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SITE INSPECTION REPORT FOR NORTHWEST PIPE AND CASING CLACKAMAS, OREGON

VOLUME I

TDD F10-8804-31
PAN FOR0210SA

Report Prepared by: Ecology and Environment, Inc.
Date: December 1988

Submitted to: J.E. Osborn, Regional Project Officer
Field Operations and Technical Support Branch
U.S. Environmental Protection Agency
Region X
Seattle, Washington

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MEMORANDUM

DATE: December 2, 1988

TO: John Osborn, FIT-RPO, USEPA, Region X

THRU: Jeffrey Villnow, FIT-OM, E & E, Seattle

FROM: Susan Niemuth, FIT-SM, E & E, Seattle

SUBJ: Site Inspection Recommendations
Northwest Pipe and Casing
Clackamas, Oregon

REF: TDD F10-8804-31
PAN F0R0210SA

CC: William Glasser, HWD-SM, USEPA, Region X
Robert M. Duffner, FIT-PM, E & E, Seattle
Andrew Hafferty, E & E, Seattle

The Region X FIT performed a Screening Site Inspection of the Northwest Pipe and Casing site in Clackamas, Oregon, between April and December 1988. The scope of the investigation included an initial site visit and the subsequent collection of groundwater, soil, and sediment samples.

Elevated levels (as defined by HRS criteria) of polycyclic aromatic hydrocarbon compounds, volatile organic compounds, and Arochlor 1254 were detected in groundwater, on-site soils, and off-site sediment samples. The existence of contaminants in the shallow groundwater presents a potential threat to registered domestic wells within 3 miles of the site. Elevated concentrations of contaminants in off-site drainage ditch sediments indicate the potential for surface water to be adversely impacted. Finally, surface soil contamination presents a potential threat to on-site employees and nearby residents. As a result of these concerns, additional work at the site is recommended. This work should include the following:

- Groundwater use within 1 mile of the site should be confirmed by a door-to-door survey. According to Mr. Ric Cutting, Clackamas Water District, only a few Clackamas residents are not currently connected to the District water system. Samples should be collected from selected domestic wells, depending on depth and proximity to the site, to determine if the water supply is affected. An analysis of groundwater flow direction should also be conducted.

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- Surface water use should be confirmed. According to Mr. Tom Warren, Clackamas Water Master's Office, surface water rights indicate that water is used for drinking and irrigation. However, this information is based on water rights information that is over 30 years old. If surface water is used for drinking and/or irrigation, samples should be collected from adjacent drainage ditches and potentially affected downstream surface water bodies.

- The extent of on-site surface and subsurface contamination should be determined.

SN:csr

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International Specialists in the Environment

MEMORANDUM

DATE: December 2, 1988

TO: John Osborn, FIT-RPO, USEPA, Region X

THRU: Jeffrey Villnow, FIT-OM, E & E, Seattle

FROM: Susan Niemuth, FIT-SM, E & E, Seattle

SUBJ: Investigation-Derived Wastes
Northwest Pipe and Casing
Clackamas, Oregon

REF: TDD F10-8804-31
PAN FOR0210SA

CC: William Glasser, HWD-SM, USEPA, Region X
Robert M. Duffner, FIT-PM, E & E, Seattle (memo only)
Timothy Syverson, Investigation-Derived Waste Coordinator, E & E, Seattle

Personal protective clothing and drill cuttings from borehole installation were investigation-derived wastes generated during the course of the Northwest Pipe and Casing Screening Site Inspection.

The attached table summarizes the volumes of each waste type generated, proposed storage/disposal methods, and a preliminary indication of the potential for the wastes to exhibit hazardous characteristics based on information collected during the Site Inspection process.

Each drum containing investigation-derived waste was labeled with the following information and recorded in field log books:

- Site name
- Sequential drum number
- Date of collection
- Source and type of waste

Storage times for potentially hazardous wastes are expected to range from 30 to 90 days following receipt of data.

SN:csr

Attachment

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SUMMARY OF INVESTIGATION-DERIVED WASTES

Investigation-Derived Waste Type	Anticipated Quantity	Proposed Storage/ Disposal Method	Preliminary Hazard Designation [1]
Personal Protective Clothing	50 cubic feet	Landfill	Non-hazardous
Drill Cuttings	125 gallons	Contained in 55-gallon sealed drums and temporarily stored on site	Potentially hazardous

1. Potentially hazardous or non-hazardous based on initial review of analytical data, in accordance with applicable CERCLA, RCRA, or state regulations.

SITE INSPECTION REPORT
NORTHWEST PIPE AND CASING
CLACKAMAS, OREGON
TDD F10-8804-31
PAN FOR0210SA

Site Name/Address

Northwest Pipe and Casing
9460 S.E. Lawnfield Road
Clackamas, Oregon 97015

Site Inspection Participants

Susan Niemuth, Field Investigator, E & E, Seattle, (206) 624-9537

Robert M. Duffner, Field Investigator, E & E, Seattle, (206) 624-9537

Joseph Hunt, Field Investigator, E & E, Seattle, (206) 624-9537

Principal Site Contacts

Wayne Hall, Owner, Clackamas, Oregon, (b) (6)

Mark LaNoue, Owner, Northwest Development Company, Clackamas, Oregon, (b) (6)

Maury Payne, District Maintenance Supervisor, Oregon Department of Transportation, Clackamas, Oregon, (503) 653-3086

Harold Vic, Safety Director, Northwest Pipe and Casing, Portland, Oregon, (503) 285-1400

Ralph Elly, Former President, Northwest Pipe and Casing, Portland, Oregon, (503) 285-1400

Date(s) of Investigation

Site Reconnaissance: April 27-28, 1988
Sampling: July 18-21, 1988

DISCLAIMER

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ABSTRACT

Pursuant to U.S. Environmental Protection Agency (EPA) Contract Number 68-01-7347 and Technical Directive Document (TDD) Number F10-8804-31, a file review and Screening Site Inspection of the Northwest Pipe and Casing Site, located in Clackamas, Oregon, was conducted between April and December 1988. As a part of this inspection, six groundwater, seven soil, and four sediment samples were collected to evaluate the site's potential for inclusion on the National Priorities List (NPL). The samples were analyzed for volatile and semi-volatile organic compounds, and pesticides/PCBs through the EPA's Contract Laboratory Program (CLP).

Elevated (with respect to EPA Hazard Ranking System model definitions) concentrations of volatile organic compounds, polycyclic aromatic hydrocarbon (PAH) compounds, and Arochlor 1254 were detected in on-site soil and groundwater samples, and in offsite sediment samples.

The TCL PAH compounds detected in soil samples are commonly listed as primary constituents of coal tar. The analytical results are consistent with the operating history of the site, alleged and reported waste disposal practices, and visual observation of stained soils. The extent of surface and subsurface soil contamination present at the site is unknown. The TCL PAH compounds detected in groundwater samples are a subset of those detected in on-site soil samples. In general, the PAHs detected in groundwater are of lower molecular weights (e.g., napthalene and 2-methylnapthalene) than the PAHs detected in surface soils. This finding is consistent with the physical characteristics of PAH compounds. Based on the analytical results for soils and groundwater, groundwater beneath the site is apparently contaminated with many of the same PAHs that were detected in soil samples. It is unknown whether off-site groundwater drinking water supplies may be affected.

Sediment samples from off-site drainage ditches are contaminated with the same PAHs as were detected in on-site soil samples. It appears that contaminants may be migrating off-site via surface water runoff on the eastern boundary of the site.

Elevated levels of volatile organic compounds and Arochlor 1254 were also detected in soil, groundwater, and off-site sediment samples. The chlorinated volatile organics detected are generally used as solvents. Total xylenes may derive from coal tar or gasoline. Arochlor 1254 is a PCB mixture generally associated with capacitors and transformers. It may also be a constituent of cutting oils. The source (or sources) of these contaminants is unknown.

1.0 INTRODUCTION

Pursuant to U.S. Environmental Protection Agency (EPA) Contract No. 68-01-7347 and Technical Directive Document (TDD) No. F10-8804-31, Ecology and Environment, Inc. (E & E) conducted a Screening Site Inspection (SSI) of the Northwest Pipe and Casing (NWP&C) site located in Clackamas, Oregon. The EPA Site Inspection process is intended to evaluate actual or potential environmental or public health hazards at a particular site relative to other sites across the nation for the purpose of identifying remedial action priorities. The SSI represents the initial phase of the SI process and is intended to collect sufficient data to enable evaluation of the site's potential for inclusion on the National Priorities List (NPL) and, for those sites determined to be NPL candidates, establish priorities for additional action. The SI process does not include extensive or complete site characterization, contaminant fate determination, or quantitative risk assessment.

This document presents a summary of the objectives, activities, and results of the NWP&C SSI. Included are descriptions of site background information (Section 2.0), sampling objectives and scope (Sections 3.0 and 4.0), analytical results of sampling (Section 5.0), and inspection conclusions (Section 6.0).

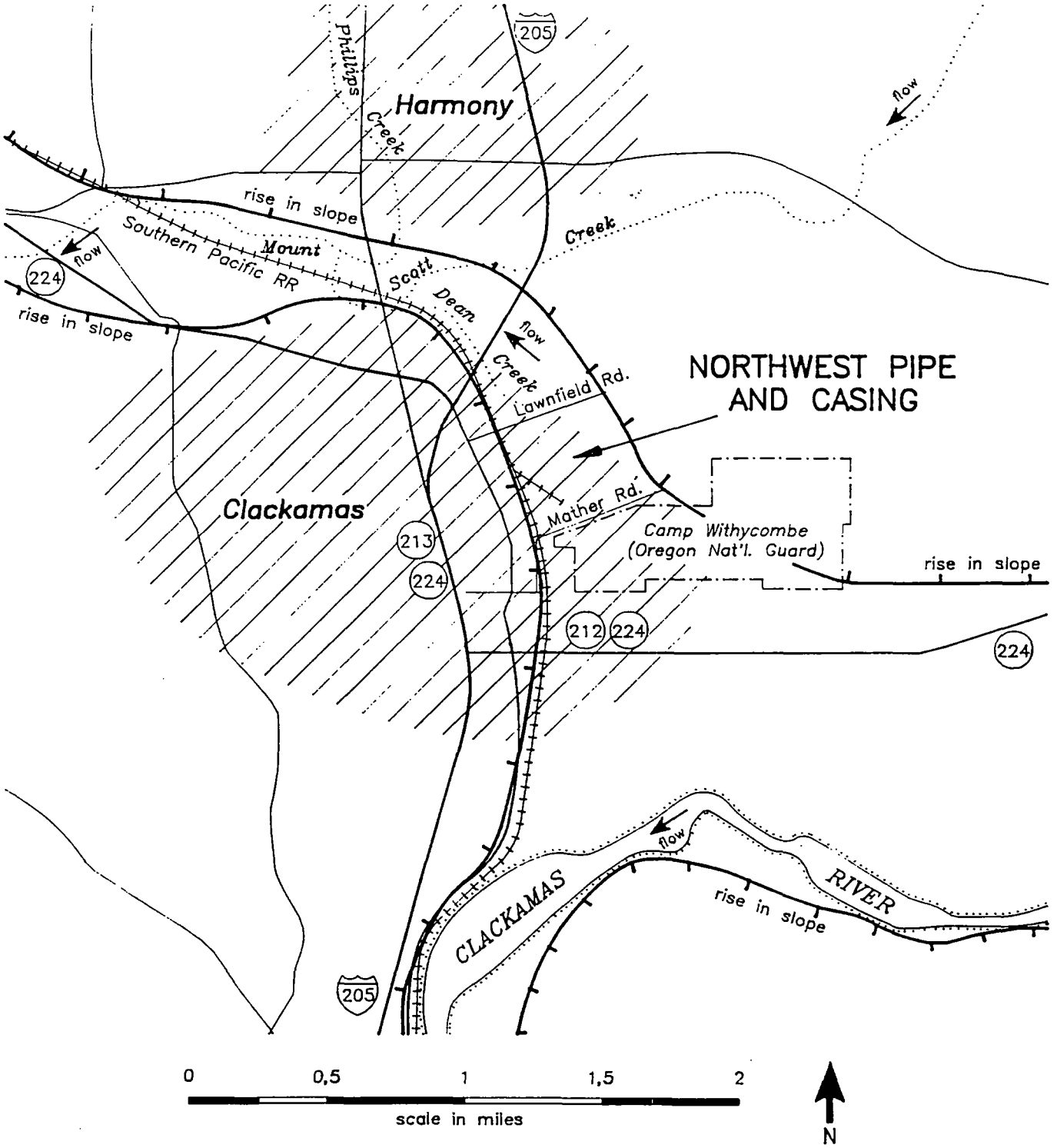
2.0 BACKGROUND

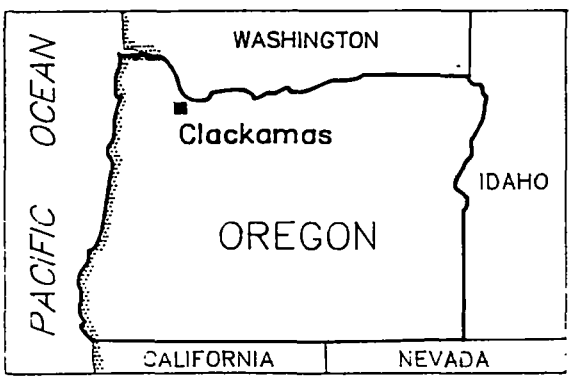
2.1 Site Location and Description

The NWP&C site is located in an industrial park in Clackamas, Oregon, in Section 4, Township 2S, Range 2E of the Willamette Meridian. At the approximate geographic center of the site, latitude is 45°21'00.0" and longitude is 122°31'45.0" (USGS 1961). The site is situated between Lawnfield and Mather Roads, and is bordered on the west by railroad tracks, on the north by a large grassy field, on the east by another industrial park, and on the south by the Camp Withycombe Air National Guard facility (Figure 1). The site lies at an approximate elevation of 100 feet above mean sea level (USGS 1961).

Unless otherwise noted, ownership history, land use information, and observations noted in the remainder of this section were obtained during a site visit and through interviews conducted by E & E (1988a) on April 27 and 28, 1988. To clarify the discussion, information is defined as pertaining to either Parcel A (21 acres) or B (32 acres) of the site property (Figure 2).

Mr. Wayne Hall purchased the entire 32 acres of Parcel B from Orling Lumber Company between 1956 and 1965 in a series of transactions. Mr. Hall operated a pipe coating facility, Hall Process Company, on Parcel B from 1956 to 1978. Pipe coatings reportedly included coal tar, coal tar epoxies, asphalt, and cement mortar. According to Mr. Hall, the majority of the pipe was coated with coal tar.





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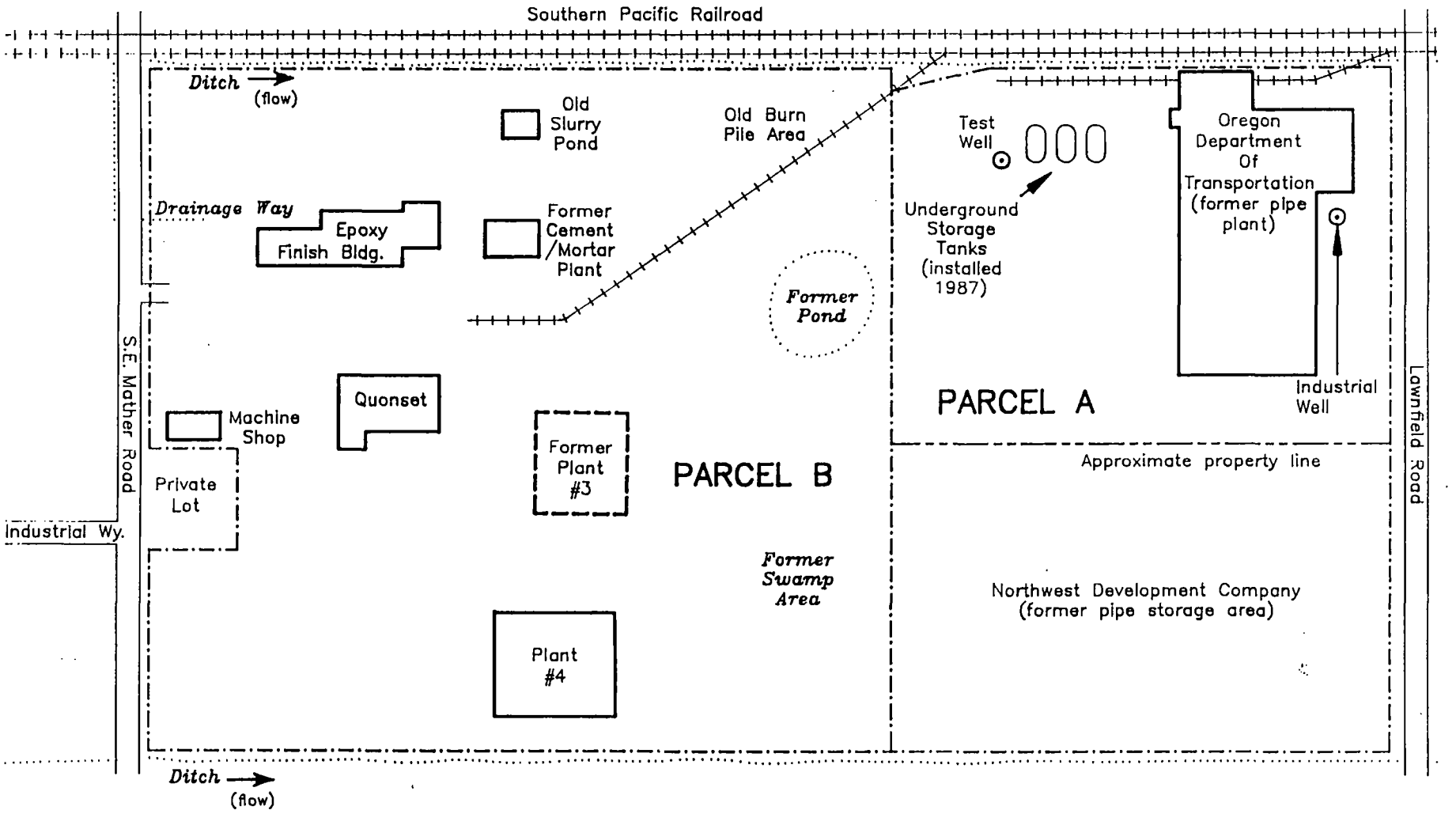
Job: F10-8804-31	Waste Site: OR 0210
Drawn by: D. P.	Date: Nov. 18, 1988

FIGURE 1
LOCATION MAP
NORTHWEST PIPE AND CASING
Clackamas, OR



LEGEND

—·—·— Parcel boundary (approximate)

0 150 300 450 600

approximate scale in feet

N

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Drawn by: D. P.	Date: Nov. 18, 1988

FIGURE 2
SITE MAP
NORTHWEST PIPE AND CASING
Clackamas, OR

In 1966, the Northwest Pipe and Casing Company (NWP&C Company) of Portland, Oregon, purchased Parcel A from a currently unknown party and built a steel pipe manufacturing facility on the west end of the property. The remainder of the property was used for pipe storage.

Beginning in 1978, the NWP&C Company leased Parcel B from Mr. Hall and bought all pipe-coating equipment and inventory. The NWP&C Company operated both the pipe manufacturing and the coating facilities between 1978 and 1985.

Between 1985 and 1986, the NWP&C Company vacated the site and sold Parcel A to two parties. Approximately 11.8 acres were purchased by the Oregon State Department of Transportation (ODOT) and 9.1 acres were purchased by Northwest Development Company (Figure 2).

Parcel B currently remains under the ownership of Mr. Hall. Since 1986, Parcel B has been leased to Northwest Development Company. Northwest Development Company rented Parcel B to a hay export company from September 1986 to December 1987. Since April 1988, a truck driving school has operated on Parcel B.

Parcel B contains four buildings and two quonsets. Drainage ditches on both the northeast and southwest boundaries of the site flow to the northwest, where they are directed to a common culvert along Lawnfield Road.

The ODOT Highway Division occupies an office and the large warehouse previously utilized by the NWP&C Company on the northwestern portion of Parcel A. The remainder of the Highway Division's property is paved with asphalt. Two wells are present on the property including a 110-foot deep industrial well located immediately north of and adjacent to the warehouse and an approximately 20-foot deep test well located south of the warehouse (Figure 2). The industrial well, although not currently used, was installed in 1978 for industrial use. The test well was installed with three 10,000-gallon underground storage tanks in 1987 to monitor tank leakage. The tanks are used for gasoline and diesel storage.

The northeastern portion of Parcel A is currently owned by Northwest Development Company. This property contains four large warehouses which are leased to a number of commercial businesses. The majority of this property either contains the warehouses or is paved with asphalt. An estimated 15 percent of the lot is landscaped.

A 60-foot wide strip of land transecting Parcels A and B has been deeded to Clackamas County as a right-of-way for a proposed extension of Industrial Way. A summary of the current owners, addresses, and operators of each parcel is provided below.

Parcel A: Oregon Department of Transportation
State Transportation Building
Salem, Oregon 97310
Operator: Oregon State Highway Division

Northwest Development Company
9460 S.E. Lawnfield Road
Clackamas, Oregon 97015

Parcel B: Mr. Wayne Hall
20100 S. Beaver Creek Road
Oregon City, Oregon 97045
Operator: Northwest Development Company

2.2 Site Operations and Waste Characteristics

Past operations on Parcel A were limited to the fabrication of metal pipe and pipe storage. Pipe fabrication primarily consisted of welding and steel shot sandblasting. These operations took place in a warehouse which contains a concrete floor (E & E 1988a).

Pipe-coating activities reportedly only occurred on Parcel B. The coating process involved sandblasting the pipes with steel shot, spraying the pipes with primer, and coating the pipe. Coatings used in the operation reportedly included coal tar, coal tar epoxy, cement mortar, and asphalt (E & E 1988a). Coal-tar coating reportedly took place in former Plant #3 and Plant #4, while epoxy coating took place in the epoxy finish building.

The quantity of coal tar used from 1957 to 1985 was estimated by Mr. Hall and NWP&C Company representatives to be between 80,000 and 100,000 pounds per year. Approximately 40,000 pounds of asphalt per year were used from 1957 to 1978. Coal tar epoxy was used at an estimated rate of 500 gallons per year between 1978 and 1985. It is unknown how much cement mortar or pipe primer were used (E & E 1988a).

The majority of the coal tars were reportedly received as a solid and heated to approximately 450°F prior to application. According to Mr. Hall, during this heating process, oil mists and vapors were given off as waste products. Excess coal tar, which had fallen off the pipes or was rendered unusable due to the loss of volatile oils, was also a waste product (E & E 1988a).

Additional wastes included excess cement slurry and overspray from the primer application (E & E 1988a). The primer (bitumastic jet primer) contains 70 percent volatile organic compounds in a chlorinated paraffin and rubber base (Keepers Company, Inc. 1986).

With the exception of the cement mortar process, the Hall Process Company and the NWP&C Company utilized the same pipe-coating operations. The cement mortar operation was added by the NWP&C Company in 1979 (E & E 1988a).

Hardened coal tars were reportedly disposed of in a number of ways. According to Mr. Hall, during the Hall Process Company operational period, the tar was burned and buried at a location indicated on Figure 2. Mr. Hall was unable to estimate for how many years this practice occurred. The waste coal tar was also apparently buried throughout the site in low swampy areas as is evidenced by test pit logs (Geotechnical Resources, Inc. 1988). Representatives at the NWP&C Company claim that all waste coal tar produced during their operational period was disposed of in a landfill off site. Neither Mr. Hall nor NWP&C Company representatives were able to estimate the quantity of waste coal tar produced (E & E 1988a).

Past employees have also alleged that between 20 and 200 drums of waste coal tar, in addition to that mentioned above, have been buried on the site, primarily in the northeastern corner of Parcel B (Culver 1986). Mr. Hall and NWP&C Company representatives claim that drums of waste have never been buried on site. Mr. Hall did state that empty pipe primer drums were stored near the area where the burial allegedly took place and may have been used for fill (E & E 1988a).

Oil vapors produced during the coal tar heating process were initially exhausted to the ambient surroundings. In the early 1970s, a ventilation system was constructed with fiberglass filters for oil collection. Mr. Hall reported that these filters were disposed of in a local landfill. Between 1975 and 1977, the ventilation system was modified to allow collection of the oils in 55-gallon drums. According to Mr. Hall, this drummed waste oil was removed from the site by a local recycler. Mr. Hall was not able to estimate the amount of waste oil generated. NWP&C Company representatives estimated that approximately 20 drums of waste oil were produced and recycled off site between 1978 and 1985 (E & E 1988a).

During the site visit, Mr. Hall and NWP&C Company representatives identified chunks of solidified coal tar, pipe ends and other refuse from the pipe-coating processes throughout the property. Soils in a number of areas appeared to be stained with an oily substance. Hay also litters the site from more recent operations. Pools of dark surface water were observed adjacent to the hay. A summary of waste-related activities on site are provided in Table 1.

Table 2 lists the compounds commonly found in coal tar and associated oils (ERT and KCI 1984). Coal tar contains hundreds of different polycyclic (or polynuclear) aromatic hydrocarbons (PAHs/PNAs). PAH compounds contain three or more fused benzene rings. For consistency with previous investigators, this definition is extended to include compounds with only two fused rings (e.g., napthalene) and heterocylic PAHs where one or more of the aromatic carbon atoms is replaced by an atom of nitrogen, oxygen or sulfur. Small amounts of phenolic compounds and light aromatics, such as benzene, toluene, xylene, and ethylbenzene, may also be present in coal tar (ERT and KCI 1984).

TABLE 1

WASTE-RELATED ACTIVITIES ON SITE

Activity/Process	Dates	Waste(s) Produced	Reported Storage/ Disposal Method(s)	Containment Features	Hazardous Constituents [1]
Coal Tar Coating	1957-1985	Coal Tar	On-Site Burial/Burning	None	Aromatic hydrocarbons and phenolic compounds (D)
			Off-Site Landfilling	Dumpster	
Coal Tar Coating	1957-1972	Coal Tar Oil	Discharge to Air	None	Aromatic hydrocarbons and phenolic compounds (A)
	1972-1977	Coal Tar Oil	Drummed and recycled off site	55-gallon drum	
Coal Tar Coating	1957-1985	Metal Pipe	On-Site Burial	None	Metals (A)
			Off-Site Landfilling	Dumpster	
Cement Mortar Coating	1979-1985	Cement Slurry	On-Site Pond On-Site Piles	None	Calcium Carbonate (A)

1. (A) Denotes presence of constituent is alleged.
   (D) Denotes presence of constituent is documented.

TABLE 2

COMMON CONSTITUENTS OF COAL TAR

Benzene	Phenanthrene
Toluene	Fluoranthene
Xylenes	Pyrene
Phenol	Chrysene
Cresols	Benz(a)anthracene
Xylenols	Benzo(j)fluoranthene
Pyridine	Benzo(k)fluoranthene
Naphthalene	Benzo(a)pyrene
Methylnaphthalenes	Benzo(e)pyrene
Dimethylnaphthalenes	Perylene
Acenaphthene	Benzo(g,h,i)perylene
Carbazole	Benzo(b)chrysene
Fluorene	Dibenz(a,h)anthracene
Anthracene	

Source: ERT and KCI 1984.

PAHs are widely distributed in the environment, as a result of both natural and man-made processes. Generally, PAHs are characterized by low aqueous solubilities. As the molecular weight increases, the aqueous solubility decreases. For example, the PAH anthracene consisting of three fused benzene rings, exhibits an aqueous solubility of 1.29 mg/L at 25°C while the light aromatic benzene exhibits an aqueous solubility of approximately 2,000 mg/L at 20°C (Verschueren 1983).

PAH compounds also generally exhibit low volatilities, with compounds containing three or more fused rings exhibiting negligible vapor pressure in environmental settings (ERT and KCI 1984). For comparison, the vapor pressure of benzene is 76 mm at 20°C while the vapor pressure of napthalene, a PAH compound consisting of two fused benzene rings, is 1 mm at 53°C (Verschueren 1983).

Adsorption plays a primary role in the environmental fate and transport of PAHs, with compounds of comparatively high molecular weight exhibiting the greatest adsorption tendencies. PAH compounds containing five or more fused rings are considered to be essentially immobile in organic soils as a results of adsorption. In groundwater, such compounds are likely to move 100 to 1,000 times more slowly than groundwater because of adsorption effects (ERT and KCI 1984).

2.3 Potential Contaminant Transport Pathways/Receptors

2.3.1 Surface Water

The site is located within a north-south trending valley abutted to the west by a sharply rising bluff and to the east by Mt. Talbert. The valley is divided topographically with surface water in the vicinity

flowing in a northwesterly direction away from the Clackamas River (Figure 1). The site is bordered on the eastern and western boundaries by ditches which drain surface water runoff from the site into Dean Creek. Dean Creek flows in turn into Mount Scott Creek (Figure 1). Drainage pathways leading to the eastern drainage ditch (east of Plant #4) were observed during the site inspection (Figure 2).

According to State of Oregon water rights records, Dean Creek and Mount Scott Creek supply water for drinking and irrigation of approximately 20 acres within 3 miles of the site (Warren 1988). Drinking water in the Clackamas area is supplied by the Clackamas River.

2.3.2 Groundwater

The NWP&C site is located on the eastern flank of a gently sloping alluvial flood plain north of the Clackamas River. The site is underlain by Quaternary Age alluvial sediments. These sediments consist of unconsolidated silt and clay layers alternating with silty sands and gravels. Regionally, these deposits unconformably overlie stream-laid terrace deposits consisting of poorly sorted sands, gravels, and silt, with minor clay lenses. Underlying the terrace deposits are discontinuous lava flows (Boring Lavas), well-indurated sandstones and conglomerates of the Troutdale Formation, and older clays and silts of the Sandy River Mudstone unit. In the site area, these units are mapped as unconformably overlying a moderately thick unit of Tertiary age Columbia River Basalts (USGS 1983).

Based on registered well logs for the on-site industrial well and wells within 1/2 mile of the site, there are apparently various water-bearing units separated by blue clay layers of various thicknesses in the site vicinity. Water occurs at depths ranging from 37 feet to greater than 200 feet below ground surface (bgs). Several well logs indicate that groundwater is subject to artesian conditions. A total of approximately 150 well logs are registered with the Oregon Department of Water Resources for wells within 3 miles of the site (ODWR 1988). A City of Milwaukie well, which is connected to a central distribution system serving approximately 19,000 people, is located approximately 2 miles northwest of the site and is screened at a depth of 270 feet bgs (Bailey 1988; Beidelman 1988). The Milwaukie well system has not been used since September 1988 due to volatile organic contamination (Beidelman 1988).

Shallow soil and well borings completed by E & E during fieldwork activities at the site indicate that the shallow subsurface consists of layers of poorly sorted gravels and cobbles interbedded with minor clay and sandy clay lenses (see Section 4.0 and Appendix A). Most notably, the borehole from the southwest corner of the site (GW3) indicated only coarse-grained gravels and cobbles with little or no fines while the remaining boreholes logs showed poorly-sorted gravels, clays, and sandy clays.

2.3.3 Air

The climate in the Clackamas area is tempered by winds from the Pacific Ocean. Summers are fairly warm and dry while winters are cool and wet. Climatic data for the area indicate an average annual net precipitation of 16 inches. Temperatures range from 14°F in the winter to 107°F in the summer, with average temperatures of approximately 40°F in the winter and 65°F in the summer (USDA 1983).

The site is located in a mixed commercial/residential area. Approximately 4,000 people live within 1 mile of the site. The nearest residence is located approximately 0.25 miles southwest of the site. The population within 4 miles of the site exceeds 20,000 (U.S. Department of Commerce 1982).

The majority of Parcel A is paved with asphalt. However, the site surface of Parcel B is primarily exposed gravel. Both solid and oily wastes were apparently deposited directly to the site surface on Parcel B.

2.4 Investigative History

In September 1987, the Oregon Department of Environmental Quality performed a Preliminary Assessment (PA) at the NWP&C site. The PA was conducted in response to a citizen's notification that over 200 drums had been buried on site. During the PA investigation, potential wastes were identified which included coal tar residues, smokestack scrubber creosotes, organic solvents, miscellaneous pipe coatings, paints, and primers. The potential for groundwater, surface water, and soil contamination, as well as employee exposure, was noted. No samples were collected. A high-priority site inspection was recommended.

3.0 PROJECT DESCRIPTION

3.1 Sampling Objectives and Scope

As mentioned in Section 1.0, a screening site inspection is primarily intended to gather sufficient data to enable evaluation of a site's potential for inclusion on the National Priorities List. Accordingly, the following sampling objectives were defined for the NWP&C SSI:

1. Determine if the site's surface soils contain hazardous substances included on EPA's Target Compound List (TCL).

2. Determine if alleged and reported past waste disposal procedures at the site have contaminated the shallow groundwater beneath the site.

3. Determine if wastes allegedly and reportedly disposed at the site have migrated to the two ditches adjacent to the site.

To accomplish these objectives, the following general field activities were conducted:

- Soil samples were collected from the site surface.
- Shallow groundwater samples were collected from on-site temporary monitoring wells and off-site existing groundwater monitoring wells.
- Sediment samples were collected from the adjacent ditches.

3.2 Data Types, Uses, and Quality Requirements

The anticipated data types, intended data uses, and associated analytical quality requirements necessary to satisfy the above objectives are summarized in Table 3. Specific methods by which the necessary data were collected are described below.

4.0 SAMPLING PROGRAM

4.1 Sample Types, Numbers, Locations, and Rationale

A total of six on-site and one off-site soil samples were collected during the investigation. Four of the on-site surface soil samples were collected from areas adjacent to proposed groundwater sampling locations on Parcel B (Figure 3). The remaining two on-site surface soil samples were collected from the former cement slurry pond and from an area adjacent to Plant #4. Soil samples were collected from areas where stained soil and/or other signs of contamination (e.g., stressed vegetation) were apparent. The single off-site surface soil sample was collected from a vacant lot approximately 1/4 mile south of the site to establish background conditions (Figure 4).

A total of four groundwater samples were collected on Parcel B at the locations indicated in Figure 3. Groundwater was collected at depths ranging from approximately 5 to 7 feet bgs from each location. Two off-site groundwater samples were collected from existing monitoring wells for background comparison. The off-site wells are located approximately 1/4 mile southeast of the site on Camp Withycombe property (Figure 4). An inoperable dedicated pump prevented collection of a groundwater sample from the industrial well located on Parcel A.

Four sediment samples were collected from the two ditches adjacent to the site (Figure 3). Two of the four samples were collected upstream of the site, while the remaining two were collected adjacent to the site. Surface water samples from the ditches and the on-site pool were not obtained due to dry conditions. Sample information, including types, numbers, locations, and rationale is summarized in Table 4.

4.2 Sampling Methods

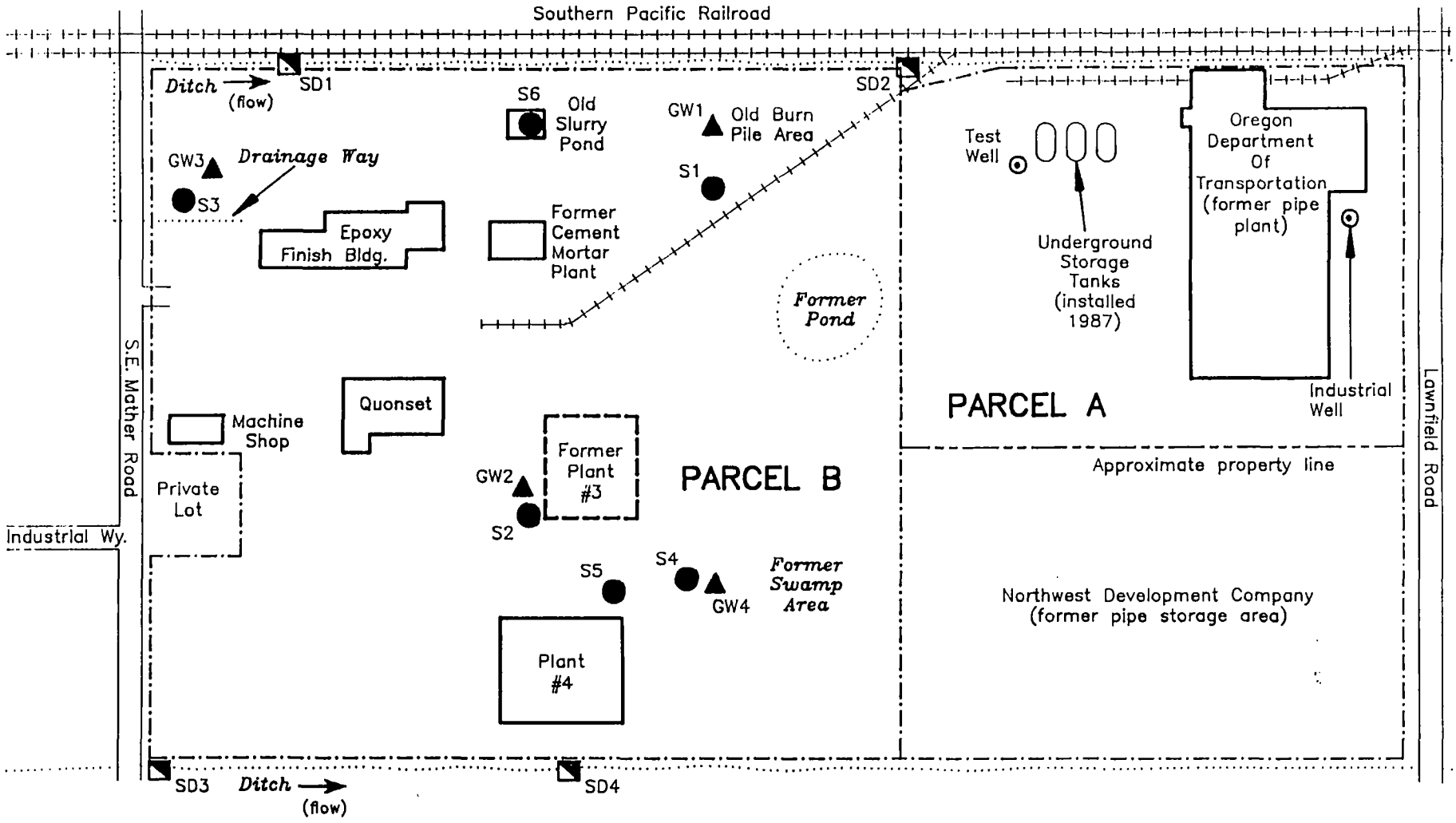
Media-specific sampling procedures used during the NWP&C SSI are described in the project work plan (E & E 1988c). The procedures used are consistent with methodologies described in the Region X Field Investigation Team (FIT) Quality Assurance Project Plan (QAPP) for

TABLE 3

DATA TYPES, USES, AND QUALITY REQUIREMENTS

Objective Number[1]	Data Types Required	Prioritized Data Uses	Contaminants of Concern	Levels of Concern[2]	Analytical Program Required[3]
1	Chemical Characteristics of On-Site Surface Soil	o Site Characterization o Public Health Eval.	Aromatic hydrocarbons and phenolic compounds	ppb	CLP
2	Chemical Characteristics of Groundwater	o HRS Score Evaluation o Site Characterization o Public Health Eval.	Aromatic hydrocarbons and phenolic compounds	ppb	CLP
3	Chemical Characteristics of Off-Site Ditch Sediment	o HRS Score Evaluation	Aromatic hydrocarbons and phenolic compounds	ppb	CLP

1. *See Section* 3.1.
2. Levels of concern reflect anticipated environmental conditions and subsequent analytical detection limits.
3. Analytical program(s) are specified in accordance with anticipated data uses and levels of concern. Data quality objectives for analytical programs (i.e., CLP, EPA Region Laboratory, and E & E's mobile or base support field screening laboratories) are described in the Region X FIT Quality Assurance Project Plan for Sampling Activities (Ecology and Environment, Inc., 1988b).



LEGEND

- Parcel boundary (approximate)
- GW1 Groundwater sample
- S1 Soil sample
- SD1 Sediment sample

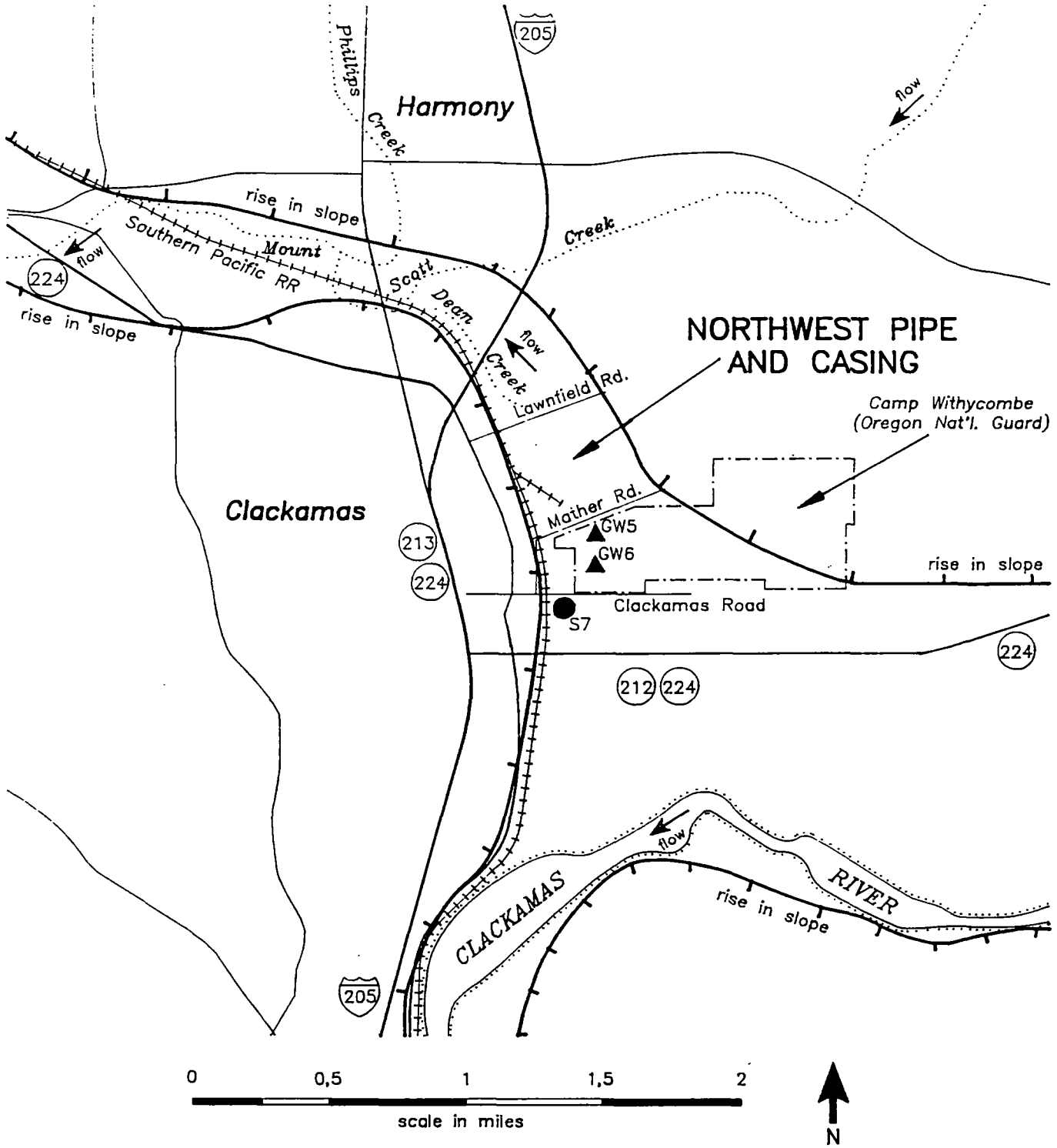
0 150 300 450 600

approximate scale in feet

N

ecology & environment, inc.	
Job: F10-8804-31	Waste Site: OR 0210
Drawn by: D. P.	Date: Dec. 1, 1988

FIGURE 3
ON-SITE SAMPLE LOCATION MAP
NORTHWEST PIPE AND CASING
Clackamas, OR



LEGEND

GW6 ▲ Groundwater sample

S7 ● Soil sample

ecology & environment, inc.	
Job: F10-8804-31	Waste Site: OR 0210
Drawn by: D. P.	Date: Nov. 18, 1988

FIGURE 4
OFF-SITE SAMPLE LOCATION MAP
NORTHWEST PIPE AND CASING
Clackamas, OR

TABLE 4

SAMPLE TYPES, NUMBERS, LOCATIONS, AND RATIONALE

Sample Matrix	Number of Samples	Sample Type(s)	Sample Location(s) (Figure 2)	Rationale
Soil	6	Grab	On Site	o Determine if the surface stained soils areas and/or areas with burned/ buried coal tar contain hazardous constituents.
	1	Grab	Off Site	o Establish background concentrations for on-site soil samples.
Groundwater	4*	Grab	On Site (5-7 feet)	o Determine if possible contaminants, as indicated by stained soils and buried/ burned coal tar, have migrated to the shallow aquifer.
	2	Grab	Off Site (5-11 feet)	o Establish background concentrations for on-site shallow groundwater samples.
Sediment	2	Composite	Ditch Adjacent to Site	o Determine if possible contaminants have migrated off site to the ditches adjacent to the site.
	2	Composite	Ditch Upstream from Site	o Establish background for sediment samples.
Quality Control - Water	1			o Transport blank.
TOTAL	18			

* One sample was selected for CLP laboratory quality control.

Sampling Activities (E & E 1988b), as well as those described in EPA's Compendium of Superfund Field Operations Methods (EPA 1987a).

4.2.1 Groundwater Samples

On-site groundwater samples were collected from temporary wells. A 6-inch hollow-stem auger was used to drill to the desired depth. Dedicated 2-foot stainless-steel well screens with black iron casing extensions were inserted through the center of the auger. As the auger was withdrawn, washed pea gravel was used to fill the annulus. Construction details for the on-site wells are summarized in Table 5. Boring logs describing the lithology and temporary well construction are included in Appendix A.

The wells were not developed, however, depending on the productivity of the water-bearing unit at each location, approximately two volumes of water from each temporary well were purged prior to sampling. The samples were collected following a three-step process:

- The static water level was measured using a clean, electric sounder and the static well volume was calculated.
- Approximately two static volumes were purged from each temporary well using laboratory cleaned, teflon bailers.
- Water samples were collected using clean, dedicated bailers.

Sample bailers were laboratory cleaned before field use and were not used in more than one well. After collecting each sample, the temporary well screens and casing extensions were removed and the resulting holes were pressure-grouted with a bentonite clay slurry.

The on-site industrial well was not sampled since all circuitry to the pump had been removed. The off-site groundwater samples were collected from existing monitoring wells upgradient of the site (Rittenhouse-Zeman & Associates 1986). Construction details for these monitoring wells are summarized in Table 5. Boring logs are included in Appendix A. Approximately three static volumes of water was purged from each well prior to sample collection. Samples were collected directly into the sample containers.

4.2.2 Sediment/Soil Samples

All surface soil samples and ditch sediment samples were collected using dedicated stainless steel spoons. The top 2 inches of material at each location was collected. Sample material for volatile analyses was placed directly into sample vials. Sample material for the remaining analyses was placed in a stainless steel bowl, and homogenized before it was placed into the sample containers.

4.2.3 Surface Water Samples

Surface water from the ditches and the on-site pool was not collected due to dry conditions.

TABLE 5

MONITORING WELL CHARACTERISTICS AND STATIC WATER LEVELS
NORTHWEST PIPE AND CASING, CLACKAMAS, OREGON
July 1988

	GW1	GW2	GW3	GW4	GW5 (Background)	GW6 (Background)
Total Depth (ft)	13	7.5	8	8	12 (1)	14 (1)
Casing Type	2" BI/SS	2" BI/SS	2" BI/SS	2" BI/SS	2" PVC (1)	2" PVC (1)
Screen Depth Interval (ft)	5-7	5-7	5-7	5-7	5-10 (1)	7-11 (1)
Casing Elevation (ft AMSL)	109.61	113.38	*	110.20	100.00 (1)	100.28 (1)
Static Water Depth (feet below top of casing)	5.00	5.00	3.20	2.05	7.40	10.00
Groundwater Elevation (ft AMSL)	104.61	108.38	*	108.15	92.60	90.28

BI/SS = Black iron casing with 2-foot stainless steel screens
PVC = Polyvinylchloride
* = No data available due to malfunction of survey instrumentation

(1) Source: Rittenhouse-Zeman & Associates 1986.

4.3 Sample Analytical and Handling Requirements

Sample analytical requirements for the NWP&C SSI are summarized in Table 6. Included are descriptions of requested analytes, the analytical programs used, sample-preservation techniques, and maximum sample holding times. Samples were analyzed for all organic analytes included on the EPA Target Compound List (TCL) (Appendix B). The TCL volatile and semivolatile analytes include aromatic, phenolic, and polycyclic aromatic hydrocarbon (PAH) compounds commonly found in coal tar (see Table 2). Groundwater sample analyses were performed on whole water samples. Analytical methods and bottle requirements for samples collected during this investigation are described in the Region X FIT QAPP for Sampling Activities (E & E 1988b).

Due to the potential evidentiary nature of the data collected, all samples intended for analysis through the CLP or EPA Region X Laboratory were handled and documented in accordance with procedures specified in EPA's User's Guide to the Contract Laboratory Program (EPA 1986), CLP Statement of Work (EPA 1987b), and National Enforcement Investigations Center Policies and Procedures (EPA 1985). Sample packaging conformed with applicable Department of Transportation Regulations (49 CFR 171-177) and/or International Air Transport Association guidelines (International Air Transport Association 1987) as specified in the Region X FIT QAPP for Sampling Activities (E & E 1988b). Organic samples were shipped for analysis within 24 hours of collection were shipped within 5 working days of collection, unless otherwise indicated in Table 6. Shipment was via an overnight delivery service.

Sample documentation information for the project is summarized in Appendix C. Included in Appendix C are project numbers, account numbers, sample names, laboratory numbers, and chain-of-custody numbers.

4.4 Equipment Decontamination

To the greatest extent possible, disposable and/or dedicated personal protection and sampling equipment was used to avoid cross-contamination. Equipment decontamination, when necessary, was performed in accordance with procedures outlined in the project work plan (E & E 1988c).

Following completion of the field work, all equipment (including support vehicles) was cleaned using pressurized steam and/or a hot water wash with non-phosphate detergent. Sampling equipment was then rinsed with potable water, sealed in plastic bags, and transferred to the E & E base support facility for full decontamination prior to reuse.

5.0 SAMPLE RESULTS AND DISCUSSION

The following paragraphs present field measurements and analytical data developed during this study. A complete record of sample documentation information is presented in Appendix C. Photographic documentation is presented in Appendix D, and a summary of the inspection is

TABLE 6

SAMPLE ANALYTICAL REQUIREMENTS

Sample Matrix	Number of Samples	Sample Location(s)	Analytical Requirements[1]	Analytical Program[2]	Preservation Technique	Holding Time
Water	4	See Figure 3	VOA	CLP RAS	Ice	7 days
			BNA	CLP RAS	Ice	5 days
			PEST/PCBs	CLP RAS	Ice	7 days
	3	Off Site and Quality Control (see Figure 4)	VOA	CLP RAS	Ice	7 days
			BNA	CLP RAS	Ice	5 days
			PEST/PCBs	CLP RAS	Ice	5 days
Soil/Sediment	11	See Figures 3 and 4	VOA	CLP RAS	Ice	10 days
			BNA	CLP RAS	Ice	10 days
			PEST/PCBs	CLP RAS	Ice	10 days

1. TCL - EPA Target Compound List (see Appendix B)
   VOC - EPA TCL Volatile Organic Compounds (see Appendix B)
   BNA - EPA TCL Base/Neutral/Acid Extractable Compounds (see Appendix B)
   PEST/PCBs - EPA TCL Pesticide and Polychlorinated Biphenyl Compounds (see Appendix B)

2. CLP RAS - Contract Laboratory Programs Routine Analytical Services

presented in Appendix E (EPA Form 2070-13), and data quality assurance review memoranda are presented in Appendix F (Volume II).

For the purposes of this report, "elevated levels" are defined using EPA HRS model criteria as contaminant concentrations that are at least three times greater than the contract required quantitation limits (CRQL), or at least five times greater than the concentrations detected in background samples.

5.1 Analytical Results for Soil Samples

5.1.1 Volatile Organic Analytical Results

Volatile organic compound (VOC) analytical results for soil samples are summarized in Table 7. Elevated concentrations of tetrachloroethene were detected in samples S2 and S3 at concentrations of 130 µg/kg and 27 µg/kg, respectively. Additionally, xylene was detected at an estimated concentration of 53 µg/kg in sample S2.

Other VOCs detected in one or more surface soil samples include 2-butanone, trichloroethene, toluene, and ethylbenzene. The concentrations of these compounds were not elevated based on HRS criteria. Three volatile organics, tetrachloroethene, toluene, and xylene (total) were also found in the background sample (S7) at estimated concentrations of 3 µg/kg, 5 µg/kg, and 8 µg/kg, respectively. These concentrations are not elevated.

5.1.2 Semivolatile Organic Compound Analytical Results

Elevated concentrations of 15 TCL heterocyclic and polycyclic aromatic hydrocarbons (PAH) were detected in soil samples collected on site (Table 8). Elevated levels ranged from an estimated concentration of 3,400 µg/kg for phenanthrene in S6 to 27,000,000 µg/kg for anthracene in S4. Samples S4 and S5 contained the highest concentrations of EPA TCL hazardous substances, with maximum concentrations of 16,000,000 µg/kg of phenanthrene and 27,000,000 µg/kg of anthracene in S4, and 15,000,000 µg/kg of pyrene and 21,000,000 µg/kg of fluoranthene in S5. The TCL PAH and heterocyclic compounds detected are commonly listed as primary constituents of coal tar (see Table 2). There were no semivolatile organic compounds present in the background sample, S7.

5.2.3 Pesticide/PCB Analytical Results

Arochlor 1254, a polychlorinated biphenyl mixture, was detected at elevated concentrations in four of the seven soil samples (Table 9). The concentrations ranged from 18,000 µg/kg in sample S6 to 670,000 µg/kg in sample S3. Arochlor 1254 is a PCB mixture containing 54 percent chlorine. PCBs are used primarily in the electrical industry in capacitors and transformers. These compounds are also used in the formulation of lubricating and cutting oils (Verschueren 1983). Arochlor 1254 was not detected in the background sample or in samples S4 and S5.

TABLE 7

SUMMARY OF VOLATILE ORGANIC ANALYTICAL RESULTS FOR SOIL SAMPLES
NORTHWEST PIPE AND CASING, CLACKAMAS, OREGON
July 1988
(ug/kg)

Analyte	S1	S2	S3	S4	S5	S6	S7 (Background)
Methylene Chloride	100 UJ	150 J	350 J	310 J	93 UJ	110 UJ	130 J
2-Butanone	27 J	13 U	13 J	15 U	39 U	8 J	11 U
Trichloroethene	5 U	7 U	4 J	8 U	20 U	8 UJ	5 U
Tetrachloroethene	5 U	130	27	8 U	12 J	8 UJ	3 J
Toluene	2 J	8 J	13 J	4 J	20 UJ	8 UJ	5 J
Ethylbenzene	5 U	6 J	11 UJ	8 UJ	20 UJ	8 UJ	5 UJ
Xylene (Total)	5 U	53 J	33 J	8 UJ	20 UJ	8 UJ	8 J

U - The material was analyzed for, but was not detected. The associated numerical value is a contractual quantitation limit, adjusted for sample weight/sample volume, extraction volume, percent solids and sample dilution.

J - The associated numerical value is an estimated quantity because quality control criteria were not met or concentrations reported were less than the CRQL.

UJ - The material was analyzed for, but was not detected. The associated numerical value is an estimated quantitation limit.

TABLE 8

SUMMARY OF SEMIVOLATILE ORGANIC ANALYTICAL RESULTS FOR SOIL SAMPLES
NORTHWEST PIPE AND CASING, CLACKAMAS, OREGON
July 1988
(ug/kg)

Analyte	S1	S2	S3	S4	S5	S6	S7 (Background)
Acenaphthene	20000 U	32000	14000 J	330000	1300000	450 J	680 U
Dibenzofuran	20000 U	12000 J	20000 U	250000	830000	1700 U	680 U
Fluorene	20000 U	31000	8000 J	2600000	2500000	340 J	680 U
Phenanthrene	20000 U	450000	170000	16000000	1900000	3400	680 U
Anthracene	20000 U	140000	44000	27000000	4400000	1100 J	680 U
Fluoranthene	54000	560000	280000	6400000	21000000	6200	680 U
Pyrene	66000	620000 J	320000	5000000	15000000	5300	680 U
Benzo(a)Anthracene	27000	300000	160000	450000	950000	9000	680 U
Chrysene	38000	290000	160000	870000	2100000	13000	680 U
Benzo(b)Fluoranthene	43000	240000	130000	100000 J	360000	28000	680 U
Benzo(k)Fluoranthene	40000	180000	97000	110000	420000	15000	680 U
Benzo(a)Pyrene	25000	200000	120000	54000 J	130000	9500	680 U
Indeno(1,2,3-cd)Pyrene	35000	120000	71000	110000 U	66000 J	9600	680 U
Dibenz(a,h)Anthracene	8400 J	24000	15000 J	110000 U	110000 U	1900	680 U
Benzo(g,h,i)Perylene	27000 J	95000 J	58000 J	110000 UJ	45000 J	8000 J	680 UJ

U - The material was analyzed for, but was not detected. The associated numerical value is a contractual quantitation limit, adjusted for sample weight/sample volume, extraction volume, percent solids and sample dilution.

J - The associated numerical value is an estimated quantity because quality control criteria were not met or concentrations reported were less than the CRQL.

UJ - The material was analyzed for, but was not detected. The associated numerical value is an estimated quantitation limit.

TABLE 9

SUMMARY OF PESTICIDE/PCB ANALYTICAL RESULTS FOR SOIL SAMPLES
NORTHWEST PIPE AND CASING, CLACKAMAS, OREGON
July 1988
(ug/kg)

Analyte	S1	S2	S3	S4	S5	S6	S7 (Background)
Aroclor 1254	23000	390000	670000	130000 U	130000 U	18000	160 U

U - The material was analyzed for, but was not detected. The associated numerical value is a contractual quantitation limit, adjusted for sample weight/sample volume, extraction volume, percent solids and sample dilution.

5.1.4 Volatile Organic Tentatively-Identified Compound Analytical Results

Table 10 lists the volatile tentatively-identified compounds (TICs) detected in soil samples. Tentative identifications are made for those compounds which are not included on the TCL but that are detected in samples.

Volatile TICs present in the soil samples included straight chain, branched, and cyclic hydrocarbons (typically components of petroleum), heterocyclic hydrocarbons (typically components of coal tar), and unknown or unidentified organic compounds.

TICs detected in the soil samples were found at estimated concentrations ranging from 5 µg/kg to 410 µg/kg. Three TICs were detected in the background sample (S7).

5.1.5 Semivolatile Organic Tentatively-Identified Compound Analytical Results

A total of 94 semivolatile organic TICs were detected in soil samples (Table 11). The TICs detected primarily include unknown or unidentified PAH, substituted PAH, and PCB compounds. These compounds were detected in soil samples at estimated concentrations as high as 5,700,000 µg/kg (0.5 percent).

5.2 Analytical Results for Groundwater Samples

5.2.1 Field Measurements

A summary of temperature, pH, and specific conductivity measurements obtained for on- and off-site groundwater samples between July 20 and July 21, 1988, is presented in Table 12. The values reflect end-of-purge conditions. Temperature values ranged from 15°C (GW6 and GW7) to 25°C (GW2). The pH readings varied from 6.33 (GW4) to 6.90 (GW1). Conductivity values ranged from 116 µmhos/cm in GW7 to 570 µmhos/cm in GW1. GW1 was more turbid than the other groundwater samples.

5.2.2 Volatile Organic Compound Analytical Results

Table 13 lists volatile organic compounds detected in groundwater samples. Elevated concentrations of five compounds were detected including tetrachloroethene, trichloroethene, 1,2-dichloroethene, vinyl chloride, and total xylenes. Tetrachloroethene concentrations ranged from 83 µg/L in GW4 to 1,800 µg/L in GW2. Elevated levels of trichloroethene were detected in GW2 (56 µg/L), GW3 (47 µg/L), and GW4 (190 µg/L). Concentrations of 1,2-dichloroethene ranged from 390 µg/L in GW4 to an estimated 45 µg/L in GW2. Vinyl chloride concentrations ranged from 28 µg/L (GW4) to 62 µg/L (GW3). Total xylenes were detected at elevated levels in GW1 (56 µg/L) and in GW3 (23 µg/L estimated).

TABLE 10

SUMMARY OF TENTATIVELY-IDENTIFIED VOLATILE ORGANIC COMPOUNDS FOR SOIL SAMPLES
NORTHWEST PIPE AND CASING, CLACKAMAS, OREGON
July 1988
(ug/kg)

Compound	Scan #	S1	S2	S3	S4	S5	S6	S7 (Background)
Unknown (probably an artifact)	2.10					60 J		
Unknown (probably an artifact)	2.25		37 J					
Methane, Thiobis-	7.10						87 J	
Cyclopentane, Methyl	15.35			45 J				15 J
Cyclopentane, Methyl	15.40		29 J		28 J		12 J	
Cyclopentane, Methyl	15.45	16 J						
Unknown Hydrocarbon	19.25				230 J			
Unknown Hydrocarbon	19.30	130 J	280 J	410 J		17 J		150 J
Unknown Hydrocarbon	19.35						100 J	
Unknown Hydrocarbon	23.30				31 J			
Unknown Hydrocarbon	23.35	12 J	26 J	38 J				10 J
Unknown Hydrocarbon	23.40						8 J	
Unknown Terpene	25.91				25 J			
Unknown Terpene	26.61						16 J	
Unknown Ketone	27.01	5 J						
Unknown Ketone	31.41	11 J						
Benzofuran	34.36		18 J					

J - The associated numerical value is an estimated quantity because quality control criteria were not met or concentrations reported were less than the CRQL.

TABLE 11

SUMMARY OF TENTATIVELY-IDENTIFIED SEMIVOLATILE ORGANIC COMPOUNDS FOR SOIL SAMPLES
NORTHWEST PIPE AND CASING, CLACKAMAS, OREGON
July 1988
(ug/kg)

Compound	Scan #	S1	S2	S3	S4	S5	S6	S7 (Background)
Unknown Ketone	7.13							590 J
Unknown	17.44					740000 J		
Dibenzothiophene	19.14				350000 J			
Dibenzothiophene	19.17					1300000 J		
9H-Carbazole	19.99					840000 J		
9H-Carbazole	20.05				5700000 J			
Unknown	20.22				270000 J	650000 J		
Phenanthrene, -Methyl-	20.60		52000 J					
Phenanthrene, -Methyl-	20.62			31000 J				
Phenanthrene, -Methyl-	20.67		50000 J					
Phenanthrene, -Methyl-	20.69			34000 J				
Phenanthrene, -Methyl-	20.72					2900000 J		
Phenanthrene, -Methyl-	20.80				910000 J	450000 J		
Phenanthrene, -Methyl-	20.87		110000 J	700000 J				
Unknown	20.87				940000 J			
Phenanthrene, -Methyl-	20.92					350000 J		
Phenanthrene, -Methyl-	20.94				890000 J			
Unknown Fatty Acid	20.95						2000 J	
9H-Carbazole	21.14				540000 J			
Napthalene, -Phenyl-	21.34		47000 J					
Unknown	21.35			28000 J				
9,10-Anthracenedione	21.39				2100000 J			
9,10-Anthracenedione	21.44					2500000 J		
Phenanthrene, -Dimethyl-	21.82					560000 J		
Phenanthrene, -Dimethyl-	21.97		37000 J		240000 J			
Phenanthrene, -Dimethyl-	21.99			47000 J				
Unknown Hydrocarbon	21.99						1700 J	
Unknown	22.04				240000 J			
Unknown	22.05					1200000 J		
Unknown PNA MW=204	22.10		36000 J					
Unknown PNA MW=204	22.14				480000 J			
Unknown Hydrocarbon	22.17							850 J
1,1'-Biphenyl, -Pentachloro-	22.60		45000 J					
Unknown	22.64						2500 J	
Unknown PNA MW=208	22.67					600000 J		
Unknown	22.97				220000 J			
Unknown PNA MW=218	23.02					480000 J		
Unknown PNA MW=218	23.10		410000 J		41000 J			
Unknown	23.12						1900 J	

J - The associated numerical value is an estimated quantity because quality control criteria were not met or concentrations reported were less than the CRQL.

TABLE 11 (Cont.)

SUMMARY OF TENTATIVELY-IDENTIFIED SEMIVOLATILE ORGANIC COMPOUNDS FOR SOIL SAMPLES
NORTHWEST PIPE AND CASING, CLACKAMAS, OREGON
July 1988
(ug/kg)

Compound	Scan #	S1	S2	S3	S4	S5	S6	S7 (Background)
1,1'-Biphenyl, -Pentachloro-	23.14			40000 J				
Unknown PNA MW=218	23.15					900000 J		
Pyrene, -Methyl-	23.37				270000 J			
1,1'-Biphenyl, -Pentachloro-	23.40		77000 J					
Pyrene, -Methyl-	23.44					690000 J		
1,1'-Biphenyl, -Pentachloro-	23.44			71000 J				
Pyrene, -Methyl-	23.62	6900 J	100000 J		620000 J			
Pyrene, -Methyl-	23.65			61000 J				
Pyrene, -Methyl-	23.69					1500000 J		
Pyrene, -Methyl-	23.77				340000 J			
Pyrene, -Methyl-	23.79		56000 J					
Pyrene, -Methyl-	23.80			37000 J				
Pyrene, -Methyl-	23.84					910000 J		
Pyrene, -Methyl-	23.85		120000 J		230000 J			
Pyrene, -Methyl-	23.87	7800 J						
1,1'-Biphenyl, -Hexachloro-	23.89			110000 J				
Pyrene, -Methyl-	23.92					1100000 J		
Pyrene, -Methyl-	24.07		39000 J					
Pyrene, -Methyl-	24.10			31000 J				
Pyrene, -Methyl-	24.12					540000 J		
1,1'-Biphenyl, -Hexachloro-	24.32			28000 J				
1,1'-Biphenyl, -Pentachloro-	24.37		34000 J					
1,1'-Biphenyl, -Hexachloro-	24.39			34000 J				
1,1'-Biphenyl, -Hexachloro-	24.80		68000 J					
Unknown	24.80						2100 J	
1,1'-Biphenyl, -Hexachloro-	24.84			57000 J				
Terphenyl	24.82				230000 J			
Unknown PNA MW=230	24.89					670000 J		
Unknown PNA MW=234	25.07				250000 J			
Unknown PNA MW=234	25.09		43000 J					
Unknown	25.11	6000 J						
Unknown PNA MW=234	25.12			25000 J		720000 J		
Unknown	25.17		60000 J					
Unknown PNA MW=226	25.17						16000 J	
Unknown PNA MW=226	25.19	11000 J						
Unknown PNA MW=234	25.21			38000 J		680000 J		
Unknown PNA MW=230	25.31				230000 J			
Terphenyl + (Trace Cl6 PCB)	25.32		44000 J					
1,1'-Biphenyl, -Hexachloro	25.34			29000 J				

J - The associated numerical value is an estimated quantity because quality control criteria were not met or concentrations reported were less than the CRQL.

TABLE 11 (Cont.)

SUMMARY OF TENTATIVELY-IDENTIFIED SEMIVOLATILE ORGANIC COMPOUNDS FOR SOIL SAMPLES
NORTHWEST PIPE AND CASING, CLACKAMAS, OREGON
July 1988
(ug/kg)

Compound	Scan #	S1	S2	S3	S4	S5	S6	S7 (Background)
Unknown PNA MW=228	26.04						2800 J	
Unknown PNA MW=228	26.06			24000 J				
Unknown	26.27						2300 J	
Unknown PNA MW=242	27.01		40000 J					
Unknown PNA MW=242	27.04			25000 J				
Unknown PNA MW=242	27.49			27000 J				
Unknown	27.49		35000 J					
Unknown	27.49		37000 J					
Unknown	28.22						4900 J	
Unknown PNA MW=252	30.86	18000 J						
Unknown PNA MW=252	30.87	79000 J						
Unknown PNA MW=252	31.06						15000 J	
Unknown PNA MW=252	31.76						1900 J	
Unknown	34.44						2500 J	
Unknown PNA MW=276	38.97						1800 J	
Unknown	39.34						1800 J	

J - The associated numerical value is an estimated quantity because quality control criteria were not met or concentrations reported were less than the CRQL.

TABLE 12

SUMMARY OF FIELD MEASUREMENTS COLLECTED (End of Purge)
NORTHWEST PIPE AND CASING, CLACKAMAS, OREGON
July 1988

Well	Temperature °C	pH	Conductivity (umhos/cm)
GW1	22	6.90	570
GW2	25	6.07	139
GW3	22	6.55	167
GW4	21	6.33	203
GW5	15	6.56	144
GW6	15	6.56	116

TABLE 13

SUMMARY OF VOLATILE ORGANIC ANALYTICAL RESULTS FOR GROUNDWATER SAMPLES
NORTHWEST PIPE AND CASING, CLACKAMAS, OREGON
July 1988
(ug/L)

Analyte	GW1	GW2	GW3	GW4	GW5 (Background)	GW6 (Background)
Vinyl Chloride	10 U	100 U	62	28	10 U	10 U
Acetone	10 U	100 U	50 U	20 U	10 U	19
1,2-Dichloroethene (total)	5 U	45 J	220	390	5 U	5 U
Trichloroethene	5 U	56	47	190	5 U	5 U
Benzene	6	50 U	25 U	10 U	5 U	5 U
Tetrachloroethene	5 U	1800	540	83	5 U	5 U
Toluene	8	50 U	25 U	10 U	5 U	14
Ethylbenzene	12	50 U	22 J	10 U	5 U	5 U
Total Xylenes	56	50 U	23 J	10 U	5 U	5 U

U - The material was analyzed for, but was not detected. The associated numerical value is a contractual quantitation limit, adjusted for sample weight/sample volume, extraction volume, percent solids and sample dilution.

J - The associated numerical value is an estimated quantity because quality control criteria were not met or concentrations reported were less than the CRQL.

Benzene and ethylbenzene were detected at levels less than three times the CRQL (i.e., non-elevated) in GW1 and GW3, respectively. None of the compounds mentioned above were detected in the background samples, GW5 and GW6. Toluene was detected in background sample GW6 as well as in GW1. Acetone was also detected in this background sample, but was not detected in any of the other samples. Two volatile organics, acetone and toluene, were detected in background sample GW6 but not at elevated levels based on HRS criteria.

5.2.3 Semivolatile Organic Analytical Results

Analytical results for semivolatile organic compounds in groundwater samples are summarized in Table 14. Elevated concentrations of eight semivolatile organic compounds were detected primarily in on-site groundwater sample GW3. Concentrations ranged from 54 µg/L of pyrene to 1,000 µg/L of acenaphthene in this sample. The purge water from well GW3 exhibited what appeared to be an oily sheen at the time of sample collection.

Elevated levels of acenaphthene (52 µg/L) and phenanthrene (100 µg/L) were detected in GW1. The TCL PAHs detected are a subset of those detected in the soil samples from the same locations. There were no semivolatile organic compounds detected in the background samples.

5.2.4 Pesticide/PCB Analytical Results

Arochlor 1254 was detected at an elevated concentration of 18 µg/L in groundwater sample GW3 (Table 15). Surface soil collected from the same location contained 670,000 µg/kg Arochlor 1254. One pesticide, gamma-chlordane, was detected at an estimated concentration of 0.048 µg/L in GW2. No other pesticides or PCB compounds were detected in the groundwater samples or in the background samples.

5.2.5 Volatile Organic Tentatively-Identified Compound Analytical Results

Hexane was the only volatile TIC detected in groundwater. An estimated concentration of 220 µg/L of hexane was detected in GW2.

5.2.6 Semivolatile Organic Tentatively-Identified Compound Analytical Results

Table 16 lists the semivolatile organic TICs detected in groundwater samples. TICs were detected only in groundwater samples GW1 and GW3. The types of TICs detected include unidentified PAHs, substituted aromatics, and cyclic hydrocarbons with estimated concentrations ranging from 8.5 µg/L to 240 µg/L.

5.3 Analytical Results for Sediment Samples

For this sampling effort, two sediment samples were collected from each of the drainage ditches on the west and east boundaries of the site. In each drainage ditch, an upstream sample was collected to

TABLE 14

SUMMARY OF SEMIVOLATILE ORGANIC ANALYTICAL RESULTS FOR GROUNDWATER SAMPLES
NORTHWEST PIPE AND CASING, CLACKAMAS, OREGON
July 1988
(ug/L)

Analyte	GW1	GW2	GW3	GW4	GW5 (Background)	GW6 (Background)
Naphthalene	10 U	10 U	680	4 J	10 U	10 U
2-Methylnaphthalene	3 J	10 U	110	10 U	10 U	10 U
Acenaphthylene	10 U	10 U	4 J	10 U	10 U	10 U
Acenaphthene	52	2 J	1000	11	10 U	10 U
Dibenzofuran	27	10 U	170	2 J	10 U	10 U
Fluorene	43	10 U	160	3 J	10 U	10 U
Phenanthrene	100	3 J	240	5 J	10 U	10 U
Anthracene	23	10 U	20	2 J	10 U	10 U
Di-n-Butylphthalate	10 U	10 U	10 U	1 J	10 U	10 U
Fluoranthene	31	2 J	71	0.9 J	10 U	10 U
Pyrene	22	1 J	54	0.7 J	10 U	10 U
Benzo(a)Anthracene	4 J	10 U	6 J	10 U	10 U	10 U
Chrysene	5 J	10 U	6 J	10 U	10 U	10 U

U - The material was analyzed for, but was not detected. The associated numerical value is a contractual quantitation limit, adjusted for sample weight/sample volume, extraction volume, percent solids and sample dilution.

J - The associated numerical value is an estimated quantity because quality control criteria were not met or concentrations reported were less than the CRQL.

TABLE 15

SUMMARY OF PESTICIDE/PCB ANALYTICAL RESULTS FOR GROUNDWATER SAMPLES
NORTHWEST PIPE AND CASING, CLACKAMAS, OREGON
July 1988
(ug/L)

Analyte	GW1	GW2	GW3	GW4	GW5 (Background)	GW6 (Background)
gamma-Chlordane	0.50 U	0.048 J	0.50 U	0.50 U	0.50 U	0.50 U
Aroclor-1254	1.0 U	1.0 U	18	1.5	1.0 U	1.0 U

U - The material was analyzed for, but was not detected. The associated numerical value is a contractual quantitation limit, adjusted for sample weight/sample volume, extraction volume, percent solids and sample dilution.

J - The associated numerical value is an estimated quantity because quality control criteria were not met or concentrations reported were less than the CRQL.

TABLE 16

SUMMARY OF TENTATIVELY-IDENTIFIED SEMIVOLATILE ORGANIC COMPOUNDS
FOR GROUNDWATER SAMPLES
NORTHWEST PIPE AND CASING, CLACKAMAS, OREGON
July 1988
(ug/L)

Compound	Scan #	GW1	GW3
Trimethyl Benzene	12.34	31 J	
Benzene, 1-Propynyl	12.49	14 J	
Oxycyclohydrocarbon	14.30	40 J	
Polycyclohydrocarbon	14.40	12 J	
Cyclohydrocarbon	14.90	17 J	
Cyclohydrocarbon	15.27		45 J
PNA	17.20		140 J
PNA	18.15		69 J
Dimethyl Naphthalene	18.42		63 J
Dimethyl Naphthalene	18.57		38 J
Dimethyl Naphthalene	18.80		42 J
Substituted Benzene	20.47	29 J	
Polycyclohydrocarbon	21.39		77 J
PNA	21.49		44 J
Polycyclohydrocarbon	21.57		29 J
Polycyclohydrocarbon	22.10		53 J
PNA	22.32		58 J
PNA	23.34	13 J	
PNA	23.35		59 J
PNA	24.20	240 J	
9H-Carbazole, 9-Nitroso	24.20		210 J
Polycyclohydrocarbon	24.39		27 J
PNA	24.99		90 J
PNA	25.01	18 J	
PNA	25.06		80 J
PNA	25.07	19 J	
PNA	25.29	22 J	
4H-Cyclopenta[DEF]Phenanthrene	25.31		110 J
PNA	25.47	14 J	
PNA	25.64	8.5 J	28 J
PNA	26.49		34 J
PNA	28.11	8.7 J	
PNA	28.12		28 J
PNA	28.24	14 J	

J - The associated numerical value is an estimated quantity because quality control criteria were not met or concentrations reported were less than the CRQL.

establish background conditions for the downstream sample. Thus, sample SD1 serves as background for SD2, and SD3 serves as background for SD4.

5.3.1 Volatile Organic Analytical Results

A summary of volatile organic compounds detected in sediment samples is presented in Table 17. No volatile compounds were detected at levels greater than three times background levels in any of the sediment samples.

5.3.2 Semivolatile Organic Analytical Results

Table 18 lists semivolatile organic compounds detected in sediment samples. Elevated levels of ten TCL PAH compounds were detected in sample SD4. Individual compound concentrations ranged from 4,100 µg/kg for indeno(1,2,3-cd)pyrene to 20,000 µg/kg for anthracene. No TCL PAH compounds were detected in the corresponding background sample, SD3. The TCL PAH compounds detected are identical to those found in the on-site soil samples.

Thirteen TCL PAH compounds were also detected in sample SD2. Levels ranged from an estimated concentration of 470 ug/kg for dibenz(a,h)anthracene to 4,700 µg/kg for benzo(b)fluoranthene. Contaminants were also detected in the corresponding background sample, SD1. During the sampling activity, oily waste and assorted refuse were observed in the drainage ditch approximately 100 feet south of the location of SD1. Therefore, the contamination detected in SD2 cannot be directly attributed to the site. However, fifteen of the compounds detected in SD2 were also detected in on-site soil samples.

5.3.3 Pesticide/PCB Analytical Results

One PCB compound, Arochlor 1254, was detected in downstream sediment sample SD4 at an elevated concentration of 1,100 ug/kg (Table 19). This compound was not detected in SD3, the background sample corresponding to SD4. This compound was also detected in downstream sample SD2 at a concentration of 5,800 ug/kg, as well as in on-site soil samples and in one on-site groundwater sample.

5.3.4 Volatile Organic Tentatively-Identified Compound Analytical Results

Volatile TICs detected in sediment samples included straight-chain, substituted and unknown hydrocarbons at estimated concentrations detected ranged from 17 µg/kg in SD1 to 43 µg/kg in SD2 (Table 20). Two TICs were tentatively identified in the background sample from the eastern drainage ditch (SD3), while none were found in the downstream sample (SD4).

5.3.5 Semivolatile Organic Tentatively-Identified Compound Analytical Results

Table 21 lists the semivolatile organic tentatively-identified compounds detected in sediment samples. The compounds detected are

TABLE 17

SUMMARY OF VOLATILE ORGANIC ANALYTICAL RESULTS FOR SEDIMENT SAMPLES
NORTHWEST PIPE AND CASING, CLACKAMAS, OREGON
July 1988
(ug/kg)

Analyte	West Drainage Ditch		East Drainage Ditch	
	SD1 (Background)	SD2	SD3 (Background)	SD4
Acetone	790 J	38 UJ	47 UJ	35 UJ
2-Butanone	270 J	34 U	7 J	14 U
Tetrachloroethene	30 J	17 U	9 U	7 U

U - The material was analyzed for, but was not detected. The associated numerical value is a contractual quantitation limit, adjusted for sample weight/sample volume, extraction volume, percent solids and sample dilution.

J - The associated numerical value is an estimated quantity because quality control criteria were not met or concentrations reported were less than the CRQL.

UJ - The material was analyzed for, but was not detected. The associated numerical value is an estimated quantitation limit.

TABLE 18

SUMMARY OF SEMIVOLATILE ORGANIC ANALYTICAL RESULTS FOR SEDIMENT SAMPLES
NORTHWEST PIPE AND CASING, CLACKAMAS, OREGON
July 1988
(ug/kg)

Analyte	West Drainage Ditch		East Drainage Ditch	
	SD1 (Background)	SD2	SD3 (Background)	SD4
Acenaphthene	390000 U	1900 U	860 U	400 J
Dibenzofuran	390000 U	1900 U	860 U	520 J
Fluorene	390000 U	1900 U	860 U	2200
Phenanthrene	390000 U	1400 J	860 U	13000
Anthracene	390000 U	740 J	860 U	20000
Fluoranthene	2500000	3200	860 U	8800
Pyrene	2100000	2300	860 U	10000
Benzo(a)Anthracene	230000 J	1500 J	860 U	6800
Chrysene	280000 J	2000	860 U	8100
bis(2-Ethylhexyl)Phthalate	390000 U	1100 J	860 U	1600 U
Benzo(b)Fluoranthene	93000 J	4700	860 U	10000
Benzo(k)Fluoranthene	53000 J	4100	860 U	6900
Benzo(a)Pyrene	56000 J	2200	860 U	6700
Indeno(1,2,3-cd)Pyrene	390000 U	4200	860 U	4100
Dibenz(a,h)Anthracene	390000 U	470 J	860 U	760 J
Benzo(g,h,i)Perylene	390000 UJ	3600 J	860 UJ	3900 J

U - The material was analyzed for, but was not detected. The associated numerical value is a contractual quantitation limit, adjusted for sample weight/sample volume, extraction volume, percent solids and sample dilution.

J - The associated numerical value is an estimated quantity because quality control criteria were not met or concentrations reported were less than the CRQL.

UJ - The material was analyzed for, but was not detected. The associated numerical value is an estimated quantitation limit.

TABLE 19

SUMMARY OF PESTICIDE/PCB ANALYTICAL RESULTS FOR SEDIMENT SAMPLES
NORTHWEST PIPE AND CASING, CLACKAMAS, OREGON
July 1988
(ug/kg)

Analyte	West Drainage Ditch		East Drainage Ditch	
	SD1 (Background)	SD2	SD3 (Background)	SD4
Aroclor 1254	47000 U	5800	210 U	11000
Aroclor 1260	47000 U	910 U	160 J	390 U

U - The material was analyzed for, but was not detected. The associated numerical value is a contractual quantitation limit, adjusted for sample weight/sample volume, extraction volume, percent solids and sample dilution.

J - The associated numerical value is an estimated quantity because quality control criteria were not met or concentrations reported were less than the CRQL.

TABLE 20

SUMMARY OF TENTATIVELY-IDENTIFIED VOLATILE ORGANIC COMPOUNDS FOR SEDIMENT SAMPLES
NORTHWEST PIPE AND CASING, CLACKAMAS, OREGON
July 1988
(ug/kg)

Compound	Scan #	West Drainage Ditch		East Drainage Ditch	
		SD1 (Background)	SD2	SD3 (Background)	SD4
Unknown (probably an artifact)	1.70			17 J	
Methane, Thiobis-	7.15		29 J		
Isopropyl Alcohol	8.55	17 J			
Unknown Hydrocarbon	19.35	27 J	43 J	31 J	

J - The associated numerical value is an estimated quantity because quality control criteria were not met or concentrations reported were less than the CRQL.

TABLE 21

SUMMARY OF TENTATIVELY-IDENTIFIED SEMIVOLATILE ORGANIC COMPOUNDS FOR SEDIMENT SAMPLES
NORTHWEST PIPE AND CASING, CLACKAMAS, OREGON
July 1988
(ug/kg)

Compound	Scan #	West Drainage Ditch		East Drainage Ditch	
		SD1 (Background)	SD2	SD3 (Background)	SD4
Unknown	17.35	55000 J			
Unknown	19.75			330 J	
9H-Carbazole	19.90				3000 J
Unknown	20.20	60000 J			
Phenanthrene, -Methyl-	20.67	100000 J			
Unknown	20.80				740 J
Phenanthrene, -Methyl-	20.85	380000 J			
Unknown	21.29				1400 J
Unknown	21.34	47000 J			
Unknown PNA MW=212	21.40	53000 J			
Phenanthrene, -Dimethyl-	21.69	88000 J			
Phenanthrene, -Dimethyl-	21.79	140000 J			
Phenanthrene, -Dimethyl-	21.97	120000 J			
Phenanthrene, -Dimethyl-	22.04	86000 J			
Unknown	22.10	73000 J			
Unknown Hydrocarbon	22.15		2200 J		
Phenanthrene, -Dimethyl-	22.19			230 J	
Unknown	22.55				790 J
Unknown PNA MW=208	22.60	50000 J			
Phenanthrene, -Trimethyl-	22.99	96000 J			
Unknown	23.09	120000 J			
Unknown	23.10				1700 J
Pyrene, -Methyl- (+ Trace C15)	23.34				1600 J
Pyrene, -Methyl-	23.37	61000 J			
Pyrene, -Methyl-	23.57				2300 J
Pyrene, -Methyl-	23.62	140000 J			
Pyrene, -Methyl-	23.72				970 J
Pyrene, -Methyl-	23.77	73000 J			
Pyrene, -Methyl-	23.80				2200 J
Pyrene, -Methyl-	23.85	70000 J			
Unknown	23.92	76000 J			
Pyrene, -Methyl-	24.07	79000 J			
Pyrene, -Methyl-	24.14	45000 J			
1,1'-Biphenyl, Hexachloro-	24.75				1100 J
Unknown PNA MW=234	25.04				2300 J
Unknown PNA MW=226	25.14				4100 J
Unknown	25.24		5600 J		

J - The associated numerical value is an estimated quantity because quality control criteria were not met or concentrations reported were less than the CRQL.

TABLE 21 (Cont.)

SUMMARY OF TENTATIVELY-IDENTIFIED SEMIVOLATILE ORGANIC COMPOUNDS FOR SEDIMENT SAMPLES
NORTHWEST PIPE AND CASING, CLACKAMAS, OREGON
July 1988
(ug/kg)

		West Drainage Ditch		East Drainage Ditch	
Compound	Scan #	SD1 (Background)	SD2	SD3 (Background)	SD4
Unknown PNA MW=230	25.27				1700 J
Unknown	25.37				730 J
Unknown	26.24				760 J
Unknown Hydrocarbon	26.74		3100 J		
Unknown PNA MW=242	26.94				1700 J
Unknown	27.39				1300 J
Unknown Hydrocarbon	28.01		3500 J		
Unknown	28.16				990 J
Unknown PNA MW=252	30.02				1200 J
Unknown Hydrocarbon	30.21		5000 J		
Unknown	30.84				4500 J
Unknown PNA MW=252	30.94		4500 J		
Unknown Hydrocarbon	31.26				2500 J
Unknown Hydrocarbon	31.92		1100 J		
Unknown	32.51		1800 J		
Unknown	33.91		1500 J		
Unknown	34.37		1200 J		
Unknown Alkyl PNA	35.62		1800 J		
Unknown Halogenated Organic	38.37		4000 J		

J - The associated numerical value is an estimated quantity because quality control criteria were not met or concentrations reported were less than the CRQL.

primarily unknown or substituted PAH and unknown hydrocarbons. Tentative identifications were made for 21 compounds detected in sample SD4, while only two TICs were detected in the corresponding background sample, SD3. The TICs detected are similar to those found in on-site soil samples.

Numerous semivolatile organic TICs were identified in both samples from the western drainage ditch, SD1 and SD2. The source of these compounds is unknown.

6.0 SUMMARY AND CONCLUSIONS

6.1 Summary

The NWP&C site is located in an industrial park in Clackamas, Oregon. The 53-acre site was operated as a pipe-coating facility for approximately 30 years. Pipe coatings included coal tar, coal tar epoxies, asphalt, and cement mortar. The majority of the pipe was coated with coal tar. Wastes produced in the pipe-coating process included solid coal tar, coal tar oils, metal pipe, and cement slurry. Coal tar and coal tar oils contain polycyclic aromatic hydrocarbons (PAH). PAH compounds exhibit relatively low aqueous solubilities and volatiles, and adsorb readily to soils and sediments.

A Preliminary Assessment (PA) conducted by the Oregon Department of Environmental Quality in 1987 identified several potential wastes, including coal tar residues, smokestack scrubber creosotes, organic solvents, miscellaneous pipe coatings, paints, and primers. The potential for groundwater, surface water, and soil contamination, as well as employee exposure, was noted. A high priority site inspection was recommended.

A total of approximately 150 well logs exist for the area within 3 miles of the site. These include City of Milwaukie wells, which are connected to a central distribution system serving approximately 19,000 people. The Milwaukie well system has not been used since September 1988 due to volatile organic contamination.

Surface water runoff from the site drains to ditches on the eastern and western boundaries of the site. These flow to Dean and Mt. Scott creeks, which are used for the irrigation of approximately 20 acres of land.

The objectives of this investigation were to determine:

- If the site's surface soils contain hazardous substances included on EPA's TCL.
- If alleged and reported past waste disposal practices have contaminated groundwater beneath the site.
- If hazardous substances have migrated to two adjacent drainage ditches.

To accomplish these objectives, a total of six on-site and one off-site soil samples, four on-site and two off-site groundwater samples, and four sediment samples were collected. All samples were analyzed for TCL volatile organic, semivolatile organic, pesticide and PCB compounds through the CLP.

Elevated concentrations (based on HRS criteria) of volatile organic compounds, TCL PAH compounds, and Arochlor 1254 were detected in on-site soil and groundwater samples, and in off-site sediment samples. As many as 94 tentatively identified semivolatile organic compounds were also detected in soil samples.

The TCL PAHs detected in groundwater samples were a subset of those detected in soil samples. TCL PAHs detected in off-site sediment samples were identical to those detected in on-site soil samples.

6.2 Conclusions

Sample analyses from the NWP&C site inspection indicate that hazardous substances included on the EPA's TCL are present in surface soils, groundwater beneath the site, and off-site drainage ditch sediments. These hazardous substances include TCL PAH compounds, volatile organics, and Arochlor 1254.

The TCL PAH compounds detected in soil samples are commonly listed as primary constituents of coal tar. The analytical results are consistent with the operating history of the site, alleged and reported waste disposal practices, and visual observation of stained soils. The extent of surface and subsurface soil contamination present at the site is unknown.

The TCL PAH compounds detected in groundwater samples are a subset of those detected in on-site soil samples. In general, the PAHs detected in groundwater are of lower molecular weights (e.g., napthalene and 2-methylnapthalene) than the PAHs detected in surface soils. This finding is consistent with the physical characteristics of PAH compounds. PAH compounds exhibit decreased aqueous solubilities and increased soil adsorptions as molecular weights increase. Based on the analytical results for soils and groundwater, groundwater beneath the site is apparently contaminated with many of the same PAHs that were detected in soil samples. It is unknown whether off-site groundwater drinking water supplies may be affected.

Sediment samples from off-site drainage ditches are contaminated with the same PAHs as were detected in on-site soil samples. It appears that contaminants may be migrating off-site via surface water runoff on the eastern boundary of the site.

Volatile organic compounds and Arochlor 1254 were also detected in soil, groundwater, and off-site sediment samples. The chlorinated volatile organics detected are generally used as solvents, and are not generally considered to be constituents of coal tar. Total xylenes may derive from coal tar or gasoline. Arochlor 1254 is a PCB mixture generally associated with capacitors and transformers. It may also be a constituent of cutting oils. The source (or sources) of these contaminants is unknown.

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APPENDIX A

BORING LOGS/WELL DIAGRAMS

Ecology and Environment, Inc. **DRILLING AND SAMPLE LOG** Sheet 1 of 1

Project: Northwest Pipe and Casing
Boring Contr.: Carl Pitcher Drilling
Boring Method: 6-inch hollow-stem auger
Logged by: J.B. Hunt
Date Completed: 7/20/88

Job No.: F108804-31
Location: Clackamas, Oregon
Surface Elev.: 108.01 Datum:
Casing Elev: 109.61 feet Datum: AMSL
Total Depth: 13.00 feet Datum: Ground surface

Boring No.: 1 (GW1)

Well Details	Depth (feet)	Symbol	Lithological Description	Sample No.	Sample Type	Remarks
	0		Fill - well-rounded, poorly sorted gravel (clasts approximately 1 to 2 inches in length and 1/2 to 1 inch wide); clast were composed of chert, quartzite, and granite; 10 percent intervening matrix - dry sandy, no clay, light brown (5 yr 6/4).	N/A	N/A	N/A
	2.5					Static H_2O ∇ 3.40
	5		Dry, sandy clay, dusky brown (5 yr 2/2) matrix - 80 percent; subangular to angular gravel clasts (1/4 to 1/2 inch diameter) composed of chert, granite, and quartzite - 20 percent.	N/A	N/A	N/A
Bottom of screen set at 7.0 feet	6		Same lithological description as 2.5- to 6.0-foot interval, except cuttings became wet.	GW1	H_2O	Sample bailed from 5-7 feet
Pea Gravel	10		Same lithologic description as 6.0 to 10.0 feet.			
	13		Refusal.			
	15					
	20					

DSL/880431

Ecology and Environment, Inc. **DRILLING AND SAMPLE LOG** Sheet 1 of 1

Project: Northwest Pipe and Casing
Boring Contr.: Carl Pitcher Drilling
Boring Method: 6-inch hollow-stem auger
Logged by: J.B. Hunt
Date Completed: 7/20/88

Job No.: F108804-31
Location: Clackamas, Oregon
Surface Elev.: 110.98
Casing Elev: 113.38 feet
Total Depth: 7.50 feet

Boring No.: 2 (GW2)
Datum:
Datum: AMSL
Datum: Ground surface

Well Details	Depth (feet)	Symbol	Lithological Description	Sample No.	Sample Type	Remarks
	0		Surficial oxidized layer: medium-grained, semi-dry, clayey sand, prominent particulate organic matter (humus), dusky brown (5 yr 2/2), no gravel or cobbles.			
N/A				N/A	N/A	N/A
	2.5					Static H_2O ∇ 2.6 feet
N/A			Same as above description, but graded into fine-grained, sandy clay.			
N/A	3			N/A	N/A	
	3.5		Silty clay, semi-dry, homogeneous - no inclusions, pale yellowish brown (10 yr 6/2), no gravel or cobbles. Cuttings after 5.0 feet were wet.			
N/A	5			N/A	N/A	
	6		Cobbles (3 to 6 inches in length), well-rounded, poorly sorted, wet, 70 percent; 30 percent silty clay matrix - same as 3.5 to 6.0 interval.			Sample bailed from 5-7 feet
Bottom of Screen set at 7.0 feet ↑ Pea Gravel ↓						
	7.5		Refusal.			
	10					
	15					
	20					

DSL/880431

Ecology and Environment, Inc. **DRILLING AND SAMPLE LOG** Sheet 1 of 1

Project: Northwest Pipe and Casing
Boring Contr.: Carl Pitcher Drilling
Boring Method: 6-inch hollow-stem auger
Logged by: J.B. Hunt
Date Completed: 7/21/88

Job No.: F108804-31
Location: Clackamas, Oregon
Surface Elev.: Not avail.
Casing Elev: 1.00 feet
Total Depth: 8.00 feet

Boring No.: 3 (GW3)
Datum:
Datum: Ground surface
Datum: Ground surface

Well Details	Depth (feet)	Symbol	Lithological Description	Sample No.	Sample Type	Remarks
N/A	0		Fill - 100 percent; large cobbles (2 to 4 inches in length), well-rounded, poorly sorted, dry, no intervening matrix except surface veneer (0 to 6 inches) of dry, medium-grained, pale yellowish brown (10 yr 6/2), sandy soil with associated vegetation.	N/A	N/A	N/A Static H_2O ∇ 2.2 feet
N/A	5		Large (5 to 8 inches) cobbles, well-rounded, poorly sorted, wet, no intervening matrix.			
Screen set at 7.0 feet ↑ Pea Gravel ↓	7			GW3	H_2O	Sample bailed from 5-7 feet
	8		Refusal.			
	10					
	15					
	20					

DSL/880431

Ecology and Environment, Inc. **DRILLING AND SAMPLE LOG** Sheet 1 of 1

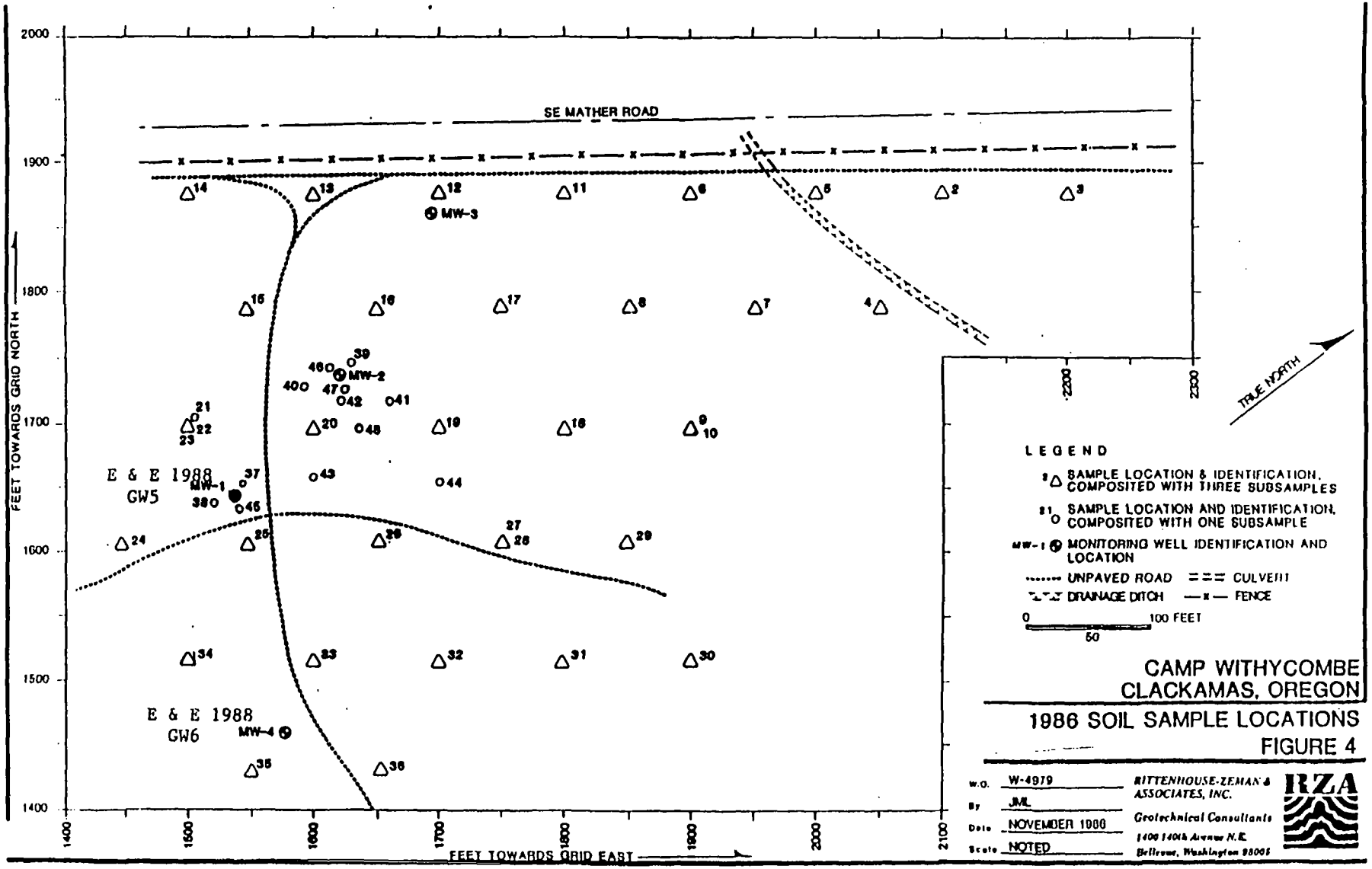
Project: Northwest Pipe and Casing
Boring Contr.: Carl Pitcher Drilling
Boring Method: 6-inch hollow-stem auger
Logged by: J.B. Hunt
Date Completed: 7/21/88

Job No.: F108804-31
Location: Clackamas, Oregon
Surface Elev.: 109.50 Datum:
Casing Elev: 110.20 feet Datum: AMSL
Total Depth: 8.00 feet Datum: Ground surface

Boring No.: 4 (GW4)

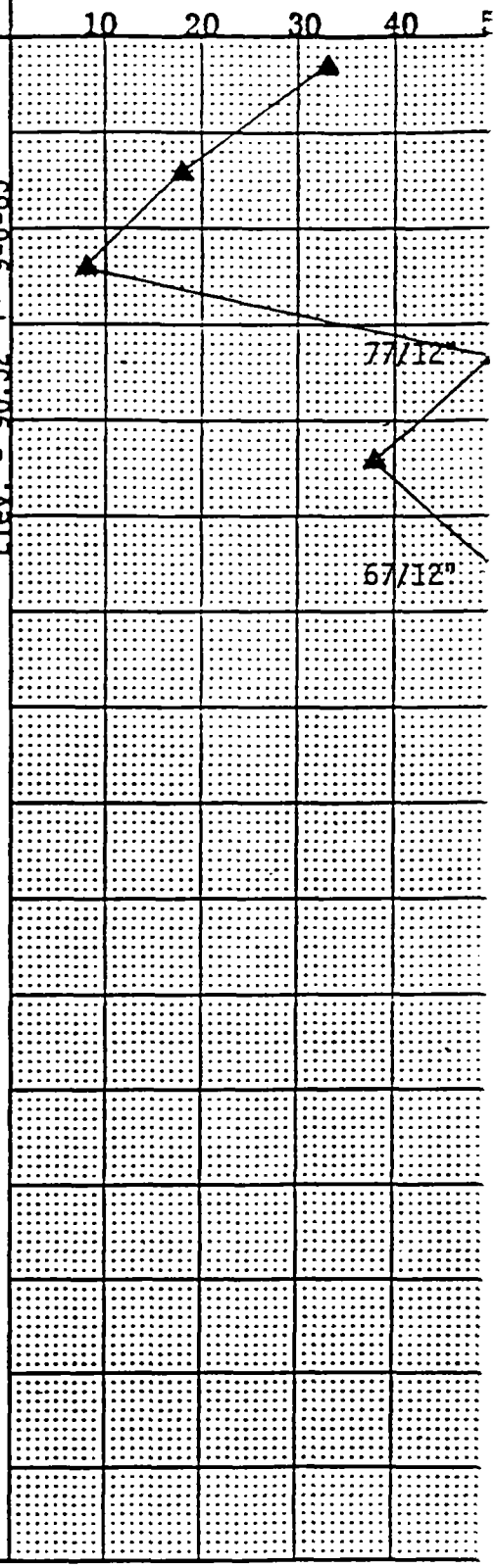
Well Details	Depth (feet)	Symbol	Lithological Description	Sample No.	Sample Type	Remarks
N/A N/A	0		Medium-grained, semi-dry, dusky brown (5 year 2/2), clayey sand, with 10 percent gravel (1/4-inch diameter) occurring as subangular to angular clasts, dry. Detrital organic matter occurred throughout interval at 10 percent concentration.	N/A	N/A	N/A Static H_2O ∇ 1.35
N/A	2		Gravel (1/4- to 1/2-inch diameter) and cobbles (5- to 6-inch diameter); well-rounded, poorly sorted; dry; gravel comprised 40 percent of total volume, no intervening matrix.	N/A	N/A	N/A
	5		Pale yellowish brown (10 year 6/2), semi-dry, fine-grained, sandy clay with 10 percent cobbles (5- to 6-inch diameter) well-rounded.			
Screen set at 7 feet ↑ Pea Gravel ↓	7			GW4	H_2O	Sample bailed from 5-7 feet
	8		Refusal.			
	10					
	15					
	20					

DSL/880431


SE MATHER ROAD
MW-3
MW-2
MW-1
MW-4
E & E 1988
GW5
E & E 1988
GW6
FEET TOWARDS GRID NORTH
FEET TOWARDS GRID EAST
TRUE NORTH
LEGEND
SAMPLE LOCATION & IDENTIFICATION, COMPOSITED WITH THREE SUBSAMPLES
SAMPLE LOCATION AND IDENTIFICATION, COMPOSITED WITH ONE SUBSAMPLE
MONITORING WELL IDENTIFICATION AND LOCATION
UNPAVED ROAD
CULVERT
DRAINAGE DITCH
FENCE
0
100 FEET
50
CAMP WITHYCOMBE
CLACKAMAS, OREGON
1986 SOIL SAMPLE LOCATIONS
FIGURE 4
W.O. W-4979
By JML
Date NOVEMBER 1988
Scale NOTED
RITTENHOUSE-ZEMAN & ASSOCIATES, INC.
Geotechnical Consultants
1400 140th Avenue N.E.
Bellevue, Washington 98005
RZA

DEPTH, FEET	SOIL DESCRIPTION	SAMPLES	GROUNDWATER
	Surface Elevation: 97.89		
	Dense to loose, slightly moist to wet, brown to mottled brown, silty, fine SAND with some gravel	S-1, S-2, S-3	
5			9-6-85
	Very dense, wet to saturated, brown, sandy, silty GRAVEL	S-4, S-5	Elev. = 90.52
10			
	Very dense, saturated gray, silty, fine SAND with gravel lenses	S-6	
15	Boring terminated at 14 feet 30 August 1985		
20			
	Notes: 1) All elevations referenced to top of MW-1 casing. 2) Top of MW-4 casing =Elevation 100.28		
25			
30	**Wall Backfill**		
	Concrete 0' - 1' Bentonite 1' - 3' Monterey sand 3' - 12'		
35			
40			

STANDARD PENETRATION RESISTANCE
▲ Blows per foot
(140 lb. hammer, 30" drop)



● % Water Content

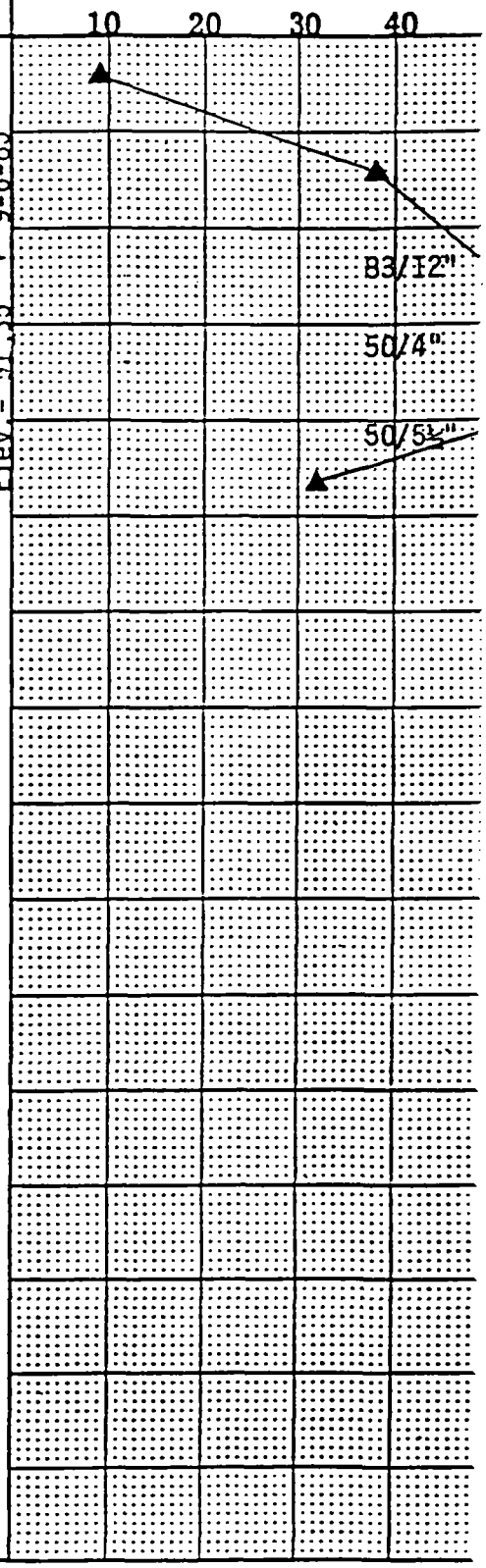
LEGEND

I 2.0" O.D. split spoon sampler
II 3.0" O.D. undisturbed sampler
P Sampler pushed
• Sample not recovered
Piezometer tip
Water level
Atterberg limits: Liquid limit
Natural water content
Plastic Limit

LOG OF BORING NO. MW-4
W-4979
RITTENHOUSE-ZEMAN & ASSOC.
SOILS ENGINEERING AND GEOLOGY

DEPTH, FEET	SOIL DESCRIPTION	SAMPLES	GROUNDWATER
	Surface Elevation: 97.14		
	Stiff, moist, brown, sandy, clayey SILT with (some gravel). Traces of white powdery residue on ground surface.	S-1, S-2	
5	Very dense to dense, moist to saturated, brown, silty, sandy GRAVEL with interbedded gravelly, silty, fine to coarse SAND	S-3, S-4, S-5, S-6	Elev = 91.35 ▽ 9-6-85
10			
	Boring terminated at 12 feet 29 August 1985		
15			
20			
25			
30			
35			
40			

STANDARD PENETRATION RESISTANCE
▲ Blows per foot
(140 lb. hammer, 30" drop)



Notes: 1) All elevations referenced to top of MW-1 casing.
2) Top of MW-1 casing =Elevation 100.00

Well Backfill

Concrete	0' - 1'
Bentonite	1' - 3'
Monterey sand	3' - 12'

LEGEND

I 2.0" O.D. split spoon sampler
II 3.0" O.D. undisturbed sampler
P Sampler pushed
Atterberg limits: Liquid limit; Natural water content; Plastic Limit
• Sample not recovered
Piezometer tip
▽ Water level
● % Water Content

LOG OF BORING NO. MW-1
W-4979
RITTENHOUSE-ZEMAN & ASSOC
SOILS ENGINEERING AND GEOLOGY

APPENDIX B

EPA TARGET COMPOUND LIST (TCL)/ORGANICS

ANALYTICAL PROTOCOLS

The standardized organic analytical methods are based on Federal Register Methods 625 (B/N/A), 608 (pesticide), 624 (VOA), EPA Methods for Chemical Analysis of Water and Wastes (MCAWW), and Test Methods for Evaluating Solid Wastes (SW-846) modified for CLP use in the analysis of both water and soil samples.

TABLE B-1
ORGANICS ANALYSES

Volatile Compounds (VOA)	Contract Required Quantitation Limits * Low Concentration Water[a] (ug/L)	Low Concentration Soil/Sediment[b] (ug/kg)
1. Chloromethane	10	10
2. Bromomethane	10	10
3. Vinyl Chloride	10	10
4. Chloroethane	10	10
5. Methylene Chloride	5	5
6. Acetone	10	10
7. Carbon Disulfide	5	5
8. 1,1-Dichloroethene	5	5
9. 1,1-Dichloroethane	5	5
10. trans-1,2-Dichloroethene	5	5
11. Chloroform	5	5
12. 1,2-Dichloroethane	5	5
13. 2-Butanone	10	10
14. 1,1,1-Trichloroethane	5	5
15. Carbon Tetrachloride	5	5
16. Vinyl Acetate	10	10
17. Bromodichloromethane	5	5
18. 1,2-Dichloropropane	5	5
19. trans-1,3-Dichloropropene	5	5
20. Trichloroethene	5	5
21. Dibromochloromethane	5	5
22. 1,1,2-Trichloroethane	5	5
23. Benzene	5	5
24. cis-1,3-Dichloropropene	5	5
25. 2-Chloroethylvinylether	10	10
26. Bromoform	5	5
27. 2-Hexanone	10	10
28. 4-Methyl-2-Pentanone	10	10
29. Tetrachloroethene	5	5
30. 1,1,2,2-Tetrachloroethane	5	5
31. Toluene	5	5
32. Chlorobenzene	5	5
33. Ethyl Benzene	5	5
34. Styrene	5	5
35. Total Xylenes	5	5

TABLE B-1 (CONT.)

	Semivolatile Compounds (VOA)	Contract Required Quantitation Limits * Low Concentration Water[c] (ug/L)	Low Concentration Soil/Sediment[d] (ug/kg)
1.	Phenol	10	330
2.	bis(-2-Chloroethyl)Ether	10	330
3.	2-Chlorophenol	10	330
4.	1,3-Dichlorobenzene	10	330
5.	1,4-Dichlorobenzene	10	330
6.	Benzyl Alcohol	10	330
7.	1,2-Dichlorobenzene	10	330
8.	2-Methylphenol	10	330
9.	bis(2-Chloroisopropyl)Ether	10	330
10.	4-Methylphenol	10	330
11.	N-Nitroso-Di-n-propylamine	10	330
12.	Hexachloroethane	10	330
13.	Nitrobenzene	10	330
14.	Isophorone	10	330
15.	2-Nitrophenol	10	330
16.	2,4-Dimethylphenol	10	330
17.	Benzoic Acid	50	1600
18.	bis(2-Chloroethoxy)Methane	10	330
19.	2,4-Dichlorophenol	10	330
20.	1,2,4-Trichlorobenzene	10	330
21.	Naphthalene	10	330
22.	4-Chloroanaline	10	330
23.	Hexachlorobutadiene	10	330
24.	4-Chloro-3-Methylphenol	10	330
25.	2-Methylnaphthalene	10	330
26.	Hexachlorocyclopentadiene	10	330
27.	2,4,6-Trichlorophenol	10	330
28.	2,4,5-Trichlorophenol	50	1600
29.	2-Chloronaphthalene	10	330
30.	2-Nitroanaline	50	1600
31.	Dimethyl Phthalate	10	330
32.	Acenaphthylene	10	330
33.	3-Nitroaniline	50	1600
34.	Acenaphthene	10	330
35.	2,4-Dinitrophenol	50	1600

TABLE B-1 (CONT.)

Semivolatile Compounds (VOA)	Contract Required Quantitation Limits * Low Concentration Water[c] (ug/L)	Low Concentration Soil/Sediment[d] (ug/kg)
36. 4-Nitrophenol	50	1600
37. Dibenzofuran	10	330
38. 2,4-Dinitrotoluene	10	330
39. 2,6-Dinitrotoluene	10	330
40. Diethylphthalate	10	330
41. 4-Chlorophenyl-phenylether	10	330
42. Fluorene	10	330
43. 4-Nitroaniline	50	1600
44. 4,6-Dinitro-2-Methylphenol	50	1600
45. N-Nitrosodiphenylamine	10	330
46. 4-Bromophenyl-phenylether	10	330
47. Hexachlorobenzene	10	330
48. Pentachlorophenol	50	1600
49. Phenathrene	10	330
50. Anthracene	10	330
51. Di-n-Butylphthalate	10	330
52. Fluoranthene	10	330
53. Pyrene	10	330
54. Butylbenzylphthalate	10	330
55. 3,3'-Dichlorobenzidine	20	660
56. Benzo(a)Anthracene	10	330
57. bis(2-Ethylhexyl)Phthalate	10	330
58. Chrysene	10	330
59. Di-n-Octyl Phthalate	10	330
60. Benzo(b)Fluoranthene	10	330
61. Benzo(k)Fluoranthene	10	330
62. Benzo(a)Pyrene	10	330
63. Indeno(1,2,3-cd)Pyrene	10	330
64. Dibenz(a,h)Anthracene	10	330
65. Benzo(g,h,i)Perylene	10	330

TABLE B-1 (CONT.)

Pesticide / PCB Compounds	Contract Required Quantitation Limits *	
	Low Concentration Water[a] (ug/L)	Low Concentration Soil/Sediment[b] (ug/kg)
1. Alpha-BHC	.05	8
2. Beta-BHC	.05	8
3. Delta-BHC	.05	8
4. Gamma-BHC (Lindane)	.05	8
5. Heptachlor	.05	8
6. Aldrin	.05	8
7. Heptachlor Epoxide	.05	8
8. Endosulfan I	.05	8
9. Dieldrin	.1	16
10. 4,4'-DDE	.1	16
11. Endrin	.1	16
12. Endosulfan II	.1	16
13. 4,4'-DDD	.1	16
14. Endosulfan Sulfate	.1	16
15. 4,4'-DDT	.1	16
16. Methoxychlor	.5	80
17. Endrin Ketone	.1	16
18. Chlordane	.5	80
19. Toxaphene	1.0	160
20. AROCLOR-1016	.5	80
21. AROCLOR-1221	.5	80
22. AROCLOR-1232	.5	80
23. AROCLOR-1242	.5	80
24. AROCLOR-1248	.5	80
25. AROCLOR-1254	1.0	160
26. AROCLOR-1260	1.0	160

* Specific quantitation limits are highly matrix dependent. The quantitation limits listed herein are provided for guidance and may not always be achievable.

a Medium Water Contract Required Quantitation Limits (CRQL) for Volatile TCL Compounds are 100 times the individual Low Water CRQL.

b Medium Soil/Sediment Contract Required Quantitation Limits (CRQL) for Volatile TCL Compounds are 100 times the individual Low Soil/Sediment CRQL.

TABLE B-1 (CONT.)

c Medium Water Contract Required Quantitation Limits (CRQL) for semivolatile TCL Compounds are 100 times the individual Low Water (CRQL).

d Medium Soil/Sediment Contract Required Quantitation Limits (CRQL) for Semivolatile TCL Compounds are 60 times the individual Low Soil/ Sediment (CRQL).

e Medium Water Contract Required Quantitation Limits (CRQL) for Pesticide/PCB TCL Compounds are 100 times the individual Low Water (CRQL).

f Medium Soil/Sediment Contract Required Quantitation Limits (CRQL) for Pesticide/PCB TCL Compounds are 60 times the individual Low Soil/ Sediment (CRQL).

APPENDIX C

SAMPLE DOCUMENTATION RECORD

SAMPLE TRACKING REPORT
ecology and environment, inc.
Seattle, Washington
Contract No.: 68-01-7347

SITE NAME	TDD NUMBER	CASE NUMBER	EPA SAMPLE NUMBER	LAB NUMBER	STORET NUMBER	SAMPLE DESCRIPTION	SAMPLE DATE	DATE SHIPPED	AIRBILL NUMBER	SAMPLE MATRIX	CONC	PRES	ANALYSES REQUESTED	LABORATORY
NORTHWEST PIPE	8804-31	9945	88284005	JD501		S1	07/20/88	07/20/88	7494703845	SOIL	LOW	ICE	VOA/BNA	GSRI
NORTHWEST PIPE	8804-31	9945	88284006	JD502		S4	07/20/88	07/20/88	7494703845	SOIL	LOW	ICE	VOA/BNA	GSRI
NORTHWEST PIPE	8804-31	9945	88284007	JD503		S2	07/20/88	07/20/88	7494703845	SOIL	LOW	ICE	VOA/BNA	GSRI
NORTHWEST PIPE	8804-31	9945	88284008	JD504		S3	07/20/88	07/20/88	7494703845	SOIL	LOW	ICE	VOA/BNA	GSRI
NORTHWEST PIPE	8804-31	9945	88284009	JD505		S7	07/20/88	07/20/88	7494703845	SOIL	LOW	ICE	VOA/BNA	GSRI
NORTHWEST PIPE	8804-31	9945	88284010	JC848	09Z094	GW1	07/20/88	07/20/88	7494703823	WATER	LOW	ICE	VOA/BNA	DATAC
NORTHWEST PIPE	8804-31	9945	88284011	JC849	09Z095	GW2	07/20/88	07/20/88	7494703823	WATER	LOW	ICE	VOA/BNA	DATAC
NORTHWEST PIPE	8804-31	9945	88284012	JC855	09Z096	GW3	07/20/88	07/20/88	7494703801	WATER	LOW	ICE	VOA/BNA	DATAC
NORTHWEST PIPE	8804-31	9945	88284013	JC856	09Z097	GW4	07/21/88	07/21/88	7494703801	WATER	LOW	ICE	VOA/BNA	DATAC
NORTHWEST PIPE	8804-31	9945	88284017	JD513	09Z099	GW5	07/19/88	07/19/88	7494703834	WATER	LOW	ICE	VOA/BNA	DATAC
NORTHWEST PIPE	8804-31	9945	88284018	JD514	09Z100	GW6	07/19/88	07/19/88	7494703834	WATER	LOW	ICE	VOA/BNA	DATAC
NORTHWEST PIPE	8804-31	9945	88284019	JD515		G1	07/19/88	07/19/88	7494703834	WATER	LOW	ICE	VOA/BNA	DATAC
NORTHWEST PIPE	8804-31	9945	88284020	JD851		G2	07/19/88	07/20/88	7494703823	WATER	LOW	ICE	VOA/BNA	DATAC
NORTHWEST PIPE	8804-31	9945	88284040	JD852		G3	07/20/88	07/20/88	7494703823	WATER	LOW	ICE	VOA	DATAC
NORTHWEST PIPE	8804-31	9945	88284041	JD857		G4	07/21/88	07/21/88	7494703801	WATER	LOW	ICE	VOA	DATAC
NORTHWEST PIPE	8804-31	9945	88284042	JD858		G5	07/21/88	07/21/88	7494703801	WATER	LOW	ICE	VOA	DATAC
NORTHWEST PIPE	8804-31	9945	88284026	JD522		SD1	07/19/88	07/20/88	7494703845	SOIL	LOW	ICE	VOA/BNA	GSRI
NORTHWEST PIPE	8804-31	9945	88284027	JD523		SD3	07/20/88	07/20/88	7494703845	SOIL	LOW	ICE	VOA/BNA	GSRI
NORTHWEST PIPE	8804-31	9945	88284028	JD524		S6	07/19/88	07/20/88	7494703845	SOIL	LOW	ICE	VOA/BNA	GSRI
NORTHWEST PIPE	8804-31	9945	88284029	JD525		SD2	07/19/88	07/20/88	7494703845	SOIL	LOW	ICE	VOA/BNA	GSRI
NORTHWEST PIPE	8804-31	9945	88284030	JD526		SD4	07/20/88	07/20/88	7494703845	SOIL	LOW	ICE	VOA/BNA	GSRI
NORTHWEST PIPE	8804-31	9945	88284031	JC853		S9	07/21/88	07/21/88	7494703790	SOIL	LOW	ICE	VOA/BNA	GSRI
NORTHWEST PIPE	8804-31	9945	88284032	JC854		S10	07/21/88	07/21/88	7494703790	SOIL	LOW	ICE	VOA/BNA	GSRI
NORTHWEST PIPE	8804-31	9945	88284033	JC859		S8	07/21/88	07/21/88	7494703790	SOIL	LOW	ICE	VOA/BNA	GSRI
NORTHWEST PIPE	8804-31	9945	88284034	JC862		S5	07/21/88	07/22/88	1329026646	SOIL	LOW	ICE	VOA/BNA	GSRI

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

JD502

Name: G S R I Contract: 68-01-7398

Lab Code: GULF Case No.: 9945 SAS No.: _____ SDG No.: JD501

Matrix: (soil/water) SOIL Lab Sample ID: BFS08

Sample wt/vol: 3.4 (g/mL) G Lab File ID: VOBPS08R2

Level: (low/med) LOW Date Received: 07/21/88

% Moisture: not dec. 6 Date Analyzed: 07/29/88

Column (pack/cap) PACK Dilution Factor: 0.99

Number TICs found: 4 CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 96-37-7	CYCLOPENTANE, METHYL-	15.40	28	J
2.	UNKNOWN HYDROCARBON	19.25	230	J
3.	UNKNOWN HYDROCARBON	23.30	31	J
4.	UNKNOWN TERPENE	25.91	25	J

JDLS 9/12/88

recycled paper

ecology and environment

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

JD503

Name: G S R I Contract: 68-01-7398

Lab Code: GULF Case No.: 9945 SAS No.: _____ SDG No.: JD501

Matrix: (soil/water) SOIL Lab Sample ID: BPS12

Sample wt/vol: 3.8 (g/mL) G Lab File ID: VOBPS12R

Level: (low/med) LOW Date Received: 07/21/88

% Moisture: not dec. 4 Date Analyzed: 07/29/88

Column: (pack/cap) PACK Dilution Factor: 0.98

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	150	J
67-64-1	Acetone	190	UJ
75-15-0	Carbon Disulfide	7	U
75-35-4	1,1-Dichloroethene	7	U
75-34-3	1,1-Dichloroethane	7	U
540-59-0	1,2-Dichloroethene (total)	7	U
67-66-3	Chloroform	7	U
107-06-2	1,2-Dichloroethane	7	U
78-93-3	2-Butanone	13	U
71-55-6	1,1,1-Trichloroethane	7	U
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	7	UJ
10061-02-6	Trans-1,3-Dichloropropene	7	U
75-25-2	Bromoform	7	U
108-10-1	4-Methyl-2-Pentanone	7	J
591-78-6	2-Hexanone	13	U
127-18-4	Tetrachloroethene	130	
79-34-5	1,1,2,2-Tetrachloroethane	7	U
108-88-3	Toluene	8	J
108-90-7	Chlorobenzene	7	UJ
100-41-4	Ethylbenzene	6	J
100-42-5	Styrene	7	UJ
1330-20-7	Xylene (total)	53	J

JDK 4/12/90

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

JD503

Name: G S R I Contract: 68-01-7398

Lab Code: GULF Case No.: 9945 SAS No.: _____ SDG No.: JD501

Matrix: (soil/water) SOIL Lab Sample ID: BFS12

Sample wt/vol: 3.8 (g/mL) G Lab File ID: VOBFS12R

Level: (low/med) LOW Date Received: 07/21/88

% Moisture: not dec. 4 Date Analyzed: 07/29/88

Column (pack/cap) PACK Dilution Factor: 0.98

Number TICs found: 5 CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN (PROBABLY AN ARTIFAC	2.25	37	J
2. 96-37-7	CYCLOPENTANE, METHYL-	15.40	29	J
3.	UNKNOWN HYDROCARBON	19.30	280	J
4.	UNKNOWN HYDROCARBON	23.35	26	J
5. 271-89-6	BENZOFURAN	34.36	18	J

JD4 8/12/88

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

JD504

Lab Name: G S R I Contract: 68-01-7398

Lab Code: GULF Case No.: 9945 SAS No.: _____ SDG No.: JD501

Matrix: (soil/water) SOIL Lab Sample ID: BPS17

Sample wt/vol: 2.3 (g/mL) G Lab File ID: VOBPS17R

Level: (low/med) LOW Date Received: 07/21/88

% Moisture: not dec. 1 Date Analyzed: 07/30/88

Column: (pack/cap) PACK Dilution Factor: 0.99

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	22	U
74-83-9	Bromomethane	22	U
75-01-4	Vinyl Chloride	22	U
75-00-3	Chloroethane	22	U
75-09-2	Methylene Chloride	350	J
67-64-1	Acetone	140	UJ
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	11	U
107-06-2	1,2-Dichloroethane	11	U
78-93-3	2-Butanone	13	J
71-55-6	1,1,1-Trichloroethane	11	U
56-23-5	Carbon Tetrachloride	11	U
108-05-4	Vinyl Acetate	22	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	4	J
124-48-1	Dibromochloromethane	11	U
79-00-5	1,1,2-Trichloroethane	11	U
71-43-2	Benzene	11	UJ
10061-02-6	Trans-1,3-Dichloropropene	11	U
75-25-2	Bromoform	11	U
108-10-1	4-Methyl-2-Pentanone	22	U
591-78-6	2-Hexanone	22	U
127-18-4	Tetrachloroethene	27	
79-34-5	1.1,2,2-Tetrachloroethane	11	U
108-88-3	Toluene	13	J
108-90-7	Chlorobenzene	11	UJ
100-41-4	Ethylbenzene	11	UJ
100-42-5	Styrene	11	UJ
1330-20-7	Xylene (total)	33	J

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

JD504

Lab Name: G S R I Contract: 68-01-7398

Lab Code: GULF Case No.: 9945 SAS No.: _____ SDG No.: JD501

Matrix: (soil/water) SOIL Lab Sample ID: BPS17

Sample wt/vol: 2.3 (g/mL) G Lab File ID: VOBPS17R

Level: (low/med) LOW Date Received: 07/21/88

% Moisture: not dec. 1 Date Analyzed: 07/30/88

Column (pack/cap) PACK Dilution Factor: 0.99

Number TICs found: 3

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 96-37-7	CYCLOPENTANE, METHYL-	15.35	45	J
2.	UNKNOWN HYDROCARBON	19.30	410	J
3.	UNKNOWN HYDROCARBON	23.35	38	J

JDK 11/12/88

000205

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

JD505

Lab Name: G S R I Contract: 68-01-7398

Lab Code: GULF Case No.: 9945 SAS No.: _____ SDG No.: JD501

Matrix: (soil/water) SOIL Lab Sample ID: BFS22

Sample wt/vol: 4.7 (g/mL) G Lab File ID: VOBPS22

Level: (low/med) LOW Date Received: 07/21/88

% Moisture: not dec. 3 Date Analyzed: 07/27/88

Column: (pack/cap) PACK Dilution Factor: 0.98

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	130	J
67-64-1	Acetone	69	WJ
75-15-0	Carbon Disulfide	5	U
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	5	U
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	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	UJ
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	5	J
108-90-7	Chlorobenzene	5	UJ
100-41-4	Ethylbenzene	5	UJ
100-42-5	Styrene	5	UJ
1330-20-7	Xylene (total)	8	J

JD 4/12

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

JD505

Lab Name: G S R I Contract: 68-01-7398

Lab Code: GULF Case No.: 9945 SAS No.: _____ SDG No.: JD501

Matrix: (soil/water) SOIL Lab Sample ID: BPS22

Sample wt/vol: 4.7 (g/mL) G Lab File ID: VOBPS22

Level: (low/med) LOW Date Received: 07/21/88

% Moisture: not dec. 3 Date Analyzed: 07/27/88

Column (pack/cap) PACK Dilution Factor: 0.98

Number TICs found: 3

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 96-37-7	CYCLOPENTANE, METHYL	15.35	15	J
2.	UNKNOWN HYDROCARBON	19.30	150	J
3.	UNKNOWN HYDROCARBON	23.35	10	J

Dilk 9/12/8

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

JD522RE

Name: G S R I Contract: 68-01-7398

Lab Code: GULF Case No.: 9945 SAS No.: _____ SDG No.: JD501

Matrix: (soil/water) SOIL Lab Sample ID: BFS27RE

Sample wt/vol: 2.8 (g/mL) G Lab File ID: VOBFS27R1

Level: (low/med) LOW Date Received: 07/21/88

% Moisture: not dec. 49 Date Analyzed: 07/30/88

Column: (pack/cap) PACK Dilution Factor: 0.97

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	34	U J
74-83-9	Bromomethane	34	U J
75-01-4	Vinyl Chloride	34	U J
75-00-3	Chloroethane	34	U J
75-09-2	Methylene Chloride	170	UJ
67-64-1	Acetone	790	J
75-15-0	Carbon Disulfide	17	U J
75-35-4	1,1-Dichloroethene	17	U J
75-34-3	1,1-Dichloroethane	17	U J
540-59-0	1,2-Dichloroethene (total)	17	U J
67-66-3	Chloroform	17	U J
107-06-2	1,2-Dichloroethane	17	U J
78-93-3	2-Butanone	270	J
71-55-6	1,1,1-Trichloroethane	17	U J
56-23-5	Carbon Tetrachloride	17	U J
108-05-4	Vinyl Acetate	34	U J
75-27-4	Bromodichloromethane	17	U J
78-87-5	1,2-Dichloropropane	17	U J
10061-01-5	cis-1,3-Dichloropropene	17	U J
79-01-6	Trichloroethene	17	U J
124-48-1	Dibromochloromethane	17	U J
79-00-5	1,1,2-Trichloroethane	17	U J
71-43-2	Benzene	17	U J
10061-02-6	Trans-1,3-Dichloropropene	17	U J
75-25-2	Bromoform	17	U J
108-10-1	4-Methyl-2-Pentanone	34	U J
591-78-6	2-Hexanone	34	U J
127-18-4	Tetrachloroethene	30	J
79-34-5	1,1,2,2-Tetrachloroethane	17	U J
108-88-3	Toluene	17	U J
108-90-7	Chlorobenzene	17	U J
100-41-4	Ethylbenzene	17	U J
100-42-5	Styrene	17	U J
1330-20-7	Xylene (total)	17	U J

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

JD522RE

Lab Name: G S R I Contract: 68-01-7398

Lab Code: GULF Case No.: 9945 SAS No.: _____ SDG No.: JD501

Matrix: (soil/water) SOIL Lab Sample ID: BPS27RE

Sample wt/vol: 2.9 (g/mL) G Lab File ID: VOBPS27R1

Level: (low/med) LOW Date Received: 07/21/88

% Moisture: not dec. 49 Date Analyzed: 07/30/88

Column (pack/cap) PACK Dilution Factor: 0.97

Number TICs found: 2 CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	ISOPROPYL ALCOHOL	8.55	17	J
2.	UNKNOWN HYDROCARBON	19.35	27	J

JDK 4/12/K

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

JD523

Lab Name: G S R I Contract: 68-01-7398

Lab Code: GULF Case No.: 9945 SAS No.: _____ SDG No.: JD501

Matrix: (soil/water) SOIL Lab Sample ID: BPS32

Sample wt/vol: 3.4 (g/mL) G Lab File ID: VOBPS32

Level: (low/med) LOW Date Received: 07/21/88

% Moisture: not dec. 23 Date Analyzed: 07/28/88

Column: (pack/cap) PACK Dilution Factor: 0.99

CAS NO.	*COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	19	U
74-83-9	Bromomethane	19	U
75-01-4	Vinyl Chloride	19	U
75-00-3	Chloroethane	19	U
75-09-2	Methylene Chloride	90	UJ
67-64-1	Acetone	47	UJ
75-15-0	Carbon Disulfide	9	U
75-35-4	1,1-Dichloroethene	9	U
75-34-3	1,1-Dichloroethane	9	U
540-59-0	1,2-Dichloroethene (total)	9	U
67-66-3	Chloroform	9	U
107-06-2	1,2-Dichloroethane	9	U
78-93-3	2-Butanone	7	J
71-55-6	1,1,1-Trichloroethane	9	U
56-23-5	Carbon Tetrachloride	9	U
108-05-4	Vinyl Acetate	19	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	UJ
10061-02-6	Trans-1,3-Dichloropropene	9	U
75-25-2	Bromoform	9	U
108-10-1	4-Methyl-2-Pentanone	19	U
591-78-6	2-Hexanone	19	U
127-18-4	Tetrachloroethene	9	U
79-34-5	1,1,2,2-Tetrachloroethane	9	U
108-88-3	Toluene	9	UJ
108-90-7	Chlorobenzene	9	UJ
100-41-4	Ethylbenzene	9	UJ
100-42-5	Styrene	9	UJ
1330-20-7	Xylene (total)	9	UJ

DLK 4/12/89

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

JD523

Lab Name: G S R I Contract: 68-01-7398

Lab Code: GULF Case No.: 9945 SAS No.: _____ SDG No.: JD501

Matrix: (soil/water) SOIL Lab Sample ID: BPS32

Sample wt/vol: 3.4 (g/mL) G Lab File ID: VOBPS32

Level: (low/med) LOW Date Received: 07/21/88

% Moisture: not dec. 23 Date Analyzed: 07/28/88

Column (pack/cap) PACK Dilution Factor: 0.99

Number TICs found: 2 CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN (PROBABLY AN ARTIFAC	1.70	17	J
2.	UNKNOWN HYDROCARBON	19.35	31	J

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

JD524RE

Lab Name: G S R I Contract: 68-01-7398

Lab Code: GULF Case No.: 9945 SAS No.: _____ SDG No.: JD501

Matrix: (soil/water) SOIL Lab Sample ID: BFS37RE

Sample wt/vol: 3.8 (g/mL) G Lab File ID: VOBFS37R

Level: (low/med) LOW Date Received: 07/21/88

% Moisture: not dec. 21 Date Analyzed: 07/30/88

Column: (pack/cap) PACK Dilution Factor: 0.99

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NO.	*COMPOUND		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	110	B
67-64-1	Acetone	44	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
107-06-2	1,2-Dichloroethane	8	U
78-93-3	2-Butanone	8	J
71-55-6	1,1,1-Trichloroethane	8	U
56-23-5	Carbon Tetrachloride	8	U
108-05-4	Vinyl Acetate	16	U
75-27-4	Bromodichloromethane	8	U
78-87-5	1,2-Dichloropropane	8	U
10061-01-5	cis-1,3-Dichloropropene	8	U
79-01-6	Trichloroethene	8	U
124-48-1	Dibromochloromethane	8	U
79-00-5	1,1,2-Trichloroethane	8	U
71-43-2	Benzene	8	U
10061-02-6	Trans-1,3-Dichloropropene	8	U
75-25-2	Bromoform	8	U
108-10-1	4-Methyl-2-Pentanone	16	U
591-78-6	2-Hexanone	16	U
127-18-4	Tetrachloroethene	8	U
79-34-5	1,1,2,2-Tetrachloroethane	8	U
108-88-3	Toluene	8	U
108-90-7	Chlorobenzene	8	U
100-41-4	Ethylbenzene	8	U
100-42-5	Styrene	8	U
1330-20-7	Xylene (total)	8	U

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

JD524RE

Name: G S R I Contract: 68-01-7398

Lab Code: GULF Case No.: 9945 SAS No.: _____ SDG No.: JD501

Matrix: (soil/water) SOIL Lab Sample ID: BPS37RE

Sample wt/vol: 3.8 (g/mL) G Lab File ID: VOBPS37R

Level: (low/med) LOW Date Received: 07/21/88

% Moisture: not dec. 21 Date Analyzed: 07/30/88

Column (pack/cap) PACK Dilution Factor: 0.99

Number TICs found: 5 CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	75-18-3	METHANE, THIOBIS-	7.10	87	J
2.	96-37-7	CYCLOPENTANE, METHYL-	15.40	12	J
3.		UNKNOWN HYDROCARBON	19.35	100	J
4.		UNKNOWN HYDROCARBON	23.40	8	J
5.		UNKNOWN TERPENE	26.61	16	J

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

JD525RE

Lab Name: G S R I Contract: 68-01-7398

Lab Code: GULF Case No.: 9945 SAS No.: _____ SDG No.: JD501

Matrix: (soil/water) SOIL Lab Sample ID: BPS42RE

Sample wt/vol: 4.2 (g/mL) G Lab File ID: VOBPS42R

Level: (low/med) LOW Date Received: 07/21/88

% Moisture: not dec. 65 Date Analyzed: 07/30/88

Column: (pack/cap) PACK Dilution Factor: 1.00

CAS NO.	*COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	34	U
74-83-9	Bromomethane	34	U
75-01-4	Vinyl Chloride	34	U
75-00-3	Chloroethane	34	U
75-09-2	Methylene Chloride	96	UJ
67-64-1	Acetone	38	UJ
75-15-0	Carbon Disulfide	17	U
75-35-4	1,1-Dichloroethene	17	U
75-34-3	1,1-Dichloroethane	17	U
540-59-0	1,2-Dichloroethene (total)	17	U
67-66-3	Chloroform	17	U
107-06-2	1,2-Dichloroethane	17	U
78-93-3	2-Butanone	34	U
71-55-6	1,1,1-Trichloroethane	17	U
56-23-5	Carbon Tetrachloride	17	U
108-05-4	Vinyl Acetate	34	U
75-27-4	Bromodichloromethane	17	U
78-87-5	1,2-Dichloropropane	17	U
10061-01-5	cis-1,3-Dichloropropene	17	U
79-01-6	Trichloroethene	17	U
124-48-1	Dibromochloromethane	17	U
79-00-5	1,1,2-Trichloroethane	17	U
71-43-2	Benzene	17	UJ
10061-02-6	Trans-1,3-Dichloropropene	17	U
75-25-2	Bromoform	17	U
108-10-1	4-Methyl-2-Pentanone	34	U
591-78-6	2-Hexanone	34	U
127-18-4	Tetrachloroethene	17	U
79-34-5	1,1,2,2-Tetrachloroethane	17	U
108-88-3	Toluene	17	UJ
108-90-7	Chlorobenzene	17	UJ
100-41-4	Ethylbenzene	17	UJ
100-42-5	Styrene	17	UJ
1330-20-7	Xylene (total)	17	UJ

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

JD525RE

Name: G S R I Contract: 68-01-7398

at Code: GULF Case No.: 9945 SAS No.: _____ SDG No.: JD501

at ix: (soil/water) SOIL Lab Sample ID: BFS42RE

ample wt/vol: 4.2 (g/mL) G Lab File ID: VOBFS42R

e\ :l: (low/med) LOW Date Received: 07/21/88

Moisture: not dec. 65 Date Analyzed: 07/30/88

olumn (pack/cap) PACK Dilution Factor: 1.00

umber TICs found: 2 CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
.. 75-18-3	METHANE, THIOBIS-	7.15	29	J
2.	UNKNOWN HYDROCARBON	19.35	43	J

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

JD526

Lab Name: G S R I Contract: 68-01-7398

Lab Code: GULF Case No.: 9945 SAS No.: _____ SDG No.: JD501

Matrix: (soil/water) SOIL Lab Sample ID: BFS47

Sample wt/vol: 4.2 (g/mL) G Lab File ID: VOBFS47R1

Level: (low/med) LOW Date Received: 07/21/88

% Moisture: not dec. 18 Date Analyzed: 07/30/88

Column: (pack/cap) PACK Dilution Factor: 0.98

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

CAS NO.	COMPOUND		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	36	UJ
67-64-1	Acetone	35	UJ
75-15-0	Carbon Disulfide	7	U
75-35-4	1,1-Dichloroethene	7	U
75-34-3	1,1-Dichloroethane	7	U
540-59-0	1,2-Dichloroethene (total)	7	U
67-66-3	Chloroform	7	U
107-06-2	1,2-Dichloroethane	7	U
78-93-3	2-Butanone	14	U
71-55-6	1,1,1-Trichloroethane	7	U
56-23-5	Carbon Tetrachloride	7	U
108-05-4	Vinyl Acetate	14	U
75-27-4	Bromodichloromethane	7	U
78-87-5	1,2-Dichloropropane	7	U
10061-01-5	cis-1,3-Dichloropropene	7	U
79-01-6	Trichloroethene	7	U
124-48-1	Dibromochloromethane	7	U
79-00-5	1,1,2-Trichloroethane	7	U
71-43-2	Benzene	7	U J
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 J
108-90-7	Chlorobenzene	7	U J
100-41-4	Ethylbenzene	7	U J
100-42-5	Styrene	7	U J
1330-20-7	Xylene (total)	7	U J

000401

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET

TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

JD526

Lab Name: G S R I Contract: 68-01-7398

Lab Code: GULF Case No.: 9945 SAS No.: _____ SDG No.: JD501

Matrix: (soil/water) SOIL Lab Sample ID: BFS47

Sample wt/vol: 4.2 (g/mL) G Lab File ID: VOBFS47R1

Level: (low/med) LOW Date Received: 07/21/88

% Moisture: not dec. 18 Date Analyzed: 07/30/88

Column (pack/cap) PACK Dilution Factor: 0.98

Number TICs found: 0

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

000402

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

JC833

Lab Name: G S R I Contract: 68-01-7396

Lab Code: GULF Case No.: 9745 SAS No.: _____ SDG No.: JD501

Matrix: (Soil/Water) SOIL Lab Sample ID: SPU01

Sample wt/vol: 2.0 (g/mL) G Lab File ID: SVBPU01

Level: (low/med) MED Date Received: 07/22/88

% Moisture: not dec. 26 dec. ____ Date Extracted: 07/26/88

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 08/02/88

GPC Cleanup: (Y/N) Y pH: 7.6 Dilution Factor: 2.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
99-09-2	3-Nitroaniline	130000	U
83-32-9	Acenaphthene	480,000 ~~490000~~	
51-28-5	2,4-Dinitrophenol	130000	U
100-02-7	4-Nitrophenol	130000	U
132-64-9	Dibenzofuran	220000	
121-14-2	2,4-Dinitrotoluene	27000	U
84-66-2	Diethylphthalate	27000	U
7005-72-3	4-Chlorophenyl-phenylether	27000	U
86-73-7	Fluorene	480,000 ~~460000~~	
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-phenylether	27000	U
118-74-1	Hexachlorobenzene	27000	U
87-86-5	Pentachlorophenol	130000	U
85-01-8	Phenanthrene	3200000 ~~3700000~~	
120-12-7	Anthracene	1300000 ~~530000~~	
84-74-2	Di-n-Butylphthalate	27000	U
206-44-0	Fluoranthene	3400000 ~~2100000~~	
129-00-0	Pyrene	2500000 ~~1400000~~	
85-68-7	Butylbenzylphthalate	27000	U
91-94-1	3,3'-Dichlorobenzidine	53000	U
56-55-3	Benzo(a)Anthracene	1300000 ~~1200000~~	
218-01-9	Chrysene	1200000 ~~1000000~~	
117-81-7	bis(2-Ethylhexyl)Phthalate	27000	U
117-84-0	Di-n-Octyl Phthalate	27000	U
205-99-2	Benzo(b)Fluoranthene	740000 ~~1100000~~	
207-08-9	Benzo(k)Fluoranthene	110,0000 ~~750000~~	
50-32-8	Benzo(a)Pyrene	840000 ~~820000~~	
193-39-5	Indeno(1,2,3-cd)Pyrene	350000	
53-70-3	Dibenz(a,h)Anthracene	100000	
191-24-2	Benzo(g,h,i)Perylene	260000	J

(1) - Cannot be separated from Diphenylamine

Hand-entered results were transcribed from analysis at a higher dilution.

JW 9/12/

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

JC8S1

Lab Name: [illegible] Contract: 68-01-7348

Lab Code: [illegible] Case No.: 9945 SAS No.: _____ SDG No.: [illegible]

Matrix: (soil/water) SOIL Lab Sample ID: 8800[illegible]

Sample wt/vol: 2.0 (g/mL) G Lab File ID: [illegible]

Level: (low/med) MED Date Received: [illegible]

Moisture: not dec. 26 dec. ____ Date Extracted: [illegible]

Extraction: (SonP/Cont/Sonc) SONI Date Analyzed: [illegible]

GPC Cleanup: (Y/N) Y pH: [illegible] Dilution Factor: [illegible]

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	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-Propylamine	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
12[illegible]-82-1	1,2,4-Trichlorobenzene	27000	U
91-20-3	Naphthalene	28000	
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	31000	
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	Dimethyl Phthalate	27000	U
208-96-8	Acenaphthylene	27000	U
606-20-2	2,6-Dinitrotoluene	27000	U

JDC 9/12/88

000013

FORM I SV-1 1/87 Rev.

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

JC853

Lab Name: H S B I Contract: 68-01-7398

Lab Code: HSLF Case No.: 9945 SAS No.: _____ SDG No.: JD501

Matrix: (soil/water) SOIL Lab Sample ID: 8PU01

Sample wt/vol: 2.0 (g/mL) G Lab File ID: SVBPU01

Level: (low/med) MED Date Received: 07/22/88

% Moisture: not dec. 26 dec. ____ Date Extracted: 07/26/88

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 08/02/88

GPC Cleanup: (Y/N) Y pH: 7.6 Dilution Factor: 2.0

Number TICs found: 21

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	132-65-0	DIBENZOTHIOPHENE	19.17	190000	J
2.	86-74-8	9H-CARBAZOLE	19.99	130000	J
3.		PHENANTHRENE, -METHYL-	20.64	220000	J
4.		PHENANTHRENE, -METHYL-	20.70	190000	J
5.		PHENANTHRENE, -METHYL-	20.80	130000	J
6.		PHENANTHRENE, -METHYL-	20.90	380000	J
7.		UNKNOWN	22.07	230000	J
8.		UNKNOWN PNA MW = 208	22.65	140000	J
9.		UNKNOWN PNA MW = 218	23.15	160000	J
10.		PYRENE, -METHYL-	23.42	130000	J
11.		PYRENE, -METHYL-	23.69	330000	J
12.		PYRENE, -METHYL-	23.84	290000	J
13.		PYRENE, -METHYL-	23.92	210000	J
14.		PYRENE, -METHYL-	24.12	110000	J
15.		UNKNOWN	25.22	240000	J
16.		UNKNOWN PNA MW = 228	26.12	160000	J
17.		UNKNOWN PNA MW = 242	27.09	130000	J
18.		UNKNOWN	27.59	180000	J
19.		UNKNOWN PNA MW = 252	30.22	100000	J
20.		UNKNOWN PNA MW = 252	31.07	300000	J
21.		UNKNOWN PNA MW = 252	31.77	120000	J

TCK 9/12/88

000015

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

JC854

Lab Name: [illegible] Contract: 68-01-7399

Lab Code: GULF Case No.: 9945 SAS No.: _____ SDG No.: JD501

Matrix: (soil/water) SOIL Lab Sample ID: 2PU06

Sample wt/vol: 30.0 (g/mL) G Lab File ID: SV8PU06DL

Level: (low/med) LOW Date Received: 07/22/88

% Moisture: not dec. 27 dec. ____ Date Extracted: 07/25/88

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 08/03/88

GPC Cleanup: (Y/N) Y pH: 6.3 Dilution Factor: 4.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	1800	U
111-44-4	bis(2-Chloroethyl)Ether	1800	U
95-57-8	2-Chlorophenol	1800	U
541-73-1	1,3-Dichlorobenzene	1800	U
106-46-7	1,4-Dichlorobenzene	1800	U
100-51-6	Benzyl Alcohol	1800	U
95-50-1	1,2-Dichlorobenzene	1800	U
95-48-7	2-Methylphenol	1800	U
108-60-1	bis(2-Chloroisopropyl)Ether	1800	U
106-44-5	4-Methylphenol	1800	U
621-64-7	N-Nitroso-Di-n-Propylamine	1800	U
67-72-1	Hexachloroethane	1800	U
98-95-3	Nitrobenzene	1800	U
78-59-1	Isophorone	1800	U
88-75-5	2-Nitrophenol	1800	U
105-67-9	2,4-Dimethylphenol	1800	U
65-85-0	Benzoic Acid	8800	U
111-91-1	bis(2-Chloroethoxy)Methane	1800	U
120-83-2	2,4-Dichlorophenol	1800	U
120-82-1	1,2,4-Trichlorobenzene	1800	U
91-20-3	Naphthalene	1800	U
106-47-8	4-Chloroaniline	1800	U
87-68-3	Hexachlorobutadiene	1800	U
59-50-7	4-Chloro-3-Methylphenol	1800	U
91-57-6	2-Methylnaphthalene	1800	U
77-47-4	Hexachlorocyclopentadiene	1800	U
88-06-2	2,4,6-Trichlorophenol	1800	U
95-95-4	2,4,5-Trichlorophenol	8800	U
91-58-7	2-Chloronaphthalene	1800	U
88-74-4	2-Nitroaniline	8800	U
131-11-3	Dimethyl Phthalate	1800	U
208-96-8	Acenaphthylene	1800	U
606-20-2	2,6-Dinitrotoluene	1800	U

DLX 8/12/88

recycled paper ... ecology and environment

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

JC954

Lab Name: U S A I Contract: 68-01-7329

Lab Code: GULF Case No.: 9945 SAS No.: _____ SDG No.: JD501

Matrix: (soil/water) SOIL Lab Sample ID: 2PU06

Sample wt/vol: 30.0 (g/mL) G Lab File ID: SV8PU06DL

Level: (low/med) LOW Date Received: 07/22/88

% Moisture: not dec. 27 dec. ____ Date Extracted: 07/25/88

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 08/03/88

GPC Cleanup: (Y/N) Y pH: 6.3 Dilution Factor: 4.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
99-09-2	3-Nitroaniline	8800	U
83-32-9	Acenaphthene	1100	J
51-28-5	2,4-Dinitrophenol	8800	U
100-02-7	4-Nitrophenol	8800	U
132-64-9	Dibenzofuran	400	J
121-14-2	2,4-Dinitrotoluene	1800	U
84-66-2	Diethylphthalate	1800	U
7005-72-3	4-Chlorophenyl-phenylether	1800	U
86-73-7	Fluorene	850	J
100-01-6	4-Nitroaniline	8800	U
534-52-1	4,6-Dinitro-2-Methylphenol	8800	U
86-30-6	N-Nitrosodiphenylamine (1)	1800	U
101-55-3	4-Bromophenyl-phenylether	1800	U
118-74-1	Hexachlorobenzene	1800	U
87-86-5	Pentachlorophenol	8800	U
85-01-8	Phenanthrene	10000	
120-12-7	Anthracene	2800	
84-74-2	Di-n-Butylphthalate	1800	U
206-44-0	Fluoranthene	20000	
129-00-0	Pyrene	24000	
85-68-7	Butylbenzylphthalate	1800	U
91-94-1	3,3'-Dichlorobenzidine	3600	U
56-55-3	Benzo(a)Anthracene	2600	
218-01-9	Chrysene	9000	
117-81-7	bis(2-Ethylhexyl)Phthalate	1000	J
117-84-0	Di-n-Octyl Phthalate	1800	U
205-99-2	Benzo(b)Fluoranthene	8700	
207-08-9	Benzo(k)Fluoranthene	8600	
50-32-8	Benzo(a)Pyrene	7400	
193-39-5	Indeno(1,2,3-cd)Pyrene	4500	
53-70-3	Dibenz(a,h)Anthracene	1000	J
191-24-2	Benzo(g,h,i)Perylene	4600	J

(1) - Cannot be separated from Diphenylamine

recycled paper

ecology and environment

000226

FORM I SV-2 1/87 Rev.

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

JC854

Lab Name: S S R I Contract: 68-01-7398

Lab Code: GULF Case No.: 4945 SAS No.: _____ SDG No.: JD501

Matrix: (soil/water) SOIL Lab Sample ID: BPU06

Sample wt/vol: 30.0 (g/mL) G Lab File ID: SVBPU06DL

Level: (low/med) LOW Date Received: 07/22/88

% Moisture: not dec. 27 dec. ____ Date Extracted: 07/25/88

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 08/03/88

GPC Cleanup: (Y/N) Y pH: 6.3 Dilution Factor: 1.0

Number TICs found: 21 CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	PHENANTHRENE, -METHYL-	20.60	3200	J
2.	PHENANTHRENE, -METHYL-	20.80	4800	J
3.	UNKNOWN	21.29	1900	J
4.	PHENANTHRENE, -METHYL-	21.92	2000	J
5.	UNKNOWN PNA MW = 204	22.05	1400	J
6.	UNKNOWN PNA MW = 208	22.55	1300	J
7.	UNKNOWN PNA MW = 218	23.05	2400	J
8.	PYRENE, -METHYL- (+ TRACE CL	23.34	2100	J
9.	PYRENE, -METHYL-	23.57	3900	J
10.	PYRENE, -METHYL-	23.72	2200	J
11.	PYRENE, -METHYL-	23.80	2200	J
12.	UNKNOWN	23.87	1600	J
13.	PYRENE, -METHYL-	24.02	1800	J
14.	PYRENE, -METHYL-	24.09	1600	J
15.	UNKNOWN PNA MW = 230	24.77	1500	J
16.	UNKNOWN PNA MW = 234	25.04	1300	J
17.	UNKNOWN	25.12	2400	J
18.	UNKNOWN PNA MW = 230	25.27	1400	J
19.	UNKNOWN PNA MW = 228	25.97	1400	J
20.	UNKNOWN PNA MW = 242	26.92	1300	J
21.	UNKNOWN PNA MW = 252	30.76	3200	J

000227

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

JC359

Lab Name: A S R I Contract: 68-01-7392

Lab Code: HULF Case No.: 9545 SAS No.: _____ SDG No.: JD501

Matrix: (soil/water) SOIL Lab Sample ID: 8PU11

Sample wt/vol: 30.0 (g/mL) G Lab File ID: SV8PU11

Level: (low/med) LOW Date Received: 07/22/88

% Moisture: not dec. 26 dec. ____ Date Extracted: 07/25/88

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 08/02/88

GPC Cleanup: (Y/N) N pH: 6.9 Dilution Factor: 1.00

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-Propylamine	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	450	U
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	450	U
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	Dimethyl Phthalate	450	U
208-96-8	Acenaphthylene	450	U
606-20-2	2,6-Dinitrotoluene	450	U

JLK 8/18/88

recycled paper

FORM I SV-1 1/87 Rev.

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

JC959

Lab Name: G S R I Contract: 68-01-7398

Lab Code: GULF Case No.: 9945 SAS No.: _____ SDG No.: JD501

Matrix: (soil/water) SOIL Lab Sample ID: 8PU11

Sample wt/vol: 30.0 (g/mL) G Lab File ID: SVBPU11

Level: (low/med) LOW Date Received: 07/22/88

% Moisture: not dec. 26 dec. _____ Date Extracted: 07/25/88

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 08/02/88

GPC Cleanup: (Y/N) N pH: 8.9 Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
99-09-2	3-Nitroaniline	2200	U
83-32-9	Acenaphthene	75	J
51-28-5	2,4-Dinitrophenol	2200	U
100-02-7	4-Nitrophenol	2200	U
132-64-9	Dibenzofuran	450	U
121-14-2	2,4-Dinitrotoluene	450	UJ
84-66-2	Diethylphthalate	450	U
7005-72-3	4-Chlorophenyl-phenylether	450	U
86-73-7	Fluorene	76	J
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-phenylether	450	U
118-74-1	Hexachlorobenzene	450	U
87-86-5	Pentachlorophenol	2200	U
85-01-8	Phenanthrene	490	
120-12-7	Anthracene	240	J
84-74-2	Di-n-Butylphthalate	450	U
206-44-0	Fluoranthene	680	
129-00-0	Pyrene	560	
85-68-7	Butylbenzylphthalate	450	U
91-94-1	3,3'-Dichlorobenzidine	890	U
56-55-3	Benzo(a)Anthracene	330	J
218-01-9	Chrysene	330	J
117-81-7	bis(2-Ethylhexyl)Phthalate	160	J
117-84-0	Di-n-Octyl Phthalate	450	U
205-99-2	Benzo(b)Fluoranthene	390	J
207-08-9	Benzo(k)Fluoranthene	430	J
50-32-8	Benzo(a)Pyrene	280	J
193-39-5	Indeno(1,2,3-cd)Pyrene	450	U
53-70-3	Dibenz(a,h)Anthracene	450	U
191-24-2	Benzo(g,h,i)Perylene	450	UJ

(1) - Cannot be separated from Diphenylamine

JDK 9/12/

recycled paper

ecology and environment

FORM I SV-2

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

JC859

Lab Name: G S R I Contract: 68-01-[illegible]

Lab Code: GULF Case No.: 9945 SAS No.: _____ SDG No.: JD501

Matrix: (soil/water) SOIL Lab Sample ID: 8PU11

Sample wt/vol: 30.0 (g/mL) G Lab File ID: SVBPU11

Level: (low/med) LOW Date Received: 07/22/88

% Moisture: not dec. 26 dec. ____ Date Extracted: 07/25/88

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 08/02/88

GPC Cleanup: (Y/N) N pH: 6.9 Dilution Factor: 1.00

Number TICs found: 7 CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.		UNKNOWN KETONE	7.42	380	J
2.		UNKNOWN	9.40	160	J
3.	25429-29-2	1,1'-BIPHENYL, PENTACHLORO-	23.39	210	J
4.		PYRENE, -METHYL-	23.60	150	J
5.	26601-64-9	1,1'-BIPHENYL, HEXACHLORO-	23.84	200	J
6.		1,1'-BIPHENYL, HEXACHLORO-	24.79	170	J
7.		UNKNOWN HYDROCARBON	27.89	180	J

000342

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

JC862

Lab Name: F S S I Contract: 68-01-7398

Lab Code: GULF Case No.: 9945 SAS No.: _____ SDG No.: JD501

Matrix: (soil/water) SOIL Lab Sample ID: BPW01

Sample wt/vol: 2.0 (g/mL) G Lab File ID: SVBPW01

Level: (low/med) MED Date Received: 07/23/88

% Moisture: not dec. 7 dec. ____ Date Extracted: 07/26/88

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 08/02/88

GPC Cleanup: (Y/N) Y pH: 6.2 Dilution Factor: 10

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	110000	U
111-44-4	bis(2-Chloroethyl)Ether	110000	U
95-57-8	2-Chlorophenol	110000	U
541-73-1	1,3-Dichlorobenzene	110000	U
106-46-7	1,4-Dichlorobenzene	110000	U
100-51-6	Benzyl Alcohol	110000	U
95-50-1	1,2-Dichlorobenzene	110000	U
95-48-7	2-Methylphenol	110000	U
108-60-1	bis(2-Chloroisopropyl)Ether	110000	U
106-44-5	4-Methylphenol	110000	U
621-64-7	N-Nitroso-Di-n-Propylamine	110000	U
67-72-1	Hexachloroethane	110000	U
98-95-3	Nitrobenzene	110000	U
78-59-1	Isophorone	110000	U
88-75-5	2-Nitrophenol	110000	U
105-67-9	2,4-Dimethylphenol	110000	U
65-85-0	Benzoic Acid	520000	U
111-91-1	bis(2-Chloroethoxy)Methane	110000	U
120-83-2	2,4-Dichlorophenol	110000	U
120-82-1	1,2,4-Trichlorobenzene	110000	U
91-20-3	Naphthalene	110000	U
106-47-8	4-Chloroaniline	110000	U
87-68-3	Hexachlorobutadiene	110000	U
59-50-7	4-Chloro-3-Methylphenol	110000	U
91-57-6	2-Methylnaphthalene	110000	U
77-47-4	Hexachlorocyclopentadiene	110000	U
88-06-2	2,4,6-Trichlorophenol	110000	U
95-95-4	2,4,5-Trichlorophenol	520000	U
91-58-7	2-Chloronaphthalene	110000	U
88-74-4	2-Nitroaniline	520000	U
131-11-3	Dimethyl Phthalate	110000	U
208-96-8	Acenaphthylene	110000	U
606-20-2	2,6-Dinitrotoluene	110000	U

000403

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

JC862

Lab Name: G S R I Contract: 68-01-7398

Lab Code: GULF Case No.: 9945 SAS No.: _____ SDG No.: JD501

Matrix: (soil/water) SOIL Lab Sample ID: BPW01

Sample wt/vol: 2.0 (g/mL) G Lab File ID: SVBPW01

Level: (low/med) MED Date Received: 07/23/88

% Moisture: not dec. 7 dec. ____ Date Extracted: 07/26/88

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 08/02/88

GPC Cleanup: (Y/N) Y pH: 6.2 Dilution Factor: 10

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
99-09-2	3-Nitroaniline	520000	U
83-32-9	Acenaphthene	1300000	
51-28-5	2,4-Dinitrophenol	520000	U
100-02-7	4-Nitrophenol	520000	U
132-64-9	Dibenzofuran	830000	
121-14-2	2,4-Dinitrotoluene	110000	U
84-66-2	Diethylphthalate	110000	U
7005-72-3	4-Chlorophenyl-phenylether	110000	U
86-73-7	Fluorene	2500000* ~~2100000~~	
100-01-6	4-Nitroaniline	520000	U
534-52-1	4,6-Dinitro-2-Methylphenol	520000	U
86-30-6	N-Nitrosodiphenylamine (1)	110000	U
101-55-3	4-Bromophenyl-phenylether	110000	U
118-74-1	Hexachlorobenzene	110000	U
87-86-5	Pentachlorophenol	520000	U
85-01-8	Phenanthrene	19000000* ~~15000000~~	
120-12-7	Anthracene	4400000* ~~2700000~~	
84-74-2	Di-n-Butylphthalate	110000	U
206-44-0	Fluoranthene	21000000* ~~8500000~~	
129-00-0	Pyrene	15000000* ~~5500000~~	
85-68-7	Butylbenzylphthalate	110000	U
91-94-1	3,3'-Dichlorobenzidine	210000	U
56-55-3	Benzo(a)Anthracene	950000	
218-01-9	Chrysene	2100000* ~~2000000~~	
117-81-7	bis(2-Ethylhexyl)Phthalate	110000	U
117-84-0	Di-n-Octyl Phthalate	110000	U
205-99-2	Benzo(b)Fluoranthene	360000	
207-08-9	Benzo(k)Fluoranthene	420000	
50-32-8	Benzo(a)Pyrene	130000	
193-39-5	Indeno(1,2,3-cd)Pyrene	66000	J
53-70-3	Dibenz(a,h)Anthracene	110000	U
191-24-2	Benzo(g,h,i)Perylene	45000	J

(1) - Cannot be separated from Diphenylamine

recycled paper ecology and environment

* Hand-entered results were transcribed from analysis at a higher dilution. HZ

FORM I SVL-2 1/87 Rev

TLX 9/12/

000404

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

JC862

Lab Name: G S R I Contract: 68-01-7399

Lab Code: GULF Case No.: 9945 SAS No.: _____ SDG No.: JD501

Matrix: (soil/water) SOIL Lab Sample ID: BPW01

Sample wt/vol: 2.0 (g/mL) G Lab File ID: SVBPW01

Level: (low/med) MED Date Received: 07/23/88

% Moisture: not dec. 7 dec. ____ Date Extracted: 07/26/88

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 08/02/88

GPC Cleanup: (Y/N) Y pH: 6.2 Dilution Factor: 10

Number TICs found: 21 CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	17.44	740000	J
2. 132-65-0	DIBENZOTHIOPHENE	19.17	1300000	J
3. 86-74-8	9H-CARBAZOLE	19.99	840000	J
4.	UNKNOWN	20.22	650000	J
5.	PHENANTHRENE, -METHYL-	20.72	2900000	J
6.	PHENANTHRENE, -METHYL-	20.80	450000	J
7.	PHENANTHRENE, -METHYL-	20.92	3500000	J
8. 84-65-1	9,10-ANTHRACENEDIONE	21.44	2500000	J
9.	PHENANTHRENE, -DIMETHYL-	21.82	560000	J
10.	UNKNOWN	22.05	1200000	J
11.	UNKNOWN PNA MW = 208	22.67	600000	J
12.	UNKNOWN PNA MW = 218	23.02	480000	J
13.	UNKNOWN PNA MW = 218	23.15	900000	J
14.	PYRENE, -METHYL-	23.44	690000	J
15.	PYRENE, -METHYL-	23.69	1500000	J
16.	PYRENE, -METHYL-	23.84	910000	J
17.	PYRENE, -METHYL-	23.92	1100000	J
18.	PYRENE, -METHYL-	24.12	540000	J
19.	UNKNOWN PNA MW = 230	24.89	670000	J
20.	UNKNOWN PNA MW = 234	25.12	720000	J
21.	UNKNOWN PNA MW = 228	25.21	680000	J

JCG 9/12/8

000405

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

JD501

Lab Name: G S P I Contract: 68-01-7398

Lab Code: GULF Case No.: 9945 SAS No.: _____ SDG No.: JD501

Matrix: (soil/water) SOIL Lab Sample ID: BPS01

Sample wt/vol: 2.0 (g/mL) G Lab File ID: SVBPS01

Level: (low/med) MED Date Received: 07/21/88

% Moisture: not dec. 2 dec. ____ Date Extracted: 07/26/88

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 08/01/88

GPC Cleanup: (Y/N) Y pH: 6.9 Dilution Factor: 2.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	20000	U
111-44-4	bis(2-Chloroethyl)Ether	20000	U
95-57-8	2-Chlorophenol	20000	U
541-73-1	1,3-Dichlorobenzene	20000	U
106-46-7	1,4-Dichlorobenzene	20000	U
100-51-6	Benzyl Alcohol	20000	U
95-50-1	1,2-Dichlorobenzene	20000	U
95-48-7	2-Methylphenol	20000	U
108-60-1	bis(2-Chloroisopropyl)Ether	20000	U
106-44-5	4-Methylphenol	20000	U
621-64-7	N-Nitroso-Di-n-Propylamine	20000	U
67-72-1	Hexachloroethane	20000	U
98-95-3	Nitrobenzene	20000	U
78-59-1	Isophorone	20000	U
88-75-5	2-Nitrophenol	20000	U
105-67-9	2,4-Dimethylphenol	20000	U
65-85-0	Benzoic Acid	98000	U
111-91-1	bis(2-Chloroethoxy)Methane	20000	U
120-83-2	2,4-Dichlorophenol	20000	U
120-82-1	1,2,4-Trichlorobenzene	20000	U
91-20-3	Naphthalene	20000	U
106-47-8	4-Chloroaniline	20000	U
87-68-3	Hexachlorobutadiene	20000	U
59-50-7	4-Chloro-3-Methylphenol	20000	U
91-57-6	2-Methylnaphthalene	20000	U
77-47-4	Hexachlorocyclopentadiene	20000	U
88-06-2	2,4,6-Trichlorophenol	20000	U
95-95-4	2,4,5-Trichlorophenol	98000	U
91-58-7	2-Chloronaphthalene	20000	U
88-74-4	2-Nitroaniline	98000	U
131-11-3	Dimethyl Phthalate	20000	U
208-96-8	Acenaphthylene	20000	U
606-20-2	2,6-Dinitrotoluene	20000	U

recycled paper

000585

FORM I SV-1 1/87 Rev.

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

JD501

Lab Name: G S R I Contract: 68-01-7398

Lab Code: GULF Case No.: 9945 SAS No.: _____ SDG No.: JD501

Matrix: (soil/water) SOIL Lab Sample ID: BPS01

Sample wt/vol: 2.0 (g/mL) G Lab File ID: SVBPS01

Level: (low/med) MED Date Received: 07/21/88

% Moisture: not dec. 2 dec. ____ Date Extracted: 07/26/88

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 08/01/88

GPC Cleanup: (Y/N) Y pH: 6.9 Dilution Factor: 2.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
99-09-2	3-Nitroaniline	98000	U
83-32-9	Acenaphthene	20000	U
51-28-5	2,4-Dinitrophenol	98000	U
100-02-7	4-Nitrophenol	98000	U
132-64-9	Dibenzofuran	20000	U
121-14-2	2,4-Dinitrotoluene	20000	U
84-66-2	Diethylphthalate	20000	U
7005-72-3	4-Chlorophenyl-phenylether	20000	U
86-73-7	Fluorene	20000	U
100-01-6	4-Nitroaniline	98000	U
534-52-1	4,6-Dinitro-2-Methylphenol	98000	U
86-30-6	N-Nitrosodiphenylamine (1)	20000	U
101-55-3	4-Bromophenyl-phenylether	20000	U
118-74-1	Hexachlorobenzene	20000	U
87-86-5	Pentachlorophenol	98000	U
85-01-8	Phenanthrene	20000	U
120-12-7	Anthracene	20000	U
84-74-2	Di-n-Butylphthalate	20000	U
206-44-0	Fluoranthene	54000	
129-00-0	Pyrene	66000	
85-68-7	Butylbenzylphthalate	20000	U
91-94-1	3,3'-Dichlorobenzidine	40000	U
56-55-3	Benzo(a)Anthracene	27000	
218-01-9	Chrysene	38000	
117-81-7	bis(2-Ethylhexyl)Phthalate	20000	U
117-84-0	Di-n-Octyl Phthalate	20000	U
205-99-2	Benzo(b)Fluoranthene	43000	
207-08-9	Benzo(k)Fluoranthene	40000	
50-32-8	Benzo(a)Pyrene	25000	
193-39-5	Indeno(1,2,3-cd)Pyrene	35000	
53-70-3	Dibenz(a,h)Anthracene	8400	J
191-24-2	Benzo(g,h,i)Perylene	27000	J

(1) - Cannot be separated from Diphenylamine

JDK 9/12/88

recycled paper

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

JD501

Lab Name: G S S I Contract: 68-01-7398

Lab Code: GULF Case No.: 2945 SAS No.: _____ SDG No.: JD501

Matrix: (soil/water) SOIL Lab Sample ID: BPS01

Sample wt/vol: 2.0 (g/mL) G Lab File ID: SVBPS01

Level: (low/med) MED Date Received: 07/21/88

% Moisture: not dec. 2 dec. ____ Date Extracted: 07/26/88

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 08/01/88

GPC Cleanup: (Y/N) Y pH: 6.9 Dilution Factor: 2.0

Number TICs found: 5 CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	PYRENE, -METHYL-	23.62	6900	J
2.	PYRENE, -METHYL-	23.87	7800	J
3.	UNKNOWN	25.11	6000	J
4.	UNKNOWN PNA MW = 226	25.19	11000	J
5.	UNKNOWN PNA MW = 252	30.86	18000	J

DCY 9/12/88

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

JD502

Lab Name: E.S.P. Contract: 68-01-7298

Lab Code: GULF Case No.: 9945 SAS No.: SDG No.: JD501

Matrix: (soil/water) SOIL Lab Sample ID: BPS06

Sample wt/vol: 2.0 (g/mL) G Lab File ID: SVBPS06

Level: (low/med) LOW Date Received: 07/21/88

% Moisture: not dec. 6 dec. Date Extracted: 07/26/88

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 08/01/88

GPC Cleanup: (Y/N) Y pH: 5.6 Dilution Factor: 10

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	110000	U
111-44-4	bis(2-Chloroethyl)Ether	110000	U
95-57-8	2-Chlorophenol	110000	U
541-73-1	1,3-Dichlorobenzene	110000	U
106-46-7	1,4-Dichlorobenzene	110000	U
100-51-6	Benzyl Alcohol	110000	U
95-50-1	1,2-Dichlorobenzene	110000	U
95-48-7	2-Methylphenol	110000	U
108-60-1	bis(2-Chloroisopropyl)Ether	110000	U
106-44-5	4-Methylphenol	110000	U
621-64-7	N-Nitroso-Di-n-Propylamine	110000	U
67-72-1	Hexachloroethane	110000	U
98-95-3	Nitrobenzene	110000	U
78-59-1	Isophorone	110000	U
88-75-5	2-Nitrophenol	110000	U
105-67-9	2,4-Dimethylphenol	110000	U
65-85-0	Benzoic Acid	510000	U
111-91-1	bis(2-Chloroethoxy)Methane	110000	U
120-83-2	2,4-Dichlorophenol	110000	U
120-82-1	1,2,4-Trichlorobenzene	110000	U
91-20-3	Naphthalene	110000	U
106-47-8	4-Chloroaniline	110000	U
87-68-3	Hexachlorobutadiene	110000	U
59-50-7	4-Chloro-3-Methylphenol	110000	U
91-57-6	2-Methylnaphthalene	110000	U
77-47-4	Hexachlorocyclopentadiene	110000	U
88-06-2	2,4,6-Trichlorophenol	110000	U
95-95-4	2,4,5-Trichlorophenol	510000	U
91-58-7	2-Chloronaphthalene	110000	U
88-74-4	2-Nitroaniline	510000	U
131-11-3	Dimethyl Phthalate	110000	U
208-96-8	Acenaphthylene	110000	U
606-20-2	2,6-Dinitrotoluene	110000	U

JCL 9/12

000628

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

JD502

Lab Name: S S P I Contract: 68-01-7278

Lab Code: HULF Case No.: 9945 SAS No.: _____ SDG No.: JD501

Matrix: (soil/water) SOIL Lab Sample ID: 8PS06

Sample wt/vol: 2.0 (g/mL) G Lab File ID: SVBPS06

Level: (low/med) MED Date Received: 07/21/88

% Moisture: not dec. 6 dec. ____ Date Extracted: 07/26/88

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 08/01/88

GPC Cleanup: (Y/N) Y pH: 3.6 Dilution Factor: 10

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
99-09-2	3-Nitroaniline	510000	U
83-32-9	Acenaphthene	330000	
51-28-5	2,4-Dinitrophenol	510000	U
100-02-7	4-Nitrophenol	510000	U
132-64-9	Dibenzofuran	250000	
121-14-2	2,4-Dinitrotoluene	110000	U
84-66-2	Diethylphthalate	110000	U
7005-72-3	4-Chlorophenyl-phenylether	110000	U
86-73-7	Fluorene	1/2 2,600,000* ~~2200000~~	
100-01-6	4-Nitroaniline	510000	U
534-52-1	4,6-Dinitro-2-Methylphenol	510000	U
86-30-6	N-Nitrosodiphenylamine (1)	110000	U
101-55-3	4-Bromophenyl-phenylether	110000	U
118-74-1	Hexachlorobenzene	110000	U
87-86-5	Pentachlorophenol	510000	U
85-01-8	Phenanthrene	1/2 16,000,000* ~~1000000~~	
120-12-7	Anthracene	1/2 27,000,000* ~~8500000~~	
84-74-2	Di-n-Butylphthalate	110000	U
206-44-0	Fluoranthene	1/2 6,400,000* ~~5600000~~	
129-00-0	Pyrene	1/2 5,400,000* ~~5000000~~	
85-68-7	Butylbenzylphthalate	110000	U
91-94-1	3,3'-Dichlorobenzidine	210000	U
56-55-3	Benzo(a)Anthracene	450000	
218-01-9	Chrysene	870000	
117-81-7	bis(2-Ethylhexyl)Phthalate	110000	U
117-84-0	Di-n-Octyl Phthalate	110000	U
205-99-2	Benzo(b)Fluoranthene	100000	J
207-08-9	Benzo(k)Fluoranthene	110000	
50-32-8	Benzo(a)Pyrene	54000	J
193-39-5	Indeno(1,2,3-cd)Pyrene	110000	U
53-70-3	Dibenz(a,h)Anthracene	110000	U
191-24-2	Benzo(g,h,i)Perylene	110000	UJ

(1) - Cannot be separated from Diphenylamine

000629

← Hand-entered results were transcribed from analysis at a higher dilution. 1/2 from 1 SVLP

1/93: Rev

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

JD502

Lab Name: G S S I Contract: 68-01-7378

Lab Code: SULF Case No.: 9945 SAS No.: _____ SDG No.: JD501

Matrix: (soil/water) SOIL Lab Sample ID: BPS06

Sample wt/vol: 2.0 (g/mL) G Lab File ID: SVBPS06

Level: (low/med) MED Date Received: 07/21/88

% Moisture: not dec. 5 dec. ____ Date Extracted: 07/26/88

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 08/01/88

GPC Cleanup: (Y/N) Y pH: 5.6 Dilution Factor: 10

Number TICs found: 21 CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.		DIBENZOTHIOPHENE	19.14	350000	J
2.	86-74-8	9H-CARBAZOLE	20.05	5700000	J
3.		UNKNOWN	20.22	270000	J
4.		PHENANTHRENE, -METHYL-	20.69	910000	J
5.		PHENANTHRENE, -METHYL-	20.80	960000	J
6.		UNKNOWN	20.87	940000	J
7.		PHENANTHRENE, -METHYL-	20.94	890000	J
8.		9H-CARBAZOLE, -METHYL-	21.14	540000	J
9.	84-65-1	9,10-ANTHRACENEDIONE	21.39	2100000	J
10.		PHENANTHRENE, -DIMETHYL-	21.97	240000	J
11.		UNKNOWN	22.04	240000	J
12.		UNKNOWN PNA MW = 204	22.14	480000	J
13.		UNKNOWN	22.97	220000	J
14.		UNKNOWN PNA MW = 213	23.10	410000	J
15.		PYRENE, -METHYL-	23.37	270000	J
16.		PYRENE, -METHYL-	23.62	620000	J
17.		PYRENE, -METHYL-	23.77	340000	J
18.		PYRENE, -METHYL-	23.85	230000	J
19.	26140-60-3	TERPHENYL	24.82	230000	J
20.		UNKNOWN PNA MW = 234	25.07	250000	J
21.		UNKNOWN PNA MW = 230	25.31	230000	J

JCK 9/12/88

000630

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

JD503

Lab Name: G S R I Contract: 68-01-7398

Lab Code: GULF Case No.: 9945 SAS No.: _____ SDG No.: JD501

Matrix: (soil/water) SOIL Lab Sample ID: BPS11

Sample wt/vol: 2.0 (g/mL) G Lab File ID: SVBPS11

Level: (low/med) MED Date Received: 07/21/88

% Moisture: not dec. 4 dec. ____ Date Extracted: 07/26/88

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 08/01/88

GPC Cleanup: (Y/N) Y pH: 7.0 Dilution Factor: 2.0

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-Propylamine	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	Dimethyl Phthalate	21000	U
208-96-8	Acenaphthylene	21000	U
606-20-2	2,6-Dinitrotoluene	21000	U

000772

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

JD503

Lab Name: G S R I Contract: 68-01-7398

Lab Code: GULF Case No.: 9945 SAS No.: _____ SDG No.: JD501

Matrix: (soil/water) SOIL Lab Sample ID: BPS11

Sample wt/vol: 2.0 (g/mL) G Lab File ID: SVBPS11

Level: (low/med) MED Date Received: 07/21/88

% Moisture: not dec. 4 dec. ____ Date Extracted: 07/26/88

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 08/01/88

GPC Cleanup: (Y/N) Y pH: 7.0 Dilution Factor: 2.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
99-09-2	3-Nitroaniline	100000	U
83-32-9	Acenaphthene	32000	
51-28-5	2,4-Dinitrophenol	100000	U
100-02-7	4-Nitrophenol	100000	U
132-64-9	Dibenzofuran	12000	J
121-14-2	2,4-Dinitrotoluene	21000	U
84-66-2	Diethylphthalate	21000	U
7005-72-3	4-Chlorophenyl-phenylether	21000	U
86-73-7	Fluorene	31000	
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-phenylether	21000	U
118-74-1	Hexachlorobenzene	21000	U
87-86-5	Pentachlorophenol	100000	U
85-01-8	Phenanthrene	*~~450000~~ 450000	
120-12-7	Anthracene	140000	
84-74-2	Di-n-Butylphthalate	21000	U
206-44-0	Fluoranthene	*~~560000~~ 560000	
129-00-0	Pyrene	~~620000~~ 620000	J
85-68-7	Butylbenzylphthalate	21000	U
91-94-1	3,3'-Dichlorobenzidine	41000	U
56-55-3	Benzo(a)Anthracene	300000	
218-01-9	Chrysene	290000	
117-81-7	bis(2-Ethylhexyl)Phthalate	21000	U
117-84-0	Di-n-Octyl Phthalate	21000	U
205-99-2	Benzo(b)Fluoranthene	240000	
207-08-9	Benzo(k)Fluoranthene	180000	
50-32-8	Benzo(a)Pyrene	200000	
193-39-5	Indeno(1,2,3-cd)Pyrene	120000	
53-70-3	Dibenz(a,h)Anthracene	24000	
191-24-2	Benzo(g,h,i)Perylene	95000	J

(1) - Cannot be separated from Diphenylamine

* Hand-entered results were transcribed from analysis at a higher dilution. JZ

DLK 8/17/88

000773

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

JD503

Lab Name: G S R I Contract: 68-01-7398

Lab Code: GULF Case No.: 9945 SAS No.: _____ SDG No.: JD501

Matrix: (soil/water) SOIL Lab Sample ID: BPS11

Sample wt/vol: 2.0 (g/mL) G Lab File ID: SVBPS11

Level: (low/med) MED Date Received: 07/21/88

% Moisture: not dec. 4 dec. ____ Date Extracted: 07/26/88

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 08/01/88

GPC Cleanup: (Y/N) Y pH: 7.0 Dilution Factor: 2.0

Number TICs found: 21

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.		PHENANTHRENE, -METHYL-	20.60	52000	J
2.		PHENANTHRENE, -METHYL-	20.67	50000	J
3.		PHENANTHRENE, -METHYL-	20.87	110000	J
4.		NAPHTHALENE, -PHENYL-	21.34	47000	J
5.		PHENANTHRENE, -DIMETHYL-	21.97	37000	J
6.		UNKNOWN PNA MW = 204	22.10	36000	J
7.		1,1'-BIPHENYL, -PENTACHLORO-	22.60	45000	J
8.		UNKNOWN PNA MW = 218	23.10	41000	J
9.	25429-29-2	1,1'-BIPHENYL, -PENTACHLORO-	23.40	77000	J
10.		PYRENE, -METHYL-	23.62	100000	J
11.		PYRENE, -METHYL-	23.79	56000	J
12.		PYRENE, -METHYL-	23.85	120000	J
13.		PYRENE, -METHYL-	24.07	39000	J
14.	25429-29-2	1,1'-BIPHENYL, -PENTACHLORO-	24.37	34000	J
15.		1,1'-BIPHENYL, -HEXACHLORO-	24.50	68000	J
16.		UNKNOWN PNA MW = 234	25.09	43000	J
17.		UNKNOWN	25.17	60000	J
18.		TERPHENYL (+ TRACE CL6 PCB)	25.32	44000	J
19.		UNKNOWN PNA MW = 242	27.01	40000	J
20.		UNKNOWN	27.49	35000	J
21.		UNKNOWN PNA MW = 252	30.87	79000	J

JDK 9/13/88

000774

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

JD504

Lab Name: G S S I Contract: 68-01-7398

Lab Code: GULF Case No.: 9945 SAS No.: _____ SDG No.: JD501

Matrix: (soil/water) SOIL Lab Sample ID: BPS16

Sample wt/vol: 2.0 (g/mL) G Lab File ID: SVBPS16

Level: (low/med) MED Date Received: 07/21/88

% Moisture: not dec. 1 dec. ____ Date Extracted: 07/26/88

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 08/02/88

GPC Cleanup: (Y/N) Y pH: 6.9 Dilution Factor: 2.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	20000	U
111-44-4	bis(2-Chloroethyl)Ether	20000	U
95-57-8	2-Chlorophenol	20000	U
541-73-1	1,3-Dichlorobenzene	20000	U
106-46-7	1,4-Dichlorobenzene	20000	U
100-51-6	Benzyl Alcohol	20000	U
95-50-1	1,2-Dichlorobenzene	20000	U
95-48-7	2-Methylphenol	20000	U
108-60-1	bis(2-Chloroisopropyl)Ether	20000	U
106-44-5	4-Methylphenol	20000	U
621-64-7	N-Nitroso-Di-n-Propylamine	20000	U
67-72-1	Hexachloroethane	20000	U
98-95-3	Nitrobenzene	20000	U
78-59-1	Isophorone	20000	U
88-75-5	2-Nitrophenol	20000	U
105-67-9	2,4-Dimethylphenol	20000	U
65-85-0	Benzoic Acid	97000	U
111-91-1	bis(2-Chloroethoxy)Methane	20000	U
120-83-2	2,4-Dichlorophenol	20000	U
120-82-1	1,2,4-Trichlorobenzene	20000	U
91-20-3	Naphthalene	20000	U
106-47-8	4-Chloroaniline	20000	U
87-68-3	Hexachlorobutadiene	20000	U
59-50-7	4-Chloro-3-Methylphenol	20000	U
91-57-6	2-Methylnaphthalene	20000	U
77-47-4	Hexachlorocyclopentadiene	20000	U
88-06-2	2,4,6-Trichlorophenol	20000	U
95-95-4	2,4,5-Trichlorophenol	97000	U
91-58-7	2-Chloronaphthalene	20000	U
88-74-4	2-Nitroaniline	97000	U
131-11-3	Dimethyl Phthalate	20000	U
208-96-8	Acenaphthylene	20000	U
606-20-2	2,6-Dinitrotoluene	20000	U

JDCX 6/12/12

recycled paper

ecology and environment

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

JD504

Lab Name: G S R I Contract: 68-01-7398

Lab Code: GULF Case No.: 9945 SAS No.: _____ SDG No.: JD501

Matrix: (soil/water) SOIL Lab Sample ID: BPS16

Sample wt/vol: 2.0 (g/mL) G Lab File ID: SVBPS16

Level: (low/med) MED Date Received: 07/21/88

% Moisture: not dec. 1 dec. ____ Date Extracted: 07/26/88

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 08/02/88

GPC Cleanup: (Y/N) Y pH: 6.9 Dilution Factor: 2.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
99-09-2	3-Nitroaniline	97000	U
83-32-9	Acenaphthene	14000	J
51-28-5	2,4-Dinitrophenol	97000	U
100-02-7	4-Nitrophenol	97000	U
132-64-9	Dibenzofuran	20000	U
121-14-2	2,4-Dinitrotoluene	20000	U
84-66-2	Diethylphthalate	20000	U
7005-72-3	4-Chlorophenyl-phenylether	20000	U
86-73-7	Fluorene	8000	J
100-01-6	4-Nitroaniline	97000	U
534-52-1	4,6-Dinitro-2-Methylphenol	97000	U
86-30-6	N-Nitrosodiphenylamine (1)	20000	U
101-55-3	4-Bromophenyl-phenylether	20000	U
118-74-1	Hexachlorobenzene	20000	U
87-86-5	Pentachlorophenol	97000	U
85-01-8	Phenanthrene	170000	
120-12-7	Anthracene	44000	
84-74-2	Di-n-Butylphthalate	20000	U
206-44-0	Fluoranthene	280000	
129-00-0	Pyrene	320000	
85-68-7	Butylbenzylphthalate	20000	U
91-94-1	3,3'-Dichlorobenzidine	40000	U
56-55-3	Benzo(a)Anthracene	160000	
218-01-9	Chrysene	160000	
117-81-7	bis(2-Ethylhexyl)Phthalate	20000	U
117-84-0	Di-n-Octyl Phthalate	20000	U
205-99-2	Benzo(b)Fluoranthene	130000	
207-08-9	Benzo(k)Fluoranthene	97000	
50-32-8	Benzo(a)Pyrene	120000	
193-39-5	Indeno(1,2,3-cd)Pyrene	71000	
53-70-3	Dibenz(a,h)Anthracene	15000	J
191-24-2	Benzo(g,h,i)Perylene	58000	J

(1) - Cannot be separated from Diphenylamine

JDK 9/13/88

recycled paper

savings and environment

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

JD504

Lab Name: G R F I Contract: 68-01-7398

Lab Code: GULF Case No.: 9945 SAS No.: _____ SDG No.: JD501

Matrix: (soil/water) SOIL Lab Sample ID: BPS16

Sample wt/vol: 2.0 (g/mL) G Lab File ID: SVBPS16

Level: (low/med) MED Date Received: 07/21/88

% Moisture: not dec. 1 dec. ____ Date Extracted: 07/26/88

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 08/02/88

GPC Cleanup: (Y/N) Y pH: 6.9 Dilution Factor: 2.0

Number TICs found: 20 CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.		PHENANTHRENE, -METHYL-	20.62	31000	J
2.		PHENANTHRENE, -METHYL-	20.69	34000	J
3.		PHENANTHRENE, -METHYL-	20.87	70000	J
4.		UNKNOWN	21.35	28000	J
5.		PHENANTHRENE, -DIMETHYL-	21.99	47000	J
6.		1,1'-BIPHENYL, -PENTACHLORO-	23.14	40000	J
7.	25429-29-2	1,1'-BIPHENYL, PENTACHLORO-	23.44	71000	J
8.		PYRENE, -METHYL-	23.65	61000	J
9.		PYRENE, -METHYL-	23.80	37000	J
10.	26601-64-9	1,1'-BIPHENYL, HEXACHLORO-	23.89	110000	J
11.		PYRENE, -METHYL-	24.10	31000	J
12.		1,1'-BIPHENYL, -HEXACHLORO-	24.32	28000	J
13.	26601-64-9	1,1'-BIPHENYL, HEXACHLORO-	24.39	34000	J
14.	26601-64-9	1,1'-BIPHENYL, HEXACHLORO-	24.84	57000	J
15.		UNKNOWN PNA MW = 234	25.12	25000	J
16.		UNKNOWN PNA MW = 226	25.21	38000	J
17.		1,1'-BIPHENYL, -HEXACHLORO (	25.34	29000	J
18.		UNKNOWN PNA MW = 228	26.06	24000	J
19.		UNKNOWN PNA MW = 242	27.04	25000	J
20.		UNKNOWN PNA MW = 242	27.49	27000	J

JDK 9/12/88

recycled paper

ecology and environment

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

JD505

Lab Name: G S R I Contract: 68-01-7398

Lab Code: GULF Case No.: 9945 SAS No.: _____ SDG No.: JD501

Matrix: (soil/water) SOIL Lab Sample ID: BPS21

Sample wt/vol: 30.0 (g/mL) G Lab File ID: SVBPS21

Level: (low/med) LOW Date Received: 07/21/88

% Moisture: not dec. 3 dec. ____ Date Extracted: 07/25/88

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 08/02/88

GPC Cleanup: (Y/N) Y pH: 6.2 Dilution Factor: 2.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	680	U
111-44-4	bis(2-Chloroethyl)Ether	680	U
95-57-8	2-Chlorophenol	680	U
541-73-1	1,3-Dichlorobenzene	680	U
106-46-7	1,4-Dichlorobenzene	680	U
100-51-6	Benzyl Alcohol	680	U
95-50-1	1,2-Dichlorobenzene	680	U
95-48-7	2-Methylphenol	680	U
108-60-1	bis(2-Chloroisopropyl)Ether	680	U
106-44-5	4-Methylphenol	680	U
621-64-7	N-Nitroso-Di-n-Propylamine	680	U
67-72-1	Hexachloroethane	680	U
98-95-3	Nitrobenzene	680	U
78-59-1	Isophorone	680	U
88-75-5	2-Nitrophenol	680	U
105-67-9	2,4-Dimethylphenol	680	U
65-85-0	Benzoic Acid	3300	U
111-91-1	bis(2-Chloroethoxy)Methane	680	U
120-83-2	2,4-Dichlorophenol	680	U
120-82-1	1,2,4-Trichlorobenzene	680	U
91-20-3	Naphthalene	680	U
106-47-8	4-Chloroaniline	680	U
87-68-3	Hexachlorobutadiene	680	U
59-50-7	4-Chloro-3-Methylphenol	680	U
91-57-6	2-Methylnaphthalene	680	U
77-47-4	Hexachlorocyclopentadiene	680	U
88-06-2	2,4,6-Trichlorophenol	680	U
95-95-4	2,4,5-Trichlorophenol	3300	U
91-58-7	2-Chloronaphthalene	680	U
98-74-4	2-Nitroaniline	3300	U
131-11-3	Dimethyl Phthalate	680	U
208-96-8	Acenaphthylene	680	U
606-20-2	2,6-Dinitrotoluene	680	U

JDL 9/13/88

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

JD505

Lab Name: G S R I Contract: 68-01-7028

Lab Code: GULF Case No.: 9945 SAS No.: _____ SDG No.: JD501

Matrix: (soil/water) SOIL Lab Sample ID: BPS21

Sample wt/vol: 30.0 (g/mL) G Lab File ID: SVBPS21

Level: (low/med) LOW Date Received: 07/21/88

% Moisture: not dec. 3 dec. ____ Date Extracted: 07/25/88

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 08/02/88

GPC Cleanup: (Y/N) Y pH: 6.2 Dilution Factor: 2.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
99-09-2	3-Nitroaniline	3300	U
83-32-9	Acenaphthene	680	U
51-28-5	2,4-Dinitrophenol	3300	U
100-02-7	4-Nitrophenol	3300	U
132-64-9	Dibenzofuran	680	U
121-14-2	2,4-Dinitrotoluene	680	U
84-66-2	Diethylphthalate	680	U
7005-72-3	4-Chlorophenyl-phenylether	680	U
86-73-7	Fluorene	680	U
100-01-6	4-Nitroaniline	3300	U
534-52-1	4,6-Dinitro-2-Methylphenol	3300	U
86-30-6	N-Nitrosodiphenylamine (1)	690	U
101-55-3	4-Bromophenyl-phenylether	680	U
118-74-1	Hexachlorobenzene	680	U
87-86-5	Pentachlorophenol	3300	U
85-01-8	Phenanthrene	680	U
120-12-7	Anthracene	680	U
84-74-2	Di-n-Butylphthalate	680	U
206-44-0	Fluoranthene	680	U
129-00-0	Pyrene	680	U
85-68-7	Butylbenzylphthalate	680	U
91-94-1	3,3'-Dichlorobenzidine	1400	U
56-55-3	Benzo(a)Anthracene	680	U
218-01-9	Chrysene	680	U
117-81-7	bis(2-Ethylhexyl)Phthalate	680	U
117-84-0	Di-n-Octyl Phthalate	680	U
205-99-2	Benzo(b)Fluoranthene	680	U
207-08-9	Benzo(k)Fluoranthene	680	U
50-32-8	Benzo(a)Pyrene	680	U
193-39-5	Indeno(1,2,3-cd)Pyrene	680	U
53-70-3	Dibenz(a,h)Anthracene	680	U
191-24-2	Benzo(g,h,i)Perylene	680	UJ

(1) - Cannot be separated from Diphenylamine

JDK 9/12/88

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

JD505

Lab Name: G S R I Contract: 68-01-7398

Lab Code: GULF Case No.: 8945 SAS No.: _____ SDG No.: JD501

Matrix: (soil/water) SOIL Lab Sample ID: BP821

Sample wt/vol: 30.0 (g/mL) G Lab File ID: SVBPS21

Level: (low/med) LOW Date Received: 07/21/88

% Moisture: not dec. 3 dec. ____ Date Extracted: 07/25/88

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 08/02/88

GPC Cleanup: (Y/N) Y pH: 6.2 Dilution Factor: 2.0

Number TICs found: 2

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN KETONE	7.13	590	J
2.	UNKNOWN HYDROCARBON	22.17	850	J

JDK 9/12/88

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

JD522

Lab Name: G S R I Contract: 68-01-7398

Lab Code: GULF Case No.: 9945 SAS No.: _____ SDG No.: JD501

Matrix: (soil/water) SOIL Lab Sample ID: BPS26

Sample wt/vol: 2.0 (g/mL) G Lab File ID: SVBPS26

Level: (low/med) MED Date Received: 07/21/88

% Moisture: not dec. 49 dec. ____ Date Extracted: 07/26/88

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 08/01/88

GPC Cleanup: (Y/N) Y pH: 5.0 Dilution Factor: 10

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	390000	U
111-44-4	bis(2-Chloroethyl)Ether	390000	U
95-57-8	2-Chlorophenol	390000	U
541-73-1	1,3-Dichlorobenzene	390000	U
106-46-7	1,4-Dichlorobenzene	390000	U
100-51-6	Benzyl Alcohol	390000	U
95-50-1	1,2-Dichlorobenzene	390000	U
95-48-7	2-Methylphenol	390000	U
108-60-1	bis(2-Chloroisopropyl)Ether	390000	U
106-44-5	4-Methylphenol	390000	U
621-64-7	N-Nitroso-Di-n-Propylamine	390000	U
67-72-1	Hexachloroethane	390000	U
98-95-3	Nitrobenzene	390000	U
78-59-1	Isophorone	390000	U
88-75-5	2-Nitrophenol	390000	U
105-67-9	2,4-Dimethylphenol	390000	U
65-85-0	Benzoic Acid	1900000	U
111-91-1	bis(2-Chloroethoxy)Methane	390000	U
120-83-2	2,4-Dichlorophenol	390000	U
120-82-1	1,2,4-Trichlorobenzene	390000	U
91-20-3	Naphthalene	390000	U
106-47-8	4-Chloroaniline	390000	U
87-68-3	Hexachlorobutadiene	390000	U
59-50-7	4-Chloro-3-Methylphenol	390000	U
91-57-6	2-Methylnaphthalene	390000	U
77-47-4	Hexachlorocyclopentadiene	390000	U
88-06-2	2,4,6-Trichlorophenol	390000	U
95-95-4	2,4,5-Trichlorophenol	1900000	U
91-58-7	2-Chloronaphthalene	390000	U
88-74-4	2-Nitroaniline	1900000	U
131-11-3	Dimethyl Phthalate	390000	U
208-96-8	Acenaphthylene	390000	U
606-20-2	2,6-Dinitrotoluene	390000	U

10/24

SP 10/11/11

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

JD522

Lab Name: G S R I Contract: 68-01-7398

Lab Code: GULF Case No.: 9945 SAS No.: _____ SDG No.: JD501

Matrix: (soil/water) SOIL Lab Sample ID: BPS26

Sample wt/vol: 2.0 (g/mL) G Lab File ID: SVBPS26

Level: (low/med) MED Date Received: 07/21/88

% Moisture: not dec. 49 dec. ____ Date Extracted: 07/26/88

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 08/01/88

GPC Cleanup: (Y/N) Y pH: 5.0 Dilution Factor: 10

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
99-09-2	3-Nitroaniline	1900000	U
83-32-9	Acenaphthene	390000	U
51-28-5	2,4-Dinitrophenol	1900000	U
100-02-7	4-Nitrophenol	1900000	U
132-64-9	Dibenzofuran	390000	U
121-14-2	2,4-Dinitrotoluene	390000	U
84-66-2	Diethylphthalate	390000	U
7005-72-3	4-Chlorophenyl-phenylether	390000	U
86-73-7	Fluorene	390000	U
100-01-6	4-Nitroaniline	1900000	U
534-52-1	4,6-Dinitro-2-Methylphenol	1900000	U
86-30-6	N-Nitrosodiphenylamine (1)	390000	U
101-55-3	4-Bromophenyl-phenylether	390000	U
118-74-1	Hexachlorobenzene	390000	U
87-86-5	Pentachlorophenol	1900000	U
85-01-8	Phenanthrene	390000	U
120-12-7	Anthracene	390000	U
84-74-2	Di-n-Butylphthalate	390000	U
206-44-0	Fluoranthene	2500000	
129-00-0	Pyrene	2100000	
85-68-7	Butylbenzylphthalate	390000	U
91-94-1	3,3'-Dichlorobenzidine	780000	U
56-55-3	Benzo(a)Anthracene	230000	J
218-01-9	Chrysene	280000	J
117-81-7	bis(2-Ethylhexyl)Phthalate	390000	U
117-84-0	Di-n-Octyl Phthalate	390000	U
205-99-2	Benzo(b)Fluoranthene	93000	J
207-08-9	Benzo(k)Fluoranthene	53000	J
50-32-8	Benzo(a)Pyrene	56000	J
193-39-5	Indeno(1,2,3-cd)Pyrene	390000	U
53-70-3	Dibenz(a,h)Anthracene	390000	U
191-24-2	Benzo(g,h,i)Perylene	390000	U

(1) - Cannot be separated from Diphenylamine

JCY 10/24/

Cy 10/18/88

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

JD522

Lab Name: G S R I Contract: 68-01-7398

Lab Code: GULF Case No.: 9945 SAS No.: _____ SDG No.: JD521

Matrix: (soil/water) SOIL Lab Sample ID: BFS26

Sample wt/vol: 2.0 (g/mL) G Lab File ID: SVBFS26

Level: (low/med) MED Date Received: 07/21/88

% Moisture: not dec. 49 dec. ____ Date Extracted: 07/26/88

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 08/01/88

GPC Cleanup: (Y/N) Y pH: 5.0 Dilution Factor: 10

Number TICs found: 21

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.		UNKNOWN	17.35	100000	J
2.		UNKNOWN	20.20	110000	J
3.		PHENANTHRENE, -METHYL-	20.67	190000	J
4.		PHENANTHRENE, -METHYL-	20.85	720000	J
5.		UNKNOWN	21.34	88000	J
6.		UNKNOWN PNA MW = 212	21.40	100000	J
7.		PHENANTHRENE, -DIMETHYL-	21.69	160000	J
8.		PHENANTHRENE, -DIMETHYL-	21.79	260000	J
9.		PHENANTHRENE, -DIMETHYL-	21.97	230000	J
10.		PHENANTHRENE, -DIMETHYL-	22.04	160000	J
11.		UNKNOWN	22.10	140000	J
12.		UNKNOWN PNA MW = 208	22.60	94000	J
13.		PHENANTHRENE, -TRIMETHYL-	22.99	180000	J
14.		UNKNOWN	23.09	230000	J
15.		PYRENE, -METHYL-	23.37	110000	J
16.		PYRENE, -METHYL-	23.62	250000	J
17.		PYRENE, -METHYL-	23.77	140000	J
18.		PYRENE, -METHYL-	23.85	130000	J
19.		UNKNOWN	23.92	140000	J
20.		PYRENE, -METHYL-	24.07	150000	J
21.		PYRENE, -METHYL-	24.14	84000	J

DCY 10/24/88

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

JD523

Lab Name: G S R I Contract: 68-01-7398

Lab Code: GULF Case No.: W945 SAS No.: _____ SDG No.: JD501

Matrix: (soil/water) SOIL Lab Sample ID: BPS31

Sample wt/vol: 30.0 (g/mL) G Lab File ID: SVBPS31

Level: (low/med) LOW Date Received: 07/21/88

% Moisture: not dec. 23 dec. ____ Date Extracted: 07/25/88

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 08/02/88

GPC Cleanup: (Y/N) Y pH: 5.6 Dilution Factor: 2.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	860	U
111-44-4	bis(2-Chloroethyl)Ether	860	U
95-57-8	2-Chlorophenol	860	U
541-73-1	1,3-Dichlorobenzene	860	U
106-46-7	1,4-Dichlorobenzene	860	U
100-51-6	Benzyl Alcohol	860	U
95-50-1	1,2-Dichlorobenzene	860	U
95-48-7	2-Methylphenol	860	U
108-60-1	bis(2-Chloroisopropyl)Ether	860	U
106-44-5	4-Methylphenol	860	U
621-64-7	N-Nitroso-Di-n-Propylamine	860	U
67-72-1	Hexachloroethane	860	U
98-95-3	Nitrobenzene	860	U
78-59-1	Isophorone	860	U
88-75-5	2-Nitrophenol	860	U
105-67-9	2,4-Dimethylphenol	860	U
65-85-0	Benzoic Acid	4200	U
111-91-1	bis(2-Chloroethoxy)Methane	860	U
120-83-2	2,4-Dichlorophenol	860	U
120-82-1	1,2,4-Trichlorobenzene	860	U
91-20-3	Naphthalene	860	U
106-47-8	4-Chloroaniline	860	U
87-68-3	Hexachlorobutadiene	860	U
59-50-7	4-Chloro-3-Methylphenol	860	U
91-57-6	2-Methylnaphthalene	860	U
77-47-4	Hexachlorocyclopentadiene	860	U
88-06-2	2,4,6-Trichlorophenol	860	U
95-95-4	2,4,5-Trichlorophenol	4200	U
91-58-7	2-Chloronaphthalene	860	U
88-74-4	2-Nitroaniline	4200	U
131-11-3	Dimethyl Phthalate	860	U
208-96-8	Acenaphthylene	860	U
606-20-2	2,6-Dinitrotoluene	860	U

DLK 9/13/9

001206

recycled paper

energy and environment

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

JD523

Lab Name: G S R I Contract: 68-01-7398

Lab Code: GULF Case No.: 9945 SAS No.: _____ SDG No.: JD501

Matrix: (soil/water) SOIL Lab Sample ID: BPS31

Sample wt/vol: 30.0 (g/mL) G Lab File ID: SVBPS31

Level: (low/med) LOW Date Received: 07/21/88

% Moisture: not dec. 23 dec. ____ Date Extracted: 07/25/88

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 08/02/88

GPC Cleanup: (Y/N) Y pH: 5.6 Dilution Factor: 2.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
99-09-2	3-Nitroaniline	4200	U
83-32-9	Acenaphthene	860	U
51-28-5	2,4-Dinitrophenol	4200	U
100-02-7	4-Nitrophenol	4200	U
132-64-9	Dibenzofuran	860	U
121-14-2	2,4-Dinitrotoluene	860	U
84-66-2	Diethylphthalate	860	U
7005-72-3	4-Chlorophenyl-phenylether	860	U
86-73-7	Fluorene	860	U
100-01-6	4-Nitroaniline	4200	U
534-52-1	4,6-Dinitro-2-Methylphenol	4200	U
86-30-6	N-Nitrosodiphenylamine (1)	860	U
101-55-3	4-Bromophenyl-phenylether	860	U
118-74-1	Hexachlorobenzene	860	U
87-86-5	Pentachlorophenol	4200	U
85-01-8	Phenanthrene	860	U
120-12-7	Anthracene	860	U
84-74-2	Di-n-Butylphthalate	860	U
206-44-0	Fluoranthene	860	U
129-00-0	Pyrene	860	U
85-68-7	Butylbenzylphthalate	860	U
91-94-1	3,3'-Dichlorobenzidine	1700	U
56-55-3	Benzo(a)Anthracene	860	U
218-01-9	Chrysene	860	U
117-81-7	bis(2-Ethylhexyl)Phthalate	860	U
117-84-0	Di-n-Octyl Phthalate	860	U
205-99-2	Benzo(b)Fluoranthene	860	U
207-08-9	Benzo(k)Fluoranthene	860	U
50-32-8	Benzo(a)Pyrene	860	U
193-39-5	Indeno(1,2,3-cd)Pyrene	860	U
53-70-3	Dibenz(a,h)Anthracene	860	U
191-24-2	Benzo(g,h,i)Perylene	860	UJ

(1) - Cannot be separated from Diphenylamine

JD4 9/12

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

JD523

Lab Name: G S P I Contract: 68-01-7378

Lab Code: GULF Case No.: 9945 SAS No.: _____ SDG No.: JD501

Matrix: (soil/water) SOIL Lab Sample ID: BPS31

Sample wt/vol: 30.0 (g/mL) G Lab File ID: SVBPS31

Level: (low/med) LOW Date Received: 07/21/88

% Moisture: not dec. 23 dec. ____ Date Extracted: 07/25/88

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 08/02/88

GPC Cleanup: (Y/N) Y pH: 5.6 Dilution Factor: 2.0

Number TICs found: 2

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	19.75	330	J
2.	UNKNOWN HYDROCARBON	22.19	230	J

9/13/88

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

JD524

Lab Name: S S R I Contract: 68-01-7398

Lab Code: AULF Case No.: 9945 SAS No.: _____ SDG No.: JD501

Matrix: (soil/water) SOIL Lab Sample ID: BPS36

Sample wt/vol: 30.0 (g/mL) G Lab File ID: SVBPS36DL

Level: (low/med) LOW Date Received: 07/21/88

% Moisture: not dec. 21 dec. ____ Date Extracted: 07/25/88

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 08/03/88

GPC Cleanup: (Y/N) Y pH: 8.7 Dilution Factor: 4.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	1700	U
111-44-4	bis(2-Chloroethyl)Ether	1700	U
95-57-8	2-Chlorophenol	1700	U
541-73-1	1,3-Dichlorobenzene	1700	U
106-46-7	1,4-Dichlorobenzene	1700	U
100-51-6	Benzyl Alcohol	1700	U
95-50-1	1,2-Dichlorobenzene	1700	U
95-48-7	2-Methylphenol	1700	U
108-60-1	bis(2-Chloroisopropyl)Ether	1700	U
106-44-5	4-Methylphenol	1700	U
621-64-7	N-Nitroso-Di-n-Propylamine	1700	U
67-72-1	Hexachloroethane	1700	U
98-95-3	Nitrobenzene	1700	U
78-59-1	Isophorone	1700	U
88-75-5	2-Nitrophenol	1700	U
105-67-9	2,4-Dimethylphenol	1700	U
65-85-0	Benzoic Acid	8100	U
111-91-1	bis(2-Chloroethoxy)Methane	1700	U
120-83-2	2,4-Dichlorophenol	1700	U
120-82-1	1,2,4-Trichlorobenzene	1700	U
91-20-3	Naphthalene	1700	U
106-47-8	4-Chloroaniline	1700	U
87-68-3	Hexachlorobutadiene	1700	U
59-50-7	4-Chloro-3-Methylphenol	1700	U
91-57-6	2-Methylnaphthalene	1700	U
77-47-4	Hexachlorocyclopentadiene	1700	U
88-06-2	2,4,6-Trichlorophenol	1700	U
95-95-4	2,4,5-Trichlorophenol	8100	U
91-58-7	2-Chloronaphthalene	1700	U
88-74-4	2-Nitroaniline	8100	U
131-11-3	Dimethyl Phthalate	1700	U
208-96-8	Acenaphthylene	1700	U
606-20-2	2,6-Dinitrotoluene	1700	U

Jack 9/12/89

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

JD524

Lab Name: G S R I Contract: 68-01-7398

Lab Code: GULF Case No.: 9945 SAS No.: _____ SDG No.: JD501

Matrix: (soil/water) SOIL Lab Sample ID: BPS36

Sample wt/vol: 30.0 (g/mL) G Lab File ID: SVBPS36DL

Level: (low/med) LOW Date Received: 07/21/88

% Moisture: not dec. 21 dec. ____ Date Extracted: 07/25/88

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 08/03/88

GPC Cleanup: (Y/N) Y pH: 8.7 Dilution Factor: 4.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
99-09-2	3-Nitroaniline	8100	U
83-32-9	Acenaphthene	450	J
51-28-5	2,4-Dinitrophenol	8100	U
100-02-7	4-Nitrophenol	8100	U
132-64-9	Dibenzofuran	1700	U
121-14-2	2,4-Dinitrotoluene	1700	U
84-66-2	Diethylphthalate	1700	U
7005-72-3	4-Chlorophenyl-phenylether	1700	U
86-73-7	Fluorene	340	J
100-01-6	4-Nitroaniline	8100	U
534-52-1	4,6-Dinitro-2-Methylphenol	8100	U
86-30-6	N-Nitrosodiphenylamine (1)	1700	U
101-55-3	4-Bromophenyl-phenylether	1700	U
118-74-1	Hexachlorobenzene	1700	U
87-86-5	Pentachlorophenol	8100	U
85-01-8	Phenanthrene	3400	
120-12-7	Anthracene	1100	J
84-74-2	Di-n-Butylphthalate	1700	U
206-44-0	Fluoranthene	6200	
129-00-0	Pyrene	5300	
85-68-7	Butylbenzylphthalate	1700	U
91-94-1	3,3'-Dichlorobenzidine	3300	U
56-55-3	Benzo(a)Anthracene	9000	
218-01-9	Chrysene	13000	
117-81-7	bis(2-Ethylhexyl)Phthalate	1700	U
117-84-0	Di-n-Octyl Phthalate	1700	U
205-99-2	Benzo(b)Fluoranthene	28000	
207-08-9	Benzo(k)Fluoranthene	15000	
50-32-8	Benzo(a)Pyrene	9500	
193-39-5	Indeno(1,2,3-cd)Pyrene	9600	
53-70-3	Dibenz(a,h)Anthracene	1900	
191-24-2	Benzo(g,h,i)Perylene	8000	J

(1) - Cannot be separated from Diphenylamine

JDK 9/12/8

recycled paper

ecology and environment

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

JD524

Lab Name: S S F I Contract: 68-01-7398

Lab Code: GULF Case No.: 9945 SAS No.: _____ SDG No.: JD501

Matrix: (soil/water) SOIL Lab Sample ID: BPS36

Sample wt/vol: 30.0 (g/mL) G Lab File ID: SVBPS36DL

Level: (low/med) LOW Date Received: 07/21/88

% Moisture: not dec. 21 dec. ____ Date Extracted: 07/25/88

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 08/03/88

GPC Cleanup: (Y/N) Y pH: 8.7 Dilution Factor: 4.0

Number TICs found: 17 CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN FATTY ACID	20.95	2000	J
2.	UNKNOWN HYDROCARBON	21.99	1700	J
3.	UNKNOWN	22.64	2500	J
4.	UNKNOWN	23.12	1900	J
5.	UNKNOWN	24.80	2100	J
6.	UNKNOWN PNA MW = 226	25.17	16000	J
7.	UNKNOWN PNA MW = 228	26.04	2800	J
8.	UNKNOWN	26.27	2300	J
9.	UNKNOWN	28.22	4900	J
10.	UNKNOWN	29.04	2600	J
11.	UNKNOWN	30.22	2600	J
12.	UNKNOWN HYDROCARBON	30.34	2700	J
13.	UNKNOWN PNA MW = 252	31.06	15000	J
14.	UNKNOWN PNA MW = 252	31.76	1900	J
15.	UNKNOWN	34.44	2500	J
16.	UNKNOWN PNA MW = 276	38.47	1800	J
17.	UNKNOWN	39.34	1800	J

DCK 9/12/88

13

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

J0505

Lab Name: [illegible] Contract: 68-01-[illegible]

Lab Code: [illegible] Case No.: [illegible] SAS No.: _____ SDG No.: [illegible]

Matrix: (soil/water) SOIL Lab Sample ID: SPS41

Sample wt/vol: 30.0 (g/mL) G Lab File ID: SVBPS41

Level: (low/med) LOW Date Received: 07/21/88

% Moisture: not dec. 65 dec. ____ Date Extracted: 07/25/88

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 08/02/88

Cleanup: (Y/N) Y pH: 6.6 Dilution Factor: 2.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	1900	U
111-44-4	bis(2-Chloroethyl)Ether	1900	U
95-57-8	2-Chlorophenol	1900	U
541-73-1	1,3-Dichlorobenzene	1900	U
106-46-7	1,4-Dichlorobenzene	1900	U
100-51-6	Benzyl Alcohol	1900	U
95-50-1	1,2-Dichlorobenzene	1900	U
95-48-7	2-Methylphenol	1900	U
108-60-1	bis(2-Chloroisopropyl)Ether	1900	U
106-44-5	4-Methylphenol	1900	U
621-64-7	N-Nitroso-Di-n-Propylamine	1900	U
67-72-1	Hexachloroethane	1900	U
98-95-3	Nitrobenzene	1900	U
78-59-1	Isophorone	1900	U
88-75-5	2-Nitrophenol	1900	U
105-67-9	2,4-Dimethylphenol	1900	U
65-85-0	Benzoic Acid	9100	U
111-91-1	bis(2-Chloroethoxy)Methane	1900	U
120-83-2	2,4-Dichlorophenol	1900	U
120-82-1	1,2,4-Trichlorobenzene	1900	U
91-20-3	Naphthalene	1900	U
106-47-8	4-Chloroaniline	1900	U
87-68-3	Hexachlorobutadiene	1900	U
59-50-7	4-Chloro-3-Methylphenol	1900	U
91-57-6	2-Methylnaphthalene	1900	U
77-47-4	Hexachlorocyclopentadiene	1900	U
88-06-2	2,4,6-Trichlorophenol	1900	U
95-95-4	2,4,5-Trichlorophenol	9100	U
91-58-7	2-Chloronaphthalene	1900	U
88-74-4	2-Nitroaniline	9100	U
131-11-3	Dimethyl Phthalate	1900	U
208-96-8	Acenaphthylene	1900	U
606-20-2	2,6-Dinitrotoluene	1900	U

TCY 9/12/88

001317

recycled paper

ecology and environment

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

JD525

Lab Name: [illegible] Contract: 68-01-7308

Lab Code: [illegible] Case No.: [illegible] SAS No.: _____ SDG No.: JD501

Matrix: (soil/water) SOIL Lab Sample ID: BPS41

Sample wt/vol: 30.0 (g/mL) G Lab File ID: SVBPS41

Level: (low/med) LOW Date Received: 07/21/88

% Moisture: not dec. 65 dec. _____ Date Extracted: 07/25/88

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 08/02/88

GPC Cleanup: (Y/N) Y pH: 8.6 Dilution Factor: 2.0

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

CAS NO.	COMPOUND		U
99-09-2	3-Nitroaniline	9100	U
83-32-9	Acenaphthene	1900	U
51-28-5	2,4-Dinitrophenol	9100	U
100-02-7	4-Nitrophenol	9100	U
132-64-9	Dibenzofuran	1900	U
121-14-2	2,4-Dinitrotoluene	1900	U
84-66-2	Diethylphthalate	1900	U
7005-72-3	4-Chlorophenyl-phenylether	1900	U
86-73-7	Fluorene	1900	U
100-01-6	4-Nitroaniline	9100	U
534-52-1	4,6-Dinitro-2-Methylphenol	9100	U
86-30-6	N-Nitrosodiphenylamine (1)	1900	U
101-55-3	4-Bromophenyl-phenylether	1900	U
118-74-1	Hexachlorobenzene	1900	U
87-86-5	Pentachlorophenol	9100	U
85-01-8	Phenanthrene	1400	J
120-12-7	Anthracene	740	J
84-74-2	Di-n-Butylphthalate	1900	U
206-44-0	Fluoranthene	3200	
129-00-0	Pyrene	2300	
85-68-7	Butylbenzylphthalate	1900	U
91-94-1	3,3'-Dichlorobenzidine	3800	U
56-55-3	Benzo(a)Anthracene	1500	J
218-01-9	Chrysene	2000	
117-81-7	bis(2-Ethylhexyl)Phthalate	1100	J
117-84-0	Di-n-Octyl Phthalate	1900	U
205-99-2	Benzo(b)Fluoranthene	4700	
207-08-9	Benzo(k)Fluoranthene	4100	
50-32-8	Benzo(a)Pyrene	2200	
193-39-5	Indeno(1,2,3-cd)Pyrene	4200	
53-70-3	Dibenz(a,h)Anthracene	470	J
191-24-2	Benzo(g,h,i)Perylene	3600	J

(1) - Cannot be separated from Diphenylamine

DCK 9/12/88

recycled paper

ecology and environment

IF

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

J0523

Lab Name: [illegible] Contract: 68-01-7378

Lab Code: GULF Case No.: 9445 SAS No.: _____ SDG No.: 05501

Matrix: (soil/water) SOIL Lab Sample ID: SP841

Sample wt/vol: 30.0 (g/mL) G Lab File ID: SVBP841

Level: (low/med) LOW Date Received: 07/21/88

% Moisture: not dec. 65 dec. ____ Date Extracted: 07/25/88

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 08/11/88

CF Cleanup: (Y/N) Y pH: 6.5 Dilution Factor: 1.0

Number TICs found: 12

CONCENTRATION UNITS:
(ug/L or ug/kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN HYDROCARBON	22.15	2200	J
	UNKNOWN	25.24	5600	J
3.	UNKNOWN HYDROCARBON	29.01	3500	J
4.	UNKNOWN HYDROCARBON	30.21	5000	J
5.	UNKNOWN PNA MW = 252	30.94	4500	J
6.	UNKNOWN HYDROCARBON	31.92	1100	J
7.	UNKNOWN	32.51	1800	J
8.	UNKNOWN	33.91	1500	J
9.	UNKNOWN	34.37	1200	J
10.	UNKNOWN ALKYL PNA	35.62	1800	J
11.	UNKNOWN HALOGENATED ORGANIC	38.37	4000	J
12.	UNKNOWN HYDROCARBON	26.74	3100	J

JCY 9/12/88

001319

18

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

JD525

Lab Name: S E R I Contract: 68-01-7292

Lab Code: HALF Case No.: 9945 SAS No.: _____ SDG No.: JL501

Matrix: (soil/water) SOIL Lab Sample ID: 9P54a

Sample wt/vol: 30.0 (g/mL) G Lab File ID: SVBPS46DL

Level: (low/med) LOW Date Received: 07/21/88

% Moisture: not dec. 18 dec. ____ Date Extracted: 07/25/88

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 08/04/88

GPC Cleanup: (Y/N) Y pH: 8.6 Dilution Factor: 4.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	1600	U
111-44-4	bis(2-Chloroethyl)Ether	1600	U
95-57-8	2-Chlorophenol	1600	U
541-73-1	1,3-Dichlorobenzene	1600	U
106-46-7	1,4-Dichlorobenzene	1600	U
100-51-6	Benzyl Alcohol	1600	U
95-50-1	1,2-Dichlorobenzene	1600	U
95-48-7	2-Methylphenol	1600	U
108-60-1	bis(2-Chloroisopropyl)Ether	1600	U
106-44-5	4-Methylphenol	1600	U
621-64-7	N-Nitroso-Di-n-Propylamine	1600	U
67-72-1	Hexachloroethane	1600	U
98-95-3	Nitrobenzene	1600	U
78-59-1	Isophorone	1600	U
88-75-5	2-Nitrophenol	1600	U
105-67-9	2,4-Dimethylphenol	1600	U
65-85-0	Benzoic Acid	7800	U
111-91-1	bis(2-Chloroethoxy)Methane	1600	U
120-83-2	2,4-Dichlorophenol	1600	U
120-82-1	1,2,4-Trichlorobenzene	1600	U
91-20-3	Naphthalene	1600	U
106-47-8	4-Chloroaniline	1600	U
87-68-3	Hexachlorobutadiene	1600	U
59-50-7	4-Chloro-3-Methylphenol	1600	U
91-57-6	2-Methylnaphthalene	1600	U
77-47-4	Hexachlorocyclopentadiene	1600	U
88-06-2	2,4,6-Trichlorophenol	1600	U
95-95-4	2,4,5-Trichlorophenol	7800	U
91-58-7	2-Chloronaphthalene	1600	U
88-74-4	2-Nitroaniline	7800	U
131-11-3	Dimethyl Phthalate	1600	U
208-96-8	Acenaphthylene	1600	U
606-20-2	2,6-Dinitrotoluene	1600	U

JCK 9/12/88

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

JD525

Lab Name: G S R I Contract: 68-01-7298

Lab Code: GULF Case No.: 9445 SAS No.: _____ SDG No.: JD501

Matrix: (soil/water) SOIL Lab Sample ID: BPS46

Sample wt/vol: 30.0 (g/mL) G Lab File ID: SVBPS46DL

Level: (low/med) LOW Date Received: 07/21/88

% Moisture: not dec. 18 dec. ____ Date Extracted: 07/25/88

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 08/03/88

GPC Cleanup: (Y/N) Y pH: 6.6 Dilution Factor: 4.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
99-09-2	3-Nitroaniline	7800	U
83-32-9	Acenaphthene	400	J
51-28-5	2,4-Dinitrophenol	7800	U
100-02-7	4-Nitrophenol	7800	U
132-64-9	Dibenzofuran	520	J
121-14-2	2,4-Dinitrotoluene	1600	U
84-66-2	Diethylphthalate	1600	U
7005-72-3	4-Chlorophenyl-phenylether	1600	U
86-73-7	Fluorene	2200	
100-01-6	4-Nitroaniline	7800	U
534-52-1	4,6-Dinitro-2-Methylphenol	7800	U
86-30-6	N-Nitrosodiphenylamine (1)	1600	U
101-55-3	4-Bromophenyl-phenylether	1600	U
118-74-1	Hexachlorobenzene	1600	U
87-86-5	Pentachlorophenol	7800	U
85-01-8	Phenanthrene	13000	
120-12-7	Anthracene	20000	
84-74-2	Di-n-Butylphthalate	1600	U
206-44-0	Fluoranthene	8800	
129-00-0	Pyrene	10000	
85-68-7	Butylbenzylphthalate	1600	U
91-94-1	3,3'-Dichlorobenzidine	3200	U
56-55-3	Benzo(a)Anthracene	6800	
218-01-9	Chrysene	9100	
117-81-7	bis(2-Ethylhexyl)Phthalate	1600	U
117-84-0	Di-n-Octyl Phthalate	1600	U
205-99-2	Benzo(b)Fluoranthene	10000	
207-08-9	Benzo(k)Fluoranthene	6900	
50-32-8	Benzo(a)Pyrene	6700	
193-39-5	Indeno(1,2,3-cd)Pyrene	4100	
53-70-3	Dibenz(a,h)Anthracene	760	J
191-24-2	Benzo(g,h,i)Perylene	3900	J

(1) - Cannot be separated from Diphenylamine

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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

40526

Lab Name: [illegible] Contract: 68-01-7399

Lab Code: NUF Case No.: 9945 SAS No.: _____ SDG No.: 10501

Matrix: (soil/water) SOIL Lab Sample ID: BP946

Sample wt/vol: 30.0 (g/mL) G Lab File ID: SV8PS46DL

Level: (low/med) LOW Date Received: 07/21/88

% Moisture: not dec. 18 dec. ____ Date Extracted: 07/25/88

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 08/03/88

GPC Cleanup: (Y/N) Y pH: 6.6 Dilution Factor: 4.0

Number TICs found: 21

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	86-74-8	9H-CARBAZOLE	19.90	3000	J
2.		UNKNOWN	21.29	1400	J
3.		UNKNOWN	20.80	740	J
4.		UNKNOWN	22.55	790	J
5.		UNKNOWN	23.10	1700	J
6.		PYRENE, -METHYL- (+TRACE CLS	23.34	1600	J
7.		PYRENE, -METHYL-	23.57	2300	J
8.		PYRENE, -METHYL-	23.72	970	J
9.		PYRENE, -METHYL-	23.80	2200	J
10.	26601-64-9	1,1'-BIPHENYL, HEXACHLORO-	24.75	1100	J
11.		UNKNOWN PNA MW = 234	25.04	2300	J
12.		UNKNOWN PNA MW = 226	25.14	4100	J
13.		UNKNOWN PNA MW = 230	25.27	1700	J
14.		UNKNOWN	25.37	730	J
15.		UNKNOWN	26.24	760	J
16.		UNKNONW PNA MW = 242	26.94	1700	J
17.		UNKNOWN	27.39	1300	J
18.		UNKNOWN	28.16	990	J
19.		UNKNOWN PNA MW = 252	30.02	1200	J
20.		UNKNOWN PNA MW = 252	30.84	4500	J
21.		UNKNOWN HYDROCARBON	31.26	2500	J

JDK 4/13/89

D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

JC853

ab Name: G S R I Contract: 68-01-7398

ab Code: GULF Case No.: 9945 SAS No.: _____ SDG No.: JD501

at ix: (soil/water) SOIL Lab Sample ID: BPU01

ample wt/vol: 30.0 (g/mL) G Lab File ID: _____

ev l: (low/med) LOW Date Received: 07/22/88

Moisture: not dec. 26 dec. ____ Date Extracted: 07/26/88

xtraction: (SepF/Cont/Sonc) SONC Date Analyzed: 08/03/88

PC Cleanup: (Y/N) Y pH: 7.6 Dilution Factor: 2.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	22	U
319-85-7	beta-BHC	22	U
319-86-8	delta-BHC	22	U
58-89-9	gamma-BHC (Lindane)	22	U
76-44-8	Heptachlor	22	U
309-00-2	Aldrin	22	U
1024-57-3	Heptachlor epoxide	22	U
959-98-8	Endosulfan I	22	U
60-57-1	Dieldrin	43	U
72-55-9	4,4'-DDE	43	U
72-20-8	Endrin	43	U
33213-65-9	Endosulfan II	43	U
72-54-8	4,4'-DDD	43	U
1031-07-8	Endosulfan sulfate	43	U
50-29-3	4,4'-DDT	43	U
72-43-5	Methoxychlor	220	U
53494-70-5	Endrin ketone	43	U
5103-71-9	alpha-Chlordane	220	U
5103-74-2	gamma-Chlordane	220	U
8001-35-2	Toxaphene	430	U
12674-11-2	Aroclor-1016	220	U
11104-28-2	Aroclor-1221	220	U
11141-16-5	Aroclor-1232	220	U
53469-21-9	Aroclor-1242	220	U
12672-29-6	Aroclor-1248	220	U
11097-69-1	Aroclor-1254	14000	
11096-82-5	Aroclor-1260	430	U

JGK 9/13/88

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PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

JC854

ab Name: G S R I Contract: 68-01-7398

ab Code: GULF Case No.: 9945 SAS No.: _____ SDG No.: JD501

at ix: (soil/water) SOIL Lab Sample ID: BPU06

ample wt/vol: 30.0 (g/mL) G Lab File ID: SVBPU06

ev l: (low/med) LOW Date Received: 07/22/88

Moisture: not dec. 27 dec. ____ Date Extracted: 07/26/88

:tr action: (SepF/Cont/Sonc) SONC Date Analyzed: 08/03/88

PC Cleanup: (Y/N) N pH: 6.3 Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	11	U
319-85-7	beta-BHC	11	U
319-86-8	delta-BHC	11	U
58-89-9	gamma-BHC (Lindane)	11	U
76-44-8	Heptachlor	11	U
309-00-2	Aldrin	11	U
1024-57-3	Heptachlor epoxide	11	U
959-98-8	Endosulfan I	11	U
60-57-1	Dieldrin	22	U
72-55-9	4,4'-DDE	22	U
72-20-8	Endrin	22	U
33213-65-9	Endosulfan II	22	U
72-54-8	4,4'-DDD	22	U
1031-07-8	Endosulfan sulfate	22	U
50-29-3	4,4'-DDT	22	U
72-43-5	Methoxychlor	110	U
53494-70-5	Endrin ketone	22	U
5103-71-9	alpha-Chlordane	110	U
5103-74-2	gamma-Chlordane	110	U
8001-35-2	Toxaphene	220	U
12674-11-2	Aroclor-1016	110	U
11104-28-2	Aroclor-1221	110	U
11141-16-5	Aroclor-1232	110	U
53469-21-9	Aroclor-1242	110	U
12672-29-6	Aroclor-1248	110	U
11097-69-1	Aroclor-1254	10000	
11096-82-5	Aroclor-1260	220	U

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PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

JC859

ab Name: G S R I Contract: 68-01-7398

ab Code: GULF Case No.: 9945 SAS No.: _____ SDG No.: JD501

at ix: (soil/water) SOIL Lab Sample ID: BPU11

ample wt/vol: 30.0 (g/mL) G Lab File ID: SVBPU11

ev 1: (low/med) LOW Date Received: 07/22/88

Moisture: not dec. 26 dec. ____ Date Extracted: 07/26/88

:t. action: (SepF/Cont/Sonc) SONC Date Analyzed: 08/03/88

°C Cleanup: (Y/N) N pH: 6.9 Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	11	U
319-85-7	beta-BHC	11	U
319-86-8	delta-BHC	11	U
58-89-9	gamma-BHC (Lindane)	11	U
76-44-8	Heptachlor	11	U
309-00-2	Aldrin	11	U
1024-57-3	Heptachlor epoxide	11	U
959-98-8	Endosulfan I	11	U
60-57-1	Dieldrin	22	U
72-55-9	4,4'-DDE	22	U
72-20-8	Endrin	22	U
33213-65-9	Endosulfan II	22	U
72-54-8	4,4'-DDD	22	U
1031-07-8	Endosulfan sulfate	22	U
50-29-3	4,4'-DDT	22	U
72-43-5	Methoxychlor	110	U
53494-70-5	Endrin ketone	22	U
5103-71-9	alpha-Chlordane	110	U
5103-74-2	gamma-Chlordane	110	U
8001-35-2	Toxaphene	220	U
12674-11-2	Aroclor-1016	110	U
11104-28-2	Aroclor-1221	110	U
11141-16-5	Aroclor-1232	110	U
53469-21-9	Aroclor-1242	110	U
12672-29-6	Aroclor-1248	110	U
11097-69-1	Aroclor-1254	2700	
11096-82-5	Aroclor-1260	220	U

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PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

JC862

b Name: G S R I Contract: 68-01-7398

Code: GULF Case No.: 9945 SAS No.: _____ SDG No.: JD501

trix: (soil/water) SOIL Lab Sample ID: BPW01

mple wt/vol: 1.0 (g/mL) G Lab File ID: _____

vel: (low/med) MED Date Received: 07/23/88

Moisture: not dec. 7 dec. ____ Date Extracted: 07/26/88

traction: (SepF/Cont/Sonc) SONC Date Analyzed: 08/03/88

C Cleanup: (Y/N) N pH: 6.2 Dilution Factor: 50

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	6500	U
319-85-7	beta-BHC	6500	U
319-86-8	delta-BHC	6500	U
58-89-9	gamma-BHC (Lindane)	6500	U
76-44-8	Heptachlor	6500	U
309-00-2	Aldrin	6500	U
1024-57-3	Heptachlor epoxide	6500	U
959-98-8	Endosulfan I	6500	U
60-57-1	Dieldrin	13000	U
72-55-9	4,4'-DDE	13000	U
72-20-8	Endrin	13000	U
33213-65-9	Endosulfan II	13000	U
72-54-8	4,4'-DDD	13000	U
1031-07-8	Endosulfan sulfate	13000	U
50-29-3	4,4'-DDT	13000	U
72-43-5	Methoxychlor	65000	U
53494-70-5	Endrin ketone	13000	U
5103-71-9	alpha-Chlordane	65000	U
5103-74-2	gamma-Chlordane	65000	U
8001-35-2	Toxaphene	130000	U
12674-11-2	Aroclor-1016	65000	U
11104-28-2	Aroclor-1221	65000	U
11141-16-5	Aroclor-1232	65000	U
53469-21-9	Aroclor-1242	65000	U
12672-29-6	Aroclor-1248	65000	U
11097-69-1	Aroclor-1254	130000	U
11096-82-5	Aroclor-1260	130000	U

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PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

JD501

ab Name: G S R I Contract: 68-01-7398

at Code: GULF Case No.: 9945 SAS No.: _____ SDG No.: JD501

at ix: (soil/water) SOIL Lab Sample ID: BPS01

ample wt/vol: 1.0 (g/mL) G Lab File ID: _____

ev 1: (low/med) MED Date Received: 07/21/88

Moisture: not dec. 2 dec. ____ Date Extracted: 07/26/88

:t action: (SepF/Cont/Sonc) SONC Date Analyzed: 08/03/88

°C Cleanup: (Y/N) N pH: 6.9 Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	120	U
319-85-7	beta-BHC	120	U
319-86-8	delta-BHC	120	U
58-89-9	gamma-BHC (Lindane)	120	U
76-44-8	Heptachlor	120	U
309-00-2	Aldrin	120	U
1024-57-3	Heptachlor epoxide	120	U
959-98-8	Endosulfan I	120	U
60-57-1	Dieldrin	240	U
72-55-9	4,4'-DDE	240	U
72-20-8	Endrin	240	U
33213-65-9	Endosulfan II	240	U
72-54-8	4,4'-DDD	240	U
1031-07-8	Endosulfan sulfate	240	U
50-29-3	4,4'-DDT	240	U
72-43-5	Methoxychlor	1200	U
53494-70-5	Endrin ketone	240	U
5103-71-9	alpha-Chlordane	1200	U
5103-74-2	gamma-Chlordane	1200	U
8001-35-2	Toxaphene	2400	U
12674-11-2	Aroclor-1016	1200	U
11104-28-2	Aroclor-1221	1200	U
11141-16-5	Aroclor-1232	1200	U
53469-21-9	Aroclor-1242	1200	U
12672-29-6	Aroclor-1248	1200	U
11097-69-1	Aroclor-1254	23000	
11096-82-5	Aroclor-1260	2400	U

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PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

JD501

ab Name: G S R I Contract: 68-01-7398

at Code: GULF Case No.: 9945 SAS No.: _____ SDG No.: JD501

at ix: (soil/water) SOIL Lab Sample ID: BPS01

ample wt/vol: 1.0 (g/mL) G Lab File ID: _____

e\ :l: (low/med) MED Date Received: 07/21/88

Moisture: not dec. 2 dec. ____ Date Extracted: 07/26/88

xt action: (SepF/Cont/Sonc) SONC Date Analyzed: 08/03/88

PC Cleanup: (Y/N) N pH: 6.9 Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	120	U
319-85-7	beta-BHC	120	U
319-86-8	delta-BHC	120	U
58-89-9	gamma-BHC (Lindane)	120	U
76-44-8	Heptachlor	120	U
309-00-2	Aldrin	120	U
1024-57-3	Heptachlor epoxide	120	U
959-98-8	Endosulfan I	120	U
60-57-1	Dieldrin	240	U
72-55-9	4,4'-DDE	240	U
72-20-8	Endrin	240	U
33213-65-9	Endosulfan II	240	U
72-54-8	4,4'-DDD	240	U
1031-07-8	Endosulfan sulfate	240	U
50-29-3	4,4'-DDT	240	U
72-43-5	Methoxychlor	1200	U
53494-70-5	Endrin ketone	240	U
5103-71-9	alpha-Chlordane	1200	U
5103-74-2	gamma-Chlordane	1200	U
8001-35-2	Toxaphene	2400	U
12674-11-2	Aroclor-1016	1200	U
11104-28-2	Aroclor-1221	1200	U
11141-16-5	Aroclor-1232	1200	U
53469-21-9	Aroclor-1242	1200	U
12672-29-6	Aroclor-1248	1200	U
11097-69-1	Aroclor-1254	23000	
11096-82-5	Aroclor-1260	2400	U

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PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

JD502

ab Name: G S R I Contract: 68-01-7398

i Code: GULF Case No.: 9945 SAS No.: _____ SDG No.: JD501

at ix: (soil/water) SOIL Lab Sample ID: BFS06

ample wt/vol: 1.0 (g/mL) G Lab File ID: _____

ev 1: (low/med) MED Date Received: 07/21/88

Moisture: not dec. 6 dec. ____ Date Extracted: 07/26/88

t. action: (SepF/Cont/Sonc) SONC Date Analyzed: 08/03/88

PC Cleanup: (Y/N) N pH: 5.6 Dilution Factor: 50

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	6400	U
319-85-7	beta-BHC	6400	U
319-86-8	delta-BHC	6400	U
58-89-9	gamma-BHC (Lindane)	6400	U
76-44-8	Heptachlor	6400	U
309-00-2	Aldrin	6400	U
1024-57-3	Heptachlor epoxide	6400	U
959-98-8	Endosulfan I	6400	U
60-57-1	Dieldrin	13000	U
72-55-9	4,4'-DDE	13000	U
72-20-8	Endrin	13000	U
33213-65-9	Endosulfan II	13000	U
72-54-8	4,4'-DDD	13000	U
1031-07-8	Endosulfan sulfate	13000	U
50-29-3	4,4'-DDT	13000	U
72-43-5	Methoxychlor	64000	U
53494-70-5	Endrin ketone	13000	U
5103-71-9	alpha-Chlordane	64000	U
5103-74-2	gamma-Chlordane	64000	U
8001-35-2	Toxaphene	130000	U
12674-11-2	Aroclor-1016	64000	U
11104-28-2	Aroclor-1221	64000	U
11141-16-5	Aroclor-1232	64000	U
53469-21-9	Aroclor-1242	64000	U
12672-29-6	Aroclor-1248	64000	U
11097-69-1	Aroclor-1254	130000	U
11096-82-5	Aroclor-1260	130000	U

JDK 9/13/88

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PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

JD503

ab Name: G S R I Contract: 68-01-7398

at Code: GULF Case No.: 9945 SAS No.: _____ SDG No.: JD501

at ix: (soil/water) SOIL Lab Sample ID: BPS11

ample wt/vol: 1.0 (g/mL) G Lab File ID: SVBPS11

ev l: (low/med) MED Date Received: 07/21/88

Moisture: not dec. - 4 dec. ____ Date Extracted: 07/26/88

xt. action: (SepF/Cont/Sonc) SONC Date Analyzed: 08/03/88

PC Cleanup: (Y/N) N pH: 7.0 Dilution Factor: 20

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	2500	U
319-85-7	beta-BHC	2500	U
319-86-8	delta-BHC	2500	U
58-89-9	gamma-BHC (Lindane)	2500	U
76-44-8	Heptachlor	2500	U
309-00-2	Aldrin	2500	U
1024-57-3	Heptachlor epoxide	2500	U
959-98-8	Endosulfan I	2500	U
60-57-1	Dieldrin	5000	U
72-55-9	4,4'-DDE	5000	U
72-20-8	Endrin	5000	U
33213-65-9	Endosulfan II	5000	U
72-54-8	4,4'-DDD	5000	U
1031-07-8	Endosulfan sulfate	5000	U
50-29-3	4,4'-DDT	5000	U
72-43-5	Methoxychlor	25000	U
53494-70-5	Endrin ketone	5000	U
5103-71-9	alpha-Chlordane	25000	U
5103-74-2	gamma-Chlordane	25000	U
8001-35-2	Toxaphene	50000	U
12674-11-2	Aroclor-1016	25000	U
11104-28-2	Aroclor-1221	25000	U
11141-16-5	Aroclor-1232	25000	U
53469-21-9	Aroclor-1242	25000	U
12672-29-6	Aroclor-1248	25000	U
11097-69-1	Aroclor-1254	390000	
11096-82-5	Aroclor-1260	50000	U

JDK 9/12/88

recycled paper

ecology and environment

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

JD504

ab Name: G S R I Contract: 68-01-7398

at Code: GULF Case No.: 9945 SAS No.: _____ SDG No.: JD501

at ix: (soil/water) SOIL Lab Sample ID: BPS16

ample wt/vol: 1.0 (g/mL) G Lab File ID: SVBPS16

ev 1: (low/med) MED Date Received: 07/21/88

Moisture: not dec. 1 dec. ____ Date Extracted: 07/26/88

xt. action: (SepF/Cont/Sonc) SONC Date Analyzed: 08/03/88

PC Cleanup: (Y/N) N pH: 6.9 Dilution Factor: 20

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	2400	U
319-85-7	beta-BHC	2400	U
319-86-8	delta-BHC	2400	U
58-89-9	gamma-BHC (Lindane)	2400	U
76-44-8	Heptachlor	2400	U
309-00-2	Aldrin	2400	U
1024-57-3	Heptachlor epoxide	2400	U
959-98-8	Endosulfan I	2400	U
60-57-1	Dieldrin	4800	U
72-55-9	4,4'-DDE	4800	U
72-20-8	Endrin	4800	U
33213-65-9	Endosulfan II	4800	U
72-54-8	4,4'-DDD	4800	U
1031-07-8	Endosulfan sulfate	4800	U
50-29-3	4,4'-DDT	4800	U
72-43-5	Methoxychlor	24000	U
53494-70-5	Endrin ketone	4800	U
5103-71-9	alpha-Chlordane	24000	U
5103-74-2	gamma-Chlordane	24000	U
8001-35-2	Toxaphene	48000	U
12674-11-2	Aroclor-1016	24000	U
11104-28-2	Aroclor-1221	24000	U
11141-16-5	Aroclor-1232	24000	U
53469-21-9	Aroclor-1242	24000	U
12672-29-6	Aroclor-1248	24000	U
11097-69-1	Aroclor-1254	670000	
11096-82-5	Aroclor-1260	48000	U

DOK 9/12/88

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1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

JD505

ab Name: G S R I Contract: 68-01-7398

ab Code: GULF Case No.: 9945 SAS No.: _____ SDG No.: JD501

at ix: (soil/water) SOIL Lab Sample ID: BPS21

ample wt/vol: 30.0 (g/mL) G Lab File ID: _____

ev l: (low/med) LOW Date Received: 07/21/88

Moisture: not dec. 3 dec. ____ Date Extracted: 07/26/88

t. action: (SepF/Cont/Sonc) SONC Date Analyzed: 08/03/88

PC Cleanup: (Y/N) N pH: 6.2 Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	8.2	U
319-85-7	beta-BHC	8.2	U
319-86-8	delta-BHC	8.2	U
58-89-9	gamma-BHC (Lindane)	8.2	U
76-44-8	Heptachlor	8.2	U
309-00-2	Aldrin	8.2	U
1024-57-3	Heptachlor epoxide	8.2	U
959-98-8	Endosulfan I	8.2	U
60-57-1	Dieldrin	16	U
72-55-9	4,4'-DDE	16	U
72-20-8	Endrin	16	U
33213-65-9	Endosulfan II	16	U
72-54-8	4,4'-DDD	16	U
1031-07-8	Endosulfan sulfate	16	U
50-29-3	4,4'-DDT	16	U
72-43-5	Methoxychlor	82	U
53494-70-5	Endrin ketone	16	U
5103-71-9	alpha-Chlordane	82	U
5103-74-2	gamma-Chlordane	82	U
8001-35-2	Toxaphene	160	U
12674-11-2	Aroclor-1016	82	U
11104-28-2	Aroclor-1221	82	U
11141-16-5	Aroclor-1232	82	U
53469-21-9	Aroclor-1242	82	U
12672-29-6	Aroclor-1248	82	U
11097-69-1	Aroclor-1254	160	U
11096-82-5	Aroclor-1260	160	U

JDK 9/12/88

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

JD522

:b Name: G S R I Contract: 68-01-7398

:b Code: GULF Case No.: 9945 SAS No.: _____ SDG No.: JD501

:t ix: (soil/water) SOIL Lab Sample ID: BPS26

:mple wt/vol: 1.0 (g/mL) G Lab File ID: _____

:v 1: (low/med) MED Date Received: 07/21/88

Moisture: not dec. 49 dec. ____ Date Extracted: 07/26/88

:t action: (SepF/Cont/Sonc) SONC Date Analyzed: 08/03/88

anup: (Y/N) N pH: 5.0 Dilution Factor: 10

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	2400	U
319-85-7	beta-BHC	2400	U
319-86-8	delta-BHC	2400	U
58-89-9	gamma-BHC (Lindane)	2400	U
76-44-8	Heptachlor	2400	U
309-00-2	Aldrin	2400	U
1024-57-3	Heptachlor epoxide	2400	U
959-98-8	Endosulfan I	2400	U
60-57-1	Dieldrin	4700	U
72-55-9	4,4'-DDE	4700	U
72-20-8	Endrin	4700	U
33213-65-9	Endosulfan II	4700	U
72-54-8	4,4'-DDD	4700	U
1031-07-8	Endosulfan sulfate	4700	U
50-29-3	4,4'-DDT	4700	U
72-43-5	Methoxychlor	24000	U
53494-70-5	Endrin ketone	4700	U
5103-71-9	alpha-Chlordane	24000	U
5103-74-2	gamma-Chlordane	24000	U
8001-35-2	Toxaphene	47000	U
12674-11-2	Aroclor-1016	24000	U
11104-28-2	Aroclor-1221	24000	U
11141-16-5	Aroclor-1232	24000	U
53469-21-9	Aroclor-1242	24000	U
12672-29-6	Aroclor-1248	24000	U
11097-69-1	Aroclor-1254	47000	U
11096-82-5	Aroclor-1260	47000	U

Doy 9/12/88

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1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

JD523

ab Name: G S R I Contract: 68-01-7399

ab Code: GULF Case No.: 9945 SAS No.: _____ SDG No.: JD501

at ix: (soil/water) SOIL Lab Sample ID: BPS31

ample wt/vol: 30.0 (g/mL) G Lab File ID: _____

ev 1: (low/med) LOW Date Received: 07/21/88

Moisture: not dec. 23 dec. ____ Date Extracted: 07/26/88

t. action: (SepF/Cont/Sonc) SONC Date Analyzed: 08/03/88

C Cleanup: (Y/N) N pH: 5.6 Dilution Factor: 1.00

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	21	U
72-55-9	4,4'-DDE	21	U
72-20-8	Endrin	21	U
33213-65-9	Endosulfan II	21	U
72-54-8	4,4'-DDD	21	U
1031-07-8	Endosulfan sulfate	21	U
50-29-3	4,4'-DDT	21	U
72-43-5	Methoxychlor	100	U
53494-70-5	Endrin ketone	21	U
5103-71-9	alpha-Chlordane	100	U
5103-74-2	gamma-Chlordane	100	U
8001-35-2	Toxaphene	210	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	210	U
11096-82-5	Aroclor-1260	160	J

JD 9/18/88

000054

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

JD526

ab Name: G S R I Contract: 68-01-7398

a Code: GULF Case No.: 9945 SAS No.: _____ SDG No.: JD501

a rix: (soil/water) SOIL Lab Sample ID: BPS46

ample wt/vol: 30.0 (g/mL) G Lab File ID: SVBPS46

e el: (low/med) LOW Date Received: 07/21/88

Moisture: not dec. 18 dec. ____ Date Extracted: 07/26/88

x Faction: (SepF/Cont/Sonc) SONC Date Analyzed: 08/02/88

PC Cleanup: (Y/N) Y pH: 6.6 Dilution Factor: 2.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	20	U
319-85-7	beta-BHC	20	U
319-86-8	delta-BHC	20	U
58-89-9	gamma-BHC (Lindane)	20	U
76-44-8	Heptachlor	20	U
309-00-2	Aldrin	20	U
1024-57-3	Heptachlor epoxide	20	U
959-98-8	Endosulfan I	20	U
60-57-1	Dieldrin	39	U
72-55-9	4,4'-DDE	39	U
72-20-8	Endrin	39	U
33213-65-9	Endosulfan II	39	U
72-54-8	4,4'-DDD	39	U
1031-07-8	Endosulfan sulfate	39	U
50-29-3	4,4'-DDT	39	U
72-43-5	Methoxychlor	200	U
53494-70-5	Endrin ketone	39	U
5103-71-9	alpha-Chlordane	200	U
5103-74-2	gamma-Chlordane	200	U
8001-35-2	Toxaphene	390	U
12674-11-2	Aroclor-1016	200	U
11104-28-2	Aroclor-1221	200	U
11141-16-5	Aroclor-1232	200	U
53469-21-9	Aroclor-1242	200	U
12672-29-6	Aroclor-1248	200	U
11097-69-1	Aroclor-1254	11000	
11096-82-5	Aroclor-1260	390	U

JDK 9/13/88

000067

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

JD524

ab Name: G S R I Contract: 68-01-7398

at Code: GULF Case No.: 9945 SAS No.: _____ SDG No.: JD501

at ix: (soil/water) SOIL Lab Sample ID: BPS36

ample wt/vol: 30.0 (g/mL) G Lab File ID: SVBPS36

e l: (low/med) LOW Date Received: 07/21/88

Moisture: not dec. 26 dec. ____ Date Extracted: 07/26/88

t action: (SepF/Cont/Sonc) SONC Date Analyzed: 08/03/88

PC Cleanup: (Y/N) Y pH: 7.6 Dilution Factor: 2.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	22	U
319-85-7	beta-BHC	22	U
319-86-8	delta-BHC	22	U
58-89-9	gamma-BHC (Lindane)	22	U
76-44-8	Heptachlor	22	U
309-00-2	Aldrin	22	U
1024-57-3	Heptachlor epoxide	22	U
959-98-8	Endosulfan I	22	U
60-57-1	Dieldrin	43	U
72-55-9	4,4'-DDE	43	U
72-20-8	Endrin	43	U
33213-65-9	Endosulfan II	43	U
72-54-8	4,4'-DDD	43	U
1031-07-8	Endosulfan sulfate	43	U
50-29-3	4,4'-DDT	43	U
72-43-5	Methoxychlor	220	U
53494-70-5	Endrin ketone	43	U
5103-71-9	alpha-Chlordane	220	U
5103-74-2	gamma-Chlordane	220	U
8001-35-2	Toxaphene	430	U
12674-11-2	Aroclor-1016	220	U
11104-28-2	Aroclor-1221	220	U
11141-16-5	Aroclor-1232	220	U
53469-21-9	Aroclor-1242	220	U
12672-29-6	Aroclor-1248	220	U
11097-69-1	Aroclor-1254	18000	
11096-82-5	Aroclor-1260	430	U

Doc 9/13/88

000057

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

JD525

ab Name: G S R I Contract: 68-01-7398

ab Code: GULF Case No.: 9945 SAS No.: _____ SDG No.: JD501

atrix: (soil/water) SOIL Lab Sample ID: BPS41

ample wt/vol: 30.0 (g/mL) G Lab File ID: _____

ev 1: (low/med) LOW Date Received: 07/21/88

Moisture: not dec. 65 dec. ____ Date Extracted: 07/26/88

xt action: (SepF/Cont/Sonc) SONC Date Analyzed: 08/02/88

PC Cleanup: (Y/N) Y pH: 6.6 Dilution Factor: 2.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	46	U
319-85-7	beta-BHC	46	U
319-86-8	delta-BHC	46	U
58-89-9	gamma-BHC (Lindane)	46	U
76-44-8	Heptachlor	46	U
309-00-2	Aldrin	46	U
1024-57-3	Heptachlor epoxide	46	U
959-98-8	Endosulfan I	46	U
60-57-1	Dieldrin	91	U
72-55-9	4,4'-DDE	91	U
72-20-8	Endrin	91	U
33213-65-9	Endosulfan II	91	U
72-54-8	4,4'-DDD	91	U
1031-07-8	Endosulfan sulfate	91	U
50-29-3	4,4'-DDT	91	U
72-43-5	Methoxychlor	460	U
53494-70-5	Endrin ketone	91	U
5103-71-9	alpha-Chlordane	460	U
5103-74-2	gamma-Chlordane	460	U
8001-35-2	Toxaphene	910	U
12674-11-2	Aroclor-1016	460	U
11104-28-2	Aroclor-1221	460	U
11141-16-5	Aroclor-1232	460	U
53469-21-9	Aroclor-1242	460	U
12672-29-6	Aroclor-1248	460	U
11097-69-1	Aroclor-1254	5800	
11096-82-5	Aroclor-1260	910	U

JDK 9/12/89

000062

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

JD514

Lab Name: DATACHEM INC. Contract: 68-01-7466

Lab Code: DATAC Case No.: 9945 SAS No.: _____ SDG No.: JD513

Matrix: (soil/water) WATER Lab Sample ID: CLP1524

Sample wt/vol: 1000 (g/mL) ML Lab File ID: YO9JD514

Level: (low/med) LOW Date Received: 07/20/88

% Moisture: not dec. ____ dec. ____ Date Extracted: 07/20/88

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 07/27/88

GPC Cleanup: (Y/N) N pH: 5.0 Dilution Factor: 1.00

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-Dinitrophendl	50	U
100-02-7	4-Nitrophenol	50	U
132-64-9	Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene	10	U
84-66-2	Diethylphthalate	10	U
7005-72-3	4-Chlorophenyl-phenylether	10	U
86-73-7	Fluorene	10	U
100-10-6	4-Nitroaniline	50	U
534-52-1	4,6-Dinitro-2-Methylphenol	50	U
86-30-6	N-Nitrosodiphenylamine (1)	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
87-86-5	Pentachlorophenol	50	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
84-74-2	Di-n-Butylphthalate	10	U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
85-68-7	Butylbenzylphthalate	10	U
91-94-1	3,3'-Dichlorobenzidine	20	U
56-55-3	Benzo(a)Anthracene	10	U
218-01-9	Chrysene	10	U
117-81-7	bis(2-Ethylhexyl)Phthalate	10	U
117-84-0	Di-n-Octyl Phthalate	10	U
205-99-2	Benzo(b)Fluoranthene	10	U
207-08-9	Benzo(k)Fluoranthene	10	U
50-32-8	Benzo(a)Pyrene	10	U
193-39-5	Indeno(1,2,3-cd)Pyrene	10	U
53-70-3	Dibenz(a,h)Anthracene	10	U
191-24-2	Benzo(g,h,i)Perylene	10	U

(1) - Cannot be separated from Diphenylamine

JLY 8/19

FORM I SV-2 1/87 Rev.

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

JD514

Lab Name: DATACHEM INC. Contract: 68-01-7466

Lab Code: DATAC Case No.: 9945 SAS No.: _____ SDG No.: JD513

Matrix: (soil/water) WATER Lab Sample ID: CLP1524

Sample wt/vol: 1000 (g/mL) ML Lab File ID: Y09JD514

Level: (low/med) LOW Date Received: 07/20/88

% Moisture: not dec. ____ dec. ____ Date Extracted: 07/20/88

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 07/27/88

GPC Cleanup: (Y/N) N pH: 5.0 Dilution Factor: 1.00

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

JD514

Lab Name: DATACHEM INC. Contract: 68-01-7466

Lab Code: DATAC Case No.: 9945 SAS No.: _____ SDG No.: JD513

Matrix: (soil/water) WATER Lab Sample ID: CLP1524

Sample wt/vol: 1000 (g/mL) ML Lab File ID: _____

Level: (low/med) LOW Date Received: 08/20/88

% Moisture: not dec. ____ dec. ____ Date Extracted: 08/20/88

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 08/01/88

GPC Cleanup: (Y/N) N pH: 6.0 Dilution Factor: 1

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
319-84-6	alpha-BHC	0.050	U
319-85-7	beta-BHC	0.050	U
319-86-8	delta-BHC	0.050	U
58-89-9	gamma-BHC (Lindane)	0.050	U
76-44-8	Heptachlor	0.050	U
309-00-2	Aldrin	0.050	U
1024-57-3	Heptachlor epoxide	0.050	U
959-98-8	Endosulfan I	0.050	U
60-57-1	Dieldrin	0.10	U
72-55-9	4,4'-DDE	0.10	U
72-20-8	Endrin	0.10	U
33213-65-9	Endosulfan II	0.10	U
72-54-8	4,4'-DDD	0.10	U
1031-07-8	Endosulfan sulfate	0.10	U
50-29-3	4,4'-DDT	0.10	U
72-43-5	Methoxychlor	0.50	U
53494-70-5	Endrin ketone	0.10	U
5103-71-9	alpha-Chlordane	0.50	U
5103-74-2	gamma-Chlordane	0.50	U
8001-35-2	Toxaphene	1.0	U
12674-11-2	Aroclor-1016	0.50	U
11104-28-2	Aroclor-1221	0.50	U
11141-16-5	Aroclor-1232	0.50	U
53469-21-9	Aroclor-1242	0.50	U
12672-29-6	Aroclor-1248	0.50	U
11097-69-1	Aroclor-1254	1.0	U
11096-82-5	Aroclor-1260	1.0	U

FORM I PEST 1/87 Rev.

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

JD515

Lab Name: DATACHEM INC. Contract: 68-01-7466

Lab Code: DATAC Case No.: 9945 SAS No.: _____ SDG No.: JD513

Matrix: (soil/water) WATER Lab Sample ID: CLP1525

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: DS12JD515

Level: (low/med) LOW Date Received: 07/20/88

% Moisture: not dec. ____ Date Analyzed: 07/20/88

Column: (pack/cap) PACK Dilution Factor: 1.00

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	5	U
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	5	U
75-35-4	1,1-Dichloroethene	5	U
75-35-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	5	U
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	10	U R
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
108-05-4	Vinyl Acetate	10	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	Trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
108-88-3	Toluene	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
1330-20-7	Total Xylenes	5	U

JCK 8/12

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

JD515

Lab Name: DATACHEM INC. Contract: 68-01-7466

Lab Code: DATAC Case No.: 9945 SAS No.: _____ SDG No.: JD513

Matrix: (soil/water) WATER Lab Sample ID: CLP1525

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: DS12JD515

Level: (low/med) LOW Date Received: 07/20/88

% Moisture: not dec. ____ Date Analyzed: 07/20/88

Column (pack/cap) PACK Dilution Factor: 1.00

Number TICs found: 3

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	C6 CYCLIC HYDROCARBON	12.55	790	J
2.	C6 HYDROCARBON	14.45	62	J
3. 110-54-3	HEXANE	16.35	1500	J

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

JD515

Lab Name: DATACHEM INC. Contract: 68-01-7466

Lab Code: DATAC Case No.: 9945 SAS No.: _____ SDG No.: JD513

Matrix: (soil/water) WATER Lab Sample ID: CLP1525

Sample wt/vol: 1000 (g/mL) ML Lab File ID: YO10JD515

Level: (low/med) LOW Date Received: 07/20/88

% Moisture: not dec. ____ dec. ____ Date Extracted: 07/20/88

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 07/27/88

GPC Cleanup: (Y/N) N pH: 5.0 Dilution Factor: 1.00

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
39638-32-9	bis(2-Chloroisopropyl)Ether	10	U
106-44-5	4-Methylphenol	10	U
621-64-7	N-Nitroso-Di-n-Propylamine	10	U
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethylphenol	10	U
65-85-0	Benzoic Acid	50	U
111-91-1	bis(2-Chloroethoxy)Methane	10	U
120-83-2	2,4-Dichlorophenol	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
87-68-3	Hexachlorobutadiene	10	U
59-50-7	4-Chloro-3-Methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
95-95-4	2,4,5-Trichlorophenol	50	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	50	U
131-11-3	Dimethyl Phthalate	10	U
208-96-8	Acenaphthylene	10	U
606-20-2	2,6-Dinitrotoluene	10	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

JD515

Lab Name: DATACHEM INC. Contract: 68-01-7466

Lab Code: DATAC Case No.: 9945 SAS No.: _____ SDG No.: JD513

Matrix: (soil/water) WATER Lab Sample ID: CLP1525

Sample wt/vol: 1000 (g/mL) ML Lab File ID: YO10JD515

Level: (low/med) LOW Date Received: 07/20/88

% Moisture: not dec. ____ dec. ____ Date Extracted: 07/20/88

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 07/27/88

GPC Cleanup: (Y/N) N pH: 5.0 Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
99-09-2	3-Nitroaniline	50	U
83-32-9	Acenaphthene	10	U
51-28-5	2,4-Dinitrophenol	50	U
100-02-7	4-Nitrophenol	50	U
132-64-9	Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene	10	U
84-66-2	Diethylphthalate	10	U
7005-72-3	4-Chlorophenyl-phenylether	10	U
86-73-7	Fluorene	10	U
100-10-6	4-Nitroaniline	50	U
534-52-1	4,6-Dinitro-2-Methylphenol	50	U
86-30-6	N-Nitrosodiphenylamine (1)	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
87-86-5	Pentachlorophenol	50	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
84-74-2	Di-n-Butylphthalate	10	U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
85-68-7	Butylbenzylphthalate	10	U
91-94-1	3,3'-Dichlorobenzidine	20	U
56-55-3	Benzo(a)Anthracene	10	U
218-01-9	Chrysene	10	U
117-81-7	bis(2-Ethylhexyl)Phthalate	10	U
117-84-0	Di-n-Octyl Phthalate	10	U
205-99-2	Benzo(b)Fluoranthene	10	U
207-08-9	Benzo(k)Fluoranthene	10	U
50-32-8	Benzo(a)Pyrene	10	U
193-39-5	Indeno(1,2,3-cd)Pyrene	10	U
53-70-3	Dibenz(a,h)Anthracene	10	U
191-24-2	Benzo(g,h,i)Perylene	10	U

(1) - Cannot be separated from Diphenylamine

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

JD515

Lab Name: DATACHEM INC. Contract: 68-01-7466

Lab Code: DATAC Case No.: 9945 SAS No.: _____ SDG No.: JD513

Matrix: (soil/water) WATER Lab Sample ID: CLP1525

Sample wt/vol: 1000 (g/mL) ML Lab File ID: YO10JD515

Level: (low/med) LOW Date Received: 07/20/88

% Moisture: not dec. ____ dec. ____ Date Extracted: 07/20/88

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 07/27/88

GPC Cleanup: (Y/N) N pH: 5.0 Dilution Factor: 1.00

Number TICs found: 0

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

JD515

Lab Name: DATACHEM INC. Contract: 68-01-7466

Lab Code: DATAC Case No.: 9945 SAS No.: SDG No.: JD513

Matrix: (soil/water) WATER Lab Sample ID: CLP1[illegible]

Sample wt/vol: 1000 (g/mL) ML Lab File ID:

Level: (low/med) LOW Date Received: 08/20/88

% Moisture: not dec. dec. Date Extracted: 08/20/88

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 08/01/88

GPC Cleanup: (Y/N) N pH: 6.0 Dilution Factor: 1

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
319-84-6	alpha-BHC	0.050	U
319-85-7	beta-BHC	0.050	U
319-86-8	delta-BHC	0.050	U
58-89-9	gamma-BHC (Lindane)	0.050	U
76-44-8	Heptachlor	0.050	U
309-00-2	Aldrin	0.050	U
1024-57-3	Heptachlor epoxide	0.050	U
959-98-8	Endosulfan I	0.050	U
60-57-1	Dieldrin	0.10	U
72-55-9	4,4'-DDE	0.10	U
72-20-8	Endrin	0.10	U
33213-65-9	Endosulfan II	0.10	U
72-54-8	4,4'-DDD	0.10	U
1031-07-8	Endosulfan sulfate	0.10	U
50-29-3	4,4'-DDT	0.10	U
72-43-5	Methoxychlor	0.50	U
53494-70-5	Endrin ketone	0.10	U
5103-71-9	alpha-Chlordane	0.50	U
5103-74-2	gamma-Chlordane	0.50	U
8001-35-2	Toxaphene	1.0	U
12674-11-2	Aroclor-1016	0.50	U
11104-28-2	Aroclor-1221	0.50	U
11141-16-5	Aroclor-1232	0.50	U
53469-21-9	Aroclor-1242	0.50	U
12672-29-6	Aroclor-1248	0.50	U
11097-69-1	Aroclor-1254	1.0	U
11096-82-5	Aroclor-1260	1.0	U

FORM I PEST 1/87 Rev.

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International Specialists in the Environment

MEMORANDUM

DATE: October 25, 1988

FOR: Joyce Crosson, RSCC, USEPA, Region X

THRU: Jeffrey Villnow, FIT-OM, E&E, Seattle

FROM: Tracy Yerian, Senior Chemist, E&E, Seattle

SUBJ: QA of Case 9945 (Organics)
NW Pipe & Casing

REF: F10-8806-09
PAN F10Z063QA

CC: John Osborn, PO, USEPA, Region X
Raleigh Farlow, ESD-DPO, USEPA, Region X
Gerald Muth, DPO, Region X Laboratory, Manchester
David Stockton, DPO, USEPA, Region VI
William Glasser, ESD-PO, USEPA, Region X
Robert Duffner, FIT-PM, E&E, Seattle

The Quality Assurance review of 14 samples, Case 9945, collected from NW Pipe & Casing has been completed. Thirteen soil samples were analyzed at low level for volatiles and one soil sample was analyzed at medium level for volatiles; seven soil samples were analyzed at low level for semivolatiles and seven soil samples were analyzed at medium level for semivolatiles; eight soil samples were analyzed at low level for pesticides and six soil samples were analyzed at medium level for pesticides by Gulf South Research Institute of New Orleans, Louisiana. The samples were numbered:

JC 853	JD 501	JD 505	JD 525
JC 854	JD 502	JD 522	JD 526
JC 859	JD 503	JD 523	
JC 862	JD 504	JD 524	

Samples JD 526 (low level) and JC 854 (medium level) underwent matrix spike and matrix spike duplicate analysis for volatiles; samples JC 859 (low level) and JD 503 (medium level) underwent matrix spike and matrix spike duplicate analysis for semivolatiles and for pesticides.

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Data Qualifications

The following comments refer to the laboratory performance in meeting the Quality Control Specifications outlined in IFB WA-87K236-238, following Laboratory Data Validation Functional Guidelines for Evaluating Organics Analysis (February 1, 1988).

1) Timeliness

Sample Number	Sample Date	Rec'd Date	VOA Anal.	BNA Ext.	BNA Anal.	Pest. Ext.	Pest. Anal.
JC 853	7/21/88	7/22/88	7/30/88	7/26/88	8/02/88	7/26/88	8/03/88
JC 853DL	7/21/88	7/22/88	-------	7/26/88	8/02/88	-------	-------
JC 854	7/21/88	7/22/88	8/01/88	7/25/88	8/03/88	7/26/88	8/03/88
JC 859	7/21/88	7/22/88	7/30/88	7/25/88	8/02/88	7/26/88	8/03/88
JC 862	7/21/88	7/23/88	7/30/88	7/26/88	8/02/88	7/26/88	8/03/88
JC 862DL	7/21/88	7/22/88	-------	7/26/88	8/03/88	-------	-------
JC 862RE	7/21/88	7/23/88	7/31/88	-------	-------	-------	-------
JD 501	7/19/88	7/21/88	-------	7/26/88	8/01/88	7/26/88	8/03/88
JD 502	7/19/88	7/21/88	7/29/88	7/26/88	8/01/88	7/26/88	8/03/88
JD 502DL	7/19/88	7/21/88	-------	7/26/88	8/03/88	-------	-------
JD 503	7/19/88	7/21/88	7/29/88	7/26/88	8/01/88	7/26/88	8/03/88
JD 503DL	7/19/88	7/21/88	-------	7/26/88	8/03/88	-------	-------
JD 504	7/19/88	7/21/88	7/30/88	7/26/88	8/02/88	7/26/88	8/03/88
JD 505	7/19/88	7/21/88	7/27/88	7/25/88	8/02/88	7/26/88	8/03/88
JD 522	7/19/88	7/21/88	7/28/88	7/26/88	8/01/88	7/26/88	8/03/88
JD 522RE	7/19/88	7/21/88	7/30/88	-------	-------	-------	-------
JD 523	7/19/88	7/21/88	7/28/88	7/25/88	8/02/88	7/26/88	8/03/88
JD 524	7/19/88	7/21/88	7/29/88	7/24/88	8/03/88	7/26/88	8/03/88
JD 524RE	7/19/88	7/21/88	7/30/88	-------	-------	-------	-------
JD 525	7/19/88	7/21/88	7/29/88	7/25/88	8/02/88	7/26/88	8/02/88
JD 526	7/19/88	7/21/88	7/30/88	7/25/88	8/03/88	7/26/88	8/02/88

All samples met holding time criteria for volatiles, semivolatiles and pesticides, except:

Sample Number	Fraction	Sampling Date	Analysis Date	Time Elapsed
JC 853	VOA	7/21/88	7/30/88	9 days
JC 854	VOA	7/21/88	8/01/88	11 days
JC 859	VOA	7/21/88	8/01/88	11 days
JC 862	VOA	7/21/88	8/01/88	11 days
JD 501	VOA	7/19/88	8/01/88	11 days
JD 502	VOA	7/19/88	7/29/88	10 days
JD 503	VOA	7/19/88	7/29/88	10 days
JD 504	VOA	7/19/88	7/30/88	11 days
JD 505	VOA	7/29/88	7/27/88	8 days
JD 522	VOA	7/19/88	7/28/88	9 days
JD 522RE	VOA	7/19/88	7/30/88	11 days
JD 523	VOA	7/19/88	7/28/88	9 days
JD 524	VOA	7/19/88	7/28/88	9 days
JD 524RE	VOA	7/19/88	7/30/88	11 days
JD 525	VOA	7/19/88	7/29/88	10 days
JD 526	VOA	7/19/88	7/29/88	10 days
JC 862RE	VOA	7/21/88	7/31/88	10 days

The holding time criteria for volatiles is analysis within 7 days of sampling date for aromatics and analysis within 14 days of sampling date for non-aromatics for unpreserved samples. Volatile results for the aromatic compounds in all samples were flagged "J" (estimated quantity) or "UJ" (not detected, adjusted quantitation limit) as appropriate.

2) Instrument Tuning

All tuning check compound mass abundances and ratios were within contract required limits for volatile and semivolatile analysis.

3) Initial Calibration

All SPCC compounds were within contract required limits for the initial calibration with average Relative Response Factors (RRFs) above 0.05 for volatiles and semivolatiles. All CCC compounds were within contract required limits for the initial calibration with Percent Relative Standard Deviations below 30 percent.

All non-SPCC compounds had average Relative Response Factors of greater than or equal to 0.05 in the initial volatile or semivolatile calibration, except:

Date	Instrument	Compound	Fraction	RRF	Associated Samples
8/01/88	B	2-Butanone	VOA	0.033	Medium level samples

No action was taken based on initial calibration response factors.

All non-CCC compounds had percent relative standard deviations less than or equal to 30 percent for the initial volatile or semivolatile calibration, except:

Date	Instrument	Compound	Fraction	%RSD	Associated Samples
7/26/88	A	Methylene Chloride	VOA	49.9	Low level samples
		Acetone	VOA	38.2	
8/01/88	B	Methylene Chloride	VOA	35.1	Medium level samples
8/01/88	C	Benzo(g,h,i)perylene	BNA	30.1	All samples

For samples associated with the corresponding calibration and TCL compounds listed above, positive results and sample quantitation limits were flagged as estimated, as a high relative standard deviation is indicative of poor system linearity.

4) Continuing Calibrations

All SPCC compounds were at or above the contract required Relative Response Factor limits of 0.05 for volatiles and semivolatiles. All CCC compounds were at or below the contract required Relative Percent Difference limits of 25 percent for the volatile and semivolatile continuing calibrations.

All non-SPCC compounds had Relative Response Factors (RRF(50)) of greater than or equal to 0.05 for continuing calibrations, except:

Date	Time	Instrument	Compound	RRF (50)	Associated Samples
7/28/88	11:33	A	2-Butanone	0.022	JD 501
8/01/88	15:30	B	2-Butanone	0.032	Medium level sample

For samples associated with the corresponding calibration and TCL compounds listed above, each compound was flagged as estimated (J) for positive results. Quantitation limits were rejected for all compounds with RRF(50)s below 0.05.

All non-CCC compounds that were detected in the sample had relative percent difference (%D) values for the continuing calibration less than or equal to 25 percent, except:

Date	Instrument	Time	Compound	Fraction	%D	Associated Samples
7/28/88	A	11:33	2-Butanone	VOA	67.7	JD 501
7/29/88	A	21:20	Acetone	VOA	-54.5	JD 504, JD 524RE
			2-Butanone	VOA	-42.7	JD 525RE, JC 859
7/30/88	A	13:06	Methylene Chloride	VOA	32.9	JD 526, JD 522RE
			Acetone	VOA	-41.9	JC 853
7/31/88	A	12:38	Methylene Chloride	VOA	28.8	JC 862RE

For samples associated with the corresponding calibration and TCL compounds listed above, positive results were flagged as estimated (J).

5) Instrument Detection Limits

The instrument detection limits were not supplied for any of the analytical systems.

6) Blanks

Frequency criteria was met for laboratory blank analysis.

The following compounds were detected in laboratory blanks at levels above IDL:

Blank ID	Fraction	Compound	Conc.	CRQL mg/kg	Associated Samples
VBLKL1	VOA	Methylene Chloride	12	5	JD 505
		Acetone	24	10	
VBLKL2	VOA	Methylene Chloride	23	5	JD 501
		Acetone	9	10	
VBLKL3	VOA	Methylene Chloride	5	5	JD 523
		Acetone	20	10	
VBLKL4	VOA	Methylene Chloride	9	5	JD 502, JD 503
		Acetone	33	10	
VBLKL5	VOA	Methylene Chloride	15	5	JC 859, JD 504,
		Acetone	19	10	JD 524RE, JD 525RE
VBLKL6	VOA	Methylene Chloride	13	5	JC 853, JD 522RE,
		Acetone	16	10	JD 526, JD 526MS,
					JD 526MSD
VBLKL7	VOA	Methylene Chloride	17	5	JC 862RE
		Acetone	11	10	
VBLKM1	VOA	Methylene Chloride	1400	500	JC 854, JC 854MS,
					JC 854MSD

Many of the methylene chloride and acetone levels were above the CRQL.

Reported levels of the above compounds in the samples were flagged "UJ" (adjusted quantitation limit) if the concentrations were below five times the concentrations found in the appropriate blank (10 times for common solvents).

The following Tentatively Identified Compounds (TICs) were identified in the laboratory blanks:

Blank ID	Fraction	Compound	RT	Est. Conc.	Associated Samples
VBLKM1	VOA	Unknown	2.50	7900J	JC 854
		Unknown	26.11	1600J	

Two unknown compounds found in the medium level volatile blank were considered artifacts by the laboratory.

Reported levels of these compounds found in the samples were flagged "UJ" (adjusted quantitation limit) if the reported concentration was less than 10 times the concentration found in the appropriate blank.

7) Pesticide Standards

a) Linearity

The evaluation standards met the contract required limits of less than 10 percent RSD for linearity for the quantitation (mixed phase) column.

b) DDT Retention Time

The retention time for DDT on the primary and secondary GC column met or exceeded 12 minutes for the standard runs.

c) Retention Time Windows

The retention time windows met the contract specifications.

d) Analytical Sequence

The analytical sequence met the contract required frequency and order.

e) 4,4'-DDT/Endrin Degradation

The percent breakdown for Endrin and DDT met the contract limit of 20 percent for the individual or combined breakdown totals.

f) Dibutylchlorendate Retention Time Shift

The Percent Difference calculated for the retention time of dibutylchlorendate did not exceed 2 percent for the packed columns.

g) Standards Summary

8) Surrogate Recovery

Recoveries (%R) for all surrogate compounds for volatile and semivolatile analysis met QC criteria, except:

Sample Number	Fraction	Compound	%R	QC Limits
JC 862	VOA	Toluene-d8	130	81-117
		Bromofluorobenzene	70	74-124
JD 522	VOA	Toluene-d8	127	81-117
		Bromofluorobenzene	72	74-124
JD 522RE	VOA	Toluene-d8	125	81-117
JD 524	VOA	Toluene-d8	131	81-117
JD 524RE	VOA	Toluene-d8	127	81-117
JD 526	BNA	2,4,6-Tribromophenol	125	19-122
JC 862	VNA	2-Fluorobiphenyl	117	30-115
JC 853	Pest/low	Dibutylchlorendate	999	20-150
JC 854	Pest/low	Dibutylchlorendate	154	20-150
JD 524	Pest/low	Dibutylchlorendate	163	20-150
JD 504	Pest/med	Dibutylchlorendate	194	20-150
JC 862	Pest/med	Dibutylchlorendate	0	20-150
JC 502	Pest/med	Dibutylchlorendate	0	20-150
JC 503	Pest/med	Dibutylchlorendate	0	20-150
JD 522	Pest/med	Dibutylchlorendate	0	20-150

Sample JC 862, JD 522, JD 524, and JD 525 were rerun. The problem with these samples was characterized by low recovery of d_5-chlorobenzene; the laboratory attributed the problem to the low density of the samples, resulting in ineffective purging of these samples. Upon re-analysis, JC 862 surrogate recoveries met criteria; the data sheet for the rerun was submitted with this report. One of the two surrogate outliers for JD 522 met criteria after re-analysis; the data sheet for the rerun was submitted with this report. The surrogate compound outside QC criteria for JD 524 was still outside criteria after re-analysis, but was closer to the upper QC limit; the re-run data sheet was submitted with this report.

The volatile fractions of samples JD 522RE and JD 524RE were flagged as estimated (J or UJ).

No action was taken based on the single semivolatile surrogate in samples JD 526 and JC 862. Surrogate compounds were diluted out of JC 862DL and JD 502DL; no action was taken.

Dibutylchlorendate recoveries were subjected to matrix interference; no action was taken based on results outside QC limits. The pesticide surrogate was diluted out of sample JC 862, JD 502, JD 503, and JD 522; no action was taken.

9) Matrix Spike and Matrix Spike Duplicate

All volatile low level and medium level Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Percent Recoveries (%Rs) met advisory QC guidelines. All semivolatile low level and medium level MS and MSD %Rs met advisory guidelines, except:

Sample Number	Fraction/ Level	Compound	%R	QC Limits
JC 859MS	BNA/low	2,4-Dinitrotoluene	90	28-89
JD 503MS	BNA/med	Phenol	107	26-90
		Pyrene	-28	38-142
JD 503MSD	BNA/med	Phenol	97	26-90
		Pyrene	-85	35-142
JC 859MS	Pest/low	Aldrin	206	34-132
		Dieldrin	0	31-134
		Endrin	0	42-139
		44'-DDT	397	23-134
JC 859MSD	Pest/low	Gamma-BHC	146	46-127
		Aldrin	294	34-132
		Dieldrin	758	31-134
		Endrin	0	42-139
		44'-DDT	157	23-134
JD 503MS	Pest/med	Aldrin	585	34-132
		Dieldrin	0	31-134
		Endrin	0	42-139
		44'-DDT	1423	23-134
JD 503MSD	Pest/med	Heptachlor	137	35-130
		Aldrin	589	34-132
		Dieldrin	0	31-134
		Endrin	0	42-139
		44-'DDT	1265	23-134

All of these samples contained Aroclors, which interfered with the matrix spike recoveries of the above compounds. As none of the pesticide compounds in the matrix spike were detected in the samples, no action was taken based on the spike recoveries for the pesticides. Results for phenol and pyrene in samples JD 503 and results for 2,4-dinitrotoluene in JC 859 were flagged as estimated (J or UJ).

All Relative Percent Difference (RPDs) for the volatile low level

and medium level MS and MSD were within QC guidelines. All RPDs for the semivolatile low and medium level MS and MSD were within guidelines, except:

Sample Number	Fraction	Compound	RPD	QC Limits
JD 503	BNA/med	Pyrene	-101	36
JC 859	Pest/low	Dieldrin	-200	38
		44'-DDT	87	50

No action was taken based on matrix spike RPDs.

10) Sample Analysis

All reported results above instrument detection limits but below Contract Required Quantitation Limit (CRQL) were flagged as estimated (J) on the Data Sheets.

Dilutions were required for all medium-level semivolatile analyses JD 502, JD 503, JC 853, and JC 862; 1:2 dilutions of JD 526 and JC 854 were performed prior to analysis. GPC cleanup was performed on all of the medium-level samples and on all of the low-level samples except JC 859. Results for the diluted runs were hand-entered onto the earlier run to allow submission of only one Data Sheet for each sample.

Pesticide analyses for samples JD 503, JD 502, JD 522, and JC 862 required dilution; DBC was diluted out on these samples. Samples JC 524, JC 853, JC 854, and JD 504 exhibit matrix interference with DBC from the Aroclors present in the samples. The presence of PCBs was confirmed by GC/MS in the samples listed above. Pesticide analyses for samples JC 862 and JD 502 were performed at a dilution of 50 by the laboratory. Results for these samples were below detection limits at this dilution, but it appears from the raw data that both samples contained aroclors.

Most of the semivolatile samples contained numerous tentatively identified compounds (TICs); the TICs were primarily unknown polynuclear aromatics and methylated pyrenes and phenanthrenes.

11) Laboratory Contact

The laboratory was contacted October 17, 1988, to resolve questions concerning the data; the contact report sheet is attached to this memoranda.

Data Use

The usefulness of the data is based on the criteria outlined in the "Laboratory Data Validation Functional Guidelines for Evaluating Organics and Pesticides/PCB Analyses" (R-582-5-5-01).

Upon consideration of the data qualifications noted above, the data are ACCEPTABLE for use except where flagged with data qualifiers which modify the usefulness of the individual values.

This QA memorandum completes the series of QA reviews of CLP and/or EPA lab data for samples collected during the Site Inspection identified on the cover page under the heading NW Pipe & Casing.

Data Qualifiers

U - The material was analyzed for, but was not detected. The associated numerical value is a contractual quantitation limit, adjusted for sample weight/sample volume, extraction volume, percent solids and sample dilution.

J - The associated numerical value is an estimated quantity because quality control criteria were not met or concentrations reported were less than the CRQL.

UJ - The material was analyzed for, but was not detected. The associated numerical value is an estimated quantitation limit.

R - Quality Control indicates that data are unusable (compound may or may not be present). Resampling and reanalysis are necessary for verification.

N - Presumptive evidence of presence of material (tentative identification).

M - Mass spectral criteria for positive identification were not met. However, in the opinion of the laboratory, the identification is correct based on the analyst's professional judgement.

X - The reported result may be a combination of indistinguishable isomers.

In Reference to Case No(s): 9945

Contract Laboratory Program
REGIONAL/LABORATORY COMMUNICATION SYSTEM

Telephone Record Log

Date of Call: Oct 17 1988

Laboratory Name: Gulf South Research Institute

Lab Contact: Linda Bohannon

Region:

Regional Contact: (X) Mary Urban

Call Initiated By: ____ Laboratory X Region

In reference to data for the following sample number(s):
JC 853 JC 854 JC 859 JC 862 JD 501 JD 502 JD 503 JD 504 JD 505 JD 522 JD 529 JC 574 JD 525 JD 526

Summary of Questions/Issues Discussed:
Recovery would not verify semi-volatile results for JD 522; all results were 2X too high. Incorrect values.

Summary of Resolution:
Corrected Form I's were received 10/24/88

Mary Urban
Signature

10/24/88
Date

Distribution: (1)Lab Copy, (2)Region Copy, (3)SMO Copy

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

JC853

Lab Name: G S R I Contract: 68-01-7398

Lab Code: GULF Case No.: 9945 SAS No.: _____ SDG No.: JD501

Matrix: (soil/water) SOIL Lab Sample ID: BPU05

Sample wt/vol: 1.0 (g/mL) G Lab File ID: VOBPU05R

Level: (low/med) LOW Date Received: 07/22/88

% Moisture: not dec. 26 Date Analyzed: 07/30/88

Column: (pack/cap) PACK Dilution Factor: 0.98

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

CAS NO.	COMPOUND		Q
74-87-3	Chloromethane	66	U
74-83-9	Bromomethane	66	U
75-01-4	Vinyl Chloride	66	U
75-00-3	Chloroethane	66	U
75-09-2	Methylene Chloride	150	UJ
67-64-1	Acetone	150	UJ
75-15-0	Carbon Disulfide	33	U
75-35-4	1,1-Dichloroethene	33	U
75-34-3	1,1-Dichloroethane	33	U
540-59-0	1,2-Dichloroethene (total)	33	U
67-66-3	Chloroform	33	U
107-06-2	1,2-Dichloroethane	33	U
78-93-3	2-Butanone	66	U
71-55-6	1,1,1-Trichloroethane	33	U
56-23-5	Carbon Tetrachloride	33	U
108-05-4	Vinyl Acetate	66	U
75-27-4	Bromodichloromethane	33	U
78-87-5	1,2-Dichloropropane	33	U
10061-01-5	cis-1,3-Dichloropropene	33	U
79-01-6	Trichloroethene	33	U
124-48-1	Dibromochloromethane	33	U
79-00-5	1,1,2-Trichloroethane	33	U
71-43-2	Benzene	33	UJ
10061-02-6	Trans-1,3-Dichloropropene	33	U
75-25-2	Bromoform	33	U
108-10-1	4-Methyl-2-Pentanone	66	U
591-78-6	2-Hexanone	66	U
127-18-4	Tetrachloroethene	990	
79-34-5	1,1,2,2-Tetrachloroethane	33	U
108-88-3	Toluene	26	J
108-90-7	Chlorobenzene	33	UJ
100-41-4	Ethylbenzene	28	J
100-42-5	Styrene	33	UJ
1330-20-7	Xylene (total)	250	J

000026

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

JC853

Name: G S R I Contract: 68-01-7398

Lab Code: GULF Case No.: 4945 SAS No.: _____ SDG No.: JD501

Matrix: (soil/water) SOIL Lab Sample ID: BPU05

Sample wt/vol: 1.0 (g/mL) G Lab File ID: VOBPU05R

Level: (low/med) LOW Date Received: 07/22/88

% Moisture: not dec. 26 Date Analyzed: 07/30/88

Column (pack/cap) PACK Dilution Factor: 0.98

Number TICs found: 3 CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	4.50	59	J
2. 271-89-6	BENZOFURAN	34.46	41	J
3. 300-57-2	BENZENE, 2-PROPENYL-	36.36	1200	J

000027

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

JC854

Lab Name: G S R I Contract: 68-01-7398

Lab Code: GULF Case No.: 9945 SAS No.: _____ SDG No.: JD501

Matrix: (soil/water) SOIL Lab Sample ID: BPU07

Sample wt/vol: 3.9 (g/mL) G Lab File ID: VOBPU07

Level: (low/med) MED Date Received: 07/22/88

% Moisture: not dec. 27 Date Analyzed: 08/01/88

Column: (pack/cap) PACK Dilution Factor: 0.99

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	1800	UJ
67-64-1	Acetone	1700	U
75-15-0	Carbon Disulfide	870	U
75-35-4	1,1-Dichloroethene	870	U
75-34-3	1,1-Dichloroethane	870	U
540-59-0	1,2-Dichloroethene (total)	870	U
67-66-3	Chloroform	870	U
107-06-2	1,2-Dichloroethane	870	U
78-93-3	2-Butanone	1700	U R
71-55-6	1,1,1-Trichloroethane	870	U
56-23-5	Carbon Tetrachloride	870	U
108-05-4	Vinyl Acetate	1700	U
75-27-4	Bromodichloromethane	870	U
78-87-5	1,2-Dichloropropane	870	U
10061-01-5	cis-1,3-Dichloropropene	870	U
79-01-6	Trichloroethene	870	U
124-48-1	Dibromochloromethane	870	U
79-00-5	1,1,2-Trichloroethane	870	U
71-43-2	Benzene	870	U J
10061-02-6	Trans-1,3-Dichloropropene	870	U
75-25-2	Bromoform	870	U
108-10-1	4-Methyl-2-Pentanone	1700	U
591-78-6	2-Hexanone	1700	U
127-18-4	Tetrachloroethene	15000	
79-34-5	1,1,2,2-Tetrachloroethane	870	U
108-88-3	Toluene	870	U J
108-90-7	Chlorobenzene	870	U J
100-41-4	Ethylbenzene	870	U J
100-42-5	Styrene	870	U J
1330-20-7	Xylene (total)	870	U J

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

JC854

Lab Name: G S R I Contract: 68-01-7398

Lab Code: GULF Case No.: 9945 SAS No.: _____ SDG No.: JD501

Matrix: (soil/water) SOIL Lab Sample ID: BPU07

Sample wt/vol: 3.9 (g/mL) G Lab File ID: VOBPU07

Level: (low/med) MED Date Received: 07/22/88

% Moisture: not dec. 27 Date Analyzed: 08/01/88

Column (pack/cap) PACK Dilution Factor: 0.99

Number TICs found: 2 CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN (PROBABLY AN ARTIFAC	2.50	12000	UJ
2.	UNKNOWN (PROBABLY AN ARTIFAC	26.16	2700	UJ

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1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

JC859

Lab Name: G S R I Contract: 68-01-7398

Lab Code: GULF Case No.: 9945 SAS No.: _____ SDG No.: JD501

Matrix: (soil/water) SOIL Lab Sample ID: BPU15

Sample wt/vol: 5.0 (g/mL) G Lab File ID: VOBPU15

Level: (low/med) LOW Date Received: 07/22/88

% Moisture: not dec. 27 Date Analyzed: 07/30/88

Column: (pack/cap) PACK Dilution Factor: 0.98

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	36	UJ
67-64-1	Acetone	26	UJ
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)	31	
67-66-3	Chloroform	7	U
107-06-2	1,2-Dichloroethane	7	U
78-93-3	2-Butanone	13	U
71-55-6	1,1,1-Trichloroethane	7	U
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	15	
124-48-1	Dibromochloromethane	7	U
79-00-5	1,1,2-Trichloroethane	7	U
71-43-2	Benzene	7	UJ
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	71	
79-34-5	1,1,2,2-Tetrachloroethane	7	U
108-88-3	Toluene	7	UJ
108-90-7	Chlorobenzene	7	UJ
100-41-4	Ethylbenzene	7	UJ
100-42-5	Styrene	7	UJ
1330-20-7	Xylene (total)	7	UJ

JCK 4/13

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VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

JC859

Lab Name: G S R I Contract: 68-01-7398

Lab Code: GULF Case No.: 9945 SAS No.: _____ SDG No.: JD501

Matrix: (soil/water) SOIL Lab Sample ID: BPU15

Sample wt/vol: 5.0 (g/mL) G Lab File ID: VOBPU15

Level: (low/med) LOW Date Received: 07/22/88

% Moisture: not dec. 27 Date Analyzed: 07/30/88

Column (pack/cap) PACK Dilution Factor: 0.98

Number TICs found: 1

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN HYDROCARBON	19.35	14	J

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VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

JC862RE

Lab Name: G S R I Contract: 68-01-7398

Lab Code: GULF Case No.: 9945 SAS No.: _____ SDG No.: JD501

Matrix: (soil/water) SOIL Lab Sample ID: BPW02RE

Sample wt/vol: 1.3 (g/mL) G Lab File ID: VOBPW02R1

Level: (low/med) LOW Date Received: 07/23/88

% Moisture: not dec. 7 Date Analyzed: 07/31/88

Column: (pack/cap) PACK Dilution Factor: 0.95

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

CAS NO.	COMPOUND		Q
74-87-3	Chloromethane	39	U
74-83-9	Bromomethane	39	U
75-01-4	Vinyl Chloride	39	U
75-00-3	Chloroethane	39	U
75-09-2	Methylene Chloride	93	UJ
67-64-1	Acetone	200	UJ
75-15-0	Carbon Disulfide	20	U
75-35-4	1,1-Dichloroethene	20	U
75-34-3	1,1-Dichloroethane	20	U
540-59-0	1,2-Dichloroethene (total)	20	U
67-66-3	Chloroform	20	U
107-06-2	1,2-Dichloroethane	20	U
78-93-3	2-Butanone	39	U
71-55-6	1,1,1-Trichloroethane	20	U
56-23-5	Carbon Tetrachloride	20	U
108-05-4	Vinyl Acetate	39	U
75-27-4	Bromodichloromethane	20	U
78-87-5	1,2-Dichloropropane	20	U
10061-01-5	cis-1,3-Dichloropropene	20	U
79-01-6	Trichloroethene	20	U
124-48-1	Dibromochloromethane	20	U
79-00-5	1,1,2-Trichloroethane	20	U
71-43-2	Benzene	20	U J
10061-02-6	Trans-1,3-Dichloropropene	20	U
75-25-2	Bromoform	20	U
108-10-1	4-Methyl-2-Pentanone	39	U
591-78-6	2-Hexanone	39	U
127-18-4	Tetrachloroethene	12	J
79-34-5	1,1,2,2-Tetrachloroethane	20	U
108-88-3	Toluene	20	U J
108-90-7	Chlorobenzene	20	U J
100-41-4	Ethylbenzene	20	U J
100-42-5	Styrene	20	U J
1330-20-7	Xylene (total)	20	U J

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1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

JC862RE

Lab Name: G S R I Contract: 68-01-7398

Lab Code: GULF Case No.: 9945 SAS No.: _____ SDG No.: JD501

Matrix: (soil/water) SOIL Lab Sample ID: BPW02RE

Sample wt/vol: 1.3 (g/mL) G Lab File ID: VOBPW02R1

Level: (low/med) LOW Date Received: 07/23/88

% Moisture: not dec. 7 Date Analyzed: 07/31/88

Column (pack/cap) PACK Dilution Factor: 0.95

Number TICs found: 2

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN (POSSIBLE ARTIFACT)	2.10	60	J
2.	UNKNOWN HYDROCARBON	19.30	17	J

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1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

JD501

Lab Name: S S R I Contract: 68-01-7398

Lab Code: GULF Case No.: 9945 SAS No.: _____ SDG No.: JD501

Matrix: (soil/water) SOIL Lab Sample ID: BPS02

Sample wt/vol: 4.7 (g/mL) G Lab File ID: VOBPS02

Level: (low/med) LOW Date Received: 07/21/88

% Moisture: not dec. 2 Date Analyzed: 07/28/88

Column: (pack/cap) PACK Dilution Factor: 0.99

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	100	UJ
67-64-1	Acetone	97	UJ
75-15-0	Carbon Disulfide	5	U
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	5	U
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	27	J
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	2	J
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
1330-20-7	Xylene (total)	5	U

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1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

JD501

Lab Name: G S R I Contract: 68-01-7398

Lab Code: GULF Case No.: 9945 SAS No.: _____ SDG No.: JD501

Matrix: (soil/water) SOIL Lab Sample ID: BPS02

Sample wt/vol: 4.7 (g/mL) G Lab File ID: VOBPS02

Level: (low/med) LOW Date Received: 07/21/88

% Moisture: not dec. 2 Date Analyzed: 07/28/88

Column (pack/cap) PACK Dilution Factor: 0.99

Number TICs found: 5 CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 96-37-7	CYCLOPENTANE, METHYL	15.45	16	J
2.	UNKNOWN HYDROCARBON	19.30	130	J
3.	UNKNOWN HYDROCARBON	23.35	12	J
4.	UNKNOWN KETONE	27.01	5	J
5.	UNKNOWN KETONE	31.41	11	J

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

JD502

Lab Name: G S R I Contract: 68-01-7398

Lab Code: GULF Case No.: 9945 SAS No.: _____ SDG No.: JD501

Matrix: (soil/water) SOIL Lab Sample ID: BFS08

Sample wt/vol: 3.4 (g/mL) G Lab File ID: VOBPS08R2

Level: (low/med) LOW Date Received: 07/21/88

% Moisture: not dec. 6 Date Analyzed: 07/29/88

Column: (pack/cap) PACK Dilution Factor: 0.99

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	310	J
67-64-1	Acetone	180	UJ
75-15-0	Carbon Disulfide	8	U
75-35-4	1,1-Dichloroethene	8	U
75-34-3	1,1-Dichloroethane	8	U
540-59-0	1,2-Dichloroethene (total)	8	U
67-66-3	Chloroform	8	U
107-06-2	1,2-Dichloroethane	8	U
78-93-3	2-Butanone	15	U
71-55-6	1,1,1-Trichloroethane	8	U
56-23-5	Carbon Tetrachloride	8	U
108-05-4	Vinyl Acetate	15	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	UJ
10061-02-6	Trans-1,3-Dichloropropene	8	U
75-25-2	Bromoform	8	U
108-10-1	4-Methyl-2-Pentanone	15	U
591-78-6	2-Hexanone	15	U
127-18-4	Tetrachloroethene	8	U
79-34-5	1,1,2,2-Tetrachloroethane	8	U
108-88-3	Toluene	4	J
108-90-7	Chlorobenzene	8	UJ
100-41-4	Ethylbenzene	8	UJ
100-42-5	Styrene	8	UJ
1330-20-7	Xylene (total)	8	UJ

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

JC848

Lab Name: DATACHEM INC. Contract: 68-01-7466

Lab Code: DATAC Case No.: 9945 SAS No.: _____ SDG No.: JD513

Matrix: (soil/water) WATER Lab Sample ID: CLP1532

Sample wt/vol: 1000 (g/mL) ML Lab File ID: YO12JC848

Level: (low/med) LOW Date Received: 07/21/88

% Moisture: not dec. ____ dec. ____ Date Extracted: 07/26/88

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 07/27/88

GPC Cleanup: (Y/N) N pH: 7.0 Dilution Factor: 1.00

Number TICs found: 15

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. UNKNOWN	TRIMETHYL BENZENE	12.34	31	J
2. 673-32-5	BENZENE, 1-PROPYNYL	12.49	14	J
3. UNKNOWN	OXYCYCLOHYDROCARBON	14.30	40	J
4. UNKNOWN	POLYCYCLOHYDROCARBON	14.40	12	J
5. UNKNOWN	CYCLOHYDROCARBON	14.90	17	J
6. UNKNOWN	SUBSTITUTED BENZENE	20.47	29	J
7. UNKNOWN	PNA	23.34	13	J
8. UNKNOWN	PNA	24.20	240	J
9. UNKNOWN	PNA	25.01	18	J
10. UNKNOWN	PNA	25.07	19	J
11. UNKNOWN	PNA	25.29	22	J
12. UNKNOWN	PNA	25.47	14	J
13. UNKNOWN	PNA	25.64	8.5	J
14. UNKNOWN	PNA	28.11	8.7	J
15. UNKNOWN	PNA	28.24	14	J

JCY 5/19

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

JC848

Lab Name: DATACHEM INC. Contract: 68-01-7466

Lab Code: DATAC Case No.: 9945 SAS No.: _____ SDG No.: JD513

Matrix: (soil/water) WATER Lab Sample ID: CLP1532

Sample wt/vol: 1000 (g/mL) ML Lab File ID: _____

Level: (low/med) LOW Date Received: 08/21/88

% Moisture: not dec. ____ dec. ____ Date Extracted: 08/22/88

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 08/01/88

GPC Cleanup: (Y/N) N pH: 6.0 Dilution Factor: 1

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
319-84-6	alpha-BHC	0.050	U
319-85-7	beta-BHC	0.050	U
319-86-8	delta-BHC	0.050	U
58-89-9	gamma-BHC (Lindane)	0.050	U
76-44-8	Heptachlor	0.050	U
309-00-2	Aldrin	0.050	U
1024-57-3	Heptachlor epoxide	0.050	U
959-98-8	Endosulfan I	0.050	U
60-57-1	Dieldrin	0.10	U
72-55-9	4,4'-DDE	0.10	U
72-20-8	Endrin	0.10	U
33213-65-9	Endosulfan II	0.10	U
72-54-8	4,4'-DDD	0.10	U
1031-07-8	Endosulfan sulfate	0.10	U
50-29-3	4,4'-DDT	0.10	U
72-43-5	Methoxychlor	0.50	U
53494-70-5	Endrin ketone	0.10	U
5103-71-9	alpha-Chlordane	0.50	U
5103-74-2	gamma-Chlordane	0.50	U
8001-35-2	Toxaphene	1.0	U
12674-11-2	Aroclor-1016	0.50	U
11104-28-2	Aroclor-1221	0.50	U
11141-16-5	Aroclor-1232	0.50	U
53469-21-9	Aroclor-1242	0.50	U
12672-29-6	Aroclor-1248	0.50	U
11097-69-1	Aroclor-1254	1.0	U
11096-82-5	Aroclor-1260	1.0	U

FORM I PEST 1/87 Rev.

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

JC849

Lab Name: DATACHEM INC. Contract: 68-01-7466

Lab Code: DATAC Case No.: 9945 SAS No.: _____ SDG No.: JD513

Matrix: (soil/water) WATER Lab Sample ID: CLP1533

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: DS23JC849

Level: (low/med) LOW Date Received: 07/21/88

% Moisture: not dec. ____ Date Analyzed: 07/21/88

Column: (pack/cap) PACK Dilution Factor: 10.0

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L

CAS NO.	COMPOUND		Q
74-87-3	Chloromethane	100	U
74-83-9	Bromomethane	100	U
75-01-4	Vinyl Chloride	100	U
75-00-3	Chloroethane	100	U
75-09-2	Methylene Chloride	50	U
67-64-1	Acetone	100	U
75-15-0	Carbon Disulfide	50	U
75-35-4	1,1-Dichloroethene	50	U
75-35-3	1,1-Dichloroethane	50	U
540-59-0	1,2-Dichloroethene (total)	45	J
67-66-3	Chloroform	50	U
107-06-2	1,2-Dichloroethane	50	U
78-93-3	2-Butanone	100	U R
71-55-6	1,1,1-Trichloroethane	50	U
56-23-5	Carbon Tetrachloride	50	U
108-05-4	Vinyl Acetate	100	U
75-27-4	Bromodichloromethane	50	U
78-87-5	1,2-Dichloropropane	50	U
10061-01-5	cis-1,3-Dichloropropene	50	U
79-01-6	Trichloroethene	56	
124-48-1	Dibromochloromethane	50	U
79-00-5	1,1,2-Trichloroethane	50	U
71-43-2	Benzene	50	U
10061-02-6	Trans-1,3-Dichloropropene	50	U
75-25-2	Bromoform	50	U
108-10-1	4-Methyl-2-Pentanone	100	U
591-78-6	2-Hexanone	100	U
127-18-4	Tetrachloroethene	1800	
79-34-5	1,1,2,2-Tetrachloroethane	50	U
108-88-3	Toluene	50	U
108-90-7	Chlorobenzene	50	U
100-41-4	Ethylbenzene	50	U
100-42-5	Styrene	50	U
1330-20-7	Total Xylenes	50	U

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

JC849

ab Name: DATACHEM INC. Contract: 68-01-7466

ab Code: DATAC Case No.: 9945 SAS No.: _____ SDG No.: JD513

Matrix: (soil/water) WATER Lab Sample ID: CLP1533

ample wt/vol: 5.0 (g/mL) ML Lab File ID: DS23JC849

Level: (low/med) LOW Date Received: 07/21/88

Moisture: not dec. ____ Date Analyzed: 07/21/88

olumn (pack/cap) PACK Dilution Factor: 10.0

umber TICs found: 1

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 110-54-3	HEXANE	16.30	220	J

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

JC849

Lab Name: DATACHEM INC. Contract: 68-01-7466

Lab Code: DATAC Case No.: 9945 SAS No.: _____ SDG No.: JD513

Matrix: (soil/water) WATER Lab Sample ID: CLP1533

Sample wt/vol: 1000 (g/mL) ML Lab File ID: YO13JC849

Level: (low/med) LOW Date Received: 07/21/88

% Moisture: not dec. ____ dec. ____ Date Extracted: 07/26/88

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 07/27/88

GPC Cleanup: (Y/N) N pH: 6.0 Dilution Factor: 1.00

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
39638-32-9	bis(2-Chloroisopropyl)Ether	10	U
106-44-5	4-Methylphenol	10	U
621-64-7	N-Nitroso-Di-n-Propylamine	10	U
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethylphenol	10	U
65-85-0	Benzoic Acid	50	U
111-91-1	bis(2-Chloroethoxy)Methane	10	U
120-83-2	2,4-Dichlorophenol	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
87-68-3	Hexachlorobutadiene	10	U
59-50-7	4-Chloro-3-Methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
95-95-4	2,4,5-Trichlorophenol	50	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	50	U
131-11-3	Dimethyl Phthalate	10	U
208-96-8	Acenaphthylene	10	U
606-20-2	2,6-Dinitrotoluene	10	U

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

JC849

Lab Name: DATACHEM INC. Contract: 68-01-7466

Lab Code: DATAC Case No.: 9945 SAS No.: _____ SDG No.: JD513

Matrix: (soil/water) WATER Lab Sample ID: CLP1533

Sample wt/vol: 1000 (g/mL) ML Lab File ID: YO13JC849

Level: (low/med) LOW Date Received: 07/21/88

% Moisture: not dec. ____ dec. ____ Date Extracted: 07/26/88

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 07/27/88

GPC Cleanup: (Y/N) N pH: 6.0 Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
99-09-2	3-Nitroaniline	50	U
83-32-9	Acenaphthene	2	J
51-28-5	2,4-Dinitrophenol	50	U
100-02-7	4-Nitrophenol	50	U
132-64-9	Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene	10	U
84-66-2	Diethylphthalate	10	U
7005-72-3	4-Chlorophenyl-phenylether	10	U
86-73-7	Fluorene	10	U
100-10-6	4-Nitroaniline	50	U
534-52-1	4,6-Dinitro-2-Methylphenol	50	U
86-30-6	N-Nitrosodiphenylamine (1)	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
87-86-5	Pentachlorophenol	50	U
85-01-8	Phenanthrene	3	J
120-12-7	Anthracene	10	U
84-74-2	Di-n-Butylphthalate	10	U
206-44-0	Fluoranthene	2	J
129-00-0	Pyrene	1	J
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-Octyl Phthalate	10	U
205-99-2	Benzo(b)Fluoranthene	10	U
207-08-9	Benzo(k)Fluoranthene	10	U
50-32-8	Benzo(a)Pyrene	10	U
193-39-5	Indeno(1,2,3-cd)Pyrene	10	U
53-70-3	Dibenz(a,h)Anthracene	10	U
191-24-2	Benzo(g,h,i)Perylene	10	U

(1) - Cannot be separated from Diphenylamine

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

JC849

Lab Name: DATACHEM INC. Contract: 68-01-7466

Lab Code: DATAC Case No.: 9945 SAS No.: _____ SDG No.: JD513

Matrix: (soil/water) WATER Lab Sample ID: CLP1533

Sample wt/vol: 1000 (g/mL) ML Lab File ID: YO13JC849

Level: (low/med) LOW Date Received: 07/21/88

% Moisture: not dec. ____ dec. ____ Date Extracted: 07/26/88

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 07/27/88

GPC Cleanup: (Y/N) N pH: 6.0 Dilution Factor: 1.00

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

July 8/19

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

JC849

Lab Name: DATACHEM INC. Contract: 68-01-7466

Lab Code: DATAC Case No.: 9945 SAS No.: _____ SDG No.: JD513

Matrix: (soil/water) WATER Lab Sample ID: CLP1533

Sample wt/vol: 1000 (g/mL) ML Lab File ID: _____

Level: (low/med) LOW Date Received: 08/21/88

% Moisture: not dec. ____ dec. ____ Date Extracted: 08/22/88

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 08/01/88

GPC Cleanup: (Y/N) N pH: 6.0 Dilution Factor: 1

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
319-84-6	alpha-BHC	0.050	U
319-85-7	beta-BHC	0.050	U
319-86-8	delta-BHC	0.050	U
58-89-9	gamma-BHC (Lindane)	0.050	U
76-44-8	Heptachlor	0.050	U
309-00-2	Aldrin	0.050	U
1024-57-3	Heptachlor epoxide	0.050	U
959-98-8	Endosulfan I	0.050	U
60-57-1	Dieldrin	0.10	U
72-55-9	4,4'-DDE	0.10	U
72-20-8	Endrin	0.10	U
33213-65-9	Endosulfan II	0.10	U
72-54-8	4,4'-DDD	0.10	U
1031-07-8	Endosulfan sulfate	0.10	U
50-29-3	4,4'-DDT	0.10	U
72-43-5	Methoxychlor	0.50	U
53494-70-5	Endrin ketone	0.10	U
5103-71-9	alpha-Chlordane	0.50	U
5103-74-2	gamma-Chlordane	0.048	J
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

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

JC851

Lab Name: DATACHEM INC. Contract: 68-01-7466

Lab Code: DATAC Case No.: 9945 SAS No.: _____ SDG No.: JD513

Matrix: (soil/water) WATER Lab Sample ID: CLP1534

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: DS21JC851

Level: (low/med) LOW Date Received: 07/21/88

% Moisture: not dec. ____ Date Analyzed: 07/21/88

Column: (pack/cap) PACK Dilution Factor: 1.00

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	5	U
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	5	U
75-35-4	1,1-Dichloroethene	5	U
75-35-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	5	U
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	10	UR
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
108-05-4	Vinyl Acetate	10	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	Trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
108-88-3	Toluene	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
1330-20-7	Total Xylenes	5	U

JDH 8/11

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

JC851

Lab Name: DATACHEM INC. Contract: 68-01-7466

Lab Code: DATAC Case No.: 9945 SAS No.: _____ SDG No.: JD513

Matrix: (soil/water) WATER Lab Sample ID: CLP1534

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: DS21JC851

Level: (low/med) LOW Date Received: 07/21/88

% Moisture: not dec. ____ Date Analyzed: 07/21/88

Column (pack/cap) PACK Dilution Factor: 1.00

Number TICs found: 3

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	C6 CYCLIC HYDROCARBON	12.50	110	J
2.	C6 HYDROCARBON	14.45	6.8	J
3. 110-54-3	HEXANE	16.30	120	J

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

JC851

Lab Name: DATACHEM INC. Contract: 68-01-7466

Lab Code: DATAC Case No.: 9945 SAS No.: _____ SDG No.: JD513

Matrix: (soil/water) WATER Lab Sample ID: CLP1534

Sample wt/vol: 1000 (g/mL) ML Lab File ID: YP10JC851

Level: (low/med) LOW Date Received: 07/21/88

% Moisture: not dec. ____ dec. ____ Date Extracted: 07/26/88

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 07/28/88

GPC Cleanup: (Y/N) N pH: 5.0 Dilution Factor: 1.00

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
39638-32-9	bis(2-Chloroisopropyl)Ether	10	U
106-44-5	4-Methylphenol	10	U
621-64-7	N-Nitroso-Di-n-Propylamine	10	U
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethylphenol	10	U
65-85-0	Benzoic Acid	50	U
111-91-1	bis(2-Chloroethoxy)Methane	10	U
120-83-2	2,4-Dichlorophenol	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
87-68-3	Hexachlorobutadiene	10	U
59-50-7	4-Chloro-3-Methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
95-95-4	2,4,5-Trichlorophenol	50	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	50	U
131-11-3	Dimethyl Phthalate	10	U
208-96-8	Acenaphthylene	10	U
606-20-2	2,6-Dinitrotoluene	10	U

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

JC851

Lab Name: DATACHEM INC. Contract: 68-01-7466

Lab Code: DATAC Case No.: 9945 SAS No.: _____ SDG No.: JD513

Matrix: (soil/water) WATER Lab Sample ID: CLP1534

Sample wt/vol: 1000 (g/mL) ML Lab File ID: YP10JC851

Level: (low/med) LOW Date Received: 07/21/88

% Moisture: not dec. ____ dec. ____ Date Extracted: 07/26/88

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 07/28/88

GPC Cleanup: (Y/N) N pH: 5.0 Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
99-09-2	3-Nitroaniline	50	U
83-32-9	Acenaphthene	10	U
51-28-5	2,4-Dinitrophenol	50	U
100-02-7	4-Nitrophenol	50	U
132-64-9	Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene	10	U
84-66-2	Diethylphthalate	10	U
7005-72-3	4-Chlorophenyl-phenylether	10	U
86-73-7	Fluorene	10	U
100-10-6	4-Nitroaniline	50	U
534-52-1	4,6-Dinitro-2-Methylphenol	50	U
86-30-6	N-Nitrosodiphenylamine (1)	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
87-86-5	Pentachlorophenol	50	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
84-74-2	Di-n-Butylphthalate	10	U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
85-68-7	Butylbenzylphthalate	10	U
91-94-1	3,3'-Dichlorobenzidine	20	U
56-55-3	Benzo(a)Anthracene	10	U
218-01-9	Chrysene	10	U
117-81-7	bis(2-Ethylhexyl)Phthalate	10	U
117-84-0	Di-n-Octyl Phthalate	10	U
205-99-2	Benzo(b)Fluoranthene	10	U
207-08-9	Benzo(k)Fluoranthene	10	U
50-32-8	Benzo(a)Pyrene	10	U
193-39-5	Indeno(1,2,3-cd)Pyrene	10	U
53-70-3	Dibenz(a,h)Anthracene	10	U
191-24-2	Benzo(g,h,i)Perylene	10	U

(1) - Cannot be separated from Diphenylamine

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

JC851

Lab Name: DATACHEM INC. Contract: 68-01-7466

Lab Code: DATAC Case No.: 9945 SAS No.: _____ SDG No.: JD513

Matrix: (soil/water) WATER Lab Sample ID: CLP1534

Sample wt/vol: 1000 (g/mL) ML Lab File ID: YP10JC851

Level: (low/med) LOW Date Received: 07/21/88

% Moisture: not dec. ____ dec. ____ Date Extracted: 07/26/88

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 07/28/88

GPC Cleanup: (Y/N) N pH: 5.0 Dilution Factor: 1.00

Number TICs found: 0

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

FORM I SV-TIC

1/87 Rev.

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

JC851

Lab Name: DATACHEM INC. Contract: 68-01-7466

Lab Code: DATAC Case No.: 9945 SAS No.: _____ SDG No.: JD513

Matrix: (soil/water) WATER Lab Sample ID: CLP1534

Sample wt/vol: 1000 (g/mL) ML Lab File ID: _____

Level: (low/med) LOW Date Received: 08/21/88

% Moisture: not dec. ____ dec. ____ Date Extracted: 08/22/88

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 08/01/88

GPC Cleanup: (Y/N) N pH: 6.0 Dilution Factor: 1

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
319-84-6	alpha-BHC	0.050	U
319-85-7	beta-BHC	0.050	U
319-86-8	delta-BHC	0.050	U
58-89-9	gamma-BHC (Lindane)	0.050	U
76-44-8	Heptachlor	0.050	U
309-00-2	Aldrin	0.050	U
1024-57-3	Heptachlor epoxide	0.050	U
959-98-8	Endosulfan I	0.050	U
60-57-1	Dieldrin	0.10	U
72-55-9	4,4'-DDE	0.10	U
72-20-8	Endrin	0.10	U
33213-65-9	Endosulfan II	0.10	U
72-54-8	4,4'-DDD	0.10	U
1031-07-8	Endosulfan sulfate	0.10	U
50-29-3	4,4'-DDT	0.10	U
72-43-5	Methoxychlor	0.50	U
53494-70-5	Endrin ketone	0.10	U
5103-71-9	alpha-Chlordane	0.50	U
5103-74-2	gamma-Chlordane	0.50	U
8001-35-2	Toxaphene	1.0	U
12674-11-2	Aroclor-1016	0.50	U
11104-28-2	Aroclor-1221	0.50	U
11141-16-5	Aroclor-1232	0.50	U
53469-21-9	Aroclor-1242	0.50	U
12672-29-6	Aroclor-1248	0.50	U
11097-69-1	Aroclor-1254	1.0	U
11096-82-5	Aroclor-1260	1.0	U

Jul 5/19/89

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

JC852

Lab Name: DATACHEM INC. Contract: 68-01-7466

Lab Code: DATAC Case No.: 9945 SAS No.: _____ SDG No.: JD513

Matrix: (soil/water) WATER Lab Sample ID: CLP1535

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: DS22JC852

Level: (low/med) LOW Date Received: 07/21/88

% Moisture: not dec. ____ Date Analyzed: 07/21/88

Column: (pack/cap) PACK Dilution Factor: 1.00

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L

CAS NO.	COMPOUND		Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	5	U
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	5	U
75-35-4	1,1-Dichloroethene	5	U
75-35-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	5	U
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	10	U R
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
108-05-4	Vinyl Acetate	10	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	Trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
108-88-3	Toluene	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
1330-20-7	Total Xylenes	5	U

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

JC852

Lab Name: DATACHEM INC. Contract: 68-01-7466

Lab Code: DATAC Case No.: 9945 SAS No.: _____ SDG No.: JD513

Matrix: (soil/water) WATER Lab Sample ID: CLP1535

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: DS22JC852

Level: (low/med) LOW Date Received: 07/21/88

% Moisture: not dec. ____ Date Analyzed: 07/21/88

Column (pack/cap) PACK Dilution Factor: 1.00

Number TICs found: 3

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	C6 CYCLIC HYDROCARBON	12.60	1200	J
2.	C6 HYDROCARBON	14.50	110	J
3. 110-54-3	HEXANE	16.35	2200	J

JCH 8/19

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

JC855

Lab Name: DATACHEM INC. Contract: 68-01-7466

Lab Code: DATAC Case No.: 9945 SAS No.: _____ SDG No.: JD513

Matrix: (soil/water) WATER Lab Sample ID: CLP1536

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: DS44JC855

Level: (low/med) LOW Date Received: 07/22/88

% Moisture: not dec. ____ Date Analyzed: 07/22/88

Column: (pack/cap) PACK Dilution Factor: 5.00

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L

CAS NO.	COMPOUND		Q
74-87-3	Chloromethane	50	U
74-83-9	Bromomethane	50	U
75-01-4	Vinyl Chloride	62	
75-00-3	Chloroethane	50	U
75-09-2	Methylene Chloride	25	U
67-64-1	Acetone	50	U
75-15-0	Carbon Disulfide	25	U
75-35-4	1,1-Dichloroethene	25	U
75-35-3	1,1-Dichloroethane	25	U
540-59-0	1,2-Dichloroethene (total)	220	
67-66-3	Chloroform	25	U
107-06-2	1,2-Dichloroethane	25	U
78-93-3	2-Butanone	50	U R
71-55-6	1,1,1-Trichloroethane	25	U
56-23-5	Carbon Tetrachloride	25	U
108-05-4	Vinyl Acetate	50	U
75-27-4	Bromodichloromethane	25	U
78-87-5	1,2-Dichloropropane	25	U
10061-01-5	cis-1,3-Dichloropropene	25	U
79-01-6	Trichloroethene	47	
124-48-1	Dibromochloromethane	25	U
79-00-5	1,1,2-Trichloroethane	25	U
71-43-2	Benzene	25	U
10061-02-6	Trans-1,3-Dichloropropene	25	U
75-25-2	Bromoform	25	U
108-10-1	4-Methyl-2-Pentanone	50	U
591-78-6	2-Hexanone	50	U
127-18-4	Tetrachloroethene	540	
79-34-5	1,1,2,2-Tetrachloroethane	25	U
108-88-3	Toluene	25	U
108-90-7	Chlorobenzene	25	U
100-41-4	Ethylbenzene	22	J
100-42-5	Styrene	25	U
1330-20-7	Total Xylenes	23	J

8/29/

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

JC855

Lab Name: DATACHEM INC. Contract: 68-01-7466

Lab Code: DATAC Case No.: 9945 SAS No.: _____ SDG No.: JD513

Matrix: (soil/water) WATER Lab Sample ID: CLP1536

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: DS44JC855

Level: (low/med) LOW Date Received: 07/22/88

% Moisture: not dec. ____ Date Analyzed: 07/22/88

Column (pack/cap) PACK Dilution Factor: 5.00

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

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1/87 Rev

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

JC855

Lab Name: DATACHEM INC. Contract: 68-01-7466

Lab Code: DATAC Case No.: 9945 SAS No.: _____ SDG No.: JD513

Matrix: (soil/water) WATER Lab Sample ID: CLP1536

Sample wt/vol: 1000 (g/mL) ML Lab File ID: YP11JC855

Level: (low/med) LOW Date Received: 07/22/88

% Moisture: not dec. ____ dec. ____ Date Extracted: 07/26/88

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 07/28/88

GPC Cleanup: (Y/N) N pH: 6.0 Dilution Factor: 1.00

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
39638-32-9	bis(2-Chloroisopropyl)Ether	10	U
106-44-5	4-Methylphenol	10	U
621-64-7	N-Nitroso-Di-n-Propylamine	10	U
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethylphenol	10	U
65-85-0	Benzoic Acid	50	U
111-91-1	bis(2-Chloroethoxy)Methane	10	U
120-83-2	2,4-Dichlorophenol	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U
91-20-3	Naphthalene	680 * ~~410~~	
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	110	
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	Dimethyl Phthalate	10	U
208-96-8	Acenaphthylene	4	J
606-20-2	2,6-Dinitrotoluene	10	U

* result obtained from the 5x dilution data. JG

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

JC855

Lab Name: DATACHEM INC. Contract: 68-01-7466

Lab Code: DATAC Case No.: 9945 SAS No.: _____ SDG No.: JD513

Matrix: (soil/water) WATER Lab Sample ID: CLP1536

Sample wt/vol: 1000 (g/mL) ML Lab File ID: YP11JC855

Level: (low/med) LOW Date Received: 07/22/88

% Moisture: not dec. ____ dec. ____ Date Extracted: 07/26/88

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 07/28/88

GPC Cleanup: (Y/N) N pH: 6.0 Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
99-09-2	3-Nitroaniline	50	U
83-32-9	Acenaphthene	1000 ~~700~~	
51-28-5	2,4-Dinitrophenol	50	U
100-02-7	4-Nitrophenol	50	U
132-64-9	Dibenzofuran	170	
121-14-2	2,4-Dinitrotoluene	10	U
84-66-2	Diethylphthalate	10	U
7005-72-3	4-Chlorophenyl-phenylether	10	U
86-73-7	Fluorene	160	
100-10-6	4-Nitroaniline	50	U
534-52-1	4,6-Dinitro-2-Methylphenol	50	U
86-30-6	N-Nitrosodiphenylamine (1)	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
87-86-5	Pentachlorophenol	50	U
85-01-8	Phenanthrene	240	
120-12-7	Anthracene	20	
84-74-2	Di-n-Butylphthalate	10	U
206-44-0	Fluoranthene	71	
129-00-0	Pyrene	54	
85-68-7	Butylbenzylphthalate	10	U
91-94-1	3,3'-Dichlorobenzidine	20	U
56-55-3	Benzo(a)Anthracene	6	J
218-01-9	Chrysene	6	J
117-81-7	bis(2-Ethylhexyl)Phthalate	10	U
117-84-0	Di-n-Octyl Phthalate	10	U
205-99-2	Benzo(b)Fluoranthene	10	U
207-08-9	Benzo(k)Fluoranthene	10	U
50-32-8	Benzo(a)Pyrene	10	U
193-39-5	Indeno(1,2,3-cd)Pyrene	10	U
53-70-3	Dibenz(a,h)Anthracene	10	U
191-24-2	Benzo(g,h,i)Perylene	10	U

(1) - Cannot be separated from Diphenylamine

* result obtained from [illegible]

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

JC855

Lab Name: DATACHEM INC. Contract: 68-01-7466

Lab Code: DATAC Case No.: 9945 SAS No.: _____ SDG No.: JD513

Matrix: (soil/water) WATER Lab Sample ID: CLP1536

Sample wt/vol: 1000 (g/mL) ML Lab File ID: YP11JC855

Level: (low/med) LOW Date Received: 07/22/88

% Moisture: not dec. ____ dec. ____ Date Extracted: 07/26/88

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 07/28/88

GPC Cleanup: (Y/N) N pH: 6.0 Dilution Factor: 1.00

Number TICs found: 20

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. UNKNOWN	CYCLOHYDROCARBON	15.27	45	J
2. UNKNOWN	PNA	17.20	140	J
3. UNKNOWN	PNA	18.15	69	J
4. UNKNOWN	DIMETHYL NAPHTHALENE	18.42	63	J
5. UNKNOWN	DIMETHYL NAPHTHALENE	18.57	38	J
6. UNKNOWN	DIMETHYL NAPHTHALENE	18.80	42	J
7. UNKNOWN	POLYCYCLOHYDROCARBON	21.39	77	J
8. UNKNOWN	PNA	21.49	44	J
9. UNKNOWN	POLYCYCLOHYDROCARBON	21.57	29	J
10. UNKNOWN	POLYCYCLOHYDROCARBON	22.10	53	J
11. UNKNOWN	PNA	22.32	58	J
12. UNKNOWN	PNA	23.35	59	J
13. 2278-23-0	9H-CARBAZOLE, 9-NITROSO-	24.20	210	J
14. UNKNOWN	POLYCYCLOHYDROCARBON	24.39	27	J
15. UNKNOWN	PNA	24.99	90	J
16. UNKNOWN	PNA	25.06	80	J
17. 203-64-5	4H-CYCLOPENTA[DEF]PHENANTHRE	25.31	110	J
18. UNKNOWN	PNA	25.64	28	J
19. UNKNOWN	PNA	26.49	34	J
20. UNKNOWN	PNA	28.12	28	J

JCK 8/19/9

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

JC855

Lab Name: DATACHEM INC. Contract: 68-01-7466

Lab Code: DATAC Case No.: 9945 SAS No.: _____ SDG No.: JD513

Matrix: (soil/water) WATER Lab Sample ID: CLP1536

Sample wt/vol: 1000 (g/mL) ML Lab File ID: _____

Level: (low/med) LOW Date Received: 08/22/88

% Moisture: not dec. ____ dec. ____ Date Extracted: 08/22/88

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 08/01/88

GPC Cleanup: (Y/N) N pH: 6.0 Dilution Factor: 1

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
319-84-6	alpha-BHC	0.050	U
319-85-7	beta-BHC	0.050	U
319-86-8	delta-BHC	0.050	U
58-89-9	gamma-BHC (Lindane)	0.050	U
76-44-8	Heptachlor	0.050	U
309-00-2	Aldrin	0.050	U
1024-57-3	Heptachlor epoxide	0.050	U
959-98-8	Endosulfan I	0.050	U
60-57-1	Dieldrin	0.10	U
72-55-9	4,4'-DDE	0.10	U
72-20-8	Endrin	0.10	U
33213-65-9	Endosulfan II	0.10	U
72-54-8	4,4'-DDD	0.10	U
1031-07-8	Endosulfan sulfate	0.10	U
50-29-3	4,4'-DDT	0.10	U
72-43-5	Methoxychlor	0.50	U
53494-70-5	Endrin ketone	0.10	U
5103-71-9	alpha-Chlordane	0.50	U
5103-74-2	gamma-Chlordane	0.50	U
8001-35-2	Toxaphene	1.0	U
12674-11-2	Aroclor-1016	0.50	U
11104-28-2	Aroclor-1221	0.50	U
11141-16-5	Aroclor-1232	0.50	U
53469-21-9	Aroclor-1242	0.50	U
12672-29-6	Aroclor-1248	0.50	U
11097-69-1	Aroclor-1254	18	
11096-82-5	Aroclor-1260	1.0	U

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1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

JC856

Lab Name: DATACHEM INC. Contract: 68-01-7466

Lab Code: DATAC Case No.: 9945 SAS No.: _____ SDG No.: JD513

Matrix: (soil/water) WATER Lab Sample ID: CLP1537

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: DS45JC856

Level: (low/med) LOW Date Received: 07/22/88

% Moisture: not dec. ____ Date Analyzed: 07/22/88

Column: (pack/cap) PACK Dilution Factor: 2.00

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L

CAS NO.	COMPOUND		Q
74-87-3	Chloromethane	20	U
74-83-9	Bromomethane	20	U
75-01-4	Vinyl Chloride	28	
75-00-3	Chloroethane	20	U
75-09-2	Methylene Chloride	10	U
67-64-1	Acetone	20	U
75-15-0	Carbon Disulfide	10	U
75-35-4	1,1-Dichloroethene	10	U
75-35-3	1,1-Dichloroethane	10	U
540-59-0	1,2-Dichloroethene (total)	390	
67-66-3	Chloroform	10	U
107-06-2	1,2-Dichloroethane	10	U
78-93-3	2-Butanone	20	U R
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	10	U
108-05-4	Vinyl Acetate	20	U
75-27-4	Bromodichloromethane	10	U
78-87-5	1,2-Dichloropropane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
79-01-6	Trichloroethene	190	
124-48-1	Dibromochloromethane	10	U
79-00-5	1,1,2-Trichloroethane	10	U
71-43-2	Benzene	10	U
10061-02-6	Trans-1,3-Dichloropropene	10	U
75-25-2	Bromoform	10	U
108-10-1	4-Methyl-2-Pentanone	20	U
591-78-6	2-Hexanone	20	U
127-18-4	Tetrachloroethene	83	
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
100-42-5	Styrene	10	U
1330-20-7	Total Xylenes	10	U

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

JC856

Lab Name: DATACHEM INC. Contract: 68-01-7466

Lab Code: DATAC Case No.: 9945 SAS No.: _____ SDG No.: JD513

Matrix: (soil/water) WATER Lab Sample ID: CLP1537

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: DS45JC856

Level: (low/med) LOW Date Received: 07/22/88

% Moisture: not dec. ____ Date Analyzed: 07/22/88

Column (pack/cap) PACK Dilution Factor: 2.00

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

JC856

Lab Name: DATACHEM INC. Contract: 68-01-7466

Lab Code: DATAC Case No.: 9945 SAS No.: _____ SDG No.: JD513

Matrix: (soil/water) WATER Lab Sample ID: CLP1537

Sample wt/vol: 1000 (g/mL) ML Lab File ID: YP12JC856

Level: (low/med) LOW Date Received: 07/22/88

% Moisture: not dec. ____ dec. ____ Date Extracted: 07/26/88

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 07/28/88

GPC Cleanup: (Y/N) N pH: 6.0 Dilution Factor: 1.00

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
39638-32-9	bis(2-Chloroisopropyl)Ether	10	U
106-44-5	4-Methylphenol	10	U
621-64-7	N-Nitroso-Di-n-Propylamine	10	U
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethylphenol	10	U
65-85-0	Benzoic Acid	50	U
111-91-1	bis(2-Chloroethoxy)Methane	10	U
120-83-2	2,4-Dichlorophenol	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U
91-20-3	Naphthalene	4	J
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	Dimethyl Phthalate	10	U
208-96-8	Acenaphthylene	10	U
606-20-2	2,6-Dinitrotoluene	10	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

JC856

Lab Name: DATACHEM INC. Contract: 68-01-7466

Lab Code: DATAC Case No.: 9945 SAS No.: _____ SDG No.: JD513

Matrix: (soil/water) WATER Lab Sample ID: CLP1537

Sample wt/vol: 1000 (g/mL) ML Lab File ID: YP12JC856

Level: (low/med) LOW Date Received: 07/22/88

% Moisture: not dec. ____ dec. ____ Date Extracted: 07/26/88

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 07/28/88

GPC Cleanup: (Y/N) N pH: 6.0 Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
99-09-2	3-Nitroaniline	50	U
83-32-9	Acenaphthene	11	
51-28-5	2,4-Dinitrophenol	50	U
100-02-7	4-Nitrophenol	50	U
132-64-9	Dibenzofuran	2	J
121-14-2	2,4-Dinitrotoluene	10	U
84-66-2	Diethylphthalate	10	U
7005-72-3	4-Chlorophenyl-phenylether	10	U
86-73-7	Fluorene	3	J
100-10-6	4-Nitroaniline	50	U
534-52-1	4,6-Dinitro-2-Methylphenol	50	U
86-30-6	N-Nitrosodiphenylamine (1)	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
87-86-5	Pentachlorophenol	50	U
85-01-8	Phenanthrene	5	J
120-12-7	Anthracene	2	J
84-74-2	Di-n-Butylphthalate	1	J
206-44-0	Fluoranthene	0.9	J
129-00-0	Pyrene	0.7	J
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-Octyl Phthalate	10	U
205-99-2	Benzo(b)Fluoranthene	10	U
207-08-9	Benzo(k)Fluoranthene	10	U
50-32-8	Benzo(a)Pyrene	10	U
193-39-5	Indeno(1,2,3-cd)Pyrene	10	U
53-70-3	Dibenz(a,h)Anthracene	10	U
191-24-2	Benzo(g,h,i)Perylene	10	U

(1) - Cannot be separated from Diphenylamine

JC4 5/19

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

JC855

Lab Name: DATACHEM INC. Contract: 68-01-7466

Lab Code: DATAC Case No.: 9945 SAS No.: _____ SDG No.: JD513

Matrix: (soil/water) WATER Lab Sample ID: CLP1536

Sample wt/vol: 1000 (g/mL) ML Lab File ID: _____

Level: (low/med) LOW Date Received: 08/22/88

% Moisture: not dec. ____ dec. ____ Date Extracted: 08/22/88

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 08/01/88

GPC Cleanup: (Y/N) N pH: 6.0 Dilution Factor: 1

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
319-84-6	alpha-BHC	0.050	U
319-85-7	beta-BHC	0.050	U
319-86-8	delta-BHC	0.050	U
58-89-9	gamma-BHC (Lindane)	0.050	U
76-44-8	Heptachlor	0.050	U
309-00-2	Aldrin	0.050	U
1024-57-3	Heptachlor epoxide	0.050	U
959-98-8	Endosulfan I	0.050	U
60-57-1	Dieldrin	0.10	U
72-55-9	4,4'-DDE	0.10	U
72-20-8	Endrin	0.10	U
33213-65-9	Endosulfan II	0.10	U
72-54-8	4,4'-DDD	0.10	U
1031-07-8	Endosulfan sulfate	0.10	U
50-29-3	4,4'-DDT	0.10	U
72-43-5	Methoxychlor	0.50	U
53494-70-5	Endrin ketone	0.10	U
5103-71-9	alpha-Chlordane	0.50	U
5103-74-2	gamma-Chlordane	0.50	U
8001-35-2	Toxaphene	1.0	U
12674-11-2	Aroclor-1016	0.50	U
11104-28-2	Aroclor-1221	0.50	U
11141-16-5	Aroclor-1232	0.50	U
53469-21-9	Aroclor-1242	0.50	U
12672-29-6	Aroclor-1248	0.50	U
11097-69-1	Aroclor-1254	18	
11096-82-5	Aroclor-1260	1.0	U

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1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

JC856

Lab Name: DATACHEM INC. Contract: 68-01-7466

Lab Code: DATAC Case No.: 9945 SAS No.: _____ SDG No.: JD513

Matrix: (soil/water) WATER Lab Sample ID: CLP1537

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: DS45JC856

Level: (low/med) LOW Date Received: 07/22/88

% Moisture: not dec. ____ Date Analyzed: 07/22/88

Column: (pack/cap) PACK Dilution Factor: 2.00

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L

CAS NO.	COMPOUND		Q
74-87-3	Chloromethane	20	U
74-83-9	Bromomethane	20	U
75-01-4	Vinyl Chloride	28	
75-00-3	Chloroethane	20	U
75-09-2	Methylene Chloride	10	U
67-64-1	Acetone	20	U
75-15-0	Carbon Disulfide	10	U
75-35-4	1,1-Dichloroethene	10	U
75-35-3	1,1-Dichloroethane	10	U
540-59-0	1,2-Dichloroethene (total)	390	
67-66-3	Chloroform	10	U
107-06-2	1,2-Dichloroethane	10	U
78-93-3	2-Butanone	20	U R
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	10	U
108-05-4	Vinyl Acetate	20	U
75-27-4	Bromodichloromethane	10	U
78-87-5	1,2-Dichloropropane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
79-01-6	Trichloroethene	190	
124-48-1	Dibromochloromethane	10	U
79-00-5	1,1,2-Trichloroethane	10	U
71-43-2	Benzene	10	U
10061-02-6	Trans-1,3-Dichloropropene	10	U
75-25-2	Bromoform	10	U
108-10-1	4-Methyl-2-Pentanone	20	U
591-78-6	2-Hexanone	20	U
127-18-4	Tetrachloroethene	83	
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
100-42-5	Styrene	10	U
1330-20-7	Total Xylenes	10	U

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

JC856

Lab Name: DATACHEM INC. Contract: 68-01-7466

Lab Code: DATAC Case No.: 9945 SAS No.: _____ SDG No.: JD513

Matrix: (soil/water) WATER Lab Sample ID: CLP1537

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: DS45JC856

Level: (low/med) LOW Date Received: 07/22/88

% Moisture: not dec. ____ Date Analyzed: 07/22/88

Column (pack/cap) PACK Dilution Factor: 2.00

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

JC856

Lab Name: DATACHEM INC. Contract: 68-01-7466

Lab Code: DATAC Case No.: 9945 SAS No.: _____ SDG No.: JD513

Matrix: (soil/water) WATER Lab Sample ID: CLP1537

Sample wt/vol: 1000 (g/mL) ML Lab File ID: YP12JC856

Level: (low/med) LOW Date Received: 07/22/88

% Moisture: not dec. ____ dec. ____ Date Extracted: 07/26/88

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 07/28/88

GPC Cleanup: (Y/N) N pH: 6.0 Dilution Factor: 1.00

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
39638-32-9	bis(2-Chloroisopropyl)Ether	10	U
106-44-5	4-Methylphenol	10	U
621-64-7	N-Nitroso-Di-n-Propylamine	10	U
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethylphenol	10	U
65-85-0	Benzoic Acid	50	U
111-91-1	bis(2-Chloroethoxy)Methane	10	U
120-83-2	2,4-Dichlorophenol	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U
91-20-3	Naphthalene	4	J
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	Dimethyl Phthalate	10	U
208-96-8	Acenaphthylene	10	U
606-20-2	2,6-Dinitrotoluene	10	U

JCY 3/19

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

JC856

Lab Name: DATACHEM INC. Contract: 68-01-7466

Lab Code: DATAC Case No.: 9945 SAS No.: _____ SDG No.: JD513

Matrix: (soil/water) WATER Lab Sample ID: CLP1537

Sample wt/vol: 1000 (g/mL) ML Lab File ID: YP12JC856

Level: (low/med) LOW Date Received: 07/22/88

% Moisture: not dec. ____ dec. ____ Date Extracted: 07/26/88

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 07/28/88

GPC Cleanup: (Y/N) N pH: 6.0 Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
99-09-2	3-Nitroaniline	50	U
83-32-9	Acenaphthene	11	
51-28-5	2,4-Dinitrophenol	50	U
100-02-7	4-Nitrophenol	50	U
132-64-9	Dibenzofuran	2	J
121-14-2	2,4-Dinitrotoluene	10	U
84-66-2	Diethylphthalate	10	U
7005-72-3	4-Chlorophenyl-phenylether	10	U
86-73-7	Fluorene	3	J
100-10-6	4-Nitroaniline	50	U
534-52-1	4,6-Dinitro-2-Methylphenol	50	U
86-30-6	N-Nitrosodiphenylamine (1)	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
87-86-5	Pentachlorophenol	50	U
85-01-8	Phenanthrene	5	J
120-12-7	Anthracene	2	J
84-74-2	Di-n-Butylphthalate	1	J
206-44-0	Fluoranthene	0.9	J
129-00-0	Pyrene	0.7	J
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-Octyl Phthalate	10	U
205-99-2	Benzo(b)Fluoranthene	10	U
207-08-9	Benzo(k)Fluoranthene	10	U
50-32-8	Benzo(a)Pyrene	10	U
193-39-5	Indeno(1,2,3-cd)Pyrene	10	U
53-70-3	Dibenz(a,h)Anthracene	10	U
191-24-2	Benzo(g,h,i)Perylene	10	U

(1) - Cannot be separated from Diphenylamine

JC4 8/19

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

JD513

Lab Name: DATACHEM INC. Contract: 68-01-7466

Lab Code: DATAC Case No.: 9945 SAS No.: _____ SDG No.: JD513

Matrix: (soil/water) WATER Lab Sample ID: CLP1523

Sample wt/vol: 1000 (g/mL) ML Lab File ID: _____

Level: (low/med) LOW Date Received: 08/20/88

% Moisture: not dec. ____ dec. ____ Date Extracted: 08/20/88

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 08/01/88

GPC Cleanup: (Y/N) N pH: 6.0 Dilution Factor: 1

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
319-84-6	alpha-BHC	0.050	U
319-85-7	beta-BHC	0.050	U
319-86-8	delta-BHC	0.050	U
58-89-9	gamma-BHC (Lindane)	0.050	U
76-44-8	Heptachlor	0.050	U
309-00-2	Aldrin	0.050	U
1024-57-3	Heptachlor epoxide	0.050	U
959-98-8	Endosulfan I	0.050	U
60-57-1	Dieldrin	0.10	U
72-55-9	4,4'-DDE	0.10	U
72-20-8	Endrin	0.10	U
33213-65-9	Endosulfan II	0.10	U
72-54-8	4,4'-DDD	0.10	U
1031-07-8	Endosulfan sulfate	0.10	U
50-29-3	4,4'-DDT	0.10	U
72-43-5	Methoxychlor	0.50	U
53494-70-5	Endrin ketone	0.10	U
5103-71-9	alpha-Chlordane	0.50	U
5103-74-2	gamma-Chlordane	0.50	U
8001-35-2	Toxaphene	1.0	U
12674-11-2	Aroclor-1016	0.50	U
11104-28-2	Aroclor-1221	0.50	U
11141-16-5	Aroclor-1232	0.50	U
53469-21-9	Aroclor-1242	0.50	U
12672-29-6	Aroclor-1248	0.50	U
11097-69-1	Aroclor-1254	1.0	U
11096-82-5	Aroclor-1260	1.0	U

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1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

JD514

Lab Name: DATACHEM INC. Contract: 68-01-7466

Lab Code: DATAC Case No.: 9945 SAS No.: _____ SDG No.: JD513

Matrix: (soil/water) WATER Lab Sample ID: CLP1524

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: DS11JD514

Level: (low/med) LOW Date Received: 07/20/88

% Moisture: not dec. ____ Date Analyzed: 07/20/88

Column: (pack/cap) PACK Dilution Factor: 1.00

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L

CAS NO.	COMPOUND		Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	5	U
67-64-1	Acetone	19	
75-15-0	Carbon Disulfide	5	U
75-35-4	1,1-Dichloroethene	5	U
75-35-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	5	U
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	10	U R
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	14	
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
1330-20-7	Total Xylenes	5	U

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

JD514

Lab Name: DATACHEM INC. Contract: 68-01-7466

Lab Code: DATAC Case No.: 9945 SAS No.: _____ SDG No.: JD513

Matrix: (soil/water) WATER Lab Sample ID: CLP1524

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: DS11JD514

Level: (low/med) LOW Date Received: 07/20/88

% Moisture: not dec. ____ Date Analyzed: 07/20/88

Column (pack/cap) PACK Dilution Factor: 1.00

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

JDL 8/19/88

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

JD514

Lab Name: DATACHEM INC. Contract: 68-01-7466

Lab Code: DATAC Case No.: 9945 SAS No.: _____ SDG No.: JD513

Matrix: (soil/water) WATER Lab Sample ID: CLP1524

Sample wt/vol: 1000 (g/mL) ML Lab File ID: Y09JD514

Level: (low/med) LOW Date Received: 07/20/88

% Moisture: not dec. ____ dec. ____ Date Extracted: 07/20/88

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 07/27/88

GPC Cleanup: (Y/N) N pH: 5.0 Dilution Factor: 1.00

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
39638-32-9	bis(2-Chloroisopropyl)Ether	10	U
106-44-5	4-Methylphenol	10	U
621-64-7	N-Nitroso-Di-n-Propylamine	10	U
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethylphenol	10	U
65-85-0	Benzoic Acid	50	U
111-91-1	bis(2-Chloroethoxy)Methane	10	U
120-83-2	2,4-Dichlorophenol	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
87-68-3	Hexachlorobutadiene	10	U
59-50-7	4-Chloro-3-Methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
95-95-4	2,4,5-Trichlorophenol	50	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	50	U
131-11-3	Dimethyl Phthalate	10	U
208-96-8	Acenaphthylene	10	U
606-20-2	2,6-Dinitrotoluene	10	U

APPENDIX D

PHOTOGRAPHIC DOCUMENTATION

PHOTO IDENTIFICATION SHEET

TYPE OF CAMERA: CANON AE-1/3289855 TDD and PAN NOS.: F10-8804-31; FOR0210SA

TYPE OF FILM: ED 135-20/KR 135-20 SITE NAME: Northwest Pipe and Casing

Frame No.	Roll No.	Date	Time	Taken By	Witnessed By	Description of Photo
1	1	04/28/88	1100	R. Duffner	S. Niemuth	Tank on southwest corner of site.
2	1	04/28/88	1105	R. Duffner	S. Niemuth	Old epoxy building, facing north.
3	1	04/28/88	1105	R. Duffner	S. Niemuth	Coal tar bin on southwest corner of site.
4	1	04/28/88	1105	R. Duffner	S. Niemuth	Drainage way on southwest corner of site, facing south.
5	1	04/28/88	1110	R. Duffner	S. Niemuth	Roadway west of epoxy building, facing northwest.
6	1	04/28/88	1110	R. Duffner	S. Niemuth	Coal tar near epoxy building.
7	1	04/28/88	1115	R. Duffner	S. Niemuth	Old equipment in epoxy building, facing north.
8	1	04/28/88	1115	R. Duffner	S. Niemuth	Cement slurry pile, facing northwest.
9	1	04/28/88	1115	R. Duffner	S. Niemuth	Former cement coating facility, facing north.
10	1	04/28/88	1120	R. Duffner	S. Niemuth	Hay bales on west property.
11	1	04/28/88	1120	R. Duffner	S. Niemuth	Cement slurry pond, facing north.
12	1	04/28/88	1125	R. Duffner	S. Niemuth	Coal tar north of cement coating facility.
13	1	04/28/88	1125	R. Duffner	S. Niemuth	Oily pipes at cement coating facility.
14	1	04/28/88	1130	R. Duffner	S. Niemuth	Ponded surface water north of warehouse.
15	1	04/28/88	1130	R. Duffner	S. Niemuth	Ponded water with oily sheen north of warehouse.
16	1	04/28/88	1140	R. Duffner	S. Niemuth	Coal tar and coke south of railroad spur, facing southeast.
17	1	04/28/88	1145	R. Duffner	S. Niemuth	Open pit with standing water on northwest corner of site.
18	1	04/28/88	1150	R. Duffner	S. Niemuth	Excavated material on northwest corner of site.
19	1	04/28/88	1150	R. Duffner	S. Niemuth	Excavated material on northwest corner of site.
20	1	04/28/88	1200	R. Duffner	S. Niemuth	Gravel on northwest corner of site.
21	1	04/28/88	1215	R. Duffner	S. Niemuth	Sump for grit blast, Plant #3, facing east.

PHOTO IDENTIFICATION SHEET (Cont.)

TYPE OF CAMERA: CANON AE-1/3289855 TDD and PAN NOS.: F10-8804-31; FOR0210SA

TYPE OF FILM: ED 135-20/KR 135-20 SITE NAME: Northwest Pipe and Casing

Frame No.	Roll No.	Date	Time	Taken By	Witnessed By	Description of Photo
22	1	04/28/88	1225	R. Duffner	S. Niemuth	Alleged drum disposal area, facing north.
23	1	04/28/88	1230	R. Duffner	S. Niemuth	Stained soil on west side of Plant #4, facing north.
24	1	04/28/88	1235	R. Duffner	S. Niemuth	Stained soil on northwest corner of Plant #4.
25	2	07/20/88	0810	S. Niemuth	J. Hunt	Drill rig at groundwater sample #1 location; soil sample #1 location.
26	2	07/20/88	0815	S. Niemuth	J. Hunt	Groundwater sample #1 drill cuttings.
27	2	07/20/88	1145	S. Niemuth	J. Hunt	Soil sample #2 location, closeup.
28	2	07/20/88	1145	S. Niemuth	J. Hunt	From soil sample #2 location, facing north.
29	2	07/20/88	1205	S. Niemuth	J. Hunt	Soil sample #4 location, closeup.
30	2	07/20/88	1205	S. Niemuth	J. Hunt	From soil sample #4 location, facing north.
31	2	07/20/88	1220	S. Niemuth	J. Hunt	From sediment sample #2 location, facing south.
32	2	07/20/88	1300	S. Niemuth	J. Hunt	Soil sample #3 location, closeup.
33	2	07/20/88	1300	S. Niemuth	J. Hunt	From soil sample #3 location, facing south.
34	2	07/20/88	1315	S. Niemuth	J. Hunt	Soil sample #5 location, closeup.
35	2	07/20/88	1315	S. Niemuth	J. Hunt	From soil sample #5 location, facing north.
36	2	07/20/88	1605	S. Niemuth	J. Hunt	Groundwater sample #2 purge water.
37	2	07/21/88	1010	S. Niemuth	J. Hunt	Groundwater #3 temporary well.
38	2	07/21/88	1030	S. Niemuth	J. Hunt	Groundwater #5 and #6 sample locations, facing north.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10
1200 SIXTH AVENUE
SEATTLE, WA 98101

TARGET SHEET

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Document Information

Document ID #: 1101387
File #: 1.5 v1
Site Name: Northwest Pipe and Casing (NWPSF)

10 pages of photographs

APPENDIX E

SITE INSPECTION REPORT FORM (EPA FORM 2070-13)

EPA

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

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
OR	D980988307

II. SITE NAME AND LOCATION

01 SITE NAME (Legal, common, or descriptive name of site)	02 STREET, ROUTE NO., OR SPECIFIC LOCATION IDENTIFIER
Northwest Pipe and Casing	9571 Mather Road

03 CITY	04 STATE	05 ZIP CODE	06 COUNTY	07 COUNTY CODE	08 CONG DIST
Clackamas	OR	97015	Clackamas	005	05

09 COORDINATES	
LATITUDE	LONGITUDE
45°25'00.0"	122°33'45.0"

10 TYPE OF OWNERSHIP (Check one)
X A. PRIVATE ___ B. FEDERAL ___ X C. STATE ___ D. COUNTY ___ E. MUNICIPAL
___ F. OTHER ___ G. UNKNOWN

III. INSPECTION INFORMATION

01 DATE OF INSPECTION	02 SITE STATUS	03 YEARS OF OPERATION
4/28/88, 7/18-21/88	___ ACTIVE	1956 | 1986 ___ UNKNOWN
MO/DAY/YR	X INACTIVE	BEGINNING YEAR / ENDING YEAR

04 AGENCY PERFORMING INSPECTION (Check all that apply)
___ A. EPA X B. EPA CONTRACTOR Ecology & Environment, Inc. (E&E) (Name of firm) ___ C. MUNICIPAL ___ D. MUNICIPAL CONTRACTOR
___ E. STATE ___ F. STATE CONTRACTOR ___ (Name of firm) ___ G. OTHER ___ (Specify)

05 CHIEF INSPECTOR	06 TITLE	07 ORGANIZATION	08 TELEPHONE NO.
Susan Niemuth	Field Investigator	E & E	206/624-9537

09 OTHER INSPECTORS	10 TITLE	11 ORGANIZATION	12 TELEPHONE NO.
Robert M. Duffner	Field Investigator	E & E	206/624-9537
Joseph B. Hunt	Field Investigator	E & E	206/624-9537

13 SITE REPRESENTATIVES INTERVIEWED	14 TITLE	15 ADDRESS	16 TELEPHONE NO.
Wayne Hall	Owner	(b) (6) Oregon City, OR 97045	(b) (6)
Mark LaNoue	Developer	(b) (6) Clackamas, OR 97015	(b) (6)
William Tagmyer	President	Northwest Pipe & Casing 12005 N. Burgard Portland, OR 97203	503/285-1400
Ralph Elly, Sr.	Former President	Northwest Pipe & Casing 12005 N. Burgard Portland, OR 97203	503/285-1400
Harold Vic	Safety Director	Northwest Pipe & Casing 12005 N. Burgard Portland, OR 97203	503/285-1400
Maury Payne	District Maintenance Supervisor	Oregon Dept. of Trans. 9200 S.E. Lawnfield Rd. Clackamas, OR 97015	503/653-3086

17 ACCESS GAINED BY (Check one)	18 TIME OF INSPECTION	19 WEATHER CONDITIONS
X PERMISSION ___ WARRANT	0900-1330	Partly cloudy

IV. INFORMATION AVAILABLE FROM

01 CONTACT	02 OF (Agency/Organization)	03 TELEPHONE NO.
William Glasser	USEPA/Region X	206/442-7215

04 PERSON RESPONSIBLE FOR SITE INSPECTION FORM	05 AGENCY	06 ORGANIZATION	07 TELEPHONE NO.	08 DATE
Susan A. Niemuth	E & E	FIT	206/624-9537	10/26/88

EPA FORM 2070-13 (7-81)

EPA

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

I. IDENTIFICATION

01 STATE OR	02 SITE NUMBER
	D980988307

II. WASTE STATES, QUANTITIES, AND CHARACTERISTICS

01 PHYSICAL STATES (Check all that apply)

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

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

TONS Unknown
CUBIC YARDS _____
NO. OF DRUMS _____

03 WASTE CHARACTERISTICS (Check all that apply)

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

III. WASTE TYPE

CATEGORY	SUBSTANCE NAME	01 GROSS AMOUNT	02 UNIT OF MEASURE	03 COMMENTS
SLU	SLUDGE			
OLW	OILY WASTE	Unknown		Wastes are from coal-tar pipe coating
SOL	SOLVENTS	Unknown		operations.
PSD	PESTICIDES			
OCC	OTHER ORGANIC CHEMICALS	Unknown		
IOC	INORGANIC CHEMICALS			
ACD	ACIDS			
BAS	BASES			
MES	HEAVY METALS			

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

01 CATEGORY	02 SUBSTANCE NAME	03 CAS NUMBER	04 STORAGE/DISPOSAL METHOD	05 CONCENTRATION	06 MEASURE OF CONCENTRATION
SOL	Tetrachloroethene	127-18-4	Surface disposal	130	ug/kg
OLW	Acenaphthene	83-32-9	Surface disposal	1300000	ug/kg
OLW	Dibenzofuran	132-64-9	Surface disposal	830000	ug/kg
OLW	Fluorine	86-73-7	Surface disposal	2600000	ug/kg
OLW	Phenanthrene	85-01-8	Surface disposal	16000000	ug/kg
OLW	Anthracene	120-12-7	Surface disposal	27000000	ug/kg
OLW	Fluoranthene	206-44-0	Surface disposal	6400000	ug/kg
OLW	Pyrene	129-00-0	Surface disposal	1500000	ug/kg
OLW	Benzo(a)Anthracene	56-55-3	Surface disposal	950000	ug/kg
OLW	Chrysene	218-01-9	Surface disposal	2100000	ug/kg
OLW	Benzo(a)Pyrene	50-32-8	Surface disposal	200000	ug/kg
OCC	Aroclor 1254	1109-69-1	Surface disposal	670000	ug/kg
SOL	Total Xylenes	1330-20-7	Surface disposal	56	ug/L
OLW	Naphthalene	91-20-3	Surface disposal	680	ug/L
	See Site Inspection report for additional hazardous substances detected.				

V. FEEDSTOCKS (See Appendix for CAS Numbers)

CATEGORY	01 FEEDSTOCK NAME	02 CAS NUMBER	CATEGORY	01 FEEDSTOCK NAME	02 CAS NUMBER
FDS			FDS		
FDS			FDS		
FDS			FDS		
FDS			FDS		

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

1. E & E Site Inspection, 1988.
2. USGS Quadrangle 7.5-Minute Series, Gladstone, Oregon, 1975.

EPA

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

I. IDENTIFICATION
01 STATE OR | 02 SITE NUMBER D980988307

II. HAZARDOUS CONDITIONS AND INCIDENTS

01 X A. GROUNDWATER CONTAMINATION — 02 X OBSERVED (DATE: July 1988) ___ POTENTIAL ___ ALLEGED

03 POPULATION POTENTIALLY AFFECTED: >10,000 — 04 NARRATIVE DESCRIPTION

Groundwater samples collected by E & E showed elevated levels of volatile organics, semivolatile organics, and PCB. Groundwater on site was encountered at 1.35 feet below ground surface (bgs). Well logs indicate apparent various perched water-bearing units separated by blue clay layers of various thicknesses. Well logs within 1/2 mile of the site indicate that water is encountered between 37 and 128 feet bgs. Approximately 19,000 people may use water from the City of Milwaukie drinking water system. The system has not been used since September 1988 due to volatile organic contamination.

01 X B. SURFACE WATER CONTAMINATION — 02 ___ OBSERVED (DATE: ___) X POTENTIAL ___ ALLEGED

03 POPULATION POTENTIALLY AFFECTED: 76 — 04 NARRATIVE DESCRIPTION

Sediment samples collected by E & E from an adjacent drainage ditch showed elevated levels of volatile organics, semivolatile organics, and PCB. The drainage ditch eventually flows to Dean Creek and Mount Scott Creek, which are used for irrigation of approximately 20 acres.

01 ___ C. CONTAMINATION OF AIR — 02 ___ OBSERVED (DATE: ___) ___ POTENTIAL ___ ALLEGED

03 POPULATION POTENTIALLY AFFECTED: ___ — 04 NARRATIVE DESCRIPTION

None known, observed, or suspected.

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

03 POPULATION POTENTIALLY AFFECTED: ___ — 04 NARRATIVE DESCRIPTION

None known, observed, or suspected.

01 X E. DIRECT CONTACT — 02 ___ OBSERVED (DATE: ___) X POTENTIAL ___ ALLEGED

03 POPULATION POTENTIALLY AFFECTED: 50 — 04 NARRATIVE DESCRIPTION

Surface soil samples obtained by E & E showed elevated levels of volatile organics, semivolatile organics, and PCB. Waste is uncontained. Site is used as a truck driving school. The site is fenced on the south and east and bordered by railroad tracks on the west. The northern boundary of Parcel B is partially fenced. Population potentially affected includes instructors and students of the truck driving school.

01 X F. CONTAMINATION OF SOIL — 02 X OBSERVED (DATE: July 1988) ___ POTENTIAL ___ ALLEGED

03 AREA POTENTIALLY AFFECTED: 32 (Acres) — 04 NARRATIVE DESCRIPTION

Six on-site surface soil samples obtained by E & E from Parcel B showed elevated levels of volatile organics, semivolatile organics, and PCB compared to off-site background sample concentrations. It is unknown to what extent the site surface is contaminated.

01 X G. DRINKING WATER CONTAMINATION — 02 ___ OBSERVED (DATE: ___) X POTENTIAL ___ ALLEGED

03 POPULATION POTENTIALLY AFFECTED: 19,000 — 04 NARRATIVE DESCRIPTION

Groundwater samples obtained by E & E showed elevated levels of volatile organics, semivolatile organics, and PCB. Nearest registered private well is approximately 0.5 miles from the site. Nearest City of Milwaukie well is located approximately 2 miles northwest of the site and may serve approximately 19,000 people.

01 ___ H. WORKER EXPOSURE/INJURY — 02 ___ OBSERVED (DATE: ___) X POTENTIAL ___ ALLEGED

03 WORKERS POTENTIALLY AFFECTED: 50 — 04 NARRATIVE DESCRIPTION

None known, suspected, or observed. Compounds detected in on-site surface soils may pose an exposure threat to on-site workers.

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

03 POPULATION POTENTIALLY AFFECTED: ___ — 04 NARRATIVE DESCRIPTION

None known, suspected, or observed.

EPA

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

I. IDENTIFICATION	
01 STATE OR	02 SITE NUMBER D980988307

II. HAZARDOUS CONDITIONS AND INCIDENTS (CONTINUED)

01 X J. DAMAGE TO FLORA — 02 X OBSERVED (DATE: July 1988) ___ POTENTIAL ___ ALLEGED

04 NARRATIVE DESCRIPTION

As observed by E & E, vegetation has been excluded on the site surface where wastes are evident.

01 ___ K. DAMAGE TO FAUNA — 02 ___ OBSERVED (DATE: _____) ___ POTENTIAL ___ ALLEGED

04 NARRATIVE DESCRIPTION (Include name(s) of species)

None known, observed, or suspected.

01 ___ L. CONTAMINATION OF FOOD CHAIN — 02 ___ OBSERVED (DATE: _____) ___ POTENTIAL ___ ALLEGED

04 NARRATIVE DESCRIPTION

None known, observed, or suspected.

01 X M. UNSTABLE CONTAINMENT OF WASTES — 02 X OBSERVED (DATE: July 1988) ___ POTENTIAL ___ ALLEGED

(Spills/runoff/standing liquids/leaking drums)

03 POPULATION POTENTIALLY AFFECTED: 50 — 04 NARRATIVE DESCRIPTION

Wastes were deposited directly on the site soil surface. Potential for direct contact exposure to wastes exists. There are currently 50 persons working on site that may potentially be exposed to wastes.

01 ___ N. DAMAGE TO OFFSITE PROPERTY — 02 ___ OBSERVED (DATE: _____) ___ POTENTIAL ___ ALLEGED

04 NARRATIVE DESCRIPTION

None known, observed, or suspected.

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

04 NARRATIVE DESCRIPTION

None known, observed, or suspected.

01 ___ P. ILLEGAL/UNAUTHORIZED DUMPING — 02 ___ OBSERVED (DATE: _____) ___ POTENTIAL ___ ALLEGED

04 NARRATIVE DESCRIPTION

None known, observed, or suspected.

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

None known, observed, or suspected.

III. TOTAL POPULATION POTENTIALLY AFFECTED: >19,000

IV. COMMENTS

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

1. E & E Site Inspection, 1988.
2. Beidelman, Lucinda, November 30, 1988, Oregon Department of Environmental Quality, personal communication with Susan Niemuth, E & E.
3. Bailey, Dick, November 30, 1988, City of Milwaukie Public Works, personal communication with Susan Niemuth, E & E.

EPA

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

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
OR	D980988307

II. PERMIT INFORMATION

01 TYPE OF PERMIT ISSUED (Check all that apply)	02 PERMIT NUMBER	03 DATE ISSUED	04 EXPIRATION DATE	05 COMMENTS
___A. NPDES				
___B. UIC				
___C. AIR				
___D. RCRA				
___E. RCRA INTERIM STATUS				
___F. SPCC PLAN				
___G. STATE (Specify)				
___H. LOCAL (Specify)				
___I. OTHER (Specify)				
X J. NONE				

III. SITE DESCRIPTION

01 STORAGE/DISPOSAL (Check all that apply)	02 AMOUNT	03 UNIT OF MEASURE
___A. SURFACE IMPOUNDMENT		
X B. PILES	Unknown	
___C. DRUMS, ABOVE GROUND		
___D. TANK, ABOVE GROUND		
X E. TANK, BELOW GROUND	3	10,000 gallons
___F. LANDFILL		
___G. LANDFARM		
___H. OPEN DUMP		
___I. OTHER (Specify)		

04 TREATMENT (Check all that apply)

___A. INCINERATION
___B. UNDERGROUND INJECTION
___C. CHEMICAL/PHYSICAL
___D. BIOLOGICAL
___E. WASTE OIL PROCESSING
___F. SOLVENT RECOVERY
___G. OTHER RECYCLING/RECOVERY
___H. OTHER (Specify)

None

05 Other

X A. BUILDINGS ON SITE
11

06 AREA OF SITE

Parcel A - 21 (Acres
Parcel B - 32 (Acres

07 COMMENTS

Parcel A includes property owned by Oregon Department of Transportation and Northwest Development Company. The ODOT property is occupied by one large building and the NDC property is occupied by four large warehouses. The remainder of Parcel A is paved with asphalt. Parcel B contains four buildings and two quonsets and is mostly unpaved. The property is currently leased to a truck driving school. All samples were collected from Parcel B.

IV. CONTAINMENT

01 CONTAINMENT OF WASTES (Check one)

___A. ADEQUATE, SECURE ___B.MODERATE X C.INADEQUATE, POOR ___D. INSECURE, UNSOUND, DANGEROUS

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

Wastes were dumped directly to the site surface. No containment features are present.

V. ACCESSIBILITY

01 WASTE EASILY ACCESSIBLE: X YES ___NO

02 COMMENTS

Parcel B is fenced on the south and east, bordered on the west by railroad tracks, and is partially fenced on the north boundary. The property is patrolled by a security guard when the truck driving school is not in session.

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

1. E & E Site Inspection, 1988.

EPA

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

I. IDENTIFICATION

01 STATE OR	02 SITE NUMBER
	D980988307

II. DRINKING WATER SUPPLY

01 TYPE OF DRINKING SUPPLY (Check as applicable)

	SURFACE	WELL
COMMUNITY	A. X	B. ___
NON-COMMUNITY	C. ___	D. X

02 STATUS

	ENDANGERED	AFFECTED	MONITORED
COMMUNITY	A. ___	B. ___	C. X
NON-COMMUNITY	D. ___	E. ___	F. ___

03 DISTANCE TO SITE

A. 1 (mi)
B. 0.5 (mi)

III. GROUND WATER

01 GROUND WATER USE IN VICINITY (Check one)

___ A. ONLY SOURCE FOR DRINKING
X B. DRINKING (Other sources available)
___ C. COMMERCIAL, INDUSTRIAL IRRIGATION (Limited other sources available)
___ D. NOT USED, UNUSABLE

COMMERCIAL, INDUSTRIAL, IRRIGATION (No other water sources available)

02 POPULATION SERVED BY GROUND WATER 915

03 DISTANCE TO NEAREST DRINKING WATER WELL 0.5 (mi)

04 DEPTH TO GROUND WATER	05 DIRECTION OF GROUND WATER FLOW	06 DEPTH TO AQUIFER OF CONCERN	07 POTENTIAL YIELD OF AQUIFER	08 SOLE SOURCE AQUIFER
1.35 (ft)	northwest	37 (ft)	Unknown (gpd)	___ YES X NO

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

There are approximately 240 registered well logs within 3 miles of the site. Water is encountered at depths between 37 and 128 feet below ground surface (bgs). As observed by E & E during field activities, water beneath the site was encountered at 1.35 feet bgs.

10 RECHARGE AREA		11 DISCHARGE AREA	
___ YES	COMMENTS	___ YES	COMMENTS
___ NO	Unknown	___ NO	Unknown

IV. SURFACE WATER

01 SURFACE WATER USE (Check one)

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

02 AFFECTED/POTENTIALLY AFFECTED BODIES OF WATER

NAME:	AFFECTED	DISTANCE TO SITE
Dean Creek	___	~ 0.2 (mi
Mount Scott Creek	___	~ 0.75 (mi
	___	(mi

V. DEMOGRAPHIC AND PROPERTY INFORMATION

01 TOTAL POPULATION WITHIN

ONE (1) MILE OF SITE	TWO (2) MILES OF SITE	THREE (3) MILES OF SITE
A. ~ 4,000	B. ~ 8,000	C. > 10,000
NO. OF PERSONS	NO. OF PERSONS	NO. OF PERSONS

02 DISTANCE TO NEAREST POPULATION 0.25 (mi)

03 NUMBER OF BUILDINGS WITHIN TWO (2) MILES OF SITE ~ 2,100

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

05 POPULATION WITHIN VICINITY OF SITE (Provide narrative description of nature of population within vicinity of site, e.g., rural, village, densely populated urban area)

The site is located in a mixed commercial/residential area. The site is bordered on the north by a large grassy field, on the east by an industrial park, on the west by railroad tracks and a residential area, and on the south by the Camp Withycombe Air National Guard facility. More than 10,000 persons live within 3 miles of the site.

EPA

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

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
OR	D980988307

II. ENVIRONMENTAL INFORMATION

01 PERMEABILITY OF UNSATURATED ZONE (Check one)

___A. 10^{-6} - 10^{-8} cm/sec X B. 10^{-4} - 10^{-6} cm/sec ___C. 10^{-4} - 10^{-3} cm/sec ___D. GREATER THAN 10^{-3} cm/sec

02 PERMEABILITY OF BEDROCK (Check one) Unknown

___A. IMPERMEABLE (Less than 10^{-6} cm/sec) ___B. RELATIVELY IMPERMEABLE (10^{-4} - 10^{-6} cm/sec) ___C. RELATIVELY PERMEABLE (10^{-2} - 10^{-4} cm/sec) ___D. VERY PERMEABLE (Greater than 10^{-2} cm/sec)

03 DEPTH TO BEDROCK	04 DEPTH OF CONTAMINATED SOIL ZONE	05 SOIL pH
1,000 (ft)	Unknown (ft)	Unknown

06 NET PRECIPITATION	07 ONE-YEAR 24-HOUR RAINFALL	08 SLOPE SITE SLOPE	DIRECTION OF SITE SLOPE	TERRAIN AVERAGE SLOPE
16 (in)	3 to 4 (in)	0 %	N/A	0 %

09 FLOOD POTENTIAL
SITE IS IN N/A YEAR FLOOD PLAIN

10 N/A SITE IS ON BARRIER ISLAND, COASTAL HIGH HAZARD AREA, RIVERINE FLOODWAY

11 DISTANCE TO WETLANDS (5-acre minimum)
ESTUARINE: A. _____ (mi) OTHER: B. 1.5 (mi)

12 DISTANCE TO CRITICAL HABITAT (of endangered species)
_____ (mi)
ENDANGERED SPECIES: N/A

13 LAND USE IN VICINITY
DISTANCE TO:

COMMERCIAL/INDUSTRIAL	RESIDENTIAL AREAS; NATIONAL/STATE PARKS, FORESTS, OR WILDLIFE RESERVES	AGRICULTURAL LANDS PRIME AG LAND	AGRICULTURAL LANDS AG LAND
A. On-Site (mi)	B. 0.25 (mi)	C. > 3 (mi)	D. > 3 (mi)

4 DESCRIPTION OF SITE IN RELATION TO SURROUNDING TOPOGRAPHY

The site is located in an industrial park in Clackamas, Oregon. The site is situated between Lawnfield and Mather Roads, and is bordered on the west by railroad tracks, on the north by a large grassy field, on the east by another industrial park, and on the south by the Camp Withycombe Air National Guard facility. The site is relatively flat at an elevation of 100 feet. The area appears to be within a historic 3,000-foot wide floodplain of the Clackamas River, which is located to the south.

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

1. USGS Quadrangle 7.6 Minute Series, Gladstone, Oregon, 1975.
2. State of Oregon Well Logs, 1988.
3. E & E Site Inspection, 1988.
4. Personal communication with Joe Pesek, Oregon Department of Fish and Wildlife, by Susan Niemuth, E & E, 1988.

EPA

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

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
OR	D980988307

II. SAMPLES TAKEN

SAMPLE TYPE	01 NUMBER OF SAMPLES TAKEN	02 SAMPLES SENT TO	03 ESTIMATED DATE RESULTS AVAILABLE
GROUNDWATER	6	Data Chem, 520 Wakara Way, Salt Lake City, UT	October 1988
SURFACE WATER			
WASTE			
AIR			
RUNOFF			
SPILL			
SOIL	5	Gulf South Research Inst., 6801 Press Drive, New Orleans, LA 70126	October 1988
VEGETATION			
OTHER (Sediment)	5	Gulf South Research Inst., 6801 Press Drive, New Orleans, LA 70126	October 1988

III. FIELD MEASUREMENTS TAKEN

01 TYPE	02 COMMENTS
pH	Field parameters were obtained on all groundwater samples. See table below.
Specific Conductivity	
Temperature	

IV. PHOTOGRAPHS AND MAPS

01 TYPE X GROUND ___ AERIAL

02 IN CUSTODY OF E & E
(Name of organization or individual)

03 MAPS
X YES
___ NO

04 LOCATION OF MAPS
E & E

V. OTHER FIELD DATA COLLECTED (Provide narrative description)

Well	Temperature °C	pH	Specific Conductivity (umhos/cm
GW1	22	6.90	570
GW2	25	6.07	139
GW3	22	6.55	167
GW4	21	6.33	203
GW5	15	6.56	144
GW6	15	6.56	116

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

1. E & E Site Inspection, 1988.

EPA

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

I. IDENTIFICATION	
01 STATE OR	02 SITE NUMBER D980988307

II. CURRENT OWNER(S)			PARENT COMPANY (If applicable)		
01 NAME Wayne Hall		02 D+B NUMBER	08 NAME		09 D+B NUMBER
03 STREET ADDRESS (P.O. BOX, RFD #, ETC.) (b) (6)		04 SIC CODE	10 STREET ADDRESS (P.O. BOX, RFD #, ETC.)		11 SIC CODE
05 CITY (b) (6)	06 STATE OR	07 ZIP CODE (b) (6)	12 CITY	13 STATE	14 ZIP CODE
01 NAME Oregon Dept. of Transportation		02 D+B NUMBER	08 NAME		09 D+B NUMBER
03 STREET ADDRESS (P.O. BOX, RFD #, ETC.) State Transportation Building		04 SIC CODE	10 STREET ADDRESS (P.O. BOX, RFD #, ETC.)		11 SIC CODE
05 CITY Salem	06 STATE OR	07 ZIP CODE 97310	12 CITY	13 STATE	14 ZIP CODE
01 NAME Northwest Development Company		02 D+B NUMBER	08 NAME		09 D+B NUMBER
03 STREET ADDRESS (P.O. BOX, RFD #, ETC.) 9460 S.E. Lawnfield Road		04 SIC CODE	10 STREET ADDRESS (P.O. BOX, RFD #, ETC.)		11 SIC CODE
05 CITY Clackamas	06 STATE OR	07 ZIP CODE 97015	12 CITY	13 STATE	14 ZIP CODE

III. PREVIOUS OWNER(S) (List most recent first)			IV. REALTY OWNER(S) (If applicable; list most recent first)		
01 NAME Northwest Pipe and Casing Co.		02 D+B NUMBER	01 NAME		02 D+B NUMBER
03 STREET ADDRESS (P.O. Box, RFD #, etc.) 12005 North Burgard		04 SIC CODE	03 STREET ADDRESS (P.O. Box, RFD #, etc.)		04 SIC CODE
05 CITY Portland	06 STATE OR	07 ZIP CODE 97203	05 CITY	06 STATE	07 ZIP CODE
01 NAME		02 D+B NUMBER	01 NAME		02 D+B NUMBER
03 STREET ADDRESS (P.O. Box, RFD #, etc.)		04 SIC CODE	03 STREET ADDRESS (P.O. Box, RFD #, etc.)		04 SIC CODE
05 CITY	06 STATE	07 ZIP CODE	05 CITY	06 STATE	07 ZIP CODE
01 NAME		02 D+B NUMBER	01 NAME		02 D+B NUMBER
03 STREET ADDRESS (P.O. Box, RFD #, etc.)		04 SIC CODE	03 STREET ADDRESS (P.O. Box, RFD #, etc.)		04 SIC CODE
05 CITY	06 STATE	07 ZIP CODE	05 CITY	06 STATE	07 ZIP CODE

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

1. E & E Site Inspection, 1988.

EPA

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

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
OR	D980988307

II. CURRENT OPERATOR (Provide if different from owner)			OPERATOR'S PARENT COMPANY (If applicable)		
01 NAME Northwest Development Co.		02 D+B NUMBER	10 NAME		11 D+B NUMBER
03 STREET ADDRESS (P.O. BOX, RFD #, ETC.) 9460 S.E. Lawnfield Road		04 SIC CODE	12 STREET ADDRESS (P.O. BOX, RFD #, ETC.)		13 SIC CODE
05 CITY Clackamas	06 STATE OR	07 ZIP CODE 97015	14 CITY	15 STATE	16 ZIP CODE
08 YEARS OF OPERATION 1986-Present	09 NAME OF OWNER Northwest Development Co.				

III. PREVIOUS OPERATOR(S) (List most recent first; provide only if different from owner)			PREVIOUS OPERATORS' PARENT COMPANIES (If applicable)		
01 NAME Northwest Pipe and Casing Co.		02 D+B NUMBER	10 NAME		11 D+B NUMBER
03 STREET ADDRESS (P.O. Box, RFD #, etc.) 12005 N. Burgard		04 SIC CODE	12 STREET ADDRESS (P.O. Box, RFD #, etc.)		13 SIC CODE
05 CITY Portland	06 STATE OR	07 ZIP CODE 97203	14 CITY	15 STATE	16 ZIP CODE
08 YEARS OF OPERATION 1966-1986	09 NAME OF OWNER DURING THIS PERIOD Northwest Pipe and Casing Co.				
01 NAME Hall Process Company		02 D+B NUMBER	10 NAME		11 D+B NUMBER
03 STREET ADDRESS (P.O. Box, RFD #, etc.) 9571 Mather Road		04 SIC CODE	12 STREET ADDRESS (P.O. Box, RFD #, etc.)		13 SIC CODE
05 CITY Clackamas	06 STATE OR	07 ZIP CODE 97015	14 CITY	15 STATE	16 ZIP CODE
08 YEARS OF OPERATION 1956-1978	09 NAME OF OWNER DURING THIS PERIOD Wayne Hall				
01 NAME		02 D+B NUMBER	10 NAME		11 D+B NUMBER
03 STREET ADDRESS (P.O. Box, RFD #, etc.)		04 SIC CODE	12 STREET ADDRESS (P.O. Box, RFD #, etc.)		13 SIC CODE
05 CITY	06 STATE	07 ZIP CODE	14 CITY	15 STATE	16 ZIP CODE
08 YEARS OF OPERATION	09 NAME OF OWNER DURING THIS PERIOD				

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

1. E & E Site Inspection, 1988.

EPA

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

I. IDENTIFICATION	
01 STATE OR	02 SITE NUMBER D980988307

II. ON-SITE GENERATOR

01 NAME	02 D+B NUMBER
N/A	

03 STREET ADDRESS (P.O. BOX, RFD #, ETC.)	04 SIC CODE

05 CITY	06 STATE	07 ZIP CODE

III. OFF-SITE GENERATOR(S)

01 NAME	02 D+B NUMBER	01 NAME	02 D+B NUMBER
N/A			

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

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

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

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

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

IV. TRANSPORTER(S)

01 NAME	02 D+B NUMBER	01 NAME	02 D+B NUMBER
N/A			

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

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

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

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

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

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

1. E & E Site Inspection, 1988.

EPA

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

I. IDENTIFICATION

01 STATE OR	02 SITE NUMBER
	D980988307

II. PAST RESPONSE ACTIVITIES

01 ___A. WATER SUPPLY CLOSED 02 DATE _____ 03 AGENCY _____
04 DESCRIPTION
None

01 ___B. TEMPORARY WATER SUPPLY PROVIDED 02 DATE _____ 03 AGENCY _____
04 DESCRIPTION
None

01 ___C. PERMANENT WATER SUPPLY PROVIDED 02 DATE _____ 03 AGENCY _____
04 DESCRIPTION
None

01 ___D. SPILLED MATERIAL REMOVED 02 DATE _____ 03 AGENCY _____
04 DESCRIPTION
None

01 ___E. CONTAMINATED SOIL REMOVED 02 DATE _____ 03 AGENCY _____
04 DESCRIPTION
None

01 ___F. WASTE REPACKAGED 02 DATE _____ 03 AGENCY _____
04 DESCRIPTION
None

01 ___G. WASTE DISPOSED ELSEWHERE 02 DATE _____ 03 AGENCY _____
04 DESCRIPTION
None

01 ___H. ON SITE BURIAL 02 DATE _____ 03 AGENCY _____
04 DESCRIPTION
None

01 ___I. IN SITU CHEMICAL TREATMENT 02 DATE _____ 03 AGENCY _____
04 DESCRIPTION
None

01 ___J. IN SITU BIOLOGICAL TREATMENT 02 DATE _____ 03 AGENCY _____
04 DESCRIPTION
None

01 ___K. IN SITU PHYSICAL TREATMENT 02 DATE _____ 03 AGENCY _____
04 DESCRIPTION
None

01 ___L. ENCAPSULATION 02 DATE _____ 03 AGENCY _____
04 DESCRIPTION
None

01 ___M. EMERGENCY WASTE TREATMENT 02 DATE _____ 03 AGENCY _____
04 DESCRIPTION
None

01 ___N. CUTOFF WALLS 02 DATE _____ 03 AGENCY _____
04 DESCRIPTION
None

01 ___O. EMERGENCY DIKING/SURFACE WATER DIVERSION 02 DATE _____ 03 AGENCY _____
04 DESCRIPTION
None

01 ___P. CUTOFF TRENCHES/SUMP 02 DATE _____ 03 AGENCY _____
04 DESCRIPTION
None

01 ___Q. SUBSURFACE CUTOFF WALL 02 DATE _____ 03 AGENCY _____
04 DESCRIPTION
None

II. PAST RESPONSE ACTIVITIES (Continued)

01 ___R. BARRIER WALLS CONSTRUCTED 02 DATE _____ 03 AGENCY _____
04 DESCRIPTION
None

01 ___S. CAPPING/COVERING 02 DATE _____ 03 AGENCY _____
04 DESCRIPTION
None

01 ___T. BULK TANKAGE REPAIRED 02 DATE _____ 03 AGENCY _____
04 DESCRIPTION
None

01 ___U. GROUT CURTAIN CONSTRUCTED 02 DATE _____ 03 AGENCY _____
04 DESCRIPTION
None

01 ___V. BOTTOM SEALED 02 DATE _____ 03 AGENCY _____
04 DESCRIPTION
None

01 ___W. GAS CONTROL 02 DATE _____ 03 AGENCY _____
04 DESCRIPTION
None

01 ___X. FIRE CONTROL 02 DATE _____ 03 AGENCY _____
04 DESCRIPTION
None

01 ___Y. LEACHATE TREATMENT 02 DATE _____ 03 AGENCY _____
04 DESCRIPTION
None

01 ___Z. AREA EVACUATED 02 DATE _____ 03 AGENCY _____
04 DESCRIPTION
None

01 ___1. ACCESS TO SITE RESTRICTED 02 DATE _____ 03 AGENCY _____
04 DESCRIPTION
None

01 ___2. POPULATION RELOCATED 02 DATE _____ 03 AGENCY _____
04 DESCRIPTION
None

01 ___3. OTHER REMEDIAL ACTIVITIES 02 DATE _____ 03 AGENCY _____
04 DESCRIPTION
None

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

1. E & E Site Inspection, 1988.

EPA	POTENTIAL HAZARDOUS WASTE SITE SITE INSPECTION REPORT PART 11 - ENFORCEMENT INFORMATION	I. IDENTIFICATION 01 STATE OR / 02 SITE NUMBER D980988307

II. ENFORCEMENT INFORMATION

01 PAST REGULATORY/ENFORCEMENT ACTION ___YES _X_NO

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

None

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

1. E & E Site Inspection, 1988.

SITE INSPECTION REPORT FOR NORTHWEST PIPE AND CASING CLACKAMAS, OREGON

VOLUME II

TDD F10-8804-31
PAN FOR0210SA

Report Prepared by: Ecology and Environment, Inc.
Date: December 1988

Submitted to: J.E. Osborn, Regional Project Officer
Field Operations and Technical Support Branch
U.S. Environmental Protection Agency
Region X
Seattle, Washington

ecology and environment, inc.
101 YESLER WAY, SEATTLE, WASHINGTON, 98104, TEL. 206/624-9537
International Specialists in the Environment

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recycled paper

APPENDIX F

QUALITY ASSURANCE MEMORANDA

ecology and environment, inc.
101 YESLER WAY, SEATTLE, WASHINGTON, 98104, TEL. 206/624-9537
International Specialists in the Environment

MEMORANDUM

DATE: September 19, 1988

FOR: Joyce Crosson, RSCC, USEPA, Region X

THRU: Jeffrey Villnov, FIT-OM, E&E, Seattle JV

FROM: Tracy Yerian, Senior Chemist, E&E, Seattle TY

SUBJ: QA of Case 9945 (Organics)
NW Pipe & Casing

REF: F10-8806-09
PAN F10Z063QA

CC: John Osborn, RPO, USEPA, Region X
Raleigh Farlow, ESD-DPO, USEPA, Region X
Gerald Muth, DPO, Region X Laboratory, Manchester
Keith Schwab, DPO, USEPA, Region VIII
William Glasser, ESD-PO, USEPA, Region X
Robert Duffner, FIT-PM, E&E, Seattle

The Quality Assurance review of 11 samples, Case 9945, collected from NW Pipe & Casing, has been completed. Three samples were analyzed for volatiles only; eight samples were analyzed for volatiles, semi-volatiles, and pesticides by Data Chem, Inc. of Salt Lake City, Utah. The samples were numbered:

JC848	JC856	JD513
JC849	JC857 (VOA only)	JD514
JC851	JC858 (VOA only)	JC515
JC852 (VOA only)		
JC855		

Sample JC849 underwent matrix spike and matrix spike duplicate analysis.

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Data Qualifications

The following comments refer to the laboratory performance in meeting the Quality Control Specifications outlined in IFB WA-87K236-238, following Laboratory Data Validation Functional Guidelines for Evaluating Organics Analysis (February 1, 1988).

1) Timeliness

Sample Number	Sample Date	Rec'd Date	VOA Anal.	BNA Ext.	BNA Anal.	Pest.* Ext.	Pest. Anal.
JC848	7/20/88	7/21/88	7/21/88	7/26/88	7/27/88	7/22/88	8/01/88
JC849	7/20/88	7/21/88	7/21/88	7/26/88	7/27/88	7/22/88	8/01/88
JC851	7/20/88	7/21/88	7/21/88	7/26/88	7/28/88	7/22/88	8/01/88
JC852	7/20/88	7/21/88	7/21/88	7/26/88	7/28/88	7/22/88	8/01/88
JC855	7/21/88	7/22/88	7/22/88	7/26/88	7/28/88	7/22/88	8/01/88
JC856	7/21/88	7/22/88	7/22/88	7/26/88	7/28/88	7/22/88	8/01/88
JC857	7/21/88	7/22/88	7/22/88				
JC858	7/21/88	7/22/88	7/22/88				
JD513	7/19/88	7/20/88	7/20/88	7/20/88	7/27/88	7/20/88	8/01/88
JD514	7/19/88	7/20/88	7/20/88	7/20/88	7/27/88	7/20/88	8/01/88
JD515	7/19/88	7/20/88	7/20/88	7/20/88	7/27/88	7/20/88	8/01/88

*Pesticide data sheets report date received and date extracted with the incorrect month (August); reviewer assumed July dates, with the same day as recorded on the data sheets.

All samples met holding time criteria for volatiles, semivolatiles, and pesticides.

---

2) Instrument Tuning

All tuning check compound mass abundances and ratios were within contract required limits for volatile and semivolatile analysis.

3) Initial Calibration

All SPCC compounds were within contract required limits for the initial calibration with average Relative Response Factors (RRFs) above 0.05 for volatiles and semivolatiles. All CCC compounds were within contract required limits for the initial calibration with Percent Relative Standard Deviations below 30%.

All non-CCC compounds had percent relative standard deviations less than or equal to 30% for the initial volatile or semivolatile calibration.

All non-SPCC compounds had average Relative Response Factors of greater than or equal to 0.05 in the initial volatile and semivolatile calibrations, except:

Date	Compound	Fraction	RRF	Associated Samples
7/15/88	2-Butanone	VOA	0.023	None
	Vinyl Acetate	VOA	0.046	

No action was taken based on initial calibration response factors.

4) Continuing Calibrations

All SPCC compounds were at or above the contract required Relative Response Factor limits 0.05 for volatiles and semivolatiles. All CCC compounds were at or below the contract required Percent Difference limits of 25% for the volatile and semivolatile continuing calibrations.

All non-SPCC compounds had Relative Response Factors (RRF(50)) of greater than or equal to 0.3 for continuing volatile calibration or greater than or equal to 0.05 for continuing semivolatile calibration, except:

Date	Compound	Fraction	RRF(50)	Associated Samples
7/20/88	2-Butanone	VOA	0.020	JD515
7/21/88	2-Butanone	VOA	0.020	JC851, JC852,
7/22/88	2-Butanone	VOA	0.021	JC855, JC856,

For samples associated with the corresponding calibration and TCL compounds listed above, each compound was flagged as estimated (J) for positive results. Quantitation limits were rejected for all compounds with RRF(50)s below 0.05.

All non-CCC compounds that were detected in the samples had percent difference (%D) values for the continuing calibration less than or equal to 25%.

5) Instrument Detection Limits

The instrument detection limits were not supplied for any of the analytical systems.

6) Blank Analysis

Frequency criteria was met for laboratory blank analysis.

No contaminants were detected in any of the laboratory blanks.

7) Pesticide Standards

a) Linearity

The evaluation standards met the contract required limits of less than 10% RSD for linearity.

b) DDT Retention Time

The retention time for DDT on the primary GC column met or exceeded 12 minutes for the standard runs. The secondary (confirmation) column had DDT retention times of only 6.11 to 7.14 minutes. Chlordane and Aroclor 1254 are identified in the samples. The sample chromatograms exhibit good peak resolution; no action was taken based on the secondary column DDT retention time.

c) Retention Time Windows

The retention time windows met the contract specifications.

d) Analytical Sequence

The analytical sequence met the contract required frequency and order.

e) 4,4'-DDT/Endrin Degradation

The percent breakdown for Endrin and DDT met the contract limit of 20% for the individual or combined breakdown totals.

f) Dibutylchlorendate Retention Time Shift

The Percent Difference calculated for the retention time of dibutylchlorendate did not exceed 2% for the packed columns.

8) Surrogate Recovery

Recoveries (%R) for all surrogate compounds for volatile and semi-volatile analysis met QC criteria, except:

Sample Number	Fraction	Compound	%R	QC Limits
JC848	BNA	2-Fluorobiphenyl	42	43-116

No action was taken based on the one semivolatile surrogate outlier.

Recoveries for dibutylchlorendate (pesticide/PCB surrogate) met advisory QC guidelines, except sample JC851. Percent recovery of DBC was 173%; no action was taken, as no pesticides were detected in the sample.

9) Matrix Spike and Matrix Spike Duplicate

All Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Percent Recoveries (%Rs) met advisory QC guidelines.

All Relative Percent Difference (RPDs) for the MS and MSD were within QC guidelines.

10) Sample Analysis

All reported results above instrument detection limits but below Contract Required Quantitation Limits (CRQL) were flagged as estimated (J) on the Data Sheets.

Levels of napthalene and acenaphthene in sample JC855 exceeded the linear range of the calibration; the sample was reanalyzed after 5.00 dilution. The reanalysis values for naphthalene and acenapthene are hand-entered on the submitted data sheets.

11) Laboratory Contact

No laboratory contact was required.

Data Use

The usefulness of the data is based on the criteria outlined in the "Laboratory Data Validation Functional Guidelines for Evaluating Organics and Pesticides/PCB Analyses" (R-582-5-5-01).

Upon consideration of the data qualifications noted above, the data are ACCEPTABLE for use except where flagged with data qualifiers which modify the usefulness of the individual values.

Additional data packages associated with this project are expected from CLP or EPA laboratories.

Data Qualifiers

U - The material was analyzed for, but was not detected. The associated numerical value is a contractual quantitation limit, adjusted for sample weight/sample volume, extraction volume, percent solids and sample dilution.

J - The associated numerical value is an estimated quantity because quality control criteria were not met or concentrations reported were less than the CRQL.

UJ - The material was analyzed for, but was not detected. The associated numerical value is an estimated quantitation limit.

R - Quality Control indicates that data are unusable (compound may or may not be present). Resampling and reanalysis are necessary for verification.

N - Presumptive evidence of presence of material (tentative identification).

M - Mass spectral criteria for positive identification were not met. However, in the opinion of the laboratory, the identification is correct based on the analyst's professional judgement.

X - The reported result may be a combination of indistinguishable isomers.

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

JC848

Lab Name: DATACHEM INC. Contract: 68-01-7466

Lab Code: DATAC Case No.: 9945 SAS No.: _____ SDG No.: JD513

Matrix: (soil/water) WATER Lab Sample ID: CLP1532

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: DS27JC848

Level: (low/med) LOW Date Received: 07/21/88

% Moisture: not dec. ____ Date Analyzed: 07/21/88

Column: (pack/cap) PACK Dilution Factor: 1.00

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	5	U
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	5	U
75-35-4	1,1-Dichloroethene	5	U
75-35-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	5	U
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	5	U R
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	6	
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	8	
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	12	
100-42-5	Styrene	5	U
1330-20-7	Total Xylenes	56	

JDK 8/19

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

JC848

Lab Name: DATACHEM INC. Contract: 68-01-7466

Lab Code: DATAC Case No.: 9945 SAS No.: _____ SDG No.: JD513

Matrix: (soil/water) WATER Lab Sample ID: CLP1532

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: DS27JC848

Level: (low/med) LOW Date Received: 07/21/88

% Moisture: not dec. ____ Date Analyzed: 07/21/88

Column (pack/cap) PACK Dilution Factor: 1.00

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

JDL 8/10

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

JC848

Lab Name: DATACHEM INC. Contract: 68-01-7466

Lab Code: DATAC Case No.: 9945 SAS No.: _____ SDG No.: JD513

Matrix: (soil/water) WATER Lab Sample ID: CLP1532

Sample wt/vol: 1000 (g/mL) ML Lab File ID: YO12JC848

Level: (low/med) LOW Date Received: 07/21/88

% Moisture: not dec. ____ dec. ____ Date Extracted: 07/26/88

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 07/27/88

GPC Cleanup: (Y/N) N pH: 7.0 Dilution Factor: 1.00

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
39638-32-9	bis(2-Chloroisopropyl)Ether	10	U
106-44-5	4-Methylphenol	10	U
621-64-7	N-Nitroso-Di-n-Propylamine	10	U
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethylphenol	10	U
65-85-0	Benzoic Acid	50	U
111-91-1	bis(2-Chloroethoxy)Methane	10	U
120-83-2	2,4-Dichlorophenol	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
87-68-3	Hexachlorobutadiene	10	U
59-50-7	4-Chloro-3-Methylphenol	10	U
91-57-6	2-Methylnaphthalene	3	J
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	Dimethyl Phthalate	10	U
208-96-8	Acenaphthylene	10	U
606-20-2	2,6-Dinitrotoluene	10	U

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

JC848

Lab Name: DATACHEM INC. Contract: 68-01-7466

Lab Code: DATAC Case No.: 9945 SAS No.: _____ SDG No.: JD513

Matrix: (soil/water) WATER Lab Sample ID: CLP1532

Sample wt/vol: 1000 (g/mL) ML Lab File ID: YO12JC848

Level: (low/med) LOW Date Received: 07/21/88

% Moisture: not dec. ____ dec. ____ Date Extracted: 07/26/88

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 07/27/88

GPC Cleanup: (Y/N) N pH: 7.0 Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
99-09-2	3-Nitroaniline	50	U
83-32-9	Acenaphthene	52	
51-28-5	2,4-Dinitrophenol	50	U
100-02-7	4-Nitrophenol	50	U
132-64-9	Dibenzofuran	27	
121-14-2	2,4-Dinitrotoluene	10	U
84-66-2	Diethylphthalate	10	U
7005-72-3	4-Chlorophenyl-phenylether	10	U
86-73-7	Fluorene	43	
100-10-6	4-Nitroaniline	50	U
534-52-1	4,6-Dinitro-2-Methylphenol	50	U
86-30-6	N-Nitrosodiphenylamine (1)	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
87-86-5	Pentachlorophenol	50	U
85-01-8	Phenanthrene	100	
120-12-7	Anthracene	23	
84-74-2	Di-n-Butylphthalate	10	U
206-44-0	Fluoranthene	31	
129-00-0	Pyrene	22	
85-68-7	Butylbenzylphthalate	10	U
91-94-1	3,3'-Dichlorobenzidine	20	U
56-55-3	Benzo(a)Anthracene	4	J
218-01-9	Chrysene	5	J
117-81-7	bis(2-Ethylhexyl)Phthalate	10	U
117-84-0	Di-n-Octyl Phthalate	10	U
205-99-2	Benzo(b)Fluoranthene	10	U
207-08-9	Benzo(k)Fluoranthene	10	U
50-32-8	Benzo(a)Pyrene	10	U
193-39-5	Indeno(1,2,3-cd)Pyrene	10	U
53-70-3	Dibenz(a,h)Anthracene	10	U
191-24-2	Benzo(g,h,i)Perylene	10	U

(1) - Cannot be separated from Diphenylamine