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915049

ENGINEERING INVESTIGATIONS AT INACTIVE HAZARDOUS WASTE SITES

PHASE II INVESTIGATION

SNYDER TANK CORPORATION

Site No. 915049
Hamburg, New York
Erie County

DATE: April 1992

Volume I

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*

By:
YEC, Inc.
Under contract to:
Engineering-Science, Inc.

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

SNYDER TANK CORPORATION
HAMBURG, NEW YORK
ERIE COUNTY
NYSDEC I.D. NO. 915049

PREPARED FOR

DIVISION OF HAZARDOUS WASTE REMEDIATION
NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
50 WOLF ROAD
ALBANY, NEW YORK 12233-0001

STATE OF NEW YORK
YUAN SHAN E CHEN
No. 062683
LICENSED PROFESSIONAL ENGINEER

PREPARED BY

YEC, INC.
Clarkstown Executive Park
612 Corporate Way
Valley Cottage, New York 10989

In Association With

ENGINEERING-SCIENCE, INC.
290 Elwood Davis Road
Liverpool, NY 13088

APRIL 1992

PHASE II INVESTIGATION SNYDER TANK CORPORATION

NYS SITE NUMBER 915049

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SECTION 1

EXECUTIVE SUMMARY

SITE BACKGROUND

The Snyder Tank Corporation Site is located approximately five miles southwest of Buffalo, New York adjacent to Lake Shore and Hoover Roads in the Town of Hamburg, Erie County, New York. The site is located on the eastern shore of Lake Erie. A wastewater treatment plant is located less than one mile northeast of the site. The site location is shown on the U.S.G.S. Buffalo South East, New York 7 1/2 minute quadrangle map (Figure 1.1 and Plate A). A detailed site map is shown in Figure 1.2. A map of the subsurface drainage structures on site is shown in Plate B.

The Snyder Tank Corporation site is owned and operated by the Snyder Tank Corporation of Hamburg, New York. The site was used for the disposal of truck fuel tank manufacturing process wastes and has been active since 1941. Manufacturing process wastes were disposed of on site from 1941 to 1971. The Snyder Tank site is classified as 2a on the NYSDEC list of Inactive Hazardous Waste Disposal Sites. A 2a classification is temporary and is assigned to sites that have inadequate and/or insufficient data for inclusion in any of the other classifications.

Prior to 1972 about 98,000 gallons per year of spent pickling acid solution and other plant wastes were drained onto the beach at Lake Erie through an outfall pipe from the plant. Complaints by the Erie County Health Department (ECHD) in 1972 led to the discontinuation of this method of disposal for spent pickling and phosphate wastes. Subsequent inspections by the ECHD in 1976 and 1979 noted the presence of improperly drummed waste, a leaking storage tank, and rust colored stains on the beach at Lake Erie.

During a July 9, 1986 site investigation for the United States Environmental Protection Agency (USEPA) by NUS Corporation, several inorganic and organic compounds were detected in soil and sediment samples collected from the site.

Among those organic compounds detected were fluoranthene, pyrene, benzo(a) anthracene, chrysene, and benzo(b)fluoranthene (Appendix H).

In August 1989, a Phase I investigation was performed on the site for the New York State Department of Environmental Conservation by Ecology and Environment of Buffalo, New York. The results of the site inspection noted the following: signs of stressed vegetation, scrap metal storage on site, a small volume of red sediment on the pavement between plant No.1 and Route 5, and the presence of an old 1,000 gallon sulfuric acid storage tank. The preliminary Hazard Ranking System (HRS) score was $S_M = 14.73$ ($S_{GW} = 23.59$; $S_{SW} = 9.65$; $S_A = 0.00$); S_{FE} = Not Scored; $S_{DC} = 37.50$.

On November 13, 1990, a site reconnaissance was conducted by YEC, Inc. as a preliminary to a Phase II site investigation. The following materials stored on site were observed by the investigation team: flammable paint strippers containing toluene, lead, and vinyl acetate; cleaning solutions containing sodium hydroxide, tetrasodium pyrophosphate, and sodium phosphate; flammable paint containing xylene and petroleum distillates; and metal working fluid containing xylene, toluene, alcohol, cutting oil, and ethylene glycol.

PHASE II INVESTIGATION

The Phase II field investigation included a terrain conductivity and electrical resistivity survey to help define the site geologic conditions and to help identify the presence of buried steel drums or conductive contaminant plumes in the subsurface. Three groundwater monitoring wells were installed. Groundwater, wastewater, and soil samples were collected and analyzed to determine whether hazardous substances are present at the site.

SITE ASSESSMENT

The geologic stratigraphy of the site can be summarized as shale bedrock overlain by eleven to fourteen feet of unconsolidated material consisting of glacial till, beach sands, and fill that includes concrete and brick fragments. All three wells were installed in the highly fractured shale bedrock. The aquifer of concern at the site includes both the unconsolidated overlying material and the highly fractured upper bedrock zone. These act as a single water bearing unit. The depth to groundwater at the site ranges from 2.58 feet below ground surface at GW-1 to 15.66 feet below ground surface at GW-2. The local groundwater flow is to the west towards Lake Erie.

The geophysical survey did indicate the presence of buried metal at the site. No conductive plumes were noted.

Summary of Groundwater Sampling and Analysis Results

Groundwater samples (GW-1, 2, 3, and 4) were collected from each of the three wells (Plate A and Figure 1.2) at the site and were analyzed for Target Compound List (TCL) organic compounds, including volatiles, semivolatiles, pesticides/PCBs, and Target Analyte List (TAL) metals and cyanide. The results of these analyses are listed in Table 1.2.

Thirteen TAL metals were detected in the groundwater samples. The downgradient well concentrations of aluminum, iron, manganese, potassium, and sodium exceeded the concentrations detected in the upgradient well GW-1 by more than a factor of three. This constitutes an observed release from the site. The concentrations of iron, manganese, and sodium were in excess of the applicable standards and guidance values for Class GA groundwater.

Table 1.2 also lists the TCL organic compounds which were detected in the overburden/bedrock aquifer wells. The concentrations were between 1 and 250 ug/L. There was an observed release of acetone from the site. The concentrations of acetone detected in the downgradient samples exceeded the applicable standards and guidance values for Class GA groundwater.

Summary of Wastewater Sampling and Analysis Results

Two wastewater samples (SW-1 and SW-2) were collected (one from each of two outfall pipes on site shown on Plate A, Plate B, and Figure 1.2) and analyzed for TCL organic compounds and TAL metals and cyanide. The analytical results were compared to Class B surface water standards because the wastewater was observed entering Lake Erie (a Class B waterbody at this location) by YEC personnel. The facility was not operating under a SPDES permit during this Phase II investigation (See Section 5.6). The analytical results are listed in Table 1.3.

Ten TAL metals were detected in the wastewater samples. The applicable Class B surface water standards for aluminum, iron, and zinc were exceeded. There was an observed release of aluminum, chromium, and iron from the site. Aluminum concentrations exceeded the applicable surface water standards by more than seventy times and iron exceeded the applicable surface water standards by more than three times, whereas the chromium concentrations fell below the standards.

Table 1.3 lists the organic compounds detected in the wastewater samples. They range in concentration from 5 to 7,600 ug/L. There was an observed release of acetone, 2-butanone, 2-butoxy ethanol, toluene, and xylene from the site. These compounds are used in various operations performed at the facility.

Summary of Soil Sampling and Analysis Results

Three surface soil samples (SS-1, SS-2, and SS-3) and one subsurface split spoon/cuttings sample (SPGW-2) were collected from the site. The three surface soil samples were collected from three different areas where staining was noted by the YEC sampling team (Figure 1.2 and Plate A). The auger cuttings sampled were collected from borehole GW-2 where an HNU reading exceeded 10 units. These samples were analyzed for TCL organic compounds and TAL metals and cyanide. The analytical results are listed in Tables 1.4 and 1.5.

Nineteen TAL metals were detected in the soil samples. Arsenic exceeded the published naturally-occurring range for New York State soils. The presence of this metal in the soil sample SS-2 may be attributable to the site.

Table 1.5 lists twenty-one TCL organic compounds that were detected in the soil samples. Sample SS-2 collected from the northwest corner of building No. 2 (Figure 1.2 and Plate A) had the highest total concentration (11,434 ug/Kg) of these compounds. This area had been previously sampled in 1986 by NUS Corporation and many of the same compounds were detected (See Appendix H for comparison of YEC and NUS samples). The presence of these contaminants in the soil samples may be attributable to the site.

Summary of Air Quality Monitoring Results

Air quality monitoring was conducted with a HNU-PI101 photoionization detector during the site investigation. No concentrations of volatile organics were detected above normal background levels.

CONTAMINATION ASSESSMENT SUMMARY

The types of organic compounds and TAL metals detected in the various media sampled at the site are consistent with the type of manufacturing processes taking place at the Snyder Tank Corporation plant.

There is an apparent impact on the groundwater in the overburden/bedrock aquifer underlying the site. However, there is only one well drawing water from this aquifer within a three mile radius of the site. The majority of the residents in the area obtain drinking water from two water supply companies that have intakes in Lake Erie from two to seven miles north of the site.

The wastewater sampling results indicate a release of organic compounds and TAL metals from the site. The results indicate that the site is potentially releasing these substances to Lake Erie. The potential for direct contact by the public with these substances exists. Noncontact process and cooling water from the plant empties into a drainage ditch on the beach at Lake Erie, which the public uses for recreation.

Many of the organic compounds detected in the soil samples were also detected in a prior sampling event. These compounds (with some exceptions) were not detected in the groundwater or wastewater samples. However, the potential for off site migration exists. These compounds may leach from the soil during periods of high infiltration and migrate to the saturated zone of the aquifer. Off site migration may occur with surface water runoff or groundwater discharge to Lake Erie. There is an opening in the fence that surrounds the site making the site accessible to the public.

HAZARD RANKING SYSTEM SCORE

In an attempt to establish the relative risk associated with this site, the Hazard Ranking System (HRS) was applied. As currently used by the NYSDEC, the HRS is employed to aid the evaluation of inactive hazardous waste sites in New York State. This system takes into account the types of waste at the site and the transport routes to calculate a numerical score for the site. As stated in 40 CFR Subpart H Section 300.81 the HRS was developed for evaluating the relative potential of uncontrolled hazardous waste disposal facilities to cause human health or safety problems or ecological and environmental damage. It is assumed by the EPA that a uniform application of the ranking system in each state will permit the EPA to identify releases of hazardous substances that pose the greatest hazard to human health and/or the environment.

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

- S_M - reflects the potential for harm to humans or the environment from migration of a hazardous substance away from the facility by routes involving groundwater, surface water and air. It is a composite of separate scores for each of the three routes (S_{GW} = groundwater route score, S_{SW} = surface water route score, and S_A = air route score).

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

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

Based on the results of this and previous studies, the HRS scores for the Snyder Tank Corporation Site have been calculated as follows:

S_M = 19.03	S_{GW} = 28.57
S_{FE} = Not scored	S_{SW} = 16.36
S_{DC} = 50.00	S_A = 0.00

Recommendations

The F008 hazardous waste (spent acid pickling solution containing cyanide) is documented as being disposed of into Lake Erie. From 1941 to 1970, approximately 98,000 gallons per year of spent acid pickling solution and spent phosphate waste were drained directly into Lake Erie via a then unregulated outfall pipe. Concentrations of aluminum, iron, and zinc in the wastewater samples exceeded Class B surface water standards. Organic compounds attributable to the site were detected in samples from the former SPDES permitted discharge pipe and an outfall pipe used to carry surficial runoff from the site and storm drain runoff from the road. Discharge from both outfall pipes enter Lake Erie directly.

Painting booth water curtain waste and etch rinse water were known to have been routinely discharged onto facility grounds at the Snyder Tank Corporation site (Appendix A, Ref. 1, pg. 1). A YEC site inspection noted areas of stained soils caused by waste spills of unknown origin. The types of organic compounds and TAL metals detected in the samples from the site are consistent with the type of manufacturing processes taking place currently at the Snyder Tank Corporation plant. Many of the organic compounds detected in the soil samples were also detected in prior sampling events at the site in 1986. Most of these organic compounds were polycyclic aromatic hydrocarbons.

There appears to be an impact on the groundwater at this site. The groundwater sampling results reveal several inorganic and organic compounds being released from the site. Some of the organic compounds detected are currently being used in the manufacturing processes taking place at the site. Four TAL metals and two organic compounds (acetone and xylene) exceeded NYS groundwater standards.

Presently, wastewater is discharged directly onto the beach area which is used for recreation by the public, potentially adversely impacting human health and the environment. The potential also exists for off site contaminant migration into Lake Erie and onto the beach area resulting from surficial runoff across the contaminated soils on site. Shallow groundwater discharges into Lake Erie providing another route for contaminants to reach the surface water of Lake Erie. Groundwater is not a source of drinking water in the area. The majority of the population obtains treated drinking water from surface water intakes north of the site.

Based on this information the following recommendations are made:

1) Additional soil sampling should be done at the site at the surface and at depth to better delineate the extent of soil contamination. Stained soil locations should be the primary areas of investigation.

2) The wastewater outfall pipes at the site should be monitored by the appropriate division. Currently, the Snyder Tank Corporation does not have a valid SPDES permit.

TABLE 1.1
FOOTNOTE / QUALIFIER LIST

FOOTNOTES:

a - NYS Ambient Water Quality Standards, TOGS 1.1.1., September, 1990.
T - Total chromium.
* - If iron and manganese are present, total concentration of both should not exceed 500 ug/l.
(1) - New York State Soils, USGS Professional Paper 1270 (1984).
(2) - The Soil Chemistry of Hazardous Materials, Dragun, J., Hazardous Materials Control Research Institute, Silver Spring, MD., 1988.
(3) - Range in U.S. Soils, Booz, Allen and Hamilton, Inc., 1983.
(4) - Environmental Chemistry of the Elements, Bowen, H.J.M.

DATA QUALIFIERS (NON-METALS):

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

J: An estimated value. Indicates the presence of a compound that meets the identification criteria but the result is less than the specified detection limit and greater than zero. Also used to estimate a concentration for tentatively identified compounds.

U: Indicates a compound was analyzed for but not detected. Refer to Appendix G for detection limit.

E: This flag is used to indicate that the quantitation of the analyte is outside the curve and that dilution was required to properly quantitate.

D: This flag is used to indicate that the value for the target analyte was calculated from a dilution.

Y: Flag used when a matrix spike compound is also confirmed present in the unspiked sample.

X: Identifies compounds with spectra that do not meet identification criteria in Exhibit (E) E-61.

NS: No standard or guidance value established.

GV: Guidance value.

DATA QUALIFIERS (METALS):

A: Duplicate analysis not within control limits.

B: Reported value is less than the Contract Required Detection Limit (CRDL), but greater than the instrument detection limit (IDL).

U: Reported value is less than the Instrument Detection Limit (IDL).

N: Spiked sample recovery not within control limits.

E: Reported value is estimated because of the presence of interference.

S: The reported value was determined by the Method of Standard Additions.

W: Post digestion spike for Furnace AA analysis is out of control limits.

NS: No standard or guidance value established.

GV: Guidance value.

[1] 11 ug/L when hardness is less than or equal to 75 ppm; 1,100 ug/L when hardness is greater than 75 ppm.
[2] exp(0.7852 [ln (ppm hardness)]-3.490)
[3] exp(0.8545 [ln (ppm hardness)]-1.465)
[4] exp(1.266 [ln (ppm hardness)]-4.661)

TABLE 1.2
SUMMARY OF GROUNDWATER ANALYSIS RESULTS
SNYDER TANK SITE
(ug/L)

PARAMETERS	NYS STANDARDS/ GUIDANCE VALUES OF GROUNDWATER	GW-1	GW-2	GW-3
TAL				
Aluminum	NS	733 E	995 E	28,600 E
Antimony	3 GV (a)	U	U	U
Arsenic	25 (a)	U	5.9 S	16.5 S
Barium	1,000 (a)	U	U	382
Beryllium	3 GV (a)	U	U	U
Cadmium	10 (a)	U	U	U
Calcium	NS	134,000 E	43,700 E	111,000 E
Chromium (T)	50 (a)	U	U	41.9
Cobalt	NS	U	U	U
Copper	200 (a)	U	U	U
Iron	300 * (a)	860 E	1,170 E	39,800 E
Lead	25 (a)	U	4.0 B	22.5 S
Magnesium	35,000 GV (a)	66,100	21,100	54,400
Manganese	300 * (a)	66.0 E	59.5 E	591 E
Mercury	2 (a)	U	U	U
Nickel	700 (f)	U	U	66.7
Potassium	NS	8,210	23,700	41,600
Selenium	10 (a)	U	U	U
Silver	50 (a)	U	U	U
Sodium	20,000 (a)	38,800 E	224,000 E	416,000 E
Thallium	4 GV (a)	U	U	U
Vanadium	NS	U	U	U
Zinc	300 (a)	42.9	52.6	94.0
Cyanide	100 (a)	U	U	U
TCL				
Acetone	50 (a)	28 B	250 E	78
Benzene	0 (a)	U	U	1 J
2-Butanone	50 (a)	U	48	U
1,2-Dichloroethene	5 (a)	U	4 J	U
2,4-Dimethylphenol	1 [++]	U	9 J	U
Ethylbenzene	5 (a)	U	4 J	U
2-Hexanone	50 GV (a)	U	7 J	U
Methylene Chloride	5 (a)	1 BJ	4 BJ	U
4-Methyl-2-Pentanone	50 (a)	U	3 J	U
2-Methylphenol	1 [++]	U	3 J	U
4-Methylphenol	1 [++]	U	3 J	U
Phenol	1 [++]	U	3 J	U
Toluene	5 (a)	U	3 J	U
Vinyl Chloride	2 (a)	U	3 J	U
Xylene (total)	5[+]	U	83	20

[+] Applies to each Isomer (1,2', 1,3', and 1,4') Individually
[++] A standard of 1 is used for the sum of the phenols.

TABLE 1.3
SUMMARY OF WASTEWATER ANALYSIS RESULTS
SNYDER TANK SITE
(ug/L)

PARAMETERS	NYS STANDARDS/ GUIDANCE VALUES OF A CLASS B STREAM	SW-1 (DG)	SW-2 (UG)
TAL			
Aluminum	100	7,360 E	U
Antimony	NS	U	U
Arsenic	190	9.5 S	U
Barium	NS	U	U
Beryllium	[1]	U	U
Cadmium	[2]	U	U
Calcium	NS	71,000 E	184,000 E
Chromium	442	129	U
Cobalt	5	U	U
Copper	[3]	U	U
Iron	300	1,130 E	283 E
Lead	[4]	U	U
Magnesium	NS	18,200	48,600
Manganese	NS	82.1 E	365 E
Mercury	.2 GV	U	U
Nickel	193	73.2	U
Potassium	NS	U	U
Selenium	1.0	U	U
Silver	.1	U	U
Sodium	NS	48,500 E	87,900 E
Thallium	8	U	U
Vanadium	14	U	U
Zinc	30	49.4	87.3
Cyanide	5.2	U	U
TCL			
Acetone	NS	240	5 BJ
2-Butanone	NS	330	U
1,1 Dichloroethane	NS	U	110
Ethanol, 2-Butoxy	NS	7,600 JD	U
Methylene Chloride	NS	13 BJ	6 B
Toluene	NS	920	U
1,1,1-Trichloroethane	NS	U	26
Xylene (total)	NS	15 J	U

TABLE 1.4
SUMMARY OF SOIL ANALYSIS RESULTS
SNYDER TANK SITE
(mg/Kg)

PARAMETERS	Average or Expected Range For Soils	SS-1	SS-2	SS-3	*SPGW-2
TAL					
Aluminum	700 - >100,00 (1)	9,910 A	12,500 A	13,600 A	15,400 A
Antimony	<1 - 10 (1)	UN	UN	UN	UN
Arsenic	0.1 - 100 (1)	12.2 NAS	108 NAS	21.6 NAS	25.7 NA
Barium	10 - 500 (1)	58.4	167	142	U
Beryllium	<1 - 15 (1)	1.2 N	1.6 N	1.7 N	UN
Cadmium	0.01 - 7 (2)	1.3 N	4.9 N	6.7 N	2.7 N
Calcium	130 -330,000 (1)	64,000 A	34,100 A	70,300 A	42,600 A
Chromium	1 - 2,000 (1)	12.9 NA	148 NA	98.1 NA	27.4 NA
Cobalt	<3 - 70 (1)	U	U	10.4	12.5
Copper	1 - 700 (1)	15.9 NA	59.8 NA	97.2 NA	29.4 NA
Iron	100 - >100,000 (1)	12,600	57,500	74,700	32,800
Lead	<10 - 700 (1)	15.5 S	70.2S	157	26.4 S
Magnesium	50 - 50,000 (1)	8,970 A	6540 A	11,300 A	8,380 A
Manganese	<2 - 7,000 (1)	598 A	1850 A	2,850 A	367 A
Mercury	0.32 - 5.1 (1)	U	0.10	0.52	U
Nickel	<5- 700 (1)	39.6 N	42.3 N	51.4 N	55.0 N
Potassium	2,200 - 65,000 (1)	1,190	1540	1,440	2540
Selenium	<0.1 - 5.0 (1)	UN	UWN	UWN	UWN
Silver	0.1 -5.0 (3)	U	U	U	U
Sodium	300 - 100,000 (1)	U	U	U	U
Thallium	0.1 - 0.8 (4)	UNW	UN	UN	UN
Vanadium	<7 - 500 (1)	6.8 BN	68.0 N	28.6 N	17.9 N
Zinc	<5 -3,500 (1)	96.7 NA	206 NA	469 NA	57.2 NA
Cyanide	NA	U	1.3	3.5	U

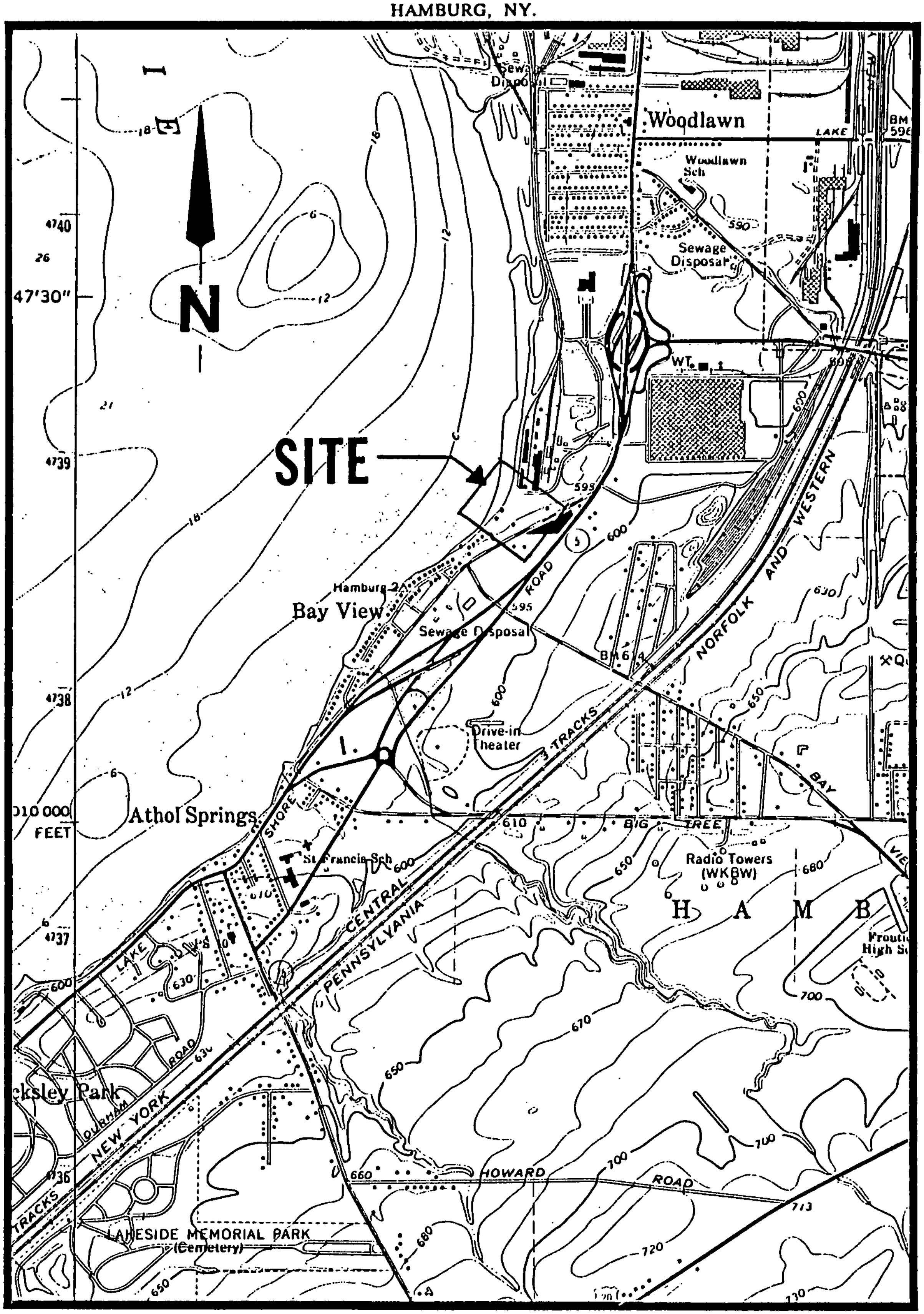
* SPGW-2 is a composite soil sample of auger cuttings from GW-2.

TABLE 1.5
SUMMARY OF SOIL ANALYSIS RESULTS
SNYDER TANK SITE
(ug/Kg)

PARAMETERS	SS-1	SS-2	SS-3	*SPGW-2
TCL				
Acenaphthene	U	90 J	U	U
Anthracene	U	270 J	U	U
Benzene	U	U	U	8
Benzo(a)anthracene	U	840	410 J	230 J
Benzo(a)pyrene	U	650 J	520 J	200 J
Benzo(b)fluoranthene	U	820	410 J	180 J
Benzo(g,h,i)perylene	U	460 J	380 J	U
Benzo(k)fluoranthene	U	670 J	420 J	170 J
Chrysene	U	940	450 J	350 J
Dibenz(a,h)anthracene	U	180 J	U	U
Dibenzofuran	U	110 J	U	U
bis(2-Ethylhexyl)-phthalate	250 J	480 J	220 J	U
Fluoranthene	U	2,100	550 J	400 J
Fluorene	U	110 J	U	U
Indeno(1,2,3-cd)pyrene	U	430 J	330 J	U
Methylene Chloride	2 BJ	2 BJ	U	7 BJ
Naphthalene	U	84 J	U	U
Phenanthrene	U	1,500	210 J	280 J
Pyrene	U	1,700	590 J	370 J
Toluene	U	U	U	11
Xylene (total)	U	U	U	5 J

* SPGW-2 is a composite soil sample of auger cuttings from GW-2.

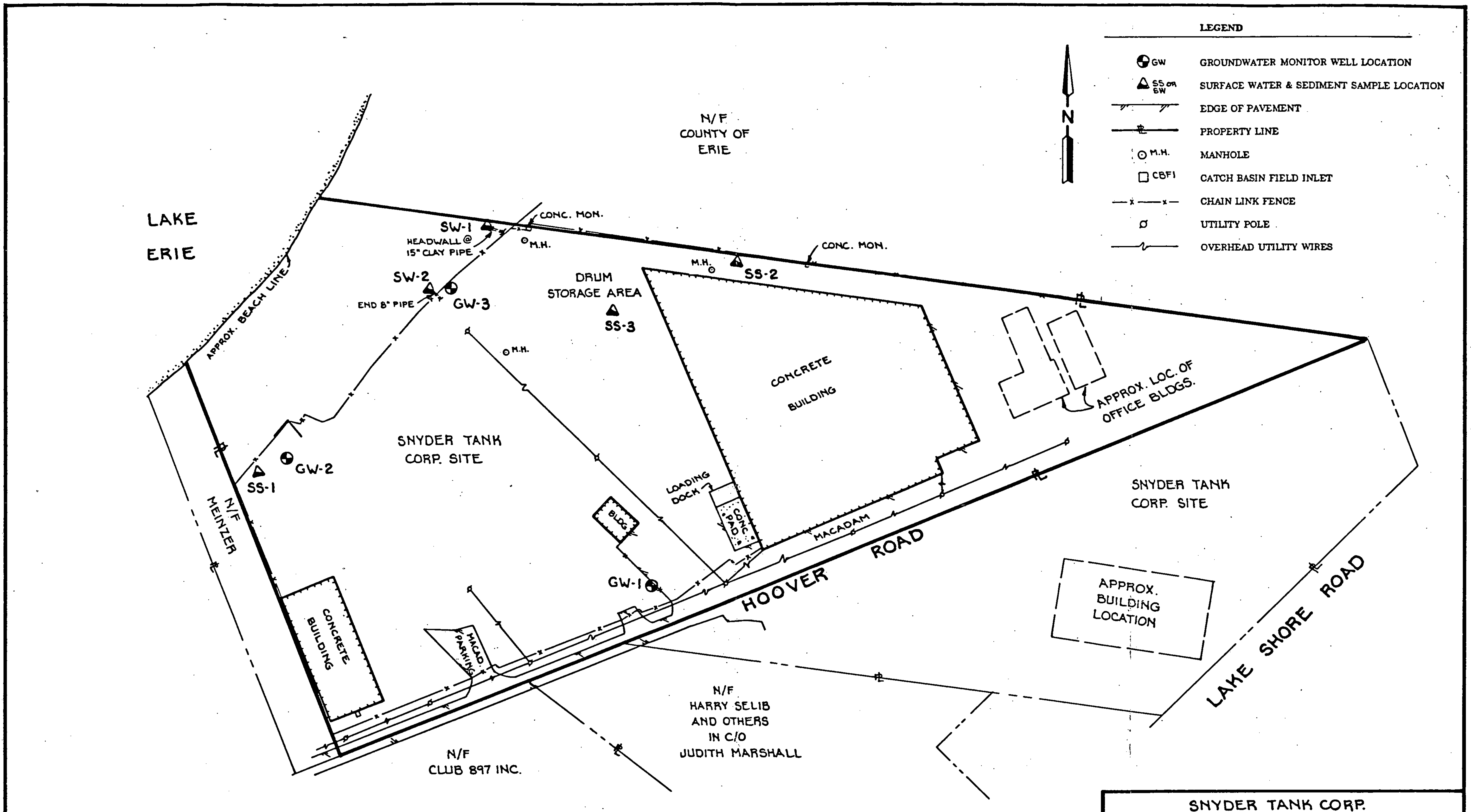
FIGURE 1.1
SITE LOCATION MAP
SNYDER TANK PHASE II INVESTIGATION
HAMBURG, NY.



1000 0 1000 2000 FEET

<u>SITE COORDINATES:</u>
LATITUDE: 42^0 46′ 55"
LONGITUDE: 78^0 51′ 10"

SCALE: 1:24,000
QUAD.:BUFFALO SE, NY (USGS,1965)



SNYDER TANK CORP.

DETAILED SITE MAP

SCALE: 1" = 100' | YEC, INC. | FIGURE 1.2

2

2

SECTION 2

PURPOSE

The objective of a Phase II Investigation is to determine 1) if hazardous wastes are present at the site, 2) if contaminants are present in groundwater, surface water, soils, sediments, or air at the site, 3) if contaminants are migrating from the site, and 4) if contaminant presence and/or migration is posing a potential threat to human health and the environment. Information gathered during this investigation will allow the Department of Environmental Conservation to establish the relative risk posed by the site, to reclassify the site on the New York State List of Inactive Hazardous Waste Sites, or remove the site from the list if justified by the findings of this investigation.

This NYSDEC Phase II Investigation consisted of a preliminary hydrogeologic investigation and HRS evaluation at the Snyder Tank Corporation site in order to 1) collect additional field data necessary to identify the occurrence and extent of contamination, 2) determine if any imminent health hazard exists, and 3) prepare a site investigation report, including a final HRS score.

3

3

SECTION 3

SCOPE OF WORK

INTRODUCTION

Field work for the Phase II investigation at the Snyder Tank Corporation site began November 2, 1990 and ended January 29, 1991. The Phase II work plan was approved by NYSDEC prior to commencing the field investigations. The work plan was later revised with NYSDEC approval, based on preliminary findings of the YEC site inspection and the geophysical survey.

The original work plan included the installation of three monitoring wells. Based on the findings of the geophysical surveys and the YEC site inspection on November 2, 1990, the well locations were revised. The original well location of GW-1 was off of the Snyder Tank Corporation property so it had to be relocated across the street within the Snyder Tank property. The original well locations of GW-2 and GW-3 were on the beach west of the Snyder Tank fenceline. Both well locations were changed for two reasons: 1) water damage to the wells might occur due to the close proximity to Lake Erie; and 2) drill rig access would be difficult because of the nature of the beach sands.

Three groundwater samples, a blind sample, and a field blank were collected. Two wastewater samples were taken from two facility effluent pipes that discharge onto the beach.

One soil sample was added to the work plan, increasing the number of soil samples to three. One split spoon soil sample from each of three soil borings, to be analyzed for TAL metals and cyanide, TCL volatiles, semivolatiles, and pesticides/PCBs, was scheduled to be taken based on field observations of split spoon samples and HNU readings on the samples. By the conclusion of drilling activities, only one split spoon /cuttings soil sample, from GW-2, had been taken for full TCL organics and TCL metals analysis.

PHASE II SITE INVESTIGATION

The scope of the investigation is summarized in Table 3.1 and is described below. All field work was performed or supervised by qualified YEC staff.

Geophysical Survey

A geophysical survey utilizing terrain conductivity (EM) and electrical resistivity (ER) methods was performed at the Snyder Tank Corporation site on November 6 and November 7, 1990. These surveys were conducted at various locations within and around the perimeter of the site. The results were used to determine the general geologic stratigraphy, locate buried materials and metals, and to confirm placement of downgradient monitoring wells within potentially conductive subsurface plumes. The geophysical survey methods and results are presented in Appendix C.

Monitoring Well Installations

Three monitoring wells were installed around the perimeter of the site between November 26, 1990 and November 29, 1990 by Buffalo Drilling Co., Inc. The locations of these wells are shown in Figure 3.1. Wells were installed upgradient and downgradient of the Snyder Tank facility area as shown on Figure 3.1. The upgradient well, GW-1, and the two downgradient wells, GW-2 and GW-3, monitor the overburden-upper shale bedrock aquifer. Overburden at the site was thin and not always saturated, so it became necessary to core to greater depths into the bedrock to intercept water bearing fracture zones in the shale.

The wells were drilled and constructed in accordance with NYSDEC guidelines. The screen lengths in wells GW-1, GW-2, and GW-3 were 10 feet. Split spoon samples in the overburden generally were collected at intervals of five feet throughout the unsaturated zone and continuously in the saturated zone. Bedrock coring was accomplished utilizing NX coring tools and Erie County municipal water. One split spoon soil sample from each boring was selected from the screened interval to be analyzed for grain-size characteristics and Atterberg Limits. One subsurface soil sample was a composite of auger cuttings taken from borehole GW-2. The sample was analyzed for TCL organic compounds and TAL metals.

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The monitoring wells were constructed with two-inch inside diameter threaded, flush-joint, NSF-approved PVC pipe and .010 slotted screen. Two-foot thick bentonite pellet seals were used to isolate the screened sections from above. Each monitoring well was capped with vented PVC cap and covered by a lockable protective steel casing. GW-2 utilized a flush-mount protective steel casing and cover. Water levels were measured during monitoring well installation, well development, and sampling. Stabilized water levels were available only during sampling. Due to a slow recovery rate, well development consisted of a surging action with a bailer followed by removal of water. Boring logs and well schematics, well development and recovery data, and geotechnical analysis results are included in the Appendices D, E, and F, respectively.

Groundwater Sampling and Analyses

A groundwater sample was collected from the Phase II monitoring well GW-1 on December 11, 1990. A laboratory QA/QC sample (MS/MSD) was also collected from GW-1 on December 11, 1990. Groundwater samples were collected from GW-2 and GW-3 on December 12, 1990. Groundwater samples were collected using dedicated PVC bailers. Prior to sampling, three to four well volumes were purged from each well. Because of the low yield of GW-2 and GW-3, these two wells had to be sampled the day following purging to allow for proper recovery. A blind sample was also collected from GW-1 on December 11, 1990. A field blank was collected on December 12, 1990. These samples were analyzed for TCL organic compounds, including volatiles, semivolatiles, pesticides/PCBs, TAL metals and cyanide. In addition, a trip blank was analyzed for TCL volatiles. Samples were collected with dedicated PVC bailers and dedicated polypropylene line.

Field sample collection sheets are found in Appendix G. Past sampling analytical results and current Phase II analytical results are discussed in Section 4 and listed in Appendices H and I, respectively. Analyses and reporting were performed utilizing applicable NYSDEC Superfund and Analytical Services Protocols dated November, 1989 (NYSDEC ASP) methods.

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Wastewater Sampling and Analyses

Two wastewater samples (SW-1 and SW-2) were collected on December 11, 1990. The wastewater samples were collected from the outfall of two facility effluent discharge pipes shown in Figure 3.1. Because of the slow flow rate of effluent from the discharge pipes, the samples were collected using dedicated PVC bailers to maximize the volume collected and minimize sample turbidity. In each case, a bailer was held flush with the edge of the discharge pipe until the bailer was filled with effluent. The sample collected was then emptied into the sample bottles. Each wastewater sample was analyzed for TCL organic compounds, including volatiles, semivolatiles, pesticides/PCBs, TAL metals and cyanide.

Field sample collection sheets are found in Appendix G. Past sampling analytical results and current Phase II analytical results are discussed in Section 4 and listed in Appendices H and I, respectively. Analyses and reporting were performed utilizing the applicable NYSDEC Superfund and Analytical Services Protocol dated November, 1989 and its latest amendments (NYSDEC ASP).

Surface Soil Sampling Analyses

Three surface soil samples (SS-1, SS-2, SS-3) were collected from the Snyder Tank Corporation site on December 11, 1990 (Figure 3.1). The surface soil samples were collected with a decontaminated stainless steel hand auger. The hand auger was decontaminated between samples by 1) rinsing with water; 2) washing with a liquinox/water mix; 3) rinsing with distilled water; 4) rinsing with methanol and then with distilled water; and 5) allowing to air dry. Analytical results are discussed in Section 4 and listed in Appendix H. Samples were composites of the top one foot of each stained area. Sample SS-1 was taken in the northwest corner of the site, south of GW-2, in an area that was reported in the YEC site reconnaissance as being a deeply stained surface soil area. Sample SS-2 was taken 300 feet east of GW-3 in a stained soil area. Sample SS-3 was taken near the drum storage area. These samples were analyzed for TCL volatiles, semivolatiles, pesticides/PCBs, TAL metals and cyanide.

Field sample collection sheets are found in Appendix G. Past sampling analytical results and current Phase II analytical results are discussed in Section 4 and listed in

Appendices H and I, respectively. Analysis and reporting were performed utilizing applicable NYSDEC Superfund Analytical Services Protocol dated November, 1989 (NYSDEC ASP).

Subsurface Soil Sampling and Analyses

During the drilling of GW-2, one composite subsurface soil sample (SPGW-2) was taken from auger cuttings surfacing following the collection of the 9-11 foot interval split spoon sample. The cuttings exhibited readings exceeding 10 ppm above background. The soil sample was analyzed for TCL volatiles, semivolatiles, pesticides/PCBs, TAL metals and cyanide. Air monitoring of the breathing zone did not show readings exceeding background levels. All auger cuttings were contained in a 55 gallon steel drum. These samples were analyzed for TCL volatiles, semivolatiles, pesticides/PCBs, TAL metals and cyanide. Analyses and reporting were performed utilizing the applicable NYSDEC Superfund and Analytical Services Protocol dated November, 1989 and its latest amendments (NYSDEC ASP).

Field sample collection sheets are found in Appendix G. Past sampling analytical results and current Phase II analytical results are discussed in Section 4 and listed in Appendices H and I, respectively.

Air Monitoring

Air monitoring was conducted during the YEC site inspection on November 2, 1990 using a HNU-PI101 photoionization detector. During the site walkover, no readings above background levels were detected upwind or downwind of any part of the facility. During drilling however, a split spoon soil sample and auger cuttings from GW-2 exhibited sporadic readings exceeding 10 ppm above background. Clay seams in the highly fractured shale cores from boring GW-3 exhibited a slight petroleum odor at a depth of 24 feet. HNU readings on the clay seams and the cores though did not exceed background levels.

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TABLE 3.1
SUMMARY OF PHASE II TASKS
SNYDER TANK CORPORATION SITE

Tasks	Description of Task
Review and Update Work Plan	Reviewed the information in the Phase I report and supplemental data, conducted a site visit, examined maps and aerial photos and reviewed the Phase II work plan. Following completion of the geophysical surveys, the work plan was revised, as needed, with NYSDEC approval.
Records Search/Background and Data Acquisition	Augmented Phase I information by contacting or visiting central and local offices of NYSDEC, NYSDOH, County DOH, NYSDOT, Hamburg Town Offices, etc.
Site Reconnaissance	Checked proposed monitoring well locations, examined terrain for accessibility by drill rigs, examined suitability for geophysical surveys. Determined appropriate locations for wastewater, and soil sampling points.
Conduct Geophysical Studies	Conducted EM and ER surveys.
Soil Borings\Monitoring Well Installations	Installed three wells. Three borings GW-1, 2, and 3 were drilled to depths of approximately 24, 29, and 28 feet, respectively. Wells were constructed of two-inch inside diameter PVC with 10 feet of 0.010 inch slotted screen.

TABLE 3.1 (CONTINUED)

Tasks	Description of Task
Sampling and Analysis	
Soil Samples from Borings	Soil samples were collected generally at five foot intervals above the water table and continuously below the water table for each boring. Three grain size analyses were performed as specified in the text. One sample was analyzed for TCL organic compounds and TAL metals and cyanide.
Groundwater Samples	Three groundwater samples and a blind sample were collected and analyzed for TCL organic compounds, TAL metals, and cyanide.
Wastewater Samples	Two wastewater samples were collected and analyzed for TCL organic compounds, TAL metals, and cyanide.
Surface Soil Samples	Three surface soil samples were collected and analyzed for TCL organic compounds, TAL metals, and cyanide.
Air Monitoring	The potential presence of volatile organic compounds was monitored during on site activities using photoionization detectors, and a combustible gas indicator.

TABLE 3.1 (CONTINUED)

Tasks	Description of Task
Survey of Wells and Sampling Locations	The monitoring well elevations were surveyed relative to a fixed datum. Wastewater and soil sampling locations were located relative to the same datum. Appropriate maps were prepared.
Site Assessment	A preliminary site contamination assessment was conducted to complete the final HRS and HRS documentation records.
Report Preparation	Prepared a final report containing significant Phase I information, additional Phase II field data, final HRS and HRS documentation records, and site assessment.
Project Management	Project coordination, administration and reporting.

TABLE 3.2
SAMPLING PROGRAM SUMMARY
SNYDER TANK CORPORATION SITE

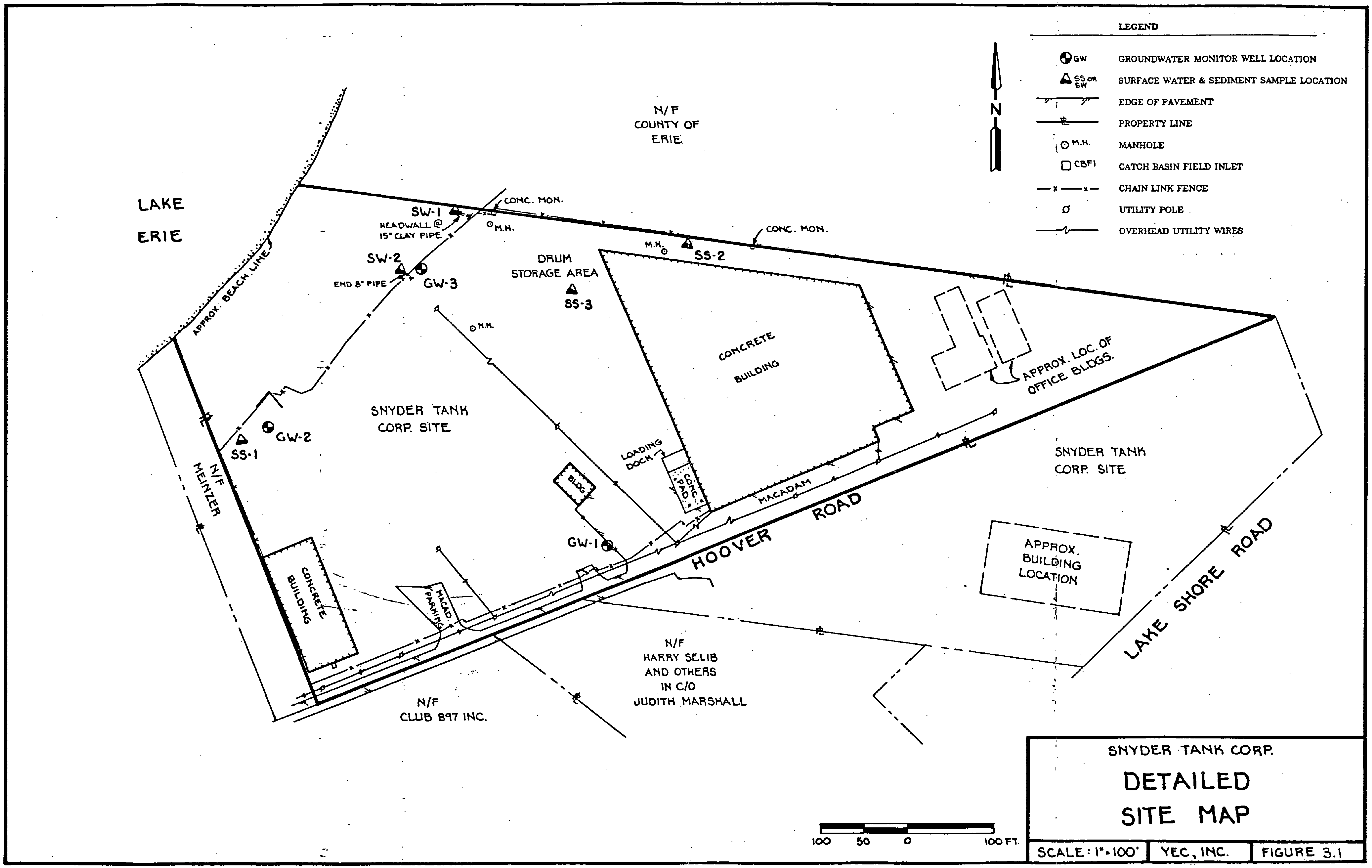
MEDIA	TAL Metals	TCL Volatiles	TCL Semivolatiles	TCL Pest/PCB	Spike/Dup	Totals
Groundwater	4	4	4	4	1/1	6 *
Surface Water	2	2	2	2	-	2
Surface Soil	3	3	3	3	-	3
Field Blank	1	1	1	1	-	1
Trip Blank	-	1	-	-	-	1
Split Spoon	1	1	1	1	-	1

Notes: See Plate A for monitoring well and sampling point locations.
TCL = Target Compound List.
TAL = Target Analyte List (Inorganic metals + cyanide)
Field blank completed for soil sampling utensils.
* Groundwater sample total = (# of well samples + 1 blind sample + spike + dup sample).

TABLE 3.3
MONITORING WELL LOCATIONS AND SPECIFICATIONS
SNYDER TANK CORPORATION SITE

			Top of Screen		Bottom of Screen	
Well Number	Unit Screened	Location	Depth (Feet)*	Elevation (Feet)**	Depth (Feet)*	Elevation (Feet)**
GW-1	Overburden	Upgradient	12.7	580.95	22.7	570.95
GW-2	Overburden	Downgradient	15.0	570.03	25.0	560.03
GW-3	Overburden	Downgradient	18.3	566.45	28.3	556.45

* Depth in feet below the ground surface.
** Elevations in feet above mean sea level.


LEGEND
GW GROUNDWATER MONITOR WELL LOCATION
SS or SW SURFACE WATER & SEDIMENT SAMPLE LOCATION
EDGE OF PAVEMENT
PROPERTY LINE
M.H. MANHOLE
CBFI CATCH BASIN FIELD INLET
CHAIN LINK FENCE
UTILITY POLE
OVERHEAD UTILITY WIRES
N
N/F COUNTY OF ERIE
LAKE ERIE
APPROX. BEACH LINE
SW-1
HEADWALL @ 15" CLAY PIPE
CONC. MON.
M.H.
SW-2
GW-3
END 8" PIPE
DRUM STORAGE AREA
SS-3
SS-2
CONC. MON.
CONCRETE BUILDING
APPROX. LOC. OF OFFICE BLDGS.
SNYDER TANK CORP. SITE
GW-2
SS-1
N/F MEINZER
LOADING DOCK
CONC. PAD
BLDG.
MACADAM
HOOVER ROAD
GW-1
CONCRETE BUILDING
MACAD. PARKING
SNYDER TANK CORP. SITE
APPROX. BUILDING LOCATION
LAKE SHORE ROAD
N/F HARRY SELIB AND OTHERS IN C/O JUDITH MARSHALL
N/F CLUB 897 INC.
100 50 0 100 FT.
SNYDER TANK CORP.
DETAILED SITE MAP
SCALE: 1"=100'
YEC, INC.
FIGURE 3.1

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SECTION 4

SITE ASSESSMENT

SITE HISTORY

The Snyder Tank Corporation, a 10 acre site, is located on Lake Shore and Hoover Roads in the Town of Hamburg, Erie County, New York (Figures 4.1 and 4.2). The site is situated on the eastern shore of Lake Erie. A NUS Corporation site inspection and soil/sediment sampling were completed for the EPA in July 1986. A Phase I investigation for the NYSDEC was completed by Ecology and Environment Engineering in August 1989.

The company began in 1939 as Snyder Welding Services and by 1941 moved to its present location, under the name of Snyder Manufacturing Company and Snyder Tank Corporation (Appendix A, Ref. 1, pg. 1). On site manufacturing operations were initiated in 1941. The company manufactures truck fuel tanks and related accessories from aluminum and steel sheet metal (Appendix A, Ref. 1, pg. 1). The fabrication process includes acid pickling, passivating, alkaline pickling (etching), degreasing, welding, testing, and painting (Appendix A, Ref. 1, pg. 4). These processes generate the following wastes: spent pickling acid, phosphates, acid rinse, cleaning and etching rinse, painting booth curtain wastes, spent test tank water, and spent cooling water (Appendix A, Ref. 1, pg. 4). Before 1972, waste acid pickling solution was combined with other non-sanitary plant wastes and discharged into Lake Erie (Appendix A, Ref. 1, pgs. 2). An estimated volume of 98,000 gallons of spent pickle liquor was discharged per year (Appendix A, Ref. 1, pg. 15). No liner or containment system was in place.

The acidic waste formed a red colored plume in the lake due to the oxidation of the dissolved iron constituents and a milky colored plume from precipitating phosphates (Appendix A, Ref. 1, pg. 4). In 1975, pickling liquor and phosphates were hauled away by a private chemical disposal firm (Appendix A, Ref. 1, pgs. 1,12, and 16). Erie County Health Department inspections between 1976 and 1979 caused Snyder to discontinue pickling and phosphate waste disposal at the current SPDES discharge point.

Subsequent ECHD inspections between 1976 and 1979 noted a leaking tank, improperly drummed waste, and rust colored staining on the beach (Appendix A, Ref. 2, pgs. 5 and 6).

In March 1984, on site disposal of plant wastes was discontinued (Appendix A, Ref. 2, pg. 6). All facility wastes were put into containers and disposed of off site, however, drainage still occurred through the SPDES permitted effluent pipe. During the YEC site inspection, a milky white plume was observed at the mouth of the SPDES permitted effluent pipe. Sampling in the spring of 1986 showed that the facility exceeded SPDES permit maximum daily discharge limitations for 1,1,1-trichloroethane and total suspended solids (TSS) (Appendix A, Ref. 2, pg. 6).

Six soil and two soil/sediment samples were collected by NUS Corporation during a July 1986 site inspection for the EPA. The analytical results indicated the presence of organic and inorganic Hazardous Substance List (HSL) compounds. Twenty-five organic compounds were detected in soil samples collected from the northwest border of the facility. Nineteen organic compounds were found in soil/sediment samples collected from the beach area. Soil samples collected from the facility property indicated the presence of seven inorganic HSL compounds. One inorganic HSL compound was detected in a soil/sediment sample collected on the beach. A detailed discussion of past site contamination is presented in the section on "Waste Characterization" in Section 4. Analytical data from past sampling events is presented in Appendix H.

REGIONAL SETTING

Regional Geology

The site is located in the Erie-Ontario lake plain physiographic province of New York State. The site is underlain by Pleistocene glacial deposits and Devonian bedrock (Appendix A, Ref. 3, pgs. 3 and 4).

Regionally, the bedrock consists mainly of the shale formations of the Hamilton group that were deposited during the Devonian period. The shale dips southward at an average of about 40 feet per mile (less than 1 degree). Locally, bedrock underlying

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the site consists of the soft gray fissile shales of the Ludlowville formation interbedded with limestone (Appendix A, Ref.3, pg. 4 and Ref. 4, pg. 1). This formation has a thickness of about 65 to 130 feet. Depth to bedrock in the vicinity of the site ranges from 15 to 23 feet.

The Hamilton Group of New York includes Middle Devonian sediments deposited at or near the northern margin of the Appalachian Basin (accumulation occurred in the northern arm of an inland sea called the Hamilton Sea)(Appendix A, Ref. 5, pg. 3). The northern and western boundaries of the basin bordered low-relief, cratonic shelf regions which supplied small amounts of detrital sediments to the basin as compared to the southeastern regions. A wide, gently south-sloping, muddy shelf existed across most of western New York when the Hamilton deposition was taking place. In western New York, the Hamilton Group consists of thin shelf sediments. The Hamilton Sea was shallow and near normal in salinity, water temperature, and circulation.

The Devonian shale bedrock in the site vicinity is unconformably overlain by Pleistocene glacial deposits of the late Wisconsin stage (Appendix A, Ref. 3, pg. 3). The deposits in Erie County are mainly glacial till. Till overlying soft shales is dark gray and may have a high clay content. In some low lying areas in the county, the till is known to be stony (Appendix A, Ref. 3, pg. 7).

The site area is underlain by gray shale of the Hamilton group, a 500 foot thick unit composed of shale, siltstone, and fine grained sandstone. More specifically, the shale is of the Ludlowville Formation, a Middle Devonian deep run shale that includes the Wanakah and Ledyard Shales. The shale also has a high clay content. Regionally the shale strikes 35 degrees northeast and dips less than 1 degree to the southeast. The shale is cut by vertical and bedding plane joints. The fracture zone is discontinuous and follows the upper surface of the rock. The shale is also interbedded with glacial deposits of clay and silty clay.

Regional Hydrology

The site lies within the Erie-Niagara drainage basin. Surface waters in this system discharge into the Niagara River and Lake Erie (Appendix A, Ref. 6, pg. 2). Lake Erie at this location, which is about 100 feet downslope of the site, is classified by the

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NYSDEC as a Class A-special water body (6 NYCRR 700-705). Class A-special surface waters are designated as suitable for drinking water supplies, culinary or food processing purposes, and primary contact recreation activities (6 NYCRR 700-705). Surface waters in the vicinity of the site which discharge to Lake Erie are classified by the NYSDEC as Class B surface water bodies. Class B surface water bodies are used for primary contact recreation and any other uses except as a source of water supply for drinking, culinary or food processing purposes (Appendix A, Ref. 7, pgs. 1 and 2). Smokes Creek (Class D) is approximately 0.6 to 0.75 miles north of the site and discharges into Lake Erie. One half mile east of the site is Rush Creek (Class D) which flows northwest and also discharges into Lake Erie. Smokes Creek and Rush Creek are both Class B only at their mouths where they discharge into Lake Erie (Appendix A, Ref. 7, pgs.1 and 2).

Groundwater is found locally in the overlying glacial deposits above the shale bedrock. Where glacial deposits are absent or thin, the water table will be within the fracture zone or joints in the bedrock (Appendix A, Ref. 3, pg. 6). The shale formations generally will yield from 10 to 15 gpm from the fracture zone. Where the fracture zone is absent, water may be obtained from joints deeper in the rock but yields range from only 1 to 7 gpm. Dry holes or inadequate yields are not uncommon in the area and are not restricted to any specific stratigraphic unit or geographic area. Hydraulic conductivities of the shale may range from 10^{-8} to 10^{-4} cm/s. The majority of the population in the vicinity of the site obtains drinking water from Lake Erie (Appendix A, Ref. 6, pg. 2).

SITE GEOGRAPHY

Topography

The Snyder Tank Corporation site is located on the eastern shore of Lake Erie in the town of Hamburg, Erie County, New York. The population as of 1980 of the Town of Hamburg was approximately 532,710 (Appendix A, Ref. 8, pg.1). The property is a ten acre parcel bordered to the north and south by sewage disposal facilities and to the southwest by private residences (Figure 4.1). Adjacent to the western border of the site is a 100 foot wide beach area that fronts on Lake Erie (Appendix A, Ref. 9, p.1).

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The site slopes west towards Lake Erie at about 5.5%. It is not heavily vegetated. The beach area consists of sand, rock, gravel, driftwood, and various other debris. The maximum elevation difference on site is approximately 15 feet. The on-site elevations decrease toward Lake Erie from about 595 to 580 feet above mean sea level (AMSL) (Appendix A, Ref. 9, pg. 1 and Plate A).

There are five buildings on site used for manufacturing, storage, and administrative activities. They are all located along Hoover Road. There is a fence along the perimeter of the site, but there is an opening onto the beach area just north of GW-2 (Figure 4.2). Unauthorized access to the site and beach is possible.

Soils

This discussion of site soils is based on the Soil Survey of Erie County (Appendix A, Ref. 6) and soil borings conducted on site as part of the Phase II investigation. The majority of the Snyder Tank site is located in an area dominated by the Darien-Remsen-Angola soils. The soils in this map unit were formed in shaly glacial till at the northernmost part of the upland plateau. Soils of this map unit are nearly level and gently sloping, deep, and moderately deep, somewhat poorly drained, medium textured and moderately fine textured soils, and found on uplands underlain by alkaline shale bedrock. Slopes are mostly 0 to 8 percent but range from 0 to 15 percent. This map unit covers about 11 percent of the county. A small portion of the site is located on soils classified by the SCS as Be (Beaches) soils, which are sandy or gravelly materials deposited by waves along beach fronts.

The soil on the site is a silty clay with traces of sand and gravel (YEC Field Notes). This soil is similar to the Brockport silty clay loam (BrA) described by the Soil Conservation Service. The Brockport silty clay loam series consists of glacial till with a high percentage of clay. Normally, the Brockport silty clay loam has a layer of dark grayish brown silty clay loam about 8 inches thick. The subsoil extends to a depth of about 23 inches. The soil is firm and plastic, olive brown silty clay in the upper part and firm and very plastic, dark grayish brown silty clay in the lower part. The substratum is firm, olive shaly silty clay about 8 inches thick. The underlying bedrock at a depth of approximately 20 to 40 inches, is a calcareous shale. It has a moderate to very low permeability and is somewhat poorly drained (Appendix A, Ref. 6, pg. 4).

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The top 8 inches have a permeability in the range of 0.2 to 2.0 inches per hour. The 8 to 31 inch depth has a permeability of less than 0.06 inches per hour. The beach area, located west of the site, consists of sand and gravel with some driftwood and no vegetation.

SITE HYDROGEOLOGY

The sources of information used to develop the discussions in this subsection include: the Phase II geophysical survey, the three monitoring well borings and installation logs, geotechnical analyses, USGS topographic maps, USDA soil survey information, the Phase I investigation report, and the NUS site inspection report.

Geology

The shale underlying the site is composed of a weathered upper zone overlying a highly fractured upper bedrock surface. A geologic cross-section across the site is shown in Figure 4.3. A stratigraphic summary is presented in Table 4.1. Grain size characteristics of the sediments encountered during drilling are shown in Table 4.2.

The overburden material at the site consists of glacial till, beach sands, and various man-made fill materials that include concrete and brick fragments (Figure 4.3 and Table 4.1). The glacial till at GW-1 consists of a brown silt and sand to a depth of 6 feet. At GW-2, the stratigraphy is characterized by a medium grained brown sand and silt grading into a brown sand with trace amounts of silt and clay at 4 feet. This unit then grades into a brown sand again at 9 feet. At boring GW-3, the first two feet of the boring is composed of brown sand and silt grading into a gray silt with some clay. At four feet the sediments become a gray sand with some clay and silt which grades into a gray to brown silt with some clay. At 6 feet, there is a 1 foot layer of pebbly silt and sand that grades into a fine silt and sand that continues to 9 feet. From 9 to 11 feet, there is a gray clay layer containing weathered shale fragments. The thickness of the overburden at the site ranges from eleven feet at GW-2 to fourteen feet at GW-1. The overburden is underlain by shale bedrock of the Hamilton group as discussed previously in the Regional Geology section. The bedrock unit consists of a highly weathered and upper surface approximately ten to twelve feet thick found in both GW-2 and GW-3. This zone is absent in GW-1. Below the weathered surface is a highly fractured upper bedrock zone.

Groundwater Hydrology

Groundwater at the site is encountered in the overburden and the upper bedrock surface. The overburden and upper bedrock fracture zone act as a single water bearing zone. The groundwater at the site is recharged by water percolating through the overburden and into the fractured surface of the shale. Pavement at the site retards infiltration of rainfall that otherwise might recharge groundwater. In wells GW-2 and GW-3, where the overburden is thinner, the water table is encountered in the upper bedrock surface. The shale at depth will have a lower permeability than the upper fracture zone. Water level data is included in Table 4.3.

The discontinuous nature of the fracture zone produced low well yields and variable recovery rates in the three monitoring wells installed on site. Recovery rates ranged from four to five feet per hour at GW-2 and GW-3, to greater than twenty feet per hour at GW-1. The hydraulic gradient at the site is approximately 0.033 ft/ft northwest towards Lake Erie. Groundwater contours are shown in Figure 4.4.

Surface Water Hydrology

The site is adjacent to the western shoreline of Lake Erie (Class A-special). Most of the site is paved, therefore surface water runs off towards the beach area on Lake Erie. Lake Erie is approximately 100 feet downslope of the site. There are no other surface water bodies located within a 0.5 mile radius of the site.

A Wanakah Water Company water intake is two miles north of the site. A Buffalo City Division of Water intake is seven miles northwest of the site.

SITE CONTAMINATION ASSESSMENT

Potential contamination within the site boundary was evaluated by a review of the character and quantity of wastes suspected at the site, chemical analysis of the

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groundwater, surface water, subsurface and surficial soils, subsurface geophysical survey, and air quality monitoring with a HNU Photoionization Detector.

Waste Characterization

The Snyder Tank Corporation (the facility) began operations in 1939 when it was known as Snyder Welding Services. In 1941 the company moved to its present location and became the Snyder Manufacturing Company and the Snyder Tank Corporation. The company manufactures steel and aluminum automobile fuel tanks. The fabrication process includes acid pickling, passivating, alkaline pickling (etching), degreasing, welding, testing, and painting. The following wastes are generated from the above mentioned processes: spent pickling acid, phosphates, acid rinse, cleaning and etching rinse, painting booth curtain wastes, spent test tank water, and spent cooling water.

In 1972 the discharge of spent pickle liquor and phosphates onto the beach was discontinued and these wastes were transported off site for disposal. Subsequent inspections by the Erie County Health Department (ECHD) between 1976 and 1979 noted a leaking tank, improperly drummed waste, and a rust colored stain on the beach.

During October 1985, February 1986, and March 1986, NYSDEC compliance sampling reports indicated that the daily maximum SPDES permit limitation of 0.010 mg/L for 1,1,1-trichloroethane was exceeded. On May 30, 1986 additional NYSDEC compliance sampling showed that the facility was in violation of the maximum daily limit for total suspended solids (TSS). Elevated levels of oil and grease were also detected and exceeded the SPDES discharge parameters (Appendix A, Ref. 2, pg. 9).

Six soil and two soil/sediment samples were collected in July 1986 by the NUS field investigation team (Appendix H). The analytical results indicated the presence of a number of Hazardous Substance List (HSL) compounds. Twenty-five organic compounds were detected in the samples collected from the northwest border of Plant No. 2 and nineteen were detected in the soil/sediment samples collected from the beach. Benzo(a)anthracene, benzo(b)fluoranthene, chrysene, fluoranthene, and pyrene were among those detected. Several inorganic HSL constituents were detected in the soil and soil/sediment samples. Eight were found to be outside the normal range of concentrations for native soils (Appendix A, Ref.10, pg. 2). Seven were detected in soil samples collected on the site and one was detected in a soil/sediment sample collected from the beach at Lake Erie.

A Phase I investigation was conducted at the site in August 1989 by Ecology and Environment Engineering of Buffalo, New York. Stressed vegetation was noted in the area between the northwest side of Plant No. 2 (see Plate A) and the property fence line. It was also noted that scrap metal was being stored on the southwest side of the facility.

On November 13, 1990 a YEC inspection team conducted a site reconnaissance on the property as a preliminary to this Phase II investigation. The inspectors noted the presence of the following drummed materials stored on skids: (1) flammable paint strippers containing toluene, lead, and vinyl acetate, (2) cleaning solutions containing sodium hydroxide, tetrasodium pyrophosphate, and sodium phosphate, (3) flammable paint containing xylene and petroleum distillates, (4) metal working fluid containing xylene, toluene, alcohol, and cutting oil, and (5) ethylene glycol (Appendix A, Ref. 11, pg. 1).

PHASE II INVESTIGATION RESULTS

The following subsections summarize the results of the Phase II investigation sampling and analysis tasks. Whenever possible, samples were collected upstream or upgradient of the site to establish ambient or background conditions. These levels were compared to those found on site, downstream or downgradient of the Snyder Tank site. Concentrations downstream or downgradient of the site in excess of three or more times the upgradient concentration or five to ten times the contract required quantitation limit (if undetected in the upgradient sample) may indicate a release from a contaminant source located on site. This criterion is generally recognized by the USEPA and NYSDEC as constituting a "significantly higher" concentration for purposes of scoring an HRS observed release for a particular pathway. Therefore, reference is made to the number and types of analytes considered to be observed releases under each pathway, as discussed in the following subsections.

The quality of the analytical results in this section were evaluated by reviewing the sample holding times and the data for laboratory blank samples. Sample holding time refers to the time between sample receipt by the laboratory and sample extraction (if applicable) and analysis. Maximum sample holding times are specified in the NYSDEC ASP methods. The analytical data summary tables found in this section identify any violations of sample holding time. In those cases the data are considered valid, but the concentrations are considered to be estimated values; likely to be biased low.

Data validation also includes an evaluation of laboratory blank results. If a compound is detected in one or more blank samples, the maximum concentration reported in the blanks is used to evaluate field sample concentrations. The presence of a compound in a field sample is considered attributable to laboratory contamination if the concentration in the field sample is less than five times the blank sample concentration. For common laboratory contaminants (methylene chloride, acetone, and common phthalate esters) the criterion is ten times the blank sample concentration. These criteria were used as guidance limits to help determine whether blank contamination was potentially responsible for the presence of these constituents in the field samples.

The analytical results have also been compared to applicable New York State standards or guidance values. Standards and guidance values are provided for the applicable surface water and groundwater classifications. The standards referenced on the analytical summary tables are the most stringent of the applicable standards, since one or more standards could apply. Soil results have been compared to published naturally-occurring ranges for New York State and/or United States Soils. A complete list of footnotes and data qualifiers is presented in Table 4.4. Chemical analytical data is presented in Appendix I.

Groundwater Contamination Assessment

Unfiltered groundwater samples were collected from the three Phase II monitoring wells (GW-1, GW-2, and GW-3) (Figure 4.2) and analyzed for TCL volatiles, semivolatiles, pesticides/PCBs, TAL metals and cyanide. The results of these analyses are presented in Table 4.5. Groundwater well GW-1 is considered the most upgradient well and GW-2 and GW-3 are considered downgradient. An additional set of samples was collected from GW-1 and sent to Aquatec Laboratories under the designation "GW-4" as a blind sample for quality control.

Thirteen TAL metals were detected in the groundwater samples (Table 4.5). The applicable Class GA standards or guidance values for iron, magnesium, manganese, and sodium were exceeded. The upgradient sample had a higher concentration of magnesium than did the two downgradient samples and the presence of magnesium may be attributable to an off-site source. Five metals were detected in one or both downgradient wells at concentrations three or more times the concentrations found in the upgradient well, indicating a release which may be attributable to the site. These metals were aluminum, iron, manganese, potassium, and sodium. Iron, in the form of iron salts, may be a component of the spent pickle liquor or waste generated at the facility (Appendix A, Ref. 1, pg. 15). Sodium, in the form of sodium hydroxide, sodium chlorate, sodium nitrate, and sodium phosphate are used at the facility in the wash system area (Appendix A, Ref. 11, pg.1 and Ref. 12, pgs. 17 and 18).

Fifteen organic compounds were detected in the groundwater samples. Acetone and methylene chloride were detected in the laboratory blanks. The results for methylene chloride were rejected and attributed to laboratory contamination. The results for acetone were not rejected. The applicable Class GA standards or guidance values were exceeded by acetone, benzene, 2,4-dimethylphenol, 2-methylphenol, 4-methylphenol, phenol, vinyl chloride, and xylene. Acetone was detected in the sample from GW-2 at a concentration in excess of three times that detected in the upgradient well. Acetone is used at the facility in the etching and storage areas (Appendix A, Ref. 12, pgs. 20 and 25). Xylene was detected in both downgradient wells, however their concentrations did not exceed the CRQL by more than a factor of five. Xylene is used at the facility in the paint booth and storage areas (Appendix A, Ref. 12, pgs. 22 and 24). All the remaining organic compounds detected are components of metal degreasers, detergents, and solvents that are used at the facility.

Wastewater Contamination Assessment

Two wastewater samples were collected and analyzed for TCL volatiles, semivolatiles, pesticides/PCBs, TAL metals and cyanide. The results of these analyses are presented in Table 4.6. The analytical results were compared to NYS standards and guidance values for a Class B waterbody because YEC personnel observed the wastewater entering Lake Erie (a class B waterbody at this point) during the sampling event. The facility was not operating under a SPDES permit during this Phase II investigation (See Section 5.6). See Appendix A, Reference 13 for surface water hardness calculations and resulting standards. SW-1 was collected from the plant outfall pipe which terminates at the plant's fenceline and was at one time used for the disposal of acid pickling and spent phosphate waste to Lake Erie. The plant presently discharges non contact process and cooling water to the beach at Lake Erie (Appendix A, Ref.14, pgs. 2 and 3). SW-2 was collected from an outfall pipe located approximately 100 feet west of SW-1 (Figure 3.1). It is used for surficial and storm-drain runoff and may be considered a background sample (See Plate B). However, it should be noted that although this outfall pipe does not drain any effluent from the plant buildings, any material from spills onto the ground or on the loading dock on the site may run into the drainage system.

Ten TAL metals were detected in the wastewater samples (Table 4.6). The applicable Class B surface water standards for aluminum, iron, and zinc were exceeded. Three metals were detected in the downgradient wastewater sample at concentrations three or more times the background sample or more than five times the CRQL, indicating a release that may be attributable to the site. These metals were aluminum, chromium, and iron. Aluminum is used at the facility (Appendix A, Ref. 12, pg. 4). It is also a component of paints and protective coatings (as a powder). Elevated levels of aluminum were also detected in a downgradient well (GW-3) and a soil sample (SS-3) (Tables 4.5 and 4.7). The presence of this element in the effluent from the outfall pipe may be attributed to the site. Chromium is used for alloying and as a plating element on metal. It is used as an additive in steel to aid in corrosion resistance. Zinc potassium chromate is used in the paint booth and storage areas (Appendix A, Ref. 12, pgs. 21 and 24). Iron, in the form of iron salts, is present in the spent pickle liquor and waste generated at the facility (Appendix A, Ref. 1, pg. 15). The background wastewater sample SW-2 had a higher concentration of zinc than did the upgradient sample. The outfall pipe from which SW-2 was collected is thought to drain surface runoff from an area of the site on which scrap metal is stored. Zinc is used at the facility (as zinc potassium chromate) in the paint booth and storage areas (Appendix A, Ref. 12, pgs. 21 and 24).

Eight TCL organic compounds were detected in the wastewater samples. These compounds were acetone, 2-butanone, 1,1-dichloroethane, 2-butoxy ethanol, methylene chloride, toluene, 1,1,1-trichloroethane, and xylene. There are no applicable Class B surface water standards for these compounds. Acetone (SW-2) and methylene chloride (SW-1 and SW-2) were detected in the laboratory blanks. The data for methylene chloride were rejected and attributed to laboratory contamination. The presence of acetone in SW-1 (240 ug/L) and GW-2 (250 ug/L) and its use at the facility indicate that it may be a site released contaminant. Five organic compounds were detected in the downgradient sample at concentrations that either exceeded the upgradient concentration by a factor of three or more, or exceeded the CRQL by a factor of five or more. These compounds were acetone, 2-butanone, 2-butoxy ethanol, toluene, and xylene. Acetone and 2-butanone (methyl ethyl ketone) are used in the coating and storage areas at the facility (Appendix A, Ref.12, pgs. 20 and 25). A tentatively identified compound 2-butoxy ethanol is used in the etching operation area (Appendix A, Ref. 12, pgs. 19 and 25). Toluene is used in the paint booth, storage, and coating areas and xylene is used in the paint booth and storage areas of the facility (Appendix A, Ref.12, pgs. 22, 24,and 25). Toluene and xylene were noted by YEC personnel during the November 13, 1991 Snyder Tank Corporation site inspection (Appendix A, Ref. 11, pg. 1). The organic compounds 1,1-dichloroethane (110 ug/L) and 1,1,1-trichloroethane (26 ug/L) were detected in the background sample SW-2. Laboratory results for samples collected for the Environmental Protection Agency (EPA) by NUS on July 9, 1986 indicated the presence of 1,1,1-trichloroethane in the soil samples collected on site (Appendix A, Ref. 2, p. 6). The New York State Pollutant Discharge Elimination System (SPDES) daily maximum discharge limitation for 1,1,1-trichloroethane and toluene is 0.01 mg/L (10 ug/L) (Appendix A, Ref. 14, pg. 3).

Soil Contamination Assessment

Three surface soil samples (SS-1, SS-2, and SS-3) and one composite auger cuttings sample (SPGW-2) were collected from the Snyder Tank property and analyzed for TCL organic volatiles, semivolatiles, pesticides/PCBs, TAL metals and cyanide. The results of these analyses are presented in Tables 4.7 and 4.8. SS-1 through SS-3 were collected from three stained areas noted by YEC personnel during the sampling phase of the site investigation (Figure 4.2). SPGW-2 was a composite soil sample of auger cuttings from boring GW-2. During the well installation auger cuttings were monitored with an HNU photoionization detector and registered greater than 10 units above background. The cuttings were bottled and sent to the laboratory for analysis. No upgradient or background soil sample was collected.

Nineteen TAL metals were detected in the soil samples. With the exception of arsenic (SS-2) all metal concentrations were within the published naturally-occurring ranges for native soils. Soil sample SS-2 had the highest concentration of arsenic (108 mg/Kg) of the four samples. Arsenic was also detected in low concentrations in both the downgradient groundwater samples as well as in the plant effluent sample SW-1. The presence of arsenic in this sample may be attributable to the site.

Twenty-one TCL organic compounds were detected in the soil and drill cuttings samples. Methylene chloride was detected in the blank samples and the data for this compound were rejected and attributed to laboratory contamination. Soil sample SS-2 contained the highest total concentration of organic compounds (11,434 ug/Kg) of the four samples. This sample was collected from the northwest corner of the plant near a black stained area. The soil on the site was previously sampled for the EPA by NUS on July 9, 1986 because painting booth curtain waste and etch rinse waste were known to have been discharged to the ground surface. A site inspection by Ecology and Environment on July 29, 1987 revealed the presence of stressed vegetation in this area. The analytical results from the NUS sampling and the YEC Phase II investigation sampling show a correlation in the compounds detected in the soil (Appendix H and Table 4.8). Many of these compounds are coal tar derivatives and components of dyes, solvents, protective coatings, and machining oils. Three underground tanks containing cutting oil, hydraulic oil, and lubricating oil were stored on site (Appendix A, Ref.1, pgs. 19 and 20). With the exception of benzene, toluene, and xylene (in SPGW-2) none of

2-U

these compounds were detected in either the groundwater or surface water samples collected at the site.

Contamination Assessment Summary

The analytical results for the groundwater and wastewater samples indicate elevated levels of organic and inorganic substances, apparently attributable to the site. Of particular note are concentrations of acetone, toluene, xylene, aluminum, chromium, and iron. These contaminants are documented as being used in the various manufacturing processes at the site. The potential for off site migration exists.

There is an impact on the groundwater that is attributable to the site. The majority of the population in the area, however, obtains drinking water from public water supply companies who draw and treat surface water from Lake Erie. The intakes for these supply companies are located from two to seven miles north of the site. Groundwater is not used for irrigation (Appendix A, Ref. 15, pg. 2).

The potential exists for direct contact by the public with substances being released from the plant's outfall pipes. Both outfall pipes discharge noncontact process water, cooling water, and runoff directly into drainage ditches onto the beach at Lake Erie. The beach is used by the public for recreation. There is a baffle across the ditch which drains the effluent from the plant's outfall pipe. This was placed here by the NYSDEC to absorb the substances being released from the facility (YEC Field Notes). During periods of heavy rain, snow, or snowmelt, the baffle would not prevent the flow of effluent over or around the baffle. Wastewater samples from this outfall pipe were collected above the baffle. The site is surrounded by a fence that has an opening just north of the plant's effluent outfall pipe (Figure 4.2 and YEC Field Notes). This allows for unauthorized access to the site.

The majority of the organic compounds detected in the soil samples were also detected in a previous sampling and analysis completed for the EPA by NUS on July 9, 1986. The presence of these compounds in the soil samples is attributable to the site. These substances were not detected in either the groundwater or surface water samples. The possibility of off site transport exists through the leaching of these substances from the soil and migration into the saturated zone of the aquifer.

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Contaminants can migrate off site through surficial runoff during periods of high precipitation or through groundwater discharge to Lake Erie.

TABLE 4.1
STRATIGRAPHIC SUMMARY
PHASE II WELL BORINGS
SNYDER TANK CORPORATION SITE

STRATIGRAPHIC UNIT	MW-1 *(593.65)	MW-2 *(585.03)	MW-3 *(584.75)
Brown glacial Till containing sand, silt, thin discontinuous gray clay lenses, pebbles, and weathered shale fragments	0-14 Feet	0-11 Feet	0-12 Feet
Shale (incompetent, extremely weathered, highly fractured)	—	11-23 Feet	12-22 Feet
Shale (Competent but highly fractured with clay seams along fracture zones)	14-24 feet	23-29 Feet	22-28.3 Feet

* Elevation in feet above sea level

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TABLE 4.2

GRAIN SIZE CHARACTERISTICS
SNYDER TANK CORPORATION

Well Boring Number	Sample Depth (Feet)*	Gravel (%)	Sand (%)	Silt and Clay (%)	Unified Soil Classification	Stratigraphic Unit
GW-1	9-11	26.2	48.9	24.9	SM_1	Lake Sediments
GW-2	14-16	36.0	51.8	12.2	SM_1	Lake Sediments
GW-3	4-6	48.1	12.0	20.6	SM_2	Lake Sediments

* Depth in feet below ground surface
SM_1: Silty sand with gravel
SM_2: Clayey sand with gravel

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TABLE 4.3
WATER LEVEL DATA
SNYDER TANK CORPORATION SITE

Well ID	Ground Surface Elevation (Feet)*	Top of Steel Well Pipe Elevation (Feet)*	Well Screen Interval Elevation (Feet)*	Water Level (Feet)**	Water Level Elevation (Feet)*
GW-1	593.65	596.91	580.95-570.95	2.58	591.07
GW-2	585.03	585.03	570.03-560.03	15.66	569.37
GW-3	584.75	588.02	566.45-556.45	13.83	570.92

* Feet above mean sea level
** Water level depth below ground surface (12/10/90).

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TABLE 4.4
FOOTNOTE / QUALIFIER LIST

FOOTNOTES:

a - NYS Ambient Water Quality Standards, TOGS 1.1.1., September, 1990.
T - Total chromium.
* - If iron and manganese are present, total concentration of both should not exceed 500 ug/l.
(1) - New York State Soils, USGS Professional Paper 1270 (1984).
(2) - The Soil Chemistry of Hazardous Materials, Dragun, J., Hazardous Materials Control Research Institute, Silver Spring, MD., 1988.
(3) - Range in U.S. Soils, Booz, Allen and Hamilton, Inc., 1983.
(4) - Environmental Chemistry of the Elements, Bowen, H.J.M.

DATA QUALIFIERS (NON-METALS):

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

J: An estimated value. Indicates the presence of a compound that meets the identification criteria but the result is less than the specified detection limit and greater than zero. Also used to estimate a concentration for tentatively identified compounds.

U: Indicates a compound was analyzed for but not detected. Refer to Appendix G for detection limit.

E: This flag is used to indicate that the quantitation of the analyte is outside the curve and that dilution was required to properly quantitate.

D: This flag is used to indicate that the value for the target analyte was calculated from a dilution.

Y: Flag used when a matrix spike compound is also confirmed present in the unspiked sample.

X: Identifies compounds with spectra that do not meet identification criteria in Exhibit (E) E-61.

NS: No standard or guidance value established.

GV: Guidance value.

DATA QUALIFIERS (METALS):

A: Duplicate analysis not within control limits.

B: Reported value is less than the Contract Required Detection Limit (CRDL), but greater than the instrument detection limit (IDL).

U: Reported value is less than the Instrument Detection Limit (IDL).

N: Spiked sample recovery not within control limits.

E: Reported value is estimated because of the presence of interference.

S: The reported value was determined by the Method of Standard Additions.

W: Post digestion spike for Furnace AA analysis is out of control limits.

NS: No standard or guidance value established.

GV: Guidance value.

[1] 11 ug/L when hardness is less than or equal to 75 ppm; 1,100 ug/L when hardness is greater than 75 ppm.
[2] exp(0.7852 [ln (ppm hardness)]-3.490)
[3] exp(0.8545 [ln (ppm hardness)]-1.465)
[4] exp(1.266 [ln (ppm hardness)]-4.661)

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TABLE 4.5
SUMMARY OF GROUNDWATER ANALYSIS RESULTS
SNYDER TANK SITE
(ug/L)

PARAMETERS	NYS STANDARDS/ GUIDANCE VALUES OF GROUNDWATER	GW-1	GW-2	GW-3
TAL				
Aluminum	NS	733 E	995 E	28,600 E
Antimony	3 GV (a)	U	U	U
Arsenic	25 (a)	U	5.9 S	16.5 S
Barium	1,000 (a)	U	U	382
Beryllium	3 GV (a)	U	U	U
Cadmium	10 (a)	U	U	U
Calcium	NS	134,000 E	43,700 E	111,000 E
Chromium (T)	50 (a)	U	U	41.9
Cobalt	NS	U	U	U
Copper	200 (a)	U	U	U
Iron	300 * (a)	860 E	1,170 E	39,800 E
Lead	25 (a)	U	4.0 B	22.5 S
Magnesium	35,000 GV (a)	66,100	21,100	54,400
Manganese	300 * (a)	66.0 E	59.5 E	591 E
Mercury	2 (a)	U	U	U
Nickel	700 (f)	U	U	66.7
Potassium	NS	8,210	23,700	41,600
Selenium	10 (a)	U	U	U
Silver	50 (a)	U	U	U
Sodium	20,000 (a)	38,800 E	224,000 E	416,000 E
Thallium	4 GV (a)	U	U	U
Vanadium	NS	U	U	U
Zinc	300 (a)	42.9	52.6	94.0
Cyanide	100 (a)	U	U	U
TCL				
Acetone	50 (a)	28 B	250 E	78
Benzene	0 (a)	U	U	1 J
2-Butanone	50 (a)	U	48	U
1,2-Dichloroethene	5 (a)	U	4 J	U
2,4-Dimethylphenol	1 [++]	U	9 J	U
Ethylbenzene	5 (a)	U	4 J	U
2-Hexanone	50 GV (a)	U	7 J	U
Methylene Chloride	5 (a)	1 BJ	4 BJ	U
4-Methyl-2-Pentanone	50 (a)	U	3 J	U
2-Methylphenol	1 [++]	U	3 J	U
4-Methylphenol	1 [++]	U	3 J	U
Phenol	1 [++]	U	3 J	U
Toluene	5 (a)	U	3 J	U
Vinyl Chloride	2 (a)	U	3 J	U
Xylene (total)	5[+]	U	83	20

[+] Applies to each Isomer (1,2', 1,3', and 1,4') Individually
[++] A standard of 1 is used for the sum of the phenols.

TABLE 4.6
SUMMARY OF WASTEWATER ANALYSIS RESULTS
SNYDER TANK SITE
(ug/L)

PARAMETERS	NYS STANDARDS/ GUIDANCE VALUES OF A CLASS B STREAM	SW-1 (DG)	SW-2 (UG)
TAL			
Aluminum	100	7,360 E	U
Antimony	NS	U	U
Arsenic	190	9.5 S	U
Barium	NS	U	U
Beryllium	[1]	U	U
Cadmium	[2]	U	U
Calcium	NS	71,000 E	184,000 E
Chromium	442	129	U
Cobalt	5	U	U
Copper	[3]	U	U
Iron	300	1,130 E	283 E
Lead	[4]	U	U
Magnesium	NS	18,200	48,600
Manganese	NS	82.1 E	365 E
Mercury	.2 GV	U	U
Nickel	193	73.2	U
Potassium	NS	U	U
Selenium	1.0	U	U
Silver	.1	U	U
Sodium	NS	48,500 E	87,900 E
Thallium	8	U	U
Vanadium	14	U	U
Zinc	30	49.4	87.3
Cyanide	5.2	U	U
TCL			
Acetone	NS	240	5 BJ
2-Butanone	NS	330	U
1,1 Dichloroethane	NS	U	110
Ethanol, 2-Butoxy	NS	7,600 JD	U
Methylene Chloride	NS	13 BJ	6 B
Toluene	NS	920	U
1,1,1-Trichloroethane	NS	U	26
Xylene (total)	NS	15 J	U

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TABLE 4.7
SUMMARY OF SOIL ANALYSIS RESULTS
SNYDER TANK SITE
(mg/Kg)

PARAMETERS	Average or Expected Range For Soils	SS-1	SS-2	SS-3	*SPGW-2
<u>TAL</u>					
Aluminum	700 - >100,00 (1)	9,910 A	12,500 A	13,600 A	15,400 A
Antimony	<1 - 10 (1)	UN	UN	UN	UN
Arsenic	0.1 - 100 (1)	12.2 NAS	108 NAS	21.6 NAS	25.7 NA
Barium	10 - 500 (1)	58.4	167	142	U
Beryllium	<1 - 15 (1)	1.2 N	1.6 N	1.7 N	UN
Cadmium	0.01 - 7 (2)	1.3 N	4.9 N	6.7 N	2.7 N
Calcium	130 -330,000 (1)	64,000 A	34,100 A	70,300 A	42,600 A
Chromium	1 - 2,000 (1)	12.9 NA	148 NA	98.1 NA	27.4 NA
Cobalt	<3 - 70 (1)	U	U	10.4	12.5
Copper	1 - 700 (1)	15.9 NA	59.8 NA	97.2 NA	29.4 NA
Iron	100 - >100,000 (1)	12,600	57,500	74,700	32,800
Lead	<10 - 700 (1)	15.5 S	70.2S	157	26.4 S
Magnesium	50 - 50,000 (1)	8,970 A	6540 A	11,300 A	8,380 A
Manganese	<2 - 7,000 (1)	598 A	1850 A	2,850 A	367 A
Mercury	0.32 - 5.1 (1)	U	0.10	0.52	U
Nickel	<5- 700 (1)	39.6 N	42.3 N	51.4 N	55.0 N
Potassium	2,200 - 65,000 (1)	1,190	1540	1,440	2540
Selenium	<0.1 - 5.0 (1)	UN	UWN	UWN	UWN
Silver	0.1 -5.0 (3)	U	U	U	U
Sodium	300 - 100,000 (1)	U	U	U	U
Thallium	0.1 - 0.8 (4)	UNW	UN	UN	UN
Vanadium	<7 - 500 (1)	6.8 BN	68.0 N	28.6 N	17.9 N
Zinc	<5 -3,500 (1)	96.7 NA	206 NA	469 NA	57.2 NA
Cyanide	NA	U	1.3	3.5	U

* SPGW-2 is a composite soil sample of auger cuttings from GW-2.

TABLE 4.8
SUMMARY OF SOIL ANALYSIS RESULTS
SNYDER TANK SITE
(ug/Kg)

PARAMETERS	SS-1	SS-2	SS-3	*SPGW-2
<u>TCL</u>				
Acenaphthene	U	90 J	U	U
Anthracene	U	270 J	U	U
Benzene	U	U	U	8
Benzo(a)anthracene	U	840	410 J	230 J
Benzo(a)pyrene	U	650 J	520 J	200 J
Benzo(b)fluoranthene	U	820	410 J	180 J
Benzo(g,h,i)perylene	U	460 J	380 J	U
Benzo(k)fluoranthene	U	670 J	420 J	170 J
Chrysene	U	940	450 J	350 J
Dibenz(a,h)anthracene	U	180 J	U	U
Dibenzofuran	U	110 J	U	U
bis(2-Ethylhexyl)-phthalate	250 J	480 J	220 J	U
Fluoranthene	U	2,100	550 J	400 J
Fluorene	U	110 J	U	U
Indeno(1,2,3-cd)pyrene	U	430 J	330 J	U
Methylene Chloride	2 BJ	2 BJ	U	7 BJ
Naphthalene	U	84 J	U	U
Phenanthrene	U	1,500	210 J	280 J
Pyrene	U	1,700	590 J	370 J
Toluene	U	U	U	11
Xylene (total)	U	U	U	5 J

* SPGW-2 is a composite soil sample of auger cuttings from GW-2.

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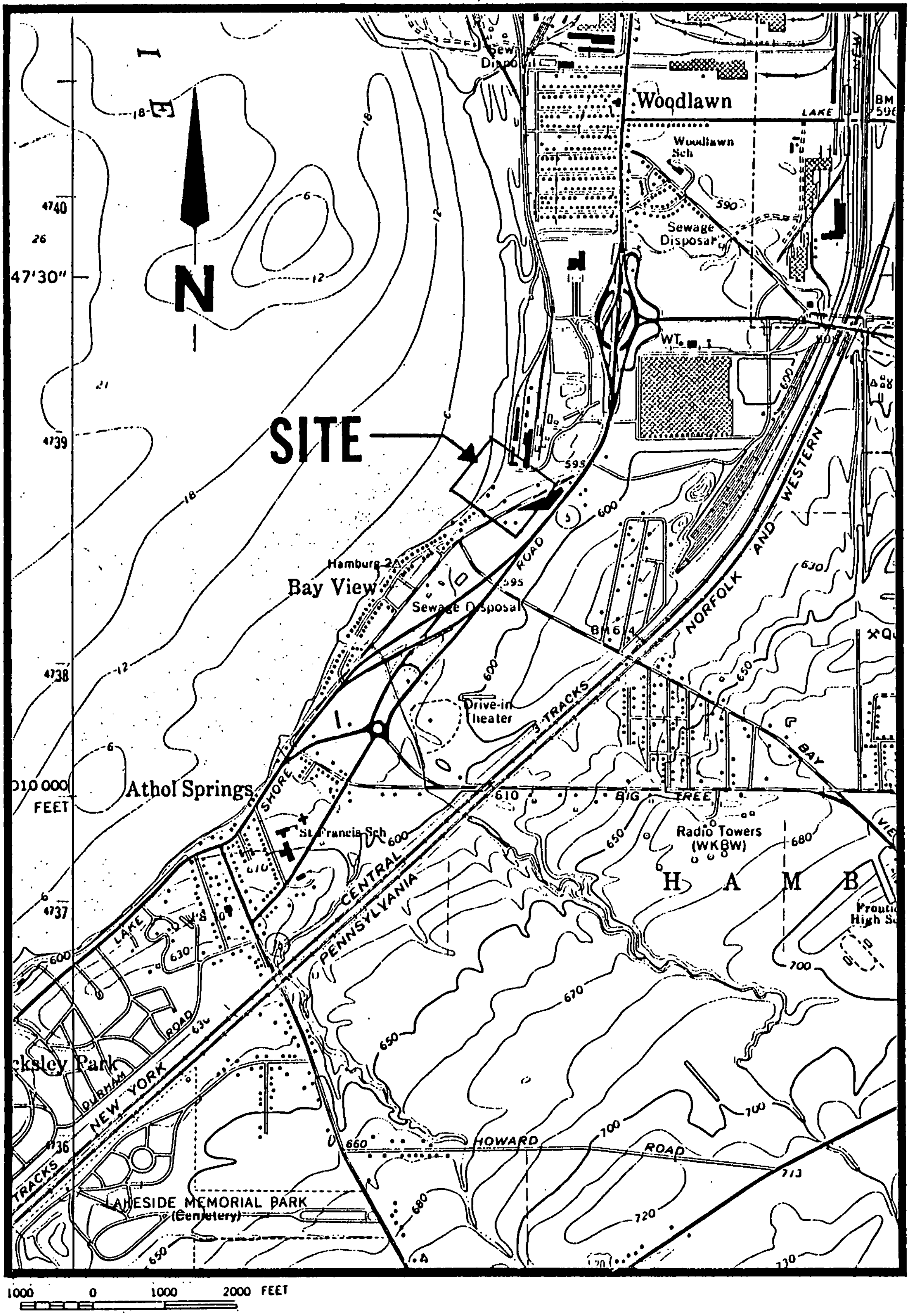
FIGURE 4.1
SITE LOCATION MAP
SNYDER TANK PHASE II INVESTIGATION
HAMBURG, NY.



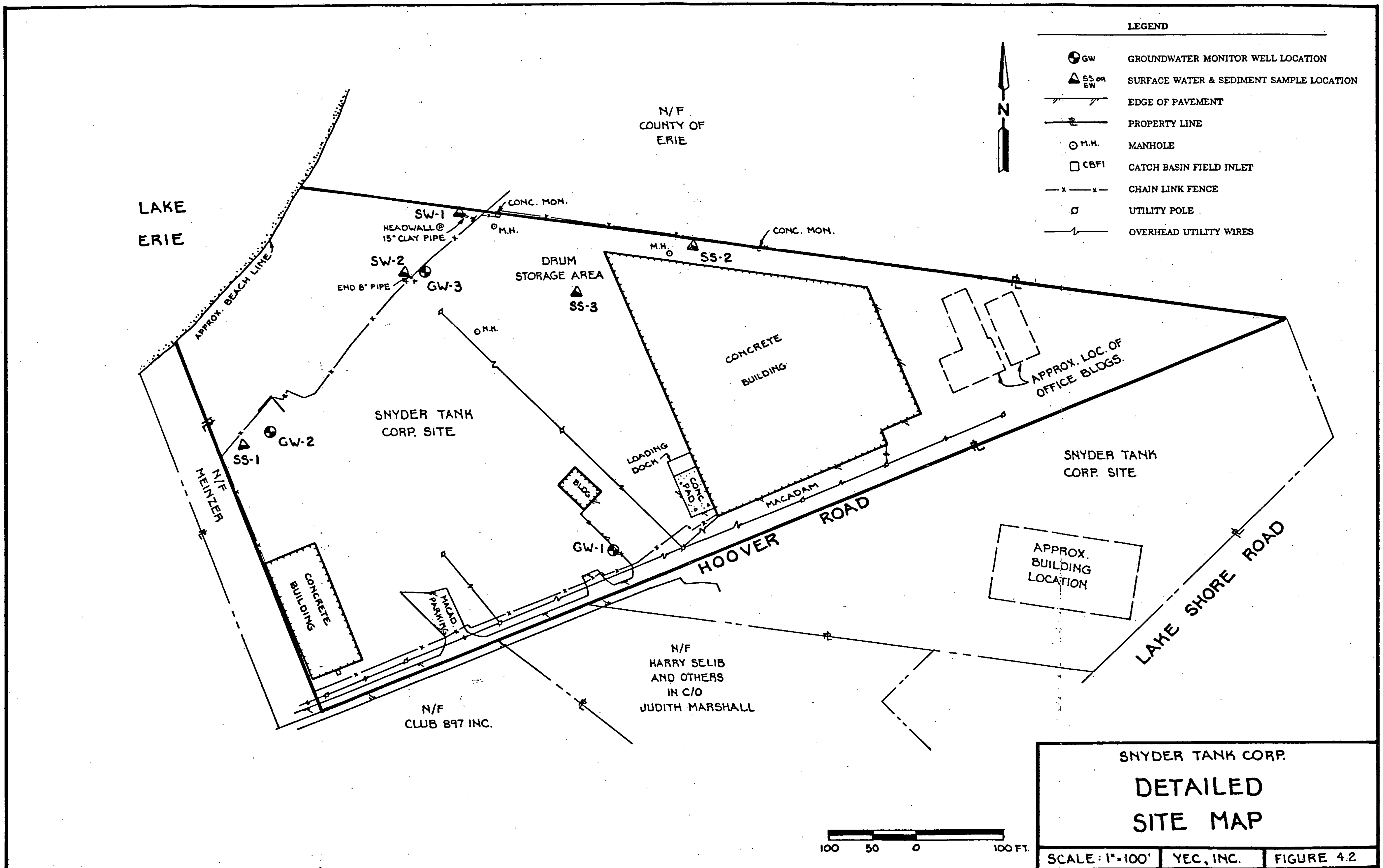
SITE COORDINATES:

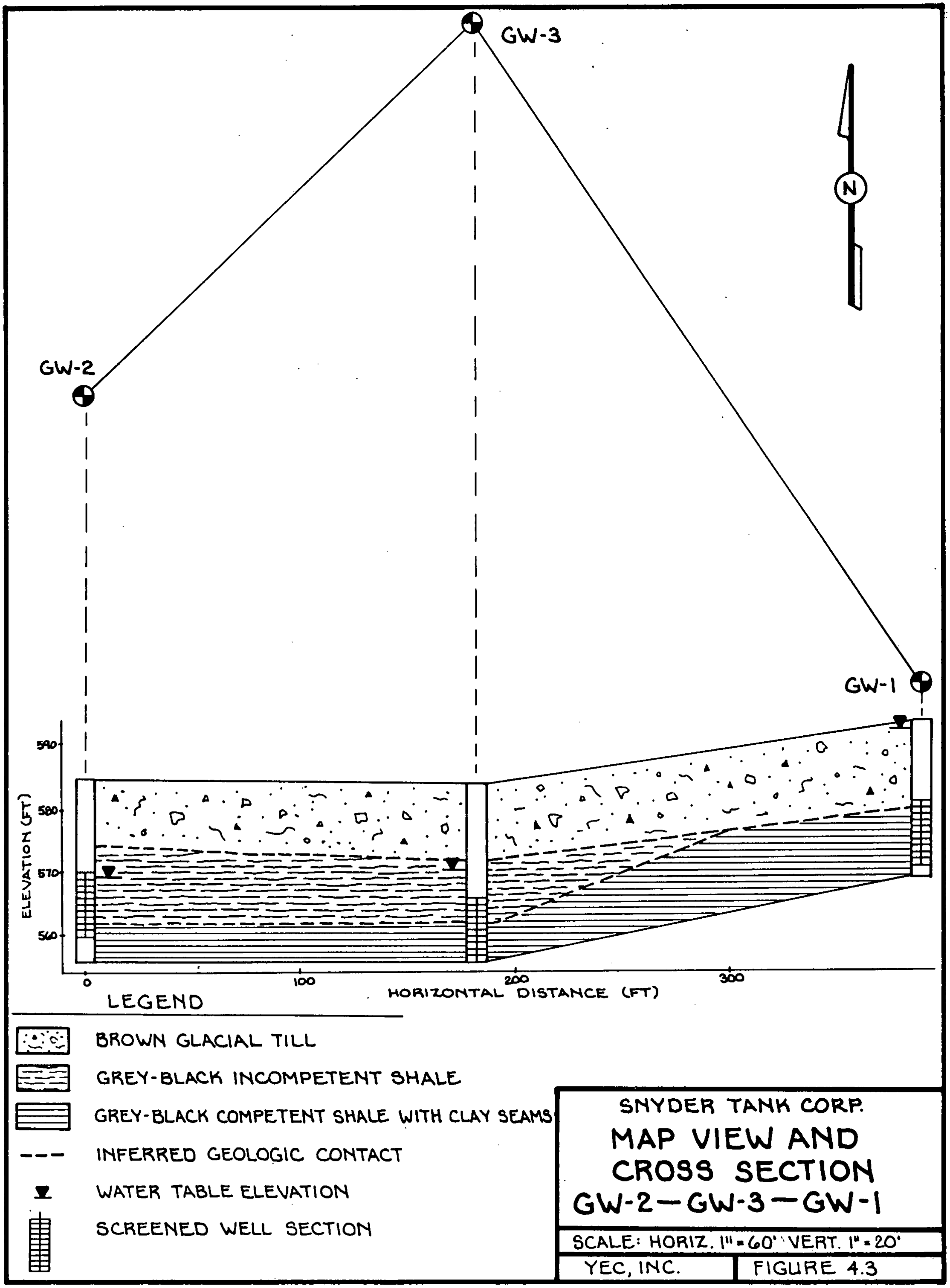
LATITUDE: 42° 46' 55"

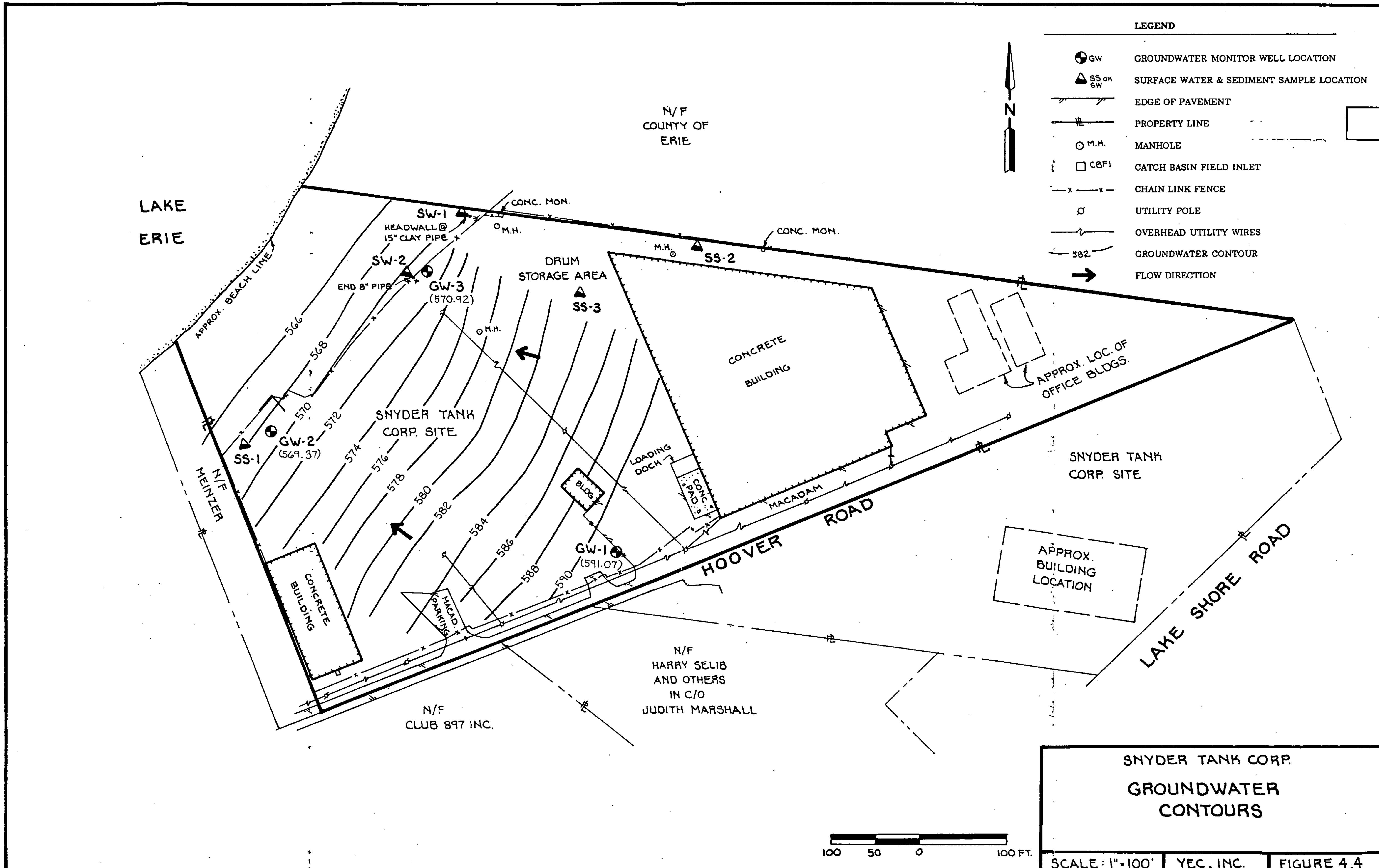
LONGITUDE: 78° 51' 10"

SCALE: 1:24,000

QUAD.: BUFFALO SE, NY (USGS, 1965)


LEGEND
GW GROUNDWATER MONITOR WELL LOCATION
SS or SW SURFACE WATER & SEDIMENT SAMPLE LOCATION
EDGE OF PAVEMENT
PROPERTY LINE
M.H. MANHOLE
CBFI CATCH BASIN FIELD INLET
CHAIN LINK FENCE
UTILITY POLE
OVERHEAD UTILITY WIRES
N
LAKE ERIE
N/F COUNTY OF ERIE
APPROX. BEACH LINE
SW-1
HEADWALL @ 15" CLAY PIPE
CONC. MON.
M.H.
SW-2
GW-3
END 8" PIPE
DRUM STORAGE AREA
SS-3
SS-2
CONCRETE BUILDING
APPROX. LOC. OF OFFICE BLDGS.
SNYDER TANK CORP. SITE
GW-2
SS-1
N/F MEINZER
LOADING DOCK
CONC. PAD
BLDG.
MACADAM
HOOVER ROAD
GW-1
MACAD. PARKING
APPROX. BUILDING LOCATION
LAKE SHORE ROAD
N/F HARRY SELIB AND OTHERS IN C/O JUDITH MARSHALL
N/F CLUB 897 INC.
100 50 0 100 FT.
SNYDER TANK CORP.
DETAILED SITE MAP
SCALE: 1"=100'
YEC, INC.
FIGURE 4.2


GW-3
GW-2
GW-1
N
590
580
570
560
ELEVATION (FT)
0
100
200
300
HORIZONTAL DISTANCE (FT)
LEGEND
BROWN GLACIAL TILL
GREY-BLACK INCOMPETENT SHALE
GREY-BLACK COMPETENT SHALE WITH CLAY SEAMS
INFERRED GEOLOGIC CONTACT
WATER TABLE ELEVATION
SCREENED WELL SECTION
SNYDER TANK CORP.
MAP VIEW AND CROSS SECTION GW-2—GW-3—GW-1
SCALE: HORIZ. 1" = 60' VERT. 1" = 20'
YEC, INC.
FIGURE 4.3


LEGEND
GROUNDWATER MONITOR WELL LOCATION
SURFACE WATER & SEDIMENT SAMPLE LOCATION
EDGE OF PAVEMENT
PROPERTY LINE
MANHOLE
CATCH BASIN FIELD INLET
CHAIN LINK FENCE
UTILITY POLE
OVERHEAD UTILITY WIRES
GROUNDWATER CONTOUR
FLOW DIRECTION
N
LAKE ERIE
N/F COUNTY OF ERIE
SW-1
HEADWALL @ 15" CLAY PIPE
CONC. MON.
M.H.
SW-2
END 8" PIPE
GW-3 (570.92)
DRUM STORAGE AREA
SS-3
SS-2
CONCRETE BUILDING
APPROX. LOC. OF OFFICE BLDGS.
APPROX. BEACH LINE
SNYDER TANK CORP. SITE
GW-2 (569.37)
SS-1
N/F MEINZER
LOADING DOCK
CONC. PAD
BLDG.
MACADAM
HOOVER ROAD
GW-1 (591.07)
MACAD. PARKING
CONCRETE BUILDING
APPROX. BUILDING LOCATION
LAKE SHORE ROAD
N/F HARRY SELIB AND OTHERS IN C/O JUDITH MARSHALL
N/F CLUB 897 INC.
566
568
570
572
574
576
578
580
582
584
586
588
590
100 50 0 100 FT.
SNYDER TANK CORP.
GROUNDWATER CONTOURS
SCALE: 1"=100'
YEC, INC.
FIGURE 4.4

5

5

5.1 NARRATIVE

5.1 NARRATIVE

SECTION V

FINAL APPLICATION OF HAZARD RANKING SYSTEM

NARRATIVE SUMMARY

During the Phase II investigation, groundwater, wastewater and soil samples were collected by YEC, Inc. and analyzed by Aquatec, Inc. Laboratories. The results indicate the presence of TCL organic compounds and TAL metals in the groundwater, wastewater, and soils on-site. One day sampling results also indicate that there was a release of TAL metals and organic compounds to the surface water pathway. The nearest surface water body is Lake Erie, which is a New York State Class B water body in the vicinity of the site. Therefore, the lake water is suitable for primary and secondary contact recreation and fishing (6 NYCRR).

Thirteen TAL metals and fifteen organic compounds were detected in the groundwater samples. Only a small percentage of people in the site vicinity depend on groundwater as their drinking water. It is not locally used for irrigation. The 4,504 people living within a one mile radius of the site are served by a public water supply which has sources (intakes) in Lake Erie no more than two miles from the site.

Surface soils in the vicinity of the site are contaminated with twenty organic compounds including pyrene and chrysene. One sample, SS-2, had more than 11 ppm of these compounds. The site is presently active and has a fence around its perimeter. However, there is an opening in the fence just north of the plant outfall pipe between the site and the beach at Lake Erie (Figure 4.2) and consequently this could allow unauthorized access.

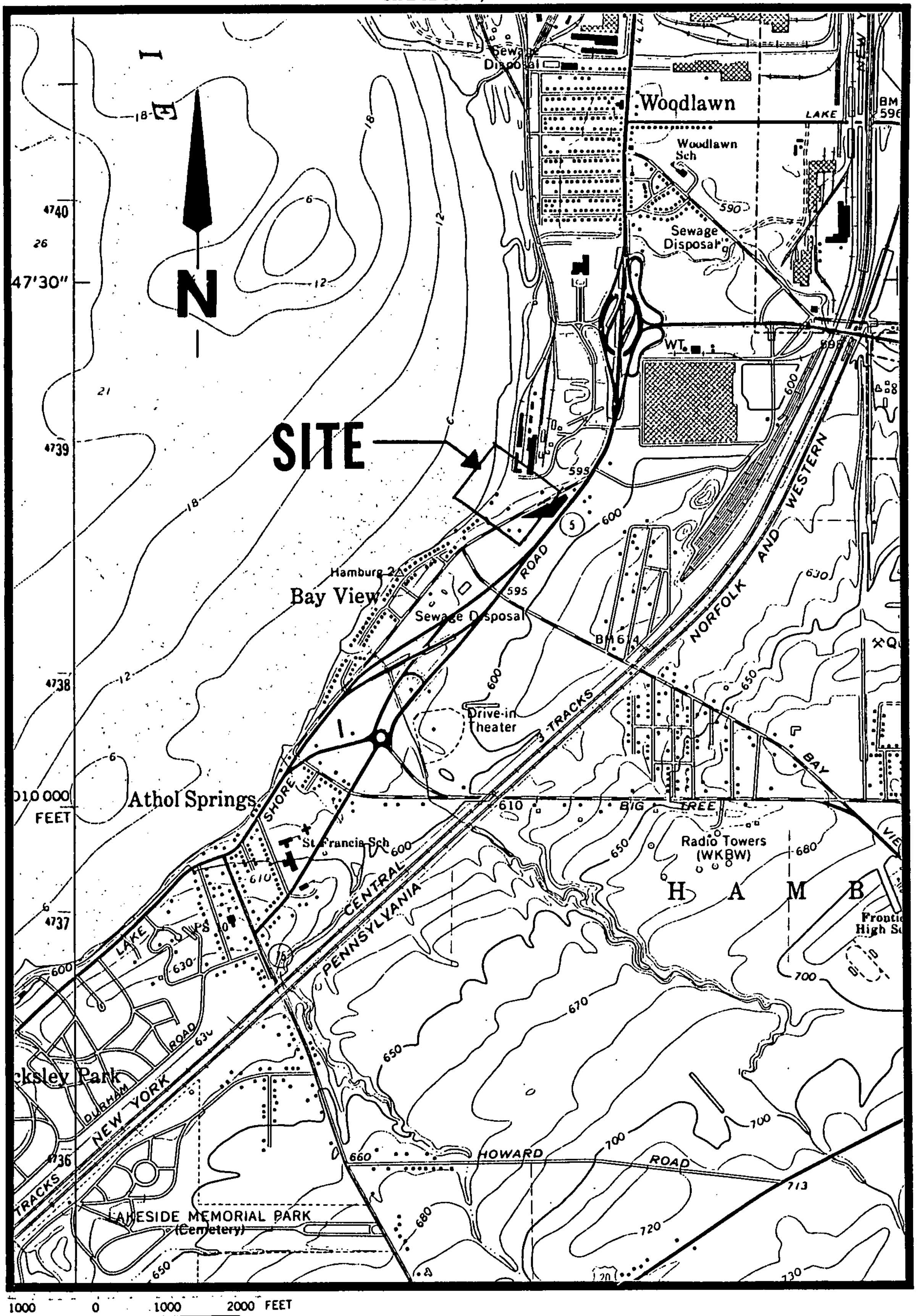
5.2 LOCATION

FIGURE 5.1

SITE LOCATION MAP

SNYDER TANK PHASE II INVESTIGATION

HAMBURG, NY.



SITE COORDINATES:

LATITUDE: 42° 46′ 55"

LONGITUDE: 78° 51′ 10"

SCALE: 1:24,000

QUAD.: BUFFALO SE, NY (USGS, 1965)

5.3 HRS WORK SHEETS

5.3 HRS WORK SHEETS

HRS COVER SHEET

FACILITY NAME: Snyder Tank Corporation

LOCATION: Town of Hamburg, Erie County, New York

EPA REGION: II

PERSON(S) IN CHARGE OF FACILITY: Jim Snyder, Vice President
3773 Lake Shore Road
Hamburg, New York 14219

REVIEWER: Ira Bickoff, YEC, Inc. **DATE:** 7-7-91

GENERAL DESCRIPTION OF THE FACILITY:

The site is approximately ten acres and is located on Lake Shore and Hover Roads on the Eastern shore of Lake Erie in the town of Hamburg, Erie County, New York. It consists of office and production buildings, gravel parking and loading areas and a 100 foot wide beach area. The beach serves as a discharge area for the plant's noncontact process water, cooling water, and storm drain runoff which discharge into Lake Erie.

HRS SCORES:

S_M = 19.03 (S_{gw} =28.57 S_{sw} =16.36 S_a =0.00)

S_{fe} = Not Scored

S_{DC} = 50.00

36

Ground Water Route Work Sheet					
Rating Factor	Assigned Value (Circle One)	Multiplier	Score	Max. Score	Ref. (Section)
1 Observed Release	0 45	1	45	45	3.1
If observed release is given a score of 45, proceed to line 4. If observed release is given a score of 0, proceed to line 2.					
2 Route Characteristics					3.2
Depth to Aquifer of Concern	0 1 2 3	2	6	6	
Net Precipitation	0 1 2 3	1	2	3	
Permeability of the Unsaturated Zone	0 1 2 3	1	3	3	
Physical State	0 1 2 3	1	3	3	
	Total Route Characteristics Score		14	15	
3 Containment	0 1 2 3	1	2	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	8	8	
	Total Waste Characteristics Score		26	26	
5 Targets					3.5
Ground Water Use	0 1 2 3	3	6	9	
Distance to Nearest Well/Population Served	0 4 6 8 10 12 16 18 20 24 30 32 35 40	1	8	40	
	Total Targets Score		14	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			16,380	57,330	
7 Divide line 6 by 57,330 and multiply by 100	S_{gw} = 28.57				

FIGURE 2
GROUND WATER ROUTE WORK SHEET

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Surface Water Route Work Sheet					
Rating Factor	Assigned Value (Circle One)	Multi-plier	Score	Max. Score	Ref. (Section)
1 Observed Release	0 45	1	45	45	4.1
If observed release is given a value of 45, proceed to line 4. If observed release is given a value of 0, proceed to line 2.					
2 Route Characteristics					4.2
Facility Slope and Intervening Terrain	0 1 2 3	1	1	3	
1-yr. 24-hr. Rainfall	0 1 2 3	1	2	3	
Distance to Nearest Surface Water	0 1 2 3	2	6	6	
Physical State	0 1 2 3	1	3	3	
	Total Route Characteristics Score		12	15	
3 Containment	0 1 2 3	1	2	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	8	8	
	Total Waste Characteristics Score		26	26	
5 Targets					4.5
Surface Water Use	0 1 2 3	3	9	9	
Distance to a Sensitive Environment	0 1 2 3	2	0	6	
Population Served/Distance to Water Intake Downstream	0 4 6 8 10 12 16 18 20 24 30 32 35 40	1	0	40	
	Total Targets Score		9	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			10,530	64,350	
7 Divide line 6 by 64,350 and multiply by 100	S_{sw} = 16.36				

FIGURE 7
SURFACE WATER ROUTE WORK SHEET

38

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	NA	3	
Toxicity	0 1 2 3	3	NA	9	
Hazardous Waste Quantity	0 1 2 3 4 5 6 7 8	1	NA	8	
	Total Waste Characteristics Score		NA	20	
3 Targets					5.3
Population Within 4-Mile Radius	0 9 12 15 18 21 24 27 30	1	21	30	
Distance to Sensitive Environment	0 1 2 3	2	0	6	
Land Use	0 1 2 3	1	3	3	
	Total Targets Score		24	39	
4 Multiply 1 x 2 x 3			0.00	35,100	
5 Divide line 4 by 35,100 and multiply by 100		S_a = 0.00			

FIGURE 9
AIR ROUTE WORK SHEET

39

	S	S^2
Groundwater Route Score (S_{gw})	28.57	816.24
Surface Water Route Score (S_{sw})	16.36	267.65
Air Route Score (S_a)	0.00	0.00
$(S_{gw})^2 + (S_{sw})^2 + (S_a)^2$		1083.89
$\sqrt{(S_{gw})^2 + (S_{sw})^2 + (S_a)^2}$		32.92
$\sqrt{(S_{gw})^2 + (S_{sw})^2 + (S_a)^2} / 1.73 = S_M =$		19.03

FIGURE 10

WORKSHEET FOR COMPUTING S_M

Fire and Explosion Work Sheet					
Rating Factor	Assigned Value (Circle One)	Multiplier	Score	Max. Score	Ref. (Section)
1 Containment	1 3	1	1	3	7.1
2 Waste Characteristics					7.2
Direct Evidence	0 3	1	NA	3	
Ignitability	0 1 2 3	1	NA	3	
Reactivity	0 1 2 3	1	NA	3	
Incompatibility	0 1 2 3	1	NA	3	
Hazardous Waste Quantity	0 1 2 3 4 5 6 7 8	1	NA	8	
	Total Waste Characteristics Score		NA	20	
3 Targets					7.3
Distance to Nearest Population	0 1 2 3 4 5	1	5	5	
Distance to Nearest Building	0 1 2 3	1	3	3	
Distance to Sensitive Environment	0 1 2 3	1	0	3	
Land Use	0 1 2 3	1	3	3	
Population Within 2-Mile Radius	0 1 2 3 4 5	1	5	5	
Buildings Within 2-Mile Radius	0 1 2 3 4 5	1	5	5	
	Total Targets Score		21	24	
4 Multiply 1 x 2 x 3			NA	1,440	
5 Divide line 4 by 1,440 and multiply by 100			S_{FE} = Not scored.		

FIGURE 11
FIRE AND EXPLOSION WORK SHEET

Direct Contact Work Sheet

Rating Factor	Assigned Value (Circle One)	Multiplier	Score	Max. Score	Ref. (Section)
1 Observed Incident	0 45	1	0	45	8.1
If line 1 is 45, proceed to line 4 If line 1 is 0, proceed to line 2					
2 Accessibility	0 1 2 3	1	3	3	8.2
3 Containment	0 15	1	15	15	8.3
4 Waste Characteristics Toxicity	0 1 2 3	5	15	15	8.4
5 Targets					8.5
Population Within a 1-Mile Radius	0 1 2 3 4 5	4	16	20	
Distance to a Critical Habitat	0 1 2 3	4	0	12	
	Total Targets Score		16	32	
6 If line 1 is 45, multiply 1 x 4 x 5 If line 1 is 0, multiply 2 x 3 x 4 x 5			10,800	21,600	
7 Divide line 6 by 21,600 and multiply by 100		S_{DC} =	50.00		

FIGURE 12
DIRECT CONTACT WORK SHEET

5.4 HRS DOCUMENTATION RECORDS

5.4 HRS DOCUMENTATION RECORDS

DOCUMENTATION RECORDS
FOR
HAZARD RANKING SYSTEM

Instructions: **As briefly as possible summarize the information you used to assign the score for each factor (e.g.,"Waste quantity = 4,230 drums plus 80 cubic yards of sludges"). The source of information should be provided for each entry and should be a bibliographic-type reference. Include the location of the document.**

Facility Name: Snyder Tank Corporation

Location: Hamburg, New York

Date Scored: March 15, 1991

Person Scoring: Ira Bickoff

Primary Source(s) of Information (e.g., EPA region, state, FIT, etc.):

Ecology and Environmental Engineering, Phase I Investigation for the NYSDEC, 1989
USGS 7.5 Minute Series (Topographic) Quadrangle, Buffalo SE, N.Y. (CLEARS)
NYSDEC Information Services, Significant Habitat Unit, Wildlife Resources Center, Latham, NY
US Department of Agriculture, Soil Conservation Service, East Aurora, NY
US Department of Commerce, Bureau of the Census, New York, NY
NYSDEC Region 9 Files (Buffalo, NY)

Factors Not Scored Due to Insufficient Information:

S_{FE}

Comments or Qualifications:

An HNU used during site reconnaissance indicated no observed release, therefore the air route score = 0.

S_{FE} is scored if a fire marshal has certified that the site is a fire or explosion threat. Since neither of these is true, S_{FE} is not scored.

GROUNDWATER ROUTE

1. OBSERVED RELEASE

Contaminants detected (5 maximum):

There was an observed release of organic and inorganic substances, including: acetone, aluminum, iron, and manganese in the downgradient wells.

Reference #1, p.2

Rationale for attributing the contaminants to the facility:

The concentrations of the contaminants in the downgradient wells were three or more times those in the upgradient well.

Reference #1, p.2 Assigned Value = 45

* * *

2. ROUTE CHARACTERISTICS

__Depth to Aquifer of Concern__

Name/description of aquifer(s) of concern:

The Ludlowville Formation of the Hamilton Group is a gray, fissile shale with an overlying, thin, unconsolidated till deposit.

Reference #2, p.3

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

At GW-1, located on Snyder Tank Corp. property, the depth from the ground surface to the water table is 2.58 feet.

Reference #3, p.1
Assigned Value = 3

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

During the installation of GW-2 (a downgradient well) HNU readings of greater than 10 were observed in auger cuttings and split spoon samples down to 17 feet.
Reference #4, pgs.2 and 3

Net Precipitation

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

36 inches.
Reference #5

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

27 inches.
Reference #5

Net precipitation (subtract the above figures):

36 - 27 = 9 inches
Assigned Value = 2

Permeability of Unsaturated Zone

Soil type in unsaturated zone:

Gravel and sand with metamorphic and igneous erratics.
Reference #6

Permeability associated with soil type:

> 10^{-3} cm/sec
Reference #6, p.5
Assigned Value = 3

Physical State

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

Liquids discharge at SW-1 and SW-2 locations onto the beach.
Reference #7 (Photo 5), pgs.1 and 2
Assigned Value = 3

* * *

3. **CONTAINMENT**

Containment

Method(s) of waste or leachate containment evaluated:

An unsecured baffle exists at SW-1 to absorb outflowing products from the facility.
Reference #7 (Photos 5,6, and 8), pgs.1 and 2

Method with highest score:

Waste discharged onto beach.
Reference #7 (Photo 5), pgs.1 and 2
Assigned Value = 2

***

4. **WASTE CHARACTERISTICS**

Toxicity and Persistence

Compound(s) evaluated:

TAL	TCL
Aluminum	Acetone
Iron	
Manganese	

Reference #1, p.2

Compound with highest score:

Iron
Reference #8, p.3
Assigned Value = 12
Score = 18

Hazardous Waste Quantity

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

Total Quantity Discharged from 1941-1970 in the past = 2,842,000 gallons = 56,840 drums

Reference #9, pgs.5 and 6

Basis of estimating and/or computing waste quantity:

1941-1970 Spent Pickle Liquor Sludge (H_2SO_4 (11%) and Iron salts (14%)) per year
1941-1970 Liquid Phosphate products
Annual Waste Production = 98,000 gallons per year from 1941 through 1970.
Total Waste Production after 29 years = 2,842,000 gallons = 56,840 drums

Assigned Value = 8

* * *

5. **TARGETS**

Groundwater Use

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

There are no municipal community or non-municipal community wells within a 3-mile radius of the site. There is only one documented well within a 3-mile radius of the facility.
Reference #10, pgs.1,2, and 6
Assigned Value = 2

Distance to Nearest Well

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

3742 Mile Strip Road

Reference #10, p.6

Distance to above well or building:

0.85 miles
Reference #11, p.1

Population Served by Groundwater Wells Within a 3-Mile Radius

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

Less than 100 people are served by the above mentioned well.
Reference #10, p.6
Assigned Value = 8

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):

There are no irrigation wells within 3 miles of the facility.
Reference #12, p.1

Total population served by groundwater within a 3-mile radius:

Less than 100 people.

SURFACE WATER ROUTE

1. **OBSERVED RELEASE**

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

<u>TAL</u>	<u>TCL</u>
Aluminum	Acetone
Chromium	2-Butanone
	Toluene

Reference #1, p.3

Assigned Value = 45

Rationale of attributing the contaminants to the facility:

Plant effluent wastewater observed flowing into Lake Erie by YEC personnel. Concentrations of above noted contaminants detected in wastewater samples in excess of the upgradient concentrations by more than a factor of three or the CRQL by more than a factor of five.
Reference #7 (Photo #5), pgs.1 and 2

* * *

2. **ROUTE CHARACTERISTICS**

<u>Facility Slope and Intervening Terrain</u>

Average slope of facility in percent:

1.7 %
Reference #11 and Plate A

Name/description of nearest downslope surface water:

Lake Erie
Reference #11 and Plate A

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

3.8 %
Reference #11 and Plate A
Assigned Value = 1

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

No. Reference #11

Is the facility completely surrounded by areas of higher elevation?

No.
Reference #11

1-Year 24-Hour Rainfall in Inches

2.1 inches
Assigned Value = 2
Reference #5

Distance to Nearest Downslope Surface Water

Lake Erie is approximately 100 feet west of the facility.
Reference #11 and Plate A

Assigned Value = 3

Physical State of Waste

Liquid.
Reference #1, p.3 and Reference #7 (Photo 5), pgs.1 and 2

Assigned Value = 3

* * *

3. CONTAINMENT

Containment

Method(s) of waste or leachate containment evaluated:

A baffle exists at SW-1 to absorb and contain the discharge of waste products.
Reference #7 (Photo 6), pgs.1 and 2

Method with highest score:

The baffle is the only method of containment, but is unsound.

Assigned Value = 2

* * *

4. WASTE CHARACTERISTICS

Toxicity and Persistence

Compound(s) evaluated:

TAL	TCL
Aluminum	Acetone
Chromium	Toluene
	2-Butanone

Reference #1, p.3

Compound with highest score:

Chromium
Score = 18
Reference #8, p.2

Hazardous Waste Quantity

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

Total Quantity Discharged from 1941 - 1970 = 2,842,000 gallons = 56,840 drums

Reference #9, pgs.5 and 6

Basis of estimating and/or computing waste quantity:

1941-1970 Spent Pickle Liquor Sludge H2SO4 (11%) and Iron salts (14%) gallons)
1941-1970 Liquid Phosphate products
Annual Waste Production = 98,000 gallons per year from 1941-1970.
Total Waste Production = 2,842,000 gallons = 56,840 drums

Assigned Value = 8

* * *

5. **TARGETS**

Surface Water Use

Use(s) of surface water within 3 miles downstream of the hazardous substance:
Surface water within 3 miles downstream of facility is used for drinking, culinary or food processing purposes, primary contact recreation and any other usages.

Reference #13, p.2
Assigned Value = 3

Is there tidal influence?

No.
Reference #11

Distance to a Sensitive Environment

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

There are no coastal wetlands in this region.
Reference #14

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

Greater than 1 mile.
Reference #14

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

There are no critical habitats of endangered species or national wildlife refuges within 1-mile of the site
Reference #15
Assigned Value = 0

Population Served by Surface Water

Location(s) of water-supply intake(s) within 3 miles (free-flowing bodies) or 1 mile (static water bodies) downstream of the hazardous substance and population served by each intake:

There are no water supply intakes in Lake Erie within 1 mile of the site.
Reference #10, pgs.1,2, and 3

Assigned Value = 0

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

There are no irrigation uses of Lake Erie within 1 mile of the site. The site lies in an industrial area with no nearby farmland.
Reference #12

Total population served:

Zero.

Name/description of nearest of above water bodies:

Lake Erie is the nearest body of water. It is located approximately 0.2 miles downslope of the site.
Reference #11

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

Lake Erie contains no water supply intakes within 1 mile of the site. The closest intake is the Wanakah Water Company (#21) located approximately 2 miles north of the site.

Reference #11, pgs.1 and 2 and Reference 12

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AIR ROUTE

An HNU used during the site reconnaissance indicated no observed release, therefore the air route score = 0

1. **OBSERVED RELEASE**

Contaminants detected:

None.
Score = 0

Date and location of detection of contaminants:

N/A

Methods used to detect the contaminants:

N/A

Rationale for attributing the contaminants to the site:

An HNU used during site inspection on 11-2-90.

* * *

2. **WASTE CHARACTERISTICS**

Reactivity and Incompatibility

Most reactive compounds:

N/A

Most incompatible pair of compounds:

N/A

Toxicity

Most toxic compound:

N/A

Hazardous Waste Quantity

Total quantity of hazardous waste:

NA

Basis of estimating and/or computing waste quantity:

NA

* * *

3. TARGETS

Population Within 4-Mile Radius

Circle radius used, give population, and indicate how determined:

0 to 4 mi	0 to 1 mi	0 to 1/2 mi	0 to 1/4 mi
73,321	4,604		

Assigned Value = 21
Reference #16, pgs.1,2, and 3

Distance to a Sensitive Environment

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

No coastal wetlands in region.
Reference #14

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

No fresh water wetlands within 1 mile of facility.
Reference #14

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

There are no critical habitats of endangered species or national wildlife refuges within 1 mile of site.

Reference #15
Assigned Value = 0

Land Use

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

The site lies within an industrial area.
Reference #11
Assigned Value = 3

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

There are no national or state park, forest, wildlife reserves within 2 miles of site.
Reference #11

Distance to residential area, if 2 miles of less:
0.1 miles
Reference #11

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

No agricultural land in production (within the past 5 years) 1 mile or less from site.
Reference #12

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

No agricultural land in production (within the past 5 years) 2 miles or less from site. Reference #12

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

There are no historic or landmark sites within view of the site. Reference #11 and Reference #17

FIRE AND EXPLOSION

1. **CONTAINMENT**

Hazardous substances present:

None observed.
Reference #18

Type of containment, if applicable:

NA

* * *

2. **WASTE CHARACTERISTICS**

Direct Evidence

Type of instrument and measurements:

N/A

Ignitability

Compound used:

N/A

Reactivity

Most reactive compound:

N/A

Incompatibility

Most incompatible pair of compounds:

N/A

Hazardous Waste Quantity

Total quantity of hazardous substances at the facility:

NA

Basis of estimating and/or computing waste quantity:
NA

* * *

3. TARGETS

<u>Distance to Nearest Population</u>

0.1 mile
Reference #11
Assigned Value = 5

<u>Distance to Nearest Building</u>

Buildings located on site.
Reference #11
Assigned Value = 3

<u>Distance to a Sensitive Environment</u>

Distance to wetlands:

No wetlands in region of site.
Reference #14

Distance to critical habitat:

No critical habitat near site.
Reference #15
Assigned Value = 0

<u>Land Use</u>

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

Site is in a commercial/industrial area.
Reference #11
Assigned Value = 3

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

None within 2 miles of the site.
Reference #11

Distance to residential area, if 2 miles or less:

0.1 miles
Reference #11

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

None within 1 mile of site.
Reference #12

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

None within 2 miles of site.
Reference #12

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

None within view.
Reference #11 and Reference #17

<u>Population Within 2-Mile Radius</u>

16,903
Reference #16, pgs.1,2, and 3
Assigned Value = 5

<u>Buildings Within 2-Mile Radius</u>

$$\frac{16{,}903}{3.8 \text{ people/house}} = 4{,}448 \text{ buildings}$$

Assigned Value = 5

DIRECT CONTACT

1. **OBSERVED INCIDENT**

Date, location, and pertinent details of incident:

No record of an observed incident of direct contact with hazardous waste.
Reference #19, pgs.2 and 4   Score = 0

* * *

2. **ACCESSIBILITY**

Describe type of barrier(s):

An opening in the fence surrounding the facility exists near the drainage channels making the facility accessible to people on the beach.

Reference #19, pgs.2 and 4   Score = 3

* * *

3. **CONTAINMENT**

Type of containment, if applicable:

Direct contact to wastes discharged on the beach is possible for people in this area.
Reference #19, pgs.2 and 4 and Reference #7 (Photo #5), pgs.1 and 2
Score = 15

* * *

4. **WASTE CHARACTERISTICS**

Toxicity

Compounds evaluated:

Benzo(a)anthracene	Fluoranthene	Phenanthrene
Benzo(a)pyrene	Chrysene	Pyrene

Reference #1, p.5

Compound with highest score:

Benzo(a)pyrene = 3
Phenanthrene = 3

* * *

5. TARGETS

Population Within One-mile Radius

4,604
Reference #16, pgs.1,2, and 3

Assigned Value = 4

Distance to Critical Habitat (of endangered species)

There are no critical habitats of endangered species within 1 mile of the site.
Reference #15

Assigned Value = 0

HAZARD RANKING SYSTEM REFERENCES

Reference Number	Description of References
1	YEC, Inc., Analytical Data Summary Sheets, Phase II Investigation Snyder Tank Corporation. Document Location: YEC, Inc., Valley Cottage, New York.
2	State of New York Conservation Department Water Resources, Groundwater Resources of the Erie-Niagara Basin, New York Basin Planing Report ENB-3, 1968. Document Location: YEC, Inc., Valley Cottage, New York.
3	YEC, Inc., Table 4.3 Water Levels, Phase II Investigation Snyder Tank Corporation. Document Location: YEC, Inc., Valley Cottage, New York.
4	YEC, Inc., Field Notes, Phase II Investigation Snyder Tank Corporation. Document Location: YEC, Inc., Valley Cottage, New York.
5	United States Department of Commerce, Environmental Science Services Administration, Climatic Atlas of the United States, 1983.
6	United States Department of Agriculture, Soil Conservation Service, Soil Survey of Erie County, New York; A letter regarding irrigation and farmland.
7	YEC, Inc., Photo Log (Appendix J), Phase II Investigation Snyder Tank Corporation. Document Location: YEC, Inc., Valley Cottage, New York.
8	United States Environmental Protection Agency, Uncontrolled Hazardous Waste Site Ranking System, A Users Manual, 1984. Document Location: YEC, Inc., Valley Cottage, New York.
9	Ecology and Environment Engineering, P.C., 1989, Phase I Investigation Snyder Tank Corporation. Document Location: YEC, Inc., Valley Cottage, New York.
10	New York State Department of Health, New York State Atlas of Community Water System Sources 1982, Erie and Niagara Counties. Telecon notes concerning population served by groundwater, NUS

Corporation Superfund Division, Site Inspection Report and Hazard Ranking System Model, Snyder Tank Corporation, Hamburg, New York, 1986.
Document Locations: YEC, Inc., Valley Cottage, New York.

11 USGS 7.5 Minute Series (Topographic) Quadrangle, Buffalo SE, N.Y., 1965.
Document Location: YEC, Inc., Valley Cottage, New York.

12 United States Department of Agriculture, Soil Conservation Service, Soil Survey of Erie County, New York; A letter regarding irrigation and farmland.

13 New York State Department of Environmental Conservation, Water Quality Regulations, Surface Water and Groundwater Classifications and Standards, New York State Codes, Rules and Regulations, Title 6, Chapter X, Parts 700-705.
Document Location: YEC, Inc., Valley Cottage, New York.

14 New York State Department of Environmental Conservation, Wetlands Map, Region 9 Offices, Buffalo, New York.
Document Location: YEC, Inc., Valley Cottage, New York.

15 New York State Department of Environmental Conservation, Information Services, Wildlife Resources Center; A letter regarding occurrences of rare animals, plants and significant wildlife habitats.

16 United States Department of Commerce, Bureau of the Census; Census tract map and related block population data.
Document Location: YEC, Inc., Valley Cottage, New York.

17 National Register of Historical Places, Index of Listed Properties, March 15, 1991.

18 YEC, Inc., 1991 Site Inspection, Phase II Investigation Snyder Tank Corporation.
Document Location: YEC, Inc., Valley Cottage, New York.

19 NUS Corporation Superfund Division, 1986, Final Draft Site Inspection Report and Hazardous Waste Site Ranking System Model for Snyder Tank Corporation.

Ecology and Environment Engineering, P.C., 1989, Phase I Investigation Snyder Tank Corporation.
Document Locations: YEC, Inc., Valley Cottage, New York.

REFERENCE 1

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TABLE 1.1
FOOTNOTE / QUALIFIER LIST

FOOTNOTES:

a - NYS Ambient Water Quality Standards, TOGS 1.1.1., September, 1990.
T - Total chromium.
* - If iron and manganese are present, total concentration of both should not exceed 500 ug/l.
(1) - New York State Soils, USGS Professional Paper 1270 (1984).
(2) - The Soil Chemistry of Hazardous Materials, Dragun, J., Hazardous Materials Control Research Institute, Silver Spring, MD., 1988.
(3) - Range in U.S. Soils, Booz, Allen and Hamilton, Inc., 1983.
(4) - Environmental Chemistry of the Elements, Bowen, H.J.M.

DATA QUALIFIERS (NON-METALS):

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

J: An estimated value. Indicates the presence of a compound that meets the identification criteria but the result is less than the specified detection limit and greater than zero. Also used to estimate a concentration for tentatively identified compounds.

U: Indicates a compound was analyzed for but not detected. Refer to Appendix G for detection limit.

E: This flag is used to indicate that the quantitation of the analyte is outside the curve and that dilution was required to properly quantitate.

D: This flag is used to indicate that the value for the target analyte was calculated from a dilution.

Y: Flag used when a matrix spike compound is also confirmed present in the unspiked sample.

X: Identifies compounds with spectra that do not meet identification criteria in Exhibit (E) E-61.

NS: No standard or guidance value established.

GV: Guidance value.

DATA QUALIFIERS (METALS):

A: Duplicate analysis not within control limits.

B: Reported value is less than the Contract Required Detection Limit (CRDL), but greater than the instrument detection limit (IDL).

U: Reported value is less than the Instrument Detection Limit (IDL).

N: Spiked sample recovery not within control limits.

E: Reported value is estimated because of the presence of interference.

S: The reported value was determined by the Method of Standard Additions.

W: Post digestion spike for Furnace AA analysis is out of control limits.

NS: No standard or guidance value established.

GV: Guidance value.

[1] 11 ug/L when hardness is less than or equal to 75 ppm; 1,100 ug/L when hardness is greater than 75 ppm.
[2] exp(0.7852 [ln (ppm hardness)]-3.490)
[3] exp(0.8545 [ln (ppm hardness)]-1.465)
[4] exp(1.266 [ln (ppm hardness)]-4.661)

TABLE 1.2
SUMMARY OF GROUNDWATER ANALYSIS RESULTS
SNYDER TANK SITE
(ug/L)

PARAMETERS	NYS STANDARDS/ GUIDANCE VALUES OF GROUNDWATER	GW-1	GW-2	GW-3
TAL				
Aluminum	NS	733 E	995 E	28,600 E
Antimony	3 GV (a)	U	U	U
Arsenic	25 (a)	U	5.9 S	16.5 S
Barium	1,000 (a)	U	U	382
Beryllium	3 GV (a)	U	U	U
Cadmium	10 (a)	U	U	U
Calcium	NS	134,000 E	43,700 E	111,000 E
Chromium (T)	50 (a)	U	U	41.9
Cobalt	NS	U	U	U
Copper	200 (a)	U	U	U
Iron	300 * (a)	860 E	1,170 E	39,800 E
Lead	25 (a)	U	4.0 B	22.5 S
Magnesium	35,000 GV (a)	66,100	21,100	54,400
Manganese	300 * (a)	66.0 E	59.5 E	591 E
Mercury	2 (a)	U	U	U
Nickel	700 (f)	U	U	66.7
Potassium	NS	8,210	23,700	41,600
Selenium	10 (a)	U	U	U
Silver	50 (a)	U	U	U
Sodium	20,000 (a)	38,800 E	224,000 E	416,000 E
Thallium	4 GV (a)	U	U	U
Vanadium	NS	U	U	U
Zinc	300 (a)	42.9	52.6	94.0
Cyanide	100 (a)	U	U	U
TCL				
Acetone	50 (a)	28 B	250 E	78
Benzene	0 (a)	U	U	1 J
2-Butanone	50 (a)	U	48	U
1,2-Dichloroethene	5 (a)	U	4 J	U
2,4-Dimethylphenol	1 [++]	U	9 J	U
Ethylbenzene	5 (a)	U	4 J	U
2-Hexanone	50 GV (a)	U	7 J	U
Methylene Chloride	5 (a)	1 BJ	4 BJ	U
4-Methyl-2-Pentanone	50 (a)	U	3 J	U
2-Methylphenol	1 [++]	U	3 J	U
4-Methylphenol	1 [++]	U	3 J	U
Phenol	1 [++]	U	3 J	U
Toluene	5 (a)	U	3 J	U
Vinyl Chloride	2 (a)	U	3 J	U
Xylene (total)	5[+]	U	83	20

[+] Applies to each Isomer (1,2', 1,3', and 1,4') Individually
[++] A standard of 1 is used for the sum of the phenols.

6U

TABLE 1.3
SUMMARY OF WASTEWATER ANALYSIS RESULTS
SNYDER TANK SITE
(ug/L)

PARAMETERS	NYS STANDARDS/ GUIDANCE VALUES OF A CLASS B STREAM	SW-1 (DG)	SW-2 (UG)
TAL			
Aluminum	100	7,360 E	U
Antimony	NS	U	U
Arsenic	190	9.5 S	U
Barium	NS	U	U
Beryllium	[1]	U	U
Cadmium	[2]	U	U
Calcium	NS	71,000 E	184,000 E
Chromium	442	129	U
Cobalt	5	U	U
Copper	[3]	U	U
Iron	300	1,130 E	283 E
Lead	[4]	U	U
Magnesium	NS	18,200	48,600
Manganese	NS	82.1 E	365 E
Mercury	.2 GV	U	U
Nickel	193	73.2	U
Potassium	NS	U	U
Selenium	1.0	U	U
Silver	.1	U	U
Sodium	NS	48,500 E	87,900 E
Thallium	8	U	U
Vanadium	14	U	U
Zinc	30	49.4	87.3
Cyanide	5.2	U	U
TCL			
Acetone	NS	240	5 BJ
2-Butanone	NS	330	U
1,1 Dichloroethane	NS	U	110
Ethanol, 2-Butoxy	NS	7,600 JD	U
Methylene Chloride	NS	13 BJ	6 B
Toluene	NS	920	U
1,1,1-Trichloroethane	NS	U	26
Xylene (total)	NS	15 J	U

DG - Downgradient Sample
UG - Upgradient Sample

TABLE 1.4
SUMMARY OF SOIL ANALYSIS RESULTS
SNYDER TANK SITE
(mg/Kg)

PARAMETERS	Average or Expected Range For Soils	SS-1	SS-2	SS-3	*SPGW-2
TAL					
Aluminum	700 - >100,00 (1)	9,910 A	12,500 A	13,600 A	15,400 A
Antimony	<1 - 10 (1)	UN	UN	UN	UN
Arsenic	0.1 - 100 (1)	12.2 NAS	108 NAS	21.6 NAS	25.7 NA
Barium	10 - 500 (1)	58.4	167	142	U
Beryllium	<1 - 15 (1)	1.2 N	1.6 N	1.7 N	UN
Cadmium	0.01 - 7 (2)	1.3 N	4.9 N	6.7 N	2.7 N
Calcium	130 -330,000 (1)	64,000 A	34,100 A	70,300 A	42,600 A
Chromium	1 - 2,000 (1)	12.9 NA	148 NA	98.1 NA	27.4 NA
Cobalt	<3 - 70 (1)	U	U	10.4	12.5
Copper	1 - 700 (1)	15.9 NA	59.8 NA	97.2 NA	29.4 NA
Iron	100 - >100,000 (1)	12,600	57,500	74,700	32,800
Lead	<10 - 700 (1)	15.5 S	70.2S	157	26.4 S
Magnesium	50 - 50,000 (1)	8,970 A	6540 A	11,300 A	8,380 A
Manganese	<2 - 7,000 (1)	598 A	1850 A	2,850 A	367 A
Mercury	0.32 - 5.1 (1)	U	0.10	0.52	U
Nickel	<5- 700 (1)	39.6 N	42.3 N	51.4 N	55.0 N
Potassium	2,200 - 65,000 (1)	1,190	1540	1,440	2540
Selenium	<0.1 - 5.0 (1)	UN	UWN	UWN	UWN
Silver	0.1 -5.0 (3)	U	U	U	U
Sodium	300 - 100,000 (1)	U	U	U	U
Thallium	0.1 - 0.8 (4)	UNW	UN	UN	UN
Vanadium	<7 - 500 (1)	6.8 BN	68.0 N	28.6 N	17.9 N
Zinc	<5 -3,500 (1)	96.7 NA	206 NA	469 NA	57.2 NA
Cyanide	NA	U	1.3	3.5	U

* SPGW-2 is a composite soil sample of auger cuttings from GW-2.

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TABLE 1.5
SUMMARY OF SOIL ANALYSIS RESULTS
SNYDER TANK SITE
(ug/Kg)

PARAMETERS	SS-1	SS-2	SS-3	*SPGW-2
TCL				
Acenaphthene	U	90 J	U	U
Anthracene	U	270 J	U	U
Benzene	U	U	U	8
Benzo(a)anthracene	U	840	410 J	230 J
Benzo(a)pyrene	U	650 J	520 J	200 J
Benzo(b)fluoranthene	U	820	410 J	180 J
Benzo(g,h,i)perylene	U	460 J	380 J	U
Benzo(k)fluoranthene	U	670 J	420 J	170 J
Chrysene	U	940	450 J	350 J
Dibenz(a,h)anthracene	U	180 J	U	U
Dibenzofuran	U	110 J	U	U
bis(2-Ethylhexyl)-phthalate	250 J	480 J	220 J	U
Fluoranthene	U	2,100	550 J	400 J
Fluorene	U	110 J	U	U
Indeno(1,2,3-cd)pyrene	U	430 J	330 J	U
Methylene Chloride	2 BJ	2 BJ	U	7 BJ
Naphthalene	U	84 J	U	U
Phenanthrene	U	1,500	210 J	280 J
Pyrene	U	1,700	590 J	370 J
Toluene	U	U	U	11
Xylene (total)	U	U	U	5 J

* SPGW-2 is a composite soil sample of auger cuttings from GW-2.

REFERENCE 2

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Erie-Niagara Basin

Ground-Water Resources

ERIE-NIAGARA BASIN REGIONAL WATER RESOURCES PLANNING BOARD

THE NEW YORK STATE WATER RESOURCES COMMISSION

CONSERVATION DEPARTMENT • DIVISION OF WATER RESOURCES

Page 2

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

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

by

A. M. La Sala, Jr.

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

STATE OF NEW YORK
CONSERVATION DEPARTMENT
WATER RESOURCES COMMISSION

70

Basin Planning Report ENB-3

1968

5-34

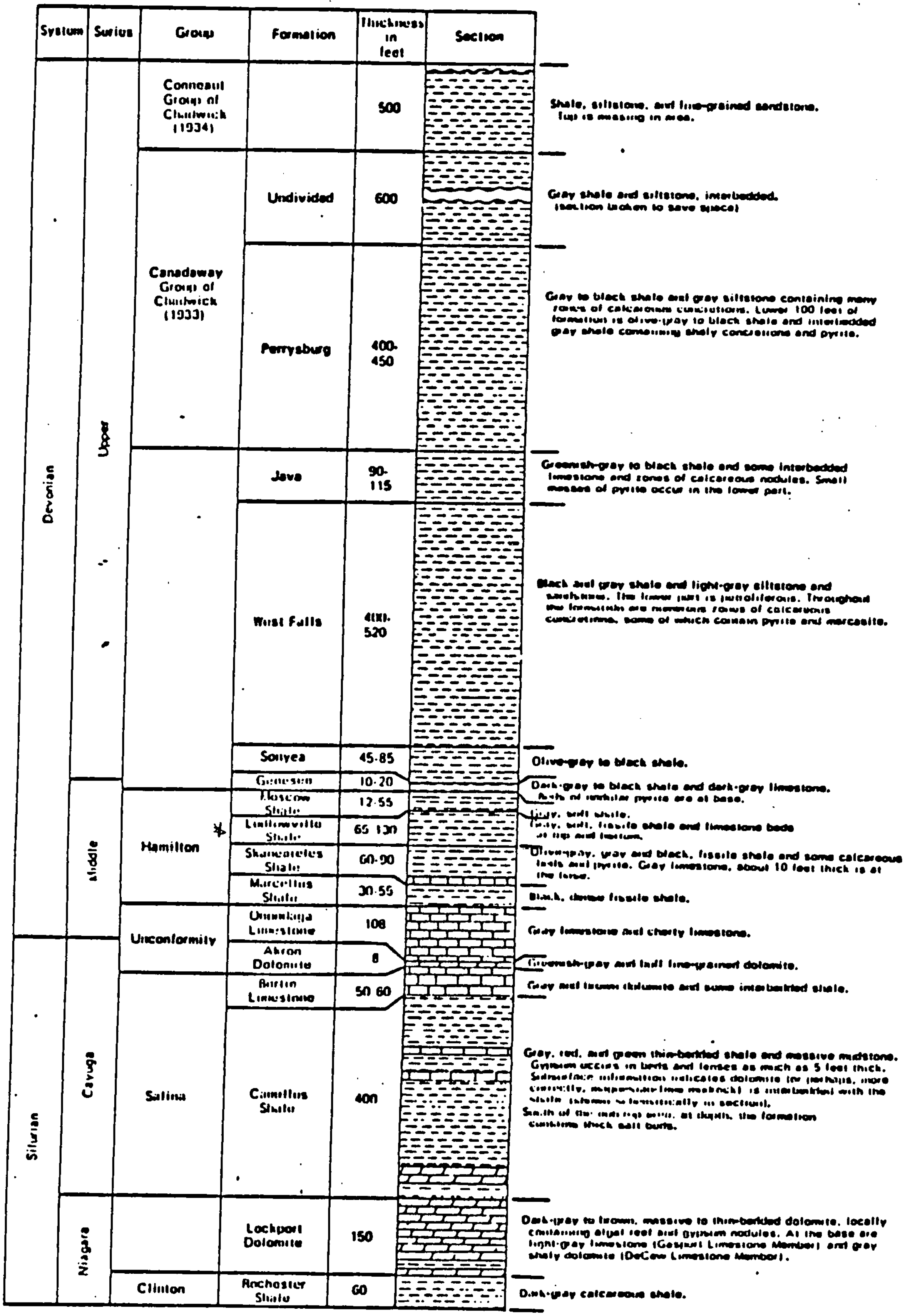


Figure 2.--Bedrock units of the Erie-Niagara basin.

REFERENCE 3

72

TABLE 4.3
WATER LEVEL DATA
SNYDER TANK CORPORATION SITE

Well ID	Ground Surface Elevation (Feet)*	Top of Steel Well Pipe Elevation (Feet)*	Well Screen Interval Elevation (Feet)*	Water Level (Feet)**	Water Level Elevation (Feet)*
GW-1	593.65	596.91	580.95-570.95	2.58	591.07
GW-2	585.03	585.03	570.03-560.03	15.66	569.37
GW-3	584.75	588.02	566.45-556.45	13.83	570.92

* Feet above mean sea level
** Water level depth below ground surface (12/10/90).

73

REFERENCE 4

74

No HNU > BKgd.

12-13' Fresh shale fragments

14-16'

(14-14'6") Refusal at shale 100+ - -

RCV = 1' Dry weathered shale

(Weathered shale w/ some sand)

[No HNU > BKgd.]

17-18' Darker gr-bl

shale cuttings

Skip 19-21' splitspoon

Auger to Bdrock

*22' Refusal at comp. Bedrock

1553 - Drillers + YEC leave site

will finish GW-3 11/28/90

11/29/90

0715 Leave for site

0745 Arrive at site (MM, EB)

0816 Drillers not here yet

0835 (GW-3 no water in hole *)

22-23 15 minutes 0835-0850

23-24 0855 - ~~0905~~

24-25 0915 - 0915

25-26

26-27

22-28' core RCV

27' (clay fracture seam)

Bottom of Boring - 28'

STWL 19.25' BGS

1 min 19.1

Clays smell like gasoline

(24' down) B.65)

Page 1

(height of casing 3.3')
- began bailing GW-1
at 11:25 (7.5 gals)
- 1.9' water level

time	(top of casing)
0:0	24.3
1:0	22.8
2:00	22.2
5:00	20.2
10:00	17.7
1:00:47	6.1

- auger cuttings at GW-2 have odor (paint-like), observed by driller as auger flights removed from hole

hnu = 1.5

- began decon at 1:25pm
finish at 2:00 pm.

begin GW-3 at 2:10

split spoon ~~0-2~~' 2-4 .6-7
recovery: 1.5 (see m.......)
hnu = 0.0

split spoon 4-6
hnu = 0.0

split spoon - 9-11'
hnu = 0.0

bot 9 @ 11' clay (wet) grades into shale (fractured)

1350 Grouting Well (will put apron around it Tomorrow)

Set up on GW-2

GW-2 (1438)

(Will Try to Set in Interface Well)

(if overburden is saturated)

Finish setting GW-1 at 1415.

0-2' Iras Book

NO HNU > 1 ppm (BKgd)

4-6' No HNU > BKgd.

NO HNU > BKgd on cuttings

9-11 9.5' Refusal

NO HNU > BKgd.

cuttings - no readings > BKgd.

(RCV = 6" Shale fragments)

Augered Down to 14' (wet zone @ 12.5')

(6")

14-16' Sample.

(Augers sealing off overburden)

(approx.)

16-17' Took cuttings sample.

HNU readings 4-5 ppm

Some hits > 10 ppm. (Will drum cuttings)

19-21' HNU < 5 ppm BKgd.

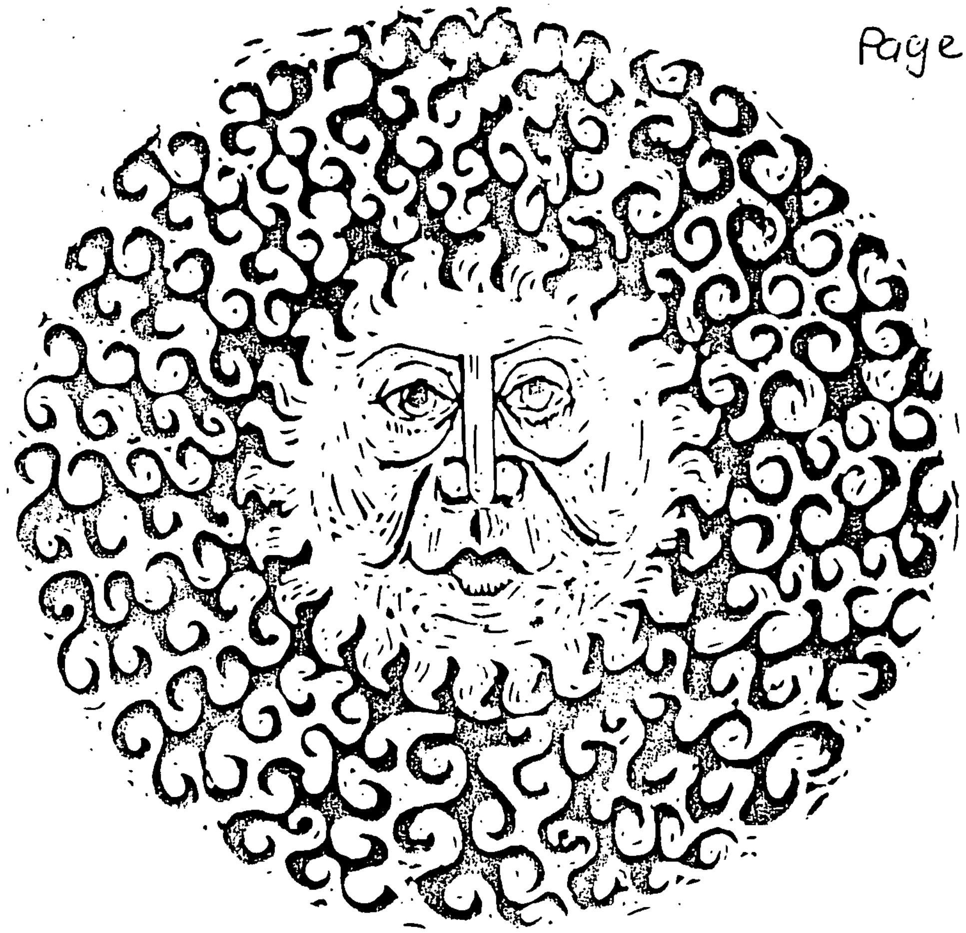
>23' (Refusal.) (DRY.)

(Will drum cuttings)

REFERENCE 5

78

Page i



CLIMATIC ATLAS OF THE UNITED STATES

Environmental Science Services Administration . Environment

U.S. DEPARTMENT OF COMMERCE
C. R. Smith, Secretary

ENVIRONMENTAL SCIENCE SERVICES ADMINISTRATION
Robert M. White, Administrator

ENVIRONMENTAL DATA SERVICE
Woodrow C. Jacobs, Director

JUNE 1968

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1983

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REFERENCE 6

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Page 1

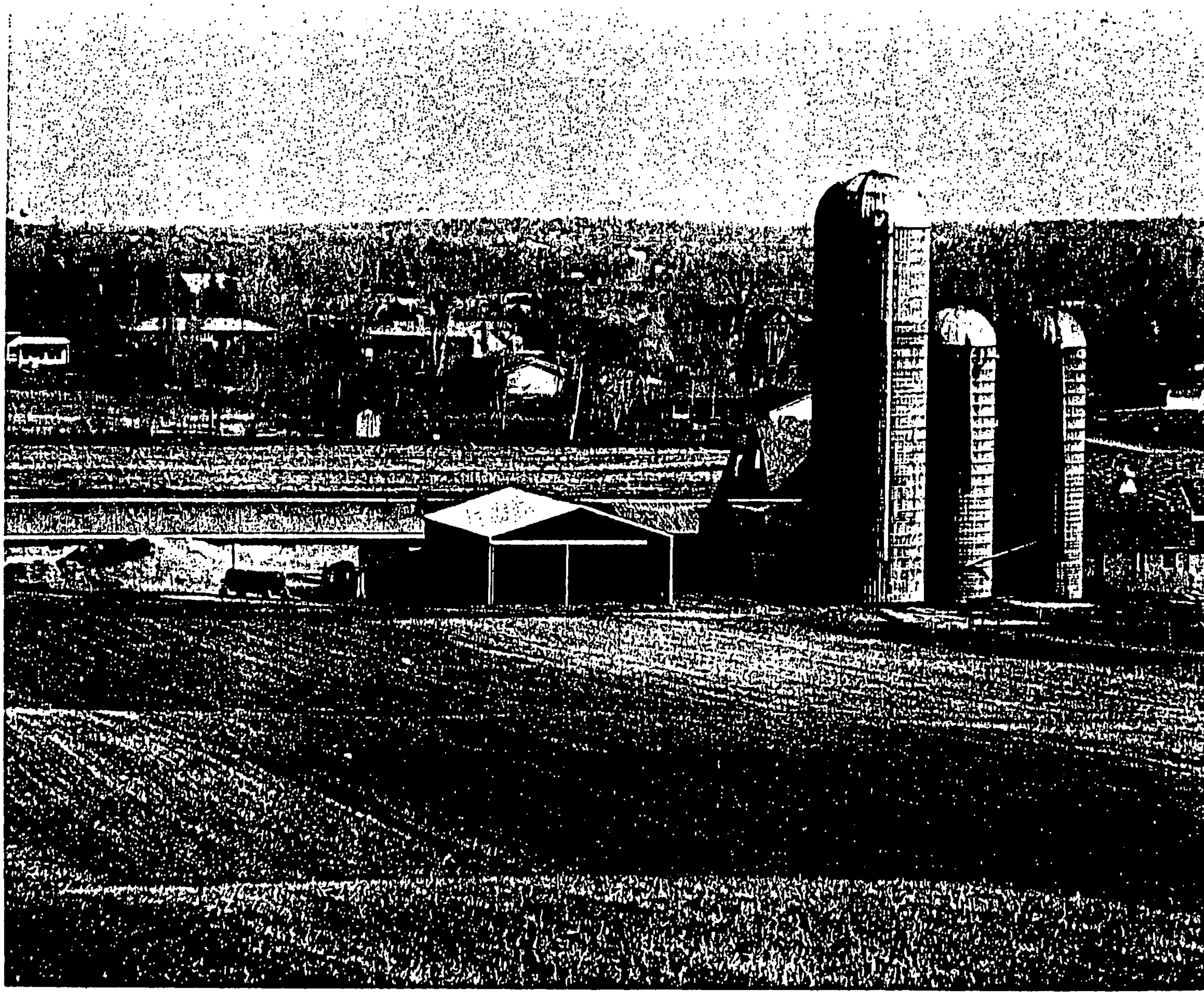
United States
Department of
Agriculture

Soil
Conservation
Service

In Cooperation with
the Cornell University
Agricultural
Experiment Station

Soil Survey of Erie County, New York

COMPLIMENTS OF:
ERIE COUNTY SOIL & WATER CONSERVATION DISTRICT
21 S GROVE STREET
EAST AURORA, NY 14052
716-652-8480



Page 2

The bedrock under the county is fairly flat but dips or tilts approximately 50 feet a mile to the southwest. The rocks have retained much of the form they had when they were deposited as silts and sands in the ancient seas that covered this area approximately 300 million years ago.

Erie County was covered and uncovered by several advances and retreats of glacial ice during the ice age that began approximately 300,000 years ago and ended about 10,000 years ago (*4*). As the ice moved southward, it picked up soil material and pieces of bedrock and ultimately redeposited a mixture of unconsolidated material of various sizes, shapes, and mineral content.

Because the deposited materials were variable, different soils formed in them. One of the more common deposits in the county is glacial till. Till is a heterogeneous mixture of particles carried by the glacier and deposited directly from it. Soils such as the Mardin and Danley soils formed in these glacial till deposits. They are located mostly in the southern part of the county, but numerous areas are also in the northern part.

Glacial lake waters occupied the northern part of the county for several fairly long periods. The sediments deposited in these lakes formed in glacial lacustrine deposits. The Niagara and Schoharie soils are the more common of several soils that formed in these fine sediments.

Water-sorted deposits associated with the melt waters from the glacial ice were laid down at various times and in various locations. Many of these deposits have been in drainageways since glaciation. The Red Hook and Palmyra soils are examples of soils that formed in these deposits.

A striking topographic feature called the Beach Ridge runs diagonally across the county. It extends from Alden on the northeast to North Collins on the southwest. This feature represents the glacial lake shore developed during many years of wave action and erosion. The Alton and Blasdell soils formed in reworked deposits in this area.

Erosion and sedimentation have been at work since the ice retreated some 10,000 years ago. Steep, fan-shaped alluvial deposits accumulated at the mouths of streams where the velocity of the water slowed and the sand and gravel dropped out of suspension. The Farnham and Chenango soils formed in these deposits. Other deposits parallel major streams in the valleys. The Hamlin and Tioga soils developed in these deposits of recent alluvium.

drainage

With the exception of Cattaraugus Creek, which forms the southern border of the county, most of the streams drain in a northwesterly to westerly direction.

Ellicott Creek is the main drainageway north of Buffalo. This stream flows in a westerly direction ar empties into the Niagara River north of Buffalo. Th Cayuga, Buffalo, and Cazenovia Creeks drain the c part of the county and enter Buffalo harbor just so the city. Eighteen Mile Creek drains most of the southwestern corner of the county and enters Lake approximately 15 miles southwest of Buffalo. The southern edge of the county is drained by tributarie flow directly into Cattaraugus Creek and then into Erie.

The streams north of the old glacial lake beach meander across the flat lake plains. Gradients are and there are numerous swampy areas. South of t beachline, the streams are somewhat entrenched. Gradients are higher, and sidewalls are dissected steeper.

water supply

The main sources of water in Erie County are La Erie (and the Niagara River), wells—both dug and and surface water from streams and small impoundments (*6*).

Buffalo, Grand Island, and most of the commun along the northwest edge of the county adjacent t Erie obtain their water from that source. Large am of water for industrial use in the Buffalo area also from Lake Erie.

Water for the rural areas of the county is obtain largely from drilled bedrock wells and a minor amo from dug wells. A small amount of water for these areas is supplied by springs. Springs occur natura confined areas where the water table reaches the surface. Because they are very scattered, springs unpredictable source of water for large-scale use.

Dug wells are relatively shallow and tend to dry when the ground-water table is low. They are very effective in some valley bottoms where there is gr and sandy outwash, but they are subject to contamination.

Water is supplied to several of the larger comm from large-capacity wells or from impoundments. storage tanks with gravity flow are a partial sourc reserve water in many of these systems.

how this survey was made

Soil scientists made this survey to learn what s in the survey area, where they are, and how they used. They observed the steepness, length, and s of slopes; the size of streams and the general pa drainage; the kinds of native plants or crops; and kinds of rock. They dug many holes to study soil A profile is the sequence of natural layers, or hor placed across the slope help eliminate trail gullying. Seedling mortality and uprooting of trees during windy periods are generally not serious hazards on this soil.

Slope, depth to bedrock, seasonal high water table, and slow permeability of the subsoil and substratum are serious limitations for many urban uses of this soil. Although excavations are costly, the shale bedrock usually is rippable with a backhoe. Foundations and basements are benefited by drains that reduce the wetness associated with the seasonal high water table and lateral seepage. Many areas are suitable for various recreational uses.

This Aurora soil is in capability subclass IIIe.

Be—Beaches. This is a miscellaneous area consisting of sandy or sandy and gravelly material deposited mostly by waves along beach fronts. Most areas are along the shores of Lake Erie. They are mostly narrow, long strips that conform to the shoreline. Some areas have been slightly altered by man to make them more useful for recreational purposes. Slope ranges from 0 to 8 percent.

Typically, these beach areas have a discontinuous layer of driftwood, sticks, and bark covering about 10 percent of the sandy surface. The sandy or gravelly material is usually light colored, and individual particles are rounded as the result of wave action. Beaches are usually devoid of live vegetation; however, some areas have coverings of washed-up algae, seaweeds, and other aquatic plants. Many areas are almost continually moist because of constant wave action.

Included in mapping are significant areas of riverwash, consisting mostly of gravel and cobblestones. These areas usually occur as fan deposits where large streams and creeks empty into lakes. Also included are areas where rock fill or railroad ties have been installed to control beach-front erosion.

Beaches are poorly suited to farming, urban uses, and woodland because they are inundated by waves during high water periods. Generally, the potential is poor for wildlife habitat, although sea gulls and some birds feed on dead prey and debris that wash up on the beach.

The suitability of these areas for recreational uses ranges from very good to poor. Most areas are suitable for swimming, sunbathing, and other beach activites. Other areas are not suitable because of location and variability of the soil material, especially in areas where streams and creeks empty into lakes. Onsite investigation is required for any proposed use.

Beaches are not assigned a capability subclass.

BfA—Benson very cherty loam, 0 to 3 percent slopes. This nearly level soil is somewhat excessively drained to excessively drained. It formed in glacial till that is underlain by bedrock 10 to 20 inches below the surface. This soil is on nearly flat benches at the edge of the upland plateau. Areas of this soil are irregular in shape and range from 5 to 100 acres or more.

Typically, this soil has a surface layer of friable, dark grayish brown very cherty loam 6 inches thick. The subsoil consists of friable, dark yellowish brown very cherty loam about 6 inches thick. The substratum consists of porous, brown very cherty loam about 3 inches thick. Hard, grayish cherty limestone bedrock is at a depth of 15 inches.

Included with this soil in mapping are small areas where the layer of soil over the limestone bedrock is less than 10 inches thick. Also included are areas of Wassaic soils that are underlain by bedrock at a depth of 20 to 40 inches. In some areas the surface layer is a cherty loam or loam that has a lower content of rock fragments. Included quarries are indicated by a special symbol on the soil map. Areas of included soils range from 1/4 acre to 2 acres.

Bedrock is at a depth of 10 to 20 inches in this Benson soil. Rock fragments make up 35 to 55 percent of the surface layer. Rooting depth is limited by the underlying bedrock. Permeability is moderate throughout the soil. The available water capacity is very low or low, and runoff is slow. The surface layer is medium acid to neutral, and the subsoil is slightly acid to mildly alkaline.

This soil is poorly suited to farming and most urban uses. Most of the acreage is idle or wooded. A few areas are urbanized.

This Benson soil is poorly suited to cultivated crops because of the shallow depth to bedrock, droughtiness, and numerous small rocks. Productivity is generally low, except in years of high rainfall. Conservation practices that increase organic matter content and thus increase the available water capacity of the soil are growing sod crops in the cropping system, using cover crops, returning of crop residues to the soil, and keeping tillage to a minimum. The excessive amount of cherty fragments can be a problem in planting fine-seeded crops and may cause excessive wear of machinery.

This soil can be used for pasture, but droughtiness in midsummer keeps forage yields low. Overgrazing can cause the loss of the pasture grasses, especially in dry periods.

The potential of this soil for wood crops is poor. Droughtiness causes a high rate of seedling mortality. Planting early in the spring when the soil is moist improves seedling survival. Uprooting of trees during windstorms is a hazard because of the shallow rooting depth.

The shallow depth to bedrock is a serious limitation for most urban uses of this soil. Blasting of the bedrock may be required for excavations. Lawns are difficult to establish because of droughtiness and the many small rock fragments in the soil. Frequent irrigation helps maintain grass and shrubs. Some areas are suitable for such recreational uses as picnic areas and camp areas.

This Benson soil is in capability subclass IIIs.

Some areas are suitable for pasture. Overgrazing, particularly during dry periods, can cause the loss of the pasture plants and can lead to increased erosion hazard. Reseeding and applying fertilizer are somewhat difficult because of the moderately steep slopes.

The potential of this soil for wood crops is fair to good. Although seedling mortality is generally not a problem, seedlings should be planted very early in the spring when the soil is moist. Use of planting and harvesting equipment is somewhat limited because of the slope. Placing logging trails across the slope helps eliminate any hazard of trail gullying or erosion.

The moderately steep slopes are a serious limitation for most urban uses of this soil. Because erosion is a very serious hazard where vegetative cover is removed, the natural vegetation should be disturbed as little as possible during construction and areas revegetated as soon as possible. Reseeding areas can be difficult because of the high content of shale fragments and slope. Some areas are a source of shaly gravel.

This Blasdell soil is in capability subclass IVe.

BrA—Brockport silty clay loam, 0 to 3 percent slopes. This nearly level soil is somewhat poorly drained. It formed in glacial till having a high content of clay. Soft shale bedrock is at a depth of 20 to 40 inches. This soil is mostly in narrow bands on the lowland plain near Lake Erie. Individual areas range from 5 to 150 acres or more and are generally oblong.

Typically, this soil has a surface layer of dark grayish brown silty clay loam about 8 inches thick. The subsoil extends to a depth of about 23 inches. It is firm and plastic, olive brown silty clay in the upper part and firm and very plastic, dark grayish brown silty clay in the lower part. The substratum is firm, olive shaly silty clay about 8 inches thick. The underlying bedrock, at a depth of 31 inches, is calcareous shale.

Included with this soil in mapping are small areas of the deep Remsen soils and loamy Angola soils. Also included, where the underlying shale bedrock is at a depth of 40 inches or more, are small areas of Churchville and Canadice soils that have textures similar to this Brockport soil. Included wet spots, quarry pits, and drainageways are indicated by special symbols on the soil map. Areas of included soils range from 1/4 acre to 3 acres.

This Brockport soil has a perched seasonal high water table in the upper part of the subsoil during December through May. Bedrock is at a depth of 20 to 40 inches. Small rock fragments range from few to 10 percent in the surface layer and are mostly shale. Rooting depth is limited by the seasonal high water table and the moderate depth to bedrock. Permeability is moderate to moderately slow in the surface layer and very slow in the subsoil. The available water capacity is moderate, and runoff is slow. In unlimed areas, reaction ranges from medium acid to neutral in the surface layer and from medium acid to mildly alkaline in the subsoil.

The soil is moderately suited to farming and poorly suited to urban development. Most areas of this soil are idle, wooded, or in residential use.

If properly drained, this Brockport soil is moderately suited to cultivated crops; but without drainage, it is poorly suited to most crops. Drainage can be somewhat difficult because the subsoil is very slowly permeable and bedrock is at a moderate depth. Drains usually require close spacing to be effective. Because of the high clay content, maintaining tilth is an additional management concern. If this soil is cultivated, keeping tillage to a minimum, using cover crops, including sod crops in the cropping system, returning crop residues to the soil, and plowing at the proper moisture content are desirable for maintaining tilth and improving organic matter content. Increasing the organic matter content improves the available water capacity of the soil. Clodding and crusting of the surface is a problem in areas where tilth has deteriorated.

This soil can be used for pasture, but grazing when the soil is wet and overgrazing are the main concerns in pasture management. Grazing during wet periods causes compaction of the soil and trampling of pasture plants which can lead to reduced growth and the loss of the pasture seedings.

Potential of this soil for wood crops is fair. Seasonal wetness limits equipment use and increases seedling mortality. Because root development is limited by the seasonal high water table and depth to bedrock, uprooting of trees during windstorms is a hazard.

Moderate depth to bedrock, seasonal wetness, clayey texture, and very slow permeability in the subsoil are serious limitations for most urban uses of this soil. Foundations need special protection from seepage of water across the surface of the bedrock. Landscaping and grading minimizes problems caused by seasonal wetness. Some areas are suited to certain recreational uses, but wetness and the clayey nature of the soil restrict many recreational uses.

This Brockport soil is in capability subclass IIIw.

BrB—Brockport silty clay loam, 3 to 8 percent slopes. This gently sloping soil is somewhat poorly drained. It formed in glacial till that has a high content of clay. Soft shale bedrock is at a depth of 20 to 40 inches. This soil is on concave, mostly narrow bands on the lowland plain near Lake Erie. Individual areas range from 5 to 100 acres or more and are generally oblong.

Typically, the surface layer is dark grayish brown silty clay loam about 8 inches thick. The subsoil extends to a depth of 23 inches. It is firm and plastic, olive brown silty clay in the upper part and firm and very plastic, dark grayish brown silty clay in the lower part. The substratum is firm, olive shaly silty clay 8 inches thick. The underlying bedrock is calcareous shale.

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TABLE 16.--PHYSICAL AND CHEMICAL PROPERTIES OF THE SOILS

[The symbol < means less than; > means more than. Entries under "Erosion factors--T" apply to the profile. Entries under "Organic matter" apply only to the surface layer. Absence of an entry i that data were not available or were not estimated]

Soil name and map symbol	Depth	Clay <0.002mm	Moist bulk density	Permeability	Available water capacity	Soil reaction	Shrink-swell potential	Erosion factors K	Erosion factors T
	In	Pct	G/cm3	In/hr	In/in	pH			
AlA, AlB---------- Allard	0-9	2-6	1.20-1.50	0.6-2.0	0.16-0.21	4.5-6.0	Low-----------	0.49	4-
	9-27	1-6	1.20-1.50	0.6-2.0	0.15-0.20	4.5-6.0	Low-----------	0.64	
	27-60	1-3	1.45-1.65	>6.0	0.01-0.03	5.1-7.3	Low-----------	0.17	
AmA, AmB, AmC----- Alton	0-9	1-12	1.35-1.65	2.0-6.0	0.04-0.14	4.5-5.5	Low-----------	0.20	3
	9-30	1-12	1.55-1.80	2.0-6.0	0.07-0.09	5.1-7.3	Low-----------	0.20	
	30-60	1-4	1.55-1.80	>6.0	0.02-0.04	6.6-7.8	Low-----------	0.17	
AnB, AnC---------- Alton	0-8	1-12	1.35-1.65	2.0-6.0	0.06-0.14	4.5-5.5	Low-----------	0.20	3
	8-30	1-12	1.55-1.80	2.0-6.0	0.07-0.09	5.1-7.3	Low-----------	0.20	
	30-50	1-4	1.55-1.80	>6.0	0.02-0.04	6.6-7.8	Low-----------	0.17	
	50-60	1-8	1.45-1.65	0.6-20.0	0.04-0.21	6.6-7.8	Low-----------	0.49	
AoA, AoB---------- Angola	0-11	8-30	1.10-1.40	0.6-2.0	0.17-0.22	5.6-7.8	Low-----------	0.37	3-
	11-26	18-35	1.60-1.85	0.06-0.2	0.11-0.19	5.6-7.8	Low-----------	0.28	
	26-30	10-30	1.70-1.95	0.06-0.2	0.06-0.13	6.1-8.4	Low-----------	0.28	
	30	---	---	---	---	---	-------------	----	
ApA, ApB---------- Appleton	0-9	15-27	1.10-1.40	0.6-2.0	0.12-0.20	5.6-7.3	Low-----------	0.32	3
	9-15	15-27	1.20-1.50	0.06-0.6	0.07-0.18	5.6-7.8	Low-----------	0.37	
	15-29	18-27	1.60-1.85	0.06-0.6	0.07-0.18	5.6-7.8	Low-----------	0.37	
	29-60	10-27	1.70-1.95	0.06-0.6	0.07-0.17	7.4-8.4	Low-----------	0.28	
ArB, ArC, ArD, ArE-------------- Arkport	0-4	5-18	1.10-1.40	2.0-6.0	0.09-0.17	4.5-7.3	Low-----------	0.32	3
	4-23	3-15	1.25-1.55	2.0-6.0	0.06-0.16	4.5-7.3	Low-----------	0.43	
	23-56	1-5	1.25-1.55	2.0-6.0	0.06-0.12	5.1-7.3	Low-----------	0.43	
	56-70	1-5	1.25-1.55	2.0-6.0	0.02-0.06	5.6-7.8	Low-----------	0.43	
AuC--------------- Aurora	0-9	15-27	1.10-1.40	0.6-2.0	0.14-0.18	5.1-7.3	Low-----------	0.28	[illegible]
	9-33	18-35	1.60-1.85	0.06-0.2	0.13-0.20	5.6-8.4	Low-----------	0.28	
	33	---	---	---	---	---	-------------	----	
Be*. Beaches									
BfA, BfB, BgC----- Benson	0-6	10-17	1.10-1.40	0.6-2.0	0.12-0.18	5.6-7.3	Low-----------	0.28	[illegible]
	6-15	10-17	1.20-1.50	0.6-2.0	0.08-0.16	6.1-7.8	Low-----------	0.28	
	15	---	---	---	---	---	-------------	----	
BhB*: Benson-----------	0-6	10-17	1.10-1.40	0.6-2.0	0.12-0.18	5.6-7.3	Low-----------	0.28	
	6-15	10-17	1.20-1.50	0.6-2.0	0.08-0.16	6.1-7.8	Low-----------	0.28	
	15	---	---	---	---	---	-------------	----	
Rock outcrop.									
BlA, BlB, BlC, BlD-------------- Blasdell	0-8	6-18	1.10-1.40	2.0-6.0	0.10-0.17	4.5-6.0	Low-----------	0.28	
	8-36	6-18	1.20-1.60	2.0-6.0	0.07-0.11	4.5-6.0	Low-----------	0.17	
	36-60	6-18	1.20-1.60	2.0-6.0	0.05-0.09	5.1-6.5	Low-----------	0.17	
BrA, BrB---------- Brockport	0-8	20-40	1.10-1.40	0.2-2.0	0.16-0.21	5.6-7.3	Moderate------	0.43	
	8-31	35-60	1.60-1.85	<0.06	0.12-0.17	5.6-7.8	Moderate------	0.28	
	31	---	---	---	---	---	-------------	----	
Ca---------------- Canadice	0-8	20-40	1.00-1.25	0.2-2.0	0.17-0.21	4.5-6.5	Moderate------	0.49	
	8-53	35-60	1.20-1.40	<0.06	0.12-0.17	5.1-7.8	Moderate------	0.28	
	53-65	35-60	1.15-1.40	<0.06	0.13-0.17	7.4-8.4	Moderate------	0.28	
Cb---------------- Canadice	0-8	20-40	1.00-1.25	0.2-2.0	0.17-0.21	4.5-6.5	Moderate------	0.49	
	8-44	35-60	1.20-1.40	<0.06	0.12-0.17	5.1-7.8	Moderate------	0.28	
	44-60	35-60	1.60-1.85	<0.06	0.06-0.13	7.4-8.4	Moderate------	0.28	

See footnote at end of table.

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Photo 5 Looking west towards Lake Erie from outfall pipe (SW-1). (Note drainage)	**Photo 6** Outfall and baffle at location of sampling point SW-1.
Photo 7 Looking west towards Lake Erie from GW-3.	**Photo 8** Effluent from outfall pipe #2.

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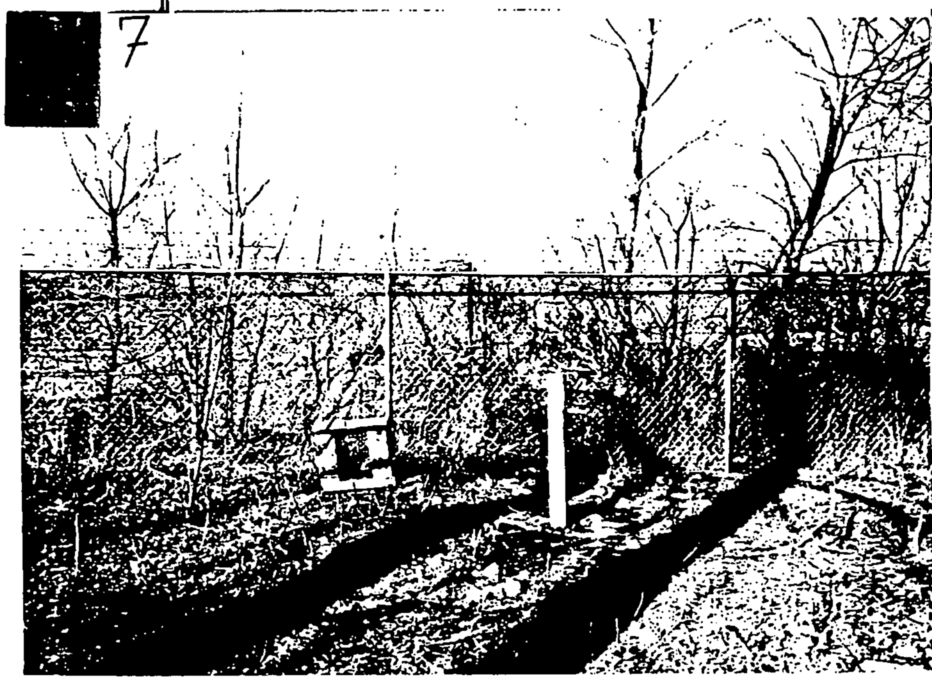
6

7



8

REFERENCE 8

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Page 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

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J. Toffleniire MAG

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DRAFT
1/11/84

TABLE 4

Waste Characteristics Values

Chemical/Compound	Toxicity/ Persistence[1]	Toxicity[2]	Reactivity[2]
Acenapthene	9	3	0
Acetaldehyde	6	6	2
Acetic Acid	6	6	1
Acetone	6	6	0
2-Acetylaminoflourene	18	9	0
Aldrin	18	9	0
Ammonia	9	9	0
Aniline	12	9	0
Anthracene	15	9	0
Arsenic	18	9	0
Arsenic Acid	18	9	0
Arsenic Trioxide	18	9	0
Asbestos	15	9	0
Barium (Ba)	18	9	2
Benzene	12	9	0
Benzidine	18	9	0
Benzoapyrene	18	9	0
Benzopyrene, NOS	18	9	0
Beryllium & Compounds NOS (Be)	18	9	0
Beryllium Dust, NOS	18	9	0
Bis (2-Chloroethyl) Ether	15	9	0
Bis (2-Ethylhexyl Phthalate	12	3	0
Bromomethane	15	9	0
Cadmium (Cd)	18	9	0
Carbon Tetrachloride	18	9	0
Chlordane	18	9	0
Chlorobenzene	12	6	0
Chloroform	18	9	0
3-Chlorophenol	12	6	0
4-Chlorophenol	15	9	0
2-Chlorophenol	12	6	0
Chromium (Cr)	18	9	0
Chromium, Hexavalent (Cr^{+6})	18	9	0

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1/11/84

Table 4 (cont.)

Chemical/Compound	Toxicity/ Persistence[1]	Toxicity[2]	Reactivity[2]
Heavy Metals, NOS	18	9	0
Heptachlor	18	9	0
Hexachlorobenzene	18	6	0
Hexachlorobutadiene (C_{16})	18	9	1
Hexachlorocyclohexane, NOS	18	9	0
Hexachlorocyclopentadiene $(C_{5,6})$	18	9	2
Hydrochloric Acid	9	6	2
Hydrogen Sulfide	18	9	0
Indene	12	6	2
Iron & Compounds, NOS (Fe)	~~18~~ 12	9	0
Isophorone	12	6	0
Isopropyl Ether	9	3	1
Kelthane	15	6	0
Kepone	18	9	0
Lead (Pb)	18	9	0
Lindane	18	9	0
Magnesium & Compounds, NOS (Mg)	15	6	0
Manganese & Compounds, NOS (Mn)	~~18~~ 12	9	0
Mercury (Hg)	18	9	0
Mercury Chloride	18	9	0
Methoxychlor	15	6	0
4,4-Methylene-Bis-(2-Chloroaniline)	18	9	0
Methylene Chloride	12	6	1
Methyl Ethyl Ketone	6	6	0
Methyl Isobutyl Ketone	12	6	0
4-Methyl-2-Nitroaniline	12	9	3
Methyl Parathion	9	9	0
2-Methylpyridine	12	6	0
Mirex	18	9	0
Napthalene	9	6	0
Nickel & Compounds, NOS (Ni)	18	9	0

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Page 1

ND-2900 D1748

ENGINEERING INVESTIGATIONS AT INACTIVE HAZARDOUS WASTE SITES

PHASE I INVESTIGATION

SNYDER TANK CORP., SITE NUMBER: 915049
TOWN OF HAMBURG, ERIE COUNTY

August 1989

STATE OF NEW YORK
ALEXANDER H. WHITMAN, JR.
No. 063202-1
LICENSED PROFESSIONAL ENGINEER

Prepared for:

New York State Department of Environmental Conservation

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

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

Prepared by:

ecology and environment engineering, p.c.
BUFFALO CORPORATE CENTER
368 PLEASANTVIEW DRIVE, LANCASTER, NEW YORK 14086, TEL. 716/684-8060

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recycled paper

1. EXECUTIVE SUMMARY

1.1 SITE BACKGROUND

The Snyder Tank Corporation site has been used by Snyder Tank for the past disposal of automobile fuel tank manufacturing process wastes. The property occupies approximately 10 acres located on Lake Shore and Hoover roads, on the eastern shore of Lake Erie in the Town of Hamburg, Erie County, New York (see Figure 1-1). The site consists of an office, production buildings, gravel parking and loading areas, and a 100-foot-wide beach area.

The disposal areas of concern at the site include the gravel parking and loading areas and the westerly adjacent beach. The plant property grades gently toward the west and the beach, and serves as a route for surficial and storm-drain runoff. The beach serves as the discharge location for the plant's permitted State Pollutant Discharge Elimination System (SPDES), which drains directly into Lake Erie (see Figure 1-2). Aside from this discharge, all other wastes are reportedly put into containers and disposed of off site.

1.2 PHASE I EFFORTS

On July 29, 1987, Ecology and Environment, Inc. (E & E) conducted a site inspection in support of this investigation. Prior to the inspection, available federal, state, county, and municipal files were reviewed. The site inspection consisted of a visual survey of the property that included:

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...ointment Made 1/3/77 by BWK
...or Phone Visit 1/20/77 by BWK
...llow-up / / by
...m Completed 1/20/77 by BWK
...ments:
S.F. Compl.

Company Name SNYDER TANK ...
Address 3773 LAKE SHORE RD
BUFFALO, N.Y. 14219
County ERIE Phone 822-7100
SIC Codes 1. 3714 3.
2. 4.

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New York State Hazardous Waste Survey
Department of Environmental Conservation
Division of Solid Waste Management
50 Wolf Road, Albany, N.Y. 12233 Telephone: (518) 457-6605

General Information

1. Company Name SNYDER TANK CO.

Mailing Address 3773 LAKE SHORE RD (Street) BUFFALO (City) N.Y. (State) 14219 (Zip)

Plant Location [ ] Same as above

(TN OF HAMBURG) Street City State Zip

2. If Subsidiary, Name of Parent Company

3. Individual Responsible for Plant Operations GERALD SNYDER (Name)

PRESIDENT (Title) 822-7100 (Phone)

4. Individual Providing Information STEVE JANKOWSKI (Name)

DESIGNER (Title) 822-7100 (Phone)

5. Department of Environmental Conservation Interviewer BWK

6. Standard Industrial Classification (SIC) Codes for Principal Products

Group Name	SIC Code (4 Digit)	Approximate % of [X] Production / [ ] Value Added
a. MV PARTS & ACC.	3714	100
b.		
c.		
d.		

7. Processes Used at Plant
a. PICKLING
b. PHOSPHATE COATING
c. DEGREASING
d. ACID ETCH - ALUMINUM
e. WASHING
f. PAINTING

8. Products
a. FUEL TANKS
b.
c.
d.
e.

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Page 4

Raw mater... and other chemicals used in manufacturing processes.

a. H_2SO_4
b. T.E. CLEANER
c. TURCOAT 4185
d. TURCOAT - ~~[illegible]~~ (DEGREASING)
e. TURCOAT ALBRITE MEDIUM
f. TURCOAT AIRLION
g. WATER + SOLVENT BASE PAINTS
h. CUTTING OILS
i.
j.

a. On Site Waste Water Treatment [ ] Yes [X] No

b. On Site Waste Water Treatment by July 1977 [ ] Yes [X] No

c. On Site Waste Water Treatment by July 1983 [ ] Yes [X] No

d. Industrial Sewer Discharge [ ] Yes [X] No Name of Sewage Treatment Plant

e. SPDES No. NY 0073636 NPDES No.

a. Air Pollution Control Devices [ ] Yes [X] No Types

b. To Be Built [ ] Yes [X] No by / /

c. Air 100 Emission Point Registration Numbers 144 889-1310-00001, 19, 21, 32, 37

a. Number of manufacturing employees 150-200 b. Manufacturing Floor Space 155,866 sq.ft.

Attach a plat or sketch of the facility showing the location of on-site process waste storage (if available).

Attach flow diagrams of chemical processes including waste flow outputs (if available).

In-house waste treatment capabilities: NONE

Is there a currently used or abandoned landfill, dump or lagoon on plant property? [ ] Yes [ ] No

Industrial wastes produced or expected to be produced by plant.

1) SPENT PICKLE LIQUOR
2) PHOSPHATE COATING
3) OIL
4)
5)
6)
7)
8)

Comments:

C. Waste Characterization and Management Practice
(Use separate form for each waste stream)

1. Waste Stream No. 1 (from Form I, Number 17)

2. Description of process producing waste ACID PICKLING PROCESS

3. Brief characterization of waste SPENT PICKLE LIQUOR

4. Time period for which data are representative ____ to ____

5. a. Annual waste production 98,000 [ ] tons/yr. [X] gal./yr.

   b. Daily waste production 314 [ ] tons/day [X] gal./day

   c. Frequency of waste production: [ ] seasonal [ ] occasional [X] continual [ ] other (specify) ____

6. Waste Composition

   a. Average percent solids ____ % b. pH range 3 to 4

   c. Physical state: [ ] liquid, [ ] slurry, [X] sludge, [ ] solid, [ ] other (specify) ____

   d. Component — Average Concentration — [ ] wet weight [ ] dry weight

d. Component	Average Concentration		
1. SULFURIC ACID (11% BY VOLUME)		[ ] wt.%	[ ] ppm
2. DISSOLVED IRON SALTS (14% BY WEIGHT)		[ ] wt.%	[ ] ppm
3.		[ ] wt.%	[ ] ppm
4.		[ ] wt.%	[ ] ppm
5.		[ ] wt.%	[ ] ppm
6.		[ ] wt.%	[ ] ppm
7.		[ ] wt.%	[ ] ppm
8.		[ ] wt.%	[ ] ppm
9.		[ ] wt.%	[ ] ppm
10.		[ ] wt.%	[ ] ppm

Waste Characterization and Management Practice
(Use separate form for each waste stream)

1. Waste Stream No. 2 (from Form I, Number 17)

2. Description of process producing waste PHOSPHATE COATING

3. Brief characterization of waste USED PHOSPHATE PRODUCTS

4. Time period for which data are representative ______ to ______

5. a. Annual waste production 98,000 [ ] tons/yr. [X] gal./yr.

   b. Daily waste production 314 [ ] tons/yr. [X] gal./yr.

   c. Frequency of waste production: [ ] seasonal [ ] occasional [X] continual

   [ ] other (specify) ______

6. Waste Composition

   a. Average percent solids ___% b. pH range __ to __

   c. Physical state: [X] liquid, [ ] slurry, [ ] sludge, [ ] solid,

   [ ] other (specify) ______

   d. Component

	Component	Average Concentration	[ ] wet weight / [ ] dry weight
1.	TURCOAT 4185		[ ] wt.% [ ] ppm
2.			[ ] wt.% [ ] ppm
3.			[ ] wt.% [ ] ppm
4.			[ ] wt.% [ ] ppm
5.			[ ] wt.% [ ] ppm
6.			[ ] wt.% [ ] ppm
7.			[ ] wt.% [ ] ppm
8.			[ ] wt.% [ ] ppm
9.			[ ] wt.% [ ] ppm
10.			[ ] wt.% [ ] ppm

100

e. Analysis of composition is /_/theoretical /_/laboratory /_/estimate (attach copy of laboratory analysis if available)

f. Projected /_/increase, /_/decrease in volume from base year: SAME _____% by July 1977; _____% by July 1983.

g. Hazardous properties of waste: /_/flammable /X/toxic /_/reactive /_/explosive /X/corrosive /_/other (specify) __________

8. On Site Storage

a. Method: /_/drum, /_/roll-off container, /X/tank, /_/lagoon, /_/other(specify) _____

b. Typical length of time waste stored 2 /_/days, /X/weeks, /_/months

c. Typical volume of waste stored 3 800 /_/tons, /X/gallons

d. Is storage site diked? /_/Yes /_/No

e. Surface drainage collection /_/Yes /_/No

9. Transportation

a. Waste hauled off site by /_/you /X/others

b. Name of waste hauler CHEM-TROL

Address ______________________________
Street City
______________________________ ( )
State Zip Code Phone

10. Treatment and Disposal

a. Treatment or disposal: /_/on site /X/off site

b. Waste is /_/reclaimed /_/treated /X/land disposed /_/incinerated /_/other (specify) __________

c. Off site facility receiving waste

Name of Facility ______________________________

Facility Operator ______________________________

Facility Location ______________________________
Street City
______________________________ ( )
State Zip Code Phone

Waste Characterization and Management Practice
(Use separate form for each waste stream)

1. Waste Stream No. 3 (from Form I, Number 17)

2. Description of process producing waste HYDRAULIC PRESSES
MACHINING & LUBRICATING OILS

3. Brief characterization of waste CONTAMINATED OIL

4. Time period for which data are representative YR 1976 to ____

5. a. Annual waste production 1300 [ ] tons/yr. [X] gal./yr.

b. Daily waste production ____ [ ] tons/yr. [ ] gal./yr.

c. Frequency of waste production: [ ] seasonal [ ] occasional [X] continual

[ ] other (specify) ____

6. Waste Composition

a. Average percent solids ____ % b. pH range ____ to ____

c. Physical state: [ ] liquid, [ ] slurry, [X] sludge, [ ] solid,

[ ] other (specify) ____

d. Component	Average Concentration	[ ] wet weight [ ] dry weight
1. CUTTING OIL		[ ] wt.% [ ] ppm
2. HYDRAULIC OIL		[ ] wt.% [ ] ppm
3. LUBE OIL		[ ] wt.% [ ] ppm
4.		[ ] wt.% [ ] ppm
5.		[ ] wt.% [ ] ppm
6.		[ ] wt.% [ ] ppm
7.		[ ] wt.% [ ] ppm
8.		[ ] wt.% [ ] ppm
9.		[ ] wt.% [ ] ppm
10.		[ ] wt.% [ ] ppm

c. Analysis of composition is [ ] theoretical [ ] laboratory [ ] estimate (attach copy of laboratory analysis if available)

SAME

f. Projected [ ] increase, [ ] decrease in volume from base year: _____ % by July 1977; _____ % by July 1983.

g. Hazardous properties of waste: [X] flammable [ ] toxic [ ] reactive [ ] explosive [ ] corrosive [ ] other (specify) __________

8. On Site Storage

3 UNDERGROUND

a. Method: [ ] drum, [ ] roll-off container, [X] tank, [ ] lagoon, [ ] other (specify) ______

b. Typical length of time waste stored 12 [ ] days, [ ] weeks, [X] months

c. Typical volume of waste stored 1300 [ ] tons, [X] gallons

d. Is storage site diked? [ ] Yes [X] No

e. Surface drainage collection [ ] Yes [X] No

9. Transportation

a. Waste hauled off site by [ ] you [X] others

b. Name of waste hauler BOOTH OIL

Address ______________________________
Street City
______________________________ ( )
State Zip Code Phone

10. Treatment and Disposal

a. Treatment or disposal: [ ] on site [X] off site

b. Waste is [X] reclaimed [ ] treated [ ] land disposed [ ] incinerated [ ] other (specify) __________

c. Off site facility receiving waste

Name of Facility SAME

Facility Operator ______________________________

Facility Location ______________________________
Street City
______________________________ ( )
State Zip Code Phone

103

III. Company Personnel

1. Identify all plant managers from 1930 to present. Indicate years of service in that position, last known address and telephone number. P.O. Box 1918 Buffalo NY 14219 716-827-5384
M.C. Snider 1939-1962 Deceased, G.J. Snider 1962-Present
2. Identify all plant purchasing agents from 1930 to present. Indicate years of service in that position, last known address and telephone number. P.O. Box 1918 Buffalo NY 14219 827-5384
H. Wegehner 1941-1964 Retired, A. Szukowski 1964-Present
3. Identify all plant personnel with supervisory responsibility for treatment or disposal of industrial wastes from 1930 to present. Indicate years of service, last known address and telephone number.
H. Zimmerman 1941-1970 P.O. Box 1918 Buffalo NY 14219 827-5384.
S Jankowski 1971-Present PO Box 1918 Buffalo NY 14219 827-5363

IV. Industrial Waste Production, Treatment and Disposal

1. Processes Used at Plant (1930-1975) — Dates

a. Pickling	a. 1941-Present
b. Phosphating	b. 1941-Present
c.	c.
d.	d.
e.	e.

2. Products (1930-1975)

a. Mfg of Stl 1 Gal Fuel Tanks	a. 1941-Present
b.	b.
c.	c.
d.	d.
e.	e.

3. On Site Waste Treatment (1930-1975)

a. Dry well - tile field w/ drain rd to flow to Lake Erie	a. 1941-1970
b. Haul Away	b. 1970-Present
c.	c.
d.	d.
e.	e.

4. List all Waste Haulers since 1930 Including Your Company

Name: Chemtrol Pollution Services Inc.

Address: P.O. Box 200 Model City N.Y. 14107
Street — City — State

Telephone: 716-754-8231

105

e. Analysis of composition is [ ] theoretical [X] laboratory [ ] estimate (attach copy of laboratory analysis if available).

f. Projected [ ] increase, [ ] decrease in volume from base year: SAME ____% by July 1977; ____% by July 1983.

g. Hazardous properties of waste: [ ] flammable [ ] toxic [ ] reactive [ ] explosive [X] corrosive [ ] other (specify) ________

7. On Site Storage

a. Method: [ ] drum, [ ] roll-off container, [X] tank, [ ] lagoon, [ ] other (specify) ________

b. Typical length of time waste stored 2 [ ] days, [X] weeks, [ ] months

c. Typical volume of waste stored 3 800 [ ] tons, [X] gallons

d. Is storage site diked? [ ] Yes [X] No

e. Surface drainage collection [ ] Yes [X] No

8. Transportation

a. Waste hauled off site by [ ] you [X] others

b. Name of waste hauler CHEM-TROL POLLUTION SERVICES

Address P O BOX 200 (Street) MODEL CITY (City)

N.Y. (State) 14107 (Zip Code) (716) 754-8231 (Phone)

9. Treatment and Disposal

a. Treatment or disposal: [ ] on site [X] off site

b. Waste is [ ] reclaimed [X] treated [X] land disposed [ ] incinerated [ ] other (specify) ________

c. Off site facility receiving waste

Name of Facility SAME

Facility Operator ________

Facility Location ________ (Street) ________ (City)

________ (State) ________ (Zip Code) ( ) ________ (Phone)

REFERENCE 10

106

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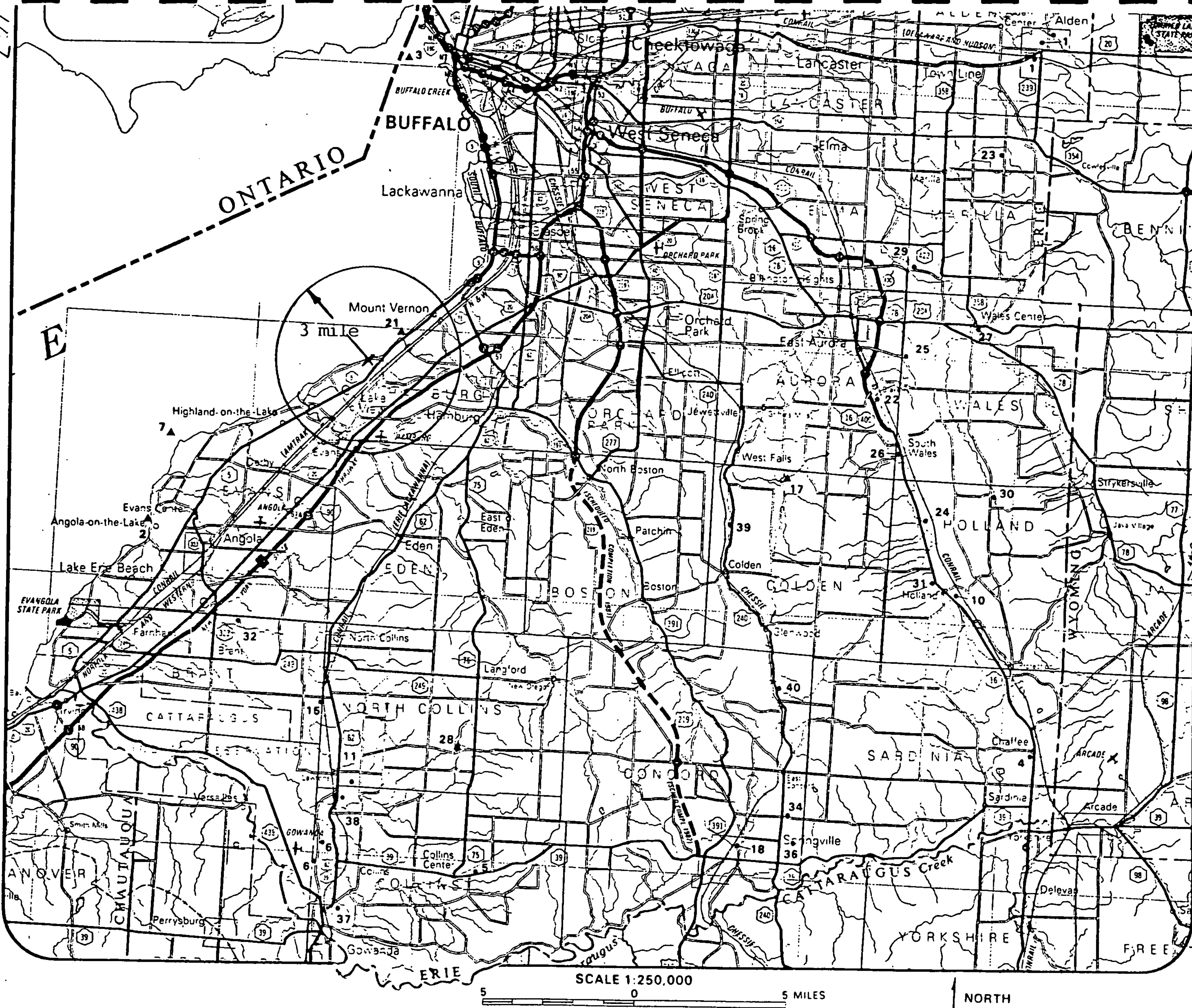
Reference #5



PAGE 7

ERIE and NIAGARA COUNTIES

page 1

DEPARTMENT OF HEALTH
ENVIRONMENTAL PROTECTION
WATER SUPPLY PROTECTION

ERIE COUNTY

ID NO	COMMUNITY WATER SYSTEM	POPULATION	SOURCE
	Municipal Community		
	Akron Village (See No 1 Wyoming Co. Page 10)	2600	
1	Alden Village	3460	Wells
2	Angola Village	2500	Lake Erie
3	Buffalo City Division of Water	357870	Lake Erie
4	Caffee Water Company	210	Wells
5	Collins Water District #3	704	Wells
6	Collins Water Districts #1 and #2	1384	Wells
7	Erie County Water Authority (Sturgeon Point Intake)	375000	Lake Erie
8	Erie County Water Authority (Van DeWater Intake)	NA	Niagara River - East Branch
9	Grand Island Water District #2	2390	Niagara River
10	Holland Water District	1670	Wells
11	Lawtons Water Company	138	Wells
12	Lockport City (Niagara Co)		Niagara River - East Branch
13	Niagara County Water District (Niagara Co)		Niagara River - West Branch
14	Niagara Falls City (Niagara Co)		Niagara River - West Branch
15	North Collins Village	1500	Wells
16	North Tonawanda City (Niagara Co)		Niagara River - West Branch
17	Orchard Park Village	3671	Pipe Creek Reservoir
18	Springville Village	4169	Wells
19	Tonawanda City	18538	Niagara River - East Branch
20	Tonawanda Water District #1	91269	Niagara River
21	Wanakan Water Company	10750	Lake Erie
	Non-Municipal Community		
22	Aurora Mobile Park	125	Wells
23	Bush Gardens Mobile Home Park	270	Wells
24	Circle B Trailer Court	50	Wells
25	Circle Court Mobile Park	125	Wells
26	Creekside Mobile Home Park	120	Wells
27	Donnelly's Mobile Home Court	99	Wells
28	Gowanda State Hospital	NA	Clear Lake
29	Hillside Estates	160	Wells
30	Hunters Creek Mobile Home Park	150	Wells
31	Knox Apartments	NA	Wells
32	Maple Grove Trailer Court	72	Wells
33	Millgrove Mobile Park	100	Wells
34	Perkins Trailer Park	75	Wells
35	Quarry Hill Estates	400	Wells
36	Springville Mobile Park	14	Wells
37	Springwood Mobile Village	32	Wells
38	Taylors Grove Trailer Park	39	Wells
39	Valley View Mobile Court	42	Wells
40	Villager Apartments	NA	Wells

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Page 3

NUS CORPORATION TELECON NOTE

CONTROL NO:	DATE:	TIME:
02-8603-25-A	7-28-86	1400 hrs

DISTRIBUTION:

BETWEEN:	OF:	PHONE:
Jack Gilbert	Town of Hamburg Engineer	(716) 649-6111

AND: [signature] (NUS)

DISCUSSION:

Water supplies in the Hamburg area.

Groundwater is used in Hamburg. The majority of people are on Erie County Water Supplies. There are 164 homes in Hamburg that do not have access (~~??~~ 1?) to public water. Some of these homes appear to be within 3 miles of ~~the~~ Hoover Road. He has a map which shows areas not serviced by municipal water.

ACTION ITEMS:

109

NUS CORPORATION TELECON NOTE

CONTROL NO:	DATE:	TIME:
02-8603-25H	9/11/96	1305

DISTRIBUTION:

BETWEEN:	OF:	PHONE:
Jim Byron	Erie County Water Authority	(716)

AND: Steve Mayfield (NUS)

DISCUSSION:

There are no accounts listed under the following addresses.

Southwestern Blvd. - S 5107, S4424, S 4000

Bayview Rd. S 4931

TO	Steve Maybury	DATE 9-11	TIME 1:05 PM
FROM	M Jim Byron	AREA CODE	NUMBER
OF	Water Authority	EXTENSION	
	Buffalo.		

MESSAGE

He does not have any of the accounts listed.

SIGNED MM.

PHONED [✓] CALL BACK [ ] RETURNED CALL [ ] WANTS TO SEE YOU [ ] WILL CALL AGAIN [ ] WAS IN [ ] URGENT [ ]

FORM NO. 50-176

110

NUS CORPORATION TELECON NOTE

CONTROL NO:	DATE:	TIME:
02-8603-25A	9/10/86	16:45

DISTRIBUTION:

BETWEEN:	OF:	PHONE:
Jim Byron	Erie County Water Authority	(716) 849-8484

AND: Stephen E Mayff (NUS)

DISCUSSION:

Re: Water Billing in Hamburg

1) 3762-3764 ~~Snyder~~ Hoover Rd.

* There is no billing for 3762 but 3766 is Snyder Tank Corporation. Other homes on Hoover Rd are on municipal water.

2) 42. Lakeview Rd.

no billing

3) Milestrip Rd 3729-3742

no billing for 3742 - Cynthia Rudos owner

billing ~~no~~ is available for 3729

ACTION ITEMS:

///

Page 6

NUS CORPORATION | **TELECON NOTE**

CONTROL NO:	DATE:	TIME:
02-8603-25A	9/11/86	1025

DISTRIBUTION:

BETWEEN:	OF:	PHONE:
Tax assessor	Town of Hamburg Tax office	(716) 649-6111

AND: Stephen E. Moff (NUS)

DISCUSSION:

Re: property ownership and use of land

42 Lakeview Rd. of Hamburg There is no such address. All Lakeview address are 4 digit numbers.

3742 Milestrip Rd. is a residential lot owned by Cinthia Rados.

ACTION ITEMS: Note: 3742 Milestrip Rd does not have a billing by Erie County water Authority

112

Page 7

NUS CORPORATION

TELECON NOTE

CONTROL NO:	DATE:	TIME:
02-8603-25	9/10/86	1430

DISTRIBUTION:

BETWEEN:	OF:	PHONE:
Howard Weed	Hamburg Town Tax Assessor	(716) 649-6111

AND: Stephen C Mayf (NUS)

DISCUSSION:

3762 Hoover Rd

3762 Hoover Rd is owned by 3773 Lake Shore incorporated which is billed for water

Note 3773 is Snyder Tank Corporation

ACTION ITEMS:

113

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NUS CORPORATION — **TELECON NOTE**

CONTROL NO:	DATE:	TIME:
02-8603-25A	9/11/86	1500

DISTRIBUTION:

BETWEEN:	OF:	PHONE:
Howard Weed	Town of Hamburg	(716) 6496111

AND: Steph E Meg (NUS)

DISCUSSION:

Re ownership of property

Southwestern Blvd

S 5107 - Warehouse owned by Dolwood

S 4000 - No listing

Bayview Rd.

S 4931 Residential home Kathleen Nichter

ACTION ITEMS:

114

NUS CORPORATION | **TELECON NOTE** Page 9

CONTROL NO:	DATE:	TIME:
02-8603-25H	7-30-86	1335

DISTRIBUTION:

BETWEEN:	OF:	PHONE:
Dean Rumsey	R+D Engineering - Village of Blasdell	(716) 856-2142

AND: Steph Muff (NUS)

DISCUSSION:

Re: Blasdell Water Supply

* The town ~~buys~~ buys water from Erie County Water Supply.
There are no wells in the Area of Blasdell.

ACTION ITEMS:

115

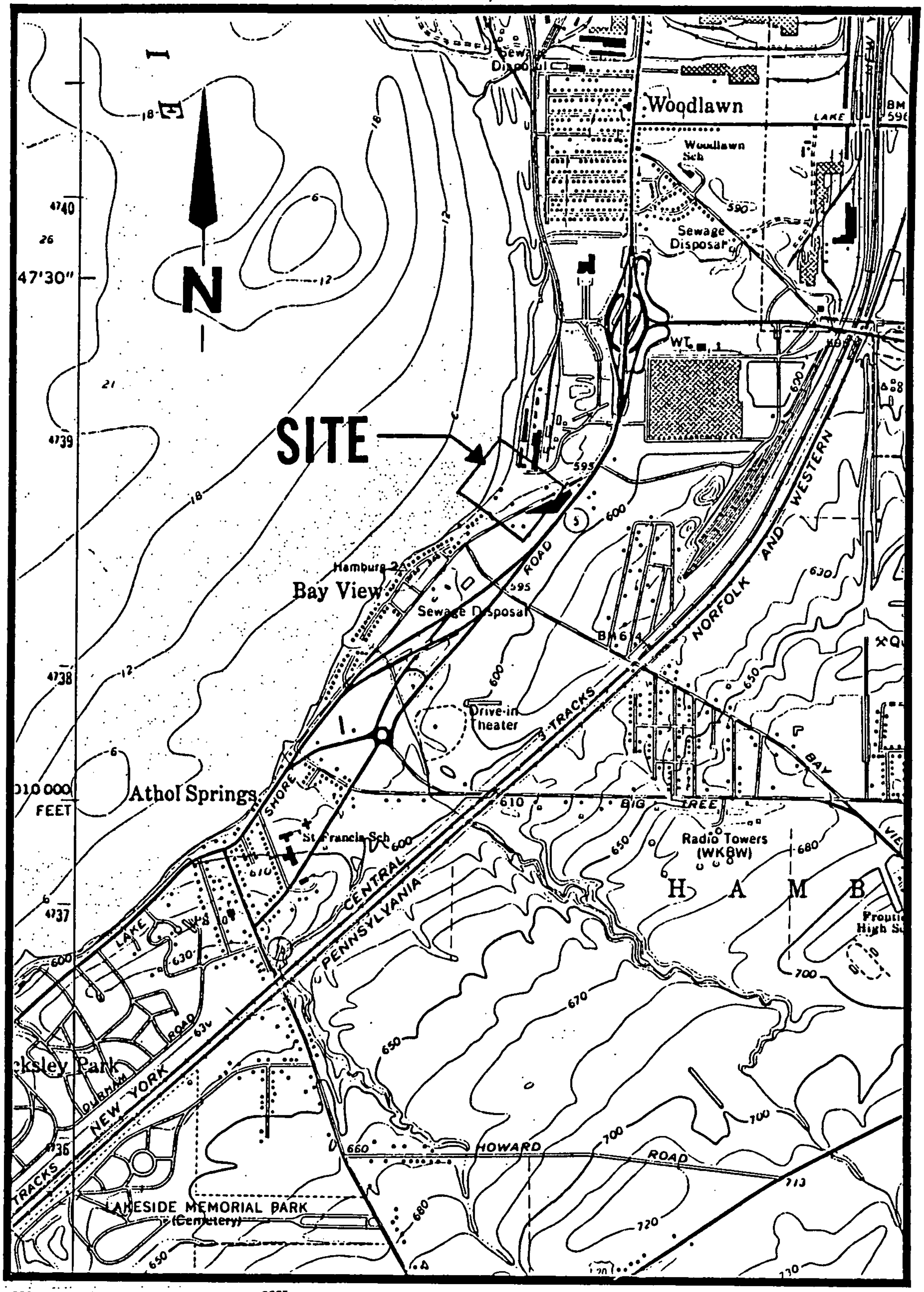
NUS 067 REVISED 0581

REFERENCE 11

116

FIGURE 5.1
SITE LOCATION MAP
SNYDER TANK PHASE II INVESTIGATION
HAMBURG, NY.

Page 1



SITE COORDINATES:
LATITUDE: 42^{0} 46′ 55"
LONGITUDE: 78^{0} 51′ 10"

SCALE: 1:24,000
QUAD.:BUFFALO SE, NY (USGS,1965)

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REFERENCE 12

// 8

United States Department of Agriculture

Soil Conservation Service

21 South Grove St.
East Aurora, NY 14052
(716) 652-8480

November 2, 1990

Ira Bickoff
YEC, Inc.
Clarkstown Executive Park
612 Corporate Way
Suite 4M
Valley Cottage, NY 10989

RE: Phase II Investigation, Snyder Tank Corp., Hamburg, NY

In response to your letter of October 30 please find the enclosed soil maps taken from the Soil Survey of Erie Co.

Item 1: Areas outlined in red are fields which have been delineated by the Erie Co. office of the USDA Agricultural Stabilization and Conservation Service (ASCS) as agricultural land. However, there may be other small fields which are not registered with ASCS that are currently in agricultural production.

Item 2: None of the soil types on the above designated fields located within the two mile radius are considered to be prime farmland by either federal or state definitions.

Item 3: It is unlikely that any of the cropland within the three mile radius is irrigated by groundwater or surface water supplies. However, please note that there are golf courses located within the three mile radius that are probably irrigated with surface water and/or groundwater.

Item 4: This office is not normally privy to the information you requested regarding water supply intakes. It is suggested that you contact the Erie County Water Authority for the location of water intakes and the area served by those intakes. They can be reached at the following address:

Ellicott Square Building
Buffalo, NY 14203
(716) 849-8484

Also enclosed is a copy of the Erie County Soil Survey. It may be helpful should you have any further projects in this area.

Please feel free to call if you have any further information.

Sincerely,

Thomas Bielli

Thomas Bielli
Soil Conservationist

cc: I&E File

encl.

119

REFERENCE 13

120

The Following Image(s) are the Best Copy Available

BIEL'S

WATER QUALITY REGULATIONS
SURFACE WATER AND GROUNDWATER CLASSIFICATIONS AND STANDARDS

New York State
Codes, Rules and Regulations
Title 6, Chapter X
Parts 700-705

New York State Department of Environmental Conservation

Page 1

3. Toxic wastes and deleterious substances.	None in amounts that will interfere with use for secondary contact recreation or that will be injurious to edible fish or shellfish or the culture or propagation thereof, or which in any manner shall adversely affect the flavor, color, odor or sanitary condition thereof, or impair the waters for any other best usage as determined for the specific waters which are assigned to this class.

CLASS "SD"

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

Quality Standards for Class "SD" Waters

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

Historical Note

Sec. added by renum. 701.5, filed July 3, 1985; amd. filed Sept. 20, 1985 eff. 30 days after filing.

PART 702

SPECIAL CLASSIFICATIONS AND STANDARDS

(Statutory authority: Environmental Conservation Law, §§ 3-0301[2][m], 15-0313, 17-0301)

Historical Note

Part repealed, new filed: April 26, 1972; Feb. 25, 1974 eff. 30 days after filing.

Section 702.1 Class A—Special (International boundary waters).

(GREAT LAKES WATER QUALITY AGREEMENT OF 1972)

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

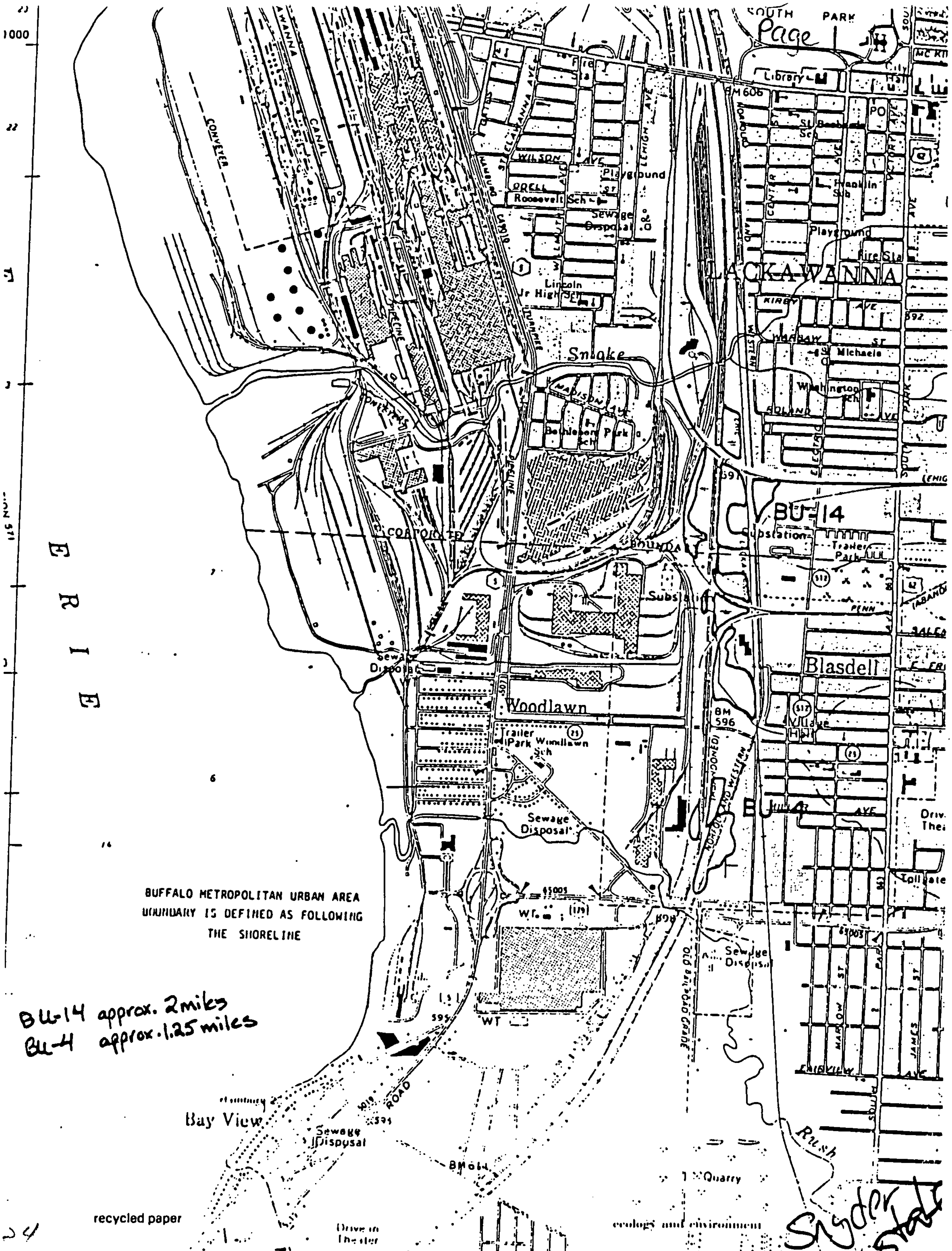
Conditions related to best usage. The waters, if subjected to approved treatment, equal to coagulation, sedimentation, filtration and disinfection with additional treatment, if necessary, to reduce naturally present impurities, meet or will meet New York State Department of Health drinking water standards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

Quality Standards for Class A—Special Waters (International Boundary Waters)

Items	*Specifications*
1. Coliform.	The geometric mean of not less than five samples taken over not more than a 30-day period should not exceed 1,000 per 100 ml total coliform nor 200 per 100 ml fecal coliform.
2. Dissolved oxygen.	In the rivers and upper waters of the lakes not less than 6.0 mg/l at any time. In hypolimnetic waters, it should be not less than necessary for the support of fishlife, particularly cold water species.

REFERENCE 14

123



recycled paper

ecology and environment

REFERENCE 15

125

Page 1

New York State Department of Environmental Conservation

Information Services
Wildlife Resources Center
700 Troy-Schenectady Road
Latham, New York 12110-2400

Thomas C. Jorling
Commissioner

November 19, 1990

Ira Bickoff
YEC, Inc.
Clarkstown Executive Park
612 Corporate Way, Suite 4M
Valley Cottage, New York 10989

Dear Ms. Bickoff:

We have reviewed the Significant Habitat Unit and the NY Natural Heritage Program files with respect to your request for biological information on the six hazardous waste sites in western New York.

Enclosed is a computer printout covering the areas you requested to be reviewed by our staff. The information contained in this report is confidential and may not be released to the public without permission from the Significant Habitat Unit.

Our files are continually growing as new habitats and occurrences of rare species and communities are discovered. In most cases, site-specific or comprehensive surveys for plant and animal occurrences have not been conducted. For these reasons, we can only provide data which have been assembled from our files. We cannot provide a definitive statement on the presence or absence of species, habitats or natural communities. This information should not be substituted for on-site surveys that may be required for environmental assessment.

This response applies only to known occurrences of rare animals, plants and natural communities and/or significant wildlife habitats. You should contact our regional office(s), Division of Regulatory Affairs, at the address(es) enclosed for information regarding any regulated areas or permits that may be required (e.g., regulated wetlands) under State law.

If this project is still active one year from now we recommend that you contact us again so that we may update this response.

Sincerely,

B. Buffington

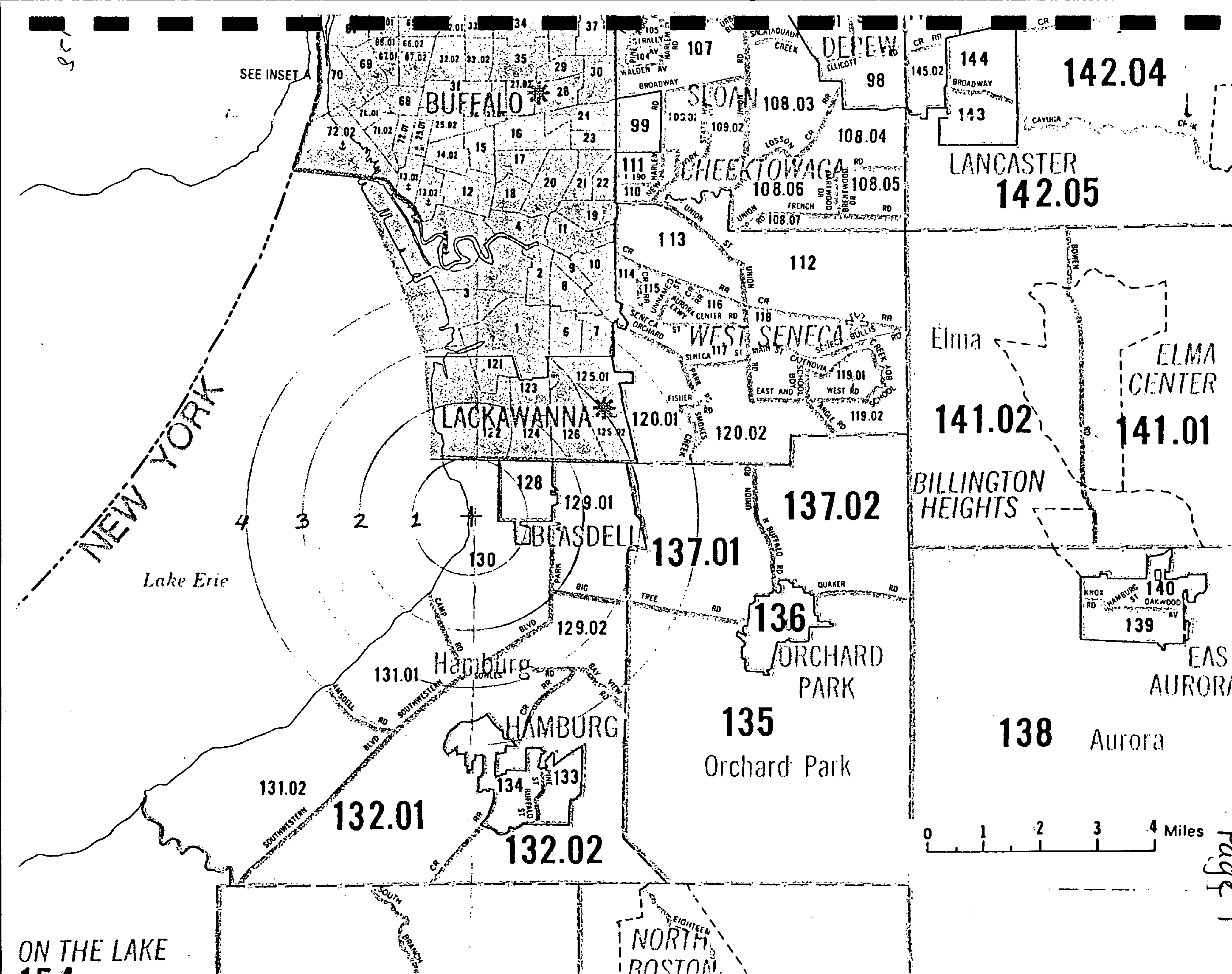
Burrell Buffington
Significant Habitat Unit

Encs.
cc: Reg. 8, Wildlife Regional Mgr.
Reg. 9, Wildlife Regional Mgr.

New York Heritage Program is supported in part by The Nature Conservancy

REFERENCE 16

127



SEE INSET A
BUFFALO
SLOAN
DEPEW
CHEEKTOWAGA
LANCASTER
WEST SENECA
LACKAWANNA
BLASDELL
NEW YORK
Lake Erie
Elma
ELMA CENTER
BILLINGTON HEIGHTS
ORCHARD PARK
Orchard Park
EAST AURORA
Aurora
Hamburg
HAMBURG
NORTH BOSTON
ON THE LAKE
142.04
142.05
144
143
145.02
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138
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140
141.01
141.02
BROADWAY
CAYUGA
UNION RD
FRENCH RD
SENECA ST
CENTER RD
BIG TREE RD
QUAKER RD
SOUTHWESTERN BLVD
CAMP RD
N BUFFALO RD
EAST AND WEST RD
0 1 2 3 4 Miles
4 3 2 1

Page 1

POPUALATION WITHIN A 1-MILE RADIUS

TRACT	FRACTION OF POPULATION IN 1-MILE RADIUS	POPULATION	POPULATION IN 1-MILE RADIUS
128	.5	3288	1644
130	.4	7400	2960
			4604

POPULATION WITHIN A 2-MILE RADIUS

TRACT	FRACTION OF POPULATION IN 2-MILE RADIUS	POPULATION	POPULATION IN 2-MILE RADIUS
122	.4	3629	1452
124	.6	2926	1756
126	.1	2691	269
128	1.0	3288	3288
129.01	.4	8072	3229
129.02	.1	2490	249
130	.9	7400	6660
			16903

POPULATION WITHIN A 3-MILE RADIUS

TRACT	FRACTION OF POPULATION IN 3-MILE RADIUS	POPULATION	POPULATION IN 3-MILE RADIUS
1	.3	2637	791
3	.1	980	98
121	1.0	1357	1357
122	1.0	3629	3629
123	1.0	3812	3812
124	1.0	2926	2926
125.01	.25	5501	1375
125.02	.7	2621	1835
126	1.0	2691	2691
128	1.0	3288	3288
129.01	.9	8072	7265
129.02	.5	2490	1245
130	1.0	7400	7400
131.01	.5	6388	3194
132.01	.1	5674	567
137.01	.1	7373	737
			42210

POPULATION WITHIN A 4-MILE RADIUS

TRACT	FRACTION OF POPULATION IN 4-MILE RADIUS	POPULATION	POPULATION IN 4-MILE RADIUS
1	.9	2637	2373
3	.3	980	294
6	.6	6145	3687
7	.4	4580	1832
120.01	.6	5456	3274
121	1.0	1357	1357
122	1.0	3629	3629
123	1.0	3812	3812
124	1.0	2926	2926
125.01	1.0	5501	5501
125.02	1.0	2621	2621
126	1.0	2691	2691
128	1.0	3288	3288
129.01	1.0	8072	8072
129.02	1.0	2490	2490
130	1.0	7400	7400
131.01	1.0	6388	6388
131.02	.4	5064	2026
132.02	.3	4312	1294
134	.3	6561	1968
135	.2	9870	1974
137.01	.6	7373	4424
			73321

REFERENCE 17

131

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NATIONAL REGISTER OF HISTORIC PLACES
INDEX OF LISTED PROPERTIES
3/15/91

Page 1

133

NATIONAL REGISTER OF HISTORIC PLACES
INDEX OF LISTED PROPERTIES

KEY: Property Name, Address/Boundary, City, Vicinity, Listed Date, Reference Number, Multiple Name

NEW YORK
Dutchess County
Windswept Farm
Sunset Trail
Clinton 9/07/89 89001390
Winegar, Hendrik, House
SE of Amenia on SR 2 off NY 343
Amenia vicinity 4/15/75 75001180
Young Men's Christian Association
Poughkeepsie MRA
58 Market St.
Poughkeepsie 11/26/82 82001171
Zion Memorial Chapel
New Hamburg MRA
37 Point St.
New Hamburg 2/27/87 87000119

Erie County
33--61 Emerson Place Row
Masten Neighborhood Rows TR
33--61 Emerson Pl.
Buffalo 3/19/86 86000691
Albright-Knox Art Gallery
1285 Elmwood Ave., in Delaware Park
Buffalo 5/27/71 71000538
Allentown Historic District
Off NY 384
Buffalo 4/21/80 80002605
Berkeley Apartments
24 Johnson Park
Buffalo 10/15/87 87001852
Blessed Trinity Roman Catholic Church Buildings
317 LeRoy Ave
Buffalo 8/03/79 79001579
Buffalo Gas Light Company Works
249 W. Genesee St.
Buffalo 9/01/76 76001215
Buffalo Main LIght
U.S. Coast Guard Lighthouses and Light Stations on the Great Lakes TR
Buffalo River
Buffalo 7/19/84 84002383
Buffalo North Breakwater South End Light
U.S. Coast Guard Lighthouses and Light Stations on the Great Lakes TR
Buffalo Harbor
Buffalo 8/04/83 83001669

Page 2.

REFERENCE 18

134

SNYDER TANK CORPORATION

SITE RECONNAISSANCE REPORT

TO:
FROM: YEC, Inc.
DATE OF REPORT: 11/13/90
DATE OF INSPECTION: 11/ 2/90
INSPECTORS: Kevin Miller / Ira Bickoff

WASTES PRESENT

1. Flammable paint strippers, containing toluene, lead and vinyl acetate.

2. Cleaning solution containing sodium hydroxide, tetrasodium pyrophosphate and sodium phosphate.

3. Flammable paint, containing xylene and petroleum distillates.

4. Metal working fluid, containing xylene, toluene, alcohol and cutting oil.

5. Ethylene glycol.

SITE ACCESS

The Site is located 0.1 mile west of Lake Shore Drive in a mixed industrial/residential area. Lake Shore Drive is a limited access highway connecting the City of Buffalo to its southern suburbs. Snyder Tank Corporation has its gates open from 0730 to 1730, Monday through Friday. All monitoring wells are located on the Snyder Tank Corporation grounds. Thomas J. Snyder, company President, requests renotification of Phase II actions by NYSDEC.

WELL LOCATIONS

The upgradient well, GW-1, was tentatively relocated by YEC, Inc. representatives. The original location of GW-1 was observed, during site reconnaissance, to be on property not belonging to Snyder Tank Corporation. The NYSDEC requested that this well be moved to the west side of Hoover Drive, on Snyder Tank Corporation grounds. GW-1 has been relocated within the confines of the Snyder property, directly across from its original location (See Fig. 1). The present location of GW-2 and GW-3 on the Lake Erie beach front puts them at great risk to damage by winter storms. The abundant driftwood on the beach indicates a high water mark beyond (landward of) the NYSDEC-designated location shown in the Work Plan. During the geophysical survey a small pond approximately 2.5 feet deep was present on the beach side of the beach access gate. This is directly along the path that a drill rig must take to arrive at the well locations. Since a possibility exists that a rig could get mired in the beach sand, provisions should be made to have a bulldozer present to extricate the rig. YEC, Inc. requests that GW-2 and GW-3 be relocated approximately 30 east within the fenced area owned by Snyder Tank Corporation; providing these wells are still considered downgradient.

SAMPLING LOCATIONS

Two surface water samples and two surface soil samples will be taken as per the Work Plan. During the EPA's Site Assessment, stained soil was observed in two locations; on the north side adjacent to the fence in back of the office, and in the southwest corner of the parking area. During the Phase II Site Recon, the only stained surface soil observed on the north side exhibited iron staining from metal scraps buried in the soil. The southwest corner of the parking area showed none of the black stained soil reported in the EPA's Site Assessment. However, the stained soil may be covered by several feet of soil that appears to have been recently piled in this area. YEC, Inc. recommends that this area be scrapped with a trowel and the soil below scanned for the black stain.

In addition, deeply stained soil was observed in the vicinity of a barrel staging area. YEC, Inc. recommends that this soil be sampled, either in addition to, or in place of, the aforementioned locations (See Fig. 1, location of SS-3).

WATER SUPPLY

Buffalo Drilling will haul water from its shop at the onset of the job. One 1000 gallon tankload should suffice.

UTILITY ACCESS

The telephone number to notify utilities regarding drilling at the Snyder Tank Corporation Site is (716)893-1133. This service was notified 11-12-90. The order number is K1434. The utility check should be complete by 11-21-90. However, local water and sewer utilities do not subscribe to that service. These utilities were cleared via a map located in the Engineer's Office in the Town of Hamburg.

HEALTH AND SAFETY CONCERNS

No additions to the Health and Safety Plan.

PERSONS CONTACTED

Thomas J. Snyder	President Snyder Tank Corporation
John Kauffman	Cheektowaga Service Office Manager Erie County Water Authority
Richard J. Lardo	Principal Engineering Assistant Town of Hamburg
Jim Barron	Buffalo Drilling

REFERENCE 19

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The Following Image(s) are the Best Copy Available

915049

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A Halliburt

FINAL DRAFT
SITE INSPECTION REPORT
AND HAZARD RANKING SYSTEM MODEL
SNYDER TANK CORPORATION
HAMBURG, NEW YORK

FIELD INVESTIGATION TEAM ACTIVITIES AT UNCONTROLLED HAZARDOUS SUBSTANCES FACILITIES — ZONE I

NUS CORPORATION
SUPERFUND DIVISION

DIRECT CONTACT

1 OBSERVED INCIDENT

Date, location, and pertinent details of incident:

There is no observed incident of direct contact with hazardous wastes on this site.

* * *

2 ACCESSIBILITY

Describe type of barrier(s):

There are no barriers around the beach area. The beach is used by the public for recreation. The plant site is completely fenced.

Ref: #7

* * *

3 CONTAINMENT

Type of containment, if applicable:

Waste was discharged onto the ground and easily contacted. People were observed on the beach during the 7/9/86 FIT II site inspection.

Ref: #7, #20

* * *

4 WASTE CHARACTERISTICS

<u>Toxicity</u>

Compounds evaluated:

Fluoranthene, pyrene, benzo(a)anthracene, chrysene, and benzo(b)fluoranthene were detected in soil on the plant and on the beach area.

Ref: #24

Compound with highest score:

Fluoranthene, pyrene, benzo(a)anthracene, chrysene, and benzo(b)fluoranthene score an 3.

Ref: #24

1140

Page 3

ND-2900 0-1748

ENGINEERING INVESTIGATIONS AT INACTIVE HAZARDOUS WASTE SITES

PHASE I INVESTIGATION

SNYDER TANK CORP., SITE NUMBER: 915049
TOWN OF HAMBURG, ERIE COUNTY

August 1989

DEPARTMENT OF ENVIRONMENTAL CONSERVATION · NEW YORK STATE ·

Prepared for:

New York State Department of Environmental Conservation

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

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

Prepared by:

Ecology and Environment Engineering, P.C.

DIRECT CONTACT

1. OBSERVED INCIDENT

Date, location, and pertinent details of incident:

There is no record of an observed incident of direct contact with hazardous waste on this site.

* * *

2. ACCESSIBILITY

Describe type of barrier(s):

Barriers do not completely surround the facility. The plant areas are surrounded fencing but the beach area and SPDES outfall are accessible to the public. This beach area is known to be used for recreation.
Ref. Nos. 1, 12

* * *

3. CONTAINMENT

Type of containment, if applicable:

Direct contact to wastes discharged onto the beach is possible by persons using the beach for recreation.
Ref. No. 1, 12

* * *

4. WASTE CHARACTERISTICS

Toxicity

Compounds evaluated:

Fluoranthene, pyrene, benzo(a)anthracene, chrysene, and benzo(b)fluoranthene and other PAHs
Ref. No. 7, 12

Compound with highest score:

Fluoranthene, pyrene, benzo(a)anthracene, chrysene, and benzo(b)fluoranthene.
Ref. No. 4, 7

* * *

5. TARGETS

Population within one-mile radius

2,978
Ref. No. 16

Distance to critical habitat (of endangered species)

There is no critical habitat of endangered species within 1 mile of the site.
Ref. No. 15

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5.6 EPA 2070-13

5.6 EPA 2070-13

5.5 USEPA SITE INSPECTION FORM 2071-13

Site Inspection Report

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EPA

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

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
NY	D002114197

II. SITE NAME AND LOCATION

01 SITE NAME (Legal, common, or descriptive name of site)	02 STREET, ROUTE NO., OR SPECIFIC LOCATION IDENTIFIER
Snyder Tank Corporation	3773 Lake Shore Road

03 CITY	04 STATE	05 ZIP CODE	06 COUNTY	07 COUNTY CODE	08 CONG DIST
Hamburg	NY	14219	Erie	029	38

09 COORDINATES: LATITUDE 42 46 55 . N LONGITUDE 078 51 10 . W

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

III. INSPECTION INFORMATION

01 DATE OF INSPECTION	02 SITE STATUS	03 YEARS OF OPERATION
11 / 2 / 90 (MONTH DAY YEAR)	☒ ACTIVE ☐ INACTIVE	1941 / Present (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 YEC, Inc. (Name of firm) ☐ G. OTHER ______ (Specify)

05 CHIEF INSPECTOR	06 TITLE	07 ORGANIZATION	08 TELEPHONE NO.
Kevin Miller	Geologist	YEC, Inc.	(914) 268-3203

09 OTHER INSPECTORS	10 TITLE	11 ORGANIZATION	12 TELEPHONE NO.
Ira Bickoff	Geologist	YEC, Inc.	(914) 268-3203
			( )
			( )
			( )
			( )

13 SITE REPRESENTATIVES INTERVIEWED	14 TITLE	15 ADDRESS	16 TELEPHONE NO
Rick Krammer	Foreman	3773 Lake Shore Road.	(716) 827-5353
			( )
			( )
			( )
			( )
			( )

17 ACCESS GAINED BY (Check one)	18 TIME OF INSPECTION	19 WEATHER CONDITIONS
☒ PERMISSION ☐ WARRANT	0730 - 1330	Partly sunny 60 - 65 F, winds out of the S/SE at 10 mph.

IV. INFORMATION AVAILABLE FROM

01 CONTACT	02 OF (Agency/Organization)	03 TELEPHONE NO.
Kevin Miller	YEC, Inc.	(914) 268-3203

04 PERSON RESPONSIBLE FOR SITE INSPECTION FORM	05 AGENCY	06 ORGANIZATION	07 TELEPHONE NO.	08 DATE
Ira Bickoff	YEC, Inc.		914/268-3203	3 / 15 / 91 (MONTH DAY YEAR)

EPA FORM 2070-13 (7-81)

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EPA

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

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
NY	D002114197

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 ______
- NO. OF DRUMS ______

03 WASTE CHARACTERISTICS (Check all that apply)

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

III. WASTE TYPE

CATEGORY	SUBSTANCE NAME	01 GROSS AMOUNT	02 UNIT OF MEASURE	03 COMMENTS
SLU	SLUDGE			
OLW	OILY WASTE			
SOL	SOLVENTS			
PSD	PESTICIDES			Presently being discharged
OCC	OTHER ORGANIC CHEMICALS	Unknown		
IOC	INORGANIC CHEMICALS			
ACD	ACIDS (Pickling Acids)	2.8 Million	Gallons	1941-1970 - 98,000 GPY
BAS	BASES			
MES	HEAVY METALS	Unknown		

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
OCC	2-Butanone	78-93-3		48	ug/L
OCC	Xylene (Total)	13303-20-7		20 - 83	ug/L
OCC	Benzo(a)anthracene	53-55-3		230 - 840	ug/L
OCC	Benzo(a)pyrene	50-32-8		200 - 650	ug/L
OCC	Fluoranthene	206-44-0		400- 2100	ug/L
OCC	Chrysene	218-01-9		350- 940	ug/L
OCC	Phenanthrene	85-01-8		210- 1500	ug/L
OCC	Pyrene	129-00-0		370- 1700	ug/L
MES	Chromium	7440-47-3		41.9	ug/L
MES	Iron	N/A		860-39800	ug/L
MES	Lead	N/A		4.0-22.5	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)

Analytical Results, Aquatec Inc., Environmental Services, Burlington, Vt.
Hawley's Condensed Chemical Dictionary, Eleventh Edition
NIOSH Pocket Guide to Chemical Hazards

EPA

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

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
NY	D002114197

II. HAZARDOUS CONDITIONS AND INCIDENTS

01 ☒ A. GROUNDWATER CONTAMINATION — 02 ☐ OBSERVED (DATE: ______) ☒ POTENTIAL ☐ ALLEGED

03 POPULATION POTENTIALLY AFFECTED: 4604 — 04 NARRATIVE DESCRIPTION

There is potential for soil on the beach to become contaminated from drainage discharge of waste products at SW-1 and SW-2. The majority of the population in the area is on municipal water from Lake Erie.

01 ☒ B. SURFACE WATER CONTAMINATION — 02 ☐ OBSERVED (DATE: ______) ☒ POTENTIAL ☐ ALLEGED

03 POPULATION POTENTIALLY AFFECTED: ______ — 04 NARRATIVE DESCRIPTION

There is potential of contamination from waste products discharging from SW-1 and SW-2.

01 ☒ C. CONTAMINATION OF AIR — 02 ☐ OBSERVED (DATE: ______) ☐ POTENTIAL ☐ ALLEGED

03 POPULATION POTENTIALLY AFFECTED: ______ — 04 NARRATIVE DESCRIPTION

There is no potential. Air readings using an HNu during site inspection were not above background.

01 ☒ D. FIRE/EXPLOSIVE CONDITIONS — 02 ☐ OBSERVED (DATE: ______) ☐ POTENTIAL ☐ ALLEGED

03 POPULATION POTENTIALLY AFFECTED: ______ — 04 NARRATIVE DESCRIPTION

There is no potential. There were no hazardous conditions noted during the YEC, Inc. site inspection on 11-2-90.

01 ☒ E. DIRECT CONTACT — 02 ☐ OBSERVED (DATE: ______) ☒ POTENTIAL ☐ ALLEGED

03 POPULATION POTENTIALLY AFFECTED: 4604 — 04 NARRATIVE DESCRIPTION

There is potential for contact with soils and waste water on the beach and in the facility. An opening exists in the fence in the vicinity of SW-1.

01 ☒ F. CONTAMINATION OF SOIL — 02 ☐ OBSERVED (DATE: ______) ☐ POTENTIAL ☐ ALLEGED

03 AREA POTENTIALLY AFFECTED: about 10 (Acres) — 04 NARRATIVE DESCRIPTION

Soil samples collected at SS-1, SS-2, and SS-3 were found to contain Benzo(a) anthrene, Benzo(a)pyrene, flouranthene, Chrysene, Phenanthrene, and Pyrene in elevated concentrations.

01 ☒ G. DRINKING WATER CONTAMINATION — 02 ☐ OBSERVED (DATE: ______) ☐ POTENTIAL ☐ ALLEGED

03 POPULATION POTENTIALLY AFFECTED: ______ — 04 NARRATIVE DESCRIPTION

Town of Hamburg is supplied by municipal water.

01 ☒ H. WORKER EXPOSURE/INJURY — 02 ☐ OBSERVED (DATE: ______) ☒ POTENTIAL ☐ ALLEGED

03 WORKERS POTENTIALLY AFFECTED: 150-200 — 04 NARRATIVE DESCRIPTION

There is potential due to contact with contaminated soil or contaminated waste discharged at SW-1 and SW-2.

01 ☒ I. POPULATION EXPOSURE/INJURY — 02 ☐ OBSERVED (DATE: ______) ☐ POTENTIAL ☐ ALLEGED

03 POPULATION POTENTIALLY AFFECTED: ______ — 04 NARRATIVE DESCRIPTION

There is potential for exposure around outfall pipes or contact with contaminated soil. The beach is used for recreation.

EPA

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

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
NY	D002114197

II. HAZARDOUS CONDITIONS AND INCIDENTS (Continued)

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

There is minimal potential. There is little vegetation in this industrial area with no endangered plant species present.

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

There is minimal potential due to the nature of the area. There are no endangered animal species in the area.

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

There is potential. Waste water could migrate to the Lake and affect biota.

01 ☒ M. UNSTABLE CONTAINMENT OF WASTES (Spills/Runoff/Standing liquids, Leaking drums) — 02 ☐ OBSERVED (DATE: ______) ☐ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: 4604 — 04 NARRATIVE DESCRIPTION

Waste water at SW-1 and SW-2 were found to contain: Aluminum, Chromium, 2-Butanone, and Toluene in excess of the CRDL.

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

There is a potential due to waste water flowing on the beach.

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

There is a potential as storm water flows through discharge pipe (SW-1).

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

Though plant's SPDES permit is expired, some TCL organic compounds were detected in prior SPDES permitted pipe and also surface water drainage pipe.

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

Unknown

III. TOTAL POPULATION POTENTIALLY AFFECTED: 4604 (Population within 1-mile of site)

IV. COMMENTS

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

YEC, Inc. field logbook
Department of Commerce, Bureau of the Census

EPA

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

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
NY	D002114197

II. PERMIT INFORMATION

01 TYPE OF PERMIT ISSUED (Check all that apply)	02 PERMIT NUMBER	03 DATE ISSUED	04 EXPIRATION DATE	05 COMMENTS
☐ A. NPDES				
☐ B. UIC				
☐ C. AIR				
☐ D. RCRA				
☐ E. RCRA INTERIM STATUS				
☐ F. SPCC PLAN				
☒ G. STATE (Specify) SPDES	NYD0073636			
☐ H. LOCAL (Specify)				
☐ I. OTHER (Specify)				
☐ J. NONE				

III. SITE DESCRIPTION

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

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 6

06 AREA OF SITE

Approx. 10 (Acres)

07 COMMENTS

The plant's SPDES permit expired June 1, 1988. Currently, it is operating without a permit according to the NYSDEC.

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.

Drums were observed the facility during YEC, Inc. inspection. The drums were in good condition, stored on wooden pallets in an upright position.

V. ACCESSIBILITY

01 WASTE EASILY ACCESSIBLE: ☒ YES ☐ NO

02 COMMENTS

The beach area is open to the public and the plant is not completely fenced.

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

YEC, Inc. Logbook
Analytical Results, Aquatec, Inc., Environmental Services, Burlington, Vermont
Site Inspection Report and Hazard Ranking System Model, Snyder Tank Corp., NUS Corp.
NYSDEC Region 9 (Dan Judd) - SPDES Information

EPA FORM 2070-13 (7-81)

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

EPA

I. IDENTIFICATION
01 STATE: NY | 02 SITE NUMBER: D002114197

II. DRINKING WATER SUPPLY

01 TYPE OF DRINKING SUPPLY (Check as applicable)

	SURFACE	WELL
COMMUNITY	A. [X]	B. [ ]
NON-COMMUNITY	C. [ ]	D. [X]

02 STATUS

ENDANGERED	AFFECTED	MONITORED
A. [ ]	B. [ ]	C. [ ]
D. [ ]	E. [ ]	F. [ ]

03 DISTANCE TO SITE
A. 2 (mi)
B. .85 (mi)

III. GROUNDWATER

01 GROUNDWATER USE IN VICINITY (Check one)

[ ] A. ONLY SOURCE FOR DRINKING
[X] 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 < 100

03 DISTANCE TO NEAREST DRINKING WATER WELL 0.85 (mi)

04 DEPTH TO GROUNDWATER 2.35 (ft)

05 DIRECTION OF GROUNDWATER FLOW NW

06 DEPTH TO AQUIFER OF CONCERN 2.35 (ft)

07 POTENTIAL YIELD OF AQUIFER ______ (gpd)

08 SOLE SOURCE AQUIFER [ ] YES [X] NO

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

The nearest known well to the facility is at 3742 Mile Strip Road, approximately 0.85 miles from the site.

10 RECHARGE AREA
[ ] YES
[ ] NO
COMMENTS

11 DISCHARGE AREA
[X] YES
[ ] NO
COMMENTS Discharge to Lake Erie

IV. SURFACE WATER

01 SURFACE WATER USE (Check one)

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

02 AFFECTED/POTENTIALLY AFFECTED BODIES OF WATER

NAME:	AFFECTED	DISTANCE TO SITE
Lake Erie	[ ]	0.01 (mi)
	[ ]	(mi)
	[ ]	(mi)

V. DEMOGRAPHIC AND PROPERTY INFORMATION

01 TOTAL POPULATION WITHIN

ONE MILE OF SITE A. 4604 NO. OF PERSONS
TWO (2) MILES OF SITE B. 16903 NO. OF PERSONS
THREE (3) MILES OF SITE C. 42210 NO. OF PERSONS

02 DISTANCE TO NEAREST POPULATION <0.1 (mi)

03 NUMBER OF BUILDINGS WITHIN TWO (2) MILES OF SITE 4,448

04 DISTANCE TO NEAREST OFF-SITE BUILDING <0.1 (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)

The facility is situated in a primarily industrial area. There are residences located west of the facility along the shore.

EPA

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

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
NY	D002114197

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: 11-23 (ft)

04 DEPTH OF CONTAMINATED SOIL ZONE: 20 (ft)

05 SOIL pH: Unknown

06 NET PRECIPITATION: 9 (in)

07 ONE YEAR 24 HOUR RAINFALL: 2 (in)

08 SLOPE — SITE SLOPE: 1.7 % — DIRECTION OF SITE SLOPE: Northwest — TERRAIN AVERAGE SLOPE: 3.8 %

09 FLOOD POTENTIAL — SITE IS IN 100 YEAR FLOODPLAIN

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

11 DISTANCE TO WETLANDS (5 acre minimum)

ESTUARINE A. > 2 (mi) OTHER B. > 1 (mi)

12 DISTANCE TO CRITICAL HABITAT (of endangered species): > 1 (mi)

ENDANGERED SPECIES: None

13 LAND USE IN VICINITY

DISTANCE TO:

COMMERCIAL/INDUSTRIAL	RESIDENTIAL AREAS; NATIONAL/STATE PARKS, FORESTS, OR WILDLIFE RESERVES	AGRICULTURAL LANDS PRIME AG LAND	AGRICULTURAL LANDS AG LAND
A. < 0.1 (mi)	B. < 0.1 (mi)	C. > 2 (mi)	D. > 2 (mi)

14 DESCRIPTION OF SITE IN RELATION TO SURROUNDING TOPOGRAPHY

The site is located on the relatively flat shore of Lake Erie, < 0.1 miles from the water. The 100 foot wide beach slopes about 3 feet from the plant to Lake Erie.

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

YEC, Inc. site inspection.
Telecon notes concerning groundwater useage, NUS Corp.
US Department of Agriculture, Soil Survey of Erie County.
USGS 7.5 Minute Series (Topographic) Quadrangle, Buffalo SE, NY.

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 8 - SAMPLE AND FIELD INFORMATION

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
NY	D002114197

II. SAMPLES TAKEN

SAMPLE TYPE	01 NUMBER OF SAMPLES TAKEN	02 SAMPLES SENT TO	03 ESTIMATED DATE RESULTS AVAILABLE
GROUNDWATER		Aquatec Inc., South Burlington, Vt.	1-25-91
SURFACE WATER	2	Aquatec Inc., South Burlington, Vt.	1-25-91
WASTE			
AIR			
RUNOFF			
SPILL			
SOIL	3	Aquatec Inc., South Burlington, Vt.	1-25-91
VEGETATION			
OTHER (Splitspoon)	1	Aquatec Inc., South Burlington, Vt.	1-25-91

III. FIELD MEASUREMENTS TAKEN

01 TYPE	02 COMMENTS
Air Monitoring	Air monitoring was conducted during site inspection with
	an HNu. No observed releases were recorded on site.

IV. PHOTOGRAPHS AND MAPS

01 TYPE ☒ GROUND ☐ AERIAL

02 IN CUSTODY OF YEC, Inc. (Name of organization or individual)

03 MAPS ☒ YES ☐ NO

04 LOCATION OF MAPS Site and sampling maps, YEC, Inc. project files.

V. OTHER FIELD DATA COLLECTED (Provide narrative description)

Field logbook and photographic log, written and photographic documentation of all field activities.

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

YEC, Inc., Logbook.

EPA FORM 2070-13 (7-81)

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EPA

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

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
NY	D002114197

II. CURRENT OWNER(S)

01 NAME	02 D+B NUMBER
Snyder Tank Corporation	

03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE
3773 Lake Shore Road	3714

05 CITY	06 STATE	07 ZIP CODE
Hamburg	NY	14219

01 NAME	02 D+B NUMBER

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

05 CITY	06 STATE	07 ZIP CODE

01 NAME	02 D+B NUMBER

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

05 CITY	06 STATE	07 ZIP CODE

01 NAME	02 D+B NUMBER

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

05 CITY	06 STATE	07 ZIP CODE

PARENT COMPANY (If applicable)

08 NAME	09 D+B NUMBER

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

12 CITY	13 STATE	14 ZIP CODE

08 NAME	09 D+B NUMBER

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

12 CITY	13 STATE	14 ZIP CODE

08 NAME	09 D+B NUMBER

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

12 CITY	13 STATE	14 ZIP CODE

08 NAME	09 D+B NUMBER

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

12 CITY	13 STATE	14 ZIP CODE

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

01 NAME	02 D+B NUMBER

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

05 CITY	06 STATE	07 ZIP CODE

01 NAME	02 D+B NUMBER

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

05 CITY	06 STATE	07 ZIP CODE

01 NAME	02 D+B NUMBER

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

05 CITY	06 STATE	07 ZIP CODE

IV. REALTY OWNER(S) (If applicable; list most recent first)

01 NAME	02 D+B NUMBER

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

05 CITY	06 STATE	07 ZIP CODE

01 NAME	02 D+B NUMBER

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

05 CITY	06 STATE	07 ZIP CODE

01 NAME	02 D+B NUMBER

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

05 CITY	06 STATE	07 ZIP CODE

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

EPA

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

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
NY	D002114197

II. CURRENT OPERATOR (Provide if different from owner)

01 NAME	02 D+B NUMBER
Snyder Tank Corporation	

03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE
3773 Lake Shore Road	3714

05 CITY	06 STATE	07 ZIP CODE
Hamburg	NY	14219

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

01 NAME	02 D+B NUMBER

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

05 CITY	06 STATE	07 ZIP CODE

08 YEARS OF OPERATION	09 NAME OF OWNER DURING THIS PERIOD

01 NAME	02 D+B NUMBER

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

05 CITY	06 STATE	07 ZIP CODE

08 YEARS OF OPERATION	09 NAME OF OWNER DURING THIS PERIOD

PREVIOUS OPERATORS' PARENT COMPANIES (If applicable)

10 NAME	11 D+B NUMBER

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

14 CITY	15 STATE	16 ZIP CODE

10 NAME	11 D+B NUMBER

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

14 CITY	15 STATE	16 ZIP CODE

10 NAME	11 D+B NUMBER

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

14 CITY	15 STATE	16 ZIP CODE

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

EPA

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

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
NY	D002114197

II. ON-SITE GENERATOR

01 NAME	02 D+B NUMBER
Snyder Tank Corporation	

03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE
3773 Lake Shore Road	3714

05 CITY	06 STATE	07 ZIP CODE
Hamburg	NY	14219

III. OFF-SITE GENERATOR(S)

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

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

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

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

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

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

IV. TRANSPORTER(S)

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

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

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

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

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

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

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

EPA

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

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
NY	D002114197

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 FORM 2070-13 (7-81)

EPA

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

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
NY	D002114197

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

Outfall pipe at location of SW-2 sample (SPDES permitted pipe) has a baffle downstream of its effluent to absorb any contaminants. Baffle is old and appears to be ineffective.

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

YEC, INC. site inspection (1990)

EPA FORM 2070-13 (7-81)

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EPA

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

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
NY	D002114197

II. ENFORCEMENT INFORMATION

01 PAST REGULATORY/ENFORCEMENT ACTION ☐ YES ☐ NO

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

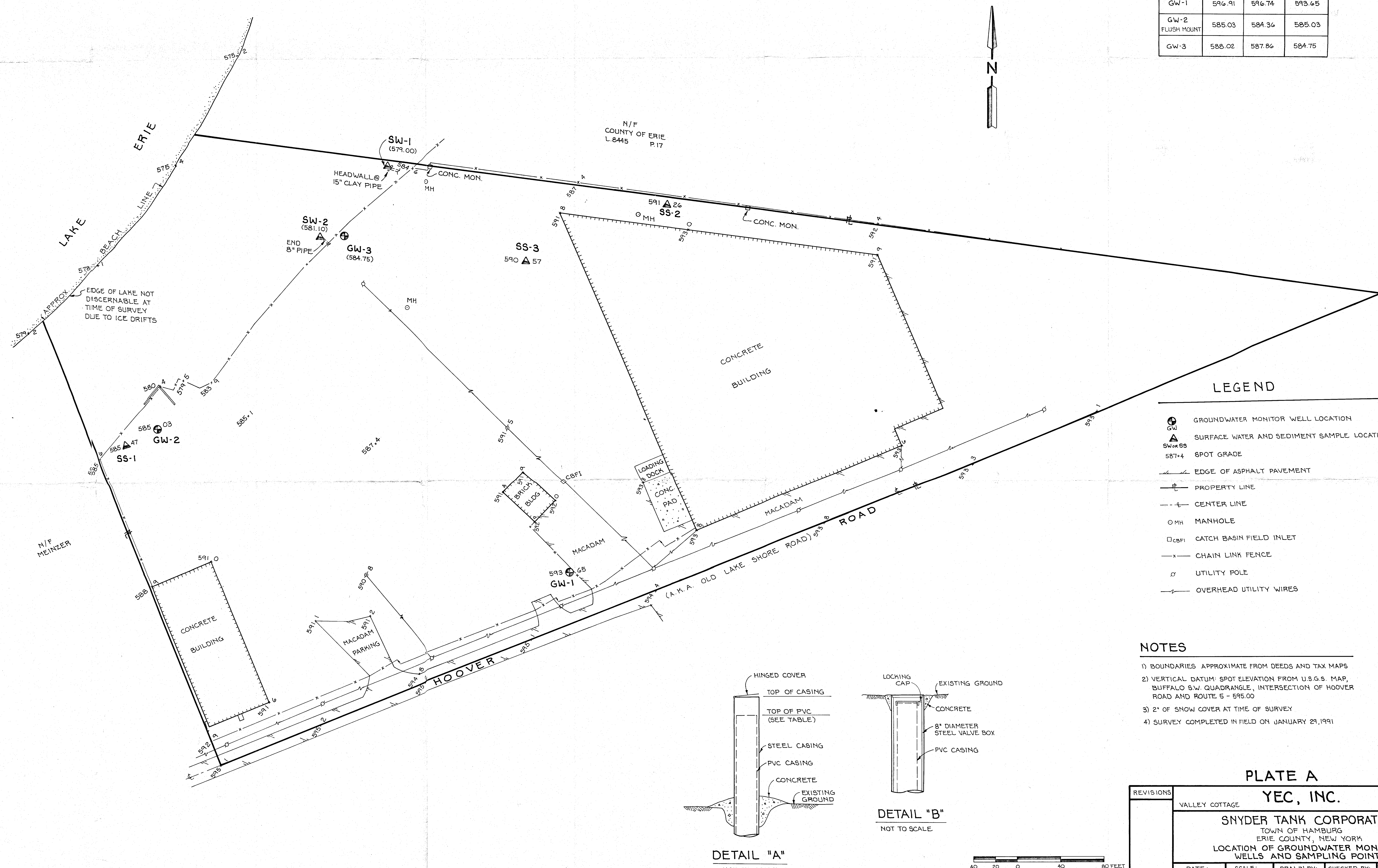
Erie County health officials cited Snyder Tank Corporation for discharging industrial wastes onto the beach at Lake Erie in 1972.

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

Snyder Tank Report; Erie County Department of Environmental Planning, 1984.

PLATE A

ELEVATION TABLE			
I.D. NO.	TOP OF CASING ELEV. (FEET)	TOP P.V.C. ELEV. (FEET)	GROUND ELEV. (FEET)
GW-1	596.91	596.74	593.65
GW-2 FLUSH MOUNT	585.03	584.36	585.03
GW-3	588.02	587.86	584.75



NOTES

1) BOUNDARIES APPROXIMATE FROM DEEDS AND TAX MAPS
2) VERTICAL DATUM: SPOT ELEVATION FROM U.S.G.S. MAP, BUFFALO S.W. QUADRANGLE, INTERSECTION OF HOOVER ROAD AND ROUTE 5 - 595.00
3) 2" OF SNOW COVER AT TIME OF SURVEY
4) SURVEY COMPLETED IN FIELD ON JANUARY 29, 1991

PLATE A

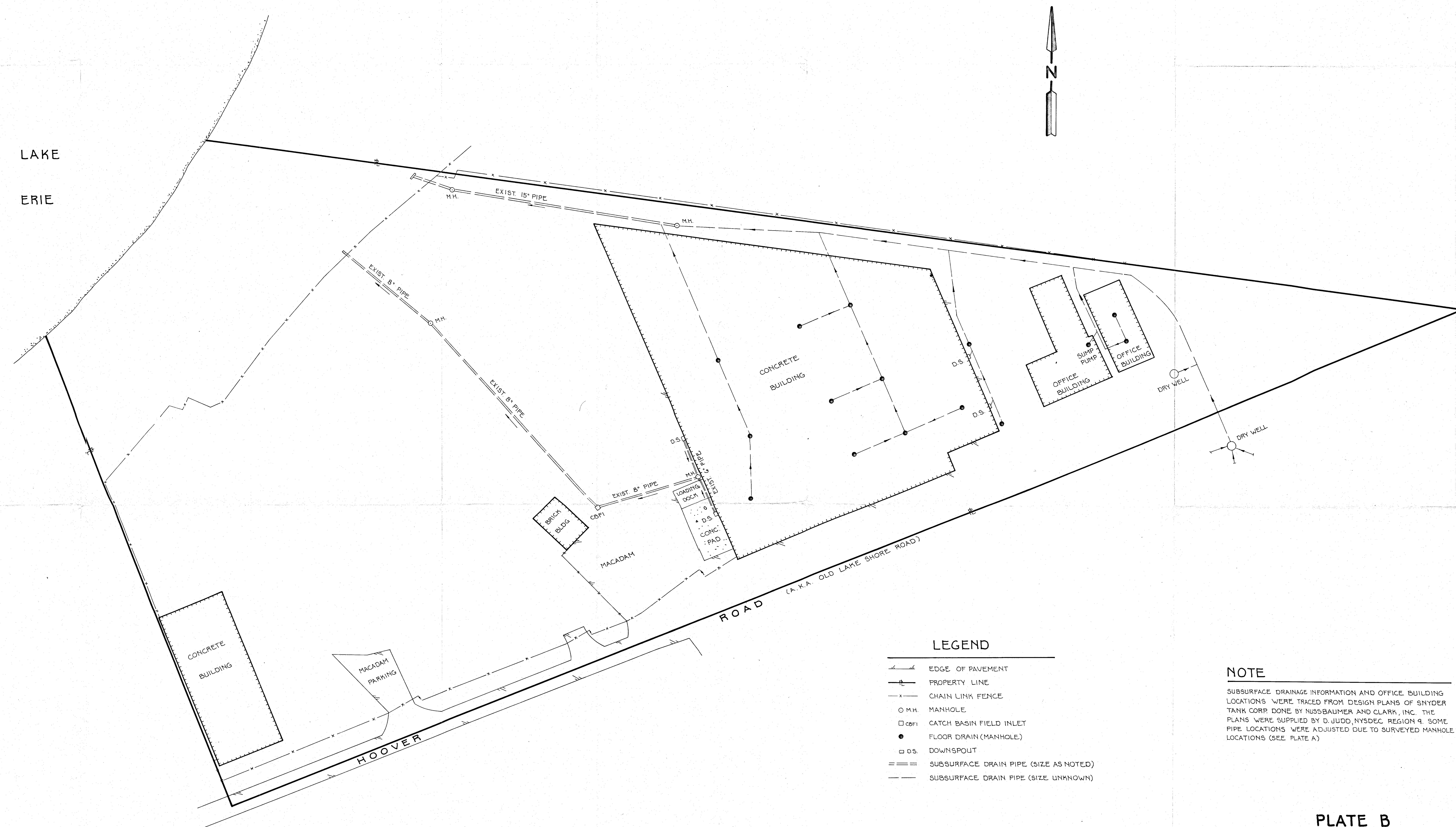
REVISIONS

VALLEY COTTAGE — YEC, INC. — NEW YORK

SNYDER TANK CORPORATION
TOWN OF HAMBURG
ERIE COUNTY, NEW YORK
LOCATION OF GROUNDWATER MONITOR WELLS AND SAMPLING POINTS

DATE:	SCALE:	DRAWN BY:	CHECKED BY:	JOB NO:
FEB. 20, 1991	1" = 40'	MW	DRS	YEC-A0046

PLATE B



LEGEND

	EDGE OF PAVEMENT
	PROPERTY LINE
	CHAIN LINK FENCE
O M.H.	MANHOLE
□ CBFI	CATCH BASIN FIELD INLET
●	FLOOR DRAIN (MANHOLE)
□ D.S.	DOWNSPOUT
	SUBSURFACE DRAIN PIPE (SIZE AS NOTED)
	SUBSURFACE DRAIN PIPE (SIZE UNKNOWN)

NOTE

SUBSURFACE DRAINAGE INFORMATION AND OFFICE BUILDING LOCATIONS WERE TRACED FROM DESIGN PLANS OF SNYDER TANK CORP. DONE BY NUSSBAUMER AND CLARK, INC. THE PLANS WERE SUPPLIED BY D. JUDD, NYSDEC REGION 9. SOME PIPE LOCATIONS WERE ADJUSTED DUE TO SURVEYED MANHOLE LOCATIONS (SEE PLATE A)

PLATE B

REVISIONS

YEC, INC.

VALLEY COTTAGE NEW YORK

SNYDER TANK CORPORATION
TOWN OF HAMBURG
ERIE COUNTY, NEW YORK

SUBSURFACE DRAINAGE SYSTEM

DATE:	SCALE:	DRAWN BY:	CHECKED BY:	JOB NO.:
MARCH 14, 1991	1" = 40'	MW	MM	YEC # A0046

915049

ENGINEERING INVESTIGATIONS AT INACTIVE HAZARDOUS WASTE SITES

PHASE II INVESTIGATION

SNYDER TANK CORPORATION

Site No. 915049
Hamburg, New York
Erie County

DATE: April 1992

Volume II
APPENDICES A-K

DEPARTMENT OF ENVIRONMENTAL CONSERVATION • NEW YORK STATE •

Prepared for:

New York State Department of Environmental Conservation

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

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

By:

YEC, Inc.

Under contract to:

Engineering-Science, Inc.

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

SNYDER TANK CORPORATION
HAMBURG, NEW YORK
ERIE COUNTY
NYSDEC I.D. NO. 915049

PREPARED FOR

DIVISION OF HAZARDOUS WASTE REMEDIATION
NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
50 WOLF ROAD
ALBANY, NEW YORK 12233-0001

STATE OF NEW YORK
YUAN SHAN E. CHEN
No. 062683
LICENSED PROFESSIONAL ENGINEER

PREPARED BY

YEC, INC.
Clarkstown Executive Park
612 Corporate Way
Valley Cottage, New York 10989

In Association With

ENGINEERING-SCIENCE, INC.
290 Elwood Davis Road
Liverpool, NY 13088

APRIL 1992

APPENDIX A

APPENDIX A

Appendix A

Text References

REFERENCES

SNYDER TANK CORPORATION SITE

1. New York State Department of Environmental Conservation Files on the Snyder Tank Corporation, 1990.

2. Nussbaumer and Clarke, Inc. Consulting Engineers, January, 1975, *Engineering Report on Industrial Waste Control at the Snyder Tank Corporation, Hamburg, New York.*

3. LaSala, A.M., Jr., 1968, *Groundwater Resources of the Erie-Niagara Basin, New York.* Prepared for the USGS in cooperation with the New York State Conservation Department and Division of Water Resources.

4. Buehler, Edward, J., and Calkin, Parker, E., 1982, *Guidebook for Field Trips in Western New York, Northern Pennsylvania and Adjacent, Southern Ontario*, New York State Geological Association.

5. The University of the State of New York, New York State Geological survey, 1970. *Geologic Map of New York, the Niagara Sheet.*

6. United States Department of Agriculture, 1986, *Soil Survey of Erie County, New York.*

7. United States Topographic Map, 1965, *Buffalo SE*.

8. New York State Department of Environmental Conservation, *Surface Water Classifications, Title 6 Article 837.4 and 837.7* (Buffalo Quadrangle).

9. YEC, Inc., 1991, *Phase II Investigation of the Snyder Tank Corporation* for the NYSDEC.

10. United States Census Bureau, 1980, Census Tracts for Erie County, New York.

11. YEC, Inc, 1990, *Site Inspection Report for the Snyder Tank Corporation Phase II Investigation*.

12. Ecology and Environment Engineering, p.c., 1989. Snyder Tank Corporation Site, Buffalo, New York. *Engineering Investigations at Inactive Hazardous Waste Sites - A Phase I Investigation at Snyder Tank Corporation*. Prepared for the New York State Department of Environmental Conservation, August 1989.

13. Dragun, James., 1986, *The Soil Chemistry of Hazardous Materials*, Hazardous Materials Control Research Institute, Silver Spring, Maryland.

14. Pieczonka Engineering, *Emergency Response Plan for the Buffalo Municipal Planning Department.*

15. YEC, Inc., 1991, Surface Water Sample Hardness Calculations at the Snyder Tank Corporation Site.

16. NUS Corporation-Superfund Division, 1986. Snyder Tank Corporation Site, Hamburg, New York. *Final Draft-Site Inspection Report and Hazard Ranking System Model for Snyder Tank Corporation Site.* Prepared for Environmental Services Division of the U.S. Environmental Protection Agency, October 30, 1986.

REFERENCE 1

NUS CORPORATION
A Halliburton Company

Page 1

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
EXECUTIVE SUMMARY

Snyder Tank Corporation
Site Name

NYD002114197
EPA Site ID Number

3773 Lake Shore Rd.
Hamburg, New York
Address

02-8612-14
TDD Number

SITE DESCRIPTION

The Snyder Tank Corporation is an active, ten acre industrial site located on Lake Shore and Hoover Roads on the eastern shore of Lake Erie in Erie County, New York. The plant manufactures steel and aluminum automobile fuel tanks. Since 1939, the plant has been owned successively by Snyder Tank Corporation, Snyder Manufacturing Company and Snyder Welding Service.

The area surrounding the plant is primarily industrial with some private residences to the southwest. Adjacent to the plant's western border is a 100 feet wide beach area, consisting of rock, sand, gravel, and debris.

* The plant has a State Pollution Discharge Elimination System (SPDES) Permit for industrial wastewater discharge to the beach of Lake Erie which is presently used for cooling water and surface runoff disposal. This outfall consists of a pipe ending at the plant's fenceline where wastewater flows toward Lake Erie via an open ditch. Prior to being permitted in 1974, this discharge point was used for the disposal of acid pickling and spent phosphate wastes. A drainage pipe, which is allegedly used for surface runoff disposal, is located approximately 100 feet west of the permitted discharge pipe. Painting booth water curtain waste, and etch rinse are known to have been routinely discharged to the ground surface on-site.

*Complaints by the Erie County Health Department (ECHD) in 1972 led to the discontinuation of pickling and phosphate waste discharge at the current permitted discharge point. Site inspections conducted between 1976 and 1979 by the ECHD noted a leaking tank, improperly drummed waste, and a rust colored stain on the beach area.

SEE ATTACHMENT A

HAZARD RANKING SCORE: S_M=17.06 (S_{gw}=28.65, S_{sw}=7.08, S_a=0.00)
S_{FE}=0.00, S_{DC}=37.50

Prepared by: Stephen Maybury of NUS Corporation

Date: 10/30/86

Page 2

Snyder TANK CORPORATION

P. O. BOX 1914 · S-3774 LAKE SHORE ROAD · BUFFALO, NEW YORK 14219 · AREA CODE 716 827-5353

December 11, 1978

Interagency Task Force On Hazardous Wastes
M.P.O. Box 561
Niagara Falls, New York 14302

Attention: Mr. Fredrik A. Muller

Dear Mr. Muller:

In response to your letter of 12/5/78, I wish to advise you that we were in error when we reported that our acid pickling solution at one time was passed thru a leach bed on our property. What actually happened was that when sewers were installed for our plant, we then used the no longer needed leach bed system for passing surface water thru. Prior 1970 to having our acid pickling solution hauled away for disposal by others, our acid pickling solution was merely mixed with other plant wastes (other than sewage) and drained directly into Lake Erie.

At no time did we have an on site filtering system for our acid pickle wastes.

Very truly yours,

SNYDER TANK CORP.

Gerald J. Snyder
President

GJS/djg

RECEIVED

DEC 12 1978

"always specify Snyder"

Page 3

ENGINEERING REPORT

ON

INDUSTRIAL WASTE CONTROL

AT THE

SNYDER TANK CORPORATION

HAMBURG, NEW YORK

January, 1975

NUSSBAUMER & CLARKE, INC.
CONSULTING ENGINEERS

INTRODUCTION

The Snyder Tank Corporation is specialized in the manufacture of fuel tanks for the auto industry. The Plant is located at 3773 Lake Shore Road, Hamburg, New York. Refer to Exhibit 1 for location.

The business started in 1939 as a welding shop, expanded rapidly and moved to the present site in 1941 where it owns 10.0 acres of land and occupies a build area of more than 135,000 ft^2. The level of employment is at 250, working in two shifts, 5 days a week, the day shift numbering 160 employees. The weekend is used for maintenance.

Tanks and accessories are fabricated from steel and aluminum sheet metal. The main steps of the process involve acid pickling, passivating, alkaline pickling (etching), degreasing, fabricating, welding, testing and painting.

A variety of liquid wastes originates from these operations such as: spent pickling acid, spent acid rinse water, spent phosphates, cleaning and etching rinses, spent cooling water, paint booth curtain waste water, spent test tank water, etc.

Sanitary wastes are discharged to the Village of Hamburg's sewer system. Initially all liquid industrial waste water was discharged to Lake Erie via an Outfall on the adjacent Bethlehem Steel Plant property. This outfall represents the outlet of a storm sewer draining Route 5 (New Lake Shore Road) and Hoover Road (Old Lake Shore Road) and the lands between these two roads around the Snyder Tank Corporation property. The waste was highly acidic, and because of dissolved iron and phosphoric acid, it formed a visible plume in the Lake, sometimes turning red upon oxidation of the ferrous ion to the ferric state and sometimes milky, because of precipitated phosphates.

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York State Department of Environmental Conservation
Division of Water, 600 Delaware Avenue, Buffalo, New York 14202-1073

Centennial 100

Henry G. Williams
Commissioner

June 9, 1986

Mr. T. James Snyder, Vice President
Snyder Tank Corporation
3774 Lakeshore Road
Buffalo, New York 14219

Dear Mr. Snyder:

SPDES PERMIT #NY 0073636
SNYDER TANK CORPORATION
COMPLIANCE SAMPLING AND RECONNAISSANCE INSPECTIONS
HAMBURG (T), ERIE COUNTY

On March 21, 1986 and May 30, 1986, representatives of this Department performed complinace sampling and a reconnaissance inspection at the above referenced facility. The purpose of the sampling and inspection was to determine if the facility is in compliance with it's State Pollutant Discharge Elimination System (SPDES) Permit and with the associated General Conditions.

Based on this data, the Snyder Tank Corporation was found to be in non-compliance with the SPDES Permit as follows:

1. * The daily maximum SPDES Permit limitation of 0.010 milligrams per liter (mg/l) for 1,1,1 trichloroethane was exceeded during October 1985 and February 1986, per the monthly operating reports, and on March 21, 1986 per NYSDEC sampling.

2. Recent facility sampling results disclosed on May 30, 1986 showed total suspended solids (TSS's) violations of the maximum daily limit.

The Snyder Tank Corporation must work toward eliminating these violations as follows:

1. Ascertain the source (s) of the 1,1,1 trichloroethane and implement corrective actions, as necessary, to attain SPDES limits. This office is to be kept informed of all work.

2. We were informed, at the time of the inspection, that the production system contributing to the TSS violations noted above will be shut down as of July 31, 1986. If this is to become a reality, please supply to this office, a report and plans outlining specific revisions to the plant. In addition, you may wish to request a SPDES Permit modification to reflect the change in your production line.

These SPDES Permit violations must be eliminated in a reasonable time frame to preclude legal action by this Department.

Mr. T. James Snyder
January 28, 1988
Page 2

Test Results from 12/14/87 Sampling (Con't)	Permit Limit
13. 1,1,1-Trichloroethane - 0.006 mg/l	0.01 mg/l
14. Trichloroethene - 0.001 mg/l	0.01 mg/l
15. Toluene - 0.062 mg/l	0.01 mg/l*
16. Aluminum - 14.35 mg/l	2 mg/l*
17. Arsenic - 0.0052 mg/l	0.15 mg/l
18. Chromium - 0.075 mg/l	0.50 mg/l
19. Copper - 0.0213 mg/l	0.50 mg/l
20. Iron - 3.215 mg/l	2 mg/l*
21. Lead - 0.0062 mg/l	0.6 mg/l
22. Nickel - 0.0476 mg/l	1.3 mg/l
23. Zinc - 0.103 mg/l	0.4 mg/l

*Denotes a SPDES Permit violation

As can be seen by this chart, three violations have been noted [Toluene, Aluminum, and Iron]. Future violations such as these must be prevented. As such, please provide this office with a letter report outlining the cause(s) of the violations, corrective actions to be implemented by the Snyder Tank Co., and a time frame to implement these actions. Please submit this report within 45 days of receipt of this letter. Note, that failure to properly address these violations within the time frame proposed above will be cause for the Division of Water to refer this matter to the Regional Attorney.

If you have any questions on the content of this letter or wish to meet to discuss the preceeding information and requirements, please call me or Mr. Gerard A. Palumbo of this office at 716/847-4590.

Very truly yours,

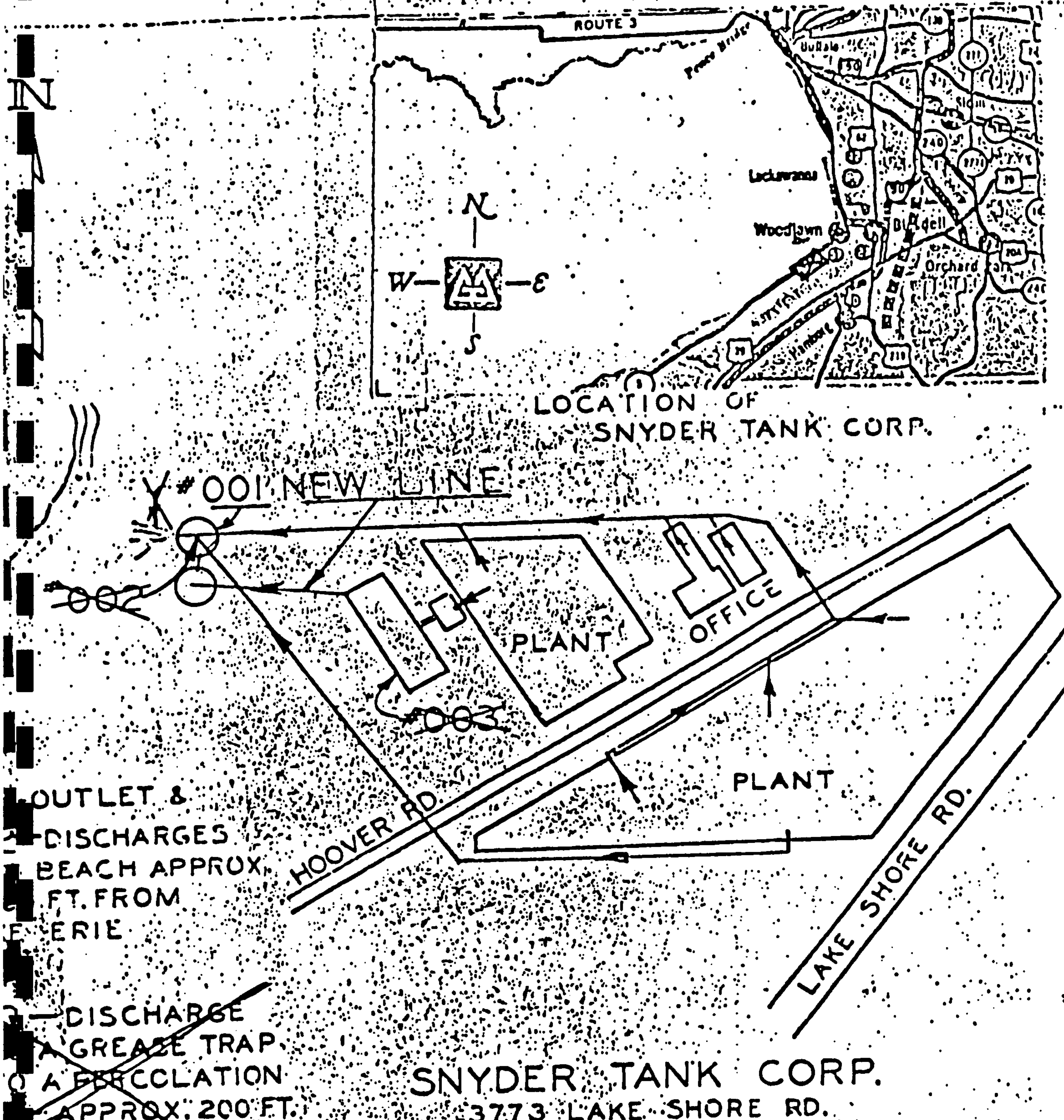
Richard A Rink

Richard A. Rink
Assistant Sanitary Engineer

cc: Mr. Palumbo, Dow, Region 9
Mr. Lacey, Regional Attorney
Mr. Maylath, Source Surveillance Section
Mr. Townsend, Compliance Section

The Following Image(s) are the Best Copy Available

BIEL'S



OUTLET &
DISCHARGES
BEACH APPROX.
FT. FROM
ERIE

~~DISCHARGE
A GREASE TRAP
A PERCOLATION
APPROX. 200 FT.
LAKE ERIE~~

SNYDER TANK CORP.
3773 LAKE SHORE RD.
BUFFALO N.Y. 14219
TOWN OF HAMBURG
ERIE COUNTY

SCALE — 1/16" = 10'

SHT. 1 OF 1

PROPOSED MONITORING
CHANGE FROM THREE TO
ONE OUTLET

7-24-81

Division of Water
600 Delaware Avenue, Buffalo, New York 14202-1073

January 28, 1988

Mr. T. James Snyder
Vice President
Snyder Tank Corporation
3774 Lakeshore Road
Buffalo, New York 14219

Dear Mr. Snyder:

SNYDER TANK CORPORATION
HAMBURG (T), ERIE COUNTY
SPDES PERMIT #NY 0073636

On December 14, 1987, representatives of this Department performed a routine compliance sampling inspection of the above cited facility. The purpose of the sampling inspection was to determine if the facility is in compliance with it's State Pollutant Discharge Elimination System (SPDES) Permit and associated General Conditions.

The December 24, 1987 letter from this office relates our concerns regarding problems noted during the inspection.

This letter will focus on the sampling results and associated problems. The chart below shows our test results compared to the Snyder Tank SPDES Permit Effluent Limits.

Snyder Tank - SPDES #NY 0073636
Outfall 001

Test Results from 12/14/87 Sampling	Permit Limit
1. pH -7.5	
2. Total Supsended Solids (TSS) - 23 mg/l	6 - 9
3. Ammonia (NH_3) - 0.18 mg/l	30 mg/l
4. Total Kjeldahl Nitrogen (TKN) - 0.60 mg/l	
5. Oil & Grease - 1.0 mg/l	
6. Phenols - 0.005 mg/l	15 mg/l
7. Chemical Oxygen Demand (COD) - Not Reportable	0.5 mg/l
8. Phosphorus (P) - - 0.37 mg/l	
9. Methylene Chloride - 0.002 mg/l	2 mg/l
10. 1,1 Dichloroethane - 0.028 mg/l	
11. Trans-1,2-Dichloroethene - 0.001 mg/l	
12. Chloroform - 0.002 mg/l	

Mr. T. James Snyder
December 24, 1987
Page 2

3) The flow rates reported by Snyder Tank on the Discharge Monitoring Reports have been 20,000 gallons per day average and 30,000 gallons per day maximum for approximately the last year. Please supply us information regarding how these flow rates are derived and why there are no variations.

We would very much like to work with Snyder Tank in resolving the items noted above. As such, if you have any questions on the content of this letter or wish to meet to discuss any of the preceeding items, please contact me or Mr. Gerard Palumbo of this office at 716/847-4590.

Very truly yours,

Richard A Rink

Richard A. Rink
Assistant Sanitary Engineer

cc: Mr. Mitrey, Div. of Solid Waste, NYSDEC/Region 9
Mr. Palumbo, Division of Water, NSYDEC/Region 9
Mr. Maylath, Source Surveillance Section, NYSDEC/Albany

RAR:leh

Enclosure

New York State Department of Environmental Conservation
Division of Water
600 Delaware Avenue, Buffalo, New York 14202-1073

Thomas C. Jo
Commission

December 24, 1987

Mr. T. James Snyder
Vice President
Snyder Tank Corporation
3774 Lakeshore Road
Buffalo, New York 14219

Dear Mr. Snyder:

SNYDER TANK CORPORATION
HAMBURG (T), ERIE COUNTY
SPDES PERMIT #NY 0073636

On December 14, 1987, representatives of this Department performed a routine compliance sampling inspection of the above cited facility. The purpose of the sampling inspection was to determine if the facility is in compliance with it's State Pollutant Discharge Elimination System (SPDES) Permit and associated General Conditions.

Based on the inspection and a review of recent Discharge Monitoring Reports (DMRs), the following problems were noted and warrant your attentior

1) A substantial amount of oil stained sand was observed along the dischar ditch at Outfall 001. This same condition was encountered earlier this year at our last inspection. Please remove the stained sand and dispos of it properly. Mr. Robert Mitrey of this office's Division of Solid Waste should be contacted for guidance on this item. He can be reached at 716/847-4585.

   Because this seems to be an on-going problem, an oil sorbent boom shoulc be maintained at Outfall 001. Due to the large number of both interior and exterior drains on the Snyder Tank complex discharging to Outfall 001, there is concern for spilled material washing into the drainage system, improper disposal of materials, impurities in site runoff, etc. These types of problems are intermittent by nature and in all probabilit would not be noted in the quarterly sampling required by the Permit. We, therefore, request that the Snyder Tank Company develop a "Best Management Practices" (BMP) Plan. Some of this information may have already been informally put together or thought of, however, this document will formalize these ideas and provide a good overall working environmental plan. The requirements of a BMP plan are found in Table 1 (page 10) of the enclosed Guidance Document.

2) Equipment stored outside at the rear of the Northern Shop should not be placed on the sand filter. This can damage the sand filter and/or introduce pollutants into the discharge water depending on what materials can wash off the stored equipment or dissolve in rainwater.

ecology and environment, inc.
BUFFALO CORPORATE CENTER
368 PLEASANTVIEW DRIVE, LANCASTER, NEW YORK 14086, TEL. 716/684-8060
International Specialists in the Environment

January 20, 1989

Mr. Richard A. Rink
Assistant Sanitary Engineer
New York State Region 9
Department of Environmental Conservation
600 Deleware Avenue
Buffalo, NY 14202-1073

Dear Mr. Rink:

During the course of Ecology and Environment's preparation of a Phase 1 Investigation Report for the Snyder Tank Corp. site in Hamburg, New York, it was necessary to contact your office for SPDES Discharge Monitoring Report(DMR) information. As you will recall, in our telecommunication you explained that: NYSDEC compliance sampling events (1987) had indicated various elevated SPDES discharge parameters, including oil and grease. These violations were considered to be the result of careless materials handling practices within the plant. It was also explained that HSL contaminants were found in the site ground surfaces and at the current SPDES discharge. Snyder Tank Corp. is the suspected origin of this contamination.

Please sign and date below to varify that the preceding information is correct to the best of your knowledge.

Richard A Rink 1/20/89
Signature Date

Thankyou for your time and cooperation in this matter. If you have any questions, please do not hesitate to call me at 684-8060, ext. 2612.

Sincerely,

Donald A. Johnson

Page 12

POTENTIAL HAZARDOUS WASTE SITE SITE INSPECTION REPORT

PART 2 - WASTE INFORMATION

I. IDENTIFICATION	
01 State	02 Site Nu
NY	915049

II. WASTE STATES, QUANTITIES, AND CHARACTERISTICS

01 Physical States (Check all that apply)

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

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

Tons ________
Cubic Yards ________
No. of Drums 1,960/yr

03 Waste Characteristics (Check all that apply)

[ ] A. Toxic
[X] B. Corrosive
[ ] C. Radioactive
[ ] D. Persistent
[X] E. Soluble
[ ] F. Infectious
[ ] G. Flammable
[ ] H. Ignitable
[ ] I. Highly vol
[ ] J. Explosive
[ ] K. Reactive
[ ] L. Incompatibl
[ ] M. Not applica

III. WASTE TYPE

Category	Substance Name	01 Gross Amount	02 Unit of Measure	03 Comments
SLU	Sludge	1,820	Drums/year	Pickling waste discharged to bea
OLW	Oily waste			of Lake Erie
SOL	Solvents			
PSD	Pesticides			
OCC	Other organic chemicals			ECHD 1976-79, noted a leaking ta
IOC	Inorganic chemicals			improperly drummed waste, and a
ACD	Acids	Unknown		rust-colored stain on the beach
BAS	Bases			A constituent of pickling waste
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 in soils	06 Measure o Concentrat
ACD	Sulfuric Acid (Pickling Waste)	7664-9-37	Prior to 1973 discharged to beach, presently hauled off-site		Unknown
OCC	Carbon Disulfide	75-15-0	Unknown	0.6J - 0.8J	ug/kg
OCC	1,1-Dichloroethene	75-35-4	Unknown	42.5	ug/kg
OCC	1,1,1-Trichloroethane	71-55-6	Unknown	1.4J - 39.4	ug/kg
OCC	Toluene	108-88-3	Unknown	3,672.6	ug/kg
OCC	Total Xylene	100-42-5	Unknown	8,051.1	ug/kg
OCC	Napthalene	91-20-3	Unknown	21.7J - 248J	ug/kg
OCC	2-Methylnaphthalene	91-57-6	Unknown	15.7J - 87845.8	ug/kg
OCC	Acenaphthylene	208-96-8	Unknown	25.2J - 29.4J	ug/kg
OCC	Acenaphthene	7664-9-37	Unknown	28.4J -15,166.3J (560.6)	ug/kg
OCC	Dibenzofuran	132-64-9	Unknown	21.5J -3,385.5J (361.8)	ug/kg
OCC	Diethylphthalate	84-66-2	Unknown	18.1J - 51.1J	ug/kg
OCC	Fluorene	86-73-7	Unknown	50.5J - 33,616.9J (698.8)	ug/kg
OCC	Phenanthrene	85-01-8	Unknown	31.4J - 82,730.1	ug/kg
OCC	Anthracene	120-12-7	Unknown	15.7 - 89,103.6	ug/kg

Initial Contact 1/3/77 by BWK
Appointment Made 1/3/77 by BWK
Date of Phone Visit 1/20/77 by BWK
Follow-up / / by
Form Completed 1/20/77 by BWK
Comments:
S.F. COMPL.

Company Name SNYDER TANK C.
Address 3773 LAKE SHORE RD
BUFFALO, N.Y. 14219
County ERIE Phone 822-7100
SIC Codes 1. 3714 3.
2. 4.

New York State Hazardous Waste Survey
Department of Environmental Conservation
Division of Solid Waste Management
50 Wolf Road, Albany, N.Y. 12233 Telephone: (518) 457-6605

General Information

1. Company Name SNYDER TANK CO.

   Mailing Address 3773 LAKE SHORE RD (Street) BUFFALO (City) N.Y. (State) 14219 (Zip)

   Plant Location / / Same as above

   (TN OF HAMBURG) Street City State Zip

2. If Subsidiary, Name of Parent Company

3. Individual Responsible for Plant Operations GERALD SNYDER (Name)

   PRESIDENT (Title) 822-7100 (Phone)

4. Individual Providing Information STEVE JANKOWSKI (Name)

   DESIGNER (Title) 822-7100 (Phone)

5. Department of Environmental Conservation Interviewer BWK

6. Standard Industrial Classification (SIC) Codes for Principal Products

Group Name	SIC Code (4 Digit)	Approximate % of /X/ Production / / Value Added
a. MV PARTS & ACC.	3714	100
b.		
c.		
d.		

7. Processes Used at Plant
   a. PICKLING
   b. PHOSPHATE COATING
   c. DEGREASING
   d. ACID ETCH - ALUMINUM
   e. WASHING
   f. PAINTING

8. Products
   a. FUEL TANKS
   b.
   c.
   d.
   e.

1. Raw materials and other chemicals used in manufacturing processes.

a. H_2SO_4
b. T.E. CLEANER
c. TURCOAT 4185
d. TURCOAT - ~~[illegible]~~ (DEGREASING)
e. TURCOAT ALBRITE MEDIUM
f. TURCOAT AIRLION
g. WATER + SOLVENT BASE PAINTS
h. CUTTING OILS
i.
j.

a. On Site Waste Water Treatment [ ] Yes [X] No

b. On Site Waste Water Treatment by July 1977 [ ] Yes [X] No

c. On Site Waste Water Treatment by July 1983 [ ] Yes [X] No

d. Industrial Sewer Discharge [ ] Yes [X] No Name of Sewage Treatment Plant

e. SPDES No. NY 0073636 NPDES No.

a. Air Pollution Control Devices [ ] Yes [X] No Types

b. To Be Built [ ] Yes [X] No by / /

c. Air 100 Emission Point Registration Numbers 144 889-1310-00001, 19, 21, 22, 37

a. Number of manufacturing employees 150-200 b. Manufacturing Floor Space 155,866 sq.ft.

Attach a plat or sketch of the facility showing the location of on-site process waste storage (if available).

Attach flow diagrams of chemical processes including waste flow outputs (if available).

In-house waste treatment capabilities: NONE

Is there a currently used or abandoned landfill, dump or lagoon on plant property? [ ] Yes [ ] No

Industrial wastes produced or expected to be produced by plant.

1) SPENT PICKLE LIQUOR
2) PHOSPHATE COATING
3) OIL
4)
5)
6)
7)
8)

Comments:

C. Waste Characterization and Management Practice
(Use separate form for each waste stream)

1. Waste Stream No. 1 (from Form I, Number 17)

2. Description of process producing waste ACID PICKLING PROCESS

3. Brief characterization of waste SPENT PICKLE LIQUOR

4. Time period for which data are representative ____ to ____

5. a. Annual waste production 98,000 [ ] tons/yr. [X] gal./yr.

   b. Daily waste production 314 [ ] tons/day [X] gal./day

   c. Frequency of waste production: [ ] seasonal [ ] occasional [X] continual [ ] other (specify) ____

6. Waste Composition

   a. Average percent solids ____% b. pH range 3 to 4

   c. Physical state: [ ] liquid, [ ] slurry, [X] sludge, [ ] solid, [ ] other (specify) ____

   d. Component

Component	Average Concentration	[ ] wet weight / [ ] dry weight
1. SULFURIC ACID (11% BY VOLUME)		[ ] wt.% [ ] ppm
2. DISSOLVED IRON SALTS (14% BY WEIGHT)		[ ] wt.% [ ] ppm
3.		[ ] wt.% [ ] ppm
4.		[ ] wt.% [ ] ppm
5.		[ ] wt.% [ ] ppm
6.		[ ] wt.% [ ] ppm
7.		[ ] wt.% [ ] ppm
8.		[ ] wt.% [ ] ppm
9.		[ ] wt.% [ ] ppm
10.		[ ] wt.% [ ] ppm

e. Analysis of composition is [ ] theoretical [X] laboratory [ ] estimate (attach copy of laboratory analysis if available).

f. Projected [ ] increase, [ ] decrease in volume from base year: SAME ____ % by July 1977; ____ % by July 1983.

g. Hazardous properties of waste: [ ] flammable [ ] toxic [ ] reactive [ ] explosive [X] corrosive [ ] other (specify) ____________

7. On Site Storage

a. Method: [ ] drum, [ ] roll-off container, [X] tank, [ ] lagoon, [ ] other(specify) ________

b. Typical length of time waste stored 2 [ ] days, [X] weeks, [ ] months

c. Typical volume of waste stored 3 800 [ ] tons, [X] gallons

d. Is storage site diked? [ ] Yes [X] No

e. Surface drainage collection [ ] Yes [X] No

8. Transportation

a. Waste hauled off site by [ ] you [X] others

b. Name of waste hauler CHEM-TROL POLLUTION SERVICES

Address P O BOX 200 (Street) MODEL CITY (City)

N.Y. (State) 14107 (Zip Code) (716) 754-8231 (Phone)

9. Treatment and Disposal

a. Treatment or disposal: [ ] on site [X] off site

b. Waste is [ ] reclaimed [X] treated [X] land disposed [ ] incinerated [ ] other (specify) ____________

c. Off site facility receiving waste

Name of Facility SAME

Facility Operator ____________

Facility Location ____________ (Street) ____________ (City)

____________ (State) ____________ (Zip Code) ( ) ____________ (Phone)

Waste Characterization and Management Practice
(Use separate form for each waste stream)

1. Waste Stream No. 2 (from Form I, Number 17)

2. Description of process producing waste PHOSPHATE COATING

3. Brief characterization of waste USED PHOSPHATE PRODUCTS

4. Time period for which data are representative ______ to ______

5. a. Annual waste production 98,000 [ ] tons/yr. [X] gal./yr.

   b. Daily waste production 314 [ ] tons/yr. [X] gal./yr.

   c. Frequency of waste production: [ ] seasonal [ ] occasional [X] continual

   [ ] other (specify) ______

6. Waste Composition

   a. Average percent solids ___ % b. pH range ___ to ___

   c. Physical state: [X] liquid, [ ] slurry, [ ] sludge, [ ] solid,

   [ ] other (specify) ______

   d. Component

Component	Average Concentration	[ ] wet weight / [ ] dry weight	
1. TURCOAT 4185		[ ] wt.%	[ ] ppm
2.		[ ] wt.%	[ ] ppm
3.		[ ] wt.%	[ ] ppm
4.		[ ] wt.%	[ ] ppm
5.		[ ] wt.%	[ ] ppm
6.		[ ] wt.%	[ ] ppm
7.		[ ] wt.%	[ ] ppm
8.		[ ] wt.%	[ ] ppm
9.		[ ] wt.%	[ ] ppm
10.		[ ] wt.%	[ ] ppm

e. Analysis of composition is [ ] theoretical [ ] laboratory [ ] estimate
(Attach copy of laboratory analysis if available)

f. Projected [ ] increase, SAME [ ] decrease in volume from base year: ____ % by July 1977;
____ % by July 1983.

g. Hazardous properties of waste: [ ] flammable [X] toxic [ ] reactive [ ] explosive
[X] corrosive [ ] other (specify) ____________

8. On Site Storage

a. Method: [ ] drum, [ ] roll-off container, [X] tank, [ ] lagoon, [ ] other(specify) ________

b. Typical length of time waste stored 2 [ ] days, [X] weeks, [ ] months

c. Typical volume of waste stored 3 800 [ ] tons, [X] gallons

d. Is storage site diked? [ ] Yes [ ] No

e. Surface drainage collection [ ] Yes [ ] No

9. Transportation

a. Waste hauled off site by [ ] you [X] others

b. Name of waste hauler CHEM-TROL

Address ______________________________
Street City
______________________________ ( )
State Zip Code Phone

10. Treatment and Disposal

a. Treatment or disposal: [ ] on site [X] off site

b. Waste is [ ] reclaimed [ ] treated [X] land disposed [ ] incinerated
[ ] other (specify) ____________

c. Off site facility receiving waste

Name of Facility ______________________________

Facility Operator ______________________________

Facility Location ______________________________
Street City
______________________________ ( )
State Zip Code Phone

Waste Characterization and Management Practice
(Use separate form for each waste stream)

1. Waste Stream No. 3 (from Form I, Number 17)

2. Description of process producing waste HYDRAULIC PRESSES
MACHINING & LUBRICATING OILS

3. Brief characterization of waste CONTAMINATED OIL

4. Time period for which data are representative YR 1976 to ____

5. a. Annual waste production 1300 [ ] tons/yr. [X] gal./yr.
   b. Daily waste production ____ [ ] tons/yr. [ ] gal./yr.
   c. Frequency of waste production: [ ] seasonal [ ] occasional [X] continual
   [ ] other (specify) ____

6. Waste Composition
   a. Average percent solids ____ % b. pH range __ to __
   c. Physical state: [ ] liquid, [ ] slurry, [X] sludge, [ ] solid,
   [ ] other (specify) ____
   d. Component — Average Concentration — [ ] wet weight [ ] dry weight

	Component	Average Concentration		
1.	CUTTING OIL		[ ] wt.%	[ ] ppm
2.	HYDRAULIC OIL		[ ] wt.%	[ ] ppm
3.	LUBE OIL		[ ] wt.%	[ ] ppm
4.			[ ] wt.%	[ ] ppm
5.			[ ] wt.%	[ ] ppm
6.			[ ] wt.%	[ ] ppm
7.			[ ] wt.%	[ ] ppm
8.			[ ] wt.%	[ ] ppm
9.			[ ] wt.%	[ ] ppm
10.			[ ] wt.%	[ ] ppm

e. Analysis of composition is [ ] theoretical [ ] laboratory [ ] estimate
(attach copy of laboratory analysis if available)

f. Projected [ ] increase, [ ] decrease in volume from base year: SAME % by July 1977;

_____ % by July 1983.

g. Hazardous properties of waste: [X] flammable [ ] toxic [ ] reactive [ ] explosive

[ ] corrosive [ ] other (specify) __________

8. On Site Storage

a. Method: [ ] drum, [ ] roll-off container, [X] tank, 3 UNDERGROUND [ ] lagoon, [ ] other (specify) ______

b. Typical length of time waste stored 12 [ ] days, [ ] weeks, [X] months

c. Typical volume of waste stored 1300 [ ] tons, [X] gallons

d. Is storage site diked? [ ] Yes [X] No

e. Surface drainage collection [ ] Yes [X] No

9. Transportation

a. Waste hauled off site by [ ] you [X] others

b. Name of waste hauler BOOTH OIL

Address ______________________________
Street City
( )
State Zip Code Phone

10. Treatment and Disposal

a. Treatment or disposal: [ ] on site [X] off site

b. Waste is [X] reclaimed [ ] treated [ ] land disposed [ ] incinerated

[ ] other (specify) __________

c. Off site facility receiving waste

Name of Facility SAME

Facility Operator ______________________________

Facility Location ______________________________
Street City
( )
State Zip Code Phone

III. Company Personnel

1. Identify all plant managers from 1930 to present. Indicate years of service in that position, last known address and telephone number. P.O. Box 1914 Buffalo NY 14219 716-827-5384
M.C. Snyder 1939-1962 Deceased, G. J. Snyder 1962-Present

2. Identify all plant purchasing agents from 1930 to present. Indicate years of service in that position, last known address and telephone number. P.O. Box 1914 Buffalo NY 14219 [illegible]
H. [illegible] 1941-1964 Deceased, A. Jankowski 1964-Present

3. Identify all plant personnel with supervisory responsibility for treatment or disposal of industrial wastes from 1930 to present. Indicate years of service, last known address and telephone number.
H. Zimmerle 1941-1970 P.O. Box 1914 Buffalo NY 14219 827-5384.
S Jankowski 1971-Present PO Box 1914 Buffalo NY 14219 827-5363

IV. Industrial Waste Production, Treatment and Disposal

1. Processes Used at Plant (1930-1975)

	Dates
a. Pickling	a. 1941-Present
b. Phosphating	b. 1941-Present
c.	c.
d.	d.
e.	e.

2. Products (1930-1975)

a. Mfg of Stl 7 Gallon Fuel Tanks	a. 1941-Present
b.	b.
c.	c.
d.	d.
e.	e.

3. On Site Waste Treatment (1930-1975)

a. Dry well - tile field w/leach bed - overflow to Lake Erie	a. 1941-1970
b. Haul Away	b. 1970-Present
c.	c.
d.	d.
e.	e.

4. List all Waste Haulers since 1930 Including Your Company

Name Chemtrol Pollution Services Inc.

Address P.O. Box 200 (Street) Model City (City) N.Y. 14107 (State)

Telephone 716-754-8231

REFERENCE 2

Page 1

ENGINEERING REPORT

ON

INDUSTRIAL WASTE CONTROL

AT THE

SNYDER TANK CORPORATION

HAMBURG, NEW YORK

January, 1975

NUSSBAUMER & CLARKE, INC.
CONSULTING ENGINEERS

INTRODUCTION

The Snyder Tank Corporation is specialized in the manufacture of fuel tanks for the auto industry. The Plant is located at 3773 Lake Shore Road, Hamburg, New York. Refer to Exhibit 1 for location.

The business started in 1939 as a welding shop, expanded rapidly and moved to the present site in 1941 where it owns 10.0 acres of land and occupies a build area of more than 135,000 ft^2. The level of employment is at 250, working in two shifts, 5 days a week, the day shift numbering 160 employees. The weekend is used for maintenance.

Tanks and accessories are fabricated from steel and aluminum sheet metal. The main steps of the process involve acid pickling, passivating, alkaline pickling (etching), degreasing, fabricating, welding, testing and painting.

A variety of liquid wastes originates from these operations such as: spent pickling acid, spent acid rinse water, spent phosphates, cleaning and etching rinses, spent cooling water, paint booth curtain waste water, spent test tank water, etc.

Sanitary wastes are discharged to the Village of Hamburg's sewer system. Initially all liquid industrial waste water was discharged to Lake Erie via an Outfall on the adjacent Bethlehem Steel Plant property. This outfall represents the outlet of a storm sewer draining Route 5 (New Lake Shore Road) and Hoover Road (Old Lake Shore Road) and the lands between these two roads around the Snyder Tank Corporation property. The waste was highly acidic, and because of dissolved iron and phosphoric acid, it formed a visible plume in the Lake, sometimes turning red upon oxidation of the ferrous ion to the ferric state and sometimes milky, because of precipitated phosphates.

Page 3

Upon the insistences of the ECDEQ, STC has eliminated the discharge of spent pickle acid and spent phosphater, which constitute the bulk of the contaminants previously discharged to the Lake. These wastes

* are presently hauled away. In addition, some of the etch rinse and waste curtain water is presently discharged on gravel beds on the grounds and spent acid rinse water is partially reused as make-up for pickle acid. Some of the acid rinse and phosphate containing wastes, however, is still discharged to the Lake and on occasion generates the objectionable red or milky plume.

As a result of the continuing urging of the ECHD to further cut on the discharge of contaminants to the Lake, STC has hired Nussbaumer & Clarke, Consulting Engineers, of Buffalo, New York, to work out the necessary solutions.

On July 11, 1974, a meeting was held at the ECDEQ and an agreement was reached on the actions to be taken to comply with the provisions of the Amendments to the Clean Water Act (P.L. 92-500). On November 7, 1974 the NYSDEC issued to the STC the PERMIT TO DISCHARGE required by the above mentioned law. For the period 1974 to 1976, the PERMIT merely legalizes the present situation as deriving from the weekly effluent analyses. For the period after 1976 and until 1979, the PERMIT establishes limits for the discharge of COD, Suspended Solids, Soluble and Total Iron, Phosphates, Fluoride and Oil and Grease which require reductions of 100% for soluble and 97% for the total iron, 86% for phosphates and 52% for Oil and Grease from the total of the presently generated contaminants in the Plant.

This Report is intended to present the technical solutions and some of the economic implications of achieving the required reductions.

REFERENCE 3

Page 1

N7

Erie-Niagara Basin

Ground-Water Resources

ERIE-NIAGARA BASIN REGIONAL WATER RESOURCES PLANNING BOARD

THE NEW YORK STATE WATER RESOURCES COMMISSION

CONSERVATION DEPARTMENT • DIVISION OF WATER RESOURCES

Page 2

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

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

by

A. M. La Sala, Jr.

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

STATE OF NEW YORK
CONSERVATION DEPARTMENT
WATER RESOURCES COMMISSION

Basin Planning Report ENB-3
1968

5-34

GEOLOGY AND TOPOGRAPHY

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

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

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

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

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

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

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SHALE

Bedding and lithology

The Marcellus Shale and all overlying formations are distributed through the southern half of the Erie-Niagara basin. They are predominantly shale but include a few thin limestone members at various stratigraphic positions (fig. 2). Thin beds of fine-grained sandstone are also interbedded with the shale in the upper part of the section. The rocks dip southward at about 40 feet per mile. They underlie the upland part of the basin and also a broad plain along Lake Erie in the southern part of the basin. Streams eroded deep valleys in the uplands prior to glaciation. The rocks were further eroded during glaciation and later these valleys were partly filled with stratified glacial deposits and the hills were veneered with till. The rocks on the lake plain are thinly covered with till and clay. In postglacial time Cattaraugus and Eighteenmile Creeks, where they cross the lake plain, cut spectacular gorges in the shale.

Water-bearing openings

The shale formations are cut by both vertical and bedding-plane joints along which are hairline openings. Locally, openings along thin limestone beds may be widened by solution. An important feature of the shale is a discontinuous zone of fracturing that follows the upper surface of the rock. In places, this zone consists only of shallow tension cracks caused by the movement of glacial ice over the rock. At other places, the zone is as much as 10 feet thick and consists of crumpled and broken rock. Some exposures show convoluted beds interfolded with glacial deposits.

Hydrologic characteristics

Water enters the shale almost exclusively by percolation from the overlying glacial deposits in interstream areas. Generally, the water table or top of the saturated zone lies in the glacial deposits above the shale. The water table lies within the shale only where the glacial deposits are absent or thin. The fracture zone at the top of the rock is directly connected to the glacial deposits and, therefore, is most advantageously positioned to receive water. At places, the fracture zone is overlain by a thin section of coarse-grained till which is, in turn, overlain by clayey till of much lower permeability. The coarse-grained till and fracture zone then act as a single water-bearing zone. The vertical and bedding joints, which extend into the shale at depth, receive water where they intersect the fracture zone along the top of the rock or intersect the overlying glacial deposits. The joints are thin and widely spaced. The shale at depth, therefore, has a much lower permeability than the fracture zone at the top of the shale.

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Yields of wells

The shale formations generally yield only small supplies of water to wells. Individual wells provide adequate and dependable supplies for numerous homes and farms in the area. Yields of as much as 40 gpm are obtained from the Hamilton Group, probably because it contains limestone with openings that have been enlarged by solution. Elsewhere, the maximum yields of wells are generally 10 to 15 gpm from the fracture zone. If the fracture zone is absent, water is obtained from joints deeper in the rock and the yields of wells are much smaller. The small number of applicable data in table 6 indicate that the yields of wells drawing from the deeper fractures range from 1 to 7 gpm. However, dry holes or wells with inadequate yields are not uncommon and are not restricted to any stratigraphic unit or geographic area. The data are sparse by which to study the relationship of topography to yields. It does appear that the wells drilled in valleys, particularly if the shale is overlain by thick unconsolidated deposits, have somewhat larger yields than those wells on hills.

in the lake and gradually filled it (fig. 8D).

Eventually the lake deposits built up to the threshold of the dam, or the dam was cut away by the water spilling over it, or the ice sheet retreated northward opening up the valley. Streams could then flow over the surface of the lake deposits and lay down a second sand and gravel deposit, an outwash deposit (fig. 8D). The sources of the stream waters were the wasting ice sheet (particularly so in southward drained valleys), small masses of wasting ice remaining in tributary valleys, and precipitation. The thickest and most extensive outwash deposits were formed in southward drained valleys and in zones peripheral to the ice sheet. With time, the ice sheet retreated still farther northward, the glacial streams ceased to flow, and glacial deposition came to an end.

As the ice sheet retreated farther north, the climate more nearly approached that of the present. A drainage system developed in response to precipitation. Streams began to incise channels into the deposits. Vegetation took hold as the weather warmed and helped stabilize the slopes. In time, with a change in regimen, the streams began to lay down alluvium (fig. 8E).

The sequence of events discussed above and shown in figure 8 is generalized. Nevertheless, it is useful in understanding the occurrence of the unconsolidated deposits, particularly in valley areas where they constitute an important source of ground water. In the following sections the lithology and water-bearing characteristics of each of the major types of deposits in the Erie-Niagara basin will be discussed.

TILL

As shown in plate 3, till is the most widespread of all the unconsolidated deposits in the Erie-Niagara basin. Till is essentially a nonsorted material whose character depends principally upon the types of rocks over which the ice passed and the vigor with which the ice crushed and abraded the rock. Till overlying the shale is dark gray and clayey or silty. In some areas, mainly on hillsides and terraces south of Cattaraugus Creek, part of the till is stony material. Till on the soluble rocks is light red and silty; in some morainic ridges it is mostly fine sand.

Thickness of the till varies considerably from a thin cover of 2 or 3 feet to more than 200 feet along the divides between Cattaraugus Creek and the northwestward flowing streams, such as Tonawanda, Buffalo, and Eighteenmile Creeks. On flat terraces mapped as till in Buttermilk Creek valley, the stony till is as much as 30 feet thick.

Only small supplies of water are available from till. The permeability of till is so small that wells with large wall areas are required to obtain even small supplies. This requirement for a large wall area is met by digging large-diameter wells.

BEDROCK GEOLOGIC MAP OF THE ERIE-NIAGARA BASIN, NEW YORK

REFERENCE 4

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NEW YORK STATE GEOLOGICAL ASSOCIATION
54th ANNUAL MEETING
October 8-10, 1982
Amherst, New York

GUIDEBOOK FOR FIELD TRIPS IN WESTERN NEW YORK, NORTHERN PENNSYLVANIA AND ADJACENT, SOUTHERN ONTARIO

Edward J. Buehler
and
Parker E. Calkin
Editors

Department of Geological Sciences
State University of New York at Buffalo

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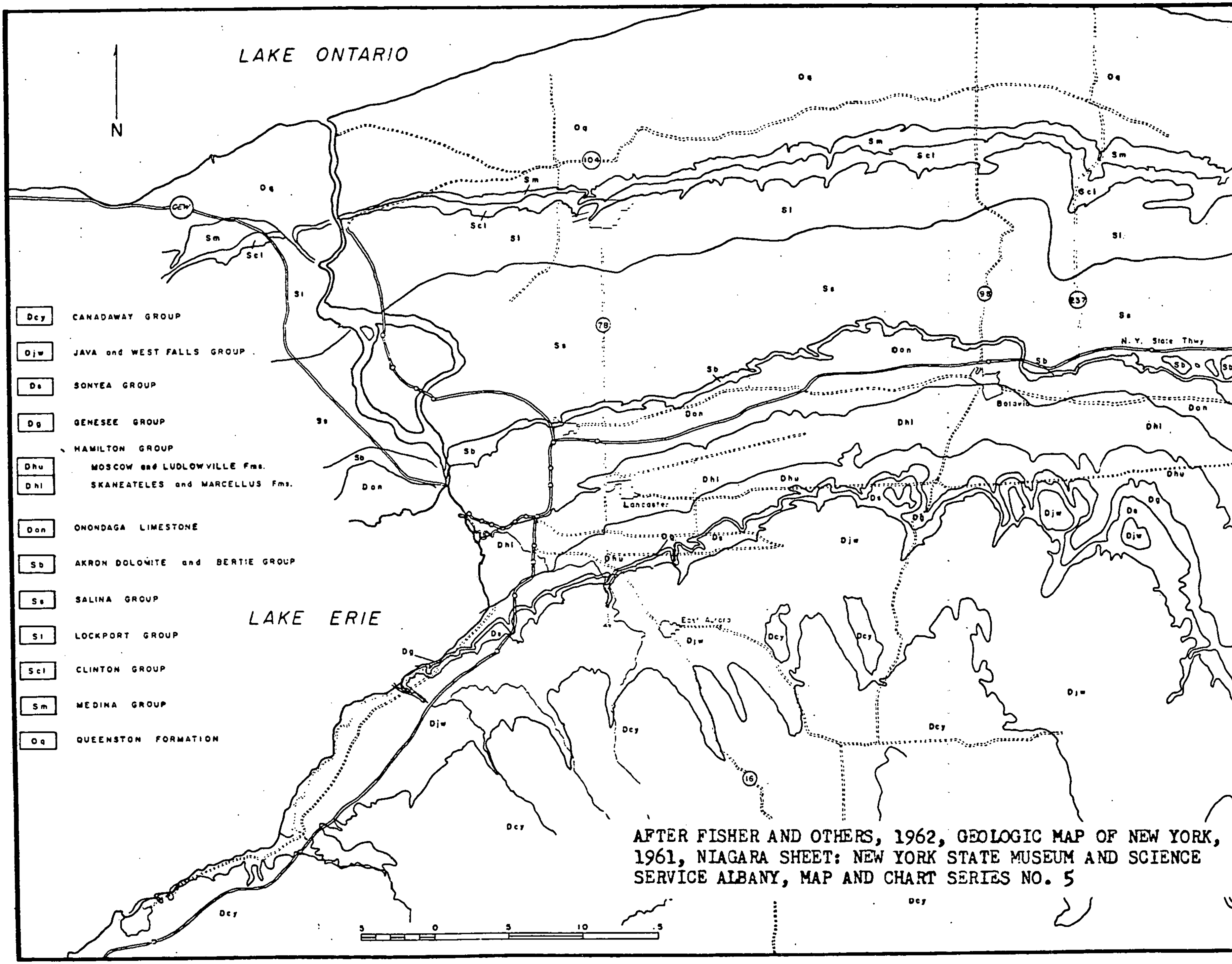

AFTER FISHER AND OTHERS, 1962, GEOLOGIC MAP OF NEW YORK, 1961, NIAGARA SHEET: NEW YORK STATE MUSEUM AND SCIENCE SERVICE ALBANY, MAP AND CHART SERIES NO. 5

Plate 2

Clearly, the regional configuration of Windom Shale units results from the interplay of two processes: westward stratigraphic condensation of the section, and progressive erosive overstep of upper Windom beds. As will be shown here, the magnitude of erosional beveling of Moscow strata increases to the north as the depositional hinge of the Appalachian Basin is approached.

In addition, the Moscow-Genesee discontinuity and associated erosion lag deposits have been reexamined. A newly discovered discontinuity at the base of the Genundewa Limestone (basal Upper Devonian?; see Oliver, et al., 1981) is found to have some similarity to the North Evans Member ("conodont bed") and is probably coeval with it. The sedimentology and mode of origin of the North Evans and Leicester pyrite members is further discussed. Finally, new data are synthesized in a chronological outline of events affecting western New York during Late Middle Devonian time.

DEPOSITIONAL SETTING

Western New York Shelf

The Hamilton Group of New York includes Middle Devonian sediments deposited at or near the northern margin of the Appalachian Basin; they accumulated in the northern arm of an inland sea, the deepest part of which was developed southeast of the study area. The northern and western boundaries of the basin bordered low-relief, cratonic shelf regions; these areas supplied relatively little detrital sediment to the basin as compared with actively rising tectonic source terrains to the southeast of the basin. This accounts for the thin deposits in western New York (Dennison and Head, 1975). A broad, gently south-sloping, muddy shelf existed across most of central and western New York during Hamilton deposition (Cooper, 1957; McCave, 1967, 1973; Grasso, 1970, 1973; Heckel, 1973).

The eastward thickening Hamilton clastic wedge is a result of Acadian tectonic events, including uplift to the east and southeast (Cooper, 1957; Heckel, 1973; Oliver, 1977). It is the initial expression of the Catskill Deltaic Complex which expanded greatly during the Late Devonian. Upper Hamilton formations are composed largely of detrital sediment; in eastern and central New York they record basin filling and general westward migration of the eastern shoreline. In western New York, the Hamilton Group is markedly different, consisting of thin shelf sediments which do not record simple shallowing-upward sequence.

Upper Hamilton sediments are characteristically fossiliferous; the rich biotas of the Ludlowville and Moscow Formations in Erie County have been a source of study for paleontologists for more than a century (Hall, 1843; Grabau, 1989-1899; 1899; Cooper, 1929, 1930,1957;

Buehler and Tesmer, 1963; Beerbower, et al., 1969; Oliver and Klapper, 1981). The Hamilton sea apparently was relatively shallow and had near-normal salinity, water temperatures, and circulation as evidenced by the presence of diverse stenotopic benthic organisms.

In contrast to the fossilferous Hamilton beds in Erie County, overlying Genesee shales contain relatively low diversity assemblages which are dominated by pelagic taxa. Only in the paraconformity-related Leicester and North Evans Members is the fossil diversity greater, but many of these fossils may have been reworked from the underlying Moscow Formation (see below).

Slope and Basin Environments

The western New York Shelf was bounded to the south by a more actively-subsiding central region of the Appalachian Basin during the Middle Devonian. A southward trending regional slope is recognized for Onondaga (Eifelian) carbonates based on extensive study of subsurface drill cores and well log data (Kissling and Moshier, 1981; Koch, 1981). Brachiopod/coral associations reflect southward increasing depth within the Onondaga and there is major southward thinning of the whole Onondaga carbonate package across the southern tier of western New York (Koch, 1981).

Fossiliferous, gray mudstones and thin limestones of the upper Hamilton Group are correlated southward with the Millboro Member, a thick sequence of dark gray and black shale developed in western Pennsylvania, southeastern Ohio, and West Virginia (Dennison and Hassan, 1976). Similarly, the Tully Formation, which is a compact, laterally extensive carbonate unit in central New York grades southward and westward across Pennsylvania into a thick sequence of calcareous shale and finally into black shale (Burket Member) near the Pennsylvania-Maryland border (Heckel, 1973). The Moscow-Genesee paraconformity of western New York is coextensive with disconformities of decreasing magnitude in the Tully Formation in central New York, this hiatus disappearing southward as the Tully thickens and grades into black shale. Thus, in the region of greater subsidence, the upper Middle Devonian sequence is characterized by deeper water deposits, as indicated by the dysaerobic-anoxic mudstones, and is apparently more complete.

In the present paper, it is argued that apparent eastward erosional truncation of Windom zones and marker beds is really a northward overstep effect, this also reflecting the subtle influence of depositional hinge effects or on differential subsidence to the south. This and other north-south depositional changes are discussed in the text.

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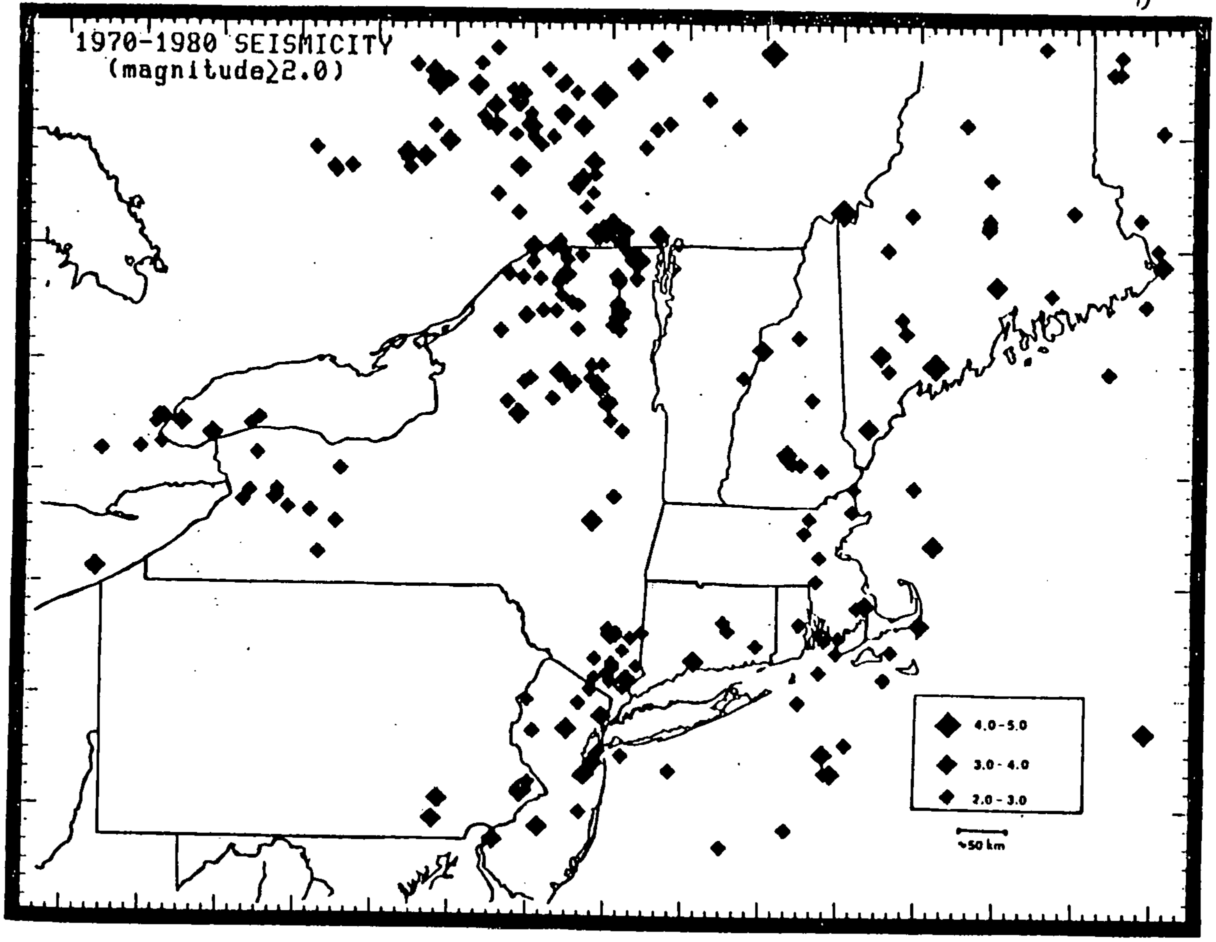

Figure 9. Location of earthquake epicenters for eastern U.S. from 1970-1980 after Schlesinger-Miller and Burstow, 1980).

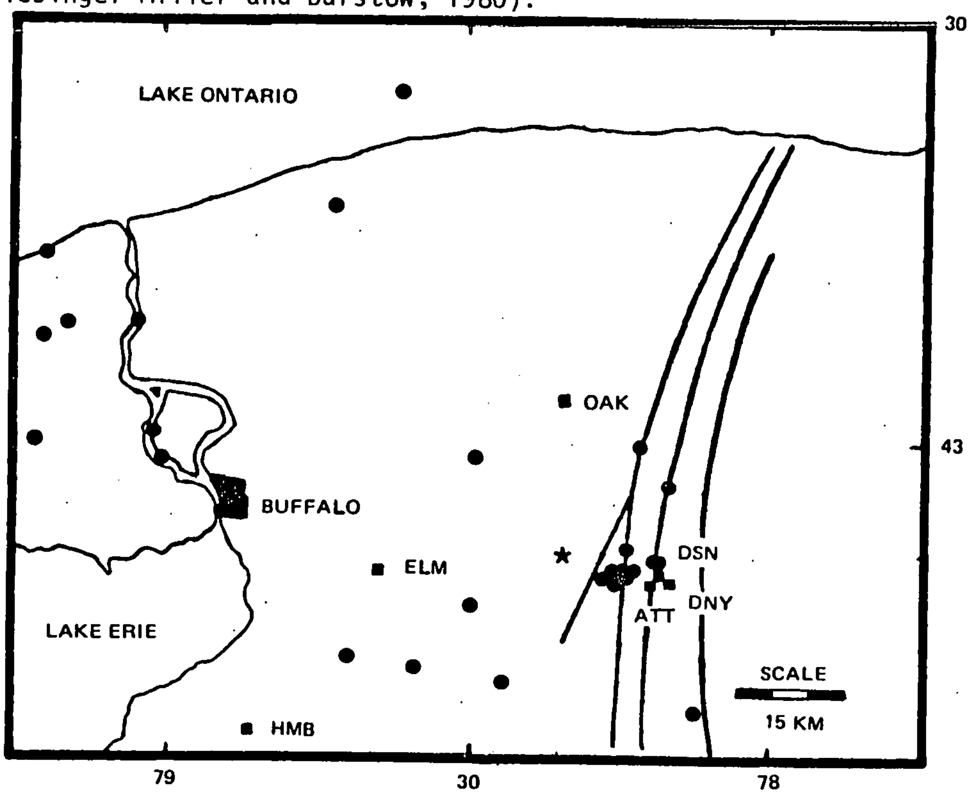

Figure 10. Location of earthquake epicenters for western New York. The 1929 earthquake is noted by a star (after Fletcher and Sykes, 1977).

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GLACIAL GEOLOGY OF THE ERIE LOWLAND AND ADJOINING ALLEGHENY PLATEAU, WESTERN NEW YORK

PARKER E. CALKIN - Department of Geological Sciences, State University of New York, Buffalo, NY 14226

GEOMORPHIC SETTING

The Allegheny section of the Appalachian Plateau (Allegheny Plateau) in western New York may be divided into three physiographic areas; from the Pennsylvania border northward, these include: 1) the high and rugged, unglaciated Salamanca Re-entrant, south of the Allegheny River; 2) the glaciated southern New York Uplands with rounded summits and a network of "through valleys" and breached drainage divides (Cole, 1941; Muller, 1963); and 3) the Erie County portion north of the east-west Cattaraugus Valley. This area is furrowed by deep parallel north-trending troughs separated by broad interfluves and strongly developed to accommodate glacier flow (Donahue, 1972, Calkin and Muller, 1980). Bordering on the west and north, respectively, are the Erie and Ontario lowlands blanketed by glaciolacustrine and ice contact drift, and traversed by subdued, waterlaid end moraines. The Erie County portion of the plateau and the Lake Erie Lowland are the areas spanned by the accompanying field trip log (Fig. 1).

At the close of Paleozoic sedimentation in the Appalachian geosyncline (see Frontispiece I) and prior to glaciation, the area underwent epeirogenic uplift and gentle southward tilting of about 8 m km^{-1} (40 ft mi^{-1}. Initial southward consequent drainage on this surface was eventually reversed to a northwesterly obsequent system and episodic uplift resulted in deep entrenchment of these north-flowing rivers (Calkin and Muller, 1980). The most prominent drainage lines headed south of the present Cattaraugus Valley and included from west to east: 1) the preglacial Allegheny, flowing westward past the Salamanca Re-entrant and northward through Gowanda to Lake Erie along the path of the present Conewango and lower Cattaraugus valley (Ellis, 1980; Frontispiece II); 2) the Connisarauley and 3) the Buttermilk rivers (LaFleur, 1979; D. Hodge, personal communication, 1980) which flowed northward along the present paths of South and North Branches, respectively, of Eighteenmile Creek (Fairchild, 1932); and 4) the Preglacial Cazenovia River (Calkin and others, 1974) which extended 70 km (43 mi) northward from Ischua near the east edge of the Re-entrant, through the present East Branch Cazenovia Creek and East Aurora toward Buffalo (Frontispiece II).

GLACIATION OF THE ALLEGHENY PLATEAU

The Southern Uplands Area and Pre-Lake Escarpment Glaciations

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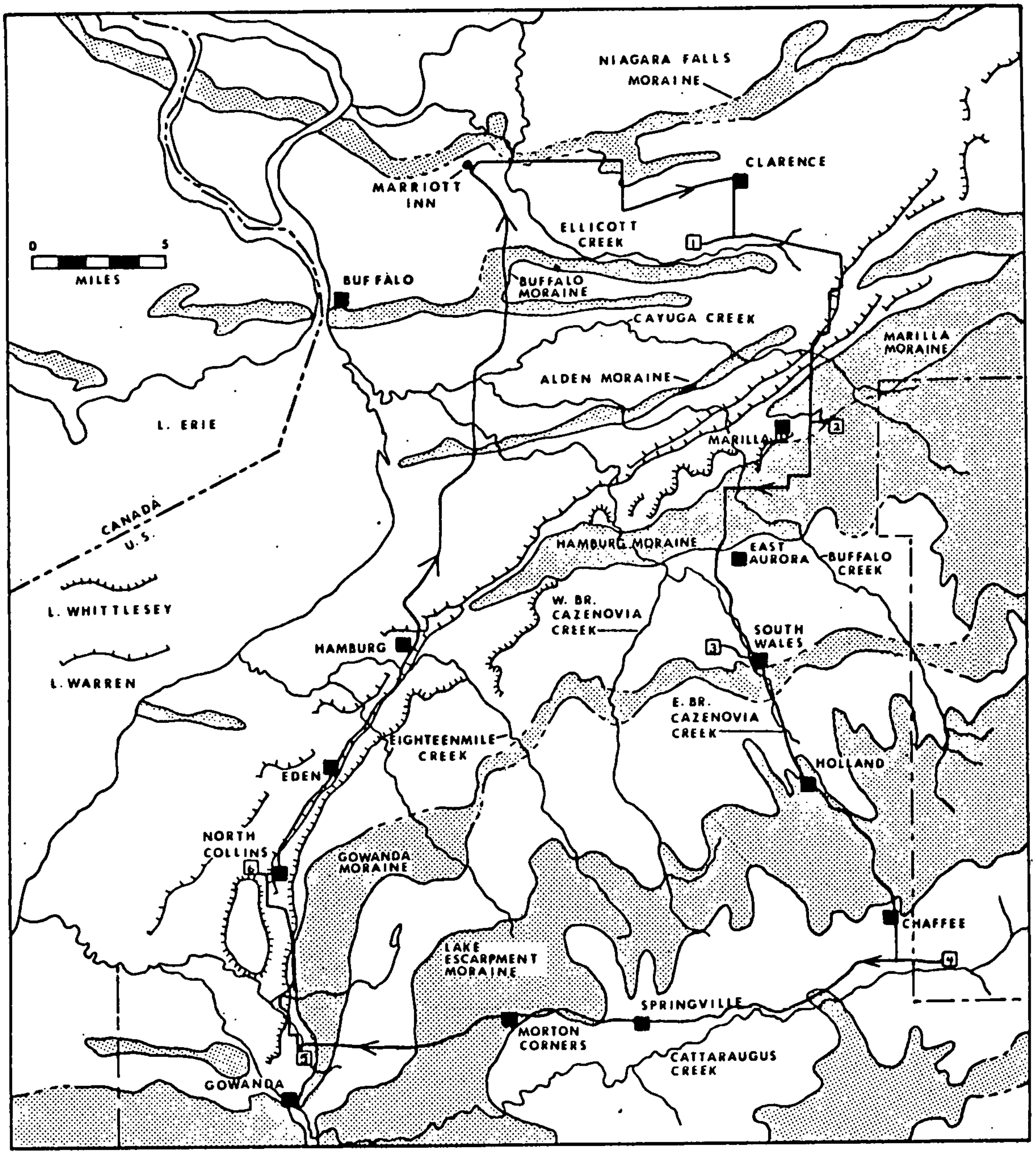

Figure 1. Map of Erie County, New York showing major end moraines, strand lines of the major Glacial Great Lakes, and the field trip route with stops.

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Ice sheets moving through the Erie and Ontario troughs abutted repeatedly against the Salamanca Re-entrant (MacClintock and Apfel, 1944; Frontispiece II). Weathered till and gravel spotted around the margins may be of Illinoian age and represent the only pre-Wisconsin drift exposed in New York. However, several events suggest a longer history of multiple glaciation. One of the more interesting is the impondment and diversion of the Allegheny River to its present southerly path to the Ohio River (Muller, 1975; Philbrick, 1976). A second major change in topography appears to be the product of ice marginal superposition and entrenchment which allowed Cattaraugus Creek (Frontispiece II and Fig. 1) to cut westward to Lake Erie across the Tertiary north-trending valley system (Fairchild, 1932; Calkin and others, 1974).

Several drift sheets have been distinguished across western New York (Fig. 2; Muller, 1975, 1977a; LaFleur, 1979, 1980; Calkin and others, 1982). Frontispiece II, at the beginning of this guidebook, shows the major end moraines distinguished. The oldest drift ends southward at the Olean Moraine, the Wisconsin terminal along the northeastern side of the Salamanca Re-entrant. MacClintock and Apfel (1944) considered this end moraine to be more deeply weathered and topographically subdued than the terminal moraine on the northwestward flank of the Re-entrant which is assigned to the younger Kent Drift. The drab, Olean Drift is presently correlated with a Middle Wisconsin advance (Muller, 1977a; Calkin and others, 1982) based on subsurface stratigraphic relations (see below) tied to events near Titusville, Pennsylvania (Chapman and Craft, 1976). Other geologists tracing the Wisconsin drift border northward from Pennsylvania have correlated the Olean with the Late Wisconsin (Crowl, 1980).

The Kent Moraine and associated drift to the north and west displays prominent topography with relatively fresh unweathered deposits often characterized by large percentages of far-traveled stones in the lowlands (LaFleur, 1980). Far-traveled (exotic) stones typically include crystalline rocks transported from the Canadian Shield and tough red, green or gray sandstones and carbonate rocks derived from the Niagara escarpment area. Gadd (1981) has recognized purple-weathered anorthosite boulders in the Cattaraugus Basin that appear to be derived from areas northeast of Montreal. The Kent Moraine marks the maximum advance of the Late Wisconsin (Muller, 1977a) and its age can be bracketed by radiocarbon dates. The advancing ice margin had not crossed the buried St. Davids Gorge of the Niagara by 22,800 yr B.P. (Hobson and Terasmae, 1969; Calkin and Wilkinson, 1982, this volume) nor Rush Creek in the Genesee Basin at 25,300 yr B.P. (Muller and others, 1975) but had reached its maximum throughout the Erie Basin by 20,000 yr ago (Dreimanis and Goldthwait, 1973).

Multiple till exposures and subsurface data at the Gowanda Hospital and at Otto interstadial sites in southwestern New York (Frontispiece II and Figs. 1-3) provide evidence of extensive Early Wisconsin glaciation followed in Middle Wisconsin time by a long, cool interstadial before the Kent glaciation (Muller, 1964; Calkin and others, 1982). At Gowanda

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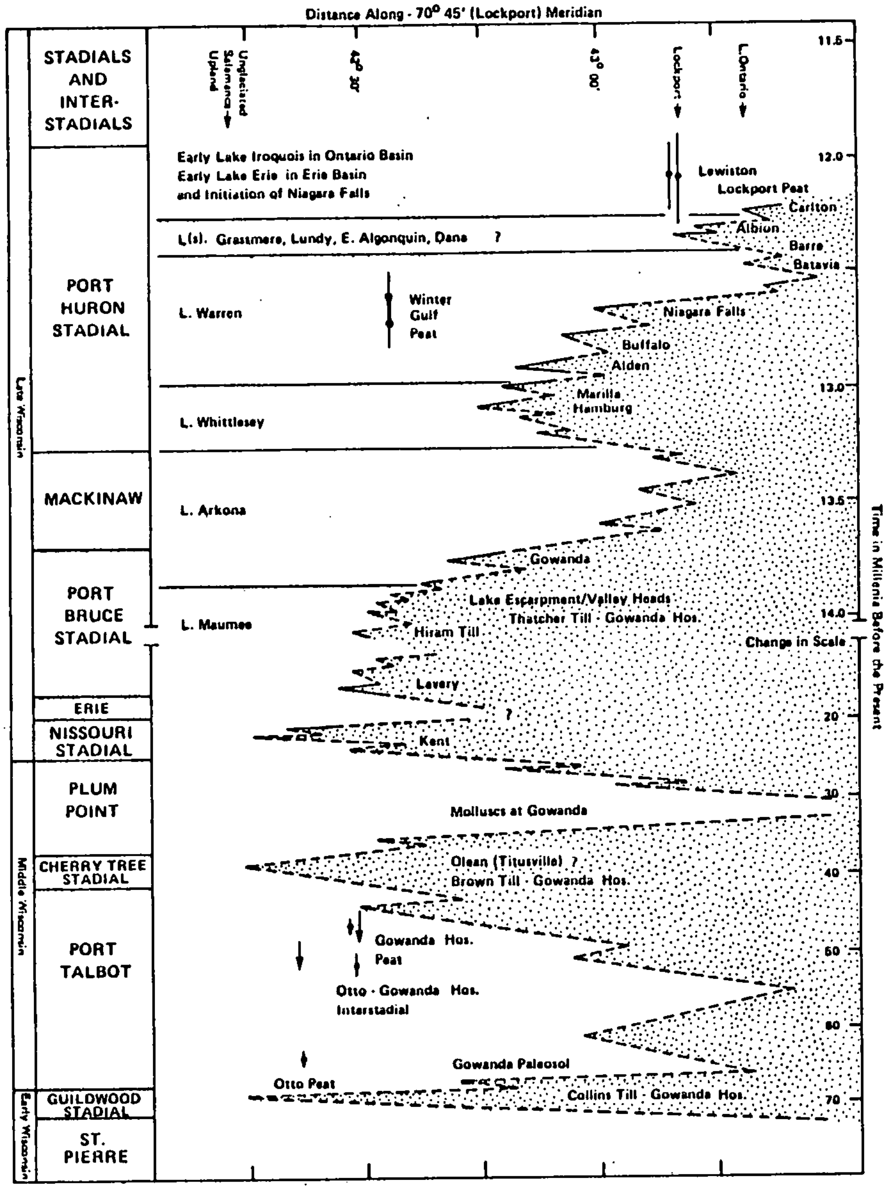

Figure 2. A working chronology of Wisconsin glacial events in western New York. Modified after Muller (1977a).

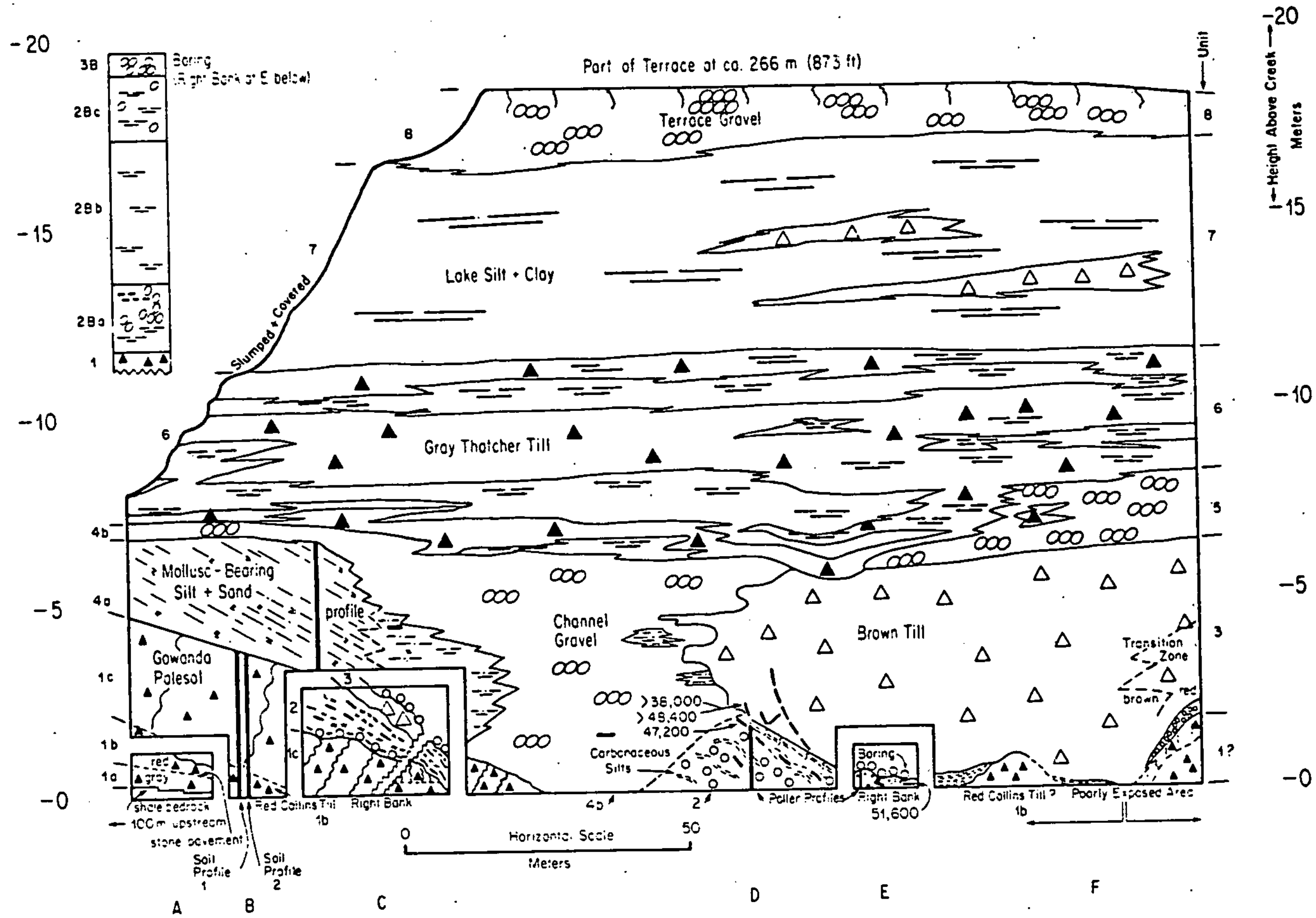

Figure 3a. Composite stratigraphic section along right and left banks of Clear Creek at the Gowanda Hospital Interstadial Site, Erie County, N.Y. From Calkin and others (1982).

Hospital (Fig. 3), a red till (named the Collins Till) derived from a southwestward-moving ice lobe, bears a deep soil profile (Gowanda Paleosol). This is overlain in turn by gravelly organic silt, a brown basal till which incorporates some of the silt, and gravel bearing a terrestrial mollusc assemblage indicative of cold forest-tundra conditions and free drainage. The organic silt carries a spruce-rich pollen spectrum and wood radiocarbon-dated to a probable finite age of 51,000 yr B.P. This sequence is correlated (Fig. 3b) with a similar one at the Otto site (Muller, 1964) and with the eastern Great Lakes glacial chronology on the basis of ^{14}C dates and pollen data (Calkin and others, 1982).

Following the Kent glaciation and during the succeeding interval correlated with the Erie Interstade, the ice front retreated from southwesternmost New York and possibly northward into the Ontario Basin allowing formation of Lake Leverett in the Erie Basin (Morner and Dreimanis, 1973; Fullerton, 1980, note 29). LaFleur (1979, 1980) has described subaerial erosion surfaces and stream gravels in the upper Cattaraugus Valley that seem to support this retreat as well as lowering of baselevel to near that of the present Lake Erie.

Clayey tills which overlie the "typical" Kent drift along the Plateau margin in Chautauqua County (Muller, 1963) as well as farther east in the Cattaraugus Basin (Fig. 4), have tentatively been correlated with the Lavery and succeeding Hiram drifts of Ohio and Pennsylvania (Fig. 2; Muller, 1963, 1975, 1977a). These represent major glacial readvance with uptake of clay from proglacial lakes developed in the Erie Lowland or north-draining plateau troughs during the preceding retreat. The thick Lavery tills of LaFleur (1979, 1980) form the burial medium at the former nuclear fuels reprocessing plant in West Valley.

The Lake Escarpment Glaciation

South of the Village of Gowanda, and along the drainage divide north of Cattaraugus Creek are the very massive gravelly ridges, of Leverett's (1902) Lake Escarpment Moraine System (Frontispiece II, Fig. 1). These mark an oscillating stand of the ice margin behind the position of the Lavery and Hiram moraines and resulted in deposition of the Thatcher Till of western New York (Calkin and others, 1982). The Lake Escarpment Moraine is referred to as the Ashtabula Moraine in western Pennsylvania and Ohio (Muller, 1963; White and others, 1968) and is correlative with the equally massive Valley Heads Moraine System in central New York (Muller, 1977a, 1977b).

During the Lake Escarpment glaciation, pitted outwash plains built southward into the Cattaraugus Basin, over valley fills that are up to 200 m thick in the northeast-trending (buried pre-glacial) valleys at Chaffee and Springville. The outwash was graded to a series of proglacial lakes (Fairchild, 1932; Calkin and Miller, 1977; Calkin and McAndrew, 1980) that drained west along the ice margin into the Coneweango Valley (buried preglacial Allegheny) and thence to the Allegheny River.

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Peat deposited directly on outwash at a mastodon locality along Nichols Brooks near Chaffee (Frontispiece II and Fig. 1) was considered to closely post date ice retreat when a basal peat date of 14,900 yr B.P. was obtained (Calkin and McAndrews, 1980). However, more recent resampling and study seems to confirm earlier suspicions that the dated peat included recycled (old) carbon and was too old by about 2000 yr (A. Morgan, pers. comm., 1982). Nevertheless, retreat on the order of 14,000 yr B.P. would be compatible with radiocarbon dates obtained from just south of the Valley Heads Moraine System to the east (Coates and others, 1971; Brennen, personal communication, 1981). The pollen at the Nichols Brooks Site indicated an open boreal spruce woodland vegetation without tundra; Morgan and Morgan (1977) have reported permafrost conditions recorded in adjacent Ontario at about 14,000 yr B.P.

A succession of short-lived proglacial lakes formed partly in the valleys trending northwestward from Chaffee, Springville, and Morton Corners. Initially, these drained southward cutting channels through the Lake Escarpment ridges and outwash into proglacial lakes of the Cattaraugus Valley. However, with continued ice retreat, these finger lakes spilled westward across the interfluves, cutting channels and building massive kame and lacustrine deposits (Owens and others, 1972; Hollands, 1975; Pryor, 1975) en route to a concurrently expanding glacial Great Lake in the Erie Basin (Calkin and Miller, 1977).

A longer pause in retreat and short readvance following the strong Lake Escarpment oscillation, is marked by the Gowanda Moraine (Fig. 1), a low but distinct ridge apparently tied closely to the Lake Escarpment ridges which extend between South Wales, North Collins, and the Lake Erie coast at Dunkirk (Frontispiece II). Unpublished geophysical exploratory data along the Lake Erie coast suggest possible correlation of the Gowanda with the Erie-Long Point (Norfolk) Moraine across Lake Erie. Retreat across western New York at this time is correlated with the Port Bruce Stadial or MacKinaw Interstadial on the basis of continuity of events across the eastern Great Lakes (Calkin and Miller, 1977; Fullerton, 1980). The marginal drainage was probably into Glacial Lake Arkona (Fig. 2) although no definitive Arkona strand lines have yet been traced north of Girard, Pennsylvania (Calkin, 1970; Schooler, 1974; Fullerton, 1980). The ice margin continued retreat north and eastward out of the Erie into the Ontario Basin and for a period of a few hundred years or less, lake levels fell considerably below the Arkona level, possibly allowing waters to drain northward across the Niagara Escarpment and eastward from the Ontario Basin through the Syracuse channels (Wall, 1968; Fullerton, 1980).

GLACIATION OF THE ERIE LOWLAND

Glacial Lakes and Ice Margins

At least ten stages of proglacial Great Lakes may be recorded in the New York portion of the Erie Basin during Late Wisconsin time (Fig. 2); however, only the highest, Lake Whittlesey, and two stages of the succeeding Lake Warren produced strand lines strong and continuous enough to be traced south or westward out of New York to type areas. Both Whittlesey and Warren Lakes stretched up to 480 km (298 mi) southwest from Buffalo to beyond Toledo, Ohio. These are believed to have been controlled by west-draining outlets through Michigan (Hough, 1963, 1966; Calkin, 1970; Muller, 1977a).

The Mackinaw Interstadial was terminated by the Port Huron advance in Michigan and in western New York, inducing a rise in glacial waters through at least 12 m (40 ft) to the Glacial Lake Whittlesey level in the Erie-Huron basins and the resubmergence of the Erie Lowland in western New York. A unit of glacial varved clay and thick superimposed basal till traced through several exposures along 32 km (20 mi) of Lake Erie bluff between South Buffalo and the Hamburg Moraine may record this advance. These relations and those elsewhere including at the Winter Gulf organic site (Fig. 5; Calkin, 1970; Calkin and McAndrews, 1980) suggest that the ice margin reached to, if not locally beyond, the massive Marilla Moraine or adjacent closely associated Hamburg Moraine (Frontispiece II; Fig. 1). If it reached much farther and into the Plateau to build or override the Gowanda Moraine (Taylor, 1939; Calkin and Miller, 1977) the ice must have been thin and the advance short-lived before recession to construct the Hamburg Moraine. Fullerton (1980) has linked the Port Huron advance with the Alden Moraine in New York but local field relations as presently interpreted do not appear to support this correlation. In southern Ontario, the Port Huron advance has been correlated with the margin of the Halton Till (Barnett, 1979; Feenstra, 1981) which occurs 20 to 30 km (12.4 to 18.6 mi) beyond the position of the submerged Port Maitland Moraine.

The strand of Glacial Lake Whittlesey is the strongest and most continuous of those in New York; it occurs principally as a single distinct gravel storm beach ridge of ~6 m (20 ft) relief. However, pronounced beaches cut in bedrock are associated with the Whittlesey beach ridge in the villages of North Collins, Eden, and Hamburg (Calkin, 1970). The strength of the Whittlesey strand line must be a consequence of formation by rising waters and its location near a plentiful gravel supply at the plateau margin as well as the duration of the lake stand. The Lake Whittlesey strand line reaches its northern and easternmost expression near Marilla where weak, wave-cut features at an elevation of 277 m (910 ft) occur on the north flanks of the Hamburg Moraine. This and other relations (Calkin, 1970; Muller, 1977b) suggest that the Marilla Moraine was formed in Lake Whittlesey; however, lowering of Lake Whittlesey waters to Lake Warren I must have occurred during or soon after retreat from the Marilla Moraine (Calkin, 1970).

The strong development of beaches of all stages of Lake Warren on the north face of the Marilla Moraine indicate that at least 5 to 10 km of retreat occurred before renewed downcutting of Lake Warren's Grand River outlet in Michigan caused water levels to fall to the Lake Warren II level. Warren I and II strand lines as distinguished in western New York terminate in spits in the delta of Ellicott Creek, 5 km northeast of Alden and just south of the Alden Moraine (Fig. 1). A drop in lake level on the order of 5 m (16 ft) from the Warren II level corresponding to Lake Wayne of Michigan may have followed as the ice margin backed northward of Buffalo. Fullerton (1980) has suggested that active ice had withdrawn from the Batavia re-entrant, Syracuse channels, and Mohawk Lowland to allow eastward drainage at this time. Assignment of ridges to the Lake Wayne stage is very tenuous at best and field evidence has not corroborated or denied eastward drainage.

Subsequently, water levels rose and drainage returned clearly to the west again with the production of very strong ridges assigned to the Warren III (lowest Warren) stage. Contemporaneously, a readvance of at least 8 km overrode thick ice-contact lacustrine sediments in the Clarence area and deposited thick red basal till possibly culminating in formation of the Alden Moraine just south and west of Buffalo (Fig. 6; Calkin and Miller, 1977; Fullerton, 1980, p. 25). Glacial Lake Warren III persisted through recession from the Alden Moraine position, development of the succeeding Buffalo (= Fort Erie Moraine), Niagara Falls and Batavia moraines. The Batavia Moraine formed after a period of rapid reorganization of the ice front and southwestward readvance to truncate the Niagara Falls Moraine (Leverett, 1902). For the brief period following retreat from the Batavia Moraine, Lake Warren III drained eastward through the Syracuse channels to the Mohawk Valley (Muller, 1977b).

Extensive gravelly kame deltas formed in many areas of Lake Warren, including the distal margins of the Buffalo Moraine in downtown Buffalo and Clarence. Cross bedding, climbing ripples, and similar primary structures in these deposits record the strength and density of depositional currents moving off the ice margin into >60 m (197 ft) of water. The ubiquitous silt and clay blanketing most of the Erie Lowland must reflect the periods of lake ice cover that prevailed through a substantial, colder, part of the glacial lake year in this area.

The Glacial Lake Warren beaches are built out farther from the plateau margin than those of Lake Whittlesey and are best developed on broad deltaic deposits that occur along major stream mouths such as occur near Hamburg, Alden and Crittenden in Erie County (Calkin, 1970). In shallow shelf areas such as Brant and Eden in southwestern Erie County, the deltaic sands were spread out over extensive areas by waves. The Whittlesey and Warren beaches may be somewhat better developed in New York than Ontario (MacLachlan, 1938) and this observation with the orientation of spits and bars, suggests that westerly winds prevailed during strand formation.

Isostatic rebound has caused the Whittlesey and Warren strand lines to rise northeastward through New York at a gradient of about 0.5 m km^{-1} ($\sim$2.5 ft mi^{-1}) (Fig. 7). Approximately 9 m (30 ft) of uplift occurred between Whittlesey and Warren III time at Buffalo near the mouth of the Niagara River (and threshold of Lake Erie). Fifty-two meters (172 ft) of uplift has occurred here since the lowering of Lake Whittlesey (Calkin, 1970).

The beaches below those of Warren III in the New York portion of the Erie Basin are very discontinuous and display less than 3 m (10 ft) of relief. This is partly due to rapid isostatic uplift, but is also related to the limited beach materials on the clay-covered lake plain where the lakes shoaled and the short duration of each successive lake stand. In order of formation and decreasing elevation, the scattered beach segments have been correlated tentatively with glacial lakes Grassmere, Lundy, Early Algonquin, and Dana (Fig. 2; Hough, 1963, 1966; Calkin, 1970). Retreat from the Batavia re-entrant may have allowed eastward drainage of Lakes Grassmere and Lundy (Fullerton, 1980) but Early Algonquin if once existent in this area, was controlled by outlets to the west (Hough, 1966; Calkin, 1970).

During the post-Warren III lake stages the ice margin retreated at least 30 km northward, with short stands to form the Barre Moraine just above the Niagara Escarpment, and the Albion-Rochester Moraine locally just below it in Niagara County (Fig. 1). Lake Dana, which was confined to the northeastern end of the Erie Basin and southwesternmost portion of the Ontario Basin, drained eastward through the Syracuse channels to the Mohawk and Hudson Valleys following retreat from the Albion-Rochester Moraine (Calkin, 1970). It represented the slowly subsiding waters immediately preceding emergence of the Niagara Escarpment, nearly simultaneous formation of nonglacial, Early Lake Erie (Lewis and others, 1969) and development of Glacial Lake Iroquois in the Ontario Basin, and the initiation of Niagara Falls and Gorge (Calkin and Brett, 1978). A short readvance during initial stages of Glacial Lake Iroquois is marked by the Carelton Moraine near the present south coast of Lake Ontario.

Dating and Climatic Environment

The last glacial retreat and succession of glacial lakes across the lowland must have taken less than 1000 years. The Port Huron advance of Michigan and the rise to Lake Whittlesey level seem to be well dated at about 13,000 yr B.P. although data are not yet locally available to refine this further (Dreimanis and Goldthwait, 1973; Fullerton, 1980). The oldest date for initiation of Early Lake Erie is 12,650 ± 170 yr B.P. (Lewis, 1969) and for Lake Iroquois, 12,660 ± 400 yr B.P.; however, both samples may have been contaminated with recycled carbon and are too old (Calkin and Brett, 1978; Calkin and McAndrews, 1980). Other radiocarbon dates from the Lake Ontario and St. Lawrence areas suggest that Early Lake Erie and Lake Iroquois formed prior to about 12,200 yr B.P. (see Fullerton, 1980).

At the Winter Gulf site south of Buffalo (Figs. 1 and 5), dates of 12,730 ± 220 and 12,610 ± 200 yr B.P. were obtained on wood from a shallow water peat within the lake plain but below the Lake Whittlesey strand level. The peat is in turn separated by 4 to 5 m of lake sediments from an underlying till correlated with the Thatcher Till of the Lake Escarpment glaciation (Calkin and others, 1982). The wood dates are therefore minima for the last glacial retreat from this area, for

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lowering of Glacial Lake Whittlesey, and for northward retreat of the ice margin from the Hamburg or Marilla moraines in western New York (Calkin and McAndrews, 1980). The ice margin could have been as close as 21 km but was likely near the present coast of Lake Ontario, 80 km to the north when peat deposition began at Winter Gulf.

The pollen profile from both Winter Gulf and Nichols Brooks are dominated by spruce and other pollen which suggest that there was little warming at this time; however, an ecologically unbalanced biota may have occurred. The coleoptera (beetle) assemblage recovered from the peat at Winter Gulf (Schwert and Morgan, 1980) indicates that temperatures of deposition were considerably warmer than those suggested by the pollen. If such warming did occur, it records a rather sudden change from conditions of permafrost that may have existed in southwestern Ontario and nearby New York until the early phase of the Port Huron advance (Calkin and McAndrews, 1980, p. 305; Schwert and Morgan, 1980).

REFERENCES

Barnett, P. J., 1979, Glacial Lake Whittlesey: the probable ice frontal position in the eastern end of the Erie basin: Canadian Journal of Earth Sciences, v. 16, p. 568-574.

Bertie, A. A., 1975, Paleobotany of Wisconsinan Interstadials, eastern Great Lakes region, North America: Quaternary Research, v. 5, p. 591-619.

Birkeland, P. W., 1974, Pedology, weathering and geomorphological research: New York, Oxford Univ. Press, 285 p.

Calkin, P. E., 1970, Strand lines and chronology of the glacial Great Lakes in northwestern New York: Ohio Journal of Science, v. 70, p. 78-96.

Calkin, P. E. and Brett, C. E., 1978, Ancestral Niagara River drainage: Stratigraphic and paleontologic setting: Geological Society of America Bulletin, v. 89, p. 1140-1154.

Calkin, P. E. and McAndrews, J. H., 1980, Geology and paleontology of two Late Wisconsin sites in western New York: Geological Society of America Bulletin, Part I, v. 91, p. 295-306.

Calkin, P. E. and Miller, K. E., 1977, The Quaternary environment and man in western New York: Annals of the New York Academy of Science, v. 288, p. 297-315.

Calkin, P. E. and Muller, E. H., 1980, Geologic setting and glacial overview of the upper Cattaraugus Basin, southwestern New York, in LaFleur, R. G., Late Wisconsin stratigraphy of the upper Cattaraugus Basin: Northeast Friends of the Pleistocene, guidebook for 43rd annual reunion, Springville, N.Y. (available from R. G. LaFleur, Dept. of Geology, Rensselaer Polytechnic Inst., Troy, N.Y. 12181).

Calkin, P. E. and Wilkinson, T., 1982, Glacial and engineering geology aspects of the Niagara Falls and Gorge in Buehler, E. and Calkin, P., eds., Geology of the Northern Appalachian Basin, western New York, Guidebook for 54th annual meeting, New York State Geological Association, Amherst, N.Y.

REFERENCE 5

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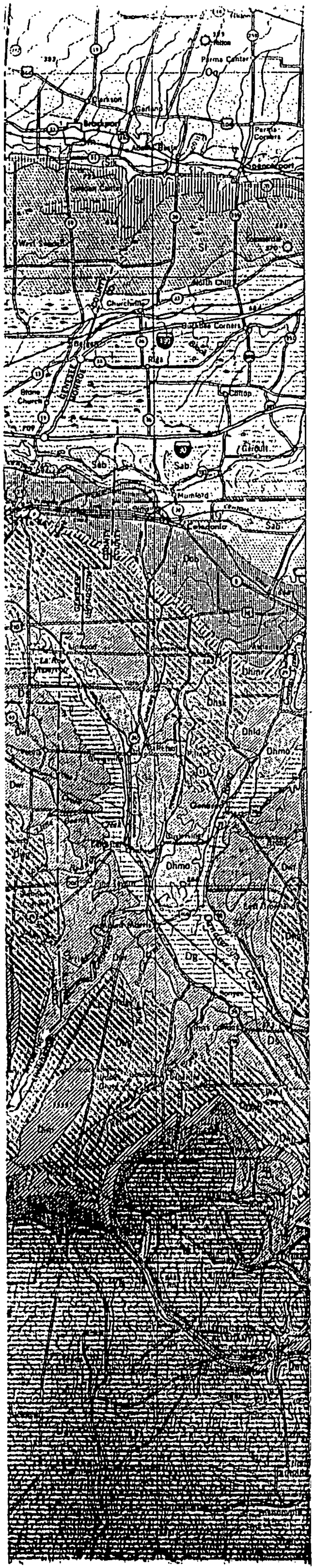


PALEOZOIC

Lower Pennsylvanian

Pp — Connoquenessing Formation—sandstone, shale; Sharon Formation—shale, sandstone, conglomerate; Olean Conglomerate 50-100 ft. (15-30 m.)

Lower Mississippian

POCONO GROUP

Mp — Cuyahoga Formation—shale, sandstone; Corry Sandstone; Knapp Formation 60-100 ft. (20-30 m.)—shale, conglomerate.

Upper Devonian

CONEWANGO GROUP
450-650 ft. (140-200 m.)

Dco — Oswayo and Venango Formations—shale, siltstone, sandstone; replaced eastwardly by Cattaraugus Formation—shale, sandstone, conglomerate.

CONNEAUT GROUP
250-600 ft. (75-200 m.)

Dcl — In west: Ellicott and Dexterville Formations—shale, siltstone.
In east: Germania Formation—shale, sandstone; Whitesville Formation—shale, sandstone; Hinsdale Sandstone; Wellsville Formation—shale, sandstone; Cuba Sandstone.

CANADAWAY GROUP
700-1200 ft. (210-370 m.)

Dcys — Northeast Shale; Shumla Siltstone.
Dcyl — Westfield Shale; Laona Siltstone.
Dcyd — Gowanda, South Wales, and Dunkirk Shales.
Dcy — Machias Formation—shale, siltstone; Rushford Sandstone; Caneadea, Canisteo, and Hume Shales; Canaseraga Sandstone; South Wales and Dunkirk Shales.

JAVA GROUP
100-200 ft. (30-60 m.)

Dj — Hanover Shale; Wiscoy Formation—sandstone, shale; Pipe Creek Shale.

WEST FALLS GROUP
400-950 ft. (120-290 m.)

Dwf — Angola and Rhinestreet Shales.
Dwn — Nunda Formation—sandstone, shale.
Dwg — West Hill and Gardeau Formations—shale, siltstone; Roricks Glen Shale; upper Beers Hill Shale; Grimes Siltstone.
Dwr — lower Beers Hill Shale; Dunn Hill, Millport, and Moreland Shales.

SONYEA GROUP
50-200 ft. (15-60 m.)

Ds — Cashaqua and Middlesex Shales.

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

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

Middle Devonian

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

Dhmo — Moscow Formation—Windom and Kashong Shales, Menteth Limestone Members.
Dhld — Ludlowville Formation—Deep Run Shale, Tichenor Limestone, Wanakah and Ledyard Shales, Centerfield Limestone Members.
Dhsk — Skaneateles Formation—Levanna Shale, Stafford Limestone Members.
Dhmr — Marcellus Formation—Oatka Creek Shale Member.

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

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

Lower Devonian

Do — Oriskany Sandstone.

Upper Silurian

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

Sab — Akron Dolostone; Bertie Formation—dolostone, shale.
Scv — Camillus, Syracuse, and Vernon Formations—shale, dolostone, salt, and gypsum.

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

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

Lower Silurian

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

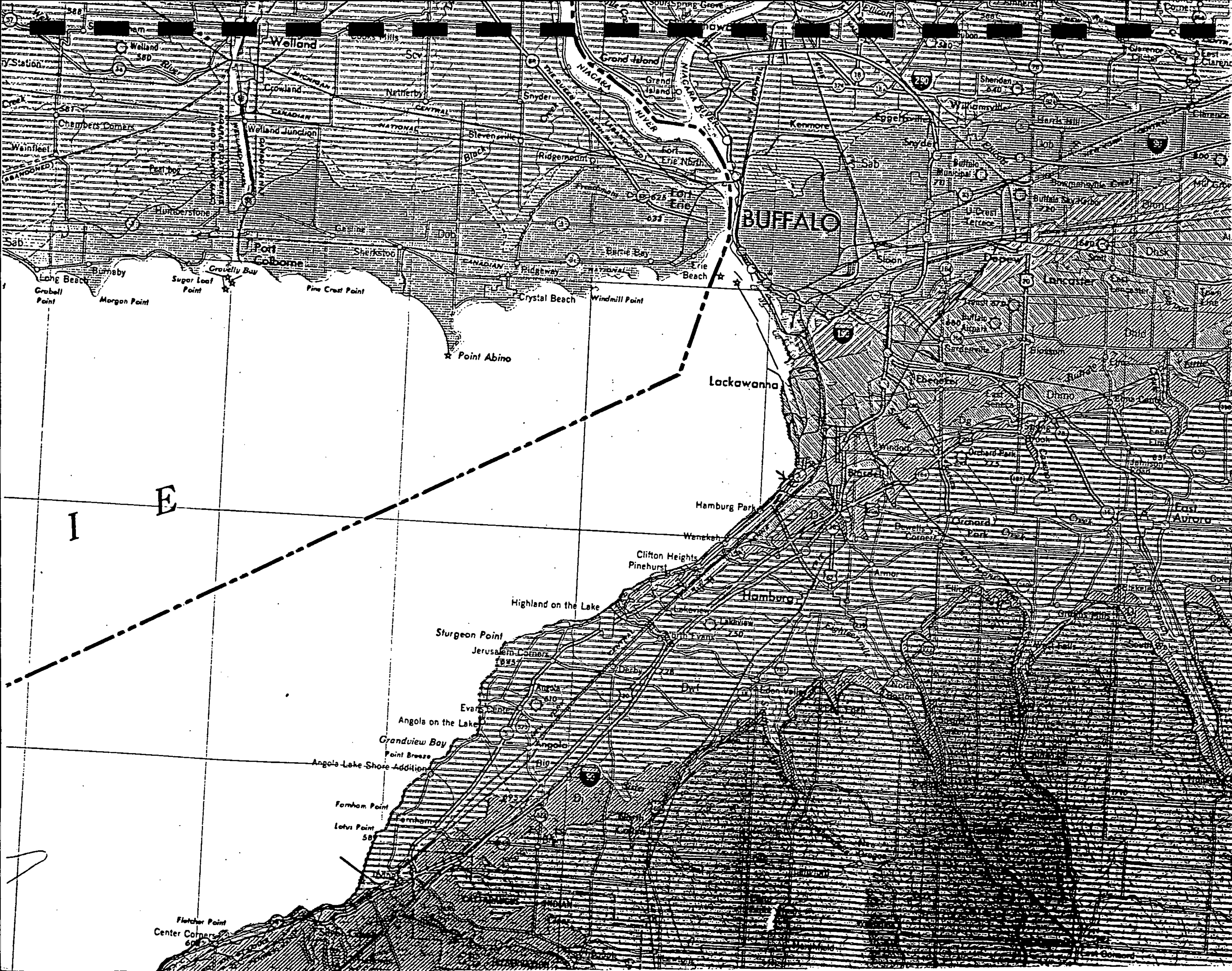
Scl — Decew Dolostone; Rochester Shale; Irondequoit and Merriton Limestones.
Sr — Decew Dolostone; Rochester Shale.
Sik — Irondequoit Limestone; Rockway Dolostone; Hickory Corners Limestone; Neahga Shale; Kodak Sandstone.

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

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

Upper Ordovician

Oq — Queenston Shale.



Welland
Crowland
Netherby
Snyder
Grand Island
Niagara River
Kenmore
Eggertsville
Williamsville
Harris Hill
Sheridan
Wainfleet
Chambers Corners
Welland Junction
Stevensville
Ridgemount
Fort Erie North
Peat bog
Humberstone
Fort Erie
BUFFALO
Gasline
Sherkston
Port Colborne
Ridgeway
Bertie Bay
Erie Beach
Long Beach
Burnaby
Sugar Loaf Point
Gravelly Bay
Grabell Point
Morgan Point
Pine Crest Point
Crystal Beach
Windmill Point
Point Abino
Buffalo Municipal
Sloan
Depew
Lancaster
Buffalo Airport
Gardenville
Lackawanna
Ebenezer
East Seneca
Windom
Orchard Park
Blasdell
E
I
Hamburg Park
Wanakah
Dewells Corners
Orchard Park Creek
East Aurora
Clifton Heights
Pinehurst
Armor
Highland on the Lake
Hamburg
Lakeview
North Evans
Sturgeon Point
Jerusalem Corners
Derby
Eden Valley
Angola on the Lake
Evans Center
Grandview Bay
Point Breeze
Angola
Angola Lake Shore Addition
Farnham Point
Lotus Point
Farnham
Fletcher Point
Center Corners

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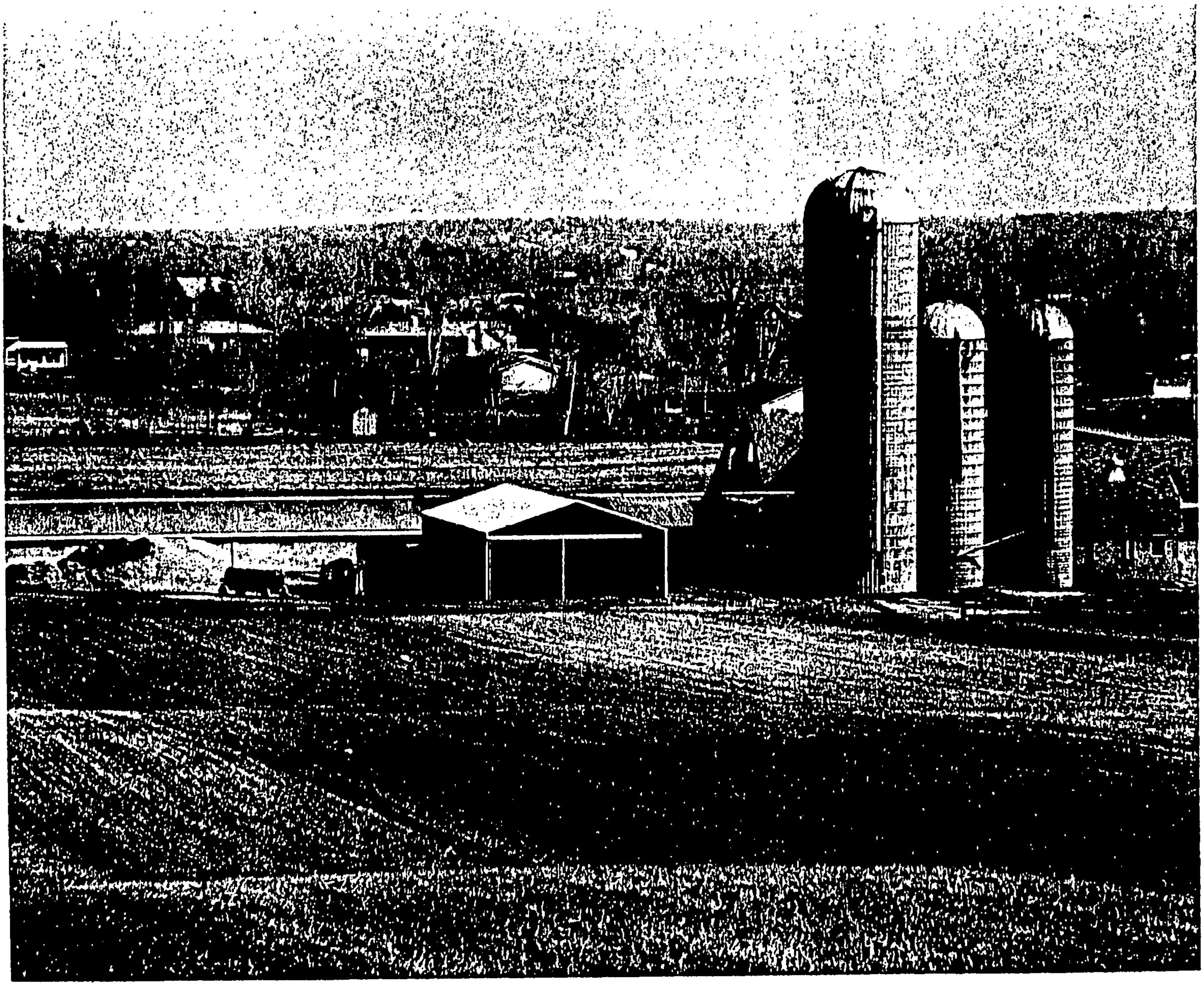
United States
Department of
Agriculture

Soil
Conservation
Service

In Cooperation with
the Cornell University
Agricultural
Experiment Station

Soil Survey of Erie County, New York

COMPLIMENTS OF:
ERIE COUNTY SOIL & WATER CONSERVATION DISTRICT
21 S GROVE STREET
EAST AURORA, NY 14052
716-652-8480



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The bedrock under the county is fairly flat but dips or tilts approximately 50 feet a mile to the southwest. The rocks have retained much of the form they had when they were deposited as silts and sands in the ancient seas that covered this area approximately 300 million years ago.

Erie County was covered and uncovered by several advances and retreats of glacial ice during the ice age that began approximately 300,000 years ago and ended about 10,000 years ago (*4*). As the ice moved southward, it picked up soil material and pieces of bedrock and ultimately redeposited a mixture of unconsolidated material of various sizes, shapes, and mineral content.

Because the deposited materials were variable, different soils formed in them. One of the more common deposits in the county is glacial till. Till is a heterogeneous mixture of particles carried by the glacier and deposited directly from it. Soils such as the Mardin and Danley soils formed in these glacial till deposits. They are located mostly in the southern part of the county, but numerous areas are also in the northern part.

Glacial lake waters occupied the northern part of the county for several fairly long periods. The sediments deposited in these lakes formed in glacial lacustrine deposits. The Niagara and Schoharie soils are the more common of several soils that formed in these fine sediments.

Water-sorted deposits associated with the melt waters from the glacial ice were laid down at various times and in various locations. Many of these deposits have been in drainageways since glaciation. The Red Hook and Palmyra soils are examples of soils that formed in these deposits.

A striking topographic feature called the Beach Ridge runs diagonally across the county. It extends from Alden on the northeast to North Collins on the southwest. This feature represents the glacial lake shore developed during many years of wave action and erosion. The Alton and Blasdell soils formed in reworked deposits in this area.

Erosion and sedimentation have been at work since the ice retreated some 10,000 years ago. Steep, fan-shaped alluvial deposits accumulated at the mouths of streams where the velocity of the water slowed and the sand and gravel dropped out of suspension. The Farnham and Chenango soils formed in these deposits. Other deposits parallel major streams in the valleys. The Hamlin and Tioga soils developed in these deposits of recent alluvium.

drainage

With the exception of Cattaraugus Creek, which forms the southern border of the county, most of the streams drain in a northwesterly to westerly direction.

Ellicott Creek is the main drainageway north of Buffalo. This stream flows in a westerly direction and empties into the Niagara River north of Buffalo. The Cayuga, Buffalo, and Cazenovia Creeks drain the cen part of the county and enter Buffalo harbor just south the city. Eighteen Mile Creek drains most of the southwestern corner of the county and enters Lake E approximately 15 miles southwest of Buffalo. The southern edge of the county is drained by tributaries t flow directly into Cattaraugus Creek and then into Lak Erie.

The streams north of the old glacial lake beach meander across the flat lake plains. Gradients are lov and there are numerous swampy areas. South of the beachline, the streams are somewhat entrenched. Gradients are higher, and sidewalls are dissected anc steeper.

water supply

The main sources of water in Erie County are Lake Erie (and the Niagara River), wells—both dug and dri and surface water from streams and small impoundments (*6*).

Buffalo, Grand Island, and most of the communitie along the northwest edge of the county adjacent to L Erie obtain their water from that source. Large amou of water for industrial use in the Buffalo area also co from Lake Erie.

Water for the rural areas of the county is obtained largely from drilled bedrock wells and a minor amour from dug wells. A small amount of water for these ru areas is supplied by springs. Springs occur naturally confined areas where the water table reaches the surface. Because they are very scattered, springs ar unpredictable source of water for large-scale use.

Dug wells are relatively shallow and tend to dry up when the ground-water table is low. They are very effective in some valley bottoms where there is grav and sandy outwash, but they are subject to contamination.

Water is supplied to several of the larger commun from large-capacity wells or from impoundments. La storage tanks with gravity flow are a partial source c reserve water in many of these systems.

how this survey was made

Soil scientists made this survey to learn what soils in the survey area, where they are, and how they ca used. They observed the steepness, length, and sha of slopes; the size of streams and the general patte drainage; the kinds of native plants or crops; and th kinds of rock. They dug many holes to study soil pro A profile is the sequence of natural layers, or horizo placed across the slope help eliminate trail gullying. Seedling mortality and uprooting of trees during windy periods are generally not serious hazards on this soil.

Slope, depth to bedrock, seasonal high water table, and slow permeability of the subsoil and substratum are serious limitations for many urban uses of this soil. Although excavations are costly, the shale bedrock usually is rippable with a backhoe. Foundations and basements are benefited by drains that reduce the wetness associated with the seasonal high water table and lateral seepage. Many areas are suitable for various recreational uses.

This Aurora soil is in capability subclass IIIe.

Be—Beaches. This is a miscellaneous area consisting of sandy or sandy and gravelly material deposited mostly by waves along beach fronts. Most areas are along the shores of Lake Erie. They are mostly narrow, long strips that conform to the shoreline. Some areas have been slightly altered by man to make them more useful for recreational purposes. Slope ranges from 0 to 8 percent.

Typically, these beach areas have a discontinuous layer of driftwood, sticks, and bark covering about 10 percent of the sandy surface. The sandy or gravelly material is usually light colored, and individual particles are rounded as the result of wave action. Beaches are usually devoid of live vegetation; however, some areas have coverings of washed-up algae, seaweeds, and other aquatic plants. Many areas are almost continually moist because of constant wave action.

Included in mapping are significant areas of riverwash, consisting mostly of gravel and cobblestones. These areas usually occur as fan deposits where large streams and creeks empty into lakes. Also included are areas where rock fill or railroad ties have been installed to control beach-front erosion.

Beaches are poorly suited to farming, urban uses, and woodland because they are inundated by waves during high water periods. Generally, the potential is poor for wildlife habitat, although sea gulls and some birds feed on dead prey and debris that wash up on the beach.

The suitability of these areas for recreational uses ranges from very good to poor. Most areas are suitable for swimming, sunbathing, and other beach activites. Other areas are not suitable because of location and variability of the soil material, especially in areas where streams and creeks empty into lakes. Onsite investigation is required for any proposed use.

Beaches are not assigned a capability subclass.

BfA—Benson very cherty loam, 0 to 3 percent slopes. This nearly level soil is somewhat excessively drained to excessively drained. It formed in glacial till that is underlain by bedrock 10 to 20 inches below the surface. This soil is on nearly flat benches at the edge of the upland plateau. Areas of this soil are irregular in shape and range from 5 to 100 acres or more.

Typically, this soil has a surface layer of friable, dark grayish brown very cherty loam 6 inches thick. The subsoil consists of friable, dark yellowish brown very cherty loam about 6 inches thick. The substratum consists of porous, brown very cherty loam about 3 inches thick. Hard, grayish cherty limestone bedrock is at a depth of 15 inches.

Included with this soil in mapping are small areas where the layer of soil over the limestone bedrock is less than 10 inches thick. Also included are areas of Wassaic soils that are underlain by bedrock at a depth of 20 to 40 inches. In some areas the surface layer is a cherty loam or loam that has a lower content of rock fragments. Included quarries are indicated by a special symbol on the soil map. Areas of included soils range from 1/4 acre to 2 acres.

Bedrock is at a depth of 10 to 20 inches in this Benson soil. Rock fragments make up 35 to 55 percent of the surface layer. Rooting depth is limited by the underlying bedrock. Permeability is moderate throughout the soil. The available water capacity is very low or low, and runoff is slow. The surface layer is medium acid to neutral, and the subsoil is slightly acid to mildly alkaline.

This soil is poorly suited to farming and most urban uses. Most of the acreage is idle or wooded. A few areas are urbanized.

This Benson soil is poorly suited to cultivated crops because of the shallow depth to bedrock, droughtiness, and numerous small rocks. Productivity is generally low, except in years of high rainfall. Conservation practices that increase organic matter content and thus increase the available water capacity of the soil are growing sod crops in the cropping system, using cover crops, returning of crop residues to the soil, and keeping tillage to a minimum. The excessive amount of cherty fragments can be a problem in planting fine-seeded crops and may cause excessive wear of machinery.

This soil can be used for pasture, but droughtiness in midsummer keeps forage yields low. Overgrazing can cause the loss of the pasture grasses, especially in dry periods.

The potential of this soil for wood crops is poor. Droughtiness causes a high rate of seedling mortality. Planting early in the spring when the soil is moist improves seedling survival. Uprooting of trees during windstorms is a hazard because of the shallow rooting depth.

The shallow depth to bedrock is a serious limitation for most urban uses of this soil. Blasting of the bedrock may be required for excavations. Lawns are difficult to establish because of droughtiness and the many small rock fragments in the soil. Frequent irrigation helps maintain grass and shrubs. Some areas are suitable for such recreational uses as picnic areas and camp areas.

This Benson soil is in capability subclass IIIs.

Some areas are suitable for pasture. Overgrazing, particularly during dry periods, can cause the loss of the pasture plants and can lead to increased erosion hazard. Reseeding and applying fertilizer are somewhat difficult because of the moderately steep slopes.

The potential of this soil for wood crops is fair to good. Although seedling mortality is generally not a problem, seedlings should be planted very early in the spring when the soil is moist. Use of planting and harvesting equipment is somewhat limited because of the slope. Placing logging trails across the slope helps eliminate any hazard of trail gullying or erosion.

The moderately steep slopes are a serious limitation for most urban uses of this soil. Because erosion is a very serious hazard where vegetative cover is removed, the natural vegetation should be disturbed as little as possible during construction and areas revegetated as soon as possible. Reseeding areas can be difficult because of the high content of shale fragments and slope. Some areas are a source of shaly gravel.

This Blasdell soil is in capability subclass IVe.

BrA—Brockport silty clay loam, 0 to 3 percent slopes. This nearly level soil is somewhat poorly drained. It formed in glacial till having a high content of clay. Soft shale bedrock is at a depth of 20 to 40 inches. This soil is mostly in narrow bands on the lowland plain near Lake Erie. Individual areas range from 5 to 150 acres or more and are generally oblong.

Typically, this soil has a surface layer of dark grayish brown silty clay loam about 8 inches thick. The subsoil extends to a depth of about 23 inches. It is firm and plastic, olive brown silty clay in the upper part and firm and very plastic, dark grayish brown silty clay in the lower part. The substratum is firm, olive shaly silty clay about 8 inches thick. The underlying bedrock, at a depth of 31 inches, is calcareous shale.

Included with this soil in mapping are small areas of the deep Remsen soils and loamy Angola soils. Also included, where the underlying shale bedrock is at a depth of 40 inches or more, are small areas of Churchville and Canadice soils that have textures similar to this Brockport soil. Included wet spots, quarry pits, and drainageways are indicated by special symbols on the soil map. Areas of included soils range from 1/4 acre to 3 acres.

This Brockport soil has a perched seasonal high water table in the upper part of the subsoil during December through May. Bedrock is at a depth of 20 to 40 inches. Small rock fragments range from few to 10 percent in the surface layer and are mostly shale. Rooting depth is limited by the seasonal high water table and the moderate depth to bedrock. Permeability is moderate to moderately slow in the surface layer and very slow in the subsoil. The available water capacity is moderate, and runoff is slow. In unlimed areas, reaction ranges from medium acid to neutral in the surface layer and from medium acid to mildly alkaline in the subsoil.

The soil is moderately suited to farming and poorly suited to urban development. Most areas of this soil are idle, wooded, or in residential use.

If properly drained, this Brockport soil is moderately suited to cultivated crops; but without drainage, it is poorly suited to most crops. Drainage can be somewhat difficult because the subsoil is very slowly permeable and bedrock is at a moderate depth. Drains usually require close spacing to be effective. Because of the high clay content, maintaining tilth is an additional management concern. If this soil is cultivated, keeping tillage to a minimum, using cover crops, including sod crops in the cropping system, returning crop residues to the soil, and plowing at the proper moisture content are desirable for maintaining tilth and improving organic matter content. Increasing the organic matter content improves the available water capacity of the soil. Clodding and crusting of the surface is a problem in areas where tilth has deteriorated.

This soil can be used for pasture, but grazing when the soil is wet and overgrazing are the main concerns in pasture management. Grazing during wet periods causes compaction of the soil and trampling of pasture plants which can lead to reduced growth and the loss of the pasture seedings.

Potential of this soil for wood crops is fair. Seasonal wetness limits equipment use and increases seedling mortality. Because root development is limited by the seasonal high water table and depth to bedrock, uprooting of trees during windstorms is a hazard.

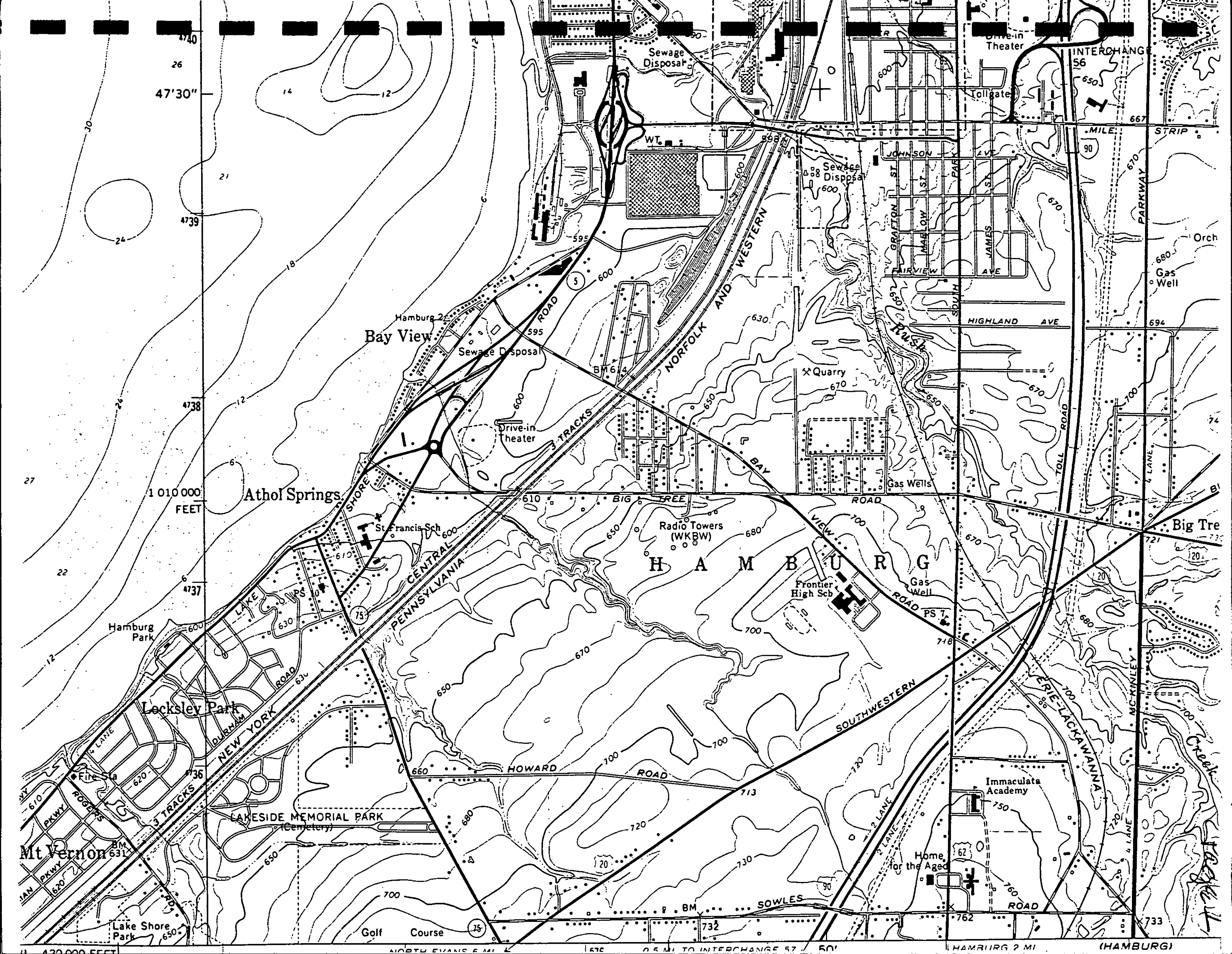
Moderate depth to bedrock, seasonal wetness, clayey texture, and very slow permeability in the subsoil are serious limitations for most urban uses of this soil. Foundations need special protection from seepage of water across the surface of the bedrock. Landscaping and grading minimizes problems caused by seasonal wetness. Some areas are suited to certain recreational uses, but wetness and the clayey nature of the soil restrict many recreational uses.

This Brockport soil is in capability subclass IIIw.

BrB—Brockport silty clay loam, 3 to 8 percent slopes. This gently sloping soil is somewhat poorly drained. It formed in glacial till that has a high content of clay. Soft shale bedrock is at a depth of 20 to 40 inches. This soil is on concave, mostly narrow bands on the lowland plain near Lake Erie. Individual areas range from 5 to 100 acres or more and are generally oblong.

Typically, the surface layer is dark grayish brown silty clay loam about 8 inches thick. The subsoil extends to a depth of 23 inches. It is firm and plastic, olive brown silty clay in the upper part and firm and very plastic, dark grayish brown silty clay in the lower part. The substratum is firm, olive shaly silty clay 8 inches thick. The underlying bedrock is calcareous shale.

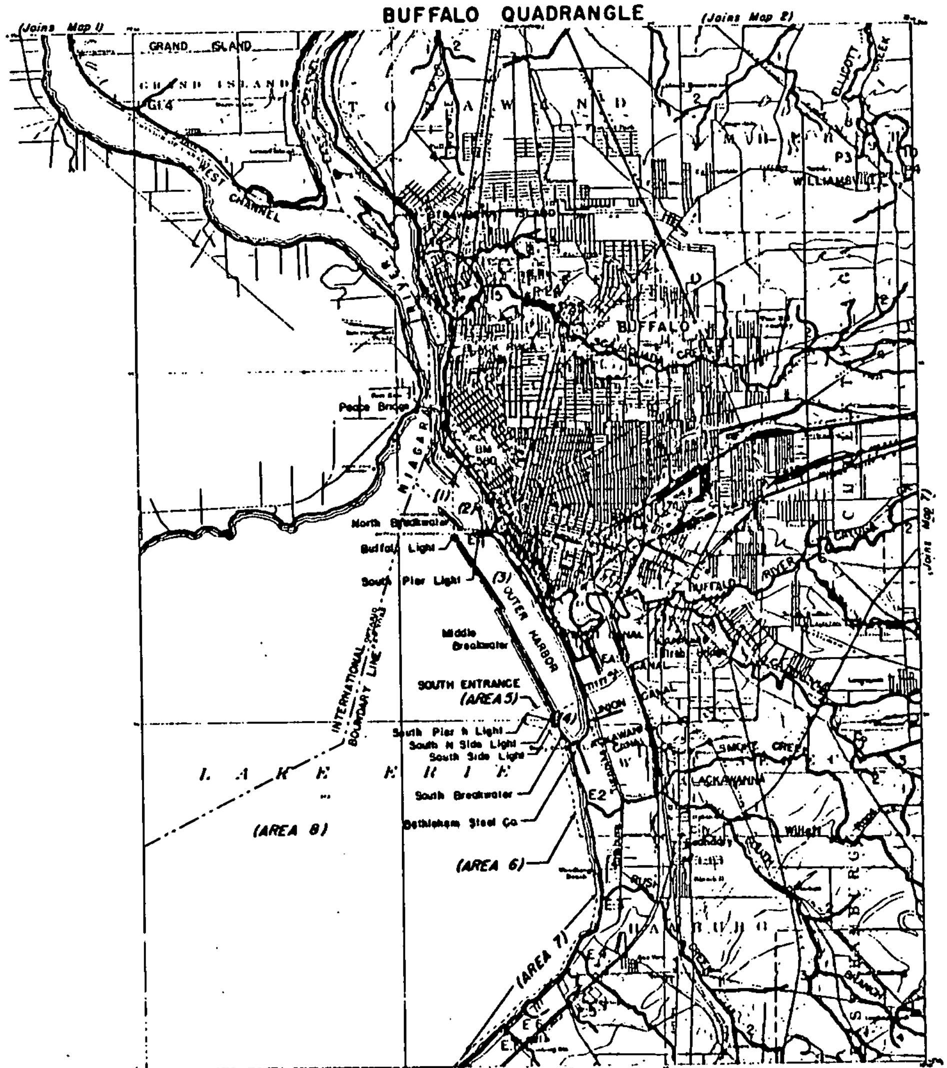
REFERENCE 7



Sewage Disposal
Drive-in Theater
INTERCHANGE 56
Tollgate
47'30"
MILE STRIP
JOHNSON AVE
GRAFTON ST
MARLOW ST
PARK
JAMES ST
PARKWAY
FAIRVIEW AVE
SOUTH
HIGHLAND AVE
Gas Well
Orch
Hamburg 2
Bay View
Sewage Disposal
ROAD
NORFOLK AND WESTERN
Rush
Quarry
Drive-in Theater
3 TRACKS
BAY
Gas Wells
TOLL ROAD
4 LANE
Athol Springs
1 010 000 FEET
SHORE
BIG TREE ROAD
VIEW
St Francis Sch
Radio Towers (WKBW)
HAMBURG
Big Tre
CENTRAL
PENNSYLVANIA
Frontier High Sch
Gas Well
PS 7
PS
Hamburg Park
LAKE
ROAD
Locksley Park
DURHAM
NEW YORK
SOUTHWESTERN
ERIE LACKAWANNA
McKINLEY
Creek
HOWARD ROAD
Fire Sta
LANE
PKWY
ROGERS
3 TRACKS
LAKESIDE MEMORIAL PARK (Cemetery)
Immaculate Academy
2 LANE
Mt Vernon
BM
Home for the Aged
SOWLES ROAD
Golf Course
Lake Shore Park
RD
NORTH EVANS 6 MI
0.5 MI TO INTERCHANGE 57
HAMBURG 2 MI
(HAMBURG)
420 000 FEET
50'

REFERENCE 8

BUFFALO QUADRANGLE



MAP 6

TABLE I (contd.)

Item No.	Waters Index Number	Name	Description	Map Ref. No.	Class	Standards
132	E portion as described	Lake Erie	Waters southerly and westerly of and within one thousand (1000) feet of south entrance arm break-water and Stony Point breakwater and westerly of and within one thousand (1000) feet of east shore of Lake Erie between south pierhead light and line represented by extension of First Street in Woodlawn (town of Hamburg) to Lake Erie.	6	C	C
133	E portion as described	Lake Erie	Waters westerly of and within one thousand (1000) feet of shore of Lake Erie between line represented by extension of First Street in Woodlawn (town of Hmburg) and line constructed perpendicular to international boundary line and connecting such boundary line with westerly bank of Eighteenmile Creek, item 237, at its mouth.	6, 10	B	B

REFERENCE 9

4. WASTE CHARACTERISTICS

Toxicity and Persistence

Compound(s) evaluated:

TAL	TCL	
Chromium	2-Butanone	
Iron	Xylene (total)	
Lead		Reference #2

Compound with highest score:

Chromium, Lead
Reference #2
Assigned Value = 18
Score = 18

Hazardous Waste Quantity

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

Total Quantity Discharged from 1941-1970 in the past = 2,842,000 gallons = 56,840 drums

Reference #4

Basis of estimating and/or computing waste quantity:

1941-1970 Spent Pickle Liquor Sludge (H_2SO_4 (11%) and Iron salts (14%)) per year

1941-1970 Liquid Phosphate products

Total = 2,842,000 gallons = 56,840 drums

Assigned Value = 8

* * *

5. TARGETS

Groundwater Use

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

* There are no municipal community or non-municipal community wells within a 3-mile radius of the site. There is only one documented well within a 3-mile radius of the facility.
Reference #5
Assigned Value = 2

Distance to Nearest Well

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

3742 Mile Strip Road

Reference #6

Distance to above well or building:

0.85 miles
Reference #6

Population Served by Groundwater Wells Within a 3-Mile Radius

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

Less than 100 people are served by the above mentioned well.
Reference #6
Assigned Value = 8

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):

There are no irrigation wells within 3-miles of the facility.
Reference #7

Total population served by groundwater within a 3-mile radius:

Less than 100 people.

REFERENCE 10

Census of Population and Housing, 1980--P.L. 94-171 Counts
(for definition of items and footnotes, see technical documentation)

FIPS (ST COU MCD or CCD Place Precinct)	Area Name	Total Population	White	Black	Amer. Indian, Eskimo and Aleut	Asian and Pacific Islander [1]	Other [2]	Persons of Spanish Origin [3]
36 029 075	Grand Island town --Con.							
	Tract 0073.02 --Con.							
	Block 933.	67	67	-	-	-	-	-
	Block 934.	58	57	-	1	-	-	-
	Tract 0073.03	5942	5605	172	14	137	14	56
	Block Group 1.	1066	1026	16	-	24	-	8
	Block 101.	59	59	-	-	-	-	-
	Block 102.	27	27	-	-	-	-	.
	Block 103.	16	16	-	-	-	-	-
	Block 104.	280	247	9	-	24	-	5
	Block 105.	63	63	-	-	-	-	-
	Block 106.	75	75	-	-	-	-	-
	Block 107.	94	93	1	-	-	-	-
	Block 108.	91	91	-	-	-	-	-
	Block 109.	70	65	5	-	-	-	1
	Block 110.	72	72	-	-	-	-	-
	Block 111.	48	48	-	-	-	-	1
	Block 112.	74	73	1	-	-	-	1
	Block 113.	97	97	-	-	-	-	-
	Block Group 9.	4876	4579	156	14	113	14	48
	Block 901.	372	362	-	9	-	1	6
	Block 902.	207	207	-	-	-	-	-
	Block 903.	344	327	2	-	10	5	1
	Block 904.	-	-	-	-	-	-	-
	Block 905.	159	154	5	-	-	-	1
	Block 916.	144	142	-	2	-	-	-
	Block 918.	-	-	-	-	-	-	-
	Block 919.	42	42	-	-	-	-	-
	Block 939.	257	254	3	-	-	-	1
	Block 940.	276	265	6	-	5	-	5
	Block 941.	134	127	2	-	5	-	3
	Block 944.	9[illegible]	90	-	1	-	-	-
	Block 945.	315	294	14	-	7	-	6
	Block 946.	465	424	30	-	11	-	6
	Block 947.	1077	962	61	.	45	8	2
	Block 948.	131	110	12	-	9	-	4
	Block 949.	357	333	10	-	14	-	-
	Block 950.	268	255	9	1	3	-	6
	Block 951.	118	115	2	-	1	-	6
	Block 952.	119	116	-	-	3	-	1
	Tract 0073.04	2946	2860	51	8	17	10	23
	Block Group 9.	2946	2860	51	8	17	10	23
	Block 902.	36	36	-	-	-	-	-
	Block 910.	113	113	-	-	-	-	-
	Block 911.	143	143	-	-	-	-	-
	Block 912.	130	130	-	-	-	-	-
	Block 913.	78	75	3	-	-	-	-
	Block 920.	74	74	-	-	-	-	-
	Block 921.	59	51	8	-	-	-	-
	Block 922.	-	-	-	-	-	-	-
	Block 923.	-	-	-	-	-	-	-
	Block 924.	204	202	2	-	-	-	-
	Block 925.	334	327	3	4	-	-	2
	Block 926.	82	82	-	-	-	-	-
	Block 927.	26	26	-	-	-	-	-
	Block 928.	97	91	5	-	1	-	-
	Block 929.	91	84	6	-	1	-	1
	Block 942.	407	401	-	2	-	4	-
	Block 943.	365	352	6	-	5	2	9
	Block 944.	478	458	7	2	7	4	8
	Block 945.	229	215	11	-	3	-	3
36 029 080	Hamburg town	53270	52729	222	68	77	174	599
36 029 080 0335	Blasdell village	3288	3265	-	9	3	11	50
	Tract 0128.	3288	3265	-	9	3	11	50
	Block Group 1.	1287	1277	-	4	1	5	18
	Block 104.	159	159	-	-	-	-	2
	Block 105.	19	19	-	-	-	-	-
	Block 106.	15	15	-	-	-	-	-
	Block 107.	10	10	-	-	-	-	-
	Block 108.	6	6	-	-	-	-	-
	Block 109.	15	15	-	-	-	-	-
	Block 110.	96	96	-	-	-	-	6
	Block 111.	110	110	-	-	-	-	3
	Block 112.	113	113	-	-	-	-	-
	Block 113.	116	115	-	-	1	-	-
	Block 114.	22	22	-	-	-	-	-
	Block 115.	10	10	-	-	-	-	1
	Block 116.	15	15	-	-	-	-	-
	Block 117.	64	60	-	-	-	4	-
	Block 119.	152	152	-	-	-	-	4
	Block 120.	42	42	-	-	-	-	-
	Block 121.	16	15	-	-	-	1	1
	Block 122.	46	42	-	4	-	-	-
	Block 123.	51	51	-	-	-	-	1
	Block 134.	8	8	-	-	-	-	-
	Block 135.	8	8	-	-	-	-	-

REFERENCE 11

SNYDER TANK CORPORATION

SITE RECONNAISSANCE REPORT

TO:
FROM: YEC, Inc.
DATE OF REPORT: 11/13/90
DATE OF INSPECTION: 11/ 2/90
INSPECTORS: Kevin Miller / Ira Bickoff

WASTES PRESENT

1. Flammable paint strippers, containing toluene, lead and vinyl acetate.

2. Cleaning solution containing sodium hydroxide, tetrasodium pyrophosphate and sodium phosphate.

3. Flammable paint, containing xylene and petroleum distillates.

4. Metal working fluid, containing xylene, toluene, alcohol and cutting oil.

5. Ethylene glycol.

SITE ACCESS

The Site is located 0.1 mile west of Lake Shore Drive in a mixed industrial/residential area. Lake Shore Drive is a limited access highway connecting the City of Buffalo to its southern suburbs. Snyder Tank Corporation has its gates open from 0730 to 1730, Monday through Friday. All monitoring wells are located on the Snyder Tank Corporation grounds. Thomas J. Snyder, company President, requests renotification of Phase II actions by NYSDEC.

WELL LOCATIONS

The upgradient well, GW-1, was tentatively relocated by YEC, Inc. representatives. The original location of GW-1 was observed, during site reconnaissance, to be on property not belonging to Snyder Tank Corporation. The NYSDEC requested that this well be moved to the west side of Hoover Drive, on Snyder Tank Corporation grounds. GW-1 has been relocated within the confines of the Snyder property, directly across from its original location (See Fig. 1). The proposed location for GW-1 is presently awaiting a utilities clearance. The present location of GW-2 and GW-3 on the Lake Erie beach front puts them at great risk to damage by winter storms. The abundant driftwood on the beach indicates a high water mark beyond (landward of) the NYSDEC-designated location shown in the Work Plan. During the geophysical survey a small pond approximately 2.5 feet deep was present on the beach side of the beach access gate. This is directly along the path that a drill rig must take to arrive at the well locations. Since a possibility exists that a rig could get mired in the beach sand, provisions should be made to have a bulldozer present to extricate the rig. YEC, Inc. requests that GW-2 and GW-3 be relocated approximately 30 east within the fenced area owned by Snyder Tank Corporation; providing these wells are still considered downgradient.

SAMPLING LOCATIONS

Two surface water samples and two surface soil samples will be taken as per the Work Plan. During the EPA's Site Assessment, stained soil was observed in two locations; on the north side adjacent to the fence in back of the office, and in the southwest corner of the parking area. During the Phase II Site Recon, the only stained surface soil observed on the north side exhibited iron staining from metal scraps buried in the soil. The southwest corner of the parking area showed none of the black stained soil reported in the EPA's Site Assessment. However, the stained soil may be covered by several feet of soil that appears to have been recently piled in this area. YEC, Inc. recommends that this area be scrapped with a trowel and the soil below scanned for the black stain.

In addition, deeply stained soil was observed in the vicinity of a barrel staging area. YEC, Inc. recommends that this soil be sampled, either in addition to, or in place of, the aforementioned locations (See Fig. 1, location of SS-3).

WATER SUPPLY

Buffalo Drilling will haul water from its shop at the onset of the job. One 1000 gallon tankload should suffice.

UTILITY ACCESS

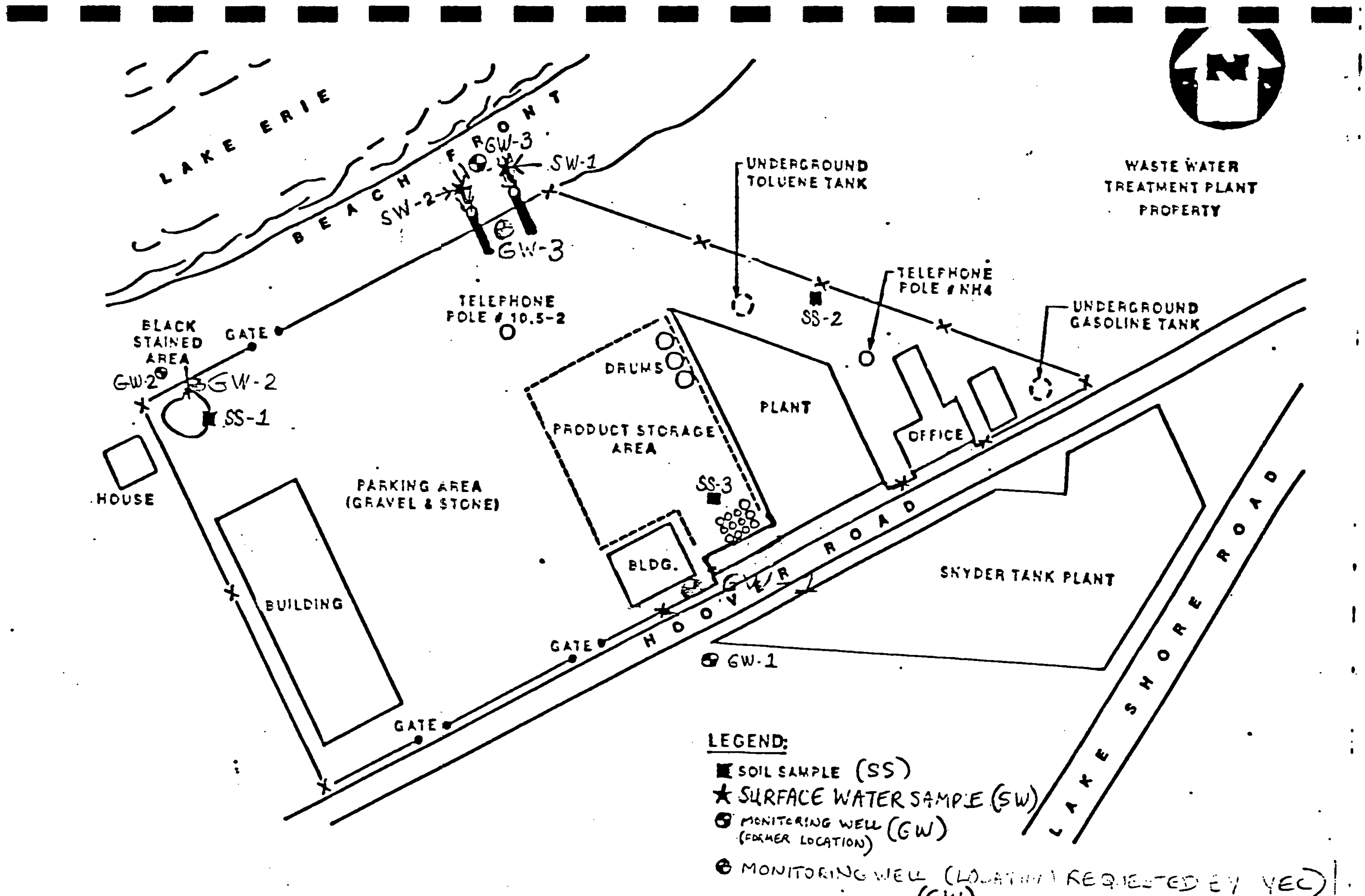
The telephone number to notify utilities regarding drilling at the Snyder Tank Corporation Site is 1-800 893-1133. This service was notified 11-12-90. The order number is K1892. The utility check should be complete by 11-21-90. However, local water and sewer utilities do not subscribe to that service. These utilities were cleared via a map located in the Engineer's Office in the Town of Hamburg.

HEALTH AND SAFETY CONCERNS

No additions to the Health and Safety Plan.

PERSONS CONTACTED

Thomas J. Snyder	President Snyder Tank Corporation
John Kauffman	Cheektowaga Service Office Manager Erie County Water Authority
Richard J. Lardo	Principal Engineering Assistant Town of Hamburg
Jim Barron	Buffalo Drilling



SAMPLE LOCATION MAP

SNYDER TANK, HAMBURG, N.Y.

(NOT TO SCALE)

Figure 1

REFERENCE 12

Page 1

ND-2900 D1748

ENGINEERING INVESTIGATIONS AT INACTIVE HAZARDOUS WASTE SITES

PHASE I INVESTIGATION

SNYDER TANK CORP., SITE NUMBER: 915049
TOWN OF HAMBURG, ERIE COUNTY

August 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

Prepared by:

ecology and environment engineering, p.c.
BUFFALO CORPORATE CENTER
368 PLEASANTVIEW DRIVE, LANCASTER, NEW YORK 14086, TEL. 716/684-8060

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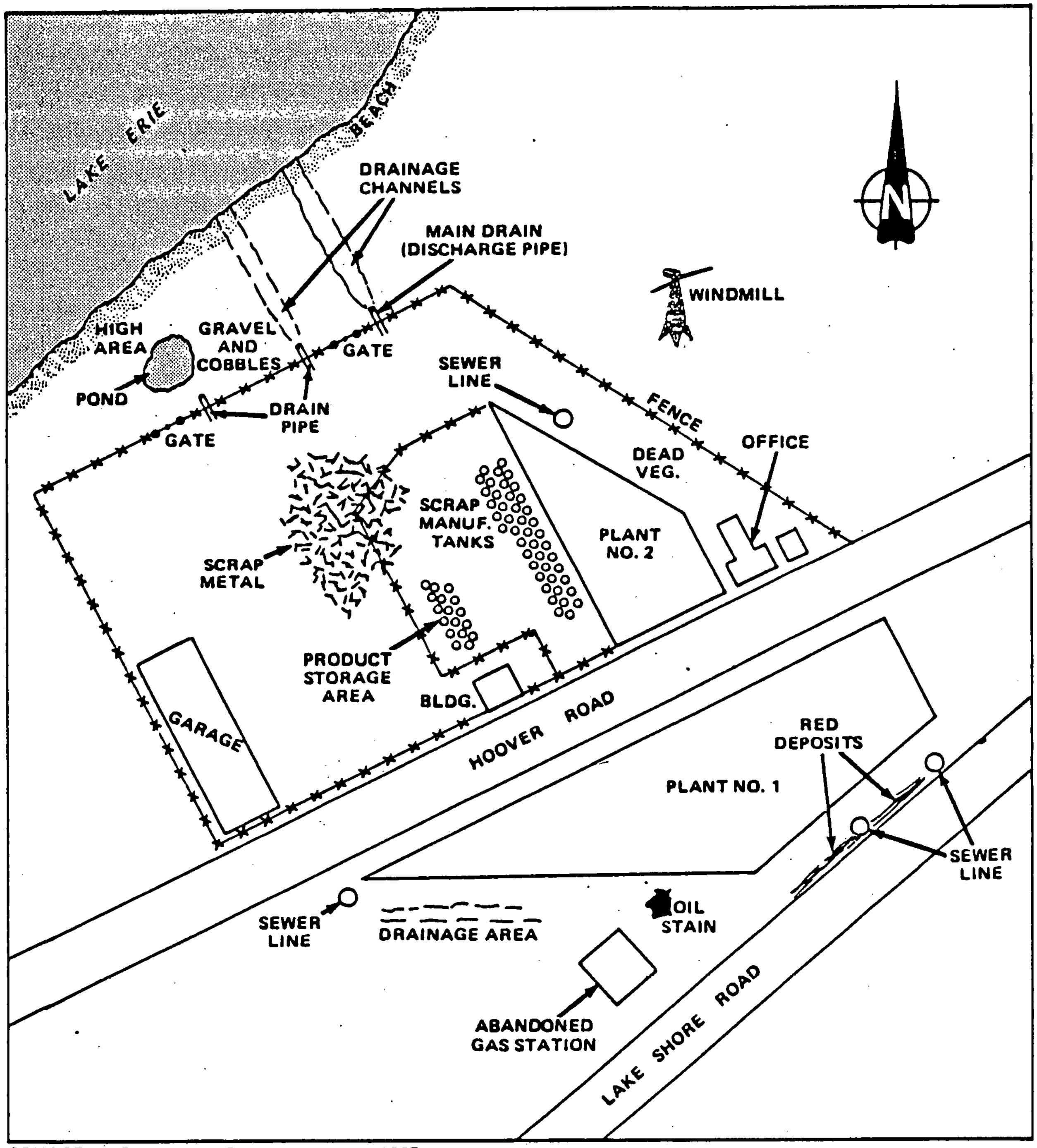
Page 2



SOURCE: Ecology and Environment, Inc., 1987.

NOT TO SCALE

Figure 1–2 SITE MAP - SNYDER TANK

Page 3

- o Overall site conditions;
- o Description of vegetation and a survey for stressed vegetation;
- o Presence of structures on the site;
- o Distance to nearest residence;
- o Location of nearest agricultural land;
- o Location of nearest surface water and wells, and type of use;
- o Visual delineation of waste disposal areas;
- o Air quality survey using an HNu photoionizer; and
- o Photodocumentation of the site.

All observations were recorded in a field logbook and reported in the United States Environmental Protection Agency (EPA) Site Inspection Report form.

1.3 ASSESSMENT

The walk-over inspection of the site and adjacent areas revealed that maintenance practices at the site have improved relative to past reports. No leaking tanks, improperly drummed waste, or staining of the beach were observed. No readings above background were noted on the photoionization detector while on site.

* The site inspection team identified some points of concern, including stressed vegetation on the northwest side of Plant No. 2, between the building and the fence. Additionally, the gravelled lot on the southwest side of Plant No. 2 is presently being used for outdoor storage of various scrap metals, racks, and tanks. Other concerns noted included a 7-foot x 3-foot oily stain adjacent to the south side of Plant No. 1, and the presence of rust-colored sediments between the eastern wall of Plant No. 1 and Route 5 (New Lake Shore

* Road). An above-ground sulfuric acid storage tank (approximately 1,000-gallon), which is apparently no longer in use, was also observed east of Plant No. 1. This tank is visible from Route 5.

* Three effluent discharges were observed at the property beach. The northernmost discharge is the site-permitted SPDES location. This conduit transports spent manufacturing cooling water with Route 5 and Hoover Road storm sewer drainage to the beach area. The other two drainage pipes are considerably smaller and are thought to be used for surficial drainage of gravelled areas to the southwest of Plants Nos. 1 and 2.

1.4 HRS SCORE

A preliminary application of the Hazard Ranking System (HRS) has been made to quantify the risk associated with this site. As the Phase I investigation is limited in scope, not all the information needed to fully evaluate the site is available. An HRS score was completed on the basis of the available data. Absence of necessary data may result in an unrealistically low HRS score.

Under the HRS, three numerical scores are computed to express the site's relative risk or damage to the population and the environment. The three scores are:

- S_M reflects the potential for harm to humans or the environment from migration of a hazardous substance away from the facility by routes involving groundwater, surface water, or air. It is a composite of separate scores for each of the three routes (S_{GW} = groundwater route score, S_{SW} = surface water route score, and S_A = air route score).

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

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

Page 5

4. SITE ASSESSMENT

4.1 SITE HISTORY

This company originated in 1939 as Snyder Welding Service. The business acquired and moved to its present site in 1941, where it successively became Snyder Manufacturing Company and Snyder Tank Corporation (Nussbaumer and Clark 1975). The plant manufactures truck fuel tanks and accessories from aluminum and steel sheet metal. This fabrication process involves acid pickling, passivating, alkaline pickling (etching), degreasing, fabricating, welding, testing, and painting. These manufacturing operations generate diverse liquid wastes including: spent pickling acid, spent phosphates, spent acid rinse, cleaning and etching rinses, painting booth curtain waste, spent test tank water, and spent cooling water (Nussbaumer and Clark 1975).* Prior to 1972, waste acid pickling solution was mixed with other plant wastes (non- sanitary) and was drained into Lake Erie at the present permitted SPDES location on the beach. The estimated volume of spent pickle liquor discharge is 98,000 gallons per year (NYSDEC 1986). This highly acidic waste reportedly formed a visible, red-colored plume in the lake due to the oxidation of the dissolved iron constituents, or milky colored plume due to precipitated phosphates (Nussbaumer and Clark 1975). Pressure by the Erie County Health Department (ECHD) led to the discontinuation of pickling and phosphate waste disposal at the current permitted discharge point. These wastes were then transported off site for disposal.

* ECHD inspections conducted between 1976 and 1979 noted a leaking tank, improperly drummed waste, and a rust-colored stain on the beach.

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Narrative

5

5.1

An Erie County Department of Environment and Planning (ECDEP) inspection report of March 1984 indicates that onsite disposal of plant wastes was no longer occurring and that all wastes were put into containers and disposed of off site (NYSDEC 1986). Sampling events as recent as spring of 1986 have determined that the facility exceeded SPDES permit maximum daily discharge limitations for 1,1,1-trichloroethane and total suspended solids (TSSs) (NYSDEC 1986).

Six soil and two soil/sediment samples were collected by NUS Corporation during a July 1986 site inspection for the EPA. Laboratory results indicated the presence of a number of organic and inorganic compounds on the Hazardous Substance List (HSL). Twenty-five organic compounds were found in soil samples collected from the facility's northwest border. Nineteen organic compounds were found in soil/sediment samples collected from the beach area. Inorganic HSL compounds were also detected in above normal concentrations for natural soil. Seven were detected in soil samples collected on the facility property and one was detected in the soil/sediment samples collected on the beach (NUS 1986).

4.2 SITE TOPOGRAPHY

The Snyder Tank Corporation is located within the Erie-Ontario lowland topographic province in the Town of Hamburg, New York. This province includes areas lying south of Lake Erie and Lake Ontario and extends up the Black River Valley in Central New York. The province is bordered to the south by the Appalachian Uplands. The Erie-Ontario Lowlands are characterized by a low, flat-lying topography resulting from pre-glacial erosion of the bedrock and subsequent topographic modification by glaciation. Consequently, the topography exhibits a variety of glacial depositional features as well as localized shoreline deposits.

The facility is located in Zones A3 and C of the Flood Insurance Rate Map (FIRM), prepared by the Federal Emergency Management Agency (FEMA). Zone A3 represents areas of the 100-year flood, and Zone C represents areas outside of the 500-year flood. Therefore, portions of the parking lot on site appear to be located in the 100-year floodplain.

- o A Lacustrine-Littoral, cobble/gravel beach with intermittent flooding wetland north of the site. Dimensions of this wetland are unspecified.

- o A Palustrine-open water/unknown bottom, intermittently exposed/permanent wetland northeast of the site (less than 10 acres).

4.2.3 Surface Waters

The Snyder Tank Corporation site is located directly adjacent to the western shoreline of Lake Erie. Tributary E-4 is located 0.5 mile south of the site and drains directly into Lake Erie at Bay View. This tributary is classified as Class D (Department of State 1983). Class D waters are suitable for secondary contact recreation, but are not conducive to propagation of game fishery or streambed conditions; the waters will not support the propagation of fish (Official Codes, Rules, and Regulations of New York 1985). Smokes Creek is located 0.6 mile north of the site and also drains directly into Lake Erie. This creek is also classified as Class D except at its mouth where it is Class B (Department of State 1983). Class B waters are suitable for primary contact recreation and any other uses except as a source of water supply for drinking, culinary, or food processing purposes.

Water intakes from Lake Erie in closest proximity to the site include (New York State Department of Health 1982):

- o Buffalo City Division of Water is located approximately 7 miles northwest of the site. This source serves a population of approximately 357,870; and

- o Wanakah Water Company is located approximately 3 miles southwest of the site. This source serves a population of approximately 12,000.

4.2.4 Land Use

The Snyder Tank Corporation site is located within a primarily industrial area, although the Hoover Beach residential section of Bay

4.3.3 Hydraulic Connections

Presently, insufficient background data exist on which to define site hydraulic connections with absolute certainty. However, hydrological principles can be applied to the site topography and subsurface geology to speculate as to the nature of the hydraulic gradients. The proximity and lower elevation of Lake Erie suggest probable hydraulic connections between the lake, the zones of saturation within the glacial till and beach materials, and the aquifers likely present within the Ludlowville formation. Hydraulic gradient and dominant flow patterns would trend toward Lake Erie. Surficial drainage follows this same direction. This migration route represents the primary path subsurface waters from the facility would potentially follow.

4.4 SITE CONTAMINATION

Recent soil/sediment, and SPDES discharge sampling and analyses indicate the presence of organic and inorganic Hazardous Substance List (HSL) compounds on site (NUS 1986). This contamination is believed to be the result of past and present disposal practices. Prior to 1972, the plant reportedly disposed of pickling acid and phosphate wastes at the current SPDES discharge point. Painting booth water curtain waste and etch rinse were also reportedly discharged to the ground surface on site. Erie County Health Department site inspections between 1976 and 1979 noted a leaking tank, improperly drummed waste, and a rust-colored stain on the beach (NUS 1986).

The plant presently discharges non-contact cooling and process water through a SPDES discharge to the beach of Lake Erie. Allegedly, the plant no longer generates any hazardous substances and all storage tanks have been removed.

Laboratory results for samples collected by NUS for the EPA during a July 9, 1986 inspection indicated the presence of a number of Hazardous Substance List (HSL) compounds. Twenty-five HSL organic compounds were found in soil samples collected from the plant's northwest border. Nineteen HSL organic compounds were found in soil/sediment samples collected from the beach area. A number of inorganic HSL contaminants were detected at concentrations exceeding the normal

Page 29

ranges found in natural soils. Seven were detected in soil samples collected on the plant's property and one was detected in soil/sediment samples collected on the beach. Detailed organic and inorganic analytical data is included in Appendix C of this report (NUS 1986).

NYSDEC compliance sampling reports indicate that the facility exceeded the daily maximum SPDES permit limitation of 0.010 mg/L for 1,1,1-trichloroethane during October 1985, February 1986, and on March 21, 1986. Additional NYSDEC compliance sampling on May 30, 1986 showed the facility in violation of the maximum daily limit for total suspended solids (TSSs). Reportedly, the production system contributing to the TSSs violation noted above were to be shut down as of July 31, 1986 (NYSDEC Division of Water 1986).

Recent NYSDEC compliance sampling events have also indicated various elevated SPDES discharge parameters including oil and grease. These violations are considered to be the result of careless handling of materials within the plant (Rink 1987).

During the site inspection the area between the northwest side of Plant No. 2 and the property fence line showed visible signs of stressed vegetation. Scrap metal storage on the southwest side of Plant No. 2, a small volume of red sediment on the pavement between Plant No. 1 and Route 5, and an old 1,000-gallon sulfuric acid storage tank were noted. Samples were not collected for analysis during this site inspection, therefore, the presence of contamination at these locations is unknown. Leaking tanks, improperly drummed wastes, and staining of the beach area noted during past site inspections were not observed (E & E 1987).

REFERENCE 13

Page 1

The Soil Chemistry of Hazardous Materials

James Dragun, Ph.D.

Hazardous Materials Control Research Institute
Silver Spring, Maryland

Page 2

TABLE 3.1 Native Soil Concentrations of Various Elements

Element	Concentration (ppm) Typical Range	Extreme Limits
Ag	0.1 - 5.0	0.1 - 50
Al	10,000 - 300,000	—
As	1.0 - 40	0.1 - 500
B	2.0 - 130	0.1 - 3000
Ba	100 - 3500	10 - 10,000
Be	0.1 - 40	0.1 - 100
Br	1.0 - 10	—
Ca	100 - 400,000	—
Cd	0.01 - 7.0	0.01 - 45
Ce	30 - 50	—
Cl	10 - 100	—
Co	1.0 - 40	0.01 - 500
Cr	5.0 - 3000	0.5 - 10,000
Cs	0.3 - 25	—
Cu	2.0 - 100	0.1 - 14,000
F	30 - 300	—
Fe	7,000 - 550,000	—
Ga	0.4 - 300	—
Ge	1.0 - 50	—
Hg	0.01 - 0.08	—
I	0.1 - 40	—
K	400 - 30,000	—
La	1.0 - 5000	—
Li	7.0 - 200	1.0 - 3000
Mg	600 - 6000	—
Mn	100 - 4000	1.0 - 70,000
Mo	0.2 - 5.0	0.1 - 400
Na	750 - 7500	400 - 30,000
Ni	5.0 - 1000	0.8 - 6200
P	50 - 5000	—
Pb	2.0 - 200	0.1 - 3000
Ra	$10^{-6.5}$ - $10^{-5.7}$	—
Rb	20 - 600	3.0 - 3000
S	30 - 10,000	—
Sb	0.6 - 10	—
Sc	10 - 25	—
Se	0.1 - 2.0	0.01 - 400
Si	230,000 - 350,000	—
Sn	2.0 - 200	0.1 - 700
Sr	50 - 1000	10 - 5000
Th	0.1 - 12	—
Ti	1000 - 10,000	400 - > 10,000
U	0.9 - 9.0	< 250
V	20 - 500	1.0 - 1000
Y	10 - 500	—
Zn	10 - 300	3.0 - 10,000
Zr	60 - 2000	10 - 8000

[a] Based on an Analysis of Data Presented in References 1,2,3,4,5, and 6.

REFERENCE 14

Pieczonka Engineering, Orchard

A. GENERAL DESCRIPTION OF INDUSTRIAL ACTIVITY

a) Snyder Tank

Synder Tank is a manufacturer of metal tanks, specializing in the fabrication and coating of steel, stainless steel and aluminum small-volume tanks (notably vehicle fuel tanks). Solvents, acids and alkaline substances are handled at the facility.

With the exception of acids and alkaline substances used in the pretreatment of the metal surfaces, any materials that might conform to the definition of hazardous substances are incidental to the main product line and are used in small or trace quantities.

b) Facility Layout

Snyder Tank manufacturing facilities offer full and open approaches for emergency response. Local police and fire personnel are familiar with the layout of the facilities. Clerical and support personnel who might be unfamiliar with manufacturing procedures and related occupational hazards are segregated in a separate office area.

The main approach is from the northeast on Hoover Road, a public secondary road. There is no gate guard or controlled access up to the buildings. As seen on the following figures, the plant opens freely to the road, since most of the doors are located there and the traffic pattern is through there. The grade level from the road to both plants is partially paved, without lawn, trees or other barriers.

In addition to the main access, there are loading docks on the North side of the plant facing Hoover Road. The facility is set between Lake Erie and Lake Shore Road and contains two production buildings and a separate office building. Hoover Road runs directly between the two production buildings. There is a public water supply with no private wells on site. Utilities are provided by local services. Sanitary and industrial process wastewater are conveyed by a service connection to a manhole where it enters the Hamburg Master Sewer District. The sewer system then proceeds to the Southtowns Waste Treatment Agency. Storm water, compressor cooling water and etchant rinse water are collected in a series of inlets that empty into stormlines discharging directly into Lake Erie.

Appendix 2 is the USGS map for the Buffalo Southeast Quadrangle. Appendix 3 is the site plan.

B. DESCRIPTION OF EMERGENCY REPONSE PLANS

a) Purpose

The BMP Plan is a "response" and a "planning" document. It is used to plan a comprehensive program of control, and to assist in taking natural, common-sense action during an emergency incident. This BMP Plan is intended to help responsible personnel cope with an emergency, but cannot be a step-by-step instruction manual on what to do... anything can happen.

The health and welfare of the employees and community are first concern and separate programs of procedures and personnel training have been dedicated to that end. The BMP Plan is no substitute for this.

Similarly, the BMP Plan is also a document intended to limit the odds against an emergency arising, done continuously in the on-going efforts on preparedness and prevention planning for the facility. Therefore, the document is not fixed in time and must be updated frequently to reflect new conditions.

The purpose of this plan is also to insure that selected Resource Conservation and Recovery Act requirements (40CFR264, Subpart D) and SARA requirements are met. The intent of these regulations is to insure that there is the appropriate level of response, containment and control of an emergency situation. The former protects the people at Snyder Tank; the latter protects the people of Buffalo. The procedures of concern are those regarding the solvents, paints, corrosive acids and alkalis used in the painting and etching operations. The hazards associated with other plant areas (paint, storage etc.) are standard and covered by existing procedures drawn in accordance with fire, OSHA, local and insurance regulations.

A secondary purpose of this plan is to insure that this response and control is accomplished with least disruption to the productivity of the facility.

C. ORGANIZATIONAL STRUCTURE FOR IMPLEMENTATION OF BMP PLAN

The BMP has two different faces. "Things go right" when the SPCC Coordinator and the safety officer insure that all facilities, units, processes, operations and systems are operated and maintained in reliable condition. But, "Things go wrong" and mishaps occur even in "failsafe" systems. No operation is without risk, and a complicated manufacturing like Snyder Tanks, with thousands of movements required to make each tank, is always under threat. If something happens, then the emergency coordinator takes over.

a) Internally

The implementation of this plan is the responsibility of the plant manager, monitored and guided by the corporate vice-president. The day to day activities of the spill prevention and preparedness plan are conducted by the emegency coordinator of the contingency plan. In appointing himself or herself to the role of emergency coordinator, the plant manager keeps these responsibilities.

b) Externally

The lead action group will be the LEPC, insuring that hazmat response teams are in place, and coordination through the SERC is complete.

D. MATERIAL AND WASTE INVENTORY

The inventory changes continuously, but the number of drums of coating or paint are in the 10-15 range at most while the amount of Argon can be as high as 20,000 pounds. Table 1 is a current listing of major products and substances, entering directly into process, or used incidental to operations at Snyder Tank.

Included in appendix 6 are the SARA Tier II hazardous chemical inventory forms which have been submitted to fulfill the SARA Title III requirements. This form contains a listing of all hazardous chemicals on site, maximum daily amounts, average daily amounts, number of days on site and thier locations.

E. SPILL AND LEAK PREVENTION AND RESPONSE

a) Identification of Hazard

There are three recognized emergencies that may have to be dealt with: Fire, discharge to personnel and discharge to the environment. Conventional fire threat is listed both because painting and coating operations pose direct concern, and fire itself can increase the threat of spill.

1) Fire

TABLE 1
C:\L\008-00809501
MATERIALS INVENTORY
BY TRADENAME
24-Jun-88

Code	Project	Plant	Product	Tradename	Manufacturer
1000	STC	Buffalo	Acetylene	Acetylene	Union Carbide
1075	STC	Buffalo	Etchant	Albright Heavy	Turco Products
1150	STC	Buffalo	Aluminum	Aluminum	Alumax Aluminum
1225	STC	Buffalo	Aluminum	Aluminum - KDS-2	Kaiser Aluminum
1300	STC	Buffalo	Aluminum	Aluminum - KDS-4	Kaiser Aluminum
1375	STC	Buffalo	Aluminum	Aluminum 4043	All State Welding
1525	STC	Buffalo	Coating	Aluminum Stripcoat	Essex Chemical Corporation
1600	STC	Buffalo	Grease	Anti Sieze Compound	Bowman
1675	STC	Buffalo	Anti Spatter Gel	Anti Spatter Gel	J. W. Harris
1755	STC	Buffalo	Ammonium Hydroxide	Aqua Ammonia	Raeco Products
1900	STC	Buffalo	Argon	Argon	Union Carbide
2050	STC	Buffalo	Paint	Black Primer	FPG
2125	STC	Buffalo	Paint	Black Primer	Essex Chemical Corporation
2200	STC	Buffalo	Paint	Black Primer	FPG
2275	STC	Buffalo	Conversion Chemical	Bonderite 1030	Parker Chemical Company
2350	STC	Buffalo	Conversion Chemical	Bonderite 1030B	Parker Chemical Company
2425	STC	Buffalo	Hand Soap	Boraxo	U.S. Borax and Chemical Corp.
2575	STC	Buffalo	Wire Brushes	Carbon Steel Brushes	Milwaukee Brush
2650	STC	Buffalo	Glass Cleaner	Claire Glene	Claire Manufacturing
2800	STC	Buffalo	Degreaser	DL-2060 Reactor	Drummond
2950	STC	Buffalo	Drawing Compound	Diekote	Kondor Products Corporation
3025	STC	Buffalo	Drawing Compound	Dietone AC	Kondor Products Corporation
3250	STC	Buffalo	Grease	Econo Grease	Armor Research Company
4150	STC	Buffalo	Oil	Hocut 757	E.F. Houghton & Co.
4225	STC	Buffalo	Indicator Solution	Indicator 14	Parker Chemical Company
4300	STC	Buffalo	Indicator Solution	Indicator 2	Parker Chemical Company
4375	STC	Buffalo	Indicator Solution	Indicator 3	Parker Chemical Company
4525	STC	Buffalo	Paint	Kryoleum - Clear	Drummond Corporation
4600	STC	Buffalo	Wash Solution	Liquid 422	Dubois Chemicals
4900	STC	Buffalo	Grease	Lubriplate No. 105	Bowman
5125	STC	Buffalo	Sealer	Marko Cure Seal	Marko Chemicals, Inc.
5275	STC	Buffalo	Oxygen	Oxygen	Union Carbide
5650	STC	Buffalo	Cleaning Compound	Parco Cleaner 338	Parker Chemical Company
5725	STC	Buffalo	Conversion Chemical	Parcolene 6	Parker Chemical Company
5800	STC	Buffalo	Conversion Agent	Parcolene 95A	Parker Chemical Company
5875	STC	Buffalo	Conversion Agent	Parcolene 95B	Parker Chemical Company
5950	STC	Buffalo	Cleaner	Power Boss	AAR Brooks and Perkins
6025	STC	Buffalo	Distillate	Protex 76	Polar, Inc.
6175	STC	Buffalo	Reagent Solution	Reagent Solution 44	Parker Chemical Company
6325	STC	Buffalo	Paint	Red Primer	Essex Chemical Corporation
6925	STC	Buffalo	Antifreeze	Startex Antifreeze	Texaco, Inc.
6988	STC	Buffalo	Alloy Steel Bars	Steel Bars, Alloy	U.S. Steel Corporation
6990	STC	Buffalo	Alloy Steel Bars	Steel Bars, Alloy	U.S. Steel Corporation
6992	STC	Buffalo	Alloy Steel Bars	Steel Bars, Alloy	U.S. Steel Corporation
6994	STC	Buffalo	Carbon Steel Bars	Steel Bars, Carbon	U.S. Steel Corporation
6996	STC	Buffalo	Carbon Steel Bars	Steel Bars, Carbon	U.S. Steel Corporation
6998	STC	Buffalo	Alloy Steel Piping	Steel Piping, Alloy	U.S. Steel Corporation
7000	STC	Buffalo	Carbon Steel Piping	Steel Piping, Carbon	U.S. Steel Corporation
7002	STC	Buffalo	Alloy Steel Plates	Steel Plates, Alloy	U.S. Steel Corporation
7004	STC	Buffalo	Carbon Steel Plates	Steel Plates, Carbon	U.S. Steel Corporation
7006	STC	Buffalo	HSLA Steel Plates	Steel Plates, HSLA	U.S. Steel Corporation
7008	STC	Buffalo	Alloy Steel	Steel, Alloy	U.S. Steel Corporation

7010	STC	Buffalo	Carbon Steel	Steel, Carbon	U.S. Steel Corporation
7012	STC	Buffalo	HSLA Steel	Steel, HSLA	U.S. Steel Corporation
7150	STC	Buffalo	Drawing Compound	Super Slam	Dubois Chemicals
7300	STC	Buffalo	Titrating Solution	Titrating Sltn. 11	Parker Chemical Company
7375	STC	Buffalo	Titrating Solution	Titrating Sltn. 15	Parker Chemical Company
7450	STC	Buffalo	Titrating Solution	Titrating Sltn. 20	Parker Chemical Company
7525	STC	Buffalo	Solvent	Toluene	Ashland Chemical Company
7600	STC	Buffalo	Oil	VCI # 10 Oil	Daubert Chemical Company
8202	STC	Buffalo	Welding Electrode	Welding Electrode	Lincoln Electric
8275	STC	Buffalo	Welding Electrode	Welding Electrode	Sandvik Steel Company
8200	STC	Buffalo	Welding Electrode	Welding Electrode	Lincoln Electric
8125	STC	Buffalo	Welding Electrode	Welding Electrode	L-Tec
8350	STC	Buffalo	Welding Wire	Welding Wire	L-Tec
8575	STC	Buffalo	Paint	Yellow Primer	Sherwin Williams Company

TABLE 2
C:\L\008-00809S01
MATERIALS INVENTORY
BY MANUFACTURER
24-Jun-88

Code	Project	Plant	Product	Tradename	Manufacturer
5950	STC	Buffalo	Cleaner	Power Boss	AAR Brooks and Perkins
1375	STC	Buffalo	Aluminum	Aluminum 4043	All State Welding
1150	STC	Buffalo	Aluminum	Aluminum	Alumax Aluminum
3250	STC	Buffalo	Grease	Econo Grease	Armor Research Company
7525	STC	Buffalo	Solvent	Toluene	Ashland Chemical Company
1600	STC	Buffalo	Grease	Anti Sieze Compound	Bowman
4900	STC	Buffalo	Grease	Lubriplate No. 105	Bowman
2650	STC	Buffalo	Glass Cleaner	Claire Gleme	Claire Manufacturing
7600	STC	Buffalo	Oil	VCI # 10 Oil	Daubert Chemical Company
2800	STC	Buffalo	Degreaser	DL-2060 Reactor	Drummond
4525	STC	Buffalo	Paint	Kryoleum - Clear	Drummond Corporation
4600	STC	Buffalo	Wash Solution	Liquid 422	Dubois Chemicals
7150	STC	Buffalo	Drawing Compound	Super Slam	Dubois Chemicals
4150	STC	Buffalo	Oil	Hocut 757	E.F. Houghton & Co.
1525	STC	Buffalo	Coating	Aluminum Stripcoat	Essex Chemical Corporation
2125	STC	Buffalo	Paint	Black Primer	Essex Chemical Corporation
6325	STC	Buffalo	Paint	Red Primer	Essex Chemical Corporation
1675	STC	Buffalo	Anti Spatter Gel	Anti Spatter Gel	J. W. Harris
1225	STC	Buffalo	Aluminum	Aluminum - KDS-2	Kaiser Aluminum
1300	STC	Buffalo	Aluminum	Aluminum - KDS-4	Kaiser Aluminum
2950	STC	Buffalo	Drawing Compound	Diekote	Kondor Products Corporation
3025	STC	Buffalo	Drawing Compound	Dietone AC	Kondor Products Corporation
8125	STC	Buffalo	Welding Electrode	Welding Electrode	L-Tec
8350	STC	Buffalo	Welding Wire	Welding Wire	L-Tec
8200	STC	Buffalo	Welding Electrode	Welding Electrode	Lincoln Electric
8202	STC	Buffalo	Welding Electrode	Welding Electrode	Lincoln Electric
5125	STC	Buffalo	Sealer	Marko Cure Seal	Marko Chemicals, Inc.
2575	STC	Buffalo	Wire Brushes	Carbon Steel Brushes	Milwaukee Brush
2050	STC	Buffalo	Paint	Black Primer	PPG
2200	STC	Buffalo	Paint	Black Primer	PPG
2275	STC	Buffalo	Conversion Chemical	Bonderite 1030	Parker Chemical Company
2350	STC	Buffalo	Conversion Chemical	Bonderite 1030B	Parker Chemical Company
4225	STC	Buffalo	Indicator Solution	Indicator 14	Parker Chemical Company
4300	STC	Buffalo	Indicator Solution	Indicator 2	Parker Chemical Company
4375	STC	Buffalo	Indicator Solution	Indicator 3	Parker Chemical Company
5650	STC	Buffalo	Cleaning Compound	Parco Cleaner 338	Parker Chemical Company

5725	STC	Buffalo	Conversion Chemical	Parcolene 6	Parker Chemical Company
5800	STC	Buffalo	Conversion Agent	Parcolene 95A	Parker Chemical Company
5875	STC	Buffalo	Conversion Agent	Parcolene 95B	Parker Chemical Company
6175	STC	Buffalo	Reagent Solution	Reagent Solution 44	Parker Chemical Company
7300	STC	Buffalo	Titrating Solution	Titrating Sltn. 11	Parker Chemical Company
7375	STC	Buffalo	Titrating Solution	Titrating Sltn. 15	Parker Chemical Company
7450	STC	Buffalo	Titrating Solution	Titrating Sltn. 20	Parker Chemical Company
6025	STC	Buffalo	Distillate	Protex 76	Polar, Inc.
1755	STC	Buffalo	Ammonium Hydroxide	Aqua Ammonia	Raeco Products
8275	STC	Buffalo	Welding Electrode	Welding Electrode	Sandvik Steel Company
8575	STC	Buffalo	Paint	Yellow Primer	Sherwin Williams Company
6925	STC	Buffalo	Antifreeze	Startex Antifreeze	Texaco, Inc.
1075	STC	Buffalo	Etchant	Albright Heavy	Turco Products
2425	STC	Buffalo	Hand Soap	Boraxo	U.S. Borax and Chemical Corp.
6992	STC	Buffalo	Alloy Steel Bars	Steel Bars, Alloy	U.S. Steel Corporation
6988	STC	Buffalo	Alloy Steel Bars	Steel Bars, Alloy	U.S. Steel Corporation
6990	STC	Buffalo	Alloy Steel Bars	Steel Bars, Alloy	U.S. Steel Corporation
6994	STC	Buffalo	Carbon Steel Bars	Steel Bars, Carbon	U.S. Steel Corporation
6996	STC	Buffalo	Carbon Steel Bars	Steel Bars, Carbon	U.S. Steel Corporation
6998	STC	Buffalo	Alloy Steel Piping	Steel Piping, Alloy	U.S. Steel Corporation
7000	STC	Buffalo	Carbon Steel Piping	Steel Piping, Carbon	U.S. Steel Corporation
7002	STC	Buffalo	Alloy Steel Plates	Steel Plates, Alloy	U.S. Steel Corporation
7004	STC	Buffalo	Carbon Steel Plates	Steel Plates, Carbon	U.S. Steel Corporation
7006	STC	Buffalo	HSLA Steel Plates	Steel Plates, HSLA	U.S. Steel Corporation
7008	STC	Buffalo	Alloy Steel	Steel, Alloy	U.S. Steel Corporation
7010	STC	Buffalo	Carbon Steel	Steel, Carbon	U.S. Steel Corporation
7012	STC	Buffalo	HSLA Steel	Steel, HSLA	U.S. Steel Corporation
1000	STC	Buffalo	Acetylene	Acetylene	Union Carbide
1900	STC	Buffalo	Argon	Argon	Union Carbide
5275	STC	Buffalo	Oxygen	Oxygen	Union Carbide

TABLE 3
C:\L\008-00809S01
MATERIALS INVENTORY
BY PRODUCT
24-Jun-88

Code	Project	Plant	Product	Tradename	Manufacturer
1000	STC	Buffalo	Acetylene	Acetylene	Union Carbide
7008	STC	Buffalo	Alloy Steel	Steel, Alloy	U.S. Steel Corporation
6990	STC	Buffalo	Alloy Steel Bars	Steel Bars, Alloy	U.S. Steel Corporation
6992	STC	Buffalo	Alloy Steel Bars	Steel Bars, Alloy	U.S. Steel Corporation
6988	STC	Buffalo	Alloy Steel Bars	Steel Bars, Alloy	U.S. Steel Corporation
6998	STC	Buffalo	Alloy Steel Piping	Steel Piping, Alloy	U.S. Steel Corporation
7002	STC	Buffalo	Alloy Steel Plates	Steel Plates, Alloy	U.S. Steel Corporation
1150	STC	Buffalo	Aluminum	Aluminum	Alumax Aluminum
1225	STC	Buffalo	Aluminum	Aluminum - KDS-2	Kaiser Aluminum
1300	STC	Buffalo	Aluminum	Aluminum - KDS-4	Kaiser Aluminum
1375	STC	Buffalo	Aluminum	Aluminum 4043	All State Welding
1755	STC	Buffalo	Ammonium Hydroxide	Aqua Ammonia	Raeco Products
1675	STC	Buffalo	Anti Spatter Gel	Anti Spatter Gel	J. W. Harris
6925	STC	Buffalo	Antifreeze	Startex Antifreeze	Texaco, Inc.
1900	STC	Buffalo	Argon	Argon	Union Carbide
7010	STC	Buffalo	Carbon Steel	Steel, Carbon	U.S. Steel Corporation
6994	STC	Buffalo	Carbon Steel Bars	Steel Bars, Carbon	U.S. Steel Corporation
6996	STC	Buffalo	Carbon Steel Bars	Steel Bars, Carbon	U.S. Steel Corporation
7000	STC	Buffalo	Carbon Steel Piping	Steel Piping, Carbon	U.S. Steel Corporation
7004	STC	Buffalo	Carbon Steel Plates	Steel Plates, Carbon	U.S. Steel Corporation

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5950	STC	Buffalo	Cleaner	Power Boss	AAR Brooks and Perkins
5650	STC	Buffalo	Cleaning Compound	Parco Cleaner 338	Parker Chemical Company
1525	STC	Buffalo	Coating	Aluminum Stripcoat	Essex Chemical Corporation
5800	STC	Buffalo	Conversion Agent	Parcolene 95A	Parker Chemical Company
5875	STC	Buffalo	Conversion Agent	Parcolene 95B	Parker Chemical Company
2275	STC	Buffalo	Conversion Chemical	Bonderite 1030	Parker Chemical Company
2350	STC	Buffalo	Conversion Chemical	Bonderite 1030B	Parker Chemical Company
5725	STC	Buffalo	Conversion Chemical	Parcolene 6	Parker Chemical Company
2800	STC	Buffalo	Degreaser	DL-2060 Reactor	Drummond
6025	STC	Buffalo	Distillate	Protex 76	Polar, Inc.
2950	STC	Buffalo	Drawing Compound	Diekote	Kondor Products Corporation
3025	STC	Buffalo	Drawing Compound	Dietone AC	Kondor Products Corporation
7150	STC	Buffalo	Drawing Compound	Super Slam	Dubois Chemicals
1075	STC	Buffalo	Etchant	Albright Heavy	Turco Products
2650	STC	Buffalo	Glass Cleaner	Claire Gleme	Claire Manufacturing
1600	STC	Buffalo	Grease	Anti Sieze Compound	Bowman
3250	STC	Buffalo	Grease	Econo Grease	Armor Research Company
4900	STC	Buffalo	Grease	Lubriplate No. 105	Bowman
7012	STC	Buffalo	HSLA Steel	Steel, HSLA	U.S. Steel Corporation
7006	STC	Buffalo	HSLA Steel Plates	Steel Plates, HSLA	U.S. Steel Corporation
2425	STC	Buffalo	Hand Soap	Boraxo	U.S. Borax and Chemical Corp.
4225	STC	Buffalo	Indicator Solution	Indicator 14	Parker Chemical Company
4300	STC	Buffalo	Indicator Solution	Indicator 2	Parker Chemical Company
4375	STC	Buffalo	Indicator Solution	Indicator 3	Parker Chemical Company
4150	STC	Buffalo	Oil	Hocut 757	E.F. Houghton & Co.
7600	STC	Buffalo	Oil	VCI # 10 Oil	Daubert Chemical Company
5275	STC	Buffalo	Oxygen	Oxygen	Union Carbide
2200	STC	Buffalo	Paint	Black Primer	PPG
2125	STC	Buffalo	Paint	Black Primer	Essex Chemical Corporation
2050	STC	Buffalo	Paint	Black Primer	PPG
4525	STC	Buffalo	Paint	Kryoleum - Clear	Drummond Corporation
6325	STC	Buffalo	Paint	Red Primer	Essex Chemical Corporation
6575	STC	Buffalo	Paint	Yellow Primer	Sherwin Williams Company
6175	STC	Buffalo	Reagent Solution	Reagent Solution 44	Parker Chemical Company
5125	STC	Buffalo	Sealer	Marko Cure Seal	Marko Chemicals, Inc.
7525	STC	Buffalo	Solvent	Toluene	Ashland Chemical Company
7300	STC	Buffalo	Titrating Solution	Titrating Sltn. 11	Parker Chemical Company
7375	STC	Buffalo	Titrating Solution	Titrating Sltn. 15	Parker Chemical Company
7450	STC	Buffalo	Titrating Solution	Titrating Sltn. 20	Parker Chemical Company
4600	STC	Buffalo	Wash Solution	Liquid 422	Dubois Chemicals
8202	STC	Buffalo	Welding Electrode	Welding Electrode	Lincoln Electric
8200	STC	Buffalo	Welding Electrode	Welding Electrode	Lincoln Electric
8275	STC	Buffalo	Welding Electrode	Welding Electrode	Sandvik Steel Company
8125	STC	Buffalo	Welding Electrode	Welding Electrode	L-Tec
8350	STC	Buffalo	Welding Wire	Welding Wire	L-Tec
2575	STC	Buffalo	Wire Brushes	Carbon Steel Brushes	Milwaukee Brush

APPENDIX 5

All phone numbers are local and in area code 716 unless otherwise stated:

a) Emergency Coordinator

Name: ------------------------------

Title: Emergency Coordinator

Plant Phone: ----------------------------

Home Phone: ----------------------------

Home Address: -----------------------------

----

b) Alternate Emergency Coordinator

Name: ------------------------------

Title: Alternate Emergency Coordinator

Plant Phone: ----------------------------

Home Phone: ----------------------------

Home Address: ------------------------------

Name: ------------------------------

Title: Alternate Emergency Coordinator

Plant Phone: ------------------------------

Home Phone: ------------------------------

Home Address: ------------------------------

----

c) Other Response Personnel

The folowing individuals are trained and familiar with response actions and are to be contacted in the absence of coordinators mentioned above:

Name: ------------------------------

Title: ------------------------------

Plant Phone: ------------------------------

Home Phone: ------------------------------

Home Address: ------------------------------

Name: ------------------------------

Title: ------------------------------

Plant Phone: ------------------------------

Home Phone: ------------------------------

Home Address: -------------------------------

Name: --------------------------------

Title: -------------------------------

Plant Phone: ------------------------------

Home Phone: ------------------------------

Home Address: -------------------------------

----

d) Fire Department

Name: Woodlawn Fire Department

Phone: 824-2284

e) Police Department

Name: Hamburg Town Police

Phone: 648-5111

f) Spill Control

Name:	SCA Chemical Services, Inc.
Phone:	1-716-754-8231

g) EPA

Name:	EPA National Response Center
Phone:	1-800-424-8802

h) Lab Sampling Analyses

Name:	Pieczonka Consultants
Phone:	1-716-826-8830

i) Town

Name: Town of Hamburg

Phone: 649-6111

j) County

Name: Erie County Health Department

Phone: 846-7671

k) Sheriff

Name: Erie County Sheriff

Phone: 846-6300

l) Gas

Name: National Fuel Gas

Phone: 824-2500

m) Hospital

Name: Our Lady of Victory Hospital

Phone: 825-8000

n) DEC

Name: N.Y.S. Department of Environmental Conservation

Phone: 847-4585

o) LEPC

Name: Local Emergency Planning Committee

Phone: 846-6262

p) Public Sewer

Name: Southtowns Sewage Treatment Agency

Phone: 823-8188

q) Telephone Information

Name: New York Telephone

Phone: 1-555-1212

r) SERC

Name: State Emergency Response Commission

Phone: (518) 457-7362

Tier Two
EMERGENCY AND HAZARDOUS CHEMICAL INVENTORY
Specific Information by Chemical

Facility Identification
Name Snyder Tank Corporation
Street Address
City State , Zip
SIC Code Dun & Brad Number

FOR OFFICIAL USE ONLY
ID #
Date Received

Owner/Operator Name
Name Phone ( )
Mail Address

Emergency Contact
Name Title
Phone ( ) 24 Hr. Phone ( )
Name Title
Phone ( ) 24 Hr. Phone ( )

Reporting Period From January 1 to December 31, 19

Important: Read all instructions before completing form

Chemical Description	Physical and Health Hazards (check all that apply)	Inventory: Max. Daily Amount (code)	Avg. Daily Amount (code)	No. of Days On-site (days)	Storage Code	Storage Locations
CAS 000067-63-0 Trade Secret [ ] Chem. Name Isopropyl Alcohol Check all that apply: Pure [ ] Mix [X] Solid [ ] Liquid [X] Gas [ ]	[X] Fire [ ] Sudden Release of Pressure [ ] Reactivity [ ] Immediate (acute) [ ] Delayed (chronic)	00	00	365	M14	Area B
CAS Trade Secret [ ] Chem. Name Check all that apply: Pure [ ] Mix [ ] Solid [ ] Liquid [ ] Gas [ ]	[ ] Fire [ ] Sudden Release of Pressure [ ] Reactivity [ ] Immediate (acute) [ ] Delayed (chronic)					
CAS Trade Secret [ ] Chem. Name Check all that apply: Pure [ ] Mix [ ] Solid [ ] Liquid [ ] Gas [ ]	[ ] Fire [ ] Sudden Release of Pressure [ ] Reactivity [ ] Immediate (acute) [ ] Delayed (chronic)					

Certification *(Read and sign after completing all sections)*

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this and all attached documents, and that based on my inquiry of those individuals responsible for obtaining the information, I believe that the submitted information is true, accurate, and complete.

T. J. Snyder - Vice President
T. J. Snyder
5/18/88
Date signed

Optional Attachments (Check one)
[X] I have attached a site plan
[ ] I have attached a list of site coordinate abbreviations

Form Approved OMB No. 2050-0072

Tier Two

EMERGENCY AND HAZARDOUS CHEMICAL INVENTORY

Specific Information by Chemical

Facility Identification

Name: Snyder Tank Corporation

Street Address:

City: State: Zip:

SIC Code: Dun & Brad Number:

FOR OFFICIAL USE ONLY: ID #: Date Received:

Owner/Operator Name

Name: Phone: ( )

Mail Address:

Emergency Contact

Name: Title:

Phone: ( ) 24 Hr. Phone: ( )

Name: Title:

Phone: ( ) 24 Hr. Phone: ( )

Reporting Period: From January 1 to December 31, 19__

Important: Read all instructions before completing form

Chemical Description	Physical and Health Hazards (check all that apply)	Inventory: Max. Daily Amount (code)	Avg. Daily Amount (code)	No. of Days On-site (days)	Storage Code	Storage Locations (Non-Confidential)
CAS 0077782-44-7; Trade Secret [ ]; Chem. Name: Oxygen; Check all that apply: [X] Pure [ ] Mix [ ] Solid [ ] Liquid [ ] Gas	[ ] Fire [X] Sudden Release of Pressure [ ] Reactivity [ ] Immediate (acute) [ ] Delayed (chronic)	01	01	365	L24	Throughout the facility
CAS 0000074-86-2; Trade Secret [ ]; Chem. Name: Acetylene; Check all that apply: [X] Pure [ ] Mix [ ] Solid [ ] Liquid [ ] Gas	[ ] Fire [X] Sudden Release of Pressure [ ] Reactivity [ ] Immediate (acute) [ ] Delayed (chronic)	01	01	365	L24	Throughout the facility
CAS 0007664-93-9; Trade Secret [ ]; Chem. Name: Sulfuric Acid; Check all that apply: [ ] Pure [X] Mix [ ] Solid [X] Liquid [ ] Gas	[ ] Fire [ ] Sudden Release of Pressure [ ] Reactivity [X] Immediate (acute) [ ] Delayed (chronic)	00	00	365	M14	Area B

Certification *(Read and sign after completing all sections)*

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this and all attached documents, and that based on my inquiry of those individuals responsible for obtaining the information, I believe that the submitted information is true, accurate, and complete.

Name and official title of owner/operator OR owner/operator's authorized representative — Signature — Date signed

Optional Attachments (Check one)

[X] I have attached a site plan

[ ] I have attached a list of site coordinate abbreviations

Tier Two EMERGENCY AND HAZARDOUS CHEMICAL INVENTORY

Specific Information by Chemical

Facility Identification

Name: Snyder Tank Corporation

Street Address:

City: State: Zip:

SIC Code: Dun & Brad Number:

FOR OFFICIAL USE ONLY — ID #: Date Received:

Owner/Operator Name

Name: Phone: ( )

Mail Address:

Emergency Contact

Name: Title:

Phone: ( ) 24 Hr. Phone: ( )

Name: Title:

Phone: ( ) 24 Hr. Phone: ( )

Reporting Period From January 1 to December 31, 19__

Important: Read all instructions before completing form

Chemical Description	Physical and Health Hazards (check all that apply)	Inventory: Max. Daily Amount (code)	Avg. Daily Amount (code)	No. of Days On-site (days)	Storage Code	Storage Locations
CAS 007632-00-0; Trade Secret [ ]; Chem. Name: Sodium Nitrate; Check all that apply: Pure [ ] Mix [X] Solid [ ] Liquid [ ] Gas [ ]	Fire [ ]; Sudden Release of Pressure [ ]; Reactivity [ ]; Immediate (acute) [X]; Delayed (chronic) [ ]	01	01	365	G14	Area B
CAS 007697-37-2; Trade Secret [ ]; Chem. Name: Nitric Acid; Check all that apply: Pure [ ] Mix [X] Solid [ ] Liquid [ ] Gas [ ]	Fire [ ]; Sudden Release of Pressure [ ]; Reactivity [ ]; Immediate (acute) [X]; Delayed (chronic) [ ]	01	01	365	G14	Area B
CAS 007440-37-1; Trade Secret [ ]; Chem. Name: Argon; Check all that apply: Pure [X] Mix [ ] Solid [ ] Liquid [ ] Gas [ ]	Fire [ ]; Sudden Release of Pressure [X]; Reactivity [ ]; Immediate (acute) [ ]; Delayed (chronic) [ ]	03	03	365	A24	North Side of Plant #1

Certification *(Read and sign after completing all sections)*

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Page 17

... Two
EMERGENCY AND HAZARDOUS CHEMICAL INVENTORY
Specific Information by Chemical

Facility Identification

Name: Snyder Tank Corporation
Street Address:
City: State: Zip:
SIC Code: Dun & Brad Number:

FOR OFFICIAL USE ONLY — ID #: Date Received:

Owner/Operator Name

Name: Phone: ( )
Mail Address:

Emergency Contact

Name: Title:
Phone: ( ) 24 Hr. Phone: ( )
Name: Title:
Phone: ( ) 24 Hr. Phone: ( )

Reporting Period From January 1 to December 31, 19__

Important: Read all instructions before completing form

Chemical Description	Physical and Health Hazards (check all that apply)	Max. Daily Amount (code)	Avg. Daily Amount (code)	No. of Days On-site (days)	Storage Code	Storage Locations
CAS 001310-73-2; Trade Secret [ ]; Chem. Name: Sodium Hydroxide; Check all that apply: Pure [ ] Mix [X] Solid [ ] Liquid [X] Gas [ ]	Fire [ ]; Sudden Release of Pressure [ ]; Reactivity [ ]; Immediate (acute) [X]; Delayed (chronic) [ ]	02	01	365	G14	Area B
CAS 007664-38-2; Trade Secret [ ]; Chem. Name: Phosphoric Acid; Check all that apply: Pure [ ] Mix [X] Solid [ ] Liquid [ ] Gas [ ]	Fire [ ]; Sudden Release of Pressure [ ]; Reactivity [ ]; Immediate (acute) [X]; Delayed (chronic) [ ]	01	01	365	G14	Area B
CAS 007775-09-9; Trade Secret [ ]; Chem. Name: Sodium Chlorate; Check all that apply: Pure [ ] Mix [X] Solid [ ] Liquid [ ] Gas [ ]	Fire [ ]; Sudden Release of Pressure [ ]; Reactivity [ ]; Immediate (acute) [X]; Delayed (chronic) [ ]	02	01	365	G14	Area B

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Tier Two
EMERGENCY AND HAZARDOUS CHEMICAL INVENTORY
Specific Information by Chemical

Facility Identification

Name Snyder Tank Corporation
Street Address
City State Zip
SIC Code Dun & Brad Number

FOR OFFICIAL USE ONLY: ID # / Date Received

Owner/Operator Name

Name Phone ( )
Mail Address

Emergency Contact

Name Title
Phone ( ) 24 Hr. Phone ( )

Name Title
Phone ( ) 24 Hr. Phone ( )

Important: Read all instructions before completing form

Reporting Period From January 1 to December 31, 19____

Chemical Description	Physical and Health Hazards (check all that apply)	Max. Daily Amount (code)	Avg. Daily Amount (code)	No. of Days On-site (days)	Storage Code	Storage Locations
CAS: (blank); Trade Secret: [ ]; Chem. Name: Aliphatic Hydrocarbons; Check all that apply: [ ] Pure [ ] Mix [ ] Solid [X] Liquid [ ] Gas	[X] Fire; [ ] Sudden Release of Pressure; [ ] Reactivity; [ ] Immediate (acute); [ ] Delayed (chronic)	01	01	365	D 1 4	Throughout the Facility
CAS: 007664-39-3; Trade Secret: [ ]; Chem. Name: Hydrofluoric Acid; Check all that apply: [ ] Pure [X] Mix [ ] Solid [ ] Liquid [ ] Gas	[ ] Fire; [ ] Sudden Release of Pressure; [ ] Reactivity; [X] Immediate (acute); [ ] Delayed (chronic)	02	02	365	G 1 4	Area E
CAS: 000111-76-2; Trade Secret: [ ]; Chem. Name: 2-Butoxy Ethanol; Check all that apply: [ ] Pure [X] Mix [ ] Solid [ ] Liquid [ ] Gas	[X] Fire; [ ] Sudden Release of Pressure; [ ] Reactivity; [X] Immediate (acute); [ ] Delayed (chronic)	01	01	365	G 1 4	Area E

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Tier Two

EMERGENCY AND HAZARDOUS CHEMICAL INVENTORY

Specific Information by Chemical

Facility Identification

Name Snyder Tank Corporation

Street Address

City State Zip

SIC Code Dun & Brad Number

FOR OFFICIAL USE ONLY — ID # — Date Received

Owner/Operator Name

Name Phone ( )

Mail Address

Emergency Contact

Name Title

Phone ( ) 24 Hr. Phone ( )

Name Title

Phone ( ) 24 Hr. Phone ( )

Important: Read all instructions before completing form

Reporting Period From January 1 to December 31, 19____

Chemical Description	Physical and Health Hazards (check all that apply)	Inventory: Max. Daily Amount (code)	Avg. Daily Amount (code)	No. of Days On-site (days)	Storage Codes and Locations (Non-Confidential): Storage Code	Storage Locations
CAS 000067-64-1; Trade Secret [ ]; Chem. Name Acetone; Check all that apply: Pure [ ] Mix [X] Solid [ ] Liquid [ ] Gas [ ]	[X] Fire; [ ] Sudden Release of Pressure; [ ] Reactivity; [ ] Immediate (acute); [ ] Delayed (chronic)	01	01	365	D14 D14	Area D Area F
CAS 000078-93-3; Trade Secret [ ]; Chem. Name Methyl Ethyl Ketone; Check all that apply: Pure [ ] Mix [X] Solid [ ] Liquid [ ] Gas [ ]	[X] Fire; [ ] Sudden Release of Pressure; [ ] Reactivity; [ ] Immediate (acute); [ ] Delayed (chronic)	01	01	365	D14 D14	Area D Area F
CAS 007439-92-1; Trade Secret [ ]; Chem. Name Inorganic Lead; Check all that apply: Pure [ ] Mix [X] Solid [ ] Liquid [ ] Gas [ ]	[ ] Fire; [ ] Sudden Release of Pressure; [ ] Reactivity; [X] Immediate (acute); [ ] Delayed (chronic)	01	01	365	D14 D14	Area D Area F

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[ ] I have attached a list of site coordinate abbreviations

Page ___ of ___ pages

Approved OMB No. 2050-0072

Tier Two

EMERGENCY AND HAZARDOUS CHEMICAL INVENTORY

Specific Information by Chemical

Facility Identification

Name Snyder Tank Corporation

Street Address

City State Zip

SIC Code

Dun & Brad Number

FOR OFFICIAL USE ONLY

ID #

Date Received

Owner/Operator Name

Name Phone ( )

Mail Address

Emergency Contact

Name Title

Phone ( ) 24 Hr. Phone ( )

Name Title

Phone ( ) 24 Hr. Phone ( )

Reporting Period From January 1 to December 31, 19___

Important: Read all instructions before completing form

Chemical Description	Physical and Health Hazards (check all that apply)	Inventory: Max. Daily Amount (code)	Avg. Daily Amount (code)	No. of Days On-site (days)	Storage Code	Storage Locations
CAS 001333 86 4; Trade Secret [ ]; Chem. Name Carbon Black; Check all that apply: Pure [ ] Mix [X] Solid [ ] Liquid [ ] Gas [ ]	Fire [ ]; Sudden Release of Pressure [ ]; Reactivity [ ]; Immediate (acute) [X]; Delayed (chronic) [ ]	00	00	365	D14 D14 D14	Area A Area C Area F
CAS 037300 23 5; Trade Secret [ ]; Chem. Name Zinc Pottasium Chromate; Check all that apply: Pure [ ] Mix [X] Solid [ ] Liquid [ ] Gas [ ]	Fire [ ]; Sudden Release of Pressure [ ]; Reactivity [ ]; Immediate (acute) [ ]; Delayed (chronic) [X]	01	01	365	D14 D14 D14	Area A Area C Area F
CAS 000071 36 3; Trade Secret [ ]; Chem. Name n-Butyl Alcohol; Check all that apply: Pure [ ] Mix [X] Solid [ ] Liquid [ ] Gas [ ]	Fire [X]; Sudden Release of Pressure [ ]; Reactivity [ ]; Immediate (acute) [ ]; Delayed (chronic) [ ]	00	00	365	D14 D14 D14	Area A Area C Area F

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[ ] I have attached a list of site coordinate abbreviations

Tier Two
EMERGENCY AND HAZARDOUS CHEMICAL INVENTORY
Specific Information by Chemical

Facility Identification

Name: Snyder Tank Corporation
Street Address: 3774 Lakeshore Rd.
City: Buffalo State: NY Zip: 14219
SIC Code: 3714 Dun & Brad Number: 00-211-4197

FOR OFFICIAL USE ONLY
ID #
Date Received

Owner/Operator Name

Name: Gerald Snyder Phone: (716) 827-5353
Mail Address: 3774 Lakeshore Rd. Buffalo, NY 14219

Emergency Contact

Name: T. J. Snyder Title: Vice President
Phone: (716) 827-5353 24 Hr. Phone: ( )

Name: John Ruppert Title: Plant Manager
Phone: (716) 827-5353 24 Hr. Phone: ( )

Important: Read all instructions before completing form

Reporting Period From January 1 to December 31, 1987

Chemical Description	Physical and Health Hazards (check all that apply)	Max. Daily Amount (code)	Avg. Daily Amount (code)	No. of Days On-site (days)	Storage Code	Storage Locations
CAS 000108-88-3 Trade Secret [ ] Chem. Name: Toluene Check all that apply: [X] Pure [X] Mix [ ] Solid [X] Liquid [ ] Gas	[X] Fire [ ] Sudden Release of Pressure [ ] Reactivity [ ] Immediate (acute) [ ] Delayed (chronic)	02	02	365	D14 D14 D14 D14	Area A Area C Area D Area F
CAS 001330-20-7 Trade Secret [ ] Chem. Name: Xylene Check all that apply: [ ] Pure [X] Mix [ ] Solid [ ] Liquid [ ] Gas	[X] Fire [ ] Sudden Release of Pressure [ ] Reactivity [ ] Immediate (acute) [ ] Delayed (chronic)	02	02	365	D14 D14 D14	Area A Area C Area F
CAS 008030-30-6 Trade Secret [ ] Chem. Name: V M & P Naptha Check all that apply: [ ] Pure [X] Mix [ ] Solid [X] Liquid [ ] Gas	[X] Fire [ ] Sudden Release of Pressure [ ] Reactivity [ ] Immediate (acute) [ ] Delayed (chronic)	01	01	365	D14 D14 D14	Area A Area C Area F

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Optional Attachments *(Check*

[X] I have attached a site plan
[ ] I have attached a list of site

Tier Two

EMERGENCY AND HAZARDOUS CHEMICAL INVENTORY

Specific Information by Chemical

Facility Identification

Name: Snyder Tank Corporation

Street Address: ____

City: ____ State: ____ Zip: ____

SIC Code: [ ][ ][ ][ ] Dun & Brad Number: [ ][ ]-[ ][ ][ ]-[ ][ ][ ][ ]

FOR OFFICIAL USE ONLY: ID # ____ Date Received ____

Owner/Operator Name

Name: ____ Phone: ( ) ____

Mail Address: ____

Emergency Contact

Name: ____ Title: ____

Phone: ( ) ____ 24 Hr. Phone: ( ) ____

Name: ____ Title: ____

Phone: ( ) ____ 24 Hr. Phone: ( ) ____

Important: Read all instructions before completing form

Reporting Period From January 1 to December 31, 19__

Chemical Description	Physical and Health Hazards (check all that apply)	Inventory: Max. Daily Amount (code)	Avg. Daily Amount (code)	No. of Days On-site (days)	Storage Code	Storage Locations
CAS [ ] Trade Secret [ ] Chem. Name: Aliphatic Hydrocarbons Check all that apply: [ ] Pure [ ] Mix [ ] Solid [X] Liquid [ ] Gas	[X] Fire [ ] Sudden Release of Pressure [ ] Reactivity [ ] Immediate (acute) [ ] Delayed (chronic)	01	01	365	D14	Throughout the Facility
CAS 007664-39-3 Trade Secret [ ] Chem. Name: Hydrofluoric Acid Check all that apply: [ ] Pure [X] Mix [ ] Solid [ ] Liquid [ ] Gas	[ ] Fire [ ] Sudden Release of Pressure [ ] Reactivity [X] Immediate (acute) [ ] Delayed (chronic)	02	02	365	G14	Area E
CAS 000111-76-2 Trade Secret [ ] Chem. Name: 2-Butoxv Ethanol Check all that apply: [ ] Pure [X] Mix [ ] Solid [ ] Liquid [ ] Gas	[X] Fire [ ] Sudden Release of Pressure [ ] Reactivity [X] Immediate (acute) [ ] Delayed (chronic)	01	01	365	G14	Area E

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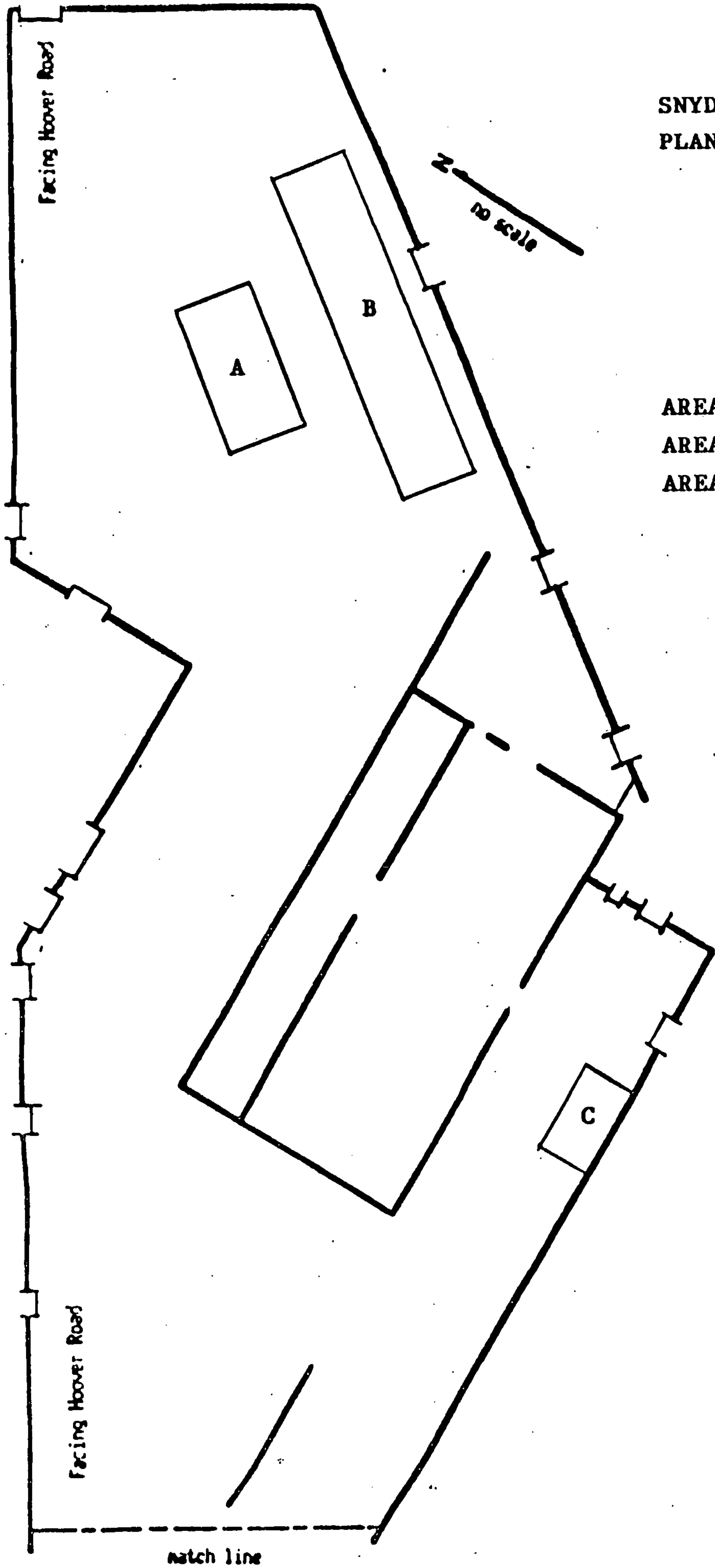
Optional Attachments *(Chec*

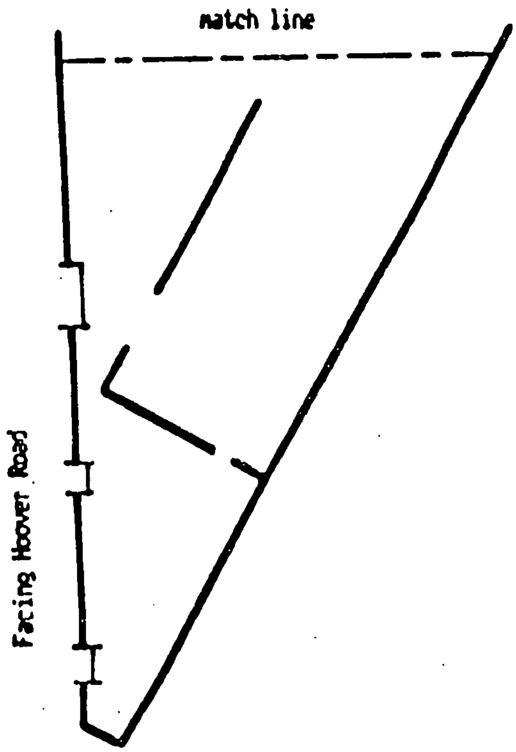
[X] I have attached a site pla

[ ] I have attached a list of s

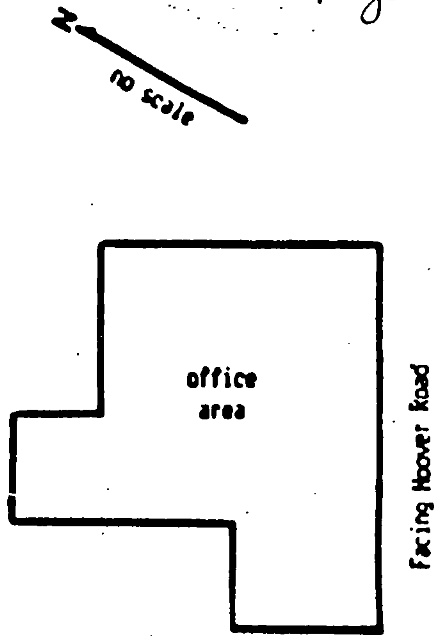
SNYDER TANK CORPORATION - BUFFALO
PLANT #1 LAYOUT

AREA A - PAINT BOOTH
AREA B - WASH SYSTEM
AREA C - STORAGE AREA

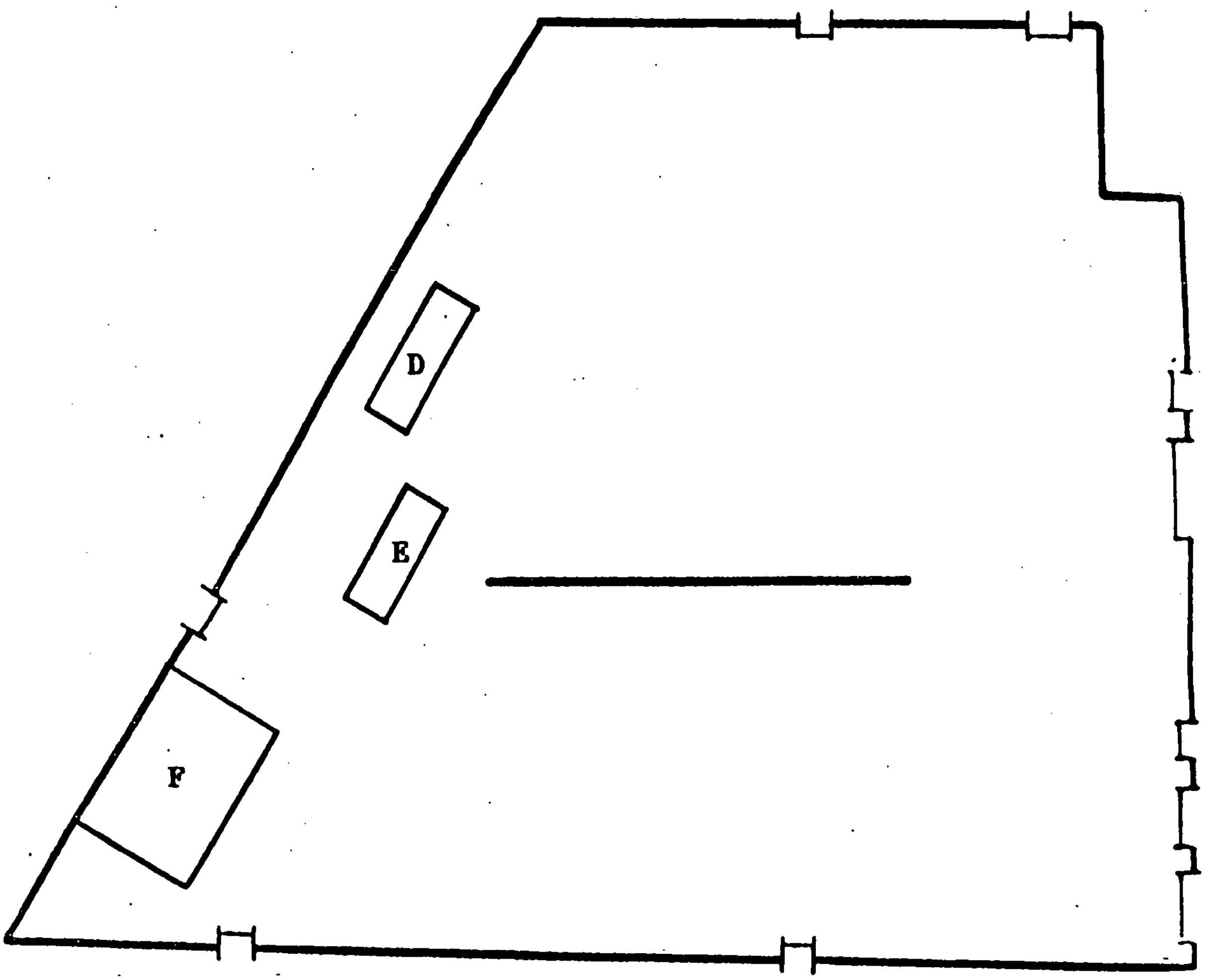




SNYDER TANK CORPORATION - BUFFALO
PLANT #2 LAYOUT



AREA D - COATING
AREA E - ETCHING OPERATION
AREA F - STORAGE AREA



REFERENCE 15

Hardness Calculation

Class B Waterbody

Wastewater Sample SW-1 ☑

CATION	CONC.	(MG/L)
Ca(+2)	71.0	MG/L
Mg(+2)	18.2	MG/L

HARDNESS = 252.23 ☑

RESULTING STANDARD

(UG/L)

METAL		CLASS	
CADMIUM	2.3	ABC	■
	11.1	D	□
COPPER	26.1	ABC	■
	42.4	D	□
LEAD	10.4	ABC	■
	266.5	D	□
CHROMIUM	441.6	ABC	■
	3704.7	D	□
NICKEL	193.1	ABC	■
	3725.9	D	□
SILVER	19.9	D	□
ZINC	30.0	ABC	■
	692.4	D	□

■ Class A, B, or C Surface Water

□ Class D Surface Water

Page 2

HARDNESS CALCULATION

Class B Waterbody

Wastewater Sample SW-2 ☑

CATION	CONC.	(MG/L)
Ca(+2)	184.0	MG/L
Mg(+2)	48.6	MG/L

HARDNESS = 659.58 ☑

RESULTING STANDARD

(UG/L)

METAL		CLASS	
CADMIUM	5.0	ABC	■
	32.9	D	□
COPPER	59.3	ABC	■
	104.8	D	□
LEAD	35.1	ABC	■
	900.0	D	□
CHROMIUM	970.3	ABC	■
	8140.7	D	□
NICKEL	400.9	ABC	■
	7735.9	D	□
SILVER	104.1	D	□
ZINC	30.0	ABC	■
	1537.7	D	□

■ Class A, B, or C Surface Water

□ Class D Surface Water

REFERENCE 16

Page 1

02-8612-14-SI

FINAL DRAFT
SITE INSPECTION REPORT
AND HAZARD RANKING SYSTEM MODEL
SNYDER TANK CORPORATION
HAMBURG, NEW YORK

PREPARED UNDER

TECHNICAL DIRECTIVE DOCUMENT NO. 02-8612-14
CONTRACT NO. 68-01-7346
(CONTINUATION OF CONTRACT 68-01-6699 AND TDD# 02-8603-25A)

FOR THE

ENVIRONMENTAL SERVICES DIVISION
U.S. ENVIRONMENTAL PROTECTION AGENCY

OCTOBER 30, 1986

NUS CORPORATION
SUPERFUND DIVISION

SUBMITTED BY	REVIEWED/APPROVED BY
Stephen E. Maybury	Ronald M. Naman
STEPHEN E. MAYBURY	RONALD M. NAMAN
PROJECT MANAGER	FIT OFFICE MANAGER

c; :cc:
File 90-83-0107
Palumbo, Region 9 Water
Garvey, PDES-PAS, Albany
e Co. DEP
RPB
r. Baker, EPA Region II

Facility ID No. : N- 007 3636 Page 2

Effective Date (EDP) : June 1, 1983

Expiration Date (Exp) : June 1, 1988

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
STATE POLLUTANT DISCHARGE ELIMINATION SYSTEM (SPDES)
DISCHARGE PERMIT

[redacted]

Special Conditions
(Part I)

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

Permittee Name: Snyder Tank Corporation

Permittee Street: ~~P. O. Box 1914~~ 3774 LAKE SHORE RD

Permittee City: Buffalo State: NY Zip Code: 14219

is authorized to discharge from the facility described below:

Facility Name: Snyder Tank Corporation

Facility Location (C,T,V): Hamburg (T) County: Erie County

Facility Mailing Address (Street): P. O. Box 1914

Facility Mailing Address (City): Buffalo State: NY Zip Code: 14219

into receiving waters known as: Lake Erie (Class B)
Lat. 42° 45' 00"
Long. 78° 59' 00"

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

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

By Authority of Paul D. Eismann, Alternate Permit Administrator
Designated Representative of Commissioner of the Department of Environmental Conservation

May 13, 1983
Date

Paul D. Eismann
Signature

-2(6/80)Pg.1

Facility ID No.: NY 007 3636
Effective Date: June 1, 1983
Expiration Date: June 1, 1988

Page 3

EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

During the period beginning EDP June 1, 1983
d lasting until EDP + 5 Years June 1, 1988
e discharges from the permitted facility shall be limited and monitored by the permittee as specified below:

tfall Number & Effluent Parameter	Discharge Limitations Daily Avg.	Discharge Limitations Daily Max.	Units	Monitoring Reqmts. Measurement Frequency	Monitoring Reqmts. Sample Type
1 - Non-Contact Cooling and Process Wastewater					
Flow	Monitor	Monitor	GPD	Monthly	6-hr.Composite
tal Suspended Solids	30	50	mg/l	Monthly	6-hr.Composite
l & Grease		15	mg/l	Monthly	Grab
Iron	2.0	4.0	mg/l	Monthly	6-hr.Composite
Aluminum	2.0	4.0	mg/l	Monthly	6-hr.Composite
osphorus	2.0	4.0	mg/l	Monthly	6-hr.Composite
(Range)	6.0 - 9.0		SU	Monthly	Grab
Arsenic		0.15	mg/l	Quarterly	6-hr.Composite
romium		0.5	mg/l	Quarterly	6-hr.Composite
pper		0.5	mg/l	Quarterly	6-hr.Composite
Lead		0.6	mg/l	Quarterly	6-hr.Composite
ckel		1.3	mg/l	Quarterly	6-hr.Composite
nc		0.4	mg/l	Quarterly	6-hr.Composite
Phenols-Total (4 AAP)		0.5	mg/l	Quarterly	6-hr.Composite
1,1,1-Trichloroethane		0.01	mg/l	Quarterly	6-hr.Composite
richloroethylene		0.01	mg/l	Quarterly	6-hr.Composite
oluene		0.01	mg/l	Quarterly	6-hr.Composite

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

APPENDIX B

APPENDIX B

Appendix B

List of Agencies Contacted

SOURCES CONTACTED FOR THE PHASE II INVESTIGATION

John Daleo
Town of Hamburg Health Department
Phone: 1-716-649-4225

Information: Private uses of groundwater within a three mile radius of the site.

Steven Doleski
NSYDEC
600 Deleware Avenue
Buffalo, New York 14202
Phone: 1-716-847-4600

Information: Freshwater wetlands within a 1 mile radius of the site

John R. Whitney
District Conservationalist
Soil and Water Conservation District
Erie County
21 South Grove Street
East Aurora, New York 14052
Phone: 1-716-652-8480

Information: Distances to agricultural and prime agricultural land in production within the past 5 years, if 2 miles or less/ Irrigated land within a 3 mile radius of the site/ Location of water supply intakes within 3 miles downstream of the site and population served by each intake

Pieczonka Engineers
4254 N. Buffalo Road
Orchard Park, New York 14127
Phone: 1-716-662-3007

Information: Map of underground water mains and utilities

Board of Municipal Planning (Planning Department)
6122 S. Park Avenue
Hamburg, NY 14075
Phone: 1-716-649-2023

Information: Emergency Response Plans for Snyder Tank Corporation

Jaspal Singh Walia
NYSDEC Region 9
584 Deleware Avenue
Buffalo, New York 14202-1073
Phone: 1-716-847-4600

Information: DEC/NUS Phase I Report

John Ozard
NYSDEC Division of Fish and Wildlife
700 Troy-Schenectady Road
Latham, New York 12110-2400
Phone: 1-518-783-3932

Information: Critical habitats of endangered animal and plant species within a one mile radius of the site

Harriett G. Smalls
U.S. Department of Commerce
Bureau of the Census
New York, NY 10278
Phone: 1-212-997-1990

Information: Population within a four mile radius of the site (Pennsylvania and New York Tracts

James R. Covey, P.E.
New York State Department of Health (NYSDOH)
Associate Sanitary Engineer
Bureau of Public Water Supply Protection
Albany, NY 12237
Phone: 1-518-458-6731

Information: Community water system sources for Chemung County

Burrell Buffington
Significant Habitat Unit
Information Services
Wildlife Resources Center
700 Troy-Schenectady Road
Latham, New York 12110-2400

Phone: 1-518-783-3932

Information: Endangered species and critical habitats near site

David J. Kiser
Environmental Engineering Technician 3
Water Division
NYSDEC
6274 East Avon-Lima Road
Avon, NY 14414
Phone: 1-716-226-2466

Information: Surface water uses/classes/intakes in the vicinity of the site

CLEARS
Cornell University
464 Hollister Hall
Ithaca, NY 14853-3501
Phone: 1-607-255-6520

Information: Topographic Maps

Dan Judd
NYSDEC
Region 9
600 Deleware Avenue
Buffalo, NY 14202
Phone: 1-716-847-4600

Information: SPDES Permit information for Snyder Tank Corporation

Erie County Regional Planning Board
3103 Sheudan Drive
Eggertsville, NY 14226
Phone: 1-716-837-2035

Information: No additional information

APPENDIX C

APPENDIX C

Appendix C

Geophysical Survey Data

Weston Geophysical
CORPORATION

November 14, 1990

Mr. Edward Chen
YEC, INC.
Clarkstown Executive Park
612 Corporate Way
Suite 4M
Valley Cottage, New York 10989

Subject: Results from Geophysical Survey
Snyder Tank Property
Hamburg, New York

Dear Mr. Chen:

In accordance with your authorization, Weston Geophysical conducted terrain conductivity and electrical resistivity surveys on November 6 and 7, 1990 at the Snyder Tank Property, Hamburg, New York. The purpose of this investigation was to provide information to help locate possible utilities and other buried objects which could be a hazard during the drilling and installation of monitoring wells. The methodologies employed and results of investigations are summarized below.

LOCATION AND SURVEY CONTROL

The general area of investigation is shown on Figure 1. The terrain conductivity (EM-31) data were acquired along nine lines within the enclosed parking lot and beach areas. Survey line locations were staked in the field and their positions determined by taped measurements and compass bearings relative to buildings, fences, and other cultural features.

Electrical resistivity soundings were conducted in 4 locations; two of these locations were in the beach area, while the other two were in areas in the parking lot where anomalous EM-31 data were obtained. Figure 2 shows the location of EM-31 survey lines and electrical resistivity sounding locations.

METHODS OF INVESTIGATION

The EM-31 D terrain conductivity meter measures the conductivity of earth materials to a depth of about 20 feet. The technique is an "induction" technique, which measures the strength of the secondary magnetic field generated in the presence of a conductor, such as a metallic object. In the presence of metallic objects, negative conductivity values or "polarity reversals" are observed, making them readily detectable by the EM-31 methodology. Data are recorded digitally and transferred to a computer for immediate evaluation. An expanded discussion of the electromagnetic induction method may be found in Appendix A.

Resistivity data were acquired using an ABEM model SAS-300 resistivity instrument in conjunction with copper-plated steel electrodes and ancillary connecting cables. All resistivity data were obtained using the Lee modification of the Wenner electrode configuration with electrode separations ("A-spacings") of 2 to 100 feet at the four sounding locations.

RESULTS

Terrain Conductivity Measurements

Data obtained using the EM-31 terrain conductivity meter indicate that there is a general decrease in conductivity toward Lake Erie. Conductivity values inside the fenced area generally ranged from 30 to 50 mmhos/m, with the highest values exceeding 100 mmhos/m. Conductivity values on the beach ranged from 20 to 27 mmhos/m.

Conductivity results also revealed the presence of metallic objects, as evidenced by highly variable conductivity values. Two distinct anomalous areas indicative of buried metal were detected. One area is located in the vicinity of GW-3, along Line 3, north of Station 2+80, Line 4, north of Station 3+25, and along all of Lines 2A, 3B, and W3. The high frequency and moderate amplitude of conductivity values suggest the presence of smaller metallic objects, such as utilities. Well GW-3 appears to be located in this anomalous area, although it appears that the buried target (possible pipe) may be as much as 10 feet south. Nevertheless, caution should be exercised while drilling in this area. Figure 3 is a generalized conductivity map showing this anomalous area.

The other area, characterized by high amplitude and high frequency conductivity values, is indicative of more massive metallic objects. This area is located in the center of the truck turnaround area, where above ground metal objects which interfere with data acquisition were not present. Anomalous conductivity readings were obtained along Line 4, Stations 0+95 through 1+90, and along Line 5, Stations 1+10 through 2+00, as shown on Figure 3.

Conductivity values were slightly anomalous in the vicinity of GW-2; however, the presence of above ground metal objects, such as fences and trailers, probably influenced the data.

Electrical Resistivity Measurements

Results of the electrical resistivity survey are interpreted from curves depicting recorded data and computer generated models. The sounding data are most reliably modeled with a three layer, high-low-high, resistivity sequence.

PT-2, located to the northwest of Line 1, Station 6+00 and north of the facility, is probably the best representative of "natural" earth conditions. The top layer, having an apparent resistivity of 460 Ohm-feet, is indicative of a partially saturated sand, as observed in the field. The relatively low resistivity (161 Ohm-feet)/high conductivity intermediate layer probably delineates the saturated-unsaturated sand boundary, approximately 4 to 6 feet below grade. The more resistive (543 Ohm-feet) third layer is probably indicative of the shale bedrock speculated to exist in this area. Model data at PT-2 indicate that material with resistivity values indicative of bedrock occur at 14 feet below grade.

Modeled electrical resistivity results at PT-1 were somewhat irregular. These resistivity values are indicative of nonhomogeneous/anisotropic conditions, such as may be caused by the presence of concrete rubble and/or other "fill" material. The uppermost resistivity layer, having an apparent resistivity of 2100 Ohm-feet, corresponds to unsaturated sand and contains blocks of concrete (observed in the field). This layer has an approximate thickness of 6 to 8 feet. The more conductive layer(s) probably correspond to the saturated natural material, found at about 8 feet below grade. Resistivity values indicative of bedrock were not detected at PT-1.

Within the fenced area on the Snyder Tank property, the high-low- high resistivity sequence is evident. However, because of the presence of a thin layer of fill material, the resistivity values of the uppermost layer ranges from 1060 to 3420 Ohm-feet and has a thickness of 0.8 to 1.5 feet at PT-3 and PT-4, respectively. A resistivity value of 529 Ohm-feet was detected at PT-3, which may be indicative of the partially saturated natural material. Resistivity values of 156 and 132 Ohm-feet, indicative of saturated conditions, were detected at PT-3 and PT-4, respectively, 3 to 6 feet below grade. Resistivity values indicative of bedrock were not detected at PT- 3.

SUMMARY

Two anomalous areas indicative of buried metal were detected along conductivity survey lines. One anomalous area, detected in the vicinity of GW-3 may be indicative of small metal objects, such as pipes or rebar. The anomalous area located by Line 4, Stations 0+95 through 1+90 and Line 5, Stations 1+10 through 2+00, have conductivity values that exceed 50 mmhos/m, and are also indicative of buried metal.

A minor conductivity anomaly detected at proposed well location GW-2 may be attributed to the proximity of a fence and trailer.

Electrical Resistivity data indicate that the water table is about 3 to 6 feet below grade at "point test" areas, while bedrock type resistivity layering appears to be within 14 feet of ground surface at PT-2 and about 6 feet below grade around PT-4.

RECOMMENDATIONS

Two test pits are recommended in each of the anomalous areas outlined in Figure 3. In addition, modeling variability obtained in PT-1 and other point tests may be reduced when ground truth methods such as well borings are used and data are input into the current models. We would, therefore, recommend that well bore information be sent upon completion of the drilling program for further refinement of these models, and better identification of terrain conductivity anomalies.

Mr. Edward Chen
YEC, INC.

November 14, 1990
Page Four

We will be pleased to provide you with any additional information that you may require, and appreciate the opportunity to provide YEC, Inc. with our geophysical services.

Sincerely

WESTON GEOPHYSICAL CORPORATION

Charlene Sullivan

Charlene Sullivan
Geophysicist

Doria Kutrubes

Doria Kutrubes
Project Geophysicist

CS/DLK:cc
WGC - 18295-06
Attachments

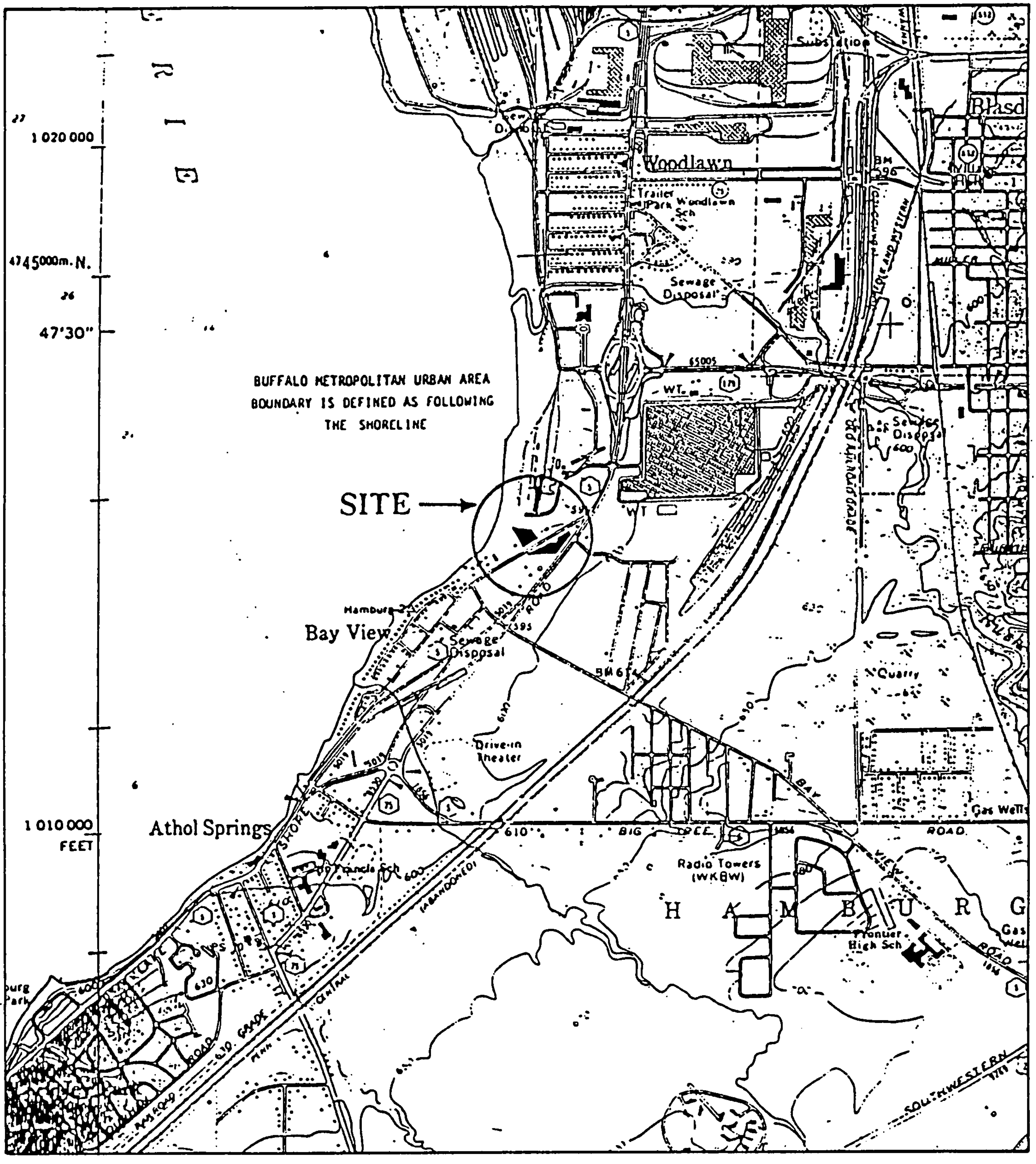
4

TABLE 1 - WELL CLEARING

GW-1	Relocated by YEC personnel
GW-2	Proximity to metal fence, but below ground appears to be free of large metal objects
GW-3	Located in a very "noisy" area in which numerous pipes and/or other metal objects are present.

FIGURES

6

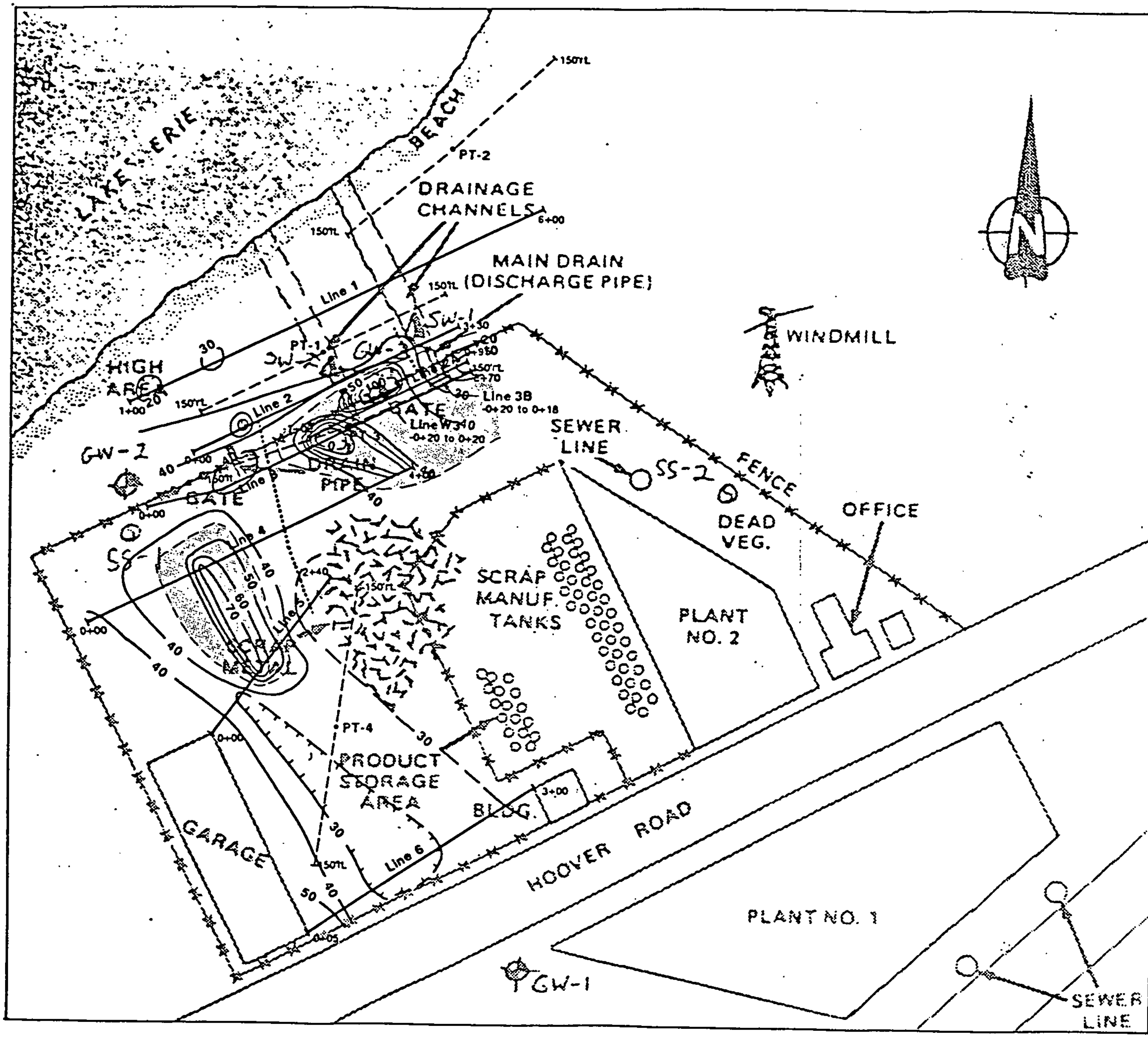


0 2000 FEET

Source:
NYSDOT Buffalo SE Quad

prepared by CVS	GEOPHYSICAL SURVEYS SNYDER TANK PROPERTY HAMBURG, NEW YORK prepared for YEC, INC.	General Area of Investigation	
checked by			
reviewed by		Weston Geophysical	Fig. 1

11/90



EXPLANATION

- EM-31 Survey Coverage
- Resistivity Point Test Location and Array Alignment
- Conductivity Contour, Dashed Where Inferred
- Contour Interval: 10 millimhos/meter
- Inferred Utility Location
- Area of Highly Anomalous Conductivity Values Indicative of Buried Metal

0 100 200
Approx. Scale in Feet

Basemap: SITE MAP provided by YEC, Inc.

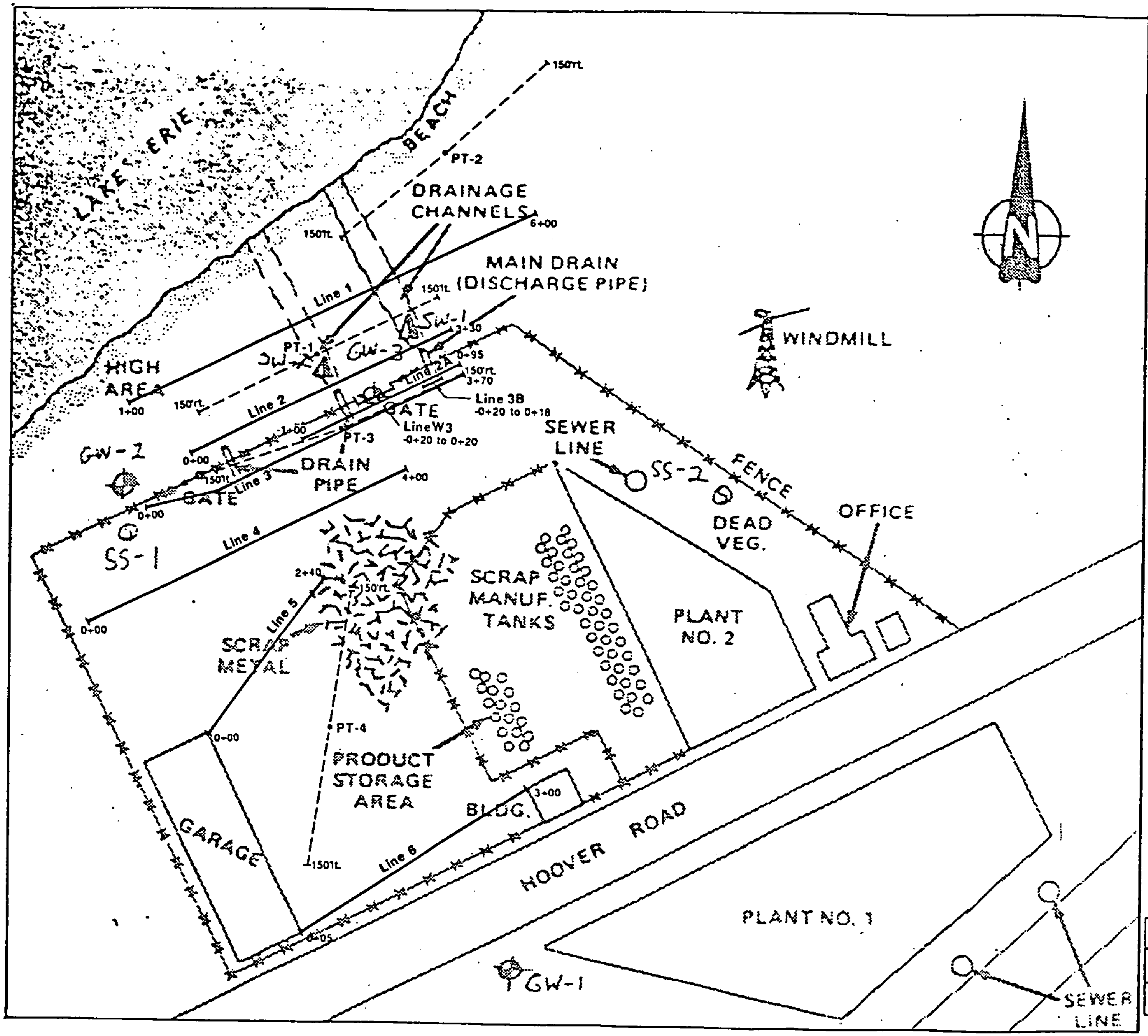
Conductivity Contour and Anomaly Map

GEOPHYSICAL SURVEYS
SNYDER TANK PROPERTY
HAMBURG, NEW YORK
prepared for
YEC, INC.

prepared by CVS
checked by
reviewed by

Weston Geophysical | Fig. 3

11/90



EXPLANATION

EM-31 Survey Coverage

Resistivity Point Test Location and Array Alignment

0 100 200

Approx. Scale in Feet

Basemap: SITE MAP provided by YEC, Inc.

Geophysical Survey Coverage Map

GEOPHYSICAL SURVEYS
SNYDER TANK PROPERTY
HAMBURG, NEW YORK
prepared for
YEC, INC.

prepared by CVS
checked by
reviewed by

Weston Geophysical

Fig. 2

11/90

APPENDIX A

ELECTROMAGNETIC TERRAIN CONDUCTIVITY METHOD OF INVESTIGATION

G/0

GENERAL CONSIDERATIONS

The electromagnetic terrain conductivity [EM] survey is a method of obtaining subsurface information through "remote" inductive electric measurements made at the surface of the earth. Although limited in application, the EM method has significant advantage in speed and definition for certain problems. The parameter measured with this technique is the apparent conductivity of the subsurface. The conductivity meter consists of receiver coil and a separate transmitter coil which induces an electrical source field [a circular eddy current loop] in the earth [Figure 1]. Each current loop generates a magnetic field proportional to the value of the current flowing within the loop. Part of the magnetic field from each current loop is intercepted by the receiver coil and converted to an output voltage which is linearly related to terrain conductivity. EM instrument readings are in millimhos per meter.

Geologic materials can be characterized by their electrical characteristics; lateral variations in conductivity values generally indicate a change in subsurface conditions. The relative conductivity of earth materials is particularly sensitive to water content and dissolved salts or ions. Accordingly, dry sands and gravels, and massive rock formations have low conductivity values; conversely, most clays and materials with a high ion content have high conductivity values.

FIELD PROCEDURE FOR DATA ACQUISITION

Weston Geophysical generally uses two common terrain conductivity meters: the Geonics EM-31 and the EM-34-3. The EM-31 has a fixed intercoil spacing of 3.7 meters and an effective depth of penetration of approximately 6 meters. The EM-34-3 has two coils which can be separated by 10, 20, or 40 meters and can be oriented in either the horizontal or vertical dipole modes. Intercoil separations increase the effective depth of investigation as shown below.

Intercoil Spacing [meters]	Depth of Investigation [meters] Horizontal Dipoles	Vertical Dipoles
10	7.5	15
20	15	30
40	30	60

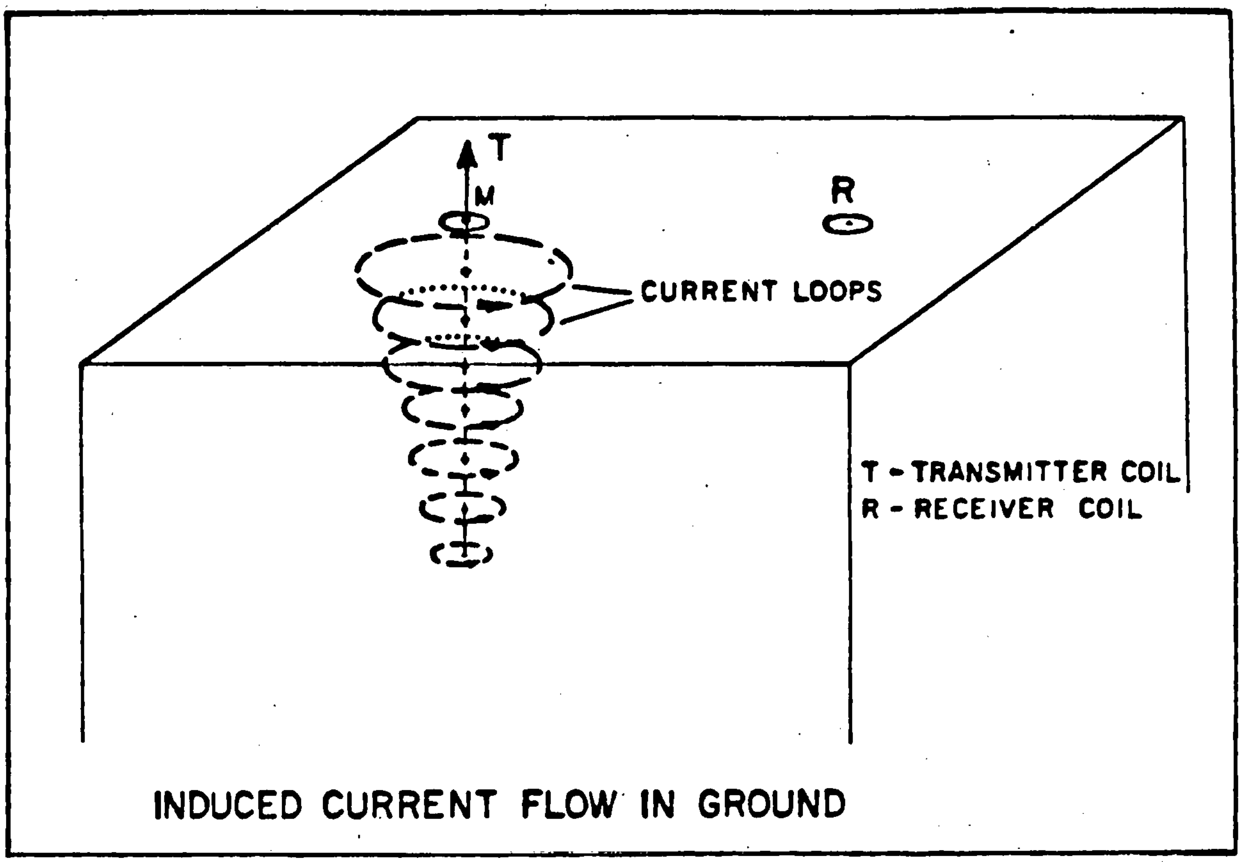
The coil orientation [horizontal or vertical] allows the EM-34-3 to respond to materials of different depths.

Conductivity measurements obtained with the EM-31 and/or the EM-34-3 can be obtained at any spacing along a survey line. EM-31 readings have the added flexibility of being recorded on a continuous chart recorder providing continuous data along a survey line.

DATA INTERPRETATION

EM data interpretation is generally subjective, that is measured EM values are contoured or profiled to identify high or low conductivity locations. Conductivity values obtained by an EM survey are relative values and depth estimates to conductive surface or bodies are best accomplished with an on-site calibration.

The EM-31 and EM-34-3 measure terrain conductivity in millimhos/meter. These values can be converted to resistivity [ohm/meters] for comparison with resistivity results by dividing the conductivity values into 1000.



Horizontal coplanar configuration (vertical dipole mode)

Figure 1

/3

APPENDIX B

ELECTRICAL RESISTIVITY METHOD OF INVESTIGATION

6/14

INTRODUCTION

Electrical resistivity measurements obtained at ground surface may be used to evaluate subsurface materials. The resistivity of earth materials is inversely proportional to their temperature, permeability, porosity, water content, and salinity or ion content. Dry sands, gravels, and massive unweathered rock exhibit relatively high resistivities whereas clays, water-saturated sediments or weathered rock have lower resistivities. Therefore, resistivity surveying is a good technique for mapping the water table, tracing ground water contaminant plumes, delineating zones of weathered bedrock, fractures or solution cavities, determining depth to bedrock, and locating bedrock and sediment lithologic contacts [particularly mineralized zones].

The "apparent" resistivity value of a particular material, as measured in the field, is a function of the material's true resistivity, the thickness of the unit, thicknesses and resistivities of adjacent layers, and the electrode spacing. Apparent resistivity values are calculated based on the configuration of current and potential [Figure 1] electrodes. Interpretation of electrical resistivity data is based upon either comparison of field derived apparent resistivity values with an appropriate theoretical case or inverse modeling performed by a computer.

FIELD PROCEDURES

Two field techniques, point tests [vertical sounding] and [lateral] profiling, are conducted during most resistivity surveys. A resistivity point test is analogous to drilling; the results of a point test consist of a vertical profile of units defined by resistivity characteristics, similar to a lithologic sequence developed from drilling data. Resistivity profiling is used to trace the lateral extent of a particular condition, such as a contaminant plume, water table, mineralized zone, etc.

A point test is conducted by incrementally increasing the spacing between electrodes, maintaining the chosen configuration about a single point [Figure 1]. Resistivity measurements obtained at greater electrode separations are sampling deeper in the earth. Resistivity profiling requires moving a fixed array of electrodes along a prearranged traverse. Three of the most commonly used electrode configurations are described and discussed in the following sections and shown on Figure 1.

WENNER CONFIGURATION

The Wenner Configuration, one of the most widely used electrode arrangements, consists of four equally spaced electrodes [Figure Ia]. An electric current is applied across the outer electrodes and the change in voltage is measured between the inner pair of potential electrodes. The Wenner Configuration has less penetration than a Schlumberger or dipole–dipole array and is more sensitive to lateral changes. It is a reasonable compromise between the various electrode arrays for detecting both vertical and horizontal changes if used with Lee Partitioning Configuration.

- LEE PARTITIONING CONFIGURATION

  A third potential electrode is added to the center of the Wenner Configuration to create the Lee Partitioning Configuration [Figure Ib]. Three measurements of the change in voltage are taken at each positioning of the array; readings are made between P_1–P_2, P_0–P_1 and P_0–P_2.

SCHLUMBERGER CONFIGURATION

The Schlumberger Configuration is a four electrode array [Figure 1–II] in which the distance between the outer current electrodes is at least five times the distance between the inner potential electrodes. A single measurement of voltage change is taken between the potential electrodes, similar to the Wenner method. Penetration is better than Wenner and the method is much less affected by horizontal [lateral] changes. It is almost exclusively used for vertical sounding.

DIPOLE–DIPOLE

The dipole–dipole configuration of electrodes [Figure 1–III] allows deep penetration with a distinct logistical advantage in that the current electrodes can remain fixed while only the potential electrodes need be moved.

The choice of configuration depends on the type of survey, point test and/or profiling, as well as the projected target. The Wenner Configuration is useful for both point test and profiling surveys in a variety of settings. If local, lateral variations in resistivity between potential electrodes are expected, the Lee Partitioning Configuration should be used. The Schlumberger Configuration is employed for vertical soundings or in conjunction with Wenner soundings or constant spacing to discriminate between lateral and vertical variations in resistivity.

The dipole–dipole configuration is best adapted to detecting such anomalies as ore bodies at depth.

DATA INTERPRETATION

The interpretation of resistivity sounding data by Weston Geophysical is accomplished by computer modeling of the field data curves. Wenner and Schlumberger soundings are interpreted by a numerical inversion process which models subsurface structure, in terms of resistivity variation with depth, by varying an initial trial model until the theoretical resistivity values accurately fit the field data. Weston interprets dipole–dipole data by forward modeling using a two–dimensional finite-element program; the two–dimensional geo–electric model is varied by the interpreter to match the dipole–dipole field data.

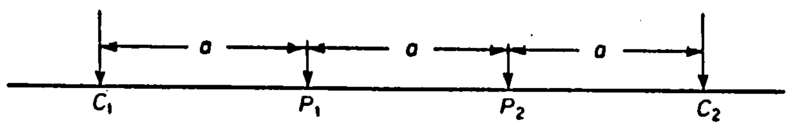
An example of Wenner field data and a computer–generated theoretical curve is shown in Figure 2.

ELECTRICAL RESISTIVITY ELECTRODE CONFIGURATIONS

Ia WENNER

$\rho_a = 2\pi a \, \Delta V/I$

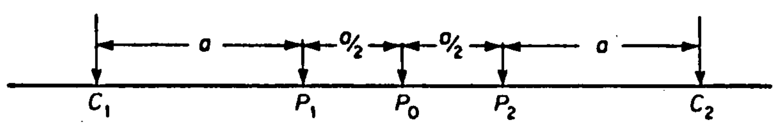
ΔV taken between $P_1 P_2$



Ib LEE MODIFICATION OF WENNER

$\rho_a = 4\pi a \, \Delta V/I$

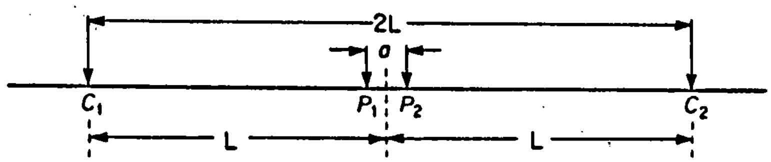
ΔV taken between $P_1 P_0$ and $P_0 P_2$



II SCHLUMBERGER

$\rho_a = \frac{\pi L^2}{a} \frac{\Delta V}{I}$

ΔV taken between $P_1 P_2$



III DIPOLE-DIPOLE

$\rho_a = \pi \left(a^3/b^2 - a \right) \Delta V/I$

ΔV taken between $P_1 P_2$

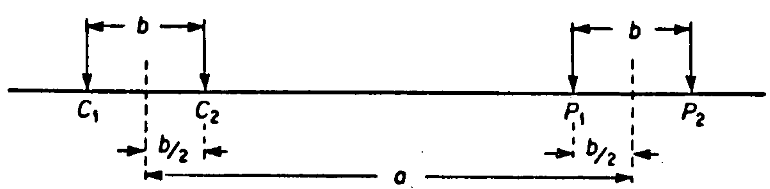
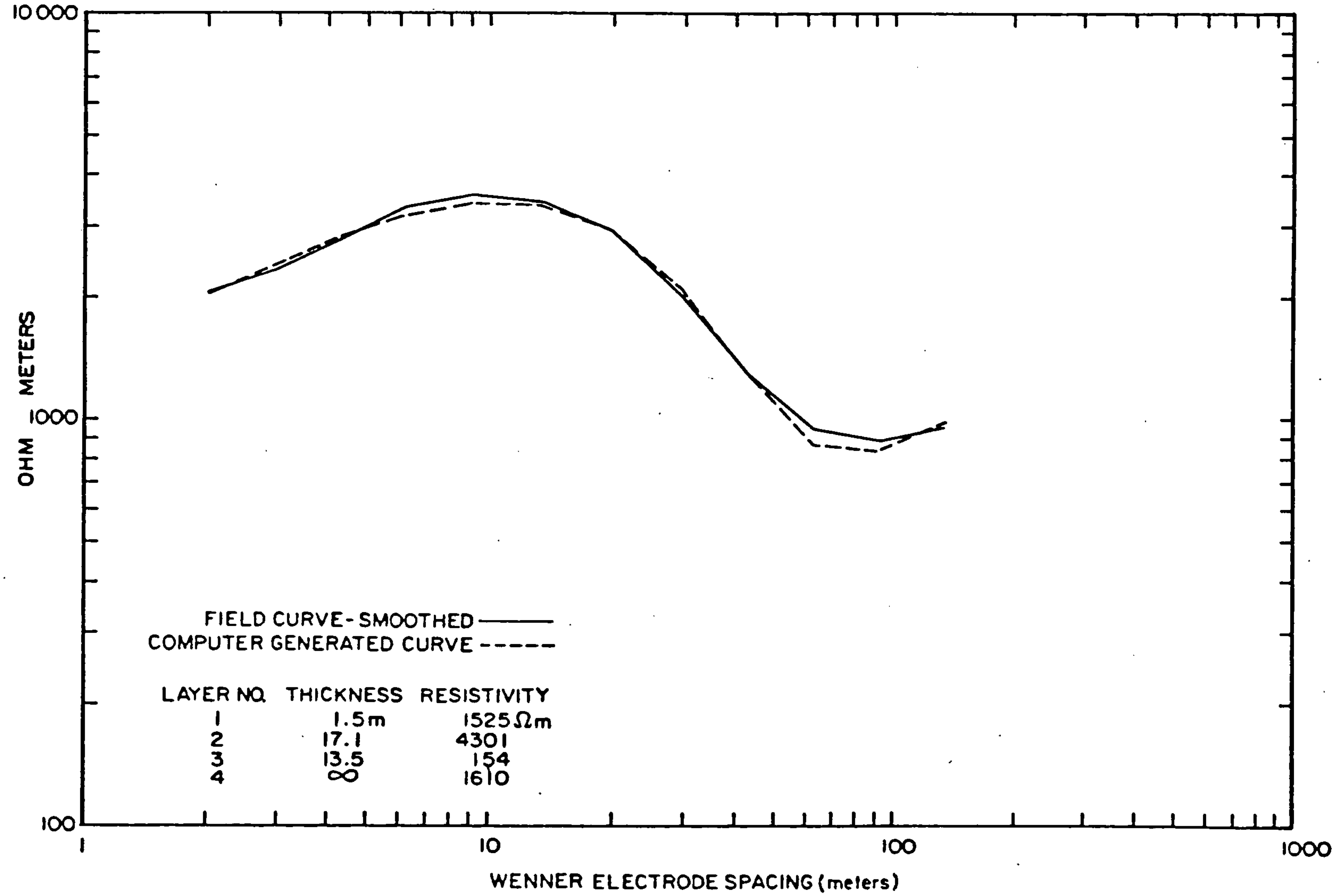


Figure 1

Weston Geophysical

18



RESISTIVITY MODEL

Figure 2

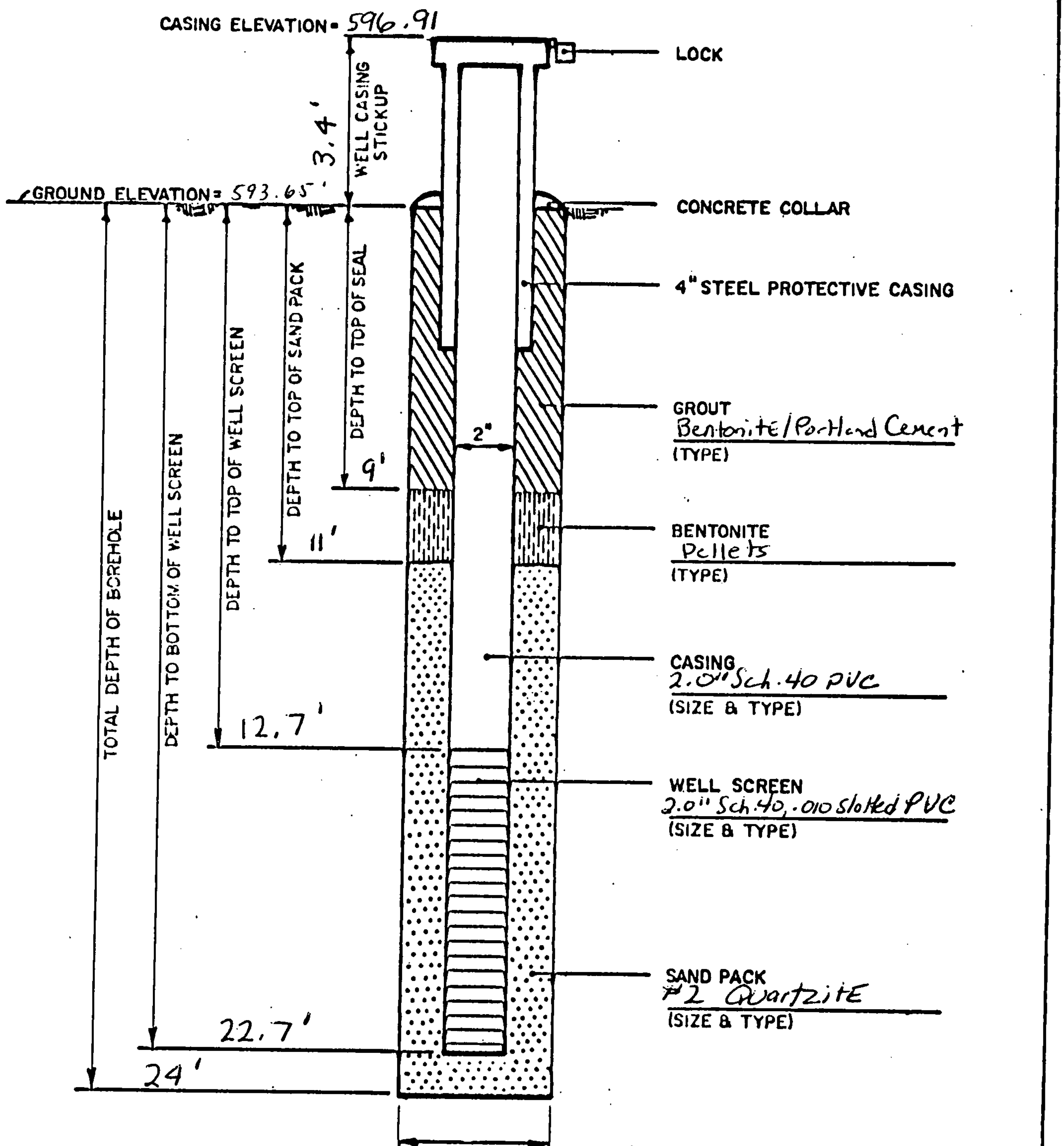
Weston Geophysical

APPENDIX D

APPENDIX D

Appendix D

Boring Logs and Well Construction Diagrams



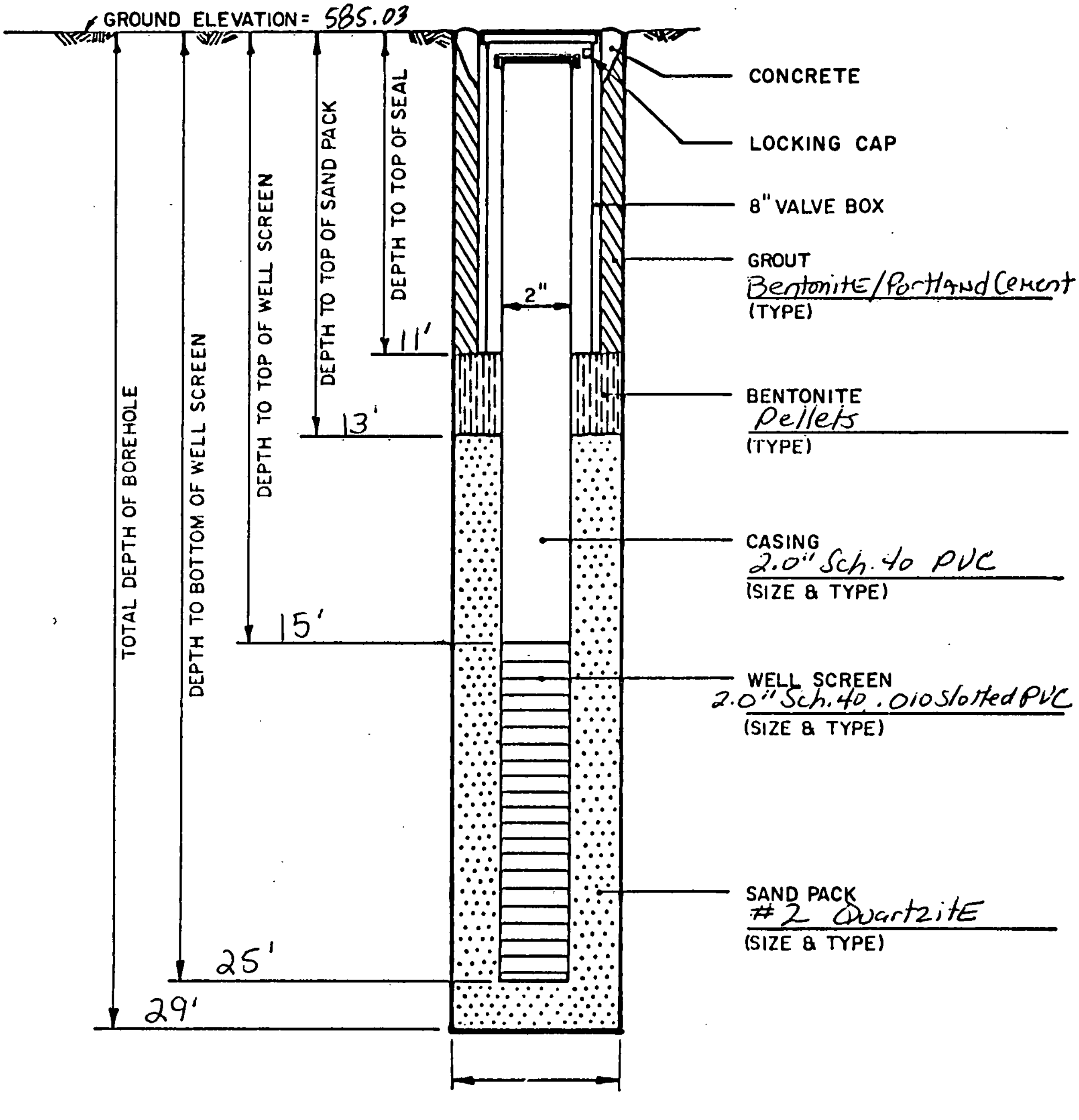
NOTE: ALL DEPTHS MEASURED FROM GROUND SURFACE N.T.S.

MONITORING WELL CONSTRUCTION DIAGRAM

WELL NO. GW-1

YEC PROJECT NO: A0046

LOCATION: GW-1 Upgradient Monitoring Well	DATE COMPLETED 11-27-90 DEPTH TO GROUNDWATER 2.58' BGS DATE MEASURED 11-28-90



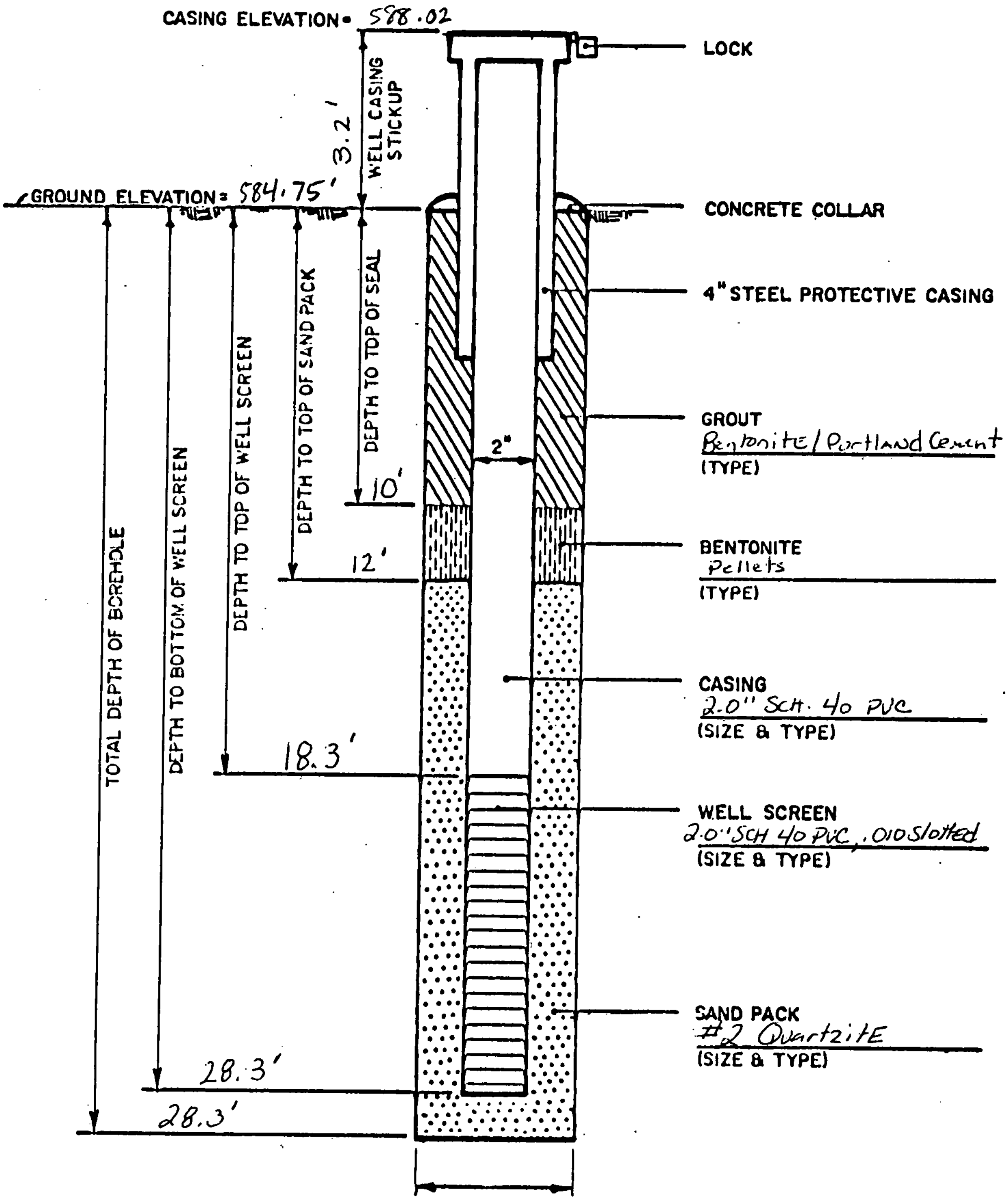
NOTE: ALL DEPTHS MEASURED FROM GROUND SURFACE N.T.S.

MONITORING WELL CONSTRUCTION DIAGRAM

WELL NO. GW-2

YEC PROJECT NO: A0046

LOCATION: GW-2 Downgradient Monitoring Well	DATE COMPLETED 11-28-90 DEPTH TO GROUNDWATER 15.66' BGS DATE MEASURED 11-29-90



NOTE: ALL DEPTHS MEASURED FROM GROUND SURFACE N.T.S.

MONITORING WELL CONSTRUCTION DIAGRAM

WELL NO. GW-3

YEC PROJECT NO: A0046

LOCATION: GW-3
Downgradient Monitoring Well

DATE COMPLETED 11-29-90
DEPTH TO GROUNDWATER 13.83' BGS
DATE MEASURED 11-30-90

3

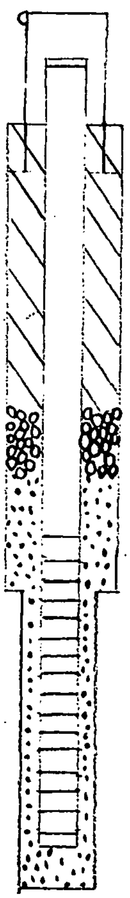
Date: Started 11-26-90
Finished 11-27-90
Sheet 1 of 1

YEC, INC

GEOLOGIC LOG

Boring No. GW-1
Surface Elev. 593.65'
Depth to Water 2.58'

Project Snyder Tank Corp.
Geologist/Eng. MECCA / BICKOFF
Location upgradient
Monitoring Inst. Used: HNU



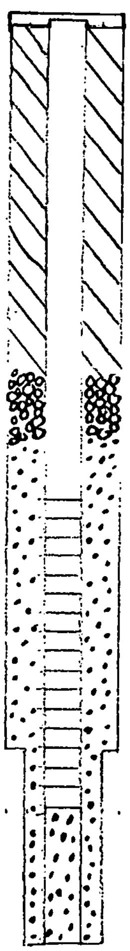
Depth (feet)	Stratigraphy	Sample No.	Blows on Sampler 0 to 6	6 to 12	12 to 18	18 to 24	Moisture content/ Density/ Color	GENERAL DESCRIPTION	Inst. Reading >Bkgd
0		1	11	15	8	6	DRY	0-2' RCV = 1' Brown Fill, rust colored w/round pebbles.	0
5		2	13	23	30	33	DRY	4-6' RCV = .5' Gray cement fragments; cuttings - gravelly, sandy fill; 8-9' sandy, pebbly material	0
10		3	13	14	20	20	dry-moist	9-11' RCV = 1.75'; 0-1' Brown silt & sand, gray rock fragments; 1-1.5' gray silty clay; 1.5-1.75' gray clay w/tr silt	0
15		4	75+	-	-	-	DRY	14-16' RCV = 2" REFUSAL at 14.5'; Cuttings - dry - pebbly; Augering Stopped - Will Core	0
20							saturated	Core Run #1 14.5'-19.5' Gry shale - fractured w/interbedded 1" clay layers.	
25							saturated	Core Run #2 19.5'-24.3' Gry shale - same as above	

Date: Started 11-27-90 Finished 11-28-90 Sheet 1 of 1	**YEC, INC** GEOLOGIC LOG	Boring No. GW-2 Surface Elev. 585.03 Depth to Water 15.66'

Project Snyder Tank Corp. Location Downgradient Monitoring Inst. Used: HNU

Geologist/Eng. MECCA/Bickoff

Well Constr. Diagram:



Depth (feet)	Stratigraphy	Sample No.	Blows on Sampler 0 to 6	6 to 12	12 to 18	18 to 24	Moisture content/ Density/ Color	GENERAL DESCRIPTION	Inst. Reading > BKgd.
0			4	5	5	5	Moist	0-2' RCV = 1' Br sand (med. gr) grading into gray-Br silt. Contains pebbles AND gravel.	0
5			3	2	2	3	Moist	4-6' RCV = 7" DArk Br SAND, tr silt and clay pebbles, shale fragments	0
10			92	-	-	-	Moist	9-11' RCV = 6" Brown SAND w/pebbles, Bottom 4" - Shale fragments	0
15			120	-	-	-		14-16' RCV = 5" unconsolidated shale 13'-14' HNU reading on auger cuttings 5.0 (Bkgd 0-1) 14'-16' spoon HNU reading = 4.0 > Bkgd.	4-5
20			70				DRY	19'-21' RCV = 1" Dry shale fragments HNU = 3.0 > Bkgd. At 19.0' HNU = 2.0	3 2
25								22'-23' Auger Cuttings = HNU = 5.0 23' Auger Refusal	5

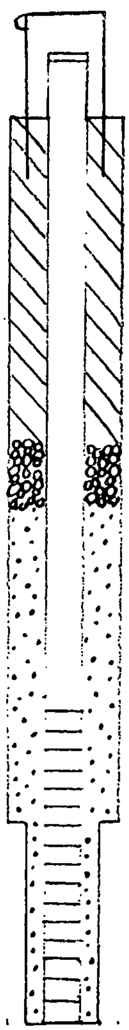
* Auger cuttings at 16'-17' sent for TCL, TAL Analysis. Some HNU readings exceeded 10 units > Background.

Date: Started 11-28-90 Finished 11-29-90 Sheet 1 of 2	YEC, INC GEOLOGIC LOG	Boring No. GW-3 Surface Elev. 584.75' Depth to Water 13.83'

Project Snyder TANK Corp. Location Downgradient Monitoring Inst.
Geologist/Eng. MECCA/Bickoff Used: HNU

Depth (feet)	Sample No.	Blows on Sampler 0 to 6	6 to 12	12 to 18	18 to 24	Moisture content/ Density/ Color	Inst. Reading
0–5	1	2	4	6	7	Moist	0
5–10	2	13	17	21	31	dry-moist	0
10–15	3	29	76	100	–		
15–20	4	100+	–	–	–		
20						Moist-Sat.	0
30						DRY	1

Well Constr. Diagram



GENERAL DESCRIPTION

0-2' RCV=1.5'
0-6" Moist Br sand w/some silt Topsoil has some wood and pebbles.
6"-1.5' Gray silt w/clay containing gry shale fragments
4-6' RCV=.5"
0-2.5" Gray sand w/some clay and silt
2.5"-5.0" Gray-brown silt w/ some clay
- containing gry-shale fragments
cuttings - Br-Moist silty clay
6-7' Dry pebbly silt and sand
8-9' Fine silt and sand w/shale fragments
9-11' RCV=1.5' Refusal at 10'6"
9-9'6" Moist-Saturated clay w/ weathered shale fragments
9'6"-10'6" Gry clay atop compacted But highly weathered gry shale - dry, Flakey.-
- water sitting on top of Bedrock -
12'-13' Fresh shale Fragments
14-16' Refusal at 14'6" RCV=1'
Dry weathered SHALE, tr sand
17'-18' Darker gr-bl shale cuttings
Refusal at competent Bedrock @ 22' (Top of)

Date: Started 11-28-90 Finished 11-29-90 Sheet 2 of 2	YEC, INC GEOLOGIC LOG	Boring No. GW-3 Surface Elev. 584.75' Depth to Water 13.83'

Project SnyDER TANK Corp.
Geologist/Eng. MECCA/BICKOFF
Location Downgradient
Monitoring Inst. Used: HNU

Depth (feet)	Well Constr. Diagram	Stratigraphy	Sample No.	Blows on Sampler 0 to 6	6 to 12	12 to 18	18 to 24	Moisture content/ Density/ Color	GENERAL DESCRIPTION	Inst. Reading
								Moist-Sat	Core Run - 22'-27' At 27' Clay seam - gasoline fuel smell coming from Clay @ depth of Approx. 24' BGS. Coring stops at 28'3"	

APPENDIX E

Appendix E

Well Development Data/Well Recovery Rates

WELL DEVELOPMENT

WELL # - GW-1

DATE - 11-29-90

STWL BEFORE PUMPING - 2.22 BGS

STWL AFTER PUMPING -

	VOLUME EVACUATED (GALLONS)	pH	T(C⁰)	SPECIFIC CONDUCTANCE (umhos)	NTU	COMMENTS
11/29/90	5.0	7.11	14.10	998	> 200	
	Recovery ≈	13.68'/Hour				

TOTAL ELAPSED TIME:

YEC, INC. 1990

WELL DEVELOPMENT

WELL # - GW-2

DATE - 11-29-90 , 11-30-90

STWL BEFORE PUMPING - 6.4' BGS

STWL AFTER PUMPING - 25.0 'BGS

	VOLUME EVACUATED (GALLONS)	pH	T(C°)	SPECIFIC CONDUCTANCE (umhos)	NTU	COMMENTS
11/29/90	5.0	7.46	10.3°	1288	>.200	
11/30/90	3.0	–	–	–	–	
	Recovery =	1.83'/HOUR				

TOTAL ELAPSED TIME:

WELL DEVELOPMENT

WELL # - GW-3

DATE - 11-30-90

STWL BEFORE PUMPING - 10.70' BGS

STWL AFTER PUMPING - BGS

VOLUME EVACUATED (GALLONS)	pH	T(C⁰)	SPECIFIC CONDUCTANCE (umhos)	NTU	COMMENTS
4.0	7.39	11.6	1014	>200	
Recovery Rate	=4.2'/HOUR				

E3

TOTAL ELAPSED TIME:

YEC, INC. 1990

WELL RECOVERY RATES

WELL # - GW-1

	TIME	WATER LEVEL (*)(ft)	RECOVERY RATE
1-27-90	0	12.7 BTA	
	1 min.	12.6	
	2 min.	12.6	
	4 min	12.45	
	7 min 30 sec.	12.3	
	10 min	12.2	
	12 min 30 sec	12.1	
	14 min 30 sec	12.0	
	17 min	11.97	
	20 min	11.85	
	26 min	11.60	
	31 min	11.37	
	45 min	10.50	
	56 min	9.60	3.32'/HOUR
1-28-90	0	24.3 BTSC	
	1 min	22.8	
	2 min	22.2	
	5 min	20.2	
	10 min	17.7	
	60 min 47 sec	6.1	17.96'/HOUR

BTA - Below Top of Auger

BTSC - Below Top of Steel Casing

WELL RECOVERY RATES

WELL # - GW-1

	TIME	WATER LEVEL (*) (Ft)		RECOVERY RATE
11-29-90	0	20.75	BTSC	
	1 min	19.70		
	2 min	18.07		
	5 min	17.47		
	10 min	16.55		
	18 min	13.98		22.5'/HOUR
1/10/90	0	—		
	1 min	23' 6"	BGS	
	2 min	22' 6"		
	3 min	21' 8"		
	5 min	19' 9"		
	10 min	17' 11"		33'/HOUR

BTSC Below Top of Steel Casing

BGS Below Ground Surface

WELL RECOVERY RATES

WELL # - GW-2

	TIME	WATER LEVEL (*) (Ft)		RECOVERY RATE
11-28-90	0	24.6	BTA	
	1 min	24.2		
	2 min	24.0		
	5 min	23.35		
	10 min	22.25		
	15 min	20.95		
	25 min	18.9		
	33 min	16.8		14.18'/HOUR +
11-29-90	0	25.20	BTPVC	
	1 min	24.90		
	2 min	24.84		
	5 min	24.70		
	10 min	24.54		
	20 min	24.39		2.43'/HOUR
12-10-90	0	—	BGS	
	20 SEC	22'3"		
	25 SEC	20'1"		
	300 SEC	21'1"		
	600 SEC	21'0"		
	900 SEC	20'11"		5.32'/HOUR

BTA - Below Top of AugER + - During Drilling

BTPVC - Below Top of PVC

BGS - Below Ground Surface

WELL RECOVERY RATES

WELL # - GW-3

	TIME	WATER LEVEL (*) (Ft)		RECOVERY RATE
1-30-90	0	30.06	BTSC	
	1 min	29.6		
	3 min	29.3		
	5 min	29.1		
	10 min	28.89		
	15 min	28.70		
	20 min	28.6		4.38'/HOUR
12/10/90	0	–		
	11 SEC	30' 10"	BGS	
	71 SEC	30' 8"		
	300 SEC	30' 1"		
	900 SEC	29' 10"		4.04'/HOUR

BTSC - Below Top of Steel Casing

BGS - Below Ground Surface

APPENDIX F

APPENDIX F

Appendix F

Geotechnical Data

BUFFALO DRILLING COMPANY
INC.

955 NIAGARA STREET
BUFFALO, NEW YORK
14213
(716) 886-0375

March 4, 1991 JOB NO: 91-1217B

YEC Incorporated
Clarkstown Executive Park
612 Corporate Way
Suite 4M
Valley Cottage, New York 10989

ATTN: Mr. Mark Mecca

RE: Laboratory Soil Analysis Results for Synder Tank Corporation Study (#A0046)

Gentlemen:

The enclosed table and graphs present laboratory soil testing results for samples provided by YEC Incorporated for the above referenced project. The samples were tested in accordance with the following methods.

- ASTM D4318 Liquid Limit, Plastic Limit, and Plasticity Index of Soils.
- ASTM D422 Particle Size Analysis of Soils.
- ASTM D2216 Laboratory Determination of Water Content of Soil.
- ASTM D1140 Amount of Material in Soils finer than the No. 200 sieve.
- ASTM D2487 Classification of Soils for Engineering Purposes.

It is noted all samples were designated as non-hazardous.

Thank you for the opportunity to assist on this project. Please call if questions should arise.

Very truly yours,
BUFFALO DRILLING COMPANY, INC.

David M. Frazier /KB

David M. Frazier
Senior Geologist

F/

CLIENT: YEC Inc.
PROJECT: Synder Tank Corp. #A0046
JOB NO: 91-1217B

TABLE 1

SAMPLE I.D.	DEPTH (ft.)	MOISTURE CONTENT (%)	ATTERBERG LIMITS			GRADATION ANALYSIS				SAMPLE DESCRIPTION
			LL (%)	PI (%)	PL (%)	GRAVEL (%)	SAND (%)	SILT (%)	CLAY (%)	
GW-1	9-11'	6.1	note 1		14	26.2	48.9	13.7	11.2	Silty sand with gravel (SM)
GW-2	14-16'	4.5	non-plastic			36.0	51.8	12.2		Silty sand with gravel (SM)
GW-3	4-6'	10.8	note 1		17	19.3	48.1	12.0	20.6	Clayey sand with gravel (SM

Note 1: Not enough sample provided for liquid limit/plasticity index determination.

Sheet No. 1 of 1

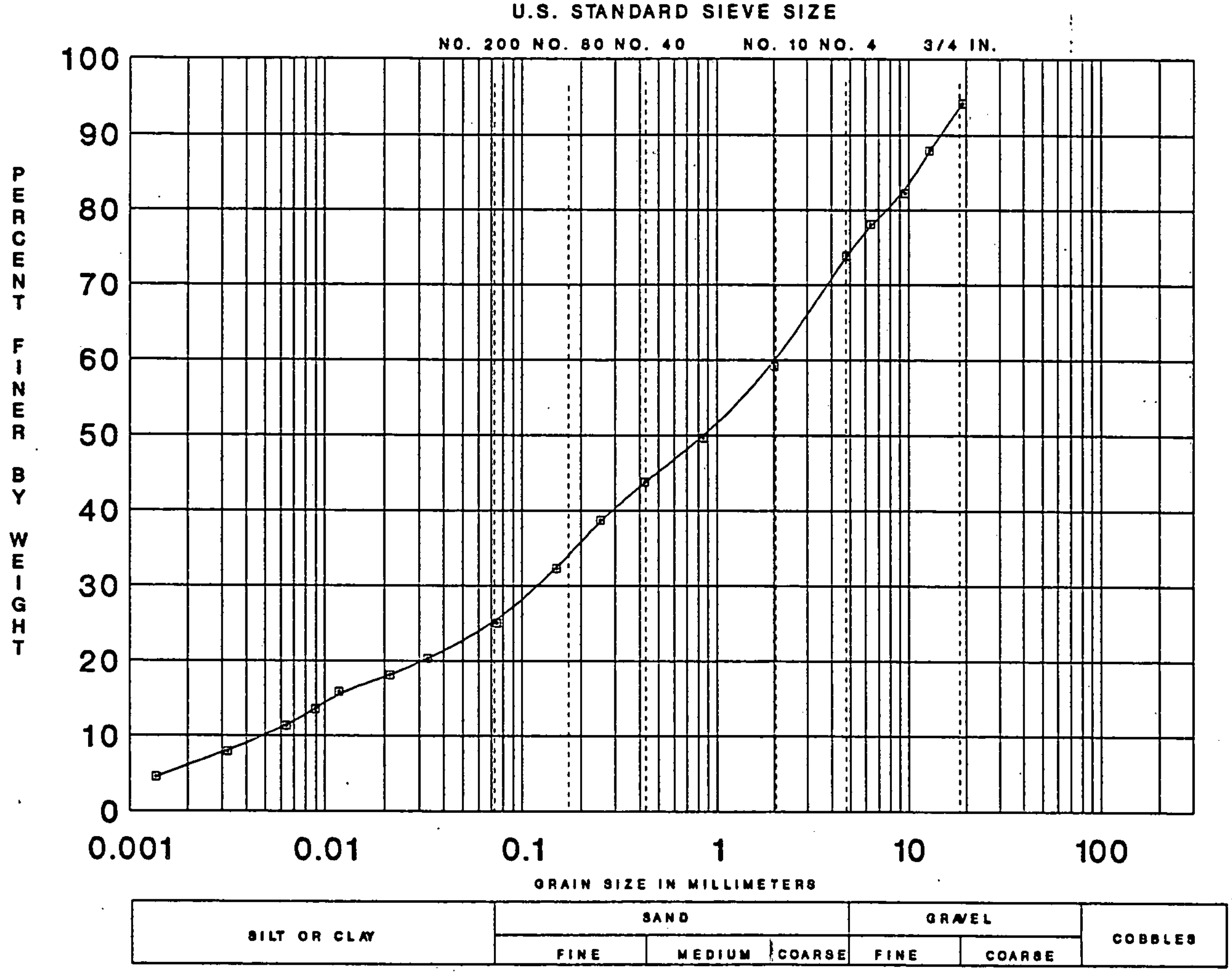
APPENDIX A

Gradation Curves

3

GRAIN SIZE ANALYSIS

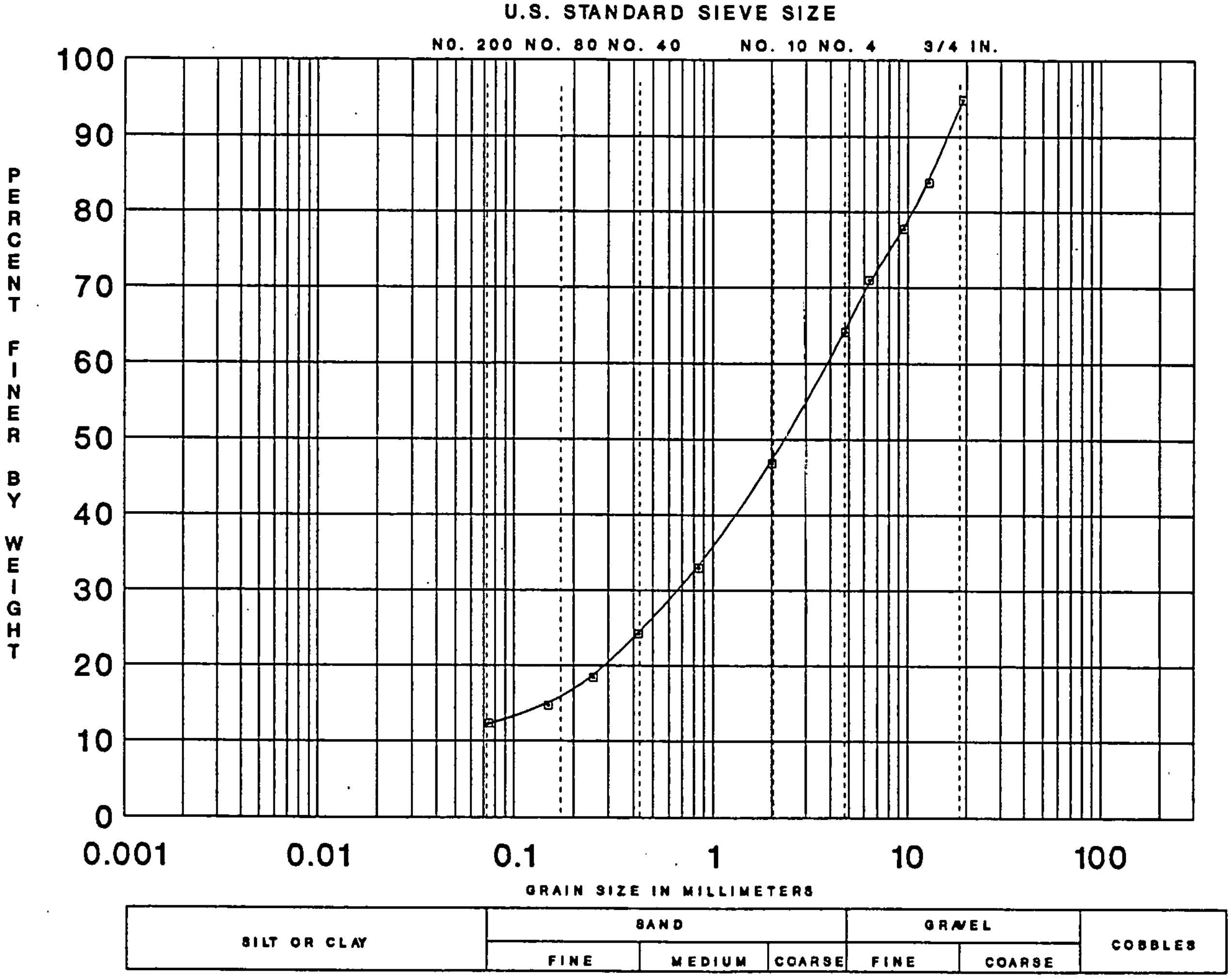
Sample ID: GW-1 9-11'
February 19, 1991



BUFFALO DRILLING COMPANY, INC.

GRAIN SIZE ANALYSIS

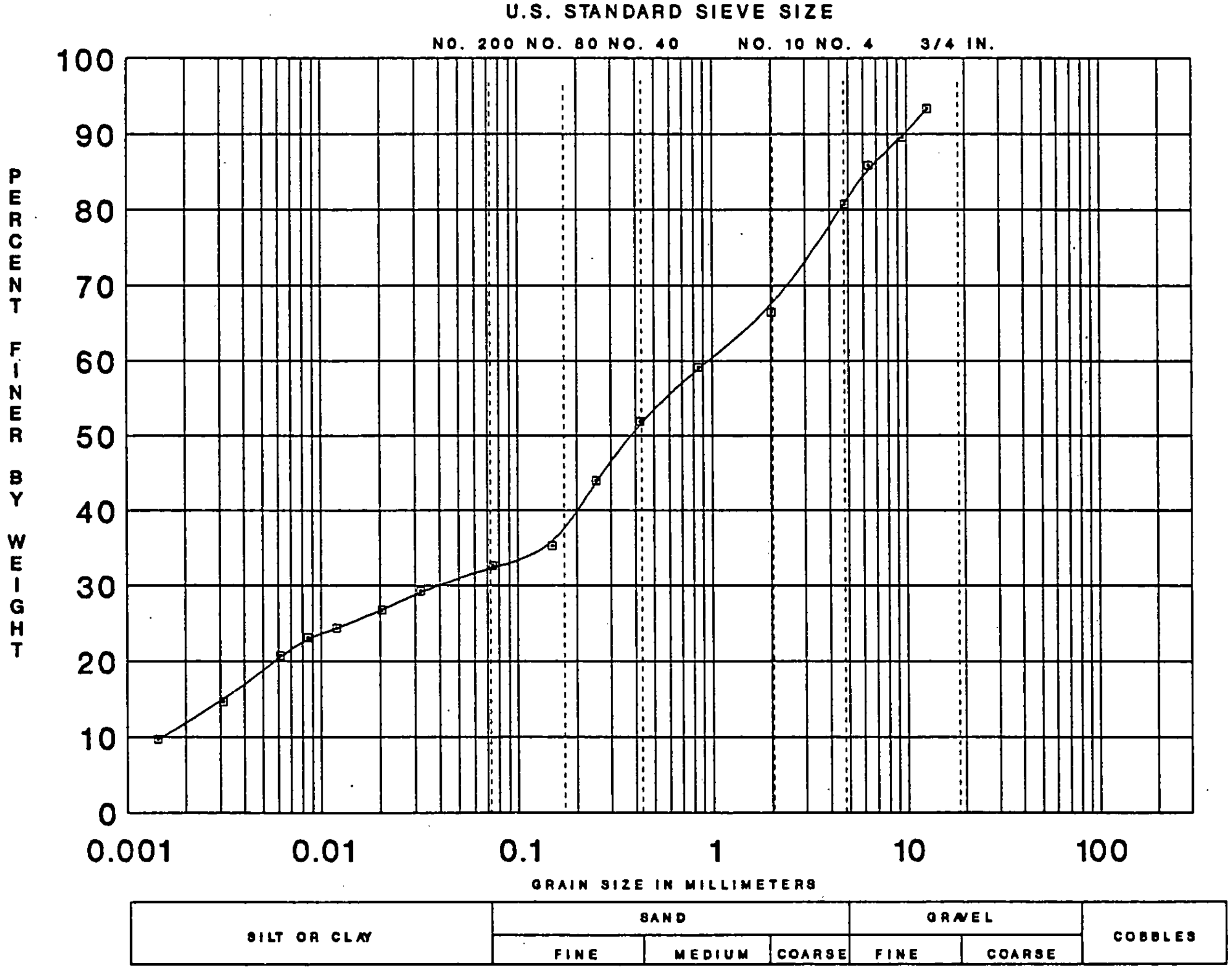
Sample ID: GW-2 14-16'
February 19, 1991



BUFFALO DRILLING COMPANY, INC.

GRAIN SIZE ANALYSIS

Sample ID: GW-3 4-6'
February 19, 1991



BUFFALO DRILLING COMPANY, INC.

APPENDIX G

APPENDIX G

Appendix G

Sample Collection Data Sheets

SAMPLE COLLECTION SUMMARY SHEET

SAMPLE DESIGNATION: GW-1 MS/MSD

SAMPLE TYPE (water/soil/sediment etc.): Groundwater

DATE: 12-11-90

TIME: 0855 - 1008

LOCATION: GW-1

pH: 7.07

T(C^0): 11.0 °C

CONDUCTIVITY (umhos): 1325

TURBIDITY (NTU): <50

PARAMATERS TO BE ANALYZED FOR: Full TAL METALS + CYANIDE
(volume to be filtered sent?) TCL Organics
PEST/PCBs

STWL BEFORE PURGING(BTSC) - 2'7" BTSC

1 WELL VOLUME (GALLONS) = 1.3 gallons

TOTAL VOLUME OF WATER PURGED (GALLONS) - 5 gallons

STWL AFTER PURGING(BTSC) - 17' 11"

STWL BEFORE SAMPLING(BTSC) - 2' 6"

STWL AFTER SAMPLING(BTSC) - X

COMMENTS/OBSERVATIONS:
BTSC - Below Top of Steel Casing
Recovery ≈ 18.2' to 22.6'/HOUR

YEC, INC. 1990

JOB NAME AND # - Snyder Tank Corporation (A0046)

G1

SAMPLE COLLECTION SUMMARY SHEET

SAMPLE DESIGNATION: GW-2

SAMPLE TYPE (water/soil/sediment etc.): groundwater

DATE: 12/12/90

TIME: 0845

LOCATION: Monitoring Well # 2

pH: 7.64

T(C^0): 10.1

CONDUCTIVITY (umhos): 1544

TURBIDITY (NTU): < 50

PARAMATERS TO BE ANALYZED FOR: Full TAL Metals + Cyanide
(volume to be filtered sent?) TCL organics
PEST / PCBs

STWL BEFORE PURGING (BTSC) - 5' 8" BTSC

1 WELL VOLUME (GALLONS) = 1.3 gallons

TOTAL VOLUME OF WATER PURGED (GALLONS) - 5 gallons

STWL AFTER PURGING (BTSC) - 20' 11"

STWL BEFORE SAMPLING (BTSC) - 10' 1"

STWL AFTER SAMPLING (BTSC) - X

COMMENTS/OBSERVATIONS:
BTSC - Below top of Steel casing
2.43'/Hour - Recovery

YEC, INC. 1990 JOB NAME AND # -

G-2

SAMPLE COLLECTION SUMMARY SHEET

SAMPLE DESIGNATION: GW-3

SAMPLE TYPE (water/soil/sediment etc.): groundwater

DATE: 12-12-90

TIME: 0930

LOCATION: Downgradient Monitoring Well # 3

pH: 7.43

T(C^0): 12.8°C

CONDUCTIVITY (umhos):

TURBIDITY (NTU):

PARAMATERS TO BE ANALYZED FOR: Full TAL Metals + Cyanide
(volume to be filtered sent?) TCL organics
PEST/PCBs

STWL BEFORE PURGING(BTSC) - 13' 10" BTSC

1 WELL VOLUME (GALLONS) =

TOTAL VOLUME OF WATER PURGED (GALLONS) - 3.5 gallons

STWL AFTER PURGING(BTSC) - 29' 10"

STWL BEFORE SAMPLING(BTSC) - 23' 4"

STWL AFTER SAMPLING(BTSC) - X

COMMENTS/OBSERVATIONS:

BGS - Below Ground Surface

Recovery - 4.4'/HOUR

YEC, INC. 1990 JOB NAME AND # -

63

SAMPLE COLLECTION SUMMARY SHEET

SAMPLE DESIGNATION: GW-4

SAMPLE TYPE (water/soil/sediment etc.): Groundwater

DATE: 12-11-90

TIME: 0855 - 1000

LOCATION: GW-4 Blind Sample

pH: 7.07

T(C^0): 11.0° C

CONDUCTIVITY (umhos): 1325

TURBIDITY (NTU): <50

PARAMATERS TO BE ANALYZED FOR: Full TAL Metals + Cyanide
(volume to be filtered sent?) TCL Organics
PEST/PCB's

STWL BEFORE PURGING(BTSC) - 2' 7" BTSC

1 WELL VOLUME (GALLONS) =

TOTAL VOLUME OF WATER PURGED (GALLONS) - 5 gallons

STWL AFTER PURGING(BTSC) - 17'11'

STWL BEFORE SAMPLING(BTSC) - 2'6"

STWL AFTER SAMPLING(BTSC) - X

COMMENTS/OBSERVATIONS:
Also GW-1 (SAME AS)

YEC, INC. 1990 JOB NAME AND # -

64

SAMPLE COLLECTION SUMMARY SHEET

SAMPLE DESIGNATION: SS-1 (MS/MSD)

SAMPLE TYPE (water/soil/sediment etc.): Soil

DATE: 12-11-90

TIME: 1310 - 1324 PM

LOCATION: Soil Sample #1

pH: NA

T(C^0): NA

CONDUCTIVITY (umhos): NA

TURBIDITY (NTU): NA

PARAMATERS TO BE ANALYZED FOR: Full TAL Metals + Cyanide
(volume to be filtered sent?) TCL Organics
PEST/PCBs

STWL BEFORE PURGING(BTSC) - NA

1 WELL VOLUME (GALLONS) = NA

TOTAL VOLUME OF WATER PURGED (GALLONS) - NA

STWL AFTER PURGING(BTSC) - NA

STWL BEFORE SAMPLING(BTSC) - NA

STWL AFTER SAMPLING(BTSC) - NA

COMMENTS/OBSERVATIONS:
Soil - sandy, gravelly, some clay
Also QA/QC samples (MS/MSD)
1'-2' BGS

YEC, INC. 1990

JOB NAME AND # - Snyder Tank Corp.
A0046

75

SAMPLE COLLECTION SUMMARY SHEET

SAMPLE DESIGNATION: SS-2

SAMPLE TYPE (water/soil/sediment etc.): Soil

DATE: 12-11-90

TIME: 1340-1353

LOCATION: Soil Sample #2

pH: NA

T(C^0): NA

CONDUCTIVITY (umhos): NA

TURBIDITY (NTU): NA

PARAMATERS TO BE ANALYZED FOR: Full TAL Metals + Cyanide
(volume to be filtered sent?) TCL organics
PEST/PCBs

STWL BEFORE PURGING(BTSC) - NA

1 WELL VOLUME (GALLONS) = NA

TOTAL VOLUME OF WATER PURGED (GALLONS) - NA

STWL AFTER PURGING(BTSC) - NA

STWL BEFORE SAMPLING(BTSC) - NA

STWL AFTER SAMPLING(BTSC) - NA

COMMENTS/OBSERVATIONS:
Soil - sandy, silty, gravelly - some trace clay
0'-1' BGS

YEC, INC. 1990

JOB NAME AND # - Snyder Tank Corp.
A0046

F6

SAMPLE COLLECTION SUMMARY SHEET

SAMPLE DESIGNATION: SS-3

SAMPLE TYPE (water/soil/sediment etc.): Soil

DATE: 12-11-90

TIME: 1410 - 1430

LOCATION: Soil Sample #3

pH: NA

$T(C^0)$: NA

CONDUCTIVITY (umhos): NA

TURBIDITY (NTU): NA

PARAMATERS TO BE ANALYZED FOR: Full TAL Metals + Cyanide
(volume to be filtered sent?) TCL Organics
PEST/PCBs

STWL BEFORE PURGING(BTSC) - NA

1 WELL VOLUME (GALLONS) = NA

TOTAL VOLUME OF WATER PURGED (GALLONS) - NA

STWL AFTER PURGING(BTSC) - NA

STWL BEFORE SAMPLING(BTSC) - NA

STWL AFTER SAMPLING(BTSC) - NA

COMMENTS/OBSERVATIONS:
0-5" RED Staining

YEC, INC. 1990 JOB NAME AND # -

SAMPLE COLLECTION SUMMARY SHEET

SAMPLE DESIGNATION: SW-1

SAMPLE TYPE (water/soil/sediment etc.): Surface Water

DATE: 12-11-90

TIME: 1054-1059 AM

LOCATION: SW-1 (Surface Water #1)

pH: —

T(C^0): —

CONDUCTIVITY (umhos): —

TURBIDITY (NTU): —

PARAMATERS TO BE ANALYZED FOR: Full TAL Metals
(volume to be filtered sent?) TCL organics
PEST/PCBs

STWL BEFORE PURGING(BTSC) - NA

1 WELL VOLUME (GALLONS) = NA

TOTAL VOLUME OF WATER PURGED (GALLONS) - NA

STWL AFTER PURGING(BTSC) - NA

STWL BEFORE SAMPLING(BTSC) - NA

STWL AFTER SAMPLING(BTSC) - NA

COMMENTS/OBSERVATIONS:
Oily sheen on top of effluent ditch
Baffle = 12.15" from pipe /(14" Drain Pipe)
(absorbant for oil)

YEC, INC. 1990 **JOB NAME AND #** -

SAMPLE COLLECTION SUMMARY SHEET

SAMPLE DESIGNATION: SW-2

SAMPLE TYPE (water/soil/sediment etc.): Surface Water

DATE: 12-11-90

TIME: 1105 - 1120 AM

LOCATION: SW-2 (surface water #2)

pH: —

T(C^0): —

CONDUCTIVITY (umhos): —

TURBIDITY (NTU): —

PARAMATERS TO BE ANALYZED FOR: Full TAL Metals + Cyanide
(volume to be filtered sent?) TCL organics
PEST/PCBs

STWL BEFORE PURGING(BTSC) - NA

1 WELL VOLUME (GALLONS) = NA

TOTAL VOLUME OF WATER PURGED (GALLONS) - NA

STWL AFTER PURGING(BTSC) - NA

STWL BEFORE SAMPLING(BTSC) - NA

STWL AFTER SAMPLING(BTSC) - NA

COMMENTS/OBSERVATIONS:
Only a trickle from pipe.
Oily sheen in effluent.

YEC, INC. 1990 **JOB NAME AND #** -

79

SAMPLE COLLECTION SUMMARY SHEET

SAMPLE DESIGNATION: Field Blank

SAMPLE TYPE (water/soil/sediment etc.): Field Blank on deconned hand auger

DATE: 12-12-90

TIME: 0950

LOCATION:

pH: NA

T(C^0): NA

CONDUCTIVITY (umhos): NA

TURBIDITY (NTU): NA

PARAMATERS TO BE ANALYZED FOR: Full TAL Metals + Cyanide
(volume to be filtered sent?) TCL organics
Pest/PCBs

STWL BEFORE PURGING(BTSC) - NA

1 WELL VOLUME (GALLONS) = NA

TOTAL VOLUME OF WATER PURGED (GALLONS) - NA

STWL AFTER PURGING(BTSC) - NA

STWL BEFORE SAMPLING(BTSC) - NA

STWL AFTER SAMPLING(BTSC) - NA

COMMENTS/OBSERVATIONS:

APPENDIX H

APPENDIX H

Appendix H

Past Sampling Data Sheets

02-8612-14-SI

FINAL DRAFT
SITE INSPECTION REPORT
AND HAZARD RANKING SYSTEM MODEL
SNYDER TANK CORPORATION
HAMBURG, NEW YORK

PREPARED UNDER

TECHNICAL DIRECTIVE DOCUMENT NO. 02-8612-14
CONTRACT NO. 68-01-7346
(CONTINUATION OF CONTRACT 68-01-6699 AND TDD# 02-8603-25A)

FOR THE

ENVIRONMENTAL SERVICES DIVISION
U.S. ENVIRONMENTAL PROTECTION AGENCY

OCTOBER 30, 1986

NUS CORPORATION
SUPERFUND DIVISION

SUBMITTED BY

Stephen E. Maybury

STEPHEN E. MAYBURY
PROJECT MANAGER

REVIEWED/APPROVED BY

Ronald M. Naman

RONALD M. NAMAN
FIT OFFICE MANAGER

H11

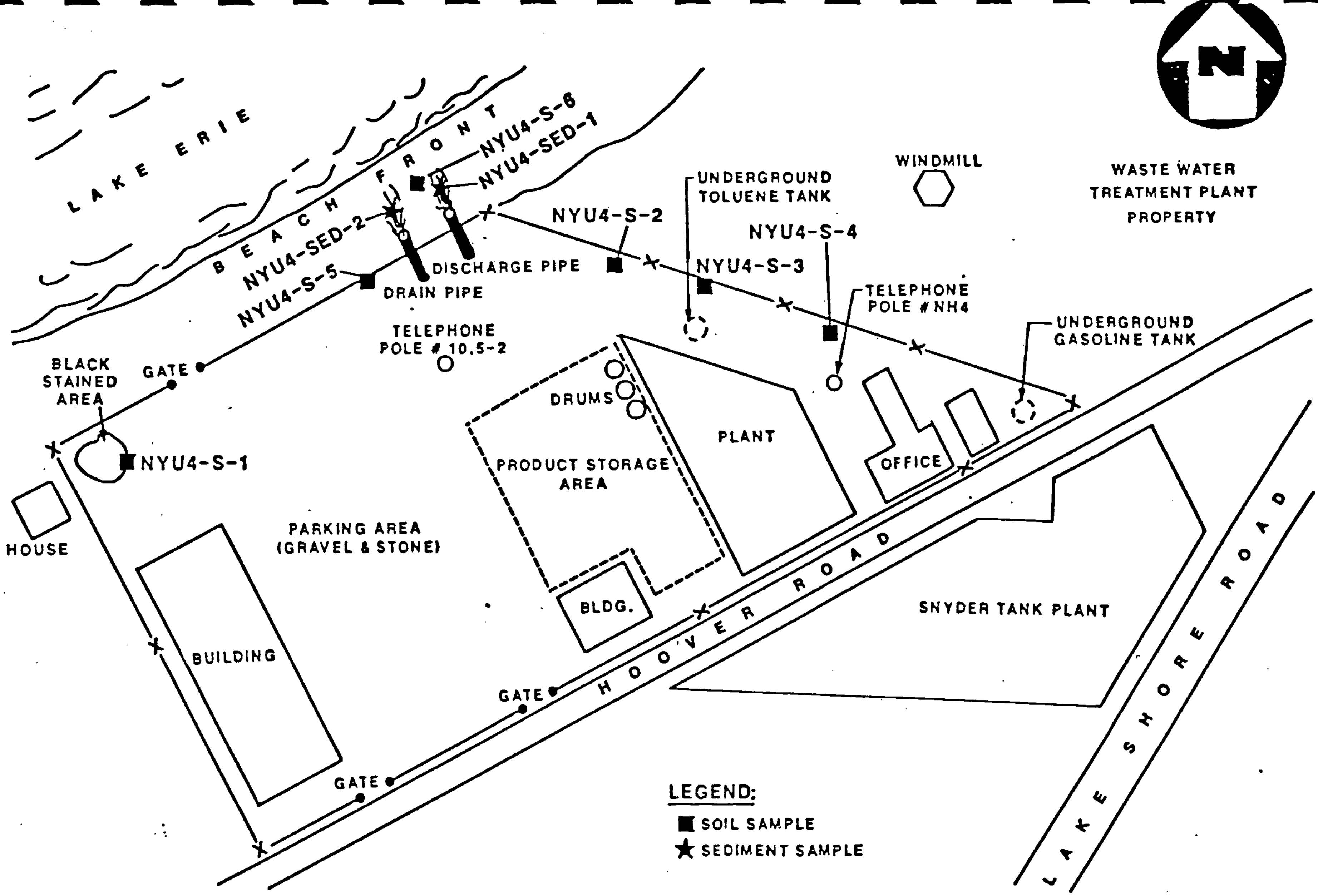


FIGURE 3

SAMPLE LOCATION MAP

SNYDER TANK, HAMBURG, N.Y.

(NOT TO SCALE)

NUS CORPORATION
A Halliburton Company

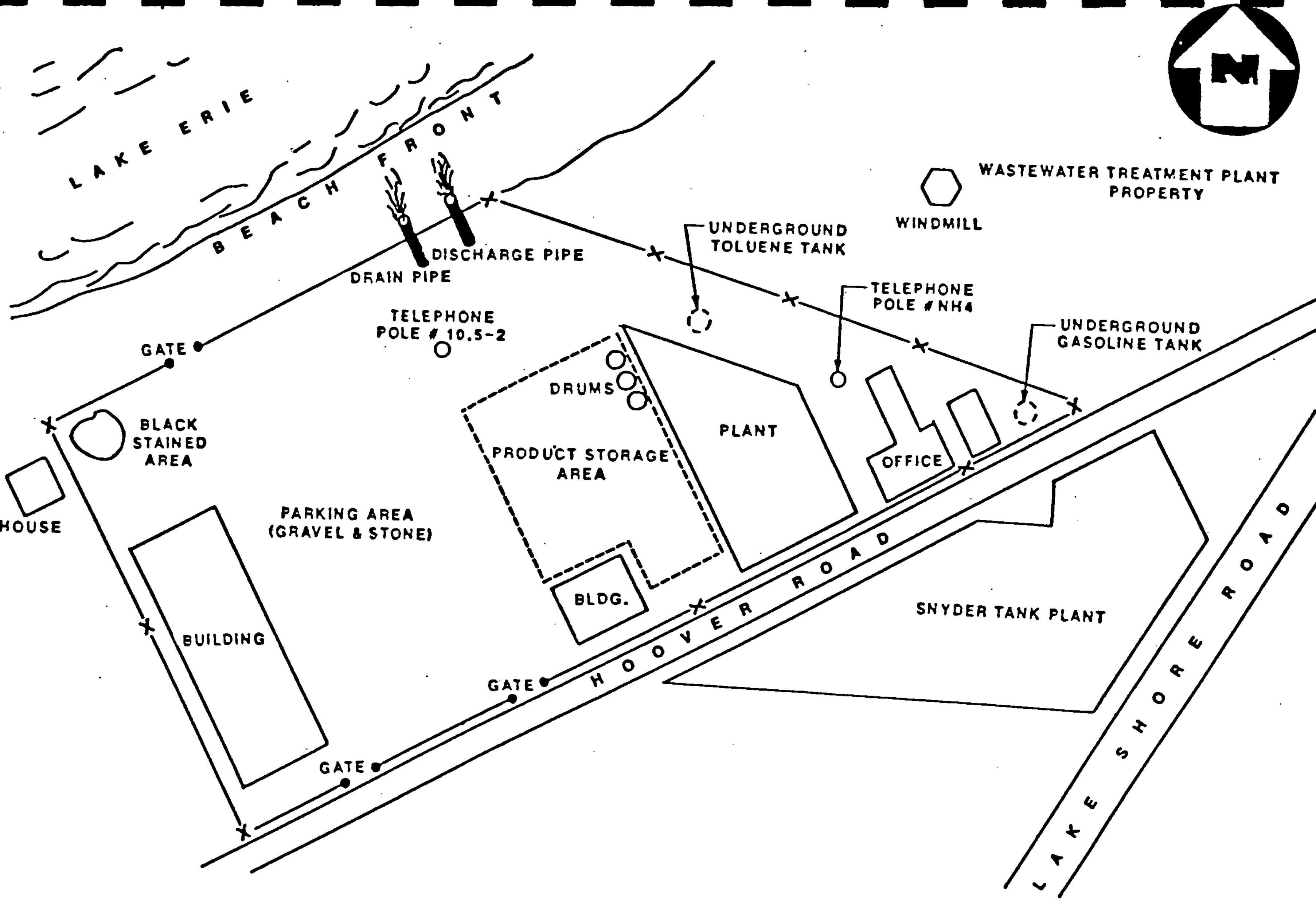


FIGURE 2

SITE MAP

SNYDER TANK, HAMBURG, N.Y.

(NOT TO SCALE)

NUS CORPORATION
A Halliburton Company

TABLE 1

SNYDER TANK CORPORATION
HAMBURG, NEW YORK
7/9/86
CASE #6171

Sample I.D. #	Sample Type	Traffic Report #
NYU4-S1	Organic Soil	BG633
	Inorganic Soil	MBE365
NYU4-S2	Organic Soil	BG634
	Inorganic Soil	MBE366
NYU4-S3	Organic Soil	BG635
	Inorganic Soil	MBE367
NYU4-S4	Organic Soil	BG636
	Inorganic Soil	MBE368
NYU4-S5	Organic Soil	BG637
	Inorganic Soil	MBE369
NYU4-S6	Organic Soil	BG638
	Inorganic Soil	MBE370
NYU4-SED1	Organic Soil	BG639
	Inorganic Soil	MBE371
NYU4-SED2	Organic Soil	BG640
	Inorganic Soil	MBE372
NYU4-BL1	VOA Aqueous	BG642

Note: Water for VOA Aqueous Blank was obtained from U.S. EPA Laboratories, Edison, New Jersey.

ORGANIC DATA REPORTING QUALIFIERS

For reporting results to EPA, the following results qualifiers are used. Additional flags or footnotes evplaining results are encouraged. However, the definition of such flags must be explicit.

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

U -Indicates compound was analyzed for but not detected. Report the minimum detection limit for the sample with the U (e.g., 10U) based on necessary concentration/dilution actions. (This is not necessarily the instrument detection limit.) The footnote should read: U-Compound was analyzed for but not detected. The number is the minimum attainable detection limit for the sample.

J -Indicates an estimated value. This flag is used either when estimating a concentration for tentatively identified compounds where a 1:1 response 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 snecified 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. Single component pesticides $\geq$10 ng/ul in the final extract should be confirmed by GC/MS.

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

Other -Other specific flags and footnotes may be required to properly define the results. If used, they must be fully described and such description attached to the data summary report.

INORGANIC DATA QUALIFIER

Footnotes:

NR - not required by contract at this time.

Form I:

Value - If the result is a value greater than or equal to the instrument detection limit but less than the contract required detection limit, report the value in brackets (i.e., [10]. Indicate the analytical method used with P (for ICP/Flame AA) or F (for furnace).

U - Indicates elemant was analyzed for but not detected. Report with the detection limit value (e.g., 10U).

E - Indicates a value estimated or not reported due to the presence of interference. Explanatory note included on cover page.

S - Indicates value determined by Method of Standard Addition.

R - Indicates spike sample recovery is not within control limits.

* - Indicates duplicate analysis in not within control limits.

+ - Indicates the correlation coefficient for method of standard addition is less than 0.995

ANALYTICAL DATA
NAME: SNYDER TANK CORPORATION
SAMPLING DATE: 7/9/86
CASE: 6171

INORGANICS

SAMPLE NUMBER	NYU4-S1	NYU4-S2	NYU4-S3	NYU4-S4	NYU4-S5	NYU4-S6	NYU4-SED1	NYU4-SED2	NYU4-BL1
MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	WATER
UNITS	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	NA
Aluminum	7000	15700	6930	8120	9760	4910	3770	2260	
Antimony	38J	32J	33J	32J	34J	33J	38J	56J	
Arsenic	9.7	11	12	52	5.0	6.0			
Barium	E	E	E	E	E	E	E		
Beryllium	2.3J	3.7	2.7	4.1	1.1J			2.4J	
Cadmium	24	7.9	4.3	4.6	6.2		9.3		
Calcium	77100	92800	59200	40900	68000	31100	51700	40900	
Chromium	113	96	230	39	21	11	14	6.3	
Cobalt	35				17J				
Copper	1030	43	58	68	29	26	26	17	
Iron	40400	30600	60300	27500	25900	11800	10500	10000	
Lead	678	116	92	103	22	17	58	20	
Magnesium	18600	14700	12100	6750	7910	5740	10200	3370	
Manganese	1070	4770	10400	1480	718	492	366	409	
Mercury			0.07J	0.19	0.07J				
Nickel	70	42	27	31	56			28	
Potassium	900J	1620J	897J	965J	1480J	598J	383J	348J	
Selenium				3.1					
Silver	4.7J	2.1J	2.7J		2.2J				
Sodium	514J	464J	179J	227J	124J	180J	192J	87J	
Thallium									
Tin	25J	22J	22J	21J	22J	22J	25J	37J	
Vanadium		62J	143J	31J					
Zinc	1010	351	366	377	93	60	135	484	

NOTES:
Blank space - compound analyzed for but not detected
E - analysis did not pass QA/QC requirements
J - compound present below the specified detection limit
B - compound found in laboratory blank as well as the sample, indicates possible/probable blank contamination

ANALYTICAL DATA
NAME: SNYDER TANK CORPORATION
SAMPLING DATE: 7/9/86
CASE: 6171

VOLATILES

SAMPLE NUMBER	NYU4-S1	NYU4-S2	NYU4-S3	NYU4-S4	NYU4-S5	NYU4-S6	NYU4-SED1	NYU4-SED2	NYU4-BL1
MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	WATER
UNITS	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg
Chloromethane									
Bromomethane									
Vinyl Chloride									
Chloroethane									
Methylene Chloride	B	E	E	B	E	E	E	E	E
Acetone	B	E	E	B	E	E	E	E	E
Carbon Disulfide		0.6J	0.7J	0.8J			0.8J		
1,1-Dichloroethene									
1,1-Dichloroethane							1.4J	42.5	
Trans-1,2-Dichloroethene									
Chloroform	B	E	B	E	E	E	E	E	E
1,2-Dichloroethane									
2-Butanone	B	E	E	E	E	E	E	E	B
1,1,1-Trichloroethane						1.4J		39.4	
Carbon Tetrachloride									
Vinyl Acetate									
Bromodichloromethane									
1,1,2,2-Tetrachloroethane									
1,2-Dichloropropane									
Trans-1,3-Dichloropropene									
Trichloroethene									
Dibromochloromethane									
1,1,2-Trichloroethane									
Benzene									
Cis-1,3-Dichloropropene									
2-Chloroethylvinylether									
Bromoform									
2-Hexanone									2.3J
4-Methyl-2-Pentanone									1.5J
Tetrachloroethene									
Toluene	3672.6		E	E					2.2J
Chlorobenzene									
Ethylbenzene									
Styrene									
Total Xylenes	8051.1								

NOTES:
Blank space - compound analyzed for but not detected
E - analysis did not pass QA/QC requirements
J - compound present below the specified detection limit
B - compound found in laboratory blank as well as the sample, indicates possible/probable blank contamination

ANALYTICAL DATA
NAME: SNYDER TANK CORPORATION
SAMPLING DATE: 7/9/86
CASE: 6171

SEMI-VOLATILES

SAMPLE NUMBER MATRIX UNITS	NYU4-S1 SOIL ug/kg	NYU4-S2 SOIL ug/kg	NYU4-S3 SOIL ug/kg	NYU4-S4 SOIL ug/kg	NYU4-S5 SOIL ug/kg	NYU4-S6 SOIL ug/kg	NYU4-SED1 SOIL ug/kg	NYU4-SED2 SOIL ug/kg	NYU4-BL1 WATER NA
N-Nitrosodimethylamine									
Phenol									
Aniline									
Bis(2-Chloroethyl)Ether									
2-Chlorophenol									
1,3-Dichlorobenzene									
1,4-Dichlorobenzene									
Benzyl Alcohol									
1,2-Dichlorobenzene									
2-Methylphenol									
Bis(2-Chloroisopropyl)Ether									
4-Methylphenol									
N-Nitroso-Di-n-Propylamine									
Hexachloroethane									
Nitrobenzene									
Isophorone									
2-Nitrophenol									
2,4-Dimethylphenol									
Benzoic Acid									
Bis(2-Chloroethoxy)Methane									
2,4-Dichlorophenol									
1,2,4-Trichlorobenzene									
Naphthalene			21.7J	248.5J					
4-Chloroaniline									
Hexachlorobutadiene									
4-Chloro-3-Methylphenol									
2-Methylnaphthalene	87845.8		15.7J	162.6J					
Hexachlorocyclopentadiene									
2,4,6-Trichlorophenol									
2,4,5-Trichlorophenol									
2-Chloronaphthalene									
2-Nitroaniline									
Dimethyl Phthalate									
Acenaphthylene		25.2J		29.4J					
3-Nitroaniline									
** Acenaphthene	15166.3J	28.4J		560.6			6392.8J	41.9J	
2,4-Dinitrophenol									
4-Nitrophenol									
** Dibenzofuran		26.7J		361.8			3385.5J	21.5J	
2,4-Dinitrotoluene									
2,6-Dinitrotoluene									
Diethylphthalate		51.1J	34.0J		18.1J			45.4J	
4-Chlorophenylphenyl ether									
** Fluorene	33616.9J	53.7J		698.8			7877.1J	50.5J	
4-Nitroaniline									

** FOUND IN BOTH NYU4-S2 AND YEC SAMPLE SS-2
BOTH SAMPLES TAKEN AT THE SAME APPROXIMATE LOCATION

ANALYTICAL DATA
NAME: SNYDER TANK CORPORATION
SAMPLING DATE: 7/9/86
CASE: 6171

SEMI-VOLATILES

	SAMPLE NUMBER	NYU4-S1	NYU4-S2	NYU4-S3	NYU4-S4	NYU4-S5	NYU4-S6	NYU4-SED1	NYU4-SED2	NYU4-BL1
	MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	WATER
	UNITS	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	NA
	4,6-Dinitro-2-Methylphenol									
	N-Nitrosodiphenylamine									
	4-Bromophenylphenyl ether									
	Hexachlorobenzene									
	Pentachlorophenol									
**	Phenanthrene	82730.1	636.3	259.7J	6008.2	31.4J	80.9J	53816.9	1074.6	
**	Anthracene	89103.6	113.7J	273.7J	1146.5	33.0J	15.1J	15653.0J	148.8J	
	Di-n-Butylphthalate		59.2J			15.6J				
**	Fluoranthene	9698.8J	1258.5	483.6	8200.6	57.5J	148.8J	81091.6	3058.4	
	Benzidine									
**	Pyrene	13445.8J	813.1	312.1J	5280.4	43.5J	111.2J	59234.3	2017.7	
	Butylbenzylphthalate	4438.6J								
	3,3'-Dichlorobenzidine									
**	Benzo(a)Anthracene		536.8	174.6J	3215.1		49.1J	24590.4J	980.4	
	Bis(2-Ethylhexyl)Phthalate	96057.8				161.2J	87.0J		139.9J	
**	Chrysene		556.8	229.3J	3144.9			26922.9J	1172.3	
	Di-n-Octyl Phthalate									
**	Benzo(b)Fluoranthene		462.4	170.9J	2421.1		55.6J	19125.3J	928.6	
**	Benzo(k)Fluoranthene		532.6	232.6J	3019.4		75.7J	18773.5J	1161.6	
**	Benzo(a)Pyrene		500.1		2723.7		51.4J	17903.6J	1066.8	
**	Indeno(1,2,3-cd)Pyrene		394.1		1887.7			5792.8J	851.8	
	Dibenzo(a,h)Anthracene		98.5J		761.4				278.2J	
**	Benzo(ghi)Perylene		415.1	158.9J	1818.8			14575.9J	913.9	

NOTES:
Blank space - compound analyzed for but not detected
E - analysis did not pass QA/QC requirements
J - compound present below the specified detection limit
B - compound found in laboratory blank as well as the sample, indicates possible/probable blank contamination

** FOUND IN BOTH NYU4-S2 AND YEC SAMPLE SS-2
BOTH SAMPLES TAKEN AT THE SAME APPROXIMATE LOCATION

ANALYTICAL DATA
NAME: SNYDER TANK CORPORATION
SAMPLING DATE: 7/9/86
CASE: 6171

PESTICIDES/PCBs

SAMPLE NUMBER	NYU4-S1	NYU4-S2	NYU4-S3	NYU4-S4	NYU4-S5	NYU4-S6	NYU4-SED1	NYU4-SED2	NYU4-BL1
MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	WATER
UNITS	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	NA
Alpha-BHC									
Beta-BHC									
Delta-BHC									
Gamma-BHC (Lindane)									
Heptachlor									
Aldrin									
Heptachlor Epoxide									
Endosulfan I									
Dieldrin									
4,4'-DDE									
Endrin									
Endosulfan II									
4,4'-DDD									
Endosulfan sulfate									
Endrin Aldehyde									
4,4'-DDT									
Methoxychlor									
Endrin Ketone									
Chlordane									
Toxaphene									
Aroclor-1016									
Aroclor-1221									
Aroclor-1232									
Aroclor-1242									
Aroclor-1248									
Aroclor-1254									
Aroclor-1260									

NOTES:
Blank space - compound analyzed for but not detected
E - analysis did not pass QA/QC requirements
J - compound present below the specified detection limit
B - compound found in laboratory blank as well as the sample, indicates possible/probable blank contamination

//

APPENDIX I

APPENDIX I

Appendix I

Chemical Analytical Data Sheets

CHEMICAL ANALYTICAL DATA

GROUNDWATER

SURFACE WATER

SOIL

SPLIT SPOON SOIL

QC SAMPLES

GROUNDWATER ANALYTICAL DATA

2

NARRATIVE

aquatec
ENVIRONMENTAL SERVICES
75 Green Mountain Drive, So. Burlington, VT 05403
TEL. 802/656-1074

3

aquatec INC. ENVIRONMENTAL SERVICES

75 GREEN MOUNTAIN DRIVE, SOUTH BURLINGTON, VERMONT 05403, TELEPHONE (802) 658-1074

January 25, 1991

Y.S. Edward Chen, Ph.D., P.E.
YEC Inc.
Clarkstown Executive Park
612 Corporate Way, Suite 4M
Valley Cottage, NY 10989

Re: Analytical Services Subcontract
Aquatec Project No. 89150
Case No. 24321; SDG No. 125590
ETR No's. 24321 and 24335

Dear Dr. Chen:

Enclosed are the results of analyses performed on Snyder Tank site water samples received from YEC Inc.

The samples were received intact on December 12 and 13, 1990. Laboratory numbers were assigned to the samples and were designated as follows:

Aquatec ETR No.	YEC Sample I.D.	Aquatec Lab No.	Sample Matrix
24321	GW-1	125590	water
	GW-4	125591	water
	SW-1	125592	water
	SW-2	125593	water
24335	Trip Blank	125645	water
	Field Blank	125646	water
	GW-2	125647	water
	GW-3	125648	water

Additional quantities of sample GW-1 were submitted to the laboratory to provide for quality control (QC) analyses. Subsamples of GW-1 used for quality control analyses were independently logged in to the laboratory for the purpose of internal sample tracking. These QC samples were assigned the laboratory numbers 125590MS (matrix spike), 125590MD (matrix spike duplicate), and 125590DP (duplicate).

4

The results of a volatile organics analysis performed on sample GW-2 showed that the acetone concentration was approximately 250 ppb, with xylene (total) and 2-butanone concentrations approximating 80 ppb and 50 ppb, respectively. The acetone peak was not saturated at this level. Several other volatile organic compounds were detected in the 2-3 ppb range. The issue of whether to perform an additional dilution analysis was discussed with Terry Schneider of YEC, Inc. on December 18, 1990 when it was decided that diluting the acetone into the calibration range would result in the loss of information regarding trace levels of other volatiles detected in the undiluted run. As such, only the undiluted analysis was performed.

The results of a semivolatile organics analysis of sample SW-1 indicated that no TCL compounds were present in reportable concentrations. However, a major peak identified as 2-butoxyethanol was detected as a tentatively identified compound (TIC). The intensity of this peak exceeded detector saturation levels. The matter of whether or not to analyze the sample extract at a dilution, so saturation of the TIC would not occur, was initially discussed with Mr. Mark Mecca of YEC on January 8, 1991. Ms. Terry Schneider of YEC subsequently called Mr. Richard Gomez of our office regarding this issue and requested that the raw GC/MS semivolatile organics data be FAXed to Mr. Jaspao Walia of the New York State Department of Environmental Conservation for review. The compiled data was FAXed to Mr. Walia on January 10, 1991. Shortly thereafter, Ms. Schneider authorized Mr. Kirk Young of Aquatec to perform the appropriate dilution analysis of sample SW-1. The results of both analyses are included in this submittal. The dilution analysis is identified with a "DL" suffix affixed to the sample number.

The matrix spike recoveries for thallium and selenium were out of the specified tolerances in the matrix spike analysis of sample GW-1 (125590MS). The analytical results have been qualified accordingly. Please note that the lead results listed on Standard Addition Form 8 are in concentration units (ug/l) at the instrument level rather than absorbance units.

Sincerely,

Joseph K. Comeau

Joseph K. Comeau, Ph.D.
Vice President
Chemistry Division

Enclosure

89150B25JAN91

COVER PAGE - INORGANIC ANALYSES DATA PACKAGE

Lab Name: AQUATEC, INC. Contract: 89150

Lab Code: AQUAI Case No.: 24321 SAS No.: ______ SDG No.: 125590

SOW No.: ______

EPA Sample No.	Lab Sample ID.
GW-1	125590
GW-1D	125590DP
GW-1S	125590MS
GW-4	125591
SW-1	125592
SW-2	125593
Field Blank	125646
GW-2	125647
GW-3	125648

Were ICP interelement corrections applied? Yes/No No

Were ICP background corrections applied? Yes/No Yes
If yes-were raw data generated before application of background corrections? Yes/No No

Comments:

Release of the data contained in this hardcopy data package and in the computer-readable data submitted on floppy diskette has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature.

Lab Manager: Joseph C. [illegible]

Date: 1/25/91

QUALIFIERS FOR METALS ANALYSIS

E - The reported value is estimated because of the presence of interference.

M - Duplicate injection precision not met.

N - Matrix spiked sample recovery not within control limits.

S - The reported value was determined by the Method of Standard Additions.

+ - Correlation coefficient for the MSA is less than 0.995.

W - Post digestion spike for Furnace AA analysis is out of control limits (85-115%), while sample absorbance is less than 50% of spike absorbance.

* - Duplicate analysis not within control limits.

Concentration Qualifiers

B - Entered if the reported value is less than the Contract Required Detection Limit (CRDL) but greater than the Instrument Detection Limit (IDL).

U - Entered if the analyte was analyzed for but not detected, less than CRDL.

: :

1
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

GW-1

Lab Name: AQUATEC, INC. Contract: 89150

Lab Code: AQUAI Case No.: 24321 SAS No.: ______ SDG No.: 125590

Matrix (soil/water): WATER Lab Sample ID: 125590

Level (low/med): ______ Date Received: 12/12/90

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): ug/L

CAS No.	Analyte	Concentration	C	M	Q
7429-90-5	Aluminum	733		E	P
7440-36-0	Antimony	60.0	U		P
7440-38-2	Arsenic	10.0	U		F
7440-39-3	Barium	200	U		P
7440-41-7	Beryllium	5.0	U		P
7440-43-9	Cadmium	5.0	U		P
7440-70-2	Calcium	134000		E	P
7440-47-3	Chromium	10.0	U		P
7440-48-4	Cobalt	50.0	U		P
7440-50-8	Copper	25.0	U		P
7439-89-6	Iron	860		E	P
7439-92-1	Lead	5.0	U		F
7439-95-4	Magnesium	66100			P
7439-96-5	Manganese	66.0		E	P
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel	40.0	U		P
7440-09-7	Potassium	8210			P
7782-49-2	Selenium	5.0	U	WN	F
7440-22-4	Silver	10.0	U		P
7440-23-5	Sodium	38800		E	P
7440-28-0	Thallium	10.0	U	WN	F
7440-62-2	Vanadium	50.0	U		P
7440-66-6	Zinc	42.9			P
	Cyanide	10.0	U		C

Color Before: ______ Clarity Before: ______ Texture: ______

Color After: ______ Clarity After: ______ Artifacts: ______

Comments:

Revision 1
December 1987

: :

1
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

GW-1 D

Lab Name: AQUATEC, INC. Contract: 89150

Lab Code: AQUAI Case No.: 24321 SAS No.: ______ SDG No.: 125590

Matrix (soil/water): WATER Lab Sample ID: 125590DP

Level (low/med): ______ Date Received: 12/12/90

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): ug/L

CAS No.	Analyte	Concentration	C	M	Q
7429-90-5	Aluminum	827		E	P
7440-36-0	Antimony	60.0	U		P
7440-38-2	Arsenic	10.0	U		F
7440-39-3	Barium	200	U		P
7440-41-7	Beryllium	5.0	U		P
7440-43-9	Cadmium	5.0	U		P
7440-70-2	Calcium	129000		E	P
7440-47-3	Chromium	10.0	U		P
7440-48-4	Cobalt	50.0	U		P
7440-50-8	Copper	25.0	U		P
7439-89-6	Iron	933		E	P
7439-92-1	Lead	5.0	U	W	F
7439-95-4	Magnesium	70300			P
7439-96-5	Manganese	73.4		E	P
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel	40.0	U		P
7440-09-7	Potassium	9270			P
7782-49-2	Selenium	5.0	U	WN	F
7440-22-4	Silver	10.0	U		P
7440-23-5	Sodium	39400		E	P
7440-28-0	Thallium	10.0	U	WN	P
7440-62-2	Vanadium	50.0	U		P
7440-66-6	Zinc	28.6			P
	Cyanide	10.0	U		C

Color Before: ______ Clarity Before: ______ Texture: ______

Color After: ______ Clarity After: ______ Artifacts: ______

Comments:

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

GW-1S

Lab Name: AQUATEC, INC. Contract: 89150

Lab Code: AQUAI Case No.: 24321 SAS No.: ______ SDG No.: 125590

Matrix (soil/water): WATER Lab Sample ID: 125590MS

Level (low/med): ______ Date Received: 12/12/90

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): ug/L

CAS No.	Analyte	Concentration	C	M	Q
7429-90-5	Aluminum	2580		E	P
7440-36-0	Antimony	457			P
7440-38-2	Arsenic	35.6		S	F
7440-39-3	Barium	2030			P
7440-41-7	Beryllium	46.4			P
7440-43-9	Cadmium	43.0			P
7440-70-2	Calcium				NR
7440-47-3	Chromium	193			P
7440-48-4	Cobalt	468			P
7440-50-8	Copper	237			P
7439-89-6	Iron	1790		E	P
7439-92-1	Lead	18.2			F
7439-95-4	Magnesium				NR
7439-96-5	Manganese	556		E	P
7439-97-6	Mercury	1.1			CV
7440-02-0	Nickel	445			P
7440-09-7	Potassium				NR
7782-49-2	Selenium	6.1		N	F
7440-22-4	Silver	45.7			P
7440-23-5	Sodium				NR
7440-28-0	Thallium	31.8		N	F
7440-62-2	Vanadium	435			P
7440-66-6	Zinc	530			P
	Cyanide	99.4			C

Color Before: ______ Clarity Before: ______ Texture: ______

Color After: ______ Clarity After: ______ Artifacts: ______

Comments:

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

GW-2

Contract: 89150

Lab Name: AQUATEC, INC.

SDG No.: 125590

Lab Code: AQUAI Case No.: 24321 SAS No.:

Lab Sample ID: 125647

Matrix (soil/water): WATER

Date Received: 12/13/90

Level (low/med):

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): ug/L

CAS No.	Analyte	Concentration	C	M	Q
7429-90-5	Aluminum	995		E	P
7440-36-0	Antimony	60.0	U		P
7440-38-2	Arsenic	5.9		S	F
7440-39-3	Barium	200	U		P
7440-41-7	Beryllium	5.0	U		P
7440-43-9	Cadmium	5.0	U		P
7440-70-2	Calcium	43700		E	P
7440-47-3	Chromium	10.0	U		P
7440-48-4	Cobalt	50.0	U		P
7440-50-8	Copper	25.0	U		P
7439-89-6	Iron	1170		E	P
7439-92-1	Lead	4.0	B		F
7439-95-4	Magnesium	21100			P
7439-96-5	Manganese	59.5		E	P
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel	40.0	U		P
7440-09-7	Potassium	23700			P
7782-49-2	Selenium	5.0	U	WN	F
7440-22-4	Silver	10.0	U		P
7440-23-5	Sodium	224000		E	P
7440-28-0	Thallium	10.0	U	WN	F
7440-62-2	Vanadium	50.0	U		P
7440-66-6	Zinc	52.6			P
	Cyanide	10.0	U		C

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

Revision 1
December 1987

: :

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

GW-3

Lab Name: AQUATEC, INC. Contract: 89150

Lab Code: AQUAI Case No.: 24321 SAS No.: ______ SDG No.: 125590

Matrix (soil/water): WATER Lab Sample ID: 125648

Level (low/med): ______ Date Received: 12/13/90

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): ug/L

CAS No.	Analyte	Concentration	C	M	Q
7429-90-5	Aluminum	28600		E	P
7440-36-0	Antimony	60.0	U		P
7440-38-2	Arsenic	16.5		S	F
7440-39-3	Barium	382			P
7440-41-7	Beryllium	5.0	U		P
7440-43-9	Cadmium	5.0	U		P
7440-70-2	Calcium	111000		E	P
7440-47-3	Chromium	41.9			P
7440-48-4	Cobalt	50.0	U		P
7440-50-8	Copper	25.0	U		P
7439-89-6	Iron	39800		E	P
7439-92-1	Lead	22.5		S	F
7439-95-4	Magnesium	54400			P
7439-96-5	Manganese	591		E	P
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel	66.7			P
7440-09-7	Potassium	41600			P
7782-49-2	Selenium	25.0	U	WN	P
7440-22-4	Silver	10.0	U		P
7440-23-5	Sodium	416000		E	P
7440-28-0	Thallium	10.0	U	WN	F
7440-62-2	Vanadium	50.0	U		P
7440-66-6	Zinc	94.0			P
	Cyanide	10.0	U		C

Color Before: ______ Clarity Before: ______ Texture: ______

Color After: ______ Clarity After: ______ Artifacts: ______

Comments:

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INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

GW-4

Lab Name: AQUATEC, INC. Contract: 89150

Lab Code: AQUAI Case No.: 24321 SAS No.: ______ SDG No.: 125590

Matrix (soil/water): WATER Lab Sample ID: 125591

Level (low/med): ______ Date Received: 12/12/90

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): ug/L

CAS No.	Analyte	Concentration	C	M	Q
7429-90-5	Aluminum	417		E	P
7440-36-0	Antimony	60.0	U		P
7440-38-2	Arsenic	10.0	U		F
7440-39-3	Barium	200	U		P
7440-41-7	Beryllium	5.0	U		P
7440-43-9	Cadmium	5.0	U		P
7440-70-2	Calcium	139000		E	P
7440-47-3	Chromium	10.0	U		P
7440-48-4	Cobalt	50.0	U		P
7440-50-8	Copper	25.0	U		P
7439-89-6	Iron	429		E	P
7439-92-1	Lead	5.0	U		F
7439-95-4	Magnesium	71000			P
7439-96-5	Manganese	68.6		E	P
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel	40.0	U		P
7440-09-7	Potassium	9660			P
7782-49-2	Selenium	5.0	U	WN	F
7440-22-4	Silver	10.0	U		P
7440-23-5	Sodium	42200		E	P
7440-28-0	Thallium	10.0	U	WN	F
7440-62-2	Vanadium	50.0	U		P
7440-66-6	Zinc	20.0	U		P
	Cyanide	10.0	U		C

Color Before: ______ Clarity Before: ______ Texture: ______

Color After: ______ Clarity After: ______ Artifacts: ______

Comments:

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1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GW-1

Lab Name: AQUATEC, INC. Contract: 89150

Lab Code: AQUAI Case No.: 24321 SAS No.: ______ SDG No.: 12559

Matrix: (soil/water) WATER Lab Sample ID: 125590

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: C125590V

Level: (low/med) LOW Date Received: 12/12/90

% Moisture: not dec. ______ Date Analyzed: 12/17/90

Column: (pack/cap) PACK Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	1	BJ
67-64-1	Acetone	28	B
75-15-0	Carbon Disulfide	5	U
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	5	U
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
108-05-4	Vinyl Acetate	10	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
108-88-3	Toluene	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
1330-20-7	Xylene (total)	5	U

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1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

GW-1

Lab Name: AQUATEC, INC. Contract: 89150

Lab Code: AQUAI Case No.: 24321 SAS No.: ________ SDG No.: 12559

Matrix: (soil/water) WATER Lab Sample ID: 125590

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: C125590V

Level: (low/med) LOW Date Received: 12/12/90

% Moisture: not dec. ______ Date Analyzed: 12/17/90

Column: (pack/cap) PACK Dilution Factor: 1.0

CONCENTRATION UNITS:
Number TICs found: 2 (ug/L or ug/Kg) UG/L

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	74-98-6	PROPANE	1.35	8	J
2.	75-28-5	2-METHYLPROPANE	3.60	13	J
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1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GW-1MS

Lab Name: AQUATEC, INC. Contract: 89150

Lab Code: AQUAI Case No.: 24321 SAS No.: ______ SDG No.: 12559

Matrix: (soil/water) WATER Lab Sample ID: 125590MS

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: C125590MS2V

Level: (low/med) LOW Date Received: 12/12/90

% Moisture: not dec. ______ Date Analyzed: 12/18/90

Column: (pack/cap) PACK Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	1	BJ
67-64-1	Acetone	3	BJ
75-15-0	Carbon Disulfide	5	U
75-35-4	1,1-Dichloroethene		
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	5	U
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
108-05-4	Vinyl Acetate	10	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene		
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene		
10061-02-6	trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
108-88-3	Toluene		
108-90-7	Chlorobenzene		
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
1330-20-7	Xylene (total)	5	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GW-1MSD

ab Name:AQUATEC, INC. Contract:89150

ab Code: AQUAI Case No.: 24321 SAS No.: ______ SDG No.: 12559

atrix: (soil/water) WATER Lab Sample ID: 125590MD

am le wt/vol: 5.0 (g/mL) ML Lab File ID: C125590MD2V

evel: (low/med) LOW Date Received: 12/12/90

Moisture: not dec. ______ Date Analyzed: 12/18/90

olumn: (pack/cap) PACK Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	1	BJ
67-64-1	Acetone	3	BJ
75-15-0	Carbon Disulfide	5	U
75-35-4	1,1-Dichloroethene		
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	5	U
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
108-05-4	Vinyl Acetate	10	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene		
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene		
10061-02-6	trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
108-88-3	Toluene		
108-90-7	Chlorobenzene		
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
1330-20-7	Xylene (total)	5	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GW-2

Lab Name: AQUATEC, INC.   Contract: 89150

Lab Code: AQUAI   Case No.: 24321   SAS No.: ______   SDG No.: 12559

Matrix: (soil/water) WATER   Lab Sample ID: 125647

Sample wt/vol: 5.0 (g/mL) ML   Lab File ID: D125647V

Level: (low/med) LOW   Date Received: 12/13/90

% Moisture: not dec. ______   Date Analyzed: 12/17/90

Column: (pack/cap) PACK   Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	3	J
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	4	BJ
67-64-1	Acetone	250	E
75-15-0	Carbon Disulfide	5	U
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	4	J
67-66-3	Chloroform	5	U
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	48	
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
108-05-4	Vinyl Acetate	10	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
108-10-1	4-Methyl-2-Pentanone	3	J
591-78-6	2-Hexanone	7	J
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
108-88-3	Toluene	3	J
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	4	J
100-42-5	Styrene	5	U
1330-20-7	Xylene (total)	83	

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

GW-2

Lab Name: AQUATEC, INC. Contract: 89150

Lab Code: AQUAI Case No.: 24321 SAS No.: ______ SDG No.: 12559

Matrix: (soil/water) WATER Lab Sample ID: 125647

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: D125647V

Level: (low/med) LOW Date Received: 12/13/90

% Moisture: not dec. ______ Date Analyzed: 12/17/90

Column: (pack/cap) PACK Dilution Factor: 1.0

CONCENTRATION UNITS:

Number TICs found: 10 (ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 74-98-6	PROPANE	1.80	380	J
2. 75-28-5	2-METHYLPROPANE	4.75	210	J
3. 106-97-8	BUTANE	6.40	360	J
4. 287-92-3	CYCLOPENTANE	8.65	62	J
5. 78-78-4	2-METHYLBUTANE	10.75	270	J
6. 109-66-0	PENTANE	12.40	41	J
7. 110-82-7	CYCLOHEXANE	13.05	270	J
8. 96-37-7	METHYLCYCLOPENTANE	13.85	150	J
9.	UNKNOWN	16.20	54	J
10. 108-87-2	METHYLCYCLOHEXANE	18.65	180	J
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EPA SAMPLE NO.

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

GW-3

Contract:89150

b Name:AQUATEC, INC.

b Code: AQUAI Case No.: 24321 SAS No.: ______ SDG No.: 12559

trix: (soil/water) WATER Lab Sample ID: 125648

mple wt/vol: 5.0 (g/mL) ML Lab File ID: D125648V

ve : (low/med) LOW Date Received: 12/13/90

Moisture: not dec. ______ Date Analyzed: 12/17/90

olumn: (pack/cap) PACK Dilution Factor: 1.0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

CAS NO.	COMPOUND		Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	5	U
67-64-1	Acetone	78	
75-15-0	Carbon Disulfide	5	U
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	5	U
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
108-05-4	Vinyl Acetate	10	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	1	J
10061-02-6	trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
108-88-3	Toluene	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
1330-20-7	Xylene (total)	20	

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1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

| GW-3 |

ab Name: AQUATEC, INC. Contract: 89150

ab Code: AQUAI Case No.: 24321 SAS No.: ________ SDG No.: 12559

atrix: (soil/water) WATER Lab Sample ID: 125648

ample wt/vol: 5.0 (g/mL) ML Lab File ID: D125648V

evel: (low/med) LOW Date Received: 12/13/90

Moisture: not dec. ______ Date Analyzed: 12/17/90

olumn: (pack/cap) PACK Dilution Factor: 1.0

Number TICs found: 9

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	74-98-6	PROPANE	1.85	270	J
2.	75-28-5	2-METHYLPROPANE	4.75	130	J
3.	106-97-8	BUTANE	6.45	38	J
4.	78-78-4	2-METHYLBUTANE	10.80	75	J
5.	110-82-7	CYCLOHEXANE	13.05	84	J
6.	96-37-7	METHYLCYCLOPENTANE	13.85	31	J
7.		UNKNOWN ALCOHOL	16.20	6	J
8.	108-87-2	METHYLCYCLOHEXANE	18.65	42	J
9.	1757-42-2	3-METHYLCYCLOPENTANONE	19.70	12	J
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1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GW-4

ab Name: AQUATEC, INC. Contract: 89150

ab Code: AQUAI Case No.: 24321 SAS No.: ______ SDG No.: 12559

atrix: (soil/water) WATER Lab Sample ID: 125591

ample wt/vol: 5.0 (g/mL) ML Lab File ID: D125591V

evel: (low/med) LOW Date Received: 12/12/90

Moisture: not dec. ______ Date Analyzed: 12/17/90

olumn: (pack/cap) PACK Dilution Factor: 1.0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

CAS NO.	COMPOUND		Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	4	BJ
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	5	U
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	5	U
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
108-05-4	Vinyl Acetate	10	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
108-88-3	Toluene	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
1330-20-7	Xylene (total)	5	U

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1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GW-1

Lab Name: AQUATEC, INC. Contract: 89150

Lab Code: AQUAI Case No.: 24321 SAS No.: _______ SDG No.: 12559

Matrix: (soil/water) WATER Lab Sample ID: 125590

Sample wt/vol: 1006 (g/mL) ML Lab File ID: B125590S

Level: (low/med) LOW Date Received: 12/12/90

% Moisture: not dec. ______ dec. ______ Date Extracted: 12/13/90

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 01/07/91

GPC Cleanup: (Y/N) N pH: ____ Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-95-2	Phenol	10	U
111-44-4	bis(2-Chloroethyl)ether	10	U
95-57-8	2-Chlorophenol	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4-Dichlorobenzene	10	U
100-51-6	Benzyl alcohol	10	U
95-50-1	1,2-Dichlorobenzene	10	U
95-48-7	2-Methylphenol	10	U
108-60-1	bis(2-Chloroisopropyl)ether	10	U
106-44-5	4-Methylphenol	10	U
621-64-7	N-Nitroso-di-n-propylamine	10	U
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethylphenol	10	U
65-85-0	Benzoic acid	50	U
111-91-1	bis(2-Chloroethoxy)methane	10	U
120-83-2	2,4-Dichlorophenol	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
87-68-3	Hexachlorobutadiene	10	U
59-50-7	4-Chloro-3-methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
95-95-4	2,4,5-Trichlorophenol	50	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	50	U
131-11-3	Dimethylphthalate	10	U
208-96-8	Acenaphthylene	10	U
606-20-2	2,6-Dinitrotoluene	10	U

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GW-1

Lab Name: AQUATEC, INC. Contract: 89150

Lab Code: AQUAI Case No.: 24321 SAS No.: ______ SDG No.: 12559

Matrix: (soil/water) WATER Lab Sample ID: 125590

Sample wt/vol: 1006 (g/mL) ML Lab File ID: B125590S

Level: (low/med) LOW Date Received: 12/12/90

% Moisture: not dec. ______ dec. ______ Date Extracted: 12/13/90

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 01/07/91

GPC Cleanup: (Y/N) N pH: ____ Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
99-09-2	3-Nitroaniline	50	U
83-32-9	Acenaphthene	10	U
51-28-5	2,4-Dinitrophenol	50	U
100-02-7	4-Nitrophenol	50	U
132-64-9	Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene	10	U
84-66-2	Diethylphthalate	10	U
7005-72-3	4-Chlorophenyl-phenylether	10	U
86-73-7	Fluorene	10	U
100-01-6	4-Nitroaniline	50	U
534-52-1	4,6-Dinitro-2-methylphenol	50	U
86-30-6	N-Nitrosodiphenylamine (1)	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
87-86-5	Pentachlorophenol	50	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
84-74-2	Di-n-butylphthalate	10	U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
85-68-7	Butylbenzylphthalate	10	U
91-94-1	3,3'-Dichlorobenzidine	20	U
56-55-3	Benzo(a)anthracene	10	U
218-01-9	Chrysene	10	U
117-81-7	bis(2-Ethylhexyl)phthalate	10	U
117-84-0	Di-n-octylphthalate	10	U
205-99-2	Benzo(b)fluoranthene	10	U
207-08-9	Benzo(k)fluoranthene	10	U
50-32-8	Benzo(a)pyrene	10	U
193-39-5	Indeno(1,2,3-cd)pyrene	10	U
53-70-3	Dibenz(a,h)anthracene	10	U
191-24-2	Benzo(g,h,i)perylene	10	U

(1) - Cannot be separated from Diphenylamine

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GW-1MS

Lab Name:AQUATEC, INC. Contract:89150

Lab Code: AQUAI Case No.: 24321 SAS No.: ______ SDG No.: 12559

Matrix: (soil/water) WATER Lab Sample ID: 125590MS

Sample wt/vol: 1004 (g/mL) ML Lab File ID: B125590MSS

Level: (low/med) LOW Date Received: 12/12/90

% Moisture: not dec. ______ dec. ______ Date Extracted: 12/13/90

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 01/07/91

GPC Cleanup: (Y/N) N pH: ____ Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-95-2	Phenol		
111-44-4	bis(2-Chloroethyl)ether	10	U
95-57-8	2-Chlorophenol		
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4-Dichlorobenzene		
100-51-6	Benzyl alcohol	10	U
95-50-1	1,2-Dichlorobenzene	10	U
95-48-7	2-Methylphenol	10	U
108-60-1	bis(2-Chloroisopropyl)ether	10	U
106-44-5	4-Methylphenol	10	U
621-64-7	N-Nitroso-di-n-propylamine		
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethylphenol	10	U
65-85-0	Benzoic acid	50	U
111-91-1	bis(2-Chloroethoxy)methane	10	U
120-83-2	2,4-Dichlorophenol	10	U
120-82-1	1,2,4-Trichlorobenzene		
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
87-68-3	Hexachlorobutadiene	10	U
59-50-7	4-Chloro-3-methylphenol		
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
95-95-4	2,4,5-Trichlorophenol	50	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	50	U
131-11-3	Dimethylphthalate	10	U
208-96-8	Acenaphthylene	10	U
606-20-2	2,6-Dinitrotoluene	10	U

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GW-1MS

Lab Name: AQUATEC, INC. Contract: 89150

Lab Code: AQUAI Case No.: 24321 SAS No.: ______ SDG No.: 12559

Matrix: (soil/water) WATER Lab Sample ID: 125590MS

Sample wt/vol: 1004 (g/mL) ML Lab File ID: B125590MSS

Level: (low/med) LOW Date Received: 12/12/90

% Moisture: not dec. ______ dec. ______ Date Extracted: 12/13/90

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 01/07/91

GPC Cleanup: (Y/N) N pH: ____ Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
99-09-2	3-Nitroaniline	50	U
83-32-9	Acenaphthene		
51-28-5	2,4-Dinitrophenol	50	U
100-02-7	4-Nitrophenol		
132-64-9	Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene		
84-66-2	Diethylphthalate	10	U
7005-72-3	4-Chlorophenyl-phenylether	10	U
86-73-7	Fluorene	10	U
100-01-6	4-Nitroaniline	50	U
534-52-1	4,6-Dinitro-2-methylphenol	50	U
86-30-6	N-Nitrosodiphenylamine (1)	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
87-86-5	Pentachlorophenol		
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
84-74-2	Di-n-butylphthalate	10	U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene		
85-68-7	Butylbenzylphthalate	10	U
91-94-1	3,3'-Dichlorobenzidine	20	U
56-55-3	Benzo(a)anthracene	10	U
218-01-9	Chrysene	10	U
117-81-7	bis(2-Ethylhexyl)phthalate	10	U
117-84-0	Di-n-octylphthalate	10	U
205-99-2	Benzo(b)fluoranthene	10	U
207-08-9	Benzo(k)fluoranthene	10	U
50-32-8	Benzo(a)pyrene	10	U
193-39-5	Indeno(1,2,3-cd)pyrene	10	U
53-70-3	Dibenz(a,h)anthracene	10	U
191-24-2	Benzo(g,h,i)perylene	10	U

(1) - Cannot be separated from Diphenylamine

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GW-1MSD

Lab Name: AQUATEC, INC. Contract: 89150

Lab Code: AQUAI Case No.: 24321 SAS No.: ______ SDG No.: 12559

Matrix: (soil/water) WATER Lab Sample ID: 125590MD

Sample wt/vol: 1012 (g/mL) ML Lab File ID: B125590MDS

Level: (low/med) LOW Date Received: 12/12/90

% Moisture: not dec. ______ dec. ______ Date Extracted: 12/13/90

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 01/08/91

GPC Cleanup: (Y/N) N pH: ____ Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-95-2	Phenol		
111-44-4	bis(2-Chloroethyl)ether	10	U
95-57-8	2-Chlorophenol		
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4-Dichlorobenzene		
100-51-6	Benzyl alcohol	10	U
95-50-1	1,2-Dichlorobenzene	10	U
95-48-7	2-Methylphenol	10	U
108-60-1	bis(2-Chloroisopropyl)ether	10	U
106-44-5	4-Methylphenol	10	U
621-64-7	N-Nitroso-di-n-propylamine		
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethylphenol	10	U
65-85-0	Benzoic acid	49	U
111-91-1	bis(2-Chloroethoxy)methane	10	U
120-83-2	2,4-Dichlorophenol	10	U
120-82-1	1,2,4-Trichlorobenzene		
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
87-68-3	Hexachlorobutadiene	10	U
59-50-7	4-Chloro-3-methylphenol		
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
95-95-4	2,4,5-Trichlorophenol	49	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	49	U
131-11-3	Dimethylphthalate	10	U
208-96-8	Acenaphthylene	10	U
606-20-2	2,6-Dinitrotoluene	10	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GW-1MSD

Lab Name: AQUATEC, INC. Contract: 89150

Lab Code: AQUAI Case No.: 24321 SAS No.: ______ SDG No.: 12559

Matrix: (soil/water) WATER Lab Sample ID: 125590MD

Sample wt/vol: 1012 (g/mL) ML Lab File ID: B125590MDS

Level: (low/med) LOW Date Received: 12/12/90

% Moisture: not dec. ______ dec. ______ Date Extracted: 12/13/90

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 01/08/91

GPC Cleanup: (Y/N) N pH: ____ Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
99-09-2	3-Nitroaniline	49	U
83-32-9	Acenaphthene		
51-28-5	2,4-Dinitrophenol	49	U
100-02-7	4-Nitrophenol		
132-64-9	Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene		
84-66-2	Diethylphthalate	10	U
7005-72-3	4-Chlorophenyl-phenylether	10	U
86-73-7	Fluorene	10	U
100-01-6	4-Nitroaniline	49	U
534-52-1	4,6-Dinitro-2-methylphenol	49	U
86-30-6	N-Nitrosodiphenylamine (1)	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
87-86-5	Pentachlorophenol		
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
84-74-2	Di-n-butylphthalate	10	U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene		
85-68-7	Butylbenzylphthalate	10	U
91-94-1	3,3'-Dichlorobenzidine	20	U
56-55-3	Benzo(a)anthracene	10	U
218-01-9	Chrysene	10	U
117-81-7	bis(2-Ethylhexyl)phthalate	10	U
117-84-0	Di-n-octylphthalate	10	U
205-99-2	Benzo(b)fluoranthene	10	U
207-08-9	Benzo(k)fluoranthene	10	U
50-32-8	Benzo(a)pyrene	10	U
193-39-5	Indeno(1,2,3-cd)pyrene	10	U
53-70-3	Dibenz(a,h)anthracene	10	U
191-24-2	Benzo(g,h,i)perylene	10	U

(1) - Cannot be separated from Diphenylamine

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GW-2

ab Name: AQUATEC, INC. Contract: 89150

ab Code: AQUAI Case No.: 24321 SAS No.: ______ SDG No.: 12559

atrix: (soil/water) WATER Lab Sample ID: 125647

ample wt/vol: 995.0 (g/mL) ML Lab File ID: B125647S

evel: (low/med) LOW Date Received: 12/13/90

Moisture: not dec. ______ dec. ______ Date Extracted: 12/14/90

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 01/03/91

GPC Cleanup: (Y/N) N pH: ____ Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-95-2	Phenol	3	J
111-44-4	bis(2-Chloroethyl)ether	10	U
95-57-8	2-Chlorophenol	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4-Dichlorobenzene	10	U
100-51-6	Benzyl alcohol	10	U
95-50-1	1,2-Dichlorobenzene	10	U
95-48-7	2-Methylphenol	3	J
108-60-1	bis(2-Chloroisopropyl)ether	10	U
106-44-5	4-Methylphenol	3	J
621-64-7	N-Nitroso-di-n-propylamine	10	U
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethylphenol	9	J
65-85-0	Benzoic acid	50	U
111-91-1	bis(2-Chloroethoxy)methane	10	U
120-83-2	2,4-Dichlorophenol	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
87-68-3	Hexachlorobutadiene	10	U
59-50-7	4-Chloro-3-methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
95-95-4	2,4,5-Trichlorophenol	50	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	50	U
131-11-3	Dimethylphthalate	10	U
208-96-8	Acenaphthylene	10	U
606-20-2	2,6-Dinitrotoluene	10	U

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GW-2

Lab Name: AQUATEC, INC. Contract: 89150

Lab Code: AQUAI Case No.: 24321 SAS No.: ________ SDG No.: 12559

Matrix: (soil/water) WATER Lab Sample ID: 125647

Sample wt/vol: 995.0 (g/mL) ML Lab File ID: B125647S

Level: (low/med) LOW Date Received: 12/13/90

% Moisture: not dec.______ dec.______ Date Extracted: 12/14/90

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 01/03/91

GPC Cleanup: (Y/N) N pH:____ Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
99-09-2	3-Nitroaniline	50	U
83-32-9	Acenaphthene	10	U
51-28-5	2,4-Dinitrophenol	50	U
100-02-7	4-Nitrophenol	50	U
132-64-9	Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene	10	U
84-66-2	Diethylphthalate	10	U
7005-72-3	4-Chlorophenyl-phenylether	10	U
86-73-7	Fluorene	10	U
100-01-6	4-Nitroaniline	50	U
534-52-1	4,6-Dinitro-2-methylphenol	50	U
86-30-6	N-Nitrosodiphenylamine (1)	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
87-86-5	Pentachlorophenol	50	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
84-74-2	Di-n-butylphthalate	10	U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
85-68-7	Butylbenzylphthalate	10	U
91-94-1	3,3'-Dichlorobenzidine	20	U
56-55-3	Benzo(a)anthracene	10	U
218-01-9	Chrysene	10	U
117-81-7	bis(2-Ethylhexyl)phthalate	10	U
117-84-0	Di-n-octylphthalate	10	U
205-99-2	Benzo(b)fluoranthene	10	U
207-08-9	Benzo(k)fluoranthene	10	U
50-32-8	Benzo(a)pyrene	10	U
193-39-5	Indeno(1,2,3-cd)pyrene	10	U
53-70-3	Dibenz(a,h)anthracene	10	U
191-24-2	Benzo(g,h,i)perylene	10	U

(1) - Cannot be separated from Diphenylamine

EPA SAMPLE NO.

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

GW-2

Lab Name: AQUATEC, INC. Contract: 89150

Lab Code: AQUAI Case No.: 24321 SAS No.: ________ SDG No.: 12559

Matrix: (soil/water) WATER Lab Sample ID: 125647

Sample wt/vol: 995.0 (g/mL) ML Lab File ID: B125647S

Level: (low/med) LOW Date Received: 12/13/90

% Moisture: not dec. ______ dec. ______ Date Extracted: 12/14/90

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 01/03/91

GPC Cleanup: (Y/N) N pH: ____ Dilution Factor: 1.0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

Number TICs found: 8

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	9.43	23	JBA
2.	UNKNOWN	11.23	10	J
3.	UNKNOWN ETHYLMETHYLBENZENE	13.97	17	J
4.	UNKNOWN TRIMETHYLBENZENE	14.18	29	J
5.	UNKNOWN TRIMETHYLBENZENE	14.95	45	J
6.	UNKNOWN TRIMETHYLBENZENE	15.80	36	J
7.	UNKNOWN TETRAMETHYLBENZENE	18.33	9	J
8. 119-64-2	NAPHTHALENE, 1,2,3,4-TETRAHY	19.42	11	J
9.				
10.				
11.				
12.				
13.				
14.				
15.				
16.				
17.				
18.				
19.				
20.				
21.				
22.				
23.				
24.				
25.				
26.				
27.				
28.				
29.				
30.				

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1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GW-3

ab Name: AQUATEC, INC. Contract: 89150

ab Code: AQUAI Case No.: 24321 SAS No.: ______ SDG No.: 12559

atrix: (soil/water) WATER Lab Sample ID: 125648

ample wt/vol: 997.0 (g/mL) ML Lab File ID: B125648S

ev l: (low/med) LOW Date Received: 12/13/90

Moisture: not dec. ______ dec. ______ Date Extracted: 12/14/90

xt action: (SepF/Cont/Sonc) SEPF Date Analyzed: 01/03/91

PC Cleanup: (Y/N) N pH: ____ Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-95-2	Phenol	10	U
111-44-4	bis(2-Chloroethyl)ether	10	U
95-57-8	2-Chlorophenol	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4-Dichlorobenzene	10	U
100-51-6	Benzyl alcohol	10	U
95-50-1	1,2-Dichlorobenzene	10	U
95-48-7	2-Methylphenol	10	U
108-60-1	bis(2-Chloroisopropyl)ether	10	U
106-44-5	4-Methylphenol	10	U
621-64-7	N-Nitroso-di-n-propylamine	10	U
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethylphenol	10	U
65-85-0	Benzoic acid	50	U
111-91-1	bis(2-Chloroethoxy)methane	10	U
120-83-2	2,4-Dichlorophenol	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
87-68-3	Hexachlorobutadiene	10	U
59-50-7	4-Chloro-3-methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
95-95-4	2,4,5-Trichlorophenol	50	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	50	U
131-11-3	Dimethylphthalate	10	U
208-96-8	Acenaphthylene	10	U
606-20-2	2,6-Dinitrotoluene	10	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GW-3

Lab Name: AQUATEC, INC. Contract: 89150

Lab Code: AQUAI Case No.: 24321 SAS No.: ________ SDG No.: 12559

Matrix: (soil/water) WATER Lab Sample ID: 125648

Sample wt/vol: 997.0 (g/mL) ML Lab File ID: B125648S

Level: (low/med) LOW Date Received: 12/13/90

% Moisture: not dec. ______ dec. ______ Date Extracted: 12/14/90

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 01/03/91

GPC Cleanup: (Y/N) N pH: ____ Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
99-09-2	3-Nitroaniline	50	U
83-32-9	Acenaphthene	10	U
51-28-5	2,4-Dinitrophenol	50	U
100-02-7	4-Nitrophenol	50	U
132-64-9	Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene	10	U
84-66-2	Diethylphthalate	10	U
7005-72-3	4-Chlorophenyl-phenylether	10	U
86-73-7	Fluorene	10	U
100-01-6	4-Nitroaniline	50	U
534-52-1	4,6-Dinitro-2-methylphenol	50	U
86-30-6	N-Nitrosodiphenylamine (1)	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
87-86-5	Pentachlorophenol	50	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
84-74-2	Di-n-butylphthalate	10	U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
85-68-7	Butylbenzylphthalate	10	U
91-94-1	3,3'-Dichlorobenzidine	20	U
56-55-3	Benzo(a)anthracene	10	U
218-01-9	Chrysene	10	U
117-81-7	bis(2-Ethylhexyl)phthalate	10	U
117-84-0	Di-n-octylphthalate	10	U
205-99-2	Benzo(b)fluoranthene	10	U
207-08-9	Benzo(k)fluoranthene	10	U
50-32-8	Benzo(a)pyrene	10	U
193-39-5	Indeno(1,2,3-cd)pyrene	10	U
53-70-3	Dibenz(a,h)anthracene	10	U
191-24-2	Benzo(g,h,i)perylene	10	U

(1) - Cannot be separated from Diphenylamine

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

GW-3

Lab Name: AQUATEC, INC. Contract: 89150

Lab Code: AQUAI Case No.: 24321 SAS No.: ______ SDG No.: 12559

Matrix: (soil/water) WATER Lab Sample ID: 125648

Sample wt/vol: 997.0 (g/mL) ML Lab File ID: B125648S

Level: (low/med) LOW Date Received: 12/13/90

% Moisture: not dec. ______ dec. ______ Date Extracted: 12/14/90

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 01/03/91

GPC Cleanup: (Y/N) N pH: ____ Dilution Factor: 1.0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

Number TICs found: 8

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 120-92-3	CYCLOPENTANONE	6.97	48	J
2. 123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	9.47	18	JBA
3. 1757-42-2	3-METHYLCYCLOPENTANONE	9.75	90	J
4.	UNKNOWN	11.30	14	J
5.	UNKNOWN	13.22	13	J
6.	UNKNOWN TRIMETHYLBENZENE	14.23	11	J
7.	UNKNOWN TRIMETHYLBENZENE	15.87	17	J
8.	UNKNOWN	17.95	16	J
9.				
10.				
11.				
12.				
13.				
14.				
15.				
16.				
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29.				
30.				

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GW-4

Lab Name: AQUATEC, INC. Contract: 89150

Lab Code: AQUAI Case No.: 24321 SAS No.: ______ SDG No.: 12559

Matrix: (soil/water) WATER Lab Sample ID: 125591

Sample wt/vol: 1015 (g/mL) ML Lab File ID: B125591S

Level: (low/med) LOW Date Received: 12/12/90

% Moisture: not dec. ______ dec. ______ Date Extracted: 12/13/90

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 01/08/91

GPC Cleanup: (Y/N) N pH: ____ Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-95-2	Phenol	10	U
111-44-4	bis(2-Chloroethyl)ether	10	U
95-57-8	2-Chlorophenol	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4-Dichlorobenzene	10	U
100-51-6	Benzyl alcohol	10	U
95-50-1	1,2-Dichlorobenzene	10	U
95-48-7	2-Methylphenol	10	U
108-60-1	bis(2-Chloroisopropyl)ether	10	U
106-44-5	4-Methylphenol	10	U
621-64-7	N-Nitroso-di-n-propylamine	10	U
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethylphenol	10	U
65-85-0	Benzoic acid	49	U
111-91-1	bis(2-Chloroethoxy)methane	10	U
120-83-2	2,4-Dichlorophenol	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
87-68-3	Hexachlorobutadiene	10	U
59-50-7	4-Chloro-3-methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
95-95-4	2,4,5-Trichlorophenol	49	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	49	U
131-11-3	Dimethylphthalate	10	U
208-96-8	Acenaphthylene	10	U
606-20-2	2,6-Dinitrotoluene	10	U

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GW-4

Lab Name: AQUATEC, INC. Contract: 89150

Lab Code: AQUAI Case No.: 24321 SAS No.: ________ SDG No.: 12559

Matrix: (soil/water) WATER Lab Sample ID: 125591

Sample wt/vol: 1015 (g/mL) ML Lab File ID: B125591S

Level: (low/med) LOW Date Received: 12/12/90

% Moisture: not dec. ______ dec. ______ Date Extracted: 12/13/90

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 01/08/91

GPC Cleanup: (Y/N) N pH: ____ Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
99-09-2	3-Nitroaniline	49	U
83-32-9	Acenaphthene	10	U
51-28-5	2,4-Dinitrophenol	49	U
100-02-7	4-Nitrophenol	49	U
132-64-9	Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene	10	U
84-66-2	Diethylphthalate	10	U
7005-72-3	4-Chlorophenyl-phenylether	10	U
86-73-7	Fluorene	10	U
100-01-6	4-Nitroaniline	49	U
534-52-1	4,6-Dinitro-2-methylphenol	49	U
86-30-6	N-Nitrosodiphenylamine (1)	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
87-86-5	Pentachlorophenol	49	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
84-74-2	Di-n-butylphthalate	10	U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
85-68-7	Butylbenzylphthalate	10	U
91-94-1	3,3'-Dichlorobenzidine	20	U
56-55-3	Benzo(a)anthracene	10	U
218-01-9	Chrysene	10	U
117-81-7	bis(2-Ethylhexyl)phthalate	10	U
117-84-0	Di-n-octylphthalate	10	U
205-99-2	Benzo(b)fluoranthene	10	U
207-08-9	Benzo(k)fluoranthene	10	U
50-32-8	Benzo(a)pyrene	10	U
193-39-5	Indeno(1,2,3-cd)pyrene	10	U
53-70-3	Dibenz(a,h)anthracene	10	U
191-24-2	Benzo(g,h,i)perylene	10	U

(1) - Cannot be separated from Diphenylamine

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GW-1

ab Name:AQUATEC, INC.   Contract:89150

ab Code: AQUAI   Case No.: 24321   SAS No.: ______   SDG No.: 12559

atrix: (soil/water) WATER   Lab Sample ID: 125590

ample wt/vol: 1006 (g/mL) ML   Lab File ID: ______

evel: (low/med) LOW   Date Received: 12/12/90

Moisture: not dec. ______ dec. ______   Date Extracted: 12/13/90

Extraction: (SepF/Cont/Sonc) SEPF   Date Analyzed: 12/21/90

PC Cleanup: (Y/N) N   pH: ____   Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
319-84-6	alpha-BHC	0.050	U
319-85-7	beta-BHC	0.050	U
319-86-8	delta-BHC	0.050	U
58-89-9	gamma-BHC (Lindane)	0.050	U
76-44-8	Heptachlor	0.050	U
309-00-2	Aldrin	0.050	U
1024-57-3	Heptachlor epoxide	0.050	U
959-98-8	Endosulfan I	0.050	U
60-57-1	Dieldrin	0.099	U
72-55-9	4,4'-DDE	0.099	U
72-20-8	Endrin	0.099	U
33213-65-9	Endosulfan II	0.099	U
72-54-8	4,4'-DDD	0.099	U
1031-07-8	Endosulfan sulfate	0.099	U
50-29-3	4,4'-DDT	0.099	U
72-43-5	Methoxychlor	0.50	U
53494-70-5	Endrin ketone	0.099	U
5103-71-9	alpha-Chlordane	0.50	U
5103-74-2	gamma-Chlordane	0.50	U
8001-35-2	Toxaphene	0.99	U
12674-11-2	Aroclor-1016	0.50	U
11104-28-2	Aroclor-1221	0.50	U
11141-16-5	Aroclor-1232	0.50	U
53469-21-9	Aroclor-1242	0.50	U
12672-29-6	Aroclor-1248	0.50	U
11097-69-1	Aroclor-1254	0.99	U
11096-82-5	Aroclor-1260	0.99	U

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GW-1MS

Lab Name: AQUATEC, INC. Contract: 89150

Lab Code: AQUAI Case No.: 24321 SAS No.: ______ SDG No.: 12559

Matrix: (soil/water) WATER Lab Sample ID: 125590MS

Sample wt/vol: 1008 (g/mL) ML Lab File ID: ______

Level: (low/med) LOW Date Received: 12/12/90

% Moisture: not dec. ______ dec. ______ Date Extracted: 12/13/90

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 12/21/90

GPC Cleanup: (Y/N) N pH: ____ Dilution Factor: 5.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
319-84-6	alpha-BHC	0.25	U
319-85-7	beta-BHC	0.25	U
319-86-8	delta-BHC	0.25	U
58-89-9	gamma-BHC (Lindane)		
76-44-8	Heptachlor		
309-00-2	Aldrin		
1024-57-3	Heptachlor epoxide	0.25	U
959-98-8	Endosulfan I	0.25	U
60-57-1	Dieldrin		
72-55-9	4,4'-DDE	0.50	U
72-20-8	Endrin		
33213-65-9	Endosulfan II	0.50	U
72-54-8	4,4'-DDD	0.50	U
1031-07-8	Endosulfan sulfate	0.50	U
50-29-3	4,4'-DDT		
72-43-5	Methoxychlor	2.5	U
53494-70-5	Endrin ketone	0.50	U
5103-71-9	alpha-Chlordane	2.5	U
5103-74-2	gamma-Chlordane	2.5	U
8001-35-2	Toxaphene	5.0	U
12674-11-2	Aroclor-1016	2.5	U
11104-28-2	Aroclor-1221	2.5	U
11141-16-5	Aroclor-1232	2.5	U
53469-21-9	Aroclor-1242	2.5	U
12672-29-6	Aroclor-1248	2.5	U
11097-69-1	Aroclor-1254	5.0	U
11096-82-5	Aroclor-1260	5.0	U

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GW-1MSD

Lab Name: AQUATEC, INC.   Contract: 89150

Lab Code: AQUAI   Case No.: 24321   SAS No.: ______   SDG No.: 12559

Matrix: (soil/water) WATER   Lab Sample ID: 125590MD

Sample wt/vol: 1009 (g/mL) ML   Lab File ID: ______

Level: (low/med) LOW   Date Received: 12/12/90

% Moisture: not dec. ______ dec. ______   Date Extracted: 12/13/90

Extraction: (SepF/Cont/Sonc) SEPF   Date Analyzed: 12/21/90

GPC Cleanup: (Y/N) N   pH: ____   Dilution Factor: 5.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
319-84-6	alpha-BHC	0.25	U
319-85-7	beta-BHC	0.25	U
319-86-8	delta-BHC	0.25	U
58-89-9	gamma-BHC (Lindane)	0.25	U
76-44-8	Heptachlor	0.25	U
309-00-2	Aldrin	0.25	U
1024-57-3	Heptachlor epoxide	0.25	U
959-98-8	Endosulfan I	0.25	U
60-57-1	Dieldrin	0.50	U
72-55-9	4,4'-DDE	0.50	U
72-20-8	Endrin	0.50	U
33213-65-9	Endosulfan II	0.50	U
72-54-8	4,4'-DDD	0.50	U
1031-07-8	Endosulfan sulfate	0.50	U
50-29-3	4,4'-DDT	0.50	U
72-43-5	Methoxychlor	2.5	U
53494-70-5	Endrin ketone	0.50	U
5103-71-9	alpha-Chlordane	2.5	U
5103-74-2	gamma-Chlordane	2.5	U
8001-35-2	Toxaphene	5.0	U
12674-11-2	Aroclor-1016	2.5	U
11104-28-2	Aroclor-1221	2.5	U
11141-16-5	Aroclor-1232	2.5	U
53469-21-9	Aroclor-1242	2.5	U
12672-29-6	Aroclor-1248	2.5	U
11097-69-1	Aroclor-1254	5.0	U
11096-82-5	Aroclor-1260	5.0	U

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PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GW-2

Lab Name: AQUATEC, INC. Contract: 89150

Lab Code: AQUAI Case No.: 24321 SAS No.: ______ SDG No.: 12559

Matrix: (soil/water) WATER Lab Sample ID: 125647

Sample wt/vol: 999 (g/mL) ML Lab File ID: ______

Level: (low/med) LOW Date Received: 12/13/90

% Moisture: not dec. ______ dec. ______ Date Extracted: 12/18/90

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 12/21/90

GPC Cleanup: (Y/N) N pH: ____ Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
319-84-6	alpha-BHC	0.050	U
319-85-7	beta-BHC	0.050	U
319-86-8	delta-BHC	0.050	U
58-89-9	gamma-BHC (Lindane)	0.050	U
76-44-8	Heptachlor	0.050	U
309-00-2	Aldrin	0.050	U
1024-57-3	Heptachlor epoxide	0.050	U
959-98-8	Endosulfan I	0.050	U
60-57-1	Dieldrin	0.10	U
72-55-9	4,4'-DDE	0.10	U
72-20-8	Endrin	0.10	U
33213-65-9	Endosulfan II	0.10	U
72-54-8	4,4'-DDD	0.10	U
1031-07-8	Endosulfan sulfate	0.10	U
50-29-3	4,4'-DDT	0.10	U
72-43-5	Methoxychlor	0.50	U
53494-70-5	Endrin ketone	0.10	U
5103-71-9	alpha-Chlordane	0.50	U
5103-74-2	gamma-Chlordane	0.50	U
8001-35-2	Toxaphene	1.0	U
12674-11-2	Aroclor-1016	0.50	U
11104-28-2	Aroclor-1221	0.50	U
11141-16-5	Aroclor-1232	0.50	U
53469-21-9	Aroclor-1242	0.50	U
12672-29-6	Aroclor-1248	0.50	U
11097-69-1	Aroclor-1254	1.0	U
11096-82-5	Aroclor-1260	1.0	U

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1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GW-3

ab Name:AQUATEC, INC.   Contract:89150

ab Code: AQUAI   Case No.: 24321   SAS No.: ________   SDG No.: 12559

atrix: (soil/water)WATER   Lab Sample ID: 125648

am le wt/vol: 497 (g/mL)ML   Lab File ID: ____________

evel: (low/med) LOW   Date Received: 12/13/90

Moisture: not dec.______ dec.______   Date Extracted: 12/18/90

xt action: (SepF/Cont/Sonc) SEPF   Date Analyzed: 12/21/90

PC Cleanup: (Y/N)N   pH:____   Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg)UG/L	Q
319-84-6	alpha-BHC	0.050	U
319-85-7	beta-BHC	0.050	U
319-86-8	delta-BHC	0.050	U
58-89-9	gamma-BHC (Lindane)	0.050	U
76-44-8	Heptachlor	0.050	U
309-00-2	Aldrin	0.050	U
1024-57-3	Heptachlor epoxide	0.050	U
959-98-8	Endosulfan I	0.050	U
60-57-1	Dieldrin	0.10	U
72-55-9	4,4'-DDE	0.10	U
72-20-8	Endrin	0.10	U
33213-65-9	Endosulfan II	0.10	U
72-54-8	4,4'-DDD	0.10	U
1031-07-8	Endosulfan sulfate	0.10	U
50-29-3	4,4'-DDT	0.10	U
72-43-5	Methoxychlor	0.50	U
53494-70-5	Endrin ketone	0.10	U
5103-71-9	alpha-Chlordane	0.50	U
5103-74-2	gamma-Chlordane	0.50	U
8001-35-2	Toxaphene	1.0	U
12674-11-2	Aroclor-1016	0.50	U
11104-28-2	Aroclor-1221	0.50	U
11141-16-5	Aroclor-1232	0.50	U
53469-21-9	Aroclor-1242	0.50	U
12672-29-6	Aroclor-1248	0.50	U
11097-69-1	Aroclor-1254	1.0	U
11096-82-5	Aroclor-1260	1.0	U

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GW-4

ab Name:AQUATEC, INC. Contract:89150

ab Code: AQUAI Case No.: 24321 SAS No.: ______ SDG No.: 12559

atrix: (soil/water)WATER Lab Sample ID: 125591

am le wt/vol: 1016 (g/mL)ML Lab File ID: ______

evel: (low/med) LOW Date Received: 12/12/90

Moisture: not dec.______ dec.______ Date Extracted: 12/13/90

xt action: (SepF/Cont/Sonc) SEPF Date Analyzed: 12/21/90

PC Cleanup: (Y/N)N pH:____ Dilution Factor: 1.0

CONCENTRATION UNITS: (ug/L or ug/Kg)UG/L

CAS NO.	COMPOUND	(ug/L or ug/Kg)UG/L	Q
319-84-6	alpha-BHC	0.049	U
319-85-7	beta-BHC	0.049	U
319-86-8	delta-BHC	0.049	U
58-89-9	gamma-BHC (Lindane)	0.049	U
76-44-8	Heptachlor	0.049	U
309-00-2	Aldrin	0.049	U
1024-57-3	Heptachlor epoxide	0.049	U
959-98-8	Endosulfan I	0.049	U
60-57-1	Dieldrin	0.098	U
72-55-9	4,4'-DDE	0.098	U
72-20-8	Endrin	0.098	U
33213-65-9	Endosulfan II	0.098	U
72-54-8	4,4'-DDD	0.098	U
1031-07-8	Endosulfan sulfate	0.098	U
50-29-3	4,4'-DDT	0.098	U
72-43-5	Methoxychlor	0.49	U
53494-70-5	Endrin ketone	0.098	U
5103-71-9	alpha-Chlordane	0.49	U
5103-74-2	gamma-Chlordane	0.49	U
8001-35-2	Toxaphene	0.98	U
12674-11-2	Aroclor-1016	0.49	U
11104-28-2	Aroclor-1221	0.49	U
11141-16-5	Aroclor-1232	0.49	U
53469-21-9	Aroclor-1242	0.49	U
12672-29-6	Aroclor-1248	0.49	U
11097-69-1	Aroclor-1254	0.98	U
11096-82-5	Aroclor-1260	0.98	U

SURFACE WATER ANALYTICAL DATA

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INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

SW-1

Lab Name: AQUATEC, INC. Contract: 89150

Lab Code: AQUAI Case No.: 24321 SAS No.: ______ SDG No.: 125590

Matrix (soil/water): WATER Lab Sample ID: 125592

Level (low/med): ______ Date Received: 12/12/90

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): ug/L

CAS No.	Analyte	Concentration	C	M	Q
7429-90-5	Aluminum	7360		E	P
7440-36-0	Antimony	60.0	U		P
7440-38-2	Arsenic	9.5		S	F
7440-39-3	Barium	200	U		P
7440-41-7	Beryllium	5.0	U		P
7440-43-9	Cadmium	5.0	U		P
7440-70-2	Calcium	71000		E	P
7440-47-3	Chromium	129			P
7440-48-4	Cobalt	50.0	U		P
7440-50-8	Copper	25.0	U		P
7439-89-6	Iron	1130		E	P
7439-92-1	Lead	5.0	U		F
7439-95-4	Magnesium	18200			P
7439-96-5	Manganese	82.1		E	P
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel	73.2			P
7440-09-7	Potassium	5000	U		P
7782-49-2	Selenium	5.0	U	N	F
7440-22-4	Silver	10.0	U		P
7440-23-5	Sodium	48500		E	P
7440-28-0	Thallium	10.0	U	WN	F
7440-62-2	Vanadium	50.0	U		P
7440-66-6	Zinc	49.4			P
	Cyanide	10.0	U		C

Color Before: ______ Clarity Before: ______ Texture: ______

Color After: ______ Clarity After: ______ Artifacts: ______

Comments:

144

Hardness Calculation

Class B Waterbody

Wastewater Sample SW-1

CATION	CONC.	(MG/L)
Ca(+2)	71.0	MG/L
Mg(+2)	18.2	MG/L

HARDNESS = 252.23

RESULTING STANDARD

(UG/L)

METAL		CLASS	
CADMIUM	2.3	ABC	■
	11.1	D	□
COPPER	26.1	ABC	■
	42.4	D	□
LEAD	10.4	ABC	■
	266.5	D	□
CHROMIUM	441.6	ABC	■
	3704.7	D	□
NICKEL	193.1	ABC	■
	3725.9	D	□
SILVER	19.9	D	□
ZINC	30.0	ABC	■
	692.4	D	□

■ Class A, B, or C Surface Water

□ Class D Surface Water

: :

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

SW-2

Lab Name: AQUATEC, INC.   Contract: 89150

Lab Code: AQUAI   Case No.: 24321   SAS No.: ______   SDG No.: 125590

Matrix (soil/water): WATER   Lab Sample ID: 125593

Level (low/med): ______   Date Received: 12/12/90

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): ug/L

CAS No.	Analyte	Concentration	C	M	Q
7429-90-5	Aluminum	200	U	E	P
7440-36-0	Antimony	60.0	U		P
7440-38-2	Arsenic	10.0	U		F
7440-39-3	Barium	200	U		P
7440-41-7	Beryllium	5.0	U		P
7440-43-9	Cadmium	5.0	U		P
7440-70-2	Calcium	184000		E	P
7440-47-3	Chromium	10.0	U		P
7440-48-4	Cobalt	50.0	U		P
7440-50-8	Copper	25.0	U		P
7439-89-6	Iron	283		E	P
7439-92-1	Lead	5.0	U		F
7439-95-4	Magnesium	48600			P
7439-96-5	Manganese	365		E	P
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel	40.0	U		P
7440-09-7	Potassium	5000	U		P
7782-49-2	Selenium	5.0	U	N	F
7440-22-4	Silver	10.0	U		P
7440-23-5	Sodium	87900		E	P
7440-28-0	Thallium	10.0	U	WN	F
7440-62-2	Vanadium	50.0	U		P
7440-66-6	Zinc	87.3			P
	Cyanide	10.0	U		C

Color Before: ______   Clarity Before: ______   Texture: ______

Color After: ______   Clarity After: ______   Artifacts: ______

Comments:

I46

HARDNESS CALCULATION

Class B Waterbody

Wastewater Sample SW-2 ☑

CATION	CONC.	(MG/L)
Ca(+2)	184.0	MG/L
Mg(+2)	48.6	MG/L

HARDNESS = 659.58 ☑

RESULTING STANDARD

(UG/L)

METAL		CLASS	
CADMIUM	5.0	ABC	■
	32.9	D	□
COPPER	59.3	ABC	■
	104.8	D	□
LEAD	35.1	ABC	■
	900.0	D	□
CHROMIUM	970.3	ABC	■
	8140.7	D	□
NICKEL	400.9	ABC	■
	7735.9	D	□
SILVER	104.1	D	□
ZINC	30.0	ABC	■
	1537.7	D	□

■ Class A, B, or C Surface Water

□ Class D Surface Water

47

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SW-1

Lab Name: AQUATEC, INC. Contract: 89150

Lab Code: AQUAI Case No.: 24321 SAS No.: ______ SDG No.: 12559

Matrix: (soil/water) WATER Lab Sample ID: 125592

Sample wt/vol: 5 (g/mL) ML Lab File ID: D125592D3V

Level: (low/med) LOW Date Received: 12/12/90

% Moisture: not dec. ______ Date Analyzed: 12/17/90

Column: (pack/cap) PACK Dilution Factor: 6.6667

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	67	U
74-83-9	Bromomethane	67	U
75-01-4	Vinyl Chloride	67	U
75-00-3	Chloroethane	67	U
75-09-2	Methylene Chloride	13	BJ
67-64-1	Acetone	240	
75-15-0	Carbon Disulfide	33	U
75-35-4	1,1-Dichloroethene	33	U
75-34-3	1,1-Dichloroethane	33	U
540-59-0	1,2-Dichloroethene (total)	33	U
67-66-3	Chloroform	33	U
107-06-2	1,2-Dichloroethane	33	U
78-93-3	2-Butanone	330	
71-55-6	1,1,1-Trichloroethane	33	U
56-23-5	Carbon Tetrachloride	33	U
108-05-4	Vinyl Acetate	67	U
75-27-4	Bromodichloromethane	33	U
78-87-5	1,2-Dichloropropane	33	U
10061-01-5	cis-1,3-Dichloropropene	33	U
79-01-6	Trichloroethene	33	U
124-48-1	Dibromochloromethane	33	U
79-00-5	1,1,2-Trichloroethane	33	U
71-43-2	Benzene	33	U
10061-02-6	trans-1,3-Dichloropropene	33	U
75-25-2	Bromoform	33	U
108-10-1	4-Methyl-2-Pentanone	67	U
591-78-6	2-Hexanone	67	U
127-18-4	Tetrachloroethene	33	U
79-34-5	1,1,2,2-Tetrachloroethane	33	U
108-88-3	Toluene	920	
108-90-7	Chlorobenzene	33	U
100-41-4	Ethylbenzene	33	U
100-42-5	Styrene	33	U
1330-20-7	Xylene (total)	15	J

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SW-2

Lab Name: AQUATEC, INC. Contract: 89150

Lab Code: AQUAI Case No.: 24321 SAS No.: ______ SDG No.: 12559

Matrix: (soil/water) WATER Lab Sample ID: 125593

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: C125593V

Level: (low/med) LOW Date Received: 12/12/90

% Moisture: not dec. ______ Date Analyzed: 12/17/90

Column: (pack/cap) PACK Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	6	B
67-64-1	Acetone	5	BJ
75-15-0	Carbon Disulfide	5	U
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	110	
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	5	U
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	26	
56-23-5	Carbon Tetrachloride	5	U
108-05-4	Vinyl Acetate	10	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
108-88-3	Toluene	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
1330-20-7	Xylene (total)	5	U

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SW-1

Lab Name: AQUATEC, INC.   Contract: 89150

Lab Code: AQUAI   Case No.: 24321   SAS No.: ______   SDG No.: 12559

Matrix: (soil/water) WATER   Lab Sample ID: 125592

Sample wt/vol: 1002 (g/mL) ML   Lab File ID: B125592S

Level: (low/med) LOW   Date Received: 12/12/90

% Moisture: not dec. ______ dec. ______   Date Extracted: 12/13/90

Extraction: (SepF/Cont/Sonc) SEPF   Date Analyzed: 01/08/91

GPC Cleanup: (Y/N) N   pH: ____   Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-95-2	Phenol	10	U
111-44-4	bis(2-Chloroethyl)ether	10	U
95-57-8	2-Chlorophenol	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4-Dichlorobenzene	10	U
100-51-6	Benzyl alcohol	10	U
95-50-1	1,2-Dichlorobenzene	10	U
95-48-7	2-Methylphenol	10	U
108-60-1	bis(2-Chloroisopropyl)ether	10	U
106-44-5	4-Methylphenol	10	U
621-64-7	N-Nitroso-di-n-propylamine	10	U
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethylphenol	10	U
65-85-0	Benzoic acid	50	U
111-91-1	bis(2-Chloroethoxy)methane	10	U
120-83-2	2,4-Dichlorophenol	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
87-68-3	Hexachlorobutadiene	10	U
59-50-7	4-Chloro-3-methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
95-95-4	2,4,5-Trichlorophenol	50	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	50	U
131-11-3	Dimethylphthalate	10	U
208-96-8	Acenaphthylene	10	U
606-20-2	2,6-Dinitrotoluene	10	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SW-1

ab Name:AQUATEC, INC. Contract:89150

ab Code: AQUAI Case No.: 24321 SAS No.: ________ SDG No.: 12559

atrix: (soil/water) WATER Lab Sample ID: 125592

ample wt/vol: 1002 (g/mL) ML Lab File ID: B125592S

evel: (low/med) LOW Date Received: 12/12/90

Moisture: not dec. ______ dec. ______ Date Extracted: 12/13/90

xtraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 01/08/91

PC Cleanup: (Y/N) N pH: ____ Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
99-09-2	3-Nitroaniline	50	U
83-32-9	Acenaphthene	10	U
51-28-5	2,4-Dinitrophenol	50	U
100-02-7	4-Nitrophenol	50	U
132-64-9	Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene	10	U
84-66-2	Diethylphthalate	10	U
7005-72-3	4-Chlorophenyl-phenylether	10	U
86-73-7	Fluorene	10	U
100-01-6	4-Nitroaniline	50	U
534-52-1	4,6-Dinitro-2-methylphenol	50	U
86-30-6	N-Nitrosodiphenylamine (1)	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
87-86-5	Pentachlorophenol	50	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
84-74-2	Di-n-butylphthalate	10	U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
85-68-7	Butylbenzylphthalate	10	U
91-94-1	3,3'-Dichlorobenzidine	20	U
56-55-3	Benzo(a)anthracene	10	U
218-01-9	Chrysene	10	U
117-81-7	bis(2-Ethylhexyl)phthalate	10	U
117-84-0	Di-n-octylphthalate	10	U
205-99-2	Benzo(b)fluoranthene	10	U
207-08-9	Benzo(k)fluoranthene	10	U
50-32-8	Benzo(a)pyrene	10	U
193-39-5	Indeno(1,2,3-cd)pyrene	10	U
53-70-3	Dibenz(a,h)anthracene	10	U
191-24-2	Benzo(g,h,i)perylene	10	U

(1) - Cannot be separated from Diphenylamine

151

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

SW-1

Lab Name: AQUATEC, INC. Contract: 89150

Lab Code: AQUAI Case No.: 24321 SAS No.: ______ SDG No.: 12559

Matrix: (soil/water) WATER Lab Sample ID: 125592

Sample wt/vol: 1002 (g/mL) ML Lab File ID: B125592S

Level: (low/med) LOW Date Received: 12/12/90

% Moisture: not dec. ______ dec. ______ Date Extracted: 12/13/90

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 01/08/91

GPC Cleanup: (Y/N) N pH: ____ Dilution Factor: 1.0

Number TICs found: 3

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 142-96-1	N-BUTYLETHER	10.42	11	J
2. 111-76-2	ETHANOL, 2-BUTOXY	12.78	1300	JS
3.	UNKNOWN	23.52	21	J
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FORM I SV-TIC 1/87 Rev.

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J2

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SW-1DL

ab Name: AQUATEC, INC. Contract: 89150

ab Code: AQUAI Case No.: 24321 SAS No.: ______ SDG No.: 12559

atrix: (soil/water) WATER Lab Sample ID: 125592D1

ample wt/vol: 1002 (g/mL) ML Lab File ID: B125592DS

ev l: (low/med) LOW Date Received: 12/12/90

Moisture: not dec. ______ dec. ______ Date Extracted: 12/13/90

xt action: (SepF/Cont/Sonc) SEPF Date Analyzed: 01/14/91

PC Cleanup: (Y/N) N pH: ____ Dilution Factor: 50.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-95-2	Phenol	500	U
111-44-4	bis(2-Chloroethyl)ether	500	U
95-57-8	2-Chlorophenol	500	U
541-73-1	1,3-Dichlorobenzene	500	U
106-46-7	1,4-Dichlorobenzene	500	U
100-51-6	Benzyl alcohol	500	U
95-50-1	1,2-Dichlorobenzene	500	U
95-48-7	2-Methylphenol	500	U
108-60-1	bis(2-Chloroisopropyl)ether	500	U
106-44-5	4-Methylphenol	500	U
621-64-7	N-Nitroso-di-n-propylamine	500	U
67-72-1	Hexachloroethane	500	U
98-95-3	Nitrobenzene	500	U
78-59-1	Isophorone	500	U
88-75-5	2-Nitrophenol	500	U
105-67-9	2,4-Dimethylphenol	500	U
65-85-0	Benzoic acid	2500	U
111-91-1	bis(2-Chloroethoxy)methane	500	U
120-83-2	2,4-Dichlorophenol	500	U
120-82-1	1,2,4-Trichlorobenzene	500	U
91-20-3	Naphthalene	500	U
106-47-8	4-Chloroaniline	500	U
87-68-3	Hexachlorobutadiene	500	U
59-50-7	4-Chloro-3-methylphenol	500	U
91-57-6	2-Methylnaphthalene	500	U
77-47-4	Hexachlorocyclopentadiene	500	U
88-06-2	2,4,6-Trichlorophenol	500	U
95-95-4	2,4,5-Trichlorophenol	2500	U
91-58-7	2-Chloronaphthalene	500	U
88-74-4	2-Nitroaniline	2500	U
131-11-3	Dimethylphthalate	500	U
208-96-8	Acenaphthylene	500	U
606-20-2	2,6-Dinitrotoluene	500	U

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SW-1DL

Lab Name: AQUATEC, INC. Contract: 89150

Lab Code: AQUAI Case No.: 24321 SAS No.: ______ SDG No.: 12559

Matrix: (soil/water) WATER Lab Sample ID: 125592D1

Sample wt/vol: 1002 (g/mL) ML Lab File ID: B125592DS

Level: (low/med) LOW Date Received: 12/12/90

% Moisture: not dec. ______ dec. ______ Date Extracted: 12/13/90

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 01/14/91

GPC Cleanup: (Y/N) N pH: ____ Dilution Factor: 50.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
99-09-2	3-Nitroaniline	2500	U
83-32-9	Acenaphthene	500	U
51-28-5	2,4-Dinitrophenol	2500	U
100-02-7	4-Nitrophenol	2500	U
132-64-9	Dibenzofuran	500	U
121-14-2	2,4-Dinitrotoluene	500	U
84-66-2	Diethylphthalate	500	U
7005-72-3	4-Chlorophenyl-phenylether	500	U
86-73-7	Fluorene	500	U
100-01-6	4-Nitroaniline	2500	U
534-52-1	4,6-Dinitro-2-methylphenol	2500	U
86-30-6	N-Nitrosodiphenylamine (1)	500	U
101-55-3	4-Bromophenyl-phenylether	500	U
118-74-1	Hexachlorobenzene	500	U
87-86-5	Pentachlorophenol	2500	U
85-01-8	Phenanthrene	500	U
120-12-7	Anthracene	500	U
84-74-2	Di-n-butylphthalate	500	U
206-44-0	Fluoranthene	500	U
129-00-0	Pyrene	500	U
85-68-7	Butylbenzylphthalate	500	U
91-94-1	3,3'-Dichlorobenzidine	1000	U
56-55-3	Benzo(a)anthracene	500	U
218-01-9	Chrysene	500	U
117-81-7	bis(2-Ethylhexyl)phthalate	500	U
117-84-0	Di-n-octylphthalate	500	U
205-99-2	Benzo(b)fluoranthene	500	U
207-08-9	Benzo(k)fluoranthene	500	U
50-32-8	Benzo(a)pyrene	500	U
193-39-5	Indeno(1,2,3-cd)pyrene	500	U
53-70-3	Dibenz(a,h)anthracene	500	U
191-24-2	Benzo(g,h,i)perylene	500	U

(1) - Cannot be separated from Diphenylamine

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

SW-1DL

Lab Name: AQUATEC, INC. Contract: 89150

Lab Code: AQUAI Case No.: 24321 SAS No.: ________ SDG No.: 12559

Matrix: (soil/water) WATER Lab Sample ID: 125592D1

Sample wt/vol: 1002 (g/mL) ML Lab File ID: B125592DS

Level: (low/med) LOW Date Received: 12/12/90

% Moisture: not dec. ______ dec. ______ Date Extracted: 12/13/90

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 01/14/91

GPC Cleanup: (Y/N) N pH: ____ Dilution Factor: 50.0

Number TICs found: 1

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 111-76-2	ETHANOL, 2-BUTOXY	12.03	7600	JD
2.				
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1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SW-2

b Name: AQUATEC, INC. Contract: 89150

b ode: AQUAI Case No.: 24321 SAS No.: ______ SDG No.: 12559

trix: (soil/water) WATER Lab Sample ID: 125593

mple wt/vol: 1007 (g/mL) ML Lab File ID: B125593S

ve : (low/med) LOW Date Received: 12/12/90

Moisture: not dec. ______ dec. ______ Date Extracted: 12/13/90

xt action: (SepF/Cont/Sonc) SEPF Date Analyzed: 01/08/91

PC Cleanup: (Y/N) N pH: ____ Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-95-2	Phenol	10	U
111-44-4	bis(2-Chloroethyl)ether	10	U
95-57-8	2-Chlorophenol	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4-Dichlorobenzene	10	U
100-51-6	Benzyl alcohol	10	U
95-50-1	1,2-Dichlorobenzene	10	U
95-48-7	2-Methylphenol	10	U
108-60-1	bis(2-Chloroisopropyl)ether	10	U
106-44-5	4-Methylphenol	10	U
621-64-7	N-Nitroso-di-n-propylamine	10	U
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethylphenol	10	U
65-85-0	Benzoic acid	50	U
111-91-1	bis(2-Chloroethoxy)methane	10	U
120-83-2	2,4-Dichlorophenol	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
87-68-3	Hexachlorobutadiene	10	U
59-50-7	4-Chloro-3-methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
95-95-4	2,4,5-Trichlorophenol	50	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	50	U
131-11-3	Dimethylphthalate	10	U
208-96-8	Acenaphthylene	10	U
606-20-2	2,6-Dinitrotoluene	10	U

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

| SW-2 |

ab Name: AQUATEC, INC. Contract: 89150

ab Code: AQUAI Case No.: 24321 SAS No.: ________ SDG No.: 12559

atrix: (soil/water) WATER Lab Sample ID: 125593

am le wt/vol: 1007 (g/mL) ML Lab File ID: B125593S

evel: (low/med) LOW Date Received: 12/12/90

Moisture: not dec.______ dec.______ Date Extracted: 12/13/90

xtraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 01/08/91

PC Cleanup: (Y/N) N pH:____ Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
99-09-2	3-Nitroaniline	50	U
83-32-9	Acenaphthene	10	U
51-28-5	2,4-Dinitrophenol	50	U
100-02-7	4-Nitrophenol	50	U
132-64-9	Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene	10	U
84-66-2	Diethylphthalate	10	U
7005-72-3	4-Chlorophenyl-phenylether	10	U
86-73-7	Fluorene	10	U
100-01-6	4-Nitroaniline	50	U
534-52-1	4,6-Dinitro-2-methylphenol	50	U
86-30-6	N-Nitrosodiphenylamine (1)	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
87-86-5	Pentachlorophenol	50	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
84-74-2	Di-n-butylphthalate	10	U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
85-68-7	Butylbenzylphthalate	10	U
91-94-1	3,3'-Dichlorobenzidine	20	U
56-55-3	Benzo(a)anthracene	10	U
218-01-9	Chrysene	10	U
117-81-7	bis(2-Ethylhexyl)phthalate	10	U
117-84-0	Di-n-octylphthalate	10	U
205-99-2	Benzo(b)fluoranthene	10	U
207-08-9	Benzo(k)fluoranthene	10	U
50-32-8	Benzo(a)pyrene	10	U
193-39-5	Indeno(1,2,3-cd)pyrene	10	U
53-70-3	Dibenz(a,h)anthracene	10	U
191-24-2	Benzo(g,h,i)perylene	10	U

(1) - Cannot be separated from Diphenylamine

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SW-1

Lab Name: AQUATEC, INC.   Contract: 89150

Lab Code: AQUAI   Case No.: 24321   SAS No.: ______   SDG No.: 12559

Matrix: (soil/water) WATER   Lab Sample ID: 125592

Sample wt/vol: 1005 (g/mL) ML   Lab File ID: ______

Level: (low/med) LOW   Date Received: 12/12/90

% Moisture: not dec. ______ dec. ______   Date Extracted: 12/13/90

Extraction: (SepF/Cont/Sonc) SEPF   Date Analyzed: 12/21/90

GPC Cleanup: (Y/N) N   pH: ____   Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
319-84-6	alpha-BHC	0.050	U
319-85-7	beta-BHC	0.050	U
319-86-8	delta-BHC	0.050	U
58-89-9	gamma-BHC (Lindane)	0.050	U
76-44-8	Heptachlor	0.050	U
309-00-2	Aldrin	0.050	U
1024-57-3	Heptachlor epoxide	0.050	U
959-98-8	Endosulfan I	0.050	U
60-57-1	Dieldrin	0.10	U
72-55-9	4,4'-DDE	0.10	U
72-20-8	Endrin	0.10	U
33213-65-9	Endosulfan II	0.10	U
72-54-8	4,4'-DDD	0.10	U
1031-07-8	Endosulfan sulfate	0.10	U
50-29-3	4,4'-DDT	0.10	U
72-43-5	Methoxychlor	0.50	U
53494-70-5	Endrin ketone	0.10	U
5103-71-9	alpha-Chlordane	0.50	U
5103-74-2	gamma-Chlordane	0.50	U
8001-35-2	Toxaphene	1.0	U
12674-11-2	Aroclor-1016	0.50	U
11104-28-2	Aroclor-1221	0.50	U
11141-16-5	Aroclor-1232	0.50	U
53469-21-9	Aroclor-1242	0.50	U
12672-29-6	Aroclor-1248	0.50	U
11097-69-1	Aroclor-1254	1.0	U
11096-82-5	Aroclor-1260	1.0	U

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SW-2

ab Name: AQUATEC, INC. Contract: 89150

ab Code: AQUAI Case No.: 24321 SAS No.: ______ SDG No.: 12559

atrix: (soil/water) WATER Lab Sample ID: 125593

ample wt/vol: 1014 (g/mL) ML Lab File ID: ______

evel: (low/med) LOW Date Received: 12/12/90

Moisture: not dec. ______ dec. ______ Date Extracted: 12/13/90

xtraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 12/21/90

GPC Cleanup: (Y/N) N pH: ____ Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
319-84-6	alpha-BHC	0.049	U
319-85-7	beta-BHC	0.049	U
319-86-8	delta-BHC	0.049	U
58-89-9	gamma-BHC (Lindane)	0.049	U
76-44-8	Heptachlor	0.049	U
309-00-2	Aldrin	0.049	U
1024-57-3	Heptachlor epoxide	0.049	U
959-98-8	Endosulfan I	0.049	U
60-57-1	Dieldrin	0.099	U
72-55-9	4,4'-DDE	0.099	U
72-20-8	Endrin	0.099	U
33213-65-9	Endosulfan II	0.099	U
72-54-8	4,4'-DDD	0.099	U
1031-07-8	Endosulfan sulfate	0.099	U
50-29-3	4,4'-DDT	0.099	U
72-43-5	Methoxychlor	0.49	U
53494-70-5	Endrin ketone	0.099	U
5103-71-9	alpha-Chlordane	0.49	U
5103-74-2	gamma-Chlordane	0.49	U
8001-35-2	Toxaphene	0.99	U
12674-11-2	Aroclor-1016	0.49	U
11104-28-2	Aroclor-1221	0.49	U
11141-16-5	Aroclor-1232	0.49	U
53469-21-9	Aroclor-1242	0.49	U
12672-29-6	Aroclor-1248	0.49	U
11097-69-1	Aroclor-1254	0.99	U
11096-82-5	Aroclor-1260	0.99	U

SURFACE SOIL ANALYTICAL DATA

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aquatec INC. ENVIRONMENTAL SERVICES

75 GREEN MOUNTAIN DRIVE, SOUTH BURLINGTON, VERMONT 05403, TELEPHONE (802) 658-1074

January 24, 1991

Y.S. Edward Chen, Ph.D., P.E.
YEC, Inc.
Clarkstown Executive Park
612 Corporate Way, Suite 4M
Valley Cottage, NY 10989

Re: Analytical Services Subcontract
Aquatec Project No. 89150
Case No. 24095; SDG No. 124757
ETR Nos. 24095 and 24325

Dear Dr. Chen:

Enclosed are the results of analyses performed on Snyder Tank site soil samples received from YEC, Inc.

The samples were received intact on November 28 and December 12, 1990 with the exception of a 125 ml. container (for volatile organics testing) of sample GW-2C 16'-17' which arrived with a broken cap. The sample quantity and integrity of the duplicate container received was sufficient to complete the volatile organics analysis requested, however.

Laboratory numbers were assigned to the samples and were designated as follows:

Aquatec ETR No.	YEC Sample No.	Aquatec Sample No.	Sample Matrix
24095	GW-2C 16'-17'	124757	soil/sediment
24325	SS-1	125600	soil/sediment
	SS-2	125601	soil/sediment
	SS-3	125602	soil/sediment

Additional quantities of sample SS-1 were submitted to the laboratory to provide extra sample for quality control (QC) analyses. Subsamples of SS-1 (Lab No. 125600) designated for quality control analysis were independently logged into the laboratory for the purpose of internal sample tracking. These QC samples were assigned the laboratory numbers 125600MS (matrix spike), 125600MD (matrix spike duplicate), and 125600DP (duplicate).

All of the samples required sulfur clean-up in preparation for pesticide/PCB analysis. The associated method blanks were taken through the clean-up procedure as well.

The matrix spike recoveries for antimony, arsenic, beryllium, cadmium, chromium, copper, nickel, selenium, thallium, vanadium, and zinc were out of the specified tolerances in the matrix spike analysis of sample SS-1 (Lab No. 125600MS). Additionally, several of the metals results did not correspond well in the replicate analysis of SS-1. The analytical results have been qualified accordingly.

Sincerely,

Joseph K. Comeau

Joseph K. Comeau, Ph.D.
Vice President
Chemistry Division

JKC/amp

Enclosures

89150B24JAN91

ANALYTICAL RESULTS

aquatec

ENVIRONMENTAL SERVICES

75 Green Mountain Drive, So. Burlington, VT 05403
TEL. 802/658-1074

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COVER PAGE - INORGANIC ANALYSES DATA PACKAGE

Lab Name: AQUATEC, INC. Contract: 89150

Lab Code: AQUAI Case No.: 24095 SAS No.: ______ SDG No.: 124757

SOW No.: ______

EPA Sample No.	Lab Sample ID.
GW-2C 16'-17'	124757
SS-1	125600
SS-1D	125600DP
SS-1S	125600MS
SS-2	125601
SS-3	125602

Were ICP interelement corrections applied? Yes/No No

Were ICP background corrections applied? Yes/No Yes

If yes-were raw data generated before application of background corrections? Yes/No No

Comments:

Release of the data contained in this hardcopy data package and in the computer-readable data submitted on floppy diskette has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature.

Lab Manager: Joseph Comer

Date: 1/24/91

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QUALIFIERS FOR METALS ANALYSIS

E - The reported value is estimated because of the presence of interference.

M - Duplicate injection precision not met.

N - Matrix spiked sample recovery not within control limits.

S - The reported value was determined by the Method of Standard Additions.

+ - Correlation coefficient for the MSA is less than 0.995.

W - Post digestion spike for Furnace AA analysis is out of control limits (85-115%), while sample absorbance is less than 50% of spike absorbance.

* - Duplicate analysis not within control limits.

Concentration Qualifiers

B - Entered if the reported value is less than the Contract Required Detection Limit (CRDL) but greater than the Instrument Detection Limit (IDL).

U - Entered if the analyte was analyzed for but not detected, less than CRDL.

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1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

SS-1

Lab Name: AQUATEC, INC. Contract: 89150

Lab Code: AQUAI Case No.: 24095 SAS No.: ______ SDG No.: 124757

Matrix (soil/water): SOIL Lab Sample ID: 125600

Level (low/med): ______ Date Received: 12/12/90

% Solids: 91.9

Concentration Units (ug/L or mg/kg dry weight): mg/Kg

CAS No.	Analyte	Concentration	C	M	Q
7429-90-5	Aluminum	9910		*	P
7440-36-0	Antimony	8.6	U	N	P
7440-38-2	Arsenic	12.2		N*S	F
7440-39-3	Barium	58.4			P
7440-41-7	Beryllium	1.2		N	P
7440-43-9	Cadmium	1.3		N	P
7440-70-2	Calcium	64000		*	P
7440-47-3	Chromium	12.9		N*	P
7440-48-4	Cobalt	7.2	U		P
7440-50-8	Copper	15.9		N*	P
7439-89-6	Iron	12600			P
7439-92-1	Lead	15.5		S	F
7439-95-4	Magnesium	8970		*	P
7439-96-5	Manganese	598		*	P
7439-97-6	Mercury	0.11	U		CV
7440-02-0	Nickel	39.6		N	P
7440-09-7	Potassium	1190			P
7782-49-2	Selenium	7.3	U	N	F
7440-22-4	Silver	1.4	U		P
7440-23-5	Sodium	716	U		P
7440-28-0	Thallium	1.5	U	NW	F
7440-62-2	Vanadium	6.8	B	N	P
7440-66-6	Zinc	96.7		N*	P
	Cyanide	0.55	U		C

Color Before: ______ Clarity Before: ______ Texture: ______

Color After: ______ Clarity After: ______ Artifacts: ______

Comments:

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December 1987

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1
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

SS-2

Lab Name: AQUATEC, INC. Contract: 89150

Lab Code: AQUAI Case No.: 24095 SAS No.: ______ SDG No.: 124757

Matrix (soil/water): SOIL Lab Sample ID: 125601

Level (low/med): ______ Date Received: 12/12/90

% Solids: 84.6

Concentration Units (ug/L or mg/kg dry weight): mg/Kg

CAS No.	Analyte	Concentration	C	M	Q
7429-90-5	Aluminum	12500		*	P
7440-36-0	Antimony	9.4	U	N	P
7440-38-2	Arsenic	108		N*S	F
7440-39-3	Barium	167			P
7440-41-7	Beryllium	1.6		N	P
7440-43-9	Cadmium	4.9		N	P
7440-70-2	Calcium	34100		*	P
7440-47-3	Chromium	148		N*	P
7440-48-4	Cobalt	7.8	U		P
7440-50-8	Copper	59.8		N*	P
7439-89-6	Iron	57500			P
7439-92-1	Lead	70.2		S	F
7439-95-4	Magnesium	6540		*	P
7439-96-5	Manganese	1850		*	P
7439-97-6	Mercury	0.10			CV
7440-02-0	Nickel	42.3		N	P
7440-09-7	Potassium	1540			P
7782-49-2	Selenium	0.72	U	WN	F
7440-22-4	Silver	1.6	U		P
7440-23-5	Sodium	783	U		P
7440-28-0	Thallium	1.4	U	N	F
7440-62-2	Vanadium	68.0		N	P
7440-66-6	Zinc	206		N*	P
	Cyanide	1.3			C

Color Before: ______ Clarity Before: ______ Texture: ______

Color After: ______ Clarity After: ______ Artifacts: ______

Comments:

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December 1987

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INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

SS-3

Lab Name: AQUATEC, INC. Contract: 89150

Lab Code: AQUAI Case No.: 24095 SAS No.: ______ SDG No.: 124757

Matrix (soil/water): SOIL Lab Sample ID: 125602

Level (low/med): ______ Date Received: 12/12/90

% Solids: 85.3

Concentration Units (ug/L or mg/kg dry weight): mg/Kg

CAS No.	Analyte	Concentration	C	M	Q
7429-90-5	Aluminum	13600		*	P
7440-36-0	Antimony	7.2	U	N	P
7440-38-2	Arsenic	21.6		N*S	F
7440-39-3	Barium	142			P
7440-41-7	Beryllium	1.7		N	P
7440-43-9	Cadmium	6.7		N	P
7440-70-2	Calcium	70300		*	P
7440-47-3	Chromium	98.1		N*	P
7440-48-4	Cobalt	10.4			P
7440-50-8	Copper	97.2		N*	P
7439-89-6	Iron	74700			P
7439-92-1	Lead	157			P
7439-95-4	Magnesium	11300		*	P
7439-96-5	Manganese	2850		*	P
7439-97-6	Mercury	0.52			CV
7440-02-0	Nickel	51.4		N	P
7440-09-7	Potassium	1440			P
7782-49-2	Selenium	6.4	U	WN	F
7440-22-4	Silver	1.2	U		P
7440-23-5	Sodium	601	U		P
7440-28-0	Thallium	1.3	U	N	F
7440-62-2	Vanadium	28.6		N	P
7440-66-6	Zinc	469		N*	P
	Cyanide	3.5			C

Color Before: ______ Clarity Before: ______ Texture: ______

Color After: ______ Clarity After: ______ Artifacts: ______

Comments:

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INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.: SS-1D

Lab Name: AQUATEC, INC. Contract: 89150

Lab Code: AQUAI Case No.: 24095 SAS No.: ______ SDG No.: 124757

Matrix (soil/water): SOIL Lab Sample ID: 125600DP

Level (low/med): ______ Date Received: 12/12/90

% Solids: 93.4

Concentration Units (ug/L or mg/kg dry weight): mg/Kg

CAS No.	Analyte	Concentration	C	M	Q
7429-90-5	Aluminum	7030		*	P
7440-36-0	Antimony	8.3	U	N	P
7440-38-2	Arsenic	15.2		N*S	F
7440-39-3	Barium	51.4			P
7440-41-7	Beryllium	0.69	B	N	P
7440-43-9	Cadmium	1.5		N	P
7440-70-2	Calcium	43000		*	P
7440-47-3	Chromium	9.3		N*	P
7440-48-4	Cobalt	6.9	U		P
7440-50-8	Copper	21.6		N*	P
7439-89-6	Iron	14300			P
7439-92-1	Lead	17.9		S	F
7439-95-4	Magnesium	6380		*	P
7439-96-5	Manganese	363		*	P
7439-97-6	Mercury	0.08	U		CV
7440-02-0	Nickel	33.6		N	P
7440-09-7	Potassium	932			P
7782-49-2	Selenium	6.2	U	N	F
7440-22-4	Silver	1.4	U		P
7440-23-5	Sodium	691	U		P
7440-28-0	Thallium	1.2	U	NW	F
7440-62-2	Vanadium	7.2		N	P
7440-66-6	Zinc	72.5		N*	P
	Cyanide	0.58	U		C

Color Before: ______ Clarity Before: ______ Texture: ______

Color After: ______ Clarity After: ______ Artifacts: ______

Comments:

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INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

SS-1S

Lab Name: AQUATEC, INC. Contract: 89150

Lab Code: AQUAI Case No.: ______ SAS No.: ______ SDG No.: 124757

Matrix (soil/water): SOIL Lab Sample ID: 125600MS

Level (low/med): ______ Date Received: 12/12/90

% Solids: 92.6

Concentration Units (ug/L or mg/kg dry weight): mg/Kg

CAS No.	Analyte	Concentration	C	M	Q
7429-90-5	Aluminum				NR
7440-36-0	Antimony	15.0		N	P
7440-38-2	Arsenic	14.2		N*S	F
7440-39-3	Barium	306			P
7440-41-7	Beryllium	6.3		N	P
7440-43-9	Cadmium	6.0		N	P
7440-70-2	Calcium				NR
7440-47-3	Chromium	31.9		N*	P
7440-48-4	Cobalt	59.2			P
7440-50-8	Copper	41.2		N*	P
7439-89-6	Iron				NR
7439-92-1	Lead	25.6		S	F
7439-95-4	Magnesium				NR
7439-96-5	Manganese	533		*	P
7439-97-6	Mercury	0.39			CV
7440-02-0	Nickel	82.2		N	P
7440-09-7	Potassium				NR
7782-49-2	Selenium	6.5	U	N	F
7440-22-4	Silver	5.5			P
7440-23-5	Sodium				NR
7440-28-0	Thallium	4.7		N	F
7440-62-2	Vanadium	58.0		N	P
7440-66-6	Zinc	108		N*	P
	Cyanide	6.2			C

Color Before: ______ Clarity Before: ______ Texture: ______

Color After: ______ Clarity After: ______ Artifacts: ______

Comments:

Revision 1
December 1987

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1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SS-1

Lab Name: AQUATEC, INC. Contract: 89150

Lab Code: AQUAI Case No.: 24095 SAS No.: ________ SDG No.: 12475

Matrix: (soil/water) SOIL Lab Sample ID: 125600

Sample wt/vol: 3.7 (g/mL) G Lab File ID: D125600I2V

Level: (low/med) LOW Date Received: 12/12/90

% Moisture: not dec. 5 Date Analyzed: 12/16/90

Column: (pack/cap) PACK Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	14	U
74-83-9	Bromomethane	14	U
75-01-4	Vinyl Chloride	14	U
75-00-3	Chloroethane	14	U
75-09-2	Methylene Chloride	2	BJ
67-64-1	Acetone	14	U
75-15-0	Carbon Disulfide	7	U
75-35-4	1,1-Dichloroethene	7	U
75-34-3	1,1-Dichloroethane	7	U
540-59-0	1,2-Dichloroethene (total)	7	U
67-66-3	Chloroform	7	U
107-06-2	1,2-Dichloroethane	7	U
78-93-3	2-Butanone	14	U
71-55-6	1,1,1-Trichloroethane	7	U
56-23-5	Carbon Tetrachloride	7	U
108-05-4	Vinyl Acetate	14	U
75-27-4	Bromodichloromethane	7	U
78-87-5	1,2-Dichloropropane	7	U
10061-01-5	cis-1,3-Dichloropropene	7	U
79-01-6	Trichloroethene	7	U
124-48-1	Dibromochloromethane	7	U
79-00-5	1,1,2-Trichloroethane	7	U
71-43-2	Benzene	7	U
10061-02-6	trans-1,3-Dichloropropene	7	U
75-25-2	Bromoform	7	U
108-10-1	4-Methyl-2-Pentanone	14	U
591-78-6	2-Hexanone	14	U
127-18-4	Tetrachloroethene	7	U
79-34-5	1,1,2,2-Tetrachloroethane	7	U
108-88-3	Toluene	7	U
108-90-7	Chlorobenzene	7	U
100-41-4	Ethylbenzene	7	U
100-42-5	Styrene	7	U
1330-20-7	Xylene (total)	7	U

FORM I VOA 1/87 Rev.

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1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SS-1MS

Lab Name: AQUATEC, INC. Contract: 89150

Lab Code: AQUAI Case No.: 24095 SAS No.: ________ SDG No.: 12475

Matrix: (soil/water) SOIL Lab Sample ID: 125600MS

Sample wt/vol: 3.7 (g/mL) G Lab File ID: D125600MSV

Level: (low/med) LOW Date Received: 12/12/90

% Moisture: not dec. 5 Date Analyzed: 12/16/90

Column: (pack/cap) PACK Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	14	U
74-83-9	Bromomethane	14	U
75-01-4	Vinyl Chloride	14	U
75-00-3	Chloroethane	14	U
75-09-2	Methylene Chloride	2	BJ
67-64-1	Acetone	14	U
75-15-0	Carbon Disulfide	7	U
75-35-4	1,1-Dichloroethene		
75-34-3	1,1-Dichloroethane	7	U
540-59-0	1,2-Dichloroethene (total)	7	U
67-66-3	Chloroform	7	U
107-06-2	1,2-Dichloroethane	7	U
78-93-3	2-Butanone	14	U
71-55-6	1,1,1-Trichloroethane	7	U
56-23-5	Carbon Tetrachloride	7	U
108-05-4	Vinyl Acetate	14	U
75-27-4	Bromodichloromethane	7	U
78-87-5	1,2-Dichloropropane	7	U
10061-01-5	cis-1,3-Dichloropropene	7	U
79-01-6	Trichloroethene		
124-48-1	Dibromochloromethane	7	U
79-00-5	1,1,2-Trichloroethane	7	U
71-43-2	Benzene		
10061-02-6	trans-1,3-Dichloropropene	7	U
75-25-2	Bromoform	7	U
108-10-1	4-Methyl-2-Pentanone	14	U
591-78-6	2-Hexanone	14	U
127-18-4	Tetrachloroethene	7	U
79-34-5	1,1,2,2-Tetrachloroethane	7	U
108-88-3	Toluene		
108-90-7	Chlorobenzene		
100-41-4	Ethylbenzene	7	U
100-42-5	Styrene	7	U
1330-20-7	Xylene (total)	7	U

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1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SS-1MSD

Lab Name: AQUATEC, INC. Contract: 89150

Lab Code: AQUAI Case No.: 24095 SAS No.: ______ SDG No.: 12475

Matrix: (soil/water) SOIL Lab Sample ID: 125600MD

Sample wt/vol: 3.7 (g/mL) G Lab File ID: D125600MDV

Level: (low/med) LOW Date Received: 12/12/90

% Moisture: not dec. 5 Date Analyzed: 12/16/90

Column: (pack/cap) PACK Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	14	U
74-83-9	Bromomethane	14	U
75-01-4	Vinyl Chloride	14	U
75-00-3	Chloroethane	14	U
75-09-2	Methylene Chloride	2	BJ
67-64-1	Acetone	14	U
75-15-0	Carbon Disulfide	7	U
75-35-4	1,1-Dichloroethene		
75-34-3	1,1-Dichloroethane	7	U
540-59-0	1,2-Dichloroethene (total)	7	U
67-66-3	Chloroform	7	U
107-06-2	1,2-Dichloroethane	7	U
78-93-3	2-Butanone	14	U
71-55-6	1,1,1-Trichloroethane	7	U
56-23-5	Carbon Tetrachloride	7	U
108-05-4	Vinyl Acetate	14	U
75-27-4	Bromodichloromethane	7	U
78-87-5	1,2-Dichloropropane	7	U
10061-01-5	cis-1,3-Dichloropropene	7	U
79-01-6	Trichloroethene		
124-48-1	Dibromochloromethane	7	U
79-00-5	1,1,2-Trichloroethane	7	U
71-43-2	Benzene		
10061-02-6	trans-1,3-Dichloropropene	7	U
75-25-2	Bromoform	7	U
108-10-1	4-Methyl-2-Pentanone	14	U
591-78-6	2-Hexanone	14	U
127-18-4	Tetrachloroethene	7	U
79-34-5	1,1,2,2-Tetrachloroethane	7	U
108-88-3	Toluene		
108-90-7	Chlorobenzene		
100-41-4	Ethylbenzene	7	U
100-42-5	Styrene	7	U
1330-20-7	Xylene (total)	7	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SS-2

Lab Name: AQUATEC, INC. Contract: 89150

Lab Code: AQUAI Case No.: 24095 SAS No.: ________ SDG No.: 12475

Matrix: (soil/water) SOIL Lab Sample ID: 125601

Sample wt/vol: 3.6 (g/mL) G Lab File ID: D125601V

Level: (low/med) LOW Date Received: 12/12/90

% Moisture: not dec. 14 Date Analyzed: 12/16/90

Column: (pack/cap) PACK Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	16	U
74-83-9	Bromomethane	16	U
75-01-4	Vinyl Chloride	16	U
75-00-3	Chloroethane	16	U
75-09-2	Methylene Chloride	2	BJ
67-64-1	Acetone	16	U
75-15-0	Carbon Disulfide	8	U
75-35-4	1,1-Dichloroethene	8	U
75-34-3	1,1-Dichloroethane	8	U
540-59-0	1,2-Dichloroethene (total)	8	U
67-66-3	Chloroform	8	U
107-06-2	1,2-Dichloroethane	8	U
78-93-3	2-Butanone	16	U
71-55-6	1,1,1-Trichloroethane	8	U
56-23-5	Carbon Tetrachloride	8	U
108-05-4	Vinyl Acetate	16	U
75-27-4	Bromodichloromethane	8	U
78-87-5	1,2-Dichloropropane	8	U
10061-01-5	cis-1,3-Dichloropropene	8	U
79-01-6	Trichloroethene	8	U
124-48-1	Dibromochloromethane	8	U
79-00-5	1,1,2-Trichloroethane	8	U
71-43-2	Benzene	8	U
10061-02-6	trans-1,3-Dichloropropene	8	U
75-25-2	Bromoform	8	U
108-10-1	4-Methyl-2-Pentanone	16	U
591-78-6	2-Hexanone	16	U
127-18-4	Tetrachloroethene	8	U
79-34-5	1,1,2,2-Tetrachloroethane	8	U
108-88-3	Toluene	8	U
108-90-7	Chlorobenzene	8	U
100-41-4	Ethylbenzene	8	U
100-42-5	Styrene	8	U
1330-20-7	Xylene (total)	8	U

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SS-3

Lab Name: AQUATEC, INC. Contract: 89150

Lab Code: AQUAI Case No.: 24095 SAS No.: ________ SDG No.: 12475

Matrix: (soil/water) SOIL Lab Sample ID: 125602

Sample wt/vol: 3.5 (g/mL) G Lab File ID: D125602V

Level: (low/med) LOW Date Received: 12/12/90

% Moisture: not dec. 17 Date Analyzed: 12/16/90

Column: (pack/cap) PACK Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	17	U
74-83-9	Bromomethane	17	U
75-01-4	Vinyl Chloride	17	U
75-00-3	Chloroethane	17	U
75-09-2	Methylene Chloride	9	U
67-64-1	Acetone	17	U
75-15-0	Carbon Disulfide	9	U
75-35-4	1,1-Dichloroethene	9	U
75-34-3	1,1-Dichloroethane	9	U
540-59-0	1,2-Dichloroethene (total)	9	U
67-66-3	Chloroform	9	U
107-06-2	1,2-Dichloroethane	9	U
78-93-3	2-Butanone	17	U
71-55-6	1,1,1-Trichloroethane	9	U
56-23-5	Carbon Tetrachloride	9	U
108-05-4	Vinyl Acetate	17	U
75-27-4	Bromodichloromethane	9	U
78-87-5	1,2-Dichloropropane	9	U
10061-01-5	cis-1,3-Dichloropropene	9	U
79-01-6	Trichloroethene	9	U
124-48-1	Dibromochloromethane	9	U
79-00-5	1,1,2-Trichloroethane	9	U
71-43-2	Benzene	9	U
10061-02-6	trans-1,3-Dichloropropene	9	U
75-25-2	Bromoform	9	U
108-10-1	4-Methyl-2-Pentanone	17	U
591-78-6	2-Hexanone	17	U
127-18-4	Tetrachloroethene	9	U
79-34-5	1,1,2,2-Tetrachloroethane	9	U
108-88-3	Toluene	9	U
108-90-7	Chlorobenzene	9	U
100-41-4	Ethylbenzene	9	U
100-42-5	Styrene	9	U
1330-20-7	Xylene (total)	9	U

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1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SS-1

Lab Name: AQUATEC, INC. Contract: 89150

Lab Code: AQUAI Case No.: 24095 SAS No.: ______ SDG No.: 12475

Matrix: (soil/water) SOIL Lab Sample ID: 125600

Sample wt/vol: 30.8 (g/mL) G Lab File ID: B125600S

Level: (low/med) LOW Date Received: 12/12/90

% Moisture: not dec. 8 dec. ______ Date Extracted: 12/17/90

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 01/08/91

GPC Cleanup: (Y/N) Y pH: 9.0 Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	700	U
111-44-4	bis(2-Chloroethyl)ether	700	U
95-57-8	2-Chlorophenol	700	U
541-73-1	1,3-Dichlorobenzene	700	U
106-46-7	1,4-Dichlorobenzene	700	U
100-51-6	Benzyl alcohol	700	U
95-50-1	1,2-Dichlorobenzene	700	U
95-48-7	2-Methylphenol	700	U
108-60-1	bis(2-Chloroisopropyl)ether	700	U
106-44-5	4-Methylphenol	700	U
621-64-7	N-Nitroso-di-n-propylamine	700	U
67-72-1	Hexachloroethane	700	U
98-95-3	Nitrobenzene	700	U
78-59-1	Isophorone	700	U
88-75-5	2-Nitrophenol	700	U
105-67-9	2,4-Dimethylphenol	700	U
65-85-0	Benzoic acid	3400	U
111-91-1	bis(2-Chloroethoxy)methane	700	U
120-83-2	2,4-Dichlorophenol	700	U
120-82-1	1,2,4-Trichlorobenzene	700	U
91-20-3	Naphthalene	700	U
106-47-8	4-Chloroaniline	700	U
87-68-3	Hexachlorobutadiene	700	U
59-50-7	4-Chloro-3-methylphenol	700	U
91-57-6	2-Methylnaphthalene	700	U
77-47-4	Hexachlorocyclopentadiene	700	U
88-06-2	2,4,6-Trichlorophenol	700	U
95-95-4	2,4,5-Trichlorophenol	3400	U
91-58-7	2-Chloronaphthalene	700	U
88-74-4	2-Nitroaniline	3400	U
131-11-3	Dimethylphthalate	700	U
208-96-8	Acenaphthylene	700	U
606-20-2	2,6-Dinitrotoluene	700	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SS-1

Lab Name: AQUATEC, INC. Contract: 89150

Lab Code: AQUAI Case No.: 24095 SAS No.: ______ SDG No.: 12475

Matrix: (soil/water) SOIL Lab Sample ID: 125600

Sample wt/vol: 30.8 (g/mL) G Lab File ID: B125600S

Level: (low/med) LOW Date Received: 12/12/90

% Moisture: not dec. 8 dec. ______ Date Extracted: 12/17/90

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 01/08/91

GPC Cleanup: (Y/N) Y pH: 9.0 Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
99-09-2	3-Nitroaniline	3400	U
83-32-9	Acenaphthene	700	U
51-28-5	2,4-Dinitrophenol	3400	U
100-02-7	4-Nitrophenol	3400	U
132-64-9	Dibenzofuran	700	U
121-14-2	2,4-Dinitrotoluene	700	U
84-66-2	Diethylphthalate	700	U
7005-72-3	4-Chlorophenyl-phenylether	700	U
86-73-7	Fluorene	700	U
100-01-6	4-Nitroaniline	3400	U
534-52-1	4,6-Dinitro-2-methylphenol	3400	U
86-30-6	N-Nitrosodiphenylamine (1)	700	U
101-55-3	4-Bromophenyl-phenylether	700	U
118-74-1	Hexachlorobenzene	700	U
87-86-5	Pentachlorophenol	3400	U
85-01-8	Phenanthrene	700	U
120-12-7	Anthracene	700	U
84-74-2	Di-n-butylphthalate	700	U
206-44-0	Fluoranthene	700	U
129-00-0	Pyrene	700	U
85-68-7	Butylbenzylphthalate	700	U
91-94-1	3,3'-Dichlorobenzidine	1400	U
56-55-3	Benzo(a)anthracene	700	U
218-01-9	Chrysene	700	U
117-81-7	bis(2-Ethylhexyl)phthalate	250	J
117-84-0	Di-n-octylphthalate	700	U
205-99-2	Benzo(b)fluoranthene	700	U
207-08-9	Benzo(k)fluoranthene	700	U
50-32-8	Benzo(a)pyrene	700	U
193-39-5	Indeno(1,2,3-cd)pyrene	700	U
53-70-3	Dibenz(a,h)anthracene	700	U
191-24-2	Benzo(g,h,i)perylene	700	U

(1) - Cannot be separated from Diphenylamine

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

SS-1

Lab Name: AQUATEC, INC. Contract: 89150

Lab Code: AQUAI Case No.: 24095 SAS No.: ______ SDG No.: 12475

Matrix: (soil/water) SOIL Lab Sample ID: 125600

Sample wt/vol: 30.8 (g/mL) G Lab File ID: B125600S

Level: (low/med) LOW Date Received: 12/12/90

% Moisture: not dec. 8 dec. ______ Date Extracted: 12/17/90

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 01/08/91

GPC Cleanup: (Y/N) Y pH: 9.0 Dilution Factor: 1.0

Number TICs found: 20

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 1120-21-4	UNDECANE	17.65	1200	J
2. 112-40-3	DODECANE	19.95	1300	J
3. 629-50-5	TRIDECANE	22.00	2100	J
4. 629-59-4	TETRADECANE	23.92	2600	J
5. ______	UNKNOWN C16-ALKANE	25.05	890	J
6. 629-62-9	PENTADECANE	25.70	2600	J
7. 544-76-3	HEXADECANE	27.37	2700	J
8. 629-78-7	HEPTADECANE	28.95	2100	J
9. 1921-70-6	PENTADECANE, 2,6,10,14-TETRA	29.05	1100	J
10. 593-45-3	OCTADECANE	30.47	1700	J
11. 629-92-5	NONADECANE	31.90	1800	J
12. 112-95-8	EICOSANE	33.27	1700	J
13. 629-94-7	HENEICOSANE	34.57	1400	J
14. 629-97-0	DOCOSANE	35.82	1800	J
15. 638-67-5	TRICOSANE	37.03	1600	J
16. 646-31-1	TETRACOSANE	38.18	1500	J
17. 629-99-2	PENTACOSANE	39.28	1300	J
18. 630-01-3	HEXACOSANE	40.35	920	J
19. 593-49-7	HEPTACOSANE	41.38	940	J
20. 630-03-5	NONACOSANE	43.45	1100	J
21.				
22.				
23.				
24.				
25.				
26.				
27.				
28.				
29.				
30.				

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SS-1MS

Lab Name: AQUATEC, INC. Contract: 89150

Lab Code: AQUAI Case No.: 24095 SAS No.: ______ SDG No.: 12475

Matrix: (soil/water) SOIL Lab Sample ID: 125600MS

Sample wt/vol: 30.0 (g/mL) G Lab File ID: B125600MS

Level: (low/med) LOW Date Received: 12/12/90

% Moisture: not dec. 8 dec. ______ Date Extracted: 12/17/90

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 01/08/91

GPC Cleanup: (Y/N) Y pH: 9.0 Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol		
111-44-4	bis(2-Chloroethyl)ether	720	U
95-57-8	2-Chlorophenol		
541-73-1	1,3-Dichlorobenzene	720	U
106-46-7	1,4-Dichlorobenzene		
100-51-6	Benzyl alcohol	720	U
95-50-1	1,2-Dichlorobenzene	720	U
95-48-7	2-Methylphenol	720	U
108-60-1	bis(2-Chloroisopropyl)ether	720	U
106-44-5	4-Methylphenol	720	U
621-64-7	N-Nitroso-di-n-propylamine		
67-72-1	Hexachloroethane	720	U
98-95-3	Nitrobenzene	720	U
78-59-1	Isophorone	720	U
88-75-5	2-Nitrophenol	720	U
105-67-9	2,4-Dimethylphenol	720	U
65-85-0	Benzoic acid	3500	U
111-91-1	bis(2-Chloroethoxy)methane	720	U
120-83-2	2,4-Dichlorophenol	720	U
120-82-1	1,2,4-Trichlorobenzene		
91-20-3	Naphthalene	720	U
106-47-8	4-Chloroaniline	720	U
87-68-3	Hexachlorobutadiene	720	U
59-50-7	4-Chloro-3-methylphenol		
91-57-6	2-Methylnaphthalene	720	U
77-47-4	Hexachlorocyclopentadiene	720	U
88-06-2	2,4,6-Trichlorophenol	720	U
95-95-4	2,4,5-Trichlorophenol	3500	U
91-58-7	2-Chloronaphthalene	720	U
88-74-4	2-Nitroaniline	3500	U
131-11-3	Dimethylphthalate	720	U
208-96-8	Acenaphthylene	720	U
606-20-2	2,6-Dinitrotoluene	720	U

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1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SS-1MS

Lab Name: AQUATEC, INC.   Contract: 89150

Lab Code: AQUAI   Case No.: 24095   SAS No.: ______   SDG No.: 12475

Matrix: (soil/water) SOIL   Lab Sample ID: 125600MS

Sample wt/vol: 30.0 (g/mL) G   Lab File ID: B125600MS

Level: (low/med) LOW   Date Received: 12/12/90

% Moisture: not dec. 8   dec. ______   Date Extracted: 12/17/90

Extraction: (SepF/Cont/Sonc) SONC   Date Analyzed: 01/08/91

GPC Cleanup: (Y/N) Y   pH: 9.0   Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
99-09-2	3-Nitroaniline	3500	U
83-32-9	Acenaphthene		
51-28-5	2,4-Dinitrophenol	3500	U
100-02-7	4-Nitrophenol		
132-64-9	Dibenzofuran	720	U
121-14-2	2,4-Dinitrotoluene		
84-66-2	Diethylphthalate	720	U
7005-72-3	4-Chlorophenyl-phenylether	720	U
86-73-7	Fluorene	720	U
100-01-6	4-Nitroaniline	3500	U
534-52-1	4,6-Dinitro-2-methylphenol	3500	U
86-30-6	N-Nitrosodiphenylamine (1)	720	U
101-55-3	4-Bromophenyl-phenylether	720	U
118-74-1	Hexachlorobenzene	720	U
87-86-5	Pentachlorophenol		
85-01-8	Phenanthrene	720	U
120-12-7	Anthracene	720	U
84-74-2	Di-n-butylphthalate	720	U
206-44-0	Fluoranthene	720	U
129-00-0	Pyrene		
85-68-7	Butylbenzylphthalate	720	U
91-94-1	3,3'-Dichlorobenzidine	1400	U
56-55-3	Benzo(a)anthracene	720	U
218-01-9	Chrysene	720	U
117-81-7	bis(2-Ethylhexyl)phthalate	220	J
117-84-0	Di-n-octylphthalate	720	U
205-99-2	Benzo(b)fluoranthene	720	U
207-08-9	Benzo(k)fluoranthene	720	U
50-32-8	Benzo(a)pyrene	720	U
193-39-5	Indeno(1,2,3-cd)pyrene	720	U
53-70-3	Dibenz(a,h)anthracene	720	U
191-24-2	Benzo(g,h,i)perylene	720	U

(1) - Cannot be separated from Diphenylamine

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SS-1MSD

Lab Name: AQUATEC, INC. Contract: 89150

Lab Code: AQUAI Case No.: 24095 SAS No.: ______ SDG No.: 12475

Matrix: (soil/water) SOIL Lab Sample ID: 125600MD

Sample wt/vol: 30.3 (g/mL) G Lab File ID: B125600MDS

Level: (low/med) LOW Date Received: 12/12/90

% Moisture: not dec. 8 dec. ______ Date Extracted: 12/17/90

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 01/08/91

GPC Cleanup: (Y/N) Y pH: 9.0 Dilution Factor: 1.0

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

CAS NO.	COMPOUND	CONCENTRATION	Q
108-95-2	Phenol		
111-44-4	bis(2-Chloroethyl)ether	710	U
95-57-8	2-Chlorophenol		
541-73-1	1,3-Dichlorobenzene	710	U
106-46-7	1,4-Dichlorobenzene		
100-51-6	Benzyl alcohol	710	U
95-50-1	1,2-Dichlorobenzene	710	U
95-48-7	2-Methylphenol	710	U
108-60-1	bis(2-Chloroisopropyl)ether	710	U
106-44-5	4-Methylphenol	710	U
621-64-7	N-Nitroso-di-n-propylamine		
67-72-1	Hexachloroethane	710	U
98-95-3	Nitrobenzene	710	U
78-59-1	Isophorone	710	U
88-75-5	2-Nitrophenol	710	U
105-67-9	2,4-Dimethylphenol	710	U
65-85-0	Benzoic acid	3400	U
111-91-1	bis(2-Chloroethoxy)methane	710	U
120-83-2	2,4-Dichlorophenol	710	U
120-82-1	1,2,4-Trichlorobenzene		
91-20-3	Naphthalene	710	U
106-47-8	4-Chloroaniline	710	U
87-68-3	Hexachlorobutadiene	710	U
59-50-7	4-Chloro-3-methylphenol		
91-57-6	2-Methylnaphthalene	710	U
77-47-4	Hexachlorocyclopentadiene	710	U
88-06-2	2,4,6-Trichlorophenol	710	U
95-95-4	2,4,5-Trichlorophenol	3400	U
91-58-7	2-Chloronaphthalene	710	U
88-74-4	2-Nitroaniline	3400	U
131-11-3	Dimethylphthalate	710	U
208-96-8	Acenaphthylene	710	U
606-20-2	2,6-Dinitrotoluene	710	U

FORM I SV-1 1/87 Rev.

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SS-1MSD

Lab Name: AQUATEC, INC. Contract: 89150

Lab Code: AQUAI Case No.: 24095 SAS No.: ________ SDG No.: 12475

Matrix: (soil/water) SOIL Lab Sample ID: 125600MD

Sample wt/vol: 30.3 (g/mL) G Lab File ID: B125600MDS

Level: (low/med) LOW Date Received: 12/12/90

% Moisture: not dec. 8 dec. ______ Date Extracted: 12/17/90

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 01/08/91

GPC Cleanup: (Y/N) Y pH: 9.0 Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
99-09-2	3-Nitroaniline	3400	U
83-32-9	Acenaphthene		
51-28-5	2,4-Dinitrophenol	3400	U
100-02-7	4-Nitrophenol		
132-64-9	Dibenzofuran	710	U
121-14-2	2,4-Dinitrotoluene		
84-66-2	Diethylphthalate	710	U
7005-72-3	4-Chlorophenyl-phenylether	710	U
86-73-7	Fluorene	710	U
100-01-6	4-Nitroaniline	3400	U
534-52-1	4,6-Dinitro-2-methylphenol	3400	U
86-30-6	N-Nitrosodiphenylamine (1)	710	U
101-55-3	4-Bromophenyl-phenylether	710	U
118-74-1	Hexachlorobenzene	710	U
87-86-5	Pentachlorophenol		
85-01-8	Phenanthrene	710	U
120-12-7	Anthracene	710	U
84-74-2	Di-n-butylphthalate	710	U
206-44-0	Fluoranthene	710	U
129-00-0	Pyrene		
85-68-7	Butylbenzylphthalate	710	U
91-94-1	3,3'-Dichlorobenzidine	1400	U
56-55-3	Benzo(a)anthracene	710	U
218-01-9	Chrysene	710	U
117-81-7	bis(2-Ethylhexyl)phthalate	230	J
117-84-0	Di-n-octylphthalate	710	U
205-99-2	Benzo(b)fluoranthene	710	U
207-08-9	Benzo(k)fluoranthene	710	U
50-32-8	Benzo(a)pyrene	710	U
193-39-5	Indeno(1,2,3-cd)pyrene	710	U
53-70-3	Dibenz(a,h)anthracene	710	U
191-24-2	Benzo(g,h,i)perylene	710	U

(1) - Cannot be separated from Diphenylamine

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SS-2

Lab Name: AQUATEC, INC. Contract: 89150

Lab Code: AQUAI Case No.: 24095 SAS No.: ________ SDG No.: 12475

Matrix: (soil/water) SOIL Lab Sample ID: 125601

Sample wt/vol: 30.3 (g/mL) G Lab File ID: B125601S

Level: (low/med) LOW Date Received: 12/12/90

% Moisture: not dec. 15 dec. ______ Date Extracted: 12/17/90

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 01/08/91

GPC Cleanup: (Y/N) Y pH: 8.5 Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	770	U
111-44-4	bis(2-Chloroethyl)ether	770	U
95-57-8	2-Chlorophenol	770	U
541-73-1	1,3-Dichlorobenzene	770	U
106-46-7	1,4-Dichlorobenzene	770	U
100-51-6	Benzyl alcohol	770	U
95-50-1	1,2-Dichlorobenzene	770	U
95-48-7	2-Methylphenol	770	U
108-60-1	bis(2-Chloroisopropyl)ether	770	U
106-44-5	4-Methylphenol	770	U
621-64-7	N-Nitroso-di-n-propylamine	770	U
67-72-1	Hexachloroethane	770	U
98-95-3	Nitrobenzene	770	U
78-59-1	Isophorone	770	U
88-75-5	2-Nitrophenol	770	U
105-67-9	2,4-Dimethylphenol	770	U
65-85-0	Benzoic acid	3700	U
111-91-1	bis(2-Chloroethoxy)methane	770	U
120-83-2	2,4-Dichlorophenol	770	U
120-82-1	1,2,4-Trichlorobenzene	770	U
91-20-3	Naphthalene	84	J
106-47-8	4-Chloroaniline	770	U
87-68-3	Hexachlorobutadiene	770	U
59-50-7	4-Chloro-3-methylphenol	770	U
91-57-6	2-Methylnaphthalene	770	U
77-47-4	Hexachlorocyclopentadiene	770	U
88-06-2	2,4,6-Trichlorophenol	770	U
95-95-4	2,4,5-Trichlorophenol	3700	U
91-58-7	2-Chloronaphthalene	770	U
88-74-4	2-Nitroaniline	3700	U
131-11-3	Dimethylphthalate	770	U
208-96-8	Acenaphthylene	770	U
606-20-2	2,6-Dinitrotoluene	770	U

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SS-2

Lab Name: AQUATEC, INC. Contract: 89150

Lab Code: AQUAI Case No.: 24095 SAS No.: ______ SDG No.: 12475

Matrix: (soil/water) SOIL Lab Sample ID: 125601

Sample wt/vol: 30.3 (g/mL) G Lab File ID: B125601S

Level: (low/med) LOW Date Received: 12/12/90

% Moisture: not dec. 15 dec. ______ Date Extracted: 12/17/90

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 01/08/91

GPC Cleanup: (Y/N) Y pH: 8.5 Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
99-09-2	3-Nitroaniline	3700	U
83-32-9	Acenaphthene	90	J
51-28-5	2,4-Dinitrophenol	3700	U
100-02-7	4-Nitrophenol	3700	U
132-64-9	Dibenzofuran	110	J
121-14-2	2,4-Dinitrotoluene	770	U
84-66-2	Diethylphthalate	770	U
7005-72-3	4-Chlorophenyl-phenylether	770	U
86-73-7	Fluorene	110	J
100-01-6	4-Nitroaniline	3700	U
534-52-1	4,6-Dinitro-2-methylphenol	3700	U
86-30-6	N-Nitrosodiphenylamine (1)	770	U
101-55-3	4-Bromophenyl-phenylether	770	U
118-74-1	Hexachlorobenzene	770	U
87-86-5	Pentachlorophenol	3700	U
85-01-8	Phenanthrene	1500	
120-12-7	Anthracene	270	J
84-74-2	Di-n-butylphthalate	770	U
206-44-0	Fluoranthene	2100	
129-00-0	Pyrene	1700	
85-68-7	Butylbenzylphthalate	770	U
91-94-1	3,3'-Dichlorobenzidine	1500	U
56-55-3	Benzo(a)anthracene	840	
218-01-9	Chrysene	940	
117-81-7	bis(2-Ethylhexyl)phthalate	480	J
117-84-0	Di-n-octylphthalate	770	U
205-99-2	Benzo(b)fluoranthene	820	
207-08-9	Benzo(k)fluoranthene	670	J
50-32-8	Benzo(a)pyrene	650	J
193-39-5	Indeno(1,2,3-cd)pyrene	430	J
53-70-3	Dibenz(a,h)anthracene	180	J
191-24-2	Benzo(g,h,i)perylene	460	J

(1) - Cannot be separated from Diphenylamine

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

SS-2

Lab Name: AQUATEC, INC.   Contract: 89150

Lab Code: AQUAI   Case No.: 24095   SAS No.: ______   SDG No.: 12475

Matrix: (soil/water) SOIL   Lab Sample ID: 125601

Sample wt/vol: 30.3 (g/mL) G   Lab File ID: B125601S

Level: (low/med) LOW   Date Received: 12/12/90

% Moisture: not dec. 15   dec. ______   Date Extracted: 12/17/90

Extraction: (SepF/Cont/Sonc) SONC   Date Analyzed: 01/08/91

GPC Cleanup: (Y/N) Y   pH: 8.5   Dilution Factor: 1.0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

Number TICs found: 20

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	8.15	700	JB
2. 123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	9.52	7600	JBA
3.	UNKNOWN	12.37	610	JB
4.	UNKNOWN	14.10	570	J
5.	UNKNOWN	15.30	540	JB
6.	UNKNOWN	28.25	390	J
7. 1610-18-0	PROMETON (ACN)	29.85	2000	J
8. 2531-84-2	PHENANTHRENE, 2-METHYL-	32.77	330	J
9.	PHENANTHRENE DERIVATIVES	33.08	330	J
10. 238-84-6	11H-BENZO[A]FLUORENE	37.03	530	J
11.	UNKNOWN PNA-KETONE	38.80	360	J
12. 239-35-0	BENZO[B]NAPHTHO[2,1-D]THIOPH	39.15	330	J
13.	UNKNOWN ALKANE	39.28	340	J
14.	UNKNOWN C19H14-PNA HYDROCARB	41.33	320	J
15.	UNKNOWN ALKANE	41.38	360	J
16.	UNKNOWN ALKANE	43.45	720	J
17.	UNKNOWN C20H12-PNA HYDROCARB	43.95	420	J
18. 192-97-2	BENZO[E]PYRENE	44.62	1200	J
19.	UNKNOWN C20H12-PNA HYDROCARB	45.13	330	J
20.	UNKNOWN ALKANE	46.10	530	J
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1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SS-3

Lab Name: AQUATEC, INC. Contract: 89150

Lab Code: AQUAI Case No.: 24095 SAS No.: ______ SDG No.: 12475

Matrix: (soil/water) SOIL Lab Sample ID: 125602

Sample wt/vol: 30.9 (g/mL) G Lab File ID: B125602S

Level: (low/med) LOW Date Received: 12/12/90

% Moisture: not dec. 15 dec. ______ Date Extracted: 12/17/90

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 01/08/91

GPC Cleanup: (Y/N) Y pH: 8.0 Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	750	U
111-44-4	bis(2-Chloroethyl)ether	750	U
95-57-8	2-Chlorophenol	750	U
541-73-1	1,3-Dichlorobenzene	750	U
106-46-7	1,4-Dichlorobenzene	750	U
100-51-6	Benzyl alcohol	750	U
95-50-1	1,2-Dichlorobenzene	750	U
95-48-7	2-Methylphenol	750	U
108-60-1	bis(2-Chloroisopropyl)ether	750	U
106-44-5	4-Methylphenol	750	U
621-64-7	N-Nitroso-di-n-propylamine	750	U
67-72-1	Hexachloroethane	750	U
98-95-3	Nitrobenzene	750	U
78-59-1	Isophorone	750	U
88-75-5	2-Nitrophenol	750	U
105-67-9	2,4-Dimethylphenol	750	U
65-85-0	Benzoic acid	3700	U
111-91-1	bis(2-Chloroethoxy)methane	750	U
120-83-2	2,4-Dichlorophenol	750	U
120-82-1	1,2,4-Trichlorobenzene	750	U
91-20-3	Naphthalene	750	U
106-47-8	4-Chloroaniline	750	U
87-68-3	Hexachlorobutadiene	750	U
59-50-7	4-Chloro-3-methylphenol	750	U
91-57-6	2-Methylnaphthalene	750	U
77-47-4	Hexachlorocyclopentadiene	750	U
88-06-2	2,4,6-Trichlorophenol	750	U
95-95-4	2,4,5-Trichlorophenol	3700	U
91-58-7	2-Chloronaphthalene	750	U
88-74-4	2-Nitroaniline	3700	U
131-11-3	Dimethylphthalate	750	U
208-96-8	Acenaphthylene	750	U
606-20-2	2,6-Dinitrotoluene	750	U

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SS-3

Lab Name: AQUATEC, INC. Contract: 89150

Lab Code: AQUAI Case No.: 24095 SAS No.: ________ SDG No.: 12475

Matrix: (soil/water) SOIL Lab Sample ID: 125602

Sample wt/vol: 30.9 (g/mL) G Lab File ID: B125602S

Level: (low/med) LOW Date Received: 12/12/90

% Moisture: not dec. 15 dec. ______ Date Extracted: 12/17/90

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 01/08/91

GPC Cleanup: (Y/N) Y pH: 8.0 Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
99-09-2	3-Nitroaniline	3700	U
83-32-9	Acenaphthene	750	U
51-28-5	2,4-Dinitrophenol	3700	U
100-02-7	4-Nitrophenol	3700	U
132-64-9	Dibenzofuran	750	U
121-14-2	2,4-Dinitrotoluene	750	U
84-66-2	Diethylphthalate	750	U
7005-72-3	4-Chlorophenyl-phenylether	750	U
86-73-7	Fluorene	750	U
100-01-6	4-Nitroaniline	3700	U
534-52-1	4,6-Dinitro-2-methylphenol	3700	U
86-30-6	N-Nitrosodiphenylamine (1)	750	U
101-55-3	4-Bromophenyl-phenylether	750	U
118-74-1	Hexachlorobenzene	750	U
87-86-5	Pentachlorophenol	3700	U
85-01-8	Phenanthrene	210	J
120-12-7	Anthracene	750	U
84-74-2	Di-n-butylphthalate	750	U
206-44-0	Fluoranthene	550	J
129-00-0	Pyrene	590	J
85-68-7	Butylbenzylphthalate	750	U
91-94-1	3,3'-Dichlorobenzidine	1500	U
56-55-3	Benzo(a)anthracene	410	J
218-01-9	Chrysene	450	J
117-81-7	bis(2-Ethylhexyl)phthalate	220	J
117-84-0	Di-n-octylphthalate	750	U
205-99-2	Benzo(b)fluoranthene	410	J
207-08-9	Benzo(k)fluoranthene	420	J
50-32-8	Benzo(a)pyrene	520	J
193-39-5	Indeno(1,2,3-cd)pyrene	330	J
53-70-3	Dibenz(a,h)anthracene	750	U
191-24-2	Benzo(g,h,i)perylene	380	J

(1) - Cannot be separated from Diphenylamine

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

SS-3

Lab Name: AQUATEC, INC. Contract: 89150

Lab Code: AQUAI Case No.: 24095 SAS No.: ______ SDG No.: 12475

Matrix: (soil/water) SOIL Lab Sample ID: 125602

Sample wt/vol: 30.9 (g/mL) G Lab File ID: B125602S

Level: (low/med) LOW Date Received: 12/12/90

% Moisture: not dec. 15 dec. ______ Date Extracted: 12/17/90

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 01/08/91

GPC Cleanup: (Y/N) Y pH: 8.0 Dilution Factor: 1.0

Number TICs found: 20

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	9.50	6400	JBA
2.	UNKNOWN	14.08	510	J
3. 629-78-7	HEPTADECANE	28.98	320	J
4. 1610-18-0	PROMETON (ACN)	29.88	700	J
5. 593-45-3	OCTADECANE	30.48	370	J
6. 629-92-5	NONADECANE	31.92	400	J
7. 112-95-8	EICOSANE	33.28	360	J
8. 629-94-7	HENEICOSANE	34.60	420	J
9. 629-97-0	DOCOSANE	35.85	540	J
10. 638-67-5	TRICOSANE	37.05	590	J
11. 646-31-1	TETRACOSANE	38.20	630	J
12. 629-99-2	PENTACOSANE	39.32	760	J
13. 630-01-3	HEXACOSANE	40.38	750	J
14. 593-49-7	HEPTACOSANE	41.40	780	J
15. 630-02-4	OCTACOSANE	42.40	700	J
16. 630-03-5	NONACOSANE	43.47	1100	J
17.	UNKNOWN C20H12-PNA HYDROCARB	43.98	340	J
18. 192-97-2	BENZO[E]PYRENE	44.65	770	J
19. 638-68-6	TRIACONTANE	44.70	590	J
20.	UNKNOWN ALKANE	46.12	620	J
21.				
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1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SS-1

Lab Name: AQUATEC, INC. Contract: 89150

Lab Code: AQUAI Case No.: 24095 SAS No.: ________ SDG No.: 12475

Matrix: (soil/water) SOIL Lab Sample ID: 125600

Sample wt/vol: 30.8 (g/mL) G Lab File ID: ____________

Level: (low/med) LOW Date Received: 12/12/90

% Moisture: not dec. 8 dec. ______ Date Extracted: 12/17/90

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 12/22/90

GPC Cleanup: (Y/N) Y pH: 9.0 Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	17	U
319-85-7	beta-BHC	17	U
319-86-8	delta-BHC	17	U
58-89-9	gamma-BHC (Lindane)	17	U
76-44-8	Heptachlor	17	U
309-00-2	Aldrin	17	U
1024-57-3	Heptachlor epoxide	17	U
959-98-8	Endosulfan I	17	U
60-57-1	Dieldrin	34	U
72-55-9	4,4'-DDE	34	U
72-20-8	Endrin	34	U
33213-65-9	Endosulfan II	34	U
72-54-8	4,4'-DDD	34	U
1031-07-8	Endosulfan sulfate	34	U
50-29-3	4,4'-DDT	34	U
72-43-5	Methoxychlor	170	U
53494-70-5	Endrin ketone	34	U
5103-71-9	alpha-Chlordane	170	U
5103-74-2	gamma-Chlordane	170	U
8001-35-2	Toxaphene	340	U
12674-11-2	Aroclor-1016	170	U
11104-28-2	Aroclor-1221	170	U
11141-16-5	Aroclor-1232	170	U
53469-21-9	Aroclor-1242	170	U
12672-29-6	Aroclor-1248	170	U
11097-69-1	Aroclor-1254	340	U
11096-82-5	Aroclor-1260	340	U

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SS-1MS

Lab Name: AQUATEC, INC. Contract: 89150

Lab Code: AQUAI Case No.: 24095 SAS No.: ______ SDG No.: 12475

Matrix: (soil/water) SOIL Lab Sample ID: 125600MS

Sample wt/vol: 30.0 (g/mL) G Lab File ID: ______

Level: (low/med) LOW Date Received: 12/12/90

% Moisture: not dec. 8 dec. ______ Date Extracted: 12/17/90

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 12/22/90

GPC Cleanup: (Y/N) Y pH: 9.0 Dilution Factor: 3.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	52	U
319-85-7	beta-BHC	52	U
319-86-8	delta-BHC	52	U
58-89-9	gamma-BHC (Lindane)		
76-44-8	Heptachlor		
309-00-2	Aldrin		
1024-57-3	Heptachlor epoxide	52	U
959-98-8	Endosulfan I	52	U
60-57-1	Dieldrin		
72-55-9	4,4'-DDE	100	U
72-20-8	Endrin		
33213-65-9	Endosulfan II	100	U
72-54-8	4,4'-DDD	100	U
1031-07-8	Endosulfan sulfate	100	U
50-29-3	4,4'-DDT		
72-43-5	Methoxychlor	520	U
53494-70-5	Endrin ketone	100	U
5103-71-9	alpha-Chlordane	520	U
5103-74-2	gamma-Chlordane	520	U
8001-35-2	Toxaphene	1000	U
12674-11-2	Aroclor-1016	520	U
11104-28-2	Aroclor-1221	520	U
11141-16-5	Aroclor-1232	520	U
53469-21-9	Aroclor-1242	520	U
12672-29-6	Aroclor-1248	520	U
11097-69-1	Aroclor-1254	1000	U
11096-82-5	Aroclor-1260	1000	U

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SS-1MSD

Lab Name: AQUATEC, INC. Contract: 89150

Lab Code: AQUAI Case No.: 24095 SAS No.: ______ SDG No.: 12475

Matrix: (soil/water) SOIL Lab Sample ID: 125600MD

Sample wt/vol: 30.3 (g/mL) G Lab File ID: ______

Level: (low/med) LOW Date Received: 12/12/90

% Moisture: not dec. 8 dec. ______ Date Extracted: 12/17/90

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 12/22/90

GPC Cleanup: (Y/N) Y pH: 9.0 Dilution Factor: 3.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	52	U
319-85-7	beta-BHC	52	U
319-86-8	delta-BHC	52	U
58-89-9	gamma-BHC (Lindane)		
76-44-8	Heptachlor		
309-00-2	Aldrin		
1024-57-3	Heptachlor epoxide	52	U
959-98-8	Endosulfan I	52	U
60-57-1	Dieldrin		
72-55-9	4,4'-DDE	100	U
72-20-8	Endrin		
33213-65-9	Endosulfan II	100	U
72-54-8	4,4'-DDD	100	U
1031-07-8	Endosulfan sulfate	100	U
50-29-3	4,4'-DDT		
72-43-5	Methoxychlor	520	U
53494-70-5	Endrin ketone	100	U
5103-71-9	alpha-Chlordane	520	U
5103-74-2	gamma-Chlordane	520	U
8001-35-2	Toxaphene	1000	U
12674-11-2	Aroclor-1016	520	U
11104-28-2	Aroclor-1221	520	U
11141-16-5	Aroclor-1232	520	U
53469-21-9	Aroclor-1242	520	U
12672-29-6	Aroclor-1248	520	U
11097-69-1	Aroclor-1254	1000	U
11096-82-5	Aroclor-1260	1000	U

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SS-2

Lab Name: AQUATEC, INC. Contract: 89150

Lab Code: AQUAI Case No.: 24095 SAS No.: ________ SDG No.: 12475

Matrix: (soil/water) SOIL Lab Sample ID: 125601

Sample wt/vol: 30.3 (g/mL) G Lab File ID: ____________

Level: (low/med) LOW Date Received: 12/12/90

% Moisture: not dec. 15 dec. ______ Date Extracted: 12/17/90

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 12/22/90

GPC Cleanup: (Y/N) Y pH: 8.5 Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	19	U
319-85-7	beta-BHC	19	U
319-86-8	delta-BHC	19	U
58-89-9	gamma-BHC (Lindane)	19	U
76-44-8	Heptachlor	19	U
309-00-2	Aldrin	19	U
1024-57-3	Heptachlor epoxide	19	U
959-98-8	Endosulfan I	19	U
60-57-1	Dieldrin	37	U
72-55-9	4,4'-DDE	37	U
72-20-8	Endrin	37	U
33213-65-9	Endosulfan II	37	U
72-54-8	4,4'-DDD	37	U
1031-07-8	Endosulfan sulfate	37	U
50-29-3	4,4'-DDT	37	U
72-43-5	Methoxychlor	190	U
53494-70-5	Endrin ketone	37	U
5103-71-9	alpha-Chlordane	190	U
5103-74-2	gamma-Chlordane	190	U
8001-35-2	Toxaphene	370	U
12674-11-2	Aroclor-1016	190	U
11104-28-2	Aroclor-1221	190	U
11141-16-5	Aroclor-1232	190	U
53469-21-9	Aroclor-1242	190	U
12672-29-6	Aroclor-1248	190	U
11097-69-1	Aroclor-1254	370	U
11096-82-5	Aroclor-1260	370	U

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SS-3

Lab Name: AQUATEC, INC. Contract: 89150

Lab Code: AQUAI Case No.: 24095 SAS No.: ________ SDG No.: 12475

Matrix: (soil/water) SOIL Lab Sample ID: 125602

Sample wt/vol: 30.9 (g/mL) G Lab File ID: ____________

Level: (low/med) LOW Date Received: 12/12/90

% Moisture: not dec. 15 dec. ______ Date Extracted: 12/17/90

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 12/22/90

GPC Cleanup: (Y/N) Y pH: 8.0 Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	18	U
319-85-7	beta-BHC	18	U
319-86-8	delta-BHC	18	U
58-89-9	gamma-BHC (Lindane)	18	U
76-44-8	Heptachlor	18	U
309-00-2	Aldrin	18	U
1024-57-3	Heptachlor epoxide	18	U
959-98-8	Endosulfan I	18	U
60-57-1	Dieldrin	37	U
72-55-9	4,4'-DDE	37	U
72-20-8	Endrin	37	U
33213-65-9	Endosulfan II	37	U
72-54-8	4,4'-DDD	37	U
1031-07-8	Endosulfan sulfate	37	U
50-29-3	4,4'-DDT	37	U
72-43-5	Methoxychlor	180	U
53494-70-5	Endrin ketone	37	U
5103-71-9	alpha-Chlordane	180	U
5103-74-2	gamma-Chlordane	180	U
8001-35-2	Toxaphene	370	U
12674-11-2	Aroclor-1016	180	U
11104-28-2	Aroclor-1221	180	U
11141-16-5	Aroclor-1232	180	U
53469-21-9	Aroclor-1242	180	U
12672-29-6	Aroclor-1248	180	U
11097-69-1	Aroclor-1254	370	U
11096-82-5	Aroclor-1260	370	U

SPLIT SPOON SOIL ANALYTICAL DATA

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1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

GW2C 16'-17'

Lab Name: AQUATEC, INC. Contract: 89150

Lab Code: AQUAI Case No.: 24095 SAS No.: SDG No.: 124757

Matrix (soil/water): SOIL Lab Sample ID: 124757

Level (low/med): Date Received: 11/28/90

% Solids: 96.1

Concentration Units (ug/L or mg/kg dry weight): mg/Kg

CAS No.	Analyte	Concentration	C	M	Q
7429-90-5	Aluminum	15400		*	P
7440-36-0	Antimony	12.0	U	N	P
7440-38-2	Arsenic	25.7		+N*	F
7440-39-3	Barium	40.0	U		P
7440-41-7	Beryllium	1.0	U	N	P
7440-43-9	Cadmium	2.7		N	P
7440-70-2	Calcium	42600		*	P
7440-47-3	Chromium	27.4		N*	P
7440-48-4	Cobalt	12.5			P
7440-50-8	Copper	29.4		N*	P
7439-89-6	Iron	32800			P
7439-92-1	Lead	26.4		S	F
7439-95-4	Magnesium	8380		*	P
7439-96-5	Manganese	367		*	P
7439-97-6	Mercury	0.07	U		CV
7440-02-0	Nickel	55.0		N	P
7440-09-7	Potassium	2540			P
7782-49-2	Selenium	10.3	U	WN	F
7440-22-4	Silver	2.0	U		P
7440-23-5	Sodium	1000	U		P
7440-28-0	Thallium	10.3	U	N	F
7440-62-2	Vanadium	17.9		N	P
7440-66-6	Zinc	57.2		N*	P
	Cyanide	0.58	U		C

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

Revision 1
December 1987

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1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GW-2C16'-17'

Lab Name: AQUATEC, INC. Contract: 89150

Lab Code: AQUAI Case No.: 24095 SAS No.: ________ SDG No.: 12475

Matrix: (soil/water) SOIL Lab Sample ID: 124757

Sample wt/vol: 3.7 (g/mL) G Lab File ID: D124757I4V

Level: (low/med) LOW Date Received: 11/28/90

% Moisture: not dec. 9 Date Analyzed: 12/03/90

Column: (pack/cap) PACK Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	15	U
74-83-9	Bromomethane	15	U
75-01-4	Vinyl Chloride	15	U
75-00-3	Chloroethane	15	U
75-09-2	Methylene Chloride	7	BJ
67-64-1	Acetone	15	U
75-15-0	Carbon Disulfide	7	U
75-35-4	1,1-Dichloroethene	7	U
75-34-3	1,1-Dichloroethane	7	U
540-59-0	1,2-Dichloroethene (total)	7	U
67-66-3	Chloroform	7	U
107-06-2	1,2-Dichloroethane	7	U
78-93-3	2-Butanone	15	U
71-55-6	1,1,1-Trichloroethane	7	U
56-23-5	Carbon Tetrachloride	7	U
108-05-4	Vinyl Acetate	15	U
75-27-4	Bromodichloromethane	7	U
78-87-5	1,2-Dichloropropane	7	U
10061-01-5	cis-1,3-Dichloropropene	7	U
79-01-6	Trichloroethene	7	U
124-48-1	Dibromochloromethane	7	U
79-00-5	1,1,2-Trichloroethane	7	U
71-43-2	Benzene	8	
10061-02-6	trans-1,3-Dichloropropene	7	U
75-25-2	Bromoform	7	U
108-10-1	4-Methyl-2-Pentanone	15	U
591-78-6	2-Hexanone	15	U
127-18-4	Tetrachloroethene	7	U
79-34-5	1,1,2,2-Tetrachloroethane	7	U
108-88-3	Toluene	11	
108-90-7	Chlorobenzene	7	U
100-41-4	Ethylbenzene	7	U
100-42-5	Styrene	7	U
1330-20-7	Xylene (total)	5	J

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

GW-2C16'-17'

Lab Name: AQUATEC, INC. Contract: 89150

Lab Code: AQUAI Case No.: 24095 SAS No.: ________ SDG No.: 12475

Matrix: (soil/water) SOIL Lab Sample ID: 124757

Sample wt/vol: 3.7 (g/mL) G Lab File ID: D124757I4V

Level: (low/med) LOW Date Received: 11/28/90

% Moisture: not dec. 9 Date Analyzed: 12/03/90

Column: (pack/cap) PACK Dilution Factor: 1.0

Number TICs found: 3

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN TERPENE	24.90	29	J
2.	UNKNOWN TERPENE	25.45	15	J
3. 1678-92-8	PROPYLCYCLOHEXANE	28.80	18	J
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FORM I VOA-TIC 1/87 Rev.

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1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GW-2C16'-17'

Lab Name: AQUATEC, INC.   Contract: 89150

Lab Code: AQUAI   Case No.: 24095   SAS No.: ______   SDG No.: 12475

Matrix: (soil/water) SOIL   Lab Sample ID: 124757

Sample wt/vol: 30.4 (g/mL) G   Lab File ID: B124757S

Level: (low/med) LOW   Date Received: 11/28/90

% Moisture: not dec. 4   dec. ______   Date Extracted: 11/29/90

Extraction: (SepF/Cont/Sonc) SONC   Date Analyzed: 12/05/90

GPC Cleanup: (Y/N) Y   pH: 8.9   Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	680	U
111-44-4	bis(2-Chloroethyl)ether	680	U
95-57-8	2-Chlorophenol	680	U
541-73-1	1,3-Dichlorobenzene	680	U
106-46-7	1,4-Dichlorobenzene	680	U
100-51-6	Benzyl alcohol	680	U
95-50-1	1,2-Dichlorobenzene	680	U
95-48-7	2-Methylphenol	680	U
108-60-1	bis(2-Chloroisopropyl)ether	680	U
106-44-5	4-Methylphenol	680	U
621-64-7	N-Nitroso-di-n-propylamine	680	U
67-72-1	Hexachloroethane	680	U
98-95-3	Nitrobenzene	680	U
78-59-1	Isophorone	680	U
88-75-5	2-Nitrophenol	680	U
105-67-9	2,4-Dimethylphenol	680	U
65-85-0	Benzoic acid	3300	U
111-91-1	bis(2-Chloroethoxy)methane	680	U
120-83-2	2,4-Dichlorophenol	680	U
120-82-1	1,2,4-Trichlorobenzene	680	U
91-20-3	Naphthalene	680	U
106-47-8	4-Chloroaniline	680	U
87-68-3	Hexachlorobutadiene	680	U
59-50-7	4-Chloro-3-methylphenol	680	U
91-57-6	2-Methylnaphthalene	680	U
77-47-4	Hexachlorocyclopentadiene	680	U
88-06-2	2,4,6-Trichlorophenol	680	U
95-95-4	2,4,5-Trichlorophenol	3300	U
91-58-7	2-Chloronaphthalene	680	U
88-74-4	2-Nitroaniline	3300	U
131-11-3	Dimethylphthalate	680	U
208-96-8	Acenaphthylene	680	U
606-20-2	2,6-Dinitrotoluene	680	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.: GW-2C16'-17'

Lab Name: AQUATEC, INC. Contract: 89150

Lab Code: AQUAI Case No.: 24095 SAS No.: ______ SDG No.: 12475

Matrix: (soil/water) SOIL Lab Sample ID: 124757

Sample wt/vol: 30.4 (g/mL) G Lab File ID: B124757S

Level: (low/med) LOW Date Received: 11/28/90

% Moisture: not dec. 4 dec. ______ Date Extracted: 11/29/90

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 12/05/90

GPC Cleanup: (Y/N) Y pH: 8.9 Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
99-09-2	3-Nitroaniline	3300	U
83-32-9	Acenaphthene	680	U
51-28-5	2,4-Dinitrophenol	3300	U
100-02-7	4-Nitrophenol	3300	U
132-64-9	Dibenzofuran	680	U
121-14-2	2,4-Dinitrotoluene	680	U
84-66-2	Diethylphthalate	680	U
7005-72-3	4-Chlorophenyl-phenylether	680	U
86-73-7	Fluorene	680	U
100-01-6	4-Nitroaniline	3300	U
534-52-1	4,6-Dinitro-2-methylphenol	3300	U
86-30-6	N-Nitrosodiphenylamine (1)	680	U
101-55-3	4-Bromophenyl-phenylether	680	U
118-74-1	Hexachlorobenzene	680	U
87-86-5	Pentachlorophenol	3300	U
85-01-8	Phenanthrene	280	J
120-12-7	Anthracene	680	U
84-74-2	Di-n-butylphthalate	680	U
206-44-0	Fluoranthene	400	J
129-00-0	Pyrene	370	J
85-68-7	Butylbenzylphthalate	680	U
91-94-1	3,3'-Dichlorobenzidine	1400	U
56-55-3	Benzo(a)anthracene	230	J
218-01-9	Chrysene	350	J
117-81-7	bis(2-Ethylhexyl)phthalate	680	U
117-84-0	Di-n-octylphthalate	680	U
205-99-2	Benzo(b)fluoranthene	180	J
207-08-9	Benzo(k)fluoranthene	170	J
50-32-8	Benzo(a)pyrene	200	J
193-39-5	Indeno(1,2,3-cd)pyrene	680	U
53-70-3	Dibenz(a,h)anthracene	680	U
191-24-2	Benzo(g,h,i)perylene	680	U

(1) - Cannot be separated from Diphenylamine

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

GW-2C16'-17'

Lab Name: AQUATEC, INC. Contract: 89150

Lab Code: AQUAI Case No.: 24095 SAS No.: ________ SDG No.: 12475

Matrix: (soil/water) SOIL Lab Sample ID: 124757

Sample wt/vol: 30.4 (g/mL) G Lab File ID: B124757S

Level: (low/med) LOW Date Received: 11/28/90

% Moisture: not dec. 4 dec. _______ Date Extracted: 11/29/90

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 12/05/90

GPC Cleanup: (Y/N) Y pH: 8.9 Dilution Factor: 1.0

Number TICs found: 20

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 124-18-5	DECANE	15.43	9500	J
2. 1120-21-4	UNDECANE	18.05	17000	J
3. 112-40-3	DODECANE	20.35	15000	J
4. 629-50-5	TRIDECANE	22.43	16000	J
5. 629-59-4	TETRADECANE	24.35	16000	J
6. 629-62-9	PENTADECANE	26.15	16000	J
7. 544-76-3	HEXADECANE	27.83	17000	J
8. 629-78-7	HEPTADECANE	29.43	15000	J
9. 1921-70-6	PENTADECANE, 2,6,10,14-TETRA	29.53	6500	J
10. 593-45-3	OCTADECANE	30.97	12000	J
11. 629-92-5	NONADECANE	32.40	13000	J
12. 112-95-8	EICOSANE	33.78	11000	J
13. 629-94-7	HENEICOSANE	35.10	8700	J
14. 629-97-0	DOCOSANE	36.35	14000	J
15. 638-67-5	TRICOSANE	37.55	12000	J
16. 646-31-1	TETRACOSANE	38.72	9200	J
17. 629-99-2	PENTACOSANE	39.83	7200	J
18. 630-01-3	HEXACOSANE	40.90	5900	J
19. 593-49-7	HEPTACOSANE	41.93	5700	J
20. 630-03-5	NONACOSANE	44.12	5200	J
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1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GW-2C16'-17'

Lab Name: AQUATEC, INC. Contract: 89150

Lab Code: AQUAI Case No.: 24095 SAS No.: ______ SDG No.: 12475

Matrix: (soil/water) SOIL Lab Sample ID: 124757

Sample wt/vol: 30.4 (g/mL) G Lab File ID: ________

Level: (low/med) LOW Date Received: 11/28/90

% Moisture: not dec. 4 dec. ______ Date Extracted: 11/29/90

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 12/05/90

GPC Cleanup: (Y/N) Y pH: 8.9 Dilution Factor: 1.0

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

CAS NO.	COMPOUND	CONCENTRATION	Q
319-84-6	alpha-BHC	16	U
319-85-7	beta-BHC	16	U
319-86-8	delta-BHC	16	U
58-89-9	gamma-BHC (Lindane)	16	U
76-44-8	Heptachlor	16	U
309-00-2	Aldrin	16	U
1024-57-3	Heptachlor epoxide	16	U
959-98-8	Endosulfan I	16	U
60-57-1	Dieldrin	33	U
72-55-9	4,4'-DDE	33	U
72-20-8	Endrin	33	U
33213-65-9	Endosulfan II	33	U
72-54-8	4,4'-DDD	33	U
1031-07-8	Endosulfan sulfate	33	U
50-29-3	4,4'-DDT	33	U
72-43-5	Methoxychlor	160	U
53494-70-5	Endrin ketone	33	U
5103-71-9	alpha-Chlordane	160	U
5103-74-2	gamma-Chlordane	160	U
8001-35-2	Toxaphene	330	U
12674-11-2	Aroclor-1016	160	U
11104-28-2	Aroclor-1221	160	U
11141-16-5	Aroclor-1232	160	U
53469-21-9	Aroclor-1242	160	U
12672-29-6	Aroclor-1248	160	U
11097-69-1	Aroclor-1254	330	U
11096-82-5	Aroclor-1260	330	U

FIELD BLANK SAMPLE

TRIP BLANK SAMPLE

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INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

Field blank

Lab Name: AQUATEC, INC.   Contract: 89150

Lab Code: AQUAI   Case No.: 24321   SAS No.: ______   SDG No.: 125590

Matrix (soil/water): WATER   Lab Sample ID: 125646

Level (low/med): ______   Date Received: 12/13/90

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): ug/L

CAS No.	Analyte	Concentration	C	M	Q
7429-90-5	Aluminum	200	U	E	P
7440-36-0	Antimony	60.0	U		P
7440-38-2	Arsenic	10.0	U		F
7440-39-3	Barium	200	U		P
7440-41-7	Beryllium	5.0	U		P
7440-43-9	Cadmium	5.0	U		P
7440-70-2	Calcium	5000	U	E	P
7440-47-3	Chromium	10.0	U		P
7440-48-4	Cobalt	50.0	U		P
7440-50-8	Copper	25.0	U		P
7439-89-6	Iron	108		E	P
7439-92-1	Lead	5.0	U		F
7439-95-4	Magnesium	5000	U		P
7439-96-5	Manganese	15.0	U	E	P
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel	40.0	U		P
7440-09-7	Potassium	5000	U		P
7782-49-2	Selenium	5.0	U	WN	F
7440-22-4	Silver	10.0	U		P
7440-23-5	Sodium	5000	U	E	P
7440-28-0	Thallium	10.0	U	N	F
7440-62-2	Vanadium	50.0	U		P
7440-66-6	Zinc	20.0	U		P
	Cyanide	10.0	U		C

Color Before: ______   Clarity Before: ______   Texture: ______

Color After: ______   Clarity After: ______   Artifacts: ______

Comments:

Revision 1
December 1987

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1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

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Lab Name: AQUATEC, INC. Contract: 89150

Lab Code: AQUAI Case No.: 24321 SAS No.: ________ SDG No.: 12559

Matrix: (soil/water) WATER Lab Sample ID: 125645

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: D125645V

Level: (low/med) LOW Date Received: 12/13/90

% Moisture: not dec. ______ Date Analyzed: 12/17/90

Column: (pack/cap) PACK Dilution Factor: 1.0

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L

CAS NO.	COMPOUND	CONCENTRATION	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	2	BJ
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	5	U
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	5	U
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
108-05-4	Vinyl Acetate	10	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
108-88-3	Toluene	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
1330-20-7	Xylene (total)	5	U

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1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

FIELD BLANK

Lab Name: AQUATEC, INC. Contract: 89150

Lab Code: AQUAI Case No.: 24321 SAS No.: ________ SDG No.: 12559

Matrix: (soil/water) WATER Lab Sample ID: 125646

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: C125646V

Level: (low/med) LOW Date Received: 12/13/90

% Moisture: not dec. ______ Date Analyzed: 12/19/90

Column: (pack/cap) PACK Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	2	BJ
67-64-1	Acetone	3	BJ
75-15-0	Carbon Disulfide	5	U
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	5	U
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
108-05-4	Vinyl Acetate	10	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
108-88-3	Toluene	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
1330-20-7	Xylene (total)	5	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

FIELD BLANK

Lab Name: AQUATEC, INC.   Contract: 89150

Lab Code: AQUAI   Case No.: 24321   SAS No.: ______   SDG No.: 12559

Matrix: (soil/water) WATER   Lab Sample ID: 125646

Sample wt/vol: 1008 (g/mL) ML   Lab File ID: B125646S

Level: (low/med) LOW   Date Received: 12/13/90

% Moisture: not dec. ______ dec. ______   Date Extracted: 12/14/90

Extraction: (SepF/Cont/Sonc) SEPF   Date Analyzed: 01/03/91

GPC Cleanup: (Y/N) N   pH: ____   Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-95-2	Phenol	10	U
111-44-4	bis(2-Chloroethyl)ether	10	U
95-57-8	2-Chlorophenol	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4-Dichlorobenzene	10	U
100-51-6	Benzyl alcohol	10	U
95-50-1	1,2-Dichlorobenzene	10	U
95-48-7	2-Methylphenol	10	U
108-60-1	bis(2-Chloroisopropyl)ether	10	U
106-44-5	4-Methylphenol	10	U
621-64-7	N-Nitroso-di-n-propylamine	10	U
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethylphenol	10	U
65-85-0	Benzoic acid	50	U
111-91-1	bis(2-Chloroethoxy)methane	10	U
120-83-2	2,4-Dichlorophenol	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
87-68-3	Hexachlorobutadiene	10	U
59-50-7	4-Chloro-3-methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
95-95-4	2,4,5-Trichlorophenol	50	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	50	U
131-11-3	Dimethylphthalate	10	U
208-96-8	Acenaphthylene	10	U
606-20-2	2,6-Dinitrotoluene	10	U

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

FIELD BLANK

Lab Name: AQUATEC, INC. Contract: 89150

Lab Code: AQUAI Case No.: 24321 SAS No.: ________ SDG No.: 12559

Matrix: (soil/water) WATER Lab Sample ID: 125646

Sample wt/vol: 1008 (g/mL) ML Lab File ID: B125646S

Level: (low/med) LOW Date Received: 12/13/90

% Moisture: not dec. ______ dec. ______ Date Extracted: 12/14/90

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 01/03/91

GPC Cleanup: (Y/N) N pH: ____ Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
99-09-2	3-Nitroaniline	50	U
83-32-9	Acenaphthene	10	U
51-28-5	2,4-Dinitrophenol	50	U
100-02-7	4-Nitrophenol	50	U
132-64-9	Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene	10	U
84-66-2	Diethylphthalate	10	U
7005-72-3	4-Chlorophenyl-phenylether	10	U
86-73-7	Fluorene	10	U
100-01-6	4-Nitroaniline	50	U
534-52-1	4,6-Dinitro-2-methylphenol	50	U
86-30-6	N-Nitrosodiphenylamine (1)	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
87-86-5	Pentachlorophenol	50	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
84-74-2	Di-n-butylphthalate	10	U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
85-68-7	Butylbenzylphthalate	10	U
91-94-1	3,3'-Dichlorobenzidine	20	U
56-55-3	Benzo(a)anthracene	10	U
218-01-9	Chrysene	10	U
117-81-7	bis(2-Ethylhexyl)phthalate	10	U
117-84-0	Di-n-octylphthalate	10	U
205-99-2	Benzo(b)fluoranthene	10	U
207-08-9	Benzo(k)fluoranthene	10	U
50-32-8	Benzo(a)pyrene	10	U
193-39-5	Indeno(1,2,3-cd)pyrene	10	U
53-70-3	Dibenz(a,h)anthracene	10	U
191-24-2	Benzo(g,h,i)perylene	10	U

(1) - Cannot be separated from Diphenylamine

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

FIELD BLANK

Lab Name: AQUATEC, INC. Contract: 89150

Lab Code: AQUAI Case No.: 24321 SAS No.: ________ SDG No.: 12559

Matrix: (soil/water) WATER Lab Sample ID: 125646

Sample wt/vol: 1008 (g/mL) ML Lab File ID: B125646S

Level: (low/med) LOW Date Received: 12/13/90

% Moisture: not dec. _______ dec. _______ Date Extracted: 12/14/90

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 01/03/91

GPC Cleanup: (Y/N) N pH: ____ Dilution Factor: 1.0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

Number TICs found: 1

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	9.42	24	JBA
2.				
3.				
4.				
5.				
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1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

FIELD BLANK

Lab Name: AQUATEC, INC. Contract: 89150

Lab Code: AQUAI Case No.: 24321 SAS No.: ________ SDG No.: 12559

Matrix: (soil/water) WATER Lab Sample ID: 125646

Sample wt/vol: 993 (g/mL) ML Lab File ID: ____________

Level: (low/med) LOW Date Received: 12/13/90

% Moisture: not dec. ______ dec. ______ Date Extracted: 12/18/90

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 12/21/90

GPC Cleanup: (Y/N) N pH: ____ Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
319-84-6	alpha-BHC	0.050	U
319-85-7	beta-BHC	0.050	U
319-86-8	delta-BHC	0.050	U
58-89-9	gamma-BHC (Lindane)	0.050	U
76-44-8	Heptachlor	0.050	U
309-00-2	Aldrin	0.050	U
1024-57-3	Heptachlor epoxide	0.050	U
959-98-8	Endosulfan I	0.050	U
60-57-1	Dieldrin	0.10	U
72-55-9	4,4'-DDE	0.10	U
72-20-8	Endrin	0.10	U
33213-65-9	Endosulfan II	0.10	U
72-54-8	4,4'-DDD	0.10	U
1031-07-8	Endosulfan sulfate	0.10	U
50-29-3	4,4'-DDT	0.10	U
72-43-5	Methoxychlor	0.50	U
53494-70-5	Endrin ketone	0.10	U
5103-71-9	alpha-Chlordane	0.50	U
5103-74-2	gamma-Chlordane	0.50	U
8001-35-2	Toxaphene	1.0	U
12674-11-2	Aroclor-1016	0.50	U
11104-28-2	Aroclor-1221	0.50	U
11141-16-5	Aroclor-1232	0.50	U
53469-21-9	Aroclor-1242	0.50	U
12672-29-6	Aroclor-1248	0.50	U
11097-69-1	Aroclor-1254	1.0	U
11096-82-5	Aroclor-1260	1.0	U

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

PBW

Lab Name: AQUATEC, INC. Contract: 89150

Lab Code: AQUAI Case No.: 24321 SAS No.: ______ SDG No.: 125590

Matrix (soil/water): WATER Lab Sample ID: prepblank

Level (low/med): ______ Date Received: ______

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): ug/L

CAS No.	Analyte	Concentration	C	M	Q
7429-90-5	Aluminum	141	B	E	P
7440-36-0	Antimony	55.1	U		P
7440-38-2	Arsenic	3.1	U		F
7440-39-3	Barium	24.4	U		P
7440-41-7	Beryllium	2.2	U		P
7440-43-9	Cadmium	4.0	U		P
7440-70-2	Calcium	248	U	E	P
7440-47-3	Chromium	9.4	U		P
7440-48-4	Cobalt	21.2	U		P
7440-50-8	Copper	20.0	U		P
7439-89-6	Iron	-21.6	B	E	P
7439-92-1	Lead	1.3	U		F
7439-95-4	Magnesium	-1110	B		P
7439-96-5	Manganese	6.3	U	E	P
7439-97-6	Mercury	0.15	U		CV
7440-02-0	Nickel	24.8	U		P
7440-09-7	Potassium	366	B		P
7782-49-2	Selenium	1.4	U	N	F
7440-22-4	Silver	8.8	U		P
7440-23-5	Sodium	387	U	E	P
7440-28-0	Thallium	-3.5	B	N	F
7440-62-2	Vanadium	34.0	U		P
7440-66-6	Zinc	5.8	U		P
	Cyanide	10.0	U		C

Color Before: ______ Clarity Before: ______ Texture: ______

Color After: ______ Clarity After: ______ Artifacts: ______

Comments:

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December 1987

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APPENDIX J

APPENDIX J

Appendix J

Photodocumentation

Photo 1 Outfall pipe at location of sample SW-2.	**Photo 2** Surface soil sample location SS-2.
Photo 3 Looking at surface soil sample location SS-7 from GW-2.	**Photo 4** Surface soil sample location SS-3.





90 12 12


90 12 12

Photo 5 Looking west towards Lake Erie from outfall pipe (SW-1). (Note drainage)	**Photo 6** Outfall and baffle at location of sampling point SW-1.
Photo 7 Looking west towards Lake Erie from GW-3.	**Photo 8** Effluent from outfall pipe #2.

APPENDIX K

APPENDIX K

Appendix K

Inactive Hazardous Waste Site Registry Update

7-15-25 (11/90)—9d

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

Original—BHSC
Copy—REGION
Copy—DEE
Copy—DOH
Copy—PREPARER

ADDITIONS/CHANGES TO REGISTRY OF INACTIVE HAZARDOUS WASTE DISPOSAL SITES

1. SITE NAME	2. SITE NO.	3. TOWN	4. COUNTY
Snyder Tank Corporation	915049	Hamburg	Erie

5. REGION: 9
6. CLASSIFICATION Current 2A /Proposed ____
7. ACTIVITY ☐ Add ☐ Reclassify ☐ Delist ☐ Modify

8a. DESCRIBE LOCATION OF SITE (Attach U.S.G.S. Topographic Map showing site location).

The site is located on Lake Shore and Hoover Roads on the eastern shore of Lake Erie in the town of Hamburg, Erie County, New York.

b. Quadrangle Buffalo SE c. Site Latitude 42 46 55N, Longitude 078 51 10W d. Tax Map Number 159.11

9a BRIEFLY DESCRIBE THE SITE (Attach site plan showing disposal/sampling locations)

This 10 acre site consists of office and production buildings, gravel parking and loading areas and a 100 foot wide beach area. The beach serves as the discharge location for the plants permitted SPDES, which drain directly into Lake Erie.

b. Area 10 acres c. EPA ID Number D002114197 d. PA/SI ☒ Yes ☐ No

e. Completed: ☒ Phase I ☒ Phase II ☐ PSA ☒ Sampling

10. BRIEFLY LIST THE TYPE AND QUANTITY OF THE HAZARDOUS WASTE AND THE DATES THAT IT WAS DISPOSED OF AT THIS SITE

The quantity of hazardous waste disposed is unknown. However, prior to SPDES permit, pickling acid was reported to have been discharged on the beach at a rate of 98,000 gallons/year.

11a. SUMMARIZED SAMPLING DATA ATTACHED
☐ Air ☒ Groundwater ☒ Surface Water ☒ Soil ☐ Waste ☐ EP Tox ☐ TCLP.

b. List contravened parameters and values

Groundwater

Iron	860 - 39800 ug/L
Xylene	20 - 83 ug/L

Surface Water (ug/L)

Aluminum	200 - 7360
Chromium	129
2-Butanone	330
Toluene	920

Soil (ug/Kg)

Benz(a)anthracene	230 - 840
Benz(a)pyrene	200 - 650
Fluoranthene	400 -2100
Chrysene	350 - 940
Phenanthrene	210 -1500
Pyrene	370 -1700

12. SITE IMPACT DATA

a. Nearest surface water: Distance 100 ft. Direction Northwest Classification B
b. Nearest groundwater: Depth 2.35 ft. Flow Direction Northwest ☐ Sole Source ☐ Primary ☐ Principal
c. Nearest water supply: Distance 100 ft. Direction Northwest Active ☐ Yes ☐ No
d. Nearest building: Distance 0 ft. Direction On site. Use Production
e. Crops or livestock on site? ☐ Yes ☒ No
f. Exposed hazardous waste? ☒ Yes ☐ No
g. Controlled site access? ☐ Yes ☒ No
h. Documented fish or wildlife mortality? ☐ Yes ☒ No
i. Impact on special status fish or wildlife resource? ☐ Yes ☒ No
j. Within a State Economic Development Zone? ☐ Yes ☐ No
k. For Class 2a; Code ____, Health Model Score ____
l. For Class 2; Priority Category ____
m. HRS Score S_M = 19.03
n. Significant Threat ☐ Yes ____ ☐ No ☒ Unknown

13. SITE OWNER'S NAME	14. ADDRESS	15. TELEPHONE NUMBER
Jim Snyder	3773 Lake Shore Road	(716) 827-5353

16. PREPARER

Ira Bickoff Staff Geologist YEC, Inc.
Name, Title and Organization

3/18/91
Date

[signature] Geologist YEC, Inc.
Signature

17. APPROVED

Name, Title and Organization

Date

Signature