215838

GAF CHEMICALS CORPORATION
FOOT OF SOUTH WOOD AVENUE
LINDEN, UNION COUNTY, NEW JERSEY
EPA ID # NJD002185973

GENERAL INFORMATION AND SITE HISTORY

The GAF Chemicals Corporation (GAF) operates a 125-acre chemical manufacturing facility located on South Wood Avenue, Block 587, Lots 1 and 2.1 in the City of Linden, Union County, New Jersey. The site lies in an industrial area on the western bank of the Arthur Kill. The site is bordered to the northwest by DuPont's Grasselli Plant, to the southwest by BP Oil and to the south by LCP Chemicals and Plastics, Inc. and Northville Industries. Undeveloped wetlands associated with Piles Creek lie to the north. The New Jersey Turnpike borders on the west. Tremley and Linden residential areas begin 0.3 mile west of GAF. Carteret residential areas are 1.4 miles south. Residents of New York's Staten Island lie 1.2 miles southeast.

Grasselli Chemicals Company began operations in this general area of Linden in 1885, although the portion of the former Grasselli property, which is now owned by GAF, was not utilized for chemical manufacturing until approximately 1919. It became Grasselli Dyestuff Company and was subsequently incorporated in 1929 as American I.G. Chemical Corporation, which was owned by I.G. Farbenindustrie A.G., a German company. The U.S. company's name was changed in 1939 to General Aniline and Film Corporation. In 1942, 98% of the company stock was seized by the United States Justice Department as a war asset and the facility was operated by the U.S. Government as Alien Property Custodian until 1965, when the U.S. Government sold the stock to the public in a public offering. On April 24, 1968, General Aniline and Film Corporation changed its name to GAF Corporation. In 1986, GAF Chemicals Corporation was incorporated, and all of the assets of the former Chemicals Division of GAF Corporation were transferred to GAF Chemicals Corporation.

SITE OPERATIONS OF CONCERN

The product categories that have been manufactured at the site include surfactants, dyestuffs, pigments, industrial chemicals, and metal speciality products. The following general categories of compounds were the primary products manufactured by the various operators of the facility during the time frames specified:

PRODUCTION COMMENCED	MATERIALS PRODUCED	PRODUCTION CEASED
1919	Dyestuffs	1974
1935	Igepons (Surfactants)	Still in production
1940	Igepals (Surfactants)	Still in production
1941	Carbonyl Iron Powders (Iron Pentacarbonyl)	Late 1940s
1945	Reppe Chemistry Pilot Plant	1957
1955	Caustic Chlorine	1971
1957	Ethylene Oxide	1971
1958	Phosphate Ester Surfactants	Still in production

1962	Agricultural Herbicides, Amino Type Compounds including Amiben	1977
1963	Low Foamers (Surfactants)	Still in production
1964	Polyclar (Polyvinyl pyrilidone, food grade beer clarifier)	1968
1965	Gantrez Half Esters	1969
1966	Ganex	Still in production
1970	Gafquat 755	Still in production
1975	Propoxylations (Propylene Oxide Surfactants)	Still in production
1976	Tetrahydrofuran	Still in production

Currently, only tetrahydrofuran, surfactants, Gafquat 755 and Ganex are manufactured by GAF at the site. GAF plans to phase out production of surfactants by March 1991. The production will be moved to their plants in Georgia and South Carolina.

Past chemical manufacturing operations at the site generated numerous solid and liquid wastes including, but not limited to:

a. Phenol
b. Arsenic wastes including arsenic acid
c. Mercury compounds (entrained metallic mercury in dilute sulfuric acid solution, mercuric sulfate)
d. Chlorinated hydrocarbon compounds from still residues
e. Amiben and other amino type agricultural herbicides

Present manufacturing operations at the site generate phenol wastes, spent caustic, tetrahydrofuran bottoms and wastewater from cleaning process equipment.

A 10 to 12 acre landfill, sometimes referred to as the "Old Landfill", is located in the southwest portion of the facility. This landfill was operated from the early 1930s until 1970 by the various owners responsible for the facility during that time period. In 1981, GAF submitted a Comprehensive Environmental Response, Compensation and Liability Act (hereinafter "CERCLA") Section 103(c) Notification of Hazardous Waste Site document, and on May 22, 1985, GAF submitted a RCRA and HSWA Solid Waste Management Unit Information document, which described the materials disposed in the Old Landfill. GAF and the various other owners deposited dry and liquid chemical wastes (organics, inorganics, solvents, heavy metals, acids), drummed materials, bulk liquids, phenolic oils, laboratory wastes, off-specification products, still residues, solid wastes and industrial trash in this landfill. GAF alleges that the "Old Landfill" was operated in accordance with applicable law at the time of its operation.

GAF's final NJPDES Discharge to Surface Water Permit (No. NJ0000019) became effective March 1, 1986. The draft Discharge to Groundwater, dating back to November 25, 1987, has not been issued final at the time of this writing.

GAF has had various spills and releases which will be discussed in the following sections.

GROUNDWATER ROUTE

Bedrock under the GAF facility is the Brunswick Formation, soft highly fractured hematite stained red shales with some interbedded sandstones. The top 8 to 18 feet of the Brunswick Formation is considered residual soil, or weathered bedrock and can be described as clayey silt. Above this lies a layer of glacial deposits ranging between 9 and 23 feet in thickness, attributed to ground moraine. Above the glacial material lie tidal marsh deposits. The bottom 1.5 to 6 feet consists of organic silt and clay. This material grades into 1.5 to 10 feet of dark brown fibrous peat deposits containing minor amounts of sand and black organic silt and clay. The site has been reclaimed from tidal marshes by the placement of 5 to 10 feet of fill. The fill consists of soil, industrial materials and demolition debris.

Generally, the fill material acts as a surficial water bearing zone above the less permeable tidal marsh deposits and glacial till. The Brunswick Formation also acts as a semi-confined aquifer under these clays and silts. The GAF facility is located within a tidally influenced groundwater discharge area, which flows towards the Arthur Kill and Piles Creek.

At present, GAF has 12, 4-inch diameter monitoring wells installed in 1983, 4 standpipes installed in the center of the landfill in 1975, 32 well points and 13 surface gages. The wells monitor a variety of depths. GAF proposes to install additional shallow and deep 2 inch diameter wells in accordance with an Administrative Consent Order (ACO) signed June 16, 1989. See site map for locations.

Groundwater in the vicinity of GAF is not used for potable purposes due to brackish conditions and chemical contamination. The nearest potable well, lying approximately 3.3 miles to the northwest, is operated by the Elizabethtown Water Company. It draws from the Brunswick Formation at a depth of 348 feet. The City of Rahway has a potable well approximately 4 miles west of GAF, drawing from the Brunswick Formation at 269 feet. There are no potable water intakes considered threatened by GAF.

GAF obtains water for industrial use from the Arthur Kill and from Elizabethtown Water Company. The nearest industrial well is operated approximately 2.6 miles north of GAF. It draws from the Brunswick Formation at a depth of 570 feet.

Groundwater sampling was conducted at GAF on November 29, 1988 by the NJDEP, Division of Hazardous Waste Management (DHWM), Bureau of Planning and Assessment (BPA). Sampling results, which are discussed below, revealed acetone, naphthalene, 1,2-dichloropropane, 1,2-dichlorobenzene, 4-chloraniline, acenaphthene, phenanthrene and bis (2-ethylhexyl) phthalate. There are, however, no groundwater uses in the immediate vicinity. Groundwater discharges to the adjacent surface water bodies, Arthur Kill and Piles Creek.

A draft NJPDES - Discharge to Groundwater permit was issued to GAF on September 16, 1985 and again on November 25, 1987. At the time of this writing, a new draft is being prepared.

SURFACE WATER ROUTE

GAF is bordered to the north by Piles Creek and to the east by the Arthur Kill. The portion of GAF containing the Waste Water Treatment Plant lies near the bank of the Arthur Kill. To the north of the Waste Water Treatment Plant, DuPont's Graselli Works separates GAF from the Arthur Kill by approximately 1200 feet. Piles Creek flows to within 100 feet of GAF by the Drum Landfill area, but is otherwise isolated by hundreds of feet of undeveloped swampland.

GAF uses an unlined ditch system to collect and transmit wastewater for disposal from the various buildings and chemical process areas throughout the site. This network of unlined topographical depressions and channels receives chemical process water, cooling water and sanitary wastewaters. The ditch system also captures surface runoff and leachate seeping from the landfills. Prior to 1977, wastewater in the ditches discharged to nearby surface water bodies, including Piles Creek and the Arthur Kill. In 1977, GAF constructed the Waste Water Treatment Plant which has since received the wastewaters. The connection to Piles Creek was dammed off in 1966.

GAF's consultant, Eckenfelder Inc., states in their Remedial Investigation Work Plan of December 1989 that runoff from approximately 82 acres entered the ditch system. Runoff on the ramaining 43 acres, therefore, infiltrates to groundwater or flows untreated to surrounding surface water bodies.

A sample was collected from the drainage ditch during the November 29, 1988 sampling episode conducted by the NJDEP, DHWM, BPA. Bis (2-ethylhexyl) phthalate, arsenic and manganese were detected in the sample. Sampling results are discussed below.

The surface water downstream from GAF has no potable uses due to salinity and chemical contamination. The Arthur Kill is used as a channel for large freight ships and for recreational boating, fishing and crabbing.

The only wetland within 2 miles is Pralls Island, located 800 feet across the Arthur Kill in New York territory. The Peregrine Falcon, a federally endangered species, is known to hunt in the salt marshes near GAF. Untreated runoff from a portion of GAF's property has the potential to transport contaminants off site to surrounding surface water bodies.

GAF is permitted to discharge to the Arthur Kill from their Waste Water Treatment Plant according to a NJPDES - Discharge to Surface Water Permit No. NJ0000019. The permit went into effect on March 1, 1986 and is due to expire on January 31, 1991. Tests for Acute Toxicity in GAF's discharge revealed GAF's discharge consistently failed to meet the minimum acute toxicity permit limitation of LC50 > 20% (by volume). The resultant Administrative Consent Order, signed June 1, 1989, requires GAF to upgrade their Waste Water Treatment Plant in order to meet their effluent limitations by March 4, 1991. GAF is in the process of complying with the ACO requirements.

AIR ROUTE

GAF has 38 active air permits and 23 recently expired temporary permits.

In April 1969, a private investigator was called on site due to plant workers being overcome by noxious fumes. Releases and Enforcement violations are listed as follows:

8/78	Order to Cease Violation (visible smoke emitted from Boiler #1)
3/31/81	Notice of Violation (visible air emissions)
8/25/87	Notice of Violation (boiler stack exceeded emission capacity)
11/6/87	(40 lbs. of Ethylene oxide released)
7/20/88	(35 lbs. of Ethylene oxide released)
11/17/88	(Scrubber failure caused release of 165 lbs HCL and 260 lbs S02)
1/4/89	(Tetrahydrofuran vapor release from 2000 lb. spill)

There is a continued potential for release at GAF via volatilization from the open ditch system.

SOIL

The GAF facility is placed on up to 10 feet of fill material which overlies the native marsh deposits. Some of this fill material may have been contaminated prior to emplacement.

Hazardous Waste Management practices over the past 100 years at GAF has lead to widespread contamination. GAF continues to discharge industrial and sanitary wastes to open ditches and impoundments under the buildings.

Soils and sediments were sampled by the NJDEP, DHWM, BPA on December 1, 1988. Numerous volatile organics, semi-volatiles and metals were detected in the samples. Sampling results are discussed below.

Prior to 1978, GAF produced a bacteriostatic/fungistatic agent (Preventol-I) containing 2,4,5-trichlorophenol (2,4,5-TCP) which is classified as a Class I dioxin precursor by the USEPA. Two samples of Preventol - I were tested on June 17, 1983 for 2,3,7,8-tetrachlorodibenzo dioxin (2,3,7,8-TCDD) and were found to contain 0.62 and 0.65 ppb.

On June 23, 1983, ERM-Northeast collected six samples (from ditch sediments, production building floors and in a production tank) for 2,3,7,8-TCDD analysis. Analysis by ETC indicated no presence of 2,3,7,8-TCDD with detection limits ranging from 0.02 to 0.51 ppb. Two of the samples, however, had no surrogate recovery, indicating possible matrix interference. All sediment samples were composited.

On July 11, 1985 USEPA personnel collected 34 composite samples from the area where Preventol was manufactured. Nineteen of the samples were of surficial soils; eight were collected from ditch sediments; and the remaining seven were QA/QC samples including replicates and blanks. None of the nineteen soil samples showed the presence of 2,3,7,8-TCDD above the detection limits. Seven of the eight sediment samples showed positive detection of 2,3,7,8-TCDD at levels ranging from 0.0036 to 0.0263 ppb. The standard action level for 2,3,7,8-TCDD in soils and sediments is 1 ppb.

On December 1, 1988, the NJDEP/DHWM/BPA collected ten on-site soil/sediment samples for 2,3,7,8-TCDD analysis from the impoundments and ditches associated with production Buildings 36, 46, 52 and 204. The laboratory

reported all samples as non-detected for 2,3,7,8-TCDD with detection limits for maximum possible concentrations ranging from 0.022 to 0.25 ppb. A QA/QC review however, rejected the data because the Performance Evaluation sample, reported as containing 3.25 ppb 2,3,7,8-TCDD was actually a soil blank containing no 2,3,7,8-TCDD.

The Remedial Investigation, required by the Administrative Consent Order of June 16, 1989, will include limited sampling for 2,3,7,8-TCDD. Table 3 is a compilation of 2,3,7,8-TCDD analyses.

DIRECT CONTACT

In April 1969, a private investigator was called on site due to plant workers being overcome by noxious fumes. No other reported incidents of direct contact were found in the file review. There is still potential for direct contact by employees via the open ditch system. The ditch system continues to transmit untreated wastewater and landfill leachate through the site.

The nearest offsite population, in the Tremley section of Linden, is approximately 0.3 mile west of GAF. The site is surrounded by an 8 foot chain link fence and barbed wire and has a 24 hour security guard at the entrance gate.

FIRE AND EXPLOSION

GAF reports the following fires and explosions:

DATE	LOCATION	NATURE OF EVENT
1959-1960	Building 36	Fire
December 1965	Building 204E	Explosion (Propargyl Bromide)
Circa 1974	Building 3	Fire
October 1974	Building 46	Explosion and Fire (Nitration Reactor)
March 1979	Building 46	Explosion (Nitration Reactor)

There is a continuing potential for fires or explosions at GAF due to the materials handled, including ethylene oxide. Ignition sources are restricted on site.

ADDITIONAL CONSIDERATIONS

There is evidence of vegetative stress at GAF. Much of the land does not support plant growth. While there are no reports of damage to fauna, there is potential due to the presence of contamination in the soil and surface water on site. Before 1977, GAF discharged wastewaters directly to the Arthur Kill. Bioaccumulative compounds, including mercury, may have damaged fauna and contaminated the food chain. Off-site property may have been damaged via runoff carrying contaminants to adjacent surface water bodies.

ENFORCEMENT ACTIONS

NJDEP Enforcement Actions are summarized below:

DATE ISSUED	NATURE OF VIOLATION	DISPOSITION	NATURE OF NOTICE
AUGUST 1978	EMITTING VISIBLE SMOKE FROM BOILER #1	COMPLIED-NO PENALTY	ORDER TO CEASE VIOLATION
MARCH 31, 1981	VISIBLE AIR EMISSIONS	WARNING-NO PENALTY OR ACTION REQUIRED	NOTICE OF VIOLATION
MAY 29, 1984	RCRA DEFICIENCIES BASED ON AUGUST 11, 1983 INSPECTION	DEFICIENCIES CORRECTED- $2,000 PENALTY PAID	ADMINISTRATIVE ORDER
OCTOBER 13, 1985	RCRA WASTE STORAGE DEFICIENCIES	CORRECTIVE ACTION TAKEN $6,300 PENALTY PAID	NOTICE OF VIOLATION
JUNE 4, 1987	OPERATING EQUIPMENT WITHOUT A PERMIT	PERMIT OBTAINED- $4,400 PENALTY PAID	NOTICE OF VIOLATION
AUGUST 25, 1987	BOILER STACK EXCEEDED EMISSION CAPACITY	$100 PENALTY PAID	NOTICE OF VIOLATION
NOVEMBER 17, 1988	SO_2 HCL RELEASE DUE TO EQUIPMENT FAILURE - FAILURE TO REPORT	$2,000 PENALTY PAID $4,000 PENALTY PAID $1,000 PENALTY PAID	NOTICE OF VIOLATION
JUNE 7, 1989	WWTP BIOASSAY LC_{50} LIMITATION	$308,000 PENALTY PAID	VOLUNTARY ADMINISTRATIVE CONSENT ORDER
JUNE 19, 1989	SITE REMEDIATION	$7.5 MILLION IN LETTER OF CREDIT	VOLUNTARY ADMINISTRATIVE CONSENT ORDER

SUMMARY OF SAMPLING DATA

1. Sampling date: January 25, 1983
   Sampled by: ERM - Northeast
   Plainview, New York
   Samples: Seven monitor wells (2 inch diameter)
   Laboratory: ETC (#12257)
   Edison, New Jersey
   Parameters: Volatile organics, base/neutral compounds, acid compounds, metals, cyanide and phenol.
   Sample description: Seven on site monitoring wells:

	DEPTH (feet)	SCREEN INTERVAL (feet)
W-1	10	0-10
* W-2	20	12-20
* W-3	18	13-18
W-4	10	0-10
W-5	12	0-12
W-6	9.5	0-9.5
* W-7	28	23-28

*(W-2, 3 and 7 will be removed, properly sealed and replaced by shallower wells. The existing borings penetrate the peat and clay layers and may act as conduits for vertical migration of contaminants).

Contaminants detected: Elevated levels of benzene, halogenated benzene compounds, naphthalene, phenol, arsenic and cyanide were detected in monitoring wells W-4, 5, 6 and 7.

No contaminants were detected in W-2 and W-3. Contaminants detected are summarized below:

(ppb)

	W-1	W-4	W-5	W-6	W-7
Benzene	38	584	127	319	87
Chlorobenzene	ND	15,200	958	538	319
1,2-Dichloroethane	ND	52	ND	ND	41
Ethyl benzene	33	27	13	BMDL	ND
Toluene	69	96	BMDL	BMDL	BMDL
Phenol	BMDL	5,800	BMDL	BMDL	BMDL
1,2-Dichlorobenzene	ND	907	343	111	108
1,3-Dichlorobenzene	ND	490	148	28	14
1,4-Dichlorobenzene	ND	497	233	34	23
Naphthalene	203	114	36	26	BMDL
1,2,4-Trichlorobenzene	ND	83	132	17	BMDL
Arsenic	ND	8.6	360	110	BMDL

ND = Not detected
BMDL = Below method detection limit

QA/QC: No QA/QC information other than method detection limits were provided.

File location: NJDEP/DHWM/BPA
Trenton, New Jersey

2. Sampling date: November 29, 1988

Sampled by: NJDEP/DHWM/BPA
Trenton, New Jersey

Samples: One sample from the drainage ditch north of the Waste Water Treatment Plant, bordering DuPont's Grasselli Plant. Ten groundwater samples.

Laboratory: Roy F. Weston, Inc.
Lionville, Pennsylvania

Parameters: Target Compound List plus 30 peaks

Sample description: One sample from the drainage ditch north of the Waste Water Treatment Plant. Ten onsite monitoring wells described as follows:

	DEPTH (feet)	SCREEN INTERVAL (feet)
GAF-7S	9	2-9
7D	44	34-44
9S	12.5	2.5-12.5
9D	63	53-63
10S	9	2-9
10D	61	51-61
13S	10	3-10
13D	51	41-51
14S	9	2-9
14D	44	34-44

Contaminants detected: In the drainage ditch sample, bis(2-ethyl hexyl) phthalate at 12 ppb, arsenic at 72.2 ppb and manganese at 1280 ppb were detected. Bis(2-ethyl hexyl) phthalate was detected in all the wells. Metals detected are summarized in Table 1. Organic contaminants detected are summarized below:

(ppb)

	7S	7D	9S	9D	10S	10D	13S	13D	14S	14D
ACETONE	ND	420	ND	ND	ND	2400	ND	ND	ND	ND
1,2-DICHLOROPROPANE	ND	ND	ND	ND	ND	ND	31	ND	ND	ND
1,2-DICHLOROBENZENE	ND	ND	ND	6	ND	ND	ND	ND	ND	ND
NAPHTHALENE	ND	ND	18	ND	ND	ND	ND	ND	ND	ND
4-CHLOROANILINE	83	ND	ND	ND	ND	ND	ND	ND	ND	ND
ACENAPHTHENE	ND	ND	12	ND	ND	ND	ND	ND	ND	ND
PHENATHRENE	ND	ND	21	ND	ND	ND	ND	ND	ND	ND
BIS(2-ETHYLHEXYL) PHTHALATE	3	5	1	17	2	460	26	3200	500	7

ND = Not detected

QA/QC: A QA/QC review of the data by the NJDEP, Division of Hazardous Site Mitigation (DHSM), Bureau of Environmental Measurements and Quality Assurance (BEMQA) stated that:

- o base/neutral results for the drainage ditch sample were rejected.
- o base/neutral acid extractable results were rejected for MW-14S.
- o holding times for the pesticide/PCB extraction were exceeded.
- o selenium results for all samples were rejected due to blank contamination.
- o low levels of various metals were found in the field blank; however, levels in the samples were five times greater than in the field blank.
- o percent recoveries of antimony, chromium and silver were high, thus qualifying, "J", the values.
- o lead and selenium results are qualified, "J", due to low sample spike recovery.

File location: NJDEP/DHWM/BPA
Trenton, New Jersey

3. Sampling date: December 1, 1988
Sampled by: NJDEP, DHWM, BPA
Trenton, New Jersey
Samples: 25 soil/sediment samples
Laboratory: Envirodyne Engineering Inc.
St. Louis, Missouri
Parameters: Target Compound List plus 30 peaks, dioxin.
Sample description: Soil and sediment samples were collected throughout various portions of the site.
Contaminants detected: Numerous metals above NJDEP action levels have been detected on site. Sediment 3 had the greatest number and highest concentrations of volatile organics. Sediments 2 and 11 had the most semi-volatile compounds with Sediment 2 having the highest concentrations. No pesticides or PCBs were detected in the samples. Contaminants detected are summarized in Table 2. Dioxin results are summarized in Table 3.
QA/QC: A complete QA/QC review was conducted by the NJDEP, DHSM, BEMQA. Findings included:

- o Samples Sed-1, Sed-4, Sed-6, Sed-8, Sed-10, Sed-11, Sed-12, Sed-13, Sed-15 and Soil-6D were all rejected for volatile organics due to holding times being exceeded. All additional samples were qualified as "J" due to holding times between 10 and 15 days.

- Samples Soil-2, Soil-3, Soil-9D, Soil 10, Sed-10 and Sed-11 were rejected due to exceeded holding times of base/neutral acid extractables.
- Field blank results for base/neutral acid extractables were rejected due to the method blank being outside control limits.
- The laboratory incorrectly reported not detected for the pesticide/PCB analysis, however, Aroclor-1260 in Sed-11 and Aroclor-1254 in Sed-9 were detected at concentrations of 190,000 ppb and 130,000 ppb, respectively.

File location: NJDEP/DHWM/BPA
Trenton, New Jersey

PRIORITY DESIGNATION

Based on data collected for this report, this site poses a high environmental concern. Groundwater and soil contamination has been documented on site. The facility has also discharged to adjacent surface waters.

RECOMMENDATIONS/CONCLUSIONS

GAF entered into an Administrative Consent Order (ACO) on June 16, 1989 with the NJDEP, DHWM, Bureau of Federal Case Management. In the ACO, GAF agreed to conduct a remedial investigation/feasibility study and to design and implement remedial action alternatives. GAF is required to apply and obtain all necessary Federal, State and local permits for activities to be carried out. A NJPDES-Discharge to Groundwater Permit is currently being drafted for the site.

TABLE 1

11/29/88

INORGANIC ANALYSIS SUMMARY GAF, Linden

LABORATORY: WESTON-LIONVILLE

CONCENTRATION (Units UG/L)

ANALYTE	7S		7D		9S		9D		10S		10D		13S		13D		14S		14D		
Aluminum	160	B	7390		69.8	B	715		94.9	B	1840		23500		573		13800		514		Alumin
Antimony	34.6	U	89.0		34.6	U	44.5	B	34.6	U	34.6	U	66.8		34.6	U	100		40.8	B	Antimo
Arsenic	6.6	B	7.6	B	10.7		1.2	U	20.0		12.0	U	26.0		12.0	U	150		12.0	U	Arseni
Barium	65.5	B	356		232		62.3	B	468		113	B	354		455		2530		53.0	B	Barium
Beryllium	0.10	U	2.6	B	0.10	U	2.6	B	0.10	U	3.5	B	6.1		1.7	B	3.2	B	2.6	B	Beryll
Cadmium	2.2	U	2.2	U	2.2	U	2.2	U	2.2	U	2.2	U	6.7		2.2	U	3.8	B	2.2	U	Cadmiu
Calcium	162000		764000		37900		1800000		36500		1870000		201000		975000		737000		1440000		Calciu
Chromium	3.0	U	11.0		6.4	B	3.0	U	3.0	U	3.0	U	104		3.0	U	54.2		3.0	U	Chromi
Cobalt	4.6	B	5.6	B	3.3	U	3.3	U	3.3	U	3.3	U	1150		3.3	U	190		7.1	B	Cobalt
Copper	48.2		41.0		25.7		51.3		15.0	B	56.3		123		48.8		188		61.0		Copper
Iron	851		41300		8130		16100		15100		18400		433000		1220		224000		84300		Iron
Lead	1.3	B	13.4		3.9	B	3.9	B	2.0	B	7.4		52.8		1.3	B	1160		2.0	B	Lead
Magnesium	31100		337000		19400		600000		35900		516000		118000		167000		486000		518000		Magnes
Manganese	712		2440		112		1070		196		2080		141000		375		157000		8060		Mangan
Mercury	1.6		0.44		0.20	U	4.1		0.20	U	0.20	U	0.22		0.20	U	10.1		0.20	U	Mercur
Nickel	58.9		23.0	B	16.3	B	8.9	B	6.3	B	9.6	B	527		8.5	B	107		28.5	B	Nickel
Potassium	5800		14000		13400		26200		36800		24600		18100		488000		55900		29800		Potass
Selenium	1.9	B	0.90	U	2.7	B	1.8	U	1.1	B	1.0	B	2.3	B	1.9	B	2.7	B	9.0	U	Seleni
Silver	5.1	U	5.1	U	6.8	B	5.1	U	5.1	U	5.1	U	21.0		5.1	U	16.3		5.1	U	S[illegible]ver
Sodium	95800		619000		309000		3000000		476000		2260000		814000		2310000		3140000		3390000		S[illegible]dium
Thallium	36.0	B	36.0	B	23.0	U	4.6	B	2.3	U	48.0	B	36.0	B	44.0	B	48.0	B	36.0	B	Thalli
Vanadium	4.8	B	32.6	B	68.3		7.5	B	4.8	B	4.8	B	254		4.8	B	95.5		18.0	B	Vanadi
Zinc	120		82.5		46.4		42.6		16.1	B	42.3		979		35.4		380		93.8		Zinc
Cyanide	10.0	U	10.0	U	10.0	U	10.0	U	10.0	U	10.0	U	10.0	U	10.0	U	12.6		10.0	U	Cyanid

The following extracted samples required dilution because they contained high levels of target compounds:

Well#	Dilution Factor
10D	10
13D	50
14S	10

TABLE 2

SUMMARY OF VOLATILES

DATE SAMPLED: 12/1/88
MATRIX: SOIL/SED
UNITS: ug/kg

													duplicates				
	SED-1DL	SED-2	SED-3	SED-4	SED-5	SED-6DL	SED-7	SED-8	SED-9	SED-9DL	SED-10	SED-11	SED-12	SED-13	SED-14	SOIL-11	SED-15
METHYLENE CHLORIDE	15	50	28,900			66	300	11	7,780	8,450	2	2	24	21	290	920	14
ACETONE	350	690	134,000		23	67	3,280	17	103,000	108,00	26	50	96	76	3,500	4,890	43
1,1-DICHLOROETHANE			188,000														
1,2-DICHLOROETHENE			1,020,000														
CHLOROFORM			152,000														
2-BUTANONE		99	194,000						106,000	116,000			140				
1,1,1-TRICHLOROETHANE			2,440,000										11				
TRICHLOROETHENE			335,000										3				
TOLUENE			256,000				1,690		138,000	147,000			20		530	640	8
CHLOROBENZENE	760	1200			30	5			151,000	159,000			19	28	9,220	980	530
ETHYL BENZENE			48,800						300,000	321,000			2		260	290	10
XYLENE			181,000				12,960		1,080,000	1,150,000			9	10	830	830	25
BENZENE			944,000						52,200	56,000			6	4			
TETRACHLOROETHENE			1,650,000										8				

TABLE 2 (cont.)

SUMMARY OF VOLATILES

DATE SAMPLED: 12/1/88
MATRIX: SOIL/SED
UNITS: ug/kg

	SOIL-1	SOIL-2	SOIL-3	SOIL-4	SOIL-5	SOIL-6	SOIL-7	SOIL-8	SOIL-9	SOIL-10	Trip blank	Field Blank					
METHYLENE CHLORIDE	420					890	14	5		13	190	150					
ACETONE	3,670					8,650	33	70		19	62	21					
1,1-DICHLOROETHANE																	
1,2-DICHLOROETHENE																	
CHLOROFORM																	
2-BUTANONE																	
1,1,1-TRICHLOROETHANE																	
TRICHLOROETHENE																	
TOLUENE	580					1,500											
CHLOROBENZENE	23,000					115,000	16										
ETHYL BENZENE	280																
XYLENE	790					2,220	10										
BENZENE	406					3,860		4		4							
TETRACHLOROETHENE																	

TABLE 2 (cont.)

SUMMARY OF SEMI-VOLATILES

DATE SAMPLED: 12/1/88
MATRIX: SOIL/SED
UNITS: ug/Kg

	SED1-DL	SED-2	SED-3	SED-4	SED-5	SED-6DL	SED-7	SED-8	SED-9	SED-10	SED-11	SED-12	SED-13	Duplicates SED-14	SOIL-11	SED-15
PHENOL			6,600,000				1,200,000		4,000							
1,3-DICHLOROBENZENE	3,400	130,000	4,900											39,000	18,000	
1,4-DICHLOROBENZENE		190,000										30,000		49,000	23,000	11,000
1,2-DICHLOROBENZENE		3,100,000							3,900			430,000		290,000	150,000	15,000
NITROBENZENE																
1,2,4-TRICHLOROBENZENE		3,400,000												190,000	99,000	71,000
NAPHTHALENE	300,000	890,000							11,000		410			17,000	7,900	8,000
4-CHLOROANILINE																11,000
2-METHYLNAPHTHALENE		8,200							4,300		310					
2-CHLORONAPHTHALENE		19,000														
ACENAPHTHALENE											69					
ACENAPHTHENE									7,300		1,700					
DIBENZOFURAN											1,100					
FLUORENE		7,100							5,600		2,000					
HEXACHLOROBENZENE		30,000														
PHENANTHRENE		19,000							13,000		17,000					
ANTHRACENE	3,000										4,200					
FLUORANTHENE		7,300		3,700					9,900		57					
PYRENE		14,000		3,100					5,700		24,000					
BUTYLBENZYLPHTHALATE		650,000					14,000									
BENZO (a) ANTHRACENE											6,600					
CHRYSENE											7,100					
bis (2-ETHYLHEXYL) PHTHALATE		61,000	6,900			3,800	14,000	19,000	11,000	350	910		3,300	2,600	2,700	7,400
BENZO (b) FLUORANTHENE											4,200					
BENZO (k) FLUORANTHENE											3,300					
BENZO (a) PYRENE											4,700					
INDENO (1,2,3-cd) PYRENE											4,000					
DIBENZO (a,h) ANTHRACENE											1,400					

TABLE 2 (cont.)

SUMMARY OF SEMI-VOLATILES

DATE SAMPLED: 12/1/88
MATRIX: SOIL/SED
UNITS: ug/kg

	SOIL-1	SOIL-2	SOIL-3	SOIL-4	SOIL-5	SOIL-6	SOIL-6DL	SOIL-7	SOIL-8	SOIL-9	SOIL-10	Field Blank
PHENOL							5,300					
1,3-DICHLOROBENZENE						19,000	14,000	6,700				
1,4-DICHLOROBENZENE						47,000	40,000	4,700				
1,2-DICHLOROBENZENE	4,500			2,500	9,600	160,000	86,000	18,000				
NITROBENZENE												
1,2,4-TRICHLOROBENZENE					44,000	500,000	250,000	140,000	6,000			
NAPHTHALENE					13,000	48,000	23,000	13,000				
4-CHLOROANILINE												
2-METHYLNAPHTHALENE				10,000								
2-CHLORONAPHTHALENE					3,400							
ACENAPHTHALENE												
ACENAPHTHENE												
DIBENZOFURAN												
FLUORENE												
HEXACHLOROBENZENE					17,000	36,000	18,000	40,000				
PHENANTHRENE								6,100				
ANTHRACENE												
FLUORANTHENE					5,500			11,000			42	
PYRENE								23,000			41	
BUTYLBENZYLPHTHALATE					4,000			31,000				
BENZO (a) ANTHRACENE												
CHRYSENE												
bis (2-ETHYLHEXYL) PHTHALATE							7,300	41,000				
BENZO (b) FLUORANTHENE												
BENZO (k) FLUORANTHENE												
BENZO (a) PYRENE												
INDENO (1,2,3-cd) PYRENE												
DIBENZO (a,h) ANTHRACENE												

TABLE 2 (cont.)

SUMMARY OF SAMPLING DATA
METALS

DATE SAMPLED 12/1/88
SAMPLE NO.
MATRIX SOIL/SED
UNITS mg/kg

	SED1	SED2	SED3	SED4	SED5	SED 6	SED7	SED 8	SED9	SED10	SED11	SED 12	SED 13	SED 14	SED 15
Aluminum	3860	20,100	4,610	1,120	6,830	1,540	3,720	41,800	2,340	8,590	6,400	2,120	3,770	2,260	7,300
Antimony															
Arsenic	23.8*		7.7	32.6*	18.2	9.4	8.3	54.9*	3.9	4.8	247*	4.2		66.9*	585*
Barium	151	2,120*	158	148	1,270*	44.4	180	466*			320	61.2	50.5	256	588*
Beryllium	7.1*	23*	12.1*	13.4*	11.6*	3.4*	28.2*	46.8*	6.3*	23.3*	13.6*	4.2*	5.9*	13.1*	38.9*
Cadmium		15.7*	3.2*		4.8*		3.7*	1.4		4.6*					2.8
Calcium		11,300	3,720			1,400	3,020	12,200	2,260		18,100				3,350
Chromium	861*	689*	90.4	33.3	448*	12.8	111*	95.9	112*	19.2	16.0	9.9	12.0	84.7	528*
Cobalt		406	205				18.1	30.5			64				21.5
Copper	113	17,100*	246	49.8	325	23.9	909	287	138	52.1	164	42.4	22.4	141	834
Iron	14,400	50,700	25,100	28,900	24,200	8,560	17,900	93,400	13,200	46,300	29,500	8,250	2,430	29,500	85,00[illegible]
Lead	248	1,560*	211	77	255	237	297	533	256	91.0	488	208	48	76.9	329
Magnesium	1,630	6,460	2,460		2,720	1,220	2,230	2,140			7,180	1,340	1,470		
Manganese	114	260	132	75.6	70.9	42.5	262	268	73.3	74.4	482	81.5	61.9	115	272
Mercury	3.6*	3.1*	3.9*	3.8*	74.8*	0.84	4.4*	2.9*	4.0*			1.3*	1.5*	9.2*	
Nickel	11.4	124	105*	13.4	49.9		127*	176*	51.3	37	38.2	12.2	11.5	25.4	152*
Potassium															

TABLE 2 (cont.)

SUMMARY OF SAMPLING DATA
METALS (CONT.)

DATE SAMPLED 12/1/88
SAMPLE NO.
MATRIX SOIL/SED
UNITS mg/kg

	SED 1	SED 2	SED 3	SED 4	SED 5	SED 6	SED 7	SED 8	SED 9	SED 10	SED 11	SED 12	SED 13	SED 14	SED 15
Selenium		11.9*													
Silver			2.3				5.0		4.9			3.5			5.4*
Sodium		4,560	1,410		1,830			2,040							
Thallium															
Vanadium	25.9	90.6	24.9		56.7		23.0	309*	18.5	18.2	29.5	17.7	19.3	37.2	45.5
Zinc	45.7	1,170*	503*	21.2	156	49.3	230	1,440*	158	89.5	1,650*	142	31.5	56.3	392*
Cyanide	1.35	6.36	1.51	1.85	2.85	0.34	0.34	1.35	0.84	0.34	0.71	0.71	0.71	4.34	2.69

Other

* Exceeds NJDEP Soil Action Levels

TABLE 2 (cont.)

SUMMARY OF SAMPLING DATA
METALS

DATE SAMPLED 12/1/88
SAMPLE NO.
MATRIX SED/SOIL
UNITS mg/kg

	SOIL 1	SOIL 2	SOIL 3	SOIL 4	SOIL 5	SOIL 5D	SOIL 6	SOIL 7	SOIL 8	SOIL 9D	SOIL 10	SOIL 11	Field Blank
Aluminum	2,110	1,390	19100	9,390	2,880	5,890	934	1,660	2,300	2,780	9,280	2,680	
Antimony													
Arsenic	28.1*				691*	49.1*	122*	1,680*	739*	5.6	4.7	113*	
Barium	104		129	66.1	738*	172	539*	855*	896*	58.6	168	433*	
Beryllium	7.2*		5.8*		67.1*	24.7*	148*	88.5*	80.1*	4.4*	5.4*	18.0*	
Cadmium			1.4		4.8*	3.6*	10.5*	7.0*	7.8*				
Calcium			1,090		2,200	1,860		2,010		1,770			
Chromium	23		9.9	11.3	709*	151*	359*	901*	236*	9.6	11.6	684*	
Cobalt			14		31.4		50.0	31.2	28.5				
Copper	36	5.4	29.7	17.4	2,260*	572	562	1,350*	475	17	44.1	238	
Iron	15,500	2,100	13,400	16,000	159,000	54,900	349,000	243,000	216,000	10,800	11,600	42,500	
Lead	141	68	142	36	687	159	113	530	280	9.3	57.2	125	
Magnesium			3,280	3,290							2,950		
Manganese	61.6	23.1	443	179	570	345	1,310	809	818	14.3	217	180	
Mercury	2.3*	0.29	1.3*		10.4*	2.32*	643*	13.8*	69.6*			8.4*	
Nickel	12.9		19.0	21.1	101	48.5	241*	134*	134*	15.0	15.7	35.2	
Potassium													

TABLE 2 (cont.)

SUMMARY OF SAMPLING DATA
METALS (CONT.)

DATE SAMPLED 12/1/88
SAMPLE NO.
MATRIX SED/SOIL
UNITS mg/kg

	SOIL 1	SOIL 2	SOIL 3	SOIL 4	SOIL 5	SOIL 5D	SOIL 6	SOIL 7	SOIL 8	SOIL 9D	SOIL 10	SOIL 11	Field Blank		
Selenium															
Silver															
Sodium															
Thallium				4.2											
Vanadium	16		21.9	23.3	57	36.4	55.4	55.3	53.6	32	33.6	42.5			
Zinc	35.1	183	156	51.1	60.2	200	40.3	77.6	75.6	20.2	165	47.8			
Cyanide	0.55		0.38		13.78*	1.40	0.55	5.3	0.38	0.38	0.38	0.89			

Other

* EXCEEDS NJDEP SOIL ACTION LEVELS

TABLE 3

TABLE 1
SAMPLE LOCATIONS

GAF Corporation
Linden, NJ

Samplers: Buskey & Kresky

Sample #	Field ID #	Time	Location
BATCH 1			
DB008001	1	10:18	65' NW 35' SW of RP. A
DB008002	2	10:12	55' NW 65' SW of RP. A
DB008003	3	10:36	5' NW 65' SW of RP. A
DB008004	4	10:20	55' NW 35' SW of RP. A
DB008005	5	10:27	55' NW 5' SW of RP. A
DB008006	7	10:30	5' NW 5' SW from RP. A
DB008007	6	10:35	Performance evaluation
DB008008	8	11:52	110' WNW 50'S from RP. B
DB008009	9	12:55	10' WNW 70'S from RP. B
DB008010	10	12:13	85' W 30' S from RP. B
DB008011	11	12:47	85' WNW 10' S from RP. B
DB008012	12	12:14	70' WNW 45' S of RP. B
DB008013	13	12:40	30' WNW 50' S from RP. B
DB008014	14	12:45	Field blank sample
DB008015	15	12:19	30' WNW 10' S from RP. B
DB008016	16	12:55	10' WNW 70' S from RP. B
DB008017	17	13:50	148' E 6' N from RP. C
DB008018	18	14:08	6' N 45' W from RP. F
DB008019	19	13:54	58' N 2.5' E from RP. E
DB008020	20	14:31	148' E 6' S from RP. D
DB008021	21	14:21	21' E 6' S from RP. D
DB008022	22	14:16	58' N 3.5' W from RP. D
DB008023	23	13:56	24' W 6.5' N from RP. C
DB008024	24	14:08	6' N 45' W from RP. F

TABLE 3 (cont.)

TABLE 2
SAMPLE LOCATIONS

GAF Corporation
Linden, NJ

Samplers: Buskey & Kresky

Sample # BATCH 2	Field ID #	Time	Location
DB008101	25	15:50	22' SW from RP. G
DB008102	26	16:03	65' N from RP. H
DB008103	27	16:33	36'9" NWN 16' E from RP. I
DB008104	28	15:50	22' SW from RP. G
DB008105	29	16:50	5' W of culvert - W side of road
DB008106	30	17:12	15' S 40° E of SE intersection culvert
DB008107	31	17:20	Performance evaluation
DB008108	32	17:14	8' W of pipe crossing railroad tracks
DB008109	33	17:38	10' W side culvert
DB008110	34	17:37	S side culvert - N 5'

TABLE 3 (cont.)

Table 1

SUMMARY OF 2,3,7,8-TCDD DATA

Sample Number	Lab Number	Date	Media	Party	Laboratory	2,3,7,8-TCDD (ppb) Conc.	D.L.
Lot 290	C4760	06/17/83	Preventol-I	GAF	ETC	0.62	--
Lot 292	C4761	06/17/83	Preventol-I	GAF	ETC	0.65	--
No. 1	C5348R	06/23/83	Floor	GAF(ERM)	ETC	ND	0.29
No. 2	C5349	06/23/83	Floor	GAF(ERM)	ETC	ND	0.51
No. 3	C7799	06/23/83	Tank	GAF(ERM)	ETC	ND	0.75*
No. 3	19389	06/23/83	Tank	NJDEP	Compuchem	ND	--
No. 4	C5351	06/23/83	Sediment	GAF(ERM)	ETC	ND	0.15
No. 5	C5352	06/23/83	Sediment	GAF(ERM)	ETC	ND	*
No. 5	19387	06/23/83	Sediment	NJDEP	Compuchem	ND	--
No. 6	C5353	06/23/83	Sediment	GAF(ERM)	ETC	ND	0.11
No. 6	19388	06/23/83	Sediment	NJDEP	Compuchem	ND	0.50
No. 7	C5354	06/23/83	Soil	GAF(ERM)	ETC	ND	0.02
DB008001		07/11/85	Soil	USEPA		ND	0.30
DB008002		07/11/85	Soil	USEPA		ND	0.40
DB008003		07/11/85	Soil	USEPA		ND	0.61
DB008004		07/11/85	Soil	USEPA		ND	0.34
DB008005		07/11/85	Soil	USEPA		ND	0.25
DB008006		07/11/85	Soil	USEPA		ND	0.23
DB008007		07/11/85	Performance Eval.	USEPA		2.59	--
DB008008		07/11/85	Soil	USEPA		Analysis rejected	
DB008009		07/11/85	Soil (Dup of 8016)	USEPA		ND	0.15
DB008010		07/11/85	Soil	USEPA		ND	0.85
DB008011		07/11/85	Soil	USEPA		ND	0.44
DB008012		07/11/85	Soil	USEPA		ND	0.20
DB008013		07/11/85	Soil	USEPA		ND	0.28
DB008014		07/11/85	Field Blank	USEPA		ND	0.27
DB008015		07/11/85	Soil	USEPA		ND	0.49
DB008016		07/11/85	Soil	USEPA		ND	0.33
DB008017		07/11/85	Soil	USEPA		ND	0.99
DB008018		07/11/85	Soil (Dup of 8024)	USEPA		ND	0.46
DB008019		07/11/85	Soil	USEPA		ND	0.85
DB008020		07/11/85	Soil	USEPA		ND	0.67
DB008021		07/11/85	Soil-Matrix Spike	USEPA		0.97	--
DB008022		07/11/85	Soil	USEPA		ND	0.14
DB008023		07/11/85	Soil	USEPA		ND	0.44
DB008024		07/11/85	Soil	USEPA		ND	0.71
DB008101		07/11/85	Sediment	USEPA		0.0067	--
DB008102		07/11/85	Sediment	USEPA		0.0263	--
DB008103		07/11/85	Sediment	USEPA		0.0223	--
DB008104		07/11/85	Sed. (Dup of 8101)	USEPA		0.0071	--
DB008105		07/11/85	Sediment	USEPA		0.0040	--
DB008106		07/11/85	Sediment	USEPA		0.0049	--
DB008107		07/11/85	Performance Eval.	USEPA		--	--
DB008108		07/11/85	Sediment	USEPA		0.0036	--
DB008109		07/11/85	Sediment	USEPA		0.0182	--
DB008110		07/11/85	Sediment	USEPA		ND	0.0015

Note: * indicates no surrogate recovery

TABLE 3 (cont.)

FORM B-1
TCDD DATA REPORT FORM

LABORATORY: Envirodyne Engineers, Inc. REPORT DATE: 12/15/88

CASE: 3210 COLUMN: SP-2331 60m

INSTRMT ID: HP 5970 MSD

SAMPLE NO.	EXTRACT DATE	WT OR VOL	PPB TCDD MEAS	PPB TCDD MPC	GC/MS ANALYSIS DATE	GC/MS ANALYSIS TIME	SURR S/N RATIO	% REC (IS)
1	12/07/88	9.99	ND	0.082	12/15/88	1704	4.66	36
2	12/07/88	9.99	ND	0.11	12/15/88	1742	3.03	11
3	12/07/88	10.00	ND	0.022	12/15/88	1826	7.93	39
4	12/07/88	10.01	ND	0.022	12/15/88	1904	10.15	61
5	12/07/88	10.04	ND	0.030	12/15/88	1942	5.21	44
6	12/07/88	9.99	ND	0.031	12/15/88	2020	13.56	61
7	12/07/88	10.03	ND	0.25	12/15/88	2059	2.5	12
8	12/07/88	9.99	ND	0.056	12/15/88	2137	6.63	54
8 D	12/07/88	10.01	ND	0.043	12/15/88	2215	13.05	50
9	12/07/88	9.99	ND	0.42	12/15/88	2253	0.5	5
10	12/07/88	10.01	ND	0.027	12/17/88	1704	8.47	37
11	12/07/88	10.02	ND	0.024	12/17/88	1803	11.91	55
P.E.	12/07/88	10.03	3.25	--	12/17/88	1932	17.13	50
N Check Std.	12/07/88	10.03	1.06	--	12/17/88	2017	9.92	31
MB	12/07/88	10.04	ND	0.016	12/15/88	1626	9.31	57

MB = Method Blank
N = Native TCDD Spike
D = Duplicate/Fortified Field Blank
PE = EMSL-LV Performance Evaluation Sample
MPC = Maximum Possible Concentration

FB = Field Blank
IS = Internal Standard
RR = Rerun
RS = Recovery Standard
ND = Not Detected

GAF CHEMICALS CORPORATION
FOOT OF SOUTH WOOD AVENUE
LINDEN, UNION COUNTY, NEW JERSEY
EPA ID # NJD002185973

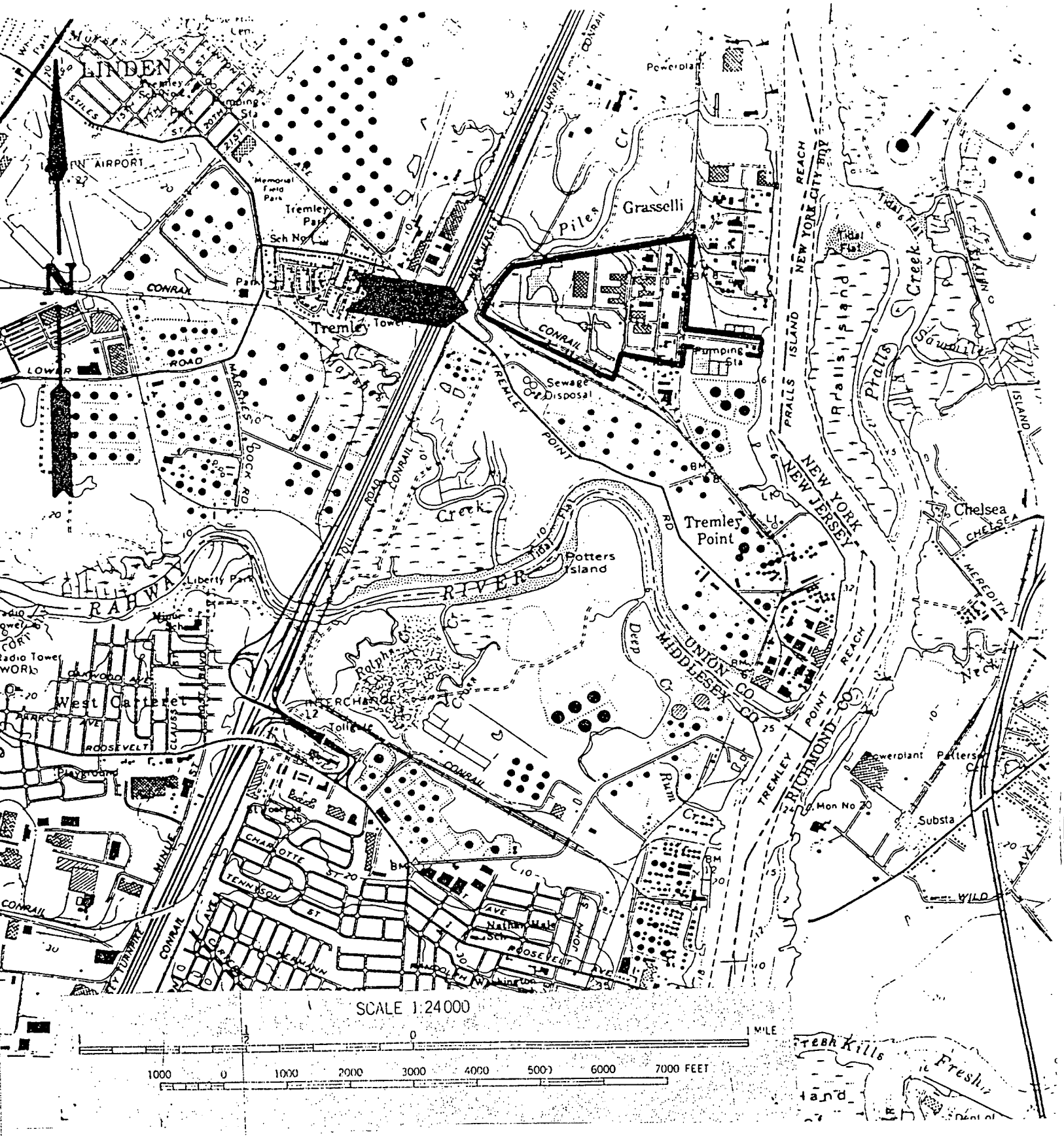
TABLE OF CONTENTS

MAPS

1. USGS ELIZABETH QUADRANGLE
2. SITE MAP
3. TAX MAP
4. UNION COUNTY ROAD MAP
5. NEW JERSEY ATLAS BASE MAP SHEET NO. 26
6. GEOLOGIC OVERLAY
7. WATER SUPPLY MAP
8. WATER WITHDRAWAL POINTS MAP

ATTACHMENTS

A. ADMINISTRATIVE CONSENT ORDER, JUNE 16, 1989
B. REMEDIAL INVESTIGATION WORK PLAN
C. APPENDIX A MONITORING WELL AND WELLPOINT LOGS
D. SAMPLING DATA, JANUARY 25, 1983
E. SAMPLING DATA, DECEMBER 1, 1988
F. SAMPLING DATA, NOVEMBER 29, 1988
G. QA/QC RESULTS, DECEMBER 20, 1989



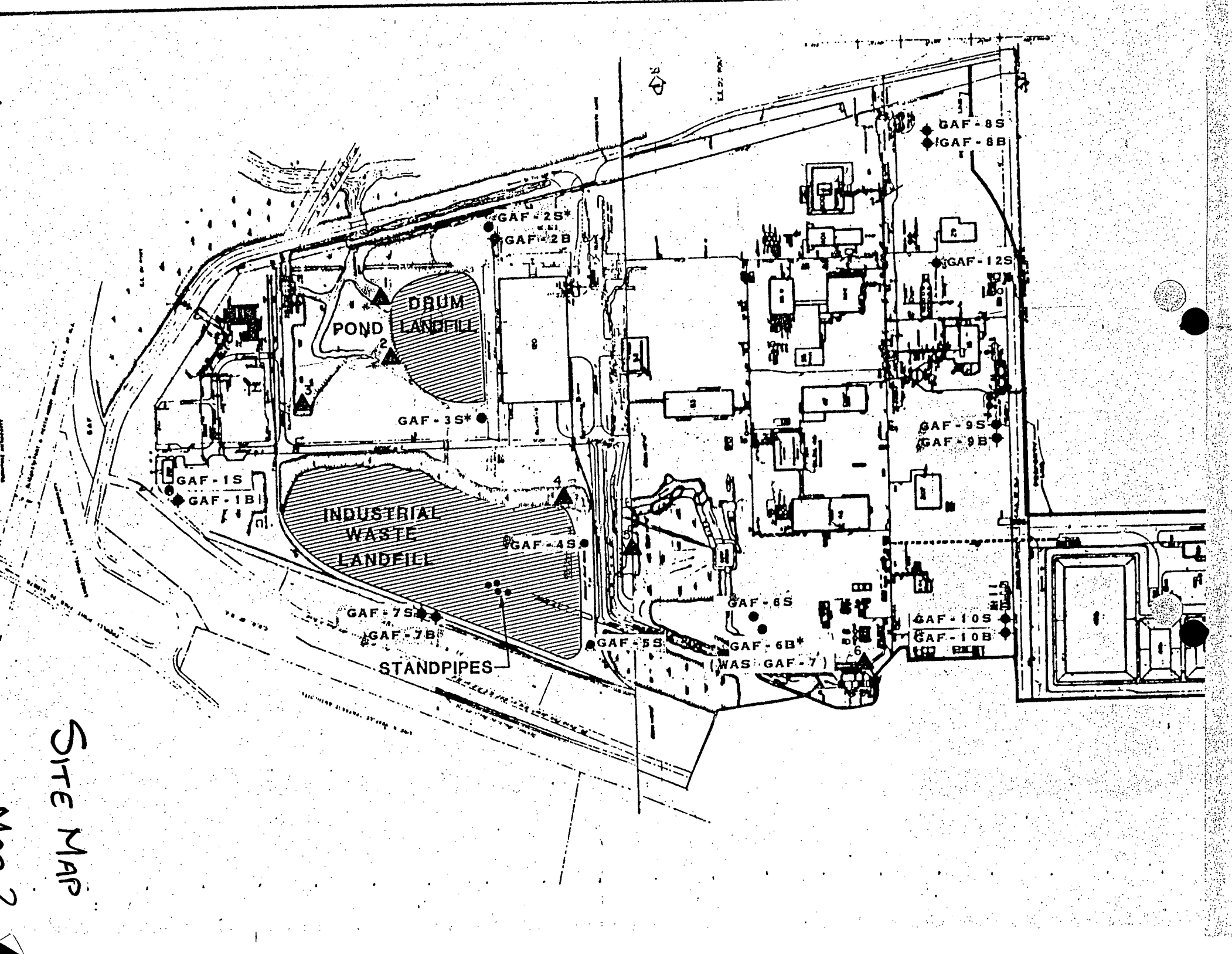
GAF CORPORATION
FOOT OF WOOD AVENUE
LINDEN, UNION COUNTY

ELIZABETH QUADRANGLE

LATITUDE: 40 36' 43"
LONGITUDE: 74 12' 50"

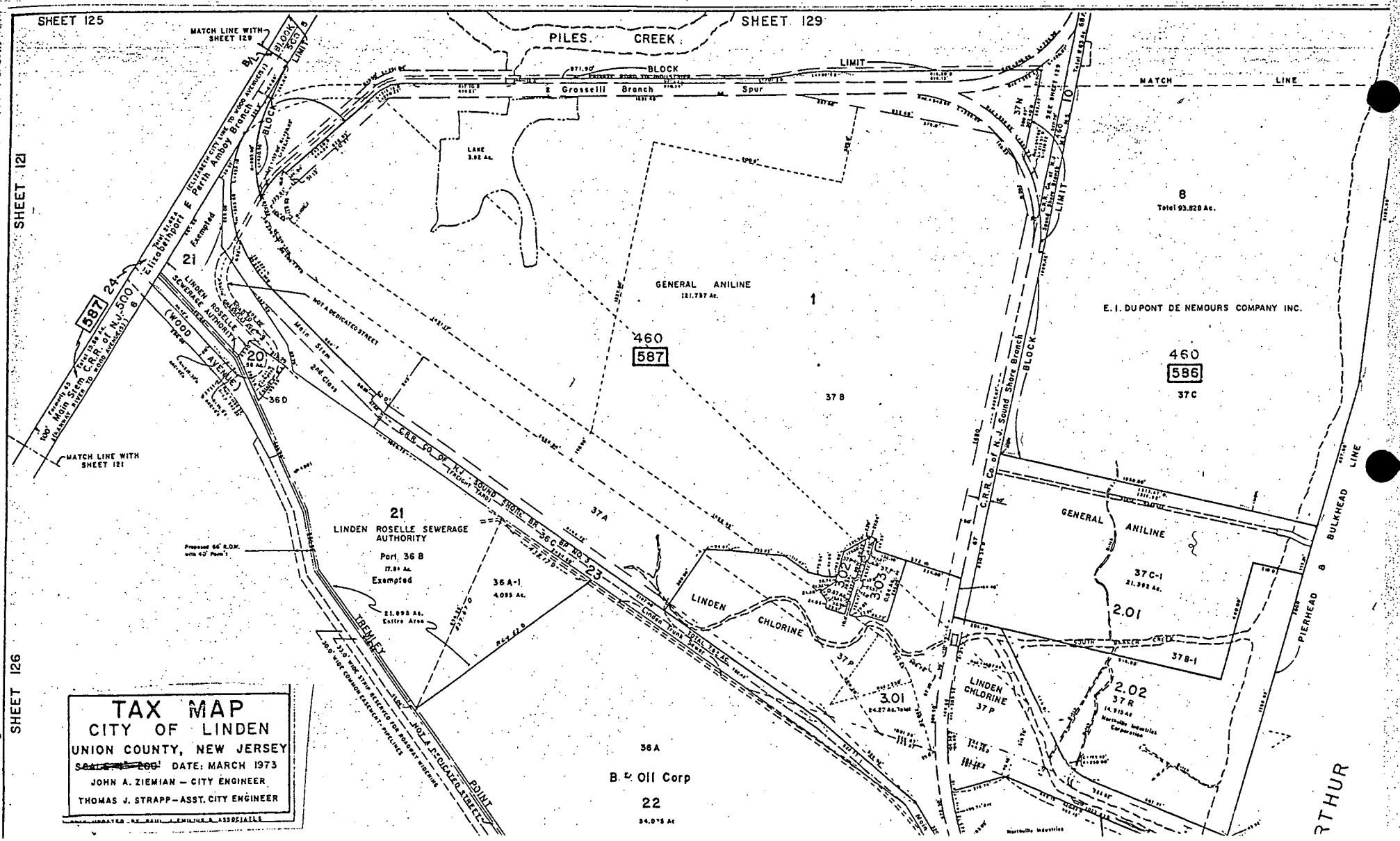
scale 1:24,000

MAP 1

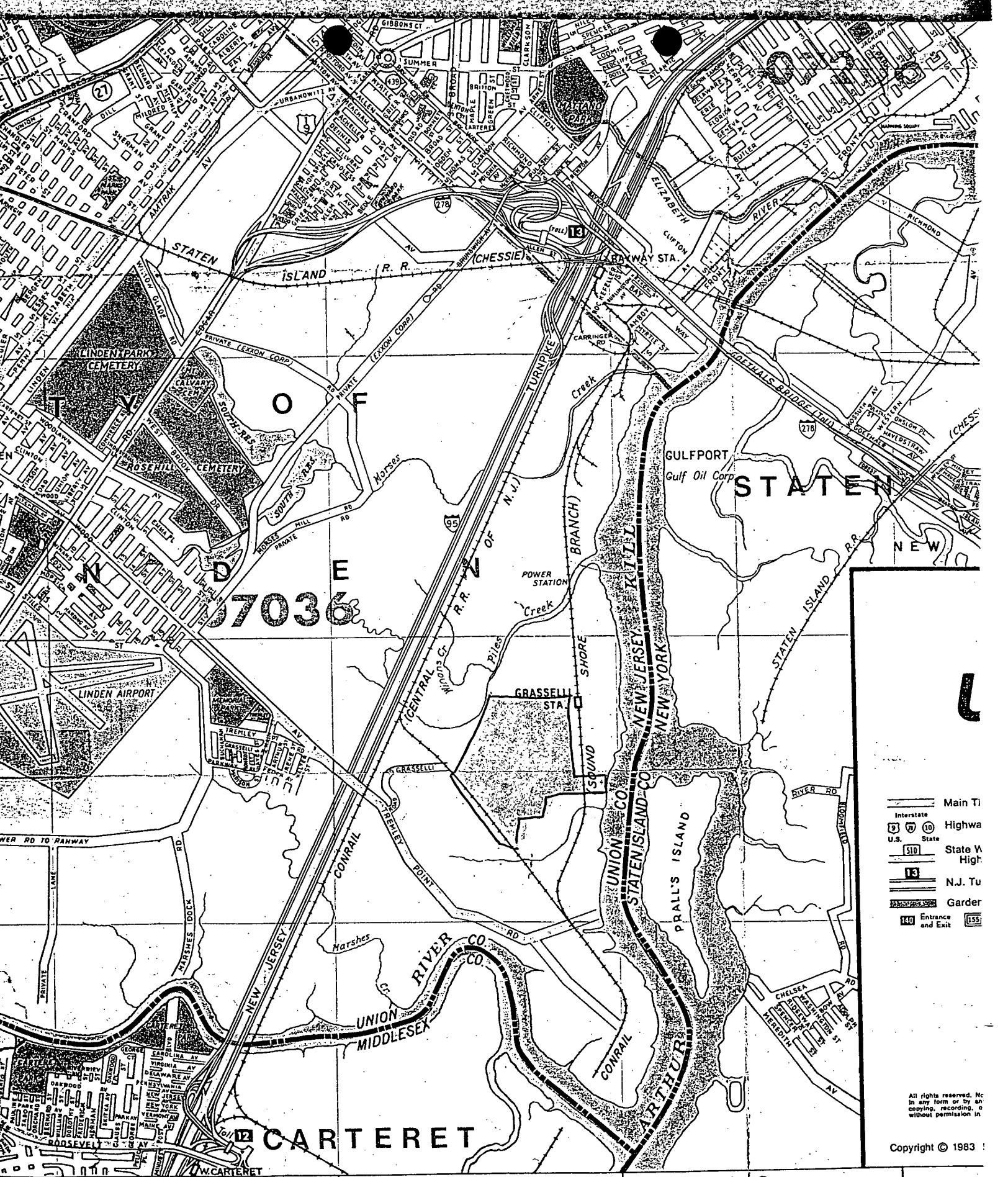


Site Map

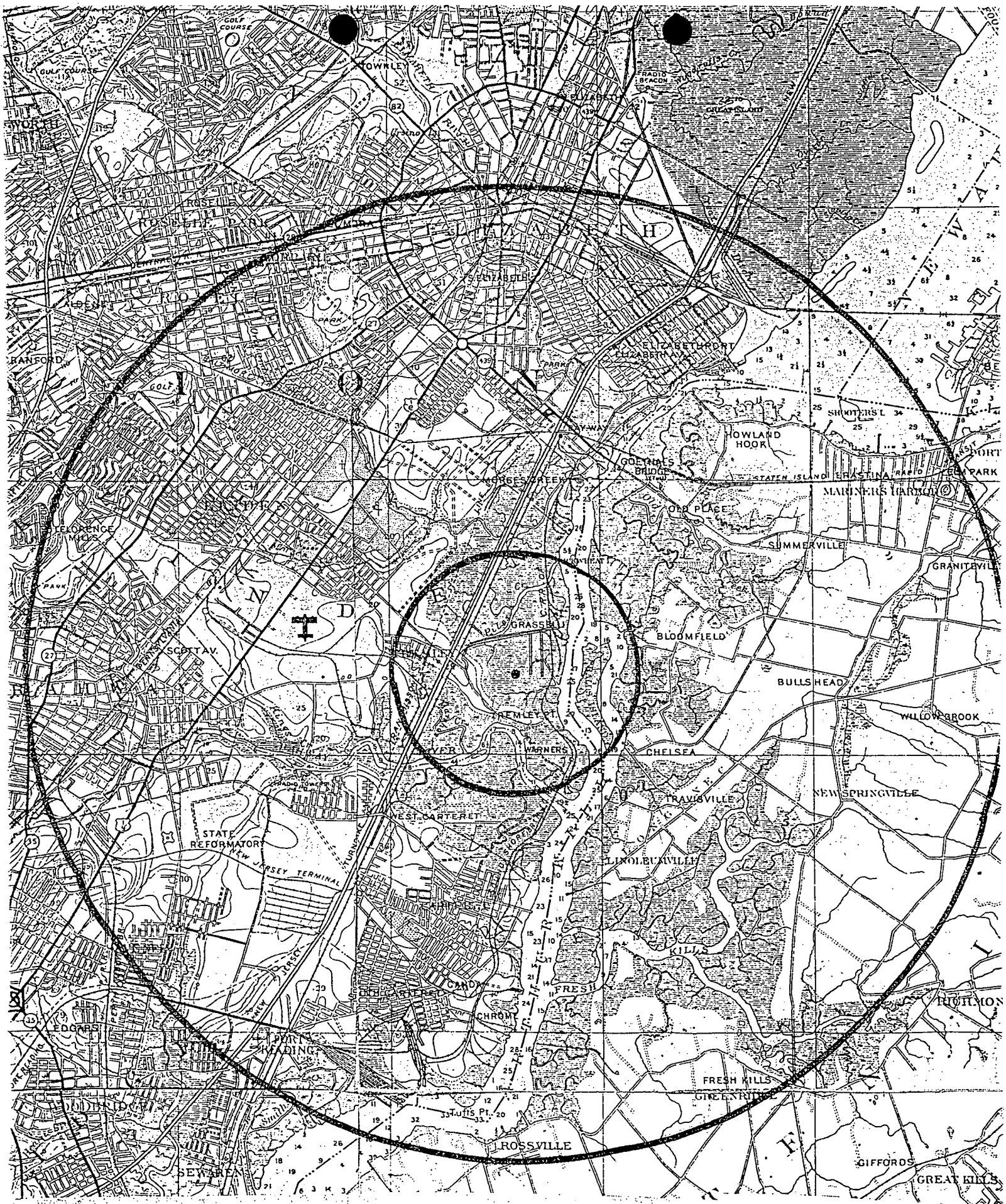
Map 2


SHEET 125
SHEET 129
SHEET 121
SHEET 126
MATCH LINE WITH SHEET 129
MATCH LINE WITH SHEET 121
PILES CREEK
BLOCK
LIMIT
Grosselli Branch
Spur
MATCH LINE
LAKE 3.92 Ac.
GENERAL ANILINE
121.737 Ac.
1
460
587
37 B
8
Total 93.828 Ac.
E. I. DUPONT DE NEMOURS COMPANY INC.
460
586
37 C
Elizabethport & Perth Amboy Branch
Main Stem C.R.R. of N.J. 500
Exempted
21
LINDEN ROSELLE SEWERAGE AUTHORITY
(WOOD AVENUE)
NOT A DEDICATED STREET
Main Stem
2nd Class
36 D
C.R.R. CO. OF N.J. SOUND SHORE BR. 36 C BR. NO. 3
(FREIGHT YARD)
37 A
21
LINDEN ROSELLE SEWERAGE AUTHORITY
Part 36 B
17.84 Ac.
Exempted
36 A-1
4.095 Ac.
21.898 Ac. Entire Area
TREMLEY POINT
NOT A DEDICATED STREET
33.0' WIDE STRIP RESERVED FOR ROADWAY WIDENING
30.0' WIDE COMMON EASEMENT - PIPELINES
LINDEN CHLORINE
37 P
3.01
LINDEN CHLORINE
37 P
GENERAL ANILINE
37 C-1
21.392 Ac.
2.01
37 B-1
2.02
37 R
14.915 Ac.
Northville Industries Corporation
C.R.R. Co. of N.J. Sound Shore Branch
BLOCK
BULKHEAD LINE
PIERHEAD & BULKHEAD LINE
36 A
B. & Oil Corp
22
34.075 Ac.
Northville Industries
TAX MAP
CITY OF LINDEN
UNION COUNTY, NEW JERSEY
DATE: MARCH 1973
JOHN A. ZIEMIAN — CITY ENGINEER
THOMAS J. STRAPP — ASST. CITY ENGINEER

MAP 3



UNION COUNTY ROAD MAP
MAP 4



Scale: 1 Mile to an Inch.

Miles

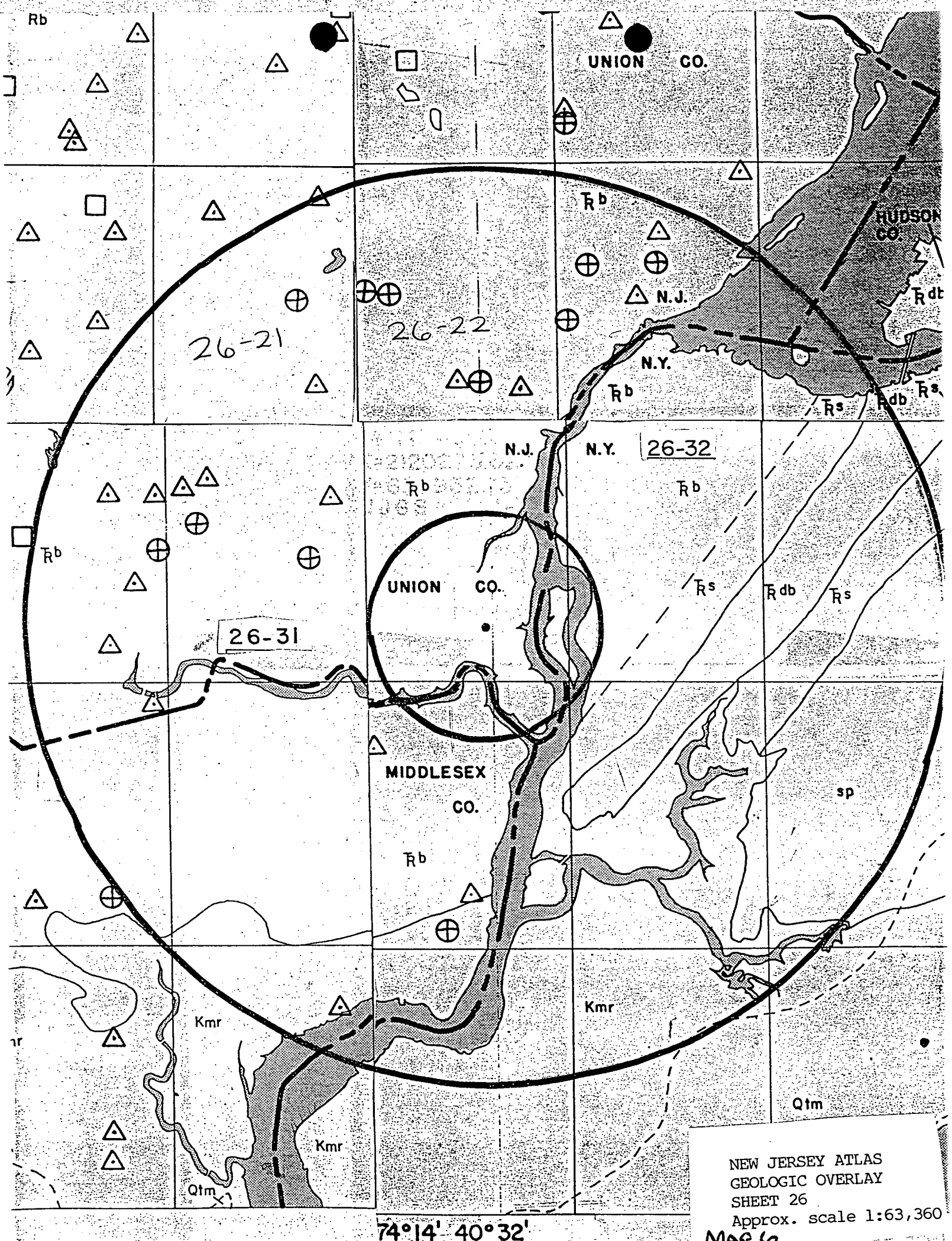
Yards

Meters

Contour Interval: 10 feet

NEW JERSEY ATLAS
BASE MAP
SHEET 26
Approx. scale 1:63,360

MAP 5



NEW JERSEY ATLAS
GEOLOGIC OVERLAY
SHEET 26
Approx. scale 1:63,360

LEGEND FOR ATLAS SHEET 26 (GEOLOGY)

△ — INDUSTRIAL WELL YIELD OVER 70 GALLONS PER MINUTE (INCLUDING PRIVATE WELLS)

□ — PUBLIC SUPPLY WELL YIELDING OVER 70 GALLONS PER MINUTE

⊕ — UNSUCCESSFUL ROCK WELL YIELDING LESS THAN 70 GALLONS PER MINUTE

⊙ — UNSUCCESSFUL SAND WELL YIELDING LESS THAN 70 GALLONS PER MINUTE

⊡ — NO TEST — NO DATA ON YIELD

FAULT (DASHED WHERE INFERRED)

CONTACT (DASHED WHERE INFERRED)

PHYSIOGRAPHIC PROVINCE BOUNDARY

WATER SUPPLY TRANSMISSION LINE

NOTE: WHERE THE PRECAMBRIAN FORMATION BOUNDARIES TERMINATE ABRUPTLY, IT IS THE GEOLOGIST'S OPINION THAT THE GEOLOGICAL COMPLEXITY OF THE AREA PREVENTS FURTHER INTERPRETATIONS.

Kmr — CRETACEOUS MAGOTHY AND RARITAN FORMATIONS (SAND AND CLAY)

Ꞧb — TRIASSIC BRUNSWICK FORMATION

Ꞧc — TRIASSIC CONGLOMERATE BEDS OF THE STOCKTON FORMATION

Ꞧl — TRIASSIC LOCKATONG FORMATION

Ꞧdb — TRIASSIC DIABASE

Ꞧbs — TRIASSIC BASALT FLOWS

Sd — SILURIAN DECKER LIMESTONE AND LONGWOOD SHALE FORMATIONS

Sgp — SILURIAN GREEN POND CONGLOMERATE

Omb — ORDOVICIAN MARTINSBURG SHALE

€Ok — CAMBRO ORDOVICIAN KITTATINNY LIMESTONE

€h — CAMBRIAN HARDYSTON SANDSTONE

PRECAMBRIAN:

gh - HORNBLENDE GRANITE WITH PYROXENE GRANITE

ga - ALASKITE

am - AMPHIBOLITE

px - PYROXENE GNEISS

gnq - QUARTZ PLAGIOCLASE GNEISS

gnb - BIOTITE GNEISS

sk - SKARN, GRAPHITE SCHIST

fnd — FORMATION NOT DETERMINED

LEGEND

WATER SUPPLY

- AREA SERVED BY PRIVATE WATER SERVICE COMPANIES
- AREA SERVED BY REGIONALLY OWNED WATER SERVICE COMPANIES
- AREA SERVED BY MUNICIPALLY OWNED WATER SERVICE COMPANIES
- AREA NOT PRESENTLY SERVED BY WATER SERVICE
- PUBLIC SUPPLY WELLS
- SURFACE WATER INTAKE
- W — MAJOR WATER MAINS
- WATER MAIN ACROSS HIGHWAY FOR FUTURE USE

EWAGE, LANDFILL

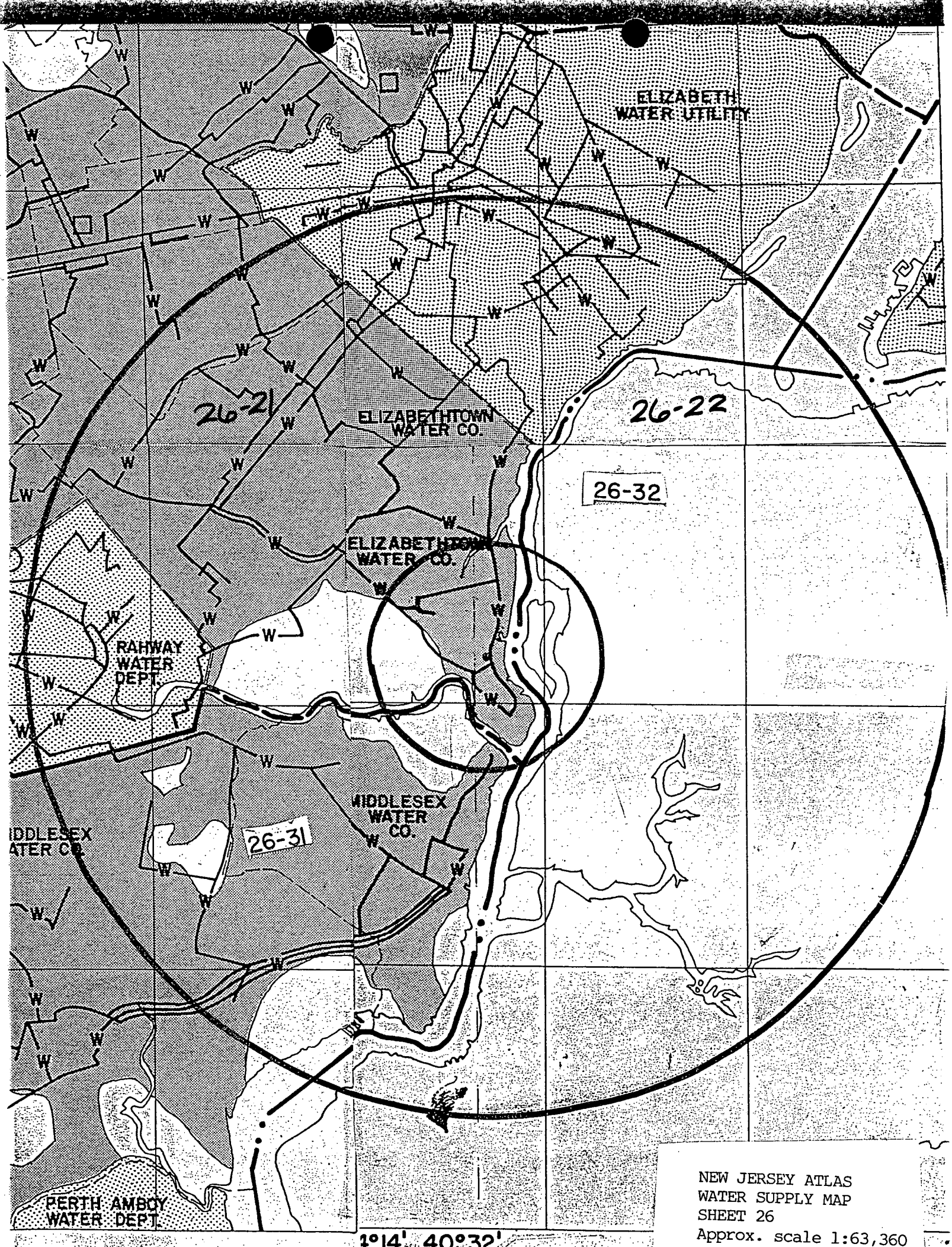
- AREA SERVED BY PUBLIC SEWAGE SERVICE
- AREA NOT PRESENTLY SERVED BY SEWAGE SERVICE
- SANITARY LANDFILLS
- SEWAGE TREATMENT PLANTS (CAPACITY <0.3mgd)
- SEWAGE TREATMENT PLANTS (CAPACITY ≥0.3mgd)
- S — MAJOR SEWAGE TRANSMISSION LINES

AINAGE BASIN

- DRAINAGE BASIN BOUNDARY
- RIVER BASIN BOUNDARY
- HUDSON — DRAINAGE BASIN NAME
- STREAMS AND RIVERS
- FLOOD PRONE AREAS

PULATION

- COUNTY BOUNDARY
- MUNICIPAL BOUNDARY
- ( ) POPULATION DENSITY IN PERSONS PER SQUARE MILE
- [ ] AREA IN SQUARE MILES
- % PERCENT AREA OF MUNICIPALITY ON BLOCK
- MARKET ROADS
- BUILT UP AREAS
- STATE BOUNDARY



NEW JERSEY ATLAS
WATER SUPPLY MAP
SHEET 26
Approx. scale 1:63,360

BLOCK #26-21

A. Elizabeth, Roselle

B. Arthur Kill-Morses Creek, Rahway, Elizabeth

C. 1. Cranford - Non-recording temperature and precipitation gauges
Springfield - Recording precipitation gauge

2.

Map No.	Location	Period of Record
68	Elizabeth River at Nye Ave., Irvington	7/23/38
69	Elizabeth River at Lyons Ave., Irvington	7/23/38
70	Elizabeth River at York Ave., Irvington	7/23/38
71	Elizabeth River at Chancellor Ave.,Irvington	7/23/38
73	West Branch Rahway River at Millburn	1938,1940-1950
74	Rahway River near Springfield	1938-

Water Quality Standards: (explained in Atlas Sheet description)
FW2 except where classified FW3

D. Brunswick Formation (Trb), Basalt Flows (Trbs)

E. 1. Physiographic Province: Piedmont
Subdivision: Triassic Lowlands
Major Topographic Features: Wisconsin Terminal Moraine, Red Sandstone Plain
Elevations (ft.above sea level): ridges 500, valleys 50
Relief (ft.): 450

2. a. Normal Year: 47"
Dry Year: 39"
Wet Year: 55"
b. January: 32°F
July: 74°F
c. 242 days. Last killing frost: 4/20; first killing frost: 10/20

3. a. About 75% is urban or suburban. Areas of Clark, Cranford, Elizabeth, Hillside, Irvington, Millburn, Springfield, Union, Westfield are included.
b. Agricultural production is not a significant land use.
c. About 15% covered by oak forest. Forested areas primarily within the Watchung Reservation, South Mountain Reservation, and Rahway River Park System.
e. Traprock from quarries in Springfield.
d. Garden State Parkway, U.S.22, N.J.28, N.J.24, and N.J.527.
Railroads - Lehigh Valley, Penn Central, Central Railroad of New Jersey, Erie-Lackawanna, Rahway Valley

F. Essex County:
South Mountain Reservation
Union County:
Lenape Park
Rahway River Parkway
Galloping Hill Park and Golf Course
Warinanco Park
Short Hills Water Company:
Private Watershed

H. First Presbyterian Congregation of Connecticut Farms, Union

I. Water Well Records

Location	Owner	Year Drilled	Screen Setting or Depth of Casing	Total Depth	g/m Yield	Formation
26-21-131	City of Orange	1960	75	75	No test	Q
26-21-138	Twp. of Millburn	1967	83	300	214	Trb
26-21-151	Millburn Springfield Co.	1956	37	645	75	Trbs-Trb
26-21-155	Short Hills Water Co.			84	677	Q
26-21-159	"			76	690	"
26-21-167	Hudson Mfg.	1966	80	210	60	Trb
26-21-175	Baltrusal Golf Club			288	32	"
26-21-177	"			515	94	"
26-21-229	Maplewood Country Club	1963	54	298	488	"
26-21-246	Elizabethtown Water Co.			400	93	"
26-21-247	"			130	400	"
26-21-268	Voorhees & Son			220	126	"
26-21-275	Bardy Farms	1955	30	450	150	"
26-21-289	Interchemical Corp.			349	200	"
26-21-294	Ansco	1949	60	385	200	"
26-21-352	Olympic Park			300	420	"
26-21-364	Irvington, City of			452	45	"
26-21-391	Bennet Oil Co.			298	100+	"
26-21-395	Hatfield Cable & Wire Co.			380	150	"
26-21-397	Cooper Alloy Foundry Co.			325	95	"
26-21-399	Atlas Tool Co.	1959	51	300	165	"
26-21-419	Prince & Ganska Farm			255	275	"
26-21-448	"	1954	58	420	300	"
26-21-451	Howard Johnson's Rest.			200	110	"
26-21-461	Potter Engineering			70	180	Q
26-41-463	Accurate Bushing Co.	1974	135	250	165	Trb
26-21-484	Plainfield-Union Water Co.			250	160	"
26-21-491	Elizabethtown Water Co.	1965	123-1/2	300	400	"
26-21-521	Kratt, Wm. & Co.			345	210	"
26-21-527	Pyro-Plastics			344	250	"
26-21-533	Food Fair Stores, Inc.	1955	27'9"	485	110	"
26-21-538	Union Co. Park Commission			84	350	Q
26-21-566	Sucad, Inc.			235	70	Trb
26-21-573	Plainfield-Union Water Co.	1955	181'10"	522	448	"
26-21-586	Rotary Pen Co.	1962	43.5	405	120	"
26-21-589	"	1963	47	402	165	"
26-21-591	White Laboratories, Inc.			470	530	"
26-21-627	Garden State Bowling Alley	1958	41	425	250	"
26-21-659	Progressive Products			150	198	"
26-21-663	Elizabethtown Water Co.			400	525	"
26-21-666	Schering Corp.	1955	50	475	550	"
26-21-742	Diamond Expansion Bolt Co.	1963	51	260	300	"
26-21-745	Circle Plastics Co.	1962	40	302	250	"
26-21-751	Aeolian Co.			136	175	"
26-21-761	Lampert Dairy Farms, Inc.	1967	23/52	270	6	"
26-21-798	Fibro Corp.	1957	67	250	75	"
26-21-827	Gibson Associates	1956	32'4"	271	274	"
26-21-834	Plainfield-Union Water Co.	1957	36'8"	509	457	"

26-21-838	All Disc Records	1963	36	300	215	Trb
26-21-867	Food Fair Stores, Inc.			304	150	"
26-21-881	Benderson Development, Inc.	1963	21'8"	300	383	"
26-21-916	National Color Laboratory	1964	41.5	282	239	"
△26-21-935	Leland Tube Co.	1965	33	500	100	"
⊕26-21-964	Lampert Dairy Farms, Inc.	1959	62.5	803	72	"
△26-21-995	Eastern Packing Co.			400	100	"

J. Geodetic Control Survey monuments described
Index Maps 25,26; adjacent Index Maps 30,31

A. Elizabeth

B. Arthur Kill-Elizabeth, Elizabeth Channel, Morses Creek; Passaic-Lower Passaic

C. 1. Newark WSO AP - Detailed meteorologic data

2.

Map No.	Location	Period of Record
67	Elizabeth River at Irvington	1931-1938
68	Elizabeth River at Nye Ave., Irvington	7/23/38
72	Elizabeth River at Elizabeth	1921-

3.

262	Passaic River at Harrison	1967-1971
272	Elizabeth River at Morris Ave., Elizabeth	1964-

Water Quality Standards: (explained in Atlas Sheet description)
FW3, TW2 except where classified TW3

D. Brunswick Formation (Trb), Stockton Formation (Trs), Diabase (Trdb)

E. 1. Physiographic Province: Piedmont
Subdivision: Triassic Lowlands
Major Topographic Features: Wisconsin Terminal Moraine, Red Sandstone Plain, Hackensack Meadows, Newark Bay, Palisades Ridge
Elevations (ft.above sea level): ridges 300, valleys 0
Relief (ft.): 200

2. a. Normal Year: 44"
Dry Year: 36"
Wet Year: 53"

b. January: 32°F
July: 74°F

c. 243 days. Last killing frost: 4/15; first killing frost 10/20

F. Essex County:
Weequahic Park
Union County:
Elizabeth River Park
Warinanco Park

H. Boxwood Hall/Boudinot Mansion, Elizabeth (State Owened)

I. Water Well Records

Location	Owner	Year Drilled	Screen Setting or Depth of Casing	Total Depth	g/m Yield	Formation
26-22-143	Irvington Smelting & Ref.Wks.	1953	71	209	192	Trb
26-22-143	"	1953	62'4"	304	300	"
26-22-145	Associated Mech.Devices	1960	83	250	80	"
26-22-149	Gallo Asphalt Co.	1961	107	201	200	"
26-22-213	Krueger Brewing Co.			656	435	"
26-22-228	Smith & Smith Funeral Parlor			776	25	"
26-22-234	U.S. Navy			565	39	"
26-22-237	Conmar Corp.			300	450	"
26-22-262	National Lock Washer Co.			800	100	"
26-22-275	Linde Air Products Co.	1954	44'5"	500	124	"
26-22-293	New York Port Authority	1968	60	370	260	"
26-22-322	Standard Bitulithic Co.	1964	89'11"	406	360	"
26-22-327	Pfeiffer, H.			505	12	"
26-22-333	Arkansas Co., Inc.	1965	72'9"	400	65	"
26-22-333	Ronson Metals Corp.	1965	80	300	220	"
26-22-334	Wilson, H.A. Co.			778	8	"
26-22-345	Chem-Fleur	1965	97	306	200	"
26-22-355	Englehard Ind., Inc.	1966	54/79'8"	428	167	"
26-22-355	"	1965	80'7"	400	401	"
26-22-356	"	1966	78.5/92	495	4	"
26-22-368	Rutherford & Delaney Hldg.Co.	1956	42	220	100	"
26-22-411	Bristol Meyers	1967	49	500	159	"
26-22-418	Dillon-Beck Mfg. Co.			379	100	"
26-22-449	Elizabethtown Water Co.			400	550	"
26-22-463	Orbis Products Corp.	1958	157	350	12	"
26-22-517	Pennick, S.B. Co.	1961	64'10"	585	24	"
26-22-518	Pure Carbonic			600	30	"
26-22-546	Black Diamond Grit Co.	1960	92	265	150	"
26-22-574	Londat Aetz Fabric Co.	1965	50	600	30	"
26-22-574	Elizabeth Abbatoir			641	75	"
⊕26-22-744	Morey LaRue Laundry			700	15	"
⊕26-22-745	"			600	14	"
△26-22-785	Stevenson Car Co.			300	95	"
⊕26-22-786	Feldman Brothers			805	54	"
△26-22-795	Reichold Chemical Co.	1967	39'6"	400	415	"
△26-22-828	Singer Mfg. Co.			1200	90	"
26-22-833	General Chemical Co.	1965	106	500	70	"
⊕26-22-842	Clauss Bottling Works			500	50	"
⊕26-22-847	Elizabethtown Gas & Light			300	0	"
⊕26-22-852	Riker Motor Co.			500	0	"
△26-22-854	Thomas & Betts Co., Inc.			500	264	"

J. Geodetic Control Survey monuments described
Index Map 26; adjacent Index Map 31

BLOCK #26-31

A. Arthur Kill, Elizabeth, Perth Amboy, Roselle

B. Arthur Kill-Morses Creek, Rahway, Woodbridge River; Raritan-Lower Raritan

C. 1. Rahway - Recording and non-recording precipitation gauges

2.

Map No.	Location	Period of Record
75	Rahway River at Rahway	1908-1915, 1921-
77	Robinsons Branch Rahway River at Rahway	1939-

3.

75	Rahway River at Rahway	1939-
77	Robinsons Branch Rahway River at Rahway	1964-
273	Rahway River at Rahway, Woodbridge-Hazelhurst Ave.	1964-

Water Quality Standards: (explained in Atlas Sheet description)
FW2, TW2 except where classified FW3 or TW3

D. Wisconsin Terminal Moraine (Qtm), Magothy and Raritan Formations (Kmr), Brunswick Formation (Trb)

E. 1. Physiographic Province: Piedmont
Subdivision: Triassic Lowlands
Major Topographic Features: Wisconsin Terminal Moraine, Red Sandstone Plain
Elevations (ft.above sea level): hills 150, valleys 0
Relief (ft.): 150

Physiographic Province: Coastal Plain
Subdivision: Inner Plain
Major Topographic Features: Arthur Kill, Clay and Marl Region
Elevations (ft.above sea level): hills 200, valleys 0
Relief (ft.): 200

2. a. Normal Year: 46"
Dry Year: 38"
Wet Year: 52"

b. January: 32°F
July: 74°F

c. 242 days. Last killing frost: 4/20; first killing frost: 10/20

F. Middlesex County:
Merrill Park
Roosevelt Park
Union County:
Rahway River Parkway
Middlesex Water Company:
Private Watershed

I. Water Well Records

Location	Owner	Year Drilled	Screen Setting or Depth of Casing	Total Depth	g/m Yield	Formation
26-31-132	Hyatt Roller Bearing Div.			501	500	Trb
△ 26-31-237	Tingley-Reliance Rubber Co.			122	120	"
△ 26-31-239	Hatfield Wire & Cable Co.	1959	52	350	323	"
26-31-243	Rahway, City of	1953	21.75	57	355	Q
⊕ 26-31-266	Quinn & Boden	1966	35	35	23	Trb
△ 26-31-268	"			357	150	"
26-31-274	Rahway, City of			301	12	"
△ 26-31-294	Rahway Theater			349	100	"
△ 26-31-315	Linden Ice Co.	1959	40	550	70	"
△ 26-31-317	General Gum Products	1953	39'9"	316	100	"
△ 26-31-338	Winews, C.H. & John			200	750	"
⊕ 26-31-342	Layne, New York Co.	1955	36	310	30	"
⊕ 26-31-364	Lampert Dairy Farms Inc.	1967	39	290	17	"
26-31-465	Middlesex Water Co.	1964	32'8"	505	495	"
△ 26-31-533	Maclac Co.			151	91	"
26-31-576	Costa's Ice Cream Co.	1961	40	359	300	"
26-31-594	Security Steel Equip. Inc.	1957	26	614	34	"
26-31-861	Sabol National Grocery	1956	24	200	70	"
26-31-891	Swift & Co.	1955	43'8"	61	70	Kmr
26-31-894	California Refining Co.			288	92	"
△ 26-31-938	Second Reverse Terminal Inc.	1958	109'6"	168	150	Q

J. Geodetic Control Survey monuments described
Index Maps 30,31; adjacent Index Maps 25,26

A. Arthur Kill, Elizabeth

B. Arthur Kill-Morses Creek, Rahway, Woodbridge

C. Water Quality Standards: (explained in Atlas Sheet description)
FW3, TW2 except where classified TW3

D. Wisconsin Terminal Moraine (Qtm), Magothy and Raritan Formation (Kmr), Stockton Formation (Trs), Diabase (Trdb), serpentine (sp)

E. 1. Physiographic Province: Piedmont
Subdivision: Triassic Lowlands
Major Topographic Features: Red Sandstone Plain, Arthur Kill
Elevations (ft.above sea level): hills 30, valleys 0
Relief (ft.): 30

Physiographic Province: Coastal Plain
Subdivision: Inner Plain
Major Topographic Features: Arthur Kill, Clay and Marl Region
Elevations (ft.above sea level): hills 20, valleys 0
Relief (ft.): 20

2. a. Normal Year: 46"
Dry Year: 38"
Wet Year: 52"

b. January: 32°F
July: 74°F

c. 242 days. Last killing frost: 4/20; first killing frost: 10/20

I. Water Well Records

Location	Owner	Year Drilled	Screen Setting or Depth of Casing	Total Depth	g/m Yield	Formation
△ 26-32-417	Gulf Stream Development	1967	54	145	100	Trdb
△ 26-32-485	Liebig Works			60	200	Q
⊕ 26-32-487	U. S. Metals Refining Co.			117	0	Kmr

J. Geodetic Control Survey monuments described
Index Map 31; adjacent Index Map 26

SUBJECT TO REVISION

Corrected printout

WATER WITHDRAWAL POINTS AND NJGS CASE INDEX SITES WITHIN 5.0 MILES OF:

LATITUDE 403645
LONGITUDE 741230

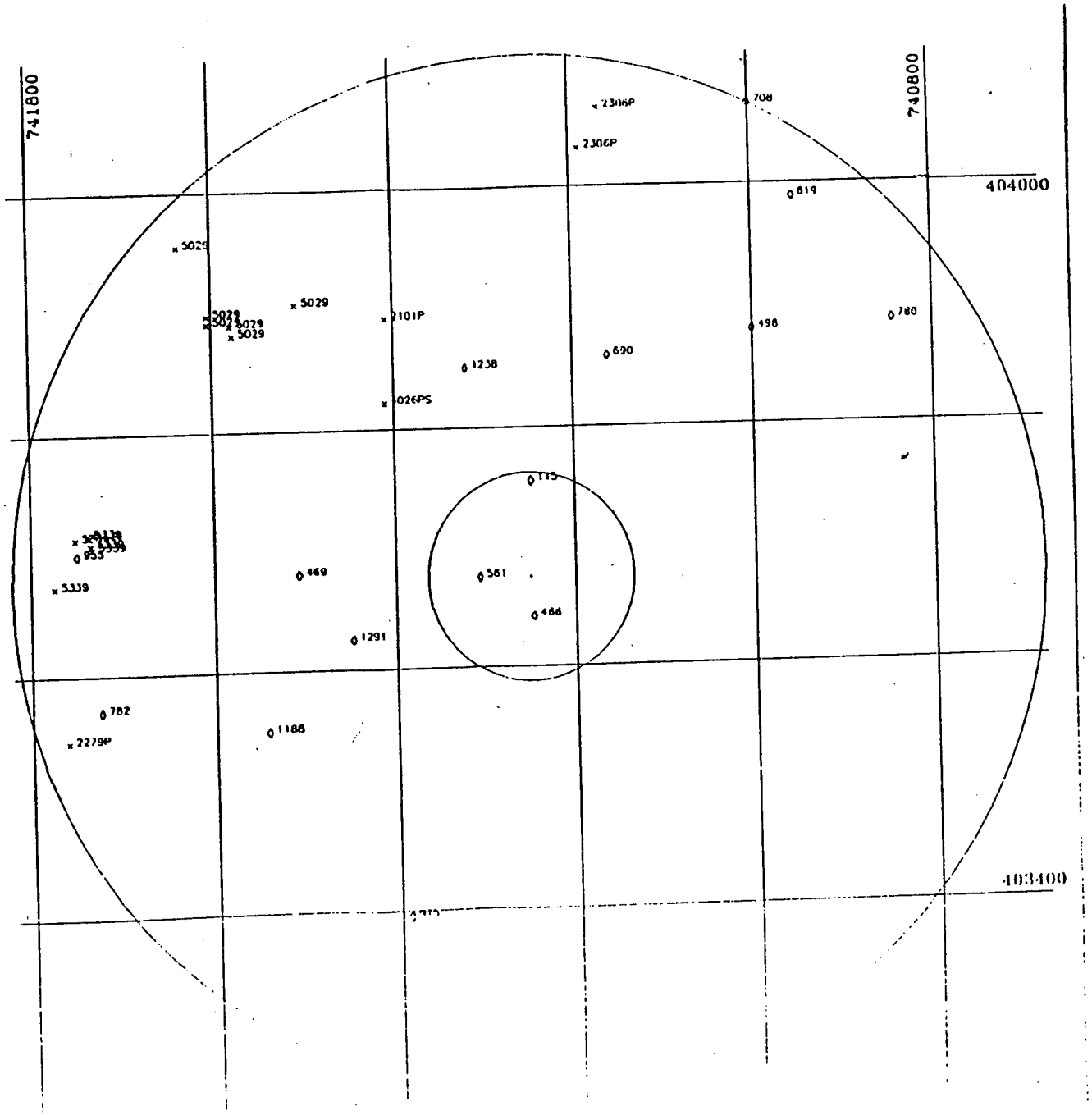
DRAFT

1 0 1 Mile
scale

× WATER WITHDRAWAL POINTS
0 NJGS CASE INDEX SITES
1 MILE AND 5 MILE RADII INDICATED

NJGS CASE INDEX DATA RETRIEVED FROM:
NEW JERSEY GEOLOGICAL SURVEY
ON 12/22/87

PLOT PROVIDED BY
NJDEP
DIVISION OF WATER RESOURCES
BUREAU OF WATER ALLOCATION
CN 029
TRENTON, NJ 08625
DATE 04/23/88



SUBJECT TO REVISION

MAP 8

Page [illegible] PRELIMINARY SURVEY OF WATER WITHDRAWAL POINTS WITHIN 3.0 MILES OF 403640 LAT. 741230 LON. (IN ORDER BY FOREASING [illegible]

NUMBER	NAME	SOURCEID	LOCID	LAT	LON	LLACC	DISTANCE	COUNTY	MUN	DEPTH	GEOL	GEOC	CAPACITY
5379	RAHWAY, CITY OF	2603795	6	403644	741745		4.6	39	13	269	GTRB		400
2179F	VOLGO BRASS - WELL SEALED 2/88	2600049	1	403527	741737		4.7	39	08	435	GTRB		350
5379	RAHWAY, CITY OF	2600724	3	403708	741731		4.4	39	13	76	GTRB		300
5379	RAHWAY, CITY OF	2600781	1	403710	741723		4.3	39	13	50.5	GOED		300
5379	RAHWAY, CITY OF	2600780	2	403709	741722		4.7	39	13	51.5	GOED		300
5379	RAHWAY, CITY OF	2601671	4	403705	741721		4.3	39	13	127	GTRB		400
5379	RAHWAY, CITY OF	2601672	5	403703	741720		4.2	39	13	135	GTRB		400
5029	ELIZABETHTOWN WATER COMPANY	3601696	FIRST AVE	403933	741622	F	4.7	39	14	509	GTRB		450
5029	ELIZABETHTOWN WATER COMPANY	2602302	WALABURGA1	403854	741603	F	4.0	39	14	350	GTRB		350
5029	ELIZABETHTOWN WATER COMPANY	2602412	WALABURGA3	403858	741603	F	4.0	39	14	321	GTRB		300
5029	ELIZABETHTOWN WATER COMPANY	2602463	WALABURGA4	403853	741548	F	3.8	39	14	325	GTRB		450
5029	ELIZABETHTOWN WATER COMPANY	2602360	WALABURGA2	403843	741547	F	3.7	39	14	340	GTRB		200
5029	ELIZABETHTOWN WATER COMPANY	2602393	CHANDLER	403903	741505	F	3.5	39	14	300	GTRB		300
4026RG	EXXON COMPANY USA	MORSES	CREEK	403013	741406	T	2.2	39	07		SY		
2101F	DECORATOR PLASTICS, INC.	2604727		403855	741405		2.8	39	04	570	GTRB		200
2306F	HAYWARD MANUFACTURING PRODUCTS	2604712	1	404019	741154		4.1	39	19	274	GTRB		100
2306F	HAYWARD MANUFACTURING PRODUCTS	2606857	2	404039	741141		4.5	39	19	275	GTRB		100

Number of Observations: 17

Page 1 of PRELIMINARY SURVEY OF WATER WITHDRAWAL POINTS WITHIN 5.0 MILES OF [illegible] IN ORDER BY PERMIT NUMBER - [illegible]

NUMBER	NAME	SOURCE ID	LOCID	LAT	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
2101P	DECORATOR PLASTICS, INC.	2604727		403[illegible]	741[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	GTRB		200
2279P	VOLCO BRASS - WELL SEALED 2/88	2600049	1	403527	741[illegible]		4.7	39	08	435	GTRB		350
2206P	HAYWARD MANUFACTURING PRODUCTS	2604712	1	404019	741154		4.1	39	19	274	GTRB		100
	HAYWARD MANUFACTURING PRODUCTS	2606867	2	404[illegible]	741141		[illegible]	[illegible]	19	275	GTRB		170
4026PS	EXXON COMPANY USA	MORSES	CREEK	403[illegible]	741405	T	[illegible]	39	[illegible]		[illegible]		
5029	ELIZABETHTOWN WATER COMPANY	2602373	CHANDLER	403[illegible]	741[illegible]	F	[illegible]	39	14	350	GTRB		300
	ELIZABETHTOWN WATER COMPANY	2601676	FIRST AVE	403[illegible]	741622	F	4.7	39	14	509	GTRB		450
	ELIZABETHTOWN WATER COMPANY	2602302	WALABURGA1	403654	741603	F	4.0	39	14	350	GTRB		350
	ELIZABETHTOWN WATER COMPANY	2602360	WALABURGA2	403642	741547	F	3.7	39	14	348	GTRB		200
	ELIZABETHTOWN WATER COMPANY	2602412	WALABURGA3	403652	741603	-	4.0	39	14	321	GTRB		300
	ELIZABETHTOWN WATER COMPANY	2602463	WALABURGA4	[illegible]	[illegible]	-	[illegible]	39	14	[illegible]	GTRB		450
5339	RAHWAY, CITY OF	2600381	1	403710	741723		4.3	39	13	50.5	GTRB		300
	RAHWAY, CITY OF	2600380	2	403709	741722		4.3	39	13	51.5	GTRB		300
	RAHWAY, CITY OF	2600724	3	403708	741731		4.4	39	13	76	GTRB		350
	RAHWAY, CITY OF	2601671	4	403705	741721		4.3	39	13	127	GTRB		400
	RAHWAY, CITY OF	2601672	5	403703	741720		4.2	39	13	135	GTRB		400
	RAHWAY, CITY OF	2603795	6	403644	741745		4.6	39	13	269	GTRB		400

Number of Observations: 17

Page 1 of NUGS CASE INDEX SITES WITHIN 5.0 MILES OF 403643 LAT. 741230 LON. AS OF [illegible] (IN ORDER BY SITE NUMBER) - [illegible]

SITE NO.	NAME	LAT	LON	DISTANCE	CONTAM	AMODE1	AMODE2	STATUS1	STATUS2
115	EXXON REFINERY, BAYWAY LINDEN, UNION CO.	403733	741229	0.9	1	103	3070	9	H
466	LINDEN CHLORINE, LINDEN, UNION CO.	403625	741226	0.4	56	3070	0	9	
469	SOLVENTS RECOVERY SERVICE, LINDEN, UNION CO.	403648	741505	2.3	1	130	3070	9	
498	CONRAIL E-PORT, ELIZABETHPORT, UNION CO.	403847	741000	3.2	1	103	130	8	
561	GAF CORP., LINDEN, UNION CO.	403645	741304	0.5	1	100	3070	9	
670	CHEMICAL CONTROL, ELIZABETH, UNION CO.	403835	741137	2.2	0	0100	3070	1	E
706	KAPKOWSKI RD. LANDFILL, ELIZABETH, UNION CO.	404040	741000	5.0	50	100	3070	0	
780	DISCOVERIES, INC, BAYONNE, HUDSON CO.	403851	740827	4.3	63	0103	3050	1	B
792	DRI-PRINT FOILS, INC, RAHWAY	403842	741715	4.3	0	0100	3070	1	
819	NOUDEX, INC - ELIZABETH PLANT, UNION CO.	403953	740932	4.4	00	0103	0100	1	B
915	DISTRIGAS, PORT READING,MIDDLESEX CO.	403857	741354	3.4	00	0170	3080	1	E
955	RAHWAY WATER DEPT., RAHWAY, UNION CO.	403700	741730	4.4	00	3070	0	1	C
1188	SMITH TRANSFER CORP., 21 ENGLEHARD AVE., WOODBRIDGE, MIDDLESEX CO.	403830	741526	2.9	52			3	
1236	CONVERTERS INC, LINDEN, UNION CO.	403830	741312	2.1	53	3070		1	C
1291	GULF PRODUCTS CO.-LINDEN TERMINAL, UNION CO.	403615	741430	1.8	63	0102	3070	1	B

Number of Observations: 15

GAF Linden

CN 028
Trenton, N.J. 08625-0028

(609)633-1408

Let's protect our earth

State of New Jersey

DEPARTMENT OF ENVIRONMENTAL PROTECTION

DIVISION OF HAZARDOUS WASTE MANAGEMENT

Michele M. Putnam
Deputy Director
Hazardous Waste Operations

John J. Trela, Ph.D., Director

Lance R. Miller
Deputy Director
Responsible Party Remedial Action

16 JUN 1989

IN THE MATTER OF	:	ADMINISTRATIVE
GAF CHEMICALS CORPORATION	:	CONSENT
LINDEN	:	ORDER

This Order is issued pursuant to the authority vested in the Commissioner of the New Jersey Department of Environmental Protection (hereinafter "NJDEP" or the "Department") by N.J.S.A. 13:1D-1 et seq. and the Water Pollution Control Act, N.J.S.A. 58:10A-1 et seq., the Solid Waste Management Act, N.J.S.A. 13:1E-1 et seq., and the Spill Compensation and Control Act, N.J.S.A. 58:10-23.11 et seq., and duly delegated to the Assistant Director for Responsible Party Cleanups for the Division of Hazardous Waste Management pursuant to N.J.S.A. 13:1B-4.

FINDINGS

1. The GAF Chemicals Corporation, an indirect wholly owned subsidiary of GAF Corporation, presently owns and operates a chemical manufacturing facility located on South Wood Avenue, Block 587, Lots 1 and 2.1, City of Linden, Union County, New Jersey (hereinafter "the Site"). Hereinafter, the term "GAF" is understood to refer to GAF Chemicals Corporation and its predecessors.

2. Dyestuff and pigment manufacturing began at the Site in 1919. The Site has been continuously utilized as a chemical manufacturing facility from 1919 through to the present. Wastes from the Site operations have been disposed of both on and off site. On-site waste disposal facilities, which are also solid waste management units pursuant to the Resource Conservation and Recovery Act (hereinafter "RCRA") and the Hazardous and Solid Waste Amendments (hereinafter "HSWA"), include, but are not limited to, two landfills that are not currently used, a network of unlined topographical depressions and channels (hereinafter "the ditch system") used to convey waste waters, a waste water treatment facility (hereinafter "WWTF"), and a former indoor storage area for drummed hazardous wastes. GAF asserts that not all of the above listed units are solid waste management units for the purposes of RCRA. GAF currently conducts operations such as chemical manufacturing, warehousing, administration, production, quality control laboratories, maintenance, and technical services in eleven buildings onsite. In addition, there are six inactive buildings at the Site.

3. GAF has advised the Department that Grasselli Chemicals Company began operations in this general area of Linden in 1885, although the

A1

portion of the former Grasselli property, which is now owned by GAF, was not utilized for chemical manufacturing until approximately 1919. It became Grasselli Dyestuff Company and was subsequently incorporated in 1929 as American I.G. Chemical Corporation, which was owned by I.G. Farbenindustrie A.G., a German company. The U.S. company's name was changed in 1939 to General Aniline and Film Corporation. In 1942, 98% of the company stock was seized by the United States Justice Department as a war asset and the facility was operated by the U.S. Government as Alien Property Custodian until 1965, when the U.S. Government sold the stock to the public in a public offering. On April 24, 1968, General Aniline and Film Corporation changed its name to GAF Corporation. In 1986, GAF Chemicals Corporation was incorporated, and all of the assets of the former Chemicals Division of GAF Corporation were transferred to GAF Chemicals Corporation.

4. GAF has advised the Department that the product categories that have been manufactured at the Site include surfactants, dyestuffs, pigments, industrial chemicals, and metal speciality products. The following general categories of compounds were the primary products manufactured by the various operators of the facility during the time frames specified in paragraph number 3:

Production Commenced	Materials Produced	Production Ceased
1919	Dyestuffs	1974
1935	Igepons (Surfactants)	Still in production
1940	Igepals (Surfactants)	Still in production
1941	Carbonyl Iron Powders (Iron Pentacarbonyl)	Late 1940s
1945	Reppe Chemistry Pilot Plant	1957
1955	Caustic Chlorine	1971
1957	Ethylene Oxide	1971
1958	Phosphate Ester Surfactants	Still in production
1962	Agricultural Herbicides, Amino Type Compounds including Amiben	1977
1963	Low Foamers (Surfactants)	Still in production
1964	Polyclar (Polyvinyl pyrilidone, food grade beer clarifier)	1968
1965	Gantrez Half Esters	1969
1966	Ganex	Still in production
1970	Gafquat 755	Still in production
1975	Propoxylations (Propylene Oxide Surfactants)	Still in production
1976	Tetrahydrofuran	Still in production

A2

Currently, only tetrahydrofuran, surfactants, Gafquat 755 and Ganex are manufactured by GAF at the site.

5. Past chemical manufacturing operations at the Site generated numerous solid and liquid wastes including, but not limited to:

a. Phenol
b. Arsenic Wastes including arsenic acid
c. Mercury Compounds (entrained metallic mercury in dilute sulfuric acid solution, mercuric sulfate)
d. Chlorinated hydrocarbon compounds from still residues.
e. Amiben and other amino type agricultural herbicides

GAF states that present manufacturing operations at the site generate phenol wastes, spent caustic, tetrahydrofuran bottoms and waste water from cleaning process equipment.

These substances were disposed of both offsite and onsite. With regard to the onsite disposal, this was accomplished through burial in landfills or through discharge into the ditch system as part of the Site's waste water stream described in paragraphs 9, 10 and 11 below. These substances are pollutants as defined under the Water Pollution Control Act, N.J.S.A. 58:10A-1 et seq., and the regulations promulgated pursuant thereto, N.J.A.C. 7:14A-1 et seq. These substances are hazardous wastes and/or hazardous constituents as defined under the Solid Waste Management Act, N.J.S.A. 13:1E-1 et seq. and the regulations promulgated pursuant thereto, N.J.A.C. 7:26-1.1 et seq. These substances are hazardous substances as defined under the Spill Compensation and Control Act, 58:10-23.11 et seq. and the regulations promulgated pursuant thereto, N.J.A.C. 7:1E-1.1 et seq.

6. GAF has advised that a 10 to 12 acre landfill, sometimes referred to as the "Old Landfill", is located in the southwest portion of the facility. This landfill was operated from the early 1930s until 1970 by the various owners responsible for the facility during this time period as specified in paragraph 3. In 1981, GAF submitted a Comprehensive Environmental Response, Compensation and Liability Act (hereinafter "CERCLA") Section 103(c) Notification of Hazardous Waste Site document, and on May 22, 1985, GAF submitted a RCRA and HSWA Solid Waste Management Unit Information document, which described the materials disposed in the Old Landfill. GAF advised that GAF and the various other owners deposited dry and liquid chemical wastes (organics, inorganics, solvents, heavy metals, acids), drummed materials, bulk liquids, phenolic oils, laboratory wastes, off specification products, still residues, solid wastes and industrial trash in this landfill. GAF alleges that the "Old Landfill" was operated in accordance with applicable law at the time of its operation.

7. In 1975, GAF discovered a floating organic layer on the ground water beneath the "Old Landfill". GAF installed four concrete standpipes in the "Old Landfill", also in 1975, to recover the organic layer. In 1982, GAF sampled the liquid contents in the standpipes and the analysis of these samples indicated that the liquid layer contained phenols, mercury and chlorinated hydrocarbons.

A3

8. A drum landfill, which is located north of the "Old Landfill", was operated from July 1970 to June 1973. GAF obtained an NJDEP, Solid Waste Administration Registration, Number 20322001, dated July 24, 1970, to operate a landfill at the site. The GAF submittals described in paragraph 6 above indicate that the types of wastes disposed in this landfill included, but were not limited to, those waste types deposited in the "Old Landfill". GAF alleges that the material disposed in the drum landfill was primarily Amiben process waste and Amiben still bottoms.

9. The unlined ditch system, the network of unlined topographic depressions and channels referred to in paragraph 2 above, has served, and continues to serve, to collect and transmit waste water for disposal from the various buildings and chemical process areas throughout the Site. The waste waters include chemical process water, cooling water, and sanitary waste waters. The chemical process waste waters have contained in the past the substances listed in paragraph 5. Waste waters exit some buildings via drain pipes and floor drains directly to crawl spaces beneath the buildings which feed to the unlined ditch system. Some of the buildings have special chemical drains which lead directly to the ditch system, rather than to crawl spaces.

10. The ditch system also captures surface runoff, runoff from surface spills, and leachate seeping from the landfills described in paragraphs 6 and 8 above. Although it was not designed or constructed to contain ground water, GAF alleges that GAF's ground water investigations to date indicate ground water from a large central area of the facility, contained within the uppermost water bearing zone, is captured by the ditch system from which it is conveyed to the WWTF. GAF further alleges that ground water flowing from these areas never reaches the site boundary and does not flow off of the site.

11. Prior to 1977, untreated waste water was conveyed by the unlined ditch system to discharge points into Piles Creek and the Arthur Kill. Immediately prior to the discharge of the waste water into the Arthur Kill, lime was added to the waste water for pH adjustment and the surface of the waste water was skimmed to remove floating oil. During the conveyance of the waste water from the various sources onsite to the treatment and discharge points, the untreated waste water tended to accumulate in low lying areas in and around the ditch system. Since the low lying areas and the ditch system were unlined, infiltration of the waste water occurred. In 1977, GAF constructed the WWTF and, after that date, the ditch system was utilized to convey the waste water to the WWTF for disposal.

12. Due to the fact that the ditch system is unlined, some of the waste water and its contents infiltrate directly into the ground. Accordingly, waste waters containing pollutants, hazardous constituents, and/or hazardous substances, such as those listed in paragraph 5, from manufacturing processes at GAF were discharged into the waters and onto the lands of the State of New Jersey via the unlined ditch system described in paragraphs 9, 10, and 11.

13. GAF manufactured alpha-sulfonated anthraquinones in a building known as Building 49 until 1970. Liquid wastes and waste waters from these manufacturing operations were discharged from Building 49 into chemical

A4

sewers which conveyed them to the ditch system. The building was constructed on pilings over fill that may have consisted of coal ash. During the conveyance of waste water from Building 49 to the treatment and discharge points, the untreated waste water tended to accumulate in low lying areas in and around the ditch system. Since the low lying areas and the ditch system were unlined, infiltration of the waste water occurred. GAF ceased manufacturing operations in Building 49 in 1970 and demolished this building in 1973. The liquid wastes and waste water discharged from Building 49 contained dilute sulfuric acid residues, mercuric sulfate and entrained metallic mercury.

14. Since 1977, GAF has operated the WWTF. The WWTF receives chemical process waste water, contact and noncontact cooling water, cooling tower and boiler blowdowns, equipment washes, sanitary waste water, air pollution control equipment wastewater and storm runoff from the GAF facility. WWTF operations include: coarse screening, oil skimming, equalization, preaeration and neutralization, aeration, clarification, and chlorination, when necessary. The effluent is discharged to the Arthur Kill.

15. GAF filed, pursuant to RCRA, a Part A permit application with the EPA in November 1980 for hazardous waste storage in containers (56,200 gallons capacity) and in an above ground tank (6,000 gallons capacity).

16. On April 5, 1984, the NJDEP, Division of Hazardous Waste Management (hereinafter "DHWM") requested submittal of the RCRA Part B permit application for the storage activities. Subsequent to this submittal, GAF decided to seek reclassification to "generator only" status by reason of its intention to cease storage of containerized hazardous wastes in excess of 90 days, and the exemption of the above ground storage tank from regulation under the hazardous waste program pursuant to N.J.A.C. 7:26-8.2(b).

17. Consistent with its intention to cease on-site storage of hazardous wastes in excess of 90 days, GAF submitted a closure plan for the container storage area in Building Number 53 on December 6, 1985 and submitted a revised partial closure plan on May 5, 1986, which the DHWM approved on July 1, 1986. The closure plan required the removal of all containerized wastes, decontamination of the floor and walls of the first floor, wipe samples of the interior of the first floor after decontamination, and soil sampling beneath and around the building. GAF implemented the partial closure plan. Wipe samples were taken and they indicated that the interior of Building 53 had been decontaminated.

18. Also, on November 17 and 19, 1986, GAF conducted soil sampling around Building Number 53 in accordance with the closure plan described in paragraph 17 above. The sample analysis results indicated contamination of the soil was present. The soil was contaminated with the following hazardous wastes, hazardous constituents, hazardous substances, and /or pollutants: volatile organics, base neutral extractables, cyanide, arsenic and various heavy metals. GAF collected six additional soil samples from beneath Building Number 53 on April 15, 1987, and on April 26, 1988, five other soil samples were collected from an adjacent area where Building Number 52 was formerly located. The analysis of these samples indicated that the soil beneath and adjacent to Building 53 and the soil beneath

A5

Building 52 were contaminated with the following hazardous wastes, hazardous constituents, hazardous substances, and/or pollutants: toluene, total xylenes, various chlorobenzenes, various phthalates, naphthalene, nitrobenzene, and various heavy metals.

19. At a March 18, 1988 meeting between GAF and NJDEP-DHWM, representatives from GAF indicated that the soil contamination under Building Number 53 would be investigated and remediated along with other areas of soil contamination at the Site pursuant to one or more actions being negotiated with the NJDEP, Division of Water Resources. In view of the foregoing, certification of closure of the interior of Building Number 53 (the decontamination and wipe sampling phases of the interior) was submitted in accordance with the NJDEP approved closure plan on April 8, 1988.

20. In order to investigate ground water contamination at the Site, GAF installed seven monitoring wells at the Site between January 11 and January 13, 1983. GAF collected ground water samples from all seven wells on January 25, 1983. The samples were analyzed for 104 priority pollutants. The following materials were detected in the concentrations listed: benzene - 584 parts per billion (hereinafter "ppb"), chlorobenzene - 15,200 ppb, toluene - 96 ppb, phenol - 5,800 ppb, 1,2-dichlorobenzene - 907 ppb, 1,3-dichlorobenzene - 490 ppb, 1,4-dichlorobenzene - 497 ppb, naphthalene - 203 ppb, antimony - 330 ppb, arsenic - 360 ppb, cyanide - 585 ppb, and total phenolics - 13,600 ppb.

21. The following substances have been found in soil and ground water samples taken at this site as described in paragraphs 7, 18 and 20.

Arsenic
Benzene
Chlorobenzene
Chromium
Cyanide
1,2 Dichlorobenzene
1,4 Dichlorobenzene
Lead
Mercury
Naphthalene
Nitrobenzene
Phenol
Polychlorinated Biphenyl (Arochlor 1260)
Toluene

These substances are pollutants as defined under the Water Pollution Control Act, N.J.S.A. 58:10A-1 et seq., and the regulations promulgated pursuant thereto, N.J.A.C. 7:14A-1 et seq. These substances are hazardous wastes and/or hazardous constituents as defined under the Solid Waste Management Act, N.J.S.A. 13:1E-1 et seq. and the regulations promulgated pursuant thereto, N.J.A.C. 7:26-1.1 et seq. These substances are hazardous substances as defined under the Spill Compensation and Control Act, 58:10-23.11 et seq. and the regulations promulgated pursuant thereto, N.J.A.C. 7:1E-1.1 et seq.

A6

22. The GAF facility is regulated pursuant to the New Jersey Solid Waste Management Act, N.J.S.A. 13:1E-1 et seq., specifically the Hazardous Waste Regulations, N.J.A.C. 7:26-1 et seq. The GAF facility is also regulated pursuant to RCRA and HSWA and is subject to the corrective action requirements contained in Sections 3004(u), 3004(v) and 3008(h) of HSWA. The State of New Jersey currently has similar corrective action authorities and therefore acts as EPA's contractor (through the FY89 RCRA Subtitle C Grant Agreement) to oversee corrective action activities at the GAF facility. In this capacity, all documents submitted pursuant to this ACO may be reviewed by EPA for comments with regard to compliance with HSWA requirements. Such comments will be transmitted to GAF by NJDEP as the lead agency for these activities. It is the intent of the involved parties to satisfy the RCRA/HSWA requirements.

23. Based on these FINDINGS, the Department alleges that GAF has violated the Water Pollution Control Act, N.J.S.A. 58:10A-1 et seq., specifically N.J.S.A. 58:10A-6, and the regulations promulgated pursuant thereto, N.J.A.C. 7:14A-1 et seq., the Spill Compensation and Control Act, 58:10-23.11 et seq. and regulations promulgated pursuant thereto, N.J.A.C. 7:1E-1.1 et seq., and the Solid Waste Management Act N.J.S.A. 13:1E-1 et seq. and regulations promulgated pursuant thereto, N.J.A.C. 7:26-1.1 et seq. GAF alleges that it has not violated the Water Pollution Control Act, N.J.S.A. 58:10A-1 et seq., specifically N.J.S.A. 58:10A-6, and the regulations promulgated pursuant thereto, N.J.A.C. 7:14A-1 et seq., the Spill Compensation and Control Act, 58:10-23.11 et seq. and regulations promulgated pursuant thereto, N.J.A.C. 7:1E-1.1 et seq., and the Solid Waste Management Act N.J.S.A. 13:1E-1 et seq. and regulations promulgated pursuant thereto, N.J.A.C. 7:26-1.1 et seq. In order to resolve this matter, the Department and GAF agree to enter into this ACO for the purpose of investigating and remediating all contamination at or emanating from the site.

24. Pursuant to the requirements of HSWA, the list of Solid Waste Management Units identified as continuing release sources at GAF include, but are not limited to: the "Old Landfill", the Drum Landfill, the Unlined Ditch System, and the Building 53 area.

25. To determine the nature and extent of the problem presented by the discharge of pollutants, hazardous wastes, hazardous constituents and hazardous substances both on and off of the site and to develop environmentally sound remedial actions, it is necessary to conduct a remedial investigation and feasibility study of remedial action alternatives (hereinafter "RI/FS"). To correct the problems presented by the discharge, it is necessary to implement a remedial action plan.

26. To resolve this matter without the necessity for litigation, GAF has agreed to conduct an RI/FS and to design and implement a remedial action alternative to remedy any and all pollution at the site, emanating from the site, or which has emanated from the site.

ORDER

NOW THEREFORE IT IS HEREBY ORDERED AND AGREED THAT:

A7

A. Reimbursement of Prior Costs and Damages

27. Within thirty (30) calendar days after the effective date of this Administrative Consent Order, GAF shall submit the amount of $31,018 to the Department as payment for all costs incurred by the Department to date, in connection with the investigation of, and response to, the matters described in the FINDINGS hereinabove, including the costs associated with the preparation of this Administrative Consent Order. Payment of the above amount shall be made by a cashier's or certified check payable to the "Treasurer, State of New Jersey" or "Administrator, New Jersey Spill Compensation Fund", as appropriate. Payment shall be submitted to the contact listed in paragraph 50. [Section IV., third paragraph]

II. Remedial Investigation and Cleanup

A. Remedial Investigation

28. Within ninety (90) calendar days after the effective date of this Administrative Consent Order, GAF shall submit to the Department a detailed draft Remedial Investigation Work Plan (hereinafter the "RI Work Plan") in accordance with the scope of work set forth in Appendices A, B and C, which are attached hereto and made a part hereof.

29. Within thirty (30) calendar days after receipt of the Department's written comments on the draft RI Work Plan, GAF shall modify the draft RI Work Plan to conform to the Department's comments and shall submit the modified RI Work Plan to the Department. The determination as to whether or not the modified RI Work Plan, as resubmitted, conforms to the Department's comments and is otherwise acceptable to the Department shall be made solely by the Department in writing.

30. Upon receipt of the Department's written final approval of the RI Work Plan, GAF shall conduct the remedial investigation in accordance with the approved RI Work Plan and the schedule therein.

31. GAF shall submit to the Department a draft Remedial Investigation Report (hereinafter "RI Report") in accordance with Appendix A and the RI Work Plan and the schedule therein. GAF and the Department agree that it is their intention to carry out the remedial investigation in the most expeditious fashion possible and the schedule for the performance of the work shall be in conformity with that agreement. Further, GAF and the Department agree that, depending upon the level of site investigation necessitated by the conditions at the Site, the performance of such a remedial investigation and the preparation of a RI Report may be accomplished within 9 to 15 months of the execution of this Administrative Consent Order.

32. If upon review of the draft RI Report the Department determines that additional remedial investigation is required, GAF shall conduct additional remedial investigation as directed by the Department and submit a second draft RI Report.

33. Within thirty (30) calendar days after receipt of the Department's written comments on the draft or second draft (only if

A8

applicable pursuant to the preceding paragraph) RI Report, GAF shall modify the draft or second draft RI Report to conform to the Department's comments and shall submit the modified RI Report to the Department. The determination as to whether or not the modified RI Report, as resubmitted, conforms with the Department's comments and is otherwise acceptable by the Department shall be made solely by the Department in writing.

B. Feasibility Study

34. Within thirty (30) calendar days after receipt of the Department's written final approval of the RI Report, or as otherwise directed by the Department, GAF shall submit to the Department a detailed draft Feasibility Study Work Plan (hereinafter, "FS Work Plan") in accordance with the scope of work set forth in Appendix D, which is attached hereto and made a part hereof.

35. Within thirty (30) calendar days after receipt of the Department's written comments on the draft FS Work Plan, GAF shall modify the draft FS Work Plan to conform to the Department's comments and shall submit the modified FS Work Plan to the Department. The determination as to whether or not the modified FS Work Plan, as resubmitted, conforms to the Department's comments and is otherwise acceptable to the Department shall be made solely by the Department in writing.

36. Upon receipt of the Department's written final approval of the FS Work Plan, GAF shall conduct the feasibility study in accordance with the approved FS Work Plan and the schedule therein.

37. GAF shall submit to the Department a draft Feasibility Study Report (hereinafter "FS Report") in accordance with Appendix D and the approved FS Work Plan and the schedule therein. GAF and the Department agree that the preparation of a draft Feasibility Study Report shall be accomplished within 6 months of the completion of the RI Report.

38. Within thirty (30) calendar days after receipt of the Department's written comments on the draft FS Report, GAF shall modify the draft FS Report to conform to the Department's comments and shall submit the modified FS Report to the Department. The determination as to whether or not the modified FS Report, as resubmitted, conforms to the Department's comments and is otherwise acceptable to the Department shall be made solely by the Department in writing.

C. Remedial Action

39. In the event that the Department determines that remedial action is necessary, the Department will make the selection of the remedial action alternative based on the criteria set forth in Appendix D, Section I.D.

40. Within ninety (90) calendar days after receipt of the Department's written notification of selection of a remedial action alternative, GAF shall submit to the Department a detailed draft Remedial Action Plan in accordance with the scope of work set forth in Appendix E, which is attached hereto and made a part hereof. The ninety (90) day period shall be extended by the Department should the nature of the selected

A9

remedial action alternative, in the judgment of the Department, necessitate a longer period in order to complete the remedial design work. GAF and the Department agree that it is their intention to carry out the remedial action in the most expeditious fashion possible. The detailed draft schedule which is to be prepared by GAF for the performance of the remedial action plan shall reflect this agreement.

41. Within thirty (30) calendar days after receipt of the Department's written comments on the draft Remedial Action Plan, GAF shall modify the draft Remedial Action Plan to conform to the Department's comments and shall submit the modified Remedial Action Plan to the Department. The determination as to whether or not the modified Remedial Action Plan, as resubmitted, conforms to the Department's comments and is otherwise acceptable to the Department shall be made solely by the Department in writing.

42. Upon receipt of the Department's written final approval of the Remedial Action Plan, GAF shall implement the approved Remedial Action Plan in accordance with the schedule therein.

D. Additional Remedial Investigation and Remedial Action

43. If at any time prior to GAF's receipt of written notice from the Department pursuant to paragraph 88 [i.e., the third to last paragraph in the ACO] the Department determines that the criteria set forth in Appendix D (Section I.D.) are not being achieved or that additional remedial investigation and/or remedial action is required to protect human health or the environment, GAF shall conduct such additional activities as directed by the Department.

E. Progress Reports

44. GAF shall submit to the Department quarterly progress reports; the first progress report shall be submitted on or before the 30th calendar day of the month following the first full quarter after the effective date of this Administrative Consent Order. Each progress report thereafter shall be submitted on or before the 30th calendar day of the month following the quarter being reported. Each progress report shall detail the status of GAF's compliance with this Administrative Consent Order and shall include the following:

a. Identification of site and reference to this Administrative Consent Order;

b. Identify specific requirements of this Administrative Consent Order (including the corresponding paragraph number or schedule) which were initiated during the reporting period;

c. Identify specific requirements of this Administrative Consent Order (including the corresponding paragraph number or schedule) which were initiated in a previous reporting period, which are still in progress and which will continue to be carried out during the next reporting period;

A10

d. Identify specific requirements of this Administrative Consent Order (including the corresponding paragraph number or schedule) which were completed during this reporting period;

e. Identify specific requirements of this Administrative Consent Order (including the corresponding paragraph numbers or schedule) which should have been completed during the reporting period and were not;

f. An explanation of any non-compliance with any approved work plan(s), schedule(s) or Remedial Action Plan, and actions taken or to be taken to rectify non-compliance;

g. Identify the specific requirements of this Administrative Consent Order (including the corresponding paragraph number or schedule) that will be initiated during the upcoming reporting period.

III. Permits

45. GAF shall submit complete applications for and shall timely obtain all necessary Federal, State and local permits for activities which GAF must perform in order to carry out the obligations of this Administrative Consent Order in accordance with the approved time schedules. This Administrative Consent Order shall not be construed to be a permit or in lieu of a permit for existing or former activities which require permits and it shall not relieve GAF from obtaining and complying with all applicable Federal, State and local permits necessary for any future activities which GAF must perform in order to carry out the obligations of this Administrative Consent Order.

46. With regard to permits required to carry out this Administrative Consent Order, within thirty (30) calendar days of receipt of written comments concerning any permit application to a Federal, State or local agency, or sooner if required by the permitting agency, GAF shall modify the permit application to conform to the agency's comments and resubmit the permit application to the agency. The determination as to whether or not the permit application, as resubmitted, conforms with the agency's comments or is otherwise acceptable to the agency shall be made solely by the agency in writing.

47. This Administrative Consent Order shall not preclude the Department from requiring that GAF apply for any permit or permit modification issued by the Department under the authority of the Water Pollution Control Act, N.J.S.A. 58:10A-1 et seq., the Solid Waste Management Act, N.J.S.A. 13:1E-1 et seq., and/or any other statutory authority for the matters covered herein. The terms and conditions of any such permit or permit modification shall not be preempted by the terms and conditions of this Administrative Consent Order even if the terms and conditions of any such permit or permit modification are more stringent than the terms and conditions of this Administrative Consent Order. GAF reserves the right to contest any and all conditions of a permit or permit modification pursuant to the substantive rights and procedures established in the statutes and regulations which authorize such permits; provided, however, that GAF waives its right to contest the conditions of any such

A11

permit or permit modification to the extent such conditions are substantially consistent with the provisions of this Administrative Consent Order; and provided further that the assertion of any such right shall neither relieve nor delay GAF's obligation to timely comply with the provisions and approved time schedules of this Administrative Consent Order.

IV. Project Coordination

48. GAF shall submit to the Department all documents required by this Administrative Consent Order, including correspondence relating to force majeure issues, by certified mail, return receipt requested or by hand delivery with an acknowledgement of receipt form for the Department's signature. The date that the Department executes the receipt or acknowledgement will be the date the Department uses to determine GAF's compliance with the requirements of this Administrative Consent Order and the applicability of stipulated penalties and any other remedies available to the Department.

49. Within seven (7) calendar days after the effective date of this Administrative Consent Order, GAF shall submit to the Department the name, title, address and telephone number of the individual who shall be the GAF's contact for the Department for all matters concerning this Administrative Consent Order. The individual identified in the following paragraph shall be the Department's contact for the GAF for all matters concerning this Administrative Consent Order.

50. GAF shall submit five (5) copies of all documents required by this Administrative Order, unless otherwise directed by the Department, to:

Melinda Dower, Chief
Bureau of Federal Case Management
NJ Department of Environmental Protection
Division of Hazardous Waste Management
401 East State Street, CN028
Trenton, NJ 08625

51. GAF shall verbally notify the contact person listed above at least 14 days prior to the initiation of any field activities, and GAF shall insure that written confirmation of that notification is received by the Department at least 7 days prior to the initiation of such activities.

V. Financial Requirements

52. GAF shall obtain and deliver to the Department financial assurances in the form of irrevocable letters of credit in the amounts and in the manner set forth herein. GAF shall also establish an irrevocable standby trust fund in the manner set forth herein. GAF hereby agrees that any failure to comply or to timely comply with any of the obligations set forth in this Paragraph 52 shall subject it to the special stipulated penalties herein.

A. IRREVOCABLE LETTERS OF CREDIT

A12

1. Time for and Amount of Letters of Credit: Irrevocable letters of credit totalling SEVEN MILLION FIVE HUNDRED THOUSAND DOLLARS ($7,500,000.00) shall be established at the times and in the amounts set forth below:

a. Within thirty (30) calendar days after the effective date of this Administrative Consent Order, GAF shall submit to the Department an irrevocable letter of credit in the amount of TWO MILLION DOLLARS ($2,000,000.00).

b. Within one hundred twenty (120) calendar days after the effective date of this Administrative Consent Order, GAF shall submit to the Department another irrevocable letter of credit in the amount of TWO MILLION FIVE HUNDRED THOUSAND DOLLARS ($2,500,000.00).

c. On or before March 31, 1990, GAF shall submit to the Department another irrevocable letter of credit in the amount of THREE MILLION DOLLARS ($3,000,000.00).

2. Form of Letters of Credit: Each of the foregoing irrevocable letters of credit shall meet the following requirements:

a. Each shall be identical to the wording specified in Appendix F, which is attached hereto and made a part hereof;

b. Each shall be issued by a New Jersey State or Federally chartered bank, savings bank, or savings and loan association, which has its principal office in New Jersey, unless otherwise approved by the Department; and

c. Each shall be accompanied by a letter from GAF referring to the Letter of Credit by number, issuing institution and date and providing the following information: the name and address of the facility and/or site which is the subject of the Administrative Consent Order and the amount of funds securing GAF's performance of all its obligations under the Administrative Consent Order.

B. IRREVOCABLE STANDBY TRUST AGREEMENT

1. Time for and Amount of Irrevocable Standby Trust: GAF shall establish an irrevocable standby trust fund within thirty (30) calendar days after the effective date of this Administrative Consent Order, with an initial deposit of ONE THOUSAND DOLLARS ($1,000.00).

2. Form of Irrevocable Standby Trust: The irrevocable trust fund agreement shall meet the following requirements:

a. Is identical to the wording specified in Appendix G which is attached hereto and made a part hereof;

b. The irrevocable standby trust fund shall be the depository for all funds paid pursuant to a draft by the Department against the letter of credit, provided that the Department may, at its sole option, elect to have funds associated with special stipulated penalties paid directly to the Department;

A13

c. The trustee shall be an entity which has the authority to act as a trustee and whose trust operations are regulated and examined by a Federal or New Jersey agency;

d. Is accompanied by an executed certification of acknowledgment that is identical to the wording specified in Appendix H.

C. SPECIAL STIPULATED PENALTIES & ACCELERATOR CLAUSE

1. Amount of Special Stipulated Penalties: As an exception to Paragraph 59, GAF agrees that it shall pay the special stipulated penalties set forth herein for any failure to comply or to timely comply with any of its obligations as set forth anywhere in this Paragraph 52. Each obligation which is not complied with or which is not timely complied with shall be considered a separate violation and each such violation shall be subject to daily, special stipulated penalties in accordance with the following rate schedule:

Calendar Days After Due Date	Special Stipulated Penalties
1-30	$25,000 per calendar day
31-over	$50,000 per calendar day

Special stipulated penalties shall continue to accrue with respect to each violation until such time as GAF shall cure each such failure by GAF to comply with any of its obligations as set forth in this Paragraph 52.

2. Accelerator Clause: Upon the passage of the thirtieth (30th) cumulative day of any failure to comply or to timely comply, whether such cumulative period arises out of one or several violations and whether such cumulative period is continuous or not, all of GAF's obligations pursuant to this Paragraph 52 shall become immediately due including, but not limited to, GAF's obligation to submit to the Department an irrevocable letter of credit in the amount of SEVEN MILLION FIVE HUNDRED THOUSAND DOLLARS ($7,500,000.00). Any failure to timely comply with this accelerator clause shall also be subject to special stipulated penalties.

3. Time and Terms of Payment: The Department may at any time require the payment of such special stipulated penalties as may have accrued to that date, without regard as to whether GAF may have cured its failure to comply with its obligation(s) by that date. Further, special stipulated penalties shall continue to accrue until such time as the violation is cured.

At the sole discretion of the Department, the Department may either directly withdraw any special stipulated penalties which are due from the letter of credit, or may notify GAF to tender payment of such penalties in the form of a certified check payable to the "Treasurer, State of New Jersey" within twenty-one (21) calendar days. In the latter event, special stipulated penalties shall apply to any failure to tender the certified check within the twenty-one (21) day period.

4. Duty to Supplement Letter of Credit: Should the amount of any of the several letters of credit at any time fall below the applicable

A14

amount specified in Subparagraph A. herein, whether by reason for the Department's withdrawal of special stipulated penalties or otherwise, then GAF shall within ten (10) calendar days of such an eventuality submit to the Department another irrevocable letter of credit which satisfies the applicable amount specified in Subparagraph A and all other requirements of this Paragraph 52 and the Administrative Consent Order.

5. Special Terms: Notwithstanding any other provision in this Administrative Consent Order which may be to the contrary, GAF shall have no right to any notice or any opportunity to cure any failure to timely comply with any obligation other than that which is specifically provided to GAF in this Paragraph 52. Further, it is specifically agreed and understood that GAF's obligations herein are purely financial in nature and that any delay shall not be excusable by reason of the occurrence of any cause which is or may be beyond the control of GAF, except that any delay caused as a result of action or inaction by the Department shall be subject to the normal Force Majeure provisions of this Administrative Consent Order.

6. The provisions of this Subparagraph C shall no longer apply once GAF has posted letters of credit totalling SEVEN MILLION FIVE HUNDRED THOUSAND DOLLARS ($7,500,000.00) and has paid any special stipulated penalties which have arisen pursuant to this Subparagraph C.

53. GAF shall establish and maintain the standby trust fund until terminated by the written agreement of the Department, the trustee and GAF, or of the trustee and the Department if GAF ceases to exist. GAF shall maintain the letter of credit or performance bond until the Department provides written notification to GAF that the financial assurance is no longer required for compliance with this Administrative Consent Order. In the event that the Department determines that GAF has failed to perform any of its obligations under this Administrative Consent Order, the Department may proceed to have the financial assurance deposited into the standby trust; provided, however, that before the Department draws on the letter of credit or makes a claim against the performance bond, the Department shall notify GAF in writing of the obligation(s) which it has not performed, and GAF shall have a reasonable time, not to exceed thirty (30) calendar days, unless extended in writing by the Department, to perform such obligation(s). In the event the Department draws down on GAF's letter of credit, GAF reserves whatever rights it may have, if any, to challenge the Department's action; provided that GAF agrees that it shall not seek to interfere with nor delay the performance of any work with regard to the Site whether by the Department or by others.

54. At any time, GAF may apply to the Department to substitute other financial assurances in a form, manner and amount acceptable to the Department.

B. Project Cost Review

55. Beginning three hundred sixty-five (365) calendar days after the effective date of this Administrative Consent Order and annually thereafter on that same calendar day, GAF shall submit to the Department a detailed review of all costs required for GAF's compliance with this Administrative Consent Order. This cost review shall include a detailed

A15

summary of all monies spent to date pursuant to this Administrative Consent Order, the estimated cost of all future expenditures required to comply with this Administrative Consent Order (including any operation and maintenance costs), and the reason for any changes from the previous cost review submitted by GAF.

56. At any time after GAF submits the first cost review pursuant to the preceding paragraph, GAF may request the Department's approval to reduce the amount of the financial assurance to reflect the remaining costs of performing its obligations under this Administrative Consent Order. If the Department grants written approval of the request, GAF may amend the amount of the then existing letter of credit or performance bond.

57. If the estimated cost of meeting GAF's obligations in this Administrative Consent Order at any time increases to an amount greater than the financial assurance, GAF shall, within fourteen (14) calendar days after receipt of written notice of the Department's determination, increase the amount of the then existing letter of credit or performance bond so that it is equal to the estimated cost as determined by the Department. GAF shall provide the amended financial assurance to the Department within seven calendar days (7) after it has been obtained.

C. Oversight Cost Reimbursement

58. Within thirty (30) calendar days after receipt from the Department of an itemized accounting of all costs incurred in connection with its oversight functions of this Administrative Consent Order for a fiscal year, or any part thereof, GAF shall submit to the Department a cashier's or certified check payable to the "Treasurer, State of New Jersey" for the full amount of the Department's oversight costs.

D. Stipulated Penalties

59. Upon a demand made by the Department, GAF shall pay stipulated penalties to the Department for its failure to comply with any of the deadlines or schedules required by this Administrative Consent Order including those established and approved by the Department in writing pursuant to this Administrative Consent Order. Each deadline or schedule not complied with shall be considered a separate violation. Payment of stipulated penalties shall be made according to the following schedule, unless the Department has modified the compliance date pursuant to the force majeure provisions hereinbelow:

Calendar Days After Due Date	Stipulated Penalties
1 - 7	$ 500 per calendar day
8 - 14	$ 2,000 per calendar day
15 - 21	$ 3,000 per calendar day
22 - 28	$ 5,000 per calendar day
29 - over	$10,000 per calendar day

60. Any such penalty shall be due and payable twenty-one (21) calendar days following receipt of a written demand by the Department. Payment of

A16

stipulated penalties shall be made by a cashier's or certified check payable to the "Treasurer, State of New Jersey".

VI. Force Majeure

61. If any event as specified in the following paragraph occurs which GAF believes will or may cause delay in the compliance with any provision of this Administrative Consent Order, GAF shall notify the Department in writing within seven (7) calendar days of the delay or anticipated delay, as appropriate, referencing this paragraph and describing the anticipated length of the delay, the precise cause or causes of the delay, any measures taken or to be taken to minimize the delay, and the time required to take any such measures to minimize the delay. GAF shall take all necessary action to prevent or minimize any such delay.

62. If the Department finds that: (a) GAF has complied with the notice requirements of the preceding paragraph, (b) GAF has taken all necessary action to prevent or minimize the delay, and; (c) that any delay or anticipated delay has been or will be caused by fire, flood, riot, strike or other circumstances beyond the control of GAF, the Department shall extend the time for performance hereunder for a period no longer than the delay resulting from such circumstances. If the Department determines that either GAF has not complied with the notice requirements of the preceding paragraph, or the event causing the delay is not beyond the control of GAF, failure to comply with the provisions of this Administrative Consent Order shall constitute a breach of the requirements of this Administrative Consent Order. The burden of proving that any delay is caused by circumstances beyond the control of GAF and the length of any such delay attributable to those circumstances shall rest with GAF. Increases in the cost or expenses incurred by GAF in fulfilling the requirements of this Administrative Consent Order shall not be a basis for an extension of time. Delay in an interim requirement shall not automatically justify or excuse delay in the attainment of subsequent requirements. Force Majeure shall not include nonattainment of the goals, standards, guidelines and requirements set forth in the appendicies attached hereto.

VII. Reservation of Rights

63. If GAF fails to pay stipulated penalties pursuant to paragraph 60, the Department may institute civil proceedings to collect such penalties or assess civil administrative penalties for the violations of this Administrative Consent Order; the Department may also bring an action in New Jersey Superior Court pursuant to N.J.S.A. 58:10A-10 to enforce the provisions of this Administrative Consent Order.

64. GAF's payment of stipulated penalties pursuant to this Administrative Consent Order shall not preclude the Department from electing to pursue any injunctive relief to enforce the terms of this Administrative Consent Order.

65. The Department reserves the right to unilaterally terminate this Administrative Consent Order in the event that the Department gives GAF notice that GAF has violated a term of this Administrative Consent Order and GAF does not promptly remedy such violation.

A17

66. Nothing in this Administrative Consent Order shall preclude the Department from seeking civil or civil administrative penalties against GAF.

67. This Administrative Consent Order shall not be construed to affect or waive the claims of federal or State natural resource trustees against any party for damages for injury to, destruction of, or loss of natural resources. Further, this Administrative Consent Order shall not be construed to affect or waive any claims, rights or causes of action which the State of New Jersey or the Department may have or acquire against GAF by reason of the assertion of a claim against the State of New Jersey or the Department by a third party.

68. The Department reserves the right to require GAF to take or arrange for the taking of, any and all additional measures should the Department determine that such actions are necessary to protect human health or the environment. Nothing in this Administrative Consent Order shall constitute a waiver of any statutory right of the Department to require GAF to undertake such additional measures should the Department determine that such measures are necessary. GAF's refusal to undertake such additional measures as may be beyond the scope of this Administrative Consent Order shall not be a violation of this Administrative Consent Order.

VIII. General Provisions

69. This Administrative Consent Order shall be binding on GAF, its principals, directors, officers, agents, successors, assignees and any trustee in bankruptcy or receiver appointed pursuant to a proceeding in law or equity.

70. GAF shall perform all work conducted pursuant to this Administrative Consent Order in accordance with prevailing professional standards.

71. In accordance with N.J.S.A. 45:8-45, all plans or specifications involving professional engineering, submitted pursuant to this Administrative Consent Order, shall be submitted affixed with the seal of a professional engineer and any plan involving land surveying submitted pursuant to this Administrative Consent Order shall be submitted affixed with the seal of a land surveyor licensed pursuant to the provisions of N.J.S.A. 45:8-1 et seq.

72. GAF shall conform all actions pursuant to this Administrative Consent Order with all applicable Federal, State, and local laws and regulations. GAF shall be responsible for obtaining all necessary permits, licenses and other authorizations required to comply with this Administrative Consent Order.

73. All appendices referenced in this Administrative Consent Order, as well as all reports, work plans and documents required under the terms of this Administrative Consent Order are, upon approval by the Department, incorporated into this Administrative Consent Order by reference and made a part hereof.

A18

74. Each field activity to be conducted pursuant to this Administrative Consent Order shall be coordinated by an onsite professional(s) with experience relative to the particular activity being conducted at the site each day, such as experience in the area of hydrogeology, geology, environmental controls, risk analysis, health and safety or soils.

75. Upon the receipt of a written request from the Department, GAF shall submit to the Department all data and information concerning pollution at and/or emanating from the site, or which has emanated from the site, including raw sampling and monitor data, whether or not such data and information was developed pursuant to this Administrative Consent Order.

76. GAF shall make available to the Department all technical records and contractual documents maintained or created by GAF or its agents in connection with this Administrative Consent Order.

77. GAF shall preserve, during the pendency of this Administrative Consent Order and for a minimum of six (6) years after its termination, all data, records and documents in their possession or in the possession of their divisions, employees, agents, accountants, contractors, or attorneys which relate in any way to the implementation of work under this Administrative Consent Order, despite any document retention policy to the contrary. After this six year period, GAF shall notify the Department within thirty (30) calendar days prior to the destruction of any such documents. If the Department requests in writing that some or all of the documents be preserved for a longer time period, GAF shall comply with that request. Upon receipt of a written request by the Department, the GAF shall submit to the Department all non-privileged records or copies of any such records.

78. No obligations imposed by this Administrative Consent Order (with the exception of paragraph(s) 58 and 59 [i.e., first stipulated penalty number and administrative oversight paragraph] are intended to constitute a debt, claim, penalty or other civil action which should be limited or discharged in a bankruptcy proceeding. All obligations imposed by this Administrative Consent Order shall constitute continuing regulatory obligations imposed pursuant to the police powers of the State of New Jersey intended to protect human health or the environment.

79. In addition to the Department's statutory and regulatory rights to enter and inspect, GAF shall allow the Department and its authorized representatives access to the site at all times for the purpose of monitoring GAF's compliance with this Administrative Consent Order and/or to perform any remedial activities GAF fails to perform as required by this Administrative Consent Order. GAF shall have the right to monitor the activities of the Department and its representatives and GAF agrees that it shall not interfere with such activities. The Department agrees that it shall observe the same personal safety equipment requirements as are applicable to GAF's employees, and GAF agrees to make available to the Department such equipment.

80. GAF shall not construe any informal advice, guidance, suggestions, or comments by the Department, or by persons acting on behalf

A19

of the Department, as relieving GAF of its obligation to obtain written approvals as required herein, unless the Department specifically relieves GAF of such obligations, in writing in accordance with the following paragraph.

81. No modification or waiver of this Administrative Consent Order shall be valid except by written amendment to this Administrative Consent Order duly executed by GAF and the Department.

82. GAF hereby consents to and agrees to comply with this Administrative Consent Order which shall be fully enforceable as an Order in the New Jersey Superior Court upon the filing of a summary action for compliance pursuant to N.J.S.A. 13:1D-1 et seq., the Water Pollution Control Act, N.J.S.A. 58:10A-1 et seq. and/or the Solid Waste Management Act, N.J.S.A. 13:1E-1 et seq.

83. In the event that the Department determines that a public meeting concerning the cleanup of the site is necessary at any time, GAF shall ensure that the GAF's appropriate representative is prepared, available, and participates in such a meeting upon notification from the Department of the date time and place of such meeting. GAF's representative shall not be required at any such meeting to answer questions on matters which are beyond the scope of this Administrative Consent Order, provided that GAF's representative shall state the reason for its refusal to answer the question at the public meeting.

84. GAF waives its rights to an administrative hearing concerning the entry of this Administrative Consent Order pursuant to N.J.S.A. 52:14B-1 et seq. and N.J.S.A. 58:10A-1 et seq.

85. GAF agrees not to contest the authority or jurisdiction of the Department to issue this Administrative Consent Order; GAF further agrees not to contest the terms or conditions of this Administrative Consent Order, except as to interpretation or application of such terms and conditions in any action brought by the Department to enforce the provisions of this Administrative Consent Order. Provided, however, GAF expressly reserves the right, entirely at its own risk, not to comply with any direction or decision of the Department, and to defend itself in any action brought to enforce such direction or decision which GAF believes is arbitrary, capricious or unreasonable. It is understood that the rights herein are available to GAF only in an enforcement proceeding brought by the Department and not otherwise. In any such enforcement proceedings, GAF shall have the burden of proof to establish that any direction or decision of the Department was arbitrary, capricious or unreasonable.

In the event that the Department prevails in any such enforcement action, GAF shall be liable for any stipulated penalties which accrued during the period of non-compliance. In addition and upon the request of the Department, GAF agrees to implement such measures as may be directed by the Department to accelerate the rate of the work so as to overcome the delay arising out of GAF's refusal to comply with the direction or decision of the Department. Should GAF prevail in any such enforcement proceeding initiated by the Department, the Department agrees to refund any

A20

stipulated penalties paid by GAF for the alleged violation which precipitated the initiation of the enforcement action.

Similarly, in the event that GAF prevails in any proceeding in which it is alleged that the Department acted arbitrarily, capriciously or unreasonably in exercising its right under Paragraph 53 to draw on the letter of credit, the Department agrees to refund, to the account of the letter of credit, the funds so drawn relative to that contested enforcement action. This provision shall not be construed to provide for reimbursement of the account of the letter of credit for monies drawn down for any activity other than that which is the subject of the contested enforcement proceeding in which GAF prevails, nor shall it be construed to require that the Department refund such portion of the funds as may have been expended in a manner that was not arbitrary, capricious or unreasonable.

GAF agrees that it shall not seek to interfere with nor delay the performance of any work with regard to the Site whether by the Department or by others and whether such work is disputed pursuant to this paragraph or not. Should the Department, in the exercise of its sole discretion, request that GAF proceed with any work which is not in dispute pursuant to the terms of this paragraph, GAF agrees that it shall timely comply with any such request.

This paragraph shall not be construed as a limitation upon any other right or remedy that the Department may have in seeking redress for GAF's refusal to comply with any direction or decision of the Department.

86. GAF agrees that this Administrative Consent Order obligates GAF to consent to and to modify its draft and final reports to conform with the Department's comments. GAF may express its disagreement with such comments if it so desires, provided that any such expression shall not be construed to be any limitation, impairment or condition upon GAF's obligations hereunder.

87. It is the mutual intention of GAF and the Department that the investigatory and cleanup requirements of this Administrative Consent Order shall be in conformity with and shall satisfy the applicable requirements of the statutes and regulations which form the basis for this Administrative Consent Order, i.e., the Water Pollution Control Act, N.J.S.A. 58:10A-1 et seq.; the Solid Waste Management Act, N.J.S.A. 13:1E-1 et seq.; and the Spill Compensation and Control Act, N.J.S.A. 58:10-23.11 et seq. Where the requirements conflict, the more stringent requirement shall apply. In no event shall this provision be construed as a limitation, impairment or waiver of the statutory or regulatory rights of the Department including but not limited to those reserved by Paragraph 68 or otherwise.

88. Except with regard to proceedings to enforce this Administrative Consent Order, in entering this Administrative Consent Order, GAF neither admits nor denies the findings made by the Department herein, nor does GAF admit any violations of law or any liability under any of the cited statutory authorities or otherwise.

89. Should the provisions of the Environmental Cleanup Responsibility Act ("ECRA"), N.J.S.A. 13:1K-6 et seq. become applicable to the Site at

A21

any time, GAF shall comply with any and all ECRA requirements, including but not limited to substantive, procedural, administrative and environmental requirements; however it is the mutual intention of GAF and the Department that the investigatory and cleanup requirements of this Administrative Consent Order shall be in conformity with the environmental requirements of ECRA with respect to soil and ground water contamination addressed pursuant to this Administrative Consent Order. Should the environmental requirements of ECRA conflict with any other applicable requirements, the more stringent requirements shall apply. In no event shall this provision be construed as a limitation, impairment or waiver of the statutory or regulatory rights and requirements of the Department pursuant to ECRA.

90. GAF shall provide a copy of this Administrative Consent Order to each contractor retained to perform the work required by this Administrative Consent Order and shall condition all contracts and subcontracts entered for the performance of such work upon compliance with the terms and conditions of this Administrative Consent Order. GAF shall be responsible to the Department for ensuring that their contractors and subcontractors perform the work herein in accordance with this Administrative Consent Order.

91. GAF shall give written notice of this Administrative Consent Order to any successor in interest within 90 calendar days prior to transfer of ownership of GAF's facilities which are the subject of this Administrative Consent Order, and shall simultaneously verify to the Department that such notice has been given. This requirement shall be in addition to any other statutory or regulatory requirements arising from the transfer of owership of GAF's facilities.

92. The requirements of this Administrative Consent Order shall be deemed satisfied upon the receipt by GAF of written notice from the Department that GAF has demonstrated, to the satisfaction of the Department, that the obligations imposed by this Administrative Consent Order have been completed by GAF.

A22

93. GAF shall submit to the Department, along with the executed original Administrative Consent Order, the appropriate documentary evidence (such as a corporate resolution, see Appendix H for an example) that the signatory for GAF has the authority to bind GAF to the terms of this Administrative Consent Order.

94. This Administrative Consent Order shall become effective upon the execution by the Department.

DEPARTMENT OF ENVIRONMENTAL PROTECTION

Date: June 16, 1989

By: _____ for RC 6/19/89
Assistant Director for Responsible Party Cleanups
Division of Hazardous Waste Management

By: GAF CHEMICALS CORPORATION

Name: _____
Heinn F. Tomfohrde III
Title: GAF CHEMICALS CORPORATION
President

A23

CERTIFICATE

The undersigned, the duly elected and acting Assistant Secretary of GAF Chemicals Corporation, a Delaware corporation, does certify as follows:

Samuel J. Heyman, Heinn F. Tomfohrde, Salvatore C. Bellini and Irving Kagan are duly elected, qualified and acting officers of GAF Chemicals Corporation in the capacities set forth opposite their respective names and the signatures set opposite their respective names are their true and genuine signatures.

Samuel J. Heyman	Chairman	
Heinn F. Tomfohrde	President	
Irving Kagan	Senior Vice President, General Counsel and Secretary	
Salvatore C. Bellini	Vice President and Controller	

IN WITNESS WHEREOF, I have hereunto signed my name and affixed the seal of GAF Chemicals Corporation this 16th day of June, 1989.

Stephen A. Block
Assistant Secretary

I, Deborah D. Lawson, Assistant Secretary of GAF Chemicals Corporation, do hereby certify that Stephen A. Block is the duly elected, qualified and acting Assistant Secretary of GAF Chemicals Corporation and that the signature appearing above opposite his name is his genuine signature.

IN WITNESS WHEREOF, I have hereunto signed my name this 16th day of June, 1989.

Deborah D. Lawson

1197F-2

A24

REMEDIAL INVESTIGATION WORK PLAN
GAF CHEMICAL CORPORATION
LINDEN, NEW JERSEY
VOLUME I
TEXT

Prepared for:

GAF Chemical Corporation
1361 Alps Road
Wayne, New Jersey 07470

Prepared by:

ECKENFELDER INC.
1200 MacArthur Boulevard
Mahwah, New Jersey 07430

ECKENFELDER INC.
227 French Landing Drive
Nashville, Tennessee 37228

December 1989

6027

B'

ECKENFELDER INC.

December 21, 1989 6027C

Mr. Anthony ten Braak
GAF Chemicals Corporation
1361 Alps Road
Wayne, New Jersey 07470

BUREAU OF
FEDER MANAGEMENT
DEC 28 1989

RE: Revised Remedial Investigation Work Plan
Linden Plant

Dear Tony:

We are pleased to present copies of Volumes I and III of the revised Remedial Investigation Work Plan. These volumes have been revised to incorporate the comments received from the New Jersey Department of Environmental Protection (NJDEP) on November 30, 1989 regarding the Draft Remedial Investigation Work Plan. Additional copies of Volumes II, IV, V, and VI have not been transmitted as they were not revised.

Nearly all of the NJDEP's comments were completely incorporated into the preparation of this final Work Plan or are items which require no further comment. However, there are several comments with which we agree in principle, but have adopted in a slightly different manner. These changes, listed as follows, have been discussed with Roman Luzecky of NJDEP.

Comment 10, Paragraph 6

The NJDEP requested that three soil/waste borings be relocated. Several deviations from this request were made:

- JB-33 will be relocated, as requested.

- JB-35 is proposed to remain at its original location. While we agree that the location requested by NJDEP would be desirable in order to address an Industrial Fill (IF.7), this location presents significant access difficulties. Furthermore, we believe that the Industrial Fill (IF.7) will be adequately addressed by two other borings (JB-34 and JB-53).

- JB-58 is proposed to be relocated approximately 35 feet to the south rather than the requested 60 feet due to difficult access conditions. However, the new location will address the Industrial Fill area (IF.9) as desired.

Comment 12

The NJDEP requested data regarding a number of tanks which were removed prior to 1962. These data are no longer needed in that the original proposal to delete the PCB/Pesticide analyses for the surficial samples collected in the vicinity of these tanks has been dropped. The Work Plan has been revised to include the full Target Compound List (TCL) analyses, including PCB/Pesticides for all soil/waste samples.

3200 MacArthur Boulevard
Oakland, New Jersey 07436
201 529 0800
FAX 201 529 0818

B2

Please be advised that the NJDEP requested copies of four AWARE, Incorporated reports. These reports will be transmitted to NJDEP under separate cover.

If you have any other comments or questions, please do not hesitate to contact us.

Very truly yours,

ECKENFELDER INC.

Scott D. MacMillin
Senior Manager

Robert D. Mutch, Jr., P.Hg., P.E.
Executive Vice President

SDM/lh

Enclosures

B3

TABLE OF CONTENTS

		Page No.
1.0	INTRODUCTION	1
2.0	SITE HISTORY	2
2.1	Site Ownership	2
2.2	Raw Materials, Products, and Wastes	4
2.3	Disposal Practices	4
2.4	Historical Site Plans	12
2.5	Aerial Photographs	12
2.6	Water Usage Balance	20
2.7	Background Data	21
2.7.1	Groundwater Use	21
2.7.2	Boring Logs	22
2.8	ECRA	27
2.9	Environmental Permits	27
2.10	Enforcement Actions	27
2.11	Historical Hazardous Material Use	27
2.12	Current Inventory of Hazardous Materials	38
2.13	Discharges	47
2.14	Previously Developed Environmental Data	47
2.15	Summary of Existing Environmental Data	52
2.16	Other Significant Events	56

B4

LIST OF TABLES

		Page No.
Table 2-1	Linden Plant Ownership	5
Table 2-2	Historical Use of Raw Materials, Products and Wastes	6
Table 2-3	List of Industrial Fill and Soil Fill Areas and Impoundments, and Soil Areas Located from Aerial Photographs	11
Table 2-4	Historical Site Plans	13
Table 2-5	List of Available Aerial Photographs	19
Table 2-6	Summary of On-Site Boring Logs	23
Table 2-7	List of Air Permits	28
Table 2-8	List of Other Environmental Permits	31
Table 2-9	Enforcement Actions	33
Table 2-10	List of Industrial Storage and Storage Tank Areas Located from Aerial Photographs and Site Plans	36
Table 2-11	Summary of All Site Buildings	39
Table 2-12	Buildings Containing Significant Hazardous Materials	41
Table 2-13	Raw Materials Used in Manufacturing Processing - 1988	44
Table 2-14	Summary of Hazardous Waste Generation - 1988	46
Table 2-15	Summary of Transformers Presently or Formerly Containing PCBs	48
Table 2-16	Release Summary	49
Table 2-17	Summary of Environmental Data	50
Table 2-18	Summary of Other Significant Events	57

B5

1.0 INTRODUCTION

This document presents the Remedial Investigation (RI) Work Plan for the GAF Chemicals Corporation plant located in Linden, New Jersey, hereinafter referred to as the "Site". This Work Plan has been prepared in accordance with an Administrative Consent Order (ACO) from the New Jersey Department of Environmental Protection (NJDEP) to GAF Chemicals Corporation (GAF), dated June 16, 1989, and in response to written comments from NJDEP, dated November 27, 1989, regarding the Draft Remedial Investigation Work Plan, dated September 1989. In addition to the requirements of the ACO, this plan has also incorporated all of the proposed monitoring locations as specified in the Draft New Jersey Pollutant Discharge Elimination System-Discharge to Groundwater Permit (NJPDES-DGW) dated November 25, 1987. The Draft Work Plan constitutes the first step in the Remedial Investigation/Feasibility Study process to be conducted at the GAF site leading to the implementation of a remedial action of the Site.

The Draft Work Plan is comprised of a number of sections. These sections include a detailed history of the Site, the scope of work for the Remedial Investigation, and a detailed description of the methods and procedures to be employed. Contained in the Appendices are back-up data including an aerial photographic survey of the Site and a Health & Safety Plan.

B6

2.0 SITE HISTORY

Section 2.0 presents a detailed history of the Site. This history reports those aspects of the plant operation that may have potential impact on environmental conditions at the Site. This history provides the basis for the development of the RI Scope of Work as presented in detail in Section 3.0.

Section 2.0 has been structured in the same order as the requirements set forth in Appendix A, Part IIB of the Administrative Consent Order (ACO) that relate to the compilation of a complete site history. In this way, each subsection provides a specific response to each of the site history data requests.

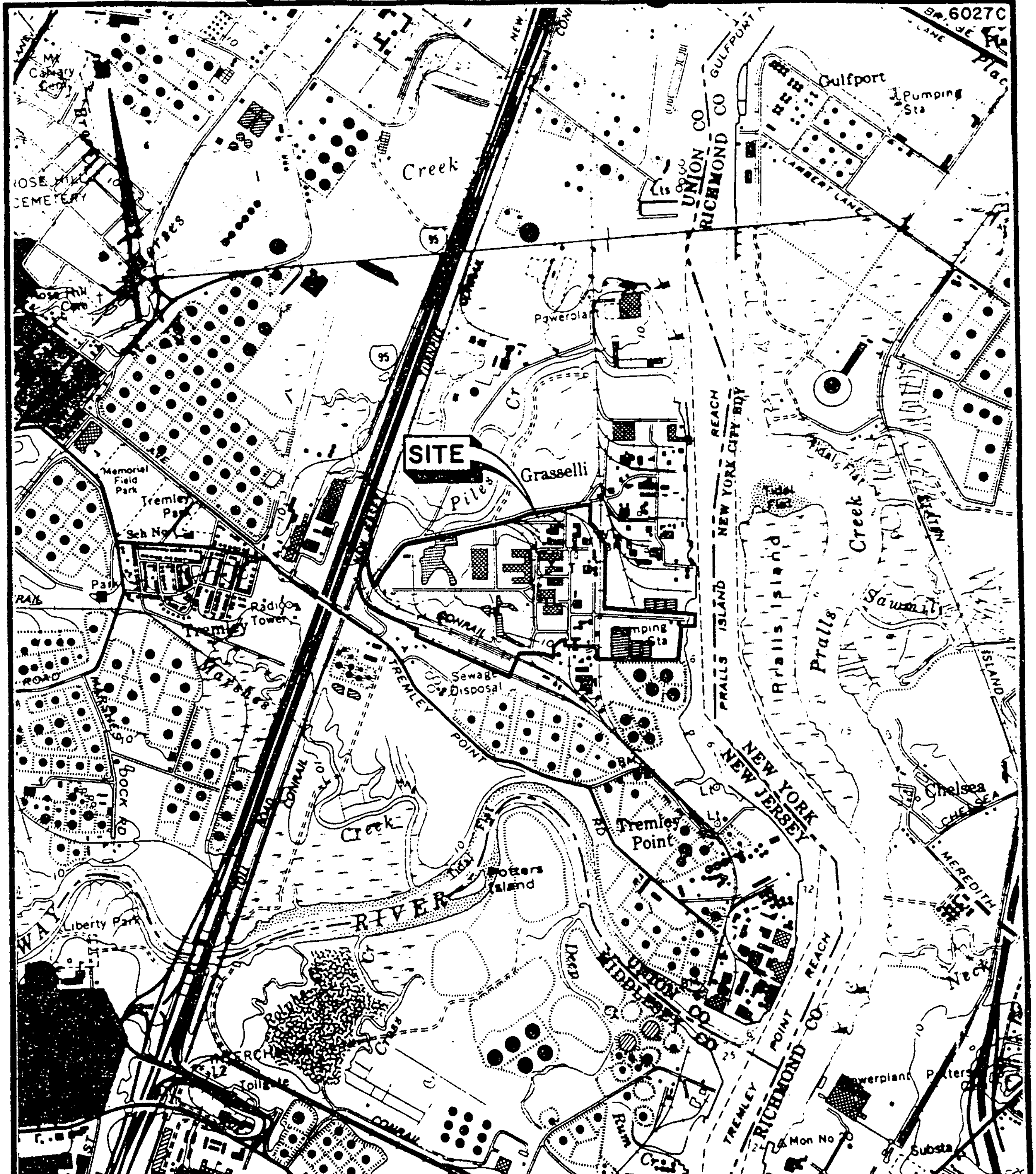
The data presented herein are based largely on available records and other information that have been provided to ECKENFELDER INC. by GAF Chemicals Corporation. GAF Chemicals Corporation attests that to the best of their knowledge, information, and belief the data provided are accurate and complete.

2.1 SITE OWNERSHIP

The Site is located along the Arthur Kill in the Grasselli Point section of the City of Linden, New Jersey, as shown on Figure 2-1. The Site property currently constitutes approximately 125 acres, as depicted on Drawing No. 6551-001.

Industrial operations in the Grasselli Point area of Linden began in 1885 as the Grasselli Chemical Company. However, the portion of the former Grasselli Chemical Co. property now owned by GAF was not utilized for chemical production until approximately 1919. In 1924, the company became the Grasselli Dyestuff Company of I.G. Farben which in 1929 became the General Aniline Works of the American I.G. Chemical Corporation, owned by I.G. Farbenindustrie A.G., a German company. The U.S. company's name was changed in 1939 to General Aniline and Film Corporation. In 1942, 98% of the company stock was seized by the United States Justice Department as a war asset, and the facility was operated by the U.S. Government as Alien Property Custodian until 1965, at which time the U.S. Government sold the stock in a public

B7



SOURCE: ARTHUR KILL, N.J. - N.Y. (1966) REVISED 1980
ELIZABETH, N.J. - N.Y. (1967) REVISED 1980
N.J. 7.5' QUADRANGLE

2000 0 2000

SCALE FEET

MAP LOCATION

FIGURE 2-1

SITE LOCATION MAP

GAF CHEMICALS CORPORATION
LINDEN, N.J.

ECKENFELDER INC.
Nashville, Tennessee
Mahwah, New Jersey

B8

offering. On April 24, 1968, General Aniline and Film Corporation changed its name to GAF Corporation. In 1986, GAF Chemicals Corporation was incorporated, and all of the assets, including the site of the former Chemicals Division of GAF Corporation, were transferred to GAF Chemicals Corporation, a wholly-owned subsidiary of GAF Corporation. In 1989, GAF Corporation became a privately-owned company but retained essentially the same corporate structure as before, including GAF Chemicals Corporation as a wholly-owned subsidiary and owner of the Site. A tabular presentation of this history is presented on Table 2-1.

The current address of the Site owner is:

GAF Chemicals Corporation
1361 Alps Road
Wayne, New Jersey 07470

2.2 RAW MATERIALS, PRODUCTS, AND WASTES

Many different industrial products have been produced from 1919 to the present on the Site. These products have primarily included dyestuffs and surfactants but have also included caustic chlorine, ethylene oxide, herbicides, tetrahydrofuran (THF) and others. Many of these products are no longer produced, and the only products produced today are surfactants, THF, Gafquats, and Ganexes.

Each of the production products and their dates of production are listed on Table 2-2. Also included on this table are the primary raw materials used in each process and the wastes associated with each product. A discussion of the materials that have been handled in each of the Site buildings is presented in greater detail in Section 2.11.

2.3 DISPOSAL PRACTICES

Industrial activities at the present Site have been ongoing for at least 70 years. The entire Site has been constructed on man-emplaced fill that has been used to reclaim the tidal marshlands that formerly existed in the entire

B9

TABLE 2-1

LINDEN PLANT OWNERSHIP

GAF Chemicals Corporation, Linden Plant

Company	Year
Grasselli Chemical	1885
Grasselli Chemical Dyestuff Division	1919
Grasselli Dyestuff Company of I.G. Farben	1924
American I.G. Chemical Corporation - General Aniline Works	1929
General Aniline & Film Corporation (name change)	1939
U.S. Government - Alien Property Custodian	1942
General Aniline & Film Corporation - became Public Company	1965
GAF Corporation (name change)	1968
GAF Chemicals Corporation	1986
GAF Corporation - became Private Company	1989

B10

TABLE 2-2

HISTORICAL USE OF RAW MATERIALS,
PRODUCTS AND WASTES

GAF Chemicals Corporation, Linden Plant

1919-1974 DYESTUFFS

Raw Materials: Reactants including Benzene and Toluene
Benzoyl Chloride
Inorganic Acids and Bases
Sulfuric Acid
Anthraquinone
Ammonia
Mercury (catalyst)
Arsenious Acid (catalyst)
Sodium Dichromate
Copper Salts and Copper Metal
Solvents, such as: Benzene, Toluene, Isopropyl Alcohol, Methanol, Ethanol

Wastes: Acid gas emissions to atmosphere during the early years, then through water scrubbers. Wastewater neutralized with lime was discharged to the ditch system.

1935 to Present - Igepons (Surfactants)

Raw Materials: Fatty Acids
Phosphorous Trichloride

Wastes: HCl Solution, Weak Sulfuric Acid Solution, Phosphoric Acid Solution - all drained to the ditch system and neutralized.

Acid gas emissions to atmosphere during the early years of manufacture, then through water scrubbers.
Scrubber discharged to the ditch system and treated.

1940 to Present - Igepals (Surfactants)

Raw Materials: Diamylphenol
Di-isobutylphenol
Sodium Hydroxide
Ethylene Oxide
Nonene
Phenol
Boron Trifloride
Activated Clay
Amberlyst Resin
Recovered Phenol

Wastes: Waste clays disposed of on site; still bottoms disposed of on site until 1973, when they were sent to an off-site disposer. Waste nonane burned in boilers.

B11

TABLE 2-2 (continued)

HISTORICAL USE OF RAW MATERIALS,
PRODUCTS AND WASTES

GAF Chemicals Corporation, Linden Plant

1941 to late 1940s - Carbonyl Iron Powders

Raw Materials:	Hydrogen Iron Sponge Carbon Dioxide Coke	Iron Powder Anhydrous Ammonia Calcium Silicate
Wastes:	Waste iron cake disposed of on site.	

1945 to 1957 - Reppe Chemistry Pilot Plant (Vinyl Pyrrolidone, Poly Vinyl Pyrrolidone)

Raw Materials:	Formaldehyde Acetylene Methylamine Ammonia	Calcium Carbide Water
Wastes:	Waste waters neutralized with lime.	

1955 to 1971 - Caustic Chlorine

Raw Materials:	Sodium Chloride Water Mercury	Recovered Mercury
Wastes:	Residual mercury-containing sludges were discharged to ditch system after recovery process.	

1957 to 1971 - Ethylene Oxide

Raw Materials:	Ethylene Air Platinum and Silver Catalyst
Wastes:	Spent catalyst recovered and recycled. Glycols sold as antifreeze.

B12

TABLE 2-2 (continued)

HISTORICAL USE OF RAW MATERIALS,
PRODUCTS AND WASTES

GAF Chemicals Corporation, Linden Plant

1958 to Present - Phosphate Esters (Surfactants)

Raw Materials: Phosphorous Pentoxide
Phosphorous Oxychloride
Non-ionic Surfactants

Wastes: Acid gases to atmosphere or scrubber. Scrubber discharges to ditch system and is treated.

1962 to 1979 - Agricultural Herbicides, Ammiben Amino Type Compounds

Raw Materials:

Iron Catalyst	Sulfuric Acid
Sponge Iron	Nitric Acid
Benzoyl Chloride	Benzyl Trifloride
Caustic	2,4,5-trichlorophenol
Ammonia	

Wastes: Acid gases to recovery, residuals to scrubbers.
Scrubber discharges to ditch system.
Iron wastes and still bottoms disposed of on site until 1973.

1963 to Present - Low Foamers (Surfactants)

Raw Materials:

Non-ionic Surfactants	Alcohols
Thionyl Chloride	Allylphatic Compounds
Ethylene Oxide	
Propylene Oxide	

Wastes: Acid gases to scrubbers.
Scrubber discharges to ditch system.

1964 to 1986 - Polyclar (Polyvinyl Pyrrilodone Polymer)

Raw Materials: Potassium Hydroxide
Water
Vinyl Pyrrilodone

Wastes: Caustic wastewater to ditch system.

B13

TABLE 2-2 (continued)

HISTORICAL USE OF RAW MATERIALS,
PRODUCTS AND WASTES

GAF Chemicals Corporation, Linden Plant

1965 to 1969 - Gantrez Half Esters

Raw Materials: Maleic Anhydride
Benzene
Butanol
Ethanol
Isopropyl Alcohol

Wastes: Solvent emissions to air and solvents to waste water ditch system

1966 to 1988 - Gantrez

Raw Materials: Same as Gantrez Half Esters
Toluene

Wastes: Solvents to atmosphere or scrubbers.
Scrubber discharges to ditch system.

1970 to Present - Gafquat 755

Raw Materials: Vinyl Pyrrolidone
Dimethyl Amino Ethyl Methacrylate
Alcohols
Acrylic Acid Ethyl Ester

Wastes: Ammonia emissions to scrubbers.
Scrubbers discharge to ditch system.

1975 to Present - Propoxylations (Surfactants)

Raw Materials: See Low Foamers

Wastes: See Low Foamers

1976 to Present - Tetrahydrofuran

Raw Materials: Butanediol Solution
Sulfuric Acid

Wastes: Still bottoms shipped off site.

B14

area around the Site. Historical expansion of the plant has been accomplished through the filling of adjacent marshlands with both industrial fill and clean soil prior to constructing additional plant buildings. In addition, a system of ditches has been used for the conveyance and disposal of wastewater and stormwater.

Two landfill areas at the Site are well documented. These areas include the "Old Landfill" located in the south central portion of the site and the "Drum Landfill" located west of Building 120. The Old Landfill was used from the mid-1950's until 1970. The Drum Landfill was registered with the NJDEP and was operated from 1970 to 1973. These landfill areas have been identified on Drawing No. 6551-002.

A history of the fill placement in the previously described landfills and other areas has been developed from a detailed examination of numerous aerial photographs as described in Section 2.5. Areas of apparent industrial fill placement were identified through the examination of aerial photographs. Other industrial disposal practices, such as the use of industrial impoundments, have also been located through the use of aerial photographs and a search of historical site plans. These areas of fill emplacement and the locations of industrial impoundments that have been defined are depicted on a site plan, Drawing No. 6551-002. Each of the identified areas is numbered and has been cross-referenced on Table 2-3.

The Site contains a ditch system for the purpose of conveying cooling water, wastewater, and surface water drainage to the wastewater treatment plant, as depicted on Drawing No. 6551-003. Prior to the start up of the wastewater treatment plant (WWTP) in 1977, the ditch system discharged to the Arthur Kill through either of two ditches, as shown on Drawing No. 6551-003. These ditch discharges were treated for several decades prior to construction of the current WWTP, employing equalization, skimming and lime neutralization. The northern of the two ditches was used for the longest period of time, up to approximately 1971. The southern ditch, South Branch Creek, was used for a shorter time, from 1971 to 1977, when the new WWTP was placed into operation.

B15

TABLE 2-3

LIST OF INDUSTRIAL FILL AND SOIL FILL AREAS AND IMPOUNDMENTS, AND SOIL AREAS LOCATED FROM AERIAL PHOTOGRAPHS

GAF Chemicals Corporation, Linden Plant

Area Number	Date of Aerial Photograph
Industrial Impoundment Area	
II.2	1929
II.3A	1940
II.3B	1951
II.3C	1952
II.4	1956
II.3D	1958
II.5	1966
II.1	1974
Industrial Fill Areas	
IF.7	1929
IF.1	1929
IF.6	1929
IF.8	1935
IF.10B	1935
IF.3	1935
IF.2	1940
IF.10C	1940
IF.4	1940
IF.9	1947
IF.12	1947
IF.13A	1951
IF.5	1951
IF.13B	1952
IF.15A	1956
IF.14A	1956
IF.13C	1958
IF.15B	1958
IF.14B	1958
IF.15C	1959
IF.14C	1959
IF.15D	1961
IF.16A	1966
IF.15E	1966
IF.11A	1967
IF.14D	1967
IF.15F	1968
IF.10A	1968
IF.16B	1968
IF.11B	1976
IF.16C	1978
Soil Fill Area	
SF.1	1956
SF.2	1982

B6

In addition to the discharges to the Arthur Kill, the western portion of the ditch system was formerly in communication with Piles Creek at a point west of Building No. 120. However, this communication was cut off by the construction of a dam in 1966, as depicted on Drawing No. 6551-003.

2.4 HISTORICAL SITE PLANS

Many thousands of historical site plans and construction drawings currently exist for the Site. A review of these drawings was conducted in order to provide insight into the site's history as it relates to production processes, building locations, tank locations, boring logs, property line data, disposal practices, and other pertinent aspects of the Site. The large number of drawings makes it impossible to present them all as a part of this document. However, the drawings that have provided the most significant information in the preparation of this historical discussion have been listed on Table 2-4. Copies of these drawings are currently maintained on file by ECKENFELDER INC.

2.5 AERIAL PHOTOGRAPHS

A detailed interpretation of current GAF Chemicals Corporation property has been conducted using available aerial photographs dating back to 1929. Thirty-six sets of photographs were utilized, including both commercially available high altitude stereo pairs and a number of low altitude, oblique photographs that were flown for GAF. These photographs are listed on Table 2-5. Copies of the photos and an annotation of select photos are presented in Appendix A, found as a separate volume.

The interpretation of the aerial photographs has aided in the delineation of areas of apparent industrial and soil fill, impoundment areas, and previously existing ditches, as discussed in Section 2.3. The locations of industrial storage and tank areas and buildings were also delineated, as described in Section 2.11. A number of assumptions were followed with respect to the approach taken in the interpretation of the aerial photographs:

B7

TABLE 2-4

HISTORICAL SITE PLANS

GAF Chemicals Corporation, Linden Plant

Drawing No.	Date (Original)	Date of Last Revision	Title	Pertinent Data
D-6920-A	03/15/43	--	Map of Building Dates	• Building Locations & Dates Erected • Tank Locations • Tank Contents • Property Line Designation
D-7982	06/28/45	08/15/45	Map of Salt Water Lines Connection - Meter House to Present System	• Building Locations • Tank Locations • Property Line Designation
D-8337-2	05/22/47	11/01/62	Plot Plan - West Extension Building 36	• Tank Locations
D-8857	07/20/48	--	Plan of Proposed Extensions to Macadam Roads & Concrete Loading Slab	• Building Locations
H-1541	04/19/55	--	Wastewater Culvert under Roadway Southeast of Building 120	• Boring Log
H-1542	02/15/55	--	Plan & Sections of Fill under Building 120	• Fill Data
H-2020	08/28/56	06/08/61	Map of Adjoining Properties - Southwest of General Aniline	• Property Line Designation • Adjoining Properties • Piles Creek Location

B18

TABLE 2-4 (continued)

HISTORICAL SITE PLANS

GAF Chemicals Corporation, Linden Plant

Drawing No.	Date (Original)	Date of Last Revision	Title	Pertinent Data
H-1699-3	02/24/58	11/19/73	Plot Plan - Ethylene Oxide Plant	• Building Locations • Tank Locations • Property Line Designation • Open Ditch Locations • Activities of Selected Buildings • Storage Areas
D-7074-A	10/14/58	12/21/84	Map of Sewer Lines	• Building Locations • Tank Locations • Property Line Designation • Surface Impoundments • Wastewater Treatment Facility Legend: • Contents of Tanks & Building Activities • Open/Covered Ditch Locations
D-7074-B	10/16/58	03/14/74	Map of Sewer Lines	• On-site Location of Open Ditch (Piles Creek)
D-4040A	01/26/59	07/22/88	Plant Map of Water Lines, Roads & Railroads	• Building Locations • Open/Covered Ditch Locations • Tank Locations • Complete Property Line Designation
H-1453	10/12/59	09/20/61	Salt & Fresh Water Lines to Chlorine - Caustic Plant	• Tank Locations • Property Line Designation
H-2444-2	06/60	12/14/73	Map of Yard Off East End of Building 46	• Tank Locations • Fill Area & Depth

B19

TABLE 2-4 (continued)

HISTORICAL SITE PLANS

GAF Chemicals Corporation, Linden Plant

Drawing No.	Date (Original)	Date of Last Revision	Title	Pertinent Data
H-2703	05/30/61	09/18/61	Relocation of Wastewater Ditch	• Open Ditch Locations • Tank Locations
H-3368-0	02/12/65	--	Fence at Building 36 E.O. Tank Farm Area	• Tank Locations
H-3650-1	05/06/65	05/10/65	Plant Expansion Study	• Tank Locations • Open Ditch Location
H-3961-1	02/07/66	12/14/66	Plot Plan - Distillation Area	• Tank Locations • Open Ditch Location
H-3959-4	02/09/66	09/12/66	Plot Plan of Diverter Dike & Concrete Foundation of Scale House for Methylamine	• Tank Locations
H-4090-2	06/09/66	--	Map, Fuel Oil Line from Storage Tank	• Entrance onto Site of South Branch Creek from Arthur Kill
H-4414-0	07/12/66	--	Profile of Main Sewer East of Buildings 49, 48, 46, 47, 35, & 36	• Profile of Sewer with Invert Elevations
H-4819	10/09/67	--	Low Pressure Steam Lines	• Building Locations
H-5076	02/08/69	--	Echo-Soundings at GAF (Arthur Kill)	• Echo Soundings of Arthur Kill
H-5707	03/10/69	--	Test Borings for GAF	• Boring Logs & Locations
H-5708	03/10/69	--	Test Borings for GAF	• Boring Logs & Locations

B20

TABLE 2-4 (continued)

HISTORICAL SITE PLANS

GAF Chemicals Corporation, Linden Plant

Drawing No.	Date (Original)	Date of Last Revision	Title	Pertinent Data
			Sewer Separation Project:	
H-5584	06/30/69	--	• South Plant Sewer	• Tank Locations • Surface Impoundment • Open Ditch Location
H-5588	06/30/69	--	• Waste Acid Sewer Location Plan	• Tank Locations • Property Line Designation • Open Ditch Location
H-5587	06/30/69	--	• Buildings 36 and 13 Sewer	• Tank Locations
H-5551	06/30/69	--	• General Location Plan	• Building Locations • Open Ditch Locations
H-5581	06/30/69	--	• Vats & Dye Sewer/Main Plant Sewer	• Tank Locations • Open Ditch Locations
H-5582	06/30/69	--	• Vats & Dye Sewer/Building 50 Sewer	• Tank Locations • Open/Covered Ditch Locations
H-5586	06/30/66	--	• North Plant Sewer/Building 31 Sewer	• Tank Locations
H-5585	06/30/66	--	• North Plant Sewer/South Plant Sewer	• Acid Pool Location
H-5583	06/30/66	--	• Main Plant Sewer/Building 49 Sewer	• Tank Locations
H-5692-0	08/22/69	12/31/84	Map of Linden Plant Showing Property & Buildings	• Property Line Designation • Building Locations

B21

TABLE 2-4 (continued)

HISTORICAL SITE PLANS

GAF Chemicals Corporation, Linden Plant

Drawing No.	Date (Original)	Date of Last Revision	Title	Pertinent Data
H-5729-2	10/31/69	--	Yard Drainage	• Site Drainage/Runoff • Tank Locations • Ditch Locations
H-2353-A	09/28/72	09/22/80	Map of High & Low Pressure Steam Lines	• Building Locations • Surface Impoundments • Open/Covered Ditch Locations • Tank Locations
H-6051	08/13/75	--	Location of Diked Areas for Application Nos. 46/3188, 46/3192, and 46/3199	• Building Locations • Tank Locations
H-6100	11/24/75	09/19/86	Wastewater Treatment Facility - Plot Plan	• Building Locations • Surface Impoundments • Open Ditch Locations • Property Line Designation • Tank Locations
H-6096	05/05/76	05/06/76	Plot Plan, THF Purification - 8.0mm lbs/yr	• Tank Locations
H-6268-1	07/07/76	10/14/76	Map of Linden Plant - Road Repair 1976	• Building Locations • Adjacent Industries
G-14	04/06/80	--	Topographic Map of City of Linden	• Topography of Northwest Area of Site
H-6473	10/09/87	09/29/88	NJDEP Status of Outside Storage Tanks in the Indicated Area	• Storage Tank Locations • Storage Tank Contents & Accompanying Permits

B22

TABLE 2-4 (continued)

HISTORICAL SITE PLANS

GAF Chemicals Corporation, Linden Plant

Drawing No.	Date (Original)	Date of Last Revision	Title	Pertinent Data
H-6472	10/08/87	09/29/88	Building 36 - Outside Storage Tanks	• Storage Tank Locations • Storage Tank Contents & Accompanying Permits
H-3793-0	Unknown	Unknown	Boiler Location Plan (Plot Plan - Structural - Area AB - Graselli, NJ	• Storage Tank Locations • Coal Silos Location • Boiler Locations

B23

TABLE 2-5

LIST OF AVAILABLE AERIAL PHOTOGRAPHS

GAF Chemicals Corporation, Linden Plant

Year	Source	Type	Part of Stereographic Set	Annotated
May 8, 1929	GAF Files	Oblique	No	Yes
May 8, 1929	GAF Files	Oblique	No	No
April 20, 1935	GAF Files	Oblique	No	Yes
1939	GAF Files	Oblique	No	Yes
April 28, 1940	Aero Service	Vertical	Yes	Yes
July 1947	GAF Files	Oblique	No	Yes
April 20, 1951	Aero Service	Vertical	Yes	Yes
July 17, 1952	GAF Files	Oblique	No	Yes
May 16, 1954	GAF Files	Vertical	No	No
1956	GAF Files	Oblique	No	Yes
1956	GAF Files	Oblique	No	Yes
November 20, 1958	Aero Service	Vertical	Yes	Yes
1959	GAF Files	Oblique	No	No
1959	GAF Files	Oblique	No	No
April 3, 1959	Robinson	Vertical	Yes	No
April 23, 1961	Aero Service	Vertical	Yes	Yes
December 4, 1966	Robinson	Vertical	Yes	Yes
1967	GAF Files	Oblique	No	No
1967	GAF Files	Oblique	No	No
April 11, 1967	Aero Service	Vertical	Yes	Yes
April 16, 1968	Robinson	Vertical	Yes	Yes
April 11, 1974	Aero Service	Vertical	Yes	Yes
April 17, 1976	Robinson	Vertical	Yes	Yes
April 9, 1977	Robinson	Vertical	Yes	No
December 22, 1978	Robinson	Vertical	No	No
October 23, 1982	Robinson	Vertical	Yes	Yes
1984	GAF Files	Oblique	No	No
1984	GAF Files	Oblique	No	No
1984	GAF Files	Oblique	No	No
1984	GAF Files	Oblique	No	No
1984	GAF Files	Oblique	No	No
1984	GAF Files	Oblique	No	No
1984	GAF Files	Oblique	No	No
1984	GAF Files	Oblique	No	No
1984	GAF Files	Oblique	No	No
November 15, 1988	Robinson	Vertical	No	No

B24

- The maps depicting the location of features noted on the aerial photographs (Drawing Nos. 6551-002, -003, -004, and -005) do not indicate repetitive uses of the same area unless for a different purpose.

- The apparent industrial fill areas and apparent waste impoundments noted on the photographic overlays and presented on the maps, represent ECKENFELDER INC.'s best judgment as to areas which have apparently been used for those purposes based upon the available aerial photographs as presented in Appendix A. In all cases, this judgment may be reinterpreted based upon subsequent field verification.

- The various delineations of industrial fill areas, waste impoundments, storage tanks, and storage areas should be considered as approximate and for general planning purposes only. More precise delineations of the areas noted on the aerial photographs may be possible, if warranted, depending upon the quality of the aerial photograph(s).

- The aerial photographs also reveal areas which were apparently filled with soil fill. Just as with the waste disposal areas, the exact makeup of this fill should be subject to field verification.

2.6 WATER USAGE BALANCE

A water usage balance has been conducted for the Site for the first half of 1989. This survey has investigated the major inputs and outputs of water through the wastewater treatment system. The major inputs include purchased process water, cooling water that originates from the Arthur Kill, and stormwater runoff and groundwater discharge that enters the site ditch system and is conveyed to the wastewater treatment plant (input). This is balanced by the treated effluent (output) that is discharged from the treatment plant to the Arthur Kill.

B25

The plant purchases 0.76 million gallons per day (mgd) of fresh water that is used as process water. The rate of cooling water usage employed in this survey is not based upon actual measurements. Rather, this rate has been estimated by GAF personnel, based upon observations of line sizing, configuration, and valving. Based upon these observations, it is estimated that approximately 1.7 mgd of cooling water has been used in the plant on a daily basis. Therefore, the total plant water usage accounted for by this survey is approximately 2.5 mgd.

Stormwater runoff and groundwater discharge to the site ditch system provides a significant additional component to the wastewater treatment system. It has been estimated that precipitation falling on approximately 82 acres drains to the ditch system. This precipitation enters the ditches either via direct runoff or through infiltration into the groundwater system and subsequent discharge to the ditches. Based upon data recorded at Newark Airport, 26.5 inches of precipitation fell in the area during the first six months of 1989. Therefore, it is estimated that 59 million gallons of stormwater entered the ditch system during this six-month period, which represents an average flow rate of approximately 0.3 mgd.

The total average daily amount of water entering the WWTP primarily represents the contributions from plant water usage and the average daily contribution from precipitation, as previously described. The sum of two figures results in an estimated input to the WWTP of 2.8 mgd. The WWTP is known to have processed an average daily total of 2.7 mgd during this period. This output total provides a very close balance to the calculated input to the WWTP.

2.7 BACKGROUND DATA

2.7.1 Groundwater Use

Data provided by the NJDEP Bureau of Water Allocation indicate that there are no high capacity water supply wells located within one mile of the Site. A separate record search by NJDEP for low capacity withdrawal wells indicated no wells of this type within one mile of the Site. Furthermore, it is unlikely that any new water supply wells would be located near the Site in the future

B26

due to its proximity to the Arthur Kill and other brackish, tidal bodies of surface water. Anderson (1968) has reported that brackish water is contained in the Brunswick aquifer in the area along the Arthur Kill, thus making this portion of the aquifer unusable for all potable and most industrial water supply purposes from a natural water quality standpoint.

Groundwater does serve as an important resource some distance from the Arthur Kill as determined through a review of the water supply well data provided by the NJDEP Bureau of Water Allocation and as described by Anderson (1968). These data indicate that within a five-mile radius upgradient and west of the Site the Brunswick aquifer has been extensively developed as a water supply for both industrial and municipal use. Yields from the Brunswick have been reported to range from 100 to 400 gallons per minute from wells that range in depth from 75 to 570 feet. Unconsolidated materials have been tapped to a lesser degree than that of the Brunswick but, nonetheless, do serve as an important aquifer primarily for municipal use in the Rahway area. Wells screened in unconsolidated Quaternary sand and gravel have been reported to yield up to 300 gallons per minute.

2.7.2 Boring Logs

Many logs are available for borings that have been drilled on or near the Site. The on-site logs have been prepared for water quality monitoring wells, water level observation wellpoints, and engineering test borings. All of the monitoring well logs and those test boring logs that could be located have been summarized on Table 2-6. Copies of these logs are presented in Appendix C.

Many logs also exist for off-site borings. Engineering test boring logs likely exist both for the construction of the New Jersey Turnpike, located immediately west of the Site, and the numerous industrial structures located in the vicinity of the Site. Copies of these logs have not yet been obtained. Copies of many monitoring well logs for the numerous industries in the Linden area have been obtained from the NJDEP Bureau of Water Allocation. However, many of these logs are of generally poor quality as many are simply drillers' logs that are on file as a part of the well permit. These logs have not been presented as a part of this submittal.

B27

TABLE 2-6

SUMMARY OF ON-SITE BORING LOGS

GAF Chemicals Corporation, Linden Plant

Boring Type	Purpose	Designation	Deepest Formation Encountered	Date	Prepared By
Monitoring Well	Siting Study	GAF-7D	Brunswick (bedrock)	27-May-88	AWARE Incorporated
Monitoring Well	Siting Study	GAF-7S	Tidal Marsh Deposits	20-Apr-88	AWARE Incorporated
Monitoring Well	Siting Study	GAF-9D	Brunswick (bedrock)	11-May-88	AWARE Incorporated
Monitoring Well	Siting Study	GAF-9S	Tidal Marsh Deposits	19-Apr-88	AWARE Incorporated
Monitoring Well	Siting Study	GAF-10D	Brunswick (bedrock)	24-May-88	AWARE Incorporated
Monitoring Well	Siting Study	GAF-10S	Tidal Marsh Deposits	19-Apr-88	AWARE Incorporated
Monitoring Well	Siting Study	GAF-13D	Brunswick (bedrock)	19-May-88	AWARE Incorporated
Monitoring Well	Siting Study	GAF-13S	Tidal Marsh Deposits	21-Apr-88	AWARE Incorporated
Monitoring Well	Siting Study	GAF-14D	Brunswick (bedrock)	17-May-88	AWARE Incorporated
Monitoring Well	Siting Study	GAF-14S	Tidal Marsh Deposits	20-Apr-88	AWARE Incorporated
Monitoring Well	Siting Study	GAF-15D	Brunswick (bedrock)	23-Feb-89	AWARE Incorporated
Monitoring Well	Siting Study	GAF-15S	Tidal Marsh Deposits	24-Feb-89	AWARE Incorporated
Observation Wellpoints	Siting Study	WP-1	Fill	21-Apr-88	AWARE Incorporated
Observation Wellpoints	Siting Study	WP-2	Fill	21-Apr-88	AWARE Incorporated
Observation Wellpoints	Siting Study	WP-3	Fill	21-Apr-88	AWARE Incorporated
Observation Wellpoints	Siting Study	WP-4	Fill	21-Apr-88	AWARE Incorporated
Observation Wellpoints	Siting Study	WP-5	Fill	22-Apr-88	AWARE Incorporated
Observation Wellpoints	Siting Study	WP-6	Fill	20-Apr-88	AWARE Incorporated
Observation Wellpoints	Siting Study	WP-7	Fill	21-Apr-88	AWARE Incorporated
Observation Wellpoints	Siting Study	WP-8	Fill	22-Apr-88	AWARE Incorporated
Observation Wellpoints	Siting Study	WP-9	Fill	25-Apr-88	AWARE Incorporated
Observation Wellpoints	Siting Study	WP-10	Fill	25-Apr-88	AWARE Incorporated
Observation Wellpoints	Siting Study	WP-11	Fill	25-Apr-88	AWARE Incorporated
Observation Wellpoints	Siting Study	WP-12	Fill	25-Apr-88	AWARE Incorporated
Observation Wellpoints	Siting Study	WP-13	Fill	25-Apr-88	AWARE Incorporated
Observation Wellpoints	Siting Study	WP-14	Fill	25-Apr-88	AWARE Incorporated
Observation Wellpoints	Siting Study	WP-15	Fill	25-Apr-88	AWARE Incorporated
Observation Wellpoints	Siting Study	WP-16	Fill	25-Apr-88	AWARE Incorporated
Observation Wellpoints	Siting Study	WP-17D	Fill	29-Jul 88	AWARE Incorporated
Observation Wellpoints	Siting Study	WP-17S	Fill	29-Jul-88	AWARE Incorporated

TABLE 2-6 (continued)

SUMMARY OF ON-SITE BORING LOGS

GAF Chemicals Corporation, Linden Plant

Boring Type	Purpose	Designation	Deepest Formation Encountered	Date	Prepared By
Observation Wellpoints	Siting Study	WP-18D	Fill	28-Jul-88	AWARE Incorporated
Observation Wellpoints	Siting Study	WP-18S	Fill	28-Jul-88	AWARE Incorporated
Observation Wellpoints	Siting Study	WP-19D	Fill	28-Jul-88	AWARE Incorporated
Observation Wellpoints	Siting Study	WP-19S	Fill	29-Jul-88	AWARE Incorporated
Observation Wellpoints	Siting Study	WP-20D	Fill	29-Jul-88	AWARE Incorporated
Observation Wellpoints	Siting Study	WP-20S	Fill	29-Jul-88	AWARE Incorporated
Observation Wellpoints	Siting Study	WP-21	Fill	01-Feb-89	AWARE Incorporated
Observation Wellpoints	Siting Study	WP-22	Fill	01-Feb-89	AWARE Incorporated
Observation Wellpoints	Siting Study	WP-23	Fill	01-Feb-89	AWARE Incorporated
Observation Wellpoints	Siting Study	WP-24	Fill	01-Feb-89	AWARE Incorporated
Observation Wellpoints	Siting Study	WP-25	Fill	02-Feb-89	AWARE Incorporated
Observation Wellpoints	Siting Study	WP-26	Fill	02-Feb-89	AWARE Incorporated
Observation Wellpoints	Siting Study	WP-27	Fill	01-Feb-89	AWARE Incorporated
Observation Wellpoints	Siting Study	WP-28	Fill	01-Feb-89	AWARE Incorporated
Monitoring Well	Hydrogeo Study	W-1 (formerly GAF-1)	Brunswick (bedrock)	01-Jan-83	ERM-Northeast
Monitoring Well	Hydrogeo Study	W-2 (formerly GAF-2)	Brunswick (bedrock)	12-Jan-83	ERM-Northeast
Monitoring Well	Hydrogeo Study	W-3 (formerly GAF-3)	Brunswick (bedrock)	12-Jan-83	ERM-Northeast
Monitoring Well	Hydrogeo Study	W-4 (formerly GAF-4)	Tidal Marsh Deposits	12-Jan-83	ERM-Northeast
Monitoring Well	Hydrogeo Study	W-5 (formerly GAF-5)	Tidal Marsh Deposits	12-Jan-83	ERM-Northeast
Monitoring Well	Hydrogeo Study	W-6 (formerly GAF-6)	Tidal Marsh Deposits	12-Jan-83	ERM-Northeast
Monitoring Well	Hydrogeo Study	W-7 (formerly GAF-7)	Brunswick (bedrock)	11-Jan-83	ERM-Northeast
Test Boring	Sewer Design	B-1	Glacial Till	10-Mar-69	Hazen & Sawyer
Test Boring	Sewer Design	B-2	Glacial Till	10-Mar-69	Hazen & Sawyer

B29

TABLE 2-6 (continued)

SUMMARY OF ON-SITE BORING LOGS

GAF Chemicals Corporation, Linden Plant

Boring Type	Purpose	Designation	Deepest Formation Encountered	Date	Prepared By
Test Boring	Sewer Design	B-3	Glacial Till	10-Mar-69	Hazen & Sawyer
Test Boring	Sewer Design	B-4	Brunswick (bedrock)	10-Mar-69	Hazen & Sawyer
Test Boring	Sewer Design	B-5	Glacial Till	10-Mar-69	Hazen & Sawyer
Test Boring	Sewer Design	B-6	Brunswick (bedrock)	10-Mar-69	Hazen & Sawyer
Test Boring	Sewer Design	B-7	Tidal Marsh Deposits	10-Mar-69	Hazen & Sawyer
Test Boring	Sewer Design	B-8	Tidal Marsh Deposits	10-Mar-69	Hazen & Sawyer
Test Boring	Sewer Design	B-9	Tidal Marsh Deposits	10-Mar-69	Hazen & Sawyer
Test Boring	Sewer Design	B-10	Brunswick (bedrock)	10-Mar-69	Hazen & Sawyer
Test Boring	Sewer Design	B-11	Glacial Till	10-Mar-69	Hazen & Sawyer
Test Boring	Sewer Design	B-12	Brunswick (bedrock)	10-Mar-69	Hazen & Sawyer
Test Boring	Sewer Design	B-13	Tidal Marsh Deposits	10-Mar-69	Hazen & Sawyer
Test Boring	Sewer Design	B-14	Brunswick (bedrock)	10-Mar-69	Hazen & Sawyer
Test Boring	Sewer Design	B-15	Fill	10-Mar-69	Hazen & Sawyer
Test Boring	Sewer Design	B-16	Brunswick (bedrock)	10-Mar-69	Hazen & Sawyer
Test Boring	Sewer Design	B-17	Brunswick (bedrock)	10-Mar-69	Hazen & Sawyer
Test Boring	Sewer Design	B-18	Brunswick (bedrock)	10-Mar-69	Hazen & Sawyer
Test Boring	Sewer Design	B-19	Brunswick (bedrock)	10-Mar-69	Hazen & Sawyer
Test Boring	Sewer Design	B-20	Brunswick (bedrock)	10-Mar-69	Hazen & Sawyer
Test Boring	Sewer Design	B-21	Brunswick (bedrock)	10-Mar-69	Hazen & Sawyer
Test Boring	Sewer Design	B-22	Brunswick (bedrock)	10-Mar-69	Hazen & Sawyer
Test Boring	Sewer Design	B-23	Brunswick (bedrock)	10-Mar-69	Hazen & Sawyer
Test Boring	Sewer Design	B-24	Brunswick (bedrock)	10-Mar-69	Hazen & Sawyer
Test Boring	Sewer Design	B-25	Brunswick (bedrock)	10-Mar-69	Hazen & Sawyer
Test Boring	Sewer Design	B-26	Brunswick (bedrock)	10-Mar-69	Hazen & Sawyer
Test Boring	Sewer Design	B-27	Brunswick (bedrock)	10-Mar-69	Hazen & Sawyer
Test Boring	Sewer Design	B-28	Brunswick (bedrock)	10-Mar-69	Hazen & Sawyer
Test Boring	Sewer Design	B-29	Tidal Marsh Deposits	10-Mar-69	Hazen & Sawyer
Test Boring	Sewer Design	B-30	Tidal Marsh Deposits	10-Mar-69	Hazen & Sawyer
Test Boring	Sewer Design	B-31	Brunswick (bedrock)	10-Mar-69	Hazen & Sawyer
Test Boring	Bldg 120 Design	B-1	Brunswick (bedrock)	Dec-54	Riley Engineering

B30

TABLE 2-6 (continued)

SUMMARY OF ON-SITE BORING LOGS

GAF Chemicals Corporation, Linden Plant

Boring Type	Purpose	Designation	Deepest Formation Encountered	Date	Prepared By
Test Boring	Bldg 120 Design	B-2	Brunswick (bedrock)	Dec-54	Riley Engineering
Test Boring	Bldg 120 Design	B-3	Brunswick (bedrock)	Dec-54	Riley Engineering
Test Boring	Bldg 120 Design	B-4	Brunswick (bedrock)	Dec-54	Riley Engineering
Test Boring	Bldg 120 Design	B-5	Brunswick (bedrock)	Dec-54	Riley Engineering
Test Boring	Bldg 120 Design	B-6	Brunswick (bedrock)	Dec-54	Riley Engineering
Test Boring	Bldg 120 Design	B-7	Brunswick (bedrock)	Dec-54	Riley Engineering
Test Boring	Bldg 120 Design	B-8	Brunswick (bedrock)	Dec-54	Riley Engineering
Test Boring	Bldg 120 Design	B-9	Brunswick (bedrock)	Dec-54	Riley Engineering
Test Boring	Bldg 120 Design	B-10	Brunswick (bedrock)	Dec-54	Riley Engineering
Test Boring	Bldg 120 Design	B-11	Brunswick (bedrock)	Dec-54	Riley Engineering
Test Boring	Bldg 120 Design	B-12	Brunswick (bedrock)	Dec-54	Riley Engineering

B31

2.8 ECRA

No investigation or cleanup under the Environmental Cleanup Responsibility Act (ECRA) submission has ever been required or prepared for any part of the Site. ECRA became effective on December 31, 1983. By the specific provisions of the Act itself, the transaction in 1986 whereby GAF Chemicals Corporation became incorporated (see Section 2.1 above) was not subject to the provisions of ECRA. Similarly, the 1989 transaction was not subject to the provisions of ECRA, as confirmed by letter dated April 5, 1988 from the New Jersey Department of Environmental Protection, currently on file at GAF Chemicals Corporation.

2.9 ENVIRONMENTAL PERMITS

Many environmental permits have been applied for and/or received for the Site. Many of these are air permits, as listed on Table 2-7. Other environmental permits including certification of the Drum Landfill, permits for the wastewater treatment plant, a RCRA-Part A permit for the former storage of hazardous waste, and others are listed on Table 2-8.

2.10 ENFORCEMENT ACTIONS

Table 2-9 presents a summary of various enforcement actions from 1978 to the present relating to the Site. The most significant of these are the recent Administrative Consent Orders that require the upgrading of the wastewater treatment plant and the performance of a Remedial Investigation/Feasibility Study leading to the remediation of the Site. Many of the other enforcement actions relate to relatively minor spills, air violations, and record-keeping deficiencies.

2.11 HISTORICAL HAZARDOUS MATERIAL USE

Hazardous materials, including waste materials, have been contained or used in a number of locations around the Site. These materials have been handled in various tanks, industrial storage areas, surface impoundments, ditches, landfills, and within the numerous production and warehousing buildings that

B32

TABLE 2-7

LIST OF AIR PERMITS

GAF Chemicals Corporation, Linden Plant

Permit Number	NJDEP Stack Number	Description of Source	Date of Issue	Expiration Date
044963	151	Phenol Reactor 36/4272	19-Jul-83	17-Apr-88
079203	171	Fresh Water Scrubber 36/3527	09-Oct-87	29-Jun-89 Temporary
080229	174	MT 36/4655 GAFQUAT Production	06-Nov-87	27-Jul-89 Temporary
080230	175	MT36/4654 - GAFQUATS	06-Nov-87	27-Jul-89 Temporary
073017	158	ST 36/4515 - Phenol	26-Nov-85	06-Aug-89 Temporary
081697	180	Surfactants - Alipal CI-436 ST 36/4363 (17)	17-Feb-88	09-Aug-89 Temporary
081699	182	Surfactants - Alipal CI-436 ST 36/4357 (14)	17-Feb-88	09-Aug-89 Temporary
081700	183	Surfactants - Alipal CI-436 ST 36/4354 (15)	17-Feb-88	09-Aug-89 Temporary
081701	184	Surfactants - Alipal CI-436 ST 36/4360 (16)	17-Feb-88	09-Aug-89 Temporary
081698	181	Surfactants - Alipal CI-436 ST 36/4351 (13)	18-Feb-88	10-Aug-89 Temporary
079997	170	MT46/2174 - K46/2249 Ethylamine	08-Jun-87	25-Aug-89 Temporary
079992	165	Steel Tub 36/2775 GAFQUAT Production	11-Dec-87	31-Aug-89 Temporary
079993	166	Steel Reactor 36/1635 GAFQUAT Production	11-Dec-87	31-Aug-89 Temporary
079994	167	Steel Reactor 36/2767 GAFQUAT Production	11-Dec-87	31-Aug-89 Temporary
088797	186	36/1405	08-Dec-88	03-Sep-89 Temporary
079995	168	ST36/1342 - Sodium Bisulfite Solution	23-Sep-87	11-Sep-89 Temporary
078103	044	ST 46/2011 - 1,4 Butanediol	30-Mar-87	14-Sep-89 Temporary
078112	164	Sulfuric Acid Scrubber 36/4567 - Ethoxylators	30-Mar-87	14-Sep-89 Temporary
078102	006	Scrubber Vent - 36/1704 - 36/1694	31-Mar-87	15-Sep-89 Temporary
078108	160	36/4544 - Afterburner - GAFAC	31-Mar-87	15-Sep-89 Temporary
080895	178	ST 36/2997 CA and CO IGEPALS	28-Dec-87	17-Sep-89 Temporary
080454	021	Building 36 - Caustic Scrubber 3265	19-Oct-87	07-Oct-89 Temporary
089164	013	Scrub T36/1185 T36/972	19-Jan-89	15-Oct-89 Temporary
087318	185	Biopal Manufacturing - 36/3260	24-Oct-88	18-Oct-89 Temporary
044964	152	Tank 36/4276 - Alkylphenols	19-Jul-83	28-Feb-90
044965	153	Tank 36/4324 - Alkylphenols	19-Jul-83	28-Feb-90
072211	157	ST 306/030 - n-Methyl Pyrrolidone	16-Jul-85	16-Jul-90
015069	013	Storage Tank, Weigh Tank 36/972	20-Aug-75	20-Aug-90

B33

TABLE 2-7 (continued)

LIST OF AIR PERMITS

GAF Chemicals Corporation, Linden Plant

Permit Number	NJDEP Stack Number	Description of Source	Date of Issue	Expiration Date
017357	015	Rodney-Hunt Evaporator 36/1995	30-Mar-76	30-Mar-91
021738	019	Anhydrous Ammonia Storage Tank	27-May-76	27-May-91
022601	020	Storage Tanks 36/1415, 1418, 1412 Methylamine	24-Sep-76	24-Sep-91
073018	159	ST 36/4489 - Nonylphenol	26-Nov-85	20-Nov-91
069925	026	Boiler #5 - Nonene/Nonane	15-Oct-84	02-Jan-92
069926	027	Boiler #4 - Nonene/Nonane	15-Oct-84	02-Jan-92
069927	029	Boiler #1 - Nonene/Nonane	15-Oct-84	02-Jan-92
030032	022	Bag House 36/2611	07-Jan-77	07-Jan-92
003288	001	Building 36 HCL Scrubber 36/3527	10-Jan-77	10-Jan-92
078107	105	ST 36/3056 - 1,4 Butanediol	13-Mar-87	13-Mar-92
078104	046	ST 36/1432 - Surfactants	30-Mar-87	30-Mar-92
078105	047	ST 36/1647 - Surfactants	30-Mar-87	30-Mar-92
078106	080	ST 36/1699 - Dinonylphenol	30-Mar-87	30-Mar-92
078109	161	ST 36/1019 - C8-C16 Alfols	30-Mar-87	30-Mar-92
078110	162	ST 36/1246 - Nonylphenol	30-Mar-87	30-Mar-92
078111	163	ST 36/2454 - Tridecylalcohol	30-Mar-87	30-Mar-92
079996	169	ST36/1224 - C8-C20 Alfols	26-Jun-87	26-Jun-92
080724	176	Fixed Roof Storage Tank 46/3120 - Isopropanol	26-Jun-87	26-Jun-92
079357	172	ST 36/1646 - IGEPALS (Old Dep Stack 079)	30-Jul-87	30-Jul-92
079358	173	ST 36/3004 - Nonylphenol (Old Dep Stack 118)	30-Jul-87	30-Jul-92
079990	071	ST36/1366 - Methylamine	23-Sep-87	23-Sep-92
079991	094	ST36/2867 - Methylamine	24-Sep-87	24-Sep-92
080804	177	ST 36/1597 Nonylphenol	15-Dec-87	15-Dec-92
039270	144	THF Storage - 46/3188	19-May-78	12-May-93
039383	136	Area 41 - THF - 41/097	26-May-78	19-May-93
039379	137	Area 41 - THF - 41/214	26-May-78	19-May-93

B34

TABLE 2-7 (continued)

LIST OF AIR PERMITS

GAF Chemicals Corporation, Linden Plant

Permit Number	NJDEP Stack Number	Description of Source	Date of Issue	Expiration Date
039380	138	Area 41 - THF - 41/118	26-May-78	19-May-93
039381	139	Area 41 - THF - 41/429	26-May-78	19-May-93
039382	140	Area 41 - THF - 41/428	26-May-78	19-May-93
039378	145	Area 41 - THF - 41/289	26-Jun-78	19-May-93
039384	146	Area 41 - THF - 41-122	26-May-78	19-May-93
039385	143	2" Salt Water Scrubber 41/116	15-Jun-78	06-Jun-93
051718	156	Storage Tank 1498 - Nonene	19-Jul-83	01-Nov-93
031022	023	Two Stage Wet Vent Scrubber 204/1849, 1850	19-Jul-83	02-Dec-93

B35

TABLE 2-8

LIST OF OTHER ENVIRONMENTAL PERMITS
GAF Chemicals Corporation, Linden Plant

Permit Number	Type	Description	Date of Issue	Applied For
20322001	Certificate of Registraion	Solid Waste (Drum Landfill) Disposal Facility	07-Jul-70	15-Jun-70
		Drum Landfill Operation Plan		17-Mar-71
20322001	Certificate of Registration (Renewal)	Solid Waste (Drum Landfill) Disposal Facility		30-Jul-71
NJ0000019	NPDES-Wastewater	Wastewater Treatment Plant (WWTP)	05-Oct-74	
--	City of Linden	WWTP Approval	03-Dec-75	01-Dec-75
--	Revocable Permit - NJDEP	Construction of Effluent Discharge	19-May-75	06-May-75
75-5-268	Riparian Permit - NJDEP	Effluent Discharge Channel to Arthur Kill	02-June-76	
75-005	Construction Permit - NJDEP & U.S. Army Corps of Engineers	Construction Permit for WWTP	10-Apr-76	
IND-R-75-12-14	Construction & Operation Permit	WWTP	22-Jul-77	
	RCRA-Part A	Hazardous Waste Generation and Storage Facility		Nov-80
NJ0000019	NJPDES-DSW	Draft, Discharge to Surface Water	28-Feb-85	
NJ0000019	NJPDES-DGW	Draft, Discharge to Groundwater	16-Oct-85	
NJ0000019	NJPDES-DSW	Final, Discharge to Surface Water	20-Feb-86	

B36

TABLE 2-8 (continued)

LIST OF OTHER ENVIRONMENTAL PERMITS
GAF Chemicals Corporation, Linden Plant

Permit Number	Type	Description	Date of Issue	Applied For
NJ0000019	NJPDES-DGW	Draft, Discharge to Groundwater	25-Nov-87	
NJ0000019	NJPDES-Wastewater	WWTP Modification - ACO Stage I		29-Jun-89
NJ0000019	NPDES-Wastewater	WWTP Modification - Tertiary Treatment		27-Jul-89

B37

TABLE 2-9

ENFORCEMENT ACTIONS

GAF Chemicals Corporation, Linden Plant

Date Issued	Nature of Violation	Disposition	Nature of Notice	
03/78	Failure to obtain construction permits and operating activities for 6 storage tanks	$1,200 fine paid - proper certificates & permits obtained	Notice of Prosecution	NJDEP
08/78	Failure to obtain construction permit for fill pipes and vapor recovery system on gasoline storage tanks	Notified DEP tanks no longer used - no penalty	Order to Cease Violation	NJDEP
08/78	Emitting visible smoke from boiler #1	Complied - no penalty	Order to Cease Violation	NJDEP
03/31/81	Visible air emissions	Warning - no penalty or action required	Notice of Violation	NJDEP
06/04/81	RCRA Violation - Failure to properly complete manifest form	$1,000 proposed penalty was dropped and NJDEP issued Rescinding Notice in September 1982	Notice of Prosecution	NJDEP
06/17/81	5 minor TSCA violations	$4,200 proposed penalty reduced to $2,500 by Consent Agreement and Final Order Dated 12/17/81	Complaint & Notice of Opportunity for Hearing	USEPA
11/16/83	Failure to establish financial assurance for closure and post closure and to demonstrate financial responsibility	Proper documents filed in timely fashion	Notice of Violation	NJDEP

B38

TABLE 2-9 (continued)

ENFORCEMENT ACTIONS

GAF Chemicals Corporation, Linden Plant

Date Issued	Nature of Violation	Disposition	Nature of Notice	
05/29/84	RCRA deficiencies based on August 11, 1983 inspection	Deficiencies corrected - $3,500 proposed penalty reduced to $2,000	Administrative Order	NJDEP
10/13/85	RCRA waste storage deficiencies	Corrective action taken $6,300 penalty paid	Notice of Violation	NJDEP
06/04/87	Operating equipment without permit	Permit obtained - $4,400 penalty paid	Notice of Violation	NJDEP
06/29/87	RCRA record keeping deficiencies	Condition corrected & documents provided no penalty	Notice of Violation	NJDEP
08/25/87	Boiler stack exceeded emission opacity	$100 penalty paid	Notice of Violation	NJDEP
11/17/88	SO_2 HCL Release due to equipment failure - Failure to report	$2,000 penalty paid $4,000 penalty paid $1,000 penalty paid	Administrative Order Administrative Order Notice of Violation	NJDEP NJDEP Linden Fire Dept
03/07/89	Vessel exceeded permit capacity	$400 penalty paid	Administrative Order	NJDEP
06/07/89	WWTP Bioassay LC50 limitation	$308,000 penalty paid	Voluntary Administrative Consent Order	NJDEP
06/19/89	Site remediation	$7.5 million in letter of Credit - $1,000 in Trust Fund	Voluntary Administrative Consent Order	NJDEP

B29

currently exist or have existed previously at the Site. Landfills and surface impoundments were described previously in Section 2.3. Other areas are described below.

Areas of the Site that currently or historically contained above ground storage tanks that are not located within buildings have been located from a detailed review of the historical site plans listed in Section 2.4 and the aerial photographs described in Section 2.5. These areas are depicted on Drawing No. 6551-004 with an "ST." prefix. Also presented on this plan are the locations of other types of industrial storage areas "S." prefix, such as those used for the storage of drums. Each of these areas is cross-referenced on Table 2-10.

Only two below ground storage tanks are known to have ever existed at the Site. Each of the underground tanks contained gasoline. The underground tanks are depicted with a "UST." prefix on Drawing No. 6551-004.

Underground tank UST.2 had a capacity of 2000 gallons. The top of the tank was approximately three feet below grade, while the bottom of the tank extended to a depth of approximately 8-1/2 feet. The entire tank was submerged below the groundwater table. The installation date of the tank is not known.

Tank UST.2 was removed on December 12, 1989 by an underground tank contractor. A visual inspection of the tank indicated that it was completely sound. However, there was some indication of oil staining in the adjacent surficial soils likely as a result of minor spillage from the adjacent aboveground tank that contains diesel fuel (UST.40). Nine soil samples were collected from various depths in the tank excavation in an effort to confirm the origin of the oil staining. The analytical results from these soil samples are pending.

Underground tank UST.1 also contained gasoline. The dimensions of the tank and the date of installation are unknown. The tank was removed in 1978.

B40

TABLE 2-10

LIST OF INDUSTRIAL STORAGE AND STORAGE TANK AREAS
LOCATED FROM AERIAL PHOTOGRAPHS AND SITE PLANS

GAF Chemicals Corporation, Linden Plant

Area Number	Date of Aerial Photograph
Industrial Aboveground Storage Tank Area	
ST.4	1929
ST.32	1940
ST.21	1943
ST.19	1943
ST.11	1943
ST.14	1943
ST.13	1943
ST.34	1943
ST.23	1943
ST.10	1943
ST.20	1947
ST.22B	1947
ST.6	1947
ST.22A	1952
ST.27	1952
ST.25	1952
ST.3	1952
ST.28	1952
ST.36	1952
ST.31	1952
ST.24	1952
ST.12	1954
ST.1	1954
ST.9	1954
ST.39	1959
ST.38	1959
ST.2	1967
ST.37	1967
ST.26	1976
ST.8	1976
ST.18	1976
ST.17	1976
ST.29	1976
ST.35	1976
ST.40	1976
ST.5	1976
ST.15	1984
ST.33	1984
ST.30	1984
ST.16	1984
ST.7	1984

B41

TABLE 2-10 (continued)

LIST OF INDUSTRIAL STORAGE AND STORAGE TANK AREAS
LOCATED FROM AERIAL PHOTOGRAPHS AND SITE PLANS

GAF Chemicals Corporation, Linden Plant

Area Number	Date of Aerial Photograph
Underground Storage Tank Area	
UST.1	NA
UST.2	NA
Industrial Storage Area	
S.3A	1929
S.13	1929
S.3D	1929
S.12	1929
S.4	1929
S.2B	1935
S.2D	1935
S.3B	1940
S.19A	1940
S.6A	1940
S.2C	1940
S.11	1947
S.21A	1947
S.19C	1947
S.22	1947
S.19B	1947
S.21B	1947
S.8	1947
S.15	1947
S.2E	1947
S.17	1952
S.5	1952
S.1	1952
S.16	1952
S.14	1952
S.18	1952
S.20	1952
S.9	1952
S.3C	1952
S.6B	1952
S.10	1952
S.19D	1956
S.2A	1956
S.24	1956
S.7	1984
S.23	1984
S.24	1974

B42

Each of the industrial processes described in Section 2.3, with the exception of the THF production process, was housed within the buildings on the site. In addition to the process equipment, many tanks are and were located within buildings.

All of the buildings known to have existed at the Site are listed on Table 2-11, and depicted on Drawing No. 6551-005. The buildings that currently or historically have contained significant quantities of hazardous materials, either for production or storage, have been highlighted on Drawing No. 6551-005 and are described on Table 2-12. Also presented on Table 2-12 are details regarding the processes and materials contained within the listed buildings.

2.12 CURRENT INVENTORY OF HAZARDOUS MATERIALS

The current inventory of hazardous materials and wastes at the Site relates primarily to the ongoing production, packaging, and transport of surfactants, THF, Gafquats and Ganexes. A brief historical description of the materials used in these processes was presented in Section 2.2. A comprehensive listing of raw materials used in these processes in 1988 is presented in Table 2-13. A summary of the types and quantities of wastes that were generated at the Site in 1988 is presented in Table 2-14. No wastes are currently disposed of at the Site with the exception of waste nonane and nonene that are burned in the boiler house. No hazardous wastes are stored at the Site for more than 90 days.

In addition to the hazardous materials relating to the production areas, as discussed above, relatively small quantities of other materials are present, including PCBs and asbestos.

Asbestos insulation is occasionally removed from piping as repairs to that piping become necessary. The asbestos is handled either by GAF personnel or by contractors, all of whom are certified to handle asbestos. The asbestos waste is double-bagged and shipped to an approved disposal facility.

B43

TABLE 2-11

SUMMARY OF ALL SITE BUILDINGS

GAF Chemicals Corporation, Linden Plant

Building No.	Time Period	Activities
1	1929 ± 1952	Production
3	1929 ± 1976	Cooperage - Warehouse
5	1921 ± 1978	Carpenter Shop
6	1920 ±	Mason Shop
7	1920 ±	Rigger Shop
8	1921 ± 1976	Warehouse
9	1920 ± 1976	Paint Shop - Lead Shop
13	1940*	Power House
18	1929 ± 1976	Firehouse - Safety Equipment
20		Pipe Shop
22		Production
23		Production
24		Production
25		Production
26		Production
27		Production
28		Production
29	1929*	Garage
31	1915 ± 1978	Laboratory and Offices
33		Laboratory Store Room
34	1941 ±	Naphthaline Storage
35	1921 ± 1984	Offices, later Warehouse - Pipe Shop
36	1921*	Production
40		
41A	1942 ±	
41B	1965*	THF Still
42	1942 ±	Soda Ash Storage
43	1944 ±	Metal Storage
44	1925 ± 1976	Water Meters
45	*	Chill Brine House - Refrigeration Equipment
46	1926 1986*	Production
47	1927*	Engineering Department and Maintenance Shops
48	1934*	Warehouse/Laboratory
49	1934 ± 1976	Production
50	1927 ± 1982	Production
51	1929 ± 1982	Laboratory and Offices
52	1927*	Production
53	1937*	Production (1937-1974)
		Waste Storage (1974-1986)
56		Oil House

B44

TABLE 2-11 (continued)

SUMMARY OF ALL SITE BUILDINGS

GAF Chemicals Corporation, Linden Plant

Building No.	Time Period	Activities
63	*	Oil Pumping Station
66	*	Coal Silos
100	1939/40*	Administration Building
101	1929*	Showers and Lockers
110	*	Cooling Water Pumps
120	1956*	Warehouse
200/201	1941 ±	Ammonia Storage and Filling Station
200	1940*	Production
201	1940 ± 1976	Storage
202	1947 ± 1976	Acetylene Generation
203	1941 ± 1976	Offices and Laboratory
204	1946*	Pilot Plant/Semi-Works Production
205	1916 ± 1929	Storage
207	1970*	Pilot Plant/Engineering Offices Laboratory and later Silver Recovery
300	*	Ethylene Oxide Area/Administration
301		Service Building
302		Utilities
303		Reaction Building
304		Compressor Control
305		Distillation Building
306	*	Refrigeration Building
308		Substation
309		Storage
350	*	Machinery Building
400	*	Electrical Control
402	*	Pump Station
410	*	Filter Press & Control

Note:

*Building still in existence, either wholly or in part

B45

TABLE 2-12

BUILDINGS CONTAINING SIGNIFICANT HAZARDOUS MATERIALS

GAF Chemicals Corporation, Linden Plant

BUILDING 3AB:

Activity: Drums and barrels used for intermediate and semi-finished dyestuffs and pigments were washed in this building for reuse. Residue from products manufactured in Buildings 46, 49, 50 and 52 were rinsed from these containers.

BUILDING 13:

Activity: Powerhouse. This unit has burned various production byproducts including nonene, nonane, di-noyl phenol bottoms, ethanol, and ortho nitro toluene as a supplement to the No. 6 fuel oil.

BUILDING 24:

Activity: Produced sulfur colors and nitrobenzene, dinitrobenzene, nitrotoluene and dinitrotoluene.

Raw Materials: Inorganic acids and bases, non-metallic elements and several hydrocarbons.

BUILDING 36:

Activity: Produced sulfur colors, bacteriacide/fungicide, beta oxy naphthoic acid and numerous surface active agents.

Raw Materials: Inorganic acids including sulfuric and nitric, and inorganic bases including caustic chloride. Various organics including ethylene oxide, nonene, phenol, alkyl phenol, di-isobutylene, sodium oxethane, disobutyl phenol, chlorobenzene, 2,4,5 trichlorophenol, amines, various alcohols, non-metallic elements, and several acid chlorides.

Byproducts: Organic solvents, caustic solutions, poly alkyl phenols, fatty acid residues, and nonyl phenol.

BUILDING 46:

Activity: Produced dye intermediates

Raw Materials: Inorganic acids and bases, various metallic catalysts, and numerous other organic salts purchased or produced in 49 Building, and numerous hydrocarbon solvents.

Byproducts: Sodium sulfide, dinitrobenzene isomers, iron oxide sludge, dichlorobenzoyl chloride still bottoms, arsenic acid, and ammonia.

B46

TABLE 2-12 (continued)

BUILDINGS CONTAINING SIGNIFICANT HAZARDOUS MATERIALS

GAF Chemicals Corporation, Linden Plant

BUILDING 48, Dept. 600:

Activity: Produced color formers for the former Binghamton photo products plant.

Raw Materials: Inorganic acids including chlorosulfonic acid, inorganic bases, organic solvents, including methyl hexanone, xylene, THF, toluene, naphthalene, nitrobenzene, benzene, heptane, chloro-nitrobenzene, acetone, pyridine and ethylene dichloride, as well as mercury, diethylamine, and anhydrous ammonia.

Byproducts: Acetic acid, organic solvents and mercury compounds.

BUILDING 49:

Activity: Produced dye intermediates.

Raw Materials: Inorganic acids and bases, various metallic catalysts including mercury, numerous other salts purchased or manufactured in 46 Building, and various organics, including chlorobenzene, nitrobenzene, and anthraquinone.

Byproducts: Organic solvents, dilute sulfuric acid, benzoic acid, arsenic medicuric sulfate, metallic mercury, polychlorobenzoyl chlorides, polychlornitro benzenes, iron sludges, and lime cakes.

BUILDINGS 50, 52, AND 53:

Activity: Produced dyestuffs and pigments. Building 50 was used primarily for simple acid pasting; Building 52 was used for dyestuff and pigment production using intermediates from 46 and 49 Buildings and for pigment production using urea and phthalic anhydride. Building 53 was used for physical conditioning of products from Buildings 50 and 52.

Raw Materials: Dye intermediates produced in Buildings 46 and 49; inorganic acids including chlorosulfonic and sulfonic, inorganic bases, various chlorinated solvents including nitrobenzene, dichlorobenzene, trichlorobenzene, naphthalene, metallic and non-metallic elements, including sulfuryl chloride, cuprous chloride, and aluminum chloride.

Byproducts: Ammonia, organic solvents, sodium sulfites, m-amino benzene sulfonate, sodium acetate, ethylene glycol iron cake, and tars.

B47

TABLE 2-12 (continued)

BUILDINGS CONTAINING SIGNIFICANT HAZARDOUS MATERIALS

GAF Chemicals Corporation, Linden Plant

BUILDING 120:

Activities: Surfactant materials of all kinds, i.e., Igepals, non-ionic surfactants, Alipals, phosphate esters, and low foamers are drummed and stored in this building.

BUILDING 200:

Activity: Produced carbonyl iron powder.

Raw Materials: Sponge iron, hydrogen, carbon monoxide and coke

BUILDING 204:

Activity: Initially a pilot facility used to produce acetylenic products from formaldehyde and acetylene. Later use of the building was for semi-works production of color formers for the former Binghamton photo products plant.

Raw Materials: Inorganic acids and bases, organic solvents including alcohols, heptane and benzene, as well as purchased organic salts were used in this production. Pilot batches of surfactants were made using ethylene oxide, various alcohols, and other organic salts and hydrocarbons.

Byproducts: Organic solvents and acetic acid.

BUILDING 207:

Activity: Used for silver recovery from the film operation, originally a research facility for the Chemical Engineering group in 1970.

Raw Materials: Scrap film, caustic and organic salt

ETHYLENE OXIDE AREA (BUILDINGS 303, 304, 305, 306)

Activity: Produced ethylene oxide.

Raw Materials: Ethylene gas, platinum and silver catalyst.

Byproducts: Glycols

B48

TABLE 2-13

RAW MATERIALS USED IN MANUFACTURING PROCESSING - 1988

GAF Chemicals Corporation, Linden Plant

Acetic AC GL Color Form
Acetic Anhydride PUR
Acrolein Tech
Acrylic Acid, Glacial
Additive GLY
Alfol 6
Alfol 810
Alfol 1012
Alfol 1218
Alfol 1620
Amberlyst 15
Amberlyst XN-1010
Am ETH Ethanolamine
Ammonia Anhy (CYL)
Ammonia Anhy (H)
Ammonia Anhy (1)
Amm Chloride Fine
Amm Sulphate
Antifoam B
Antifoam C-PG
Antifoam Y 30
Benzene
Benzoyl Perox 70
Benzyl Chloride
Boric Acid
Boron Trifluoride (CYL)
Boron Trifluoride Ether
Butanol
Butyl Cellosolve
T-Butyl Perox Pivalate
Carbonyl Iron Powder HFF
Castor oil
Caustic Pot FLK
Caustic Pot Pellets
Caustic Soda Beads
Caustic Soda FLK
Caustic Soda LIQ 25
Caustic Soda LIQ 100
CHL Acetate AC
Citric Acid
Coco Fatty AC C-108
Coco Fatty AC C-120
Coconut Amine Dist
Coconut Fat AC STR
Decyl ALC
Dibutyl 4 Cresol CP
Di-t-butyl Perox
Dicyanid
Diethanolamine
Dieth Sulfate
Di-isobutylene
Dimeth Ameth Methacrylate
Dimeth Am Eth Meth XLF
Dimethylamine
Dinonyl Phenol Dist
Dodecyl Phenol
Dow Corning 193 Surfactant
Emersol 132 Steric Acid
Emersol 153 Steric Acid
Epal 810
Epal 1012
Epal 1275
Epon 828
Ethanol SD-3A
Ethylamine
Ethylen Clycol Meth Ether
Ethylene Glycol
Ethylene Oxide
Ethylene Oxide (CYL)
Formal 37K
Gluteraldehyde 50% Aqua
Golpanol Boz
Groco 55-1
Heptane, Normal
1 Hexadecene
Hexane
1-6 Hexanediol Diacrylat
Hexyl ALC
Hydrogen Perox 35
Hydrogen in Pipeline 1
2 Hydroxyethyl Acrylate
Hypophosphorous AC 50
Iodine FIN GRD CNS
Iodine Prill
Ionol Antioxidant
Irgacure 184
Irgacure 651
Irganox 1010
Isoamyl Alcohol
Isobutyene
Isodor P-4542
Isophrone Di-isocyanate
Isopropanol Cosmetic K
Isopropanol
Isopropyl Alcohol, ANHY
Kathon C6 Preservative
Latic Acid 88
Lauryl Alcohol Mixed
Lauryl Alcohol Tech
Lauryl Special
Maleic Anhy
Methamine Anhy
Methanol
Micro Cell B
Micro Cell "C"
Micro Cell E
Monoethanolamine
Murac Anhy CYCLS
Murac Anhy T/T
Murac CP
Nekal BX-78 SOLN NOP
Nitrogen Dry
Nonene
Nonyl Phenol
Olefin Frac C-20 C-24
Oleic Acid
Oleyl
Oleyl Alcohol Sub
Oleyl Amin T
Oleylamine Dist
Palmitic Acid
Pe Triacrylane
Phenol USP
Phenothiazine
Phos AC 85
Phos Oxy Chloride
Phos Pentoxide Mon
Phos Trichloride
Poly Clycidol
Poly Phos AC 115
Propylene Oxide
Rock Salt (Solar)

B49

TABLE 2-13 (continued)

RAW MATERIALS USED IN MANUFACTURING
PROCESSING - 1988

GAF Chemicals Corporation, Linden Plant

Rucoflex S-1011-210	Stearic Acid 97	Tallow Fatty AC
Salt Common	Stearyl ALC 62	Thermolite 12
Siliconesurf DC-193	Sulfac 50	Thionyl Chloride HG
Sod Bisulphite SOL	Sulfac 66	Toluene
Sod Hypochlor SOL 100	Sulfac 100	Toluol Nitration Petro
Sod Hypophosphite	Sulfac CP	Tridecyl ALC OXO
Sod Iodid GRD	Sulfamic Acid, Dry	Triethanolamine
Sod Sulfate Spec	Sulfole 120	Xylol Mixed
Sod Sulfit - Photo	Tall Oil W-28	
Soda Ash ANHY	Tallow Amin Dist	

B50

TABLE 2-14

SUMMARY OF HAZARDOUS WASTE
GENERATION - 1988

GAF Chemicals Corporation, Linden Plant

Waste Description	UN or DOT Designation	Quantity
Acid Liquid	Corrosive Material	3,200 Pounds
Waste Ethyl Alcohol	UN1170	400 Pounds
Waste Combustible Liquid	Combustible Liquid	242,960 Pounds
Waste Combustible Liquid	NA1993	196,300 Pounds
Waste Flammable Liquid NOS[a]	UN1993	455,938 Pounds
Waste Flammable Liquid NOS[a]	Flammable Liquid	172,950 Pounds
Waste Flammable Solid NOS[a]	Flammable Solid	120 Pounds
Waste Flammable Liquid Poisonous	Flammable Liquid	25 Pounds
Waste Flammable Liquid Corrossive	UN2924	25,400 Pounds
Waste Corrosive Liquid	UN1760	294,070 Pounds
Waste Methanol	UN1230	25,900 Pounds
Waste Toluene	UN1294	13,500 Pounds
Waste Toluene Diisocyanate	UN2078	400 Pounds
ORMA[b]	NA1693	2,400 Pounds
Waste Oil NOS[a]	NA1270	4,460 Pounds
Waste Organic Peroxide	Organic Peroxide	270 Pounds
Waste Tetrahydrofuran	UN2056	400 Pounds
Waste Hazardous Substance Solid	NA9188	225 Pounds
Waste Hazardous Substance Liquid	NA9188	18,460 Pounds

Note:

[a]NOS indicates waste(s) "Not Otherwise Specified"

[b]ORMA indicates "Otherwise Regulated Material"

B51

PCBs were never used in the industrial processes either as a heat transfer fluid or for other purposes. However, there are 18 electrical transformers that presently or formerly contained PCB. A contractor has been implementing a PCB abatement program in which all transformers have been or will be retrofilled or removed. The contractor has been responsible for removal and disposal of the PCB-containing transformers oils. Currently, only 3 of the 18 transformers contain PCBs at levels greater than 50 ppm, each of which are housed within buildings. Fifteen other transformers, located outdoors, formerly contained PCBs, but have been retrofilled such that they now all have PCB levels less than 50 ppm. The locations of these transformers are depicted on Drawing No. 6551-004; the details are presented on Table 2-15.

2.13 DISCHARGES

The Site has a number of permitted discharge and emission points, as described previously in Section 2.9. These primarily include various air emissions and the discharge of treated wastewater to the Arthur Kill. A minor unpermitted discharge is the surface water runoff that flows through a ditch along the railroad tracks, near well GAF-10, towards its discharge point in South Branch Creek.

In addition to the aforementioned discharges and emissions, a number of minor events have occurred in various areas of the Site. Many of these have been so minor that they were not listed in Section 2.9. They either did not precipitate any enforcement action or were below reportable quantities. A listing of known releases that have occurred at the Site is presented on Table 2-16.

2.14 PREVIOUSLY DEVELOPED ENVIRONMENTAL DATA

A significant quantity of data has previously been developed regarding the environmental conditions at the GAF Site. The sources of these data are summarized on Table 2-17.

B52

TABLE 2-15

SUMMARY OF TRANSFORMERS PRESENTLY
OR FORMERLY CONTAINING PCB

Aparatus Number	Serial Number	Capacity (Gallons)	Condition
Classified as Non-PCB (<50 ppm)			
OL-10-6	F-956442	160	Concrete Pad, no oil staining
OL-10-6	F-962220	160	Concrete Pad, no oil staining
OL-10-7	F-958205	176	Concrete Pad, no oil staining
OL-10-7	F-956441	176	Concrete Pad, no oil staining
OL-10-10	8051000	450	Concrete Pad, no oil staining
OL-10-10	D-362843	450	Concrete Pad, no oil staining
OL-10-10	8051001	450	Concrete Pad, no oil staining
OL-10-12	916027	247	Concrete Pad, no oil staining
OL-10-16	YDR-52661	240	Concrete Pad, no oil staining
OL-10-17	F-956774	176	Concrete Pad, no oil staining
OL-10-17	F-687312	330	Concrete Pad, no oil staining
OL-10-23	E-692843	250	Concrete Pad, no oil staining
OL-10-24	E-695228	176	Concrete Pad, no oil staining
OL-10-26	F-956310	146	Concrete Pad, no oil staining
OL-10-27	E-964486	180	Concrete Pad, no oil staining
Classified as PCB Containing (>50 ppm)			
OL-10-5	E-692622A	295	Indoors, concrete containment
OL-10-5	E-692622B	295	Indoors, concrete containment
BLDG 110 TR	7525815	100	Indoors, concrete containment

Note: PCB classification based on testing conducted subsequent to retrofilling.

B53

TABLE 2-16

RELEASE SUMMARY

GAF Chemicals Corporation, Linden Plant

Date	Nature of Spill	Quantity of Spill	Action
01/04/89	THF vapor release Ruptured disk on THF still	2,000 lb	Applied fresh water cooling to stop release
11/17/88	HCl and SO_2 coupling failed on caustic scrubber	260 lbs SO_2 165 lbs HCl	Scrubber shut down for repairs Employees screened for exposure
07/20/88	Ethylene oxide released to atmosphere	35 lbs for 5 min.	To prevent recurrence, relief valves installed around automatic valves Drained transfer line when power is down
11/06/87	Ethylene oxide released	40 lbs	Valve was repaired and back in operation
08/25/87	Visible smoke emission boiler	Not applicable	Boilers corrected to produce no smoke

B54

TABLE 2-17

SUMMARY OF ENVIRONMENTAL DATA

GAF Chemicals Corporation, Linden Plant

Description	Date	Prepared By
Hydrogeologic Investigation Report Install 7 Monitoring Wells 7 GW Qual Analyses - Full PP	04/83	ERM-Northeast
2,3,7,8-TCDD Sampling 2 Preventol-I Product Analyses 7 Production Area Analyses, (floors, tank, sediments) Selected splits by NJDEP	06/83	ERM-Northeast
National Dioxin (2,3,7,8-TCDD) Study Sampling 22 Soils 8 Sediments 4 QA/QC Analysis for 2,3,7,8-TCDD	07/85	USEPA
Final Report of Laboratory Investigations Performed for ETRP	08/86	AWARE, Inc.
Draft Report of Pilot Plant & Laboratory Scale Toxicity Reduction Investigations	12/86	AWARE, Inc.
Liner Repairs Project	1986-87	GAF
Building No. 53 Closure Report Wipe samples within deconned bldg Surficial soil samples outside bldg	03/87	ERM-Northeast
Building No. 53 Confirmation Sampling 7 Interior Samples, to confirm wipes 5 Surficial Soil Samples HSL Analyses	03/87	AWARE, Inc.
Best Management Practices Plan	08/87	GAF
Draft Report of Continuing Phase III ETRP Investigations Related to Surface Water Discharge	11/87	AWARE, Inc.
Building No. 53 Closure Sampling 5 Deep Soil/Waste samples beneath former Bldg. No. 52 HSL Analyses	04/88	AWARE, Inc.

B55

TABLE 2-17 (continued)

SUMMARY OF ENVIRONMENTAL DATA

GAF Chemicals Corporation, Linden Plant

Description	Date	Prepared By
Results of Ditch Sampling Program During Production Shutdown 8 bioassays 8 sets of data for w/w characterization parameters	08/88	AWARE, Inc.
Application for Site Designation - Part III Detailed Hydrogeologic Investigation 10 Monitoring Wells 24 Observation Wellpoints Biological Evaluation	10/88	AWARE, Inc.
Observe/Split Samples collected NJDEP 5 GW samples 10 Soil/Sediment samples HSL analyses	12/88	AWARE, Inc.
Siting Study, WQ Data Supplement 3 GW samples HSL analyses	01/89	AWARE, Inc.
Siting Study, Hydrogeo Data Supplement Install 8 observation wellpoints	02/89	AWARE, Inc.
Siting Study, Hydrogeo Data Supplement Install monitoring well couplet 2 GW samples, full HSL analyses Aquifer Test	03/89	ECKENFELDER, Inc. (formerly AWARE)
Siting Study, WQ Data Supplement Observe/Split GW samples collected by City of Linden consultant (Killam) 13 samples VO +10 analyses	05/89	ECKENFELDER, Inc. (formerly AWARE)
Pilot Treatability Study of Activated Carbon Adsorption of Effluent Toxicity Reduction	07/89	ECKENFELDER, Inc. (formerly AWARE)
Siting Study, Hydrogeo Data Supplement Ongoing GW & SW level measurements	88-89	ECKENFELDER, Inc. (formerly AWARE)

B56

The environmental work has been conducted for a number of different purposes. A great deal of hydrogeologic work has been conducted relating to GAF's application for site designation for a commercial hazardous waste incinerator.

Other data have been collected in conjunction with the closure of the former hazardous waste storage facility located in Building No. 53. Finally, a significant amount of work has been done in order to upgrade the existing wastewater treatment plant.

2.15 SUMMARY OF EXISTING ENVIRONMENTAL DATA

A significant quantity of environmental data presently exists for the Site, as mentioned in Section 2.14. These data are described in the following discussion.

In October 1988, the GAF Chemicals Corporation submitted an Application for Site Designation as a commercial hazardous incinerator facility. The site investigation that led to the preparation of the application and those supplemental investigations that have been conducted subsequently have generated a significant quantity of data relating to groundwater and soil conditions. Other investigations, such as the 2,3,7,8-TCDD studies and the investigation relating to closure of Building No. 53, have generated additional data as well. These data are summarized as follows:

- The Site has been found to be underlain by a series of unconsolidated materials, including man-emplaced fill, tidal marsh deposits, glacial till, and decomposed bedrock (Residual Soil). These materials are underlain by the shales of the Brunswick formation.

- The fill ranges in thickness from 3 to 13 feet with an average thickness of 7.5 feet.

- Two distinct water-bearing zones have been observed beneath the Site:

B57

- An unconfined water table zone within the Fill and Peat subunit of the Tidal Marsh deposits.

- A semi-confined aquifer contained within the upper portion of the Brunswick formation bedrock.

- The depth to groundwater beneath the Site is generally shallow, ranging in depth from the ground surface to a depth of approximately six feet, as depicted on Drawing No. 6108-006.

- Groundwater within the water table zone flows predominantly in a horizontal direction towards, and discharges to, the surface water bodies located on and around the Site including the Site ditches, Piles Creek, and the Arthur Kill, as depicted on Drawing Nos. 6108-003 and 6108-004.

- Groundwater from a large central portion of the Site, contained within this uppermost water-bearing zone, is captured by the ditch system from which it is conveyed to the Site's wastewater treatment system. Thus, groundwater flowing from these areas never reaches the property boundary and does not flow off of the Site.

- The bedrock aquifer is semi-confined by a low hydraulic conductivity aquitard represented by the Organic Silt and Clay and the Glacial Till.

- The Site is located within a regional discharge area of the bedrock aquifer. Groundwater contained within the bedrock aquifer flows towards and discharges to the Arthur Kill.

- There is no significant recharge to the bedrock aquifer from the unconfined water table zone.

- Groundwater quality in the water table zone contained in the fill is characterized by the presence of low to moderate levels of a number of volatile and semi-volatile organic compounds, many of which correspond

B58

to the compounds used in production processes at the Site. One well, GAF-15S, indicated significantly higher levels of volatile organics than the others, including chlorobenzene, 1,2-dichlorobenzene, 1,3-dichlorobenzene and total xylenes. Levels of a number of metals have also been observed in some of the water table wells.

- Groundwater within the bedrock aquifer has been affected to a lesser degree than that in the water table zone. For the most part, only sporadic, low level occurrences of a few volatile organic compounds have been observed. A significant exception is well GAF-15D in which higher levels of a number of organic compounds have been observed including chlorobenzene, 1,2-dichlorobenzene, 1,3-dichlorobenzene, 1,4-dichlorobenzene, nitrobenzene, 4-chloroanaline, and phenol. Significant levels of several metals have also been observed in this well.

- Surficial and deep soil samples collected in the vicinity of Building Nos. 52 and 53 have indicated significant concentrations of a number of compounds associated with the production processes within these buildings. These compounds include 1,1-dichloroethane, 1,2-dichlorobenzene, 1,4-dichlorobenzene, chlorobenzene, nitrobenzene, toluene, methyl isobutyl ketone, total xylenes, 1,2,4-trichlorobenzene, and various metals.

- Surficial soil and sediment samples collected elsewhere around the Site have indicated the presence of significantly lower levels of many of the compounds listed above. ?

- Low levels (<1 ppb) of 2,3,7,8-TCDD could have been present in the Preventol-I product. However, extensive testing of many media in the areas in which the Preventol-I was produced has indicated that 2,3,7,8-TCDD is either not detectable or is present only at very low levels (<0.050 ppb). The low levels of 2,3,7,8-TCDD that have been observed at the Site have been introduced as a contaminant of 2,4,5-TCP, one of the raw materials used in the low temperature

B59

formulation of the bacteriostatic/fungistatic agent, Preventol-I. The 2,4,5-TCP was not produced at the GAF site and was purchased from off site sources.

In January 1986, GAF undertook a comprehensive and extensive investigative/remedial action program to reduce the toxicity of its WWTP effluent on Mysidopsis Bahia (mysids) from less than 5 percent to 50 percent LC50. A coordinated work plan for a dual-track effort in WWTP effluent toxicity reduction and groundwater remediation was submitted to the NJDEP in December 1985. The WWTP effluent toxicity reduction investigations proceeded in three phrases with the work plan preparation as the first phase. The groundwater remediation aspect of the investigations was never coordinated with the WWTP effluent investigations since the Draft NJPDES Discharge to Groundwater permit was never finalized by the NJDEP.

WWTP effluent toxicity reduction efforts between January 1986 and July 1989 are summarized as follows:

- January to March 1986. Results of Phase II laboratory-scale investigations indicated that optimization of the existing WWTP would enable achievement of effluent toxicity compliance with 50 percent LC50.

- May to August 1986. Phase III laboratory-scale and pilot plant treatability investigations were conducted to confirm the previous results and define design criteria. The results from the first half of these investigations did confirm the previous results; but, for unidentified reasons, the effluent toxicity results from the treatability units declined sharply during the second half of the investigations. The viability of mysids used by testing laboratories was one of the potential concerns in the deteriorated effluent toxicity results.

- As a result of the preliminary indications that upgrading the existing biological treatment facilities would enable compliance with the 50 percent LC50 limitation, GAF implemented a significant upgrading

B60

project between August 1986 and March 1987. Components of the project included repairs to the synthetic liners of the WWTP basins, other WWTP equipment repairs/modifications, WWTP operator training, and upgrading the WWTP O&M manual.

- GAF personnel prepared a Best Management Practice plan which was submitted to NJDEP in August 1987.

- Phase III investigations were initiated with supplemental laboratory-scale investigations to evaluate various segregated source treatment or source elimination alternatives, focusing on maximizing use of the existing WWTP. The results of these investigations indicated that segregated source treatment would be effective in achieving the 50 percent LC50 compliance limitation--provided that certain wastestreams considered "non-toxic" were, in fact, "non-toxic".

- During a production shutdown in July 1988, the wastestreams considered "non-toxic", including the once-through, non-contact cooling water were assessed for mysid toxicity.

- In August 1988 it was determined that certain permit requirements could not be met. Therefore, on-site activated carbon treatability investigations were conducted at the Site between October 1988 and January 1989. The results of these investigations indicated that tertiary granular activated carbon column treatment of the existing WWTP effluent would most cost-effectively achieve the 50 percent LC50 effluent limitation. GAF began design of the required facilities early in 1989.

2.16 OTHER SIGNIFICANT EVENTS

Aspects of the Site that relate to any existing, actual, or potential impacts on the environment have been summarized in the preceding sections. In addition, several fires and explosions, which are not believed to have had a significant environmental impact, have occurred at the Site. A summary of these events is presented on Table 2-18.

B61

TABLE 2-18

SUMMARY OF OTHER SIGNIFICANT EVENTS

GAF Chemicals Corporation, Linden Plant

Date	Location	Nature of Event
1959 - 1960	Building 36	Fire
December 1965	Building 204E	Explosion - Propargyl Bromide
Circa 1974	Building 3	Fire
October 1974	Building 46	Explosion and Fire - Nitration Reactor Fire
March 1979	Building 46	Explosion - Nitration Reactor

B62

APPENDIX A

MONITORING WELL AND WELLPOINT LOGS

APPENDIX A-1

AWARE INCORPORATED LOGS

APRIL - AUGUST, 1988

C2

AWARE INCORPORATED

TEST BORING LOG

NO. GAF-7S

SHEET NO. 1 of

PROJECT NO. 6110

PROJECT: GAF - LINDEN

CLIENT: GAF CHEMICALS CORP

DRILLING DATA	
CONTRACTOR:	HARDIN-HUBER
DRILLER:	KEVIN HUBER
EQUIPMENT:	B-61 AUGER RIG
METHOD:	HOLLOW STEM AUGER

SAMPLING METHODS	SAMPLER	TUBE	CORE
TYPE	Split Spoon		
DIAMETER	2"		
OTHER	140#/30" drop		

WELL CONSTRUCTION	RISER	INTAKE
MATERIAL	PVC	PVC
DIAMETER	4"	4"
COUPLING	Flush Threaded	Flush Threaded

WELL DEVELOPMENT

METHOD: Airlifting

DURATION: 1.0 hr.

YIELD: moderate

OTHER: clean

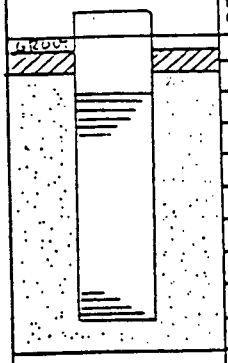
	GROUND	WELL	PROT CSG
ELEV	9.7	12.70	

DATE STARTED: 4-20-88

DATE COMPLETED: 4-20-88

INSPECTOR: M. SCHNEIDER

WELL CONSTRUCTION



DEPTH (FEET)	SAMPLE NO.	TYPE	BLOWS PER 6 INCHES	CLASSIFICATION (AFTER BURMISTER, 1959)	REMARKS
0	S-1	SS	1-1/12"-2	FILL	
	S-2	SS	6-5-4-2	Black m-f SAND, little(+) Silt w/ one-ft interval Black-gray silty CLAY, trace wood pieces.	
5	S-3	SS	1-2-1-1		
	S-4	SS	1-1-1-1	8.0'	VANE SHEAR TEST @9.0 ft. in adjacent boring
	S-5	SS	1/12"-1/12"	TIDAL MARSH DEPOSIT	H_2S odor
10				DK Bm-Blk PEAT grading to DK bm PEAT with CLAY to Med Bm Clayey SILT	
				10.0'	
15				END OF BORING	
20					
25					
30					
35					
40					

Rev 9/20/77

C3

AWARE INCORPORATED

TEST BORING LOG

NO. GAF-TD

PROJECT: GAF-LINDEN	SHEET NO. 1 of 2
CLIENT: GAF CHEMICALS CORP	PROJECT NO. 6106

DRILLING DATA	
CONTRACTOR:	HARDIN HUBER
DRILLER:	NATE LAZARO
EQUIPMENT:	B-80 MOBILE RIG
METHOD:	HOLLOW STEM AUGER/HYDRAULIC ROTARY

SAMPLING METHODS	SAMPLER	TUBE	CORE
TYPE	split spoon	Shelby tube	NX
DIAMETER	2"	3"	2 15/16"
OTHER	140#/30" drop	pushed	

WELL CONSTRUCTION	RISER	INTAKE
MATERIAL	PVC	PVC
DIAMETER	4"	4"
COUPLING	Flush Threaded	Flush Threaded

WELL DEVELOPMENT	
METHOD:	AIRLIFTING
DURATION:	1.0 hr.
YIELD:	slow
OTHER:	Clean

	GROUND	WELL	PROT CS
ELEV	9.5	11.36	

DATE STARTED: 5-9-88
DATE COMPLETED: 5-27-88
INSPECTOR: KITSCHNEIDER

WELL CONSTRUCTION: STEEL CASING, GROUT, PVC CASING, GROUT

DEPTH (FEET)	SAMPLE NO.	TYPE	BLOWS PER 6 INCHES	CLASSIFICATION (AFTER BURMISTER, 1959)	REMARKS
0					
5					
10	S-6	SS	1-3-3-3	TIDAL MARSH DEPOSIT Lt. MED. BRN CLAY & SILT, little f Sand 12.0	VANE SHEAR TEST @ 9.0 ft. in adjacent boring
	S-7	SS	3-5-7-7	GLACIAL TILL RED-BRN silty CLAY, tr c-m-f Sand, tr m-F Gravel	SHELBY TUBE pushed 13.0-15.0 ft
15	S-8	SS	5-7-10-10	RED-BRN CLAY & SILT, tr(+) m-f Gravel	
	S-9	SS	9-10-11-11		
	S-10	SS	4-8-12-16	RED-BRN clayey SILT, little f Gravel, trace f Sand	
20	S-11	SS	12-14-16-21	22.0'	
	S-12	SS	12-17-19-22	BRUNSWICK FORMATION (Residual Soil)	
25	S-13	SS	5-17-17-20		
	S-14	SS	7-12-12-16	RED-BRN clayey SILT, tr(+) m-F Gravel	
	S-15	SS	23-51/5"	30.1'	
30	S-16	SS	51/4"	(Competent Bedrock)	Vertical joint (open · closed) 31.4-42.3
	CORE-155 BOX #2	NX CORE		Moderate reddish brown to reddish brown SHALE and silty SHALE, w/occasional shale clasts in zones, slabby parting	
35				Abundant spherulites 35.5-36.0'	10° fracture @ possible joint
40				Diagenetic compaction: dewatering structure siltstone and f sandstone bed 37-38.0'	

C4

AWARE INCORPORATED

TEST BORING LOG

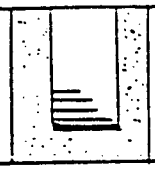
NO. GAF-7D

PROJECT: GAF-LINDEN

CLIENT: GAF CHEMICALS CORP

SHEET NO. 2 of 2

PROJECT NO. 6106

WELL CONSTRUCTION	DEPTH (FEET)	SAMPLE NO.	SAMPLE TYPE	SAMPLE BLOWS PER 6 INCHES	CLASSIFICATION (AFTER BURMISTER, 1959)	REMARKS	
	40				Moderate reddish brown SILTY and silty SAND Siltstone and f sandstone 44-44.7' END OF BORING 45.0	low angle fractures possible movement	77%
	45						
	50						
	55						
	60						
	65						
	70						
	75						
	80						
	85						
	90						

C5

AWARE INCORPORATED

TEST BORING LOG

NO. GAF-9S

SHEET NO. 1 of
PROJECT NO.

PROJECT: GAF - LINDEN
CLIENT: GAF Chemicals Corp

DRILLING DATA	
CONTRACTOR:	HARDIN - HUBER
DRILLER:	KEVIN HUBER
EQUIPMENT:	B-61 Auger Rig
METHOD:	HOLLOW STEM AUGER

WELL CONSTRUCTION	RISER	INTAKE
MATERIAL	PVC	PVC
DIAMETER	4"	4"
COUPLING	Flush Threaded	Flush Threaded

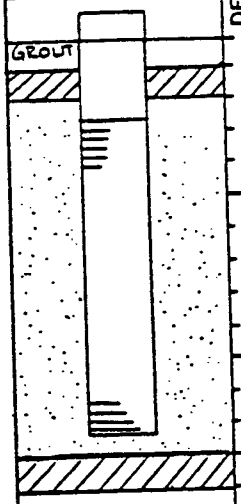
SAMPLING METHODS	SAMPLER	TUBE	CORE
TYPE	split spoon		
DIAMETER	2"		
OTHER	140# / 30" drop		

WELL DEVELOPMENT	
METHOD:	Airlifting
DURATION:	1.5 hr
YIELD:	[illegible]
OTHER:	[illegible]

	GROUND	WELL	PROTCSG
ELEV	5.7	8.5	

DATE STARTED: 4-19-88
DATE COMPLETED: 4-19-88
INSPECTOR: MTSchneiner

WELL CONSTRUCTION



DEPTH (FEET)	SAMPLE NO.	TYPE	BLOWS PER 6 INCHES	CLASSIFICATION (AFTER BURMISTER, 1959)	REMARKS
0	S-1	SS	1-2-5-9	FILL Black f-m-c SAND, little (+) Silt with some Gravel and brick fragments	
	S-2	SS	5-3-7-2		
5	S-3	SS	1-2-2-2		SATURATED @ 5.0'
	S-4	SS	1-1-1-1		
	S-5	SS	1-1-1-1	Black f-m SAND, little (+) Silt 10.0'	
10	S-6	SS	1/12"-1/12"	TIDAL MARSH DEPOSIT	VANE SHEAR TEST @12.0 ft in adjacent boring
	S-7	SS	1/12"-1-1	MEDIUM BROWN FIBROUS PEAT, VERY COMPACTED GRADING to MED BRN PEAT with SOME CLAY 14.0'	STRONG H_2S ODOR
15					
20					
25					
30					
35					
40					

END OF BORING

AWARE INCORPORATED

TEST BORING LOG

NO. GFF-9D

SHEET NO. 1 of 2
PROJECT NO.

PROJECT GFF-LINDEN
CLIENT: SPF CHEMICALS [illegible]

DRILLING DATA	
CONTRACTOR:	HARDIN-HUBER
DRILLER:	KEVIN HUBER
EQUIPMENT:	B-61 FUSER 215
METHOD:	HOLLOW STEM AUGER/HYDRAULIC ROTARY

SAMPLING METHODS	SAMPLER	TUBE	CORE
TYPE	SPLIT-SPOON		[illegible]
DIAMETER	2"		2 15/16"
OTHER	140#/30" drop		

WELL CONSTRUCTION	RISER	INTAKE
MATERIAL	PVC	PVC
DIAMETER	4"	4"
COUPLING	Flush Threaded	Flush Threaded

WELL DEVELOPMENT	
METHOD:	AIRLIFTING
DURATION:	1.0 HR.
YIELD:	[illegible]
OTHER:	clean

	GROUND	WELL	PROT CS
ELEV	4.7	8.31	

DATE STARTED: 4-26-88
DATE COMPLETED: 5-11-88
INSPECTOR: M. HARDIN

WELL CONSTRUCTION: STEEL CASING, GROUT, PVC CASING, GROUT, STEEL CASING

DEPTH (FEET)	SAMPLE NO.	TYPE	BLOWS PER 6 INCHES	CLASSIFICATION (AFTER BURMISTER, 1959)	REMARKS
0					
5					
10					VANE SHEAR TEST @ 12.0 ft. in adjacent boring
15	S-8	SS	1/12"- 1/12"	TIDAL MARSH DEPOSIT Dk. Brn fibrous PEAT grading to Dk Brn-Blk PEAT with some (+) CLAY 19.0'	
	S-9	SS	1/12"- 1-2		
	S-10	SS	1-3- 3-6		
20	S-11	SS	5-6- 6-5	Dk gry silty CLAY to Lt. gry M-F SAND, little (+) Silt fining to F-M SAND, some (+) Silt 23.0'	
	S-12	SS	5-7- 9-11		
25	S-13	SS	5-9- 12-11	GLACIAL TILL Red-Brn M-F SAND, little (+) Silt grading to Red-Brn CLAY and SILT, little (-) f-m-c Gravel, little f Sand 32.0'	
	S-14	SS	3-6- 6-10		
	S-15	SS	10-10- 10-9		
30	S-16	SS	3-7- 9-12		
	S-17	SS	12-23- 33-34	BRUNSWICK FM. (Residual Soil) Red-Brn Clayey SILT, some (+) m-f Gravel	
35	S-18	SS	6-27- 33-23		
	S-19	SS	13-26- 30-23		
	S-20	SS	15-26- 31/1"		Bedding planes and shale partings observed
40					

C7

AWARE INCORPORATED

TEST BORING LOG

NO. GHF-9D

PROJECT: GHF-LINDEN
CLIENT: GHF CHEMICALS CORP

SHEET NO. 2 of 2
PROJECT NO. 1010

WELL CONSTRUCTION	DEPTH (FEET)	SAMPLE NO.	TYPE	BLOWS PER 6 INCHES	CLASSIFICATION (AFTER BURMISTER, 1959)	REMARKS	
	40	S-21	SS	34-51/5"	BRUNSWICK FORMATION (Residual Soil)		
		S-22	SS	21-26-33-35			
	45	S-23	SS	18-26-33-39			
		S-24	SS	25-51/4"			
		S-25	SS	17-51/2"	50.0'		
	50	S-26	SS	51/1"	(Competent Bedrock) Moderate to Dark reddish-brown Siltstone w/ subordinate silty Shale, slabby parting traces of greenish alteration		
		S-27	SS	51/1"			
	55	CORE-158 Box 5	NX CORE		possible bioturbation 57.9'	2 partings or 10° fractures w/ possible mumm	62%
	60				Diagenetic compaction and dewatering structures 58-63.0'	50° fracture 2-10° fracture 2-15° fractures 3° fracture	83%
					END OF BORING 63.0'		
	65						
	70						
	75						
	80						
	85						
	90						

AWARE INCORPORATED

TEST BORING LOG

NO. GAF-10[illegible]

PROJECT: GAF - LINDEN
CLIENT: GAF CHEMICALS CORP

SHEET NO. 1 of 1
PROJECT NO. [illegible]

DRILLING DATA	
CONTRACTOR:	HARDIN-HUBER
DRILLER:	KEVIN HUBER
EQUIPMENT:	B-61 AUGER RIG
METHOD:	HOLLOW STEM AUGER

SAMPLING METHODS	SAMPLER	TUBE	CORE
TYPE	Split Spoon		
DIAMETER	2"		
OTHER	140#/30" drop		

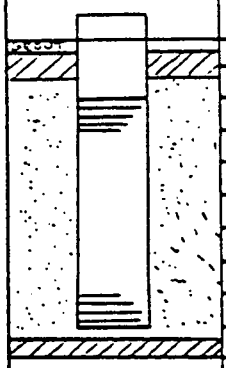
WELL CONSTRUCTION	RISER	INTAKE
MATERIAL	PVC	PVC
DIAMETER	4"	4"
COUPLING	Flush Threaded	Flush Threaded

WELL DEVELOPMENT	
METHOD:	AIRLIFTING
DURATION:	1 HR.
YIELD:	[illegible]
OTHER:	clean

	GROUND	WELL	PROT CSG
ELEV	6.0	9.0	

DATE STARTED: 4-19-88
DATE COMPLETED: 4-19-88
INSPECTOR: MJ SCHNEIDER

WELL CONSTRUCTION



DEPTH (FEET)	SAMPLE NO.	TYPE	BLOWS PER 6 INCHES	CLASSIFICATION (AFTER BURMISTER, 1959)	REMARKS
0	S-1	SS	1-3- 11-10	FILL Med Brn C-m SAND to Black Heterogeneous FILL; BRICK AND COAL Fragments 5.0'	SATURATED @ 4.C
	S-2	SS	3-3- 3-3		
5	S-3	SS	1-1- 1-1		STRONG H_2S ODOR
	S-4	SS	1/12"- 1-2		
	S-5	SS	1-1- 1/12"	TIDAL MARSH DEPOSIT Med-Dk Brn FIBROUS PEAT Grading to Black PEAT w/ Some CLAY 9.5'	VANE SHEAR TEST @ 9.0 ft. in adjacent boring
10				Green-black CLAY w/ decomposed SHELL fragment 10.0'	
15				END OF BORING	
20					
25					
30					
35					
40					

C9

AWARE INCORPORATED

TEST BORING LOG

NO. GAF 10D

SHEET NO. 1 of 2
PROJECT NO. [illegible]

PROJECT: GFF-UNDEN
CLIENT: GFF CHEMICAL WORK

DRILLING DATA	
CONTRACTOR:	HARDIN-HUBER
DRILLER:	KEVIN HUBER
EQUIPMENT:	B-61 AUGER RIG
METHOD:	HOLLOW STEM AUGER/HYDRAULIC ROTARY

SAMPLING METHODS	SAMPLER	TUBE	CORE
TYPE	Split spoon	[illegible]	[illegible]
DIAMETER	2"	3"	2 15/16
OTHER	140#/30" drop	pushed	

WELL CONSTRUCTION	RISER	INTAKE
MATERIAL	PVC	PVC
DIAMETER	4"	4"
COUPLING	Flush Threaded	Flush Threaded

WELL DEVELOPMENT	
METHOD:	AIRLIFTING
DURATION:	1.0 HR
YIELD:	slow
OTHER:	clean

	GROUND	WELL	PROT CSG
ELEV	5.9	7.79	

DATE STARTED: 5-2-88
DATE COMPLETED: 5-24-88
INSPECTOR: MT. SCHNEIDER

WELL CONSTRUCTION: GROUT, GROUT, PVC CASING, STEEL CASING, STEEL CASING

DEPTH (FEET)	SAMPLE NO.	TYPE	BLOWS PER 6 INCHES	CLASSIFICATION (AFTER BURMISTER, 1959)	REMARKS
0					
5					
10	S-6	SS	1/12"-2-2	TIDAL MARSH DEPOSIT Blk-gry CLAY w/ some organics, wood and peat to Blk organic SILT and CLAY 13.0'	VANE SHEAR TEST @9.0ft. in adjacent boring
	S-7	SS	1/12"-1-2		Strong H_2S odor
15	S-8	SS	WH/6"-2-6-9	Gry-green clayey SILT grading to Gry-grn CLAY and SILT w/ Brn mottling 15.5'	SHELBY TUBE pushed 15.0-17.0ft
	S-9	SS	WH/6"-2-3-6		
	S-10	SS	3-6-7-10		
20	S-11	SS	8-8-6-5	GLACIAL TILL MED Brn FM SAND, some Silt to M-C-F SAND, some (-) rounded Gravel	
	S-12	SS	4-4-3-3		
25	S-13	SS	6-6-8-8		
	S-14	SS	5-5-8-12	RED-BRN clayey SILT w/ little (-) f sand, well sorted, massive	
	S-15	SS	5-6-8-10		
30	S-16	SS	5-4-11-13		
	S-17	SS	4-8-12-17		
35	S-18	SS	8-8-11-12	RED-BRN clayey SILT, tr (-) m-f Gravel	
	S-19	SS	5-7-8-7	38.0'	
	S-20	SS	4-4-19-19	BRUNSWICK FM (Residual Soil)	
40					

C10

AWARE INCORPORATED

TEST BORING LOG

NO. 9HF-10D

PROJECT: GHF [illegible]
CLIENT: [illegible]

SHEET NO. 2 of 2
PROJECT NO. 6106

WELL CONSTRUCTION	DEPTH (FEET)	SAMPLE NO.	SAMPLE TYPE	BLOWS PER 6 INCHES	CLASSIFICATION (AFTER BURMISTER, 1959)	REMARKS	
	40	S-21	SS	7-[illegible] / 23-26	(Residual Soil)		
		S-22	SS	9-15 / 15-19	RED-BRN clayey SILT w/ some (+) C-M-F Gravel.		
	45	S-23	SS	9-11 / 13-[illegible]	46.0		
		S-24	SS	51/2"	(Competent Bedrock)		
	50	CORE-154 BOX #1	NX CORE		Predominantly dark reddish-brown SHALE w/ occasional zones of silty SHALE, greenish-gray alteration on fractures, slabby parting	10° fracture, possible movement	41%
					Possible diagenetic dewatering structure @ 46.3'	45° fracture	Poor REC.
	55				Soft sediment deformation 54.0-55.0'	10° fracture, possible movement. 2-10° fractures	60%
	60				Isolated spherulites 58.5-59.5'	15° fracture 2-15° fractures vertical joint 59.5-61.0	24%
					END OF BORING 61.0		
	65						
	70						
	75						
	80						
	85						
	90						

C11

AWARE INCORPORATED

TEST BORING LOG

NO. GAF-13S

SHEET NO. 1 of 1
PROJECT NO. 6106

PROJECT: GAF-LINDEN
CLIENT: GAF CHEMICAL CORP

DRILLING DATA	
CONTRACTOR:	HARDIN-HUBER
DRILLER:	KEVIN HUBER
EQUIPMENT:	B-61 AUGER RIG
METHOD:	HOLLOW STEM AUGER

SAMPLING METHODS	SAMPLER	TUBE	CORE
TYPE	split spoon		
DIAMETER	2"		
OTHER	140#/30" drop		

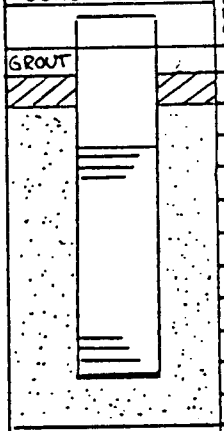
WELL CONSTRUCTION	RISER	INTAKE
MATERIAL	PVC	PVC
DIAMETER	4"	4"
COUPLING	Flush Threaded	Flush Threaded

WELL DEVELOPMENT	
METHOD:	AIRLIFTING
DURATION:	1.0 HR
YIELD:	fast
OTHER:	clear

	GROUND	WELL	PROT CSG
ELEV	8.8	12.08	

DATE STARTED: 4-21-88
DATE COMPLETED: 4-21-88
INSPECTOR: M. SCHNEIDER

WELL CONSTRUCTION



DEPTH (FEET)	SAMPLE NO.	TYPE	BLOWS PER 6 INCHES	CLASSIFICATION (AFTER BURMISTER, 1959)	REMARKS
0	S-1	SS	3-7-9-9	FILL	
	S-2	SS	3-5-7-7	Brown-red silty CLAY, some Gravel to Black-gray silty CLAY	
5	S-3	SS	4-5-5-4		
	S-4	SS	1-2-3-2	Brown-Red M-F SAND, little Silt 9.5'	
	S-5	SS	1-3-3-3		
10	S-6	SS	1-1-1-3	TIDAL MARSH DEPOSIT MED-DK Bm PEAT w/some (+) Blk silty CLAY to Dk-gry-blk silty CLAY 12.0'	WELL INSTALLATION: Collapse of Natural material 10.5-12.0'
					VANE SHEAR TEST @ 10.0 ft. in adjacent boring
15					
20					
25					
30					
35					
40					

Rev 9/20/88

C12

AWARE INCORPORATED

TEST BORING LOG

NO. GAF-13D

PROJECT: GAF-LINDEN
CLIENT: GAF CHEMICALS CORP

SHEET NO. 1 of 2
PROJECT NO. 610.6

DRILLING DATA	
CONTRACTOR:	HARDIN-HUBER
DRILLER:	VATE LAZARO
EQUIPMENT:	B-80 MOBILE DRILL
METHOD:	HOLLOW STEM AUGER / HYDRAULIC ROTARY

SAMPLING METHODS	SAMPLER	TUBE	CORE
TYPE	Split Spoon	Shelby Tube	NX
DIAMETER	2"	3"	2 15/16"
OTHER	140# / 30" drop	pushed	

WELL CONSTRUCTION	RISER	INTAKE
MATERIAL	PVC	PVC
DIAMETER	4"	4"
COUPLING	Flush Threaded	Flush Threaded

WELL DEVELOPMENT	
METHOD:	AIRLIFTING
DURATION:	1.0 HR
YIELD:	moderate
OTHER:	[illegible]

	GROUND	WELL	PROTC
ELEV	8.6	10.65	

DATE STARTED: 5-12-88
DATE COMPLETED: 5-19-88
INSPECTOR: MT SCHNEIDER

WELL CONSTRUCTION: STEEL CASING, GROUT, PVC CASING, GROUT, STEEL CASING

DEPTH (FEET)	SAMPLE NO.	TYPE	BLOWS PER 6 INCHES	CLASSIFICATION (AFTER BURMISTER, 1959)	REMARKS
0					
5					
10				12'	VANE SHEAR TEST @ 10.0 ft in adjacent boring
15	S-7	SS	3-7-7-7	GLACIAL TILL	
	S-8	SS	4-6-6-8	GRY-BRN Clayey SILT, trace f Sand, well sorted	SHELBY TUBES pushed 10.0-12.0 ft and 14.0-16.0 ft in adjacent boring
	S-9	SS	9-11-13-13		
20	S-10	SS	8-11-13-13	RED-BRN Clayey SILT w/ trace f-M Gravel, WELL SORTED	
	S-11	SS	3-5-5-7	22.0'	
25	S-12	SS	5-8-14-14	BRUNSWICK FORMATION (Residual Soil)	
	S-13	SS	10-14-18-20	RED-BRN Clayey SILT w/ trace (-) f Gravel	Bedding plane and partings observed.
	S-14	SS	8-16-23-45		
	S-15	SS	25-44-20-16		
30	S-16	SS	5-9-11-13	RED-BRN WEATHERED ROCK w/ green mineralization	
	S-17	SS	23-35-38-51		
35	S-18	SS	12-51/5"	36.5'	
	S-19	SS	43-51/5"	(Competent Bedrock)	60° Fracture
40	CORE-157 BOX #4	NX CORE		MODERATE REDDISH-BROWN (10R 4/6) to DK REDDISH BROWN (10R 3/4) SHALE AND SILTY SHALE	Vertical joint 38.7-41.0
					2-55-fractures

C13

AWARE INCORPORATED

TEST BORING LOG

NO. GHT-13D

SHEET NO. 2 of 2

PROJECT: GAF-LINDEN

PROJECT NO. 6161

CLIENT: GAF CHEMICALS CORP

WELL CONSTRUCTION	DEPTH (FEET)	SAMPLE NO.	SAMPLE TYPE	BLOWS PER 6 INCHES	CLASSIFICATION (AFTER BURMISTER, 1959)	REMARKS	
	40	CORE-15'-Box #4	NX CORE		Reddish brown SHALE and silty SHALE slabby parting (2-50 cm) along bed. planes w/ lt greenish-gray (5 GY 8/1), slightly calcareous alterations along fractures · partings	50° fracture 15° fracture vertical joint	29%
	45				Predominantly plane-parallel bedding disrupted 46.6-47.0 by diagenetic compaction and dewatering structures	40° fracture vertical joint 49.6-50.6	14%
	50				END OF BORING		
	55						
	60						
	65						
	70						
	75						
	80						
	85						
	90						

C14

AWARE INCORPORATED

TEST BORING LOG

NO. GAF-14S

SHEET NO. 1 of 1
PROJECT NO. 6106

PROJECT: GAF-LINDEN
CLIENT: GAF CHEMICALS CORP

DRILLING DATA

CONTRACTOR: HARDIN-HUBER
DRILLER: KEVIN HUBER
EQUIPMENT: B-61 Auger Rig
METHOD: HOLLOW STEM AUGER

SAMPLING METHODS

	SAMPLER	TUBE	CORE
TYPE	split spoon		
DIAMETER	2"		
OTHER	140#/30" drop		

WELL CONSTRUCTION

	RISER	INTAKE
MATERIAL	PVC	PVC
DIAMETER	4"	4"
COUPLING	Flush Threaded	Flush Threaded

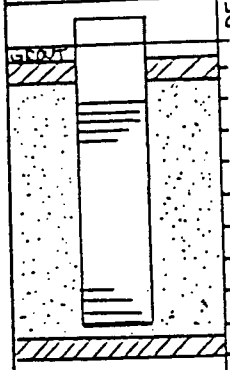
WELL DEVELOPMENT

METHOD: AIRLIFTING
DURATION: 1.0HR
YIELD: fast
OTHER: Clean

	GROUND	WELL	PROT CSG
ELEV	9.0	11.84	

DATE STARTED: 4-20-88
DATE COMPLETED: 4-20-88
INSPECTOR: MJ SCHNEIDER

WELL CONSTRUCTION



DEPTH (FEET)	SAMPLE NO.	TYPE	BLOWS PER 6 INCHES	CLASSIFICATION (AFTER BURMISTER, 1959)	REMARKS
0	S-1	SS	8-9-9-11	FILL RED-BRN C-M SAND to MED BRN f-m SAND, little (+) $, some brick pieces	
	S-2	SS	6-5-6-6		
5	S-3	SS	2-2-3-4	MED BRN clayey SILT w/ orange-brown and white laminae	VERY WET @ 6.0'
	S-4	SS	1-1-1-2	REDDISH silty CLAY w/ some Gravel 8.5'	
	S-5	SS	1-1-1-1		
10				TIDAL MARSH DEPOSIT Green-brown CLAY w/ Some (+) PEAT 10.0'	FAINT H_2S ODOR @ 10.0'
15					
20				END OF BORING	
25					
30					
35					
40					

Rev 9/20/87

C15

AWARE INCORPORATED

TEST BORING LOG

NO. GAF-14D

SHEET NO. 1 of 2
PROJECT NO. 6106

PROJECT: GAF-LINDEN
CLIENT: GAF CHEMICALS CORP

DRILLING DATA	
CONTRACTOR:	HARDIN-HUBER
DRILLER:	KEVIN HUBER
EQUIPMENT:	B-61 AUGER RIG
METHOD:	HOLLOW STEM AUGER/HYDRAULIC ROTARY

WELL CONSTRUCTION	RISER	INTAKE
MATERIAL	PVC	PVC
DIAMETER	4"	4"
COUPLING	Flush Threaded	Flush Threaded

SAMPLING METHODS	SAMPLER	TUBE	CORE
TYPE	Split Spoon	Shelby tube	NX
DIAMETER	2"	3"	2 13/16"
OTHER	140#/30" drop	pushed	

WELL DEVELOPMENT	
METHOD:	AIRLIFTING
DURATION:	1.0 HR
YIELD:	moderate
OTHER:	clean

	GROUND	WELL	PROT CSG
ELEV	7.0	9.15	

DATE STARTED: 5-4-88
DATE COMPLETED: 5-17-88
INSPECTOR: MJ SCHNEIDER

WELL CONSTRUCTION: 6" STEEL CASING, GROUT, PVC CASING, GROUT, 6" STEEL CASING

DEPTH (FEET)	SAMPLE NO.	TYPE	BLOWS PER 6 INCHES	CLASSIFICATION (AFTER BURMISTER, 1959)	REMARKS
0	S-1	SS	1-1-1-1	**FILL** Lt. tan M-F-C SAND, tr(+) Silt w/ white silty CLAY stringers. Red-black silty CLAY w/ some brick fragments. black staining. 6.0'	
	S-2	SS	1-1-1-1		
5	S-3	SS	2-3-4-3		
	S-4	SS	1/24"	**TIDAL MARSH DEPOSIT** Black, compacted PEAT w/ little (+) Clay to Black, organic clayey SILT to Black SILT & CLAY 12.0'	
	S-5	SS	1/24"		VANE SHEAR TEST @ 10.0 ft. in adjacent boring
10	S-6	SS	1/12-2-3		
	S-7	SS	3-7-9-10	Stratified Blue-gray SILT grading to interbedded SILT and CLAY, tr(+) f SAND and SILT 15.5'	
15	S-8	SS	2-3-3-4		
	S-9	SS	2-3-5-5	**GLACIAL TILL** RED-BRN CLAY & SILT, little (-) f-m-c Sand, little f-m Gravel	SHELBY TUBE pushed 17.0-19.0 ft. in adjacent boring
	S-10	SS	5-5-8-8		
20	S-11	SS	5-8-13-22	RED-BRN clayey SILT, little f Gravel, massive, well sorted 25.0'	
	S-12	SS	10-16-16-23		
25	S-13	SS	10-23-28-31	**BRUNSWICK FORMATION** (Residual Soil) RED-BRN clayey SILT to RED-BRN SILT w/ some (+) SHALE pcs. 30.0'	Evidence of bedding plane and partings in shale.
	S-14	SS	29-51/5"		
	S-15	SS	51/6"		
30	S-16	SS	51/6"	(Competent Bedrock) Moderate reddish-brown to dark reddish-brown SHALE and Silty SHALE (rarely micaceous) w/ lt. greenish-gray alteration and dark yellowish-orange (limonite?) coating along partings and fractures. slabby parting	3-45° fractures
35	CORE-156 BOX #3	NX CORE			45° fracture 60° fracture — 62%
40					vertical joints and fractures - parallel high angle fractures cross-cutting fractures — 60%
					2-45° fractures (mumt?) 45° fractures, brecciated — 60%

Rev 9/20/89 MJS

C16

AWARE INCORPORATED

TEST BORING LOG

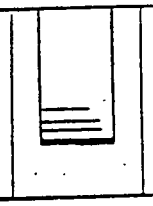
NO. GAF-17D

SHEET NO. 2 of 2

PROJECT: GAF-LINDEN

PROJECT NO. 6106

CLIENT: GAF CHEMICALS CORP

WELL CONSTRUCTION	DEPTH (FEET)	SAMPLE NO.	SAMPLE TYPE	BLOWS PER 6 INCHES	CLASSIFICATION (AFTER BURMISTER, 1959)	REMARKS	
	40	CORE-156	NYCORE		SHALE and Silty SHALE, as above 5mm spherulites 43.0-44.0 END OF BORING 46.0'	WELL INSTALLATION Natural collapse of material 44.5 to 46.0' 60% [illegible] @ 43.0' 43.4	60%
	45						
	50						
	55						
	60						
	65						
	70						
	75						
	80						
	85						
	90						

C17

AWARE INCORPORATED

TEST BORING LOG

NO. WP-1

SHEET NO. 1 of 1
PROJECT NO. 6106

PROJECT GAF-LINDEN
CLIENT: GAF CHEMICALS CORP.

DRILLING DATA	
CONTRACTOR:	HARDIN HUBER
DRILLER:	KEVIN HUBER
EQUIPMENT:	B-61 MOBILE RIG
METHOD:	HOLLOW STEM AUGER

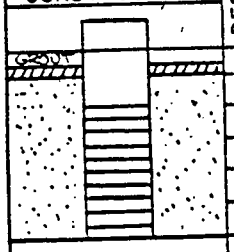
SAMPLING METHODS	SAMPLER	TUBE	CORE
TYPE			
DIAMETER			
OTHER			

WELL CONSTRUCTION	RISER	INTAKE
MATERIAL	PVC	PVC
DIAMETER	1 1/4"	1 1/4"
COUPLING	FLUSH THREADED	FLUSH THREADED

WELL DEVELOPMENT	
METHOD:	
DURATION:	
YIELD:	
OTHER:	

	GROUND	WELL	PROTCS
ELEV			

DATE STARTED: 4-21-88
DATE COMPLETED: 4-21-88
INSPECTOR: MJ SCHNEIDER

WELL CONSTRUCTION	DEPTH (FEET)	SAMPLE NO.	SAMPLE TYPE	BLOWS PER 6 INCHES	CLASSIFICATION (AFTER BURMISTER, 1959)	REMARKS
	0					
	5					
	10					
	15					
	20					
	25					
	30					
	35					
	40					

C18

AWARE INCORPORATED

TEST BORING LOG

NO. WP-2

SHEET NO. 1 of 1
PROJECT NO. 6106

PROJECT: GAF-LINDEN
CLIENT: GAF CHEMICALS CORP.

DRILLING DATA	
CONTRACTOR:	HARDIN HUBER
DRILLER:	KEVIN HUBER
EQUIPMENT:	B-61 MOBILE RIG
METHOD:	HOLLOW STEM AUGER

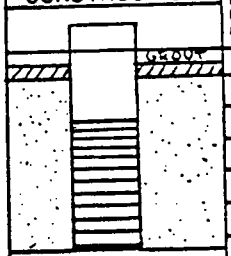
SAMPLING METHODS	SAMPLER	TUBE	CORE
TYPE			
DIAMETER			
OTHER			

WELL CONSTRUCTION	RISER	INTAKE
MATERIAL	PVC	PVC
DIAMETER	1 1/4"	1 1/4"
COUPLING	FLUSH THREADED	FLUSH THREADED

WELL DEVELOPMENT	
METHOD:	
DURATION:	
YIELD:	
OTHER:	

	GROUND	WELL	PROT C
ELEV			

DATE STARTED: 4-21-88
DATE COMPLETED: 4-21-88
INSPECTOR: MJ SCHNEIDER

WELL CONSTRUCTION	DEPTH (FEET)	SAMPLE NO.	SAMPLE TYPE	BLOWS PER 6 INCHES	CLASSIFICATION (AFTER BURMISTER, 1959)	REMARKS
	0					
	5					
	10					
	15					
	20					
	25					
	30					
	35					
	40					

C19

AWARE INCORPORATED

TEST BORING LOG

NO. WP-3

SHEET NO. 1 of 1
PROJECT NO. 6106

PROJECT: GAF-LINDEN
CLIENT: GAF CHEMICALS CORP.

DRILLING DATA	
CONTRACTOR:	HARDIN-HUBER
DRILLER:	KEVIN HUBER
EQUIPMENT:	B-61 MOBILE RIG
METHOD:	HOLLOW STEM AUGER

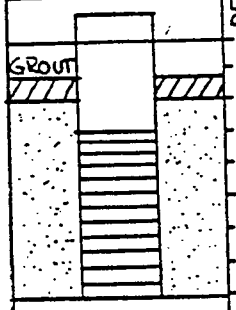
SAMPLING METHODS	SAMPLER	TUBE	CORE
TYPE			
DIAMETER			
OTHER			

WELL CONSTRUCTION	RISER	INTAKE
MATERIAL	PVC	PVC
DIAMETER	1 1/4"	1 1/4"
COUPLING	FLUSH THREADED	FLUSH THREADED

WELL DEVELOPMENT	
METHOD:	
DURATION:	
YIELD:	
OTHER:	

	GROUND	WELL	PROT CSG
ELEV			

DATE STARTED: 4-21-88
DATE COMPLETED: 4-21-88
INSPECTOR: MJ SCHNEIDER

WELL CONSTRUCTION	DEPTH (FEET)	SAMPLE NO.	SAMPLE TYPE	BLOWS PER 6 INCHES	CLASSIFICATION (AFTER BURMISTER, 1959)	REMARKS
	0					
	5					
	10					
	15					
	20					
	25					
	30					
	35					
	40					

C20

AWARE INCORPORATED

TEST BORING LOG

NO. WP-4

SHEET NO. 1 of 1
PROJECT NO. 6106

PROJECT: GAF-LINDEN
CLIENT: GAF CHEMICALS CORP.

DRILLING DATA	
CONTRACTOR:	HARDIN-HUBER
DRILLER:	KEVIN HUBER
EQUIPMENT:	B-61 MOBILE RIG
METHOD:	HOLLOW STEM AUGER

SAMPLING METHODS	SAMPLER	TUBE	CORE
TYPE			
DIAMETER			
OTHER			

WELL CONSTRUCTION	RISER	INTAKE
MATERIAL	PVC	PVC
DIAMETER	1 1/4"	1 1/4"
COUPLING	FLUSH THREADED	FLUSH THREADED

WELL DEVELOPMENT	
METHOD:	
DURATION:	
YIELD:	
OTHER:	

	GROUND	WELL	PROT CSG
ELEV			

DATE STARTED: 4-21-83
DATE COMPLETED: 4-21-83
INSPECTOR: MJ SCHNEIDER

WELL CONSTRUCTION	DEPTH (FEET)	SAMPLE NO.	SAMPLE TYPE	BLOWS PER 6 INCHES	CLASSIFICATION (AFTER BURMISTER, 1959)	REMARKS
GROUT	0					
	5					
	10					
	15					
	20					
	25					
	30					
	35					
	40					

C21

AWARE INCORPORATED

TEST BORING LOG

NO. WP-5

SHEET NO. 1 of 1
PROJECT NO. 6106

PROJECT: GAF-LINDEN
CLIENT: GAF CHEMICALS CORP.

DRILLING DATA	
CONTRACTOR:	HARDIN HUBER
DRILLER:	KEVIN HUBER
EQUIPMENT:	B-61 MOBILE RIG
METHOD:	HOLLOW STEM AUGER

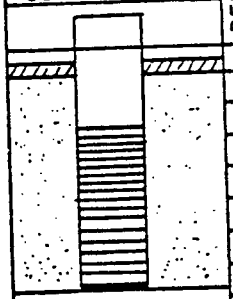
SAMPLING METHODS	SAMPLER	TUBE	CORE
TYPE			
DIAMETER			
OTHER			

WELL CONSTRUCTION	RISER	INTAKE
MATERIAL	PVC	PVC
DIAMETER	1 1/4"	1 1/4"
COUPLING	FLUSH THREADED	FLUSH THREADED

WELL DEVELOPMENT	
METHOD:	
DURATION:	
YIELD:	
OTHER:	

	GROUND	WELL	PROT CSG
ELEV			

DATE STARTED: 4-22-88
DATE COMPLETED: 4-22-88
INSPECTOR: MJ SCHNEIDER

WELL CONSTRUCTION	DEPTH (FEET)	SAMPLE NO.	SAMPLE TYPE	BLOWS PER 6 INCHES	CLASSIFICATION (AFTER BURMISTER, 1959)	REMARKS
	0					
	5					
	10					
	15					
	20					
	25					
	30					
	35					
	40					

C22

AWARE INCORPORATED

TEST BORING LOG

NO. WP-6

SHEET NO. 1 of 1
PROJECT NO. 6106

PROJECT: GAF-LINDEN
CLIENT: GAF CHEMICALS CORP.

DRILLING DATA	
CONTRACTOR:	HARDIN-HUBER
DRILLER:	KEVIN HUBER
EQUIPMENT:	B-61 MOBILE RIG
METHOD:	HOLLOW STEM AUGER

SAMPLING METHODS	SAMPLER	TUBE	CORE
TYPE			
DIAMETER			
OTHER			

WELL CONSTRUCTION	RISER	INTAKE
MATERIAL	PVC	PVC
DIAMETER	1 1/4"	1 1/4"
COUPLING	FLUSH THREADED	FLUSH THREADED

WELL DEVELOPMENT	
METHOD:	
DURATION:	
YIELD:	
OTHER:	

	GROUND	WELL	PROT CSG
ELEV			

DATE STARTED: 4-20-88
DATE COMPLETED: 4-20-88
INSPECTOR: MJ SCHNEIDER

WELL CONSTRUCTION	DEPTH (FEET)	SAMPLE NO.	SAMPLE TYPE	BLOWS PER 6 INCHES	CLASSIFICATION (AFTER BURMISTER, 1959)	REMARKS
2OUT→	0					
	5					
	10					
	15					
	20					
	25					
	30					
	35					
	40					

C23

AWARE INCORPORATED

TEST BORING LOG

NO. WP-7

SHEET NO. 1 of 1
PROJECT NO. 6106

PROJECT: GAF-LINDEN
CLIENT: GAF CHEMICALS CORP.

DRILLING DATA	
CONTRACTOR:	HARDIN HUBER
DRILLER:	KEVIN HUBER
EQUIPMENT:	B-61 MOBILE RIG
METHOD:	HOLLOW STEM AUGER

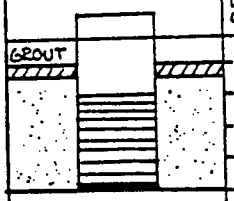
SAMPLING METHODS	SAMPLER	TUBE	CORE
TYPE			
DIAMETER			
OTHER			

WELL CONSTRUCTION	RISER	INTAKE
MATERIAL	PVC	PVC
DIAMETER	1 1/4"	1 1/4"
COUPLING	FLUSH THREADED	FLUSH THREADED

WELL DEVELOPMENT	
METHOD:	
DURATION:	
YIELD:	
OTHER:	

	GROUND	WELL	PROT CSG
ELEV			

DATE STARTED: 4-21-88
DATE COMPLETED: 4-21-88
INSPECTOR: MJ SCHNEIDER

WELL CONSTRUCTION	DEPTH (FEET)	SAMPLE NO.	SAMPLE TYPE	BLOWS PER 6 INCHES	CLASSIFICATION (AFTER BURMISTER, 1959)	REMARKS
	0					
	5					
	10					
	15					
	20					
	25					
	30					
	35					
	40					

C24

AWARE INCORPORATED

TEST BORING LOG

NO. WP-8

SHEET NO. 1 of 1
PROJECT NO. 6106

PROJECT: GAF-LINDEN
CLIENT: GAF CHEMICALS CORP.

DRILLING DATA	
CONTRACTOR:	HARDIN HUBER
DRILLER:	KEVIN HUBER
EQUIPMENT:	B-61 MOBILE RIG
METHOD:	HOLLOW STEM AUGER

SAMPLING METHODS	SAMPLER	TUBE	CORE
TYPE			
DIAMETER			
OTHER			

WELL CONSTRUCTION	RISER	INTAKE
MATERIAL	PVC	PVC
DIAMETER	1 1/4"	1 1/4"
COUPLING	FLUSH THREADED	FLUSH THREADED

WELL DEVELOPMENT	
METHOD:	
DURATION:	
YIELD:	
OTHER:	

	GROUND	WELL	PROT CSG.
ELEV			

DATE STARTED: 4-22-88
DATE COMPLETED: 4-22-88
INSPECTOR: MJ SCHNEIDER

WELL CONSTRUCTION	DEPTH (FEET)	SAMPLE NO.	SAMPLE TYPE	BLOWS PER 6 INCHES	CLASSIFICATION (AFTER BURMISTER, 1959)	REMARKS
GROUT	0					
	5					
	10					
	15					
	20					
	25					
	30					
	35					
	40					

C25

AWARE INCORPORATED

TEST BORING LOG

NO. WP-9

SHEET NO. 1 of 1
PROJECT NO. 6106

PROJECT: GAF-LINDEN
CLIENT: GAF CHEMICALS CORP.

DRILLING DATA	
CONTRACTOR:	HARDIN HUBER
DRILLER:	KEVIN HUBER
EQUIPMENT:	B-61 MOBILE RIG
METHOD:	HOLLOW STEM AUGER

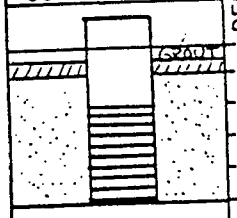
SAMPLING METHODS	SAMPLER	TUBE	CORE
TYPE			
DIAMETER			
OTHER			

WELL CONSTRUCTION	RISER	INTAKE
MATERIAL	PVC	PVC
DIAMETER	1 1/4"	1 1/4"
COUPLING	FLUSH THREADED	FLUSH THREADED

WELL DEVELOPMENT	
METHOD:	
DURATION:	
YIELD:	
OTHER:	

	GROUND	WELL	PROT CSG
ELEV			

DATE STARTED: 4-25-88
DATE COMPLETED: 4-25-88
INSPECTOR: MJ SCHNEIDER

WELL CONSTRUCTION	DEPTH (FEET)	SAMPLE NO.	SAMPLE TYPE	BLOWS PER 6 INCHES	CLASSIFICATION (AFTER BURMISTER, 1959)	REMARKS
	0					
	5					
	10					
	15					
	20					
	25					
	30					
	35					
	40					

C26

AWARE INCORPORATED

TEST BORING LOG

NO. WP-10

SHEET NO. 1 of 1
PROJECT NO. 6106

PROJECT: GAF-LINDEN
CLIENT: GAF CHEMICALS CORP.

DRILLING DATA	
CONTRACTOR:	HARDIN-HUBER
DRILLER:	KEVIN HUBER
EQUIPMENT:	B-61 MOBILE RIG
METHOD:	HOLLOW STEM AUGER

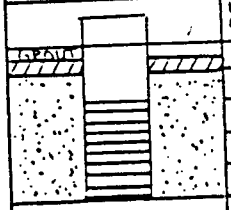
SAMPLING METHODS	SAMPLER	TUBE	CORE
TYPE			
DIAMETER			
OTHER			

WELL CONSTRUCTION	RISER	INTAKE
MATERIAL	PVC	PVC
DIAMETER	1 1/4"	1 1/4"
COUPLING	FLUSH THREADED	FLUSH THREADED

WELL DEVELOPMENT	
METHOD:	
DURATION:	
YIELD:	
OTHER:	

	GROUND	WELL	PROT CSG.
ELEV			

DATE STARTED: 4-25-88
DATE COMPLETED: 4-25-88
INSPECTOR: MJ SCHNEIDER

WELL CONSTRUCTION	DEPTH (FEET)	SAMPLE NO.	SAMPLE TYPE	BLOWS PER 6 INCHES	CLASSIFICATION (AFTER BURMISTER, 1959)	REMARKS
	0					
	5					
	10					
	15					
	20					
	25					
	30					
	35					
	40					

C27

AWARE INCORPORATED

TEST BORING LOG

NO. WP-11

SHEET NO. 1 of 1
PROJECT NO. 6106

PROJECT: GAF-LINDEN
CLIENT: GAF CHEMICALS CORP.

DRILLING DATA	
CONTRACTOR:	HARDIN HUBER
DRILLER:	KEVIN HUBER
EQUIPMENT:	B-61 MOBILE RIG
METHOD:	HOLLOW STEM AUGER

SAMPLING METHODS	SAMPLER	TUBE	CORE
TYPE			
DIAMETER			
OTHER			

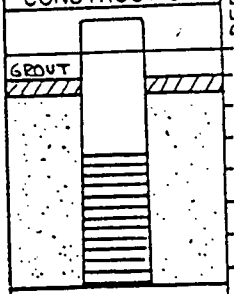
WELL CONSTRUCTION	RISER	INTAKE
MATERIAL	PVC	PVC
DIAMETER	1 1/4"	1 1/4"
COUPLING	FLUSH THREADED	FLUSH THREADED

WELL DEVELOPMENT	
METHOD:	
DURATION:	
YIELD:	
OTHER:	

	GROUND	WELL	PROT CSG
ELEV			

DATE STARTED: 4-25-88
DATE COMPLETED: 4-25-88
INSPECTOR: MJ SCHNEIDER

WELL CONSTRUCTION



DEPTH (FEET)	SAMPLE NO.	SAMPLE TYPE	BLOWS PER 6 INCHES	CLASSIFICATION (AFTER BURMISTER, 1959)	REMARKS
0					
5					
10					
15					
20					
25					
30					
35					
40					

C28

AWARE INCORPORATED

TEST BORING LOG

NO. WP-12

SHEET NO. 1 of 1
PROJECT NO. 6106

PROJECT: GAF-LINDEN
CLIENT: GAF CHEMICALS CORP.

DRILLING DATA	
CONTRACTOR:	HARDIN HUBER
DRILLER:	KEVIN HUBER
EQUIPMENT:	B-61 MOBILE RIG
METHOD:	HOLLOW STEM AUGER

SAMPLING METHODS	SAMPLER	TUBE	CORE
TYPE			
DIAMETER			
OTHER			

WELL CONSTRUCTION	RISER	INTAKE
MATERIAL	PVC	PVC
DIAMETER	1 1/4"	1 1/4"
COUPLING	FLUSH THREADED	FLUSH THREADED

WELL DEVELOPMENT	
METHOD:	
DURATION:	
YIELD:	
OTHER:	

	GROUND	WELL	PROT CSG
ELEV			

DATE STARTED: 4-25-88
DATE COMPLETED: 4-25-88
INSPECTOR: MJ SCHNEIDER

WELL CONSTRUCTION	DEPTH (FEET)	SAMPLE NO.	SAMPLE TYPE	BLOWS PER 6 INCHES	CLASSIFICATION (AFTER BURMISTER, 1959)	REMARKS
GROUT →	0					
	5					
	10					
	15					
	20					
	25					
	30					
	35					
	40					

C29

AWARE INCORPORATED

TEST BORING LOG

NO. WP-13

SHEET NO. 1 of 1
PROJECT NO. 6106

PROJECT: GAF-LINDEN
CLIENT: GAF CHEMICALS CORP.

DRILLING DATA	
CONTRACTOR:	HARDIN HUBER
DRILLER:	KEVIN HUBER
EQUIPMENT:	B-61 MOBILE RIG
METHOD:	HOLLOW STEM AUGER

SAMPLING METHODS	SAMPLER	TUBE	CORE
TYPE			
DIAMETER			
OTHER			

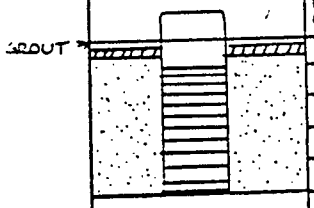
WELL CONSTRUCTION	RISER	INTAKE
MATERIAL	PVC	PVC
DIAMETER	1 1/4"	1 1/4"
COUPLING	FLUSH THREADED	FLUSH THREADED

WELL DEVELOPMENT	
METHOD:	
DURATION:	
YIELD:	
OTHER:	

	GROUND	WELL	PROT CSG
ELEV			

DATE STARTED: 4-25-88
DATE COMPLETED: 4-25-88
INSPECTOR: MJ SCHNEIDER

WELL CONSTRUCTION	DEPTH (FEET)	SAMPLE NO.	SAMPLE TYPE	BLOWS PER 6 INCHES	CLASSIFICATION (AFTER BURMISTER, 1959)	REMARKS



0, 5, 10, 15, 20, 25, 30, 35, 40

C30

AWARE INCORPORATED

TEST BORING LOG

NO. WP-14

SHEET NO. 1 of 1
PROJECT NO. 6106

PROJECT: GAF-LINDEN
CLIENT: GAF CHEMICALS CORP.

DRILLING DATA	
CONTRACTOR:	HARDIN-HUBER
DRILLER:	KEVIN HUBER
EQUIPMENT:	B-61 MOBILE RIG
METHOD:	HOLLOW STEM AUGER

SAMPLING METHODS	SAMPLER	TUBE	CORE
TYPE			
DIAMETER			
OTHER			

WELL CONSTRUCTION	RISER	INTAKE
MATERIAL	PVC	PVC
DIAMETER	1 1/4"	1 1/4"
COUPLING	FLUSH THREADED	FLUSH THREADED

WELL DEVELOPMENT	
METHOD:	
DURATION:	
YIELD:	
OTHER:	

	GROUND	WELL	PROT CSG
ELEV			

DATE STARTED: 4-25-88
DATE COMPLETED: 4-25-88
INSPECTOR: MJ SCHNEIDER

WELL CONSTRUCTION	DEPTH (FEET)	SAMPLE NO.	SAMPLE TYPE	BLOWS PER 6 INCHES	CLASSIFICATION (AFTER BURMISTER, 1959)	REMARKS
GROUT →	0					
COLLAPSE OF NATURAL MATERIAL	5					
	10					
	15					
	20					
	25					
	30					
	35					
	40					

C31

AWARE INCORPORATED

TEST BORING LOG

NO. WP-15

SHEET NO. 1 of 1

PROJECT NO. 6106

PROJECT: GAF-LINDEN

CLIENT: GAF CHEMICALS CORP.

DRILLING DATA	
CONTRACTOR:	HARDIN-HUBER
DRILLER:	KEVIN HUBER
EQUIPMENT:	B-61 MOBILE RIG
METHOD:	HOLLOW STEM AUGER

SAMPLING METHODS	SAMPLER	TUBE	CORE
TYPE			
DIAMETER			
OTHER			

WELL CONSTRUCTION	RISER	INTAKE
MATERIAL	PVC	PVC
DIAMETER	1 1/4"	1 1/4"
COUPLING	FLUSH THREADED	FLUSH THREADED

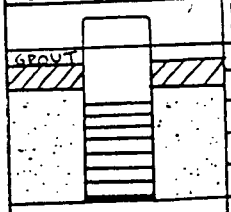
WELL DEVELOPMENT	
METHOD:	
DURATION:	
YIELD:	
OTHER:	

	GROUND	WELL	PROT CSG.
ELEV			

DATE STARTED: 4-25-88

DATE COMPLETED: 4-25-88

INSPECTOR: MJ SCHNEIDER

WELL CONSTRUCTION	DEPTH (FEET)	SAMPLE NO.	SAMPLE TYPE	BLOWS PER 6 INCHES	CLASSIFICATION (AFTER BURMISTER, 1959)	REMARKS
	0					
	5					
	10					
	15					
	20					
	25					
	30					
	35					
	40					

C32

AWARE INCORPORATED

TEST BORING LOG

NO. WP-16

SHEET NO. 1 of 1
PROJECT NO. 6106

PROJECT: GAF-LINDEN
CLIENT: GAF CHEMICALS CORP.

DRILLING DATA	
CONTRACTOR:	HARDIN-HUBER
DRILLER:	KEVIN HUBER
EQUIPMENT:	B-61 MOBILE RIG
METHOD:	HOLLOW STEM AUGER

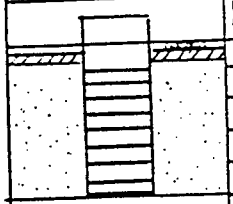
SAMPLING METHODS	SAMPLER	TUBE	CORE
TYPE			
DIAMETER			
OTHER			

WELL CONSTRUCTION	RISER	INTAKE
MATERIAL	PVC	PVC
DIAMETER	1 1/4"	1 1/4"
COUPLING	FLUSH THREADED	FLUSH THREADED

WELL DEVELOPMENT	
METHOD:	
DURATION:	
YIELD:	
OTHER:	

	GROUND	WELL	PROT CSG.
ELEV			

DATE STARTED: 4-25-88
DATE COMPLETED: 4-25-88
INSPECTOR: MJ SCHNEIDER

WELL CONSTRUCTION	DEPTH (FEET)	SAMPLE NO.	SAMPLE TYPE	BLOWS PER 6 INCHES	CLASSIFICATION (AFTER BURMISTER, 1959)	REMARKS
	0					
	5					
	10					
	15					
	20					
	25					
	30					
	35					
	40					

C33

AWARE INCORPORATED

TEST BORING LOG

NO. WP-17S

SHEET NO. 1 of 1
PROJECT NO. 6106

PROJECT: SAE-LINDEN
CLIENT: SEE CHEMICALS CORPORATION

DRILLING DATA	
CONTRACTOR:	HARDIN-HUBER INC
DRILLER:	KEVIN HUBER
EQUIPMENT:	B-61 MOBILE DRILL RIG
METHOD:	HOLLOW STEM AUGER

SAMPLING METHODS	SAMPLER	TUBE	CORE
TYPE			
DIAMETER			
OTHER			

WELL CONSTRUCTION	RISER	INTAKE
MATERIAL	PVC	PVC
DIAMETER	1 1/4"	1 1/4"
COUPLING	PVC coupling	PVC coupling

WELL DEVELOPMENT	
METHOD:	
DURATION:	
YIELD:	
OTHER:	

	GROUND	WELL	PROT
ELEV		3.58	

DATE STARTED: 7-29-83
DATE COMPLETED: 7-29-83
INSPECTOR: MITSNEIDER

WELL CONSTRUCTION	DEPTH (FEET)	SAMPLE NO.	SAMPLE TYPE	BLOWS PER 6 INCHES	CLASSIFICATION (AFTER BURMISTER, 1959)	REMARKS
CEMENT GROUT	0					
	5					
	10					
	15					
	20					
	25					
	30					
	35					
	40					

C34

AWARE INCORPORATED

TEST BORING LOG

NO. WP-17D

SHEET NO. 1 of 1
PROJECT NO. 6106

PROJECT: GAF-LINDEN
CLIENT: GAF CHEMICALS CORPORATION

DRILLING DATA	
CONTRACTOR:	JAKEDIN-HUBER INC
DRILLER:	KEVIN HUBER
EQUIPMENT:	B-61 MOBILE DRILL RIG
METHOD:	HOLLOW STEM AUGER

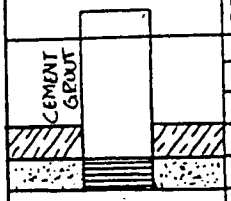
SAMPLING METHODS	SAMPLER	TUBE	CORE
TYPE			
DIAMETER			
OTHER			

WELL CONSTRUCTION	RISER	INTAKE
MATERIAL	PVC	PVC
DIAMETER	1 1/4"	1 1/4"
COUPLING	PVC coupling	PVC coupling

WELL DEVELOPMENT	
METHOD:	
DURATION:	
YIELD:	
OTHER:	

	GROUND	WELL	PROT C
ELEV		8.84	

DATE STARTED: 7-29-88
DATE COMPLETED: 7-29-88
INSPECTOR: MJ SCHNEIDER

WELL CONSTRUCTION	DEPTH (FEET)	SAMPLE NO.	SAMPLE TYPE	BLOWS PER 6 INCHES	CLASSIFICATION (AFTER BURMISTER, 1959)	REMARKS
	0				FILL ± 5.0	
	5	S-1	SS		TIDAL MARSH DEPOSIT 7.0	
	10					
	15					
	20					
	25					
	30					
	35					
	40					

C35

AWARE INCORPORATED

TEST BORING LOG

NO. WP-18S

SHEET NO. 1 of 1
PROJECT NO. 6106

PROJECT: GAF-LINDEN
CLIENT: GAF CHEMICALS CORPORATION

DRILLING DATA	
CONTRACTOR:	HARDIN-HUBER INC.
DRILLER:	KEVIN HUBER
EQUIPMENT:	B-61 MOBILE DRILL RIG
METHOD:	HOLLOW STEM AUGER

SAMPLING METHODS	SAMPLER	TUBE	CORE
TYPE			
DIAMETER			
OTHER			

WELL CONSTRUCTION	RISER	INTAKE
MATERIAL	PVC	PVC
DIAMETER	1 1/4"	1 1/4"
COUPLING	PVC coupling	PVC coupling

WELL DEVELOPMENT	
METHOD:	
DURATION:	
YIELD:	
OTHER:	

	GROUND	WELL	PROT CS
ELEV		8.69	

DATE STARTED: 7-25-88
DATE COMPLETED: 7-29-88
INSPECTOR: MJ SCHNEIDER

WELL CONSTRUCTION	DEPTH (FEET)	SAMPLE NO.	SAMPLE TYPE	BLOWS PER 6 INCHES	CLASSIFICATION (AFTER BURMISTER, 1959)	REMARKS
GROUT	0					
	5					
	10					
	15					
	20					
	25					
	30					
	35					
	40					

C36

AWARE INCORPORATED

TEST BORING LOG

NO. WP-18D

SHEET NO. 1 of 1
PROJECT NO. 1610

PROJECT: GAF-LINDEN
CLIENT: GAF CHEMICALS CORP.

DRILLING DATA	
CONTRACTOR:	HARDIN-HUBER INC.
DRILLER:	KEVIN HUBER
EQUIPMENT:	B-61 MOBILE DRILL RIG
METHOD:	HOLLOW STEM AUGER

SAMPLING METHODS	SAMPLER	TUBE	CORE
TYPE			
DIAMETER			
OTHER			

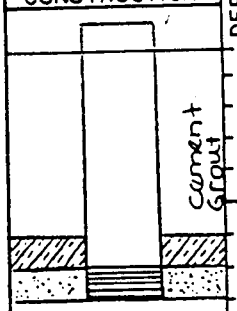
WELL CONSTRUCTION	RISER	INTAKE
MATERIAL	PVC	PVC
DIAMETER	1 1/4"	1 1/4"
COUPLING	PVC coupling	PVC coupling

WELL DEVELOPMENT	
METHOD:	
DURATION:	
YIELD:	
OTHER:	

	GROUND	WELL	PROT CS
ELEV		9.12	

DATE STARTED: 7-28-88
DATE COMPLETED: 7-28-88
INSPECTOR: MT. SCHNEIDER

WELL CONSTRUCTION



DEPTH (FEET)	SAMPLE NO.	SAMPLE TYPE	BLOWS PER 6 INCHES	CLASSIFICATION (AFTER BURMISTER, 1959)	REMARKS
0				FILL	
5				± 8.0	
	S-1	SS		TIDAL MARSH DEPOSIT 10.0	
10					
15					
20					
25					
30					
35					
40					

C37

AWARE INCORPORATED

TEST BORING LOG

NO. WP-195

PROJECT: GAF-LINDEN
CLIENT: GAF CHEMICALS CORPORATION

SHEET NO. 1 of 1
PROJECT NO. 6106

DRILLING DATA	
CONTRACTOR:	HARDIN-HUBER INC.
DRILLER:	KEVIN HUBER
EQUIPMENT:	B-61 MOBILE DRILL RIG
METHOD:	HOLLOW STEM AUGER

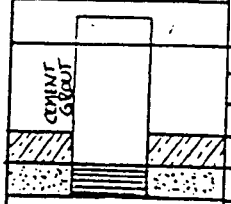
SAMPLING METHODS	SAMPLER	TUBE	CORE
TYPE			
DIAMETER			
OTHER			

WELL CONSTRUCTION	RISER	INTAKE
MATERIAL	PVC	PVC
DIAMETER	1 1/4"	1 1/4"
COUPLING	PVC coupling	PVC coupling

WELL DEVELOPMENT	
METHOD:	
DURATION:	
YIELD:	
OTHER:	

	GROUND	WELL	PROT C
ELEV		9.29	

DATE STARTED: 7-29-88
DATE COMPLETED: 7-29-89
INSPECTOR: M. SCHNEIDER

WELL CONSTRUCTION	DEPTH (FEET)	SAMPLE NO.	SAMPLE TYPE	BLOWS PER 6 INCHES	CLASSIFICATION (AFTER BURMISTER, 1959)	REMARKS
	0					
	5					
	10					
	15					
	20					
	25					
	30					
	35					
	40					

C38

AWARE INCORPORATED

TEST BORING LOG

NO. WP-19D

SHEET NO. 1 of 1
PROJECT NO. 6106

PROJECT: GAF-LINDEN
CLIENT: GAF CHEMICALS CORPORATION

DRILLING DATA	
CONTRACTOR:	HARDIN-HUBER INC
DRILLER:	KEVIN HUBER
EQUIPMENT:	B-61 MOBILE DRILL RIG
METHOD:	HOLLOW STEM AUGER

SAMPLING METHODS	SAMPLER	TUBE	CORE
TYPE			
DIAMETER			
OTHER			

WELL CONSTRUCTION	RISER	INTAKE
MATERIAL	PVC	PVC
DIAMETER	1 1/4"	1 1/4"
COUPLING	PVC coupling	PVC coupling

WELL DEVELOPMENT	
METHOD:	
DURATION:	
YIELD:	
OTHER:	

	GROUND	WELL	PROT C
ELEV		9.63	

DATE STARTED: 7-28-93
DATE COMPLETED: 7-29-93
INSPECTOR: M. SCHNEIDER

WELL CONSTRUCTION	DEPTH (FEET)	SAMPLE NO.	SAMPLE TYPE	BLOWS PER 6 INCHES	CLASSIFICATION (AFTER BURMISTER, 1959)	REMARKS
CEMENT GROUT	0				FILL	
CEMENT GROUT	5					
COLLAPSE OF NAT'L MATERIAL	10				±13.0'	NOTE: COULD NOT KEEP THE HOLE OPEN - NATURAL COLLAPSE OF MATERIAL
		S-1	SS		TIDAL MARSH DEPOSIT 15.0'	
	15					
	20					
	25					
	30					
	35					
	40					

C39

AWARE INCORPORATED

TEST BORING LOG

NO. WP-20S

SHEET NO. 1 of 1
PROJECT NO. 6106

PROJECT: GAF-LINDEN
CLIENT: GAF CHEMICALS CORPORATION

DRILLING DATA	
CONTRACTOR:	JARDIN-HUBER INC
DRILLER:	KEVIN HUBER
EQUIPMENT:	B-61 MOBILE DRILL RIG
METHOD:	HOLLOW STEM AUGER

SAMPLING METHODS	SAMPLER	TUBE	CORE
TYPE			
DIAMETER			
OTHER			

WELL CONSTRUCTION	RISER	INTAKE
MATERIAL	PVC	PVC
DIAMETER	1 1/4"	1 1/4"
COUPLING	PVC coupling	PVC coupling

WELL DEVELOPMENT	
METHOD:	
DURATION:	
YIELD:	
OTHER:	

	GROUND	WELL	PROT C
ELEV		9.82.	

DATE STARTED: 7-29-88
DATE COMPLETED: 7-29-88
INSPECTOR: MJ SCHNEIDER

WELL CONSTRUCTION	DEPTH (FEET)	SAMPLE NO.	SAMPLE TYPE	BLOWS PER 6 INCHES	CLASSIFICATION (AFTER BURMISTER, 1959)	REMARKS
GROUT	0					
	5					
	10					
	15					
	20					
	25					
	30					
	35					
	40					

C40

AWARE INCORPORATED

TEST BORING LOG

NO. WP-20D

SHEET NO. 1 of 1
PROJECT NO. 6106

PROJECT: GAF-LINDEN
CLIENT: GAF CHEMICALS CORPORATION

DRILLING DATA	
CONTRACTOR:	HARDIN-HUBER INC
DRILLER:	KEVIN HUBER
EQUIPMENT:	B-61 MOBILE DRILL RIG
METHOD:	HOLLOW STEM AUGER

SAMPLING METHODS	SAMPLER	TUBE	CORE
TYPE			
DIAMETER			
OTHER			

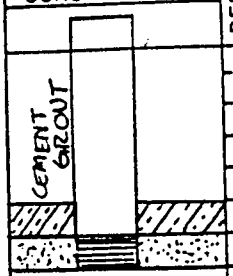
WELL CONSTRUCTION	RISER	INTAKE
MATERIAL	PVC	PVC
DIAMETER	1 1/4"	1 1/4"
COUPLING	PVC coupling	PVC coupling

WELL DEVELOPMENT	
METHOD:	
DURATION:	
YIELD:	
OTHER:	

	GROUND	WELL	PROT C
ELEV		9.76	

DATE STARTED: 7-29-88
DATE COMPLETED: 7-29-88
INSPECTOR: M. SCHNEIDER

WELL CONSTRUCTION



DEPTH (FEET)	SAMPLE NO.	SAMPLE TYPE	BLOWS PER 6 INCHES	CLASSIFICATION (AFTER BURMISTER, 1959)	REMARKS
0				FILL	
5					
				7.4'	
	S-1	SS		TIDAL MARSH DEPOSIT 9.0'	
10					
15					
20					
25					
30					
35					
40					

C41

APPENDIX A-2

EXISTING WELL LOGS
(ERM, January, 1983)

NOTE: Approximate Geologic Interpretation of Existing Well Logs Provided by AWARE, Inc.

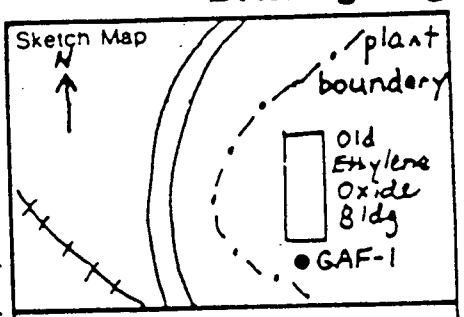
C42

Environmental Resources Management

Drilling Log

Project: GAF - Linden
Owner: GAF Corporation
Location: Linden, NJ
W.O. Number:
Well Number: GAF-1
Total Depth: 27 ft.
Diameter:
Surface Elevation: 8.76'
Water Level: Initial: DTW 0.5 ft.
24-hrs.: 5.99'
Screen: Dia.: 2 in.
Length: 10 ft.
Slot Size: .02
Casing: Dia.: 2 in.
Length: --
Type: PVC
Drilling Company: Diamond Drill.
Drilling Method: auger
Driller: L. Ontek
Log By: C. Werle
Date Drilled: 1/11/83

Sketch Map



Notes

Depth (Feet)	Graphic Log	Sample Number	Description/Soil Classification (Color, Texture, Structures)
			Fill consisting of coarse gravel and medium to coarse sand. Dark gray silty sandy clay with gravel and organic debris - water cascades into borehole from 0 to approximately 3 feet.
5		1	Dark red silty sandy clay, stiff, cohesive, slightly plastic, minor fine gravel in clay matrix..
10		2	Dark red silty clay- texture same as above except with reduced silt and fine sand percentage. Incorporated gravel is gray angular shale and round to subround quartz.
15		3	Dark red silty clay - dry crumbly stiff with fine to medium gravel to 1/4-inch.
20		4	Dark red silty clay as above, 1% gravel, clay is very dry and stiff.
25		5	Dry silty red clay and weathered pieces of shale - refusal at 27 feet.

Note: GAF-1 borehole is backfilled to surface with bentonite and well cuttings to surface. Second borehole, 5 feet west of first, is advanced to ten feet and well installed.

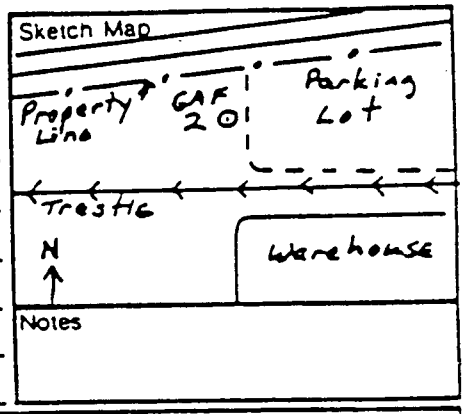
C43

Environmental Resources Management

Drilling Log

Project: GAF-Linden Owner: GAF Corporation
Location: Linden, NJ W.O. Number:
Well Number: GAF-2 Total Depth: 20 feet Diameter:
Surface Elevation: 7.13' Water Level: Initial DTW 13 ft. 24-hrs. 4.62'
Screen: Dia. 2 in. Length 8.0 ft. Slot Size .02 in.
Casing: Dia. 2 in. Length 12.0 ft. Type PVC
Drilling Company: Diamond Drilling Drilling Method: auger
Driller: L. Ontek Log By: C. Werle Date Drilled: 1/12/83

Sketch Map



Notes

Depth (Feet)	Graphic Log	Sample Number	Description/Soil Classification (Color, Texture, Structures)
			Fill consisting of tan-gray fine sandy clay grading into tan to red sandy clay, highly plastic and cohesive.
5		1	Fill material medium to coarse sand and gravel in plastic clay matrix, colors vary from dark brown to tan-orange, nodules of stiff red silty clay. Peat deposits start at 8 feet. 8'
			Mtn (Peat)
10		2	Peat deposits with strong H_2S odor grading into bluish gray fine sandy silty clay, cohesive somewhat plastic, clay starts at 11.5. 11.5
			(Clay)
15		3	Dark bluish gray sandy silty clay grading into brick red sandy silty clay with some gravel red clay starts at about 16 feet. 16'
			Qt
			19.5
20		4	Stiff dark red silty sandy clay, upper zone of weathered shale. Trb

C44

Environmental Resources Management

Drilling Log

Project GAF-Linden Owner GAF Corporation

Location Linden, NJ W.O. Number

Well Number GAF-3 Total Depth Diameter

Surface Elevation 8.86' Water Level: Initial DTW 13.6' 24-hrs 4.54'

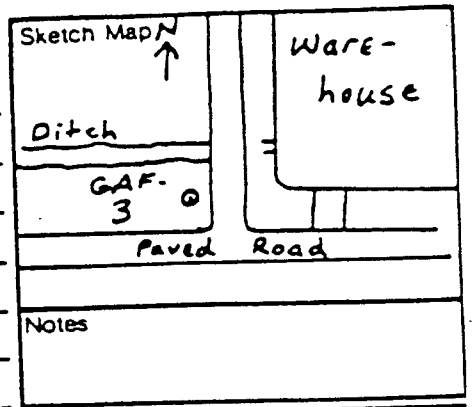
Screen: Dia. 2 in. Length 5 feet Slot Size .02

Casing: Dia. 2 in. Length 13 feet Type PVC

Drilling Company Diamond Drilling Drilling Method auger

Driller L. Ontek Log By C. Werle Date Drilled 1/12/83

Sketch Map



Notes

Depth (Feet)	Graphic Log	Sample Number	Description/Soil Classification (Color, Texture, Structures)
			Fill- red to brown silt and clay some sand with brick, wood and steel fragments.
5		1	Fill as above with peat deposits at 6.5 feet. Strong H_2S odor. 6.5
			Mtm (Peat)
10		2	Peat at 10 feet underlain with brown silt and organic debris grading into bluish gray sandy silty clay, cohesive fairly plastic - blue gray clay starts at 11.0 feet. 11'
			(Clay) 13
			Qgt
15		3	Stiff red sandy silty clay with pieces of weathered shale and minor quantities of gravel, transition from blue gray clay to stiff red silty clay is 12.5 to 13.0 feet. Refusal at 18.0 feet. 18'
			Trb
20			

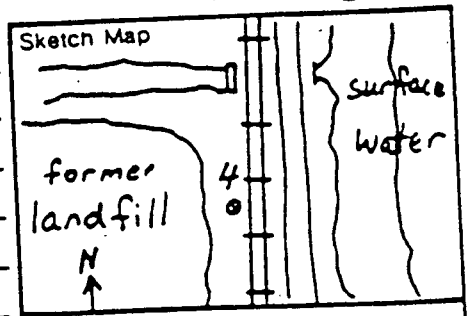
C45

Drilling Log

Environmental Resources Management

Project: GAF-Linden
Owner: GAF Corporation
Location: Linden, NJ
W.O. Number:
Well Number: GAF-4
Total Depth: 15 feet
Diameter:
Surface Elevation: 7.28'
Water Level: Initial DTW 2'
24-hrs 5.72'
Screen: Dia. 2 in.
Length 10 feet
Slot Size .02
Casing: Dia. 2 in.
Length ---
Type PVC
Drilling Company: Diamond Drilling
Drilling Method: auger
Driller: L. Ontek
Log By: C. Werle
Date Drilled: 1/12/83

Sketch Map



Notes

Depth (Feet)	Graphic Log	Well Construction	Sample Number	Description/Soil Classification (Color, Texture, Structures)
				Orange clayey sand with gravel-material moldable and plastic. ≐ 3
				Mtm (Clay)
5			1	Orange-tan dense sandy clay - tight cohesive, somewhat plastic, to 5.5 ft. Underlain by clayey peat. 5.5
				(Peat)
10			2	Thick dense peat deposits. At 13.0 feet - blue-gray plastic sandy clay. 13'
				(Clay) 15'
15				

Note: Borehole backfilled 15 feet to 10 feet with bentonite and well screen installed from 10 feet to grade.

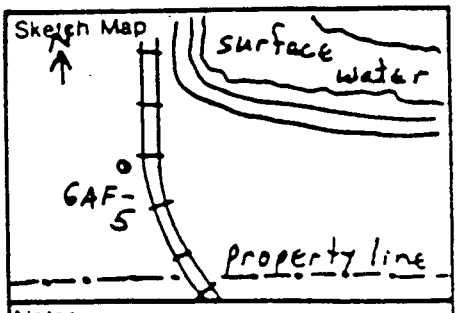
C46

Environmental Resources Management

Drilling Log

Project: GAF-Linden
Owner: GAF Corporation
Location: Linden, NJ
W.O. Number:
Well Number: GAF-5
Total Depth: 12 feet
Diameter:
Surface Elevation: 7.50'
Water Level: DTW Initial 2.5' 24-hrs 4.64'
Screen: Dia. 2 in. Length 12 feet Slot Size .02
Casing: Dia. 2 in. Length --- Type PVC
Drilling Company: Diamond Drilling
Drilling Method: auger
Driller: L. Ontek
Log By: C. Werle
Date Drilled: 1/12/83

Sketch Map



Notes

Depth (Feet)	Graphic Log	Sample Number	Description/Soil Classification (Color, Texture, Structures)
			Debris and fill at surface, 0 to 10 feet.
5		1	Tan brown medium to coarse sand and fine to coarse gravel.
10		2	Medium to coarse tan brown sand and gravel to 11.5 feet. Peat deposits to 12.0 feet.
15			

C47

Environmental Resources Management

Drilling Log

Project GAF-Linden Owner GAF Corporation

Location Linden, NJ W.O. Number

Well Number GAF-6 Total Depth DTW Diameter

Surface Elevation 7.06' Water Level: Initial 1.5' 24-hrs 4.46'

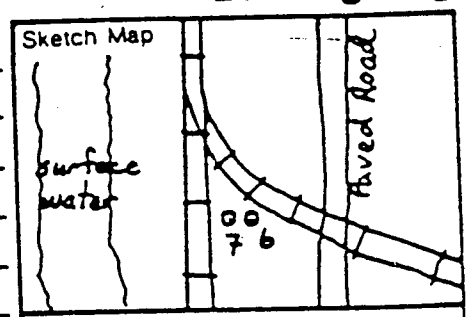
Screen: Dia. 2 in. Length 9.5 ft. Slot Size .02

Casing: Dia. 2 in. Length --- Type PVC

Drilling Company Diamond Drilling Drilling Method auger

Driller L. Ontek Log By C. Werle Date Drilled 1/12/83

Sketch Map



Notes

Depth (Feet)	Graphic Log	Sample Number	Description/Soil Classification (Color, Texture, Structures)
			Red-brown medium to coarse sand to 1.0 feet.
			Medium to coarse sand and gravel.
5			
			Silt with some medium to coarse sand.
10		1	Peat deposits.

C48

Environmental Resources Management

Drilling Log

Project GAF-Linden Owner GAF Corporation

Location Linden, NJ W.O. Number

Well Number GAF-7 Total Depth 28 feet Diameter

Surface Elevation 6.88' Water Level: Initial DTW 1.5' 24-hrs 4.58'

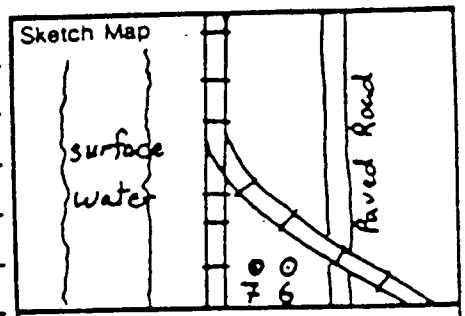
Screen: Dia. 2 in. Length 5 feet Slot Size .02 in.

Casing: Dia. 2 in. Length 23 feet Type PVC

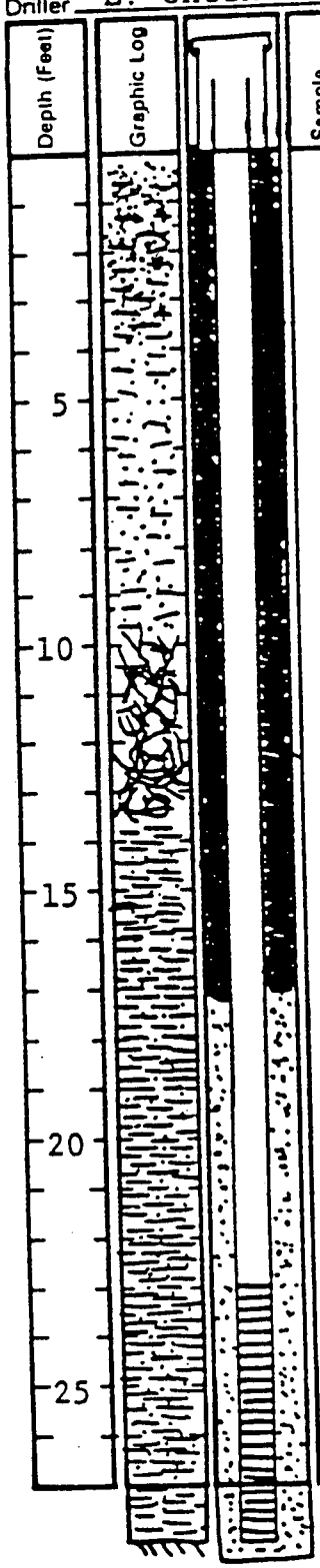
Drilling Company Diamond Drilling Drilling Method auger

Driller L. Ontek Log By C. Werle Date Drilled 1/11/83

Sketch Map



Notes



Depth (Feet)	Sample Number	Description/Soil Classification (Color, Texture, Structures)
		Fill, brown-red medium to coarse sand with gravel to 1.0 ft. Fill, medium to coarse sand and gravel.
5	1	Silt and fine sand.
		10'
		Mtm (Peat)
10	2	Peat deposits, dense and intertwined, very strong H_2S odor, silt directly overlies (and is terminated by) peat; peat to 13.5 feet.
		13.5
		(Clay)
15	3	Bluish gray cohesive plastic fine sandy clay to about 19 feet.
		19
		Qt
20	4	Dark brownish red silt and silty clay, somewhat plastic, cohesive.
25	5	Red clayey sandy silt, some coarse sand and fine gravel - stiff and crumbly, coarser and less plastic than sample 4. Refusal at 28 feet.

Trb @ 27'

C49

Form DEP-060
10/86

NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION

CHAIN OF CUSTODY RECORD WITH SHUTTLE

Use One Form for Each Sample — *Shaded Areas for DEP Field Use Only*

NAME OF UNIT AND ADDRESS: NJ DEP 65 Prospect St. Trenton N.J. 08618

Name of Person(s) Preparing Container(s) for Sample Shuttle
Name: DB Humphries Title: SAMPLE CUSTODIAN Agency: ENVIRODYNE
Name: Title: Agency:
Date above-mentioned Person(s) Placed Container(s) in Sample Shuttle: 11/30/88 Military Time: 1200 Laboratory Affixed Sample Shuttle Seal No.: 020

Name of Person(s) Breaking Laboratory Seal on Sample Shuttle and Taking Field Sample
Name: E. Gaven Title: HSMS II
Name: R. Beretsky Title: HSMS III
Name: Title:
Date Laboratory Sample Shuttle Seal No.: 020 Broken: 12/1/88 Time (Mil) Seal Broken and Sampling Begun: 0900

FIELD SAMPLE NUMBER	CONTAINER NUMBER(S)	VOLUME OF CONTAINERS	DESCRIPTION OF SAMPLE
BSA 120188	1	4 oz. jar	sediment /
	2	250 ml glass	black oily sediment

LAB CONTROL NO.: 88011718

Date Sampling Completed & Field Seal Affixed to Sample Shuttle: 12/1/88 Military Time: 1700 Field Affixed Sample Shuttle Seal No.: 021

Laboratory Person Breaking Field Seal on Sample Shuttle & Accepting Responsibility for Sample
Name: DB Humphries Title: Sample Custodian
Field Sample Seal No.: 021 Date Broken: 12/2/88 Military Time Seal Broken: 0800

SAMPLE RELINQUISHED BY	SAMPLE RECEIVED BY	DATE	TIME	REASON FOR CHANGE OF CUSTODY
R Beretsky	DB Humphries	12/2	0800	Deliver to lab
[illegible]	DR Neufeld	12/6	1500	GCMS
DB Humphries	A Salmache	12-7	0900	metals
[illegible]	[illegible]	12/7	0900	Bn + Pest
[illegible]	A Gochumpke	12/12	1400	metal S, LN
[illegible]	DB Humphries	12/17	0820	metals-Sbr
[illegible]	R Shar	12/22	1159	Phenol
DB Humphries	A Gochumpke	12/30	1000	metals
[illegible]	[illegible]	1/3	[illegible]	Sbr
[illegible]	[illegible]	1/20/89	1700	Hg
[illegible]	[illegible]	1/23/89	1400	Sbr
DR Neufeld	DB Humphries	1/27/89	0800	Sbr - GCMS

COPIES: Gold - Container/Shuttle Preparation Receipt; Yellow - Analyst Chain of Custody; Pink - Field Sampler Receipt; White - Sample Custodians Chain of Custody

E1

Form DEP-060
10/86

NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION

CHAIN OF CUSTODY RECORD WITH SHUTTLE

Use One Form for Each Sample — *Shaded Areas for DEP Field Use Only*

NAME OF UNIT AND ADDRESS: NJ DEP 65 Prospect St. Trenton N.J. 08618

Name of Person(s) Preparing Container(s) for Sample Shuttle

Name	Title	Agency
D.B. Humphries	Sample Cust.	Envirodyne

Date above-mentioned Person(s) Placed Container(s) in Sample Shuttle: 11/30/88 — Military Time: 1200 — Laboratory Affixed Sample Shuttle Seal No.: 020

Name of Person(s) Breaking Laboratory Seal on Sample Shuttle and Taking Field Sample

Name	Title
R. Beretsky	HSMS III
E. Garen	HSMS II

Date Laboratory Sample Shuttle Seal No.: 020 — Broken: 12/1/88 — Time (Mil) Seal Broken and Sampling Begun: 0900

FIELD SAMPLE NUMBER	CONTAINER NUMBER(S)	VOLUME OF CONTAINERS	DESCRIPTION OF SAMPLE
BSA12018589	1	4oz. jar	Sediment 2 dark black sediment oily
	2	250 ml glass	

LAB CONTROL NO.: 88011719

Date Sampling Completed & Field Seal Affixed to Sample Shuttle: 12/1/88 — Military Time: 1700 — Field Affixed Sample Shuttle Seal No.: 021

Laboratory Person Breaking Field Seal on Sample Shuttle & Accepting Responsibility for Sample — Name: DB Humphries — Title: Sample Custodian

Field Sample Seal No.: 021 — Date Broken: 12/2/88 — Military Time Seal Broken: 0800

SAMPLE RELINQUISHED BY	SAMPLE RECEIVED BY	DATE	TIME	REASON FOR CHANGE OF CUSTODY
R. Gervasio	DB Humphries	12/2	0800	Deliver to lab
[illegible]	DR Kunfeld	12/6	1500	GCMS
DB Humphries	A Stefanski	12/7	0900	METALS
[illegible]	[illegible]	12/7	0900	BNA/PEST
[illegible]	A Stefanski	12/12	1400	Metals, LN
L. Carmichael	DB Humphries	12/17	0820	metals stor
[illegible]	[illegible]	12/22	1659	Phenols
DB Humphries	A Stefanski	12/30	1000	metals
L. Carmichael	[illegible]	1/3	1500	Stor
[illegible]	[illegible]	1/17/89	1700	[illegible] Hg
[illegible]	[illegible]	1/23/89	1400	STOR
DR Kunfeld	DB Humphries	1/27/89	0800	STOR-GCMS

COPIES: Gold - Container/Shuttle Preparation Receipt — Pink - Field Sampler Receipt

E2

Form DEP-060
10/86

NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION

CHAIN OF CUSTODY RECORD WITH SHUTTLE

Use One Form for Each Sample — *Shaded Areas for DEP Field Use Only*

NAME OF UNIT AND ADDRESS: NJDEP 65 Prospect St. Trenton NJ. 08618

Name of Person(s) Preparing Container(s) for Sample Shuttle

Name: D. B. Humphries Title: Sample Cust. Agency: Envirodyne

Name: Title: Agency:

Date above-mentioned Person(s) Placed Container(s) in Sample Shuttle: 11/30/88 Military Time: 1200 Laboratory Affixed Sample Shuttle Seal No.: 020

Name of Person(s) Breaking Laboratory Seal on Sample Shuttle and Taking Field Sample

Name: E. Gaven Title: HSMS II

Name: R. Beretsky Title: HSMS III

Name: Title:

Date Laboratory Sample Shuttle Seal No.: 020 Broken: 12/1/88 Time (Mil) Seal Broken and Sampling Begun: 0900

FIELD SAMPLE NUMBER	CONTAINER NUMBER(S)	VOLUME OF CONTAINERS	DESCRIPTION OF SAMPLE
13SA 1201 8590	1	4 oz. jar	Sediment 3
	2	250ml glass	dark-brown to black sediment

LAB CONTROL NO. 88011 ~~118~~ 11720

Date Sampling Completed & Field Seal Affixed to Sample Shuttle: 12/1/88 Military Time: 1700 Field Affixed Sample Shuttle Seal No.: 021

Laboratory Person Breaking Field Seal on Sample Shuttle & Accepting Responsibility for Sample

Name: DB Humphries Title: Sample Custodian

Field Sample Seal No.: 021 Date Broken: 12/2/88 Military Time Seal Broken: 0800

SAMPLE RELINQUISHED BY	SAMPLE RECEIVED BY	DATE	TIME	REASON FOR CHANGE OF CUSTODY
R. Gervasio	DB Humphries	12/2	0800	Deliver to lab
S Goddard	DR Neufeld	12/6	1500	GCMS
DB Humphries	A Stefanski	12-7	0900	metals
S Goddard	[illegible]	12/7	0800	Int/Post
[illegible]	A Stefanski	12/12	1400	metals/N
S. Carmichael	DB Humphries	12/17	0820	metals-stor
R. [illegible]	R [illegible]	12/22	2359	Phenol
DB Humphries	A Stefanski	12/30	1000	Metals
S. Carmichael	S Goddard	1/3	1500	V Stor
S Goddard	[illegible]	1/20/89	1700	Hg
[illegible]	S Goddard	1/23/89	1400	Hg
DR Neufeld	DB Humphries	1/27/89	0800	Stor-GCMS

COPIES: Gold - Container/Shuttle Preparation Receipt Pink - Field Sampler Receipt

E3

Form DEP-060
10/86

NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION

CHAIN OF CUSTODY RECORD WITH SHUTTLE

Use One Form for Each Sample — *Shaded Areas for DEP Field Use Only*

NAME OF UNIT AND ADDRESS: NJDEP 65 Prospect St. Trenton NJ. 08618

Name of Person(s) Preparing Container(s) for Sample Shuttle

Name: D.B. Humphries — Title: Sample Cust. — Agency: Environdyne

Name: — Title: — Agency:

Date above-mentioned Person(s) Placed Container(s) in Sample Shuttle: 11/30/88 — Military Time: 1200 — Laboratory Affixed Sample Shuttle Seal No.: 020

Name of Person(s) Breaking Laboratory Seal on Sample Shuttle and Taking Field Sample

Name: E. Gaven — Title: HSMS II

Name: R. Beretsky — Title: HSMS III

Name: — Title:

Date Laboratory Sample Shuttle Seal No.: 020 — Broken: 12/1/88 — Time (Mil) Seal Broken and Sampling Begun: 0900

FIELD SAMPLE NUMBER	CONTAINER NUMBER(S)	VOLUME OF CONTAINERS	DESCRIPTION OF SAMPLE
BSA 1201 8591	1	4oz. jar	Sediment 4 brown sand w/ gray + red streaks
	2	250 ml glass	

LAB CONTROL NO.: 88011721

Date Sampling Completed & Field Seal Affixed to Sample Shuttle: 12/1/88 — Military Time: 1700 — Field Affixed Sample Shuttle Seal No.: 021

Laboratory Person Breaking Field Seal on Sample Shuttle & Accepting Responsibility for Sample

Name: DB Humphries — Title: Sample Custodian

Field Sample Seal No.: 021 — Date Broken: 12/2/88 — Military Time Seal Broken: 0800

SAMPLE RELINQUISHED BY	SAMPLE RECEIVED BY	DATE	TIME	REASON FOR CHANGE OF CUSTODY
E. Gervasio	DB Humphries	12/2	0860	Deliver to lab
[illegible]	DR Hanfeld	12/6	1500	GCMS
DB Humphries	[illegible]	12-7	0900	METALS
[illegible]	[illegible]	12/7	0900	BUA/PEST
[illegible]	[illegible]	12/12	1400	metals IN
[illegible]	DB Humphries	12/17	0820	metals - stor
[illegible]	[illegible]	12/22	2359	Phenols
DB Humphries	[illegible]	12/30	1000	metals
[illegible]	[illegible]	1/3	1500	Stor
[illegible]	[illegible]	1/20/89	1700	Hg
[illegible]	[illegible]	1/23/89	1400	STOR
DR Hanfeld	DB Humphries	1/27/89	0800	stor - GCMS

COPIES: Gold - Container/Shuttle Preparation Receipt — Pink - Field Sampler Receipt

E4

Form DEP-060
10/86

NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION

CHAIN OF CUSTODY RECORD WITH SHUTTLE

Use One Form for Each Sample — *Shaded Areas for DEP Field Use Only*

NAME OF UNIT AND ADDRESS: NJDEP 65 Prospect St. Trenton NJ. 08618

Name of Person(s) Preparing Container(s) for Sample Shuttle
Name: D.B. Humphries Title: Sample Cust Agency: Environdyne
Name: Title: Agency:
Date above-mentioned Person(s) Placed Container(s) in Sample Shuttle: 11/30/88 Military Time: 1200 Laboratory Affixed Sample Shuttle Seal No.: 020

Name of Person(s) Breaking Laboratory Seal on Sample Shuttle and Taking Field Sample
Name: E. Gavers Title: HSMS II
Name: R. Beretsky Title: HSMS III
Name: Title:
Date Laboratory Sample Shuttle Seal No.: 020 Broken: 12/1/88 Time (Mil) Seal Broken and Sampling Begun: 0900

FIELD SAMPLE NUMBER	CONTAINER NUMBER(S)	VOLUME OF CONTAINERS	DESCRIPTION OF SAMPLE
BSA12018 592	1	4 oz jar	Sediment 5 black to multicolored sludge
	2	250ml glass	

LAB CONTROL NO.: 88011722

Date Sampling Completed & Field Seal Affixed to Sample Shuttle: 12/1/88 Military Time: 1700 Field Affixed Sample Shuttle Seal No.: 021

Laboratory Person Breaking Field Seal on Sample Shuttle & Accepting Responsibility for Sample
Name: DB Humphries Title: Sample Custodian
Field Sample Seal No.: 021 Date Broken: 12/2/88 Military Time Seal Broken: 0800

SAMPLE RELINQUISHED BY	SAMPLE RECEIVED BY	DATE	TIME	REASON FOR CHANGE OF CUSTODY
R. Gavers	DB Humphries	12/2	0800	Deliver to lab
T. Woodward	DR Bulfield	12/6	1500	GCMS
DB Humphries	A Safundy	12-7	0900	METALS
T. Woodward	R. Beretsky	12/7	0800	BNA/PEST
R. Beretsky	A Safundy	12/12	1400	METALS, CN
E. Cammarel	DB Humphries	12/17	0830	metals - Stor
R. Gh	R Shin	12/22	13:37	Phenol
T. Woodward	[illegible]	1/20/89	1700	Hg
[illegible]	[illegible]	1/23/89	1400	STOR
DR Bulfield	DB Humphries	1/27/89	0800	STOR - GCMS

COPIES: Gold - Container/Shuttle Preparation Receipt; Pink - Field Sampler Receipt

E5

Form DEP-060
10/86

NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION

CHAIN OF CUSTODY RECORD WITH SHUTTLE

Use One Form for Each Sample — *Shaded Areas for DEP Field Use Only*

NAME OF UNIT AND ADDRESS: NJDEP 65 Prospect St. Trenton NJ 08618

Name of Person(s) Preparing Container(s) for Sample Shuttle
Name: DB Humphries Title: Sample Custodian Agency: Envirodyne
Name: Title: Agency:

Date above-mentioned Person(s) Placed Container(s) in Sample Shuttle: 11/30/88 Military Time: 1200 Laboratory Affixed Sample Shuttle Seal No.: 022

Name of Person(s) Breaking Laboratory Seal on Sample Shuttle and Taking Field Sample
Name: Ed Gaven Title: HSMS II
Name: R. Beretsky Title: HSMS III
Name: Title:

Date Laboratory Sample Shuttle Seal No.: 022 Broken: 12/1/88 Time (Mil) Seal Broken and Sampling Begun: 0900

FIELD SAMPLE NUMBER	CONTAINER NUMBER(S)	VOLUME OF CONTAINERS	DESCRIPTION OF SAMPLE
BSA12018593	1	4 oz. jar	Sediment 6
	2	250 ml glass	brown sand

LAB CONTROL NO.: 88011723

Date Sampling Completed & Field Seal Affixed to Sample Shuttle: 12/1/88 Military Time: 1700 Field Affixed Sample Shuttle Seal No.: 023

Laboratory Person Breaking Field Seal on Sample Shuttle & Accepting Responsibility for Sample
Name: DB Humphries Title: Sample Custodian

Field Sample Seal No.: 023 Date Broken: 12/2/88 Military Time Seal Broken: 0800

SAMPLE RELINQUISHED BY	SAMPLE RECEIVED BY	DATE	TIME	REASON FOR CHANGE OF CUSTODY
R. Gerrasio	DB Humphries	12/2	0800	Deliver to lab
L Goddard	DR Kunfeld	12/6	1500	GCMS
DB Humphries	A Stefanski	12.7	0900	metals
L Goddard	[illegible]	12/7	0900	Bnf/PCST
[illegible]	A Stefanski	12/12	1400	metals, LH
L. Carmichael	DB Humphries	12/17	0820	metals - stor
R [illegible]	R [illegible]	12/22	23:59	Pond
L Goddard	[illegible]	1/20/89	1700	Hg
[illegible]	L Goddard	1/23/89	1400	STOR
DR Kunfeld	DB Humphries	1/27/89	0800	stor - GCMS

COPIES: Gold - Container/Shuttle Preparation Receipt; Yellow - Analyst Chain of Custody; Pink - Field Sampler Receipt; White - Sample Custodians Chain of Custody

E6

Form DEP-060
10/86

NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION

CHAIN OF CUSTODY RECORD WITH SHUTTLE

Use One Form for Each Sample — *Shaded Areas for DEP Field Use Only*

NAME OF UNIT AND ADDRESS: NJDEP 65 Prospect St. Trenton NJ. 08618

Name of Person(s) Preparing Container(s) for Sample Shuttle

Name	Title	Agency
DB Humphries	Sample Custodian	Envirodyne

Date above-mentioned Person(s) Placed Container(s) in Sample Shuttle: 11/30/88 — Military Time: 1200 — Laboratory Affixed Sample Shuttle Seal No. 022

Name of Person(s) Breaking Laboratory Seal on Sample Shuttle and Taking Field Sample

Name	Title
E. Gamen	HSMS II
R. Beretsky	HSMS III

Date Laboratory Sample Shuttle Seal No. 022 — Broken 12/1/88 — Time (Mil) Seal Broken and Sampling Begun 0900

FIELD SAMPLE NUMBER	CONTAINER NUMBER(S)	VOLUME OF CONTAINERS	DESCRIPTION OF SAMPLE
BSA12018 594	1	4 oz. jar	Sediment 7 black sandy sediment w/ some pebbles
	2	250 ml glass	

LAB CONTROL NO. 88011724

Date Sampling Completed & Field Seal Affixed to Sample Shuttle: 12/1/88 — Military Time: 1700 — Field Affixed Sample Shuttle Seal No. 023

Laboratory Person Breaking Field Seal on Sample Shuttle & Accepting Responsibility for Sample — Name: DB Hphrie — Title: Sample Custodian

Field Sample Seal No. 023 — Date Broken 12/2/88 — Military Time Seal Broken 0800

SAMPLE RELINQUISHED BY	SAMPLE RECEIVED BY	DATE	TIME	REASON FOR CHANGE OF CUSTODY
R. Gervasio	DB Hphrie	12/2	0800	Deliver to lab
[illegible]	DR [illegible]	12/6	1500	GCMS
DB Humphries	A Stefanski	12-7	0900	METALS
[illegible]	[illegible]	12/7	0900	BNA/Pest
[illegible]	A Stefanski	12/12	1400	metals, CN
[illegible]	DB Humphries	12/17	0820	metals - stor
R [illegible]	R [illegible]	12/22	2357	Phenol
[illegible]	[illegible]	1/20/89	1700	Hg
[illegible]	[illegible]	1/23/89	1400	STOR
DR [illegible]	DB Humphries	1/27/89	0800	Stor - GCMS

COPIES: *Gold - Container/Shuttle Preparation Receipt* — *Pink - Field Sampler Receipt* — *Yellow - Analyst Chain of Custody* — *White - Sample Custodians Chain of Custody*

E7

Form DEP-060
10/86

NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION

CHAIN OF CUSTODY RECORD WITH SHUTTLE

Use One Form for Each Sample — *Shaded Areas for DEP Field Use Only*

NAME OF UNIT AND ADDRESS: NJDEP 65 Prospect St. Trenton N.J. 08618

Name of Person(s) Preparing Container(s) for Sample Shuttle
Name: DB Humphries Title: Sample Custodian Agency: Enviro Dyne
Name: Title: Agency:

Date above-mentioned Person(s) Placed Container(s) in Sample Shuttle: 11/30/88 Military Time: 1200 Laboratory Affixed Sample Shuttle Seal No. 022

Name of Person(s) Breaking Laboratory Seal on Sample Shuttle and Taking Field Sample
Name: R. Beretsky Title: HSMS III
Name: E. Garen Title: HSMS II
Name: Title:

Date Laboratory Sample Shuttle Seal No. 022 Broken 12/1/88 Time (Mil) Seal Broken and Sampling Begun 0900

FIELD SAMPLE NUMBER	CONTAINER NUMBER(S)	VOLUME OF CONTAINERS	DESCRIPTION OF SAMPLE
BSA12018595	1	4 oz. jar	Sediment 8 brown sand w/ black streaks
	2	250 ml glass	

LAB CONTROL NO. 88011725

Date Sampling Completed & Field Seal Affixed to Sample Shuttle: 12/1/88 Military Time: 1700 Field Affixed Sample Shuttle Seal No. 023

Laboratory Person Breaking Field Seal on Sample Shuttle & Accepting Responsibility for Sample
Name: DB Humphries Title: Sample Custodian

Field Sample Seal No. 023 Date Broken 12/2/88 Military Time Seal Broken 0800

SAMPLE RELINQUISHED BY	SAMPLE RECEIVED BY	DATE	TIME	REASON FOR CHANGE OF CUSTODY
R. Gervasio	DB Humphries	12/2	0800	Deliver to lab
T. Goddard	DR Mansfield	12/6	1500	GCMS
DB Humphries	A. Stefanski	12/7	0900	metals
DB Humphries	[illegible]	12/7	0900	BNA/PCST - ~~[illegible]~~ DBH
A. Stefanski	DB Humphries	12/8	0930	metals-stor
T. Goddard	A. Stefanski	12/12	1400	~~[illegible]~~ Metals, CN
[illegible]	T. Goddard	12/15	900	Stor
~~[illegible]~~		~~12/16~~	~~900~~	~~CN~~ Void 12/16 [illegible]
L. Carmichael	DB Humphries	12/17	0820	stor-metals
R. Shaw	R. Shaw	12/22	2359	Phenol
DB Humphries	A. Stefanski	12/30	1000	metals
L. Carmichael	T. Goddard	1/3	1500	Stor
T. Goddard	[illegible]	1/20/89	1700	Hg
[illegible]	T. Goddard	1/22/89	1400	Stor
DR Mansfield	DB Humphries	1/27/89	0800	Stor-GCMS
DB Humphries		1/27/89	1030	metals

COPIES: *Gold - Container/Shuttle Preparation Receipt* *Pink - Field Sampler Receipt*
Yellow - Analyst Chain of Custody *White - Sample Custodians Chain of Custody*

E8

Form DEP-060
10/86

NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION

CHAIN OF CUSTODY RECORD WITH SHUTTLE

Use One Form for Each Sample — *Shaded Areas for DEP Field Use Only*

NAME OF UNIT AND ADDRESS: NJDEP 65 Prospect St. Trenton N.J. 08618

Name of Person(s) Preparing Container(s) for Sample Shuttle
Name: DB Humphries Title: Sample Custodian Agency: ENVIRODYNE
Name: Title: Agency:

Date above-mentioned Person(s) Placed Container(s) in Sample Shuttle: 11/30/88 Military Time: 1200 Laboratory Affixed Sample Shuttle Seal No. 022

Name of Person(s) Breaking Laboratory Seal on Sample Shuttle and Taking Field Sample
Name: E. Garon Title: HSMS II
Name: R. Beretsky Title: HSMS III
Name: Title:

Date Laboratory Sample Shuttle Seal No. 022 Broken 12/1/88 Time (Mil) Seal Broken and Sampling Begun 0900

FIELD SAMPLE NUMBER	CONTAINER NUMBER(S)	VOLUME OF CONTAINERS	DESCRIPTION OF SAMPLE
RKB	1	4 Oz. jar	Sediment 9
B5412[illegible]8596	2	250ml glass	dark black oily sludge

LAB CONTROL NO. 88011726

Date Sampling Completed & Field Seal Affixed to Sample Shuttle: 12/1/88 Military Time: 1700 Field Affixed Sample Shuttle Seal No. 023

Laboratory Person Breaking Field Seal on Sample Shuttle & Accepting Responsibility for Sample
Name: DB Humphries Title: Sample Custodian

Field Sample Seal No. 023 Date Broken 12/2/88 Military Time Seal Broken 0800

SAMPLE RELINQUISHED BY	SAMPLE RECEIVED BY	DATE	TIME	REASON FOR CHANGE OF CUSTODY
R. Gerrasio	DB Humphries	12/2	0800	Deliver to lab
S. Goddard	DR Kunfeld	12/6	1500	GCMS
DB Humphries	A. Stefanske	12/7	0900	metals
DB Humphries	[illegible]	12/7	0900	BNA/POST
A. Stefanske	DB Humphries	12/8	0930	metals-stor
S. Goddard	A. Stefanske	12/12	1400	metals, LN
[illegible]	S. Goddard	12/15	900	Store
~~S. Goddard~~		~~12/16~~	~~900~~	Gas, Void 12/16 [illegible]
J. Carmichael	DB Humphries	12/17	0820	Stor-metals
R. Shaw	R. Shaw	12/22	2359	Phenol
DB Humphries	A. Stefanske	12/30	1000	metals
J. Carmichael	S. Goddard	1/3	1500	U Stor
S. Goddard	A. Smith	1/3	1600	Metals
[illegible]	S. Goddard	1/4	0100	Store
S. Goddard	[illegible]	1/20/89	1700	Hg
[illegible]	S. Goddard	1/23/89	1400	Store
DR Kunfeld	DB Humphries	1/27/89	0800	Stor-GCMS

COPIES: *Gold - Container/Shuttle Preparation Receipt* *Yellow - Analyst Chain of Custody* *Pink - Field Sampler Receipt* *White - Sample Custodians Chain of Custody*

E9

Form DEP-060
10/86

NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION

CHAIN OF CUSTODY RECORD WITH SHUTTLE

Use One Form for Each Sample — *Shaded Areas for DEP Field Use Only*

NAME OF UNIT AND ADDRESS: NJ DEP 65 Prospect St. Trenton N.J. 08618

Name of Person(s) Preparing Container(s) for Sample Shuttle
Name: DB Humphries Title: Sample Custodian Agency: Envirodyne
Name: Title: Agency:

Date above-mentioned Person(s) Placed Container(s) in Sample Shuttle: 11/30/88 Military Time: 1200 Laboratory Affixed Sample Shuttle Seal No.: 022

Name of Person(s) Breaking Laboratory Seal on Sample Shuttle and Taking Field Sample
Name: E. Gaver Title: HSMS II
Name: R. Borotsky Title: HSMS III
Name: Title:

Date Laboratory Sample Shuttle Seal No.: 022 Broken: 12/1/88 Time (Mil) Seal Broken and Sampling Begun: 0900

FIELD SAMPLE NUMBER	CONTAINER NUMBER(S)	VOLUME OF CONTAINERS	DESCRIPTION OF SAMPLE
BSA 12018597	1	4 oz. jar	Sediment 10
	2	250 ml glass	orange sand w/ red brown streaks

LAB CONTROL NO.: 88011727

Date Sampling Completed & Field Seal Affixed to Sample Shuttle: 12/1/88 Military Time: 1700 Field Affixed Sample Shuttle Seal No.: 023

Laboratory Person Breaking Field Seal on Sample Shuttle & Accepting Responsibility for Sample
Name: DB Humphries Title: Sample Custodian

Field Sample Seal No.: 023 Date Broken: 12/2/88 Military Time Seal Broken: 0800

SAMPLE RELINQUISHED BY	SAMPLE RECEIVED BY	DATE	TIME	REASON FOR CHANGE OF CUSTODY
R. Gerasch	DB Humphries	12/2	0800	Deliver to lab
[illegible]	DR Kornfeld	12/6	1500	GCMS
DB Humphries	[illegible]	12/7	0900	METALS
DB Humphries	[illegible]	12/7	0900	BNA / Pest
[illegible]	DB Humphries	12/8	0930	METALS - Stor
[illegible]	[illegible]	12/12	1400	METALS, LN
[illegible]	[illegible]	12/15	900	STOR
[illegible]				
[illegible]	R Shaw	12/22	2359	Phenol
DB Humphries	[illegible]	12/30	1000	metals
[illegible]	[illegible]	1/3	1500	Stor
[illegible]	[illegible]	1/3	1600	Metals
[illegible]	[illegible]	1/4	0100	Store
[illegible]	[illegible]	1/4	800	Pest PCB BNA
[illegible]	[illegible]	1/4	900	Stor
[illegible]	[illegible]	1/20/89	1700	Hg
[illegible]	[illegible]	1/23/89	1400	Stor
DR Kornfeld	DB Humphries	1/27/89	0800	Stor - GCMS

COPIES: Gold - Container/Shuttle Preparation Receipt; Yellow - Analyst Chain of Custody; Pink - Field Sampler Receipt; White - Sample Custodians Chain of Custody

E 10

Form DEP-060
10/86

NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION

CHAIN OF CUSTODY RECORD WITH SHUTTLE

Use One Form for Each Sample — *Shaded Areas for DEP Field Use Only*

NAME OF UNIT AND ADDRESS: NJDEP 65 Prospect St. Trenton NJ 08618

Name of Person(s) Preparing Container(s) for Sample Shuttle

Name	Title	Agency
DB Humphries	Sample Custodian	Envirodyne

Date above-mentioned Person(s) Placed Container(s) in Sample Shuttle: 11/30/88 — Military Time: 1200 — Laboratory Affixed Sample Shuttle Seal No. 022

Name of Person(s) Breaking Laboratory Seal on Sample Shuttle and Taking Field Sample

Name	Title
C. Sullivan	HSMS III
J. DeSantis	HSMS III

Date Laboratory Sample Shuttle Seal No. 022 — Broken 12/1/88 — Time (Mil) Seal Broken and Sampling Begun 0900

FIELD SAMPLE NUMBER	CONTAINER NUMBER(S)	VOLUME OF CONTAINERS	DESCRIPTION OF SAMPLE
BSA12018598	1	40s. jar	Sediment 11
	2	250 ml glass	wet dark brown sediment with multi-colored flecks

LAB CONTROL NO. 88011728

Date Sampling Completed & Field Seal Affixed to Sample Shuttle: 12/1/88 — Military Time: 1700 — Field Affixed Sample Shuttle Seal No. 023

Laboratory Person Breaking Field Seal on Sample Shuttle & Accepting Responsibility for Sample — Name: DB Humphries — Title: Sample Custodian

Field Sample Seal No. 023 — Date Broken 12/2/88 — Military Time Seal Broken 0800

SAMPLE RELINQUISHED BY	SAMPLE RECEIVED BY	DATE	TIME	REASON FOR CHANGE OF CUSTODY
R Gervasio	DB Humphries	12/2	0800	Deliver to lab
S Goddard	DR Kornfeld	12/6	1500	GCMS
DB Humphries	A Stefanski	12-7	0900	metals
DB Humphries	[illegible]	12/7	0900	BNA / Pest
A Stefanski	DB Humphries	12/8	0930	metals - Stor
S Goddard	A Stefanski	12/12	1400	metals, LN
[illegible]	S Goddard	12/15	900	Stor
R Shin	R Shin	12/22	2355	Prepare
DB Humphries	A Stefanski	12/30	1000	metals
J Schmichael	S Goddard	1/3	1500	Stor
S Goddard	[illegible]	1/3	1600	Metals
[illegible]	S Goddard	1/4	0100	Store
S Goddard	[illegible]	1/4	0800	Pest PUB BNA
[illegible]	S Goddard	1/4	0900	Stor
S Goddard	[illegible]	1/20/89	1700	Hg
[illegible]	[illegible]	1/23/89	1900	Stor
DR Kornfeld	DB Humphries	1/27/89	0800	Stor GCMS
DB Humphries		1/27/89	1030	metals

COPIES: Gold - Container/Shuttle Preparation Receipt; Yellow - Analyst Chain of Custody; Pink - Field Sampler Receipt; White - Sample Custodians Chain of Custody

E11

Form DEP-060
10/86

NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION

CHAIN OF CUSTODY RECORD WITH SHUTTLE

Use One Form for Each Sample — *Shaded Areas for DEP Field Use Only*

NAME OF UNIT AND ADDRESS: NJDEP 65 Prospect St. Trenton N.J. 08618

Name of Person(s) Preparing Container(s) for Sample Shuttle
Name: DB Humphries Title: SAMPLE CUSTODIAN Agency: ENVIRODYNE
Name: Title: Agency:

Date above-mentioned Person(s) Placed Container(s) in Sample Shuttle: 11/30/88 Military Time: 1200 Laboratory Affixed Sample Shuttle Seal No.: 022

Name of Person(s) Breaking Laboratory Seal on Sample Shuttle and Taking Field Sample
Name: C. Sullivan Title: HSMS II
Name: J. DeSantis Title: HSMS III
Name: Title:

Date Laboratory Sample Shuttle Seal No.: 022 Broken: 12/1/88 Time (Mil) Seal Broken and Sampling Begun: 0900

FIELD SAMPLE NUMBER	CONTAINER NUMBER(S)	VOLUME OF CONTAINERS	DESCRIPTION OF SAMPLE
BSA12018599	1	4oz. jar	Sediment 12
	2	250 ml glass	brown moist sand

LAB CONTROL NO.: DBH 12/2/88 ~~880112~~ 88011729

Date Sampling Completed & Field Seal Affixed to Sample Shuttle: 12/1/88 Military Time: 1700 Field Affixed Sample Shuttle Seal No.: 023

Laboratory Person Breaking Field Seal on Sample Shuttle & Accepting Responsibility for Sample
Name: DB Humphries Title: Sample Custodian

Field Sample Seal No.: 023 Date Broken: 12/2/88 Military Time Seal Broken: 0800

SAMPLE RELINQUISHED BY	SAMPLE RECEIVED BY	DATE	TIME	REASON FOR CHANGE OF CUSTODY
P. Gervasio	DB Humphries	12/2	0800	Deliver to lab
S Goddard	DR Humfeld	12/6	1500	GCMS
DB Humphries	A Stefanski	12-7	0900	METALS
DB Humphries	[illegible]	12/7	0900	BNA/PCST
A Stefanski	DB Humphries	12/8	0930	METALS - Stor
S Goddard	A Stefanski	12/12		Metals, CN
[illegible]	S Goddard	12/15	0900	STOR
R Shaw	R Shaw	12/22	1357	Phenol
DB Humphries	R Shaw	12/29	1145	phenol
DB Humphries	A Stefanski	12/30	1000	metals
J Carmichael	S Goddard	1/3	1500	Stor
S Goddard	[illegible]	1/3	1600	Metals
[illegible]	S Goddard	1/4	0100	Store
S Goddard	[illegible]	1/20/89	1700	[illegible]
[illegible]	S Goddard	1/23/89	1400	Store
DR Humfeld	DB Humphries	1/27/89	0800	Stor - GCMS

COPIES: *Gold - Container/Shuttle Preparation Receipt* *Pink - Field Sampler Receipt*
Yellow - Analyst Chain of Custody *White - Sample Custodians Chain of Custody*

E12

10

Form DEP-060
10/86

NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION

CHAIN OF CUSTODY RECORD WITH SHUTTLE

Use One Form for Each Sample — *Shaded Areas for DEP Field Use Only*

NAME OF UNIT AND ADDRESS: NJDEP 65 Prospect St. Trenton N.J. 08618

Name of Person(s) Preparing Container(s) for Sample Shuttle
Name: DB Humphries Title: Sample Custodian Agency: Envirodyne
Name: Title: Agency:

Date above-mentioned Person(s) Placed Container(s) in Sample Shuttle: 11/30/88 Military Time: 1200 Laboratory Affixed Sample Shuttle Seal No. 022

Name of Person(s) Breaking Laboratory Seal on Sample Shuttle and Taking Field Sample
Name: C. Sullivan Title: HSMS III
Name: J. DeSantis Title: HSMS III
Name: Title:

Date Laboratory Sample Shuttle Seal No. 022 Broken 12/1/88 Time (Mil) Seal Broken and Sampling Begun 0900

FIELD SAMPLE NUMBER	CONTAINER NUMBER(S)	VOLUME OF CONTAINERS	DESCRIPTION OF SAMPLE
BSA12018600	1	4 oz. jar	Sediment 13 wet black soil
	2	250ml jar	

LAB CONTROL NO. 88011730

Date Sampling Completed & Field Seal Affixed to Sample Shuttle: 12/1/88 Military Time: 1700 Field Affixed Sample Shuttle Seal No. 023

Laboratory Person Breaking Field Seal on Sample Shuttle & Accepting Responsibility for Sample
Name: DB Humphries Title: Sample Custodian

Field Sample Seal No. 023 Date Broken 12/2/88 Military Time Seal Broken 0800

SAMPLE RELINQUISHED BY	SAMPLE RECEIVED BY	DATE	TIME	REASON FOR CHANGE OF CUSTODY
R. Gervasio	DB Humphries	12/2	0800	Deliver to lab
[illegible]	DR Hanfield	12/6	1500	GCMS
DB Humphries	A Stefanski	12-7	0900	METALS
DB Humphries	[illegible]	12/7	0900	BNA / PCIT
A Stefanski	DB Humphries	12/8	0930	Metals-Stor
[illegible]	A Stefanski	12/12		metals, LN
[illegible]	[illegible]	12/15	0900	Stor
[illegible]	[illegible]	12/22	2359	[illegible]
DB Humphries	A Stefanski	12/30	1000	metal
[illegible]	[illegible]	1/3	1500	Stor
[illegible]	[illegible]	1/3	1600	Metals
[illegible]	[illegible]	1/4	0100	Store
[illegible]	[illegible]	1/20/89	1700	Hg
[illegible]	[illegible]	1/23/89	1400	Stor
DR Hanfield	DB Humphries	1/27/89	0800	Stor - GCMS

COPIES: Gold - Container/Shuttle Preparation Receipt; Yellow - Analyst Chain of Custody; Pink - Field Sampler Receipt; White - Sample Custodians Chain of Custody

E 13

Form DEP-060
10/86

NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION

CHAIN OF CUSTODY RECORD WITH SHUTTLE

Use One Form for Each Sample — *Shaded Areas for DEP Field Use Only*

NAME OF UNIT AND ADDRESS: NJDEP 65 Prospect St. Trenton N.J 08618

Name of Person(s) Preparing Container(s) for Sample Shuttle

Name	Title	Agency
DB Humphries	Sample Custodian	Envirodyne

Date above-mentioned Person(s) Placed Container(s) in Sample Shuttle: 11/30/88 — Military Time: 1200 — Laboratory Affixed Sample Shuttle Seal No. 022

Name of Person(s) Breaking Laboratory Seal on Sample Shuttle and Taking Field Sample

Name	Title
N. Jiorle	HSMS I
C. Whittaker	HSMS III

Date Laboratory Sample Shuttle Seal No. 022 — Broken 12/1/88 — Time (Mil) Seal Broken and Sampling Begun 0900

FIELD SAMPLE NUMBER	CONTAINER NUMBER(S)	VOLUME OF CONTAINERS	DESCRIPTION OF SAMPLE
BSA12018601	1	4 oz. jar	Sediment 14 dark brown to black soil
	2	250ml glass	

LAB CONTROL NO. 88011731

Date Sampling Completed & Field Seal Affixed to Sample Shuttle: 12/1/88 — Military Time: 1700 — Field Affixed Sample Shuttle Seal No. 023

Laboratory Person Breaking Field Seal on Sample Shuttle & Accepting Responsibility for Sample — Name: DB Humphries — Title: Sample Custodian

Field Sample Seal No. 023 — Date Broken 12/2/88 — Military Time Seal Broken 0800

SAMPLE RELINQUISHED BY	SAMPLE RECEIVED BY	DATE	TIME	REASON FOR CHANGE OF CUSTODY
R. Gervasio	DB Humphries	12/2	0800	Deliver to lab
T Goddard	DR Kleinfeld	12/6	1500	GCMS
DB Humphries	A Sulauska	12-7	0900	METALS
DB Humphries	[illegible]	12/7	0900	BNA/PEST
A Sulauska	DB Humphries	12/8	0930	METALS-Stor
T Goddard	A Sulauska	12/12	1400	Metal, LN
[illegible]	T Goddard	12/15	0900	Stor
[illegible]	[illegible]	12/22	2350	[illegible]
DB Humphries	A Sulauska	12/30	1000	metals
T Chmichael	T Goddard	1/3	1500	Stor
T Goddard	A Sulauska	1/3	1600	METALS
[illegible]	T Goddard	1/4	0100	Store
T Goddard	[illegible]	1/20/89	1700	[illegible]
[illegible]	T Goddard	1/23/89	1400	STOR
DR Kleinfeld	DB Humphries	1/27/89	0800	Stor-GCMS

COPIES: *Gold - Container/Shuttle Preparation Receipt* — *Pink - Field Sampler Receipt*
Yellow - Analyst Chain of Custody — *White - Sample Custodians Chain of Custody*

E14

Form DEP-060
10/86

NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION

CHAIN OF CUSTODY RECORD WITH SHUTTLE

Use One Form for Each Sample — *Shaded Areas for DEP Field Use Only*

NAME OF UNIT AND ADDRESS: NJDEP 65 Prospect St. Trenton N.J. 08618

Name of Person(s) Preparing Container(s) for Sample Shuttle
Name: DB Humphrey — Title: Sample Custodian — Agency: ENVIRODYNE
Name — Title — Agency

Date above-mentioned Person(s) Placed Container(s) in Sample Shuttle: 11/30/88 — Military Time: ~~0800~~ 1200 — Laboratory Affixed Sample Shuttle Seal No.: 022

Name of Person(s) Breaking Laboratory Seal on Sample Shuttle and Taking Field Sample
Name: N. Jiorle — Title: HSMS I
Name: C. Whittaker — Title: HSMS III
Name — Title

Date Laboratory Sample Shuttle Seal No.: 022 — Broken: 12/1/88 — Time (Mil) Seal Broken and Sampling Begun: 0900

FIELD SAMPLE NUMBER	CONTAINER NUMBER(S)	VOLUME OF CONTAINERS	DESCRIPTION OF SAMPLE
BSA12018602	1	4 oz. jar	Sediment 5
	2	250ml glass	black oily silt

LAB CONTROL NO.: 88011732

Date Sampling Completed & Field Seal Affixed to Sample Shuttle: 12/1/88 — Military Time: 1700 — Field Affixed Sample Shuttle Seal No.: 023

Laboratory Person Breaking Field Seal on Sample Shuttle & Accepting Responsibility for Sample
Name: DB Hph — Title: Sample Custodian

Field Sample Seal No.: 023 — Date Broken: 12/2/88 — Military Time Seal Broken: 0800

SAMPLE RELINQUISHED BY	SAMPLE RECEIVED BY	DATE	TIME	REASON FOR CHANGE OF CUSTODY
[illegible]	DB Humphrey	12/2	0800	Deliver to lab
[illegible]	DR Neufeld	12/6	1500	GCMS
DB Humphrey	[illegible]	12-7	0900	metals
DB Humphrey	[illegible]	12/7	0900	BNA/PCST
[illegible]	DB Humphrey	12/8	0930	metals-stor
[illegible]	[illegible]	12/12	1400	Metals, LM
[illegible]	[illegible]	12/15	0900	Stor
[illegible]	[illegible]	12/22	2355	Phenol
DB Humphrey	[illegible]	12/29	1145	phenol
DB Humphrey	[illegible]	12/30	1000	metals
[illegible]	[illegible]	1/3	1500	Stor
[illegible]	[illegible]	1/20/89	1700	[illegible]
[illegible]	[illegible]	1/23/89	1400	Stor
DR Neufeld	DB Humphrey	1/27/89	0800	Stor - GCMS
DB Humphrey		1/27/89	1030	metals

COPIES: *Gold - Container/Shuttle Preparation Receipt* — *Yellow - Analyst Chain of Custody* — *Pink - Field Sampler Receipt* — *White - Sample Custodians Chain of Custody*

E15

Form DEP-060
10/86

NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION

CHAIN OF CUSTODY RECORD WITH SHUTTLE

Use One Form for Each Sample — *Shaded Areas for DEP Field Use Only*

NAME OF UNIT AND ADDRESS: NJDEP 65 Prospect St, Trenton NJ. 08618

Name of Person(s) Preparing Container(s) for Sample Shuttle

Name	Title	Agency
DB Hyphrin	Sample Custodian	Enviro Dyne

Date above-mentioned Person(s) Placed Container(s) in Sample Shuttle: 11/30/88 — Military Time: 1200 — Laboratory Affixed Sample Shuttle Seal No.: 020

Name of Person(s) Breaking Laboratory Seal on Sample Shuttle and Taking Field Sample

Name	Title
Clare Sullivan	HSMS III
Joe Desantis	HSMS III

Date Laboratory Sample Shuttle Seal No.: 020 — Broken: 12/1/88 — Time (Mil) Seal Broken and Sampling Begun: 0900

FIELD SAMPLE NUMBER	CONTAINER NUMBER(S)	VOLUME OF CONTAINERS	DESCRIPTION OF SAMPLE
BSA1201 B576	1	4 oz. jar	Soil 1
	2	250 ml glass	wet black mud

LAB CONTROL NO.: 88011705

Date Sampling Completed & Field Seal Affixed to Sample Shuttle: 12/1/88 — Military Time: 1700 — Field Affixed Sample Shuttle Seal No.: 021

Laboratory Person Breaking Field Seal on Sample Shuttle & Accepting Responsibility for Sample — Name: DB Hyphrin — Title: Sample Custodian

Field Sample Seal No.: 021 — Date Broken: 12/2/88 — Military Time Seal Broken: 0800

SAMPLE RELINQUISHED BY	SAMPLE RECEIVED BY	DATE	TIME	REASON FOR CHANGE OF CUSTODY
R. Gennasio	DB Hyphrin	12/2	0800	Deliver to lab
[illegible]	[illegible]	12/6	1400	BNA, Pest
[illegible]	DR [illegible]	12/6	1500	VOA, GCMS
DB Hyphrin	[illegible]	12/7	0900	~~[illegible]~~ BNA
DB Hyphrin	[illegible]	12-7	0900	METALS
[illegible]	[illegible]	12/12	1400	METALS, LN
[illegible]	DB Hyphrin	12/17	0820	stor metals
DB Hyphrin	[illegible]	12/30	1000	metals
[illegible]	[illegible]	1/3/89	1500	↓ Stor
[illegible]	[illegible]	1/20/89	1700	Hg
[illegible]	[illegible]	1/23/89	1400	Stor
DR [illegible]	DB Hyphrin	1/27/89	0800	Stor - VOA GCMS

COPIES: Gold - Container/Shuttle Preparation Receipt; Yellow - Analyst Chain of Custody; Pink - Field Sampler Receipt; White - Sample Custodians Chain of Custody

E16

Form DEP-060
10/86

NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION

CHAIN OF CUSTODY RECORD WITH SHUTTLE

Use One Form for Each Sample — *Shaded Areas for DEP Field Use Only*

NAME OF UNIT AND ADDRESS: NJDEP 65 Prospect St. Trenton NJ 08618

Name of Person(s) Preparing Container(s) for Sample Shuttle

Name: DB Humphries Title: Sample Custodian Agency: Envirodyne

Name: Title: Agency:

Date above-mentioned Person(s) Placed Container(s) in Sample Shuttle: 11/30/88 Military Time: 1200 Laboratory Affixed Sample Shuttle Seal No. 020

Name of Person(s) Breaking Laboratory Seal on Sample Shuttle and Taking Field Sample

Name: Clare Sullivan Title: HSMS III

Name: Joe DeSantis Title: HSMS III

Name: Title:

Date Laboratory Sample Shuttle Seal No. 020 Broken 12/1/88 Time (Mil) Seal Broken and Sampling Begun 0900

FIELD SAMPLE NUMBER	CONTAINER NUMBER(S)	VOLUME OF CONTAINERS	DESCRIPTION OF SAMPLE
BSA 12218577	1	4 oz. jar	Soil 2
	2	250 ml glass	wet sand brown to grey color

LAB CONTROL NO. 88011706

Date Sampling Completed & Field Seal Affixed to Sample Shuttle: 12/1/88 Military Time: 1700 Field Affixed Sample Shuttle Seal No. 021

Laboratory Person Breaking Field Seal on Sample Shuttle & Accepting Responsibility for Sample

Name: DB Humphries Title: Sample Custodian

Field Sample Seal No. 021 Date Broken 12/2/88 Military Time Seal Broken 0800

SAMPLE RELINQUISHED BY	SAMPLE RECEIVED BY	DATE	TIME	REASON FOR CHANGE OF CUSTODY
R. Gervasio	DB Humphries	12/2	0800	Deliver to lab
[illegible]	DR [illegible]	12/6	1500	GCMS
DB Humphries	[illegible]	12-7	0900	metals
[illegible]	[illegible]	12/7	0900	B-A/Pest
[illegible]	[illegible]	12/12	1400	metals, LN
Lori Carmichael	DB Humphries	12/17	0820	metals-plus
DB Humphries	[illegible]	12/30	1000	metals
L. Carmichael	[illegible]	1/3	1500	↓ Stor
[illegible]	[illegible]	1/4	800	BNA/Pest/PCB
[illegible]	[illegible]	1/4	900	Stor ↓
[illegible]	[illegible]	1/20/89	1700	Hg
[illegible]	[illegible]	1/23/89	1400	Stor
DR [illegible]	DB Humphries	1/27/89	0800	Ster-GCMS

COPIES: Gold - Container/Shuttle Preparation Receipt; Yellow - Analyst Chain of Custody; Pink - Field Sampler Receipt; White - Sample Custodians Chain of Custody

E17

Form DEP-060
10/86

NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION

CHAIN OF CUSTODY RECORD WITH SHUTTLE

Use One Form for Each Sample — *Shaded Areas for DEP Field Use Only*

NAME OF UNIT AND ADDRESS: NJ DEP 65 Prospect St. Trenton NJ. 08618

Name of Person(s) Preparing Container(s) for Sample Shuttle
Name: DB Humphries Title: Sample Custodian Agency: Envirodyne
Name: Title: Agency:

Date above-mentioned Person(s) Placed Container(s) in Sample Shuttle: 11/30/88 Military Time: 1200 Laboratory Affixed Sample Shuttle Seal No. 020

Name of Person(s) Breaking Laboratory Seal on Sample Shuttle and Taking Field Sample
Name: Clare Sullivan Title: HSMS III
Name: Joe DeSantis Title: HSMS III
Name: Title:

Date Laboratory Sample Shuttle Seal No. 020 Broken 12/1/88 Time (Mil) Seal Broken and Sampling Begun 0900

FIELD SAMPLE NUMBER	CONTAINER NUMBER(S)	VOLUME OF CONTAINERS	DESCRIPTION OF SAMPLE
BSA12018578	1	4 oz. jar	Soil 3
	2	250ml glass	moist brown clay

LAB CONTROL NO. 88011707

Date Sampling Completed & Field Seal Affixed to Sample Shuttle: 12/1/88 Military Time: 1700 Field Affixed Sample Shuttle Seal No. 021

Laboratory Person Breaking Field Seal on Sample Shuttle & Accepting Responsibility for Sample
Name: DB Humphrin Title: Sample Custodian

Field Sample Seal No. 021 Date Broken 12/2/88 Military Time Seal Broken 0800

SAMPLE RELINQUISHED BY	SAMPLE RECEIVED BY	DATE	TIME	REASON FOR CHANGE OF CUSTODY
R. Gervasio	DB Humphrin	12/2	0800	Deliver to lab
[illegible]	DR Neuhfeld	12/6	1500	GCMS
DB Humphrin	A Stefanski	12-7	0900	metals
[illegible]	[illegible]	12/8	0900	Bna/pest
[illegible]	A Stefanski	12/12	1400	metals, CN
[illegible]	DB Humphrin	12/17	0820	metals - stor
DB Humphrin	A Stefanski	12/30	1000	metals
[illegible]	[illegible]	1/3	1500	& Stor
[illegible]	[illegible]	1/4	900	Pest PCB, BNA
[illegible]	[illegible]	1/4	1000	Stor &
[illegible]	[illegible]	1/20/89	1700	Hg
MATH	[illegible]	1/23/89	1400	Stor
DR [illegible]	DB Humphrin	1/27/89	0800	Stor - GCMS

COPIES: *Gold - Container/Shuttle Preparation Receipt* *Yellow - Analyst Chain of Custody* *Pink - Field Sampler Receipt* *White - Sample Custodians Chain of Custody*

E18

Form DEP-060
10/86

NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION

CHAIN OF CUSTODY RECORD WITH SHUTTLE

Use One Form for Each Sample — *Shaded Areas for DEP Field Use Only*

NAME OF UNIT AND ADDRESS: NJDEP 65 Prospect St Trenton NJ. 08618

Name of Person(s) Preparing Container(s) for Sample Shuttle

Name: DB Humphries Title: Sample Custodian Agency: Envirodyne

Name: Title: Agency:

Date above-mentioned Person(s) Placed Container(s) in Sample Shuttle: 11/30/88 Military Time: 1200 Laboratory Affixed Sample Shuttle Seal No.: 020

Name of Person(s) Breaking Laboratory Seal on Sample Shuttle and Taking Field Sample

Name: Clare Sullivan Title: HSMS III

Name: Joe DeSantis Title: HSMS III

Name: Title:

Date Laboratory Sample Shuttle Seal No.: 020 Broken: 12/1/88 Time (Mil) Seal Broken and Sampling Begun: 0900

FIELD SAMPLE NUMBER	CONTAINER NUMBER(S)	VOLUME OF CONTAINERS	DESCRIPTION OF SAMPLE
BSA12018579	1	4oz. jar	Soil 4
	2	250ml glass	grey-brown moist sand

LAB CONTROL NO.: 88011708

Date Sampling Completed & Field Seal Affixed to Sample Shuttle: 12/1/88 Military Time: 1700 Field Affixed Sample Shuttle Seal No.: 021

Laboratory Person Breaking Field Seal on Sample Shuttle & Accepting Responsibility for Sample

Name: DB Humphries Title: Sample Custodian

Field Sample Seal No.: 021 Date Broken: 12/2/88 Military Time Seal Broken: 0800

SAMPLE RELINQUISHED BY	SAMPLE RECEIVED BY	DATE	TIME	REASON FOR CHANGE OF CUSTODY
[illegible] Gervasio	DB Humphries	12/2	0800	Deliver to lab
[illegible]	DR Hanfeld	12/6	1500	GCMS
DB Humphries	A Stefanske	12-7	0900	metals
[illegible]	[illegible]	12/7	0900	Bnx / Mist
[illegible]	A Stefanske	12/12	1400	Metals, LN
[illegible]	DB Humphries	12/17	0820	metals - Stor
DB Humphries	A Stefanske	12/30	1000	metals
[illegible]	[illegible]	1/3	1500	V Stor
[illegible]	[illegible]	1/20/89	1700	Hg
[illegible]	[illegible]	1/23/89	1400	Stor
DR Hanfeld	DB Humphries	1/27/89	0800	Stor - GCMS

COPIES: Gold - Container/Shuttle Preparation Receipt; Yellow - Analyst Chain of Custody; Pink - Field Sampler Receipt; White - Sample Custodians Chain of Custody

E19

Form DEP-060
10/86

NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION

CHAIN OF CUSTODY RECORD WITH SHUTTLE

Use One Form for Each Sample — *Shaded Areas for DEP Field Use Only*

NAME OF UNIT AND ADDRESS: NJDEP 65 Prospect St. Trenton NJ. 08618

Name of Person(s) Preparing Container(s) for Sample Shuttle
Name: DB Humphrie — Title: Sample Custodian — Agency: Envirodyne
Name: — Title: — Agency:

Date above-mentioned Person(s) Placed Container(s) in Sample Shuttle: 11/30/88 — Military Time: 1200 — Laboratory Affixed Sample Shuttle Seal No.: 020

Name of Person(s) Breaking Laboratory Seal on Sample Shuttle and Taking Field Sample
Name: N. Jiorle — Title: HSMS I
Name: C. Whittaker — Title: HSMS III
Name: — Title:

Date Laboratory Sample Shuttle Seal No.: 020 — Broken: 12/1/88 — Time (Mil) Seal Broken and Sampling Begun: 0900

FIELD SAMPLE NUMBER	CONTAINER NUMBER(S)	VOLUME OF CONTAINERS	DESCRIPTION OF SAMPLE
BSA12018580	1	4oz. jar	Soil 5
	2	250ml glass	dry dark soil

LAB CONTROL NO.: 88011709

Date Sampling Completed & Field Seal Affixed to Sample Shuttle: 12/1/88 — Military Time: 1700 — Field Affixed Sample Shuttle Seal No.: 021

Laboratory Person Breaking Field Seal on Sample Shuttle & Accepting Responsibility for Sample
Name: DB Humphrie — Title: Sample Custodian

Field Sample Seal No.: 021 — Date Broken: 12/2/88 — Military Time Seal Broken: 0800

SAMPLE RELINQUISHED BY	SAMPLE RECEIVED BY	DATE	TIME	REASON FOR CHANGE OF CUSTODY
R. Gervasio	DB Humphrie	12/2	0800	Deliver to lab
[illegible]	DR Hunfeld	12/6	1500	GCMS
DB Humphrie	A St Pauske	12-7	0900	metals
[illegible]	[illegible]	12/7	0900	BNA/Pest
[illegible]	A St Pauske	12/12	1400	metals, LN
L. Carmichael	DB Humphrie	12/17	0820	metals - stor
DB Humphrie	A St Pauske	12/30	1000	metals
L. Carmichael	[illegible]	1/3	1500	Stor
[illegible]	[illegible]	1/20/89	1700	Hg
[illegible]	[illegible]	1/23/89	1400	Stor
DR Hunfeld	DB Humphrie	1/27/89	0800	Stor - GCMS

COPIES: Gold - Container/Shuttle Preparation Receipt; Yellow - Analyst Chain of Custody; Pink - Field Sampler Receipt; White - Sample Custodians Chain of Custody

E20

Form DEP-060
10/86

NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION

CHAIN OF CUSTODY RECORD WITH SHUTTLE

Use One Form for Each Sample — *Shaded Areas for DEP Field Use Only*

NAME OF UNIT AND ADDRESS: NJDEP 65 Prospect St. Trenton NJ. 08618

Name of Person(s) Preparing Container(s) for Sample Shuttle

Name: DB Humphries — Title: Sample Custodian — Agency: Envirodyne

Name: — Title: — Agency:

Date above-mentioned Person(s) Placed Container(s) in Sample Shuttle: 11/30/88 — Military Time: 1200 — Laboratory Affixed Sample Shuttle Seal No.: 020

Name of Person(s) Breaking Laboratory Seal on Sample Shuttle and Taking Field Sample

Name: N. Jiorle — Title: HSMS I

Name: C. Whittaker — Title: HSMS III

Name: — Title:

Date Laboratory Sample Shuttle Seal No.: 020 — Broken: 12/1/88 — Time (Mil) Seal Broken and Sampling Begun: 0900

FIELD SAMPLE NUMBER	CONTAINER NUMBER(S)	VOLUME OF CONTAINERS	DESCRIPTION OF SAMPLE
BSA 12018581	1	4oz. jar	Soil 5D
	2	250ml glass	moist dark soil w/ gravel

LAB CONTROL NO.: 88011710

Date Sampling Completed & Field Seal Affixed to Sample Shuttle: 12/1/88 — Military Time: 1700 — Field Affixed Sample Shuttle Seal No.: 021

Laboratory Person Breaking Field Seal on Sample Shuttle & Accepting Responsibility for Sample

Name: DB Humphries — Title: Sample Custodian

Field Sample Seal No.: 021 — Date Broken: 12/~~22~~ 2/88 — Military Time Seal Broken: 0800

SAMPLE RELINQUISHED BY	SAMPLE RECEIVED BY	DATE	TIME	REASON FOR CHANGE OF CUSTODY
[illegible]	DB Humphries	12/2	0800	Deliver to lab
[illegible]	DR [illegible]	12/6	1500	GCMS
DB Humphries	[illegible]	12-7	0900	metals
[illegible]	[illegible]	12/7	0900	BNA/PEST
[illegible]	[illegible]	12/12	1400	metals, CN
[illegible]	DB Humphries	12/17	0820	metals-stor
DB Humphries	[illegible]	12/30	1000	metals
[illegible]	[illegible]	1/3	1500	stor
[illegible]	[illegible]	1/17/89	1700	[illegible]
[illegible]	[illegible]	1/23/89	1400	STOR
DR [illegible]	DB Humphries	1/27/89	0800	Stor - GCMS

COPIES: *Gold - Container/Shuttle Preparation Receipt* — *Yellow - Analyst Chain of Custody* — *Pink - Field Sampler Receipt* — *White - Sample Custodians Chain of Custody*

E21

Form DEP-060
10/86

NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION

CHAIN OF CUSTODY RECORD WITH SHUTTLE

Use One Form for Each Sample — *Shaded Areas for DEP Field Use Only*

NAME OF UNIT AND ADDRESS: NJDEP 65 Prospect St. Trenton NJ 08618

Name of Person(s) Preparing Container(s) for Sample Shuttle
Name: DB Humphrin — Title: SAMPLE CUSTODIAN — Agency: ENVIRODYNE
Name — Title — Agency

Date above-mentioned Person(s) Placed Container(s) in Sample Shuttle: 11/30/88 — Military Time: 1200 — Laboratory Affixed Sample Shuttle Seal No.: 080

Name of Person(s) Breaking Laboratory Seal on Sample Shuttle and Taking Field Sample
Name: N. Jiorle — Title: HSMS I
Name: C. Whitaker — Title: HSMS III
Name — Title

Date Laboratory Sample Shuttle Seal No.: 020 — Broken: 12/1/88 — Time (Mil) Seal Broken and Sampling Begun: 0900

FIELD SAMPLE NUMBER	CONTAINER NUMBER(S)	VOLUME OF CONTAINERS	DESCRIPTION OF SAMPLE
BSA1201 2582	1	4 oz. jar	Soil 6 dark black soil clay
	2	250 ml glass	

LAB CONTROL NO.: 8811711

Date Sampling Completed & Field Seal Affixed to Sample Shuttle: 12/1/88 — Military Time: 1700 — Field Affixed Sample Shuttle Seal No.: 021

Laboratory Person Breaking Field Seal on Sample Shuttle & Accepting Responsibility for Sample
Name: DB Humphrin — Title: Sample Custodian

Field Sample Seal No.: 021 — Date Broken: 12/2/88 — Military Time Seal Broken: 0800

SAMPLE RELINQUISHED BY	SAMPLE RECEIVED BY	DATE	TIME	REASON FOR CHANGE OF CUSTODY
R. Genovesio	DB Humphrin	12/2	0800	Deliver to lab
[illegible]	DR Wh[illegible]	12/6	1500	GCMS
DB Humphrin	A Stu[illegible]	12/7	0900	metals
[illegible]	[illegible]	12/7	0900	BNA pest
[illegible]	A Stu[illegible]	12/12	1400	metals, CN
G. Carmichael	DB Humphrin	12/17	0820	metals - store
DB Humphrin	[illegible]	12/30	1000	metals
G. Carmichael	[illegible]	1/3	1500	B store
[illegible]	[illegible]	1/17/89	1700	[illegible]
[illegible]	[illegible]	1/23/89	1400	store
DR Rumfield	DB Humphrin	1/27/89	0800	Store - GCMS

COPIES: *Gold - Container/Shuttle Preparation Receipt* *Yellow - Analyst Chain of Custody* *Pink - Field Sampler Receipt* *White - Sample Custodians Chain of Custody*

E-22

Form DEP-060
10/86

NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION

CHAIN OF CUSTODY RECORD WITH SHUTTLE

Use One Form for Each Sample — *Shaded Areas for DEP Field Use Only*

NAME OF UNIT AND ADDRESS: NJDEP 65 Prospect St. Trenton NJ. 08618

Name of Person(s) Preparing Container(s) for Sample Shuttle
Name: DB Humphrie — Title: Sample Custodian — Agency: Envirodyne
Name: — Title: — Agency:

Date above-mentioned Person(s) Placed Container(s) in Sample Shuttle: 11/30/88 — Military Time: 1200 — Laboratory Affixed Sample Shuttle Seal No.: 020

Name of Person(s) Breaking Laboratory Seal on Sample Shuttle and Taking Field Sample
Name: N. Jiorle — Title: HSMS I
Name: C. Whittaker — Title: HSMS III
Name: — Title:

Date Laboratory Sample Shuttle Seal No.: 020 — Broken: 12/1/88 — Time (Mil) Seal Broken and Sampling Begun: 0900

FIELD SAMPLE NUMBER	CONTAINER NUMBER(S)	VOLUME OF CONTAINERS	DESCRIPTION OF SAMPLE
BSA12018583	1	4oz. jar	Soil 6D
	2	250ml glass	moist orange brown clay

LAB CONTROL NO.: 88011712

Date Sampling Completed & Field Seal Affixed to Sample Shuttle: 12/1/88 — Military Time: 1700 — Field Affixed Sample Shuttle Seal No.: 021

Laboratory Person Breaking Field Seal on Sample Shuttle & Accepting Responsibility for Sample
Name: DB Hphrie — Title: Sample Custodian

Field Sample Seal No.: 021 — Date Broken: 12/2/88 — Military Time Seal Broken: 0800

SAMPLE RELINQUISHED BY	SAMPLE RECEIVED BY	DATE	TIME	REASON FOR CHANGE OF CUSTODY
R. Gervasio	DB Hphrie	12/2	0800	Deliver to lab
[illegible]	DR Hanfield	12/6	1500	GCMS
DB Hphrie	A Stefanski	12-7	0900	metals
[illegible]	[illegible]	12/7	0900	BNA/PCST
[illegible]	A Stefanski	12/12	1400	metals, CN
[illegible] Carmichael	DB Humphrie	12/17	0820	metals - flor
DB Humphrie	A Stefanski	12/30	1000	metals
[illegible] Carmichael	[illegible]	1/3	1500	Stor
[illegible]	[illegible]	1/20/89	1700	[illegible]
[illegible]	[illegible]	1/23/89	1400	Stor
DR Hanfield	DB Hphrie	1/29/89	0800	Stor - GCMS

COPIES: Gold - Container/Shuttle Preparation Receipt; Yellow - Analyst Chain of Custody; Pink - Field Sampler Receipt; White - Sample Custodians Chain of Custody

E23

5

Form DEP-060
10/86

NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION

CHAIN OF CUSTODY RECORD WITH SHUTTLE

Use One Form for Each Sample — *Shaded Areas for DEP Field Use Only*

NAME OF UNIT AND ADDRESS: NJDEP 65 Prospect St. Trenton NJ. 08618

Name of Person(s) Preparing Container(s) for Sample Shuttle
Name: DB Humphries — Title: SAMPLE CUSTODIAN — Agency: ENVIRODYNE
Name: — Title: — Agency:

Date above-mentioned Person(s) Placed Container(s) in Sample Shuttle: 11/30/88 — Military Time: 1200 — Laboratory Affixed Sample Shuttle Seal No.: 020

Name of Person(s) Breaking Laboratory Seal on Sample Shuttle and Taking Field Sample
Name: N. Jiorle — Title: HSMS I
Name: C. Whittaker — Title: HSMS III
Name: — Title:

Date Laboratory Sample Shuttle Seal No.: 020 — Broken: 12/1/88 — Time (Mil) Seal Broken and Sampling Begun: 0900

FIELD SAMPLE NUMBER	CONTAINER NUMBER(S)	VOLUME OF CONTAINERS	DESCRIPTION OF SAMPLE
BSA12018504	1	4 oz. jar	Soil 7
	2	250 ml glass	dark soil w/ clay

LAB CONTROL NO.: 88011713

Date Sampling Completed & Field Seal Affixed to Sample Shuttle: 12/1/88 — Military Time: 1700 — Field Affixed Sample Shuttle Seal No.: 021

Laboratory Person Breaking Field Seal on Sample Shuttle & Accepting Responsibility for Sample
Name: DB Humphries — Title: Sample Custodian

Field Sample Seal No.: 021 — Date Broken: 12/2/88 — Military Time Seal Broken: 0800

SAMPLE RELINQUISHED BY	SAMPLE RECEIVED BY	DATE	TIME	REASON FOR CHANGE OF CUSTODY
K. Genasio	DB Humphries	12/2	0800	Deliver to lab
[illegible]	DR Hanfeld	12/6	1500	GCMS
DB Humphries	A Stefanski	12.7	0900	METALS
[illegible]	[illegible]	12/7	0900	BNA/PEST
[illegible]	A Stefanski	12/12	1400	METALS, LN
[illegible]	DB Humphries	12/17	0820	metals - stor
DB Humphries	[illegible]	12/30	1000	metals
[illegible]	[illegible]	1/3	1500	Stor
[illegible]	[illegible]	1/20/89	1700	Hg
[illegible]	[illegible]	1/23/89	1400	Stor
DR Hanfeld	DB Humphries	1/27/89	0800	Stor - GCMS

COPIES: Gold - Container/Shuttle Preparation Receipt; Yellow - Analyst Chain of Custody; Pink - Field Sampler Receipt; White - Sample Custodians Chain of Custody

E 24

40

Form DEP-060
10/86

NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION

CHAIN OF CUSTODY RECORD WITH SHUTTLE

Use One Form for Each Sample — *Shaded Areas for DEP Field Use Only*

NAME OF UNIT AND ADDRESS: NJ DEP 65 Prospect St. Trenton NJ. 08618

Name of Person(s) Preparing Container(s) for Sample Shuttle
Name: DB Humphrin — Title: SAMPLE CUSTODIAN — Agency: ENVIRODYNE
Name: — Title: — Agency:

Date above-mentioned Person(s) Placed Container(s) in Sample Shuttle: 11/30/88 — Military Time: 1200 — Laboratory Affixed Sample Shuttle Seal No. 020

Name of Person(s) Breaking Laboratory Seal on Sample Shuttle and Taking Field Sample
Name: N. Jorle — Title: HSMS I
Name: C. Whittaker — Title: HSMS III
Name: — Title:

Date Laboratory Sample Shuttle Seal No. 020 — Broken 12/1/88 — Time (Mil) Seal Broken and Sampling Begun 0900

FIELD SAMPLE NUMBER	CONTAINER NUMBER(S)	VOLUME OF CONTAINERS	DESCRIPTION OF SAMPLE
13SA12018585	1	4 oz. jar	Soil 8
	2	250 ml glass	dark material - reddish soil

LAB CONTROL NO. 8801714

Date Sampling Completed & Field Seal Affixed to Sample Shuttle: 12/1/88 — Military Time: 1700 — Field Affixed Sample Shuttle Seal No. 021

Laboratory Person Breaking Field Seal on Sample Shuttle & Accepting Responsibility for Sample
Name: DB Humphrin — Title: Sample Custodian

Field Sample Seal No. 021 — Date Broken 12/2/88 — Military Time Seal Broken 0800

SAMPLE RELINQUISHED BY	SAMPLE RECEIVED BY	DATE	TIME	REASON FOR CHANGE OF CUSTODY
P. Gervasio	DB Humphrin	12/2	0800	Deliver to lab
[illegible]	DR Bernfeld	12/6	1500	GCMS
DB Humphrin	[illegible]	12/7	0900	metals
[illegible]	[illegible]	12/7	0900	BNA / Pest
[illegible]	[illegible]	12/12	1400	metals, CN
R. Campbell	DB Humphrin	12/17	0820	metals store
DB Humphrin	[illegible]	12/30	1000	metals
[illegible]	[illegible]	1/3	1500	store
[illegible]	[illegible]	1/12/89	1700	Hg
[illegible]	[illegible]	1/23/89	1400	store
DR Bernfeld	DB Humphrin	1/27/89	0800	store - GCMS

COPIES: *Gold - Container/Shuttle Preparation Receipt* — *Yellow - Analyst Chain of Custody* — *Pink - Field Sampler Receipt* — *White - Sample Custodians Chain of Custody*

Form DEP-060
10/86

JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION

CHAIN OF CUSTODY RECORD WITH SHUTTLE

Use One Form for Each Sample — *Shaded Areas for DEP Field Use Only*

NAME OF UNIT AND ADDRESS: NJDEP 65 Prospect St. Trenton NJ. 08618

Name of Person(s) Preparing Container(s) for Sample Shuttle
Name: DB Humphries Title: Sample Custodian Agency: Envirodyne
Name: Title: Agency:

Date above-mentioned Person(s) Placed Container(s) in Sample Shuttle: 11/30/88 Military Time: 1200 Laboratory Affixed Sample Shuttle Seal No. 020

Name of Person(s) Breaking Laboratory Seal on Sample Shuttle and Taking Field Sample
Name: C. Sullivan Title: HSMS III
Name: J. DeSantis Title: HSMS III
Name: Title:

Date Laboratory Sample Shuttle Seal No. 020 Broken 12/1/88 Time (Mil) Seal Broken and Sampling Begun 0900

FIELD SAMPLE NUMBER	CONTAINER NUMBER(S)	VOLUME OF CONTAINERS	DESCRIPTION OF SAMPLE
BSA12018586	1	4oz. jar	Soil 9D tan sticky clay
	2	250 ml glass	

LAB CONTROL NO. 88011715

Date Sampling Completed & Field Seal Affixed to Sample Shuttle: 12/1/88 Military Time: 1700 Field Affixed Sample Shuttle Seal No. 021

Laboratory Person Breaking Field Seal on Sample Shuttle & Accepting Responsibility for Sample
Name: DB Humphries Title: Sample Custodian

Field Sample Seal No. 021 Date Broken 12/2/88 Military Time Seal Broken 0800

SAMPLE RELINQUISHED BY	SAMPLE RECEIVED BY	DATE	TIME	REASON FOR CHANGE OF CUSTODY
R. Genovio	DB Humphries	12/2	0800	Deliver to lab
[illegible]	DR [illegible]	12/6	1500	GCMS
DB Humphries	[illegible]	12-7	0900	metals
[illegible]	[illegible]	12/7	0900	BNA / PCIS
[illegible]	[illegible]	12/10	1400	metals, LN
[illegible] Carmichael	DB Humphries	12/17	0820	metals - Stor
DB Humphries	[illegible]	12/30	1000	metals
[illegible] Carmichael	[illegible]	1/3	1500	Stor
[illegible]	[illegible]	1/4	800	Pest PCB BNA
[illegible]	[illegible]	1/4	900	Stor
[illegible]	[illegible]	1/17/89	1700	Hg
[illegible]	[illegible]	1/23/89	1400	Stor
DR [illegible]	DB Humphries	1/27/89	0800	GCMS - Stor

COPIES: Gold - Container/Shuttle Preparation Receipt; Yellow - Analyst Chain of Custody; Pink - Field Sampler Receipt; White - Sample Custodians Chain of Custody

E25

Form DEP-060
10/86

JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION

CHAIN OF CUSTODY RECORD WITH SHUTTLE

Use One Form for Each Sample — *Shaded Areas for DEP Field Use Only*

NAME OF UNIT AND ADDRESS: NJDEP 65 Prospect St. Trenton N.J. 08618

Name of Person(s) Preparing Container(s) for Sample Shuttle
Name: DB Humphries Title: SAMPLE CUSTODIAN Agency: ENVIRODYNE ENGS.
Name: Title: Agency:

Date above-mentioned Person(s) Placed Container(s) in Sample Shuttle: 11/30/88 Military Time: 1200 Laboratory Affixed Sample Shuttle Seal No. 020

Name of Person(s) Breaking Laboratory Seal on Sample Shuttle and Taking Field Sample
Name: R. Gervasio Title: Supervisory Env. Tech
Name: D. Van Eck Title: HSMS III
Name: Title:

Date Laboratory Sample Shuttle Seal No. 020 Broken 12/1/88 Time (Mil) Seal Broken and Sampling Begun 0900

FIELD SAMPLE NUMBER	CONTAINER NUMBER(S)	VOLUME OF CONTAINERS	DESCRIPTION OF SAMPLE
BSA 120185 87	1	~~402~~ 802 jar	Soil 10
	2	250 ml glass	red clay

LAB CONTROL NO. 88011716

Date Sampling Completed & Field Seal Affixed to Sample Shuttle: 12/1/88 Military Time: 1700 Field Affixed Sample Shuttle Seal No. 021

Laboratory Person Breaking Field Seal on Sample Shuttle & Accepting Responsibility for Sample
Name: DB Humphries Title: Sample Custodian

Field Sample Seal No. 021 Date Broken 12/2/88 Military Time Seal Broken 0800

SAMPLE RELINQUISHED BY	SAMPLE RECEIVED BY	DATE	TIME	REASON FOR CHANGE OF CUSTODY
R. Gervasio	DB Humphries	12/2	0800	Deliver to lab
[illegible]	DR Kunfeld	12/6	1500	GCMS
DB Humphries	[illegible]	12-7	0900	METALS
[illegible]	[illegible]	12/7	0800	BNA/PEST
[illegible]	[illegible]	12/12	1400	metals, LN
L. Carmichael	DB Humphries	12/17	0820	metals - stor
DB Humphries	[illegible]	12/30	1000	metals
L. Carmichael	[illegible]	1/3	1500	Stor
[illegible]	[illegible]	1/4	800	Pest PCB BNA
[illegible]	[illegible]	1/4	900	Stor
[illegible]	[illegible]	1/20/89	1700	Hg
[illegible]	[illegible]	1/23/89	1400	STOR
DR Kunfeld	DB Humphries	1/27/89	0800	Gems - stor

COPIES: Gold - Container/Shuttle Preparation Receipt; Yellow - Analyst Chain of Custody; Pink - Field Sampler Receipt; White - Sample Custodians Chain of Custody

E26

Form DEP-060
10/86

JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION

CHAIN OF CUSTODY RECORD WITH SHUTTLE

Use One Form for Each Sample — *Shaded Areas for DEP Field Use Only*

NAME OF UNIT AND ADDRESS: NJDEP 65 Prospect St. Trenton N.J. 08618

Name of Person(s) Preparing Container(s) for Sample Shuttle
Name: DB Humphries Title: Sample Custodian Agency: Envirodyne
Name: Title: Agency:

Date above-mentioned Person(s) Placed Container(s) in Sample Shuttle: 11/30/88 Military Time: 1200 Laboratory Affixed Sample Shuttle Seal No. 022

Name of Person(s) Breaking Laboratory Seal on Sample Shuttle and Taking Field Sample
Name: N. Jiorle Title: HSMS I
Name: C. Whitaker Title: HSMS III
Name: Title:

Date Laboratory Sample Shuttle Seal No. 022 Broken 12/1/88 Time (Mil) Seal Broken and Sampling Begun 0900

FIELD SAMPLE NUMBER	CONTAINER NUMBER(S)	VOLUME OF CONTAINERS	DESCRIPTION OF SAMPLE
BSA1201867	1	4 oz. jar	Soil 11 dark brown to black soil
	2	250ml glass	

LAB CONTROL NO. 88011717

Date Sampling Completed & Field Seal Affixed to Sample Shuttle: 12/1/88 Military Time: 1700 Field Affixed Sample Shuttle Seal No. 023

Laboratory Person Breaking Field Seal on Sample Shuttle & Accepting Responsibility for Sample
Name: DB Humphries Title: Sample Custodian

Field Sample Seal No. 023 Date Broken 12/2/88 Military Time Seal Broken 0800

SAMPLE RELINQUISHED BY	SAMPLE RECEIVED BY	DATE	TIME	REASON FOR CHANGE OF CUSTODY
R. Gervasio	DB Humphries	12/2	0800	Deliver to lab
[illegible]	DR Mansfield	12/6	1500	GCMS
DB Humphries	A Stefanski	12-7	0900	metals
[illegible]	[illegible]	12/7	0900	BNA/Pest
[illegible]	A Stefanski	12/12	1400	metals, LN
[illegible] Carmichael	DB Humphries	12/17	0820	metals/stor
DB Humphries	A Stefanski	12/30	1000	metals
[illegible] Carmichael	[illegible]	1/3	1500	Stor
[illegible]		1/4	800	Pest PCB BNA
[illegible]	[illegible]	1/4	900	Stor
[illegible]	[illegible]	1/20/89	1700	[illegible]
[illegible]	[illegible]	1/23/89	1400	Stor
DR Mansfield	DB Humphries	1/27/89	0800	Stor-GCMS

COPIES: Gold - Container/Shuttle Preparation Receipt; Yellow - Analyst Chain of Custody; Pink - Field Sampler Receipt; White - Sample Custodians Chain of Custody

E27

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

FIELD BLANK

Lab Name: ENVIRODYNE ENGINEERS Contract: 3210

Lab Code: EEI Case No.: 01 SAS No.: NA SDG No.: ~~NA~~ SOIL1 caj 1/9/89

Matrix: (soil/water) WATER Lab Sample ID: 88011745

Sample wt/vol: 5.0 (G/ML) ML Lab File ID: >B0442

Level: (low/med) LOW Date Received: 12/02/88

% Moisture: not dec.---- Date Analyzed: 12/07/88

Column: (pack/cap) PACK Dilution Factor: 1.00000

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	150	B
67-64-1	Acetone	21	B
75-15-0	Carbon Disulfide	5	U
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	3	J
107-02-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
108-05-4	Vinyl Acetate	10	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
108-10-1	4-Methyl-2-pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
108-88-3	Toluene	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
133-02-7	Xylene (total)	5	U

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

FIELD BLK

Lab Name: ENVIRODYNE ENG., INC. Contract: 3210

Lab Code: Case No.: 00002 SAS No.: SDG No.:SOIL1

Matrix: WATER Lab Sample ID: 88011745

Sample wt/vol: 1000 (g/mL) ML Lab File ID: E1939

Level: (low/med) LOW Date Received: 12/02/88

% Moisture: not dec. dec. Date Extracted:12/06/88

Extraction: (SepF/Cont/Sonc) SEPF Date Analysed: 01/09/89

GPC Cleanup: (Y/N) N pH: 7 Dilution Factor: 1.00000

CAS No.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
-108-95-2--------	Phenol----------	10	U
-111-44-4--------	bis(2-Chloroethyl) ether----	10	U
-95-57-8---------	2-Chlorophenol----------	10	U
-541-73-1--------	1,3-Dichlorobenzene---------	10	U
-106-46-7--------	1,4-Dichlorobenzene---------	10	U
-100-51-6--------	Benzyl Alcohol----------	10	U
-95-50-1---------	1,2-Dichlorobenzene---------	10	U
-95-48-7---------	2-Methylphenol----------	10	U
-108-60-1--------	bis(2-Chloroisopropyl)ether-	10	U
-106-44-5--------	4-Methylphenol----------	10	U
-621-64-7--------	N-Nitroso-di-n-dipropylamine	10	U
-67-72-1---------	Hexachloroethane----------	10	U
-98-95-3---------	Nitrobenzene----------	10	U
-78-59-1---------	Isophorone----------	10	U
-88-75-5---------	2-Nitrophenol----------	10	U
-105-67-9--------	2,4-Dimethylphenol----------	10	U
-65-85-0---------	Benzoic Acid----------	50	U
-111-91-1--------	bis(2-Chloroethoxy)methane--	10	U
-120-83-2--------	2,4-Dichlorophenol----------	10	U
-120-82-1--------	1,2,4-Trichlorobenzene------	10	U
-91-20-3---------	Naphthalene----------	10	U
-106-47-8--------	4-Chloroaniline----------	10	U
-87-68-3---------	Hexachlorobutadiene---------	10	U
-59-50-7---------	4-Chloro-3-methylphenol-----	10	U
-91-57-6---------	2-Methylnaphthalene---------	10	U
-77-47-4---------	Hexachlorocyclopentadiene---	10	U
-88-06-2---------	2,4,6-Trichlorophenol-------	10	U
-95-95-4---------	2,4,5-Trichlorophenol-------	50	U
-91-58-7---------	2-Chloronaphthalene---------	10	U
-88-74-4---------	2-Nitroaniline----------	50	U
-131-11-3--------	Dimethylphthalate----------	10	U
-208-96-8--------	Acenaphthylene----------	10	U
-606-20-2--------	2,6-Dinitrotoluene----------	10	U

E29

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

FIELD BLK

Lab Name: ENVIRODYNE ENG., INC. Contract: 3210

Lab Code: Case No.: 00002 SAS No.: SDG No.:SOIL1

Matrix: WATER Lab Sample ID: 88011745

Sample wt/vol: 1000 (g/mL) ML Lab File ID: E1939

Level: (low/med) LOW Date Received: 12/02/88

% Moisture: not dec. dec. Date Extracted:12/06/88

Extraction: (SepF/Cont/Sonc) SEPF Date Analysed: 01/09/89

GPC Cleanup: (Y/N) N pH: 7 Dilution Factor: 1.00000

CAS No.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
-99-09-2	3-Nitroaniline	50	U
-83-32-9	Acenaphthene	10	U
-51-28-5	2,4-Dinitrophenol	50	U
-100-02-7	4-Nitrophenol	50	U
-132-64-9	Dibenzofuran	10	U
-121-14-2	2,4-Dinitrotoluene	10	U
-84-66-2	Diethylphthalate	10	U
-7005-72-3	4-Chlorophenyl-phenyl ether	10	U
-86-73-7	Fluorene	10	U
-100-01-6	4-Nitroaniline	50	U
-534-52-1	4,6-Dinitro-2-methylphenol	50	U
-86-30-6	N-Nitrosodiphenylamine (1)	10	U
-101-55-3	4-Bromophenyl-phenyl ether	10	U
-118-74-1	Hexachlorobenzene	10	U
-87-86-5	Pentachlorophenol	50	U
-85-01-8	Phenanthrene	10	U
-120-12-7	Anthracene	10	U
-84-74-2	Di-n-butylphthalate	3	JB
-206-44-0	Fluoranthene	10	U
-129-00-0	Pyrene	10	U
-85-68-7	Butylbenzylphthalate	10	U
-91-94-1	3,3'-Dichlorobenzidine	20	U
-56-55-3	Benzo(a)anthracene	10	U
-218-01-9	Chrysene	10	U
-117-81-7	bis(2-ethylhexyl)phthalate	10	U
-117-84-0	Di-n-octylphthalate	10	U
-205-99-2	Benzo(b)fluoranthene	10	U
-207-0809	Benzo(k)fluoranthene	10	U
-50-32-8	Benzo(a)pyrene	10	U
-193-39-5	Indeno(1,2,3-cd)pyrene	10	U
-53-70-3	Dibenzo(a,h)anthracene	10	U
-191-24-2	Benzo(g,h,i)perylene	10	U

(1) - Cannot be separated from Diphenylamine

E30

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

FIELD BLK

Lab Name: ENVIRODYNE ENG., INC. Contract: ~~02~~ mw 3210 1-17-89

Lab Code: Case No.: 02 SAS No.: SDG No.: SOIL1

Matrix: (soil/water) WATER Lab Sample ID: 88011745

Sample wt/vol: 1000 (g/mL) ML Lab File ID:

Level: (low/med) LOW Date Received: 12/02/88

% Moisture: not dec. dec. Date Extracted: 12/06/88

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 12/30/88

GPC Cleanup: (Y/N) N pH: 7 Dilution Factor: 1.00000

CAS No.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
319-84-6	alpha-BHC	0.05	U
319-85-7	beta-BHC	0.05	U
319-86-8	delta-BHC	0.05	U
58-89-9	gamma-BHC (Lindane)	0.05	U
76-44-8	Heptachlor	0.05	U
309-00-2	Aldrin	0.05	U
1024-57-3	Heptachlor epoxide	0.05	U
959-98-8	Endosulfan I	0.05	U
60-57-1	Dieldrin	0.10	U
72-55-9	4,4'-DDE	0.10	U
72-20-8	Endrin	0.10	U
33213-65-9	Endosulfan II	0.10	U
72-54-8	4,4'-DDD	0.10	U
1031-07-8	Endosulfan sulfate	0.10	U
50-29-3	4,4'-DDT	0.10	U
72-43-5	Methoxychlor	0.50	U
53494-70-5	Endrin Ketone	0.10	U
5103-71-9	alpha-Chlordane	0.50	U
5103-74-2	gamma-Chlordane	0.50	U
8001-35-2	Toxaphene	1.0	U
12674-11-2	Aroclor-1016	0.50	U
11104-28-2	Aroclor-1221	0.50	U
11141-16-5	Aroclor-1232	0.50	U
53469-21-9	Aroclor-1242	0.50	U
12672-29-6	Aroclor-1248	0.50	U
11097-69-1	Aroclor-1254	1.0	U
11096-82-5	Aroclor-1260	1.0	U

FORM I PEST 1/87 Rev.

E31

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SEDIMENT 1

Lab Name: ENVIRODYNE ENGINEERS Contract: 3210

Lab Code: EEI Case No.: 02 SAS No.: NA SDG No.: SOIL 1

Matrix: (soil/water) SOIL Lab Sample ID: 88011718

Sample wt/vol: 5 (g/mL) G Lab File ID: >B0565

Level: (low/med) LOW Date Received: 12/02/88

% Moisture: not dec. 33 Date Analyzed: 12/17/88

Column: (pack/cap) PACK Dilution Factor: 1.00000

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q
74-87-3	Chloromethane	15	U
74-83-9	Bromomethane	15	U
75-01-4	Vinyl Chloride	15	U
75-00-3	Chloroethane	15	U
75-09-2	Methylene Chloride	15	
67-64-1	Acetone	350	BE
75-15-0	Carbon Disulfide	7	U
75-35-4	1,1-Dichloroethene	7	U
75-34-3	1,1-Dichloroethane	7	U
540-59-0	1,2-Dichloroethene (total)	4	
67-66-3	Chloroform	7	U
107-02-2	1,2-Dichloroethane	7	U
78-93-3	2-Butanone	15	U
71-55-6	1,1,1-Trichloroethane	3	J
56-23-5	Carbon Tetrachloride	7	U
108-05-4	Vinyl Acetate	15	U
75-27-4	Bromodichloromethane	7	U
78-87-5	1,2-Dichloropropane	7	U
10061-01-5	cis-1,3-Dichloropropene	7	U
79-01-6	Trichloroethene	7	U
124-48-1	Dibromochloromethane	7	U
79-00-5	1,1,2-Trichloroethane	7	U
71-43-2	Benzene	3	J
10061-02-6	trans-1,3-Dichloropropene	7	U
75-25-2	Bromoform	7	U
108-10-1	4-Methyl-2-pentanone	15	U
591-78-6	2-Hexanone	15	U
127-18-4	Tetrachloroethene	7	U
79-34-5	1,1,2,2-Tetrachloroethane	7	U
108-88-3	Toluene	2	J
108-90-7	Chlorobenzene	760	E
100-41-4	Ethylbenzene	1	J
100-42-5	Styrene	7	U
133-02-7	Xylene (total)	2	J

E32

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SEDIMENT 1 RE

Lab Name: ENVIRODYNE ENGINEERS Contract: 3210

Lab Code: EEI Case No.: 02 SAS No.: NA SDG No.: SOIL 1

Matrix: (soil/water) SOIL Lab Sample ID: 88011718

Sample wt/vol: 1 (g/mL) G Lab File ID: >B0592

Level: (low/med) LOW Date Received: 12/02/88

% Moisture: not dec. 33 Date Analyzed: 12/19/88

Column: (pack/cap) PACK Dilution Factor: 5.00000

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q
74-87-3	Chloromethane	74	U
74-83-9	Bromomethane	74	U
75-01-4	Vinyl Chloride	74	U
75-00-3	Chloroethane	74	U
75-09-2	Methylene Chloride	50	B
67-64-1	Acetone	690	B
75-15-0	Carbon Disulfide	37	U
75-35-4	1,1-Dichloroethene	37	U
75-34-3	1,1-Dichloroethane	37	U
540-59-0	1,2-Dichloroethene (total)	16	J
67-66-3	Chloroform	37	U
107-02-2	1,2-Dichloroethane	37	U
78-93-3	2-Butanone	99	B
71-55-6	1,1,1-Trichloroethane	17	J
56-23-5	Carbon Tetrachloride	37	U
108-05-4	Vinyl Acetate	74	U
75-27-4	Bromodichloromethane	37	U
78-87-5	1,2-Dichloropropane	37	U
10061-01-5	cis-1,3-Dichloropropene	37	U
79-01-6	Trichloroethene	37	U
124-48-1	Dibromochloromethane	37	U
79-00-5	1,1,2-Trichloroethane	37	U
71-43-2	Benzene	11	J
10061-02-6	trans-1,3-Dichloropropene	37	U
75-25-2	Bromoform	37	U
108-10-1	4-Methyl-2-pentanone	74	U
591-78-6	2-Hexanone	14	J
127-18-4	Tetrachloroethene	11	J
79-34-5	1,1,2,2-Tetrachloroethane	37	U
108-88-3	Toluene	8	JB
108-90-7	Chlorobenzene	1200	E
100-41-4	Ethylbenzene	37	U
100-42-5	Styrene	37	U
133-02-7	Xylene (total)	37	U

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SED 1

Lab Name: ENVIRODYNE ENG., INC. Contract: 3210

Lab Code: Case No.: 00002 SAS No.: SDG No.:SOIL1

Matrix: SOIL Lab Sample ID: 88011718

Sample wt/vol: 1.01 (g/mL) G Lab File ID: C1358

Level: (low/med) MED Date Received: 12/02/88

% Moisture: not dec. 33 dec. 31 Date Extracted:12/09/88

Extraction: (SepF/Cont/Sonc) SONC Date Analysed: 01/06/89

GPC Cleanup: (Y/N) N pH: 7 Dilution Factor: 1.00000

CAS No.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	30000	U
111-44-4	bis(2-Chloroethyl) ether	30000	U
95-57-8	2-Chlorophenol	30000	U
541-73-1	1,3-Dichlorobenzene	3400	J
106-46-7	1,4-Dichlorobenzene	30000	U
100-51-6	Benzyl Alcohol	30000	U
95-50-1	1,2-Dichlorobenzene	30000	U
95-48-7	2-Methylphenol	30000	U
108-60-1	bis(2-Chloroisopropyl)ether	30000	U
106-44-5	4-Methylphenol	30000	U
621-64-7	N-Nitroso-di-n-dipropylamine	30000	U
67-72-1	Hexachloroethane	30000	U
98-95-3	Nitrobenzene	30000	U
78-59-1	Isophorone	30000	U
88-75-5	2-Nitrophenol	30000	U
105-67-9	2,4-Dimethylphenol	30000	U
65-85-0	Benzoic Acid	140000	U
111-91-1	bis(2-Chloroethoxy)methane	30000	U
120-83-2	2,4-Dichlorophenol	30000	U
120-82-1	1,2,4-Trichlorobenzene	30000	U
91-20-3	Naphthalene	300000	
106-47-8	4-Chloroaniline	30000	U
87-68-3	Hexachlorobutadiene	30000	U
59-50-7	4-Chloro-3-methylphenol	30000	U
91-57-6	2-Methylnaphthalene	30000	U
77-47-4	Hexachlorocyclopentadiene	30000	U
88-06-2	2,4,6-Trichlorophenol	30000	U
95-95-4	2,4,5-Trichlorophenol	140000	U
91-58-7	2-Chloronaphthalene	30000	U
88-74-4	2-Nitroaniline	140000	U
131-11-3	Dimethylphthalate	30000	U
208-96-8	Acenaphthylene	30000	U
606-20-2	2,6-Dinitrotoluene	30000	U

E34

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SED 1

Lab Name: ENVIRODYNE ENG., INC. Contract: 3210

Lab Code: Case No.: 00002 SAS No.: SDG No.:SOIL1

Matrix: SOIL Lab Sample ID: 88011718

Sample wt/vol: 1.01 (g/mL) G Lab File ID: C1358

Level: (low/med) MED Date Received: 12/02/88

% Moisture: not dec. 33 dec. Date Extracted:12/09/88

Extraction: (SepF/Cont/Sonc) SONC Date Analysed: 01/06/89

GPC Cleanup: (Y/N) N pH: 7 Dilution Factor: 1.00000

CAS No.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
99-09-2	3-Nitroaniline	140000	U
83-32-9	Acenaphthene	30000	U
51-28-5	2,4-Dinitrophenol	140000	U
100-02-7	4-Nitrophenol	140000	U
132-64-9	Dibenzofuran	30000	U
121-14-2	2,4-Dinitrotoluene	30000	U
84-66-2	Diethylphthalate	30000	U
7005-72-3	4-Chlorophenyl-phenyl ether	30000	U
86-73-7	Fluorene	30000	U
100-01-6	4-Nitroaniline	140000	U
534-52-1	4,6-Dinitro-2-methylphenol	140000	U
86-30-6	N-Nitrosodiphenylamine (1)	30000	U
101-55-3	4-Bromophenyl-phenyl ether	30000	U
118-74-1	Hexachlorobenzene	30000	U
87-86-5	Pentachlorophenol	140000	U
85-01-8	Phenanthrene	30000	U
120-12-7	Anthracene	3000	J
84-74-2	Di-n-butylphthalate	30000	U
206-44-0	Fluoranthene	30000	U
129-00-0	Pyrene	30000	U
85-68-7	Butylbenzylphthalate	30000	U
91-94-1	3,3'-Dichlorobenzidine	59000	U
56-55-3	Benzo(a)anthracene	30000	U
218-01-9	Chrysene	30000	U
117-81-7	bis(2-ethylhexyl)phthalate	30000	U
117-84-0	Di-n-octylphthalate	30000	U
205-99-2	Benzo(b)fluoranthene	30000	U
207-0809	Benzo(k)fluoranthene	30000	U
50-32-8	Benzo(a)pyrene	30000	U
193-39-5	Indeno(1,2,3-cd)pyrene	30000	U
53-70-3	Dibenzo(a,h)anthracene	30000	U
191-24-2	Benzo(g,h,i)perylene	30000	U

(1) - Cannot be separated from Diphenylamine

E35

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SED 1

Lab Name: ENVIRODYNE ENG., INC. Contract: 3210

Lab Code: Case No.: 0002 SAS No.: SDG No.: SOIL1

Matrix: (soil/water) SOIL Lab Sample ID: 88011718

Sample wt/vol: 1 (g/mL) G Lab File ID:

Level: (low/med) MED Date Received: 12/02/88

% Moisture: not dec. 31 dec. Date Extracted:12/08/88

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 01/04/89

GPC Cleanup: (Y/N) N pH: 7 Dilution Factor: 1.00000

CAS No.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	170	U
319-85-7	beta-BHC	170	U
319-86-8	delta-BHC	710	U
58-89-9	gamma-BHC (Lindane)	170	U
76-44-8	Heptachlor	170	U
309-00-2	Aldrin	170	U
1024-57-3	Heptachlor epoxide	170	U
959-98-8	Endosulfan I	170	U
60-57-1	Dieldrin	350	U
72-55-9	4,4'-DDE	350	U
72-20-8	Endrin	350	U
33213-65-9	Endosulfan II	350	U
72-54-8	4,4'-DDD	350	U
1031-07-8	Endosulfan sulfate	350	U
50-29-3	4,4'-DDT	350	U
72-43-5	Methoxychlor	1700	U
53494-70-5	Endrin Ketone	350	U
5103-71-9	alpha-Chlordane	1700	U
5103-74-2	gamma-Chlordane	1700	U
8001-35-2	Toxaphene	3500	U
12674-11-2	Aroclor-1016	1700	U
11104-28-2	Aroclor-1221	1700	U
11141-16-5	Aroclor-1232	1700	U
53469-21-9	Aroclor-1242	1700	U
12672-29-6	Aroclor-1248	1700	U
11097-69-1	Aroclor-1254	3500	U
11096-82-5	Aroclor-1260	3500	U

FORM I PEST 1/87 Rev.

E36

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SED 1 DL

Lab Name: ENVIRODYNE ENG., INC. Contract: 3210

Lab Code: Case No.: 0002 SAS No.: SDG No.: SOIL1

Matrix: (soil/water) SOIL Lab Sample ID: 88011718

Sample wt/vol: 1 (g/mL) G Lab File ID:

Level: (low/med) MED Date Received: 12/02/88

% Moisture: not dec. 31 dec. Date Extracted: 12/08/88

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 12/28/88

GPC Cleanup: (Y/N) N pH: 7 Dilution Factor: ~~0.10000~~ 10 cay 1/23/89

CAS No.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
-319-84-6	alpha-BHC	1700	UD
-319-85-7	beta-BHC	1700	UD
-319-86-8	delta-BHC	1700	UD
-58-89-9	gamma-BHC (Lindane)	1700	UD
-76-44-8	Heptachlor	1700	UD
-309-00-2	Aldrin	1700	UD
-1024-57-3	Heptachlor epoxide	1700	UD
-959-98-8	Endosulfan I	1700	UD
-60-57-1	Dieldrin	3500	UD
-72-55-9	4,4'-DDE	3500	UD
-72-20-8	Endrin	3500	UD
-33213-65-9	Endosulfan II	3500	UD
-72-54-8	4,4'-DDD	3500	UD
-1031-07-8	Endosulfan sulfate	3500	UD
-50-29-3	4,4'-DDT	3500	UD
-72-43-5	Methoxychlor	17000	UD
-53494-70-5	Endrin Ketone	3500	UD
-5103-71-9	alpha-Chlordane	17000	UD
-5103-74-2	gamma-Chlordane	17000	UD
-8001-35-2	Toxaphene	35000	UD
-12674-11-2	Aroclor-1016	17000	UD
-11104-28-2	Aroclor-1221	17000	UD
-11141-16-5	Aroclor-1232	17000	UD
-53469-21-9	Aroclor-1242	17000	UD
-12672-29-6	Aroclor-1248	17000	UD
-11097-69-1	Aroclor-1254	35000	UD
-11096-82-5	Aroclor-1260	35000	UD

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SEDIMENT 2

Lab Name: ENVIRODYNE ENGINEERS Contract: 3210

Lab Code: EEI Case No.: 02 SAS No.: NA SDG No.: SOIL1

Matrix: (soil/water) SOIL Lab Sample ID: 88011719

Sample wt/vol: 4 (g/mL) G Lab File ID: >B0493

Level: (low/med) MED Date Received: 12/02/88

% Moisture: not dec. 70 Date Analyzed: 12/11/88

Column: (pack/cap) PACK Dilution Factor: ~~125~~ 1

caj 1/19/89

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q
74-87-3	Chloromethane	4150	U
74-83-9	Bromomethane	4150	U
75-01-4	Vinyl Chloride	4150	U
75-00-3	Chloroethane	4150	U
75-09-2	Methylene Chloride	2070	U
67-64-1	Acetone	7960	B
75-15-0	Carbon Disulfide	2070	U
75-35-4	1,1-Dichloroethene	2070	U
75-34-3	1,1-Dichloroethane	2070	U
540-59-0	1,2-Dichloroethene (total)	2070	U
67-66-3	Chloroform	2070	U
107-02-2	1,2-Dichloroethane	2070	U
78-93-3	2-Butanone	4150	U
71-55-6	1,1,1-Trichloroethane	2070	U
56-23-5	Carbon Tetrachloride	2070	U
108-05-4	Vinyl Acetate	4150	U
75-27-4	Bromodichloromethane	2070	U
78-87-5	1,2-Dichloropropane	2070	U
10061-01-5	cis-1,3-Dichloropropene	2070	U
79-01-6	Trichloroethene	2070	U
124-48-1	Dibromochloromethane	2070	U
79-00-5	1,1,2-Trichloroethane	2070	U
71-43-2	Benzene	2070	U
10061-02-6	trans-1,3-Dichloropropene	2070	U
75-25-2	Bromoform	2070	U
108-10-1	4-Methyl-2-pentanone	4150	U
591-78-6	2-Hexanone	4150	U
127-18-4	Tetrachloroethene	2070	U
79-34-5	1,1,2,2-Tetrachloroethane	2070	U
108-88-3	Toluene	1490	JB
108-90-7	Chlorobenzene	70000	
100-41-4	Ethylbenzene	850	J
100-42-5	Styrene	2070	U
133-02-7	Xylene (total)	2640	

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SED 2

Lab Name: ENVIRODYNE ENG., INC. Contract: 3210

Lab Code: Case No.: 00002 SAS No.: SDG No.:SOIL1

Matrix: SOIL Lab Sample ID: 88011719

Sample wt/vol: 1.00 (g/mL) G Lab File ID: C1359

Level: (low/med) MED Date Received: 12/02/88

% Moisture: not dec. 70 dec. 65 Date Extracted:12/09/88

Extraction: (SepF/Cont/Sonc) SONC Date Analysed: 01/06/89

GPC Cleanup: (Y/N) N pH: 7 Dilution Factor: 1.00000

CAS No.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	66000	U
111-44-4	bis(2-Chloroethyl) ether	66000	U
95-57-8	2-Chlorophenol	66000	U
541-73-1	1,3-Dichlorobenzene	130000	
106-46-7	1,4-Dichlorobenzene	990000	
100-51-6	Benzyl Alcohol	66000	U
95-50-1	1,2-Dichlorobenzene	3100000	
95-48-7	2-Methylphenol	66000	U
108-60-1	bis(2-Chloroisopropyl)ether	66000	U
106-44-5	4-Methylphenol	66000	U
621-64-7	N-Nitroso-di-n-dipropylamine	66000	U
67-72-1	Hexachloroethane	66000	U
98-95-3	Nitrobenzene	66000	U
78-59-1	Isophorone	66000	U
88-75-5	2-Nitrophenol	66000	U
105-67-9	2,4-Dimethylphenol	66000	U
65-85-0	Benzoic Acid	320000	U
111-91-1	bis(2-Chloroethoxy)methane	66000	U
120-83-2	2,4-Dichlorophenol	66000	U
120-82-1	1,2,4-Trichlorobenzene	3400000	
91-20-3	Naphthalene	890000	
106-47-8	4-Chloroaniline	66000	U
87-68-3	Hexachlorobutadiene	66000	U
59-50-7	4-Chloro-3-methylphenol	66000	U
91-57-6	2-Methylnaphthalene	8200	J
77-47-4	Hexachlorocyclopentadiene	66000	U
88-06-2	2,4,6-Trichlorophenol	66000	U
95-95-4	2,4,5-Trichlorophenol	320000	U
91-58-7	2-Chloronaphthalene	19000	J
88-74-4	2-Nitroaniline	320000	U
131-11-3	Dimethylphthalate	66000	U
208-96-8	Acenaphthylene	66000	U
606-20-2	2,6-Dinitrotoluene	66000	U

E39

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SED 2

Lab Name: ENVIRODYNE ENG., INC. Contract: 3210

Lab Code: Case No.: 00002 SAS No.: SDG No.:SOIL1

Matrix: SOIL Lab Sample ID: 88011719

Sample wt/vol: 1.00 (g/mL) G Lab File ID: C1359

Level: (low/med) MED Date Received: 12/02/88

% Moisture: not dec. 70 dec. Date Extracted:12/09/88

Extraction: (SepF/Cont/Sonc) SONC Date Analysed: 01/06/89

GPC Cleanup: (Y/N) N pH: 7 Dilution Factor: 1.00000

CAS No.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
99-09-2	3-Nitroaniline	320000	U
83-32-9	Acenaphthene	66000	U
51-28-5	2,4-Dinitrophenol	320000	U
100-02-7	4-Nitrophenol	320000	U
132-64-9	Dibenzofuran	66000	U
121-14-2	2,4-Dinitrotoluene	66000	U
84-66-2	Diethylphthalate	66000	U
7005-72-3	4-Chlorophenyl-phenyl ether	66000	U
86-73-7	Fluorene	7100	J
100-01-6	4-Nitroaniline	320000	U
534-52-1	4,6-Dinitro-2-methylphenol	320000	U
86-30-6	N-Nitrosodiphenylamine (1)	66000	U
101-55-3	4-Bromophenyl-phenyl ether	66000	U
118-74-1	Hexachlorobenzene	30000	J
87-86-5	Pentachlorophenol	320000	U
85-01-8	Phenanthrene	19000	J
120-12-7	Anthracene	66000	U
84-74-2	Di-n-butylphthalate	66000	U
206-44-0	Fluoranthene	7300	J
129-00-0	Pyrene	14000	J
85-68-7	Butylbenzylphthalate	650000	
91-94-1	3,3'-Dichlorobenzidine	130000	U
56-55-3	Benzo(a)anthracene	66000	U
218-01-9	Chrysene	66000	U
117-81-7	bis(2-ethylhexyl)phthalate	61000	J
117-84-0	Di-n-octylphthalate	66000	U
205-99-2	Benzo(b)fluoranthene	66000	U
207-0809	Benzo(k)fluoranthene	66000	U
50-32-8	Benzo(a)pyrene	66000	U
193-39-5	Indeno(1,2,3-cd)pyrene	66000	U
53-70-3	Dibenzo(a,h)anthracene	66000	U
191-24-2	Benzo(g,h,i)perylene	66000	U

(1) - Cannot be separated from Diphenylamine

E 40

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SED 2 DL

Lab Name: ENVIRODYNE ENG., INC. Contract: 3210

Lab Code: Case No.: 0002 SAS No.: SDG No.: SOIL1

Matrix: (soil/water) SOIL Lab Sample ID: 88011719

Sample wt/vol: 1 (g/mL) G Lab File ID:

Level: (low/med) MED Date Received: 12/02/88

% Moisture: not dec. 65 dec. Date Extracted: 12/08/88

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 12/28/88

GPC Cleanup: (Y/N) N pH: 7 Dilution Factor: ~~0.10000~~ 10 caj 1/23/89

CAS No.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	3400	UD
319-85-7	beta-BHC	3400	UD
319-86-8	delta-BHC	3400	UD
58-89-9	gamma-BHC (Lindane)	3400	UD
76-44-8	Heptachlor	3400	UD
309-00-2	Aldrin	3400	UD
1024-57-3	Heptachlor epoxide	3400	UD
959-98-8	Endosulfan I	3400	UD
60-57-1	Dieldrin	6900	UD
72-55-9	4,4'-DDE	6900	UD
72-20-8	Endrin	6900	UD
33213-65-9	Endosulfan II	6900	UD
72-54-8	4,4'-DDD	6900	UD
1031-07-8	Endosulfan sulfate	6900	UD
50-29-3	4,4'-DDT	6900	UD
72-43-5	Methoxychlor	34000	UD
53494-70-5	Endrin Ketone	6900	UD
5103-71-9	alpha-Chlordane	34000	UD
5103-74-2	gamma-Chlordane	34000	UD
8001-35-2	Toxaphene	69000	UD
12674-11-2	Aroclor-1016	34000	UD
11104-28-2	Aroclor-1221	34000	UD
11141-16-5	Aroclor-1232	34000	UD
53469-21-9	Aroclor-1242	34000	UD
12672-29-6	Aroclor-1248	34000	UD
11097-69-1	Aroclor-1254	69000	UD
11096-82-5	Aroclor-1260	69000	UD

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SED 3 DL

Lab Name: ENVIRODYNE ENGINEERS Contract: 3210

Lab Code: EEI Case No.: 02 SAS No.: NA SDG No.: SOIL1

Matrix: (soil/water) SOIL Lab Sample ID: 88011720

Sample wt/vol: 4 (g/mL) G Lab File ID: >B0527

Level: (low/med) MED Date Received: 12/02/88

% Moisture: not dec. 21 Date Analyzed: 12/14/88

Column: (pack/cap) PACK Dilution Factor: ~~12500~~ 100

caj 1/19/89

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q
74-87-3	Chloromethane	159000	U
74-83-9	Bromomethane	159000	U
75-01-4	Vinyl Chloride	159000	U
75-00-3	Chloroethane	159000	U
75-09-2	Methylene Chloride	28900	
67-64-1	Acetone	134000	JB
75-15-0	Carbon Disulfide	79300	U
75-35-4	1,1-Dichloroethene	79300	U
75-34-3	1,1-Dichloroethane	188000	
540-59-0	1,2-Dichloroethene (total)	1020000	
67-66-3	Chloroform	152000	
107-02-2	1,2-Dichloroethane	79300	U
78-93-3	2-Butanone	194000	
71-55-6	1,1,1-Trichloroethane	2440000	
56-23-5	Carbon Tetrachloride	79300	U
108-05-4	Vinyl Acetate	159000	U
75-27-4	Bromodichloromethane	79300	U
78-87-5	1,2-Dichloropropane	79300	U
10061-01-5	cis-1,3-Dichloropropene	79300	U
79-01-6	Trichloroethene	335000	
124-48-1	Dibromochloromethane	79300	U
79-00-5	1,1,2-Trichloroethane	79300	U
71-43-2	Benzene	944000	
10061-02-6	trans-1,3-Dichloropropene	79300	U
75-25-2	Bromoform	79300	U
108-10-1	4-Methyl-2-pentanone	159000	U
591-78-6	2-Hexanone	159000	U
127-18-4	Tetrachloroethene	1650000	
79-34-5	1,1,2,2-Tetrachloroethane	79300	U
108-88-3	Toluene	256000	B
108-90-7	Chlorobenzene	79300	U
100-41-4	Ethylbenzene	48800	JB
100-42-5	Styrene	79300	U
133-02-7	Xylene (total)	181000	B

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SED 3

Lab Name: ENVIRODYNE ENG., INC. Contract: 3210

Lab Code: Case No.: 00002 SAS No.: SDG No.:SOIL1

Matrix: SOIL Lab Sample ID: 88011720

Sample wt/vol: 0.99 (g/mL) G Lab File ID: C1362

Level: (low/med) MED Date Received: 12/02/88

% Moisture: not dec. 21 dec. 95 Date Extracted:12/09/88

Extraction: (SepF/Cont/Sonc) SONC Date Analysed: 01/07/89

GPC Cleanup: (Y/N) N pH: 6 Dilution Factor: 1.00000

CAS No.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	6600000	
111-44-4	bis(2-Chloroethyl) ether	25000	U
95-57-8	2-Chlorophenol	25000	U
541-73-1	1,3-Dichlorobenzene	4900	J
106-46-7	1,4-Dichlorobenzene	25000	U
100-51-6	Benzyl Alcohol	25000	U
95-50-1	1,2-Dichlorobenzene	25000	U
95-48-7	2-Methylphenol	25000	U
108-60-1	bis(2-Chloroisopropyl)ether	25000	U
106-44-5	4-Methylphenol	25000	U
621-64-7	N-Nitroso-di-n-dipropylamine	25000	U
67-72-1	Hexachloroethane	25000	U
98-95-3	Nitrobenzene	25000	U
78-59-1	Isophorone	25000	U
88-75-5	2-Nitrophenol	25000	U
105-67-9	2,4-Dimethylphenol	25000	U
65-85-0	Benzoic Acid	120000	U
111-91-1	bis(2-Chloroethoxy)methane	25000	U
120-83-2	2,4-Dichlorophenol	25000	U
120-82-1	1,2,4-Trichlorobenzene	25000	U
91-20-3	Naphthalene	25000	U
106-47-8	4-Chloroaniline	25000	U
87-68-3	Hexachlorobutadiene	25000	U
59-50-7	4-Chloro-3-methylphenol	25000	U
91-57-6	2-Methylnaphthalene	25000	U
77-47-4	Hexachlorocyclopentadiene	25000	U
88-06-2	2,4,6-Trichlorophenol	25000	U
95-95-4	2,4,5-Trichlorophenol	120000	U
91-58-7	2-Chloronaphthalene	25000	U
88-74-4	2-Nitroaniline	120000	U
131-11-3	Dimethylphthalate	25000	U
208-96-8	Acenaphthylene	25000	U
606-20-2	2,6-Dinitrotoluene	25000	U

E43

67

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SED 3

Lab Name: ENVIRODYNE ENG., INC. Contract: 3210

Lab Code: Case No.: 00002 SAS No.: SDG No.:SOIL1

Matrix: SOIL Lab Sample ID: 88011720

Sample wt/vol: 0.99 (g/mL) G Lab File ID: C1362

Level: (low/med) MED Date Received: 12/02/88

% Moisture: not dec. 21 dec. Date Extracted:12/09/88

Extraction: (SepF/Cont/Sonc) SONC Date Analysed: 01/07/89

GPC Cleanup: (Y/N) N pH: 6 Dilution Factor: 1.00000

CAS No.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
-99-09-2	3-Nitroaniline	120000	U
-83-32-9	Acenaphthene	25000	U
-51-28-5	2,4-Dinitrophenol	120000	U
-100-02-7	4-Nitrophenol	120000	U
-132-64-9	Dibenzofuran	25000	U
-121-14-2	2,4-Dinitrotoluene	25000	U
-84-66-2	Diethylphthalate	25000	U
-7005-72-3	4-Chlorophenyl-phenyl ether	25000	U
-86-73-7	Fluorene	25000	U
-100-01-6	4-Nitroaniline	120000	U
-534-52-1	4,6-Dinitro-2-methylphenol	120000	U
-86-30-6	N-Nitrosodiphenylamine (1)	25000	U
-101-55-3	4-Bromophenyl-phenyl ether	25000	U
-118-74-1	Hexachlorobenzene	25000	U
-87-86-5	Pentachlorophenol	120000	U
-85-01-8	Phenanthrene	25000	U
-120-12-7	Anthracene	25000	U
-84-74-2	Di-n-butylphthalate	25000	U
-206-44-0	Fluoranthene	25000	U
-129-00-0	Pyrene	25000	U
-85-68-7	Butylbenzylphthalate	25000	U
-91-94-1	3,3'-Dichlorobenzidine	50000	U
-56-55-3	Benzo(a)anthracene	25000	U
-218-01-9	Chrysene	25000	U
-117-81-7	bis(2-ethylhexyl)phthalate	6900	J
-117-84-0	Di-n-octylphthalate	25000	U
-205-99-2	Benzo(b)fluoranthene	25000	U
-207-0809	Benzo(k)fluoranthene	25000	U
-50-32-8	Benzo(a)pyrene	25000	U
-193-39-5	Indeno(1,2,3-cd)pyrene	25000	U
-53-70-3	Dibenzo(a,h)anthracene	25000	U
-191-24-2	Benzo(g,h,i)perylene	25000	U

(1) - Cannot be separated from Diphenylamine

E44

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SED 3

Lab Name: ENVIRODYNE ENG., INC. Contract: 3210

Lab Code: Case No.: 0002 SAS No.: SDG No.: SOIL1

Matrix: (soil/water) SOIL Lab Sample ID: 88011720

Sample wt/vol: 1 (g/mL) G Lab File ID:

Level: (low/med) MED Date Received: 12/02/88

% Moisture: not dec. 25 dec. Date Extracted:12/08/88

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 01/04/89

GPC Cleanup: (Y/N) N pH: 6 Dilution Factor: 1.00000

CAS No.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	160	U
319-85-7	beta-BHC	160	U
319-86-8	delta-BHC	160	U
58-89-9	gamma-BHC (Lindane)	160	U
76-44-8	Heptachlor	160	U
309-00-2	Aldrin	160	U
1024-57-3	Heptachlor epoxide	160	U
959-98-8	Endosulfan I	160	U
60-57-1	Dieldrin	320	U
72-55-9	4,4'-DDE	320	U
72-20-8	Endrin	320	U
33213-65-9	Endosulfan II	320	U
72-54-8	4,4'-DDD	320	U
1031-07-8	Endosulfan sulfate	320	U
50-29-3	4,4'-DDT	320	U
72-43-5	Methoxychlor	1600	U
53494-70-5	Endrin Ketone	320	U
5103-71-9	alpha-Chlordane	1600	U
5103-74-2	gamma-Chlordane	1600	U
8001-35-2	Toxaphene	3200	U
12674-11-2	Aroclor-1016	1600	U
11104-28-2	Aroclor-1221	1600	U
11141-16-5	Aroclor-1232	1600	U
53469-21-9	Aroclor-1242	1600	U
12672-29-6	Aroclor-1248	1600	U
11097-69-1	Aroclor-1254	3200	U
11096-82-5	Aroclor-1260	3200	U

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE No.

SEDIMENT 4

Lab Name: ENVIRODYNE ENGINEERS Contract: 3210

Lab Code: EEI Case No.: 02 SAS No.: NA SDG No.: SOIL1

Matrix: (soil/water) SOIL Lab Sample ID: 88011721

Sample wt/vol: 1 (g/mL) G Lab File ID: >B0641

Level: (low/med) LOW Date Received: 12/02/88

% Moisture: not dec. 27 Date Analyzed: 12/22/88

Column: (pack/cap) PACK Dilution Factor: 5.00000

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q
74-87-3	Chloromethane	69	U
74-83-9	Bromomethane	69	U
75-01-4	Vinyl Chloride	69	U
75-00-3	Chloroethane	69	U
75-09-2	Methylene Chloride	13	J
67-64-1	Acetone	39	JB
75-15-0	Carbon Disulfide	34	U
75-35-4	1,1-Dichloroethene	34	U
75-34-3	1,1-Dichloroethane	34	U
540-59-0	1,2-Dichloroethene (total)	34	U
67-66-3	Chloroform	34	U
107-02-2	1,2-Dichloroethane	34	U
78-93-3	2-Butanone	37	J
71-55-6	1,1,1-Trichloroethane	34	U
56-23-5	Carbon Tetrachloride	34	U
108-05-4	Vinyl Acetate	69	U
75-27-4	Bromodichloromethane	34	U
78-87-5	1,2-Dichloropropane	34	U
10061-01-5	cis-1,3-Dichloropropene	34	U
79-01-6	Trichloroethene	34	U
124-48-1	Dibromochloromethane	34	U
79-00-5	1,1,2-Trichloroethane	34	U
71-43-2	Benzene	34	U
10061-02-6	trans-1,3-Dichloropropene	34	U
75-25-2	Bromoform	34	U
108-10-1	4-Methyl-2-pentanone	69	U
591-78-6	2-Hexanone	69	U
127-18-4	Tetrachloroethene	34	U
79-34-5	1,1,2,2-Tetrachloroethane	34	U
108-88-3	Toluene	34	U
108-90-7	Chlorobenzene	34	U
100-41-4	Ethylbenzene	34	U
100-42-5	Styrene	34	U
133-02-7	Xylene (total)	34	U

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SED 4

Lab Name: ENVIRODYNE ENG., INC. Contract: 3210

Lab Code: Case No.: 00002 SAS No.: SDG No.:SOIL1

Matrix: SOIL Lab Sample ID: 88011721

Sample wt/vol: 0.99 (g/mL) G Lab File ID: C1363

Level: (low/med) MED Date Received: 12/02/88

% Moisture: not dec. 27 dec. Date Extracted:12/09/88

Extraction: (SepF/Cont/Sonc) SONC Date Analysed: 01/07/89

GPC Cleanup: (Y/N) N pH: 7 Dilution Factor: 1.00000

CAS No.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	4200	J
111-44-4	bis(2-Chloroethyl) ether	27000	U
95-57-8	2-Chlorophenol	27000	U
541-73-1	1,3-Dichlorobenzene	27000	U
106-46-7	1,4-Dichlorobenzene	27000	U
100-51-6	Benzyl Alcohol	27000	U
95-50-1	1,2-Dichlorobenzene	27000	U
95-48-7	2-Methylphenol	27000	U
108-60-1	bis(2-Chloroisopropyl)ether	27000	U
106-44-5	4-Methylphenol	27000	U
621-64-7	N-Nitroso-di-n-dipropylamine	27000	U
67-72-1	Hexachloroethane	27000	U
98-95-3	Nitrobenzene	27000	U
78-59-1	Isophorone	27000	U
88-75-5	2-Nitrophenol	27000	U
105-67-9	2,4-Dimethylphenol	27000	U
65-85-0	Benzoic Acid	130000	U
111-91-1	bis(2-Chloroethoxy)methane	27000	U
120-83-2	2,4-Dichlorophenol	27000	U
120-82-1	1,2,4-Trichlorobenzene	27000	U
91-20-3	Naphthalene	27000	U
106-47-8	4-Chloroaniline	27000	U
87-68-3	Hexachlorobutadiene	27000	U
59-50-7	4-Chloro-3-methylphenol	27000	U
91-57-6	2-Methylnaphthalene	27000	U
77-47-4	Hexachlorocyclopentadiene	27000	U
88-06-2	2,4,6-Trichlorophenol	27000	U
95-95-4	2,4,5-Trichlorophenol	130000	U
91-58-7	2-Chloronaphthalene	27000	U
88-74-4	2-Nitroaniline	130000	U
131-11-3	Dimethylphthalate	27000	U
208-96-8	Acenaphthylene	27000	U
606-20-2	2,6-Dinitrotoluene	27000	U

E47

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SED 4

Lab Name: ENVIRODYNE ENG., INC. Contract: 3210

Lab Code: Case No.: 00002 SAS No.: SDG No.:SOIL1

Matrix: SOIL Lab Sample ID: 88011721

Sample wt/vol: 0.99 (g/mL) G Lab File ID: C1363

Level: (low/med) MED Date Received: 12/02/88

% Moisture: not dec. 27 dec. Date Extracted:12/09/88

Extraction: (SepF/Cont/Sonc) SONC Date Analysed: 01/07/89

GPC Cleanup: (Y/N) N pH: 7 Dilution Factor: 1.00000

CAS No.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
-99-09-2	3-Nitroaniline	130000	U
-83-32-9	Acenaphthene	27000	U
-51-28-5	2,4-Dinitrophenol	130000	U
-100-02-7	4-Nitrophenol	130000	U
-132-64-9	Dibenzofuran	27000	U
-121-14-2	2,4-Dinitrotoluene	27000	U
-84-66-2	Diethylphthalate	27000	U
-7005-72-3	4-Chlorophenyl-phenyl ether	27000	U
-86-73-7	Fluorene	27000	U
-100-01-6	4-Nitroaniline	130000	U
-534-52-1	4,6-Dinitro-2-methylphenol	130000	U
-86-30-6	N-Nitrosodiphenylamine (1)	27000	U
-101-55-3	4-Bromophenyl-phenyl ether	27000	U
-118-74-1	Hexachlorobenzene	27000	U
-87-86-5	Pentachlorophenol	130000	U
-85-01-8	Phenanthrene	27000	U
-120-12-7	Anthracene	27000	U
-84-74-2	Di-n-butylphthalate	27000	U
-206-44-0	Fluoranthene	3700	J
-129-00-0	Pyrene	3100	J
-85-68-7	Butylbenzylphthalate	27000	U
-91-94-1	3,3'-Dichlorobenzidine	54000	U
-56-55-3	Benzo(a)anthracene	27000	U
-218-01-9	Chrysene	27000	U
-117-81-7	bis(2-ethylhexyl)phthalate	27000	U
-117-84-0	Di-n-octylphthalate	27000	U
-205-99-2	Benzo(b)fluoranthene	27000	U
-207-0809	Benzo(k)fluoranthene	27000	U
-50-32-8	Benzo(a)pyrene	27000	U
-193-39-5	Indeno(1,2,3-cd)pyrene	27000	U
-53-70-3	Dibenzo(a,h)anthracene	27000	U
-191-24-2	Benzo(g,h,i)perylene	27000	U

(1) - Cannot be separated from Diphenylamine

E48

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SED 4

Lab Name: ENVIRODYNE ENG., INC. Contract: 3210

Lab Code: Case No.: 0002 SAS No.: SDG No.: SOIL1

Matrix: (soil/water) SOIL Lab Sample ID: 88011721

Sample wt/vol: 1 (g/mL) G Lab File ID:

Level: (low/med) MED Date Received: 12/02/88

% Moisture: not dec. 27 dec. Date Extracted:12/08/88

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 01/04/89

GPC Cleanup: (Y/N) N pH: 7 Dilution Factor: 1.00000

CAS No.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	160	U
319-85-7	beta-BHC	160	U
319-86-8	delta-BHC	160	U
58-89-9	gamma-BHC (Lindane)	160	U
76-44-8	Heptachlor	160	U
309-00-2	Aldrin	160	U
1024-57-3	Heptachlor epoxide	160	U
959-98-8	Endosulfan I	160	U
60-57-1	Dieldrin	330	U
72-55-9	4,4'-DDE	330	U
72-20-8	Endrin	330	U
33213-65-9	Endosulfan II	330	U
72-54-8	4,4'-DDD	330	U
1031-07-8	Endosulfan sulfate	330	U
50-29-3	4,4'-DDT	330	U
72-43-5	Methoxychlor	1600	U
53494-70-5	Endrin Ketone	330	U
5103-71-9	alpha-Chlordane	1600	U
5103-74-2	gamma-Chlordane	1600	U
8001-35-2	Toxaphene	3300	U
12674-11-2	Aroclor-1016	1600	U
11104-28-2	Aroclor-1221	1600	U
11141-16-5	Aroclor-1232	1600	U
53469-21-9	Aroclor-1242	1600	U
12672-29-6	Aroclor-1248	1600	U
11097-69-1	Aroclor-1254	3300	U
11096-82-5	Aroclor-1260	3300	U

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SED 4 DL

Lab Name: ENVIRODYNE ENG., INC. Contract: 3210

Lab Code: Case No.: 0002 SAS No.: SDG No.: SOIL1

Matrix: (soil/water) SOIL Lab Sample ID: 88011721

Sample wt/vol: 1 (g/mL) G Lab File ID:

Level: (low/med) MED Date Received: 12/02/88

% Moisture: not dec. 27 dec. Date Extracted: 12/08/88

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 12/28/88

GPC Cleanup: (Y/N) N pH: 7 Dilution Factor: ~~0.10000~~ 10 cag 1/23/89

CAS No.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
-319-84-6	alpha-BHC	1600	UD
-319-85-7	beta-BHC	1600	UD
-319-86-8	delta-BHC	1600	UD
-58-89-9	gamma-BHC (Lindane)	1600	UD
-76-44-8	Heptachlor	1600	UD
-309-00-2	Aldrin	1600	UD
-1024-57-3	Heptachlor epoxide	1600	UD
-959-98-8	Endosulfan I	1600	UD
-60-57-1	Dieldrin	3300	UD
-72-55-9	4,4'-DDE	3300	UD
-72-20-8	Endrin	3300	UD
-33213-65-9	Endosulfan II	3300	UD
-72-54-8	4,4'-DDD	3300	UD
-1031-07-8	Endosulfan sulfate	3300	UD
-50-29-3	4,4'-DDT	3300	UD
-72-43-5	Methoxychlor	16000	UD
-53494-70-5	Endrin Ketone	3300	UD
-5103-71-9	alpha-Chlordane	16000	UD
-5103-74-2	gamma-Chlordane	16000	UD
-8001-35-2	Toxaphene	33000	UD
-12674-11-2	Aroclor-1016	16000	UD
-11104-28-2	Aroclor-1221	16000	UD
-11141-16-5	Aroclor-1232	16000	UD
-53469-21-9	Aroclor-1242	16000	UD
-12672-29-6	Aroclor-1248	16000	UD
-11097-69-1	Aroclor-1254	33000	UD
-11096-82-5	Aroclor-1260	33000	UD

E50

76

VOLATILE ORGANICS ANALYSIS DATA SHEET

SEDIMENT 5

Lab Name: ENVIRODYNE ENGINEERS Contract: 3210

Lab Code: EEI Case No.: 02 SAS No.: NA SDG No.: SOIL 1

Matrix: (soil/water) SOIL Lab Sample ID: 88011722

Sample wt/vol: 5 (g/mL) G Lab File ID: >B0576

Level: (low/med) LOW Date Received: 12/02/88

% Moisture: not dec. 15 Date Analyzed: 12/17/88

Column: (pack/cap) PACK Dilution Factor: 1.00000

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q
74-87-3	Chloromethane	17	U
74-83-9	Bromomethane	17	U
75-01-4	Vinyl Chloride	17	U
75-00-3	Chloroethane	17	U
75-09-2	Methylene Chloride	3	B
67-64-1	Acetone	23	B
75-15-0	Carbon Disulfide	2	J
75-35-4	1,1-Dichloroethene	9	U
75-34-3	1,1-Dichloroethane	9	U
540-59-0	1,2-Dichloroethene (total)	9	U
67-66-3	Chloroform	9	U
107-02-2	1,2-Dichloroethane	9	U
78-93-3	2-Butanone	17	U
71-55-6	1,1,1-Trichloroethane	9	U
56-23-5	Carbon Tetrachloride	9	U
108-05-4	Vinyl Acetate	17	U
75-27-4	Bromodichloromethane	9	U
78-87-5	1,2-Dichloropropane	9	U
10061-01-5	cis-1,3-Dichloropropene	9	U
79-01-6	Trichloroethene	9	U
124-48-1	Dibromochloromethane	9	U
79-00-5	1,1,2-Trichloroethane	9	U
71-43-2	Benzene	3	J
10061-02-6	trans-1,3-Dichloropropene	9	U
75-25-2	Bromoform	9	U
108-10-1	4-Methyl-2-pentanone	17	U
591-78-6	2-Hexanone	17	U
127-18-4	Tetrachloroethene	9	U
79-34-5	1,1,2,2-Tetrachloroethane	9	U
108-88-3	Toluene	2	J
108-90-7	Chlorobenzene	30	
100-41-4	Ethylbenzene	3	JB
100-42-5	Styrene	9	U
133-02-7	Xylene (total)	2	JB

E51

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SED 5

Lab Name: ENVIRODYNE ENG., INC. Contract: 3210

Lab Code: Case No.: 00002 SAS No.: SDG No.:SOIL1

Matrix: SOIL Lab Sample ID: 88011722

Sample wt/vol: 1.01 (g/mL) G Lab File ID: C1364

Level: (low/med) MED Date Received: 12/02/88

% Moisture: not dec. 42 dec. 41 Date Extracted:12/09/88

Extraction: (SepF/Cont/Sonc) SONC Date Analysed: 01/07/89

GPC Cleanup: (Y/N) N pH: 7 Dilution Factor: 1.00000

CAS No.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	34000	U
111-44-4	bis(2-Chloroethyl) ether	34000	U
95-57-8	2-Chlorophenol	34000	U
541-73-1	1,3-Dichlorobenzene	34000	U
106-46-7	1,4-Dichlorobenzene	34000	U
100-51-6	Benzyl Alcohol	34000	U
95-50-1	1,2-Dichlorobenzene	34000	U
95-48-7	2-Methylphenol	34000	U
108-60-1	bis(2-Chloroisopropyl)ether	34000	U
106-44-5	4-Methylphenol	34000	U
621-64-7	N-Nitroso-di-n-dipropylamine	34000	U
67-72-1	Hexachloroethane	34000	U
98-95-3	Nitrobenzene	34000	U
78-59-1	Isophorone	34000	U
88-75-5	2-Nitrophenol	34000	U
105-67-9	2,4-Dimethylphenol	34000	U
65-85-0	Benzoic Acid	170000	U
111-91-1	bis(2-Chloroethoxy)methane	34000	U
120-83-2	2,4-Dichlorophenol	34000	U
120-82-1	1,2,4-Trichlorobenzene	34000	U
91-20-3	Naphthalene	34000	U
106-47-8	4-Chloroaniline	34000	U
87-68-3	Hexachlorobutadiene	34000	U
59-50-7	4-Chloro-3-methylphenol	34000	U
91-57-6	2-Methylnaphthalene	34000	U
77-47-4	Hexachlorocyclopentadiene	34000	U
88-06-2	2,4,6-Trichlorophenol	34000	U
95-95-4	2,4,5-Trichlorophenol	170000	U
91-58-7	2-Chloronaphthalene	34000	U
88-74-4	2-Nitroaniline	170000	U
131-11-3	Dimethylphthalate	34000	U
208-96-8	Acenaphthylene	34000	U
606-20-2	2,6-Dinitrotoluene	34000	U

E52

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SED 5

Lab Name: ENVIRODYNE ENG., INC. Contract: 3210

Lab Code: Case No.: 00002 SAS No.: SDG No.:SOIL1

Matrix: SOIL Lab Sample ID: 88011722

Sample wt/vol: 1.01 (g/mL) G Lab File ID: C1364

Level: (low/med) MED Date Received: 12/02/88

% Moisture: not dec. 42 dec. Date Extracted:12/09/88

Extraction: (SepF/Cont/Sonc) SONC Date Analysed: 01/07/89

GPC Cleanup: (Y/N) N pH: 7 Dilution Factor: 1.00000

CAS No.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
-99-09-2	3-Nitroaniline	170000	U
-83-32-9	Acenaphthene	34000	U
-51-28-5	2,4-Dinitrophenol	170000	U
-100-02-7	4-Nitrophenol	170000	U
-132-64-9	Dibenzofuran	34000	U
-121-14-2	2,4-Dinitrotoluene	34000	U
-84-66-2	Diethylphthalate	34000	U
-7005-72-3	4-Chlorophenyl-phenyl ether	34000	U
-86-73-7	Fluorene	34000	U
-100-01-6	4-Nitroaniline	170000	U
-534-52-1	4,6-Dinitro-2-methylphenol	170000	U
-86-30-6	N-Nitrosodiphenylamine (1)	34000	U
-101-55-3	4-Bromophenyl-phenyl ether	34000	U
-118-74-1	Hexachlorobenzene	34000	U
-87-86-5	Pentachlorophenol	170000	U
-85-01-8	Phenanthrene	34000	U
-120-12-7	Anthracene	34000	U
-84-74-2	Di-n-butylphthalate	34000	U
-206-44-0	Fluoranthene	34000	U
-129-00-0	Pyrene	34000	U
-85-68-7	Butylbenzylphthalate	34000	U
-91-94-1	3,3'-Dichlorobenzidine	68000	U
-56-55-3	Benzo(a)anthracene	34000	U
-218-01-9	Chrysene	34000	U
-117-81-7	bis(2-ethylhexyl)phthalate	34000	U
-117-84-0	Di-n-octylphthalate	34000	U
-205-99-2	Benzo(b)fluoranthene	34000	U
-207-0809	Benzo(k)fluoranthene	34000	U
-50-32-8	Benzo(a)pyrene	34000	U
-193-39-5	Indeno(1,2,3-cd)pyrene	34000	U
-53-70-3	Dibenzo(a,h)anthracene	34000	U
-191-24-2	Benzo(g,h,i)perylene	34000	U

(1) - Cannot be separated from Diphenylamine

E53

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SED 5

Lab Name: ENVIRODYNE ENG., INC. Contract: 3210

Lab Code: Case No.: 0002 SAS No.: SDG No.: SOIL1

Matrix: (soil/water) SOIL Lab Sample ID: 88011722

Sample wt/vol: 1 (g/mL) G Lab File ID:

Level: (low/med) MED Date Received: 12/02/88

% Moisture: not dec. 41 dec. Date Extracted: 12/08/88

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 01/04/89

GPC Cleanup: (Y/N) N pH: 7 Dilution Factor: 1.00000

CAS No.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	200	U
319-85-7	beta-BHC	200	U
319-86-8	delta-BHC	200	U
58-89-9	gamma-BHC (Lindane)	200	U
76-44-8	Heptachlor	200	U
309-00-2	Aldrin	200	U
1024-57-3	Heptachlor epoxide	200	U
959-98-8	Endosulfan I	200	U
60-57-1	Dieldrin	410	U
72-55-9	4,4'-DDE	410	U
72-20-8	Endrin	410	U
33213-65-9	Endosulfan II	410	U
72-54-8	4,4'-DDD	410	U
1031-07-8	Endosulfan sulfate	410	U
50-29-3	4,4'-DDT	410	U
72-43-5	Methoxychlor	2000	U
53494-70-5	Endrin Ketone	410	U
5103-71-9	alpha-Chlordane	2000	U
5103-74-2	gamma-Chlordane	2000	U
8001-35-2	Toxaphene	4100	U
12674-11-2	Aroclor-1016	2000	U
11104-28-2	Aroclor-1221	2000	U
11141-16-5	Aroclor-1232	2000	U
53469-21-9	Aroclor-1242	2000	U
12672-29-6	Aroclor-1248	2000	U
11097-69-1	Aroclor-1254	4100	U
11096-82-5	Aroclor-1260	4100	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SEDIMENT 6

Lab Name: ENVIRODYNE ENGINEERS Contract: 3210

Lab Code: EEI Case No.: 02 SAS No.: NA SDG No.: SOIL 1

Matrix: (soil/water) SOIL Lab Sample ID: 88011723

Sample wt/vol: 5 (g/mL) G Lab File ID: >B0581

Level: (low/med) LOW Date Received: 12/02/88

% Moisture: not dec. 7 Date Analyzed: 12/18/88

Column: (pack/cap) PACK Dilution Factor: 1.00000

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	15	
67-64-1	Acetone	62	B
75-15-0	Carbon Disulfide	1	J
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	5	U
107-02-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
108-05-4	Vinyl Acetate	10	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
108-10-1	4-Methyl-2-pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
108-88-3	Toluene	2	J
108-90-7	Chlorobenzene	4	J
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
133-02-7	Xylene (total)	3	J

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SEDIMENT 6 RE

Lab Name: ENVIRODYNE ENGINEERS Contract: 3210

Lab Code: EEI Case No.: 02 SAS No.: NA SDG No.: SOIL 1

Matrix: (soil/water) SOIL Lab Sample ID: 88011723

Sample wt/vol: 5 (g/mL) G Lab File ID: >B0593

Level: (low/med) LOW Date Received: 12/02/88

% Moisture: not dec. 7 Date Analyzed: 12/19/88

Column: (pack/cap) PACK Dilution Factor: 1.00000

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q
74-87-3	Chloromethane	11	U
74-83-9	Bromomethane	11	U
75-01-4	Vinyl Chloride	11	U
75-00-3	Chloroethane	11	U
75-09-2	Methylene Chloride	66	B
67-64-1	Acetone	67	B
75-15-0	Carbon Disulfide	5	U
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	2	J
67-66-3	Chloroform	5	U
107-02-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	11	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
108-05-4	Vinyl Acetate	11	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
108-10-1	4-Methyl-2-pentanone	11	U
591-78-6	2-Hexanone	11	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
108-88-3	Toluene	4	JB
108-90-7	Chlorobenzene	5	
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
133-02-7	Xylene (total)	4	J

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SED 6

Lab Name: ENVIRODYNE ENG., INC. Contract: 3210

Lab Code: Case No.: 00002 SAS No.: SDG No.:SOIL1

Matrix: SOIL Lab Sample ID: 88011723

Sample wt/vol: 1.00 (g/mL) G Lab File ID: C1354

Level: (low/med) MED Date Received: 12/02/88

% Moisture: not dec. 7 dec. Date Extracted:12/09/88

Extraction: (SepF/Cont/Sonc) SONC Date Analysed: 01/06/89

GPC Cleanup: (Y/N) N pH: 7 Dilution Factor: 1.00000

CAS No.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	21000	U
111-44-4	bis(2-Chloroethyl) ether	21000	U
95-57-8	2-Chlorophenol	21000	U
541-73-1	1,3-Dichlorobenzene	21000	U
106-46-7	1,4-Dichlorobenzene	21000	U
100-51-6	Benzyl Alcohol	21000	U
95-50-1	1,2-Dichlorobenzene	21000	U
95-48-7	2-Methylphenol	21000	U
108-60-1	bis(2-Chloroisopropyl)ether	21000	U
106-44-5	4-Methylphenol	21000	U
621-64-7	N-Nitroso-di-n-dipropylamine	21000	U
67-72-1	Hexachloroethane	21000	U
98-95-3	Nitrobenzene	21000	U
78-59-1	Isophorone	21000	U
88-75-5	2-Nitrophenol	21000	U
105-67-9	2,4-Dimethylphenol	21000	U
65-85-0	Benzoic Acid	100000	U
111-91-1	bis(2-Chloroethoxy)methane	21000	U
120-83-2	2,4-Dichlorophenol	21000	U
120-82-1	1,2,4-Trichlorobenzene	21000	U
91-20-3	Naphthalene	21000	U
106-47-8	4-Chloroaniline	21000	U
87-68-3	Hexachlorobutadiene	21000	U
59-50-7	4-Chloro-3-methylphenol	21000	U
91-57-6	2-Methylnaphthalene	21000	U
77-47-4	Hexachlorocyclopentadiene	21000	U
88-06-2	2,4,6-Trichlorophenol	21000	U
95-95-4	2,4,5-Trichlorophenol	100000	U
91-58-7	2-Chloronaphthalene	21000	U
88-74-4	2-Nitroaniline	100000	U
131-11-3	Dimethylphthalate	21000	U
208-96-8	Acenaphthylene	21000	U
606-20-2	2,6-Dinitrotoluene	21000	U

E57

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SED 6

Lab Name: ENVIRODYNE ENG., INC. Contract: 3210

Lab Code: Case No.: 00002 SAS No.: SDG No.:SOIL1

Matrix: SOIL Lab Sample ID: 88011723

Sample wt/vol: 1.00 (g/mL) G Lab File ID: C1354

Level: (low/med) MED Date Received: 12/02/88

% Moisture: not dec. 7 dec. Date Extracted:12/09/88

Extraction: (SepF/Cont/Sonc) SONC Date Analysed: 01/06/89

GPC Cleanup: (Y/N) N pH: 7 Dilution Factor: 1.00000

CAS No.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
-99-09-2	3-Nitroaniline	100000	U
-83-32-9	Acenaphthene	21000	U
-51-28-5	2,4-Dinitrophenol	100000	U
-100-02-7	4-Nitrophenol	100000	U
-132-64-9	Dibenzofuran	21000	U
-121-14-2	2,4-Dinitrotoluene	21000	U
-84-66-2	Diethylphthalate	21000	U
-7005-72-3	4-Chlorophenyl-phenyl ether	21000	U
-86-73-7	Fluorene	21000	U
-100-01-6	4-Nitroaniline	100000	U
-534-52-1	4,6-Dinitro-2-methylphenol	100000	U
-86-30-6	N-Nitrosodiphenylamine (1)	21000	U
-101-55-3	4-Bromophenyl-phenyl ether	21000	U
-118-74-1	Hexachlorobenzene	21000	U
-87-86-5	Pentachlorophenol	100000	U
-85-01-8	Phenanthrene	21000	U
-120-12-7	Anthracene	21000	U
-84-74-2	Di-n-butylphthalate	21000	U
-206-44-0	Fluoranthene	21000	U
-129-00-0	Pyrene	21000	U
-85-68-7	Butylbenzylphthalate	21000	U
-91-94-1	3,3'-Dichlorobenzidine	43000	U
-56-55-3	Benzo(a)anthracene	21000	U
-218-01-9	Chrysene	21000	U
-117-81-7	bis(2-ethylhexyl)phthalate	3800	J
-117-84-0	Di-n-octylphthalate	21000	U
-205-99-2	Benzo(b)fluoranthene	21000	U
-207-0809	Benzo(k)fluoranthene	21000	U
-50-32-8	Benzo(a)pyrene	21000	U
-193-39-5	Indeno(1,2,3-cd)pyrene	21000	U
-53-70-3	Dibenzo(a,h)anthracene	21000	U
-191-24-2	Benzo(g,h,i)perylene	21000	U

(1) - Cannot be separated from Diphenylamine

E58

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SED 6

Lab Name: ENVIRODYNE ENG., INC. Contract: 3210

Lab Code: Case No.: 0002 SAS No.: SDG No.: SOIL1

Matrix: (soil/water) SOIL Lab Sample ID: 88011723

Sample wt/vol: 1 (g/mL) G Lab File ID:

Level: (low/med) MED Date Received: 12/02/88

% Moisture: not dec. 7 dec. Date Extracted:12/08/88

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 01/04/89

GPC Cleanup: (Y/N) N pH: 7 Dilution Factor: 1.00000

CAS No.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
-319-84-6	alpha-BHC	130	U
-319-85-7	beta-BHC	130	U
-319-86-8	delta-BHC	130	U
-58-89-9	gamma-BHC (Lindane)	130	U
-76-44-8	Heptachlor	130	U
-309-00-2	Aldrin	130	U
-1024-57-3	Heptachlor epoxide	130	U
-959-98-8	Endosulfan I	130	U
-60-57-1	Dieldrin	260	U
-72-55-9	4,4'-DDE	260	U
-72-20-8	Endrin	260	U
-33213-65-9	Endosulfan II	260	U
-72-54-8	4,4'-DDD	260	U
-1031-07-8	Endosulfan sulfate	260	U
-50-29-3	4,4'-DDT	260	U
-72-43-5	Methoxychlor	1300	U
-53494-70-5	Endrin Ketone	260	U
-5103-71-9	alpha-Chlordane	1300	U
-5103-74-2	gamma-Chlordane	1300	U
-8001-35-2	Toxaphene	2600	U
-12674-11-2	Aroclor-1016	1300	U
-11104-28-2	Aroclor-1221	1300	U
-11141-16-5	Aroclor-1232	1300	U
-53469-21-9	Aroclor-1242	1300	U
-12672-29-6	Aroclor-1248	1300	U
-11097-69-1	Aroclor-1254	2600	U
-11096-82-5	Aroclor-1260	2600	U

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SEDIMENT 7

Lab Name: ENVIRODYNE ENGINEERS Contract: 3210

Lab Code: EEI Case No.: 02 SAS No.: NA SDG No.: SOIL1

Matrix: (soil/water) SOIL Lab Sample ID: 88011724

Sample wt/vol: 4 (g/mL) G Lab File ID: >B0501

Level: (low/med) MED Date Received: 12/02/88

% Moisture: not dec. 15 Date Analyzed: 12/12/88

Column: (pack/cap) PACK Dilution Factor: ~~125~~ 1

caj 1/19/89

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q
74-87-3	Chloromethane	1460	U
74-83-9	Bromomethane	1460	U
75-01-4	Vinyl Chloride	1460	U
75-00-3	Chloroethane	1460	U
75-09-2	Methylene Chloride	300	JB
67-64-1	Acetone	3280	B
75-15-0	Carbon Disulfide	730	U
75-35-4	1,1-Dichloroethene	730	U
75-34-3	1,1-Dichloroethane	730	U
540-59-0	1,2-Dichloroethene (total)	730	U
67-66-3	Chloroform	730	U
107-02-2	1,2-Dichloroethane	730	U
78-93-3	2-Butanone	1460	U
71-55-6	1,1,1-Trichloroethane	730	U
56-23-5	Carbon Tetrachloride	730	U
108-05-4	Vinyl Acetate	1460	U
75-27-4	Bromodichloromethane	730	U
78-87-5	1,2-Dichloropropane	730	U
10061-01-5	cis-1,3-Dichloropropene	730	U
79-01-6	Trichloroethene	730	U
124-48-1	Dibromochloromethane	730	U
79-00-5	1,1,2-Trichloroethane	730	U
71-43-2	Benzene	730	U
10061-02-6	trans-1,3-Dichloropropene	730	U
75-25-2	Bromoform	730	U
108-10-1	4-Methyl-2-pentanone	1460	U
591-78-6	2-Hexanone	1460	U
127-18-4	Tetrachloroethene	730	U
79-34-5	1,1,2,2-Tetrachloroethane	730	U
108-88-3	Toluene	1690	B
108-90-7	Chlorobenzene	730	U
100-41-4	Ethylbenzene	730	U
100-42-5	Styrene	730	U
133-02-7	Xylene (total)	12960	B

FORM I VOA 1/87 Rev.

E60

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SED 7

Lab Name: ENVIRODYNE ENG., INC. Contract: 3210

Lab Code: Case No.: 00002 SAS No.: SDG No.:SOIL1

Matrix: SOIL Lab Sample ID: 88011724

Sample wt/vol: 1.00 (g/mL) G Lab File ID: C1365

Level: (low/med) MED Date Received: 12/02/88

% Moisture: not dec. 13 dec. Date Extracted:12/09/88

Extraction: (SepF/Cont/Sonc) SONC Date Analysed: 01/07/89

GPC Cleanup: (Y/N) N pH: 7 Dilution Factor: 1.00000

CAS No.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	1200000	
111-44-4	bis(2-Chloroethyl) ether	23000	U
95-57-8	2-Chlorophenol	23000	U
541-73-1	1,3-Dichlorobenzene	23000	U
106-46-7	1,4-Dichlorobenzene	23000	U
100-51-6	Benzyl Alcohol	23000	U
95-50-1	1,2-Dichlorobenzene	23000	U
95-48-7	2-Methylphenol	23000	U
108-60-1	bis(2-Chloroisopropyl)ether	23000	U
106-44-5	4-Methylphenol	23000	U
621-64-7	N-Nitroso-di-n-dipropylamine	23000	U
67-72-1	Hexachloroethane	23000	U
98-95-3	Nitrobenzene	23000	U
78-59-1	Isophorone	23000	U
88-75-5	2-Nitrophenol	23000	U
105-67-9	2,4-Dimethylphenol	23000	U
65-85-0	Benzoic Acid	110000	U
111-91-1	bis(2-Chloroethoxy)methane	23000	U
120-83-2	2,4-Dichlorophenol	23000	U
120-82-1	1,2,4-Trichlorobenzene	23000	U
91-20-3	Naphthalene	23000	U
106-47-8	4-Chloroaniline	23000	U
87-68-3	Hexachlorobutadiene	23000	U
59-50-7	4-Chloro-3-methylphenol	23000	U
91-57-6	2-Methylnaphthalene	23000	U
77-47-4	Hexachlorocyclopentadiene	23000	U
88-06-2	2,4,6-Trichlorophenol	23000	U
95-95-4	2,4,5-Trichlorophenol	110000	U
91-58-7	2-Chloronaphthalene	23000	U
88-74-4	2-Nitroaniline	110000	U
131-11-3	Dimethylphthalate	23000	U
208-96-8	Acenaphthylene	23000	U
606-20-2	2,6-Dinitrotoluene	23000	U

E61

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SED 7

Lab Name: ENVIRODYNE ENG., INC. Contract: 3210

Lab Code: Case No.: 00002 SAS No.: SDG No.:SOIL1

Matrix: SOIL Lab Sample ID: 88011724

Sample wt/vol: 1.00 (g/mL) G Lab File ID: C1365

Level: (low/med) MED Date Received: 12/02/88

% Moisture: not dec. 13 dec. Date Extracted:12/09/88

Extraction: (SepF/Cont/Sonc) SONC Date Analysed: 01/07/89

GPC Cleanup: (Y/N) N pH: 7 Dilution Factor: 1.00000

CAS No.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
-99-09-2	3-Nitroaniline	110000	U
-83-32-9	Acenaphthene	23000	U
-51-28-5	2,4-Dinitrophenol	110000	U
-100-02-7	4-Nitrophenol	110000	U
-132-64-9	Dibenzofuran	23000	U
-121-14-2	2,4-Dinitrotoluene	23000	U
-84-66-2	Diethylphthalate	23000	U
-7005-72-3	4-Chlorophenyl-phenyl ether	23000	U
-86-73-7	Fluorene	23000	U
-100-01-6	4-Nitroaniline	110000	U
-534-52-1	4,6-Dinitro-2-methylphenol	110000	U
-86-30-6	N-Nitrosodiphenylamine (1)	23000	U
-101-55-3	4-Bromophenyl-phenyl ether	23000	U
-118-74-1	Hexachlorobenzene	23000	U
-87-86-5	Pentachlorophenol	110000	U
-85-01-8	Phenanthrene	23000	U
-120-12-7	Anthracene	23000	U
-84-74-2	Di-n-butylphthalate	23000	U
-206-44-0	Fluoranthene	23000	U
-129-00-0	Pyrene	23000	U
-85-68-7	Butylbenzylphthalate	14000	J
-91-94-1	3,3'-Dichlorobenzidine	46000	U
-56-55-3	Benzo(a)anthracene	23000	U
-218-01-9	Chrysene	23000	U
-117-81-7	bis(2-ethylhexyl)phthalate	14000	J
-117-84-0	Di-n-octylphthalate	23000	U
-205-99-2	Benzo(b)fluoranthene	23000	U
-207-0809	Benzo(k)fluoranthene	23000	U
-50-32-8	Benzo(a)pyrene	23000	U
-193-39-5	Indeno(1,2,3-cd)pyrene	23000	U
-53-70-3	Dibenzo(a,h)anthracene	23000	U
-191-24-2	Benzo(g,h,i)perylene	23000	U

(1) - Cannot be separated from Diphenylamine

E62

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SED 7 DL

Lab Name: ENVIRODYNE ENG., INC. Contract: 3210

Lab Code: Case No.: 0002 SAS No.: SDG No.: SOIL1

Matrix: (soil/water) SOIL Lab Sample ID: 88011724

Sample wt/vol: 1 (g/mL) G Lab File ID:

Level: (low/med) MED Date Received: 12/02/88

% Moisture: not dec. 15 dec. Date Extracted: 12/08/88

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 12/28/88

GPC Cleanup: (Y/N) N pH: 7 Dilution Factor: ~~0.10000~~ 10 cag 1/23/89

CAS No.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	1400	UD
319-85-7	beta-BHC	1400	UD
319-86-8	delta-BHC	1400	UD
58-89-9	gamma-BHC (Lindane)	1400	UD
76-44-8	Heptachlor	1400	UD
309-00-2	Aldrin	1400	UD
1024-57-3	Heptachlor epoxide	1400	UD
959-98-8	Endosulfan I	1400	UD
60-57-1	Dieldrin	2800	UD
72-55-9	4,4'-DDE	2800	UD
72-20-8	Endrin	2800	UD
33213-65-9	Endosulfan II	2800	UD
72-54-8	4,4'-DDD	2800	UD
1031-07-8	Endosulfan sulfate	2800	UD
50-29-3	4,4'-DDT	2800	UD
72-43-5	Methoxychlor	14000	UD
53494-70-5	Endrin Ketone	2800	UD
5103-71-9	alpha-Chlordane	14000	UD
5103-74-2	gamma-Chlordane	14000	UD
8001-35-2	Toxaphene	28000	UD
12674-11-2	Aroclor-1016	14000	UD
11104-28-2	Aroclor-1221	14000	UD
11141-16-5	Aroclor-1232	14000	UD
53469-21-9	Aroclor-1242	14000	UD
12672-29-6	Aroclor-1248	14000	UD
11097-69-1	Aroclor-1254	28000	UD
11096-82-5	Aroclor-1260	28000	UD

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SEDIMENT 8 RE

Lab Name: ENVIRODYNE ENGINEERS Contract: 3210

Lab Code: EEI Case No.: 02 SAS No.: NA SDG No.: SOIL 1

Matrix: (soil/water) SOIL Lab Sample ID: 88011725

Sample wt/vol: 5 (g/mL) G Lab File ID: >B0594

Level: (low/med) LOW Date Received: 12/02/88

% Moisture: not dec. 6 Date Analyzed: 12/19/88

Column: (pack/cap) PACK Dilution Factor: 1.00000

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q
74-87-3	Chloromethane	11	U
74-83-9	Bromomethane	11	U
75-01-4	Vinyl Chloride	11	U
75-00-3	Chloroethane	11	U
75-09-2	Methylene Chloride	11	B
67-64-1	Acetone	17	B
75-15-0	Carbon Disulfide	5	U
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	3	J
67-66-3	Chloroform	5	U
107-02-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	11	U
71-55-6	1,1,1-Trichloroethane	4	J
56-23-5	Carbon Tetrachloride	5	U
108-05-4	Vinyl Acetate	11	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
108-10-1	4-Methyl-2-pentanone	11	U
591-78-6	2-Hexanone	11	U
127-18-4	Tetrachloroethene	3	J
79-34-5	1,1,2,2-Tetrachloroethane	5	U
108-88-3	Toluene	2	JB
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	1	J
100-42-5	Styrene	5	U
133-02-7	Xylene (total)	5	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SED 8

Lab Name: ENVIRODYNE ENG., INC. Contract: 3210

Lab Code: Case No.: 00002 SAS No.: SDG No.:SOIL1

Matrix: SOIL Lab Sample ID: 88011725

Sample wt/vol: 1.00 (g/mL) G Lab File ID: C1366

Level: (low/med) MED Date Received: 12/02/88

% Moisture: not dec. 6 dec. Date Extracted:12/09/88

Extraction: (SepF/Cont/Sonc) SONC Date Analysed: 01/07/89

GPC Cleanup: (Y/N) N pH: 7 Dilution Factor: 1.00000

CAS No.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	21000	U
111-44-4	bis(2-Chloroethyl) ether	21000	U
95-57-8	2-Chlorophenol	21000	U
541-73-1	1,3-Dichlorobenzene	21000	U
106-46-7	1,4-Dichlorobenzene	21000	U
100-51-6	Benzyl Alcohol	21000	U
95-50-1	1,2-Dichlorobenzene	21000	U
95-48-7	2-Methylphenol	21000	U
108-60-1	bis(2-Chloroisopropyl)ether	21000	U
106-44-5	4-Methylphenol	21000	U
621-64-7	N-Nitroso-di-n-dipropylamine	21000	U
67-72-1	Hexachloroethane	21000	U
98-95-3	Nitrobenzene	21000	U
78-59-1	Isophorone	21000	U
88-75-5	2-Nitrophenol	21000	U
105-67-9	2,4-Dimethylphenol	21000	U
65-85-0	Benzoic Acid	100000	U
111-91-1	bis(2-Chloroethoxy)methane	21000	U
120-83-2	2,4-Dichlorophenol	21000	U
120-82-1	1,2,4-Trichlorobenzene	21000	U
91-20-3	Naphthalene	21000	U
106-47-8	4-Chloroaniline	21000	U
87-68-3	Hexachlorobutadiene	21000	U
59-50-7	4-Chloro-3-methylphenol	21000	U
91-57-6	2-Methylnaphthalene	21000	U
77-47-4	Hexachlorocyclopentadiene	21000	U
88-06-2	2,4,6-Trichlorophenol	21000	U
95-95-4	2,4,5-Trichlorophenol	100000	U
91-58-7	2-Chloronaphthalene	21000	U
88-74-4	2-Nitroaniline	100000	U
131-11-3	Dimethylphthalate	21000	U
208-96-8	Acenaphthylene	21000	U
606-20-2	2,6-Dinitrotoluene	21000	U

E65

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SED 8

Lab Name: ENVIRODYNE ENG., INC. Contract: 3210

Lab Code: Case No.: 00002 SAS No.: SDG No.:SOIL1

Matrix: SOIL Lab Sample ID: 88011725

Sample wt/vol: 1.00 (g/mL) G Lab File ID: C1366

Level: (low/med) MED Date Received: 12/02/88

% Moisture: not dec. 6 dec. Date Extracted:12/09/88

Extraction: (SepF/Cont/Sonc) SONC Date Analysed: 01/07/89

GPC Cleanup: (Y/N) N pH: 7 Dilution Factor: 1.00000

CAS No.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
99-09-2	3-Nitroaniline	100000	U
83-32-9	Acenaphthene	21000	U
51-28-5	2,4-Dinitrophenol	100000	U
100-02-7	4-Nitrophenol	100000	U
132-64-9	Dibenzofuran	21000	U
121-14-2	2,4-Dinitrotoluene	21000	U
84-66-2	Diethylphthalate	21000	U
7005-72-3	4-Chlorophenyl-phenyl ether	21000	U
86-73-7	Fluorene	21000	U
100-01-6	4-Nitroaniline	100000	U
534-52-1	4,6-Dinitro-2-methylphenol	100000	U
86-30-6	N-Nitrosodiphenylamine (1)	21000	U
101-55-3	4-Bromophenyl-phenyl ether	21000	U
118-74-1	Hexachlorobenzene	21000	U
87-86-5	Pentachlorophenol	100000	U
85-01-8	Phenanthrene	21000	U
120-12-7	Anthracene	21000	U
84-74-2	Di-n-butylphthalate	21000	U
206-44-0	Fluoranthene	21000	U
129-00-0	Pyrene	21000	U
85-68-7	Butylbenzylphthalate	21000	U
91-94-1	3,3'-Dichlorobenzidine	42000	U
56-55-3	Benzo(a)anthracene	21000	U
218-01-9	Chrysene	21000	U
117-81-7	bis(2-ethylhexyl)phthalate	19000	J
117-84-0	Di-n-octylphthalate	21000	U
205-99-2	Benzo(b)fluoranthene	21000	U
207-0809	Benzo(k)fluoranthene	21000	U
50-32-8	Benzo(a)pyrene	21000	U
193-39-5	Indeno(1,2,3-cd)pyrene	21000	U
53-70-3	Dibenzo(a,h)anthracene	21000	U
191-24-2	Benzo(g,h,i)perylene	21000	U

(1) - Cannot be separated from Diphenylamine

E106

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SED 8

Lab Name: ENVIRODYNE ENG., INC. Contract: 3210

Lab Code: Case No.: 0002 SAS No.: SDG No.: SOIL1

Matrix: (soil/water) SOIL Lab Sample ID: 88011725

Sample wt/vol: 1 (g/mL) G Lab File ID:

Level: (low/med) MED Date Received: 12/02/88

% Moisture: not dec. 6 dec. Date Extracted: 12/08/88

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 01/04/89

GPC Cleanup: (Y/N) N pH: 7 Dilution Factor: 1.00000

CAS No.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	130	U
319-85-7	beta-BHC	130	U
319-86-8	delta-BHC	130	U
58-89-9	gamma-BHC (Lindane)	130	U
76-44-8	Heptachlor	130	U
309-00-2	Aldrin	130	U
1024-57-3	Heptachlor epoxide	130	U
959-98-8	Endosulfan I	130	U
60-57-1	Dieldrin	260	U
72-55-9	4,4'-DDE	260	U
72-20-8	Endrin	260	U
33213-65-9	Endosulfan II	260	U
72-54-8	4,4'-DDD	260	U
1031-07-8	Endosulfan sulfate	260	U
50-29-3	4,4'-DDT	260	U
72-43-5	Methoxychlor	1300	U
53494-70-5	Endrin Ketone	260	U
5103-71-9	alpha-Chlordane	1300	U
5103-74-2	gamma-Chlordane	1300	U
8001-35-2	Toxaphene	2600	U
12674-11-2	Aroclor-1016	1300	U
11104-28-2	Aroclor-1221	1300	U
11141-16-5	Aroclor-1232	1300	U
53469-21-9	Aroclor-1242	1300	U
12672-29-6	Aroclor-1248	1300	U
11097-69-1	Aroclor-1254	2600	U
11096-82-5	Aroclor-1260	2600	U

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SED 8 DL

Lab Name: ENVIRODYNE ENG., INC. Contract: 3210

Lab Code: Case No.: 0002 SAS No.: SDG No.: SOIL1

Matrix: (soil/water) SOIL Lab Sample ID: 88011725

Sample wt/vol: 1 (g/mL) G Lab File ID:

Level: (low/med) MED Date Received: 12/02/88

% Moisture: not dec. 6 dec. Date Extracted:12/08/88

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 12/29/88

GPC Cleanup: (Y/N) N pH: 7 Dilution Factor: 10.0

CAS No.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	1300	UD
319-85-7	beta-BHC	1300	UD
319-86-8	delta-BHC	1300	UD
58-89-9	gamma-BHC (Lindane)	1300	UD
76-44-8	Heptachlor	1300	UD
309-00-2	Aldrin	1300	UD
1024-57-3	Heptachlor epoxide	1300	UD
959-98-8	Endosulfan I	1300	UD
60-57-1	Dieldrin	2600	UD
72-55-9	4,4'-DDE	2600	UD
72-20-8	Endrin	2600	UD
33213-65-9	Endosulfan II	2600	UD
72-54-8	4,4'-DDD	2600	UD
1031-07-8	Endosulfan sulfate	2600	UD
50-29-3	4,4'-DDT	2600	UD
72-43-5	Methoxychlor	13000	UD
53494-70-5	Endrin Ketone	2600	UD
5103-71-9	alpha-Chlordane	13000	UD
5103-74-2	gamma-Chlordane	13000	UD
8001-35-2	Toxaphene	26000	UD
12674-11-2	Aroclor-1016	13000	UD
11104-28-2	Aroclor-1221	13000	UD
11141-16-5	Aroclor-1232	13000	UD
53469-21-9	Aroclor-1242	13000	UD
12672-29-6	Aroclor-1248	13000	UD
11097-69-1	Aroclor-1254	26000	UD
11096-82-5	Aroclor-1260	26000	UD

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SEDIMENT 9

Lab Name: ENVIRODYNE ENGINEERS Contract: 3210

Lab Code: EEI Case No.: 02 SAS No.: NA SDG No.: SOIL1

Matrix: (soil/water) SOIL Lab Sample ID: 88011726

Sample wt/vol: 4 (g/mL) G Lab File ID: >B0511

Level: (low/med) MED Date Received: 12/02/88

% Moisture: not dec. 33 Date Analyzed: 12/13/88

Column: (pack/cap) PACK Dilution Factor: ~~3125~~ 3000

caj 1/19/89

CONCENTRATION UNITS: (ug/L or ug/Kg) ug/kg

CAS NO.	COMPOUND	Q
74-87-3	Chloromethane	4680	U
74-83-9	Bromomethane	4680	U
75-01-4	Vinyl Chloride	4680	U
75-00-3	Chloroethane	4680	U
75-09-2	Methylene Chloride	7780	B
67-64-1	Acetone	103000	B
75-15-0	Carbon Disulfide	2340	U
75-35-4	1,1-Dichloroethene	2340	U
75-34-3	1,1-Dichloroethane	2340	U
540-59-0	1,2-Dichloroethene (total)	2340	U
67-66-3	Chloroform	2340	U
107-02-2	1,2-Dichloroethane	2340	U
78-93-3	2-Butanone	106000	
71-55-6	1,1,1-Trichloroethane	2340	U
56-23-5	Carbon Tetrachloride	2340	U
108-05-4	Vinyl Acetate	4680	U
75-27-4	Bromodichloromethane	2340	U
78-87-5	1,2-Dichloropropane	2340	U
10061-01-5	cis-1,3-Dichloropropene	2340	U
79-01-6	Trichloroethene	2340	U
124-48-1	Dibromochloromethane	2340	U
79-00-5	1,1,2-Trichloroethane	2340	U
71-43-2	Benzene	52200	
10061-02-6	trans-1,3-Dichloropropene	2340	U
75-25-2	Bromoform	2340	U
108-10-1	4-Methyl-2-pentanone	4680	U
591-78-6	2-Hexanone	4680	U
127-18-4	Tetrachloroethene	2340	U
79-34-5	1,1,2,2-Tetrachloroethane	2340	U
108-88-3	Toluene	138000	B
108-90-7	Chlorobenzene	151000	
100-41-4	Ethylbenzene	300000	B
100-42-5	Styrene	2340	U
135-02-7	Xylene (total)	1080000	B

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SEDIMENT 9 RE

Lab Name: ENVIRODYNE ENGINEERS Contract: 3210

Lab Code: EEI Case No.: 02 SAS No.: NA SDG No.: SOIL1

Matrix: (soil/water) SOIL Lab Sample ID: 88011726

Sample wt/vol: 4 (g/mL) G Lab File ID: >B0513

Level: (low/med) MED Date Received: 12/02/88

% Moisture: not dec. 33 Date Analyzed: 12/13/88

Column: (pack/cap) PACK Dilution Factor: ~~3125~~ 3000
caj 1/19/89

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q
74-87-3	Chloromethane	4680	U
74-83-9	Bromomethane	4680	U
75-01-4	Vinyl Chloride	4680	U
75-00-3	Chloroethane	4680	U
75-09-2	Methylene Chloride	8450	B
67-64-1	Acetone	108000	B
75-15-0	Carbon Disulfide	2340	U
75-35-4	1,1-Dichloroethene	2340	U
75-34-3	1,1-Dichloroethane	2340	U
540-59-0	1,2-Dichloroethene (total)	2340	U
67-66-3	Chloroform	2340	U
107-02-2	1,2-Dichloroethane	2340	U
78-93-3	2-Butanone	116000	
71-55-6	1,1,1-Trichloroethane	2340	U
56-23-5	Carbon Tetrachloride	2340	U
108-05-4	Vinyl Acetate	4680	U
75-27-4	Bromodichloromethane	2340	U
78-87-5	1,2-Dichloropropane	2340	U
10061-01-5	cis-1,3-Dichloropropene	2340	U
79-01-6	Trichloroethene	2340	U
124-48-1	Dibromochloromethane	2340	U
79-00-5	1,1,2-Trichloroethane	2340	U
71-43-2	Benzene	56000	
10061-02-6	trans-1,3-Dichloropropene	2340	U
75-25-2	Bromoform	2340	U
108-10-1	4-Methyl-2-pentanone	4680	U
591-78-6	2-Hexanone	4680	U
127-18-4	Tetrachloroethene	2340	U
79-34-5	1,1,2,2-Tetrachloroethane	2340	U
108-88-3	Toluene	147000	B
108-90-7	Chlorobenzene	159000	
100-41-4	Ethylbenzene	321000	B
100-42-5	Styrene	2340	U
133-02-7	Xylene (total)	1150000	B

EP

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SED 9

Lab Name: ENVIRODYNE ENG., INC. Contract: 3210

Lab Code: Case No.: 00002 SAS No.: SDG No.:SOIL1

Matrix: SOIL Lab Sample ID: 88011726

Sample wt/vol: 0.99 (g/mL) G Lab File ID: C1367

Level: (low/med) MED Date Received: 12/02/88

% Moisture: not dec. 33 dec.31 Date Extracted:12/09/88

Extraction: (SepF/Cont/Sonc) SONC Date Analysed: 01/07/89

GPC Cleanup: (Y/N) N pH: 7 Dilution Factor: 1.00000

CAS No.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	4000	J
111-44-4	bis(2-Chloroethyl) ether	30000	U
95-57-8	2-Chlorophenol	30000	U
541-73-1	1,3-Dichlorobenzene	30000	U
106-46-7	1,4-Dichlorobenzene	30000	U
100-51-6	Benzyl Alcohol	30000	U
95-50-1	1,2-Dichlorobenzene	3900	J
95-48-7	2-Methylphenol	30000	U
108-60-1	bis(2-Chloroisopropyl)ether	30000	U
106-44-5	4-Methylphenol	30000	U
621-64-7	N-Nitroso-di-n-dipropylamine	30000	U
67-72-1	Hexachloroethane	30000	U
98-95-3	Nitrobenzene	30000	U
78-59-1	Isophorone	30000	U
88-75-5	2-Nitrophenol	30000	U
105-67-9	2,4-Dimethylphenol	30000	U
65-85-0	Benzoic Acid	140000	U
111-91-1	bis(2-Chloroethoxy)methane	30000	U
120-83-2	2,4-Dichlorophenol	30000	U
120-82-1	1,2,4-Trichlorobenzene	30000	U
91-20-3	Naphthalene	11000	J
106-47-8	4-Chloroaniline	30000	U
87-68-3	Hexachlorobutadiene	30000	U
59-50-7	4-Chloro-3-methylphenol	30000	U
91-57-6	2-Methylnaphthalene	4300	J
77-47-4	Hexachlorocyclopentadiene	30000	U
88-06-2	2,4,6-Trichlorophenol	30000	U
95-95-4	2,4,5-Trichlorophenol	140000	U
91-58-7	2-Chloronaphthalene	30000	U
88-74-4	2-Nitroaniline	140000	U
131-11-3	Dimethylphthalate	30000	U
208-96-8	Acenaphthylene	30000	U
606-20-2	2,6-Dinitrotoluene	30000	U

E71

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SED 9

Lab Name: ENVIRODYNE ENG., INC. Contract: 3210

Lab Code: Case No.: 00002 SAS No.: SDG No.:SOIL1

Matrix: SOIL Lab Sample ID: 88011726

Sample wt/vol: 0.99 (g/mL) G Lab File ID: C1367

Level: (low/med) MED Date Received: 12/02/88

% Moisture: not dec. 33 dec. Date Extracted:12/09/88

Extraction: (SepF/Cont/Sonc) SONC Date Analysed: 01/07/89

GPC Cleanup: (Y/N) N pH: 7 Dilution Factor: 1.00000

CAS No.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
-99-09-2	3-Nitroaniline	140000	U
-83-32-9	Acenaphthene	7200	J
-51-28-5	2,4-Dinitrophenol	140000	U
-100-02-7	4-Nitrophenol	140000	U
-132-64-9	Dibenzofuran	30000	U
-121-14-2	2,4-Dinitrotoluene	30000	U
-84-66-2	Diethylphthalate	30000	U
-7005-72-3	4-Chlorophenyl-phenyl ether	30000	U
-86-73-7	Fluorene	5600	J
-100-01-6	4-Nitroaniline	140000	U
-534-52-1	4,6-Dinitro-2-methylphenol	140000	U
-86-30-6	N-Nitrosodiphenylamine (1)	30000	U
-101-55-3	4-Bromophenyl-phenyl ether	30000	U
-118-74-1	Hexachlorobenzene	30000	U
-87-86-5	Pentachlorophenol	140000	U
-85-01-8	Phenanthrene	13000	J
-120-12-7	Anthracene	30000	U
-84-74-2	Di-n-butylphthalate	30000	U
-206-44-0	Fluoranthene	9900	J
-129-00-0	Pyrene	5700	J
-85-68-7	Butylbenzylphthalate	30000	U
-91-94-1	3,3'-Dichlorobenzidine	59000	U
-56-55-3	Benzo(a)anthracene	30000	U
-218-01-9	Chrysene	30000	U
-117-81-7	bis(2-ethylhexyl)phthalate	11000	J
-117-84-0	Di-n-octylphthalate	30000	U
-205-99-2	Benzo(b)fluoranthene	30000	U
-207-0809	Benzo(k)fluoranthene	30000	U
-50-32-8	Benzo(a)pyrene	30000	U
-193-39-5	Indeno(1,2,3-cd)pyrene	30000	U
-53-70-3	Dibenzo(a,h)anthracene	30000	U
-191-24-2	Benzo(g,h,i)perylene	30000	U

(1) - Cannot be separated from Diphenylamine

E72

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SED 9 DL

Lab Name: ENVIRODYNE ENG., INC. Contract: 3210

Lab Code: Case No.: 0002 SAS No.: SDG No.: SOIL1

Matrix: (soil/water) SOIL Lab Sample ID: 88011726

Sample wt/vol: 1 (g/mL) G Lab File ID:

Level: (low/med) MED Date Received: 12/02/88

% Moisture: not dec. 31 dec. Date Extracted: 12/08/88

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 01/06/89

GPC Cleanup: (Y/N) N pH: 7 Dilution Factor: ~~0.10000~~ 10 cay 1/23/8

CAS No.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
-319-84-6	alpha-BHC	1700	UD
-319-85-7	beta-BHC	1700	UD
-319-86-8	delta-BHC	1700	UD
-58-89-9	gamma-BHC (Lindane)	1700	UD
-76-44-8	Heptachlor	1700	UD
-309-00-2	Aldrin	1700	UD
-1024-57-3	Heptachlor epoxide	1700	UD
-959-98-8	Endosulfan I	1700	UD
-60-57-1	Dieldrin	3500	UD
-72-55-9	4,4'-DDE	3500	UD
-72-20-8	Endrin	3500	UD
-33213-65-9	Endosulfan II	3500	UD
-72-54-8	4,4'-DDD	3500	UD
-1031-07-8	Endosulfan sulfate	3500	UD
-50-29-3	4,4'-DDT	3500	UD
-72-43-5	Methoxychlor	17000	UD
-53494-70-5	Endrin Ketone	3500	UD
-5103-71-9	alpha-Chlordane	17000	UD
-5103-74-2	gamma-Chlordane	17000	UD
-8001-35-2	Toxaphene	35000	UD
-12674-11-2	Aroclor-1016	17000	UD
-11104-28-2	Aroclor-1221	17000	UD
-11141-16-5	Aroclor-1232	17000	UD
-53469-21-9	Aroclor-1242	17000	UD
-12672-29-6	Aroclor-1248	17000	UD
-11097-69-1	Aroclor-1254	35000	UD
-11096-82-5	Aroclor-1260	35000	UD

FORM I PEST 1/87 Rev.

E73

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SEDIMENT 10

Lab Name: ENVIRODYNE ENGINEERS Contract: 3210

Lab Code: EEI Case No.: 02 SAS No.: NA SDG No.: SOIL1

Matrix: (soil/water) SOIL Lab Sample ID: 88011727

Sample wt/vol: 5 (g/mL) G Lab File ID: >B0584

Level: (low/med) LOW Date Received: 12/02/88

% Moisture: not dec. 21 Date Analyzed: 12/18/88

Column: (pack/cap) PACK Dilution Factor: 1.00000

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q
74-87-3	Chloromethane	13	U
74-83-9	Bromomethane	13	U
75-01-4	Vinyl Chloride	13	U
75-00-3	Chloroethane	13	U
75-09-2	Methylene Chloride	2	J
67-64-1	Acetone	26	B
75-15-0	Carbon Disulfide	6	U
75-35-4	1,1-Dichloroethene	6	U
75-34-3	1,1-Dichloroethane	6	U
540-59-0	1,2-Dichloroethene (total)	6	U
67-66-3	Chloroform	6	U
107-02-2	1,2-Dichloroethane	6	U
78-93-3	2-Butanone	13	U
71-55-6	1,1,1-Trichloroethane	6	U
56-23-5	Carbon Tetrachloride	6	U
108-05-4	Vinyl Acetate	13	U
75-27-4	Bromodichloromethane	6	U
78-87-5	1,2-Dichloropropane	6	U
10061-01-5	cis-1,3-Dichloropropene	6	U
79-01-6	Trichloroethene	6	U
124-48-1	Dibromochloromethane	6	U
79-00-5	1,1,2-Trichloroethane	6	U
71-43-2	Benzene	6	U
10061-02-6	trans-1,3-Dichloropropene	6	U
75-25-2	Bromoform	6	U
108-10-1	4-Methyl-2-pentanone	13	U
591-78-6	2-Hexanone	13	U
127-18-4	Tetrachloroethene	6	U
79-34-5	1,1,2,2-Tetrachloroethane	6	U
108-88-3	Toluene	6	U
108-90-7	Chlorobenzene	6	U
100-41-4	Ethylbenzene	6	U
100-42-5	Styrene	6	U
133-02-7	Xylene (total)	6	U

FORM I VOA 1/87 Rev.

E74

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SED10

Lab Name: ENVIRODYNE ENG., INC. Contract: 3210

Lab Code: Case No.: 00002 SAS No.: SDG No.: SOIL

Matrix: SOIL Lab Sample ID: 88011727

Sample wt/vol: 30 (g/mL) G Lab File ID: C1345

Level: (low/med) LOW Date Received: 12/02/88

% Moisture: not dec. 21 dec. 18 Date Extracted: 01/04/89

Extraction: (SepF/Cont/Sonc) SONC Date Analysed: 01/06/89

GPC Cleanup: (Y/N) N pH: 7 Dilution Factor: 1.00000

CAS No.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	420	U
111-44-4	bis(2-Chloroethyl) ether	420	U
95-57-8	2-Chlorophenol	420	U
541-73-1	1,3-Dichlorobenzene	420	U
106-46-7	1,4-Dichlorobenzene	420	U
100-51-6	Benzyl Alcohol	420	U
95-50-1	1,2-Dichlorobenzene	420	U
95-48-7	2-Methylphenol	420	U
108-60-1	bis(2-Chloroisopropyl)ether	420	U
106-44-5	4-Methylphenol	420	U
621-64-7	N-Nitroso-di-n-dipropylamine	420	U
67-72-1	Hexachloroethane	420	U
98-95-3	Nitrobenzene	420	U
78-59-1	Isophorone	420	U
88-75-5	2-Nitrophenol	420	U
105-67-9	2,4-Dimethylphenol	420	U
65-85-0	Benzoic Acid	2000	U
111-91-1	bis(2-Chloroethoxy)methane	420	U
120-83-2	2,4-Dichlorophenol	420	U
120-82-1	1,2,4-Trichlorobenzene	420	U
91-20-3	Naphthalene	420	U
106-47-8	4-Chloroaniline	420	U
87-68-3	Hexachlorobutadiene	420	U
59-50-7	4-Chloro-3-methylphenol	420	U
91-57-6	2-Methylnaphthalene	420	U
77-47-4	Hexachlorocyclopentadiene	420	U
88-06-2	2,4,6-Trichlorophenol	420	U
95-95-4	2,4,5-Trichlorophenol	2000	U
91-58-7	2-Chloronaphthalene	420	U
88-74-4	2-Nitroaniline	2000	U
131-11-3	Dimethylphthalate	420	U
208-96-8	Acenaphthylene	420	U
606-20-2	2,6-Dinitrotoluene	420	U

E75

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SED10

Lab Name: ENVIRODYNE ENG., INC. Contract: 3210

Lab Code: Case No.: 00002 SAS No.: SDG No.: SOIL1

Matrix: SOIL Lab Sample ID: 88011727

Sample wt/vol: 30 (g/mL) G Lab File ID: C1345

Level: (low/med) LOW Date Received: 12/02/88

% Moisture: not dec. 21 dec. 18 Date Extracted: 01/04/89

Extraction: (SepF/Cont/Sonc) SONC Date Analysed: 01/06/89

GPC Cleanup: (Y/N) N pH: 7 Dilution Factor: 1.00000

CAS No.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
-99-09-2	3-Nitroaniline	2000	U
-83-32-9	Acenaphthene	420	U
-51-28-5	2,4-Dinitrophenol	2000	U
-100-02-7	4-Nitrophenol	2000	U
-132-64-9	Dibenzofuran	420	U
-121-14-2	2,4-Dinitrotoluene	420	U
-84-66-2	Diethylphthalate	420	U
-7005-72-3	4-Chlorophenyl-phenyl ether	420	U
-86-73-7	Fluorene	420	U
-100-01-6	4-Nitroaniline	2000	U
-534-52-1	4,6-Dinitro-2-methylphenol	2000	U
-86-30-6	N-Nitrosodiphenylamine (1)	420	U
-101-55-3	4-Bromophenyl-phenyl ether	420	U
-118-74-1	Hexachlorobenzene	420	U
-87-86-5	Pentachlorophenol	2000	U
-85-01-8	Phenanthrene	420	U
-120-12-7	Anthracene	420	U
-84-74-2	Di-n-butylphthalate	420	U
-206-44-0	Fluoranthene	420	U
-129-00-0	Pyrene	420	U
-85-68-7	Butylbenzylphthalate	420	U
-91-94-1	3,3'-Dichlorobenzidine	840	U
-56-55-3	Benzo(a)anthracene	420	U
-218-01-9	Chrysene	420	U
-117-81-7	bis(2-ethylhexyl)phthalate	350	J
-117-84-0	Di-n-octylphthalate	420	U
-205-99-2	Benzo(b)fluoranthene	420	U
-207-0809	Benzo(k)fluoranthene	420	U
-50-32-8	Benzo(a)pyrene	420	U
-193-39-5	Indeno(1,2,3-cd)pyrene	420	U
-53-70-3	Dibenzo(a,h)anthracene	420	U
-191-24-2	Benzo(g,h,i)perylene	420	U

(1) - Cannot be separated from Diphenylamine

E76

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SED 10

Lab Name: ENVIRODYNE ENG., INC. Contract: 3210

Lab Code: Case No.: 0002 SAS No.: SDG No.: SOIL1

Matrix: (soil/water) SOIL Lab Sample ID: 88011727

Sample wt/vol: 30 (g/mL) G Lab File ID:

Level: (low/med) LOW Date Received: 12/02/88

% Moisture: not dec. 18 dec. Date Extracted:12/12/88

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 12/27/88

GPC Cleanup: (Y/N) N pH: 7 Dilution Factor: 1.00000

CAS No.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	10	U
319-85-7	beta-BHC	10	U
319-86-8	delta-BHC	10	U
58-89-9	gamma-BHC (Lindane)	10	U
76-44-8	Heptachlor	10	U
309-00-2	Aldrin	10	U
1024-57-3	Heptachlor epoxide	10	U
959-98-8	Endosulfan I	10	U
60-57-1	Dieldrin	20	U
72-55-9	4,4'-DDE	20	U
72-20-8	Endrin	20	U
33213-65-9	Endosulfan II	20	U
72-54-8	4,4'-DDD	20	U
1031-07-8	Endosulfan sulfate	20	U
50-29-3	4,4'-DDT	20	U
72-43-5	Methoxychlor	98	U
53494-70-5	Endrin Ketone	20	U
5103-71-9	alpha-Chlordane	98	U
5103-74-2	gamma-Chlordane	98	U
8001-35-2	Toxaphene	200	U
12674-11-2	Aroclor-1016	98	U
11104-28-2	Aroclor-1221	98	U
11141-16-5	Aroclor-1232	98	U
53469-21-9	Aroclor-1242	98	U
12672-29-6	Aroclor-1248	98	U
11097-69-1	Aroclor-1254	200	U
11096-82-5	Aroclor-1260	200	U

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SED 10 DL

Lab Name: ENVIRODYNE ENG., INC. Contract:

Lab Code: Case No.: SAS No.: SDG No.: SOIL 1

Matrix: (soil/water) SOIL Lab Sample ID: 8801727

Sample wt/vol: 30 (g/mL) G Lab File ID:

Level: (low/med) LOW Date Received: 12/02/88

% Moisture: not dec. 18 dec. Date Extracted:12/12/88

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 12/27/88

GPC Cleanup: (Y/N) N pH: 7 Dilution Factor: 10.0

CAS No.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	98	UD
319-85-7	beta-BHC	98	UD
319-86-8	delta-BHC	98	UD
58-89-9	gamma-BHC (Lindane)	98	UD
76-44-8	Heptachlor	98	UD
309-00-2	Aldrin	98	UD
1024-57-3	Heptachlor epoxide	98	UD
959-98-8	Endosulfan I	98	UD
60-57-1	Dieldrin	200	UD
72-55-9	4,4'-DDE	200	UD
72-20-8	Endrin	200	UD
33213-65-9	Endosulfan II	200	UD
72-54-8	4,4'-DDD	200	UD
1031-07-8	Endosulfan sulfate	200	UD
50-29-3	4,4'-DDT	200	UD
72-43-5	Methoxychlor	980	UD
53494-70-5	Endrin Ketone	200	UD
5103-71-9	alpha-Chlordane	980	UD
5103-74-2	gamma-Chlordane	980	UD
8001-35-2	Toxaphene	2000	UD
12674-11-2	Aroclor-1016	980	UD
11104-28-2	Aroclor-1221	980	UD
11141-16-5	Aroclor-1232	980	UD
53469-21-9	Aroclor-1242	980	UD
12672-29-6	Aroclor-1248	980	UD
11097-69-1	Aroclor-1254	2000	UD
11096-82-5	Aroclor-1260	2000	UD

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SEDIMENT 11

Lab Name: ENVIRODYNE ENGINEERS Contract: 3210

Lab Code: EEI Case No.: 02 SAS No.: NA SDG No.: SOIL1

Matrix: (soil/water) SOIL Lab Sample ID: 88011728

Sample wt/vol: 5 (g/mL) G Lab File ID: >B0585

Level: (low/med) LOW Date Received: 12/02/88

% Moisture: not dec. 26 Date Analyzed: 12/18/88

Column: (pack/cap) PACK Dilution Factor: 1.00000

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q
74-87-3	Chloromethane	14	U
74-83-9	Bromomethane	14	U
75-01-4	Vinyl Chloride	14	U
75-00-3	Chloroethane	14	U
75-09-2	Methylene Chloride	2	J
67-64-1	Acetone	50	B
75-15-0	Carbon Disulfide	7	U
75-35-4	1,1-Dichloroethene	7	U
75-34-3	1,1-Dichloroethane	7	U
540-59-0	1,2-Dichloroethene (total)	7	U
67-66-3	Chloroform	7	U
107-02-2	1,2-Dichloroethane	7	U
78-93-3	2-Butanone	14	U
71-55-6	1,1,1-Trichloroethane	7	U
56-23-5	Carbon Tetrachloride	7	U
108-05-4	Vinyl Acetate	14	U
75-27-4	Bromodichloromethane	7	U
78-87-5	1,2-Dichloropropane	7	U
10061-01-5	cis-1,3-Dichloropropene	7	U
79-01-6	Trichloroethene	7	U
124-48-1	Dibromochloromethane	7	U
79-00-5	1,1,2-Trichloroethane	7	U
71-43-2	Benzene	7	U
10061-02-6	trans-1,3-Dichloropropene	7	U
75-25-2	Bromoform	7	U
108-10-1	4-Methyl-2-pentanone	14	U
591-78-6	2-Hexanone	14	U
127-18-4	Tetrachloroethene	7	U
79-34-5	1,1,2,2-Tetrachloroethane	7	U
108-88-3	Toluene	7	U
108-90-7	Chlorobenzene	7	U
100-41-4	Ethylbenzene	7	U
100-42-5	Styrene	7	U
133-02-7	Xylene (total)	7	U

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SED 11

Lab Name: ENVIRODYNE ENG., INC. Contract: 3210

Lab Code: Case No.: 00002 SAS No.: SDG No.:SOIL1

Matrix: SOIL Lab Sample ID: 88011728

Sample wt/vol: 29.99 (g/mL) G Lab File ID: C1349

Level: (low/med) LOW Date Received: 12/02/88

% Moisture: not dec. 26 dec. 28 Date Extracted:01/04/89

Extraction: (SepF/Cont/Sonc) SONC Date Analysed: 01/06/89

GPC Cleanup: (Y/N) N pH: 7 Dilution Factor: 1.00000

CAS No.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	450	U
111-44-4	bis(2-Chloroethyl) ether	450	U
95-57-8	2-Chlorophenol	450	U
541-73-1	1,3-Dichlorobenzene	450	U
106-46-7	1,4-Dichlorobenzene	450	U
100-51-6	Benzyl Alcohol	450	U
95-50-1	1,2-Dichlorobenzene	450	U
95-48-7	2-Methylphenol	450	U
108-60-1	bis(2-Chloroisopropyl)ether	450	U
106-44-5	4-Methylphenol	450	U
621-64-7	N-Nitroso-di-n-dipropylamine	450	U
67-72-1	Hexachloroethane	450	U
98-95-3	Nitrobenzene	450	U
78-59-1	Isophorone	450	U
88-75-5	2-Nitrophenol	450	U
105-67-9	2,4-Dimethylphenol	450	U
65-85-0	Benzoic Acid	2200	U
111-91-1	bis(2-Chloroethoxy)methane	450	U
120-83-2	2,4-Dichlorophenol	450	U
120-82-1	1,2,4-Trichlorobenzene	450	U
91-20-3	Naphthalene	410	J
106-47-8	4-Chloroaniline	450	U
87-68-3	Hexachlorobutadiene	450	U
59-50-7	4-Chloro-3-methylphenol	450	U
91-57-6	2-Methylnaphthalene	310	J
77-47-4	Hexachlorocyclopentadiene	450	U
88-06-2	2,4,6-Trichlorophenol	450	U
95-95-4	2,4,5-Trichlorophenol	2200	U
91-58-7	2-Chloronaphthalene	450	U
88-74-4	2-Nitroaniline	2200	U
131-11-3	Dimethylphthalate	450	U
208-96-8	Acenaphthylene	69	J
606-20-2	2,6-Dinitrotoluene	450	U

E80

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SED 11

Lab Name: ENVIRODYNE ENG., INC. Contract: 3210

Lab Code: Case No.: 00002 SAS No.: SDG No.:SOIL1

Matrix: SOIL Lab Sample ID: 88011728

Sample wt/vol: 29.99 (g/mL) G Lab File ID: C1349

Level: (low/med) LOW Date Received: 12/02/88

% Moisture: not dec. 26 dec. Date Extracted:01/04/89

Extraction: (SepF/Cont/Sonc) SONC Date Analysed: 01/06/89

GPC Cleanup: (Y/N) N pH: 7 Dilution Factor: 1.00000

CAS No.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
-99-09-2	3-Nitroaniline	2200	U
-83-32-9	Acenaphthene	1700	
-51-28-5	2,4-Dinitrophenol	2200	U
-100-02-7	4-Nitrophenol	2200	U
-132-64-9	Dibenzofuran	1100	
-121-14-2	2,4-Dinitrotoluene	450	U
-84-66-2	Diethylphthalate	450	U
-7005-72-3	4-Chlorophenyl-phenyl ether	450	U
-86-73-7	Fluorene	2000	
-100-01-6	4-Nitroaniline	2200	U
-534-52-1	4,6-Dinitro-2-methylphenol	2200	U
-86-30-6	N-Nitrosodiphenylamine (1)	450	U
-101-55-3	4-Bromophenyl-phenyl ether	450	U
-118-74-1	Hexachlorobenzene	450	U
-87-86-5	Pentachlorophenol	2200	U
-85-01-8	Phenanthrene	17000	
-120-12-7	Anthracene	4200	
-84-74-2	Di-n-butylphthalate	57	J
-206-44-0	Fluoranthene	12000	
-129-00-0	Pyrene	24000	
-85-68-7	Butylbenzylphthalate	450	U
-91-94-1	3,3'-Dichlorobenzidine	890	U
-56-55-3	Benzo(a)anthracene	6600	
-218-01-9	Chrysene	7100	
-117-81-7	bis(2-ethylhexyl)phthalate	910	
-117-84-0	Di-n-octylphthalate	450	U
-205-99-2	Benzo(b)fluoranthene	4200	
-207-0809	Benzo(k)fluoranthene	3300	
-50-32-8	Benzo(a)pyrene	4700	
-193-39-5	Indeno(1,2,3-cd)pyrene	4000	
-53-70-3	Dibenzo(a,h)anthracene	1400	
-191-24-2	Benzo(g,h,i)perylene	4000	

(1) - Cannot be separated from Diphenylamine

E81

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SED 11 DL

Lab Name: ENVIRODYNE ENG., INC. Contract: 3210

Lab Code: Case No.: 0002 SAS No.: SDG No.: SOIL1

Matrix: (soil/water) SOIL Lab Sample ID: 88011728

Sample wt/vol: 30 (g/mL) G Lab File ID:

Level: (low/med) LOW Date Received: 12/02/88

% Moisture: not dec. 28 dec. Date Extracted: 12/12/88

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 01/06/89

GPC Cleanup: (Y/N) N pH: 7 Dilution Factor: ~~0.01000~~ 100 cal 1/23/89

CAS No.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	1100	UD
319-85-7	beta-BHC	1100	UD
319-86-8	delta-BHC	1100	UD
58-89-9	gamma-BHC (Lindane)	1100	UD
76-44-8	Heptachlor	1100	UD
309-00-2	Aldrin	1100	UD
1024-57-3	Heptachlor epoxide	1100	UD
959-98-8	Endosulfan I	1100	UD
60-57-1	Dieldrin	2200	UD
72-55-9	4,4'-DDE	2200	UD
72-20-8	Endrin	2200	UD
33213-65-9	Endosulfan II	2200	UD
72-54-8	4,4'-DDD	2200	UD
1031-07-8	Endosulfan sulfate	2200	UD
50-29-3	4,4'-DDT	2200	UD
72-43-5	Methoxychlor	11000	UD
53494-70-5	Endrin Ketone	2200	UD
5103-71-9	alpha-Chlordane	11000	UD
5103-74-2	gamma-Chlordane	11000	UD
8001-35-2	Toxaphene	22000	UD
12674-11-2	Aroclor-1016	11000	UD
11104-28-2	Aroclor-1221	11000	UD
11141-16-5	Aroclor-1232	11000	UD
53469-21-9	Aroclor-1242	11000	UD
12672-29-6	Aroclor-1248	11000	UD
11097-69-1	Aroclor-1254	22000	UD
11096-82-5	Aroclor-1260	22000	UD

FORM I PEST 1/87 Rev.

E82

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SED 11 DL

Lab Name: ENVIRODYNE ENG., INC. Contract: 3210

Lab Code: Case No.: 0002 SAS No.: SDG No.: SOIL1

Matrix: (soil/water) SOIL Lab Sample ID: 88011728

Sample wt/vol: 30 (g/mL) G Lab File ID:

Level: (low/med) LOW Date Received: 12/02/88

% Moisture: not dec. 28 dec. Date Extracted:12/12/88

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 01/06/89

GPC Cleanup: (Y/N) N pH: 7 Dilution Factor: ~~0.00100~~ 1000 CAJ 1/23/89

CAS No.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
-319-84-6	alpha-BHC	11000	UD
-319-85-7	beta-BHC	11000	UD
-319-86-8	delta-BHC	11000	UD
-58-89-9	gamma-BHC (Lindane)	11000	UD
-76-44-8	Heptachlor	11000	UD
-309-00-2	Aldrin	11000	UD
-1024-57-3	Heptachlor epoxide	11000	UD
-959-98-8	Endosulfan I	11000	UD
-60-57-1	Dieldrin	22000	UD
-72-55-9	4,4'-DDE	22000	UD
-72-20-8	Endrin	22000	UD
-33213-65-9	Endosulfan II	22000	UD
-72-54-8	4,4'-DDD	22000	UD
-1031-07-8	Endosulfan sulfate	22000	UD
-50-29-3	4,4'-DDT	22000	UD
-72-43-5	Methoxychlor	110000	UD
-53494-70-5	Endrin Ketone	22000	UD
-5103-71-9	alpha-Chlordane	110000	UD
-5103-74-2	gamma-Chlordane	110000	UD
-8001-35-2	Toxaphene	220000	UD
-12674-11-2	Aroclor-1016	110000	UD
-11104-28-2	Aroclor-1221	110000	UD
-11141-16-5	Aroclor-1232	110000	UD
-53469-21-9	Aroclor-1242	110000	UD
-12672-29-6	Aroclor-1248	110000	UD
-11097-69-1	Aroclor-1254	220000	UD
-11096-82-5	Aroclor-1260	220000	UD

VOLATILE ORGANICS ANALYSIS DATA SHEET

SEDIMENT 12 RE

Lab Name: ENVIRODYNE ENGINEERS Contract: 3210

Lab Code: EEI Case No.: 02 SAS No.: NA SDG No.: SOIL1

Matrix: (soil/water) SOIL Lab Sample ID: 88011729

Sample wt/vol: 5 (g/mL) G Lab File ID: >B0595

Level: (low/med) LOW Date Received: 12/02/88

% Moisture: not dec. 25 Date Analyzed: 12/19/88

Column: (pack/cap) PACK Dilution Factor: 1.00000

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q
74-87-3	Chloromethane	13	U
74-83-9	Bromomethane	13	U
75-01-4	Vinyl Chloride	13	U
75-00-3	Chloroethane	13	U
75-09-2	Methylene Chloride	24	B
67-64-1	Acetone	96	B
75-15-0	Carbon Disulfide	3	J
75-35-4	1,1-Dichloroethene	7	U
75-34-3	1,1-Dichloroethane	3	J
540-59-0	1,2-Dichloroethene (total)	6	J
67-66-3	Chloroform	1	J
107-02-2	1,2-Dichloroethane	7	U
78-93-3	2-Butanone	140	B
71-55-6	1,1,1-Trichloroethane	11	
56-23-5	Carbon Tetrachloride	7	U
108-05-4	Vinyl Acetate	13	U
75-27-4	Bromodichloromethane	7	U
78-87-5	1,2-Dichloropropane	7	U
10061-01-5	cis-1,3-Dichloropropene	7	U
79-01-6	Trichloroethene	3	J
124-48-1	Dibromochloromethane	7	U
79-00-5	1,1,2-Trichloroethane	7	U
71-43-2	Benzene	6	J
10061-02-6	trans-1,3-Dichloropropene	7	U
75-25-2	Bromoform	7	U
108-10-1	4-Methyl-2-pentanone	8	J
591-78-6	2-Hexanone	13	U
127-18-4	Tetrachloroethene	8	
79-34-5	1,1,2,2-Tetrachloroethane	7	U
108-88-3	Toluene	20	B
108-90-7	Chlorobenzene	19	
100-41-4	Ethylbenzene	2	J
100-42-5	Styrene	7	U
133-02-7	Xylene (total)	9	

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SED 12

Lab Name: ENVIRODYNE ENG., INC. Contract: 3210

Lab Code: Case No.: 00002 SAS No.: SDG No.:SOIL1

Matrix: SOIL Lab Sample ID: 88011729

Sample wt/vol: 0.99 (g/mL) G Lab File ID: C1368

Level: (low/med) MED Date Received: 12/02/88

% Moisture: not dec. 25 dec. 28 Date Extracted:12/09/88

Extraction: (SepF/Cont/Sonc) SONC Date Analysed: 01/07/89

GPC Cleanup: (Y/N) N pH: 7 Dilution Factor: 1.00000

CAS No.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	8800	J
111-44-4	bis(2-Chloroethyl) ether	26000	U
95-57-8	2-Chlorophenol	26000	U
541-73-1	1,3-Dichlorobenzene	26000	U
106-46-7	1,4-Dichlorobenzene	30000	
100-51-6	Benzyl Alcohol	26000	U
95-50-1	1,2-Dichlorobenzene	430000	
95-48-7	2-Methylphenol	26000	U
108-60-1	bis(2-Chloroisopropyl)ether	26000	U
106-44-5	4-Methylphenol	26000	U
621-64-7	N-Nitroso-di-n-dipropylamine	26000	U
67-72-1	Hexachloroethane	26000	U
98-95-3	Nitrobenzene	26000	U
78-59-1	Isophorone	26000	U
88-75-5	2-Nitrophenol	26000	U
105-67-9	2,4-Dimethylphenol	26000	U
65-85-0	Benzoic Acid	130000	U
111-91-1	bis(2-Chloroethoxy)methane	26000	U
120-83-2	2,4-Dichlorophenol	26000	U
120-82-1	1,2,4-Trichlorobenzene	26000	U
91-20-3	Naphthalene	26000	U
106-47-8	4-Chloroaniline	26000	U
87-68-3	Hexachlorobutadiene	26000	U
59-50-7	4-Chloro-3-methylphenol	26000	U
91-57-6	2-Methylnaphthalene	26000	U
77-47-4	Hexachlorocyclopentadiene	26000	U
88-06-2	2,4,6-Trichlorophenol	26000	U
95-95-4	2,4,5-Trichlorophenol	130000	U
91-58-7	2-Chloronaphthalene	26000	U
88-74-4	2-Nitroaniline	130000	U
131-11-3	Dimethylphthalate	26000	U
208-96-8	Acenaphthylene	26000	U
606-20-2	2,6-Dinitrotoluene	26000	U

E85

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SED 12

Lab Name: ENVIRODYNE ENG., INC. Contract: 3210

Lab Code: Case No.: 00002 SAS No.: SDG No.:SOIL1

Matrix: SOIL Lab Sample ID: 88011729

Sample wt/vol: 0.99 (g/mL) G Lab File ID: C1368

Level: (low/med) MED Date Received: 12/02/88

% Moisture: not dec. 25 dec. Date Extracted:12/09/88

Extraction: (SepF/Cont/Sonc) SONC Date Analysed: 01/07/89

GPC Cleanup: (Y/N) N pH: 7 Dilution Factor: 1.00000

CAS No.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
-99-09-2	3-Nitroaniline	130000	U
-83-32-9	Acenaphthene	26000	U
-51-28-5	2,4-Dinitrophenol	130000	U
-100-02-7	4-Nitrophenol	130000	U
-132-64-9	Dibenzofuran	26000	U
-121-14-2	2,4-Dinitrotoluene	26000	U
-84-66-2	Diethylphthalate	26000	U
-7005-72-3	4-Chlorophenyl-phenyl ether	26000	U
-86-73-7	Fluorene	26000	U
-100-01-6	4-Nitroaniline	130000	U
-534-52-1	4,6-Dinitro-2-methylphenol	130000	U
-86-30-6	N-Nitrosodiphenylamine (1)	26000	U
-101-55-3	4-Bromophenyl-phenyl ether	26000	U
-118-74-1	Hexachlorobenzene	26000	U
-87-86-5	Pentachlorophenol	130000	U
-85-01-8	Phenanthrene	26000	U
-120-12-7	Anthracene	26000	U
-84-74-2	Di-n-butylphthalate	26000	U
-206-44-0	Fluoranthene	26000	U
-129-00-0	Pyrene	26000	U
-85-68-7	Butylbenzylphthalate	26000	U
-91-94-1	3,3'-Dichlorobenzidine	53000	U
-56-55-3	Benzo(a)anthracene	26000	U
-218-01-9	Chrysene	26000	U
-117-81-7	bis(2-ethylhexyl)phthalate	26000	U
-117-84-0	Di-n-octylphthalate	26000	U
-205-99-2	Benzo(b)fluoranthene	26000	U
-207-0809	Benzo(k)fluoranthene	26000	U
-50-32-8	Benzo(a)pyrene	26000	U
-193-39-5	Indeno(1,2,3-cd)pyrene	26000	U
-53-70-3	Dibenzo(a,h)anthracene	26000	U
-191-24-2	Benzo(g,h,i)perylene	26000	U

(1) - Cannot be separated from Diphenylamine

E 86

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SED I2 DL

Lab Name: ENVIRODYNE ENG., INC. Contract: 3210

Lab Code: Case No.: 0002 SAS No.: SDG No.: SOIL1

Matrix: (soil/water) SOIL Lab Sample ID: 88011729

Sample wt/vol: 1 (g/mL) G Lab File ID:

Level: (low/med) MED Date Received: 12/02/88

% Moisture: not dec. 28 dec. Date Extracted: 12/08/88

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 01/06/89

GPC Cleanup: (Y/N) N pH: 7 Dilution Factor: ~~0.10000~~ 10 cay 1/23/89

CAS No.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
-319-84-6	alpha-BHC	1700	UD
-319-85-7	beta-BHC	1700	UD
-319-86-8	delta-BHC	1700	UD
-58-89-9	gamma-BHC (Lindane)	1700	UD
-76-44-8	Heptachlor	1700	UD
-309-00-2	Aldrin	1700	UD
-1024-57-3	Heptachlor epoxide	1700	UD
-959-98-8	Endosulfan I	1700	UD
-60-57-1	Dieldrin	3300	UD
-72-55-9	4,4'-DDE	3300	UD
-72-20-8	Endrin	3300	UD
-33213-65-9	Endosulfan II	3300	UD
-72-54-8	4,4'-DDD	3300	UD
-1031-07-8	Endosulfan sulfate	3300	UD
-50-29-3	4,4'-DDT	3300	UD
-72-43-5	Methoxychlor	17000	UD
-53494-70-5	Endrin Ketone	3300	UD
-5103-71-9	alpha-Chlordane	17000	UD
-5103-74-2	gamma-Chlordane	17000	UD
-8001-35-2	Toxaphene	33000	UD
-12674-11-2	Aroclor-1016	17000	UD
-11104-28-2	Aroclor-1221	17000	UD
-11141-16-5	Aroclor-1232	17000	UD
-53469-21-9	Aroclor-1242	17000	UD
-12672-29-6	Aroclor-1248	17000	UD
-11097-69-1	Aroclor-1254	33000	UD
-11096-82-5	Aroclor-1260	33000	UD

FORM I PEST 1/87 Rev.

E87

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SEDIMENT 13

Lab Name: ENVIRODYNE ENGINEERS Contract: 3210

Lab Code: EEI Case No.: 02 SAS No.: NA SDG No.: SOIL 1

Matrix: (soil/water) SOIL Lab Sample ID: 88011730

Sample wt/vol: 5 (g/mL) G Lab File ID: >B0596

Level: (low/med) LOW Date Received: 12/02/88

% Moisture: not dec. 23 Date Analyzed: 12/19/88

Column: (pack/cap) PACK Dilution Factor: 1.00000

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q
74-87-3	Chloromethane	13	U
74-83-9	Bromomethane	13	U
75-01-4	Vinyl Chloride	13	U
75-00-3	Chloroethane	13	U
75-09-2	Methylene Chloride	21	B
67-64-1	Acetone	76	B
75-15-0	Carbon Disulfide	7	U
75-35-4	1,1-Dichloroethene	7	U
75-34-3	1,1-Dichloroethane	7	U
540-59-0	1,2-Dichloroethene (total)	2	J
67-66-3	Chloroform	7	U
107-02-2	1,2-Dichloroethane	7	U
78-93-3	2-Butanone	13	U
71-55-6	1,1,1-Trichloroethane	3	J
56-23-5	Carbon Tetrachloride	7	U
108-05-4	Vinyl Acetate	13	U
75-27-4	Bromodichloromethane	7	U
78-87-5	1,2-Dichloropropane	7	U
10061-01-5	cis-1,3-Dichloropropene	7	U
79-01-6	Trichloroethene	7	U
124-48-1	Dibromochloromethane	7	U
79-00-5	1,1,2-Trichloroethane	7	U
71-43-2	Benzene	4	
10061-02-6	trans-1,3-Dichloropropene	7	U
75-25-2	Bromoform	7	U
108-10-1	4-Methyl-2-pentanone	13	U
591-78-6	2-Hexanone	13	U
127-18-4	Tetrachloroethene	2	J
79-34-5	1,1,2,2-Tetrachloroethane	7	U
108-88-3	Toluene	2	JB
108-90-7	Chlorobenzene	28	
100-41-4	Ethylbenzene	2	J
100-42-5	Styrene	7	U
133-02-7	Xylene (total)	10	

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SED 13

Lab Name: ENVIRODYNE ENG., INC. Contract: 3210

Lab Code: Case No.: 00002 SAS No.: SDG No.:SOIL1

Matrix: SOIL Lab Sample ID: 88011730

Sample wt/vol: 1.01 (g/mL) G Lab File ID: C1355

Level: (low/med) MED Date Received: 12/02/88

% Moisture: not dec. 23 dec. 21 Date Extracted:12/09/88

Extraction: (SepF/Cont/Sonc) SONC Date Analysed: 01/06/89

GPC Cleanup: (Y/N) N pH: 7 Dilution Factor: 1.00000

CAS No.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	4600	J
111-44-4	bis(2-Chloroethyl) ether	26000	U
95-57-8	2-Chlorophenol	26000	U
541-73-1	1,3-Dichlorobenzene	26000	U
106-46-7	1,4-Dichlorobenzene	26000	U
100-51-6	Benzyl Alcohol	26000	U
95-50-1	1,2-Dichlorobenzene	26000	U
95-48-7	2-Methylphenol	26000	U
108-60-1	bis(2-Chloroisopropyl)ether	26000	U
106-44-5	4-Methylphenol	26000	U
621-64-7	N-Nitroso-di-n-dipropylamine	26000	U
67-72-1	Hexachloroethane	26000	U
98-95-3	Nitrobenzene	26000	U
78-59-1	Isophorone	26000	U
88-75-5	2-Nitrophenol	26000	U
105-67-9	2,4-Dimethylphenol	26000	U
65-85-0	Benzoic Acid	120000	U
111-91-1	bis(2-Chloroethoxy)methane	26000	U
120-83-2	2,4-Dichlorophenol	26000	U
120-82-1	1,2,4-Trichlorobenzene	26000	U
91-20-3	Naphthalene	26000	U
106-47-8	4-Chloroaniline	26000	U
87-68-3	Hexachlorobutadiene	26000	U
59-50-7	4-Chloro-3-methylphenol	26000	U
91-57-6	2-Methylnaphthalene	26000	U
77-47-4	Hexachlorocyclopentadiene	26000	U
88-06-2	2,4,6-Trichlorophenol	26000	U
95-95-4	2,4,5-Trichlorophenol	120000	U
91-58-7	2-Chloronaphthalene	26000	U
88-74-4	2-Nitroaniline	120000	U
131-11-3	Dimethylphthalate	26000	U
208-96-8	Acenaphthylene	26000	U
606-20-2	2,6-Dinitrotoluene	26000	U

E89

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SED 13

Lab Name: ENVIRODYNE ENG., INC. Contract: 3210

Lab Code: Case No.: 00002 SAS No.: SDG No.:SOIL1

Matrix: SOIL Lab Sample ID: 88011730

Sample wt/vol: 1.01 (g/mL) G Lab File ID: C1355

Level: (low/med) MED Date Received: 12/02/88

% Moisture: not dec. 23 dec. Date Extracted:12/09/88

Extraction: (SepF/Cont/Sonc) SONC Date Analysed: 01/06/89

GPC Cleanup: (Y/N) N pH: 7 Dilution Factor: 1.00000

CAS No.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
99-09-2	3-Nitroaniline	120000	U
83-32-9	Acenaphthene	26000	U
51-28-5	2,4-Dinitrophenol	120000	U
100-02-7	4-Nitrophenol	120000	U
132-64-9	Dibenzofuran	26000	U
121-14-2	2,4-Dinitrotoluene	26000	U
84-66-2	Diethylphthalate	26000	U
7005-72-3	4-Chlorophenyl-phenyl ether	26000	U
86-73-7	Fluorene	26000	U
100-01-6	4-Nitroaniline	120000	U
534-52-1	4,6-Dinitro-2-methylphenol	120000	U
86-30-6	N-Nitrosodiphenylamine (1)	26000	U
101-55-3	4-Bromophenyl-phenyl ether	26000	U
118-74-1	Hexachlorobenzene	26000	U
87-86-5	Pentachlorophenol	120000	U
85-01-8	Phenanthrene	26000	U
120-12-7	Anthracene	26000	U
84-74-2	Di-n-butylphthalate	26000	U
206-44-0	Fluoranthene	26000	U
129-00-0	Pyrene	26000	U
85-68-7	Butylbenzylphthalate	26000	U
91-94-1	3,3'-Dichlorobenzidine	51000	U
56-55-3	Benzo(a)anthracene	26000	U
218-01-9	Chrysene	26000	U
117-81-7	bis(2-ethylhexyl)phthalate	3300	J
117-84-0	Di-n-octylphthalate	26000	U
205-99-2	Benzo(b)fluoranthene	26000	U
207-0809	Benzo(k)fluoranthene	26000	U
50-32-8	Benzo(a)pyrene	26000	U
193-39-5	Indeno(1,2,3-cd)pyrene	26000	U
53-70-3	Dibenzo(a,h)anthracene	26000	U
191-24-2	Benzo(g,h,i)perylene	26000	U

(1) - Cannot be separated from Diphenylamine

E90

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SED 13 DL

Lab Name: ENVIRODYNE ENG., INC. Contract: 3210

Lab Code: Case No.: 0002 SAS No.: SDG No.: SOIL1

Matrix: (soil/water) SOIL Lab Sample ID: 88011730

Sample wt/vol: 1 (g/mL) G Lab File ID:

Level: (low/med) MED Date Received: 12/02/88

% Moisture: not dec. 22 dec. Date Extracted: 12/08/88

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 01/06/89

GPC Cleanup: (Y/N) N pH: 7 Dilution Factor: ~~0.10000~~ 10 eai 1/23/89

CAS No.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
-319-84-6	alpha-BHC	1500	UD
-319-85-7	beta-BHC	1500	UD
-319-86-8	delta-BHC	1500	UD
-58-89-9	gamma-BHC (Lindane)	1500	UD
-76-44-8	Heptachlor	1500	UD
-309-00-2	Aldrin	1500	UD
-1024-57-3	Heptachlor epoxide	1500	UD
-959-98-8	Endosulfan I	1500	UD
-60-57-1	Dieldrin	3100	UD
-72-55-9	4,4'-DDE	3100	UD
-72-20-8	Endrin	3100	UD
-33213-65-9	Endosulfan II	3100	UD
-72-54-8	4,4'-DDD	3100	UD
-1031-07-8	Endosulfan sulfate	3100	UD
-50-29-3	4,4'-DDT	3100	UD
-72-43-5	Methoxychlor	15000	UD
-53494-70-5	Endrin Ketone	3100	UD
-5103-71-9	alpha-Chlordane	15000	UD
-5103-74-2	gamma-Chlordane	15000	UD
-8001-35-2	Toxaphene	31000	UD
-12674-11-2	Aroclor-1016	15000	UD
-11104-28-2	Aroclor-1221	15000	UD
-11141-16-5	Aroclor-1232	15000	UD
-53469-21-9	Aroclor-1242	15000	UD
-12672-29-6	Aroclor-1248	15000	UD
-11097-69-1	Aroclor-1254	31000	UD
-11096-82-5	Aroclor-1260	31000	UD

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SED 14

Lab Name: ENVIRODYNE ENG., INC. Contract: 3210

Lab Code: Case No.: 00002 SAS No.: SDG No.:SOIL1

Matrix: SOIL Lab Sample ID: 88011731

Sample wt/vol: 1.00 (g/mL) G Lab File ID: C1369

Level: (low/med) MED Date Received: 12/02/88

% Moisture: not dec. 26 dec.24 Date Extracted:12/09/88

Extraction: (SepF/Cont/Sonc) SONC Date Analysed: 01/08/89

GPC Cleanup: (Y/N) N pH: 7 Dilution Factor: 1.00000

CAS No.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	27000	U
111-44-4	bis(2-Chloroethyl) ether	27000	U
95-57-8	2-Chlorophenol	27000	U
541-73-1	1,3-Dichlorobenzene	39000	
106-46-7	1,4-Dichlorobenzene	49000	
100-51-6	Benzyl Alcohol	27000	U
95-50-1	1,2-Dichlorobenzene	290000	
95-48-7	2-Methylphenol	27000	U
108-60-1	bis(2-Chloroisopropyl)ether	27000	U
106-44-5	4-Methylphenol	27000	U
621-64-7	N-Nitroso-di-n-dipropylamine	27000	U
67-72-1	Hexachloroethane	27000	U
98-95-3	Nitrobenzene	27000	U
78-59-1	Isophorone	27000	U
88-75-5	2-Nitrophenol	27000	U
105-67-9	2,4-Dimethylphenol	27000	U
65-85-0	Benzoic Acid	130000	U
111-91-1	bis(2-Chloroethoxy)methane	27000	U
120-83-2	2,4-Dichlorophenol	27000	U
120-82-1	1,2,4-Trichlorobenzene	190000	
91-20-3	Naphthalene	17000	J
106-47-8	4-Chloroaniline	27000	U
87-68-3	Hexachlorobutadiene	27000	U
59-50-7	4-Chloro-3-methylphenol	27000	U
91-57-6	2-Methylnaphthalene	27000	U
77-47-4	Hexachlorocyclopentadiene	27000	U
88-06-2	2,4,6-Trichlorophenol	27000	U
95-95-4	2,4,5-Trichlorophenol	130000	U
91-58-7	2-Chloronaphthalene	27000	U
88-74-4	2-Nitroaniline	130000	U
131-11-3	Dimethylphthalate	27000	U
208-96-8	Acenaphthylene	27000	U
606-20-2	2,6-Dinitrotoluene	27000	U

E92

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SEDIMENT 14

Lab Name: ENVIRODYNE ENGINEERS Contract: 3210

Lab Code: EEI Case No.: 02 SAS No.: NA SDG No.: SOIL1

Matrix: (soil/water) SOIL Lab Sample ID: 88011731

Sample wt/vol: 4 (g/mL) G Lab File ID: >B0516

Level: (low/med) MED Date Received: 12/02/88

% Moisture: not dec. 26 Date Analyzed: 12/13/88

Column: (pack/cap) PACK Dilution Factor: ~~125~~ 1

caj 1/19/89

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q
74-87-3	Chloromethane	1700	U
74-83-9	Bromomethane	1700	U
75-01-4	Vinyl Chloride	1700	U
75-00-3	Chloroethane	1700	U
75-09-2	Methylene Chloride	290	JB
67-64-1	Acetone	3500	B
75-15-0	Carbon Disulfide	850	U
75-35-4	1,1-Dichloroethene	850	U
75-34-3	1,1-Dichloroethane	850	U
540-59-0	1,2-Dichloroethene (total)	850	U
67-66-3	Chloroform	850	U
107-02-2	1,2-Dichloroethane	850	U
78-93-3	2-Butanone	5010	
71-55-6	1,1,1-Trichloroethane	850	U
56-23-5	Carbon Tetrachloride	850	U
108-05-4	Vinyl Acetate	1700	U
75-27-4	Bromodichloromethane	850	U
78-87-5	1,2-Dichloropropane	850	U
10061-01-5	cis-1,3-Dichloropropene	850	U
79-01-6	Trichloroethene	850	U
124-48-1	Dibromochloromethane	850	U
79-00-5	1,1,2-Trichloroethane	850	U
71-43-2	Benzene	850	U
10061-02-6	trans-1,3-Dichloropropene	850	U
75-25-2	Bromoform	850	U
108-10-1	4-Methyl-2-pentanone	1700	U
591-78-6	2-Hexanone	1700	U
127-18-4	Tetrachloroethene	850	U
79-34-5	1,1,2,2-Tetrachloroethane	850	U
108-88-3	Toluene	530	JB
108-90-7	Chlorobenzene	9220	
100-41-4	Ethylbenzene	260	JB
100-42-5	Styrene	850	U
133-02-7	Xylene (total)	830	JB

FORM I VOA 1/87 Rev.

E93

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SED 14

Lab Name: ENVIRODYNE ENG., INC. Contract: 3210

Lab Code: Case No.: 00002 SAS No.: SDG No.:SOIL1

Matrix: SOIL Lab Sample ID: 88011731

Sample wt/vol: 1.00 (g/mL) G Lab File ID: C1369

Level: (low/med) MED Date Received: 12/02/88

% Moisture: not dec. 26 dec. Date Extracted:12/09/88

Extraction: (SepF/Cont/Sonc) SONC Date Analysed: 01/08/89

GPC Cleanup: (Y/N) N pH: 7 Dilution Factor: 1.00000

CAS No.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
99-09-2	3-Nitroaniline	130000	U
83-32-9	Acenaphthene	27000	U
51-28-5	2,4-Dinitrophenol	130000	U
100-02-7	4-Nitrophenol	130000	U
132-64-9	Dibenzofuran	27000	U
121-14-2	2,4-Dinitrotoluene	27000	U
84-66-2	Diethylphthalate	27000	U
7005-72-3	4-Chlorophenyl-phenyl ether	27000	U
86-73-7	Fluorene	27000	U
100-01-6	4-Nitroaniline	130000	U
534-52-1	4,6-Dinitro-2-methylphenol	130000	U
86-30-6	N-Nitrosodiphenylamine (1)	27000	U
101-55-3	4-Bromophenyl-phenyl ether	27000	U
118-74-1	Hexachlorobenzene	27000	U
87-86-5	Pentachlorophenol	130000	U
85-01-8	Phenanthrene	27000	U
120-12-7	Anthracene	27000	U
84-74-2	Di-n-butylphthalate	27000	U
206-44-0	Fluoranthene	27000	U
129-00-0	Pyrene	27000	U
85-68-7	Butylbenzylphthalate	27000	U
91-94-1	3,3'-Dichlorobenzidine	54000	U
56-55-3	Benzo(a)anthracene	27000	U
218-01-9	Chrysene	27000	U
117-81-7	bis(2-ethylhexyl)phthalate	2600	J
117-84-0	Di-n-octylphthalate	27000	U
205-99-2	Benzo(b)fluoranthene	27000	U
207-0809	Benzo(k)fluoranthene	27000	U
50-32-8	Benzo(a)pyrene	27000	U
193-39-5	Indeno(1,2,3-cd)pyrene	27000	U
53-70-3	Dibenzo(a,h)anthracene	27000	U
191-24-2	Benzo(g,h,i)perylene	27000	U

(1) - Cannot be separated from Diphenylamine

E94

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SED 14

Lab Name: ENVIRODYNE ENG., INC. Contract: 3210

Lab Code: Case No.: 0002 SAS No.: SDG No.: SOIL1

Matrix: (soil/water) SOIL Lab Sample ID: 88011731

Sample wt/vol: 1 (g/mL) G Lab File ID:

Level: (low/med) MED Date Received: 12/02/88

% Moisture: not dec. 24 dec. Date Extracted:12/08/88

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 01/06/89

GPC Cleanup: (Y/N) N pH: 7 Dilution Factor: 1.00000

CAS No.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
-319-84-6	alpha-BHC	160	U
-319-85-7	beta-BHC	160	U
-319-86-8	delta-BHC	1900	U
-58-89-9	gamma-BHC (Lindane)	210	U
-76-44-8	Heptachlor	160	U
-309-00-2	Aldrin	160	U
-1024-57-3	Heptachlor epoxide	160	U
-959-98-8	Endosulfan I	160	U
-60-57-1	Dieldrin	320	U
-72-55-9	4,4'-DDE	320	U
-72-20-8	Endrin	320	U
-33213-65-9	Endosulfan II	320	U
-72-54-8	4,4'-DDD	320	U
-1031-07-8	Endosulfan sulfate	320	U
-50-29-3	4,4'-DDT	320	U
-72-43-5	Methoxychlor	1600	U
-53494-70-5	Endrin Ketone	320	U
-5103-71-9	alpha-Chlordane	1600	U
-5103-74-2	gamma-Chlordane	1600	U
-8001-35-2	Toxaphene	3200	U
-12674-11-2	Aroclor-1016	1600	U
-11104-28-2	Aroclor-1221	1600	U
-11141-16-5	Aroclor-1232	1600	U
-53469-21-9	Aroclor-1242	1600	U
-12672-29-6	Aroclor-1248	1600	U
-11097-69-1	Aroclor-1254	3200	U
-11096-82-5	Aroclor-1260	3200	U

FORM I PEST 1/87 Rev.

E95

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SED 15 RE

Lab Name: ENVIRODYNE ENGINEERS Contract: 3210

Lab Code: EEI Case No.: 02 SAS No.: NA SDG No.: SOIL1

Matrix: (soil/water) SOIL Lab Sample ID: 88011732

Sample wt/vol: 1 (g/mL) G Lab File ID: >B0640

Level: (low/med) LOW Date Received: 12/02/88

% Moisture: not dec. 37 Date Analyzed: 12/22/88

Column: (pack/cap) PACK Dilution Factor: 5.00000

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q
74-87-3	Chloromethane	79	U
74-83-9	Bromomethane	79	U
75-01-4	Vinyl Chloride	79	U
75-00-3	Chloroethane	79	U
75-09-2	Methylene Chloride	14	J
67-64-1	Acetone	43	JB
75-15-0	Carbon Disulfide	39	U
75-35-4	1,1-Dichloroethene	39	U
75-34-3	1,1-Dichloroethane	39	U
540-59-0	1,2-Dichloroethene (total)	39	U
67-66-3	Chloroform	39	U
107-02-2	1,2-Dichloroethane	39	U
78-93-3	2-Butanone	45	J
71-55-6	1,1,1-Trichloroethane	39	U
56-23-5	Carbon Tetrachloride	39	U
108-05-4	Vinyl Acetate	79	U
75-27-4	Bromodichloromethane	39	U
78-87-5	1,2-Dichloropropane	39	U
10061-01-5	cis-1,3-Dichloropropene	39	U
79-01-6	Trichloroethene	39	U
124-48-1	Dibromochloromethane	39	U
79-00-5	1,1,2-Trichloroethane	39	U
71-43-2	Benzene	17	J
10061-02-6	trans-1,3-Dichloropropene	39	U
75-25-2	Bromoform	39	U
108-10-1	4-Methyl-2-pentanone	79	U
591-78-6	2-Hexanone	79	U
127-18-4	Tetrachloroethene	39	U
79-34-5	1,1,2,2-Tetrachloroethane	39	U
108-88-3	Toluene	8	J
108-90-7	Chlorobenzene	530	
100-41-4	Ethylbenzene	10	J
100-42-5	Styrene	39	U
133-02-7	Xylene (total)	25	J

FORM I VOA 1/87 Rev.

E96

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SED 15

Lab Name: ENVIRODYNE ENG., INC. Contract: 3210

Lab Code: Case No.: 00002 SAS No.: SDG No.:SOIL1

Matrix: SOIL Lab Sample ID: 88011732

Sample wt/vol: 1.00 (g/mL) G Lab File ID: C1370

Level: (low/med) MED Date Received: 12/02/88

% Moisture: not dec. 37 dec. 28 Date Extracted:12/09/88

Extraction: (SepF/Cont/Sonc) SONC Date Analysed: 01/08/89

GPC Cleanup: (Y/N) N pH: 7 Dilution Factor: 1.00000

CAS No.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	31000	U
111-44-4	bis(2-Chloroethyl) ether	31000	U
95-57-8	2-Chlorophenol	31000	U
541-73-1	1,3-Dichlorobenzene	31000	U
106-46-7	1,4-Dichlorobenzene	11000	J
100-51-6	Benzyl Alcohol	31000	U
95-50-1	1,2-Dichlorobenzene	15000	J
95-48-7	2-Methylphenol	31000	U
108-60-1	bis(2-Chloroisopropyl)ether	31000	U
106-44-5	4-Methylphenol	31000	U
621-64-7	N-Nitroso-di-n-dipropylamine	31000	U
67-72-1	Hexachloroethane	31000	U
98-95-3	Nitrobenzene	31000	U
78-59-1	Isophorone	31000	U
88-75-5	2-Nitrophenol	31000	U
105-67-9	2,4-Dimethylphenol	31000	U
65-85-0	Benzoic Acid	150000	U
111-91-1	bis(2-Chloroethoxy)methane	31000	U
120-83-2	2,4-Dichlorophenol	31000	U
120-82-1	1,2,4-Trichlorobenzene	71000	
91-20-3	Naphthalene	8000	J
106-47-8	4-Chloroaniline	11000	J
87-68-3	Hexachlorobutadiene	31000	U
59-50-7	4-Chloro-3-methylphenol	31000	U
91-57-6	2-Methylnaphthalene	31000	U
77-47-4	Hexachlorocyclopentadiene	31000	U
88-06-2	2,4,6-Trichlorophenol	31000	U
95-95-4	2,4,5-Trichlorophenol	150000	U
91-58-7	2-Chloronaphthalene	31000	U
88-74-4	2-Nitroaniline	150000	U
131-11-3	Dimethylphthalate	31000	U
208-96-8	Acenaphthylene	31000	U
606-20-2	2,6-Dinitrotoluene	31000	U

E97

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SED 15

Lab Name: ENVIRODYNE ENG., INC. Contract: 3210

Lab Code: Case No.: 00002 SAS No.: SDG No.:SOIL1

Matrix: SOIL Lab Sample ID: 88011732

Sample wt/vol: 1.00 (g/mL) G Lab File ID: C1370

Level: (low/med) MED Date Received: 12/02/88

% Moisture: not dec. 37 dec. Date Extracted:12/09/88

Extraction: (SepF/Cont/Sonc) SONC Date Analysed: 01/08/89

GPC Cleanup: (Y/N) N pH: 7 Dilution Factor: 1.00000

CAS No.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
-99-09-2	3-Nitroaniline	150000	U
-83-32-9	Acenaphthene	31000	U
-51-28-5	2,4-Dinitrophenol	150000	U
-100-02-7	4-Nitrophenol	150000	U
-132-64-9	Dibenzofuran	31000	U
-121-14-2	2,4-Dinitrotoluene	31000	U
-84-66-2	Diethylphthalate	31000	U
-7005-72-3	4-Chlorophenyl-phenyl ether	31000	U
-86-73-7	Fluorene	31000	U
-100-01-6	4-Nitroaniline	150000	U
-534-52-1	4,6-Dinitro-2-methylphenol	150000	U
-86-30-6	N-Nitrosodiphenylamine (1)	31000	U
-101-55-3	4-Bromophenyl-phenyl ether	31000	U
-118-74-1	Hexachlorobenzene	31000	U
-87-86-5	Pentachlorophenol	150000	U
-85-01-8	Phenanthrene	31000	U
-120-12-7	Anthracene	31000	U
-84-74-2	Di-n-butylphthalate	31000	U
-206-44-0	Fluoranthene	31000	U
-129-00-0	Pyrene	31000	U
-85-68-7	Butylbenzylphthalate	31000	U
-91-94-1	3,3'-Dichlorobenzidine	63000	U
-56-55-3	Benzo(a)anthracene	31000	U
-218-01-9	Chrysene	31000	U
-117-81-7	bis(2-ethylhexyl)phthalate	7400	J
-117-84-0	Di-n-octylphthalate	31000	U
-205-99-2	Benzo(b)fluoranthene	31000	U
-207-0809	Benzo(k)fluoranthene	31000	U
-50-32-8	Benzo(a)pyrene	31000	U
-193-39-5	Indeno(1,2,3-cd)pyrene	31000	U
-53-70-3	Dibenzo(a,h)anthracene	31000	U
-191-24-2	Benzo(g,h,i)perylene	31000	U

(1) - Cannot be separated from Diphenylamine

E98

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SED 15 DL

Lab Name: ENVIRODYNE ENG., INC. Contract: 3210

Lab Code: Case No.: 0002 SAS No.: SDG No.: SOIL1

Matrix: (soil/water) SOIL Lab Sample ID: 88011732

Sample wt/vol: 1 (g/mL) G Lab File ID:

Level: (low/med) MED Date Received: 12/02/88

% Moisture: not dec. 28 dec. Date Extracted: 12/08/88

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 12/29/88

GPC Cleanup: (Y/N) N pH: 7 Dilution Factor: ~~0.10000~~ 10 cai 1/27/89

CAS No.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
-319-84-6	alpha-BHC	1700	UD
-319-85-7	beta-BHC	1700	UD
-319-86-8	delta-BHC	1700	UD
-58-89-9	gamma-BHC (Lindane)	1700	UD
-76-44-8	Heptachlor	1700	UD
-309-00-2	Aldrin	1700	UD
-1024-57-3	Heptachlor epoxide	1700	UD
-959-98-8	Endosulfan I	1700	UD
-60-57-1	Dieldrin	3300	UD
-72-55-9	4,4'-DDE	3300	UD
-72-20-8	Endrin	3300	UD
-33213-65-9	Endosulfan II	3300	UD
-72-54-8	4,4'-DDD	3300	UD
-1031-07-8	Endosulfan sulfate	3300	UD
-50-29-3	4,4'-DDT	3300	UD
-72-43-5	Methoxychlor	17000	UD
-53494-70-5	Endrin Ketone	3300	UD
-5103-71-9	alpha-Chlordane	17000	UD
-5103-74-2	gamma-Chlordane	17000	UD
-8001-35-2	Toxaphene	33000	UD
-12674-11-2	Aroclor-1016	17000	UD
-11104-28-2	Aroclor-1221	17000	UD
-11141-16-5	Aroclor-1232	17000	UD
-53469-21-9	Aroclor-1242	17000	UD
-12672-29-6	Aroclor-1248	17000	UD
-11097-69-1	Aroclor-1254	33000	UD
-11096-82-5	Aroclor-1260	33000	UD

FORM I PEST 1/87 Rev.

E99

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SOIL 1

Lab Name: ENVIRODYNE ENGINEERS Contract: 3210

Lab Code: EEI Case No.: 02 SAS No.: NA SDG No.: SOIL1

Matrix: (soil/water) SOIL Lab Sample ID: 88011705

Sample wt/vol: 4 (g/mL) G Lab File ID: >B0460

Level: (low/med) MED Date Received: 12/02/88

% Moisture: not dec. 21 Date Analyzed: 12/08/88

Column: (pack/cap) PACK Dilution Factor: ~~125~~ 1

Caj 1/19/89

CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg

CAS NO.	COMPOUND		Q
74-87-3	Chloromethane	1580	U
74-83-9	Bromomethane	1580	U
75-01-4	Vinyl Chloride	1580	U
75-00-3	Chloroethane	1580	U
75-09-2	Methylene Chloride	420	J
67-64-1	Acetone	3670	B
75-15-0	Carbon Disulfide	790	U
75-35-4	1,1-Dichloroethene	790	U
75-34-3	1,1-Dichloroethane	790	U
540-59-0	1,2-Dichloroethene (total)	790	U
67-66-3	Chloroform	790	U
107-02-2	1,2-Dichloroethane	790	U
78-93-3	2-Butanone	1580	U
71-55-6	1,1,1-Trichloroethane	790	U
56-23-5	Carbon Tetrachloride	790	U
108-05-4	Vinyl Acetate	1580	U
75-27-4	Bromodichloromethane	790	U
78-87-5	1,2-Dichloropropane	790	U
10061-01-5	cis-1,3-Dichloropropene	790	U
79-01-6	Trichloroethene	790	U
124-48-1	Dibromochloromethane	790	U
79-00-5	1,1,2-Trichloroethane	790	U
71-43-2	Benzene	400	J
10061-02-6	trans-1,3-Dichloropropene	790	U
75-25-2	Bromoform	790	U
108-10-1	4-Methyl-2-pentanone	1580	U
591-78-6	2-Hexanone	1580	U
127-18-4	Tetrachloroethene	790	U
79-34-5	1,1,2,2-Tetrachloroethane	790	U
108-88-3	Toluene	580	JB
108-90-7	Chlorobenzene	23000	
100-41-4	Ethylbenzene	280	J
100-42-5	Styrene	790	U
133-02-7	Xylene (total)	790	B

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SOIL1

Lab Name: ENVIRODYNE ENG., INC. Contract: 3210

Lab Code: Case No.: 00002 SAS No.: SDG No.: SOIL1

Matrix: SOIL Lab Sample ID: 88011705

Sample wt/vol: 1 (g/mL) G Lab File ID: C1329

Level: (low/med) MED Date Received: 12/02/88

% Moisture: not dec. 21 dec. 17 Date Extracted: 12/09/88

Extraction: (SepF/Cont/Sonc) SONC Date Analysed: 01/03/89

GPC Cleanup: (Y/N) N pH: 7 Dilution Factor: 1.00000

CAS No.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	25000	U
111-44-4	bis(2-Chloroethyl) ether	25000	U
95-57-8	2-Chlorophenol	25000	U
541-73-1	1,3-Dichlorobenzene	25000	U
106-46-7	1,4-Dichlorobenzene	25000	U
100-51-6	Benzyl Alcohol	25000	U
95-50-1	1,2-Dichlorobenzene	4500	J
95-48-7	2-Methylphenol	25000	U
108-60-1	bis(2-Chloroisopropyl)ether	25000	U
106-44-5	4-Methylphenol	25000	U
621-64-7	N-Nitroso-di-n-dipropylamine	25000	U
67-72-1	Hexachloroethane	25000	U
98-95-3	Nitrobenzene	7800	J
78-59-1	Isophorone	25000	U
88-75-5	2-Nitrophenol	25000	U
105-67-9	2,4-Dimethylphenol	25000	U
65-85-0	Benzoic Acid	120000	U
111-91-1	bis(2-Chloroethoxy)methane	25000	U
120-83-2	2,4-Dichlorophenol	25000	U
120-82-1	1,2,4-Trichlorobenzene	25000	U
91-20-3	Naphthalene	25000	U
106-47-8	4-Chloroaniline	25000	U
87-68-3	Hexachlorobutadiene	25000	U
59-50-7	4-Chloro-3-methylphenol	25000	U
91-57-6	2-Methylnaphthalene	25000	U
77-47-4	Hexachlorocyclopentadiene	25000	U
88-06-2	2,4,6-Trichlorophenol	25000	U
95-95-4	2,4,5-Trichlorophenol	120000	U
91-58-7	2-Chloronaphthalene	25000	U
88-74-4	2-Nitroaniline	120000	U
131-11-3	Dimethylphthalate	25000	U
208-96-8	Acenaphthylene	25000	U
606-20-2	2,6-Dinitrotoluene	25000	U

E101

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SOIL1

Lab Name: ENVIRODYNE ENG., INC. Contract: 3210

Lab Code: Case No.: 00002 SAS No.: SDG No.: SOIL1

Matrix: SOIL Lab Sample ID: 88011705

Sample wt/vol: 1 (g/mL) G Lab File ID: C1329

Level: (low/med) MED Date Received: 12/02/88

% Moisture: not dec. 21 dec. 17 Date Extracted: 12/09/88

Extraction: (SepF/Cont/Sonc) SONC Date Analysed: 01/03/89

GPC Cleanup: (Y/N) N pH: 7 Dilution Factor: 1.00000

CAS No.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
-99-09-2	3-Nitroaniline	120000	U
-83-32-9	Acenaphthene	25000	U
-51-28-5	2,4-Dinitrophenol	120000	U
-100-02-7	4-Nitrophenol	120000	U
-132-64-9	Dibenzofuran	25000	U
-121-14-2	2,4-Dinitrotoluene	25000	U
-84-66-2	Diethylphthalate	25000	U
-7005-72-3	4-Chlorophenyl-phenyl ether	25000	U
-86-73-7	Fluorene	25000	U
-100-01-6	4-Nitroaniline	120000	U
-534-52-1	4,6-Dinitro-2-methylphenol	120000	U
-86-30-6	N-Nitrosodiphenylamine (1)	25000	U
-101-55-3	4-Bromophenyl-phenyl ether	25000	U
-118-74-1	Hexachlorobenzene	25000	U
-87-86-5	Pentachlorophenol	120000	U
-85-01-8	Phenanthrene	25000	U
-120-12-7	Anthracene	25000	U
-84-74-2	Di-n-butylphthalate	25000	U
-206-44-0	Fluoranthene	25000	U
-129-00-0	Pyrene	25000	U
-85-68-7	Butylbenzylphthalate	25000	U
-91-94-1	3,3'-Dichlorobenzidine	50000	U
-56-55-3	Benzo(a)anthracene	25000	U
-218-01-9	Chrysene	25000	U
-117-81-7	bis(2-ethylhexyl)phthalate	25000	U
-117-84-0	Di-n-octylphthalate	25000	U
-205-99-2	Benzo(b)fluoranthene	25000	U
-207-0809	Benzo(k)fluoranthene	25000	U
-50-32-8	Benzo(a)pyrene	25000	U
-193-39-5	Indeno(1,2,3-cd)pyrene	25000	U
-53-70-3	Dibenzo(a,h)anthracene	25000	U
-191-24-2	Benzo(g,h,i)perylene	25000	U

(1) - Cannot be separated from Diphenylamine

E102

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SOIL 1 DL

Lab Name: ENVIRODYNE ENG., INC. Contract: 3210

Lab Code: Case No.: 0002 SAS No.: SDG No.: SOIL1

Matrix: (soil/water) SOIL Lab Sample ID: 88011705

Sample wt/vol: 1 (g/mL) G Lab File ID:

Level: (low/med) MED Date Received: 12/02/88

% Moisture: not dec. 17 dec. Date Extracted: 12/08/88

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 12/28/88

GPC Cleanup: (Y/N) N pH: 7 Dilution Factor: ~~0.10000~~ 1

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CAS No.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	1400	UD
319-85-7	beta-BHC	1400	UD
319-86-8	delta-BHC	1400	UD
58-89-9	gamma-BHC (Lindane)	1400	UD
76-44-8	Heptachlor	1400	UD
309-00-2	Aldrin	1400	UD
1024-57-3	Heptachlor epoxide	1400	UD
959-98-8	Endosulfan I	1400	UD
60-57-1	Dieldrin	2900	UD
72-55-9	4,4'-DDE	2900	UD
72-20-8	Endrin	2900	UD
33213-65-9	Endosulfan II	2900	UD
72-54-8	4,4'-DDD	2900	UD
1031-07-8	Endosulfan sulfate	2900	UD
50-29-3	4,4'-DDT	2900	UD
72-43-5	Methoxychlor	14000	UD
53494-70-5	Endrin Ketone	2900	UD
5103-71-9	alpha-Chlordane	14000	UD
5103-74-2	gamma-Chlordane	14000	UD
8001-35-2	Toxaphene	29000	UD
12674-11-2	Aroclor-1016	14000	UD
11104-28-2	Aroclor-1221	14000	UD
11141-16-5	Aroclor-1232	14000	UD
53469-21-9	Aroclor-1242	14000	UD
12672-29-6	Aroclor-1248	14000	UD
11097-69-1	Aroclor-1254	29000	UD
11096-82-5	Aroclor-1260	29000	UD

FORM I PEST 1/87 Rev.

E/103

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SOIL 2

Lab Name: ENVIRODYNE ENGINEERS Contract: 3210

Lab Code: EEI Case No.: 02 SAS No.: NA SDG No.: SOIL1

Matrix: (soil/water) SOIL Lab Sample ID: 88011706

Sample wt/vol: 5 (g/mL) G Lab File ID: >B0552

Level: (low/med) LOW Date Received: 12/02/88

% Moisture: not dec. 20 Date Analyzed: 12/16/88

Column: (pack/cap) PACK Dilution Factor: 1.00000

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q
74-87-3	Chloromethane	12	U
74-83-9	Bromomethane	12	U
75-01-4	Vinyl Chloride	12	U
75-00-3	Chloroethane	12	U
75-09-2	Methylene Chloride	6	U
67-64-1	Acetone	11	JB
75-15-0	Carbon Disulfide	6	U
75-35-4	1,1-Dichloroethene	6	U
75-34-3	1,1-Dichloroethane	6	U
540-59-0	1,2-Dichloroethene (total)	6	U
67-66-3	Chloroform	6	U
107-02-2	1,2-Dichloroethane	6	U
78-93-3	2-Butanone	12	U
71-55-6	1,1,1-Trichloroethane	6	U
56-23-5	Carbon Tetrachloride	6	U
108-05-4	Vinyl Acetate	12	U
75-27-4	Bromodichloromethane	6	U
78-87-5	1,2-Dichloropropane	6	U
10061-01-5	cis-1,3-Dichloropropene	6	U
79-01-6	Trichloroethene	6	U
124-48-1	Dibromochloromethane	6	U
79-00-5	1,1,2-Trichloroethane	6	U
71-43-2	Benzene	6	U
10061-02-6	trans-1,3-Dichloropropene	6	U
75-25-2	Bromoform	6	U
108-10-1	4-Methyl-2-pentanone	12	U
591-78-6	2-Hexanone	12	U
127-18-4	Tetrachloroethene	6	U
79-34-5	1,1,2,2-Tetrachloroethane	6	U
108-88-3	Toluene	1	JB
108-90-7	Chlorobenzene	6	U
100-41-4	Ethylbenzene	6	U
100-42-5	Styrene	6	U
133-02-7	Xylene (total)	6	U

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SOIL2

Lab Name: ENVIRODYNE ENG., INC. Contract: 3210

Lab Code: Case No.: 00002 SAS No.: SDG No.: 50141

Matrix: SOIL Lab Sample ID: 88011706

Sample wt/vol: 30 (g/mL) G Lab File ID: C1341

Level: (low/med) LOW Date Received: 12/02/88

% Moisture: not dec. 20 dec. Date Extracted: 01/04/89

Extraction: (SepF/Cont/Sonc) SONC Date Analysed: 01/05/89

GPC Cleanup: (Y/N) N pH: 7 Dilution Factor: 1.00000

CAS No.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	410	U
111-44-4	bis(2-Chloroethyl) ether	410	U
95-57-8	2-Chlorophenol	410	U
541-73-1	1,3-Dichlorobenzene	410	U
106-46-7	1,4-Dichlorobenzene	410	U
100-51-6	Benzyl Alcohol	410	U
95-50-1	1,2-Dichlorobenzene	410	U
95-48-7	2-Methylphenol	410	U
108-60-1	bis(2-Chloroisopropyl)ether	410	U
106-44-5	4-Methylphenol	410	U
621-64-7	N-Nitroso-di-n-dipropylamine	410	U
67-72-1	Hexachloroethane	410	U
98-95-3	Nitrobenzene	410	U
78-59-1	Isophorone	410	U
88-75-5	2-Nitrophenol	410	U
105-67-9	2,4-Dimethylphenol	410	U
65-85-0	Benzoic Acid	2000	U
111-91-1	bis(2-Chloroethoxy)methane	410	U
120-83-2	2,4-Dichlorophenol	410	U
120-82-1	1,2,4-Trichlorobenzene	410	U
91-20-3	Naphthalene	410	U
106-47-8	4-Chloroaniline	410	U
87-68-3	Hexachlorobutadiene	410	U
59-50-7	4-Chloro-3-methylphenol	410	U
91-57-6	2-Methylnaphthalene	410	U
77-47-4	Hexachlorocyclopentadiene	410	U
88-06-2	2,4,6-Trichlorophenol	410	U
95-95-4	2,4,5-Trichlorophenol	2000	U
91-58-7	2-Chloronaphthalene	410	U
88-74-4	2-Nitroaniline	2000	U
131-11-3	Dimethylphthalate	410	U
208-96-8	Acenaphthylene	410	U
606-20-2	2,6-Dinitrotoluene	410	U

E105

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SOIL2

Lab Name: ENVIRODYNE ENG., INC. Contract: 3210

Lab Code: Case No.: 00002 SAS No.: SDG No.: SOIL1

Matrix: SOIL Lab Sample ID: 88011706

Sample wt/vol: 30 (g/mL) G Lab File ID: C1341

Level: (low/med) LOW Date Received: 12/02/88

% Moisture: not dec. 20 dec. Date Extracted: 01/04/89

Extraction: (SepF/Cont/Sonc) SONC Date Analysed: 01/05/89

GPC Cleanup: (Y/N) N pH: 7 Dilution Factor: 1.00000

CAS No.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
99-09-2	3-Nitroaniline	2000	U
83-32-9	Acenaphthene	410	U
51-28-5	2,4-Dinitrophenol	2000	U
100-02-7	4-Nitrophenol	2000	U
132-64-9	Dibenzofuran	410	U
121-14-2	2,4-Dinitrotoluene	410	U
84-66-2	Diethylphthalate	410	U
7005-72-3	4-Chlorophenyl-phenyl ether	410	U
86-73-7	Fluorene	410	U
100-01-6	4-Nitroaniline	2000	U
534-52-1	4,6-Dinitro-2-methylphenol	2000	U
86-30-6	N-Nitrosodiphenylamine (1)	410	U
101-55-3	4-Bromophenyl-phenyl ether	410	U
118-74-1	Hexachlorobenzene	410	U
87-86-5	Pentachlorophenol	2000	U
85-01-8	Phenanthrene	410	U
120-12-7	Anthracene	410	U
84-74-2	Di-n-butylphthalate	410	U
206-44-0	Fluoranthene	410	U
129-00-0	Pyrene	410	U
85-68-7	Butylbenzylphthalate	410	U
91-94-1	3,3'-Dichlorobenzidine	830	U
56-55-3	Benzo(a)anthracene	410	U
218-01-9	Chrysene	410	U
117-81-7	bis(2-ethylhexyl)phthalate	410	U
117-84-0	Di-n-octylphthalate	410	U
205-99-2	Benzo(b)fluoranthene	410	U
207-0809	Benzo(k)fluoranthene	410	U
50-32-8	Benzo(a)pyrene	410	U
193-39-5	Indeno(1,2,3-cd)pyrene	410	U
53-70-3	Dibenzo(a,h)anthracene	410	U
191-24-2	Benzo(g,h,i)perylene	410	U

(1) - Cannot be separated from Diphenylamine

E106

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SOIL 2

Lab Name: ENVIRODYNE ENG., INC. Contract: 3210

Lab Code: Case No.: 0002 SAS No.: SDG No.: SOIL1

Matrix: (soil/water) SOIL Lab Sample ID: 88011706

Sample wt/vol: 30 (g/mL) G Lab File ID:

Level: (low/med) LOW Date Received: 12/02/88

% Moisture: not dec. 20 dec. Date Extracted: 12/12/88

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 12/27/88

GPC Cleanup: (Y/N) N pH: 7 Dilution Factor: 1.00000

CAS No.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	10	U
319-85-7	beta-BHC	10	U
319-86-8	delta-BHC	10	U
58-89-9	gamma-BHC (Lindane)	10	U
76-44-8	Heptachlor	10	U
309-00-2	Aldrin	10	U
1024-57-3	Heptachlor epoxide	10	U
959-98-8	Endosulfan I	10	U
60-57-1	Dieldrin	20	U
72-55-9	4,4'-DDE	20	U
72-20-8	Endrin	20	U
33213-65-9	Endosulfan II	20	U
72-54-8	4,4'-DDD	24	U
1031-07-8	Endosulfan sulfate	20	U
50-29-3	4,4'-DDT	20	U
72-43-5	Methoxychlor	100	U
53494-70-5	Endrin Ketone	20	U
5103-71-9	alpha-Chlordane	100	U
5103-74-2	gamma-Chlordane	100	U
8001-35-2	Toxaphene	200	U
12674-11-2	Aroclor-1016	100	U
11104-28-2	Aroclor-1221	100	U
11141-16-5	Aroclor-1232	100	U
53469-21-9	Aroclor-1242	100	U
12672-29-6	Aroclor-1248	100	U
11097-69-1	Aroclor-1254	200	U
11096-82-5	Aroclor-1260	200	U

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SOIL 2 DL

Lab Name: ENVIRODYNE ENG., INC. Contract: 3210

Lab Code: Case No.: 0002 SAS No.: SDG No.: SOIL1

Matrix: (soil/water) SOIL Lab Sample ID: 88011706

Sample wt/vol: 30 (g/mL) G Lab File ID:

Level: (low/med) LOW Date Received: 12/02/88

% Moisture: not dec. 20 dec. Date Extracted: 12/12/88

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 12/24/88

GPC Cleanup: (Y/N) N pH: 7 Dilution Factor: ~~0.10000~~ 10 ca 1/23/89

CAS No.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
-319-84-6	alpha-BHC	100	UD
-319-85-7	beta-BHC	100	UD
-319-86-8	delta-BHC	100	UD
-58-89-9	gamma-BHC (Lindane)	100	UD
-76-44-8	Heptachlor	100	UD
-309-00-2	Aldrin	100	UD
-1024-57-3	Heptachlor epoxide	100	UD
-959-98-8	Endosulfan I	100	UD
-60-57-1	Dieldrin	200	UD
-72-55-9	4,4'-DDE	200	UD
-72-20-8	Endrin	200	UD
-33213-65-9	Endosulfan II	200	UD
-72-54-8	4,4'-DDD	200	UD
-1031-07-8	Endosulfan sulfate	200	UD
-50-29-3	4,4'-DDT	200	UD
-72-43-5	Methoxychlor	1000	UD
-53494-70-5	Endrin Ketone	200	UD
-5103-71-9	alpha-Chlordane	1000	UD
-5103-74-2	gamma-Chlordane	1000	UD
-8001-35-2	Toxaphene	2000	UD
-12674-11-2	Aroclor-1016	1000	UD
-11104-28-2	Aroclor-1221	1000	UD
-11141-16-5	Aroclor-1232	1000	UD
-53469-21-9	Aroclor-1242	1000	UD
-12672-29-6	Aroclor-1248	1000	UD
-11097-69-1	Aroclor-1254	2000	UD
-11096-82-5	Aroclor-1260	2000	UD

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SOIL 2 DL

Lab Name: ENVIRODYNE ENG., INC. Contract: 3210

Lab Code: Case No.: 0002 SAS No.: SDG No.: SOIL1

Matrix: (soil/water) SOIL Lab Sample ID: 88011706

Sample wt/vol: 30 (g/mL) G Lab File ID:

Level: (low/med) LOW Date Received: 12/02/88

% Moisture: not dec. 20 dec. Date Extracted: 12/12/88

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 01/06/89

GPC Cleanup: (Y/N) N pH: 7 Dilution Factor: ~~0.20000~~ 5 coj 1/23/89

CAS No.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	50	UD
319-85-7	beta-BHC	50	UD
319-86-8	delta-BHC	50	UD
58-89-9	gamma-BHC (Lindane)	50	UD
76-44-8	Heptachlor	50	UD
309-00-2	Aldrin	50	UD
1024-57-3	Heptachlor epoxide	50	UD
959-98-8	Endosulfan I	50	UD
60-57-1	Dieldrin	100	UD
72-55-9	4,4'-DDE	100	UD
72-20-8	Endrin	100	UD
33213-65-9	Endosulfan II	100	UD
72-54-8	4,4'-DDD	100	UD
1031-07-8	Endosulfan sulfate	100	UD
50-29-3	4,4'-DDT	100	UD
72-43-5	Methoxychlor	500	UD
53494-70-5	Endrin Ketone	100	UD
5103-71-9	alpha-Chlordane	500	UD
5103-74-2	gamma-Chlordane	500	UD
8001-35-2	Toxaphene	1000	UD
12674-11-2	Aroclor-1016	500	UD
11104-28-2	Aroclor-1221	500	UD
11141-16-5	Aroclor-1232	500	UD
53469-21-9	Aroclor-1242	500	UD
12672-29-6	Aroclor-1248	500	UD
11097-69-1	Aroclor-1254	1000	UD
11096-82-5	Aroclor-1260	1000	UD

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SOIL 3

Lab Name: ENVIRODYNE ENGINEERS Contract: 3210

Lab Code: EEI Case No.: 02 SAS No.: NA SDG No.: ~~NA~~ SOIL 1 MW 1-13-89

Matrix: (soil/water) SOIL Lab Sample ID: 88011707

Sample wt/vol: 5 (g/mL) G Lab File ID: >B0553

Level: (low/med) LOW Date Received: 12/02/88

% Moisture: not dec. 13 Date Analyzed: 12/16/88

Column: (pack/cap) PACK Dilution Factor: 1.00000

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q
74-87-3	Chloromethane	12	U
74-83-9	Bromomethane	12	U
75-01-4	Vinyl Chloride	12	U
75-00-3	Chloroethane	12	U
75-09-2	Methylene Chloride	2	JB
67-64-1	Acetone	14	B
75-15-0	Carbon Disulfide	6	U
75-35-4	1,1-Dichloroethene	6	U
75-34-3	1,1-Dichloroethane	6	U
540-59-0	1,2-Dichloroethene (total)	6	U
67-66-3	Chloroform	6	U
107-02-2	1,2-Dichloroethane	6	U
78-93-3	2-Butanone	12	U
71-55-6	1,1,1-Trichloroethane	6	U
56-23-5	Carbon Tetrachloride	6	U
108-05-4	Vinyl Acetate	12	U
75-27-4	Bromodichloromethane	6	U
78-87-5	1,2-Dichloropropane	6	U
10061-01-5	cis-1,3-Dichloropropene	6	U
79-01-6	Trichloroethene	6	U
124-48-1	Dibromochloromethane	6	U
79-00-5	1,1,2-Trichloroethane	6	U
71-43-2	Benzene	6	U
10061-02-6	trans-1,3-Dichloropropene	6	U
75-25-2	Bromoform	6	U
108-10-1	4-Methyl-2-pentanone	12	U
591-78-6	2-Hexanone	12	U
127-18-4	Tetrachloroethene	6	U
79-34-5	1,1,2,2-Tetrachloroethane	6	U
108-88-3	Toluene	1	JB
108-90-7	Chlorobenzene	6	U
100-41-4	Ethylbenzene	6	U
100-42-5	Styrene	6	U
133-02-7	Xylene (total)	6	U

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SOIL3

Lab Name: ENVIRODYNE ENG., INC. Contract: 3210

Lab Code: Case No.: 00002 SAS No.: SDG No.: SOIL1

Matrix: SOIL Lab Sample ID: 88011707

Sample wt/vol: 30 (g/mL) G Lab File ID: C1342

Level: (low/med) LOW Date Received: 12/02/88

% Moisture: not dec. 13 dec. Date Extracted: 01/04/89

Extraction: (SepF/Cont/Sonc) SONC Date Analysed: 01/05/89

GPC Cleanup: (Y/N) N pH: 7 Dilution Factor: 1.00000

CAS No.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	380	U
111-44-4	bis(2-Chloroethyl) ether	380	U
95-57-8	2-Chlorophenol	380	U
541-73-1	1,3-Dichlorobenzene	380	U
106-46-7	1,4-Dichlorobenzene	380	U
100-51-6	Benzyl Alcohol	380	U
95-50-1	1,2-Dichlorobenzene	380	U
95-48-7	2-Methylphenol	380	U
108-60-1	bis(2-Chloroisopropyl)ether	380	U
106-44-5	4-Methylphenol	380	U
621-64-7	N-Nitroso-di-n-dipropylamine	380	U
67-72-1	Hexachloroethane	380	U
98-95-3	Nitrobenzene	380	U
78-59-1	Isophorone	380	U
88-75-5	2-Nitrophenol	380	U
105-67-9	2,4-Dimethylphenol	380	U
65-85-0	Benzoic Acid	1800	U
111-91-1	bis(2-Chloroethoxy)methane	380	U
120-83-2	2,4-Dichlorophenol	380	U
120-82-1	1,2,4-Trichlorobenzene	380	U
91-20-3	Naphthalene	380	U
106-47-8	4-Chloroaniline	380	U
87-68-3	Hexachlorobutadiene	380	U
59-50-7	4-Chloro-3-methylphenol	380	U
91-57-6	2-Methylnaphthalene	380	U
77-47-4	Hexachlorocyclopentadiene	380	U
88-06-2	2,4,6-Trichlorophenol	380	U
95-95-4	2,4,5-Trichlorophenol	1800	U
91-58-7	2-Chloronaphthalene	380	U
88-74-4	2-Nitroaniline	1800	U
131-11-3	Dimethylphthalate	380	U
208-96-8	Acenaphthylene	380	U
606-20-2	2,6-Dinitrotoluene	380	U

E111

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SOIL3

Lab Name: ENVIRODYNE ENG., INC. Contract: 3210

Lab Code: Case No.: 00002 SAS No.: SDG No.: SOIL1

Matrix: SOIL Lab Sample ID: 88011707

Sample wt/vol: 30 (g/mL) G Lab File ID: C1342

Level: (low/med) LOW Date Received: 12/02/88

% Moisture: not dec. 13 dec. Date Extracted: 01/04/89

Extraction: (SepF/Cont/Sonc) SONC Date Analysed: 01/05/89

GPC Cleanup: (Y/N) N pH: 7 Dilution Factor: 1.00000

CAS No.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
99-09-2	3-Nitroaniline	1800	U
83-32-9	Acenaphthene	380	U
51-28-5	2,4-Dinitrophenol	1800	U
100-02-7	4-Nitrophenol	1800	U
132-64-9	Dibenzofuran	380	U
121-14-2	2,4-Dinitrotoluene	380	U
84-66-2	Diethylphthalate	380	U
7005-72-3	4-Chlorophenyl-phenyl ether	380	U
86-73-7	Fluorene	380	U
100-01-6	4-Nitroaniline	1800	U
534-52-1	4,6-Dinitro-2-methylphenol	1800	U
86-30-6	N-Nitrosodiphenylamine (1)	380	U
101-55-3	4-Bromophenyl-phenyl ether	380	U
118-74-1	Hexachlorobenzene	380	U
87-86-5	Pentachlorophenol	1800	U
85-01-8	Phenanthrene	380	U
120-12-7	Anthracene	380	U
84-74-2	Di-n-butylphthalate	380	U
206-44-0	Fluoranthene	380	U
129-00-0	Pyrene	380	U
85-68-7	Butylbenzylphthalate	380	U
91-94-1	3,3'-Dichlorobenzidine	760	U
56-55-3	Benzo(a)anthracene	380	U
218-01-9	Chrysene	380	U
117-81-7	bis(2-ethylhexyl)phthalate	380	U
117-84-0	Di-n-octylphthalate	380	U
205-99-2	Benzo(b)fluoranthene	380	U
207-0809	Benzo(k)fluoranthene	380	U
50-32-8	Benzo(a)pyrene	380	U
193-39-5	Indeno(1,2,3-cd)pyrene	380	U
53-70-3	Dibenzo(a,h)anthracene	380	U
191-24-2	Benzo(g,h,i)perylene	380	U

(1) - Cannot be separated from Diphenylamine

E112

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SOIL 3

Lab Name: ENVIRODYNE ENG., INC. Contract: 3210

Lab Code: Case No.: 0002 SAS No.: SDG No.: SOIL1

Matrix: (soil/water) SOIL Lab Sample ID: 88011707

Sample wt/vol: 30 (g/mL) G Lab File ID:

Level: (low/med) LOW Date Received: 12/02/88

% Moisture: not dec. 13 dec. Date Extracted:12/12/88

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 12/27/88

GPC Cleanup: (Y/N) N pH: 7 Dilution Factor: 1.00000

CAS No.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	9.0	U
319-85-7	beta-BHC	9.0	U
319-86-8	delta-BHC	9.0	U
58-89-9	gamma-BHC (Lindane)	9.0	U
76-44-8	Heptachlor	9.0	U
309-00-2	Aldrin	9.0	U
1024-57-3	Heptachlor epoxide	9.0	U
959-98-8	Endosulfan I	9.0	U
60-57-1	Dieldrin	18	U
72-55-9	4,4'-DDE	18	U
72-20-8	Endrin	18	U
33213-65-9	Endosulfan II	18	U
72-54-8	4,4'-DDD	18	U
1031-07-8	Endosulfan sulfate	18	U
50-29-3	4,4'-DDT	18	U
72-43-5	Methoxychlor	92	U
53494-70-5	Endrin Ketone	18	U
5103-71-9	alpha-Chlordane	92	U
5103-74-2	gamma-Chlordane	92	U
8001-35-2	Toxaphene	180	U
12674-11-2	Aroclor-1016	92	U
11104-28-2	Aroclor-1221	92	U
11141-16-5	Aroclor-1232	92	U
53469-21-9	Aroclor-1242	92	U
12672-29-6	Aroclor-1248	92	U
11097-69-1	Aroclor-1254	180	U
11096-82-5	Aroclor-1260	180	U

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SOIL 3 DL

Lab Name: ENVIRODYNE ENG., INC. Contract: 3210

Lab Code: Case No.: 0002 SAS No.: SDG No.: SOIL1

Matrix: (soil/water) SOIL Lab Sample ID: 88011707

Sample wt/vol: 30 (g/mL) G Lab File ID:

Level: (low/med) LOW Date Received: 12/02/88

% Moisture: not dec. 13 dec. Date Extracted: 12/12/88

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 12/24/88

GPC Cleanup: (Y/N) N pH: 7 Dilution Factor: ~~0.10000~~ 10 cal 1/23/89

CAS No.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	92	UD
319-85-7	beta-BHC	92	UD
319-86-8	delta-BHC	92	UD
58-89-9	gamma-BHC (Lindane)	92	UD
76-44-8	Heptachlor	92	UD
309-00-2	Aldrin	92	UD
1024-57-3	Heptachlor epoxide	92	UD
959-98-8	Endosulfan I	92	UD
60-57-1	Dieldrin	180	UD
72-55-9	4,4'-DDE	180	UD
72-20-8	Endrin	180	UD
33213-65-9	Endosulfan II	180	UD
72-54-8	4,4'-DDD	180	UD
1031-07-8	Endosulfan sulfate	180	UD
50-29-3	4,4'-DDT	180	UD
72-43-5	Methoxychlor	920	UD
53494-70-5	Endrin Ketone	180	UD
5103-71-9	alpha-Chlordane	920	UD
5103-74-2	gamma-Chlordane	920	UD
8001-35-2	Toxaphene	1800	UD
12674-11-2	Aroclor-1016	920	UD
11104-28-2	Aroclor-1221	920	UD
11141-16-5	Aroclor-1232	920	UD
53469-21-9	Aroclor-1242	920	UD
12672-29-6	Aroclor-1248	920	UD
11097-69-1	Aroclor-1254	1800	UD
11096-82-5	Aroclor-1260	1800	UD

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SOIL 4

Lab Name: ENVIRODYNE ENGINEERS Contract: 3210

Lab Code: EEI Case No.: 02 SAS No.: NA SDG No.: ~~NA~~ SOIL MW 1-13-89

Matrix: (soil/water) SOIL Lab Sample ID: 88011708

Sample wt/vol: 5 (g/mL) G Lab File ID: >B0554

Level: (low/med) LOW Date Received: 12/02/88

% Moisture: not dec. 19 Date Analyzed: 12/16/88

Column: (pack/cap) PACK Dilution Factor: 1.00000

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q
74-87-3	Chloromethane	12	U
74-83-9	Bromomethane	12	U
75-01-4	Vinyl Chloride	12	U
75-00-3	Chloroethane	12	U
75-09-2	Methylene Chloride	6	U
67-64-1	Acetone	25	B
75-15-0	Carbon Disulfide	6	U
75-35-4	1,1-Dichloroethene	6	U
75-34-3	1,1-Dichloroethane	6	U
540-59-0	1,2-Dichloroethene (total)	6	U
67-66-3	Chloroform	6	U
107-02-2	1,2-Dichloroethane	6	U
78-93-3	2-Butanone	12	U
71-55-6	1,1,1-Trichloroethane	6	U
56-23-5	Carbon Tetrachloride	6	U
108-05-4	Vinyl Acetate	12	U
75-27-4	Bromodichloromethane	6	U
78-87-5	1,2-Dichloropropane	6	U
10061-01-5	cis-1,3-Dichloropropene	6	U
79-01-6	Trichloroethene	6	U
124-48-1	Dibromochloromethane	6	U
79-00-5	1,1,2-Trichloroethane	6	U
71-43-2	Benzene	6	U
10061-02-6	trans-1,3-Dichloropropene	6	U
75-25-2	Bromoform	6	U
108-10-1	4-Methyl-2-pentanone	12	U
591-78-6	2-Hexanone	12	U
127-18-4	Tetrachloroethene	6	U
79-34-5	1,1,2,2-Tetrachloroethane	6	U
108-88-3	Toluene	6	U
108-90-7	Chlorobenzene	4	J
100-41-4	Ethylbenzene	6	U
100-42-5	Styrene	6	U
133-02-7	Xylene (total)	6	U

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SOIL4

Lab Name: ENVIRODYNE ENG., INC. Contract: 3210

Lab Code: Case No.: 00002 SAS No.: SDG No.: SOIL1

Matrix: SOIL Lab Sample ID: 88011708

Sample wt/vol: 1 (g/mL) G Lab File ID: C1330

Level: (low/med) MED Date Received: 12/02/88

% Moisture: not dec. 19 dec. 18 Date Extracted: 12/09/88

Extraction: (SepF/Cont/Sonc) SONC Date Analysed: 01/03/89

GPC Cleanup: (Y/N) N pH: 7 Dilution Factor: 1.00000

CAS No.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	24000	U
111-44-4	bis(2-Chloroethyl) ether	24000	U
95-57-8	2-Chlorophenol	24000	U
541-73-1	1,3-Dichlorobenzene	24000	U
106-46-7	1,4-Dichlorobenzene	24000	U
100-51-6	Benzyl Alcohol	24000	U
95-50-1	1,2-Dichlorobenzene	2500	J
95-48-7	2-Methylphenol	24000	U
108-60-1	bis(2-Chloroisopropyl)ether	24000	U
106-44-5	4-Methylphenol	24000	U
621-64-7	N-Nitroso-di-n-dipropylamine	24000	U
67-72-1	Hexachloroethane	24000	U
98-95-3	Nitrobenzene	24000	U
78-59-1	Isophorone	24000	U
88-75-5	2-Nitrophenol	24000	U
105-67-9	2,4-Dimethylphenol	24000	U
65-85-0	Benzoic Acid	120000	U
111-91-1	bis(2-Chloroethoxy)methane	24000	U
120-83-2	2,4-Dichlorophenol	24000	U
120-82-1	1,2,4-Trichlorobenzene	24000	U
91-20-3	Naphthalene	24000	U
106-47-8	4-Chloroaniline	24000	U
87-68-3	Hexachlorobutadiene	24000	U
59-50-7	4-Chloro-3-methylphenol	24000	U
91-57-6	2-Methylnaphthalene	10000	J
77-47-4	Hexachlorocyclopentadiene	24000	U
88-06-2	2,4,6-Trichlorophenol	24000	U
95-95-4	2,4,5-Trichlorophenol	120000	U
91-58-7	2-Chloronaphthalene	24000	U
88-74-4	2-Nitroaniline	120000	U
131-11-3	Dimethylphthalate	24000	U
208-96-8	Acenaphthylene	24000	U
606-20-2	2,6-Dinitrotoluene	24000	U

E116

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SOIL4

Lab Name: ENVIRODYNE ENG., INC. Contract: 3210

Lab Code: Case No.: 00002 SAS No.: SDG No.: SOIL1

Matrix: SOIL Lab Sample ID: 88011708

Sample wt/vol: 1 (g/mL) G Lab File ID: C1330

Level: (low/med) MED Date Received: 12/02/88

% Moisture: not dec. 19 dec. 18 Date Extracted: 12/09/88

Extraction: (SepF/Cont/Sonc) SONC Date Analysed: 01/03/89

GPC Cleanup: (Y/N) N pH: 7 Dilution Factor: 1.00000

CAS No.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
-99-09-2	3-Nitroaniline	120000	U
-83-32-9	Acenaphthene	24000	U
-51-28-5	2,4-Dinitrophenol	120000	U
-100-02-7	4-Nitrophenol	120000	U
-132-64-9	Dibenzofuran	24000	U
-121-14-2	2,4-Dinitrotoluene	24000	U
-84-66-2	Diethylphthalate	24000	U
-7005-72-3	4-Chlorophenyl-phenyl ether	24000	U
-86-73-7	Fluorene	24000	U
-100-01-6	4-Nitroaniline	120000	U
-534-52-1	4,6-Dinitro-2-methylphenol	120000	U
-86-30-6	N-Nitrosodiphenylamine (1)	24000	U
-101-55-3	4-Bromophenyl-phenyl ether	24000	U
-118-74-1	Hexachlorobenzene	24000	U
-87-86-5	Pentachlorophenol	120000	U
-85-01-8	Phenanthrene	24000	U
-120-12-7	Anthracene	24000	U
-84-74-2	Di-n-butylphthalate	24000	U
-206-44-0	Fluoranthene	24000	U
-129-00-0	Pyrene	24000	U
-85-68-7	Butylbenzylphthalate	24000	U
-91-94-1	3,3'-Dichlorobenzidine	49000	U
-56-55-3	Benzo(a)anthracene	24000	U
-218-01-9	Chrysene	24000	U
-117-81-7	bis(2-ethylhexyl)phthalate	24000	U
-117-84-0	Di-n-octylphthalate	24000	U
-205-99-2	Benzo(b)fluoranthene	24000	U
-207-0809	Benzo(k)fluoranthene	24000	U
-50-32-8	Benzo(a)pyrene	24000	U
-193-39-5	Indeno(1,2,3-cd)pyrene	24000	U
-53-70-3	Dibenzo(a,h)anthracene	24000	U
-191-24-2	Benzo(g,h,i)perylene	24000	U

(1) - Cannot be separated from Diphenylamine

E117

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SOIL 4

Lab Name: ENVIRODYNE ENG., INC. Contract: 3210

Lab Code: Case No.: 0002 SAS No.: SDG No.: SOIL1

Matrix: (soil/water) SOIL Lab Sample ID: 88011708

Sample wt/vol: 1 (g/mL) G Lab File ID:

Level: (low/med) MED Date Received: 12/02/88

% Moisture: not dec. 18 dec. Date Extracted:12/08/88

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 01/04/89

GPC Cleanup: (Y/N) N pH: 7 Dilution Factor: 1.00000

CAS No.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	150	U
319-85-7	beta-BHC	150	U
319-86-8	delta-BHC	150	U
58-89-9	gamma-BHC (Lindane)	150	U
76-44-8	Heptachlor	150	U
309-00-2	Aldrin	150	U
1024-57-3	Heptachlor epoxide	150	U
959-98-8	Endosulfan I	150	U
60-57-1	Dieldrin	290	U
72-55-9	4,4'-DDE	290	U
72-20-8	Endrin	290	U
33213-65-9	Endosulfan II	290	U
72-54-8	4,4'-DDD	290	U
1031-07-8	Endosulfan sulfate	290	U
50-29-3	4,4'-DDT	290	U
72-43-5	Methoxychlor	1500	U
53494-70-5	Endrin Ketone	290	U
5103-71-9	alpha-Chlordane	1500	U
5103-74-2	gamma-Chlordane	1500	U
8001-35-2	Toxaphene	2900	U
12674-11-2	Aroclor-1016	1500	U
11104-28-2	Aroclor-1221	1500	U
11141-16-5	Aroclor-1232	1500	U
53469-21-9	Aroclor-1242	1500	U
12672-29-6	Aroclor-1248	1500	U
11097-69-1	Aroclor-1254	2900	U
11096-82-5	Aroclor-1260	2900	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SOIL 5

Lab Name: ENVIRODYNE ENGINEERS Contract: 3210

Lab Code: EEI Case No.: 02 SAS No.: NA SDG No.: SOIL1

Matrix: (soil/water) SOIL Lab Sample ID: 88011709

Sample wt/vol: 5 (g/mL) G Lab File ID: >B0555

Level: (low/med) LOW Date Received: 12/02/88

% Moisture: not dec. 26 Date Analyzed: 12/16/88

Column: (pack/cap) PACK Dilution Factor: 1.00000

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q
74-87-3	Chloromethane	14	U
74-83-9	Bromomethane	14	U
75-01-4	Vinyl Chloride	14	U
75-00-3	Chloroethane	14	U
75-09-2	Methylene Chloride	5	JB
67-64-1	Acetone	17	B
75-15-0	Carbon Disulfide	7	U
75-35-4	1,1-Dichloroethene	7	U
75-34-3	1,1-Dichloroethane	7	U
540-59-0	1,2-Dichloroethene (total)	7	U
67-66-3	Chloroform	7	U
107-02-2	1,2-Dichloroethane	7	U
78-93-3	2-Butanone	14	U
71-55-6	1,1,1-Trichloroethane	7	U
56-23-5	Carbon Tetrachloride	7	U
108-05-4	Vinyl Acetate	14	U
75-27-4	Bromodichloromethane	7	U
78-87-5	1,2-Dichloropropane	7	U
10061-01-5	cis-1,3-Dichloropropene	7	U
79-01-6	Trichloroethene	7	U
124-48-1	Dibromochloromethane	7	U
79-00-5	1,1,2-Trichloroethane	7	U
71-43-2	Benzene	7	U
10061-02-6	trans-1,3-Dichloropropene	7	U
75-25-2	Bromoform	7	U
108-10-1	4-Methyl-2-pentanone	14	U
591-78-6	2-Hexanone	14	U
127-18-4	Tetrachloroethene	7	U
79-34-5	1,1,2,2-Tetrachloroethane	7	U
108-88-3	Toluene	2	JB
108-90-7	Chlorobenzene	7	U
100-41-4	Ethylbenzene	7	U
100-42-5	Styrene	7	U
133-02-7	Xylene (total)	7	U

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SOIL 5 RE

Lab Name: ENVIRODYNE ENGINEERS Contract: 3210

Lab Code: EEI Case No.: 02 SAS No.: NA SDG No.: SOIL

Matrix: (soil/water) SOIL Lab Sample ID: 88011709

Sample wt/vol: 5 (g/mL) G Lab File ID: >B0560

Level: (low/med) LOW Date Received: 12/02/88

% Moisture: not dec. 26 Date Analyzed: 12/16/88

Column: (pack/cap) PACK Dilution Factor: 1.00000

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q
74-87-3	Chloromethane	14	U
74-83-9	Bromomethane	14	U
75-01-4	Vinyl Chloride	14	U
75-00-3	Chloroethane	14	U
75-09-2	Methylene Chloride	6	J
67-64-1	Acetone	18	B
75-15-0	Carbon Disulfide	7	U
75-35-4	1,1-Dichloroethene	7	U
75-34-3	1,1-Dichloroethane	7	U
540-59-0	1,2-Dichloroethene (total)	1	J
67-66-3	Chloroform	7	U
107-02-2	1,2-Dichloroethane	7	U
78-93-3	2-Butanone	14	U
71-55-6	1,1,1-Trichloroethane	7	U
56-23-5	Carbon Tetrachloride	7	U
108-05-4	Vinyl Acetate	14	U
75-27-4	Bromodichloromethane	7	U
78-87-5	1,2-Dichloropropane	7	U
10061-01-5	cis-1,3-Dichloropropene	7	U
79-01-6	Trichloroethene	7	U
124-48-1	Dibromochloromethane	7	U
79-00-5	1,1,2-Trichloroethane	7	U
71-43-2	Benzene	7	U
10061-02-6	trans-1,3-Dichloropropene	7	U
75-25-2	Bromoform	7	U
108-10-1	4-Methyl-2-pentanone	14	U
591-78-6	2-Hexanone	14	U
127-18-4	Tetrachloroethene	7	U
79-34-5	1,1,2,2-Tetrachloroethane	7	U
108-88-3	Toluene	2	J
108-90-7	Chlorobenzene	2	J
100-41-4	Ethylbenzene	1	J
100-42-5	Styrene	7	U
133-02-7	Xylene (total)	7	U

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SOIL5

Lab Name: ENVIRODYNE ENG., INC. Contract: 3210

Lab Code: Case No.: 00002 SAS No.: SDG No.: SOIL1

Matrix: SOIL Lab Sample ID: 88011709

Sample wt/vol: 1 (g/mL) G Lab File ID: C1331

Level: (low/med) MED Date Received: 12/02/88

% Moisture: not dec. 26 dec. Date Extracted: 12/09/88

Extraction: (SepF/Cont/Sonc) SONC Date Analysed: 01/03/89

GPC Cleanup: (Y/N) N pH: 7 Dilution Factor: 1.00000

CAS No.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	27000	U
111-44-4	bis(2-Chloroethyl) ether	27000	U
95-57-8	2-Chlorophenol	27000	U
541-73-1	1,3-Dichlorobenzene	27000	U
106-46-7	1,4-Dichlorobenzene	27000	U
100-51-6	Benzyl Alcohol	27000	U
95-50-1	1,2-Dichlorobenzene	5200	J
95-48-7	2-Methylphenol	27000	U
108-60-1	bis(2-Chloroisopropyl)ether	27000	U
106-44-5	4-Methylphenol	27000	U
621-64-7	N-Nitroso-di-n-dipropylamine	27000	U
67-72-1	Hexachloroethane	27000	U
98-95-3	Nitrobenzene	4500	J
78-59-1	Isophorone	27000	U
88-75-5	2-Nitrophenol	27000	U
105-67-9	2,4-Dimethylphenol	27000	U
65-85-0	Benzoic Acid	130000	U
111-91-1	bis(2-Chloroethoxy)methane	27000	U
120-83-2	2,4-Dichlorophenol	27000	U
120-82-1	1,2,4-Trichlorobenzene	44000	
91-20-3	Naphthalene	13000	J
106-47-8	4-Chloroaniline	27000	U
87-68-3	Hexachlorobutadiene	27000	U
59-50-7	4-Chloro-3-methylphenol	27000	U
91-57-6	2-Methylnaphthalene	27000	U
77-47-4	Hexachlorocyclopentadiene	27000	U
88-06-2	2,4,6-Trichlorophenol	27000	U
95-95-4	2,4,5-Trichlorophenol	130000	U
91-58-7	2-Chloronaphthalene	3400	J
88-74-4	2-Nitroaniline	130000	U
131-11-3	Dimethylphthalate	27000	U
208-96-8	Acenaphthylene	27000	U
606-20-2	2,6-Dinitrotoluene	27000	U

E121

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SOIL5

Lab Name: ENVIRODYNE ENG., INC. Contract: 3210

Lab Code: Case No.: 00002 SAS No.: SDG No.: SOIL1

Matrix: SOIL Lab Sample ID: 88011709

Sample wt/vol: 1 (g/mL) G Lab File ID: C1331

Level: (low/med) MED Date Received: 12/02/88

% Moisture: not dec. 26 dec. Date Extracted: 12/09/88

Extraction: (SepF/Cont/Sonc) SONC Date Analysed: 01/03/89

GPC Cleanup: (Y/N) N pH: 7 Dilution Factor: 1.00000

CAS No.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
99-09-2	3-Nitroaniline	130000	U
83-32-9	Acenaphthene	27000	U
51-28-5	2,4-Dinitrophenol	130000	U
100-02-7	4-Nitrophenol	130000	U
132-64-9	Dibenzofuran	27000	U
121-14-2	2,4-Dinitrotoluene	27000	U
84-66-2	Diethylphthalate	27000	U
7005-72-3	4-Chlorophenyl-phenyl ether	27000	U
86-73-7	Fluorene	27000	U
100-01-6	4-Nitroaniline	130000	U
534-52-1	4,6-Dinitro-2-methylphenol	130000	U
86-30-6	N-Nitrosodiphenylamine (1)	27000	U
101-55-3	4-Bromophenyl-phenyl ether	27000	U
118-74-1	Hexachlorobenzene	17000	J
87-86-5	Pentachlorophenol	130000	U
85-01-8	Phenanthrene	27000	U
120-12-7	Anthracene	27000	U
84-74-2	Di-n-butylphthalate	27000	U
206-44-0	Fluoranthene	5500	J
129-00-0	Pyrene	27000	U
85-68-7	Butylbenzylphthalate	4000	J
91-94-1	3,3'-Dichlorobenzidine	54000	U
56-55-3	Benzo(a)anthracene	27000	U
218-01-9	Chrysene	27000	U
117-81-7	bis(2-ethylhexyl)phthalate	27000	U
117-84-0	Di-n-octylphthalate	27000	U
205-99-2	Benzo(b)fluoranthene	27000	U
207-0809	Benzo(k)fluoranthene	27000	U
50-32-8	Benzo(a)pyrene	27000	U
193-39-5	Indeno(1,2,3-cd)pyrene	27000	U
53-70-3	Dibenzo(a,h)anthracene	27000	U
191-24-2	Benzo(g,h,i)perylene	27000	U

(1) - Cannot be separated from Diphenylamine

E122

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SOIL 5

Lab Name: ENVIRODYNE ENG., INC. Contract: 3210

Lab Code: Case No.: 0002 SAS No.: SDG No.: SOIL1

Matrix: (soil/water) SOIL Lab Sample ID: 88011709

Sample wt/vol: 1 (g/mL) G Lab File ID:

Level: (low/med) MED Date Received: 12/02/88

% Moisture: not dec. 26 dec. Date Extracted: 12/08/88

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 01/04/89

GPC Cleanup: (Y/N) N pH: 7 Dilution Factor: 1.00000

CAS No.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	160	U
319-85-7	beta-BHC	160	U
319-86-8	delta-BHC	160	U
58-89-9	gamma-BHC (Lindane)	160	U
76-44-8	Heptachlor	160	U
309-00-2	Aldrin	160	U
1024-57-3	Heptachlor epoxide	160	U
959-98-8	Endosulfan I	160	U
60-57-1	Dieldrin	320	U
72-55-9	4,4'-DDE	320	U
72-20-8	Endrin	320	U
33213-65-9	Endosulfan II	320	U
72-54-8	4,4'-DDD	320	U
1031-07-8	Endosulfan sulfate	320	U
50-29-3	4,4'-DDT	320	U
72-43-5	Methoxychlor	1600	U
53494-70-5	Endrin Ketone	320	U
5103-71-9	alpha-Chlordane	1600	U
5103-74-2	gamma-Chlordane	1600	U
8001-35-2	Toxaphene	3200	U
12674-11-2	Aroclor-1016	1600	U
11104-28-2	Aroclor-1221	1600	U
11141-16-5	Aroclor-1232	1600	U
53469-21-9	Aroclor-1242	1600	U
12672-29-6	Aroclor-1248	1600	U
11097-69-1	Aroclor-1254	3200	U
11096-82-5	Aroclor-1260	3200	U

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SOIL 5 DL

Lab Name: ENVIRODYNE ENG., INC. Contract: 3210

Lab Code: Case No.: 0002 SAS No.: SDG No.: SOIL1

Matrix: (soil/water) SOIL Lab Sample ID: 88011709

Sample wt/vol: 1 (g/mL) G Lab File ID:

Level: (low/med) MED Date Received: 12/02/88

% Moisture: not dec. 26 dec. Date Extracted: 12/08/88

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 12/28/88

GPC Cleanup: (Y/N) N pH: 7 Dilution Factor: ~~0.10000~~ 10 cai 1/23/89

CAS No.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	1600	UD
319-85-7	beta-BHC	1600	UD
319-86-8	delta-BHC	1600	UD
58-89-9	gamma-BHC (Lindane)	1600	UD
76-44-8	Heptachlor	1600	UD
309-00-2	Aldrin	1600	UD
1024-57-3	Heptachlor epoxide	1600	UD
959-98-8	Endosulfan I	1600	UD
60-57-1	Dieldrin	3200	UD
72-55-9	4,4'-DDE	3200	UD
72-20-8	Endrin	3200	UD
33213-65-9	Endosulfan II	3200	UD
72-54-8	4,4'-DDD	3200	UD
1031-07-8	Endosulfan sulfate	3200	UD
50-29-3	4,4'-DDT	3200	UD
72-43-5	Methoxychlor	16000	UD
53494-70-5	Endrin Ketone	3200	UD
5103-71-9	alpha-Chlordane	16000	UD
5103-74-2	gamma-Chlordane	16000	UD
8001-35-2	Toxaphene	32000	UD
12674-11-2	Aroclor-1016	16000	UD
11104-28-2	Aroclor-1221	16000	UD
11141-16-5	Aroclor-1232	16000	UD
53469-21-9	Aroclor-1242	16000	UD
12672-29-6	Aroclor-1248	16000	UD
11097-69-1	Aroclor-1254	32000	UD
11096-82-5	Aroclor-1260	32000	UD

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SOIL 5D

Lab Name: ENVIRODYNE ENGINEERS Contract: 3210

Lab Code: EEI Case No.: 02 SAS No.: NA SDG No.: SOIL

Matrix: (soil/water) SOIL Lab Sample ID: 88011710

Sample wt/vol: 5 (g/mL) G Lab File ID: >B0561

Level: (low/med) LOW Date Received: 12/02/88

% Moisture: not dec. 37 Date Analyzed: 12/16/88

Column: (pack/cap) PACK Dilution Factor: 1.00000

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q
74-87-3	Chloromethane	16	U
74-83-9	Bromomethane	16	U
75-01-4	Vinyl Chloride	16	U
75-00-3	Chloroethane	16	U
75-09-2	Methylene Chloride	2	J
67-64-1	Acetone	16	B
75-15-0	Carbon Disulfide	8	U
75-35-4	1,1-Dichloroethene	8	U
75-34-3	1,1-Dichloroethane	8	U
540-59-0	1,2-Dichloroethene (total)	8	U
67-66-3	Chloroform	8	U
107-02-2	1,2-Dichloroethane	8	U
78-93-3	2-Butanone	16	U
71-55-6	1,1,1-Trichloroethane	8	U
56-23-5	Carbon Tetrachloride	8	U
108-05-4	Vinyl Acetate	16	U
75-27-4	Bromodichloromethane	8	U
78-87-5	1,2-Dichloropropane	8	U
10061-01-5	cis-1,3-Dichloropropene	8	U
79-01-6	Trichloroethene	8	U
124-48-1	Dibromochloromethane	8	U
79-00-5	1,1,2-Trichloroethane	8	U
71-43-2	Benzene	8	U
10061-02-6	trans-1,3-Dichloropropene	8	U
75-25-2	Bromoform	8	U
108-10-1	4-Methyl-2-pentanone	16	U
591-78-6	2-Hexanone	16	U
127-18-4	Tetrachloroethene	8	U
79-34-5	1,1,2,2-Tetrachloroethane	8	U
108-88-3	Toluene	8	U
108-90-7	Chlorobenzene	2	J
100-41-4	Ethylbenzene	8	U
100-42-5	Styrene	8	U
133-02-7	Xylene (total)	8	U

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SOIL5D

Lab Name: ENVIRODYNE ENG., INC. Contract: 3210

Lab Code: Case No.: 00002 SAS No.: SDG No.: SOIL1

Matrix: SOIL Lab Sample ID: 88011710

Sample wt/vol: 1 (g/mL) G Lab File ID: C1332

Level: (low/med) MED Date Received: 12/02/88

% Moisture: not dec. 37 dec. 30 Date Extracted: 12/09/88

Extraction: (SepF/Cont/Sonc) SONC Date Analysed: 01/03/89

GPC Cleanup: (Y/N) N pH: 7 Dilution Factor: 1.00000

CAS No.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	31000	U
111-44-4	bis(2-Chloroethyl) ether	31000	U
95-57-8	2-Chlorophenol	31000	U
541-73-1	1,3-Dichlorobenzene	31000	U
106-46-7	1,4-Dichlorobenzene	31000	U
100-51-6	Benzyl Alcohol	31000	U
95-50-1	1,2-Dichlorobenzene	9600	J
95-48-7	2-Methylphenol	31000	U
108-60-1	bis(2-Chloroisopropyl)ether	31000	U
106-44-5	4-Methylphenol	31000	U
621-64-7	N-Nitroso-di-n-dipropylamine	31000	U
67-72-1	Hexachloroethane	31000	U
98-95-3	Nitrobenzene	31000	U
78-59-1	Isophorone	31000	U
88-75-5	2-Nitrophenol	31000	U
105-67-9	2,4-Dimethylphenol	31000	U
65-85-0	Benzoic Acid	150000	U
111-91-1	bis(2-Chloroethoxy)methane	31000	U
120-83-2	2,4-Dichlorophenol	31000	U
120-82-1	1,2,4-Trichlorobenzene	14000	J
91-20-3	Naphthalene	4800	J
106-47-8	4-Chloroaniline	31000	U
87-68-3	Hexachlorobutadiene	31000	U
59-50-7	4-Chloro-3-methylphenol	31000	U
91-57-6	2-Methylnaphthalene	31000	U
77-47-4	Hexachlorocyclopentadiene	31000	U
88-06-2	2,4,6-Trichlorophenol	31000	U
95-95-4	2,4,5-Trichlorophenol	150000	U
91-58-7	2-Chloronaphthalene	31000	U
88-74-4	2-Nitroaniline	150000	U
131-11-3	Dimethylphthalate	31000	U
208-96-8	Acenaphthylene	31000	U
606-20-2	2,6-Dinitrotoluene	31000	U

E126

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SOIL5D

Lab Name: ENVIRODYNE ENG., INC. Contract: 3210

Lab Code: Case No.: 00002 SAS No.: SDG No.: SOIL1

Matrix: SOIL Lab Sample ID: 88011710

Sample wt/vol: 1 (g/mL) G Lab File ID: C1332

Level: (low/med) MED Date Received: 12/02/88

% Moisture: not dec. 37 dec. 30 Date Extracted: 12/09/88

Extraction: (SepF/Cont/Sonc) SONC Date Analysed: 01/03/89

GPC Cleanup: (Y/N) N pH: 7 Dilution Factor: 1.00000

CAS No.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
-99-09-2	3-Nitroaniline	150000	U
-83-32-9	Acenaphthene	31000	U
-51-28-5	2,4-Dinitrophenol	150000	U
-100-02-7	4-Nitrophenol	150000	U
-132-64-9	Dibenzofuran	31000	U
-121-14-2	2,4-Dinitrotoluene	31000	U
-84-66-2	Diethylphthalate	31000	U
-7005-72-3	4-Chlorophenyl-phenyl ether	31000	U
-86-73-7	Fluorene	31000	U
-100-01-6	4-Nitroaniline	150000	U
-534-52-1	4,6-Dinitro-2-methylphenol	150000	U
-86-30-6	N-Nitrosodiphenylamine (1)	31000	U
-101-55-3	4-Bromophenyl-phenyl ether	31000	U
-118-74-1	Hexachlorobenzene	31000	U
-87-86-5	Pentachlorophenol	150000	U
-85-01-8	Phenanthrene	31000	U
-120-12-7	Anthracene	31000	U
-84-74-2	Di-n-butylphthalate	31000	U
-206-44-0	Fluoranthene	31000	U
-129-00-0	Pyrene	31000	U
-85-68-7	Butylbenzylphthalate	31000	U
-91-94-1	3,3'-Dichlorobenzidine	63000	U
-56-55-3	Benzo(a)anthracene	31000	U
-218-01-9	Chrysene	31000	U
-117-81-7	bis(2-ethylhexyl)phthalate	31000	U
-117-84-0	Di-n-octylphthalate	31000	U
-205-99-2	Benzo(b)fluoranthene	31000	U
-207-0809	Benzo(k)fluoranthene	31000	U
-50-32-8	Benzo(a)pyrene	31000	U
-193-39-5	Indeno(1,2,3-cd)pyrene	31000	U
-53-70-3	Dibenzo(a,h)anthracene	31000	U
-191-24-2	Benzo(g,h,i)perylene	31000	U

(1) - Cannot be separated from Diphenylamine

E127

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SOIL 5D

Lab Name: ENVIRODYNE ENG., INC. Contract: 3210

Lab Code: Case No.: 0002 SAS No.: SDG No.: SOIL1

Matrix: (soil/water) SOIL Lab Sample ID: 88011710

Sample wt/vol: 1 (g/mL) G Lab File ID:

Level: (low/med) MED Date Received: 12/02/88

% Moisture: not dec. 37 dec. Date Extracted:12/08/88

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 01/04/89

GPC Cleanup: (Y/N) N pH: 7 Dilution Factor: 1.00000

CAS No.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	190	U
319-85-7	beta-BHC	190	U
319-86-8	delta-BHC	190	U
58-89-9	gamma-BHC (Lindane)	190	U
76-44-8	Heptachlor	190	U
309-00-2	Aldrin	190	U
1024-57-3	Heptachlor epoxide	190	U
959-98-8	Endosulfan I	190	U
60-57-1	Dieldrin	380	U
72-55-9	4,4'-DDE	380	U
72-20-8	Endrin	380	U
33213-65-9	Endosulfan II	380	U
72-54-8	4,4'-DDD	380	U
1031-07-8	Endosulfan sulfate	380	U
50-29-3	4,4'-DDT	380	U
72-43-5	Methoxychlor	1900	U
53494-70-5	Endrin Ketone	380	U
5103-71-9	alpha-Chlordane	1900	U
5103-74-2	gamma-Chlordane	1900	U
8001-35-2	Toxaphene	3800	U
12674-11-2	Aroclor-1016	1900	U
11104-28-2	Aroclor-1221	1900	U
11141-16-5	Aroclor-1232	1900	U
53469-21-9	Aroclor-1242	1900	U
12672-29-6	Aroclor-1248	1900	U
11097-69-1	Aroclor-1254	3800	U
11096-82-5	Aroclor-1260	3800	U

FORM I PEST 1/87 Rev.

E128

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SOIL 5D DL

Lab Name: ENVIRODYNE ENG., INC. Contract: 3210

Lab Code: Case No.: 0002 SAS No.: SDG No.: SOIL1

Matrix: (soil/water) SOIL Lab Sample ID: 88011710

Sample wt/vol: 1 (g/mL) G Lab File ID:

Level: (low/med) MED Date Received: 12/02/88

% Moisture: not dec. 30 dec. Date Extracted: 12/08/88

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 12/28/88

GPC Cleanup: (Y/N) N pH: 7 Dilution Factor: ~~0.10000~~ 10 caj 1/23/89

CAS No.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	1700	UD
319-85-7	beta-BHC	1700	UD
319-86-8	delta-BHC	1700	UD
58-89-9	gamma-BHC (Lindane)	1700	UD
76-44-8	Heptachlor	1700	UD
309-00-2	Aldrin	1700	UD
1024-57-3	Heptachlor epoxide	1700	UD
959-98-8	Endosulfan I	1700	UD
60-57-1	Dieldrin	3400	UD
72-55-9	4,4'-DDE	3400	UD
72-20-8	Endrin	3400	UD
33213-65-9	Endosulfan II	3400	UD
72-54-8	4,4'-DDD	3400	UD
1031-07-8	Endosulfan sulfate	3400	UD
50-29-3	4,4'-DDT	3400	UD
72-43-5	Methoxychlor	17000	UD
53494-70-5	Endrin Ketone	3400	UD
5103-71-9	alpha-Chlordane	17000	UD
5103-74-2	gamma-Chlordane	17000	UD
8001-35-2	Toxaphene	34000	UD
12674-11-2	Aroclor-1016	17000	UD
11104-28-2	Aroclor-1221	17000	UD
11141-16-5	Aroclor-1232	17000	UD
53469-21-9	Aroclor-1242	17000	UD
12672-29-6	Aroclor-1248	17000	UD
11097-69-1	Aroclor-1254	34000	UD
11096-82-5	Aroclor-1260	34000	UD

FORM I PEST 1/87 Rev.

E129

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SOIL 6

Lab Name: ENVIRODYNE ENGINEERS Contract: 3210

Lab Code: EEI Case No.: 02 SAS No.: NA SDG No.: SOIL1

Matrix: (soil/water) SOIL Lab Sample ID: 88011711

Sample wt/vol: 4 (g/mL) G Lab File ID: >B0500

Level: (low/med) MED Date Received: 12/02/88

% Moisture: not dec. 29 Date Analyzed: 12/12/88

Column: (pack/cap) PACK Dilution Factor: ~~625~~ 500

caj 1/19/89

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q
74-87-3	Chloromethane	7220	U
74-83-9	Bromomethane	7220	U
75-01-4	Vinyl Chloride	7220	U
75-00-3	Chloroethane	7220	U
75-09-2	Methylene Chloride	890	JB
67-64-1	Acetone	8650	B
75-15-0	Carbon Disulfide	3610	U
75-35-4	1,1-Dichloroethene	3610	U
75-34-3	1,1-Dichloroethane	3610	U
540-59-0	1,2-Dichloroethene (total)	3610	U
67-66-3	Chloroform	3610	U
107-02-2	1,2-Dichloroethane	3610	U
78-93-3	2-Butanone	7220	U
71-55-6	1,1,1-Trichloroethane	3610	U
56-23-5	Carbon Tetrachloride	3610	U
108-05-4	Vinyl Acetate	7220	U
75-27-4	Bromodichloromethane	3610	U
78-87-5	1,2-Dichloropropane	3610	U
10061-01-5	cis-1,3-Dichloropropene	3610	U
79-01-6	Trichloroethene	3610	U
124-48-1	Dibromochloromethane	3610	U
79-00-5	1,1,2-Trichloroethane	3610	U
71-43-2	Benzene	3680	
10061-02-6	trans-1,3-Dichloropropene	3610	U
75-25-2	Bromoform	3610	U
108-10-1	4-Methyl-2-pentanone	7220	U
591-78-6	2-Hexanone	7220	U
127-18-4	Tetrachloroethene	3610	U
79-34-5	1,1,2,2-Tetrachloroethane	3610	U
108-88-3	Toluene	1500	JB
108-90-7	Chlorobenzene	115000	
100-41-4	Ethylbenzene	3610	U
100-42-5	Styrene	3610	U
135-02-7	Xylene (total)	2220	JB

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SOIL6

Lab Name: ENVIRODYNE ENG., INC. Contract: 3210

Lab Code: Case No.: 00002 SAS No.: SDG No.: SOIL1

Matrix: SOIL Lab Sample ID: 88011711

Sample wt/vol: 1 (g/mL) G Lab File ID: C1333

Level: (low/med) MED Date Received: 12/02/88

% Moisture: not dec. 28 dec. 26 Date Extracted:12/09/88

Extraction: (SepF/Cont/Sonc) SONC Date Analysed: 01/04/89

GPC Cleanup: (Y/N) N pH: 7 Dilution Factor: 1.00000

CAS No.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	28000	U
111-44-4	bis(2-Chloroethyl) ether	28000	U
95-57-8	2-Chlorophenol	28000	U
541-73-1	1,3-Dichlorobenzene	19000	J
106-46-7	1,4-Dichlorobenzene	47000	
100-51-6	Benzyl Alcohol	28000	U
95-50-1	1,2-Dichlorobenzene	160000	
95-48-7	2-Methylphenol	28000	U
108-60-1	bis(2-Chloroisopropyl)ether	28000	U
106-44-5	4-Methylphenol	28000	U
621-64-7	N-Nitroso-di-n-dipropylamine	28000	U
67-72-1	Hexachloroethane	28000	U
98-95-3	Nitrobenzene	28000	U
78-59-1	Isophorone	28000	U
88-75-5	2-Nitrophenol	28000	U
105-67-9	2,4-Dimethylphenol	28000	U
65-85-0	Benzoic Acid	130000	U
111-91-1	bis(2-Chloroethoxy)methane	28000	U
120-83-2	2,4-Dichlorophenol	28000	U
120-82-1	1,2,4-Trichlorobenzene	500000	
91-20-3	Naphthalene	48000	
106-47-8	4-Chloroaniline	28000	U
87-68-3	Hexachlorobutadiene	28000	U
59-50-7	4-Chloro-3-methylphenol	28000	U
91-57-6	2-Methylnaphthalene	28000	U
77-47-4	Hexachlorocyclopentadiene	28000	U
88-06-2	2,4,6-Trichlorophenol	28000	U
95-95-4	2,4,5-Trichlorophenol	130000	U
91-58-7	2-Chloronaphthalene	28000	U
88-74-4	2-Nitroaniline	130000	U
131-11-3	Dimethylphthalate	28000	U
208-96-8	Acenaphthylene	28000	U
606-20-2	2,6-Dinitrotoluene	28000	U

E131

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SOIL6

Lab Name: ENVIRODYNE ENG., INC. Contract: 3210

Lab Code: Case No.: 00002 SAS No.: SDG No.: SOIL1

Matrix: SOIL Lab Sample ID: 88011711

Sample wt/vol: 1 (g/mL) G Lab File ID: C1333

Level: (low/med) MED Date Received: 12/02/88

% Moisture: not dec. 28 dec. 26 Date Extracted: 12/09/88

Extraction: (SepF/Cont/Sonc) SONC Date Analysed: 01/04/89

GPC Cleanup: (Y/N) N pH: 7 Dilution Factor: 1.00000

CAS No.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
-99-09-2	3-Nitroaniline	130000	U
-83-32-9	Acenaphthene	28000	U
-51-28-5	2,4-Dinitrophenol	130000	U
-100-02-7	4-Nitrophenol	130000	U
-132-64-9	Dibenzofuran	28000	U
-121-14-2	2,4-Dinitrotoluene	28000	U
-84-66-2	Diethylphthalate	28000	U
-7005-72-3	4-Chlorophenyl-phenyl ether	28000	U
-86-73-7	Fluorene	28000	U
-100-01-6	4-Nitroaniline	130000	U
-534-52-1	4,6-Dinitro-2-methylphenol	130000	U
-86-30-6	N-Nitrosodiphenylamine (1)	28000	U
-101-55-3	4-Bromophenyl-phenyl ether	28000	U
-118-74-1	Hexachlorobenzene	36000	
-87-86-5	Pentachlorophenol	130000	U
-85-01-8	Phenanthrene	28000	U
-120-12-7	Anthracene	28000	U
-84-74-2	Di-n-butylphthalate	28000	U
-206-44-0	Fluoranthene	28000	U
-129-00-0	Pyrene	28000	U
-85-68-7	Butylbenzylphthalate	28000	U
-91-94-1	3,3'-Dichlorobenzidine	55000	U
-56-55-3	Benzo(a)anthracene	28000	U
-218-01-9	Chrysene	28000	U
-117-81-7	bis(2-ethylhexyl)phthalate	28000	U
-117-84-0	Di-n-octylphthalate	28000	U
-205-99-2	Benzo(b)fluoranthene	28000	U
-207-0809	Benzo(k)fluoranthene	28000	U
-50-32-8	Benzo(a)pyrene	28000	U
-193-39-5	Indeno(1,2,3-cd)pyrene	28000	U
-53-70-3	Dibenzo(a,h)anthracene	28000	U
-191-24-2	Benzo(g,h,i)perylene	28000	U

(1) - Cannot be separated from Diphenylamine

E132

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SOIL 6

Lab Name: ENVIRODYNE ENG., INC. Contract: 3210

Lab Code: Case No.: 0002 SAS No.: SDG No.: SOIL1

Matrix: (soil/water) SOIL Lab Sample ID: 88011711

Sample wt/vol: 1 (g/mL) G Lab File ID:

Level: (low/med) MED Date Received: 12/02/88

% Moisture: not dec. 26 dec. Date Extracted:12/08/88

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 01/04/89

GPC Cleanup: (Y/N) N pH: 7 Dilution Factor: 1.00000

CAS No.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	160	U
319-85-7	beta-BHC	160	U
319-86-8	delta-BHC	160	U
58-89-9	gamma-BHC (Lindane)	160	U
76-44-8	Heptachlor	160	U
309-00-2	Aldrin	160	U
1024-57-3	Heptachlor epoxide	160	U
959-98-8	Endosulfan I	160	U
60-57-1	Dieldrin	320	U
72-55-9	4,4'-DDE	320	U
72-20-8	Endrin	320	U
33213-65-9	Endosulfan II	320	U
72-54-8	4,4'-DDD	320	U
1031-07-8	Endosulfan sulfate	320	U
50-29-3	4,4'-DDT	320	U
72-43-5	Methoxychlor	1600	U
53494-70-5	Endrin Ketone	320	U
5103-71-9	alpha-Chlordane	1600	U
5103-74-2	gamma-Chlordane	1600	U
8001-35-2	Toxaphene	3200	U
12674-11-2	Aroclor-1016	1600	U
11104-28-2	Aroclor-1221	1600	U
11141-16-5	Aroclor-1232	1600	U
53469-21-9	Aroclor-1242	1600	U
12672-29-6	Aroclor-1248	1600	U
11097-69-1	Aroclor-1254	3200	U
11096-82-5	Aroclor-1260	3200	U

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SOIL 6 DL

Lab Name: ENVIRODYNE ENG., INC. Contract: 3210

Lab Code: Case No.: 0002 SAS No.: SDG No.: SOIL1

Matrix: (soil/water) SOIL Lab Sample ID: 88011711

Sample wt/vol: 1 (g/mL) G Lab File ID:

Level: (low/med) MED Date Received: 12/02/88

% Moisture: not dec. 26 dec. Date Extracted: 12/08/88

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 12/28/88

GPC Cleanup: (Y/N) N pH: 7 Dilution Factor: ~~0.10000~~ 10 caj 1/23/89

CAS No.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	1600	UD
319-85-7	beta-BHC	1600	UD
319-86-8	delta-BHC	1600	UD
58-89-9	gamma-BHC (Lindane)	1600	UD
76-44-8	Heptachlor	1600	UD
309-00-2	Aldrin	1600	UD
1024-57-3	Heptachlor epoxide	1600	UD
959-98-8	Endosulfan I	1600	UD
60-57-1	Dieldrin	3200	UD
72-55-9	4,4'-DDE	3200	UD
72-20-8	Endrin	3200	UD
33213-65-9	Endosulfan II	3200	UD
72-54-8	4,4'-DDD	3200	UD
1031-07-8	Endosulfan sulfate	3200	UD
50-29-3	4,4'-DDT	3200	UD
72-43-5	Methoxychlor	16000	UD
53494-70-5	Endrin Ketone	3200	UD
5103-71-9	alpha-Chlordane	16000	UD
5103-74-2	gamma-Chlordane	16000	UD
8001-35-2	Toxaphene	32000	UD
12674-11-2	Aroclor-1016	16000	UD
11104-28-2	Aroclor-1221	16000	UD
11141-16-5	Aroclor-1232	16000	UD
53469-21-9	Aroclor-1242	16000	UD
12672-29-6	Aroclor-1248	16000	UD
11097-69-1	Aroclor-1254	32000	UD
11096-82-5	Aroclor-1260	32000	UD

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SOIL 6 DL

Lab Name: ENVIRODYNE ENG., INC. Contract: 3210

Lab Code: Case No.: 0002 SAS No.: SDG No.: SOIL1

Matrix: (soil/water) SOIL Lab Sample ID: 88011711

Sample wt/vol: 1 (g/mL) G Lab File ID:

Level: (low/med) MED Date Received: 12/02/88

% Moisture: not dec. 26 dec. Date Extracted: 12/08/88

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 12/28/88

GPC Cleanup: (Y/N) N pH: 7 Dilution Factor: ~~0.01000~~ 100 cag 1/23/89

CAS No.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	16000	UD
319-85-7	beta-BHC	16000	UD
319-86-8	delta-BHC	33000	UD
58-89-9	gamma-BHC (Lindane)	16000	UD
76-44-8	Heptachlor	16000	UD
309-00-2	Aldrin	16000	UD
1024-57-3	Heptachlor epoxide	16000	UD
959-98-8	Endosulfan I	16000	UD
60-57-1	Dieldrin	32000	UD
72-55-9	4,4'-DDE	32000	UD
72-20-8	Endrin	32000	UD
33213-65-9	Endosulfan II	32000	UD
72-54-8	4,4'-DDD	32000	UD
1031-07-8	Endosulfan sulfate	32000	UD
50-29-3	4,4'-DDT	32000	UD
72-43-5	Methoxychlor	160000	UD
53494-70-5	Endrin Ketone	32000	UD
5103-71-9	alpha-Chlordane	160000	UD
5103-74-2	gamma-Chlordane	160000	UD
8001-35-2	Toxaphene	320000	UD
12674-11-2	Aroclor-1016	160000	UD
11104-28-2	Aroclor-1221	160000	UD
11141-16-5	Aroclor-1232	160000	UD
53469-21-9	Aroclor-1242	160000	UD
12672-29-6	Aroclor-1248	160000	UD
11097-69-1	Aroclor-1254	320000	UD
11096-82-5	Aroclor-1260	320000	UD

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SOIL 6D

Lab Name: ENVIRODYNE ENGINEERS Contract: 3210

Lab Code: EEI Case No.: 02 SAS No.: NA SDG No.: SOIL1

Matrix: (soil/water) SOIL Lab Sample ID: 88011712

Sample wt/vol: 3 (g/mL) G Lab File ID: >B0635

Level: (low/med) LOW Date Received: 12/02/88

% Moisture: not dec. 26 Date Analyzed: 12/22/88

Column: (pack/cap) PACK Dilution Factor: 1.67000

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q
74-87-3	Chloromethane	23	U
74-83-9	Bromomethane	23	U
75-01-4	Vinyl Chloride	23	U
75-00-3	Chloroethane	23	U
75-09-2	Methylene Chloride	11	U
67-64-1	Acetone	30	B
75-15-0	Carbon Disulfide	11	U
75-35-4	1,1-Dichloroethene	11	U
75-34-3	1,1-Dichloroethane	11	U
540-59-0	1,2-Dichloroethene (total)	11	U
67-66-3	Chloroform	2	JB
107-02-2	1,2-Dichloroethane	11	U
78-93-3	2-Butanone	29	B
71-55-6	1,1,1-Trichloroethane	11	U
56-23-5	Carbon Tetrachloride	11	U
108-05-4	Vinyl Acetate	23	U
75-27-4	Bromodichloromethane	11	U
78-87-5	1,2-Dichloropropane	11	U
10061-01-5	cis-1,3-Dichloropropene	11	U
79-01-6	Trichloroethene	11	U
124-48-1	Dibromochloromethane	11	U
79-00-5	1,1,2-Trichloroethane	11	U
71-43-2	Benzene	11	U
10061-02-6	trans-1,3-Dichloropropene	11	U
75-25-2	Bromoform	11	U
108-10-1	4-Methyl-2-pentanone	23	U
591-78-6	2-Hexanone	23	U
127-18-4	Tetrachloroethene	11	U
79-34-5	1,1,2,2-Tetrachloroethane	11	U
108-88-3	Toluene	2	J
108-90-7	Chlorobenzene	22	
100-41-4	Ethylbenzene	11	U
100-42-5	Styrene	11	U
133-02-7	Xylene (total)	8	J

E136

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SOIL 6D

Lab Name: ENVIRODYNE ENG., INC. Contract: 3210

Lab Code: Case No.: 00002 SAS No.: SDG No.:SOIL1

Matrix: SOIL Lab Sample ID: 88011712

Sample wt/vol: 1.01 (g/mL) G Lab File ID: C1352

Level: (low/med) MED Date Received: 12/02/88

% Moisture: not dec. 26 dec. 24 Date Extracted:12/09/88

Extraction: (SepF/Cont/Sonc) SONC Date Analysed: 01/06/89

GPC Cleanup: (Y/N) N pH: 7 Dilution Factor: 1.00000

CAS No.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	5300	J
111-44-4	bis(2-Chloroethyl) ether	27000	U
95-57-8	2-Chlorophenol	27000	U
541-73-1	1,3-Dichlorobenzene	14000	J
106-46-7	1,4-Dichlorobenzene	40000	
100-51-6	Benzyl Alcohol	27000	U
95-50-1	1,2-Dichlorobenzene	86000	
95-48-7	2-Methylphenol	27000	U
108-60-1	bis(2-Chloroisopropyl)ether	27000	U
106-44-5	4-Methylphenol	27000	U
621-64-7	N-Nitroso-di-n-dipropylamine	27000	U
67-72-1	Hexachloroethane	27000	U
98-95-3	Nitrobenzene	27000	U
78-59-1	Isophorone	27000	U
88-75-5	2-Nitrophenol	27000	U
105-67-9	2,4-Dimethylphenol	27000	U
65-85-0	Benzoic Acid	130000	U
111-91-1	bis(2-Chloroethoxy)methane	27000	U
120-83-2	2,4-Dichlorophenol	27000	U
120-82-1	1,2,4-Trichlorobenzene	250000	
91-20-3	Naphthalene	23000	J
106-47-8	4-Chloroaniline	27000	U
87-68-3	Hexachlorobutadiene	27000	U
59-50-7	4-Chloro-3-methylphenol	27000	U
91-57-6	2-Methylnaphthalene	27000	U
77-47-4	Hexachlorocyclopentadiene	27000	U
88-06-2	2,4,6-Trichlorophenol	27000	U
95-95-4	2,4,5-Trichlorophenol	130000	U
91-58-7	2-Chloronaphthalene	27000	U
88-74-4	2-Nitroaniline	130000	U
131-11-3	Dimethylphthalate	27000	U
208-96-8	Acenaphthylene	27000	U
606-20-2	2,6-Dinitrotoluene	27000	U

E137

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SOIL 6D

Lab Name: ENVIRODYNE ENG., INC. Contract: 3210

Lab Code: Case No.: 00002 SAS No.: SDG No.:SOIL1

Matrix: SOIL Lab Sample ID: 88011712

Sample wt/vol: 1.01 (g/mL) G Lab File ID: C1352

Level: (low/med) MED Date Received: 12/02/88

% Moisture: not dec. 26 dec. Date Extracted:12/09/88

Extraction: (SepF/Cont/Sonc) SONC Date Analysed: 01/06/89

GPC Cleanup: (Y/N) N pH: 7 Dilution Factor: 1.00000

CAS No.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
-99-09-2	3-Nitroaniline	130000	U
-83-32-9	Acenaphthene	27000	U
-51-28-5	2,4-Dinitrophenol	130000	U
-100-02-7	4-Nitrophenol	130000	U
-132-64-9	Dibenzofuran	27000	U
-121-14-2	2,4-Dinitrotoluene	27000	U
-84-66-2	Diethylphthalate	27000	U
-7005-72-3	4-Chlorophenyl-phenyl ether	27000	U
-86-73-7	Fluorene	27000	U
-100-01-6	4-Nitroaniline	130000	U
-534-52-1	4,6-Dinitro-2-methylphenol	130000	U
-86-30-6	N-Nitrosodiphenylamine (1)	27000	U
-101-55-3	4-Bromophenyl-phenyl ether	27000	U
-118-74-1	Hexachlorobenzene	18000	J
-87-86-5	Pentachlorophenol	130000	U
-85-01-8	Phenanthrene	27000	U
-120-12-7	Anthracene	27000	U
-84-74-2	Di-n-butylphthalate	27000	U
-206-44-0	Fluoranthene	27000	U
-129-00-0	Pyrene	27000	U
-85-68-7	Butylbenzylphthalate	27000	U
-91-94-1	3,3'-Dichlorobenzidine	54000	U
-56-55-3	Benzo(a)anthracene	27000	U
-218-01-9	Chrysene	27000	U
-117-81-7	bis(2-ethylhexyl)phthalate	7300	J
-117-84-0	Di-n-octylphthalate	27000	U
-205-99-2	Benzo(b)fluoranthene	27000	U
-207-0809	Benzo(k)fluoranthene	27000	U
-50-32-8	Benzo(a)pyrene	27000	U
-193-39-5	Indeno(1,2,3-cd)pyrene	27000	U
-53-70-3	Dibenzo(a,h)anthracene	27000	U
-191-24-2	Benzo(g,h,i)perylene	27000	U

(1) - Cannot be separated from Diphenylamine

E 138

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SOIL 6D

Lab Name: ENVIRODYNE ENG., INC. Contract: 3210

Lab Code: Case No.: 0002 SAS No.: SDG No.: SOIL1

Matrix: (soil/water) SOIL Lab Sample ID: 88011712

Sample wt/vol: 1 (g/mL) G Lab File ID:

Level: (low/med) MED Date Received: 12/02/88

% Moisture: not dec. 24 dec. Date Extracted: 12/08/88

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 01/04/89

GPC Cleanup: (Y/N) N pH: 7 Dilution Factor: 1.00000

CAS No.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	160	U
319-85-7	beta-BHC	160	U
319-86-8	delta-BHC	160	U
58-89-9	gamma-BHC (Lindane)	160	U
76-44-8	Heptachlor	160	U
309-00-2	Aldrin	160	U
1024-57-3	Heptachlor epoxide	160	U
959-98-8	Endosulfan I	160	U
60-57-1	Dieldrin	320	U
72-55-9	4,4'-DDE	320	U
72-20-8	Endrin	320	U
33213-65-9	Endosulfan II	320	U
72-54-8	4,4'-DDD	320	U
1031-07-8	Endosulfan sulfate	320	U
50-29-3	4,4'-DDT	320	U
72-43-5	Methoxychlor	1600	U
53494-70-5	Endrin Ketone	320	U
5103-71-9	alpha-Chlordane	1600	U
5103-74-2	gamma-Chlordane	1600	U
8001-35-2	Toxaphene	3200	U
12674-11-2	Aroclor-1016	1600	U
11104-28-2	Aroclor-1221	1600	U
11141-16-5	Aroclor-1232	1600	U
53469-21-9	Aroclor-1242	1600	U
12672-29-6	Aroclor-1248	1600	U
11097-69-1	Aroclor-1254	3200	U
11096-82-5	Aroclor-1260	3200	U

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SOIL 6D DL

Lab Name: ENVIRODYNE ENG., INC. Contract: 3210

Lab Code: Case No.: 0002 SAS No.: SDG No.: SOIL1

Matrix: (soil/water) SOIL Lab Sample ID: 88011712

Sample wt/vol: 1 (g/mL) G Lab File ID:

Level: (low/med) MED Date Received: 12/02/88

% Moisture: not dec. 24 dec. Date Extracted: 12/08/88

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 12/28/88

GPC Cleanup: (Y/N) N pH: 7 Dilution Factor: ~~0.10000~~ 10 eaj 1/23/89

CAS No.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
-319-84-6	alpha-BHC	1600	UD
-319-85-7	beta-BHC	1600	UD
-319-86-8	delta-BHC	1600	UD
-58-89-9	gamma-BHC (Lindane)	3500	UD
-76-44-8	Heptachlor	1600	UD
-309-00-2	Aldrin	1600	UD
-1024-57-3	Heptachlor epoxide	1600	UD
-959-98-8	Endosulfan I	1600	UD
-60-57-1	Dieldrin	3200	UD
-72-55-9	4,4'-DDE	3200	UD
-72-20-8	Endrin	3200	UD
-33213-65-9	Endosulfan II	3200	UD
-72-54-8	4,4'-DDD	3200	UD
-1031-07-8	Endosulfan sulfate	3200	UD
-50-29-3	4,4'-DDT	3200	UD
-72-43-5	Methoxychlor	16000	UD
-53494-70-5	Endrin Ketone	3200	UD
-5103-71-9	alpha-Chlordane	16000	UD
-5103-74-2	gamma-Chlordane	16000	UD
-8001-35-2	Toxaphene	32000	UD
-12674-11-2	Aroclor-1016	16000	UD
-11104-28-2	Aroclor-1221	16000	UD
-11141-16-5	Aroclor-1232	16000	UD
-53469-21-9	Aroclor-1242	16000	UD
-12672-29-6	Aroclor-1248	16000	UD
-11097-69-1	Aroclor-1254	32000	UD
-11096-82-5	Aroclor-1260	32000	UD

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SOIL 6D DL

Lab Name: ENVIRODYNE ENG., INC. Contract: 3210

Lab Code: Case No.: 0002 SAS No.: SDG No.: SOIL1

Matrix: (soil/water) SOIL Lab Sample ID: 88011712

Sample wt/vol: 1 (g/mL) G Lab File ID:

Level: (low/med) MED Date Received: 12/02/88

% Moisture: not dec. 24 dec. Date Extracted: 12/08/88

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 12/28/88

GPC Cleanup: (Y/N) N pH: 7 Dilution Factor: ~~0.01000~~ 100 eaj 1/23/89

CAS No.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
-319-84-6	alpha-BHC	16000	UD
-319-85-7	beta-BHC	16000	UD
-319-86-8	delta-BHC	18000	UD
-58-89-9	gamma-BHC (Lindane)	16000	UD
-76-44-8	Heptachlor	16000	UD
-309-00-2	Aldrin	16000	UD
-1024-57-3	Heptachlor epoxide	16000	UD
-959-98-8	Endosulfan I	16000	UD
-60-57-1	Dieldrin	32000	UD
-72-55-9	4,4'-DDE	32000	UD
-72-20-8	Endrin	32000	UD
-33213-65-9	Endosulfan II	32000	UD
-72-54-8	4,4'-DDD	32000	UD
-1031-07-8	Endosulfan sulfate	32000	UD
-50-29-3	4,4'-DDT	32000	UD
-72-43-5	Methoxychlor	160000	UD
-53494-70-5	Endrin Ketone	32000	UD
-5103-71-9	alpha-Chlordane	160000	UD
-5103-74-2	gamma-Chlordane	160000	UD
-8001-35-2	Toxaphene	320000	UD
-12674-11-2	Aroclor-1016	160000	UD
-11104-28-2	Aroclor-1221	160000	UD
-11141-16-5	Aroclor-1232	160000	UD
-53469-21-9	Aroclor-1242	160000	UD
-12672-29-6	Aroclor-1248	160000	UD
-11097-69-1	Aroclor-1254	320000	UD
-11096-82-5	Aroclor-1260	320000	UD

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SOIL 7

Lab Name: ENVIRODYNE ENGINEERS Contract: 3210

Lab Code: EEI Case No.: 02 SAS No.: NA SDG No.: SOIL 1

Matrix: (soil/water) SOIL Lab Sample ID: 88011713

Sample wt/vol: 5 (g/mL) G Lab File ID: >B0535

Level: (low/med) LOW Date Received: 12/02/88

% Moisture: not dec. 44 Date Analyzed: 12/14/88

Column: (pack/cap) PACK Dilution Factor: 1.00000

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q
74-87-3	Chloromethane	18	U
74-83-9	Bromomethane	18	U
75-01-4	Vinyl Chloride	18	U
75-00-3	Chloroethane	18	U
75-09-2	Methylene Chloride	14	B
67-64-1	Acetone	33	B
75-15-0	Carbon Disulfide	9	U
75-35-4	1,1-Dichloroethene	9	U
75-34-3	1,1-Dichloroethane	9	U
540-59-0	1,2-Dichloroethene (total)	9	U
67-66-3	Chloroform	9	U
107-02-2	1,2-Dichloroethane	9	U
78-93-3	2-Butanone	19	B
71-55-6	1,1,1-Trichloroethane	9	U
56-23-5	Carbon Tetrachloride	9	U
108-05-4	Vinyl Acetate	18	U
75-27-4	Bromodichloromethane	9	U
78-87-5	1,2-Dichloropropane	9	U
10061-01-5	cis-1,3-Dichloropropene	9	U
79-01-6	Trichloroethene	9	U
124-48-1	Dibromochloromethane	9	U
79-00-5	1,1,2-Trichloroethane	9	U
71-43-2	Benzene	9	U
10061-02-6	trans-1,3-Dichloropropene	9	U
75-25-2	Bromoform	9	U
108-10-1	4-Methyl-2-pentanone	18	U
591-78-6	2-Hexanone	18	U
127-18-4	Tetrachloroethene	9	U
79-34-5	1,1,2,2-Tetrachloroethane	9	U
108-88-3	Toluene	3	J
108-90-7	Chlorobenzene	16	
100-41-4	Ethylbenzene	9	U
100-42-5	Styrene	9	U
133-02-7	Xylene (total)	9	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SOIL 7 RE

Lab Name: ENVIRODYNE ENGINEERS Contract: 3210

Lab Code: EEI Case No.: 02 SAS No.: NA SDG No.: SOIL 1

Matrix: (soil/water) SOIL Lab Sample ID: 88011713

Sample wt/vol: 5 (g/mL) G Lab File ID: >B0541

Level: (low/med) LOW Date Received: 12/02/88

% Moisture: not dec. 44 Date Analyzed: 12/15/88

Column: (pack/cap) PACK Dilution Factor: 1.00000

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q
74-87-3	Chloromethane	18	U
74-83-9	Bromomethane	18	U
75-01-4	Vinyl Chloride	18	U
75-00-3	Chloroethane	18	U
75-09-2	Methylene Chloride	15	B
67-64-1	Acetone	24	B
75-15-0	Carbon Disulfide	9	U
75-35-4	1,1-Dichloroethene	9	U
75-34-3	1,1-Dichloroethane	4	J
540-59-0	1,2-Dichloroethene (total)	7	J
67-66-3	Chloroform	9	U
107-02-2	1,2-Dichloroethane	9	U
78-93-3	2-Butanone	18	U
71-55-6	1,1,1-Trichloroethane	20	
56-23-5	Carbon Tetrachloride	9	U
108-05-4	Vinyl Acetate	18	U
75-27-4	Bromodichloromethane	9	U
78-87-5	1,2-Dichloropropane	9	U
10061-01-5	cis-1,3-Dichloropropene	9	U
79-01-6	Trichloroethene	9	U
124-48-1	Dibromochloromethane	9	U
79-00-5	1,1,2-Trichloroethane	9	U
71-43-2	Benzene	7	J
10061-02-6	trans-1,3-Dichloropropene	9	U
75-25-2	Bromoform	9	U
108-10-1	4-Methyl-2-pentanone	18	U
591-78-6	2-Hexanone	18	U
127-18-4	Tetrachloroethene	9	U
79-34-5	1,1,2,2-Tetrachloroethane	9	U
108-88-3	Toluene	3	J
108-90-7	Chlorobenzene	16	
100-41-4	Ethylbenzene	9	U
100-42-5	Styrene	9	U
133-02-7	Xylene (total)	10	

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SOIL 7

Lab Name: ENVIRODYNE ENG., INC. Contract: 3210

Lab Code: Case No.: 00002 SAS No.: SDG No.:SOIL1

Matrix: SOIL Lab Sample ID: 88011713

Sample wt/vol: 1.00 (g/mL) G Lab File ID: C1356

Level: (low/med) MED Date Received: 12/02/88

% Moisture: not dec. 44 dec. 44 Date Extracted:12/09/88

Extraction: (SepF/Cont/Sonc) SONC Date Analysed: 01/06/89

GPC Cleanup: (Y/N) N pH: 4 Dilution Factor: 1.00000

CAS No.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	35000	U
111-44-4	bis(2-Chloroethyl) ether	35000	U
95-57-8	2-Chlorophenol	35000	U
541-73-1	1,3-Dichlorobenzene	6700	J
106-46-7	1,4-Dichlorobenzene	4700	J
100-51-6	Benzyl Alcohol	35000	U
95-50-1	1,2-Dichlorobenzene	18000	J
95-48-7	2-Methylphenol	35000	U
108-60-1	bis(2-Chloroisopropyl)ether	35000	U
106-44-5	4-Methylphenol	35000	U
621-64-7	N-Nitroso-di-n-dipropylamine	35000	U
67-72-1	Hexachloroethane	35000	U
98-95-3	Nitrobenzene	8500	J
78-59-1	Isophorone	35000	U
88-75-5	2-Nitrophenol	35000	U
105-67-9	2,4-Dimethylphenol	35000	U
65-85-0	Benzoic Acid	170000	U
111-91-1	bis(2-Chloroethoxy)methane	35000	U
120-83-2	2,4-Dichlorophenol	35000	U
120-82-1	1,2,4-Trichlorobenzene	140000	
91-20-3	Naphthalene	13000	J
106-47-8	4-Chloroaniline	35000	U
87-68-3	Hexachlorobutadiene	35000	U
59-50-7	4-Chloro-3-methylphenol	35000	U
91-57-6	2-Methylnaphthalene	35000	U
77-47-4	Hexachlorocyclopentadiene	35000	U
88-06-2	2,4,6-Trichlorophenol	35000	U
95-95-4	2,4,5-Trichlorophenol	170000	U
91-58-7	2-Chloronaphthalene	7300	J
88-74-4	2-Nitroaniline	170000	U
131-11-3	Dimethylphthalate	35000	U
208-96-8	Acenaphthylene	35000	U
606-20-2	2,6-Dinitrotoluene	35000	U

E144

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SOIL 7

Lab Name: ENVIRODYNE ENG., INC. Contract: 3210

Lab Code: Case No.: 00002 SAS No.: SDG No.:SOIL1

Matrix: SOIL Lab Sample ID: 88011713

Sample wt/vol: 1.00 (g/mL) G Lab File ID: C1356

Level: (low/med) MED Date Received: 12/02/88

% Moisture: not dec. 44 dec. Date Extracted:12/09/88

Extraction: (SepF/Cont/Sonc) SONC Date Analysed: 01/06/89

GPC Cleanup: (Y/N) N pH: 4 Dilution Factor: 1.00000

CAS No.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
-99-09-2	3-Nitroaniline	170000	U
-83-32-9	Acenaphthene	35000	U
-51-28-5	2,4-Dinitrophenol	170000	U
-100-02-7	4-Nitrophenol	170000	U
-132-64-9	Dibenzofuran	35000	U
-121-14-2	2,4-Dinitrotoluene	35000	U
-84-66-2	Diethylphthalate	35000	U
-7005-72-3	4-Chlorophenyl-phenyl ether	35000	U
-86-73-7	Fluorene	35000	U
-100-01-6	4-Nitroaniline	170000	U
-534-52-1	4,6-Dinitro-2-methylphenol	170000	U
-86-30-6	N-Nitrosodiphenylamine (1)	35000	U
-101-55-3	4-Bromophenyl-phenyl ether	35000	U
-118-74-1	Hexachlorobenzene	40000	
-87-86-5	Pentachlorophenol	170000	U
-85-01-8	Phenanthrene	6100	J
-120-12-7	Anthracene	35000	U
-84-74-2	Di-n-butylphthalate	35000	U
-206-44-0	Fluoranthene	11000	J
-129-00-0	Pyrene	23000	J
-85-68-7	Butylbenzylphthalate	31000	J
-91-94-1	3,3'-Dichlorobenzidine	71000	U
-56-55-3	Benzo(a)anthracene	35000	U
-218-01-9	Chrysene	35000	U
-117-81-7	bis(2-ethylhexyl)phthalate	41000	
-117-84-0	Di-n-octylphthalate	35000	U
-205-99-2	Benzo(b)fluoranthene	35000	U
-207-0809	Benzo(k)fluoranthene	35000	U
-50-32-8	Benzo(a)pyrene	35000	U
-193-39-5	Indeno(1,2,3-cd)pyrene	35000	U
-53-70-3	Dibenzo(a,h)anthracene	35000	U
-191-24-2	Benzo(g,h,i)perylene	35000	U

(1) - Cannot be separated from Diphenylamine

E145

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SOIL 7

Lab Name: ENVIRODYNE ENG., INC. Contract: 3210

Lab Code: Case No.: 0002 SAS No.: SDG No.: SOIL1

Matrix: (soil/water) SOIL Lab Sample ID: 88011713

Sample wt/vol: 1 (g/mL) G Lab File ID:

Level: (low/med) MED Date Received: 12/02/88

% Moisture: not dec. 44 dec. Date Extracted: 12/08/88

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 01/04/89

GPC Cleanup: (Y/N) N pH: 4 Dilution Factor: 1.00000

CAS No.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
-319-84-6	alpha-BHC	210	U
-319-85-7	beta-BHC	210	U
-319-86-8	delta-BHC	210	U
-58-89-9	gamma-BHC (Lindane)	210	U
-76-44-8	Heptachlor	210	U
-309-00-2	Aldrin	210	U
-1024-57-3	Heptachlor epoxide	210	U
-959-98-8	Endosulfan I	210	U
-60-57-1	Dieldrin	430	U
-72-55-9	4,4'-DDE	430	U
-72-20-8	Endrin	430	U
-33213-65-9	Endosulfan II	430	U
-72-54-8	4,4'-DDD	430	U
-1031-07-8	Endosulfan sulfate	430	U
-50-29-3	4,4'-DDT	430	U
-72-43-5	Methoxychlor	2100	U
-53494-70-5	Endrin Ketone	430	U
-5103-71-9	alpha-Chlordane	2100	U
-5103-74-2	gamma-Chlordane	2100	U
-8001-35-2	Toxaphene	4300	U
-12674-11-2	Aroclor-1016	2100	U
-11104-28-2	Aroclor-1221	2100	U
-11141-16-5	Aroclor-1232	2100	U
-53469-21-9	Aroclor-1242	2100	U
-12672-29-6	Aroclor-1248	2100	U
-11097-69-1	Aroclor-1254	4300	U
-11096-82-5	Aroclor-1260	4300	U

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SOIL 7 DL

Lab Name: ENVIRODYNE ENG., INC. Contract: 3210

Lab Code: Case No.: 0002 SAS No.: SDG No.: SOIL1

Matrix: (soil/water) SOIL Lab Sample ID: 88011713

Sample wt/vol: 1 (g/mL) G Lab File ID:

Level: (low/med) MED Date Received: 12/02/88

% Moisture: not dec. 44 dec. Date Extracted: 12/08/88

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 12/28/88

GPC Cleanup: (Y/N) N pH: 4 Dilution Factor: ~~0.10000~~ 10 caj 1/23/89

CAS No.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
-319-84-6	alpha-BHC	2100	UD
-319-85-7	beta-BHC	2100	UD
-319-86-8	delta-BHC	2100	UD
-58-89-9	gamma-BHC (Lindane)	2100	UD
-76-44-8	Heptachlor	2100	UD
-309-00-2	Aldrin	2100	UD
-1024-57-3	Heptachlor epoxide	2100	UD
-959-98-8	Endosulfan I	2100	UD
-60-57-1	Dieldrin	4300	UD
-72-55-9	4,4'-DDE	4300	UD
-72-20-8	Endrin	4300	UD
-33213-65-9	Endosulfan II	4300	UD
-72-54-8	4,4'-DDD	4300	UD
-1031-07-8	Endosulfan sulfate	4300	UD
-50-29-3	4,4'-DDT	4300	UD
-72-43-5	Methoxychlor	21000	UD
-53494-70-5	Endrin Ketone	4300	UD
-5103-71-9	alpha-Chlordane	21000	UD
-5103-74-2	gamma-Chlordane	21000	UD
-8001-35-2	Toxaphene	43000	UD
-12674-11-2	Aroclor-1016	21000	UD
-11104-28-2	Aroclor-1221	21000	UD
-11141-16-5	Aroclor-1232	21000	UD
-53469-21-9	Aroclor-1242	21000	UD
-12672-29-6	Aroclor-1248	21000	UD
-11097-69-1	Aroclor-1254	43000	UD
-11096-82-5	Aroclor-1260	43000	UD

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SOIL 8 RE

Lab Name: ENVIRODYNE ENGINEERS Contract: 3210

Lab Code: EEI Case No.: 02 SAS No.: NA SDG No.: SOIL1

Matrix: (soil/water) SOIL Lab Sample ID: 88011714

Sample wt/vol: 5 (g/mL) G Lab File ID: >BB542

Level: (low/med) LOW Date Received: 12/02/88

% Moisture: not dec. 26 Date Analyzed: 12/15/88

Column: (pack/cap) PACK Dilution Factor: 1.00000

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q
74-87-3	Chloromethane	14	U
74-83-9	Bromomethane	14	U
75-01-4	Vinyl Chloride	14	U
75-00-3	Chloroethane	14	U
75-09-2	Methylene Chloride	5	JB
67-64-1	Acetone	70	B
75-15-0	Carbon Disulfide	7	U
75-35-4	1,1-Dichloroethene	7	U
75-34-3	1,1-Dichloroethane	1	J
540-59-0	1,2-Dichloroethene (total)	6	J
67-66-3	Chloroform	7	U
107-02-2	1,2-Dichloroethane	7	U
78-93-3	2-Butanone	12	JB
71-55-6	1,1,1-Trichloroethane	6	
56-23-5	Carbon Tetrachloride	7	U
108-05-4	Vinyl Acetate	14	U
75-27-4	Bromodichloromethane	7	U
78-87-5	1,2-Dichloropropane	7	U
10061-01-5	cis-1,3-Dichloropropene	7	U
79-01-6	Trichloroethene	7	U
124-48-1	Dibromochloromethane	7	U
79-00-5	1,1,2-Trichloroethane	7	U
71-43-2	Benzene	4	
10061-02-6	trans-1,3-Dichloropropene	7	U
75-25-2	Bromoform	7	U
108-10-1	4-Methyl-2-pentanone	14	U
591-78-6	2-Hexanone	14	U
127-18-4	Tetrachloroethene	1	J
79-34-5	1,1,2,2-Tetrachloroethane	7	U
108-88-3	Toluene	1	J
108-90-7	Chlorobenzene	3	J
100-41-4	Ethylbenzene	7	U
100-42-5	Styrene	7	U
133-02-7	Xylene (total)	7	U

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SOIL 8

Lab Name: ENVIRODYNE ENG., INC. Contract: 3210

Lab Code: Case No.: 00002 SAS No.: SDG No.:SOIL1

Matrix: SOIL Lab Sample ID: 88011714

Sample wt/vol: 0.99 (g/mL) G Lab File ID: C1357

Level: (low/med) MED Date Received: 12/02/88

% Moisture: not dec. 25 dec. Date Extracted:12/09/88

Extraction: (SepF/Cont/Sonc) SONC Date Analysed: 01/06/89

GPC Cleanup: (Y/N) N pH: 4 Dilution Factor: 1.00000

CAS No.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	26000	U
111-44-4	bis(2-Chloroethyl) ether	26000	U
95-57-8	2-Chlorophenol	26000	U
541-73-1	1,3-Dichlorobenzene	26000	U
106-46-7	1,4-Dichlorobenzene	26000	U
100-51-6	Benzyl Alcohol	26000	U
95-50-1	1,2-Dichlorobenzene	26000	U
95-48-7	2-Methylphenol	26000	U
108-60-1	bis(2-Chloroisopropyl)ether	26000	U
106-44-5	4-Methylphenol	26000	U
621-64-7	N-Nitroso-di-n-dipropylamine	26000	U
67-72-1	Hexachloroethane	26000	U
98-95-3	Nitrobenzene	26000	U
78-59-1	Isophorone	26000	U
88-75-5	2-Nitrophenol	26000	U
105-67-9	2,4-Dimethylphenol	26000	U
65-85-0	Benzoic Acid	130000	U
111-91-1	bis(2-Chloroethoxy)methane	26000	U
120-83-2	2,4-Dichlorophenol	26000	U
120-82-1	1,2,4-Trichlorobenzene	6000	J
91-20-3	Naphthalene	26000	U
106-47-8	4-Chloroaniline	26000	U
87-68-3	Hexachlorobutadiene	26000	U
59-50-7	4-Chloro-3-methylphenol	26000	U
91-57-6	2-Methylnaphthalene	26000	U
77-47-4	Hexachlorocyclopentadiene	26000	U
88-06-2	2,4,6-Trichlorophenol	26000	U
95-95-4	2,4,5-Trichlorophenol	130000	U
91-58-7	2-Chloronaphthalene	26000	U
88-74-4	2-Nitroaniline	130000	U
131-11-3	Dimethylphthalate	26000	U
208-96-8	Acenaphthylene	26000	U
606-20-2	2,6-Dinitrotoluene	26000	U

E149

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SOIL 8

Lab Name: ENVIRODYNE ENG., INC. Contract: 3210

Lab Code: Case No.: 00002 SAS No.: SDG No.:SOIL1

Matrix: SOIL Lab Sample ID: 88011714

Sample wt/vol: 0.99 (g/mL) G Lab File ID: C1357

Level: (low/med) MED Date Received: 12/02/88

% Moisture: not dec. 25 dec. Date Extracted:12/09/88

Extraction: (SepF/Cont/Sonc) SONC Date Analysed: 01/06/89

GPC Cleanup: (Y/N) N pH: 4 Dilution Factor: 1.00000

CAS No.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
-99-09-2	3-Nitroaniline	130000	U
-83-32-9	Acenaphthene	26000	U
-51-28-5	2,4-Dinitrophenol	130000	U
-100-02-7	4-Nitrophenol	130000	U
-132-64-9	Dibenzofuran	26000	U
-121-14-2	2,4-Dinitrotoluene	26000	U
-84-66-2	Diethylphthalate	26000	U
-7005-72-3	4-Chlorophenyl-phenyl ether	26000	U
-86-73-7	Fluorene	26000	U
-100-01-6	4-Nitroaniline	130000	U
-534-52-1	4,6-Dinitro-2-methylphenol	130000	U
-86-30-6	N-Nitrosodiphenylamine (1)	26000	U
-101-55-3	4-Bromophenyl-phenyl ether	26000	U
-118-74-1	Hexachlorobenzene	26000	U
-87-86-5	Pentachlorophenol	130000	U
-85-01-8	Phenanthrene	26000	U
-120-12-7	Anthracene	26000	U
-84-74-2	Di-n-butylphthalate	26000	U
-206-44-0	Fluoranthene	26000	U
-129-00-0	Pyrene	26000	U
-85-68-7	Butylbenzylphthalate	26000	U
-91-94-1	3,3'-Dichlorobenzidine	53000	U
-56-55-3	Benzo(a)anthracene	26000	U
-218-01-9	Chrysene	26000	U
-117-81-7	bis(2-ethylhexyl)phthalate	26000	U
-117-84-0	Di-n-octylphthalate	26000	U
-205-99-2	Benzo(b)fluoranthene	26000	U
-207-0809	Benzo(k)fluoranthene	26000	U
-50-32-8	Benzo(a)pyrene	26000	U
-193-39-5	Indeno(1,2,3-cd)pyrene	26000	U
-53-70-3	Dibenzo(a,h)anthracene	26000	U
-191-24-2	Benzo(g,h,i)perylene	26000	U

(1) - Cannot be separated from Diphenylamine

E150

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SOIL 8

Lab Name: ENVIRODYNE ENG., INC. Contract: 3210

Lab Code: Case No.: 0002 SAS No.: SDG No.: SOIL1

Matrix: (soil/water) SOIL Lab Sample ID: 88011714

Sample wt/vol: 1 (g/mL) G Lab File ID:

Level: (low/med) MED Date Received: 12/02/88

% Moisture: not dec. 26 dec. Date Extracted: 12/08/88

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 01/04/89

GPC Cleanup: (Y/N) N pH: 4 Dilution Factor: 1.00000

CAS No.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
-319-84-6	alpha-BHC	160	U
-319-85-7	beta-BHC	160	U
-319-86-8	delta-BHC	160	U
-58-89-9	gamma-BHC (Lindane)	160	U
-76-44-8	Heptachlor	160	U
-309-00-2	Aldrin	160	U
-1024-57-3	Heptachlor epoxide	160	U
-959-98-8	Endosulfan I	160	U
-60-57-1	Dieldrin	320	U
-72-55-9	4,4'-DDE	320	U
-72-20-8	Endrin	320	U
-33213-65-9	Endosulfan II	320	U
-72-54-8	4,4'-DDD	320	U
-1031-07-8	Endosulfan sulfate	320	U
-50-29-3	4,4'-DDT	320	U
-72-43-5	Methoxychlor	1600	U
-53494-70-5	Endrin Ketone	320	U
-5103-71-9	alpha-Chlordane	1600	U
-5103-74-2	gamma-Chlordane	3200	U
-8001-35-2	Toxaphene	3200	U
-12674-11-2	Aroclor-1016	1600	U
-11104-28-2	Aroclor-1221	1600	U
-11141-16-5	Aroclor-1232	1600	U
-53469-21-9	Aroclor-1242	1600	U
-12672-29-6	Aroclor-1248	1600	U
-11097-69-1	Aroclor-1254	3200	U
-11096-82-5	Aroclor-1260	3200	U

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SOIL 8 DL

Lab Name: ENVIRODYNE ENG., INC. Contract: 3210

Lab Code: Case No.: 0002 SAS No.: SDG No.: SOIL1

Matrix: (soil/water) SOIL Lab Sample ID: 88011714

Sample wt/vol: 1 (g/mL) G Lab File ID:

Level: (low/med) MED Date Received: 12/02/88

% Moisture: not dec. 26 dec. Date Extracted: 12/08/88

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 12/28/88

GPC Cleanup: (Y/N) N pH: 4 Dilution Factor: ~~0.10000~~ 10 cor 1/23/89

CAS No.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
-319-84-6	alpha-BHC	1600	UD
-319-85-7	beta-BHC	1600	UD
-319-86-8	delta-BHC	1600	UD
-58-89-9	gamma-BHC (Lindane)	1600	UD
-76-44-8	Heptachlor	1600	UD
-309-00-2	Aldrin	1600	UD
-1024-57-3	Heptachlor epoxide	1600	UD
-959-98-8	Endosulfan I	1600	UD
-60-57-1	Dieldrin	3200	UD
-72-55-9	4,4'-DDE	3200	UD
-72-20-8	Endrin	3200	UD
-33213-65-9	Endosulfan II	3200	UD
-72-54-8	4,4'-DDD	3200	UD
-1031-07-8	Endosulfan sulfate	3200	UD
-50-29-3	4,4'-DDT	3200	UD
-72-43-5	Methoxychlor	16000	UD
-53494-70-5	Endrin Ketone	3200	UD
-5103-71-9	alpha-Chlordane	16000	UD
-5103-74-2	gamma-Chlordane	16000	UD
-8001-35-2	Toxaphene	32000	UD
-12674-11-2	Aroclor-1016	16000	UD
-11104-28-2	Aroclor-1221	16000	UD
-11141-16-5	Aroclor-1232	16000	UD
-53469-21-9	Aroclor-1242	16000	UD
-12672-29-6	Aroclor-1248	16000	UD
-11097-69-1	Aroclor-1254	32000	UD
-11096-82-5	Aroclor-1260	32000	UD

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SOIL 9D

Lab Name: ENVIRODYNE ENGINEERS Contract: 3210

Lab Code: EEI Case No.: 02 SAS No.: NA SDG No.: SOIL1

Matrix: (soil/water) SOIL Lab Sample ID: 88011715

Sample wt/vol: 5 (g/mL) G Lab File ID: >B0564

Level: (low/med) LOW Date Received: 12/02/88

% Moisture: not dec. 21 Date Analyzed: 12/17/88

Column: (pack/cap) PACK Dilution Factor: 1.00000

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q
74-87-3	Chloromethane	13	U
74-83-9	Bromomethane	13	U
75-01-4	Vinyl Chloride	13	U
75-00-3	Chloroethane	13	U
75-09-2	Methylene Chloride	6	U
67-64-1	Acetone	18	B
75-15-0	Carbon Disulfide	6	U
75-35-4	1,1-Dichloroethene	6	U
75-34-3	1,1-Dichloroethane	6	U
540-59-0	1,2-Dichloroethene (total)	6	U
67-66-3	Chloroform	6	U
107-02-2	1,2-Dichloroethane	6	U
78-93-3	2-Butanone	13	U
71-55-6	1,1,1-Trichloroethane	6	U
56-23-5	Carbon Tetrachloride	6	U
108-05-4	Vinyl Acetate	13	U
75-27-4	Bromodichloromethane	6	U
78-87-5	1,2-Dichloropropane	6	U
10061-01-5	cis-1,3-Dichloropropene	6	U
79-01-6	Trichloroethene	6	U
124-48-1	Dibromochloromethane	6	U
79-00-5	1,1,2-Trichloroethane	6	U
71-43-2	Benzene	6	U
10061-02-6	trans-1,3-Dichloropropene	6	U
75-25-2	Bromoform	6	U
108-10-1	4-Methyl-2-pentanone	13	U
591-78-6	2-Hexanone	13	U
127-18-4	Tetrachloroethene	6	U
79-34-5	1,1,2,2-Tetrachloroethane	6	U
108-88-3	Toluene	6	U
108-90-7	Chlorobenzene	6	U
100-41-4	Ethylbenzene	6	U
100-42-5	Styrene	6	U
133-02-7	Xylene (total)	6	U

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SOIL9D

Lab Name: ENVIRODYNE ENG., INC. Contract: 3210

Lab Code: Case No.: 00002 SAS No.: SDG No.: SOIL1

Matrix: SOIL Lab Sample ID: 88011715

Sample wt/vol: 30 (g/mL) G Lab File ID: C1343

Level: (low/med) LOW Date Received: 12/02/88

% Moisture: not dec. 21 dec. Date Extracted: 01/04/89

Extraction: (SepF/Cont/Sonc) SONC Date Analysed: 01/05/89

GPC Cleanup: (Y/N) N pH: 7 Dilution Factor: 1.00000

CAS No.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	420	U
111-44-4	bis(2-Chloroethyl) ether	420	U
95-57-8	2-Chlorophenol	420	U
541-73-1	1,3-Dichlorobenzene	420	U
106-46-7	1,4-Dichlorobenzene	420	U
100-51-6	Benzyl Alcohol	420	U
95-50-1	1,2-Dichlorobenzene	420	U
95-48-7	2-Methylphenol	420	U
108-60-1	bis(2-Chloroisopropyl)ether	420	U
106-44-5	4-Methylphenol	420	U
621-64-7	N-Nitroso-di-n-dipropylamine	420	U
67-72-1	Hexachloroethane	420	U
98-95-3	Nitrobenzene	420	U
78-59-1	Isophorone	420	U
88-75-5	2-Nitrophenol	420	U
105-67-9	2,4-Dimethylphenol	420	U
65-85-0	Benzoic Acid	2000	U
111-91-1	bis(2-Chloroethoxy)methane	420	U
120-83-2	2,4-Dichlorophenol	420	U
120-82-1	1,2,4-Trichlorobenzene	420	U
91-20-3	Naphthalene	420	U
106-47-8	4-Chloroaniline	420	U
87-68-3	Hexachlorobutadiene	420	U
59-50-7	4-Chloro-3-methylphenol	420	U
91-57-6	2-Methylnaphthalene	420	U
77-47-4	Hexachlorocyclopentadiene	420	U
88-06-2	2,4,6-Trichlorophenol	420	U
95-95-4	2,4,5-Trichlorophenol	2000	U
91-58-7	2-Chloronaphthalene	420	U
88-74-4	2-Nitroaniline	2000	U
131-11-3	Dimethylphthalate	420	U
208-96-8	Acenaphthylene	420	U
606-20-2	2,6-Dinitrotoluene	420	U

E154

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SOIL9D

Lab Name: ENVIRODYNE ENG., INC. Contract: 3210

Lab Code: Case No.: 00002 SAS No.: SDG No.: SOIL1

Matrix: SOIL Lab Sample ID: 88011715

Sample wt/vol: 30 (g/mL) G Lab File ID: C1343

Level: (low/med) LOW Date Received: 12/02/88

% Moisture: not dec. 21 dec. Date Extracted: 01/04/89

Extraction: (SepF/Cont/Sonc) SONC Date Analysed: 01/05/89

GPC Cleanup: (Y/N) N pH: 7 Dilution Factor: 1.00000

CAS No.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
-99-09-2	3-Nitroaniline	2000	U
-83-32-9	Acenaphthene	420	U
-51-28-5	2,4-Dinitrophenol	2000	U
-100-02-7	4-Nitrophenol	2000	U
-132-64-9	Dibenzofuran	420	U
-121-14-2	2,4-Dinitrotoluene	420	U
-84-66-2	Diethylphthalate	420	U
-7005-72-3	4-Chlorophenyl-phenyl ether	420	U
-86-73-7	Fluorene	420	U
-100-01-6	4-Nitroaniline	2000	U
-534-52-1	4,6-Dinitro-2-methylphenol	2000	U
-86-30-6	N-Nitrosodiphenylamine (1)	420	U
-101-55-3	4-Bromophenyl-phenyl ether	420	U
-118-74-1	Hexachlorobenzene	420	U
-87-86-5	Pentachlorophenol	2000	U
-85-01-8	Phenanthrene	420	U
-120-12-7	Anthracene	420	U
-84-74-2	Di-n-butylphthalate	420	U
-206-44-0	Fluoranthene	420	U
-129-00-0	Pyrene	420	U
-85-68-7	Butylbenzylphthalate	420	U
-91-94-1	3,3'-Dichlorobenzidine	840	U
-56-55-3	Benzo(a)anthracene	420	U
-218-01-9	Chrysene	420	U
-117-81-7	bis(2-ethylhexyl)phthalate	420	U
-117-84-0	Di-n-octylphthalate	420	U
-205-99-2	Benzo(b)fluoranthene	420	U
-207-0809	Benzo(k)fluoranthene	420	U
-50-32-8	Benzo(a)pyrene	420	U
-193-39-5	Indeno(1,2,3-cd)pyrene	420	U
-53-70-3	Dibenzo(a,h)anthracene	420	U
-191-24-2	Benzo(g,h,i)perylene	420	U

(1) - Cannot be separated from Diphenylamine

E155

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SOIL 9D

Lab Name: ENVIRODYNE ENG., INC. Contract: 3210

Lab Code: Case No.: 0002 SAS No.: SDG No.: SOIL1

Matrix: (soil/water) SOIL Lab Sample ID: 88011715

Sample wt/vol: 30 (g/mL) G Lab File ID:

Level: (low/med) LOW Date Received: 12/02/88

% Moisture: not dec. 21 dec. Date Extracted: 12/12/88

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 12/27/88

GPC Cleanup: (Y/N) N pH: 7 Dilution Factor: 1.00000

CAS No.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	10	U
319-85-7	beta-BHC	10	U
319-86-8	delta-BHC	10	U
58-89-9	gamma-BHC (Lindane)	10	U
76-44-8	Heptachlor	10	U
309-00-2	Aldrin	10	U
1024-57-3	Heptachlor epoxide	10	U
959-98-8	Endosulfan I	10	U
60-57-1	Dieldrin	20	U
72-55-9	4,4'-DDE	20	U
72-20-8	Endrin	20	U
33213-65-9	Endosulfan II	20	U
72-54-8	4,4'-DDD	20	U
1031-07-8	Endosulfan sulfate	20	U
50-29-3	4,4'-DDT	20	U
72-43-5	Methoxychlor	100	U
53494-70-5	Endrin Ketone	20	U
5103-71-9	alpha-Chlordane	100	U
5103-74-2	gamma-Chlordane	100	U
8001-35-2	Toxaphene	200	U
12674-11-2	Aroclor-1016	100	U
11104-28-2	Aroclor-1221	100	U
11141-16-5	Aroclor-1232	100	U
53469-21-9	Aroclor-1242	100	U
12672-29-6	Aroclor-1248	100	U
11097-69-1	Aroclor-1254	200	U
11096-82-5	Aroclor-1260	200	U

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SOIL 9D DL

Lab Name: ENVIRODYNE ENG., INC. Contract: 3210

Lab Code: Case No.: 0002 SAS No.: SDG No.: SOIL1

Matrix: (soil/water) SOIL Lab Sample ID: 88011715

Sample wt/vol: 30 (g/mL) G Lab File ID:

Level: (low/med) LOW Date Received: 12/02/88

% Moisture: not dec. 21 dec. Date Extracted: 12/12/88

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 12/24/88

GPC Cleanup: (Y/N) N pH: 7 Dilution Factor: ~~0.10000~~ 10 caj 1/23/89

CAS No.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	100	UD
319-85-7	beta-BHC	100	UD
319-86-8	delta-BHC	100	UD
58-89-9	gamma-BHC (Lindane)	100	UD
76-44-8	Heptachlor	100	UD
309-00-2	Aldrin	100	UD
1024-57-3	Heptachlor epoxide	100	UD
959-98-8	Endosulfan I	100	UD
60-57-1	Dieldrin	200	UD
72-55-9	4,4'-DDE	200	UD
72-20-8	Endrin	200	UD
33213-65-9	Endosulfan II	200	UD
72-54-8	4,4'-DDD	200	UD
1031-07-8	Endosulfan sulfate	200	UD
50-29-3	4,4'-DDT	200	UD
72-43-5	Methoxychlor	1000	UD
53494-70-5	Endrin Ketone	200	UD
5103-71-9	alpha-Chlordane	1000	UD
5103-74-2	gamma-Chlordane	1000	UD
8001-35-2	Toxaphene	2000	UD
12674-11-2	Aroclor-1016	1000	UD
11104-28-2	Aroclor-1221	1000	UD
11141-16-5	Aroclor-1232	1000	UD
53469-21-9	Aroclor-1242	1000	UD
12672-29-6	Aroclor-1248	1000	UD
11097-69-1	Aroclor-1254	2000	UD
11096-82-5	Aroclor-1260	2000	UD

1H

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SOIL 10

Lab Name: ENVIRODYNE ENGINEERS Contract: 3210

Lab Code: EEI Case No.: 02 SAS No.: NA SDG No.: SOIL 1

Matrix: (soil/water) SOIL Lab Sample ID: 88011716

Sample wt/vol: 5 (g/mL) G Lab File ID: >B0563

Level: (low/med) LOW Date Received: 12/02/88

% Moisture: not dec. 14 Date Analyzed: 12/17/88

Column: (pack/cap) PACK Dilution Factor: 1.00000

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q
74-87-3	Chloromethane	12	U
74-83-9	Bromomethane	12	U
75-01-4	Vinyl Chloride	12	U
75-00-3	Chloroethane	12	U
75-09-2	Methylene Chloride	13	
67-64-1	Acetone	19	B
75-15-0	Carbon Disulfide	6	U
75-35-4	1,1-Dichloroethene	6	U
75-34-3	1,1-Dichloroethane	2	J
540-59-0	1,2-Dichloroethene (total)	6	
67-66-3	Chloroform	6	U
107-02-2	1,2-Dichloroethane	6	U
78-93-3	2-Butanone	12	U
71-55-6	1,1,1-Trichloroethane	7	
56-23-5	Carbon Tetrachloride	6	U
108-05-4	Vinyl Acetate	12	U
75-27-4	Bromodichloromethane	6	U
78-87-5	1,2-Dichloropropane	6	U
10061-01-5	cis-1,3-Dichloropropene	6	U
79-01-6	Trichloroethene	6	U
124-48-1	Dibromochloromethane	6	U
79-00-5	1,1,2-Trichloroethane	6	U
71-43-2	Benzene	4	J
10061-02-6	trans-1,3-Dichloropropene	6	U
75-25-2	Bromoform	6	U
108-10-1	4-Methyl-2-pentanone	12	U
591-78-6	2-Hexanone	12	U
127-18-4	Tetrachloroethene	2	J
79-34-5	1,1,2,2-Tetrachloroethane	6	U
108-88-3	Toluene	6	U
108-90-7	Chlorobenzene	2	J
100-41-4	Ethylbenzene	6	U
100-42-5	Styrene	6	U
133-02-7	Xylene (total)	6	U

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SOIL10

Lab Name: ENVIRODYNE ENG., INC. Contract: 3210

Lab Code: Case No.: 00002 SAS No.: SDG No.: SOIL1

Matrix: SOIL Lab Sample ID: 88011716

Sample wt/vol: 30 (g/mL) G Lab File ID: C1344

Level: (low/med) LOW Date Received: 12/02/88

% Moisture: not dec. 14 dec. Date Extracted: 01/04/89

Extraction: (SepF/Cont/Sonc) SONC Date Analysed: 01/05/89

GPC Cleanup: (Y/N) N pH: 7 Dilution Factor: 1.00000

CAS No.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	380	U
111-44-4	bis(2-Chloroethyl) ether	380	U
95-57-8	2-Chlorophenol	380	U
541-73-1	1,3-Dichlorobenzene	380	U
106-46-7	1,4-Dichlorobenzene	380	U
100-51-6	Benzyl Alcohol	380	U
95-50-1	1,2-Dichlorobenzene	380	U
95-48-7	2-Methylphenol	380	U
108-60-1	bis(2-Chloroisopropyl)ether	380	U
106-44-5	4-Methylphenol	380	U
621-64-7	N-Nitroso-di-n-dipropylamine	380	U
67-72-1	Hexachloroethane	380	U
98-95-3	Nitrobenzene	380	U
78-59-1	Isophorone	380	U
88-75-5	2-Nitrophenol	380	U
105-67-9	2,4-Dimethylphenol	380	U
65-85-0	Benzoic Acid	1900	U
111-91-1	bis(2-Chloroethoxy)methane	380	U
120-83-2	2,4-Dichlorophenol	380	U
120-82-1	1,2,4-Trichlorobenzene	380	U
91-20-3	Naphthalene	380	U
106-47-8	4-Chloroaniline	380	U
87-68-3	Hexachlorobutadiene	380	U
59-50-7	4-Chloro-3-methylphenol	380	U
91-57-6	2-Methylnaphthalene	380	U
77-47-4	Hexachlorocyclopentadiene	380	U
88-06-2	2,4,6-Trichlorophenol	380	U
95-95-4	2,4,5-Trichlorophenol	1900	U
91-58-7	2-Chloronaphthalene	380	U
88-74-4	2-Nitroaniline	1900	U
131-11-3	Dimethylphthalate	380	U
208-96-8	Acenaphthylene	380	U
606-20-2	2,6-Dinitrotoluene	380	U

E159

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SOIL10

Lab Name: ENVIRODYNE ENG., INC. Contract: 3210

Lab Code: Case No.: 00002 SAS No.: SDG No.: SOIL1

Matrix: SOIL Lab Sample ID: 88011716

Sample wt/vol: 30 (g/mL) G Lab File ID: C1344

Level: (low/med) LOW Date Received: 12/02/88

% Moisture: not dec. 14 dec. Date Extracted: 01/04/89

Extraction: (SepF/Cont/Sonc) SONC Date Analysed: 01/05/89

GPC Cleanup: (Y/N) N pH: 7 Dilution Factor: 1.00000

CAS No.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
99-09-2	3-Nitroaniline	1900	U
83-32-9	Acenaphthene	380	U
51-28-5	2,4-Dinitrophenol	1900	U
100-02-7	4-Nitrophenol	1900	U
132-64-9	Dibenzofuran	380	U
121-14-2	2,4-Dinitrotoluene	380	U
84-66-2	Diethylphthalate	380	U
7005-72-3	4-Chlorophenyl-phenyl ether	380	U
86-73-7	Fluorene	380	U
100-01-6	4-Nitroaniline	1900	U
534-52-1	4,6-Dinitro-2-methylphenol	1900	U
86-30-6	N-Nitrosodiphenylamine (1)	380	U
101-55-3	4-Bromophenyl-phenyl ether	380	U
118-74-1	Hexachlorobenzene	380	U
87-86-5	Pentachlorophenol	1900	U
85-01-8	Phenanthrene	380	U
120-12-7	Anthracene	380	U
84-74-2	Di-n-butylphthalate	380	U
206-44-0	Fluoranthene	42	J
129-00-0	Pyrene	41	J
85-68-7	Butylbenzylphthalate	380	U
91-94-1	3,3'-Dichlorobenzidine	770	U
56-55-3	Benzo(a)anthracene	380	U
218-01-9	Chrysene	380	U
117-81-7	bis(2-ethylhexyl)phthalate	380	U
117-84-0	Di-n-octylphthalate	380	U
205-99-2	Benzo(b)fluoranthene	380	U
207-0809	Benzo(k)fluoranthene	380	U
50-32-8	Benzo(a)pyrene	380	U
193-39-5	Indeno(1,2,3-cd)pyrene	380	U
53-70-3	Dibenzo(a,h)anthracene	380	U
191-24-2	Benzo(g,h,i)perylene	380	U

(1) - Cannot be separated from Diphenylamine

E 15C

237

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SOIL 10

Lab Name: ENVIRODYNE ENG., INC. Contract: 3210

Lab Code: Case No.: 0002 SAS No.: SDG No.: SOIL1

Matrix: (soil/water) SOIL Lab Sample ID: 88011716

Sample wt/vol: 30 (g/mL) G Lab File ID:

Level: (low/med) LOW Date Received: 12/02/88

% Moisture: not dec. 14 dec. Date Extracted: 12/12/88

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 12/27/88

GPC Cleanup: (Y/N) N pH: 7 Dilution Factor: 1.00000

CAS No.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	9.0	U
319-85-7	beta-BHC	9.0	U
319-86-8	delta-BHC	9.0	U
58-89-9	gamma-BHC (Lindane)	9.0	U
76-44-8	Heptachlor	9.0	U
309-00-2	Aldrin	9.0	U
1024-57-3	Heptachlor epoxide	9.0	U
959-98-8	Endosulfan I	9.0	U
60-57-1	Dieldrin	19	U
72-55-9	4,4'-DDE	19	U
72-20-8	Endrin	19	U
33213-65-9	Endosulfan II	19	U
72-54-8	4,4'-DDD	19	U
1031-07-8	Endosulfan sulfate	19	U
50-29-3	4,4'-DDT	19	U
72-43-5	Methoxychlor	93	U
53494-70-5	Endrin Ketone	19	U
5103-71-9	alpha-Chlordane	93	U
5103-74-2	gamma-Chlordane	93	U
8001-35-2	Toxaphene	190	U
12674-11-2	Aroclor-1016	93	U
11104-28-2	Aroclor-1221	93	U
11141-16-5	Aroclor-1232	93	U
53469-21-9	Aroclor-1242	93	U
12672-29-6	Aroclor-1248	93	U
11097-69-1	Aroclor-1254	190	U
11096-82-5	Aroclor-1260	190	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SOIL 11

Lab Name: ENVIRODYNE ENGINEERS Contract: 3210

Lab Code: EEI Case No.: 02 SAS No.: NA SDG No.: SOIL1

Matrix: (soil/water) SOIL Lab Sample ID: 88011717

Sample wt/vol: 4 (g/mL) G Lab File ID: >B0491

Level: (low/med) MED Date Received: 12/02/88

% Moisture: not dec. 32 Date Analyzed: 12/11/88

Column: (pack/cap) PACK Dilution Factor: ~~125~~ 1

caj 1/19/89

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q
74-87-3	Chloromethane	1850	U
74-83-9	Bromomethane	1850	U
75-01-4	Vinyl Chloride	1850	U
75-00-3	Chloroethane	1850	U
75-09-2	Methylene Chloride	920	U
67-64-1	Acetone	4890	B
75-15-0	Carbon Disulfide	920	U
75-35-4	1,1-Dichloroethene	920	U
75-34-3	1,1-Dichloroethane	920	U
540-59-0	1,2-Dichloroethene (total)	920	U
67-66-3	Chloroform	920	U
107-02-2	1,2-Dichloroethane	920	U
78-93-3	2-Butanone	1850	U
71-55-6	1,1,1-Trichloroethane	920	U
56-23-5	Carbon Tetrachloride	920	U
108-05-4	Vinyl Acetate	1580	U
75-27-4	Bromodichloromethane	920	U
78-87-5	1,2-Dichloropropane	920	U
10061-01-5	cis-1,3-Dichloropropene	920	U
79-01-6	Trichloroethene	920	U
124-48-1	Dibromochloromethane	920	U
79-00-5	1,1,2-Trichloroethane	920	U
71-43-2	Benzene	920	U
10061-02-6	trans-1,3-Dichloropropene	920	U
75-25-2	Bromoform	920	U
108-10-1	4-Methyl-2-pentanone	1850	U
591-78-6	2-Hexanone	1850	U
127-18-4	Tetrachloroethene	920	U
79-34-5	1,1,2,2-Tetrachloroethane	920	U
108-88-3	Toluene	640	JB
108-90-7	Chlorobenzene	980	
100-41-4	Ethylbenzene	290	J
100-42-5	Styrene	920	U
133-02-7	Xylene (total)	830	J

E16

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SOIL 11

Lab Name: ENVIRODYNE ENG., INC. Contract: 3210

Lab Code: Case No.: 00002 SAS No.: SDG No.:SOIL1

Matrix: SOIL Lab Sample ID: 88011717

Sample wt/vol: 1.01 (g/mL) G Lab File ID: C1353

Level: (low/med) MED Date Received: 12/02/88

% Moisture: not dec. 32 dec. 83 Date Extracted:12/09/88

Extraction: (SepF/Cont/Sonc) SONC Date Analysed: 01/06/89

GPC Cleanup: (Y/N) N pH: 7 Dilution Factor: 1.00000

CAS No.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	29000	U
111-44-4	bis(2-Chloroethyl) ether	29000	U
95-57-8	2-Chlorophenol	29000	U
541-73-1	1,3-Dichlorobenzene	18000	J
106-46-7	1,4-Dichlorobenzene	23000	J
100-51-6	Benzyl Alcohol	29000	U
95-50-1	1,2-Dichlorobenzene	150000	
95-48-7	2-Methylphenol	29000	U
108-60-1	bis(2-Chloroisopropyl)ether	29000	U
106-44-5	4-Methylphenol	29000	U
621-64-7	N-Nitroso-di-n-dipropylamine	29000	U
67-72-1	Hexachloroethane	29000	U
98-95-3	Nitrobenzene	29000	U
78-59-1	Isophorone	29000	U
88-75-5	2-Nitrophenol	29000	U
105-67-9	2,4-Dimethylphenol	29000	U
65-85-0	Benzoic Acid	140000	U
111-91-1	bis(2-Chloroethoxy)methane	29000	U
120-83-2	2,4-Dichlorophenol	29000	U
120-82-1	1,2,4-Trichlorobenzene	99000	
91-20-3	Naphthalene	7900	J
106-47-8	4-Chloroaniline	29000	U
87-68-3	Hexachlorobutadiene	29000	U
59-50-7	4-Chloro-3-methylphenol	29000	U
91-57-6	2-Methylnaphthalene	29000	U
77-47-4	Hexachlorocyclopentadiene	29000	U
88-06-2	2,4,6-Trichlorophenol	29000	U
95-95-4	2,4,5-Trichlorophenol	140000	U
91-58-7	2-Chloronaphthalene	29000	U
88-74-4	2-Nitroaniline	140000	U
131-11-3	Dimethylphthalate	29000	U
208-96-8	Acenaphthylene	29000	U
606-20-2	2,6-Dinitrotoluene	29000	U

E163

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SOIL 11

Lab Name: ENVIRODYNE ENG., INC. Contract: 3210

Lab Code: Case No.: 00002 SAS No.: SDG No.:SOIL1

Matrix: SOIL Lab Sample ID: 88011717

Sample wt/vol: 1.01 (g/mL) G Lab File ID: C1353

Level: (low/med) MED Date Received: 12/02/88

% Moisture: not dec. 32 dec. Date Extracted:12/09/88

Extraction: (SepF/Cont/Sonc) SONC Date Analysed: 01/06/89

GPC Cleanup: (Y/N) N pH: 7 Dilution Factor: 1.00000

CAS No.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
-99-09-2	3-Nitroaniline	140000	U
-83-32-9	Acenaphthene	29000	U
-51-28-5	2,4-Dinitrophenol	140000	U
-100-02-7	4-Nitrophenol	140000	U
-132-64-9	Dibenzofuran	29000	U
-121-14-2	2,4-Dinitrotoluene	29000	U
-84-66-2	Diethylphthalate	29000	U
-7005-72-3	4-Chlorophenyl-phenyl ether	29000	U
-86-73-7	Fluorene	29000	U
-100-01-6	4-Nitroaniline	140000	U
-534-52-1	4,6-Dinitro-2-methylphenol	140000	U
-86-30-6	N-Nitrosodiphenylamine (1)	29000	U
-101-55-3	4-Bromophenyl-phenyl ether	29000	U
-118-74-1	Hexachlorobenzene	29000	U
-87-86-5	Pentachlorophenol	140000	U
-85-01-8	Phenanthrene	29000	U
-120-12-7	Anthracene	29000	U
-84-74-2	Di-n-butylphthalate	29000	U
-206-44-0	Fluoranthene	29000	U
-129-00-0	Pyrene	29000	U
-85-68-7	Butylbenzylphthalate	29000	U
-91-94-1	3,3'-Dichlorobenzidine	58000	U
-56-55-3	Benzo(a)anthracene	29000	U
-218-01-9	Chrysene	29000	U
-117-81-7	bis(2-ethylhexyl)phthalate	2700	J
-117-84-0	Di-n-octylphthalate	29000	U
-205-99-2	Benzo(b)fluoranthene	29000	U
-207-0809	Benzo(k)fluoranthene	29000	U
-50-32-8	Benzo(a)pyrene	29000	U
-193-39-5	Indeno(1,2,3-cd)pyrene	29000	U
-53-70-3	Dibenzo(a,h)anthracene	29000	U
-191-24-2	Benzo(g,h,i)perylene	29000	U

(1) - Cannot be separated from Diphenylamine

E164

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SOIL 11

Lab Name: ENVIRODYNE ENG., INC. Contract: 3210

Lab Code: Case No.: 0002 SAS No.: SDG No.: SOIL1

Matrix: (soil/water) SOIL Lab Sample ID: 88011717

Sample wt/vol: 1 (g/mL) G Lab File ID:

Level: (low/med) MED Date Received: 12/02/88

% Moisture: not dec. 23 dec. Date Extracted: 12/08/88

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 01/04/89

GPC Cleanup: (Y/N) N pH: 7 Dilution Factor: 1.00000

CAS No.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	160	U
319-85-7	beta-BHC	160	U
319-86-8	delta-BHC	160	U
58-89-9	gamma-BHC (Lindane)	160	U
76-44-8	Heptachlor	160	U
309-00-2	Aldrin	160	U
1024-57-3	Heptachlor epoxide	160	U
959-98-8	Endosulfan I	160	U
60-57-1	Dieldrin	310	U
72-55-9	4,4'-DDE	310	U
72-20-8	Endrin	310	U
33213-65-9	Endosulfan II	310	U
72-54-8	4,4'-DDD	310	U
1031-07-8	Endosulfan sulfate	310	U
50-29-3	4,4'-DDT	310	U
72-43-5	Methoxychlor	1600	U
53494-70-5	Endrin Ketone	310	U
5103-71-9	alpha-Chlordane	1600	U
5103-74-2	gamma-Chlordane	1600	U
8001-35-2	Toxaphene	3100	U
12674-11-2	Aroclor-1016	1600	U
11104-28-2	Aroclor-1221	1600	U
11141-16-5	Aroclor-1232	1600	U
53469-21-9	Aroclor-1242	1600	U
12672-29-6	Aroclor-1248	1600	U
11097-69-1	Aroclor-1254	3100	U
11096-82-5	Aroclor-1260	3100	U

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SOIL 11 DL

Lab Name: ENVIRODYNE ENG., INC. Contract: 3210

Lab Code: Case No.: 0002 SAS No.: SDG No.: SOIL1

Matrix: (soil/water) SOIL Lab Sample ID: 88011717

Sample wt/vol: 1 (g/mL) G Lab File ID:

Level: (low/med) MED Date Received: 12/02/88

% Moisture: not dec. 23 dec. Date Extracted: 12/08/88

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 12/28/88

GPC Cleanup: (Y/N) N pH: 7 Dilution Factor: ~~0.10000~~ 10 caj 1/23/89

CAS No.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	1600	UD
319-85-7	beta-BHC	1600	UD
319-86-8	delta-BHC	1600	UD
58-89-9	gamma-BHC (Lindane)	1600	UD
76-44-8	Heptachlor	1600	UD
309-00-2	Aldrin	1600	UD
1024-57-3	Heptachlor epoxide	1600	UD
959-98-8	Endosulfan I	1600	UD
60-57-1	Dieldrin	3100	UD
72-55-9	4,4'-DDE	3100	UD
72-20-8	Endrin	3100	UD
33213-65-9	Endosulfan II	3100	UD
72-54-8	4,4'-DDD	3100	UD
1031-07-8	Endosulfan sulfate	3100	UD
50-29-3	4,4'-DDT	3100	UD
72-43-5	Methoxychlor	16000	UD
53494-70-5	Endrin Ketone	3100	UD
5103-71-9	alpha-Chlordane	16000	UD
5103-74-2	gamma-Chlordane	16000	UD
8001-35-2	Toxaphene	31000	UD
12674-11-2	Aroclor-1016	16000	UD
11104-28-2	Aroclor-1221	16000	UD
11141-16-5	Aroclor-1232	16000	UD
53469-21-9	Aroclor-1242	16000	UD
12672-29-6	Aroclor-1248	16000	UD
11097-69-1	Aroclor-1254	31000	UD
11096-82-5	Aroclor-1260	31000	UD

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1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

SED1

Lab Name: Envirodyne Engineers, Inc Contract: 3210

Lab Code: EEI Case No.: 0002 SAS No.: SDG No.: SOIL1

Matrix (soil/water): SOIL Lab Sample ID: 88011718

Level (low/med): LOW Date Received: 12/02/88

% Solids: 67.3

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	3860			P
7440-36-0	Antimony	3.0	B	N	F
7440-38-2	Arsenic	23.8		N	F
7440-39-3	Barium	151			P
7440-41-7	Beryllium	7.1			P
7440-43-9	Cadmium	1.3	U		P
7440-70-2	Calcium	1110	B	*	P
7440-47-3	Chromium	861			P
7440-48-4	Cobalt	7.4	B		P
7440-50-8	Copper	113			P
7439-89-6	Iron	14400		E	P
7439-92-1	Lead	248			P
7439-95-4	Magnesium	1630			P
7439-96-5	Manganese	114		N	P
7439-97-6	Mercury	3.6			CV
7440-02-0	Nickel	11.4			P
7440-09-7	Potassium	953.6	B		A
7782-49-2	Selenium	0.53	U	N	F
7440-22-4	Silver	0.53	U	N	F
7440-23-5	Sodium	711	B		P
7440-28-0	Thallium	0.58	U	N	F
7440-62-2	Vanadium	25.9			P
7440-66-6	Zinc	45.7			P
	Cyanide	1.35			335
	PHENOL	0.20	U		420

Color Before: BLACK Clarity Before: Texture: MEDIUM

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

FORM I - IN

7/87
Rev. IFB Amendment One

E167 81

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

SED2

Lab Name: Envirodyne Engineers, Inc Contract: 3210

Lab Code: EEI Case No.: 0002 SAS No.: SDG No.: SOIL1

Matrix (soil/water): SOIL Lab Sample ID: 88011719

Level (low/med): LOW Date Received: 12/02/88

% Solids: 30.1

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	20100			P
7440-36-0	Antimony	5.4	B	N	F
7440-38-2	Arsenic	20.9	B	N	F
7440-39-3	Barium	2120			P
7440-41-7	Beryllium	23.0			P
7440-43-9	Cadmium	15.7			P
7440-70-2	Calcium	11300		*	P
7440-47-3	Chromium	689			P
7440-48-4	Cobalt	406			P
7440-50-8	Copper	17100			P
7439-89-6	Iron	50700		E	P
7439-92-1	Lead	1560			P
7439-95-4	Magnesium	6460			P
7439-96-5	Manganese	260		N	P
7439-97-6	Mercury	3.1			CV
7440-02-0	Nickel	124			P
7440-09-7	Potassium	2316	B		A
7782-49-2	Selenium	11.9		NS	F
7440-22-4	Silver	1.4	B	N	F
7440-23-5	Sodium	4560			P
7440-28-0	Thallium	1.4	U	N	F
7440-62-2	Vanadium	90.6			P
7440-66-6	Zinc	1170			P
	Cyanide	6.36			335
	PHENOL	9.72			420

Color Before: BLACK Clarity Before: Texture: MEDIUM

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

FORM I - IN 7/87

Rev. IFB Amendment One

168 4

U.S. EPA - CLP

EPA SAMPLE NO.

1

INORGANIC ANALYSIS DATA SHEET

SED3

Lab Name: Envirodyne Engineers, Inc Contract: 3210

Lab Code: EEI Case No.: 0002 SAS No.: SDG No.: SOIL1

Matrix (soil/water): SOIL Lab Sample ID: 88011720

Level (low/med): LOW Date Received: 12/02/88

% Solids: 78.8

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	4610			P
7440-36-0	Antimony	0.69	U	N	F
7440-38-2	Arsenic	7.7		N	F
7440-39-3	Barium	158			P
7440-41-7	Beryllium	12.1			P
7440-43-9	Cadmium	3.2			P
7440-70-2	Calcium	3720		*	P
7440-47-3	Chromium	90.4			P
7440-48-4	Cobalt	205			P
7440-50-8	Copper	246			P
7439-89-6	Iron	25100		E	P
7439-92-1	Lead	211			P
7439-95-4	Magnesium	2460			P
7439-96-5	Manganese	132		N	P
7439-97-6	Mercury	3.9			CV
7440-02-0	Nickel	105			P
7440-09-7	Potassium	374	B		A
7782-49-2	Selenium	0.45	U	N	F
7440-22-4	Silver	2.3		N	F
7440-23-5	Sodium	1410			P
7440-28-0	Thallium	0.50	U	N	F
7440-62-2	Vanadium	24.9			P
7440-66-6	Zinc	503			P
	Cyanide	1.51			335
	PHENOL	14604			420

Color Before: BROWN Clarity Before: Texture: FINE

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

SED4

Lab Name: Envirodyne Engineers, Inc Contract: 3210

Lab Code: EEI Case No.: 0002 SAS No.: SDG No.: SOIL1

Matrix (soil/water): SOIL Lab Sample ID: 88011721

Level (low/med): LOW Date Received: 12/02/88

% Solids: 72.8

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	1120			P
7440-36-0	Antimony	1.6	B	N	F
7440-38-2	Arsenic	32.6		N	F
7440-39-3	Barium	148			P
7440-41-7	Beryllium	13.4			P
7440-43-9	Cadmium	1.2	U		P
7440-70-2	Calcium	242	B	*	P
7440-47-3	Chromium	33.3			P
7440-48-4	Cobalt	5.1	B		P
7440-50-8	Copper	49.8			P
7439-89-6	Iron	28900		E	P
7439-92-1	Lead	77.0			F
7439-95-4	Magnesium	518	B		P
7439-96-5	Manganese	75.6		N	P
7439-97-6	Mercury	3.8			CV
7440-02-0	Nickel	13.4			P
7440-09-7	Potassium	190	B		A
7782-49-2	Selenium	0.52	U	N	F
7440-22-4	Silver	0.54	B	N	F
7440-23-5	Sodium	246	B		P
7440-28-0	Thallium	0.57	U	N	F
7440-62-2	Vanadium	10.0	B		P
7440-66-6	Zinc	21.2			P
	Cyanide	1.85			335
	PHENOL	0.15			420

Color Before: BLACK Clarity Before: Texture: MEDIUM

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

FORM I - IN

7/87
Rev. IFB Amendment One

E170

64

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

SED5

Lab Name: Envirodyne Engineers, Inc Contract: 3210

Lab Code: EEI Case No.: 0002 SAS No.: SDG No.: SOIL1

Matrix (soil/water): SOIL Lab Sample ID: 88011722

Level (low/med): LOW Date Received: 12/02/88

% Solids: 57.5

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	6830			P
7440-36-0	Antimony	0.90	U	N	F
7440-38-2	Arsenic	18.2		N	F
7440-39-3	Barium	1270			P
7440-41-7	Beryllium	11.6			P
7440-43-9	Cadmium	4.8			P
7440-70-2	Calcium	1270	B	*	P
7440-47-3	Chromium	448			P
7440-48-4	Cobalt	10.0	B		P
7440-50-8	Copper	325			P
7439-89-6	Iron	24200		E	P
7439-92-1	Lead	255			P
7439-95-4	Magnesium	2720			P
7439-96-5	Manganese	70.9		N	P
7439-97-6	Mercury	74.8			CV
7440-02-0	Nickel	49.9			P
7440-09-7	Potassium	815	B		A
7782-49-2	Selenium	3.2	U	N	F
7440-22-4	Silver	1.2	B	N	F
7440-23-5	Sodium	1830			P
7440-28-0	Thallium	0.70	U	N	F
7440-62-2	Vanadium	56.7			P
7440-66-6	Zinc	156			P
	Cyanide	2.85			335
	PHENOL	0.62			420

Color Before: BLACK Clarity Before: Texture: MEDIUM

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

FORM I - IN 7/87

Rev. IFB Amendment One

E171

65

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

SED6

Lab Name: Envirodyne Engineers, Inc Contract: 3210

Lab Code: EEI Case No.: 0002 SAS No.: SDG No.: SOIL1

Matrix (soil/water): SOIL Lab Sample ID: 88011723

Level (low/med): LOW Date Received: 12/02/88

% Solids: 92.8

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	1540			P
7440-36-0	Antimony	0.60	U	N	F
7440-38-2	Arsenic	9.4		N	F
7440-39-3	Barium	44.4			P
7440-41-7	Beryllium	3.4			P
7440-43-9	Cadmium	1.1	U		P
7440-70-2	Calcium	1400		*	P
7440-47-3	Chromium	12.8			P
7440-48-4	Cobalt	4.3	U		P
7440-50-8	Copper	23.9			P
7439-89-6	Iron	8560		E	P
7439-92-1	Lead	237			P
7439-95-4	Magnesium	1220			P
7439-96-5	Manganese	42.5		N	P
7439-97-6	Mercury	0.84			CV
7440-02-0	Nickel	7.3	B		P
7440-09-7	Potassium	87.5	B		A
7782-49-2	Selenium	0.40	U	N	F
7440-22-4	Silver	0.62	B	N	F
7440-23-5	Sodium	218	B		P
7440-28-0	Thallium	0.44	U	N	F
7440-62-2	Vanadium	8.5	B		P
7440-66-6	Zinc	49.3			P
	Cyanide	0.34			335
	PHENOL	0.19			420

Color Before: BROWN Clarity Before: Texture: COARSE

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

FORM I - IN 7/87

Rev. IFB Amendment One

E172

66 7

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

SED7

Lab Name: Envirodyne Engineers, Inc Contract: 3210

Lab Code: EEI Case No.: 0002 SAS No.: SDG No.: SOIL1

Matrix (soil/water): SOIL Lab Sample ID: 88011724

Level (low/med): LOW Date Received: 12/02/88

% Solids: 85.5

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	3720			P
7440-36-0	Antimony	3.1	B	N	F
7440-38-2	Arsenic	8.3		N	F
7440-39-3	Barium	180			P
7440-41-7	Beryllium	28.2			P
7440-43-9	Cadmium	3.7			P
7440-70-2	Calcium	3020		*	P
7440-47-3	Chromium	111			P
7440-48-4	Cobalt	18.1			P
7440-50-8	Copper	909			P
7439-89-6	Iron	17900		E	P
7439-92-1	Lead	297			P
7439-95-4	Magnesium	2230			P
7439-96-5	Manganese	262		N	P
7439-97-6	Mercury	4.4			CV
7440-02-0	Nickel	127			P
7440-09-7	Potassium	219	B		A
7782-49-2	Selenium	0.42	U	N	F
7440-22-4	Silver	5.0		N	F
7440-23-5	Sodium	415	B		P
7440-28-0	Thallium	0.46	U	N	F
7440-62-2	Vanadium	23.0			P
7440-66-6	Zinc	230			P
	Cyanide	0.34			335
	PHENOL	75.8			420

Color Before: BLACK Clarity Before: Texture: COARSE

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

U.S. EPA - CLP

EPA SAMPLE NO.

1

INORGANIC ANALYSIS DATA SHEET

SED8

Lab Name: Envirodyne Engineers, Inc Contract: 3210

Lab Code: EEI Case No.: 0002 SAS No.: SDG No.: SOIL1

Matrix (soil/water): SOIL Lab Sample ID: 88011725

Level (low/med): LOW Date Received: 12/02/88

% Solids: 94.3

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	41800			P
7440-36-0	Antimony	2.5	B	N	F
7440-38-2	Arsenic	54.9		N	F
7440-39-3	Barium	466			P
7440-41-7	Beryllium	46.8			P
7440-43-9	Cadmium	1.4			P
7440-70-2	Calcium	12200		*	P
7440-47-3	Chromium	95.9			P
7440-48-4	Cobalt	30.5			P
7440-50-8	Copper	287			P
7439-89-6	Iron	93400		E	P
7439-92-1	Lead	533			P
7439-95-4	Magnesium	2140			P
7439-96-5	Manganese	268		N	P
7439-97-6	Mercury	2.9			CV
7440-02-0	Nickel	176			P
7440-09-7	Potassium	2552	B		A
7782-49-2	Selenium	1.9	U	N	F
7440-22-4	Silver	0.50	B	N	F
7440-23-5	Sodium	2040			P
7440-28-0	Thallium	0.43	U	N	F
7440-62-2	Vanadium	309			P
7440-66-6	Zinc	1440			P
	Cyanide	1.35			335
	PHENOL	0.20	U		420

Color Before: BLACK Clarity Before: Texture: MEDIUM

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

FORM I - IN

7/87

Rev. IFB Amendment One

E174

68

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

SED9

Lab Name: Envirodyne Engineers, Inc Contract: 3210

Lab Code: EEI Case No.: 0002 SAS No.: SDG No.: SOIL1

Matrix (soil/water): SOIL Lab Sample ID: 88011726

Level (low/med): LOW Date Received: 12/02/88

% Solids: 66.8

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	2340			P
7440-36-0	Antimony	3.5	B	N	F
7440-38-2	Arsenic	3.9		N	F
7440-39-3	Barium	37.3	B		P
7440-41-7	Beryllium	6.3			P
7440-43-9	Cadmium	1.4	U		P
7440-70-2	Calcium	2260		*	P
7440-47-3	Chromium	112			P
7440-48-4	Cobalt	7.7	B		P
7440-50-8	Copper	138			P
7439-89-6	Iron	13200		E	P
7439-92-1	Lead	256			P
7439-95-4	Magnesium	453	B		P
7439-96-5	Manganese	73.3		N	P
7439-97-6	Mercury	4.0			CV
7440-02-0	Nickel	51.3			P
7440-09-7	Potassium	280	B		A
7782-49-2	Selenium	0.55	U	N	F
7440-22-4	Silver	4.9		N	F
7440-23-5	Sodium	299	B		P
7440-28-0	Thallium	0.61	U	N	F
7440-62-2	Vanadium	18.5			P
7440-66-6	Zinc	158			P
	Cyanide	0.84			335
	PHENOL	4664			420

Color Before: BLACK Clarity Before: Texture: MEDIUM

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

FORM I - IN 7/87

Rev. IFB Amendment One

E175

69 0

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

SED10

Lab Name: Envirodyne Engineers, Inc Contract: 3210

Lab Code: EEI Case No.: 0002 SAS No.: SDG No.: SOIL1

Matrix (soil/water): SOIL Lab Sample ID: 88011727

Level (low/med): LOW Date Received: 12/02/88

% Solids: 78.6

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	8590			P
7440-36-0	Antimony	1.2	B	N	F
7440-38-2	Arsenic	4.8		N	F
7440-39-3	Barium	29.2	B		P
7440-41-7	Beryllium	23.3			P
7440-43-9	Cadmium	4.6			P
7440-70-2	Calcium	598	B	*	P
7440-47-3	Chromium	19.2			P
7440-48-4	Cobalt	11.3	B		P
7440-50-8	Copper	52.1			P
7439-89-6	Iron	46300		E	P
7439-92-1	Lead	91.0			P
7439-95-4	Magnesium	552	B		P
7439-96-5	Manganese	74.4		N	P
7439-97-6	Mercury	0.25	U		CV
7440-02-0	Nickel	37.0			P
7440-09-7	Potassium	235	B		A
7782-49-2	Selenium	0.50	U	N	F
7440-22-4	Silver	1.5	B	N	F
7440-23-5	Sodium	192	B		P
7440-28-0	Thallium	0.55	U	N	F
7440-62-2	Vanadium	18.2			P
7440-66-6	Zinc	89.5			P
	Cyanide	0.34			335
	PHENOL	0.048	U		420

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

FORM I - IN 7/87

Rev. IFB Amendment One

E176

70

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

SED11

Lab Name: Envirodyne Engineers, Inc Contract: 3210

Lab Code: EEI Case No.: 0002 SAS No.: SDG No.: SOIL1

Matrix (soil/water): SOIL Lab Sample ID: 88011728

Level (low/med): LOW Date Received: 12/02/88

% Solids: 73.8

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	6400			P
7440-36-0	Antimony	9.4	B	N	F
7440-38-2	Arsenic	247		N	F
7440-39-3	Barium	320			P
7440-41-7	Beryllium	13.6			P
7440-43-9	Cadmium	1.4	U		P
7440-70-2	Calcium	18100		*	P
7440-47-3	Chromium	16.0			P
7440-48-4	Cobalt	64.0			P
7440-50-8	Copper	164			P
7439-89-6	Iron	29500		E	P
7439-92-1	Lead	488			P
7439-95-4	Magnesium	7180			P
7439-96-5	Manganese	482		N	P
7439-97-6	Mercury	0.27	U		CV
7440-02-0	Nickel	38.2			P
7440-09-7	Potassium	616	B		A
7782-49-2	Selenium	0.51	U	N	F
7440-22-4	Silver	0.51	U	N	F
7440-23-5	Sodium	1200	B		P
7440-28-0	Thallium	0.56	U	N	F
7440-62-2	Vanadium	29.5			P
7440-66-6	Zinc	1650			P
	Cyanide	0.71			335
	PHENOL	0.01	U		420

Color Before: BLACK Clarity Before: Texture: COARSE

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

FORM I - IN 7/87

Rev. IFB Amendment One

E 177

U.S. EPA - CLP

EPA SAMPLE NO.

1

INORGANIC ANALYSIS DATA SHEET

SED12

Lab Name: Envirodyne Engineers, Inc Contract: 3210

Lab Code: EEI Case No.: 0002 SAS No.: SDG No.: SOIL1

Matrix (soil/water): SOIL Lab Sample ID: 88011729

Level (low/med): LOW Date Received: 12/02/88

% Solids: 74.6

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
	Aluminum	2120			P
7429-90-5	Antimony	1.3	B	N	F
7440-36-0	Arsenic	4.2		N	F
7440-38-2	Barium	61.2			P
7440-39-3	Beryllium	4.2			P
7440-41-7	Cadmium	1.3	U		P
7440-43-9	Calcium	1240	B	*	P
7440-70-2	Chromium	9.9			P
7440-47-3	Cobalt	5.2	U		P
7440-48-4	Copper	42.4			P
7440-50-8	Iron	8250		E	P
7439-89-6	Lead	208			P
7439-92-1	Magnesium	1340			P
7439-95-4	Manganese	81.5		N	P
7439-96-5	Mercury	1.3			CV
7439-97-6	Nickel	12.2			P
7440-02-0	Potassium	263	B		P
7440-09-7	Selenium	0.66	B	N	F
7782-49-2	Silver	3.5		NS	F
7440-22-4	Sodium	807	B		P
7440-23-5	Thallium	0.54	U	N	F
7440-28-0	Vanadium	17.7			P
7440-62-2	Zinc	142			P
7440-66-6	Cyanide	0.71			335
	PHENOL	125e8			420

Color Before: BLACK Clarity Before: Texture: FINE

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

FORM I - IN 7/87 Rev. IFB Amendment One

178

E

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

SED13

Lab Name: Envirodyne Engineers, Inc Contract: 3210

Lab Code: EEI Case No.: 0002 SAS No.: SDG No.: SOIL1

Matrix (soil/water): SOIL Lab Sample ID: 88011730

Level (low/med): LOW Date Received: 12/02/88

% Solids: 77.2

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	3770			P
7440-36-0	Antimony	3.3	U	N	F
7440-38-2	Arsenic	10.0	B	N	F
7440-39-3	Barium	50.5			P
7440-41-7	Beryllium	5.9			P
7440-43-9	Cadmium	1.2	U		P
7440-70-2	Calcium	598	B	*	P
7440-47-3	Chromium	12.0			P
7440-48-4	Cobalt	4.7	U		P
7440-50-8	Copper	22.4			P
7439-89-6	Iron	2430		E	P
7439-92-1	Lead	48.0			P
7439-95-4	Magnesium	1470			P
7439-96-5	Manganese	61.9		N	P
7439-97-6	Mercury	1.5			CV
7440-02-0	Nickel	11.5			P
7440-09-7	Potassium	622	B		A
7782-49-2	Selenium	0.47	U	N	F
7440-22-4	Silver	0.47	U	N	F
7440-23-5	Sodium	1150	B		P
7440-28-0	Thallium	0.51	U	N	F
7440-62-2	Vanadium	19.3			P
7440-66-6	Zinc	31.5			P
	Cyanide	0.71			~~335~~
	PHENOL	0.82			420

Color Before: BLACK Clarity Before: Texture: FINE

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

FORM I - IN 7/87 Rev. IFB Amendment One

E179

73

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

SED14

Lab Name: Envirodyne Engineers, Inc Contract: 3210

Lab Code: EEI Case No.: 0002 SAS No.: SDG No.: SOIL1

Matrix (soil/water): SOIL Lab Sample ID: 88011731

Level (low/med): LOW Date Received: 12/02/88

% Solids: 73.7

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	2260			P
7440-36-0	Antimony	1.7	B	N	F
7440-38-2	Arsenic	66.9		N	F
7440-39-3	Barium	256			P
7440-41-7	Beryllium	13.1			P
7440-43-9	Cadmium	1.3	U		P
7440-70-2	Calcium	1090	B	*	P
7440-47-3	Chromium	84.7			P
7440-48-4	Cobalt	5.0	B		P
7440-50-8	Copper	141			P
7439-89-6	Iron	29500		E	P
7439-92-1	Lead	76.9			P
7439-95-4	Magnesium	942	B		P
7439-96-5	Manganese	115		N	P
7439-97-6	Mercury	9.2			CV
7440-02-0	Nickel	25.4			P
7440-09-7	Potassium	332	B		A
7782-49-2	Selenium	0.53	U	N	F
7440-22-4	Silver	1.6	B	N	F
7440-23-5	Sodium	611	B		P
7440-28-0	Thallium	0.58	U	N	F
7440-62-2	Vanadium	37.2			P
7440-66-6	Zinc	56.3			P
	Cyanide	4.34			335
	PHENOL	1.44			420

Color Before: BLACK Clarity Before: Texture: FINE

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

FORM I - IN 7/87 Rev. IFB Amendment One

E180

74

75

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

SED15

Lab Name: Envirodyne Engineers, Inc Contract: 3210

Lab Code: EEI Case No.: 0002 SAS No.: SDG No.: SOIL1

Matrix (soil/water): SOIL Lab Sample ID: 88011732

Level (low/med): LOW Date Received: 12/02/88

% Solids: 63.3

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	7300			P
7440-36-0	Antimony	7.9	B	N	F
7440-38-2	Arsenic	585		N	F
7440-39-3	Barium	588			P
7440-41-7	Beryllium	38.9			P
7440-43-9	Cadmium	2.8			P
7440-70-2	Calcium	3350		*	P
7440-47-3	Chromium	528			P
7440-48-4	Cobalt	21.5			P
7440-50-8	Copper	834			P
7439-89-6	Iron	85000		E	P
7439-92-1	Lead	329			P
7439-95-4	Magnesium	1220	B		P
7439-96-5	Manganese	272		N	P
7439-97-6	Mercury	0.32	U		CV
7440-02-0	Nickel	152			P
7440-09-7	Potassium	2369	B		A
7782-49-2	Selenium	3.0	U	N	F
7440-22-4	Silver	5.4		N	F
7440-23-5	Sodium	1410	B		P
7440-28-0	Thallium	0.67	U	N	F
7440-62-2	Vanadium	45.5			P
7440-66-6	Zinc	392			P
	Cyanide	2.69			AS
	PHENOL	1.05			AD

Color Before: BLACK Clarity Before: Texture: MEDIUM

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

FORM I - IN

7/87

Rev. IFB Amendment One

E181

75

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

SOIL1

Lab Name: Envirodyne Engineers, Inc Contract: 3210

Lab Code: EEI Case No.: 0002 SAS No.: SDG No.: SOIL1

Lab Sample ID: 88011705

Matrix (soil/water): SOIL

Date Received: 12/02/88

Level (low/med): LOW

% Solids: 79.3

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	2110			P
7440-36-0	Antimony	1.4	B	N	F
7440-38-2	Arsenic	28.1		N	F
7440-39-3	Barium	104			P
7440-41-7	Beryllium	7.2			P
7440-43-9	Cadmium	1.1	U		P
7440-70-2	Calcium	353	B	*	P
7440-47-3	Chromium	23.0			P
7440-48-4	Cobalt	4.4	U		P
7440-50-8	Copper	36.0			P
7439-89-6	Iron	15500		E	P
7439-92-1	Lead	141			P
7439-95-4	Magnesium	800	B		P
7439-96-5	Manganese	61.6		N	P
7439-97-6	Mercury	2.3			CV
7440-02-0	Nickel	12.9			P
7440-09-7	Potassium	259	B		A
7782-49-2	Selenium	0.46	U	N	F
7440-22-4	Silver	0.66	B	N	F
7440-23-5	Sodium	279	B		P
7440-28-0	Thallium	0.50	U	N	F
7440-62-2	Vanadium	16.0			P
7440-66-6	Zinc	35.1			P
	Cyanide	0.55			335
	PHENOL	3.26			420

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

FORM I - IN 7/87

Rev. IFB Amendment One

E182

76

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

SOIL2

Lab Name: Envirodyne Engineers, Inc Contract: 3210

Lab Code: EEI Case No.: 0002 SAS No.: SDG No.: SOIL1

Matrix (soil/water): SOIL Lab Sample ID: 88011706

Level (low/med): LOW Date Received: 12/02/88

% Solids: 79.9

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	1390			P
7440-36-0	Antimony	0.61	U	N	F
7440-38-2	Arsenic	0.73	U	N	F
7440-39-3	Barium	35.0	B		P
7440-41-7	Beryllium	1.1	U		P
7440-43-9	Cadmium	1.1	U		P
7440-70-2	Calcium	303	B	*	P
7440-47-3	Chromium	2.2	U		P
7440-48-4	Cobalt	4.4	U		P
7440-50-8	Copper	5.4			P
7439-89-6	Iron	2100		E	P
7439-92-1	Lead	68.0			F
7439-95-4	Magnesium	109	B		P
7439-96-5	Manganese	23.1		N	P
7439-97-6	Mercury	0.29			CV
7440-02-0	Nickel	5.2	U		P
7440-09-7	Potassium	326	B		A
7782-49-2	Selenium	0.47	U	N	F
7440-22-4	Silver	0.47	U	N	F
7440-23-5	Sodium	215	B		P
7440-28-0	Thallium	0.52	U	N	F
7440-62-2	Vanadium	9.6	B		P
7440-66-6	Zinc	18.3			P
	Cyanide	0.38	U		~~335~~ 420
	PHENOL	0.07			

Color Before: TAN Clarity Before: Texture: MEDIUM

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

E183

77

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

SOIL3

Lab Name: Envirodyne Engineers, Inc Contract: 3210

Lab Code: EEI Case No.: 0002 SAS No.: SDG No.: SOIL1

Matrix (soil/water): SOIL Lab Sample ID: 88011707

Level (low/med): LOW Date Received: 12/02/88

% Solids: 86.6

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	10100			P
7440-36-0	Antimony	0.97	B	N	F
7440-38-2	Arsenic	2.1	B	N	F
7440-39-3	Barium	129			P
7440-41-7	Beryllium	5.8			P
7440-43-9	Cadmium	1.4			P
7440-70-2	Calcium	1090		*	P
7440-47-3	Chromium	9.9			P
7440-48-4	Cobalt	14.0			P
7440-50-8	Copper	29.7			P
7439-89-6	Iron	13400		E	P
7439-92-1	Lead	142			P
7439-95-4	Magnesium	3280			P
7439-96-5	Manganese	443		N	P
7439-97-6	Mercury	1.3			CV
7440-02-0	Nickel	19.0			P
7440-09-7	Potassium	850	B		A
7782-49-2	Selenium	0.42	U	N	F
7440-22-4	Silver	3.7	B	N	F
7440-23-5	Sodium	258	B		P
7440-28-0	Thallium	0.47	U	N	F
7440-62-2	Vanadium	21.9			P
7440-66-6	Zinc	156			P
	Cyanide	0.38			335
	PHENOL	0.06			420

Color Before: RED Clarity Before: Texture: MEDIUM

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

SOIL4

Lab Name: Envirodyne Engineers, Inc Contract: 3210

Lab Code: EEI Case No.: 0002 SAS No.: SDG No.: SOIL1

Matrix (soil/water): SOIL Lab Sample ID: 88011708

Level (low/med): LOW Date Received: 12/02/88

% Solids: 81.4

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	9390			P
7440-36-0	Antimony	0.69	U	N	F
7440-38-2	Arsenic	1.9	B	N	F
7440-39-3	Barium	66.1			P
7440-41-7	Beryllium	6.1	U		P
7440-43-9	Cadmium	1.2	U		P
7440-70-2	Calcium	609	B	*	P
7440-47-3	Chromium	11.3			P
7440-48-4	Cobalt	7.4	B		P
7440-50-8	Copper	17.4			P
7439-89-6	Iron	16000		E	P
7439-92-1	Lead	36.0			F
7439-95-4	Magnesium	3290			P
7439-96-5	Manganese	179		N	P
7439-97-6	Mercury	0.25	U		CV
7440-02-0	Nickel	21.1			P
7440-09-7	Potassium	899	B		A
7782-49-2	Selenium	0.44	U	N	F
7440-22-4	Silver	0.44	U	N	F
7440-23-5	Sodium	209	B		P
7440-28-0	Thallium	4.2		N	F
7440-62-2	Vanadium	23.3			P
7440-66-6	Zinc	51.1			P
	Cyanide	0.38	U		
	PHENOL	0.32			420

Color Before: RED Clarity Before: Texture: MEDIUM

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

SOIL5

Lab Name: Envirodyne Engineers, Inc Contract: 3210

Lab Code: EEI Case No.: 0002 SAS No.: SDG No.: SOIL1

Matrix (soil/water): SOIL Lab Sample ID: 88011709

Level (low/med): LOW Date Received: 12/02/88

% Solids: 73.6

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	2880			P
7440-36-0	Antimony	24.9	B	N	F
7440-38-2	Arsenic	691		N	F
7440-39-3	Barium	738			P
7440-41-7	Beryllium	67.1			P
7440-43-9	Cadmium	4.8			P
7440-70-2	Calcium	2200		*	P
7440-47-3	Chromium	709			P
7440-48-4	Cobalt	31.4			P
7440-50-8	Copper	2260			P
7439-89-6	Iron	159000		E	P
7439-92-1	Lead	687			P
7439-95-4	Magnesium	775	B		P
7439-96-5	Manganese	570		N	P
7439-97-6	Mercury	10.4			CV
7440-02-0	Nickel	101			P
7440-09-7	Potassium	759	B		A
7782-49-2	Selenium	0.54	U	N+	F
7440-22-4	Silver	1.4	B	N	F
7440-23-5	Sodium	488	B		P
7440-28-0	Thallium	0.59	U	N	F
7440-62-2	Vanadium	57.0			P
7440-66-6	Zinc	60.2			P
	Cyanide	13.78			335
	PHENOL	0.40			420

Color Before: BLACK Clarity Before: Texture: MEDIUM

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

FORM I - IN 7/87

Rev. IFB Amendment One

E 186

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

SOIL5D

Lab Name: Envirodyne Engineers, Inc Contract: 3210

Lab Code: EEI Case No.: 0002 SAS No.: SDG No.: SOIL1

Matrix (soil/water): SOIL Lab Sample ID: 88011710

Level (low/med): LOW Date Received: 12/02/88

% Solids: 62.6

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	5890			P
7440-36-0	Antimony	2.0	B	N	F
7440-38-2	Arsenic	49.1		N	F
7440-39-3	Barium	172			P
7440-41-7	Beryllium	24.7			P
7440-43-9	Cadmium	3.6			P
7440-70-2	Calcium	1860		*	P
7440-47-3	Chromium	151			P
7440-48-4	Cobalt	13.7	B		P
7440-50-8	Copper	572			P
7439-89-6	Iron	54900		E	P
7439-92-1	Lead	159			P
7439-95-4	Magnesium	1240	B		P
7439-96-5	Manganese	345		N	P
7439-97-6	Mercury	2.32 ~~0.93~~			CV
7440-02-0	Nickel	48.5			P
7440-09-7	Potassium	482	B		A
7782-49-2	Selenium	0.63	U	N	F
7440-22-4	Silver	0.66	B	N	F
7440-23-5	Sodium	325	B		P
7440-28-0	Thallium	0.69	U	N	F
7440-62-2	Vanadium	36.4			P
7440-66-6	Zinc	200			P
	Cyanide	1.40			335
	PHENOL	0.63			420

Color Before: BLACK Clarity Before: Texture: COARSE

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

FORM I - IN

7/87
Rev. IFB Amendment One

E18

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

SOIL6

Lab Name: Envirodyne Engineers, Inc Contract: 3210

Lab Code: EEI Case No.: 0002 SAS No.: SDG No.: SOIL1

Matrix (soil/water): SOIL Lab Sample ID: 88011711

Level (low/med): LOW Date Received: 12/02/88

% Solids: 71.5

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	934			P
7440-36-0	Antimony	8.0	B	N	F
7440-38-2	Arsenic	122		N	F
7440-39-3	Barium	539			P
7440-41-7	Beryllium	148			P
7440-43-9	Cadmium	10.5			P
7440-70-2	Calcium	829	B	*	P
7440-47-3	Chromium	359			P
7440-48-4	Cobalt	50.0			P
7440-50-8	Copper	562			P
7439-89-6	Iron	349000		E	P
7439-92-1	Lead	113			P
7439-95-4	Magnesium	557	B		P
7439-96-5	Manganese	1310		N	P
7439-97-6	Mercury	643			CV
7440-02-0	Nickel	241			P
7440-09-7	Potassium	218	B		A
7782-49-2	Selenium	0.56	U	N	F
7440-22-4	Silver	0.56	U	N	F
7440-23-5	Sodium	939	B		P
7440-28-0	Thallium	0.62	U	N	F
7440-62-2	Vanadium	55.4			P
7440-66-6	Zinc	40.3			P
	Cyanide	0.55			335
	PHENOL	10.3			420

Color Before: BROWN Clarity Before: Texture: FINE

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

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1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

SOIL6D

Lab Name: Envirodyne Engineers, Inc Contract: 3210

Lab Code: EEI Case No.: 0002 SAS No.: SDG No.: SOIL1

Matrix (soil/water): SOIL Lab Sample ID: 88011712

Level (low/med): LOW Date Received: 12/02/88

% Solids: 74.3

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	1550			P
7440-36-0	Antimony	5.7	B	N	F
7440-38-2	Arsenic	96.2		N	F
7440-39-3	Barium	698			P
7440-41-7	Beryllium	106			P
7440-43-9	Cadmium	7.6			P
7440-70-2	Calcium	836	B	*	P
7440-47-3	Chromium	288			P
7440-48-4	Cobalt	38.6			P
7440-50-8	Copper	438			P
7439-89-6	Iron	236000		E	P
7439-92-1	Lead	50.9			F
7439-95-4	Magnesium	865	B		P
7439-96-5	Manganese	1020		N	P
7439-97-6	Mercury	2.8			CV
7440-02-0	Nickel	195			P
7440-09-7	Potassium	2167	B		A
7782-49-2	Selenium	0.52	U	N	F
7440-22-4	Silver	0.52	U	N	F
7440-23-5	Sodium	862	B		P
7440-28-0	Thallium	0.57	U	N	F
7440-62-2	Vanadium	48.1			P
7440-66-6	Zinc	40.5			P
	Cyanide	7.67			335
	PHENOL	9.88			420

Color Before: BROWN Clarity Before: Texture: FINE

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

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1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

SOIL7

Lab Name: Envirodyne Engineers, Inc Contract: 3210

Lab Code: EEI Case No.: 0002 SAS No.: SDG No.: SOIL1

Matrix (soil/water): SOIL Lab Sample ID: 88011713

Level (low/med): LOW Date Received: 12/02/88

% Solids: 56.4

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	1660			P
7440-36-0	Antimony	31.6	B	N	F
7440-38-2	Arsenic	1680		N	F
7440-39-3	Barium	855			P
7440-41-7	Beryllium	88.5			P
7440-43-9	Cadmium	7.0			P
7440-70-2	Calcium	2010		*	P
7440-47-3	Chromium	901			P
7440-48-4	Cobalt	31.2			P
7440-50-8	Copper	1350			P
7439-89-6	Iron	243000		E	P
7439-92-1	Lead	530			P
7439-95-4	Magnesium	802	B		P
7439-96-5	Manganese	809		N	P
7439-97-6	Mercury	13.8			CV
7440-02-0	Nickel	134			P
7440-09-7	Potassium	573	B		A
7782-49-2	Selenium	1.5	B	N	F
7440-22-4	Silver	2.3	B	N	F
7440-23-5	Sodium	699	B		P
7440-28-0	Thallium	0.74	U	N	F
7440-62-2	Vanadium	55.3			P
7440-66-6	Zinc	77.6			P
	Cyanide	5.3			335
	PHENOL	0.70			420

Color Before: BLACK Clarity Before: Texture: FINE

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

FORM I - IN 7/87

Rev. IFB Amendment One

E190

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U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

SOIL8

Lab Name: Envirodyne Engineers, Inc. Contract: 3210

Lab Code: EEI Case No.: 0002 SAS No.: SDG No.: SOIL1

Matrix (soil/water): SOIL Lab Sample ID: 88011714

Level (low/med): LOW Date Received: 12/02/88

% Solids: 74.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	2300			P
7440-36-0	Antimony	19.0	B	N	F
7440-38-2	Arsenic	739		N	F
7440-39-3	Barium	896			P
7440-41-7	Beryllium	80.1			P
7440-43-9	Cadmium	7.8			P
7440-70-2	Calcium	851	B	*	P
7440-47-3	Chromium	236			P
7440-48-4	Cobalt	28.5			P
7440-50-8	Copper	475			P
7439-89-6	Iron	216000		E	P
7439-92-1	Lead	280			P
7439-95-4	Magnesium	963	B		P
7439-96-5	Manganese	818		N	P
7439-97-6	Mercury	69.6			CV
7440-02-0	Nickel	134			P
7440-09-7	Potassium	991	B		A
7782-49-2	Selenium	0.96	B	N	F
7440-22-4	Silver	1.1	B	N	F
7440-23-5	Sodium	1230	B		P
7440-28-0	Thallium	0.56	U	N	F
7440-62-2	Vanadium	53.6			P
7440-66-6	Zinc	75.6			P
	Cyanide	0.38			335
	PHENOL	0.21			420

Color Before: BLACK Clarity Before: Texture: MEDIUM

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

FORM I - IN

7/87
Rev. IFB Amendment One

E191

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

SOIL9D

Lab Name: Envirodyne Engineers, Inc Contract: 3210

Lab Code: EEI Case No.: 0002 SAS No.: SDG No.: SOIL1

Matrix (soil/water): SOIL Lab Sample ID: 88011715

Level (low/med): LOW Date Received: 12/02/88

% Solids: 78.9

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	2780			P
7440-36-0	Antimony	3.4	U	N	F
7440-38-2	Arsenic	5.6		N	F
7440-39-3	Barium	58.6			P
7440-41-7	Beryllium	4.4			P
7440-43-9	Cadmium	1.2	U		P
7440-70-2	Calcium	1770		*	P
7440-47-3	Chromium	9.6			P
7440-48-4	Cobalt	4.9	U		P
7440-50-8	Copper	17.0			P
7439-89-6	Iron	10800		E	P
7439-92-1	Lead	9.3			F
7439-95-4	Magnesium	253	B		P
7439-96-5	Manganese	14.3		N	P
7439-97-6	Mercury	0.25	U		CV
7440-02-0	Nickel	15.0			P
7440-09-7	Potassium	490	B		A
7782-49-2	Selenium	0.45	U	N	F
7440-22-4	Silver	0.45	U	N	F
7440-23-5	Sodium	305	B		P
7440-28-0	Thallium	0.50	U	N	F
7440-62-2	Vanadium	32.0			P
7440-66-6	Zinc	20.2			P
	Cyanide	0.38			335
	PHENOL	0.03			420

Color Before: BROWN/TAN Clarity Before: Texture: MEDIUM

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

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1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

SOIL10

Lab Name: Envirodyne Engineers, Inc Contract: 3210

Lab Code: EEI Case No.: 0002 SAS No.: SDG No.: SOIL1

Matrix (soil/water): SOIL Lab Sample ID: 88011716

Level (low/med): LOW Date Received: 12/02/88

% Solids: 86.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	9280			P
7440-36-0	Antimony	0.75	B	N	F
7440-38-2	Arsenic	4.7		N	F
7440-39-3	Barium	168			P
7440-41-7	Beryllium	5.4			P
7440-43-9	Cadmium	1.1	U		P
7440-70-2	Calcium	360	B	*	P
7440-47-3	Chromium	11.6			P
7440-48-4	Cobalt	6.9	B		P
7440-50-8	Copper	44.1			P
7439-89-6	Iron	11600		E	P
7439-92-1	Lead	57.2			F
7439-95-4	Magnesium	2950			P
7439-96-5	Manganese	217		N	P
7439-97-6	Mercury	0.23	U		CV
7440-02-0	Nickel	15.7			P
7440-09-7	Potassium	588	B		A
7782-49-2	Selenium	0.80	B	N	F
7440-22-4	Silver	0.44	U	N	F
7440-23-5	Sodium	188	B		P
7440-28-0	Thallium	0.49	U	N	F
7440-62-2	Vanadium	33.6			P
7440-66-6	Zinc	165			P
	Cyanide	0.38			335
	PHENOL	0.02			420

Color Before: RED Clarity Before: Texture: MEDIUM

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

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INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

SOIL11

Lab Name: Envirodyne Engineers, Inc Contract: 3210

Lab Code: EEI Case No.: 0002 SAS No.: SDG No.: SOIL1

Matrix (soil/water): SOIL Lab Sample ID: 88011717

Level (low/med): LOW Date Received: 12/02/88

% Solids: 67.7

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	2680			P
7440-36-0	Antimony	4.5	B	N	F
7440-38-2	Arsenic	113		N	F
7440-39-3	Barium	433			P
7440-41-7	Beryllium	18.0			P
7440-43-9	Cadmium	1.4	U		P
7440-70-2	Calcium	1230	B	*	P
7440-47-3	Chromium	684			P
7440-48-4	Cobalt	9.6	B		P
7440-50-8	Copper	238			P
7439-89-6	Iron	42500		E	P
7439-92-1	Lead	125			P
7439-95-4	Magnesium	1150	B		P
7439-96-5	Manganese	180		N	P
7439-97-6	Mercury	8.4			CV
7440-02-0	Nickel	35.2			P
7440-09-7	Potassium	768	B		A
7782-49-2	Selenium	0.55	U	N	F
7440-22-4	Silver	0.55	U	N	F
7440-23-5	Sodium	878	B		P
7440-28-0	Thallium	0.60	U	N	F
7440-62-2	Vanadium	42.5			P
7440-66-6	Zinc	47.8			P
	Cyanide	0.89			335
	PHENOL	0.88			420

Color Before: BLACK Clarity Before: Texture: MEDIUM

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

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1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

FLDBLK

Lab Name: Envirodyne Engineers, Inc Contract: 3210

Lab Code: EEI Case No.: 0002 SAS No.: SDG No.: SOIL1

Matrix (soil/water): WATER Lab Sample ID: 88011745

Level (low/med): LOW Date Received: 12/02/88

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	125	U		P
7440-36-0	Antimony	2.8	U		F
7440-38-2	Arsenic	3.1	U	N	F
7440-39-3	Barium	50.0	U		P
7440-41-7	Beryllium	5.0	U		P
7440-43-9	Cadmium	5.0	U		P
7440-70-2	Calcium	250	U		P
7440-47-3	Chromium	10.0	U		P
7440-48-4	Cobalt	20.0	U		P
7440-50-8	Copper	20.0	U		P
7439-89-6	Iron	50.0	U	N	P
7439-92-1	Lead	2.1	U	N	F
7439-95-4	Magnesium	250	U		P
7439-96-5	Manganese	10.0	U		P
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel	24.0	U		P
7440-09-7	Potassium	50.0	U		A
7782-49-2	Selenium	2.0	U		F
7440-22-4	Silver	2.0	U		F
7440-23-5	Sodium	320	B		P
7440-28-0	Thallium	2.2	U		F
7440-62-2	Vanadium	20.0	U		P
7440-66-6	Zinc	20.0	U		P
	Cyanide	5.0	U		335
	PHENOL	10.0	U		420

Color Before: COLORLESS Clarity Before: Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

FORM I - IN

7/87
Rev. IFB Amendment One

E195

Roy F. Weston, Inc. - Lionville Laboratory
VOA ANALYTICAL DATA PACKAGE FOR
NJDEP

DATE RECEIVED: 11/30/88 RFW LOT # :8811L641

CLIENT ID	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
BSA11298564-MW9S	001	W	88VW0184	11/29/88	12/02/88	12/02/88
BSA11298565-MW9D	002	W	88VW0184	11/29/88	12/02/88	12/02/88
BSA11298566-MW10S	003	W	88VW0184	11/29/88	12/02/88	12/02/88
BSA11298567-MW10D	004	W	88VW0184	11/29/88	12/02/88	12/02/88
BSA11298567-MW10D	004	W	88VW0185	11/29/88	12/03/88	12/03/88
BSA11298575-TRIP BLK	005	W	88VW0184	11/29/88	12/02/88	12/02/88
BSA11298562-MW7S	006	W	88VW0184	11/29/88	12/02/88	12/02/88
BSA11298563-MW7D	007	W	88VW0184	11/29/88	12/02/88	12/02/88
BSA11298563-MW7D	007	W	88VW0185	11/29/88	12/03/88	12/03/88
BSA11298568-MW13S	008	W	88VW0184	11/29/88	12/02/88	12/02/88
BSA11298569-MW13D	009	W	88VW0184	11/29/88	12/02/88	12/02/88
BSA11298570-MW14S	010	W	88VW0184	11/29/88	12/02/88	12/02/88
BSA11298571-MW14D	011	W	88VW0185	11/29/88	12/03/88	12/03/88
BSA11298572-SW1	012	W	88VW0185	11/29/88	12/03/88	12/03/88
BSA11298572-SW1	012 MS	W	88VW0185	11/29/88	12/03/88	12/03/88
BSA11298572-SW1	012 MSD	W	88VW0185	11/29/88	12/03/88	12/03/88
BSA11298573-SW2	013	W	88VW0185	11/29/88	12/03/88	12/03/88
BSA11298574	014	W	88VW0185	11/29/88	12/03/88	12/03/88
LAB QC:						
VBLK	MB1	W	88VW0184	N/A	12/02/88	12/02/88
VBLK	MB1	W	88VW0185	N/A	12/03/88	12/03/88

F

22

Roy F. Weston, Inc. - Lionville Laboratory
Volatiles by GC/MS, HSL List

RFW Batch Number: 8811L641 Client: NJDEP Work Order: 3637-01-01-0000 Report Date: 01/17/89 05:29 Page: 1a

Sample Information							
Cust ID:	BSA11298564-MW9S	BSA11298565-MW9D	BSA11298566-MW10S	BSA11298567-MW10D	BSA11298567-MW10D	BSA11298575-TRIP BLK
RFW#:	001	002	003	004	004 DL	005
Matrix:	WATER	WATER	WATER	WATER	WATER	WATER
D.F.:	1.00	1.00	1.00	1.00	50.0	1.00
Units:	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L

Surrogate Recovery													
Toluene-d8	98	%	100	%	96	%	99	%	103	%	97	%
Bromofluorobenzene	99	%	99	%	98	%	103	%	109	%	98	%
1,2-Dichloroethane-d4	105	%	112	%	112	%	113	%	108	%	101	%

Chloromethane	10	U	10	U	10	U	10	U	500	U	10	U
Bromomethane	10	U	10	U	10	U	10	U	500	U	10	U
Vinyl Chloride	10	U	10	U	10	U	10	U	500	U	10	U
Chloroethane	10	U	10	U	10	U	10	U	500	U	10	U
Methylene Chloride	6	B	6	B	7	B	6	B	390	B	7	B
Acetone	10	B	8	JB	9	JB	2100	B	2400	B	12	B
Carbon Disulfide	5	U	5	U	5	U	5	U	250	U	5	U
1,1-Dichloroethene	5	U	5	U	5	U	5	U	250	U	5	U
1,1-Dichloroethane	5	U	5	U	5	U	5	U	250	U	5	U
1,2-Dichloroethene (total)	5	U	5	U	5	U	5	U	250	U	5	U
Chloroform	5	U	5	U	5	U	5	U	250	U	5	
1,2-Dichloroethane	5	U	5	U	5	U	5	U	250	U	5	U
2-Butanone	10	U	2	JB	2	JB	4	JB	500	U	10	U
1,1,1-Trichloroethane	5	U	5	U	5	U	5	U	250	U	5	U
Carbon Tetrachloride	5	U	5	U	5	U	5	U	250	U	5	U
Vinyl Acetate	10	U	10	U	10	U	10	U	500	U	10	U
Bromodichloromethane	5	U	5	U	5	U	5	U	250	U	0.7	J
1,2-Dichloropropane	5	U	5	U	5	U	5	U	250	U	5	U
cis-1,3-Dichloropropene	5	U	5	U	5	U	5	U	250	U	5	U
Trichloroethene	5	U	5	U	5	U	5	U	250	U	5	U
Dibromochloromethane	5	U	5	U	5	U	5	U	250	U	5	U
1,1,2-Trichloroethane	5	U	5	U	5	U	5	U	250	U	5	U
Benzene	5	U	5	U	5	U	5	U	250	U	5	U
Trans-1,3-Dichloropropene	5	U	5	U	5	U	5	U	250	U	5	U
Bromoform	5	U	5	U	5	U	5	U	250	U	5	U
4-Methyl-2-pentanone	10	U	10	U	10	U	10	U	500	U	10	U
2-Hexanone	10	U	10	U	10	U	10	U	500	U	10	U
Tetrachloroethene	5	U	5	U	5	U	5	U	250	U	5	U
1,1,2,2-Tetrachloroethane	5	U	5	U	5	U	5	U	250	U	5	U

*= Outside of EPA CLP QC limits.

72

RFW Batch Number: 8811L641 Client: NJDEP Work Order: 3637-01-01-0000 Page: 1b

Cust ID:	BSA11298564-MW9S	BSA11298565-MW9D	BSA11298566-MW10S	BSA11298567-MW10D	BSA11298567-MW10D	BSA11298575-TRIP BLK
RFW#:	001	002	003	004	004 DL	005
Toluene	5 U	5 U	5 U	0.9 J	250 U	5 U
Chlorobenzene	5 U	3 J	5 U	5 U	250 U	5 U
Ethylbenzene	5 U	5 U	5 U	5 U	250 U	5 U
Styrene	5 U	5 U	5 U	5 U	250 U	5 U
Xylene (total)	5 U	5 U	5 U	5 U	250 U	5 U

*= Outside of EPA CLP QC limits.

23

Roy F. Weston, Inc. - Lionville Laboratory
Volatiles by GC/MS, HSL List

RFW Batch Number: 8811L641 Client: NJDEP Work Order: 3637-01-01-0000 Report Date: 01/17/89 05:29 Page: 2a

Sample Information	Cust ID:	BSA11298562-MW7S	BSA11298563-MW7D	BSA11298563-MW7D	BSA11298568-MW13S	BSA11298569-MW13D	BSA11298570-MW14S
	RFW#:	006	007	007 DL	008	009	010
	Matrix:	WATER	WATER	WATER	WATER	WATER	WATER
	D.F.:	1.00	1.00	5.00	1.00	1.00	1.00
	Units:	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Surrogate Recovery	Toluene-d8	98 %	98 %	99 %	97 %	94 %	96 %
	Bromofluorobenzene	110 %	104 %	108 %	103 %	99 %	101 %
	1,2-Dichloroethane-d4	113 %	111 %	102 %	113 %	103 %	111 %
		fl	fl	fl	fl	fl	fl
Chloromethane		10 U	10 U	50 U	10 U	10 U	10 U
Bromomethane		10 U	10 U	50 U	10 U	10 U	10 U
Vinyl Chloride		10 U	10 U	50 U	10 U	10 U	10 U
Chloroethane		10 U	10 U	50 U	10 U	10 U	10 U
Methylene Chloride		7 B	9 B	37 B	9 B	8 B	8 B
Acetone		64 B	420 B	330 B	13 B	48 B	51 B
Carbon Disulfide		5 U	5 U	25 U	5 U	5 U	5 U
1,1-Dichloroethene		5 U	5 U	25 U	5 U	5 U	5 U
1,1-Dichloroethane		5 U	5 U	25 U	5 U	5 U	5 U
1,2-Dichloroethene (total)		5 U	5 U	25 U	5 U	5 U	5 U
Chloroform		5 U	0.9 J	25 U	5 U	5 U	5 U
1,2-Dichloroethane		8	5 U	25 U	5 U	5 U	5 U
2-Butanone		9 JB	5 JB	20 JB	10 U	10 B	7 JB
1,1,1-Trichloroethane		5 U	5 U	25 U	5 U	5 U	5 U
Carbon Tetrachloride		5 U	5 U	25 U	5 U	5 U	5 U
Vinyl Acetate		10 U	10 U	50 U	10 U	10 U	10 U
Bromodichloromethane		5 U	5 U	25 U	5 U	5 U	5 U
1,2-Dichloropropane		5 U	5 U	25 U	31	5 U	5 U
cis-1,3-Dichloropropene		5 U	5 U	25 U	5 U	5 U	5 U
Trichloroethene		5 U	5 U	25 U	5 U	5 U	5 U
Dibromochloromethane		5 U	5 U	25 U	5 U	5 U	5 U
1,1,2-Trichloroethane		5 U	5 U	25 U	5 U	5 U	5 U
Benzene		3 J	5 U	25 U	5 U	5 U	2 J
Trans-1,3-Dichloropropene		5 U	5 U	25 U	5 U	5 U	5 U
Bromoform		5 U	5 U	25 U	5 U	5 U	5 U
4-Methyl-2-pentanone		10 U	10 U	50 U	10 U	10 U	10 U
2-Hexanone		10 U	10 U	50 U	10 U	10 U	10 U
Tetrachloroethene		5 U	5 U	25 U	5 U	5 U	5 U
1,1,2,2-Tetrachloroethane		5 U	5 U	25 U	5 U	5 U	5 U

*= Outside of EPA CLP QC limits.

25

Cust ID:	BSA11298562-MW7S	BSA11298563-MW7D	BSA11298563-MW7D	BSA11298568-MW13S	BSA11298569-MW13D	BSA11298570-MW14S
RFW#:	006	007	007 DL	008	009	010
Toluene	5 U	0.7 J	25 U	5 U	2 J	0.8 J
Chlorobenzene	4 J	4 J	25 U	5 U	5 U	5 U
Ethylbenzene	5 U	5 U	25 U	5 U	5 U	5 U
Styrene	5 U	5 U	25 U	5 U	5 U	5 U
Xylene (total)	5 U	5 U	25 U	5 U	5 U	5 U

*= Outside of EPA CLP QC limits.

Roy F. Weston, Inc. - Lionville Laboratory
Volatiles by GC/MS, HSL List

RFW Batch Number: 8811L641 Client: NJDEP Work Order: 3637-01-01-0000 Report Date: 01/17/89 05:29 Page: 3a

Sample Information	Cust ID:	BSA11298571-MW14D	BSA11298572-SW1	BSA11298572-SW1	BSA11298572-SW1	BSA11298573-SW2	BSA11298574
	RFW#:	011	012	012 MS	012 MSD	013	014
	Matrix:	WATER	WATER	WATER	WATER	WATER	WATER
	D.F.:	1.00	1.00	1.00	1.00	1.00	1.00
	Units:	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Surrogate Recovery	Toluene-d8	103 %	107 %	104 %	105 %	104 %	103 %
	Bromofluorobenzene	114 %	118 * %	112 %	112 %	114 %	112 %
	1,2-Dichloroethane-d4	111 %	119 * %	121 * %	119 * %	113 %	113 %
Chloromethane		10 U	10 U	1 J	10 U	10 U	10 U
Bromomethane		10 U	10 U	10 U	10 U	10 U	10 U
Vinyl Chloride		10 U	10 U	10 U	10 U	10 U	10 U
Chloroethane		10 U	10 U	10 U	10 U	10 U	10 U
Methylene Chloride		4 JB	5 B	8 B	9 B	4 JB	5 B
Acetone		9 JB	18 B	19 B	24 B	9 JB	7 JB
Carbon Disulfide		5 U	5 U	5 U	5 U	5 U	5 U
1,1-Dichloroethene		5 U	5 U	78 %	81 %	5 U	5 U
1,1-Dichloroethane		5 U	5 U	0.6 J	5 U	5 U	5 U
1,2-Dichloroethene (total)		5 U	5 U	5 U	5 U	5 U	5 U
Chloroform		1 J	0.5 J	1 J	0.6 J	5 U	4 J
1,2-Dichloroethane		5 U	4 J	5 U	4 J	5 U	5 U
2-Butanone		5 JB	8 JB	11 B	10 B	3 JB	10 U
1,1,1-Trichloroethane		5 U	5 U	0.7 J	5 U	5 U	5 U
Carbon Tetrachloride		5 U	5 U	5 U	5 U	5 U	5 U
Vinyl Acetate		10 U	10 U	10 U	10 U	10 U	10 U
Bromodichloromethane		5 U	1 J	2 J	1 J	5 U	5 U
1,2-Dichloropropane		5 U	5 U	0.5 J	5 U	5 U	5 U
cis-1,3-Dichloropropene		5 U	5 U	5 U	5 U	5 U	5 U
Trichloroethene		5 U	5 U	81 %	84 %	5 U	5 U
Dibromochloromethane		5 U	7	7	6	5 U	5 U
1,1,2-Trichloroethane		5 U	5 U	0.6 J	5 U	5 U	5 U
Benzene		5 U	5 U	102 %	105 %	5 U	5 U
Trans-1,3-Dichloropropene		5 U	5 U	5 U	5 U	5 U	5 U
Bromoform		5 U	42	42	36	5 U	5 U
4-Methyl-2-pentanone		10 U	10 U	10 U	10 U	10 U	10 U
2-Hexanone		10 U	10 U	10 U	10 U	10 U	10 U
Tetrachloroethene		5 U	5 U	0.6 J	5 U	5 U	5 U
1,1,2,2-Tetrachloroethane		5 U	5 U	5 U	5 U	5 U	5 U

*= Outside of EPA CLP QC limits.

27

Cust ID:	BSA11298571-MW14D	BSA11298572-SW1	BSA11298572-SW1	BSA11298572-SW1	BSA11298573-SW2	BSA11298574
RFW#:	011	012	012 MS	012 MSD	013	014
Toluene	5 U	5 U	93 %	95 %	5 U	5 U
Chlorobenzene	5 U	6	91 %	93 %	5 U	5 U
Ethylbenzene	5 U	5 U	5 U	5 U	5 U	5 U
Styrene	5 U	5 U	5 U	5 U	5 U	5 U
Xylene (total)	5 U	5 U	5 U	5 U	5 U	5 U

*= Outside of EPA CLP QC limits.

22

Roy F. Weston, Inc. - Lionville Laboratory
Pesticide/PCBs by GC, CLP List

RFW Batch Number: 8811L641 Client: NJDEP Work Order: 3637-01-01-0000 Report Date: 02/10/89, 09:23 Page: 1

Sample Information	Cust ID:	BSA11298564-MW9S	BSA11298565-MW9D	BSA11298566-MW10S	BSA11298567-MW10D	BSA11298562-MW7S	BSA11298563-MW7D
	RFW#:	001	002	003	004	006	007
	Matrix:	WATER	WATER	WATER	WATER	WATER	WATER
	D.F.:	1.00	1.00	1.00	2.00	5.00	5.00
	Units:	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L

Surrogate: Di-n-butylchlorendate	95	%	137	%	120	%	102	%	I	%	59	%
		fl		fl		fl		fl		fl		fl
Alpha-BHC	0.050	U	0.050	U	0.050	U	0.10	U	0.25	U	0.25	U
Beta-BHC	0.050	U	0.050	U	0.050	U	0.10	U	0.25	U	0.25	U
Delta-BHC	0.050	U	0.050	U	0.050	U	0.10	U	0.25	U	0.25	U
gamma-BHC (Lindane)	0.050	U	0.050	U	0.050	U	0.10	U	0.25	U	0.25	U
Heptachlor	0.050	U	0.050	U	0.050	U	0.10	U	0.25	U	0.25	U
Aldrin	0.050	U	0.050	U	0.050	U	0.10	U	0.060	J	0.25	U
Heptachlor epoxide	0.050	U	0.050	U	0.050	U	0.10	U	0.25	U	0.25	U
Endosulfan I	0.050	U	0.050	U	0.050	U	0.10	U	0.25	U	0.25	U
Dieldrin	0.10	U	0.10	U	0.10	U	0.20	U	0.50	U	0.50	U
4,4'-DDE	0.10	U	0.10	U	0.10	U	0.20	U	0.50	U	0.50	U
Endrin	0.10	U	0.10	U	0.10	U	0.20	U	0.50	U	0.50	U
Endosulfan II	0.10	U	0.10	U	0.10	U	0.20	U	0.50	U	0.50	U
4,4'-DDD	0.10	U	0.10	U	0.10	U	0.20	U	0.50	U	0.50	U
Endosulfan sulfate	0.10	U	0.10	U	0.10	U	0.20	U	0.50	U	0.50	U
4,4'-DDT	0.10	U	0.083	J	0.081	J	0.17	J	0.50	U	0.32	J
Methoxychlor	0.50	U	0.50	U	0.50	U	1.0	U	2.5	U	2.5	U
Endrin ketone	0.10	U	0.10	U	0.10	U	0.20	U	0.50	U	0.50	U
alpha-Chlordane	0.50	U	0.50	U	0.50	U	1.0	U	2.5	U	2.5	U
gamma-Chlordane	0.50	U	0.50	U	0.50	U	1.0	U	2.5	U	2.5	U
Toxaphene	1.0	U	1.0	U	1.0	U	2.0	U	5.0	U	5.0	U
Aroclor-1016	0.50	U	0.50	U	0.50	U	1.0	U	2.5	U	2.5	U
Aroclor-1221	0.50	U	0.50	U	0.50	U	1.0	U	2.5	U	2.5	U
Aroclor-1232	0.50	U	0.50	U	0.50	U	1.0	U	2.5	U	2.5	U
Aroclor-1242	0.50	U	0.50	U	0.50	U	1.0	U	2.5	U	2.5	U
Aroclor-1248	0.50	U	0.50	U	0.50	U	1.0	U	2.5	U	2.5	U
Aroclor-1254	1.0	U	1.0	U	1.0	U	2.0	U	5.0	U	5.0	U
Aroclor-1260	1.0	U	1.0	U	1.0	U	2.0	U	5.0	U	5.0	U

U= Analyzed, not detected. J= Present below detection limit. B= Present in blank. NR= Not requested. NS= Not spiked.
%= Percent recovery. D= Diluted out. I= Interference. NA= Not Applicable. *= Outside of EPA CLP QC

23

Roy F. Weston, Inc. - Lionville Laboratory
Pesticide/PCBs by GC, CLP List

Report Date: 02/10/89 09:23

RFW Batch Number: 8811L641 Client: NJDEP Work Order: 3637-01-01-0000 Page: 2

	Cust ID:	BSA11298568-MW13S		BSA11298569-MW13D		BSA11298570-MW14S		BSA11298571-MW14D		BSA11298572-SW1		BSA11298572-SW1	
Sample Information	RFW#:	008		009		010		011		012		012 MS	
	Matrix:	WATER		WATER		WATER		WATER		WATER		WATER	
	D.F.:	5.00		1.00		20.0		2.00		20.0		20.0	
	Units:	ug/L		ug/L		ug/L		ug/L		ug/L		ug/L	
Surrogate: Di-n-butylchlorendate		144	%	14 *	%	D	%	116	%	103	%	76	%
			fl		fl		fl		fl		fl		fl
Alpha-BHC		0.25	U	0.050	U	1.0	U	0.10	U	1.0	U	1.0	U
Beta-BHC		0.25	U	0.050	U	1.0	U	0.10	U	1.0	U	1.0	U
Delta-BHC		0.25	U	0.050	U	1.0	U	0.10	U	1.0	U	45 *	%
gamma-BHC (Lindane)		0.25	U	0.050	U	1.0	U	0.10	U	1.0	U	I	%
Heptachlor		0.25	U	0.050	U	1.0	U	0.10	U	1.0	U	I	%
Aldrin		0.25	U	0.050	U	1.0	U	0.10	U	1.0	U	1.0	U
Heptachlor epoxide		0.25	U	0.050	U	1.0	U	0.10	U	1.0	U	1.0	U
Endosulfan I		0.25	U	0.050	U	1.0	U	0.10	U	1.0	U	D	%
Dieldrin		0.50	U	0.10	U	2.0	U	0.20	U	2.0	U	2.0	U
4,4'-DDE		0.50	U	0.10	U	2.0	U	0.20	U	2.0	U	D	%
Endrin		0.50	U	0.10	U	2.0	U	0.20	U	2.0	U	2.0	U
Endosulfan II		0.50	U	0.10	U	2.0	U	0.20	U	2.0	U	2.0	U
4,4'-DDD		0.50	U	0.10	U	2.0	U	0.20	U	2.0	U	2.0	U
Endosulfan sulfate		0.50	U	0.10	U	2.0	U	0.20	U	2.0	U	D	%
4,4'-DDT		0.50	U	0.10	U	2.0	U	0.16	J	2.0	U	10	U
Methoxychlor		2.5	U	0.50	U	10	U	1.0	U	10	U	2.0	U
Endrin ketone		0.50	U	0.10	U	2.0	U	0.20	U	2.0	U	10	U
alpha-Chlordane		2.5	U	0.50	U	10	U	1.0	U	10	U	10	U
gamma-Chlordane		2.5	U	0.50	U	10	U	1.0	U	10	U	20	U
Toxaphene		5.0	U	1.0	U	20	U	2.0	U	20	U	10	U
Aroclor-1016		2.5	U	0.50	U	10	U	1.0	U	10	U	10	U
Aroclor-1221		2.5	U	0.50	U	10	U	1.0	U	10	U	10	U
Aroclor-1232		2.5	U	0.50	U	10	U	1.0	U	10	U	10	U
Aroclor-1242		2.5	U	0.50	U	10	U	1.0	U	10	U	10	U
Aroclor-1248		2.5	U	0.50	U	10	U	1.0	U	10	U	20	U
Aroclor-1254		5.0	U	1.0	U	20	U	2.0	U	20	U	20	U
Aroclor-1260		5.0	U	1.0	U	20	U	2.0	U	20	U		

U= Analyzed, not detected. J= Present below detection limit. B= Present in blank. NR= Not requested. NS= Not spiked.
%= Percent recovery. D= Diluted out. I= Interference. NA= Not Applicable. *= Outside of EPA CLP QC

Roy F. Weston, Inc. - Lionville Laboratory
Pesticide/PCBs by GC, CLP List

Report Date: 02/10/89 09:23
Page: 3

RFW Batch Number: 8811L641 Client: NJDEP Work Order: 3637-01-01-0000

Sample Information	Cust ID:	BSA11298572-SW1	BSA11298573-SW2	BSA11298574	PBLK
	RFW#:	012 MSD	013	014	88LE1511-MB1
	Matrix:	WATER	WATER	WATER	WATER
	D.F.:	20.0	2.00	1.00	1.00
	Units:	ug/L	ug/L	ug/L	ug/L

Surrogate: Di-n-butylchlorendate	63 %	124 %	111 %	134 %	fl	fl	fl
Alpha-BHC	1.0 U	0.10 U	0.050 U	0.050 U			
Beta-BHC	1.0 U	0.10 U	0.050 U	0.050 U			
Delta-BHC	1.0 U	0.10 U	0.050 U	0.050 U			
gamma-BHC (Lindane)	I %	0.10 U	0.050 U	0.050 U			
Heptachlor	I %	0.10 U	0.050 U	0.050 U			
Aldrin	I %	0.10 U	0.050 U	0.050 U			
Heptachlor epoxide	1.0 U	0.10 U	0.050 U	0.050 U			
Endosulfan I	1.0 U	0.10 U	0.050 U	0.050 U			
Dieldrin	D %	0.20 U	0.10 U	0.10 U			
4,4'-DDE	2.0 U	0.13 J	0.10 U	0.10 U			
Endrin	D %	0.20 U	0.10 U	0.10 U			
Endosulfan II	2.0 U	0.20 U	0.10 U	0.10 U			
4,4'-DDD	2.0 U	0.020 J	0.10 U	0.10 U			
Endosulfan sulfate	2.0 U	0.20 U	0.10 U	0.10 U			
4,4'-DDT	D %	0.28	0.10 U	0.10 U			
Methoxychlor	10 U	1.0 U	0.50 U	0.50 U			
Endrin ketone	2.0 U	0.20 U	0.10 U	0.10 U			
alpha-Chlordane	10 U	1.0 U	0.50 U	0.50 U			
gamma-Chlordane	10 U	1.0 U	0.50 U	0.50 U			
Toxaphene	20 U	2.0 U	1.0 U	1.0 U			
Aroclor-1016	10 U	1.0 U	0.50 U	0.50 U			
Aroclor-1221	10 U	1.0 U	0.50 U	0.50 U			
Aroclor-1232	10 U	1.0 U	0.50 U	0.50 U			
Aroclor-1242	10 U	1.0 U	0.50 U	0.50 U			
Aroclor-1248	10 U	1.0 U	0.50 U	0.50 U			
Aroclor-1254	20 U	2.0 U	1.0 U	1.0 U			
Aroclor-1260	20 U	2.0 U	1.0 U	1.0 U			

U= Analyzed, not detected. J= Present below detection limit. B= Present in blank. NR= Not requested. NS= Not spiked.
%= Percent recovery. D= Diluted out. I= Interference. NA= Not Applicable. *= Outside of EPA CLP QC

24

F10

WESTON ANALYTICS
GC/MS DATA SUMMARY
SEMI-VOLATILE HAZARDOUS SUBSTANCE LIST COMPOUNDS

RFW Batch Number: 8805-505 Client: NJDEP (BSA052) Page

Sample Information MDL=10xD.F.,except (2)=50x,(3)=20x	Cust ID:	68440	68441	68442	88E580-	68440	6844
	RFW#:	001	002	003	MB1	001 MS	001 MS
	Matrix:	Soil	Soil	Soil	Soil	Soil	Soi
	D.F.:	41	82	58	37	41	4
	Units:	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/k
Surrogate Recovery (%)	2-Fluorophenol:	67 %	26 %	29 %	103 %	84 %	8
	Phenol-d5:	66 %	31 %	32 %	96 %	86 %	8
	2,4,6-Br3-Phenol:	118 %	33 %	44 %	112 %	137 %	14
	Nitrobenzene-d5:	55 %	16 %	32 %	76 %	62 %	6
	2-Fluorobiphenyl:	61 %	30 %	34 %	78 %	70 %	7
	p-Terphenyl-d14:	70 %	46 %	42 %	86 %	78 %	8
		fl	fl	fl	fl	fl	
Phenol		410 U	820 U	580 U	370 U	73 %	7
bis(2-Chloroethyl)Ether		410 U	820 U	580 U	370 U	410 U	41
2-Chlorophenol		410 U	820 U	580 U	370 U	86 %	9
1,3-Dichlorobenzene		410 U	820 U	580 U	370 U	410 U	41
1,4-Dichlorobenzene		410 U	820 U	580 U	370 U	57 %	6
Benzyl Alcohol		410 U	820 U	580 U	370 U	410 U	41
1,2-Dichlorobenzene		410 U	820 U	580 U	370 U	410 U	41
2-Methylphenol		410 U	820 U	580 U	370 U	410 U	41
bis(2-Chloroisopropyl)Ether		410 U	820 U	580 U	370 U	410 U	41
4-Methylphenol		410 U	820 U	580 U	370 U	410 U	41
N-Nitroso-di-n-propylamine		410 U	820 U	580 U	370 U	63 %	6
Hexachloroethane		410 U	820 U	580 U	370 U	410 U	41
Nitrobenzene		410 U	820 U	580 U	370 U	410 U	41
Isophorone		410 U	820 U	580 U	370 U	410 U	41
2-Nitrophenol		410 U	820 U	580 U	370 U	410 U	41
2,4-Dimethylphenol		410 U	820 U	580 U	370 U	410 U	41
Benzoic Acid(2)		2100 U	4100 U	2900 U	1900 U	2100 U	210
bis(2-Chloroethoxy)Methane		410 U	820 U	580 U	370 U	410 U	41
2,4-Dichlorophenol		410 U	820 U	580 U	370 U	410 U	41
1,2,4-Trichlorobenzene		410 U	820 U	580 U	370 U	63 %	6
Naphthalene		410 U	820 U	580 U	370 U	410 U	41
4-Chloroaniline		410 U	820 U	580 U	370 U	410 U	41
Hexachlororbutadiene		410 U	820 U	580 U	370 U	410 U	41
4-Chloro-3-methylphenol		410 U	820 U	580 U	370 U	95 %	10
2-Methylnaphthalene		410 U	820 U	580 U	370 U	410 U	41
Hexachlorocyclopentadiene		410 U	820 U	580 U	370 U	410 U	41

RFW Batch Number: 8805-505 Client: NJDEP (BSA052)

Cust ID: / RFW#:	68440 001	68441 002	68442 003	88E580-MB1	68440 001 MS	68440 001 MSD
2,4,6-Trichlorophenol	410 U	820 U	580 U	370 U	410 U	410 U
2,4,5-Trichlorophenol(2)	2100 U	4100 U	2900 U	1900 U	2100 U	2100 U
2-Chloronaphthalene	410 U	820 U	580 U	370 U	410 U	410 U
2-Nitroaniline(2)	2100 U	4100 U	2900 U	1900 U	2100 U	2100 U
Dimethyl Phthalate	410 U	820 U	580 U	370 U	410 U	410 U
Acenaphthylene	410 U	820 U	580 U	370 U	410 U	410 U
3-Nitroaniline(2)	2100 U	4100 U	2900 U	1900 U	2100 U	2100 U
Acenaphthene	410 U	820 U	580 U	370 U	64 %	[illegible] %
2,4-Dinitrophenol(2)	2100 U	4100 U	2900 U	1900 U	2100 U	21[illegible] U
4-Nitrophenol(2)	2100 U	4100 U	2900 U	1900 U	110 %	117 %
Dibenzofuran	410 U	820 U	580 U	370 U	410 U	410 U
2,4-Dinitrotoluene	410 U	820 U	580 U	370 U	67 %	74 %
2,6-Dinitrotoluene	410 U	820 U	580 U	370 U	410 U	410 U
Diethyl Phthalate	410 U	820 U	580 U	370 U	410 U	410 U
4-Chlorophenyl-phenylether	410 U	820 U	580 U	370 U	410 U	410 U
Fluorene	410 U	820 U	580 U	370 U	410 U	410 U
4-Nitroaniline(2)	2100 U	4100 U	2900 U	1900 U	2100 U	2100 U
4,6-Dinitro-2-methylphenol(2)	2100 U	4100 U	2900 U	1900 U	2100 U	2100 U
N-Nitrosodiphenylamine(1)	410 U	820 U	580 U	370 U	410 U	410 U
4-Bromophenyl-phenylether	410 U	820 U	580 U	370 U	410 U	410 U
Hexachlorobenzene	410 U	820 U	580 U	370 U	410 U	410 U
Pentachlorophenol(2)	2100 U	4100 U	2900 U	1900 U	120 %	81 %
Phenanthrene	58 J	820 U	580 U	370 U	410 U	56 J
Anthracene	410 U	820 U	580 U	370 U	410 U	410 U
di-n-Butyl Phthalate	130 JB	390 JB	200 JB	85 J	140 JB	2[illegible] J[illegible]
Fluoranthene	120 J	820 U	580 U	370 U	110 J	110 J
Pyrene	96 J	820 U	580 U	370 U	60 %	64 %
Butyl Benzyl Phthalate	410 U	820 U	580 U	370 U	410 U	410 U
3,3'-Dichlorobenzidine(3)	820 U	1600 U	1200 U	740 U	820 U	820 U
Benzo(a)Anthracene	410 U	820 U	580 U	370 U	410 U	410 U
bis(2-Ethylhexyl)Phthalate	410 U	820 U	3200 B	660	410 U	410 U
Chrysene	410 U	820 U	580 U	370 U	410 U	410 U
di-n-Octyl Phthalate	410 U	820 U	580 U	370 U	410 U	410 U
Benzo(b)Fluoranthene	410 U	820 U	580 U	370 U	410 U	410 U
Benzo(k)Fluoranthene	410 U	820 U	580 U	370 U	410 U	410 U
Benzo(a)Pyrene	410 U	820 U	580 U	370 U	410 U	410 U
Indeno(1,2,3-cd)Pyrene	410 U	820 U	580 U	370 U	410 U	410 U
Dibenz(a,h)Anthracene	410 U	820 U	580 U	370 U	410 U	410 U
Benzo(g,h,i)Perylene	410 U	820 U	580 U	370 U	410 U	410 U

WESTON ANALYTICS
GC/MS DATA SUMMARY
SEMI-VOLATILE HAZARDOUS SUBSTANCE LIST COMPOUNDS

RFW Batch Number: 8805-505 Client: NJDEP (BSA052) Page:

Sample Information MDL=10xD.F.,except (2)=50x,(3)=20x	Cust ID:	68443	68444	68445	68446	68447	68448
	RFW#:	004	005	006	007	008	009
	Matrix:	Water	Water	Water	Water	Water	Water
	D.F.:	1	1	1	1	1	1
	Units:	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l
Surrogate Recovery (%)	2-Fluorophenol:	68 %	94 %	91 %	68 %	64 %	65
	Phenol-d5:	44 %	70 %	69 %	41 %	41 %	41
	2,4,6-Br3-Phenol:	106 %	123 %	118 %	94 %	93 %	91
	Nitrobenzene-d5:	88 %	78 %	82 %	78 %	79 %	87
	2-Fluorobiphenyl:	97 %	81 %	84 %	85 %	89 %	93
	p-Terphenyl-d14:	132 %	131 %	133 %	134 %	123 %	143
		fl	fl	fl	fl	fl	
Phenol		10 U	10 U	10 U	10 U	10 U	10
bis(2-Chloroethyl)Ether		10 U	10 U	10 U	10 U	10 U	10
2-Chlorophenol		10 U	10 U	10 U	10 U	10 U	10
1,3-Dichlorobenzene		10 U	10 U	10 U	10 U	10 U	10
1,4-Dichlorobenzene		10 U	10 U	10 U	10 U	10 U	10
Benzyl Alcohol		10 U	10 U	10 U	10 U	10 U	10
1,2-Dichlorobenzene		10 U	10 U	10 U	10 U	10 U	10
2-Methylphenol		10 U	10 U	10 U	10 U	10 U	10
bis(2-Chloroisopropyl)Ether		10 U	10 U	10 U	10 U	10 U	10
4-Methylphenol		10 U	10 U	10 U	10 U	10 U	10
N-Nitroso-di-n-propylamine		10 U	10 U	10 U	10 U	10 U	10
Hexachloroethane		10 U	10 U	10 U	10 U	10 U	10
Nitrobenzene		10 U	10 U	10 U	10 U	10 U	10
Isophorone		10 U	10 U	10 U	10 U	10 U	10
2-Nitrophenol		10 U	10 U	10 U	10 U	10 U	10
2,4-Dimethylphenol		10 U	10 U	10 U	10 U	10 U	10
Benzoic Acid(2)		50 U	50 U	50 U	50 U	50 U	50
bis(2-Chloroethoxy)Methane		10 U	10 U	10 U	10 U	10 U	10
2,4-Dichlorophenol		10 U	10 U	10 U	10 U	10 U	10
1,2,4-Trichlorobenzene		10 U	10 U	10 U	10 U	10 U	10
Naphthalene		10 U	10 U	10 U	10 U	10 U	10
4-Chloroaniline		10 U	10 U	10 U	10 U	10 U	10
Hexachlororbutadiene		10 U	10 U	10 U	10 U	10 U	10
4-Chloro-3-methylphenol		10 U	10 U	10 U	10 U	10 U	10
2-Methylnaphthalene		10 U	10 U	10 U	10 U	10 U	10
Hexachlorocyclopentadiene		10 U	10 U	10 U	10 U	10 U	10

T-3

RFW Batch Number: 8805-505 Client: NJDEP (BSA052)

Cust ID:	68443	68444	68445	68446	68447	68448
RFW#:	004	005	006	007	008	009
2,4,6-Trichlorophenol	10 U	10 U	10 U	10 U	10 U	10
2,4,5-Trichlorophenol(2)	50 U	50 U	50 U	50 U	50 U	50
2-Chloronaphthalene	10 U	10 U	10 U	10 U	10 U	10
2-Nitroaniline(2)	50 U	50 U	50 U	50 U	50 U	50
Dimethyl Phthalate	10 U	10 U	10 U	10 U	10 U	10
Acenaphthylene	10 U	10 U	10 U	10 U	10 U	10
3-Nitroaniline(2)	50 U	50 U	50 U	50 U	50 U	50
Acenaphthene	10 U	10 U	10 U	10 U	10 U	10
2,4-Dinitrophenol(2)	50 U	50 U	50 U	50 U	50 U	50
4-Nitrophenol(2)	50 U	50 U	50 U	50 U	50 U	50
Dibenzofuran	10 U	10 U	10 U	10 U	10 U	10
2,4-Dinitrotoluene	10 U	10 U	10 U	10 U	10 U	10
2,6-Dinitrotoluene	10 U	10 U	10 U	10 U	10 U	10
Diethyl Phthalate	10 U	10 U	10 U	10 U	10 U	10
4-Chlorophenyl-phenylether	10 U	10 U	10 U	10 U	10 U	10
Fluorene	10 U	10 U	10 U	10 U	10 U	10
4-Nitroaniline(2)	50 U	50 U	50 U	50 U	50 U	50
4,6-Dinitro-2-methylphenol(2)	50 U	50 U	50 U	50 U	50 U	50
N-Nitrosodiphenylamine(1)	10 U	10 U	10 U	10 U	10 U	10
4-Bromophenyl-phenylether	10 U	10 U	10 U	10 U	10 U	1
Hexachlorobenzene	10 U	10 U	10 U	10 U	10 U	1
Pentachlorophenol(2)	50 U	50 U	50 U	50 U	50 U	5
Phenanthrene	10 U	10 U	10 U	10 U	10 U	1
Anthracene	10 U	10 U	10 U	10 U	10 U	1
di-n-Butyl Phthalate	10 U	10 U	10 U	10 U	10 U	10 U
Fluoranthene	10 U	10 U	10 U	10 U	10 U	10 U
Pyrene	10 U	10 U	10 U	10 U	10 U	10 U
Butyl Benzyl Phthalate	10 U	10 U	10 U	10 U	10 U	10 U
3,3'-Dichlorobenzidine(3)	20 U	20 U	20 U	20 U	20 U	2
Benzo(a)Anthracene	10 U	10 U	10 U	10 U	10 U	1
bis(2-Ethylhexyl)Phthalate	4 J	2 J	4 J	3 J	3 J	3
Chrysene	10 U	10 U	10 U	10 U	10 U	10 U
di-n-Octyl Phthalate	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(b)Fluoranthene	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(k)Fluoranthene	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(a)Pyrene	10 U	10 U	10 U	10 U	10 U	10 U
Indeno(1,2,3-cd)Pyrene	10 U	10 U	10 U	10 U	10 U	10 U
Dibenz(a,h)Anthracene	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(g,h,i)Perylene	10 U	10 U	10 U	10 U	10 U	10 U

WESTON ANALYTICS
GC/MS DATA SUMMARY
SEMI-VOLATILE HAZARDOUS SUBSTANCE LIST COMPOUNDS

RFW Batch Number: 8805-505 Client: NJDEP (BSA052) Page

Sample Information MDL=10xD.F.,except (2)=50x,(3)=20x	Cust ID:	88E574-	68443	68443		
	RFW#:	MB1	004 MS	004 MSD		
	Matrix:	Water	Water	Water		
	D.F.:	1	2	2		
	Units:	ug/l	ug/l	ug/l		
Surrogate Recovery (%)	2-Fluorophenol:	80 %	56 %	51 %	%	%
	Phenol-d5:	51 %	33 %	31 %	%	%
	2,4,6-Br3-Phenol:	117 %	87 %	99 %	%	%
	Nitrobenzene-d5:	81 %	68 %	71 %	%	%
	2-Fluorobiphenyl:	73 %	74 %	74 %	%	%
	p-Terphenyl-d14:	127 %	123 %	114 %	%	%
		fl	fl	fl	fl	fl
Phenol		10 U	65 %	65 %		
bis(2-Chloroethyl)Ether		10 U	20 U	20 U		
2-Chlorophenol		10 U	113 %	112 %		
1,3-Dichlorobenzene		10 U	20 U	20 U		
1,4-Dichlorobenzene		10 U	64 %	66 %		
Benzyl Alcohol		10 U	20 U	20 U		
1,2-Dichlorobenzene		10 U	20 U	20 U		
2-Methylphenol		10 U	20 U	20 U		
bis(2-Chloroisopropyl)Ether		10 U	20 U	20 U		
4-Methylphenol		10 U	20 U	20 U		
N-Nitroso-di-n-propylamine		10 U	76 %	80 %		
Hexachloroethane		10 U	20 U	20 U		
Nitrobenzene		10 U	20 U	20 U		
Isophorone		10 U	20 U	20 U		
2-Nitrophenol		10 U	20 U	20 U		
2,4-Dimethylphenol		10 U	20 U	20 U		
Benzoic Acid(2)		50 U	100 U	100 U		
bis(2-Chloroethoxy)Methane		10 U	20 U	20 U		
2,4-Dichlorophenol		10 U	20 U	20 U		
1,2,4-Trichlorobenzene		10 U	72 %	72 %		
Naphthalene		10 U	20 U	20 U		
4-Chloroaniline		10 U	20 U	20 U		
Hexachlororbutadiene		10 U	20 U	20 U		
4-Chloro-3-methylphenol		10 U	118 %	117 %		
2-Methylnaphthalene		10 U	20 U	20 U		
Hexachlorocyclopentadiene		10 U	20 U	20 U		

15

RFW Batch Number: 8805-505 Client: NJDEP (BSA052)

Cust ID: RFW#:	88E574- MB1	68443 004 MS	68443 004 MSD			
	fl	fl	fl	fl	fl	fl
2,4,6-Trichlorophenol	10 U	20 U	20 U			
2,4,5-Trichlorophenol(2)	50 U	100 U	100 U			
2-Chloronaphthalene	10 U	20 U	20 U			
2-Nitroaniline(2)	50 U	100 U	100 U			
Dimethyl Phthalate	10 U	20 U	20 U			
Acenaphthylene	10 U	20 U	20 U			
3-Nitroaniline(2)	50 U	100 U	100 U			
Acenaphthene	10 U	79 %	80 %			
2,4-Dinitrophenol(2)	50 U	100 U	100 U			
4-Nitrophenol(2)	50 U	57 %	59 %			
Dibenzofuran	10 U	20 U	20 U			
2,4-Dinitrotoluene	10 U	88 %	88 %			
2,6-Dinitrotoluene	10 U	20 U	20 U			
Diethyl Phthalate	10 U	20 U	20 U			
4-Chlorophenyl-phenylether	10 U	20 U	20 U			
Fluorene	10 U	20 U	20 U			
4-Nitroaniline(2)	50 U	100 U	100 U			
4,6-Dinitro-2-methylphenol(2)	50 U	100 U	100 U			
N-Nitrosodiphenylamine(1)	10 U	20 U	20 U			
4-Bromophenyl-phenylether	10 U	20 U	20 U			
Hexachlorobenzene	10 U	20 U	20 U			
Pentachlorophenol(2)	50 U	11 %	13 %			
Phenanthrene	10 U	20 U	20 U			
Anthracene	10 U	20 U	20 U			
di-n-Butyl Phthalate	10 U	20 U	20 U			
Fluoranthene	10 U	20 U	20 U			
Pyrene	10 U	102 %	107 %			
Butyl Benzyl Phthalate	10 U	20 U	20 U			
3,3'-Dichlorobenzidine(3)	20 U	40 U	40 U			
Benzo(a)Anthracene	10 U	20 U	20 U			
bis(2-Ethylhexyl)Phthalate	10 U	2 J	3 J			
Chrysene	10 U	20 U	20 U			
di-n-Octyl Phthalate	10 U	20 U	20 U			
Benzo(b)Fluoranthene	10 U	20 U	20 U			
Benzo(k)Fluoranthene	10 U	20 U	20 U			
Benzo(a)Pyrene	10 U	20 U	20 U			
Indeno(1,2,3-cd)Pyrene	10 U	20 U	20 U			

T16

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0 1

COVER PAGE - INORGANIC ANALYSES DATA PACKAGE ~~10~~

~~02~~

Lab Name: WESTON - LIONVILLE Contract:

Lab Code: WESTON Case No.: NJDEP SAS No.: SDG No.: NJD505

SOW No.: 7/87

EPA Sample No.	Lab Sample ID.
BSA05268440	8805-505-001
BSA05268440D	8805-505-001D
BSA05268440S	8805-505-001S
BSA05268441	8805-505-002
BSA05268442	8805-505-003
BSAD5268443	8805-505-004
BSAD5268443D	8805-505-004D
BSAD5268443S	8805-505-004S
BSAD5268444	8805-505-005
BSAD5268444D	8805-505-005D
BSAD5268445	8805-505-005S
BSAD5268445	8805-505-006
BSA05268446	8805-505-007
BSA05268447	8805-505-008
BSA05268448	8805-505-009

Were ICP interelement corrections applied? Yes/No yes

Were ICP background corrections applied? Yes/No yes
If yes-were raw data generated before application of background corrections? Yes/No yes

Comments:

Release of the data contained in this hardcopy data package and in the computer-readable data submitted on floppy diskette has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature.

Lab Manager: Joe E. O'Shea

Date: 7/6/88

F17

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1

INORGANIC ANALYSIS DATA SHEET

0 2
EPA SAMPLE NO.

BSA05268440

Lab Name: WESTON - LIONVILLE Contract:

Lab Code: WESTON Case No.: NJDEP SAS No.: SDG No.: NJD505

Matrix (soil/water): SOIL Lab Sample ID: 8805-505-001

Level (low/med): LOW Date Received: 05/27/88

% Solids: 93.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M	
7429-90-5	Aluminum	1290			P	
7440-36-0	Antimony	12.7	U		P	
7440-38-2	Arsenic	0.46	B	N	F	
7440-39-3	Barium	3.7	U		P	
7440-41-7	Beryllium	0.11	U		P	
7440-43-9	Cadmium	0.57	U		P	
7440-70-2	Calcium	54.6	B		P	
7440-47-3	Chromium	5.5			P	
7440-48-4	Cobalt	1.8	U		P	
7440-50-8	Copper	2.5	U		P	
7439-89-6	Iron	2270			P	
7439-92-1	Lead	1.9		N	F	
7439-95-4	Magnesium	45.9	B		P	
7439-96-5	Manganese	7.3			P	
7439-97-6	Mercury	0.07 ~~0.22~~	U		CV	KAM 7/6/88
7440-02-0	Nickel	1.7	U		P	
7440-09-7	Potassium	336	U		P	
7782-49-2	Selenium	0.27	B	N	F	
7440-22-4	Silver	1.7	U	N	P	
7440-23-5	Sodium	49.2	B		P	
7440-28-0	Thallium	0.32	U	W	F	
7440-62-2	Vanadium	5.3	B		P	
7440-66-6	Zinc	3.9	B		P	
	Cyanide	0.54 ~~10.8~~	U		C	KAM 7/6/88

lor Before: FINE Clarity Before: YELLOW Texture:

lor After: FINE Clarity After: YELLOW Artifacts:

ments:

F18

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0 3

EPA SAMPLE NO.

1

INORGANIC ANALYSIS DATA SHEET

BSA05268441

Lab Name: WESTON - LIONVILLE Contract:

Lab Code: WESTON Case No.: NJDEP SAS No.: SDG No.: NJD505

Matrix (soil/water): SOIL Lab Sample ID: 8805-505-002

Level (low/med): LOW Date Received: 05/27/88

% Solids: 93.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	97.0			P
7440-36-0	Antimony	11.5	U		P
7440-38-2	Arsenic	0.52	B	N	F
7440-39-3	Barium	3.4	U		P
7440-41-7	Beryllium	0.10	U		P
7440-43-9	Cadmium	0.52	U		P
7440-70-2	Calcium	10.7	B		P
7440-47-3	Chromium	2.6			P
7440-48-4	Cobalt	1.6	U		P
7440-50-8	Copper	2.3	U		P
7439-89-6	Iron	554			P
7439-92-1	Lead	2.0		N	F
7439-95-4	Magnesium	17.3	U		P
7439-96-5	Manganese	2.0	B		P
7439-97-6	Mercury	0.07 ~~0.22~~	U		CV KAM 7/6/88
7440-02-0	Nickel	1.6	U		P
7440-09-7	Potassium	304	U		P
7782-49-2	Selenium	0.30	B	N	F
7440-22-4	Silver	1.5	U	N	P
7440-23-5	Sodium	53.4	B		P
7440-28-0	Thallium	0.36	U	W	F
7440-62-2	Vanadium	2.4	U		P
7440-66-6	Zinc	7.6			P
	Cyanide	0.54 ~~10.8~~	U		C
		KAM 7/6/88			

Color Before: FINE Clarity Before: YELLOW Texture:

Color After: FINE Clarity After: YELLOW Artifacts:

Comments:

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U.S. EPA - CLP

0 4
EPA SAMPLE NO.

1
INORGANIC ANALYSIS DATA SHEET

BSA05268442

Lab Name: WESTON - LIONVILLE Contract:

Lab Code: WESTON Case No.: NJDEP SAS No.: SDG No.: NJD505

Matrix (soil/water): SOIL Lab Sample ID: 8805-505-003

Level (low/med): LOW Date Received: 05/27/88

% Solids: 55.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	5520			P
7440-36-0	Antimony	19.2	U		P
7440-38-2	Arsenic	3.2		N	F
7440-39-3	Barium	25.0	B		P
7440-41-7	Beryllium	0.58	B		P
7440-43-9	Cadmium	0.87	U		P
7440-70-2	Calcium	1320			P
7440-47-3	Chromium	42.1			P
7440-48-4	Cobalt	2.7	U		P
7440-50-8	Copper	14.4			P
7439-89-6	Iron	23100			P
7439-92-1	Lead	8.1		N	F
7439-95-4	Magnesium	262	B		P
7439-96-5	Manganese	36.1			P
7439-97-6	Mercury	0.12 ~~0.36~~	U		CV
7440-02-0	Nickel	6.7	B		P
7440-09-7	Potassium	506	B		P
7782-49-2	Selenium	0.69	B	N W	F
7440-22-4	Silver	2.5	U	N	P
7440-23-5	Sodium	98.9	B		P
7440-28-0	Thallium	0.56	U	W	F
7440-62-2	Vanadium	55.7			P
7440-66-6	Zinc	16.6			P
	Cyanide	0.91 ~~18.2~~	U		C
		KAM 7/6/88			

KAM 7/6/88

Color Before: FINE Clarity Before: YELLOW Texture:

Color After: FINE Clarity After: YELLOW Artifacts:

Comments:

FORM I - IN

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Rev. IFB Amendment One

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U.S. EPA - CLP

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EPA SAMPLE NO.

1

INORGANIC ANALYSIS DATA SHEET

BSAD526844 3

Lab Name: WESTON - LIONVILLE Contract:

Lab Code: WESTON Case No.: NJDEP SAS No.: SDG No.: NJD505

Matrix (soil/water): WATER Lab Sample ID: 8805-505-004

Level (low/med): LOW Date Received: 05/27/88

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	76.0	U		P
7440-36-0	Antimony	59.8	U		P
7440-38-2	Arsenic	0.90	U	W	F
7440-39-3	Barium	17.4	U		P
7440-41-7	Beryllium	0.50	U		P
7440-43-9	Cadmium	2.7	U		P
7440-70-2	Calcium	37.5	U		P
7440-47-3	Chromium	5.5	U		P
7440-48-4	Cobalt	8.3	U		P
7440-50-8	Copper	11.8	U		P
7439-89-6	Iron	1680			P
7439-92-1	Lead	3.8	B	N W	F
7439-95-4	Magnesium	201	B		P
7439-96-5	Manganese	17.1			P
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel	8.1	U		P
7440-09-7	Potassium	1580	U		P
7782-49-2	Selenium	1.3	U	W	F
7440-22-4	Silver	7.9	U	N	P
7440-23-5	Sodium	4770	B		P
7440-28-0	Thallium	1.8	U	N W	F
7440-62-2	Vanadium	12.4	U		P
7440-66-6	Zinc	15.2	U		P
	Cyanide	10.0	U		C

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

U.S. EPA - CLP

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EPA SAMPLE NO.

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INORGANIC ANALYSIS DATA SHEET

BSAD5268444

Lab Name: WESTON - LIONVILLE Contract:

Lab Code: WESTON Case No.: NJDEP SAS No.: SDG No.: NJD505

Matrix (soil/water): WATER Lab Sample ID: 8805585-005

Level (low/med): LOW Date Received: 05/27/88

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	76.0	U		P
7440-36-0	Antimony	59.8	U		P
7440-38-2	Arsenic	0.90	U		F
7440-39-3	Barium	17.4	U		P
7440-41-7	Beryllium	0.50	U		P
7440-43-9	Cadmium	2.7	U		P
7440-70-2	Calcium	895	B		P
7440-47-3	Chromium	5.5	U		P
7440-48-4	Cobalt	8.3	U		P
7440-50-8	Copper	11.8	U		P
7439-89-6	Iron	11200			P
7439-92-1	Lead	4.1	B	N W	F
7439-95-4	Magnesium	675	B		P
7439-96-5	Manganese	21.9			P
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel	38.9	B		P
7440-09-7	Potassium	1670	B		P
7782-49-2	Selenium	1.3	U		F
7440-22-4	Silver	7.9	U	N	P
7440-23-5	Sodium	1840	B		P
7440-28-0	Thallium	1.8	U	N	F
7440-62-2	Vanadium	12.4	U		P
7440-66-6	Zinc	17.9	B		P
	Cyanide	10.0	U		C

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

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U.S. EPA - CLP

0 7

EPA SAMPLE NO.

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INORGANIC ANALYSIS DATA SHEET

BSAD5268445

ab Name: WESTON - LIONVILLE Contract:

ab Code: WESTON Case No.: NJDEP SAS No.: SDG No.: NJD505

atrix (soil/water): WATER Lab Sample ID: 8805-505-006

evel (low/med): LOW Date Received: 05/27/88

Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	76.0	U		P
7440-36-0	Antimony	59.8	U		P
7440-38-2	Arsenic	0.90	U		F
7440-39-3	Barium	18.6	B		P
7440-41-7	Beryllium	0.50	U		P
7440-43-9	Cadmium	2.7	U		P
7440-70-2	Calcium	13700			P
7440-47-3	Chromium	5.5	U		P
7440-48-4	Cobalt	8.3	U		P
7440-50-8	Copper	96.9			P
7439-89-6	Iron	292			P
7439-92-1	Lead	5.4		N	F
7439-95-4	Magnesium	1660	B		P
7439-96-5	Manganese	20.3			P
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel	28.5	B		P
7440-09-7	Potassium	2400	B		P
7782-49-2	Selenium	1.3 ~~2.6~~	U	S	F
7440-22-4	Silver	7.9	U	N	P
7440-23-5	Sodium	6420			P
7440-28-0	Thallium	1.8	U	N W	F
7440-62-2	Vanadium	12.4	U		P
7440-66-6	Zinc	24.5			P
	Cyanide	10.0	U		C

KAM 7/6/88

or Before: COLORLESS Clarity Before: CLEAR Texture:

or After: COLORLESS Clarity After: CLEAR Artifacts:

ments:

U.S. EPA - CLP

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EPA SAMPLE NO.

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INORGANIC ANALYSIS DATA SHEET

BS405268446

Lab Name: WESTON - LIONVILLE Contract:

Lab Code: WESTON Case No.: NJDEP SAS No.: SDG No.: NJD505

Matrix (soil/water): WATER Lab Sample ID: 8805-S05-007

Level (low/med): LOW Date Received: 05/27/88

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	76.0	U		P
7440-36-0	Antimony	59.8	U		P
7440-38-2	Arsenic	0.90	U	W	F
7440-39-3	Barium	17.4	U		P
7440-41-7	Beryllium	0.50	U		P
7440-43-9	Cadmium	2.7	U		P
7440-70-2	Calcium	171	B		P
7440-47-3	Chromium	5.5	U		P
7440-48-4	Cobalt	8.3	U		P
7440-50-8	Copper	170			P
7439-89-6	Iron	387			P
7439-92-1	Lead	4.5	B	N	F
7439-95-4	Magnesium	416	B		P
7439-96-5	Manganese	6.9	B		P
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel	24.9	B		P
7440-09-7	Potassium	1590	B		P
7782-49-2	Selenium	1.3	U		F
7440-22-4	Silver	7.9	U	N	P
7440-23-5	Sodium	1710	B		P
7440-28-0	Thallium	1.8	U	N W	F
7440-62-2	Vanadium	12.4	U		P
7440-66-6	Zinc	28.1			P
	Cyanide	10.0	U		C

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

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U.S. EPA - CLP

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EPA SAMPLE NO.

INORGANIC ANALYSIS DATA SHEET

BSA05268447

Lab Name: WESTON - LIONVILLE Contract:

Lab Code: WESTON Case No.: NJDEP SAS No.: SDG No.: NJD505

Matrix (soil/water): WATER Lab Sample ID: 8805-505-008

Level (low/med): LOW Date Received: 05/27/88

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	76.0	U		P
7440-36-0	Antimony	59.8	U		P
7440-38-2	Arsenic	0.90	U		F
7440-39-3	Barium	19.0	B		P
7440-41-7	Beryllium	0.50	U		P
7440-43-9	Cadmium	2.7	U		P
7440-70-2	Calcium	1200	B		P
7440-47-3	Chromium	5.5	U		P
7440-48-4	Cobalt	8.3	U		P
7440-50-8	Copper	49.8			P
7439-89-6	Iron	835			P
7439-92-1	Lead	2.9	B	N	F
7439-95-4	Magnesium	782	B		P
7439-96-5	Manganese	19.9			P
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel	8.1	U		P
7440-09-7	Potassium	2180	B		P
7782-49-2	Selenium	1.3	U		F
7440-22-4	Silver	7.9	U	N	P
7440-23-5	Sodium	2520	B		P
7440-28-0	Thallium	1.8	U	N W	F
7440-62-2	Vanadium	12.4	U		P
7440-66-6	Zinc	15.2	U		P
	Cyanide	10.0	U		C

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

U.S. EPA - CLP

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INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

BSA052688 48

Lab Name: WESTON - LIONVILLE Contract:

Lab Code: WESTON Case No.: NJDEP SAS No.: SDG No.: NJD505

Matrix (soil/water): WATER Lab Sample ID: 8805-505-009

Level (low/med): LOW Date Received: 05/27/88

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	76.0	U		P
7440-36-0	Antimony	59.8	U		P
7440-38-2	Arsenic	0.90	U		F
7440-39-3	Barium	17.4	U		P
7440-41-7	Beryllium	0.50	U		P
7440-43-9	Cadmium	2.7	U		P
7440-70-2	Calcium	83.1	B		P
7440-47-3	Chromium	5.5	U		P
7440-48-4	Cobalt	8.3	U		P
7440-50-8	Copper	11.8	U		P
7439-89-6	Iron	25.6	U		P
7439-92-1	Lead	3.1	B	N	F
7439-95-4	Magnesium	89.7	U		P
7439-96-5	Manganese	32.6			P
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel	8.1	U		P
7440-09-7	Potassium	1580	U		P
7782-49-2	Selenium	1.3	U		F
7440-22-4	Silver	7.9	U	N	P
7440-23-5	Sodium	323	B		P
7440-28-0	Thallium	1.8	U	N	F
7440-62-2	Vanadium	12.4	U		P
7440-66-6	Zinc	15.2	U		P
	Cyanide	10.0	U		C

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

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DEC 22 1989

Let's protect our earth

State of New Jersey
DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF HAZARDOUS SITE MITIGATION
CN 413, Trenton, N.J. 08625-0413
(609) 984-2902
Fax # (609) 633-2360

Anthony J. Farro
Director

invoice rejection

DEC 20 1989

MEMORANDUM

TO: Ken Kloo, Section Chief
Bureau of Planning and Assessment, DHWM

THROUGH: Joseph Sanguiliano, Acting Section Chief
Kathleen M. Grimes, Research Scientist I for KG
Quality Assurance Section
Bureau of Environmental Measurements & Quality Assurance

FROM: Robert P. Posey RPP Research Scientist III
Quality Assurance Section
Bureau of Environmental Measurements & Quality Assurance

SUBJECT: Analytical Data Validation of 1 December 1988 sampling at GAF, Linden by Bureau of Planning and Assessment; Envirodyne Engineers, Inc. under X-195 contract, Task IV, Tier I deliverables.

SOIL FIELD SAMPLES REVIEWED

BSA12018577	BSA12018590	BSA12018614 (Field Blank)
BSA12018583	BSA12018594	BSA12018615 (Trip Blank)
BSA12018617	BSA12018602	

The Quality Assurance Section, Bureau of Environmental Measurements and Quality Assurance, Division of Hazardous Site Mitigation has reviewed the data for eight of the thirty samples analyzed for volatile organics, base neutral and acid extractable organics and pesticides/PCB's. Please refer to the detailed data validation report and the Target and Non-target Compound Summary for additional information. Specific comments are provided below.

GENERAL REQUIREMENTS

1. The data package did not contain a title page, a methodology review nor a laboratory chronicle. A cover memo sent with the package contained a laboratory chronicle and a case narrative.

2. The volatile organics package contained some calibration quantitation reports which did not list the peak area. This prevented QAS from performing some of the re-calculations normally carried out during the review of this fraction. This was an isolated problem and has no effect on data quality.

VOA FRACTION

1. The data review indicated that holding times were exceeded for five samples being reviewed. Holding times for all samples were then examined. Results for the following samples are rejected since the holding time to analysis was more than 15 days:

BSA12018588	(12-19-88 Analysis)	BSA12018598
BSA12018591		BSA12018599
BSA12018593		BSA12018600
BSA12018595		BSA12018602
BSA12018597		BSA12018583

Results for the following samples are qualified "J" as estimated values since the holding time to analysis was between 10 and 15 days:

BSA12018588	(12-17-88 Analysis)	BSA12018579
BSA12018590		BSA12018580
BSA12018592		BSA12018581
BSA12018596		BSA12018584
BSA12018601		BSA12018585
BSA12018577		BSA12018586
BSA12018578		BSA12018587

2. The surrogate 4-Bromofluorobenzene's %RSD value is above 30% in an initial calibration. Therefore, all results for BSA12018617 are qualified "J" as estimated values.

3. The surrogate 4-Bromofluorobenzene's %D value is above 25% in a continuing calibration. Therefore, all positive results for BSA12018590DL and BSA12018594 are qualified "J" as estimated values.

4. Bromoform had a RRF50 < 0.250 but >0.05 for the continuing calibration associated with sample BSA12018617. No action was taken.

5. The calibration check compound Vinyl Chloride had a %D above 25% in a continuing calibration, therefore, all positive results for BSA12018617 are qualified "J" as estimated values.

BNA FRACTION

1. The laboratory used the same data file twice. While preparing the initial calibration summary, the data file was associated with the method blank for 24 samples. The laboratory has since submitted revised calibration data and revised data sheets for those samples affected. A copy of the revised data is being sent by QAS to your office.

2. Review of the holding time information indicated that the results reported for sample BSA12018577 were from the analysis of the extract prepared beyond the holding time to extraction. This sample is therefore rejected. Review of the case narrative indicates that five

G2

samples not being reviewed by QAS were also extracted beyond the holding time. Therefore, samples BSA12018578, BSA1201586, BSA1201587, BSA12018597, BSA12018598 are also rejected.

3. Results for the field blank sample BSA12018614 are rejected. Two internal standard areas were outside the control limits for the method blank associated with this sample. Additionally, one internal standard area was outside the control limits for sample BSA12018614 and the matrix spike of that sample.

4. All non-detect results for 3-Nitroaniline and 4-Nitroaniline in all samples are rejected due to response factors being less than 0.05.

PESTICIDES/PCB'S

1. There were no compounds confirmed in the samples being reviewed by QAS. However, review of the PESTICIDE/PCB IDENTIFICATION forms (Form 10) indicated that PCBs present in two samples that were not reviewed in detail were incorrectly reported as not having been detected on the PESTICIDE ORGANIC ANALYSIS DATA SHEET (Form 1D). When QAS contacted the laboratory, they responded that they had incorrectly reported the results for Aroclor 1260 in sample BSA12018598 and Aroclor 1254 in sample BSA12018596. QAS calculation of the results indicates a concentration of 190,000ug/kg Aroclor 1260 in sample BSA12018598 and 130,000 ug/kg Aroclor 1254 in sample BSA12018596. Revised data sheets have been submitted.

2. The revised data sheet for BSA12018598 appears to have a transcription error in that the concentration is reported as 290,000 ug/kg of Aroclor 1260 instead of 190,000 ug/kg as calculated by QAS. Further clarification is being sought from the laboratory. The reported result of 140,000 ug/kg Aroclor 1254 in sample BSA12018596 is acceptable to QAS.

Please contact me at 633-0752 if you have any questions.

c. Barry Frasco, BEMQA

G3

Target and Non Target Compound Summary List

Site Name: GAF (Linden) 1 December 1988 Sampling

Note: Only those non target compounds that require QAS action are provided below. Please refer to the analytical data for additional information.

BSA12018615 (Trip blank) - VOA only

Sample Analyte	Method Blank Conc.	Lab Report Conc.	QAS Report Conc.	QAS Decision	Footnotes
Volatile Organic Fraction:		(ug/l)	(ug/kg)		
Methylene chloride	1J	38B	38JB	qualify	8
Acetone	5J	5JB	5JB	negate	6

BSA1201614 (Field blank)

Volatile Organic Fraction:		(ug/l)	(ug/kg)		
Methylene chloride	1J	150B	150JB	qualify	8
Acetone	5J	21B	21JB	qualify	7

Semi-volatile Organic Fraction:
Rejected. Internal standard areas were outside the control limits for the method blank associated with this sample. The method blank was therefore rejected; rejection of the method blank causes rejection of the sample.

Pesticide/PCB Fraction:
No compounds detected.

BSA12018590

Volatile Organic Fraction:	(ug/kg)	1:100 DIL	Medium Level		
Methylene chloride	630U	28900	28900JB	negate	76
Acetone	1580	134000JB	134000JB	negate	76
1,1-Dichloroethane	630U	188000	188000J	qualify	5, 13
1,2-Dichloroethene	630U	1020000	102000J	qualify	5, 13
Chloroform	630U	152000	152000J	qualify	5, 13
2-Butanone	1250U	194000	194000J	qualify	5, 13
1,1,1-Trichloroethane	630U	2440000	2440000J	qualify	5, 13
Trichloroethene	630U	335000	335000J	qualify	5, 13
Benzene	630U	944000	944000J	qualify	5, 13
Tetrachloroethene	630U	1650000	1650000J	qualify	5, 13
Toluene	410J	256000B	256000JB	qualify	5, 13, 78
Ethylbenzene	210J	48800JB	48800JB	negate	76
Xylene	550J	181000B	181000JB	qualify	5, 13, 75

Semi-volatile Organic Fraction:		(ug/kg) Medium Level			
Phenol	20000U	6600000	6600000		
1,3-Dichlorobenzene	20000U	4900J	4900J	qualify	3
Bis (2-Ethylhexyl Phthalate)	20000U	6900	6900	qualify	3
3-Nitroaniline	20000U	20000U	---	reject	4
4-Nitroaniline	20000U	20000U	---	reject	4
TIC Compounds:					
Butyrolactone	75000J	3800JB	3800JB	negate	12

Pesticide/PCB Fraction:

G4

Sample Analyte	Method Blank conc.	Lab Report Conc.	QAS Report Conc.	QAS Decision	Footnotes

No compounds detected.

BSA12018594

Volatile Organic Fraction: (ug/kg) Medium Level

Methylene chloride	180J	300JB	300JB	negate	6
Acetone	1900	3280B	3280JB	negate	6
Toluene	420J	1690B	1690JB	qualify	7, 13
Xylene	540J	12960B	12960JB	qualify	8, 13

Semi-volatile Organic Fraction: (ug/kg) Medium Level

Phenol	20000U	1200000	1200000		
Butylbenzylphthalate	20000U	14000J	14000J	qualify	3
Bis (2-Ethylhexyl Phthalate)	20000U	14000J	14000J	qualify	3
3-Nitroaniline	20000U	20000U	---	reject	4
4-Nitroaniline	20000U	20000U	---	reject	4

Pesticide/PCB Fraction:
No compounds detected.

BSA12018602

Volatile Organic Fraction:
Rejected. The sample was analyzed 10 days beyond the holding time limit to analysis.

Semi-volatile Organic Fraction: (ug/kg) Medium Level

1,4-Dichlorobenzene	20000U	11000J	11000J	qualify	3
1,2,4-Trichlorobenzene	20000U	71000	71000		
Naphthalene	20000U	8000J	8000J	qualify	3
4-Chloroaniline	20000U	11000J	11000J	qualify	3
Bis (2-Ethylhexyl Phthalate)	20000U	7400J	7400J	qualify	3
3-Nitroaniline	20000U	20000U	---	reject	4
4-Nitroaniline	20000U	20000U	---	reject	4
TIC Compounds:					
Butyrolactone	75000J	240000J	240000JB	qualify	10

Pesticide/PCB Fraction:
No compounds detected.

BSA12018577

Volatile Organic Fraction: (ug/kg)

Acetone	4J	11B	11JB	negate	6
Toluene	1J	1JB	1JB	negate	6

Semi-volatile Organic Fraction:
Rejected. Sample was re-extracted 23 days beyond the holding time to extraction. The initial analysis failed because surrogates were out of control for the method blank associated with this sample.

Pesticide/PCB Fraction:
No compounds detected.

BSA12018583

Volatile Organic Fraction: (ug/kg)
Rejected. The sample was analyzed 10 days beyond the holding time limit to analysis.

G5

Sample Analyte	Method Blank conc.	Lab Report Conc.	QAS Report Conc.	QAS Decision	Footnotes
Semi-volatile Organic Fraction: (ug/kg) Medium Level					
Phenol	20000U	5300J	5300J	qualify	3
1,3-Dichlorobenzene	20000U	14000J	14000J	qualify	3
1,4-Dichlorobenzene	20000U	40000	40000		
1,2-Dichlorobenzene	20000U	86000	86000		
1,2,4-Trichlorobenzene	20000U	250000	250000		
Naphthalene	20000U	23000J	23000J	qualify	3
Hexachlorobenzene	20000U	18000J	18000J	qualify	3
Bis (2-Ethylhexyl) Phthalate	20000U	7300J	7300J	qualify	3
3-Nitroaniline	20000U	20000U	---	reject	4
4-Nitroaniline	20000U	20000U	---	reject	4
TIC Compounds:					
Butyrolactone	75000J	140000J	140000JB	negate	12

Pesticide/PCB Fraction:
No compounds detected.

BSA12018617

Volatile Organic Fraction: (ug/kg) Medium Level					
Acetone	710J	4890B	4890JB	qualify	1, 8, 13, 14
Toluene	140J	640JB	640JB	qualify	1, 7, 13, 14
Chlorobenzene	630U	980	980J	qualify	1, 13, 14
Ethylbenzene	630U	290J	290J	qualify	1, 3, 13, 14
Xylene	630U	830	830J	qualify	1, 13, 14
Semi-volatile Organic Fraction: (ug/kg) Medium Level					
1,3-Dichlorobenzene	20000U	18000J	18000J	qualify	3
1,4-Dichlorobenzene	20000U	23000	23000		
1,2-Dichlorobenzene	20000U	150000	150000		
1,2,4-Trichlorobenzene	20000U	99000	99000		
Naphthalene	20000U	7900J	7900J	qualify	3
Bis (2-Ethylhexyl) Phthalate	20000U	2700J	2700J	qualify	3
3-Nitroaniline	20000U	20000U	---	reject	4
4-Nitroaniline	20000U	20000U	---	reject	4
TIC Compounds:					
Butyrolactone	75000J	170000J	170000JB	negate	12

Pesticide/PCB Fraction:
No compounds detected.

G6

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State of New Jersey
DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF HAZARDOUS SITE MITIGATION
CN 413, Trenton, N.J. 08625-0413
(609) 984-2902
Fax # (609) 633-2360

DEC 18 1989

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Anthony J. Farro
Director

M E M O R A N D U M

TO: Ken Kloo, Section Chief
Bureau of Planning and Assessment, DHWM

THROUGH: Joseph Sanguiliano, Acting Section Chief JS
Kathleen Grimes, Research Scientist KMG
Quality Assurance Section
Bureau of Environmental Measurements and Quality Assurance

FROM: Robert P. Posey, RPP Research Scientist III
Quality Assurance Section
Bureau of Environmental Measurements and Quality Assurance

SUBJECT: Analytical Data Validation of 29 November 1988 sampling at GAF, Linden by Bureau of Planning and Assessment; Weston Laboratories (Lionville, PA) under X-195 contract, Task IV, Tier I deliverables.

SOIL SAMPLE REVIEWED

BSA11298572-SW1 RE (BNA)

The Quality Assurance Section, Bureau of Environmental Measurements and Quality Assurance, Division of Hazardous Site Mitigation has reviewed the Base/Neutral and Acid Extractable Organics data for the re-extraction analysis of sample BSA11298572-SW1. The data for this sample and three others which required re-extraction was submiitted to NJDEP as a separate package. The review of the data for this sample was included as part of the validation memorandum submitted to you on December 6, 1989.

The review of the data indicated that the surrogate spike analysis of the re-extracted sample was acceptable. This resulted in the rejection of the initial analysis and rejection of the re-extraction analysis due to the holding time to extraction being exceeded.

Please contact me at 633-0752 if you have any questions.

DEC 1 2 1989

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State of New Jersey
DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF HAZARDOUS SITE MITIGATION
401 E. State St., CN 413, Trenton, N.J. 08625
(609) 984-2902

Anthony J. Farro
Director

DEC 06 1989

M E M O R A N D U M

TO: Ken Kloo, Section Chief
Bureau of Planning and Assessment, DHWM

THROUGH: Joseph Sanguiliano, Acting Section Chief JS
Kathleen M. Grimes, Research Scientist I KMG
Quality Assurance Section
Bureau of Environmental Measurements and Quality Assurance

FROM: Robert P. Posey RPP Research Scientist III
Quality Assurance Section
Bureau of Environmental Measurements and Quality Assurance

SUBJECT: Analytical Data Validation of 29 November 1988 sampling at GAF, Linden by Bureau of Planning and Assessment; Weston Laboratories (Lionville, PA) under X-195 contract, Task IV, Tier I deliverables.

FIELD SAMPLES REVIEWED

BSA11298562-MW7S
BSA11298570-MW14S
BSA11298572-SW1
BSA11298572-SW1 RE (BNA)
BSA11298572-SW1 MS
BSA11298572-SW1 MSD
BSA11298575-Trip Blank
BSA11298574 (Field Blank)

The Quality Assurance Section, Bureau of Environmental Measurements an Quality Assurance, Division of Hazardous Site Mitigation has reviewed the data for eight aqueous samples analyzed for volatile organics, base neutra and acid extractable organics, pesticides/PCB's and inorganics. Pleas refer to the detailed data validation report and the Target and Non-Targe Compound Summary for additional information. Specific comments are provide below.

VOA FRACTION

1. All non-detect results for Carbon Disulfide in all samples were rejecte in all samples due to response factors less than 0.05.

G8

2. Results for sample BSA11298572-SW1 are qualified "J" as estimated values since two surrogate spike compounds were above the control limit and the matrix spike analyses performed on this sample confirm that a matrix effect is present.

BNA FRACTION

1. Results for sample BSA11298570-MW14S are rejected. Zero percent spike recoveries were reported for four of six surrogates in the initial dilution analysis and for all surrogates in the reanalysis. The laboratory did not submit data for the analysis of the undiluted sample.

2. Base/Neutral results for sample BSA11298572-SW1 are rejected; the acid extractable results for this sample are acceptable. The sample had to be re-extracted because of poor base/neutral surrogate recoveries; the re-extraction analysis exhibited acceptable recoveries. Therefore, the initial analysis is rejected. The re-analysis results are rejected because the re-extraction was performed 51 days beyond the holding time limit for extraction of aqueous samples.

2. Three samples (BSA11298563-MW7D, BSA11298568-MW13S and BSA11298571-MW14D) which required re-extraction are not among those samples being reviewed in detail. However, the surrogate spike recoveries for the re-analysis confirm a matrix effect for BSA11298568-MW13S and BSA11298571-MW14D but do not confirm a matrix effect for BSA11298563-MW7D.

3. The data user should use the non-target summaries provided by the laboratory with caution. Transcription errors have been found for the names of the non-target compounds identified by the library search. For example, the non-targeted compounds at 12.47 minutes and 12.78 minutes are identified as Dichlorobenzene on the summary sheets. Review of the raw library search reports indicates that these compounds are actually Dichlorobenzenamine isomers. There are other examples which indicate a possible problem throughout the report.

PESTICIDE/PCB FRACTION

1. The dates of extraction and analysis indicate that the seven samples reviewed exceeded the holding time to analysis by two days. Subsequent review of the holding times for the remaining samples showed that all of the samples had exceeded the holding time to analysis by two days. Therefore, results for all samples are qualified "J" as estimated values.

2. All Individual Mix A and B compounds had a percent difference (%D) greater than 15% for the continuing calibration of the primary column. As a result the laboratory used the confirmation column data for quantitation.

3. The percent relative standard deviation (%RSD) was greater than 10% for Aldrin and 4,4'-DDT in the initial calibration of the confirmation column. As a result all positive sample results are qualified "J" as

G9

estimated values since this column was used for quantitation.

4. The %D for the DBC Retention Time Shift in sample BSA11298570-MW14S was greater than 2% in the confirmation column analysis. Examination of the sample chromatogram did not indicate any peaks within the retention time windows of any targeted compounds. In addition, there were no peaks within the retention time windows of any targeted compounds during the primary column analysis. The %D for the DBC retention time shift was acceptable for the primary column analysis. Therefore, no action is required.

5. A number of compounds had poor recoveries in the matrix spike analysis due to interferences and sample dilution. No action required.

6. Two samples had poor DBC surrogate spike recoveries due to interference and dilution. No action required.

INORGANICS

1. Selenium results for all samples are negated due to preparation blank contamination.

2. The sample (BSA11298574) identified as the field blank on the Chain of Custody form with shuttle was found to contain relatively low concentrations of a variety of metals. In most cases the concentrations found in the samples were much greater than five times the concentration found in the field blank. Even so these results have been flagged with a "J" to indicate that there was field blank contamination. See the Target and Non-Target Summary for qualifications for specific samples.

3. The percent recoveries of antimony, chromium and silver for the CRDL standard analysis were above the control limits of 90-110%. Therefore, the positive results for antimony, chromium and silver in all samples are qualified "J" as estimated values with a potential high bias. The non-detect sample results are acceptable.

4. Antimony, Potassium and Sodium were identified in the Interference Check Sample (ICS) Solution AB analysis even though they are not among those analytes that make up that solution. Therefore, the identification of Antimony in sample BSA11298570-MW14S may be a false positive; the result is flagged with a "J." The results for Sodium are considered "real" but are qualified "J" as estimated values for BSA11298562-MW7S, BSA11298570-MW14S and BSA11298572-SW1 due to ICS contamination. The results for Potassium are considered "real" but are qualified "J" as estimated values for BSA11298562-MW7S, BSA11298570-MW14S and BSA11298572-SW1 due to the negative concentration reported in the ICS analysis.

5. Results for Lead and Selenium are qualified "J" as estimated values with a significantly low bias since the sample spike recovery was less than 30% and the unspiked sample concentration was less than four times the concentration of the spike. The results for Thallium are qualified "J" as estimated values but with only a slight low bias.

G10

6. The %D for the ICP Serial Dilution analysis of Copper, Potassium, Vanadium and Zinc was greater than 10%; therefore, these analytes should have been flagged with an "E." The Calcium results were correctly flagged with the "E" qualifier. All results for these analytes are qualified "J" as estimated values.

7. The lab has incorrectly placed the "B" qualifier after the concentration of some analytes in samples which were diluted. The final concentration reported is above the CRDL and should not be labeled with a "B."

Please contact me at 633 - 0752 if you have any questions.

c. Barry Frasco, BEMQA

attachments

G11

Target and Non Target Compound Summary List

Site Name: GAF, Linden 29 Nov 1988 Sampling

Note: Only those non target compounds that require QAS action are provided below. Please refer to the analytical data for additional information.

Sample Analyte	Method Blank Conc.	Lab Report Conc.	QAS Report Conc.	QAS Decision	Footnotes
BSA11298575-Trip Blank					
Volatile Organic Fraction: (ug/l)					
Methylene Chloride	8	7B	7JB	negate	6
Acetone	13	12B	12JB	negate	6
Carbon Disulfide	5U	5U	---	reject	4
Chloroform	5U	5	5		
Bromodichloromethane	5U	0.7J	0.7J	qualify	3
BSA11298574 (Field Blank)					
Volatile Organic Fraction: (ug/l)					
Methylene Chloride	7	5B	5JB	negate	6
Acetone	7J	7JB	7JB	negate	6
Carbon Disulfide	5U	5U	---	reject	4
Chloroform	5U	4J	4J	negate	9
Semi-volatile Organic Fraction: (ug/l)					
Bis (2-Ethylhexyl Phthalate	10U	5J	5J	qualify	3
Pesticide/PCB Fraction:					
No compounds detected.					
Inorganics: (ug/l)					
Aluminum	U	35.6J	35.6J	qualify	36
Antimony	U	51.9J	51.9J	qualify	36, 88
Arsenic	U	1.2J	1.2J	qualify	36
Calcium	U	497J	497J	qualify	36, 59
Copper	U	11.9J	11.9J	qualify	36, 59, 61
Iron	U	70.9J	70.9J	qualify	36
Magnesium	U	86.5J	86.5J	qualify	36
Manganese	U	3.3J	3.3J	qualify	36
Nickel	U	5.9J	5.9J	qualify	36
Selenium	3.1J	7.7	7.7JB	negate	39
Sodium	U	1490J	1490J	qualify	36, 94
Thallium	U	4.4J	4.4J	qualify	36, 53,
Vanadium	U	4.8J	4.8J	qualify	36, 59, 61
Zinc	U	17.7J	17.7J	qualify	36, 59, 61
BSA11298562-MW7S					
Volatile Organic Fraction: (ug/l)					
Methylene Chloride	8	7B	7B	negate	6
Acetone	13	64B	64JB	qualify	1, 7
Carbon Disulfide	5U	5U	---	reject	4
1,2-Dichloroethane	5U	8	8		

G12

Sample Analyte	Method Blank conc.	Lab Report Conc.	QAS Report Conc.	QAS Decision	Footnotes
2-Butanone	5J	9JB	9JB	negate	6
Benzene	5U	3J	3J	qualify	3
Chlorobenzene	5U	4J	4J	qualify	3
Semi-volatile Organic Fraction: (ug/l)					
Diethylphthalate	10U	1J	1J	qualify	3
Bis (2-ethylhexyl phthalate)	10U	3J	3J	negate	9
TIC Compounds					
Descriptions reported by lab contain transcription errors.					
Pesticide/PCB Fraction: (ug/l)					
Aldrin	0.05U	0.06	0.06J	qualify	1, 5
Inorganics: (ug/l)					
Aluminum	U	160J	160J	qualify	36, 43
Arsenic	U	6.6J	6.6J	qualify	36, 44
Barium	U	65.5J	65.5J	qualify	36
Calcium	U	162000	162000J	qualify	44, 59
Cobalt	U	4.6J	4.6J	qualify	36
Copper	U	48.2	48.2J	qualify	43, 59, 61
Iron	U	851	851J	qualify	44
Lead	U	1.3J	1.3J	qualify	36, 54,
Magnesium	U	31100	31100J	qualify	44
Manganese	U	712	712J	qualify	44
Mercury	U	1.6	1.6		
Nickel	U	58.9	58.9J	qualify	44
Potassium	U	5800	5800J	qualify	59, 61, 94
Selenium	3.1J	1.9J	1.9JB	negate	39
Sodium	U	95800	95800J	qualify	44, 94
Thallium	U	36.0J	36.0J	negate	42
Vanadium	U	4.8J	4.8J	qualify	36, 59, 61
Zinc	U	120	120J	qualify	44, 59, 61
BSA11298570-MW14S					
Volatile Organic Fraction: (ug/l)					
Methylene Chloride	8	8B	8B	negate	6
Acetone	13	51B	51JB	qualify	1, 7
Carbon Disulfide	5U	5U	---	reject	4
2-Butanone	5J	7JB	7JB	negate	6
Benzene	5U	2J	2J	qualify	3
Toluene	5U	0.8J	0.8J	qualify	3
Semi-volatile Organic Fraction:					
Rejected. Zero percent surrogate spike recoveries reported by lab for 1:10 dilution for both initial analysis and re-analysis.					
Pesticide/PCB Fraction:					
No compounds detected.					
Inorganics: (ug/l)					
Aluminum	U	13800	13800	qualify	44
Antimony	U	100	100J	negate	42
Arsenic	U	150	150J	qualify	44
Barium	U	2530	2530		
Beryllium	U	3.2J	3.2J	qualify	36
Cadmium	U	3.8J	3.8J	qualify	36

G13

Analyte	Method Blank conc.	Lab Report Conc.	QAS Report Conc.	QAS Decision	Footnotes
Calcium	U	737000	737000J	qualify	44, 59
Chromium	U	54.2	54.2J	qualify	88
Cobalt	U	190	190		
Copper	U	188	188J	qualify	44, 59, 61
Iron	U	224000	224000J	qualify	44
Lead	U	1160	1160J	qualify	54
Magnesium	U	486000	486000J	qualify	44
Manganese	U	157000	157000J	qualify	44
Mercury	U	10.1	10.1		
Nickel	U	107	107J	qualify	44
Potassium	U	55900	55900J	qualify	59, 61, 94
Selenium	3.1J	2.7J	2.7JB	negate	39
Silver	U	16.3	16.3J	qualify	88
Sodium	U	3140000	3140000J	qualify	44, 94
Thallium	U	48.0J	48.0J	qualify	44, 53, 96
Vanadium	U	95.5	95.5J	qualify	44, 59, 61
Zinc	U	380	380J	qualify	44, 59, 61
Cyanide	U	12.6	12.6		

BSA11298572-SW1

Volatile Organic Fraction: (ug/l)

Methylene Chloride	7	5B	5B	negate	6
Acetone	7J	18B	18JB	negate	6
Carbon Disulfide	5U	5U	---	reject	4
Chloroform	5U	0.5J	0.5J	negate	9
1,2-Dichloroethane	5U	4J	4J	qualify	3, 95
2-Butanone	6J	8JB	8JB	negate	6
Bromodichloromethane	5U	1J	1J	negate	9
Dibromochloromethane	5U	7	7J	qualify	95
Bromoform	5U	42	42J	qualify	95
Chlorobenzene	5U	6	6J	qualify	95

Semi-volatile Organic Fraction:
Base/Neutral results and all TIC compounds are rejected. Re-extraction (51 days beyond holding time) and re-analysis indicated that poor base/neutral surrogate recoveries during initial analysis were not due to matrix effect.

Pesticide/PCB Fraction:
No compounds detected.

Inorganics: (ug/l)

Aluminum	U	187J	187J	qualify	36, 44
Arsenic	U	59.0J	59.0J	qualify	44, 96
Barium	U	26.1J	26.1J	qualify	36
Beryllium	U	0.30J	0.30J	qualify	36
Calcium	U	98500	98500J	qualify	44, 59
Copper	U	20.7J	20.7J	negate	42
Iron	U	772	772J	qualify	44
Lead	U	7.1	7.1J	qualify	54
Magnesium	U	247000	247000J	qualify	44
Manganese	U	125	125J	qualify	44
Mercury	U	0.44	0.44		
Potassium	U	85700	85700J	qualify	59, 61, 94
Selenium	3.1J	2.7J	2.7JB	negate	39
Sodium	U	2310000	2310000J	qualify	44, 94
Thallium	U	2.3U	2.3UJ	qualify	44, 53
Zinc	U	36.9	36.9J	negate	42

G14