ENGINEERING INVESTIGATIONS AT INACTIVE HAZARDOUS WASTE SITES

PHASE I INVESTIGATION

ONONDAGA NATION-SITE B **SITE No. 734027**

ONONDAGA NATION **ONONDAGA (C)**

DATE: JUNE 1989

Prepared for :

NEW YORK STATE
DEPARTMENT OF ENVIRONMENTAL CONSERVATION
50 Wolf Road, Albany, New York 12233

Thomas C. Jorling, Commissioner

DIVISION OF HAZARDOUS WASTE REMEDIATION

Michael J. O'Toole, Jr., P.E. - Director

URS Company, Inc.
570 Delaware Avenue
Buffalo, New York 14202

720

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IN THE STATE OF NEW YORK

PHASE I INVESTIGATIONS

ONONDAGA NATION - SITE B

ONONDAGA NATION

ONONDAGA COUNTY

SITE NO. 734027

Prepared for:

DIVISION OF HAZARDOUS WASTE REMEDIATIONK

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

50 WOLF ROAD

ALBANY, NEW YORK 12233-0001

Prepared by:

URS CONSULTANTS, INC.

570 DELAWARE AVENUE

BUFFALO, NEW YORK 14202

JUNE 1989

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1.0 EXECUTIVE SUMMARY

The Onondaga Nation - Site B is located on the west side of Quarry Road, just west of Interstate 81 - exit 16 (Nedrow), Onondaga County, New York (Figure 1). The site is within the boundaries of the Onondaga Nation, which is located just south of Syracuse, New York. The estimated 25-acre site is the location of a large dump used for the disposal of several hundred drums, hospital wastes, and other waste materials during the 1960's (Figures 2 and 3).

The site has the potential to impact both public health and the environment. Waste samples collected from onsite drums by the New York State Department of Environmental Conservation (NYSDEC) in 1983 and 1987 indicated contaminants present. Groundwater contamination is of major concern since private and community wells within the area serve a large portion of the population with a potable water supply. Potential surface water contamination of Onondaga Creek, which is used for recreation, is also of concern.

The Phase I effort involved the compilation of information gathered from several sources, including, but not limited to, the following: the New York State Department of Environmental Conservation (NYSDEC) - Central Office and Region 7, the New York State Department of Health (NYSDOH), and a site inspection conducted by URS Company, Inc. personnel on November 4, 1987. Photographs taken during this site inspection are presented on Figure 4.

The intent of the Hazard Ranking System (HRS), as developed by the Mitre Corporation under contract to the U.S. Environmental Protection Agency, is to provide a method by which uncontrolled hazardous waste sites may be systematically evaluated with regard to the potential risk that a site may pose on human health or safety, and/or the environment. The HRS is designed to provide a numerical value through an assessment of technical data and information, and relating that information with respect to the following three hazard modes:

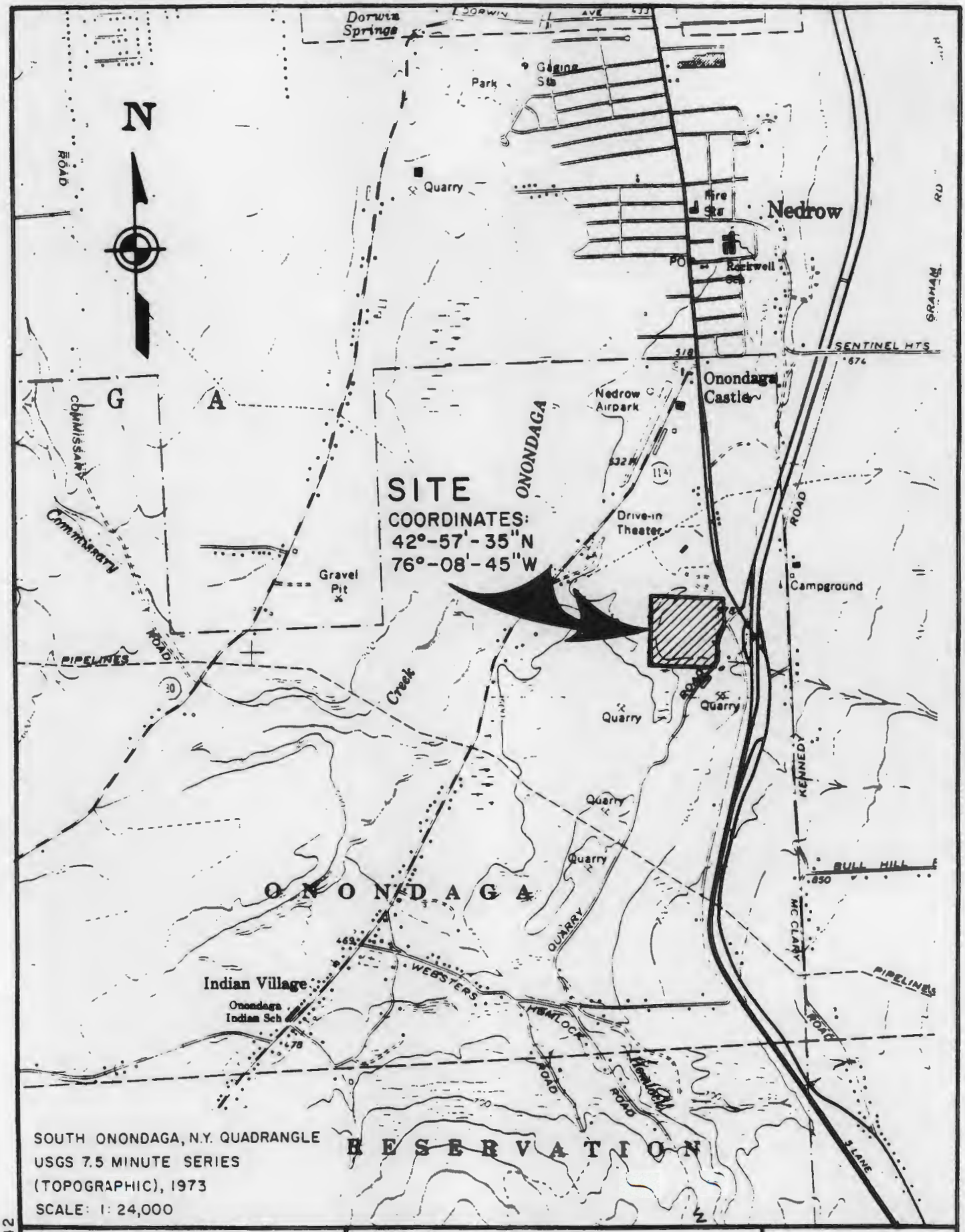
- o migration of hazardous substances from the site (S_M)
- o the potential for harm from fire and explosion (S_{FE})
- o the potential for harm from direct contact (S_{DC})

The migration potential (S_M) is determined through the rating of factors associated with three migration routes: groundwater (S_{gw}), surface water (S_{sw}) and air (S_a). The factor categories include observed release, route and waste characteristics, containment and targets. The scored value for each route is composited to determine the risk to humans and/or the environment from the migration of hazardous substances from the site (S_M). The risks involved with the potential for fire and explosion (S_{FE}) and direct contact (S_{DC}) are evaluated according to site specific information, including: waste characteristics, containment, demographics and proximity to sensitive habitats (wetlands, wildlife, etc.).

Based on information gathered during this investigation of the Onondaga Nation - Site B, the following HRS scores were obtained:

S_M = 29.89 (S_{gw} = 50.65, S_{sw} = 10.44, S_a = 0.00)
S_{FE} = 0.00
S_{DC} = 25.00

The data available in several areas of this Phase I investigation are considered inadequate for a proper site assessment; therefore, additional data gathering and evaluation are suggested. Proposed Phase II investigation activities include subsurface investigation using borings, monitoring well installation, and groundwater, surface water and waste (drums) sampling and analyses.



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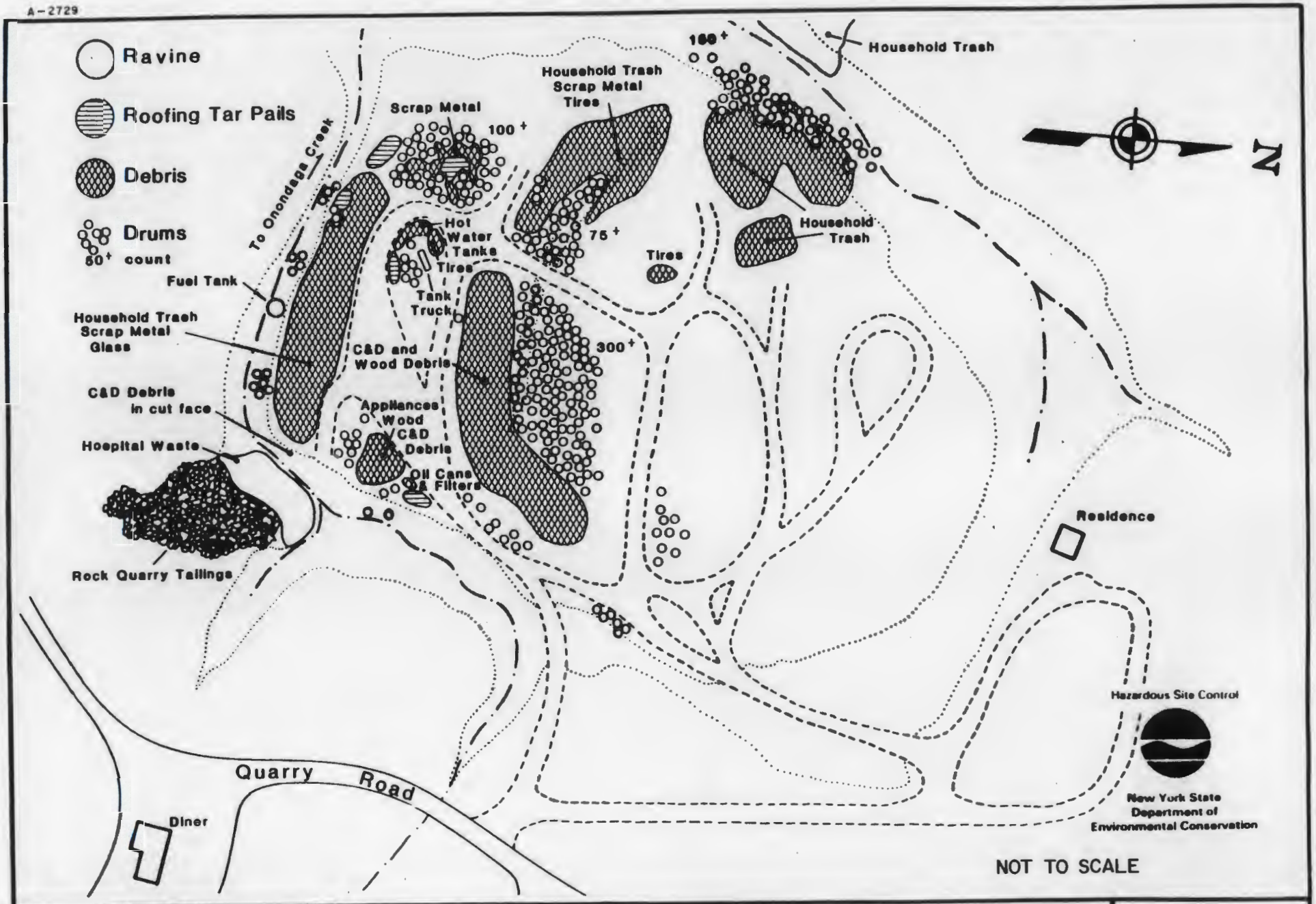
SITE LOCATION MAP
ONONDAGA NATION-SITE B

FIGURE 1

A-2729



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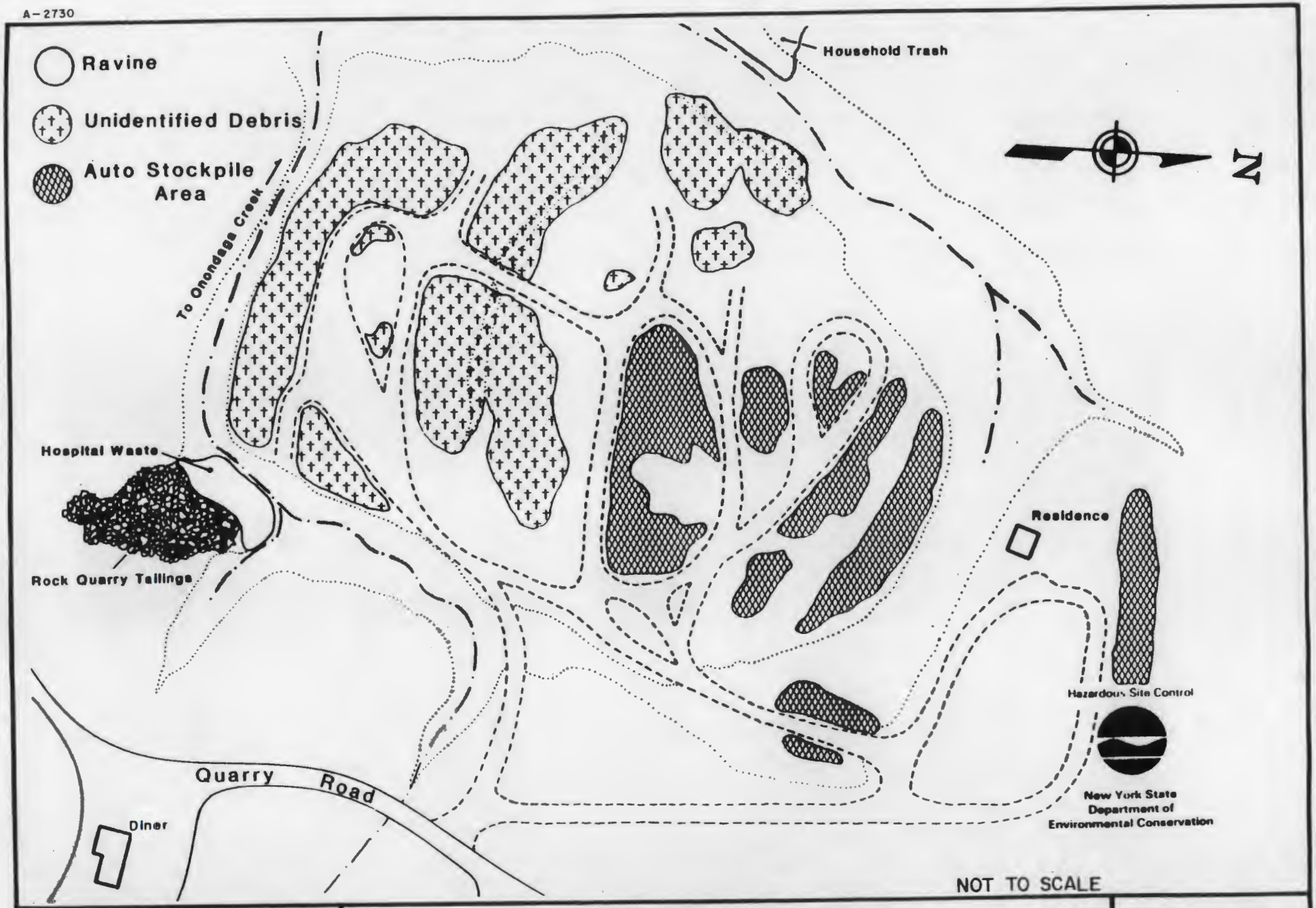
SITE MAP
ONONDAGA NATION-SITE B

FIGURE-2

A-2730



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SITE MAP
ONONDAGA NATION-SITE B

FIGURE 3

FIGURE 4 - SITE PHOTOGRAPHS

November 4, 1987 Onondaga Nation - Site B
Large tank located in southwestern portion of site.

November 4, 1987 Onondaga Nation - Site B
Large pile of drums located in southwestern portion of site.

November 4, 1987 Onondaga Nation - Site B
Looking east from western portion of site at drum disposal area in small drainage ditch.

November 4, 1987 Onondaga Nation - Site B
Leaking drum from drum pile located in small drainage ditch. (Photovac TIP reading measured above background.)

2.0 PURPOSE OF THE PHASE I INVESTIGATION

The Phase I investigation of the Onondaga Nation- Site B on Quarry Road was conducted with the following objectives:

- Compile and review site specific information, including the operational history, in order to assess the site with regard to waste characteristics, routes of contaminant migration, and population and/or environment at risk in order to determine a Preliminary Hazard Ranking System (HRS) score for the site.

- Evaluate the adequacy of available information for the completion of a Final HRS score, with recommendations for additional data collection as necessary.

3.0 SCOPE OF WORK

The Phase I investigation of the Onondaga Nation - Site B on Quarry Road comprised several interrelated tasks as follows:

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

(b) A site inspection was conducted in order to assess the surface characterization of the site and vicinity, observe evidence (if any) of hazardous substances present, photograph the site, conduct preliminary air monitoring using a Photovac TIP instrument, and confirm information obtained from the initial data search. A USEPA Site Inspection Report (EPA Form 2070-13) and the New York State Department of Environmental Conservation Inactive Hazardous Waste Disposal Site Report were completed following the site inspection.

(c) The preliminary HRS documentation records were prepared, using the information obtained in the data search and site inspection, and a value was computed for each hazard mode.

(d) The adequacy of available information was evaluated and recommendations were made for further data necessary to properly develop a final HRS score.

(e) The Phase I investigation report was prepared according to the terms of the contract.

During the investigation, a number of sources were contacted for information, including, but not limited to, the following:

- Science and Engineering Library, University of Buffalo - May 28, 1987, June 1, 1987 and June 24, 1987
  - Geological/hydrogeological information

- Lockwood Library, Government Document Section, University of Buffalo - June 1, 1987
  - 1980 Census information (population data and source of water data)

- Onondaga County Department of Health, Division of Environmental Health - Sterling M. Burdick, P.E., Chief, Air Resources and Solid Waste - June 4, 1987
  - General files

- Buffalo and Erie County Public Library - June 12, 1987
  - Climatalogical data and 1980 Census information

- New York State Department of Health, Syracuse Regional Office - Emmy Thomee - June 19, 1987; Henrietta Hamel - November 18, 1987
  - General files and analytical results for groundwater samples

- New York State Department of Environmental Conservation - Region 7, Division of Hazardous Waste Remediation - Peter Taylor, Sanitary Engineer - June 25, 1987 and July 13, 1987; Larry Gross, Regional Solid Waste Engineer - July 1, 1987
  - General files and site inspection

- New York State Museum and Science Service - July 2, 1987
  - Geological maps

- Onondaga County Soil and Water Conservation District - Paul Webb, District Conservationist - July 31, 1987; David A. Mosher, District Field Manager - August 17, 1987
  - Agricultural lands, irrigation and soils information

- New York State Department of Environmental Conservation - Central Office, Division of Hazardous Waste Remediation - William Shaw - September 3, 1987, November 4, 1987 and November 18, 1987; Martin D. Brand, Senior Engineering Geologist - October 8, 1987, November 4, 1987 and November 25, 1987
  - General files, site inspection, and waste sampling information

- NYSDEC Region 7, Division of Regulatory Affairs - A.A. Coburn, Regional Permit Administrator - September 9, 1987
  - Wetlands information

- Onondaga Nation - Ed Cook, Chief - November 4, 1987
  - Site inspection, source of water, and site history

- Federal Bureau of Indian Affairs, Syracuse Office - November 18, 1987
  - Population data

- Village of E. Syracuse - Carl H. Sterling, Clerk Treasurer - November 18, 1987
  - Source of water information

- City of Syracuse, Water Engineering Department - Lee R. Fordock, Civil Engineer II - November 19, 1987
  - Source of water information

- Town of Onondaga - Mary Alice Moran, Receiver of Taxes - November 19, 1987
  - Source of water information

- Town of Lafayette - Sumner Palmer, Town Supervisor - November 20, 1987
  - Source of water information

4.0 SITE ASSESSMENT

4.1 Site History

The Onondaga Nation - Site B is located within the boundaries of the Onondaga Nation, Onondaga County, New York. During the 1960's, Benjamin Shenandoah, of the Onondaga Nation, operated a dump and junk yard at the site, disposing of such wastes as motor vehicles, tires, washing machines, and scrap lumber. Sometime during the mid- to late-1960's, the area was also used for the disposal of hospital waste, as well as hundreds of 55-gallon drums, the contents of which are largely unknown. Shortly thereafter, the Onondaga Nation terminated Shenandoah's operation. Mr. Shenandoah is now deceased (Ref. 12).

The hospital waste is reportedly from Community General Hospital of Syracuse, New York. Whether any of this waste should be regarded as hazardous is not known at this time (Ref. 21).

An estimated 800 55-gallon drums were observed in piles scattered across the site. Although the labels on most of the drums are illegible due to deterioration, a few names identified include Cowles Chemical Company, ADA Chemical Company, Dow, and Trenco Roof Preservative (Ref. 22 and site visit). At least a portion of the drums were allegedly disposed of by haulers from Solvent Savers, Inc., which conducted a chemical reprocessing operation. During the 1960's, Solvent Savers purchased drums of chemicals from several companies, then after redistillation, sold the chemicals either back to the same company or to a third party. Reportedly, chemicals which were not able to be redistilled were commonly buried (Ref. 23). A former partner/hauler of Solvent Savers identified Cowles Chemical Company as a generator of such waste. Furthermore, the Onondaga Nation site was identified as a disposal area for Solvent Savers' wastes.

In May 1983, by request of the Onondaga Nation, the Onondaga County Health Department inspected the site equipped with geiger counters for

suspected radioactive waste material. No readings exceeded normal background (Ref. 22). The site was again inspected, by the New York State Department of Environmental Conservation (NYSDEC), in September 1983. Waste samples were collected from the drums and analyzed by the NYSDEC. Contaminants were detected, but only benzyl alcohol was identified (Ref. 9 and 10).

A subsequent site inspection by the New York State Department of Health (NYSDOH) in June 1987 resulted in the recommendation for further sampling. In July 1987, the NYSDOH collected groundwater samples from four private wells located on the Onondaga Nation. No contaminants were detected in any of the groundwater samples (Ref. 1 and 21). In November 1987, the NYSDEC and NYSDOH collected five (5) waste samples from onsite drums. Analytical results detected several Hazardous Substance List (HSL) compounds. Further discussion of these and other sampling data available for the site is presented in Section 4.4 on site contamination.

4.2 Site Surface Characterization

The Onondaga Nation - Site B is located in the northeast portion of the Onondaga Nation, in central Onondaga County, New York. The estimated 25-acre site is located just west of Interstate 81 - exit 16 (Nedrow), on the west side of New York State Route 11, and north and west of Quarry Road. The site lies at latitude N42°57'35" and longitude W76°08'45" (Ref. 18). The site is situated approximately 1.6 miles south of the City of Syracuse corporate boundary, which in conjunction with the community of Nedrow immediately south of Syracuse, accounts for the vast majority of the population within three miles of the site. Excluding this urbanized area to the north, the site is situated in a rural, residential and agricultural area which is relatively sparsely populated. The site is not fenced, unsecured, and fairly accessible.

The site topography, as well as the surrounding area, are somewhat irregular. A large portion of the site consists of relatively flat-lying areas covered with high grasses, weeds, brush and trees. Steep embankments to the east and south separate the site from adjacent areas of higher elevation. On the western and southwestern edges of the site, relatively steep embankments lead to low-lying drainage areas. These drainage areas are identified as intermittent streams which flow into an unnamed tributary of Onondaga Creek in the extreme southwestern corner of the site. This tributary flows in a northwesterly direction before discharging into Onondaga Creek, which flows to the north.

Large, uncovered piles of hospital waste are present in the low-lying areas in the southern portion of the site. The hospital waste includes assorted bottles, I.V. containers, plastic tubing, syringes, and used dressings. This material lies in contact with the above-mentioned tributaries of Onondaga Creek. An estimated 800 55-gallon drums are present in piles scattered across the site, many of these also occurring in the drainage areas. A large tank, motor vehicles and parts, washing machines, and scrap lumber are also evident on the surface of the site (Ref. 21).

New York State regulated wetlands lie within one mile of the site to the northwest. Both agricultural land and prime agricultural land are found within 1,000 feet of the site (Ref. 13, 16, 20 and 8).

4.3 Site Hydrogeology

The Onondaga Nation site lies within the northern margin of the Appalachian Uplands physiographic province. The area was formed by dissection of the uplifted, but relatively flat-lying, sandstones and shales of the Middle and Upper Devonian Catskill Delta. Regional dip is extremely subtle to the south-southwest (Ref. 24 and 3). Regional geologic mapping indicates that bedrock underlying the site vicinity consists of Lower Devonian age limestones and dolostones of the

Helderberg Group, and the Middle Devonian Onondaga Limestone which is comprised of variable quantities of chert and shale interbeds (Ref. 2).

Surficial geologic mapping in the area indicates deposits of glacial origin predominate. Evidence of meltwater scourways, formed as a result of repeated erosion during stages of retreat and readvancement of the ice sheet, are present in the area. These include the Smoky Hollow area and Clark Reservation, both located a few miles northeast of the site (Ref. 4). Kame deposits are found at the site and consist of coarse to fine gravel and/or sand which were deposited adjacent to the ice sheet. Lateral variability in sorting, coarseness and thickness are common. Overburden sediments in the surrounding area largely consist of glacial till which was deposited beneath the ice. Typically they consist of poorly-sorted sediments of variable thickness and texture. There are also smaller amounts of recent alluvial deposits, consisting of fine sand to gravel, within the floodplains of Onondaga Creek (Ref. 3).

Groundwater largely occurs within the fractures and along the bedding planes of the bedrock units. Wells which penetrate the limestone units generally produce yields up to 230 gallons per minute (gpm) as the result of fracture enlargement by carbonate solution (Ref. 4). Water quality is commonly affected by hydrogen sulfide, as well as hardness, iron and salinity. Groundwater is also present in the pore spaces of the unconsolidated overburden sediments which are largely comprised of till. Supplies are generally adequate for domestic and farm supplies, although shallow wells on hillsides are frequently not sufficient. Based on the variability of the overburden deposits and the probable hydraulic continuity of these units with bedrock within a three miles radius of the site, the bedrock and overburden units are collectively regarded as the aquifer of concern.

4.4 Site Contamination

Large, uncovered piles of hospital waste lie within the stream beds of two small creeks, one of which is intermittent. Although this waste was suspected of containing radioactive material, no levels exceeding normal background were detected by geiger counters during a site inspection conducted by the Onondaga County Health Department in May 1983 (Ref. 22). It is presently not known whether any of the hospital waste should be regarded as hazardous material (Ref. 21).

In addition to the hospital waste, an estimated 800 55-gallon drums, with 150-200 containing wastes or unknown material, are currently at the site. Most of the drums occur in piles scattered across the site. In addition, a number of buried drums are likely as indicated by evidence of drums protruding from the fill in the center of the site (Ref. 9, 12 and site visit). There is also a large number of roofing-tar drums which are generally empty. A sweet-smelling, black, viscous, tar-like substance was observed in several drums. Photovac TIP readings on this waste material measured approximately 20 ppm above background. A brown, unidentified liquid was observed leaking from at least one drum. Photovac TIP readings were slightly higher (30-35 ppm above background) for this substance.

In September 1983, two waste samples from drums were collected by the New York State Department of Environmental Conservation (NYSDEC) and analyzed by the NYSDEC Mobile Laboratory in Avon, New York. GS/MS results indicate that compounds were detected but not identified in one sample; benzyl alcohol was identified in the second sample (Ref. 9 and 10).

In July 1987, the New York State Department of Health (NYSDOH) collected groundwater samples from four private wells located within the Onondaga Nation. The exact well locations are not available; however, they are reportedly downgradient and in the site vicinity (Ref. 21 and

1). All samples were analyzed by the NYSDOH Wadsworth Center for Laboratories and Research for priority pollutants, organochlorine pesticides, acids and base/neutrals. No contaminants were detected in any of the groundwater samples.

In November 1987, the NYSDEC and NYSDOH collected five (5) waste samples. The analytical results indicated the presence of several HSL compounds (Ref. 11A) Total xylenes and ethylbenzene were reported at maximum concentrations of 2,441,000 and 16,000 ug/kg respectively. Acetone, acetic acid and benzoic acid were also identified, but at concentrations less than the specified detection limit. In addition, numerous unknowns (total BNA) were tentatively identified. EP-Toxicity analyses for metals were also conducted on these samples. Analytical results indicated barium at a concentration of 91 ug/l, chromium at 11 ug/l, and lead at 727 ug/l. Inorganic analyses determined these samples are non-reactive, non-corrosive, and non-ignitable. One waste sample was analyzed for pesticides and PCBs; none were detected.

Potential groundwater contamination from the site is of major concern. A large portion of the population in the area is served by the Onondaga County Water Authority (O.C.W.A.) which obtains its water from sources in excess of three miles from the site (surface water intakes from Otisco Lake, Skaneateles Lake, and Lake Ontario). However, an estimated 6,214 persons are served by private or community wells located within a three-mile radius from the site. This figure includes the population of E. Syracuse, New York, which is served by a municipal community well located in the area (Ref. 12, 13, 14, 15, 16, 17, 18 and 19).

Potential surface water contamination is also of concern. Downstream from the site, Onondaga Creek is used for recreation, including fishing. There are, however, no known surface water intakes for potable water or irrigation within three (stream) miles (Ref. 16).

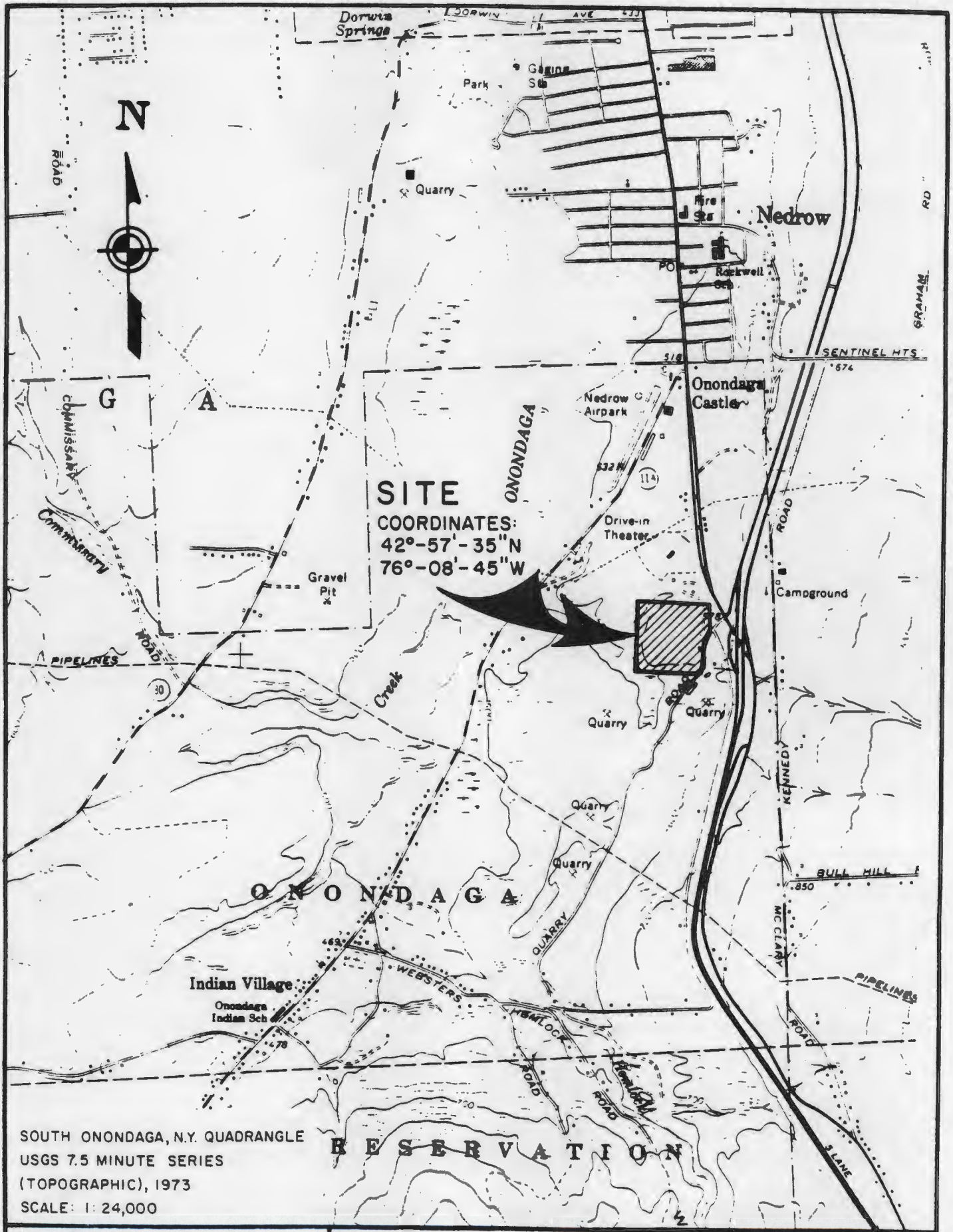
5.0 PRELIMINARY APPLICATION OF THE HAZARD RANKING SYSTEM

5.1 Narrative Summary

Onondaga Nation - Site B
Quarry Road
Onondaga Nation, Onondaga (C), New York

The Onondaga Nation - Site B covers an estimated 25 acres within the boundaries of the Onondaga Nation, located just south of Syracuse, in Onondaga County, New York. Benjamin Shenandoah of the Onondaga Nation operated a dump and junk yard at the site in the 1960's. Sometime during the late 1960's, the Onondaga Nation ceased Mr. Shenandoah's operation.

Materials disposed of at the site include large amounts of hospital waste as well as an estimated 800 55-gallon drums, the majority of which are currently empty. Approximately 150 to 200 drums contain wastes or unknown material. Analytical data available for waste samples, collected from drums by the New York State Department of Environmental Conservation (NYSDEC) in 1983, indicate the presence of benzyl alcohol; in 1987 acetone, ethylbenzene, acetic acid, benzoic acid, xylenes and numerous unknowns were identified. Total xylenes and ethylbenzene were reported at maximum concentrations of 2,441,000 and 16,000 ug/kg respectively. EP-Toxicity analyses for metals indicated the occurrence of barium, chromium and lead. Private and community wells in the area serve an estimated 6,214 persons with a potable water supply; thus, potential groundwater contamination is of major concern. Results of chemical analyses conducted by the New York State Department of Health (NYSDOH) on groundwater samples collected from four private wells in the area in 1987 indicated no contaminants were detected.



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SITE LOCATION MAP
ONONDAGA NATION-SITE B

FIGURE 1

A-2542

Facility name: Onondaga Nation - Site B

Location: Quarry Road & NYS Route 11, Onondaga Nation, Onondaga Co., N.Y.

EPA Region: II (NYSDEC Region 7)

Person(s) in charge of the facility: Onondaga Nation

Onondaga Nation, New York

Name of Reviewer: URS Corporation Date: 11/30/87

General description of the facility:

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

The estimated 25-acre site is the location of a large dump used for the disposal of hospital waste and 800 55-gallon drums, a large portion of which still contain some unidentified waste material. Groundwater contamination is of major concern since private and community wells within the area serve a large portion of the population with a potable water supply.

Scores: $S_M = 29.89$ ($S_{gw} = 50.65$ $S_{sw} = 10.44$ $S_a = 0.00$)

$S_{FE} = 0.00$

$S_{DC} = 25.00$

HRS COVER SHEET

Ground Water Route Work Sheet					
Rating Factor	Assigned Value (Circle One)	Multi-plier	Score	Max. Score	Ref. (Section)
1 Observed Release	(0) 45	1	0	45	3.1
If observed release is given a score of 45, proceed to line 4. If observed release is given a score of 0, proceed to line 2.					
2 Route Characteristics					3.2
Depth to Aquifer of Concern	0 1 (2) 3	2	4	6	
Net Precipitation	0 1 (2) 3	1	2	3	
Permeability of the Unsaturated Zone	0 1 (2) 3	1	2	3	
Physical State	0 1 2 (3)	1	3	3	
Total Route Characteristics Score			11	15	
3 Containment	0 1 2 (3)	1	3	3	3.3
4 Waste Characteristics					3.4
Toxicity/Persistence	0 3 6 9 12 15 (18)	1	18	18	
Hazardous Waste Quantity	0 1 (2) 3 4 5 6 7 8	1	2	8	
Total Waste Characteristics Score			20	26	
5 Targets					3.5
Ground Water Use	0 1 2 (3)	3	9	9	
Distance to Nearest Well/Population Served	0 4 6 8 10 / 12 16 18 20 / 24 30 32 (35) 40	1	35	40	
Total Targets Score			44	49	
6 If line 1 is 45, multiply 1 x 4 x 5. If line 1 is 0, multiply 2 x 3 x 4 x 5		29,040		57,330	
7 Divide line 6 by 57,330 and multiply by 100		S_{gw} = 50.65			

GROUND WATER ROUTE WORK SHEET

Surface Water Route Work Sheet					
Rating Factor	Assigned Value (Circle One)	Multi-plier	Score	Max. Score	Ref. (Section)
1 Observed Release	(0) 45	1	0	45	4.1
If observed release is given a value of 45, proceed to line 4. If observed release is given a value of 0, proceed to line 2.					
2 Route Characteristics					4.2
Facility Slope and Intervening Terrain	0 1 2 (3)	1	3	3	
1-yr. 24-hr. Rainfall	0 1 (2) 3	1	2	3	
Distance to Nearest Surface Water	0 1 2 (3)	2	6	6	
Physical State	0 1 2 (3)	1	3	3	
Total Route Characteristics Score			14	18	
3 Containment	0 1 2 (3)	1	3	3	4.3
4 Waste Characteristics					4.4
Toxicity/Persistence	0 3 6 9 12 15 (18)	1	18	18	
Hazardous Waste Quantity	0 1 (2) 3 4 5 6 7 8	1	2	8	
Total Waste Characteristics Score			20	26	
5 Targets					4.5
Surface Water Use	0 1 (2) 3	3	6	9	
Distance to a Sensitive Environment	0 (1) 2 3	2	2	6	
Population Served/Distance to Water Intake Downstream	(0) 4 8 8 10 / 12 16 18 20 / 24 30 32 35 40	1	0	40	
Total Targets Score			8	55	
6 If line 1 is 45, multiply 1 x 4 x 5. If line 1 is 0, multiply 2 x 3 x 4 x 5			6,720	64,350	
7 Divide line 6 by 64,350 and multiply by 100		S_{sw} = 10.44			

SURFACE WATER ROUTE WORK SHEET

Air Route Work Sheet					
Rating Factor	Assigned Value (Circle One)	Multiplier	Score	Max. Score	Ref. (Section)
[1] Observed Release	(0) 45	1	0	45	5.1
Date and Location:					
Sampling Protocol:					
If line [1] is 0, the S_a = 0. Enter on line [5]. If line [1] is 45, then proceed to line [2].					
[2] Waste Characteristics					5.2
Reactivity and Incompatibility	0 1 2 3	1		3	
Toxicity	0 1 2 3	3		9	
Hazardous Waste Quantity	0 1 2 3 4 5 6 7 8	1		8	
Total Waste Characteristics Score				20	
[3] Targets					5.3
Population Within 4-Mile Radius	0 9 12 15 18 21 24 27 30	1		30	
Distance to Sensitive Environment	0 1 2 3	2		6	
Land Use	0 1 2 3	1		3	
Total Targets Score				39	
[4] Multiply [1] x [2] x [3]				35,100	
[5] Divide line [4] by 35,100 and multiply by 100		S_a =	0.00		

AIR ROUTE WORK SHEET

	S	S^2
Groundwater Route Score (S_{gw})	50.65	2,565.42
Surface Water Route Score (S_{sw})	10.44	109.00
Air Route Score (S_a)	0.00	0.00
$S_{gw}^2 + S_{sw}^2 + S_a^2$		2,674.42
$\sqrt{S_{gw}^2 + S_{sw}^2 + S_a^2}$		51.71
$\sqrt{S_{gw}^2 + S_{sw}^2 + S_a^2} / 1.73 = S_M =$		29.89

WORKSHEET FOR COMPUTING S_M

NO DOCUMENTED FIRE AND EXPLOSION THREAT

Fire and Explosion Work Sheet					
Rating Factor	Assigned Value (Circle One)	Multi-plier	Score	Max. Score	Ref. (Section)
1 Containment	1 3	1		3	7.1
2 Waste Characteristics					7.2
Direct Evidence	0 3	1		3	
Ignitability	0 1 2 3	1		3	
Reactivity	0 1 2 3	1		3	
Incompatibility	0 1 2 3	1		3	
Hazardous Waste Quantity	0 1 2 3 4 5 6 7 8	1		8	
Total Waste Characteristics Score				20	
3 Targets					7.3
Distance to Nearest Population	0 1 2 3 4 5	1		5	
Distance to Nearest Building	0 1 2 3	1		3	
Distance to Sensitive Environment	0 1 2 3	1		3	
Land Use	0 1 2 3	1		3	
Population Within 2-Mile Radius	0 1 2 3 4 5	1		5	
Buildings Within 2-Mile Radius	0 1 2 3 4 5	1		5	
Total Targets Score				24	
4 Multiply 1 x 2 x 3				1,440	
5 Divide line 4 by 1,440 and multiply by 100		S_{FE} = 0.00			

FIRE AND EXPLOSION WORK SHEET

Direct Contact Work Sheet					
Rating Factor	Assigned Value (Circle One)	Multi-plier	Score	Max. Score	Ref. (Section)
1 Observed Incident	(0) 45	1	0	45	8.1
If line 1 is 45, proceed to line 4 If line 1 is 0, proceed to line 2					
2 Accessibility	0 1 2 (3)	1	3	3	8.2
3 Containment	0 (15)	1	15	15	8.3
4 Waste Characteristics Toxicity	0 1 2 (3)	5	15	15	8.4
5 Targets					8.5
Population Within a 1-Mile Radius	0 1 (2) 3 4 5	4	8	20	
Distance to a Critical Habitat	(0) 1 2 3	4	0	12	
Total Targets Score			8	32	
6 If line 1 is 45, multiply 1 x 4 x 5 If line 1 is 0, multiply 2 x 3 x 4 x 5			5,400	21,600	
7 Divide line 6 by 21,600 and multiply by 100		S_{DC} = 25.00			

DIRECT CONTACT WORK SHEET

5.4 HRS Documentation Records

FACILITY NAME: Onondaga Nation - Site B

LOCATION: Quarry Road and NYS Route 11
Onondaga Nation, Onondaga County, New York

GROUNDWATER ROUTE

1 OBSERVED RELEASE

o CONTAMINANTS DETECTED (5 MAXIMUM):

No contaminants detected in groundwater sampling conducted in the vicinity of the site (Ref. 1).

o RATIONALE FOR ATTRIBUTING THE CONTAMINANTS TO THE FACILITY:

N/A

Score 0

***

2 ROUTE CHARACTERISTICS

DEPTH TO AQUIFER OF CONCERN

o NAME/DESCRIPTION OF AQUIFER(S) OF CONCERN:

Groundwater largely occurs within the fractures and along bedding planes of the bedrock units (Devonian age carbonates - Onondaga Limestone and Helderberg Group), as well as within the pore spaces of the unconsolidated overburden sediments, which are predominantly till in the area (Ref. 2, 3 and 4).

o DEPTH(S) FROM THE GROUND SURFACE TO THE HIGHEST SEASONAL LEVEL OF THE SATURATED ZONE [WATER TABLE(S)] OF THE AQUIFER OF CONCERN:

Known highest level occurs at a depth of 31 feet (Ref. 1).

o DEPTH FROM THE GROUND SURFACE TO THE LOWEST POINT OF WASTE DISPOSAL/STORAGE:

Wastes were observed on the ground surface. The depth of subsurface wastes are not known; therefore, allowable depth of 6 feet is assumed (Ref. 5 and site visit).

Score 2

NET PRECIPITATION

o MEAN ANNUAL OR SEASONAL PRECIPITATION (LIST MONTHS FOR SEASONAL):

37.5 inches (Ref. 6)

o MEAN ANNUAL LAKE OR SEASONAL EVAPORATION (LIST MONTHS FOR SEASONAL):

26.7 inches (Ref. 7)

o NET PRECIPITATION (SUBTRACT THE ABOVE FIGURES):

10.8 inches

Score 2

PERMEABILITY OF UNSATURATED ZONE

o SOIL TYPE IN UNSATURATED ZONE:

Palmyra gravels (Pg A) - gravelly loam to gravelly sandy clay loam (Ref. 8).

o PERMEABILITY ASSOCIATED WITH SOIL TYPE:

Approximately 10^{-4} to 10^{-5} (Ref. 7).

Score 2

PHYSICAL STATE

o PHYSICAL STATE OF SUBSTANCES AT TIME OF DISPOSAL (OR AT PRESENT TIME FOR GENERATED GASES):

Liquid wastes and viscous, tar-like material (Ref. 9 and site visit).

Score 3

***

3 CONTAINMENT

CONTAINMENT

o METHOD(S) OF WASTE OR LEACHATE CONTAINMENT EVALUATED:

Drums, a large tank and other containers were observed on the unlined ground surface. The majority were not sealed and some were visibly leaking their contents (Ref. 9 and site visit).

o METHOD WITH HIGHEST SCORE:

Containers leaking, no liner.

Score 3

***

4 WASTE CHARACTERISTICS

TOXICITY AND PERSISTENCE

o COMPOUND(S) EVALUATED:

Benzyl alcohol was identified in the waste samples collected in 1983. Laboratory GC/MS analytical results collected from onsite drums indicate other compounds found, but none identified. "Isobenzylfuron" is also listed as detected. No score is available for it, however, as identification of this compound is questionable (Ref. 10 and 11). Laboratory analyses conducted on the waste samples collected in 1987 from onsite drums indicated the presence of acetone, ethylbenzene, acetic acid, benzoic acid, xylenes, numerous unknowns (total BNA), barium, chromium, and lead (Ref. 11A).

o COMPOUND WITH HIGHEST SCORE:

Barium, chromium and lead

(Ref. 7 & 11)

	Toxicity	Persistence	Score
Benzyl Alcohol	3	2	15
Acetone	2	0	6
Ethylbenzene	2	1	9
Acetic Acid	3	0	9
Benzoic Acid	2	0	6
Xylenes	2	1	9
Barium	3	3	18
Chromium	3	3	18
Lead	3	3	18

Score 18

HAZARDOUS WASTE QUANTITY

o TOTAL QUANTITY OF HAZARDOUS SUBSTANCES AT THE FACILITY, EXCLUDING THOSE WITH A CONTAINMENT SCORE OF 0 (GIVE A REASONABLE ESTIMATE EVEN IF QUANTITY IS ABOVE MAXIMUM):

Approximately 800 drums are presently at the site. An estimated 150-200 drums contain wastes or unknown materials (Ref. 9, 12, 12A and site visit).

Score 2

o BASIS OF ESTIMATING AND/OR COMPUTING WASTE QUANTITY:

Estimates on number of drums at the site is 800, with 150-200 containing wastes or unknown material. Score represents a minimum quantity as there may be additional waste material below ground surface as well as material which might have been previously contained in the now-empty drums (Ref. 9, 12, 12A and site visit).

***

5 TARGETS

GROUNDWATER USE

o USE(S) OF AQUIFER(S) OF CONCERN WITHIN A 3-MILE RADIUS OF THE FACILITY:

Drinking water (private and community wells) with no municipal water from an alternate, unthreatened source presently available. The population of the Village of E. Syracuse, although located outside of the 3-mile radius, is served by a community municipal well which is within the 3 miles (Ref. 12, 13, 14, 15, 16 and 17).

Score 3

DISTANCE TO NEAREST WELL

o LOCATION OF NEAREST WELL DRAWING FROM AQUIFER OF CONCERN OR OCCUPIED BUILDING NOT SERVED BY A PUBLIC WATER SUPPLY:

The nearest well serves a residence located just west of U.S. Route 11 and north of the site (Ref. 12, 18 and site visit).

o DISTANCE TO ABOVE WELL OR BUILDING:

Approximately 500 feet to the north (Ref. 18).
(Assigned value = 4)

POPULATION SERVED BY GROUNDWATER WELLS WITHIN A 3-MILE RADIUS

o IDENTIFIED WATER-SUPPLY WELL(S) DRAWING FROM AQUIFER(S) OF CONCERN WITHIN A 3-MILE RADIUS AND POPULATIONS SERVED BY EACH:

Onondaga Nation (private wells) = 1,034 persons.
Town of Lafayette (private wells) = 204 units x 3.8 persons/unit = 775 persons.
Town of Onondaga (private wells) = 133 units x 3.8 persons/unit = 505 persons.
Village of E. Syracuse (municipal community well and springs) = 3,900 persons.
(Ref. 12, 13, 14, 15, 16, 17, 18 and 19)

o COMPUTATION OF LAND AREA IRRIGATED BY SUPPLY WELL(S) DRAWING FROM AQUIFER(S) OF CONCERN WITHIN A 3-MILE RADIUS, AND CONVERSION TO POPULATION (1.5 PEOPLE PER ACRE):

No wells known to be used for irrigation (Ref. 8 and 15).

o TOTAL POPULATION SERVED BY GROUNDWATER WITHIN A 3-MILE RADIUS:

1,034 + 775 + 505 + 3,900 = 6,214 persons
(Assigned value = 4)

Score 35

SURFACE WATER ROUTE

1 OBSERVED RELEASE

o CONTAMINANTS DETECTED IN SURFACE WATER AT THE FACILITY OR DOWNHILL FROM IT (5 MAXIMUM):

No surface water sampling conducted at the site.

o RATIONALE FOR ATTRIBUTING THE CONTAMINANTS TO THE FACILITY:

N/A

Score 0

***

2 ROUTE CHARACTERISTICS

FACILITY SLOPE AND INTERVENING TERRAIN

o AVERAGE SLOPE OF FACILITY IN PERCENT:

Approximately 5-8% slope to the west-southwest (Ref. 18 and site visit).

o NAME/DESCRIPTION OF NEAREST DOWNSLOPE SURFACE WATER:

A small unnamed tributary of Onondaga Creek flows across the extreme southwestern corner of the site in a northwesterly direction. Onondaga Creek is used for recreation, including fishing (Ref. 18 and 16).

o AVERAGE SLOPE OF TERRAIN BETWEEN FACILITY AND ABOVE-CITED SURFACE WATER BODY IN PERCENT:

Approximately 5-8% slope to the southwest (Ref. 18 and site visit).

o IS THE FACILITY LOCATED EITHER TOTALLY OR PARTIALLY IN SURFACE WATER?

Yes, a portion of an unnamed tributary of Onondaga Creek flows across the southwestern corner of the site. Small tributaries of Onondaga Creek flow across the site but are considered intermittent streams and therefore not scored.) Additionally, numerous drums lie in surface water onsite (Ref. 5, 18 and site visit).

Score 3

o IS THE FACILITY COMPLETELY SURROUNDED BY AREAS OF HIGHER ELEVATION?

No; there are areas of higher elevation east of the site, but much of the surrounding topography is lower in elevation than the site (Ref. 18 and site visit).

1-YEAR 24-HOUR RAINFALL IN INCHES

2.3 (Ref. 7).

Score 2

DISTANCE TO NEAREST DOWNSLOPE SURFACE WATER

Distance is zero (0), since a portion of an unnamed tributary of Onondaga Creek flows across the extreme southwestern portion of the site. In addition, numerous drums lie in surface water onsite (Ref. 18 and site visit).

Score 3

PHYSICAL STATE OF WASTE

Liquid wastes and viscous, tar-like material (Ref. 9 and site visit).

Score 3

***

3 CONTAINMENT

CONTAINMENT

o METHOD(S) OF WASTE OR LEACHATE CONTAINMENT EVALUATED:

Drums, a large tank and other containers were observed on the ground surface. The majority were not sealed and some were visibly leaking their contents. No diversion or containment structures present (Ref. 9 and site visit).

o METHOD WITH HIGHEST SCORE:

Containers leaking, no diversion or containment structures.

Score 3

***

4 WASTE CHARACTERISTICS

TOXICITY AND PERSISTENCE

o COMPOUND(S) EVALUATED

Benzyl alcohol was identified in the waste samples collected in 1983. Laboratory GC/MS analytical results collected from onsite drums indicate other compounds found, but none identified. "Isobenzylfuron" is also listed as detected. No score is available for it, however, as identification of this compound is questionable (Ref. 10 and 11). Laboratory analyses conducted on the waste samples collected in 1987 from onsite drums indicated the presence of acetone, ethylbenzene, acetic acid, benzoic acid, xylenes, numerous unknowns (total BNA), barium, chromium and lead (Ref. 11A).

o COMPOUND WITH HIGHEST SCORE:

Barium, chromium and lead

(Ref. 7 & 11)

	Toxicity	Persistence	Score
Benzyl Alcohol	3	2	15
Acetone	2	0	6
Ethylbenzene	2	1	9
Acetic Acid	3	0	9
Benzoic Acid	2	0	6
Xylenes	2	1	9
Barium	3	3	18
Chromium	3	3	18
Lead	3	3	18

Score 18

HAZARDOUS WASTE QUANTITY

o TOTAL QUANTITY OF HAZARDOUS SUBSTANCES AT THE FACILITY EXCLUDING THOSE WITH A CONTAINMENT SCORE OF 0 (GIVE A REASONABLE ESTIMATE EVEN IF QUANTITY IS ABOVE MAXIMUM):

Approximately 800 drums are presently at the site. An estimated 150-200 drums contain wastes or unknown materials (Ref. 9, 12, 12A and site visit).

Score 2

o BASIS OF ESTIMATING AND/OR COMPUTING WASTE QUANTITY:

Estimates on number of drums at the site is 800, with 150-200 containing wastes or unknown material. Score represents a minimum quantity as there may be additional waste material below ground surface as well as material which might have been previously contained in the now-empty drums (Ref. 9, 12, 12A and site visit).

*****

5 TARGETS

SURFACE WATER USE

o USE(S) OF SURFACE WATER WITHIN 3 MILES DOWNSTREAM OF THE HAZARDOUS SUBSTANCE:

Onondaga Creek is used for recreation, primarily fishing (no appreciable boating or swimming). There is reportedly some use for irrigation (within the City of Syracuse), but at a distance in excess of 3 stream miles from the site (Ref. 13, 14, 15, 16 and 18).

Score 2

o IS THERE TIDAL INFLUENCE?

No tidal influence on the site (Ref. 18).

DISTANCE TO A SENSITIVE ENVIRONMENT

o DISTANCE TO 5-ACRE (MINIMUM) COASTAL WETLAND, IF 2 MILES OR LESS:

No coastal wetlands within 2 miles (Ref. 18 and 20).
(Assigned value = 0)

o DISTANCE TO 5-ACRE (MINIMUM) FRESH-WATER WETLAND, IF 1 MILE OR LESS:

Approximately 4,900 feet to the northwest to NYS-regulated wetlands (Ref. 20).
(Assigned value = 1)

o DISTANCE TO CRITICAL HABITAT OF AN ENDANGERED SPECIES OR NATIONAL WILDLIFE REFUGE, IF 1 MILE OR LESS:

No known critical habitats of an endangered species within one mile. A portion of Onondaga Creek (upstream from the site) is designated "protected waters" (Ref. 20).
(Assigned value = 0)

Score 1

POPULATION SERVED BY SURFACE WATER

o LOCATION(S) OF WATER-SUPPLY INTAKE(S) WITHIN 3 MILES (FREE-FLOWING BODIES) OR 1 MILE (STATIC WATER BODIES) DOWNSTREAM OF THE HAZARDOUS SUBSTANCE AND POPULATION SERVED BY EACH INTAKE:

No surface water intakes within the specified distance downstream from the site (Ref. 13 and 14).

o COMPUTATION OF LAND AREA IRRIGATED BY ABOVE-CITED INTAKE(S) AND CONVERSION TO POPULATION (1.5 PEOPLE PER ACRE):

No known irrigation of land by surface water intakes within specified distance. There is reportedly some irrigation from Onondaga Creek within the City of Syracuse, but the intakes are at a distance in excess of 3 stream miles from the site (Ref. 15 and 8).

o TOTAL POPULATION SERVED:

0 (zero)

o NAME/DESCRIPTION OF NEAREST OF ABOVE WATER BODIES:

N/A

o DISTANCE TO ABOVE-CITED INTAKES, MEASURED IN STREAM MILES.

N/A

Score 0

AIR ROUTE

1 OBSERVED RELEASE

o CONTAMINANTS DETECTED:

Limited air monitoring data available. This includes Photovac TIP measurements for organic vapors taken during the site inspection. Above-background levels (maximum 35 ppm) were measured inside some of the drums; however, no significant air release was observed (Ref. site visit).

o DATE AND LOCATION OF DETECTION OF CONTAMINANTS

No observed air release.

o METHODS USED TO DETECT THE CONTAMINANTS:

No observed air release.

o RATIONALE FOR ATTRIBUTING THE CONTAMINANTS TO THE SITE:

No observed air release.

Score 0

***

2 WASTE CHARACTERISTICS

REACTIVITY AND INCOMPATIBILITY

o MOST REACTIVE COMPOUND:

No observed air release.

o MOST INCOMPATIBLE PAIR OF COMPOUNDS:

No observed air release.

Score 0

TOXICITY

o MOST TOXIC COMPOUND:

No observed air release.

Score 0

HAZARDOUS WASTE QUANTITY

o TOTAL QUANTITY OF HAZARDOUS WASTE:

No observed air release.

Score 0

o BASIS OF ESTIMATING AND/OR COMPUTING WASTE QUANTITY:

No observed air release.

***

3 TARGETS

POPULATION WITHIN 4-MILE RADIUS

o UNDERLINE RADIUS USED, GIVE POPULATION, AND INDICATE HOW DETERMINED:

0 to 4 mi 0 to 1 mi 0 to 1/2 mi 0 to 1/4 mi

No observed air release.

Score 0

DISTANCE TO A SENSITIVE ENVIRONMENT

o DISTANCE TO 5-ACRE (MINIMUM) COASTAL WETLAND, IF 2 MILES OR LESS:

No observed air release.

- DISTANCE TO 5-ACRE (MINIMUM) FRESH-WATER WETLAND, IF 1 MILE OR LESS:

No observed air release.

- DISTANCE TO CRITICAL HABITAT OF AN ENDANGERED SPECIES, IF 1 MILE OR LESS:

No observed air release.

Score 0

LAND USE

- DISTANCE TO COMMERCIAL/INDUSTRIAL AREA, IF 1 MILE OR LESS:

No observed air release.

- DISTANCE TO NATIONAL OR STATE PARK, FOREST, OR WILDLIFE RESERVE, IF 2 MILES OR LESS:

No observed air release.

- DISTANCE TO RESIDENTIAL AREA, IF 2 MILES OR LESS:

No observed air release.

- DISTANCE TO AGRICULTURAL LAND IN PRODUCTION WITHIN PAST 5 YEARS, IF 1 MILE OR LESS:

No observed air release.

- DISTANCE TO PRIME AGRICULTURAL LAND IN PRODUCTION WITHIN PAST 5 YEARS, IF 2 MILES OR LESS:

No observed air release.

o IS A HISTORIC OR LANDMARK SITE (NATIONAL REGISTER OR HISTORIC PLACES AND NATIONAL NATURAL LANDMARKS) WITHIN THE VIEW OF THE SITE?

No observed air release.

Score 0

FIRE AND EXPLOSION

1 CONTAINMENT

o HAZARDOUS SUBSTANCES PRESENT:

No documented fire or explosion threat.

o TYPE OF CONTAINMENT, IF APPLICABLE

No documented fire or explosion threat.

Score 0

***

2 WASTE CHARACTERISTICS

DIRECT EVIDENCE

o TYPE OF INSTRUMENT AND MEASUREMENTS:

No documented fire or explosion threat.

Score 0

IGNITABILITY

o COMPOUND USED:

No documented fire or explosion threat.

Score 0

REACTIVITY

o MOST REACTIVE COMPOUND:

No documented fire or explosion threat.

Score 0

INCOMPATIBILITY

o MOST INCOMPATIBLE PAIR OF COMPOUNDS:

No documented fire or explosion threat.

Score 0

HAZARDOUS WASTE QUANTITY

o TOTAL QUANTITY OF HAZARDOUS SUBSTANCES AT THE FACILITY:

No documented fire or explosion threat.

Score 0

o BASIS OF ESTIMATING AND/OR COMPUTING WASTE QUANTITY:

No documented fire or explosion threat.

***

3 TARGETS

DISTANCE TO NEAREST POPULATION

No documented fire or explosion threat.

Score 0

DISTANCE TO NEAREST BUILDING

No documented fire or explosion threat.

Score 0

DISTANCE TO SENSITIVE ENVIRONMENT

o DISTANCE TO WETLANDS:

No documented fire or explosion threat.

o DISTANCE TO CRITICAL HABITAT:

No documented fire or explosion threat.

Score 0

LAND USE

o DISTANCE TO COMMERCIAL/INDUSTRIAL AREA, IF 1 MILE OR LESS:

No documented fire or explosion threat.

o DISTANCE TO NATIONAL OR STATE PARK, FOREST, OR WILDLIFE RESERVE, IF 2 MILES OR LESS:

No documented fire or explosion threat.

o DISTANCE TO RESIDENTIAL AREA, IF 2 MILES OR LESS:

No documented fire or explosion threat.

o DISTANCE TO AGRICULTURAL LAND IN PRODUCTION WITHIN PAST 5 YEARS, IF 1 MILE OR LESS:

No documented fire or explosion threat.

o DISTANCE TO PRIME AGRICULTURAL LAND IN PRODUCTION WITHIN PAST 5 YEARS, IF 2 MILES OR LESS:

No documented fire or explosion threat.

o IS A HISTORIC OR LANDMARK SITE (NATIONAL REGISTER OR HISTORIC PLACES AND NATIONAL NATURAL LANDMARKS) WITHIN THE VIEW OF THE SITE?

No documented fire or explosion threat.

Score 0

POPULATION WITHIN 2-MILE RADIUS

No documented fire or explosion threat.

Score 0

BUILDINGS WITHIN 2-MILE RADIUS

No documented fire or explosion threat.

Score 0

DIRECT CONTACT

1 OBSERVED INCIDENT

o DATE, LOCATION, AND PERTINENT DETAILS OF INCIDENT:

No known incident.

Score 0

***

2 ACCESSIBILITY

o DESCRIBE TYPE OF BARRIER(S):

No fence or artificial or natural barriers which completely surround the facility (Ref. site visit).

Score 3

***

3 CONTAINMENT

o TYPE OF CONTAINMENT, IF APPLICABLE:

Containers unsealed, leaking; wastes on ground surface (Ref. 9 and site visit).

Score 15

***

4 WASTE CHARACTERISTICS

TOXICITY

o COMPOUNDS EVALUATED:

Benzyl alcohol, acetone, ethylbenzene, acetic acid, benzoic acid, xylenes, barium, chromium and lead (Ref. 10, 11 and 11A).

o COMPOUND WITH HIGHEST SCORE:

Barium, chromium and lead (Ref. 7 & 11).

Score 3

***

5 TARGETS

POPULATION WITHIN ONE-MILE RADIUS

Estimated at 794 persons (Ref. 18).

Score 2

DISTANCE TO CRITICAL HABITAT (OF ENDANGERED SPECIES)

No known critical habitats of an endangered species within one mile (Ref. 20).

Score 0

REFERENCES - DOCUMENTATION RECORDS

1. Results of Examination, New York State Department of Health, Wadsworth Center for Laboratories and Research, August 7, 1987.

2. Geologic Map of New York - Finger Lakes Sheet, Lawrence V. Rickard and Donald W. Fisher, 1970.

3. Surficial Geologic Map of New York - Finger Lakes Sheet, Ernest H. Muller and Donald H. Cadwell, 1986.

4. New York State Geological Association Guidebook - 36th Annual Meeting, Syracuse University, Department of Geology, May 8-10, 1964.

5. Superfund National Priorities List Seminar - EPA Region II, The Mitre Corporation, April 2-3, 1986.

6. Climates of the States, New York, Climatography of the United States No. 60-30, U.S. Department of Commerce Weather Bureau, February 1960.

7. Uncontrolled Hazardous Waste Site Ranking System - A Users Manual (HW-10), United States Environmental Protection Agency, 1984.

8. David A. Mosher, District Field Manager - Onondaga County Soil and Water Conservation District letter to Muffett A. Mauche, Staff Engineer - LeRoy Callender, PC, August 24, 1987.

9. David J. Curtis, P.E., Senior Sanitary Engineer - New York State Department of Environmental Conservation (NYSDEC), Central Remedial Projects Section memorandum to Frank T. Ricotta, Supervisor - NYSDEC, Central Remedial Projects Section, October 3, 1987.

10. David J. Curtis, P.E., Senior Sanitary Engineer - New York State Department of Environmental Conservation (NYSDEC), Central Remedial Projects Section letter to William Lazore, Chief - Onondaga Nation, January 20, 1984.

11. Dangerous Properties of Industrial Materials - Sixth Edition, N. Irving Sax, Van Nostrand Reinhold Company, New York, 1984.

11A. Versar, Inc. Analytical Results for NYSDEC Drum Sampling - Onondaga Nation - Site B, November 24, 1987.

12. Site Inspection Notes - Onondaga Nation - Site B, Linda J. Clark, Project Geologist - URS Corporation confirmed by Ed Cook, Chief - Onondaga Nation, November 4, 1987.

12A. Martin D. Brand, Sr. Engineering Geologist - New York State Department of Environmental Conservation (NYSDEC) letter to Daniel W. Rothman, Project Manager, URS Company, Inc., October 1988.

13. New York State Atlas of Community Water System Sources, New York State Department of Health - Division of Environmental Protection, Bureau of Public Water Supply Protection, 1982.

14. Linda J. Clark, Project Geologist - URS Corporation letter to Carl Sterling, Clerk Treasurer - Village of E. Syracuse, November 19, 1987.

15. Linda J. Clark, Project Geologist - URS Corporation letter to Lee Fordock - City of Syracuse, Water Engineering Department, November 19, 1987.

16. Linda J. Clark, Project Geologist - URS Corporation letter to Sumner Palmer, Supervisor - Town of Lafayette, November 20, 1987.

18. USGS Topographic Maps 7.5 Minute Series; South Onondaga, New York Quadrangle, 1973; Jamesville, New York Quadrangle, 1978; Syracuse West, New York Quadrangle, 1978.

19. Linda J. Clark, Project Geologist - URS Corporation telecon to Federal Bureau of Indian Affairs - Syracuse Office, November 18, 1987.

20. A.A. Coburn, Regional Permit Administrator - New York State Department of Environmental Conservation, Region 7, Division of Regulatory Affairs letter to Linda J. Clark, Project Geologist - URS Corporation, October 2, 1987.

REF. (1)

drilled well file

0998 NEW YORK STATE DEPARTMENT OF HEALTH
WADSWORTH CENTER FOR LABORATORIES AND RESEARCH

PAGE 1 RESULTS OF EXAMINATION FINAL REPORT

SAMPLE ID: 871001957 SAMPLE RECEIVED:87/07/23/11 CHARGE: 0.97
PROGRAM: 108:HAZARDOUS WASTE SITE-PRELIMINARY INVESTIGATION
SOURCE ID: DRAINAGE BASIN:07 GAZETTEER CODE:3361
POLITICAL SUBDIVISION:ONONDAGA COUNTY:ONONDAGA
LATITUDE: . LONGITUDE: . Z DIRECTION:
LOCATION: ONONDAGA INDIAN RESERVATION B SITE #4
DESCRIPTION: [redacted]
REPORTING LAB: 10:LABORATORY OF INORGANIC ANALYTICAL CHEMISTRY - ALBAN
TEST PATTERN: 10-074:CORROSIVITY
SAMPLE TYPE: 012:FINISHED WATER, UNCHLORINATED - MONITORING
TIME OF SAMPLING: 87/07/21 10:50 DATE PRINTED:87/08/07

PARAMETER	RESULT	
TEMPERATURE, WATER, FIELD	NOT REPT	NA
PH	7.68	
ALKALINITY TO PH 4.5	245.	MG/L
SOLIDS, TOTAL DISSOLVED, 180 C	476.	MG/L
HARDNESS, CALCIUM AS CACO3	220.	MG/L
LANGELIER INDEX - AT 20C	+0.44	

**** END OF REPORT ****

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REGIONAL DIRECTOR OF PH ENGINEERING
NEW YORK STATE DEPARTMENT OF HEALTH
677 SOUTH SALINA STREET
SYRACUSE, N.Y. 13202

SUBMITTED BY:HEERKENS

(1)

observant faucet — Shallow jet pump — source ?

0991 NEW YORK STATE DEPARTMENT OF HEALTH
WADSWORTH CENTER FOR LABORATORIES AND RESEARCH

PAGE 1 RESULTS OF EXAMINATION FINAL REPORT

SAMPLE ID: 871001954 SAMPLE RECEIVED:87/07/23/11 CHARGE: 0.97
PROGRAM: 108:HAZARDOUS WASTE SITE-PRELIMINARY INVESTIGATION
SOURCE ID: DRAINAGE BASIN:07 GAZETTEER CODE:3361
POLITICAL SUBDIVISION:ONONDAGA COUNTY:ONONDAGA
LATITUDE: . LONGITUDE: . Z DIRECTION:
LOCATION: ONONDAGA INDIAN RESERVATION B SITE #1
DESCRIPTION: [redacted] RTE 11
REPORTING LAB: 10:LABORATORY OF INORGANIC ANALYTICAL CHEMISTRY - ALBAN
TEST PATTERN: 10-074:CORROSIVITY
SAMPLE TYPE: 012:FINISHED WATER, UNCHLORINATED - MONITORING
TIME OF SAMPLING: 87/07/21 09:50 DATE PRINTED:87/08/07

PARAMETER	RESULT	
TEMPERATURE, WATER, FIELD	NOT REPT	NA
PH	7.40	
ALKALINITY TO PH 4.5	344.	MG/L
SOLIDS, TOTAL DISSOLVED, 180 C	422.	MG/L
HARDNESS, CALCIUM AS CACO3	310.	MG/L
LANGELIER INDEX - AT 20C	+0.47	

**** END OF REPORT ****

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REGIONAL DIRECTOR OF PH ENGINEERING
NEW YORK STATE DEPARTMENT OF HEALTH
677 SOUTH SALINA STREET
SYRACUSE, N.Y. 13202

SUBMITTED BY:HEERKENS

(1)

~100' drilled well

0993 NEW YORK STATE DEPARTMENT OF HEALTH
WADSWORTH CENTER FOR LABORATORIES AND RESEARCH

PAGE 1 RESULTS OF EXAMINATION FINAL REPORT

SAMPLE ID: 871001955 SAMPLE RECEIVED:87/07/23/11 CHARGE: 0.97
PROGRAM: 108:HAZARDOUS WASTE SITE-PRELIMINARY INVESTIGATION
SOURCE ID: DRAINAGE BASIN:07 GAZETTEER CODE:3361
POLITICAL SUBDIVISION:ONONDAGA COUNTY:ONONDAGA
LATITUDE: . LONGITUDE: . Z DIRECTION:
LOCATION: ONONDAGA INDIAN RESERVATION SITE B#2
DESCRIPTION: [redacted] KCWT RTE11 A
REPORTING LAB: 10:LABORATORY OF INORGANIC ANALYTICAL CHEMISTRY - ALBAN
TEST PATTERN: 10-074:CORROSIVITY
SAMPLE TYPE: 012:FINISHED WATER, UNCHLORINATED - MONITORING
TIME OF SAMPLING: 87/07/21 10:00 DATE PRINTED:87/08/07

PARAMETER	RESULT	
TEMPERATURE, WATER, FIELD	NOT REPT	NA
PH	7.58	
ALKALINITY TO PH 4.5	191.	MG/L
SOLIDS, TOTAL DISSOLVED, 180 C	638.	MG/L
HARDNESS, CALCIUM AS CACO3	290.	MG/L
LANGELIER INDEX - AT 20C	+0.34	

**** END OF REPORT ****

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REGIONAL DIRECTOR OF PH ENGINEERING
NEW YORK STATE DEPARTMENT OF HEALTH
677 SOUTH SALINA STREET
SYRACUSE, N.Y. 13202

SUBMITTED BY:HEERKENS

(1)

0996

NEW YORK STATE DEPARTMENT OF HEALTH
WADSWORTH CENTER FOR LABORATORIES AND RESEARCH

31 ft drilled well

PAGE 1 RESULTS OF EXAMINATION FINAL REPORT

SAMPLE ID: 871001956 SAMPLE RECEIVED:87/07/23/11 CHARGE: 0.97
PROGRAM: 108:HAZARDOUS WASTE SITE-PRELIMINARY INVESTIGATION
SOURCE ID: DRAINAGE BASIN:07 GAZETTEER CODE:3361
POLITICAL SUBDIVISION:ONONDAGA COUNTY:ONONDAGA
LATITUDE: . LONGITUDE: . Z DIRECTION:
LOCATION: ONONDAGA INDIAN RESERVATION B SITE #3
DESCRIPTION: [redacted] KCWT NEAR WHEELCHAIR POND
REPORTING LAB: 10:LABORATORY OF INORGANIC ANALYTICAL CHEMISTRY - ALBANY
TEST PATTERN: 10-074:CORROSIVITY
SAMPLE TYPE: 012:FINISHED WATER, UNCHLORINATED - MONITORING
TIME OF SAMPLING: 87/07/21 10:30 DATE PRINTED:87/08/07

PARAMETER		RESULT	
TEMPERATURE, WATER, FIELD	NOT REPT		NA
PH	7.55		
ALKALINITY TO PH 4.5	294.	MG/L	
SOLIDS, TOTAL DISSOLVED, 180 C	426.	MG/L	
HARDNESS, CALCIUM AS CACO3	260.	MG/L	
LANGELIER INDEX - AT 20C	+0.29		

**** END OF REPORT ****

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NEW YORK STATE DEPARTMENT OF HEALTH
677 SOUTH SALINA STREET
SYRACUSE, N.Y. 13202

SUBMITTED BY:HEERKENS

0476 NEW YORK STATE DEPARTMENT OF HEALTH (1)
WADSWORTH CENTER FOR LABORATORIES AND RESEARCH

PAGE 1 RESULTS OF EXAMINATION FINAL REPORT

SAMPLE ID: 873579 SAMPLE RECEIVED:87/07/23/ CHARGE: 29.50
PROGRAM: 108:HAZARDOUS WASTE SITE-PRELIMINARY INVESTIGATION
SOURCE ID: DRAINAGE BASIN:07 GAZETTEER CODE:3361
POLITICAL SUBDIVISION:ONONDAGA COUNTY:ONONDAGA
LATITUDE: . LONGITUDE: . Z DIRECTION:
LOCATION: ONONDAGA INDIAN RESERVATION - B SITE #1
DESCRIPTION:[redacted] Site II A
REPORTING LAB: TOX:LAB FOR ORGANIC ANALYTICAL CHEMISTRY
TEST PATTERN: XPEST-625:ORGANOCHLORINE PESTICIDES & PRIORITY POLLUTANTS
SAMPLE TYPE: 120:PRIVATE WATER SUPPLY - DRILLED WELL
TIME OF SAMPLING: 87/07/21 09:50 DATE PRINTED:87/09/01

ANALYSIS: VH05021 VOLATILE HALOGENATED INDICATORS-EPA METHOD 502.1
DATE REPORTED: 87/07/28 REPORT MAILED OUT

PARAMETER	RESULT
CHLOROMETHANE	< 1. MCG/L
BROMOMETHANE	< 1. MCG/L
VINYL CHLORIDE	< 1. MCG/L
DICHLORODIFLUOROMETHANE	< 1. MCG/L
CHLOROETHANE	< 1. MCG/L
METHYLENE CHLORIDE (DICHLOROMETHANE)	< 1. MCG/L
TRICHLOROFLUOROMETHANE	< 1. MCG/L
1,1-DICHLOROETHENE	< 1. MCG/L
1,1-DICHLOROETHANE	< 1. MCG/L
TRANS-1,2-DICHLOROETHENE	< 1. MCG/L
CIS-1,2-DICHLOROETHENE	< 1. MCG/L
CHLOROFORM	< 1. MCG/L
1,2-DICHLOROETHANE	< 1. MCG/L
DIBROMO METHANE	< 1. MCG/L
1,1,1-TRICHLOROETHANE	< 1. MCG/L
CARBON TETRACHLORIDE	< 1. MCG/L
BROMODICHLOROMETHANE	< 1. MCG/L
2,3-DICHLOROPROPENE	< 1. MCG/L
1,2-DICHLOROPROPANE	< 1. MCG/L
TRANS-1,3-DICHLOROPROPENE	< 1. MCG/L
TRICHLOROETHENE	< 1. MCG/L
1,3-DICHLOROPROPANE	< 1. MCG/L
DIBROMOCHLOROMETHANE	< 1. MCG/L
CIS-1,3-DICHLOROPROPENE	< 1. MCG/L
1,1,2-TRICHLOROETHANE	< 1. MCG/L
1,2-DIBROMOETHANE	< 1. MCG/L
2-CHLOROETHYLVINYL ETHER	< 1. MCG/L
BROMOFORM	< 1. MCG/L
1,1,1,2-TETRACHLOROETHANE	< 1. MCG/L
1,2,3-TRICHLOROPROPANE	< 1. MCG/L

**** CONTINUED ON NEXT PAGE ****

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NEW YORK STATE DEPARTMENT OF HEALTH
677 SOUTH SALINA STREET
SYRACUSE, N.Y. 13202

SUBMITTED BY:HEERKENS

SAMPLE ID: 873579 SAMPLE RECEIVED:87/07/23/ CHARGE: 29.50
POLITICAL SUBDIVISION:ONONDAGA COUNTY:ONONDAGA
LOCATION: ONONDAGA INDIAN RESERVATION - B SITE #1
TIME OF SAMPLING: 87/07/21 09:50 DATE PRINTED:87/09/01

PARAMETER	RESULT
1,1,2,2-TETRACHLOROETHANE	< 1. MCG/L
TETRACHLOROETHENE	< 1. MCG/L
PENTACHLOROETHANE	< 1. MCG/L
1-CHLOROCYCLOHEXENE-1	< 1. MCG/L
CHLOROBENZENE	< 1. MCG/L
BIS(2-CHLOROETHYL)ETHER	< 1. MCG/L
1,2-DIBROMO-3-CHLOROPROPANE	< 1. MCG/L
BROMOBENZENE	< 1. MCG/L
ORTHO-CHLOROTOLUENE	< 1. MCG/L
BIS(2-CHLOROISOPROPYL)ETHER	< 1. MCG/L
1,3-DICHLOROBENZENE	< 1. MCG/L
1,2-DICHLOROBENZENE	< 1. MCG/L
1,4-DICHLOROBENZENE	< 1. MCG/L

ANALYSIS: P5031 AROMATIC PURGEABLES EPA METHOD 503.1 (DES-310-22)
DATE REPORTED: 87/08/05 REPORT MAILED OUT

PARAMETER	RESULT
BENZENE	< 1. MCG/L
TOLUENE	< 1. MCG/L
ETHYLBENZENE	< 1. MCG/L
PARA-XYLENE	< 1. MCG/L
META-XYLENE	< 1. MCG/L
ORTHO-XYLENE	< 1. MCG/L
CUMENE	< 1. MCG/L
STYRENE	< 1. MCG/L
P-BROMOFLUOROBENZENE	< 1. MCG/L
N-PROPYLBENZENE	< 1. MCG/L
TERT-BUTYLBENZENE	< 1. MCG/L
O/P-CHLOROTOLUENE	< 1. MCG/L
META-CHLOROTOLUENE	< 1. MCG/L
1,3,5-TRIMETHYLBENZENE	< 1. MCG/L
1,2,4-TRIMETHYLBENZENE	< 1. MCG/L
P-CYMENE	< 1. MCG/L
CYCLOPROPYLBENZENE	< 1. MCG/L
SEC-BUTYLBENZENE	< 1. MCG/L
N-BUTYLBENZENE	< 1. MCG/L
2,3-BENZOFURAN	< 1. MCG/L
HEXACHLOROBUTADIENE (C-46)	< 5. MCG/L
1,2,4-TRICHLOROBENZENE	< 5. MCG/L
NAPHTHALENE	< 5. MCG/L
1,2,3-TRICHLOROBENZENE	< 5. MCG/L

**** CONTINUED ON NEXT PAGE ****

SAMPLE ID: 873579 SAMPLE RECEIVED:87/07/23/ CHARGE: 29.50
POLITICAL SUBDIVISION:ONONDAGA COUNTY:ONONDAGA
LOCATION: ONONDAGA INDIAN RESERVATION - B SITE #1
TIME OF SAMPLING: 87/07/21 09:50 DATE PRINTED:87/09/01

FOLLOWING PARAMETERS NOT PART OF TEST PATTERN

ANALYSIS: XPEST ORGANOCHLORINE PESTICIDES (DES 310-2)
DATE PRINTED: 87/09/01 FINAL REPORT

PARAMETER	RESULT
HCH,ALPHA	< 0.04 MCG/L
HCH,BETA	< 0.04 MCG/L
HCH,GAMMA (LINDANE)	< 0.04 MCG/L
HCH,DELTA	< 0.04 MCG/L
HEPTACHLOR	< 0.05 MCG/L
ALDRIN	< 0.02 MCG/L
HEPTACHLOR EPOXIDE	< 0.05 MCG/L
ENDOSULFAN I	< 0.05 MCG/L
DDE -PARA, PARA	< 0.05 MCG/L
DIELDRIN	< 0.02 MCG/L
ENDRIN	< 0.02 MCG/L
DDD -PARA, PARA	< 0.05 MCG/L
ENDOSULFAN II	< 0.05 MCG/L
ENDRIN ALDEHYDE	< 0.02 MCG/L
ENDOSULFAN SULFATE	< 0.05 MCG/L
DDT -PARA, PARA	< 0.05 MCG/L
METHOXYCHLOR	< 1.0 MCG/L
TOXAPHENE	< 1.0 MCG/L
CHLORDANE	< 0.1 MCG/L
MIREX	< 0.05 MCG/L

ANALYSIS: 625A ACIDS - E.P. METHOD 625 (DES 310-8)
DATE REPORTED: 87/08/26 REPORT MAILED OUT

PARAMETER	RESULT
PHENOL	< 10. MCG/L
2-CHLOROPHENOL	< 10. MCG/L
2-NITROPHENOL	< 10. MCG/L
2,4-DIMETHYLPHENOL	< 10. MCG/L
2,4-DICHLOROPHENOL	< 10. MCG/L
4-CHLORO-3-METHYLPHENOL	< 10. MCG/L
2,4,6-TRICHLOROPHENOL	< 10. MCG/L
2,4,5-TRICHLOROPHENOL	< 10. MCG/L
2,4-DINITROPHENOL	< 10. MCG/L
4-NITROPHENOL	< 10. MCG/L
2-METHYL-4,6-DINITROPHENOL	< 10. MCG/L
PENTACHLOROPHENOL	< 10. MCG/L

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NEW YORK STATE DEPARTMENT OF HEALTH
WADSWORTH CENTER FOR LABORATORIES AND RESEARCH

RESULTS OF EXAMINATION

FINAL REPORT

SAMPLE ID: 873579 SAMPLE RECEIVED:87/07/23/ CHARGE: 29.50
POLITICAL SUBDIVISION:ONONDAGA COUNTY:ONONDAGA
LOCATION: ONONDAGA INDIAN RESERVATION - B SITE #1
TIME OF SAMPLING: 87/07/21 09:50 DATE PRINTED:87/09/01

ANALYSIS: 625BN BASE/NEUTRALS - F.R. METHOD 625 (DES 310-8)
DATE REPORTED: 87/08/26 REPORT MAILED OUT

PARAMETER	RESULT
N-NITROSODI-N-PROPYLAMINE	< 10. MCG/L
HEXACHLOROETHANE	< 10. MCG/L
NITROBENZENE	< 10. MCG/L
ISOPHORONE	< 10. MCG/L
BIS(2-CHLOROETHOXY)METHANE	< 10. MCG/L
HEXACHLOROCYCLOPENTADIENE (C-56)	< 10. MCG/L
2-CHLORONAPHTHALENE	< 10. MCG/L
2,6-DINITROTOLUENE	< 10. MCG/L
ACENAPHTHYLENE	< 10. MCG/L
DIMETHYLPHTHALATE	< 10. MCG/L
ACENAPHTHENE	< 10. MCG/L
2,4-DINITROTOLUENE	< 10. MCG/L
DIETHYLPHTHALATE	< 10. MCG/L
FLUORENE	< 10. MCG/L
N-NITROSODIPHENYLAMINE	< 10. MCG/L
1,2-DIPHENYLHYDRAZINE	< 10. MCG/L
4-BROMOPHENYL PHENYL ETHER	< 10. MCG/L
HEXACHLOROBENZENE	< 10. MCG/L
PHENANTHRENE	< 10. MCG/L
ANTHRACENE	< 10. MCG/L
DI-N-BUTYLPHTHALATE	< 10. MCG/L
FLUORANTHENE	< 10. MCG/L
PYRENE	< 10. MCG/L
BENZIDINE	< 30. MCG/L
BUTYL BENZYL PHTHALATE	< 30. MCG/L
BENZO(A)ANTHRACENE	< 30. MCG/L
3,3'-DICHLOROBENZIDINE	< 30. MCG/L
CHRYSENE	< 30. MCG/L
BIS(2-ETHYLHEXYL)PHTHALATE	< 30. MCG/L
DI-N-OCTYL PHTHALATE	< 30. MCG/L
BENZO(B)FLUORANTHENE	< 30. MCG/L
BENZO(K)FLUORANTHENE	< 30. MCG/L
BENZO(A)PYRENE	< 30. MCG/L
INDENO(1,2,3-CD)PYRENE	< 30. MCG/L
DIBENZO(A,H)ANTHRACENE	< 30. MCG/L
BENZO(GHI)PERYLENE	< 30. MCG/L

**** END OF REPORT ****

0484 NEW YORK STATE DEPARTMENT OF HEALTH
WADSWORTH CENTER FOR LABORATORIES AND RESEARCH

(1)

PAGE 1 RESULTS OF EXAMINATION FINAL REPORT

SAMPLE ID: 873580 SAMPLE RECEIVED:87/07/23/ CHARGE: 29.50
PROGRAM: 108:HAZARDOUS WASTE SITE-PRELIMINARY INVESTIGATION
SOURCE ID: DRAINAGE BASIN:07 GAZETTEER CODE:3361
POLITICAL SUBDIVISION:ONONDAGA COUNTY:ONONDAGA
LATITUDE: . LONGITUDE: . Z DIRECTION:
LOCATION: ONONDAGA INDIAN RESERVATION - B SITE #2
DESCRIPTION: [redacted] RTE 11A
REPORTING LAB: TOX;LAB FOR ORGANIC ANALYTICAL CHEMISTRY
TEST PATTERN: XPEST-625:ORGANOCHLORINE PESTICIDES & PRIORITY POLLUTANTS
SAMPLE TYPE: 120:PRIVATE WATER SUPPLY - DRILLED WELL
TIME OF SAMPLING: 87/07/21 10:00 DATE PRINTED:87/09/01

ANALYSIS: VH05021 VOLATILE HALOGENATED INDICATORS-EPA METHOD 502.1
DATE REPORTED: 87/07/28 REPORT MAILED OUT

PARAMETER	RESULT
CHLOROMETHANE	< 1. MCG/L
BROMOMETHANE	< 1. MCG/L
VINYL CHLORIDE	< 1. MCG/L
DICHLORODIFLUOROMETHANE	< 1. MCG/L
CHLOROETHANE	< 1. MCG/L
METHYLENE CHLORIDE (DICHLOROMETHANE)	< 1. MCG/L
TRICHLOROFLUOROMETHANE	< 1. MCG/L
1,1-DICHLOROETHENE	< 1. MCG/L
1,1-DICHLOROETHANE	< 1. MCG/L
TRANS-1,2-DICHLOROETHENE	< 1. MCG/L
CIS-1,2-DICHLOROETHENE	< 1. MCG/L
CHLOROFORM	< 1. MCG/L
1,2-DICHLOROETHANE	< 1. MCG/L
DIBROMO METHANE	< 1. MCG/L
1,1,1-TRICHLOROETHANE	< 1. MCG/L
CARBON TETRACHLORIDE	< 1. MCG/L
BROMODICHLOROMETHANE	< 1. MCG/L
2,3-DICHLOROPROPENE	< 1. MCG/L
1,2-DICHLOROPROPANE	< 1. MCG/L
TRANS-1,3-DICHLOROPROPENE	< 1. MCG/L
TRICHLOROETHENE	< 1. MCG/L
1,3-DICHLOROPROPANE	< 1. MCG/L
DIBROMOCHLOROMETHANE	< 1. MCG/L
CIS-1,3-DICHLOROPROPENE	< 1. MCG/L
1,1,2-TRICHLOROETHANE	< 1. MCG/L
1,2-DIBROMOETHANE	< 1. MCG/L
2-CHLOROETHYLVINYL ETHER	< 1. MCG/L
BROMOFORM	< 1. MCG/L
1,1,1,2-TETRACHLOROETHANE	< 1. MCG/L
1,2,3-TRICHLOROPROPANE	< 1. MCG/L

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REGIONAL DIRECTOR OF PH ENGINEERING
NEW YORK STATE DEPARTMENT OF HEALTH
677 SOUTH SALINA STREET
SYRACUSE, N.Y. 13202

SUBMITTED BY:HEERKENS

SAMPLE ID: 873580 SAMPLE RECEIVED:87/07/23/ CHARGE: 29.50
POLITICAL SUBDIVISION:ONONDAGA COUNTY:ONONDAGA
LOCATION: ONONDAGA INDIAN RESERVATION - B SITE #2
TIME OF SAMPLING: 87/07/21 10:00 DATE PRINTED:87/09/01

PARAMETER	RESULT
1,1,2,2-TETRACHLOROETHANE	< 1. MCG/L
TETRACHLOROETHENE	< 1. MCG/L
PENTACHLOROETHANE	< 1. MCG/L
1-CHLOROCYCLOHEXENE-1	< 1. MCG/L
CHLOROBENZENE	< 1. MCG/L
BIS(2-CHLOROETHYL)ETHER	< 1. MCG/L
1,2-DIBROMO-3-CHLOROPROPANE	< 1. MCG/L
BROMOBENZENE	< 1. MCG/L
ORTHO-CHLOROTOLUENE	< 1. MCG/L
BIS(2-CHLOROISOPROPYL)ETHER	< 1. MCG/L
1,3-DICHLOROBENZENE	< 1. MCG/L
1,2-DICHLOROBENZENE	< 1. MCG/L
1,4-DICHLOROBENZENE	< 1. MCG/L

ANALYSIS: P5031 AROMATIC PURGEABLES EPA METHOD 503.1 (DES 310-22)
DATE REPORTED: 87/08/05 REPORT MAILED OUT

PARAMETER	RESULT
BENZENE	< 1. MCG/L
TOLUENE	< 1. MCG/L
ETHYLBENZENE	< 1. MCG/L
PARA-XYLENE	< 1. MCG/L
META-XYLENE	< 1. MCG/L
ORTHO-XYLENE	< 1. MCG/L
CUMENE	< 1. MCG/L
STYRENE	< 1. MCG/L
P-BROMOFLUOROBENZENE	< 1. MCG/L
N-PROPYLBENZENE	< 1. MCG/L
TERT-BUTYLBENZENE	< 1. MCG/L
O/P-CHLOROTOLUENE	< 1. MCG/L
META-CHLOROTOLUENE	< 1. MCG/L
1,3,5-TRIMETHYLBENZENE	< 1. MCG/L
1,2,4-TRIMETHYLBENZENE	< 1. MCG/L
P-CYMENE	< 1. MCG/L
CYCLOPROPYLBENZENE	< 1. MCG/L
SEC-BUTYLBENZENE	< 1. MCG/L
N-BUTYLBENZENE	< 1. MCG/L
2,3-BENZOFURAN	< 1. MCG/L
HEXACHLOROBUTADIENE (C-46)	< 5. MCG/L
1,2,4-TRICHLOROBENZENE	< 5. MCG/L
NAPHTHALENE	< 5. MCG/L
1,2,3-TRICHLOROBENZENE	< 5. MCG/L

**** CONTINUED ON NEXT PAGE ****

NEW YORK STATE DEPARTMENT OF HEALTH
WADSWORTH CENTER FOR LABORATORIES AND RESEARCH

RESULTS OF EXAMINATION

FINAL REPORT

SAMPLE ID: 873580 SAMPLE RECEIVED:87/07/23/ CHARGE: 29.50
POLITICAL SUBDIVISION:ONONDAGA COUNTY:ONONDAGA
LOCATION: ONONDAGA INDIAN RESERVATION - B SITE #2
TIME OF SAMPLING: 87/07/21 10:00 DATE PRINTED:87/09/01

FOLLOWING PARAMETERS NOT PART OF TEST PATTERN

ANALYSIS: XPEST ORGANOCHLORINE PESTICIDES (DES 310-2)
DATE PRINTED: 87/09/01 FINAL REPORT

PARAMETER	RESULT
HCH,ALPHA	< 0.04 MCG/L
HCH,BETA	< 0.04 MCG/L
HCH,GAMMA (LINDANE)	< 0.04 MCG/L
HCH,DELTA	< 0.04 MCG/L
HEPTACHLOR	< 0.05 MCG/L
ALDRIN	< 0.02 MCG/L
HEPTACHLOR EPOXIDE	< 0.05 MCG/L
ENDOSULFAN I	< 0.05 MCG/L
DDE -PARA, PARA	< 0.05 MCG/L
DIELDRIN	< 0.02 MCG/L
ENDRIN	< 0.02 MCG/L
DDD -PARA, PARA	< 0.05 MCG/L
ENDOSULFAN II	< 0.05 MCG/L
ENDRIN ALDEHYDE	< 0.02 MCG/L
ENDOSULFAN SULFATE	< 0.05 MCG/L
DDT -PARA,, PARA	< 0.05 MCG/L
METHOXYCHLOR	< 1.0 MCG/L
TOXAPHENE	< 1.0 MCG/L
CHLORDANE	< 0.1 MCG/L
MIREX	< 0.05 MCG/L

ANALYSIS: 625A ACIDS - E.P.A. METHOD 625 (DES 310-8)
DATE REPORTED: 87/08/26 REPORT MAILED OUT

PARAMETER	RESULT
PHENOL	< 10. MCG/L
2-CHLOROPHENOL	< 10. MCG/L
2-NITROPHENOL	< 10. MCG/L
2,4-DIMETHYLPHENOL	< 10. MCG/L
2,4-DICHLOROPHENOL	< 10. MCG/L
4-CHLORO-3-METHYLPHENOL	< 10. MCG/L
2,4,6-TRICHLOROPHENOL	< 10. MCG/L
2,4,5-TRICHLOROPHENOL	< 10. MCG/L
2,4-DINITROPHENOL	< 10. MCG/L
4-NITROPHENOL	< 10. MCG/L
2-METHYL-4,6-DINITROPHENOL	< 10. MCG/L
PENTACHLOROPHENOL	< 10. MCG/L

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NEW YORK STATE DEPARTMENT OF HEALTH
WADSWORTH CENTER FOR LABORATORIES AND RESEARCH

(1)

PAGE 4 RESULTS OF EXAMINATION FINAL REPORT

SAMPLE ID: 873580 SAMPLE RECEIVED:87/07/23/ CHARGE: 29.50
POLITICAL SUBDIVISION:ONONDAGA COUNTY:ONONDAGA
LOCATION: ONONDAGA INDIAN RESERVATION - B SITE #2
TIME OF SAMPLING: 87/07/21 10:00 DATE PRINTED:87/09/01

ANALYSIS: 625BN BASE/NEUTRALS - E.R. METHOD 625 (DES 310-8)
DATE REPORTED: 87/08/26 REPORT MAILED OUT

PARAMETER	RESULT
N-NITROSODI-N-PROPYLAMINE	< 10. MCG/L
HEXACHLOROETHANE	< 10. MCG/L
NITROBENZENE	< 10. MCG/L
ISOPHORONE	< 10. MCG/L
BIS(2-CHLOROETHOXY)METHANE	< 10. MCG/L
HEXACHLOROCYCLOPENTADIENE (C-56)	< 10. MCG/L
2-CHLORONAPHTHALENE	< 10. MCG/L
2,6-DINITROTOLUENE	< 10. MCG/L
ACENAPHTHYLENE	< 10. MCG/L
DIMETHYLPHTHALATE	< 10. MCG/L
ACENAPHTHENE	< 10. MCG/L
2,4-DINITROTOLUENE	< 10. MCG/L
DIETHYLPHTHALATE	< 10. MCG/L
FLUORENE	< 10. MCG/L
N-NITROSODIPHENYLAMINE	< 10. MCG/L
1,2-DIPHENYLHYDRAZINE	< 10. MCG/L
4-BROMOPHENYL PHENYL ETHER	< 10. MCG/L
HEXACHLOROBENZENE	< 10. MCG/L
PHENANTHRENE	< 10. MCG/L
ANTHRACENE	< 10. MCG/L
DI-N-BUTYLPHTHALATE	< 10. MCG/L
FLUORANTHENE	< 10. MCG/L
PYRENE	< 10. MCG/L
BENZIDINE	< 30. MCG/L
BUTYL BENZYL PHTHALATE	< 30. MCG/L
BENZO(A)ANTHRACENE	< 30. MCG/L
3,3'-DICHLOROBENZIDINE	< 30. MCG/L
CHRYSENE	< 30. MCG/L
BIS(2-ETHYLHEXYL)PHTHALATE	< 30. MCG/L
DI-N-OCTYL PHTHALATE	< 30. MCG/L
BENZO(B)FLUORANTHENE	< 30. MCG/L
BENZO(K)FLUORANTHENE	< 30. MCG/L
BENZO(A)PYRENE	< 30. MCG/L
INDENO(1,2,3-CD)PYRENE	< 30. MCG/L
DIBENZO(A,H)ANTHRACENE	< 30. MCG/L
BENZO(GHI)PERYLENE	< 30. MCG/L

**** END OF REPORT ****

NEW YORK STATE DEPARTMENT OF HEALTH
WADSWORTH CENTER FOR LABORATORIES AND RESEARCH

RESULTS OF EXAMINATION

FINAL REPORT

SAMPLE ID: 873581 SAMPLE RECEIVED:87/07/23/ CHARGE: 29.50
PROGRAM: 108:HAZARDOUS WASTE SITE-PRELIMINARY INVESTIGATION
SOURCE ID: DRAINAGE BASIN:07 GAZETTEER CODE:3361
POLITICAL SUBDIVISION:ONONDAGA COUNTY:ONONDAGA
LATITUDE: . LONGITUDE: . Z DIRECTION:
LOCATION: ONONDAGA INDIAN RESERVATION - B SITE #3
DESCRIPTION: [redacted] NEAR WHEELCHAIR POND
REPORTING LAB: TOX:LAB FOR ORGANIC ANALYTICAL CHEMISTRY
TEST PATTERN: xPEST-625:ORGANOCHLORINE PESTICIDES & PRIORITY POLLUTANTS
SAMPLE TYPE: 120:PRIVATE WATER SUPPLY - DRILLED WELL
TIME OF SAMPLING: 87/07/21 10:30 DATE PRINTED:87/09/01

ANALYSIS: VH05021 VOLATILE HALOGENATED INDICATORS-EPA METHOD 502.1
DATE REPORTED: 87/07/28 REPORT MAILED OUT

PARAMETER	RESULT
CHLOROMETHANE	< 1. MCG/L
BROMOMETHANE	< 1. MCG/L
VINYL CHLORIDE	< 1. MCG/L
DICHLORODIFLUOROMETHANE	< 1. MCG/L
CHLOROETHANE	< 1. MCG/L
METHYLENE CHLORIDE (DICHLOROMETHANE)	< 1. MCG/L
TRICHLOROFLUOROMETHANE	< 1. MCG/L
1,1-DICHLOROETHENE	< 1. MCG/L
1,1-DICHLOROETHANE	< 1. MCG/L
TRANS-1,2-DICHLOROETHENE	< 1. MCG/L
CIS-1,2-DICHLOROETHENE	< 1. MCG/L
CHLOROFORM	< 1. MCG/L
1,2-DICHLOROETHANE	< 1. MCG/L
DIBROMO METHANE	< 1. MCG/L
1,1,1-TRICHLOROETHANE	< 1. MCG/L
CARBON TETRACHLORIDE	< 1. MCG/L
BROMODICHLOROMETHANE	< 1. MCG/L
2,3-DICHLOROPROPENE	< 1. MCG/L
1,2-DICHLOROPROPANE	< 1. MCG/L
TRANS-1,3-DICHLOROPROPENE	< 1. MCG/L
TRICHLOROETHENE	< 1. MCG/L
1,3-DICHLOROPROPANE	< 1. MCG/L
DIBROMOCHLOROMETHANE	< 1. MCG/L
CIS-1,3-DICHLOROPROPENE	< 1. MCG/L
1,1,2-TRICHLOROETHANE	< 1. MCG/L
1,2-DIBROMOETHANE	< 1. MCG/L
2-CHLOROETHYLVINYL ETHER	< 1. MCG/L
BROMOFORM	< 1. MCG/L
1,1,1,2-TETRACHLOROETHANE	< 1. MCG/L
1,2,3-TRICHLOROPROPANE	< 1. MCG/L

**** CONTINUED ON NEXT PAGE ****

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REGIONAL DIRECTOR OF PH ENGINEERING
NEW YORK STATE DEPARTMENT OF HEALTH
677 SOUTH SALINA STREET
SYRACUSE, N.Y. 13202

SUBMITTED BY:HEERKENS

SAMPLE ID: 873581 SAMPLE RECEIVED:87/07/23/ CHARGE: 29.50
POLITICAL SUBDIVISION:ONONDAGA COUNTY:ONONDAGA
LOCATION: ONONDAGA INDIAN RESERVATION - B SITE #3
TIME OF SAMPLING: 87/07/21 10:30 DATE PRINTED:87/09/01

PARAMETER	RESULT
1,1,2,2-TETRACHLOROETHANE	< 1. MCG/L
TETRACHLOROETHENE	< 1. MCG/L
PENTACHLOROETHANE	< 1. MCG/L
1-CHLOROCYCLOHEXENE-1	< 1. MCG/L
CHLOROBENZENE	< 1. MCG/L
BIS(2-CHLOROETHYL)ETHER	< 1. MCG/L
1,2-DIBROMO-3-CHLOROPROPANE	< 1. MCG/L
BROMOBENZENE	< 1. MCG/L
ORTHO-CHLOROTOLUENE	< 1. MCG/L
BIS(2-CHLOROISOPROPYL)ETHER	< 1. MCG/L
1,3-DICHLOROBENZENE	< 1. MCG/L
1,2-DICHLOROBENZENE	< 1. MCG/L
1,4-DICHLOROBENZENE	< 1. MCG/L

ANALYSIS: P5031 AROMATIC PURGEABLES EPA METHOD 503.1 (DES 310-22)
DATE REPORTED: 87/08/05 REPORT MAILED OUT

PARAMETER	RESULT
BENZENE	< 1. MCG/L
TOLUENE	< 1. MCG/L
ETHYLBENZENE	< 1. MCG/L
PARA-XYLENE	< 1. MCG/L
META-XYLENE	< 1. MCG/L
ORTHO-XYLENE	< 1. MCG/L
CUMENE	< 1. MCG/L
STYRENE	< 1. MCG/L
P-BROMOFLUOROBENZENE	< 1. MCG/L
N-PROPYLBENZENE	< 1. MCG/L
TERT-BUTYLBENZENE	< 1. MCG/L
O/P-CHLOROTOLUENE	< 1. MCG/L
META-CHLOROTOLUENE	< 1. MCG/L
1,3,5-TRIMETHYLBENZENE	< 1. MCG/L
1,2,4-TRIMETHYLBENZENE	< 1. MCG/L
P-CYMENE	< 1. MCG/L
CYCLOPROPYLBENZENE	< 1. MCG/L
SEC-BUTYLBENZENE	< 1. MCG/L
N-BUTYLBENZENE	< 1. MCG/L
2,3-BENZOFURAN	< 1. MCG/L
HEXACHLOROBUTADIENE (C-46)	< 5. MCG/L
1,2,4-TRICHLOROBENZENE	< 5. MCG/L
NAPHTHALENE	< 5. MCG/L
1,2,3-TRICHLOROBENZENE	< 5. MCG/L

**** CONTINUED ON NEXT PAGE ****

NEW YORK STATE DEPARTMENT OF HEALTH
WADSWORTH CENTER FOR LABORATORIES AND RESEARCH

RESULTS OF EXAMINATION — FINAL REPORT

SAMPLE ID: 873581 SAMPLE RECEIVED:87/07/23/ CHARGE: 29.50
POLITICAL SUBDIVISION:ONONDAGA COUNTY:ONONDAGA
LOCATION: ONONDAGA INDIAN RESERVATION - B SITE #3
TIME OF SAMPLING: 87/07/21 10:30 DATE PRINTED:87/09/01

FOLLOWING PARAMETERS NOT PART OF TEST PATTERN

ANALYSIS: XPEST ORGANOCHLORINE PESTICIDES (DES 310-2)
DATE PRINTED: 87/09/01 FINAL REPORT

PARAMETER	RESULT
HCH,ALPHA	< 0.04 MCG/L
HCH,BETA	< 0.04 MCG/L
HCH,GAMMA (LINDANE)	< 0.04 MCG/L
HCH,DELTA	< 0.04 MCG/L
HEPTACHLOR	< 0.05 MCG/L
ALDRIN	< 0.02 MCG/L
HEPTACHLOR EPOXIDE	< 0.05 MCG/L
ENDOSULFAN I	< 0.05 MCG/L
DDE -PARA, PARA	< 0.05 MCG/L
DIELDRIN	< 0.02 MCG/L
ENDRIN	< 0.02 MCG/L
DDD -PARA, PARA	< 0.05 MCG/L
ENDOSULFAN II	< 0.05 MCG/L
ENDRIN ALDEHYDE	< 0.02 MCG/L
ENDOSULFAN SULFATE	< 0.05 MCG/L
DDT -PARA, PARA	< 0.05 MCG/L
METHOXYCHLOR	< 1.0 MCG/L
TOXAPHENE	< 1.0 MCG/L
CHLORDANE	< 0.1 MCG/L
MIREX	< 0.05 MCG/L

ANALYSIS: 625A ACIDS - E.P. METHOD 625 (DES 310-8)
DATE REPORTED: 87/08/26 REPORT MAILED OUT

PARAMETER	RESULT
PHENOL	< 10. MCG/L
2-CHLOROPHENOL	< 10. MCG/L
2-NITROPHENOL	< 10. MCG/L
2,4-DIMETHYLPHENOL	< 10. MCG/L
2,4-DICHLOROPHENOL	< 10. MCG/L
4-CHLORO-3-METHYLPHENOL	< 10. MCG/L
2,4,6-TRICHLOROPHENOL	< 10. MCG/L
2,4,5-TRICHLOROPHENOL	< 10. MCG/L
2,4-DINITROPHENOL	< 10. MCG/L
4-NITROPHENOL	< 10. MCG/L
2-METHYL-4,6-DINITROPHENOL	< 10. MCG/L
PENTACHLOROPHENOL	< 10. MCG/L

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WADSWORTH CENTER FOR LABORATORIES AND RESEARCH

PAGE 4 RESULTS OF EXAMINATION FINAL REPORT

SAMPLE ID: 873581 SAMPLE RECEIVED:87/07/23/ CHARGE: 29.50
POLITICAL SUBDIVISION:ONONDAGA COUNTY:ONONDAGA
LOCATION: ONONDAGA INDIAN RESERVATION - B SITE #3
TIME OF SAMPLING: 87/07/21 10:30 DATE PRINTED:87/09/01

ANALYSIS: 625BN BASE/NEUTRALS - E.P.A. METHOD 625 (DES 310-8)
DATE REPORTED: 87/08/26 REPORT MAILED OUT

PARAMETER	RESULT
N-NITROSODI-N-PROPYLAMINE	< 10. MCG/L
HEXACHLOROETHANE	< 10. MCG/L
NITROBENZENE	< 10. MCG/L
ISOPHORONE	< 10. MCG/L
BIS(2-CHLOROETHOXY)METHANE	< 10. MCG/L
HEXACHLOROCYCLOPENTADIENE (C-56)	< 10. MCG/L
2-CHLORONAPHTHALENE	< 10. MCG/L
2,6-DINITROTOLUENE	< 10. MCG/L
ACENAPHTHYLENE	< 10. MCG/L
DIMETHYLPHTHALATE	< 10. MCG/L
ACENAPHTHENE	< 10. MCG/L
2,4-DINITROTOLUENE	< 10. MCG/L
DIETHYLPHTHALATE	< 10. MCG/L
FLUORENE	< 10. MCG/L
N-NITROSODIPHENYLAMINE	< 10. MCG/L
1,2-DIPHENYLHYDRAZINE	< 10. MCG/L
4-BROMOPHENYL PHENYL ETHER	< 10. MCG/L
HEXACHLOROBENZENE	< 10. MCG/L
PHENANTHRENE	< 10. MCG/L
ANTHRACENE	< 10. MCG/L
DI-N-BUTYLPHTHALATE	< 10. MCG/L
FLUORANTHENE	< 10. MCG/L
PYRENE	< 10. MCG/L
BENZIDINE	< 30. MCG/L
BUTYL BENZYL PHTHALATE	< 30. MCG/L
BENZO(A)ANTHRACENE	< 30. MCG/L
3,3'-DICHLOROBENZIDINE	< 30. MCG/L
CHRYSENE	< 30. MCG/L
BIS(2-ETHYLHEXYL)PHTHALATE	< 30. MCG/L
DI-N-OCTYL PHTHALATE	< 30. MCG/L
BENZO(B)FLUORANTHENE	< 30. MCG/L
BENZO(K)FLUORANTHENE	< 30. MCG/L
BENZO(A)PYRENE	< 30. MCG/L
INDENO(1,2,3-CD)PYRENE	< 30. MCG/L
DIBENZO(A,H)ANTHRACENE	< 30. MCG/L
BENZO(GHI)PERYLENE	< 30. MCG/L

**** END OF REPORT ****

0500 NEW YORK STATE DEPARTMENT OF HEALTH
WADSWORTH CENTER FOR LABORATORIES AND RESEARCH

PAGE 1 RESULTS OF EXAMINATION FINAL REPORT

SAMPLE ID: 873582 SAMPLE RECEIVED:87/07/23/ CHARGE: 29.50
PROGRAM: 108:HAZARDOUS WASTE SITE-PRELIMINARY INVESTIGATION
SOURCE ID: DRAINAGE BASIN:07 GAZETTEER CODE:3361
POLITICAL SUBDIVISION:ONONDAGA COUNTY:ONONDAGA
LATITUDE: . LONGITUDE: . Z DIRECTION:
LOCATION: ONONDAGA INDIAN RESERVATION - B SITE #4
DESCRIPTION: [redacted]
REPORTING LAB: TOX:LAB FOR ORGANIC ANALYTICAL CHEMISTRY
TEST PATTERN: XPEST-625:ORGANOCHLORINE PESTICIDES & PRIORITY POLLUTANTS
SAMPLE TYPE: 120:PRIVATE WATER SUPPLY - DRILLED WELL
TIME OF SAMPLING: 87/07/21 10:50 DATE PRINTED:87/09/01

ANALYSIS: VH05021 VOLATILE HALOGENATED INDICATORS-EPA METHOD 502.1
DATE REPORTED: 87/07/28 REPORT MAILED OUT

PARAMETER	RESULT
CHLOROMETHANE	< 1. MCG/L
BROMOMETHANE	< 1. MCG/L
VINYL CHLORIDE	< 1. MCG/L
DICHLORODIFLUOROMETHANE	< 1. MCG/L
CHLOROETHANE	< 1. MCG/L
METHYLENE CHLORIDE (DICHLOROMETHANE)	< 1. MCG/L
TRICHLOROFLUOROMETHANE	< 1. MCG/L
1,1-DICHLOROETHENE	< 1. MCG/L
1,1-DICHLOROETHANE	< 1. MCG/L
TRANS-1,2-DICHLOROETHENE	< 1. MCG/L
CIS-1,2-DICHLOROETHENE	< 1. MCG/L
CHLOROFORM	< 1. MCG/L
1,2-DICHLOROETHANE	< 1. MCG/L
DIBROMO METHANE	< 1. MCG/L
1,1,1-TRICHLOROETHANE	< 1. MCG/L
CARBON TETRACHLORIDE	< 1. MCG/L
BROMODICHLOROMETHANE	< 1. MCG/L
2,3-DICHLOROPROPENE	< 1. MCG/L
1,2-DICHLOROPROPANE	< 1. MCG/L
TRANS-1,3-DICHLOROPROPENE	< 1. MCG/L
TRICHLOROETHENE	< 1. MCG/L
1,3-DICHLOROPROPANE	< 1. MCG/L
DIBROMOCHLOROMETHANE	< 1. MCG/L
CIS-1,3-DICHLOROPROPENE	< 1. MCG/L
1,1,2-TRICHLOROETHANE	< 1. MCG/L
1,2-DIBROMOETHANE	< 1. MCG/L
2-CHLOROETHYLVINYL ETHER	< 1. MCG/L
BROMOFORM	< 1. MCG/L
1,1,1,2-TETRACHLOROETHANE	< 1. MCG/L
1,2,3-TRICHLOROPROPANE	< 1. MCG/L

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REGIONAL DIRECTOR OF PH ENGINEERING
NEW YORK STATE DEPARTMENT OF HEALTH
677 SOUTH SALINA STREET
SYRACUSE, N.Y. 13202

SUBMITTED BY:HEERKENS

NEW YORK STATE DEPARTMENT OF HEALTH
WADSWORTH CENTER FOR LABORATORIES AND RESEARCH

RESULTS OF EXAMINATION

FINAL REPORT

SAMPLE ID: 873582 SAMPLE RECEIVED:87/07/23/ CHARGE: 29.50
POLITICAL SUBDIVISION:ONONDAGA COUNTY:ONONDAGA
LOCATION: ONONDAGA INDIAN RESERVATION - B SITE #4
TIME OF SAMPLING: 87/07/21 10:50 DATE PRINTED:87/09/01

PARAMETER	RESULT
1,1,2,2-TETRACHLOROETHANE	< 1. MCG/L
TETRACHLOROETHENE	< 1. MCG/L
PENTACHLOROETHANE	< 1. MCG/L
1-CHLOROCYCLOHEXENE-1	< 1. MCG/L
CHLOROBENZENE	< 1. MCG/L
BIS(2-CHLOROETHYL)ETHER	< 1. MCG/L
1,2-DIBROMO-3-CHLOROPROPANE	< 1. MCG/L
BROMOBENZENE	< 1. MCG/L
ORTHO-CHLOROTOLUENE	< 1. MCG/L
BIS(2-CHLOROISOPROPYL)ETHER	< 1. MCG/L
1,3-DICHLOROBENZENE	< 1. MCG/L
1,2-DICHLOROBENZENE	< 1. MCG/L
1,4-DICHLOROBENZENE	< 1. MCG/L

ANALYSIS: P5031 AROMATIC PURGEABLES EPA METHOD 503.1 (DES 310-22)
DATE REPORTED: 87/08/05 REPORT MAILED OUT

PARAMETER	RESULT
BENZENE	< 1. MCG/L
TOLUENE	< 1. MCG/L
ETHYLBENZENE	< 1. MCG/L
PARA-XYLENE	< 1. MCG/L
META-XYLENE	< 1. MCG/L
ORTHO-XYLENE	< 1. MCG/L
CUMENE	< 1. MCG/L
STYRENE	< 1. MCG/L
P-BROMOFLUOROBENZENE	< 1. MCG/L
N-PROPYLBENZENE	< 1. MCG/L
TERT-BUTYLBENZENE	< 1. MCG/L
O/P-CHLOROTOLUENE	< 1. MCG/L
META-CHLOROTOLUENE	< 1. MCG/L
1,3,5-TRIMETHYLBENZENE	< 1. MCG/L
1,2,4-TRIMETHYLBENZENE	< 1. MCG/L
P-CYMENE	< 1. MCG/L
CYCLOPROPYLBENZENE	< 1. MCG/L
SEC-BUTYLBENZENE	< 1. MCG/L
N-BUTYLBENZENE	< 1. MCG/L
2,3-BENZOFURAN	< 1. MCG/L
HEXACHLOROBUTADIENE (C-46)	< 5. MCG/L
1,2,4-TRICHLOROBENZENE	< 5. MCG/L
NAPHTHALENE	< 5. MCG/L
1,2,3-TRICHLOROBENZENE	< 5. MCG/L

**** CONTINUED ON NEXT PAGE ****

SAMPLE ID: 873582 SAMPLE RECEIVED:87/07/23/ CHARGE: 29.50
POLITICAL SUBDIVISION:ONONDAGA COUNTY:ONONDAGA
LOCATION: ONONDAGA INDIAN RESERVATION - B SITE #4
TIME OF SAMPLING: 87/07/21 10:50 DATE PRINTED:87/09/01

FOLLOWING PARAMETERS NOT PART OF TEST PATTERN

ANALYSIS: XPEST ORGANOCHLORINE PESTICIDES (DES 310-2)
DATE PRINTED: 87/09/01 FINAL REPORT

PARAMETER	RESULT
HCH,ALPHA	< 0.04 MCG/L
HCH,BETA	< 0.04 MCG/L
HCH,GAMMA (LINDANE)	< 0.04 MCG/L
HCH,DELTA	< 0.04 MCG/L
HEPTACHLOR	< 0.05 MCG/L
ALDRIN	< 0.02 MCG/L
HEPTACHLOR EPOXIDE	< 0.05 MCG/L
ENDOSULFAN I	< 0.05 MCG/L
DDE -PARA, PARA	< 0.05 MCG/L
DIELDRIN	< 0.02 MCG/L
ENDRIN	< 0.02 MCG/L
DDD -PARA, PARA	< 0.05 MCG/L
ENDOSULFAN II	< 0.05 MCG/L
ENDRIN ALDEHYDE	< 0.02 MCG/L
ENDOSULFAN SULFATE	< 0.05 MCG/L
DDT -PARA, PARA	< 0.05 MCG/L
METHOXYCHLOR	< 1.0 MCG/L
TOXAPHENE	< 1.0 MCG/L
CHLORDANE	< 0.1 MCG/L
MIREX	< 0.05 MCG/L

ANALYSIS: 625A ACIDS - E.P.A. METHOD 625 (DES 310-8)
DATE REPORTED: 87/08/26 REPORT MAILED OUT

PARAMETER	RESULT
PHENOL	< 10. MCG/L
2-CHLOROPHENOL	< 10. MCG/L
2-NITROPHENOL	< 10. MCG/L
2,4-DIMETHYLPHENOL	< 10. MCG/L
2,4-DICHLOROPHENOL	< 10. MCG/L
4-CHLORO-3-METHYLPHENOL	< 10. MCG/L
2,4,6-TRICHLOROPHENOL	< 10. MCG/L
2,4,5-TRICHLOROPHENOL	< 10. MCG/L
2,4-DINITROPHENOL	< 10. MCG/L
4-NITROPHENOL	< 10. MCG/L
2-METHYL-4,6-DINITROPHENOL	< 10. MCG/L
PENTACHLOROPHENOL	< 10. MCG/L

**** CONTINUED ON NEXT PAGE ****

0503 NEW YORK STATE DEPARTMENT OF HEALTH
WADSWORTH CENTER FOR LABORATORIES AND RESEARCH

PAGE 4 RESULTS OF EXAMINATION FINAL REPORT

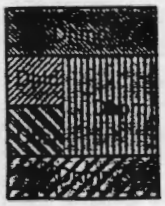
SAMPLE ID: 873582 SAMPLE RECEIVED:87/07/23/ CHARGE: 29.50
POLITICAL SUBDIVISION:ONONDAGA COUNTY:ONONDAGA
LOCATION: ONONDAGA INDIAN RESERVATION - B SITE #4
TIME OF SAMPLING: 87/07/21 10:50 DATE PRINTED:87/09/01

ANALYSIS: 625BN BASE/NEUTRALS - E.P. METHOD 625 (DEC 310-8)
DATE REPORTED: 87/08/26 REPORT MAILED OUT

PARAMETER	RESULT
N-NITROSODI-N-PROPYLAMINE	< 10. MCG/L
HEXACHLOROETHANE	< 10. MCG/L
NITROBENZENE	< 10. MCG/L
ISOPHORONE	< 10. MCG/L
BIS(2-CHLOROETHOXY)METHANE	< 10. MCG/L
HEXACHLOROCYCLOPENTADIENE (C-56)	< 10. MCG/L
2-CHLORONAPHTHALENE	< 10. MCG/L
2,6-DINITROTOLUENE	< 10. MCG/L
ACENAPHTHYLENE	< 10. MCG/L
DIMETHYLPHTHALATE	< 10. MCG/L
ACENAPHTHENE	< 10. MCG/L
2,4-DINITROTOLUENE	< 10. MCG/L
DIETHYLPHTHALATE	< 10. MCG/L
FLUORENE	< 10. MCG/L
N-NITROSODIPHENYLAMINE	< 10. MCG/L
1,2-DIPHENYLHYDRAZINE	< 10. MCG/L
4-BROMOPHENYL PHENYL ETHER	< 10. MCG/L
HEXACHLOROBENZENE	< 10. MCG/L
PHENANTHRENE	< 10. MCG/L
ANTHRACENE	< 10. MCG/L
DI-N-BUTYLPHTHALATE	< 10. MCG/L
FLUORANTHENE	< 10. MCG/L
PYRENE	< 10. MCG/L
BENZIDINE	< 30. MCG/L
BUTYL BENZYL PHTHALATE	< 30. MCG/L
BENZO(A)ANTHRACENE	< 30. MCG/L
3,3'-DICHLOROBENZIDINE	< 30. MCG/L
CHRYSENE	< 30. MCG/L
BIS(2-ETHYLHEXYL)PHTHALATE	< 30. MCG/L
DI-N-OCTYL PHTHALATE	< 30. MCG/L
BENZO(B)FLUORANTHENE	< 30. MCG/L
BENZO(K)FLUORANTHENE	< 30. MCG/L
BENZO(A)PYRENE	< 30. MCG/L
INDENO(1,2,3-CD)PYRENE	< 30. MCG/L
DIBENZO(A,H)ANTHRACENE	< 30. MCG/L
BENZO(GHI)PERYLENE	< 30. MCG/L

**** END OF REPORT ****

REF. (2)



HAMILTON GROUP
600-1500 ft. (180-460 m.)

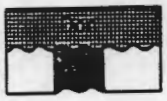
Dhmo Moscow Formation—In west: Windom and Kashong Shales, Menteth Limestone Members; In east: Cooperstown Shale Member, Portland Point Limestone Member.

Dhld Ludlowville Formation—In west: Deep Run Shale, Tichenor Limestone, Wanakah and Ledyard Shale Members, Centerfield Limestone Member. In east: King Ferry Shale and other members, Stone Mill Sandstone Member.

Dhsk Skaneateles Formation—In west: Levanna Shale and Stafford Limestone Members; In east: Butternut, Pompey, and Delphi Station Shale Members, Mottville Sandstone Member.

Dhmr Marcellus Formation—In west: Oakta Creek Shale Member; In east: Cardiff and Chittenango Shale Members, Cherry Valley Limestone and Union Springs Shale Members.

Dhpm Panther Mountain Formation—shale, siltstone, sandstone.



ONONDAGA LIMESTONE AND ORISKANY SANDSTONE
75-150 ft. (23-45 m.)

Don Onondaga Limestone—Seneca, Morehouse (cherty) and Nedrow Limestone Members, Edgecliff cherty Limestone Member, local bioherms.

Do Oriskany Sandstone.

GEOLOGIC MAP OF NEW YORK

1970

Finger Lakes 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


2
ONONDAGA NATION
ONEIDA LAKE
SYRACUSE
Onondaga Lake
SKANEATELES LAKE
Otisco Lake
OSWEGO CO
ONONDAGA CO
MADISON CO
ONONDAGA CO
CAYUGA CO
ONONDAGA
CORTLAND
Phoenix
Brewerton
Constantia
Bernhards Bay
Cleveland
Toad Harbor
Frenchman Island
Dunham Island
Wrights Corners
Jacksonville
Three Rivers
Euclid
Clay
Cicero
Cicero Center
Belgium
Mud Lake
Seneca
Baldwinsville
Plainville
Bridgeport
Woodard
North Syracuse
Cold Springs
Red Rock
Liverpool
Mattydale
Lakeside
Collamer
North Manlius
East Syracuse
Minoa
Memphis
Warners
Amboy
Solvay
Eastwood
Fairmount
Kirkville
Manlius Center
Green Lake
Mycenae
Chittenango
Bennetts Corners
Camillus
Westvale
De Witt
Fayetteville
Elbridge
Howlett Hill
Onondaga
Marcellus Falls
Marcellus
Wellington Corner
Nedrow
Cedarvale
South Onondaga
Navarino
Marietta
Lords Corners
Rose Hill
COON HILL
Amber
Borodino
Mandana
New Hope
Spafford
Kelloggsville
Sempronius
Dresserville
Moravia
Preble
Tully
Tully Lake
Otisco Valley
Crooked Lake
Song Lake
Little York
Upper Little York Lake
TRUXTON HILL
Cuyler
CORTLAND COUNTY
CHENANGO COUNTY
ONONDAGA COUNTY
MADISON COUNTY
CAYUGA COUNTY
CORTLAND COUNTY

t - Till
Variable texture (e.g. clay, silt-clay, boulder clay),
usually poorly sorted diamict,
deposition beneath glacier ice,
generally calcareous in northern part of map,
relatively impermeable (loamy matrix),
variable clast content - ranging from abundant well-rounded diverse lithologies in valley tills to relatively angular, more limited lithologies in upland tills,
potential land instability on steep slopes,
thickness variable (1-50 meters).

k - Kame deposits
Includes kames, eskers, kame terraces, kame deltas,
coarse to fine gravel and/or sand,
deposition adjacent to ice,
lateral variability in sorting, coarseness and thickness,
locally firmly cemented with calcareous cement,
thickness variable (10-30 meters).

SURFICIAL GEOLOGIC MAP OF NEW YORK

FINGER LAKES SHEET

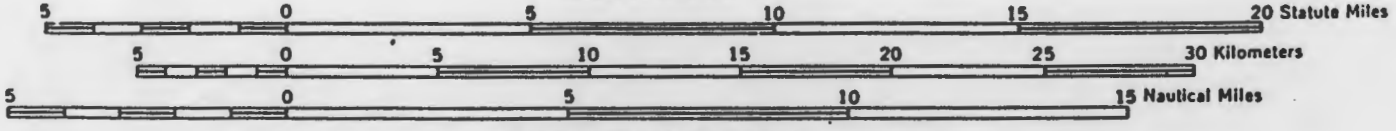
Compiled and Edited by: Ernest H. Muller, Donald H. Cadwell

Reconnaissance field review (1985) by: G. Gordon Connally, Richard A. Young

1986

Prepared under contract with the New York State Electric and Gas Corporation

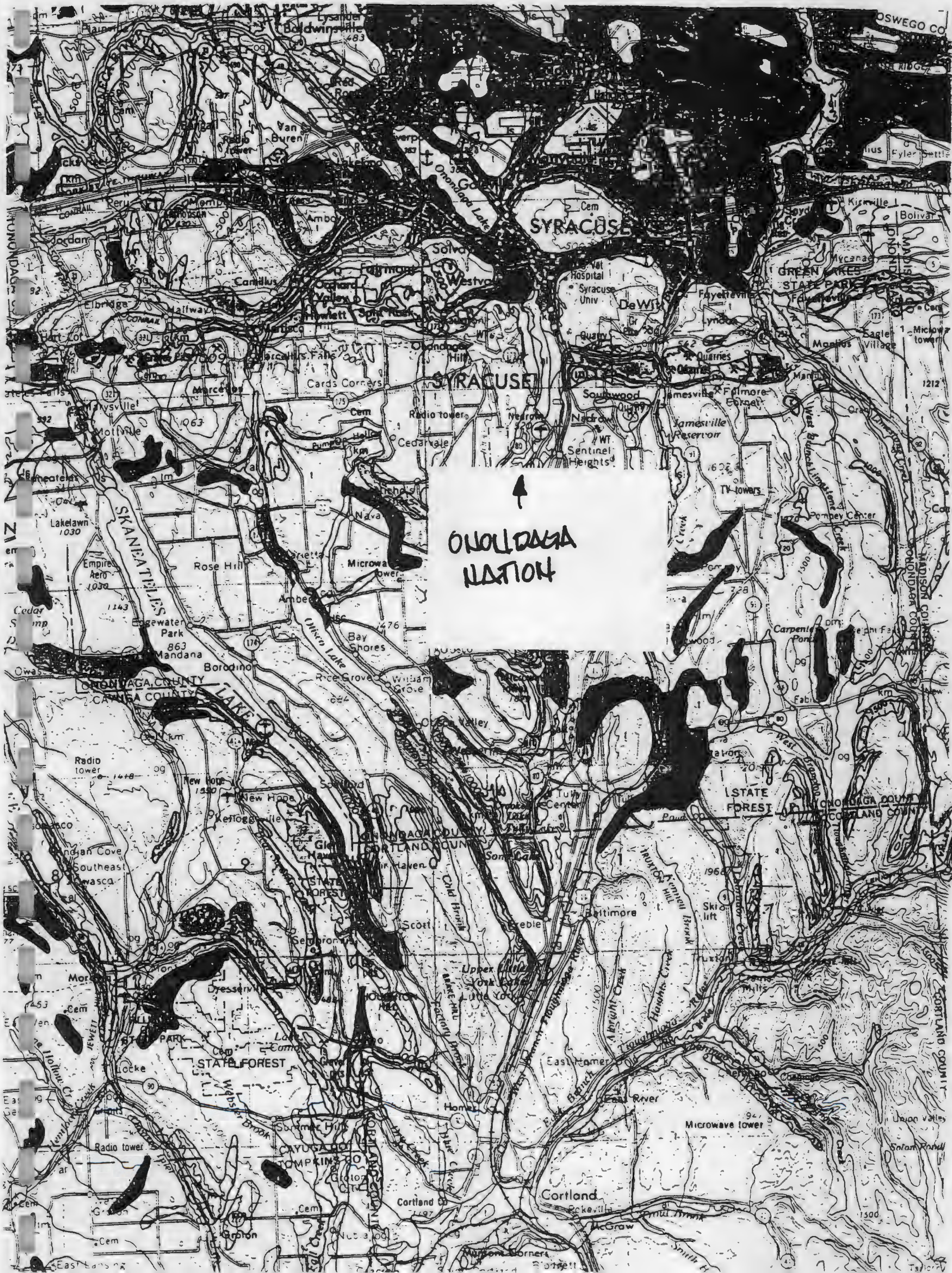
Scale 1:250,000



CONTOUR INTERVAL 100 FEET

THE ISOGANIC LINES VARY FROM APPROXIMATELY 10° WEST TO 13° 30' WEST, RUNNING IN A NORTHWEST TO SOUTHEAST DIRECTION.

REF. (3)


ONONDAGA NATION
SYRACUSE
SYRACUSE
Onondaga Lake
Baldwinsville
Van Buren
Camillus
Solvay
Westvale
Fairmount
Elbridge
Jordan
Marcellus
Marcellus Falls
Cards Corners
Onondaga Hill
Hospital
Syracuse Univ
DeWitt
Fayetteville
GREEN LAKES STATE PARK
Kirkville
Bolivar
Manlius
Eagle Village
Jamesville
Jamesville Reservoir
Southwood
Nedrow
Sentinel Heights
Radio tower
Cedarvale
TV towers
Pompey Center
Skaneateles
Lakelawn
1030
SKANEATELES LAKE
Rose Hill
Mandana
Borodino
Edgewater Park
Empire Aero
Otisco Lake
Bay Shores
Rice Grove
ONONDAGA COUNTY
CAYUGA COUNTY
Radio tower
New Hope
Kelloggsville
Southeast Owasco
Indian Cove
STATE FOREST
Tully Center
Baltimore
Scott
Preble
Upper Little York Lake
Little York
ONONDAGA COUNTY
CORTLAND COUNTY
Dresserville
Sempronius
Locke
STATE FOREST
East Homer
East River
Homer
Summer Hill
Microwave tower
Cortland
McGraw
Truxton
CAYUGA CO
TOMPKINS CO
Groton
Union valley
Solon Pond
CORTLAND COUNTY
MADISON COUNTY
ONONDAGA COUNTY
OSWEGO CO

NEW YORK STATE GEOLOGICAL ASSOCIATION

36th ANNUAL MEETING

MAY 8-10, 1964

GUIDEBOOK

DEPARTMENT OF GEOLOGY, SYRACUSE UNIVERSITY

(4)

NEW YORK STATE GEOLOGICAL ASSOCIATION

36th Annual Meeting — May 8-10, 1964

GUIDEBOOK

John James Prucha, Editor

Department of Geology, Syracuse University, Syracuse, N. Y.

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SURFICIAL GEOLOGY OF THE SYRACUSE FIELD AREA

by Ernest H. Muller

Introduction

The following notes provide a frame of reference for field trips in the Syracuse area, planned for the 36th Annual Meeting of the New York State Geological Association, May 8-10, 1964. These trips range from Rome in the east to Marcellus in the west and from Boonville in the north to Tully in the south. No effort is made to provide uniform treatment throughout the area of concern; rather, relationships at certain stops are developed in detail, whereas others are treated only in general terms.

Regional relationships

Syracuse is located in the border zone between two major physiographic provinces. North of the city, undulating plains of the Ontario Lowland stretch away to Lake Ontario. Streamlined ridges of glacial till give much of the lake plain its distinctive topographic texture. South of Syracuse, the land rises more than a thousand feet within a few miles, forming the north-facing margin of the Appalachian Uplands. Northeast of Syracuse the Oneida basin, an eastward extension of the Ontario Lowland, isolates the Tug Hill Plateau from the Appalachian Uplands to which it is physiographically related.

In unglaciated parts of Pennsylvania and lightly glaciated parts of southern New York, physiographic history is recorded in accordance of summits. Following late Paleozoic regional uplift, the Syracuse area presumably experienced similarly long erosion that beveled the southward dipping strata. Because intensity of glacial scour increased northward across New York, summits south of Syracuse are rounded and reduced in elevation, retaining only approximate summit accordance. Suggestive similarity of summit elevation in the Tug Hill Plateau and the upland south across Oneida trough led Newell (1940) to hypothesize correlation of the erosion surfaces. Such physiographic correlation is presently viewed with reservation because of strong evidence of intense glacial scour and marked structural control.

Paleozoic strata are exposed in generally east-west trending zones, with almost imperceptible regional dip southward beneath progressively younger beds (fig. 1). Differing resistance of these layers has resulted in a broadly cuesta-form or terraced (Schichtstufenlandschaft of Hanefeld, 1960) character which may be as much a result of glacial scour as of normal erosional processes. Terrace and summit levels are characterized by generally north-facing scarps and more gentle southward dip slopes. Thus, the broad, east-west trending basin between the Tug Hill Plateau and the Appalachian Uplands is controlled largely by the trend of Silurian sediments. Within this lowland belt, the Lockport Dolomite forms a broad buried ridge that separates the Oneida and Cicero-Canastota depressions which are developed respectively on the Rochester and Vernon Shales. Massive carbonate strata in the Upper Silurian and Lower Devonian section support sloping bench remnants in the border scarp of the Appalachian Upland.

The one significant recessional moraine in the Syracuse area north of the Valley Heads moraine is crossed twice on Trip B. Stagnation features east of Camden, including Stops 4, 5 and 6 are part of this broad belt. Delta Reservoir occupies a reach of the ancestral Mohawk-Oneida Valley imponded initially by this moraine, and The Palisade (Trip B, Mile 112.7) is a post-glacial, bedrock gorge resulting from displacement of Mohawk River from its ancestral valley by this same imponding. This moraine is traceable from the vicinity of Camden through Eddy Hill, Stanwix and Verona. Although the relationship of this moraine to the moraine sequence in western New York is not established, Taylor's (1924) correlation of it with the Albion moraine is not supported.

Meltwater channels

Recession of the ice sheet northward from the divide-producing Valley Heads moraine resulted in imponding of pro-glacial meltwaters in many troughs at the north margin of the plateau. Initially many of these primitive trough lakes drained south across the moraine divide, but in time they developed integrated drainage westward until the ice sheet began to thin against the plateau margin in the Syracuse area. Thereafter, meltwater streams draining eastward parallel to the border scarp notched gorges from one trough to the next at the north margin of the plateau from Syracuse to Oneida. The plexus of channels near Syracuse controlled the levels of short-lived pro-glacial lakes between Lake Warren and Lake Iroquois (Fairchild, 1909; 1932a).

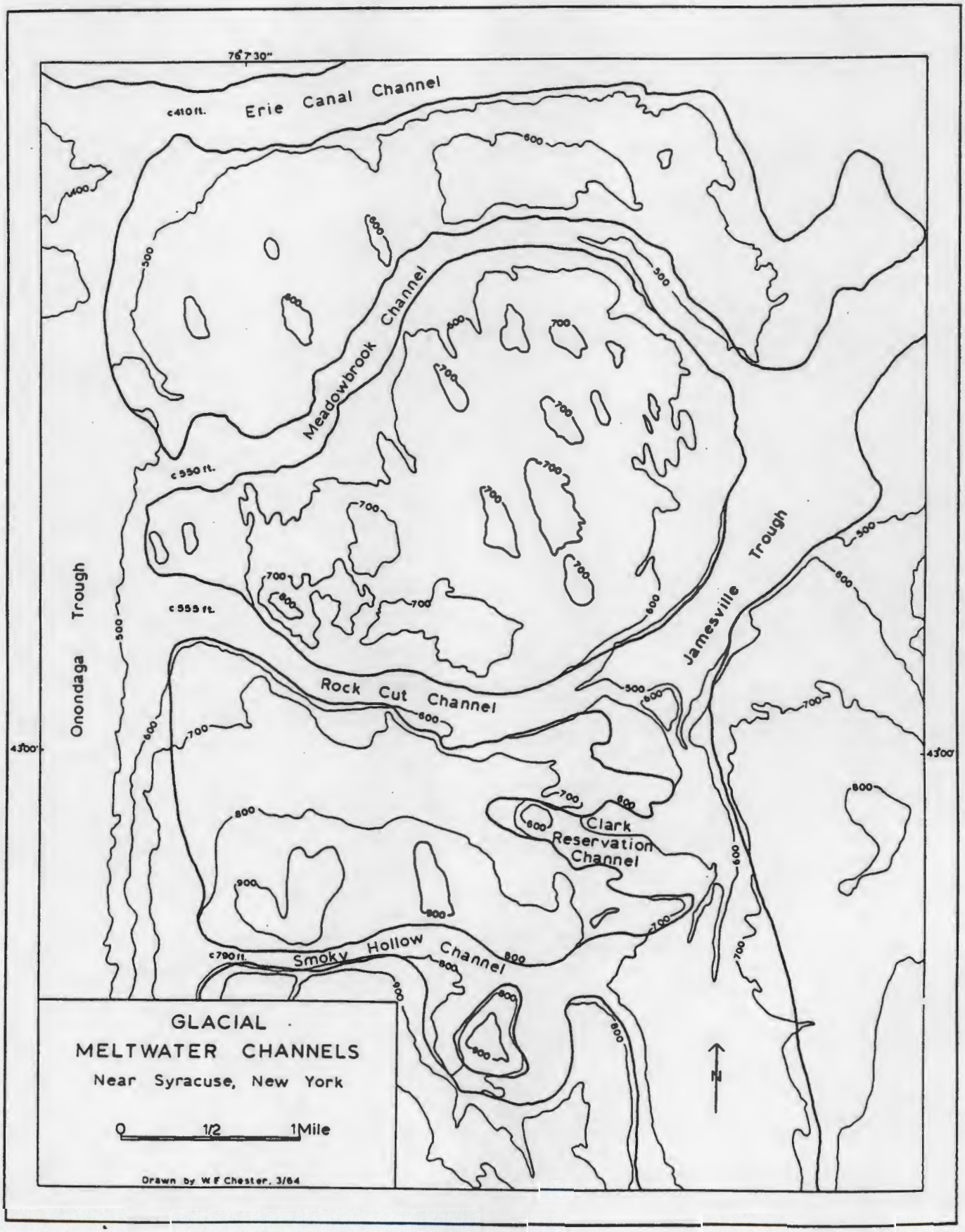
Sissons (1960) points out that glacial meltwaters flow frequently beneath, through and over the ice itself and argues that many channels in the Syracuse-Oneida area are of subglacial origin. Accumulating evidence indicates that several of the channels were occupied more than once, suggesting a complex recessional history.

Several meltwater channels visited by Trips B and D are described briefly below. These include the Syracuse channels, the Green Lake channel and Boonville Gorge.

Syracuse channels

A group of channels that traverse the ridge between Onondaga and Jamesville troughs are of dimensions that suggest they were cut by meltwater discharge from extensive imponding to the west. These channels in sequence from highest and oldest in the south to youngest and lowest in the north are Smoky Hollow, Clark Reservation, Rock Cut, Meadowbrook, and Erie Canal channels.

Smoky Hollow is a 2.25 mile long gorge, incised more than 100 ft. through the Hamilton Group to a threshold near 790 ft. msl. hanging 350 feet above the floor of Onondaga trough. Eastward the channel descends with average gradient of 50 ft/mile, cutting through the Onondaga Formation. The feature that distinguishes Smoky Hollow from other cross channels is the horseshoe-shaped meander loop (Hopkins, 1914) and umlaufberg produced by neck cutoff east of Barker Hill Road (Stop 4, Trip D). Recent unpublished studies by Sarah Street and Lawrence Cerrillo support Sissons suggestion that this and others of the Syracuse channels record a complex history of multiple episodes of glacier fluctuation. The Loop is partly filled with as much as 96 feet of stratified drift that is overlain at the west end by rhythmically-bedded lake sediments. Lodgment till overlying ablation drift is exposed in the ditch where Barker Hill Rd. rises north of Smoky Hollow. Although The Loop was not occupied by major meltwater stream after final


76°7'30"
Erie Canal Channel
c 410 ft.
Meadowbrook Channel
c 550 ft.
c 555 ft.
Onondaga Trough
Jamesville Trough
Rock Cut Channel
Clark Reservation Channel
c 790 ft.
Smoky Hollow Channel
43°00'
GLACIAL
MELTWATER CHANNELS
Near Syracuse, New York
0 1/2 1 Mile
Drawn by W.F Chester, 3/64
N

deglaciation, the cutoff truncates a drumlin east of Barker Hill Rd. indicating that final meltwater action followed final molding of streamline ridges.

Clark Reservation State Park (Stop 5, Trip D) contains particularly striking evidence of meltwater scour and plunge-pool drilling. Directly northeast of the parking lot is the steep-walled basin of Green Lake (Jamesville Lake of Quereau, (1898)). At the west end, twin channels lead to a threshold about 175 feet above the lake. By analogy, the bedrock bottom of the plunge pool may well be at comparable depth below the level of the lake and cut into the Camillus Shale, but detritus and marl partly fill this basin. East of Green Lake a broad, deep channel leads to Jamesville trough. Standing at the brink of the basin one can imagine the roar of a waterfall comparable in some respects to Niagara, plunging into the amphitheater below.

About 100 yards west of Green Lake in Clark Reservation is the basin of Dry Lake. Although considerably smaller and shallower than the basin of Green Lake, this too has characteristics of a plunge pool occupied for a short interval and cut perhaps by a stream with smaller discharge. The rock threshold at 720 feet, between the two basins, rules out any suggestion of uninterrupted progressive headward migration of the falls. Rather, it raises a question as to the initial declivity responsible for originating the upper plunge-pool. North and northeast of the Dry Basin - Green Lake line are a number of other basins and a long, narrow ravine cut deeply into the Onondaga bench and underlying carbonate rocks. Several are closed basins but none are as deep as the basin of Green Lake, and none contain ponds or lakes. All have eastward-opening channels leading to Butternut trough, yet all are presently controlled by subterranean outflow. Although the origin of the features of Clark Reservation will continue to intrigue geologists, most details are presently understood in terms of subglacial and glaciomarginal drainage possibly controlled in part by previously developed and subsequently modified solution features.

Third of the Syracuse channels and the best developed is Rock Cut channel, utilized at present by Rock Cut Road, Delaware, Lackawanna and Western Railroad, and an unsightly association of junk yards. This steep-walled, flat-bottomed channel is floored by the Fiddlers Green Dolomite, with threshold at 550 feet at the west end and average eastward gradient of less than 10 ft. per mile. It is difficult to conceive of the cutting of a canyon of these dimensions during the brief time involved in northward recession of the ice margin to uncover the next lower marginal channel. Plunge-pool cutting of the magnitude that produced Green Lake basin is considered improbable in view of the higher bedrock floor of this channel. This leads to the hypothesis that cutting of the Rock Cut channel took place during several recessional episodes, an hypothesis strengthened by evidence in configuration of the south wall in the Syracuse Caves area. This location at the edge of Clark Reservation may be visited on foot (Stop 5, Trip D) if time permits. Amphitheater-like cusps cut into the south wall strongly suggest cutting by water plunging into the channel from the south where no present stream exists. Like the basins in Clark Reservation this may be a plunge-pool drilled by a subglacial or glaciomarginal stream. In either case it testifies to glacial advance south beyond Rock Cut Channel after the channel had attained essentially its present dimensions.

The fourth of the Syracuse channels, the Meadowbrook channel is narrower and less sharply incised than the Loop and Rock Cut channels. With threshold level essentially the same as that of the Rock Cut channel and with orientation toward rather than away from the ice sheet, this channel could not have carried

GROUND-WATER RESOURCES OF THE SYRACUSE AREA[1]

by Irwin H. Kantrowitz

U.S. Geological Survey

All but the largest public water systems in the Syracuse area obtain their supply from wells or springs. Almost all farms and homes in rural areas are supplied by private wells or springs and many industries also rely on ground-water supplies to meet their needs. Current withdrawal of ground water in the area is believed to be only a fraction of the available supply. The quality of water, however, is not always suitable for many uses, including public supply.

Ground water occurs in fractures and bedding joints of consolidated rocks and in pore spaces of unconsolidated deposits. The quantity of water available depends on the nature of the aquifer and the source of recharge. Adequate supplies for domestic and farm needs (100 to 1,000 gallons per day) are almost always available. Larger quantities of water for industrial and public supplies can generally be obtained from stratified coarse-grained deposits and, less frequently, from bedrock with prominent fractures, particularly where these aquifers are in hydraulic contact with a surface-water body which acts as a source of recharge. Ground-water quality depends on the chemical characteristics of the aquifer material, and flow pattern within the ground-water reservoir, and the quality of the recharge water. The factors most commonly affecting the quality of the ground water in the Syracuse area are hardness, iron, hydrogen sulfide, and salinity.

Ground water in consolidated rocks

Table 1 shows the rock units in the Syracuse area, their dominant lithologies, and the quality of the ground water that may be expected in wells tapping each unit. Wells in the limestone units, and the Camillus Shale, Syracuse Salt, and Vernon Shale will yield as much as 230 gpm (gallons per minute) because of enlargement of fractures by the solution of the carbonates and evaporites. The yield of wells drilled in these units for domestic, farm, and other small supplies averages about 15 to 20 gpm. Wells in the other rock units in the area generally yield less than 10 gpm and are inadequate for most public or industrial needs.

Carbonate (temporary) hardness results from the solution of limestone or dolomite by ground water. The hardness of water in the Camillus and Vernon Shales is predominantly noncarbonate (permanent) hardness resulting from the solution of gypsum or anhydrite. The source of hydrogen sulfide is believed to be pyrite found in the Hamilton Group and the Lorraine and Utica Shales, and sphalerite found in the Lockport Dolomite. Although traces of iron are found in water from all the rock units, it is present in objectionable concentrations most often in the Camillus and Vernon Shales where it is probably related to the occurrence of hematite, siderite, and pyrite.

The presence of saline water (here defined as water containing more than 250 parts per million of chloride) is not shown in Table 1 because its occurrence is more closely related to patterns of ground-water movement than it is to

[1]Data contained in this summary were collected by the U.S. Geological Survey in cooperation with the New York State Water Resources Commission. Publication authorized by Director, U. S. Geological Survey.

the chemical characteristics of the water-bearing units. Although the only salt beds in the area are found within the Syracuse, most wells tapping this formation in its outcrop area do not yield salty water because the salt at shallow depths has been almost completely dissolved. Wells drilled into the Syracuse in the area south of its outcrop generally yield saline water, and commercial brine is obtained from deep wells in Tully Valley, about 12 miles south of Syracuse. At these wells, the salt occurs 300 to 500 feet below sea level and the brine is produced by injecting fresh water into the beds and then pumping it out after it has dissolved the salt.

The major area of natural saline-water occurrence is along the lowlands occupied by Oneida Lake and the Oneida, Oswego, and Seneca Rivers. This area coincides with the major area of ground-water discharge and the presence of saline water is believed to be due to the upward and northward movement of ground water that has been in contact with and partially dissolved the salt beds beneath the Appalachian Plateau. Wells drilled more than 100 feet into the Genesee Formation or Hamilton Group in the valleys of the plateau area may also yield saline water. The occurrence of this water may be related to connate water within the rock units or to the upward movement of water from the salt beds.

Ground water in unconsolidated deposits

A till sheet commonly about 30 feet thick mantles the entire upland area in the Appalachian and Tug Hill Plateaus and a large part of the Ontario lowland. Adequate supplies of water for domestic and farm supplies are generally available from dug wells or springs, although shallow wells on hillsides and hilltops frequently are inadequate during long dry periods.

Stratified drift mantles the remainder of the area, notably in the valleys of the Appalachian Plateau, most of the Ontario Lowland, and the lower parts of the valleys of the Tug Hill Plateau. Deposition of stratified drift occurred under four conditions: 1) proglacial deposition during free drainage, 2) deposition in ice-dammed valleys, 3) deposition during Great Lakes drainage, and 4) deposition in Lake Iroquois.

Coarse-grained glaciofluvial deposits consisting largely of sand and gravel occur south of the Valley Heads moraine and in many places form a large part of the moraine itself. The sand and gravel are well sorted and are probably the most permeable water-bearing material in the area. The city of Cortland, located about 27 miles south of Syracuse and 14 miles south of the Valley Heads moraine, pumps more than 2.5 mgd (million gallons per day) from these deposits. Somewhat similar sands and gravels, deposited during free glacial drainage in the Tug Hill Plateau area, may be expected along West Branch Fish Creek.

During deglaciation of the Appalachian Plateau, lakes existed in the major valleys, dammed between the bedrock divide to the south and the ice tongue to the north. Although data are scanty, the deposits in the valleys appear to become coarser with increasing depth which is consistent with a concept of a receding source of sediment. Small but adequate domestic and farm supplies can generally be obtained from wells dug in lacustrine sand, silt or clay, and driven screened wells are common where lacustrine sands occur at shallow depths. Because the layers of gravel in these deposits are lenticular, few wells drawing from gravel yield more than 100 gpm and the average yield of such wells is only about 30 gpm.

With further deglaciation, the ice margin was against the escarpment of the

Appalachian Plateau, and eastward drainage of the ancestral Great Lakes was initiated in ice-marginal channels. Deposition of sand and gravel occurred wherever the Great Lakes waters entered standing water in the north-south valleys or where westward recession of the ice front enabled the water to abandon the marginal channels and utilize the larger north-south valleys as outlets to the lowland north of the escarpment. These sand and gravel deposits are probably not as permeable as the valley train material south of the Valley Heads moraine. They are, nevertheless, a potential source of large ground-water supplies because they generally occur in areas where stream infiltration is possible. Examples of wells in this type of deposit are a public-supply well for the village of Fayetteville that has been test pumped at 500 gpm, and a public-supply well for the village of Chittenango that yields 350 gpm.

During the last stages of deglaciation in the Syracuse area, Lake Iroquois, a proglacial ancestral Lake Ontario, occupied the lowland north of the Appalachian escarpment. Melt-water streams deposited outwash deltas in the lake which were subsequently reworked and covered by finer grained lacustrine deposits as the ice continued to recede. The sand and gravel, where it is in hydraulic contact with a surface-water body may yield large quantities of water. The village of Fulton has pumped as much as 3.3 mgd from a well field adjacent to the Oswego River. Individual wells in this system yield as much as 800 gpm.

For the most part, none of the unconsolidated deposits in the Syracuse area have undergone significant transport by ice or melt water. Therefore, the chemical nature of the deposits and, to a large measure, the quality of the ground water derived from them, is generally similar to that of the underlying bedrock. Saline water occurs notably in a few of the north-south valleys where ground water has been able to move from the truncated salt beds of the Syracuse into relatively permeable valley-fill material.

Table 1.--Water-bearing units and quality of ground water

Rock unit	Lithologic type	Quality of water
Genesee Formation	shale	generally good
Tully Limestone	limestone	hard
Hamilton Group	shale, limestone	hard, hydrogen sulfide
Onondaga Limestone	limestone	hard
Helderberg Group	limestone	hard
Cobleskill Limestone	limestone	hard
Bertie Limestone (of Salina Group)	limestone, dolomite, some shale	hard
Camillus Shale (of Salina Group)	shale, gypsum, dolomite	hard, iron
Syracuse Salt (of Salina Group)	shale, gypsum, dolomite, salt	hard, iron
Vernon Shale (of Salina Group)	shale, some gypsum & dolomite	hard, iron
Lockport Dolomite	dolomite	hard, hydrogen sulfide
Clinton Group	sandstone & shale, some limestone	hard
Albion Group[1]	sandstone	generally good
Queenston Shale	sandstone	generally good
Oswego Sandstone	sandstone	generally good
Lorraine Shale	shale	hydrogen sulfide
Utica Shale	shale	hydrogen sulfide

[1]Approximately equivalent to Medina Group of N.Y. State Geological Survey usage.

SUPERFUND

NATIONAL PRIORITIES LIST SEMINAR

EPA REGION II

ALBANY, NY

The MITRE Corporation

April 2-3, 1986

REF. (5)

Observed Release

The release and the background well must be in the same aquifer at comparable elevations.

Knowledge of flow gradients helps in determining where to look for background versus contamination...but beware of local or seasonal variation. The purpose is to find a nearby well in the aquifer of concern that is not under the influence of the site.

Background well(s) must discriminate out any alternative sources of the contamination.

The attribution of the release to the facility is strengthened if the substances found in the release are documented to have been deposited at the facility.

Depth of the Aquifer of Concern (Page 12)

- Distance between the deepest point of known contamination and the top of the aquifer of concern.

  - Deepest level at which contamination is documented.
  - Highest seasonal level of the saturated zone of the aquifer.

- If depth of deposit is unknown, 6 feet may be assumed.

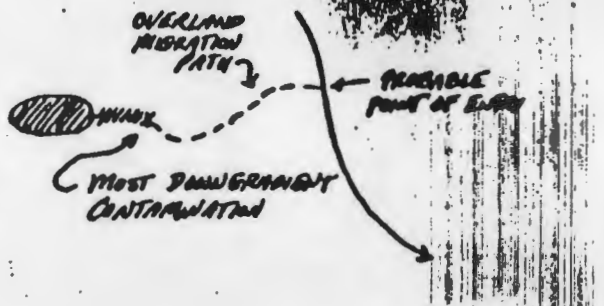
SURFACE WATER

The Surface Water Route

The first step is to identify the surface water migration path.

Trace out on a map the path(s) that surface run off will take from the site (the most downgradient point of documented contamination) to the probable point of entry to surface water.

From this probable point of entry follow the surface water flow in stream miles for three miles (but limited to only one mile of static water).

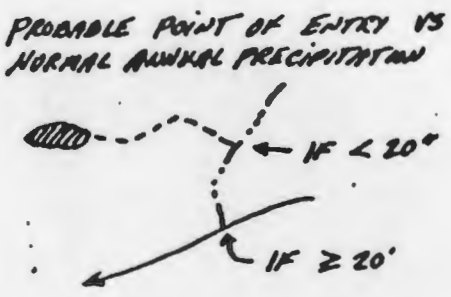


If tidal reversals take place within the migration path, the extent of these reversals needs documentation.

All targets (uses, sensitive environments, water intakes) must lie on or contiguous to this surface water migration path.

The definition of surface water for HRS purposes includes:

- All perennial streams and rivers from their point of origin to the sea.
- Man-made ditches only insofar as they are perennially flowing into other surface water.
- Isolated but perennial ponds or lakes.
- Intermittent streams only in areas with less than 20 inches of normal annual precipitation. Note that the probable point of entry to surface water varies with whether there is more or less than 20 inches of normal annual precipitation.



REF. (

U. S. DEPARTMENT OF COMMERCE
WEATHER BUREAU

CLIMATOGRAPHY OF THE UNITED STATES NO. 60 – 30

CLIMATES OF THE STATES

NEW YORK

WASHINGTON, D. C.

FEBRUARY 1960

Climate of New York

Ernest C. Johnson, Weather Bureau State Climatologist

The climate of New York State is broadly representative of the moist continental type area which blankets the northeastern United States, but its diversity is not usually encountered within such a small area. Differences in latitude, character of topography, and bodies of water have pronounced effects on the climate of local areas. The geographical position of the State and the usual course of air masses governed by the atmospheric circulation of the region provide the general climatic controls.

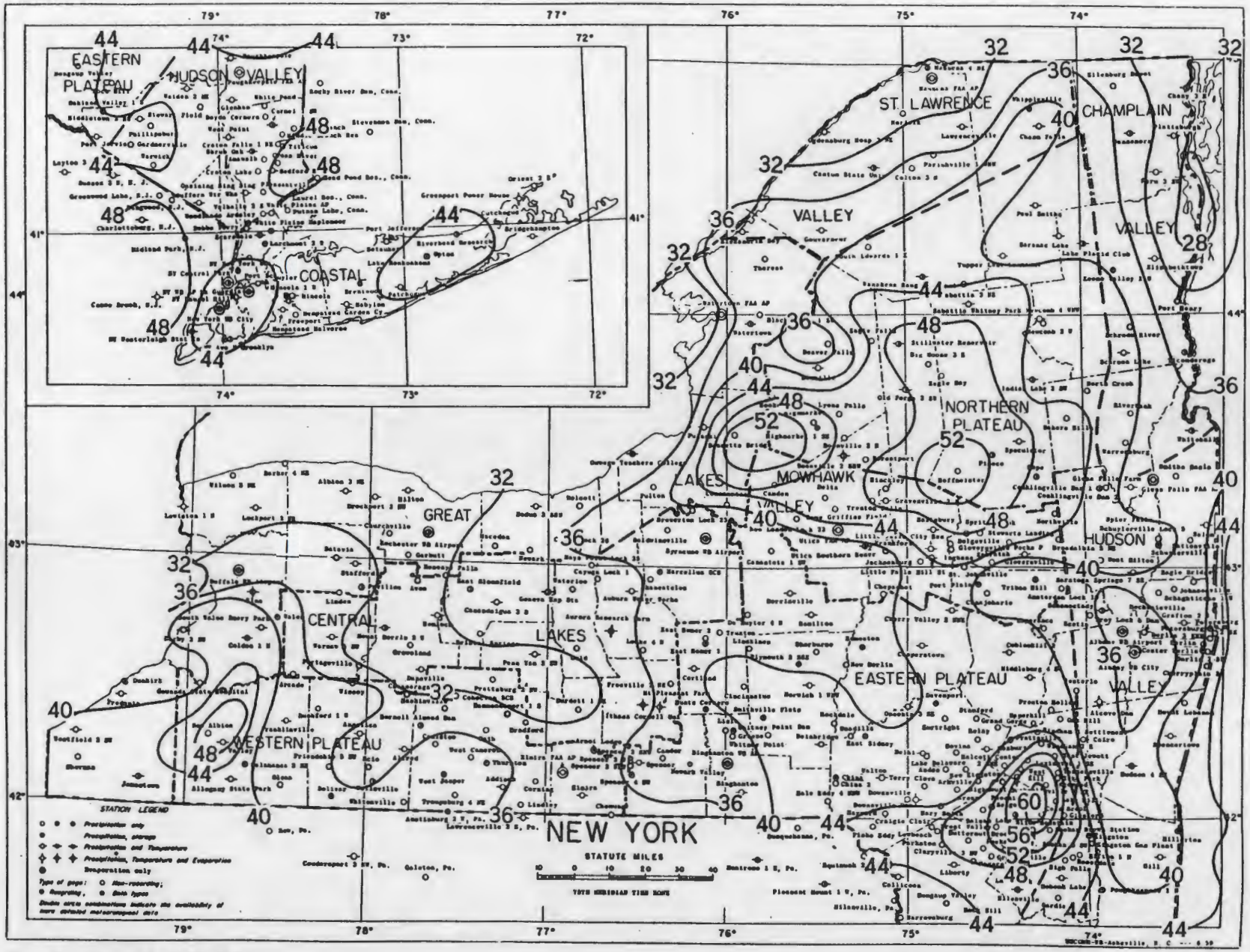
New York State contains 49,576 square miles exclusive of the boundary water areas of Long Island Sound, New York Harbor, Lake Ontario, and Lake Erie. The major portion of its area lies approximately between latitudes 42°N. and 45°N.; longitudes 73°30'W. and 79°45'W. However, in the extreme southeast a triangular portion extends southward to latitude 41°N., while Long Island lies eastward between latitudes 41°00'N. and 40°35'N. and longitudes 72°W. and 74°W.

The principal highlands of the State may be divided into two general regions, namely, the Adirondack section in the northeast and the Appalachian plateau in the southern portion west of the Hudson Valley. A subdivision of the Appalachian highlands is produced by the deep channel of Seneca Lake, extending from the plains bordering Lake Ontario southward to the Susquehanna Valley. Thus are formed the areas commonly called the Eastern and Western Plateaus; the former extending from the central lakes to the Hudson Valley and the latter westward from the central lakes to the depression of Lake Erie. The Eastern Plateau includes the Catskill Mountains, which are the northeastern New York terminus of the Allegheny Range of the Appalachian Mountain system. In southeastern New York is a minor highland region cut through by the Hudson River. This includes the Highlands, the Palisades, and the Taconic Mountains. Another minor highland known as Tug Hill lies just west of the Adirondacks and the Black River, and includes a large part of Lewis County.

Along the eastern border of the State is a long, narrow lowland, which is occupied by Lake Champlain, Lake George, and the middle and lower portions of the Hudson Valley. The St. Lawrence River, Lake Ontario, and Lake Erie lie in another lowland region on the north and western boundaries. This region is widest south of the eastern end of Lake Ontario, narrowing to a width of only 4 or 5 miles in the western end of the State. Connecting the Hudson-Champlain Valley with the lake plains is a third lowland. This is a deep transversal cut which forms the valley of the Mohawk River and Lake Oneida, and thus divides the main plateau area into the distinct masses of the Appalachian and Adirondack systems. A fourth lowland region is Long Island which is a part of the Atlantic

For sale by the Superintendent of Documents, U.S. Government Printing Office, Washington 25, D.C. - Price 15 cents

Mean Annual Precipitation, Inches



Based on period 1931-55

Isolines are drawn through points of approximately equal value. Caution should be used in interpolating on these maps, particulary in mountainous areas.

REF. (1)

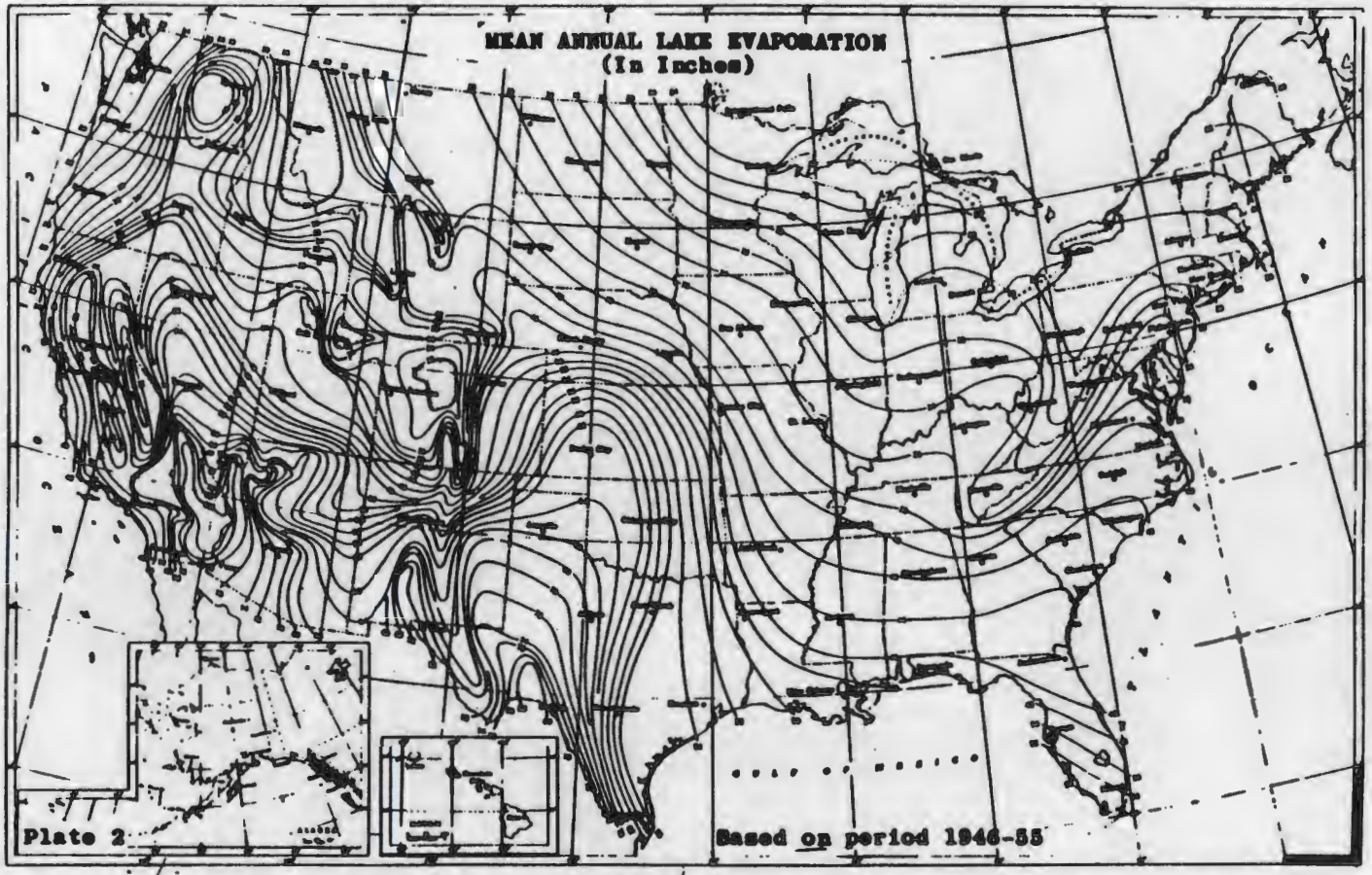
Uncontrolled Hazardous Waste Site Ranking System

A Users Manual
(HW-10)

Originally Published in
the July 16, 1982, *Federal Register*

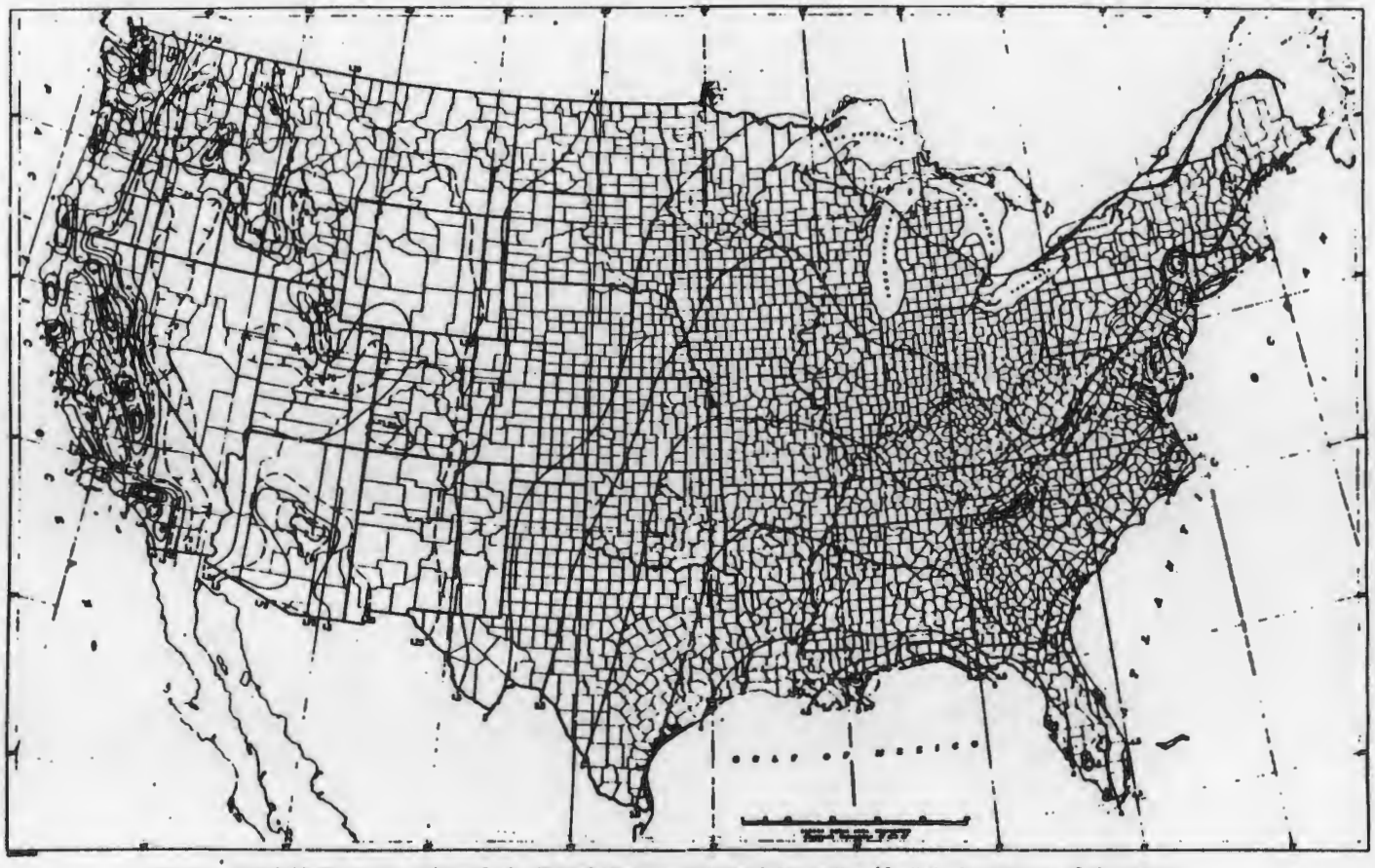
United States
Environmental Protection
Agency

1984



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

FIGURE 4
MEAN ANNUAL LAKE EVAPORATION
(IN INCHES)



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

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

TABLE 2

PERMEABILITY OF GEOLOGIC MATERIALS*

Type of Material	Approximate Range of Hydraulic Conductivity	Assigned Value
Clay, compact till, shale; unfractured metamorphic and igneous rocks	$<10^{-7}$ cm/sec	0
Silt, loess, silty clays, silty loams, clay loams; less permeable limestone, dolomites, and sandstone; moderately permeable till	$10^{-5} - 10^{-7}$ cm/sec	1
Fine sand and silty sand; sandy loams; loamy sands; moderately permeable limestone, dolomites, and sandstone (no karst); moderately fractured igneous and metamorphic rocks, some coarse till	$10^{-3} - 10^{-5}$ cm/sec	2
Gravel, sand; highly fractured igneous and metamorphic rocks; permeable basalt and lavas; karst limestone and dolomite	$>10^{-3}$ cm/sec	3

*Derived from:

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

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

TABLE 4
WASTE CHARACTERISTICS VALUES FOR SOME COMMON CHEMICALS

CHEMICAL/COMPOUND	[1]	[2]	[3]	[4]
Acetaldehyde	3	0	3	2
Acetic Acid	3	0	2	1
Acetone	2	0	3	0
Aldrin	3	3	1	0
Ammonia, Anhydrous	3	0	1	0
Aniline	3	1	2	0
Benzene	3	1	3	0
Carbon Tetrachloride	3	3	0	0
Chlordane	3	3	0*	0*
Chlorobenzene	2	2	3	0
Chloroform	3	3	0	0
Cresol-O	3	1	2	0
Cresol-MEP	3	1	1	0
Cyclohexane	2	2	3	0
Endrin	3	3	1	0
Ethyl Benzene	2	1	3	0
Formaldehyde	3	0	2	0
Formic Acid	3	0	2	0
Hydrochloric Acid	3	0	0	0
Isopropyl Ether	3	1	3	1
Lindane	3	3	1	0
Methane	1	1	3	0
Methyl Ethyl Ketone	2	0	3	0
Methyl Parathion in Xylene Solution	3	0Δ	3	2
Naphthalene	2	1	2	0
Nitric Acid	3	0	0	0
Parathion	3	0Δ	1	2
PCB	3	3	0Δ	0Δ
Petroleum, Kerosene (Fuel Oil No. 1)	3	1	2	0
Phenol	3	1	2	0
Sulfuric Acid	3	0	0	2
Toluene	2	1	3	0
Trichlorobenzene	2	3	1	0
1,1,1-Trichloroethane	2	2	1	0
Xylene	2	1	3	0

[1] Lee, N. I., Dangerous Properties of Industrial Materials, Van Nostrand Reinhold Co., New York, 4th ed., 1975. The highest rating listed under each chemical is used.

[2] JRB Associates, Inc., Methodology for Rating the Hazard Potential of Waste Disposal Sites, May 5, 1980.

[3] National Fire Protection Association, National Fire Codes, Vol. 13, No. 49, 1977.

* Professional judgment based on information contained in the U.S. Coast Guard CHRIS Hazardous Chemical Data, 1978.

Δ Professional judgment based on existing literature.

TABLE 5

PERSISTENCE (BIODEGRADABILITY) OF SOME ORGANIC COMPOUNDS*

VALUE = 3 HIGHLY PERSISTENT COMPOUNDS

aldrin
benzopyrene
benzothiazole
benzothiophene
benzyl butyl phthalate
bromochlorobenzene
bromoform butanal
bromophenyl phenyl ether
chlordane
chlorohydroxy benzophenone
bis-chloroisopropyl ether
m-chloronitrobenzene
DDE
DDT
dibromobenzene
dibutyl phthalate
1, 4-dichlorobenzene
dichlorodifluoroethane
dieldrin
diethyl phthalate
di(2-ethylhexyl)phthalate
dihexyl phthalate
di-isobutyl phthalate
dimethyl phthalate
4,6-dinitro-2-aminophenol
dipropyl phthalate
endrin
heptachlor
heptachlor epoxide
1,2,3,4,5,7,7-heptachloronorbornene
hexachlorobenzene
hexachloro-1,3-butadiene
hexachlorocyclohexane
hexachloroethane
methyl benzothiazole
pentachlorobiphenyl
pentachlorophenol
1,1,3,3-tetrachloroacetone
tetrachlorobiphenyl
thiomethylbenzothiazole
trichlorobenzene
trichlorobiphenyl
trichlorofluoromethane
2,4,6-trichlorophenol
triphenyl phosphate
bromodichloromethane
bromoform
carbon tetrachloride
chloroform
chlorodichloromethane
dibromodichloroethane
tetrachloroethane
1,1,2-trichloroethane

VALUE = 1 SOMEWHAT PERSISTENT COMPOUNDS

acetylene dichloride
behenic acid, methyl ester
benzene
benzene sulfonic acid
butyl benzene
butyl bromide
e-caprolactam
carbon-disulfide
o-cresol
decane
1,2-dichloroethane
1,2-dimethoxy benzene
1,3-dimethyl naphthalene
1,4-dimethyl phenol
dioctyl adipate
n-dodecane
ethyl benzene
2-ethyl-n-hexene
o-ethyltoluene
isodecane
isopropyl benzene
limonene
methyl ester of lignoceric acid
methane
2-methyl-5-ethyl-pyridine
methyl naphthalene
methyl palmitate
methyl phenyl carbinol
methyl stearate
naphthalene
nonane
octane
octyl chloride
pentane
phenyl benzoate
phthalic anhydride
propylbenzene
1-terpineol
toluene
vinyl benzene
xylene

VALUE = 2 PERSISTENT COMPOUNDS

acenaphthylene
atrazine
(diethyl) atrazine
barbital
borneol
bromobenzene
camphor
chlorobenzene
1,2-bis-chloroethoxy ethane
b-chloroethyl methyl ether
chloromethyl ether
chloromethyl ethyl ether
3-chloropyridine
di-t-butyl-p-benzoquinone
dichloroethyl ether
dihydrocarvone
dimethyl sulfonide
2,6-dinitrotoluene
cis-2-ethyl-4-methyl-1,3-dioxolane
trans-2-ethyl-4-methyl-1,3-dioxolane
guaiacol
2-hydroxyadipontrile
isophorone
indene
isoborneol
isopropenyl-r-isopropyl benzene
2-methoxy biphenyl
methyl biphenyl
methyl chloride
methylindene
methylene chloride
nitroanisole
nitrobenzene
1,1,2-trichloroethylene
trimethyl-trioxo-hexahydro-triazine isomer

VALUE = 0 NONPERSISTENT COMPOUNDS

acetaldehyde
acetic acid
acetone
acetophenone
benzoic acid
di-isobutyl carbinol
docosane
eicosane
ethanol
ethylamine
hexadecane
methanol
methyl benzoate
3-methyl butanol
methyl ethyl ketone
2-methylpropanol
octadecane
pentadecane
pentanol
propanol
propylamine
tetradecane
n-tridecane
n-undecane

REF: (8)

Onondaga County Soil and Water Conservation District
4876 Onondaga Road - Syracuse, N.Y. 13215 - Phone (315) 469-5034

August 24, 1987

JOB #_____

Muffett A. Mauche, Staff Engineer
URS Company, Inc.
570 Delaware Ave.
Buffalo, New York 14202

Dear Mr. Mauche,

As we discussed during our phone conversation on Monday, August 17, I have taken over for Mr. Webb in regards to your inquiry about three (3) hazardous waste sites within Onondaga County. Below you will find the information that you requested concerning the sites. Site #1 - Onondaga Nation (site B), Site #2 - Turf Tailers and, Site #3 - Val's Dodge.

Information dealing specifically with ground water, wells and irrigation is not available via this office. A study of the ground water activities is persently being conducted, however, no data has been compiled to date.

In regards to questions 3 and 4, I have made the following determinations for all three sites.

- Distance to agricultural land in production within the past 5 years, if one mile or less.

  Site #1 - 1000 feet / predominate soil PgA
  Palmyra gravels

  Site #2 - not active

  Site #3 - 4000 ft / predominate soil PgB
  Palmyra gravels

- Distance to prime agricultural land is production within past 5 years, if 2 miles.

  Site #1 - 1000 ft / predominate soils PgB, Palmyra gravels

  Site #2 - 7700 feet / predominate soil OgB, Ontario silt loam

  Site #3 - 4000 feet / predominate soil PgB, Palmyra gravels.

-more-

If any additional information is required concerning soils please feel free to contact me at any time.

Yours in conservation,

David A. Mosher

David A. Mosher
District Field Manager
Onondaga County Soil & Water
Conservation District

Attachment A REF. (9

15 (12/75)

New York State Department of Environmental Conservation

MEMORANDUM

TO: Frank T. Ricotta, Supervisor, Central Remedial Projects Section
FROM: David J. Curtis, Senior Sanitary Engineer, Central Remedial Projects Section
SUBJECT: Site Inspection (Barrel Cleanup Program)
Onondaga Indian Reservation - Onondaga (T), Onondaga County
DATE: October 3, 1983

On Wednesday, September 28, 1983, I inspected the inactive drum disposal site on the Onondaga Indian Reservation near Nedrow (V), Onondaga County. This site was listed as a possible drum removal site requested by William Hicks, Regional Director (Region 7). The inspection involved meeting with the head of the Indian Reservation, NYSDEC Region 7 personnel and Onondaga County Health Department staff to verify the existence of the site and to sample representative drums to ensure that the wastes are hazardous. A list of those field representatives present at the site during the site inspection were as follows:

David J. Curtis	-	NYSDEC, Bureau of Remedial Action
Kevin Hanifin	-	NYSDEC, Region 7
Dan Abbott	-	Onondaga County Health Department
Bill Lazore	-	Chief, Onondaga Indian Reservation

Two separate sites were noted during the inspection. Site A was located at the Indian Trading Post shown on the attached rough sketch (Attachment A). There were four full and partially full drums sampled at this site. The drums were labelled and the description of the drums were as follows:

Label No.	Container Quantity	Description
S1	55 Gallon	Drum labelled as 1-1-1 Trichloro-ethane - approximately 8 inches of liquid in barrel
S2	55 Gallon	Drum not labelled - approximately 5 inches of liquid in barrel
S3	55 Gallon	Drum not labelled - drum full
S4	55 Gallon	Drum not labelled - drum full

Two other drums at Site A were present. However, these drums were empty.

Site B was found off a back road directly adjacent to Exit 16 of Interstate 81. Approximately 400-500 barrels were found at this site. An actual count was not provided during this inspection. The inspection revealed that approximately 80-90 percent of the barrels found were empty. The remaining 10-20 percent contained a black viscous tar substance which had a sweet smell associated with the waste.

Two representative samples were collected from this second site.

Bill Lazore, Indian Chief, requested that these barrels be cleaned up, if hazardous. A representative of the Indian Reservation must be present on the site when working at the site. All samples were taken to the Avon Mobile Laboratory during the afternoon of the inspection.

If samples analyzed are found hazardous under 6 NYCRR Part 360, I would recommend cleaning Site A with the barrel cleanup program. Site B needs more investigation before complete cleanup, if samples from Site B are found to be hazardous.

DJC:msr

REF. (10

New York State Department of Environmental Conservation
50 Wolf Road, Albany, New York 12233-0001

Henry G. Williams
Commissioner

January 20, 1984

RECEIVED
JAN 23 1984
DEPT. ENVIRONMENTAL CONSERVATION SYRACUSE

Mr. William Lazore, Chief
Onondaga Nation
Route 11A
Hemlock
13120

Dear Mr. Lazore:

Re: Small Quantity Cleanup
Round 3 - Drum Removal Program
Onondaga Indian Reservation

On Tuesday, January 17, 1984, the four (4) abandoned barrels of hazardous waste disposed at the Indian Trading Post located off Exit 16 of U.S. I-81 were properly hauled away to a secured disposal facility by Inland Pollution Control, Inc. Removal of these four (4) drums were accomplished under my direction.

This removal finalized the work to be accomplished under the New York State Department of Environmental Conservation's (NYSDEC) Drum Removal Program at the Trading Post.

The second site located at the Reservation involves numerous abandoned drums scattered at a site found off a back road directly adjacent to Exit 16 of I-81. While a preliminary inspection has been done at the site, further investigation will be needed prior to site remediation. This second site has been referred to the Bureau of Hazardous Site Control for possible inclusion on the Hazardous Waste Site Registry and for a Phase I investigation through the State Superfund Program. The completion of the investigation will determine whether this site qualifies for cleanup under the Federal or State Superfund. If you have any indications on who may have contributed to the disposal of drums at this second site, the additional information will expedite the investigation.

Questions relative to this site should be directed to Mr. Steven Lackey, Regional Solid Waste Engineer, of our Region 7 Office.

Sincerely,

David J. Curtis, P.E.
Senior Sanitary Engineer
Central Remedial Projects Section
Bureau of Remedial Action
Division of Solid and Hazardous Waste

cc: Steven Lackey, NYSDEC Region 7

NYS DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Division of Solid Waste — Mobile Laboratory

Facility: Onandaga Indian Res. — Sample Type: Drum

Date Sampled: 9/28/83

Sampling Site							
Lab. Number		83-271-01	83-271-02	83-271-03	83-271-04	83-271-05	83-271-0
Parameter	Units	GC/MS - Methyl Naphthalene and Dimethyl Naphthalene	Not Analized	GC/MS - Methyl Naphthalene and Dimethyl Naphthalene	GC/MS - Neg Scan for P.P.	GC/MS - Aromatic compounds Benzyl Alcohol and Isobenzyl furan	GC/MS - compounds found Not Identified
pH	SU						
conductivity	ohms						
Cd	mg/l						
Fe	mg/l						
Zn	mg/l						
Cr	mg/l						
Pb	mg/l						
Ni	mg/l						
Cu	mg/l						

REF. (11

Dangerous Properties of Industrial Materials

Sixth Edition

N. IRVING SAX

Assisted by:

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

VNR VAN NOSTRAND REINHOLD COMPANY

New York

ipr-rbt LD50:250 mg/kg	JPETAB 42,253,31
scu-rbt LDLo:500 mg/kg	JPETAB 49,187,33
ivn-rbt LDLo:400 mg/kg	JPETAB 60,125,37

THR: MOD by ingestion. Large doses cause marked depression (sometimes preceded by excitation), prolonged coma and death. Allergic skin reactions may occur from contact. Has been implicated in development of aplastic anemia. A truly habit forming drug. An exper TER in mus. MUT data.
Fire Hazard: Slight, when heated.
Disaster Hazard: When heated to decomp it emits tox fumes of NO_x.

BARBITURATES

SYNS:
DERIVATIVES OF BARBITURIC ACID; I.E. BARBITAL
BARBITONE
BARBITAL SODIUM

THR: MOD by ingestion. Large doses cause marked depression (sometimes preceded by excitation), prolonged coma and death. Allergic skn reactions may occur from contact. Has been implicated in development of aplastic anemia. A truly habit forming drug.
Fire Hazard: Slight, when heated.

BARBITURIC ACID

mf: $C_4H_4O_3N_2$; mw: 128.1

Crystals or white to yellow-white powder. mp: 245°; bp: 260° (decomp).

THR: MOD irr to skin, eyes and mu mem. An allergen. Has no hypnotic properties.
Fire Hazard: Slight.

BARBITURIC ACID, 5,5-DIETHYL MIXED WITH 4-(DIMETHYLAMINO)ANTIPYRINE

CAS RN: 69401338 NIOSH #: CD 2630000

SYN: PYRABITAL

TOXICITY DATA:	3	CODEN:
scu-mus TDLo:600 mg/kg (9-11D preg)		TJADAB 16,118,77

THR: An exper TER.
Disaster Hazard: When heated to decomp it emits tox fumes of NO_x.

BARIUM

CAS RN: 7440393 NIOSH #: CA 8370000
af: Ba; at wt: 137.36

Silver-white, slightly lustrous, somewhat malleable metal. mp: 725°, bp: 1640°, d: 3.5 @ 20°, vap. press: 10 mm @ 1049°.

TOXICITY DATA: CODEN:
TLV: Air: 500 ug/m3 DTLVS* 4,35,80. Reported in EPA TSCA Inventory, 1980.
THR: No data. See also barium compounds.
Fire Hazard: Dangerous and explosive in form of dust when exposed to heat or flame or by chemical reaction.
Incomp: Acids, CCl_4, $C_2Cl_3F_3$, $C_2H_2FCl_3$, C_2Cl_4, C_2HCl_3 and water. 1,1,2-trichloro trifluoro ethane, fluorotrichloroethane, fluorotrichloromethane, trichloroethylene can detonate in contact with Ba.
For further information see Vol. 1, No. 7 and Vol. 3, No. 4 of *DPIM Report.*

BARIUM ACETATE

CAS RN: 543806 NIOSH #: AF 4550000
mf: $C_4H_6O_4 \cdot Ba$; mw: 255.44

White cryst. Water sol.

SYNS:
ACETIC ACID, BARIUM SALT
BARIUM DIACETATE
OCTAN BARNATY (CZECH)

TOXICITY DATA:	3-2	CODEN:
orl-rat LD50:921 mg/kg		MarJV# 29MAR77
ivn-mus LD50:11 mg/kg		TXAPA9 22,150,72
scu-rbt LDLo:96 mg/kg		EQSSDX 1,1,75
ivn-rbt LDLo:12 mg/kg		EQSSDX 1,1,75

OSHA Standard: Air: TWA 500 ppm (SCP-X) FEREAC 39,23540,74. Reported in EPA TSCA Inventory, 1980.
THR: HIGH ivn, scu. MOD orl.
Disaster Hazard: When heated to decomp it emits acrid smoke.

BARIUM ACETYLIDE

mf: C_2Ba; mw: 161.35

Incomp: Halogens, selenium.

BARIUM AZIDE

CAS RN: 18810587 NIOSH #: CQ 8500000
mf: BaN_6; mw: 221.40

Monoclinic prisms. mp: $-N_2$ @ about 120°, bp: explodes, d: 2.936.

TOXICITY DATA: 3 CODEN:
Aquatic Toxicity Rating: TLm96:100-10 ppm WQCHM* 2,-,74. Reported in EPA TSCA Inventory, 1980.
THR: See barium compounds (sol) and azides.
Explosion Hazard: Mod when shocked or exposed to heat. Around 275°, spont flammable in air. Very unstable.
Disaster Hazard: Dangerous; shock and heat will explode it.

BARIUM AZIDE (WET)

CAS RN: 18810587 NIOSH #: CQ 8510000

Compound contains 50% or more water (FEREAC 41,15972,76)

TOXICITY DATA: 3 CODEN:
DOT: Flammable Solid, Label: Flammable Solid FEREAC 41,57018,76. Reported in EPA TSCA Inventory, 1980.
THR: HIGH tox. See also barium compounds and azides.
Disaster Hazard: Possibly explosive.

SYNS:
2-CYANOCETYLCOUMARONE USAF KF-4

TOXICITY DATA: 3-2 CODEN:
orl-rat LDLo:3200 mg/kg KODAK* -,-,71
ipr-rat LDLo:800 mg/kg KODAK* -,-,71
ipr-mus LD50:100 mg/kg NTIS** AD277-689

THR: HIGH ipr; MOD orl. See also nitriles.
Disaster Hazard: When heated to decomp it emits tox fumes of CN^- and NO_x.

BENZOFURAZAN, 7-(4-(m-TOLYL)-1-PIPERAZINYL)-4-NITRO-, 1-OXIDE

CAS RN: 61785840 NIOSH #: DF 8027800
mf: $C_{17}H_{17}N_5O_4$; mw: 355.39

SYN: 7-(4-(3-METHYLPHENYL)-1-PIPERAZINYL)-4-NITROBENZOFURAZAN-1-OXIDE

TOXICITY DATA: CODEN:
mmo-sat 60 ug/plate MUREAV 48,145,77
mma-sat 50 ug/well CBINA8 19,77,77

THR: MUT tests data.
Disaster Hazard: When heated to decomp it emits tox fumes of NO_x.

BENZOGUANAMINE

CAS RN: 23844248 NIOSH #: DK 1575000
mf: $C_{22}H_{32}N_2O_5$; mw: 404.56

Crystals. mp: 227°, d: 1.4.

SYNS:
2-ACETOXY-3-DIETHYLCARBAMYL-9,10-DIMETHOXY-1,2,3,4,6,7-HEXAHYDRO -11B-BENZO(A)QUINOLIZINE BENZOQUINAMIDE

TOXICITY DATA: 3-2 CODEN:
orl-rat LD50:1050 mg/kg 27ZQAG -,208,72
ivn-rat LD50:100 ug/kg 27ZQAG -,208,72
orl-mus LD50:580 mg/kg 27ZQAG -,208,72
ivn-mus LD50:100 mg/kg 27ZQAG -,208,72
orl-bwd LD50:100 mg/kg TXAPA9 21,315,72

THR: HIGH ivn, orl. MOD orl.
Disaster Hazard: When heated to decomp it emits tox fumes of NO_x.

BENZOHYDROXAMIC ACID

CAS RN: 495181 NIOSH #: DF 9650000
mf: $C_7H_7NO_2$; mw: 137.15

SYNS:
BENZOHYDROXAMATE PHENYLHYDROXAMIC ACID
BENZOYLHYDROXAMIC ACID

TOXICITY DATA: CODEN:
mmo-sat 1 mg/plate AMACCQ 11,753,77
mma-sat 1 umol/plate MUREAV 56,7,77

Reported in EPA TSCA Inventory, 1980.
THR: MUT data.
Disaster Hazard: When heated to decomp it emits tox fumes of NO_x.

BENZOIC ACID

CAS RN: 65850 NIOSH #: DG [illegible]
mf: $C_7H_6O_2$; mw: 122.13

White powder. mp: 121.7°, bp: 249°, flash p: 250°F [illegible] d: 1.316, autoign. temp.: 1060°F, vap. press: 1 [illegible] 96.0° (sublimes), vap. d: 4.21.

SYNS:
ACIDE BENZOIQUE (FRENCH) PHENYL CARBOXYLIC ACID
BENZENECARBOXYLIC ACID PHENYLFORMIC ACID
KYSELINA BENZOOVA (CZECH)

TOXICITY DATA: 2 CODEN:
orl-man LDLo:500 mg/kg FCTXAV 17(suppl),6[illegible]
skn-hmn 22 mg/3D-I MOD 85DKA8 -,127,77
skn-rbt 500 mg/24H MLD BIOFX* 28-4/73
eye-rbt 100 mg SEV BIOFX* 28-4/73
skn-hmn TDLo:6 mg/kg TFX:SKN JOALAS 16,195,45
orl-rat LD50:2530 mg/kg MarJV# 29MAR77
orl-mus LD50:2370 mg/kg TXAPA9 25,439,73
ipr-mus LD50:1460 mg/kg CRSBAW 160,1097,6[illegible]
orl-dog LD50:2000 mg/kg 27ZTAP 3,22,69
orl-cat LD50:2000 mg/kg 27ZTAP 3,22,69
orl-rbt LDLo:2000 mg/kg HBTXAC 5,23,59
scu-rbt LDLo:2000 mg/kg HBTXAC 5,23,59
ipr-gpg LDLo:1400 mg/kg HBTXAC 5,23,59
scu-frg LDLo:100 mg/kg HBTXAC 5,23,59

Toxicology Review: 27ZTAP 3,22,69. Reported in [illegible] TSCA Inventory, 1980. EPA TSCA 8E NO. [illegible] 18P—Followup Sent as of April, 1979.
THR: It appears to be of HIGH toxicity by vapor [illegible] A MOD hmn skin irr. A MLD irr to skin of rab[illegible] A SEV eye irr in rabbits.
Fire Hazard: Slight, when exposed to heat or flame; [illegible] react with oxidizing materials.
To Fight Fire: Water, CO_2, water spray or mist, dry chem[illegible] ical.
Disaster Hazard: When heated to decomp it emits [illegible] smoke and irr fumes.
For further information see Vol. 1, No. 8 and Vol[illegible] No. 4 of *DPIM Report.*

BENZOIC ACID, BENZYL ESTER

CAS RN: 120514 NIOSH #: DG 420[illegible]
mf: $C_{14}H_{12}O_2$; mw: 212.26

Found in Peru and Tolu Balsams, in Ylang-Ylang [illegible] in about 20 other essential oils (FCTXAV 11,1011,7[illegible] Liquid. mp. 21°, bp: 324°, flash p: 298°F (CC), d: 1.1[illegible] vap. d: 7.3, autoign. temp.: 898°F.

SYNS:
BENZYL ALCOHOL BENZOIC ESTER BENZYL BENZOATE
BENZYL BENZENECARBOXYLATE BENZYL PHENYLFORMATE

TOXICITY DATA: 2 CODEN:
orl-rat LD50:1700 mg/kg 12VXA5 8,138,68
skn-rat LD50:4000 mg/kg JPETAB 93,26,48
orl-mus LD50:1400 mg/kg JPETAB 93,26,48
orl-cat LD50:2240 mg/kg JPETAB 84,358,45
orl-rbt LD50:1680 mg/kg FCTXAV 11,1011,73
skn-rbt LD50:4000 mg/kg FCTXAV 11,1011,73
orl-gpg LD50:1000 mg/kg JPETAB 93,26,48

TOXICITY DATA: 3 CODEN:
orl-rat LD50:384 mg/kg TXAPA9 18,185,71
orl-mus LD50:376 mg/kg TXAPA9 18,185,71

THR: HIGH oral and ipr.
Disaster Hazard: When heated to decomp it emits very tox fumes of Cl^- and NO_x.

BENZSULFOHYDROXAMIC ACID

CAS RN: 599713 NIOSH #: MX 9350000

TOXICITY DATA: 2 CODEN:
scu-mus LDLo:1000 mg/kg AIPTAK 12,447,04

Reported in EPA TSCA Inventory, 1980.
THR: MOD scu.
Disaster Hazard: When heated to decomp it emits tox fumes of SO_x and NO_x.

BENZVALEN

mf: C_6H_6; mw: 78.11

Explosion Hazard: When scratched it will explode violently. It may be handled safely in an ether soln.

(3-N-BENZYLACETAMIDO)-2,4,6-TRIIODOPHENYL)ACETIC ACID

CAS RN: 29193359 NIOSH #: AF 4950000
mf: $C_{17}H_{14}I_3NO_3$; mw: 661.02

TOXICITY DATA: 3-2 CODEN:
orl-mus LD50:1550 mg/kg JMCMAR 13,559,70
ivn-mus LD50:235 mg/kg JMCMAR 13,559,70

THR: HIGH ivn; MOD orl.
Disaster Hazard: When heated to decomp it emits very tox fumes of NO_x and I^-.

BENZYL ACETATE

CAS RN: 140114 NIOSH #: AF 5075000
mf: $C_9H_{10}O_2$; mw: 150.19

Liquid. mp: −51.5°, bp: 213.5°, flash p: 216°F (CC), d: 1.06, autoign. temp.: 862°F, vap. press: 1 mm @ 45°, vap d: 5.1.

SYNS:
ACETIC ACID BENZYL ESTER
ACETIC ACID PHENYLMETHYL ESTER
ALPHA-ACETOXYTOLUENE
BENZYL ETHANOATE
NCI-C06508

TOXICITY DATA: 3-2-1 CODEN:
hmn TCLo:50 ppm:1RR TGNCDL 2,31,61
orl-rat LD50:2490 mg/kg FCTXAV 2,327,64
ihl-mus LCLo:1300 mg/m3/22H AGGHAR 5,1,33
ihl-rat LC50:245 ppm/8H AMIHAB 21,28,60
scu-cat LDLo:10 gm/kg JPETAB 84,358,45
orl-rbt LD50:2640 mg/kg JPETAB 84,358,45
scu-rbt LDLo:3000 mg/kg AGGHAR 5,1,33
scu-gpg LDLo:3000 mg/kg AGGHAR 5,1,33

Currently Tested by NTP for Carcinogenesis by Standard Bioassay Protocol as of December 1980. Reported in EPA TSCA Inventory, 1980. EPA TSCA 8(a) Preliminary Assessment Information Proposed Rule FERREAC 45,13646,80.
THR: A hmn IRR via ihl. HIGH ihl. MOD orl, scu. LOW skn. See also esters.
Fire Hazard: Slight, when exposed to heat or flame; can react with oxidizing materials.
Spont Heating: No.
To Fight Fire: Alcohol foam, CO_2.
Disaster Hazard: When heated to decomp it emits acrid smoke and irr fumes.

BENZYLOXY ACETYLENE

mf: C_9H_8O; mw: 132.16

Explosion Hazard: If heated above 60° in vacuo it explodes.

BENZYL ALCOHOL

CAS RN: 100516 NIOSH #: DN 3150000
mf: C_7H_8O; mw: 108.15

Found in Jasmine, Hyacinth, Ylang-Ylang Oils and at least two dozen other essential oils (FCTXAV 11,-1011,73).
Water white liquid, faint aromatic odor. mp: −15.3°, bp: 205.7°, flash p: 213°F (CC), d: 1.050 @ 15°/15°, autoign. temp.: 817°F, vap. press: 1 mm @ 58.0°, vap. d: 3.72.

SYNS:
BENZAL ALCOHOL
BENZENECARBINOL
BENZENEMETHANOL
BENZOYL ALCOHOL
ALPHA-HYDROXYTOLUENE
NCI-C06111
PHENOLCARBINOL
PHENYLCARBINOL
PHENYLMETHANOL
PHENYLMETHYL ALCOHOL
ALPHA-TOLUENOL

TOXICITY DATA: 3-2 CODEN:
skn-rbt 10 mg/24H MLD AMIHBC 4,119,51
eye-rbt 750 ug SEV AMIHBC 4,119,51
skn-pig 500 mg/24H MOD FCTXAV 11,1011,73
orl-rat LD50:1230 mg/kg FCTXAV 2,327,64
ihl-rat LC50:1000 ppm/8H AMIHBC 4,119,51
ipr-rat LDLo:400 mg/kg 14CYAT 2,1409,63
scu-rat LDLo:1700 mg/kg RMSRA6 15,561,1895
ivn-rat LD50:64 mg/kg TXAPA9 18,60,71
orl-mus LD50:1580 mg/kg FCTXAV 2,327,64
ivn-mus LD50:480 mg/kg TXAPA9 18,60,71
ivn-dog LDLo:50 mg/kg TXAPA9 18,60,71
par-dog LDLo:9 mg/kg TXAPA9 25,153,73
skn-cat LDLo:10 gm/kg JPETAB 84,358,45
ivn-cat LDLo:60 mg/kg JPETAB 16,1,20
orl-rbt LD50:1040 mg/kg JPETAB 84,358,45
skn-rbt LD50:2000 mg/kg NPIRI* 1,6,74
ipr-gpg LDLo:400 mg/kg 14CYAT 2,1409,63
orl-bwd LD50:100 mg/kg TXAPA9 21,315,72

Aquatic Toxicity Rating: TLm96:1000-100 ppm WQCHM* 4,-,74. *Toxicology Review:* 27ZTAP 3,-23,69. Currently Tested by NTP for Carcinogenesis by Standard Bioassay Protocol as of December 1980. Reported in EPA TSCA Inventory, 1980.
THR: MOD to HIGH oral depending upon species; MOD inhal. Skn, eye irr.
Fire Hazard: Slight, when exposed to heat or flame; can react with oxidizing materials and acids.
Spont Heating: No.

CHROMIC ACID (MIXTURE)

NIOSH #: GB 2650000

mf: CrO_3; mw: 100.01

mp: 196°; d: 2.70; dark red cryst; decomp @ 250° to $Cr_2O_3 + O_2$; a powerful oxidizer. Water sol.

SYNS:
CHROMIUM TRIOXIDE
CHROMIC ANHYDRIDE

TOXICITY DATA: CODEN:
DOT: Oxidizer, Label: Oxidizer FEREAC 41,57018,76. Occupational Exposure to Cr(VI) recm std: Air: TWA 25 ug(Cr(VI))/m3;CL 50 ug/m3/15M NTIS**.

THR: A poison. See also chromium compounds and chromates. A powerful irr of skn, eyes and mu mem; can cause a dermatitis, bronchoasthma, "chrome holes," damage to the eyes.

Disaster Hazard: May explode in a fire.

Incomp: Acetic acid; acetic anhydride; tetrahydronaphthalene; acetone; alcohols; alkali metals; ammonia; arsenic; bromine penta fluoride; butyric acid; n,n-dimethylformamide; hydrogen sulfide; peroxyformic acid; phosphorus; potassium hexacyanoferrate; pyridine; selenium; sodium; sulfur.

CHROMIC ACID (SOLUTION)

NIOSH #: GB 2670000

SYN: CHROMIC ACID SOLUTION (DOT)

TOXICITY DATA: 3 CODEN:
DOT: Corrosive Material, Label: Corrosive FEREAC 41,57018,76. Occupational Exposure to Cr(VI) recm std: Air: TWA 25 ug(Cr(VI))/m3;CL 50 ug/m3/15M NTIS**.

THR: See chromic acid, dry. See also chromium compounds.

CHROMIC CHLORIDE STEARATE

CAS RN: 15242963 NIOSH #: GB 7280000
mf: $C_{18}H_{36}Cl_4Cr_2O_3$; mw: 546.34

SYNS:
TETRACHLORO-MU-HYDROXY-(MU-OCTADECANOATO-O:O')DI-CHROMIUM
NCI-C60800
STEARATO-CHROMIC CHLORIDE COMPLEX
TETRACHLORO-MU-HYDROXY-(MU-STEARATO)DI-CHROMIUM

TOXICITY DATA: 3 CODEN:
ivn-mus LD50:180 mg/kg CSLNX* NX#03305

Reported in EPA TSCA Inventory, 1980.

THR: HIGH ivn. See also chromium compounds.

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

CHROMIC CHROMATE

CAS RN: 24613896 NIOSH #: GB 2850000
mf: $Cr_3O_{12}{\cdot}2Cr$; mw: 452.00

SYNS:
CHROMIC ACID, CHROMIUM (3+) SALT (3:2)
CHROMIUM CHROMATE

TOXICITY DATA: 3 CODEN:
imp-rat TDLo:112 mg/kg:NEO AIHAAP 20,274,59

Carcinogenic Determination: Animal Positive IARC** 2,100,73. Occupational Exposure to Chromium(VI) recm std: Air: CL 1 ug(Cr(VI))/m3 NTIS**. Reported in EPA TSCA Inventory, 1980.

THR: An exper NEO, CARC. See also chromium compounds. Very powerful oxidizer.

CHROMITE (MINERAL)

CAS RN: 1308312 NIOSH #: GB 4000000
mf: Cr_2FeO_4; mw: 223.85

SYNS:
CHROME ORE
IRON CHROMITE
CHROMITE ORE

TOXICITY DATA: 3 CODEN:
Carcinogenic Determination: Indefinite IARC** 23,205,80.

THR: See also chromium compounds and iron. An exper ± CARC.

CHROMIUM

CAS RN: 7440473 NIOSH #: GB 4200000
Af: Cr; Aw: 52.0

SYN: CHROME

TOXICITY DATA: CODEN:
ivn-rat TDLo:2160 ug/kg/6W-I TFX:ETA JNCIAM 16,447,55
imp-rat TDLo:1200 ug/kg/6W-I TFX:ETA JNCIAM 16,447,55
imp-rbt TDLo:75 mg/kg:ETA ZEKBAI 52,425,42

Carcinogenic Determination: Animal Suspected IARC** 2,100,73; Animal Indefinite IARC** 23,205,80. TLV-TWA 500 ug/m3 DTLVS* 4,98,80. *Toxicology Review* 85CVA2 5,63,70; KOTTAM 11(11),1300,75; FO-REAE 7,313,42; MIBUBI 9(4),321,75; FCTXAV 9,105,71; PEXTAR 12,102,69; 85DHAX Cr,22,74; BNYMAM 54,413,78; NTIS** Conf-691001. OSHA Standard: Air: TWA 1 mg/m3 (SCP-0) FEREAC 39,23540,74. "NIOSH Manual of Analytical Methods" VOL 1 152,182, VOL 3; S323,352, VOL 5 173#. NIOSH Current Intelligence Bulletin 4, 1975. Reported in EPA TSCA Inventory, 1980. Proposed OSHA Medical Records Rules FEREAC 47,30420,82.

THR: An exper ETA, CARC.

Disaster Hazard: Powder will explode spont in air.

Incomp: Oxidants.

For further information see Vol. 3, No. 3 of *DPIM Report*.

CHROMIUM ACETATE HYDRATE

CAS RN: 628524 NIOSH #: AG 3000000
mf: $C_4H_6CrO_4{\cdot}H_2O$; mw: 188.12

Red crystals.

SYNS:
1-DODECANETHIOL
M-DODECYL MERCAPTAN
1-DODECYL MERCAPTAN
M-LAURYL MERCAPTAN
1-MERCAPTODODECANE
NCI-C60935

TOXICITY DATA:
cyt-rat-ihl 5020 ug/m3/16W

CODEN:
BZARAZ 27,102,74

Reported in EPA TSCA Inventory, 1980.
THR: See mercaptans. MUT data.
Fire Hazard: Low.
To Fight Fire: Alcohol foam.
Disaster Hazard: When heated to decomp it emits tox fumes of SO_x.

LAURYLPYRIDINIUM LAURYLXANTHATE

CAS RN: 14917965 NIOSH #: UU 5775000
mf: $C_{17}H_{30}N \cdot C_{13}H_{25}OS_2$; mw: 509.98

TOXICITY DATA: 2
skn-rbt 500 mg/24H MOD
eye-rbt 20 mg/24H SEV
orl-rat LD50:802 mg/kg

CODEN:
28ZPAK -,174,72
28ZPAK -,174,72
28ZPAK -,174,72

THR: MOD orl. A skn, eye irr.
Disaster Hazard: When heated to decomp it emits very tox fumes of NO_x and SO_x.

LAURYL SULFATE, SODIUM SALT, CONDENSED WITH 3 MOLES OF ETHYLENE OXIDE

NIOSH #: OF 5725000

SYNS:
SODIUM SALT OF SULFATED BROAD-CUT COCONUT ETHOXY(3EO) ALCOHOL
SODIUM SALT OF SULFATED ETHOXYLATE OF BROAD-CUT LAURYL ALCOHOL

TOXICITY DATA: 2
skn-rbt 10 mg MLD
skn-rbt 230 mg/5W open MLD
skn-gpg 115 mg/5W open MLD

CODEN:
JSCCA5 22,411,71
JSCCA5 22,411,71
JSCCA5 22,411,71

THR: A skn irr.
Disaster Hazard: When heated to decomp it emits tox fumes of SO_x.

LAVANDIN OIL

CAS RN: 8022159 NIOSH #: OF 6097500

Main constituent is Linalool; found in plant Lavanoula Hybrida Reverchon; prepared by steam distillation of the flowering stalks of the plant.

SYN: OIL OF LAVANDIN

TOXICITY DATA: 2
skn-rbt 500 mg/24H MLD

CODEN:
FCTXAV 14,443,76

Reported in EPA TSCA Inventory, 1980.
THR: A skn irr.
Disaster Hazard: When heated to decomp it emits acrid smoke and fumes.

LAVATAR

NIOSH #: OF 6097840

Coal tar distillates in a shampoo base.

TOXICITY DATA:
mma-sat 25 ug/plate

CODEN:
TOLED5 3,325,79

THR: MUT data.
Disaster Hazard: When heated to decomp it emits acrid smoke and fumes.

LAVENDER ABSOLUTE

NIOSH #: OF 6100000

Found in the flowers of Lavandula Officinalis chaix. The main constituent is Linalyl Acetate; prepared from alcoholic extract of a residue, which is extracted from plant material using an organic solvent; a dark green liquid.

TOXICITY DATA: 1
skn-rbt 500 mg/24H MLD
orl-rat LD50:4250 mg/kg

CODEN:
FCTXAV 14,443,76
FCTXAV 14(5),443,76

THR: LOW orl; A skn irr.
Disaster Hazard: When heated to decomp it emits acrid smoke and fumes.

LAVENDER OIL

CAS RN: 8000280 NIOSH #: OF 6110000

Main constituent is linalyl acetate. Found in the plant Lavandulaofficinalif choix (Fam. Labiate). Prepared by steam distillation of the flowering stalks of the plant.

SYNS:
LAVENDEL OEL (GERMAN)
OIL OF LAVENDER

TOXICITY DATA: 1
skn-rbt 500 mg/24H MLD
orl-rat LD50:9040 mg/kg

CODEN:
FCTXAV 14,443,76
PHARAT 14,435,59

Reported in EPA TSCA Inventory, 1980.
THR: LOW orl. A skn irr.
Disaster Hazard: When heated to decomp it emits acrid smoke and fumes.

LD-813

CAS RN: 64083052 NIOSH #: OF 6730000

Commercial mixture of aromatic amines containing approx. 40% MOCA

TOXICITY DATA: 3
orl-rat TDLo:37 gm/kg/2Y-C:CARC

CODEN:
TXAPA9 31,159,75

THR: An exper CARC. See also aromatic amines.
Disaster Hazard: When heated to decomp it emits tox fumes of NO_x.

LEAD

CAS RN: 7439921 NIOSH #: OF 7525000
mf: Pb; mw: 207.19

Bluish-gray, soft metal. mp: 327.43°, bp: 1740°, d: 11.34 @ 20°/4°. vap. press: 1 mm @ 973°.

SYNS:
C.I. 77575
LEAD FLAKE
LEAD S2
OLOW (POLISH)

TOXICITY DATA: 3	CODEN:
orl-rat TDLo:790 mg/kg (MGN)	AEHLAU 23,102,71
orl-rat TDLo:1140 mg/kg (14D pre-21D post)	PHMCAA 20,201,78
orl-mus TDLo:1120 mg/kg (MGN)	AEHLAU 23,102,71
orl-mus TDLo:6300 mg/kg (1-21D preg)	EXPEAM 31,1312,75
orl-mus TDLo:12600 mg/kg (1-21D preg)	EXPEAM 31,1312,75
orl-mus TDLo:4800 mg/kg (1-16D preg)	BECTA6 18,271,77
ivn-ham TDLo:50 mg/kg/(8D preg):TER	EXPEAM 25,56,69
orl-dom TDLo:662 mg/kg (1-21W preg)	TXAPA9 25,466,73
ivn-ham TDLo:50 mg/kg/(8D preg):TER	EXPEAM 25,56,69
orl-wmn TDLo:450 mg/kg/6Y:CNS	JAMAAP 237,2627,77
ipr-rat LDLo:1000 mg/kg	EQSSDX 1,1,75
orl-pgn LDLo:160 mg/kg	HBAMAK 4,1289,35

Carcinogenic Determination: Indefinite IARC** 23, 325,80.

TLV: AIR: 0.15 mg/m3 DTLVS* 4,243,80; *Toxicology Review:* TRBMAV 33(1),85,75; PGMJAO 51(601),783,75; JDSCAE 58(12),1767,75; IRXPAT 12,1,73; CTPHBG 55,147,71; CTOXAO 6(3),377,73; QURBAW 7(1),75,74; RREVAH 54,55,75; JAVMA4 164(3),277,74; AEMBAP 40,239,73; CTOXAO 5(2),151,72; FOREAE 7,313,42; KOTTAM 11(11),1300,75; GEIGAI 20(3),291,73; STEVA8 2(4),341,74; CLCHAU 19,361,73; AJMEAZ 38,409,65; 85DHAX PB,254,72; PDTNBH 6,204,77; AMTODM 3,209,77. OSHA Standard: Air: TWA 200 ug/m3 (SCP-O) FEREAC 39,23540,74. Occupational Exposure to Inorganic Lead recm std: Air: TWA 0.10 mg(Pb)/m3 NTIS**. "NIOSH Manual of Analytical Methods" VOL 1 102,191,195,200,208,214,262, VOL 3 S341. Reported in EPA TSCA Inventory, 1980.

THR: See lead compounds. A hmn CNS. HIGH orl; MOD irr. A common air contaminant. It is a ± CAR of the lungs and kidney and an exper TER.

Fire Hazard: Mod, in the form of dust when exposed to heat or flame. See also powdered metals.

Explosion Hazard: Mod, in the form of dust when exposed to heat or flame.

Incomp: NH_4NO_3, ClF_3, H_2O_2, NaN_3, Na_2C_2, Zr. disodium acetylide; oxidants.

Disaster Hazard: Dangerous; when heated, emits highly tox fumes; can react vigorously with oxidizing materials.

For further information see Vol. 1, No. 1 of *DPIM Report.*

LEAD ACETATE

CAS RN: 301042 NIOSH #: AI 5250000
mf: $C_4H_6O_4 \cdot Pb$; mw: 325.29

Trihydrate, colorless crystals or white granules or powder. Slightly acetic odor; slowly effloresces; d: 2.55; mp: 75° when rapidly heated. Decomp above 200°; very sol in glycerol. Keep well closed.

SYNS:

ACETIC ACID LEAD (2+) SALT
ACETATE DE PLOMB (FRENCH)
BLEIACETAT (GERMAN)
LEAD (2+) ACETATE
LEAD(II) ACETATE
LEAD DIACETATE
LEAD DIBASIC ACETATE
NORMAL LEAD ACETATE
PLUMBOUS ACETATE
SALT OF SATURN
SUGAR OF LEAD

TOXICITY DATA: 3	CODEN:
dns-rat-ipr 50 ug/kg	PSEBAA 143,446,73
spm-mus-par 1 gm/kg	ARTODN 46,159,80
orl-rat TDLo:7854 mg/kg (6-16D preg)	FCTXAV 13,629,75
orl-rat TDLo:1800 mg/kg (1-22D preg/14D post)	TOLED5 7,373,80
orl-rat TDLo:113 gm/kg (70D pre-21D post)	PBBHAU 8,347,78
orl-mus TDLo:3150 mg/kg (1-21D preg)	CRSBAW 170,1319,76
orl-mus TDLo:4800 mg/kg (1-8D preg)	CRSBAW 172,1037,78
orl-mus TDLo:9 gm/kg (7-21D preg)	CRSBAW 170,1319,76
ipr-mus TDLo:35 mg/kg (8D preg)	BIMDB3 30,223,79
ivn-ham TDLo:50 mg/kg/(8D preg):TER	EXMPA6 7,208,67
ivn-ham TDLo:50 mg/kg (8D preg)	EXPEAM 25,56,69
ipr-pgn LDLo:150 mg/kg	ARTODN 46,265,80
cyt-hmn:lym 1 mmol/L/24H	TXCYAC 10,67,78
cyt-mus-orl 16800 mg/kg/4W	JTEHD6 2,619,77
cyt-mky-orl 5760 mg/kg/64W	MUREAV 45,77,77
ipr-mus TDLo:15 mg/kg/(8D preg):TER	BIMDB3 30,223,79
ivn-ham TDLo:50 mg/kg/(8D preg):TER	EXMPA6 7,208,67
orl-rat TDLo:250 gm/kg/47W-C:ETA	BJCAAI 16,283,62
ipr-rat LDLo:204 mg/kg	JPETAB 38,161,30
ipr-mus LD50:120 mg/kg	COREAF 256,1043,63
orl-dog LDLo:300 mg/kg	HBAMAK 4,1289,35
scu-dog LDLo:80 mg/kg	HBAMAK 4,1289,35
ivn-dog LDLo:300 mg/kg	EQSSDX 1,1,75
scu-cat LDLo:100 mg/kg	HBAMAK 4,1289,35
scu-rbt LDLo:300 mg/kg	HBAMAK 4,1289,35
ivn-rbt LDLo:50 mg/kg	EQSSDX 1,1,75
scu-frg LDLo:1600 mg/kg	HBAMAK 4,1289,35

Carcinogenic Determination: Animal Positive IARC** 23,325,80; Human Suspected IARC** 23,325,80. *Toxicology Review:* ADTEAS 5,51,72; ENVRAL 13,36,77; 85DHAX Pb,256,72. OSHA Standard: Air: TWA 200 ug(Pb)/m3 (SCP-O) FEREAC 29,23540,74. Occupational Exposure to Inorganic Lead recm std: Air: TWA 0.10 mg(Pb)/m3 NTIS**. Reported in EPA TSCA Inventory, 1980.

THR: MUT data. An exper + CARC, TER, ETA. A susp hmn CARC; HIGH ipr, orl, scu, ivn. See also lead compounds. A poison. An insecticide.

Disaster Hazard: When heated to decomp it emits tox fumes of Pb.

Incomp: $KBrO_3$; acids, sol sulfates, citrates, tartrates, chlorides, carbonates, alkalies, tannin phosphates, resorcinol, salicylic acid, phenol, chloral hydrate, sulfites, vegetable infusions, tinctures.

For further information see Vol. 1, No. 4 of *DPIM Report.*

LEAD ACETATE, BASIC

CAS RN: 1335326 NIOSH #: OF 8750000
mf: $C_4H_{10}O_8Pb_3$; mw: 807.71

REF. (11A

Onondaga Nation - Site B (734027)

Drum Sampling Results - November 24, 1987

Sample I.D.	Analysis
SH87734027-01	EP-Tox,Haz. Waste Char.,VOA
SH87734027-02	EP-Tox,Haz. Waste Char.,VOA
SH87734027-03	EP-Tox,Haz. Waste Char.,VOA
SH87734027-04	EP-Tox,Haz. Waste Char.,VOA
SH87734027-05	EP-Tox,Haz. Waste Char.,VOA,BNA,Pest/PCBs

SH87734027-01 (No VOA data - sample broken)

SH87734027-02 (ug/kg)

Acetone	15000(J)
Xylenes(total)	193000

SH87734027-03 (ug/kg)

Acetone	420(J)
Xylenes(total)	8200

SH87734027-04 (ug/kg)

Ethylbenzene	16000
Xylenes(total)	81000
methyl benzaldehyde(unk)	860000

SH87734027-04 (Reanalysis) (ug/kg)

Xylenes(total)	2441000

SH87734027-05 (ug/kg)

Acetone	350(J)
Xylenes(total)	1500
Acetic acid(methyl ester)	800(J)
Benzoic acid(3-methyl)	2390000
Unk VOA	290(J)
Unk VOA	130(J)
Numerous Unks(total BNA)	22928000

EP-Tox

No sample exceeded regulated limits

Hazardous Waste Characteristics

No sample exhibited characteristics

Versar INC.

December 29, 1987

I. Narrative - New York State
Organic Analysis - CLP protocol
Client: Shaw
Contract C001298
Versar Project 6016 - Batch 216

This report contains the analytical data for the analysis of four waste samples in addition to two aqueous field blanks and two aqueous trip blanks which arrived intact at Versar on November 30, 1987. The samples listed below were analyzed for volatile and semivolatile compounds following EPA CLP procedures (Rev. 10/86). Pesticide results are reported separately.

SAMPLE LIST

Water	Waste	
VOA	VOA	BNA
FB# 1	SH87734027-02 *	
FB# 2	SH87734027-03 *	FB# 2 *
TB# 1	SH87734027-04 *	
TB# 2	SH87734027-05 *	SH87734027-05 *

* - extracted as mid level concentration soil sample.

GC/MS instrument calibrations using BFB and DFTPP met method requirements for volatile and semivolatile analyses, respectively. All samples were analyzed during the twelve hour period that followed instrument calibration. All SPCC and CCC criteria were met for both volatile and semivolatile initial calibration curves and ongoing calibration check standards. Volatile analyses of the waste samples were completed prior to expiration of sample holding time criteria; however, the trip and field blank samples were not analyzed until four days after the holding time had elapsed. All semivolatile extractions and analyses were performed prior to the expiration of sample holding time criteria.

Volatile surrogate standard recovery values met specified limits except for the high recovery of bromofluorobenzene (BFB) in waste sample SH87734027-04. This sample required reanalysis using a greater dilution factor in order to properly quantify xylene; the volatile surrogate BFB met the specified QC limit in the reanalysis. Both sets of data are included in this report.

Semivolatile surrogate compounds met specified recovery limits except for waste sample SH87734027-05. The semivolatile surrogate phenol-D5 did not meet the minimum specified QC limit. CLP protocol requires corrective action only if more than one base-neutral surrogate and more than one acid surrogate exceeds specified QC limits.

Versar INC.

No volatile matrix spike or matrix spike duplicate (MS/MSD) QC samples were analyzed. No QC analyses were performed due to potential damage to the volatile purging device and the GC/MS instrument as a result of the complex nature of these waste samples. At least one of these samples contained heavy molecular weight compounds which eluted for a number of days after initial analyses. Most semivolatile matrix spike and matrix spike duplicate QC recovery values met specified limits. There was no recovery of 2,4-dinitrotoluene and 4-nitrophenol due to interferences in the sample. Most relative percent difference (RPD) values met specified criteria for the matrix spiked compounds that were recovered.

Dilutions were required prior to analyses of all volatile waste samples in order to quantify xylene within the linear range of the standards calibration curve. Only one xylene isomer was present in each waste sample. Ethylbenzene was also confirmed present in waste sample SH87734027-04. Samples flagged above with an asterisk were extracted and analyzed for semivolatile compounds using procedures outlined by EPA for the mid level soil extraction method. No target compounds were confirmed present in either sample SH87734027-05 or the field blank. Numerous non-target semivolatile compounds were detected in the field sample. These compounds were tentatively identified using the EPA/NBS mass spectral database library.

Please contact either Mike Buchanan, Mass Spectrometry Section Chief, or Jay Bernarding, Laboratory Project Manager, should you have any additional information or have any questions pertaining to the analysis of these samples.

Sincerely,

Benjamin R. Landas

Benjamin R. Landas
Assistant GC/MS Data Quality Manager
Laboratory Operations

Data Release Authorized by:

Lawrence P. Pollack

Lawrence P. Pollack
GC/MS Data Quality Manager
Laboratory Operations

Versar, Inc. Laboratory Operations
6850 Versar Center, Springfield VA 22151 (703) 750-3000

Sample Number
SH87734027-02

ORGANICS ANALYSIS DATA SHEET (Page 1)

Laboratory Name: VERSAR
Lab Sample ID No: 42349
Sample Matrix: WASTE
Data Release Authorized By:

Case No: 6016 B#216
QC Report No: 6016 B#216
Contract No: C001298
Date Sample Received: 11/30/87

VOLATILE COMPOUNDS

Concentration: MID
Date Extracted/Prepared: 12/08/87
Date Analyzed: 12/08/87
Conc/Dil Factor: 2500 pH NA
Percent Moisture: ND

CAS Number		ug/Kg	CAS Number		ug/Kg
74-87-3	Chloromethane	25000 u	78-87-5	1,2-Dichloropropane	13000 u
74-83-9	Bromomethane	25000 u	10061-02-6	Trans-1,3-Dichloropropene	13000 u
75-01-4	Vinyl Chloride	25000 u	79-01-6	Trichloroethene	13000 u
75-00-3	Chloroethane	25000 u	124-48-1	Dibromochloromethane	13000 u
75-09-2	Methylene Chloride	13000 u	79-00-5	1,1,2-Trichloroethane	13000 u
67-64-1	Acetone	15000 J	71-43-2	Benzene	13000 u
75-15-0	Carbon Disulfide	13000 u	10061-01-5	cis-1,3-Dichloropropene	13000 u
75-35-4	1,1-Dichloroethene	13000 u	110-75-8	2-chloroethylvinylether	25000 u
75-34-3	1,1-Dichloroethane	13000 u	75-25-2	Bromoform	13000 u
156-60-5	Trans-1,2-Dichloroethene	13000 u	108-10-1	4-Methyl-2-Pentanone	25000 u
67-66-3	Chloroform	13000 u	591-78-6	2-Hexanone	25000 u
107-06-2	1,2-Dichloroethane	13000 u	127-18-4	Tetrachloroethene	13000 u
78-93-3	2-butanone	25000 u	79-34-5	1,1,2,2-Tetrachloroethane	13000 u
71-55-6	1,1,1-Trichloroethane	13000 u	108-88-3	Toluene	13000 u
56-23-5	Carbon Tetrachloride	13000 u	108-90-7	Chlorobenzene	13000 u
108-05-4	Vinyl Acetate	25000 u	100-41-4	Ethylbenzene	13000 u
75-27-4	Bromodichloromethane	13000 u	100-42-5	Styrene	13000 u
				Total Xylenes	193000

Data Reporting Qualifiers

Value If the result is a value greater than or equal to the detection limit, report the value.

u Compound was analyzed for but not detected. The number is the minimum attainable detection limit for the sample.

J Estimated value. This flag is used either when estimating a concentration for tentatively identified compounds where a 1:1 response factor is assumed, or when the mass spectral data indicates the presence of a compound that meets the identification criteria but the result is less than the specified detection limit but greater than zero. (e.g. 10J)

C This flag applies to pesticide parameters where the identification has been confirmed by GC/MS.

B This flag is used when the analyte is found in the blank as well as the sample. It indicates possible/probable blank contamination and warns the data user to take appropriate action.

T Spectrum does not meet criteria for confirmation but does indicate compound presence.

ND Percent Moisture not applicable for waste samples.

NA Compound present in both matrix spike standard and unspiked sample.

(IIA)

Versar Inc., Laboratory Operations
6850 Versar Center, Springfield VA 22151 (703) 750-3000

SAMPLE ID
SH877340 27-02

Organics Analysis Data Sheet
(Page 4)

Tentatively Identified Compounds

	CAS Number	Compound Name	Fraction	RT or Scan	Estimated Concentration (ug/Kg or ug/l)
11.		NO VOLATILES DETECTED	VOA	NA	NA
12.					
13.					
14.					
15.					
16.					
17.					
18.					
19.					
110.					
111.					
112.					
113.					
114.					
115.					
116.					
117.					
118.					
119.					
120.					
121.					
122.					
123.					
124.					
125.					
126.					
127.					
128.					
129.					
130.					

Versar, Inc. Laboratory Operations
6850 Versar Center, Springfield VA 22151 (703) 750-3000

Sample Number
SH87734027-03

ORGANICS ANALYSIS DATA SHEET (Page 1)

Laboratory Name: VERSAR
Lab Sample ID No: 42350
Sample Matrix: WASTE
Data Release Authorized By:

Case No: 6016 B#215
QC Report No: 6016 B#216
Contract No: C001298
Date Sample Received: 11/30/87

VOLATILE COMPOUNDS

Concentration: MID
Date Extracted/Prepared: 12/08/87
Date Analyzed: 12/08/87
Conc/Dil Factor: 100 pH NA
Percent Moisture: ND

CAS Number		ug/Kg
74-87-3	Chloromethane	1000 u
74-83-9	Bromomethane	1000 u
75-01-4	Vinyl Chloride	1000 u
75-00-3	Chloroethane	1000 u
75-09-2	Methylene Chloride	500 u
67-64-1	Acetone	420 J
75-15-0	Carbon Disulfide	500 u
75-35-4	1,1-Dichloroethene	500 u
75-34-3	1,1-Dichloroethane	500 u
156-60-5	Trans-1,2-Dichloroethene	500 u
67-66-3	Chloroform	500 u
107-06-2	1,2-Dichloroethane	500 u
78-93-3	2-butanone	1000 u
71-55-6	1,1,1-Trichloroethane	500 u
56-23-5	Carbon Tetrachloride	500 u
108-05-4	Vinyl Acetate	1000 u
75-27-4	Bromodichloromethane	500 u

CAS Number		ug/Kg
78-87-5	1,2-Dichloropropane	500 u
10061-02-6	Trans-1,3-Dichloropropene	500 u
79-01-6	Trichloroethene	500 u
124-48-1	Dibromochloromethane	500 u
79-00-5	1,1,2-Trichloroethane	500 u
71-43-2	Benzene	500 u
10061-01-5	cis-1,3-Dichloropropene	500 u
110-75-8	2-chloroethylvinylether	1000 u
75-25-2	Bromoform	500 u
108-10-1	4-Methyl-2-Pentanone	1000 u
591-78-6	2-Hexanone	1000 u
127-18-4	Tetrachloroethene	500 u
79-34-5	1,1,2,2-Tetrachloroethane	500 u
108-88-3	Toluene	500 u
108-90-7	Chlorobenzene	500 u
100-41-4	Ethylbenzene	500 u
100-42-5	Styrene	500 u
	Total Xylenes	8200

Data Reporting Qualifiers

Value If the result is a value greater than or equal to the detection limit, report the value.

u Compound was analyzed for but not detected. The number is the minimum attainable detection limit for the sample.

J Estimated value. This flag is used either when estimating a concentration for tentatively identified compounds where a 1:1 response factor is assumed, or when the mass spectral data indicates the presence of a compound that meets the identification criteria but the result is less than the specified detection limit but greater than zero. (e.g. 10J)

C This flag applies to pesticide parameters where the identification has been confirmed by GC/MS.

B This flag is used when the analyte is found in the blank as well as the sample. It indicates possible/probable blank contamination and warns the data user to take appropriate action.

T Spectrum does not meet criteria for confirmation but does indicate compound presence.

ND Percent Moisture not applicable for waste samples.

NA Compound present in both matrix spike standard and unspiked sample.

(IIA)

Versar Inc., Laboratory Operations
6850 Versar Center, Springfield VA 22151 (703) 750-3000

SAMPLE ID
SH87734027-03

Organics Analysis Data Sheet
(Page 4)

Tentatively Identified Compounds

	CAS Number	Compound Name	Fraction	RT or Scan	Estimated Concentration (ug/Kg or ug/l)
1		NO VOLATILES DETECTED	VOA	NA	NA
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
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25					
26					
27					
28					
29					
30					

Versar, Inc. Laboratory Operations
6850 Versar Center, Springfield VA 22151 (703) 750-3000

Sample Number
SH87734027-04

ORGANICS ANALYSIS DATA SHEET (Page 1)

Laboratory Name: VERSAR
Lab Sample ID No: 42351
Sample Matrix: WASTE
Data Release Authorized By:

Case No: 5015 B#216
QC Report No: 6016 B#216
Contract No: C001298
Date Sample Received: 11/30/87

VOLATILE COMPOUNDS

Concentration: MID
Date Extracted/Prepared: 12/08/87
Date Analyzed: 12/08/87
Conc/Dil Factor: 2500 pH NA
Percent Moisture: ND

CAS Number		ug/Kg	CAS Number		ug/Kg
74-87-3	Chloromethane	25000 u	78-87-5	1,2-Dichloropropane	13000 u
74-83-9	Bromomethane	25000 u	10061-02-6	Trans-1,3-Dichloropropene	13000 u
75-01-4	Vinyl Chloride	25000 u	79-01-6	Trichloroethene	13000 u
75-00-3	Chloroethane	25000 u	124-48-1	Dibromochloromethane	13000 u
75-09-2	Methylene Chloride	13000 u	79-00-5	1,1,2-Trichloroethane	13000 u
67-64-1	Acetone	25000 u	71-43-2	Benzene	13000 u
75-15-0	Carbon Disulfide	13000 u	10061-01-5	cis-1,3-Dichloropropene	13000 u
75-35-4	1,1-Dichloroethene	13000 u	110-75-8	2-chloroethylvinylether	25000 u
75-34-3	1,1-Dichloroethane	13000 u	75-25-2	Bromoform	13000 u
156-60-5	Trans-1,2-Dichloroethene	13000 u	108-10-1	4-Methyl-2-Pentanone	25000 u
67-66-3	Chloroform	13000 u	591-78-6	2-Hexanone	25000 u
107-06-2	1,2-Dichloroethane	13000 u	127-18-4	Tetrachloroethene	13000 u
78-93-3	2-butanone	25000 u	79-34-5	1,1,2,2-Tetrachloroethane	13000 u
71-55-6	1,1,1-Trichloroethane	13000 u	108-88-3	Toluene	13000 u
56-23-5	Carbon Tetrachloride	13000 u	108-90-7	Chlorobenzene	13000 u
108-05-4	Vinyl Acetate	25000 u	100-41-4	Ethylbenzene	16000
75-27-4	Bromodichloromethane	13000 u	100-42-5	Styrene	13000 u
				Total Xylenes	81000

Data Reporting Qualifiers

Value If the result is a value greater than or equal to the detection limit, report the value.

u Compound was analyzed for but not detected. The number is the minimum attainable detection limit for the sample.

J Estimated value. This flag is used either when estimating a concentration for tentatively identified compounds where a 1:1 response factor is assumed, or when the mass spectral data indicates the presence of a compound that meets the identification criteria but the result is less than the specified detection limit but greater than zero. (e.g. 10J)

C This flag applies to pesticide parameters where the identification has been confirmed by GC/MS.

B This flag is used when the analyte is found in the blank as well as the sample. It indicates possible/probable blank contamination and warns the data user to take appropriate action.

T Spectrum does not meet criteria for confirmation but does indicate compound presence.

ND Percent Moisture not applicable for waste samples.

NA Compound present in both matrix spike standard and unspiked sample.

Versar Inc., Laboratory Operations
6850 Versar Center, Springfield VA 22151 (703) 750-3000

SAMPLE ID
SH87734027-04

Organics Analysis Data Sheet
(Page 4)

Tentatively Identified Compounds

	CAS Number	Compound Name	Fraction	RT or Scan	Estimated Concentration (ug/Kg or ug/l)
1.		UNKNOWN METHYL BENZALDEHYDE	VOA	591	860,000 J
2.					
3.					
4.					
5.					
6.					
7.					
8.					
9.					
10.					
11.					
12.					
13.					
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26.					
27.					
28.					
29.					
30.					

Versar, Inc. Laboratory Operations
6850 Versar Center, Springfield VA 22151 (703) 750-3000

Sample Number
SH87734027-04RE

ORGANICS ANALYSIS DATA SHEET (Page 1)

Laboratory Name: VERSAR
Lab Sample ID No: 42351-RE
Sample Matrix: WASTE
Data Release Authorized By:

Case No: 6016 B#216
QC Report No: 6016 B#216
Contract No: C001298
Date Sample Received: 11/30/87

VOLATILE COMPOUNDS

Concentration: MID
Date Extracted/Prepared: 12/09/87
Date Analyzed: 12/09/87
Conc(Dil) Factor: 25000 pH NA
Percent Moisture: ND

CAS Number		ug/Kg	CAS Number		ug/Kg
74-87-3	Chloromethane	250000 u	78-87-5	1,2-Dichloropropane	125000 u
74-83-9	Bromomethane	250000 u	10061-02-6	Trans-1,3-Dichloropropene	125000 u
75-01-4	Vinyl Chloride	250000 u	79-01-6	Trichloroethene	125000 u
75-00-3	Chloroethane	250000 u	124-48-1	Dibromochloromethane	125000 u
75-09-2	Methylene Chloride	125000 u	79-00-5	1,1,2-Trichloroethane	125000 u
67-64-1	Acetone	250000 u	71-43-2	Benzene	125000 u
75-15-0	Carbon Disulfide	125000 u	10061-01-5	cis-1,3-Dichloropropene	125000 u
75-35-4	1,1-Dichloroethene	125000 u	110-75-8	2-chloroethylvinylether	250000 u
75-34-3	1,1-Dichloroethane	125000 u	75-25-2	Bromoform	125000 u
156-60-5	Trans-1,2-Dichloroethene	125000 u	108-10-1	4-Methyl-2-Pentanone	250000 u
67-66-3	Chloroform	125000 u	591-78-6	2-Hexanone	250000 u
107-06-2	1,2-Dichloroethane	125000 u	127-18-4	Tetrachloroethene	125000 u
78-93-3	2-butanone	250000 u	79-34-5	1,1,2,2-Tetrachloroethane	125000 u
71-55-6	1,1,1-Trichloroethane	125000 u	108-88-3	Toluene	125000 u
56-23-5	Carbon Tetrachloride	125000 u	108-90-7	Chlorobenzene	125000 u
108-05-4	Vinyl Acetate	250000 u	100-41-4	Ethylbenzene	125000 u
75-27-4	Bromodichloromethane	125000 u	100-42-5	Styrene	125000 u
				Total Xylenes	2441000

Data Reporting Qualifiers

Value If the result is a value greater than or equal to the detection limit, report the value.

u Compound was analyzed for but not detected. The number is the minimum attainable detection limit for the sample.

J Estimated value. This flag is used either when estimating a concentration for tentatively identified compounds where a 1:1 response factor is assumed, or when the mass spectral data indicates the presence of a compound that meets the identification criteria but the result is less than the specified detection limit but greater than zero. (e.g. 10J)

C This flag applies to pesticide parameters where the identification has been confirmed by GC/MS.

B This flag is used when the analyte is found in the blank as well as the sample. It indicates possible/probable blank contamination and warns the data user to take appropriate action.

T Spectrum does not meet criteria for confirmation but does indicate compound presence.

ND Percent Moisture not applicable for waste samples.

NA Compound present in both matrix spike standard and unspiked sample.

Versar Inc., Laboratory Operations
6850 Versar Center, Springfield VA 22151 (703) 750-3000

SAMPLE ID
SH877340027-04RE

Organics Analysis Data Sheet
(Page 4)

Tentatively Identified Compounds

	CAS Number	Compound Name	Fraction	RT or Scan	Estimated Concentration (ug/Kg or ug/l)
1.		NO VOLATILES DETECTED	VOA	NA	NA
2.					
3.					
4.					
5.					
6.					
7.					
8.					
9.					
10.					
11.					
12.					
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19.					
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22.					
23.					
24.					
25.					
26.					
27.					
28.					
29.					
30.					

(IIA)

Versar, Inc. Laboratory Operations
6850 Versar Center, Springfield VA 22151 (703) 750-3000

Sample Number
SH87734027-05

ORGANICS ANALYSIS DATA SHEET (Page 1)

Laboratory Name: VERSAR
Lab Sample ID No: 42352
Sample Matrix: WASTE
Data Release Authorized By:

Case No: 6016 B#216
QC Report No: 6016 B#216
Contract No: C001298
Date Sample Received: 11/30/87

VOLATILE COMPOUNDS

Concentration: MID
Date Extracted/Prepared: 12/10/87
Date Analyzed: 12/10/87
Conc/Dil Factor: 100 pH NA
Percent Moisture: ND

CAS Number		ug/Kg	CAS Number		ug/Kg
74-87-3	Chloromethane	1000 u	78-87-5	1,2-Dichloropropane	500 u
74-83-9	Bromomethane	1000 u	10061-02-6	Trans-1,3-Dichloropropene	500 u
75-01-4	Vinyl Chloride	1000 u	79-01-6	Trichloroethene	500 u
75-00-3	Chloroethane	1000 u	124-48-1	Dibromochloromethane	500 u
75-09-2	Methylene Chloride	500 u	79-00-5	1,1,2-Trichloroethane	500 u
67-64-1	Acetone	350 J ✓	71-43-2	Benzene	500 u
75-15-0	Carbon Disulfide	500 u	10061-01-5	cis-1,3-Dichloropropene	500 u
75-35-4	1,1-Dichloroethene	500 u	110-75-8	2-chloroethylvinylether	1000 u
75-34-3	1,1-Dichloroethane	500 u	75-25-2	Bromoform	500 u
156-60-5	Trans-1,2-Dichloroethene	500 u	108-10-1	4-Methyl-2-Pentanone	1000 u
67-66-3	Chloroform	500 u	591-78-6	2-Hexanone	1000 u
107-06-2	1,2-Dichloroethane	500 u	127-18-4	Tetrachloroethene	500 u
78-93-3	2-butanone	1000 u	79-34-5	1,1,2,2-Tetrachloroethane	500 u
71-55-6	1,1,1-Trichloroethane	500 u	108-88-3	Toluene	500 u
56-23-5	Carbon Tetrachloride	500 u	108-90-7	Chlorobenzene	500 u
108-05-4	Vinyl Acetate	1000 u	100-41-4	Ethylbenzene	500 u
75-27-4	Bromodichloromethane	500 u	100-42-5	Styrene	500 u
				Total Xylenes	1500 ✓

Data Reporting Qualifiers

Value If the result is a value greater than or equal to the detection limit, report the value.

u Compound was analyzed for but not detected. The number is the minimum attainable detection limit for the sample.

J Estimated value. This flag is used either when estimating a concentration for tentatively identified compounds where a 1:1 response factor is assumed, or when the mass spectral data indicates the presence of a compound that meets the identification criteria but the result is less than the specified detection limit but greater than zero. (e.g. 10J)

C This flag applies to pesticide parameters where the identification has been confirmed by GC/MS.

B This flag is used when the analyte is found in the blank as well as the sample. It indicates possible/probable blank contamination and warns the data user to take appropriate action.

T Spectrum does not meet criteria for confirmation but does indicate compound presence.

ND Percent Moisture not applicable for waste samples.

NA Compound present in both matrix spike standard and unspiked sample.

Versar Inc., Laboratory Operations
6850 Versar Center, Springfield VA 22151 703/750-3000

Sample Number
SH8773402705

Case No: 6016 B0216

ORGANICS ANALYSIS DATA SHEET (Page 2)
Semivolatile Compounds

Concentration: MID

Date Extracted/Prepared: 12/3/87

Date Analyzed: 12/09/87

Conc/Dil Factor: 1

GPC Cleanup [ ]Yes [X]No

Separatory Funnel Extraction [ ]Yes

Continuous Liquid-Liquid Extraction [ ]Yes

CAS Number		ug/Kg
108-95-2	Phenol	20000 u
111-44-4	bis(2-Chloroethyl)Ether	20000 u
95-57-8	2-Chlorophenol	20000 u
541-73-1	1,3-Dichlorobenzene	20000 u
106-46-7	1,4-Dichlorobenzene	20000 u
100-51-6	Benzyl Alcohol	20000 u
95-50-1	1,2-Dichlorobenzene	20000 u
95-48-7	2-Methylphenol	20000 u
39638-32-9	bis(2-chloroisopropyl)ether	20000 u
106-44-5	4-methylphenol	20000 u
621-64-7	N-Nitroso-Di-n-propylamine	20000 u
67-72-1	Hexachloroethane	20000 u
98-95-3	Nitrobenzene	20000 u
78-59-1	Isophorone	20000 u
88-75-5	2-Nitrophenol	20000 u
105-67-9	2,4-dimethylphenol	20000 u
65-85-0	Benzoic Acid	104000 u
111-91-1	bis(2-chloroethoxy)methane	20000 u
120-83-2	2,4-dichlorophenol	20000 u
120-82-1	1,2,4-trichlorobenzene	20000 u
91-20-3	Naphthalene	20000 u
106-47-8	4-Chloroaniline	20000 u
87-68-3	Hexachlorobutadiene	20000 u
59-50-7	4-chloro-3-methylphenol	20000 u
91-57-6	2-methylnaphthalene	20000 u
77-47-4	Hexachlorocyclopentadiene	20000 u
88-06-2	2,4,6-Trichlorophenol	20000 u
95-95-4	2,4,5-Trichlorophenol	104000 u
91-58-7	2-Chloronaphthalene	20000 u
88-74-4	2-Nitroaniline	104000 u
131-11-3	Dimethyl Phthalate	20000 u
208-96-8	Acenaphthylene	20000 u
99-09-2	3-Nitroaniline	104000 u

CAS Number		ug/Kg
83-32-9	Acenaphthene	20000 u
51-28-5	2,4-Dinitrophenol	104000 u
100-02-7	4-Nitrophenol	104000 u
132-64-9	Dibenzofuran	20000 u
121-14-2	2,4-Dinitrotoluene	20000 u
606-20-2	2,6-Dinitrotoluene	20000 u
84-66-2	Diethylphthalate	20000 u
7005-22-3	4-Chlorophenyl-phenylether	20000 u
86-73-7	Fluorene	20000 u
100-01-6	4-Nitroaniline	104000 u
534-52-1	4,6-dinitro-2-methylphenol	104000 u
86-30-6	N-Nitrosodiphenylamine (1)	20000 u
101-55-3	4-Bromophenyl-phenylether	20000 u
118-74-1	Hexachlorobenzene	20000 u
87-86-5	Pentachlorophenol	104000 u
85-01-8	Phenanthrene	20000 u
120-12-7	Anthracene	20000 u
84-74-2	Di-n-butylphthalate	20000 u
206-44-0	Fluoranthene	20000 u
129-00-0	Pyrene	20000 u
85-68-7	Butylbenzylphthalate	20000 u
91-94-1	3,3'-Dichlorobenzidine	42000 u
56-55-3	Benzo(a)anthracene	20000 u
117-81-7	bis(2-Ethylhexyl)Phthalate	20000 u
218-01-9	Chrysene	20000 u
117-84-0	Di-n-Octylphthalate	20000 u
205-99-2	Benzo(b)Fluoranthene	20000 u
207-08-9	Benzo(k)Fluoranthene	20000 u
50-32-8	Benzo(a)pyrene	20000 u
193-39-5	Indeno(1,2,3-cd)Pyrene	20000 u
53-70-3	Dibenz(a,h)Anthracene	20000 u
191-24-2	Benzo(g,h,i)Perylene	20000 u

(1)-Cannot be separated from diphenylamine

(11A)

Versar Inc., Laboratory Operations
6850 Versar Center, Springfield VA 22151 (703) 750-3000

SAMPLE ID
SH87734027-05

Organics Analysis Data Sheet
(Page 4)

Tentatively Identified Compounds

	CAS Number	Compound Name	Fraction	RT or Scan	Estimated Concentration (ug/Kg or ug/l)
1		UNKNOWN	VOA	105	290 J
2	79-20-9	ACETIC ACID, METHYL ESTER	VOA	220	800 J
3		UNKNOWN	VOA	709	130 J
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					

Versar Inc., Laboratory Operations
5850 Versar Center, Springfield VA 22151 (703) 750-3000

SAMPLE ID
SH8773402705

Organics Analysis Data Sheet
(Page 4)

Tentatively Identified Compounds

	CAS Number	Compound Name	Fraction	RT or Scan	Estimated Concentration (ug/Kg or ug/l)
11.		UNKNOWN	BNA	740	1,100,000 J
12.		UNKNOWN BENZENE METHANOL	BNA	826	5,750,000 J
13.		UNKNOWN SUBSTITUTED ETHANOL	BNA	888	1,910,000 J
14.		UNKNOWN SUBSTITUTED BENZOIC ACID	BNA	923	1,090,000 J
15.		UNKNOWN SUBSTITUTED BENZENE METHANOL	BNA	970	1,720,000 J
16.	99-04-7	BENZOIC ACID, 3-METHYL-	BNA	1005	2,390,000 J
17.		UNKNOWN SUBSTITUTED BENZENE	BNA	1254	2,830,000 J
18.		UNKNOWN	BNA	1413	220,000 J
19.		UNKNOWN	BNA	1529	55,000 J
110.		UNKNOWN SUBSTITUTED BENZOIC ACID	BNA	1627	580,000 J
111.		UNKNOWN SUBSTITUTED PHENANTHRENE	BNA	1725	410,000 J
112.		UNKNOWN	BNA	1757	510,000 J
113.		UNKNOWN SUBSTITUTED ETHANE DIONE	BNA	1815	460,000 J
114.		UNKNOWN	BNA	1840	770,000 J
115.		UNKNOWN	BNA	1872	840,000 J
116.		UNKNOWN	BNA	1893	330,000 J
117.		UNKNOWN	BNA	1898	540,000 J
118.		UNKNOWN	BNA	1912	500,000 J
119.		UNKNOWN	BNA	1923	360,000 J
120.		UNKNOWN	BNA	1930	330,000 J
121.		UNKNOWN	BNA	1943	820,000 J
122.		UNKNOWN	BNA	2023	510,000 J
123.		UNKNOWN	BNA	2093	330,000 J
124.		UNKNOWN	BNA	2105	640,000 J
125.		UNKNOWN	BNA	2199	520,000 J
126.		UNKNOWN	BNA	1322	2350000 J
127.					
128.					
129.					
130.					

DB

RESULTS OF ANALYSIS FOR EP-TOX METALS IN SAMPLES SUBMITTED BY VERSAR, INC., LABORATORY OPERATIONS, SPRINGFIELD, VIRGINIA

Prepared for

Versar, Inc.
Laboratory Operations
6850 Versar Center
Springfield, VA 22151

Prepared by

Versar, Inc.
ESM Operations
Analytical Chemistry Services
9200 Rumsey Road
Columbia, Maryland 21045

30 December 1987

(IIA)

REPORT SUMMARY

On 4 December 1987, Versar, Inc., ESM Operations received 5 samples submitted by Versar, Inc., Laboratory Operations. These samples have been assigned project number 6016, (customer NYSDEC). A list of samples received and corresponding laboratory tracking numbers is shown in Table 1.

Results of analysis are presented in Table 2. Quality control data is presented in Tables 3 through 10.

The Chain-of-Custody record associated with these samples has been included as Appendix A.

IIA

Table 1. List of samples received on 4 December 1987 and corresponding laboratory tracking numbers.

Laboratory Operations Sample ID	New York State DEC Field Sample Nos.	ESM Operations Laboratory ID
42337	SH87734027-01	871207-042
42338	SH87734027-02	871207-043
42339	SH87734027-03	871207-044
42340	SH87734027-04	871207-045
42341	SH87734027-05	871207-046

(IIA)

Table 2. Versar Inc., ESM Operations
Analytical Laboratory
Results of Metals Analysis
EP-TOX Metals

	(01)	(02)	(03)	
Cust Samp No.:	42337	42338	42339	
Sample Number:	871207-042	871207-043	871207-044	
Date Received:	4-DEC-1987	4-DEC-1987	4-DEC-1987	
Date Sampled:				
Matrix:	EXTRACT	EXTRACT	EXTRACT	
Compounds		Results *		Units
arsenic	<200	<200	<200	ug/L
barium	<200	353	<200	ug/L
cadmium	91	<5.0	<5.0	ug/L
chromium	<10	<10	11	ug/L
lead	<200	727	<200	ug/L
mercury	<0.30	<0.30	<0.30	ug/L
selenium	<200	<200	<200	ug/L
silver	<10	<10	<10	ug/L

* Sample results reported as EP-Tox extracts

Table 2 (contd.). Versar Inc., ESM Operations
Analytical Laboratory
Results of Metals Analysis
EP-TOX Metals

	(04)	(05)
Cust Samp No.:	42340	42341
Sample Number:	871207-045	871207-046
Date Received:	4-DEC-1987	4-DEC-1987
Date Sampled:		
Matrix:	EXTRACT	EXTRACT

Compounds	Results *		Units
arsenic	<200	<200	ug/L
barium	<200	<200	ug/L
cadmium	<5.0	<5.0	ug/L
chromium	<10	<10	ug/L
lead	<200	<200	ug/L
mercury	<0.30	<0.30	ug/L
selenium	<200	<200	ug/L
silver	<10	<10	ug/L

* Sample results reported as EP-Tox extracts

(IIA)

Versar INC.

Pesticide Fraction Narrative
NYS Contract No. C001298
Versar Job No. 6016 Batch 216
Site: Shaw
December 13, 1987

Please find enclosed the raw data and reduced results of the pesticide analysis of the hazardous waste and associated trip blank received at Versar on 30 November, 1987. The samples were requested for analysis by EPA-Contract Laboratory Program (EPA-CLP) protocol. The extracts were extracted under medium, or "mid" level preparatory procedures within the holding time prescribed in the protocol. The date of extraction was 3 December, 1987 for the following samples:

Hazardous Waste Liquid (MID Level protocol)

NYS Field ID#	Lab ID#
*SH8773402705	*42342
Trip Blank #1	42344

*Denotes samples chosen for QC extraction (MS/MSD).

Laboratory IDs were used in tracking samples throughout extraction and analysis.

All criteria were adhered to during analysis. All calibration standards yielded results acceptable for quantitation. All data has been reviewed for completeness and validity. Lab sample number 32342 required dilution of as much as 1/1000 during analysis. Although the one extract was extremely complex chromatographically, neither of the samples contains either pesticides or PCBs above the reported detection limit.

Samples were analyzed under EPA-CLP analysis protocol on both packed and capillary column chromatographic systems. The primary analysis was performed on the packed column with a full set of CLP multicomponent standards to allow for quantitation of tentatively identified pesticide results. Samples requiring further analysis were ananyzed on the capillary column system. Since no multicomponent analytes were detected in the primary analysis, no standards for those analytes were included in confirmation. Although the sample required multiple dilutions both packed, primary analyses and confirmaqtion analyses were completed in single analytical sequences.

Linearity criteria were met in both sequnces, although current protocol does not required this of confirmation analyses.

Degradation checks performed prior to, at intervals during, and after analyses all had results within the CLP prescribed limit.

Retention time shift of the DBC surrogate was tracked throughout analyses, and remained well within the established limit.

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(IIA)

Versar INC.

Comments regarding each analytical sequence are included in the sample preparation section of the report. They include further discussion of standard comparison results, as well as any difficulties encountered during analysis.

Also included in the package is a QC section in which surrogate, matrix spike, and matrix spike recoveries are reported, as well as precision and method blank results. The results are included on EPA-CLP Forms II, III, and IV which include QC limits as a set of reference guidelines. Overall, QC for the case exhibits acceptable extraction efficiency with surrogate recoveries for three of five exceeding advisory QC limits. The outlying recovery results are for the unspiked sample, its MS, and its MSD, which required dilution during analysis. The results reported were calculated from the capillary analysis of the 1/100 dilutions, and should probably have been reported "DL" implying the spike was diluted out of the extract. Matrix spike and matrix spike duplicate recoveries were incalculable due to the dilutions, and are appropriately flagged "DL" as discussed above. In support to the data, the method standard has been included in the data package. Although its results are not documented in either surrogate or matrix spike summaries, they have been calculated and reported on the sample data reduction worksheets accompanying its chromatograms. All of its recoveries, both surrogate and matrix spike compounds, were within the QC limits. Precision results for the MS and MSD were somewhat meaningless in that they only demonstrate that the spike compounds were uniformly diluted out of both extracts.

The analyst has also prepared a QC overview which is included with the analysis comments in the sample preparation of the report.

If you have any questions regarding the pesticide data included herein, please feel free to call me at your convenience.

J. O'Donnell

John O'Donnell
Data Quality Manager
GC Section
Laboratory Operations

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(IIA)

Versar INC.

SAMPLE COMMENTS

PROJECT 6016 BATCH # 216 MID SOILS

VERSAR LAB AUTOMATION AND DATA REDUCTION SYSTEMS ARE INCAPABLE OF HANDLING THE NEW YORK STATE FIELD NUMBERS. THE SAMPLES ARE TRACKED THROUGHOUT THE ANALYSIS BY VERSAR LAB IDENTIFICATION NUMBERS. BELOW IS THE CORRELATION OF THE VERSAR LAB IDENTIFICATION NUMBERS TO THE NEW YORK STATE NUMBERS:

VERSAR LAB IDENTIFICATION NUMBER	NEW YORK STATE FIELD NUMBER
42342	SH 87734027 05
42344	Trip Blank #1

David Lipani 12-10-87

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Versar Inc. Laboratory Operations
6850 Versar Center, Springfield Va. 22151
(703) 750-3000

Sample Number: 42342

ORGANICS ANALYSIS DATA SHEET
(Page 3)

Field I.D.#
SH 87734027 05

Pesticides/PCBs

Concentration: Low | Medium | (circle one)

GPC Cleanup [ ] Yes [X] No

Date Extracted/Prepared: 12-3-87

Separatory Funnel Extration [X] Yes

Date Analyzed: 12-8-87

Continuous Liquid-Liquid Extraction [ ] Yes [X] No

Conc/Dil Factor 100

Percent Moisture(decanted) 0.00

CAS Number		ug/kg
319-84-6	alpha-BHC	5000 u
319-85-7	beta-BHC	5000 u
319-86-8	delta-BHC	5000 u
58-89-9	gamma-BHC (Lindane)	5000 u
76-44-8	Heptachlor	5000 u
309-00-2	Aldrin	5000 u
1024-57-3	Heptachlor Epoxide	5000 u
959-98-8	Endosulfan I	5000 u
60-57-1	Dieldrin	9900 u
72-55-9	4,4'-DDE	9900 u
72-20-8	Endrin	9900 u
33213-65-9	Endosulfan II	9900 u
72-54-8	4,4'-DDD	9900 u
1031-07-8	Endosulfan Sulfate	9900 u
50-29-3	4,4'-DDT	9900 u
72-43-5	Methoxychlor	9900 u
53494-70-5	Endrin Ketone	9900 u
57-74-9	Chlordane	50000 u
8001-35-2	Toxaphene	99000 u
12674-11-2	Aroclor-1016	50000 u
11104-28-2	Aroclor-1221	50000 u
11141-16-5	Aroclor-1232	50000 u
53469-21-9	Aroclor-1242	50000 u
12672-29-6	Aroclor-1248	50000 u
11097-69-1	Aroclor-1254	99000 u
11096-82-5	Aroclor-1260	99000 u

David Lipani
12-10-87

vi = volume of extract injected (ul)
Vs = volume of water Extracted (ml)
Ws = weight of sample extracted (g)
vt = volume of total extract (ul)

Vs ____ or Ws 1.01 ____ vt 1000000 vi 2.00 ____

Versar Inc. Laboratory Operations
6850 Versar Center, Springfield Va. 22151
(703) 750-3000

Sample Number
42344

ORGANICS ANALYSIS DATA SHEET
(Page 3)

Field ID# :
Trip Blank # 1

Pesticides/PCBs

Concentration: Low | Medium | (circle one)

GPC Cleanup [ ] Yes [X] No

Date Extracted/Prepared: 12-3-87

Separatory Funnel Extraction [ ] Yes

Date Analyzed: 12-8-87

Continuous Liquid-Liquid Extraction [ ] Yes [X] No

Conc/Dil Factor 1.00

Percent Moisture(decanted) 0.00

CAS Number		ug/kg
319-84-6	alpha-BHC	47 u
319-85-7	beta-BHC	47 u
319-86-8	delta-BHC	47 u
58-89-9	gamma-BHC (Lindane)	47 u
76-44-8	Heptachlor	47 u
309-00-2	Aldrin	47 u
1024-57-3	Heptachlor Epoxide	47 u
959-98-8	Endosulfan I	47 u
60-57-1	Dieldrin	94 u
72-55-9	4,4'-DDE	94 u
72-20-8	Endrin	94 u
33213-65-9	Endosulfan II	94 u
72-54-8	4,4'-DDD	94 u
1031-07-8	Endosulfan Sulfate	94 u
50-29-3	4,4'-DDT	94 u
72-43-5	Methoxychlor	94 u
53494-70-5	Endrin Ketone	94 u
57-74-9	Chlordane	470 u
8001-35-2	Toxaphene	940 u
12674-11-2	Aroclor-1016	470 u
11104-28-2	Aroclor-1221	470 u
11141-16-5	Aroclor-1232	470 u
53469-21-9	Aroclor-1242	470 u
12672-29-6	Aroclor-1248	470 u
11097-69-1	Aroclor-1254	940 u
11096-82-5	Aroclor-1260	940 u

David Lipani
12-9-87

Vi = Volume of extract injected (ul)
Vs = Volume of Water Extracted (ml)
Ws = Weight of sample extracted (g)
Vt = Volume of total extract (ul)

Vs _____ or Ws 1.06 Vt 10000 Vi 2.00

(IIA)

Versar INC.

ANALYSIS NARRATIVE

PROJECT: 6016 DATE: 31-Dec-87
BATCH: 216

This batch consisted of five waste samples to be analyzed for reactivity, corrosivity, and flashpoint. The source for all methods is SW-846, 2nd edition.

A sample is considered to be reactive if, upon addition of water or acid, a violent reaction occurs or cyanide or sulfide gas is released.

A waste is classified as corrosive if it exhibits a pH which is less than or equal to 2 or is greater than or equal to 12.5.

A waste has the characteristic of ignitability if it has a flashpoint less than 140°F(60°C).

The waste samples analyzed proved to be non-reactive, non-corrosive, and non-ignitable based on the above guidelines.

Janette Kraft

Janette Kraft
Quality Assurance Chemist
General Inorganics Section

Versar INC.

GENERAL INORGANIC CHEMISTRY SECTION
ANALYSIS REPORT

PROJECT : 6016 DATE : 31-Dec-87
BATCH : 216 PAGE : 1

LAB #	SAMPLE ID	* REACTIVITY	pH	CORROSIVITY based on pH	FLASHPOINT °F
	SH 87734027				
42332	01	NONE	6.50	NON	>200°
42333	02	NONE	3.80	NON	>200°
42334	03	NONE	3.07	NON	>200°
42335	04	NONE	8.60	NON	>200°
42336	05	NONE	4.80	NON	>200°
42334 DUP	03 DUP				>200°

* REACTIVITY: (according to 2nd edition SW-846)
TO H20
WITH ACID TO FORM HCN
WITH ACID TO FORM H2S

C. Casillas for K. Drea
LABORATORY MANAGER

REF. (12)

ONONDAGA NATION - SITE B

11-4-87 ; 9:00 a.m., sunny, ~60°F - 65°F to overcast

Martin Braid - DEC
Bill Shaw - DEC
Chief Cook - Onondaga Nation

- Lge amounts of hospital waste in area behind diner; intermittent stream which has heavy flow in spring carried materials - brought in from Community General Hospital and Cortland Hospital since early 1960's [redacted]; Bags observed in elevating Onondaga Cr. in spring - investigated then.
- A few hundred drums were dumped in same area ~1964 then also.
- Benjamin Shenandoah was the one who did all of the dumping; deceased now.
- Washing machines dumped, tires, scrap lumber
- Dumping area is a higher elevation area surrounded by drainage areas which carry water in spring.
- The Onondaga Nation ceased Shenandoahs operation sometime in the mid-1960 although specific year is uncertain.
- An estimated 800 drums were brought on-site; many pushed off side.
- private wells on Onondaga Nation
  a few wells sampled nothing detected.

Ed Cook

REF. (12)

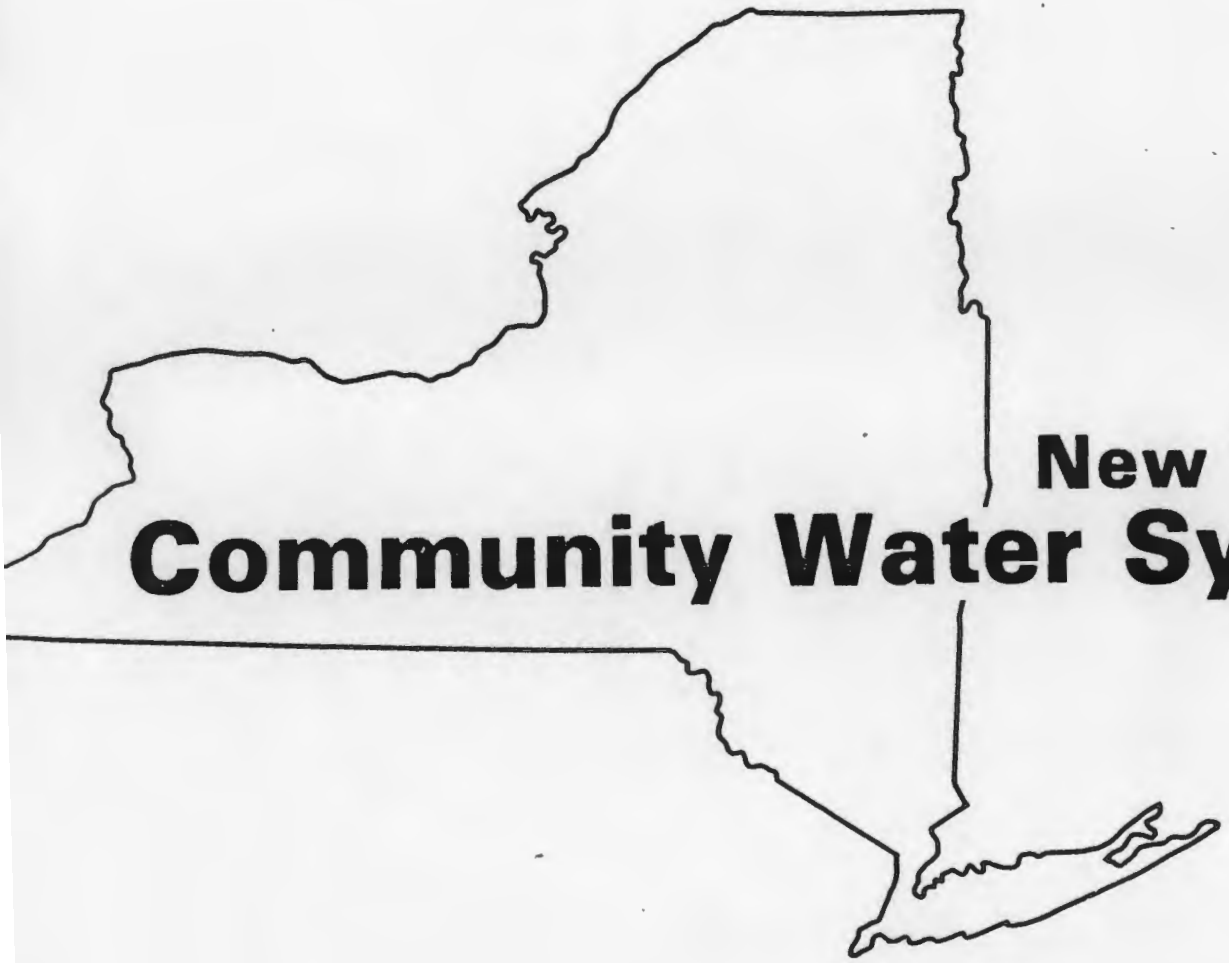
Martin D. Brand, NYSDEC Letter to Daniel W. Lothman, URS Company, Inc., October, 1988.

734027 Onondaga Nation - Site B

This report should be revised to include the analytical results of the November 24, 1987 sampling conducted by the New York State Department of Environmental Conservation (NYSDEC). The results are enclosed for your information. Yellow tabs in the report indicate places, including the computation of the HRS score, where the data should be incorporated.

The number of drums present at the site is estimated by NYSDEC to be approximately 800, with 150-200 containing wastes or unknown material. The 800 number does include a large number of roofing tar drums which are generally empty and probably not of concern. The site probably contains a number of buried drums based on observations of drums protruding from the fill in the swale running through the center of the site. The report should use the NYSDEC estimate for consistencies.

The maps enclosed with these comments have been prepared for our Phase II - 5th round work plan and can be incorporated into the Phase I report.



New York State Atlas of Community Water System Sources 1982

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

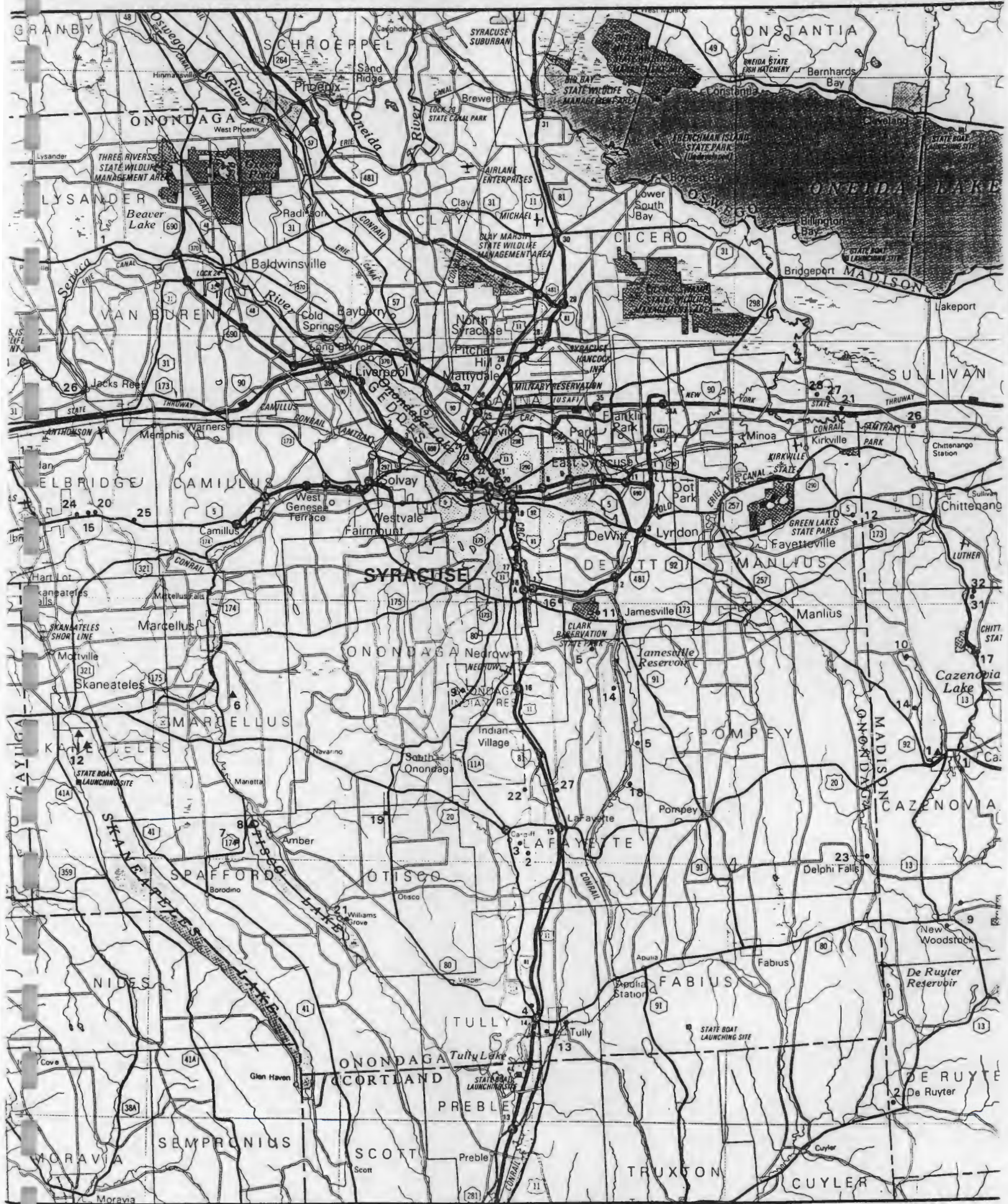
ONONDAGA COUNTY

ID NO	COMMUNITY WATER SYSTEM	POPULATION	SOURCE
Municipal Community			
1	Baldwinsville Village.	6500. .	.Wells
2	Cardiff, Haynes Spring.	.35. .	.Wells (Spring)
3	Cardiff, Tooke Spring.	.100. .	.Wells (Spring)
4	East Side Spring.	.52. .	.Wells (Springs)
5	East Syracuse Village.	3900. .	.Wells, East Syracuse Reservoir (Springs)
6	Marcellus Village.	1870. .	.Rockwell Spring
	Metropolitan Water Board (See No 5 Oswego Co, Page 30).	NA	
7	Mountain Glen Water Company Inc.. . .	250. .	.Wells (Spring)
8	Onondaga County Water Authority. .	130000. .	.Otisco Lake
9	Onondaga Indian Reservation.	.750. .	.Wells (Springs)
10	Skyridge Community Inc.	.50. .	.Wells
11	Southwood Jamesville Water District. .	NA. .	.Wells
12	Syracuse City.	170105. .	.Skaneateles Lake
13	Tully Village.	1065. .	.Wells
Non-Municipal Community			
14	Black's Breezy Acres.	.54. .	.Wells
15	Champion Home Communities.	.288. .	.Wells
16	Cliffside Mobile Homes.	270. .	.Wells
17	Edgewood Trailer Park.	36. .	.Wells
18	Green Valley Mobile Manor.	.129. .	.Wells
19	Lords Hill Apartments.	.126. .	.Wells
20	Mobile Manor Mobile Home Park.	66. .	.Wells
21	Otisco Lake Drive-Inn & Trailer Park.	.15. .	.Wells
22	Parc Du Bois.	120. .	.Wells
23	Pleasant Valley Mobile Court. . . .	222. .	.Wells
24	Rolling Wheels.	300. .	.Wells
25	Smith Trailer Park.	.60. .	.Wells
26	Williams Trailer Park.	36. .	.Wells
27	Willowwood Apartments.	.128. .	.Wells

LOCATION OF COMMUNITY WATER SYSTEM SOURCES-1982

NEW YORK STATE DEPART'
DIVISION OF ENVIRONMEN
BUREAU OF PUBLIC WATER SU

(13)



ADAPTED FROM THE FOUR SHEET • 250,000 SCALE NEW YORK STATE MAP, © 1980 BY THE NEW YORK STATE DEPARTMENT OF TRANSPORTATION

SCALE 1:250,000

0 5

REF. (14)

URS

AN INTERNATIONAL PROFESSIONAL SERVICES ORGANIZATIC

URS COMPANY, INC.
CONSULTING ENGINEERS
570 DELAWARE AVENUE
BUFFALO, NEW YORK 14202
TEL: (716) 883-5525

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SAN FRANCISCO
SAN MATEO, CA

November 19, 1987

JOB # _____

Mr. Carl Sterling
Clerk Treasurer
Village of E. Syracuse
204 N. Center Street
E. Syracuse, New York 13057

Dear Mr. Sterling:

As I mentioned during our telephone conversation on November 18, 1987, URS Corporation is currently conducting a Phase I investigation of the "Onondaga Nation - Site B" located just west of Interstate 81 - Exit 16, on the Onondaga Nation, Onondaga County, New York.

We are performing this investigation for the New York State Department of Environmental Conservation pursuant to the requirements of the New York State Superfund Law (Chapter 857 of the Laws of 1982).

This is to confirm our telephone conversation wherein you provided the following information:

* o The Village of E. Syracuse utilizes springs and ~~two~~ one (2) well in the Smoky Hollow area for a source of potable water.

o The locations of the springs and wells are near Smoky Hollow Road, between Eager and Barker Hill Roads, at a distance within a 3 mile radius of the Onondaga site under investigation. (The site and 3-mile radius have been identified on the accompanying map.)

o The Village of E. Syracuse municipal water system serves the population of the Village of E. Syracuse as well as a portion of the population in the Jamesville area. An estimated 3,900 people are served by this water system.

* Reported two in error - we have one well with two (2) pumps in it.

We would appreciate if you would review this information, note any necessary corrections, and return a signed and dated copy to indicate your concurrence. Your prompt attention to this would be appreciated, as the information is necessary to complete our evaluation of the site.

Sincerely,

URS CORPORATION

Linda J. Clark

Linda J. Clark
Project Geologist

I agree with the information as it is ~~presented.~~ corrected.

Carl H. Sterling

Carl Sterling

11/24/87

Date

LJC/mb
35154

REF. (15)

URS

AN INTERNATIONAL PROFESSIONAL SERVICES ORGANIZATIO

URS COMPANY, INC.
CONSULTING ENGINEERS
570 DELAWARE AVENUE
BUFFALO, NEW YORK 14202
TEL: (716) 883-5525

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SEATTLE
SAN FRANCISCO
SAN MATEO, CA

November 19, 1987

Mr. Lee Fordock
City of Syracuse - Water Engineering Dept.
400 City Hall
Syracuse, New York 13202

Dear Mr. Fordock:

As I mentioned during our telephone conversation on November 19, 1987, URS Corporation is currently conducting a Phase I investigation of the "Onondaga Nation - Site B" located just west of Interstate 81 - Exit 16 within the Onondaga Nation, Onondaga County, New York.

We are performing this investigation for the New York State Department of Environmental Conservation pursuant to the requirements of the New York State Superfund Law (Chapter 857 of the Laws of 1982).

This is to confirm our telephone conversation wherein you provided the following information:

- The source of water for the City of Syracuse municipal water system is Skaneateles Lake (surface water intakes).
- The entire population within the corporate limits of the City of Syracuse, which are located within a 3-mile radius of the site (as identified on the accompanying map), are served by the City of Syracuse water system.
- There are no private wells utilized for drinking water or irrigation within the corporate limits of the City of Syracuse and within a 3-mile radius of the site. There may, however, be some private wells used for other purposes (e.g. cooling).
- Surface water use of Onondaga Creek within 3-miles downstream from the site includes irrigation. There are no surface water intakes for drinking water from Onondaga Creek within the corporate limits of the City of Syracuse.

(15)

URS
AN INTERNATIONAL PROFESSIONAL SERVICES ORGANIZATIC

We would appreciate if you would review this information, note any necessary corrections, and return a signed and dated copy to indicate your concurrence. Your prompt attention to this would be appreciated, as the information is necessary to complete our evaluation of the site.

Sincerely,

URS CORPORATION

Linda J. Clark

Linda J. Clark
Project Geologist

I agree ~~with the information~~ as it is presented.

Lee Fordock 11/20/87

Lee Fordock Date

LJC/mb
35154

Civil Eng II
Eyr Water Dept

REF. (16)

URS

AN INTERNATIONAL PROFESSIONAL SERVICES ORGANIZATIO

URS COMPANY, INC.
CONSULTING ENGINEERS
570 DELAWARE AVENUE
BUFFALO, NEW YORK 14202
TEL: (716) 883-5525

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November 19, 1987

RECEIVED
URS COMPANY

NOV 23 1987

Mrs. Mary Alice Moran
Receiver of Taxes
Town of Onondaga
4801 W. Seneca Turnpike
Syracuse, New York 13215

JOB # _____

Dear Mrs. Moran:

As I mentioned during our telephone conversation on November 19, 1987, URS Corporation is currently conducting a Phase I investigation of the "Onondaga Nation - Site B" located just west of Interstate 81 - Exit 16 within the Onondaga Nation, Onondaga County, New York.

We are performing this investigation for the New York State Department of Environmental Conservation pursuant to the requirements of the New York State Superfund Law (Chapter 857 of the Laws of 1982).

This is to confirm our telephone conversation wherein you provided the following information:

o Within a 3-mile radius from the site, the population located in the following areas within the Town of Onondaga are served by the Onondaga County Water Authority (O.C.W.A.).

  - Makyes Road (see page 50 & enclosed maps)
  - Griffin Road (north of Cole Rd.) pg. 50
  - Cleveland Road (~~north of Yenny Rd.~~) (see page 50 + 47)
  - Broad Road
  - Skyline Drive (including the small side-streets in the area.)
  - Nedrow (entire community)
  - Southwood (entire community)
  - Lafayette Road - (see page 37)
  - Graham Road see page 40
  - ~~Sentinel Heights Road (north of the major bend in road)~~ see map* 37

o Within a 3-mile radius from the site, the population located in the following areas within the Town of Onondaga are not served by the O.C.W.A. and utilize private wells as a sole source of water:

  - N.Y.S. Route 80 (south of the City of Syracuse corporate boundary

- Sentinel Heights area (including Sentinel Road south of major bend in road, and Bunn Hill Road)

o The sources of water for the O.C.W.A. are surface water intakes from Otisco Lake, Skaneateles Lake and Lake Ontario.

o Surface water use of Onondaga Creek within 3-miles downstream from the site is best categorized as used for "recreation - fishing only (no boating or swimming) from the following:

- Not currently used
- Commercial or industrial
- Irrigation, economically important resources (e.g., shellfish), commercial food preparation, or recreation (e.g., fishing, boating, swimming)
- Drinking Water

The site has been located on a road map which is enclosed for your convenience. We would appreciate if you would review this information, note any necessary corrections, and return a signed and dated copy to indicate your concurrence. Your prompt attention to this would be appreciated, as the information is necessary to complete our evaluation of the site.

Sincerely,

URS CORPORATION

Linda J. Clark

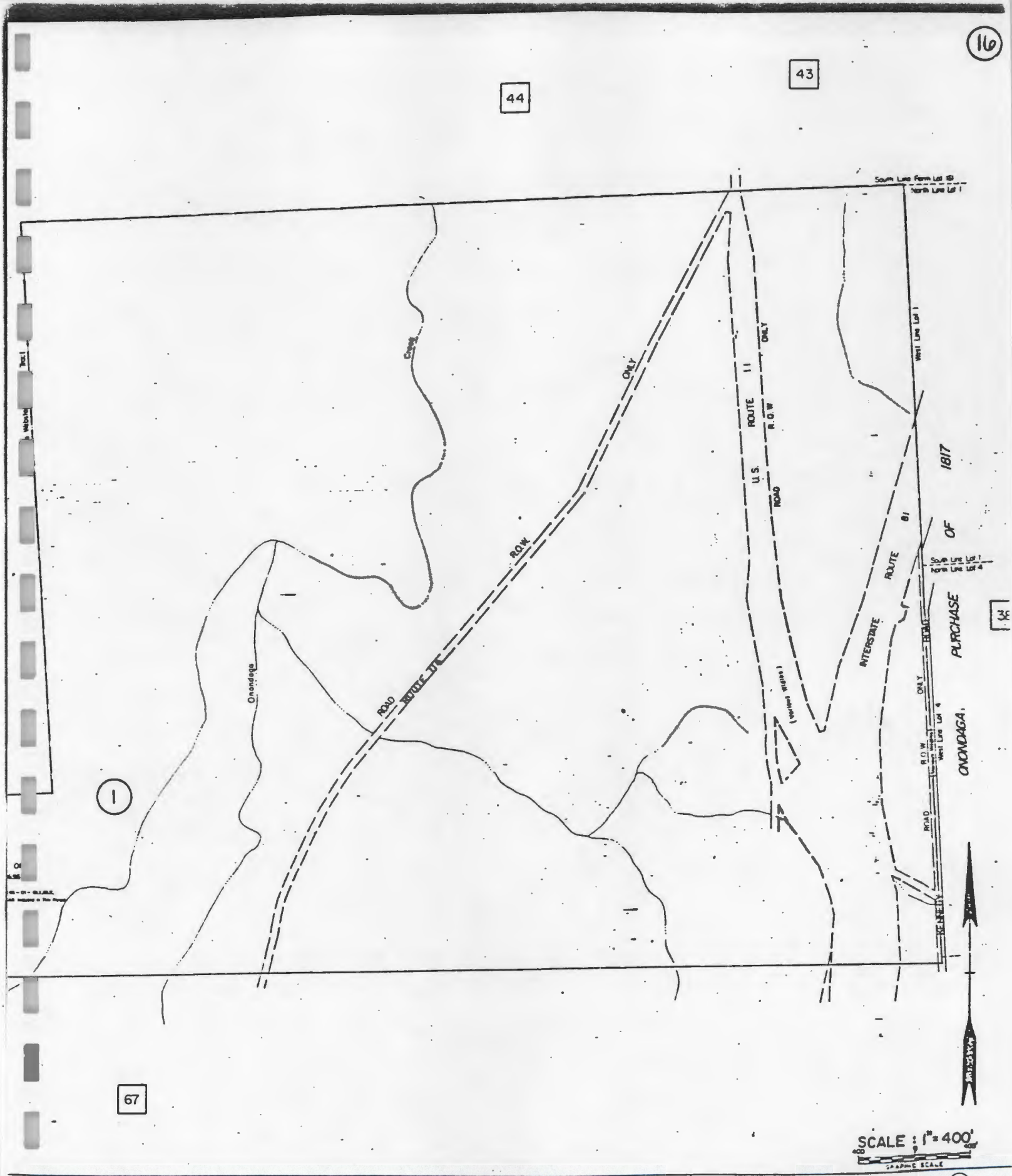
Linda J. Clark
Project Geologist

I agree with the information as it is presented.

Mary Alice Moran, Rec. Sec. of Town November 20, 1987

Mary Alice Moran Date

LJC/mb
35154/L3



LEGEND

- PROPERTY PARCEL LINE
- ORIGINAL LOT LINE
- ROAD OR RAILROAD RIGHT-OF-WAY LINE
- STREAM
- RAILROAD TRACK
- STREET ADDRESS -SHOWN WITHIN R.O.W.
- COUNTY LINE
- TOWN LINE
- VILLAGE LINE
- CITY LINE
- BLOCK BOUNDARY
- PROPERTY CONNECTION SYMBOL
- BLOCK NUMBER (1)
- PARCEL NUMBER 24
- DEED BLOCK NUMBER (4)
- DEED LOT NUMBER 1
- DEED DIMENSION d
- DEED AREA a
- SCALED DIMENSION 68
- CALCULATED AREA 103

SECTION MAP 66 ©
ONONDAGA INDIAN RESERVATION
TOWN OF ONONDAGA
ONONDAGA COUNTY, N.Y.

FOR TAXING PURPOSES ONLY
NOT TO BE USED FOR CONVEYANCE

47

Town of ONONDAGA
See Page #47.

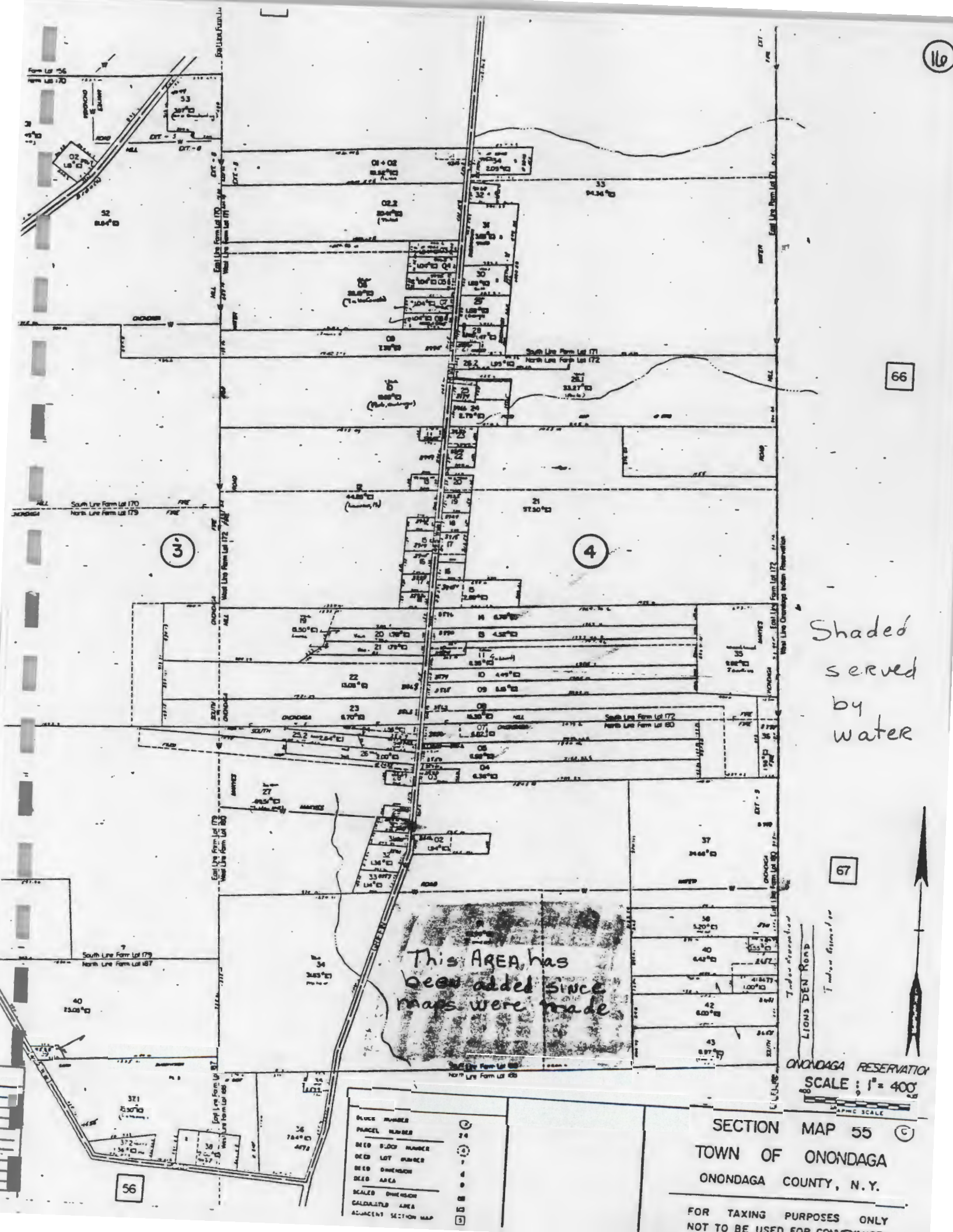
Onondaga Indian Reservation

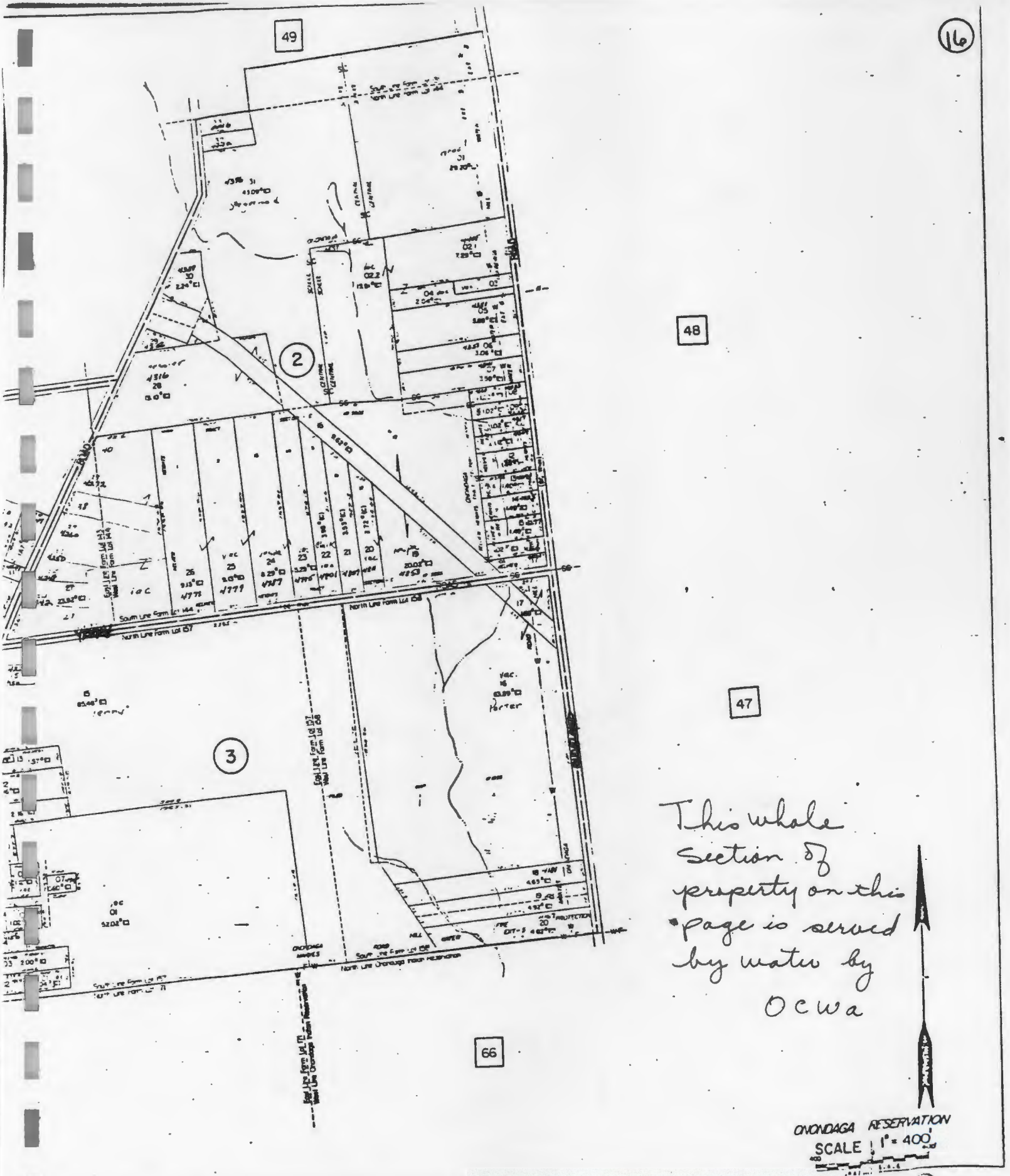
Map 66

© SYRACUSE-ONONDAGA COUNTY PLANNING AGENCY — PREPARED • MAY 1, 1963								
DATE	BLOCK	REVISION	DATE	BLOCK	REVISION	DATE	BLOCK	REVISION

SPECIAL DISTRICT INFORMATION

SCHOOL DISTRICT LINE
FIRE DISTRICT LINE
WATER DISTRICT LINE
SEWER DISTRICT LINE
DRAINAGE DISTRICT LINE
LIGHT DISTRICT LINE
HYDRANT DISTRICT LINE
PARK DISTRICT LINE


66
67
56
3
4
Shaded served by water
This AREA has been added since maps were made
LIONS DEN ROAD
ONONDAGA RESERVATION
SCALE : 1" = 400'
SECTION MAP 55 C
TOWN OF ONONDAGA
ONONDAGA COUNTY, N.Y.
FOR TAXING PURPOSES ONLY



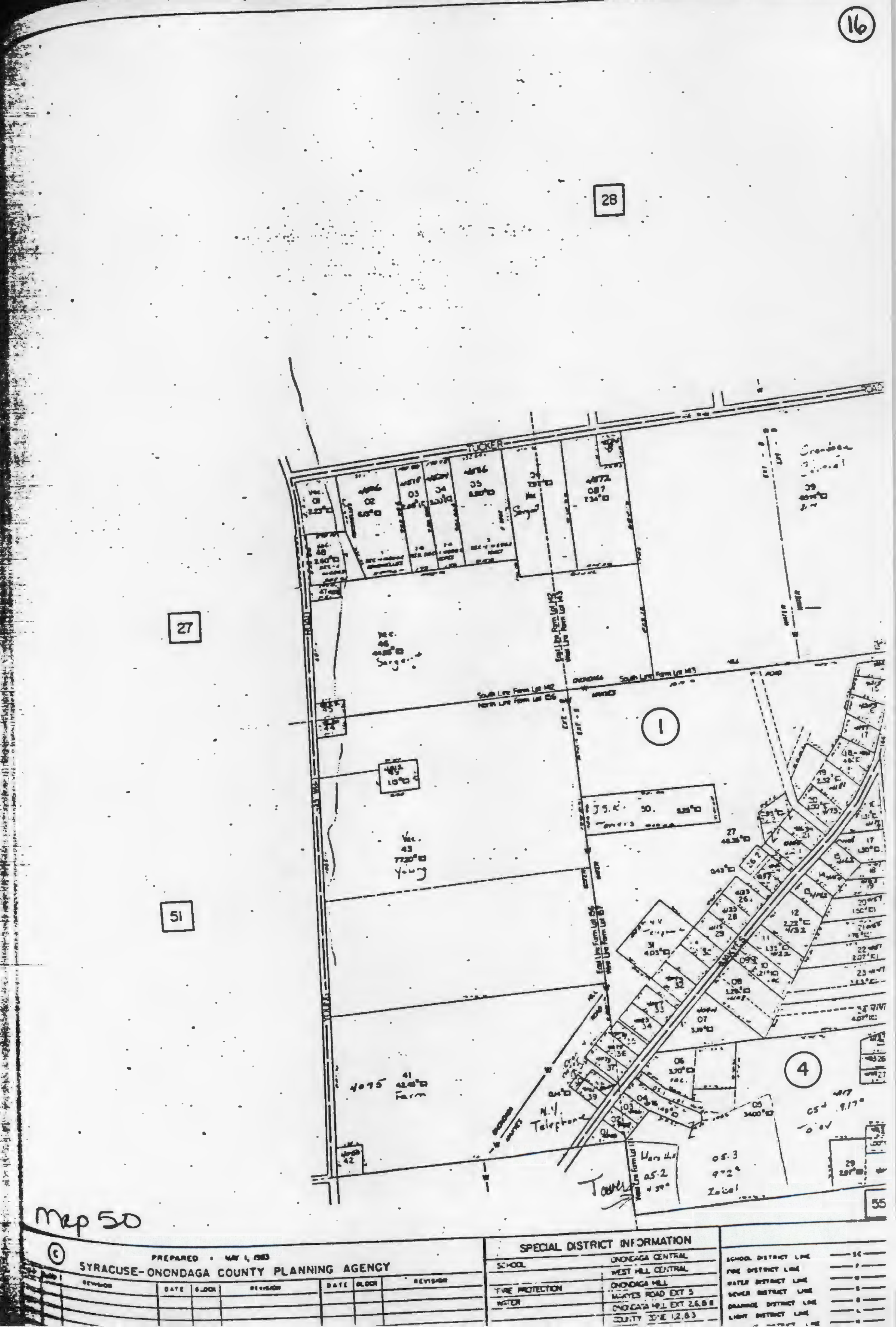
16

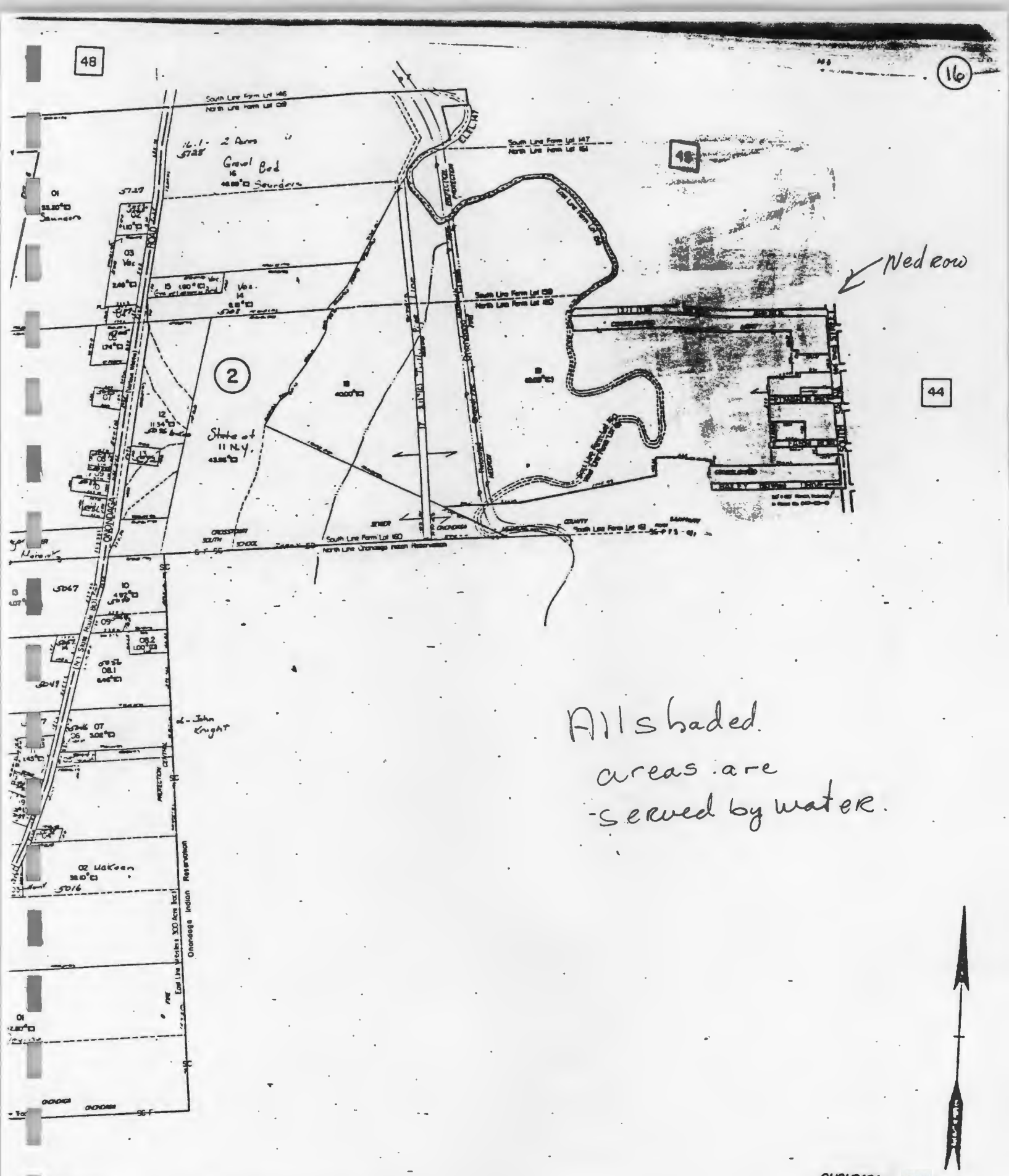
This whole Section of property on this page is served by water by OCWA

L E G E N D

PROPERTY PARCEL LINE
NOMINAL LOT LINE
RAILROAD
TRACK
COUNTY LINE
TOWN LINE
VILLAGE LINE
CITY LINE
BLOCK BOUNDARY
BLOCK NUMBER 1
PARCEL NUMBER 26
DEED - BLOCK NUMBER 6
DEED LOT NUMBER 7
DEED DIMENSION 4
DEED AREA 8
SCALED DIMENSION 02

SECTION MAP 001.50 6
TOWN OF ONONDAGA
ONONDAGA COUNTY, N.Y.
FOR TAXING PURPOSES


16
28
TUCKER
ROAD
27
51
1
4
55
South Line Farm Lot 142
North Line Farm Lot 156
South Line Farm Lot 143
East Line Farm Lot 142
West Line Farm Lot 143
N.Y. Telephone
Map 50
©
PREPARED · MAY 1, 1983
SYRACUSE-ONONDAGA COUNTY PLANNING AGENCY
SPECIAL DISTRICT INFORMATION
SCHOOL
ONONDAGA CENTRAL
WEST HILL CENTRAL
FIRE PROTECTION
ONONDAGA HILL
WATER
SCHOOL DISTRICT LINE
FIRE DISTRICT LINE
WATER DISTRICT LINE
SEWER DISTRICT LINE
DRAINAGE DISTRICT LINE
LIGHT DISTRICT LINE

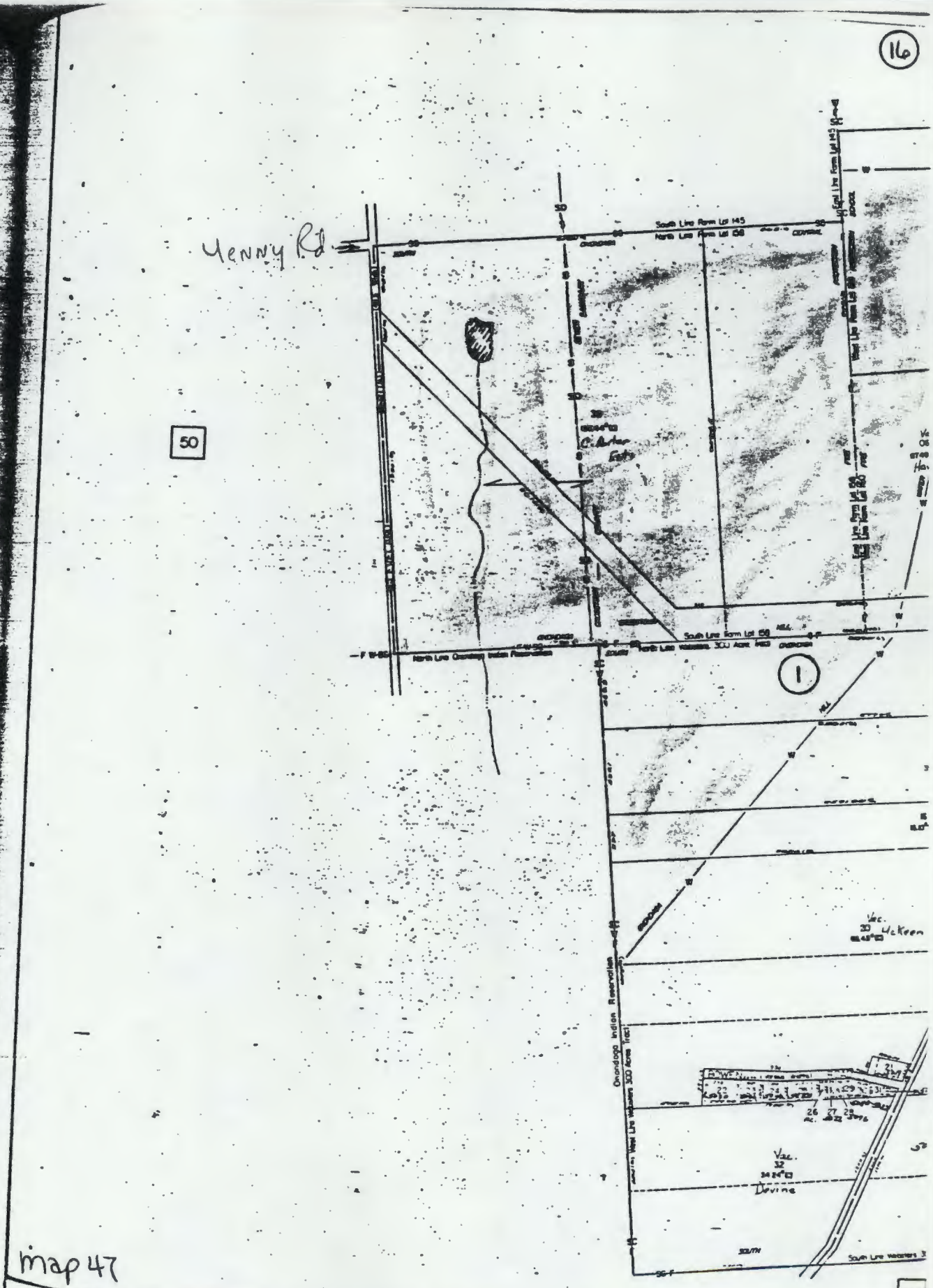


All shaded areas are served by water.

SECTION MAP 47 (C)

TOWN OF ONONDAGA

ONONDAGA COUNTY, N. Y.



map 47

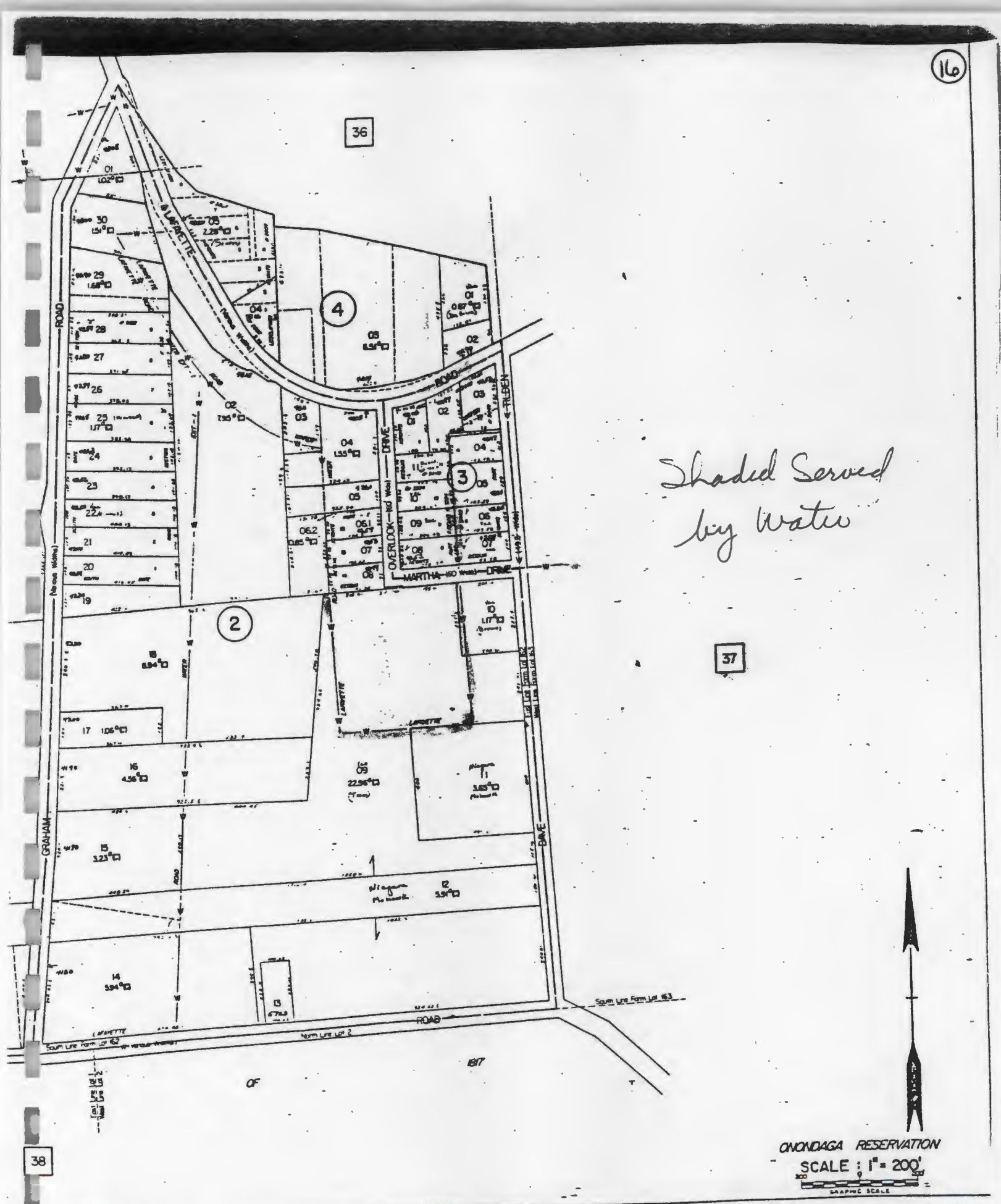
PREPARED · MAY 1, 1963

SYRACUSE-ONONDAGA COUNTY PLANNING AGENCY

DIVISION	DATE	BLOCK	DIVISION	DATE	BLOCK	DIVISION

SPECIAL DISTRICT INFORMATION	
SCHOOL	ONONDAGA CENTRAL
FIRE PROTECTION	NEDROW
	ONONDAGA HILL
	SOUTH ONONDAGA
WATER	ONONDAGA HILL EXT 6
	COUNTY ZONE 1,2,8,3
SEWER	CROSSTOWN
PARK	NEDROW

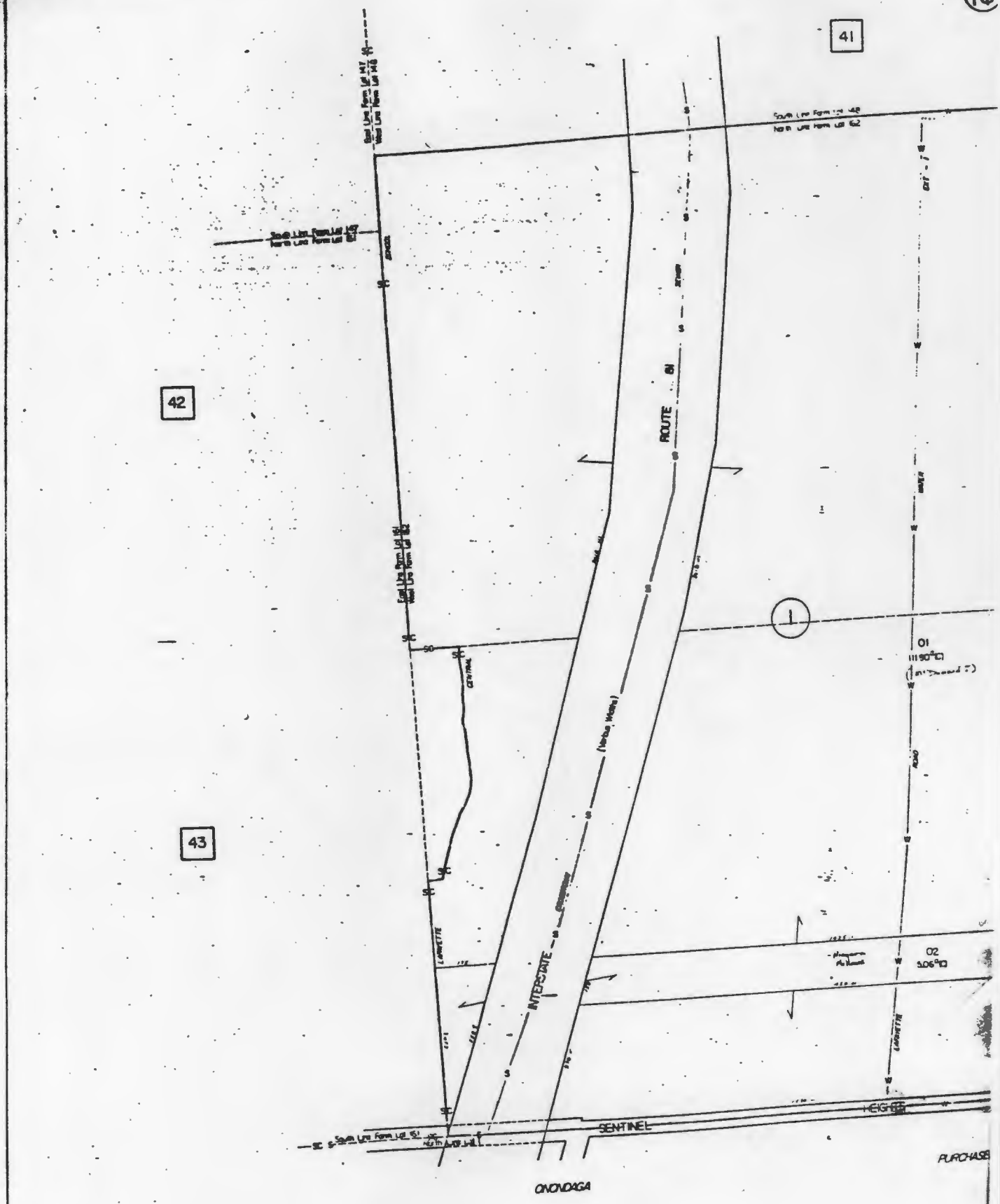
SCHOOL DISTRICT LINE
FIRE DISTRICT LINE
WATER DISTRICT LINE
SEWER DISTRICT LINE
DRAINAGE DISTRICT LINE
LIGHT DISTRICT LINE
HYDRANT DISTRICT LINE
PARK DISTRICT LINE
REFUSE DISTRICT LINE



SECTION MAP 40 (C)

TOWN OF ONONDAGA

ONONDAGA COUNTY, N.Y.

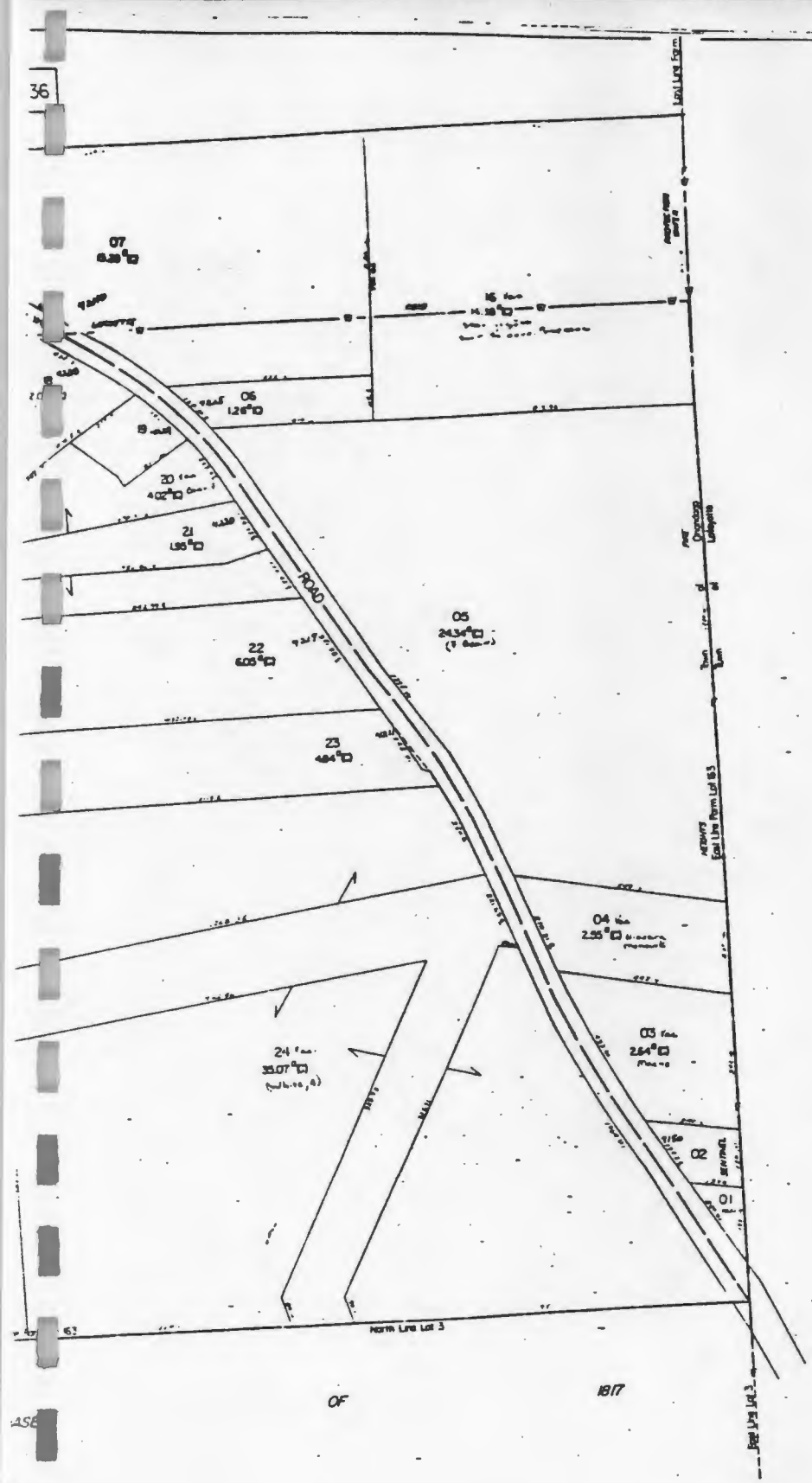


Map 40

DATE	BLOCK	REVISION	DATE	BLOCK	REVISION	DATE	BLOCK	REVISION

SPECIAL DISTRICT INFORMATION	
SCHOOL	LAFAYETTE CENTRAL
FIRE PROTECTION	SENTINEL HEIGHTS
WATER	LAFAYETTE ROAD
	LAFAYETTE ROAD EXT 1
	COUNTY ZONE 12.83

SCHOOL DISTRICT LINE
FIRE DISTRICT LINE
WATER DISTRICT LINE
SEWER DISTRICT LINE



shaded
served
by water

OF 1817

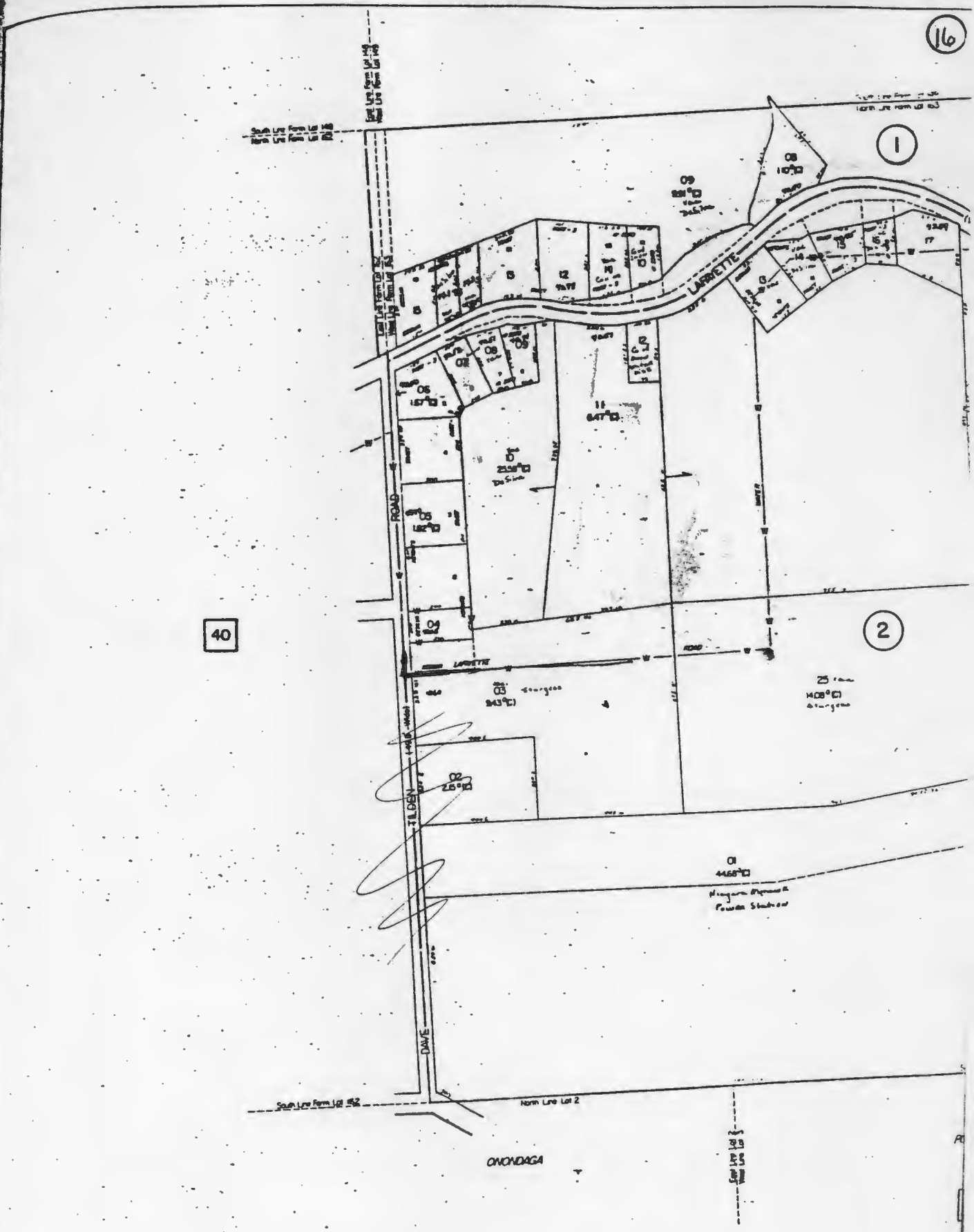
Page Number

ONONDAGA RESERVATION
SCALE : 1" = 200'

LEGEND

COUNTY LINE
TOWN LINE
VILLAGE LINE
BLOCK NUMBER
PARCEL NUMBER
DEED BLOCK NUMBER
DEED LOT NUMBER

SECTION MAP 37 (C)
TOWN OF ONONDAGA
ONONDAGA COUNTY, N.Y.



Map 37

PREPARED • MAY 1, 1983

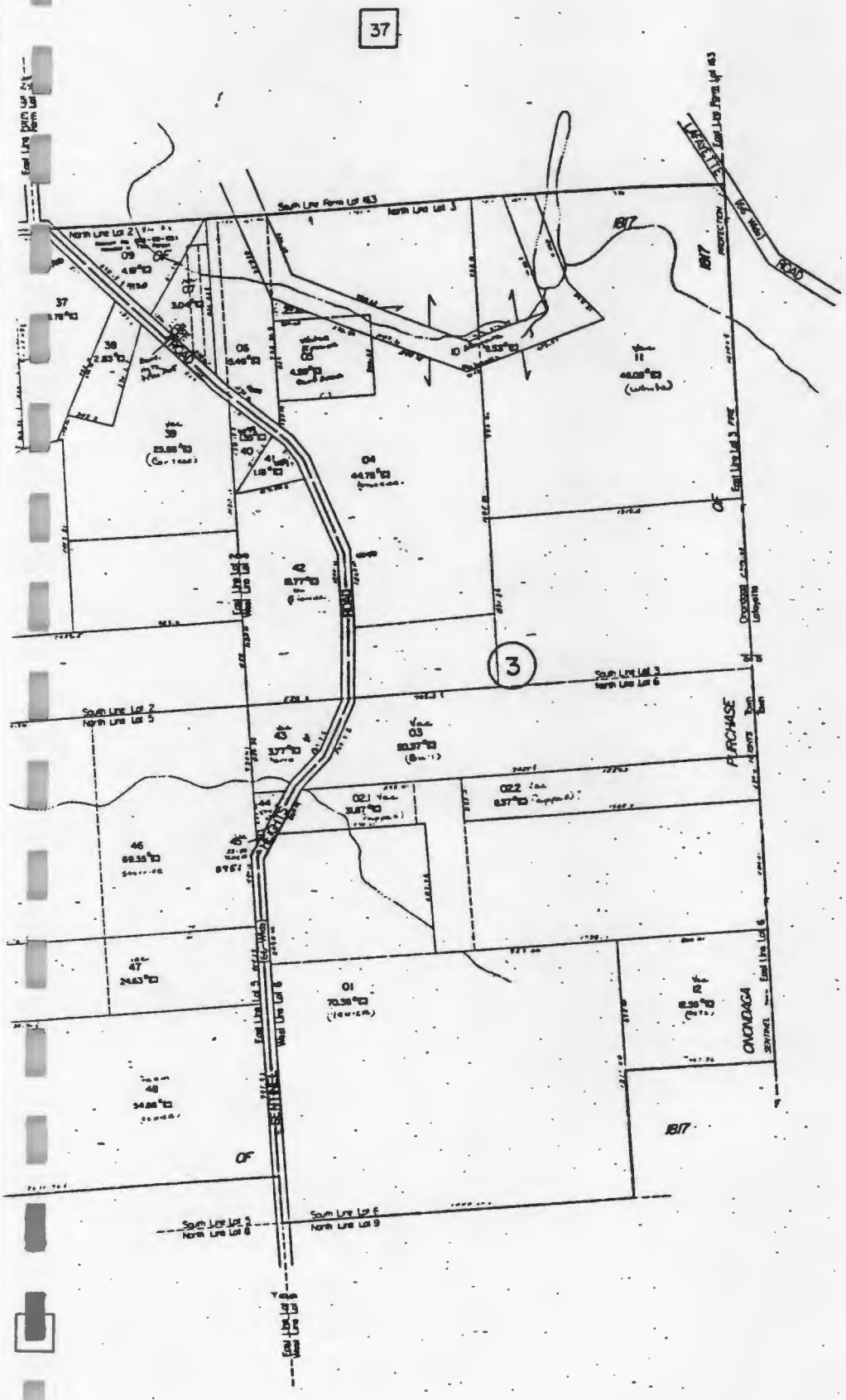
SYRACUSE-ONONDAGA COUNTY PLANNING AGENCY

DATE	BLOCK	REVISION	DATE	BLOCK	REVISION	DATE	BLOCK	REVISION

SPECIAL DISTRICT INFORMATION

SCHOOL	LAFAYETTE CENTRAL
FIRE PROTECTION	SENTINEL HEIGHTS
WATER	LAFAYETTE ROAD
	COUNTY ZONE 1,2,3

SCHOOL DISTRICT LINE — SC —
FIRE DISTRICT LINE — F —
WATER DISTRICT LINE — W —



Sentinel Hgts Road
Not Served.

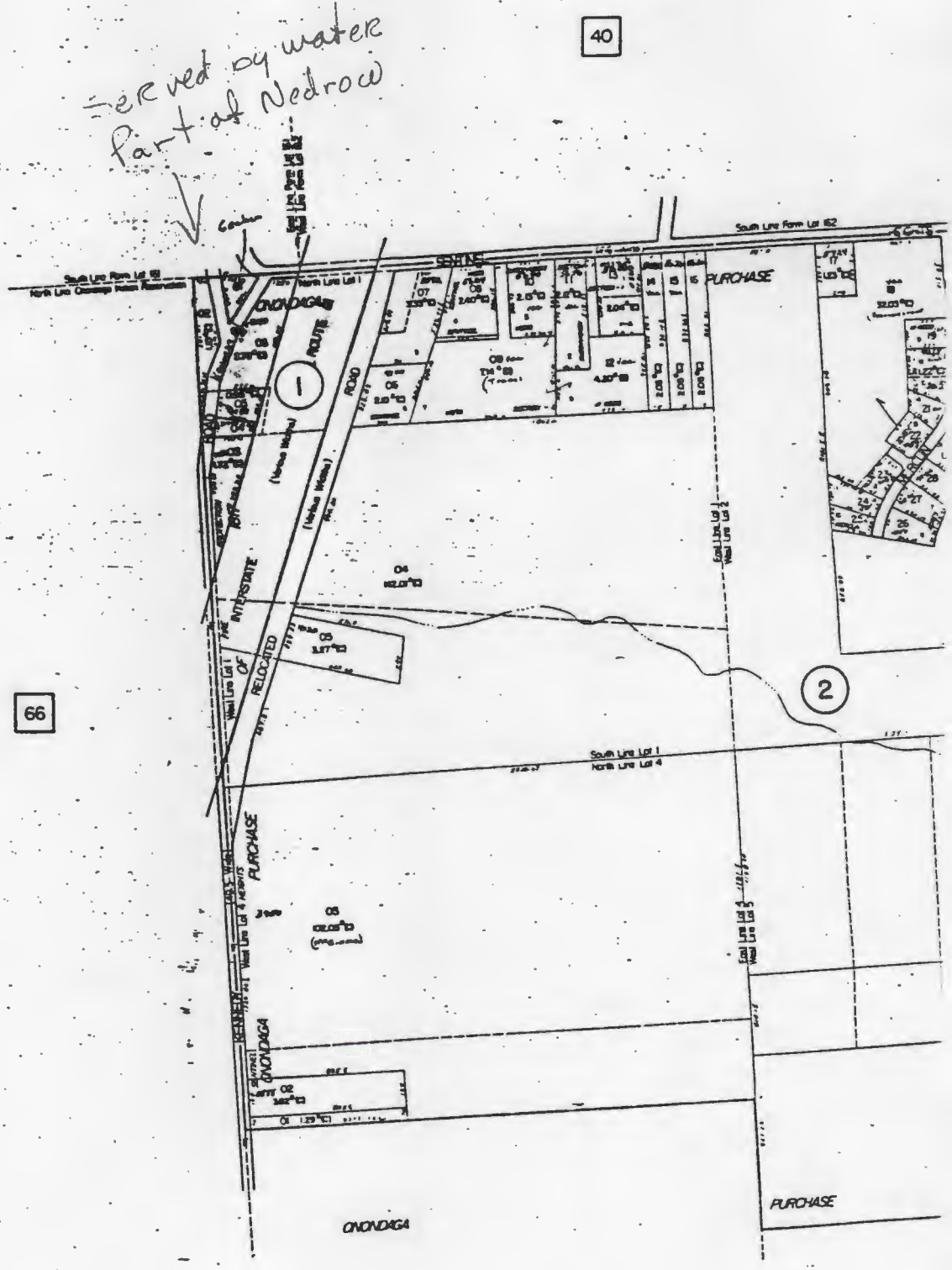
SCALE : 1" = 400'

LEGEND

COUNTY LINE
TOWN LINE
VILLAGE LINE
CITY LINE
BLOCK BOUNDARY
BLOCK NUMBER
PARCEL NUMBER
DEED BOOK NUMBER
DEED LOT NUMBER
DEED DIMENSION
DEED AREA
SCALED DIMENSION
CALCULATED AREA

SECTION MAP 38 (C)
TOWN OF ONONDAGA
ONONDAGA COUNTY, N.Y.

FOR TAXING PURPOSES ONLY



Map 38

DATE	BLOCK	REVISION	DATE	BLOCK	REVISION	DATE	BLOCK	REVISION

SPECIAL DISTRICT INFORMATION	
SCHOOL	LAFAYETTE CENTRAL
FIRE PROTECTION	SENTINEL HEIGHTS
WATER	COUNTY ZONE 1,2,A,B

SCHOOL DISTRICT LINE ——SC——
FIRE DISTRICT LINE ——F——
WATER DISTRICT LINE ——W——
SEWER DISTRICT LINE ——S——
DRAINAGE DISTRICT LINE ——D——
LIGHT DISTRICT LINE ——L——
HYDRANT DISTRICT LINE ——H——

REF. (17)

URS

AN INTERNATIONAL PROFESSIONAL SERVICES ORGANIZATION

URS COMPANY, INC.
CONSULTING ENGINEERS
570 DELAWARE AVENUE
BUFFALO, NEW YORK 14202
TEL: (716) 883-5525

NEW YORK
MONTVALE, NJ
BUFFALO
ATLANTA
TAMPA
HATO REY, PR
WASHINGTON, DC
BOSTON
CLEVELAND
DENVER
DALLAS
SEATTLE
SAN FRANCISCO
SAN MATEO, CA

November 20, 1987

Mr. Sumner Palmer
Town of Lafayette - Supervisor
P.O. Box 190
Lafayette, New York 13084

Dear Mr. Palmer:

As I mentioned during our telephone conversation on November 20, 1987, URS Corporation is currently conducting a Phase I investigation of the "Onondaga Nation - Site B" located just west of Interstate 81 - Exit 16, on the Onondaga Nation, Onondaga County, New York.

We are performing this investigation for the New York State Department of Environmental Conservation pursuant to the requirements of the New York State Superfund Law (Chapter 857 of the Laws of 1982).

This is to confirm our telephone conversation wherein you provided the following information:

- Residences along Coye Road, within a distance of 3-miles from the site, are served by the Onondaga County Water Authority (O.C.W.A.) Municipal Community Water System.

- The remainder of the population of the Town of Lafayette, which are located within a 3-mile radius of the site, utilize private wells as a sole source of water., and spring water.

A map which identifies the portion of the Town of Lafayette within a 3-mile radius of the Site is enclosed for your convenience. We would appreciate if you would review this information, note any necessary corrections, and return a signed and dated copy to indicate your concurrence. Your prompt attention to this would be appreciated, as the information is necessary to complete our evaluation of the site.

Sincerely,

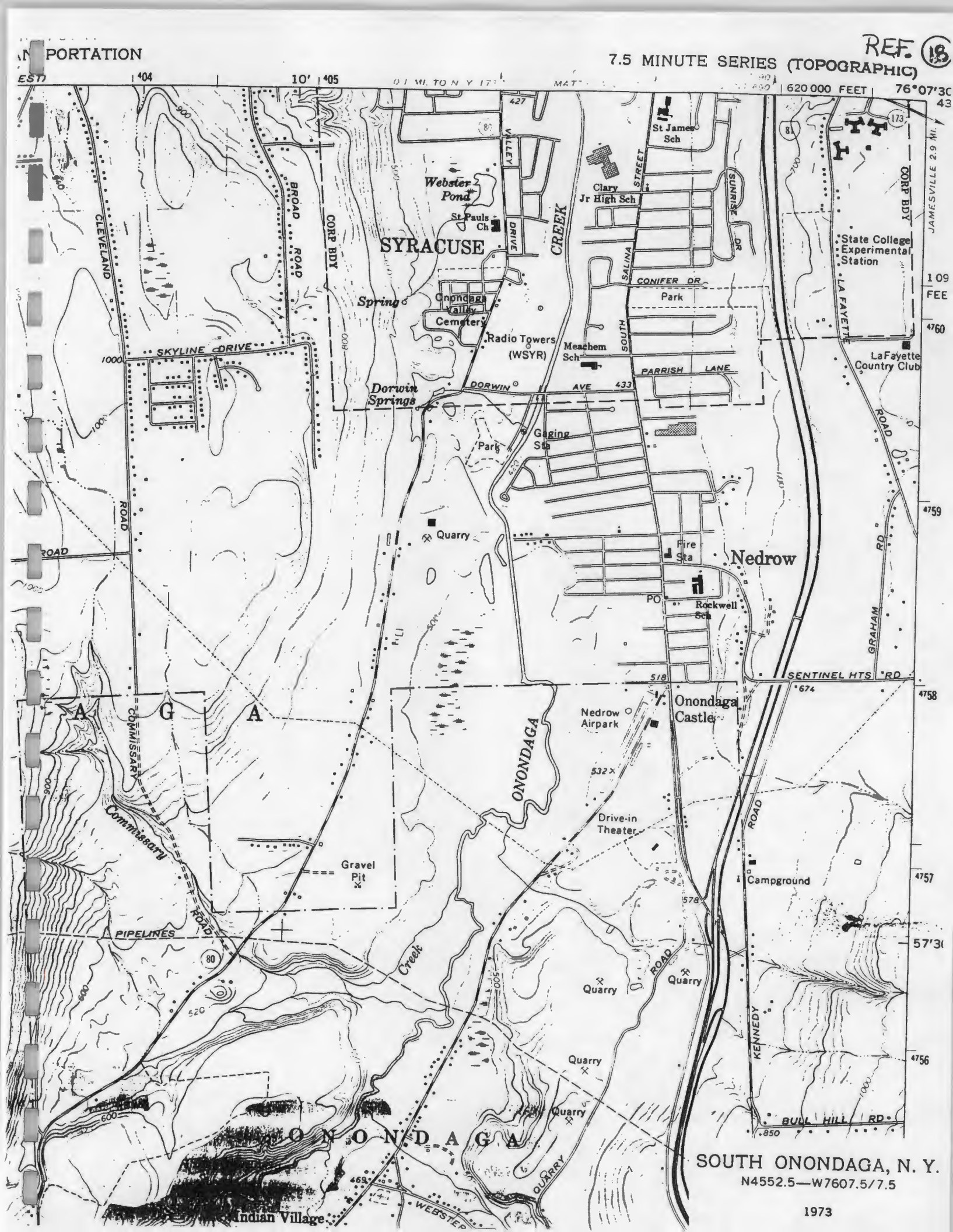
URS CORPORATION
Linda J. Clark
Linda J. Clark
Project Geologist

I agree with the information as it is presented.

Sumner Palmer
Sumner Palmer

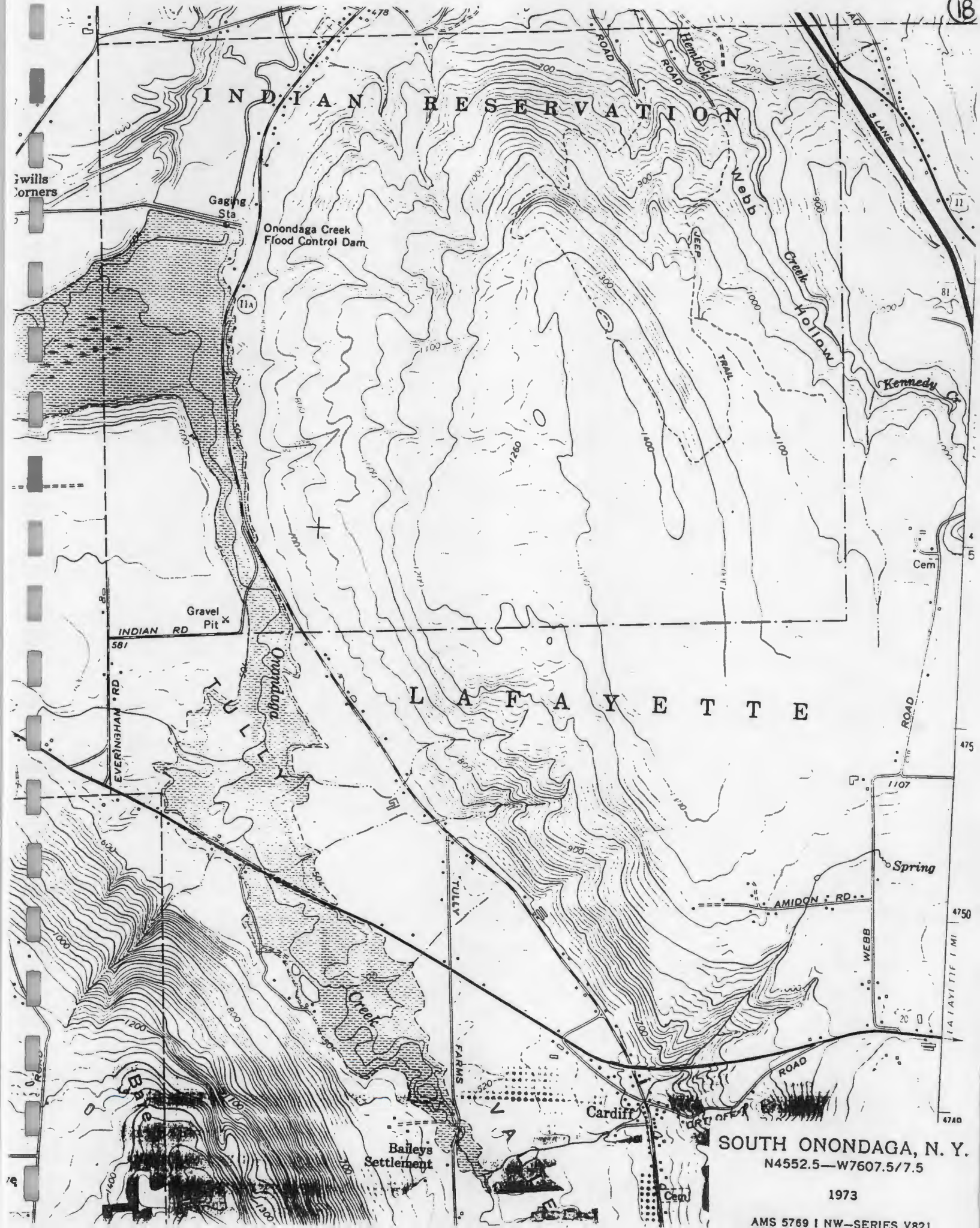
Nov. 27, 1987
Date

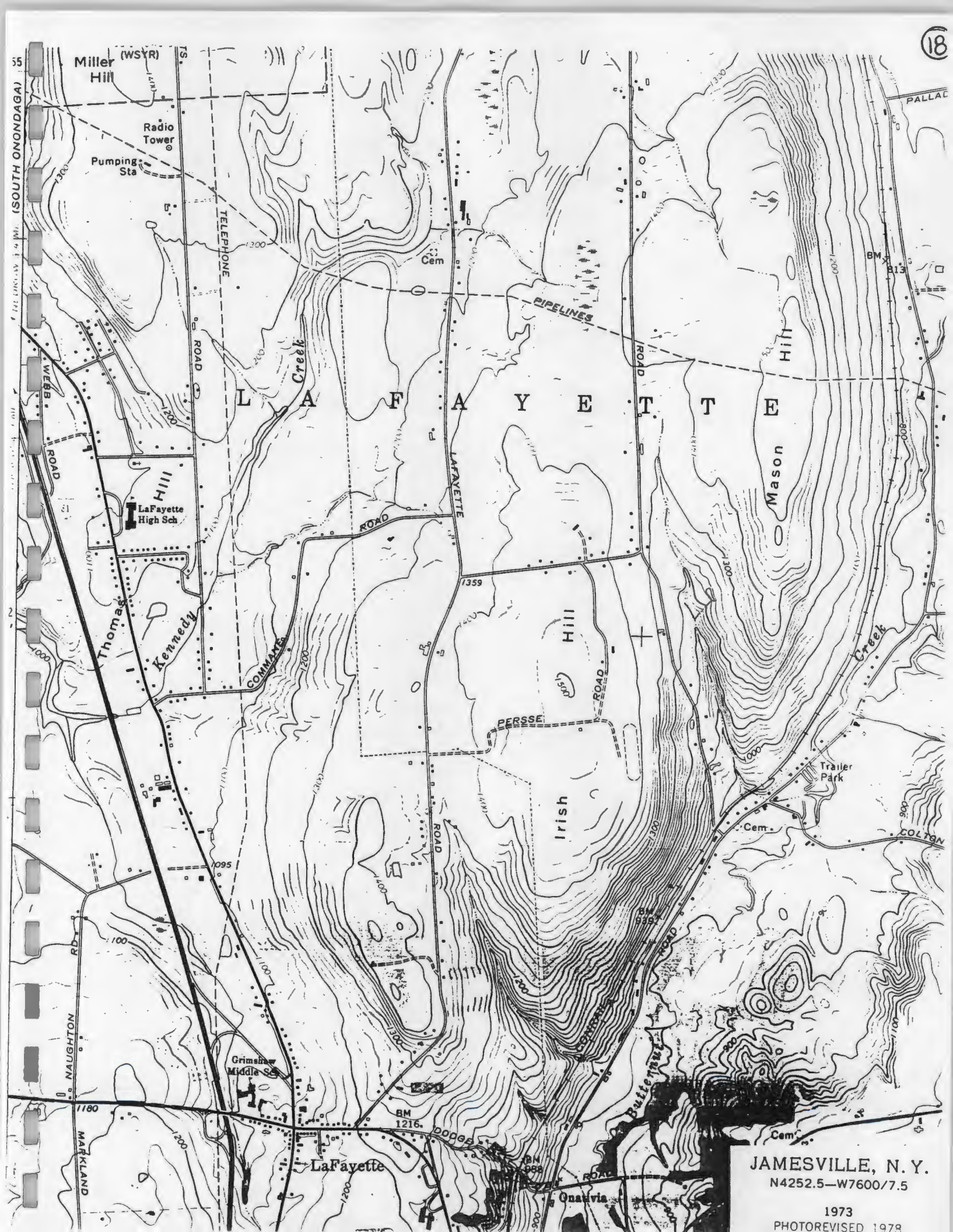
LJC/mb
35154



SOUTH ONONDAGA, N. Y.
N4552.5—W7607.5/7.5

1973

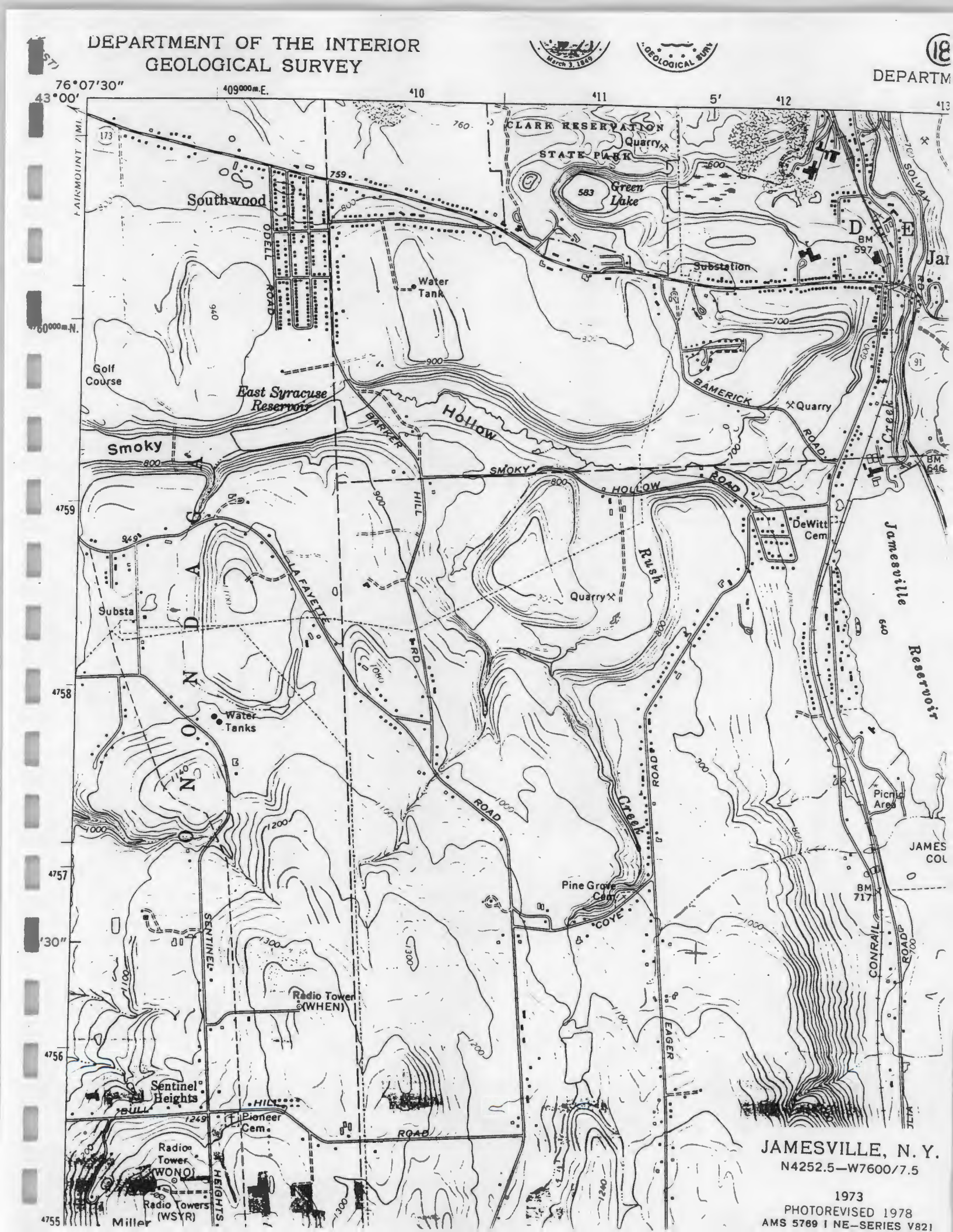

INDIAN RESERVATION
Gaging Sta
Onondaga Creek Flood Control Dam
Webb Creek
Hollow
Kennedy Cr
Hemlock
ROAD
JEEP TRAIL
Cem
Gravel Pit
INDIAN RD
581
EVERINGHAM RD
Onondaga
TULLY
LAFAYETTE
ROAD
Spring
AMIDON RD
WEBB
TULLY FARMS
Creek
Cardiff
DRIVE
Baileys Settlement
Cem
SOUTH ONONDAGA, N. Y.
N4552.5—W7607.5/7.5
1973
AMS 5769 I NW—SERIES V821



JAMESVILLE, N. Y.
N4252.5—W7600/7.5

1973
PHOTOREVISED 1978

DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY



JAMESVILLE, N. Y.
N4252.5—W7600/7.5

1973
PHOTOREVISED 1978
AMS 5769 I NE—SERIES V821

SYRACUSE WEST, N. Y.
N4300—W7607.5/7.5

1973
PHOTOREVISED 1978
AMS 5770 II SW—SERIES V821

18

REF. (19)

URS Company, Inc.
CONSULTING ENGINEERS
NEW YORK NEW JERSEY

JOB NO. 35154

JOB TITLE NYS Superfund

MEMO OF TELECON

DATE 11-18-87 TELEPHONE # (315) 423-5476

PERSON CALLING Linda Clark PERSON CALLED

REPRESENTING URS REPRESENTING Fed. Bureau of Indian Affairs (Syracuse)

PURPOSE OF TELECON AND/OR EQUIPMENT INVOLVED: population - Onondaga Nation

TEXT OF TELECON

o total population of the Onondaga Reservation is 1,034.

CC:

REF. (20)

New York State Department of Environmental Conservation
Region 7
Division of Regulatory Affairs
PO Box 5170
Cortland, NY 13045-5170
(607) 753-3095

Thomas C. Jorling
Commissioner

October 2, 1987

URS Corporation
570 Delaware Avenue
Buffalo, New York 14202

Attention: Linda J. Clark, Project Geologist

Dear Ms. Clark,

I am returning your maps with the State regulated wetlands and protected streams so designated.

I do not have at my disposal all of the information you requested so my statement of no other concerns speaks only to my knowledge and concerns that I am aware of at this time.

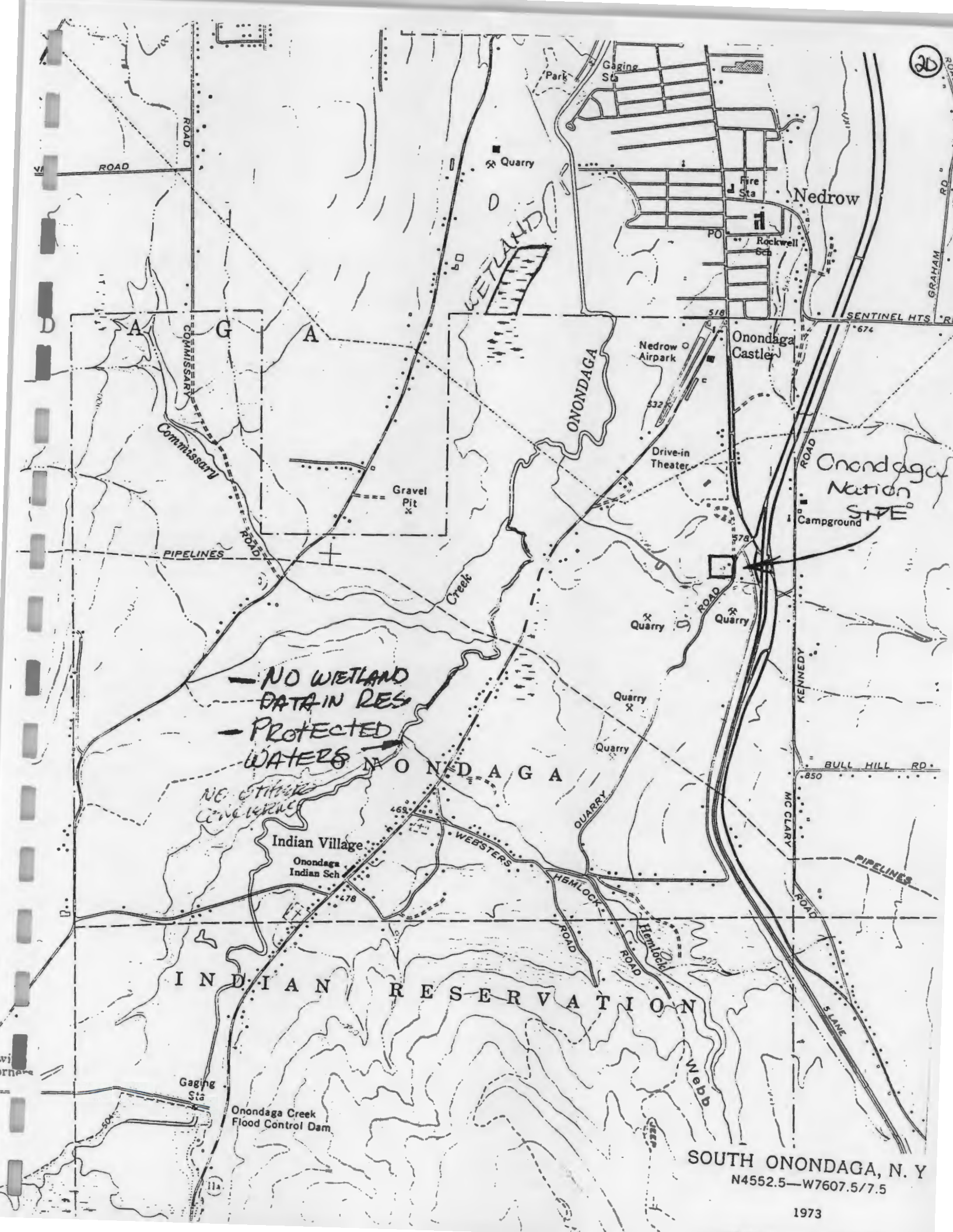
If a site qualified for further action, a more detailed investigation should be undertaken.

I hope my information is helpful. If I can assist further, please advise.

Sincerely yours,

A. A. Coburn
Regional Permit Administrator

Enclosures


20
Gaging Sta
Park
Quarry
Fire Sta
Nedrow
PO
Rockwell Sch
WETLAND
ROAD
GRAHAM RD
SENTINEL HTS
518
674
Nedrow Airpark
Onondaga Castle
ONONDAGA
532
Drive-in Theater
COMMISSARY ROAD
Gravel Pit
Onondaga Nation SITE
Campground
578
PIPELINES
Creek
Quarry
ROAD
KENNEDY
— NO WETLAND DATA IN RES.
— PROTECTED WATERS
ONONDAGA
BULL HILL RD
850
MC CLARY
QUARRY
Indian Village
Onondaga Indian Sch
478
WEBSTERS
HEMLOCK
Hemlock
ROAD
INDIAN RESERVATION
5 LANE
Webb
Gaging Sta
Onondaga Creek Flood Control Dam
SOUTH ONONDAGA, N. Y
N4552.5—W7607.5/7.5
1973

5.5 USEPA SITE INSPECTION FORM 2070-13

Site Inspection Report

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

EPA

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
NY	NYSDEC #734027

II. SITE NAME AND LOCATION

01 SITE NAME (Legal, common, or descriptive name of site)	02 STREET, ROUTE NO., OR SPECIFIC LOCATION IDENTIFIER
Onondaga Nation - Site B	Quarry Road and NYS Route 11

03 CITY	04 STATE	05 ZIP CODE	06 COUNTY	07 COUNTY CODE	08 CONG DIST
Onondaga Nation	NY		Onondaga		

09 COORDINATES LATITUDE	LONGITUDE	10 TYPE OF OWNERSHIP (Check one)
42° 57' 35".N	76 08' 45".W	☐ A. PRIVATE ☐ B. FEDERAL _____ ☐ C. STATE ☐ D. COUNTY ☐ E. MUNICIPAL ☒ F. OTHER Onondaga Nation ☐ G. UNKNOWN

III. INSPECTION INFORMATION

01 DATE OF INSPECTION	02 SITE STATUS	03 YEARS OF OPERATION
11 / 4 / 87 (MONTH DAY YEAR)	☒ ACTIVE ☐ INACTIVE	mid 1960's late 1960's (BEGINNING YEAR ENDING YEAR) ☐ UNKNOWN

04 AGENCY PERFORMING INSPECTION (Check all that apply)

☐ A. EPA ☐ B. EPA CONTRACTOR _____ (Name of firm) ☐ C. MUNICIPAL ☐ D. MUNICIPAL CONTRACTOR _____ (Name of firm)
☐ E. STATE ☒ F. STATE CONTRACTOR URS Corporation (Name of firm) ☐ G. OTHER _____ (Specify)

05 CHIEF INSPECTOR	06 TITLE	07 ORGANIZATION	08 TELEPHONE NO.
Linda J. Clark	Project Geologist	URS Corp.	(716) 883-5525
09 OTHER INSPECTORS	10 TITLE	11 ORGANIZATION	12 TELEPHONE NO.
Martin D. Brand	Sr. Engineering Geologist	NYSDEC	(518) 457-9538
William Shaw	Jr. Engineering Geologist	NYSDEC	(518) 457-9538
			( )
			( )
			( )

13 SITE REPRESENTATIVES INTERVIEWED	14 TITLE	15 ADDRESS	16 TELEPHONE NO
Ed Cook	Chief	Onondaga Nation	( )
			( )
			( )
			( )
			( )
			( )

17 ACCESS GAINED BY (Check one)	18 TIME OF INSPECTION	19 WEATHER CONDITIONS
☒ PERMISSION ☐ WARRANT	9:00 a.m.	65°F, Sunny to overcast

IV. INFORMATION AVAILABLE FROM

01 CONTACT	02 OF (Agency/Organization)	03 TELEPHONE NO.
Daniel W. Rothman	URS Corporation	716) 883-5525

04 PERSON RESPONSIBLE FOR SITE INSPECTION FORM	05 AGENCY	06 ORGANIZATION	07 TELEPHONE NO.	08 DATE
Linda J. Clark		URS Corp.	(716) 883-5525	11 / 30 / 87 (MONTH DAY YEAR)

EPA FORM 2070-13 (7-81)

EPA

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

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
NY	NYSDEC #734027

II. WASTE STATES, QUANTITIES, AND CHARACTERISTICS

01 PHYSICAL STATES (Check all that apply)

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

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

- TONS _____
- CUBIC YARDS ~~500~~ 400
- NO. OF DRUMS est. ~~500~~

03 WASTE CHARACTERISTICS (Check all that apply)

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

III. WASTE TYPE

CATEGORY	SUBSTANCE NAME	01 GROSS AMOUNT	02 UNIT OF MEASURE	03 COMMENTS
SLU	SLUDGE			800 drums on site, 150-200
OLW	OILY WASTE			contain wastes or unknown
SOL	SOLVENTS			material. Possible buried
PSD	PESTICIDES			drums. Black, viscous tar-like
OCC	OTHER ORGANIC CHEMICALS			substance; also, brown liquid
IOC	INORGANIC CHEMICALS			waste.
ACD	ACIDS			
BAS	BASES			
MES	HEAVY METALS			

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

01 CATEGORY	02 SUBSTANCE NAME	03 CAS NUMBER	04 STORAGE/DISPOSAL METHOD	05 CONCENTRATION	06 MEASURE OF CONCENTRATION
	benzyl alcohol		drums	unknown	
	acetone		drums	unknown	
	ethylbenzene		drums	2,441,000	ug/kg
	acetic acid		drums	unknown	
	benzoic acid		drums	unknown	
	xylenes		drums	16,000	ug/kg
	numerous unknowns		drums	unknown	
	barium		drums	91	ug/l
	chromium		drums	11	ug/l
	lead		drums	727	ug/l

V. FEEDSTOCKS (See Appendix for CAS Numbers)

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

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

NYSDEC - Region 7

EPA

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

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
NY	NYSDEC #734027

II. HAZARDOUS CONDITIONS AND INCIDENTS

01 ☒ A. GROUNDWATER CONTAMINATION — 02 ☐ OBSERVED (DATE: _____) — ☒ POTENTIAL — ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: 6,214 — 04 NARRATIVE DESCRIPTION

Private wells and municipal community well in area provide source of potable water supply. Wastes contained in drums (unsound, leaking) on ground surface.

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

Onondaga Creek lies west of the site. Wastes contained in drums (unsound, leaking) on ground surface. Numerous drums observed lying in surface water onsite.

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

None reported

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

None reported

01 ☒ E. DIRECT CONTACT — 02 ☐ OBSERVED (DATE: _____) — ☒ POTENTIAL — ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: 794 — 04 NARRATIVE DESCRIPTION

The site is not fenced and fairly accessible. Drums present on ground surface.

01 ☒ F. CONTAMINATION OF SOIL — 02 ☐ OBSERVED (DATE: _____) — ☒ POTENTIAL — ☐ ALLEGED
03 AREA POTENTIALLY AFFECTED: 25 (Acres) — 04 NARRATIVE DESCRIPTION

Drums observed leaking their contents on ground surface.

01 ☒ G. DRINKING WATER CONTAMINATION — 02 ☐ OBSERVED (DATE: _____) — ☒ POTENTIAL — ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: 6,214 — 04 NARRATIVE DESCRIPTION

Private wells and municipal community well in area provide source of potable 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: 17,575 — 04 NARRATIVE DESCRIPTION

Population within a 3 mile radius can potentially be affected.

Potential groundwater and surface water contamination.

EPA

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

I. IDENTIFICATION
01 STATE: NY | 02 SITE NUMBER: NYSDEC #734027

II. HAZARDOUS CONDITIONS AND INCIDENTS (Continued)

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

None reported

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

None reported

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

None reported

01 ☒ M. UNSTABLE CONTAINMENT OF WASTES (Spills Runoff Standing liquids Leaking drums) — 02 ☒ OBSERVED (DATE: 11-87) ☐ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: 17,575 — 04 NARRATIVE DESCRIPTION

(Approximate population within 3 mile radius.) Drums were observed leaking contents onto ground surface.

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

None reported

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

None reported

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

Unauthorized dumping of approximately 800 drums and hospital waste.

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

None known

III. TOTAL POPULATION POTENTIALLY AFFECTED: _____

IV. COMMENTS

Community and private wells serve a large portion of the population in the area. Limited groundwater sampling (private wells) indicate no contaminants detected.

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

NYSDEC - Region 7
NYSDOH - Syracuse Regional Office
Onondaga County Health Dept.
Onondaga Nation
Town of Onondaga, NY
Town of Lafayette, NY
Village of E. Syracuse, NY
City of Syracuse, NY

EPA

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

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
NY	NYSDEC #734027

II. PERMIT INFORMATION

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

III. SITE DESCRIPTION

01 STORAGE/DISPOSAL (Check all that apply)	02 AMOUNT	03 UNIT OF MEASURE
☐ A. SURFACE IMPOUNDMENT		
☐ B. PILES		
☒ C. DRUMS, ABOVE GROUND	est. 800	55 gal.
☒ D. TANK, ABOVE GROUND	1	est. 1500 gal
☐ E. TANK, BELOW GROUND		
☐ F. LANDFILL		
☐ G. LANDFARM		
☐ H. OPEN DUMP		
☐ I. OTHER (Specify)		

04 TREATMENT (Check all that apply)

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

05 OTHER

- ☐ A. BUILDINGS ON SITE

06 AREA OF SITE

approx. 25 (Acres)

07 COMMENTS

The number of drums present at the site is estimated by NYSDEC to be approximately 800, with 150-200 containing wastes or unknown material. There is the possibility of a large number of buried drums.

IV. CONTAINMENT

01 CONTAINMENT OF WASTES (Check one)

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

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

Majority of drums are not sealed and some were observed leaking their contents onto the ground surface.

V. ACCESSIBILITY

01 WASTE EASILY ACCESSIBLE: ☒ YES ☐ NO

02 COMMENTS

There is no fence; wastes are in drums, on ground surface, and fairly accessible.

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

NYSDEC - Region 7
NYSDOH - Syracuse Regional Office
Onondaga County Health Dept.

EPA

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

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
NY	NYSDEC #734027

II. DRINKING WATER SUPPLY

01 TYPE OF DRINKING SUPPLY (Check as applicable)

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

02 STATUS

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

03 DISTANCE TO SITE

A. 3 (mi)
B. 0.09 (mi)

III. GROUNDWATER

01 GROUNDWATER USE IN VICINITY (Check one)

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

02 POPULATION SERVED BY GROUND WATER 6,214

03 DISTANCE TO NEAREST DRINKING WATER WELL 0.09 (mi)

04 DEPTH TO GROUNDWATER	05 DIRECTION OF GROUNDWATER FLOW	06 DEPTH TO AQUIFER OF CONCERN	07 POTENTIAL YIELD OF AQUIFER	08 SOLE SOURCE AQUIFER
est. 31 (ft)		est. 31 (ft)	(gpd)	☐ YES ☐ NO

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

Groundwater largely occurs within fractures and along bedding planes of the bedrock units, as well as pore spaces of the unconsolidated overburden sediments which are largely till.

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

IV. SURFACE WATER

01 SURFACE WATER USE (Check one)

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

02 AFFECTED/POTENTIALLY AFFECTED BODIES OF WATER

NAME:	AFFECTED	DISTANCE TO SITE
Onondaga Creek	☐	0.7 (mi)
unnamed tributary to Onondaga Creek	☐	0.0 (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. 794 NO. OF PERSONS	B. 7,562 NO. OF PERSONS	C. 17,575 NO. OF PERSONS

02 DISTANCE TO NEAREST POPULATION 0.09 (mi)

03 NUMBER OF BUILDINGS WITHIN TWO (2) MILES OF SITE 2,053

04 DISTANCE TO NEAREST OFF-SITE BUILDING 0.09 (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)

A portion of the City of Syracuse lies within a 3 mile radius of the site, which in conjunction with the community of Nedrow south of Syracuse, accounts for the vast majority of the population in the area. The remaining areas are relatively sparsely populated. A large portion of these are served by private wells for a potable water supply.

EPA

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

I. IDENTIFICATION
01 STATE: NY | 02 SITE NUMBER: NYSDEC #734027

VI. ENVIRONMENTAL INFORMATION

01 PERMEABILITY OF UNSATURATED ZONE (Check one)

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

02 PERMEABILITY OF BEDROCK (Check one)

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

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

06 NET PRECIPITATION	07 ONE YEAR 24 HOUR RAINFALL	08 SLOPE: SITE SLOPE	DIRECTION OF SITE SLOPE	TERRAIN AVERAGE SLOPE
10.8 (in)	2.3 (in)	5-8 %	W-SW	5-8 %

09 FLOOD POTENTIAL

SITE IS IN _____ YEAR FLOODPLAIN

10

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

11 DISTANCE TO WETLANDS (5 acre minimum)

ESTUARINE	OTHER
A. _____ (mi)	B. 0.9 (mi)

12 DISTANCE TO CRITICAL HABITAT (of endangered species)

_____ (mi)

ENDANGERED SPECIES: none known

13 LAND USE IN VICINITY

DISTANCE TO:

COMMERCIAL/INDUSTRIAL	RESIDENTIAL AREAS; NATIONAL/STATE PARKS, FORESTS, OR WILDLIFE RESERVES	AGRICULTURAL LANDS: PRIME AG LAND	AG LAND
A. 0.03 (mi)	B. 0.09 (mi)	C. 0.2 (mi)	D. 0.2 (mi)

14 DESCRIPTION OF SITE IN RELATION TO SURROUNDING TOPOGRAPHY

The site topography, as well as the surrounding area, are somewhat irregular. Much of the site is relatively flat-lying; however steep embankments occur at the edge of the site in most directions. Embankments separate the site from areas of higher elevation to the east and south, and low lying drainage areas to the west and southwest.

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

NYSDEC-Region 7
Onondaga County Soil and Water Conservation District
NYS Geological Assoc. Guidebook-36th annual mtg., May 1964.
NYS Museum and Science Service-map & chart series #15 & 40

EPA

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

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
NY	NYSDEC #734027

II. SAMPLES TAKEN

SAMPLE TYPE	01 NUMBER OF SAMPLES TAKEN	02 SAMPLES SENT TO	03 ESTIMATED DATE RESULTS AVAILABLE
GROUNDWATER		No additional sampling performed	
SURFACE WATER			
WASTE			
AIR			
RUNOFF			
SPILL			
SOIL			
VEGETATION			
OTHER			

III. FIELD MEASUREMENTS TAKEN

01 TYPE	02 COMMENTS

IV. PHOTOGRAPHS AND MAPS

01 TYPE ☒ GROUND ☐ AERIAL

02 IN CUSTODY OF URS Corporation (Name of organization or individual)

03 MAPS ☒ YES ☐ NO

04 LOCATION OF MAPS: URS Corporation-570 Delaware Avenue-Buffalo, New York 14202

V. OTHER FIELD DATA COLLECTED (Provide narrative description)

Preliminary air monitoring conducted using a Photovac TIP instrument. Contaminants detected (approx.30-35ppm)in proximity to waste only.

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

Site inspection

USGS 7.5 minute series topographic maps (South Onondaga, N.Y., Jamesville, N.Y. and Syracuse West, N.Y. Quadrangles). NYS Museum and Science Service-map and chart series 15 & 40.

EPA

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

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
NY	NYSDEC #734027

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
Onondaga Nation		P. O. Box 85		Nedrow	NY	

PARENT COMPANY (If applicable)

08 NAME	09 D+B NUMBER	10 STREET ADDRESS (P.O. Box, RFD #, etc.)	11 SIC CODE	12 CITY	13 STATE	14 ZIP CODE

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

01 NAME	02 D+B NUMBER	03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE	05 CITY	06 STATE	07 ZIP CODE

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)

NYSDEC
Onondaga Nation

EPA

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

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
NY	NYSDEC #734027

II. CURRENT OPERATOR (Provide if different from owner)

01 NAME	02 D+B NUMBER
Same as owner info.	

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

05 CITY	06 STATE	07 ZIP CODE

08 YEARS OF OPERATION	09 NAME OF OWNER

OPERATOR'S PARENT COMPANY (If applicable)

10 NAME	11 D+B NUMBER

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

14 CITY	15 STATE	16 ZIP CODE

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

01 NAME	02 D+B NUMBER

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

05 CITY	06 STATE	07 ZIP CODE

08 YEARS OF OPERATION	09 NAME OF OWNER DURING THIS PERIOD

PREVIOUS OPERATORS' PARENT COMPANIES (If applicable)

10 NAME	11 D+B NUMBER

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

14 CITY	15 STATE	16 ZIP CODE

01 NAME	02 D+B NUMBER

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

05 CITY	06 STATE	07 ZIP CODE

08 YEARS OF OPERATION	09 NAME OF OWNER DURING THIS PERIOD

10 NAME	11 D+B NUMBER

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

14 CITY	15 STATE	16 ZIP CODE

01 NAME	02 D+B NUMBER

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

05 CITY	06 STATE	07 ZIP CODE

08 YEARS OF OPERATION	09 NAME OF OWNER DURING THIS PERIOD

10 NAME	11 D+B NUMBER

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

14 CITY	15 STATE	16 ZIP CODE

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

NYSDEC
Onondaga Nation

EPA

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

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
NY	NYSDEC #734027

II. ON-SITE GENERATOR

01 NAME	02 D+B NUMBER

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

05 CITY	06 STATE	07 ZIP CODE

III. OFF-SITE GENERATOR(S)

01 NAME	02 D+B NUMBER	01 NAME	02 D+B NUMBER
Cowles Chemical Company (alleged)			
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
Solvent Savers, Inc. (alleged)			
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)

NYSDEC
NYSDOH-Syracuse Regional Office
Onondaga County Health Dept.

EPA

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

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
NY	NYSDEC #734027

II. PAST RESPONSE ACTIVITIES

01 ☐ A. WATER SUPPLY CLOSED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

EPA

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

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
NY	NYSDEC #734027

II PAST RESPONSE ACTIVITIES (Continued)

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

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

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

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

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

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

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

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

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

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

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

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

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

NYSDEC

EPA

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

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
NY	NYSDEC #734027

II. ENFORCEMENT INFORMATION

01 PAST REGULATORY/ENFORCEMENT ACTION ☐ YES ☒ NO

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

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

NYSDEC

6.0 ASSESSMENT OF DATA ADEQUACY AND RECOMMENDATIONS

Data collected during this Phase I investigation of the Onondaga Nation - Site B which were used to develop the Hazard Ranking System (HRS) scores, are considered inadequate in the following areas:

- o Observed Releases:
  - Groundwater sampling and analyses have been conducted by the New York State Department of Health (NYSDOH) on four private wells in the area, the results of which indicate no contaminants were detected. Additional information is necessary, however, to determine groundwater flow patterns and the extent, if any, of contaminant migration offsite.
  - No surface water sampling/analyses have been conducted at the site; therefore, no information is presently available to conclusively assess the impact of the site on this route.
  - A complete air monitoring program has not been conducted at the site. As part of this investigation, a preliminary survey was performed using a Photovac TIP instrument. Contaminants measured above background levels only in proximity to some drums which contained wastes.
- o Waste Characteristics:
  - Limited waste sampling and analytical data have confirmed the presence of some contaminants at the site. However, additional information is necessary to identify all hazardous substances, the outcome of which could increase the final toxicity/persistence scores. (At present the toxicity/persistence score is 15; maximum score possible

is 18.) This could affect both the groundwater and surface water route scores, as well as the composite migration route score. In November 1987, the NYSDEC and NYSDOH collected five (5) waste samples from onsite drums for analyses. The laboratory results indicate the presence of acetone, ethylbenzene, acetic acid, benzoic acid, xylenes, numerous unknowns (total RNA), barium, chromium and lead.

- Additional information is necessary in order to provide an accurate assessment of waste quantity. Scoring was based on estimates of the number of drums present and percentage still containing material. These numbers do not include drums which may have contained hazardous materials at the time of disposal (quantity unknown) and have since leaked their contents. In addition, there may be additional wastes which are below the ground surface, and have not been included in the total quality.

o Targets:

- Information on fresh-water wetlands and critical habitat of endangered species is available only for the area outside the Onondaga Nation, Thus, the actual distance to sensitive environments may in fact be less, which would result in a higher score.

6.1 APPENDIX A - DATA SOURCES AND REFERENCES

DATA SOURCES AND REFERENCES

1. Results of Examination, New York State Department of Health, Wadsworth Center for Laboratories and Research, August 7, 1987.

2. Geologic Map of New York - Finger Lakes Sheet, Lawrence V. Rickard and Donald W. Fisher, 1970.

3. Surficial Geologic Map of New York - Finger Lakes Sheet, Ernest H. Muller and Donald H. Cadwell, 1986.

4. New York State Geological Association Guidebook - 36th Annual Meeting, Syracuse University, Department of Geology, May 8-10, 1964.

5. Superfund National Priorities List Seminar - EPA Region II, The Mitre Corporation, April 2-3, 1986.

6. Climates of the States, New York, Climatography of the United States No. 60-30, U.S. Department of Commerce Weather Bureau, February 1960.

7. Uncontrolled Hazardous Waste Site Ranking System - A Users Manual (HW-10), United States Environmental Protection Agency, 1984.

8. David A. Mosher, District Field Manager - Onondaga County Soil and Water Conservation District letter to Muffett A. Mauche, Staff Engineer - LeRoy Callender, PC, August 24, 1987.

9. David J. Curtis, P.E., Senior Sanitary Engineer - New York State Department of Environmental Conservation (NYSDEC), Central Remedial Projects Section memorandum to Frank T. Ricotta, Supervisor - NYSDEC, Central Remedial Projects Section, October 3, 1987.

10. David J. Curtis, P.E., Senior Sanitary Engineer - New York State Department of Environmental Conservation (NYSDEC), Central Remedial Projects Section letter to William Lazore, Chief - Onondaga Nation, January 20, 1984.

11. Dangerous Properties of Industrial Materials - Sixth Edition, N. Irving Sax, Van Nostrand Reinhold Company, New York, 1984.

11A. Versar, Inc. Analytical Results for NYSDEC Drum Sampling - Onondaga Nation - Site B, November 24, 1987.

12. Site Inspection Notes - Onondaga Nation - Site B, Linda J. Clark, Project Geologist - URS Corporation confirmed by Ed Cook, Chief - Onondaga Nation, November 4, 1987.

12A. Martin D. Brand, Sr. Engineering Geologist - New York State Department of Environmental Conservation (NYSDEC) letter to Daniel W. Rothman, Project Manager, URS Company, Inc., October 1988.

13. New York State Atlas of Community Water System Sources, New York State Department of Health - Division of Environmental Protection, Bureau of Public Water Supply Protection, 1982.

14. Linda J. Clark, Project Geologist - URS Corporation letter to Carl Sterling, Clerk Treasurer - Village of E. Syracuse, November 19, 1987.

15. Linda J. Clark, Project Geologist - URS Corporation letter to Lee Fordock - City of Syracuse, Water Engineering Department, November 19, 1987.

16. Linda J. Clark, Project Geologist - URS Corporation letter to Sumner Palmer, Supervisor - Town of Lafayette, November 20, 1987.

18. USGS Topographic Maps 7.5 Minute Series; South Onondaga, New York Quadrangle, 1973; Jamesville, New York Quadrangle, 1978; Syracuse West, New York Quadrangle, 1978.

19. Linda J. Clark, Project Geologist - URS Corporation telecon to Federal Bureau of Indian Affairs - Syracuse Office, November 18, 1987.

20. A.A. Coburn, Regional Permit Administrator - New York State Department of Environmental Conservation, Region 7, Division of Regulatory Affairs letter to Linda J. Clark, Project Geologist - URS Corporation, October 2, 1987.

21. Mr. Heerkens - New York State Department of Health (NYSDOH) Interoffice Memorandum to Mr. McCarthy - NYSDOH, June 9, 1987.

22. D. Abbott - Onondaga County Department of Health, Division of Environmental Sanitation memo to S. Burdick - Onondaga County Department of Health, May 13, 1983.

23. David H. King, Chief - New York State Department of Environmental Conservation (NYSDEC), Bureau of Remedial Action memorandum to Charles N. Goddard - NYSDEC, Bureau of Hazardous Site Control, December 14, 1983.

24. Geology of New York: A Short Account, Educational Leaflet No. 20, The University of the State of New York - The State Education Department, 1966.

REF. (21)

ONON IND RE

~~XC: FOR REF~~

~~FILE~~

STATE OF NEW YORK—DEPARTMENT OF HEALTH

INTEROFFICE MEMORANDUM

To: Mr. McCarthy

From: Mr. Heerkens

Date: June 9, 1987

Subject: Onondaga Nation
Waste Disposal Sites

As you requested, on June 3, 1987, Sterling Burdick of the Onondaga County Health Department, Tony Rodriguez of OHSM and I met with Edwin Cooke and Paul Waterman of the Council of Chiefs to inspect the area where apparent hospital waste was disposed of and the area listed as the "B Site", #734027 listed on the State's Registry of In Place Hazard Waste Sites.

The Chiefs showed us an area off Quarry Road in a creek gully where numerous truck loads of hospital waste had been dumped apparently in the late 1960s. The pile is approximately 200' long by 20'-50' wide and 3'-6' deep, is uncovered and in contact with two small creeks, one of which is intermittent. While not readily apparent from the highway, the site is accessible and unsecured.

The waste itself consists of plastic containers; bottles of various kinds including sterile water, I.V. containers and laboratory reagent bottles; syringes of several types; plastic tubing, used dressings and apparent cafeteria waste. Mr. Rodriguez found small plastic bags with the name and address of Community General Hospital.

I am attempting to assess whether the material could be considered as a hazardous waste. As old as it appears to be, the infectious potential seems limited at this time. I have discussed the situation with Dr. Carlson and he is considering the matter at this time. I will also contact DEC.

Regarding the barrel site (B Site), we found numerous barrels, mostly empty, scattered around property once operated as a dump and junkyard by Mr. Benny Shenandoah who is now deceased.

This site is to be investigated under the regular hazardous waste site inspection procedure and I will set up a field visit with DEC and their consultant.

Since there are homes with private water supplies nearby and down gradient of both of these sites, we will arrange to sample representative wells.

CC: Mr. Burdick
Mr. Taylor
Dr. Carlson
Mr. Andrzejewski
Mr. Rodriguez
Mr. Winters

REF. (22)

ONONDAGA COUNTY DEPARTMENT OF HEALTH
DIVISION OF ENVIRONMENTAL SANITATION

MEMO

Peter Guala, P.E., Director

TO: S. Burdick

DATE: May 13, 1983

FROM: D. Abbott

SUBJECT: Onondaga Indian Reservation Barrel Site, Route 11, Nedrow

3 Patineau 469-3497 (home)

I made a telephone call to Ms. Ronnie Patineau, Route 11, Nedrow, 492-4212, concerning the complaint call referred to us (# SW-1-10) that she made to the New York State Department of Environmental Conservation (DEC) Region 7 office about barrels. Ronnie Patineau was not in so I left my name and number and a message for Ronnie Patineau to call me.

Ronnie Patineau called me back and told me about six barrels at the Salina Drive-In, Route 11, Nedrow. I told her we would have to get permission from the Chief to come on the Reservation. She said she would call Chief Bill Lazore. I then received a call from Chief Bill Lazore and he said besides the six barrels at the Drive-In they have an area where they allowed someone to dump material several years ago that may have radioactive waste in it. The Chief wanted to know if we could bring a geiger counter down to take some readings. I told him I would have to clear this with our Commissioner of Health and I would call him back. He gave me his telephone number (492-2573).

I then met with Bob Burdick, Joe Plano, and Dr. Harris and described the above. Dr. Harris said we would have to contact the State Health Department about it.

Joe Plano placed a call to Joseph Barry, Area Public Health Director, Syracuse Area Office, New York State State Health Department and explained the situation to him. Joe Barry said to call the Chief back and tell him that we would represent the State in checking out the suspicous material and to have the Chief accompany us.

We then made arrangements to have Ross Devendorf and Terry Norris go to the Reservation with me.

I telephoned Chief Bill Lazore and arranged to meet him at the entrance to the Salina Drive-In at 2 pm today.

1:54-3:00 pm - At the Salina Drive-In with Ross Devendorf and Terry Norris. We met with Chief Bill Lazore and Ronnie Patineau. I looked at the barrels closest to the Drive-In Smoke Shop and I found four barrels with a liquid material in them. I was able to get a stopper plug out of one of the barrels. It had a sweet aromatic detergent type odor. Only one of the drums had a label which I could read "1,-1,-1, Trichloroethane". I telephoned the office and spoke to S. Burdick. He checked out the toxicity of the above and according to the charts it is a mild toxic. I explained to Chief Lazore and Ronnie Patineau that they should leave the material alone at the present time for labels on discarded barrels don't normally indicate the true material that is in them.

Chief Lazore and some other men accompanied Ross, Terry and I to a second barrel site. This site is off to the south of the Drive-In and is located in an old dump site.

The rusty barrels observed there were scattered about the site. Ross and Terry checked out the area with geiger counters and found no readings higher than normal background.

I went around looking at various barrels trying to find any readable labels. I found a few labels with "Cowles Chemicals Company" and "ADA Chemical Company" on them. There were approximately two hundred barrels in this area with most of them empty, but a few still had some material in them. This material for the most part had a sweet odor to it. I found one barrel with an odor similar to iodine. This dump had what appeared to be discarded hospital material in it also. A small stream runs through this site.

At this time I told Chief Lazore that I would be contacting the DEC Region 7 office toxics man to see what action they would want to take and the possitility of testing the barrels' contents. I gave Chief Lazore my card and told him I or someone from the DEC might contact him on Monday.

At this time Ross, Terry and I returned to the office.

Upon returning I first met with Bob Burdick and Sterling Burdick. I informed them on what we found at the Reservation. I then met with Joe Plano and informed him also. I telephoned the DEC but Tom Suozzo was not available so I talked to Charles Branagh. I told him all that had transpired since we received the complaint from his office. I gave him Chief Lazore's phone number. Charlie said he would discuss what took place with Tom Suozzo and other DEC officials to see what course of action they would take.

DCA/ck

copy: Dr. W. Harris
copy: Joe Plano
copy: Pete Guala
copy: Steve Lackey, Solid Waste, Region 7, DEC
copy: Tom Suozzo, Toxics, Region 7, DEC

REF. (23)

15 (12/75)

New York State Department of Environmental Conservation

MEMORANDUM

TO: Charles N. Goddard, Chief, Bureau of Hazardous Site Control
FROM: David H. King, Chief, Bureau of Remedial Action BY: David J. Curtis
SUBJECT: Onondaga Indian Reservation Inactive Hazardous Waste Sites

DATE: December 14, 1983

This office is in receipt of an internal memorandum from David Munro, Attorney for the New York State Department of Law, to that Department's file which refers to possible past disposal of hazardous wastes at the Onondaga Indian Reservation by haulers from Solvent Savers, Inc. Staff from the Bureau of Remedial Action have previously made a preliminary investigation of this disposal area located on the Indian Reservation pursuant to a request made by NYSDEC Region 7 for cleanup under the New York State Superfund's Drum Removal Program and the Indian Chief.

Two separate sites were noted during the preliminary investigation. These sites are more thoroughly described in the attached site inspection report dated October 3, 1983, prepared by David Curtis. Site A is located at the Indian Trading Post and has been recommended for cleanup under the "Round 3" Drum Removal Program. Site B is more complex. This second site is located off a back road directly adjacent to Exit 16 of Interstate 81. Approximately 400-500 barrels were found at this site. The preliminary investigation revealed that approximately 80-90 percent of the barrels found were empty. The remaining 10-20 percent contained a black, viscous tar substance which had a sweet smell associated with the waste. Two representative samples were collected at this second site and analyzed by the Division's Mobile Laboratory when it was operating in Avon. We are presently awaiting official sample results on this sampling.

Due to these findings and additional correspondence in our files (see attached Munro memo), we would recommend that the Bureau of Hazardous Site Control take a look at this second site for possible listing on the State Superfund List. Once this site is listed, it is suggested that a Phase I investigation be accomplished.

Please provide your thoughts on this matter. If you have any questions, please refer them to David Curtis, P.E., of my staff at 457-5637.

Attachment
cc: F. Ricotta
D. Curtis

DJC:msr
bcc: S. Lackey - NYSDEC Region 7

Attachment B (23)

FILE ONON INDIAN RES SITE B IN-PLACE CONON CO.

MEMORANDUM

TO: SOLVENT SAVERS FILE

FROM: DAVID MUNRO "SEE PAGE 2 UNDERLINED"

RE: Telephone Conversation of 11/15/83 with Thomas Galloway

DATE: November 16, 1983

The following is a summary of information obtained from Galloway during a 30 minute phone conversation. Galloway was a neighbor of Dale Hough's in Pompey, and went to work for Hough part-time on a salary basis at the Pompey site. At this time, Galloway was employed full-time nights at Allied Chemical Corporation in Syracuse. Galloway states that he started working for Hough part-time in the early 60's, probably 1962 or 1963. Several years later, Galloway became a full-time "partner" with Hough, soon after Hough bought the parcels of property in Lincklaen and McDonough. Galloway described the partnership as one of being responsible for one half of the trucking expenses, then sharing in one half of the profits of Solvent Savers.

Galloway stated that the Pompey operation consisted wholly of re-distilling and reselling chemicals such as methyl chloride and tricloroethylene. Galloway knew who Harold Freidiani was, since Freidiani was Supervisor of the Town of Pompey, but Galloway is not aware that Freidiani was ever associated with Hough or Solvent Savers. Galloway admitted that Freidiani and Hough could have been involved in a partnership during this period without Galloway's knowledge.

Galloway described his responsibilities, both as a part-time and a full-time employee, as primarily a truck driver who went out to a number of companies and picked up barrels for Solvent Savers. He remembers the companies that he personally visited quite well, and re-affirmed the companies he named in his Bristol Affidavit, e.g. G.E., Signor Division, Sperry-Rand, Solvents and Petroleum Service, Pass and Seymour, IBM, Cowles Chemical, and Bristol Laboritories. He stated that he had no knowledge of Solvent Savers' dealings with any other companies, specifically denying knowledge regarding Allied Chemical, Carrier, Smith-Corona, Dow Chemical, and FBC Chemical Company. Regarding Carrier, Galloway specifically remembered that Carrier had

another hauler, and it was thus not interested in dealing with Hough. Galloway stated that when he drove to a particular company, he was usually handed a purchase order, which he then gave to Hough when he returned. Hough then billed the company at the end of the month, with Galloway having no other involvement in Solvent Savers' paperwork.

Galloway described the premises at Lincklaen as follows. He stated that there was a pit on the premises, where still bottoms and other miscellaneous items were incinerated. He was never directly involved in the incineration, stating that this was taken care of by Dale Hough, his son Harold, and Joe Thompson, who Galloway said is now dead. Galloway has no personal knowledge of any dumping at Lincklaen, other than accidental spillage of chemicals from time to time at the site. Since he was on the road much of the time, however, he admitted that it is entirely possible that dumping was going on at Lincklaen without his knowledge. He did emphasize a number of times, however, that Solvent Savers was a "barrel business" i.e. barrels of chemicals were sold to Solvent Savers, which then re-distilled them and resold them either back to the same companies or to a third party, primarily Lehans in New Jersey.

Galloway's information about the McDonough site is in marked contrast to that at Lincklaen. He informed me that McDonough was used soley as a burial ground, and that he personally transported at least 1,000 barrels of chemicals from Cowles Chemicals in Skineatles Falls to McDonough, and then buried these barrels underground, either alone or with Hough and others. Galloway described the Cowles chemicals as probably being out of their "filter systems", looking like molasses, and smelling pretty bad. He stated that there was no way to re-distill the Cowles chemicals, and thus they were buried at McDonough. When pressed, he stated that no other chemicals or barrels were buried at McDonough nor Lincklaen, to his knowledge.

Galloway stated that on one or two occasions, he and Hough dumped barrels at a dump "behind the Salina drive-in on the Onondaga Indian Reservation", which he identified as an official landfill, e.g. possibly used by the City of Syracuse. He was not aware of any other sites used by Solvent Savers for dumping.

Galloway described Hough as a nice old farmer-type who wore suspenders and was liked by all his neighbors. In Galloway's opinion, Hough was honest and knew what he was doing. Galloway did not deny that Hough could have been dumping wastes, but he said that Hough never told Galloway that this was in fact occurring. When I asked Galloway whether he felt that Hough was "in over his head in the chemical business", Galloway stated that no, he wasn't, and that he had a "pretty good operation".

Galloway remembers leaving Hough in the late sixties, primarily because he was not making enough money as a "partner". Galloway then went to work for International Harvester, during which time Galloway and I.H. worked on Hough's trucks quite regularly, so that Galloway stayed in touch with Hough. Galloway then took a job with Carrier Corporation, and in early 1981 he and his family moved to Independence, Missouri, where he is now employed at a grain mill.

My impression of Galloway is that he has a very good memory, he is a credible witness, and he was very willing to provide me with all the information that he had. By no means did he rush me off the phone, and he promised to call me collect or write me if he feels that there is anything else that he could tell us. I told him that we might be in touch with him again in the near future, since he appears to have more direct information than anyone else about Hough's operations and who he was dealing with. I did make clear to Galloway that he is no way legally liable in regard to the clean up at the Solvent Savers sites. Galloway told me that Bill Bulsiewicz, Bristol's attorney, told him the same thing, and he fully understood what we meant.

cc: Dean Sommer
Emily Edmunds

REF. (24)

Geology of New York:

a short account

Adapted from the text of "Geologic Map of New York State"
by J. G. Broughton, D. W. Fisher, Y. W. Isachsen, and L. V. Rickard

EDUCATIONAL LEAFLET NO. 20

The University of the State of New York/The State Education Department
New York State Museum and Science Service/Albany 1966

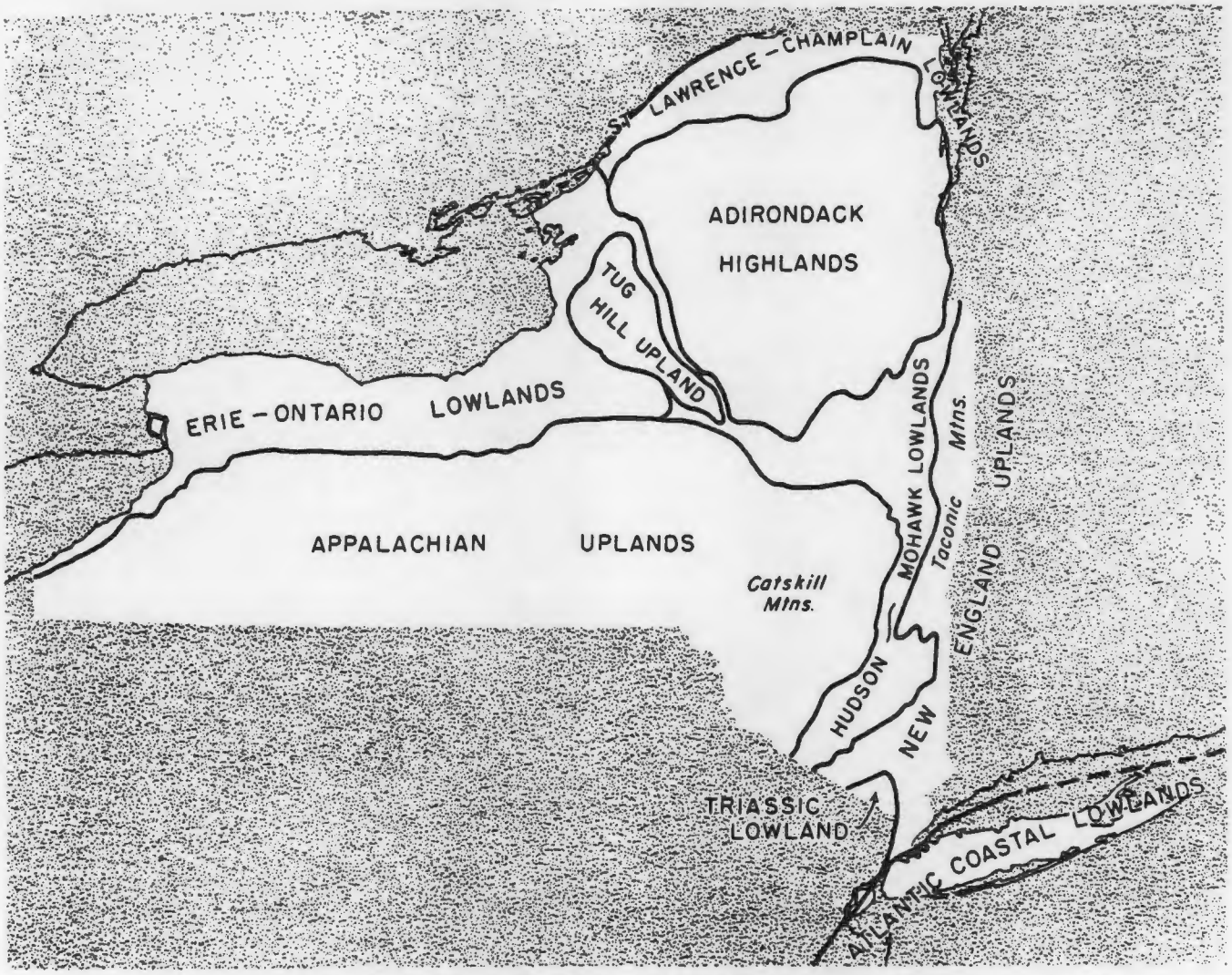


FIGURE 19. Physiographic provinces of New York, based on relief and geology (Modified after G. B. Cressey, 1952)

Cenozoic Era

PHYSIOGRAPHIC PROVINCES AND TERTIARY HISTORY

The physiographic provinces of New York are shown in figure 19. Modern landscapes of the State were shaped largely during the Cenozoic Era, the most recent 65 million years of geologic history. Although the overall features later would be modified and blurred by glaciation, the broad outlines of modern mountain, valley, and plain first were carved by the unrelenting rush of water to the earlier Cenozoic seas.

The long sequence of erosion presumably began with the arching of the Jurassic Fall Zone erosion surface in mid-Cretaceous time. As its eastern flank dipped beneath the encroaching Atlantic Ocean to receive Coastal Plain deposits, the axis domed sufficiently to initiate the sculpture of the Appalachians and Adirondacks. Few, if any of today's land forms can be traced so far back, however. Most researchers believe that all the exposed remnants of the dissected Fall Zone surface were obliterated by subsequent erosion.

South of New York, at least a partial record of Tertiary geology persists in the Coastal Plain deposits. In addition to a sedimentary record, datable igneous intrusions cut rocks of varying degrees of deformation in the western states. But in New York, no such tangible evidence of Cenozoic events exists. The Coastal Plains sediments derived from the long-continued degradation of New York and New England now rest on the Continental

Appalachian Uplands

The Appalachian Uplands (the northern extreme of the Appalachian Plateau) were formed by dissection of the uplifted but flat lying sandstones and shales of the Middle and Upper Devonian Catskill Delta (figure 17). The southeastern border of the province, between Kingston and Port Jervis, is formed by the Silurian Shawangunk Conglomerate. Relief is high to moderate. Maximum dissection is in the Catskill Mountain area, where only the mountain peaks approximate the original plateau surface. (Slide Mountain, at 4,202 feet, is the highest peak.) Farther west, the plateau surface is represented by flat-topped divides. Except for Cattaraugus Creek, the Genesee River, the Finger Lakes, and minor streams along the Catskill front, drainage generally is southwest into the Allegheny, Susquehanna, and Delaware River systems.

The northern edge of the province is cut by the Finger Lake troughs, which are glacially modified valleys of preglacial rivers (figure 20). At least two of the lakes (Cayuga and Seneca) have bedrock floors below sea level. Glacial cover generally is thin, although deposits in some north-south valleys are so thick that they are completely buried. The major eastwest drainage divide of central New York, the Valley Heads Moraine, is a recessional moraine south of the present Finger Lakes. Only the Allegheny State Park area has escaped glaciation (figure 21).

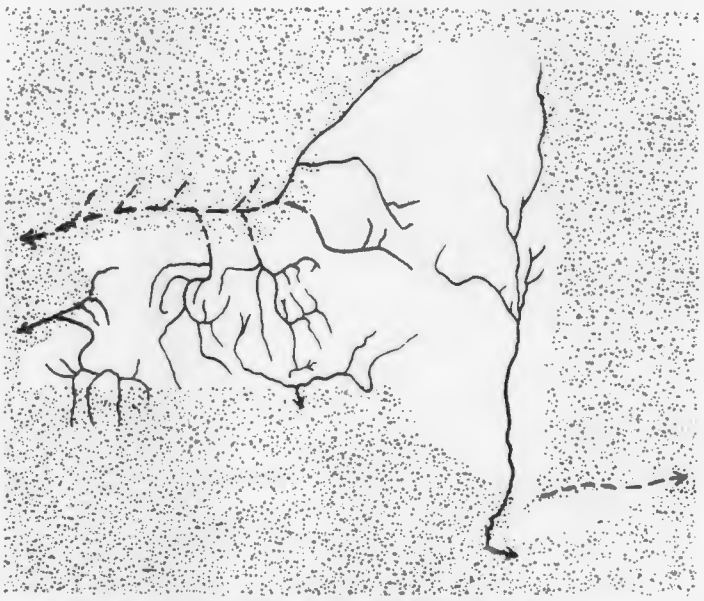


FIGURE 20. Hypothetical Tertiary drainage systems

New England Uplands

Another diverse and geologically complex province is the New England Uplands. To the south it includes the Hudson Highlands and the area underlain by the New York City Group; farther north it encompasses the hilly country (Taconic Mountains) between the Hudson River and the Connecticut, Massachusetts, and Vermont borders. Rocks in the New England Uplands are either metamorphic or igneous, and land forms are closely related to their durability.

Maximum relief is in the Hudson Highlands, where elevations range from 800 feet below sea level (bedrock of the Hudson River Valley) to more than 1,500 feet. Strong topographic linearity characterizes the Hudson Highlands; most of the ridges and valleys follow the northeast-southwest strike of the metamorphosed rocks.

Although the rocks of the New York City Group do not show a similar regularity of trend, here, too, the geology and topography are closely related.

The general north-south trend of the Taconic Mountains depends on the strike of the schist (which forms the hills) and the limestone in the valleys. The Rensselaer Plateau, which is held up by the resistant Rensselaer Graywacke, is an exception. Its rolling surface, with a relief of about 500 feet, is approximately 20 miles long (north-south) by 9 miles wide (east-west). The Taconic Mountains generally are considered to be bounded on the west by the Chatham thrust and on the east by the limestone valley lying just west of the Green Mountains and the Berkshires.

The entire province has been glaciated.

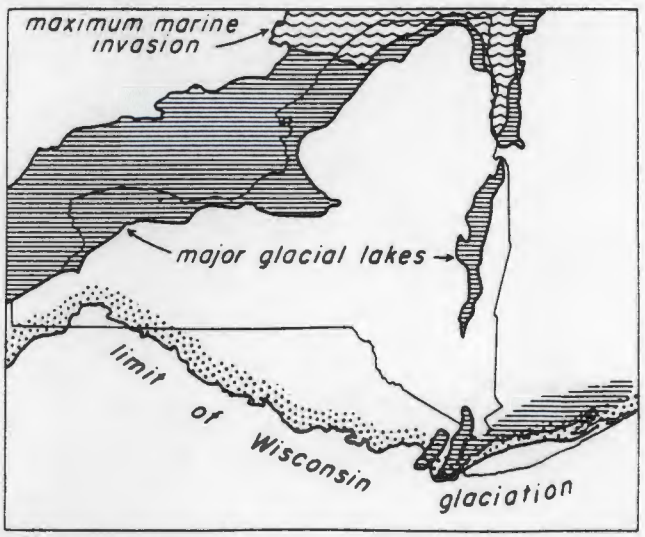


FIGURE 21. Pleistocene features, including maximum extent of Wisconsin glaciation, areas inundated by major lakes and by marine invasions

6.2 APPENDIX B - REVISED NYSDEC INACTIVE HAZARDOUS WASTE DISPOSAL SITE REPORT

(47-15-11 (10/83)

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

DIVISION OF SOLID AND HAZARDOUS WASTE

INACTIVE HAZARDOUS WASTE DISPOSAL SITE REPORT

PRIORITY CODE: _____ SITE CODE: 734027

NAME OF SITE: Onondaga Nation - Site B REGION: 7

STREET ADDRESS: Quarry Road and NYS Route 11

TOWN/CITY: Onondaga Nation COUNTY: Onondaga

NAME OF CURRENT OWNER OF SITE: Onondaga Nation

ADDRESS OF CURRENT OWNER OF SITE: Onondaga Nation, New York

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

ESTIMATED SIZE: 25 ACRES

SITE DESCRIPTION:

The site is located south of Syracuse, just west of Interstate 81-exit 16 (Nedrow), within the boundaries of the Onondaga Nation. The site was used as a large dumping area in the mid to late 1960's. Wastes evident at the site include large piles of hospital waste, an estimated 800 drums and other debris. The NYSDEC estimates the number of drums at 800 with 150-200 containing wastes or unknown material.

Analyses conducted in 1983 by the NYSDEC on waste samples (drums) indicated the presence of contaminants. Results of analytical data for groundwater samples collected by the NYSDOH from private wells in the area indicate no contaminants were detected. Additional waste sampling (drums) was conducted by the NYSDEC and NYSDOH in November 1987; the results indicate the presence of acetone, ethylbenzene, acetic acid, benzoic acid, xylenes, numerous unknowns (total BNA), barium, chromium and lead. A Phase I investigation was completed on this site in 1987.

HAZARDOUS WASTE DISPOSED: CONFIRMED [x] SUSPECTED [ ]

TYPE AND QUANTITY OF HAZARDOUS WASTES DISPOSED:

TYPE	QUANTITY (POUNDS, DRUMS, TONS, GALLONS)
Benzyl alcohol, acetone, ethylbenzene, acetic acid, benzoic acid, xylenes, barium, chromium, lead and numerous unknowns (total BNA).	Approximately 800 55-gallon drums, with 150-200 containing wastes or unknown material.

TIME PERIOD SITE WAS USED FOR HAZARDOUS WASTE DISPOSAL:

mid, 19 60's TO late, 19 60's

OWNER(S) DURING PERIOD OF USE: Onondaga Nation

SITE OPERATOR DURING PERIOD OF USE: Benjamin Shenandoah

ADDRESS OF SITE OPERATOR: Onondaga Nation

ANALYTICAL DATA AVAILABLE: AIR ☐ SURFACE WATER ☐ GROUNDWATER ☒
SOIL ☐ SEDIMENT ☐ NONE ☐ *also waste samples available

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

SOIL TYPE: Palmyra gravels (PgA)-gravelly loam to gravelly sandy clay loam

DEPTH TO GROUNDWATER TABLE: max. 31 feet

LEGAL ACTION: TYPE: _____ STATE ☐ FEDERAL ☐
STATUS: IN PROGRESS ☐ COMPLETED ☐
REMEDIAL ACTION: PROPOSED ☐ UNDER DESIGN ☐
IN PROGRESS ☐ COMPLETED ☐

NATURE OF ACTION: _____

ASSESSMENT OF ENVIRONMENTAL PROBLEMS:

Site has potential to impact groundwater and surface water (Onondaga Creek).

ASSESSMENT OF HEALTH PROBLEMS:

PERSON(S) COMPLETING THIS FORM:

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

NAME Linda J. Clark
TITLE Project Geologist/URS Co., Inc.
NAME _____
TITLE _____
DATE: 11/30/87

NEW YORK STATE DEPARTMENT OF HEALTH

NAME _____
TITLE _____
NAME _____
TITLE _____
DATE: _____