PHASE I REPORT

ENGINEERING INVESTIGATIONS AND EVALUATIONS AT INACTIVE HAZARDOUS WASTE DISPOSAL SITES

Tri City Barrel
Broome County, NY

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 #NYD980509285

NYSDEC #704005

SECTION I

EXECUTIVE SUMMARY

Tri-City Barrel

Objective

The purpose of this two phase program is to conduct engineering investigations and evaluations at inactive hazardous waste 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 the report.

Site Background

Tri-City Barrel is located adjacent to Route Seven in the Town of Fenton in Broome County. The firm is in the business of reconditioning used barrels and is owned and operated by Mr. Francis Warner of Port Crane, N.Y. Barrels are reconditioned thru cleaning the interior with a sodium hydroxide solution and repainting. Although wastewater from washing is currently discharged to a holding tank and hauled offsite for disposal, the wastewater was previously discharged to unlined lagoons and allowed to evaporate. Under a consent order with the NYSDEC this practice was discontinued and the lagoons pumped out and backfilled in 1981. Current concern is that wastewater contaminated with the previous contents of the barrels (toluene, xylene, phenols, etc) may have leached into the groundwater through the unlined lagoons.

Assessment

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

S_M =34.78	S_A =0
S_{GW}=59.86	S_{FE}=0
S_{SW}= 6.15	S_{DC}=0

The high groundwater route scoring is largely due to high target values (proximity of drinking water wells).

Recommendations

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

- groundwater monitoring system consisting of three wells
- surface water monitoring system consisting of three stations
- sample analysis should include pH conductivity and GC/MS scan
- air monitoring survey with an OVA meter to determine air quality

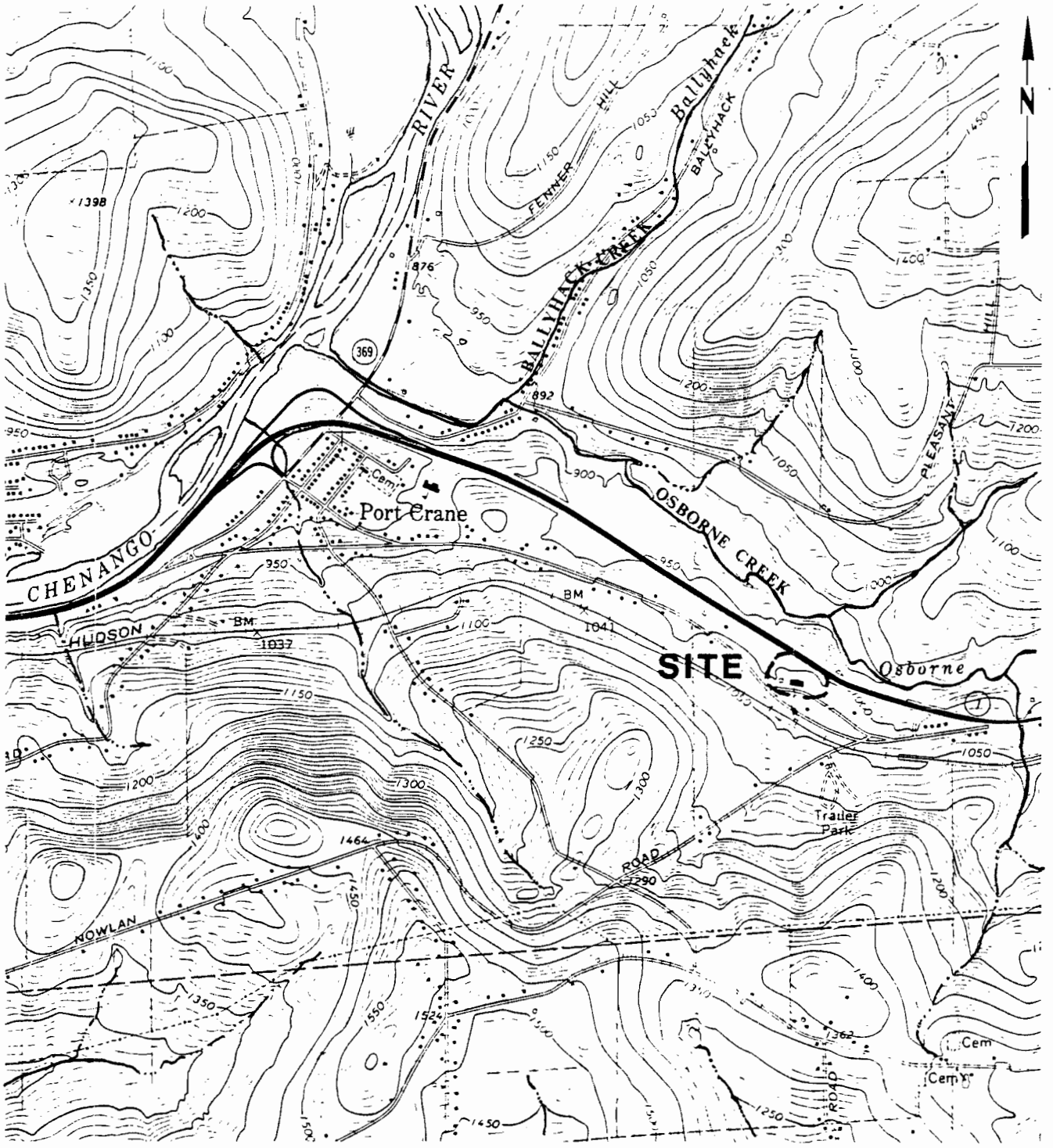
The estimated manhour requirements for Phase II are 276, while the estimated cost is $20,894.

SECTION II

SITE DESCRIPTION

Tri-City Barrel

Tri-City Barrel is located adjacent to Route 7, Town of Fenton, Broome County, New York. The firm is in the business of reconditioning used barrels. The process basically involves cleaning the barrels by washing or burning out the interiors and repainting. Although wastewater from washing is currently discharged to a holding tank and hauled offsite for disposal, the wastewater was previously discharged to unlined lagoons and allowed to evaporate. The lagoons were pumped out and backfilled in 1981. Current concern is that wastewater contaminated with the previous contents of the barrels may have contaminated the groundwater.



SCALE

0 1000 2000 3000 4000 FEET

SITE LOCATION MAP
TRI-CITY BARREL

REFERENCE: U.S.G.S. 7.5' TOPOGRAPHIC MAP
CHENANGO FORKS, NY (1968) QUADRANGLE

SECTION III

HRS SCORING

HRS COVER SHEET

Facility name: Tri-City Barrel

Location: Fenton, NY

EPA Region: II

Person(s) in charge of the facility: Francis Warner Owner

RD 1 Box 88

Port Crane, NY 13833

Name of Reviewer: John Kubarewicz/Eileen Gillian Date: 5/21/83

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.)

Barrel reconditioning company at which barrels are washed by a caustic solution. Wastewaters from washing were originally discharged to unlined lagoons. Under a DEC consent order this practice was discontinued in 1981 and the lagoons were pumped out and backfilled. Concern centers over possible surface and groundwater contamination from past practice.

Scores: $S_M = 34.78$ (46) ($S_{gw} = 59.86$ (33.38) $S_{sw} = 6.15$ $S_a = 0$)

$S_{FE} = 0$

$S_{DC} = 0$

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	0	45	3.1
	If observed release is given a score of 45, proceed to line 4. If observed release is given a score of 0, proceed to line 2.					
2	Route Characteristics					3.2
	Depth to Aquifer of Concern	0 1 2 (3)	2	6	6	
	Net Precipitation	0 1 (2) 3	1	2	3	
	Permeability of the Unsaturated Zone	0 1 (2) 3	1	2	3	
	Physical State	0 1 2 (3)	1	3	3	
	Total Route Characteristics Score			13	15	
3	Containment	0 1 2 (3)	1	3	3	3.3
4	Waste Characteristics					3.4
	Toxicity/Persistence	0 3 6 9 (12) 15 18	1	12	18	
	Hazardous Waste Quantity	0 1 2 3 4 5 6 7 [8]	1	[8]	8	
	Total Waste Characteristics Score			20	26	
5	Targets					3.5
	Ground Water Use	0 1 2 (3)	3	9	9	
	Distance to Nearest Well/Population Served	0 4 6 8 10 / 12 16 18 ~~20~~ / 24 30 32 ~~35~~ 40	1	~~5~~ 20	40	
	Total Targets Score			29 ~~44~~	49	
6	If line 1 is 45, multiply 1 x 4 x 5 If line 1 is 0, multiply 2 x 3 x 4 x 5			34320	57,330	
7	Divide line 6 by 57,330 and multiply by 100 -7-	S_{gw} =		~~59.85~~ 59.86		

SURFACE WATER ROUTE WORK SHEET

Surface Water Route Work Sheet						
Rating Factor	Assigned Value (Circle One)		Multi-plier	Score	Max. Score	Ref. (Section)
1 Observed Release	[0]	45	1	[0]	45	4.1
If observed release is given a value of 45, proceed to line 4. If observed release is given a value of 0, proceed to line 2.						
2 Route Characteristics						4.2
Facility Slope and Intervening Terrain	0 1 (2) 3		1	2	3	
1-yr. 24-hr. Rainfall	0 1 (2) 3		1	2	3	
Distance to Nearest Surface Water	0 1 (2) 3		2	4	6	
Physical State	0 1 2 (3)		1	3	3	
Total Route Characteristics Score				11	15	
3 Containment	0 1 2 (3)		1	3	3	4.3
4 Waste Characteristics						4.4
Toxicity/Persistence	0 3 6 9 (12) 15 18		1	12	18	
Hazardous Waste Quantity	0 1 2 3 4 5 6 7 [8]		1	[8]	8	
Total Waste Characteristics Score				20	26	
5 Targets						4.5
Surface Water Use	0 1 (2) 3		3	6	9	
Distance to a Sensitive Environment	(0) 1 2 3		2	0	6	
Population Served/Distance to Water Intake Downstream	(0) 4 6 8 10 12 16 18 20 24 30 32 35 40		1	0	40	
Total Targets Score				6	55	
6 If line 1 is 45, multiply 1 x 4 x 5 If line 1 is 0, multiply 2 x 3 x 4 x 5				3960	64,350	
7 Divide line 6 by 64,350 and multiply by 100				S_{SW} = 6.15		

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

DIRECT CONTACT WORK SHEET

Direct Contact Work Sheet						
	Rating Factor	Assigned Value (Circle One)	Multi-plier	Score	Max. Score	Ref. (Sectic_)
1	Observed Incident	(0) 45	1	0	45	8.1
	If line 1 is 45, proceed to line 4 If line 1 is 0, proceed to line 2					
2	Accessibility	0 1 2 (3)	1.	3	3	8.2
3	Containment	[0] 15	1	[0]	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				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 =		

WORKSHEET FOR COMPUTING S_M

	S	S^2
Groundwater Route Score (S_{gw})	33.30 ~~59.86~~	1114.22 3583.22
Surface Water Route Score (S_{sw})	6.15	37.82
Air Route Score (S_a)	0	0
$S_{gw}^2 + S_{sw}^2 + S_a^2$		1152.04 ~~3621.04~~
$\sqrt{S_{gw}^2 + S_{sw}^2 + S_a^2}$		33.94 60.18
$\sqrt{S_{gw}^2 + S_{sw}^2 + S_a^2} \,/\, 1.73 = S_M =$		19.6 34.78

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: TRI-CITY BARREL

LOCATION: FENTON

GROUND WATER ROUTE

1 OBSERVED RELEASE

Contaminants detected (5 maximum):

NOT MEASURED

Rationale for attributing the contaminants to the facility:

N/A

* * *

2 ROUTE CHARACTERISTICS

Depth to Aquifer of Concern

Name/description of aquifers(s) of concern:

UNKNOWN

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

~~10ft~~ ~~ASSUMED~~

5ft - by phone with L. Liepak NYSDEC Region 7 office

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):

40

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

27

Net precipitation (subtract the above figures):

13

Permeability of Unsaturated Zone

Soil type in unsaturated zone:

~~Silt Loam~~
Clay, Hardpan Till Soils > by phone w/ L. Liepek NYSDEC Reg 7

Permeability associated with soil type:

~~10^{-4}~~
$10^{-7} - 10^{-8}$

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:

LAGOONS FILLED IN BUT UNLINED
(See Appendix A Ref 3.)

Method with highest score:

LANDFILL - NO LINER > filled in lagoons 3
or unlined lagoons — 3.

4 WASTE CHARACTERISTICS

Toxicity and Persistence

Compound(s) evaluated:

Methylene, Chloride, Toluene, xylene
phenol, dichloroethylene
(See Appendix A Ref 3 and signed questionnaire dated 3/13/79 also in appendix A.)

Compound with highest score:

Phenol (3,1) => 12

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): 3,433,558 gal.

~~According to owner maximum of 1" residue in each 55 gallon drum @ 50,000 drums/yr. In operation since 1951. Assuming it take 40 drums to supply a full gallon. 1250 drums/yr. (27 yrs op) = 33,750 potential~~ , ~~drums~~ 5

Basis of estimating and/or computing waste quantity:

~~(NYSDEC used maximum estimates in preliminary ranking).~~

* * *

Discussion with the site owner 4/3/84 revealed 17,000 yd^3 of fill deposited on site. Therefore once filled volume was 17,000 yd^3 or 3,433,558 gal since at one point in time the lagoons were filled to overflow.

5 TARGETS

Ground Water Use

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

drinking - private wells

Distance to Nearest Well

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

ON SITE WELL.

Distance to above well or building:

ONSITE

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:

#41 Glendale Ct - 30
#47 Hillside Pk - 50
#55 MBM Mobile Ct - 125
205

~~Select Community water Supplies on N. Side of Chenango River including water Supply for Chenango water District and Hillcrest WATER District for the population of~~.

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):

NA.

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

205

2,4 => 20

~~6400~~

~~4,4 => 35~~

SURFACE WATER ROUTE

1 OBSERVED RELEASE

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

Surface water drainage (in drainge ditch leading to culvert) appeared discolored. No samples taken, recommend sampling Osborne Creek

Rationale for attributing the contaminants to the facility:

On site observation

* * *

2 ROUTE CHARACTERISTICS

Facility Slope and Intervening Terrain

Average slope of facility in percent:

5%

Name/description of nearest downslope surface water:

OSBORNE CREEK

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

6%

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

2.2

Distance to Nearest Downslope Surface Water

0.2

Physical State of Waste

Liq.

* * *

3 CONTAINMENT

Containment

Method(s) of waste or leachate containment evaluated:

~~LAGOONS FILLED W/ AND A DRAINAGE DITCH BUILT FOR RUNOFF'S SOURCE ONE SIDE SLOPES TO Road and there's No drainage ditch~~

Method with highest score:

~~AS ABOVE~~

~~SCORED 3~~

Lagoons over flowed into tributary Stream - by phone w/ L Liepak NYS DEC Reg 7

Containment Score 3

4 WASTE CHARACTERISTICS

Toxicity and Persistence

Compound(s) evaluated
methylene chloride, toluene, xylene, phenol, dichloroethylene

Compound with highest score:

Phenol, (3, 1) = 12
See GW. for documentation on this item.

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):

33,750 drums

Basis of estimating and/or computing waste quantity:

see groundwater (sec. 4)

* * *

5 TARGETS

Surface Water Use

Use(s) of surface water within 3 miles downstream of the hazardous substance:
Osborne Creek
Recreation
intermittent unnamed creek flows through site and drains to Osborne creek

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:

UNKNOWN

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):

N/A

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:

None detected

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:

Unknown

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

Unknown

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:

~1.0

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

~0.5

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

EPA

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

I. IDENTIFICATION
01 STATE: NY | 02 SITE NUMBER: 704005

II. SITE NAME AND LOCATION

01 SITE NAME (Legal, common, or descriptive name of site)	02 STREET, ROUTE NO., OR SPECIFIC LOCATION IDENTIFIER				
TRI-CITY BARREL	RT 7				
03 CITY	**04 STATE**	**05 ZIP CODE**	**06 COUNTY**	**07 COUNTY CODE**	**08 CONG DIST**
FENTON	NY	13833	BROOME	007	27

09 COORDINATES: LATITUDE 42° 01' 45.4" | LONGITUDE 075° 50' 29.6"

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
5.12.83 (MONTH DAY YEAR)	☒ ACTIVE ☐ INACTIVE	1956 (BEGINNING YEAR) ; PRESENT (ENDING YEAR) ___ UNKNOWN

04 AGENCY PERFORMING INSPECTION (Check all that apply):
☐ A. EPA ☐ B. EPA CONTRACTOR _____ (Name of firm) ☐ C. MUNICIPAL ☐ D. MUNICIPAL CONTRACTOR _____ (Name of firm)
☒ E. STATE ☐ F. STATE CONTRACTOR ENGINEERING SCIENCE (Name of firm) ☐ G. OTHER _____ (Specify)

05 CHIEF INSPECTOR	06 TITLE	07 ORGANIZATION	08 TELEPHONE NO.
JEAN NEUBECK	GEOLOGIST	ES	(518) 459-0810

09 OTHER INSPECTORS	10 TITLE	11 ORGANIZATION	12 TELEPHONE NO.
			( )
			( )
			( )
			( )
			( )

13 SITE REPRESENTATIVES INTERVIEWED	14 TITLE	15 ADDRESS	16 TELEPHONE NO
FRANCIS WARNER	OWNER	PORT CRANE	(607) 648-9482
GARY WARNER		" "	" " ( )
			( )
			( )
			( )
			( )

17 ACCESS GAINED BY (Check one)	18 TIME OF INSPECTION	19 WEATHER CONDITIONS
☒ PERMISSION ☐ WARRANT	13:00	OVERCAST, BREEZY

IV. INFORMATION AVAILABLE FROM

01 CONTACT	02 OF (Agency/Organization)	03 TELEPHONE NO.
JOHN KUBARCWICZ	Engineering-Science	(703) 591-7575

04 PERSON RESPONSIBLE FOR SITE INSPECTION FORM	05 AGENCY	06 ORGANIZATION	07 TELEPHONE NO.	08 DATE
SAME				5.17.83 (MONTH DAY YEAR)

EPA FORM 2070-13 (7-81)

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

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
NY	704005

II. WASTE STATES, QUANTITIES, AND CHARACTERISTICS

01 PHYSICAL STATES (Check all that apply)
- ☐ A. SOLID
- ☐ B. POWDER, FINES
- ☐ C. SLUDGE
- ☒ E. SLURRY
- ☒ F. LIQUID
- ☐ G. GAS
- ☐ D. OTHER (Specify)

02 WASTE QUANTITY AT SITE (Measures of waste quantities must be independent)
- TONS
- CUBIC YARDS UNKNOWN
- NO. OF DRUMS 33,750 / 27 year period

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			4/3/84 OWNER WOULD NOT
OLW	OILY WASTE			COMMENT ON THIS AMOUNT.
SOL	SOLVENTS			
PSD	PESTICIDES			
OCC	OTHER ORGANIC CHEMICALS			
(IOC)	INORGANIC CHEMICALS	20,000	GAL	BARREL WASHINGS WITH NaOH
ACD	ACIDS			1.5-10% SOLUTION
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
IOC	Sodium Hydroxide	1310732	LG		
SOL	methylene chloride	999	LG		
SOL	Fecon	999	LG	BARRELS	
OCC	DICHLOROETHYLENE	999	LG	PROCESSED	
SOL	TOLUENE	108883	LG		
OCC	XYLENE	1330-20-7	LG		
OCC	STYRENE	100-420-5	LG		
OCC	METHYL ETHER	999	LG		
OCC	PHENOL	108-95-2	LG		

V. FEEDSTOCKS (See Appendix for CAS Numbers)

CATEGORY	01 FEEDSTOCK NAME	02 CAS NUMBER	CATEGORY	01 FEEDSTOCK NAME	02 CAS NUMBER
FDS	TOLUENE	108-88-3	FDS		
FDS	XYLENE	1330-70-7	FDS		
FDS			FDS		
FDS			FDS		

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

SITE INSPECTION NYSDEC 4/17/84
SITE INSPECTION ES 5/12/83
April 3, 1984 Telephone Conversation between Alan G Woodard, D.E.C. & Gary Wayne, The city Chemist.

EPA FORM 2070-13(7-81)

EPA

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

I. IDENTIFICATION
01 STATE: NY | 02 SITE NUMBER: 704005

II. HAZARDOUS CONDITIONS AND INCIDENTS

01 ☐ A. GROUNDWATER CONTAMINATION — 02 ☐ OBSERVED (DATE: _____) — ☑ POTENTIAL — ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ — 04 NARRATIVE DESCRIPTION
UNKNOWN, SAMPLING NEEDED, POTENTIAL CONTAMINATION FROM PREVIOUSLY USED UNLINED LAGOONS. OWNER MENTIONED A NEARBY WELL TESTED? (No Documentation)

01 ☑ B. SURFACE WATER CONTAMINATION — 02 ☑ OBSERVED (DATE: 5/12/82) — ☑ POTENTIAL — ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ — 04 NARRATIVE DESCRIPTION
PAST LEAKAGE FLOW LAGOON TO DRAINAGE DITCH TO OSBOURNE CREEK. LAGOONS FILLED IN. HOWEVER SURFACE WATER DRAIN OFF RUNS TO DITCH AND CREEK (DITCH WTR COLORED)

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

01 ☐ D. FIRE/EXPLOSIVE CONDITIONS — 02 ☐ OBSERVED (DATE: _____) — ☐ POTENTIAL — ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ — 04 NARRATIVE DESCRIPTION
UNKNOWN, HOWEVER BARRELS CONTAIN TRACE AMOUNTS OF CHEMICALS PRIOR TO CLEANING.

01 ☑ E. DIRECT CONTACT — 02 ☐ OBSERVED (DATE: _____) — ☑ POTENTIAL — ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ — 04 NARRATIVE DESCRIPTION
12 workers on site, potential for contact

01 ☑ F. CONTAMINATION OF SOIL — 02 ☐ OBSERVED (DATE: _____) — ☑ POTENTIAL — ☐ ALLEGED
03 AREA POTENTIALLY AFFECTED: _____ (Acres) — 04 NARRATIVE DESCRIPTION
POTENTIAL FROM PREVIOUSLY USED UNLINED LAGOONS AND TOPSOIL UNDER BARREL STACKS

01 ☐ G. DRINKING WATER CONTAMINATION — 02 ☐ OBSERVED (DATE: _____) — ☐ POTENTIAL — ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ — 04 NARRATIVE DESCRIPTION
DRINKING WATER WELL ON SITE - NOT TESTED

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

01 ☑ I. POPULATION EXPOSURE/INJURY — 02 ☐ OBSERVED (DATE: _____) — ☑ POTENTIAL — ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: 12 — 04 NARRATIVE DESCRIPTION
12 on-site workers

EPA FORM 2070-13 (7-81)

EPA

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

I. IDENTIFICATION
01 STATE: NY | 02 SITE NUMBER: 704005

II. HAZARDOUS CONDITIONS AND INCIDENTS (Continued)

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

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

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

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

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

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

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)
NYSDEC SITE INSPECTION

EPA

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

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
NY	70400 S

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	1ONYD002245	264		
☐ B. UIC				
☐ C. AIR				
☐ D. RCRA				
☐ E. RCRA INTERIM STATUS				
☐ F. SPCC PLAN				
☑ G. STATE (Specify) INCINERATE AND HAUL DRUMS				
☐ 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	3	LAGOONS
☐ B. PILES		
☑ C. DRUMS, ABOVE GROUND	25,000	DR
☐ D. TANK, ABOVE GROUND		
☐ E. TANK, BELOW GROUND		
☐ F. LANDFILL		
☐ G. LANDFARM		
☐ H. OPEN DUMP		
☐ I. OTHER (Specify)		

04 TREATMENT (Check all that apply)

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

05 OTHER

☑ A. BUILDINGS ON SITE

06 AREA OF SITE

1 (Acres)

07 COMMENTS

THREE UNLINED LAGOONS USED TO HOLD DRUM WASHINGS WERE DUMPED OUT AND FILLED (1981) DRUMS CURRENTLY STACKED ON OLD SITE.

IV. CONTAINMENT

01 CONTAINMENT OF WASTES (Check one) UNKNOWN

☐ A. ADEQUATE, SECURE ☐ B. MODERATE ☐ C. INADEQUATE, POOR ☐ D. INSECURE, UNSOUND, DANGEROUS

02 DESCRIPTION OF DRUMS, DIKING, LINERS, BARRIERS, ETC.

LAGOONS COVERED WITH FILL BACKDAN AND SHALE ONTOP

V. ACCESSIBILITY

01 WASTE EASILY ACCESSIBLE: ☑ YES ☐ NO

02 COMMENTS

NO FENCES

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

SITE INSPECTION

EPA FORM 2070-13 (7-81)

EPA

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

I. IDENTIFICATION
01 STATE: NY | 02 SITE NUMBER: 704005

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
UNKNOWN	~0.1 (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
1/2 to 1 (ft)	UNKNOWN	_____ (ft)	_____ (gpd)	☐ YES ☐ NO

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

HOMEOWNER DRINKING WATER WELLS (UPHILL FROM SITE)

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

IV. SURFACE WATER

01 SURFACE WATER USE (Check one)

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

02 AFFECTED/POTENTIALLY AFFECTED BODIES OF WATER

NAME:	AFFECTED	DISTANCE TO SITE
OSBORNE CREEK	☒	0.2 (mi)
CHENANGO RIVER	☐	1.9 (mi)
	☐	_____ (mi)

V. DEMOGRAPHIC AND PROPERTY INFORMATION

01 TOTAL POPULATION WITHIN

ONE (1) MILE OF SITE	TWO (2) MILES OF SITE	THREE (3) MILES OF SITE
A. 403 NO. OF PERSONS	B. 1444 NO. OF PERSONS	C. 2470 NO. OF PERSONS

02 DISTANCE TO NEAREST POPULATION: 300' (mi)

03 NUMBER OF BUILDINGS WITHIN TWO (2) MILES OF SITE	04 DISTANCE TO NEAREST OFF-SITE BUILDING
126	0 (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 FORM 2070-13 (7-81)

EPA

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

I. IDENTIFICATION
01 STATE: NY | 02 SITE NUMBER: 704005

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
4+ (ft)	UNKNOWN (ft)	5.0 - 6.5

06 NET PRECIPITATION	07 ONE YEAR 24 HOUR RAINFALL	08 SLOPE: SITE SLOPE	DIRECTION OF SITE SLOPE	TERRAIN AVERAGE SLOPE
13 (in)	2.2 (in)	5 %	N	6 %

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. UNKNOWN (mi) OTHER: B. _____ (mi)

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

13 LAND USE IN VICINITY

DISTANCE TO:

COMMERCIAL/INDUSTRIAL	RESIDENTIAL AREAS; NATIONAL/STATE PARKS, FORESTS, OR WILDLIFE RESERVES	AGRICULTURAL LANDS: PRIME AG LAND	AG LAND
A. UNKNOWN (mi)	B. ~1.0 (mi)	C. _____ (mi)	D. ~0.5 (mi)

14 DESCRIPTION OF SITE IN RELATION TO SURROUNDING TOPOGRAPHY

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

USGS

EPA FORM 2070-13 (7-81)

EPA

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

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER

II. SAMPLES TAKEN N.A.

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 ENGINEERING-SCIENCE
(Name of organization or individual)

03 MAPS ☐ YES ☐ NO

04 LOCATION OF MAPS DAMES & MOORE

V. OTHER FIELD DATA COLLECTED (Provide narrative description)

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

EPA FORM 2070-13 (7-81)

EPA

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

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
NY	704005

II. CURRENT OWNER(S)

01 NAME	02 D+B NUMBER	03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE	05 CITY	06 STATE	07 ZIP CODE
FRANCIS WARNER		RD 1 BOX 88		PORT CRANE	NY	13833

PARENT COMPANY (If applicable)

08 NAME	09 D+B NUMBER	10 STREET ADDRESS (P.O. Box, RFD #, etc.)	11 SIC CODE	12 CITY	13 STATE	14 ZIP CODE

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

01 NAME	02 D+B NUMBER	03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE	05 CITY	06 STATE	07 ZIP CODE

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

01 NAME	02 D+B NUMBER	03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE	05 CITY	06 STATE	07 ZIP CODE

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

NYS TAX RECORDS

EPA FORM 2070-13 (7-81)

EPA

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

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
NY	704005

II. CURRENT OPERATOR *(Provide if different from owner)*

01 NAME	02 D+B NUMBER	10 NAME	11 D+B NUMBER
TRI-CITY BARREL		SAME	

03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE	12 STREET ADDRESS (P.O. Box, RFD #, etc.)	13 SIC CODE
Rt 7			

05 CITY	06 STATE	07 ZIP CODE	14 CITY	15 STATE	16 ZIP CODE
FENTON	NY				

08 YEARS OF OPERATION	09 NAME OF OWNER
1955 - PRESENT	FRANCIS WALNER

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

PREVIOUS OPERATORS' PARENT COMPANIES *(If applicable)*

01 NAME	02 D+B NUMBER	10 NAME	11 D+B NUMBER
SAME			

03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE	12 STREET ADDRESS (P.O. Box, RFD #, etc.)	13 SIC CODE

05 CITY	06 STATE	07 ZIP CODE	14 CITY	15 STATE	16 ZIP CODE

08 YEARS OF OPERATION	09 NAME OF OWNER DURING THIS PERIOD

01 NAME	02 D+B NUMBER	10 NAME	11 D+B NUMBER

03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE	12 STREET ADDRESS (P.O. Box, RFD #, etc.)	13 SIC CODE

05 CITY	06 STATE	07 ZIP CODE	14 CITY	15 STATE	16 ZIP CODE

08 YEARS OF OPERATION	09 NAME OF OWNER DURING THIS PERIOD

01 NAME	02 D+B NUMBER	10 NAME	11 D+B NUMBER

03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE	12 STREET ADDRESS (P.O. Box, RFD #, etc.)	13 SIC CODE

05 CITY	06 STATE	07 ZIP CODE	14 CITY	15 STATE	16 ZIP CODE

08 YEARS OF OPERATION	09 NAME OF OWNER DURING THIS PERIOD

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

EPA FORM 2070-13 (7-81)

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

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
NY	704005

II. ON-SITE GENERATOR

01 NAME	02 D+B NUMBER
TRI-CITY BARREL	

03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE
RT 7	

05 CITY	06 STATE	07 ZIP CODE
FENTON	NY	

III. OFF-SITE GENERATOR(S)

01 NAME	02 D+B NUMBER	01 NAME	02 D+B NUMBER
ASHLAND CHEMICAL		GENERAL ELECTRIC	
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
IBM		CROUSE-HINDS	
03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE	03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE
05 CITY	06 STATE / 07 ZIP CODE	05 CITY	06 STATE / 07 ZIP CODE

IV. TRANSPORTER(S)

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

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

SITE INTERVIEW, LIST OF COMPANIES BARRELS RECEIVED FROM.

EPA

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

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
NY	704005

II. PAST RESPONSE ACTIVITIES

01 ☐ A. WATER SUPPLY CLOSED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
NO

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 CECOS Hauls liquid waste offsite, awaiting permit for solids.

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 FORM 2070-13 (7-81)

EPA

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

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
NY	704005

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
NONE

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

EPA FORM 2070-13 (7-81)

EPA

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

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
NY	704085

II. ENFORCEMENT INFORMATION

01 PAST REGULATORY/ENFORCEMENT ACTION ☑ YES ☐ NO

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

1979 DEC ISSUED CONSENT ORDER FOR LAGOON CLOSURE.

- STATE AGENCIES HAVE ISSUED "UNIFORM APPEARANCE TICKETS" IN PAST (FAILURE TO PERFORM PHYSICAL ANALYSIS) FAILURE TO PROPERLY LABEL HAZARDOUS WASTES.

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

SITE OWNER, FRANCIS WARNER

EPA FORM 2070-13 (7-81)

EPA

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

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
NY	704005

II. SITE NAME AND LOCATION

01 SITE NAME (Legal, common, or descriptive name of site)	02 STREET, ROUTE NO., OR SPECIFIC LOCATION IDENTIFIER				
TRI-CITY BARREL	Rt 7				
03 CITY	**04 STATE**	**05 ZIP CODE**	**06 COUNTY**	**07 COUNTY CODE**	**08 CONG DIST**
FENTON	NY	13833	BROOME	007	27

09 COORDINATES LATITUDE: 42°09'45.4" | LONGITUDE: 075°50'29.6"

10 DIRECTIONS TO SITE (Starting from nearest public road)
LOCATED BETWEEN NEW AND OLD RTE. 7, HALFWAY BETWEEN PORT CRANE AND SANITARIA SPRINGS

III. RESPONSIBLE PARTIES

01 OWNER (If known)	02 STREET (Business, mailing, residential)		
FRANCIS WARNER	RD 1 BOX 88		
03 CITY	**04 STATE**	**05 ZIP CODE**	**06 TELEPHONE NUMBER**
PORT CRANE	NY	13833	(607) 648-9482
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 5/15/83 (MONTH DAY YEAR)
☐ NO

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

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

03 YEARS OF OPERATION: 1955 (BEGINNING YEAR) — (ENDING YEAR) ☐ UNKNOWN

04 DESCRIPTION OF SUBSTANCES POSSIBLY PRESENT, KNOWN, OR ALLEGED
NaOH SOLUTION USED TO WASH BARRELS, CONTAINS CONTAMINANTS FROM BARRELS (ORGANICS)

05 DESCRIPTION OF POTENTIAL HAZARD TO ENVIRONMENT AND/OR POPULATION
POTENTIAL GROUND/SURF WATER CONTAMINATION FROM CLOSED LAGOON PREVIOUSLY USED TO HOLD BARREL WASHINGS.

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 KUBARKEWICZ	ES		(703) 591-7575
04 PERSON RESPONSIBLE FOR ASSESSMENT	**05 AGENCY**	**06 ORGANIZATION**	**07 TELEPHONE NUMBER** / **08 DATE**
SAME			( ) / 5/17/83 (MONTH DAY YEAR)

EPA FORM 2070-12 (7-81)

NO SAMPLES

EPA

POTENTIAL HAZARDOUS WASTE SITE
PRELIMINARY ASSESSMENT
PART 2 - WASTE INFORMATION

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
NY	704005

II. WASTE STATES, QUANTITIES, AND CHARACTERISTICS

01 PHYSICAL STATES (Check all that apply)

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

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

- TONS: _____
- CUBIC YARDS: unknown
- NO. OF DRUMS: _____

03 WASTE CHARACTERISTICS (Check all that apply)

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

III. WASTE TYPE

CATEGORY	SUBSTANCE NAME	01 GROSS AMOUNT	02 UNIT OF MEASURE	03 COMMENTS
SLU	SLUDGE			
OLW	OILY WASTE			
SOL	SOLVENTS			
PSD	PESTICIDES			
OCC	OTHER ORGANIC CHEMICALS			
(IOC)	INORGANIC CHEMICALS	20,000	GAL	BARREL WASHINGS WITH NaOH 15-10% SOLUTION
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
IOC	SODIUM HYDROXIDE	1310732	LG		
SOL	METHYLENE CHLORIDE	999	LG		
SOL	FREON	999	LG	BARRELS	
OCC	DICHLOROETHYLENE	999	LG	PROCESSED	
SOL	TOLUENE	108883	LG		
OCC	XYLENE	1330-20-7	LG		
OCC	STYRENE	100-420-5	LG		
OCC	METHYLETHER	999	LG		
OCC	PHENOL	108-95-2	LG		

V. FEEDSTOCKS (See Appendix for CAS Numbers)

CATEGORY	01 FEEDSTOCK NAME	02 CAS NUMBER	CATEGORY	01 FEEDSTOCK NAME	02 CAS NUMBER
FDS	TOLUENE	108-88-3	FDS		
FDS	XYLENE	1330-70-7	FDS		
FDS			FDS		
FDS			FDS		

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

SITE INSPECTION NYSDEC 4/17/79

SITE INSPECTION ES 5/12/83

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	02 SITE NUMBER
NY	704005

II. HAZARDOUS CONDITIONS AND INCIDENTS

01 ☑ A. GROUNDWATER CONTAMINATION — 02 ☐ OBSERVED (DATE: _____) — ☑ POTENTIAL — ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ — 04 NARRATIVE DESCRIPTION
UNKNOWN, SAMPLING NEEDED, POTENTIAL CONTAMINATION FROM PREVIOUSLY USED UNLINED LAGOONS. OWNER MENTIONED A NEARBY WELL TESTED (No Documentation)

01 ☐ B. SURFACE WATER CONTAMINATION — 02 ☐ OBSERVED (DATE: _____) — ☑ POTENTIAL — ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ — 04 NARRATIVE DESCRIPTION
PAST LEAKAGE FROM LAGOON TO DRAINAGE DITCH TO OSBOURNE CREEK. LAGOONS FILLED IN. HOWEVER SURFACE WATER DRAIN OFF RUNS TO DITCH AND CREEK.

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

01 ☐ D. FIRE/EXPLOSIVE CONDITIONS — 02 ☐ OBSERVED (DATE: _____) — ☐ POTENTIAL — ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ — 04 NARRATIVE DESCRIPTION
UNKNOWN, HOWEVER BARRELS CONTAIN TRACE AMOUNTS OF CHEMICALS PRIOR TO CLEANING

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

01 ☑ F. CONTAMINATION OF SOIL — 02 ☐ OBSERVED (DATE: _____) — ☑ POTENTIAL — ☐ ALLEGED
03 AREA POTENTIALLY AFFECTED: _____ (Acres) — 04 NARRATIVE DESCRIPTION
POTENTIAL FROM PREVIOUSLY USED UNLINED LAGOONS AND TOP SOIL UNDER BARREL STACKS

01 ☐ G. DRINKING WATER CONTAMINATION — 02 ☐ OBSERVED (DATE: _____) — ☐ POTENTIAL — ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ — 04 NARRATIVE DESCRIPTION
DRINKING WATER WELL ON SITE - NOT TESTED

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

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

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: 704005

II. HAZARDOUS CONDITIONS AND INCIDENTS (Continued)

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

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

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

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

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

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

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)
NYS DEC SITE INSPECTION

EPA FORM 2070-12 (7-81)

SECTION IV

SITE HISTORY

Tri-City Barrel

This company has been in business as a reprocessor of used barrels since 1956. The barrels it acquires for reprocessing are essentially empty but have previously contained a variety of substances such as toluene, xylene, methylene chloride, various oils and methyl ether. The company operates under several permits.

The barrels are either burned out or washed to prepare them for repainting. The solution used for washing is 10 percent sodium hydroxide. For many years wash water was dumped into unlined holding lagoons. Three lagoons were connected in series and the liquid delivered into them was left for evaporation. One of the lagoons showed evidence of past leaking into an adjacent highway ditch that leaks into Osborne Creek.

In April 1979, when the site was being investigated by NYSDEC for issuance of a SPDES permit, it was felt that a public health problem did not exist but that the lagoons could cause groundwater contamination. A consent order for lagoon closure and backfilling was issued by the NYSDEC.

The use of the lagoons was then discontinued and the company began disposing of washing wastes into a holding tank. Soon after this change was made, a NYSDEC inspection reported that the lagoons contained "thousands of gallons of industrial wastewater." The lagoons were pumped out and backfilled approximately two years ago. At present the basic concern regarding this site is that contaminants resulting from past disposal practices may be migrating into the groundwater. Sampling to evaluate the situation has been recommended.

SECTION V

SUMMARY OF AVAILABLE DATA

Tri-City Barrel

Regional Geology and Hydrology

The Tri City Barrel site is located in the Appalachian Highlands physiographic province. The geology of this province is characterized by thick accumulations of clastic sedimentary rocks. In New York State, these rocks are Devonian in age, dip gently to the south, and reach several thousand feet in thickness. Most of these rocks are deep aquifers; water flow is approximately southward. After the deposition of the bedrock, tectonic activity uplifted and fractured the bedrock, resulting in NE trending faults and modifications of deep fluid-flow regimes.

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. The melting of ice, ending approximately 12,000 years ago, produced large volumes of meltwater; this water subsequently shaped channels and deposited thick accumulations of stratified, granular sediments. Occasionally, meltwater was dammed, forming lakes and associated lacustrine deposts.

At the present time, the land surface is being shaped largely by subaerial erosion. Frequently streams flow in valleys previously shaped by larger rivers and cut into former lake or meltwater channel deposits. In these valleys, granular deposits frequently act as shallow aquifers, whereas lacustrine clays and 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.

Recharge of shallow aquifers generally occurs in the uplands, whereas discharge occurs either along hillsides or in valleys. Also, water from shallow aquifers may be vertically connected to underlying bedrock aquifers.

Site Geology

Site geology is interpreted from the regional geology and from USGS topographic maps and NYS Museum and Science Service Bedrock Geology Maps. Bedrock underlying the site is expected to be shale belonging to the Sonyea Group. The bedrock surface may slope to the north. Overlying the bedrock is a silt till unit, upon which a silt loam soil has developed (Soil Conservation Service, 1971). No test borings have been made on the site to confirm this interpretation.

Site Hydrology

Site hydrology is interpreted from the USGS topographic map. A shallow aquifer probably exists in the silt soil and adjacent alluvial deposits filling Osborne Creek stream valley. Flow may be to the north. This aquifer may discharge laterally into Osborne Creek, although, if there are no vertical flow barriers, it may also flow downward into bedrock. The one on-site well is insufficient for flow direction or flow rate assessments.

Sampling and Analysis

To date no samples have been taken at the site. A site report form (McCarthy, 1979), completed by the site owner, indicates the firm reprocessed barrels containing the following chemicals:

methylene chloride
freon
dichloroethylene
toluene
xylene
styrene
methyl ether
phenol

During the draft review of this report, a satellite NYSDEC office (Binghamton) reported that a sample analysis of caustic rinsewater, a RCRA site inspection report, and a fuel oil spill report were available (Lepak, 1983). Although requested, these reports did not arrive in time to be included in this report.

SECTION VI

ASSESSMENT OF ADEQUACY OF DATA

Site: Tri City Barrel

HRS Data Requirement	Comments on Data
Observed Release	
Ground Water	No available data, field data collection recommended.
Surface Water	No available data, field data collection recommended.
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	Insufficient information on population served and well location.
Observed Incident	Information available revealed no report of incident. No further investigation recommended.
Accessibility	Adequate information available.

SECTION VII

PHASE II WORK PLAN

Site: Tri City Barrel

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:

Ground Water - A ground water monitoring system consisting of 3 wells is recommended. The wells are to be approximately 20 feet in depth and constructed of 2-inch PVC pipe. The water from these wells and the existing on site well will be analyzed using a GC/MS scan.

Surface Water - A surface water monitoring system consisting of 3 monitoring stations is recommended. The water will be analyzed using a GC/MS scan.

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 $20,894.

TABLE VII-1
PHASE II WORK PLAN - TASK DESCRIPTION
Site: Tri City Barrel

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	Install 3 wells. The wells are to be 20 feet in depth and constructed of 2-inch PCV pipe.
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	Analyze samples using a GC/MS scan.
	Surface water samples	Analyze samples using a GC/MS scan.
	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: TRI CITY BARREL)

TASK DESCRIPTION	TEAM MEMBERS, MANHOURS												TOTAL HOURS	TOTAL $
	PIC	TRB	PM	DPM	PCM	QAM	HSM	FTL	FT	RAAL	RAAT	SS		
II-A UPDATE WORK PLAN	1		4	1		1	1	6		6		8	28	469
II-B CONDUCT GEOPHYSICAL STUDIES													0	0
II-C CONDUCT BORING/INSTALL MONITORING WELLS			2				1	8	24			4	39	478.67
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			1					2	10			2	15	172.58
SURFACE WATER SAMPLES								2	10			2	14	148.48
AIR SAMPLES								1	8			2	11	109.56
WASTE SAMPLES													0	0
II-F CALCULATE FINAL HRS			3	3				3	24			16	49	563.23
II-G CONDUCT SITE ASSESSMENT	1	2	4	2				4	16	6	24	32	91	1103.84
II-H PROJECT MANAGEMENT	2		6	2	3	4	4					8	29	500.2
TOTALS	4	2	20	8	3	5	6	26	92	12	24	74	276	3545.56

TABLE VII-3
COST ESTIMATE BREAKDOWN BY TASK
PHASE II HRS SITE INVESTIGATION (SITE: TRI CITY BARREL)

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	20	469		100	50	50		25	225	694
II-B CONDUCT GEOPHYSICAL STUDIES									0	0
II-C CONDUCT BORING/INSTALL MONITORING WELLS	39	478.67		150	25		4000	100	4275	4753.67
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	15	172.58	2400	170	250			25	2845	3017.58
SURFACE WATER SAMPLES	14	148.48	2400		50			15	2465	2613.48
AIR SAMPLES	11	109.56		85	25	15		5	130	239.56
WASTE SAMPLES									0	0
II-F CALCULATE FINAL HRS	49	563.23			50	50		25	125	688.23
II-G CONDUCT SITE ASSESSMENT	91	1103.84			100	200		75	375	1478.84
II-H PROJECT MANAGEMENT	29	508.2		400	150	50		50	650	1158.2
TOTALS	276	3545.56	4800	905	700	365	4000	320	11090	14635.56

OVERHEAD =	5063.06
SUBTOTAL =	19698.62
FEE =	1195.17
TOTAL PROJECT COST =	20893.79

APPENDIX A

BIBLIOGRAPHY

APPENDIX A

Bibliography

Tri-City Barrel

1 Branagh, C.J. (1979) Memo to Mr. McCarthy of Syracuse Area Office of Public Health Services, April 23, 1979.

2 Lepak, L. (1983) Memo to Charles Goddard, NYSDEC, Albany on Draft Investigation Report Tri-City Barrel, Co. July 19, 1983.

3 McCarthy, J. M. (1979) Memo to Dr. Stasivk of Department of Environmental Health Tri-City Barrel Site Visit, April 23, 1979.

4 NYSDEC (1983) Preliminary Scoring State Superfund Site.

5 NYS Museum and Science Service (1970) Map and Chart Series No. 15.

6 Soil Conservation Service (1971), Soil Survey of Broome County, New York, 1971.

Tri City

April 23, 1979

Mr. McCarthy - Syracuse Area Office of P.H. Services

Mr. Branagh - S.A.O.P.H.S.

Tri-City Barrel Co. - Broome County

On April 17, 1979 Mr. LePack, Mr. David Leemhuis and I visited the Tri-City Barrel Company near Port Crane, New York

Tri-City Barrel buys empty used drums, washes or burns out the interiors, and repaints the exterior before resale. The washing solution is 10% caustic soda. The wash water is dumped once a month into holding lagoons. Three unlined lagoons are connected in series and the liquid is left for evaporation. The first lagoon, shown in Photos 2, 3, & 4, showed evidence of past leakage over its banks into an adjacent highway ditch. The highway ditch eventually enters Osborne Creek. The nearest homes are between 400 and 750 feet distant and at the same elevation or uphill from the site. These homes are served by private wells.

A small drainage creek downstream of the highway ditch showed an oily rainbow-colored substance on the rocks.

Photos 1, 3, and 6 show the empty barrels on the site awaiting processing. A list of substances that were previously stored in the barrels is attached.

Tri-City Barrel has a drilled well on the site which I belive should be sampled so groundwater contamination may be assessed. Visually examining the potable water supply revealed no colors or odors.

CJB/bv

Attachment

15 (12/75)

File: State Superfund

New York State Department of Environmental Conservation

MEMORANDUM

TO: Charles Goddard - Albany - Room 411

FROM: L. Lepak — Larry.

SUBJECT: Draft Investigation Report - Tri-Cities Barrel Co., Inc. - Review Comments

DATE: 7-19-83

I have completed review of the above-mentioned report and feel that the consultant has not properly evaluated the site. Key sampling information and other correspondence available in the Binghamton Office files was not included in the report. In fact, the consultant did not review this site with key Binghamton Office personnel at all to develop a better knowledge of the site. I have attached the following listed correspondence in order to provide more information on the site:

1. Sample analysis of the caustic rinsewater from a March, 1982 sampling - This sample was secured directly from the caustic rinsewater tank reservoir inside the plant. Mr. Warner said this sample would be representative of his barrel rinsing operation and should contain small amounts of residual materials from the rinsed drums. The sample was found to contain a wide range of chemicals, including cyanide, phenols and a number of chlorinated solvents. Mr. Warner said that this sample would be representative of his previous lagoon discharge, prior to his firm going to a holding tank system.

2. RCRA inspection of the site on March 3, 1983 - During this inspection, one leaking tanker and two leaking barrels of hazardous waste were noted at the property. Also, discharges were noted at the property in a couple of areas. One of these discharges, coming out of the ground was visible again at a site visit on 5/27/83. How, the consultant missed this discharge, while both Doug Layman and myself noted this discharge both in March and May site visits, is beyond me. The consultant inspected the site on May 17, 1983.

   During the RCRA inspection, it was also noted that the contents from some drums had leaked and dissolved the ground's surface. Some frozen residue material from some drums was thawing and melting onto the ground.

3. Copy of the Broome County soils map, indicating the soils at the site are in the Mardin and Volusia hardpan series, not sands as thought by the consultant.

Since the consultant never bothered to interview me (the DEC field engineer, who has intimate knowledge of the facility), I would like to summarize my feelings on this inactive site. Tri-Cities Barrel Co., Inc. has operated

at this property since the 1950's, thus before the environmental regulatory movement began. I feel it is highly likely, that the groundwater at the site is contaminated to some unknown degree.

Possible sources of contamination at the site would be barrel residual wastes, that have leaked on the ground's surface, discharge of residual wastes in the caustic rinsewater to the unlined lagoons and/or any unknown disposal of barrel residual materials or ash from the barrel incinerator on the property. The sample analysis results of the caustic wastewater from March, 1982 give a good indication of the type and level of residuals wastes, that were discharged to the facility's lagoons. I personally saw during one inspection in the late 1970's, that the caustic rinsewater discharge had completely dissolved two inches of asphalt pavement in a DOT paved ditch, that received a portion of the discharge from the facility.

The consultant did not recommend any sampling of the existing on-site water supply well. In my mind, sampling of this well would be the first step in evaluating the site for possible contamination. I also recommend that a boring be located in the lagoon's location and a lagoon sediment sample be acquired for GC/MS analysis. I also feel that two surface water monitoring stations are adequate - one upgradient and one downgradient from the facility, rather than the three stations proposed by the consultant.

The consultant also did not report that the firm had an oil spill of approximately 200 gallons of No. 2 fuel oil at the site on August 3, 1982. A copy of the spill report is included for your information.

In closing, I recommend that you withhold a portion of the consultant's fee for preparing an inadequate report. The money withheld could be used to pay for sampling the on-site well at the property.

L. Lepak

LTL:kr

cc: S. Lackey
L. Gross

April 23, 1979

Dr. Stasiuk - Department of Environmental Health

Mr. McCarthy - Syracuse Area Office of P.H. Services

Tri-City Barrel - Near Rte. 17 - Broome County

Attached is a report concerning the Tri-City Barrel Company. You will remember that this site is visible from the new Interstate Highway from Albany to Binghamton.

This industrial company reconditions empty steel drums which have contained the following chemicals:

1. Methylene Chloride
2. Freon
3. Dichloroethylene
4. Toluene
5. Xylene
6. Styrene
7. Methyl Ether
8. Phenol
9. Various Oils

Presently this site is being investigated by the Central Office of DEC for issuance of a SPDES permit. There does not appear to be a public health problem at this time; however, a groundwater contamination problem may be present from the unlined lagoons.

JMM/bv

Attachment

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
Division of Solid Waste

Tri-City
1993

Scoring System to Select Sites to be Ranked for State Superfund

Name of Site Tri-City Bowl Inactive ☒ Active ☐

County Broome, V Private ☐ Public ☐

Address Box EE, Port Crane Classification Code A

Code Number 704005

I. Type of Site

Open dump/unlined lagoon	(10)	
structure	(8)	
landfill	(6)	Score 10
No information/Unknown	(4)	

II. Hazardous Waste Disposal

Confirmed	(15)	
Suspected	(10)	Score 15
Unknown	(5)	

III. A. Type of Wastes

Halo-organics	(10)
Other Organics	(5)
Inorganics	(3)
Unknown	(1)

B. Quantity of Waste/Year

Over 10 tons	(6 x type of waste)
1 to 10 tons	(3 x type of waste)
1 ton or less	(2 x type of waste)
Unknown	(1 x type of waste)

(1 ton = 1 cu. yd.)

B/A x 4/B = 40/Score

IV. Environmental Problems

Groundwater contamination	(15)	
Surface Water/Wetland Contamination	(0)	Score 15
Air Contamination	(8)	
Possibility (½ above values)		

V. Public Health Problems

Known contamination of public water supply	(20)	
Known contamination of private water supply	(15)	Score 10
Potential contamination of public or private water supply	(10)	

90

DISPOSAL If sludge is created as a result of processing or treatment, what is ultimate disposal point?

Tel Bonel

6. DISCHARGE DATA (Continued) (See Instructions) ATTACH SKETCH SHOWING OUTFALL LOCATIONS

OUTFALL NO.	☐ Proposed ☐ Replacement ☒ Existing ☐ Expansion	TYPE OF WASTE	TYPE OF TREATMENT (If none, so state)
1		LIQUID	NONE

DESIGN FLOW	ACTUAL FLOW	FREQUENCY OF DISCHARGE	IS FLOW EQUALIZATION PROVIDED?
250 Gal/Day	250 Gal/Day	☐ Continuous ☒ Intermittent ☐ Batch	☐ Yes ☒ No If "Yes", describe in comme

PERIOD OF DISCHARGE		
12 Months per year	5 Days per week	8 Hours per d

SURFACE DISCHARGE	If "Yes", Name of Receiving Waters	Classification	Waters Index No.
☒ Yes ☐ No	OSBORNE CREEK		

SUBSURFACE DISCHARGE	If "Yes", Name of nearest Surface Water	Distance	SOIL TYPE	Depth to Water
☐ Yes ☐ No		Ft.		

OUTFALL NO.	☐ Proposed ☐ Replacement ☐ Existing ☐ Expansion	TYPE OF WASTE	TYPE OF TREATMENT (If none, so state)

DESIGN FLOW	ACTUAL FLOW	FREQUENCY OF DISCHARGE	IS FLOW EQUALIZATION PROVIDED?
Gal/Day	Gal/Day	☐ Continuous ☐ Intermittent ☐ Batch	☐ Yes ☐ No If "Yes", describe in comme

PERIOD OF DISCHARGE		
Months per year	Days per week	Hours per d

SURFACE DISCHARGE	If "Yes", Name of Receiving Waters	Classification	Waters Index No.
☐ Yes ☐ No			

SUBSURFACE DISCHARGE	If "Yes", Name of nearest Surface Water	Distance	SOIL TYPE	Depth to Water
☐ Yes ☐ No		Ft.		

OUTFALL NO.	☐ Proposed ☐ Replacement ☐ Existing ☐ Expansion	TYPE OF WASTE	TYPE OF TREATMENT (If none, so state)

DESIGN FLOW	ACTUAL FLOW	FREQUENCY OF DISCHARGE	IS FLOW EQUALIZATION PROVIDED?
Gal/Day	Gal/Day	☐ Continuous ☐ Intermittent ☐ Batch	☐ Yes ☐ No If "Yes", describe in comme

PERIOD OF DISCHARGE		
Months per year	Days per week	Hours per d

SURFACE DISCHARGE	If "Yes", Name of Receiving Waters	Classification	Waters Index No.
☐ Yes ☐ No			

SUBSURFACE DISCHARGE	If "Yes", Name of nearest Surface Water	Distance	SOIL TYPE	Depth to Water
☐ Yes ☐ No		Ft.		

OUTFALL NO.	☐ Proposed ☐ Replacement ☐ Existing ☐ Expansion	TYPE OF WASTE	TYPE OF TREATMENT (If none, so state)

DESIGN FLOW	ACTUAL FLOW	FREQUENCY OF DISCHARGE	IS FLOW EQUALIZATION PROVIDED?
Gal/Day	Gal/Day	☐ Continuous ☐ Intermittent ☐ Batch	☐ Yes ☐ No If "Yes", describe in comme

PERIOD OF DISCHARGE		
Months per year	Days per week	Hours per

SURFACE DISCHARGE	If "Yes", Name of Receiving Waters	Classification	Waters Index No.
☐ Yes ☐ No			

SUBSURFACE DISCHARGE	If "Yes", Name of nearest Surface Water	Distance	SOIL TYPE	Depth to Water
☐ Yes ☐ No		Ft.		

7. COMMENTS:

8. I hereby affirm under penalty of perjury that information provided on this form and any attached supplemental forms is true to the best of my knowledge and belief. False statements made herein are punishable as a Class A misdemeanor pursuant to Section 210.45 of the Penal Law.

APPLICANT'S SIGNATURE (See Instructions)	Date	Printed Name	Title
X Francis Warner	12/12/88	FRANCIS WARNER	OWNER

PART III

TRI Travel

SUBSTANCES OF CONCERN
(Refer to attached TABLE I)

Complete all information for those substances your facility has used, produced, stored, distributed or otherwise disposed of since January 1, 1971. Do not include chemicals used only in analytical laboratory work. Enter the name and code from Table I. If facility uses a substance in any of the Classes A – E which is not specified in the list, enter it as code class plus 99, e.g. B99 with name, usage, etc.

NAME OF SUBSTANCE	CODE	AVERAGE ANNUAL USAGE	AMOUNT NOW ON HAND	(✓) GAL.	(✓) LB.	PURPOSE OF USE (State whether produced, reacted, blend packaged, distributed, no longer used,
We recondition steel drums that have had following substances in them; drums are empty quantity of substance unknown						
Methylene Chloride	A02					
Freon	A05					
Dichlorethylene	A11					
Toluene	D02					
Xylene	D03					
Styrene	D07					
Methyl Ether	B02					
Phenol	F01					
Various Oils, Motor, industrial (etc)						
Sodium Hydroxide		20,000	1500		x	Used to wash drums 5 10% solution

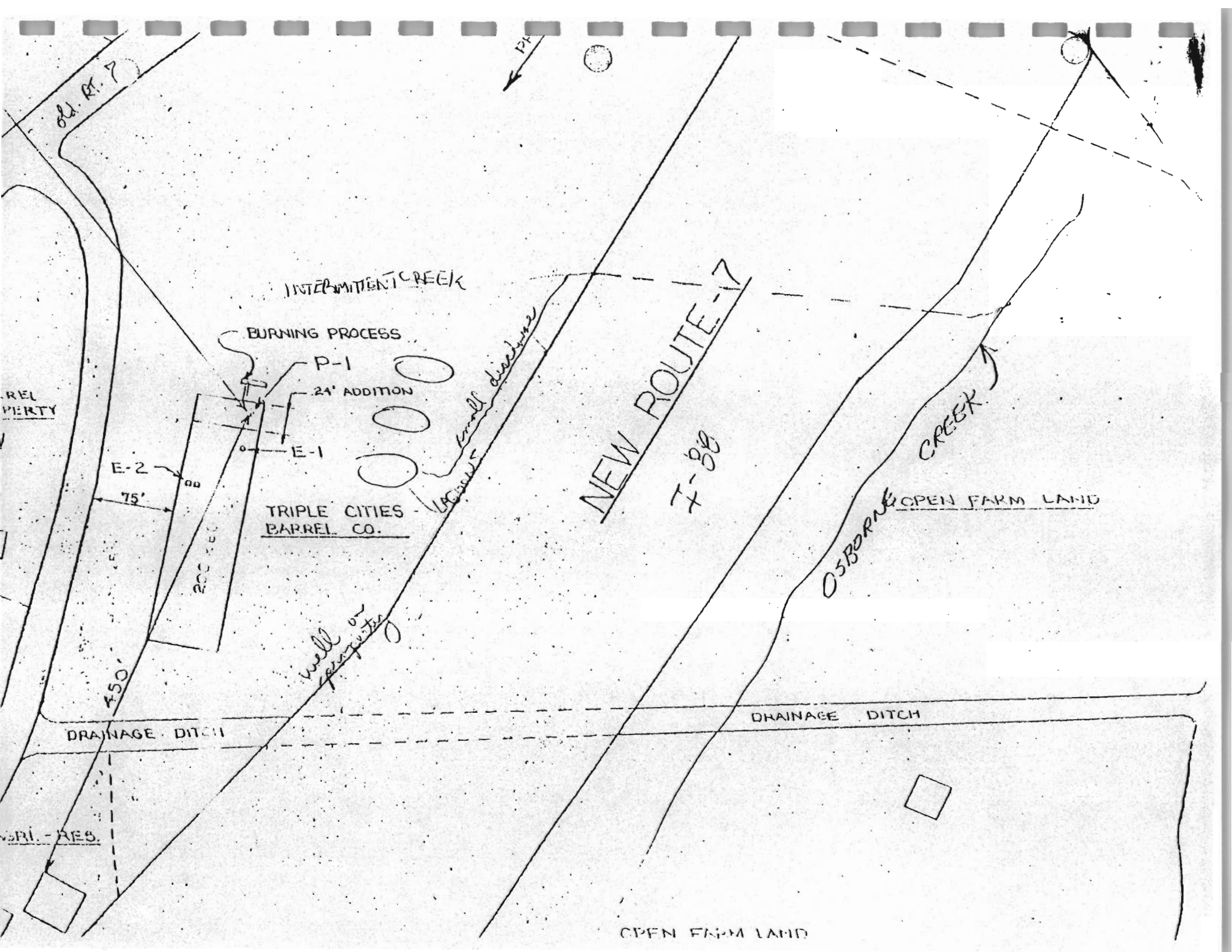
If you use chemicals of unknown composition, list trade name or other identification, name of supplier and complete information.

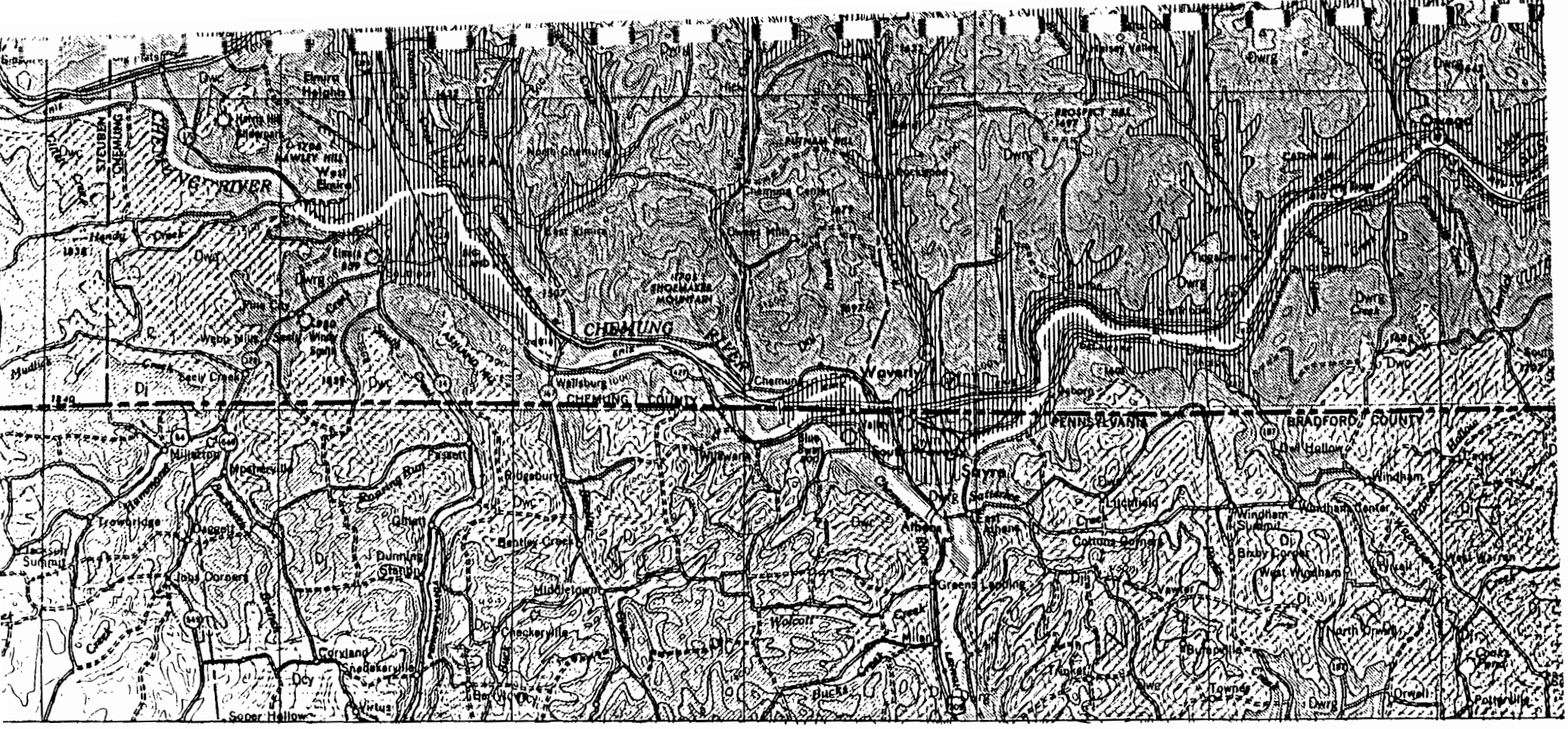
NAME OF SUBSTANCE	AVERAGE ANNUAL USAGE	AMOUNT NOW ON HAND	(✓) GAL.	(✓) LB.	SUPPLIER	PURPOSE OF USE (State whether produced, reac blended, packaged, distribut no longer used, etc.)

I hereby affirm under penalty of perjury that information provided on this form is true to the best of my knowledge and belief. False statements made here are punishable as a Class A misdemeanor pursuant to Section 210.45 of the Penal Law.

SIGNATURE (Owner, Partner, or Officer) Francis Warner — DATE 3-13-79

NAME (Printed or Typed) FRANCIS WARNER — TITLE Owner


old RT. 7
INTERMITTENT CREEK
BURNING PROCESS
P-1
24' ADDITION
E-1
E-2
75'
TRIPLE CITIES BARREL CO.
NEW ROUTE-17
I-88
OSBORNE CREEK
OPEN FARM LAND
DRAINAGE DITCH
DRAINAGE DITCH
450'
OPEN FARM LAND



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

APPENDIX B

NYS REGISTRY FORM

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

Code: _____

Site Code: 704005

Name of Site: Tri-City Barrel Region: 7

County: Broome Town/City Fenton

Street Address Route 7

Status of Site Narrative:

Barrel reprocessing Company. Cleans and repaints empty barrels. Previous discharge of washing waste to unlined lagoons. Discharge is now to a holding tank. Lagoons have been pumped out and backfilled (1981). Possible leaching to ground from past operation.

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

Estimated Size 1 Acres

Hazardous Wastes Disposed? Confirmed ☒ Suspected ☐

*Type and Quantity of Hazardous Wastes:

TYPE	QUANTITY (Pounds, drums, tons, gallons)
Barrel Washings with Sodium Hydroxide	

* Use additional sheets if more space is needed.

47-15-11(2/80)

Name of Current Owner of Site: Tri-City Barrel

Address of Current Owner of Site: Port Crane, New York

Time Period Site Was Used for Hazardous Waste Disposal:

_____, 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 ☐

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

Status of Legal Action: None State ☐ Federal ☐

Permits Issued: Federal ☐ Local Government ☐ SPDES ☐
None Solid Waste ☐ Mined Land ☐ Wetlands ☐ Other ☐

Assessment of Environmental Problems:

Possible leaching to groundwater from previous lagoon to operation. Sampling is necessary to assess impact.

Assessment of Health Problems:

Concern for groundwater contamination.

Persons Completing this Form:

John Kubarewicz

ES

New York State Department of Environmental Conservation

Date May 20, 1983

New York State Department of Health

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

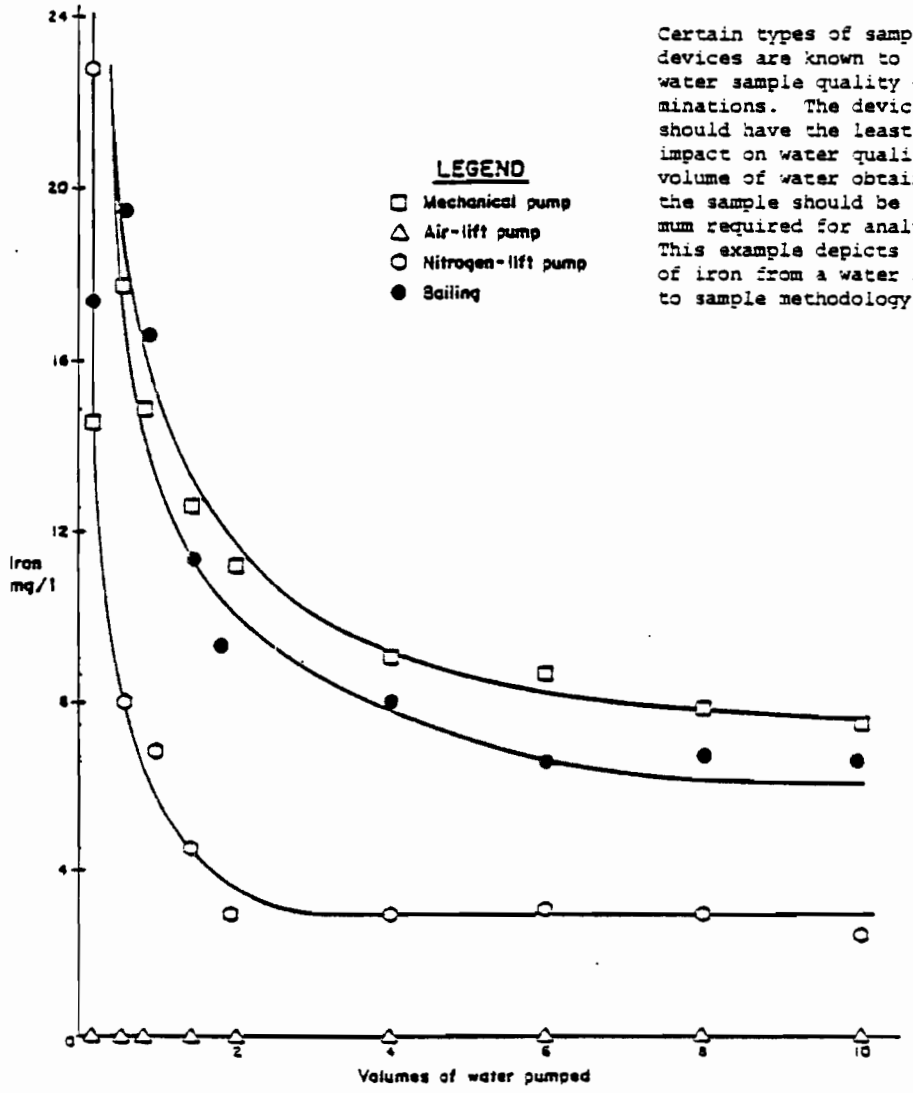
A major point to consider is the type of contaminants anticipated in the ground-water system. A sampling device should be constructed of inert materials that will not alter the trace concentrations of chemical parameters. Sampler construction materials are listed in order of preference.

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 Wastes, 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 NaOH to pH 12	24 Hrs.
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.
Kjeldahl, Total	500	P, G	H_2SO_4 to pH<2 Cool, 4°C	24 Hrs.[f]
Nitrate plus Nitrite	100	P, G	H_2SO_4 to pH<2 Cool, 4°C	24 Hrs.[f]
Nitrate	100	P, G	H_2SO_4 to pH 2 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 Cool, 4°C	24 Hrs.
Ortho-phosphate, Dissolved				
Hydrolyzable	50	P, G	Cool, 4°C	24 Hrs.[f]
Total	50	P, G	H_2SO_4 to pH<2 Cool, 4°C H_2SO_4 to pH<2	24 Hrs.[f]

TABLE E.1 (Continued)

Measurement	Vol. Req. (ml)	Container[b]	Preservative	Holding Time[c]
Total,	50	P, G	Filter on site	24 Hrs.[f]
Dissolved			Cool, 4°C	
			H_2SO_4 to pH<2	
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	24 Hrs.
			H_2SO_4 or HCL to pH<2	
Organic Carbon	25	P, G	Cool, 4°C	24 Hrs.
			H_2SO_4 or HCL to pH<2	
Phenolics	500	G only	Cool, 4°C	24 Hrs.
			H_3PO_4 to pH<4 1.0 g $CuSO_4$/1	
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.