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FINAL

**CONTAMINATION ASSESSMENT/
REMEDIAL ACTIVITIES INVESTIGATION
WATERFRONT SEDIMENTS (SITE 2)
NAVAL AIR STATION PENSACOLA
PENSACOLA, FLORIDA

INTERIM DATA REPORT**

October 1991

Contract N62467-88-C-0200

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19 ABSTRACT (Continue on reverse if necessary and identify by block number) This Interim Data Report contains the results of Phase I of the Contamination Assessment/Remedial Activities Investigation conducted at the Waterfront Sediments (Site 2) located on the Naval Air Station in Pensacola, Florida. This work was conducted as part of the U.S. Navy's Installation Restoration Program. The objective of the Phase I investigation at Site 2 was to identify principal areas and primary contaminants of concern at the site and to provide recommendations for subsequent phases of investigation. This investigation was the first step in the completion of a RCRA Facility Investigation/Corrective Measures Study for the site. Site 2 is an area of nearshore sediments along the waterfront adjacent to the base of stormwater and wastewater outfalls. The results of this investigation indicate that sediment contamination is present on the site. Metals, total recoverable petroleum hydrocarbons, volatile organic compounds, and polynuclear aromatic hydrocarbons are the primary contaminants. Further assesement activities are				
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19.required on and in the vicinity of Site 2.

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RECORD OF DOCUMENT CHANGES

Revisions to this document were made based on comments received from the U.S. Environmental Protection Agency, Florida Department of Environmental Regulation, Florida Department of Natural Resources, and National Oceanic and Atmospheric Administration. All revisions are in bold and enclosed in brackets to denote changes to the last version of this document.

EXECUTIVE SUMMARY

As part of the U.S. Navy's Installation Restoration Program, Phase I of the Contamination Assessment/Remedial Activities Investigation was conducted for the Waterfront Sediments (Site 2), located on the Naval Air Station in Pensacola, Florida. This work was performed by Ecology and Environment, Inc., (E & E) under contract to the U.S. Navy, Southern Division, Naval Facilities Engineering Command.

Site 2 consists of the area of nearshore sediments along the waterfront that is adjacent to numerous stormwater and wastewater outfalls. The objective of the Phase I investigation at Site 2 was to identify principal areas and primary contaminants of concern at the site and to provide recommendations for subsequent phases of investigation. The recommendations for additional work at Site 2 are presented under a separate cover. The Phase I tasks included aerial photograph and existing data analysis, site reconnaissance, habitat/biota survey, surface emissions survey and particulate air sampling, radiation survey, and the collection and analysis of sediment samples.

The results of this investigation indicate that sediment contamination is present on Site 2. Metals, total recoverable petroleum hydrocarbons (TRPHs), volatile organic compounds (VOCs), and polynuclear aromatic hydrocarbons (PAHs) are the primary contaminants. Most of the detected contamination appears to be associated with previous discharges of untreated industrial wastes from outfalls concentrated along the eastern end of the waterfront. However, off-site sources of contamination may contribute to sediment contamination on Site 2.

The highest degree of sediment contamination appears to be confined to the nearshore sediments between buildings 27 and 44, where 19 outfalls extend into Pensacola Bay. The highest concentrations of metals, TRPHs, and PAHs occurred in sediments offshore of Building 71.

Elevated levels of **metals, TRPHs, VOCs, and PAHs** were also found in isolated **sediment areas** along the western waterfront, where numerous outfalls also exist. In addition to contamination by stormwater or wastewater discharges from these outfalls, the sediments in this area might have been impacted by a fuel spill which occurred near the McDonalds restaurant when the western waterfront was used as an aircraft parking apron.

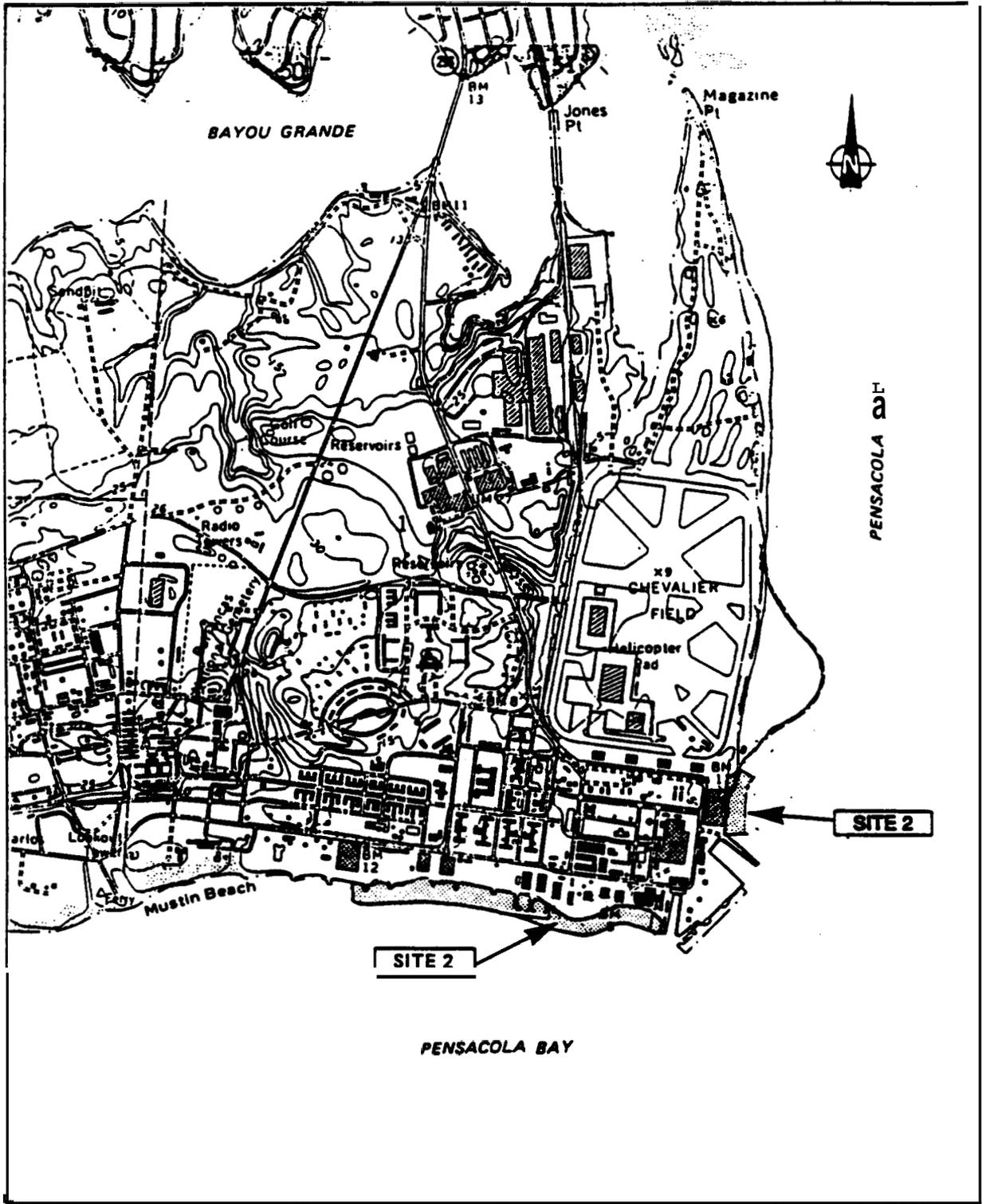
Off-site sources elsewhere in Pensacola Bay might also have contributed to the sediment contamination identified at Site 2 during the Phase I analytical screening investigation. These potential contaminant sources include operations at the adjacent aircraft carrier berth and naval boatyard, commercial shipping, and industrial facilities which discharge effluent to Pensacola Bay. Further assessment activities are required at and in the vicinity of Site 2.

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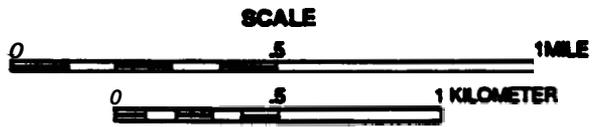
1. INTRODUCTION

This Interim Data Report presents the findings of the Phase I investigation activities performed for Site 2, the Waterfront Sediments, located at the Naval Air Station (NAS) in Pensacola, Escambia County, Florida (see figures 1-1 and 1-2). This report has been prepared by Ecology and Environment, Inc., (E & E) for the Southern Division, U.S. Navy, Naval Facilities Engineering Command, under Contract No. N62467-88-C-0200. The information presented in this report is based on information and file documents provided by the Navy and on information gathered during the Phase I fieldwork conducted on the site from October 1990 to February 1991. This investigation was conducted in accordance with the administrative documents prepared by E & E for this project, which include the [June 1990) Project Management Plan, [June 1990) Site Management Plan, [July 1990] Generic Quality Assurance Project Plan (GQAPP), [July 1990] General Health and Safety Plan, and [June 1990] Contamination Assessment/Remedial Activities Investigation Work Plan--Group C with appended Site-Specific Health and Safety Plan and Site-Specific Quality Assurance Plan. [All references to these documents in this report apply only to the 1990 versions.]

Site 2 is located on the southeastern corner of the NAS Pensacola facility. This site is the area of nearshore sediments along the waterfront that is adjacent to the base of the storm sewer outfalls. Many of these outfalls, which range from 1 to 42 inches in diameter, emptied hazardous wastes into Pensacola Bay from approximately 1935 to 1973 (Naval Energy and Environmental Support Activity (NEESA) 1983). The outfalls are located from Building 632 east past the aircraft carrier dock and north to Building 631 (see Figure 1-2).

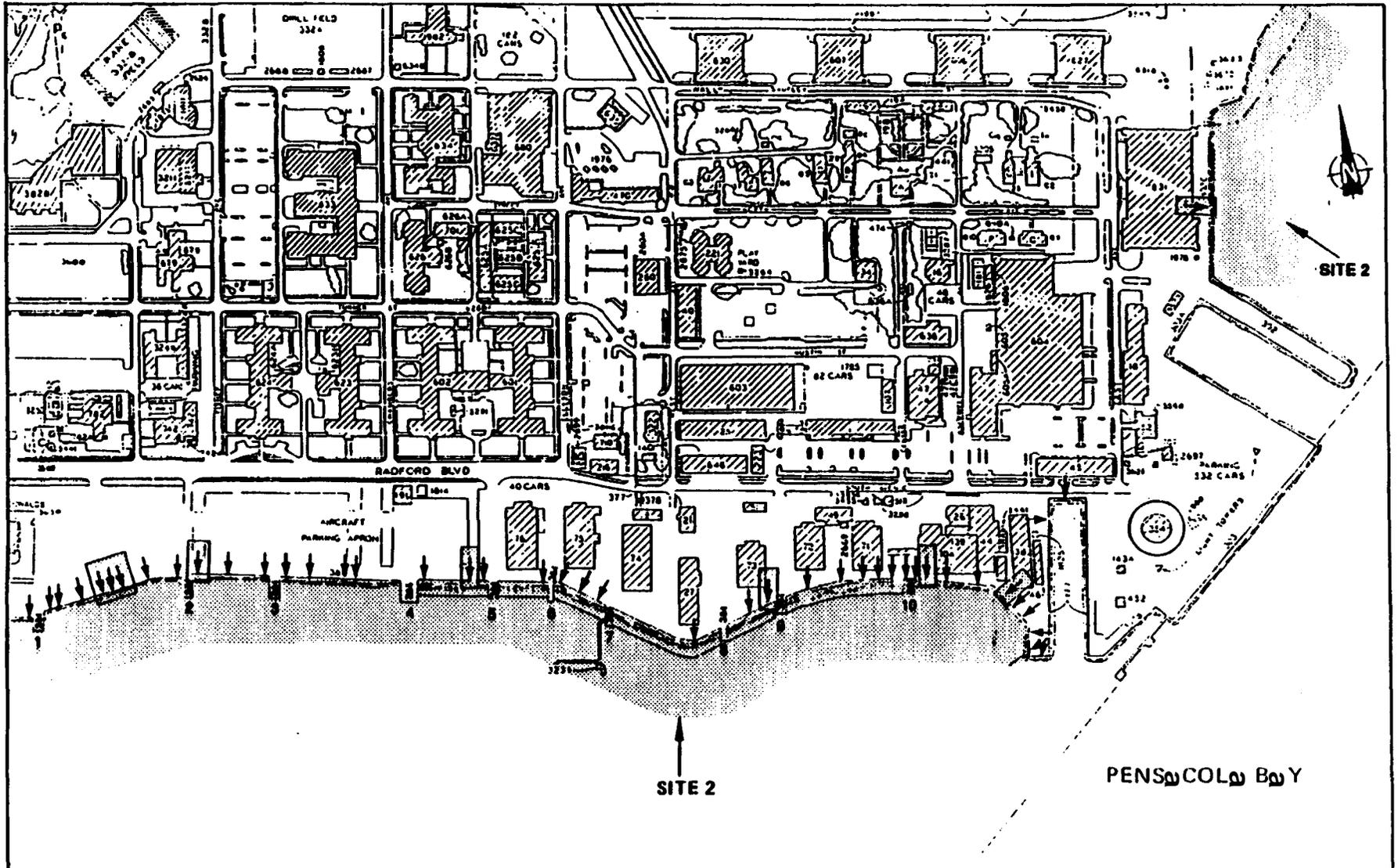


SOURCE: U.S.G.S. 7.5 Minute Series (Topographic) Quadrangle Fort Barrancas, Fla. 1970 and West Pensacola, Fla. 1970, Photocorwid 1987



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Figure 1-1 LOCATION MAP — NAS PENSACOLA SITE 2



SOURCE: U.S. Naval Air Station, Pensacola, Florida, 1986 and 1987; Ecology and Environment, Inc., 1991

KEY:

- Outfall
- Stormwater Outfall
-  Seepage Ramp

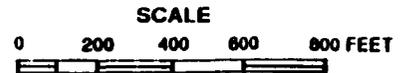


Figure 1-2 SITE MAP — NAS PENSACOLA SITE 2

An extensive concrete levee that extends underwater into Pensacola Bay was constructed along the southeastern portion of the base to protect the NAS facility perimeter from erosion. The levee consists of a vertical bulkhead or seawall 3 to 4 feet high built on top of a concrete platform that extends into the subtidal zone of the bay. Storm sewer outlets are located along the vertical seawall (see Figure 1-2) and empty an unknown amount of stormwater runoff into Pensacola Bay (Geraghty and Hiller [G & M] 1986).

The purpose of the Phase I Investigation was to identify principal areas and primary contaminants of concern at the site and to provide recommendations for subsequent phases of investigation. The Phase I fieldwork included a site reconnaissance, habitat/biota survey, surface emissions survey and particulate air sampling, radiation survey, and the collection and analysis of sediment samples. The recommendations for additional work at this site are presented with this submittal under separate cover.

2. INVESTIGATION METHODOLOGY

2.1 AERIAL PHOTOGRAPH AND EXISTING DATA ANALYSIS

Prior to the initiation of fieldwork, E & E personnel examined all available aerial photographs of NAS Pensacola for past and present conditions, features, and developments that might have had direct relevance to the fieldwork methodology. The aerial photograph analysis task involved assembling and stereoscopically analyzing historical photographic imagery and topographic maps available for the site area. Photographs were scaled to allow analysis of past and present surface conditions, drainage, and land use. General Development Haps of NAS Pensacola, including Storm Drainage System maps prepared by the Naval Facilities Engineering Command, were also examined to identify and locate appropriate base facilities. The aerial photographs and maps used in the analysis are listed in Table 2-1. The photographs and maps were analyzed to obtain information regarding the evolution of site features that might have affected discharge of outfalls and nearshore circulation along the waterfront and to aid in the performance of such tasks as field reconnaissance and placement of sediment sampling sites.

Existing data on metals concentrations in Pensacola Bay sediments collected in 1982 by the Florida Department of Environmental Regulation (FDER; see Table 3-1 and Figure 3-1 of the Group C Work Plan) were examined to use as comparative data in the analysis of analytical screening results. Results from PDER sediment sampling stations PNB-5 and PNB-6 were selected as representative of ambient bay conditions. Concentrations of metals (zinc, lead, cadmium, and copper) measured at these stations were used as background values for metals detected in sediments at Site 2.

Table 2-1

PHOTOGRAPHS AND MAPS USED IN THE AERIAL PHOTOGRAPH ANALYSIS
 NAS PENSACOLA SITE 2

Source	Photograph/Map Number*	Date	Scale
NAS Pensacola Public Works Department	1276033 I	2/5/90	1:2,400
	1276035 M	2/5/90	1:2,400
	1276909 M	5/15/87	1:2,400
	1276036 I	5/22/06	1:2,400
	1276912 M	9/29/86	1:2,400
	1276913 M	12/21/87	1:2,400
Florida Department of Transportation	FD-3886-12-03	10/26/89	1:24,000
	FD-3618-12-03	11/21/06	1:24,000
	FD-3618-12-04	11/21/86	1:24,000
	FD-3109-12-03	9/22/83	1:24,000
	FD-3109-12-04	9/22/83	1:24,000
	FD-2684-12-04	3/9/01	1:24,000
	FD-2684-11-05	3/9/81	1:24,000
	FD-1888-11-03	4/28/76	1:24,000
	FD-1888-11-04	4/28/76	1:24,000
	FD-1331-11-03	5/4/73	1:24,000
	FD-1331-11-04	5/4/73	1:24,000
	FD-868-4-09	4/6/70	1:24,000
	FD-868-4-10	4/6/70	1:24,000
	FD-616-4-03	3/25/68	1:24,000
	FD-616-4-04	3/25/68	1:24,000
FD-285-4-01	10/8/64	1:12,000	
FES-7054-3-1	10/12/61	1:24,000	
U.S. Department of Agriculture	CFP-4N-17	1/22/51	1:24,000
	CFP-1V-78	1/3/58	1:24,000
West Florida Regional Planning Council	FD-3618-12-03	11/21/06	1:4,800

14[NASP]UN6037:T0230/400/23

Key:

*M = Maps; all others are photographs.

2.2 SITE RECONNAISSANCE

A field reconnaissance survey was conducted on and around the site. Available aerial photographs and maps were used as guides in locating surface features. Visual inspections were made of surface conditions, surface drainage patterns, areas of exposed or submerged debris, and nearshore water quality. These observations of surface conditions on the site were used to update the site map. During the reconnaissance survey, the field team identified and mapped all outfalls along the waterfront and recorded the diameters and types of construction material (iron, concrete, clay, or polyvinyl chloride [PVC]). A survey was also conducted during a rainstorm to identify those outfalls which discharge stormwater.

The reconnaissance survey team utilized radiation and air monitoring equipment during walkovers of the site, in accordance with Section 6.1.1 of the GQAPP. Outfalls with radiation readings above ambient levels were flagged and identified on a site map for future reference. All findings of the physical reconnaissance were mapped in detail and recorded in the field logbook.

2.3 HABITAT/BIOTA SURVEY

A habitat/biota survey was conducted for the site, and existing literature pertaining to NAS Pensacola was also examined to identify probable on-site biota. During the physical reconnaissance, E & E biologists determined the on-site aquatic habitats and the surrounding habitats that could be affected by off-site contaminant migration. Rare, threatened, and endangered species and their potential habitats were identified, and general site conditions were evaluated regarding the site's ability to support viable populations of plants and animals.

2.4 HNu/OVA SURFACE EMISSIONS SURVEY AND PARTICULATE AIR SAMPLING

A surface emissions survey was conducted using HNu and/or organic vapor analyzer (OVA) air monitoring equipment. The survey was conducted in accordance with Section 6.1.1 of the GQAPP. Measurements were made at each previously identified outfall, and readings were recorded in the field logbook. In addition, preliminary air screening was conducted

with a particulate monitor to determine if the site represents a source of particulates in the air. The air sampling was conducted in accordance with Section 6.1.[1] of the GOAPP.

2.5 RADIATION SURVEY

A radiation survey was conducted using a Bicon micro-R-meter in accordance with Section 6.3.[6] of the GOAPP. Measurements were made at each outfall, and readings were recorded in the field logbook.

26 DATA ANALYSIS

Information obtained from the results of the above-described physical surveys was given primary consideration in the development of placement strategies for the Phase I sediment samples. Prior to establishing the Phase I sampling points, the results of the aerial photograph analysis, site reconnaissance, surface emissions survey and particulate air sampling, and radiation survey were evaluated to identify nearshore areas of potential sediment contamination. The proposed Phase I sediment sampling locations, shown in Figure 14-2 of the work plan, were then revised as appropriate upon approval by Southern Division.

2.7 SEDIMENT SAMPLING

Twenty-four sediment samples and one duplicate sample were collected from 24 sampling locations: four from the nearshore area east of Building 631 (north of the aircraft carrier berth) and 20 from the nearshore area along the waterfront (west of the aircraft carrier berth; see Figure 2-1). Sediment samples were collected from the sediment surface to a depth of approximately 6 inches, using a diver-operated stainless steel sediment corer. Three sediment cores were composited for each sample. The composition of bottom materials retrieved during sampling was recorded in the field logbook. All sediment sampling and equipment decontamination activities were conducted in accordance with

sections 6.9.2 and 6.10 of the GOAPP. All sediment samples were shipped to E & Es Analytical Services Center (ASC) and analyzed for the screening parameters listed in Table 2-2.

2.8 FIELD QUALITY ASSURANCE/QUALITY CONTROL (QA/QC)

All field tasks performed during the investigation were documented in the field logbooks according to the procedures specified in Section 7.2 of the GOAPP.

2.8.1 Field QA/QC Samples

Field QA/QC samples were prepared in conjunction with all samples collected at the site during the Phase I investigation according to the procedures described in Section 6.12 of the GOAPP. Chain-of-custody was maintained for all samples collected, packaged, and shipped to B & E's ASC for analysis. Sample management was performed as specified in Section 7 of the GOAPP. The collected field QA/QC samples and corresponding analytical parameters are listed in Table 2-2.

2.8.2 Decontamination Procedures

All equipment used during field activities was decontaminated in accordance with Section 6.10 of the GOAPP.

2.9 INVESTIGATION-DERIVED WASTE MANAGEMENT

Excess sediment remaining after compositing and taking of the sample was returned to the water at the sampling location. Waste [solvent] generated during decontamination activities [was] allowed to evaporate. [Other liquid wastes were allowed to evaporate] to the maximum extent possible, and the residue was disposed of on site. [Rubber] gloves were [decontaminated and disposed of in a trash receptacle with the "clean" trash from the site.]

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Table 2-2
SAMPLING AND ANALYTICAL SUMMARY
NAS PENSACOLA SITE 2

Medium	No. of Samples	Duplicates	Total	Analytical Suite ^{a,b}
Sediment	24	1	25	A

[NASP]UH6037:T0230/331/10

Key:

^aAnalytical suite designation is as follows:

A = Volatile organic compounds including chlorobenzene, polynuclear aromatic hydrocarbons, phenols, pesticides and total PCBs, total recoverable hydrocarbons, and metals (total, unfiltered).

^bSpecific constituents encompassed by the various chemical groups included within analytical suite A are identified in Tables 9-1 through 9-4 of the Generic Quality Assurance Project plan.

Source: Ecology and Environment, Inc., 1991.

3. RESULTS

31 **AERIAL PHOTOGRAPH AND EXISTING DATA ANALYSIS**

Review of the January 22, 1951, aerial photograph indicated that the site appeared then much the same as it does at present. All of the buildings currently present along the waterfront existed in the January 22, 1951, photograph. The current state of the concrete bulkhead and aircraft parking apron appears unchanged from the 1951 photograph. Dozens of aircraft were present on the parking apron in all the aerial photographs through the May 4, 1973, photograph. Automobiles only are present on the parking apron in the April 28, 1976, aerial photograph and all subsequent photographs.

Review of the October 8, 1964, aerial photograph revealed discolored water along the shoreline in the vicinity of Building 72. A similar discoloration was present in the vicinity of buildings 71, 72, 73, and 27 in the March 25, 1968, aerial photograph. Although the discolorations could be caused by turbidity from currents or wave action, these discolorations were possibly the result of discharges from outfalls along the waterfront. Note that current- or wave-induced turbidity would probably affect a broader area than the areas of discoloration observed.

A pier-like structure extending from the waterfront south of Building 44 present in the 1951 to 1973 aerial photographs was not present in subsequent photographs. Three piers or docks extending from the waterfront south of buildings 75 and 76 were constructed during the period between the October 12, 1961, and October 8, 1964, aerial photographs. Two of these structures were apparently removed between 1968 and 1970.

The 1987 Storm Drainage System/General Development Map for NAS Pensacola depicts nine stormwater outfalls, ranging in diameter from 6 to 42 inches, within the site boundaries (see Figure 1-2). The largest of these outfalls are located between ramps 1 and 2 (42 inches), between ramps 4 and 5 (42 inches), and east of Building 631 (36 inches).

3.2 SITE RECONNAISSANCE

During the site reconnaissance, visual inspections were made along the bulkhead, the adjacent parking and roadway areas, and the shallow nearshore waters. One objective of the reconnaissance was to identify the locations and sizes of all outfalls along the waterfront. Fifty-six outfalls, ranging in diameter from 1 to 42 inches, were identified along the waterfront, including one east of Building 631 (see Figure 1-2). In addition, numerous scuppers are located along the bulkhead to allow surface drainage of the adjacent asphalt and concrete parking areas into the bay. A survey of the outfalls conducted during a heavy rainstorm on October 21, 1990, revealed flow from 12 of the outfalls. The highest flow was from a 42-inch diameter culvert located southwest of Building 76. This culvert is identified as a stormwater outfall on the NAS Pensacola Storm Drainage System/General Development Map. [The presence of several large, granite slabs arranged as a protective wall was noted on the west side of the southern extension of the north-south oriented, small vessel dockage area that is located immediately east of Building 38 and south of Building 45.]

3.3 HABITAT/BIOTA SURVEY

Site 2 consists of tidal and subtidal benthic and neritic habitats of Pensacola Bay that support moderately diverse fish and shellfish populations. Early studies of the area have identified 180 bony fish species and seven cartilaginous fish species (Cooley 1978). The 12 most abundant species were spot (Leiostomus xanthurus), pinfish (Lagodon rhomboides), Atlantic croaker (Micropogonias undulatus), gulf menhaden (Brevoortia patronus), bay anchovy (Anchoa mitchelli), longspine porgy (Stenotus caprinus), silver perch (Bairdiella chysoura), southern hake (Urophycis floridana), inshore lizardfish (Synodus foetens), gafftopsail catfish (Bagre marinus), sand seatrout (Cynoscion

arenarius), and spotted hake (Urophycis regia). Moderate densities of blue crab (Callinectes sapidus), shrimp (Penaeus duorarum, P. setiferus, and P. aztecus), and oysters (Crassostrea virginica) have been collected throughout Pensacola Bay (Heil 1989). The most important commercial species by weight were black mullet, brown shrimp, vermilion snapper, red snapper, porgies, and amberjack.

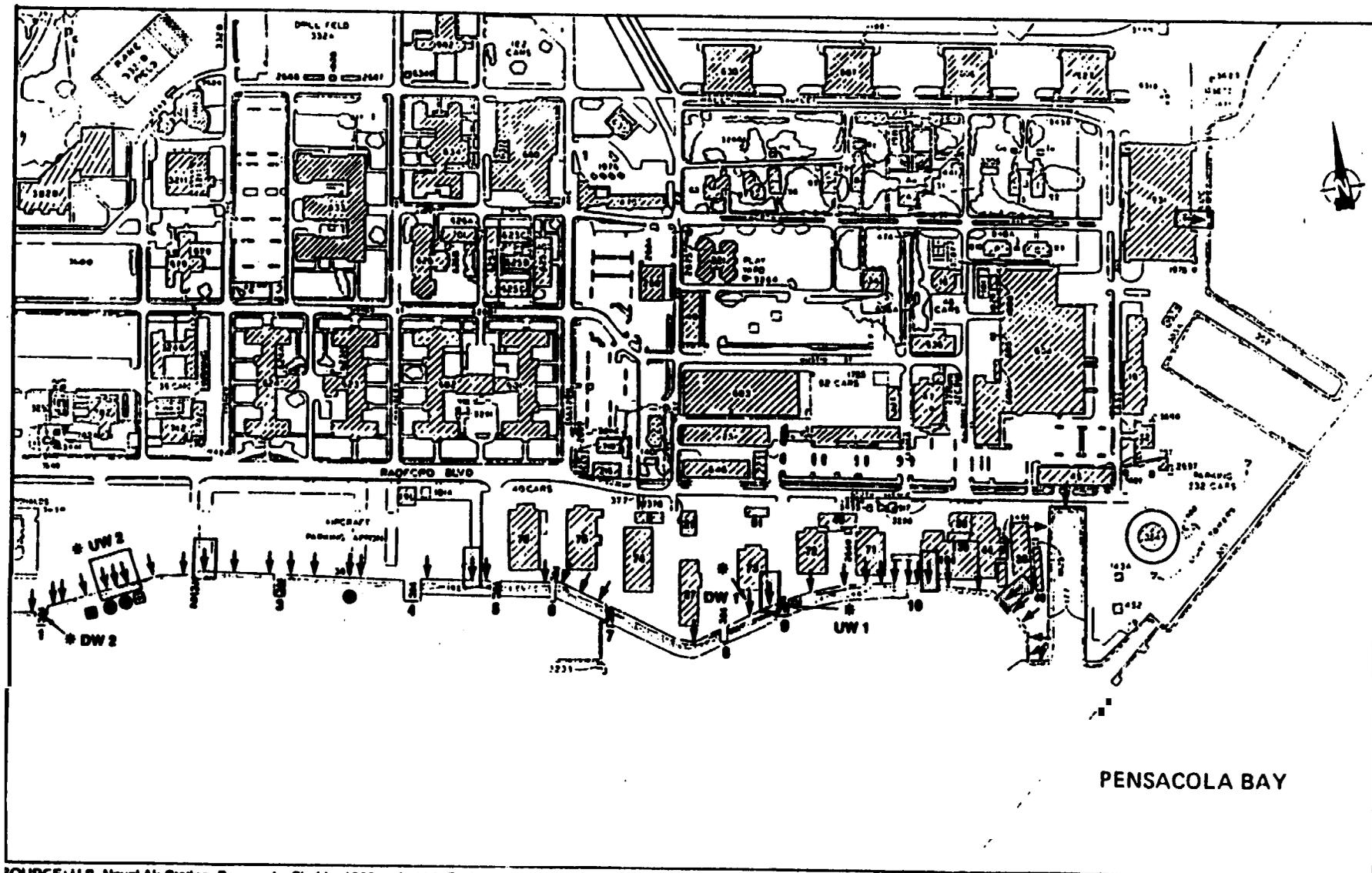
The submerged portions of the seaplane ramps, concrete apron, and drain pipes extending seaward from the seawall provide hard substrate for attached algae (primarily Sargassum sp.), sponges, bryozoans, and barnacles. A soft bottom composed of fine sand and silt is populated by a variety of polychaetes, mollusks, and crustaceans. Benthic samples taken by FDER in Pensacola Bay indicate that the sediments were dominated by polychaetes (Aricidea spp., Capitella spp., various spionids, and Eaploscoloplos spp.) and bivalves (Anodontia alba and Tellina spp.) during most of the year (PDER 1988). The benthos also provides feeding grounds for rays and at least 10 species of shore and wading birds, including several species of terns, gulls, plovers, mergansers, and sandpipers (see Appendix A). Silverside minnows (Henidia nenidia), mullet (Hugil sp.), and ctenophores were also observed in the nearshore waters. Although West Indian manatees (Trichechus manatus latirostris) and four species of sea turtles are reported to occur in Pensacola Bay (see Appendix C of Group C Work Plan), no rare, threatened, or endangered species were observed. In addition, no indication of stressed biota was observed.

34 **SURFACE EMISSIONS SURVEY AND PARTICULATE AIR SAMPLING**

[Figure 3-1 illustrates the results of the surface emissions survey and the particulate air **sampling** locations at Site 2.) An OVA was used to monitor surface **emissions** from each of the identified outfalls. OVA readings above background (0 parts per million [ppm]) were detected at two outfalls (see Figure 3-1). A 10-inch diameter iron pipe located 162 feet east of Ramp 1 had a concentration of 0.5 ppm, and an 8-inch diameter iron pipe located 316 feet east of Ramp 1 had a concentration of 4.5 ppm. Both of these outfalls were flowing during the rainstorm survey, and both are shown as part of the storm drainage system on the 1987 Storm Drainage System/General Development Map. Appendix B presents

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3-4



SOURCE: U.S. Naval Air Station, Pensacola, Florida, 1966 and 1967; Ecology and Environment, Inc., 1991

KEY:



Outfall

Stormwater Outfall



OVA Concentration Above Background



Radiation Reading Above Background



Seaplane Ramp



Particulate Air Sampling Location

DW 1/UW 1 Particulate Air Sampling Location Number
(downwind/upwind)

SCALE

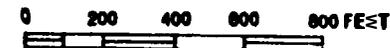


Figure 3-1 SURFACE EMISSIONS SURVEY AND RADIATION SURVEY PARTICULATE AIR SAMPLING LOCATIONS, — NAS PENSACOLA SITE 2

the location of each outfall, relative to the numbered seaplane ramps, and the surface emissions survey reading for each outfall. Background readings were recorded in the field logbooks.

On November 13, 1990, a Himi-Ram particulate air monitoring device was used to determine if Site 2 could represent a source of particulates to the air. [Figure 3-1 presents the particulate air **sampling** locations at Site 2.] Readings were taken at two sets of upwind and downwind locations. During the first test, the wind was blowing from the southeast at 5 to 10 miles per hour (mph). The first upwind location [(UW1)] was established on Ramp 9 toward the eastern end of Site 2 (see Figure 1-2 for ramp locations). After 15.0 minutes, the time-weighted average (TWA) of particulates was 0.12 milligrams per cubic meter (mg/m^3). The corresponding downwind station [(DW1)], located 100 feet northwest of the upwind station along the south side of Building 73, had a TWA of 0.11 mg/m^3 after 15.0 minutes. At the second set of particulate air monitoring stations, located toward the western end of Site 2, the wind was blowing from the northeast at approximately 5 mph. The upwind station [(UW2)], located east of the McDonalds restaurant, had a TWA of 0.13 mg/m^3 after 15.1 minutes. The downwind station [(DW2)], located on Ramp 1 approximately 100 feet southwest of the upwind station, had a TWA of 0.15 mg/m^3 after 15.0 minutes. Based on these results, Site 2 does not appear to be a significant source of particulates.

3.5 RADIATION SURVEY

[A radiation *survey* was conducted at Site 2, **as** described in Section 2.5.] Background radiation levels for [**gamma** radiation at] NAS Pensacola are 2 to 3 microRoentgens per hour ($\mu\text{R}/\text{h}$). Radiation levels slightly above background were detected at three outfalls (see Figure 3-1). These low level readings (4, 6, and 8 $\mu\text{R}/\text{h}$) do not indicate a significant radiation problem at Site 2. The source of these slightly elevated readings is unknown.

Radiation levels of 12 and 35 $\mu\text{R}/\text{h}$ were also measured at two outfalls on the [north-south oriented, **small vessel dockage** area] east of [Building 38 and south of Building 45]; however, a background reading

of 35 μ R/h was measured along the granite [slab] wall [at the southern extension of the west side of the dockage area. Given that elevated radiation levels were not detected elsewhere along the concrete seawall, this] high background level is assumed to be due to the natural radiation of the granite wall. Appendix B presents the radiation readings recorded at each outfall.

3.6 CHEMICAL ANALYSES

[The following section presents the results of the laboratory analyses of the sediment samples. The specific analytical parameters and parameter groups are listed or referenced in Table 2-2].

Table 3-1 summarizes the analytical screening results for sediment samples collected at Site 2. Figure 2-1 shows the locations of the sediment samples collected at the site. The complete analytical screening results for sediment samples are presented in Appendix C.

In general, less than half of the sediment samples collected at Site 2 exhibited elevated levels of metals, total recoverable petroleum hydrocarbons (TRPHs), volatile organic compounds (VOCS), and polynuclear aromatic hydrocarbons (PAHs). Phenols, pesticides, and PCBs were not detected in any of the sediment samples. Enriched concentrations of metals, TRPHs, and PAHs were generally confined to sediments collected offshore between buildings 27 and 44. Contaminant concentrations in sediment samples from west of Building 27 and north of the aircraft carrier dock were generally less than twice the detection limit. This distribution of contaminants suggests that sediments along the waterfront have been impacted primarily by discharges from outfalls emanating from the eastern section of the waterfront.

3.6.1 Metals

[Figure 3-2 illustrates the distribution of chromium, lead, and cadmium concentrations detected in Site 2 sediment samples.)

Metals contamination was mostly concentrated along the eastern end of the waterfront where 10 of the 12 sediment samples collected offshore between buildings 27 and 44 exhibited enriched concentrations of chromium, zinc, and lead (see Table 3-1 and Figure 3-2). Elevated levels of cadmium and copper were also found in more than half of these

Table 3-1

SUMMARY ANALYTICAL SCREENING RESULTS FOR SEDIMENT SAMPLES
 HAS PENNACOLA SITE 2
 (All results in $\mu\text{g}/\text{kg}$, unless noted)

Parameter	[Detection Limit	Sample Number (Location)							
		P2SD001 (SD001)	P2SD002 (SD002)	P2SD003 (SD003)	P2SD004 (SD004)	P2SD005 (SD005)	P2SD006 (SD006)	P2SD007 (SD007)	P2SD008 (SD008)
Chromium (mg/kg)	1	--	1.1	1.1	1.3	14	20	110	1.6
Zinc (mg/kg)	2	--	--	2.3	2.4	16	13	140	3.0
Lead (mg/kg)	4	--	--	--	--	16	26	190	--
Cadmium (mg/kg)	0.5	--	--	--	--	--	--	4.9	--
Copper (mg/kg)	2.5	--	--	--	--	54	13	25	--
TRPHs (mg/kg)	5	--	--	5.7	13	25	56	440	6.0
Toluene	1,000	--	--	--	--	--	--	--	--
Total Xylenes	1,000	--	--	--	--	--	--	--	--
Methylene Chloride	1,000	2,600(B)	3,400(B)	3,600(B)	3,600 B)	3,800 (D)	4,200 (B)	4,900(B)	9,600 (B)
Total PAHs as Benzo-a-pyrene	1,000]	--	--	(L)	(L)	2,000	4,800	17,000	(L)

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Key at end of table.

(Bold items enclosed in brackets denote changes to the last version of document)

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Table 3-1 (Cont.)

Parameter	Detection Limit	Sample Number (Location)							
		P2SD009 (SD009)	P2SD010 (SD010)	P2SD011 (SD011)	P2SD012 (SD012)	P2SD013 (SD013)	P2SD014 (SD014)	P2SD015 (SD015)	P2SD016 (SD016)
Chromium (mg/kg)	1	3.4	14	14	39	13	12	11	16
Zinc (mg/kg)	2	6.1	12	20	140	21	22	17	18
Lead (mg/kg)	4	4.0	20	47	39	116	12	15	30
Cadmium (mg/kg)	0.5	—	—	1.2	1.3	—	0.97	0.99	0.60
Copper (mg/kg)	2.5	—	3.6	7.1	14	5.7	4.6	s.2	6.0
TRPHs (mg/kg)	5	0.1	22	29	10	—	6.2	18	6.3
Toluene	1,000	—	—	—	—	—	—	—	—
Total Xylenes	1,000	—	—	—	—	—	—	—	—
Methylene Chloride	1,000	12,000 (I)	7,900 (B)	6,500 (B)	3,200 (B)	3,200 (B)	2,900 (B)	3,300 (B)	2,700 (B)
Total PAHs as Benzo-a-pyrene	1,000	2,200	2,400	1,000	2,600	2,500	2,900	3,400	4,200

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Key at end of table.

[Bold items enclosed in brackets denote changes to the last version of document]

Table 3-1 (Cont.)

Parameter	[Detection Limit	Sample Number (Location)								
		P2SD017 (SD017)	P2SD017D ^A (SD017)	P2SD018 (SD018)	P2SD019 (SD019)	P2SD020 (SD020)	P2SD021 (SD021)	P2SD022 (SD022)	P2SD023 (SD023)	P2SD024 (SD024)
chromium (mg/kg)	1	3.4	3.5	1.3	2.3	1.4	1.4	2.0	1.4	2.2
Zinc (mg/kg)	2	6.0	0.0	9.0	5.0	2.5	3.9	12	2.6	3.0
Lead (mg/kg)	4			14	--	--	--	--	--	--
Cadmium (mg/kg)	0.5	--	--	--	--	--	--	--	--	--
Copper (mg/kg)	2.5	--	--	--	--	--	19	--	--	--
TRPHs (mg/kg)	5	11	14	6.3	6.2	6.7	6.1	--	--	--
Toluene	1,000	--	--	--	--	--	--	--	--	2,400
Total Xylenes	1,000	--	--	--	--	--	--	--	--	2,100
Methylene Chloride	1,000	3,400(B)	6,700(B)	4,100(B)	4,000(B)	3,500(B)	4,000(B)	3,800(B)	6,900(B)	14,000(B)
Total PAHs as Benzo-a-pyrene	1,000	1,200	--	1,400	1,400	(L)	2,600	(L)	(L)	(L)

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Note: These results were reported on a wet-weight basis.

Key:

^ADuplicate of sample P2SD017.

Qualifiers:

(B) = Compound also present in method blank.

(L) = Present below stated detection limit.

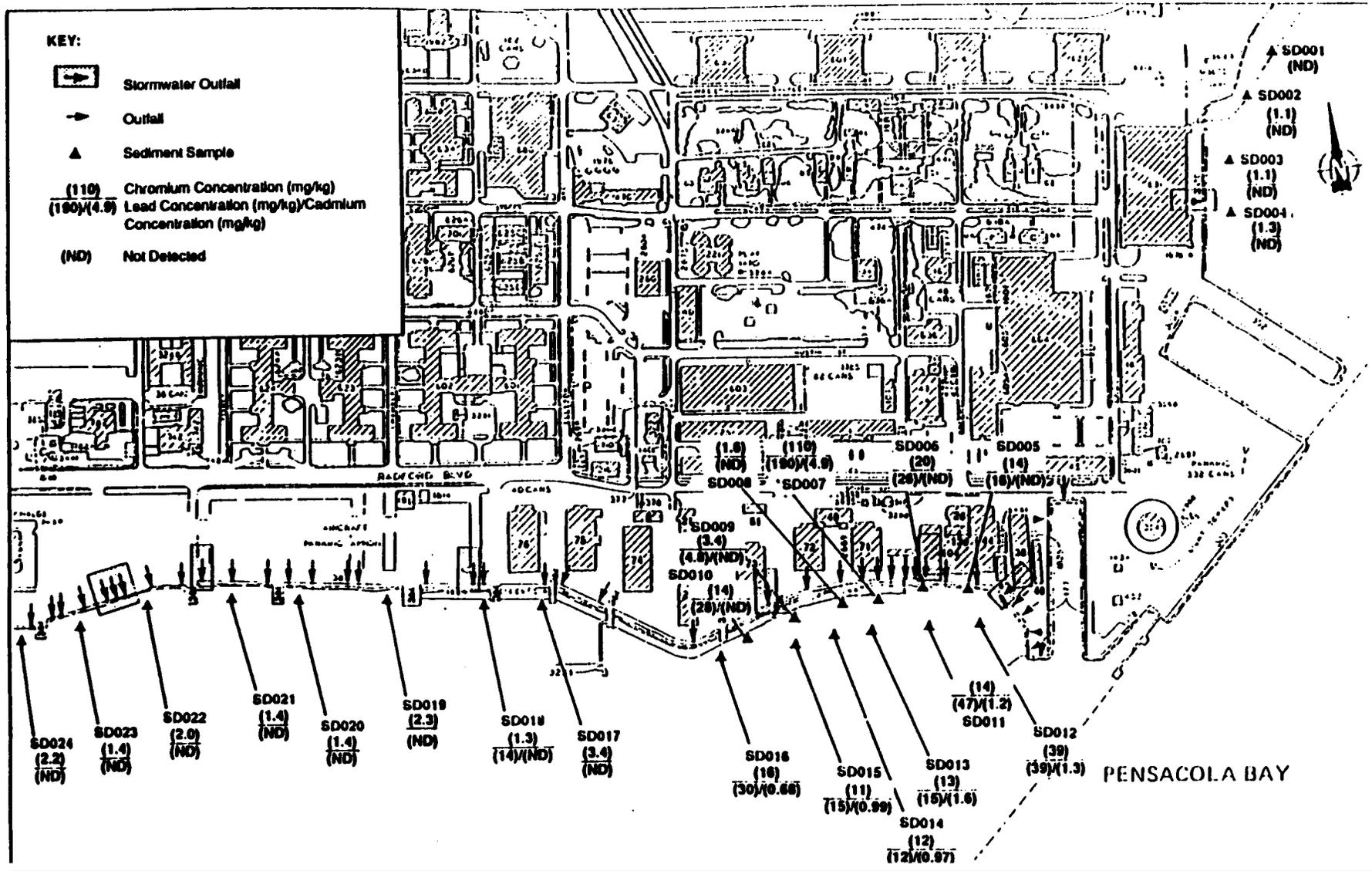
Dash (--) indicates compound not detected.

Source: Ecology and Environment, Inc., 1991.

[Bold items enclosed in brackets denote
changes to the last version of document]

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3-10



SOURCE: U.S. Naval Air Station, Pensacola, Florida, 1986 and 1987; Ecology and Environment, Inc., 1991

Figure 3-2 CHROMIUM, LEAD, AND CADMIUM CONCENTRATIONS IN SEDIMENT SAMPLES — NAS PENSACOLA SITE 2

12 samples. Samples SD008 and SD009 from offshore of Building 72 were the only samples collected from the eastern end of the waterfront that had background concentrations of all metals detected. Arsenic, nickel, and silver were not detected in any sediment samples at Site 2.

[Figure 3-3 illustrates the distribution of total metals concentrations detected in Site 2 sediment samples.) Sample SD007, located approximately 40 feet offshore of the bulkhead from Building 71, had the highest concentrations of all metals detected (total metals concentration of 469.9 milligram per kilogram [mg/kg]) except copper, for which sample SD007 had the second highest concentration. Metals concentrations detected in sample SD007 were 12 to 15 times higher than background levels for zinc, lead, and copper and 23 times higher than background levels for cadmium. Sample SD005, collected approximately 40 feet offshore of the bulkhead in front of Building 104, exhibited the highest concentration of copper (54 mg/kg), which represented more than 30 times the ambient level. Sample SD012, located 150 feet offshore from SD005, also exhibited high concentrations of most metals detected, with a total metals concentration of 233.38 mg/kg.

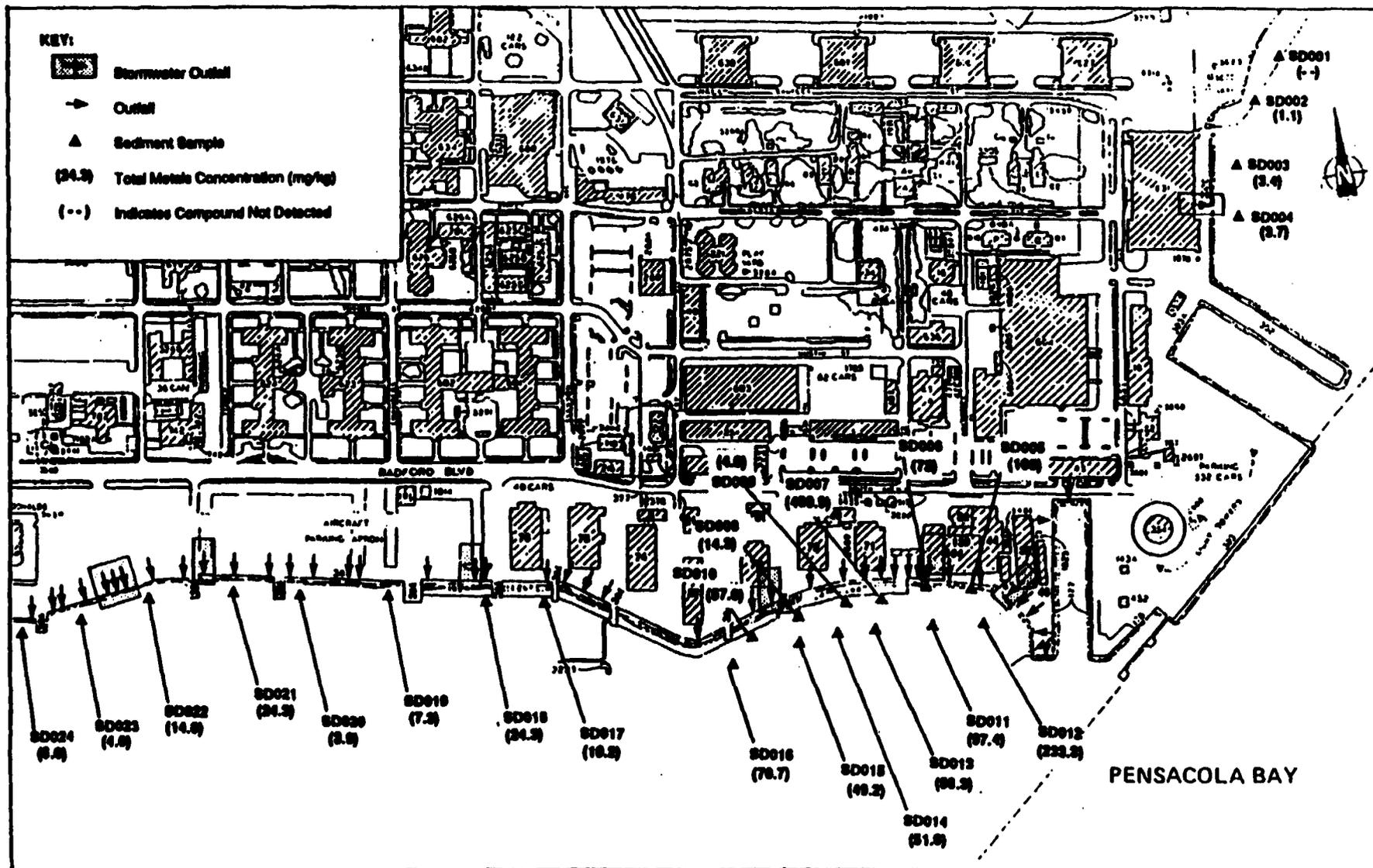
Sediments offshore of Building 631 (samples SD001 through SD004) did not show any evidence of metals contamination (see Figure 3-[3]). Sediment samples from west of Building 27 also did not exhibit evidence of significant metals contamination. The above findings suggest that metals enrichment of sediments along the waterfront is the result of untreated industrial wastes discharged from outfalls along the eastern waterfront into Pensacola Bay prior to operation of the industrial wastewater treatment plant.

3.6.2 TRPHs

Sediment TRPE concentrations generally follow the same distribution as metals concentrations discussed above (see Figure 3-[4]). Measurable levels of TRPHs occurred at 18 of the 24 sediment sample locations. The highest concentrations were detected in samples SD006 (56 mg/kg) and SD007 (440 mg/kg), located approximately 40 feet offshore of the bulkhead from buildings 104 and 71, respectively. Sediments with moderately elevated TRPE concentrations (10 to 29 mg/kg) were found at

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3-12



SOURCE: U.S. Naval Air Station, Pensacola, Florida, 1986 and 1987; Ecology and Environment, Inc., 1991

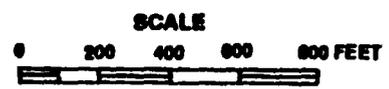


Figure 3-3 TOTAL METALS CONCENTRATIONS IN SEDIMENT SAMPLES — NAS PENSACOLA SITE 2

six other locations along the east end of the waterfront between buildings 76 and 44 and at one location (SD004) offshore of Building 631 north of the aircraft carrier berth. No elevated TRPE levels were found in sediments offshore of the aircraft parking apron (i.e., west of Building 76) or north of Building 631 along the recreation beach/picnic area.

3.6.3 VOCs

Methylene chloride was detected in all of the sediment samples at concentrations as high as 14,000 micrograms per kilogram ($\mu\text{g}/\text{kg}$). However, this common laboratory solvent was also detected at levels of 3,800 $\mu\text{g}/\text{kg}$ to 4,100 $\mu\text{g}/\text{kg}$ in the laboratory method blanks (see Section 3.8.2); therefore, the presence of this compound in sediment samples at similar concentrations is attributable to laboratory-derived contamination.

Sample SD024, collected at the western end of Site 2, showed evidence of VOC contamination. Toluene and xylene were detected in this sediment sample at concentrations of 2,400 $\mu\text{g}/\text{kg}$ and 2,100 $\mu\text{g}/\text{kg}$, respectively. Sample SD024 also exhibited a methylene chloride concentration of 14,000 $\mu\text{g}/\text{kg}$. VOCs were not detected in any other sediment samples at Site 2.

3.6.4 PAHs

PAEs were detected in all but two sediment samples at Site 2. The highest concentrations, 4,800 $\mu\text{g}/\text{kg}$ and 17,000 $\mu\text{g}/\text{kg}$, occurred in samples SD006 and SD007, respectively. The distribution of PAEs at Site 2 was similar to the distributions of metals and TRPEs, with elevated concentrations occurring mainly in sediments offshore of the bulkhead between buildings 27 and 44 (see Figure 3-[4]). It should be noted that PAEs were reported as benzo-a-pyrene for laboratory reporting purposes; however, PAHs other than benzo-a-pyrene may be present in the samples.

3.6.5 Phenols, Pesticides, and PCBs

Phenols, pesticides, and PCBs were not detected in any of the sediment samples from Site 2.

3.7 **CONTAMINATION DISTRIBUTION/SOURCE DISCUSSION**

Sediment was the only medium sampled at Site 2 as part of the Phase I analytical screening investigation. Sediment contamination at Site 2 appears to be restricted to metals, TRPHs, VOCs, and PAHs. Phenols, pesticides, and PCBs were not present above detectable limits in any of the sediment samples.

Chromium, zinc, lead, cadmium, and copper were the primary metal contaminants detected in the sediment samples. These metals, as well as TRPHs and PAHs, were detected at the highest concentrations in sediment samples from offshore between buildings 27 and 44. Past discharges from outfalls in this section of the waterfront appear to be the primary source of sediment contamination, although contaminants from the adjacent aircraft carrier berth and other off-site sources might have contributed to the contamination.

Elevated concentrations of metals and VOCs were measured in isolated sediment samples west of Building 27, but do not appear to represent widespread sediment contamination along the western end of the waterfront. Stormwater outfalls along this section of the waterfront probably contribute contaminants to nearshore sediments. A reported fuel spill from a broken pipeline that occurred approximately 3 to 4 years ago along Radford Boulevard north of McDonalds restaurant may be the source of VOC contamination found in sediments near Ramp 1 at the western end of the site. Other spills and leakage of fuels and lubricants from aircraft formerly parked on the western waterfront and from fuel storage tanks (Site 21) located west of Site 2 also represent potential past sources of contaminants to the waterfront sediments.

Sediments along the waterfront north of the aircraft carrier dock did not exhibit any evidence of metals contamination. Low TRPH concentrations were detected in sediment samples collected directly offshore of the stormwater outfall at the southeastern corner of Building 631. No signs of any sediment contamination exist north of this outfall.

3.8 QA/QC

3.8.1 Field QA/QC Samples

One field duplicate sample was collected for the Site 2 sediment screening samples. The analytical results for the duplicate sample are presented in Table 3-1. The analytical results of the duplicate sample (SD017D) were in agreement, within acceptable limits, with those of the original sample.

3.8.2 Laboratory QA/QC Samples

Methylene chloride is a common laboratory-derived contaminant (Environmental Protection Agency [EPA] 1988) and was present in all of the method blanks analyzed at the laboratory in association with this series of samples.

4. CONCLUSIONS

Sediment contamination is present on Site 2. Metals, TRPHs, VOCs, and PAHs are the primary contaminants. Most of the detected contamination appears to be associated with former discharges of untreated industrial wastes from outfalls concentrated along the eastern waterfront between buildings 27 and 44. However, the contribution of off-site sources to sediment contamination along the waterfront cannot be ruled out on the basis of the Phase I analytical screening investigation. Off-site contaminant sources could include other NAS Pensacola operations, including those at the adjacent aircraft carrier berth, and various non-Navy industrial facilities discharging effluent to Pensacola Bay.

Sediments along the western portion of the waterfront (i.e, west of Building 27) exhibit isolated areas of contamination from metals, TRPHs, VOCs, and PAHs. These compounds may be attributable to discharges from stormwater or former industrial wastewater outfalls, as well as a past fuel spill near the McDonalds restaurant. Minor TRPH contamination is present in the sediments along the waterfront north of the aircraft carrier berth.

5. REFERENCES

- Barraclough, J. T. and O. T. Marsh, 1962, Aquifers and Quality of Ground Water along the Gulf Coast of Western Florida: Florida Bureau of Geology, Report of Investigations 29.
- Barraclough, J. T., 1967, Ground-water Features in Escambia and Santa Rosa Counties, Florida: Florida Geological Survey, Map Series No. 26.
- Brooks, E. K., 1981, Physiographic Divisions of Florida: Florida Cooperative Extension Service, Institute of Food and Agricultural Sciences, Gainesville, Florida.
- Carlisle, V. U., 1960, Soil Survey of Escambia County, Florida: Series 1955, No. 8, U.S. Department of Agriculture, Washington, DC.
- Clemens, L., J. B. Dalton, and R. D. Fendick, 1989, Ambient Groundwater Quality in Northwest Florida: Northwest Florida Water Management District, Water Resources Special Report 87-1, Revised Edition October, 1989.
- Coe, C. J., 1979, Geology of the Plio-Pleistocene Sediments in Escambia and Santa Rosa Counties, Florida: Florida State University, Master Thesis.
- Coffin, J. E., 1982, Summary of Ground-water and Surface-water Data for City of Pensacola and Escambia County, Florida: U. S. Geological Survey Open-file Report 82-361.
- Cooke, C. U., 1939, Scenery of Florida Interpreted by a Geologist: Florida Geological Survey, Bulletin No. 17.
- _____, 1945, Geology of Florida: Florida Geological Survey, Bulletin No. 29.
- Cooley, N. R., 1978, An Inventory of Estuarine Fauna in the Vicinity of Pensacola, Florida: Florida Marine Research Publications No. 31. Florida Department of Natural Resources, Marine Research Laboratory, St. Petersburg, Florida.
- Driscoll, F. G., 1986, Groundwater and Wells, Second Edition: Johnson Division, St. Paul, Minnesota.

Biology and Environment, Inc. (E & E), 19[90]a, General Health and Safety Plan, Contamination Assessments and Remedial Activities, Naval Air Station Pensacola, Pensacola, Florida.

_____, 19[90]b, Generic Project Management Plan, Contamination Assessments and Remedial Activities, Naval Air Station Pensacola, Pensacola, Florida.

_____, 19[90]c, Generic Quality Assurance and Project Plan, Contamination Assessments and Remedial Activities, Naval Air Station Pensacola, Pensacola, Florida.

_____, 19[90]d, Generic Site Management Plan, Contamination Assessments and Remedial Activities, Naval Air Station Pensacola, Pensacola, Florida.

_____, 1990[e], Contamination Assessment/Remedial Activities Investigation Work Plan--Group B, Naval Air Station Pensacola, Pensacola, Florida.

ERM-Southeast, Inc. (ERM), 1988, Draft Site Investigation Report NIRP Site 31 at Building 649, Naval Air Station Pensacola, Pensacola, Florida.

Flood and Associates, Inc, 1978, South Escambia and Santa Rosa Counties, 201 Facilities Plan, City of Pensacola, Escambia and Santa Rosa Counties, City of Gulf Breeze, Santa Rosa Island Authority, and Santa Rosa County Beach Administration.

Florida Department of Environmental Regulation, 1988, Unpublished Marine Sediment Data from Pensacola Bay Sediment Study, 1985 to 1987, Tallahassee, Florida.

Florida Natural Areas Inventory, 1988a, Special Plants and Animals List, Escambia County, Florida, Tallahassee, Florida.

_____, 1988b, Survey of Pensacola Naval Air Station and Outlying Bronson Field for Rare and Endangered Plants, Tallahassee, Florida.

Geraghty and Hiller, Inc. (G & H), 1984, Verification Study, Assessment of Potential Ground-water Pollution at Naval Air Station Pensacola, Pensacola, Florida.

_____, 1986, Characterization Study, Assessment of Potential Ground-water Pollution at Naval Air Station Pensacola, Pensacola, Florida.

_____, 1987a, Quarterly Report, Corrective Action Program, Wastewater Treatment Plant, Naval Air Station Pensacola, Pensacola, Florida.

_____, 1987b, Lithologic Logs, Naval Air Station Pensacola Wastewater Treatment Facility, Pensacola, Florida.

- _____, 1988, Semi-Annual Report, Corrective-Action and Compliance-Monitoring Programs, Surge Pond Operation Permit, Wastewater Treatment Facility, Naval Air Station Pensacola, Pensacola, Florida.
- Green, K. Michael, 1989, personal communication, Navy EIC.
- Heil, D. C., 1989, personal communication, Florida Department of Natural Resources, Tallahassee, Florida.
- Jacob, C. E. and H. H. Cooper Jr., 1940, Report on the Ground-water Resources of the Pensacola Area in Escambia County, Florida: U. S. Geological Survey, Open-file Report 400001.
- Kennedy, L. R., 1982, Rainfall Summary for the Northwest Florida Water Management District: Water Resources Special Report 82-3.
- Ketchen, H. G. and R. C. Staley, 1979, A Hydrographic Survey in Pensacola Bay, Florida State University, Department of Oceanography, Tallahassee, Florida.
- Lohman, S. W., 1972, Ground-Water Hydraulics: U. S. Geological Survey Professional Paper 708, Washington, D.C.
- Luckenbach, H. V., R. J. Diay, and L. C. Schaffner, 1988, Scientific Consultation and Analytical Services: Benthic Assessment Procedures, Project 5, Virginia Water Control Board, Gloucester Point, Virginia.
- Harsh, O. T., 1966, Geology of Escambia and Santa Rosa Counties, Western Florida Panhandle: Florida Geological Survey, Bulletin.46, 140 p.
- Musgrove, R. H., J. T. Barraclough, and O. T. Harsh, 1961, Interim Report on the Water Resources of Escambia and Santa Rosa Counties, Florida: Florida Geological Survey, Information Circular No. 30.
- Musgrove, R. E., J. T. Barraclough, and R. G. Grantham, 1965, Water Resources of Escambia and Santa Rosa Counties, Florida: Florida Geological Survey, Report of Investigations No. 40.
- _____, 1966, Water Resources Records of Escambia and Santa Rosa Counties, Florida: Florida Geological Survey, Information Circular No. 50.
- Naval Energy and Environmental Support Activity (NEESA), 1983, Initial Assessment Study of Naval Air Station Pensacola, Pensacola, Florida, NEESA 13-015.
- National Institute for Occupational Safety and Health Association, 1985, Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities.

Northwest Florida Water Management District, 1981, Public Water Supply Systems in the Coastal Areas of Escambia, Santa Rosa, Bay, Okaloosa and Walton Counties: Northwest Florida Water Management District, Water Resources Special Report 81-3.

Pike, E., 1989, personal communication, NAS Pensacola Public Works Department.

Prickett, T. A., T. G. Naymik, and C. G. Lonquist, 1981, A Random Walk Solute Transport Model for Selected Groundwater Quality Evaluations, Bulletin 654, Illinois State Water Survey, Champaign, Illinois.

Schropp, S. J., and E. L. Windom, 1988, A Guide to the Interpretation of Metals Concentrations in Estuarine Sediments, Florida Department of Environmental Regulation, Coastal Zone Management Section, Tallahassee, Florida.

SBGS, 1986, Florida Hydrogeologic Units: Southeastern Geological Society Ad Hoc Committee on Florida Hydrostratigraphic Unit Definition (SEGS), Florida Geological Survey, Special Publication No. 28.

Trapp, H., Jr., 1972, Availability of Ground Water for Public-Water Supply in the Pensacola Area, Florida - Interim Report, June 1971: U. S. Geological Survey, Open-File Report FL72002.

_____, 1973, Availability of Ground Water for Public-Water Supply in Central and Southern Escambia County, Florida - Interim Report, July 1973: U. S. Geological Survey, Open-File Report FL72029.

_____, 1975, Hydrology of the Sand-and-Gravel Aquifer in Central and Southern Escambia County, Florida - Preliminary Report - November 1973: U. S. Geological Survey, Open-File Report FL74027.

_____, 1978, Preliminary Hydrologic Budget of the Sand-and-Gravel Aquifer under Unstressed Conditions, with a Section on Water Quality Monitoring, Pensacola, Florida: U. S. Geological Survey, Water-Resources Investigations 77-96.

U.S. Environmental Protection Agency, 1984, Standard Operating Safety Guidelines.

_____, 1985, Guidance on Remedial Investigations under CERCLA, BPA, OSWER, HVERL, EPA report #540/6-85/002, NTIS ref #PB-85-268616, OSWER Directive 9355.0-068, U.S. EPA, Cincinnati, Ohio.

_____, 1985, Guidance on Feasibility Studies under CERCLA, EPA, OSWER, OWPE, EPA report #540/G-85/003, NTIS ref #PB-85-238-590, OSWER Directive 9355.0-05c, U.S. EPA, Washington, DC.

_____, 1987, Data Quality Objectives for Remedial Response Activities, OSWER Directive 9335.0-78, U.S. EPA, Washington, DC.

- _____, 1987, Compendium of Superfund Field Operations Methods, OSVER Directive 9355.0-14, EPA/540/P-87/00/a.
- _____, 1988, CERCLA Compliance with Other Laws Manual, Draft, OSVER Directive 9234.1-01, U.S. EPA, Washington, D.C.
- _____, 1988, Guidance for Conducting Remedial Investigations and Feasibility Studies under CERCLA Draft, OSVER Directive 9355.3-01 OERR # 68-01-7090 and 68-W8-0098, U.S. EPA, Washington, D.C.
- U.S. Fish and Wildlife Service, 1987, Long Range Fish and Wildlife Section, Naval Air Station Pensacola and Outlying Field Bronson, Pcnscola, Florida, U.S.F.W.S. Field Office, Panama City, Florida.
- U.S. Geological Survey, 1970a, 7 1/2 Minute Topographic Map, Fort Barrancas, Florida, Quadrangle.
- _____, 1970b, 7 1/2 Minute Topographic Map, West Pensacola, Florida Quadrangle, Photorevised 1987.
- U.S. Navy, 1986, U.S. Navy Gulf Coast Strategic Homeporting Environmental Impact Statement, Appendix IV, Pensacola, Florida, Southern Division, Naval Facilities Engineering Command, Charleston, South Carolina.
- _____, 1987, General Development Map Nos. 1276829 to 1276839, U.S. Naval Air Station Pcnscola, Pensacola, Florida, Southern Division Naval Facilities Engineering Command, Charleston, South Carolina.
- Wagner, J. R., 1982, Hydrogeology of the Northwest Florida Water Management District: in Ground Water in Florida - Proceedings of the First Annual Symposium on Florida Hydrogeology: Northwest Florida Water Management District, Public Information Bulletin 82-2.
- Wagner, J. R., 1989, Hydrogeologic Framework of the Northwest Florida Water Management District.
- Wagner, J. R., T. V. Allen, L. A. Clemens, and J. B. Dalton, 1984, Ambient Ground Water Monitoring Program - Phase 1: Northwest Florida Water Management District, DER Contract Number WM65.
- Valton, V.C., 1970, Ground Water Resource Evaluation: McGraw-Hill Book Co., New York.
- Water and Air Research, Inc. (WAR), 1986, Report of Collection and Analyses of Sediment, Water, and Elutriate Samples for Navy Gulf Coast Strategic Homeporting Project, Pensacola, Florida.

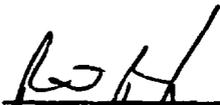
Wilkins, K. T., J. R. Wagner, and T. V. Allen, 1985, Hydrogeologic Data for the Sand-and-Gravel Aquifer in Southern Escambia County, Florida: Northvest Florida Water Management District, Technical File Report 85-2.

Wolfe, S. H., J. A. Reidenauer, and D. B. Means, 1988, An Ecological Characterization of the Florida Panhandle, U.S. Fish and Wildlife Service Biological Report 88(12); Minerals Management Service OCS Study/MMS 88-0063.

6. **FLORIDA PROFESSIONAL GEOLOGIST SEAL**

I hereby affix my seal to the Interim Data Report for the Waterfront Sediments (Site 2), located at the Naval Air Station in Pensacola, Escambia County, Florida, in accordance with Chapter 492 of the Florida Statutes and applicable rules and regulations developed pursuant thereto:

Name : Richard J. Rudy
License Number: P.G. No. 97
State: Florida
Expiration Date: July 31, 1992


Richard J. Rudy
Richard J. Rudy
10-10-91
Date

APPENDIX A

BIRDS OBSERVED DURING HABITAT/BIOTA SURVEY

Table A-1

**BIRDS OBSERVED DURING HABITAT/BIOTA SURVEY
OCTOBER 1990**

Mature pine forest, including grassy margins along dirt roads and thickets bordering forests.

Gray Catbird	<u>Dumetella carolinensis</u>
Rufous-sided Towhee	<u>Pipilo erythrophthalmus</u>
Yellow-throated Vireo	<u>Vireo flavifrons</u>
House Wren	<u>Troglodytes aedon</u>
Bluejay	<u>Cyanocitta cristata</u>
Eastern Phoebe	<u>Sayornis phoebe</u>
Mourning Dove	<u>Zenaida macroura</u>
Common Grackle	<u>Quiscalus quiscula</u>
White-eyed Vireo	<u>Vireo griseus</u>
Northern Mockingbird	<u>Mimus polyglottos</u>
Cardinal	<u>Cardinalis cardinalis</u>
Carolina Wren	<u>Thryothorus ludovicianus</u>
Boat-tailed Grackle	<u>Quiscalus major</u>
Brown Thrasher	<u>Toxostoma rufum</u>

Upland mature hardwood forest with some mix of pines.

Prairie Warbler	<u>Dendroica discolor</u>
Northern Mockingbird	<u>Mimus polyglottos</u>
Mississippi Kite	<u>Ictinia mississippiensis</u>
Red-tailed Hawk	<u>Buteo jamaicensis</u>
Mourning Dove	<u>Zenaida macroura</u>
Ovenbird	<u>Seiurus aurocapillus</u>
Tufted Titmouse	<u>Parus bicolor</u>
Carolina Chickadee	<u>Parus carolinensis</u>
Golden Crowned Kinglet	<u>Regulus satrapa</u>
Ruby Crowned Kinglet	<u>Regulus calendula</u>
Nashville Warbler	<u>Vermivora ruficapilla</u>
Bluejay	<u>Cyanocitta cristata</u>

Beachfront, including shoreline along waterfront apron; Pensacola Bay open water; Bayou Grande open water; shoreline along dredge spoil fill area; interior mudflats of dredge spoil fill area; and primary dune/scrubby areas of beach.

Forester's Tern	<u>Sterna porsteri</u>
Herring Gull	<u>Larus argentatus</u>
Semi-palmated Plover	<u>Charadrius semipalmatus</u>
Great Blue Heron	<u>Ardea herodias</u>
Semi-palmated Sandpiper	<u>Calidris pusilla</u>
Willet	<u>Catoptrophorus semipalmatus</u>
Ruddy Turnstone	<u>Arenaria interpres</u>
Royal Tern	<u>Sterna maxima</u>
Sandwich Tern	<u> rn sandircensis</u>
Roseate Tern	<u>Sterna dougallii</u>
Common Tern	<u>Sterna hirundo</u>
Brown Pelican	<u>Pelecanus occidentalis</u>
Killdeer	<u>Charadrius vociferus</u>
Chipping Sparrow	<u>Spizella passerina</u>
Eastern Wood Pewee	<u>Contopus borealis</u>
Bluejay	<u>Cyanocitta cristata</u>
Osprey	<u>Pandion haliaetus</u>
Belted Kingfisher	<u>Ceryle alcyon</u>
Fish Crow	<u>Corvus ossifragus</u>
Mourning Dove	<u>Zenaida macroura</u>
Double Crested Cormorant	<u>Phalacrocorax auritus</u>
Northern Mockingbird	<u>Mimus polyglottos</u>
Sanderling	<u>Calidris alba</u>
Least Sandpiper	<u>Calidris minutilla</u>
Little Blue Heron	<u>Egretta caerulea</u>
Short-billed Dowitcher	<u>Limnodromus griseus</u>
Laughing Gull	<u>Larus atricilla</u>
Black-bellied Plover	<u>Pluvialis squatarola</u>
Tree Swallow	<u>Tachycineta bicolor</u>
Acadian Flycatcher	<u>Empidonax virescens</u>
House Wren	<u>Troglodytes aedon</u>

Marshland, including emergent vegetation found along Bayou Grande, Pensacola Bay, and brackish-water ponds.

Pied-billed Grebe	<u>Podilymbus podiceps</u>
Great Blue Heron	<u>h</u>
Great Egret	<u>Casmerodius albus</u>
Snowy Egret	<u>Egretta thula</u>
Little Blue Heron	<u>Egretta caerulea</u>
Tricolored Heron	<u>Egretta tricolor</u>
Green-winged Teal	<u>Anas e</u>
Mottled Duck	<u>Anas fulvigula</u>
Blue-winged Teal	<u>Ansa i</u>
Northern Shoveler	<u>Anas clypeata</u>
Lesser Scaup	<u>Aythya affinis</u>
American Coot	<u>Fulica americana</u>
Hourning Dove	<u>Zenaida macroura</u>
Northern Flicker	<u>Colaptes n it</u>
Bluejay	<u>Cyanocitta cristata</u>
Red-winged Blackbird	<u>Agelaius phoeniceus</u>
Belted Kingfisher	<u>Ceryle alcyon</u>
Rufous-sided Towhee	<u>Pipilo erythrophthalmus</u>
Cardinal	<u>dir</u>
Yellowthroat	<u>Geothlypis trichas</u>
Forrester's Tern	<u>Sterna forsteri</u>
Osprey	<u>Pandion haliaetus</u>
Bouse Vren	<u>s i i</u>
Yellow-rumped Warbler	<u>Dendroica c</u>
Northern Mockingbird	<u>Mimus polyglottos</u>

0000407

Forested wetland area, including mature hardwoods and thick undergrowth mixed with emergent vegetation such as cattails.

Yellow-bellied Sapsucker	<u>Sphyrapicus varius</u>
Brown Thrasher	<u>Toxostoma rufum</u>
Marsh Wren	<u>istothorus palustris</u>
American Goldfinch	<u>Carduelis tristis</u>
Prairie Warbler	<u>Dendroica discolor</u>
Northern Flicker	<u>Colaptes auratus</u>
Cardinal	<u>Cardinalis cardinalis</u>
Bluejay	<u>Cyanocitta cristata</u>
Northern Hockingbird	<u>Mimus polyglottos</u>
Wood Thrush	<u>l mustelina</u>

14[NASP]UH6037:T0230/tab-A1/303

APPENDIX B

SURFACE EMISSIONS AND RADIATION SURVEY DATA

SITE 2

OUTFALL DISTANCE DIRECTION REFERENCE OVA READINGS* RADIATION READINGS*
 NUMBER (ft.) (East/West) POINT (ppm) (uR/h)

OUTFALL NUMBER	DISTANCE (ft.)	DIRECTION (East/West)	REFERENCE POINT	OVA READINGS* (ppm)	RADIATION READINGS* (uR/h)
1	15	W	RAMP	1	0
2	2	E	RAMP	1	0
3	57	E	RAMP	1	0
4	162	E	RAMP	1	0.5
5	236	E	RAMP	1	0
6	246	E	RAMP	1	0
7	286	E	RAMP	1	0
8	316	E	RAMP	1	4.5
9	317	E	RAMP	1	0
10	417	E	RAMP	1	0
11	24	W	RAMP	2	0
12	24	E	RAMP	2	0
13	150	E	RAMP	2	0
14	52	W	RAMP	3	0
15	12	E	RAMP	3	0
16	134	E	RAMP	3	0
17	259	E	RAMP	3	0
18	295	E	RAMP	3	0
19	12	E	RAMP	4	0
20	74	W	RAMP	5	0
21	54	W	RAMP	5	0
22	30	W	RAMP	5	0
23	24	W	RAMP	5	0
24	21	W	RAMP	6	0
25	28	E	RAMP	6	0
26	85	W	RAMP	7	0
27	25	W	RAMP	7	0
28	342	E	RAMP	7	0
29	30	E	RAMP	8	0
30	42	E	RAMP	8	0
31	311	W	RAMP	9	0
32	90	E	RAMP	9	0
33	104	E	RAMP	9	0
34	228	E	RAMP	9	0
35	291	E	RAMP	9	0
36	36	W	RAMP	10	0
37	27	W	RAMP	10	0
38	15	E	RAMP	10	0
39	17	E	RAMP	10	0
40	26	E	RAMP	10	0
41	30	E	RAMP	10	0
42	60	E	RAMP	10	0
43	65	E	RAMP	10	0
44	65	E	RAMP	10	0
45	70	E	RAMP	10	0
46	139	E	RAMP	10	0
41	200	E	RAMP	10	0
48	280	E	RAMP	10	0
49	298	E	RAMP	10	0

SITE 2

OUTFALL NUMBER	DISTANCE (ft.)	DIRECTION (East/West)	REFERANCE POINT	OVA READINGS* (ppm)	RADIATIOK READINGS* (uR/h)
50	409	E	RAMP 10	0	0
51	510	E	RAMP 10	0	0
52	549	E	RAMP 10	0	0
53	610	E	RAMP 10	0	0
54	40	E	BLD 1825	0	0
55	80	S	BLD 45	0	0
56	60	E	BLD 631	0	0

* Abwt background.

0000410

APPENDIX C
SEDIMENT SAMPLING ANALYTICAL SCREENING RESULTS

QUALITY ASSURANCE PROTOCOL REVIEW

Job No.: 9100.204

Date: 2/20/91

Report Title:

Client: PENSACOLA

Laboratory Data Review	Supervisor	Date
Metals	CA	2-22-91
Gen. Chem	DA	2-22-91
GC	DA	2-22-91
GC/MS		
Micro, Asbestos		
Other		

	Signature	Date
Report Written by:	various/p	2/20/91
1st Draft Reviewed by:	p	2/21/91
CIRCULATED:	p	2/21/91
2nd Draft Reviewed by: (If needed)		

Final Review by Author:	Signature	Date
ASC Manager:	[Signature]	2/25/91
QA Officer:		

Corp. Project Manager: J. BARKSDALE
 (Internal Job)
 REVIEW, SIGN, RETURN
 All QA Protocol Review Forms
 Signed and in File
 (to be signed by report writer)

1/ Copies of Report Sent to: CLIENT VIA J. BARKSDALE	[Signature]	2/25/91
Invoices Sent to Accounting	[Signature]	2/25/91

Comments/Notes:

Copy Distribution: White - Report to Project File; Canary - Project Manager; Pink - Project File. 407064

MEMORANDUM

TO: John Barksdale
FROM: Gary Bahn *G. Hahn*
DATE: February 22, 1991
SUBJECT: UH-6000 Pensacola Report
REF: 9100.204
CC: Lab File

Attached is the laboratory report of the analysis conducted on twelve samples received at the Analytical Services Center on January 30, 1991. Analysis was performed according to the screening procedures set forth in "Generic Quality Assurance Project Plan, Contamination Assessments and Remedial Activities, Naval Air Station Pensacola, Pensacola, Florida," July 1990.

All samples on which this report is based will be retained by B & B for a period of 30 days from the date of this report, unless otherwise instructed by the client. If additional storage of samples is requested by the client, a storage fee of \$1.00 per sample container per month will be charged for each sample, with such charges accruing until destruction of the samples is authorized by the client.

GH:jp
enclosure

0000412

ecology and environment, inc.

200 PLEASANTVIEW DRIVE, LANCASTER, NEW YORK 14086, TEL: 716/684-0288
International Specialty in the Environment

Job # 7100-204
SAMPLE RANGE 1895-1975 I UNSP screening

PO2-30 - # A Brian Caldwell 1-30-91

CHAIN-OF-CUSTODY RECORD

Page 1 of 1

Project No.: UH0030		Project Name: Site 2 (Group C) Sediment Sampling			Project Manager: Doug Skatwolk John Barksdale		REMARKS													
Sample: (Signature) <i>Michele Cleland</i>		M M			Field Team Leader: Michele Cleland								<i>Labels Approved (Screening)</i> <i>Bill Clark, Ph.D. (408-1)</i>							
Signature: <i>Jan A. [Signature]</i>		Douglas W. Heisterholz																		
STATION NUMBER	DATE	TIME	SAMPLE TYPE			SAMPLE INFORMATION	STATION LOCATION	NUMBER OF CONTAINERS												
			COMP	DIAP	AIR															
			EXPECTED COMPOUNDS (Concentration)*																	
✓ 005	1/29/91	14:05	X			Lead, metals/organics	Station No. 5	3	2	1										
✓ 006	1/29/91	14:25	X			" " "	Station No. 6	3	2	1										
✓ 007	1/29/91	14:45	X			" " "	Station No. 7	3	2	1										
✓ 008	1/29/91	15:10	X			" " "	Station No. 8	3	2	1										
✓ 009	1/29/91	15:25	X			" " "	Station No. 9	3	2	1										
✓ 010	1/29/91	15:40	X			" " "	Station No. 10	3	2	1										
✓ 011	1/29/91	09:00	X			" " "	Station No. 11	3	2	1										
✓ 013	1/29/91	09:15	X			" " "	Station No. 13	3	2	1										
✓ 014	1/29/91	10:21	X			" " "	Station No. 14	3	2	1										
✓ 015	1/29/91	10:53	X			" " "	Station No. 15	3	2	1										
016	1/29/91	11:10	X			" " "	Station No. 16	3	2	1										
✓ 012	1/29/91	09:20	X			" " "	Station No. 12	3	2	1										
Relinquished By: (Signature) <i>Michele Cleland</i>		Date/Time: 1/29/91 17:45		Received By: (Signature) <i>Fed Ex</i>		Relinquished By: (Signature)		Date/Time:		Received By: (Signature)		Ship Via: Federal Express								
Relinquished By: (Signature)		Date/Time:		Received By: (Signature)		Relinquished By: (Signature)		Date/Time:		Received By: (Signature)										
Relinquished By: (Signature) <i>Fed Ex</i>		Date/Time: 09:00 1-30-91		Received For Laboratory By: (Signature) <i>[Signature]</i>		Relinquished By: (Signature)		Date/Time:		Received For Laboratory By: (Signature)		BL/Airbill Number: 954 874 5885			Date: 1/29/91					

Distribution: Original Accompanies Shipment; Copy to Coordinator; Field Copy
*See CONCENTRATION RANGE on back of form.

Ecology and Environment, Inc.
 SAMPLE TRACKING REPORT

LAB SAMPLE ID	CLIENT SAMPLE ID	TEST CODE	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED
1885.01	P02-SD005A	SPNPRG1	01/29/91		02/04/91
1885.02	P02-SD005A	SPNTPH1	01/29/91		02/04/91
1885.03	P02-SD005A	SPNMET1	01/29/91		01/31/91
		SPNP&P1	01/29/91		02/05/91
		SPNPAH1	01/29/91		02/08/91
		SPNPHL1	01/29/91		02/16/91
1886.01	P02-SD006A	SPNPRG1	01/29/91		02/04/91
1886.02	P02-SD006A	SPNTPH1	01/29/91		02/04/91
1886.03	P02-SD006A	SPNMET1	01/29/91		01/31/91
		SPNP&P1	01/29/91		02/05/91
		SPNPAH1	01/29/91		02/08/91
		SPNPHL1	01/29/91		02/16/91
1887.01	P02-SD007A	SPNPRG1	01/29/91		02/04/91
1887.02	P02-SD007A	SPNTPH1	01/29/91		02/04/91
1887.03	P02-SD007A	SPNMET1	01/29/91		01/31/91
		SPNP&P1	01/29/91		02/05/91
		SPNPAH1	01/29/91		02/08/91
		SPNPHL1	01/29/91		02/16/91
1888.01	P02-SD008A	SPNPRG1	01/29/91		02/04/91
1888.02	P02-SD008A	SPNTPH1	01/29/91		02/04/91
1888.03	P02-SD008A	SPNMET1	01/29/91		01/31/91
		SPNP&P1	01/29/91		02/05/91
		SPNPAH1	01/29/91		02/08/91
		SPNPHL1	01/29/91		02/16/91
1889.01	P02-SD009A	SPNPRG1	01/29/91		02/05/91
1889.02	P02-SD009A	SPNTPH1	01/29/91		02/04/91
1889.03	P02-SD009A	SPNMET1	01/29/91		01/31/91
		SPNP&P1	01/29/91		02/05/91
		SPNPAH1	01/29/91		02/08/91
		SPNPHL1	01/29/91		02/16/91
1890.01	P02-SD010A	SPNPRG1	01/29/91		02/04/91
1890.02	P02-SD010A	SPNTPH1	01/29/91		02/04/91
1890.03	P02-SD010A	SPNMET1	01/29/91		01/31/91
		SPNP&P1	01/29/91		02/05/91
		SPNPAH1	01/29/91		02/08/91
		SPNPHL1	01/29/91		02/16/91
1891.01	P02-SD011A	SPNPRG1	01/29/91		02/04/91
1891.02	P02-SD011A	SPNTPH1	01/29/91		02/04/91
1891.03	P02-SD011A	SPNMET1	01/29/91		01/31/91
		SPNP&P1	01/29/91		02/05/91
		SPNPAH1	01/29/91		02/08/91
		SPNPHL1	01/29/93		02/16/91
1892.01	P02-SD012A	SPNPRG1	01/29/91		02/04/91
1892.02	P02-SD012A	SPNTPH1	01/29/91		02/04/91
1892.03	P02-SD012A	SPNMET1	01/29/91		01/31/91
		SPNP&P1	01/29/91		02/05/91
		SPNPAH1	01/29/91		02/08/91

Ecology and Environment, Inc.
SAMPLE TRACKING REPORT

LAB SAMPLE ID	CLIENT SAMPLE ID	TEST CODE	DATE SMPLD	DATE EXTRACTED	DATE ANALYZED
1892.03	P02-SD012A	SPNPHL1	01/29/91		02/16/91
1893.01	P02-SD013A	SPNPRG1	01/29/91		02/04/91
1893.02	P02-SD013A	SPNTPH1	01/29/91		02/04/91
1893.03	P02-SD013A	SPNPHL1	01/29/91		01/31/91
		SPNP&P1	01/29/91		02/05/91
		SPNPAH1	01/29/91		02/08/91
		SPNPHL1	01/29/91		02/16/91
1894.01	P02-SD014A	SPNPRG1	01/29/91		02/04/91
1894.02	P02-SD014A	SPNTPH1	01/29/91		02/04/91
1894.03	P02-SD014A	SPNPHL1	01/29/91		01/31/91
		SPNP&P1	01/29/91		02/05/91
		SPNPAH1	01/29/91		02/08/91
		SPNPHL1	01/29/91		02/16/91
1895.01	P02-SD015A	SPNPRG1	01/29/91		02/04/91
1895.02	P02-SD015A	SPNTPH1	01/29/91		02/07/91
1895.03	P02-SD015A	SPNPHL1	01/29/91		01/31/91
		SPNP&P1	01/29/91		02/05/91
		SPNPAH1	01/29/91		02/08/91
		SPNPHL1	01/29/91		02/16/91
1896.01	P02-SD016A	SPNPRG1	01/29/91		02/04/91
1896.02	P02-SD016A	SPNTPH1	01/29/91		02/07/91
1896.03	P02-SD016A	SPNPHL1	01/29/91		01/31/91
		SPNP&P1	01/29/91		02/05/91
		SPNPAH1	01/29/91		02/09/91
		SPNPHL1	01/29/91		02/16/91

TEST CODE : SPNTPH1

JOB NUMBER : 9100.204

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UH-6000 NASP PHASE I GROUPS A-E
TEST NAME : PNC TRPH UNITS : MG/KG
PARAMETER : TRPH

<u>SAMPLE ID</u>	<u>RESULTS</u>	<u>a</u>	<u>DET. LIMIT</u>
KB-91-0188s P02-SD005A	25		3.0
EE-91-01886 P02-SD006A	56		5.0
EE-91-01887 P02-SD007A	440		5.0
EE-91-01888 P02-SD008A	6.0		5.0
EE-91-01889 P02-SD009A	8.1		5.0
EE-91-01890 P02-SD010A	22		5.0
EE-91-01891 P02-SD011A	29		5.0
EE-91-01892 P02-SD012A	10		5.0
EE-91-01893 P02-SD013A	ND		5.0
EE-91-01894 P02-SD014A	6.2		5.0
EE-91-01895 P02-SD015A	1a		5.0
EE-91-01896 P02-SD016A	6.3		5.0

QUALIFIERS: C - COMMENT ND - NOT DETECTED
J - ESTIMATED VALUE B - ALSO PRESENT IN BLANK
L - PRESENT BELOW STATED DETECTION LIMIT
NA - NOT APPLICABLE

0000414

QUALITY CONTROL FOR PRECISION
RESULTS OF ANALYSIS OF REPLICATE
ANALYSES OF SOIL SAMPLES

9100.204

(mg/kg)

Parameter	B I B Laboratory No. 91- Batch QC	Original Analysis	Replicate Analysis	Relative Percent Difference (RPD)
T. Petroleum Hydrocarbons		5.7	ND	--

**QUALITY CONTROL FOR ACCURACY: PERCENT RECOVERY
FOR SPIKED SOIL SAMPLES**

9100.204

(ng/kg)

Parameter	E & E Laboratory No. 91-	Original Value	Amount Added	Amount Determined	Percent Recovery
T. Petroleum					
Hydrocarbons	1894	6.2	470	410	06
	Batch OC	ND	220	190	86

0000415

METALS SECTION

JOB NUMBER :9100.204

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UH-6000 NASP PEASE I GROUPS A-E

RESULTS IN WET WEIGHT

SAMPLE ID LAB : EE-91-01885

MATRIX: SOLID

SAMPLE ID CLIENT: P02-SD005A

<u>PARAMETER</u>	<u>RESULTS</u>	<u>Q</u>	<u>DET. LIMIT</u>	<u>UNITS</u>
Arsenic	ND	-	7.0	MG/KG
Chromium	14		1.0	MG/KG
Zinc	16		2.0	MG/KG
Lead	16		4.0	MG/KG
Cadmium	ND		0.50	MG/KG
Nickel	ND		4.0	MG/KG
Copper	54		25	MG/KG
Silver	ND		1.0	MG/KG

QUALIFIERS: C = COMMENT ND = NOT DETECTED
J = ESTIMATED VALUE B = ALSO PRESENT IN BLANK
L = PRESENT BELOW STATED DETECTION LIMIT

METALS SECTION

JOB NUMBER :9100.204

**Ecology and Environment, Inc.
Analytical Services Center ,**

CLIENT : UH-6000 NASP PHASE I GROUPS A-E

RESULTS IN WET WEIGHT

SAMPLE ID LAB : EE-91-01886

MATRIX: SOLID

SAMPLE ID CLIENT: PO2-SD006A

<u>PARAMETER</u>	<u>RESULTS</u>	<u>Q</u>	<u>DET. LIMIT</u>	<u>UNITS</u>
Arsenic	ND	-	7.0	MG/KG
Chromium	20		1.0	MG/KG
Zinc	13		2.0	MG/KG
Lead	26		4.0	MG/KG
Cadmium	ND		0.50	MG/KG
Nickel	ND		4.0	MG/KG
Copper	13		2.5	MG/KG
Silver	ND		1.0	MG/KG

QUALIFIERS: C = COMMENT ND = NOT DETECTED
J = ESTIMATED VALUE B = ALSO PRESENT IN BLANK
L = PRESENT BELOW STATED DETECTION LIMIT

0000410

METALS SECTION

JOB NUMBER :9100.204

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UH-6000 NASP PHASE I GROUPS A-E

RESULTS IN WET WEIGHT

SAMPLE ID LAB : EE-91-01887

UATRIX: SOLID

SAMPLE ID CLIENT: P02-SD007A

<u>PARAMETER</u>	<u>RESULTS</u>	<u>Q</u>	<u>DET. LIMIT</u>	<u>UNITS</u>
Arsenic	ND		7.0	MG/KG
Chromium	110		1.0	MG/KG
Zinc	140		2.0	MG/KG
Lead	190		4.0	MG/KG
Cadmium	4.9		0.50	MG/KG
Nickel	ND		4.0	MG/KG
Copper	25		2.5	MG/KG
Silver	ND		1.0	MG/KG

QUALIFIERS: C = COMMENT **ND = NOT DETECTED**
J = ESTIMATED VALUE **B = ALSO PRESENT IN BLANK**
L = PRESENT BELOW STATBD DETECTION LIUIT

METALS SECTION

JOB NUMBER :9100.204

**Ecology and Environment, Inc.
Analytical Services Center**

CLIENT : UH-6000 NASP PHASE I GROUPS A-E

RESULTS IN WET WEIGHT

SAMPLE ID LAB : EE-91-01888

MATRIX: SOLID

SAMPLE ID CLIENT: P02-SD008A

<u>PARAMETER</u>	<u>RESULTS</u>	<u>Q</u>	<u>DET. LIMIT</u>	<u>UNITS</u>
Arsenic	ND		7.0	MG/KG
Chromium	1.6		1.0	MG/KG
Zinc	3.0		2.0	MG/KG
Lead	ND		4.0	MG/KG
Cadmium	ND		0.50	MG/KG
Nickel	ND		4.0	MG/KG
Copper	ND		2.5	MG/KG
Silver	ND		1.0	MG/KG

QUALIFIERS: C - COMMENT ND - NOT DETECTED
J - ESTIMATED VALUE B - ALSO PRESENT IN BLANK
L - PRESENT BELOW STATED DETECTION LIMIT

0000417

METALS SECTION

JOB NUMBER :9100.204

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UH-6000 NASP PHASE I GROUPS A-E

RESULTS IN WET WEIGHT

SAMPLE ID LAB : E-91-01889

MATRIX: SOLID

SAMPLE ID CLIENT: P02-SD009A

<u>PARAMETER</u>	<u>RESULTS</u>	<u>Q</u>	<u>DET. LIMIT</u>	<u>UNITS</u>
Arsenic	ND		7.0	MG/KG
Chromium	3.4		1.0	MG/KG
Zinc	6.1		2.0	MG/KG
Lead	4.8		4.0	MG/KG
Cadmium	ND		0.50	MG/KG
Nickel	ND		4.0	MG/KG
Copper	ND		2.5	MG/KG
Silver	ND		1.0	MG/KG

QUALIFIERS: C = COMMENT ND = NOT DETECTED
 J = ESTIMATED VALUE B = ALSO PRESENT IN BLANK
 L = PRESENT BELOW STATED DETECTION LIMIT

METALS SECTION

JOB NUMBER :9100.204

**Ecology and Environment, Inc.
Analytical Services Center**

CLIENT : UH-6000 NASP PHASE I GROUPS A-E

RESULTS IN WET WEIGHT

SAMPLE ID LAB : EE-91-01890

MATRIX: SOLID

SAMPLE ID CLIENT: P02-SD010A

PARAMETER	RESULTS	Q	DET. LIMIT	UNITS
Arsenic	ND		7.0	MG/KG
Chromium	14		1.0	MG/KG
Zinc	12		2.0	MG/KG
Lead	28		4.0	MG/KG
Cadmium	ND		0.50	MG/KG
Nickel	ND		4.0	MG/KG
Copper	3.6		2.5	MG/KG
Silver	ND		1.0	MG/KG

QUALIFIERS: C = COMMENT ND = NOT DETECTED
J = ESTIMATED VALUE B = ALSO PRESENT IN BLANK
L = PRESENT BELOW STATED DETECTION LIMIT

0000418

METALS SECTION

JOB NUMBER :9100.204

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UH-6000 NASP PEASE I GROUPS A-E

RESULTS IN WET WEIGHT

SAMPLE ID LAB : BE-91-01891

MATRIX: SOLID

SAMPLE ID CLIENT: P02-SD011A

PARAMETER	RESULTS	Q	DET. LIXIT	UNITS
Arsenic	ND		7.0	MG/KG
Chromium	14		1.0	MG/KG
Zinc	28		2.0	MG/KG
Lead	47		4.0	MG/KG
Cadmium	1.2		0.50	MG/KG
Nickel	ND		4.0	MG/KG
Copper	7.2		25	MG/KG
Silver	ND		1.0	MG/KG

QUALIFIERS: C = COMMENT ND = NOT DETECTED
J = ESTIMATED VALUE B = ALSO PRESENT IN BLANK
L = PRESENT BELOW STATED DETECTION LIMIT

METALS SECTION

JOB NUMBER :9100.204

**Ecology and Environment, Inc.
Analytical Services Center**

CLIENT : UH-6000 NASP PHASE I GROUPS A-B

RESULTS IN WET WEIGHT

SAMPLE ID LAB : EE-91-01892

MATRIX: SOLID

SAMPLE ID CLIENT: P02-SD012A

<u>PARAMETER</u>	<u>RESULTS</u>	<u>Q</u>	<u>DET. LIMIT</u>	<u>UNITS</u>
Arsenic	ND		7.0	HG/KG
Chromium	39		1.0	HG/KG
Zinc	140		20	HG/KG
Lead	39		4.0	HG/KG
Cadmium	13		0.50	HG/KG
Nickel	ND		4.0	HG/KG
Copper	14		25	HG/KG
Silver	ND		10	HG/KG

QUALIFIERS: C = COMMENT ND = NOT DETECTED
J = ESTIMATED VALUE B = ALSO PRESENT IN BLANK
L = PRESENT BELOW STATED DETECTION LIMIT

0000419

METALS SBCTION

JOB NUMBER :9100.204

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UH-6000 NASP PHASE I GROUPS A-E

RESULTS IN WET WEIGHT

SAMPLE ID LAB : EE-91-01893

MATRIX: SOLID

SAMPLE ID CLIENT: P02-SD013A

PARAMETER	RESULTS	Q	DET. LIMIT	UNITS
Arsenic	ND		7.0	MG/KG
Chromium	13		1.0	MG/KG
Zinc	21		2.0	MG/KG
Lead	15		4.0	MG/KG
Cadmium	1.6		0.50	MG/KG
Nickel	ND		4.0	MG/KG
Copper	5.7		2.5	MG/KG
Silver	ND		1.0	MG/KG

QUALIFIERS: C = COMMENT ND = NOT DETECTED
J = ESTIMATED VALUE B = ALSO PRESENT IN BLANK
L = PRESENT BELOW STATED DETECTION LIMIT

METALS SECTION

JOB NUMBER r9100.204

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UH-6000 NASP PHASE I GROUPS A-E

RESULTS IN WET WEIGHT

SAMPLE ID LAB : EE-91-01894

MATRIX: SOLID

SAMPLE ID CLIENT: PO2-SD014A

PARAMETER	RESULTS	Q	DET. LIMIT	UNITS
Arsenic	ND	-	7.0	MG/KG
Chromium	12		1.0	MG/KG
Zinc	22		2.0	MG/KG
Lead	12		4.0	MG/KG
Cadmium	0.97		0.50	MG/KG
Nickel	ND		4.0	MG/KG
Copper	4.6		2.5	MG/KG
Silver	ND		1.0	MG/KG

QUALIFIERS: C = COMMENT ND = NOT DETECTED
 J = ESTIMATED VALUE B = ALSO PRESENT IN BLANK
 L = PRESENT BELOW STATED DETECTION LIMIT

0000420

METALS SECTION

JOB NUMBER :9100.204

**Bcology and Environment, Inc.
Analytical Services Center**

CLIENT : UH-6000 NASP PEASE I GROUPS A-E

RESULTS IN VET WEIGHT

SAMPLE ID LAB : EE-91-01895

MTRIX: SOLID

SAMPLE ID CLIENT: P02-SD015A

<u>PARAMETER</u>	<u>RESULTS</u>	<u>Q</u>	<u>DET. LIMIT</u>	<u>UNITS</u>
Arsenic	ND		7.0	MG/KG
Chromium	11		1.0	MG/KG
Zinc	17		2.0	MG/KG
Lead	15		4.0	MG/KG
Cadmium	0.99		0.50	MG/KG
Nickel	ND		4.0	MG/KG
Copper	5.2		2.5	MG/KG
Silver	ND		1.0	MG/KG

QUALIFIERS: C = COMMENT ND = NOT DETECTED
J = ESTIMATED VALUE B = ALSO PRESENT IN BLANK
L = PRESENT BELOW STATED DETECTION LIMIT

METALS SECTION

JOB NUMBER :9100.204

**Ecology and Environment, Inc.
Analytical Services Center**

CLIENT : UH-6000 NASP PHASE I GROUPS A-E

RESULTS IN WET WEIGHT

SAMPLE ID LAB : EE-91-01896

MATRIX: SOLID

SAMPLE ID CLIENT: P02-SD016A

<u>PARAMETER</u>	<u>RESULTS</u>	<u>Q</u>	<u>DET. LIMIT</u>	<u>UNITS</u>
Arsenic	ND		7.0	MG/KG
Chromium	16		1.0	MG/KG
Zinc	18		2.0	MG/KG
Lead	30		4.0	MG/KG
Cadmium	0.68		0.50	MG/KG
Nickel	ND		4.0	MG/KG
Copper	6.0		2.5	MG/KG
Silver	ND		1.0	MG/KG

QUALIFIERS: C = COMMENT ND = NOT DETECTED
J = ESTIMATED VALUE B = ALSO PRESENT IN BLANK
L = PRESENT BELOW STATED DETECTION LIMIT

0000421

QUALITY CONTROL FOR PRECISION
RESULTS OF ANALYSIS OF REPLICATE
ANALYSES OF SOIL SAMPLES

9100.204

(ng/kg)

Parameter	E & E Laboratory No. 91- 1894	Original Analysis	Replicate Analysis	Relative Percent Difference (RPD)
Arsenic		ND	ND	--
Chromium		12	14	15
Zinc		22	24	8.7
Lead		12	17	34
Cadmium		0.97	0.90	7.5
Nickel		ND	ND	--
Copper		4.6	5.7	21
Silver		ND	ND	--

QUALITY CONTROL FOR ACCURACY: PERCENT RECOVERY
FOR SPIKED SOIL SAMPLES

9100.204

(mg/kg)

Parameter	E & E Laboratory No. 91- 1894	Original Value	Amount Added	Amount Determined	Percent Recovery
Arsenic		ND	200	160	80
Chromium		12	20	33	105
Zinc		22	50	70	96
Lead		12	50	61	98
Cadmium		0.97	5.0	6.4	109
Nickel		ND	50	53	110
Copper		4.6	25	28	94
Silver		ND	5.0	4.8	96

0000422

METALS SECTION

JOB NUMBER :9100.204

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UH-6000 NASP PEASE I GROUPS A-E

RESULTS IN WET WEIGHT

SAMPLE ID LAB : METHOD BLANK

MATRIX: SOLID

<u>PARAMETER</u>	<u>RESULTS</u>	<u>Q</u>	<u>DET. LIMIT</u>	<u>UNITS</u>
Arsenic	ND	-	7.0	MG/KG
Chromium	ND		1.0	MG/KG
Zinc	ND		2.0	MG/KG
Lead	ND		4.0	MG/KG
Cadmium	ND		0.50	MG/KG
Nickel	ND		4.0	MG/KG
Copper	ND		2.3	MG/KG
Silver	ND		1.0	MG/KG

QUALIFIERS: C = COMMENT ND = NOT DETECTED
J = ESTIMATED VALUE B = ALSO PRESENT IN BLANK
L = PRESENT BELOW STATED DETECTION LIMIT

TEST CODE :SPNF&P1

JOB NUMBER :9100.204

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UH-6000 NASP PHASE I GROUPS A-E

RESULTS IN WET WEIGHT

TEST NAME : PNC PEST./PCB

UNITS : UG/KG

SAMPLE ID LAB : EE-91-01885

MATRIX : SOLID

SAMPLE ID CLIENT: P02-SD005A

<u>PARAMETER</u>	<u>RESULTS</u>	<u>Q</u>	<u>DET. LIMIT</u>
Heptachlor	ND		1000
Lindane	ND		1000
Aldrin	ND		1000
4,4 - DDT	ND		1000
Dieldrin / 4,4 - DDE	ND		1000
Endrin	ND		1000
Chlordane	ND		1000
Total PCBS	ND		5000

QUALIFIERS: C - COMMENT ND - NOT DETECTED
 J - ESTIMATED VALUE B - ALSO PRESENT IN BLANK
 L - PRESENT BELOW STATED DETECTION LIMIT

0000423

TEST CODE :SPNP&P1

JOB NUMBER :9100.204

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UH-6000 NASP PEASE I GROUPS A-E

RESULTS IN VET WEIGHT

TEST NAME : PNC PEST./PCB
SAMPLE ID LAB : EE-91-01886
SAMPLE ID CLIENT: P02-SD006A

UNITS : UG/KG
MATRIX : SOLID

PARAMETER	RESULTS	Q	DET. LIMIT
Heptachlor	ND		1000
Lindane	ND		1000
Aldrin	ND		1000
4,4 - DDT	ND		1000
Dieldrin / 4,4 - DDE	ND		1000
Endrin	ND		1000
Chlordane	ND		1000
Total PCBS	ND		5000

QUALIFIERS: C = COMMENT ND = NOT DETECTED
J = ESTIMATED VALUE B = ALSO PRESENT IN BLANK
L = PRESENT BELOW STATED DETECTION LIMIT

TEST CODE :SPNP&P1

JOB NUMBER :9100.204

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UH-6000 NASP PHASE I GROUPS A-E

RESULTS IN WET WEIGHT

TEST NAME : PNC PEST./PCB

UNITS : UG/KG

SAMPLE ID LAB : EE-91-01887

MATRIX : SOLID

SAMPLE ID CLIENT: P02-SD007A

<u>PARAMETER</u>	<u>RESULTS</u>	<u>Q</u>	<u>DET. LIMIT</u>
Heptachlor	ND	-	1000
Lindane	ND	-	1000
Aldrin	ND	-	1000
4,4 - DDT	ND	-	1000
Dieldrin / 4,4 - DDE	ND	-	1000
Endrin	ND	-	1000
Chlordane	ND	-	1000
Total PCBs	ND	-	5000

QUALIFIERS: C - COMMENT ND - NOT DETECTED
 J - ESTIMATED VALUE B - ALSO PRESENT IN BLANK
 L - PRESENT BELOW STATED DETECTION LIMIT

0000424

TEST CODE : SPNP&P1

JOB NUMBER : 9100.204

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UH-6000 NASP PHASE I GROUPS A-E

RESULTS IN WET WEIGHT

TEST NAME : PNC PEST./PCB
SAMPLE ID LAB : EB-91-01888
SAMPLE ID CLIENT: P02-SD008A

UNITS : UG/KG
MATRIX : SOLID

PARAMETER	RESULTS	Q	DET. LIMIT
Heptachlor	ND		1000
Lindane	ND		1000
Aldrin	ND		1000
4,4 - DDT	ND		1000
Dieldrin / 4,4 - DDE	ND		1000
Endrin	ND		1000
Chlordane	ND		1000
Total PCBS	ND		5000

QUALIFIERS: C = COMMENT ND = NOT DETECTED
 J = ESTIMATED VALUE B = ALSO PRESENT IN BLANK
 L = PRESENT BELOW STATED DETECTION LIMIT

TEST CODE :SPNP&P1

JOB NUMBER :9100.204

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UH-6000 NASP PHASE I GROUPS A-E

RESULTS IN WET WEIGHT

TEST NAME : PNC PEST./PCB

UNITS : UG/KG

SAMPLE ID LAB : EE-91-01889

MATRIX : SOLID

SAMPLE ID CLIENT: P02-SD009A

<u>PARAMETER</u>	<u>RESULTS</u>	<u>Q</u>	<u>DET. LIMIT</u>
Heptachlor	ND		1000
Lindane	ND		1000
Aldrin	ND		1000
4,4 - DDT	ND		1000
Dieldrin / 4,4 - DDE	ND		1000
Endrin	ND		1000
Chlordane	ND		1000
Total PCBS	ND		5000

QUALIFIERS: C = COMMENT ND = NOT DETECTED
 J = ESTIMATED VALUE B = ALSO PRESENT IN BLANK
 L = PRESENT BELOW STATED DETECTION LIMIT

0000425

TEST CODE :SPNP&P1

JOB NUMBER :9100.204

Ecology and Environment, Inc.
Analytical Services Center

CLIENT I UH-6000 NASP PEASE I GROUPS A-E

RESULTS IN VET WEIGHT

TEST NAME : PNC PEST./PCB
SAMPLE ID LAB : EE-91-01890
SAMPLE ID CLIENT: P02-SD010A

UNITS : UG/KG
MATRIX : SOLID

PARAMETER	RESULTS	Q	DET. LIMIT
Heptachlor	ND		1000
Lindane	ND		1000
Aldrin	ND		1000
4,4 - DDT	ND		1000
Dieldrin / 4,4 - DDE	ND		1000
Endrin	ND		1000
Chlordane	ND		1000
Total PCBS	ND		5000

QUALIFIERS: C = COMMENT ND = NOT DETECTED
 J = ESTIMATED VALUE B = ALSO PRESENT IN BLANK
 L = PRESENT BELOW STATED DETECTION LIMIT

TEST CODE :SPNP&P1

JOB NUMBER t9100.201

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UH-6000 NASP PHASE I GROUPS A-E

RESULTS IN WET WEIGHT

TEST NAME : PNC PEST./PCB

UNITS : UG/KG

SAMPLE ID LAB : EE-91-01891

MATRIX t SOLID

SAMPLE ID CLIENT: P02-SD011A

<u>PARAMETER</u>	<u>RESULTS</u>	<u>Q</u>	<u>DET. LIMIT</u>
Heptachlor	ND	-	1000
Lindane	ND	-	1000
Aldrin	ND	-	1000
4,4 - DDT	ND	-	1000
Dieldrin / 4,4 - DDE	ND	-	1000
Endrin	ND	-	1000
Chlordane	ND	-	1000
Total PCBS	ND	-	5000

QUALIFIERS: C = COMMENT ND = NOT DETECTED
J = ESTIMATED VALUE B = ALSO PRESENT IN BLANK
L = PRESENT BELOW STATED DETECTION LIMIT

0000426

TEST CODE : SPNP&P1

JOB NUMBER : 9100.204

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UH-6000 NASP PHASE I GROUPS A-E

RESULTS IN WET WEIGHT

TEST NAME : PNC PEST./PCB
SAMPLE ID LAB : EE-91-01892
SAMPLE ID CLIENT: P02-SD012A

UNITS : UG/KG
MATRIX : SOLID

<u>PARAMETER</u>	<u>RESULTS</u>	<u>Q</u>	<u>DET. LIMIT</u>
Heptachlor	ND	-	1000
Lindane	ND	-	1000
Aldrin	ND	-	1000
4,4 - DDT	ND	-	1000
Dieldrin / 4.4 - DDE	ND	-	1000
Endrin	ND	-	1000
Chlordane	ND	-	1000
Total PCBs	ND	-	5000

QUALIFIERS: C - COMMENT ND - NOT DETECTED
 J - ESTIMATED VALUE B - ALSO PRESENT IN BLANK
 L - PRESENT BELOW STATED DETECTION LIMIT

TEST CODE :SPNP&P1

JOB NUMBER :9100.204

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UH-6000 NASP PHASE I GROUPS A-B

RESULTS IN WET WEIGHT

TEST NAME : PNC PEST./PCB
SAMPLE ID LAB : EE-91-01893

UNITS : UG/KG
MATRIX : SOLID

SAMPLE ID CLIENT: P02-SD013A

<u>PARAMETER</u>	<u>RESULTS</u>	<u>Q</u>	<u>DET. LIMIT</u>
Heptachlor	ND		1000
Lindane	ND		1000
Aldrin	ND		1000
4,4 - DDT	ND		1000
Dieldrin / 4,4 - DDE	ND		1000
Endrin	ND		1000
Chlordane	ND		1000
Total PCBS	ND		5000

QUALIFIERS: C = COMMENT ND = NOT DETECTED
 J = ESTIMATED VALUE B = ALSO PRESENT IN BLANK
 L = PRESENT BELOW STATED DETECTION LIMIT

0000427

TEST CODE :SPNP&P1

JOB NUMBER :9100.204

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UH-6000 NASP PEASE I GROUPS A-E

RESULTS IN VET WEIGHT

TEST NAME : PNC PEST./PCB
SAMPLE ID LAB : BB-91-01894
SAMPLE ID CLIENT: P02-SD014A

UNITS : UG/KG
MATRIX : SOLID

PARAMETER	RESULTS	Q	DET. LIHIT
Heptachlor	ND		1000
Lindane	ND		1000
Aldrin	ND		1000
4,4 - DDT	ND		1000
Dieldrin / 4.4 - DDE	ND		1000
Endrin	ND		1000
Chlordane	ND		1000
Total PCBS	ND		5000

QUALIFIERS: C = COMMENT ND = NOT DETECTED
 J = ESTIMATED VALUE B = ALSO PRESENT IN BLANK
 L = PRESENT BELOW STATED DETECTION LIMIT

TEST CODE :SPNP&P1

JOB NUMBER :9100.204

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UH-6000 NASP PHASE I GROUPS A-E

RESULTS IN WET WEIGHT

TEST NAME : PNC PEST./PCB

UNITS : UG/KG

SAMPLE ID LAB : EE-91-01895

MATRIX : SOLID

SAMPLE ID CLIENT: P02-SD015A

<u>PARAMETER</u>	<u>RESULTS</u>	<u>Q</u>	<u>DET. LIMIT</u>
Heptachlor	ND		1000
Lindane	ND		1000
Aldrin	ND		1000
4,4 - DDT	ND		1000
Dieldrin / 4,4 - DDE	ND		1000
Endrin	ND		1000
Chlordane	ND		1000
Total PCBS	ND		5000

QUALIFIERS: C = COMMENT ND = NOT DETECTED
J = ESTIMATED VALUE B = ALSO PRESENT IN BLANK
L = PRESENT BELOW STATED DETECTION LIMIT

0000428

TEST CODE :SPNP&P1

JOB NUMBER :9100.204

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UH-6000 NASP PHASE I GROUPS A-E

RESULTS IN WET WEIGHT

TEST NAME : PNC PEST./PCB

UNITS : UG/KG

SAMPLE ID LAB : BE-91-01896

MATRIX : SOLID

SAMPLE ID CLIENT: PO2-SD016A

<u>PARAMETER</u>	<u>RESULTS</u>	<u>Q</u>	<u>DET. LIMIT</u>
Heptachlor	ND		1000
Lindane	ND		1000
Aldrin	ND		1000
4,4 - DDT	ND		1000
Dieldrin / 4,4 - DDE	ND		1000
Endrin	ND		1000
Chlordane	ND		1000
Total PCBS	ND		5000

QUALIFIERS: C = COMMENT ND = NOT DETECTED
 J = ESTIMATED VALUE B = ALSO PRESENT IN BLANK
 L = PRESENT BELOW STATED DETECTION LIMIT

QUALITY CONTROL FOR ACCURACY AND PRECISION:
PERCENT RECOVERY OF SOIL MATRIX SPIKE (MS)
(Sample # 1886)

9100.204

Compound	Original Result	Amount Added	Amount Determined	Percent Recovery
Lindane	ND	400	500	125
Heptachlor	ND	400	500	125
Aldrin	ND	400	500	125
Dieldrin /4,4-DDE	ND	1000	1500	150
Endrin	ND	1000	1400	140
4,4'-DDT	ND	1000	1400	140

0000429

**QUALITY CONTROL FOR ACCURACY AND PRECISION:
PERCENT RECOVERY OF SOIL MATRIX SPIKE (MS)**
(Sample # 18%)

9100.204

Compound	Original Result	Amount Added	Amount Determined	Percent Recovery
Lindane	ND	400	400	100
Heptachlor	ND	400	400	100
Aldrin	ND	400	390	98
Dieldrin /4,4-DDE	ND	1000	1200	120
Endrin	ND	1000	1100	110
4,4'-DDT	ND	1000	930	93

TEST CODE :SPNP&P1

JOB NUMBER :9100.204

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UH-6000 NASP PHASE I GROUPS A-B

RESULTS IN WET WEIGHT

TEST NAME : PNC PEST./PCB

UNITS : UG/KG

SAMPLE ID LAB : METHOD BLANK 1 598.56

MATRIX : SOLID

PARAMETER	RESULTS	Q	DET. LIMIT
Heptachlor	ND	-	1000
Lindane	ND	-	1000
Aldrin	ND	-	1000
4,4 - DDT	ND	-	1000
Dieldrin / 4,4 - DDE	ND	-	1000
Endrin	ND	-	1000
Chlordane	ND	-	1000
Total PCBS	ND	-	5000

QUALIFIERS: C - COMMENT

ND - NOT DETECTED

J - ESTIMATED VALUE

B - ALSO PRESENT IN BLANK

L - PRESENT BELOW STATED DETECTION LIMIT

0000430

TBST CODE :SPNP&P1

JOB NUMBER 39100.204

Biology and Environment, Inc.
Analytical Services Center

CLIENT : UH-6000 NASP PEASE I GROUPS A-E

RESULTS IN VET WEIGHT

TEST NAME : PNC PEST./PCB UNITS : UG/KG
SAMPLE ID LAB : METHOD BLANK 2 598.56 MATRIX : SOLID

PARAMETER	RESULTS	Q	DET. LIMIT
lieptachlor	ND		1000
Lindane	ND		1000
Aldrin	ND		1000
4,4 - DDT	ND		1000
Dieldrin / 4,4 - DDE	ND		1000
Endrin	ND		1000
Chlordane	ND		1000
Total PCBS	ND		5000

QUALIFIERS: C = COMMENT ND = NOT DETECTED
J = ESTIMATED VALUE B = ALSO PRESENT IN BLANK
L = PRBSENT BELOV STATED DETECTION LIMIT

TEST CODE :SPNPAH1

JOB NUMBER :9100.204

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UH-6000 NASP PHASE I GROUPS A-E

RESULTS IN WET WEIGHT

TEST NAME : PNC PAH - LC

UNITS : UG/KG

SAMPLE ID LAB : EE-91-01885

MATRIX : SOLID

SAMPLE ID CLIENT: P02-SD005A

<u>PARAMETER</u>	<u>RESULTS</u>	<u>Q</u>	<u>DET. LIMIT</u>
Total as Benzo-a-pyrene	2000	-	1000

QUALIFIERS: C = COMMENT ND = NOT DETECTED
 J = ESTIMATED VALUE B = ALSO PRESENT IN BLANK
 L = PRESENT BELOW STATED DETECTION LIMIT

0000431

TEST CODE : SPNPAH1

JOB NUMBER : 9100.204

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UH-6000 NASP PHASE I GROUPS A-E

RESULTS IN WET WEIGHT

TEST NAME : PNC PAH - LC

UNITS : UG/KG

SAMPLE ID LAB : EE-91-01886

MATRIX : SOLID

SAMPLE ID CLIENT: P02-SD006A

<u>PARAMETER</u>	<u>RESULTS</u>	<u>Q</u>	<u>DET. LIMIT</u>
Total as Benzo-a-pyrene	4800	-	1000

QUALIFIERS: C = COMMENT ND = NOT DETECTED
 J = ESTIMATED VALUE B = ALSO PRESENT IN BLANK
 L = PRESENT BELOW STATED DETECTION LIMIT

TEST CODE :SPNPAH1

JOB NUMBER r9100.204

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UH-6000 NASP PHASE I GROUPS A-E

RESULTS IN WET WEIGHT

TEST NAME : PNC PAH - LC

UNITS : UG/KG

SAMPLE ID LAB : EE-91-01887

MATRIX : SOLID

SAMPLE ID CLIENT: P02-SD007A

<u>PARAMETER</u>	<u>RESULTS</u>	<u>Q</u>	<u>DET. LIMIT</u>
Total as Benzo-a-pyrene	17000	-	1000

QUALIFIERS: C = COMMENT ND = NOT DETECTED
 J = ESTIMATED VALUE B = ALSO PRESENT IN BLANK
 L = PRESENT BELOW STATED DETECTION LIMIT

0000432

TEST CODE : SPNPAH1

JOB NUMBER : 9100.204

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UH-6000 NASP PEASE I GROUPS A-E

RESULTS IN WET WEIGHT

TEST NAME : PNC PAH - LC

UNITS : UG/KG

SAMPLE ID LAB : BE-91-01888

MATRIX : SOLID

SAMPLE ID CLIENT: P02-SD008A

<u>PARAMETER</u>	<u>RESULTS</u>	<u>Q</u>	<u>DET. LIMIT</u>
Total as Benzo-a-pyrena	PRESENT	L	1000

QUALIFIERS: C = COMMENT ND = NOT DETECTED
 J = ESTIMATED VALUE B = ALSO PRESENT IN BLANK
 L = PRESENT BELOW STATED DETECTION LIMIT

TEST CODE : SPNPAH1

JOB NUMBER : 9100.204

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UH-6000 NASP PHASE I GROUPS A-B

RESULTS IN WET WEIGHT

TEST NAME : PNC PAH - LC

UNITS : UG/KG

SAMPLE ID LAB : EE-91-01889

MATRIX : SOLID

SAMPLE ID CLIENT: P02-SD009A

<u>PARAMETER</u>	<u>RESULTS</u>	<u>Q</u>	<u>DET. LIMIT</u>
Total μ Benzo-a-pyrene	2200	-	1000

QUALIFIERS: C = COMMENT ND = NOT DETECTED
J = ESTIMATED VALUE B = ALSO PRESENT IN BLANK
L = PRESENT BELOW STATED DETECTION LIMIT

0000433

TEST CODE : SPNPAE1

JOB NUMBER : 9100.204

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UH-6000 NASP PHASE I GROUPS A-E

RESULTS IN VET WEIGHT

TEST NAME : PNC PAE - LC

UNITS : UG/KG

SAMPLE ID LAB : EE-91-01890

MATRIX : SOLID

SAMPLE ID CLIENT: P02-SD010A

<u>PARAMETER</u>	<u>RESULTS</u>	<u>Q</u>	<u>DET. LIMIT</u>
Total as Benzo-a-pyrene	2400	-	1000

QUALIFIERS: C = COMMENT ND = NOT DETECTED
 J = ESTIMATED VALUE B = ALSO PRESENT IN BLANK
 L = PRESENT ,BELOW STATED DETECTION LIMIT

TEST CODE :SPNPAH1

JOB NUMBER :9100.204

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UH-6000 NASP PHASE I GROUPS A-B

RESULTS IN WET WEIGHT

TEST NAME : PNC PAH - LC

UNITS : UG/KG

SAMPLE ID LAB : EE-91-01891

MATRIX : SOLID

SAMPLE ID CLIENT: P02-SD011A

<u>PARAMETER</u>	<u>RESULTS</u>	<u>Q</u>	<u>DET. LIMIT</u>
Total as Benzo-a-pyrene	2000	-	1000

QUALIFIERS: C = COMMENT

ND = NOT DETECTED

J = ESTIMATED VALUE

B = ALSO PRESENT IN BLANK

L = PRESENT BELOW STATED DETECTION LIMIT

0000434

TEST CODE :SPNPAH1

JOB NUMBER :9100.204

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UH-6000 NASP PEASE I GROUPS A-E

RESULTS IN WET WEIGHT

TEST NAME : PNC PAH - LC
SAMPLE ID LAB : HE-91-01892
SAMPLE ID CLIENT: P02-SD012A

UNITS : UG/KG
MATRIX : SOLID

PARAMETER	RESULTS	a	DET. LIMIT
Total as Benzo-a-pyrme	2600	-	1000

QUALIFIERS: C = COMMENT NO = NOT DETECTED
J = ESTIMATED VALUE' B = ALSO PRESENT IN BLANK
L = PRESENT BELOW STATED DETECTION LIMIT

TEST CODE :SPNPAH1

JOB NUMBER r9100.204

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UH-6000 NASP PHASE I GROUPS A-E

RESULTS IN WET WEIGHT

TEST NAME : PNC PAH - LC
SAMPLE ID LAB : BE-91-01893
SAMPLE ID CLIENT: P02-SD013A

UNITS : UG/KG
MATRIX : SOLID

<u>PARAMETER</u>	<u>RESULTS</u>	<u>Q</u>	<u>DET. LIMIT</u>
Total as Benzo-a-pyrene	2500	-	1000

QUALIFIERS: C = COMMENT ND = NOT DETECTED
 J = ESTIMATED VALUE B = ALSO PRESENT IN BLANK
 L = PRESENT BELOW STATED DETECTION LIMIT

0000435

TEST CODE : SPNPAH1

JOB NUMBER : 9100.204

Biology and Environment, Inc.
Analytical Services Center

CLIENT I UH-6000 NASP PHASE I GROUPS A-B

RESULTS IN WET WEIGHT

TEST NAME : PNC PAE - LC

UNITS : UG/KG

SAMPLE ID LAB : EE-91-01894

MATRIX : SOLID

SAMPLE ID CLIENT: P02-SD014A

PARAMETER	RESULTS	Q	DET. LIMIT
-----	-----	-	-----
Total as Benzo-a-pyrene	2900		1000

QUALIFIERS: C = COMMENT ND = NOT DETECTED
J = ESTIMATED VALUE B = ALSO PRESENT IN BLANK
L = PRESENT BELOW STATED DETECTION LIMIT

TEST CODE :SPNPAH1

JOB NUMBER :9100.204

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UH-6000 NASP PHASE I GROUPS A-E

RESULTS IN WET WEIGHT

TEST NAME : PNC PAH - LC

UNITS : UG/KG

SAMPLE ID LAB : EE-91-01895

MATRIX : SOLID

SAMPLE ID CLIENT: P02-SD015A

<u>PARAMETER</u>	<u>RESULTS</u>	<u>Q</u>	<u>DET. LIMIT</u>
Total as Benzo-a-pyrene	3400	-	1000

QUALIFIERS: C = COMMENT ND = NOT DETECTED
J = ESTIMATED VALUE B = ALSO PRESENT IN BLANK
L = PRESENT BELOW STATED DETECTION LIMIT

0000436

TEST CODE : SPNPAH1

JOB NUMBER : 9100.204

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UH-6000 NASP PEASE I GROUPS A-E

RESULTS IN WET WEIGHT

TEST NAME : PNC PAH - LC

UNITS : UG/KG

SAMPLE ID LAB : EE-91-01896

MATRIX : SOLID

SAMPLE ID CLIENT: P02-SD016A

PARAMETER	RESULTS	Q	DET. LIMIT
-----	-----	---	-----
Total as Benzo-a-pyrene	4200		1000

QUALIFIERS: C = COMMENT ND = NOT DETECTED
 J = ESTIMATED VALUE B = ALSO PRESENT IN BLANK
 L = PRESENT BELOW STATED DETECTION LIMIT

QUALITY CONTROL FOR ACCURACY: PERCENT RECOVERY
FOR SPIKED SOIL SAMPLES

9100.204

(ug)

Parameter	B I B Laboratory No. 91-	Original Value	Amount Added	Amount Determined	Percent Recovery
Benzo(a)pyrene	1894.03	ND	50	59	118

0000437

TEST CODE : SPNPRG1

JOB NUMBER : 9100.204

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UH-6000 NASP PHASE I GROUPS A-E
RESULTS IN VET WEIGHT

TEST NAME : PNC PURGABLES- GC UNITS : UG/KG
SAMPLE ID LAB : EE-91-01885 MATRIX : SOLID
SAMPLE ID CLIENT: P02-SD005A

PARAMETER	RESULTS	Q	DET. LIMIT
Benzene	ND		1000
Toluene	ND		1000
Ethylbenzene	ND		1000
Total Xylenes	ND		1000
1,2 - Dichlorobenzene	ND		1000
1,3 - Dichlorobenzene	ND		1000
1,4 - Dichlorobenzene	ND		1000
1,1 - dichloroethene	ND		1000
Methylene Chloride	3800	B	1000
Trans-1,2, - Dichloroethane	ND		1000
1,1 - dichloroethane	ND		1000
1,1,1 - Trichloroethane	ND		1000
1,2 - Dichloroethane	ND		1000
Trichloroethene	ND		1000
Tetrachloroethene	ND		1000
chlorobenzene	ND		1000

QUALIFIERS: C = COMMENT ND = NOT DETECTED
J = ESTIMATED VALUE B = ALSO PRESENT IN BLANK
L = PRESENT BELOW STATED DETECTION LIMIT

TEST CODE : SPNPRG1

JOB NUMBER : 9100.204

Ecology and Environment, Inc.
Analytical Services Curter

CLIENT : UH-6000 NASP PHASE I GROUPS A-E

RESULTS IN WET WEIGHT

TEST NAME : PNC PURGABLES- GC

UNITS : UG/KG

SAMPLE ID LAB : EE-91-01886

MATRIX : SOLID

SAMPLE ID CLIENT: P02-SD006A

<u>PARAMETER</u>	<u>RESULTS</u>	<u>Q</u>	<u>DET. LIMIT</u>
Benzene	ND		1000
Toluene	ND		1000
Ethylbenzene	ND		1000
Total Xylene8	ND		1000
1,2 - Dichlorobenzene	ND		1000
1,3 - Dichlorobenzene	ND		1000
1,4 - Dichlorobenzene	ND		1000
1,1 - dichloroethene	ND		1000
Methylene Chloride	4200	B	1000
Trans-1,2, - Dichloroethene	ND		1000
1,1 - dichloroethane	ND		1000
1,1,1 - Trichloroethane	ND		1000
1,2 - Dichloroethane	ND		1000
Trichloroethene	ND		1000
Tetrachloroethene	ND		1000
chlorobenzene	ND		1000

QUALIFIERS: C = COMMENT ND = NOT DETECTED
J = ESTIMATED VALUE B = ALSO PRESENT IN BLANK
L = PRESENT BELOW STATED DETECTION LIMIT

0000438

TEST CODE : SPNPRG1

JOB NUMBER : 9100.204

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UE-6000 NASP PHASE I GROUPS A-E

RESULTS IN WET WEIGHT

TEST NAME : PNC PURGABLES- GC UNITS : UG/KG
SAMPLE ID LAB : BE-91-01887 MATRIX : SOLID
SAMPLE ID CLIENT: PO2-SD007A

PARAMETER	RESULTS	Q	DET. LIMIT
Benzene	ND		1000
Toluene	ND		1000
Ethylbenzene	ND		1000
Total Xylenes	ND		1000
1,2 - Dichlorobenzene	ND		1000
1,3 - Dichlorobenzene	ND		1000
1,4 - Dichlorobenzene	ND		1000
1,1 - dichloroethene	ND		1000
Methylene Chloride	4900	B	1000
Trans-1,2, - Dichloroethene	ND		1000
1,1 - dichloroethane	ND		1000
1,1,1 - Trichloroethane	ND		1000
1,2 - Dichloroethane	ND		1000
Trichloroethene	ND		1000
Tetrachloroethene	ND		1000
chlorobenzene	ND		1000

QUALIFIERS: C = COMMENT ND = NOT DETECTED
J = ESTIMATED VALUE B = ALSO PRESENT IN BLANK
L = PRESENT BELOW STATED DETECTION LIMIT

TEST CODE : SPNPRG1

JOB NUMBER r9100.204

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UH-6000 NASP PHASE I GROUPS A-E

RESULTS IN WET WEIGHT

TEST NAME : PNC PURGABLES- GC

UNITS : UG/KG

SAMPLE ID LAB : EE-91-01888

MATRIX : SOLID

SAMPLE ID CLIENT: P02-SD008A

<u>PARAMETER</u>	<u>RESULTS</u>	<u>Q</u>	<u>DET. LIMIT</u>
Benzene	ND		1000
Toluene	ND		1000
Ethylbenzene	ND		1000
Total Xylenes	ND		1000
1,2 - Dichlorobenzene	ND		1000
1,3 - Dichlorobenzene	ND		1000
1,4 - Dichlorobenzene	ND		1000
1,1 - dichloroethene	ND		1000
Methylene Chloride	9600	B	1000
Trans-1,2, - Dichloroethene	ND		1000
1,1 - dichloroethane	ND		1000
1,1,1 - Trichloroethane	ND		1000
1,2 - Dichloroethane	ND		1000
Trichloroethene	ND		1000
Tetrachloroethane	ND		1000
chlorobenzene	ND		1000

QUALIFIERS: C - COMMENT ND - NOT DETECTED
 J - ESTIMATED VALUE B - ALSO PRESENT IN BLANK
 L - PRESENT BELOW STATED DETECTION LIMIT

0000439

TEST CODE : SPNPRG1

JOB NUMBER : 9100.204

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UH-6000 NASP PEASE I GROUPS A-E

RESULTS IN WET WEIGHT

TEST "E" : PNC PURGABLES- GC

UNITS : UG/KG

SAMPLE ID LAB : EE-91-01889

MATRIX : SOLID

SAMPLE ID CLIENT: P02-SD009A

PARAMETER	RESULTS	Q	DET. LIMIT
Benzene	ND		1000
Toluene	ND		1000
Ethylbenzene	ND		1000
Total Xylenes	ND		1000
1,2 - Dichlorobenzene	ND		1000
1,3 - Dichlorobenzene	ND		1000
1,4 - Dichlorobenzene	ND		1000
1,1 - dichloroethene	ND		1000
Methylene Chloride	12000	B	1000
Trans-1,2, - Dichloroethene	ND		1000
1,1 - dichloroethane	ND		1000
1,1,1 - Trichloroethane	ND		1000
1,2 - Dichloroethane	ND		1000
Trichloroethene	ND		1000
Tetrachloroethene	ND		1000
chlorobenzene	ND		1000

QUALIFIERS: C = COMMENT ND = NOT DETECTED
 J = ESTIMATED VALUE B = ALSO PRESENT IN BLANK
 L = PRESENT BELOW STATED DETECTION LIMIT

TEST CODE :SPNPRG1

JOB NUMBER :9100.204

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UH-6000 NASP PHASE I GROUPS A-E

RESULTS IN WET WEIGHT

TEST NAME : PNC PURGABLES- GC

UNITS : UG/KG

SAMPLE ID LAB : EE-91-01890

MATRIX : SOLID

SAMPLE ID CLIENT: P02-SD010A

<u>PARAMETER</u>	<u>RESULTS</u>	<u>Q</u>	<u>DET. LIMIT</u>
Benzene	ND		1000
Toluene	ND		1000
Ethylbenzene	ND		1000
Total Xylenes	ND		1000
1,2 - Dichlorobenzene	ND		1000
1,3 - Dichlorobenzene	ND		1000
1,4 - Dichlorobenzene	ND		1000
1,1 - dichloroethene	ND		1000
Methylene Chloride	7900	B	1000
Trans-1,2, - Dichloroethene	ND		1000
1,1 - dichloroethane	ND		1000
1,1,1 - Trichloroethane	ND		1000
1,2 - Dichloroethane	ND		1000
Trichloroethene	ND		1000
Tetrachloroethene	ND		1000
chlorobenzene	ND		1000

QUALIFIERS: C - COMMENT ND - NOT DETECTED
 J - ESTIMATED VALUE B - ALSO PRESENT IN BLANK
 L - PRESENT BELOW STATED DETECTION LIMIT

0000440

TEST CODE : SPNPRG1

JOB NUMBER : 9100.204

Ecology and Environment, fnc.
Analytical Services Center

CLIENT : UH-6000 NASP PEASE I GROUPS A-E

RESULTS IN VET WEIGHT

TEST NAME : PNC PURGABLES- GC

UNITS : UG/KG

SAMPLE ID LAB : EE-91-01891

MATRIX : SOLID

SAMPLE ID CLIENT: P02-SD011A

PARAMETER	RESULTS	Q	DET. LIMIT
Benzene	ND		1000
Toluene	ND		1000
Ethylbenzene	ND		1000
Total Xylenes	ND		1000
1,2 - Dichlorobenzene	ND		1000
1,3 - Dichlorobenzene	ND		1000
1,4 - Dichlorobenzene	ND		1000
1,1 - dichloroethene	ND		1000
Methylene Chloride	6500	B	1000
Trans-1,2, - Dichloroethene	ND		1000
1,1 - dichloroethane	ND		1000
1,1,1 - Trichloroethane	ND		1000
1,2 - Dichloroethane	ND		1000
Trichloroethene	ND		1000
Tetrachloroethene	ND		1000
chlorobenzene	ND		1000

QUALIFIERS: C = COMMENT ND = NOT DETECTED
 J = ESTIMATED VALUE B = ALSO PRESENT IN BLANK
 L = PRESENT BELOW STATED DETECTION LIMIT

TEST CODE :SPNPRG1

JOB NUMBER t9100.201

Ecology and Environment, Inc.
Analytical services Center

CLIENT : UH-6000 NASP PHASE I GROUPS A-E

RESULTS IN WET WEIGHT

TEST NAME : PNC PURGABLES- GC

UNITS : UG/KG

SAMPLE ID LAB : EE-91-01892

MATRIX : SOLID

SAMPLE ID CLIENT: PO2-SD012A

<u>PARAMETER</u>	<u>RESULTS</u>	<u>Q</u>	<u>DET. LIMIT</u>
Benzene	ND		1000
Toluene	ND		1000
Ethylbenzene	ND		1000
Total Xylenes	ND		1000
1,2 - Dichlorobenzene	ND		1000
1,3 - Dichlorobenzene	ND		1000
1,4 - Dichlorobenzene	ND		1000
1,1 - dichloroethane	ND		1000
Methylene Chloride	3200	B	1000
Trans-1,2, - Dichloroethene	ND		1000
1,1 - dichloroethane	ND		1000
1,1,1 - Trichloroethane	ND		1000
1,2 - Dichloroethane	ND		1000
Trichloroethene	ND		1000
Tetrachloroethene	ND		1000
chlorobenzene	ND		1000

QUALIFIERS: C - COMMENT ND - NOT DETECTED
 J - ESTIMATED VALUE B - ALSO PRESENT IN BLANK
 L - PRESENT BELOW STATED DETECTION LIMIT

0000441

TBST CODE : SPNPRG1

JOB NUMBER r9100.204

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UH-6000 NASP PHASE I CROUPS A-E

RESULTS IN WET WEIGHT

TEST NAME : PNC PURGABLES- GC

UNITS : UG/KG

SAMPLE ID LAB : BE-91-01893

MATRIX : SOLID

SAMPLE ID CLIENT: P02-SD013A

<u>PARAMETER</u>	<u>RESULTS</u>	<u>Q</u>	<u>DET. LIMIT</u>
Benzene	ND		1000
Toluene	ND		1000
Ethylbenzene	ND		1000
Total Xylenes	ND		1000
1,2 - Dichlorobenzene	ND		1000
1,3 - Dichlorobenzene	ND		1000
1,4 - Dichlorobenzene	ND		1000
1,1 - dichloroethene	ND		1000
Methylene Chloride	3200	B	1000
Trans-1,2, - Dichloroethene	ND		1000
1,1 - dichloroethane	ND		1000
1,1,1 - Trichloroethane	ND		1000
1,2 - Dichloroethane	ND		1000
Trichloroethene	ND		1000
Tetrachloroethane	ND		1000
chlorobenzene	ND		1000

QUALIFIERS: C = COMMENT ND = NOT DETECTED
J = ESTIMATED VALUE B = ALSO PRESENT IN BLANK
L = PRESENT BELOW STATED DETECTION LIMIT

TEST CODE :SPNPRG1

JOB NUMBER :9100.204

Ecology and Environment, inc.
Analytical Services Center

CLIENT : UH-6000 NASP PHASE I GROUPS A-E

RESULTS IN WET WEIGHT

TEST NAME : PNC PURGABLES- GC

UNITS : UG/KG

SAMPLE ID LAB : EE-91-01894

MATRIX : SOLID

SAMPLE ID CLIENT: P02-SD014A

<u>PARAMETER</u>	<u>RESULTS</u>	<u>a</u>	<u>DET. LIMIT</u>
Benzene	ND		1000
Toluene	ND		1000
Ethylbenzene	ND		1000
Total Xylenes	ND		1000
1,2 - Dichlorobenzene	ND		1000
1,3 - Dichlorobenzene	ND		1000
1,4 - Dichlorobenzene	ND		1000
1,1 - dichloroethene	ND		1000
Methylene Chloride	2900	B	1000
Trans-1,2, - Dichloroethene	ND		1000
1,1 - dichloroethane	ND		1000
1,1,1 - Trichloroethane	ND		1000
1,2 - Dichloroethane	ND		1000
Trichloroethene	ND		1000
Tetrachloroethene	ND		1000
chlorobenzene	ND		1000

QUALIFIERS: C = COMMENT ND = NOT DETECTED
J = ESTIMATED VALUE B = ALSO PRESENT IN BLANK
L = PRESENT BELOW STATED DETECTION LIMIT

0000442

TEST CODE : SPNPRG1

JOB NUMBER : 9100.204

Ecology and Environment , Inc.
Analytical Services Center

CLIENT : UB-6000 NASP PHASE I GROUPS A-E

RESULTS IN WET WEIGHT

TEST NAME : PNC PURGABLES- GC

UNITS : UG/KG

SAMPLE ID LAB : BE-91-01895

MATRIX : SOLID

SAMPLE ID CLIENT: P02-SD015A

<u>PARAMETER</u>	<u>RESULTS</u>	<u>Q</u>	<u>DET. LIMIT</u>
- -			
Benzene	ND		1000
Toluene	ND		1000
Ethylbenzene	ND		1000
Total Xylenes	ND		1000
1,2 - Dichlorobenzene	ND		1000
1,3 - Dichlorobenzene	ND		1000
1,4 - Dichlorobenzene	ND		1000
1,1 - dichloroethene	ND		1000
Methylene Chloride	3300	B	1000
Trans-1,2, - Dichloroethene	ND		1000
1,1 - dichloroethane	ND		1000
1,1,1 - Trichloroethane	ND		1000
1,2 - Dichloroethane	ND		1000
Trichloroethene	ND		1000
Tetrachloroethene	ND		1000
chlorobenzene	ND		1000

QUALIFIERS: C = COMMENT ND NOT DETECTED
J = ESTIMATED VALUE B = ALSO PRESENT IN BLANK
L = PRESENT BELOW STATED DETECTION LIMIT

TEST CODE :SPNPRG1.

JOB NUMBER :9100.204

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UH-6000 NASP PHASE I GROUPS A-E

RESULTS IN WET WEIGHT

TEST NAME : PNC PURGABLES- GC

UNITS : UG/KG

SAMPLE ID LAB : EE-91-01896

MATRIX : SOLID

SAMPLE ID CLIENT: P02-SD016A

<u>PARAMETER</u>	<u>RESULTS</u>	<u>Q</u>	<u>DET. LIMIT</u>
Benzene	ND		1000
Toluene	ND		1000
Ethylbenzene	ND		1000
Total Xylenes	ND		1000
1,2 - Dichlorobenzene	ND		1000
1,3 - Dichlorobenzene	ND		1000
1,4 - Dichlorobenzene	ND		1000
1,1 - dichloroethene	ND		1000
Methylene Chloride	2700	B	1000
Trans-1,2, - Dichloroethene	ND		1000
1,1 - dichloroethane	ND		1000
1,1,1 - Trichloroethane	ND		1000
1,2 - Dichloroethane	ND		1000
Trichloroethene	ND		1000
Tetrachloroethane	ND		1000
chlorobenzene	ND		1000

QUALIFIERS: C - COMMENT

ND - NOT DETECTED

J - ESTIMATED VALUE

B - ALSO PRESENT IN BLANK

L - PRESENT BELOW STATED DETECTION LIMIT

0000443

QUALITY CONTROL FOR ACCURACY AND PRECISION:
PERCENT RECOVERY AND RELATIVE PERCENT DIFFERENCE (RPD)
 OF SOIL MATRIX SPIKE (MS) AND MATRIX SPIKE DUPLICATE (MSD)
 (Sample # 1895)

9100.204

Compound	Original Result	Amount Added	Amount Determined		Percent Recovery		RPD
			MS	MSD	MS	MSD	
benzene	ND	25000	23875		96		
toluene	ND	25000	24000		96		
ethyl benzene	ND	25000	23875		96		
1,2-Dichlorobenzene	ND	25000	24125		97		
1,3-Dichlorobenzene	ND	25000	24375		98		
1,4-Dichlorobenzene	ND	25000	24750		99		
1,1-Dichloroethene	ND	25000	14625		59		
Methylene Chloride	ND	25000	33750		122		
Trans-1,2-Dichloroethene	ND	25000	18625		74		
1,1-Dichloroethane	ND	25000	22625		90		
1,1,1-Trichloroethane	ND	25000	24125		96		
1,2-Dichloroethane	ND	25000	24250		97		
Trichloroethene	ND	25000	21000		a4		
Tetrachloroethene	ND	25000	24875		100		
CLB2	ND	25000	2475		9.9		

These recoveries and RPDs are within E & E, Inc. limits.

TEST CODE :SPNPRG1

JOB NUMBER :9100.204

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UH-6000 NASP PHASE I GROUPS A-E

RESULTS IN WET WEIGHT

TEST NAME : PNC PURGABLES- GC

UNITS : UG/KG

SAMPLE ID LAB : METHOD BLANK 1

MATRIX : SOLID

<u>PARAMETER</u>	<u>RESULTS</u>	<u>a</u>	<u>DET. LIMIT</u>
Benzene	ND		1000
Toluene	ND		1000
Ethylbenzene	ND		1000
Total Xylenes	LD		1000
1,2 - Dichlorobenzene	ND		1000
1,3 - Dichlorobenzene	ND		1000
1,4 - Dichlorobenzene	ND		1000
1,1 - dichloroethene	ND		1000
Methylene Chloride	4100		1000
Trans-1,2, - Dichloroethene	ND		1000
1,1 - dichloroethane	ND		1000
1,1,1 - Trichloroethane	ND		1000
1,2 - Dichloroethane	ND		1000
Trichloroethene	ND		1000
Tetrachloroethene	ND		1000
chlorobenzene	ND		1000

QUALIFIERS: C = COMMENT ND = NOT DETECTED
 J = ESTIMATED VALUE B = ALSO PRESENT IN BLANK
 L = PRESENT BELOW STATED DETECTION LIMIT

0000444

TEST CODE : SPNPRG1

JOB NUMBER r9100.204

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UR-6000 NASP PHASE I GROUPS A-E

RESULTS IN WET WEIGHT

TEST NAME : PNC PURGABLES- GC
SAMPLE ID LAB : METHOD BLANK 2

UNITS : UG/KG
MATRIX : SOLID

PARAMETER	RESULTS	Q	DET. LIMIT
Benzene	ND		1000
Toluene	ND		1000
Ethylbenzene	ND		1000
Total Xylenes	ND		1000
1,2 - Dichlorobenzene	ND		1000
1,3 - Dichlorobenzene	ND		1000
1,4 - Dichlorobenzene	ND		1000
1,1 - dichloroethene	ND		1000
Methylene Chloride	3800		1000
Trans-1,2, - Dichloroethene	ND		1000
1,1 - dichloroethane	ND		1000
1,1,1 - Trichloroethane	ND		1000
1,2 - Dichloroethane	ND		1000
Trichloroethene	ND		1000
Tetrachloroethene	ND		1000
chlorobenzene	ND		1000

QUALIFIERS: C = COMMENT ND = NOT DETECTED
 J = ESTIMATED VALUE B = ALSO PRESENT IN BLANK
 L = PRESENT BELOW STATED DETECTION LIMIT

TEST CODE :SPNPHL1

JOB NUMBER :9100.204

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UH-6000 NASP PHASE I GROUPS A-E

RESULTS IN WET WEIGHT

TEST NAME : PNC PHENOL - LC

UNITS : UG/KG

SAMPLE ID LAB : EE-91-01885

MATRIX : SOLID

SAMPLE ID CLIENT: P02-SD005A

<u>PARAMETER</u>	<u>RESULTS</u>	<u>Q</u>	<u>DET. LIMIT</u>
Total as Trichlorophenol	ND	-	2000

QUALIFIERS: C = COMMENT ND = NOT DETECTED
 J = ESTIMATED VALUE B = ALSO PRESENT IN BLANK
 L = PRESENT BELOW STATED DETECTION LIMIT

0000445

TEST CODE : SPNPHL1

JOB NUMBER : 9100.204

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UH-6000 NASP PHASE I GROUPS A-E

RESULTS IN VET WEIGHT

TEST NAME : PNC PHENOL - LC

UNITS : UG/KG

SAMPLE ID LAB : EE-91-01886

MATRIX : SOLID

SAMPLE ID CLIENT: P02-SD006A

<u>PARAMETER</u>	<u>RESULTS</u>	<u>Q</u>	<u>DET. LIMIT</u>
Total as Trichlorophenol	ND	-	2000

.....
QUALIFIERS: C = COMMENT ND = NOT DETECTED
 J = ESTIMATED VALUE B = ALSO PRESENT IN BLANK
 L = PRESENT BELOW STATED DETECTION LIMIT

TEST CODE : SPNPHL1

JOB NUMBER : 9100.204

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UH-6000 NASP PHASE I GROUPS A-E

RESULTS IN WET WEIGHT

TEST NAME : PNC PHENOL - LC

UNITS : UG/KG

SAMPLE ID LAB : BE-91-01887

MATRIX : SOLID

SAMPLE ID CLIENT: P02-SD007A

<u>PARAMETER</u>	<u>RESULTS</u>	<u>Q</u>	<u>DET. LIMIT</u>
Total as Trichlorophenol	ND	-	2000

QUALIFIERS: C = COMMENT ND = NOT DETECTED
 J = ESTIMATED VALUE B = ALSO PRESENT IN BLANK
 L = PRESENT BELOW STATED DETECTION LIMIT

0000446

TEST CODE :SPNPHL1

JOB NUMBER :9100.204

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UH-6000 NASP PHASE I GROUPS A-E

RESULTS IN WET WEIGHT

TEST NAME : PNC PHENOL - LC

UNITS : UG/KG

SAMPLE ID LAB : EE-91-01888

MATRIX : SOLID

SAMPLE ID CLIENT: P02-SDO08A

<u>PARAMETER</u>	<u>RESULTS</u>	<u>Q</u>	<u>DET. LIMIT</u>
Total as Trichlorophenol	ND	-	2000

QUALIFIERS: C = COMMENT ND = NOT DETECTED
 J = ESTIMATED VALUE B = ALSO PRESENT IN BLANK
 L = PRESENT BELOW STATED DETECTION LIMIT

TEST CODE : SPNPHL1

JOB NUMBER : 9100.204

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UH-6000 NASP PHASE I GROUPS A-E

RESULTS IN WET WEIGHT

TEST NAME : PNC PHENOL - LC

UNITS : UG/KG

SAMPLE ID LAB : EE-91-01889

MATRIX : SOLID

SAMPLE ID CLIENT: P02-SD009A

<u>PARAMETER</u>	<u>RESULTS</u>	<u>Q</u>	<u>DET. LIMIT</u>
Total as Trichlorophenol	ND	-	2000

QUALIFIERS: C = COMMENT ND = NOT DETECTED
 J = ESTIMATED VALUE B = ALSO PRESENT IN BLANK
 L = PRESENT BELOW STATED DETECTION LIMIT

0000447

TEST CODE : SPNPHL1

JOB NUMBER : 9100.204

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UH-6000 NASP PHASE I GROUPS A-E

RESULTS IN VET WEIGHT

TEST NAME : PNC PHENOL - LC

UNITS : UG/KG

SAMPLE ID LAB : EE-91-01890

MATRIX : SOLID

SAMPLE ID CLIENT: P02-SD010A

<u>PARAMETER</u>	<u>RESULTS</u>	<u>Q</u>	<u>DET. LIMIT</u>
Total as Trichlorophenol	ND	-	2000

QUALIFIERS: C = COMMENT ND = NOT DETECTED
 J = ESTIMATED VALUE B = ALSO PRESENT IN BLANK
 L = PRESENT BELOW STATED DETECTION LIMIT

TEST CODE :SPNPHL1

JOB NUMBER r9100.204

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UH-6000 NASP PHASE I GROUPS A-E

RESULTS IN WET WEIGHT

TEST NAME : PNC PHENOL - LC

UNITS : UG/KG

SAMPLE ID LAB : EE-91-01891

MATRIX : SOLID

SAMPLE ID CLIENT: P02-SD011A

<u>PARAMETER</u>	<u>RESULTS</u>	<u>Q</u>	<u>DET. LIMIT</u>
Total as Trichlorophenol	ND	-	2000

QUALIFIERS: C = COMMENT ND = NOT DETECTED
J = ESTIMATED VALUE B = ALSO PRESENT IN BLANK
L = PRESENT BELOW STATED DETECTION LIMIT

0000448

TEST CODE : SPNPHL1

JOB NUMBER : 9100.204

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UH-6000 NASP PEASE I GROUPS A-E

RESULTS IN WET WEIGHT

TEST NAME : PNC PHENOL - LC

UNITS : UG/KG

SAMPLE ID LAB : EE-91-01892

MATRIX : SOLID

SAMPLE ID CLIENT: P02-SD012A

<u>PARAMETER</u>	<u>RESULTS</u>	<u>Q</u>	<u>DET. LIMIT</u>
Total as Trichlorophenol	ND	-	2000

QUALIFIERS: C = COMMENT ND = NOT DETECTED
 J = ESTIMATED VALUE B = ALSO PRESENT IN BLANK
 L = PRESENT BELOW STATED DETECTION LIMIT

TEST CODE S ———

JOB NUMBER :9100.204

Bcology and Environment, Inc.
Analytical Services Center

CLIENT : UH-6000 NASP PHASE I GROUPS A-B

RESULTS IN WET WEI ———

TEST NAME : PNC PHENOL - LC

UNITS : UG/KG

SAMPLE ID LAB : EE-91-01893

MATRIX : SOLID

SAMPLE ID CLIENT: P02-SD013A

<u>PARAMETER</u>	<u>RESULTS</u>	<u>Q</u>	<u>DET. LIMIT</u>
Total as Trichlorophenol	ND	-	2000

QUALIFIERS: C = COMMENT

ND = NOT DETECTED

J = ESTIMATED VALUE

B = ALSO PRESENT IN BLANK

L = PRESENT BELOW STATED DETECTION LIMIT

0000449

TEST CODE :SPNPHL1

JOB NUMBER :9100.204

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UH-6000 NASP PHASE I GROUPS A-E

RESULTS IN WET WEIGHT

TEST NAME : PNC PHENOL - LC

UNITS : UG/KG

SAMPLE ID LAB : EE-91-01894

MATRIX : SOLID

SAMPLE ID CLIENT: P02-SD014A

<u>PARAMETER</u>	<u>RESULTS</u>	<u>Q</u>	<u>DET. LIMIT</u>
Total as Trichlorophenol	ND	-	2000

QUALIFIERS: C = COMMENT ND = NOT DETECTED
 J = ESTIMATED VALUE B = ALSO PRESENT IN BLANK
 L = PRESENT BELOW STATED DETECTION LIMIT

TEST CODE :SPNPHL1

JOB NUMBER :9100.204

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UH-6000 NASP PHASE I GROUPS A-E

RESULTS IN WET WEIGHT

TEST NAME : PNC PHENOL - LC

UNITS : UG/KG

SAMPLE ID LAB : EE-91-01895

MATRIX : SOLID

SAMPLE ID CLIENT: P02-SD015A

<u>PARAMETER</u>	<u>RESULTS</u>	<u>Q</u>	<u>DET. LIMIT</u>
Total as Trichlorophenol	ND	-	2000

QUALIFIERS: C = COMMENT ND = NOT DETECTED
 J = ESTIMATED VALUE B = ALSO PRESENT IN BLANK
 L = PRESENT BELOW STATED DETECTION LIMIT

0000450

TEST CODE :SPNPHL1

JOB NUMBER :9100.204

Biology and Environment, Inc.
Analytical Services Center

CLIENT : UH-6000 NASP PEASE I GROUPS A-E

RESULTS IN WET WEIGHT

TEST NAME : PNC PHENOL - LC

UNITS : UG/KG

SAMPLE ID LAB : EE-91-01896

MATRIX : SOLID

SAMPLE ID CLIENT: P02-SD016A

PARAMETER	RESULTS	Q	DET. LIMIT
-----	-----	-	-----
Total as Trichlorophenol	ND		2000

QUALIFIERS: C = COMMENT ND = NOT DETECTED
 J = ESTIMATED VALUE B = ALSO PRESENT IN BLANK
 L = PRESENT BELOW STATED DETECTION LIMIT

TEST CODE :SPNPHL1

JOB NUMBER :9100.204

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UH-6000 NASP PHASE I GROUPS A-E

RESULTS IN WET WEIGHT

TEST NAME : PNC PHENOL - LC

UNITS : UG/KG

SAMPLE ID LAB : METHOD BLANK

MATRIX : SOLID

<u>PARAMETER</u>	<u>RESULTS</u>	<u>Q</u>	<u>DET. LIMIT</u>
Total as Trichlorophenol	ND	-	2000

QUALIFIERS: C = COMMENT ND = NOT DETECTED
 J = ESTIMATED VALUE B = ALSO PRESENT IN BLANK
 L = PRESENT BELOW STATED DETECTION LIMIT

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QUALITY ASSURANCE PROTOCOL REVIEW

Job No.: 9100-215 Date: 2/22/91
Report Title: _____
Client: Passaic

Laboratory Data Review	Supervisor	Date
<u>Metals</u>	<u>RM</u>	<u>2-22-91</u>
<u>Gen. Chem.</u>	<u>[Signature]</u>	<u>2-22-91</u>
<u>GC</u>	<u>[Signature]</u>	<u>2-22-91</u>
<u>GC/MS</u>	_____	_____
<u>Micro, Asbestos</u>	_____	_____
<u>Other</u>	_____	_____

	Signature	Date
Report Written by:	<u>[Signature]</u>	<u>2/22/91</u>
1st Draft Reviewed by: <u>circulated</u>	<u>[Signature]</u>	<u>2/22/91</u>
2nd Draft Reviewed by: (If needed)	_____	_____
Final Review by Author:	<u>[Signature]</u>	<u>2/25/91</u>
ASC Manager:	<u>[Signature]</u>	<u>2-25-91</u>
QA Officer:	_____	_____
Corp. Project Manager: <u>Burkdale Review.</u> (Internal Job) <u>sign return to ASC</u>	_____	_____
All QA Protocol Review Forms Signed and in File (to be signed by report writer)	_____	_____
<u>1</u> Copies of Report Sent to <u>Client</u>	<u>[Signature]</u>	<u>2/25/91</u>
<u>1</u> Invoices Sent to Accounting	<u>[Signature]</u>	<u>2/25/91</u>

Comments/Notes: _____

Copy Distribution: White - Report to Project File; Canary - Project Manager; 407064
Pink - Project File.

MEMORANDUM

TO: John Barksdale
FROM: Gary Hahn *G. Hahn*
DATE: February 25, 1991
SUBJECT: UH-6000 Pensacola Report
REF: 9100.215
CC: Lab File

Attached is the laboratory report of the analysis conducted on thirteen samples received at the Analytical Services Center on January 31, 1991. Analysis was performed according to the screening procedures set forth in "Generic Quality Assurance Project Plan, Contamination Assessments and Remedial Activities, Naval Air Station Pensacola, Pensacola, Florida," July 1990.

All samples on which this report is based will be retained by B 6 B for a period of 30 days from the date of this report, unless otherwise instructed by the client. If additional storage of samples is requested by the client, a storage fee of \$1.00 per sample container per month will be charged for each sample, with such charges accruing until destruction of the samples is authorized by the client.

GH: tu
enclosure

0000452

Package 1160

Job# 7100-215
Start Date 1949-1961

Phase I N screening

Ecology and environment, inc.

300 PLEASANTVIEW DRIVE, LANCASTER, NEW YORK 14086, TEL. 716/684-8888
International Specialties in the Environment

CHAIN-OF-CUSTODY RECORD

Project No.: UH6030		Project Name: Site 2 (Group C) sediment sampling			Project Manager: Doug Heatwole		REMARKS									
Samples: (Signature) Michele Cleland		Field Team Leader: Michele Cleland			John Bartokak							<i>Michele Cleland (Signature)</i> <i>John Bartokak (Signature)</i> <i>DPH, State, Pennsylvania Dept. of Health (copy of) TAP-13 (4/18/91)</i>				
Samples: (Signature) Douglas W. Heatwole																
STATION NUMBER	DATE	TIME	SAMPLE TYPE			SAMPLE INFORMATION	STATION LOCATION	NUMBER OF CONTAINERS								
			COMB	GRAB	AIR											
EXPECTED COMPOUNDS (Concentration)*																
001	1/24/91	0925	X			low metals/organics	Station No. 1	3	2	1						
002	1/24/91	0925	X			"	Station No. 2	3	2	1						
003	1/24/91	0925	X			"	Station No. 3	3	2	1						
004	1/24/91	0946	X			"	Station No. 4	3	2	1						
017	1/24/91	1020	X			"	Station No. 17	3	2	1						
018	1/24/91	1045	X			"	Station No. 18	3	2	1						
019	1/24/91	11:10	X			"	Station No. 19	3	2	1						
020	1/24/91	11:25	X			"	Station No. 20	3	2	1						
021	1/24/91	13:55	X			"	Station No. 21	3	2	1						
022	1/24/91	14:20	X			"	Station No. 22	3	2	1						
023	1/24/91	14:40	X			"	Station No. 23	3	2	1						
024	1/24/91	14:55	X			"	Station No. 24	3	2	1						
025	1/24/91	1520	X			"	Duplicate	3	2	1						
Relinquished By: (Signature) Michele Cleland		Date/Time: 1/30/91 17:05		Received By: (Signature) Fed Ex		Relinquished By: (Signature)		Date/Time:		Received By: (Signature)		Ship Via: Federal Express				
Relinquished By: (Signature)		Date/Time:		Received By: (Signature)		Relinquished By: (Signature)		Date/Time:		Received By: (Signature)		BL/Airbill Number: 9548745846				
Relinquished By: (Signature) Fed Ex		Date/Time: 1-31-91		Received For Laboratory By: (Signature) Brian Howard		Relinquished By: (Signature)		Date/Time:		Received For Laboratory By: (Signature)		Date: 1/30/91				

Distribution: Original Accompanies Shipment; Copy to Cook County Field Office
*See CONCENTRATION RANGE on back of form.

Ecology and Environment, Inc.
SAMPLE TRACKING REPORT

LAB SAMPLE ID	CLIENT SAMPLE ID	TEST CODE	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZ
1949.01	P02-SD001A	SPNPRG1	01/30/91		02/05/
1949.02	P02-SD001A	SPNTPH1	01/30/91		02/07/
1949.03	P02-SD001A	SPNMET1	01/30/91		02/01/
		SPNP&P1	01/30/91		02/05/
		SPNPAH1	01/30/91		02/05/
		SPNPPL1	01/30/91		02/16/
1950.01	P02-SD002A	SPNPRG1	01/30/91		02/05/
1950.02	P02-SD002A	SPNTPH1	01/30/91		02/07/
1950.03	P02-SD002A	SPNMET1	01/30/91		02/01/
		SPNP&P1	01/30/91		02/05/
		SPNPAH1	01/30/91		02/05/
		SPNPPL1	01/30/91		02/16/
1951.01	P02-SD003A	SPNPRG1	01/30/91		02/05/
1951.02	P02-SD003A	SPNTPH1	01/30/91		02/07/
1951.03	P02-SD003A	SPNMET1	01/30/91		02/01/
		SPNP&P1	01/30/91		02/05/
		SPNPAH1	01/30/91		02/05/
		SPNPPL1	01/30/91		02/16/
1952.01	P02-SD004A	SPNPRG1	01/30/91		02/05/
1952.02	P02-SD004A	SPNTPH1	01/30/91		02/07/
1952.03	P02-SD004A	SPNMET1	01/30/91		02/01/
		SPNP&P1	01/30/91		02/09
		SPNPAH1	01/30/91		02/05/
		SPNPPL1	01/30/91		02/16/
1953.01	P02-SD017A	SPNPRG1	01/30/91		02/05/
1953.02	P02-SD017A	SPNTPH1	01/30/91		02/07/
1953.03	P02-SD017A	SPNMET1	01/30/91		02/01/
		SPNP&P1	01/30/91		02/05/
		SPNPAH1	01/30/91		02/05/
		SPNPPL1	01/30/91		02/16/
1954.01	P02-SD018A	SPNPRG1	01/30/91		02/05/
1954.02	P02-SD018A	SPNTPH1	01/30/91		02/07/
1954.03	P02-SD018A	SPNMET1	01/30/91		02/01/
		SPNP&P1	01/30/91		02/09
		SPNPAH1	01/30/91		02/05/
		SPNPPL1	01/30/91		02/16/
1955.01	P02-SD019A	SPNPRG1	01/30/91		02/05/
1955.02	P02-SD019A	SPNTPH1	01/30/91		02/07/
1955.03	P02-SD019A	SPNMET1	01/30/91		02/01/
		SPNP&P1	01/30/91		02/05/
		SPNPAH1	01/30/91		02/05/
		SPNPPL1	01/30/91		02/16/
1956.01	P02-SD020A	SPNPRG1	01/30/91		02/09
1956.02	P02-SD020A	SPNTPH1	01/30/91		02/07/
1956.03	P02-SD020A	SPNMET1	01/30/91		02/01/
		SPNP&P1	01/30/91		02/05/
		SPNPAH1	01/30/91		02/05/

Ecology and Environment, Inc.
SAMPLE TRACKING REPORT

LAB SAMPLE ID	CLIENT SAMPLE ID	TEST CODE	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZ
-----	-----	-----	-----	-----	-----
1956.03	P02-SD020A	SPNPHL1	01/30/91		02/17/
1957.01	P02-SD021A	SPNPRG1	01/30/91		02/05/
1957.02	P02-SD021A	SPNTPH1	01/30/91		02/07/
1957.03	P02-SD021A	SPNMET1	01/30/91		02/01/
		SPNP&P1	01/30/91		02/05/
		SPNPAH1	01/30/91		02/05/
		SPNPHL1	01/30/91		02/17/
1958.01	P02-SD022A	SPNPRG1	01/30/91		02/05/
1958.02	P02-SD022A	SPNTPH1	01/30/91		02/07/
1958.03	P02-SD022A	SPNMET1	01/30/91		02/01/
		SPNP&P1	01/30/91		02/05/
		SPNPAH1	01/30/91		02/05/
		SPNPHL1	01/30/91		02/17/
1959.01	P02-SD023A	SPNPRG1	01/30/91		02/05/
1959.02	P02-SD023A	SPNTPH1	01/30/91		02/07/
1959.03	P02-SD023A	SPNMET1	01/30/91		02/01/
		SPNP&P1	01/30/91		02/05/
		SPNPAH1	01/30/91		02/05/
		SPNPHL1	01/30/91		02/17/
1960.01	P02-SD024A	SPNPRG1	01/30/91		02/05/
1960.02	P02-SD024A	SPNTPH1	01/30/91		02/07/
1960.03	P02-SD024A	SPNMET1	01/30/91		02/01/
		SPNP&P1	01/30/91		02/05/
		SPNPAH1	01/30/91		02/05/
		SPNPHL1	01/30/91		02/17/
1961.01	P02-SD025A	SPNPRG1	01/30/91		02/05/
1961.02	P02-SD025A	SPNTPH1	01/30/91		02/07/
1961.03	P02-SD025A	SPNMET1	01/30/91		02/01/
		SPNP&P1	01/30/91		02/05/
		SPNPAH1	01/30/91		02/05/
		SPNPHL1	01/30/91		02/17/

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UH-6000 NASP PHASE I GROUPS A-E
TEST NAME : PNC TRPH UNITS : MG/KG
PARAMETER : TRPH

<u>SAMPLE ID</u>	<u>RESULTS</u>	<u>Q</u>	<u>DET. LIMIT</u>
EE-91-01949 P02-SD001A	ND		5.0
EE-91-01950 P02-SD002A	ND		5.0
BE-9141951 P02-SD003A	5.7		5.0
EE-91-01952 P02-SD004A	13		5.0
EE-91-01953 P02-SD017A	11		5.0
EE-91-01954 P02-SD018A	6.3		5.0
EE-91-01955 P02-SD019A	6.2		9.0
EE-91-01956 P02-SD020A	6.7		5.0
EE-91-01957 P02-SD021A	6.1		5.0
EE-91-01958 P02-SD022A	ND		5.0
EE-91-01959 P02-SD023A	ND		5.0
EE-91-01960 P02-SD024A	ND		5.0
EE-91-01961 P02-SD025A	14		5.0

QUALIFIERS: C = COMMENT ND = NOT DETECTED
J = ESTIMATED VALUE B = ALSO PRESENT IN BLANK
L = PRESENT BELOW STATED DETECTION LIMIT
NA = NOT APPLICABLE

QUALITY CONTROL FOR PRECISION
RESULTS OF ANALYSIS OF REPLICATE
ANALYSES OF SOIL SAMPLES

9100.215

(mg/kg)

Parameter	E & E Laboratory No. 91- 01951	Original Analysis	Replicate Analysis	Relative Percent Difference (RPD)
T. Petroleum Hydrocarbons		5.7	ND	--

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UH-6000 NASP PHASE I GROUPS A-E

RESULTS IN WET WEIGHT

SAMPLE ID LAB : EE-91-01949

MATRIX: SOLID

SAMPLE ID CLIENT: P02-SD001A

<u>PARAMETER</u>	<u>RESULTS</u>	<u>Q</u>	<u>DET. LIMIT</u>	<u>UNITS</u>
Arsenic	ND		6.9	HG/KG
Chromium	ND		1.0	HG/KG
Zinc	ND		2.0	HG/KG
Lead	ND		4.0	HG/KG
Cadmium	ND		0.50	HG/KG
Nickel	ND		4.0	HG/KG
Copper	ND		25	HG/KG
Silver	ND		1.0	HG/KG

QUALIFIERS: C = COMMENT ND = NOT DETECTED
 J = ESTIMATED VALUE B = ALSO PRESENT IN BLANK
 L = PRESENT BELOW STATED DETECTION LIMIT

0000455

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UH-6000 NASP PHASE I GROUPS A-E

RESULTS IN VET WEIGHT

SAMPLE ID LAB : EE-91-01950

MATRIX: SOLID

SAMPLE ID CLIENT: P02-SD002A

<u>PARAMETER</u>	<u>RESULTS</u>	<u>Q</u>	<u>DET. LIMIT</u>	<u>UNITS</u>
Arsenic	ID		6.9	MG/KG
Chromium	1.1		1.0	MG/KG
Zinc	ND		2.0	MG/KG
Lead	ND		4.0	MG/KG
Cadmium	ND		0.50	MG/KG
Nickel	ND		4.0	MG/KG
Copper	ND		2.5	MG/KG
Silver	ND		1.0	MG/KG

QUALIFIERS: C = COMMENT ND = NOT DETECTED
 J = ESTIMATED VALUE B = ALSO PRESENT IN BLANK
 L = PRESENT BELOW STATED DETECTION LIMIT

METALS SECTION

JOB NUMBER :9100.215

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UH-6000 NASP PHASE I GROUPS A-E

RESULTS IN WET WEIGHT

SAMPLE ID LAB : BE-9141951

MATRIX: SOLID

SAMPLE ID CLIENT: P02-SD003A

<u>PARAMETER</u>	<u>RESULTS</u>	<u>Q</u>	<u>DET. LIMIT</u>	<u>UNITS</u>
Arsenic	ND		6.9	MG/KG
Chromium	1.1		1.0	MG/KG
Zinc	2.3		2.0	MG/KG
Lead	ND		4.0	MG/KG
Cadmium	ND		0.50	MG/KG
Nickel	ND		4.0	MG/KG
Copper	ND		2.5	MG/KG
Silver	ND		1.0	MG/KG

QUALIFIERS: C = COMMENT ND = NOT DETECTED
J = ESTIMATED VALUE B = ALSO PRESENT IN BLANK
L = PRESENT BELOW STATED DETECTION LIMIT

0000456

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UR-6000 NASP PHASE I GROUPS A-E

RESULTS IN WET WEIGHT

SAMPLE ID LAB : EE-91-01952

MATRIX: SOLID

SAMPLE ID CLIENT: P02-SD004A

<u>PARAMETER</u>	<u>RESULTS</u>	<u>Q</u>	<u>DET. LIMIT</u>	<u>UNITS</u>
-	-	-	-	-
Arsenic	ND		6.9	MG/KG
Chromium	1.3		1.0	MG/KG
Zinc	2.4		2.0	MG/KG
Lead	ND		4.0	MG/KG
Cadmium	ND		0.50	MG/KG
Nickel	ND		4.0	MG/KG
Copper	ND		2.5	MG/KG
Silver	ND		1.0	MG/KG

 QUALIFIERS: C = COMMENT ND = NOT DETECTED
 J = ESTIMATED VALUE B = ALSO PRESENT IN BLANK
 L = PRESENT BELOW STATED DETECTION LIMIT

METALS SECTION

JOB NUMBER :9100.215

**Ecology and Environment, Inc.
Analytical Services Center**

CLIENT : UH-6000 NASP PHASE I GROUPS A-E

RESULTS IN WET WEIGHT

SAMPLE ID LAB : EE-91-01953

MATRIX: SOLID

SAMPLE ID CLIENT: P02-SD017A

<u>PARAMETER</u>	<u>RESULTS</u>	<u>Q</u>	<u>DET. LIMIT</u>	<u>UNITS</u>
Arsenic	ND		6.9	MG/KG
Chromium	3.4		1.0	MG/KG
Zinc	6.0		2.0	MG/KG
Lead	ND		4.0	MG/KG
Cadmium	ND		0.50	MG/KG
Nickel	ND		4.0	
Copper	ND		2.5	MG/KG
Silver	ND		1.0	MG/KG

QUALIFIERS: C = COMMENT ND = NOT DETECTED
J = ESTIMATED VALUE B = ALSO PRESENT IN BLANK
L = PRESENT BELOW STATED DETECTION LIMIT

0000457

Ecology and Environment, Inc.
 Analytical Services Center

CLIENT : UH-6000 NASP PEASE I GROUPS A-E

RESULTS IN WET WEIGHT

SAMPLE ID LAB : EB-91-01954

MATRIX: SOLID

SAMPLE ID CLIENT: P02-SD018A

PARAMETER	RESULTS	Q	DET. LIMIT	UNITS
Arsenic	III		6.9	MG/KG
Chromium	1.3		1.0	MG/KG
Zinc	9.0		2.0	MG/KG
Lead	14		4.0	MG/KG
Cadmium	ND		0.50	MG/KG
Nickel	ND		4.0	MG/KG
Copper	ND		2.5	MG/KG
Silver	ND		1.0	MG/KG

QUALIFIERS: C = COMMENT ND = NOT DETECTED
J = ESTIMATED VALUE B = ALSO PRESENT IN BLANK
L = PRESENT BELOW STATED DETECTION LIMIT

METALS SECTION

JOB NUMBER :9100.215

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UH-6000 NASP PHASE I GROUPS A-E

RESULTS IN WET WEIGHT

SAMPLE ID LAB : EE-91-01955

MATRIX: SOLID

SAMPLE ID CLIENT: P02-SD019A

<u>PARAMETER</u>	<u>RESULTS</u>	<u>Q</u>	<u>DET. LIMIT</u>	<u>UNITS</u>
Arsenic	ND	-	6.9	HG/KG
Chromium	2.3		1.0	HG/KG
Zinc	5.0		2.0	HG/KG
Lead	ND		4.0	HG/KG
Cadmium	ND		0.50	HG/KG
Nickel	ND		4.0	HG/KG
Copper	ND		2.5	HG/KG
Silver	ND		1.0	HG/KG

QUALIFIERS: C = COMMENT

ND = NOT DETECTED

J = ESTIMATED VALUE

B = ALSO PRESENT IN BLANK

L = PRESENT BELOW STATED DETECTION LIMIT

0000458

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UH-6000 NASP PHASE I GROUPS A-E

RESULTS IN WET WEIGHT

SAMPLE ID LAB : EE-91-01956

MATRIX: SOLID

SAMPLE ID CLIENT: P02-SD020A

<u>PARAMETER</u>	<u>RESULTS</u>	<u>Q</u>	<u>DET. LIMIT</u>	<u>UNITS</u>
Arsenic	ND		6.9	MG/KG
Chromium	14		1.0	MG/KG
Zinc	2.5		2.0	MG/KG
Lead	ND		4.0	MG/KG
Cadmium	ND		0.50	MG/KG
Nickel	ND		4.0	MG/KG
Copper	ND		2.5	MG/KG
Silver	ND		1.0	MG/KG

QUALIFIERS: C = COMMENT ND = NOT DETECTED
 J = ESTIMATED VALUE B = ALSO PRESENT IN BLANK
 L = PRESENT BELOW STATED DETECTION LIMIT

Bcology and Environment, Inc.
Analytical Services Center

CLIENT : UH-6000 NASP PHASE I GROUPS A-B

RESULTS IN WET WEIGHT

SAMPLE ID LAB : EE-91-01957

MATRIX: SOLID

SAMPLE ID CLIENT: P02-SD021A

<u>PARAMETER</u>	<u>RESULTS</u>	<u>Q</u>	<u>DET. LIMIT</u>	<u>UNITS</u>
Arsenic	ND		6.9	MG/KG
Chromium	1.4		1.0	MG/KG
Zinc	3.9		2.0	MG/KG
Lead	ND		4.0	MG/KG
Cadmium	ND		0.50	MG/KG
Nickel	ND		4.0	MG/KG
Copper	19		2.5	MG/KG
Silver	ND		1.0	MG/KG

QUALIFIERS: C = COMMENT ND = NOT DETECTED
 J = ESTIMATED VALUE B = ALSO PRESENT IN BLANK
 L = PRESENT BELOW STATED DETECTION LIMIT

0000459

Ecology and Environment, Inc.
Analytical Services Center ,

CLIENT : UH-6000 NASP PBASE I GROUPS A-E

RESULTS IN VET WEIGHT

SAMPLE ID LAB : EE-91-01958

MATRIX: SOLID

SAMPLE ID CLIENT: P02-SD022A

PARAMETER	RESULTS	Q	DET. LIMIT	UNITS
-----	-----	-	-----	-----
Arsenic	ND		6.9	MG/KG
Chromium	2.0		1.0	MG/KG
Zinc	12		2.0	MG/KG
Lead	ND		4.0	MG/KG
Cadmium	ND		0.50	MG/KG
Nickel	ND		4.0	MG/KG
Copper	ND		2.5	MG/KG
Silver	ND		1.0	MG/KG

QUALIFIERS: C = COMMENT ID = NOT DETECTED
 J = ESTIMATED VALUE B = ALSO PRESENT IN BLANK
 L = PRESENT BELOW STATED DETECTION LIMIT

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UH-6000 NASP PHASE I CROUPS A-E

RESULTS IN WET WEIGHT

SAMPLE ID LAB : EE-91-01959

MATRIX: SOLID

SAMPLE ID CLIENT: P02-SD023A

<u>PARAMETER</u>	<u>RESULTS</u>	<u>Q</u>	<u>DET. LIMIT</u>	<u>UNITS</u>
Arsenic	ND		6.9	MG/KG
Chromium	1.4		1.0	MG/KG
Zinc	2.6		2.0	MG/KG
Lead	ND		4.0	MG/KG
Cadmium	ND		0.50	MG/KG
Nickel	ND		4.0	MG/KG
Copper	ND		2.5	MG/KG
Silver	ND		1.0	MG/KG

QUALIFIERS: C = COMMENT ND = NOT DETECTED
 J = ESTIMATED VALUE B = ALSO PRESENT IN BLANK
 L = PRESENT BELOW STATED DETECTION LIMIT

0000460

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : **UH-6000** NASP PEASE I GROUPS A-E

RESULTS IN-VET WEIGHT

SAMPLE ID LAB : **EE-91-01960**

MATRIX: SOLID

SAMPLE ID CLIENT: P02-SD024A

<u>PARAMETER</u>	<u>RESULTS</u>	<u>Q</u>	<u>DET. LIMIT</u>	<u>UNITS</u>
Arsenic	ND		6.9	MG/KG
Chromium	2.2		1.0	MG/KG
Zinc	3.8		2.0	MG/KG
Lead	ND		4.0	MG/KG
Cadmium	ND		0.50	MG/KG
Nickel	ND		4.0	MG/KG
Copper	ND		2.5	MG/KG
Silver	ND		1.0	MG/KG

QUALIFIERS: C = COMMENT ND = NOT DETECTED
 J = ESTIMATED VALUE B = ALSO PRESENT IN BLANK
 L = PRESENT BELOW STATED DETECTION LIMIT

METALS SECTION

JOB NUMBER :9100.215

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UH-6000 NASP PHASE I GROUPS A-B

RESULTS IN WET WEIGHT

SAMPLE ID LAB : EE-91-01961

MATRIX: SOLID

SAMPLE ID CLIENT: P02-SD025A

<u>PARAMETER</u>	<u>RESULTS</u>	<u>Q</u>	<u>DET. LIMIT</u>	<u>UNITS</u>
Arsenic	ND	-	6.9	MG/KG
Chromium	3.5		1.0	MG/KG
Zinc	8.0		2.0	MG/KG
Lead	ND		4.0	MG/KG
Cadmium	ND		0.50	MG/KG
Nickel	ND		4.0	MG/KG
Copper	ND		2.5	MG/KG
Silver	ND		1.0	MG/KG

QUALIFIERS: C = COMMENT

ND = NOT DETECTED

J = ESTIMATED VALUE B = ALSO PRESENT IN BLANK

L = PRESENT BELOW STATED DETECTION LIMIT

0000461

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UH-6000 NASP PRASE I GROUPS A-E

RESULTS IN WET WEIGHT

SAMPLE ID LAB : METHOD BLANK

MATRIX: SOLID

<u>PARAMETER</u>	<u>RESULTS</u>	<u>Q</u>	<u>DET. LIMIT</u>	<u>UNITS</u>
Arsenic	ND		6.9	MG/KG
Chromium	ND		1.0	MG/KG
Zinc	ND		2.0	MG/KG
Lead	ND		4.0	MG/KG
Cadmium	ND		0.50	MG/KG
Nickel	ND		4.0	MG/KG
Copper	ND		2.5	MG/KG
Silver	ND		1.0	MG/KG

QUALIFIERS: C = COMMENT

ND = NOT DETECTED

J = ESTIMATED VALUE

B = ALSO PRESENT IN BLANK

L = PRESENT BELOW STATED DETECTION LIMIT

TEST CODE :SPNP&P1

JOB NUMBER :9100.215

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UH-6000 NASP PHASE I GROUPS A-B

RESULTS IN WET WEIGHT

TEST NAME : PNC PEST./PCB
SAMPLE ID LAB : EE-91-01949
SAMPLE ID CLIENT: P02-SD001A

UNITS : UG/KG
MATRIX : SOLID

<u>PARAMETER</u>	<u>RESULTS</u>	<u>Q</u>	<u>DET. LIMIT</u>
Heptachlor	ND		1000
Lindane	ND		1000
Aldrin	ND		1000
4,4 - DDT	ND		1000
Dieldrin / 4,4 - DDE	ND		1000
Endrin	ND		1000
Chlordane	ND		1000
Total PCBS	ND		5000

QUALIFIERS: C = COMMENT ND = NOT DETECTED
J = ESTIMATED VALUE B = ALSO PRESENT IN BLANK
L = PRESENT BELOW STATED DETECTION LIMIT

0000462

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UH-6000 NASP PHASE I GROUPS A-E

RESULTS IN WET WEIGHT

TEST NAME : PNC PEST./PCB
SAMPLE ID LAB : EE-91-01950
SAMPLE ID CLIENT: P02-SD002A

UNITS : UG/KG
MATRIX : SOLID

<u>PARAMETER</u>	<u>RESULTS</u>	<u>Q</u>	<u>DET. LIMIT</u>
Heptachlor	ND		1000
Lindane	ND		1000
Aldrin	ND		1000
4,4 - DDT	ND		1000
Dieldrin / 4,4 - DDE	ND		1000
Endrin	ND		1000
Chlordane	ND		1000
Total PCBS	ND		5000

QUALIFIERS: C = COMMENT ND = NOT DETECTED
 J = ESTIMATED VALUE B = ALSO PRESENT IN BLANK
 L = PRESENT BELOW STATED DETECTION LIMIT

TEST CODE :SPNP&P1

JOB NUMBER :9100.215

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UH-6000 NASP PEASE I GROUPS A-E

RESULTS IN VET WEIGHT

TEST NAME : PNC PEST./PCB
SAMPLE ID LAB : EE-91-01951
SAMPLE ID CLIENT: P02-SD003A

UNITS : UG/KG
MATRIX : SOLID

<u>PARAMETER</u>	<u>RESULTS</u>	<u>Q</u>	<u>DET. LIMIT</u>
Heptachlor	ND	-	1000
Lindane	ND		1000
Aldrin	ND		1000
4,4 - DDT	ND		1000
Dieldrin / 4,4 - DDE	ND		1000
Endrin	ND		1000
Chlordane	ND		1000
Total PCBs	ND		5000

QUALIFIERS: C = COMMENT ND = NOT DETECTED
J = ESTIMATED VALUE B = ALSO PRESENT IN BLANK
L = PRESENT BELOW STATED DETECTION LIMIT

0000463

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UH-6000 NASP PEASE I GROUPS A-E

RESULTS IN VET WEIGHT

TEST NAME : PNC PEST./PCB

UNITS : UG/KG

SAMPLE ID LAB : EE-91-01952

MATRIX : SOLID

SAMPLE ID CLIENT: P02-SD004A

PARAMETER	RESULTS	Q	DET. LIMIT
Heptachlor	ND		1000
Lindane	ND		1000
Aldrin	ND		1000
4,4 - DDT	ND		1000
Dieldrin / 4,4 - DDE	ND		1000
Endrin	ND		1000
Chlordane	ND		1000
Total PCBS	ND		5000

QUALIFIERS: C = COMMENT ND = NOT DETECTED
 J = ESTIMATED VALUE B = ALSO PRESENT IN BLANK
 L = PRESENT BELOW STATED DETECTION LIMIT

TEST CODE :SPNP&P1

JOB NUMBER :9100.215

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UH-6000 NASP PHASE I GROUPS A-B

RESULTS IN WET WEIGHT

TEST NAME : PNC PEST./PCB

UNITS : UG/KG

SAMPLE ID LAB : EE-91-01953

MATRIX : SOLID

SAMPLE ID CLIENT: PO2-SD017A

<u>PARAMETER</u>	<u>RESULTS</u>	<u>Q</u>	<u>DET. LIMIT</u>
Heptachlor	ND		1000
Lindane	ND		1000
Aldrin	ND		1000
4,4 - DDT	ND		1000
Dieldrin / 4,4 - DDE	ND		1000
Endrin	ND		1000
Chlordane	ND		1000
Total PCBS	ND		5000

QUALIFIERS: C = COMMENT ND = NOT DETECTED
 J = ESTIMATED VALUE B = ALSO PRESENT IN BLANK
 L = PRESENT BELOW STATED DETECTION LIMIT

0090464

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UH-6000 NASP PHASE I GROUPS A-E

RESULTS IN WET WEIGHT

TEST METHOD : PNC PEST./PCB

SAMPLE ID LAB : BE-91-01954

SAMPLE ID CLIENT: P02-SD018A

UNITS : UG/KG

MATRIX : SOLID

PARAMETER	RESULTS	Q	DET. LIMIT
Heptachlor	ND		1000
Lindane	ND		1000
Aldrin	ND		1000
4,4 - DDT	ND		1000
Dieldrin / 4,4 - DDE	ND		1000
Endrin	ND		1000
Chlordane	ND		1000
Total PCBs	ND		5000

QUALIFIERS: C = COMMENT ND = NOT DETECTED
 J = ESTIMATED VALUE B = ALSO PRESENT IN BLANK
 L = PRESENT BELOW STATED DETECTION LIMIT

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UR-6000 NASP PHASE I GROUPS A-B

RESULTS IN WET WEIGHT

TEST NAME : PNC PEST./PCB
SAMPLE ID LAB : BE-91-01955
SAMPLE ID CLIENT: P02-SD019A

UNITS : UG/KG
MATRIX : SOLID

<u>PARAMETER</u>	<u>RESULTS</u>	<u>Q</u>	<u>DET. LIMIT</u>
Heptachlor	ND		1000
Lindane	ND		1000
Aldrin	ND		1000
4,4 - DDT	ND		1000
Dieldrin / 4,4 - DDE	ND		1000
Endrin	ND		1000
Chlordane	ND		1000
Total PCBS	ND		5000

QUALIFIERS: C = COMMENT ND = NOT DETECTED
 J = ESTIMATED VALUE B = ALSO PRESENT IN BLANK
 L = PRESENT BELOW STATED DETECTION LIMIT

0000465

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UH-6000 NASP PHASE I GROUPS A-E

RESULTS IN WET WEIGHT

TEST "E" : PNC PEST./PCB

SAMPLE ID LAB : EE-91-01956

SMPLE ID CLIENT: P02-SD020A

UNITS : UG/KG

MATRIX : SOLID

<u>PARAMETER</u>	<u>RESULTS</u>	<u>Q</u>	<u>DET. LIMIT</u>
Reptachlor	ND	-	1000
Lindane	ND		1000
Aldrin	ND		1000
4,4 - DDT	ND		1000
Dieldrin / 4,4 - DDE	ND		1000
Endrin	ND		1000
Chlordane	ND		1000
Total PCBS	ND		5000

QUALIFIERS: C = COMMENT ND = NOT DETECTED
 J = ESTIMATED VALUE B = ALSO PRESENT IN BLANK
 L = PRESENT BELOW STATED DETECTION LIMIT

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UH-6000 NASP PHASE I GROUPS A-E

RESULTS IN WET WEIGHT

TEST NAME : PNC PEST./PCB

UNITS : UG/KG

SAMPLE ID LAB : EE-91-01957

MATRIX : SOLID

SAMPLE ID CLIENT: P02-SD021A

PARAMETER	RESULTS	Q	DET. LIMIT
Heptachlor	ND	-	1000
Lindane	ND	-	1000
Aldrin	ND	-	1000
4,4 - DDT	ND	-	1000
Dieldrin / 4,4 - DDE	ND	-	1000
Endrin	ND	-	1000
Chlordane	ND	-	1000
Total PCBS	ND	-	5000

QUALIFIERS: C = COMMENT ND = NOT DETECTED
 J = ESTIMATED VALUE B = ALSO PRESENT IN BLANK
 L = PRESENT BELOW STATED DETECTION LIMIT

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UH-6000 NASP PHASE I GROUPS A-E

RESULTS IN WET WEIGHT

TEST NAME : PNC PEST./PCB

UNITS : UG/KG

SAMPLE ID LAB : BE-91-01958

MATRIX : SOLID

SAMPLE ID CLIENT: P02-SD022A

PARAMETER	RESULTS	Q	DET. LIMIT
-----	-----	-	-----
Heptachlor	ND		1000
Lindane	ND		1000
Aldrin	ND		1000
4,4 - DDT	ND		1000
Dieldrin / 4,4 - DDE	ND		1000
Endrin	ND		1000
Chlordane	ND		1000
Total PCBS	ND		5000

QUALIFIERS: C = COMMENT IUD = NOT DETECTED
 J = ESTIMATED VALUE B = ALSO PRESENT IN BLANK
 L = PRESENT BELOW STATED DETECTION LIMIT

TEST CODE :SPNP&P1

JOO NUMBER :9100.215

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UH-6000 NASP PHASE I GROUPS A-B

RESULTS IN WET WEIGHT

TEST NAME : PNC PEST./PCB

UNITS : UG/KG

SAMPLE ID LAO : EE-91-01959

MATRIX : SOLID

SAMPLE ID CLIENT: P02-SD023A

<u>PARAMETER</u>	<u>RESULTS</u>	<u>Q</u>	<u>DET. LIMIT</u>
Heptachlor	ND	-	1000
Lindane	ND	-	1000
Aldrin	ND	-	1000
4,4 - DDT	ND	-	1000
Dieldrin / 4,4 - DDE	ND	-	1000
Endrin	ND	-	1000
Chlordane	ND	-	1000
Total PCBS	ND	-	5000

QUALIFIERS: C - COMMENT

ND - NOT DETECTED

J - ESTIMATED VALUE

B - ALSO PRESENT IN BLANK

L - PRESENT BELOW STATED DETECTION LIMIT

0000467

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UR-6000 NASP PEASE I GROUPS A-E
RESULTS IN WET WEIGHT

TEST NAME : PNC PEST./PCB UNITS : UG/KG
SAMPLE ID LAB : EE-91-01960 MATRIX : SOLID
SAMPLE ID CLIENT: P02-SD024A

PARAMETER	RESULTS	Q	DET. LIMIT
-----	-----	-	-----
Heptachlor	ND		1000
Lindane	ND		1000
Aldrin	ND		1000
4,4 - DDT	ND		1000
Dieldrin / 4,4 - DDB	ND		1000
Endrin	ND		1000
Chlordane	ND		1000
Total PCBS	ND		5000

 QUALIFIERS: C = COMMENT ND = NOT DETECTED
 J = ESTIMATED VALUE B = ALSO PRESENT IN BLANK
 L = PRESENT BELOW STATED DETECTION LIMIT

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UH-6000 NASP PHASE I GROUPS A-B

RESULTS IN WET WEIGHT

TEST NAME : PNC PEST./PCB
SAMPLE ID LAB : EE-91-01961
SAMPLE ID CLIENT: P02-SD025AUNITS : UG/KG
MATRIX : SOLID

<u>PARAMETER</u>	<u>RESULTS</u>	<u>Q</u>	<u>DET. LIMIT</u>
Heptachlor	ND		1000
Lindane	ND		1000
Aldrin	ND		1000
4,4 - DDT	ND		1000
Dieldrin / 4,4 - DDB	ND		1000
Endrin	ND		1000
Chlordane	ND		1000
Total PCBS	ND		5000

QUALIFIERS: C - COMMENT ND - NOT DETECTED
 J - ESTIMATED VALUE B - ALSO PRESENT IN BLANK
 L - PRESENT BELOW STATED DETECTION LIMIT

0000408

QUALITY CONTROL FOR ACCURACY AND PRECISION:
PERCENT RECOVERY OF SOIL MATRIX SPIKE (MS)
(Sample # 1956)

9100.215

Compound	Original Result	Amount Added	Amount Determined	Percent Recovery
Lindane	ND	400	340	85
Heptachlor	ND	400	340	85
Aldrin	ND	400	330	82
Dieldrin	ND	1000	970	97
Endrin	ND	1000	870	87
4,4 -DDT	ND	1000	720	72

ND: None detected.

TEST CODE :SPNP&P1

JOB NUMBER :9100.215

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UH-6000 NASP PHASE I GROUPS A-E

RESULTS IN WET WEIGHT

TEST NAME : PNC PEST./PCB

UNITS : UG/KG

SAMPLE ID LAB : METHOD BLANK

MATRIX : SOLID

<u>PARAMETER</u>	<u>RESULTS</u>	<u>Q</u>	<u>DET. LIMIT</u>
Heptachlor	ND		1000
Lindane	ND		1000
Aldrin	ND		1000
4,4 - DDT	ND		1000
Dieldrin / 4,4 - DDE	ND		1000
Endrin	ND		1000
Chlordane	ND		1000
Total PCBS	ND		5000

QUALIFIERS: C = COMMENT ND = NOT DETECTED
 J = ESTIMATED VALUE B = ALSO PRESENT IN BLANK
 L = PRESENT BELOW STATED DETECTION LIMIT

0000469

TEST CODE :SPNPAH1

JOB NUMBER :9100.215

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UH-6000 NASP PEASE I GROUPS A-E

RESULTS IN WET WEIGHT

TEST NAME : PNC PAH - LC

SAMPLE ID LAB : EE-91-01949

SAMPLE ID CLIENT: P02-SD001A

UNITS : UG/KG

MATRIX : SOLID

PARAMETER	RESULTS	Q	DET. LIMIT
Total as Benzo-a-pyrene	ND	-	1000

QUALIFIERS: C = COMMENT ND = NOT DETECTED
 J = ESTIHATED VALUE B = ALSO PRESENT IN BLANK
 L = PRESENT BELOW STATED DETECTION LIMIT

TEST CODE :SPNPAH1

JOB '' DER:9100.215

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UH-6000 NASP PHASE I GROUPS A-E

RESULTS IN WET WEIGHT

TEST NAME : PNC PAH - LC
SAMPLE ID LAB : EE-91-01950
SAMPLE ID CLIENT: P02-SD002A

UNITS : UG/KG
MATRIX : SOLID

<u>PARAMETER</u>	<u>RESULTS</u>	<u>Q</u>	<u>DET. LIMIT</u>
Total as Benzo-a-pyrene	ND	-	1000

QUALIFIERS: C = COMMENT ND = NOT DETECTED
J = ESTIMATED VALUE B = ALSO PRESENT IN BLANK
L = PRESENT BELOW STATED DETECTION LIMIT

0000470

TEST CODE : SPNPAH1

JOB NUMBER : 9100.215

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UH-6000 NASP PEASE I GROUPS A-E

RESULTS IN VET WEIGHT

TEST NAME : PNC PAH - LC

UNITS : UG/KG

SAMPLE ID LAB : EE-91-01951

MATRIX : SOLID

SAMPLE ID CLIENT: P02-SD003A

<u>PARAMETER</u>	<u>RESULTS</u>	<u>Q</u>	<u>DET. LIMIT</u>
Total as Benzo-a-pyrcnt	PRESENT, L		1000

QUALIFIERS: C = COMMENT ND = NOT DETECTED
 J = ESTIMATED VALUE B = ALSO PRESENT IN BLANK
 L = PRESENT BELOW STATED DETECTION LIMIT

TEST CODE : SPNPAH1

JOB NUMBER : 9100.215

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UH-6000 NASP PHASE 1 GROUPS A-E

RESULTS IN WET WEIGHT

TEST NAME : PNC PAH - LC

UNITS : UG/KG

SAMPLE ID LAB : EE-91-01952

MATRIX : SOLID

SAMPLE ID CLIENT: P02-SD004A

PARAMETER	RESULTS	Q	DET. LIMIT
-----	-----	-	-----
Total as Benzo-a-pyrene	PRESENT	L	1000

QUALIFIERS: C = COMMENT ND = NOT DETECTED
 J = ESTIMATED VALUE B = ALSO PRESENT IN BLANK
 L = PRESENT BELOW STATED DETECTION LIMIT

0000471

TEST CODE : SPNPAH1

JOB NUMBER : 9100.215

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UH-6000 NASP PHASE I GROUPS A-E

RESULTS IN WET WEIGHT

TEST NAME : PNC-PAE - LC

UNITS : UG/KG

SAMPLE ID LAB : EE-91-01953

MATRIX : SOLID

SAMPLE ID CLIENT: P02-SD017A

PARAMETER	RESULTS	Q	DET. LIMIT
Total as Benzo-a-pyrcnc	1200	-	1000

QUALIFIERS: C = COMMENT ND = NOT DETECTED
 J = ESTIMATED VALUE B = ALSO PRESENT IN BLANK
 L = PRESENT BELOW STATED DETECTION LIMIT

TEST CODE :SPNPAH1

JOB NUMBER :9100.215

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UH-6000 NASP PHASE I GROUPS A-B

RESULTS IN WET WEIGHT

TEST NAME : PNC PAH - LC

UNITS : UG/KG

SAMPLE ID LAB : EE-91-01954

MATRIX : SOLID

SAMPLE ID CLIENT: P02-SD018A

<u>PARAMETER</u>	<u>RESULTS</u>	<u>Q</u>	<u>DET. LIMIT</u>
Total as Benzo-a-pyrene	1400	-	1000

QUALIFIERS: C = COMMENT ND = NOT DETECTED
 J = ESTIMATED VALUE B = ALSO PRESENT IN BLANK
 L = PRESENT BELOW STATED DETECTION LIMIT

0000472

TEST CODE : SPNPAH1

JOB NUMBER : 9100.215

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UH-6000 NASP PHASE I GROUPS A-E

RESULTS IN WET WEIGHT

TEST NAME : PNC PAH - LC

UNITS : UG/KG

SAMPLE ID LAB : EE-91-01955

MATRIX : SOLID

SAMPLE ID CLIENT: P02-SD019A

<u>PARAMETER</u>	<u>RESULTS</u>	<u>Q</u>	<u>DET. LIMIT</u>
Total as Benzo-a-pyrene	1400	-	1000

QUALIFIERS: C = COMMENT ND = NOT DETECTED
 J = ESTIMATED VALUE B = ALSO PRESENT IN BLANK
 L = PRESENT BELOW STATED DETECTION LIMIT

TEST CODE : SPNPAH1

JOB NUMBER : 9100.215

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UH-6000 NASP PHASE I GROUPS A-B

RESULTS IN WET WEIGHT

TEST NAME : PNC PAH - LC

UNITS : UG/KG

SAMPLE ID LAB : EE-91-01956

MATRIX : SOLID

SAMPLE ID CLIENT: P02-SD020A

<u>PARAMETER</u>	<u>RESULTS</u>	<u>Q</u>	<u>DET. LIMIT</u>
Total as Benzo-a-pyrene	PRESENT	L	1000

QUALIFIERS: C = COMMENT ND = NOT DETECTED
 J = ESTIMATED VALUE B = ALSO PRESENT IN BLANK
 L = PRESENT BELOW STATED DETECTION LIMIT

0000473

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UH-6000 NASP PHASE I GROUPS A-E

RESULTS IN WET WEIGHT

TEST NAME : PNC PAE - LC

UNITS : UG/KG

SAMPLE ID LAB : EE-91-01957

MATRIX : SOLID

SAMPLE ID CLIENT: PO2-SDO21A

<u>PARAMETER</u>	<u>RESULTS</u>	<u>Q</u>	<u>DET. LIMIT</u>
Total as Benzo-a-pyrene	2600	-	1000

QUALIFIERS: C = COMMENT ND = NOT DETECTED
 J = ESTIMATED VALUE B = ALSO PRESENT IN BLANK
 L = PRESENT BELOW STATED DETECTION LIMIT

TEST CODE :SPNPAH1

JOB NUMBER :9100.215

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UH-6000 NASP PEASE I GROUPS A-B

RESULTS IN WET WEIGHT

TEST NAME : PNC PAH - LC

UNITS : UG/KG

SAMPLE ID LAB : EE-91-01958

MATRIX : SOLID

SAMPLE ID CLIENT: P02-SD022A

<u>PARAMETER</u>	<u>RESULTS</u>	<u>Q</u>	<u>DET. LIMIT</u>
Total as Benzo-a-pyrene	PRESENT	L	1000

QUALIFIERS: C - COMMENT ND - NOT DETECTED
J - ESTIMATED VALUE B - ALSO PRESENT IN BLANK
L - PRESENT BELOW STATED DETECTION LIMIT

0330474

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UH-6000 NASP PEASE I GROUPS A-E

RESULTS IN WET WEIGHT

TEST NAME : PNC PAH - LC

UNITS : UG/KG

SAMPLE ID LAB : EE-91-01959

MATRIX : SOLID

SAMPLE ID CLIENT: P02-SD023A

<u>PARAMETER</u>	<u>RESULTS</u>	<u>Q</u>	<u>DET. LIHIT</u>
Total as Bcnzo-a-pyrenc	PRESENT	L	1000

QUALIFIERS: C = COMMENT ND = NOT DETECTED
 J = ESTIMATED VALUE B = ALSO PRESENT IN BLANK
 L = PRESENT BELOW STATED DETECTION LIMIT

TEST CODE : SPNPAH1

JOB NUMBER : 9100.215

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UH-6000 NASP PHASE I GROUPS A-E

RESULTS IN-VET WEIGHT

TEST NAME : PNC PAH - LC

UNITS : UG/KG

SAMPLE ID LAB : EE-91-01960

MATRIX : SOLID

SAMPLE ID CLIENT: P02-SD024A

<u>PARAMETER</u>	<u>RESULTS</u>	<u>Q</u>	<u>DET. LIMIT</u>
Total as Benzo-a-pyrene	PRESENT	L	1000

QUALIFIERS: C = COMMENT ND = NOT DETECTED
 J = ESTIMATED VALUE B = ALSO PRESENT IN BLANK
 L = PRESENT BELOW STATED DETECTION LIMIT

0000475

TEST CODE : SPNPAH1

JOB NUMBER : 9100.215

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UH-6000 NASP PEASE I GROUPS A-E

RESULTS IN WET WEIGHT

TEST NAME : PNC PAH - LC

UNITS : UG/KG

SAMPLE ID LAB : EE-91-01961

MATRIX : SOLID

SAMPLE ID CLIENT: P02-SD025A

<u>PARAMETER</u>	<u>RESULTS</u>	<u>Q</u>	<u>DET. LIMIT</u>
Total as Benzo-a-pyrene	ND	-	1000

QUALIFIERS: C = COMMENT ND = NOT DETECTED
 J = ESTIMATED VALUE B = ALSO PRESENT IN BLANK
 L = PRESENT BELOW STATED DETECTION LIMIT

QUALITY CONTROL FOR ACCURACY: PERCENT RECOVERY
FOR SPIKED SOIL SAMPLES

9100.21s

(ug)

Parameter	E & E Laboratory No. 91-	Original Value	Amount Added	Amount Determined	Percent Recovery
Benzo(A)pyrene	1950	ND	50	46	92
	1960	ND	50	54	108
	Blank 1	ND	50	42	84
	Blank 2	ND	50	51	102

0000476

TEST CODE :SPNPAH1

JOB NUMBER :9100.215

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UR-6000 NASP PHASE I GROUPS A-E

RESULTS IN WET WEIGHT

TEST NAME : PNC PAH - LC

UNITS : UG/KG

SAMPLE ID LAB : METHOD BLANK

MATRIX : SOLID

<u>PARAMETER</u>	<u>RESULTS</u>	<u>Q</u>	<u>DET. LIMIT</u>
Total as Benzo-a-pyrene	ND	-	1000

QUALIFIERS: C = COMMENT ND = NOT DETECTED
 J = ESTIMATED VALUE B = ALSO PRESENT IN BLANK
 L = PRESENT BELOW STATED DETECTION LIMIT

TEST CODE :SPNPHL1

JOB NUMBER :9100.215

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UH-6000 NASP PHASE I GROUPS A-E

RESULTS IN WET WEIGHT

TEST NAME : PNC PHENOL - LC

UNITS : UG/KG

SAMPLE ID LAB : EE-91-01949

MATRIX : SOLID

SAMPLE ID CLIENT: P02-SD001A

<u>PARAMETER</u>	<u>RESULTS</u>	<u>a</u>	<u>DET. LIMIT</u>
Total as Trichlorophenol	ND	-	2000

QUALIFIERS: C - COMMENT ND - NOT DETECTED
 J - ESTIMATED VALUE B - ALSO PRESENT IN BLANK
 L - PRESENT BELOW STATED DETECTION LIMIT

0000477

TEST CODE : SPNPHL1

JOB NUMBER : 9100.215

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UH-6000 NASP PHASE I GROUPS A-E

RESULTS IN WET WEIGHT

TEST NAME : PNC PHENOL - LC

UNITS : UG/KG

SAMPLE ID LAB : EE-91-01950

MATRIX : SOLID

SAMPLE ID CLIENT: P02-SD002A

<u>PARAMETER</u>	<u>RESULTS</u>	<u>Q</u>	<u>DET. LIMIT</u>
Total as Trichlorophenol	ND	-	2000

QUALIFIERS: C = COMMENT

ND = NOT DETECTED

J = ESTIMATED VALUE

B = ALSO PRESENT IN BLANK

L = PRESENT BELOW STATED DETECTION LIMIT

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UH-6000 NASP PEASE I GROUPS A-E

RESULTS IN WET WEIGHT

TEST NAME : PNC PHENOL - LC

UNITS : UG/KG

SAMPLE ID LAB : EE-91-01951

MATRIX : SOLID

SAMPLE ID CLIENT: P02-SD003A

<u>PARAMETER</u>	<u>RESULTS</u>	<u>Q</u>	<u>DET. LIMIT</u>
Total as Trichlorophenol	ND	-	2000

QUALIFIERS: C = COMMENT ND = NOT DETECTED
J = ESTIMATED VALUE B = ALSO PRESENT IN BLANK
L = PRESENT BELOW STATED DETECTION LIMIT

0000478

TEST CODE : SPNPHL1

JOB NUMBER : 9100.215

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UH-6000 NASP PEASE I GROUPS A-E

RESULTS IN WET WEIGHT

TEST NAME : PNC-PHENOL - LC

UNITS : UG/KG

SAMPLE ID LAB : EE-91-01952

MATRIX : SOLID

SAMPLE ID CLIENT: P02-SD004A

PARAMETER	RESULTS	Q	DET. LIMIT
----- Total as Trichlorophenol	----- ND	----- -	----- 2000

QUALIFIERS: C = COMMENT ND = NOT DETECTED
 J = ESTIMATED VALUE B = ALSO PRESENT IN BUNK
 L = PRESENT BELOW STATED DETECTION LIMIT

TEST CODE :SPNPHL1

JOB NUMBER :9100.215

Ecology and Environment, Inc. .
Analytical Services Center

CLIENT : UH-6000 NASP PHASE I GROUPS A-E

RESULTS IN WET WEIGHT

TEST NAME : PNC-PHENOL - LC

UNITS : UG/KG

SAMPLE ID LAB : EE-91-01953

MATRIX : SOLID

SAMPLE ID CLIENT: P02-SD017A

<u>PARAMETER</u>	<u>RESULTS</u>	<u>Q</u>	<u>DET. LIMIT</u>
Total as Trichlorophenol	ND	-	2000

QUALIFIERS: C = COMMENT ND = NOT DETECTED
 J = ESTIMATED VALUE B = ALSO PRESENT IN BLANK
 L = PRESENT BELOW STATED DETECTION LIMIT

0000479

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UH-6000 NASP PHASE I GROUPS A-E
RESULTS IN VET WEIGHT
TEST NAME : PNC PHENOL - LC
SAMPLE ID LAB : EE-91-01954
SAMPLE ID CLIENT: P02-SD018A

UNITS : UG/KG
MATRIX : SOLID

PARAMETER	RESULTS	Q	DET. LIMIT
Total as Trichlorophenol	ND	-	2000

QUALIFIERS: C = COMMENT ND = NOT DETECTED
 J = ESTIMATED VALUE B = ALSO PRESENT IN BLANK
 L = PRESENT BELOW STATED DETECTION LIMIT

TEST CODE :SPNPHL1

JOB NUMBER :9100.215

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UH-6000 NASP PHASE I GROUPS A-B

RESULTS IN WET WEIGHT

TEST NAME : PNC PHENOL - LC

UNITS : UG/KG

SAMPLE ID LAB : EE-91-01955

MATRIX : SOLID

SAMPLE ID CLIENT: P02-SD019A

<u>PARAMETER</u>	<u>RESULTS</u>	<u>Q</u>	<u>DET. LIMIT</u>
Total as Trichlorophenol	ND	-	2000

QUALIFIERS: C = COMMENT ND = NOT DETECTED
 J = ESTIMATED VALUE B = ALSO PRESENT IN BLANK
 L = PRESENT BELOW STATED DETECTION LIMIT

0000480

Bcology and Environment, Inc.
Analytical Services Center

CLIENT : UH-6000 NASP PEASE I GROUPS A-E

RESULTS IN WET WEIGHT

TEST NAME : PNC PHENOL - LC

UNITS : UG/KG

SAMPLE ID LAB : EE-91-01956

MATRIX : SOLID

SAMPLE ID CLIENT: P02-SD020A

PARAMETER	RESULTS	Q	DET. LIMIT
Total as Trichlorophenol	ND	-	2000

QUALIFIERS: C = COMMENT ND = NOT DETECTED
 J = ESTIMATED VALUE B = ALSO PRESENT IN BLANK
 L = PRESENT BELOW STATED DETECTION LIMIT

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UR-6000 NASP PHASE I GROUPS A-B

RESULTS IN WET WEIGHT

TEST NAME : PNC PHENOL - LC

UNITS : UG/KG

SAMPLE ID LAB : EE-91-01957

MATRIX : SOLID

SAMPLE ID CLIENT: P02-SD021A

<u>PARAMETER</u>	<u>RESULTS</u>	<u>Q</u>	<u>DET. LIMIT</u>
Total as Trichlorophenol	ND	-	2000

QUALIFIERS: C = COMMENT ND = NOT DETECTED
J = ESTIMATED VALUE B = ALSO PRESENT IN BLANK
L = PRESENT BELOW STATED DETECTION LIMIT

0000481

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UH-6000 NASP PHASE I GROUPS A-E

RESULTS IN WET WEIGHT

TEST NAME : PNC PHENOL - LC

UNITS : UG/KG

SAMPLE ID LAB : EE-91-01958

MATRIX : SOLID

SAMPLE ID CLIENT: P02-SD022A

<u>PARAMETER</u>	<u>RESULTS</u>	<u>Q</u>	<u>DET. LIMIT</u>
Total as Trichlorophenol	ND	-	2000

QUALIFIERS: C = COMMENT ND = NOT DETECTED
 J = ESTIMATED VALUE B = ALSO PRESENT IN BLANK
 L = PRESENT BELOW STATED DETECTION LIMIT

TEST CODE :SPNPHL1

JOB NUMBER :9100.215

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UH-6000 NASP PHASE I GROUPS A-E

RESULTS IN WET WEIGHT

TEST NAME : PNC PHENOL - LC

UNITS : UG/KG

SAMPLE ID LAB : BE-91-01959

MATRIX : SOLID

SAMPLE ID CLIENT: P02-SD023A

<u>PARAMETER</u>	<u>RESULTS</u>	<u>Q</u>	<u>DET. LIMIT</u>
Total as Trichlorophenol	ND	-	2000

QUALIFIERS: C = COMMENT ND = NOT DETECTED
 J = ESTIMATED VALUE B = ALSO PRESENT IN BLANK
 L = PRESENT BELOW STATED DETECTION LIMIT

0000482

TEST CODE : SPNPHL1

JOB NUMBER : 9100.215

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UH-6000 NASP PEASE I GROUPS A-E

RESULTS IN WET WEIGHT

TEST NAME : PNC-PHENOL - LC
SAMPLE ID LAB : EE-91-01960
SAMPLE ID CLIENT: P02-SD024A

UNITS : UG/KG
MATRIX : SOLID

<u>PARAMETER</u>	<u>RESULTS</u>	<u>Q</u>	<u>DET. LIMIT</u>
Total as Trichlorophenol	ND		2000

QUALIFIERS: C = COMMENT ND = NOT DETECTED
 J = ESTIMATED VALUE B = ALSO PRESENT IN BLANK
 L = PRESENT BELOW STATED DETECTION LIMIT

TEST CODE : SPNPHL1

JOB NUMBER : 9100.215

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UH-6000 NASP PEASE I GROUPS A-E

RESULTS IN WET WEIGHT

TEST NAME : PNC PHENOL - LC

UNITS : UG/KG

SAMPLE ID LAB : EE-91-01961

MATRIX : SOLID

SAMPLE ID CLIENT: P02-SD025A

<u>PARAMETER</u>	<u>RESULTS</u>	<u>Q</u>	<u>DET. LIMIT</u>
Total as Trichlorophenol	ND	-	2000

QUALIFIERS: C = COMMENT ND = NOT DETECTED
 J = ESTIMATED VALUE B = ALSO PRESENT IN BLANK
 L = PRESENT BELOW STATED DETECTION LIMIT

0000483

QUALITY CONTROL FOR ACCURACY: PERCENT RECOVERY
FOR SPIKED SOIL SAMPLES

9100.215

(ug)

Parameter	E & E Laboratory No. 91-	Original Value	Amount Added	Amount Determined	Percent Recovery
Trichlorophenol	Blank	ND	50	52	104

TEST CODE :SPNPHL1

JOB NUMBER :9100.215

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UH-6000 NASP PEASE I GROUPS A-E

RESULTS IN WET WEIGHT

TEST NAME : PNC PHENOL - LC

UNITS : UG/KG

SAMPLE ID LAB : METHOD BLANK

MATRIX :SOLID

<u>PARAMETER</u>	<u>RESULTS</u>	<u>Q</u>	<u>DET. LIMIT</u>
Total as Trichlorophenol	ND	-	2000

QUALIFIERS: C = COMMENT ND = NOT DETECTED
 J = ESTIMATED VALUE B = ALSO PRESENT IN BLANK
 L = PRESENT BELOW STATED DETECTION LIMIT

0000434

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UH-6000 NASP PEASE I GROUPS A-E
RESULTS IN WET WEIGHT
TEST NAME : PNC PURGABLES- GC
SAMPLE ID LAB : EE-91-01949
SAMPLE ID CLIENT: P02-SD001A

UNITS : UG/KG
MATRIX : SOLID

PARAMETER	RESULTS	Q	DET. LIHIT
Benzene	ND		1000
Toluene	ND		1000
Ethylbenzene	ND		1000
Total Xylenes	ND		1000
1,2 - Dichlorobenzene	ND		1000
1,3 - Dichlorobenzene	ND		1000
1,4 - Dichlorobenzene	ND		1000
1,1 - dichloroethene	ND		1000
Methylene Chloride	2600	B	1000
Trans-1,2, - Dichloroethenc	ND		1000
1,1 - dichloroethane	ND		1000
1,1,1 - Trichloroethane	ND		1000
1,2 - Dichloroethane	ND		1000
Trichloroethene	ND		1000
Tetrachloroethcne	ND		1000
chlorobenzene	ND		1000

QUALIFIERS: C = COMMENT ND = NOT DETECTED
J = ESTIMATED VALUE B = ALSO PRESENT IN BLANK
L = PRESENT BELOW STATED DETECTION LIHIT

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UH-6000 NASP PHASE I GROUPS A-B

RESULTS IN WET WEIGHT

TEST NAME : PNC PURGABLES- GC

UNITS : UG/KG

SAMPLE ID LAB : HE-91-01950

MATRIX : SOLID

SAMPLE ID CLIENT: P02-SD002A

PARAMETER	RESULTS	Q	DET. LIMIT
Benzene	ND		1000
Toluene	ND		1000
Ethylbenzene	ND		1000
Total Xylenes	ND		1000
1,2 - Dichlorobenzene	ND		1000
1,3 - Dichlorobenzene	ND		1000
1,4 - Dichlorobenzene	ND		1000
1,1 - dichloroethene	ND		1000
Methylene Chloride	3400	B	1000
Trans-1,2, - Dichloroethene	ND		1000
1,1 - dichloroethane	ND		1000
1,1,1 - Trichloroethane	ND		1000
1,2 - Dichloroethane	ND		1000
Trichloroethene	ND		1000
Tetrachloroethene	ND		1000
chlorobenzene	ND		1000

QUALIFIERS: C = COMMENT ND = NOT DETECTED
J = ESTIMATED VALUE B = ALSO PRESENT IN BLANK
L = PRESENT BELOW STATED DETECTION LIMIT

0000485

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UH-6000 NASP PEASE I GROUPS A-E

RESULTS IN WET WEIGHT

TEST NAME : PNC PURGABLES- GC

UNITS : UG/KG

SAMPLE ID LAB : EE-91-01951

MATRIX : SOLID

SAMPLE ID CLIENT: P02-SD003A

PARAMETER	RESULTS	Q	DET. LIMIT
-----	-----	-	-----
Benzene	ND		1000
Toluene	ND		1000
Ethylbenaana	ND		1000
Total Xylenes	ND		1000
1,2 - Dichlorobenzene	ND		1000
1,3 - Dichlorobenzene	ND		1000
1,4 - Dichlorobenzene	ND		1000
1,1 - dichloroethene	ND		1000
Methylene Chloride	3600	B	1000
Trans-1,2, - Dichloroethene	ND		1000
1,1 - dichloroethane	ND		1000
1,1,1 - Trichloroethane	ND		1000
1,2 - Dichloroethane	ND		1000
Trichloroethane	ND		1000
Tetrachloroethane	ND		1000
chlorobenzene	ND		1000

QUALIFIERS: C = COMMENT ND = NOT DETECTED
 J = ESTIMATED VALUE B = ALSO PRESENT IN BLANK
 L = PRESENT BELOW STATED DETECTION LIHIT

TEST CODE :SPNPRG1

JOB NUMBER :9100.215

Bcology and Environment, Inc.
Analytical Services Center

CLIENT : UH-6000 NASP PEASE I GROUPS A-B

RESULTS IN WET WEIGHT

TEST NAME : PNC PURGABLES- GC

UNITS : UG/KG

SAMPLE ID LAB : EE-91-01952

MATRIX :SOLID

SAMPLE ID CLIENT: PO2-SD004A

<u>PARAMETER</u>	<u>RESULTS</u>	<u>Q</u>	<u>DET. LIMIT</u>
Benzene	ND	-	1000
Toluene	ND		1000
Ethylbenzene	ND		1000
Total Xylenes	ND		1000
1,2 - Dichlorobenzene	ND		1000
1,3 - Dichlorobenzene	ND		1000
1,4 - Dichlorobenzene	ND		1000
1,1 - dichloroethene	ND		ram
Methylene Chloride	3600	B	1000
Trans-1,2, - Dichloroethene	ND		1000
1,1 - dichloroethane	ND		1000
1,1,1 - Trichloroethane	ND		1000
1,2 - Dichloroethane	ND		1000
Trichloroethene	ND		1000
Tetrachloroethenr	ND		1000
chlorobenzene	ND		1000

QUALIFIERS: C - COMMENT ND - NOT DETECTED
J - ESTIMATED VALUE B - ALSO PRESENT IN BLANK
L - PRESENT BELOW STATED DETECTION LIMIT

0000480

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UH-6000 NASP PHASE I GROUPS A-E

RESULTS IN VET WEIGHT

TEST NAME : PNC PURGABLES- GC UNITS : UG/KG
SAMPLE ID LAB : EE-91-01953 MATRIX : SOLID
SAMPLE ID CLIENT: P02-SD017A

<u>PARAMETER</u>	<u>RESULTS</u>	<u>Q</u>	<u>DET. LIMIT</u>
Benzene	ND		1000
Toluene	ND		1000
Ethylbenzene	ND		1000
Total Xylenes	ND		1000
1,2 - Dichlorobenzene	ND		1000
1,3 - Dichlorobenzene	ND		1000
1,4 - Dichlorobenzene	ND		1000
1,1 - dichloroethene	ND		1000
Methylene Chloride	3400	B	1000
Trans-1,2, - Dichloroethene	ND		1000
1,1 - dichloroethane	ND		1000
1,1,1 - Trichloroethane	ND		1000
1,2 - Dichloroethane	ND		1000
Trichloroethene	ND		1000
Tetrachloroethene	ND		1000
chlorobenzene	ND		1000

QUALIFIERS: C - COMMENT ND - NOT DETECTED
J - ESTIMATED VALUE B - ALSO PRESENT IN BLANK
L - PRESENT BELOW STATED DETECTION LIMIT

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UH-6000 NASP PHASE I GROUPS A-E

RESULTS IN WET WEIGHT

TEST NAME : PNC PURGABLES- GC

UNITS : UG/KG

SAMPLE ID LAB : EE-91-01954

MATRIX : SOLID

SAMPLE ID CLIENT: P02-SD018A

<u>PARAMETER</u>	<u>RESULTS</u>	<u>Q</u>	<u>DET. LIMIT</u>
Benzene	ND		1000
Toluene	ND		1000
Bthylbenzene	ND		1000
Total Xylenes	ND		1000
1,2 - Dichlorobenzene	ND		1000
1,3 - Dichlorobenzene	ND		1000
1,4 - Dichlorobenzene	ND		1000
1,1 - dichloroethene	ND		1000
Methylene Chloride	4100	B	1000
Trans-1,2, - Dichloroethene	ND		1000
1,1 - dichloroethane	ND		1000
1,1,1 - Trichloroethane	ND		1000
1,2 - Dichloroethane	ND		1000
Trichloroethene	ND		1000
Tetrachloroethene	ND		1000
chlorobenzene	ND		1000

QUALIFIERS: C = COMMENT ND = NOT DETECTED
 J = ESTIMATED VALUE B = ALSO PRESENT IN BLANK
 L = PRESENT BELOW STATED DETECTION LIMIT

0000487

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UH-6000 NASP PEASE I GROUPS A-E

RESULTS IN VET WEIGHT

TEST NAME : PNC PURGABLES- GC

UNITS : UG/KG

SAMPLE ID LAB : EE-91-01955

MATRIX : SOLID

SAMPLE ID CLIENT: P02-SD019A

<u>PARAMETER</u>	<u>RESULTS</u>	<u>Q</u>	<u>DET. LIMIT</u>
Benzene	ND		1000
Toluene	ND		1000
Ethylbenzene	ND		1000
Total Xylenes	ND		1000
1,2 - Dichlorobenzene	ND		1000
1,3 - Dichlorobenzene	ND		1000
1,4 - Dichlorobenzene	ND		1000
1,1 - dichloroethene	ND		1000
Methylene Chloride	4000	B	1000
Trans-1,2, - Dichloroethene	ND		1000
1,1 - dichloroethane	ND		1000
1,1,1 - Trichloroethane	ND		1000
1,2 - Dichloroethane	ND		1000
Trichloroethene	ND		1000
Tetrachloroethene	ND		1000
chlorobenzene	ND		1000

 QUALIFIERS: C = COMMENT ND = NOT DETECTED
 J = ESTIMATED VALUE B = ALSO PRESENT IN BLANK
 L = PRESENT BELOW STATED DETECTION LIMIT

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UH-6000 NASP PHASE I CROUPS A-E
RESULTS IN WET WEIGHT
TEST NAME : PNC PURGABLES- GC
SAMPLE ID LAB : EE-91-01956
SAMPLE ID CLIENT: P02-SD020A

UNITS : UG/KG
MATRIX : SOLID

<u>PARAMETER</u>	<u>RESULTS</u>	<u>Q</u>	<u>DET. LIMIT</u>
Benzene	ND	-	1000
Toluene	ND		1000
Ethylbenzene	ND		1000
Total Xylenes	ND		1000
1,2 - Dichlorobenzene	ND		1000
1,3 - Dichlorobenzene	ND		1000
1,4 - Dichlorobenzene	ND		1000
1,1 - dichloroethene	ND		1000
Methylene Chloride	3500	B	1000
Tram-1,2, - Dichloroethene	ND		1000
1,1 - dichloroethane	ND		1000
1,1,1 - Trichloroethane	ND		1000
1,2 - Dichloroethane	ND		1000
Trichloroethene	ND		1000
Tetrachloroethene	ND		1000
chlorobenzene	ND		1000

QUALIFIERS: C - COMMENT ND - NOT DETECTED
 J - ESTIMATED VALUE B - ALSO PRESENT IN BLANK
 L - PRESENT BELOW STATED DETECTION LIMIT

0000438

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UH-6000 NASP PHASE I GROUPS A-E

RESULTS IN WET WEIGHT

TEST NAME : PNC PURGABLES- GC

UNITS : UG/KG

SAMPLE ID LAB : EE-91-01957

MATRIX : SOLID

SAMPLE ID CLIENT: P02-SD021A

PARAMETER	RESULTS	Q	DET. LIMIT
Benzene	ND		1000
Toluene	ND		1000
Ethylbenzene	ND		1000
Total Xylenes	ND		1000
1,2 - Dichlorobenzene	ND		1000
1,3 - Dichlorobenzene	ND		1000
1,4 - Dichlorobenzene	ND		1000
1,1 - dichloroethene	ND		1000
Methylene Chloride	4000	B	1000
Trans-1,2, - Dichloroethenc	ND		1000
1,1 - dichloroethanc	ND		1000
1,1,1 - Trichloroethane	ND		1000
1,2 - Dichloroethana	ND		1000
Trichloroethene	ND		1000
Tetrachloroethene	ND		1000
chlorobenzene	ND		1000

QUALIFIERS: C = COMMENT ND = NOT DETECTED
 J = ESTIMATED VALUE B = ALSO PRESENT IN BLANK
 L = PRESENT BELOW STATED DETECTION LIMIT

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UH-6000 NASP PHASE I GROUPS A-B

RESULTS IN WET WEIGHT

TEST NAME : PNC PURGABLES- GC

UNITS : UG/KG

SAMPLE ID LAB : BE-9141958

MATRIX : SOLID

SAMPLE ID CLIENT: P02-SD022A

PARAMETER	RESULTS	Q	DET. LIMIT
Benzene	ND		1000
Toluene	ND		1000
Ethylbenzene	ND		1000
Total Xylenes	ND		1000
1,2 - Dichlorobenzene	ND		1000
1,3 - Dichlorobenzene	ND		1000
1,4 - Dichlorobenzene	ND		1000
1,1 - dichloroethene	ND		1000
Methylene Chloride	3800	B	1000
Trans-1,2, - Dichloroethene	ND		1000
1,1 - dichloroethane	ND		1000
1,1,1 - Trichloroethane	ND		1000
1,2 - Dichloroethane	ND		1000
Trichloroethene	ND		1000
Tetrachloroethene	ND		1000
chlorobenzene	ND		1000

QUALIFIERS: C = COMMENT ND = NOT DETECTED
 J = ESTIMATED VALUE B = ALSO PRESENT IN BLANK
 L = PRESENT BELOW STATED DETECTION LIMIT

0000439

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UH-6000 NASP PHASE I GROUPS A-E

RESULTS IN WET WEIGHT

TEST NAME : PNC PURGABLES- GC UNITS : UG/KG
SAMPLE ID LAB : EE-91-01959 MATRIX : SOLID
SAMPLE ID CLIENT: P02-SD023A

<u>PARAMETER</u>	<u>RESULTS</u>	<u>Q</u>	<u>DET. LIMIT</u>
-----	-----	-	-----
Benzene	ND		1000
Toluene	ND		1000
Bthylbenzene	ND		1000
Total Xylenes	ND		1000
1,2 - Dichlorobenzene	ND		1000
1,3 - Dichlorobenzene	ND		1000
1,4 - Dichlorobenzene	ND		1000
1,1 - dichloroethene	ND		1000
Methylene Chloride	6900	B	1000
Trans-1,2, - Dichloroethene	ND		1000
1,1 - dichloroethane	ND		1000
1,1,1 - Trichloroethane	ND		1000
1,2 - Dichloroethane	ND		1000
Trichloroethene	ND		1000
Tetrachloroethene	ND		1000
chlorobenzene	ND		1000

 QUALIFIERS: C = ∞ ——— ND = NOT DETECTED
 J = ESTIMATED VALUE B = ALSO PRESENT IN BLANK
 L = PRESENT BELOW STATED DETECTION LIMIT

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UH-6000 NASP PHASE I GROUPS A-B

RESULTS IN WET WEIGHT

TEST NAME : PNC PURGABLES- GC

UNITS : UG/KG

SAMPLE ID LAB : EE-91-01960

MATRIX : SOLID

SAMPLE ID CLIENT: PO2-SD024A

PARAMETER	RESULTS	Q	DET. LIMIT
Benzene	ND		1000
Toluene	2400		1000
Ethylbenzene	ND		1000
Total Xylenes	2100		1000
1,2 - Dichlorobenzene	ND		1000
1,3 - Dichlorobenzene	ND		1000
1,4 - Dichlorobenzene	ND		1000
1,1 - dichloroethene	ND		1000
Methylene Chloride	14000	B	1000
Trans-1,2, - Dichloroethene	ND		1000
1,1 - dichloroethane	ND		1000
1,1,1 - Trichloroethane	ND		1000
1,2 - Dichloroethane	ND		1000
Trichloroethene	ND		1000
Tetrachloroethene	ND		1000
chlorobenzene	ND		1000

QUALIFIERS: C = COMMENT ND = NOT DETECTED
 J = ESTIMATED VALUE B = ALSO PRESENT IN BLANK
 L = PRESENT BELOW STATED DETECTION LIMIT

0000400

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UH-6000 NASP PHASE I GROUPS A-E

RESULTS IN WET WEIGHT

TEST NAME : PNC PURGABLES- GC

UNITS : UG/KG

SAMPLE ID LAB : EE-91-01961

MATRIX : SOLID

SAMPLE ID CLIENT: P02-SD025A

PARAMETER	RESULTS	Q	DET. LIMIT
-----	-----	-	-----
Benzene	ND		1000
Toluene	ND		1000
Ethylbenzene	ND		1000
Total Xylenes	ND		1000
1,2 - Dichlorobenzene	ND		1000
1,3 - Dichlorobenzene	ND		1000
1,4 - Dichlorobenzene	ND		1000
1,1 - dichloroethene	ND		1000
Methylene Chloride	6700	B	1000
Trans-1,2, - Dichloroethene	ND		1000
1,1 - dichloroethane	ND		1000
1,1,1 - Trichloroethane	ND		1000
1,2 - Dichloroethane	ND		1000
Trichloroethene	ND		1000
Tetrachloroethane	ND		1000
chlorobenzene	ND		1000

QUALIFIERS: C = COMMENT **ND = NOT DETECTED**
J = ESTIMATED VALUE **B = ALSO PRESENT IN BLANK**
L = PRESENT BELOW STATED DETECTION LIMIT

**QUALITY CONTROL FOR ACCURACY AND PRECISION:
 PERCENT RECOVERY AND RELATIVE PERCENT DIFFERENCE (RPD)
 OF SOIL MATRIX SPIKE (MS) AND MATRIX SPIKE DUPLICATE (MSD)
 (Sample # 1958)**

9100.215

(ug/kg)				
Compound	Original Result	Amount Added MS	Amount Determined MS	Percent Recovery MS
Benzene	ND	25000	20000	80
Toluene	ND	25000	21000	84
Ethyl Benzene	ND	25000	20000	80
1,2-Dichlorobenzene	ND	25000	22000	88
1,3-Dichlorobenzene	ND	25000	22000	88
1,4-Dichlorobenzene	ND	25000	22000	88
1,1-Dichloroethene	ND	25000	12000	48
Methylene chloride	3800	25000	30000	105
Trans-1,2-Dichloroethene	ND	25000	16000	64
1,1-Dichloroethane	ND	25000	21000	84
1,1,1-Trichloroethane	ND	25000	21000	84
1,2-Dichloroethane	ND	25000	21000	84
Trichloroethene	ND	25000	17000	68
Tetrachloroethene	ND	25000	20000	80
Chlorobenzene	ND	25000	17000	68

These recoveries and RPDs are within B & E, Inc. limits.

0000401

Biology and Environment, Inc.
Analytical Services Center

CLIENT : UH-6000 NASP PHASE I GROUPS A-E

RESULTS IN WET WEIGHT

TEST NAME : PNC PURGABLES- GC

UNITS : UG/KG

SAMPLE ID LAB : METHOD BLANK 1

MATRIX : SOLID

PARAMETER	RESULTS	Q	DET. LIMIT
Benzene	ND		1000
Toluene	ND		1000
Ethylbenzene	ND		1000
Total Xylenes	ND		1000
1,2 - Dichlorobenzene	ND		1000
1,3 - Dichlorobenzene	ND		1000
1,4 - Dichlorobenzene	ND		1000
1,1 - dichloroethene	ND		1000
Methylene Chloride	3800		1000
Trans-1,2, - Dichloroethene	ND		1000
1,1 - dichloroethane	ND		1000
1,1,1 - Trichloroethane	ND		1000
1,2 - Dichloroethane	ND		1000
Trichloroethene	ND		1000
Tetrachloroethane	ND		1000
chlorobenzene	ND		1000

QUALIFIERS: C = COMMENT ND = NOT DETECTED
 J = ESTIMATED VALUE B = ALSO PRESENT IN BLANK
 L = PRESENT BELOW STATED DETECTION LIMIT

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UH-6000 NASP PHASE I GROUPS A-E

RESULTS IN WET WEIGHT

TEST NAME : PNC PURGABLES- GC

UNITS : UG/KG

SAMPLE ID LAB : METHOD BLANK 2

MATRIX : SOLID

<u>PARAMETER</u>	<u>RESULTS</u>	<u>Q</u>	<u>DET. LIMIT</u>
Benzene	ND		1000
Toluene	ND		1000
Ethylbenzene	ND		1000
Total Xylenes	ND		1000
1,2 - Dichlorobenzene	ND		1000
1,3 - Dichlorobenzene	ND		1000
1,4 - Dichlorobenzene	ND		1000
1,1 - dichloroethene	ND		1000
Methylene Chloride	4000		1000
Trans-1,2, - Dichloroethene	ND		1000
1,1 - dichloroethane	ND		1000
1,1,1 - Trichloroethane	ND		1000
1,2 - Dichloroethane	ND		1000
Trichloroethene	ND		1000
Tetrachloroethene	ND		1000
chlorobenzene	ND		1000

QUALIFIERS: C = COMMENT

ND = NOT DETECTED

J = ESTIMATED VALUE

B = ALSO PRESENT IN BLANK

L = PRESENT BELOW STATED DETECTION LIMIT

0000492