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NAS WHITING FIELD
5090.3a

FINAL DATA TRANSFER MEMORANDUM RESULTS OF ADDITIONAL SOIL SAMPLING AT
SITE 6 NAS WHITING FIELD FL

12/19/2001
CH2M HILL



CH2M HILL
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December 19, 2001

Ms. Linda Martin (Code ES318)
Southern Division, Naval Facilities Engineering Command
P.O. Box 190010
North Charleston, SC 29419-9010

Subject: Contract No. N62467-98-D-0095
Contract Task Order 0011 - Naval Air Station (NAS) Whiting Field - Milton,
Florida
Final Data Transfer Memorandum: Results of Additional Soil Sampling at Site 6 -
South Transformer Oil Disposal Area, Revision 01

Dear Ms. Martin:

CH2M HILL Constructors (CCI) is pleased to provide one (1) set of replacement pages, report cover and CD of the Final Data Transfer Memorandum: Results of Additional Soil Sampling at Site 6 - South Transformer Oil Disposal Area, NAS Whiting Field, Revision 01.

Please contact me (850.939.8300, ext. 17) if you have any questions or comments regarding this material.

Sincerely,

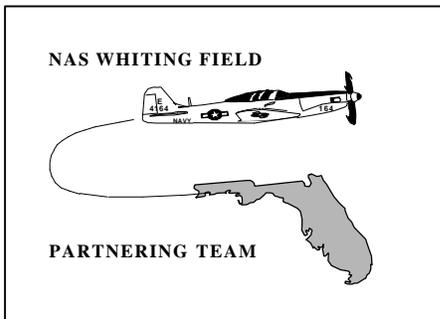
CH2M HILL

A handwritten signature in black ink, appearing to read "Amy Twitty".

Amy Twitty, P.G.
Project Manager

cc: Mark Shull/NTR NAS Pensacola (CD only)
Craig Benedikt/EPA (1 set of insert pages + 1 CD)
Jim Cason/FDEP (1 set of insert pages + 1 CD)
Terry Hansen/TtNUS (CD only)
Larry Smith/TtNUS (CD only)
Jim Holland/NASWF (1 set of insert pages + 1 CD + 1 full hard copy for Library)
Ron Stabler (CD only)
Phillip Ottinger/TtNUS (1 set of insert pages + 1 CD + 1 full hard copy for AR)
CCI Project File No. 151168

Results of Additional Soil Sampling at Site 6



PREPARED FOR: NAS Whiting Field Partnering Team

PREPARED BY: Amy Twitty, P.G.

DATE: December 19, 2001

Background

Site 6 is located in the central portion of Naval Air Station (NAS) Whiting Field in the Midfield area, southeast of the Midfield Maintenance Hangar, Building 1454. Transformers were reportedly drained into the grassed ditch (0- to 2-inch depth) east of Building 1454 from the 1940's until 1964. Polychlorinated biphenyls (PCBs) may have been present in the dielectric fluid drained from the transformers. Runoff from the grassed ditch drains in a northeasterly direction and eventually into Big Coldwater Creek located approximately 2.3 miles east of the disposal site. A former aviation gasoline (AVGAS) storage tank area is adjacent to Site 6 to the northwest (Tetra Tech NUS, Inc. [TtNUS], 2001). Refer to [Figure 1](#) for the site location.

In 1986, Geraghty & Miller performed a verification study to provide an assessment of the physical and chemical conditions at NAS Whiting Field. Ten composite soil samples consisting of sandy clay were collected to a depth of 2 feet along the flanks of the ditch at Site 6. The samples were analyzed for PCBs; however, no PCBs were detected above the detection limit of 0.2 milligrams per kilogram (mg/kg) (TtNUS, 1999).

In 1990, during a Phase I Remedial Investigation (RI) at NAS Whiting Field, 12 surface soil samples were collected and analyzed for PCBs. The analytical results exhibited extremely low concentrations of PCBs ranging from 6.9 to 33 micrograms per kilogram ($\mu\text{g}/\text{kg}$). Additional soil sampling at deeper depths was recommended to completely define the extent of PCB contamination (TtNUS, 1999).

In 1998, TtNUS concluded a RI at Site 6, based on Phase IIA fieldwork and analysis conducted in 1992 by ABB Environmental Services. The Phase IIA investigations found the source of chemicals in the surface and subsurface soils could be attributed to the release of transformer fluids into the grassed drainage ditch located south of Building 1454. The Phase IIA activities included a soil gas survey (in conjunction with Sites 5 and 33 at NAS Whiting Field), soil borings, subsurface soil sampling, monitoring well installation, and groundwater sampling. Four surface soil samples and 17 subsurface soil samples were collected at Site 6. All samples were analyzed for volatile organic compounds, semi-volatile organic

compounds, pesticides, PCBs, and metals. Additionally, all surface samples and three subsurface samples at 6SB04 (5- to 7-feet, 10-to 12-feet, and 20- to 22-feet) were analyzed for total petroleum hydrocarbons (TPH). The exceedances for the subsurface soil included benzo(a)pyrene and vanadium in Phase IIA sample location 6SB03 at 5 to 7 feet below land surface (bls) at concentrations of 290 µg/kg and 48.9 mg/kg, respectively. These concentrations were above U.S. Environmental Protection Agency (USEPA) Region III risk-based concentrations (RBCs) or Florida Department of Environmental Protection (FDEP) soil cleanup target levels (SCTLs) for direct soil exposure (residential).

In the surface soil, 14 analytes exceeded site-specific background concentrations and either USEPA Region III RBCs or Florida SCTLs for direct soil exposure (residential). However, based on the March 2001 Feasibility Study (TtNUS, 2001), the contaminants of concern (COCs) for the surface soil at Site 6 are benzo(a)pyrene (6SB03) and TPH (6SB04). TPH concentrations in the surface soil at 6SB04 were above FDEP industrial criteria; however, the TPH concentration in the 5- to 7-foot sample in the subsurface at 6SB04 was well below cleanup criteria. Vanadium also exceeded current FDEP residential SCTLs. In anticipation of the future revision of Chapter 62-777 Florida Administrative Code (FAC) affecting vanadium cleanup criteria, only benzo(a)pyrene and TRPH were addressed in this investigation. Refer to **Figure 2** for the locations of the former Phase IIA samples and current areas of investigation.

Soil Investigation

Eight native surface soil samples, 15 subsurface samples, and associated Quality Control/Quality Assurance (QA/QC) samples were collected by CH2M HILL Constructors, Inc. (CCI) on August 9, 2001, in the vicinity of Phase IIA samples 6SB03 and 6SB04 for the source delineation of benzo(a)pyrene and total recoverable petroleum hydrocarbons (TRPH), respectively. A 75-foot by 75-foot sampling grid was set up around the location of the original samples with sample locations on 25-foot centers. Initially, four surface soil samples were collected on 10-foot centers immediately surrounding the original Phase IIA sample locations. The samples were taken from 0 to 2 feet bls and analyzed for COCs. The decision on whether to continue collecting samples for benzo(a)pyrene or TRPH analysis was based on the analytical results of the initial samples.

At soil sample location 6SB03, the results presented in the RI indicated an exceedance of benzo(a)pyrene at 5 to 7 feet bls; however, no detection of the analyte was present at the 10- to 12-foot interval. Therefore, further delineation was performed to define the extent of benzo(a)pyrene at the 5-to 7-foot interval both vertically and horizontally. Subsurface samples were collected directly beneath original sample 6SB03 from 5 to 7 feet bls, 7 to 8 feet bls, and 8 to 9 feet bls for vertical delineation. Subsurface samples were also collected from the four sample locations immediately surrounding the original sample at 5 to 7 feet bls, 7 to 8 feet bls, and 8 to 9 feet bls for horizontal delineation. Initially, only samples from the 5- to 7-foot interval were analyzed for COCs. The remaining subsurface samples were held for analysis pending these results. Refer to **Figures 3 and 4** for the grid layout and surface/subsurface soil sample locations.

All soil samples were collected using decontaminated stainless steel hand augers. Soil was placed into stainless steel bowls, thoroughly mixed using stainless steel spoons, and placed

in glass jars. CCI personnel described the soil using the Unified Soil Classification System and recorded the descriptions in a logbook. All sampling was conducted in accordance with CCI's Basewide Work Plan for NAS Whiting Field (CCI, 1999), FDEP Standard Operating Procedures and the EPA, Region IV Environmental Investigation Standard Operating Procedures and Quality Assurance Manual (EISOPQAM) dated May 1996 revised 1997.

All samples were shipped to PEL Laboratories in Tampa, Florida (a Navy-approved laboratory) for analysis on a 48-hour turnaround time (TAT). Preliminary analysis was conducted for the four surface samples immediately surrounding original sample location 6SB04 and the four surface and 5- to 7-foot interval subsurface samples immediately surrounding original sample location 6SB03. A 5- to 7-foot interval subsurface sample from the location of original sample location 6SB03 was also analyzed. The deeper subsurface samples from the 6SB03 area were held at the laboratory pending the results of the 5- to 7-foot bls samples. Samples from the 6SB03 area were analyzed for benzo(a)pyrene using EPA Method 8310. Samples from the 6SB04 area were analyzed for TRPH constituents using Florida Petroleum Range Organic (FL-PRO) methodology.

Results

Over the course of investigations at this site, USEPA Region IV has switched the criteria they use for hazardous waste related site evaluations from USEPA Region III RBCs to USEPA Region IX preliminary remediation goals (PRGs). Therefore, analytical results were compared to the USEPA Region IX PRGs and the FDEP SCTLs. No COCs were detected in any of the initial eight surface or five subsurface samples analyzed. Therefore, further delineation was unnecessary. **Table 1** presents a summary of the results. The analytical report is included in **Attachment A**.

The Data Quality Evaluation (DQE) performed for the analytical results is presented in **Attachment B**. Survey coordinates for the soil sample locations are presented in **Attachment C**.

Conclusions

In the vicinity of former Phase IIA sample location 6SB03, surface and subsurface soil samples analyzed for benzo(a)pyrene did not exhibit concentrations above the associated USEPA Region IX PRGs or FDEP SCTLs. Similarly, surface soil samples in the vicinity of former Phase IIA sample location 6SB04 analyzed for TRPH did not exhibit concentrations above the associated USEPA Region IX PRGs or FDEP SCTLs.

Based on the exceedances found during the RI activities and the delineation established by the current investigations, an area measuring 10 x 10 feet and approximately 5 feet deep should be excavated in each of the former Phase IIA sample locations 6SB03 and 6SB04. The combined soil volume from the two areas proposed for excavation is approximately 37 cubic yards. CCI will prepare a remedial action work plan outlining the proposed work.

Works Cited

CH2M HILL Constructors, Inc. 1999. *Basewide Work Plan, NAS Whiting Field, Milton, Florida.*

Tetra Tech NUS, Inc. September 1999. *Remedial Investigation Report for Surface and Subsurface Soil Sites 3, 4, 6, 30, 32 and 33, Naval Air Station Whiting Field, Milton, Florida.*

Tetra Tech NUS, Inc. March 2001. *Feasibility Study for Surface and Subsurface Soil at Sites 3, 4, 6, 30, 32 and 33, Naval Air Station Whiting Field, Milton, Florida.*

U.S. Environmental Protection Agency. May 1996. *EPA Region IV Environmental Investigation Standard Operating Procedures and Quality Assurance Manual.*

This Data Transfer Memorandum for Site 6 at Naval Air Station Whiting Field was prepared under the direction of a Registered Professional Geologist.

Amy T. Twitty, P.G. No. 1703

Date

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TABLES

Table 1

August 9, 2001 Soil Sampling Analytical Results

Site 6, NAS Whiting Field

		Original Sample Location		6SB03					
				Sample ID No.	6SB0307	6SS1302	6SB1307	6SS1402	6SS2501 (Duplicate of 6SS1402)
Lab Analyses		Units	Regulatory Guidelines		5-7'	0-2'	5-7'	0-2'	0-2'
			USEPA Region IX PRGs Residential/Industrial	SCTL for Florida Residential/Industrial/ Leachability					
PAH (8310)									
Benzo(a)pyrene	ug/kg	62/290	100/500/8000	12 U	12 U	12 U	11 U	11 U	
FL-PRO									
TRPH	mg/kg	NA	340/2500/340	--	--	--	--	--	

mg/kg milligrams per kilogram

NA = Not Available

PRG = Preliminary Remedial Goal

SCTL = Soil Cleanup Target Level

TRPH = Total Recoverable Petroleum Hydrocarbons

U = Below Detection Limit

ug/kg micrograms per kilogram

USEPA = United States Environmental Protection Agency

-- = Not Analyzed

Table 1

August 9, 2001 Soil Sampling Analytical Results

Site 6, NAS Whiting Field

		Original Sample Location		6SB03					
				Sample ID No.	6SB2607 (Duplicate of 6SB1407)	6SS1502	6SB1507	6SS1602	6SB1607
Lab Analyses	Units	Regulatory Guidelines		5-7'	5-7'	0-2'	5-7'	0-2'	5-7'
		USEPA Region IX PRGs Residential/Industrial	SCTL for Florida Residential/Industrial/ Leachability						
PAH (8310)									
Benzo(a)pyrene	ug/kg	62/290	100/500/8000	12 U	11 U	11 U	11 U	11 U	12 U
FL-PRO									
TRPH	mg/kg	NA	340/2500/340	--	--	--	--	--	--

mg/kg milligrams per kilogram

NA = Not Available

PRG = Preliminary Remedial Goal

SCTL = Soil Cleanup Target Level

TRPH = Total Recoverable Petroleum Hydrocarbons

U = Below Detection Limit

ug/kg micrograms per kilogram

USEPA = United States Environmental Protection Agency

-- = Not Analyzed

Table 1

August 9, 2001 Soil Sampling Analytical Results
 Site 6, NAS Whiting Field

		Original Sample Location		6SB04					
				Sample ID No.	6SS3602	6SS3702	6SS3802	6SS2702 (Duplicate of 6SS3802)	6SS3902
Lab Analyses		Units	Regulatory Guidelines		Depth				
			USEPA Region IX PRGs Residential/Industrial	SCTL for Florida Residential/Industrial/ Leachability	0-2'	0-2'	0-2'	0-2'	0-2'
PAH (8310)									
Benzo(a)pyrene	ug/kg	62/290	100/500/8000	--	--	--	--	--	--
FL-PRO									
TRPH	mg/kg	NA	340/2500/340	10 U	10 U	10 U	10 U	10 U	10 U

mg/kg milligrams per kilogram

NA = Not Available

PRG = Preliminary Remedial Goal

SCTL = Soil Cleanup Target Level

TRPH = Total Recoverable Petroleum Hydrocarbons

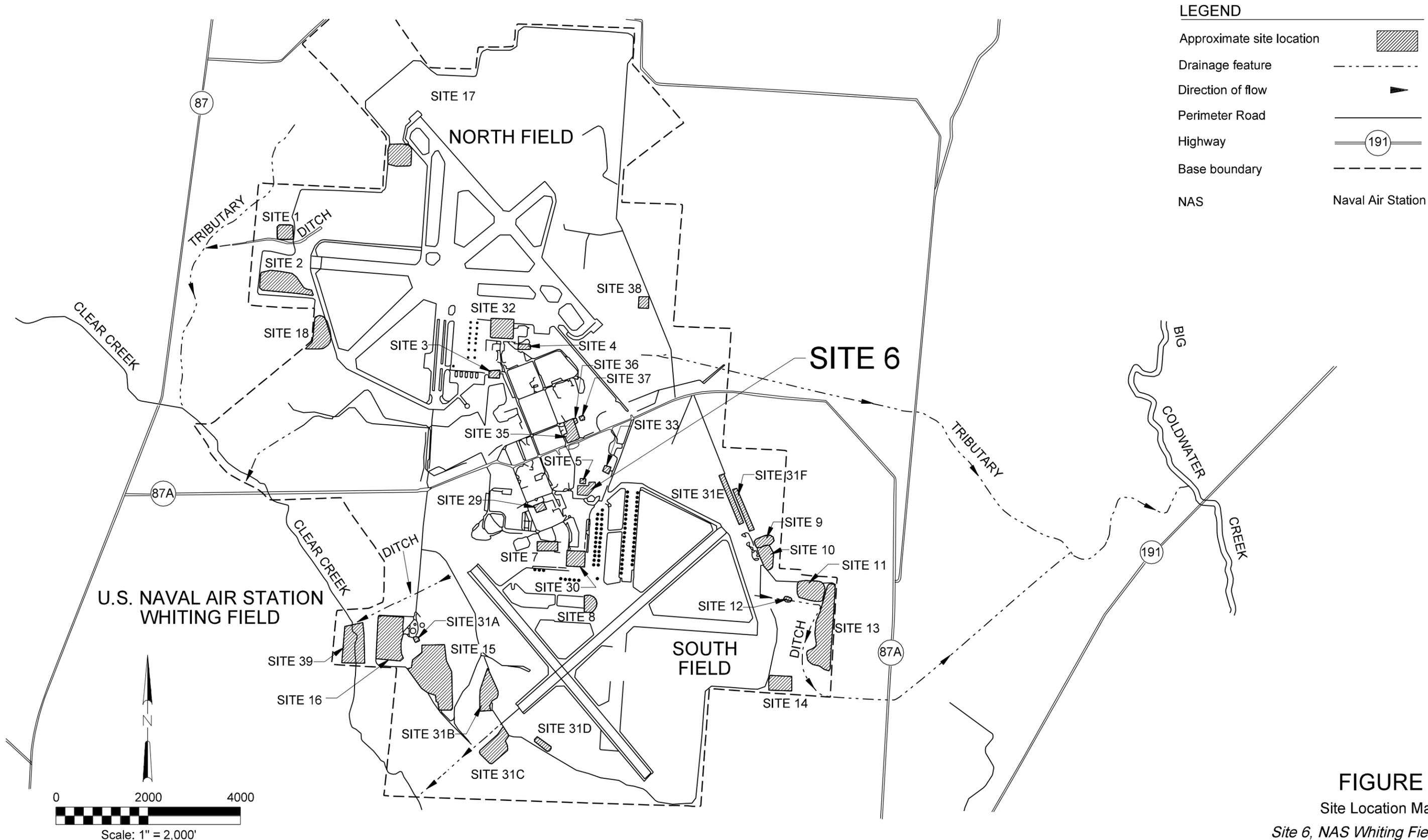
U = Below Detection Limit

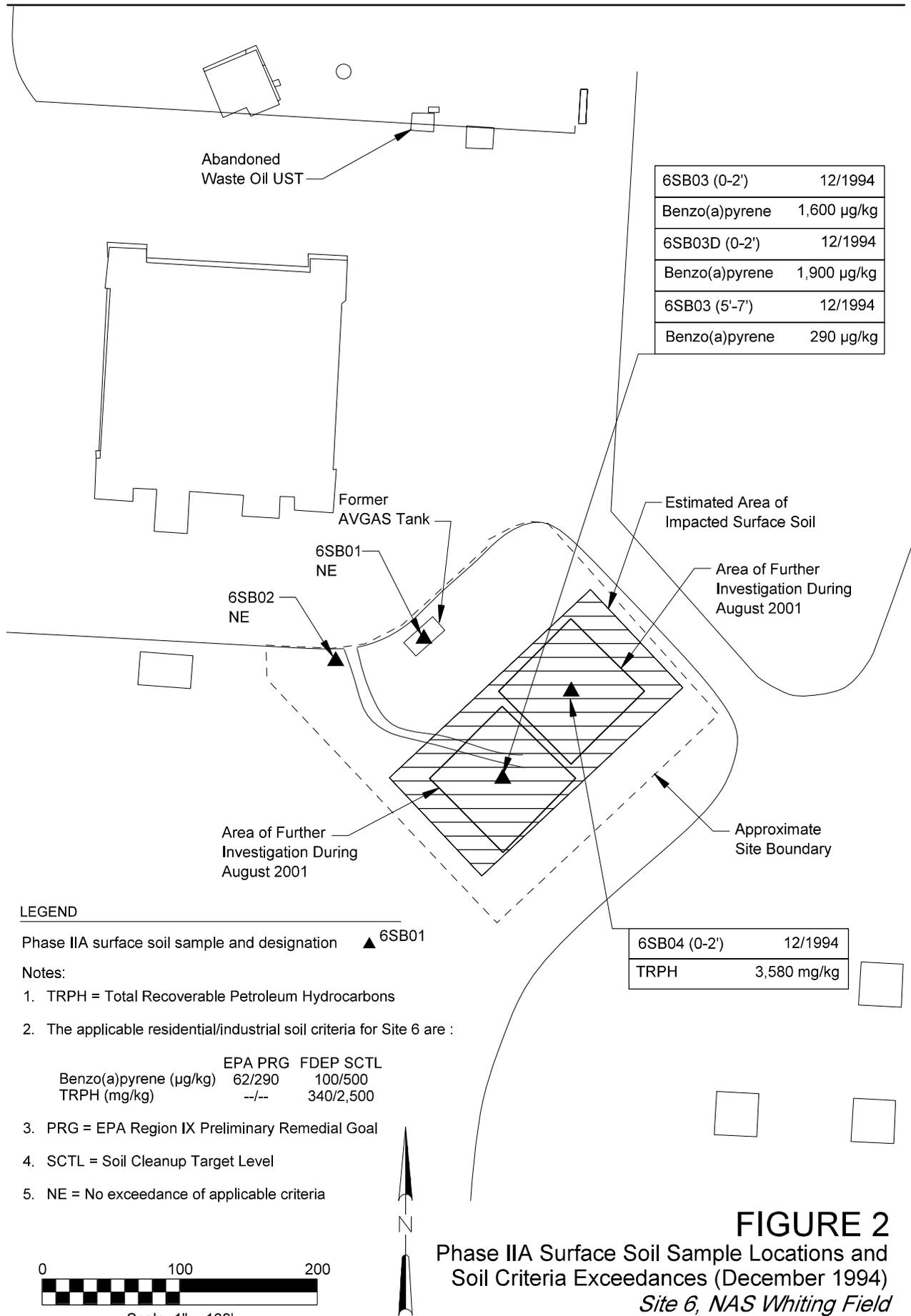
ug/kg micrograms per kilogram

USEPA = United States Environmental Protection Agency

-- = Not Analyzed

FIGURES





LEGEND

Phase IIA surface soil sample and designation

6SB03
▲

Additional grid surface soil sample and designation

6SS13
●

Notes:

1. EPA Region IX Residential and Industrial Soil Preliminary Remedial Goals (PRGs) for benzo(a)pyrene are 62 µg/kg and 290 µg/kg, respectively.
2. FDEP Direct Exposure Residential and Industrial Soil Cleanup Target Levels (SCTLs) for benzo(a)pyrene are 100 µg/kg and 500 µg/kg, respectively.
3. ND = Non-detect

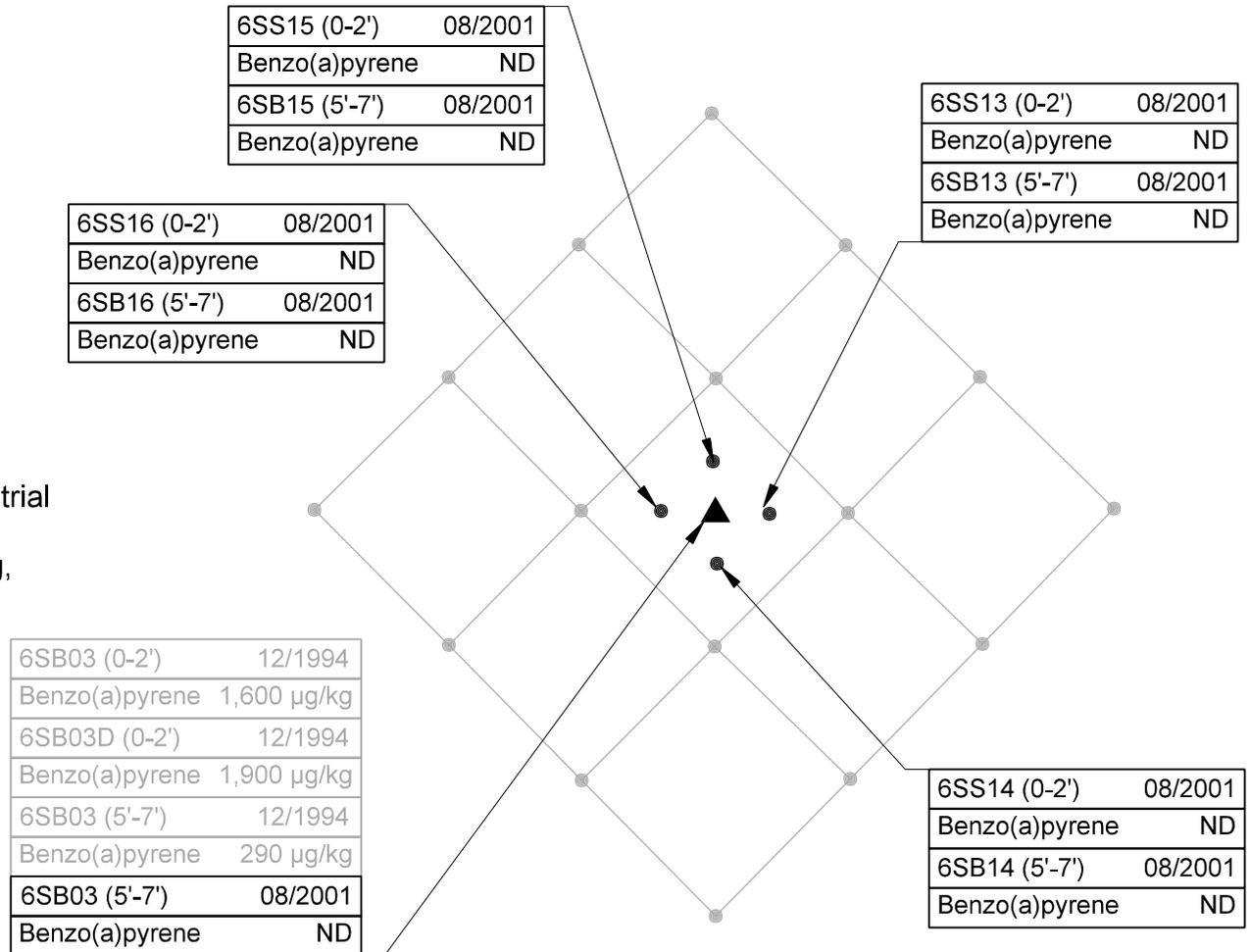


FIGURE 3
Surface Soil Sample Exceedances
Grid for 6SB03
Site 6, NAS Whiting Field

CH2MHILL

LEGEND

Phase IIA surface soil sample and designation 6SB04
▲

Additional grid surface soil sample and designation 6SS36
●

Notes:

1. TRPH = Total Recoverable Petroleum Hydrocarbons
2. There are no EPA Region IX Residential and Industrial Soil Preliminary Remedial Goals (PRGs) for TRPH.
3. FDEP Direct Exposure Residential and Industrial Soil Cleanup Target Levels (SCTLs) for TRPH are 340 mg/kg and 2,500 mg/kg, respectively.
4. ND = Non-detect

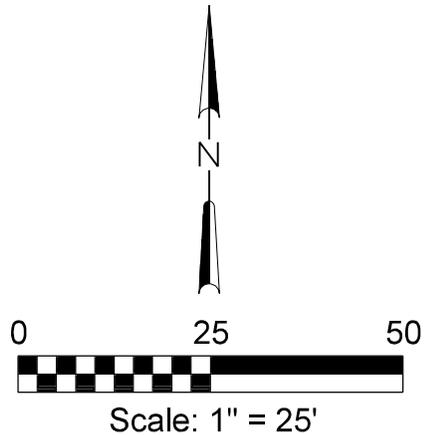
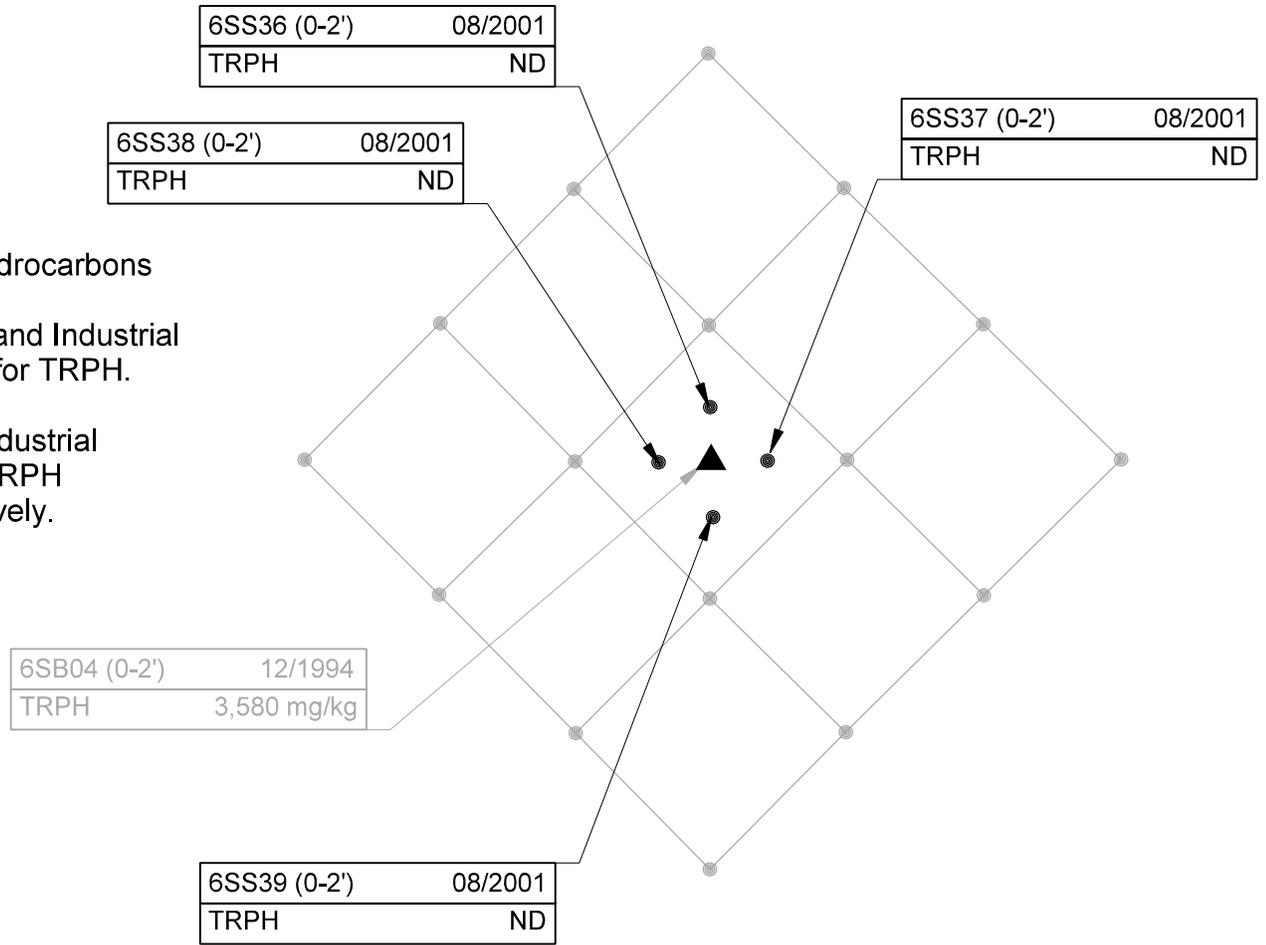
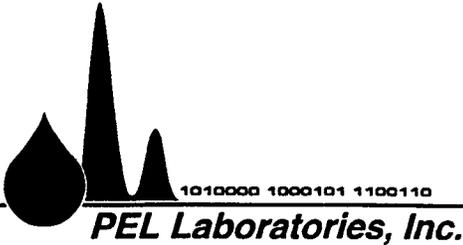


FIGURE 4
 Surface Soil Sample Exceedances
 Grid for 6SB04
 Site 6, NAS Whiting Field

ATTACHMENT A
Laboratory Analytical Reports



Customer Name: CH2MHILL
Date & Time Received: 8-10-01; 8:00 AM
Date Reported: 8-27-01
PEL Submission Number: 2108063
Project: Whiting Field (Site 6)

Samples: The submission consisted of 24 samples with sample identification shown in the attached data tables.

Tests: The samples were analyzed for EPA method: 8310 and FL PRO

Results: See the attached data tables for results.

Distribution of Reports:

1-CH2MHILL
Attn: Amy Twitty
Phone: (850) 939-8300

2-CH2MHILL
Attn: Jeff Wilmoth
Phone: (770) 604-9182

Respectfully Submitted,

Brian Spann
Laboratory Manager
PEL Laboratories, Inc.

Note: Submitted material will be retained for 30 days unless otherwise requested by client or consumed in analysis. PEL letters and reports are for the exclusive use of the client to whom they are addressed. Our letters and reports apply to the sample tested and are not necessarily indicative of the quantities of apparently identical or similar materials.

4420 Pendola Point Road • Tampa, Florida 33619
(813) 247-2805 • FAX: (813) 248-1537

Cross-Reference sheet for SDG 2108063-Whiting Fld

	SDG	FieldID	SampleType	LabSampleID	SampleDescription
Whiting Fld	2108063	0116PostEB01	EB	210806315	011-6-Post-EB01-0809
Whiting Fld	2108063	0116PostEB02	EB	210806324	011-6-Post-EB02-0809
Whiting Fld	2108063	0116PreEB01	EB	210806314	011-6-Pre-EB01-0809
Whiting Fld	2108063	0116PreEB02	EB	210806323	011-6-Pre-EB02-0809
Whiting Fld	2108063	0116SB0307	N	210806309	011-6SB0307-0809
Whiting Fld	2108063	0116SB1307	N	210806302	011-6SB1307-0809
Whiting Fld	2108063	0116SB1407	N	210806304	011-6SB1407-0809
Whiting Fld	2108063	0116SB1507	N	210806306	011-6SB1507-0809
Whiting Fld	2108063	0116SB1607	N	210806308	011-6SB1607-0809
Whiting Fld	2108063	0116SB2607	FD	210806311	011-6SB2607-0809
Whiting Fld	2108063	0116SS1302	N	210806301	011-6SS1302-0809
Whiting Fld	2108063	0116SS1402	N	210806303	011-6SS1402-0809
Whiting Fld	2108063	0116SS1402MS	MS	210806312	0116SS1402
Whiting Fld	2108063	0116SS1402SD	SD	210806313	0116SS1402
Whiting Fld	2108063	0116SS1502	N	210806305	011-6SS1502-0809
Whiting Fld	2108063	0116SS1602	N	210806307	0116SS1602-0809
Whiting Fld	2108063	0116SS2502	FD	210806310	011-6SS2502-0809
Whiting Fld	2108063	0116SS2702	FD	210806320	011-6SS2702-0809
Whiting Fld	2108063	0116SS3602	N	210806316	011-6SS3602-0809
Whiting Fld	2108063	0116SS3702	N	210806317	011-6SS3702-0809
Whiting Fld	2108063	0116SS3702R1	RE	210806317R1	0116SS3702
Whiting Fld	2108063	0116SS3802	N	210806318	011-6SS3802-0809
Whiting Fld	2108063	0116SS3802MS	MS	210806321	0116SS3802
Whiting Fld	2108063	0116SS3802SD	SD	210806322	0116SS3802
Whiting Fld	2108063	0116SS3902	N	210806319	011-6SS3902-0809
Whiting Fld	2108063	0810ABLK	MB	45081	0810ABLK

	SDG	FieldID	SampleType	LabSampleID	SampleDescription
Whiting Fld	2108063	0810ABLKMS	BS	45083	0810ABLK
Whiting Fld	2108063	0810ABLKSD	BD	45084	0810ABLK
Whiting Fld	2108063	0810ALCS	BS	45082	0810ALCS
Whiting Fld	2108063	0810BLKS	MB	45102	0810BLKS
Whiting Fld	2108063	0810BLKW	MB	45106	0810BLKW
Whiting Fld	2108063	0810BLKWMS	BS	45108	0810BLKW
Whiting Fld	2108063	0810BLKWSD	BD	45109	0810BLKW
Whiting Fld	2108063	0810LCS	BS	45103	0810LCS
Whiting Fld	2108063	0810SBLK	MB	45075	0810SBLK
Whiting Fld	2108063	0810SBLKMS	BS	45077	0810SBLK
Whiting Fld	2108063	0810SBLKSD	BD	45078	0810SBLK
Whiting Fld	2108063	0810SLCS	BS	45076	0810SLCS
Whiting Fld	2108063	0810WLCS	BS	45107	0810WLCS

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Level 3

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Organics

Organic Data Qualifiers

- U Indicates the compound was analyzed for but not detected. The number adjacent to the "U" qualifier indicates the reporting limit for the compound. The reporting limit can vary from sample to sample depending on the dilution factors or the percent moisture adjustment when indicated.
- J Indicates estimated value. It is used when the data indicates the presence of a compound above the MDL yet lower than the reporting limit.
- B Indicates the analyte was found in the associated blank as well as in the sample. The notation indicates possible contamination of the sample.
- E Indicates the value reported is above the highest calibration standard for that compound. The sample should be analyzed at an appropriate dilution. "E" qualified values are estimations and the diluted result will be reported on another Form 1.
- D Indicates the analyte has been identified in a dilution reanalysis. "D" qualifiers are used for samples that have been analyzed at a lesser dilution that required for accurate quantitation.
- C The "C" flag indicates the presence of this compound has been confirmed by GC/MS analysis.
- P This qualifier is used for pesticide / Aroclor target analytes where there is greater than 25% difference for the detected concentrations between the two GC columns. The lower of the two values is reported on the Form 1 with a "P" code.
- N This qualifier indicates presumptive evidence of a compound. This flag is only used for tentatively identified compounds, where the identification is based on a mass spectral library search. It is applied to all TIC results. For generic characterization of a TIC, such as chlorinated hydrocarbon, the "N" qualifier is not used.
- A This qualifier indicates that a YIC is suspected aldol-condensation product.
- M This qualifier indicates that the compound is reported as a summation of analyte isomers.
- X Data flagged as rejected by analyst utilizing analytical judgment.

Organic Sample ID Qualifiers

The qualifiers that may be appended to the lab sample ID and/or the client sample ID for organic analysis is defined below:

- DL Diluted reanalysis. Indicates that the results of the original analysis of the sample contained compounds that exceeded the calibration range. The sample was diluted and reanalyzed. May be followed by a digit to indicate multiple dilutions of the sample. The results of more than one diluted reanalysis may be reported.
- R Reanalysis. The extract was reanalyzed without re-extraction. The "R" is not used if the sample was also re-extracted. May be followed by a digit to indicate multiple reanalysis of the sample at the same dilution.
- RE Re-extracted. The extract was reanalyzed with re-extraction. May be followed by a digit to indicate multiple re-extraction of the same sample at the same dilution.
- MS Matrix spike (may be followed by a digit to indicate multiple matrix within a sample set).
- SD Matrix spike duplicate (may be followed by a digit to indicate multiple matrix spike duplicate within a sample set).

HPLC PAH ORGANICS
METHOD 8310

**CASE NARRATIVE
HPLC SEMIVOLATILE ORGANICS**

PEL Lab Reference No./SDG: 2108063

Client: CH2MHILL

I. RECEIPT

No exceptions were encountered unless a Sample Receipt Exception Report is attached to the Chain-of-Custody or a communication form is included in the addendum with this data package.

II. HOLDING TIMES

A. **Sample Preparation:** All holding times were met.

B. **Sample Analysis:** All holding times were met.

III. METHODS

SW846/EPA 8310

IV. PREPARATION

Soil samples were prepared by SW846 EPA 3550 for 8310 semi-volatiles analysis.
Water samples were prepared by SW846 EPA 3510 for 8310 semi-volatiles analysis.

V. ANALYSIS

A. Calibration:

All acceptance criteria were met.

Initial calibration criteria is stated in SW-846 EPA method 8310. All analytes have a maximum percent RSD of 20. As per SW-846 EPA method 8000; Section 7.5.1.2 and 7.5.1.2.1, if one or more of the analytes exceed the maximum percent RSD the average percent RSD may be used provided the average is less than or equal to 15. In those instances, the average will be calculated and cited on the calibration forms.

Calibration verification criteria is stated in SW-846 EPA method 8000. All analytes have a maximum percent D of 15. As per SW-846 EPA method 8000; Section 7.7, if one or more of the analytes exceed the maximum percent D the average percent D may be used provided the average is less than or equal to 15. In those instances, the average will be calculated and cited on the calibration forms.

B. Blanks:

There was one blank analyzed with the soil samples, which was non-detect for target parameters.
There was one blank analyzed with the water samples, which was non-detect for target parameters.

**CASE NARRATIVE
HPLC SEMIVOLATILE ORGANICS**

PEL Lab Reference No./SDG: 2108063

C. Surrogates:

All surrogate recoveries met acceptable criteria for the soil samples.
All surrogate recoveries met acceptable criteria for the water samples.

D. Spikes:

Laboratory Control Spikes (LCS)

One LCS, 0810SLCS, was analyzed with the soil samples where all criteria were met.
One LCS, 0810ALCS, was analyzed with the water samples where all criteria were met.

Matrix Spike/Matrix Spike Duplicate Samples (MS/SD)

One client requested MS/SD on sample 0116SS1402 and one reagent MS/SD set were analyzed with the soil samples where all criteria were met for percent recovery and relative percent difference.

One set of reagent MS/SD samples were analyzed with the water samples where all criteria were met for percent recovery and relative percent difference.

E. Internal standards:

All internal standard criteria were met for the soil samples.
All internal standard criteria were met for the water samples.

F. Samples:

Sample analysis proceeded normally. Lowest calibration standard level RLs were used per client request.

The following analytes were quantified by the VWD detector: Acenaphthylene, Acenaphthene, Anthracene, Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(g,h,i)perylene, Benzo(k)fluoranthene, Chrysene, Dibenz(a,h)anthracene, Fluoranthene, Fluorene, Indeno(1,2,3-cd)pyrene, 1-Methyl Naphthalene, 2-Methyl Naphthalene, Phenanthrene, Pyrene, and Terphenyl-d14.

The following analytes were quantified by the ADC detector: Anthracene, Naphthalene, and Dibenz(a,h)anthracene.

I certify that this data package is in compliance with the terms and conditions agreed to by the client and PEL, both technically and for completeness except for the conditions noted above. Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager or designated person, as verified by the following signature.

SIGNED: Jodi Hutchins DATE: 8/27/01

PAH ORGANIC CROSS REFERENCE TABLE

Lab Name: PEL Laboratories, Inc. Contract: Whiting Fld
Lab Code: PEL Case No. _____ SAS No: _____ SDG No.: 2108063
Method: 8310

EPA Sample No	Lab Sample ID
<u>0116SS1302</u>	<u>210806301</u>
<u>0116SB1307</u>	<u>210806302</u>
<u>0116SS1402</u>	<u>210806303</u>
<u>0116SB1407</u>	<u>210806304</u>
<u>0116SS1502</u>	<u>210806305</u>
<u>0116SB1507</u>	<u>210806306</u>
<u>0116SS1602</u>	<u>210806307</u>
<u>0116SB1607</u>	<u>210806308</u>
<u>0116SB0307</u>	<u>210806309</u>
<u>0116SS2502</u>	<u>210806310</u>
<u>0116SB2607</u>	<u>210806311</u>
<u>0116PreEB01</u>	<u>210806314</u>
<u>0116PostEB01</u>	<u>210806315</u>

Sample Data

PAH ORGANIC ANALYSIS DATA SHEET

Lab Name: PEL Laboratories, Inc. Contract: Whiting Fld EPA Sample No. 0116SS1302
 Lab Code: PEL Case No. _____ SAS No: _____ SDG No.: 2108063
 Matrix: SOIL Lab Sample ID 210806301 Lab File ID 63-1.D
 Sample wt/vol: 33.4 Units: G Date Received: 08/10/01
 Concentrated Extract Volume: 1 Date Extracted: 08/10/01
 Level:(low/med) LOW Date Analyzed: 08/12/01 Time: 2320
 PercentSolids: 86 decanted: _____ Dilution Factor: 1
 Extraction: SONC Station ID 6SS13 0-2ft Method: 8310
 GPC Cleanup : (Y/N) N pH: _____
 Column: Vydac 201TP54 ID: 4.6 (mm)

CONCENTRATION UNITS: *ug/Kg*

CAS NO.	ANALYTE	RESULT	Q
50-32-8	Benzo(a)pyrene	12	U

PAH ORGANIC ANALYSIS DATA SHEET

Lab Name: PEL Laboratories, Inc. Contract: Whiting Fid EPA Sample No. 0116SB1307
 Lab Code: PEL Case No. _____ SAS No: _____ SDG No.: 2108063
 Matrix: SOIL Lab Sample ID 210806302 Lab File ID 63-2.D
 Sample wt/vol: 33.5 Units: G Date Received: 08/10/01
 Concentrated Extract Volume: 1 Date Extracted: 08/10/01
 Level:(low/med) LOW Date Analyzed: 08/12/01 Time: 2354
 PercentSolids: 84 decanted: _____ Dilution Factor: 1
 Extraction: SONC Station ID 6SB13 5-7ft Method: 8310
 GPC Cleanup : (Y/N) N pH: _____
 Column: Vydac 201TP54 ID: 4.6 (mm)

CONCENTRATION UNITS: ug/Kg

CAS NO.	ANALYTE	RESULT	Q
50-32-8	Benzo(a)pyrene	12	U

PAH ORGANIC ANALYSIS DATA SHEET

Lab Name: PEL Laboratories, Inc. Contract: Whiting Fld EPA Sample No. 0116SS1402
 Lab Code: PEL Case No. _____ SAS No: _____ SDG No.: 2108063
 Matrix: SOIL Lab Sample ID 210806303 Lab File ID 63-3.D
 Sample wt/vol: 33.1 Units: G Date Received: 08/10/01
 Concentrated Extract Volume: 1 Date Extracted: 08/10/01
 Level:(low/med) LOW Date Analyzed: 08/13/01 Time: 0029
 PercentSolids: 88 decanted : _____ Dilution Factor: 1
 Extraction: SONC Station ID 6SS14 0-2ft Method: 8310
 GPC Cleanup : (Y/N) N pH: _____
 Column: Vydac 201TP54 ID: 4.6 (mm)

CONCENTRATION UNITS: *ug/Kg*

CAS NO.	ANALYTE	RESULT	Q
50-32-8	Benzo(a)pyrene	11	U

PAH ORGANIC ANALYSIS DATA SHEET

Lab Name: PEL Laboratories, Inc. Contract: Whiting Fld EPA Sample No. 0116SB1407
 Lab Code: PEL Case No. _____ SAS No: _____ SDG No.: 2108063
 Matrix: SOIL Lab Sample ID 210806304 Lab File ID 63-4.D
 Sample wt/vol: 33.4 Units: G Date Received: 08/10/01
 Concentrated Extract Volume: 1 Date Extracted: 08/10/01
 Level:(low/med) LOW Date Analyzed: 08/13/01 Time: 0104
 PercentSolids: 86 decanted : _____ Dilution Factor: 1
 Extraction: SONC Station ID 6SB14 5-7ft Method: 8310
 GPC Cleanup : (Y/N) N pH: _____
 Column: Vydac 201TP54 ID: 4.6 (mm)

CONCENTRATION UNITS: *ug/Kg*

CAS NO.	ANALYTE	RESULT	Q
50-32-8	Benzo(a)pyrene	12	U

PAH ORGANIC ANALYSIS DATA SHEET

Lab Name: PEL Laboratories, Inc. Contract: Whiting Fld EPA Sample No. 0116SS1502
 Lab Code: PEL Case No. _____ SAS No: _____ SDG No.: 2108063
 Matrix: SOIL Lab Sample ID 210806305 Lab File ID 63-5.D
 Sample wt/vol: 33.5 Units: G Date Received: 08/10/01
 Concentrated Extract Volume: 1 Date Extracted: 08/10/01
 Level:(low/med) LOW Date Analyzed: 08/13/01 Time: 0138
 PercentSolids: 87 decanted : _____ Dilution Factor: 1
 Extraction: SONC Station ID 6SS15 0-2ft Method: 8310
 GPC Cleanup : (Y/N) N pH: _____
 Column: Vydac 201TP54 ID: 4.6 (mm)

CONCENTRATION UNITS: *ug/Kg*

CAS NO.	ANALYTE	RESULT	Q
50-32-8	Benzo(a)pyrene	11	U

PAH ORGANIC ANALYSIS DATA SHEET

Lab Name: PEL Laboratories, Inc. Contract: Whiting Fid EPA Sample No. 0116SB1507
 Lab Code: PEL Case No. _____ SAS No: _____ SDG No.: 2108063
 Matrix: SOIL Lab Sample ID 210806306 Lab File ID 63-6.D
 Sample wt/vol: 34:1 Units: G Date Received: 08/10/01
 Concentrated Extract Volume: 1 Date Extracted: 08/10/01
 Level:(low/med) LOW Date Analyzed: 08/13/01 Time: 0213
 PercentSolids: 86 decanted : _____ Dilution Factor: 1
 Extraction: SONC Station ID 6SB15 5-7ft Method: 8310
 GPC Cleanup : (Y/N) N pH: _____
 Column: Vydac 201TP54 ID: 4.6 (mm)

CONCENTRATION UNITS: ug/Kg

CAS NO.	ANALYTE	RESULT	Q
50-32-8	Benzo(a)pyrene	11	U

PAH ORGANIC ANALYSIS DATA SHEET

EPA Sample No.

0116SS1602

Lab Name: PEL Laboratories, Inc. Contract: Whiting Fid

Lab Code: PEL Case No. _____ SAS No: _____ SDG No.: 2108063

Matrix: SOIL Lab Sample ID 210806307 Lab File ID 63-7.D

Sample wt/vol: 33.7 Units: G Date Received: 08/10/01

Concentrated Extract Volume: 1 Date Extracted: 08/10/01

Level:(low/med) LOW Date Analyzed: 08/13/01 Time: 0322

PercentSolids: 87 decanted : _____ Dilution Factor: 1

Extraction: SONC Station ID 6SS16 0-2ft Method: 8310

GPC Cleanup : (Y/N) N pH: _____

Column: Vydac 201TP54 ID: 4.6 (mm)

CONCENTRATION UNITS: ug/Kg

CAS NO.	ANALYTE	RESULT	Q
50-32-8	Benzo(a)pyrene	11	U

PAH ORGANIC ANALYSIS DATA SHEET

EPA Sample No.

Lab Name: PEL Laboratories, Inc. Contract: Whiting Fld 0116SB1607
 Lab Code : PEL Case No. _____ SAS No: _____ SDG No.: 2108063
 Matrix: SOIL Lab Sample ID 210806308 Lab File ID 63-8.D
 Sample wt/vol: 34 Units: G Date Received: 08/10/01
 Concentrated Extract Volume: 1 Date Extracted: 08/10/01
 Level:(low/med) LOW Date Analyzed: 08/13/01 Time: 0357
 PercentSolids: 81 decanted : _____ Dilution Factor: 1
 Extraction: SONC Station ID 6SB16 5-7ft Method: 8310
 GPC Cleanup : (Y/N) N pH: _____
 Column: Vydac 201TP54 ID: 4.6 (mm)

CONCENTRATION UNITS: *ug/Kg*

CAS NO.	ANALYTE	RESULT	Q
50-32-8	Benzo(a)pyrene	12	U

PAH ORGANIC ANALYSIS DATA SHEET

Lab Name: PEL Laboratories, Inc. Contract: Whiting Fld EPA Sample No. 0116SB0307
 Lab Code: PEL Case No. _____ SAS No: _____ SDG No.: 2108063
 Matrix: SOIL Lab Sample ID 210806309 Lab File ID 63-9.D
 Sample wt/vol: 34.1 Units: G Date Received: 08/10/01
 Concentrated Extract Volume: 1 Date Extracted: 08/10/01
 Level:(low/med) LOW Date Analyzed: 08/13/01 Time: 0431
 PercentSolids: 85 decanted : _____ Dilution Factor: 1
 Extraction: SONC Station ID 6SB03 5-7ft Method: 8310
 GPC Cleanup : (Y/N) N pH: _____
 Column: Vydac 201TP54 ID: 4.6 (mm)

CONCENTRATION UNITS: ug/Kg

CAS NO.	ANALYTE	RESULT	Q
50-32-8	Benzo(a)pyrene	12	U

PAH ORGANIC ANALYSIS DATA SHEET

EPA Sample No.

0116SS2502

Lab Name: PEL Laboratories, Inc. Contract: Whiting Fid

Lab Code: PEL Case No. _____ SAS No: _____ SDG No.: 2108063

Matrix: SOIL Lab Sample ID 210806310 Lab File ID 63-10.D

Sample wt/vol: 33.8 Units: G Date Received: 08/10/01

Concentrated Extract Volume: 1 Date Extracted: 08/10/01

Level:(low/med) LOW Date Analyzed: 08/13/01 Time: 0506

PercentSolids: 89 decanted: _____ Dilution Factor: 1

Extraction: SONC Station ID 6SS25 0-2ft Method: 8310

GPC Cleanup : (Y/N) N pH: _____

Column: Vydac 201TP54 ID: 4.6 (mm)

CONCENTRATION UNITS: ug/Kg

CAS NO.	ANALYTE	RESULT	Q
50-32-8	Benzo(a)pyrene	11	U

PAH ORGANIC ANALYSIS DATA SHEET

Lab Name: PEL Laboratories, Inc. Contract: Whiting Fld EPA Sample No. 0116SB2607
 Lab Code: PEL Case No. _____ SAS No: _____ SDG No.: 2108063
 Matrix: SOIL Lab Sample ID 210806311 Lab File ID 63-11.D
 Sample wt/vol: 33.8 Units: G Date Received: 08/10/01
 Concentrated Extract Volume: 1 Date Extracted: 08/10/01
 Level:(low/med) LOW Date Analyzed: 08/13/01 Time: 0540
 PercentSolids: 86 decanted : _____ Dilution Factor: 1
 Extraction: SONC Station ID 6SB26 5-7ft Method: 8310
 GPC Cleanup : (Y/N) N pH: _____
 Column: Vydac 201TP54 ID: 4.6 (mm)

CONCENTRATION UNITS: *ug/Kg*

CAS NO.	ANALYTE	RESULT	Q
50-32-8	Benzo(a)pyrene	11	U

PAH ORGANIC ANALYSIS DATA SHEET

Lab Name: PEL Laboratories, Inc. Contract: Whiting Fld EPA Sample No. 0116PreEB01
 Lab Code: PEL Case No. _____ SAS No: _____ SDG No.: 2108063
 Matrix: WATER Lab Sample ID 210806314 Lab File ID 63-14.D
 Sample wt/vol: 980 Units: ML Date Received: 08/10/01
 Concentrated Extract Volume: 1 Date Extracted: 08/10/01
 Level:(low/med) LOW Date Analyzed: 08/12/01 Time: 2326
 PercentSolids: 0 decanted: _____ Dilution Factor: 1
 Extraction: SEPF Station ID Pre-EB Method: 8310
 GPC Cleanup: (Y/N) N pH: _____
 Column: Vydac 201TP54 ID: 4.6 (mm)

CONCENTRATION UNITS: *ug/L*

CAS NO.	ANALYTE	RESULT	Q
50-32-8	Benzo(a)pyrene	0.2	U

PAH ORGANIC ANALYSIS DATA SHEET

Lab Name: PEL Laboratories, Inc. Contract: Whiting Fld EPA Sample No. 0116PostEB01
 Lab Code: PEL Case No. _____ SAS No: _____ SDG No.: 2108063
 Matrix: WATER Lab Sample ID 210806315 Lab File ID 63-15.D
 Sample wt/vol: 960 Units: ML Date Received: 08/10/01
 Concentrated Extract Volume: 1 Date Extracted: 08/10/01
 Level:(low/med) LOW Date Analyzed: 08/13/01 Time: 0001
 PercentSolids: 0 decanted: _____ Dilution Factor: 1
 Extraction: SEPF Station ID Post-EB Method: 8310
 GPC Cleanup: (Y/N) N pH: _____
 Column: Vydac 201TP54 ID: 4.6 (mm)

CONCENTRATION UNITS: ug/L

CAS NO.	ANALYTE	RESULT	Q
50-32-8	Benzo(a)pyrene	0.21	U

Sample Data

FL-PRO ORGANIC ANALYSIS DATA SHEET

Lab Name: PEL Laboratories, Inc. Contract: Whiting Fld EPA Sample No. 0116SS3602
 Lab Code: PEL Case No. _____ SAS No: _____ SDG No.: 2108063
 Matrix: SOIL Lab Sample ID 210806316 Lab File ID 063-16.D
 Sample wt/vol: 25.04 Units: G Date Received: 08/10/01
 Concentrated Extract Volume: 2 Date Extracted: 08/10/01
 Level:(low/med) LOW Date Analyzed: 08/12/01 Time: 1300
 PercentSolids: 90 decanted: _____ Dilution Factor: 1
 Extraction: SONC Station ID 6SS36 0-2ft Method: FL-PRO
 GPC Cleanup : (Y/N) N pH: _____
 Column: RTX-5 ID: 0.53 (mm)

CONCENTRATION UNITS: *mg/Kg*

CAS NO.	ANALYTE	RESULT	Q
5289290-40-0	Total Petroleum Hydrocarbons	10	U

FL-PRO ORGANIC ANALYSIS DATA SHEET

EPA Sample No.

Lab Name: PEL Laboratories, Inc. Contract: Whiting Fld 0116SS3702

Lab Code: PEL Case No. _____ SAS No: _____ SDG No.: 2108063

Matrix: SOIL Lab Sample ID 210806317 Lab File ID 063-17.D

Sample wt/vol: 25.03 Units: G Date Received: 08/10/01

Concentrated Extract Volume: 2 Date Extracted: 08/10/01

Level:(low/med) LOW Date Analyzed: 08/12/01 Time: 1334

PercentSolids: 89 decanted : _____ Dilution Factor: 1

Extraction: SONC Station ID 6SS37 0-2ft Method: FL-PRO

GPC Cleanup : (Y/N) N pH: _____

Column: RTX-5 ID: 0.53 (mm)

CONCENTRATION UNITS: *mg/Kg*

CAS NO.	ANALYTE	RESULT	Q
5289290-40-0	Total Petroleum Hydrocarbons	10	U

FL-PRO ORGANIC ANALYSIS DATA SHEET

Lab Name: PEL Laboratories, Inc. Contract: Whiting Fld EPA Sample No. 0116SS3702R1
 Lab Code : PEL Case No. _____ SAS No: _____ SDG No.: 2108063
 Matrix: SOIL Lab Sample ID 210806317R1 Lab File ID 063-17.D
 Sample wt/vol: 25.03 Units: G Date Received: 08/10/01
 Concentrated Extract Volume: 2 Date Extracted: 08/10/01
 Level:(low/med) LOW Date Analyzed: 08/13/01 Time: 1227
 PercentSolids: 89 decanted : _____ Dilution Factor: 1
 Extraction: SONC Station ID 6SS37 0-2ft Method: FL-PRO
 GPC Cleanup : (Y/N) N pH: _____
 Column: RTX-5 ID: 0.53 (mm)

CONCENTRATION UNITS: *mg/Kg*

CAS NO.	ANALYTE	RESULT	Q
5289290-40-0	Total Petroleum Hydrocarbons	10	U

FL-PRO ORGANIC ANALYSIS DATA SHEET

Lab Name: PEL Laboratories, Inc. Contract: Whiting Fld EPA Sample No. 0116SS3802
 Lab Code: PEL Case No. _____ SAS No: _____ SDG No.: 2108063
 Matrix: SOIL Lab Sample ID 210806318 Lab File ID 063-18.D
 Sample wt/vol: 25.07 Units: G Date Received: 08/10/01
 Concentrated Extract Volume: 2 Date Extracted: 08/10/01
 Level:(low/med) LOW Date Analyzed: 08/12/01 Time: 1408
 PercentSolids: 89 decanted: _____ Dilution Factor: 1
 Extraction: SONC Station ID 6SS38 0-2ft Method: FL-PRO
 GPC Cleanup: (Y/N) N pH: _____
 Column: RTX-5 ID: 0.53 (mm)

CONCENTRATION UNITS: mg/Kg

CAS NO.	ANALYTE	RESULT	Q
5289290-40-0	Total Petroleum Hydrocarbons	10	U

FL-PRO ORGANIC ANALYSIS DATA SHEET

Lab Name: PEL Laboratories, Inc. Contract: Whiting Fid EPA Sample No. 0116SS3902
 Lab Code: PEL Case No. _____ SAS No: _____ SDG No.: 2108063
 Matrix: SOIL Lab Sample ID 210806319 Lab File ID 063-19.D
 Sample wt/vol: 25.05 Units: G Date Received: 08/10/01
 Concentrated Extract Volume: 2 Date Extracted: 08/10/01
 Level:(low/med) LOW Date Analyzed: 08/12/01 Time: 1442
 PercentSolids: 89 decanted: _____ Dilution Factor: 1
 Extraction: SONC Station ID 6SS39 0-2ft Method: FL-PRO
 GPC Cleanup : (Y/N) N pH: _____
 Column: RTX-5 ID: 0.53 (mm)

CONCENTRATION UNITS: *mg/Kg*

CAS NO.	ANALYTE	RESULT	Q
5289290-40-0	Total Petroleum Hydrocarbons	10	U

FL-PRO ORGANIC ANALYSIS DATA SHEET

Lab Name: PEL Laboratories, Inc. Contract: Whiting Fld EPA Sample No. 0116SS2702
 Lab Code: PEL Case No. _____ SAS No: _____ SDG No.: 2108063
 Matrix: SOIL Lab Sample ID 210806320 Lab File ID 063-20.D
 Sample wt/vol: 25 Units: G Date Received: 08/10/01
 Concentrated Extract Volume: 2 Date Extracted: 08/10/01
 Level:(low/med) LOW Date Analyzed: 08/12/01 Time: 1517
 PercentSolids: 90 decanted: _____ Dilution Factor: 1
 Extraction: SONC Station ID 6SS27 0-2ft Method: FL-PRO
 GPC Cleanup : (Y/N) N pH: _____
 Column: RTX-5 ID: 0.53 (mm)

CONCENTRATION UNITS: *mg/Kg*

CAS NO.	ANALYTE	RESULT	Q
5289290-40-0	Total Petroleum Hydrocarbons	10	U

FL-PRO ORGANIC ANALYSIS DATA SHEET

Lab Name: PEL Laboratories, Inc. Contract: Whiting Fld EPA Sample No. 0116PreEB02
 Lab Code: PEL Case No. _____ SAS No: _____ SDG No.: 2108063
 Matrix: WATER Lab Sample ID 210806323 Lab File ID 063-23.D
 Sample wt/vol: 990 Units: ML Date Received: 08/10/01
 Concentrated Extract Volume: 2 Date Extracted: 08/10/01
 Level:(low/med) LOW Date Analyzed: 08/11/01 Time: 1931
 PercentSolids: 0 decanted : _____ Dilution Factor: 1
 Extraction: SEPF Station ID Pre-EB Method: FL-PRO
 GPC Cleanup : (Y/N) N pH: _____
 Column: RTX-5 ID: 0.53 (mm)

CONCENTRATION UNITS: *mg/L*

CAS NO.	ANALYTE	RESULT	Q
5289290-40-0	Total Petroleum Hydrocarbons	2	U

FL-PRO ORGANIC ANALYSIS DATA SHEET

Lab Name: PEL Laboratories, Inc. Contract: Whiting Fld EPA Sample No. 0116PostEB02
 Lab Code: PEL Case No. SAS No: SDG No.: 2108063
 Matrix: WATER Lab Sample ID 210806324 Lab File ID 063-24.D
 Sample wt/vol: 990 Units: ML Date Received: 08/10/01
 Concentrated Extract Volume: 2 Date Extracted: 08/10/01
 Level:(low/med) LOW Date Analyzed: 08/11/01 Time: 2005
 PercentSolids: 0 decanted: Dilution Factor: 1
 Extraction: SEPF Station ID Post-EB Method: FL-PRO
 GPC Cleanup : (Y/N) N pH:
 Column: RTX-5 ID: 0.53 (mm)

CONCENTRATION UNITS: *mg/L*

CAS NO.	ANALYTE	RESULT	Q
5289290-40-0	Total Petroleum Hydrocarbons	2	U

Chain of Custody Documentation

CHAIN-OF-CUSTODY RECORD

COC#

151168-010809-01

2108-063 MK

PROJECT NAME: AS Whiting Field	PROJECT NUMBER: 151168	LAB NAME AND CONTACT: PEL Laboratories, 4420 Pendola Point Rd. Tampa, FL 33619	FAX AND MAIL REPORTS/EDD TO: RECIPIENT 1 (Name and Company) Amy Twitty	RECIPIENT 1 (Address, Tel No., and Fax No.): 1766 Sea Lark Lane, Navarre, FL 32566 850-939-8300 (phone), 850-939-0035 (fax)
PROJECT PHASE/SITE/TASK: Site 6	CTO OR DO NUMBER: CTO-0011	LAB PO NUMBER: PO#3234	FAX AND MAIL REPORTS/EDD TO: RECIPIENT 2 (Name and Company) Jeff Wilmoth, CH2M Hill, Constructors, Inc.	RECIPIENT 2 (Address, Tel No., and Fax No.): 115 Perimeter Center Place, NE, Suite 700, Atlanta, Ga. 30346 Phone=770-604-9182 Fax=770.604.9181
PROJECT CONTACT: Amy Twitty	PROJECT TEL NO AND FAX NO: 850-989-8300 ext 17	LAB TEL NO AND FAX NO: (813) 247-2805 phone (813) 248-1537 fax	FAX AND MAIL REPORTS/EDD TO: RECIPIENT 3 (Name and Company) Lisa Schwan	RECIPIENT 3 (Address, Tel No., and Fax No.): 115 Perimeter Center Place, NE, Suite 700, Atlanta, Ga. 30346 Phone=770-604-9182 Fax=770.604.9181

ANALYSES REQUIRED (Include Method Numbers)

ITEM	SAMPLE IDENTIFIER	SAMPLE DESCRIPTION/LOCATION	MATRIX (see codes on SOP)	DATE COLLECTED	TIME COLLECTED	DATA PKG LEVEL (see codes on SOP)	TAT (calendar days)	SW810 (Benz-A-Pyrene Only)											SAMPLE TYPE (see codes on SOP)	COMMENTS/SCREENING READINGS	LAB ID (for lab's use)
1	011-6SS1302-0809-01	6SS13 0-2'	S	08/09/01	12:50	III	2	1											N	48 hr TAT	01
2	011-6SB1307-0809-01	6SB13 5-7'	S	08/09/01	13:15	III	2	1											N	48 hr TAT	02
3	011-6SB1308-0809-01	6SB13 7-8'	S	08/09/01	13:17	III	H	1											N	HOLD	
4	011-6SB1309-0809-01	6SB13 8-9'	S	08/09/01	13:20	III	H	1											N	HOLD	
5	011-6SS1402-0809-01	6SS14 0-2'	S	08/09/01	14:45	III	2	1											N	48 hr TAT	03
6	011-6SB1407-0809-01	6SB14 5-7'	S	08/09/01	14:58	III	2	1											N	48 hr TAT	04
7	011-6SB1408-0809-01	6SB14 7-8'	S	08/09/01	15:03	III	H	1											N	HOLD	
8	011-6SB1409-0809-01	6SB14 8-9'	S	08/09/01	15:08	III	H	1											N	HOLD	
9	011-6SS1502-0809-01	6SS15 0-2'	S	08/09/01	13:30	III	2	1											N	48 hr TAT	05
10	011-6SB1507-0809-01	6SB15 5-7'	S	08/09/01	13:55	III	2	1											N	48 hr TAT	06

SAMPLER(S) AND COMPANY: (please print) Scott Dunbar, CH2M Hill Constructors, Inc.	COURIER AND SHIPPING NUMBER: Fed-Ex. Air Bill No.830374796228 & 830374796217	SAMPLES TEMPERATURE AND CONDITION UPON RECEIPT (for lab's use): Temp upon rec 40C pH < 2 (Pro's)
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RELINQUISHED BY	DATE	TIME	RECEIVED BY	DATE	TIME
Printed Name and Signature: Scott Dunbar <i>Scott Dunbar</i>	8-9-01	1900	Printed Name and Signature: Fed-Ex		
Printed Name and Signature: Fed Ex			Printed Name and Signature: Michael A. Kuley <i>Michael A. Kuley</i>	8/10/01	08:00



115 Perimeter Center Place, Suite 700
 Atlanta, GA 30346-1278
 Tel No: (770) 604-9182
 Fax No: (770) 604-9282

CHAIN-OF JUSTODY RECORD

CO 1ER:
 151168-010809-04

2108-063

PROJECT NAME: NAS Whiting Field	PROJECT NUMBER: 151168	LAB NAME AND CONTACT: PEL Laboratories, 4420 Pendola Point Rd. Tampa, FL 33619	FAX AND MAIL REPORTS/EDD TO: RECIPIENT 1 (Name and Company) Amy Twitty	RECIPIENT 1 (Address, Tel No., and Fax No.): 1766 Sea Lark Lane, Navarre, FL 32566 850-939-8300 (phone), 850-939-0035 (fax)
PROJECT PHASE/SITE/TASK: Site 6	CTO OR DO NUMBER: CTO-0011	LAB PO NUMBER: PO#3234	FAX AND MAIL REPORTS/EDD TO: RECIPIENT 2 (Name and Company) Jeff Wilmoth, CH2M Hill, Constructors, Inc.	RECIPIENT 2 (Address, Tel No., and Fax No.): 115 Perimeter Center Place, NE, Suite 700, Atlanta, Ga. 30346 Phone=770-604-9182 Fax=770.604.9181
PROJECT CONTACT: Amy Twitty	PROJECT TEL NO AND FAX NO: 850-989-8300 ext 17	LAB TEL NO AND FAX NO: (813) 247-2805 phone (813) 248-1537 fax	FAX AND MAIL REPORTS/EDD TO: RECIPIENT 3 (Name and Company) Lisa Schwan	RECIPIENT 3 (Address, Tel No., and Fax No.): 115 Perimeter Center Place, NE, Suite 700, Atlanta, Ga. 30346 Phone=770-604-9182 Fax=770.604.9181

ITEM	SAMPLE IDENTIFIER	SAMPLE DESCRIPTION/LOCATION	MATRIX (see codes on SOP)	DATE COLLECTED	TIME COLLECTED	DATA PKG LEVEL (see codes on SOP)	TAT (calendar days)	FL-PRO (TRPH)	ANALYSES REQUIRED (Include Method Numbers)										SAMPLE TYPE (see codes on SOP)	COMMENTS/ SCREENING READINGS	LAB ID (for lab's use)								
									1	2	3	4	5	6	7	8	9	10				11	12	13	14	15	16	17	18
1	011-6SS3602-0809-01	6SS36 0-2'	S	08/09/01	16:45	III	2	1																	N	48 hr TAT	16		
2	011-6SS3702-0809-01	6SS37 0-2'	S	08/09/01	16:55	III	2	1																		N	48 hr TAT	17	
3	011-6SS3802-0809-01	6SS38 0-2'	S	08/09/01	16:35	III	2	1																		N	48 hr TAT	18	
4	011-6SS3902-0809-01	6SS39 0-2'	S	08/09/01	16:40	III	2	1																		N	48 hr TAT	19	
5	011-6SS2702-0809-01	6SS27 0-2'	S	08/09/01	16:35	III	2	1																		FD	48 hr TAT	20	
6	011-6SS3802-MS 011-6SS5402-0809-01	6SS54/MS	S	08/09/01	16:35	III	2	1																		MS	48 hr TAT	21	
7	011-6SS3902-SD 011-6SS5502-0809-01	6SS55/MSD	S	08/09/01	16:35	III	2	1																		SD	48 hr TAT	22	
8	011-6-Pre-EB02-0809-01	Pre-EB	W	08/09/01	12:36	III	2	1																		EB	48 hr TAT	23	
9	011-6-Post-EB02-0809-01	Post-EB	W	08/09/01	17:00	III	2	1																		EB	48 hr TAT	24	
10																													

SAMPLER(S) AND COMPANY: (please print) Scott Dunbar, CH2M Hill Constructors, Inc.	COURIER AND SHIPPING NUMBER: Fed-Ex Air Bill No.830374796228 & 830374796217	SAMPLES TEMPERATURE AND CONDITION UPON RECEIPT (for lab's use):
--	--	---

RELINQUISHED BY	DATE	TIME	RECEIVED BY	DATE	TIME
Printed Name and Signature: Scott Dunbar	8-9-01	1900	Printed Name and Signature: Fed-Ex		
Printed Name and Signature: Fed Ex			Printed Name and Signature: Michael A. Kuley	8/10/01	08:00

PEL LAB SAMPLE LOG IN SHEET

Client Information

Project # 2108-063

Client: <u>CHAM Hill</u>	Date Recd: <u>8/9/01</u>
Project: <u>NAS Whiting Field</u>	Due Date: _____
Log In Tech: <u>zyk</u>	Recd Via: Client Crosstown <u>FedEx</u>
Comments:	Other:

SAMPLE VERIFICATION

	YES	NO		YES	NO
Samples/Cooler Secure	✓		All Smpls. on COC Accounted For	✓	
Samples Received on Ice	✓		All Samples Received Intact	✓	
Temperature WNL	✓		Sample Vol. Sufficient For Analysis	✓	
Temperature of Samples (°C)	4		Samples Received W/ Hold Time	✓	
pH verified	✓		Are All Samples to be Analyzed	✓	
pH WNL	✓		Correct Sample Containers	✓	
Soil Origin Domestic	✓		Soil Origin Foreign		✓

COC VERIFICATION

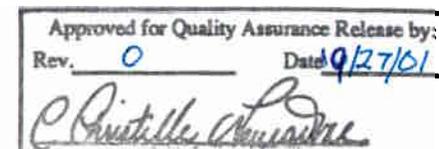
	YES	NO		YES	NO
Site Location/Project on COC	✓		Samplers Initials on COC	✓	
Client Project # on COC	✓		Sample Time/Date Indicated	✓	
Project Mgr. Indicated on COC	✓		TAT requested: STND <u>RUSH</u>		
COC Relinquished/Dated by Client	✓		Client Requests Verbal Results		✓
COC Received/Dated by PEL	✓		Client Requests FAX Results		✓
			* PEL to Conduct All Analysis	✓	
			* Specific Subcontract Indicated		

* SUBCONTRACTED ANALYSIS

Subcontractor:	Subcontractor:	Subcontractor:
Due Date:	Due Date:	Due Date:
Parameter:	Parameter:	Parameter:
Via: Crosstown FedEx	Via: Crosstown FedEx	Via: Crosstown FedEx
Tracking #:	Tracking #:	Tracking #:

ATTACHMENT B
Data Quality Evaluation

Table 1-1 Samples For Data Validation Review
 NAS Whiting Field (CTO-11)
 Sites ~~6, 16 & 38~~ 1012/010Y
 PEL Laboratories Sample Delivery Group 2108063
 August 2001 Sampling



SAMPLE I.D.	LABORATORY I.D.	DATE COLLECTED	MATRIX	ANALYSES PERFORMED		
				PAH	PEST	TRPH
011-6SB-1302-0809	210806301	8/9/2001	SOIL	X		
011-6SB1307-0809	210806302	8/9/2001	SOIL	X		
011-6SB-1402-0809	210806303	8/9/2001	SOIL	X		
011-6SB1407-0809	210806304	8/9/2001	SOIL	X		
011-6SS-1502-0809	210806305	8/9/2001	SOIL	X		
011-6SB1507-0809	210806306	8/9/2001	SOIL	X		
011-6SS-1602-0809	210806307	8/9/2001	SOIL	X		
011-6SB1607-0809	210806308	8/9/2001	SOIL	X		
011-6SB0307-0809	210806309	8/9/2001	SOIL	X		
011-6SS2502-0809	210806310	8/9/2001	SOIL	X		
011-6SB2607-0809	210806311	8/9/2001	SOIL	X		
011-6-PRE-EB01-0809	210806314	8/9/2001	EQUIPMENT BLANK	X		
011-6-POST-EB01-0809	210806315	8/9/2001	EQUIPMENT BLANK	X		
011-6SS-3602-0809	210806316	8/9/2001	SOIL			X
011-6SS-3702-0809	210806317	8/9/2001	SOIL			X
011-6SS-3802-0809	210806318	8/9/2001	SOIL			X
011-6SS-3902-0809	210806319	8/9/2001	SOIL			X
011-6SS2702-0809	210806320	8/9/2001	SOIL			X
011-6-PRE-EBO2-0809	210806323	8/9/2001	EQUIPMENT BLANK			X
011-6-POST-EB02-0809	210806324	8/9/2001	EQUIPMENT BLANK			X

PAH Polynuclear Aromatic Hydrocarbons
 PEST Pesticide Compounds
 TRPH Total Petroleum Hydrocarbons

Project: NAS Whiting Field (CTO-11)
Laboratory: PEL Laboratories, Inc., Tampa, Florida
Sample Delivery Group: 2108063
Matrix: Solid and Aqueous
Report Date: 9/13/2001

This analytical quality assurance report is based upon a review of analytical data generated for soil samples and associated equipment blanks. The sample locations, laboratory identification numbers, sample collection dates, sample matrix, and analyses performed are presented in Table 1.

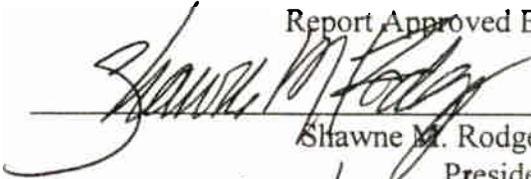
The samples were analyzed for polynuclear aromatic hydrocarbons and total petroleum hydrocarbons. The sample analyses were performed in accordance with the procedures outlined in "Test Methods for Evaluating Solid Wastes", SW-846, third edition, Promulgated Updates II, IIA, and III, June 1997.

All sample analyses have undergone an analytical quality assurance review to ensure adherence to the required protocols. Results have been validated or qualified according to general guidance provided in the Region IV modifications to "Laboratory Data Validation Functional Guidelines for Validating Organic Analyses", USEPA 9/94. This document specifies procedures for validating data generated for CLP analyses. Therefore, the quality control requirements specified in the methods and associated acceptance criteria were also used to evaluate the non-CLP data. The parameters presented on the following page were evaluated.

-
- X • Data Completeness
 - X • Chain of Custody Documentation
 - X • Holding Times
 - X • Instrument Performance
 - X • Summaries of Initial and Continuing Calibrations
 - X • Summaries of Laboratory and Field Blank Analysis Results
 - X • Summaries of Surrogate Compound Recoveries
 - X • Summaries of Matrix Spike/Matrix Spike Duplicate Recoveries and
Reproducibility
 - Field Duplicate Analysis Results
 - X • Summaries of Laboratory Control Sample Results
 - X • Summaries of Internal Standard Performance
 - Qualitative Identification
 - X • Reporting Limits
-

X - Denotes parameter evaluated.

It is recommended that the data only be used according to the qualifiers presented, and discussed in this report. All other data should be considered qualitatively and quantitatively valid as reported by the laboratory, based on the items evaluated.

Report Approved By:

Shawne M. Rodgers
President
9/13/2001
Date

1.0 DATA COMPLETENESS

2.0 CHAIN OF CUSTODY DOCUMENTATION

All chain of custody documentation was complete.

3.0 HOLDING TIMES

All holding times were met.

4.0 INITIAL AND CONTINUING CALIBRATIONS

All criteria were met. No qualifiers were applied.

5.0 LABORATORY AND FIELD BLANK ANALYSIS RESULTS

All criteria were met. No qualifiers were applied.

6.0 SURROGATE COMPOUNDS

All criteria were met. No qualifiers were applied.

7.0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERIES AND REPRODUCIBILITY

All criteria were met. No qualifiers were applied.

8.0 FIELD DUPLICATE RESULTS

All criteria were met. No qualifiers were applied.

9.0 *LABORATORY CONTROL SAMPLE RESULTS*

All criteria were met. No qualifiers were applied.

10.0 *INTERNAL STANDARD PERFORMANCE*

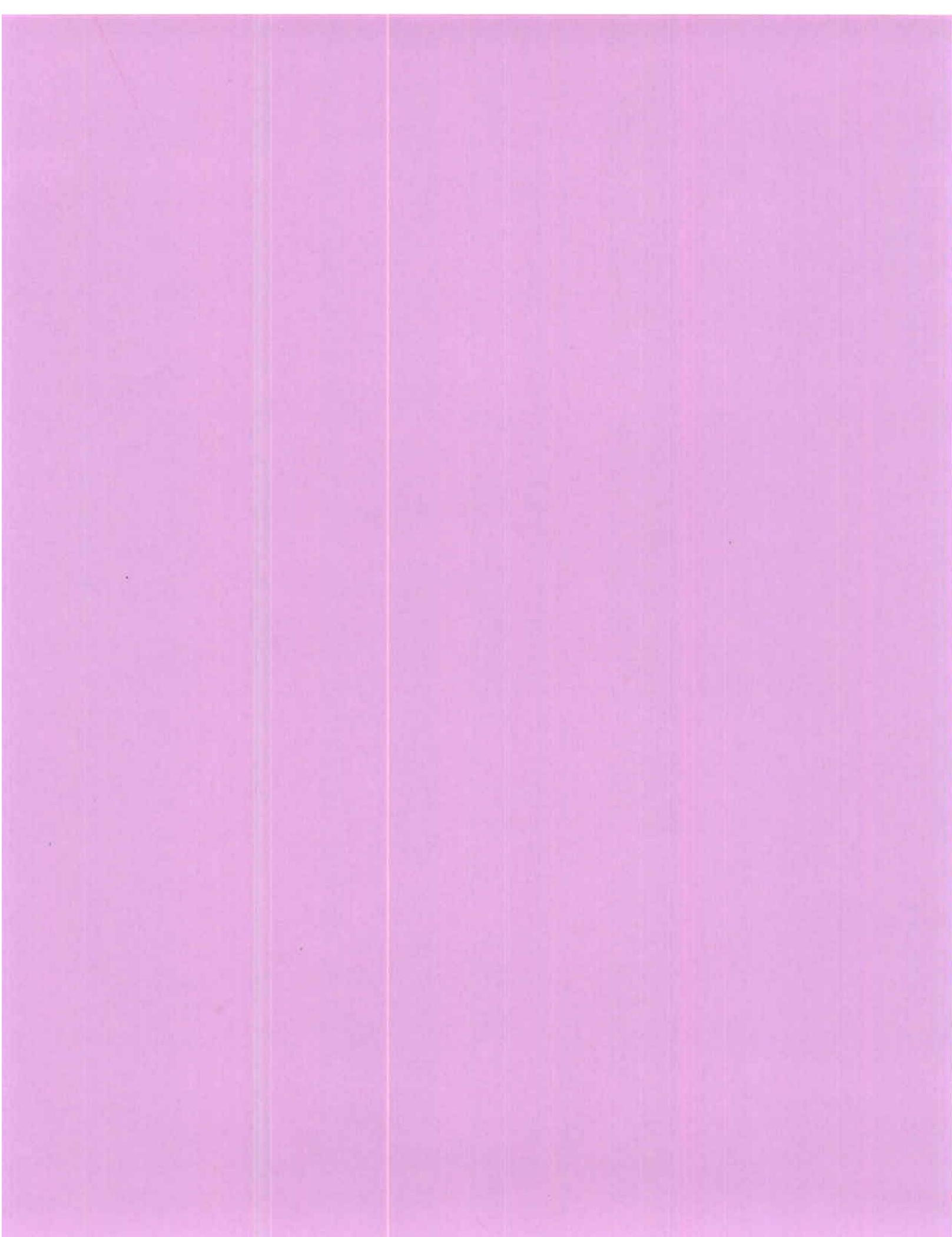
All criteria were met. No qualifiers were applied.

11.0 *REPORTING LIMITS*

As required by USEPA protocol, all compounds, which were qualitatively identified at concentrations below their respective Quantitation Limits (QLs), have been marked with "J" qualifiers to indicate that they are quantitative estimates.

METHODOLOGY REFERENCES

Analysis	Reference
Polynuclear Aromatic Hydrocarbons	Method 8310, "Test Methods for Evaluating Solid Wastes", SW-846, third edition, Promulgated Updates II, IIA, and III, June 1997
Total Petroleum Hydrocarbons	Method FL PRO



PAH ORGANIC ANALYSIS DATA SHEET

EPA Sample No.

Lab Name: PEL Laboratories, Inc. Contract: Whiting Fld 0116SS1302
 Lab Code: PEL Case No. _____ SAS No: _____ SDG No.: 2108063
 Matrix: SOIL Lab Sample ID 210806301 Lab File ID 63-1.D
 Sample wt/vol: 33.4 Units: G Date Received: 08/10/01
 Concentrated Extract Volume: 1 Date Extracted: 08/10/01
 Level:(low/med) LOW Date Analyzed: 08/12/01 Time: 2320
 PercentSolids: 86 decanted: _____ Dilution Factor: 1
 Extraction: SONC Station ID 6SS13 0-2ft Method: 8310
 GPC Cleanup : (Y/N) N pH: _____
 Column: Vydac 201TP54 ID: 4.6 (mm)

CONCENTRATION UNITS: *ug/Kg*

CAS NO.	ANALYTE	RESULT	Q
50-32-8	Benzo(a)pyrene	12	U

SMH
 9/13/2007

PAH ORGANIC ANALYSIS DATA SHEET

Lab Name: PEL Laboratories, Inc. Contract: Whiting Fld EPA Sample No. 0116SB1307
 Lab Code: PEL Case No. _____ SAS No: _____ SDG No.: 2108063
 Matrix: SOIL Lab Sample ID 210806302 Lab File ID 63-2.D
 Sample wt/vol: 33.5 Units: G Date Received: 08/10/01
 Concentrated Extract Volume: 1 Date Extracted: 08/10/01
 Level:(low/med) LOW Date Analyzed: 08/12/01 Time: 2354
 PercentSolids: 84 decanted: _____ Dilution Factor: 1
 Extraction: SONC Station ID 6SB13 5-7ft Method: 8310
 GPC Cleanup : (Y/N) N pH: _____
 Column: Vydac 201TP54 ID: 4.6 (mm)

CONCENTRATION UNITS: ug/Kg

CAS NO.	ANALYTE	RESULT	Q
50-32-8	Benzo(a)pyrene	12	U

SMM
 9/12/01
 10

PAH ORGANIC ANALYSIS DATA SHEET

EPA Sample No.

Lab Name: PEL Laboratories, Inc. Contract: Whiting Fid 0116SS1402

Lab Code: PEL Case No. _____ SAS No: _____ SDG No.: 2108063

Matrix: SOIL Lab Sample ID 210806303 Lab File ID 63-3.D

Sample wt/vol: 33.1 Units: G Date Received: 08/10/01

Concentrated Extract Volume: 1 Date Extracted: 08/10/01

Level:(low/med) LOW Date Analyzed: 08/13/01 Time: 0029

PercentSolids: 88 decanted : _____ Dilution Factor: 1

Extraction: SONC Station ID 6SS14 0-2ft Method: 8310

GPC Cleanup : (Y/N) N pH: _____

Column: Vydac 201TP54 ID: 4.6 (mm)

CONCENTRATION UNITS: ug/Kg

CAS NO.	ANALYTE	RESULT	Q
50-32-8	Benzo(a)pyrene	11	U

*SMK
9/12/2001*

PAH ORGANIC ANALYSIS DATA SHEET

EPA Sample No.

0116SB1407

Lab Name: PEL Laboratories, Inc. Contract: Whiting Fld
 Lab Code: PEL Case No. _____ SAS No: _____ SDG No.: 2108063
 Matrix: SOIL Lab Sample ID 210806304 Lab File ID 63-4.D
 Sample wt/vol: 33.4 Units: G Date Received: 08/10/01
 Concentrated Extract Volume: 1 Date Extracted: 08/10/01
 Level:(low/med) LOW Date Analyzed: 08/13/01 Time: 0104
 PercentSolids: 86 decanted: _____ Dilution Factor: 1
 Extraction: SONC Station ID 6SB14 5-7ft Method: 8310
 GPC Cleanup : (Y/N) N pH: _____
 Column: Vydac 201TP54 ID: 4.6 (mm)

CONCENTRATION UNITS: ug/Kg

CAS NO.	ANALYTE	RESULT	Q
50-32-8	Benzo(a)pyrene	12	U

SMK
9/12/01

PAH ORGANIC ANALYSIS DATA SHEET

EPA Sample No.

Lab Name: PEL Laboratories, Inc. Contract: Whiting Fld 0116SS1502
 Lab Code: PEL Case No. _____ SAS No: _____ SDG No.: 2108063
 Matrix: SOIL Lab Sample ID 210806305 Lab File ID 63-5.D
 Sample wt/vol: 33.5 Units: G Date Received: 08/10/01
 Concentrated Extract Volume: 1 Date Extracted: 08/10/01
 Level:(low/med) LOW Date Analyzed: 08/13/01 Time: 0138
 PercentSolids: 87 decanted : _____ Dilution Factor: 1
 Extraction: SONC Station ID 6SS15 0-2ft Method: 8310
 GPC Cleanup : (Y/N) N pH: _____
 Column: Vydac 201TP54 ID: 4.6 (mm)

CONCENTRATION UNITS: ug/Kg

CAS NO.	ANALYTE	RESULT	Q
50-32-8	Benzo(a)pyrene	11	U

SMK
9/12/2001

PAH ORGANIC ANALYSIS DATA SHEET

EPA Sample No.

Lab Name: PEL Laboratories, Inc. Contract: Whiting Fld 0116SB1507
 Lab Code: PEL Case No. _____ SAS No: _____ SDG No.: 2108063
 Matrix: SOIL Lab Sample ID 210806306 Lab File ID 63-6.D
 Sample wt/vol: 34.1 Units: G Date Received: 08/10/01
 Concentrated Extract Volume: 1 Date Extracted: 08/10/01
 Level:(low/med) LOW Date Analyzed: 08/13/01 Time: 0213
 PercentSolids: 86 decanted: _____ Dilution Factor: 1
 Extraction: SONC Station ID 6SB15 5-7ft Method: 8310
 GPC Cleanup : (Y/N) N pH: _____
 Column: Vydac 201TP54 ID: 4.6 (mm)

CONCENTRATION UNITS: ug/Kg

CAS NO.	ANALYTE	RESULT	Q
50-32-8	Benzo(a)pyrene	11	U

SMK
9/12/2001

PAH ORGANIC ANALYSIS DATA SHEET

Lab Name: PEL Laboratories, Inc. Contract: Whiting Fld EPA Sample No. 0116SS1602
 Lab Code: PEL Case No. _____ SAS No: _____ SDG No.: 2108063
 Matrix: SOIL Lab Sample ID 210806307 Lab File ID 63-7.D
 Sample wt/vol: 33.7 Units: G Date Received: 08/10/01
 Concentrated Extract Volume: 1 Date Extracted: 08/10/01
 Level:(low/med) LOW Date Analyzed: 08/13/01 Time: 0322
 PercentSolids: 87 decanted: _____ Dilution Factor: 1
 Extraction: SONC Station ID 6SS16 0-2ft Method: 8310
 GPC Cleanup : (Y/N) N pH: _____
 Column: Vydac 201TP54 ID: 4.6 (mm)

CONCENTRATION UNITS: ug/Kg

CAS NO.	ANALYTE	RESULT	Q
50-32-8	Benzo(a)pyrene	11	U

SPAN
 9/12/2001

PAH ORGANIC ANALYSIS DATA SHEET

EPA Sample No.

Lab Name: PEL Laboratories, Inc. Contract: Whiting Fld 0116SB1607
 Lab Code: PEL Case No. _____ SAS No: _____ SDG No.: 2108063
 Matrix: SOIL Lab Sample ID 210806308 Lab File ID 63-8.D
 Sample wt/vol: 34 Units: G Date Received: 08/10/01
 Concentrated Extract Volume: 1 Date Extracted: 08/10/01
 Level:(low/med) LOW Date Analyzed: 08/13/01 Time: 0357
 PercentSolids: 81 decanted : _____ Dilution Factor: 1
 Extraction: SONC Station ID 6SB16 5-7ft Method: 8310
 GPC Cleanup : (Y/N) N pH: _____
 Column: Vydac 201TP54 ID: 4.6 (mm)

CONCENTRATION UNITS: ug/Kg

CAS NO.	ANALYTE	RESULT	Q
50-32-8	Benzo(a)pyrene	12	U

SMK
9/12/01

PAH ORGANIC ANALYSIS DATA SHEET

EPA Sample No.

0116SB0307

Lab Name: PEL Laboratories, Inc.

Contract: Whiting Fid

Lab Code: PEL Case No. _____

SAS No: _____ SDG No.: 2108063

Matrix: SOIL

Lab Sample ID 210806309 Lab File ID 63-9.D

Sample wt/vol: 34.1 Units: G ✓

Date Received: 08/10/01

Concentrated Extract Volume: 1

Date Extracted: 08/10/01

Level:(low/med) LOW

Date Analyzed: 08/13/01 Time: 0431

PercentSolids: 85 decanted : _____

Dilution Factor: 1

Extraction: SONC

Station ID 6SB03 5-7ft Method: 8310

GPC Cleanup : (Y/N) N pH: _____

Column: Vydac 201TP54 ID: 4.6 (mm)

CONCENTRATION UNITS: ug/Kg

CAS NO.	ANALYTE	RESULT	Q
50-32-8	Benzo(a)pyrene	12	U

*SMK
9/12/01*

PAH ORGANIC ANALYSIS DATA SHEET

Lab Name: PEL Laboratories, Inc. Contract: Whiting Fld EPA Sample No. 0116SS2502
 Lab Code: PEL Case No. _____ SAS No: _____ SDG No.: 2108063
 Matrix: SOIL Lab Sample ID 210806310 Lab File ID 63-10.D
 Sample wt/vol: 33.8 Units: G Date Received: 08/10/01
 Concentrated Extract Volume: 1 Date Extracted: 08/10/01
 Level:(low/med) LOW Date Analyzed: 08/13/01 Time: 0506
 PercentSolids: 89 decanted : _____ Dilution Factor: 1
 Extraction: SONC Station ID 6SS25 0-2ft Method: 8310
 GPC Cleanup : (Y/N) N pH: _____
 Column: Vydac 201TP54 ID: 4.6 (mm)

CONCENTRATION UNITS: *ug/Kg*

CAS NO.	ANALYTE	RESULT	Q
50-32-8	Benzo(a)pyrene	11	U

*SMH
9/12/00*

PAH ORGANIC ANALYSIS DATA SHEET

Lab Name: PEL Laboratories, Inc. Contract: Whiting Fld EPA Sample No. 0116SB2607
 Lab Code: PEL Case No. _____ SAS No: _____ SDG No.: 2108063
 Matrix: SOIL Lab Sample ID 210806311 Lab File ID 63-11.D
 Sample wt/vol: 33.8 Units: G Date Received: 08/10/01
 Concentrated Extract Volume: 1 Date Extracted: 08/10/01
 Level:(low/med) LOW Date Analyzed: 08/13/01 Time: 0540
 PercentSolids: 86 decanted : _____ Dilution Factor: 1
 Extraction: SONC Station ID 6SB26 5-7ft Method: 8310
 GPC Cleanup : (Y/N) N pH: _____
 Column: Vydac 201TP54 ID: 4.6 (mm)

CONCENTRATION UNITS: ug/Kg

CAS NO.	ANALYTE	RESULT	Q
50-32-8	Benzo(a)pyrene	11	U

*SMP
9/17/2001*

PAH ORGANIC ANALYSIS DATA SHEET

EPA Sample No.

0116PreEB01

Lab Name: PEL Laboratories, Inc. Contract: Whiting Fld

Lab Code: PEL Case No. _____ SAS No: _____ SDG No.: 2108063

Matrix: WATER Lab Sample ID 210806314 Lab File ID 63-14.D

Sample wt/vol: 980 Units: ML Date Received: 08/10/01 ✓

Concentrated Extract Volume: 1 Date Extracted: 08/10/01

Level:(low/med) LOW Date Analyzed: 08/12/01 Time: 2326

PercentSolids: 0 decanted : _____ Dilution Factor: 1

Extraction: SEPF Station ID Pre-EB Method: 8310

GPC Cleanup : (Y/N) N pH: _____

Column: Vydac 201TP54 ID: 4.6 (mm)

CONCENTRATION UNITS: ug/L

CAS NO.	ANALYTE	RESULT	Q
50-32-8	Benzo(a)pyrene	0.2	U

SMK
9/12/01

PAH ORGANIC ANALYSIS DATA SHEET

EPA Sample No.

0116PostEB01

Lab Name: PEL Laboratories, Inc. Contract: Whiting Fld
 Lab Code: PEL Case No. _____ SAS No: _____ SDG No.: 2108063
 Matrix: WATER Lab Sample ID 210806315 Lab File ID 63-15.D
 Sample wt/vol: 960 Units: ML Date Received: 08/10/01
 Concentrated Extract Volume: 1 Date Extracted: 08/10/01
 Level:(low/med) LOW Date Analyzed: 08/13/01 Time: 0001
 PercentSolids: 0 decanted : _____ Dilution Factor: 1
 Extraction: SEPF Station ID Post-EB Method: 8310
 GPC Cleanup : (Y/N) N pH: _____
 Column: Vydac 201TP54 ID: 4.6 (mm)

CONCENTRATION UNITS: ug/L

CAS NO.	ANALYTE	RESULT	Q
50-32-8	Benzo(a)pyrene	0.21	U

Handwritten signature

FL-PRO ORGANIC ANALYSIS DATA SHEET

EPA Sample No.

0116SS3602

Lab Name: PEL Laboratories, Inc. Contract: Whiting Fld

Lab Code: PEL Case No. _____ SAS No: _____ SDG No.: 2108063

Matrix: SOIL Lab Sample ID 210806316 Lab File ID 063-16.D

Sample wt/vol: 25.04 Units: G Date Received: 08/10/01

Concentrated Extract Volume: 2 Date Extracted: 08/10/01

Level:(low/med) LOW Date Analyzed: 08/12/01 Time: 1300

PercentSolids: 90 decanted: _____ Dilution Factor: 1

Extraction: SONC Station ID 6SS36 0-2ft Method: FL-PRO

GPC Cleanup: (Y/N) N pH: _____

Column: RTX-5 ID: 0.53 (mm)

CONCENTRATION UNITS: mg/Kg

CAS NO.	ANALYTE	RESULT	Q
5289290-40-0	Total Petroleum Hydrocarbons	10	U

*SMK
9/12/2001*

FL-PRO ORGANIC ANALYSIS DATA SHEET

Lab Name: PEL Laboratories, Inc. Contract: Whiting Fld EPA Sample No. 0116SS3702
 Lab Code: PEL Case No. SAS No: SDG No.: 2108063
 Matrix: SOIL Lab Sample ID 210806317 Lab File ID 063-17.D
 Sample wt/vol: 25.03 Units: G Date Received: 08/10/01
 Concentrated Extract Volume: 2 Date Extracted: 08/10/01
 Level:(low/med) LOW Date Analyzed: 08/12/01 Time: 1334
 PercentSolids: 89 decanted : Dilution Factor: 1
 Extraction: SONC Station ID 6SS37 0-2ft Method: FL-PRO
 GPC Cleanup : (Y/N) N pH:
 Column: RTX-5 ID: 0.53 (mm)

CONCENTRATION UNITS: *mg/Kg*

CAS NO.	ANALYTE	RESULT	Q
5289290-40-0	Total Petroleum Hydrocarbons	10	U

*SPK
9/12/01*

FL-PRO ORGANIC ANALYSIS DATA SHEET

Lab Name: PEL Laboratories, Inc. Contract: Whiting Fld EPA Sample No. 0116SS3702R1
 Lab Code: PEL Case No. _____ SAS No: _____ SDG No.: 2108063
 Matrix: SOIL Lab Sample ID 210806317R1 Lab File ID 063-17.D
 Sample wt/vol: 25.03 Units: G Date Received: 08/10/01
 Concentrated Extract Volume: 2 Date Extracted: 08/10/01
 Level:(low/med) LOW Date Analyzed: 08/13/01 Time: 1227
 PercentSolids: 89 decanted: _____ Dilution Factor: 1
 Extraction: SONC Station ID 6SS37 0-2ft Method: FL-PRO
 GPC Cleanup : (Y/N) N pH: _____
 Column: RTX-5 ID: 0.53 (mm)

CONCENTRATION UNITS: mg/Kg

CAS NO.	ANALYTE	RESULT	Q
5289290-40-0	Total Petroleum Hydrocarbons	10	U

Report initial

*gmm
9/12/01*

FL-PRO ORGANIC ANALYSIS DATA SHEET

EPA Sample No.

Lab Name: PEL Laboratories, Inc. Contract: Whiting Fld 0116SS3802

Lab Code: PEL Case No. _____ SAS No: _____ SDG No.: 2108063

Matrix: SOIL Lab Sample ID 210806318 Lab File ID 063-18.D

Sample wt/vol: 25.07 Units: G Date Received: 08/10/01

Concentrated Extract Volume: 2 Date Extracted: 08/10/01

Level:(low/med) LOW Date Analyzed: 08/12/01 Time: 1408

PercentSolids: 89 decanted: _____ Dilution Factor: 1

Extraction: SONC Station ID 6SS38 0-2ft Method: FL-PRO

GPC Cleanup: (Y/N) N pH: _____

Column: RTX-5 ID: 0.53 (mm)

CONCENTRATION UNITS: *mg/Kg*

CAS NO.	ANALYTE	RESULT	Q
5289290-40-0	Total Petroleum Hydrocarbons	10	U

*SMK
9/12/2001*

FL-PRO ORGANIC ANALYSIS DATA SHEET

Lab Name: PEL Laboratories, Inc. Contract: Whiting Fid EPA Sample No. 0116SS3902
 Lab Code : PEL Case No. _____ SAS No: _____ SDG No.: 2108063
 Matrix: SOIL Lab Sample ID 210806319 Lab File ID 063-19.D
 Sample wt/vol: 25.05 Units: G Date Received: 08/10/01
 Concentrated Extract Volume: 2 Date Extracted: 08/10/01
 Level:(low/med) LOW Date Analyzed: 08/12/01 Time: 1442
 PercentSolids: 89 decanted : _____ Dilution Factor: 1
 Extraction: SONC Station ID 6SS39 0-2ft Method: FL-PRO
 GPC Cleanup : (Y/N) N pH: _____
 Column: RTX-5 ID: 0.53 (mm)

CONCENTRATION UNITS: *mg/Kg*

CAS NO.	ANALYTE	RESULT	Q
5289290-40-0	Total Petroleum Hydrocarbons	10	U

*SMK
9/12/2001*

FL-PRO ORGANIC ANALYSIS DATA SHEET

EPA Sample No.

Lab Name: PEL Laboratories, Inc. Contract: Whiting Fld 0116SS2702

Lab Code: PEL Case No. _____ SAS No: _____ SDG No.: 2108063

Matrix: SOIL Lab Sample ID 210806320 Lab File ID 063-20.D

Sample wt/vol: 25 Units: G Date Received: 08/10/01

Concentrated Extract Volume: 2 Date Extracted: 08/10/01

Level:(low/med) LOW Date Analyzed: 08/12/01 Time: 1517

PercentSolids: 90 decanted: _____ Dilution Factor: 1

Extraction: SONC Station ID 6SS27 0-2ft Method: FL-PRO

GPC Cleanup : (Y/N) N pH: _____

Column: RTX-5 ID: 0.53 (mm)

CONCENTRATION UNITS: mg/Kg

CAS NO.	ANALYTE	RESULT	Q
5289290-40-0	Total Petroleum Hydrocarbons	10	U

Handwritten signature and date: 9/12/01

FL-PRO ORGANIC ANALYSIS DATA SHEET

Lab Name: PEL Laboratories, Inc. Contract: Whiting Fld EPA Sample No. 0116PreEB02
 Lab Code: PEL Case No. SAS No: SDG No.: 2108063
 Matrix: WATER Lab Sample ID 210806323 Lab File ID 063-23.D
 Sample wt/vol: 990 Units: ML Date Received: 08/10/01
 Concentrated Extract Volume: 2 Date Extracted: 08/10/01
 Level:(low/med) LOW Date Analyzed: 08/11/01 Time: 1931
 PercentSolids: 0 decanted: Dilution Factor: 1
 Extraction: SEPF Station ID Pre-EB Method: FL-PRO
 GPC Cleanup: (Y/N) N pH:
 Column: RTX-5 ID: 0.53 (mm)

CONCENTRATION UNITS: mg/L

CAS NO.	ANALYTE	RESULT	Q
5289290-40-0	Total Petroleum Hydrocarbons	2	U

SPM
9/12/2001

FL-PRO ORGANIC ANALYSIS DATA SHEET

Lab Name: PEL Laboratories, Inc. Contract: Whiting Fld EPA Sample No. 0116PostEB02
 Lab Code: PEL Case No. _____ SAS No: _____ SDG No.: 2108063
 Matrix: WATER Lab Sample ID 210806324 Lab File ID 063-24.D
 Sample wt/vol: 990 Units: ML Date Received: 08/10/01
 Concentrated Extract Volume: 2 Date Extracted: 08/10/01
 Level:(low/med) LOW Date Analyzed: 08/11/01 Time: 2005
 PercentSolids: 0 decanted : _____ Dilution Factor: 1
 Extraction: SEPF Station ID Post-EB Method: FL-PRO
 GPC Cleanup : (Y/N) N pH: _____
 Column: RTX-5 ID: 0.53 (mm)

CONCENTRATION UNITS: *mg/L*

CAS NO.	ANALYTE	RESULT	Q
5289290-40-0	Total Petroleum Hydrocarbons	2	U

*SMK
9/12/01*

ATTACHMENT C
Survey Data

**NAVAL AIR STATION
WHITING FIELD
SITE-6
SOIL SAMPLE GRID LAYOUT**

Project No. 151168.35.02.06.90
Field Surveys August 8&9, 2001

Note: Horizontal Datum is NAD (North American Datum) 83 (1990) SPC Fl. N. US Survey Ft..
Vertical datum is NAVD (North American Vertical Datum) 88.

Description	North Coord.	East Coord.	Elevation
<u>Survey Control Points:</u>			
601 (Re Bar & Cap)	629779.1185	1177628.9593	186.01
602 (Re Bar & Cap)	629654.2418	1178125.1167	179.17
5000 (Most Wly elevated tank)	631519.1265	1177642.1999	-----
<u>Grid 6SB03:</u>			
6SB03 (Ctr. Of grid)	629566.27	1178117.53	174.1
6SS05 (North Cor. of grid)	629619.33	1178117.01	178.3
6SS06	629601.83	1178134.78	176.0
6SS07	629584.37	1178152.61	176.2
6SS08 (East Cor. of grid)	629566.94	1178170.39	177.7
6SS09 (Point on NW line)	629601.93	1178099.40	177.7
6SS10	629584.20	1178117.60	175.6
6SS11	629566.35	1178135.12	176.3
6SS12 (Point on SE line)	629549.00	1178152.93	177.6
6SS13 (N. Cor. 10'ft. grid)	629573.20	1178117.17	174.9
6SS14 (E. Cor. 10'ft. grid)	629566.26	1178124.70	175.1
6SS15 (W. Cor. 10'ft. grid)	629566.63	1178110.32	175.0
6SS16 (S. Cor. 10'ft. grid)	629559.65	1178117.74	175.4
6SS17 (Point on NW line)	629584.55	1178082.12	178.1
6SS18	629566.64	1178099.69	176.5
6SS19	629548.67	1178117.43	176.3
6SS20 (Point on SE line)	629531.12	1178135.42	177.5
6SS21 (West Cor. of grid)	629566.77	1178064.33	178.2
6SS22	629548.87	1178082.18	176.8
6SS23	629530.94	1178099.79	176.1
6SS24 (South Cor. of grid)	629512.97	1178117.57	177.4

Description	North Coord.	East Coord.	Elevation
<u>Grid 6SB04:</u>			
6SB04 (Center of grid)	629630.09	1178167.24	173.9
6SS28 (North corner of grid)	629682.97	1178166.89	178.7
6SS29	629665.48	1178184.49	176.3
6SS30	629647.84	1178202.60	176.4
6SS31 (East corner of grid)	629630.30	1178220.51	177.3
6SS32 (Point on NW line)	629665.35	1178149.42	178.7
6SS33	629647.69	1178166.97	176.6
6SS34	629630.24	1178184.94	175.4
6SS35 (Point on SE line)	629612.64	1178202.68	177.0
6SS36 (North corner 10'ft. grid)	629637.05	1178167.13	174.5
6SS37 (East corner 10'ft. grid)	629630.10	1178174.60	174.0
6SS38 (West corner 10'ft. grid)	629629.90	1178160.42	174.8
6SS39 (South corner 10'ft. grid)	629622.81	1178167.51	174.1
6SS40 (Point on NW line)	629647.96	1178132.07	178.8
6SS41	629630.04	1178149.60	177.2
6SS42	629612.24	1178167.11	174.9
6SS43 (Point on SE line)	629594.90	1178184.74	177.0
6SS44 (West corner of grid)	629630.25	1178114.46	179.1
6SS45	629612.72	1178131.92	177.5
6SS46	629594.79	1178149.67	174.6
6SS47 (South corner of grid)	629577.12	1178167.09	177.1