PHASE I REPORT

ENGINEERING INVESTIGATIONS AND EVALUATIONS AT INACTIVE HAZARDOUS WASTE DISPOSAL SITES

Volney Landfill
Oswego County

SUBMITTED TO

New York State Department of Environmental Conservation

SUBMITTED BY

ENGINEERING-SCIENCE, INC.
in association with
DAMES & MOORE

JUNE 1983

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SITE IDENTIFICATION

USEPA #NYD980509376

NYSDEC #738003

SECTION I

EXECUTIVE SUMMARY

Volney Landfill

Objective

The purpose of this two phase program is to conduct engineering investigations and evaluations at inactive hazardous disposal sites in New York State in order to calculate a Hazard Ranking System (HRS) score for each site and estimate the cost of any recommended remedial action. During the initial portion of this investigation (Phase I) all available data and records combined with information collected from a site inspection were reviewed and evaluated to determine the adequacy of existing information for calculating an HRS score. On the basis of this evaluation, a Phase II Work Plan was prepared for collecting additional HRS data (if necessary), evaluating remedial alternatives and preparing a cost estimate for recommended remedial action. The results of this Phase I study for this site are summarized below and detailed in the body of this report.

Site Background

Volney Landfill, also known as the Oswego County Landfill, is located on the west side of Silk Road in the Town of Volney, Oswego County, New York. The landfill is located in the site of a former sand and gravel pit and is currently owned by Oswego County and operated by the Oswego County Highway Department. The surrounding area is predominately farmland, although several homes with private drinking wells are located nearby.

Although landfill operations were initiated in 1968, the county did not purchase the site until 1975. Prior to this purchase, 8,000 barrels of Pollution Abatement Services wastes were buried on site. The contents of these drums are unknown but are suspected to be organic chemicals. Numerous investigations have determined that organic chemicals and heavy

metals are leaching into the groundwater and migrating off-site to private wells. Organics have also been detected in nearby surface water. The landfill is currently under a consent order to develop a closure plan and collect and treat leachate.

Assessment

Insufficient data is available to complete a final HRS scoring. The preliminary HRS scoring for this site was:

$S_M = 44.42$ $S_A = 0$

$S_{GW} = 76.53$ $S_{FE} = 0$

$S_{SW} = 6.39$ $S_{DC} = 0$

The direct contact route score for this site was zero due to the inaccessibility of the waste (site is fenced and locked). Air monitoring data are required. The high groundwater route score is due to volume/toxicity of the waste combined with the high target value.

Recommendations

An air monitoring survey with an OVA meter is recommended to determine air quality. The estimated manhours required to complete Phase II are 158, while the estimated cost is $6937.

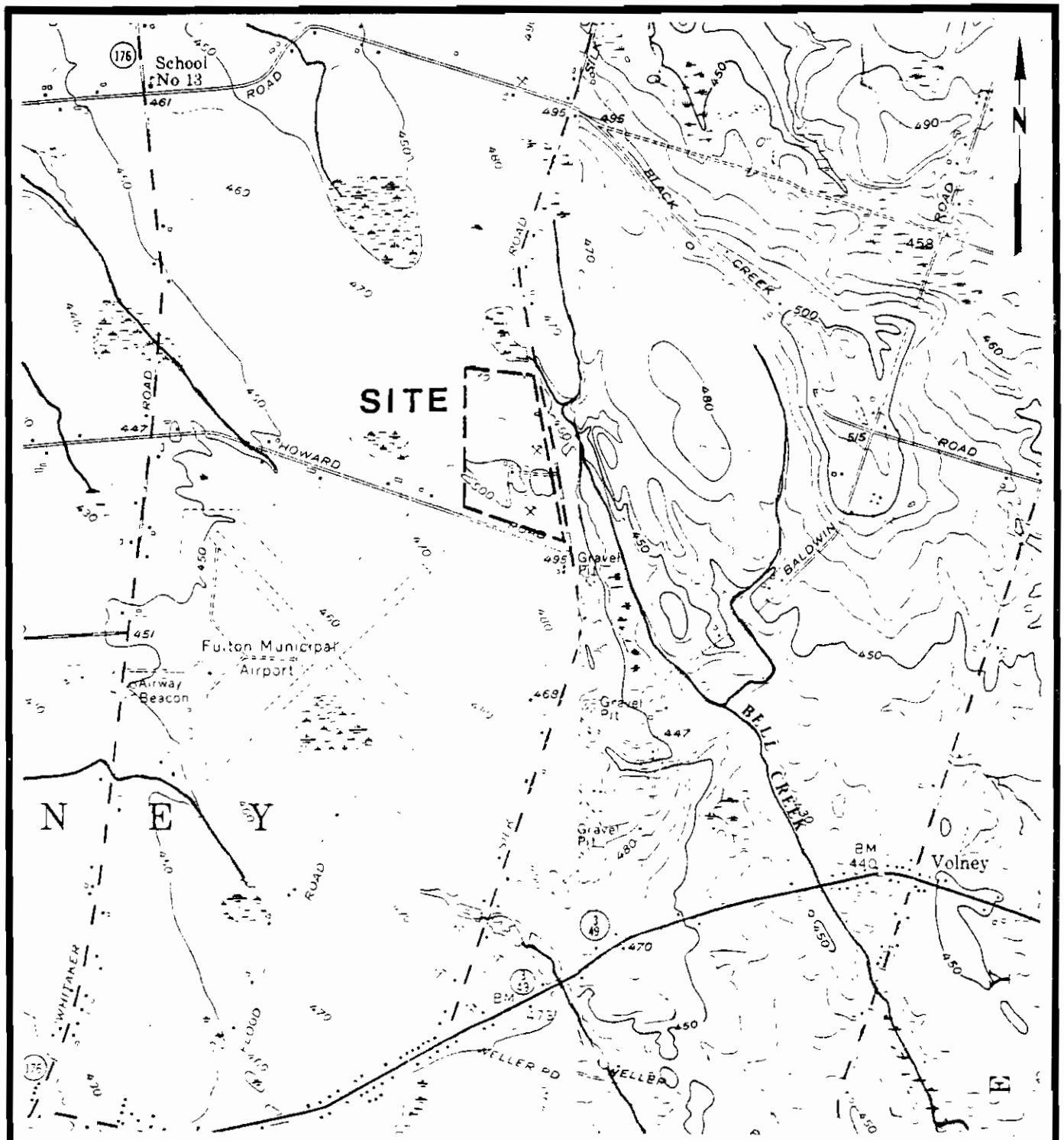
SECTION II

SITE DESCRIPTION

Volney Landfill

Volney Landfill, also known as the Oswego County Landfill, is located on the west side of Silk Road in the Town of Volney, Oswego County, New York. The landfill is located on the site of a former sand and gravel pit and operated by the Oswego County Highway Department. Although the surrounding area is predominately farmland, several homes with private drinking wells are located within 2,000 feet of the landfill. Concern is centered over the burial of 8,000 barrels of industrial waste from Pollution Abatement Services prior to the purchase of the landfill by the County in 1975. Extensive groundwater monitoring has shown contamination of nearby drinking wells with organic contaminants.

738003



SITE LOCATION MAP
VOLNEY LANDFILL

REFERENCE: U.S.G.S. 7.5' TOPOGRAPHIC MAP
FULTON, NY (1978) AND PENNELLVILLE,
NY (1956) QUADRANGLES

SECTION III

HRS SCORING

HRS COVER SHEET

Facility name: Volney Landfill

Location: Volney, NY

EPA Region: II

Person(s) in charge of the facility: Arthur Ospelt (Superintendent)

Oswego County Highway Department

Oswego, NY

Name of Reviewer: John Kubarewicz/Eileen Gillian Date: May 23, 1983

General description of the facility:

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

County landfill which accepted (with NYSDEC approval) 8000 drums of PAS wastes. Organic and metal contamination of private wells and surface waters. Currently under consent order for leachate monitoring/treatment and development of a closure plan.

Scores: $S_M = 44.42$ ($S_{gw} = 76.53$ $S_{sw} = 6.99$ $S_a = 0$)

$S_{FE} = 0$

$S_{DC} = 0$

GROUND WATER ROUTE WORK SHEET

Ground Water Route Work Sheet						
	Rating Factor	Assigned Value (Circle One)	Multi-plier	Score	Max. Score	Ref. (Section
1	Observed Release	0 (45)	1	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	
	Net Precipitation	0 1 2 3	1		3	
	Permeability of the Unsaturated Zone	0 1 2 3	1		3	
	Physical State	0 1 2 3	1		3	
	Total Route Characteristics Score				15	
3	Containment	0 1 2 3	1		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	7	8	
	Total Waste Characteristics Score			25	26	
5	Targets					3.5
	Ground Water Use	0 1 2 (3)	3	9	9	
	Distance to Nearest Well / Population Served	0 4 6 8 10 / 12 16 18 20 / 24 (30) 32 36 40	1	30	40	
	Total Targets Score			39	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			43875	57,330	
7	Divice line 6 by 57,330 and multiply by 100 -7-		S_{gw} =	76.53		

SURFACE WATER ROUTE WORK SHEET

Surface Water Route Work Sheet						
Rating Factor	Assigned Value (Circle One)	Multiplier	Score	Max. Score	Ref. (Section)
1 Observed Release	0 (45)	1	45	45	4.1
If observed release is given a value of 45, proceed to line 4. If observed release is given a value of 0, proceed to line 2.					
2 Route Characteristics					4.2
Facility Slope and Intervening Terrain	0 1 2 3	1		3	
1-yr. 24-hr. Rainfall	0 1 2 3	1		3	
Distance to Nearest Surface Water	0 1 2 3	2		6	
Physical State	0 1 2 3	1		3	
Total Route Characteristics Score				15	
3 Containment	0 1 2 3	1		3	4.3
4 Waste Characteristics					4.4
Toxicity/Persistence	0 3 6 9 12 15 (18)	1	18	18	
Hazardous Waste Quantity	0 1 2 3 4 5 6 (7) 8	1	7	8	
Total Waste Characteristics Score			25	26	
5 Targets					4.5
Surface Water Use	(0) 1 2 3	3	0	9	
Distance to a Sensitive Environment	0 1 (2) 3	2	4	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			4	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			4500	64,350	
7 Divide line 6 by 64,350 and multiply by 100			S_{sw} =	6.99	

AIR ROUTE WORK SHEET

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

DIRECT CONTACT WORK SHEET

Direct Contact Work Sheet						
	Rating Factor	Assigned Value (Circle One)	Multiplier	Score	Max. Score	Ref. (Sectio
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.	0	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	4	20	
	Distance to a Critical Habitat	[0] 1 2 3	4	[0]	12	
	Total Targets Score			4	32	
6	If line 1 is 45, multiply 1 x 4 x 5 If line 1 is 0, multiply 2 x 3 x 4 x 5			0	21,600	
7	Divide line 6 by 21,600 and multiply by 100		SOC =	0		

Fire and Explosion Work Sheet

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

SFE = 0

WORKSHEET FOR COMPUTING S_M

	S	S^2
Groundwater Route Score (S_{gw})	76.53	5856.84
Surface Water Route Score (S_{sw})	6.99	48.86
Air Route Score (S_a)	0	0
$S_{gw}^2 + S_{sw}^2 + S_a^2$		5905.70
$\sqrt{S_{gw}^2 + S_{sw}^2 + S_a^2}$		76.85
$\sqrt{S_{gw}^2 + S_{sw}^2 + S_a^2} \,/\, 1.73 = S_M =$		44.42

June 23, 1982

DOCUMENTATION RECORDS
FOR
HAZARD RANKING SYSTEM

INSTRUCTIONS: The purpose of these records is to provide a convenient way to prepare an auditable record of the data and documentation used to apply the Hazard Ranking System to a given facility. As briefly as possible summarize the information you used to assign the score for each factor (e.g., "Waste quantity = 4,230 drums plus 800 cubic yards of sludges"). The source of information should be provided for each entry and should be a bibliographic-type reference that will make the document used for a given data point easier to find. Include the location of the document and consider appending a copy of the relevant page(s) for ease in review.

FACILITY NAME: VOLNEY LANDFILL

LOCATION: VOLNEY NY

GROUND WATER ROUTE

1 OBSERVED RELEASE

Contaminants detected (5 maximum):

CHLOROFORM BROMOFORM
BENZENE
PCB
LEAD

Rationale for attributing the contaminants to the facility:

GROUNDWATER TESTING OF ONSITE AND OFFSITE MONITORING WELLS
(NYSDOH; 1979; 1980; 1981)
(Branash, 1981) * * *

2 ROUTE CHARACTERISTICS

Depth to Aquifer of Concern

Name/description of aquifers(s) of concern:

N/A

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

27' to 5'

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

UNKNOWN

Net Precipitation

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

34

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

28

Net precipitation (subtract the above figures):

6

Permeability of Unsaturated Zone

Soil type in unsaturated zone:

GRAVEL AND SAND

Permeability associated with soil type:

10^{-3} CM/SEC

Physical State

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

LIQUID

* * *

3 CONTAINMENT

Containment

Method(s) of waste or leachate containment evaluated:

Barrels

Method with highest score:

4 WASTE CHARACTERISTICS

Toxicity and Persistence

Compound(s) evaluated:

CHLOROFORM BROMOFORM
BENZENE PCB
LEAD

see #1

Compound with highest score:

PCB 3,3 => 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 above maximum):

8000 BARRELS

Basis of estimating and/or computing waste quantity:

HAZARDOUS WASTE DISPOSAL SITES
REPORT 2/80

* * *

5 TARGETS

Ground Water Use

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

PRIVATE DRINKING WATER

Distance to Nearest Well

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

.1 MILE POTTERS WELL

Distance to above well or building:

0.1 mile

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

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

Green Acres Mobile Court pop 150
J And J Trailer Park Pop. 100
Kerfien Trailer Pk pop. 100
Somelawn Trailer Park pop 150
+ individual home owners. 300+ homes.

Computation of land area irrigated by supply well(s) drawing from aquifer(s) of concern within a 3-mile radius, and conversion to population (1.5 people per acre):

N/A

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

Based upon house count and water supply wells - estimate approximately 1650.

3,4 ⇒ 30

SURFACE WATER ROUTE

1 OBSERVED RELEASE

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

LEAD ①
BHC
Phenols
trichloroethylene
PCB
tetrachloroethylene

Rationale for attributing the contaminants to the facility:

① STREAM ADJACENT TO LANDFILL (NYDOH, 1982)

② Leachate analysis (NYSDOH, 1979)

* * *

2 ROUTE CHARACTERISTICS

Facility Slope and Intervening Terrain

Average slope of facility in percent:

7.8

Name/description of nearest downslope surface water:

BELL CREEK

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

16.4

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

NO

Is the facility completely surrounded by areas of higher elevation?

NO

1-Year 24-Hour Rainfall in Inches

2.3"

Distance to Nearest Downslope Surface Water

ADJACENT

Physical State of Waste

LIQUID

* * *

3 CONTAINMENT

Containment

Method(s) of waste or leachate containment evaluated:

BARRELS

Method with highest score:

Barrels

4 WASTE CHARACTERISTICS

Toxicity and Persistence

Compound(s) evaluated (3.3)
CHLOROFORM LEAD
BENZENE BROMOFORM
PCB

Compound with highest score:

(3.3) ⇒ 18

LEAD
PCB
CHLOROFORM

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):

8,000 BARRELS

Basis of estimating and/or computing waste quantity:

HAZARDOUS WASTE REGISTRY, 1980

* * *

5 TARGETS

Surface Water Use

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

NONE

Is there tidal influence?

NO

Distance to a Sensitive Environment

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

N/A

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

0.1

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

UNKNOWN

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:

0

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

0

Total population served:

0

Name/description of nearest of above water bodies:

N/A

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

N/A

AIR ROUTE

1 OBSERVED RELEASE

Contaminants detected:

NO AIR SAMPLING DATA AVAILABLE

Date and location of detection of contaminants

N/A

Methods used to detect the contaminants:

N/A

Rationale for attributing the contaminants to the site:

N/A

* * *

2 WASTE CHARACTERISTICS

Reactivity and Incompatibility

Most reactive compound:

N/A

Most incompatible pair of compounds:

N/A.

Toxicity

Most toxic compound:

N/A

Hazardous Waste Quantity

Total quantity of hazardous waste:

N/A

Basis of estimating and/or computing waste quantity:

N/A

* * *

3 TARGETS

Population Within 4-Mile Radius

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

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

UNKNOWN

Distance to a Sensitive Environment

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

N/A

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

0.1

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

UNKNOWN

Land Use

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

N/A

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

N/A

Distance to residential area, if 2 miles or less:

N/A

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

0.3

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

N/A

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

N/A

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

EPA

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
NY	738003

II. SITE NAME AND LOCATION

01 SITE NAME (Legal, common, or descriptive name of site)	02 STREET, ROUTE NO., OR SPECIFIC LOCATION IDENTIFIER
VOLNEY LANDFILL	SILK RD

03 CITY	04 STATE	05 ZIP CODE	06 COUNTY	07 COUNTY CODE	08 CONG DIST
VOLNEY	NY	13069	OSWEGO	75	30

09 COORDINATES: LATITUDE 43° 21' 33.6" | LONGITUDE 76° 22' 36.0"

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

III. INSPECTION INFORMATION

01 DATE OF INSPECTION	02 SITE STATUS	03 YEARS OF OPERATION
4 / 26 / 83 (MONTH DAY YEAR)	☑ ACTIVE ☐ INACTIVE	1968 (BEGINNING YEAR) – _____ (ENDING YEAR) ____ UNKNOWN

04 AGENCY PERFORMING INSPECTION (Check all that apply):
☐ A. EPA ☐ B. EPA CONTRACTOR Dames + Moore ☐ C. MUNICIPAL ☐ D. MUNICIPAL CONTRACTOR _____ (Name of firm)
☐ E. STATE ☒ F. STATE CONTRACTOR Engineering - Science (Name of firm) ☐ G. OTHER _____ (Specify)

05 CHIEF INSPECTOR	06 TITLE	07 ORGANIZATION	08 TELEPHONE NO.
JOHN KUBAREWICZ	PROJECT ENGINEER	ES	703 591-7575
09 OTHER INSPECTORS	10 TITLE	11 ORGANIZATION	12 TELEPHONE NO.
ART SEANOR	GEOLOGIST	DAMES + MOORE	617 338 2572
			( )
			( )
			( )
			( )

13 SITE REPRESENTATIVES INTERVIEWED	14 TITLE	15 ADDRESS	16 TELEPHONE NO
LEON COLE			(315) 349-3700
ROBERT SHEARER	GROUND WATER MANAGER	VOLNEY	(315) 349-3200
			( )
			( )
			( )
			( )

17 ACCESS GAINED BY (Check one)	18 TIME OF INSPECTION	19 WEATHER CONDITIONS
☑ PERMISSION ☐ WARRANT	12:00	CLEAR, SUNNY, BREEZY (VIEWED FROM FENCE)

IV. INFORMATION AVAILABLE FROM

01 CONTACT	02 OF (Agency/Organization)	03 TELEPHONE NO.
JOHN KUBAREWICZ	ENGINEERING - SCIENCE	(703) 591-7575

04 PERSON RESPONSIBLE FOR SITE INSPECTION FORM	05 AGENCY	06 ORGANIZATION	07 TELEPHONE NO.	08 DATE
				5 / 18 / 83 (MONTH DAY YEAR)

EPA FORM 2070-13 (7-81)

EPA

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

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
NY	738003

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 8000

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	UNKNOWN		TOLUENE, BROMOFORM
PSD	PESTICIDES			
OCC	OTHER ORGANIC CHEMICALS			
IOC	INORGANIC CHEMICALS			
ACD	ACIDS			
BAS	BASES			
MES	HEAVY METALS			

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

01 CATEGORY	02 SUBSTANCE NAME	03 CAS NUMBER	04 STORAGE/DISPOSAL METHOD	05 CONCENTRATION	06 MEASURE OF CONCENTRATION
SOL	BENZENE	71-43-2	DR	40	PPb
SOL	METHYLENE CHLORIDE	999	DR	25-1700	PPb
SOL	BROMOFORM	999	DR	23	PPb
SOL	TOLUENE	108-88-3	DR	200-760	PPb
OCC	TRICHLOROETHYLENE	79-01-6	DR	8	PPb
OCC	NAPHTHALENE	91-20-3	DR	120	PPb
OCC	TETRACHOROETHYLENE	999	DR	20	PPb
MES	ZINC	999	DR	8.9	PPM
MES	LEAD	999	DR	.04-.13	PPM
OCC	PHENOLS	108952	DR	.01-.13	PPM
MES	MERCURY	7439-97-6	DR	2.0	PPM
OCC	PCB	1336-36-3	DR	1	PPb
OCC	DICHLORETHYLENE	999	DR	110	PPb
OCC	CHLOROFORM	67-66-3	DR	450	PPb

V. FEEDSTOCKS (See Appendix for CAS Numbers)

CATEGORY	01 FEEDSTOCK NAME	02 CAS NUMBER	CATEGORY	01 FEEDSTOCK NAME	02 CAS NUMBER
FDS	MERCURY	7439-97-6	FDS		
FDS			FDS		
FDS			FDS		
FDS			FDS		

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

NYS DOH LABORATORY ANALYSIS 1/14/79 6/13/79 6/13/79 5/2/79 10/7/80
" " 11/14/78
" NYSDOH MEMO LAB ANAIYSIS JULY 30/82
STREAM, WELL

EPA

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

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
NY	738003

II. HAZARDOUS CONDITIONS AND INCIDENTS

01 ☑ A. GROUNDWATER CONTAMINATION — 02 ☑ OBSERVED (DATE: 5/10/80) ☐ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ 04 NARRATIVE DESCRIPTION
CHEMICALS FOUND IN PRIVATE WELL AND SEVERAL TEST WELLS INDICATE GROUNDWATER CONTAMINATION

01 ☑ B. SURFACE WATER CONTAMINATION — 02 ☑ OBSERVED (DATE: 5/82) ☐ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ 04 NARRATIVE DESCRIPTION
SURFACE WATER DRAINAGE CARRIES CONTAMINATED LEACHATE BELL CREEK SAMPLING INDICATED ORGANIC CONTAMNATION

01 ☐ C. CONTAMINATION OF AIR — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ 04 NARRATIVE DESCRIPTION
NONE OBSERVED

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

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

01 ☑ F. CONTAMINATION OF SOIL — 02 ☐ OBSERVED (DATE: _____) ☑ POTENTIAL ☐ ALLEGED
03 AREA POTENTIALLY AFFECTED: _____ (Acres) 04 NARRATIVE DESCRIPTION
No available information but potential since wastes migrating offsite

01 ☑ G. DRINKING WATER CONTAMINATION — 02 ☑ OBSERVED (DATE: 7/81) ☐ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ 04 NARRATIVE DESCRIPTION
HIGH LEAD CONTENT AND ORGANICS IN PRIVATE DRINKING WELLS

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

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

EPA

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

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
NY	738003

II. HAZARDOUS CONDITIONS AND INCIDENTS (Continued)

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

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

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

01 ☒ M. UNSTABLE CONTAINMENT OF WASTES (Spills/Runoff/Standing liquids, Leaking drums) — 02 ☒ OBSERVED (DATE: _____) — ☐ POTENTIAL — ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____
04 NARRATIVE DESCRIPTION
LEACHATE MOVING OFFSITE INTO NEAR BY WELLS, STREAMS, DITCHES

01 ☒ N. DAMAGE TO OFFSITE PROPERTY — 02 ☒ OBSERVED (DATE: 5/10/80) — ☐ POTENTIAL — ☐ ALLEGED
04 NARRATIVE DESCRIPTION
CONTAMINATION OF OFFSITE DRINKING WATER WELLS

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

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

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

III. TOTAL POPULATION POTENTIALLY AFFECTED: _____

IV. COMMENTS

V. SOURCES OF INFORMATION (Cite specific references, e. g., state files, sample analysis, reports)
DOH + DEC FILES
DOH MEMO 11/20/78 TO HELFGOTT FROM McCARTHY

EPA FORM 2070-13 (7-81)

EPA

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

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
NY	738003

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) 360	Y38507			APPLIED 1978
☐ 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	8000	DR
☐ G. LANDFARM		
☐ H. OPEN DUMP		
☐ I. OTHER (Specify)		

04 TREATMENT (Check all that apply)

- ☐ A. INCINERATION
- ☐ B. UNDERGROUND INJECTION
- ☐ C. CHEMICAL/PHYSICAL
- ☐ D. BIOLOGICAL
- ☐ E. WASTE OIL PROCESSING
- ☐ F. SOLVENT RECOVERY
- ☐ G. OTHER RECYCLING/RECOVERY
- ☐ H. OTHER (Specify)

05 OTHER

- ☑ A. BUILDINGS ON SITE

06 AREA OF SITE

58 (Acres)

07 COMMENTS

8000 DRUMS BURIED IN LANDFILL (FROM PAS)

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.

BERMS AROUNDSITE, HOWEVER GROUNDWATER CONTAMINATION OF PRIVATE WELLS.

V. ACCESSIBILITY

01 WASTE EASILY ACCESSIBLE: ☐ YES ☑ NO

02 COMMENTS CHAIN LINK FENCE AROUND ENTIRE SITE.

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

SITE INSPECTION
EPA SITE INSPECTION REPORT

EPA

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

I. IDENTIFICATION
01 STATE: NY | 02 SITE NUMBER: 738003

II. DRINKING WATER SUPPLY

01 TYPE OF DRINKING SUPPLY (Check as applicable)	SURFACE	WELL	02 STATUS: ENDANGERED	AFFECTED	MONITORED	03 DISTANCE TO SITE
COMMUNITY	A. ☐	B. ☑	A. ☐	B. ☐	C. ☐	A. _____ (mi)
NON-COMMUNITY	C. ☐	D. ☐	D. ☐	E. ☐	F. ☐	B. _____ (mi)

III. GROUNDWATER

01 GROUNDWATER USE IN VICINITY (Check one)

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

02 POPULATION SERVED BY GROUND WATER _____ 03 DISTANCE TO NEAREST DRINKING WATER WELL _____ (mi)

04 DEPTH TO GROUNDWATER	05 DIRECTION OF GROUNDWATER FLOW	06 DEPTH TO AQUIFER OF CONCERN	07 POTENTIAL YIELD OF AQUIFER	08 SOLE SOURCE AQUIFER
27'-5' (ft)	_____	_____ (ft)	_____ (gpd)	☐ YES ☐ NO

09 DESCRIPTION OF WELLS (Including useage, depth, and location relative to population and buildings)
MONITORING WELLS LOCATED IN CORNERS OF LANDFILLS (SHALLOW)
DRINKING-WATER WELLS IN NEARBY RESIDENCES (MOST <30' DEEP)

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

IV. SURFACE WATER

01 SURFACE WATER USE (Check one)

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

02 AFFECTED/POTENTIALLY AFFECTED BODIES OF WATER

NAME:	AFFECTED	DISTANCE TO SITE
BELL CREEK	☑	.01 (mi)
UNNAMED TUBUTARY TO BLACK CREEK	☐	.7 (mi)
BLACK CREEK	☐	3.3 (mi)

V. DEMOGRAPHIC AND PROPERTY INFORMATION

01 TOTAL POPULATION WITHIN

ONE (1) MILE OF SITE A. 160 NO. OF PERSONS
TWO (2) MILES OF SITE B. 935 NO. OF PERSONS
THREE (3) MILES OF SITE C. 10,000 NO. OF PERSONS

02 DISTANCE TO NEAREST POPULATION: 1000' (mi)

03 NUMBER OF BUILDINGS WITHIN TWO (2) MILES OF SITE: 77

04 DISTANCE TO NEAREST OFF-SITE BUILDING: 1000' (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)

EPA

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

I. IDENTIFICATION
01 STATE: NY | 02 SITE NUMBER: 738003

VI. ENVIRONMENTAL INFORMATION

01 PERMEABILITY OF UNSATURATED ZONE (Check one)

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

02 PERMEABILITY OF BEDROCK (Check one)

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

03 DEPTH TO BEDROCK	04 DEPTH OF CONTAMINATED SOIL ZONE	05 SOIL pH
745 (ft)	? 0.5 (ft)	3.6 TO 6.0

06 NET PRECIPITATION	07 ONE YEAR 24 HOUR RAINFALL	08 SLOPE: SITE SLOPE	DIRECTION OF SITE SLOPE	TERRAIN AVERAGE SLOPE
6 (in)	2.3 (in)	7.8 %	EAST	16.4 %

09 FLOOD POTENTIAL
SITE IS IN 7500 YEAR FLOODPLAIN

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

11 DISTANCE TO WETLANDS (5 acre minimum)
ESTUARINE: A. _____ (mi)
OTHER: B. 0.1 (mi)

12 DISTANCE TO CRITICAL HABITAT (of endangered species)
0.1 (mi)
ENDANGERED SPECIES: PEREGRINE FALCON, GOLDEN EAGLE

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. _____ (mi)	B. _____ (mi)	C. _____ (mi)	D. 0.3 (mi)

14 DESCRIPTION OF SITE IN RELATION TO SURROUNDING TOPOGRAPHY

SITE IS A FORMER GRAVEL PIT, BORDERED ON THE EAST BY BELL CREEK

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

USGS

EPA

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

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
NY	738003

II. SAMPLES TAKEN

SAMPLE TYPE	01 NUMBER OF SAMPLES TAKEN	02 SAMPLES SENT TO	03 ESTIMATED DATE RESULTS AVAILABLE
GROUNDWATER			
SURFACE WATER			
WASTE			
AIR			
RUNOFF			
SPILL			
SOIL			
VEGETATION			
OTHER			

III. FIELD MEASUREMENTS TAKEN

01 TYPE	02 COMMENTS

IV. PHOTOGRAPHS AND MAPS

01 TYPE ☑ GROUND ☐ AERIAL

02 IN CUSTODY OF D+M OFFICE
(Name of organization or individual)

03 MAPS ☑ YES ☐ NO

04 LOCATION OF MAPS D+M OFFICE

V. OTHER FIELD DATA COLLECTED (Provide narrative description)

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

EPA

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

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
NY	738003

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

II. CURRENT OWNER(S)				PARENT COMPANY (If applicable)			
01 NAME: OSWEGO COUNTY		02 D+B NUMBER:		08 NAME:		09 D+B NUMBER:	
03 STREET ADDRESS (P.O. Box, RFD #, etc.): EAST BRIDGE ST		04 SIC CODE:		10 STREET ADDRESS (P.O. Box, RFD #, etc.):		11 SIC CODE:	
05 CITY: OSWEGO	06 STATE: NY	07 ZIP CODE: 13126		12 CITY:	13 STATE:	14 ZIP CODE:	
01 NAME:		02 D+B NUMBER:		08 NAME:		09 D+B NUMBER:	
03 STREET ADDRESS (P.O. Box, RFD #, etc.):		04 SIC CODE:		10 STREET ADDRESS (P.O. Box, RFD #, etc.):		11 SIC CODE:	
05 CITY:	06 STATE:	07 ZIP CODE:		12 CITY:	13 STATE:	14 ZIP CODE:	
01 NAME:		02 D+B NUMBER:		08 NAME:		09 D+B NUMBER:	
03 STREET ADDRESS (P.O. Box, RFD #, etc.):		04 SIC CODE:		10 STREET ADDRESS (P.O. Box, RFD #, etc.):		11 SIC CODE:	
05 CITY:	06 STATE:	07 ZIP CODE:		12 CITY:	13 STATE:	14 ZIP CODE:	
01 NAME:		02 D+B NUMBER:		08 NAME:		09 D+B NUMBER:	
03 STREET ADDRESS (P.O. Box, RFD #, etc.):		04 SIC CODE:		10 STREET ADDRESS (P.O. Box, RFD #, etc.):		11 SIC CODE:	
05 CITY:	06 STATE:	07 ZIP CODE:		12 CITY:	13 STATE:	14 ZIP CODE:	

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

III. PREVIOUS OWNER(S)			IV. REALTY OWNER(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:
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)

NYS TAX RECORDS

EPA

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

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
NY	738003

II. CURRENT OPERATOR (Provide 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
OSWEGO COUNTY		EAST BRIDGE ST		OSWEGO	NY	13126	1975 -	OSWEGO COUNTY

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
UNKNOWN							1960-75	

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

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

State History
NYSDEC

EPA

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

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
NY	738003

II. ON-SITE GENERATOR

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

III. OFF-SITE GENERATOR(S)

01 NAME	02 D+B NUMBER	01 NAME	02 D+B NUMBER
UNKNOWN			
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
PAS CLOTHIER			
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)

SAME

EPA

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

I. IDENTIFICATION

01 STATE: NY | 02 SITE NUMBER: 738003

II. PAST RESPONSE ACTIVITIES

01 ☑ A. WATER SUPPLY CLOSED — 02 DATE 4/79 — 03 AGENCY
04 DESCRIPTION: PRIVATE WELLS UNFIT FOR DRWKING

01 ☐ B. TEMPORARY WATER SUPPLY PROVIDED — 02 DATE — 03 AGENCY
04 DESCRIPTION: NO

01 ☐ C. PERMANENT WATER SUPPLY PROVIDED — 02 DATE — 03 AGENCY
04 DESCRIPTION: NO

01 ☐ D. SPILLED MATERIAL REMOVED — 02 DATE — 03 AGENCY
04 DESCRIPTION: NO

01 ☐ E. CONTAMINATED SOIL REMOVED — 02 DATE — 03 AGENCY
04 DESCRIPTION: NO

01 ☐ F. WASTE REPACKAGED — 02 DATE — 03 AGENCY
04 DESCRIPTION: NO

01 ☐ G. WASTE DISPOSED ELSEWHERE — 02 DATE — 03 AGENCY
04 DESCRIPTION: NO

01 ☐ H. ON SITE BURIAL — 02 DATE — 03 AGENCY
04 DESCRIPTION: NO

01 ☐ I. IN SITU CHEMICAL TREATMENT — 02 DATE — 03 AGENCY
04 DESCRIPTION: NO

01 ☐ J. IN SITU BIOLOGICAL TREATMENT — 02 DATE — 03 AGENCY
04 DESCRIPTION: NO

01 ☐ K. IN SITU PHYSICAL TREATMENT — 02 DATE — 03 AGENCY
04 DESCRIPTION: NO

01 ☐ L. ENCAPSULATION — 02 DATE — 03 AGENCY
04 DESCRIPTION: NO

01 ☐ M. EMERGENCY WASTE TREATMENT — 02 DATE — 03 AGENCY
04 DESCRIPTION: NO

01 ☐ N. CUTOFF WALLS — 02 DATE — 03 AGENCY
04 DESCRIPTION: NO

01 ☐ O. EMERGENCY DIKING/SURFACE WATER DIVERSION — 02 DATE — 03 AGENCY
04 DESCRIPTION: NO

01 ☐ P. CUTOFF TRENCHES/SUMP — 02 DATE — 03 AGENCY
04 DESCRIPTION: NO

01 ☐ Q. SUBSURFACE CUTOFF WALL — 02 DATE — 03 AGENCY
04 DESCRIPTION: NO

EPA

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

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
NY	738003

II PAST RESPONSE ACTIVITIES (Continued)

01 ☐ R. BARRIER WALLS CONSTRUCTED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
NO

01 ☐ S. CAPPING/COVERING — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
NO

01 ☐ T. BULK TANKAGE REPAIRED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
NO

01 ☐ U. GROUT CURTAIN CONSTRUCTED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
NO

01 ☐ V. BOTTOM SEALED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
NO

01 ☐ W. GAS CONTROL — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
NO

01 ☐ X. FIRE CONTROL — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
NO

01 ☐ Y. LEACHATE TREATMENT — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
NO

01 ☐ Z. AREA EVACUATED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
NO

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

01 ☐ 2. POPULATION RELOCATED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
NO

01 ☐ 3. OTHER REMEDIAL ACTIVITIES — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
LEACHATE COLLECTED AT NORTH END OF LANDFILL
TREATMENT SYSTEM BUILT

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

INVESTIGATIVE REPORT 'OSWEGO VALLEY SANITARY LAND-FILL FEB 11 1980

EPA

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

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
NY	738003

II. ENFORCEMENT INFORMATION

01 PAST REGULATORY/ENFORCEMENT ACTION ☑ YES ☐ NO

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

1979 - DEC ENTERED INTO A CONSENT ORDER WITH OSWEGO COUNTY TO MONITOR AND CONTROL LEACHING. (CASE NO. 7-0170) AND EVALUATE LEACHATE TREATMENT AND DEVELOP A CLOSURE PLANE.

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

CONSENT ORDER NYSDEC MAY 14, 1979

EPA

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

I. IDENTIFICATION
01 STATE: NY | 02 SITE NUMBER: 738023

II. SITE NAME AND LOCATION

01 SITE NAME (Legal, common, or descriptive name of site)	02 STREET, ROUTE NO., OR SPECIFIC LOCATION IDENTIFIER				
VOLNEY LANDFILL	SILK ROAD				
03 CITY	04 STATE	05 ZIP CODE	06 COUNTY	07 COUNTY CODE	08 CONG DIST
VOLNEY	NY	13069	OSWEGO	75	30
09 COORDINATES LATITUDE: 43° 2' 23.6"	LONGITUDE: 76° 22' 36"				

10 DIRECTIONS TO SITE (Starting from nearest public road): On Silk Road, signs posted

III. RESPONSIBLE PARTIES

01 OWNER (If known)	02 STREET (Business, mailing, residential)		
OSWEGO COUNTY	EAST BRIDGE ST		
03 CITY	04 STATE	05 ZIP CODE	06 TELEPHONE NUMBER
OSWEGO	NY		(315) 349-3442
07 OPERATOR (If known and different from owner)	08 STREET (Business, mailing, residential)		
SAME			
09 CITY	10 STATE	11 ZIP CODE	12 TELEPHONE NUMBER
			( )

13 TYPE OF OWNERSHIP (Check one)
☐ A. PRIVATE ☐ B. FEDERAL: _____ (Agency name) ☐ C. STATE ☑ D. COUNTY ☐ E. MUNICIPAL
☐ F. OTHER: _____ (Specify) ☐ G. UNKNOWN

14 OWNER/OPERATOR NOTIFICATION ON FILE (Check all that apply)
☐ A. RCRA 3001 DATE RECEIVED: ___/___/___ (MONTH DAY YEAR) ☐ B. UNCONTROLLED WASTE SITE (CERCLA 103 c) DATE RECEIVED: ___/___/___ (MONTH DAY YEAR) ☐ C. NONE

IV. CHARACTERIZATION OF POTENTIAL HAZARD

01 ON SITE INSPECTION
☐ YES DATE 4/26/83 (MONTH DAY YEAR)
☑ NO
FROM ROAD

BY (Check all that apply)
☐ A. EPA ☑ B. EPA CONTRACTOR ☐ C. STATE ☐ D. OTHER CONTRACTOR
☐ E. LOCAL HEALTH OFFICIAL ☐ F. OTHER: _____
CONTRACTOR NAME(S): ENGINEERING-SCIENCE (Specify), DAMES+MOORE

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

03 YEARS OF OPERATION
1968 (BEGINNING YEAR) — (ENDING YEAR) ☐ UNKNOWN

04 DESCRIPTION OF SUBSTANCES POSSIBLY PRESENT, KNOWN, OR ALLEGED
ORGANIC SOLVENTS, BENZENE, METHYLENE CHLORIDE, TOLUENE METALS, PHENOL, PCB

05 DESCRIPTION OF POTENTIAL HAZARD TO ENVIRONMENT AND/OR POPULATION
PAS BURIED 8000 DRUMS ONSITE. METALS AND ORGANIC CONTAMINATION FOUND IN PRIVATE AND MONITORING WELLS AND SURFACE WATER. UNDER CONSENT ORDER TO TREAT LEACHATE AND CLOSE LANDFILL.

V. PRIORITY ASSESSMENT

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

VI. INFORMATION AVAILABLE FROM

01 CONTACT	02 OF (Agency/Organization)		03 TELEPHONE NUMBER
JOHN KUBAREWICZ	ES		(703) 591-7535
04 PERSON RESPONSIBLE FOR ASSESSMENT	05 AGENCY	06 ORGANIZATION	07 TELEPHONE NUMBER / 08 DATE
			( ) / 5 22 83 (MONTH DAY YEAR)

EPA FORM 2070-12 (7-81)

EPA

POTENTIAL HAZARDOUS WASTE SITE
PRELIMINARY ASSESSMENT
PART 2 - WASTE INFORMATION

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
NY	738003

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 8000

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	UNKNOWN		TOLUENE, BROMOFORM
PSD	PESTICIDES			
OCC	OTHER ORGANIC CHEMICALS			
IOC	INORGANIC CHEMICALS			
ACD	ACIDS			
BAS	BASES			
MES	HEAVY METALS			

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

01 CATEGORY	02 SUBSTANCE NAME	03 CAS NUMBER	04 STORAGE/DISPOSAL METHOD	05 CONCENTRATION	06 MEASURE OF CONCENTRATION
SOL	BENZENE	71-43-2	DR	40	PPb
SOL	METHLENE CHLOIDE	999	DR	25-1700	PPb
SOL	BROMOFORM	999	DR	23	PPb
SOL	TOLUENE	108-88-3	DR	200-760	PPb
OCC	TRICHLOROETHYLENE	79-01-6	DR	8	PPb
OCC	NAPHTHALENE	91-20-3	DR	120	PPb
OCC	TETRACHORDETHYLENE	999	DR	20	PPb
MES	ZINC	999	DR	8.9	PPM
MES	LEAD	999	DR	.04-.13	PPM
OCC	PHENOLS	108 952	DR	.01-.13	PPM
MES	MERCURY	7439-97-6	DR	2.0	PPM
OCC	PCB	1336-36-3	DR	1	PPb
OCC	DICHLORETHYLENE	999	DR	110	PPb
OCC	CHLOROFORM	67-66-3	DR	450	PPb

V. FEEDSTOCKS (See Appendix for CAS Numbers)

CATEGORY	01 FEEDSTOCK NAME	02 CAS NUMBER	CATEGORY	01 FEEDSTOCK NAME	02 CAS NUMBER
FDS	MERCURY	7439-97-6	FDS		
FDS			FDS		
FDS			FDS		
FDS			FDS		

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

NYS DOH LABORATORY · ANALYSIS 1/14/79 6/13/79 6/13/79 5/2/79
" 10/7/80 11/14/78

NYS DOH MEMO LAB ANALYSIS JULY 30/82 STREAM, WELL

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

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
NY	738003

II. HAZARDOUS CONDITIONS AND INCIDENTS

01 ☒ A. GROUNDWATER CONTAMINATION — 02 ☒ OBSERVED (DATE: 5/10/80) ☐ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ 04 NARRATIVE DESCRIPTION
CHEMICALS FOUND IN PRIVATE WELL AND SEVERAL TEST WELLS INDICATE GROUNDWATER CONTAMINATION

01 ☒ B. SURFACE WATER CONTAMINATION — 02 ☒ OBSERVED (DATE: 3/82) ☐ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ 04 NARRATIVE DESCRIPTION
SURFACE WATER DRAINAGE CARRIES CONTAMINATED LEACHATE BELL CREEK SAMPLING INDICATED ORGANIC CONTAMINATION

01 ☐ C. CONTAMINATION OF AIR — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ 04 NARRATIVE DESCRIPTION
NONE OBSERVED

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

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

01 ☒ F. CONTAMINATION OF SOIL — 02 ☐ OBSERVED (DATE: _____) ☒ POTENTIAL ☐ ALLEGED
03 AREA POTENTIALLY AFFECTED: _____ (Acres) 04 NARRATIVE DESCRIPTION
NO AVAILABLE INFORMATION BUT POTENTIAL SINCE WASTES ARE MIGRATING

01 ☒ G. DRINKING WATER CONTAMINATION — 02 ☒ OBSERVED (DATE: 7/81) ☐ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ 04 NARRATIVE DESCRIPTION
HIGH LEAD CONTENT AND ORGANICS IN PRIVATE DRINKING WELLS

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

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

EPA FORM 2070-12 (7-81)

EPA

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

I. IDENTIFICATION
01 STATE: NY | 02 SITE NUMBER: 738003

II. HAZARDOUS CONDITIONS AND INCIDENTS (Continued)

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

POTENTIAL DUE TO MIGRATION

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

POTENTIAL DUE TO MIGRATION

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

POTENTIAL DUE TO MIGRATION

01 ☑ M. UNSTABLE CONTAINMENT OF WASTES (Spills/runoff/standing liquids/leaking drums) — 02 ☑ OBSERVED (DATE: _____) — ☑ POTENTIAL — ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ — 04 NARRATIVE DESCRIPTION

LEACHATE MOVING OFFSITE INTO NEAR BY WELLS, STREAMS, DETCHES

01 ☑ N. DAMAGE TO OFFSITE PROPERTY — 02 ☑ OBSERVED (DATE: 5/10/90) — ☐ POTENTIAL — ☐ ALLEGED
04 NARRATIVE DESCRIPTION

CONTAMINATION OF NEARBY PRIVATE DRINKING WATER WELLS

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

NOT OBSERVED

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

UNKNOWN

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

III. TOTAL POPULATION POTENTIALLY AFFECTED: _____

IV. COMMENTS

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

DOH + DEC FILES
DOH MEMO 11/20/78 TO HELGOTT FROM McCARTHY

SECTION IV

SITE HISTORY

Volney Landfill

The Volney Landfill, also referred to as the Oswego County Sanitary Landfill, was purchased by Oswego County in 1975-76. Prior to that time it was privately owned and served Granby, Volney and Fulton. Originally, this location was the site of a sand and gravel pit.

The landfill is operated by the Oswego Valley Solid Refuse Disposal District and serves several communities and industrial establishments. A population of about 34,000 people is served, but more than 80 percent of the waste processed are industrial, according to a CNY Solid Waste Management Report prepared by M. Pirnie (1971). An Investigation Report prepared by L.R. Moriarty in February 1980 however, states that "The landfill started in 1968 handles municipal refuse only." In any event, various sources indicate that the previous owners (prior to acquisition by the County) with the consent of NYSDEC agreed to accept a certain quantity of barreled waste from Pollution Abatement Services (PAS). By the time this practice was terminated, some 8,000 barrels of waste had been disposed of at the landfill.

Apparently, the agreement with PAS was that the only waste to be contained in the barrels was inert sludge. It seems that a number of barrels broke open or leaked during disposal and that workers at the site were of the opinion that industrial chemicals may have been contained in at least some of the barrels.

At some sebsequent point concern arose that leachate from the landfill may be transporting hazardous chemicals into groundwater and possibly surface waters.

In 1979, NYSDEC and Oswego County entered into a consent order under which a program of groundwater monitoring and leachate treatment

was to be carried out. Also a final closure plan was to be developed. DEC agreed to sample leachate from the landfill for toxic substances, and the site was targeted for high priority work as part of the Oswego County/USGS groundwater contamination study.

The 1980 report referred to above alleges that chemicals found in at least one private well and in test wells indicate that contamination is moving outward from the landfill.

SECTION V

SUMMARY OF AVAILABLE DATA

Volney Landfill

Regional Geology and Hydrology

The site is located in the Erie-Ontario lowlands physiographic province. The bedrock of this region consists of sedimentary rocks of varying lithologies. Most of the rocks are deep aquifers with regional flow to the south.

In the recent past, most of New York State, including the site, has been repeatedly covered by a series of continental ice sheets. The activity of the glacier widened preexisting valleys and deposited widespread accumulations of till. In addition, distinct drumlin fields were formed in many parts of the region. The melting of ice, ending approximately 12,000 years ago, produced large volumes of meltwater; this water subsequently shaped channels and deposited locally thick accumulations of stratified, granular sediments.

As glacial ice retreated from the region, meltwater formed lakes in front of the ice margin. This region is covered by lake sediments, the most recent being from Lake Iroquois (a larger predecessor to Lake Ontario) and from Lake Tonawanda (an elongate lake which occupied an east-west valley and drained north into Lake Iroquois). The sediments consist of blanket silt,sand and beach ridges, which are occasionally underlain by lacustrine silts and clays (indicating quiet, deeper water deposition).

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

Site Geology

The site geology is known from a hydrogeological investigation performed by the State University Research Center and USGS (including 15 on-site borings), USGS topographic maps, and NYS Musuem and Science Service Bedrock Geology Maps. Bedrock underlying the site is expected to be sandstone (Queenston/Medina unit); the bedrock surface is located at a depth greater than 50 feet. Above the bedrock surface is a dense till layer, which forms drumlin features visible from the ground surface. A fine-grained to medium-grained lacustrine sand covers the irregular till surface. This sand blanket has a variable thickness, filling the valleys between the drumlins with a greater thickness than the tops of the drumlins. Above the relatively horizontal sand surface is a layer of sand and gravel, deposited as wave-washed shoreline deposits.

Site Hydrology

The site hydrology is based on a hydrogeological investigation performed by the State University Research Center and the USGS. There are two aquifers on the site. A shallow aquifer exists in the granular soils above the irregular till layer. The high permeability of the soils and proximity to Bell Creek and to a tributary to Black Creek facilitate rapid movement of groundwater through the aquifer and discharge into these surface water bodies. The water table of this shallow aquifer is therefore at a depth coinciding approximately to the top of the till. Groundwater movement in this aquifer is parallel to buried topography of the till surface; movement may be toward the east, south-southeast, and west-southwest.

A deep aquifer exists in the sandstone bedrock and is separated from the shallow aquifer by the till layer. Movement of groundwater in the deep aquifer has not been studied.

Sampling and Analysis

A large number of surface and groundwater samples have been taken at and in the immediate vicinity of the Volney Landfill. An investigation in 1978 included stream sampling at the landfill and

groundwater sampling at several private drinking wells (McCarthy, 1978). Sampling locations are shown on Figure V-1. Bromoform, bromodichloromethane, and dibromochloromethane were found in the Kernfien well. Stream samples were not analyzed for organics. Subsequent analysis in 1979-1980 (Branagh, 1981) found benzene, bromoform, methylene chloride, and dichloroethane at wells on the Kerfien, Stevens and Coakly properties. In addition, leachate samples taken at the landfill leachate cistern and southeast monitoring wells (NYSDOH, 1979) showed low levels of phenols, trichloroethylene, PCB and tetrachloroethylene (1-20 ppb).

NYSDOH sampling in 1980 and 1981 at private drinking wells is summarized in Table V-1. As shown, organic chemicals including benzene, toluene, and carbon tetrachloride were detected at six private wells.

Figure V-2 shows the location of samples taken at Volney Landfill in 1982, while analytical results are summarized in Table V-2. Complete details of the results are contained in Appendix A. As shown, lead, BHC (industrial insecticide) and phenols were detected in surface water samples while toluene, naphthalene, MEK, arsenic and lead were detected in the groundwater.

Extensive on-site leachate and groundwater monitoring data is presented in Appendix A.

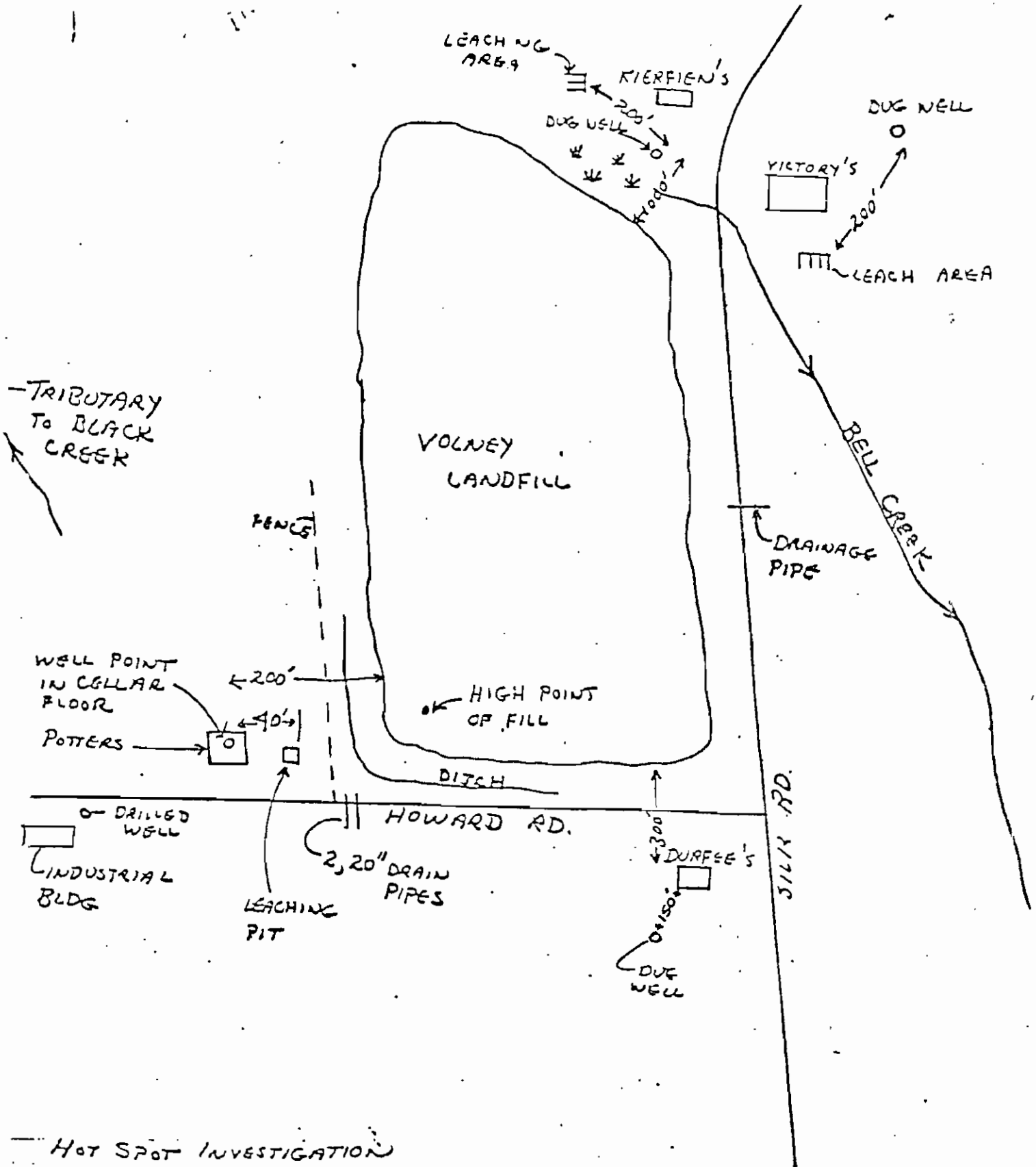


FIGURE V-1 Sampling Locations at Volney Landfill ~~1978~~ (McCarthy 1978)

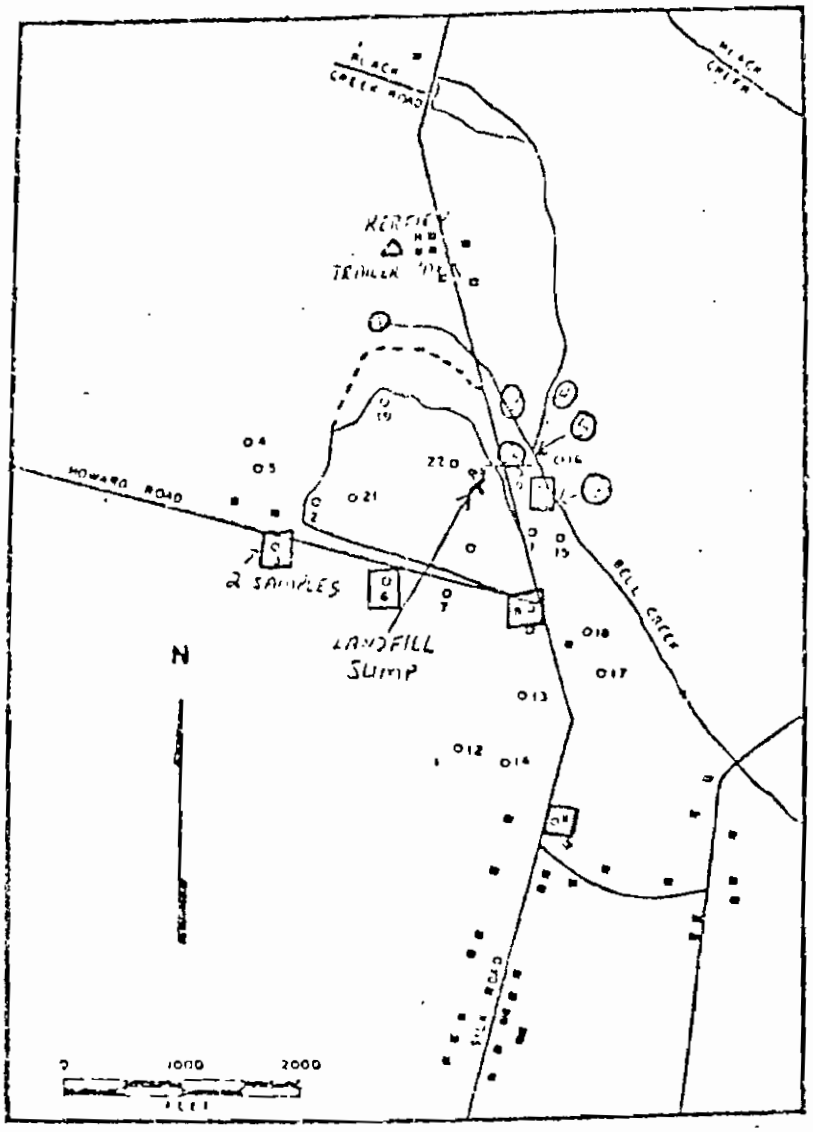
TABLE V-1

SUMMARY OF NYSDOH ANALYTICAL DATA
Volney Landfill Vicinity 1980-1981 (NYSDOH 1980-82)

Parameter (ppb)	Stevens (1/13/81)	Coakley (1/13/81)	Durfic (1/14/81)	Durant 10/29/80	Potter	Niagara Mohawk (10/7/80)
Benzene	40	5	10	BDL	10	BDL
Chloroform	BDL*	BDL	BDL	BDL	BDL	34
Dibromochloromethane	BDL	BDL	BDL	BDL	BDL	2
Bromodichloromethane	BDL	BDL	BDL	BDL	BDL	6
Carbon Tetrachloride	BDL	BDL	BDL	2	BDL	BDL
Toluene	BDL	BDL	BDL	BDL	200	

*Below Detectable Limits

FIGURE V-2
Sampling Locations Volney Landfill-1982
(Heerkens, 1982)



KEY - ○ Location of stream sample

□ USGS test well sample

× Volney Landfill sump

△ Kerfien Trailer Park drilled well (raw water)

TABLE V-2

SUMMARY OF NYSDEC ANALYTICAL DATA
VOLNEY LANDFILL AND VICINITY 1982 (Heerkins, 1982)

Parameter (ppb)	Sample Location: Stream 6	Culvert 2	Stream 4	Well 3A	Well 3B	Well 6	Well 10	Sump
Chloroethane	--	--	--	--	--	28	--	58
Ethylbenzene	--	--	--	--	--	16	10	73
Toluene	--	--	--	140	--	40	15	740
Naphthalene	--	--	--	120	--	--	--	-----
BHC	.002	.003	--	0.18	0.11	--	--	-----
Phenol	--	13	11	48	--	23	53	1400
MEK	--	940	--	1,100	--	--	--	5,200
Cyanide	--	--	--	18	--	--	--	-----
Arsenic	--	--	--	--	--	--	12	-----
Chromium	--	--	--	--	8	--	--	48
Lead	90	40	13	--	--	--	40	68

SECTION VI

ASSESSMENT OF ADEQUACY OF DATA

Site: Volney Landfill

HRS Data Requirement	Comments on Data
Observed Release	
Ground Water	Data available, adequate for HRS evaluation.
Surface Water	Data available, adequate for HRS evaluation.
Air	No available data, field data collection recommended.
Route Characteristics	
Ground Water	Data available, adequate for HRS evaluation.
Surface Water	Data available, adequate for HRS evaluation.
Air	Data available, adequate for HRS evaluation.
Containment	Information available, adequate for HRS evaluation.
Waste Characteristics	Information available, adequate for HRS evaluation.
Targets	Information available, adequtae for HRS evaluation.
Observed Incident	Information available revealed no report of incident. No further investigation recommended.
Accessibility	Adequate information available.

SECTION VII

PHASE II WORK PLAN

Site: Volney Landfill

Objectives

The objectives of the Phase II activities are:

- To collect additional field data necessary to complete the HRS scoring.
- To perform a conceptual evaluation of remedial alternatives and estimate budgetary costs for the most likely alternative.
- To prepare a site investigation report.

The additional field data required to complete the HRS are defined as follows:

Air - An air monitoring survey with an OVA meter is recommended to check the air quality above the surface of the site.

TASK DESCRIPTION

The proposed Phase II tasks are described in Table VII-1.

COST ESTIMATE

The estimated manhours required for the Phase II project are presented in Table VII-2 and the estimated project costs by tasks are presented in Table VII-3. The cost for performing the Phase II project is $6937.

TABLE VII-1
PHASE II WORK PLAN - TASK DESCRIPTION
Site: Volney Landfill

Tasks		Description of Task
TASK		
II-A	Update Work Plan	Review the information in the Phase I report, conduct a site visit, and revise the Phase II work plan.
II-B	Conduct Geophysical studies	No further studies necessary.
II-C	Conduct Boring/Install Install Monitoring Wells	No further installation of monitoring wells necessary.
II-D	Construct Test Pits/ Auger Holes	No further construction of test pits/auger holes necessary.
II-E	Perform Sampling and Analysis	
	Soil samples from borings	No further sampling necessary.
	Soil samples from surface soils	No further sampling necessary.
	Soil samples from test pits and auger holes	No further sampling necessary.
	Sediment samples from surface water	No further sampling necessary.
	Ground-water samples	No further sampling necessary.
	Surface water samples	No further sampling necessary.
	Air samples	Using the OVA, determine the presence of organics.
	Waste samples	No further sampling necessary.
II-F	Calculate Final HRS	Based on the field data collected in Tasks IIB - IIE, complete the HRS form.
II-G	Conduct Site Assessment	Prepare final report containing Phase I report, additional field data, final HRS and HRS documentation records, and site assessments. The site assessment will consist of a conceptual evaluation of alternatives and a preliminary cost estimate of the most probable alternative.
II-H	Project Management	Project coordination, administration and reporting.

TABLE VII-2
PERSONNEL RESOURCES BY TASK
PHASE II HRS SITE INVESTIGATION (SITE: VOLNEY LANDFILL)

TASK DESCRIPTION	TEAM MEMBERS, MANHOURS													
	PIC	TRB	PM	OPM	PCM	QAM	HSM	FTL	FT	RAAL	RAAT	SS	TOTAL HOURS	TOTAL $
II-A UPDATE WORK PLAN	1		4	1			1	2		6		8	23	376.8
II-B CONDUCT GEOPHYSICAL STUDIES													0	0
II-C CONDUCT BORING/INSTALL MONITORING WELLS													0	0
II-D CONSTRUCT TEST PITS/AUGER HOLES													0	0
II-E PERFORM SAMPLING AND ANALYSIS														
SOIL SAMPLES FROM BORINGS													0	0
SOIL SAMPLES FROM SURFACE SOILS													0	0
SOIL SAMPLES FROM TEST PITS AND AUGER HOLES													0	0
SEDIMENT SAMPLES FROM SURFCE WATER													0	0
GROUND-WATER SAMPLES													0	0
SURFACE WATER SAMPLES													0	0
AIR SAMPLES			1					1	8			2	12	135.66
WASTE SAMPLES													0	0
II-F CALCULATE FINAL HRS			2	2				2	6			8	20	262.7
II G CONDUCT SITE ASSESSMENT	1	2	4	2				4	8	6	24	32	83	1029.44
II H PROJECT MANAGEMENT	2		6	2			2					8	20	369.16
TOTALS	4	2	17	7	0	0	3	9	22	12	24	58	158	2171.76

TABLE VII-3
COST ESTIMATE BREAKDOWN BY TASK
PHASE II HRS SITE INVESTIGATION (SITE: VOLNEY LANDFILL)

TASK DESCRIPTION	DIRECT LABOR HOURS	DIRECT LABOR COST	OTHER DIRECT COSTS (ODC), $ LAB ANALYSIS	TRAVEL AND SUBSISTANCE	SUPPLIES	EQUIP. CHARGES	SUBCON-TRACTORS	MISC.	SUBTOTAL ODC	TOTAL ($)
II-A UPDATE WORK PLAN	23	376.8		100	50	50		25	225	601.8
II-B CONDUCT GEOPHYSICAL STUDIES									0	0
II-C CONDUCT BORING/INSTALL MONITORING WELLS									0	0
II-D CONSTRUCT TEST PITS/AUGER HOLES									0	0
II-E PERFORM SAMPLING AND ANALYSIS										
SOIL SAMPLES FROM BORINGS									0	0
SOIL SAMPLES FROM SURFACE SOILS									0	0
SOIL SAMPLES FROM TEST PITS AND AUGER HOLES									0	0
SEDIMENT SAMPLES FROM SURFACE WATER									0	0
GROUND-WATER SAMPLES									0	0
SURFACE WATER SAMPLES									0	0
AIR SAMPLES	12	133.66		85	25	15		5	130	263.66
WASTE SAMPLES									0	0
II-F CALCULATE FINAL HRS	20	262.7			50	50		25	125	387.7
II-G CONDUCT SITE ASSESSMENT	83	1029.44			100	200		75	375	1404.44
II-H PROJECT MANAGEMENT	20	369.16		150	150	50		50	400	769.16
TOTALS	158	2171.76	0	335	375	365	0	180	1255	3426.76

OVERHEAD =	3101.27
SUBTOTAL =	6528.00
FEE =	408.66
TOTAL PROJECT COST =	6936.66

APPENDIX A

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APPENDIX A

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Volney Landfill (cont.)

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Wolterding, Dennis (1979) Senior Eng., Geologist, NYSDEC. Memo to Cheruvu Sastry, Senior Sanitary Eng., NYSDEC. September 24, 1979.

Armstrong Cork Company; NY 000 3344
Volney (T), Oswego County
Results of Oswego County Landfill Leachate Analyses (Sampled 5/17/79)

Parameter	Detectability Needed (ug/l)	Detectable Limit (ug/l)	BPT (ug/l)	Raw Leachate (ug/l)	BPT % Removal	Combined Effluent* Conc. (ug/l)	Combined Effluent* Mass (lbs/day)	Potential Water Quality Limit (ug/l) Aquatic	Potential Water Quality Limit (ug/l) Drinking
✓Aluminum	<5	20	2000	4,200	52	10.84	0.350		1,000
Arsenic		1	50	<10	0	0.02	0.0008		--
Barium		500	2000	800	0	2.08	0.067		1,000
Beryllium		30	1000	<10	0	0.02	0.0008		--
Cadmium		10	100	10.0	0	0.02	0.0008		300.**
Chrome, total		50	500	<50	0	0.12	0.004		1,000
Chrome, hex		20	50	<50	0	0.12	0.004		50
Copper		10	400	20.0	0	0.06	0.002		200.**
✓Zinc		10	500	12,000	96	31.0	1.001		300.**
✓Iron	OK	50	2000	720,000	99.7	1,859	60.048		300
Lead		10	200	60.0	0	0.15	0.005		25
✓Manganese	OK	50	1000	97,000	99	250.65	8.090		300
✓Mercury	OK	0.1	50	300.0	83	0.77	0.025		0.2
Selenium		5	50	<1	0	N/A	0.0001		20
Silver		20	50	<10	0	0.02	0.0008		0.1
/Nickel	<2	50	1000	1,110	10	2.88	0.093		25
✓TKN		--		1,430 (mg/l)		3,687	119.		--
✓TOC		--		12,900 (mg/l)		33,307	1,075.		--
✓TSS		--		360,000		929	30.0		--
✓Ammonia		10		840,000		2,170	70.1		2,000**
✓BOD_5		--		23,000 (mg/l)		59 mg/l	1918.2		--
✓COD-M		--		31,100 (mg/l)		80 mg/l	2593.7		--
Cyanide, complexed		50	400	<100	0	0.25	0.008		400
✓Cyanide, free	<2	20	50	2,700	98	6.97	0.225		5
Cyanide, total		50		2,700		6.97	0.225		405
✓Oil & Grease		--		130,000		335.92	10.842		--
✓Phenol	OK	1.0	500	3,400	85	8.80	0.284		5** 5
✓pH		--		6.3		--	--		--
Settleable Solids		--		<100		--	--		--
Sulfur		20	1000	100.0	0	0.25	0.008		--
Benzene		0.01		<110		0.28	0.009		Not detectable 1.0
Toluene		0.01		1,100		2.85	0.092	0.1	-- 50
Mirex		0.1		<0.1		N/A	0.0000	0.001	0.001
PCB		0.1	1.0	<0.1	0	N/A	0.0000		0.001 0.1
Total Chlorinated Hydrocarbons (as aldrin)		10		<0.5		N/A	0.0000		--
Volatile Halogenated organics		10		68		0.19	0.006		--

Parameter	Detectable Limit (ug/l)	Raw Leachate (ug/l)	Combined Effluent* Conc. (ug/l)	Combined Effluent* Mass (lbs/day)	Potential Water Quality Limit (ug/l) Aquatic	Drinking
dichloro Bromomethane	0.01	<4	N/A	0.0003	—	
Carbontetrachloride	0.01	<4	N/A	0.0003	5.0	5
✓Bromoform	0.01	16	0.03	0.001	--	
Chloroform	0.01	<4	N/A	0.0003	10.0	2/100 raw/ --treated
dibromochloromethane	0.01	12	0.03	0.001		
dichloroethane	0.01	<4	N/A	0.0003	—	50
1,1,1, Trichloroethane	0.01	<4	N/A	0.0003	—	50
✓trichloroethylene	0.01	<4	N/A	0.0003	10	5
tetrachloroethylene	0.01	40.0	N/A	0.003	—	2

* Assuming leachate flow of 0.01 MGD and process effluent 3.86 MGD, process effluent zero conc.

** Existing final limit part 700, all others proposed standards

N/A Combined conc. <10 ppt (0.01 ug/l)

15(12/75)

New York State Department of Environmental Conservation

File

MEMORANDUM

TO: Norman H. Nosenchuck
FROM: Earl Barcomb
SUBJECT: Commissioner's note dated June 27, 1979 Re: Oswego LF

DATE: June 29, 1979

1. Can we use EFC in Oswego LF issue?

   No. The engineer retained by the County is Barton, Brown, Clyde and Loguidice (BBC&L). BBC&L is aware of the problems involved and has recently (6/17/79) furnished the Department with information that we requested on direction of leachate flow, condition of groundwater monitoring wells, quantity & quality of sludges disposed on site and evaluation of the existing leachate handling method (spray irrigation) and an evaluation of leachate handling alternatives (i.e. Haul to Armstrong Treatment Plant).

2. How about PAS problem?

   PAS' problem should be resolved once BBC&L's recommendations have been implemented. Eight thousand barrels of unknown waste (could contain phenols and chlorinated hydrocarbons) from Pollution Abatement Services (the now defunct chemical waste firm) were buried at the Oswego LF in 1974. Other industrial wastes that have been deposited at the site include Armstrong Cork sludge (asbestos & phenols) and Miller Brewery sludge (basically a dewatered organic sludge).

Background Information

Mr. Potter (a landowner adjoining the Oswego LF) has initiated a million dollar law suit against the County because he felt that his well was contaminated by the Oswego LF. NYSDOH investigated and found or concluded that the well was contaminated by leachate and a nearby septic system (the well was an unsealed, dug well within 50' of septic system). NYSDEC consent order which County (BBC&L) responded to on 6/15/79 was entered into on 5/14/79. A condition of the consent order also included submission of a closure plan. Oswego LF is proposed for closure as soon as new site is ready. We anticipate receipt of an application for the new site within the next 30 days or so. The County has obtained an option to buy the proposed site through a local realtor. The site is a 400 acre farm in the Bristoll Hill area located off County Rt. 3 in the Town of Volney. Information on the proposed site location hit the newspapers last week.

LETTER OF TRANSMITTAL

BARTON BROWN CLYDE & LOGUIDICE, P. C.
CONSULTING ENGINEERS & LAND SURVEYORS

290 ELWOOD DAVIS ROAD
LIVERPOOL, NEW YORK 13088
315/457-5200

DATE	JOB NO.
6/15/79	132.19

ATTENTION Larry Gross P.E

RE: Consent Order Report

TO New York State DEC Regional Office, Henry Clay Blvd Liverpool, N.Y. 13088

RECEIVED
JUN 15 1979
DEPT. ENVIRONMENTAL CONSERVATION, SYRACUSE

GENTLEMEN:

WE ARE SENDING YOU ☐ Attached ☐ Under separate cover via ____ the following items:

☐ Shop drawings ☐ Prints ☐ Plans ☐ Samples ☐ Specifications

☐ Copy of letter ☐ Change order ☐ ____

COPIES	DATE	NO.	DESCRIPTION
1	6/15		Consent Order Report

THESE ARE TRANSMITTED as checked below:

☐ For approval ☐ Approved as submitted ☐ Resubmit ____ copies for approval

☐ For your use ☐ Approved as noted ☐ Submit ____ copies for distribution

☐ As requested ☐ Returned for corrections ☐ Return ____ corrected prints

☐ For review and comment ☐ ____

☐ FOR BIDS DUE ____ 19____ ☐ PRINTS RETURNED AFTER LOAN TO US

REMARKS Addendum on water quality testing and conclusions thereof will follow.

COPY TO Arthur Ospelt

SIGNED: Paul F Dudden

If enclosures are not as noted, kindly notify us at once.

REPORT TO ANSWER CONSENT ORDER

RELATIVE TO OSWEGO VALLEY SANITARY LANDFILL

between

COUNTY OF OSWEGO

and

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

FOR OSWEGO COUNTY DEPARTMENT OF PUBLIC WORKS

by

BARTON BROWN CLYDE & LOGUIDICE, P.C.

290 ELWOOD DAVIS ROAD

LIVERPOOL, NEW YORK 13088

The following responses are in numerical and letter identification as set forth in the consent order.

1. As to groundwater monitoring studies:

   a) Attachment A is a site plan showing the on-site monitoring wells which are functional. Of the wells which are not functional, it was agreed with Mr. Gross of DEC on 4/26/79 that the middle well on the Silk Road side is not required because of coverage provided by the other wells on that side. The other two non-functional wells will be cleaned and made to be functional, or replaced.

ATTACHMENT C

PRELIMINARY RESULTS OF LEACHATE ANALYSIS AND PREVIOUS RESULTS

Client: BBCL

File No. 1146.091.517 Page

Date Received 5-17-79 By

Sample Identification	Sample No.	AL	AS	BA	BE	CD	CR	CR-HEX	CU	ZN	FE	PB	MI
Leachate Sump	82833	4.2		0.8	<0.01	0.01	<0.01		0.02	12.	720.	0.06	9:
		HG	SE	AG	NI	TKN	TOC	TSS	NH3N	BOD5	COD-M	CN-C	CN-
	82833			<0.01	1.11			360.	840.			<0.1	2.:
		CN	O&G	PH	PHENOL	SETTS	S	BENZENE	TOLUENE	MIREX	TVO	VHO	PC
	82833	2.7		6.3	3.4								
		CHP											
	82833												

Copies

P. O. Box 8025A • Orlando, Florida 32806 • 305/424-5606

Report to: Barton, Brown, Clyde & Loguidice

Appearance: Yellowish

Date: April 19, 1973

Sampled by: Client

Report Number: 7072-2

Identification: #2- Leachate from cork sludge near operating face.

METHODS

This water was analyzed according to "Standard Methods for the Examination of Water and Wastewater," Latest Edition, APHA, AWWA and WPCF.

RESULTS

Determination	p.p.m.	Determination	p.p.m.
Total Dissolved Solids, @ 105°C.	7,420	Total Hardness, as $CaCO_3$	3,162
Phenolphthalein Alkalinity, as $CaCO_3$	0	Calcium Hardness, as $CaCO_3$	1,010
Total Alkalinity, as $CaCO_3$	3,275	Magnesium Hardness, as $CaCO_3$	2,152
Carbonate Alkalinity, as $CaCO_3$	0	Calcium, as Ca	404
Bicarbonate Alkalinity, as $CaCO_3$	3,275	Magnesium, as Mg	523
Carbonates, as CO_3	0	Sodium, as Na	516
Bicarbonates, as HCO_3	3,996	Iron, as Fe	138.1
Hydroxides, as OH	0	Manganese, as Mn	67.2
Carbon Dioxide, as CO_2	—	Copper, as Cu	0
Chloride, as Cl	495	Silica, as SiO_2	20
Sulfate, as SO_4	81	Color, Standard Platinum Cobalt Scale	875
Fluoride, as F	1.5	Odor Threshold	190
Phosphate, as PO_4	3.3	Turbidity, Jackson Units	320
pH (Laboratory)	6.5		
pHs	—		
Stability Index	—		
Saturation Index	—		

Signed: Gene Shelton

Chemist

(To convert ppm to grains per gallon, divide ppm by 17.1 – p.p.m. = mg/l)

P. O. Box 8025A • Orlando, Florida 32806 • 305/424-5606

Report to: Barton, Brown, Clyde & Loguidice

Appearance: Yellowish

Date: April 19, 1973

Sampled by: Client

Report Number: 7072-1

Identification: #1- Stream Nearest Road

METHODS

This water was analyzed according to "Standard Methods for the Examination of Water and Wastewater," Latest Edition, APHA, AWWA and WPCF.

RESULTS

Determination	p.p.m.	Determination	p.p.m.
Total Dissolved Solids, @ 105°C.	3,045	Total Hardness, as $CaCO_3$	4,518
Phenolphthalein Alkalinity, as $CaCO_3$	0	Calcium Hardness, as $CaCO_3$	684
Total Alkalinity, as $CaCO_3$	1,480	Magnesium Hardness, as $CaCO_3$	834
Carbonate Alkalinity, as $CaCO_3$	0	Calcium, as Ca	274
Bicarbonate Alkalinity, as $CaCO_3$	1,480	Magnesium, as Mg	203
Carbonates, as CO_3	0	Sodium, as Na	228
Bicarbonates, as HCO_3	1,806	Iron, as Fe	41.3
Hydroxides, as OH	0	Manganese, as Mn	27.4
Carbon Dioxide, as CO_2	445	Copper, as Cu	0
Chloride, as Cl	186	Silica, as SiO_2	9
Sulfate, as SO_4	43	Color, Standard Platinum Cobalt Scale	550
Fluoride, as F	0.8	Odor Threshold	75
Phosphate, as PO_4	1.7	Turbidity, Jackson Units	270
pH (Laboratory)	6.9		
pHs	5.5		
Stability Index	4.1		
Saturation Index	1.4		

Signed: Gene Eglinton

Chemist

(To convert ppm to grains per gallon, divide ppm by 17.1 – p.p.m. = mg/l)

ATTACHMENT D

EXISTING SLUDGE QUANTITIES

ATTACHMENT D

EXISTING SLUDGE QUANTITIES

Miller Brewing Co.	-	42,500 TPY	1.16×10^6 CF/yr.
Armstrong Cork Co.	-	25,900 TPY	0.76×10^6 CF/yr.
TOTAL	=	68,400 TPY	1.92×10^6 CF/yr.

Miller's Percent Solids Range:

40% - Grab Sample Test

50% - Miller Scale Weights

Armstrong's Percent Solids:

33% - Grab Sample Test

DEC 7-1 (5/76)
Formerly CA-4

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

TRANSMITTAL SLIP

FROM: JIM SANFORD, REMEDIATION SECTION, HAZARDOUS WASTE
C. BRAUCH, REGION 7

DATE: 5-19-81

FOR ACTION AS INDICATED:

- ☐ Please Handle
- ☐ Prepare Reply
- ☐ Prepare Reply for _____ Signature
- ☐ Information
- ☐ Approval
- ☐ Prepare final/draft in _____ Copies
- ☐ Comments
- ☐ Signature
- ☐ File
- ☐ Return to me
- ☐ _____
- ☐ _____

Road, Town of Volney in July 1980 along with a map indicating sampling locations.

This set of results contains new sampling locations and new sampling parameters at all the old locations. For those reasons, we would like to suggest a meeting between the DEC, the County, and possibly the State or County Health Department to review the results. It may prove beneficial to establish such a quarterly meeting as standard procedure to make sure that all parties are up-to-date on the groundwater quality in the area.

In general, the sampling results were comparable to previous results. In particular, there are some tests, most of which are new with no comparison data, which warrant particular attention. Since a retest is scheduled for early October, that retest will also confirm whether a potential problem is simply a bad test result or a valid parameter.

File: (PAS) Volney LF

00-17-1 (5/76)
Formerly GA-4

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

TRANSMITTAL SLIP

TO: ROBERT McCARTY, HAZARDOUS WASTE REMEDIATION SECTION

FROM: C. DEANGH, REGION 7 — DATE: 4-27-81

RE:

I am trying to get more detailed information from this study (logs, sample analyses) to use for the pre-superfund study by EPA.

FOR ACTION AS INDICATED:

- ☐ Please Handle
- ☐ Prepare Reply
- ☐ Prepare Reply for _____ Signature
- ☐ Information
- ☐ Approval
- ☐ Prepare final/draft in _____ Copies
- ☐ Comments
- ☐ Signature
- ☐ File
- ☐ Return to me
- ☐ _____
- ☐ _____

RECEIVED
APR 29 1981
BUREAU OF HAZARDOUS WASTE
DIVISION OF SOLID WASTE

The study summarized in this report began in August, 1980, and the following have been accomplished:

1) the Volney landfill and main PAS sites have been mapped at a scale of 1:10,300 (see Figures 2 & 3)

2) the following number of groundwater monitoring wells have been drilled:

a. Main PAS Site	17
b. Volney Landfill	23
c. Byer Road Site	1
d. Holbrook Site	3
e. Fulton Municipal Well Field	4
f. Mexico Warehouse	1
Total	49

3) detailed priority pollutant analyses have been conducted from water and sediment samples collected at the following locations:

a. Main PAS Site
b. Volney Landfill Site

PROJECT HISTORY

Oswego County received a total of 14,250 dollars as part of the Central New York Regional Planning and Development Board (CNYRPDB) USEPA 208 Ground Water Study. In addition, the following funds were committed to accomplish the objectives of the study:

- Oswego County provided approximately 65,000 dollars;
- State University of New York at Oswego contributed about 9,500 dollars; and
- the U.S.G.S. provided more than 90,000 dollars toward the study; excluding funds devoted to the surficial geological mapping of the county, which was a separate U.S.G.S./County project ($40,000).

Total project funding, therefore, amounted to more than 175,000 dollars to be utilized over a 26-month period to accomplish study objectives.

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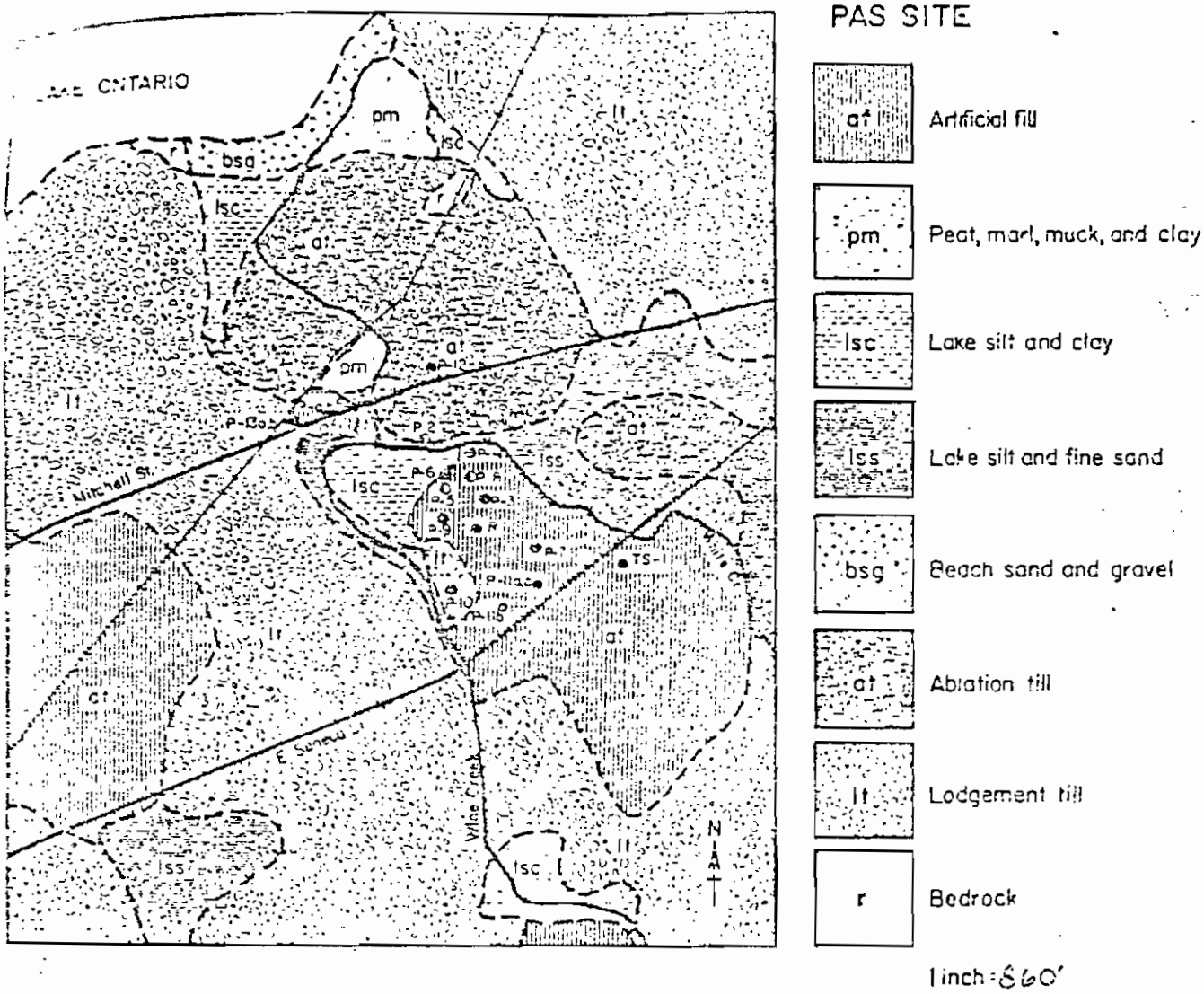

Figure 2. Surficial geology and drill hole locations of the main PAS site, Oswego, New York.

RESULTS OF EXAMINATION
(PAGE 1 OF 1)

AB ACCESSION NO: 00812 YR/MO/DAY/HR SAMPLE REC'D: 79/06/14/08

REPORTING LAB: 17 EHC ALBANY
PROGRAM: 510 MONITORING AND SURVEILLANCE
TATION (SOURCE) NO:
DRAINAGE BASIN: 07 NY GAZETTEER NO: 3768 COUNTY: OSWEGO
COORDINATES: DEG ' "N, DEG ' "W
OMMON NAME INCL SUBW'SHED: OSWEGO VALLEY LANDFILL VOLNEY

EXACT SAMPLING POINT: MONITORING WELL SOUTHWEST CORNER
TYPE OF SAMPLE: 24 LEACHATE
O/DAY/HR OF SAMPLING: FROM 00/00 TO 00/13/11
REPORT SENT TO: CO (1) RO (2) LPHE (1) LHO (0) FED (0) CHEM (0)

PARAMETER		UNIT	RESULT	NOTATION
023009	1,1,1-TRICHLOROETHANE	MCG/L	5.	LT
36009	CARBON TETRACHLORIDE	MCG/L	5.	LT
038909	BROMODICHLOROMETHANE	MCG/L	2.	LT
039009	CHLOROFORM	MCG/L	5.	LT
41109	TRICHLOROETHYLENE	MCG/L	20.	
041209	TETRACHLOROETHYLENE	MCG/L	8.	
42109	BROMOFORM	MCG/L	5.	LT
044909	DIBROMOCHLOROMETHANE	MCG/L	2.	LT
38009	P.C.B., AROCLOR 1016/1242	MCG/L	0.05	LT
38109	P.C.B., AROCLOR 1254	MCG/L	0.05	LT
039809	P.C.B., AROCLOR 1221	MCG/L	0.05	LT
41009	P.C.B., AROCLOR 1260	MCG/L	1.0	
039909	MIREX	MCG/L	0.05	LT

ATE COMPLETED: 2/25/80

N.Y.S. ENVIRONMENTAL CONSERVATION DEPT.
REGION 7, ENVIRONMENTAL QUALITY OFFICE
7481 HENRY CLAY BOULEVARD
LIVERPOOL, N.Y. 13088

SUBMITTED BY: BRANAGH

NEW YORK STATE DEPARTMENT OF HEALTH
DIVISION OF LABORATORIES AND RESEARCH
ENVIRONMENTAL HEALTH CENTER

RESULTS OF EXAMINATION
(PAGE 1 OF 1)

LAB ACCESSION NO: 00812 YR/MO/DAY/HR SAMPLE REC'D: 79/06/14/08

REPORTING LAB: 17 EHC ALBANY
PROGRAM: 510 MONITORING AND SURVEILLANCE
STATION (SOURCE) NO:
DRAINAGE BASIN: 07 NY GAZETTEER NO: 3768 COUNTY: OSWEGO
COORDINATES: DEG ' "N, DEG ' "W
COMMON NAME INCL SUBW'SHED: OSWEGO VALLEY LANDFILL VOLNEY

EXACT SAMPLING POINT: MONITORING WELL SOUTHWEST CORNER
TYPE OF SAMPLE: 24 LEACHATE
MO/DAY/HR OF SAMPLING: FROM 00/00 TO 06/13/11
REPORT SENT TO: CO (1) RO (2) LPHE (1) LHO (0) FED (0) CHEM (0)

	PARAMETER	UNIT	RESULT	NOTATION
023609	1,1,1-TRICHLOROETHANE	MCG/L	5.	LT
036609	CARBON TETRACHLORIDE	MCG/L	5.	LT
038909	BROMODICHLOROMETHANE	MCG/L	2.	LT
039009	CHLOROFORM	MCG/L	5.	LT
041109	TRICHLOROETHYLENE	MCG/L	20.	
041209	TETRACHLOROETHYLENE	MCG/L	8.	
042109	BROMOFORM	MCG/L	5.	LT
044909	DIBROMOCHLOROMETHANE	MCG/L	2.	LT
038009	P.C.B., AROCLOR 1016/1242	MCG/L	0.05	LT
038109	P.C.B., AROCLOR 1254	MCG/L	0.05	LT
039809	P.C.B., AROCLOR 1221	MCG/L	0.05	LT

DATE COMPLETED: 2/21/80

MR.R.MAYLATH,WATER RESOURCE MONIT. SECT.
N.Y.S.DEPT.OF ENVIRONMENTAL CONSERVATION
50 WOLF ROAD
ALBANY, N.Y. 12233

SUBMITTED BY: BRANAGH

STATE DEPARTMENT OF HEALTH
ION OF LABORATORIES AND RESEARCH
ENVIRONMENTAL HEALTH CENTER

RESULTS OF EXAMINATION
(PAGE 1 OF 1)

CESSION NO: 02590 YR/MO/DAY/HR SAMPLE REC'D: 79/06/13/13

REPORTING LAB: 34 SYRACUSE LAB
PROGRAM: 510 MONITORING AND SURVEILLANCE
STATION (SOURCE) NO:
DRAINAGE BASIN: 07 NY GAZETTEER NO: 3768 COUNTY: OSWEGO
COORDINATES: DEG ' "N, DEG ' "W
COMMON NAME INCL SUBW'SHED: OSWEGO VALLEY LANDFILL

EXACT SAMPLING POINT: CISTERN COLLECTION SUMP
TYPE OF SAMPLE: 24 LEACHATE
MO/DAY/HR OF SAMPLING: FROM 00/00 TO 06/13/11
REPORT SENT TO: CO (0) RO (2) LPHE (1) LHO (0) FED (0) CHEM (1)

PARAMETER		UNIT	RESULT	NOTATION
009201	CARBON, ORGANIC (TOC)	MG/L		NA
002901	HYDROLYZABLE CYANIDES	MG/L	.015	SR
002701	PHENOLS	MG/L	5.1	

DATE COMPLETED: 9/11/79

N.Y.S. ENVIRONMENTAL CONSERVATION DEPT.
REGION 7, ENVIRONMENTAL QUALITY OFFICE
731 HENRY CLAY BOULEVARD

CNE GE Doran ...

FILE: Oswego Co. Landfill Volney

0184

NEW YORK STATE DEPARTMENT OF HEALTH
DIVISION OF LABORATORIES AND RESEARCH
ENVIRONMENTAL HEALTH CENTER

RESULTS OF EXAMINATION
(PAGE 1 OF 1)

LAB ACCESSION NO: 00913 YR/MO/DAY/HR SAMPLE REC'D: 79/06/14/08

REPORTING LAB: 17 EHC ALBANY
PROGRAM: 510 MONITORING AND SURVEILLANCE
STATION (SOURCE) NO:
DRAINAGE BASIN: 07 NY GAZETTEER NO: 3768 COUNTY: OSWEGO
COORDINATES: DEG ' "N, DEG ' "W
COMMON NAME INCL SUBW'SHED: OSWEGO VALLEY LANDFILL (T) VOLNEY

EXACT SAMPLING POINT: TRAILER WELL KITCHEN SINK CW TAP
TYPE OF SAMPLE: 12 WATER, DRILLED WELL
MO/DAY/HR OF SAMPLING: FROM 00/00 TO 06/13/11
REPORT SENT TO: CO (1) RO (2) LPHE (1) LHO (0) FED (0) CHEM (0)

PARAMETER		UNIT	RESULT	NOTATION
023609	1,1,1-TRICHLOROETHANE	MCG/L	5.	LT
036609	CARBON TETRACHLORIDE	MCG/L	5.	LT
038909	BROMODICHLOROMETHANE	MCG/L	2.	LT
039009	CHLOROFORM	MCG/L	5.	LT
041109	TRICHLOROETHYLENE	MCG/L	5.	LT
041209	TETRACHLOROETHYLENE	MCG/L	2.	LT
042109	BROMOFORM	MCG/L	5.	LT
044909	DIBROMOCHLOROMETHANE	MCG/L	2.	LT
038009	P.C.B., AROCLOR 1016/1242	MCG/L	0.05	LT
038109	P.C.B., AROCLOR 1254	MCG/L	0.05	LT
039809	P.C.B., AROCLOR 1221	MCG/L	0.05	LT

DATE COMPLETED: 2/06/80

INTER AGENCY
BUREAU OF MONITORING AND SURVEILLANCE
WATER RESOURCES MONITORING SECTION
NYS DEPT. EN. CONS. 50 WOLF RD., ALBANY

SUBMITTED BY: BRANAGH

DIVISION OF LABORATORIES AND RESEARCH
ENVIRONMENTAL HEALTH CENTER

FINAL REPORT FINAL REPORT FINAL REPORT

RESULTS OF EXAMINATION
(PAGE 1 OF 2)

LAB ACCESSION NO: 81669 YR/MO/DAY/HR SAMPLE REC'D: 80/10/30/10

EPORTING LAB: 17 EHC ALBANY
PROGRAM: 106 TOXIC SUBST. MGT.
TATION (SOURCE) NO:
RAINAGE BASIN: 07 NY GAZETTEER NO: 3768 COUNTY: OSWEGO
COORDINATES: DEG ' "N, DEG ' "W
COMMON NAME INCL SUBW'SHED: HAROLD DURANT RES BALDWIN RD VOLNEY

EXACT SAMPLING POINT: CWKT
TYPE OF SAMPLE: 12 WATER, DRILLED WELL
MO/DAY/HR OF SAMPLING: FROM 00/00 TO 10/29/10
REPORT SENT TO: CO (1) RO (2) LPHE (1) LHO (0) FED (0) CHEM (1)

	PARAMETER	UNIT	RESULT	NOTATION
023609	1,1,1-TRICHLOROETHANE	MCG/L	2.	LT
036609	CARBON TETRACHLORIDE	MCG/L	2.	
038909	BROMODICHLOROMETHANE	MCG/L	2.	LT
039009	CHLOROFORM	MCG/L	2.	LT
041109	TRICHLOROETHYLENE	MCG/L	2.	LT
041209	TETRACHLOROETHYLENE	MCG/L	2.	LT
041809	1,1,2 TRI FTRI CL ETHANE	MCG/L	2.	LT
042109	BROMOFORM	MCG/L	2.	LT
044909	DIBROMOCHLOROMETHANE	MCG/L	2.	LT
151309	M,P XYLENE	MCG/L	1.	LT
151409	ORTHO XYLENE	MCG/L	1.	LT
234409	BENZENE	MCG/L	1.	LT
239209	TOLUENE	MCG/L	1.	LT

DATE PRINTED: 1/14/81

REGIONAL DIRECTOR OF P.H. ENGINEERING
NEW YORK STATE DEPARTMENT OF HEALTH
351 SOUTH WARREN STREET
SYRACUSE NEW YORK 13202

SUBMITTED BY: HEERKENS

...E ARTMENT OF HEALTH
...ABORATURIES AND RE...RCH
...ENTAL HEALTH CENTER

RESULTS OF EXAMINATION
(PAGE 1 OF 1)

...O: 80719. YR/MO/DAY/HR SAMPLE REC'D: 80/05/20/12

...G LAB: 17 EHC ALBANY
...AM: 106 TOXIC SUBST. MGT.
...ATION (SOURCE) NO:
DRAINAGE BASIN: 07 NY GAZETTEER NO: 3768 COUNTY: OSWEGO
COORDINATES: DEG ' "N, DEG ' "W
COMMON NAME INCL SUBW'SHED: POTTER RES HOWARD RD VOLNEY

EXACT SAMPLING POINT: CWKT
TYPE OF SAMPLE: 11 WATER, DRIVEN WELL
MO/DAY/HR OF SAMPLING: FROM 00/00 TO 05/19/10
REPORT SENT TO: CO (1) RO (2) LPHE (1) LHO (0) FED (0) CHEM (1)

PARAMETER		UNIT	RESULT	NOTATION
023609	1,1,1-TRICHLOROETHANE	MCG/L	5.	LT
036609	CARBON TETRACHLORIDE	MCG/L	5.	LT
038909	BROMODICHLOROMETHANE	MCG/L	2.	LT
039009	CHLOROFORM	MCG/L	5.	LT
041109	TRICHLOROETHYLENE	MCG/L	5.	LT
041209	TETRACHLOROETHYLENE	MCG/L	2.	LT
042109	BROMOFORM	MCG/L	5.	LT
044909	DIBROMOCHLOROMETHANE	MCG/L	2.	LT
034409	BENZENE	MCG/L	10.	
034509	XYLENES	MCG/L	1.	LT
039209	TOLUENE	MCG/L	200.	

DATE COMPLETED: 6/13/80

REGIONAL DIRECTOR OF P.H. ENGINEERING
NEW YORK STATE DEPARTMENT OF HEALTH
351 SOUTH WARREN STREET
SYRACUSE NEW YORK 13202

SUBMITTED BY: HEERKENS

DIVISION OF LABORATORIES AND RESEARCH
ENVIRONMENTAL HEALTH CENTER
FINAL REPORT

FINAL REPORT

RESULTS OF EXAMINATION
(PAGE 1 OF 2)

LAB ACCESSION NO: 81569 YR/MO/DAY/HR SAMPLE REC'D: 80/10/08/10

REPORTING LAB: 17 EHC ALBANY
PROGRAM: 123
STATION (SOURCE) NO:
DRAINAGE BASIN: 07 NY GAZETTEER NO: 3768 COUNTY: OSWEGO
COORDINATES: DEG ' "N, DEG ' "W
COMMON NAME INCL SUBW'SHED: NIAGARA MOHAWK HOWARD RD VOLNEY

EXACT SAMPLING POINT: RAW WATER TAP
TYPE OF SAMPLE: 12 WATER, DRILLED WELL
YR/DAY/HR OF SAMPLING: FROM 00/00 TO 10/07/14
REPORT SENT TO: CO (1) RO (2) LPHE (1) LHO (0) FED (0) CHEM (1)

PARAMETER		UNIT	RESULT	NOTATION
023609	1,1,1-TRICHLOROETHANE	MCG/L	2.	LT
0 6609	CARBON TETRACHLORIDE	MCG/L	2.	LT
038909	BROMODICHLOROMETHANE	MCG/L	6.	
039009	CHLOROFORM	MCG/L	54.	
0 1109	TRICHLOROETHYLENE	MCG/L	2.	LT
041209	TETRACHLOROETHYLENE	MCG/L	2.	LT
0 1809	1,1,2 TRI FTRI CL ETHANE	MCG/L	2.	LT
042109	BROMOFORM	MCG/L	2.	LT
0 4909	DIBROMOCHLOROMETHANE	MCG/L	2.	
1 1309	M,P XYLENE	MCG/L	1.	LT
151409	ORTHO XYLENE	MCG/L	1.	LT
4409	BENZENE	MCG/L	1.	LT
239209	TOLUENE	MCG/L	1.	LT

DATE PRINTED: 1/14/81

REGIONAL DIRECTOR OF P.H. ENGINEERING
NEW YORK STATE DEPARTMENT OF HEALTH
351 SOUTH WARREN STREET
SYRACUSE NEW YORK 13202

SUBMITTED BY: KEERKENS

ENVIRONMENTAL HEALTH CENTER
FINAL REPORT FINAL REPORT

RESULTS OF EXAMINATION
(PAGE 1 OF 2)

ESSION NO: 10045 YR/MO/DAY/HR SAMPLE REC'D: 81/01/15/08

ORTING LAB: 17 EHC ALBANY
PROGRAM: 106 TOXIC SUBST. MGT.
STATION (SOURCE) NO:
RAINAGE BASIN: 07 NY GAZETTEER NO: 3768 COUNTY: OSWEGO
OORDINATES: DEG ' "N, DEG ' "W
COMMON NAME INCL SUBW'SHED: DURFEE RESIDENCE, VOLNEY

XACT SAMPLING POINT: KIT SINK CWT
TYPE OF SAMPLE: 10 WATER, DUG WELL
MO/DAY/HR OF SAMPLING: FROM 00/00 TO 01/14/11
EPORT SENT TO: CO (1) RO (2) LPHE (1) LHO (0) FED (0) CHEM (1)

PARAMETER		UNIT	RESULT	NOTATION
23609	1,1,1-TRICHLOROETHANE	MCG/L	2.	LT
36609	CARBON TETRACHLORIDE	MCG/L	2.	LT
038909	BROMODICHLOROMETHANE	MCG/L	2.	LT
39009	CHLOROFORM	MCG/L	2.	LT
041109	TRICHLOROETHYLENE	MCG/L	2.	LT
041209	TETRACHLOROETHYLENE	MCG/L	2.	LT
041809	1,1,2 TRI FTRI CL ETHANE	MCG/L	2.	LT
042109	BROMOFORM	MCG/L	2.	LT
044909	DIBROMOCHLOROMETHANE	MCG/L	2.	LT
151309	M,P XYLENE	MCG/L	1.	LT
151409	ORTHO XYLENE	MCG/L	1.	LT
234409	BENZENE	MCG/L	10.	
239209	TOLUENE	MCG/L	1.	LT

DATE PRINTED: 2/04/81

PUBLIC HEALTH ENGINEER
OSWEGO COUNTY HEALTH DEPARTMENT
BUNNER STREET
OSWEGO, N.Y. 13126

SUBMITTED BY: HEERKENS

PARTMENT OF HEALTH
LABORATORIES AND RESEARCH
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FEB 19 1981

RESULTS OF EXAMINATION
(PAGE 1 OF 2)

LAB ACCESSION NO: 10039 YR/MO/DAY/HR SAMPLE REC'D: 81/01/15/09

REPORTING LAB: 17 EHC ALBANY
PROGRAM: 106 TOXIC SUBST. MGT.
STATION (SOURCE) NO:
DRAINAGE BASIN: 07 NY GAZETTEER NO: 3768 COUNTY: OSWEGO
COORDINATES: DEG ' "N; DEG ' "W
COMMON NAME INCL SUBW'SHED: COAKLEY RESIDENCE, VOLNEY

EXACT SAMPLING POINT: KIT SINK CWT
TYPE OF SAMPLE: 10 WATER, DUG WELL
MO/DAY/HR OF SAMPLING: FROM 00/00 TO 01/13/12
REPORT SENT TO: CO (1) RO (2) LPHE (1) LHO (0) FED (0) CHEM (1)

PARAMETER		UNIT	RESULT	NOTATION
023609	1,1,1-TRICHLOROETHANE	MCG/L	2.	LT
036609	CARBON TETRACHLORIDE	MCG/L	2.	LT
038909	BROMODICHLOROMETHANE	MCG/L	2.	LT
039009	CHLOROFORM	MCG/L	2.	LT
041109	TRICHLOROETHYLENE	MCG/L	2.	LT
041209	TETRACHLOROETHYLENE	MCG/L	2.	LT
041809	1,1,2 TRI FTRI CL ETHANE	MCG/L	2.	LT
042109	BROMOFORM	MCG/L	2.	LT
044909	DIBROMOCHLOROMETHANE	MCG/L	2.	LT
151309	M,P XYLENE	MCG/L	1.	LT
151409	ORTHO XYLENE	MCG/L	1.	LT
234409	BENZENE	MCG/L	5.	
239209	TOLUENE	MCG/L	1.	LT

DATE PRINTED: 2/09/81

PUBLIC HEALTH ENGINEER
OSWEGO COUNTY HEALTH DEPARTMENT
BUNNER STREET
OSWEGO, N.Y. 13126

SUBMITTED BY: HEERKENS

NEW YORK STATE DEPARTMENT OF HEALTH
DIVISION OF LABORATORIES AND RESEARCH
ENVIRONMENTAL HEALTH CENTER
FINAL REPORT FINAL REPORT

RESULTS OF EXAMINATION
(PAGE 1 OF 2)

LAB ACCESSION NO: 10040 YR/MO/DAY/HR SAMPLE REC'D: 81/01/15/08

REPORTING LAB: 17 EHC ALBANY
PROGRAM: 106 TOXIC SUBST. MGT.
STATION (SOURCE) NO:
DRAINAGE BASIN: 07 NY GAZETTEER NO: 3768 COUNTY: OSWEGO
COORDINATES: DEG ' "N, DEG ' "W
COMMON NAME INCL SUBW'SHED: STEVENS RESIDENCE, VOLNEY

EXACT SAMPLING POINT: BATHROOM SINK CWT
TYPE OF SAMPLE: 10 WATER, DUG WELL
MO/DAY/HR OF SAMPLING: FROM 00/00 TO 01/13/11
REPORT SENT TO: CO (1) RO (2) LPHE (1) LHO (0) FED (0) CHEM (1)

PARAMETER		UNIT	RESULT	NOTATION
23609	1,1,1-TRICHLOROETHANE	MCG/L	2.	LT
36609	CARBON TETRACHLORIDE	MCG/L	2.	LT
38909	BROMODICHLOROMETHANE	MCG/L	2.	LT
039009	CHLOROFORM	MCG/L	2.	LT
41109	TRICHLOROETHYLENE	MCG/L	2.	LT
41209	TETRACHLOROETHYLENE	MCG/L	2.	LT
41809	1,1,2 TRI FTRI CL ETHANE	MCG/L	2.	LT
42109	BROMOFORM	MCG/L	2.	LT
044909	DIBROMOCHLOROMETHANE	MCG/L	2.	LT
51309	M,P XYLENE	MCG/L	1.	LT
151409	ORTHO XYLENE	MCG/L	1.	LT
34409	BENZENE	MCG/L	40.	
39209	TOLUENE	MCG/L	1.	LT

DATE PRINTED: 2/04/81

PUBLIC HEALTH ENGINEER
OSWEGO COUNTY HEALTH DEPARTMENT
BUNKER STREET
OSWEGO, N.Y. 13126

SUBMITTED BY: HEERKENS

Zack Dobbs
1/18/80

Hazardous Waste Site Dossier

I. Site Name

Volney Landfill
(Also known as Oswego Valley Sanitary Landfill)
Silk Road
Town of Volney
Oswego County, New York

II. Background to Investigation and Sources of Initial Referral

The report is listed in the Department of Environmental Conservation (DEC) Technical Report; Toxic Substances in New York's Environment, and also the Oswego County Water Quality Study Interim Report. (Dr. Ronald J. Scrudato, Director, Research Center).

III. SIte Description

The Volney landfill is owned by Oswego County. It is located at a high point in Oswego County (500 ft) on a known acquifer recharge area. The volney area is also a drainage divide; Black Creek flows to the Oswego River; Bell Creek originates north of the landfill and flows south to the Oneida River.

Approximately 8,000, 55 gallon barrels of waste from Pollution Abatement Services were buried at this site with the approval of the landfill operator, and the Department of Environmental Conservation based on written statements from Mr. Jack Miller, President of PAS.

The United States Geological Services (U.S.G.S.) Eastern Oswego Groundwater Basin Plan (1970), determined that this general area is underlain by a sandstone formation. The overburden appears to be a thin (30 ±) sand and gravel formation with minor ground water developmental. (5gpm to 50 gpm)

The landfill is at final grade in its southern half, i.e. closest to Potter's house, and dumping and covering operations are active in the Northern and Central areas of the landfill.

IV. Allegations of "Imminent Hazard" Pollution

The DEC states that Volney Landfill is considered highest priority only to the extent that leachate from this site, contaminated with toxic chemicals may pose a health threat to groundwater users in the area.

There is a significant leachate problem at this landfill at the present time, which is probably contaminating a well, at the unoccupied Potter property.

There are homes in the area that depend upon wells for their water supply. Five (5) wells very in depth from shallow spring, hand dug to drilled. The proximity is 300 ft to 2,000 ft from the landfill.

NYS Department of Health performed an analysis of six wells near the site in 1978-79. They found chloroform less than 5 mg/l, carbon tetrachloride less than 5 mg/l, trichloroethylene less than 5 mg/l, tetrachloroethylene less than 2 mg/l, 1,1,1 -

trichloroethane less than 5 mg/l, bromoform less than 5 to 24 mg/l, bromodichloromethane less than 2 to 4 mg/l, dibromochloromethane less than 2 to 11 mg/l. (See attachments I) For other parameters see attachment II. For landfill leachate results see attachment III. In addition Potter's well showed Toluene less than 10 mg/l, benezene 10 mg/l, and sewage. (possibly from their spetic tank) (see attachment IV).

They were notified in writing my Mr. James M. McCarthy, NYS Office of Public Health to discontinue use of their well.

Samples collected from 13 wells on the site by the Oswego County Water Quality Study group, under the direction of Dr. Ronald J. Scrudato, showed the following: Toluene 200 mg/l, bromoform 24 mg/l, bromodichloromethane 4mg/l, dibromochloromethane 11 mg/l. (see attachment V)

V. Current Involvement

The DEC is presently negotiating a consent order with Oswego County to monitor and control leachate from this landfill and to eventually close out the landfill operation. The investigation of this site with regard to toxic substances is continuing.

During 1979, DEC entered into the above mentioned consent order with Oswego County on this landfill site. DEC agreed to sample this landfill for toxic substances present in the leachate on the site. The samples were collected in June 1979. These samples are still waiting for analysis due to higher priority work from the Love Canal and other crises around the state.

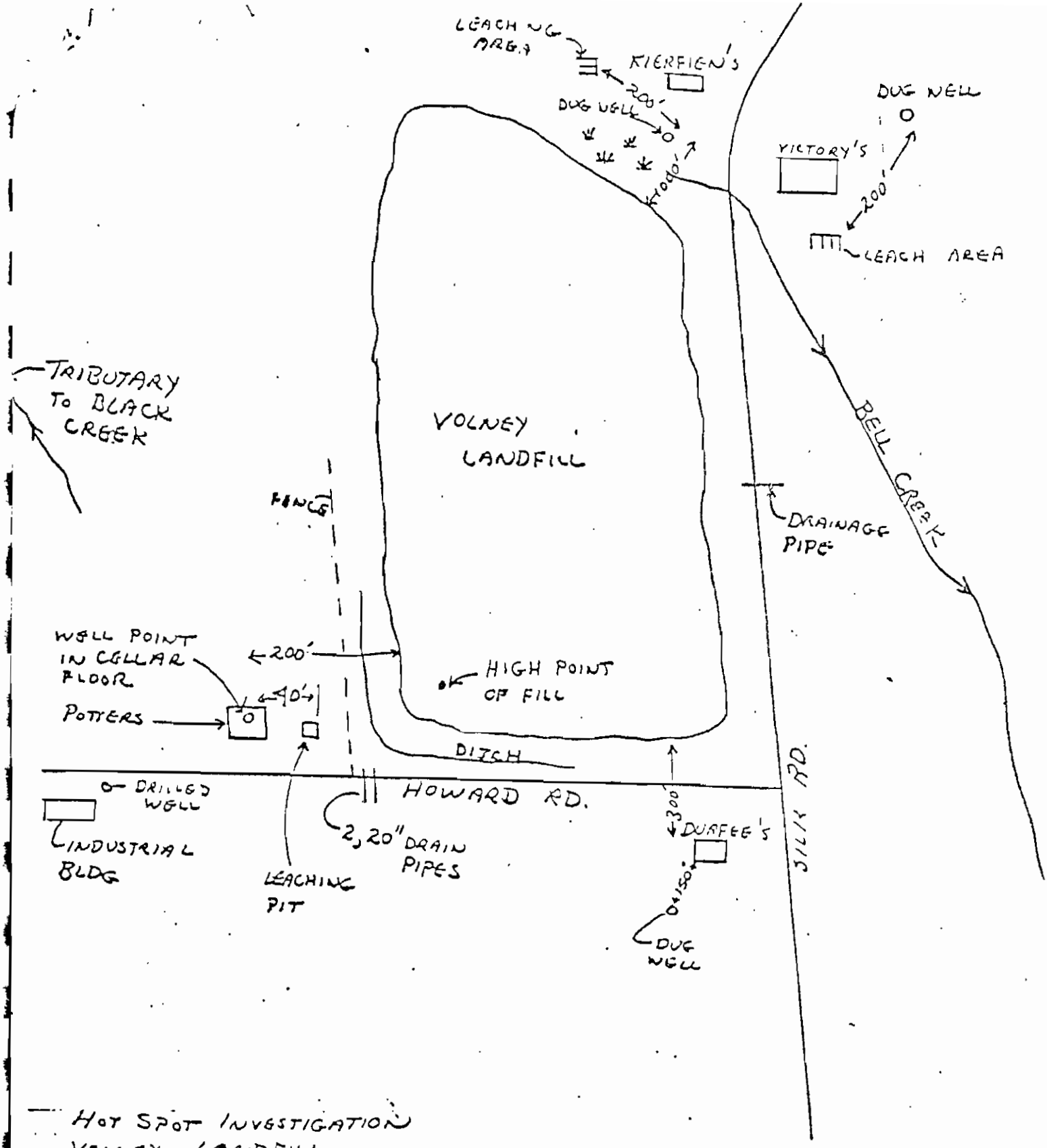
This site has been targeted for high priority work as part of the Oswego County/USGS groundwater contamination study.

In August 1979, the Oswego County Water Quality study was initiated. The primary objective is to determine whether chemical wastes are contributing to contaminants to Oswego County surface and groundwaters. (see attachment VI)

VI. Recommendation

EPA give top priority for a site visit.

That EPA sample this landfill for toxic substances present in the leachate on the site.



Hot Spot Investigation
Volney Landfill
Oswego Co.
11-15-78
C. Branagh

Y38507

Mr. Katell - Rm. 419

Mr. Halton
Mr. Gross
Oswego Valley Landfill

November 16, 1978

We have been receiving a number of complaints from Mr. & Mrs. Howard Potter, regarding the Oswego Valley Landfill. This is to advise you as to the status of this situation.

Mr. & Mrs. Potter own the home on Howard Road, immediately west of the Oswego Valley Landfill. The home has been rented for a number of years, but is currently vacant.

The Potter's allege that the landfill operation has contaminated their private well, and artician springs that are located on the property. In addition, she claims that the landfill authorities have not lived up to a promise made to her to sample her well every six months.

On October 11th, I met with Mr. & Mrs. Potter at their home to review the case. I also inspected the site and their well. While leachate may have contaminated the well, there are some other factors that may be contributing to the contamination.

The well is located in the basement of the home, and appears to be of poor construction. The sides of the well are supported by old barrel staves which still contain metal rings. The metal rings were severly rusted. In addition, looking down into the well, I was able to observe at least one metal beverage container. The well construction was such that the drainage on the floor would have the potential to enter the well.

The sewage disposal system consisted of a septic tank and tile field. The location of the tile field was between the well and the landfill operation and less than 100' from the well.

I examined sample results taken from the Potter well. These were taken by the Oswego County Health Department once in 1976 and 1977. Below is a table of these results:

Parameter	1976 Results	1977 Results
Color	4	1
Chloride	11	37
Hardness	230	400
Alkalinity	161	310
pH	[illegible]	6.6
COD	[illegible]	200
Iron	.05	.16
Manganese	.17	3.9
Coliform	6	46

Mr. Potter stated that at times of heavy rain, runoff from the landfill flooded his property and entered his basement window. A small inadequate drainage ditch was present between the landfill and the Potter home.

On October 17th, I wrote to the Oswego County Department of Public Works requesting that this drainage ditch be improved. In addition, the area adjacent to the Potter residence was at final grade and properly covered, but needed seeding.

On November 13th, Mr. Hanifin inspected the landfill and indicated the drainage ditch was improved. Additional cover material was placed near the Potter residence. Seeding will probably not be successful until next spring.

It is my understanding that the Oswego County Health Department has taken another sample of the well. In addition, Jim McCarthy has sampled a number of other wells in the area. I will advise you when these results are available.

cc: Mr. Gingold
Mr. Katell
Mr. McCarthy
Mr. Hanifin

cc: Mr. David Knowles, Room 411

D o I
FILE: MLNG Prog.
38507

Region 7, Environmental Quality Office
7481 Henry Clay Boulevard, Liverpool, New York 13088

(315) 473-8305

January 9, 1979

Mr. Arthur Ospelt
Superintendent
Oswego County Department of Public Works
County Office Building
Oswego, New York 13126

Re: Oswego Valley Landfill

Dear Mr. Ospelt:

This is to summarize our meeting of Thursday, December 28. Present at the meeting were the following:

Mr. Arthur Ospelt - Oswego County
Mr. Robert Shad - Oswego County
Mr. Leon Coe - Oswego County
Mr. Paul Dudden - Barton, Brown, Clyde & Loguidice
Mr. Larry Gross - D.E.C.
Mr. David Knowles - D.E.C.

The purpose of the meeting was to discuss the current conditions at the Oswego Valley landfill with respect to existing and potential leachate problems. Below is a list of those items suggested as a means of monitoring and controlling any leachate generated from the landfill:

A. Groundwater monitoring study: (By June 15, 1979)

1. Identify all on-site monitoring wells that are useable. Determine which wells, if any, need replacement and submit plans for their replacement.

2. Define the direction of leachate movement.

3. Sample all monitoring wells and residential wells (within 500 feet) of the site in accordance with the December 30, 1975 Approval to Construct a Solid Waste Management Facility.

4. Additional monitoring for other parameters should be sampled for annually. These analyses should include phenols, PCBs, total organic carbon (TOC), total halogenated organics, and cyanide. These analyses will be evaluated each year to determine continued future monitoring needs.

B. Evaluation of leachate treatment (By June 15, 1979).

1. Evaluate the existing leachate collection and treatment method.

2. Evaluate alternate leachate collection and treatment methods.

C. Sludges (By June 15, 1979).

1. Quantify and qualify all sludges being disposed of at the landfill.

2. Evaluate existing and alternate on-site sludge disposal methods.

D. Closure plan (By June 15, 1979).

1. Develop a closure plan which provides for long term leachate management. The closure plan should consider and be based upon estimated leachate flows from a water balance method such as EPA bulletin SW-168 Use of the Water Balance Method for Predicting Leachate Generation from Solid Waste Disposal Sites dated October 1975.

It is hoped that by conducting these evaluations and testing the county will be capable of controlling any potential leachate problems. Would you please review the proposed program and advise us as to their acceptability. If acceptable, we will forward a consent order to you incorporating the above schedule.

Throughout these studies this Department will be available to review all of the data and alternatives that are developed by the county and their consultants.

Thank you for your cooperation in this matter.

Very truly yours,

Larry Gross, P.E.
Regional Solid Waste Engineer

cc: Mr. Paul Dudden
Mr. David Knowles
Mr. Jim McCarthy

cc: Mr. Earl Barcomb, Room 405

Region 7, Environmental Quality Office
7481 Henry Clay Boulevard, Liverpool, New York 13088

(315) 473-8305

August 29, 1979

Mr. Arthur Ospelt
Superintendent
Oswego County Highway Department
County Office Building
Oswego, New York 13126

Dear Mr. Ospelt:

This is to advise you that your application to construct and operate a solid waste management facility in the Town of Volney has been received. A review of that application indicates it is incomplete.

This project is a Type I project under the State Environmental Quality Review Act (SEQRA). Accordingly it will require that an environmental impact statement (EIS) be conducted. The enclosed environmental assessment form may be used to identify any potential impacts and then an EIS may address those items accordingly.

Included with the applications for this project are applications for variances to allow for the disposal of sludges in a quantity greater than 25% of the refuse. Additionally some of those sludges will contain phenols. This office cannot act favorably on that request unless the landfill is designed as a secure land burial site, in accordance with Part 360.3(b)(2).

A more detailed review of this project will be conducted upon receipt of the appropriate environmental assessment form and environmental impact statement.

Very truly yours,

Larry Gross, P.E.
Regional Solid Waste Engineer

Enc
cc: Mr. Paul Dudden
Mr. Earl Barcomb

June 19, 1980

Mr. Howard Potter
3975 Meads Creek Road
Painted Post, New York 14870

Re: Private Water Supply
Volney (T), Oswego County

Dear Mr. Potter:

Attached are the organic chemical results for the samples collected from the driven well at your property in the Town of Volney, Oswego County. The samples were collected after as you stated, the well had been pumped for 24 hours.

The results indicate Benzene at 10 micrograms per liter and Toluene at 200 micrograms per liter. All other parameters analyzed were reported as less than the detectable limit.

Additional results will be forwarded to you as they become available from the laboratory.

Very truly yours,

Ronald Heerkens
Senior Sanitarian

RH:kb
Attach.

Oswego Valley Sanitary Landfill
February 11, 1980

I BACKGROUND

The Oswego Valley Landfill was purchased by Oswego County in 1975-76. Prior to that time, it was privately owned and served the towns of Granby and Volney and the Village of Fulton. The landfill started in 1968 handles municipal refuse only. With the consent of the NYS Department of Environmental Conservation, the earlier operator agreed with Pollution Abatement Services of Oswego to accept 800 barrels of waste. The 800 barrels stretched into 8000 barrels before the fill operator had the attorney representing the landfill owners stop PAS from delivering more barrels.

The landfill is active and continues to receive domestic refuse.

II NATURE OF THE MATERIAL

The agreement among DEC, PAS, and the landfill operators was sludge could be landfilled in containers; however, no phenols or chlorinated material could be in the sludge. Barrels were often broken open and bulldozer operator complained of the strong chemical odors.

III DESCRIPTION OF THE SITE

The area containing the Volney landfill is on a high rise of ground with the Fulton airport south of same. The site is located on Howard and Selk Roads, northeast of Fulton and a little less than two miles north of Rte. 3. It is an active landfill with 400 tons per day of sludge and domestic refuse being deposited on the site. The formation of new cells on top of the fill goes on continually. Such activity will continue to [redacted] than the 20 to 40 feet they are presently buried.

III DESCRIPTION OF SURROUNDING AREA

There are several homes south and west along Selk and Howard Roads respectively with the landfill sloping in their general direction.

Besides the Fulton airport previously mentioned, the area is generally open, farm land with some wooded areas and marshland.

There are two streams in the area: Bells Creek that flows south

to Six Mile Creek, the Barge Canal/Oneida River, the Oswego River, and Lake Ontario. The other is a tributary to Black Creek that flows north to the Oswego River to Lake Ontario. The branch of Black Creek drains the west and north portion of the site while Bells Creek drains the south and east portion of the landfill.

IV GEOLOGY AND GROUNDWATER

The log of test wells by SUNY Oswego and the U.S. Geological Survey indicates that below the cover/fill material there is a layer of sand and gravel from 10 to 50 feet deep on top of the water table. The water table is also the beginning of the till area for an unknown depth (see attachment).

Drinking water in the area comes from private wells.

V SAMPLING AND CHEMICAL ANALYSIS OF SAMPLER

Except for a few samples from the Potter residency well at the southwest corner of the landfill, and a summary of test wells contaminants by SUNY Oswego, other information is not available.

A summary of chemical results for the test wells as located on the attached map are as follows:

Compound	Concentration
Toluene	200 ug/l
Bromoform	24 "
Bromodichloromethane	4 "
Dibromochloromethane	11 "

The above information was provided by SUNY Oswego and the analysis was done by NYS Department of Health in 1979. The attached tables also show the results for the "Potter Residency Well" taken in 1978.

VI STATUS OF LOCAL-STATE INVOLVEMENT

Local

1-9-79 DEC requested Oswego county to monitor leachate and evaluate

all sludge brought to the landfill and to develop a closure plan.

3-16-79 DEC advised the County it will collect leachate samples, will not be responsible for any problem identified as a result of the sample analysis.

The local town officials as best I understand it helped establish the original landfill and the County has taken it over. In discussions with Mr. Osphelt, he indicated the County recognizes the need for a county landfill and wants to operate the Volney fill in a satisfactory manner. He also feels that at the right time, the establishment of a landfill to preplace the Volney landfill will be no problem. Nothing is planned on removing the 8000 barrels. NYS DEC is concerned about the Volney site but thinks it is the responsibility of the county government. Yet, they have not made any comments concerning the 8000 barrels A summary of information from the state files is found below:

3-28-74 PAS (J. Miller) asked DEC to allow dumping of barrels in the Volney landfill.

4-11-74 DEC agreed to review proposal to dump barrels at the landfill as long as the contained material was sludge, developed at PAS, Oswego and did not contain any phenols or chlorinated material.

1-23-75 DEC would not approve of the disposal of ethyl acetate, ethyl alcohol or toluene at the Volney landfill, also known as the Oswego Valley landfill.

1-31-79 DEC Syracuse requested DEC Albany to authorize three leachate samples to be analyzed for phenols, PCB, TOC, Totalhalogenated organics and cyanide. The DEC will not accept any responsibility for containment or cleanup of site.

2-27-79 DEC Albany agrees to run analysis on leachate samples.

4-24-79 NYS Department of Health (DOH) advises Mr. Potter because of benzene level (10 ug/l) in his private well on Howard Road that it is contaminated and should not be used.

4-27-79 DOH states to Mr. Potter that benzene level "is not at a high enough level" (10 ug/l) "to cause an immediate health concern in and of itself". However, the water is "not potable and should not be used as a source of drinking water".

DEC indicates the responsibility for corrective measures at the Volney landfill are clearly the responsibility of the county.

The NYS DEC at this point in time have not expressed an opinion on cleaning up the Volney landfill site and, in fact, denied that they had any responsibility for it in their January 31, 1979 memo. The DEC in Syracuse would like to see it cleaned up but, presently, are concentrating their efforts to clean up the abandoned waste sites that are obvious and blatantly hazardous.

VII DISCUSSION

State, County and Town governments all agree that some figure of about 8000 barrels are buried on the site. They all seem hesitant to do anything about the situation other than to observe the leachate and continue to pile more and more refuse on the landfill.

The barrels buried 20 to 40 feet deep present a major problem of recovery when

1. An unknown number were crushed, leaked or were emptied;

2. Daily fill (400 tons/day) is being placed over the barrels, burying the barrels deeper and deeper;

3. That the barrels or what remains of them are scattered over the whole site and not in a particular location or section of the landfill;

4. That more than inert sludge went into the barrels before they were dumped. The well samples could be an indication of this.

The site is active; it serves all of Oswego County; it is fenced in, however, surface water can run in two directions south to the Oneida River and north to the Oswego River with both streams eventually winding up in Lake Ontario. Leachate according to the State DEC finds its way to these streams and to the groundwater.

The leachate has contaminated one drinking water well and it is quite possible it has spread much further than we actually know about at this time.

Weather and time did not permit a more extensive look at the landfill at the time of the initial visit. We were not able to fully

observe surface conditions and do a complete evaluation of the periphery of the fill.

VIII CONCLUSIONS

1. The Volney landfill is contaminated with chemicals alleged to come from Pollution Abatement Services.

2. Chemicals found in a private well and several test wells indicate the chemicals are moving away from the landfill in the form of leachate in the groundwater. Surface drainage carries contaminated leachate.

3. Eight thousand barrels plus or minus are buried on the site.

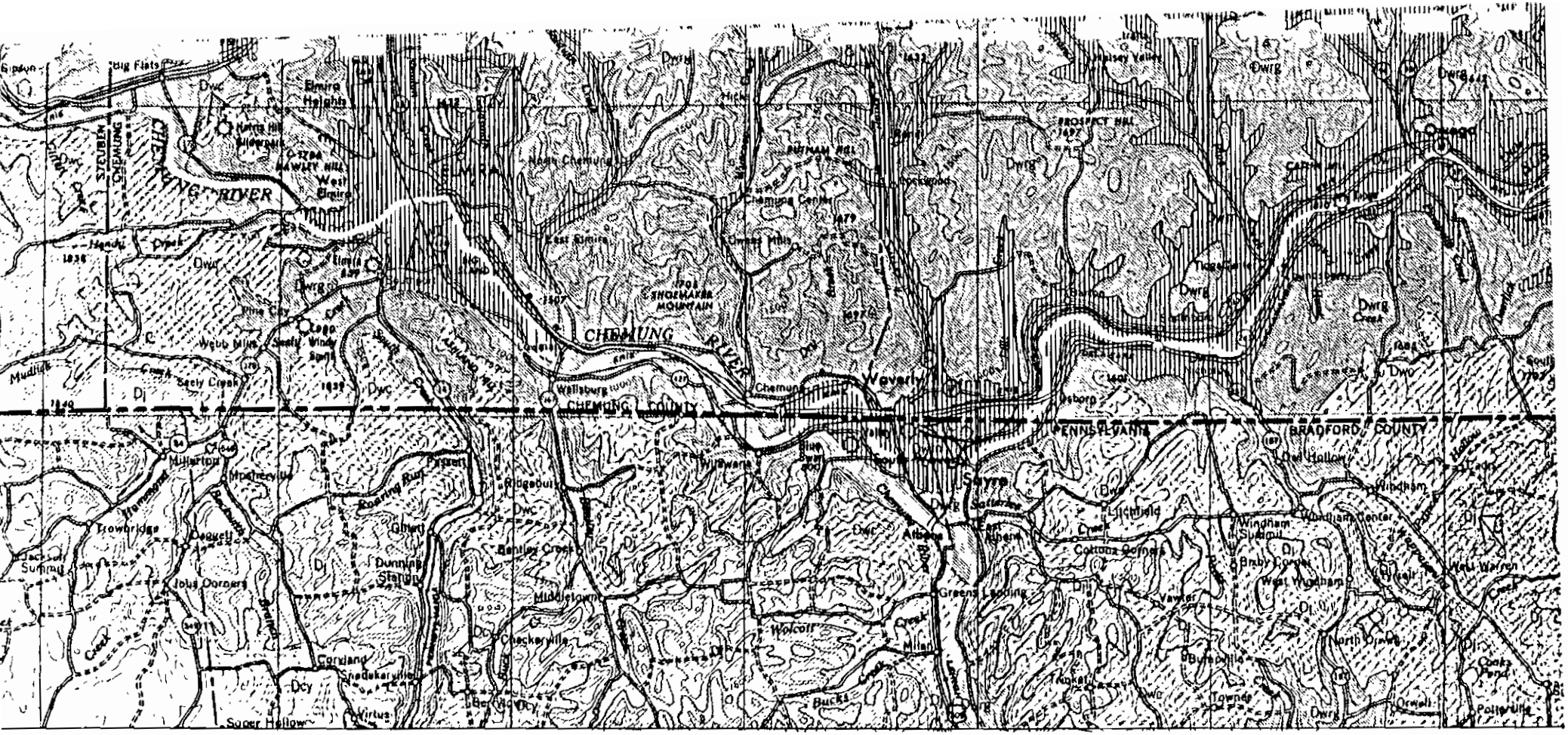
IX RECOMMENDATIONS

1. Intercept, collect and treat leachate from landfill to protect surface and groundwater.

2. [illegible] supply to replace all drinking water wells in the area.

3. [illegible] reasonable solution can be found after extensive monitoring has taken place.

4. Visit site in the Spring to observe landfill more closely and note surface conditions.



GEOLOGIC MAP OF NEW YORK

1970

Finger Lakes Sheet

Scale 1:250,000

5 0 5 10 15 Statute Miles 20

5 0 5 10 15 20 25 Kilometers 30

CONTOUR INTERVAL 100 FEET

cc: Mr. Charlie Goddard, Room 401

FILE: ~~OSW~~ VOLNEY LF OSWEGO Co

Region 7, Environmental Quality Office
7481 Henry Clay Boulevard, Liverpool, New York 13088

(315) 473-8305

February 15, 1980

Mr. Arthur Ospelt
Highway Superintendent
Oswego County Highway Department
East Bridge Street
Oswego, New York 13126

Re: Oswego Valley Landfill - Consent Order

Dear Mr. Ospelt:

This is to acknowledge receipt of the Oswego Valley consent order report submitted by Barton, Brown, Clyde & Loguidice, P.C. and dated January 18, 1980. This report along with the submittal of June 15, 1979 are acceptable as fulfilling the County's obligation under the consent order signed May 4, 1979.

The consent order and associated reports require the County to undertake a number of continuing activities at the site. Below is a summary of these items.

1. Ground water monitoring - This is required by the consent order and the 12/30/75 Approval to Construct. This requires quarterly sampling for pH, alkalinity, conductivity, hardness - total, iron - total, and chlorides. Based on the reports submitted and item 1d of the consent order, phenols, arsenic and mercury should be added to this list. These additional parameters should be resampled to confirm previous data. The sampling points should be all on-site monitoring wells (test well #15, test well #9, and the trailer well), all residential wells within 500 feet (including the Coakley, Durfey, Kerfien and next residence along Silk and Howard Road).

   The last sample results we have received were collected on 6/13/79. Another sampling should have been collected by November. Please submit these results as soon as possible.

2. New residential and monitoring wells - Providing new deep wells for the Coakley, Durfey and Kerfien residences is a matter between those individuals and the County. We feel it is an appropriate and reasonable measure to take to provide new monitoring wells. New shallow and deep monitoring wells are needed and the proposed monitoring system is acceptable. Please provide us with a schedule for the development of these wells. It should be pointed out that this Department has no authority to regulate private water supplies.

3. Leachate treatment - The collection and treatment of leachate at the Armstrong Cork treatment plant should help to minimize future water quality problems at the landfill. However, if this treatment method does not prove to be adequate, the County must find an acceptable alternative.

4. Final closure - The final cover, slopes, and vegetation should comply with the closure plan submitted and Part 360. Imported final cover material should have a permeability of at least 10^{-5} cm/sec. Vegetative cover for areas of final elevation should be started this summer.

   After closure the County is responsible for maintaining the site including groundwater monitoring and treatment of leachate.

We look forward to your cooperation in this matter.

Very truly yours,

Larry Gross, P.E.
Regional Solid Waste Engineer

cc: Mr. Paul Dudden
Mr. Charlie Goddard
Mr. Dave Mafrici
Mr. Jim McCarthy

Paine
340 6570

CHEMICAL WASTE LEACHATE - POTENTIAL FOR GROUNDWATER CONTAMINATION IN OSWEGO COUNTY [1]

BY

Ronald J. Scrudato, Charles S. Ehlers, Philip A. Goliber, and Raymond H. Schneider
State University Research Center
SUNY @ Oswego
Oswego, New York 13126

AND

Hank Anderson, Todd S. Miller,
United States Department of the Interior
Geological Survey
Water Resources Division
Ithaca, New York 14850

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1 This paper represents a contribution from the Oswego County Legislature (Oswego County Planning Department, New York Central Regional Planning and Development Board (U.S. EPA-208), United States Geological Survey, and The State University Research Center at Oswego.

DRAFT

Volney SF
Oswego Co.

STATE OF NEW YORK
DEPARTMENT OF HEALTH — OFFICE OF PUBLIC HEALTH

TOWER BUILDING • THE GOVERNOR NELSON A. ROCKEFELLER EMPIRE STATE PLAZA • ALBANY, N.Y. 12237

DAVID AXELROD, M.D.
Commissioner

GLENN E. HAUGHIE, M.D.
Director

DIVISION OF ENVIRONMENTAL HEALTH
LEO J. HETLING, P.E., PH.D.
Director

May 28, 1981

Mr. Robert McCarty
New York State Department of
Environmental Conservation
50 Wolf Road
Albany, New York 12233

Re: Public Water Supply
Information for the
Mitre Model

Dear Bob:

The attached list gives the approximate distance to and the number of wells that exist for water supplies within 3-4 miles of the chosen hazardous waste sites. It's safe to assume that in all cases, except Tonawanda and Niagara Falls, that many residential wells are in the area also.

For the record, although its' been said many times, this Department's choices for Superfund priority are the "S" Area in Niagara Falls and the main PAS site in Oswego. In the scheme of things they are undoubtedly two of the largest and most problematic of the sites in the state.

Very truly yours,

Ron

Ronald Tramontano, P.E.
Bureau of Toxic Substances Management

RT/pb

Attachment

cc: Dr. Stasiuk
Dr. N. Kim
Mr. Goddard

C-7-35 Volney Landfill
Silk Rd., Volney
Oswego Co.

Fulton Quad

¼ Mi. (?), Kerfein MHP, 1 well, PC120
2 Mi. S., Jann J, 1 well, PC120
2½ Mi. W., (across Oswego R.), Somerlawn TP, 2 wells, PC120
4+ Mi. S., PWS, Fulton (C), 8 wells, 00481000

APPENDIX B

NYS REGISTRY FORM

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

Code: _____

Site Code: 738003

Name of Site: Volney Landfill Region: 7

County: Oswego Town/City Volney

Street Address Silk Road

Status of Site Narrative:

Approximately 8,000 barrels of waste from Pollution Abatement Services were buried at this site with the approval of the landfill operator and the Department of Environmental Conservation. There is a significant leachate problem at this landfill at the present time, which is contaminating adjacent wells. The Department of Environmental Conservation has a Consent Order with Oswego County to monitor and control leachate from this landfill and to eventually close out the landfill operation. The investigation of this site with regard to toxic substances is continuing.

*This is referred to as "Fulton Dump" in the Eckhard Report.

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

Estimated Size 58 Acres

Hazardous Wastes Disposed? Confirmed ☑ Suspected ☐

*Type and Quantity of Hazardous Wastes:

TYPE	QUANTITY (Pounds, drums, tons, gallons)
Unknown (PAS)	8,000 drums

* Use additional sheets if more space is needed.

47-15-11(2/80)

Name of Current Owner of Site: Oswego County

Address of Current Owner of Site: County Courthouse, Oswego, NY

Time Period Site Was Used for Hazardous Waste Disposal:

Unknown, 19 To , 19

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

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

Closure, capping, leachate collection/treatment

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

Status of Legal Action: Consent Order State ☒ Federal ☐

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

Assessment of Environmental Problems:

Contamination of groundwater and surface water, with organic chemicals.

Assessment of Health Problems:

Organic Chemicals, benzene, toluene, etc., found in drinking water wells.

Persons Completing this Form:

John Kubarewicz

New York State Department of Environmental Conservation

New York State Department of Health

Date May 24, 1983

6/3/81
RPM:cl

APPENDIX C

GENERIC HEALTH AND SAFETY PLAN

APPENDIX C

HEALTH AND SAFETY PLAN OUTLINE

I. PURPOSE

The purpose of this plan is to assign responsibilities, establish personnel protection standards, mandatory operating procedures, and provide for contingencies that may arise while operations are being conducted at the site.

II. APPLICABILITY

The provisions of the plan are mandatory for all on-site investigation personnel and personnel under contract while initial site reconnaissance and/or preliminary investigation activities are being conducted at the site. These activities include investigation, sampling, and monitoring undertaken on the site or at any off-site areas which may be affected by contamination from the site.

III. RESPONSIBILITY

1. Principal Investigator (PI)

   a. The PI shall direct on-site investigation efforts for each discipline. At the site, the PI, assisted by the Team Safety Officer, has the primary responsibility for:

      1) Assuring that appropriate personnel protection equipment is available and properly utilized by all on-site personnel and subcontractor personnel.
      2) Assuring that personnel are aware of the provisions of this plan, are instructed in the work practices necessary to

ensure safety, and in planned procedures for dealing with emergencies (Provisions, Work Practices and Emergency Procedures) appropriate to this investigation.

3) Assuring that personnel are aware of the potential hazards associated with site operations.
4) Supervising the monitoring of safety performance by all personel to ensure that required work practices are employed.
5) Correcting any work practices or conditions that may result in injury to personnel or exposure to hazardous substances.

HEALTH AND SAFETY PRELIMINARY SITE INVESTIGATION

Based on the appropriate listed field activity plans, as well as other site information (such as waste types and chemistry) as learned from the data collecting and analysis, the Principal Investigator/Team Safety Officer will develop an appropriate health and safety plan for the site.

Planning for Site Entry

In order to determine whether it is safe for the investigative team to proceed with the study and/or to determine what appropriate level of protective clothing and equipment should be used, the nature and extent of the on-site hazards will be assessed prior to site inspection. An on-site reconnaissance utilizing appropriate monitoring equipiment will check for:

- exposivity
- atmospheric concentrations of hazardous vapors, bases, fumes, and dusts
- oxygen deficiencies
- physical hazards posed by site features/topography

If during the initial site reconnaissance, the monitoring equipment detects evidence of fire or explosion potential or high levels of radiation, further entry into the site will not be allowed. The site inspection will be delayed until such problems can be resolved appropriately.

The initial site reconnaissance will be performed by team personnel equipped with the level of protective clothing and any additional gear

that is required for their safe entry to the site. In order to provide sufficient lead time to "fine tune" safety and data gathering plans, this initial site reconaissance should be performed at least one week before the scheduled site investigation.

Based on this information regarding the associated conditions, a detailed plan providing for the safety of field personnel and the public will be developed in accordance with EPA and OSHA and regulations and USAF operating procedures. This plan may address such factors as (dependent on specific site/waste conditions):

- Types of exposures to hazardous materials (e.g., inhalation, skin absorption, ingestion, and eye contact), and the potential effects of each exposure pathway for each hazardous waste.
- High risk areas (surface contamination, exposed containers, or areas containing concentrations of chemical vapor, oxygen deficiency, explosive or flammable potential or radioactivity).
- Required protective and related equipment and procedures to adequately protect field personnel from perceived hazards on site.
- Decontamination procedures.
- Procedures for the prevention of accidental releases of hazardous substances to the air, soil, or surface water and procedures for implementation of proper contingency plans if such releases do occur.
- Procedures for the proper disposal of hazardous wastes generated in the course of the site inspection.
- Equipment and procedures for handling special site inspection conditions (e.g., prolonged operations, weather extremes, etc.).
- Emergency procedures.
- Arrangements with local hospitals and other local authorities.

The site-specific safety plan should be sufficient to provide the site inspection team with all applicable information assure health and safety. However, additional procedures may need to be considered and developed given site-specific conditions identified both before and during the site inspection.

Site Entry and Field Activities

Three sequential stages are identified to constitute the field activities:

- Initial setup
- Exploration and sampling
- Demobilization

Initial Setup

The main functions in this step are to secure entry and establish safety criteria. All operations will be managed from a central point, including:

- General supervision of area activities
- Decontamination process coordination
- Field communication
- Safety and medical coordination
- Equipment staging
- Recordkeeping
- Other functions as required

Exploration and Sampling

During this stage most field activities will be performed by pairs or small groups of team members. These tasks will include the following:

- Observation of visible spills, leachate seeps, etc., and sampling water and/or soils at these areas.
- Photography.
- Geophysical surveys (Electromagnetic or Metal Detection).
- Electrical resistivity measurements to detect ground-water contamination.
- Soil sampling using hand-operated equipment and drilling rigs.
- Ground-water sampling and water level measurements from existing wells.
- Surface water sampling.

Demobilization

This is the final stage of field activities in which field personnel will:

- Decontaminate used equipment.
- Transfer equipment and samples obtained to the decontamination staging area.
- Undergo personnel decontamination procedures.
- Load all equipment and samples on to the project vehicle(s).

The PI will supervise all the above steps through its conclusion. Field team members should not depart until all subcontractors personnel and equipment have left the site.

APPENDIX D

GENERAL FIELD PROCEDURES

APPENDIX D

General Field Procedures

Installation of Groundwater Quality Monitoring Wells

To investigate the groundwater quality within the aquifer of concern, groundwater monitoring wells will be installed. To accomplish the purposes of the monitoring wells a series of separate field procedures have been prepared. These include:

A - Drilling Procedures
B - Monitoring Well Construction Procedures
C - Water Sampling Procedures

The field program will be under the overall direction of the geologist in charge. Detailed supervision of the field work will be the responsibility of the field geologist. In particular, the field geologist will have the following responsibilities.

- Supervision of all drilling work and well construction
- Maintenance of the boring log for each boring
- Collection, labeling, and identification of formation samples, including rock cores.
- Conducting in cooperation with the driller, required in situ falling head tests and pumping tests.
- Performance of the water sampling program.
- Maintenance of pertinent notes in his/her field notebook and on daily field memos.

Health and safety procedures as set forth by the site Health and Safety Plan will be adhered to for all field operations.

A. Drilling Procedures

General Procedures

A qualified drilling subcontractor will be selected to provide all the equipment materials and skilled labor necessary to advance the test borings to the depths specified by the field geologist.

Order of Drilling Wells: All wells will be drilled in numerical sequence from what is considered the upgradient location (least contaminated) to the downgradient (most contaminated) with the upgradient boring being labeled "B-1".

Method of Drilling: Minimum of 4" ID hollow stem augers. If formational materials preclude the use of augers rotary drilling methods will be employed (e.g. for coring of bedrock).

Formational Sampling: Samples will be collected at a minimum of every 5 feet in the borings and at each lithographic change noted. A D&M sampler will be used to obtain one sample from each major layer in each boring. Other samples will be obtained with a standard split spoon sampler. Bedrock will be sampled continuously by coring with an NX double tube core barrel. All sampling equipment will be thoroughly cleaned after obtaining each sample.

The cleaning method employed will be dependent upon the type of contaminant suspected to be present at that location.

Measurements: The depth to the water level in each boring being drilled should be measured each morning and just prior to installation of any monitoring devices into a boring. The depth of the boring should be measured and recorded on the boring log upon reaching final depth.

Decontamination Requirements	All downhole equipment and above hole equipment that may come in contact with subsurface materials will be steam cleaned at the drilling location prior to initiating any drilling and between each boring and at the conclusion of the drilling program. The steam cleaning rinse water will be allowed to discharge to the ground surface at the well site. Care will be taken to assure this water does not come in contact with any surface water source.
Site Cleanup	All drill cuttings remaining after well installation will be removed for proper disposal. All debris, paper, etc. will be removed and all depressions resulting from drilling operations will be filled in.

Drilling Procedures for Bedrock Boring

1. Sample formation every 5 feet and at every major lithologic change.

2. Drill and sample the unconsolidated formations until bedrock is encountered.

3. Ream the hole to at least 6 inches in diameter.

4. Make ready an appropriate length of steel casing by cleaning.

5. Place enough volclay pellets in the hole to make a layer of about one-foot thickness at the bottom of the boring.

6. Place the steel casing in the hole, and bottom it snugly into the bentonite. Once the casing is set, it should not be lifted until the completion of the well.

7. Circulate the drilling fluid; drill a few inches below the bottom of the volclay layer and circulate for a few minutes to clean the boring of most of the bentonite. Clean out this part of the boring by circulating clean water.

8. Drill into the bedrock the required depth using the NX double-tube core barrel.

9. Store the rock cores in specially constructed wooden rock-core boxes, for inspection and description by the field geologist.

10. Measure water level in boring.

11. Construct well in the boring

Drilling Procedures for Soil Borings

1. Sample formation every 5 feet and at every major lithologic change.

2. Drill to the depth estimated.

3. Measure water level in boring.

4. Construct well in boring.

Procedure for Abandoning a Boring

A cement slurry containing about 5 lbs. bentonite and one bag of cement per 8 to 10 gallons of water should be pumped into the hole to the ground surface.

B. MONITORING WELL CONSTRUCTION PROCEDURES

General Specifications and Procedures

Casing and Well Screen:	2-inch I.D. Schedule 40 PVC with flush screw joints or 2-inch I.D. stainless steel with flush screw joints.
Screen Slot Size:	Based upon materials encountered in boring.
Storage of Casing and Screen:	The casing and screen lengths will not be stored directly on the ground. The well string shall be prepared on a clean plastic sheet spread out over level ground.
Cleaning of Casing and Screen:	Casing and screen shall be cleaned before installing in the boring.
Bottom Cap and Blank Casing:	A length of blank casing of about two feet complete with a bottom cap shall be placed below the well screen in all cases.
Gravel Pack:	The gravel pack material will be 90 percent by weight larger than the screen size and should have a uniformity coefficient of 2.5 or less.
Placement of the Gravel Pack:	The gravel pack should be emplaced so that it extends to three feet above the top of the well screen. This should be confirmed by measuring down the annular space with a weighted tape or with a measured small-diameter pipe. The volume of gravel pack material emplaced should be compared with the volume computed as required, based on the screen diameter and length. The gravel pack may be poured directly down the annular space provided the well is pressurized and an upward flow of pure water is maintained in the annular space by introducing the water at a low rate through the well casing which would enter the annular space through the well screen openings.

Bentonite Seal:	A bentonite seal shall be placed in the annular space above the gravel pack in each well by emplacing 1/4-inch diameter volclay pellets in the annular space during which time the low flow rate up the annular space in maintained. This bentonite seal should be at least 2 feet thick. The bentonite shall be compacted with a donut shaped weight that slides over the well casing.
Well Development:	Each well should be developed for about 30 minutes to one hour using an air-lift surging method. Appropriate piping should be assembled for the discharge water so as to discharge it and dispose of it in a manner to limit contamination of the surrounding area. The discharge during development should be estimated by using a 5-gallon bucket and a stop watch. In the course of development, if a well turns out to have a very low specific capacity, it may prove necessary to add some clean water in order to remove as many fines as possible from the vicinity of the well screen. Development should be continued until all but a trace amount of fines and suspended solids appear in the discharge water. Following development, the air line hose or pipe and associated fittings should be thoroughly cleaned and then rinsed.
Grouting Annular Space:	A bentonite-cement grout (5 lbs. bentonite and one bag of cement to 8-10 gallons of water) will be pumped into the annular space to fill the space from the top of the volclay bentonite seal to the ground surface.
Protective Casing:	A length of 6-inch I.D. steel casing with a lockable cap should be placed over the well casing in each case to protect it. It should be set about one foot into the bentonite cement grout in the annular space, and should stick up above ground about 2 to 3 feet.

Well Labeling: The full number of each monitoring well should be painted on the protective casing and cap.

Surveying: A level survey will be performed in which the elevation of the top of the inside casing of each well will be determined 0.01 ft. and the reference point marked.

The Construction site makes it impossible to prescribe one single Deep or Shallow well construction configuration. Therefore a generic well construction configuration for both deep and shallow wells has been developed.

Deep Well Construction

1. Place well screen so as to screen entire thickness of lower sand and gravel layer (if it exists), unless the layer exceeds 20 feet in thickness; the well screen should extend about two feet into the top of bedrock.

2. If a clay layer immediately overlies the bedrock and the overlying surficial sand and gravel is less than 30 feet, place the screen in only the upper five feet of bedrock.

3. If no significant clay/lacustrine layer exists and if the surficial sand and gravel layer is greater than 20 feet thick place screen in lower 15 to 20 feet of the sand and gravel layer, extending also two feet into bedrock.

4. If no significant clay/lacustrine layer exists and if the surficial sand and gravel layer is less than 20 feet in thickness screen entire saturated thickness, in addition to about 5 feet above the summer static water level and about two feet into the underlying bedrock.

5. After installation of the well screen and casing, and the gravel pack, emplace volclay pellets to form a 2 to 4 foot thick seal in the annular space above the gravel pack. Use 1/4-inch diameter pellets and maintain a low flow rate up the annular space during emplacement so as to insure that they settle in place evenly around the annular space. Measure the depth to the top of the seal.

6. Using a bentonite-cement grout (described in the foregoing section), pump grout into the annular space so as to grout up to the top of the clay layer.

7. Jack the 6-inch casing out of the hole.

8. Develop the well and complete it as described under the foregoing section.

Shallow Well Construction

1. Place the well screen so that it extends from the top of any clay layer (if it exists) to about 5 feet above the summer static water level, unless the saturated thickness is greater than 20 feet, in which case the screen should be placed opposite the upper 20 feet of the saturated part of the unit, extending as well about 5 feet above the summer static water level. In the case of shallower wells less than 20 feet deep, place screen from bottom of hole to within 5 feet of land surface. For very shallow water table, the top of screen should be two feet above the estimated high water table or no closer than two feet to the land surface.

2. Emplace the volclay pellets as described above for the deep wells. A one-foot thick bentonite seal should be adequate.

3. Develop and complete the well as described under General Specifications Procedures.

C. GROUNDWATER SAMPLING PROCEDURES

Following the installation of the well, individual groundwater samples will be collected according to the procedures included below from each well for analyses. These samples will be collected using a positive displacement sampling device made entirely from stainless steel and teflon. This procedure will permit us to collect a sample that is more representative of the aquifer water and to limit the possibility of degassing and volatilization. The well storage water will be evacuated with a submersible pump or air lift system whereby the air is not permitted to come in direct contact with the aquifer. The

sampling pump will be cleaned between wells by immersion into a solvent, followed by a distilled deionized water rinse. A quantity of each of these will be pumped through the pump and teflon tubing.

As a part of our ongoing QA program, field blanks, consisting of distilled deionized water from the discharge of the pump following cleaning will be taken between selected wells to monitor the effectiveness of the cleaning procedures. Two typed of trip blanks will also be taken. The first type consists of a sample bottle filled with distilled, deionized water that will be capped and accompany the samples at all times. The second type will consist of a sample bottle filled with distilled, deionized water and set aside open to the atmosphere, during the sampling of the wells. The purpose of these trip blanks is to evaluate the potential for atmospheric contamination, and to assure that proper sample bottle preparation and handling techniques have been employed.

The samples collected from these sampling efforts will be analyzed for indicator parameters identified during the Phase I.

WATER SAMPLING PROCEDURES.

1. Open well and trip blank and record initial static water levels.

2. Wash down pump:
   - For organics use hexane followed by methanol and finally distilled water
   - Collect wash solvents and rinse in a bucket, etc. (a 5 gal. container w/ a large funnel works well)
   - Wash pump inside and outside

3. Install pump in well: Use stainless steel pump and teflon tubing
   - Each well should have its own tubing. Tubing should be cleaned and thoroughly rinsed between sampling events.
   - Pump should have a check valve, preventing water having been in internal contact with the pump and the tubing from draining back into the well.

4. Pump at least two exchanges of water

- Care should be taken so as not to over pump, whereby excessive concentrations are drawn into the well. The number of exchanges pumped should be based upon the soil typed, flow patterns and aquifer properties of each well.

5. Take a sample:

- From pump discharge: Insert discharge tube to bottom of jar. Withdraw tube ahead of the sample so that aeration and turbulence is minimized.

- Some samples must be filtered in the field. This should be done prior to filling the sample container.

- For volatile organics samples should not be taken from the pump discharge. Aeration from the pump will destroy organic volatiles.

6. Immediately perform field tests such as temperature, pH, specific conductivity and D.O.

7. Refrigerate samples at $4^{o}C$.

8. Cap well and trip blank.

9. Wash all equipment.

NOTES: - The sampling procedures should reflect the sample parameters. Those parameters subject to change with changes in pH, D.O. may need to be sampled using stainless steel bailers.

- Some sample parameters require filtering in the field.

- For accountability and traceability of the samples, two forms are included which are examples of what we presently use.

EQUIPMENT BLANKS:

- Wash pump with solvents, collecting solvent rinse. Care must be taken in the selection of solvents, so damage to the pump will not occur. Rinse with distilled water.

- Take a sample of "clean" water,

- Turn on pump, sample first "slug" of water from the pump

- Pump volume equivalent to amount typically pumped from the well. DO NOT recirculate the water.

- Take sample from pump at end of pumping period

- Refrigerate samples.

APPENDIX E

QUALITY ASSURANCE

APPENDIX E

OUTLINE OF QUALITY ASSURANCE PROCEDURES

1.0 GROUND-WATER SAMPLING

1.1 General Requirements

(a) Obtain representative ground-water quality samples
  (1) Wells located properly
  (2) Sampling zone defined
  (3) Well constructed properly
  (4) Well developed properly
(b) Select sampling method in accordance with analyses of interest and well characteristics, see Figure B.1.
(c) Sampling procedures should not materially alter sample, see Figure B.2.
(d) Storage/shipment procedure must not alter sample

1.2 Procedures for Monitoring Well Development

(a) Perform prior to each sampling effort
(b) Measure water level
(c) Determine volume of water stored in casing
(d) Remove three to five volumes of water from well
  (1) Bail
  (2) Pump
(e) Insure that device does not introduce contaminants into well
(f) Measure water level recovery
(g) Sample after complete recovery
(h) Perform in-situ tests
  (1) Flow direction & velocity (Flow Meter®)
  (2) Quality (Hydrolab®)
  (3) Permeability
(i) Insure that in-place testing does not contaminate well prior to sample acquisition

1.3 Sampler Construction Material

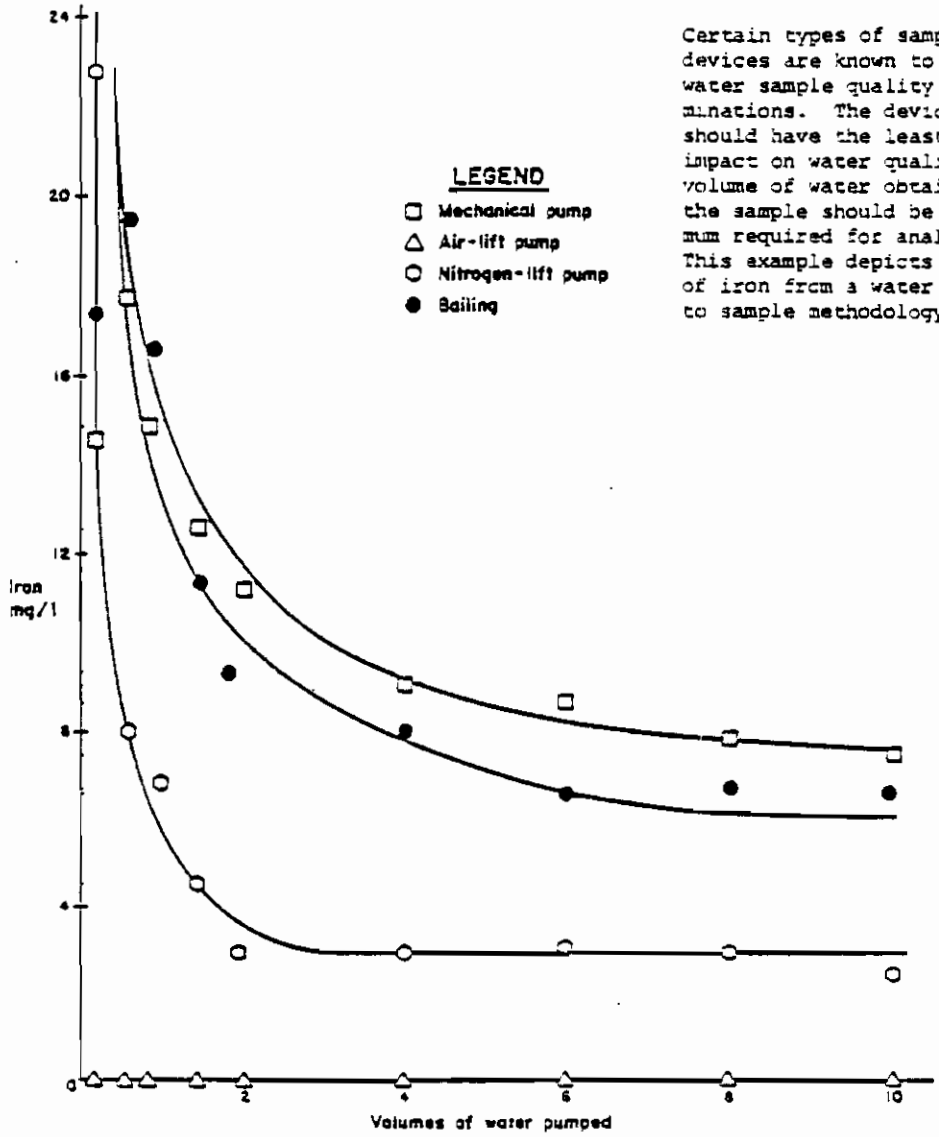
A major point to consider is the type of contaminants anticipated in the ground-water system. A sampling device should be constructed of inert materials that will not alter the trace concentrations of chemical parameters. Sampler construction materials are listed in order of preference.

Sampler Construction Materials:

(a) Glass
(b) Teflon®

FIGURE E.1

Effects of Various Sampling Methodologies on Water Quality



Certain types of sampling devices are known to impact water sample quality determinations. The device selected should have the least negative impact on water quality. The volume of water obtained for the sample should be the minimum required for analysis. This example depicts the loss of iron from a water sample due to sample methodology.

SOURCE: "Monitoring Well Sampling and Preservation Techniques," Proceedings of the Sixth Annual Research Symposium / Disposal of Hazardous Waste, March, 1980.

FIGURE E.2

SAMPLING EQUIPMENT SELECTION

Diameter Casing	Bailer	Peristaltic Pump	Vaccum Pump	Airlift	Diaphragm "Trash" Pump	Submersible Diaphragm Pump	Submersible Electric Pump	Submersible Electric Pump w/Packer
1.25-inch								
Water level <20 ft.		X	X	X	X			
Water level >20 ft.				X				
2-inch								
Water level <20 ft.	X	X	X	X	X	X	X	
Water level >20 ft.	X			X		X	X	
4-inch								
Water level <20 ft.	X	X	X	X	X	X	X	X
Water level >20 ft.	X			X		X	X	X
6-inch								
Water level <20 ft.				X	X		X	X
Water level >20 ft.				X			X	X
8-inch								
Water level <20 ft.				X	X		X	X
Water level >20 ft.				X			X	X

(c) Stainless Steel
(d) PVC
(e) Other dense plastics

Note: Do not use rubber or synthetic rubber such as that used in packers or older bladder pumps.

1.4 Sampling

1.4.1 Typical Ground-Water Sampling Devices

(a) Bailers
  Kemmerer
  Tube
(b) Suction Lift Pump
  Peristaltic
  Hand operated diaphragm
(c) Submersible Pump
(d) Air-lift Device
(e) Tomson Pump (all glass)
(f) Gas Operated Bladder Pump
(g) Gas Driven Piston Pump
(h) Specialized Organic Material Samplers
  Grab Sampler
  Continuous Sampler
  Microbiological Sampler
  Soil-Water Sampler

Detailed discussion of the above listed sampling devices is given in the Manual of Ground-Water Sampling Procedures, pp. 45-54.

1.4.4 Specialized Organic Material Samplers

(a) Grab Sampler (at well head) for non-volatile organics may be used with peristaltic pumps (ground-water depth 20 ft)® or non-contaminating submersible pumps. A Teflon bailer may be used for volatile organic sample acquisition.

(b) Continuous Sampler (at well head) uses a peristaltic pump (shallow conditions) or a non-contaminating submersible pump to force a continuous stream of water through a fixing column using selected adsorbents to concentrate organic materials.

(c) Microbiological Sampler (at well head) uses a vacuum pumping system to draw water samples from shallow depths. Samples to be tested for microbial agents may be collected in a flask; samples to be tested for viruses of pathogenic bacteria may be collected on filters installed in the system.

(d) Soil-Water Sampler (unsaturated zone) can be used to obtain small unsaturated zone samples drawn through a collection trap in shallow applications.

A detailed discussion of these devices and their utilization is presented in the Manual of Ground-Water Sampling Procedures, pp 53-60.

1.5 Field Tests and Sample Preservation

1.5.1 Field Testing

Many parameters are relatively stable. Others such as pH, temperature, etc., will begin to alter immediately upon collection. In order to mitigate this unwanted modification of water quality, testing of sensitive parameters must be performed in the field. Testing may be performed at the well head following sample removal or in-situ by use of a Hydrolab or similar down-hole device.

Samples requiring more complicated analysis procedures must be preserved and transported to a laboratory. Preservation must be performed in the field, contingent upon analytical parameters of interest. Laboratory analyses should be performed as soon as possible in accordance with EPA Guidelines.

1.5.2 Sample Preservation

1.5.2.1 General typical preservatives currently employed, actions and applications are given:

Preservative	Action	Applicable to:
$HgCl_2$	Bacterial Inhibitor	Nitrogen forms, phosphorus forms
Acid (HNO_3)	Metals solvent, prevents precipitation	Metals
Acid (H_2SO_4)	Bacterial Inhibitor	Organic samples (COD, oil and grease, organic carbon)
	Salt formation with organic bases	Ammonia, amines
Alkali (NaOH)	Salt formation with volatile compounds	Cyanides, organic acids

Preservative	Action	Applicable to:
Refrigeration	Bacterial Inhibitor	Acidity - alkalinity, organic materials, BOD, color, odor, organic P, organic N, carbon, etc., biological organism (coliform, etc.)

1.5.2.2 Organic Parameters

The general method of preserving samples for organic analysis is to exclude air, pack in ice, and transport promptly. Specific recommendations are furnished in the Manual of Ground Water Sampling Procedures, p. 62.

1.5.2.3 Microbiological Parameters

Due to the complicated nature of this type of sampling, reference is made to the Manual of Ground-Water Sampling Procedures, p. 62.

1.5.2.4 Sampling and Preservation Requirements

The following Table B.1, presented from the Manual of Ground-Water Quality Sampling Procedures, pp 63-66, is included to provide specific collection and preservation data in accordance with the analyses of interest. It may be quickly observed that numerous variations occur in volume of sample required per test, type of container, preservative, and holding time. Preservation techniques must be chosen to be consistent with the selected analyses.

TABLE E.1.

RECOMMENDATION FOR SAMPLING AND PRESERVATION OF SAMPLES ACCORDING TO MEASUREMENT[a]

Measurement	Vol. Req. (ml)	Container[b]	Preservative	Holding[c] Time
Physical Properties				
Color	50	P, G	Cool, 4°C	24 Hrs.[d]
Conductance	100	P, G	Cool, 4°C	24 Hrs.[d]
Hardness	100	P, G	Cool, 4°C HNO_3 to pH<2	6 Mos.[e]
Odor	200	G only	Cool, 4°C	24 Hrs.
pH	25	P, G	Det. on site	6 Hrs.
Residue				
Filterable	100	P, G	Cool, 4°C	7 Days
Non-Filterable	100	P, G	Cool, 4°C	7 Days
Total	100	P, G	Cool, 4°C	7 Days
Volatile	40	P, G	Cool, 4°C	7 Days
Settleable Matter	1000	P, G	None Req.	24 Hrs.
Temperature	1000	P, G	Det. on site	No Holding
Turbidity	100	P, G	Cool, 4°C	7 Days
Metals				
Dissolved	200	P, G	Filter on site HNO_3 to pH<2	6 Mos.[e]
Suspended	200		Filter on site	6 Mos.
Total	100	P, G	HNO_3 to pH<2	6 Mos.[e]
Mercury				
Dissolved	100	P, G	Filter on site HNO_3 to pH<2	38 Days (Glass) 13 Days (Hard Plastic)
Total	100	P, G	HNO_3 to pH<2	38 Days (Glass) 13 Days (Hard Plastic)

TABLE E.1 (Continued)

Measurement	Vol. Req. (ml)	Container[b]	Preservative	Holding Time[c]
Inorganics, Non-Metallics				
Acidity	100	P, G	None Req.	24 Hrs.
Alkalinity	100	P, G	Cool, 4°C	24 Hrs.
Bromide	100	P, G	Cool, 4°C	24 Hrs.
Chloride	50	P, G	None Req.	7 Days
Chlorine	200	P, G	Det. on site	No Holding
Cyanides	500	P, G	Cool, 4°C	24 Hrs.
			NaOH to pH 12	
Fluoride	300	P, G	None Req.	7 Days
Iodide	100	P, G	Cool, 4°C	24 Hrs.
Nitrogen				
Ammonia	400	P, G	Cool, 4°C	24 Hrs.
			H_2SO_4 to pH<2	
Kjeldahl, Total	500	P, G	Cool, 4°C	24 Hrs.[f]
			H_2SO_4 to pH<2	
Nitrate plus Nitrite	100	P, G	Cool, 4°C	24 Hrs.[f]
			H_2SO_4 to pH 2	
Nitrate	100	P, G	Cool, 4°C	24 Hrs.
Nitrite	50	P, G	Cool, 4°C	48 Hrs.
Dissolved Oxygen				
Probe	300	G only	Det. on site	No Holding
Winkler	300	G only	Fix on site	4-8 Hrs.
Phosphorus	50	P, G	Filter on site	24 Hrs.
Ortho-phosphate, Dissolved			Cool, 4°C	
Hydrolyzable	50	P, G	Cool, 4°C	24 Hrs.[f]
			H_2SO_4 to pH<2	
Total	50	P, G	Cool, 4°C	24 Hrs.[f]
			H_2SO_4 to pH<2	

TABLE E.1 (Continued)

Measurement	Vol. Req. (ml)	Container[b]	Preservative	Holding Time[c]
Total, Dissolved	50	P, G	Filter on site Cool, 4°C H_2SO_4 to pH<2	24 Hrs.[f]
Silica	50	P only	Cool, 4°C	7 Days
Sulfate	50	P, G	Cool, 4°C	7 Days
Sulfide	500	P, G	2 ml zinc acetate	24 Hrs.
Sulfite	50	P, G	Det. on site	No Holding
Routine Organics				
BOD	1000	P, G	Cool, 4°C	24 Hrs.
COD	50	P, G	H_2SO_4 to pH<2	7 Days[f]
Oil & Grease	1000	G only	Cool, 4°C H_2SO_4 or HCL to pH<2	24 Hrs.
Organic Carbon	25	P, G	Cool, 4°C H_2SO_4 or HCL to pH<2	24 Hrs.
Phenolics	500	G only	Cool, 4°C H_3PO_4 to pH<4 1.0 g $CuSO_4$/l	24 Hrs.
MBAS	250	P, G	Cool, 4°C	24 Hrs.
NTA	50	P, G	Cool, 4°C	24 Hrs.

a. A general discussion on sampling of water and industrial wastewater may be found in ASTM, Part 31, p. 72-82 (1976) Method D-3370.

b. Plastic (P) or Glass (G). For metals polyethylene with a polypropylene cap (no liner) is preferred.

c. It should be pointed out that holding times listed above are recommended for properly preserved samples based on currently available data. It is recognized that for some sample types, extension of these times may be possible while for other

types, these times may be too long. Where shipping regulations prevent the use of the proper preservation technique or the holding time is exceeded, such as the case of a 24-hr composite, the final reported data for these samples should indicate the specific variance procedures.

d. If the sample is stabilized by cooling, it should be warmed to 25°C for reading, or temperature correction made and results reported at 25°C.

e. Where HNO_3 cannot be used because of shipping restrictions, the sample may be initially preserved by icing and immediately shipped to the laboratory. Upon receipt in the laboratory, the sample must be acidified to a pH <2 with HNO_3 (normally 3 ml 1:1 HNO_3/liter is sufficient). At the time of analysis, the sample container should be thoroughly rinsed with 1:1 HNO_3 and the washings added to the sample (volume correction may be required).

f. Data obtained from National Enforcement Investigations Center-Denver, Colorado, support a four-week holding time for this parameter in Sewerage Systems. (SIC 4952).

2.0 SAMPLING SUBSURFACE SOLIDS (Earth Materials)

2.1 General

The sampling and testing of earth materials may be necessary to augment a ground-water quality study as contamination typically occurs in the unsaturated zone first, before entering the saturated zone. Several reasons exist for solids testing:

(a) Study effects of alteration
(b) Determine actual extent of contamination - not just in saturated zones
(c) Obtain accurate evaluation of microbial populations that may alter pollutants
(d) Solids provide best samples of aquifer microorganisms (samples obtained from saturated zone).

2.2 Sampling Procedures

Sampling of subsurface solids may be conducted by split spoon by Standard Penetration Test (ASTM D-1586-67) equipped with non-contaminating soil sample retainer or by undisturbed methods (ASTM D-1587-67). In any event, sampling, sample extrusion, preservation, shipment and testing must be accomplished in a sterile environment.

Due to the complex nature of the task, the possibility of introducing cross-contamination and the difficulty involved in sample processing, reference is made to the Manual of Ground-Water Sampling Procedures, pp. 72-79, which provides detailed guidelines for soil sample handling.

3.0 SAMPLE RECORDS AND CHAIN-OF-CUSTODY

3.1 General

The maintenance of complete sample records is critical to the monitoring process. The following is a basic guideline for development of sample records and chain-of-custody procedures:

3.2 Sample Records

(a) Sample description--type (ground water, surface water), volume;

(b) Sample source--well number, location;

(c) Sampler's identity--chain of evidence should be maintained; each time transfer of a sample occurs, a record including signatures of parties involved in transfer should be made. (This procedures has legal significance.);

(d) Time and date of sampling;

(e) Significant weather conditions;

(f) Sample laboratory number;

(g) Pertinent well data--depth, depth to water surface, pumping schedule, and method;

(h) Sampling method--vacuum, bailer, pressure;

(i) Preservatives, (if any)--type and number (e.g., NaOH for cyanide, H_3PO and $CuSO_4$ for phenols, etc.);

(j) Sample containers--type, size, and number (e.g., three liter glass-stoppered bottles, one gallon screw-cap bottle, etc.);

(k) Reason for sampling--initial sampling of new landfill, annual sampling, quarterly sampling, special problem sampling in conjunction with contaminant discovered in nearby domestic well, etc.;

(l) Appearance of sample--color, turbidity, sediment, oil on surface, etc.;

(m) Any other information which appears to be significant--(e.g., sampled in conjunction with state, county, local regulatory authorities; samples for specific conductance value only; sampled for key indicator analysis; sampled for extended analysis; resampled following engineering corrective action, etc.);

(n) Name and location of laboratory performing analysis;

(o) Sample temperature upon sampling;

(p) Thermal preservaton--(e.g., transportation in ice chest);

(q) Analytical determinations (if any) performed in the field at the time of sampling and results obtained--(e.g., pH, temperature, dissolved oxygen, and specific conductance, etc.);

(r) Analyst's identity and affiliation.

3.3 Chain-of-Custody

(a) As few people as possible should handle the sample.

(b) Samples should be obtained by using standard field sampling techniques, if available.

(c) The chain-of-custody records should be attached to the sample container at the time the sample is collected, and should contain the following information: sample number, date and time taken, source of the sample (include type of sample and name of firm), the preservative and analysis required, name of person taking sample, and the name of witness. The prefilled side of the card should be signed, timed, and dated by the person sampling. The sample container should then be sealed, containing the regulatory agency's designation, date, and sampler's signature. The seal should cover the string or wire tie of the chain of custody record, so that the record or tag cannot be removed and the container cannot be opened without breaking the seal. The tags and seals should be filled out in legible handwriting. When transferring the possession of samples, the transferee should sign and record the date and time on the chain-of-custody record. Custody transfers, if made to a sample custodian in the field, should be recorded for each individual sample. To prevent undue proliferation of custody records, the number of custodians in the chain of possession should be as few as possible. If samples are delivered to the laboratory when appropriate personnel are not there to receive them, the samples should be locked in a designated area within the laboratory so that no one can tamper with them.

(d) Blank samples should be collected in containers, with and without preservatives, so that the laboratory analysis can be performed to show that there was no container contamination.

(e) A field book or log should be used to record field measurements and other pertinent information necessary to refresh the sampler's memory in the event he later becomes a witness in an enforcement proceeding. A separate set of field notebooks should be maintained for each survey and stored in a safe place where they can be protected and accounted for at all times. A standard format should be established to minimize field entries and should include the types of information listed above. The entries should then be signed by the field sampler. The responsibility for preparing and retaining field notebooks during and after the survey should be assigned to a survey coordinator or his designated representative.

(f) The field sampler is responsible for the care and custody of the samples collected until properly dispatched to the receiving laboratory or turned over to an assigned custodian. He must assure that each container is in his physical possession or in his view at all times or stored in a locked place where no one can tamper with it.

(g) Photographs can be taken to establish exactly where the particular samples were obtained. Written documentation on the back of the photograph should include the signature of the photographer, the time, date, and site location.

(h) Each laboratory should have a sample custodian to maintain a permanent log book in which he records for each sample the person delivering the sample, the person receiving the sample, date and time received, source of sample, sample number, method of transmittal to the lab, and a number assigned to each sample by the laboratory. A standardized format should be established for log-book entries. The custodian should insure that heat-sensitive or light-sensitive samples or other sample materials having unusual physical characteristics or requiring special handling are properly stored and maintained. Distribution of samples to laboratory personnel who are to perform analyses should be made only by the custodian. The custodian should enter into the log the laboratory sample number, time, date, and the signature of the person to whom the samples were given. Laboratory personnel should examine the seal on the container prior to opening and should be prepared to testify that their examination of the containers indicated that it had not been tampered with or opened.