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CONTAMINATION ASSESSMENT/ REMEDIAL ACTIVITIES INVESTIGATION SOIL SOUTH OF BUILDING 3460 (SITE 29) NAVAL AIR STATION PENSACOLA PENSACOLA, FLORIDA

INTERIM DATA REPORT

November 1992

Contract N62467-88-C-0200

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results of this Phase I investigation indicate that soil and groundwater contamination are present on and in the vicinity of Site 29. Metals, total recoverable petroleum hydrocarbons, polynuclear aromatic hydrocarbons, and volatile organic compounds are the primary contaminants. At least part of the detected contamination is potentially associated with the suspected leak in the industrial waste sewer line beneath the surface of Site 29. In addition, past on-site activities such as excavation, backfilling, and grading may have impacted the presence and/or distribution of contaminants on Site 29. Further assessment activities are required at and in the vicinity of Site 29.

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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.

[Bold items enclosed in brackets denote **changes** to last version of 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 Soil South of Building 3460 (Site 29), located on the Naval Air Station in Pensacola, Florida. This work was performed by Ecology and Environment, Inc., under contract to the U.S. Navy, Southern Division, Naval Facilities Engineering Command.

Site 29 is located at the southwestern corner of Chevalier Field, south of Building 3460. The entire site is covered by the Chevalier Field concrete apron. A suspected leak in the industrial waste sewer line (Site 36--Industrial Waste Sewer), located beneath the concrete apron in the vicinity of the site, may have caused contamination at this site; however, the type and extent of any possible contamination is unknown.

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, surface emissions survey and particulate air screening, utilities survey, collection and analysis of soil and groundwater samples, and a hydrologic assessment.

Soil and groundwater contamination are present on Site 29. Metals, total recoverable petroleum hydrocarbons (TRPHs), polynuclear aromatic hydrocarbons (PAHs), and volatile organic compounds are the primary contaminants. However, no free product or stained soils were observed during drilling or sampling activities. Although at least part of the detected contamination is potentially associated with a suspected industrial waste sewer line leak beneath the surface of Site 29, other potential sources may be impacting the site. In addition, the presence

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and/or distribution of contaminants detected on the site may be attributable to historical activities such as excavation, backfilling, and grading.

Although Site 29 soils show only traces of total metals, it is apparent that a limited area of soil contamination exists. Soil metals contamination, in the northwest portion of the site, may be associated with a suspected leak in the industrial waste sewer line in that area. Low metals contamination in soils in the vicinity of the industrial waste sewer line is apparent from the corresponding Site 36 Phase I investigation.

TRPH contamination appears to be limited to the northern edge of Site 29 and to soils along the industrial waste sewer line. TRPH contamination along the northern edge of Site 29 may indicate a potential local source in this area.

PAH contamination, detected in only one boring along the eastern site perimeter, also indicates a localized presence in this area; however, no PAH contaaination was observed along the industrial waste sewer line in this area.

Groundwater contamination is also present at Site 29. Metals concentrations exceeding the respective Florida Primary Drinking Water Standards were detected in GW007 (arsenic) and in W007 and W007D (chromium and manganese). Iron concentrations in W007 also exceeded the respective Florida Secondary Drinking Water Standard. The slightly elevated metals concentrations in temporary well sample GW007 may partially reflect that turbid temporary well groundwater samples were not filtered prior to acid preservation. However, the source of arsenic in the east-central portion of the site may be the suspected leak in the industrial waste sewer line in this area.

Groundvater samples from the corresponding Phase I investigation of the industrial waste sewer line generally indicate, as do the Site 29 groundwater samples, that elevated levels of chromium and zinc are present across Site 29; hovever, lead vas detected only in the Site 36 groundwater samples. A potential source of metals contamination may exist along the industrial waste sewer line in the west portion of Site 29 where the highest levels of chromium, zinc, and lead vere detected.

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The presence of methylene chloride contamination (100 µg/L) in the groundwater was limited to the western edge of Site 29. The potential source of this contaminant is presently unknown.

It is possible that contamination observed in the off-site permanent monitoring well (GM7) may be associated with the extension of the industrial waste sewer line located south of Site 29 or another, yet unknown, potential off-site source impacting Site 29 from the south.

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1. INTRODUCTION

This Interim Data Report presents the findings of the Phase I investigation activities performed for Site 29, Soil South of Building 3460, located at the Naval Air Station (NAS) in Pensacola, Escambia County, Florida. 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 April 1991 to July 1991. Because of the proximity of the other four Group F sites (Site 9, Navy Yard Disposal Area; Site 10, Commodore's Pond; Site 23, Chevalier Field Pipe Leak Area; and Site 34, Solvent North of Building 3557) and part of Group N Site 36, Industrial Waste Sewer, to Site 29, any information gathered during the corresponding Phase I investigations of these sites that is relevant to understanding Site 29 conditions has been included in this Site 29 interim data report.

The Phase I investigation of Site 29 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 F 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 29 is located at the southwestern corner of Chevalier Field, south of Building 3460 (see figures 1-1, 1-2, and 1-3). The entire site is covered by the Chevalier Field concrete apron (see figures 1-2 and

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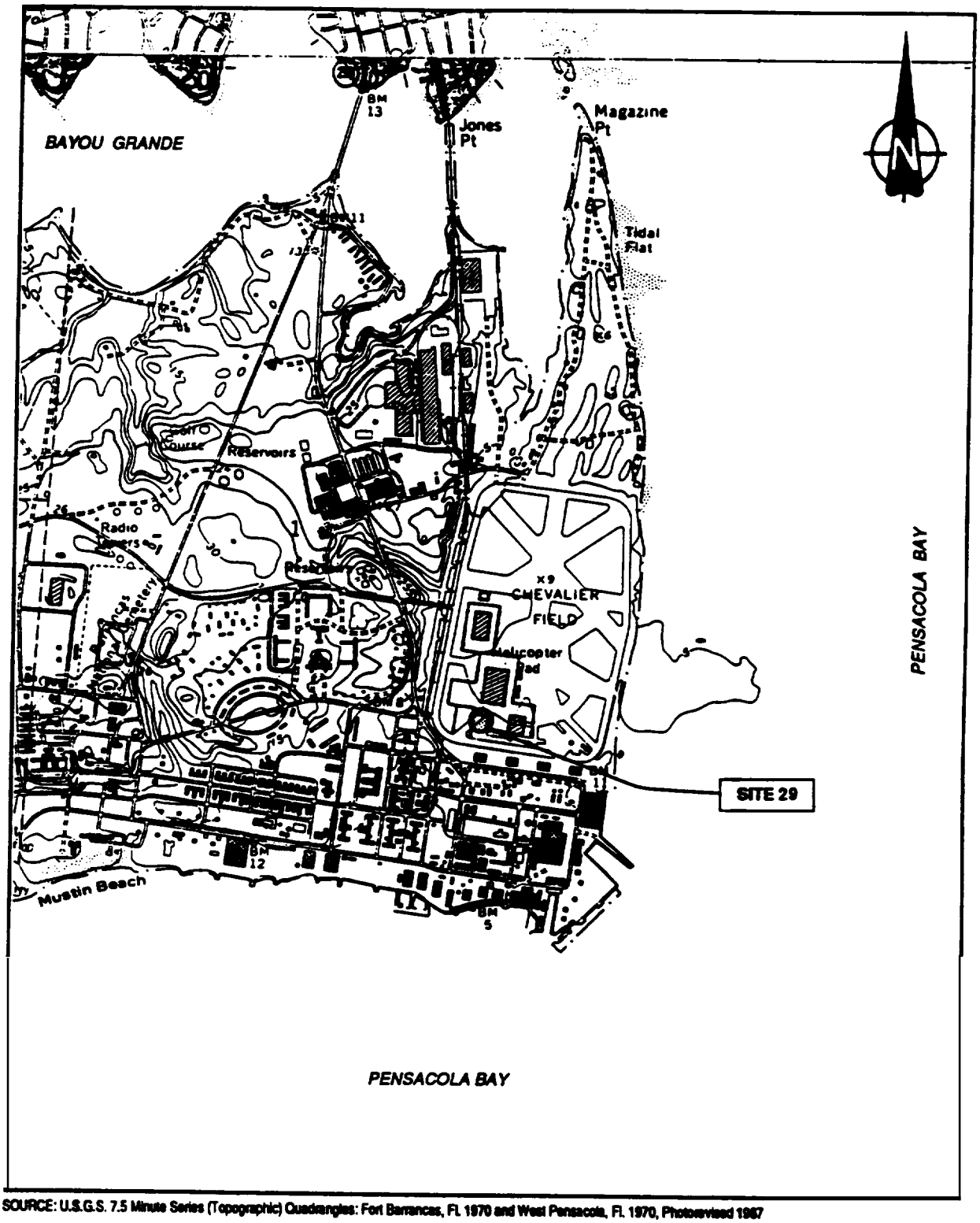

SOURCE: U.S.G.S. 7.5 Minute Series (Topographic) Quadrangles: Fort Barrancas, FL 1970 and West Pensacola, FL 1970, Photorevised 1987

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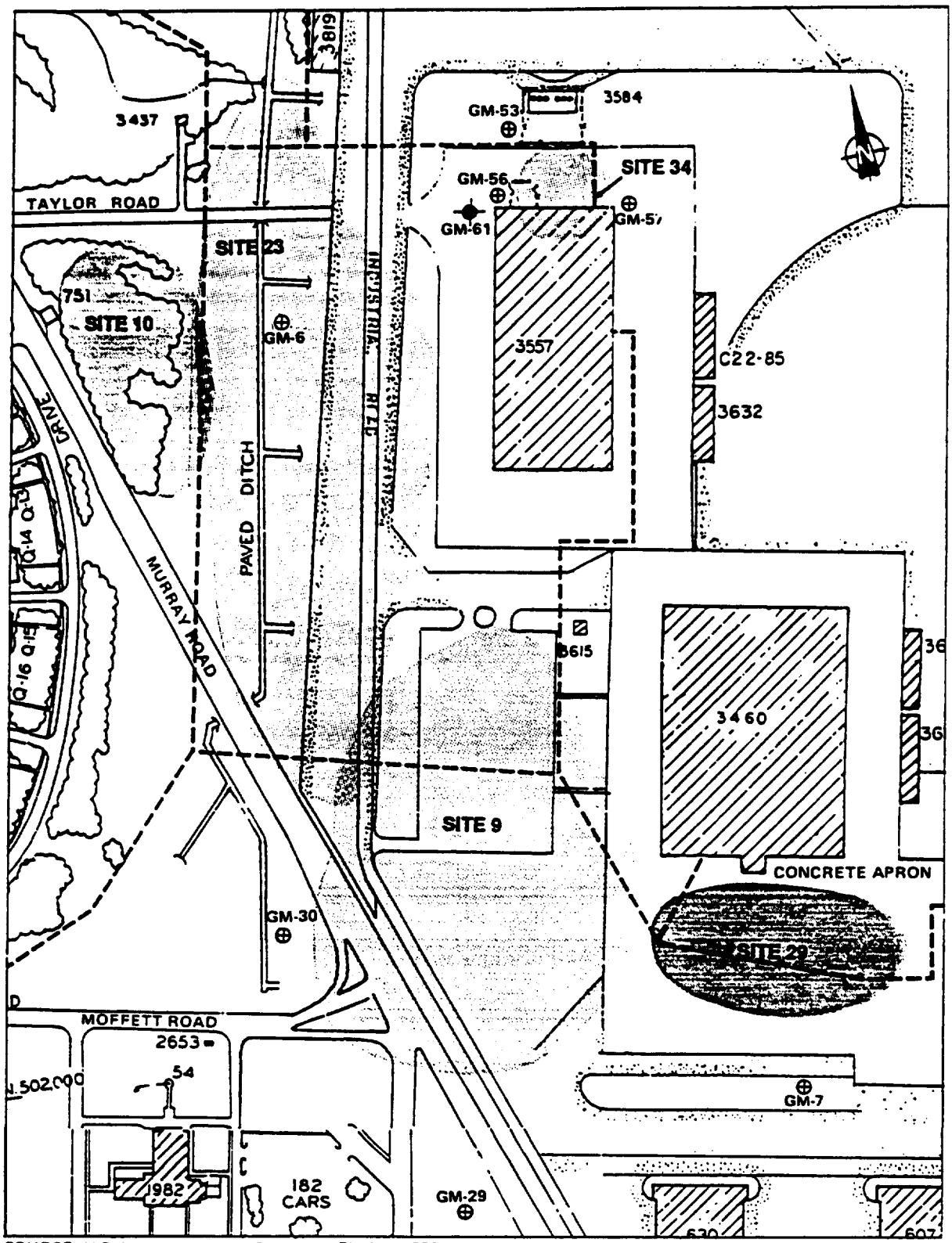
Figure 1-1 LOCATION MAP - NAS PENSACOLA SITE 29



SOURCE: U.S. Naval Air Station, Pensacola, Florida, 1986 and 1988; and Geraughty and Miller, 1986.

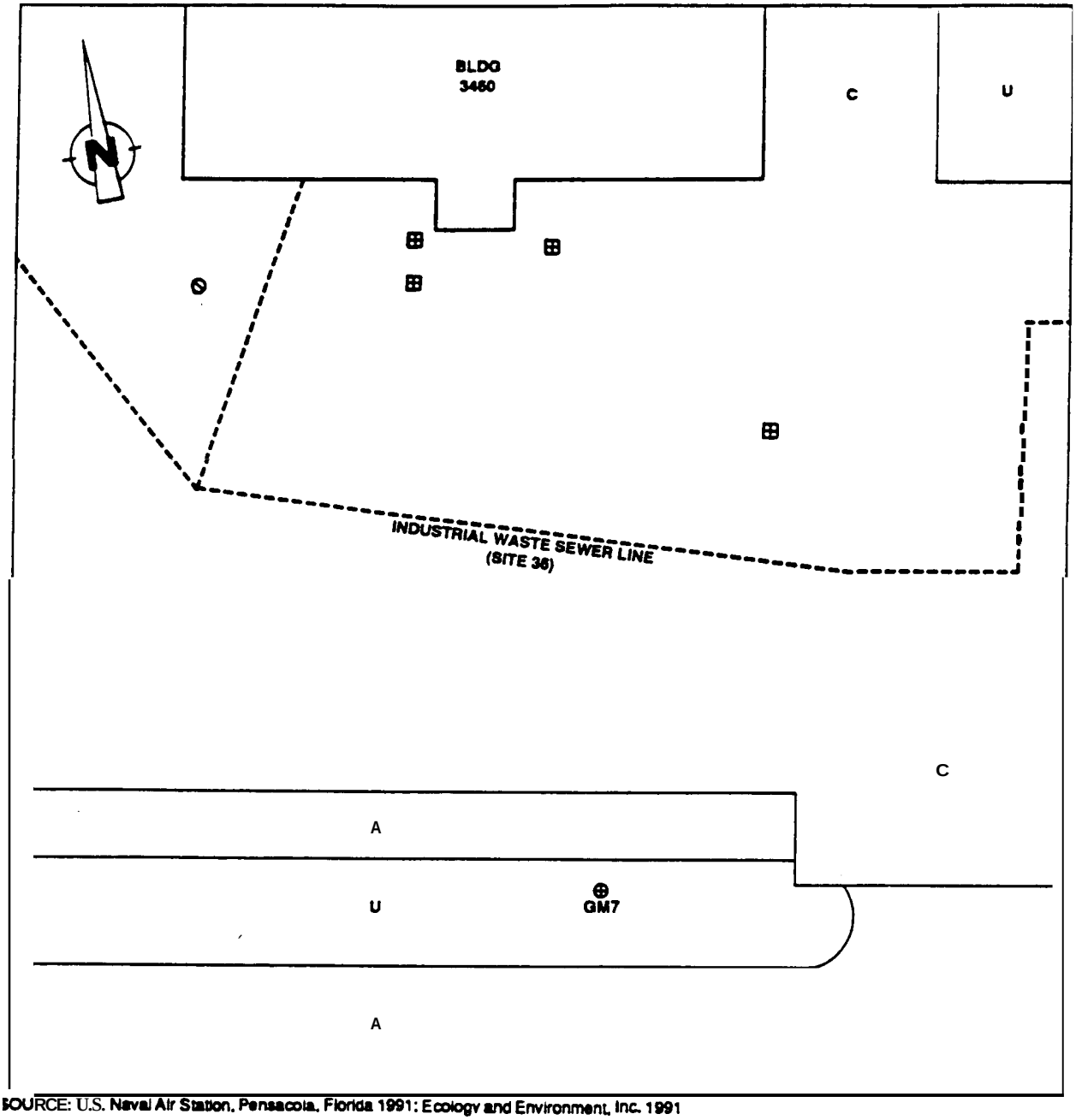
SCALE

0 200 400 600 800 FEET

KEY:

- Existing Permanent Shallow Monitoring Well
- Existing Permanent Deep Monitoring Well
- Industrial Waste Sewer Line
- Building

Figure 73 SITE VICINITY MAP — NAS PENSACOLA SITES 9, 10, 23, 29, 34, AND 36



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

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SCALE

KEY:

⊕	Existing Permanent Shallow Monitoring Well	A	Asphalt Paved
BLDG 3460	Building	C	Concrete Paved
⊞	Stormwater Drain	U	Unpaved
⊘	Manhole		

0000068

Figure 1-3
SITE PLAN MAP — NAS PENSACOLA SITE 29

1-3). A leak that occurred some time between 1971 and 1981 in the industrial waste sewer line, located beneath the concrete apron in the vicinity of the site, may have caused contamination at this site; however, the type and extent of any possible contamination is unknown. A complete site description and history are presented in the Group F work plan.

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, surface emissions survey and particulate air screening, utilities survey, and the collection and analysis of soil and groundwater samples. In addition, a hydrologic assessment, which included the determination of groundwater and surface water elevations, groundwater flow direction and hydraulic gradient, and surface water flow rates, was performed at the site. The recommendations for additional work at this site will be incorporated in the revised Group F work plan.

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. The aerial photographs used in the analysis are listed in Table 2-1. The photographs were analyzed to obtain information regarding the evolution of site features that might have affected hydrologic conditions and to aid in the performance of such tasks as field reconnaissance and monitoring well placement.

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 and surface drainage patterns. These observations of surface conditions on the site were used to update the site map. During the reconnaissance survey, the field team identified areas which presented the most suitable conditions for the establishment of survey grid baselines. The use of a grid system as part of the Phase I field investigation is discussed in the following sections.

The reconnaissance survey team utilized radiation and air monitoring equipment during walkovers of site areas, in accordance with Section 6.1.1 of the GQAPP. Areas with readings above background were located, flagged, and identified on a site map for future reference.

Table 2-1

PHOTOGRAPHS AND MAPS USED IN THE AERIAL PHOTOGRAPH ANALYSIS
NAS PENSACOLA SITE 29

Source	Photograph/Map Number	Date	Scale
NAS Pensacola Public Works Department	1276833	2/5/90	1:2,400
	1276835	2/5/90	1:2,400
	1276836	5/22/86	1:2,400
	1276912	9/29/86	1:2,400
Florida Department of Transportation	PD-3886-12-03	10/26/89	1:24,000
	PD-3618-12-03	11/21/86	1:24,000
	PD-3109-12-03	9/22/83	1:24,000
	PD-2684-11-04	3/9/81	1:24,000
	PD-1888-11-04	4/28/76	1:24,000
	PD-1331-11-03	5/4/73	1:24,000
	PD-868-4-09	4/6/70	1:24,000
	PD-616-8-05	3/25/68	1:24,000
	PD-285-7-01	10/8/64	1:12,000
	PNS-7054-3-2	10/12/61	1:24,000
U.S. Department of Agriculture	**CPF-4H-17**	1/22/51	1:24,000
	CPF-1V-78	1/3/58	1:24,000
West Florida Regional Planning Council	PD-3618-12-05	11/21/86	1:4,800

14[NASP]UH8018:T0357/579/23

Source: Ecology and Environment, Inc., 1992.

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All findings of the physical reconnaissance were mapped in detail and recorded in the field logbook.

23 OVA SURFACE EMISSIONS SURVEY AND PARTICULATE AIR SCREENING

Following the establishment of the survey grid network (discussed in Section 2.4), a surface emissions survey was conducted using 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 established grid point, 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 screening was conducted in accordance with Section 6.1.1 of the GQAPP.

2.4 SURVEY GRID

The survey effort required the initial establishment of a grid system over the study area. To construct the grid, a baseline was established along the edge of the concrete apron south of Building 3460. The area was then gridded with spacings based on 100-foot centers. Baseline transects were established using a transit survey instrument and flagged at 50-foot intervals; however, measurements during surveys were recorded at 25-foot intervals. The grid system was completed relative to an arbitrarily established origin point using a brunton compass and tape measure. Grid points were flagged and numbered as follows:

Grid X, N n_1 + yy, E n_2 + zz,

where:

X = Grid letter;

n_1 = Distance in 100-foot increments north (N) from the origin point;

n_2 = Distance in 100-foot increments east (E) from the origin point;

yy = Additional distance in feet north from the nearest previously located 100-foot increment from the grid origin; and

zz = Additional distance in feet east from the nearest previously located 100-foot increment from the grid origin.

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

In the case of grid points located at even 100-foot increments from the origin, yy and zz = 00 (e.g., The northeast corner of the grid on site 29 is N3+25, E4+50). Figure 2-1 shows the location of the survey grid and origin point established on Site 29.

2.5 UTILITIES SURVEY

Prior to conducting any augering, boring, or drilling, E & E located all underground cables, pipes, utilities, and other subsurface features that could potentially be damaged, create a safety hazard, or otherwise hinder fieldwork. The appropriate authorities (e.g., NAS Pensacola Public Works and Southern Bell) were contacted to identify the location of all underground utilities in the site area. In addition, E & B examined available maps and documents and conducted a metal detector survey in the vicinity of soil boring locations to determine the potential presence of any other potentially hazardous subsurface features on site. The locations of all underground utilities and other obstructing features were marked with surveyor flags, fluorescent paint, or by other methods, as appropriate.

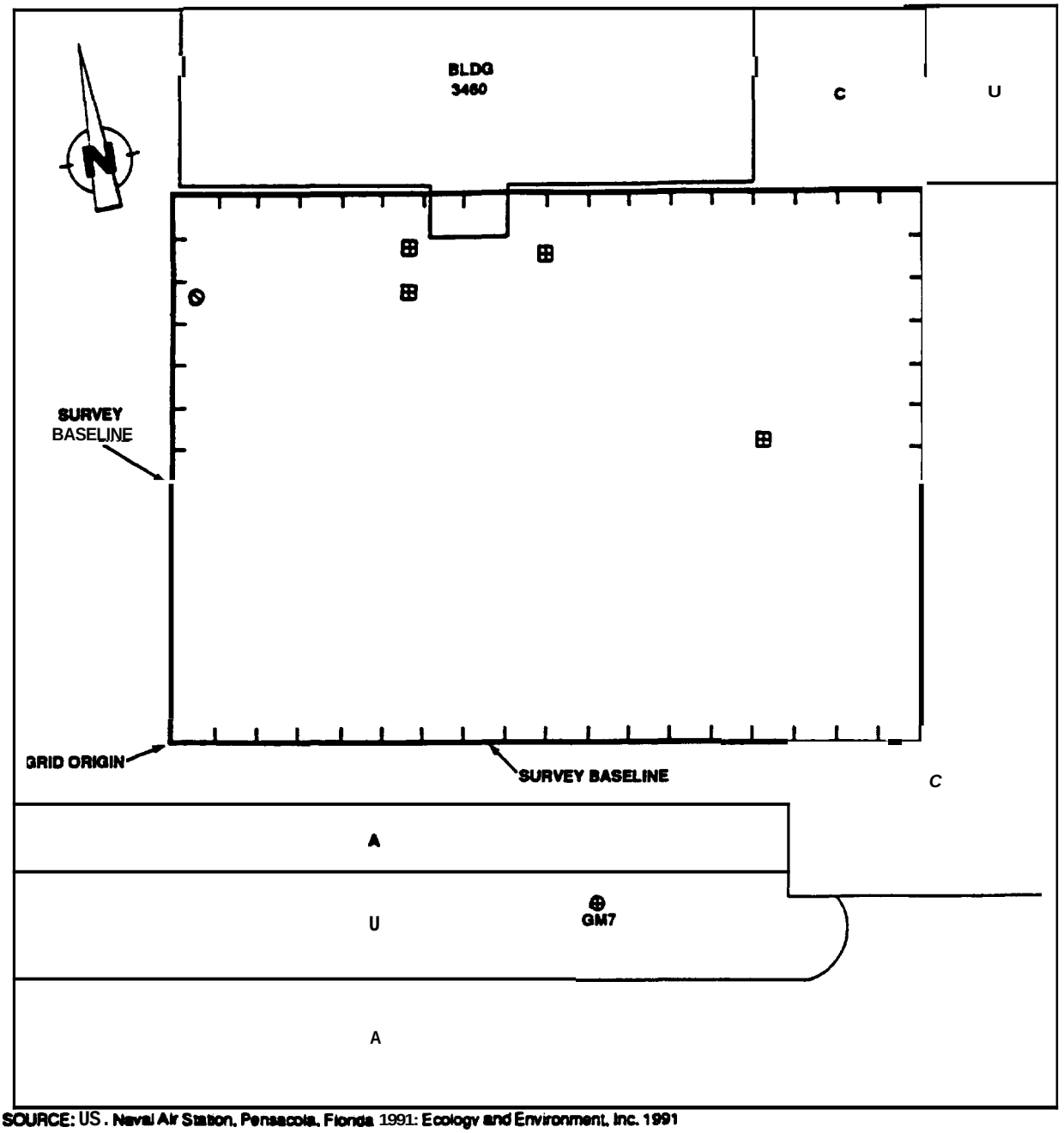
2.6 DATA ANALYSIS

Information obtained from the results of the above-described physical surveys vas given primary consideration in the development of placement strategies for the Phase I soil borings and temporary monitoring wells. Prior to establishing the Phase I soil boring or temporary monitoring well locations, the results of the aerial photograph analysis, site reconnaissance, surface emissions survey and particulate air screening, and utilities survey were evaluated to identify potential areas of surface or subsurface contamination, leachate seeps, and boundaries of filled areas. The proposed Phase I soil boring and temporary monitoring well locations, shovn on Figure 14-2 of the work plan, were then revised, as appropriate upon approval by Southern Division.

2.7 SOIL BORINGS AND TEMPORARY MONITORING WELL INSTALLATION

Figure 2-2 presents soil boring and temporary monitoring well locations at the five Group F sites (9, 10, 23, 29, and 34) and at Site

C"c36: 1



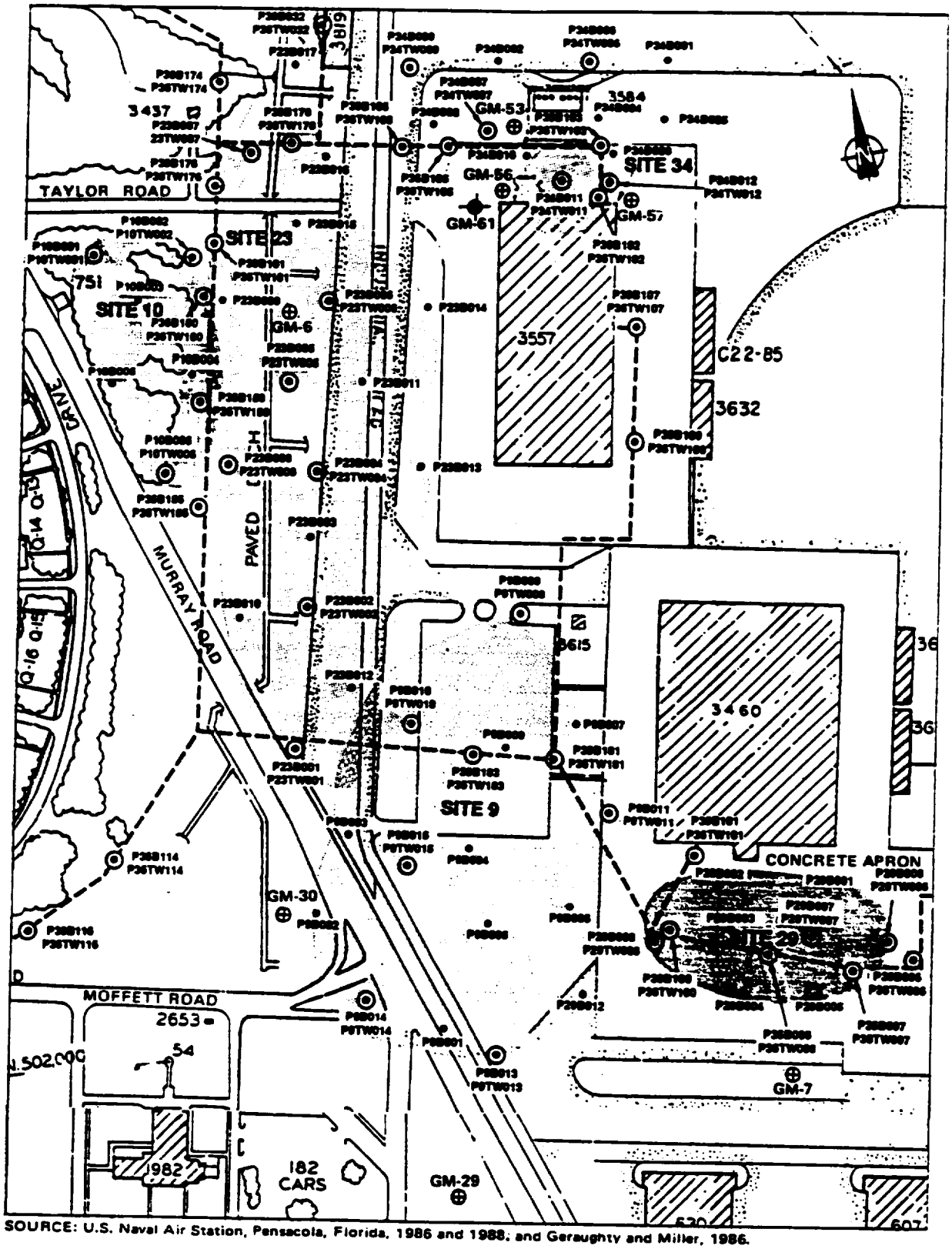
SOURCE: US. Naval Air Station, Pensacola, Florida 1991: Ecology and Environment, Inc. 1991

0 100 200 FEET
SCALE

KEY:

	Survey Grid Boundary	U	Unpaved Area
	Stormwater Drain	A	Asphalt Paved Area
	Industrial Sewer Manhole	C	Concrete Paved Area
BLDG 3460	Building		Existing Permanent Shallow Monitoring Well

Figure 2-1 SURVEY GRID MAP — NAS PENSACOLA SITE 29



SOURCE: U.S. Naval Air Station, Pensacola, Florida, 1986 and 1988; and Geraughty and Miller, 1986.

SCALE

0 200 400 600 800 FEET

KEY:

- Permanent Shallow Monitoring Well
- Permanent Deep Monitoring Well
- Building
- Industrial Waste Sewer Line
- Soil Boring
- Temporary Monitoring Well
- P10B001 Soil Boring Number
- P10TW001 Temporary Monitoring Well Number

Figure 2-2 SOIL BORING AND TEMPORARY MONITORING WELL LOCATIONS — NAS PENSACOLA SITES 9, 10, 23, 29, 34, AND 36

36. Figure 2-3 presents the soil boring and temporary monitoring well locations at Site 29 only.

Eight soil borings were completed at Site 29 (see figures 2-2 and 2-3). At each Site 29 boring location, samples were collected by compositing soils over the 0 to 5-foot depth interval from land surface to the water table. The 5-foot depth interval was assigned the designation "A interval." Samples were collected using either hand-operated bucket augers or a solid-stem auger powered by a drill rig. Lithologic characteristics of the materials encountered in each borehole were recorded in the field logbook. All soil sampling, compositing, and lithologic logging activities were performed in accordance with Section 6.6 of the GQAPP. Equipment decontamination was performed in accordance with Section 6.10 of the GQAPP.

Temporary, stainless steel monitoring wells were installed in three of the eight borings (see figures 2-2 and 2-3). Each well was constructed with 5 feet of 0.01-inch slotted screen, and installed to a depth that allowed the well screen to bracket the water table. The wells were installed using solid-stem augers powered by a drill rig. Lithologic characteristics of materials encountered during installation of the wells were recorded in the field logbook in accordance with Section 6.6 of the GQAPP. All equipment decontamination activities were performed in accordance with Section 6.10 of the GQAPP.

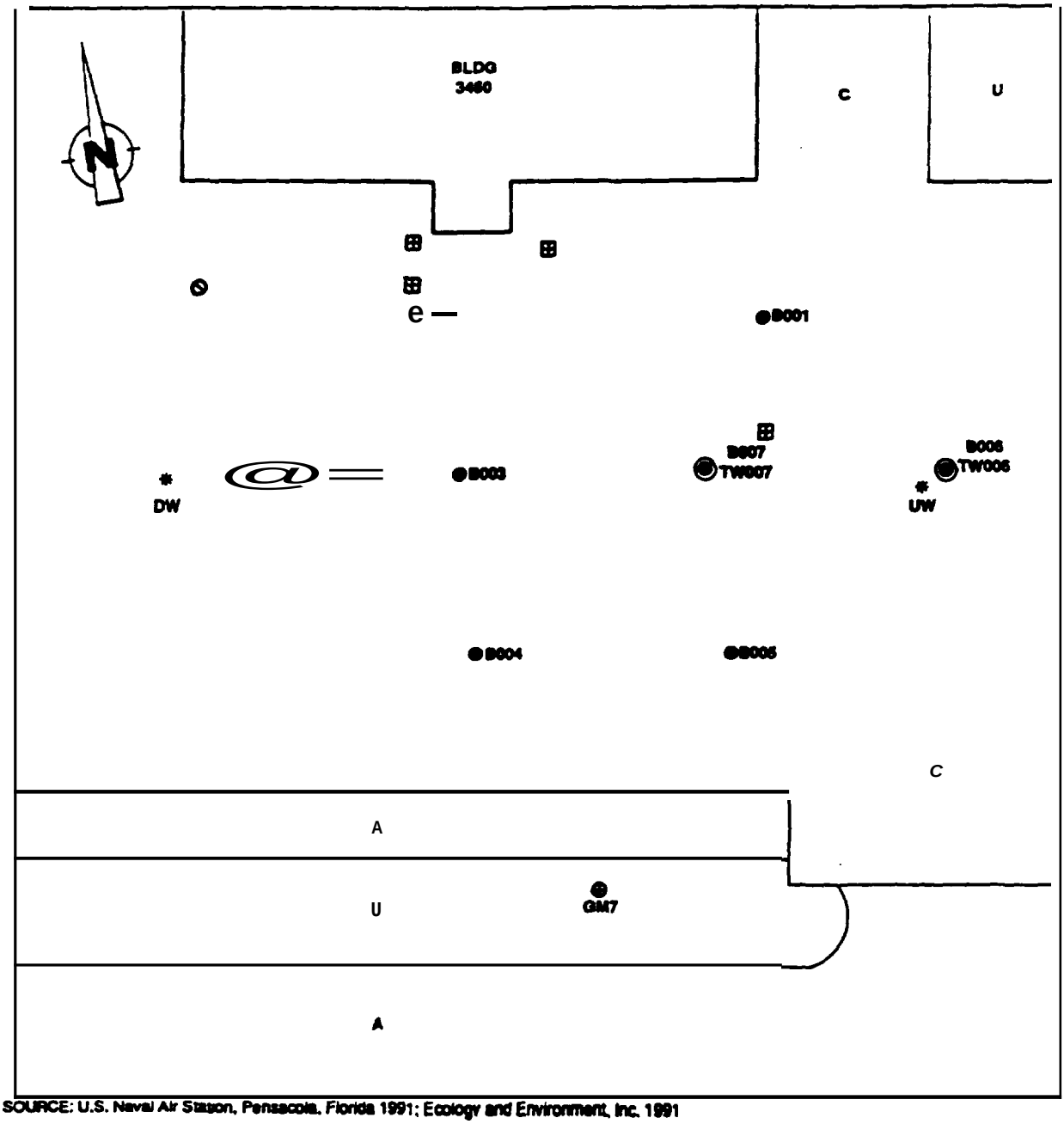
2.8 SOIL SAMPLING

Eight soil samples, plus one duplicate sample, were collected as described in Section 2.7. All soil samples were shipped to E & E's Analytical Services Center (ASC) and analyzed for the screening parameters listed in Table 2-2.

2.9 GROUNDWATER SAMPLING

2.9.1 Temporary Monitoring Vells

Three groundwater samples, plus one duplicate sample, were collected from the three temporary monitoring wells shown on figures 2-2 and 2-3. Veather conditions; water levels; purge volumes; and groundwater pH, specific conductance, and temperature were recorded in the field logbook prior to sampling. In addition, prior to purging,



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

0 100 200 FEET
SCALE

KEY:

- ● Soil Boring
- ○ Temporary Monitoring Well
- ⊕ Existing Permanent Shallow Monitoring Well
- ⊞ Stormwater Drain
- ⊘ Industrial Sewer Manhole
- ✱ Particulate Air Screening Location

DW/UW Downwind/Upwind
BLDG 3460 Building
U Unpaved Area
A Asphalt Paved Area
C Concrete Paved Area

Figure 2-3
PARTICULATE AIR SCREENING, SOIL BORING, AND TEMPORARY MONITORING WELL LOCATIONS — NAS PENSACOLA SITE 29

0000613

Table 2-2

SAMPLING AND ANALYTICAL SUMMARY
NAS PENSACOLA SITE *29*

Medium	No. of Samples	Duplicates	Total	Analytical Suite[a,b]
Soil	8	1	9	A
Groundwater[c]	3	1	4	A

Medium	No. of Samples	Dupli-cates	Trip Blanks[e]	Field Blanks	Rinsate Blanks	Preservative Blanks[f]	Total	Analytical Suite[a]
Groundwater[d]	1	1	1	1	1	1	6	B

[NASP]UH8018:T0357/580/10

Key:

'Analytical suite designation is as follows:

A = Volatile organic compound. (VOCs) including chlorobenzene, polynuclear aromatic hydrocarbon. (PAHs), phenols, pesticides and total polychlorinated biphenyls (PCBs), total recoverable petroleum hydrocarbons (TRPHs), and metals (total, unfiltered).

B = Target Corpound List (TCL) VOCs plus xylene and ketones, TCL base/neutral and acid extractable organic compounds (BNAs), TCL pesticides and PCBs, TRPHs, TAL metals (total [i.e., unfiltorod] and dissolved [i.e., millipore-filtered]), cyanide, total organic carbon, hardness (water only), and alkalinity (water only).

[b]Specific constituents encompassed by tho various chemical groups included within analytical suite A are identified in tables 9-1 through 9-4 of tho GQAPP.

[c]Groundwater samples and analyses shown are for temporary wells only.

[d]Groundwater samples and analyses shown are for existing permanent wells.

[e]Trip blank8 analyzed for TCL VOCs only.

[f]Preservative blanks analyzed for TCL VOCs, TRPHs, dissolved TAL metals, and cyanide.

Source: Ecology and Environment, Inc., 1992.

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

each well was checked for the presence of floating and/or sinking immiscible hydrocarbons using a Solinst of Canada oil/water interface probe. Each groundwater sample was collected immediately following well purging. All well purging and sampling activities were performed in accordance with sections 6.8 and 6.11 of the GOAPP. Equipment decontamination was performed in accordance with Section 6.10 of the GQAPP. All groundwater samples collected from the temporary monitoring wells were shipped to E & E's ASC and analyzed for the screening paraaeters listed in Table 2-2.

2.9.2 Existing Permanent Monitoring Wells

One groundwater sample, plus one duplicate sample, were collected from the existing permanent monitoring well located in close proximity to the site (see figures 2-2 and 2-3). Weather conditions; water levels; purge volumes; and groundwater pH, specific conductance, and temperature were recorded in the field logbook prior to sampling. Each groundwater sample was collected immediately following well purging. All well purging and sampling activities were performed in accordance with sections 6.8 and 6.11 of the GOAPP. Equipment decontamination was performed in accordance with Section 6.10 of the GOAPP. All groundwater samples collected from the existing wells were analyzed according to U.S. Environmental Protection Agency (EPA) Contract Laboratory Program (CLP) protocol for the Target Analyte List (TAL), Target Compound List (TCL), and other parameters.

2.10 HYDROLOGIC ASSESSMENT

The hydrologic assessment of the site and surrounding areas included determination of water level elevations in both the existing permanent monitoring well and the temporary monitoring wells.

Wellhead top-of-casing (TOC) elevations for the temporary monitoring wells were measured relative to the top of a driven reference stake located adjacent to each well using a spirit level and tape measure. Following groundwater sampling and removal of the temporary monitoring wells, the elevations of the driven reference stakes were surveyed using a transit with reference to the benchmark established at

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permanent monitoring well GM61 (located on Site 34--Solvent North of Building 3557), elevation 8.91 feet above mean sea level (HSL; G&H 1986).

Wellhead TOC elevations and static water levels measured in each existing permanent well were referenced directly to the established benchmark. Static water levels in the permanent monitoring well were measured on May 2, 1991. These water levels were used to determine the shallow aquifer water table elevation, shallow groundwater flow direction, and horizontal hydraulic gradient in the site vicinity.

In conjunction with the wellhead survey, the elevations of other nearby features (e.g., ponds, streams, and leachate seeps) were established.

2.11 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 GQAPP.

2.11.1 Field QA/QC Samples

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

2.11.2 Decontamination Procedures

All equipment used during field activities were decontaminated in accordance with Section 6.10 of the GQAPP.

2.12 INVESTIGATION-DERIVED WASTE MANAGEMENT

Excess soil generated during soil boring and temporary monitoring well installption activities was temporarily contained adjacent to the well or boring and then backfilled into the borehole after the auger flights or temporary well casings had been removed following sample

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collection. Any soil material remaining after completion of borehole backfilling was placed in 55-gallon drums, sealed, labeled, and moved to a central area on the site. Each drum has a painted-on label listing the site number and the type of material contained in the drum.

All water generated during development and purging of the temporary monitoring well was temporarily contained adjacent to the well and then poured back into the well following collection of samples.

All water generated during purging of the existing permanent monitoring wells was placed in 55-gallon drums, sealed, labeled, and moved to a central area on the site. Each drum has a painted-on label listing the site number and the type of material contained in the drum.

Potentially contaminated, personal protective clothing and disposable materials, wastes generated during decontamination activities, and other potentially contaminated, investigation-derived materials were placed in 55-gallon drums, labeled, and moved to a central area on the site. These drums are sealed and labeled "trash". All drummed investigation-derived materials were subsequently picked up and disposed of by NAS Pensacola.

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3. RESULTS

3.1 AERIAL PHOTOGRAPH AND EXISTING DATA ANALYSIS

The review of aerial photographs from 1951 to 1989 indicated that activities and surface features on and in the vicinity of Site 29 varied during this period. A portion of the industrial waste sewer line was constructed across the site; a large building was constructed north of and adjacent to the site; and the entire site area was repaved extensively with concrete.

Review of the January 22, 1951, aerial photograph indicated that the site was entirely paved with asphalt or tarmac and included a portion of one of the Chevalier Field runways. Aircraft were observed parked south and west of the site on the concrete apron of Chevalier Field. In this photograph, the site surface appears open and flat, and surface drainage is most likely directed to the west away from Chevalier Field toward an extensive, paved drainage ditch system. This drainage ditch system also serves sites 9, 10, and 23 (Navy Yard Disposal Area, Commodore's Pond, and Chevalier Field Pipe Leak Area) by draining north into the south arm of Bayou Grande.

Aircraft were observed in the southwest Chevalier Field area in the January 3, 1958, aerial photograph; however, review of subsequent aerial photographs, from October 12, 1961, to March 25, 1968, indicated that aircraft were no longer present on Chevalier Field. No other changes to the site or site area were apparent during this period.

Trenching for the installation of the industrial waste sewer line is evident in the April 6, 1970, aerial photograph, where the paved surface is apparently disturbed. The effects of the trenching activities are still evident in the May 4, 1973, aerial photograph.

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

Review of the April 28, 1976, aerial photograph indicated that construction of Building 3460, located north of the site, and the extensive concrete pavement covering the entire site vere completed prior to this time.

A small addition to the southwest portion of Building 3460 was observed on the March 6, 1981, aerial photograph. A large number of small objects, possibly including vehicles and helicopters, vere also apparent on the concrete surface of the site.

Review of subsequent aerial photographs from September 22, 1983, to October 26, 1989, indicated a large number of small objects, including helicopters, vehicles, and a small office trailer, had been located on the concrete surface over the site during this period.

Based on the review of aerial photographs, the area where the industrial waste sewer line was installed is of interest as a potential source of contamination.

3.2 SITE RECONNAISSANCE

During the site reconnaissance, visual inspections were conducted in the area south of Building 3460 and across the site. The site is an open, flat area completely paved with concrete (see Figure 1-3). Four stormvater drains as well as an industrial sever manhole vere observed on the pavement (see Figure 1-3).

An HNu organic vapor reading of 1.0 ppm above background vas detected at the industrial sever manhole during the time of the reconnaissance. In addition, a faint paint odor vas noticeable from Building 3460.

Surface drainage, vhile not apparent, is probably tovard the four stormvater drains in the concrete pavement, or possibly tovard the west, off the concrete pavement, to an unpaved area on Site 9 (Navy Yard Disposal Area), west of and adjacent to Site 29.

Site 29 is currently being used for helicopter parking and maintenance (in Building 3460).

[The site is entirely paved and heavily utilized. No suitable terrestrial habitats or species vere present on the site.]

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

3.3 SURFACE EMISSIONS SURVEY AND PARTICULATE AIR SCREENING

An OVA was used to monitor surface emissions across the site. No measurements of organic vapors above background readings were observed during the surface emissions survey. Appendix A presents the results of the OVA surface emissions survey.

On June 5, 1991, a Mini-Ram particulate air monitoring device was used to determine if Site 29 represents a source of particulates in the air (see Figure 2-3). During the test, the wind was blowing from the east at approximately 3 to 5 miles per hour (mph). The Mini-Ram was placed upwind at a grid location of N1+50, E4+50 on the east perimeter of the site. After 15 minutes, the time weighted average (TWA) of particulates was 0.10 milligrams per cubic meter (mg/m^3). The Mini-Ram was then placed directly downwind and approximately 450 feet west of the upwind location (see Figure 2-3). After 15 minutes, the TWA was again recorded as 0.10 mg/m^3. Based on these results, the central area of the site does not appear to be a source of particulates in the air.

3.4 HYDROLOGIC ASSESSMENT

3.4.1 Shallov Subsurface Lithology

Appendix B presents the lithologic logs for the eight soil borings completed at Site 29. Based on information collected during completion of the borings, the shallow subsurface lithology beneath Site 29 can be generally characterized as a light brown, slightly silty, fine- to medium-grained quartz sand that generally becomes a tan to white, medium-grained quartz sand at the water table. In boring B003, a dark gray to brown, slightly silty, fine- to medium-grained quartz sand was encountered from 1.5 to 2 feet BLS; however, in borings B007 and B008 a red to brown sand was encountered in this interval.

OVA readings taken in the open boreholes during drilling ranged from 0 to 0.1 ppm. The open-borehole OVA readings are also presented in Appendix B.

3.4.2 Vater Levels and Groundwater Plow

Table 3-1 presents the water level elevations measured in the three temporary monitoring wells and the one permanent shallow monitoring well at Site 29. Based on the measurements obtained from

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Table 3-1

TEMPORARY AND PERMANENT MONITORING WELL CONSTRUCTION INFORMATION AND WATER LEVEL ELEVATIONS NAS PENSACOLA SITE 29

Well Number[a]	Total Depth (BLS)	Depth to Water (BLS)	Depth to Water BTOC	TOC Elevation	Water Level Elevation	Date Measured
TW006	9.11	5.12	6.01	10.29	4.28	6/22/91
TW007	8.98	4.33	5.31	9.62	4.31	6/22/91
TW008	8.08	3.46	5.30	9.68	4.38	6/25/91
GM7	11.33	3.07	4.39	8.94	4.55	5/2/91

14[NASP]UH8018:T0357/604/22

Notes:

All depths are in foot; all elevations are in fort referenced to moan sea level (MSL); all temporary wells were constructed of 2-inch diameter stainless stool with 5 toot of 0.01-inch screen; and tho permanent shallow well was constructed of 2-inch diameter PVC with 2.5 foot of 0.01-inch screen.

Key:

[a]GM7 is a permanent shallow monitoring well; tho other three are temporary monitoring wells.

BLS = Below land surface.
TOC = Top of casing.
BTOC = Below top of casing.

Source: Ecology and Environment, Inc., 1992.

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

water levels observed in the monitoring wells, the depth to the water table across the site ranges from 5.12 feet BLS (in TW006) to 3.07 feet BLS (in GM7).

Figure 3-1 illustrates water level elevations and groundwater flow direction, based on temporary monitoring well data, in the upper portion of the surficial zone of the Sand-and-Gravel Aquifer at Site 29. Based on these groundwater elevations, the direction of shallow groundwater flow is generally to the northeast. The horizontal hydraulic gradient is approximately 0.0010.

Figure 3-2 illustrates water level elevations and groundwater flow direction based on temporary monitoring well data, in the upper portion of the surficial zone of the Sand-and-Gravel Aquifer in the area of sites 29, 9, 10, 23, and 34. Based on these groundwater elevations, the direction of shallow groundwater flow is generally to the north-northeast: the horizontal hydraulic gradient to the northeast is approximately 0.0015 across Site 29; and the horizontal hydraulic gradient to the north, toward Site 9, is slightly lower (approximately 0.0011). Water level isopleths over Site 29 have been estimated due to the lack of control data points in this area.

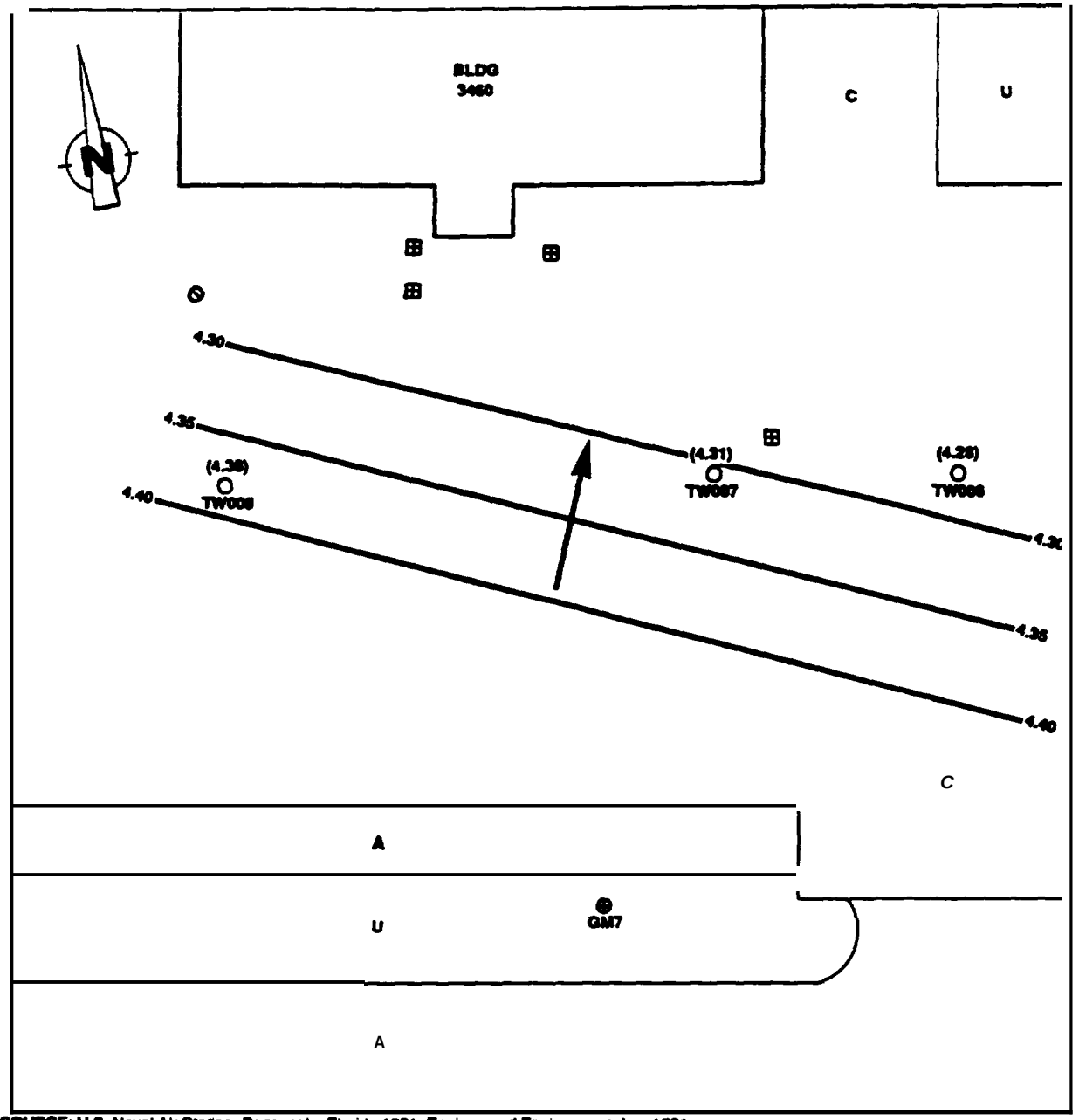
Figure 3-3 illustrates water level elevations and groundwater flow direction, based on permanent monitoring well data and inferred from temporary monitoring well data, in the upper portion of the surficial zone of the Sand-and-Gravel Aquifer in the area of sites 29, 9, 10, 23, and 34. Based on these groundwater elevations, the direction of shallow groundwater flow is generally northward.

3.5 CHEMICAL ANALYSES

The following section presents the results of the laboratory analyses of the Site 29 soil and groundwater samples. The specific analytical., parameters and parameter groups are listed or referenced in Table 2-2.

3.5.1 Soil

Table 3-2 summarizes the analytical screening results for soil samples collected at eight soil borings across Site 29 and presents the Resource Conservation and Recovery Act (RCRA) Proposed Corrective Action



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

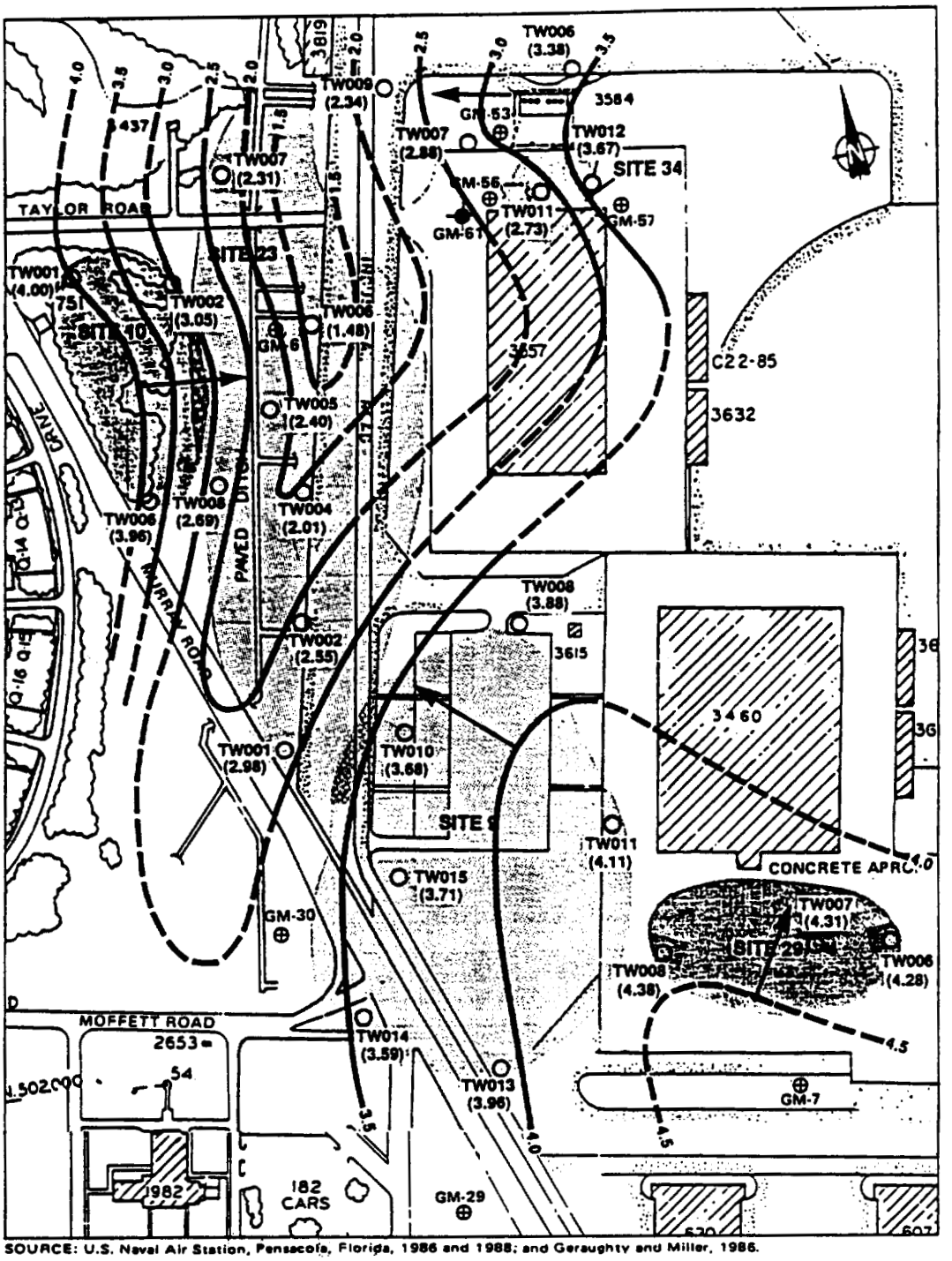
0 100 200 FEET
SCALE

KEY:

●	Existing Permanent Shallow Monitoring Well	BLDG 3460	Building	(4.38)	Water Level Elevation (feet above MSL)
○	Temporary Monitoring Well	A	Asphalt Paved	4.30	Water Level Elevation Isopleth (feet above MSL) (Isopleth Interval = 0.05 foot)
⊞	Steel Grate	C	Concrete Paved	→	Groundwater Flow Direction
⊘	Manhole	U	Unpaved		

Figure 3-1
SURFICIAL ZONE WATER LEVEL ELEVATIONS, TEMPORARY MONITORING WELLS — NAS PENSACOLA SITE 29

0000618



SOURCE: U.S. Naval Air Station, Pensacola, Florida, 1986 and 1988; and Geraughty and Miller, 1986.

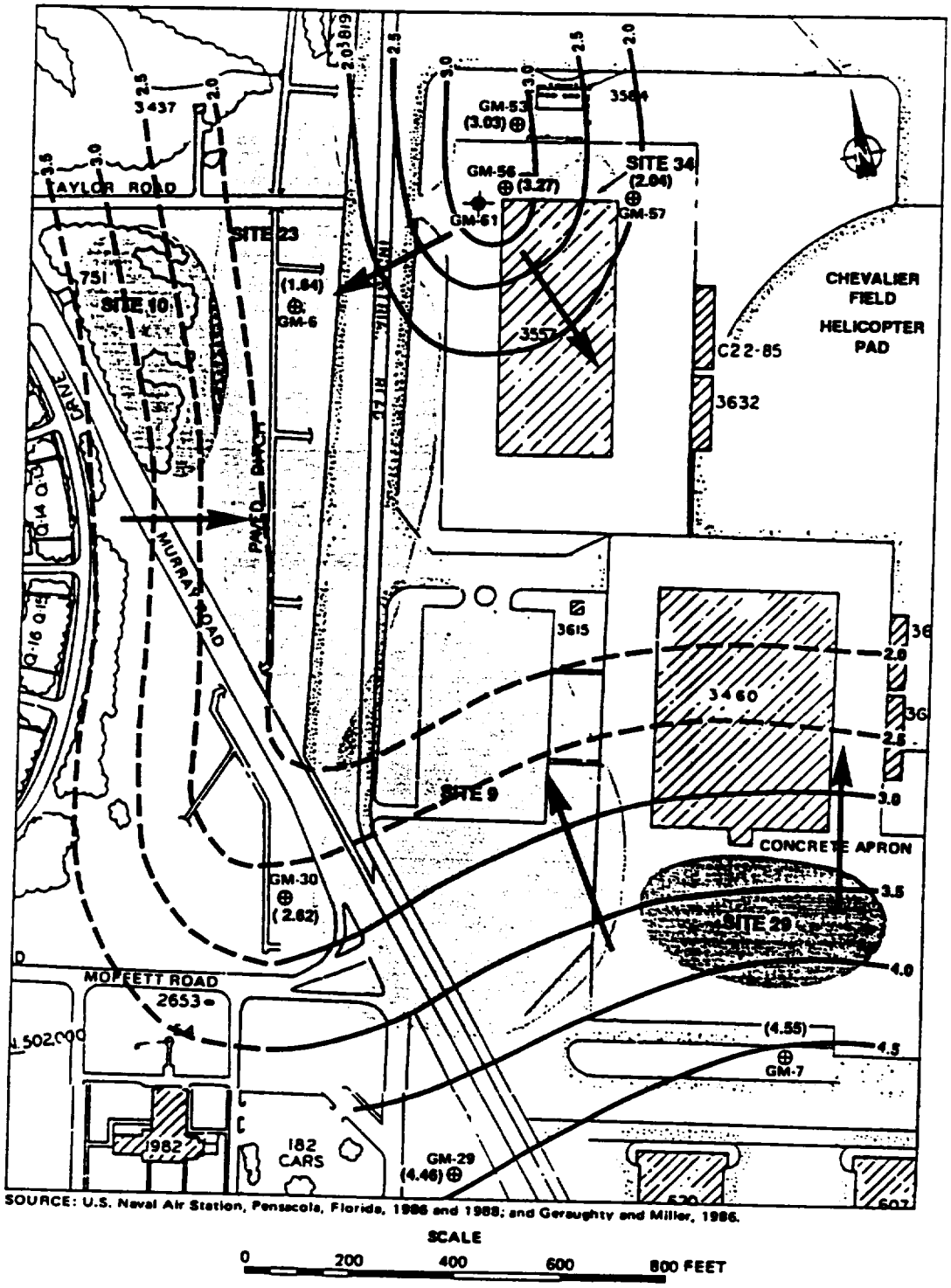
SCALE

0 200 400 600 800 FEET

KEY:

- ⊕ Existing Permanent Shallow Monitoring Well
- Existing Permanent Deep Monitoring Well
- Building
- Q-12 Residential Quarters
- ○ Temporary Monitoring Well
- (3.71) Water Level Elevations (feet above MSL)
- 3.5 Water Level Elevation Isopleth (feet above MSL; dashed where inferred) (Isopleth Interval = 0.5 foot)
- Groundwater Flow Direction

Figure 3-2
SURFICIAL ZONE WATER LEVEL ELEVATIONS, TEMPORARY MONITORING WELLS NAS PENSACOLA SITES 9, 10, 23, 29, AND 34



SOURCE: U.S. Naval Air Station, Pensacola, Florida, 1986 and 1988; and Geraughty and Miller, 1986.

SCALE

0 200 400 600 800 FEET

KEY:

- ⊕ Existing Permanent Shallow Monitoring Well
- ✦ Existing Permanent Deep Monitoring Well
- Building
- Q-12 Residential Quarters
- (3.03) Water Level Elevations (feet above MSL)
- 3.5 Water Level Elevation Isopleth (feet above MSL) (Dashed Where Inferred)
- → Groundwater Flow Direction

Figure 3-3
SURFICIAL ZONE WATER LEVEL ELEVATIONS, PERMANENT MONITORING WELLS — NAS PENSACOLA SITES 9, 10, 23, 29, AND 34

0000619

Table 3-2

SUMMARY ANALYTICAL SCREENING RESULTS FOR SOIL SAMPLES
NAS PENSACOLA SITE 29
(All results in mg/kg, unless noted)

Parameter	Detection Limit	Sample Number (Location and Depth Interval)									RCRA PCAL
		P29S001A (B001A)	P29S001AD[a] (B001A)	P29S002A (B002A)	P29S003A (B003A)	P29S004A (B004A)	P29S005A (B005A)	P29S006A (B006A)	P29S007A (B007A)	P29S008A (B008A)	
Chromium	1.0	--	1.4	--	--	--	--	2.0	2.4	--	400[b]
Zinc	2.0	9.9	7.6	3.2	--	--	--	2.4	--	2.0	16,000
Load	4.0	17	12	--	--	--	--	9.5	--	--	
TRPHs	5.0	29	59	74	--	--	--	--	--	--	
Total PAHs as Benzo-a-pyrene (µg/kg)	1,000	--	--	--	--	--	--	6,200	--	--	

14[NASP]UH8018:T0357/590/1

Key:

[a]Duplicate of sample P29S001A.
[b]This PCAL is for hexavalent chromiua.

RCRA PCAL = Resource Conservation and Recovery Act Pcoposod Corrective Action Level.

Dash (--) indicates compound not detected.

Source: Ecology and Environment, Inc., 1992.

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

Levels (PCALs) for soil contamination (EPA 1990). Figure 2-3 shows the locations of the eight soil borings. The complete analytical screening results for the soil samples are presented in Appendix C.

All soil samples were collected only over the A (0- to 5-foot BLS) sampling depth interval. Therefore, for discussion purposes, soil sample results cited are synonymous with results cited for the soil boring from which the sample was collected (e.g., sample S001A results are synonymous with boring B001 results, etc).

Five of the eight soil samples exhibited detectable and/or elevated levels of metals, total recoverable petroleum hydrocarbons (TRPHs), and/or polynuclear aromatic hydrocarbons (PAHs). Pesticides, phenols, volatile organic compounds (VOCs), and polychlorinated biphenyls (PCBs) were not detected in any of the soil samples.

Metals

Chromium (three samples), zinc (five samples), and lead (three samples) were detected in soil samples at Site 29. The highest total metals concentration (26.9 mg/kg) was detected in the soil sample from boring B001, located near the northeastern corner of the site. Each of the chromium and zinc concentrations detected in Site 29 soil samples were far below the established RCRA PCAL; no PCAL has been established for lead (EPA 1990).

Tvo soil samples (S001AD and S006A) exhibited all three metals; lead constituted the highest percentage of the three metals. The highest zinc and lead concentrations (9.9 mg/kg and 17 mg/kg, respectively) were detected in sample S001A, whereas the highest chromium concentration (2.4 mg/kg) was detected in soil sample S007A. No metals were detected in the soil samples collected along the south perimeter of Site 29 (borings B004 and B005) or in the center of the site (boring B003).

TRPHs

TRPH compounds were detected in only two of the eight soil borings (B001 and B002); these borings were located along the north perimeter of the site. The highest concentration of TRPHs (74 mg/kg) was detected in

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the sample S002A, while slightly lower concentrations (29 mg/kg and 59 mg/kg) were detected in samples S001A and S001AD (see Table 3-2 and Figure 3-4).

PAHs

Total PAHs were present in only one soil sample (S006A) collected from boring B006 located at the east edge of the site (see Table 3-2 and Figure 3-4). Sample S006A exhibited an elevated level of 6,200 µg/kg PAHs as benzo(a)pyrene. It should be noted that total PAHs were reported as benzo(a)pyrene for laboratory reporting purposes; however, PAHs other than benzo(a)pyrene may have been present in the soil sample.

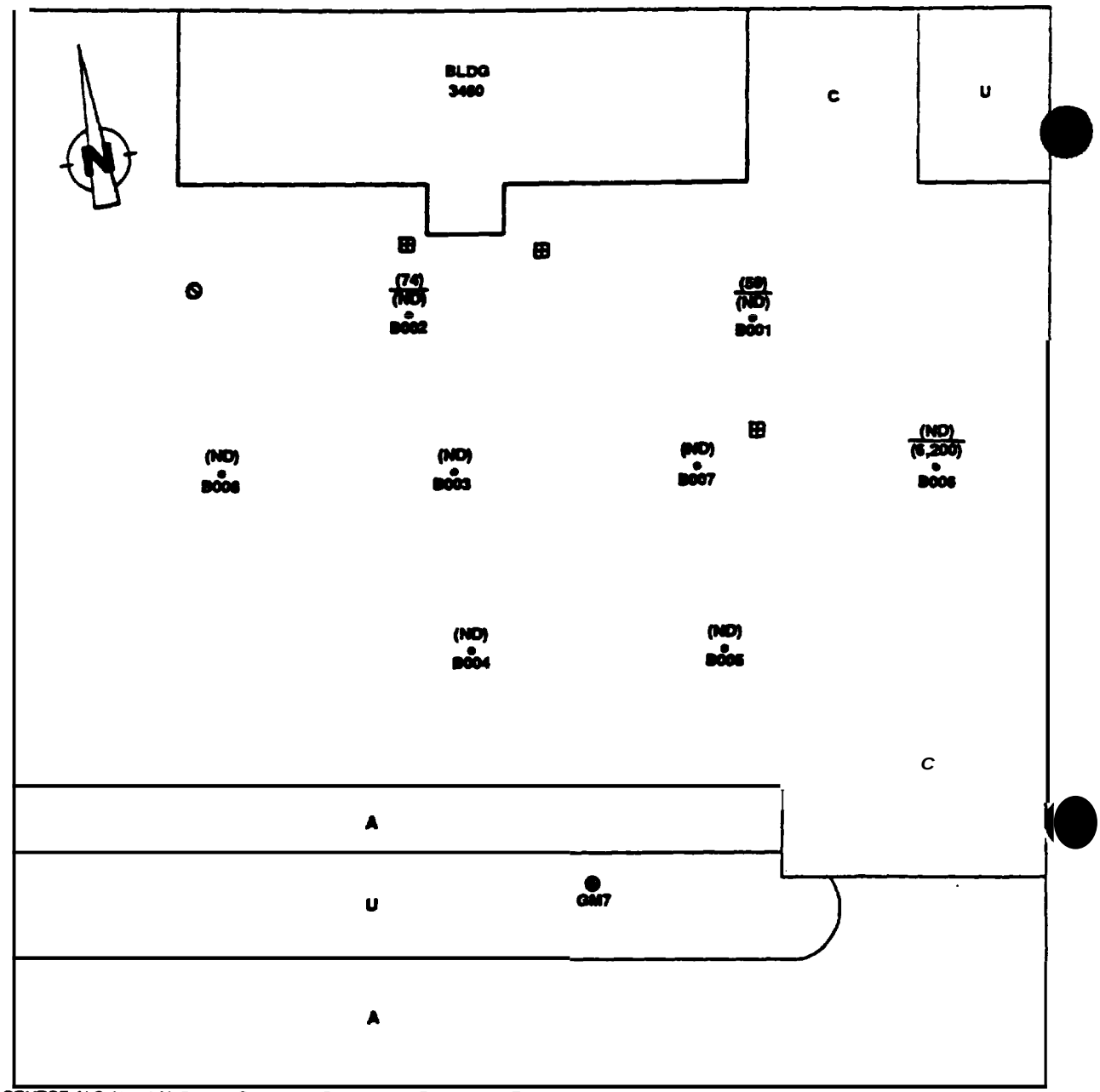
3.5.2 Groundwater

Field Parameters

Table 3-3 lists the groundwater temperature, pH, and specific conductance values for the groundwater samples collected from the three temporary monitoring wells and the one permanent well at Site 29. The field parameter measurements for the wells are within the reported range of values for ambient groundwater in Escambia County (Clemens ~~et al.~~ 1989). No floating or sinking immiscible hydrocarbons were observed or indicated by the oil/water interface probe in any of the wells. Appendix D presents temporary monitoring well information including field parameters and groundwater elevation data.

Analytical Screening Parameters

Table 3-4 summarizes the analytical screening results for the groundwater samples collected from the three temporary monitoring wells installed at Site 29. Figure 2-3 shows the three temporary monitoring well locations. The complete analytical screening results for the groundwater samples are presented in Appendix E. According to the results, only four metals were detected in the three temporary monitoring wells. TRPHs were detected in all of the wells and one VOC was detected in one of the wells. PAHs, phenols, pesticides, and PCBs were not detected in any of the groundwater samples collected at Site 29.



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

0 100 200 FEET
SCALE

KEY:

⊕	Existing Permanent Shallow Monitoring Well	U	Unpaved
		•	Soil Boring
⊘	Manhole	(74)/(ND)	TRPH Concentration (mg/kg) / Total PAH Concentration (ug/kg)
⊞	Stormwater Drain	ND	Not Detected
A	Asphalt Paved		
C	Concrete Paved		

Figure 3-4
TRPH AND TOTAL PAH CONCENTRATIONS AT EACH SOIL BORING LOCATION
NAS PENSACOLA SITE 29

Table 3-3

GROUNDWATER FIELD PARAMETERS
NAS PENSACOLA SITE 29

Well Number	Temperature (°C)	pH (units)	Specific Conductance (μmhos/cm)	Date Measured
TU006	30	6.5	420	6/22/91
TWO07	31	7.0	215	6/22/91
TW008	30	1.4	300	6/25/91
GM7	28.5	7.8	220	5/2/91

14[NASP]UH8018:T0357/649/24

Source: Ecology and Environment, Inc., 1992.

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

Table 3-4

SUMMARY ANALYTICAL SCREENING RESULTS FOR GROUNDWATER SAMPLES (FROM TEMPORARY MONITORING WELLS) NAS PENSACOLA SITE 29 (All results in µg/L, unless noted)

Parameter	Detection Limit	Sample Number (Well Number)				
		P29GW006 (TW006)	P29GW007 (TW007)	P29GW007D[a] (TW007)	P29GW008 (TW008)	FPDWS/ FSDWS
Arsenic	60	--	--	110	--	SO
Chromium	10	26	34	26	23	50
Zinc	20	58	38	66	46	5,000
Nickel	40	--	42	--	--	
TRPHs (mg/L)	1	11	2.6	5.7	12	
Methylene Chloride	10	--	--	--	100[b]	

14[NASP]UH8018:T0357/592/14

Koy :

[a]Duplicate of sample P29GW007.
[b]The detection limit for this parameter increased by a factor of 10 in this sample.
FPDWS = Florida Primary Drinking Water Standard.
FSDWS = Florida Secondary Drinking Water Standard.

Dash (--) indicate. compound not detected.

Source: Ecology and Environment, Inc., 1992.

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

Metals. Chromium and zinc were detected in all the groundwater samples at concentrations ranging from 23 to 34 µg/L and 38 to 66 µg/L, respectively. These levels are well below the Florida Primary Drinking Water Standard (FPDWS) of 50 µg/L for chromium and the Florida Secondary Drinking Water Standard (FSDWS) of 5,000 µg/L for zinc (FDER 1991). The highest chromium and zinc values were present in the original and duplicate groundwater sample (GW007 and GW007D), respectively, collected from well TW007. An elevated arsenic concentration (110 µg/L) was also detected only in duplicate sample GW007D (see Figure 3-5). This concentration exceeds the FPDUS of 50 µg/L.

Nickel was present in groundwater sample GW007 at 42 µg/L, well below the Florida Groundwater Guidance Concentration (FGWGC) of 150 µg/L (FDER 1989).

TRPHs. TRPHs were detected in all of the temporary monitoring well groundwater samples at concentrations ranging from 2.6 to 12 mg/L. The highest TRPH concentrations were present in the samples collected from the westernmost (TW008) and easternmost (TW006) wells. The lowest concentrations were present in the original and duplicate samples from TW007, which was located just west of TW006 (see Figure 3-6).

VOCs. Only one groundwater sample (GW008) exhibited an elevated methylene chloride concentration (100 µg/L). This value is above the applicable FGWGC of 5 µg/L (see Table 3-4).

TAL/TCL Parameters

Table 3-5 summarizes the analytical results for the TAL and TCL parameters in the permanent monitoring well GM7 groundwater samples. Figure 2-3 shows the location of permanent monitoring well GM7. Metals, TRPHs, VOCs, one base/neutral and acid extractable compound (BNA), and a few tentatively identified compounds (TICs) were detected in the groundwater samples.

Metals. Four metals (calcium, magnesium, potassium, and sodium) were detected at similarly high levels in both the total and dissolved

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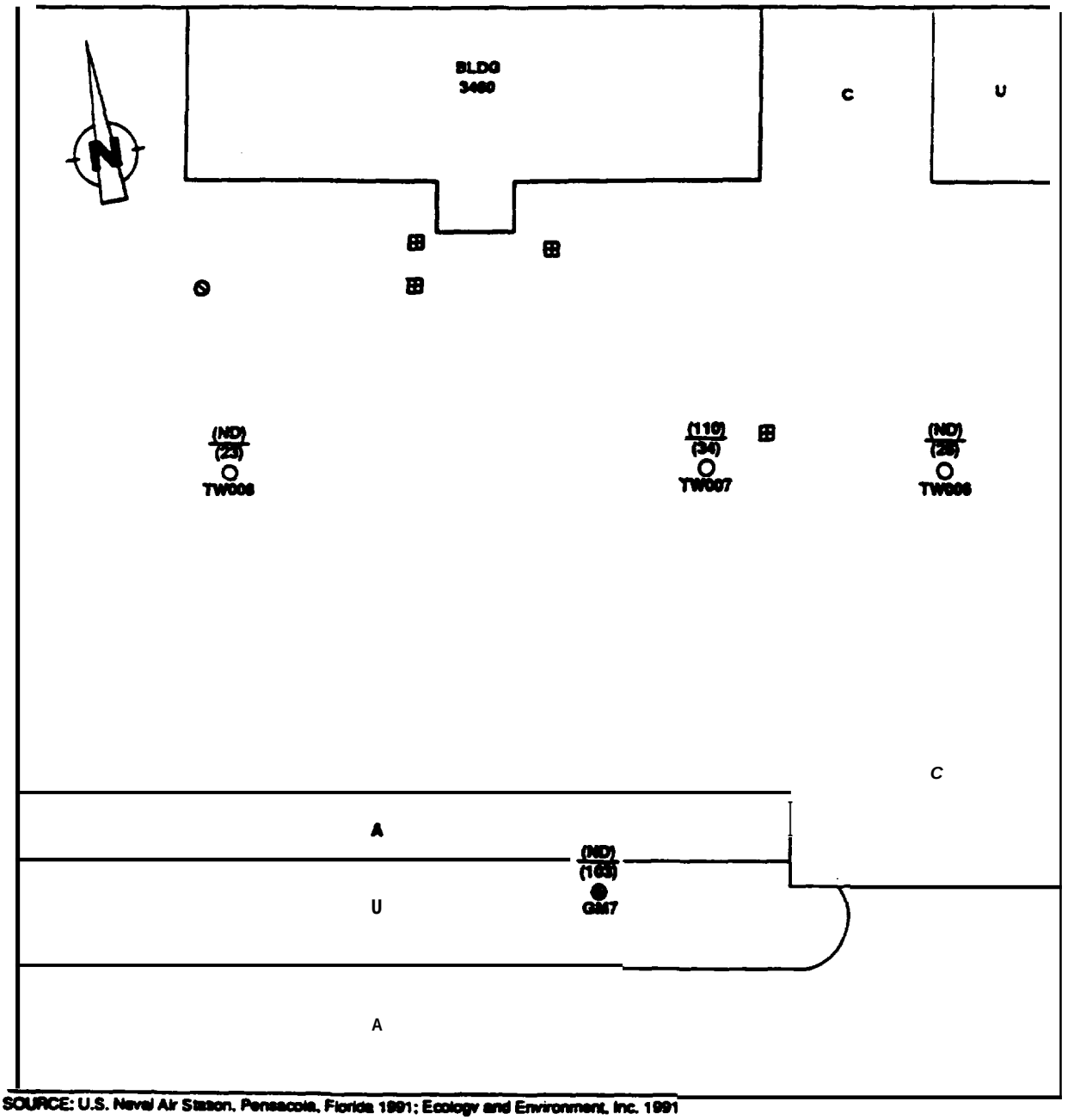
changes to last version of document]



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

0 100 200 FEET
SCALE

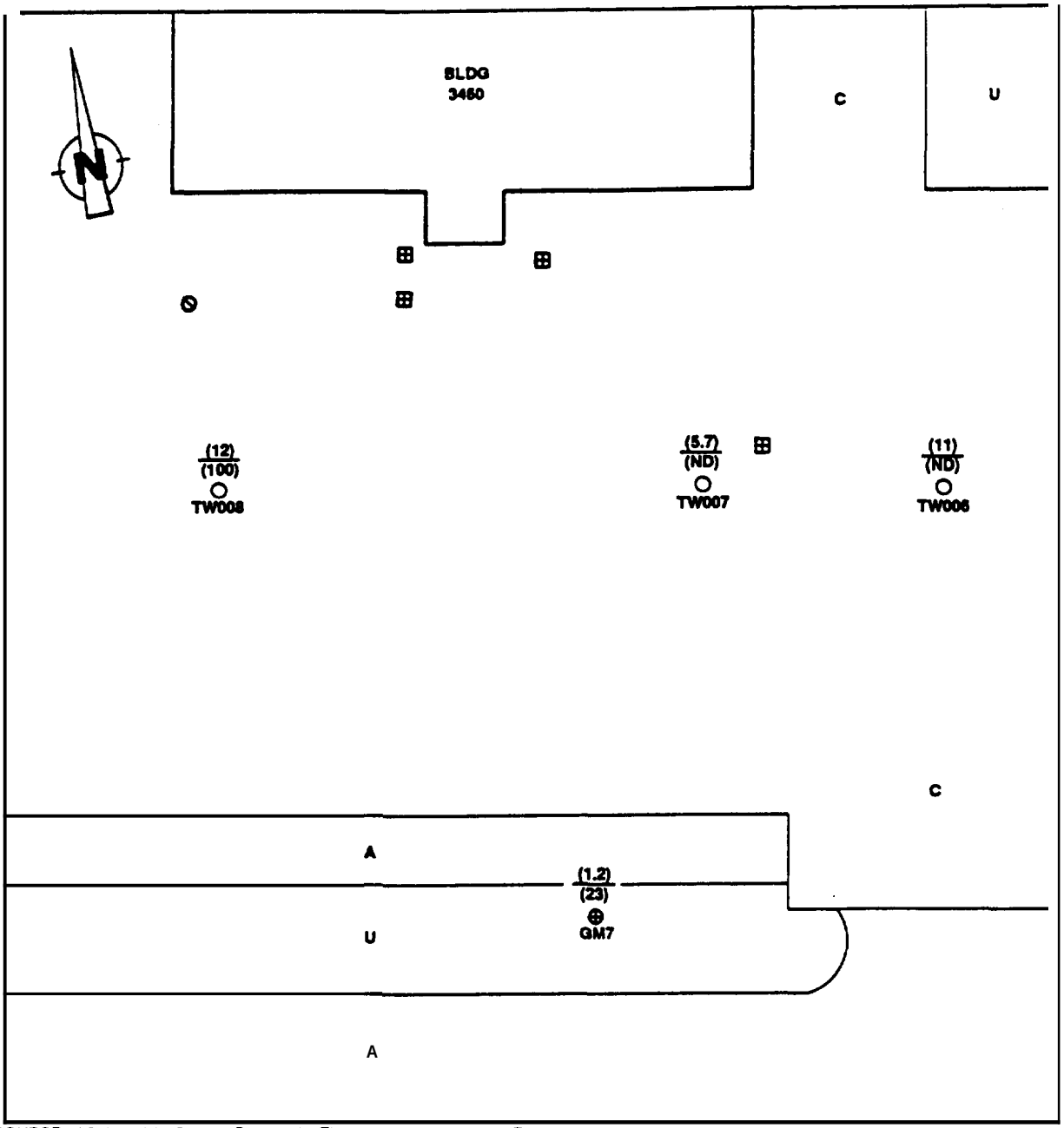
KEY:

⊕	Existing Permanent Shallow Monitoring Well	C	Concrete Paved
○	Temporary Monitoring Well	U	Unpaved
BLDG 3460	Building	(110)/(34)	Arsenic Concentration (ug/L) / Chromium Concentration (ug/L)
⊘	Manhole	ND	Not Detected
⊞	Stormwater Drain		
A	Asphalt Paved		

Rgun3-5

ARSENIC AND CHROMIUM CONCENTRATIONS IN GROUNDWATER SAMPLES
NAS PENSACOLA SITE 29

0000613



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

0 100 200 FEET
SCALE

KEY:

⊕	Existing Permanent Shallow Monitoring Well	C	Concrete Paved
○	Temporary Monitoring Well	U	Unpaved
BLDG 3450	Building	(12)/(100)	TRPH Concentration (mg/L) / Total VOC Concentration (ug/L)
⊘	Manhole	ND	Not Detected
⊞	Stormwater Drain		
A	Asphalt Paved		

Figure 3-6
TRPH AND TOTAL VOC CONCENTRATIONS IN GROUNDWATER SAMPLES
NAS PENSACOLA SITE 29

Table 3-5

SUMMARY TAL/TCL ANALYTICAL RESULTS FOR GROUNDWATER AND FIELD QA/QC SAMPLES
(FROM PERMANENT MONITORING WELLS)
NAS PENSACOLA SITE 29
(All results in µg/L, unless noted)

Parameter	Detection Limit	Sample Number (Well Number/Type) P29W007 (GM7)	P29W007D[a] (GM7)	P29WTB04[b] (Trip Blank)	P29WFB04 (Field Blank)	P29WRB04[c] (Rinsate Blank)	P29WPB04[d] (Preservative (Blank)	FPDWS/ FSDWS
Total Metals								
Aluminum	14	246	61.2(B)	NA	41.4(B)	35(B)	30.4(B)	
Barium	5	161(B)	147(B)	NA	--	--	--	1,000
Calcium	95	32,700	32,900	NA	--	188(B)	121(B)	
Chromium	10	103	37	UA	16	12.5	41.1	50
Cobalt	5	8.8(B)	9.3(B)	NA	6.8(B)	7.1	5.9(B)	
Copper	2	3.2(B)	--	NA	--	--	--	1,000
Iron	19	1,350(E)	954(E)	NA	106(E)	108(E)	220(E)	300
Load	1.0	3.8(S)	1.1(B)	NA	1.6(B,W)	--(W)	1.5(B,W)	50
Magnesium	108	1,780	1,780(B)	NA	--	--	--	
Manganese	1	289(E)	149(E)	NA	2.7(B,E)	3.0(B,E)	4.8(B,E)	50
Nickel	14	19.4	--	NA	--	--	--	
Potassium	263	3,010	2,930(B)	NA	--	--	--	
Sodium	74	27,100	27,000	NA	174(B)	422(B)	218(B)	160,000
Vanadium	4	4.2	4.4(B)	NA	--	--	--	
Zinc	3	12.9	8.4(B)	NA	5.5(B)	5.4(B)	12.2(B)	5,000

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Table 3-5 (Cont.)

Parameter	Dotoction Limit	P29W007 (GM7)	P29W007D[a] (GM7)	P29WTB04[b] (Trip Blank)	P29WFB04 (Field Blank)	P29WRB04[c] (Rinsate Blank)	P29WPB04[d] (Preservative (Blank)	FPDWS/ FSDWS
		Sample Number (Well Number/Type)						
Dissolved Metals,								
Aluminum	14	151(B)	236	NA	50.6(B)	66.1(B)	NA	
Barium	5	141(B)	147(B)	NA	--	--	NA	1,000
Calcium	95	33,600	33,500	NA	102(B)	103(B)	NA	
Chromium	lo	--	109	NA	148	116	NA	50
Cobalt	5	2.4(B)	11.8(B	NA	8.5(B)	7.9(B)	NA	
Copper	2.0	5.0(B)	3.6(B	NA	3.9(B)	--	NA	1,000
Iron	19	287(E)	849(E	NA	631(E)	481(E)	NA	300
Load	1.0	1.1(B,W)	1.4(B W)	NA	--	1.4(B)	NA	50
Magnesium	108	1 840(B)	1,810(B	NA	--	--	NA	
Manganese	1	165(E)	181(E	NA	15.5(E)	11.9(B,E)	NA	50
Nickel	14	--	22.4(B	NA	37.6(B)	25.8(B)	NA	
Potassium	263	3,170 B)	3,220 B	NA	--	--	NA	
Sodium	74	28,200	27,700	NA	211(B)	244(B)	NA	160.000
Vanadium	4.0	5.6 B)	6.1 B)	NA	4.8(B)	4.2(B)	NA	
Zinc	3.0	9.0 B)	13.0 B)	NA	6.7(B)	--	NA	5,000
TRPHs (mg/L)	1.0	--	1.2	NA	--	--	--	
Methylene Chloride	5.0	6(B[a])	1(B[a],J)	--	6(B[a])	4(B[a],J)	1(B[a],J)	
Acetone	10	14(B[a])	13	12	--	--	15	
Bis(2-Ethylhexyl)Phthalate	10	3(B[a],J)	3(B[a],J)	NA	3(B[a],J)	3(B[a],J)	NA	

14[NASP]UH8018:T0357/715/3

Key at end of table.

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

Table 3-5 (Cont.)

Parameter	Detection Limit	Sample Number (Well Number/Type)						
		P29W007 (GM7)	P29W007D[a] (GM7)	P29WTB04[b] (Trip Blank)	P29WFB04 (Field Blank)	P29WRB04[c] (Rinsate Blank)	P29WPB04[d] (Preservative (Blank)	FPDWS/ FSDWS
Tentatively Identified Compounds*								
Hexane		6.0(J)	6.0(B[a],J)	6.0(B[a],J)	5(J)	--	6.0(B[a],J)	
Unknown Hydrocarbon		(3)44(J)	(2)8(J)	--	(3)28(J)	4(J)	--	
Unknown Hydrocarbon		(2)10(B[a],J)	(3)20(B[a],J)	--	(2)12(B[a],J)	(2)12(B[a],J)	--	
Unknown Compound		(4)28.0(J)	(3)45(J)	--	31(J)	(3)49(J)	--	
Unknown Compound		30(B[a],J)	41(B[a],J)	--	35(B[a],J)	33(B[a],J)	--	
Total Alkalinity (mg/L as $CaCo_3$)	1.0	100	100	NA	5.0	NA	NA	
Total Hardness (mg/L as $CaCo_3$)	1.0	88	62	NA	2.0	--	--	
Total Organic Carbon (mg/L)	1.0	4.4	5.0	NA	--	NA	NA	
Gross Alpha Radioactivity (pCi/L)	1	HA	HA	NA	NA	NA	NA	

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Table 3-5 (Cont.)

Note: Tho number within parentheses preceding tho concontration is tho number of tentatively identified compounds (TICs) in this parameter group. Tho listed concontration represents tho sum of tho individual group-member concentrations.

Key:

NA = Analyses not performed.
Dash (--) indicator compound not detected.
*Values for TICs are estimated. No detection limits were established.

[a]Duplicate of sample P29W007.
[b]Analyzed for VOCs only.
[c]Analyzed for total metals, dissolved metals, cyanido, VOCs, BNAs, pesticides, PCBs, and TRPHs.
[d]Analyzed for dissolved metals, cyanido, VOCs, and TRPHs only.

Qualifiers:
(B) = Reported value was obtained from a reading that was less than the Contract Required Detection Limit but greater than or equal to the Instrument Detection Limit.
(B[a]) = Present in method blank.
(E) = Reportod value is estimated because of tho presence of interference.
(J) = For nonTICs estimated value; compound present but below detection limit. Also indicates that TIC concentrations are estimated because no detection limits were established.
(S) = Tho reported value was determined by tho method of standard additions.
(W) = Post digestion spike for furnace AA analysis is out of control limits (85-115%), while sample absorbance is less than 50% of spike absorbance.

Source: Ecology and Environment, Inc., 1992.

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metals samples. Of these four metals, only sodium is regulated by an FPDWS (160,000 µg/L; FDER 1991); however, neither the total nor dissolved sodium concentrations exceed the FPDWS.

The total chromium (103 µg/L) concentration in W007 exceeds the FPWS of 50 µg/L and the total iron (1,350 µg/L) concentration exceeds the FSDUS of 300 µg/L. Barium (161 µg/L) and lead (3.8 µg/L) were detected below the respective FPDWSs of 1,000 µg/L and 50 µg/L, and copper (3.2 µg/L) and zinc (12.9 µg/L) were detected below the respective FSDWSs of 1,000 µg/L and 5,000 µg/L. The total manganese concentration of 289 µg/L detected in sample W007 exceeds the PSDWS of 50 µg/L.

Metals detected in V007 and W007D without regulated detection limits include aluminum, cobalt, and vanadium (see Table 3-5).

TRPHs. TRPHs were detected only in duplicate sample W007D (at 1.2 mg/L); however, this concentration is lower than the TRPE concentrations detected in the temporary well samples (see Figure 3-6).

VOCs. Two VOCs were detected in the permanent monitoring well groundwater samples **(W007/W007D).** Both methylene chloride and acetone vere present at concentrations of 6 and 14 µg/L, respectively (see Table 3-5 and Figure 3-6). However, these compounds were detected in the associated laboratory method blanks; therefore, their presence in the groundvater is probably attributable to laboratory-derived contamination.

BNAs. The BNA bis(2-ethylhexyl)phthalate was present at 3 µg/L in the permanent monitoring well groundwater samples (see Table 3-5). However, this compound was detected in the associated laboratory method blanks; therefore, its presence in the groundwater is probably attributable to laboratory-derived contamination.

Tentatively Identified **Compounds (TICs).** Eleven TICs were detected in the permanent monitoring well groundwater samples, including hexane (at 6 µg/L), five unknown hydrocarbons and five unknown compounds (see

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Table 3-5). Several of the TICs were also detected in the laboratory-associated method blanks; therefore, the presence of these compounds is attributable to laboratory-derived contamination.

Remediation Parameters. Groundwater samples of GM7 were also collected and analyzed for total alkalinity, hardness, and total organic carbon content. Table 3-5 presents the results of these three remediation parameters. The total alkalinity concentration was 100 mg/L, total hardness was 88 mg/L, and total organic carbon content was 5 mg/L.

For comparative purposes, regional (i.e., within southern Escambia County) values of these same parameters in the Sand-and-Gravel Aquifer are as follows: alkalinity (as mg/L of $CaCO_3$) values range from <1.00 mg/L to 129.97 mg/L (Clemens ~~et al~~. 1989); total hardness values range from 1.00 mg/L to 326.00 mg/L, with the majority being less than 50 mg/L (Johnson 1991); and total organic carbon values range from 2.88 mg/L to 24.41 mg/L (Clemens ~~et al~~. 1989). The Site 29 groundwater samples exhibited values of alkalinity, hardness, and total organic carbon well within the reported ranges of regional values.

3.6 CONTAMINATION DISTRIBUTION/SOURCE DISCUSSION

The soil and groundwater media sampled at Site 29 exhibit the presence of trace to elevated levels of contaminants from one or more of the metal, TRPH, PAH, and VOC analytical groups. Based on the Phase I analytical results, the distribution of these contaminants is sporadic and localized. Possible past leakage in the segment of the industrial waste sewer line (Site 36--Industrial Waste Sewer) that traverses Site 29 may be at least partially responsible for the observed site contamination; however, Phase I results are not conclusive. Other potential sources may include localized spillage and/or surface runoff in the vicinity of Building 3460 and in off-site areas south of the site. The current distribution of contamination in soils and shallow groundwater may have been greatly affected by historical activities involving repeated re-working of the surface and shallow subsurface soils. Trenching and backfilling for the industrial waste sewer line in the 1970s, as well as demolition, building, grading, and paving

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activities, have occurred across the site and adjacent areas. In addition, fill materials may have been brought in for backfilling and/or as base material for the Chevalier Field concrete apron.

In the following sections, soil and groundwater are discussed separately regarding the nature, distribution, and potential source(s) of contamination.

3.6.1 Soil

Three metals (chromium, lead, and zinc), TRPHs, and PAHs were each detected at various concentrations (< 27 mg/kg) in five or fewer of the eight soil samples collected at Site 29. These soil samples indicate low levels of metals are present in the unsaturated soil above the water table. The results of metals analyses for soil samples collected along the industrial waste sewer line in the vicinity of Site 29 also indicate that low levels of metals are sporadically present in these soils (see Figure 3-7).

Only the Site 29 soil samples collected from the two northern soil borings (B001 and B002) nearest to Building 3460 exhibited TRPHs; however, all Site 36 soil samples collected on Site 29 exhibited TRPHs (see Figure 3-8). These data suggest the possibility of two or more sources of Site 29 soil TRPH contamination--the industrial waste sewer line and areas adjacent to Building 3460.

The only PAH contamination was detected in boring B006 at the eastern edge of Site 29; this may also indicate a local and isolated presence of PAHs. However, no PAHs were observed in any corresponding Phase I samples collected along the portion of the industrial waste sewer line located on Site 29.

While no pesticides were detected in any Site 29 soil samples, trace levels of Dieldrin, below the instrument detection limit (1,000 µg/kg), were detected in the corresponding Phase I Site 36 soil samples P36S100A, P36S100B, and P36S101A collected along the portion of the industrial waste sewer line located in the west portion of Site 29.

3.6.2 Groundwater

Metals, TRPHs, and VOCs were detected at low to moderate concentrations in the temporary and permanent monitoring wells sampled

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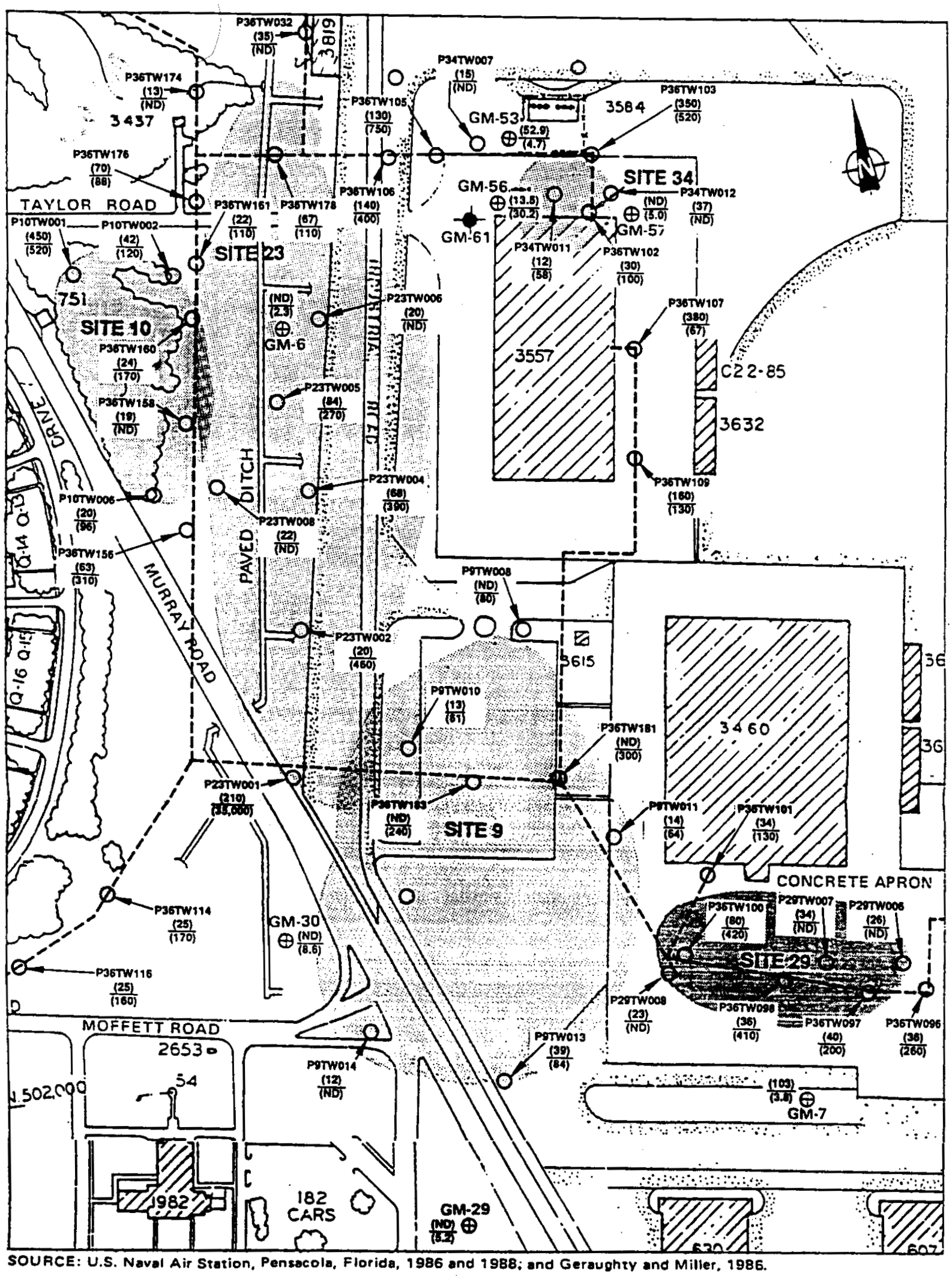
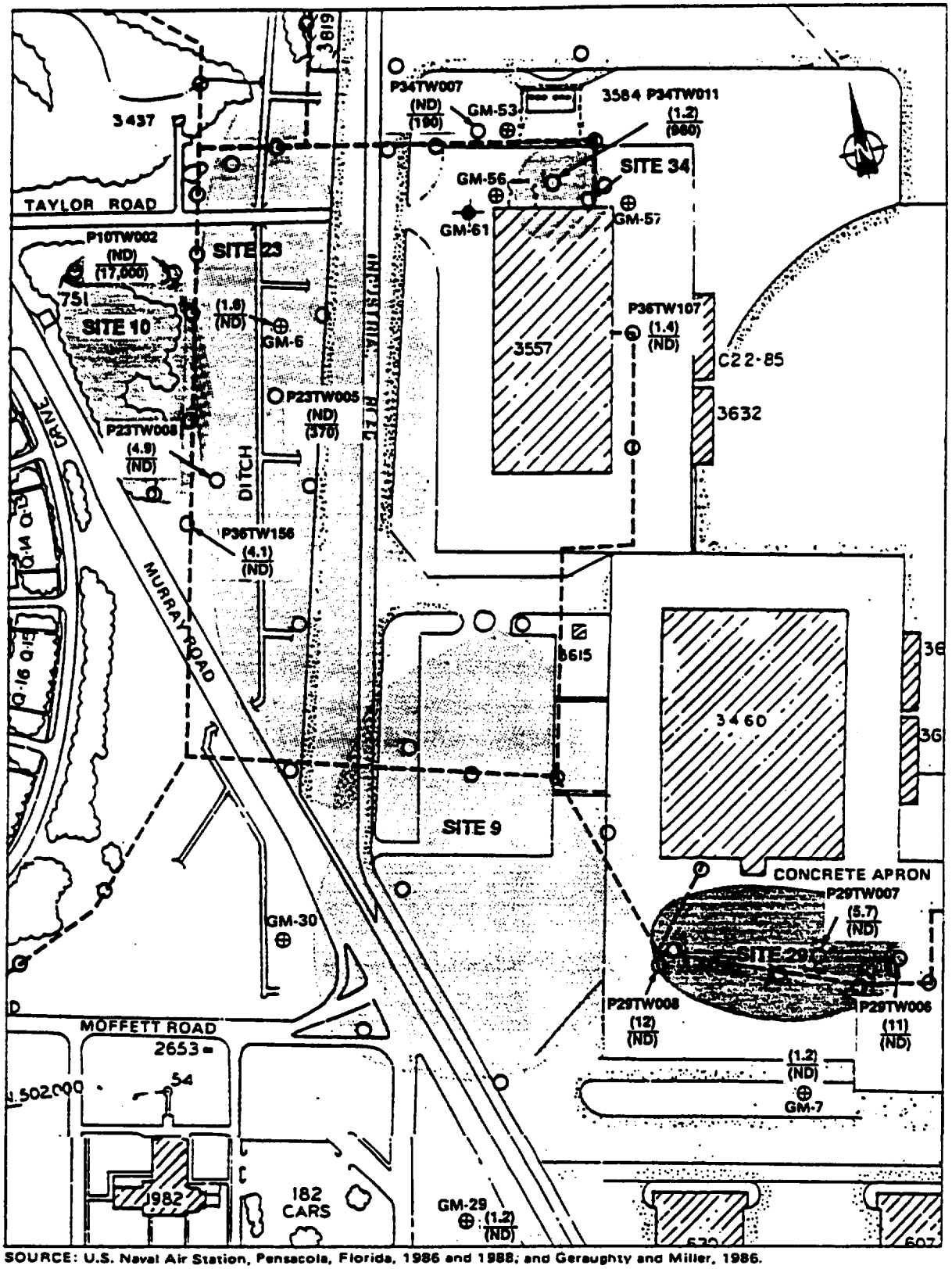


Figure 3-7 CHROMIUM AND LEAD CONCENTRATIONS WHERE DETECTED IN GROUNDWATER SAMPLES — NAS PENSACOLA SITES 9, 10, 23, 29, 34, AND 36



SOURCE: U.S. Naval Air Station, Pensacola, Florida, 1986 and 1988; and Geraughty and Miller, 1986.

SCALE

0 200 400 600 800 FEET

KEY:

- Existing Permanent Shallow Monitoring Well
- Existing Permanent Deep Monitoring Well
- Building
- Temporary Monitoring Well
- (960) TRPH Concentration (mg/L) / Phenol Concentration (ug/L)
- Industrial Waste Sewer Line

Figure 3-8 TRPH AND PHENOL CONCENTRATIONS WHERE DETECTED IN GROUNDWATER SAMPLES — NAS PENSACOLA SITES 9, 10, 23, 29, 34, AND 36

at Site 29. Pesticides, PCBs, and phenols were not detected in any of the groundwater samples.

Chromium and zinc were detected in all the Site 29 groundwater samples, and in all the corresponding Site 36 Phase I groundwater samples collected on Site 29.

Lead, although not detected in any of the Site 29 groundvater samples, was detected in all five of the Site 36 samples at concentrations ranging from 130 to 420 µg/L. These Concentrations exceed the FPDUS of 50 µg/L. The highest chromium (80 µg/L), zinc (260 µg/L), and lead (420 µg/L) concentrations detected in Site 29 or Site 36 groundwater samples collected in the area of Site 29 occurred in the Site 36 groundwater sample P36GW100, collected from temporary well P36TW100, located in the vest portion of Site 29.

Nickel was detected at concentrations of 19.4 µg/L in sample W007 and 42 µg/L in sample GW007 below the FGUGC of 150 µg/L; however, nickel was not detected in any of the Site 29 soil samples.

Arsenic was detected only in temporary monitoring well TW007 at a concentration that exceeds the respective FPDUS. However, arsenic was not detected in the corresponding soil sample from boring B007. Permanent well GM7 (south of Site 29) exhibited elevated retals concentrations (chromium, iron, and manganese) above the respective FPDWSs.

It is possible that the elevated arsenic level is associated with a leak in the industrial waste sewer line; however, arsenic vas not detected in corresponding Site 36 groundwater samples collected in the Site 29 vicinity. Alternatively, it is possible that the aetals concentrations reflect acid preservative leaching/dissolution of aquifer matrix sediments entrained in the unfiltered groundwater samples, rather than actual groundwater contamination. The unfiltered groundwater samples tend to exhibit higher total metals concentrations than the existing well (filtered) samples as leaching/dissolution apparently occurs in the turbid (unfiltered) temporary well samples.

TRPHs were present in Site 29 temporary and permanent well groundwater samples collected across the site (see figures 3-6 and 3-8). The highest concentration was detected in TW008 on the western edge of the site. TRPHs were not detected in any of the corresponding Site 36

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Phase I groundwater samples collected from wells located on Site 29. The absence of TRPHs in all but two soil samples and the associated duplicate sample (S001A, S001AD, and S002A), collected in the northern portion of the site, may indicate the presence of a local source. PAHs, on the other hand, were present in one soil sample (S006A) but not in the corresponding groundwater sample (GW006). This may reflect the insolubility of PAHs in water. PAHs were not observed in any of the corresponding Phase I Site 36 groundwater samples collected on Site 29.

The presence of an elevated methylene chloride concentration in one of the temporary groundwater samples but not in any of the soil samples may reflect a higher solubility of VOCs in the groundwater. However, it may also reflect a local, off-site source area upgradient of the site. At present, no on-site or ambient source of methylene chlorine is known. The low levels (< 15 µg/L) of VOCs and the one BNA detected in the permanent well sample (W007) are not considered significant since these contaminants were also present in the associated laboratory method blanks.

3.7 QA/QC

3.7.1 Field QA/QC Samples

Analytical Screening Samples

One soil field duplicate sample and one groundwater field duplicate sample were collected for the Site 29 screening samples. The analytical results for 'the duplicate samples are presented in the summary screening results tables for soil and groundwater (see tables 3-2 and 3-4, respectively). The results for the soil duplicate sample (S001AD) and groundwater duplicate sample (GW007D) were in agreement with the results for the original samples.

TAL/TCL Samples

One field blank, one rinsate blank, and one preservative blank were collected and analyzed for all the groundwater parameters associated with the permanent wells. Several total and dissolved metals were detected in these samples.

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The VOCs methylene chloride and acetone vere present in all of the QA/QC samples at levels not exceeding 6 µg/L and 15 µg/L, respectively, and the BNA bis(2-ethylhexyl)phthalate was also present in all the QA/QC samples at levels not exceeding 3 µg/L (see Table 3-5). Several of the TICs were present in the field and rinsate blanks, vhereas only one TIC (hexane at 6 µg/L) was detected in the trip and preservative blanks (see Table 3-5).

3.7.2 Laboratory QA/QC Samples

Hethylene chloride and acetone, detected in the permanent well groundvater and field QA/QC samples, are common laboratory-derived contaminants (EPA 1988) and were both present in the groundwater method blanks. **Bis(2-ethylhexyl)phthalate,** although not as common a laboratory-derived contaminant, was also present in both the groundwater samples from permanent well GH7 and the associated method blanks. Several of the unknown TICs were also present in the associated method blanks. Therefore, the presence of these compounds in the samples may be attributable to laboratory-derived contamination.

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4. CONCLUSIONS

Soil and groundwater contamination are present on Site 29. Metals, TRPHs, PAHs, and VOCs are the primary contaminants. However, no free product or stained soils were observed during drilling or sampling activities. Although at least part of the detected contamination is potentially associated with a suspected leak in the industrial waste sewer line beneath the surface on Site 29, other potential sources may be impacting the site. In addition, the presence and/or distribution of contaminants detected on the site may be attributable to historical activities such as excavation, backfilling, and grading.

Although Site 29 soils show only traces of total metals, it is apparent that a limited area of soil contamination exists. Soil metals contamination, in the northwest portion of the site, may be associated with a suspected leak in the industrial waste sewer line in that area. Low metals contamination in soils in the vicinity of the industrial waste sewer line is apparent from the corresponding Site 36 (Industrial Waste Sewer) Phase I investigation.

TRPH contamination appears to be limited to the northern edge of Site 29 and to soils along the industrial waste sewer line. TRPH contamination along the northern edge of Site 29 may indicate a potential local source in this area.

PAH contamination, detected in only one boring along the eastern site perimeter, also indicates a localized occurrence in this area; however, no PAH contamination was observed along the industrial waste sewer line in this area.

Groundwater contamination is also present at Site 29. Metals concentrations exceeding the respective FPDWSs were detected in GW007 (arsenic) and in W007 and W007D (chromium and manganese). Iron concentrations in W007 also exceeded the respective FSDWS. The slightly

elevated metals concentrations in temporary well sample GW007 may partially reflect that turbid temporary well groundvater samples were not filtered prior to acid preservation. However, the source of arsenic in the east-central portion of the site may be the suspected leak in the industrial waste sewer line in this area.

Groundwater samples from the corresponding Phase I investigation of the industrial waste sewer line generally indicate, as do the Site 29 groundwater samples, that elevated levels of chromium and zinc are present across Site 29; however, lead was detected only in the Site 36 groundwater samples. A potential source of metals contamination may exist along the industrial waste sewer line in the west portion of Site 29 where the highest levels of chromium, zinc, and lead vere detected.

The presence of methylene chloride contamination (100 µg/L) in the groundwater was limited to the western edge of Site 29. The potential source of this contaminant is presently unknown.

It is possible that contamination observed in the off-site permanent monitoring well (GM7) may be associated with the extension of the industrial waste sewer line located south of Site 29 or another, yet unknown, potential off-site source impacting Site 29 from the south.

Further assessment activities are required at and in the vicinity of Site 29.

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

6. FLORIDA PROFESSIONAL GEOLOGIST SEAL

I hereby affix my seal to the Interim Data Report for Soil South of Building *3460* (Site 29), 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, 1994

Richard J. Rudy

11-15-92
Date

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SITE 29

PARTICULATE AIR SCREENING DATA

Date: June 5, 1991
Wind Direction: East
Wind Velocity: 3 to 5 miles per hour

Upwind Location: Grid location N1+50, E4+50
Measurement Duration: 15 minutes
Time Weighted Average Particulate Concentration: 0.10 mg/m^3

Downwind Location: 450 west of the upwind location
Measurement Duration: 15 minutes
Time Weighted Average Particulate Concentration: 0.10 mg/m^3

Upwind/Downwind Difference: 0.00 mg/m^3

SITE 29 SURFACE EMISSIONS SURVEY

COORDINATE LOCATION	OVA BACKGROUND (ppm)	OVA ABOVE BACKGROUND (ppm)
N0+00E0+00	0	0
N0+00E0+25	0	0
N0+00E0+50	0	0
N0+00E0+75	0	0
N0+00E1+00	0	0
N0+00E1+25	0	0
N0+00E1+50	0	0
N0+00E1+75	0	0
N0+00E2+00	0	0
N0+00E2+25	0	0
N0+00E2+50	0	0
N0+00E2+75	0	0
N0+00E3+00	0	0
N0+00E3+25	0	0
N0+00E3+50	0	0
N0+00E3+75	0	0
N0+00E4+00	0	0
N0+00E4+25	0	0
N0+00E4+50	0	0
N0+25E0+00	0	0
N0+25E0+25	0	0
N0+25E0+50	0	0
N0+25E0+75	0	0
N0+25E1+00	0	0
N0+25E1+25	0	0
N0+25E1+50	0	0
N0+25E1+75	0	0
N0+25E2+00	0	0
N0+25E2+25	0	0
N0+25E2+50	0	0
N0+25E2+75	0	0
N0+25E3+00	0	0
N0+25E3+25	0	0
N0+25E3+50	0	0
N0+25E3+75	0	0
N0+25E4+00	0	0
N0+25E4+25	0	0
N0+25E4+50	0	0
N0+50E0+00	0	0
N0+50E0+25	0	0
N0+50E0+50	0	0
N0+50E0+75	0	0
N0+50E1+00	0	0
N0+50E1+25	0	0
N0+50E1+50	0	0

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SITE 29 SURFACE EMISSIONS SURVEY

COORDINATE LOCATION	OVA BACKGROUND (ppm)	OVA ABOVE BACKGROUND (ppm)
N0+50E1+75	0	0
N0+50E2+00	0	0
N0+50E2+25	0	0
N0+50E2+50	0	0
N0+50E2+75	0	0
N0+50E3+00	0	0
N0+50E3+25	0	0
N0+50E3+50	0	0
N0+50E3+75	0	0
N0+50E4+00	0	0
N0+50E4+25	0	0
N0+50E4+50	0	0
N0+75E0+00	0	0
N0+75E0+00	0	0
N0+75E0+50	0	0
N0+75E0+75	0	0
N0+75E1+00	0	0
N0+75E1+25	0	0
N0+75E1+50	0	0
N0+75E1+75	0	0
N0+75E2+00	0	0
N0+75E2+25	0	0
N0+75E2+50	0	0
N0+75E2+75	0	0
N0+75E3+00	0	0
N0+75E3+25	0	0
N0+75E3+50	0	0
N0+75E3+75	0	0
N0+75E4+00	0	0
N0+75E4+25	0	0
N0+75E4+50	0	0
N1+00E0+00	0	0
N1+00E0+25	0	0
N1+00E0+50	0	0
N1+00E0+75	0	0
N1+00E1+00	0	0
N1+00E1+25	0	0
N1+00E1+50	0	0
N1+00E1+75	0	0
N1+00E2+00	0	0
N1+00E2+25	0	0
N1+00E2+50	0	0
N1+00E2+75	0	0
N1+00E3+00	0	0
N1+00E3+25	0	0

SITE 29 SURFACE EHISSIONS SURVEY

COORDINATE LOCATION	OVA BACKGROUND (ppm)	OVA ABOVE BACKGROUND (ppm)
N1+00E3+50	0	0
N1+00E3+75	0	0
N1+00E4+00	0	0
N1+00E4+25	0	0
N1+00E4+50	0	0
N1+25E0+00	0	0
N1+25E0+25	0	0
N1+25E0+50	0	0
N1+25E0+75	0	0
N1+25E0+75	0	0
N1+25E1+00	0	0
N1+25E1+25	0	0
N1+25E1+50	0	0
N1+25E1+75	0	0
N1+25E2+00	0	0
N1+25E2+25	0	0
N1+25E2+50	0	0
N1+25E2+75	0	0
N1+25E3+00	0	0
N1+25E3+25	0	0
N1+25E3+50	0	0
N1+25E3+75	0	0
N1+25E4+00	0	0
N1+25E4+25	0	0
N1+25E4+50	0	0
N1+50E0+00	0	0
N1+50E0+25	0	0
N1+50E0+50	0	0
N1+50E0+75	0	0
N1+50E1+00	0	0
N1+50E1+25	0	0
N1+50E1+50	0	0
N1+50E1+75	0	0
N1+50E2+00	0	0
N1+50E2+25	0	0
N1+50E2+50	0	0
N1+50E2+75	0	0
N1+50E3+00	0	0
N1+50E3+25	0	0
N1+50E3+50	0	0
N1+50E3+75	0	0
N1+50E4+00	0	0
N1+50E4+25	0	0
N1+50E4+50	0	0
N1+75E0+00	0	0

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SITE 29 SURFACE EMISSIONS SURVEY

COORDINATE LOCATION	OVA BACKGROUND (ppm)	OVA ABOVE BACKGROUND (ppm)
N1+75E0+25	0	0
N1+75E0+50	0	0
N1+75E0+75	0	0
N1+75E1+00	0	0
N1+75E1+25	0	0
N1+75E1+50	0	0
N1+75E1+75	0	0
N1+75E2+00	0	0
N1+75E2+25	0	0
N1+75E2+50	0	0
N1+75E2+75	0	0
N1+75E3+00	0	0
N1+75E3+25	0	0
N1+75E3+50	0	0
N1+75E3+75	0	0
N1+75E4+00	0	0
N1+75E4+25	0	0
N1+75E4+50	0	0
N2+00E0+00	0	0
N2+00E0+25	0	0
N2+00E0+50	0	0
N2+00E0+75	0	0
N2+00E1+00	0	0
N2+00E1+25	0	0
N2+00E1+50	0	0
N2+00E1+75	0	0
N2+00E2+00	0	0
N2+00E2+25	0	0
N2+00E2+50	0	0
N2+00E2+75	0	0
N2+00E3+00	0	0
N2+00E3+25	0	0
N2+00E3+50	0	0
N2+00E3+75	0	0
N2+00E4+00	0	0
N2+00E4+25	0	0
N2+00E4+50	0	0
N2+25E0+00	0	0
N2+25E0+25	0	0
N2+25E0+50	0	0
N2+25E0+75	0	0
N2+25E1+00	0	0
N2+25E1+25	0	0
N2+25E1+50	0	0
N2+25E1+75	0	0

SITE 29 SURFACE EMISSIONS SURVEY

COORDINATE LOCATION	OVA BACKGROUND (ppm)	OVA ABOVE BACKGROUND (ppm)
N2+25E2+00	0	0
N2+25E2+25	0	0
N2+25E2+50	0	0
N2+25E2+75	0	0
N2+25E3+00	0	0
N2+25E3+25	0	0
N2+25E3+50	0	0
N2+25E3+75	0	0
N2+25E4+00	0	0
N2+25E4+25	0	0
N2+25E4+50	0	0
N2+50E0+00	0	0
N2+50E0+25	0	0
N2+50E0+50	0	0
N2+50E0+75	0	0
N2+50E1+00	0	0
N2+50E1+25	0	0
N2+50E1+50	0	0
N2+50E1+75	0	0
N2+50E2+00	0	0
N2+50E2+25	0	0
N2+50E2+50	0	0
N2+50E2+75	0	0
N2+50E3+00	0	0
N2+50E3+25	0	0
N2+50E3+50	0	0
N2+50E3+75	0	0
N2+50E4+00	0	0
N2+50E4+25	0	0
N2+50E4+50	0	0
N2+75E0+00	0	0
N2+75E0+25	0	0
N2+75E0+50	0	0
N2+75E0+75	0	0
N2+75E1+00	0	0
N2+75E1+25	0	0
N2+75E1+50	0	0
N2+75E1+75	0	0
N2+75E2+00	0	0
N2+75E2+25	0	0
N2+75E2+50	0	0
N2+75E2+75	0	0
N2+75E3+00	0	0
N2+75E3+25	0	0
N2+75E3+50	0	0

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SITE 29 SURFACE EMISSIONS SURVEY

COORDINATE LOCATION	OVA BACKGROUND (ppm)	OVA ABOVE BACKGROUND (ppm)
N2+75E3+75	0	0
N2+75E4+00	0	0
N2+75E4+25	0	0
N2+75E4+50	0	0
N3+00E0+00	0	0
N3+00E0+25	0	0
N3+00E0+50	0	0
N3+00E0+75	0	0
N3+00E1+00	0	0
N3+00E1+25	0	0
N3+00E1+50	0	0
N3+00E1+75	0	0
N3+00E2+00	0	0
N3+00E2+25	0	0
N3+00E2+50	0	0
N3+00E2+75	0	0
N3+00E3+00	0	0
N3+00E3+25	0	0
N3+00E3+50	0	0
N3+00E3+75	0	0
N3+00E4+00	0	0
N3+00E4+25	0	0
N3+00E4+50	0	0
N3+25E0+00	0	0
N3+25E0+25	0	0
N3+25E0+50	0	0
N3+25E0+75	0	0
N3+25E1+00	0	0
N3+25E1+25	0	0
N3+25E1+50	0	0
N3+25E1+75	0	0
N3+25E2+00	0	0
N3+25E2+25	0	0
N3+25E2+50	0	0
N3+25E2+75	0	0
N3+25E3+00	0	0
N3+25E3+25	0	0
N3+25E3+50	0	0
N3+25E3+75	0	0
N3+25E4+00	0	0
N3+25E4+25	0	0
N3+25E4+50	0	0

APPENDIX B

TEMPORARY HONITORING WELL, SOIL BORING, AND LITHOLOGIC INFORMATION

SOIL BORING/TEMPORARY MONITORING WELL INFORMATION

1) Site no.: 29
2) Boring no./Well no.: P29B001
3) Drilling firm: Griner Drilling Service
4) Drilling method: HA
5) Date drilled/installed: 06/20/91
6) Geologist: JOE FUGITT
7) Depth of boring (BLS): 5
8) Depth to water in borehole (BLS): 5
9) Highest open-borehole OVA/HNu reading (ppm): 0
10) Depth of well (BLS): NA
11) Length of well screen: NA
12) Length of casing (BLS): NA
13) Approx. height of casing above land surface: NA
14) Depth to water in well (BTOC): NA
15) Elevation of TOC: NA
16) Water level elevation: NA
17) Date groundwater sampled:
18) pH (units): NA
19) Temperature (degrees C): NA
20) Specific conductance (umhos/cm): NA
21) Borehole/Well abandonment method: Backfilled with cuttings.
22) Comments:

BOREHOLE LITHOLOGIC LOG

Sample Depth (BLS)	Sample Description
0- 1.25	Concrete.
1.25- 4.0	Light brown sand, fine to medium grained.
4.0- 5.0	White sand. Wet at 5 ft.

Notes: All depths, lengths, height?, and elevations are measured in feet. All boreholes are 4 inches in diameter. All well casings and screens are 2-inch-diameter; well screen slot sizes are .010 inches. No annular material (i.e. filter pack, seal or grout) was used in well installation. Unless otherwise noted, all sand grains are quartz.

NA = not applicable
SSA = solid stem auger
HA = hand auger

BLS = below land surface
TOC = top of casing
BTOC = below top of casing

SOIL BORING/TEMPORARY MONITORING WELL INFORMATION

1) Site no.: 29
2) Boring no./Well no.: P29B002
3) Drilling firm: Griner Drilling Service
4) Drilling method: EA
5) Date drilled/installed: 06/20/91
6) Geologist: JOE FUGITT
7) Depth of boring (BLS): 5
8) Depth to water in borehole (BLS): 5
9) Highest open-borehole OVA/HNu reading (ppm): 0
10) Depth of well (BLS): NA
11) Length of well screen: NA
12) Length of casing (BLS): NA
13) Approx. height of casing above land surface: NA
14) Depth to water in well (BTOC): NA
15) Elevation of TOC: NA
16) Water level elevation: NA
17) Date groundwater sampled:
18) pH (units): NA
19) Temperature (degrees C): NA
20) Specific conductance (umhos/cm): NA
21) Borehole/Well abandonment method: Backfilled with cuttings.
22) Comments:

BOREHOLE LITHOLOGIC LOG

Sample Depth (BLS)	Sample Description
0- 0.75	Concrete.
0.75- 4.0	Light brown sand, fine to medium grained.
4.0- 5.0	White sand, fine to medium grained.

Notes: All depths, lengths, heights, and elevations are measured in feet. All boreholes are 4 inches in diameter. All well casings and screens are 2-inch-diameter; well screen slot sizes are .010 inches. No annular material (i.e. filter pack, seal or grout) was used in well installation. Unless otherwise noted, all sand grains are quartz.

NA = not applicable
SSA = solid stem auger
EA = hand auger

BLS = below land surface
TOC = top of casing
BTOC = below top of casing

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SOIL BORING/TEMPORARY MONITORING WELL INFORMATION

1) Site no.: 29
2) Boring no./Well no.: P29B003
3) Drilling firm: Griner Drilling Service
4) Drilling method: HA
5) Date drilled/installed: 06/20/91
6) Geologist: JOE FUGITT
7) Depth of boring (BLS): 4
8) Depth to water in borehole (BLS): 4
9) Highest open-borehole OVA/HNu reading (ppm): 0
10) Depth of well (BLS): NA
11) Length of well screen: NA
12) Length of casing (BLS): NA
13) Approx. height of casing above land surface: NA
14) Depth to water in well (BTOC): NA
15) Elevation of TOC: NA
16) Water level elevation: NA
17) Date groundwater sampled:
18) pH (units): NA
19) Temperature (degrees C): NA
20) Specific conductance (umhos/cm): NA
21) Borehole/Well abandonment method: Backfilled with cuttings.
22) Comments:

BOREHOLE LITHOLOGIC LOG

Sample Depth (BLS)	Sample Description
0- 1.0	Concrete.
1.0- 1.5	Dark brown silty stained sand, fine to medium grained, no odor.
1.5- 4.0	Light tan to white sand, fine to medium grained. Wet at 4 ft.

Notes: All depths, lengths, heights, and elevations are measured in feet. All boreholes are 4 inches in diameter. All well casings and screens are 2-inch-diameter; well screen slot sizes are .010 inches. No annular material (i.e. filter pack, seal or grout) was used in well installation. Unless otherwise noted, all sand grains are quartz.

NA = not applicable
SSA = solid stem auger
HA = hand auger

BLS = below land surface
TOC = top of casing
BTOC = below top of casing

SOIL BORING/TEMPORARY HONITORING WELL INFORMATION

1) Site no.: 29
2) Boring no./Well no.: P29B004
3) Drilling firm: Griner Drilling Service
4) Drilling method: HA
5) Date drilled/installed: 06/20/91
6) Geologist: JOE FUGITT
7) Depth of boring (BLS): 3.5
8) Depth to water in borehole (BLS): 3.5
9) Highest open-borehole OVA/HNu reading (ppa): 0
10) Depth of well (BLS): NA
11) Length of well screen: NA
12) Length of casing (BLS): NA
13) Approx. height of casing above land surface: NA
14) Depth to water in well (BTOC): NA
15) Elevation of TOC: NA
16) Water level elevation: NA
17) Date groundwater sampled:
18) pH (units): NA
19) Temperature (degrees C): NA
20) Specific conductance (umhos/cm): NA
21) Borehole/Well abandonment method: Backfilled with cuttings.
22) Comments:

BOREHOLE LITHOLOGIC LOG

Sample Depth (BLS)	Sample Description
0- 1.2	Concrete.
1.2- 1.4	Light brown sand, fine to medium grained.
1.4- 3.5	White sand, fine to medium grained. Wet at 3.5 ft.

Notes: All depths, lengths, heights, and elevations are measured in feet. All boreholes are 4 inches in diameter. All well casings and screens are 2-inch-diameter; well screen slot sizes are .010 inches. No annular material (i.e. filter pack, seal or grout) was used in well installation. Unless otherwise noted, all sand grains are quartz.

NA = not applicable
SSA = solid stem auger
HA = hand auger

BLS = below land surface
TOC = top of casing
BTOC = below top of casing

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SOIL BORING/TEMPORARY MONITORING WELL INFORMATION

1) Site no.: 29
2) Boring no./Well no.: P29B005
3) Drilling firm: Griner Drilling Service
4) Drilling method: SSA
5) Date drilled/installed: 06/20/91
6) Geologist: JOE FUGITT
7) Depth of boring (BLS): 5
8) Depth to water in borehole (BLS): 4.5
9) Highest open-borehole OVA/HNu reading (ppm): 0
10) Depth of well (BLS): NA
11) Length of well screen: NA
12) Length of casing (BLS): NA
13) Approx. height of casing above land surface: NA
14) Depth to water in well (BTOC): NA
15) Elevation of TOC: NA
16) Water level elevation: NA
17) Date groundwater sampled:
18) pH (units): NA
19) Temperature (degrees C): NA
20) Specific conductance (umhos/cm): NA
21) Borehole/Well abandonment method: Backfilled with cuttings.
22) Comments:

BOREHOLE LITHOLOGIC LOG

Sample Depth (BLS)	Sample Description
0- 1.5	Concrete.
1.5- 2.0	Light tan sand, fine to medium grained.
2.0- 5.0	White sand, fine to medium grained. Wet at 4.5 ft.

Notes: All depths, lengths, heights, and elevations are measured in feet. All boreholes are 4 inches in diameter. All well casings and screens are 2-inch-diameter; well screen slot sizes are .010 inches. No annular material (i.e. filter pack, seal or grout) was used in well installation. Unless otherwise noted, all sand grains are quartz.

NA = not applicable
SSA = solid stem auger
HA = hand auger

BLS = below land surface
TOC = top of casing
BTOC = below top of casing

SOIL BORING/TEMPORARY MONITORING WELL INFORMATION

1) Site no.: 29
2) Boring no./Well no.: P29B006/P29TW006
3) Drilling firm: Griner Drilling Service
4) Drilling method: SSA
5) Date drilled/installed: 06/21/91
6) Geologist: JOE FUGITT
7) Depth of boring (BLS): 10
8) Depth to water in borehole (BLS): 5
9) Highest open-borehole OVA/HNu reading (ppm): 0
10) Depth of well (BLS): 9.11
11) Length of well screen: 5
12) Length of casing (BLS): 4.11
13) Approx. height of casing above land surface: 0.89
14) Depth to water in well (BTOC): 6.01
15) Elevation of TOC: 10.29
16) Water level elevation: 4.28
17) Date groundwater sampled: 06/22/91
18) pH (units): 6.5
19) Temperature (degrees C): 30
20) Specific conductance (umhos/cm): 420
21) Borehole/Well abandonment method: Backfilled with cuttings.
22) Comments:

BOREHOLE LITHOLOGIC LOG

Sample Depth (BLS)	Sample Description
0- 1.25	Concrete.
1.25- 3.0	Red to brown silty sand, fine to medium grained.
3.0- 10.0	White sand, fine to medium grained.

Notes: All depths, lengths, heights, and elevations are measured in feet. All boreholes are 4 inches in diameter. All well casings and screens are 2-inch-diameter; well screen slot sizes are .010 inches. No annular material (i.e. filter pack, seal or grout) was used in well installation. Unless otherwise noted, all sand grains are quartz.

NA = not applicable
SSA = solid stem auger
HA = hand auger

BLS = below land surface
TOC = top of casing
BTOC = below top of casing

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SOIL BORING/TEMPORARY MONITORING WELL INFORMATION

1) Site no.: 29
2) Boring no./Well no.: P29B007/P29TW007
3) Drilling firm: Griner Drilling Service
4) Drilling method: SSA
5) Date drilled/installed: 06/21/91
6) Geologist: JOE FUGITT
7) Depth of boring (BLS): 10
8) Depth to water in borehole (BLS): 5
9) Highest open-borehole OVA/HNu reading (ppm): 0.1
10) Depth of well (BLS): 8.98
11) Length of well screen: 5
12) Length of casing (BLS): 3.98
13) Approx. height of casing above land surface: 0.98
14) Depth to water in well (BTOC): 5.31
15) Elevation of TOC: 9.62
16) Water level elevation: 4.31
17) Date groundwater sampled: 06/22/91
18) pH (units): 7.0
19) Temperature (degrees C): 31
20) Specific conductance (umhos/cm): 215
21) Borehole/Well abandonment method: Backfilled with cuttings.
22) Comments:

BOREHOLE LITHOLOGIC LOG

Sample Depth (BLS)	Sample Description
0- 0.75	Concrete.
0.75- 1.5	Additional concrete.
1.5- 2.0	Reddish brown silty sand, fine to medium grained.
2.0- 10.0	White sand, fine to medium grained. Wet at 5 ft.

Notes: All depths, lengths, heights, and elevations are measured in feet. All boreholes are 4 inches in diameter. All well casings and screens are 2-inch-diameter; well screen slot sizes are .010 inches. No annular material (i.e. filter pack, seal or grout) was used in well installation. Unless otherwise noted, all sand grains are quartz.

NA = not applicable
SSA = solid stem auger
HA = hand auger

BLS = below land surface
TOC = top of casing
BTOC = below top of casing

SOIL BORING/TEMPORARY MONITORING WELL INFORMATION

1) Site no.: 29
2) Boring no./Well no.: P29B008/P29TW008
3) Drilling firm: GRiner Drilling Service
4) Drilling method: SSA
5) Date drilled/installed: 06/21/91
6) Geologist: JOE FUGITT
7) Depth of boring (BLS): 10
8) Depth to water in borehole (BLS): 4
9) Highest open-borehole OVA/HNu reading (ppm): 0.1
10) Depth of well (BLS): 8.08
11) Length of well screen: 5
12) Length of casing (BLS): 3.08
13) Approx. height of casing above land surface: 1.84
14) Depth to water in well (BTOC): 5.30
15) Elevation of TOC: 9.68
16) Water level elevation: 4.38
17) Date groundwater sampled: 06/25/91
18) pH (units): 7.4
19) Temperature (degrees C): 30
20) Specific conductance (umhos/cm): 300
21) Borehole/Well abandonment method: Backfilled with cuttings.
22) Comments:

BOREHOLE LITHOLOGIC LOG

Sample Depth (BLS)	Sample Description
0- 1.0	Concrete.
1.0- 2.0	Light brown sand, fine to medium grained.
2.0- 5.0	Tan sand, fine to medium grained. Wet at 4 ft.
5.0- 10.0	White sand, fine to medium grained.

Notes: All depths, lengths, heights, and elevations are measured in feet. All boreholes are 4 inches in diameter. All well casings and screens are 2-inch-diameter; well screen slot sizes are .010 inches. No gnnular material (i.e. filter pack, seal or grout) was used in well installation. Unless otherwise noted, all sand grains are quartz.

NA = not applicable
SSA = solid stem auger
HA = hand auger

BLS = below land surface
TOC = top of casing
BTOC = below top of casing

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APPENDIX C

SOIL SAMPLING
ANALYTICAL SCREENING RESULTS

MEMORANDUM

TO: John Barksdale

FROM: Gary Hahn Gary Hahn/kr

DATE: July 9, 1991

SUBJECT: UA-8000 Pensacola Report

RE: 9101.476

CC: Lab File

Attached is the laboratory report of the analysis conducted on nine samples received at the Analytical Services Center on June 24, 1991. Analysis vas 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 vhich this report is based will be retained by E & E 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/kr
Enclosure

ecology and environment, inc.
388 PLEASANTVIEW DRIVE, LANCASTER, NEW YORK 14086, TEL. 716/684-8060
International Specialists in the Environment

B32

9101.476
14279.01 —— 14287

CHAIN-OF-CUSTODY RECORD

Project No.: UR8010
Project Name: NASP Site 29 Group F
Project Manager: John Barksdale
Samplers: (Signatures) Daniel Carsalia, Joseph Fugitt
Field Team Leader: Joe Fugitt

STATION NUMBER	DATE	TIME	SAMPLE TYPE COMP	GRAB	AIR	SAMPLE INFORMATION EXPECTED COMPOUNDS (Concentration)*		STATION LOCATION	NUMBER OF CONTAINERS	Screening VOC's	Screen PAH	Screen Phenols	Screen Pest./PCB	TRPH	Screening Metals	REMARKS
001A	6-20	1334	X			Low concentrations	✓	SITE 29 Boring 1	3	X	X	X	X	X	X	
001D	6-20	1334	X			" "	✓	Boring 1	3	X	X	X	X	X	X	
002A	6-20	1413	X			" "	✓	Boring 2	3	X	X	X	X	X	X	
003A	6-20	1515	X			" "	✓	Boring 3	3	X	X	X	X	X	X	
004A	6-20	1548	X			" "	✓	Boring 4	3	X	X	X	X	X	X	all samples preserved
005A	6-20	1713	X			" "	✓	Boring 5	3	X	X	X	X	X	X	with ice at 4°C
006A	6-21	[illegible]	X			" "	✓	Boring 6	3	X	X	X	X	X	X	
007A	6-21	0855	X			" "	✓	Boring 7	3	X	X	X	X	X	X	
008A	6-21	0922	X			" "	✓	Boring 8	3	X	X	X	X	X	X	

Lot No.	container
X8331013	8oz jars
1123033	40ml vial

Relinquished By: (Signature)	Date/Time:	Received By: (Signature)	Relinquished By: (Signature)	Date/Time:	Received By: (Signature)	Ship Via
J. F. Fugitt	6/21/91 1700	Fed Ex	Fed Ex	6.23.91 2200	[signature]	Federal Express
Relinquished By: (Signature)	Date/Time:	Received By: (Signature)	Relinquished By: (Signature)	Date/Time:	Received By: (Signature)	
[signature]	Date/Time: 6.24.91 0730	Received For Laboratory By: (Signature)	Relinquished By: (Signature)	Date/Time:	Received For Laboratory By: (Signature)	BL/Airbill Number: 0776545991
		[signature]				Date: 6/21/91

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

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ecology and environment

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JOB NUMBER : 9101.476

Ecology and Environment, Inc.
SAMPLE TRACKING REPORT

LAB SAMPLE ID	CLIENT SAMPLE ID	TEST CODE	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED
14279.01	P29-S001A	SPNPRGl	06/20/91		06/26/91
14279.02	P29-S001A	SPNTPHl	06/20/91		06/25/91
14279.03	P29-S001A	SPNMETl	06/20/91		06/26/91
		SPNP&P1	06/20/91		06/27/91
		SPNPAHl	06/20/91		06/30/91
		SPNPHLl	06/20/91		06/28/91
14280.01	P29-S001AD	SPNPRGl	06/20/91		06/26/91
14280.02	P29-S001AD	SPNTPHl	06/20/91		06/25/91
14280.03	P29-S001AD	SPNMETl	06/20/91		06/26/91
		SPNP&P1	06/20/91		06/27/91
		SPNPAHl	06/20/91		06/30/91
		SPNPHLl	06/20/91		06/28/91
14281.01	P29-S002A	SPNPRGl	06/20/91		06/26/91
14281.02	P29-S002A	SPNTPHl	06/20/91		06/25/91
14281.03	P29-S002A	SPNMETl	06/20/91		06/26/91
		SPNP&P1	06/20/91		06/27/91
		SPNPAH1	06/20/91		06/30/91
		SPNPHLl	06/20/91		06/28/91
14282.01	P29-S003A	SPNPRGl	06/20/91		06/26/91
14282.02	P29-S003A	SPNTPHl	06/20/91		06/26/91
14282.03	P29-S003A	SPNMET1	06/20/91		06/26/91
		SPNP&P1	06/20/91		06/27/91
		SPNPAHl	06/20/91		06/30/91
		SPNPHLl	06/20/91		06/28/91
14283.01	P29-S004A	SPNPRGl	06/20/91		06/26/91
14283.02	P29-S004A	SPNTPHl	06/20/91		06/25/91
14283.03	P29-S004A	SPNMETl	06/20/91		06/26/91
		SPNP&P1	06/20/91		06/27/91
		SPNPAHl	06/20/91		06/30/91
		SPNPHLl	06/20/91		06/28/91
14284.01	P29-S005A	SPNPRGl	06/20/91		06/26/91
14284.02	P29-S005A	SPNTPHl	06/20/91		06/25/91
14284.03	P29-S005A	SPNMETl	06/20/91		06/26/91
		SPNP&P1	06/20/91		06/27/91
		SPNPAHl	06/20/91		06/30/91
		SPNPHLl	06/20/91		06/28/91
14285.01	P29-S006A	SPNPRGl	06/21/91		06/26/91
14285.02	P29-S006A	SPNTPHl	06/21/91		06/25/91
14285.03	P29-S006A	SPNMETl	06/21/91		06/26/91
		SPNP&P1	06/21/91		06/28/91
		SPNPAHl	06/21/91		06/30/91
		SPNPHLl	06/21/91		06/28/91
14286.01	P29-S007A	SPNPRGl	06/21/91		06/26/91
14286.02	P29-S007A	SPNTPHl	06/21/91		06/25/91
14286.03	P29-S007A	SPNMETl	06/21/91		06/26/91
		SPNP&P1	06/21/91		06/28/91
		SPNPAH1	06/21/91		06/30/91

JOB NUMBER : 9101.476

Ecology and Environment, Inc.
SAMPLE TRACKING REPORT

LAB SAMPLE ID	CLIENT SAMPLE ID	TEST CODE	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED
14286.03	P29-S007A	SPNPHL1	06/21/91		06/28/91
14287.01	P29-S008A	SPNPRG1	06/21/91		06/26/91
14287.02	P29-S008A	SPNTPH1	06/21/91		06/25/91
14287.03	P29-S008A	SPNMET1	06/21/91		06/26/91
		SPNP&P1	06/21/91		06/28/91
		SPNPAH1	06/21/91		06/30/91
		SPNPHL1	06/21/91		06/28/91

0000647

JOB NUMBER :9101.476

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UH-8000 NASP - PHASE I BATCH 2
RESULTS IN WET WEIGHT
SAMPLE ID LAB : EE-91-14279 MATRIX: SOLID
SAMPLE ID CLIENT: P29-S001A

PARAMETER	RESULTS	Q	QNT. LIMIT	UNITS
Arsenic	ND		6.0	MG/KG
Chromium	ND		1.0	MG/KG
Zinc	9.9		2.0	MG/KG
Lead	17		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
NA = NOT APPLICABLE

JOB NUMBER :9101.476

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UH-8000 NASP - PEASE I BATCH 2
RESULTS IN WET WEIGHT
SAMPLE ID LAB : EE-91-14280 MATRIX: SOLID
SAMPLE ID CLIENT: P29-S001AD

PARAMETER	RESULTS	Q	QNT. LIMIT	UNITS
Arsenic	ND		6.0	MG/KG
Chromium	1.4		1.0	MG/KG
Zinc	7.8		2.0	MG/KG
Lead	12		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
NA = NOT APPLICABLE

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JOB NUMBER :9101.476

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UH-8000 NASP - PHASE I BATCH 2
RESULTS IN WET WEIGHT
SAMPLE ID LAB : EE-91-14281 MATRIX: SOLID
SAMPLE ID CLIENT: P29-S002A

PARAMETER	RESULTS	Q	QNT. LIMIT	UNITS
Arsenic	ND		6.0	MG/KG
Chromium	ND		1.0	MG/KG
Zinc	3.2		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
NA = NOT APPLICABLE

JOB NUMBER :9101.476

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UH-8000 NASP - PEASE I BATCH 2
RESULTS IN WET WEIGHT
SAMPLE ID LAB : E-91-14282 MATRIX: SOLID
SAMPLE ID CLIENT: P29-S003A

PARAMETER	RESULTS	Q	QNT. LIMIT	UNIT'S
Arsenic	ND		6.0	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		2.5	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
NA = NOT APPLICABLE

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JOB NUMBER :9101.476

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UH-8000 NASP - PHASE I BATCH 2
RESULTS IN WET WEIGHT
SAMPLE ID LAB : EE-91-14283 MATRIX: SOLID
SAMPLE ID CLIENT: P29-S004A

PARAMETER	RESULTS	Q	QNT. LIMIT	UNITS
Arsenic	ND		6.0	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		2.5	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
NA = NOT APPLICABLE

JOB NUMBER :9101.476

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UH-8000 NASP - PHASE I BATCH 2
RESULTS IN WET WEIGHT
SAMPLE ID LAB : EE-91-14284 MATRIX: SOLID
SAMPLE ID CLIENT: P29-S005A

PARAMETER	RESULTS	Q	QNT. LIMIT	UNITS
Arsenic	ND		6.0	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		2.5	MG/KG
Silver	ND		1.0	MG/KG

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

0000650

JOB NUMBER :9101.476

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UH-8000 NASP - PHASE I BATCH 2
RESULTS IN WET WEIGHT
SAMPLE ID LAB : EE-91-14285 MATRIX: SOLID
SAMPLE ID CLIENT: P29-S006A

PARAMETER	RESULTS	Q	QNT. LIMIT	UNITS
Arsenic	ND		6.0	MG/KG
Chromium	2.0		1.0	MG/KG
Zinc	2.4		2.0	MG/KG
Lead	9.5		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
NA = NOT APPLICABLE

JOB NUMBER :9101.476

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UH-8000 NASP - PHASE I BATCH 2
RESULTS IN WET WEIGHT
SAMPLE ID LAB : EB-91-14286 MATRIX: SOLID
SAMPLE ID CLIENT: P29-S007A

PARAMETER	RBSULTS	Q	QNT. LIMIT	UNITS
Arsenic	ND		6.0	MG/KG
Chromium	2.4		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 LIHIT
NA = NOT APPLICABLE

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JOB NUMBER :9101.476

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UH-8000 NASP - PHASE I BATCH 2
RESULTS IN WET WEIGHT
SAMPLE ID LAB : EE-91-14287 MATRIX: SOLID
SAHPLE ID CLIENT: P29-S008A

PARAMETER	RESULTS	Q	QNT. LIMIT	UNITS
Arsenic	ND		6.0	MG/KG
Chromium	ND		1.0	MG/KG
Zinc	2.0		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
NA = NOT APPLICABLE

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

9101.476

(mg/kg)

Parameter	E & E Laboratory No. 91-14280	Original Analysis	Replicate Analysis	Rclative Percent Difference (RPD)
Arsenic		ND	ND	NC
Chromium		1.4	1.4	0
Zinc		7.8	7.0	11
Lead		12	13	8
Cadmium		ND	ND	NC
Nickel		ND	ND	NC
Copper		ND	ND	NC
Silver		ND	ND	NC

ND = NOT DETECTED

NC = NOT CALCULABLE

NOTE: ALTROUGH RESULTS *ARE* REPORTED AS ROUNDED VALUES, RPD's ARE CALCULATED DIRECTLY FROM THE RAW DATA.

0000652

QUALITY CONTROL FOR ACCURACY: PERCENT RECOVERY
FOR SPIKED SOLID SAMPLES

9101.476

(mg/kg)

Parameter	E & E Laboratory No. 91-14280	Original Value	Amount Added	Amount Determined	Percent Recovery
Arsenic		ND	200	210	104
Chromium		1.4	20	21	100
Zinc		7.8	50	56	96
Lead		12	50	60	97
Cadmium		ND	5.0	5.0	101
Nickel		ND	50	49	97
Copper		ND	25	25	98
Silver		ND	5.0	4.8	97

ND = NOT DETECTED

** = RECOVERY NOT DETERMINED BECAUSE SAMPLE AMOUNT IS FOUR OR MORE TIMES GREATER THAN SPIKE AMOUNT.

NOTE: ALTHOUGH RESULTS ARE REPORTED AS ROUNDED VALUES, PERCENT RECOVERIES ARE CALCULATED DIRECTLY FROM THE RAW DATA.

JOB NUMBER :9101.476

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UH-8000 NASP - PHASE I BATCH 2
RESULTS IN WET WIGHT
SAMPLE ID LAB : METHOD BLANK MATRIX: SOLID

PARAMETER	RESULTS	Q	QNT. LIMIT	UNITS
Arsenic	ND		6.0	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		2.5	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
NA = NOT APPLICABLE

000653

JOB NUMBER :9101.476

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UH-8000 NASP - PHASE I BATCH 2
SAMPLE ID LAB :EE-91-14279 MATRIX: SOLID
SAMPLE ID CLIENT: P29-S001A

PARAMETER	RESULTS	Q	QNT. LIMIT	UNITS
TRPH	29		5.0	MG/KG

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

JOB NUMBER :9101.476

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UH-8000 NASP - PHASE I BATCH 2
SAMPLE ID LAB :EE-91-14280 MATRIX: SOLID
SAMPLE ID CLIENT: P29-S001AD

PARAMETER	RESULTS	Q	QNT. LIMIT	UNITS
TRPH	59		5.0	MG/KG

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

0000654

JOB NUMBER :9101.476

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UH-8000 NASP - PEASE I BATCH 2
SAMPLE ID LAB :EE-91-14281 MATRIX: SOLID
SAMPLE ID CLIENT: P29-S002A

PARAMETER	RESULTS	Q	QNT. LIMIT	UNITS
TRPH	74		5.0	MG/KG

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

JOB NUMBER :9101.476

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UH-8000 NASP - PHASE I BATCH 2
SAHPLE ID LAB :EE-91-14282 MATRIX: SOLID
SAHPLE ID CLIENT: P29-S003A

PARAMETER	RESULTS	Q	QNT. LIMIT	UNITS
TRPH	ND		5.0	MG/KG

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

000655

JOB NUMBER :9101.476

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UH-8000 NASP - PEASE I BATCH 2
SAMPLE ID LAB :EE-91-14283 MATRIX: SOLID
SAMPLE ID CLIENT: P29-S004A

PARAMETER	RESULTS	Q	QNT. LIMIT	UNITS
TRPH	ND		5.0	MG/KG

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

JOB NUMBER :9101.476

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UH-8000 NASP - PEASE I BATCH 2
SAMPLE ID LAB :EE-91-14284 MATRIX: SOLID
SAMPLE ID CLIENT: P29-S005A

PARAMETER	RESULTS	Q	QNT. LIMIT	UNITS
TRPH	ND		5.0	MG/KG

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

0000656

JOB NUMBER :9101.476

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UH-8000 NASP - PHASE I BATCH 2
SAMPLE ID LAB :EE-91-14285 MATRIX: SOLID
SAMPLE ID CLIENT: P29-S006A

PARAMETER	RESULTS	Q	QNT. LIMIT	UNITS
TRPH	ND		5.0	MG/KG

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

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UH-8000 NASP - PHASE I BATCH 2
SAMPLE ID LAB :EE-91-14286 MATRIX: SOLID
SAMPLE ID CLIENT: P29-S007A

PARAMETER	RESULTS	Q	QNT. LIMIT	UNITS
TRPH	ND		5.0	MG/KG

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

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ecology and environment

JOB NUMBER :9101.476

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UH-8000 NASP - PEASE I BATCH 2
SAHPLE ID LAB :EE-91-14287 MATRIX: SOLID
SAMPLE ID CLIENT: P29-S008A

PARAMETER	RESULTS	Q	QNT. LIMIT	UNITS
TRPH	ND		5.0	MG/KG

QUALIFIERS: C = COMMENT NU = 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 SOLID SAMPLES

9101.476

(mg/kg)

Parameter	E & E Laboratory No. 91-	Original Analysis	Replicate Analysis	Relative Percent Difference (RPD)
T. Recoverable Petroleum Eydrocarbons				
	Batch QC	ND	ND	NC

ND = NOT DETECTED

NC = NOT CALCULABLE

NOTE: ALTHOUGH RESULTS *ARE* REPORTED AS ROUNDED VALUES, RPD's ARE CALCULATED DIRECTLY FROM THE RAW DATA.

000658

QUALITY CONTROL FOR ACCURACY: PERCENT RECOVERY FOR SPIKED SOLID SAMPLES

9101.476

(mg/kg)

Parameter	E & E Laboratory No. 91-	Original Value	Amount Added	Amount Determined	Percent Recovery
T. Recoverable Petroleum Hydrocarbons					
	14282	ND	120	120	95
	Batch QC	ND	130	120	91.4

ND = NOT DETECTED

** = RECOVERY NOT DETERMINED BECAUSE SAMPLE AMOUNT IS FOUR OR MORE TIMES GREATER THAN SPIKE AMOUNT.

NOTE: ALTHOUGH RESULTS ARE REPORTED AS ROUNDED VALUES, PERCENT RECOVERIES ARE CALCULATED DIRECTLY FROM THE RAW DATA.

TEST CODE :SPNPRG1 JOB NUMBER :9101.476

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UH-8000 NASP - PEASE I BATCH 2
RESULTS IN VET WEIGHT
TEST NAME : PNC PURGABLES- GC UNITS : UG/KG
SAMPLE ID LAB : EE-91-14279 MATRIX : SOLID
SAMPLE ID CLIENT: P29-S001A

PARAMETER	RESULTS	Q	QNT. 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	ND		1000
Trans-1,2, - Dichloroethenc	ND		1000
1,1 - dichloroethane	ND		1000
1,1,1 - Trichlorocthane	ND		1000
1.2 - Dichlorocthane	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

0000659

TEST CODE :SPNPRG1 JOB NUMBER :9101.476

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UH-8000 NASP - PHASE I BATCH 2
RESULTS IN WET WEIGHT
TEST NAME : PNC PURGABLES- GC UNITS : UG/KG
SAHPLE ID LAB : BE-91-14280 MATRIX : SOLID
SAHPLE ID CLIENT: P29-S001AD

PARAMETER	RESULTS	Q	QNT. 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	ND		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 CODB :SPNPRG1 JOB NUMBER :9101.476

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UH-8000 NASP - PEASE I BATCH 2
RESULTS IN WET WEIGHT
TEST NAME : PNC PURGABLES- GC UNITS : UG/KG
SAMPLE ID LAB : BE-91-14281 MATRIX : SOLID
SAMPLE ID CLIENT: P29-S002A

PARAMETER	RESULTS	Q	QNT. 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	ND		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

0000600

TEST CODE :SPNPRG1 JOB NUMBER :9101.476

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UH-8000 NASP - PEASE I BATCH 2
RESULTS IN WET WEIGHT
TEST NAME : PNC PURGABLES- GC UNITS : UG/KG
SAMPLE ID LAB : EE-91-14282 MATRIX : SOLID
SAMPLE ID CLIENT: P29-S003A

PARAMETER	RESULTS	Q	QNT. 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	ND		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 :9101.476

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UH-8000 NASP - PHASE I BATCH 2
RESULTS IN WET WEIGHT
TEST NAME : PNC PURGABLES- GC UNITS : UG/KG
SAMPLE ID LAB : EE-91-14283 MATRIX : SOLID
SAHPLB ID CLIENT: P29-S004A

PARAMETER	RESULTS	Q	QNT. 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 - dichloroethena	ND		1000
Methylene Chloride	ND		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 BELOV STATED DETECTION LIMIT

0000661(A)

TEST CODE :SPNPRG1 JOB NUMBER :9101.476

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UH-8000 NASP - PHASE I BATCH 2
RESULTS IN WET WEIGHT
TEST NAME : PNC PURGABLES- GC UNITS : UG/KG
SAMPLE ID LAB : EE-91-14284 MATRIX : SOLID
SAMPLE ID CLIENT: P29-S005A

PARAMETER	RESULTS	Q	QNT. 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	ND		1000
Trans-1,2, - Dichloroethene	ND		1000
1,1 - dichloroethane	ND		1000
1,1,1 - Trichloroethane	ND		1000
1,2 - Dichloroethane	ND		1000
Trichloroethcne	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 :9101.476

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UH-8000 NASP - PEASE I BATCH 2
RESULTS IN WET WEIGHT
TEST NAME : PNC PURGABLES- GC UNITS : UG/KG
SAMPLE ID LAB : EE-91-14285 MATRIX : SOLID
SAMPLE ID CLIENT: P29-S006A

PARAMETER	RESULTS	Q	QNT. 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	ND		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 = ESTIHATED VALUE B = ALSO PRESENT IN BLANK
L = PRESENT BELOW STATED DETECTION LIMIT

0000661 (B)

TEST CODE :SPNPRG1 JOB NUMBER :9101.476

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UH-8000 NASP - PHASE I BATCH 2
RESULTS IN WET WEIGHT
TEST NAME : PNC PURGABLES- GC UNITS : UG/KG
SAMPLE ID LAB : EE-91-14286 MATRIX : SOLID
SAMPLE ID CLIENT: P29-S007A

PARAMETER	RESULTS	Q	QNT. 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	ND		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 :9101.476

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UH-8000 NASP - PHASE I BATCH 2
RESULTS IN WET WEIGHT
TEST NAME : PNC PURGABLES- GC UNITS : UG/KG
SAMPLE ID LAB : EE-91-14287 MATRIX : SOLID
SAMPLE ID CLIENT: P29-S008A

PARAMETER	RESULTS	Q	QNT. 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	ND		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

0000662

0000662

QUALITY CONTROL FOR ACCURACY AND PRECISION:
PERCENT RECOVERY OF WATER MATRIX SPIKE (HS)
(Sample # Blank Spike)

9101.476

(ug/L)

Parameter	E & E Laboratory No. 91-	Original Value	Amount Added	Amount Determined	Percent Recovery
Benzene		ND	20	19	95
Toluene		ND	20	18	90
Ethyl Benzene		ND	20	17	85
1,2-Dichlorobenzene		ND	20	14	70
1,3-Dichlorobenzene		ND	20	15	75
1,4-Dichlorobenzene		ND	20	15	75
1,l-Dichloroethene		ND	20	12	60
Methylene Chloride		ND	20	16	80
Trans-1,2-Dichloroethene		ND	20	16	80
1,1-Dichloroethane		ND	20	15	75
1,1,1-Trichloroethane		ND	20	19	95
1,2-Dichloroethane		ND	20	20	100
Trichloroethene		ND	20	18	90
Tetrachloroethene		ND	20	17	85

ND = NOT DETECTED

QUALITY CONTROL FOR ACCURACY: PERCENT RECOVERY OF SURROGATE SPIKES

9101.476

Compound	E & E Laboratory No. 91-	Percent Recovery
Trifluorotoluene	14279	120
	14280	121
	14281	115
	14282	118
	14283	105
	14204	112
	14205	105
	14286	101
	14287	107
	Method Blank #1	100
	Method Blank #2	100
1,4-Dichlorobutane	14279	a7
	14280	90
	14281	88
	14282	90
	14283	85
	14284	82
	14285	102
	14286	117
	142137	130
	Method Blank #1	100
	Hetliod Blank #2	100

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TEST CODE :SPNPRG1 JOB NUMBER :9101.476

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UH-8000 NASP - PHASE I BATCH 2
RESULTS IN WET WEIGHT
TEST NAME : PNC PURGABLES- GC UNITS : UG/KG
SAMPLE ID LAB : METHOD BLANK #1 MATRIX : SOLID

PARAMETER	RESULTS	Q	QNT. 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	ND		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 :9101.476

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UH-8000 NASP - PHASE I BATCH 2
RESULTS IN WET WEIGHT
TEST NAME : PNC PURGABLES- GC UNITS : UG/KG
SAMPLE ID LAB : METHOD BLANK #2 MATRIX : SOLID

PARAMETER	RESULTS	Q	QNT. 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 - dichloroathene	ND		1000
Methylene Chloride	ND		1000
Trans-1,2, - Dichloroethene	ND		1000
1,1 - dichloroethane	ND		1000
1,1,1 - Trichloroathane	ND		1000
1,2 - Dichloroethane	ND		1000
Trichloroethena	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

0000604

0000604

TEST CODE :SPNPAH1 JOB NUMBER :9101.476

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UH-8000 NASP - PHASE I BATCH 2
RESULTS IN WET WEIGHT
TEST NAME : PNC PAH - LC UNITS : UG/KG
SAMPLE ID LAB : EE-91-14279 MATRIX : SOLID
SAMPLE ID CLIENT: P29-S001A

PARAMETER	RESULTS	Q	QNT. LIMIT
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 :SPNPAH1 JOB NUMBER :9101.476

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UH-8000 NASP - PEASE I BATCH 2
RESULTS IN WET WEIGHT
TEST NAME : PNC PAH - LC UNITS : UG/KG
SAMPLE ID LAB : BE-91-14280 MATRIX : SOLID
SAMPLE ID CLIENT: P29-S001AD

PARAMETER	RESULTS	Q	QNT. LIMIT
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

0000665

0000665

TEST CODE : SPNPAH1 JOB NUMBER : 9101.476

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UH-8000 NASP - PHASE I BATCH 2
RESULTS IN WET WEIGHT
TEST NAME : PNC PAH - LC UNITS : UG/KG
SAMPLE ID LAB : EE-91-14281 MATRIX : SOLID
SAMPLE ID CLIENT: P29-S002A

PARAMETER	RESULTS	Q	QNT. LIMIT
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

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TEST CODE :SPNPAH1 JOB NUMBER :9101.476

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UH-8000 NASP - PHASE I BATCH 2
RESULTS IN WET WEIGHT
TEST NAME : PNC PAH - LC UNITS : UG/KG
SAMPLE ID LAB : EE-91-14282 MATRIX : SOLID
SAMPLE ID CLIENT: P29-S003A

PARAMETER	RESULTS	Q	QNT. LIMIT
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

0000663

0000663

TEST CODE :SPNPAH1 JOB NUMBER :9101.476

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UH-8000 NASP - PHASE I BATCH 2
RESULTS IN WET WEIGHT
TEST NAME : PNC PAE - LC UNITS : UG/KG
SAMPLE ID LAB : BE-91-14283 MATRIX : SOLID
SAMPLE ID CLIENT: P29-S004A

PARAMETER	RESULTS	Q	QNT. LIMIT
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 :SPNPAH1 JOB NUMBER :9101.476

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UH-8000 NASP - PHASE I BATCH 2
RESULTS IN WET WEIGHT
TEST NAHE : PNC PAE - LC UNITS : UG/KG
SAMPLE ID LAB : EE-91-14284 MATRIX : SOLID
SAMPLE ID CLIENT: P29-S005A

PARAMETER	RESULTS	Q	QNT. LIMIT
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

0000667

0000667

TEST CODE :SPNPAH1 JOB NUMBER :9101.476

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UH-8000 NASP - PHASE I BATCE 2
RESULTS IN WET WEIGHT
TEST NAME : PNC PAH - LC UNITS : UG/KG
SAMPLE ID LAB : EE-91-14285 MATRIX : SOLID
SAMPLE ID CLIENT: P29-S006A

PARAMETER	RESULTS	Q	QNT. LIMIT
Total as Benzo-a-pyrene	6200		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 :9101.476

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UH-8000 NASP - PHASE I BATCH 2
RESULTS IN WET VEIGHT
TEST NAME : PNC PAH - LC UNITS : UG/KG
SAMPLE ID LAB : EE-91-14286 MATRIX : SOLID
SAMPLE ID CLIENT: P29-S007A

PARAMETER	RESULTS	Q	QNT. LIMIT
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

0000663

0000663

TEST CODE :SPNPAH1 JOB NUMBER :9101.476

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UH-8000 NASP - PHASE I BATCH 2
RESULTS IN WET WEIGHT
TEST NAME : PNC PAH - LC UNITS : UG/KG
SAMPLE ID LAB : EE-91-14287 MATRIX : SOLID
SAMPLE ID CLIENT: P29-S008A

PARAMETER	RESULTS	Q	QNT. LIMIT
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

9101.476

(ug)

Parameter	E & E Laboratory No. 91-14287 MS	Original Value	Amount Added	Amount Determined	Percent Recovery
Benzo(a)pyrene		ND	50	41	82

ND = NOT DETECTED

0000609

0000609

TEST CODE :SPNPAH1 JOB NUMBER :9101.476

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UH-8000 NASP - PHASE I BATCH 2
RESULTS IN WET WEIGHT
TEST NAME : PNC PAH - LC UNITS : UG/KG
SAMPLE ID LAB : METHOD BLANK #1 MATRIX : SOLID

PARAMETER	RESULTS	Q	QNT. LIMIT
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 :SPNPAH1 JOB NUMBER :9101.476

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UH-8000 NASP - PHASE I BATCH 2
RESULTS IN WET WEIGHT
TEST NAME : PNC PAH - LC UNITS : UG/KG
SAMPLE ID LAB : METHOD BLANK #2 MATRIX : SOLID

PARAMETER	RESULTS	Q	QNT. LIMIT
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

0000610

0000610

TEST CODE :SPNPHL1 JOB NUMBER :9101.476

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UH-8000 NASP - PEASE I BATCH 2
RESULTS IN WET WEIGHT
TEST NAME : PNC PHENOL - LC UNITS : UG/KG
SAMPLE ID LAB : EE-91-14279 MATRIX : SOLID
SAMPLE ID CLIENT: P29-S001A

PARAMETER	RESULTS	Q	QNT. 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 :9101.476

Bcology and Environment, Inc.
Analytical Services Center

CLIENT : UH-8000 NASP - PHASE I BATCH 2
RESULTS IN WET WEIGHT
TEST NAME : PNC PHENOL - LC UNITS : UG/KG
SAMPLE ID LAB : EE-91-14280 MATRIX : SOLID
SAMPLE ID CLIENT: P29-S001AD

PARAMETER	RESULTS	Q	QNT. 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

0000671

0000671

TEST CODE :SPNPHL1 JOB NUMBER :9101.476

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UH-8000 NASP - PHASE I BATCH 2
RESULTS IN WET WEIGHT
TEST NAME : PNC PHENOL - LC UNITS : UG/KG
SAMPLE ID LAB : EE-91-14281 MATRIX : SOLID
SAMPLE ID CLIENT: P29-S002A

PARAMETER	RESULTS	Q	QNT. 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 :9101.476

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UH-8000 NASP - PEASE I BATCH 2
RESULTS IN WET WEIGHT
TEST NAME : PNC PHENOL - LC UNITS : UG/KG
SAMPLE ID LAB : EE-91-14282 MATRIX : SOLID
SAMPLE ID CLIENT: P29-S003A

PARAMETER	RESULTS	Q	QNT. 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

0000672

TEST CODE :SPNPHL1 JOB NUMBER :9101.476

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UH-8000 NASP - PHASE I BATCH 2
RESULTS IN WET WEIGHT
TEST NAME : PNC PHENOL - LC UNITS : UG/KG
SAMPLE ID LAB : EE-91-14283 MATRIX : SOLID
SAMPLE ID CLIENT: P29-S004A

PARAMETER	RESULTS	Q	QNT. 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 :9101.476

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UH-8000 NASP - PHASE I BATCH 2
RESULTS IN WET WEIGHT
TEST NAME : PNC PHENOL - LC UNITS : UG/KG
SAMPLE ID LAB : EE-91-14284 MATRIX : SOLID
SAMPLE ID CLIENT: P29-S005A

PARAMETER	RESULTS	Q	QNT. 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

0000673

0000673

TEST CODE :SPNPHL1 JOB NUMBER :9101.476

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UH-8000 NASP - PHASE I BATCH 2
RESULTS IN WET WEIGHT
TEST NAME : PNC PHENOL - LC UNITS : UG/KG
SAMPLE ID LAB : EE-91-14285 MATRIX : SOLID
SAMPLE ID CLIENT: P29-S006A

PARAMETER	RESULTS	Q	QNT. 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 :9101.476

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UH-8000 NASP - PHASE I BATCH 2
RESULTS IN WET WEIGHT
TEST NAME : PNC PHENOL - LC UNITS : UG/KG
SAMPLE ID LAB : EE-91-14286 MATRIX : SOLID
SAMPLE ID CLIENT: P29-S007A

PARAMETER	RESULTS	Q	QNT. 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

0000674

TEST CODE :SPNPHL1 JOB NUMBER :9101.476

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UH-8000 NASP - PHASE I BATCH 2
RESULTS IN WET WEIGHT
TEST NAME : PNC PHENOL - LC UNITS : UG/KG
SAMPLE ID LAB : EE-91-14287 MATRIX : SOLID
SAMPLE ID CLIENT: P29-S008A

PARAMETER	RESULTS	Q	QNT. 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

QUALITY CONTROL FOR ACCURACY: PERCENT RECOVERY FOR SPIKED SOIL SAMPLES

9101.476

(ug)

Parameter	E & E Laboratory No. 91- Blank Spike	Original Value	Amount Added	Amount Determined	Percent Recovery
2,4,6-Trichlorophenol		ND	100	82	82

ND = NOT DETECTED

0000675

0000675

TEST CODE :SPNPHL1 JOB NUMBER :9101.476

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UH-8000 NASP - PEASE I BATCH 2
RESULTS IN WET WEIGHT
TEST NAME : PNC PHENOL - LC UNITS : UG/KG
SAMPLE ID LAB : METHOD BLANK MATRIX : SOLID

PARAMETER	RESULTS	Q	QNT. 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 :SPNP&P1 JOB NUMBER :9101.476

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UH-8000 NASP - PEASE I BATCH 2
RESULTS IN WET WEIGHT
TEST NAME : PNC PEST./PCB UNITS : UG/KG
SAMPLE ID LAB : BE-91-14279 MATRIX : SOLID
SAMPLE ID CLIENT: P29-S001A

PARAMETER	RESULTS	Q	QNT. LIMIT
Heptachlor	ND		1000
Lindane	ND		1000
Aldrin	ND		1000
4,4 - DDT	ND		1000
Dieldrin	ND		1000
Endrin	ND		1000
Chlordane	ND		1000
4,4-DDE	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

0000676

0000676

TEST CODE :SPNP&P1 JOB NUMBER :9101.476

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UH-8000 NASP - PHASE I BATCH 2
RESULTS IN WET WEIGHT
TEST NAME : PNC PEST./PCB UNITS : UG/KG
SAMPLE ID LAB : EE-91-14280 MATRIX : SOLID
SAMPLE ID CLIENT: P29-S001AD

PARAMETER	RESULTS	Q	QNT. LIMIT
Eeptachlor	ND		1000
Lindane	ND		1000
Aldrin	ND		1000
4,4 - DDT	ND		1000
Dieldrin	ND		1000
Endrin	ND		1000
Chlordane	ND		1000
4,4-DDE	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 : 9101.476

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UH-8000 NASP - PHASE I BATCH 2
RESULTS IN WET WEIGHT
TEST NAME : PNC PEST./PCB UNITS : UG/KG
SAMPLE ID LAB : EE-91-14281 MATRIX : SOLID
SAMPLE ID CLIENT: P29-S002A

PARAMETER	RESULTS	Q	QNT. LIMIT
Haptachlor	ND		1000
Lindane	ND		1000
Aldrin	ND		1000
4,4 - DDT	ND		1000
Dieldrin	ND		1000
Endrin	ND		1000
Chlordane	ND		1000
4,4-DDE	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

0000677

0000677

TEST CODE :SPNP&P1 JOB NUMBER :9101.476

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UH-8000 NASP - PHASE I BATCH 2
RESULTS IN WET WEIGHT
TEST NAME : PNC PEST./PCB UNITS : UG/KG
SAMPLE ID LAB : EE-91-14282 MATRIX : SOLID
SAMPLE ID CLIENT: P29-S003A

PARAMETER	RESULTS	Q	QNT. LIMIT
Heptachlor	ND		1000
Lindane	ND		1000
Aldrin	ND		1000
4,4 - DDT	ND		1000
Dieldrin	ND		1000
Endrin	ND		1000
Chlordane	ND		1000
4,4-DDE	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 :9101.476

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UH-8000 NASP - PEASE I BATCH 2
RESULTS IN WET WEIGHT
TEST NAME : PNC PEST./PCB UNITS : UG/KG
SAMPLE ID LAB : EE-91-14283 MATRIX :SOLID
SAMPLE ID CLIENT: P29-S004A

PARAMETER	RESULTS	Q	QNT. LIMIT
Heptachlor	ND		1000
Lindane	ND		1000
Aldrin	ND		1000
4,4 - DDT	ND		1000
Dieldrin	ND		1000
Endrin	ND		1000
Chlordane	ND		1000
4,4-DDE	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

0000678

0000678

TEST CODE :SPNP&P1 JOB NUMBER :9101.476

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UH-8000 NASP - PHASE I BATCH 2
RESULTS IN WET WEIGHT
TEST NAME : PNC PEST./PCB UNITS : UG/KG
SAMPLE ID LAB : EE-91-14284 MATRIX : SOLID
SAMPLE ID CLIENT: P29-S005A

PARAMETER	RESULTS	Q	QNT. LIMIT
Heptachlor	ND		1000
Lindane	ND		1000
Aldrin	ND		1000
4,4 - DDT	ND		1000
Dieldrin	ND		1000
Endrin	ND		1000
Chlordane	ND		1000
4,4-DDE	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 :9101.476

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UH-8000 NASP - PHASE I BATCH 2
RESULTS IN WET WEIGHT
TEST NAME : PNC PEST./PCB UNITS : UG/KG
SAMPLE ID LAB : EE-91-14285 MATRIX : SOLID
SAHPLE ID CLIENT: P29-S006A

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

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

0000670

0000670

TEST CODE :SPNP&P1 JOB NUMBER :9101.476

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UH-8000 NASP - PHASE I BATCE 2
RESULTS IN WET WEIGHT
TEST NAME : PNC PEST./PCB UNITS : UG/KG
SAMPLE ID LAB : EE-91-14286 MATRIX : SOLID
SAMPLE ID CLIENT: P29-S007A

PARAMETER	RESULTS	Q	QNT. LIMIT
Heptachlor	ND		1000
Lindane	ND		1000
Aldrin	ND		1000
4,4 - DDT	ND		1000
Dieldrin	ND		1000
Endrin	ND		1000
Chlordane	ND		1000
4,4-DDE	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 :9101.476

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UH-8000 NASP - PEASE I BATCH 2
RESULTS IN WET WEIGHT
TEST NAME : PNC PEST./PCB UNITS : UG/KG
SAMPLE ID LAB : EE-91-14287 MATRIX : SOLID
SAMPLE ID CLIENT: P29-S008A

PARAMETER	RESULTS	Q	QNT. LIMIT
Heptachlor	ND		1000
Lindane	ND		1000
Aldrin	ND		1000
4,4 - DDT	ND		1000
Dieldrin	ND		1000
Endrin	ND		1000
Chlordane	ND		1000
4,4-DDE	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

0000600

QUALITY CONTROL FOR ACCURACY:
PERCENT RECOVERY OF SOIL MATRIX SPIKE
(Sample # 14286)

9101.476

Compound	Original Result	Amount Added	Amount Determined	Percent Recovery
		(ug/kg)		
Heptachlor	ND	400	384	96
Lindane	ND	400	391	98
Aldrin	ND	400	431	108
4,4'-DDT	ND	1000	994	99
Dieldrin	ND	1000	1035	104
Endrin	ND	1000	1032	103
Chlordane	ND	- -	- -	NA
4,4'-DDE	ND	- -	- -	NA
PCB-1254	ND	5000	5734	115

ND = NOT DETECTED

NA = NOT APPLICABLE

TEST CODE :SPNP&P1 JOB NUMBER :9101.476

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UH-8000 NASP - PEASE I BATCH 2
RESULTS IN WET WEIGHT
TEST NAME : PNC PEST./PCB UNITS : UG/KG
SAMPLE ID LAB : METHOD BLANK MATRIX : SOLID

PARAMETER	RESULTS	Q	QNT. LIMIT
Heptachlor	ND		1000
Lindane	ND		1000
Aldrin	ND		1000
4,4 - DDT	ND		1000
Dieldrin	ND		1000
Endrin	ND		1000
Chlordane	ND		1000
4,4-DDE	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

0000621

0000631

APPENDIX D

TEMPORARY MONITORING WELL GROUNDWATER SAMPLING ANALYTICAL SCREENING RESULTS

MEMORANDUM

TO: John Barksdale

FROM: Gary Hahn Gary Hahn/kr

DATE: July 10, 1991

SUBJECT: UH-8000 Pensacola Report

RE: 9101.487

CC: Lab File

Attached is the laboratory report of the analysis conducted on three samples received at the Analytical Services Center on June 25, 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.

Samples #14326.04, #14327.04 and #14328.04 were not preserved to correct pH. Additional acid (H_2SO_4) was added to bring down the pH to required levels.

All samples on which this report is based will be retained by E & E 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/kr
Enclosure

MEMORANDUM

TO: John Barksdale

FROM: Gary Hahn

DATE: July 15, 1991

SUBJECT: UH-8000 Pensacola Report

RE: 9101.508

CC: Lab File

Attached is the laboratory report of the analysis conducted on one sample received at the Analytical Services Center on June 26, 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 E & E 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, vith such charges accruing until destruction of the samples is authorized by the client.

GH/kr
Enclosure

0000683

9101.4.87

14326 — 14328

Analysis as per Site QAP?
See Jack Miller

ecology and environment, inc.

[illegible] VIEW DRIVE, LANCASTER, NEW YORK 14086, TEL. 716/684-8060
International Specialists in the Environment

CHAIN-OF-CUSTODY RECORD

Pg. 1 of 1

Project No.: WH-8000
Project Name: NAS Pensacola
Project Manager: John Bakshide
Samplers: (Signatures)
Field Team Leader: Arnold C Lamb

STATION NUMBER	DATE	TIME	SAMPLE TYPE COMP	GRAB	AIR	SAMPLE INFORMATION / EXPECTED COMPOUNDS (Concentration)*	STATION LOCATION	NUMBER OF CONTAINERS	Volatile organics	Semivolatile organics	Pesticides/PCBs	Herbicides	TRPH	REMARKS
TW006	6/24/91	1005		X		Low	TW006	5	X	X	X	X	X	VOA's preserved with HCl <2
TW007	6/24/91	0935		X		↓	TW007	5	↓	↓	↓	↓	↓	metals preserved with HNO_3 <2
TW007D	6/24/91	0935		X			TW007	5	↓	↓	↓	↓	↓	TRPH preserved with H_2SO_4 <2
														VOA Lot # 1123033
														QC # 10353C
						Preservatives:								1 Liter poly Lot # 1092021
						HCl mallinckrodt Lot # 5587KEGP								QC # 10230C
						HNO_3 mallinckrodt Lot # 6623KECG								1 Liter amber Lot # 1109012
						H_2SO_4 mallinckrodt Lot # 6843KCBG								QC # 10320C
														1 Liter amber Lot # 1094012
														QC # 10278C
														All samples packed in ICE 4°C

Relinquished By: (Signature)	Date/Time:	Received By: (Signature)	Relinquished By: (Signature)	Date/Time:	Received By: (Signature)
	6/24/91 1700				
Relinquished By: (Signature)	Date/Time:	Received By: (Signature)	Relinquished By: (Signature)	Date/Time:	Received By: (Signature)
Relinquished By: (Signature)	Date/Time: 0830 6-25-91	Received For Laboratory By: (Signature)	Relinquished By: (Signature)	Date/Time:	Received For Laboratory By: (Signature)

Ship Via: FEDERAL EXPRESS
BL/Airbill Number: 0776546083
Date: 6/24/91

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

234066

Job # 9101.508

SAMPLE # 14508

Analysis as per site 4111F

See Jack Miller

ecology and environment, inc.

200 PLEASANTVIEW DRIVE, LANCASTER, NEW YORK 14086, TEL. 716/684-8060
International Specialists in the Environment

CHAIN-OF-CUSTODY RECORD

Project No: 1198000
Project Name: NAS Pensacola
Project Manager: John Barksdale
Samplers (Signatures): [signature]
Field Team Leader: Arnold C. Lamb

STATION NUMBER	DATE	TIME	SAMPLE TYPE COMP	SAMPLE TYPE GRAB	SAMPLE TYPE AIR	SAMPLE INFORMATION / EXPECTED COMPOUNDS (Concentration)*	STATION LOCATION	NUMBER OF CONTAINERS	Screening Metals	Screening Pesticides	Screening PAH's/Base/PCBs	Screening VOC's	TRPH	REMARKS
GWD11	6/25/91	0825		X		Low	TWD11 site 9	5	X	X	X	X	X	VOA Lot # 1123033
GWD11D	6/25/91	0825		X		↓	TWD11 site 9	5	↓	↓	↓	↓	↓	QC# 10353C
GWD10	6/25/91	1000		X			TWD10 site 9	5						Liter poly Lot# 1092021
GWD08	6/25/91	0755		X			TWD08 site 29	5						QC# 10230C
														Liter Amber Lot# 1109012
														QC# 10320C
														1/2 gal Amber Lot# 1094012
														QC# 10278C
						Preservative:								VOA's preserved with HCL <2
						HCL Mallinckrodt Lot# 5587KEGP								Metals preserved with HNO_3 <2
						HNO_3 Mallinckrodt Lot# 6623KCG								TRPH preserved with H_2SO_4 <2
						H_2SO_4 Mallinckrodt Lot# 6843KCBG								All samples packed in ICE <4°C

Relinquished By: (Signature)	Date/Time:	Received By: (Signature)	Relinquished By: (Signature)	Date/Time:	Received By: (Signature)	Ship Via:
[signature]	6/25/91 1700	Fed Ex				FEDERAL EXPRESS
Relinquished By: (Signature)	Date/Time:	Received By: (Signature)	Relinquished By: (Signature)	Date/Time:	Received By: (Signature)	
Relinquished By: (Signature)	Date/Time	Received For Laboratory By: (Signature)	Relinquished By: (Signature)	Date/Time:	Received For Laboratory By: (Signature)	BL/Airbill Number: 0776546116
Fed Ex	6-26-91 0 9	[signature]				Date: 6/25/91

Distribution: Original Accompanies Shipment; Copy to Coordinator Field Files

*See CONCENTRATION RANGE on back of form.

234068

ecology and environment

C-1984

JOB NUMBER : 9101.487

Ecology and Environment, Inc.
SAMPLE TRACKING REPORT

LAB SAMPLE ID	CLIENT SAMPLE ID	TEST CODE	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED
14326.01	P29-GW006	WPNPRGl	06/22/91		06/26/91
14326.03	P29-GW006	WPNP&P1	06/22/91		07/03/91
		WPNPAH1	06/22/91		06/28/91
		WPNPHLl	06/22/91		06/28/91
14326.04	P29-W006	WPNTPH1	06/22/91		06/26/91
14326.05	P29-GW006	WPNMET1	06/22/91		06/27/91
14327.01	P29-W007	WPNPRGl	06/22/91		06/26/91
14327.03	P29-GW007	WPNP&P1	06/22/91		07/03/91
		WPNPAH1	06/22/91		06/28/91
		WPNPHLl	06/22/91		06/28/91
14327.04	P29-W007	WPNTPH1	06/22/91		06/26/91
14327.05	P29-GW007	WPNMET1	06/22/91		06/27/91
14328.01	P29-GW007D	WPNPRGl	06/22/91		06/26/91
14328.03	P29-GW007D	WPNP&P1	06/22/91		07/03/91
		WPNPAH1	06/22/91		06/28/91
		WPNPHLl	06/22/91		06/28/91
14328.04	P29-GW007D	WPNTPHl	06/22/91		06/26/91
14328.05	P29-GW007D	WPNMET1	06/22/91		06/27/91

JOB NUMBER : 9101.508

Bcology and Environment, Inc.
SAMPLE TRACKING REPORT

LAB SAMPLE ID	CLIENT SAMPLE ID	TEST CODB	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED
14508.01	P29-GW008	WPNPRG1	06/25/91		06/29/91
14508.03	P29-GW008	WPNP&P1	06/25/91		07/03/91
		WPNPAH1	06/25/91		06/29/91
		WPNPHL1	06/25/91		06/29/91
14508.04	P29-GW008	WPNTPH1	06/25/91		06/27/91
14508.05	P29-GW008	WPNMET1	06/25/91		06/28/91

0000685

JOB NUMBER :9101.487

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UH-8000 NASP - PEASE I BATCH 2
SAMPLE ID LAB :EE-91-14326 MATRIX: WATER
SAMPLE ID CLIENT: P29-GW006

PARAMETER	RESULTS	Q	QNT. LIMIT	UNITS
Arsenic	ND		60	UG/L
Chromium	26		10	UG/L
Zinc	58		20	UG/L
Lead	ND		40	UG/L
Cadmium	ND		5.0	UG/L
Nickel	ND		40	UG/L
Copper	ND		25	UG/L
Silver	ND		10	UG/L

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

JOB NUMBER :9101.487

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UH-8000 NASP - PHASE I BATCH 2
SAMPLE ID LAB :EE-91-14327 MATRIX: VATBR
SAMPLE ID CLIENT: P29-GW007

PARAMETER	RBSULTS	Q	QNT. LIMIT	UNITS
Arsenic	ND		60	UG/L
Chromium	34		10	UG/L
Zinc	38		20	UG/L
Lead	ND		40	UG/L
Cadmium	ND		5.0	UG/L
Nickel	42		40	UG/L
Copper	ND		25	UG/L
Silver	ND		10	UG/L

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

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JOB NUMBER :9101.487

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UH-8000 NASP - PHASE I BATCH 2
SAMPLE ID LAB :EE-91-14328 MATRIX: WATER
SAMPLE ID CLIENT: P29-GW007D

PARAMETER	RESULTS	Q	QNT. LIXIT	UNITS
Arsenic	110		60	UG/L
Chromium	26		10	UG/L
Zinc	66		20	UG/L
Lead	ND		40	UG/L
Cadmium	ND		5.0	UG/L
Nickel	ND		40	UG/L
Copper	ND		25	UG/L
Silver	ND		10	UG/L

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

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UH-8000 NASP - PHASE I BATCH 2
SAMPLE ID LAB :EE-91-14508 MATRIX: WATER
SAMPLE ID CLIENT: P29-GW008

PARAMETER	RESULTS	Q	QNT. LIMIT	UNITS
Arsenic	ND		60	UG/L
Chromium	23		10	UG/L
Zinc	46		20	UG/L
Lead	ND		40	UG/L
Cadmium	ND		5.0	UG/L
Nickel	ND		40	UG/L
Copper	ND		25	UG/L
Silver	ND		10	UG/L

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

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

9101.487

(ug/L)

Parameter	E C E Laboratory No. 91-14327	Original Analysis	Replicate Analysis	Relative Percent Difference (RPD)
Arsenic		ND	ND	NC
Chromium		34	35	2.9
Zinc		38	48	23
Lead		ND	ND	NC
Cadmium		ND	ND	NC
Nickel		42	ND	NC
Copper		ND	ND	NC
Silver		ND	ND	NC

ND = NOT DETECTED

NC = NOT CALCULABLE

QUALITY CONTROL FOR ACCURACY: PERCENT RECOVERY FOR SPIKED WATBR SAMPLES

9101.487

(ug/L)

Parameter	E & E Laboratory No. 91-14327	Original Value	Amount Added	Amount Determined	Percent Recovery
Arsenic		ND	2000	2200	108
Chromium		34	200	230	100
Zinc		38	500	550	102
Lead		ND	500	540	108
Cadmium		ND	50	S0	100
Nickel		42	500	520	96
Copper		ND	250	250	99
Silver		ND	50	49	98

ND = NOT DETECTED

** = RECOVERY NOT DETERMINED BECAUSE SAMPLE AMOUNT IS FOUR OR MORE TIMES GREATER THAN SPIKE AMOUNT.

NOTE: ALTHOUGH RESULTS *ARB* REPORTED AS ROUNDED VALUES, PERCENT RECOVERIES ARE CALCULATED DIRBCTLY FROM THE RAW DATA.

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0000688

JOB NUMBER : 9101.487

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UH-8000 NASP - PHASE I BATCH 2
SAMPLE ID LAB : METHOD BLANK MATRIX: WATER

PARAMETER	RESULTS	Q	QNT. LIMIT	UNITS
Arsenic	ND		60	UG/L
Chromium	ND		10	UG/L
Zinc	ND		20	UG/L
Lead	ND		40	UG/L
Cadmium	ND		5.0	UG/L
Nickel	ND		40	UG/L
Copper	ND		25	UG/L
Silver	ND		10	UG/L

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

JOB NUMBER :9101.508

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UH-8000 NASP - PHASE I BATCH 2
SAMPLE ID LAB : METHOD BLANK MATRIX: WATER

PARAMETER	RESULTS	Q	QNT. LIMIT	UNITS
Arsenic	ND		60	UG/L
Chromium	ND		10	UG/L
Zinc	ND		20	UG/L
Lead	ND		40	UG/L
cadmium	ND		5.0	UG/L
Nickel	ND		40	UG/L
Copper	ND		2s	UG/L
Silver	ND		10	UG/L

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

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JOB NUMBER :9101.487

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UH-8000 NASP - PHASE I BATCH 2
SAMPLE ID LAB :EE-91-14326 MATRIX: WATER
SAMPLE ID CLIENT: P29-GW006

PARAMETER	RESULTS	Q	QNT. LIMIT	UNITS
TRPH	11		1.0	MG/L

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

JOB NUMBER :9101.487

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UH-8000 NASP - PHASE I BATCH 2
SAMPLE ID LAB :EE-91-14327 MATRIX: VATBR
SAMPLE ID CLIENT: P29-GW007

PARAMETER	RESULTS	Q	QNT. LIMIT	UNITS
TRPH	2.6		1.0	MG/L

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

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JOB NUMBER :9101.487

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UH-8000 NASP - PHASE I BATCH 2
SAMPLE ID LAB :EE-91-14328 MATRIX: WATER
SAMPLE ID CLIENT: P29-GW007D

PARAMETER	RESULTS	Q	QNT. LIMIT	UNITS
TRPH	5.7		1.0	MG/L

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

JOB NUMBER :9101.508

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UH-8000 NASP - PHASE I BATCH 2
SAMPLE ID LAB :EE-91-14508 MATRIX: WATER
SAMPLE ID CLIENT: P29-GW008

PARAMETER	RESULTS	Q	QNT. LIMIT	UNITS
TRPH	12		10	MG/L

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

000065

QUALITY CONTROL FOR ACCURACY: PERCENT RECOVERY
FOR SPIKED WATER SAMPLES

9101.487

(mg/L)

Parameter	E & E Laboratory No. 91-	Original Value	Amount Added	Amount Determined	Percent Recovery
T. Recoverable Petroleum Hydrocarbons					
	Batch QC	11	8.5	22	125

ND = NOT DETECTED

** = RECOVERY NOT DETERMINED BECAUSE SAMPLE AMOUNT IS FOUR OR MORE TIMES GREATER THAN SPIKE AMOUNT.

NOTE: ALTHOUGH RESULTS ARE REPORTED AS ROUNDED VALUES, PERCENT RECOVERIES ARE CALCULATED DIRECTLY FROM THE RAW DATA.

QUALITY CONTROL FOR ACCURACY: PERCENT RECOVERY FOR SPIRED WATER SAMPLES

9101.508

(mg/L)

Parameter	E & E Laboratory No. 91-	Original Value	Amount Added	Amount Determined	Percent Recovery
T. Recoverable Petroleum Hydrocarbons					
	Batch QC	ND	5.4	5.0	94

ND = NOT DETECTED

** = RECOVERY NOT DETERMINED BECAUSE SAMPLE AMOUNT IS FOUR OR MORE TIMES GREATER THAN SPIKE AMOUNT.

NOTE: ALTHOUGH RESULTS ARE REPORTED AS ROUNDED VALUES, PERCENT RECOVERIES ARE CALCULATED DIRECTLY FROM THE RAW DATA.

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0000692

JOB NUMBER :9101.487

Ecology and Environment, Inc.
Analytical Services Canter

CLIENT : UH-8000 NASP - PEASE I BATCH 2
SAMPLE ID LAB : METHOD BLANK MATRIX: WATER

PARAMETER	RESULTS	Q	QNT. LIMIT	UNITS
TRPH	ND		1.0	MG/L

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

JOB NUMBER :9101.508

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UH-8000 NASP - PHASE I BATCH 2
SAMPLE ID LAB : METHOD BLANK MATRIX: WATBR

PARAMETER	RESULTS	Q	QNT. LIMIT	UNITS
TRPH	ND		1.0	MG/L

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

0000693

0000695

TEST CODE :WPNPRG1 JOB NUMBER :9101.487

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UH-8000 NASP - PHASE I BATCH 2
TEST NAME : PNC PURGABLES- GC UNITS : UG/L
SAMPLE ID LAB : EE-91-14326 MATRIX: WATER
SAMPLE ID CLIENT: P29-GW006

PARAMETER	RESULTS	Q	QNT. LIHIT
Benzene	ND		10
Toluene	ND		10
Bthylbenzene	ND		10
Total Xylenes	ND		10
1,2 - Dichlorobenzene	ND		10
1,3 - Dichlorobenzene	ND		10
1,4 - Dichlorobenzene	ND		10
1,1 - Dichloroethene	ND		10
Methylene Chloride	ND		10
Trans - 1,2 - Dichloroethene	ND		10
1,1 - Dichloroethane	ND		10
1,1,1 - Trichlorocthane	ND		10
1,2 - Dichloroethane	ND		10
Trichloroethene	ND		10
Tetrachloroethena	ND		10
Chlorobenzene	ND		10

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

TEST CODE :WPNPRG1 JOB NUMBER 89101.487

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UH-8000 NASP - PHASE I BATCH 2
TEST NAME : PNC PURGABLES- GC UNITS : UG/L
SAMPLE ID LAB : EE-91-14327 MATRIX: WATER
SAMPLE ID CLIENT: P29-GW007

PARAMETER	RESULTS	Q	QNT. LIMIT
Benzene	ND		lo
Toluene	ND		10
Ethylbenzene	ND		10
Total Xylenes	ND		10
1,2 - Dichlorobenzene	ND		10
1,3 - Dichlorobenzene	ND		10
1,4 - Dichlorobenzene	ND		10
1,1 - Dichloroethene	ND		10
Methylene Chloride	ND		10
Trans - 1,2 - Dichloroethene	ND		10
1,1 - Dichloroethane	ND		10
1,1,1 - Trichloroethane	ND		10
1,2 - Dichloroethane	ND		10
Trichloroethene	ND		10
Tetrachloroethene	ND		10
Chlorobenzene	ND		10

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

0000691

0000694

TEST CODE :WPNPRG1 JOB NUMBER 19101.487

Ecology and Environment, Inc.
Analytical Services Center

CLIENT UH-8000 NASP - PHASE I BATCH 2
TEST NAME : PNC PURGABLES- GC UNITS : UG/L
SAMPLE ID LAB : EE-91-14328 MATRIX: WATER
SAMPLE ID CLIENT: P29-GW007D

PARAMETER	RESULTS	Q	QNT. LIMIT
Benzene	ND		lo
Toluene	ND		10
Ethylbenzene	ND		10
Total Xylenes	ND		10
1,2 - Dichlorobenzene	ND		10
1,3 - Dichlorobenzene	ND		10
1,4 - Dichlorobenzene	ND		10
1,1 - Dichloroethene	ND		10
Methylene Chloride	ND		10
Trans - 1,2 - Dichloroethene	ND		10
1,1 - Dichloroethane	ND		10
1,1,1 - Trichloroethane	ND		10
1,2 - Dichlorocthane	ND		10
Trichloroethene	ND		10
Tetrachloroethene	ND		10
Chlorobenzene	ND		10

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

TEST CODE :WPNPRG1 JOB NUMBER :9101.508

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UH-8000 NASP - PHASE I BATCH 2
TEST NAME : PNC PURGABLES- GC UNITS : UG/L
SAMPLE ID LAB : EE-91-14508 MATRIX: VATBR
SAMPLE ID CLIENT: P29-GW008

PARAMETER	RESULTS	Q	QNT. LIMIT
Benzene	ND		100
Toluene	ND		100
Ethylbenzene	ND		100
Total Xylenes	ND		100
1,2 - Dichlorobenzene	ND		100
1,3 - Dichlorobenzene	ND		100
1,4 - Dichlorobenzene	ND		100
1,1 - Dichloroethene	ND		100
Methylene Chloride	100		100
Trans - 1,2 - Dichloroethene	ND		100
1,1 - Dichloroethane	ND		100
1,1,1 - Trichlorocthanc	ND		100
1,2 - Dichloroethane	ND		100
Trichloroethcne	ND		100
Tctrachlorocthene	ND		100
Chlorobenzene	ND		100

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

0000695

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QUALITY CONTROL FOR ACCURACY AND PRECISION:
PERCENT RECOVERY AND RELATIVE PERCENT DIFFERENCE (RPD)
OF WATER MATRIX SPIKE (HS) AND MATRIX SPIKE DUPLICATE (HSD)
(Sample # 14326)

9101.487

(ug/L)

Parameter	Original Value	Amount Added HS	Amount Added MSD	Amount Determined HS	Amount Determined HSD	Percent Recovery HS	Percent Recovery MSD	RPD
Benzene	ND	20	20	18	18	90	90	0
Toluene	ND	20	20	17	17	85	85	0
Ethyl Benzene	ND	20	20	17	17	85	85	0
1,2-Dichlorobenzene	ND	20	20	18	18	90	90	0
1,3-Dichlorobenzene	ND	20	20	18	18	90	90	0
1,4-Dichlorobenzene	ND	20	20	18	18	90	90	0
1,1-Dichloroethene	ND	20	20	14	13	70	65	7.4
Methylene Chloride	ND	20	20	24	21	120	105	13
Trans-1,2-Dichloroethene	ND	20	20	17	17	85	85	0
1,1-Dichloroethane	ND	20	20	16	16	80	80	0
1,1,1-Trichloroethane	ND	20	20	17	17	85	85	0
1,2-Dichloroethane	ND	20	20	17	16	85	80	6.1
Trichloroethene	ND	20	20	16	16	80	80	0
Tetrachloroethene	ND	20	20	17	16	85	80	6.1

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

ND = NOT DETECTED

QUALITY CONTROL FOR ACCURACY AND PRECISION:
PERCENT RECOVERY OF WATER MATRIX SPIKE (MS)

9101.508

(ug/L)

Parameter	E & E Laboratory No. 91- Blank Spike	Original Value	Amount Added	Amount Determined	Percent Recovery
Benzene		ND	20	20	100
Toluene		ND	20	19	95
Ethyl Benzene		ND	20	18	90
1,2-Dichlorobenzene		ND	20	16	80
1,3-Dichlorobenzene		ND	20	16	80
1,4-Dichlorobenzene		ND	20	16	80
1,1-Dichloroethene		ND	20	17	85
Methylene Chloride		ND	20	18	90
Trans-1,2-Dichloroethene		ND	20	18	90
1,1-Dichloroethane		ND	20	15	75
1,1,1-Trichloroethane		ND	20	19	95
1,2-Dichloroethane		ND	20	22	110
Trichloroethene		ND	20	21	105
Tetrachloroethene		ND	20	21	105

ND = NOT DETECTED

0000696

recycled paper

ecology and environment

QUALITY CONTROL FOR ACCURACY: PERCENT RECOVERY OF SURROGATE SPIKES

9101.487

Compound	E & E Laboratory No. 91-	Percent Recovery
Trifluorotoluene	14326	86
	14327	88
	14328	83
	Method 'Blank	100
1,4-Dichlorobutane	14326	88
	14327	80
	14328	78
	Method Blank	100

QUALITY CONTROL FOR ACCURACY: PERCENT RECOVERY OF SURROGATE SPIKES

9101.508

Compound	E & E Laboratory No. 91-	Percent Recovery
Trifluorotoluene	14508	90
	Method Blank 1	100
1,4-Dichlorobutane	14508	87
	Method Blank 1	100

0000697

0000697

TEST CODE :WPNPRG1 JOB NUMBER t9101.487

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UH-8000 NASP - PHASE I BATCH 2
TEST NAME : PNC PURGABLES- GC UNITS : UG/L
SAMPLE ID LAB : METHOD BLANK MATRIX: WATER

PARAMETER	RESULTS	Q	QNT. LIMIT
Benzene	ND		lo
Toluene	ND		10
Ethylbenzene	ND		10
Total Xylenes	ND		10
1,2 - Dichlorobenzene	ND		10
1,3 - Dichlorobenzene	ND		10
1,4 - Dichlorobenzene	ND		10
1,1 - Dlchloroethene	ND		10
Methylene Chloride	ND		10
Trans - 1,2 - Dichloroethene	ND		10
1,1 - Dichloroethane	ND		10
1,1,1 - Trichloroethane	ND		10
1,2 - Dichloroethane	ND		10
Trichloroethene	ND		10
Tctrachloroethene	ND		10
Chlorobenzene	ND		10

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

TEST CODE :WPNPRG1 JOB NUMBER :9101.508

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UH-8000 NASP - PHASE I BATCH 2
TEST NAME : PNC PURGABLES- GC UNITS : UG/L
SAMPLE ID LAB : METHOD BLANK MATRIX: WATER

PARAMETER	RESULTS	Q	QNT. LIMIT
Benzene	ND		10
Toluene	ND		10
Ethylbenzene	ND		10
Total Xylenes	ND		10
1,2 - Dichlorobenzene	ND		10
1,3 - Dichlorobenzene	ND		10
1,4 - Dichlorobenzene	ND		10
1,1 - Dichlorocthene	ND		10
Methylene Chloride	ND		10
Trans - 1,2 - Dichlorocthene	ND		10
1,1 - Dichloroethane	ND		10
1,1,1 - Trichloroethane	ND		10
1,2 - Dichloroethane	ND		10
Trichlorotthene	ND		10
Tetrachloroethene	ND		10
Chlorobenzene	ND		10

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

0000698

0000698

TEST CODE :WPNPAH1 JOB NUMBER :9101.487

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UH-8000 NASP - PHASE I BATCH 2
TEST NAME : PNC PAH - LC UNITS : UG/L
SAMPLE ID LAB : EE-91-14326 MATRIX: WATER
SAMPLE ID CLIENT: P29-GW006

PARAMETER	RESULTS	Q	QNT. LIMIT
Total as Benzo-a-pyrene	ND		100

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

TEST CODE :VPNPAH1 JOB NUMBER :9101.487

Bcology and Environment, Inc.
Analytical Services Center

CLIENT : UH-8000 NASP - PHASE I BATCH 2
TEST NAME : PNC PAH - LC UNITS : UG/L
SAMPLE ID LAB : EE-91-14327 MATRIX: WATER
SAMPLE ID CLIENT: P29-GW007

PARAMETER	RESULTS	Q	QNT. LIMIT
Total as Benzo-a-pyrene	ND		100

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

0000690

0000690

TEST CODE :WPNPAH1 JOB NUMBER :9101.487

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UH-8000 NASP - PHASE I BATCH 2
TEST NAME : PNC PAH - LC UNITS : UG/L
SAMPLE ID LAB : EE-91-14328 MATRIX: WATER
SAMPLE ID CLIENT: P29-GW007D

PARAMETER	RESULTS	Q	QNT. LIMIT
Total as Benzo-a-pyrene	ND		100

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

TEST CODE :WPNPAH1 JOB NUMBER :9101.508

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UH-8000 NASP - PHASE I BATCH 2
TEST NAME : PNC PAH - LC UNITS : UG/L
SAMPLE ID LAB : EE-91-14508 MATRIX: WATER
SAMPLE ID CLIENT: P29-GW008

PARAMETER	RESULTS	Q	QNT. LIMIT
Total as Benzo-a-pyrene	ND		100

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

000373

0000700

QUALITY CONTROL FOR ACCURACY: PERCENT RECOVERY FOR SPIKED WATER SAMPLES

9101.487

(ug)

Parameter	E & E Laboratory No. 91-	Original Value	Amount Added	Amount Determined	Percent Recovery
Benzo(a)pyrene	Blank Spike	ND	20	16	80

ND = NOT DETECTED

QUALITY CONTROL FOR ACCURACY: PERCENT RECOVERY FOR SPIKED WATER SAMPLES

9101.508

(ug)

Parameter	E & E Laboratory No. 91- Blank	Spike	Original Value	Amount Added	Amount Determined	Percent Recovery
Benzo(a)pyrene			ND	20	16	80

ND = NOT DETECTED

0000701

TEST CODE :WPNPAH1 JOB NUMBER :9101.487

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UH-8000 NASP - PHASE I BATCH 2
TEST NAME : PNC PAH - LC UNITS : UG/L
SAMPLE ID LAB : METHOD BLANK MATRIX: WATER

PARAMETER	RESULTS	Q	QNT. LIMIT
Total as Benzo-a-pyrene	ND		100

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

TEST CODE :WPNPAH1 JOB NUMBER :9101.508

Bcology and Environment, Inc.
Analytical Services Center

CLIENT : UH-8000 NASP - PHASE I BATCH 2
TEST NAME : PNC PAH - LC UNITS : UG/L
SAMPLE ID LAB : METHOD BLANK MATRIX: WATER

PARAMETER	RESULTS	Q	QNT. LIMIT
Total as Benzo-a-pyrene	ND		100

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

0000702

TEST CODE :WPNPHL1 JOB NUMBER :9101.487

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UH-8000 NASP - PEASE I BATCH 2
TEST NAME : PNC PHENOL - LC UNITS : UG/L
SAMPLE ID LAB : EE-91-14326 MATRIX: WATER
SAMPLE ID CLIENT: P29-GW006

PARAMETER	RESULTS	Q	QNT. LIMIT
Total as Trichlorophenol	ND		100

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

TEST CODE :WPNPHL1 JOB NUMBER 89101.487

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UH-8000 NASP - PHASE I BATCH 2
TEST NAME : PNC PHENOL - LC UNITS : UG/L
SAMPLE ID LAB : BE-91-14327 MATRIX: WATER
SAMPLE ID CLIENT: P29-GW007

PARAMETER	RESULTS	Q	QNT. LIMIT
Total as Trichlorophenol	ND		100

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

0000703

TEST CODE :WPNPHL1 JOB NUMBER :9101.487

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UH-8000 NASP - PHASE I BATCH 2
TEST NAME : PNC PHENOL - LC UNITS : UG/L
SAMPLE ID LAB : EE-91-14328 MATRIX: WATER
SAMPLE ID CLIENT: P29-GW007D

PARAMETER	RESULTS	Q	QNT. LIMIT
Total as Trichlorophenol	ND		100

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

TEST CODE :WPNPHL1 JOB NUMBER :9101.508

Bcology and Environment, Inc.
Analytical Services Center

CLIENT : UH-8000 NASP - PHASE I BATCH 2
TEST NAME : PNC PHENOL - LC UNITS : UG/L
SAMPLE ID LAB : EE-91-14508 MATRIX: WATER
SAMPLE ID CLIENT: P29-GW008

PARAMETER	RESULTS	Q	QNT. LIMIT
Total as Trichlorophenol	ND		100

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

0000704

0000704

QUALITY CONTROL FOR ACCURACY: PERCENT RECOVERY FOR SPIKED WATER SAMPLES

9101.487

(ug)

Parameter	E & E Laboratory No. 91- Blank Spike	Original Value	Amount Added	Amount Determined	Percent Recovery
2,4,6-Trichlorophenol		ND	100	95	95

ND = NOT DETECTED

QUALITY CONTROL FOR ACCURACY: PERCENT RECOVERY
FOR SPIKED WATER SAMPLES

9101.508

(ug)

Parameter	E C E Laboratory No. 91- Blank Spike	Original Value	Amount Added	Amount Determined	Percent Recovery
2,4,6-Trichlorophenol		ND	100	95	95

ND = NOT DETECTED

0000705

TEST CODE : WPNPHL1 JOB NUMBER 89101.487

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UH-8000 NASP - PHASE I BATCH 2
TEST NAHE : PNC PHENOL - LC UNITS : UG/L
SAMPLE ID LAB : METHOD BLANK MATRIX: WATER

PARAMETER	RESULTS	Q	QNT. LIMIT
Total as Trichlorophenol	ND		100

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

TEST CODB :WPNPHL1 JOB NUMBER :9101.508

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UH-8000 NASP - PHASB I BATCH 2
TEST NAME : PNC PHENOL - LC UNITS : UG/L
SAMPLE ID LAB : METHOD BLANK MATRIX: WATER

PARAMETER	RESULTS	Q	QNT. LIMIT
Total as Trichlorophenol	ND		100

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

0000700

TEST CODE :WPNP&P1 JOB NUMBER :9101.487

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UH-8000 NASP - PHASE I BATCH 2
TEST NAME : PNC PEST./PCB UNITS : UG/L
SAMPLE ID LAB : EB-91-14326 MATRIX: WATER
SAMPLE ID CLIENT: P29-GW006

PARAMETER	RESULTS	Q	QNT. LIMIT
Haptachlor	ND		5.0
Lindane	ND		5.0
Aldrin	ND		5.0
4,4 - DDT	ND		5.0
Dieldrin	ND		5.0
Endrin	ND		5.0
Chlordane	ND		5.0
4,4-DDE	ND		5.0
Total PCBs	ND		10

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

TEST CODE :WPNP&P1 JOB NUMBER 19101.487

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UH-8000 NASP - PHASE I BATCH 2
TEST NAME : PNC PEST./PCB UNITS : UG/L
SAMPLE ID LAB : EE-91-14327 MATRIX: VATBR
SAMPLE ID CLIENT: P29-GW007

PARAMETER	RESULTS	Q	QNT. LIMIT
Beptachlor	ND		5.0
Lindane	ND		5.0
Aldrin	ND		5.0
4p4 - DDT	ND		5.0
Dieldrin	ND		5.0
Endrin	ND		5.0
Chlordane	ND		5.0
4,4-DDB	ND		5.0
Total PCBs	ND		10

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

0000707

TEST CODE :WPNP&P1 JOB NUMBER :9101.487

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UH-8000 NASP - PHASE I BATCH 2
TEST NAME : PNC PEST./PCB UNITS : UG/L
SAMPLE ID LAB : BE-91-14328 MATRIX: WATER
SAMPLE ID CLIENT: P29-GW007D

PARAMETER	RESULTS	Q	QNT. LIMIT
Eeptachlor	ND		5.0
Lindane	ND		5.0
Aldrin	ND		5.0
4,4 - DDT	ND		5.0
Dieldrin	ND		5.0
Endrin	ND		5.0
Chlordane	ND		5.0
4,4-DDE	ND		5.0
Total PCBs	ND		10

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

TEST CODE :WPNP&P1 JOB NUMBER :9101.508

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UH-8000 NASP - PHASE I BATCH 2
TEST NAME : PNC PEST./PCB UNITS : UG/L
SAMPLE ID LAB : BE-91-14508 MATRIX: WATER
SAMPLE ID CLIENT: P29-GW008

PARAMETER	RESULTS	Q	QNT. LIMIT
Heptachlor	ND		5.0
Lindane	ND		5.0
Aldrin	ND		5.0
4,4 - DDT	ND		5.0
Dieldrin	ND		5.0
Endrin	ND		5.0
Chlordane	ND		5.0
4,4-DDE	ND		5.0
Total PCBs	ND		10

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

8040000

0000708

TEST CODE :WPNP&P1 JOB NUMBER :9101.487

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UH-8000 NASP - PHASE I BATCH 2
TEST NAME : PNC PEST./PCB UNITS : UG/L
SAMPLE ID LAB : METHOD BLANK MATRIX: WATER

PARAMETER	RESULTS	Q	QNT. LIHIT
Eeptachlor	ND		5.0
Lindane	ND		5.0
Aldrin	ND		5.0
4,4 - DDT	ND		5.0
Dieldrin	ND		5.0
Endrin	ND		5.0
Chlordane	ND		5.0
4,4-DDE	ND		5.0
Total PCBs	ND		10

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

TEST CODE :WPNP&P1 JOB NUMBER :9101.508

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UH-8000 NASP - PHASE I BATCH 2
TEST : PNC PEST./PCB UNITS : UG/L
SAMPLE ID LAB : METHOD BLANK MATRIX: WATER

PARAMETER	RESULTS	Q	QNT. LIMIT
Heptachlor	ND		5.0
Lindane	ND		5.0
Aldrin	ND		5.0
494 - DDT	ND		5.0
Dieldrin	ND		5.0
Endrin	ND		5.0
Chlordane	ND		5.0
4,4-DDE	ND		5.0
Total PCBs	ND		10

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

6026000

0000700

APPENDIX E

EXISTING PERMANENT HONITORTNG WELL GROUNDWATER SAMPLING ANALYTICAL RESULTS

MEMORANDUM

TO: John Barksdale

FROM: Gary Hahn G. Hahn/TB

DATE: June 17, 1991

SUBJECT: NASP Well Resampling (Site 29)

REF: 9101.043

CC: Lab File

Attached is the laboratory report of the analysis conducted on six samples received at the Analytical Services Center on May 03, 1991. Analysis was performed according to the "Test Methods for Evaluating Solid Waste. Physical/Chemical Methods," SW-846, USEPA, Third Edition, 1986 and USEPA Contract Laboratory Program, Statement of Work for Organic Analysis, 2/88 and Statement of Work for Inorganic Analysis, 7/88.

All samples on which this report is based will be retained by E & E 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/bjh
enclosure

Volatile sample WTB04 was not listed on the chain of custody record. Sample vials were received and analyzed.

Based on the amount of mass spectral information available, the GC/MS computer is not always able to supply three matches for the unknown.

XD criterion for 1,2-dichloropropane was not met in the volatile continuing calibration standard D2371 analyzed on 05/09/91. This compound was not detected in any associated samples; Therefore we do not believe data quality to have been affected.

The sample identified as MSB1 is the pesticide spiked method blank.

The pesticide EVALB standard analyzed at 17:23 on 05/22/91 contained carryover. This standard was immediately reanalyzed.

For several samples, chromium and iron levels detected in the dissolved samples were higher than those found in total samples. The results were verified and there is no indication of sample reversal in the laboratory.

Recovery of the cyanide initial calibration standard fell below the CLP limit. Results were accepted based on continuing standard recoveries which fell within the CLP limit.

Iron and manganese results reported have been flagged "E" based on the serial dilution analysis. A chemical or physical interferent is suspected.

Times reported for mercury and cyanide analysis on Form 14 are not real. The instruments utilized cannot record time of analysis.

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager or his designee, as verified by the following signature.

D. Hahn

Gary Hahn
Uanager - Analytical Services Center

000071

Date 6/20/91

GH/bjh

E & E JOB NUMBER: 9101.043

CLIENT SAMPLE ID	LAB SAMPLE ID	ID USED IN REPORT
P-29-W007	9913	W007
P-29-W007D	9914	W007D
P-29-WFB04	9915	WFB04
P-29-WRB04	9916	WRB04
P-29-WPB04	9917	WPB04
P-29-WTB04	9918	WTB04
P-29-W007-DISS	9919	W007 DISS
P-29-W007D-DISS	9920	W007D DISS
P-29-WFB04-DISS	9921	WFB04 DISS
P-29-WRB04-DISS	9922	WRB04 DISS

ALL ANALYSES FOLLOW CLP PROTOCOL

ecology and environment, inc.
388 PLEASANTVIEW DRIVE, LANCASTER, NEW YORK 14086, TEL. 716/684 8060
International Specialists in the Environment

CHAIN-OF-CUSTODY RECORD

Page 1

Project No.: U48
Project Name: NASP WELL RESAMPLING
Project Manager: JOHN BARESDALE
Samplers: (Signatures) Vic A. Scoon, D K Gillp
Field Team Leader: Vic A. Scoon

STATION NUMBER	DATE 1991	TIME	SAMPLE TYPE COMP	GRAB	AIR	SAMPLE INFORMATION ~~EXPECTED COMPOUNDS (Concentration)~~	CONCENTRATION ~~STATION LOCATION~~	NUMBER OF CONTAINERS	TRPHC	TCL	TOTAL METALS + HARDNESS	CYANIDE			REMARKS
P23W FB03	5/1	09:10		X		Site 23 Pres. Blank	LOW LEVELS	3	X	X	X				
P24W FB04	5/1	09:50		X		Site 24 Pres. Blank	" "	3	X	X	X				
P09W FB05	5/1	08:15		X		Site 09 Pres. Blank	" "	3	X	X	X				

Relinquished By: (Signature)	Date/Time	Received By: (Signature)	Relinquished By: (Signature)	Date/Time	Received By: (Signature)	Ship Via
Vic A. Scoon	5/2/91	FedEx				Fed. Express
Relinquished By: (Signature)	Date/Time	Received By (Signature)	Relinquished By: (Signature)	Date/Time	Received By: (Signature)	
Relinquished By: (Signature) FedEx	Date/Time 5-2-91	Received For Laboratory By (Signature) Brian Swan	Relinquished By: (Signature)	Date/Time	Received For Laboratory By (Signature)	BL/Airbill Number 9659244803

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

Date 5/2/91

ALL ANALYSES FOLLOW CLP PROTOCOL

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International Specialists in the Environment

CHAIN-OF-CUSTODY RECORD

Page 1 of 1

Project No.: UH8
Project Name: NASP WELL RESAMPLING
Project Manager: JOHN BARKSDALE
Samplers: (Signatures) Vic A. Sequoia, DK Gillp
Field Team Leader: Vic A. Sequoia

STATION NUMBER	DATE 1991	TIME	SAMPLE TYPE COMP	GRAB	AIR	SAMPLE INFORMATION / EXPECTED COMPOUNDS (Concentration)*	STATION LOCATION	NUMBER OF CONTAINERS	TRPHC	TCL BNAs	TCL PESTICIDES + PCBs	TCL TOTAL METALS + HARDNESS	TCL DISSOLVED METALS	CYANIDE	TOC	ALKALINITY	TCL VOCs + Ketones	REMARKS
P29WFB04	5/2	14:10		X		LOW LEVELS	Field Blank	11	X	X	X	X	X	X	X	X	X	
P29WRB04	5/2	13:45		X		" "	Rinsate	9	X	X	X	X	X	X			X	
P29W007	5/2	14:22		X		" "	Site 29 Well GM-7	2									X	
P29W007FD	5/2	14:22		X		" "	" " " "	2									X	
P29WPB04	5/2	08:15		X		" "	Prep. Blank	2									X	

Relinquished By: (Signature)	Date/Time	Received By: (Signature)	Relinquished By: (Signature)	Date/Time	Received By: (Signature)	Ship Via
Vic A. Sequoia	5/2/91	Fed Ex				Federal Express
Relinquished By: (Signature)	Date/Time	Received By: (Signature)	Relinquished By: (Signature)	Date/Time	Received By: (Signature)	BL/Airbill Number
Relinquished By: (Signature) Fed Ex	Date/Time 0930 5-3-91	Received For Laboratory By: (Signature)	Relinquished By: (Signature)	Date/Time	Received For Laboratory By: (Signature)	Date 5/2/91

Distribution: Original Accompanies Shipment, Copy to Coordinator Field Files

*See CONCENTRATION RANGE on back of form.

2340

ALL ANALYSES FOLLOW CLP PROTOCOL

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International Specialists in the Environment

CHAIN-OF-CUSTODY RECORD

Project No.: UHC
Project Name: NASP WELL RESAMPLING
Project Manager: JOHN BARKDALE
Samplers: (Signatures) V. A. Secon, DK Hilp
Field Team Leader: V. Secon

STATION NUMBER	DATE 1991	TIME	SAMPLE TYPE COMP	GRAB	AIR	SAMPLE INFORMATION EXPECTED COMPOUNDS (Concentration)*	STATION LOCATION	NUMBER OF CONTAINERS	TCPHS	TCL CYANIDE	TCL PESTICIDES + PCBS	TCL TOTAL METALS + HARDNESS	TCL DISSOLVED METALS	CYANIDE	TOC	ALKALINITY	REMARKS
P29W007	5/2	14:22		X		LOW LEVELS	SITE 29 WELL GM-7	9	X	X	X	X	X	X	X	X	
P29W007D	5/2	14:22		X		" "	" " " "	9	X	X	X	X	X	X	X	X	

Relinquished By: (Signature)	Date/Time:	Received By: (Signature)	Relinquished By: (Signature)	Date/Time:	Received By: (Signature)
V. A. Secon	18:45 5/2/91	Fed Ex.			
Relinquished By: (Signature)	Date/Time:	Received By: (Signature)	Relinquished By: (Signature)	Date/Time:	Received By: (Signature)
Relinquished By: (Signature)	Date/Time:	Received For Laboratory By: (Signature)	Relinquished By: (Signature)	Date/Time:	Received For Laboratory By: (Signature)
Fed Ex	5-3-91	[illegible]			

Ship Via: Fed. Express
BL/Airbill Number: 9659244792
Date: 5/2/

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

000573

6

U.S. EPA - CLP

1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

W007

Lab Name: ECOLOGY-AND-ENVIRONMENT — Contract: _____

Lab Code: EANDE_ Case No.:9101.043 SAS No.: _____ SDG No.: WFB04_

Matrix (soil/water): WATER Lab Sample ID: 9913_____

Level (low/med): Low— Date Received: 05/03/91

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

CAS No.	Analyte	Concentration	C	Q	M
17429-90-5	Aluminum_	246			P_
17440-36-0	Antimony_	33.0	U		P_
17440-38-2	Arsenic__	2.0	U		F_
17440-39-3	Barium___	161	B		P_
7440-41-7	Beryllium	1.0	U		P_
17440-43-9	Cadmium__	3.0	U		P_
7440-70-2	Calcium__	32700			P_
17440-47-3	Chromium_	103			P_
17440-48-4	Cobalt___	8.8	B		P_
7440-50-8	Copper___	3.2	B		P_
7439-89-6	Iron_____	1350		E	P_
7439-92-1	Lead_____	3.8		S	F_
7439-95-4	Magnesium	1780	B		P_
7439-96-5	Manganese	289		E	P_
7439-97-6	Mercury__	0.20	U		CV
7440-02-0	Nickel___	19.4	B		P_
7440-09-7	Potassium	3010	B		P_
7782-49-2	Selenium_	2.0	U	W	F_
7440-22-4	Silver___	3.0	U		P_
7440-23-5	Sodium___	27100			P_
17440-28-0	Thallium_	3.0	U		F_
17440-62-2	Vanadium_	4.2	B		P_
7440-66-6	Zinc_____	12.9	B		P_
	Cyanide__	10.0	U		AS

Color Before: CL_____ Clarity Before: C_____ Texture: _____

Color After: CL_____ Clarity After: C_____ Artifacts: _____

Comments:

FORM I - IN

7/88

U.S. EPA - CLP

1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

W007 DISSOLVED

Lab Name: ECOLOGY-AND-ENVIRONMENT — Contract: _____

Lab Code: EANDE_ Case No.:9101.043 SAS No.: _____ SDG No.: WFB04_

Matrix (soil/water): WATER Lab Sample ID: 9919_____

Level (low/med): Low — Date Received: 05/03/91

% Solids: 0.0

concentration Units (ug/L or mg/kg dry weight): UG/L_

CAS No.	Analyte	Concentration	C	Q	M
17429-90-5	Aluminum -	151	B		P
7440-36-0	Antimony	33.0	U		P
7440-38-2	Arsenic —	2.0	U		F
17440-39-3	Barium —	141	B		P
7440-41-7	Beryllium	1.0	U		P
17440-43-9	Cadmium	3.0	U		P
17440-70-2	Calcium	33600			P
7440-47-3	Chromium	10.0	U		P
7440-48-4	Cobalt	12.4	B		P
17440-50-8	Copper	5.0	B		P
17439-89-6	Iron	287		E	P
17439-92-1	Lead	1.1	B	W	F
17439-95-4	Magnesium	1840	B		P
7439-96-5	Manganese	165		E	P
17439-97-6	Mercury	0.20	U		CV
17440-02-0	Nickel —	14.0	U		P
7440-09-7	Potassium	3170	B		P
7782-49-2	Selenium	2.0	U	W	F
17440-22-4	Silver —	3.0	U		P
7440-23-5	Sodium —	28200			P
17440-28-0	Thallium	3.0	U		F
17440-62-2	Vanadium	5.6	B		P
17440-66-6	Zinc	9.0	B		P
	Cyanide —				NR

pan 6-1-91

Color Before: CL_____ Clarity Before: C_____ Texture: _____

Color After: CL_____ Clarity After: C_____ Artifacts: _____

Comments:

0000714

FORM I - IN

7/88

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1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

W007D

Lab Name: ECOLOGY_AND_ENVIRONMENT — Contract: _____

Lab Code: EANDE_ Case No.:9101.043 SAS No.: _____ SDG No.: WFB04-

Matrix (soil/water) : WATER Lab Sample ID: 9914_____

Level (low/med) : LOW___ Date Received: 05/03/91

% Solids: __0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

CAS NO.	Analyte	Concentration	C	Q	M
17429-90-5	Aluminum_	61.2	B		P_
17440-36-0	Antimony_	33.0	U		P_
17440-38-2	Arsenic__	2.0	U		F_
17440-39-3	Barium___	147	B		P_
17440-41-7	Beryllium	1.0	U		P_
7440-43-9	Cadmium__	3.0	U		P_
17440-70-2	Calcium	32900	_		P_
17440-47-3	Chromium_	37.01	_		P_
17440-48-4	Cobalt___	9.3	B		P_
17440-50-8	Copper___	2.0	U		P_
17439-89-6	Iron_____	954	_	E	P_
17439-92-1	Lead_____	1.1	B		F_
17439-95-4	Magnesium	1780	B		P_
17439-96-5	Manganese	149	_	E	P_
7439-97-6	Mercury__	0.20	U		CV
7440-02-0	Nickel___	14.0	U		P_
17440-09-7	Potassium	2930	B		P_
17782-49-2	Selenium	2.0	U	W	F_
17440-22-4	Silver___	3.0	U		P_
17440-23-5	Sodium___	270001			P_
17440-28-0	Thallium_	3.0	U		F_
7440-62-2	Vanadium_	4.4	B		P_
17440-66-6	Zinc_____	8.4	B		P_
	Cyanide__	10.0	U		AS
			_		__

Color Before: CL_____ Clarity Before: C_____ Texture: _____

Color After: CL_____ Clarity After: C_____ Artifacts: _____

Comments:

FORM I - IN

7/88

U.S. EPA - CLP

1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

W007D
DISSOLVED

Lab Name: ECOLOGY AND ENVIRONMENT — Contract: _____

Lab Code: EANDE Case No.:9101.043 SAS No.: _____ SDG No.: WFB04

Matrix (soil/water): WATER Lab Sample ID: 9920

Level (low/med): LOW Date Received: 05/03/91

% Solids 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	236			P
17440-36-0	Antimony	33.0	U		P
7440-38-2	Arsenic	2.0	U		F
17440-39-3	Barium	147	B		P
7440-41-7	Beryllium	1.0	U		P
7440-43-9	Cadm	3.0	U		P
17440-70-2	Calc	33500			P
17440-47-3	Chro	109			P
17440-48-4	Coba	11.8	B		P
7440-50-8	Copp	3.6	B		P
7439-89-6	Iron	849		E	P
17439-92-1	Lead	1.4	B	W	F
7439-95-4	Magnesium	1810	B		P
7439-96-5	Manganese	181		E	P
17439-97-6	Mercury	0.20	U		CV
17440-02-0	Nickel	22.4	B		P
17440-09-7	Potassium	3220	B		P
17782-49-2	Selenium	2.0	U		F
7440-22-4	Silver	3.0	U		P
7440-23-5	Sodium	27700)			P
7440-28-0	Thallium	3.0	U		F
7440-62-2	Vanadium	6.1	B		P
17440-66-6	Zinc	13.0	B		P
	Cyanide				NR

pat 6-1-91

Color Before: CL Clarity Before: C Texture: _____

Color After: CL Clarity After: C Artifacts: _____

Comments:

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U.S. EPA - CLP

1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

WFB04

Name: ECOLOGY-AND-ENVIRONMENT — Contract: _____

Lab Code: EANDE_ Case No.:9101.043 SAS No.: _____ SDG No.: WFB04_

Matrix (soil/water): WATER Lab Sample ID: 9915_____

Level (low/med): LOW__ Date Received: 05/03/91

% Solids: __0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

CAS No.	Analyte	Concentration	C	Q	M
17429-90-5	Aluminum	41.4			P
17440-36-0	Antimony	33.0	U		P
7440-38-2	Arsenic	2.0			F
17440-39-3	Barium	5.0			P
17440-41-7	Beryllium	1.0	U		P
17440-43-9	Cadmium	3.0	U		P
17440-70-2	Calcium	95.0	U		P
7440-47-3	Chromium	16.0			P
7440-48-4	Cobalt	6.8	B		P
17440-50-8	Copper	2.0	U		P
7439-89-6	Iron	106		E	P
17439-92-1	Lead	1.6	B	W	F
7439-95-4	Magnesium	108	U		P
17439-96-5	Manganese	2.7	B	E	P
17439-97-6	Mercury	0.20	U		CV
17440-02-0	Nickel	14.0	U		P
17440-09-7	Potassium	263	U		P
7782-49-2	Selenium	2.0	U		F
17440-22-4	Silver	3.0	U		P
17440-23-5	Sodium	174	B		P
7440-28-0	Thallium	3.0	U		F
17440-62-2	Vanadium:	4.0	U		P
7440-66-6	Zinc	5.5	B		P
	Cyanide	10.0	U		AS

Color Before: CL_____ Clarity Before: C_____ Texture: _____

Color After: CL_____ Clarity After: C_____ Artifacts: _____

Comments:

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U.S. EPA - CLP

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INORGANIC *ANALYSES* DATA SHEET

EPA SAMPLE NO.

WFB04
DISSOLVED

Lab Name: ECOLOGY_AND_ENVIRONMENT__ Contract: _____

Lab Code: EANDE_ Case No.:9101.043 SAS No.: _____ SDG No.: WFB04_

Matrix (soil/water) : WATER Lab Sample ID: 9921_____

Level (low/med) : LOW__ Date Received: 05/03/91

% Solids: __0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

CAS No.	Analyte	Concentration	C	Q	M
17429-90-5	Aluminum_	50.6	B		P_
17440-36-0	Antimony_	33.0	U		P_
7440-38-2	Arsenic__	2.0	U		F_
7440-39-3	Barium___	5.0	U		P_
17440-41-7	Beryllium	1.0	U		P_
7440-43-9	Cadmium__	3.0	U		P_
17440-70-2	Calcium__	102	B		P_
7440-47-3	Chromium_	148			P_
7440-48-4	Cobalt___	8.5	B		P_
17440-50-8	Copper___	3.9	B		P_
7439-89-6	Iron_____	631		E	P_
7439-92-1	Lead_____	1.0	U		F_
7439-95-4	Magnesium	108	U		P_
7439-96-5	Manganese	15.5		E	P_
17439-97-6	Mercury__	0.20	U		CV
7440-02-0	Nickel___	37.6	B		P_
7440-09-7	Potassium	263	U		P_
7782-49-2	Selenium_	2.0	U	W	F_
17440-22-4	Silver___	3.0	U		P_
7440-23-5	Sodium___	211	B		P_
17440-28-0	Thallium_	3.0	U		F_
7440-62-2	Vanadium_	4.8	B		P_
17440-66-6	Zinc_____	6.7	B		P_
	Cyanide__				NR

6/14/91

Color Before: CL_____ Clarity Before: C_____ Texture: _____

Color After: CL_____ Clarity After: C_____ Artifacts: _____

Comments:

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U.S. EPA - CLP

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

WPB04

Lab Name: ECOLOGY_AND_ENVIRONMENT__ Contract: _____

Lab Code: EANDE_ Case No.:9101.043 SAS No.: _____ SDG No. : WFB04_

Matrix (soil/water) : WATER Lab Sample ID: 9917_____

Level (low/med) : LOW__ Date Received: 05/03/91

% Solids: __0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

CAS No.	Analyte	Concentration	C	Q	M
17429-90-5					
17440-36-0	Antimony_	33.0	U		P_I
7440-38-2	Arsenic —	2.0	U		F_
7440-39-3	Barium —	5.0	U		P_
17440-41-7	Beryllium	1.0	U		P_
7440-43-9	Cadmium —	3.0	U		P_
17440-70-2	Calcium —	121	B		P_
7440-47-3	Chromium_	41.1	_		P_
7440-48-4	Cobalt___	5.9	B		P_
7440-50-8	Copper___	2.0	U		P_
7439-89-6					
7439-92-1					
7439-95-4					
7439-96-5					
7439-97-6					
7440-22-4	Silver___	3.0	U		P_
7440-23-5	Sodium___	218	B		P_
17440-28-0	Thallium_	3.0	U		IF_
7440-62-2	Vanadium_	4.0	U		P_
7440-66-6	Zinc____	12.2	B		P_
	Cyanide__	10.0	U		AS

Color Before: CL_____ Clarity Before: C_____ Texture: _____

Color After: CL_____ Clarity After: C_____ Artifacts: _____

Comments:

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U.S. EPA - CLP

1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

WRB04

Lab Name: ECOLOGY_AND_ENVIRONMENT__ Contract: _____

Lab Code: EANDE_ Case No.:9101.043 SAS No.: _____ SDG No.: WFB04_

Matrix (soil/water) : WATER Lab Sample ID: 9916_____

Level (low/med) : LOW__ Date Received: 05/03/91

% Solids: __0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

(CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	35.0	B		P
7440-36-0	Antimony	33.0	U		P
17440-38-2	Arsenic	2.0	U		F
17440-39-3	Barium	5.0	U		P
17440-41-7	Beryllium	1.0	U		P
17440-43-9	Cadmium	3.0	U		P
7440-70-2	Calcium	188	B		P
17440-47-3	Chromium	12.5			P
7440-48-4	Cobalt	7.1	B		P
17440-50-8	Copper	2.0	U		P
17439-89-6	Iron	108		E	P
7439-92-1	Lead	1.0	U	W	F
7439-95-4	Magnesium	108	U		P
7439-96-5	Manganese	3.0	B	E	P
7439-97-6	Mercury	0.20	U		CV
17440-02-0	Nickel	14.0	U		P
17440-09-7	Potassium	263	U		P
7782-49-2	Selenium	2.0	U		F
17440-22-4	Silver	3.0	U		P
17440-23-5	Sodium	422	B		P
17440-28-0	Thallium	3.0	U		F
7440-62-2	Vanadium	4.0	U		P
17440-66-6	Zinc	5.4	B		P
	Cyanide	10.0	U		AS

olor Before: CL_____ Clarity Before: C_____ Texture: _____

olor After: CL_____ Clarity After: C_____ Artifacts: _____

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FORM I - IN

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U.S. EPA - CLP

1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

WRB04
DISSOLVED

Lab Name: ECOLOGY_AND_ENVIRONMENT__ Contract: _____

Lab Code: EANDE_ Case No.:9101.043 SAS No.: _____ SDG No.: WFB04_

Matrix (soil/water) : WATER Lab Sample ID: 9922

Level (low/med) : LOW__ Date Received: 05/03/91

% Solids: __0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

CAS No.	Analyte	Concentration	C	Q	M
17429-90-5	Aluminum	66.1	B		P
7440-36-0	Antimony	33.0	U		P
17440-38-2	Arsenic	2.0	U		F
17440-39-3	Barium	5.0	U		P
17440-41-7	Beryllium	1.0	U		P
17440-43-9	Cadmium	3.0	U		P
17440-70-2	Calcium	103	B		P
17440-47-3	Chromium	116			P
17440-48-4	Cobalt	7.9	B		P
17440-50-8	Copper	2.0	U		P
17439-89-6	Iron	481		E	P
17439-92-1	Lead	1.4	B		F
17439-95-4	Magnesium	108	U		P
17439-96-5	Manganese	11.9	B	E	P
17439-97-6	Mercury	0.20	U		CV
17440-02-0	Nickel	25.8	B		P
7440-09-7	Potassium	263	U		P
17782-49-2	Selenium	2.0	U	W	F
17440-22-4	Silver	3.0	U		P
17440-23-5	Sodium	244	B		P
17440-28-0	Thallium	3.0	U	W	F
17440-62-2	Vanadium	4.2	B		P
17440-66-6	Zinc	3.0	U		P
	Cyanide				NR

BJK 6/17/91

Color Before: CL_____ Clarity Before: C_____ Texture: _____

Color After: CL_____ Clarity After: C_____ Artifacts: _____

Comments:

FORM I - IN

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JOB NUMBER :9101.043

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UH-8000 NASP - PEASE I BATCH 2
SAMPLE ID LAB :EE-91-09913 MATRIX: VATER
SAMPLE ID CLIENT: P29-W007

PARAMETER	RESULTS	a	am. LIMIT	UNITS
Total Alkalinity	100		1.0	MG/L CACO3
Total Hardness	88		1.0	MG/L CACO3
Petroleum Hydrocarbons	ND		1.0	MG/L
TOC	4.4		1.0	MG/L

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

0000718

JOB NUMBER :9101.043

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UH-8000 NASP - PHASE I BATCH 2
SAMPLE ID LAB :EE-91-09914 MATRIX: WATER
SAMPLE ID CLIENT: P29-W007D

PARAMETER	RESULTS	Q	QNT. LIMIT	UNITS
Total Alkalinity	100		1.0	MG/L CACO3
Total Hardness	82		1.0	MG/L CACO3
Petroleum Hydrocarbons	1.2		1.0	MG/L
TOC	5.0		1.0	MG/L

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

JOB NUMBER :9101.043

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UH-8000 NASP - PEASE I BATCH 2
SAMPLE ID LAB :EE-91-09915 MTRIX: WATER
SAMPLE ID CLIENT: P29-WFB04

PARAMETER	RESULTS	Q	QNT. LIMIT	UNITS
Total Alkalinity	5.0		1.0	MG/L CACO3
Total Hardness	2.0		1.0	MG/L CACO3
Petroleum Hydrocarbons	ND		1.0	MG/L
TOC	ND		1.0	MG/L

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

000719

JOB NUMBER :9101.043

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UH-8000 NASP - PHASE I BATCH 2
SAMPLE ID LAB :EE-91-09916 MATRIX: WATER
SAMPLE ID CLIENT: P29-WRB04

PARAMETER	RESULTS	Q	QNT. LIMIT	UNITS
Total Hardness	ND		1.0	MG/L CACO3
Petroleum Hydrocarbons	ND		1.0	MG/L

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

JOB NUMBER :9101.043

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UH-8000 NASP - PHASE I BATCH 2
SAMPLE ID LAB :EE-91-09917 MATRIX: WATER
SAMPLE ID CLIENT: P29-WPB04

PARAMETER	RESULTS	Q	QNT. LIHIT	UNITS
Total Hardness	ND		1.0	MG/L CACO3
Petroleum Hydrocarbons	ND		1.0	MG/L

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

0000720

JOB NUMBER :9101.043

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UH-8000 NASP - PHASE I BATCH 2
LAB SAMPLE ID :METHOD BLANK MATRIX: WATER

PARAMETER	RESULTS	Q	QNT. LIMIT	UNITS
Total Hardness	ND		1.0	MG/L CACO3
Petroleum Hydrocarbons	ND		1.0	MG/L

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

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

W007

Lab Name: E & E INC. Contract:

Lab Code: EANDE Case No.: 9101-043 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 9913

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: D2383

Level: (low/med) LOW Date Received: 05/03/91

% Moisture: not dec. Date Analyzed: 05/09/91

Column: (pack/cap) CAP Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	9	
67-64-1	Acetone	14	B
75-15-0	Carbon Disulfide	5	U
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	5	U
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
108-05-4	Vinyl Acetate	10	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
108-88-3	Toluene	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
1330-20-7	Xylene (total)	5	U

00007

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1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

W007

Lab Name: E & E INC. Contract:

Lab Code: EANDE Case No.: 9101_043 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 9913

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: D2383

Level: (low/med) LOW Date Received: 05/03/91

% Moisture: not dec. Date Analyzed: 05/09/91

Column (pack/cap) CAP Dilution Factor: 1.0

Number TICs found: 2

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 110543	Hexane	4.34	5.0	J
2.	UNKNOWN	24.89	5.0	J

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

W007D

Lab Name: E & E INC. Contract:

Lab Code: EANDE Case No.: 9101_043 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 9914

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: D2422

Level: (low/med) LOW Date Received: 05/03/91

% Moisture: not dec. Date Analyzed: 05/11/91

Column: (pack/cap) CAP Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	1	BJ
67-64-1	Acetone	13	
75-15-0	Carbon Disulfide	5	U
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	5	U
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
108-05-4	Vinyl Acetate	10	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
108-88-3	Toluene	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
1330-20-7	Xylene (total)	5	U

0000722

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1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

W007D

Lab Name: E & E INC. Contract:

Lab Code: EANDE Case No.: 9101_043 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 9914

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: D2422

Level: (low/med) LOW Date Received: 05/03/91

% Moisture: not dec. Date Analyzed: 05/11/91

Column (pack/cap) CAP Dilution Factor: 1.0

Number TICs found: 1

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 110543	Hexane	3.87	6.0	BJ

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

WTB04

Lab Name: E & E INC. Contract:

Lab Code: EANDE Case No.: 9101-043 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 9918

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: D2424

Level: (low/med) LOW Date Received: 05/03/91

% Moisture: not dec. Date Analyzed: 05/11/91

0002743

Column: (pack/cap) CAP Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	5	U
67-64-1	Acetone	12	
75-15-0	Carbon Disulfide	5	U
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	5	U
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	2	J
108-05-4	Vinyl Acetate	10	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
108-88-3	Toluene	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
1330-20-7	Xylene (total)	5	U

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VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

WTB04

Lab Name: E & E INC. Contract:

Code: EANDE Case No.: 9101_043 SAS No. : SDG No. :

Matrix: (soil/water) WATER Lab Sample ID: 9918

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: D2424

Level: (low/med) LOW Date Received: 05/03/91

% Moisture: not dec. Date Analyzed: 05/11/91

Column (pack/cap) CAP Dilution Factor: 1.0

Number TICs found: 1

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 110543	Hexane	3.86	6.0	BJ

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

WFB04

Lab Name: E & E INC. Contract:

Lab Code: EANDE Case No.: 9101_043 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 9915

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: 02335

Level: (low/med) LOW Date Received: 05/03/91

% Moisture: not dec. Date Analyzed: 05/10/91

Column: (pack/cap) CAP Dilution Factor: 1.0

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CONCENTRATION UNITS:

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

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UOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

WFB04

Lab Name: E 8 E INC. Contract:

J Code: EANDE Case No.: 9101_043 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 9915

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: 02335

Level: (low/med) LOW Date Received: 05/03/91

% Moisture: not dec. Date Analyzed: 05/10/91

Column (pack/cap) CAP Dilution Factor: 1.0

Number TICs found: 1

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 110543	Hexane	4.33	5.0	J

1H

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

WRB04

Lab Name: E & E INC. Contract:

Lab Code: EANDE Case No : 9101_043 SAS No.: SDG No :

Matrix: (soil/water) WATER Lab Sample ID: 9916

Sample wt/vol: 5.0 (g/mL) ML 0000725 Lab File ID: D2386

Level: (low/med) LOW Date Received: 05/03/91

% Moisture: not dec. Date Analyzed: 05/10/91

Column: (pack/cap) CAP Dilution Factor: 1.0

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

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1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

WRB04

Lab Name: E & E INC. Contract:

Lab Code: EANDE Case No.: 9101_043 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 9916

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: D2386

Level: (low/med) LOW Date Received: 05/03/91

% Moisture: not dec. Date Analyzed: 05/10/91

Column (pack/cap) CAP Dilution Factor: 1.0

Number TICs found: 1 CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	24.85	8.0	J

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VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

WPB04

Lab Name: E & E INC. Contract:

Lab Code: ESNDE Case No.: 9101_043 SAS No : SDG No :

Matrix: (soil/water) WATER Lab Sample ID: 9917

Sample wt/vol: 5 0 (g/mL) ML Lab File ID: D2423

Level: (low/med) LOW Date Received: 05/03/91

% Moisture: not dec. Date Analyzed: 05/11/91

Column: (pack/cap) CAP Dilution Factor: 1.0

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

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

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1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

WPB04

L3b Name: E & E INC. Contract:

Code: EANDE Case No.: 9101_043 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 9917

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: D2423

Level: (low/med) LOW Date Received: 05/03/91

% Moisture: not dec. Date Analyzed: 05/11/91

Column (pack/cap) CAP Dilution Factor: 1.0

Number TICs found: 1

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 110543	Hexane	3.86	6.0	BJ

2A

WATER VOLATILE SURROGATE RECOVERY

Lab Name: E & E INC. Contract:

Lab Code: EANDE Case No.: 9101-043 SAS No.: SDG No.:

	EPA SAMPLE NO.	S1 (TOL)#	S2 (BFB)#	S3 (DCE)#	OTHER	TOT OUT
01	W007	102	100	113	0	0
02	W007D	106	95	107	0	0
03	WFB04	96	100	106	0	0
04	WPB04	106	97	112	0	0
05	WRB04	88	88	92	0	0
06	WTB04	105	94	107	0	0
07	VBLKW1	92	86	89	0	0
08	VBLKW2	104	92	100	0	0

		QC LIMITS
S1 (TOL)	= Toluene-d8	(88-110)
S2 (BFB)	= Bromofluorobenzene	(86-115)
S3 (DCE)	= 1,2-Dichloroethane-d4	(76-114)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D Surrogates diluted out

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VOLATILE METHOD BLANK SUMMARY

Lab Name: E & E INC. Contract:

Lab Code: EANDE Case No.: 9101-043 SAS No.: SDG No. :

Lab File ID: 02372 Lab Sample ID: VBLKW1

Date Analyzed: 05/09/91 Time Analyzed: 1550

Matrix: (soil/water) WATER Level:(low/med) LOW

Instrument ID: 7001D

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	W007	9913	D2383	2257
02	WFB04	9915	02385	0010
03	WRB04	9916	D2386	0047

COMMENTS:

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VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

VBLKW1

Lab Name: E & E INC. Contract:

Lab Code: EANOE Case No.: 9101-043 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: VBLKW1

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: 02372

Level: (low/med) LOW 0000728 Date Received:

% Moisture: not dec. Date Analyzed: 05/09/91

Column: (pack/cap) CAP Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	8	
67-64-1	Acetone	1	J
75-15-0	Carbon Disulfide	5	U
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	5	U
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
108-05-4	Vinyl Acetate	10	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
108-88-3	Toluene	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
1330-20-7	Xylene (total)	5	U

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VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

VBLKW1

Lab Name: E & E INC. Contract :

Lab Code: EANDE Case No.: 9101_043 SAS No.: SDG No. :

Matrix: (soil/water) WATER Lab Sample ID: VBLKW1

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: D2372

Level: (low/med) LOW Date Received:

% Moisture: not dec. Date Analyzed: 05/09/91

Column (pack/cap) CAP Dilution Factor: 1.0

Number TICs found: 1

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 76131	Freon-113	2.56	15	J

4H

VOLATILE METHOD BLANK SUMMARY

Lab Name: E & E INC. Contract:

Lab Code: EANDE Case No.: 9101-043 SAS No.: SDG No. :

Lab File ID: 02419 Lab Sample ID: VBLKW2

Date Analyzed: 05/11/91 Time Analyzed: 1221

Matrix: (soil/water) WATER Level:(low/med) LOW

Instrument ID: 70010

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	W007D	9914	D2422	1425
02	WPB04	9917	D2423	1502
03	WTB04	9918	D2424	1539

COMMENTS:

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EPA SAMPLE NO.

VBLKW2

Lab Name: E & E INC. Contract:

Code: EANDE Case No.: 9101_043 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: VBLKW2

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: 02419

Level: (low/med) LOW Date Received:

% Moisture: not dec. Date Analyzed: 05/11/91

Column: (pack/cap) CAP Dilution Factor: 1.0

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

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VOLATILE ORGANICS ANFILYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

VBLKW2

Lab Name: E & E INC. Contract:

Lab Code: EFINOE Case No.: 9101-043 SAS No.: SDG No. :

Matrix: (soil/water) WATER Lab Sample ID: VBLKW2

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: 02413

Level: (low/med) LOW Date Received:

% Moisture: not dec. Date analyzed: 05/11/91

Column (pack/cap) CAP Dilution Factor: 1.0

Number TICs found: 1

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 110543	Hexane	3.88	6.0	J

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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NU.

W007

L3b Name: E & E INC. Contract:

Code: EANDE Case No.: 9101_043 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 9913

Sample wt/vol: 1000 (g/mL) ML Lab File ID: E5222

Level: (low/med) LOW Date Received: 05/03,,"? 1

% Moisture: not dec. dec. Date Extracted: 05/07/91

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 05/10/91

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-95-2	Phenol	io	IU
111-44-4	bis(2-Chloroethyl)Ether	10	IU
95-57-8	2-Chlorophenol	10	IU
541-73-1	1,3-Dichlorobenzene	10	IU
106-46-7	1,4-Dichlorobenzene	10	IU
100-51-6	Benzyl Alcohol	10	IU
95-50-1	1,2-Dichlorobenzene	10	IU
95-48-7	2-Methylphenol	10	IU
39638-32-9	bis(2-Chloroisopropyl)Ether	10	IU
106-44-5	4-Methylphenol	10	IU
621-64-7	N-Nitroso-Di-n-Propylamine	10	IU
67-72-1	Hexachloroethane	10	IU
98-95-3	Nitrobenzene	10	IU
78-59-1	Isophorone	10	IU
88-75-5	2-Nitrophenol	10	IU
105-67-9	2,4-Dimethylphenol	10	IU
65-85-0	Benzoic Acid	50	IU
111-91-1	bis(2-Chloroethoxy)Methane	10	IU
120-83-2	2,4-Dichlorophenol	10	IU
120-82-1	1,2,4-Trichlorobenzene	10	IU
91-20-3	Naphthalene	10	IU
106-47-8	4-Chloroaniline	10	IU
87-68-3	Hexachlorobutadiene	10	IU
59-50-7	4-Chloro-3-Methylphenol	10	IU
91-57-6	2-Methylnaphthalene	10	IU
77-47-4	Hexachlorocyclopentadiene	10	IU
88-06-2	2,4,6-Trichlorophenol	10	IU
95-95-4	2,4,5-Trichlorophenol	50	tu
91-58-7	2-Chloronaphthalene	10	IU
88-74-4	2-Nitroaniline	SO	IU
131-11-3	Dimethyl Phthalate	10	IU
208-96-8	Acenaphthylene	10	IU
606-20-2	2,6-Dinitrotoluene	10	IU

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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

WOO?

Lab Name: E & E INC. Contract :

Lab Code: EANDE Case No.: 9101-043 SAS No.: SDG No. :

Matrix: (soil/water) WATER Lab Sample ID: 9913

Sample wt/vol: 1000 (g/mL) ML Lab File ID: E5222

Level: (low/med) LOW Date Receiued: 05/03/91

% moisture: not dcc. dec. Date Extracted: 05/07/91

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 05/10/91

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

CAS NO.	COMPOUNO	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
99-09-2	3-Nitroaniline	50	IU
83-32-9	Acenaphthene	10	IU
51-28-5	2,4-Dinitrophenol	50	IU
100-02-7	4-Nitrophenol	50	IU
132-64-9	Dibenzofuran	10	IU
121-14-2	2,4-Dinitrotoluene	10	IU
84-66-2	Diethylphthalate	10	IU
7005-72-3	4-Chlorophenyl-phenylether	10	IU
86-73-7	Fluorene	10	IU
100-10-6	4-Nitroaniline	50	IU
534-52-1	4,6-Dinitro-2-Methylphenol	50	IU
86-30-6	N-Nitrosodiphenylamine (1)	10	IU
101-55-3	4-8romophenyl-phenylether	10	IU
118-74-1	Hexachlorobenzene	10	IU
87-86-5	Pentachlorophenol	50	IU
85-01-8	Phenanthrene	10	IU
120-12-7	Anthracene	10	IU
84-74-2	Di-n-Butylphthalate	10	IU
206-44-0	Fluoranthene	10	IU
129-00-0	Pyrene	10	IU
85-68-7	Butylbenzylphthalate	10	IU
91-94-1	3,3'-Dichlorobenzidine	20	IU
56-55-3	Benzo(a)Anthracene	10	IU
218-01-9	Chrysene	10	IU
117-81-7	bis(2-Ethylhexyl)Phthalate	3	IBJ
117-84-0	Di-n-0cty1 Phthalate	10	IU
205-99-2	Benzo(b)Fluoranthene	10	IU
207-08-9	Benzo(k)Fluoranthene	10	IU
50-32-8	Benzo(a)Pyrene	10	IU
193-39-5	Indeno(1,2,3-cd)Pyrene	10	IU
53-70-3	Dibenz(a,h)Anthracene	10	IU
191-24-2	Benzo(g,h,i)Perylene	10	IU

(1) - Cannot be separated from Diphenylamine

0000731 0000731

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

W007

Lab Name: E & E INC. Contract:

Code: EANDE Case No.: 9101-043 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 9913

Sample wt/vol: 1000 (g/mL) ML Lab File ID: E5222

Level: (low/med) LOW Date Received: 05/03/91

% Moisture: not dec. dec. Date Extracted: 05/07/91

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 05/10/91

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

Number TICs found: 9

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

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1	1.	UNKNOWN HYDROCARBON	10.36	6.0	BJ
2	2.	UNKNOWN HYDROCARBON	14.77	4.0	BJ
3	3.	UNKNOWN	18.63	30	BJ
4	4.	UNKNOWN HYDROCARBON	19.33	7.0	J
5	5.	UNKNOWN HYDROCARBON	21.42	6.0	J
6	6.	UNKNOWN	30.95	6.015	
7	7.	UNKNOWN	32.90	10	J
8	8.	UNKNOWN HYDROCARBON	37.73	31	J
9	9.	UNKNOWN	42.28	6.0	J

1B

SEMIUOLRTILE ORGANICS ANFSLYSIS DATA SHEET

EPA SAMPLE NO.

W007D

Lab Name: E & E INC. Contract:

Lab Code: EANDE Case No.: 9101_043 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 9914

Sample wt/vol: 1000 (g/mL) ML Lab File ID: E5223

Level: (low/med) LOW 0000732 Date Received: 05/03/91

% Moisture: not dec. dec. Date Extracted: 05/07/91

Estractron: (SepF/Cont/Sonc) SEPF Date Analyzed: 05/10/91

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-95-2	Phenol	10	U
111-44-4	bis(2-Chloroethyl)Ether	10	U
95-57-8	2-Chlorophenol	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4-Dichlorobenzene	10	U
100-51-6	Benzyl Alcohol	10	U
95-50-1	1,2-Dichlorobenzene	10	U
95-48-7	2-Methylphenol	10	U
39638-32-9	bis(2-Chloroisopropyl)Ether	10	U
106-44-5	4-Methylphenol	10	U
621-64-7	N-Nitroso-Di-n-Propylamine	10	U
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethylphenol	10	U
65-85-0	Benzoic Acid	50	U
111-91-1	bis(2-Chloroethoxy)Methane	10	U
120-83-2	2,4-Dichlorophenol	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
87-68-3	Hexachlorobutadiene	10	U
59-50-7	4-Chloro-3-Methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
95-95-4	2,4,5-Trichlorophenol	50	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	50	U
131-11-3	Dimethyl Phthalate	10	U
208-96-8	Acenaphthylene	10	U
606-20-2	2,6-Dinitrotoluene	10	U

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ecology and environment

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

W007D

Lab Name: E & E INC. Contract:

Lab Code: EANDE Case No.: 9101-043 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 9914

Sample wt/vol: 1000 (g/mL) ML Lab File ID: E5223

Level: (low/med) LOW Date Received: 05/03/91

% Moisture: not dec. dec. Date Extracted: 05/07/91

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 05/10/91

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
99-09-2	3-Nitroaniline	50	U
83-32-9	Acenaphthene	10	U
51-28-5	2,4-Dinitrophenol	50	U
100-02-7	4-Nitrophenol	50	U
132-64-9	Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene	10	U
84-66-2	Diethylphthalate	10	U
7005-72-3	4-Chlorophenyl-phenylether	10	U
86-73-7	Fluorene	10	U
100-10-6	4-Nitroaniline	50	U
534-52-1	4,6-Dinitro-2-Methylphenol	50	U
86-30-6	N-Nitrosodiphenylamine (1)	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
87-86-5	Pentachlorophenol	50	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
84-74-2	Di-n-Butylphthalate	10	U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
85-68-7	Butylbenzylphthalate	10	U
91-94-1	3,3'-Dichlorobenzidine	20	U
56-55-3	Benzo(a)Anthracene	10	U
218-01-9	Chrysene	10	U
117-81-7	bis(2-Ethylhexyl)Phthalate	3	BJ
117-84-0	Di-n-Octyl Phthalate	10	U
205-99-2	Benzo(b)Fluoranthene	10	U
207-08-9	Benzo(k)Fluoranthene	10	U
50-32-8	Benzo(a)Pyrene	10	U
193-39-5	Indeno(1,2,3-cd)Pyrene	10	U
53-70-3	Dibenz(a,h)Anthracene	10	U
191-24-2	Benzo(g,h,i)Perylene	10	U

(1) - Cannot be separated from Diphenylamine

1F

SEMIUOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

W007D

Lab Name: E & E INC. Contract:

Lab Code: EANDE Case No.: 9101-043 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 9914

Sample wt/vol: 1000 (g/mL) ML Lab File ID: E5223

Level: (low/med) LOW Date Received: 05/03/91

% Moisture: not dec. dec. Dete Extracted: 05/07/91

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 05/10/91

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

Number TICs found: 9

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	8.34	30	J
2.	UNKNOWN HYDROCARBON	10.37	9.0	BJ
3.	UNKNOWN HYDROCARBON	14.76	6.0	BJ
4.	UNKNOWN	13.62	41	BJ
5.	UNKNOWN HYDROCARBON	19.98	4.013	
6.	UNKNOWN HYDROCARBON	21.09	5.0183	
3.	UNKNOWN HYDROCARBON	26.08	4.0	J
8.	UNKNOWN	37.04	9.0	J
?.	UNKNOWN	42.29	6.0	J

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ecology and environment

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

WFB04

Lab Name: E & E INC. Contract:

Code: EANDE Case No.: 9101-043 SAS No.: SDG No. :

Matrix: (soil/water) WATER Lab Sample ID: 9915

Sample wt/vol: 1000 (g/mL) ML Lab File ID: E5224

Level: (low/med) LOW Date Received: 05/03/91

% Moisture: not dsc. dcc. Date Extracted: 05/07/91

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 05/10/91

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-95-2	Phenol	10	U
111-44-4	bis(2-Chloroethyl)Ether	10	U
95-57-8	2-Chlorophenol	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4-Dichlorobenzene	10	U
100-51-6	Benzyl Alcohol	10	U
95-50-1	1,2-Dichlorobenzene	10	U
95-48-7	2-Methylphenol	10	U
39638-32-9	bis(2-Chloroisopropyl)Ether	10	U
106-44-5	4-Methylphenol	10	U
621-64-7	N-Nitroso-Di-n-Propylamine	10	U
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethylphenol	10	U
65-85-0	Benzoic Acid	50	U
111-91-1	bis(2-Chloroethoxy)Methane	10	U
120-83-2	2,4-Dichlorophenol	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
87-68-3	Hexachlorobutadiene	10	U
59-50-7	4-Chloro-3-Methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
95-95-4	2,4,5-Trichlorophenol	50	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	50	U
131-11-3	Dimethyl Phthalate	10	U
208-96-8	Acenaphthylene	10	U
606-20-2	2,6-Dinitrotoluene	10	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

WFB04

Lab Name: E & E INC. Contract:

Lab Code: EANDE Case No.: 9101-043 SAS No.: SDC No.:

Matrix: (soil/water) WATER Lab Sample ID: 9915

Sample wt/vol: 1000 (g/mL) ML Lab File ID: E5224

Level: (low/med) LOW Date Received: 05/03/91

% Moisture: not dec. dec. Date Extracted: 05/07/91

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 05/10/91

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
99-09-2	3-Nitroaniline	50	U
83-32-9	Acenaphthene	10	U
51-28-5	2,4-Dinitrophenol	50	U
100-02-7	4-Nitrophenol	50	U
132-64-9	Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene	10	U
84-66-2	Diethylphthalate	10	U
7005-72-3	4-Chlorophenyl-phenylether	10	U
86-73-7	Fluorene	10	U
100-10-6	4-Nitroaniline	50	U
534-52-1	4,6-Dinitro-2-Methylphenol	50	U
86-30-6	N-Nitrosodiphenylamine (1)	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
87-86-5	Pentachlorophenol	50	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
84-74-2	Di-n-Butylphthalate	10	U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
85-68-7	Butylbenzylphthalate	10	U
91-94-1	3,3'-Dichlorobenzidine	20	U
56-55-3	Benzo(a)Anthracene	10	U
218-01-9	Chrysene	10	U
117-81-7	bis(2-Ethylhexyl)Phthalate	3	BJ
117-84-0	Di-n-Octyl Phthalate	10	U
205-99-2	Benzo(b)Fluoranthene	10	U
207-08-9	Benzo(k)Fluoranthene	10	U
50-32-8	Benzo(a)Pyrene	10	U
193-39-5	Indeno(1,2,3-cd)Pyrene	10	U
53-70-3	Dibenz(a,h)Anthracene	10	U
191-24-2	Benzo(g,h,i)Perylene	10	U

(1) - Cannot be separated from Diphenylamine

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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

WFB04

Lab Name: E & E INC. Contract:

Code: EANDE Case No.: 9101_043 SAS No. : SDG No. :

Matrix: (soil/water) WATER Lab Sample ID: 9915

Sample wt/vol: 1000 (g/mL) ML Lab File ID: E5224

Lavel: (low/med) LOW Date Receiued: 05/03/91

% Moisture: not dec. dec. Date Extracted: 05/07/91

Extraction: (SepF/Cont/Sonc) . SEPF Date Analyzed: 05/10/91

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

Number TICs found: 7

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN HYDROCARBON	10.36	7.0165	
2.	UNKNOWN HYDROCARBON	14.77	5.0	BJ
3.	UNKNOWN	18.63	35	BJ
4.	UNKNOWN HYDROCARBON	19.99	5.0	J
5.	UNKNOWN HYDROCARBON	21.44	4.0	J
6.	UNKNOWN HYDROCARBON	26.09	19	J
7.	UNKNOWN	37.77	31	J

SEMIUOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

WRB04

Lab Name: E & E INC. Contract:

Lab Code: EANDE Case No.: 9101_043 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 9916

Sample wt/vol: 1000 (g/mL) ML Lab File ID: E5225

Level: (low/med) LOW Date Received: 05/03/91

% Moisture: not dec. dec. Date Extracted: 05/07/91

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 05/10/91

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-95-2	Phenol	10	U
111-44-4	bis(2-Chloroethyl)Ether	10	U
95-57-8	2-Chlorophenol	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4-Dichlorobenzene	10	U
100-51-6	Benzyl Alcohol	10	U
95-50-1	1,2-Dichlorobenzene	10	U
95-48-7	2-Methylphenol	10	U
39638-32-9	bis(2-Chloroisopropyl)Ether	10	U
106-44-5	4-Methylphenol	10	U
621-64-7	N-Nitroso-Di-n-Propylamine	10	U
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethylphenol	10	U
65-85-0	Benzoic Acid	50	U
111-91-1	bis(2-Chloroethoxy)Methane	10	U
120-83-2	2,4-Dichlorophenol	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
87-68-3	Hexachlorobutadiene	10	U
59-50-7	4-Chloro-3-Methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
95-95-4	2,4,5-Trichlorophenol	50	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	50	U
131-11-3	Dimethyl Phthalate	10	U
208-96-8	Acenaphthylsne	10	U
606-20-2	2,6-Dinitrotoluene	10	U

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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

WRB04

Lab Name: E & E INC. Contract:

Code: EANDE Case No.: 9101-043 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 9916

Sample wt/vol: 1000 (g/mL) ML Lab File ID: E5225

Level: (low/med) LOW Date Received: 05/03/91

% Moisture: not dcc. dec. Date Extracted: 05/07/91

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 05/10/91

GFC Cleanup: (Y/N) N pH: Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
99-09-2	3-Nitroaniline	50	U
83-32-9	Acenaphthene	10	U
51-28-5	2,4-Dinitrophenol	50	U
100-02-7	4-Nitrophenol	50	U
132-64-9	Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene	10	U
84-66-2	Diethylphthalate	10	U
7005-72-3	4-Chlorophenyl-phenylether	10	U
86-73-7	Fluorene	10	U
100-10-6	4-Nitroaniline	50	U
534-52-1	4,6-Dinitro-2-Methylphenol	50	U
86-30-6	N-Nitrosodiphenylamine (1)	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
87-86-5	Pentachlorophenol	50	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
84-74-2	Di-n-Butylphthalate	10	U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
85-68-7	Butylbenzylphthalate	10	U
91-94-1	3,3'-Dichlorobenzidine	20	U
56-55-3	Benzo(a)Anthracene	10	U
218-01-9	Chrysene	10	U
117-81-7	bis(2-Ethylhexyl)Phthalate	3	BJ
117-84-0	Di-n-Octyl Phthalate	10	U
205-99-2	Benzo(b)Fluoranthene	10	U
207-08-9	Benzo(k)Fluoranthene	10	U
50-32-8	Benzo(a)Pyrene	10	U
193-39-5	Indeno(1,2,3-cd)Pyrene	10	U
53-70-3	Dibenz(a,h)Anthracene	10	U
191-24-2	Benzo(g,h,i)Perylene	10	U

(1) - Cannot be separated from Diphenylamine

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

WRB04

Lab Name: E & E INC. Contract:

Lab Code: EANDE Case No.: 9101_043 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 9916

Sample wt/vol: 1000 (g/mL) ML Lab File ID: E5225

Level: (low/med) LOW Date Received: 05/03/91

% Moisture: not dec. dec. Date Extracted: 05/07/91

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 05/10/91

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

Number TICs found: 6

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	8.28	7.0	J
2.	UNKNOWN HYDROCARBON	10.37	7.0	BJ
3.	UNKNOWN HYDROCARBON	14.77	5.0	BJ
4.	UNKNOWN	18.62	73	BJ
5.	UNKNOWN HYDROCARBON	26.10	4.0	J
6.	UNKNOWN	27.77	34	J

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FORM I SV-TIC 1/87 Rev.

2C

WATER SEMIUOLATILE SURROGATE RECOVERY

Lab Name: E & E INC. Contract:

Code: EANDE Case No.: 9101_043 SAS No.: SDG No.:

	EPA SAMPLE NO.	S1 (NBZ)#	S2 (FBP)#	S3 (TPH)#	S4 (PHL)#	S5 (2FP)#	Si (TBP)#	OTHER	TOT OUT
01	W007	50	60	69	34	54	72	0	0
02	WFB04	73	74	32	33	61	86	0	0
03	W007D	92	94	88	41	62	92	0	0
04	WRB04	68	71	81	34	54	84	0	0
05	W007MS	79	74	63	30	59	87	0	0
06	W007MSD	106	99	87	43	63	83	0	0
07	SBLKW1	87	84	108	43	64	105	0	0

		QC LIMITS
S1 (NBZ)	= Nitrobenzene-d5	(35-114)
S2 (FBP)	= 2-Fluorobiphenyl	(43-116)
S3 (TPH)	= Terphenyl	(33-141)
S4 (PHL)	= Phenol-d5	(10-94)
35 (2FP)	= 2-Fluorophenol	(21-100)
S6 (TBP)	= 2,4,6-Tribromophenol	(10-123)

Column to be used to flag recovery values
* Values outside of contract required QC limits
D Surrogates diluted out

FORM II SV-1

1/87 Reu.

WATER SEMIUOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: E & E INC. Contract :

Lab. Code: EANDE Case No.: 9101_043 SAS No.: SDG No. :

Matrix Spike - EPA Sample No.: W007

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	MS CONCENTRATION (ug/L)	MS % REC #	QC LIMITS REC.
Phenol	200	0	89.6	45	12- 86
2-Chloropheno1	200	0	141	70	27-123
1,4-Dichlorobenzene	100	0	74.2	74	36 97
N-Nitroso-di-n-prop.(1)	100	0	94.3	94	41 116
1,2,4-Trichlorobenzene	100	0	64.6	65	39 98
4-Chloro-3-methylphenol	200	0	156	78	23 97
Acenaphthene	100	0	72.5	72	46-118
4-Nitropheno1	200	0	64.3	32	10- 80
2,4-Dinitrotoluene	100	0	82.3	82	24- 96
Pentachlorophenol	200	0	176	88	9-103
Pyrene	100	0	98.2	98	26-127

COMPOUND	SPIKE ADDED (ug/L)	MSD CONCENTRATION (ug/L)	MSD % REC #	% RPO #	QC LIMITS RPO	QC LIMITS REC
Phenol	200	86.8	43	5	42	12- 86
2-Chloropheno1	200	168	84	-18	40	27-123
1,4-Dichlorobenzene	100	94.8	95	-25	28	36 97
N-Nitroso-di-n-prop.(1)	100	123	123 *	-27	38	41 116
1,2,4-Trichlorobenzene	100	101	101 *	-43 *	28	39 98
4-Chloro-3-methylphenol	200	188	94	-19	42	23 97
Acenaphthene	100	101	101	-34 *	31	46-118
4-Nitrophenol	200	50.4	25	25	50	10- 80
2,4-Dinitrotoluene	100	104	104 *	-24	38	124- 96
Pentachloropheno1	200	171	86	2	50	9-103
Pyrene	100	126	126	-25	31	26-127

(1) N-Nitroso-di-n-propylamine

Column to be used to flag recovery and RPO values with an asterisk
* Values outside of QC limits

RPD: 2 out of 11 outside limits
Spike Recouery: 3 out of 22 outside limits

COMMENTS:

0000737

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ecology and environment

SEMIVOLATILE METHOD BLANK SUMMARY

Lab Name: E & E INC. Contract:

Lab Code: EANDE Case No.: 9101-043 SAS No.: SDG No.:

Lab File ID: E5221 Lab Sample ID: SBLKW1

Date Extracted: 05/07/91 Extraction: (SepF/Cont/Sonc) SEPF

Date Analyzed: 05/10/91 Time Analyzed: 1545

Matrix: (soil/water) WATER Level: (low/med) LOW

Instrument ID: 7002E

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	W007	9913	E5222	05/10/91
02	WFB04	9915	E5224	05/10/91
03	W007D	9914	E5223	05/10/91
04	WRB04	9916	E5225	05/10/91
05	W007MS	9913MS	E5226	05/10/91
06	W007MSD	9913MSD	E5227	05/10/91

COMMENTS:

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SBLKW1

Lab Name: E & E INC. Contract:

Lab Code: EANDE Case No.: 9101_043 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: SBLKW1

Sample wt/vol: 1000 (g/mL) ML Lab File ID: E5221

Level: (low/med) LOW Date Received:

% Moisture: not dec. dec. Date Extracted: 05/07/91

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 05/10/91

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

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CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-95-2	Phenol	10	U
111-44-4	bis(2-Chloroethyl)Ether	10	U
95-57-8	2-Chlorophenol	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4-Dichlorobenzene	10	U
100-51-6	Benzyl Alcohol	10	U
95-50-1	1,2-Dichlorobenzene	10	U
95-48-7	2-Methylphenol	10	U
39638-32-9	bis(2-Chloroisopropyl)Ether	10	U
106-44-5	4-Methylphenol	10	U
621-64-7	N-Nitroso-Di-n-Propylamine	10	U
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethylphenol	10	U
65-85-0	Benzoic Acid	50	U
111-91-1	bis(2-Chloroethoxy)Methane	10	U
120-83-2	2,4-Dichlorophenol	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
87-68-3	Hexachlorobutadiene	10	U
59-50-7	4-Chloro-3-Methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
95-95-4	2,4,5-Trichlorophenol	50	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	50	U
131-11-3	Dimethyl Phthalate	10	U
208-96-8	Acenaphthylene	10	U
606-20-2	2,6-Dinitrotoluene	10	U

0000738

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1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SBLKW1

Lab Name: E & E INC. Contract:

Code: EANDE Case No.: 9101_043 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: SBLKW1

Sample wt/vol: 1000 (g/mL) ML Lab File ID: E5221

Level: (low/med) LOW Date Received:

% Moisture: not dec. dec. Date Extracted: 05/07/91

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 05/10/91

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
99-09-2	3-Nitroaniline	50	U
83-32-9	Acenaphthene	10	U
51-28-5	2,4-Dinitrophenol	50	U
100-02-7	4-Nitrophenol	50	U
132-64-9	Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene	10	U
84-66-2	Diethylphthalate	10	U
7005-72-3	4-Chlorophenyl-phenylether	10	U
86-73-7	Fluorene	10	U
100-16-6	4-Nitroaniline	50	U
534-52-1	4,6-Dinitro-2-Methylphenol	50	U
86-30-6	N-Nitrosodiphenylamine (1)	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
87-86-5	Pentachlorophenol	50	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
84-74-2	Di-n-Butylphthalate	10	U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
85-68-7	Butylbenzylphthalate	10	U
91-94-1	3,3'-Dichlorobenzidine	20	U
56-55-3	Benzo(a)Anthracene	10	U
218-01-9	Chrysene	10	U
117-81-7	bis(2-Ethylhexyl)Phthalate	2	J
117-84-0	Di-n-Octyl Phthalate	10	U
205-99-2	Benzo(b)Fluoranthene	10	U
207-08-9	Benzo(k)Fluoranthene	10	U
50-32-8	Benzo(a)Pyrene	10	U
193-39-5	Indeno(1,2,3-cd)Pyrene	10	U
53-70-3	Dibenz(a,h)Anthracene	10	U
191-24-2	Benzo(g,h,i)Perylene	10	U

(1) - Cannot be separated from Diphenylamine

1F

EPA SAMPLE NO.

SBLKW1

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: E & E INC. Contract:

Lab Code: EANRE Case No.: 9101_043 SAS No.: SDG No. :

Matrix: (soil/water) WATER Lab Sample ID: SBLKW1

Sample wt/vol: 1000 (g/mL) ML Lab File ID: E5221

Level: (low/med) LOW Date Received:

% Moisture: not dec. dec. Rate Extracted: 05/07/91

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 05/10/91

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

Number TICs found: 7

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN HYDROCARBON	10.37	9.0	J
2.	UNKNOWN HYDROCARBON	10.48	5.0	J
3.	UNKNOWN HYDROCARBON	14.76	6.0	J
4.	UNKNOWN	18.62	42	J
5.	UNKNOWN HYDROCARBON	21.09	4.0	J
6.	UNKNOWN HYDROCARBON	21.58	5.0	J
7.	UNKNOWN	32.06	5.0	J

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1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

W007

ab Name: E & E INC Contract:

ab Code: SANDE Case No : 043 SAS No : SDG No :

atrix: (soil/water) WATER Lab Sample ID: 9913

ample wt/vol: 1000 (g/mL) ML Lab File ID:

evel: (low/med) LOW Date Received: 05/03/91

Moisture: not dec dec Date Extracted: 05/07/91

xtraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 05/22/91

PC Cleanup: (Y/N) N pH: Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
319-84-6	alpha-BHC	0.050	U
319-85-7	beta-BHC	0.050	U
319-86-8	delta-BHC	0.050	U
58-89-9	gamma-BHC (Lindane)	0.050	U
76-44-8	Heptachlor	0.050	U
309-00-2	Aldrin	0.050	U
1024-57-3	Heptachlor epoxide	0.050	U
959-98-8	Endosulfan I	0.050	U
60-57-1	Dieldrin	0.10	U
72-55-9	4,4'-DDE	0.10	U
72-20-8	Endrin	0.10	U
33213-65-9	Endosulfan II	0.10	U
72-54-8	4,4'-DDD	0.10	U
1031-07-8	Endosulfan sulfate	0.10	U
50-29-3	4,4'-DDT	0.10	U
72-43-5	Methoxychlor	0.50	U
53494-70-5	Endrin ketone	0.10	U
5103-71-9	alpha-Chlordane	0.50	U
5103-74-2	gamma-Chlordane	0.50	U
8001-35-2	Toxaphene	1.0	U
12674-11-2	Aroclor-1016	0.50	U
11104-28-2	Aroclor-1221	0.50	U
11141-16-5	Aroclor-1232	0.50	U
53469-21-9	Aroclor-1242	0.50	U
12672-29-6	Aroclor-1248	0.50	U
11097-69-1	Aroclor-1254	1.0	U
11096-82-5	Aroclor-1260	1.0	U

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

W007D

.ab Name: E & E INC. Contract :

ab Code: EANDE Case No.: 043 SAS No. : SDC No. :

atrix: (soil/water) WATER Lab Sample ID: 9914

amp le wt/vo1: 1000 (g/mL) ML Lab File ID:

evel: (low/med) LOW Date Received: 05/03/91

Moisture: not dec. dec. Date Extracted: 05/07/91

xtraction: (SepF/Cont/Sonc) SEPF Gate Analyzed: 05/22/91

PC Cleanup: (Y/N) N pH: Dilution factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
319-84-6	alpha-BHC	0.050	U
319-85-7	beta-BHC	0.050	U
319-86-8	delta-BHC	0.050	U
58-89-9	gamma-BHC (Lindane)	0.050	U
76-44-8	Heptachlor	0.050	U
309-00-2	Aldrin	0.050	U
1024-57-3	Heptachlor epoxide	0.050	U
959-98-8	Endosulfan I	0.050	U
60-57-1	Dieldrin	0.10	U
72-55-9	4,4'-DDE	0.10	U
72-20-8	Endrin	0.10	U
33213-65-9	Endosulfan II	0.10	U
72-54-8	4,4'-DDD	0.10	U
1031-07-8	Endosulfan sulfate	0.10	U
50-29-3	4,4'-DDT	0.10	U
72-43-5	Methoxychlor	0.50	U
53494-70-5	Endrin ketone	0.10	U
5103-71-9	alpha-Chlordane	0.50	U
5103-74-2	gamma-Chlordane	0.50	U
8001-35-2	Toxaphene	1.0	U
12674-11-2	Aroclor-1016	0.50	U
11104-28-2	Aroclor-1221	0.50	U
11141-16-5	Aroclor-1232	0.50	U
53469-21-9	Aroclor-1242	0.50	U
12672-29-6	Aroclor-1248	0.50	U
11097-69-1	Aroclor-1254	1.0	U
11096-82-5	Aroclor-1260	1.0	U

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0000740

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

WFB04

-ab Name: E & E INC. Contract :

.ab Code: EANDE Case NO.: 043 SAS No. : SDG No. :

1atrix: (soil/water) WATER Lab Sample ID: 9915

Jample wt/vol: 1000 (g/mL) ML Lab File ID:

.evel : (low/med) LOW Date Received: 05/03/91

; Moisture: not dcc. dec. Date Extracted: 05/07/91

:xtraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 05/22/91

;PC Cleanup: (Y/N) N pH: Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
319-84-6	alpha-BHC	0.050	U
319-85-7	beta-BHC	0.050	U
319-86-8	delta-BHC	0.050	U
58-89-9	gamma-BHC (Lindane)	0.050	U
76-44-8	Heptachlor	0.050	U
309-00-2	Aldrin	0.050	U
1024-57-3	Heptachlor epoxide	0.050	U
959-98-8	Endosulfan I	0.050	U
60-57-1	Dieldrin	0.10	U
72-55-9	4,4'-DDE	0.10	U
72-20-8	Endrin	0.10	U
33213-65-9	Endosulfan II	0.10	U
72-54-8	4,4'-DDD	0.10	U
1031-07-8	Endosulfan sulfate	0.10	U
50-29-3	4,4'-DDT	0.10	U
72-43-5	Methoxychlor	0.50	U
53494-70-5	Endrin ketone	0.10	U
5103-71-9	alpha-Chlordane	0.50	U
5103-74-2	gamma-Chlordane	0.50	U
8001-35-2	Toxaphene	1.0	U
12674-11-2	Aroclor-1016	0.50	U
11104-28-2	kroclor-1221	0.50	U
11141-16-5	Aroclor-1232	0.50	U
53469-21-9	Aroclor-1242	0.50	U
12672-29-6	Aroclor-1248	0.50	U
11097-69-1	Aroclor-1254	1.0	U
11096-82-5	Aroclor-1260	1.0	U

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

WRB04

ab Name: E & E INC. Contract:

ab Code: EANDE Case No.: 043 SAS No.: SDG No.:

atrix: (soil/water) WATER Lab Sample ID: 9916

ample wt/vol: 1000 (g/mL) ML Lab File ID:

eve 1: (low/med) LOW Date Received: 05/03/91

Moisture: not dec. dec. Date Extracted: 05/07/91

xtraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 05/22/91

PC Cleanup: (Y/N) N pH: Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
319-84-6	alpha-BHC	0.050	U
319-85-7	beta-BHC	0.050	U
319-86-8	delta-BHC	0.050	U
58-89-9	gamma-BHC (Lindane)	0.050	U
76-44-8	Heptachlor	0.050	U
309-00-2	Aldrin	0.050	U
1024-57-3	Heptachlor epoxide	0.050	U
959-98-8	Endosulfan I	0.050	U
60-57-1	Dieldrin	0.10	U
72-55-9	4,4'-DDE	0.10	U
72-20-8	Endrin	0.10	U
33213-65-9	Endosulfan II	0.10	U
72-54-8	4,4'-DDD	0.10	U
1031-07-8	Endosulfan sulfate	0.10	U
50-29-3	4,4'-DDT	0.10	U
72-43-5	Methoxychlor	0.50	U
53494-70-5	Endrin ketone	0.10	U
5103-71-9	alpha-Chlordane	0.50	U
5103-74-2	gamma-Chlordane	0.50	U
8001-35-2	Toxaphene	1.0	U
12674-11-2	Aroclor-1016	0.50	U
11104-28-2	Aroclor-1221	0.50	U
11141-16-5	Aroclor-1232	0.50	U
53469-21-9	Aroclor-1242	0.50	U
12672-29-6	Aroclor-1248	0.50	U
11097-69-1	Aroclor-1254	1.0	U
11096-82-5	Aroclor-1260	1.0	U

000741

2E
WATER PESTICIDE SURROGATE RECOUERY

aL .Name: E & E INC. Contract:

ab Code: EANDE Case No.: 043 SAS No.: SDG No.:

EPA SAMPLE NO.	S1 (DBC)#	OTHER
01 PBLKW2	62	0
~~02 PBLKW3~~	~~115~~	~~0~~
03 MSB1	122	0
04 W007	67	0
05 W007D	103	0
06 WFB04	111	0
07 WRB04	124	0
08 W007MS	74	0
09 W007MSD	65	0

BJM 6/14/91

ADVISORY QC LIMITS
S1 (DBC) = Dibutlychiorendate (24-154)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D Surrogates diluted out

FORM II PEST-1 1/87 Rev.

3E

WATER PESTICIDE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: E & E INC. Contract:

Lab Code: EANDE Case No.: 043 SAS No.: SDG No.:

Matrix Spike - EPA Sample No.: W007 0000742

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	MS CONCENTRATION (ug/L)	MS % REC #	QC LIMITS REC.
gamma-BHC (Lindane)	0.2001	0	0.217	108	156-1231
Heptachlor	0.2001	0	0.191	96	140-1311
Aldrin	0.2001	0	0.160	80	140-1201
Dieldrin	0.5001	0	0.564	113	52-126
Endrin	0.5001	0	0.576	115	150-1211
4,4'-DDT	0.5001	0	0.396	79	138-1271

COMPOUND	SPIKE ADDED (ug/L)	MSD CONCENTRATION (ug/L)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
gamma-BHC (Lindane)	0.2001	0.166	83	26 *	15	56-123
Heptachlor	0.2001	0.142	71	30 *	20	140-1311
Aldrin	0.2001	0.122	61	27 *	22	40-120
Dieldrin	0.5001	0.454	91	22 *	18	52-126
Endrin	0.5001	0.460	92	22 *	21	56-121
4,4'-DDT	0.5001	0.342	68	15	27	38-127

Column to be used to flag recovery and RPD values with an asterisk

Values outside of QC limits

RPD: 5 out of 6 outside limits
Spike Recovery: 0 out of 12 outside limits

COMMENTS:

0000742

recycled paper

ecology and environment

PESTICIDE METHOD BLANK SUMMARY

Lab dame: E & E INC. Contract:

Lab Code: EANDE Case No.: 043 SAS No. : SDG No. :

Lab Sample ID: 01_632-2 Lab File ID:

Matrix:(soil/water) WATER Leue1:(low/med) LOW

Date Extracted: 05/07/91 Extraction:(SepF/Cont/Sonc) SEPF

Date Analyzed ill: 05/21/91 Date Analyzed (2): 05/24/91

Time Analyzed (1): 1155 Time Analyzed (2): 2008

Instrument ID (1): 6000_2A Instrument ID (2): 6000_2B

GC Coiumn ID (1): OU-i GC Coiumn ID (2): MIXED

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED 1	DATE ANALYZED 2
01	MSB1	3121_632-2	05/21/91	
02	W007	9913	05/22/91	
03	W007D	9914	05/22/91	
04	WFB04	9915	05/22/91	
05	WRB04	9916	05/22/91	
06	W007MS	9913MS	05/22/91	
07	W007MSD	9913MSD	05/22/91	

COMMENTS:

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

PBLKW2

Lab Name: E & E INC. Contract:

Lab Code: EANDE Case No.: 043 SAS No. 000743 SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 01-632-2

Sample wt/vol: 1000 (g/mL) ML Lab File ID:

Level: (low/med) LOW Date Received:

% Moisture: not dec. dec. Date Extracted: 05/07/91

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 05/21/91

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
319-84-6	alpha-BHC	0.050 U	1
319-85-7	beta-BHC	0.050 U	
319-86-8	delta-BHC	0.050 U	
58-89-9	gamma-BHC (Lindane)	0.050 U	
76-44-8	Heptachlor	0.050 U	
309-00-2	Aldrin	0.050 U	
1024-57-3	Heptachlor epoxide	0.050 U	
959-98-8	Endosulfan I	0.050 U	
60-57-1	Dieldrin	0.10 U	
72-55-9	4,4'-DDE	0.10 U	
72-20-8	Endrin	0.10 U	
33213-65-9	Endosulfan II	0.10 U	
72-54-8	4,4'-DDD	0.10 U	
1031-07-8	Endosulfan sulfate	0.10 U	
50-29-3	4,4'-DDT	0.10 U	
72-43-5	Methoxychlor	0.50 U	
53494-70-5	Endrin ketone	0.10 U	1
5103-71-9	alpha-Chlordane	0.50 U	
5103-74-2	gamma-Chlordane	0.50 U	
8001-35-2	Toxaphene	1.0 U	
12674-11-2	Aroclor-1016	0.50 U	
11104-28-2	Aroclor-1221	0.50 U	
11141-16-5	Aroclor-1232	0.50 U	
53469-21-9	Aroclor-1242	0.50 U	
12672-29-6	Aroclor-1248	0.50 U	
11097-69-1	Aroclor-1254	1.0 U	
11096-82-5	Aroclor-1260	1.0 U	

000743