FIELD INVESTIGATIONS OF UNCONTROLLED HAZARDOUS WASTE SITES

FIT PROJECT

TASK REPORT TO THE ENVIRONMENTAL PROTECTION AGENCY CONTRACT NO. 68-01-6056

Well Drilling
at

Delaware Sand and Gravel Landfill
New Castle, Delaware
TDD No. F3-8202-04C
EPA No. DE-17

Revision Date: October 8, 1982

Presented to: Linda Y. Boornazian, Acting DPO
EPA Region III

Prepared by: _____
C. K. Lee

_____
Joseph G. McGovern, FITL III

ecology and environment, inc.
International Specialists in the Environmental Sciences

Well Drilling
at
Delaware Sand and Gravel Landfill
New Castle, Delaware
TDD No. F3-8202-04C
EPA No. DE-17

ORIGINAL

TABLE OF CONTENTS

Well Drilling
at
Delaware Sand and Gravel Landfill
New Castle, Delaware
TDD No. F3-8202-04C
EPA No. DE-17

TABLE OF CONTENTS

SECTION 1

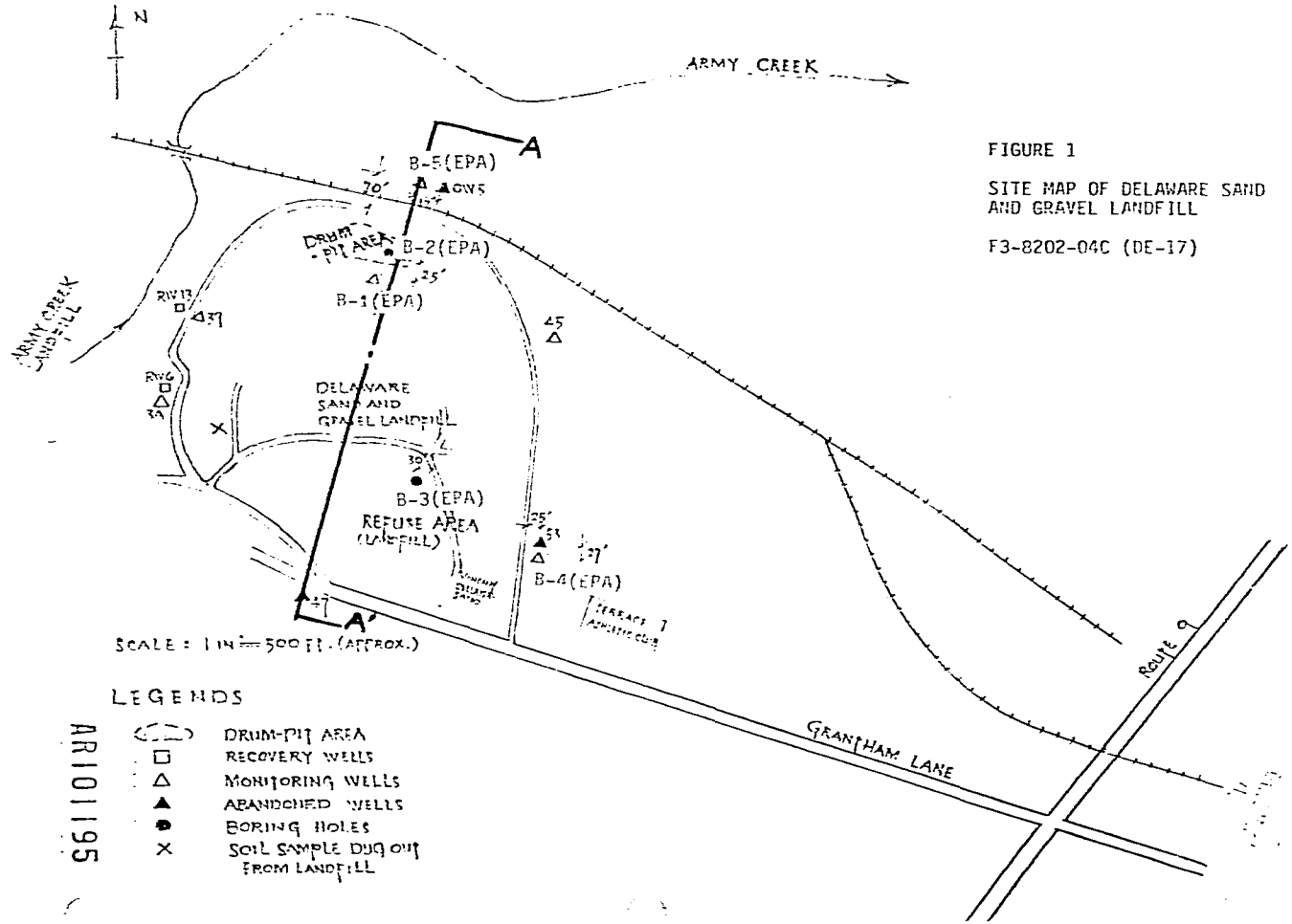


FIGURE 1

SITE MAP OF DELAWARE SAND AND GRAVEL LANDFILL

F3-8202-04C (DE-17)

2.2 CONTACTS

Christine Hladchuk
EPA Region III
6th and Walnut Streets
Philadelphia, PA 19106
(215) 597-2193

Lisa A. Hamilton
Department of Natural Resources
and Environmental Control
Edward Tatnall Building
Dover, DE 19901
(302) 736-5739

Dave Clark
New Castle County Engineer
Public Building
11th and King Streets
Wilmington, DE 19801
(302) 366-7800

Charles Hurd
Amoco Chemical Corporation
P.O. Box 312
New Castle, DE 19720
(302) 322-1878

Timothy Rafferty, Lawyer
Custom House Plaza, Suite 514
Wilmington, DE 19801
(302) 656-8295 Changed 302-239-2305

Vincent DellAversano, Owner
Delaware Sand and Gravel Company
229 Grantham Lane
New Castle, DE 19720
(302) 328-3491

Charlie Kramer (Drillers)
Dale Godsil
Jim Schultes
Ted Budzynski
A.C. Schultes and Sons, Inc.
664 South Evergreen Avenue
Woodbury, NJ 08096
(609) 845-5656

2.3 PERTINENT COMMENTS

Robert J. Touhey, DNERC Manager -

o In a letter of June 22, 1982 to Walter Lee, Chief of EPA III, Mr. Tohey approved the plan for the drilling work to monitor the Delaware Sand and Gravel site.

Well Drilling at
Delaware Sand and Gravel Landfill
New Castle, Delaware
TDD No. F3-8202-04C
EPA No. DE-17
Field Trip Report

ORIGINAL (Red)

Emil Onuschak, Chairman, Delaware State Board of Registration of Geologists -

o In his letter of June 8, 1982 to Christine Hladchuk, EPA Region III, Project Officer, it stated that independent geologists with whom a federal agency contracts to do geological work in Delaware must be under the supervision of a geologist who is an employee of the federal government.

o EPA Region III appointed Stephen Platt as a Federal Geologist to supervise the drilling work at the Delaware Sand and Gravel site.

Dave Clark, New Castle County Engineer -

o In a telephone conversation of July 6, 1982, he gave verbal permission for drilling Well B-4 which is adjacent to the abandoned Well #53.

o Mr. Clark also mentioned that Well B-4 is on property that now belongs to Vincent DellAversano.

Timothy Rafferty, Lawyer for Delaware Sand and Gravel Company -

o In a telephone conversation of March 29, 1982, he stated that Delaware Sand and Gravel Company had granted permission to enter its property for the drilling work.

o In a telephone conversation of July 14, 1982, he said that the owner, Vincent DellAversano did not want split samples.

ORIGINAL (Red)

o A sample receipt was sent to Timothy Rafferty on July 21, 1982 for Mr. DellAversano's signature (See Document #11). But it had not yet been returned when this report was prepared.

Vincent DellAversano, Owner of Delaware Sand and Gravel Company -

o Mr. DellAversano was on site the morning of July 6, 1982. He was paid by Schultes for installing an access path to the B-4 site.

Charles Hurd, Amoco Chemicals -

o Amoco Chemicals Corporation granted permission to access and drill Well B-5 on its property (See Document #10).

o A sample receipt was supplied to Amoco (See Document #12).

2.4 MAGNETOMETER SURVEY

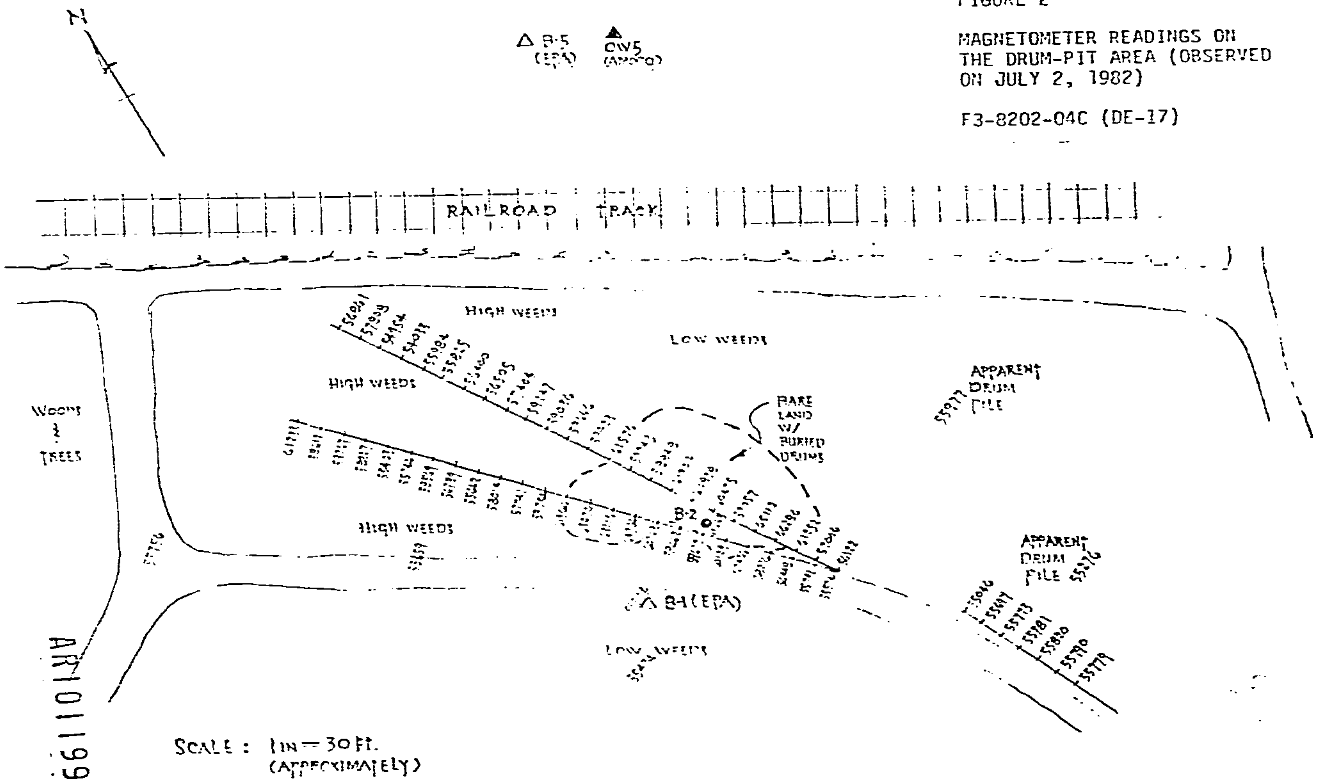
A "Unimag II" magnetometer was used to search for concentrations of buried magnetic (ferrous metal) objects in the drum-pit area, as well as in the refuse (landfill) area. These magnetometer surveys of selected locations were performed on July 2 and July 7, 1982.

The drum-pit area was a dumpsite for disposing industrial waste. A scan of the area with the HNU was conducted prior to the magnetometer survey on July 2, 1982. No readings above background level were detected on the surface of the site. Magnetic intensity measurements from the instrument's digital readout, in gamma, were recorded every 5 ft. along lines delineated in Figure 2. The general

FIGURE 2

MAGNETOMETER READINGS ON THE DRUM-PIT AREA (OBSERVED ON JULY 2, 1982)

F3-8202-04C (DE-17)



AR101199

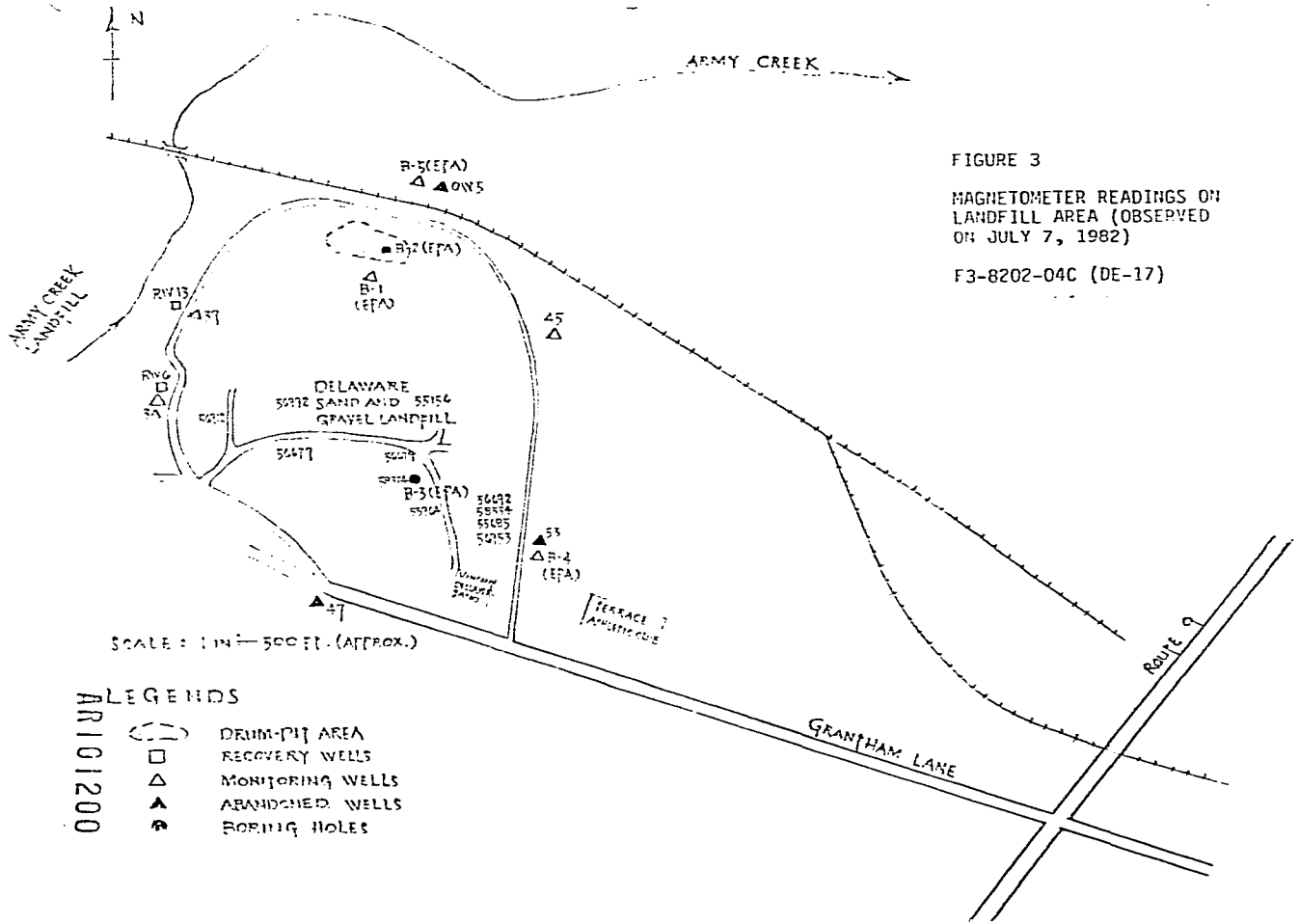


FIGURE 3

MAGNETOMETER READINGS ON LANDFILL AREA (OBSERVED ON JULY 7, 1982)

F3-8202-04C (DE-17)

ORIGINAL
(Red)

reading in the drum-pit area was about 56,000 gamma. Areas with readings of greater than 60,000 gamma were arbitrarily considered as indicative of high metal concentration. The drum burial area is within the defined limits on Figure 2.

Scattered readings on the refuse (landfill) area are presented in Figure 3. A general background level in this area is also approximately 56,000 gamma. Few high readings above 58,000 gamma were recorded on the southeastern part of the landfill, but no correlating evidence was found to determine an exact location of buried drum concentrations.

2.5 DRILLING PERFORMANCE

The firm of A. C. Schultes and Sons, Inc., Woodbury, NJ was selected as the subcontractor on this project. Schultes operated a rotary drilling rig and an auger rig for boring the holes. The total drilling cost was $16,104.

Five holes were drilled during the period from June 28 to July 14, 1982. These were the following (See Figure 1 and Well Logs Figure 4 through 8).

o Well B-1 was installed on the southern side of the boundary path, outside of the drum-pit area. The drilled depth of this hole is 55 feet. This borehole is cased with a 4-inch steel pipe with a 10 ft. screen installed between 30 and 40 feet below grade.

o Borehole B-2 is located approximately in the center of the drum-pit area, about 25 ft. from Well B-1. B-2 was drilled 20 feet through the waste pit, and then filled with bentonite and cement after completion of the drilling.

ORIGINAL
(Red)

o Groundwater sample (B-4), near the refuse area, downgradient of the drum-pit area showed contamination as follows:

Benzene (57 ppb)
Toluene (880 ppb)
Ethylbenzene (18 ppb)

o The groundwater sample of Well #39, near the recovery well #13 did not contain significant levels of priority pollutants, except lead (320 ppb), arsenic (120 ppb) and nickel (60 ppb).

o Groundwater and cutting samples of B-5 did contain a small amount of pollutants that were similar to the pollutants of the drum-pit area. This could be due to groundwater fluctuation in this area.

o A soil cutting sample from B-2, located in the drum-pit area, showed a concentration of 262 ug/g (ppm) of PCB-1248.

o Trace amounts of ethylene and toluene were found in the stained soil near the entrance of the landfill.

1.2 FINDINGS

The observations cited above indicate that the groundwater and soil have been contaminated by the drum-pit area.

SECTION 2

ORIGINAL (Red)

Well Drilling
at
Delaware Sand and Gravel Landfill
New Castle, Delaware
TDD No. F3-8202-04C
EPA No. DE-17

FIELD TRIP REPORT

2.1 INTRODUCTION

The Field Investigation Team, Region III (FIT III) developed a subcontract to drill three monitoring wells and two boreholes (See Figure 1), to better assess the constituents of contamination from Delaware Sand and Gravel Landfill Site, based upon recommendations of a previous hydrogeologic study (TDD No. F3-8108-11B).

On June 28 through July 14, 1982, the subcontractor, A. C. Shultes and Sons, Inc., a licensed driller in Delaware, drilled five holes under the supervision of FIT III. After drilling was completed, FIT III conducted sampling of the groundwater and the drilling cuttings and forwarded the samples to the labs for analyses. The FIT III members included Frank Quirus, Loren Lasky, Doug Taylor, Bill Wentworth, David Nickerson, Jim Vogel, Terrence Shannon and C. K. Lee.

The weather conditions for the operation period were sunny, hot and humid with occasional thunderstorms. The air temperature ranged 85° to 95° F.

AR101204

Well Drilling
at
Delaware Sand and Gravel Landfill
New Castle, Delaware
TDD No. F3-8202-04C
EPA No. DE-17

SUMMATION AND FINDINGS

1.1 SUMMATION

The Delaware Sand and Gravel Landfill is located approximately two miles southwest of the City of New Castle, Delaware and immediately east of the Army Creek Landfill (DE-01). But both landfills are interconnected hydrogeologically, only divided topographically by the Army Creek.

The Delaware Sand and Gravel Landfill was alleged to contain drums of industrial chemical liquid waste. The purpose of this effort was to evaluate the contamination contribution of the Delaware Sand and Gravel site. Accordingly, three monitoring wells and two boreholes were developed during the period of June 28 to July 14, 1982. Groundwater sampling program was performed on July 14, 1982. The subsequent analytical results indicated the following:

o The groundwater flow direction in the study area is generally from the northwest to the southeast. This is the same pattern observed in November 1981.

o The groundwater elevation measured approximately 14 feet below mean sea level (MSL) in the drum-pit area.

o Groundwater sample (B-1), near the drum-pit area showed contamination as follows:

Lead (120 ppb)	Phenol (360 ppb)
1,2 Dichloroethane (1,500 ppb)	Methylene Chloride (4,000 ppb)
Trichloroethylene (27 ppb)	Toluene (1,200 ppb)
Benzene (180 ppb)	Ethylbenzene (43 ppb)

ORIGINAL
(Red)

o Borehole B-3 is located in the center of the refuse or landfill area. The borehole was drilled to a 33-foot depth and filled with bentonite and cement after completing the hole.

o Well B-4 is located about 27 ft. from abandoned Well #53, on the southwestern part of the owner's property. The well was drilled to 102 feet and cased with 4" steel pipe, and screened between 85 and 95 feet below the ground surface.

o Well B-5 was installed about 17 ft. from abandoned well #OW5, on the northwestern side of the drum-pit area. The well is 150 feet deep and cased with a 4-inch steel pipe, screened between 110 to 120 feet below the ground surface.

Ecology and Environment, Inc. conducted a training session in the use of respiratory protective equipment and decontamination procedures at the Region III office on June 22, 1982. The drillers did wear personal protective clothing and respiratory protective equipment while drilling at the B-1, B-2 and B-3 sites.

Ecology and Environment, Inc. monitored ambient air with HNU continuously during drilling operations. No readings above background were detected in the ambient air. Some positive readings above the split spoon sampler and at the head of holes B-1 and B-2 were noted. Strong chemical odors were noted during drilling on the drum-pit area.

The drilling equipment was cleaned and rinsed with high pressure hot water prior to drilling the first hole, between subsequent holes and after completing the last hole.

AR101206

The drilling spoils, cuttings and the water generated in connection with the drilling work were dispersed on the ground. This process was discussed and agreed to by EPA Region III and the landowners (See Document #6).

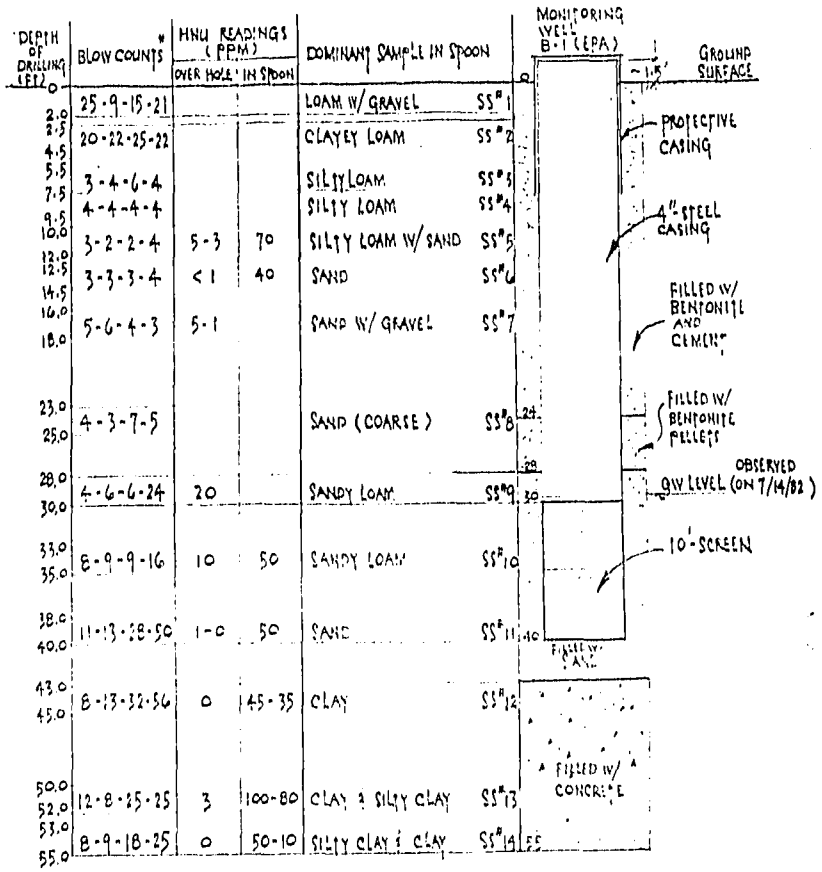
The boreholes B-2 and B-3 were backfilled with bentonite and cement after completion (See Figures 5 and 6). The annular space for each newly installed well was sealed with bentonite and cement from 2 feet above the top of the screen to the ground level (See Figures 4, 7 and 8). Each well had 4-inch diameter stainless steel casing and screen, plus a protective steel outer casing at the surface with a locking cap. Detailed information on the drilling work, and observed groundwater elevations are listed in Table 1. A contour map of the observed groundwater elevations is shown in Figure 10 which indicates that the groundwater flow direction is south-easterly, with an approximate hydraulic gradient 0.02 ft. per ft. at the drum-pit area.

TABLE 1 - WELL INSTALLATION SUMMARY

Delaware Sand and Gravel Landfill
TDD No. F3-8202-04C, EPA No. DE-17

Location	Function	Date of Drilling	Ground * Surface Elevation (approx.) (ft., MSL)	Depth of Drilling (ft.)	CASING					GROUNDWATER LEVEL OBSERVED ON JULY 4, 1982		Remarks
					Inside Diameter (ins.)	Material	Screen Depth (ft.)	Height Above Ground Surface (ft.)	Top of Casing Elevation (ft.,MSL)	Depth Below Top of Casing (ft.)	Ft., MSL	
B-1 (EPA)	Monitoring Well	07/09/82 - 07/14/82	approx. +14.0	55	4	Steel	30-40 (Columbia Formation)	1.5	+15.5	29.7	-14.2	strong smell
B-2 (EPA)	Boring Hole	07/12/82	approx. +14.0	20	-	-	-	-	-	-	-	strong smell
B-3 (EPA)	Boring Hole	07/13/82 - 07/14/82	0	33	-	-	-	-	-	-	-	
B-4 (EPA)	Monitoring Well	07/06/82 - 07/09/82	+24.8	102.5	4	Steel	85-95 (Potomac Formation)	2.7	+27.5	51.0	-23.5	smell
B-5 (EPA)	Monitoring Well	06/28/82 - 07/01/82	+13.3	150	4	Steel	110-120 (Potomac Formation)	2.2	+15.5	29.8	-14.3	
#39	Monitoring Well	Existing	+6.4	132	4	PVC	78-118 (Potomac Formation)	2.0	+8.4	29.9	-21.5	
#45	Monitoring Well	Existing	+24.1	156	4	PVC	100-115 135-145 (Potomac Formation)	1.1	+25.2	45.7	-20.5	

*Ground surface elevations are estimated from the record of nearby wells.



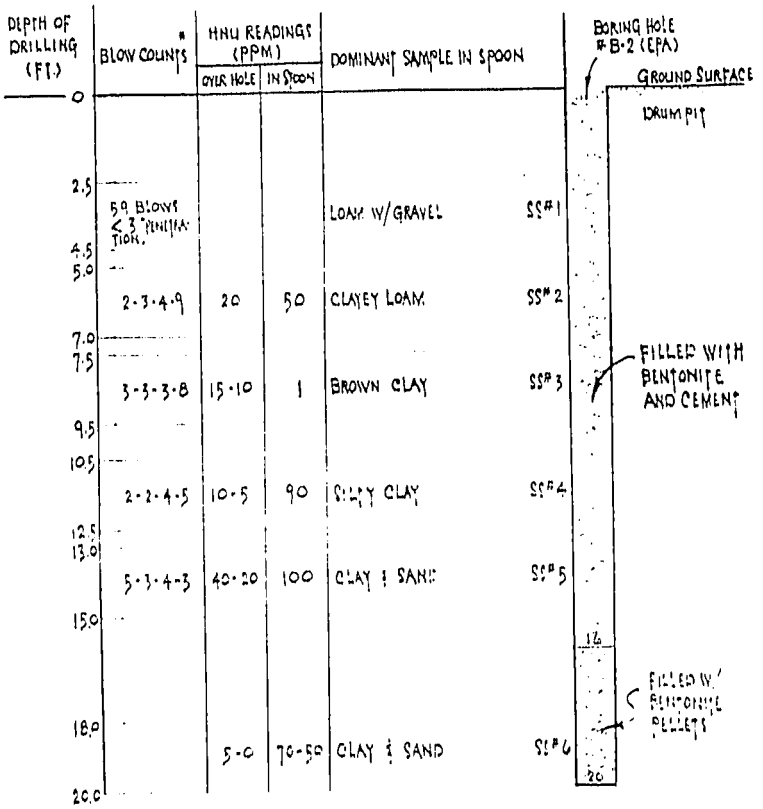
DRILLER : A.C. SCHULTES & SONS, INC.
DATE STARTED : JULY 9, 1982
COMPLETED : JULY 14, 1982
METHOD OF ADVANCING BORING : AUGER
DEPTH OF WELL : 40 FEET
DEPTH OF GROUNDWATER BELOW TOP OF CASING : 29.6 FT.

* SAMPLE HAMMER : WT. 140 LB., DROP 30 INS.

FIGURE 4

SUBSURFACE EXPLORATION OF MONITORING WELL B

F3-8202-04C (BE-17)



DRILLER : A.C. SCHULTES & SONS, INC.

DATE STARTED : JULY 10, 1985
COMPLETED : JULY 10, 1985

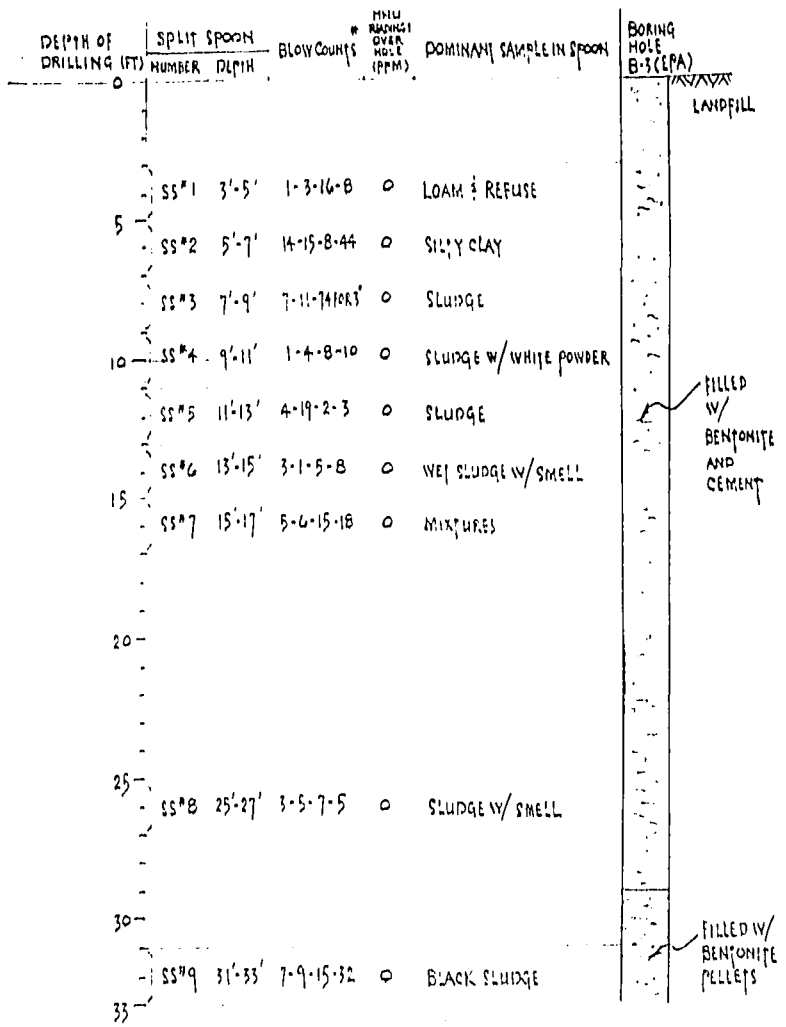
METHOD OF ADVANCING BORING : AUGER

* SAMPLE HAMMER : Wt. 140 LB , DROP 30 INCH .

FIGURE 5

SUBSURFACE EXPLORATION OF BOREHOLE B-2

F3-8202-04C (DE-17)



DRILLER : A.C. SCHULTES & SONS INC.

DATE STARTED : JULY 13, 1982

COMPLETED : JULY 14, 1982

METHOD OF ADVANCING BORING : AUGER

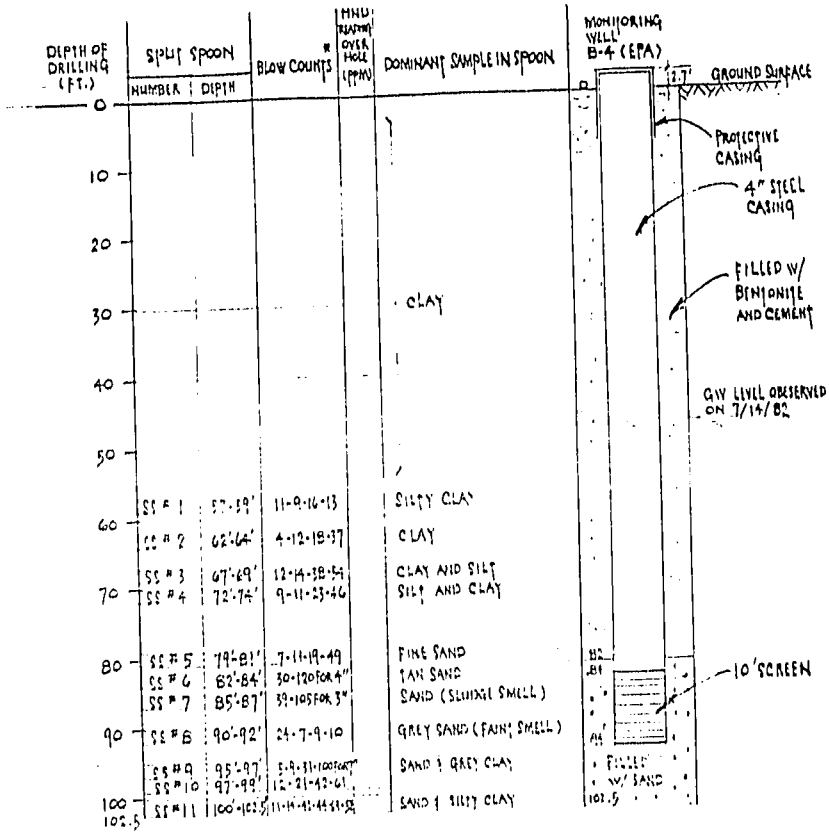
* SAMPLE HAMMER : WT. 140 LBS, DROP 30 INS.

FIGURE 6

SUBSURFACE EXPLORATION OF BOREHOLE B-3

F3-8202-04C (DE-17)

(Red)



DRILLER : A.C. SCHULTES & SONS INC.
DATES STARTED : JULY 6, 1982
COMPLETED : JULY 9, 1982
METHOD OF ADVANCING BORING : AUGER
DEPTH OF WELL : 94 FT.
DEPTH OF GW BELOW TOP OF CASING : 51 FT.

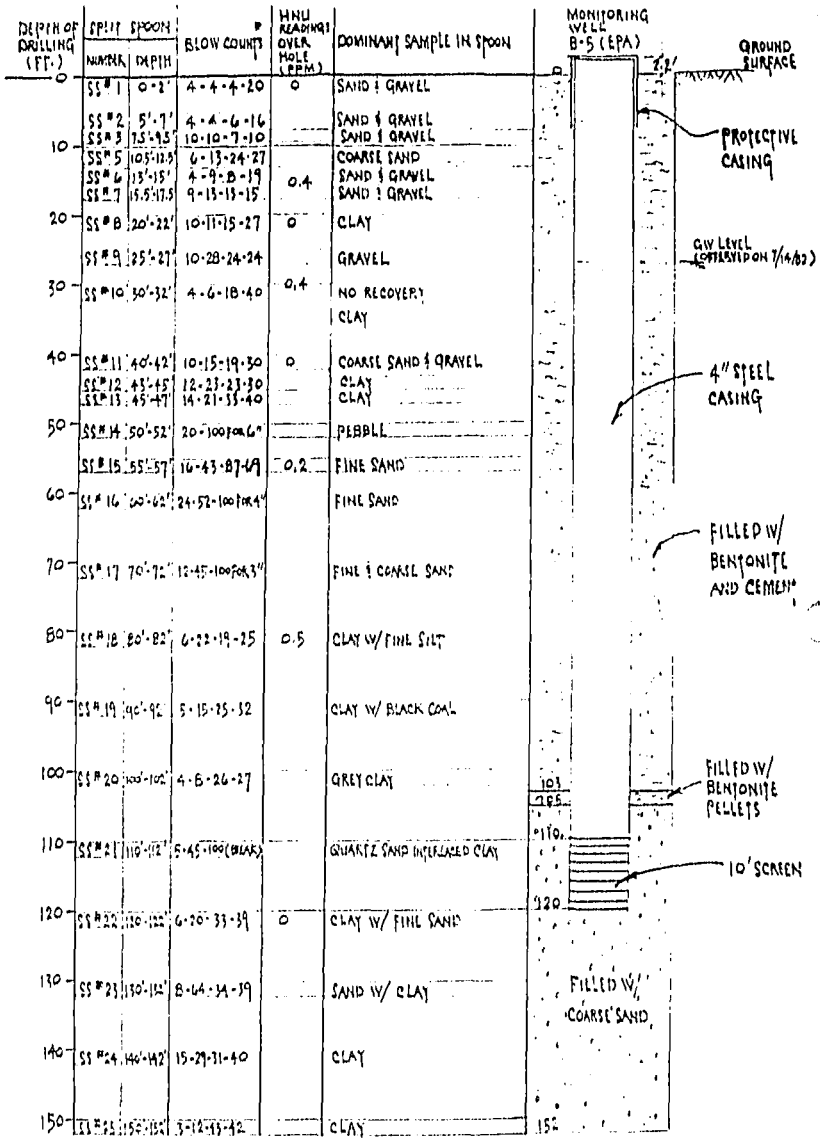
* SAMPLE HAMMER : WT 140 LBS, DROP 30 INS.

FIGURE 7

SUBSURFACE EXPLORATION OF MONITORING WELL B-4

F3-8202-04C (DE-17)

ORIGINAL
(Red)



DRILLER : A.C. SCHULTES & SONS INC.
DATE STARTED : JUNE 28, 1982
COMPLETED : JULY 1, 1982
METHOD OF ADVANCING BORING : Rotary Bit

DEPTH OF WELL : 120 FT.
DEPTH OF GROUNDWATER BELOW TOP OF CASING : 29.8 FT.

* SAMPLE HAMMER : WT 140 LBS, DROP 30 INS.

FIGURE 3

SUBSURFACE EXPLORATION OF MONITORING WELL B-5

F3-8202-04C (DE-17)

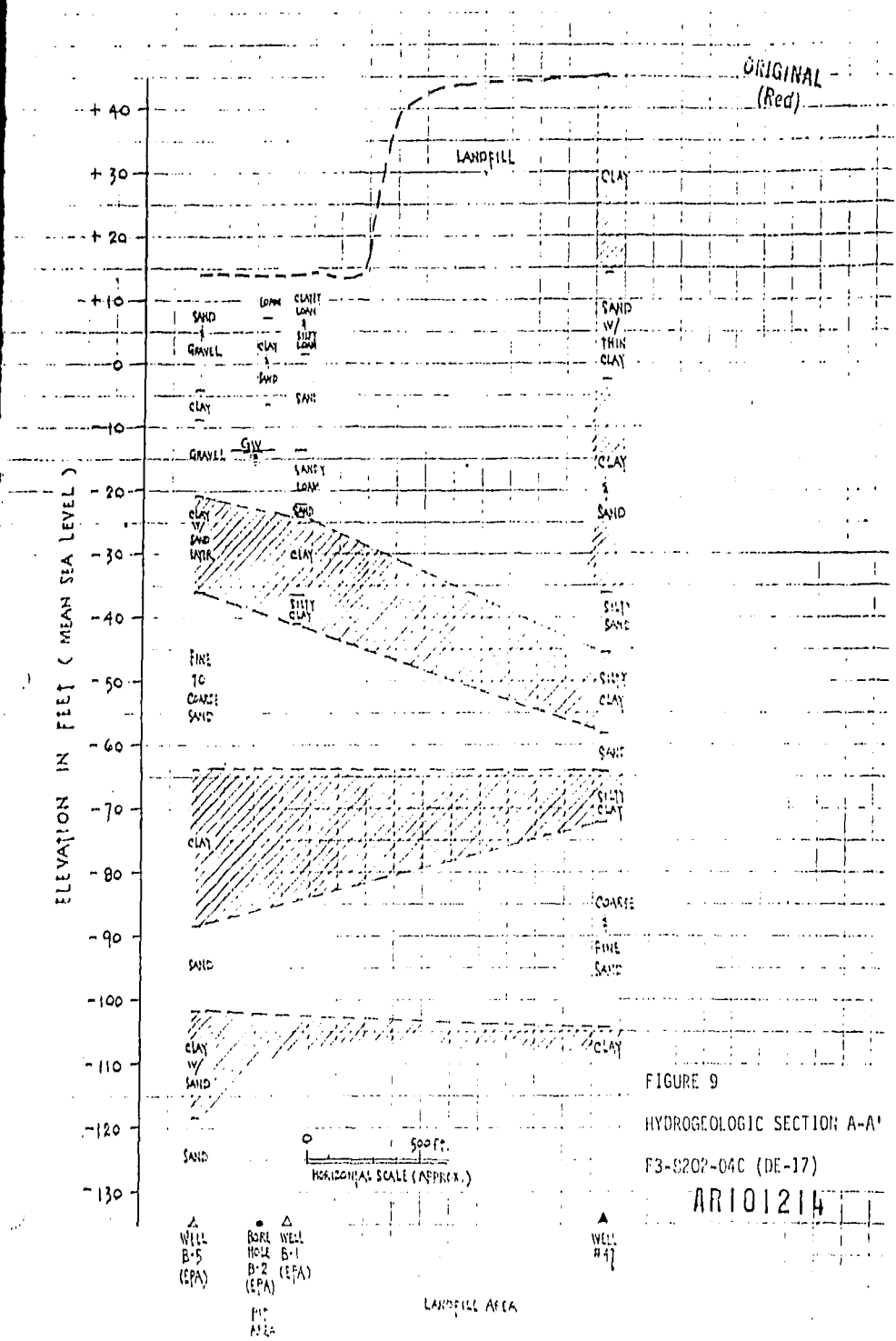


FIGURE 9

HYDROGEOLOGIC SECTION A-A'

F3-8202-04C (DE-17)

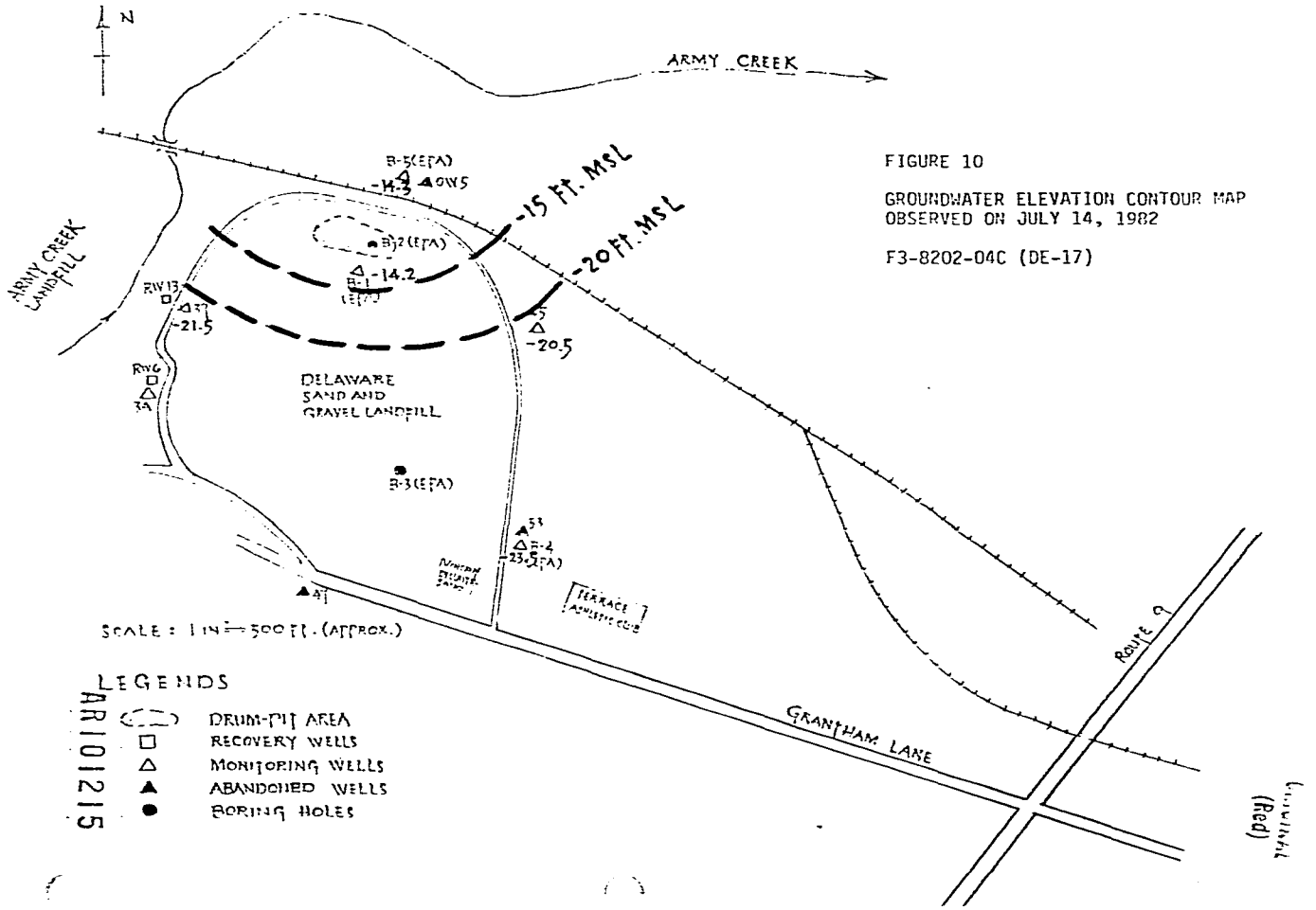


FIGURE 10

GROUNDWATER ELEVATION CONTOUR MAP
OBSERVED ON JULY 14, 1982

F3-8202-04C (DE-17)

ORIGINAL
(Red)

2.6 SOIL AND WATER SAMPLING

The sample locations are designated on Figure 1.

The soil (cutting) sampling from the split spoon sampler was performed by Ecology and Environment, Inc. field personnel. The procedure for decontaminating samplers consisted of: 1) brushing the sampler in water after emptying the cuttings, 2) cleaning the sampler with drinking quality water, 3) rinsing the sampler with acetone, and 4) jetting distilled water for final rinse.

A total of tweleve soil drilling (See Table 2) samples were submitted to labs for analysis.

Drilling Hole	No. of Split Spoon	Depth Below Ground (ft.)
B-1	SS #5	10 - 12.5
	SS #11	38 - 40
B-2	SS #2	5 - 7
	SS #4	10.5 - 12.5
	SS #5	13 - 15
	SS #6	18 - 20
B-3	SS #6	13 - 15
	SS #8	25 - 27
B-4	SS #3	67 - 69
	SS #6 and #7	82 - 87
B-5	SS #12	43 - 45
Stained Soil Area Near Entrance to Landfill	-	0.5

AR101216

ORIGINAL
(Red)

Well Drilling at
Delaware Sand and Gravel Landfill
New Castle, Delaware
TDD No. F3-8202-04C
EPA No. DE-17
Field Trip Report

Five groundwater samples were obtained on July 14, 1982. A "fast turn-around" time of 14 days was arranged for analyses of:

Inorganic Pollutants At:

Versar, Inc.
6621 Electronic Drive
Springfield, VA 22151

Organic Pollutants At:

Mead Technology
5 Triangle Drive
Research Triangle Park
North Carolina 27709

AR101217

TABLE 2 - SAMPLE LOG
Page 1 of 3

Well Drilling at Delaware Sand and Gravel Landfill
TDD No. F3-8202-04C, EPA No. DE-17

Location of Sampling		Traffic Report No.	Sample Description	SAMPLED		ITEMS FOR ANALYSIS		
				Date	Time	Organics	Inorganic	Cyanide
Monitoring Well #B-1	B-1, SS #5 (10-12.5 ft. below ground)	C-1525 MC-9088	Drilling and cutting	07/09/82	1255	X	X	X
	B-1, SS #11 (38-40 ft.)	C-1526 MC-9089	Drilling and cutting	07/12/82	0920	X	X	X
	B-1, GW	C-1672 MC-9114	Water	07/14/82	1000	X	X	X
Borehole #B-2	B-2, SS #2 (5-7 ft.)	C-1612 MC-9090	Boring and cutting	07/12/82	1330	X	X	X
	B-2, SS #4 (10.5 - 12.5 ft.)	C-1613 MC-9091	Boring and cutting	07/12/82	1345	X	X	X
	B-2, SS #5 (13-15 ft.)	C-1614 MC-9092	Boring and cutting	07/12/82	1350	X	X	X
	B-2, SS #6 (18-20 ft.)	C-1615 MC-9093	Boring and cutting	07/12/82	1400	X	X	X

TABLE 2 - SAMPLE LOG
Page 2 of 3

Well Drilling at Delaware Sand and Gravel Landfill
TDD No. F3-8202-04C, EPA No. DE-17

Location of Sampling		Traffic Report No.	Sample Description	SAMPLED		ITEMS FOR ANALYSIS		
				Date	Time	Organics	Inorganic	Cyanide
Borehole #B-3	B-3, SS #6 (13-15 ft.)	C-1617 MC-9094	Boring and cutting	07/13/82	1600	X	X	X
	B-3, SS #8 (25-27 ft.)	C-1616 MC-9095	Boring and cutting	07/13/82	1655	X	X	X
Landfill	Stained area near entrance Depth 1/2 ft. below ground	C-1620 MC-9112	Solid	07/14/82	1030	X	X	X
Monitoring Well #B-4	B-4, SS #3 (67-69 ft.)	C-1523 MC-9086	Drilling and cutting	07/06/82	1520	X	X	X
	B-4, SS #6 and #7 (82-87 ft.)	C-1524 MC-9087	Drilling and cutting	07/07/82	1030	X	X	X
	B-4 GW	C-1624 MC-9118	Water	07/14/82	1030	X	X	X
Monitoring Well #B-5	B-5, SS #12 (43-45 ft.)	C-202-C-2 MC-202-C-1	Drilling and cutting	06/29/82	1715	X	X	X
	B-5 GW	C-1618 MC-9111	Water	07/14/82	0950	X	X	X

TABLE 2 - SAMPLE LOG
Page 3 of 3

Well Drilling at Delaware Sand and Gravel Landfill
TDD No. F3-8202-04C, EPA No. DE-17

Location of Sampling	Traffic Report No.	Sample Description	SAMPLED		ITEMS FOR ANALYSIS		
			Date	Time	Organics	Inorganic	Cyanide
Well #39	C-1621 MC-9113	Water	07/14/82	0915	X	X	X
Well #45	C-1623 MC-9117	Water	07/14/82	0930	X	X	X
Blanks	C-202-C-3 MC-202-C-4	Water	07/01/82	-	X	X	X
	C-1625 MC-9191	Water	07/14/82	-	X	X	X

SECTION 3

TDD No. F3-8202-04C EPA No. DE-17

POTENTIAL HAZARDOUS WASTE SITE SITE INSPECTION REPORT

REGION: III | SITE NUMBER (to be assigned by HQ):

GENERAL INSTRUCTIONS: Complete Sections I and III through XV of this form as completely as possible. Then use the information on this form to develop a Tentative Disposition *(Section II)*. File this form in its entirety in the regional Hazardous Waste Log File. Be sure to include all appropriate Supplemental Reports in the file. Submit a copy of the forms to: U.S. Environmental Protection Agency; Site Tracking System; Hazardous Waste Enforcement Task Force *(EN-335)*, 401 M St., SW, Washington, DC 20460.

I. SITE IDENTIFICATION

A. SITE NAME	B. STREET (or other identifier)		
Delaware Sand and Gravel Landfill	229 Grantham Lane		
C. CITY	**D. STATE**	**E. ZIP CODE**	**F. COUNTY NAME**
New Castle	DE	19720	New Castle

G. SITE OPERATOR INFORMATION

1. NAME			2. TELEPHONE NUMBER	
Vincent DellAversano			302-328-3491	
3. STREET	**4. CITY**		**5. STATE**	**6. ZIP CODE**
229 Grantham Lane	New Castle		DE	19720

H. REALTY OWNER INFORMATION *(if different from operator of site)*

1. NAME		2. TELEPHONE NUMBER	
3. CITY		**4. STATE**	**5. ZIP CODE**

I. SITE DESCRIPTION

J. TYPE OF OWNERSHIP

☐ 1. FEDERAL ☐ 2. STATE ☐ 3. COUNTY ☐ 4. MUNICIPAL ☒ 5. PRIVATE

II. TENTATIVE DISPOSITION *(complete this section last)*

A. ESTIMATE DATE OF TENTATIVE DISPOSITION *(mo., day, & yr.)*	B. APPARENT SERIOUSNESS OF PROBLEM
August 25, 1982	☐ 1. HIGH ☒ 2. MEDIUM ☐ 3. LOW ☐ 4. NONE

C. PREPARER INFORMATION

1. NAME	2. TELEPHONE NUMBER	3. DATE *(mo., day, & yr.)*
C. K. Lee	609-665-1515	August 18, 1982

III. INSPECTION INFORMATION

A. PRINCIPAL INSPECTOR INFORMATION

1. NAME	2. TITLE	4. TELEPHONE NO. *(area code & no.)*
C. K. Lee	Hydrologist	609-665-1515
3. ORGANIZATION		
Ecology and Environment, Inc., FIT Region III		

B. INSPECTION PARTICIPANTS

1. NAME	2. ORGANIZATION	3. TELEPHONE NO.
Frank Quirus, Loren Lasky Doug Taylor, Bill Wentworth, David Nickerson, Jim Vogel, and Terrence Shannon	Ecology and Environment, Inc.	609-665-1515

C. SITE REPRESENTATIVES INTERVIEWED *(corporate officials, workers, residents)*

1. NAME	2. TITLE & TELEPHONE NO.	3. ADDRESS
Vincent DellAversano visited the operation of B-A on the morning of July 6, 1982	Owner of Delaware Sand and Gravel Landfill, 302-328-3491	229 Grantham Lane, New Castle DE 19720

AR101222

TDD No. F3-8202-04C EPA No. DE-17

Continued From Front

III. INSPECTION INFORMATION (continued)

D. GENERATOR INFORMATION (sources of waste)

1. NAME	2. TELEPHONE NO.	3. ADDRESS	4. WASTE TYPE GENERATED
no record			

E. TRANSPORTER/HAULER INFORMATION

1. NAME	2. TELEPHONE NO.	3. ADDRESS	4. WASTE TYPE TRANSPORTED
no record			

F. IF WASTE IS PROCESSED ON SITE AND ALSO SHIPPED TO OTHER SITES, IDENTIFY OFF-SITE FACILITIES USED FOR DISPOSAL.

1. NAME	2. TELEPHONE NO.	3. ADDRESS
not applicable		

G. DATE OF INSPECTION (mo., day, & yr.)	H. TIME OF INSPECTION	I. ACCESS GAINED BY (credentials must be shown in all cases)
June 28-July 14, '82	13 days	☐ 1. PERMISSION ☐ 2. WARRANT

J. WEATHER (describe) Sunny, hot, humid and occasionally thunderstorm. Air temperature ranges from 85° to 95°.

IV. SAMPLING INFORMATION

Mark 'X' for the types of samples taken and indicate where they have been sent e.g., regional lab, other EPA lab, contractor, etc. and estimate when the results will be available.

1. SAMPLE TYPE	2. SAMPLE TAKEN (mark 'X')	3. SAMPLE SENT TO	4. DATE RESULTS AVAILABLE
a. GROUNDWATER	X	Versar, Inc. and Mead Technology	turn around time 14
b. SURFACE WATER			days
c. WASTE			
d. AIR			
e. RUNOFF			
f. SPILL			
g. SOIL			
h. VEGETATION			
i. OTHER (specify) drilling and cutting	X	Versar, Inc. and Mead Technology	

B. FIELD MEASUREMENTS TAKEN (e.g., radioactivity, explosivity, PH, etc.)

1. TYPE	2. LOCATION OF MEASUREMENTS	3. RESULTS
Explosimeter	Monitored when started drilling.	No readings.
MU	Monitored continuously during drilling operations.	No readings above background were detected in ambient air.
Unimag II Magnetometer	Drum-pit area and refuse area.	Higher readings at some parts of the drum-pit area.

AR101223

Continue On Page 3

Continued From Page 2

IV. SAMPLING INFORMATION (continued)

C. PHOTOS

1. TYPE OF PHOTOS: [X] a. GROUND [ ] b. AERIAL
2. PHOTOS IN CUSTODY OF: Ecology and Environment, Inc.

D. SITE MAPPED?

[X] YES, SPECIFY LOCATION OF MAPS: USGS Quadrangle

E. COORDINATES

1. LATITUDE (deg.-min.-sec.): 39° 39' 11" N
2. LONGITUDE (deg.-min.-sec.): 75° 36' 05" W

V. SITE INFORMATION

A. SITE STATUS

[ ] 1. ACTIVE (Those industrial or municipal sites which are being used for waste treatment, storage, or disposal on a continuing basis, even if intermittently.)
[X] 2. INACTIVE (Those sites which no longer receive wastes.)
[ ] 3. OTHER (specify): _____ (Those sites that include such incidents like "midnight dumping" where no regular or continuing use of the site for waste disposal has occurred.)

B. IS GENERATOR ON SITE?

[X] 1. NO [ ] 2. YES (specify generator's four-digit SIC Code) _____

C. AREA OF SITE (in acres): about 10 acres

D. ARE THERE BUILDINGS ON THE SITE?

[ ] 1. NO [X] 2. YES (specify): Owner's garage

VI. CHARACTERIZATION OF SITE ACTIVITY

Indicate the major site activity(ies) and details relating to each activity by marking 'X' in the appropriate boxes.

X	A. TRANSPORTER	X	B. STORER	X	C. TREATER	X Y	D. DISPOSER
	1. RAIL		1. PILE		1. FILTRATION	Y	1. LANDFILL
	2. SHIP		2. SURFACE IMPOUNDMENT		2. INCINERATION		2. LANDFARM
	3. BARGE		3. DRUMS		3. VOLUME REDUCTION		3. OPEN DUMP
	4. TRUCK		4. TANK, ABOVE GROUND		4. RECYCLING/RECOVERY		4. SURFACE IMPOUNDMENT
	5. PIPELINE		5. TANK, BELOW GROUND		5. CHEM./PHYS./TREATMENT		5. MIDNIGHT DUMPING
	6. OTHER (specify)		6. OTHER (specify)		6. BIOLOGICAL TREATMENT		6. INCINERATION
					7. WASTE OIL REPROCESSING		7. UNDERGROUND INJECTION
					8. SOLVENT RECOVERY		8. OTHER (specify)
					9. OTHER (specify)		waste pit

E. SUPPLEMENTAL REPORTS. If the site falls within any of the categories listed below, Supplemental Reports must be completed. Indicate which Supplemental Reports you have filled out and attached to this form.

[ ] 1. STORAGE [ ] 2. INCINERATION [X] 3. LANDFILL [ ] 4. SURFACE IMPOUNDMENT [ ] 5. DEEP WELL
[ ] 6. CHEM/BIO/PHYS TREATMENT [ ] 7. LANDFARM [ ] 8. OPEN DUMP [ ] 9. TRANSPORTER [ ] 10. RECYCLOR/RECLAIMER

VII. WASTE RELATED INFORMATION

A. WASTE TYPE

[X] 1. LIQUID [X] 2. SOLID [X] 3. SLUDGE [ ] 4. GAS

B. WASTE CHARACTERISTICS

[ ] 1. CORROSIVE [ ] 2. IGNITABLE [ ] 3. RADIOACTIVE [X] 4. HIGHLY VOLATILE
[X] 5. TOXIC [ ] 6. REACTIVE [ ] 7. INERT [X] 8. FLAMMABLE
[ ] 9. OTHER (specify)

C. WASTE CATEGORIES

1. Are records of wastes available? Specify items such as manifests, inventories, etc. below.

records of wastes are not available

AR101224

Continued From Front

TDD No. F3-8202-04C

EPA NO. PE-17

VII. WASTE RELATED INFORMATION (continued)

2. Estimate the amount (specify unit of measure) of waste by category, mark 'X' to indicate which wastes are present.

a. SLUDGE	b. OIL	c. SOLVENTS	d. CHEMICALS	e. SOLIDS	f. OTHER
AMOUNT	AMOUNT	AMOUNT	AMOUNT: about 375,000	AMOUNT	AMOUNT
UNIT OF MEASURE	UNIT OF MEASURE	UNIT OF MEASURE	UNIT OF MEASURE: gallons of industrial liquid	UNIT OF MEASURE	UNIT OF MEASURE
X (1) PAINT, PIGMENTS	X (1) OILY WASTES	X (1) HALOGENATED SOLVENTS	X (1) ACIDS	X (1) FLYASH	X (1) LABORATORY, PHARMACEUT.
(2) METALS SLUDGES	(2) OTHER (specify):	(2) NON-HALOGNTD. SOLVENTS	(2) PICKLING LIQUORS	(2) ASBESTOS	(2) HOSPITAL
(3) POTW		(3) OTHER (specify):	(3) CAUSTICS	(3) MILLING/MINE TAILINGS	(3) RADIOACTIVE
(4) ALUMINUM SLUDGE			(4) PESTICIDES	(4) FERROUS SMELTING WASTES	(4) MUNICIPAL
(5) OTHER (specify):			(5) DYES/INKS	(5) NON-FERROUS SMLTG. WASTES	(5) OTHER (specify):
			(6) CYANIDE	(6) OTHER (specify):	
			X (7) PHENOLS		
			X (8) HALOGENS		
			X (9) PCB		
			(10) METALS		
			X (11) OTHER (specify): aromatics		

D. LIST SUBSTANCES OF GREATEST CONCERN WHICH ARE ON THE SITE (place in descending order of hazard)

1. SUBSTANCE	2. FORM (mark 'X') a. SOLID	b. LIQ.	c. VAPOR	3. TOXICITY (mark 'X') a. HIGH	b. MED.	c. LOW	d. NONE	4. CAS NUMBER	5. AMOUNT	6. UNIT
1,2-dichloroethane		X			X			107-06-02	1,500	ug/l
trichloroethylene		X			X			79-01-6	27	ug/l
PCB		X			X			11097-69-1	262	ug/g
benzene		X		y				71-43-2	180	ug/l
toluene		X			y			108-88-3	1,200	ug/l
lead	y							7439-92-1	120	ug/l
phenol	X							108-95-2	300	ug/l

VIII. HAZARD DESCRIPTION

FIELD EVALUATION HAZARD DESCRIPTION: Place an 'X' in the box to indicate that the listed hazard exists. Describe the hazard in the space provided.

X A. HUMAN HEALTH HAZARDS

	1,2 Dichloroethane	Trichloroethylene	Benzene	Methylene Chloride	Phenol	Butyl phthalate
TSCA Cancer	X	X	X			
Experienced Carcinogen				X	X	
Experienced Mutagen	X					
Experienced Teratogen	X					X

ARI 01205

Continue On Page 5

Continued From Page 4

VIII. HAZARD DESCRIPTION (continued)

☐ B. NON-WORKER INJURY/EXPOSURE

not reported

☐ C. WORKER INJURY/EXPOSURE

not known

☒ D. CONTAMINATION OF WATER SUPPLY

Amoco wells shut down in 1975, due to contamination.

☐ E. CONTAMINATION OF FOOD CHAIN

not reported

☒ F. CONTAMINATION OF GROUND WATER

1,2 Dichloroethane, trichloroethylene, benzene and other priority pollutants (see Table 3) were found in ground water sampling on July 14, 1982.

Amoco wells shut down due to contamination.

☐ G. CONTAMINATION OF SURFACE WATER

none observed

AR101226

Continued From Front

VIII. HAZARD DESCRIPTION (continued)

ORIGINAL (Red)

☒ H. DAMAGE TO FLORA/FAUNA

Parts of the drum-pit area and the landfill area are without vegetative cover.

☐ I. FISH KILL

none reported

☐ J. CONTAMINATION OF AIR

none observed but strong chemical odors were detected during drilling at the drum-pit area.

☒ K. NOTICEABLE ODORS

Unidentifiable odor observed during drilling phase of B-1, B-2, B-3 and B-4 but no readings above background detected by HNU.

☐ L. CONTAMINATION OF SOIL

PCB, phenol, aromatics and other priority pollutants were found in the soil samples of drilling at the drum-pit area.

☐ M. PROPERTY DAMAGE

none observed

AR101227

Continue On Page 7

VIII. HAZARD DESCRIPTION (continued)

☒ N. FIRE OR EXPLOSION

ORIGINAL (Red)

Fires occurred in 1969.

☐ O. SPILLS/LEAKING CONTAINERS/RUNOFF/STANDING LIQUID

not observed

☐ P. SEWER, STORM DRAIN PROBLEMS

not observed

☐ Q. EROSION PROBLEMS

not observed

☒ R. INADEQUATE SECURITY

No security fence and site is easily accessed.

☐ S. INCOMPATIBLE WASTES

unknown

AR101228

ORIGINAL (Red)

VIII. HAZARD DESCRIPTION (continued)

☐ T. MIDNIGHT DUMPING

not known

☐ U. OTHER (specify)

not applicable

IX. POPULATION DIRECTLY AFFECTED BY SITE

A. LOCATION OF POPULATION	B. APPROX. NO. OF PEOPLE AFFECTED	C. APPROX. NO. OF PEOPLE AFFECTED WITHIN UNIT AREA	D. APPROX. NO. OF BUILDINGS AFFECTED	E. DISTANCE TO SITE (specify units)
1. IN RESIDENTIAL AREAS	about 100,000 people served by Artesian Water Company			
2. IN COMMERCIAL OR INDUSTRIAL AREAS	about 100,000 people served by Artesian Water Company			
3. IN PUBLICLY TRAVELLED AREAS	near Grantham Land, Route 9 & P.R. crick	varies	-	50-1,000 ft.
4. PUBLIC USE AREAS (parks, schools, etc.)	no			

X. WATER AND HYDROLOGICAL DATA

A. DEPTH TO GROUNDWATER (specify unit)	B. DIRECTION OF FLOW	C. GROUNDWATER USE IN VICINITY
varies 25-50 ft.	southeasterly	Artesian Water Company
D. POTENTIAL YIELD OF AQUIFER	E. DISTANCE TO DRINKING WATER SUPPLY (specify unit of measure)	F. DIRECTION TO DRINKING WATER SUPPLY
-	about 4,000 ft.	southeasterly

G. TYPE OF DRINKING WATER SUPPLY

☐ 1. NON-COMMUNITY < 15 CONNECTIONS ☒ 2. COMMUNITY (specify town): New Castle > 15 CONNECTIONS AR101229

☐ 3. SURFACE WATER ☒ 4. WELL

Continue On Page 9

TDD No. F3-8202-04C EPA No. DE-17

ORIGINAL (Red)

Continued From Page 8

X. WATER AND HYDROLOGICAL DATA (continued)

A. LIST ALL DRINKING WATER WELLS WITHIN A 1/4 MILE RADIUS OF SITE

1. WELL	2. DEPTH (specify unit)	3. LOCATION (proximity to population/buildings)	4. NON-COMMUNITY (mark 'X')	5. COMMUNITY (mark 'X')
Amoco wells	about 150 ft.	Route 9 - it shut down due to contamination	X	
Gonzon	145 ft.	Grantham Lane	X	
V. DellAversano	135 ft.	Grantham Lane	X	

I. RECEIVING WATER

1. NAME: Delaware River and Army Creek

☐ 2. SEWERS ☒ 3. STREAMS/RIVERS ☐ 4. LAKES/RESERVOIRS ☐ 5. OTHER (specify):

B. SPECIFY USE AND CLASSIFICATION OF RECEIVING WATERS

This reach of Delaware River is classified as interstate stream zone 5.

XI. SOIL AND VEGITATION DATA

LOCATION OF SITE IS IN:

☐ A. KNOWN FAULT ZONE ☐ B. KARST ZONE ☐ C. 100 YEAR FLOOD PLAIN ☒ D. WETLAND

☐ E. A REGULATED FLOODWAY ☐ F. CRITICAL HABITAT ☐ G. RECHARGE ZONE OR SOLE SOURCE AQUIFER

XII. TYPE OF GEOLOGICAL MATERIAL OBSERVED

Mark 'X' to indicate the type(s) of geological material observed and specify where necessary, the component parts.

'X'	A. OVERBURDEN	'X'	B. BEDROCK (specify below)	'X'	C. OTHER (specify below)
	1. SAND	X	Solid rock below Potomac Formation.		
X	Loam 2. CLAY				
	3. GRAVEL				

XIII. SOIL PERMEABILITY

☐ A. UNKNOWN ☐ B. VERY HIGH (100,000 to 1000 cm/sec.) ☒ C. HIGH (1000 to 10 cm. sec.)

☐ D. MODERATE (10 to .1 cm/sec.) ☐ E. LOW (.1 to .001 cm/sec.) ☐ F. VERY LOW (.001 to .0001 cm/sec.)

G. RECHARGE AREA

☒ 1. YES ☐ 2. NO 3. COMMENTS: by infiltration to recharge groundwater

H. DISCHARGE AREA

☐ 1. YES ☒ 2. NO 3. COMMENTS: groundwater

I. SLOPE

1. ESTIMATE % OF SLOPE: less than 3%

2. SPECIFY DIRECTION OF SLOPE, CONDITION OF SLOPE, ETC.: generally to south, but the ground surface was changed due to pit and landfill.

J. OTHER GEOLOGICAL DATA

The site is underlain by the Columbia Formation, ranging from 30 to 60 feet in thickness. The underlying Potomac Formation consits of stream-deposited sand and interbedded clay and silt.

AR101230

Continued From Front

XIV. PERMIT INFORMATION

List all applicable permits held by the site and provide the related information.

A. PERMIT TYPE (e.g., RCRA, State, NPDES, etc.)	B. ISSUING AGENCY	C. PERMIT NUMBER	D. DATE ISSUED (mo., day, & yr.)	E. EXPIRATION DATE (mo., day, & yr.)	F. IN COMPLIANCE (mark 'X') 1. YES	2. NO	3. UNKNOWN
State Permit	DN REC	-	1969	1976			

XV. PAST REGULATORY OR ENFORCEMENT ACTIONS

☐ NONE ☒ YES (summarize in this space)

Closed by State Court action in December 1979.

NOTE: Based on the information in Sections III through XV, fill out the Tentative Disposition (Section II) information on the first page of this form.

TDD No. F3-8202-04C EPA No. DE-17

LANDFILLS SITE INSPECTION REPORT
(Supplemental Report)

INSTRUCTION
Answer and Explain as Necessary.

1. EVIDENCE OF SITE INSTABILITY (Erosion, Settling, Sink Holes, etc)
☒ YES ☐ NO Sink holes were observed in pit-drum area.

2. EVIDENCE OF IMPROPER DISPOSAL OF BULK LIQUIDS, SEMISOLIDS AND SLUDGES INTO THE LANDFILL
☒ YES ☐ NO

3. CHECK RECORDS OF CELL LOCATION AND CONTENTS AND BENCHMARK
☐ YES ☒ NO

4. WASTES SURROUNDED BY SORBENT MATERIAL
☐ YES ☒ NO

5. DIVERSION STRUCTURES ARE EFFECTIVELY CONSTRUCTED AND PROPERLY MAINTAINED
☐ YES ☒ NO

6. EVIDENCE OF PONDING OF WATER ON SITE
☐ YES ☒ NO

7. EVIDENCE OF IMPROPER/INADEQUATE DRAINING
☒ YES ☐ NO No drainage system.

8. ADEQUATE LEACHATE COLLECTION SYSTEM (If "no", specify Type)
☐ YES ☒ NO No leachate collection system.

8a. SURFACE LEACHATE SPRING
☐ YES ☒ NO

9. RECORDS OF LEACHATE ANALYSIS
☐ YES ☒ NO

10. GAS MONITORING
☒ YES ☐ NO

11. GROUNDWATER MONITORING WELLS
☒ YES ☐ NO

12. ARTIFICIAL MEMBRANE LINER INSTALLED
☐ YES ☒ NO

13. SPECIFIC CONTAINMENT MEASURES (Clay Bottom, Sides, etc)
☐ YES ☒ NO

14. FIXATION (Stabilization) OF WASTE
☐ YES ☒ NO

15. ADEQUATE CLOSURE OF INACTIVE PORTION OF FACILITY
☐ YES ☒ NO

16. COVER (Type)
Clayey loam.

16a. THICKNESS
Varies and unknown.

16b. PERMEABILITY
Estimated permeability 50-75 ft./day of fine to coarse sand in Columbia Formation.

16c. DAILY APPLICATION
☐ YES ☒ NO

AR101232

EPA Form 1320-3E (10-79)

SECTION 4

F2-S003-04

TABLE 3 (PAGE 1/2) SUMMARY OF ORGANIC ANALYSES OF GROUNDWATER SAMPLES (I) CONT. AR

PRIORITY POLLUTANTS ORGANICS	MAXIMUM VALUES FOR PROTECTION OF: DRINKING WATER SUPPLIES (HUMAN HEALTH)		FRESHWATER AQUATIC LIFE	SAMPLING ON JULY 14, 1982: B-1 EPA WELL	B-4, B-5 EPA WELL/EPA WELL	WELL #39	WELL #45
		Toxicity					
HALOGENATED METHANES (C1)							
BROMODICHLOROMETHANE	—	—	11,000				
BROMOFORM (TRIBROMOMETHANE)			11,000				
BROMOMETHANE	—	—	11,000				
CARBON TETRACHLORIDE	0.40	—	35,200				
CHLOROFORM	0.19	—	28,900				
DIBROMOCHLOROMETHANE	—	—	11,000				
DICHLOROFLUOROMETHANE *	—	—	11,000				
METHYL CHLORIDE (CHLOROMETHANE)	—	—	11,000				
METHYLENE CHLORIDE (DICHLOROMETHANE)	—	—	11,000	4,000			
TRICHLOROFLUOROMETHANE *	—	—	11,000	<10			
CHLOROETHANE	—	—	—				
CHLORINATED C2							
1,1-DICHLOROETHANE	—	—	—				
1,2-DICHLOROETHANE	0.94	—	20,000	1,500			
1,1-DICHLOROETHYLENE	0.033	—	11,600				
1,2-TRANS-DICHLOROETHYLENE	—	—	11,600				
HEXACHLOROETHANE	1.9	—	540				
1,1,2,2-TETRACHLOROETHANE	0.17	—	2,400				
TETRACHLOROETHYLENE	0.8	—	840				
1,1,1-TRICHLOROETHANE	—	18.4 mg/L	15,000				
1,1,2-TRICHLOROETHANE	0.6	—	9,400				
TRICHLOROETHYLENE	2.7	—	45,000	27			
VINYL CHLORIDE	—	—	47				
CHLORINATED BENZENES (CB)							
1,2-DICHLOROBENZENE	—	—	5,700				
1,3-DICHLOROBENZENE	—	87	844				
HEXACHLOROBENZENE	0.45	—	9.3				
HEXACHLOROCYCLOPENTADIENE	—	0.06	5.2				
CHLORINATED ETHERS (CE)							
BIS(2-CHLOROETHYL) ETHER	0.03	—					
BIS(2-CHLOROISOPROPYL) ETHER	—	34.7	238,000				
BIS(CHLOROMETHYL) ETHER *	0.0000066	—					
4-CHLOROPHENYL PHENYL ETHER							
CHLORINATED PHENOLS (CP)							
4-BROMOPHENYL PHENYL ETHER							
BIS(2-CHLOROISOPROPYL) ETHER							
2-CHLOROETHYL VINYL ETHER							
PHTHALATE ESTERS (PE)							
BIS(2-ETHYLHEXYL) PHTHALATE						13	
BUTYL BENZYL PHTHALATE							
DIETHYL PHTHALATE	—	350 mg/L	—				
DIMETHYL PHTHALATE	—	313 mg/L	—				
DI-N-BUTYL PHTHALATE	—	34 mg/L	—		14 15		
DI-N-OCTYL PHTHALATE							
POLYNUCLEAR AROMATIC HYDROCARBONS (PAH)							
BENZIDINE	0.00054/L	—	2,500				
3,3'-DICHLOROBENZIDINE	0.0103	—	—				
1,2-DIPHENYLHYDRAZINE	0.036/L	—	270				
N-NITROSODIMETHYLAMINE	0.00/L	—	—				
N-NITROSODIPHENYLAMINE	4.9	—	—				
N-NITROSODI-N-PROPYLAMINE							
ACROLEIN	—	320	21				
ACRYLONITRILE	0.058	—	7,550				
ISOPHORONE	—	5.2 mg/L	117,000				
2,4,6-TRICHLOROPHENOL	0.00/L	—	6,019				

AR101234

TABLE 3 (PAGE 1/2) SUMMARY OF ORGANIC ANALYSES OF GROUNDWATER SAMPLES (II) CONC. µg

	PRIORITY POLLUTANTS ORGANICS	WATER QUALITY CRITERIA: HUMAN HEALTH (INGESTION WATER & ORGANISMS) CARCINOGENIC	HUMAN HEALTH TOXICITY	FRESHWATER AQUATIC LIFE	SAMPLING ON JULY 14, 1982: B-1 EPA WELL	B-4 EPA WELL	B-5 EPA WELL	WELL #31	WELL #45		
AROMATICS	BENZENE	6.66	—	5,300	180	57					
	ETHYLBENZENE	—	1.4 mg/L	32,000	16	18					
	TOLUENE	—	14.3 mg/L	17,500	1,200	880					
POLYAROMATICS	ACENAPHTHENE			1,700							
	ACENAPHTHYLENE										
	ANTHRACENE										
	BENZO(A)ANTHRACENE										
	BENZO(B)FLUORANTHENE	PAHS 2.8 ng/L	—	—							
	BENZO(K)FLUORANTHENE										
	BENZO(GHI)PERYLENE										
	BENZO(A)PYRENE										
	CHRYSENE										
	DIBENZO(A,H)ANTHRACENE										
	FLUORANTHENE	—	42	3,980							
	FLUORENE	PAHS									
	INDENO(1,2,3-CD)PYRENE										
	NAPHTHALENE	—	—	620							
	PHENANTHRENE	PAHS									
	PYRENE										
CHLORINATED AROMATICS	CHLOROBENZENE	—	488	250	10						
	O-DICHLOROBENZENE										
	P-DICHLOROBENZENE	—									
	m-DICHLOROBENZENE		400	763							
	HEXACHLOROBENZENE	0.72 ng/L	—	250							
	1,2,4-TRICHLOROBENZENE	—	—	250							
NITRO-AROMATICS	2,4-DINITROTOLUENE	0.11	—	230							
	2,6-DINITROTOLUENE										
	NITROBENZENE	—	19.8 mg/L	27,000							
CL-PA	2-CHLORONAPHTHALENE	—	—	1,600							
PHENOLS	PHENOL	—	3.5 mg/L	2,560	260						
	2,4-DIMETHYLPHENOL	—	—	2,120							
CHLOROPHENOLS	4-CHLORO-m-CRESOL	—	13.4								
	2-CHLOROPHENOL	—	—	4,380							
	2,4-DICHLOROPHENOL	—	3.09 mg/L	365							
	PENTACHLOROPHENOL	—	1.01 mg/L	3.2							
	2,3,7,8-TETRACHLORODIBENZO-P-DIOXIN										
	2,4,6-TRICHLOROPHENOL	1.2	—	970							
NITROPHENOLS	4,6-DINITRO-O-CRESOL	—	13.4	230							
	2,4-DINITROPHENOL	—	70	230							
	2-NITROPHENOL				<10						
	4-NITROPHENOL			230							

AR101235

1 ALL UNITS ARE IN µg/L (PPB) EXCEPT NOTED

MAX. VALUES FOR PROTECTION ARE ABSTRACTED FROM "FEDERAL REGISTER", NOV. 28, 1980, EPA WATER QUALITY CRITERIA DOCUM…

* EPA HAS DELETED ON NOVEMBER, 1981.

TABLE 4 (PAGE 1/2) SUMMARY OF ORGANIC ANALYSES OF CUTTING (SOIL) SAMPLES (I)

Group	Priority Pollutants Organics	Criteria: Human health (ingestion)	Criteria: Toxicity	Criteria: Freshwater aquatic life	B-1 (SS-5, SS-11)	B-2 (SS-2, SS-4)	B-2 (SS-5, SS-6)	B-3 (SS-6, SS-8)	B-4 (SS-3, SS-11)	B-5 (SS-14, Tunnel)
Halogenated Methanes C1	Bromodichloromethane	—	—	11,000						
	Bromoform (tribromomethane)			11,000						
	Bromomethane	—	—	11,000						
	Carbon tetrachloride	0.40	—	35,200						
	Chloroform	0.19	—	28,900		0.019				
	Dibromochloromethane	—	—	11,000						
	Dichlorodifluoromethane *	—	—	11,000						
	Methyl chloride (chloromethane)	—	—	11,000						
	Methylene chloride (dichloromethane)	—	—	11,000	0.16	5.3 10	2.7		1.04 0.041	0.119 0.071
	Trichlorofluoromethane *	—	—	11,000						LT
Chlorinated C2	Chloroethane	—	—	—						
	1,1-Dichloroethane	—	—	—						
	1,2-Dichloroethane	0.94	—	20,000	0.016	2.0	0.46			0.012
	1,1-Dichloroethylene	0.033	—	11,600						
	1,2-trans-Dichloroethylene	—	—	11,600						
	Hexachloroethane	1.9	—	540						
	1,1,2,2-Tetrachloroethane	0.17	—	2,400						
	Tetrachloroethylene	0.8	—	840		LT				
	1,1,1-Trichloroethane	—	18.4 mg/L	18,000						
	1,1,2-Trichloroethane	0.6	—	9,400		0.015				
	Trichloroethylene	2.7	—	45,000		0.021				
	Vinyl chloride	—	—	47						
C3	1,2-Dichloropropane	—	—	5,700						
	1,3-Dichloropropylene	—	87	244						
C4	Hexachlorobutadiene	0.45	—	9.3						
C5	Hexachlorocyclopentadiene	—	206	5.2						
Chloroalkyl Ethers	Bis(2-chloroethoxy) methane									
	Bis(2-chloroethyl) ether	0.03	—							
	Bis (2-chloroisopropyl) ether	—	34.7	238,000						
	Bis (chloromethyl) ether *	0.00000376 µg/L	—							
	2-Chloroethyl vinyl ether									
Haloaryl Ethers	4-Bromophenyl phenyl ether									
	4-Chlorophenyl phenyl ether									
Phthalate Esters	Bis (2-ethylhexyl) phthalate					1.33	LT	0.30		
	Butyl benzyl phthalate									
	Diethyl phthalate	—	350 mg/L	—						
	Dimethyl phthalate	—	313 mg/L	—						
	Di-n-butyl phthalate	—	34 mg/L	—		LT 2.2	0.69			
	Di-n-octyl phthalate									
Benzidines	Benzidine	0.12 ng/L	—	2,500						
	3,3'-Dichlorobenzidine	0.0103	—	—						
Nitrogen compounds	1,2-Diphenylhydrazine	42.0 ng/L	—	270						
	N-Nitrosodimethyl amine	1.4 ng/L	—	—						
	N-Nitrosodiphenyl amine	4.9	—	—						
	N-Nitrosodi-n-propyl amine									
Misc.	Acrolein	—	320	21						
	Acrylonitrile	0.058	—	7,550						
	Isophorone	—	5.2 mg/L	117,000						
	Polychlorinated biphenyls (PCB's)	0.79 ng/L	—	0.014		ALL				

AR101236

TABLE 4 (PAGE 2/2) SUMMARY OF ORGANIC ANALYSES OF CUTTING (SOIL) SAMPLES (II)

PRIORITY POLLUTANT ORGANICS		Water Quality Criteria: Human Health – Ingestion	Water Quality Criteria: Human Health – Toxicity	Water Quality Criteria: Aquatic Life	Sampling on June 28 thru July 14, 1982 (mg/l): B-1 SS5	B-1 SS11	B-2 SS2	B-2 SS4	B-2 SS6	B-2 SS6	B-3 SS6	B-3 SS8	B-4 SS3	B-4 SS11	B-5 SS12	Unknown
Volatiles	BENZENE	6.6	—	5,300			0.11	1.3							LT	
	ETHYLBENZENE	—	1.4 MG/L	32,000			0.077	0.27								0.02
	TOLUENE	—	14.3 MG/L	17,500		0.013	0.58	6	LT	LT		0.01		0.013	0.044	0.019
Polyaromatics	ACENAPHTHENE			1,700												
	ACENAPHTHYLENE	PAHS 2.8 NG/L	—	—												
	ANTHRACENE															
	BENZO(A)ANTHRACENE															
	BENZO(B)FLUORANTHENE															
	BENZO(K)FLUORANTHENE															
	BENZO(GHI)PERYLENE															
	BENZO(A)PYRENE															
	CHRYSENE															
	DIBENZO(A,H)ANTHRACENE															
	FLUORANTHENE	—	42	3,980												
	FLUORENE	PAHS														
	INDENO(1,2,3-CD)PYRENE															
	NAPHTHALENE	—	—	620												
	PHENANTHRENE	PAHS														
	PYRENE															
Chlorinated Aromatics	CHLOROBENZENE	—	488	250			LT	0.02								
	O-DICHLOROBENZENE	—														
	P-DICHLOROBENZENE															
	M-DICHLOROBENZENE		400	763												
	HEXACHLOROBENZENE	0.72 NG/L	—	250												
	1,2,4-TRICHLOROBENZENE	—	—	250												
Nitroaromatics	2,4-DINITROTOLUENE	0.11	—	330												
	2,6-DINITROTOLUENE															
	NITROBENZENE	—	19.8 MG/L	27,000												
[illegible]	2-CHLORONAPHTHALENE	—	—	1,600												
Phenols	PHENOL	—	3.5 MG/L	2,560	11.0		0.99	16	22	14						
	2,4-DIMETHYLPHENOL	—	—	2,120					CAT							
Chlorophenols	4-CHLORO-M-CRESOL	—	12.4													
	2-CHLOROPHENOL	—	—	4,390												
	2,4-DICHLOROPHENOL	—	3.09 MG/L	365												
	PENTACHLOROPHENOL	—	1.01 MG/L	3.2												
	2,3,7,8-TETRACHLORODIBENZO-P-DIOXIN															
	2,4,6-TRICHLOROPHENOL	1.2	—	970												
Nitrophenols	4,6-DINITRO-O-CRESOL	—	13.4	230												
	2,4-DINITROPHENOL	—	70	230												
	2-NITROPHENOL															
	4-NITROPHENOL			230												

ALL UNITS ARE IN µG/L (PPB) EXCEPT NOTED

MAX. VALUES FOR PROTECTION ARE ABSTRACTED FROM "FEDERAL REGISTER, NOV. 28, 1980, EPA WATER QUALITY CRITERIA DOCUMENT"

* EPA HAS DELETED ON NOVEMBER 1981

AR101237

FS-8302-042 (DE

TABLE 5 SUMMARY OF INORGANIC ANALYSES OF GROUND WATER SAMPLES ORIGINAL (Red)

INORGANICS	WATER QUALITY CRITERIA: PERMISSIBLE CRITERIA FOR PUBLIC WATER SUPPLIES	WATER QUALITY CRITERIA: MAX. VALUES FOR PROTECTION OF FRESH-WATER AQUATIC LIFE	SAMPLING ON JULY 14, 1982 (µg/L): B-1 (EPA)	B-4 (EPA)	B-5 (EPA)	WELL #39	WELL #45
ANTIMONY	(146*)	1,600	<20	<20	<20	<20	<20
ARSENIC	50 (0.0022)**	440	10	<10	<10	120	<10
BERYLLIUM	(0.0137)**	5.3	<2	<2	<2	<2	<2
CADMIUM	10	0.012	<5	<5	10	10	<5
CHROMIUM	50	0.29	30	<10	10	90	<10
COPPER	1,000	5.6	40	<20	<20	60	<20
LEAD	50	0.75	120	<40	80	320	<40
MERCURY	2 (0.144*)	0.0057	1	<1	<1	<1	<1
NICKEL	(13.4*)	56	80	20	40	60	<20
SELENIUM	10	35	<10	<20	<10	<20	<10
SILVER	50	0.12	<20	<20	<20	<20	<20
THALLIUM	(13*)	4.0	<10	<10	<10	<10	<10
ZINC	5,000	47	210	120	130	270	60
CYANIDE	FREE CN (200*)	3.5	< 10	< 10	< 10	< 10	< 10
ASBESTO	(30000 FIBERS/L)**						
TOTAL METALS							
ALUMINUM		1,000 (IRRIGATION)	15,800	450	1,050	102,000	550
BARIUM	1,000		90	570	60	310	70
BORON	1,000	750 (IRRIGATION)	20	10	<10	<100	10
CALCIUM			37,600	19,000	10,200	15,500	10,600
COBALT		200 (IRRIGATION)	<10	10	<10	20	<10
IRON	300	1,000	55,000	28,700	41,600	191,000	1,560
MAGNESIUM			5,200	5,000	2,300	4,200	3,600
MANGANESE	50	2,000 (IRRIGATION)	450	2,720	450	2,940	140
SODIUM			7,200	11,900	10,000	11,200	6,600
TIN			<20	<20	<20	20	<20
VANADIUM		10,000 (IRRIGATION)	30	<10	<10	170	<10
ALKALINITY							
AMMONIA		20					
CHLORIDE	250,000	3					
NITRATE	AS N 10,000						
PHOSPHORUS							
SULFATE	250,000						
DISSOLVED OXYGEN	≥ 3,000						
TOTAL DISSOLVED SOLIDS	500,000						
BOD							
COD							
TOC							
PH	6.0 - 8.5	5-9					
CONDUCTIVITY							

AR101238

NOTES: (1) ALL UNITS IN µg/L EXCEPT NOTED (2) * TOXIC ; ** 10⁻⁶ CANCER RISK

(3) REF: FEDERAL REGISTER, MARCH, 1980
EPA, QUALITY CRITERIA FOR WATER, JULY 1976

TABLE 6 SUMMARY OF INORGANIC ANALYSES OF CUTTING (SOIL) SAMPLES

INORGANICS	WATER QUALITY CRITERIA: PERMISSIBLE CRITERIA FOR PUBLIC WATER SUPPLIES	WATER QUALITY CRITERIA: MAX. VALUES FOR PROTECTING FRESH WATER AQUATIC LIFE	B-1 SS#5	B-1 SS#11	B-2 SS#2	B-2 SS#4	B-2 SS#5	B-2 SS#6	B-3 SS#6	B-3 SS#8	B-4 SS#3	B-4 SS#6/7	B-5 SS#12	LAKE
			SAMPLING ON JUNE 22 THRU JULY 14, 1982 (MG/KG)											
ANTIMONY	(146*)	1,600	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
ARSENIC	50 (0.0022)**	440	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
BERYLLIUM	(0.0037)**	5.3	<0.2	0.4	0.2	<0.2	<0.2	<0.2	<0.2	<0.2	0.2	<0.2	<0.2	<0.2
CADMIUM	10	0.012	<0.5	<0.5	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
CHROMIUM	50	0.21	<1	<1	<1	<1	<1	<2	<1	<1	<1	<1	<1	<1
COPPER	1,000	5.6	<2	<2	<2	2	<2	<2	2	4	<2	<2	4	6
LEAD	50	0.75	<4	<4	<4	<4	<4	<4	<4	4	20	4	<4	20
MERCURY	2 (0.144*)	0.00057	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
NICKEL	(13.4*)	56	<2	4	<2	2	<2	<2	<2	2	<2	<2	<2	<2
SELENIUM	10	35	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
SILVER	50	0.12	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
THALLIUM	(13*)	40	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
ZINC	5,000	47	<1	11	2	2	1	2	4	7	<1	3	<1	14
CYANIDE	FREE CN (200*)	3.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
ASBESTOS	(30,000 FIBERS/L)**													
TOTAL PHENOLS														
ALUMINUM		1,000 (IRRIGATION)	90	314	90	120	80	110	100	220	25	30	20	100
BARIUM	1,000		10	56	33	42	22	23	23	34	<1	<1	<1	5
BORON	1,000	750 (IRRIGATION)	<1	1	<1	<1	<1	3	1	2	1	2	<1	2
CALCIUM			90	1,620	27	320	210	300	[illegible]	410	280	120	150	200
COBALT		200 (IRRIGATION)	<1	12	3	3	3	2	<1	2	<1	<1	<1	<1
IRON	300	1,000	20	70	26	802	114	94	[illegible]	1,490	134	690	130	
MAGNESIUM			50	50	120	160	140	190	141	190	70	40	50	[illegible]
MANGANESE	50	2,000 (IRRIGATION)	7	198	<1	214	214	247	90	35	3	15	8	11
SODIUM			<10	90	370	470	330	390	260	160	<10	<10	<10	30
TIN			<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
VANADIUM		10,000 (IRRIGATION)	<1	2	2	1	1	2	2	5	2	1	<1	1
ALKALINITY														
AMMONIA		2.0												
CHLORIDE	250,000													
NITRATE	AS N 10,000													
PHOSPHORUS														
SULFATE	250,000													
DISSOLVED OXYGEN	≥ 2,000													
TOTAL DISSOLVED SOLIDS	500,000													
BOD														
COD														
TOC														
PH	6.0–8.5	5–9												
CONDUCTIVITY														

AR101239

MG/KG = 10 µg/L

NOTES: (1) ALL UNITS IN µG/L, EXCEPT NOTED (3) REF. FEDERAL REGISTER, NOV. 28, 1980

(2) * TOXIC ... ** 10⁻⁶ CANCER RISK EPA, QUALITY CRITERIA FOR WATER, JULY 1976

SECTION 5

ECOLOGY AND ENVIRONMENT, INC.
TOXICOLOGICAL ASSESSMENT
SITE: DELAWARE SAND AND GRAVEL
TDD NO.: F3-8202-04C
EPA NO.: DE-17
DATE: AUGUST 23, 1982

Based on review of Background Information, Site Observations and Laboratory Analytical Data, the following conclusions are indicated:

☐ There is no indication of an imminent or severe adverse toxicological impact to public health or the environment.

☐ There are possible indication(s) of potential adverse toxicological and/or environmental impact. A more comprehensive Site Investigation and Sampling Program is recommended.

☒ A review of the information presented herein is sufficient to indicate a potential adverse impact on human health and/or the enivironment. A Toxicological Impact Assessment is included, as follows:

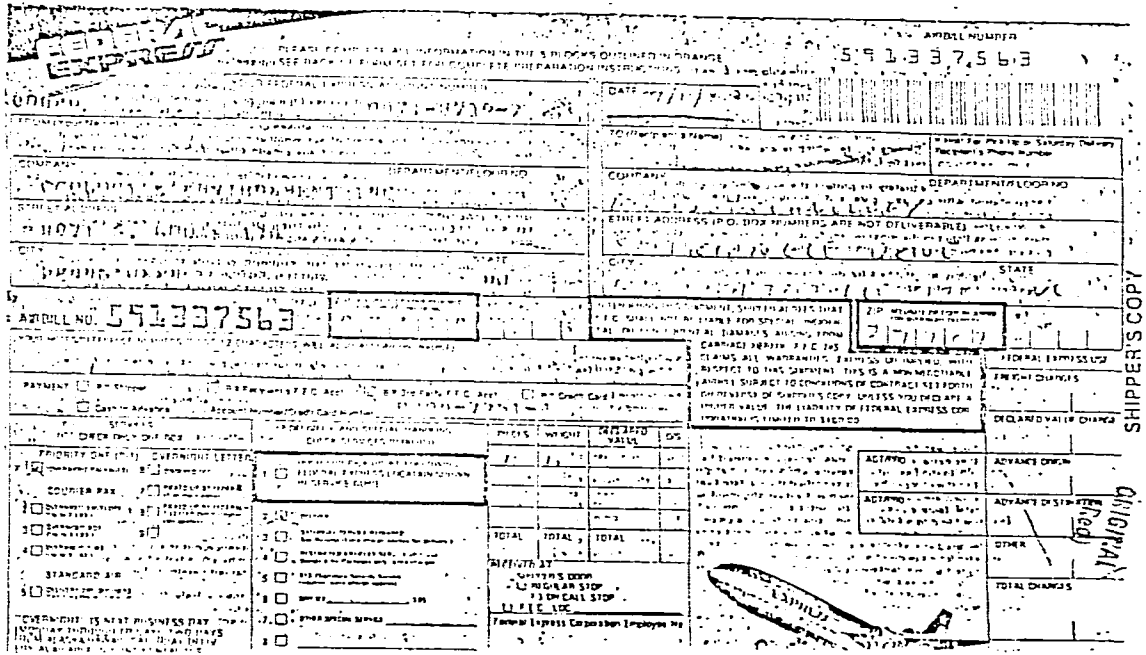
Analyses of on-site monitoring well and split-spoon cutting samples indicates substantial contamination of the underlying groundwater and soil (see Sample Data Summary). The known carcinogenic compound benzene (up to 180 ug/l), and the suspect carcinogens trichloroethylene (up to 27 ug/l), and dichloroethylene (up to 1,500 ug/l) were detected in the monitoring well samples. In addition to other compounds of toxicological concern, lead (up to 320 ug/l), mercury (up to 1 ug/l), and the potentially carcinogenic metals cadmium (up to 10 ug/l) and arsenic (up to 120 ug/l) were identified in the aqueous samples taken from monitoring wells. The affected Columbia and Upper Potomac Formations are the major source aquifers for potable supply. Presently, no wells near the site are used as drinking water sources. For details of groundwater condition refer to the text and hydrogeological reports F3-8108-11B and F3-8108-16B. Consumption of the contaminated groundwater represents a significant risk to human health.

AR101241

Kenneth G. Symms, Ph.D., Toxicologist

SECTION 6

ATTACHMENT 1


AIRBILL NUMBER
5913375613
AIRBILL NO. 591337563
SHIPPER'S COPY
ORIGINAL

AR101244

ORIGINAL

SHIPPER'S COPY

AR101245

FEDERAL EXPRESS

PLEASE COMPLETE ALL INFORMATION IN THE 5 BLOCKS OUTLINED IN ORANGE
SEE BACK OF FORM SET FOR COMPLETE PREPARATION INSTRUCTIONS

AIRBILL NUMBER 5913337110

DATE 7/7/82

COMPANY

STREET ADDRESS

CITY

STATE

TO (Recipient's Name)

COMPANY NCAD TECHNOLOGY

DEPARTMENT/FLOOR NO.

STREET ADDRESS (P.O. BOX NUMBERS ARE NOT DELIVERABLE)

... DRIVE

CITY ... TRIANGLE PARK

STATE NC

AIRBILL NO. 5913337110

PAYMENT

DECLARED VALUE

WEIGHT

TOTAL

STANDARD AIR

COURIER PAK

PRIORITY ONE

OVERNIGHT IS NEXT BUSINESS DAY

SHIPPER'S DOOR

REGULAR STOP

ON CALL STOP

Federal Express Corporation Employee No.

FEDERAL EXPRESS USE

FREIGHT CHARGES

DECLARED VALUE CHARGE

ADVANCE ORIGIN

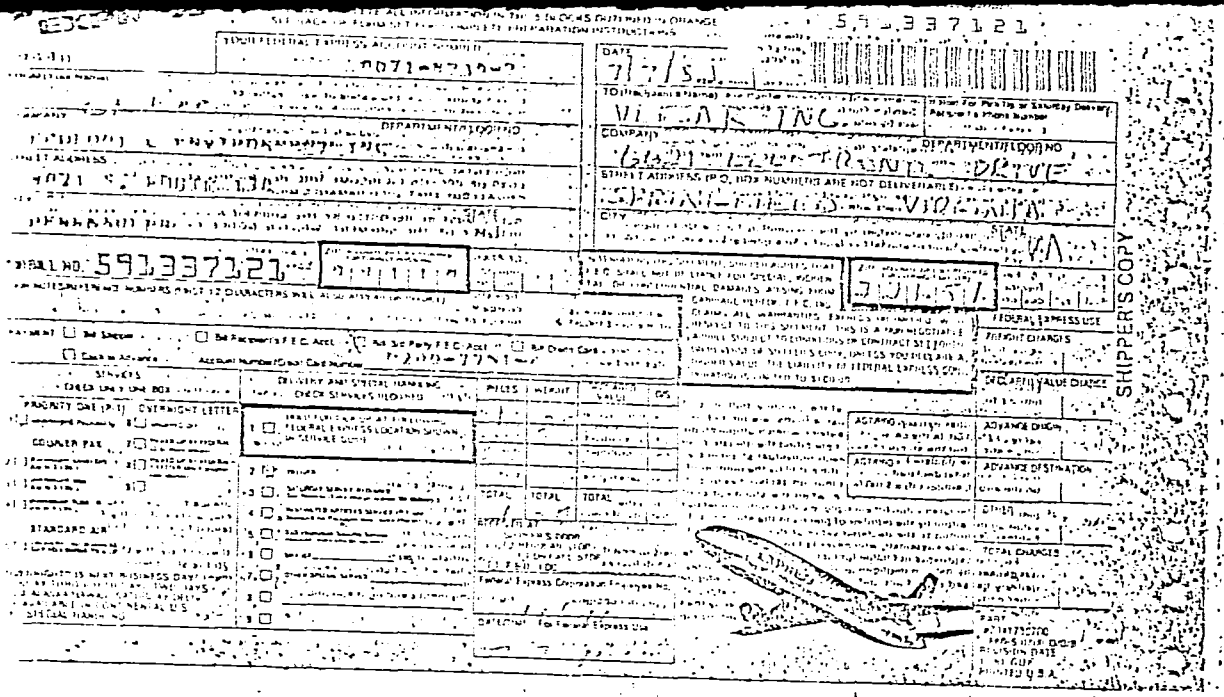
ADVANCE DESTINATION

OTHER

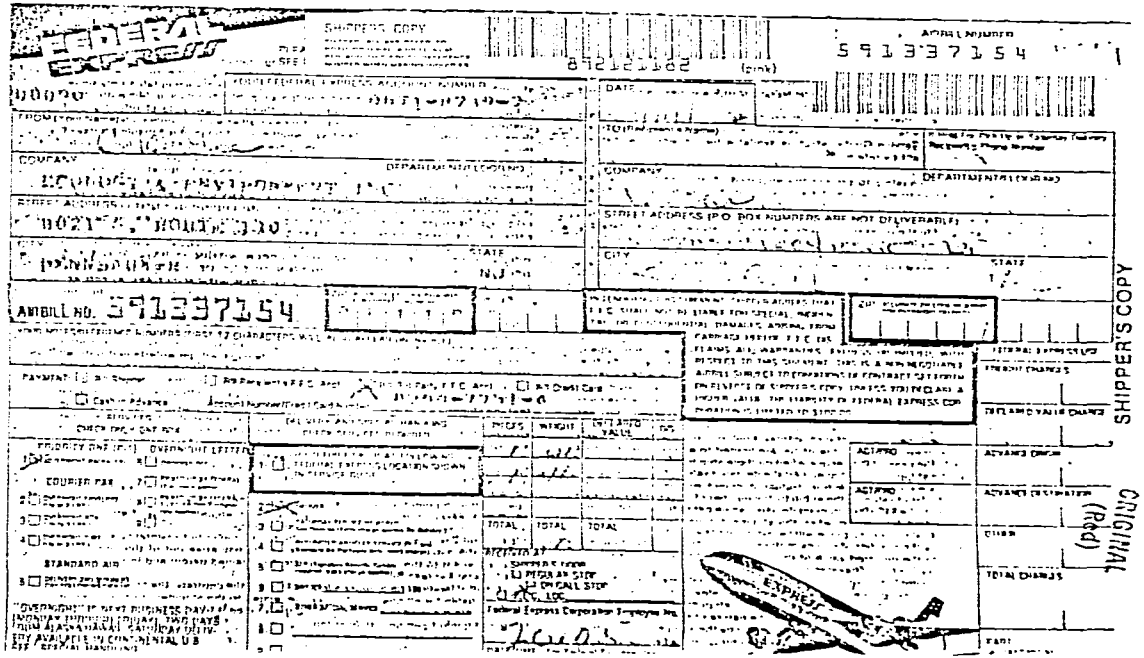
TOTAL CHARGES

SHIPPER'S COPY

AR101246



AR101247


FEDERAL EXPRESS
SHIPPER'S COPY
AIRBILL NUMBER
5913371 54
AIRBILL NO. 5913371 54
SHIPPER'S COPY
ORIGINAL (Red)

AR101248

FEDERAL EXPRESS

PLEASE COMPLETE ALL INFORMATION IN THE SHADED BLOCKS OUTLINED IN ORANGE
SEE BACK OF FORM SET FOR COMPLETE PREPARATION INSTRUCTIONS

AIRBILL NUMBER 5913337062

DATE

FROM (Your Name): C. K. LEE

COMPANY / DEPARTMENT/FLOOR NO.

STREET ADDRESS

CITY / STATE

TO (Recipient's Name)

COMPANY: MEAS TECHNOLOGY / DEPARTMENT/FLOOR NO.

STREET ADDRESS (P.O. BOX NUMBERS ARE NOT DELIVERABLE): TRIANGLE DR.

CITY / STATE: N.C.

AIRBILL NO. 5913337062

YOUR INTERNAL BILLING REFERENCE NUMBERS (FIRST 12 CHARACTERS WILL ALSO APPEAR ON INVOICE)

PAYMENT [ ] Bill Shipper [ ] Bill Recipient's F.E.C. Acct. [ ] Bill 3rd Party F.E.C. Acct. [ ] Bill Credit Card
[ ] Cash in Advance

SERVICES (CHECK ONLY ONE BOX)

PRIORITY ONE (P-1) / OVERNIGHT LETTER

COURIER PAK

STANDARD AIR

PIECES	WEIGHT	DECLARED VALUE	
TOTAL	TOTAL	TOTAL	

RECEIVED AT
SHIPPER'S DOOR
FEC LOC

Federal Express Corporation Employee No.

FEDERAL EXPRESS USE

FREIGHT CHARGES

DECLARED VALUE CHARGE

ADVANCE ORIGIN

ADVANCE DESTINATION

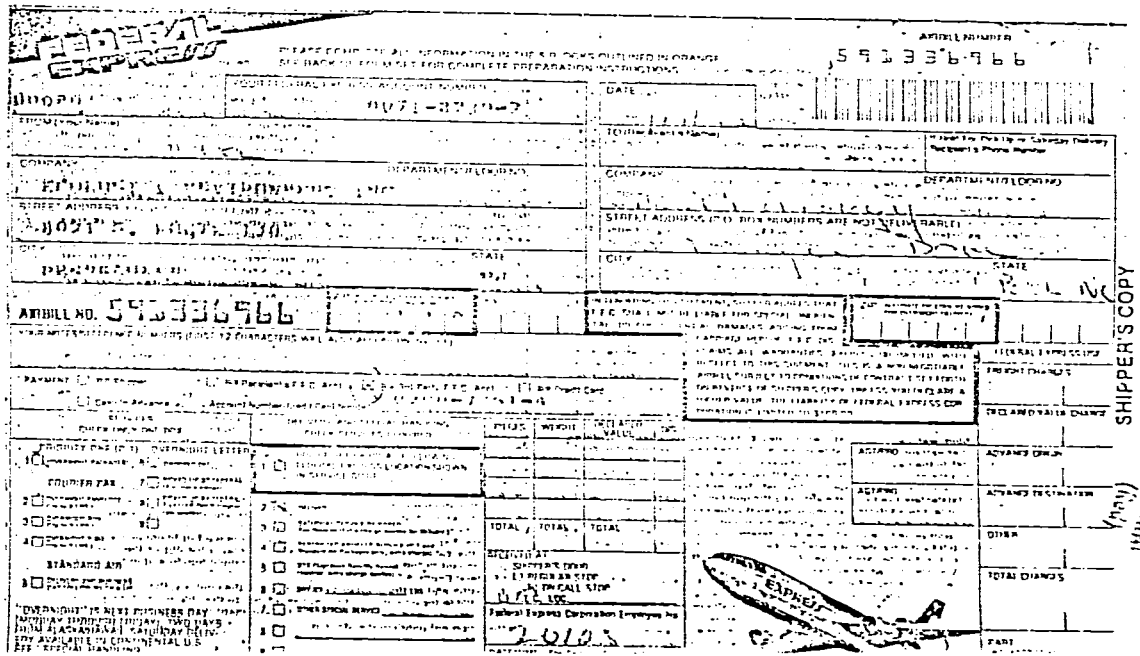
OTHER

TOTAL CHARGES

*OVERNIGHT TO NEXT BUSINESS DAY (MONDAY THROUGH FRIDAY) TWO DAYS FROM ALASKA/HAWAII, SATURDAY DELIVERY AVAILABLE IN CONTINENTAL U.S. SEE SPECIAL HANDLING

SHIPPER'S COPY

AR101249


Federal Express
AIRBILL NUMBER
591336766
AIRBILL NO. 591336766
SHIPPER'S COPY

AR101250

FEDERAL EXPRESS

PLEASE COMPLETE ALL INFORMATION IN THE 5 BLOCKS OUTLINED IN ORANGE
(SEE BACK OF FORM SET FOR COMPLETE PREPARATION INSTRUCTIONS)

AIRBILL NUMBER 591337051

SHIPPER'S COPY

ORIGINAL

YOUR FEDERAL EXPRESS ACCOUNT NUMBER: [illegible]-8719-7

DATE

FROM (Your Name): C K LEE

COMPANY: [illegible]

STREET ADDRESS: [illegible]

CITY: [illegible] STATE: [illegible]

TO (Recipient's Name): [illegible]

COMPANY: VERSAR INC

STREET ADDRESS (P.O. BOX NUMBERS ARE NOT DELIVERABLE): 6621 ELECTRONIC DR

CITY: SPRINGFIELD STATE: VA

ZIP

AIRBILL NO. 591337051

YOUR INTERNAL BILLING REFERENCE NUMBER (FIRST 12 CHARACTERS WILL APPEAR ON INVOICE)

PAYMENT: Bill Shipper / Bill Recipient's F.E.C. Acct. / Bill 3rd Party F.E.C. Acct. / Bill Credit Card / Cash in Advance

SERVICES: PRIORITY ONE / COURIER PAK / OVERNIGHT LETTER / STANDARD AIR

DELIVERY AND SPECIAL HANDLING

PIECES | WEIGHT | DECLARED VALUE

TOTAL | TOTAL | TOTAL

RECEIVED AT: SHIPPER'S DOOR / REGULAR STOP / ON CALL STOP / FED. EXP. LOC.

Federal Express Corporation Employee No.

FEDERAL EXPRESS USE

FREIGHT CHARGES

DECLARED VALUE CHARGE

ADVANCE ORIGIN

ADVANCE DESTINATION

OTHER

TOTAL CHARGES

PART

AR101251

...VENTA ...TECTION AGENCY
Office ... Enforcement

EPA Region 3 FIT
8021 Rt 130
Pennsauken, NJ 08110

CHAIN OF CUSTODY RECORD

PROJ. NO. | PROJECT NAME

SAMPLERS: (Signature)

STA. NO.	DATE	TIME	COMP.	GRAB	STATION LOCATION	NO. OF CONTAINERS			REMARKS

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks	

Distribution: Original Accompanies Shipment; Copy to Coordinator Field Files

U.S. ENVIRONMENTAL PROTECTION AGENCY

INORGANICS TRAFFIC REPORT

Sample Number: MF [illegible]

① Case Number: [illegible]
Sample Site Name/Code: [illegible]

② SAMPLE CONCENTRATION
(Check One)
___ Low Concentration
___ Medium Concentration

③ SAMPLE MATRIX
(Check One)
___ Water
___ Soil/Sediment

④ Ship To: [illegible]
Attn:

Transfer
Ship To:

⑤ Sampling Office: [illegible]
Sampling Personnel:
(Name) [illegible]
(Phone) [illegible]
Sampling Date
(Begin) [illegible] (End)

⑥ Shipping Information:
Name Of Carrier: [illegible]
Date Shipped: [illegible]
Airbill Number: [illegible]

⑦ Sample Description:
(Check One)
___ Surface Water
_x_ Ground Water
___ Leachate
___ Mixed Media
___ Solids
___ Other ________ (specify)

MATCHES ORGANIC SAMPLE NO. ______

⑧ Mark Volume Level
On Sample Bottle
Check Analysis required
___ Task 1 & 2
___ Task 3 Ammonia
Sulfide
Cyanide
___ TOC
___ Fluoride & pH

ORIGINAL

AR101253

INORGANICS TRAFFIC REPORT

Sample Number: MC 911[illegible]

(1) Case Number: [illegible]
Sample Site Name/Code: [illegible]

(2) SAMPLE CONCENTRATION (Check One)
✓ Low Concentration
___ Medium Concentration

(3) SAMPLE MATRIX (Check One)
✓ Water
___ Soil/Sediment

(4) Ship To: NELSAL INC
6621 ELECTRONIC D.
SPRINGFIELD VA 22151
Attn:

Transfer Ship To:

(5) Sampling Office: [illegible]
Sampling Personnel: (Name) [illegible]
(Phone) [illegible]
Sampling Date: (Begin) [illegible] (End) [illegible]

(6) Shipping Information:
Name Of Carrier: [illegible]
Date Shipped: [illegible]
Airbill Number: [illegible]

(7) Sample Description: (Check One)
___ Surface Water
✓ Ground Water — W. Clayton Carson
___ Leachate
___ Mixed Media
___ Solids
___ Other, ______ (specify)

MATCHES ORGANIC SAMPLE NO. [illegible]

(8) Mark Volume Level On Sample Bottle
Check Analysis required
✓ Task 1 & 2
✓ Task 3 Ammonia, Sulfide, (Cyanide)
___ TOC
___ Fluoride & pH

AR101254

INORGANICS TRAFFIC REPORT

Sample Number
MC 911

(1) Case Number:
Sample Site Name/Code:

(2) SAMPLE CONCENTRATION
(Check One)
Low Concentration
Medium Concentration

(3) SAMPLE MATRIX
(Check One)
Water
Soil/Sediment

(4) Ship To:
Versar
6850 Elton Ave Dr
Springfield Ohio
Attn:
Transfer
Ship To:

(5) Sampling Office:
Sampling Personnel
(Name)
(Phone)
Sampling Date:
(Begin) (End)

(6) Shipping Information:
Name Of Carrier:
Date Shipped:
Airbill Number:

(7) Sample Description:
(Check One)
Surface Water
Ground Water
Leachate
Mixed Media
Solids
Other
(specify)
MATCHES ORGANIC SAMPLE NO.

(8) Mark Volume Level On Sample Bottle
Check Analysis required
Task 1 & 2
Task 3 Ammonia
Sulfide
Cyanide
TOC
Fluoride & pH

AR101255

INORGANICS TRACER REPORT

Sample Number MC 911

(1) Case Number:
Sample Site Name/Code:

(2) SAMPLE CONCENTRATION
(Check One)
___ Low Concentration
___ Medium Concentration

(3) SAMPLE MATRIX
(Check One)
___ Water
___ Soil/Sediment

(4) Ship To:
Versar
Envi Electronic D
Springfield Va
Attn:

Transfer
Ship To:

(5) Sampling Office:
Sampling Personnel:
Name:
Phone:
Sampling Date:
(Begin) (End)

(6) Shipping Information:
Name Of Carrier:
Date Shipped:
Airbill Number:

(7) Sample Description:
(Check One)
___ Surface Water
___ Ground Water
___ Leachate
___ Mixed Media
___ Solids
___ Other
(specify)

(8) Mark Volume Level On Sample Bottle
Check Analysis required
___ Task 1 & 2
___ Task 3 Ammonia
___ Sulfide
___ Cyanide
___ TOC
___ Fluoride & pH

CHES ORGANIC SAMPLE NO.

AR101256

ORGANICS ANALYSIS DATA SHEET

(1) Case Number:
Sample Site Name/Code:

(2) SAMPLE CONCENTRATION
(Check One)
___ Low Concentration
___ Medium Concentration

(3) SAMPLE MATRIX
(Check One)
___ Water
___ Soil/Sediment

(4) Ship To:
Attn:
Transfer
Ship To:

(5) Sampling Office:
Sampling Personnel:
(Name)
(Phone)
Sampling Date:
(Begin) (End)

(6) Shipping Information:
Name Of Carrier:
Date Shipped:
Airbill Number:

(7) Sample Description:
(Check One)
___ Surface Water
___ Ground Water
___ Leachate
___ Mixed Media
___ Solids
___ Other (specify)

(8) Mark Volume Level
On Sample Bottle
Check Analysis required
___ Task 1 & 2
___ Task 3 Ammonia
Sulfide
Cyanide
___ TOC
___ Fluoride & pH

MATCHES ORGANIC SAMPLE NO.

REGIONAL OFFICE FILE COPY

ORGANICS ANALYSIS DATA SHEET

(1) Case Number:
Sample Site Name/Code:

(2) SAMPLE CONCENTRATION
(Check One)
___ Low Concentration
___ Medium Concentration

(3) SAMPLE MATRIX
(Check One)
✓ Water
___ Soil/Sediment

(4) Ship To:
Attn:
Transfer
Ship To:

(5) Sampling Office:
Sampling Personnel:
(Name)
(Phone)
Sampling Date:
(Begin) (End)

(6) Shipping Information:
Name Of Carrier
Date Shipped
Airbill Number

(7) Sample Description:
(Check One)
___ Surface Water
___ Ground Water
___ Leachate
___ Mixed Media
___ Soils
___ Other: (Specify)

(8) Mark Volume Level
On Sample Bottle
Check Analysis required
___ Task 1 & 2
___ Task 3 Ammonia
Sulfide
Cyanide
___ TOC
___ Phenols 5 ml

MATCHES ORGANIC SAMPLE NO

REGIONAL OFFICE COPY

AR101258

ORIGINAL (Red)

INORGANIC TRAFFIC REPORT

Sample Number: MC 919

(1) Case Number:

Sample Site Name/Code:

(2) SAMPLE CONCENTRATION (Check One)

___ Low Concentration

___ Medium Concentration

(3) SAMPLE MATRIX (Check One)

___ Water

___ Soil/Sediment

(4) Ship To:

Attn:

Transfer Ship To:

(5) Sampling Office:

Sampling Personnel:

(Name)

(Phone)

Sampling Date:

(Begin) (End)

(6) Shipping Information:

Name Of Carrier:

Date Shipped:

Airbill Number:

(7) Sample Description: (Check One)

___ Surface Water

___ Ground Water

___ Leachate

___ Mixed Media

___ Solids

___ Other (specify)

MATCHES ORGANIC SAMPLE NO.

(8) Mark Volume Level On Sample Bottle

Check Analysis required

___ Task 1 & 2

___ Task 3 Ammonia

Sulfide

Cyanide

___ TOC

___ Fluoride & pH

ORIGINAL (Red)

AR101259

Environment

CHAIN OF CUSTODY RECORD

EPA Region 3 FIT
8021 Rt. 130
Pennsauken, NJ 08110

PROJECT NO. | PROJECT NAME

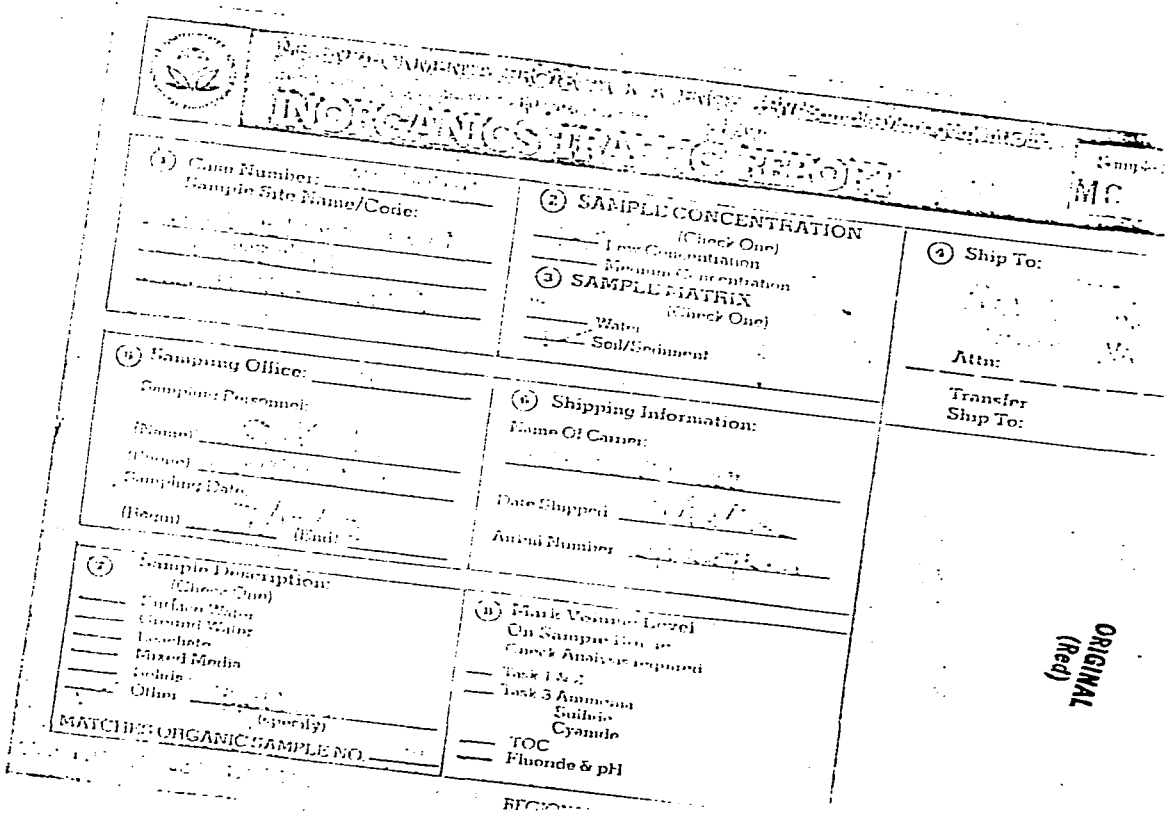
SAMPLERS (Signature)

STA NO.	DATE	TIME	GRAB	COMP	STATION LOCATION	NO. OF CONTAINERS	REMARKS

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks	

ORIGINAL (Red)

Distribution: Original Accompanies Shipment, Copy to Coordinator Field Files



INORGANICS

(1) Case Number:
Sample Site Name/Code:

(2) SAMPLE CONCENTRATION
(Check One)
Low Concentration
Medium Concentration

(3) SAMPLE MATRIX
(Check One)
Water
Soil/Sediment

(4) Ship To:
Attn:
Transfer
Ship To:

(5) Sampling Office:
Sampling Personnel:
(Name)
(Phone)
Sampling Date:
(Begin) (End)

(6) Shipping Information:
Name Of Carrier:
Date Shipped
Airbill Number

(7) Sample Description:
(Choose One)
Surface Water
Ground Water
Leachate
Mixed Media
Solids
Other (Specify)
MATCHED ORGANIC SAMPLE NO.

(8) Mark Vendor Level
On Sample Bottles
Check Analyses Required
Task 1 & 2
Task 3 Ammonia
Sulfide
Cyanide
TOC
Fluoride & pH

ORIGINAL
(Red)

AR101261

[illegible] INORGANIC TRAFFIC REPORT

Sample Number: M[illegible]

(1) Case Number: [illegible]
Sample Site Name/Code: [illegible]

(2) SAMPLE CONCENTRATION
(Check One)
____ Low Concentration
____ Medium Concentration

(3) SAMPLE MATRIX
(Check One)
____ Water
____ Soil/Sediment

(4) Ship To: [illegible]
Attn:
Transfer
Ship To:

(5) Sampling Office: [illegible]
Sampling Personnel:
(Name) [illegible]
(Phone) [illegible]
Sampling Date:
(Begin) ________ (End) ________

(6) Shipping Information:
Name of Carrier: [illegible]
Date Shipped: [illegible]
Airbill Number: [illegible]

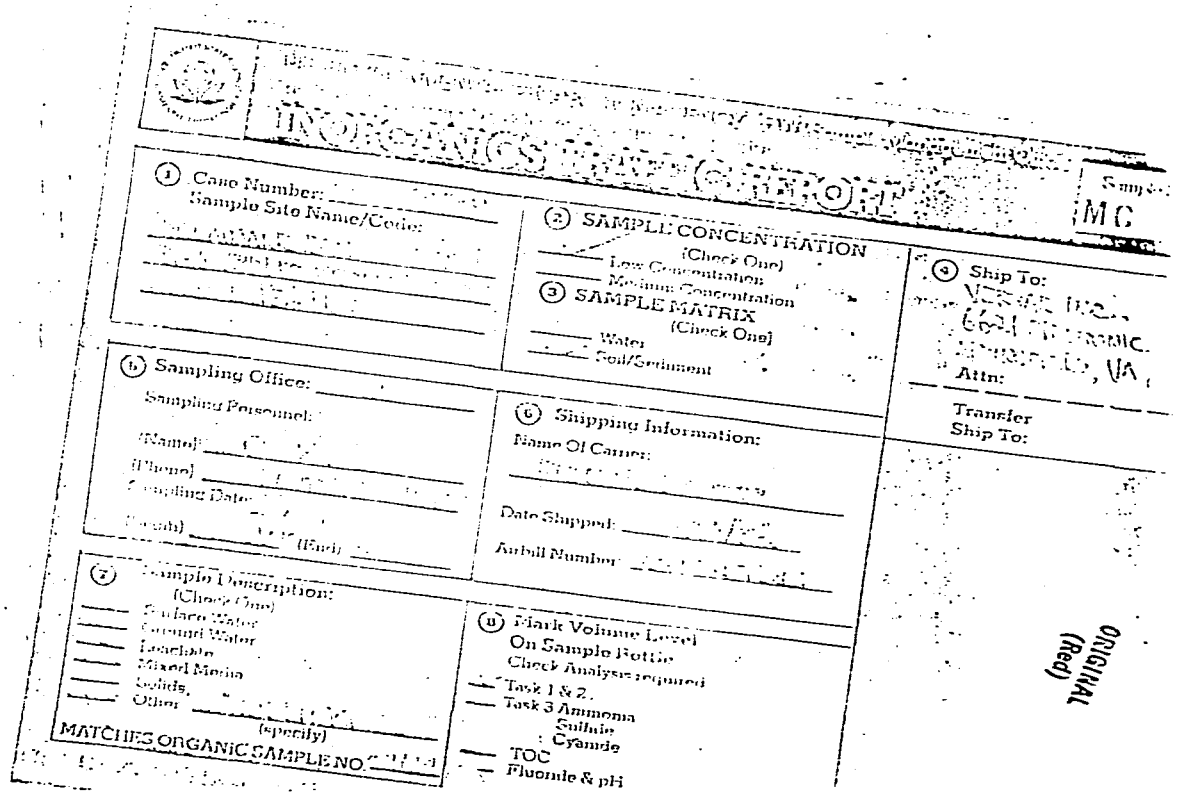
(7) Sample Description:
(Check One)
____ Surface Water
____ Ground Water
____ Leachate
____ Mixed Media
____ Solids
____ Other ________ (specify)

MATCHES ORGANIC SAMPLE NO. ________

(8) Mark Volume Level
On Sample Bottle
Check Analysis required
____ Task 1 & 2
____ Task 3 Ammonia
Sulfide
Cyanide
____ TOC
____ Fluoride & pH

ORIGINAL
(Red)

AR101262



INORGANICS

1 Case Number:
Sample Site Name/Code:

2 SAMPLE CONCENTRATION
(Check One)
Low Concentration
Medium Concentration

3 SAMPLE MATRIX
(Check One)
Water
Soil/Sediment

4 Ship To:
Attn:
Transfer
Ship To:

5 Sampling Office:
Sampling Personnel:
(Name)
(Phone)
Sampling Date:
(Month) (Day)

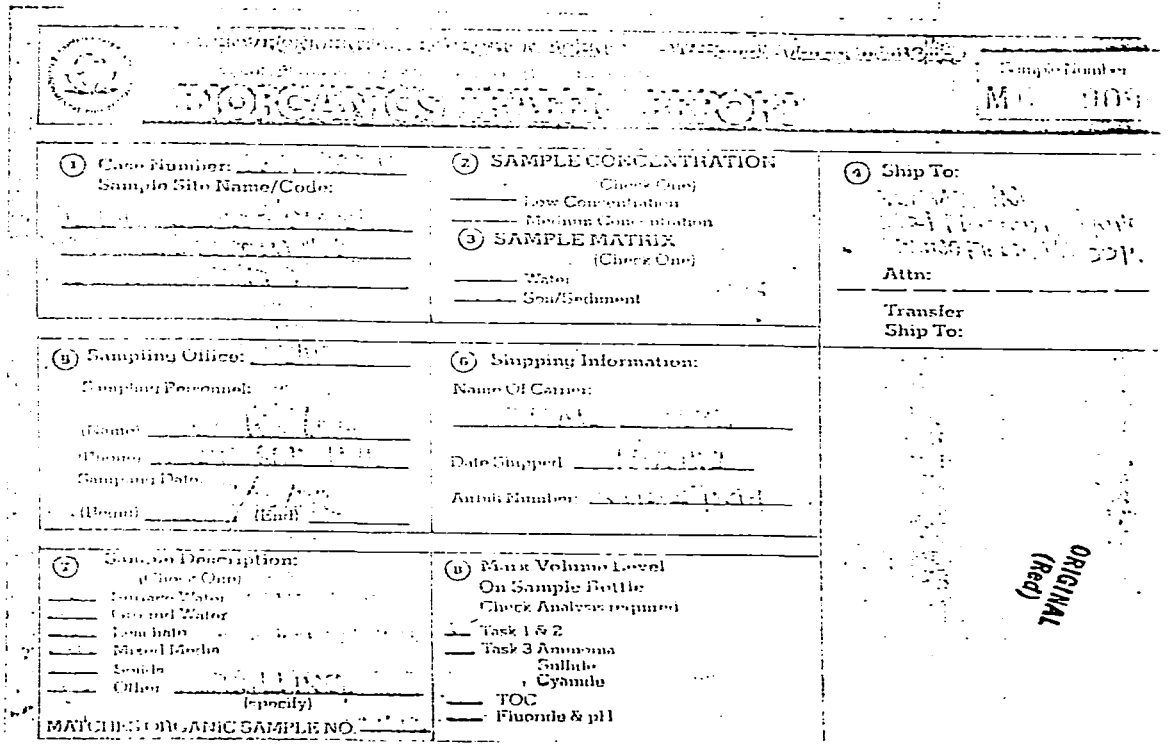
6 Shipping Information:
Name Of Carrier:
Date Shipped:
Airbill Number:

7 Sample Description:
(Check One)
Surface Water
Ground Water
Leachate
Mixed Media
Solids
Other
(specify)
MATCHES ORGANIC SAMPLE NO.

8 Mark Volume Level
On Sample Bottle
Check Analyses required
Task 1 & 2
Task 3 Ammonia
Sulfide
Cyanide
TOC
Fluoride & pH

ORIGINAL
(Red)

AR101263



ORGANIC CASE NARRATIVE

Sample Number

(1) Case Number:
Sample Site Name/Code:

(2) SAMPLE CONCENTRATION
(Check One)
Low Concentration
Medium Concentration

(3) SAMPLE MATRIX
(Check One)
Water
Soil/Sediment

(4) Ship To:
Attn:

Transfer
Ship To:

(5) Sampling Office:
Sampler/Personnel:
(Name)
(Phone)
Sampling Date:
(Begin) (End)

(6) Shipping Information:
Name Of Carrier:
Date Shipped
Airbill Number

(7) Sample Description:
(Check One)
Surface Water
Ground Water
Leachate
Mixed Media
Sludge
Other
(specify)
MATCHED ORGANIC SAMPLE NO.

(8) Mark Volume Level
On Sample Bottle
Check Analyses required
Task 1 & 2
Task 3 Ammonia
Sulfide
Cyanide
TOC
Fluoride & pH

ORIGINAL (Red)

AR101264

INORGANICS TRAFFIC REPORT [illegible]

Sample Number

M[illegible] 80

(1) Case Number: [illegible]

Sample Site Name/Code: [illegible]

(2) SAMPLE CONCENTRATION

(Check One)

___ Low Concentration

___ Medium Concentration

(3) SAMPLE MATRIX

(Check One)

___ Water

___ Soil/Sediment

(4) Ship To: [illegible]

Attn:

Transfer

Ship To:

(5) Sampling Office: [illegible]

Sampling Personnel:

(Name) [illegible]

(Phone) [illegible]

Sampling Date:

(Begin) ___ (End) ___

(6) Shipping Information:

Name Of Carrier

Date Shipped [illegible]

Airbill Number: [illegible]

(7) Sample Description:

(Check One)

___ Surface Water

___ Ground Water

___ Leachate

___ Mixed Media

___ Solids

___ Other: [illegible]

(specify)

(8) Mark Volume Level

On Sample Bottle

Check Analysis required

___ Task 1 & 2

___ Task 3 Ammonia

Sulfide

Cyanide

___ TOC

___ Fluoride & pH

MATCHING ORGANIC SAMPLE NO. ___

ORIGINAL (Red)

AR101265

Office [illegible] orcement

CHAIN OF CUST[illegible]Y RECORD

EPA Region 3 [illegible]
8021 Rt. 130
Pennsauken, NJ 08110

PROJ. NO. | PROJECT NAME

SAMPLERS: (Signature)

STA. NO.	DATE	TIME	COMP.	GRAB	STATION LOCATION	NO. OF CON-TAINERS							REMARKS
[illegible]	[illegible]	[illegible]		X	Hole [illegible]								[illegible]
[illegible]	[illegible]	1245		X	Hole [illegible]								[illegible]
[illegible]	[illegible]	1320		X	Hole [illegible]								[illegible]
[illegible]	[illegible]	[illegible]		X	Hole [illegible]								[illegible]
[illegible]	[illegible]	1340		X	Hole [illegible]								[illegible]

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
[illegible]	[illegible]				
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks	
				[illegible]	

Distribution: Original Accompanies Shipment; Copy to Coordinator Field Files

ORIGINAL (Red)

AR301266

ORGANICS TRAFFIC REPORT

C 1529

ORIGINAL (Red)

Case Number:

Sample Site Name/Code:

③ SAMPLE CONCENTRATION
(Check One)

Low Concentration
Medium Concentration

④ Ship To:

Attn:

③ SAMPLE MATRIX
(Check One)

Water
Soil/Sediment

Transfer
Ship To:

⑤ Regional Office:

Sampling Personnel:

(Name)

(Phone)

Sampling Date:

(Start) (End)

⑥ For each sample collected specify number of containers used and mark volume level on each bottle.

	Number of Containers	Approximate Total Volume
Water (Extractable)		
Water (VOA)		
Soil/Sediment		
Water (Ext/VOA)		
Other		

⑦ Shipping Information

Name of Carrier

Date Shipped:

Air Bill No.:

⑧ Sample Description

___ Surface Water ___ Mixed Media
___ Ground Water ___ Solids
___ Leachate ___ Other (specify)

⑨ Sample Location

AR-101287

Special Handling Instructions:
(e.g., safety precautions, hazardous nature)

ORGANICS TRAFFIC REPORT

Sample Number: C 1612

ORIGINAL (Red)

Case Number:

Sample Site Name/Code:

(2) SAMPLE CONCENTRATION (Check One)

___ Low Concentration
✓ Medium Concentration

(3) SAMPLE MATRIX (Check One)

___ Water
___ Soil/Sediment

(4) Ship To:

Attn:

Transfer Ship To:

(1) Regional Office:

Sampling Personnel:

(Name)

(Phone)

Sampling Date:

(Begin) (End)

Shipping Information

Name of Carrier

Date Shipped:

Airbill Number:

(6) For each sample collected specify number of containers used and mark volume level on each bottle.

	Number of Containers	Approximate Total Volume
Water (Extractable)		
Water (VOA)		
Soil/Sediment		
Water (Ext, VOA)		
Other		

(7) Sample Description

___ Surface Water ___ Mixed Media
___ Ground Water ___ Solids
___ Leachate ✓ Other (specify)

(8) Sample Location

AR101268

Special Handling Instructions:
(e.g., safety precautions, hazardous nature)

ORGANICS TRAFFIC REPORT

ORIGINAL (Red)

Case Number:

Sample Site Name/Code:

(2) SAMPLE CONCENTRATION
(Check One)

____ Low Concentration
____ Medium Concentration

(3) Ship To:

Attn:

(2) SAMPLE MATRIX
(Check One)

____ Water
____ Soil/Sediment

Transfer
Ship To:

(1) Regional Office:

Sampling Personnel:

(Name)

(Phone)

Sampling Date:

(Start) (End)

Shipping Information

Name of Carrier

Date Shipped:

(4) For each sample collected specify number of containers used and mark volume level on each bottle.

	Concentration	Concentration
Water (Extractables)		
Water (VOA)		
Soil/Sediment		
Other (Specify)		
Other		

(5) Sample Description

____ Surface Water ____ Mixed Media
____ Ground Water ____ Solids
____ Leachate ____ Other (specify)

(6) Sample Location

AR101269

Special Handling Instructions:
(e.g., safety precautions, dilution factors)

ORGANICS TRAFFIC REPORT

ORIGINAL (Red)

C 161

Case Number:

Sample Site Name/Code:

SAMPLE CONCENTRATION (Check One)

Low Concentration
Medium Concentration

SAMPLE MATRIX (Check One)

Water
Soil/Sediment

Ship To:

Attn:

Transfer

Ship To:

Regional Office:

Sampling Personnel:

(Name)

(Phone)

Sampling Date:

(Begin) (End)

Shipping Information

Name of Carrier

Date Shipped:

Airbill Number:

For each sample collected specify number of containers used and mark volume level on each bottle.

	Number of Containers	Approximate Total Volume
Water (Extractable)		
Water (VOA)		
Soil/Sediment		
Water (Dioxin)		
Other		

Sample Description

___ Surface Water ___ Mixed Media
___ Ground Water ___ Solids
___ Leachate ___ Other (specify)

Sample Location

AR101270

Special Handling Instructions:
(e.g., safety precautions, hazardous nature)

ORGANICS TRAFFIC REPORT

ORIGINAL (Red) 1615

Case Number:

Sample Site Name/Code:

(2) SAMPLE CONCENTRATION (Check One)

___ Low Concentration
___ Medium Concentration

(3) SAMPLE MATRIX (Check One)

___ Water
___ Soil/Sediment

(4) Ship To:

Attn:

Transfer Ship To:

(5) Regional Office:

Sampling Personnel:

(Name)

(Phone)

Sampling Date:

(End)

Shipping Information

Name of Carrier

Date Shipped:

Airbill Number:

(6) For each sample collected specify number of containers used and mark volume level on each bottle.

	Number of Containers	Approximate Total Volume
Water (Extractable)		
Water (VOA)		
Soil/Sediment		
Water (Ext/VOA)		
Other		

(7) Sample Description

___ Surface Water ___ Mixed Media
___ Ground Water ___ Solids
___ Leachate ✓ Other (specify)

(8) Sample Location

AR101271

Special Handling Instructions:
(e.g., safety precautions, hazardous nature)

LABORATORY COPY

Office ... orcement

EPA ...
8021 Rt. 130
Pennsauken, NJ 08110

CHAIN OF CUSTODY RECORD

PROJ. NO. | PROJECT NAME

[illegible]

SAMPLERS: (Signature)

[illegible]

STA. NO.	DATE	TIME	COMP.	GRAB	STATION LOCATION	NO. OF CON-TAINERS						REMARKS
[illegible]	[illegible]	1000		✓	[illegible]	1						[illegible]
[illegible]	[illegible]	[illegible]		✓	[illegible]	1						" [illegible] " [illegible]
[illegible]	[illegible]	1030		✓	[illegible]	1						" [illegible] " [illegible]

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
[illegible]	[illegible]				
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks	

Distribution: Original Accompanies Shipment; Copy to Coordinator Field Files

ORIGINAL (Red)

AR101272

(1) Case Number: _____
Sample Site Name/Code:

(2) SAMPLE CONCENTRATION
(Check One)
_____ Low Concentration
_____ Medium Concentration

(3) SAMPLE MATRIX
(Check One)
_____ Water
_____ Soil/Sediment

(4) Ship To:

Attn:

Transfer
Ship To:

(5) Sampling Office: _____

Sampling Personnel:

(Name) _____

(Phone) _____

Sampling Date:

(Begin) _____ (End) _____

(6) Shipping Information

Name Of Carrier:

Date Shipped: _____

Airbill Number: _____

(7) Sample Description:
(Check One)
_____ Surface Water
_____ Ground Water
_____ Leachate
_____ Mixed Media
_____ Solids
_____ Other _____
(Specify)

MATCHES ORGANIC SAMPLE NO. _____

(8) Mark Volume Level
On Sample Bottle
Check Analysis Required

_____ Task 1 & 2
_____ Task 3 Ammonia
Sulfide
Cyanide
_____ TOC
_____ Fluoride & pH

ORIGINAL
(Red)

INORGANICS TRAFFIC REPORT

Sample Number: MC [illegible]

(1) Case Number:
Sample Site Name/Code:

(2) SAMPLE CONCENTRATION
(Check One)
___ Low Concentration
___ Medium Concentration

(3) SAMPLE MATRIX
(Check One)
___ Water
___ Soil/Sediment

(4) Ship To:
Attn:
Transfer
Ship To:

(5) Sampling Office:
Sampling Personnel:
(Name)
(Phone)
Sampling Date:
(Begin) (End)

(6) Shipping Information:
Name Of Carrier:
Date Shipped:
Airbill Number:

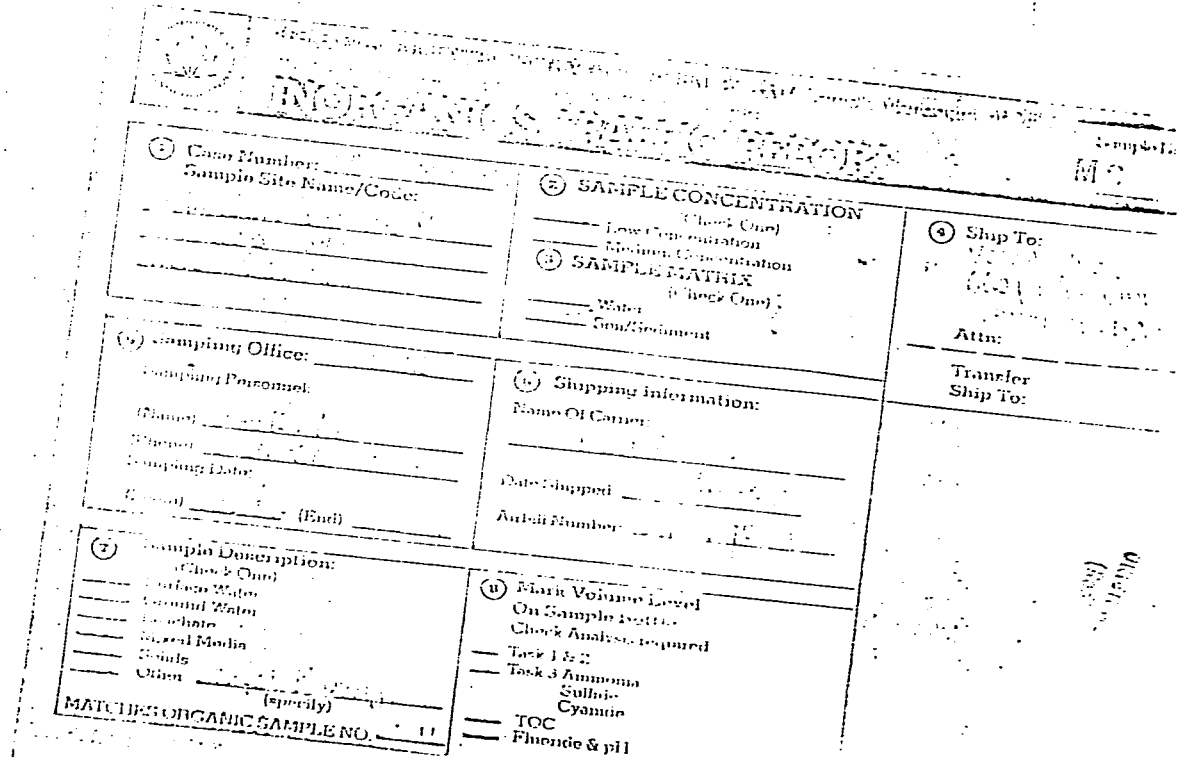
(7) Sample Description:
(Check One)
___ Surface Water
___ Ground Water
___ Leachate
___ Mixed Media
___ Solids
___ Other ___ (specify)

MATCHING ORGANIC SAMPLE NO.

(8) Mark Volume Level
On Sample Bottle
Check Analysis required
___ Task 1 & 2
___ Task 3 Ammonia
Sulfide
Cyanide
___ TOC
___ Fluoride & pH

ORIGINAL
(Red)

AR101274



(1) Case Number:
Sample Site Name/Code:

(2) SAMPLE CONCENTRATION
(Check One)
Low Concentration
Medium Concentration

(3) SAMPLE MATRIX
(Check One)
Water
Soil/Sediment

(4) Ship To:
Attn:
Transfer
Ship To:

(5) Sampling Office:
Sampling Personnel:
(Name)
(Phone)
Shipping Date:
(Start) (End)

(6) Shipping Information:
Name Of Carrier:
Date Shipped:
Airbill Number:

(7) Sample Description:
(Check One)
Surface Water
Ground Water
Leachate
Waste
Soil/Sediment
Other (specify)

(8) Mark Volume Level On Sample Bottle
Check Analyses Required
Task 1 & 2:
Task 3 Ammonia
Sulfide
Cyanide
TOC
Fluoride & pH

MATCHED ORGANIC SAMPLE NO.

ARI01275

Enforcement

CHAIN OF CUSTODY RECORD

EPA [illegible]
8021 Rt. 130
Pennsauken, NJ 08109

PROJ. NO.	PROJECT NAME
[illegible]	DELAWARE RIVER

SAMPLERS: (Signature)

STA. NO.	DATE	TIME	COMP.	GRAB	STATION LOCATION	NO. OF CONTAINERS	REMARKS
[illegible]				✓	[illegible]	1	[illegible]
					[illegible]		[illegible]
							[illegible]
							[illegible]
							[illegible]
							[illegible]
							[illegible]
							[illegible]
							[illegible]
							[illegible]
							[illegible]
							[illegible]
							[illegible]
							[illegible]

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
[illegible]	[illegible]				
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks	

ORIGINAL (Red)

Distribution: Original Accompanies Shipment; Copy to Coordinator Field Files

MB01296

U.S. ENVIRONMENTAL PROTECTION AGENCY

INORGANICS TRAFFIC REPORT

Sample Number: MP

(1) Case Number:
Sample Site Name/Code:

(2) SAMPLE CONCENTRATION
(Check One)
___ Low Concentration
___ Medium Concentration

(3) SAMPLE MATRIX
(Check One)
___ Water
___ Soil/Sediment

(4) Ship To:

Attn:

Transfer
Ship To:

(5) Sampling Office:
Sampling Personnel:
(Name)
(Phone)
Sampling Date:
(Begin) ___ (End)

(6) Shipping Information:
Name Of Carrier:

Date Shipped:
Airbill Number:

(7) Sample Description
(Check One)
___ Surface Water
___ Ground Water
___ Leachate
___ Mixed Media
___ Solids
___ Other ___ (Specify)

MATCHES ORGANIC SAMPLE NO. ___

(8) Mark Volume Level On Sample Bottle
Check Analysis required
___ Task 1 & 2
___ Task 3 Ammonia
Sulfide
Cyanide
___ TOC
___ Fluoride & pH

AR101277

EPA Region [illegible]
8021 Rt. 130
Pennsauken, NJ [illegible]

CHAIN OF CUSTODY RECORD

PROJ. NO.	PROJECT NAME				NO. OF CON-TAINERS		REMARKS
[illegible]	[illegible]						
SAMPLERS: (Signature) [illegible]							
STA. NO.	DATE	TIME	COMP.	GRAB	STATION LOCATION		
[illegible]	[illegible]			✓	[illegible]		[illegible]

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
[illegible]	[illegible]				
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks	

Distribution: Original Accompanies Shipment; Copy to Coordinator Field Files

ORIGINAL (Red)

AR101278

ORGANICS TRAFFIC REPORT

Sample Number

Case Number:

Sample Site Name/Code:

② SAMPLE CONCENTRATION (Check One)

___ Low Concentration
___ Medium Concentration

③ SAMPLE MATRIX (Check One)

___ Water
___ Soil/Sediment

④ Ship To:

Attn:

Transfer Ship To:

⑤ Regional Office:

Sampling Personnel:

(Name)

(Phone)

Sampling Date:

⑦ Shipping Information

Name of Carrier

Date Shipped

⑥ For each sample collected specify number of containers used and mark volume level on each bottle.

	Number of Containers	Approximate Total Volume
Water (Extractable)		
Water (VOA)		
Soil/Sediment		
Water (Dry VOA)		
Other		

⑧ Sample Description

___ Surface Water ___ Mixed Media
___ Ground Water ___ Solids
___ Leachate ___ Other (specify)

⑨ Sample Location

AR101279

Special Handling Instructions:

PROTECTION AGENCY

...Enforcement

CHAIN OF CUSTODY RECORD

EPA Region 2
8021 Rt. 130
Pennsauken, NJ 08110

PROJECT NO. | PROJECT NAME

SAMPLERS (Signature)

STA. NO.	DATE	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS						REMARKS

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks	

Distribution: Original Accompanies Shipment; Copy to Coordinator Field

ORGANICS TRAFFIC REPORT

(1) Case Number:

Sample Site Name/Code:

(2) SAMPLE CONCENTRATION
(Check One)

___ Low Concentration
___ Medium Concentration

(3) SAMPLE MATRIX
(Check One)

___ Water
___ Soil/Sediment

(4) Ship To:

Attn:

Transfer
Ship To:

(5) Regional Office:

Sampling Personnel:

(Name)

(Title)

Sampling Date:

(Begin) (End)

Shipping Information

Name of Carrier

Date Shipped:

Airbill Number:

(6) For each sample collected specify number of containers used and mark volume level on each bottle.

	Number of Containers	Approximate Total Volume
Water (Extractable)		
Water (VOA)		
Soil/Sediment		
Water (Ext/VOA)		
Other		

(7) Sample Description

___ Surface Water
___ Ground Water
___ Leachate
___ Mixed Media
___ Solids
___ Other (specify)

(8) Sample Location

(9) Special Handling Instructions:
(specify turnaround time)

AR101281

ORGANICS TRAFFIC REPORT

Sample Number: C 1618

① Case Number:

Sample Site Name/Code:

WELL

B-5

② SAMPLE CONCENTRATION (Check One)

Low Concentration
Medium Concentration

③ SAMPLE MATRIX (Check One)

Water
Soil/Sediment

④ Ship To:

5 Triangle Dr

Research Triangle Pk

Attn: NC 277

Transfer Ship To:

⑤ Regional Office:

Sampling Personnel:

(Name)

(Phone)

Sampling Date:

(End)

⑦ Shipping Information

Name of Carrier

/ 14 / 82

Date Shipped:

Airbill Number

⑥ For each sample collected specify number of containers used and mark volume level on each bottle.

	Number of Containers	Approximate Total Volume
Water (Extractable)	1	1/2 GAL
Water (VOA)	2	[illegible]
Soil/Sediment		
Water (Ext/VOA)		
Other		

⑧ Sample Description

Surface Water
Mixed Media
Ground Water
Solids
Leachate
Other (specify)

⑨ Sample Location

WELL B-5

AR101282

Special Handling Instructions:
(e.g. safety precautions, hazardous nature)

ORGANICS TRAFFIC REPORT

Sample Number: C - 1621

Case Number:

Sample Site Name/Code:

WELL 4 89

DE-17

② SAMPLE CONCENTRATION (Check One)

X Low Concentration

___ Medium Concentration

③ SAMPLE MATRIX (Check One)

X Water

___ Soil/Sediment

④ Ship To:

Triangle Park, NC

Attn:

Transfer

Ship To:

⑤ Regional Office:

Sampling Personnel:

(Name)

(Phone)

Sampling Date:

7/19/92

(Start) (End)

⑥ For each sample collected specify number of containers used and mark volume level on each bottle.

	Number of Containers	Approximate Total Volume
Water (Extractable)	1	1/2 GAL
Water (VOA)	2	80 ML
Soil/Sediment		
Water (Per VOA)		
Other		

⑦ Shipping Information

Name of Carrier

7/19/92

Date Shipped

Air Bill No.:

⑧ Sample Description

___ Surface Water ___ Mixed Media

X Ground Water ___ Solids

___ Leachate ___ Other (specify)

⑨ Sample Location

WELL 4 89

AR101283

⑩ Special Handling Instructions:

ORGANICS TRAFFIC REPORT

Case Number:	⑤ SAMPLE CONCENTRATION (Check One) ___ Low Concentration ___ Medium Concentration	⑧ Ship To: ORIGINAL
Sample Site Name/Code:	③ SAMPLE MATRIX (Check One) ___ Water ___ Soil/Sediment	Attn: Transfer Ship To:

① Regional Office:

Sampling Personnel:

(Name)

(Phone)

Sampling Date:

(Start) (End)

② For each sample collected specify number of containers used and mark volume level on each bottle.

	Number of Containers	Approximate Total Volume
Water (Extractable)		
Water (VOA)		
Soil/Sediment		
Water (Ext/VOA)		
Other		

④ Shipping Information

Name of Carrier

Date Shipped:

Airbill Number:

⑦ Sample Description

___ Surface Water ___ Mixed Media

___ Ground Water ___ Solids

___ Leachate ___ Other (specify)

⑨ Sample Location

AR101284

⑩ Special Handling Instructions: (e.g. safety precautions, hazardous nature)

ORGANICS TRAFFIC REPORT

Sample Number: C 1623

Case Number:

Sample Site Name/Code:

(2) SAMPLE CONCENTRATION (Check One)
✓ Low Concentration
___ Medium Concentration

(3) SAMPLE MATRIX (Check One)
✓ Water
___ Soil/Sediment

(4) Ship To:
[illegible]
Attn:
Transfer Ship To:

(5) Regional Office:
Sampling Personnel:
(Name)
(Phone)
Sampling Date:
(Begin) (End)

(6) For each sample collected specify number of containers used and mark volume level on each bottle.

	Number of Containers	Approximate Total Volume
Water (Extractable)	1	[illegible]
Water (VOA)	[illegible]	[illegible]
Soil/Sediment		
Water (Ext. VOA)		
Other		

Shipping Information
Name of Carrier
Date Shipped:
Airbill Number:

Sample Description
___ Surface Water ___ Mixed Media
✓ Ground Water ___ Solids
___ Leachate ___ Other (specify)

Sample Location

AR101285

Special Handling Instructions:
(e.g., safety precautions, hazardous nature)

[illegible handwriting] please analyze in this order: [illegible]

ORGANICS TRAFFIC REPORT

Sample Number: C 1624

Case Number:	② SAMPLE CONCENTRATION (Check One) — ✓ Low Concentration; ___ Medium Concentration	④ Ship To:
Sample Site Name/Code:	③ SAMPLE MATRIX (Check One) — ✓ Water; ___ Soil/Sediment	Attn: / Transfer Ship To:

⑤ Regional Office:

Sampling Personnel:

(Name)

(Phone)

Sampling Date:

(Begin) (End)

⑦ Shipping Information

Name of Carrier

Date Shipped:

Airbill Number:

⑥ For each sample collected specify number of containers used and mark volume level on each bottle.

	Number of Containers	Approximate Total Volume
Water (Extractable)	1	
Water (VOA)		
Soil/Sediment		
Water (Ext/VOA)		
Other		

⑧ Sample Description

___ Surface Water ___ Mixed Media

✓ Ground Water ___ Solids

___ Leachate ___ Other (specify)

⑨ Sample Location

Well B

AR101286

Special Handling Instructions:
(e.g., safety precautions, hazardous nature)

ORGANICS TRAFFIC REPORT

Sample Number: C 1625

Case Number:

Sample Site Name/Code:

② SAMPLE CONCENTRATION
(Check One)
✓ Low Concentration
Medium Concentration

③ SAMPLE MATRIX
(Check One)
✓ Water
Soil/Sediment

④ Ship To:

Attn:

Transfer
Ship To:

Regional Office:

Sampling Personnel:

(Phone)

Sampling Date:

(Begin) (End)

Shipping Information

Name of Carrier

Date Shipped:

⑦ For each sample collected specify number of containers used and mark volume level on each bottle.

	Number of Containers	Approximate Total Volume
Water (Extractable)	1	
Water (VOA)		
Soil/Sediment		
Water (Ext, VOA)		
Other		

⑧ Sample Description

___ Surface Water ___ Mixed Media
___ Ground Water ___ Solids
___ Leachate ✓ Other (specify) Sample Blank

⑨ Sample Location

Sample Blank

AR101287

Special Handling Instructions:
(e.g., safety precautions, hazardous nature)

Enforcement

CHAIN OF CUSTODY RECORD

EPA Region 3 FIT
8021 Rt. 130
Pennsauken, NJ 08110

PROJECT NO. | PROJECT NAME

SAMPLERS (Signature)

STA NO.	DATE	TIME	COMP.	GRAB	STATION LOCATION	NO. OF CONTAINERS	REMARKS

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks	

Distribution: Original Accompanies Shipment; Copy to Coordinator Field Files

AR 012888

EPA Region III
Office of Enforcement

CHAIN OF CUSTODY RECORD

PROJ. NO.	PROJECT NAME					NO. OF CONTAINERS	REMARKS
SAMPLERS: (Signature)							
STA. NO.	DATE	TIME	COMP.	GRAB	STATION LOCATION		
[illegible]				X	[illegible]		[illegible]
[illegible]				X	[illegible]		[illegible]

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
[illegible]	[illegible]				
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks	
				[illegible]	

Distribution: Original Accompanies Shipment; Copy to Coordinator Field Files

AR101289

Sample Number

(1) Case Number: ______
Sample Site Name/Code:

(2) SAMPLE CONCENTRATION
(Check One)
______ Low Concentration
______ Medium Concentration

(3) SAMPLE MATRIX
(Check One)
______ Water
______ Soil/Sediment

(4) Ship To:

Attn:

Transfer
Ship To:

(5) Sampling Office: ______
Sampling Personnel:
(Name) ______
(Phone) ______
Sampling Date:
(Begin) ______ (End) ______

(6) Shipping Information:
Name Of Carrier
______
Date Shipped ______
Airbill Number ______

(7) Sample Description:
(Check One)
___ Surface Water
___ Ground Water
___ Leachate
___ Mixed Media
___ Soil
___ Other ______ (specify)

MATCHING ORGANIC SAMPLE NO. ______

(8) Mark Volume Level
On Sample Bottle
(Check Analyses required)
___ Task 1 & 2
___ Task 3 Ammonia
___ Cyanide
___ Fluoride/pH

AR101290

ORIGINAL
(Red)

AR101291

Of [illegible] Department

CHAIN OF CUST[illegible]Y RECORD

EPA Regi[illegible] III
8021 Rt. 130
Pennsauken, NJ 08110

PROJ. NO. PROJECT NAME

SAMPLERS (Signature)

STA. NO.	DATE	TIME	COMP.	GRAB	STATION LOCATION	NO. OF CON-TAINERS	REMARKS

Relinquished by: (Signature) | Date / Time | Received by: (Signature) | Relinquished by: (Signature) | Date / Time | Received by: (Signature)

Relinquished by: (Signature) | Date / Time | Received by: (Signature) | Relinquished by: (Signature) | Date / Time | Received by: (Signature)

Relinquished by: (Signature) | Date / Time | Received for Laboratory by: (Signature) | Date / Time | Remarks

ORIGINAL (Red)

Distribution: Original Accompanies Shipment; Copy to Coordinator Field Files

ORGANICS TRAFFIC REPORT

ORIGINAL (Red)

Sample Site Name/Code:

④ SAMPLE CONCENTRATION (Check One)

___ Low Concentration
___ Medium Concentration

⑤ SAMPLE MATRIX (Check One)

___ Water
___ Soil/Sediment

③ Ship To:

Attn:

Transfer Ship To:

⑥ Regional Office:

Sampling Personnel:

Phone:

Sampling Date:

Shipped Via/Airbill No:

Shipped From:

⑦ For each sample collected specify number of containers used and mark volume level on each bottle.

	Number of Containers	Volume (ml/oz)
Water (Purgeable)		
Water (VOA)		
Soil/Sediment		
Water (Non-VOA)		
Other		

① Sample Description

___ Surface Water ___ Mixed Media
___ Ground Water ___ Solids
___ Leachate ___ Other (specify)

② Sample Location

Special Handling Instructions:

AR101293

ORGANICS TRAFFIC REPORT

Original (Red)

① Case Number:

Sample Site Name/Code:

② SAMPLE CONCENTRATION
(Check One)

Low Concentration
Medium Concentration

③ SAMPLE MATRIX
(Check One)

Water
Soil/Sediment

④ Ship To:

Attn:

Transfer
Ship To:

⑤ Regional Office
Sampling Personnel:

Name:

Phone:

Sampling Date:

⑥ For each sample collected, specify number of containers used and the approximate total volume collected.

	Number of Containers	Approximate Total Volume
Water (Purgeable Only)		
Water (VOA)		
Soil/Sediment		
Water (Extractable)		
Other		

Shipping Information

Name of Carrier:

Date Shipped:

Air Waybill No.:

⑦ Sample Destination

Surface Water
Ground Water
Leachate
Mixed Media
Solids
Other (specify)

⑧ Special Instructions

Special Shipping Instructions:

AR101294

CHAIN OF CUSTODY RECORD

PROJ. NO.	PROJECT NAME	NO. OF CONTAINERS		REMARKS
SAMPLERS: (Signature)				

STA. NO.	DATE	TIME	COMP.	GRAB	STATION LOCATION		REMARKS
[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]
					[illegible]		[illegible]
[illegible]	[illegible]		X		[illegible]	[illegible]	

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
[illegible]	[illegible]				
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks	

AR101295

Distribution: Original Accompanies Shipment; Copy to Coordinator Field Files

ENVIRONMENTAL PROTECTION AGENCY
Sample Management Office
Box 818 - Alexandria, Virginia 22313
703/557-2490 - FTS/557-2490

262-C

SAS PACKING LIST

Project Officer	Sampling Date(s)	Ship To:	For Lab Use Only
	6/29		Date Samples Rec'd:
	Date Shipped:		

Sample Numbers	Additional Sample Description	Sample Condition On Receipt
1. 262-C-2		
2.	(Organic Sample)	
262-C-3	Organic Blank	
3.		
5.		
7.		
8.		

AR 101296

For Lab Use Only

White - SMO Copy, Yellow - Region Copy, Pink - Lab Copy for return to SMO, Gold - Lab Copy

ORGANICS TRAFFIC REPORT

Region No. C 1620

Case Number:

Sample Site Name/Code:

(1) SAMPLE CONCENTRATION
(Check One)

Low Concentration
Medium Concentration

(2) SAMPLE MATRIX
(Check One)

Water
Soil/Sediment

(4) Ship To:

Attn:

Transfer
Ship To:

(5) Regional Office:

Sampling Personnel:

(Name)

(Phone)

Sampling Date:

Sampling Information

Name of Center

Date Shipped:

Lab Number:

(3) For each sample collected specify number of containers used and mark volume level on each bottle.

	Number of Containers	Approximate Total Volume
Water (Extractable)		
Water (VOA)		
Soil/Sediment		
Water (Dup. VOA)		
Other		

(6) Sample Description

Surface Water
Ground Water
Leachate
Mixed Media
Solids
Other (specify)

Special Shipping Instructions:

(7) Sample Location

AR161297

ORGANICS TRAFFIC REPORT

① Case Number:

Sample Site Name/Code:

② SAMPLE CONCENTRATION
(Check One)

___ Low Concentration
___ Medium Concentration

③ SAMPLE MATRIX
(Check One)

___ Water
___ Soil/Sediment

④ Ship To:

Attn:

Transfer
Ship To:

⑤ Regional Office:
Sampling Personnel:

(Name)

(Phone)

Sampling Date:

(Begin) (End)

⑥ Shipping Information

Name of Carrier

Date Shipped:

Airbill Number:

⑦ For each sample collected specify number of containers used and mark volume level on each bottle.

	Number of Containers	Approximate Total Volume
Water (Extractable)		
Water (VOA)		
Soil/Sediment		
Water (Ext/VOA)		
Other		

⑧ Sample Description

___ Surface Water ___ Mixed Media
___ Ground Water ___ Solids
___ Leachate ___ Other (specify)

⑨ Sample Location

AR101298

Special Handling Instructions:
(e.g., safety precautions, hazardous nature)

CHAIN OF CUSTODY RECORD

PROJECT NO. | PROJECT NAME

SAMPLERS: (Signature)

NO.	DATE	TIME	STATION LOCATION	NO OF CONTAINERS	REMARKS

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks	

Distribution: Original Accompanies Shipment; Copy to Coordinator Field Files

ORIGINAL (Red)

ORIGINAL (Red)

ENVIRONMENTAL PROTECTION AGENCY
[illegible] Office
[illegible] Alexandria, Virginia 22313
[illegible] 703/557-2490 - FTS/557-2490

322-C

SAS PACKING LIST

[illegible] EPA # PA-17 Delaware Sand & Gravel Landfill

Regional Office	Sampling Date(s)	Ship To:	For Lab Use Only
[illegible]	6/15/82	VERSAR, Inc.	Date Samples Rec'd
[illegible]		6621 Electronic Drive	
		Springfield, Va.	Received By
	Date Shipped 6/16/82	22151	

Sample Numbers	Additional Sample Description	Sample Condition On Receipt
1. 322-C-1	[illegible] (Organic Sample)	
2.		
3. 322-C-4	Organic blank	
4.		
5.		
6.		
7.		
8.		
9.		
10.		
11.		
12.		
13.		
14.		
15.		
16.		
17.		
18.		
19.		
20.		

For Lab Use Only

AR101300

[illegible] - SMO Copy, Yellow - Region Copy, Pink - Lab Copy for return to SMO, Gold - Lab Copy

ORIGINAL
(Red)

ATTACHMENT 2

AR101301

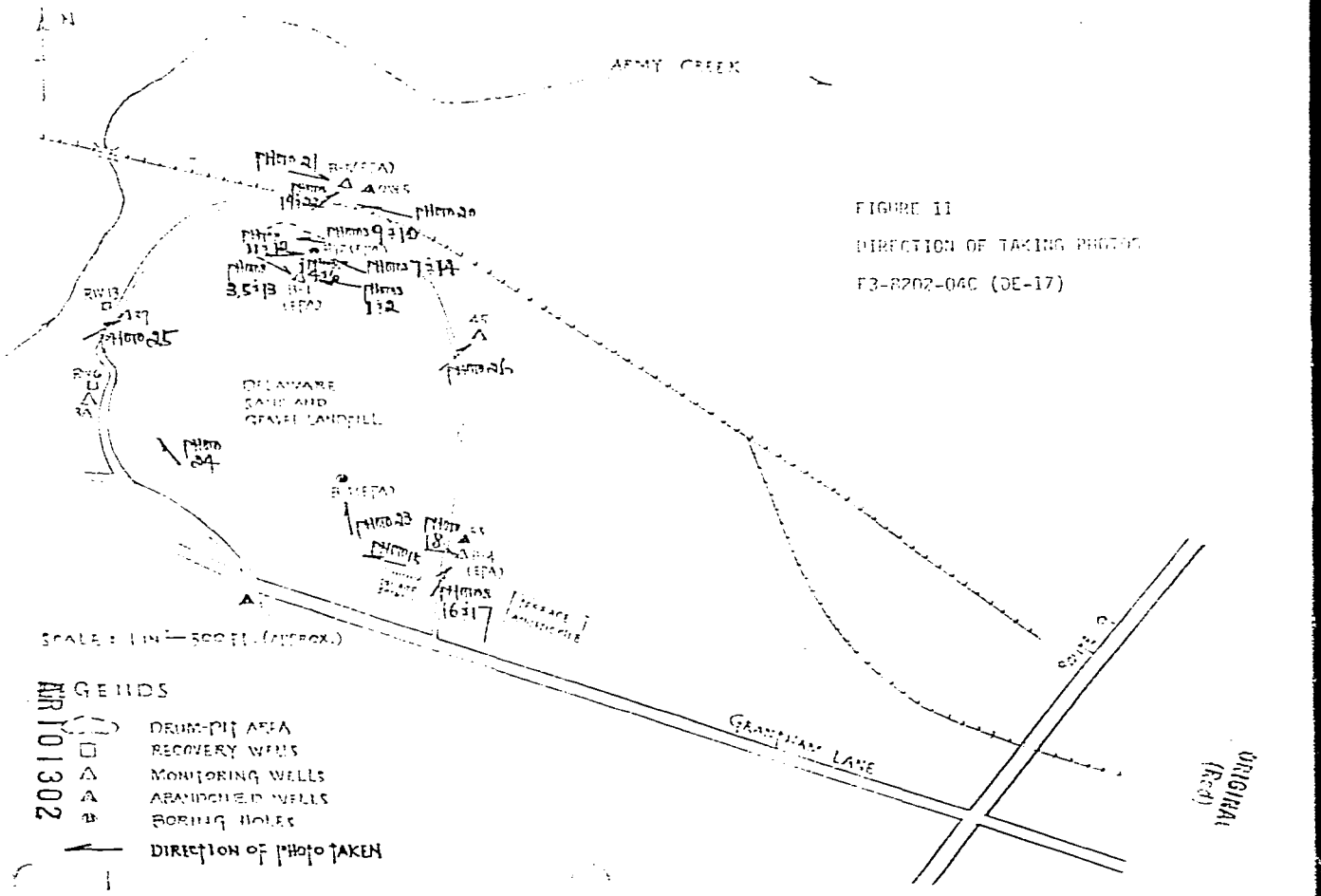


FIGURE 11

DIRECTION OF TAKING PHOTOS

F3-8202-040 (DE-17)

AR 301302

Well Drilling
at
Delaware Sand and Gravel Landfill
New Castle, Delaware
TDD No. F3-8202-04C
EPA No. DE-17

PHOTOGRAPHIC LOG

Photograph 1 - Rig mast is raised for drilling on site B-1. Driller wore the protective gears at safety Level I when started to drill.

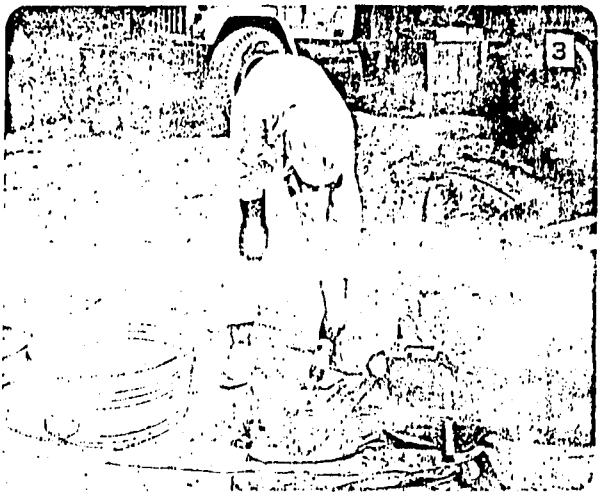
Photograph 2 - Air quality monitoring with HNU during drilling.

AR101303

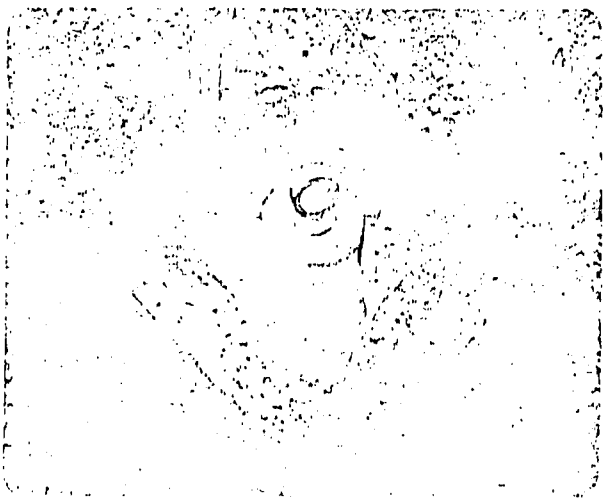
Well Drilling at
Delaware Sand and Gravel Landfill
New Castle, Delaware
TDD No. F3-8202-04C
EPA No. DE-17
Photographic Log

AR101304

Well Drilling at
Delaware Sand and Gravel Landfill
New Castle, Delaware
TDD No. F2-8105-04
EPA No. DE-17
Photographic Log



Photograph 3 - HNU detection of the cutting (soil) sample in the split spoon.



Photograph 4 - Drilling platform, rig and the cuttings of Well I-1.

Well Drilling at
Delaware Sand and Gravel Landfill
New Castle, Delaware
TDD No. F3-8202-04C
EPA No. DE-17
Photographic Log

PHOTO # 3

DELAWARE SAND & GRAVEL
F3-8202-04-C
DE-17
7/9/82/1500

HAND DIRECTION OF THE CUTTINGS (SOIL)
SAMPLE IS THE EAST SIDE

C. K. Lee

PHOTO #4

DELAWARE SAND & GRAVEL
F3-8202-04-C
DE-17
7/12/82/1130
BY C. K. LEE

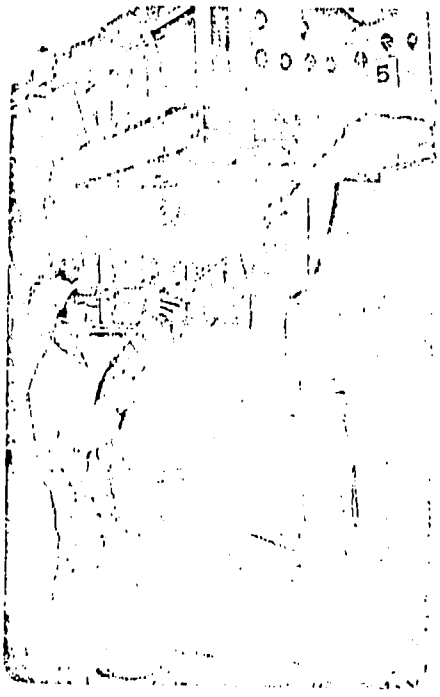
DRILLING COMPLETED, CAPPED THE CASING
OF WELL B-1

C. K. Lee

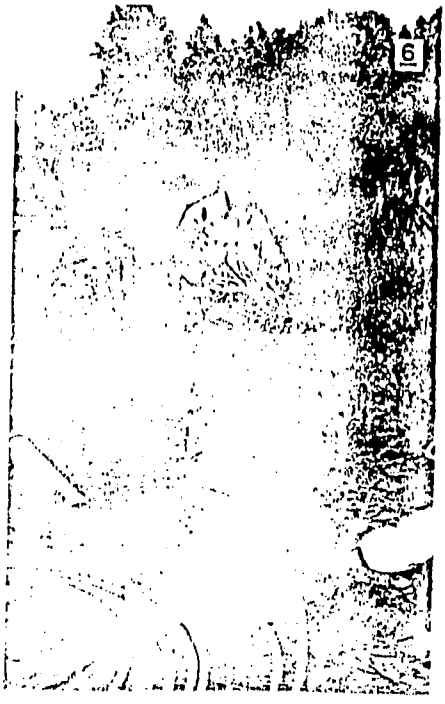
AR101306

6-2-4

Well Drilling at
Delaware Sand and Gravel Landfill
New Castle, Delaware
TDD No. F3-[illegible]-04C
EPA No. DE-17
Photographic Log



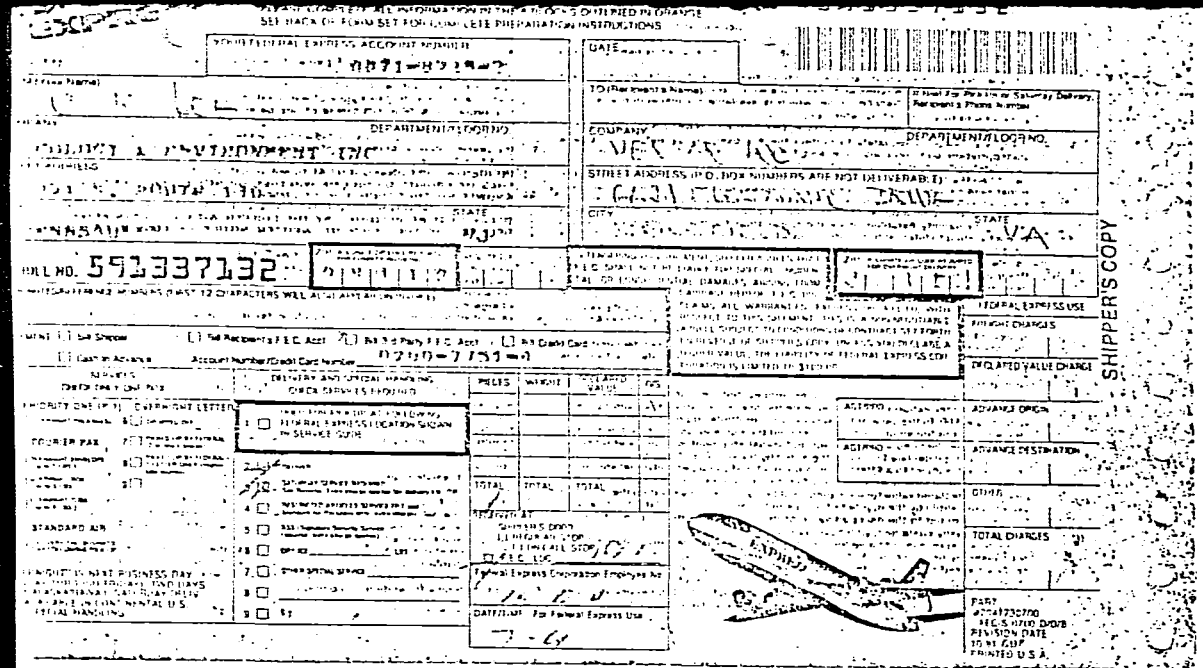
Photograph 5 - Washing down the drill rig after well E-1 completion.



Photograph 6 - Taking water sample from E-1 well.

AR101307

Well Drilling at
Delaware Sand and Gravel Landfill
New Castle, Delaware
TDD No. F3-8202-04C
EPA No. DE-17
Photographic Log



AR101309

EXPRESS

PLEASE COMPLETE ALL INFORMATION IN THE AREAS OUTLINED IN ORANGE
SEE BACK OF FORM SET FOR COMPLETE PREPARATION INSTRUCTIONS

YOUR FEDERAL EXPRESS ACCOUNT NUMBER

DATE 7/7/82

TO (Recipient's Name)

COMPANY

DEPARTMENT/FLOOR NO.

STREET ADDRESS (P.O. BOX NUMBERS ARE NOT DELIVERABLE)

CITY

STATE NJ

ZIP

AIRBILL NO. 591337143

STATE NJ

SHIPPER'S COPY

FEDERAL EXPRESS USE

FREIGHT CHARGES

DECLARED VALUE CHARGE

ADVANCE ORIGIN

ADVANCE DESTINATION

OTHER

TOTAL CHARGES

SERVICES

PRIORITY ONE (P-1) / OVERNIGHT LETTER

COURIER PAK

STANDARD AIR

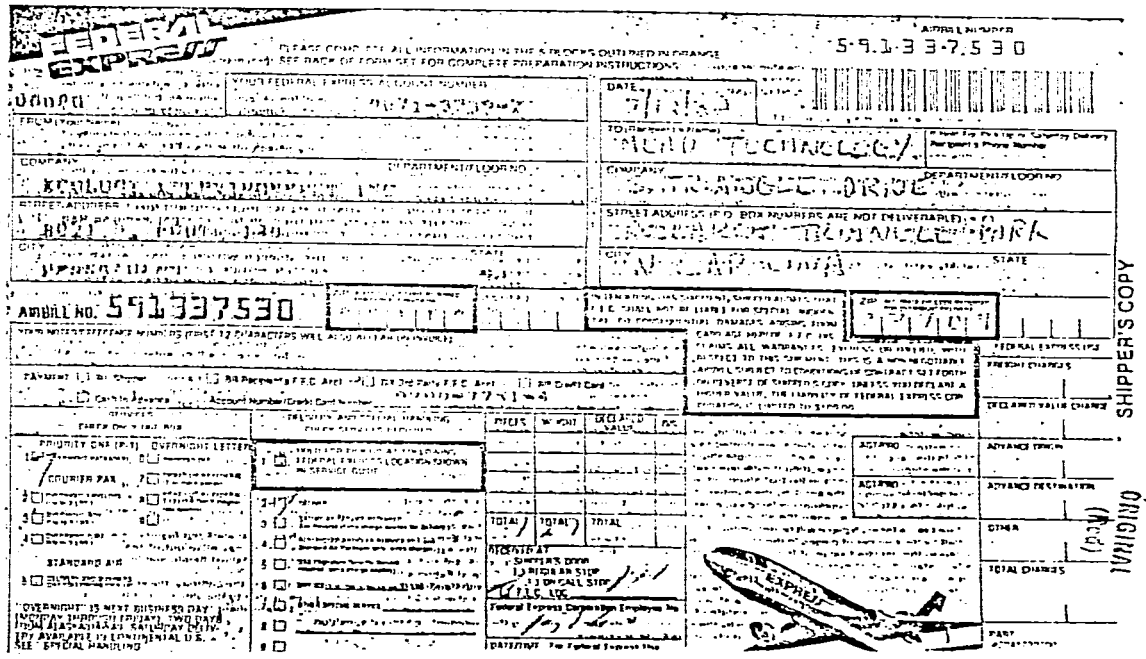
DELIVERY AND SPECIAL HANDLING

PIECES | WEIGHT | DECLARED VALUE

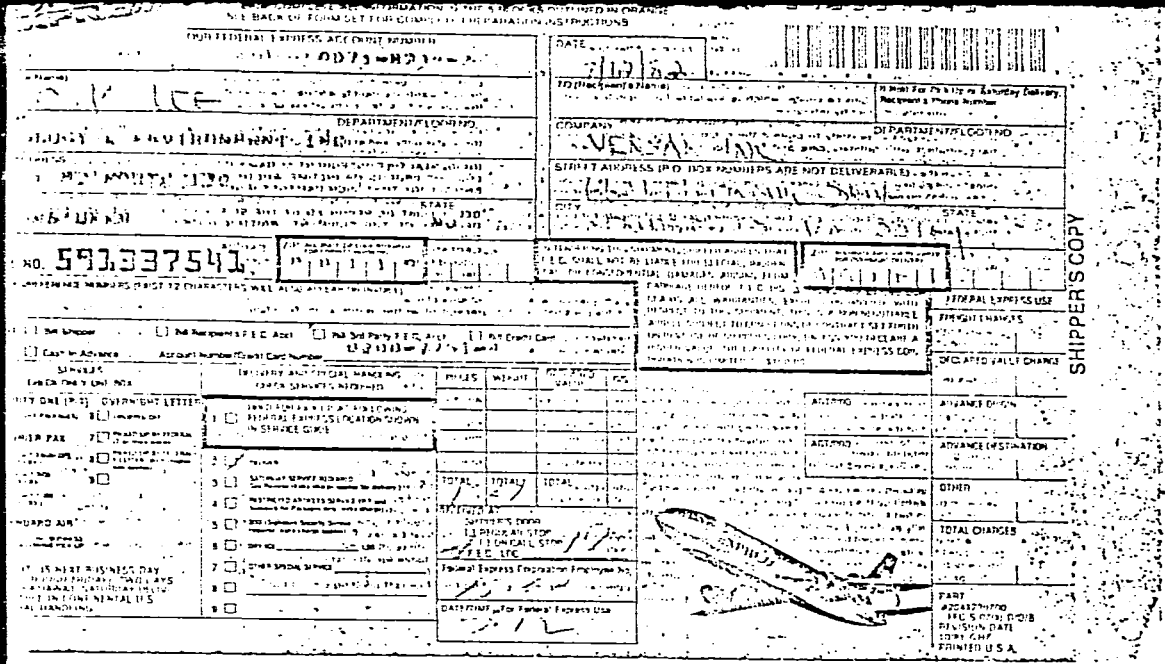
TOTAL | TOTAL | TOTAL

PRINTED U.S.A.

AR101310


FEDERAL EXPRESS
AIRBILL NUMBER
5 9 1 3 3 7 5 3 0
DATE
AMBILL NO. 591337530
SHIPPER'S COPY
ORIGINAL (Copy 1)

AR101311



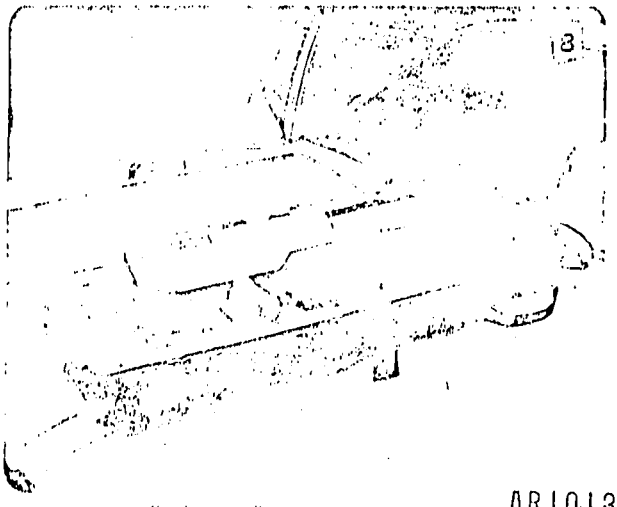
SEE BACK OF FORM SET FOR COMPLETE PREPARATION INSTRUCTIONS

SHIPPER'S COPY

AR101312

Well Drilling at
Delaware Sand and Gravel Landfill
New Castle, Delaware
TDD No. F3-8202-04C
EPA No. D5-17
Photographic Log

Photograph 7 - General view of drum-pit area (near B-2 site).



Photograph 8 - "Schonstedt" magnetometer was used to locate concentrations of buried magnetic objects.

ORIGINAL
(Red)

Well Drilling at:
Delaware Sand and Gravel Landfill
New Castle, Delaware
TDD No. F3-8202-04C
EPA No. DE-17
Photographic Log

PHOTO # 7

DELAWARE SAND & GRAVEL
F3-8202-04-C
DE-17
7/12/82/0900
BY C. K. LEE

GENERAL VIEW OF [illegible] AREA
([illegible] SITE)

C. K. [illegible]

PHOTO # 8

DELAWARE SAND & GRAVEL
F3-8202-04C
DE-17
7/13/82/0915
BY C. K. LEE

[illegible] MAGNETOMETER WAS USED
TO SEARCH FOR CONCENTRATIONS OF BURIED
MAGNETIC OBJECTS

C. K. [illegible]

AR101314

Well Drilling at
Delaware Sand and Gravel Landfill
New Castle, Delaware
TDD No. F3-8707-34C
EPA No. DE-17
Photographic Log

Photograph 9 - Doug Taylor applied the portable magnetometer on the site B-2.

Photograph 10 - Detecting the sinking holes with hnu on the drum-pit area.

AR101315

ORIGINAL (Red)

Well Drilling at
Delaware Sand and Gravel Landfill
New Castle, Delaware
TDF No. P3-8206-04C
EPA No. DE-17
Photographic log

Photo #6

DELAWARE SAND & GRAVEL
P3-8206-04C
DE-17
7/23/86
BY C.K. LEE

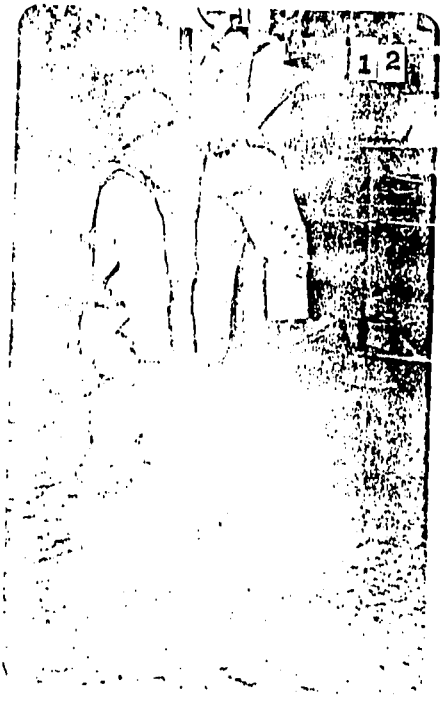
Photo #7

DELAWARE SAND & GRAVEL
P3-8206-04C
DE-17
7/23/86
BY C.K. LEE

6-2-10

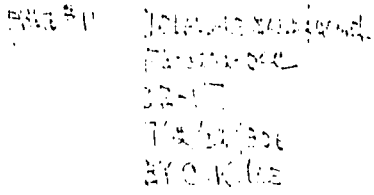
Well Drilling at
Delaware Sand and Gravel Landfill
New Castle, Delaware
TDD No. F3-8202-04C
EPA No. DE-17
Photographic Log

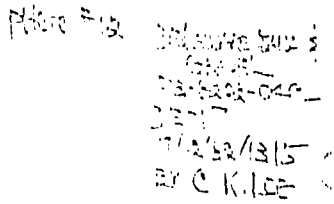
Photograph 11 - Auger rig is moved to the site E-2.

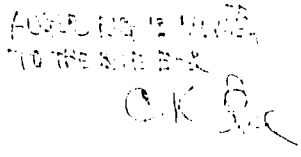


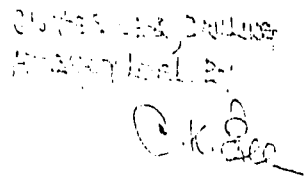
Photograph 12 - On the site E-2, drilling at safety level E.

Well Drilling at
Delaware Sand and Gravel Landfill
New Castle, Delaware
TDD No. F3-8202-04C
EPA No. DE-17
Photographic Log



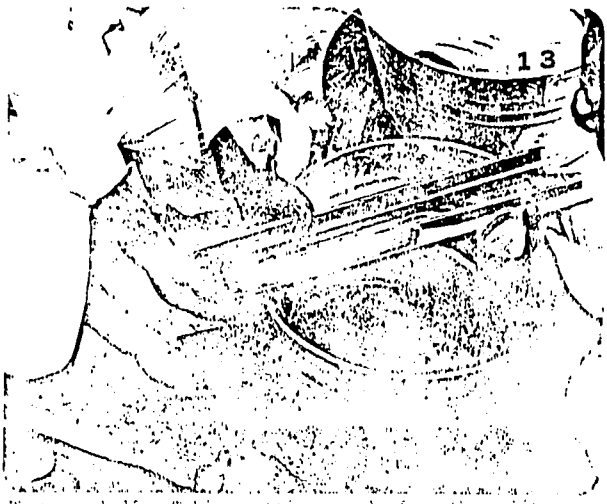






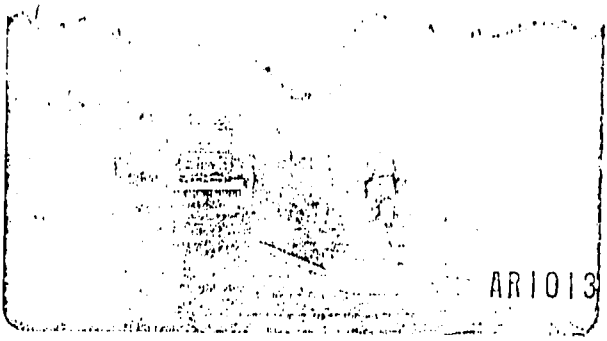
AR101318

Well Drilling at
Delaware Sand and Gravel Landfill
New Castle, Delaware
TDD No. F3-8202-04
EPA No. DE-17
Photographic Log



Photograph 13 - Taking cutting sample from the split spoon.

14



Photograph 14 - After drilling completed, driller decontaminated the drilling equipment with high pressure hot water.

Well Drilling at
Delaware Sand and Gravel Landfill
New Castle, Delaware
TDD No. F3-8202-04C
EPA No. DE-17
Photographic Log

Well Drilling at
Delaware Sand and Gravel Landfill
New Castle, Delaware
TDD No. F3-8701-04C
EPA No. DE-1
Photographic Log

15

Photograph 15 - Prior to drill the hole B-4, the drilling equipment was washed and cleaned by the driller.

16

Photograph 16 - Well drilling activity at site B-4.

AR101321

Well Drilling at
Delaware Sand and Gravel Landfill
New Castle, Delaware
TDD No. F3-8202-04C
EPA No. DE-17
Photographic Log

PHOTO #15

DELAWARE SAND
& GRAVEL
F3-8202-04C
DE-17
7/6/[illegible]
BY C.K. LEE

[illegible] THE HOLE B-4
THE DRILLING [illegible]
WASHED AND CLEANED BY THE
DRILLER

C.K. [illegible]

PHOTO #16

DELAWARE SAND &
GRAVEL
F3-8202-04C
DE-17
7/6/82/1000
BY C.K. LEE

WELL DRILLING ACTIVITY
AT [illegible] B-4

C.K. [illegible]

AR101322

Well Drilling at
Delaware Sand and Gravel Landfill
New Castle, Delaware
TDD No. F3-8201-04C
EPA No. DE-17
Photographic Log

Photograph 17 - Rinsed with drinking quality water before leaving the site.

Photograph 18 - Water sampling at the monitoring well B-4.

AR101323

Well Drilling at
Delaware Sand and Gravel Landfill
New Castle, Delaware
TDD No. F3-8202-04C
EPA No. DE-17
Photographic Log

PHOTO #17

Delaware Sand & Gravel
F3-8202-04C
DE-17
7/9/82/0945
BY C. K. LEE

RINSED WITH DRINKING QUALITY WATER BEFORE LEAVING THE SITE

C. K. Lee

PHOTO #18

Delaware Sand & Gravel
F3-8202-04C
DE-17
7/9/82/1030
BY C. K. LEE

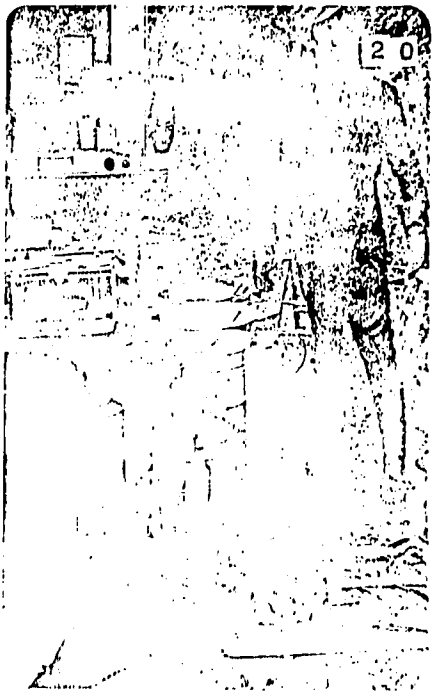
[illegible] AT THE
[illegible]

C. K. Lee

AR101324

Well Drilling at
Delaware Sand and Gravel Landfill
New Castle, Delaware
TDD No. F3-8202-04C
EPA No. DE-17
Photographic Log

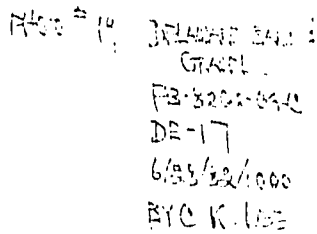
Photograph 19 - A rotary drilling rig is installed at site B-5.

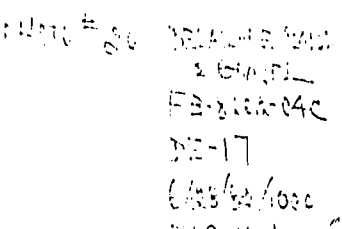


Photograph 20 - The decon line was set for taking soil samples.

AR101325

Well Drilling at
Delaware Sand and Gravel Landfill
New Castle, Delaware
TDD No. F3-8202-04C
EPA No. DE-17
Photographic Log





Well Building at
Delaware Sand and Gravel Landfill
New Castle, Delaware
TAT No. F3-8202-0C
EPA No. DE-1
Photographic Log

ORIGINAL
(Red)

Photograph 21 - The new installed well B-5 is located adjacent to the abandoned well OW-5.

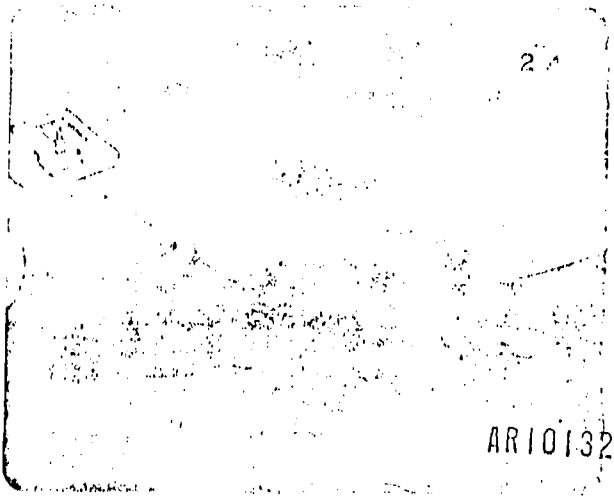
Photograph 22 - Water sampling at well B-5.

Well Drilling at
Delaware Sand and Gravel Landfill
New Castle, Delaware
TBD No. F3-8201-04C
EPA No. DE-17
Photographic Log

AR101328

23

Photograph 23 - General view of the surface (landfill area near B-3 site).



Photograph 24 - Detecting with fmu while soil sampling at the stained area near landfill entrance.

Well Drilling at
Delaware Sand and Gravel Landfill
New Castle, Delaware
TDD No. F3-8202-04C
EPA No. DE-17
Photographic Log

PHOTO # 33

DELAWARE SAND & GRAVEL
F3-8202-04C
DE-17
7/7/82/1304
BY [illegible] LASKY

GENERAL VIEW OF [illegible] (LANDFILL) AREA ([illegible] SITE)

PHOTO # 34

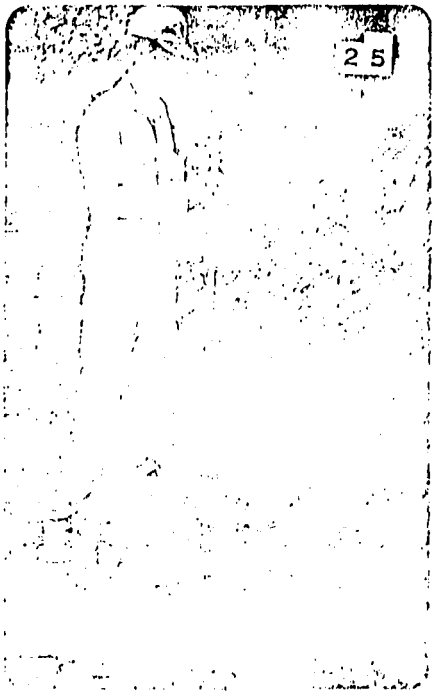
DELAWARE SAND & GRAVEL
F3-8202-04C
DE-17
7/7/82/[illegible]
BY C. K. LEE

DRILLING WITH [illegible] WHILE SOIL SAMPLING AT THE [illegible] AREA NEAR LANDFILL ENTRANCE

C. K. Lee

AR101330

Well Drilling at
Delaware Sand and Gravel Landfill
New Castle, Delaware
TDF No. F3-8202-04C
EPA No. DE-17
Photographic Log



Photograph 25 - Water sampling at existing well #39.

Photograph 26 - Taking water sample at existing well #45.

ORIGINAL
(Red)

Well Drilling at
Delaware Sand and Gravel Landfill
New Castle, Delaware
TDD No. F3-8202-04C
EPA No. DE-17
Photographic Log

AR101332

ORIGINAL (Red)

ORIGI (Red)

ATTACHMENT 3

DOCUMENT # 1 ORIGINAL (Red)

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III
6TH AND WALNUT STREETS
PHILADELPHIA, PENNSYLVANIA

RECEIVED
JUN 24 1982
ecology and environment, inc.
Philadelphia

JUN 16 1982

Mr. Bob Toubey, Manager
Water Resources Division
Dept. of Natural Resources &
Environmental Control
Dover, Delaware 19901

Jo. Bob Toubey
Jim. Chris Headlee
571-2193

Dear Bob:

Attached are copies of the correspondence between EPA and the Delaware State Board of Registration of Geologists. The letter of June 8 confirms the procedures that EPA will formally institute regarding the preparation of reports which contain hydrogeological evaluations of sites in Delaware.

As you know, Ecology and Environment has subcontracted A.C. Schultes, to drill additional monitoring wells at the Delaware Sand & Gravel Landfill, New Castle County. This work is tentatively scheduled to commence on June 23, 1982; however, before this work can begin, the E & E office requested a similar letter of confirmation from the DNREC.

This letter should be addressed to Walter Lee, and include the following items:

a) agreement with the general EPA review process over contractor geologists
b) specific agreement regarding the location points for the monitoring wells at the Delaware Sand & Gravel Landfill.

On April 12, 1982 a meeting was held in Dover, among Lisa Hamilton, Mike Appar, C.H. Lee (E&E), and myself, in order to discuss the hydrogeological study at the Army Creek/Delaware Sand & Gravel Landfills, and specified drilling locations. Initially, Mike requested that six pairs of wells be drilled as opposed to the suggested 5 wells. It was then explained that money for the drilling was limited, and that this task may be follower-up with additional drilling if deemed necessary. At the conclusion of the meeting it was agreed that this proposal would suffice as an initial step.

AR101334

1 of 5

ORIGINAL (Red)

Please discuss this matter with your staff and forward the [illegible] letter, as soon as possible to avoid any further delays for the drilling.

Thank you,

Christine Hladchuk

Christine Hladchuk
Project Officer
Superfund/RCRA Compliance Section

DOCUMENT #2
ORIGINAL (Red)

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III
841 CHESTNUT BUILDING
PHILADELPHIA, PENNSYLVANIA 19107

Mr. Emil Chuschak, Chairman
State Board of Registration of
Geologist
Delaware State Office Building
820 French Street, 3rd Level
Wilmington, DE 19801

Dear Mr. Chuschak:

Thank you for the time and effort you extended in order to clarify my questions on the registration of geologists in Delaware.

From our previous phone conversations, I understand that this state requirement does not extend to federally employed geologist. Also the geologists under contract to the federal government need not register in Delaware, if their work is reviewed and concurred upon by a federal geologist.

Please be assured that at all times EPA will contract only licensed drillers, and a state geologist will be involved to review any reports and work scopes prior to the issuance of all necessary permits, or the release of the information.

In order to document our conversations would you please respond in writing to clarify these agreements. Again, I thank you for all your consideration and efforts.

Sincerely,

Chris Hladchuk

Christine Hladchuk, Project Officer
Superfund/RCRA Compliance Section

cc: T. Voltaggio
R. Bianco
R. Tourney, DNREC
J. McGovern, Ecology & Environment

AR101336

8002-04A Document #3
EPA # JC 17
Original (Red)

STATE OF DELAWARE
DEPARTMENT OF ADMINISTRATIVE SERVICES
DIVISION OF BUSINESS AND OCCUPATIONAL REGULATION
STATE BOARD OF REGISTRATION OF GEOLOGISTS
DELAWARE STATE OFFICE BUILDING
820 FRENCH STREET - 3RD LEVEL
WILMINGTON, DELAWARE 19801

PHONE (302) 571-3286

June 8, 1982

Ms. Christine Hladchuk
Project Officer
Superfund/RCRA Compliance Section
U. S. Environmental Protection Agency
6th and Walnut Streets
Philadelphia, PA 19106

Dear Ms. Hladchuk:

The Delaware State Board of Registration of Geologists received your letter of May 7th, 1982 and considered it at the Board's May 27th meeting.

As was discussed with you by telephone, and with the advice of its counsel, the Delaware State Board of Registration of Geologists states as its policy that:

(1) Any geologist who is an employee of the Federal government may practice geology in pursuance of his employment in Delaware without registering with this Board.

(2) Independent geologists with whom a Federal agency contracts to do geological work in Delaware either have to be registered in the State, or work under the supervision of a geologist who is so registered or who is an employee of the Federal government pursuing his employment.

(3) In all cases, the name of the geologist who is to be considered responsible for the geologic contents of all written reports, permit applications, etc. must be clearly stated.

In regard to your letter of May 7th, be advised that the Delaware Geologists Registration Act does not apply to well drillers (24 Del. C. 3601).

In the same letter, you use the phrase "... a State Geologist will be involved to review any reports or work scopes prior to the issuance of all

necessary permits, or the release of the information." The Board is unclear as to the meaning of this phrase and requests clarification in this regard.

Very truly yours,

DELAWARE STATE BOARD OF
REGISTRATION OF GEOLOGISTS

Emil Onuschak, Jr.
Chairman

EOJr/vfm

Document #4

June 22, 1982

Mr. Walter Lee
U.S. EPA, Region III
6th & Walnut Streets
Philadelphia, PA 19106

Dear Mr. Lee,

[illegible]

1. [illegible]

2. [illegible]

[illegible] (302) 7[illegible]-5739.

Very truly yours,

AR101339

DOCUMENT #5

ecology and environment, inc.
8021 ROUTE 130, PENNSAUKEN, NEW JERSEY 08110, TEL. 609-665-1515
International Specialists in the Environmental Sciences

June 23, 1982

Ms. Lisa Hamilton
Department of Natural Resources and
Environmental Control
P. O. Box 1401
Edward Tatnall Building
Dover, DE 19901

Re: TDF No. F3-8205-04

Dear Lisa:

This is to confirm our phone conversation on June 22, 1982 about the well drilling for Delaware Sand and Gravel. Providing you get the information you need from the driller, A. C. Schultes & Sons, Inc., by Friday, June 25, and that it satisfies the permit requirements, a phone call from Schultes to obtain the permit numbers will allow mobilization on Monday, June 28. The E&E site representative will be Loren Lasky.

If there are any questions concerning this matter, please contact Loren.

Sincerely yours,

Beth Gross

mjo

CC: Linda Young Boornazian, Acting DPO
EPA III

AR101340

recycled paper

Document # 6

ecology and environment, inc.
8021 ROUTE 130, PENNSAUKEN, NEW JERSEY 08110, TEL. 609-665-1515
International Specialists in the Environmental Sciences

March 31, 1982

Mr. Timothy Rafferty, Esq.
Custom House Plaza
Suite 514
Wilmington, Delaware 19801

Subject: Drilling, Sampling and Installation of Monitoring Wells at Delaware Sand and Gravel Landfill, New Castle County, Delaware

Dear Mr. Rafferty:

Ecology and Environment, Inc. (E&E), a New York Corporation with Headquarters at 195 Sugg Road, Buffalo, NY 14225, and with a business office at 8021 Route 130, Pennsauken, NJ 08110, has entered into a contract (Contract #68-01-6056) with the United States Environmental Protection Agency (EPA), dated March 20, 1980, to furnish technical, engineering and managerial services in support of the EPA Field Investigation of Potentially Hazardous Waste Sites.

As discussed with you during our telephone conversations of March 17, 24, 25 and 29, the U. S. EPA Region III has requested that we perform a groundwater monitoring and subsurface geologic study at your client's site, Delaware Sand and Gravel, located in New Castle County, Delaware. I have enclosed a copy of a sketch showing the approximate locations of the proposed drilling (identified as Figure 2). The proposed drilling activities at the site will be of a varied nature and will include the following: B-1) 50 +/- foot deep, 4-inch diameter monitoring well just outside the waste disposal pit, B-2) 20 +/- foot deep test boring adjacent to B-1 but within the waste disposal pit area, B-3) 50 +/- foot deep test boring within the landfilled refuse area, B-4) 150 +/- foot deep, 4-inch diameter monitoring well adjacent to existing well #53, and B-5) 150 +/- foot deep, 4-inch diameter monitoring well adjacent to existing well #OW-5. The final depths and locations will be adjusted in the field by E&E personnel. The wells will be permanent installations to monitor groundwater and the test borings will sample subsurface soils. The latter will be backfilled at completion as specified by E&E.

In order that the bidders will be able to estimate the cost to mobilize and demobilize their equipment, it is essential that they be able to make an on-site reconnaissance of the proposed drilling locations. Your client has agreed to permit the bidders access to the site as long as he is informed of their visit ahead of time. The bidders have been directed, therefore, within the drilling specifications to schedule AR100341 reconnaissance through you, as agreed.

Furthermore, your client has granted E&E and its drilling subcontractors permission to 1) come on site to do the above mentioned drilling work, and 2) disperse all the drilling spoils/cuttings, water, and other materials generated in connection with the above mentioned work on the ground.

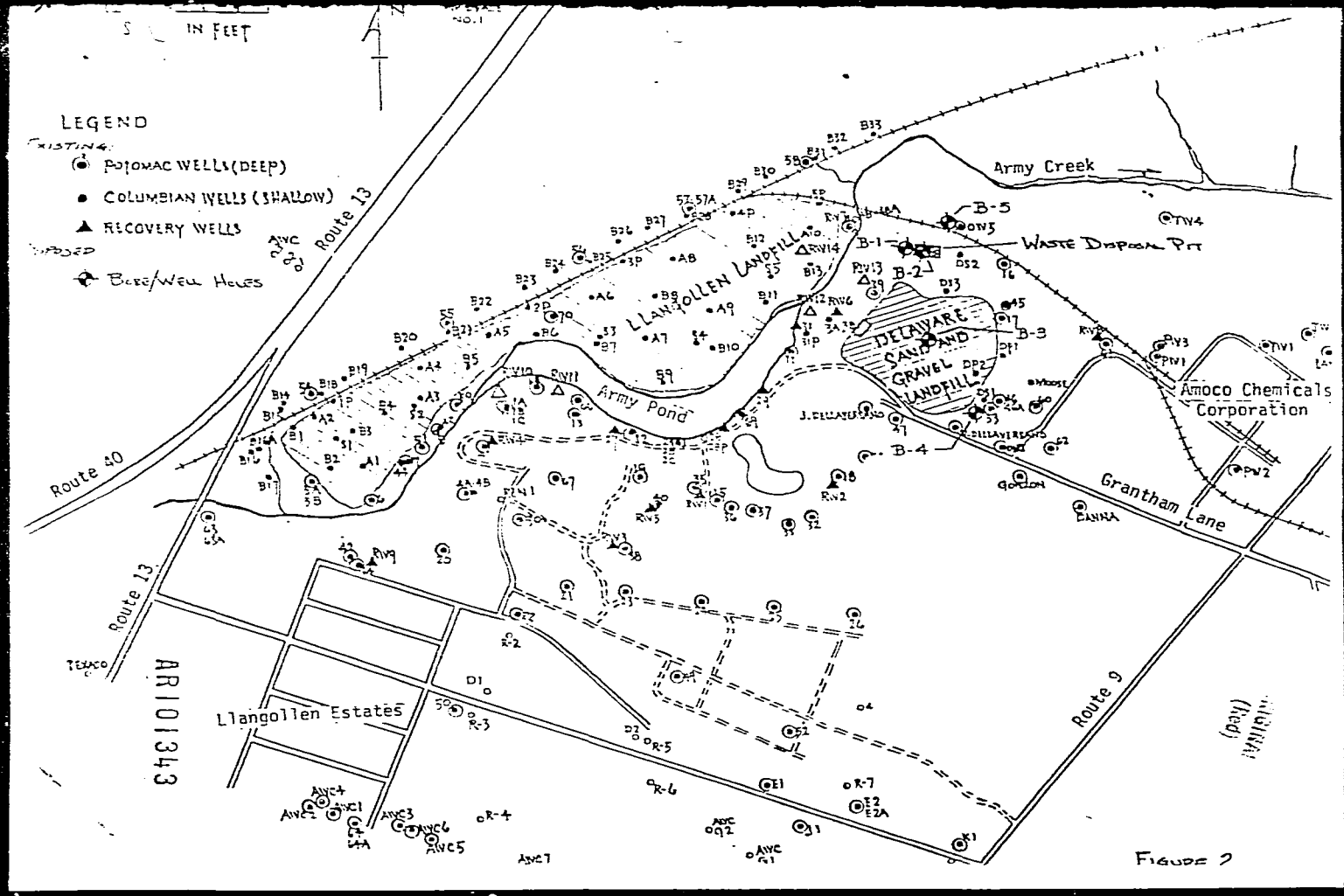
We are now progressing on the basis of understanding of the above discussions. Should there be any corrections, please contact me at my office.

Very Truly yours,

Frank J. Quirus, AFITL III

Enclosure

CC: Linda Young Boornazian, DPO, EPA III
Lisa Seglin, EPA III
Chris Hladchuck, EPA III


IN FEET
LEGEND
EXISTING:
POTOMAC WELLS (DEEP)
COLUMBIAN WELLS (SHALLOW)
RECOVERY WELLS
PROPOSED
BORE/WELL HOLES
Route 13
Route 40
Army Creek
B-5
B-1
B-2
B-3
B-4
WASTE DISPOSAL PIT
LLANGOLLEN LANDFILL
DELAWARE SAND AND GRAVEL LANDFILL
Army Pond
Amoco Chemicals Corporation
Grantham Lane
Route 9
Llangollen Estates
AR101343
TEXACO
Figure 2

Document #7

ORIGINAL (Red)

ecology and environment, inc.
8021 ROUTE 130, PENNSAUKEN, NEW JERSEY 08110, TEL. 609-665-1515
International Specialists in the Environmental Sciences

June 25, 1982

Mr. Timothy Rafferty, Esq.
Custom House Plaza
Suite 514
Wilmington, DE 19801

Subject: Commencement of Drilling for the Installation Of Monitoring Wells at Delaware Sand and Gravel Landfill, New Castle County, DE
TDD No. F3-8202-04E EPA No. DE-17

Dear Mr. Rafferty:

This letter will confirm our phone conversation today concerning our intention to start work at your client's site, Delaware Sand and Gravel Landfill, on Monday, June 28. Four members of Ecology and Environment's technical staff, plus two drillers, are scheduled to be working on site. As agreed, you will notify the site owner, Mr. Vincent Dellaversano, to expect us.

Work will commence at hole number B-4, described and identified on the map in our letter of March 31, 1982. We will gain access for this particular area via Amoco's property, by prior arrangement with Mr. Charles Hurd at the Amoco Chemical Truck Terminal. All the other holes will be accessed directly through the Delaware Sand and Gravel Landfill's property.

We anticipate that the drilling and sampling will take between 10-15 work days, and we will notify you when the project is completed. In the meantime, please contact Mr. Frank Quirus of our office if you have any questions or comments concerning the above work.

Very truly yours,

Loren R. Lasky/mjo

Loren R. Lasky
Geologist, FIT III

mjo

CC: Linda Young Boornazian, Acting DPO, Region III
Lisa Seglin, EPA III
Chris Hladchuk, EPA III

AR101344

Document # 8

ORIGINAL (Red)

ecology and environment, inc.
8021 ROUTE 130, PENNSAUKEN, NEW JERSEY 08110, TEL 609 665 1515
International Specialists in the Environmental Sciences

July 21, 1982

Mr. Timothy Rafferty, Esq.
Custom House Plaza
Suite 514
Wilmington, DE 19801

Subject: Termination of Well Drilling Work
Delaware Sand and Gravel Landfill
New Castle County, Delaware
TDD No. F3-[redacted] EPA No. DE-17

Dear Mr. Rafferty:

As we discussed in our phone conversations of 14 July and 21 July, Ecology and Environment, Inc. has completed the scheduled well drilling work at the Delaware Sand and Gravel Landfill.

In accordance with EPA procedures, I am enclosing a sample receipt listing the number of samples we collected on Delaware Sand and Gravel Landfill property. Kindly have Mr. DellAversano sign it and then return it to our office.

As per your instructions, your client, Mr. DellAversano, did not want to have a set of split samples. However, we did leave a representative set of soil samples at the DellAversano household on 14 July, as per your request.

Again, please accept our thanks for your assistance and cooperation during this work.

Sincerely,

Loren R. Lasky

Loren R. Lasky
Geologist/FIT III

mjo

Enclosure

AR101345

DOCUMENT # 9

ecology and environment, inc.
6021 ROUTE 130, PENNSAUKEN, NEW JERSEY 08110, TEL. 609-665-1515
International Specialists in the Environmental Sciences

June 24, 1982

Mr. Charles Hurd
Amoco Chemicals Truck Terminal
Route 9 and River Road
New Castle, DE 19720

Re: Access to Amoco's Property for the Drilling of a Groundwater Monitoring Well, Adjacent to Amoco Chemical's Well #OW-5

TDD No. F3-8202-04R
EPA No. DE-17

Dear Mr. Hurd:

This letter will confirm our phone conversation today concerning access to Amoco's property for the purpose of drilling a monitoring well.

As agreed, both Ecology and Environment personnel and the drilling crew will check in with you at the Amoco Chemical Truck Terminal on the first day of work. We will sign Amoco release forms and you will unlock the gate allowing us to cross onto Amoco's property.

We anticipate starting work on Monday, June 28, or some time during that week, depending on when the driller receives the required permits.

Attached, please find a copy of an earlier correspondence with Mr. Ray Watrous of Amoco (now retired) for your information.

Please contact me if you have any questions or comments concerning the above project.

Very truly yours,

Loren R. Lasky

Loren R. Lasky
Geologist, FIT III

mjo
Attachment

CC: Linda Young Boornazian, Acting DPO, EPA III
Lisa Seglin, EPA III
Chris Wladchuk, EPA III

AR101346

DOCUMENT #10

ecology and environment, inc.

1601 ROUTE 130, PENNSAUKEN, NEW JERSEY 08110, TEL 609 665-1515

International Specialists in the Environmental Sciences

(Red)

April 28, 1982

Amoco Chemicals Corporation
P. O. Box 312
New Castle, DE 19720

Attention: Mr. Ray Watrous

Subject: Drilling, Sampling and Installation Monitoring Well Adjacent to Amoco Chemicals' Well #OW-5

Dear Mr. Watrous:

As discussed with you over the telephone on March 31, 1982, Ecology and Environment, inc. (E&E) under a contract (Contract #68-01-6056) with the U. S. EPA is soliciting bids installing monitoring wells on and adjacent to Delaware Sand and Gravel in New Castle County. In addition to wells on the property of Delaware Sand and Gravel, it is proposed to install one well adjacent to #OW-5. For our discussion, this well is on the Amoco Chemicals Corporation property.

This letter will confirm that Amoco Chemicals Corporation has granted E&E permission to access this well location and drill the proposed monitoring well. Furthermore, excess drilling spoils and water that cannot be discharged back into the well may be dispersed in an orderly manner in the area of the well.

It is our understanding that Amoco Chemicals is presently demolishing their plant. As such, coordination of E&E's access to Amoco's property should be arranged via telephone with Mr. Charles Hurd @ (302) 328-1878.

We are progressing on the basis of understanding of the above discussion. Should there be any corrections, please contact me at my office.

Very truly yours,

Frank J. Quirus, P.E.
AFITL III

mjo

AR101347

CC: Linda Young Boomazian, EPA III
Lisa Seglin, EPA III
Chris Wladchuck, EPA III

DOCUMENT # 11

ecology and environment, inc.
8621 ROUTE 130, PENNSAUKEN, NEW JERSEY 08110, TEL 609 665-1515
International Specialists in the Environmental Sciences

July 21, 1982

Mr. Charles Hurd
Amoco Chemicals Truck Terminal
Route 9 and River Road
New Castle, DE 19720

Subject: Completion of Well Drilling at
Delaware Sand and Gravel Landfill and
adjacent Amoco Chemicals Corporation property
New Castle, Delaware
TDD No. F3-8202-045 EPA No. DE-17

Dear Mr. Hurd:

I am writing to advise you that Ecology and Environment, Inc. has completed our scheduled well drilling work at the Delaware Sand and Gravel Landfill and on Amoco's property adjacent to the landfill.

In accordance with EPA procedures, I am enclosing a sample receipt which lists the number and type of samples we collected while working on Amoco's property. Would you kindly sign the receipt and return it to our office.

Please accept my thanks for your cooperation and assistance during this work.

Sincerely,

Loren R. Lasky

Loren Lasky
Geologist/FIT III

mjo

Enclosure

AR101348

DOCUMENT # 12

SAMPLE RECEIPT

On June 30, 1982, Ecology and Environment, Inc., representative Loren R. Lasky received permission from C. Hurd to remove material from Amoco property, contained in 1 1/2 gallon glass organic sample bottle(s), 2 40 ml glass volatile organic sample bottle(s), 2 8 oz. glass soil sample jar(s) and 2 inorganic 1 quart polyethylene sample bottle(s).

Property Owner, Signature and Date

Loren R Lasky 7/21/82

Ecology and Environment, Inc.
Representative Signature and Date

AR101349