	E. [ ]	F. [ ]

03 Distance to Site

A ~10 (mi)

B ______ (mi)

III. GROUNDWATER

01 Groundwater Use in Vicinity (check one)

[ ] A. Only Source for Drinking

[ ] B. Drinking (other sources available) Commercial, Industrial, Irrigation (no other water sources available)

[X] C. Commercial, Industrial, Irrigation (limited other sources available) Limited use.

[ ] D. Not Used, Unusable

02 Population Served by Groundwater 0

03 Distance to Nearest Drinking Water Well ______ (mi)

04 Depth to Groundwater: 2-6 (ft)

05 Direction of Groundwater Flow: NW

06 Depth to Aquifer of Concern ______ (ft)

07 Potential Yield of Aquifer ______ (gpd)

08 Sole Source Aquifer: [ ] Yes [ ] No [ ] Unknown

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

10 Recharge Area

[ ] Yes | Comments:
[ ] No |

11 Discharge Area

[ ] Yes | Comments:
[ ] No |

IV. SURFACE WATER

01 Surface Water (check one)

[ ] A. Reservoir, Recreation, Drinking Water Source

[ ] B. Irrigation, Economically Important Resources

[ ] C. Commercial, Industrial

[X] D. Not Currently Used

02 Affected/Potentially Affected Bodies of Water

Name:	Affected	Distance to Site
Twelve Mile Creek	[ ]	0.5 (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. 141 No. of Persons	B. 899 No. of Persons	C. 2,882 No. of Persons

02 Distance to Nearest Population: 150 feet (mi)

03 Number of Buildings Within Two (2) Miles of Site: Approximately 237

04 Distance to Nearest Off-Site Building: 150 feet (mi)

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

Site located in a rural area surrounded by land used for orchards and agriculture.

POTENTIAL HAZARDOUS WASTE SITE SITE INSPECTION REPORT

PART 5 - WATER, DEMOGRAPHIC, AND ENVIRONMENTAL DATA

I. IDENTIFICATION

01 State	02 Site Number
NY	932003

VI. ENVIRONMENTAL INFORMATION

01 Permeability of Unsaturated Zone (check one)

[ ] A. Impermeable (less than 10^{-6} cm/sec) [X] 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)

02 Permeability of Bedrock (check one)

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

03 Depth to Bedrock: 30-40 (ft)

04 Depth of Contaminated Soil Zone: Unknown (ft)

05 Soil pH: 5.6-7.6

06 Net Precipitation: 9 (in)

07 One Year 24-Hour Rainfall: 2.4 (in)

08 Slope

Site Slope	Direction of Site Slope	Terrain Average Slope
0.3 %	NW	0-3 %

09 Flood Potential

Site is in >100 Year Floodplain

10 [ ] Site is on Barrier Island, Coastal High Hazard Area, Riverine Floodway
No

11 Distance to Wetlands (5 acre minimum)

ESTUARINE	OTHER
A. ____ (mi)	B. 1.5 (mi)

12 Distance to Critical Habitat (of endangered species)

____ (mi) No federally designated areas.

Endangered Species: ____

13 Land Use in Vicinity

Distance to:

COMMERCIAL/INDUSTRIAL	RESIDENTIAL AREAS, NATIONAL/STATE PARKS, FORESTS, OR WILDLIFE RESERVES	AGRICULTURAL LANDS: PRIME AG LAND	AGRICULTURAL LANDS: AG LAND
A. On-site (mi)	B. Adjacent (mi)	C. 150 ft (mi)	D. 150 ft. (mi)

14 Description of Site in Relation to Surrounding Topography

Site is located northeast of the intersection of Randall and Braley roads. The topography is flat in this area of Niagara County.

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

Calspan Groundwater Monitoring Report 1979
Ecology and Environment Engineering, P.C. Site Inspection April 29, 1991
USDA soil Survey of Niagara County, 1972

POTENTIAL HAZARDOUS WASTE SITE SITE INSPECTION REPORT

PART 6 - SAMPLE AND FIELD INFORMATION

I. IDENTIFICATION	
01 State	02 Site Number
NY	932003

II. SAMPLES TAKEN

Sample Type	01 Number of Samples Taken	02 Samples Sent To	03 Estimated Date Results Available
Groundwater			
Surface Water			
Waste			
Air			
Runoff			
Spill			
Soil			
Vegetation			
Other			

III. FIELD MEASUREMENTS TAKEN

01 Type	02 Comments
HNu	Not detected above background concentration of 1 ppm
Minirad	Not detected

IV. PHOTOGRAPHS AND MAPS

01 Type [X] Ground [ ] Aerial	02 In Custody of Ecology and Environment Engineering, P.C. (name of organization or individual)

03 Maps	04 Location of Maps
[X] Yes [ ] No	Copy of tax map-in custody of Ecology and Environment Engineering, P.C.

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

None

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

Ecology and Environment Engineering, P.C. Site Inspection April 29, 1991

POTENTIAL HAZARDOUS WASTE SITE SITE INSPECTION REPORT

PART 7 - OWNER INFORMATION

I. IDENTIFICATION

01 State	02 Site Number
NY	932003

II. CURRENT OWNER(S)

01 Name	02 D&B Number	03 Street Address (P.O. Box, RFD #, etc.)	04 SIC Code	05 City	06 State	07 Zip Code
Ronald Fedkiw, Eva Corporation		2658 Coomer Road		Newfane	NY	14108

PARENT COMPANY (if applicable)

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

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

01 Name	02 D&B Number	03 Street Address (P.O. Box, RFD #, etc.)	04 SIC Code	05 City	06 State	07 Zip Code
Welland Chemicals, Ltd.		Scott Road, Sarnia		Ontario	Canada	
DAL Specialties		3119 Randall Road		Wilson	NY	14131
Allied Chemicals		3119 Randall Road		Wilson	NY	14131

IV. REALTY OWNER(S) (if applicable, list most recent first)

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

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

Ecology and Environment Engineering, P.C. site inspection, April 29, 1991.

POTENTIAL HAZARDOUS WASTE SITE SITE INSPECTION REPORT

PART 8 - OPERATOR INFORMATION

I. IDENTIFICATION	
01 State NY	02 Site Number 932003

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

01 Name Ronald Fedkiw, Eva Corporation	02 D&B Number		10 Name	11 D&B Number	
03 Street Address (P.O. Box, RFD #, etc.) 3119 Randall Road		04 SIC Code	12 Street Address (P.O. Box, RFD #, etc.)		13 SIC Code
05 City Ransomville	06 State NY	07 Zip Code 14131	14 City	15 State	16 Zip Code
08 Years of Operation 8/89 - present	09 Name of Owner Ronald Fedkiw				

III. PREVIOUS OPERATOR(S) (list most recent first; provide if different from owner) / PREVIOUS OPERATORS' PARENT COMPANIES (if applicable)

01 Name Welland Chemicals, Ltd.	02 D&B Number		10 Name	11 D&B Number	
03 Street Address (P.O. Box, RFD #, etc.) Scott Road Sarnia		04 SIC Code	12 Street Address (P.O. Box, RFD #, etc.)		13 SIC Code
05 City Ontario Canada	06 State	07 Zip Code	14 City	15 State	16 Zip Code
08 Years of Operation 1985-1989	09 Name of Owner During this Period Colin Nixon				
01 Name DAL Specialties	02 D&B Number		10 Name	11 D&B Number	
03 Street Address (P.O. Box, RFD #, etc.) 3119 Randall Road		04 SIC Code	12 Street Address (P.O. Box, RFD #, etc.)		13 SIC Code
05 City Wilson	06 State NY	07 Zip Code 14131	14 City	15 State	16 Zip Code
08 Years of Operation 1983-1985	09 Name of Owner During this Period James Lanzo				
01 Name Allied Chemicals	02 D&B Number		10 Name	11 D&B Number	
03 Street Address (P.O. Box, RFD #, etc.) 3119 Randall Road		04 SIC Code	12 Street Address (P.O. Box, RFD #, etc.)		13 SIC Code
05 City Wilson	06 State NY	07 Zip Code 14131	14 City	15 State	16 Zip Code
08 Years of Operation 1956-1983	09 Name of Owner During this Period				

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

Ecology and Environment Engineering, P.C. site inspection April 29, 1991
Phase I Investigation, January 1988

POTENTIAL HAZARDOUS WASTE SITE SITE INSPECTION REPORT

PART 9 - GENERATOR/TRANSPORTER INFORMATION

I. IDENTIFICATION

01 State	02 Site Number
NY	932003

II. ON-SITE GENERATOR

01 Name	02 D&B Number	
Allied Chemical-Elberta Works		
03 Street Address (P.O. Box, RFD #, etc.)	04 SIC Code	
3119 Randall Road		
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	
03 Street Address (P.O. Box, RFD #, etc.)	04 SIC Code		03 Street Address (P.O. Box, RFD #, etc.)	04 SIC Code	
05 City	06 State	07 Zip Code	05 City	06 State	07 Zip Code
01 Name	02 D&B Number		01 Name	02 D&B Number	
03 Street Address (P.O. Box, RFD #, etc.)	04 SIC Code		03 Street Address (P.O. Box, RFD #, etc.)	04 SIC Code	
05 City	06 State	07 Zip Code	05 City	06 State	07 Zip Code

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

POTENTIAL HAZARDOUS WASTE SITE SITE INSPECTION REPORT PART 10 - PAST RESPONSE ACTIVITIES	I. IDENTIFICATION	
	01 State: NY	02 Site Number: 932003

II. PAST RESPONSE ACTIVITIES

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

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

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

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

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

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

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

01 [X] H. On-Site Burial — 02 Date June 24, 1991 — 03 Agency ________
04 Description: From 1956 through 1972, approximately 1,500 tons of solid waste including refractory material, graphite, asbestos, aluminum chloride were disposed of on-site.

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:

POTENTIAL HAZARDOUS WASTE SITE SITE INSPECTION REPORT PART 10 - PAST RESPONSE ACTIVITIES	I. IDENTIFICATION	
	01 State NY	02 Site Number 932003

II. PAST RESPONSE ACTIVITIES (Cont.)

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

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

01 [X] S. Capping/Covering 02 Date June 24, 1991 03 Agency ________
04 Description: The area in which the 1,500 tons of solid waste were disposed of is now covered with asphalt and a building.

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

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

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

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

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

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

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

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

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

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

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

POTENTIAL HAZARDOUS WASTE SITE SITE INSPECTION REPORT PART 11 - ENFORCEMENT INFORMATION	I. IDENTIFICATION	
	01 State NY	02 Site Number 932003

II. ENFORCEMENT INFORMATION

01 Past Regulatory/Enforcement Action [ ] Yes [X]02 No

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

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

APPENDIX C
INTERVIEW DOCUMENTATION FORMS

An unsigned Document of Interview indicates that the person interviewed did not return the form as requested by the intervewer.

INTERVIEW ACKNOWLEDGMENT FORM

SITE NAME:	Allied Chemical-Elberta Works
PERSON CONTACTED:	Ronald Fedkiw
AFFILIATION:	Current owner of site
ADDRESS:	3119 Randall Road, Wilson, New York
TYPE OF CONTACT:	Telephone interview
I.D. NUMBER:	932003
DATE:	5/8/91
PHONE NUMBER:	(716) 751-6243
CONTACT PERSON(S):	Linda Fischer

INTERVIEW SUMMARY:

Mr. Fedkiw purchased the site on Randall Road in the Town of Wilson from Welland Chemicals in August 1989.

Mr. Fedkiw owns a pet food supply business, specifically fish food. Currently, he is using one building as a warehouse only.

Mr. Fedkiw noted that he never noticed leachate in the area surrounding the landfill or the dry lagoons, no odors have been noticed.

Mr. Fedkiw also stated that he would like to invest money into the facility to fix it up. However, he wants to wait until NYSDEC has finalized their investigation and the site is delisted.

ACKNOWLEDGMENT

I have read the above transcript and I agree that it is an accurate summary of the information verbally conveyed to Ecology and Environment Engineering, P.C. interviewer(s) (as revised below, if necessary).

Revisions: (please write in any corrections needed to the above transcript)

Signature ______________________________ Date ______________

* As of first draft printing this interview form has not been signed and returned to E & E.

INTERVIEW ACKNOWLEDGMENT FORM

SITE NAME: Allied Chemical-Elberta Works

PERSON CONTACTED: George Kanelis

AFFILIATION: Allied-Signal, Inc. previous owner

ADDRESS: 101 Columbia Road, Morristown, New Jersey

TYPE OF CONTACT: Telephone interview

I.D. NUMBER: 932003

DATE: 5/7/91

PHONE NUMBER: (201) 455-2000

CONTACT PERSON(S): Linda Fischer

INTERVIEW SUMMARY:

I spoke with Mr. Kanelis, whose title is Manager of Environmental Administration for Allied-Signal, Inc., regarding the past history of Allied Chemical in Wilson, New York. Mr. Kanelis was able to locate the disclosure package for this site when it was sold to DAL Specialties in 1983. Mr. Kanelis relayed the following information:

The process for making aluminum chloride (ALCL) is a batch process in which chlorine gas is reacted with aluminum ingots to obtain the final product ALCL. This product is a powder which is needed as a catalyst for other chemical reactions.

From 1956 to 1972, 1,500 tons of waste material were landfilled on site and capped with clay.

Allied Chemical employed 29 people during their years of site operation.

ACKNOWLEDGMENT

I have read the above transcript and I agree that it is an accurate summary of the information verbally conveyed to Ecology and Environment Engineering, P.C. interviewer(s) (as revised below, if necessary).
Revisions: (please write in any corrections needed to the above transcript)

Signature ______________________________ Date ______________

* As of first draft printing this interview form has not been signed and returned to E & E.

INTERVIEW ACKNOWLEDGMENT FORM

SITE NAME: Allied Chemical-Elberta Works

PERSON CONTACTED: Alan Ballantyne

AFFILIATION: Welland Chemicals, previous owner of site

ADDRESS: Scott Road, Sarnia, Ontario, Canada

TYPE OF CONTACT: Telephone interview

I.D. NUMBER: 932003

DATE: 4/19/91

PHONE NUMBER: (416) 270-3663

CONTACT PERSON(S): Linda Fischer

INTERVIEW SUMMARY:

Mr. Ballantyne stated that the Wilson, New York facility was sold in August 1989. However, he did not have the name and phone number of the current owner.

Welland Chemicals acquired DAL Specialties in 1985, and ceased all operations at the plant. The equipment was transferred to their main aluminum chloride plant in Sarnia, Canada.

No information regarding landfilling or the lagoon area was available.

ACKNOWLEDGMENT

I have read the above transcript and I agree that it is an accurate summary of the information verbally conveyed to Ecology and Environment Engineering, P.C. interviewer(s) (as revised below, if necessary).
Revisions: (please write in any corrections needed to the above transcript)

Signature ______________________________ Date ______________

* As of first draft printing this interview form has not been signed and returned to E & E.