ENVIROMENTAL SITE ASSESSMENT WORKPLAN

BOWEN TOOLS FACILITY

Hobbs, New Mexico

Environmental Site Assessment Workplan

ENSR®

Prepared For:
Air Liquide America Corporation
Houston, Texas

Prepared By:
ENSR Corporation
March 1998
Documentation Number 0077-013-411-SAWP

VPH and EPH analyses. The concentrations of specific chain length groups are then weighted base on their RfD_os, and summed to roughly estimate an equivalent concentration of pyrene, a surrogate constituent. Calculations performed in accordance with MDEP protocol are presented in the following table.

MDEP Analytical Results and Calculations (Sample S-2)

Carbon Chain	Reference Compound	Proposed RfD_o (mg/kg/day)	Measured Concentration (mg/kg)	Toxicity Weighting Factor[1]	Toxicity-Weighted TPH[2] (mg/kg)
Alkanes /Cycloalkanes					
C_5-C_8	n-Hexane	0.06	188	0.5	94
C_9-C_{18}	n-Nonane	0.6	1,320	0.05	66
C_{19}-C_{32}	Eicosane	6.0	8,150	0.005	40.8
Alkenes/Aromatics					
C_9-C_{32}	Pyrene	0.03	631	1	631
Totals			10,290		**831.8**

Notes:
1. Relative toxicity to non-carcinogenic alkenes (C_9 through C_{32}).
2. Product of measured concentration multiplied by toxicity-weighting factor.

The calculations indicate that TPH concentrations in sample S-2 have an approximate toxicity similar to 831.8 mg/kg of pyrene. The EPA groundwater protection screening level for pyrene is 11 mg/kg (dilution-attenuation factor of 10). However, it should be noted that EPH and VPH analyses may significantly over estimate the amount of alkenes/aromatics. Based on these results ENSR recommends additional soil and possibly groundwater quality assessment in the area of the former shallow well to evaluate further corrective action needs.

Stained Soil. The excavation to remove stained soil adjacent to the waste oil AST was approximately 8-ft by 10-ft by 2-ft deep. A composite sample was collected from the bottom of the excavated area and submitted for analysis of TPH (EPA Method 418.1). A TPH concentration of 95 mg/kg was reported for this sample indicating that no further action in this area is required. Laboratory data sheets are included in Appendix B.

Soil Handling and Disposal. The excavated soil was placed on and covered by plastic to reduce dispersion by wind and rain. After completion of excavations, USA Environmental Systems collected a five-point composite sample for every 50 cu. yd. of the stockpiled soil to characterize the soil for disposal.

After receipt of the analytical results, approval was obtained from the New Mexico Oil Conservation Division (NMOCD) to dispose of the soil at a landfill located in Hobbs and owned by Controlled Recovery, Inc. On February 3, 1998, the excavated soil was transported and disposed of at the landfill under manifest.

Proposed Limited Phase III ESA

Analytical results indicate that TPH in soil may be a concern. Detected concentrations of VOCs, SVOCs, and metals are below EPA soil screening levels or within naturally-occurring ranges, and are not considered concerns. ENSR proposes a limited Phase III ESA to estimate the extent of TPH-affected soil, and to assess if groundwater is affected. Appendix C contains details of the proposed ESA. In summary, ENSR proposes to:

- drill and sample about eight borings around the former oil/water separator and shallow well area by
  - advancing the borings to depths of about 25 ft,
  - screening the soil samples using a flame-ionization detector (FID), and
  - submitting selected samples to a laboratory for TPH analyses (EPA Method 418.1, five day turn-around-time);
- drill and sample one boring in the area of the former shallow well by
  - advancing the boring to groundwater or to a depth of 70 ft,
  - screening the soil samples using a FID,
  - submitting selected samples to a laboratory for TPH analyses (EPA Method 418.1, five day turn-around-time);
- if groundwater is encountered in the shallow well area boring, install a temporary well and analyze a groundwater sample for TPH (GC, EPA method 8015), VOCs, SVOCs, and RCRA metals (the analyses will only be performed if soil TPH analyses indicate affected soils extend to near the groundwater surface);
- if soil TPH concentrations are in excess of 13,300 mg/kg (the highest concentration detected in the verification samples), analyze the soil sample with the highest TPH concentration for VOCs, SVOCs, and RCRA metals; and
- analyze the two soil samples with the highest detected TPH concentrations for EPH and VPH, evaluate the EPH and VPH results using the MDEP method, and subject the samples to the Synthetic Precipitation Leachating Procedure (SPLP) for TPH.

Limitations

The report is responsive to environmental issues identified in previous ESA reports. The results presented are based on information obtained at limited sampling locations, and on information supplied by others. Significant variations may be present at areas not sampled. Additional contaminants may be present but not detected by the analyses conducted for this corrective action. ENSR does not warrant, certify, or guarantee the absence of environmental and regulatory liabilities, either expressly or implied.

The corrective action and assessment described herein were conducted in a manner consistent with the level of care and skill ordinarily exercised by members of the environmental consulting profession practicing under similar conditions.

This documentation report was prepared to aid Air Liquide in addressing environmental conditions at limited locations, in accordance with the requested scope of work. This report was prepared for the sole benefit of Air Liquide, and may not be relied upon by others without the written authorization of ENSR Corporation.

Closing

We appreciate your review and look forward to working with the NMOCD. If you have any questions regarding this report, or if we can be of further assistance, please contact our office at (713) 520-9900.

Sincerely,

Roger K. Green, P.E.
Supervising Engineer

Mark. A. Board, P.E.
Project Manager

Attachments:

Figure 1 - Site Location Map
Figure 2 - Site Plan
Figure 3 - Excavation and Sample Location Map
Appendix A - Photographs
Appendix B - Laboratory Analytical Results
Appendix C - Limited Phase III ESA Workplan

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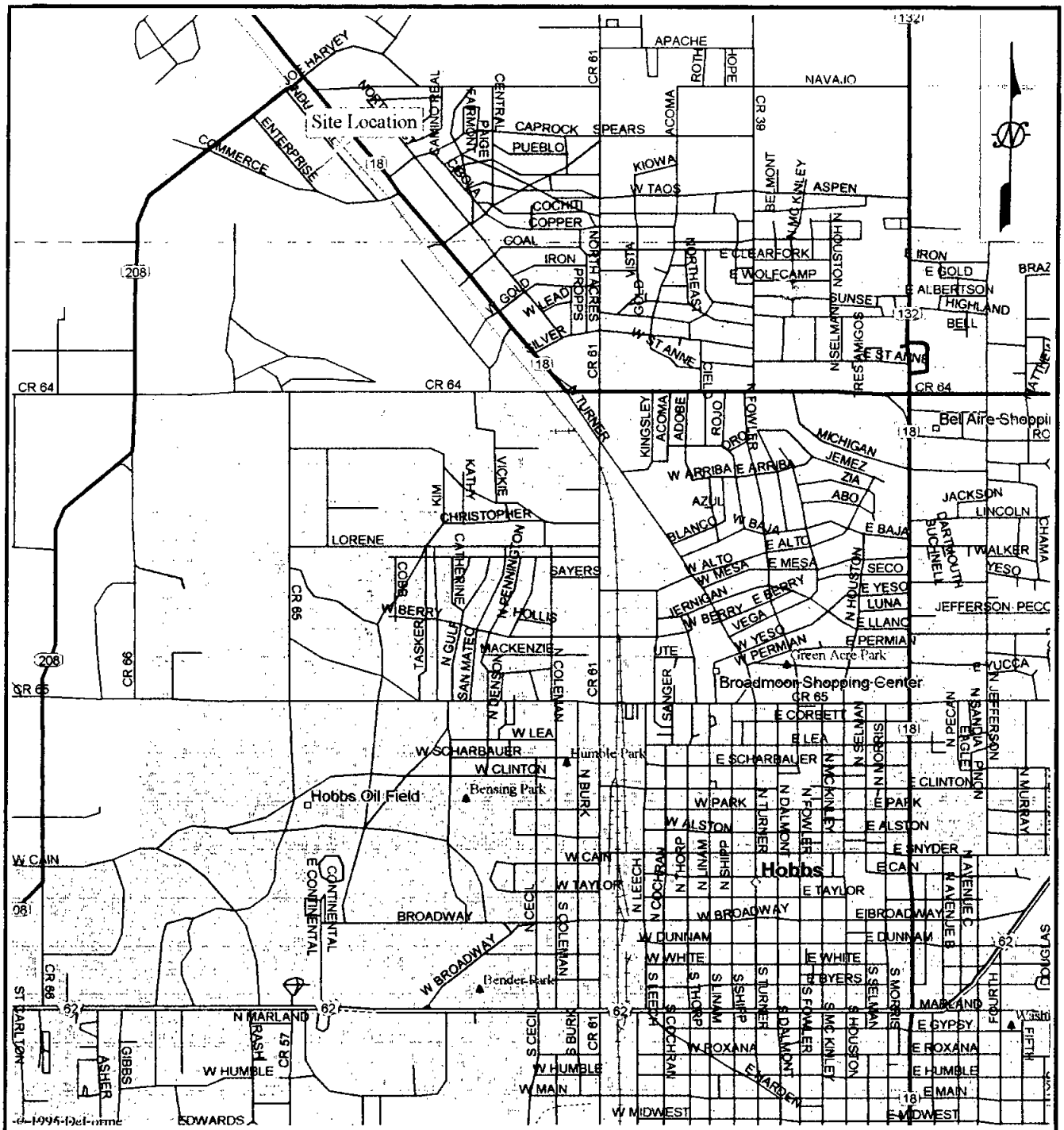

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SCALE IN MILES

REFERENCE: DeLorme Street Atlas U.S.A., 1995

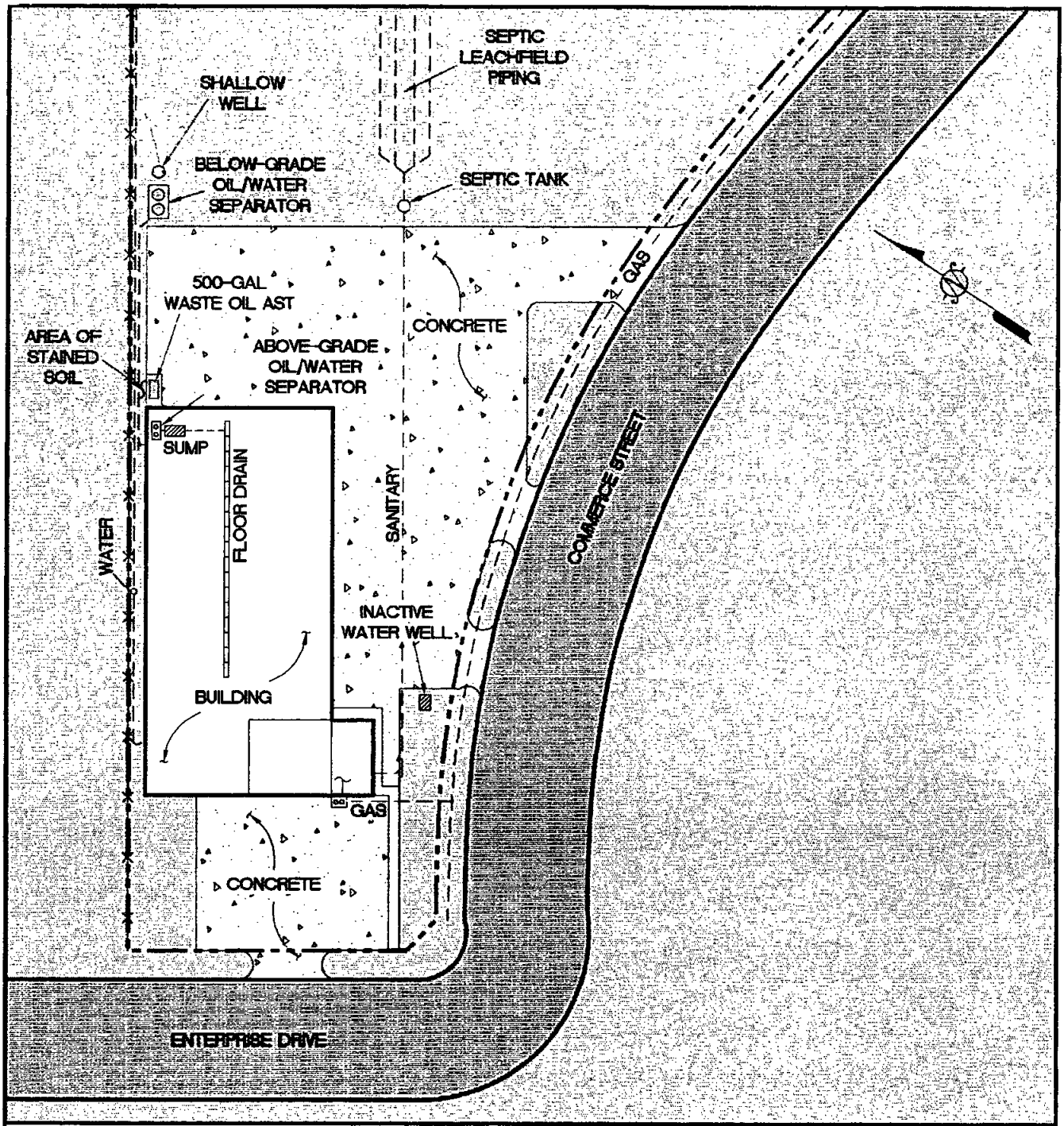
ENSR CORPORATION

FIGURE 1

SITE LOCATION MAP

AIR LIQUIDE AMERICA CORPORATION
BOWEN TOOLS FACILITY
HOBBS, NEW MEXICO

DRAWN: J. MITCHELL	DATE: 5-20-97	PROJECT NUMBER:
APPV'D: R. GREEN	REVISED:	0561-0137-411



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SCALE IN FEET

NOTE
PLAN DEVELOPED FROM TAPING, VISUAL OBSERVATIONS AND DRAWING PROVIDED BY AIR LIQUIDE.

ALL LOCATIONS ARE APPROXIMATE.

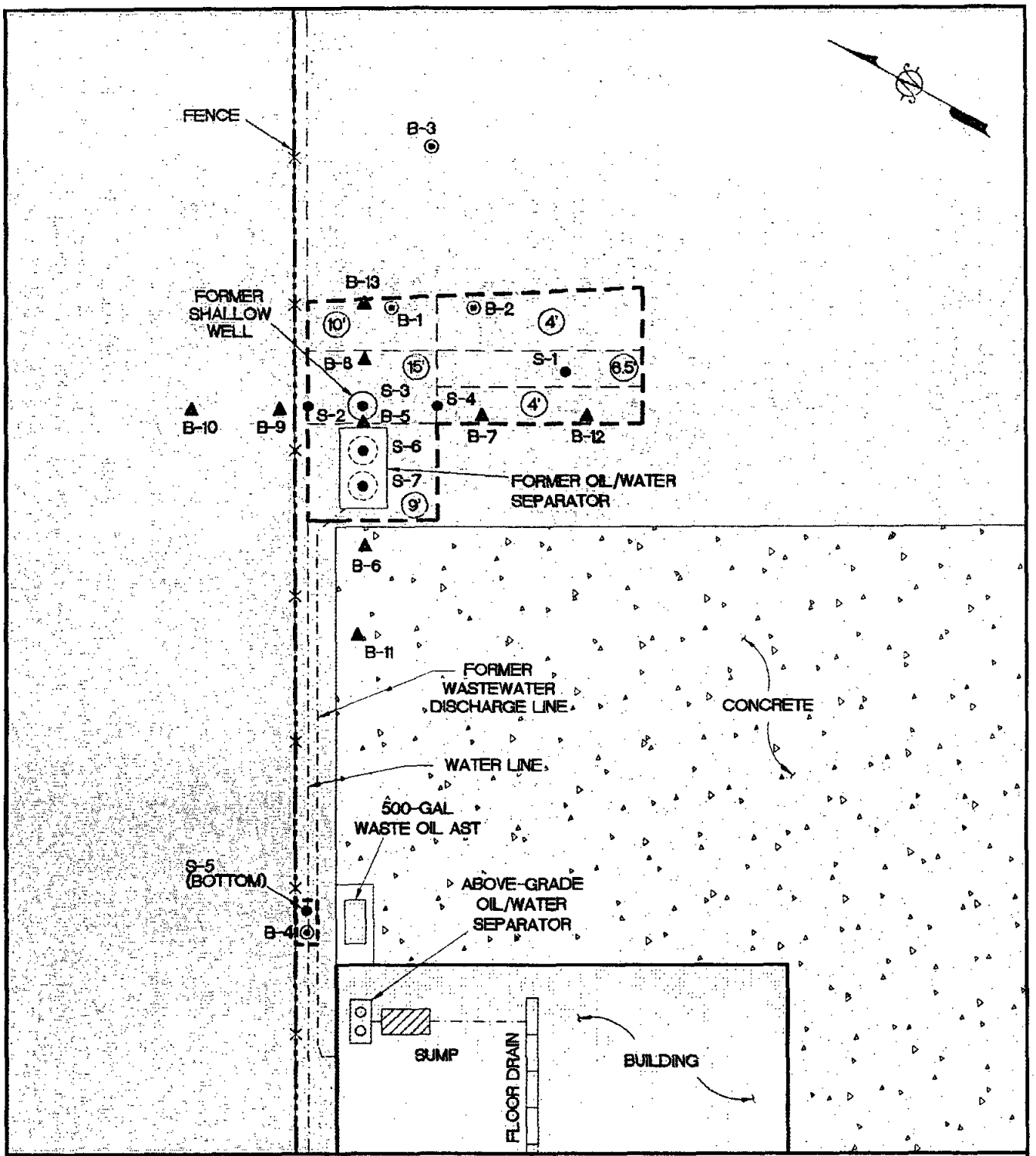
LEGEND:
- ● SAMPLE LOCATION
- APPROXIMATE PROPERTY BOUNDARY
- BELOW GRADE LINES
- CHAIN-LINK FENCE AND GATE

ENSR CORPORATION

FIGURE 2
SITE PLAN
AIR LIQUIDE AMERICA CORPORATION
BOWEN TOOLS FACILITY
HOBBS, NEW MEXICO

DRAWN: M. SHERRY	DATE: 3-13-98	PROJECT NUMBER:
APPV'D: M. BOARD	REVISED:	0077-013-401

DWG No. 0077008C



NOTES:
PLAN DEVELOPED FROM TAPING, VISUAL OBSERVATIONS AND DRAWING PROVIDED BY AIR LIQUIDE. ALL LOCATIONS ARE APPROXIMATE.

LEGEND:

- (10') DEPTH OF EXCAVATION (ft.)
- ● VERIFICATION SAMPLE LOCATION AND I.D.
- ⊙ PHASE II BORING LOCATION
- ▲ PROPOSED PHASE III BORING LOCATION
- APPROXIMATE PROPERTY BOUNDARY
- LIMITS OF EXCAVATION
- BELOW GRADE LINE

0 20 40

SCALE IN FEET

DWG. No. 00770075

ENSR CORPORATION

FIGURE 3

EXCAVATION AND SAMPLE LOCATION MAP

AIR LIQUIDE AMERICA CORPORATION
BOWEN TOOLS FACILITY
HOBBS, NEW MEXICO

DRAWN: R. FAISON	DATE: 2-18-98	PROJECT NUMBER:	
APPV'D: M. BOARD	REVISED: 3-24-98	0077-013-411	

APPENDIX A

PHOTOGRAPHS

Photo 1: Inactive oil/water separator. View to the northeast.

Photo 2: Inactive oil/water separator and shallow well. View to the southwest.

Photo 3: Excavated area of the former oil/water separator and shallow well. View to the northeast.

Photo 4: Excavated soil stockpile. View to the east.

APPENDIX B

LABORATORY ANALYTICAL RESULTS

Phase II ESA Samples
Verification Samples

Phase II ESA Samples

CORE LABORATORIES

ANALYTICAL REPORT

JOB NUMBER: 970333

Prepared For:

Fugro Environmental
6100 Hillcroft
Suite 300
Houston, TX 77081

Attention: Bob Huck

Date: 04/14/97

Don Morris
Signature

Name: Don L. Morris

Title: Project Manager

April 14 1997
Date

CORE LABORATORIES, INC.
10703 East Bethany Drive
Aurora, CO 80014

PHONE: (303) 751-1780
FAX: (303) 751-1784

CORE LABORATORIES

SAMPLE DELIVERY GROUP NARRATIVE

March 6, 1997

Customer: Fugro Environmental
Project: 0561-0137 Hobbs, NM
Core Laboratories Project Number: 970333

The following information is pertinent to the interpretation of this data package.

Method 8015M GC Extractable Hydrocarbons Analysis

This analyte is reported as diesel range hydrocarbons. Sample 1 had reportable values that were not typical of diesel. It appears to be more in the motor oil range.

Method 8270 GC/MS Semivolatiles Analysis

Sample 1 in this delivery group had the internal standard perylene-d12 below acceptance criteria. Reanalysis confirmed the low area counts.

The laboratory control sample analyzed with this delivery group had benzidine below acceptance criteria and 2,4-dinitrotoluene and phenol above acceptance criteria. Extraction efficiencies have improved for 2,4-dinitrotoluene and phenol and new acceptance criteria will be generated.

Kathy L. Klausmeier
Laboratory Supervisor

James H. Travis
Laboratory Manager

CORE LABORATORIES

SAMPLE INFORMATION
Date: 04/14/97

Job Number..: 970333
Customer ..: Fugro Environmental
Attn.....: Bob Huck

Project Number.....: 97000020
Customer Project ID....: 0561-0137 HOBBS, NM
Project Description....: Fugro Environmental

Laboratory Sample ID	Customer Sample ID	Sample Matrix	Date Sampled	Time Sampled	Date Received	Time Received
970333-1	B-1A	Soil	02/04/97	16:05	02/20/97	09:15
970333-2	B-1B	Soil	02/04/97	16:15	02/06/97	09:15
970333-3	B-2A	Soil	02/04/97	16:35	02/06/97	09:15
970333-4	B-2B	Soil	02/04/97	16:40	02/06/97	09:15
970333-5	B-3A	Soil	02/04/97	16:50	02/06/97	09:15
970333-6	B-3B	Soil	02/04/97	16:55	02/06/97	09:15
970333-7	B-4A	Soil	02/04/97	17:05	02/06/97	09:15

CORE LABORATORIES

LABORATORY TEST RESULTS

Job Number: 970333 Date: 04/14/97

CUSTOMER: Fugro Environmental PROJECT: 0561-0137 HOBBS, NM ATTN: Bob Huck

Customer Sample ID: B-1A
Date Sampled.....: 02/04/97
Time Sampled.....: 16:05
Sample Matrix.....: Soil

Laboratory Sample ID: 970333-1
Date Received.....: 02/20/97
Time Received.....: 09:15

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	REPORTING LIMIT	UNITS	DATE	TECH
SW-846 3010	Acid Digestion, Total Metals	Complete			04/09/97	gag
SW-846 3050	Acid Digestion: Solids	Complete			02/24/97	lmt
SW-846 6010A	Arsenic (As), Solid	<5	5	mg/Kg	02/25/97	smh
SW-846 6010A	Barium (Ba), Solid	213	1	mg/Kg	02/25/97	smh
SW-846 6010A	Cadmium (Cd), Solid	2.3	0.5	mg/Kg	02/25/97	smh
SW-846 6010A	Chromium (Cr), Solid	15	1	mg/Kg	02/25/97	smh
SW-846 6010A	Lead (Pb), Solid	348	5	mg/Kg	02/25/97	smh
SW-846 7471	Mercury (Hg), Solid	<0.10	0.10	mg/Kg	02/25/97	lmt
SW-846 6010A	Selenium (Se), Solid	<10	10	mg/Kg	02/25/97	smh
SW-846 6010A	Silver (Ag), Solid	<1	1	mg/Kg	02/25/97	smh
EPA 418.1	Total Recoverable Petroleum Hydrocarbons, Solid	480	10.	mg/Kg	02/11/97	jbd
SW-846 8015Mod	Total Volatile Petroleum Hydrocarbons, Solid	1.1	0.3	mg/Kg	02/22/97	vdt
SW-846 1311	TCLP Nonvolatile Extraction	Complete			04/09/97	maw
SW-846 6010A	TCLP Metals Analysis (ICAP)					
	Barium (Ba)	0.9	0.5	mg/L	04/10/97	smh
	Cadmium (Cd)	<0.01	0.01	mg/L	04/10/97	smh
	Chromium (Cr)	<0.01	0.01	mg/L	04/10/97	smh
	Lead (Pb)	<0.05	0.05	mg/L	04/10/97	smh
SW-846 3550	Extraction (Ultrasonic) SVOCs					
	Ultrasonic Extraction	Complete			02/21/97	rwm
SW-846 8015Mod.	Total Extractable Petroleum Hydrocarbons					
	TEPH - as Diesel, Solid	54	10.	mg/Kg	02/24/97	rwm
SW-846 8270	Semivolatile Organics					
	Acenaphthene, Solid	ND	330	ug/Kg	02/27/97	mla
	Acenaphthylene, Solid	ND	330	ug/Kg	02/27/97	mla
	Anthracene, Solid	ND	330	ug/Kg	02/27/97	mla
	Benzidine, Solid	ND	1650	ug/Kg	02/27/97	mla
	Benzo(a)anthracene, Solid	ND	330	ug/Kg	02/27/97	mla
	Benzo(b)fluoranthene, Solid	ND	330	ug/Kg	02/27/97	mla
	Benzo(k)fluoranthene, Solid	ND	330	ug/Kg	02/27/97	mla
	Benzo(ghi)perylene, Solid	ND	330	ug/Kg	02/27/97	mla
	Benzo(a)pyrene, Solid	ND	330	ug/Kg	02/27/97	mla

CORE LABORATORIES

LABORATORY TEST RESULTS

Job Number: 970333 Date: 04/14/97

CUSTOMER: Fugro Environmental PROJECT: 0561-0137 HOBBS, NM ATTN: Bob Huck

Customer Sample ID: B-1A
Date Sampled.....: 02/04/97
Time Sampled.....: 16:05
Sample Matrix.....: Soil

Laboratory Sample ID: 970333-1
Date Received.....: 02/20/97
Time Received.....: 09:15

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	REPORTING LIMIT	UNITS	DATE	TECH
	Benzyl alcohol, Solid	ND	330	ug/Kg	02/27/97	mla
	Butyl benzyl phthalate, Solid	ND	330	ug/Kg	02/27/97	mla
	Bis(2-chloroethoxy)methane, Solid	ND	330	ug/Kg	02/27/97	mla
	Bis(2-chloroethyl)ether, Solid	ND	330	ug/Kg	02/27/97	mla
	Bis(2-chloroisopropyl)ether, Solid	ND	330	ug/Kg	02/27/97	mla
	Bis(2-ethylhexyl)phthalate, Solid	ND	330	ug/Kg	02/27/97	mla
	4-Bromophenyl phenyl ether, Solid	ND	330	ug/Kg	02/27/97	mla
	4-Chloroaniline, Solid	ND	330	ug/Kg	02/27/97	mla
	2-Chloronaphthalene, Solid	ND	330	ug/Kg	02/27/97	mla
	4-Chlorophenyl phenyl ether, Solid	ND	330	ug/Kg	02/27/97	mla
	Chrysene, Solid	ND	330	ug/Kg	02/27/97	mla
	Dibenzo(a,h)anthracene, Solid	ND	330	ug/Kg	02/27/97	mla
	Dibenzofuran, Solid	ND	330	ug/Kg	02/27/97	mla
	1,2-Dichlorobenzene, Solid	ND	330	ug/Kg	02/27/97	mla
	1,3-Dichlorobenzene, Solid	ND	330	ug/Kg	02/27/97	mla
	1,4-Dichlorobenzene, Solid	ND	330	ug/Kg	02/27/97	mla
	3,3-Dichlorobenzidine, Solid	ND	330	ug/Kg	02/27/97	mla
	Diethyl phthalate, Solid	ND	330	ug/Kg	02/27/97	mla
	Dimethyl phthalate, Solid	ND	330	ug/Kg	02/27/97	mla
	Di-n-butyl phthalate, Solid	ND	330	ug/Kg	02/27/97	mla
	Di-n-octyl phthalate, Solid	ND	330	ug/Kg	02/27/97	mla
	2,4-Dinitrotoluene, Solid	ND	330	ug/Kg	02/27/97	mla
	2,6-Dinitrotoluene, Solid	ND	330	ug/Kg	02/27/97	mla
	Fluoranthene, Solid	ND	330	ug/Kg	02/27/97	mla
	Fluorene, Solid	ND	330	ug/Kg	02/27/97	mla
	Hexachlorobenzene, Solid	ND	330	ug/Kg	02/27/97	mla
	Hexachlorobutadiene, Solid	ND	330	ug/Kg	02/27/97	mla
	Hexachlorocyclopentadiene, Solid	ND	330	ug/Kg	02/27/97	mla
	Hexachloroethane, Solid	ND	330	ug/Kg	02/27/97	mla
	Indeno(1,2,3-cd)pyrene, Solid	ND	330	ug/Kg	02/27/97	mla
	Isophorone, Solid	ND	330	ug/Kg	02/27/97	mla
	2-Methylnaphthalene, Solid	ND	330	ug/Kg	02/27/97	mla
	Naphthalene, Solid	ND	330	ug/Kg	02/27/97	mla
	o-Nitroaniline, Solid	ND	1650	ug/Kg	02/27/97	mla
	m-Nitroaniline, Solid	ND	1650	ug/Kg	02/27/97	mla
	p-Nitroaniline, Solid	ND	1650	ug/Kg	02/27/97	mla
	Nitrobenzene, Solid	ND	330	ug/Kg	02/27/97	mla
	n-Nitrosodi-n-propylamine, Solid	ND	330	ug/Kg	02/27/97	mla
	n-Nitrosodiphenylamine, Solid	ND	330	ug/Kg	02/27/97	mla
	Phenanthrene, Solid	ND	330	ug/Kg	02/27/97	mla
	Pyrene, Solid	ND	330	ug/Kg	02/27/97	mla
	1,2,4-Trichlorobenzene, Solid	ND	330	ug/Kg	02/27/97	mla
	Benzoic acid, Solid	ND	1650	ug/Kg	02/27/97	mla
	4-Chloro-3-methylphenol, Solid	ND	330	ug/Kg	02/27/97	mla
	2-Chlorophenol, Solid	ND	330	ug/Kg	02/27/97	mla
	2,4-Dichlorophenol, Solid	ND	330	ug/Kg	02/27/97	mla
	2,4-Dimethylphenol, Solid	ND	330	ug/Kg	02/27/97	mla
	2,4-Dinitrophenol, Solid	ND	1650	ug/Kg	02/27/97	mla
	2-Methyl-4,6-dinitrophenol, Solid	ND	1650	ug/Kg	02/27/97	mla

CORE LABORATORIES

LABORATORY TEST RESULTS

Job Number: 970333 Date: 04/14/97

CUSTOMER: Fugro Environmental PROJECT: 0561-0137 HOBBS, NM ATTN: Bob Huck

Customer Sample ID: B-1A
Date Sampled.....: 02/04/97
Time Sampled.....: 16:05
Sample Matrix.....: Soil

Laboratory Sample ID: 970333-1
Date Received.....: 02/20/97
Time Received.....: 09:15

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	REPORTING LIMIT	UNITS	DATE	TECH
	2-Methylphenol (o-cresol), Solid	ND	330	ug/Kg	02/27/97	mla
	4-Methylphenol (p-cresol), Solid	ND	330	ug/Kg	02/27/97	mla
	2-Nitrophenol, Solid	ND	330	ug/Kg	02/27/97	mla
	4-Nitrophenol, Solid	ND	1650	ug/Kg	02/27/97	mla
	Pentachlorophenol, Solid	ND	1650	ug/Kg	02/27/97	mla
	Phenol, Solid	ND	330	ug/Kg	02/27/97	mla
	2,4,5-Trichlorophenol, Solid	ND	330	ug/Kg	02/27/97	mla
	2,4,6-Trichlorophenol, Solid	ND	330	ug/Kg	02/27/97	mla
SW-846 8260	Volatile Organics					
	Benzene, Solid	ND	1	ug/Kg	02/24/97	dmj
	Bromobenzene, Solid	ND	5	ug/Kg	02/24/97	dmj
	Bromochloromethane, Solid	ND	5	ug/Kg	02/24/97	dmj
	Bromodichloromethane, Solid	ND	5	ug/Kg	02/24/97	dmj
	Bromoform, Solid	ND	5	ug/Kg	02/24/97	dmj
	Bromomethane, Solid	ND	10	ug/Kg	02/24/97	dmj
	n-Butylbenzene, Solid	ND	5	ug/Kg	02/24/97	dmj
	sec-Butylbenzene, Solid	ND	5	ug/Kg	02/24/97	dmj
	tert-Butylbenzene, Solid	ND	5	ug/Kg	02/24/97	dmj
	Carbon tetrachloride, Solid	ND	5	ug/Kg	02/24/97	dmj
	Chlorobenzene, Solid	ND	5	ug/Kg	02/24/97	dmj
	Chloroethane, Solid	ND	10	ug/Kg	02/24/97	dmj
	Chloroform, Solid	ND	5	ug/Kg	02/24/97	dmj
	Chloromethane, Solid	ND	10	ug/Kg	02/24/97	dmj
	o-Chlorotoluene, Solid	ND	5	ug/Kg	02/24/97	dmj
	p-Chlorotoluene, Solid	ND	5	ug/Kg	02/24/97	dmj
	Dibromochloromethane, Solid	ND	5	ug/Kg	02/24/97	dmj
	1,2-Dibromo-3-chloropropane, Solid	ND	5	ug/Kg	02/24/97	dmj
	1,2-Dibromoethane (EDB), Solid	ND	5	ug/Kg	02/24/97	dmj
	Dibromomethane, Solid	ND	5	ug/Kg	02/24/97	dmj
	1,2-Dichlorobenzene, Solid	ND	5	ug/Kg	02/24/97	dmj
	1,3-Dichlorobenzene, Solid	ND	5	ug/Kg	02/24/97	dmj
	1,4-Dichlorobenzene, Solid	ND	5	ug/Kg	02/24/97	dmj
	Dichlorodifluoromethane, Solid	ND	5	ug/Kg	02/24/97	dmj
	1,1-Dichloroethane, Solid	ND	5	ug/Kg	02/24/97	dmj
	1,2-Dichloroethane, Solid	ND	5	ug/Kg	02/24/97	dmj
	1,1-Dichloroethene, Solid	ND	5	ug/Kg	02/24/97	dmj
	cis-1,2-Dichloroethene, Solid	ND	5	ug/Kg	02/24/97	dmj
	trans-1,2-Dichloroethene, Solid	ND	5	ug/Kg	02/24/97	dmj
	1,2-Dichloropropane, Solid	ND	5	ug/Kg	02/24/97	dmj
	1,3-Dichloropropane, Solid	ND	5	ug/Kg	02/24/97	dmj
	2,2-Dichloropropane, Solid	ND	5	ug/Kg	02/24/97	dmj
	1,1-Dichloropropene, Solid	ND	5	ug/Kg	02/24/97	dmj
	Ethylbenzene, Solid	ND	5	ug/Kg	02/24/97	dmj
	Hexachlorobutadiene, Solid	ND	5	ug/Kg	02/24/97	dmj
	Isopropylbenzene, Solid	ND	5	ug/Kg	02/24/97	dmj
	p-Isopropyltoluene, Solid	ND	5	ug/Kg	02/24/97	dmj
	Methylene chloride, Solid	ND	5	ug/Kg	02/24/97	dmj
	Naphthalene, Solid	ND	5	ug/Kg	02/24/97	dmj

CORE LABORATORIES

LABORATORY TEST RESULTS

Job Number: 970333 Date: 04/14/97

CUSTOMER: Fugro Environmental PROJECT: 0561-0137 HOBBS, NM ATTN: Bob Huck

Customer Sample ID: B-1A
Date Sampled.....: 02/04/97
Time Sampled.....: 16:05
Sample Matrix.....: Soil

Laboratory Sample ID: 970333-1
Date Received.....: 02/20/97
Time Received.....: 09:15

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	REPORTING LIMIT	UNITS	DATE	TECH
	n-Propylbenzene, Solid	ND	5	ug/Kg	02/24/97	dmj
	Styrene, Solid	ND	5	ug/Kg	02/24/97	dmj
	1,1,1,2-Tetrachloroethane, Solid	ND	5	ug/Kg	02/24/97	dmj
	1,1,2,2-Tetrachloroethane, Solid	ND	5	ug/Kg	02/24/97	dmj
	Tetrachloroethene, Solid	ND	5	ug/Kg	02/24/97	dmj
	Toluene, Solid	ND	5	ug/Kg	02/24/97	dmj
	1,2,3-Trichlorobenzene, Solid	ND	5	ug/Kg	02/24/97	dmj
	1,2,4-Trichlorobenzene, Solid	ND	5	ug/Kg	02/24/97	dmj
	1,1,1-Trichloroethane, Solid	ND	5	ug/Kg	02/24/97	dmj
	1,1,2-Trichloroethane, Solid	ND	5	ug/Kg	02/24/97	dmj
	Trichloroethene, Solid	ND	5	ug/Kg	02/24/97	dmj
	Trichlorofluoromethane, Solid	ND	5	ug/Kg	02/24/97	dmj
	1,2,4-Trimethylbenzene, Solid	ND	5	ug/Kg	02/24/97	dmj
	1,3,5-Trimethylbenzene, Solid	ND	5	ug/Kg	02/24/97	dmj
	1,2,3-Trichloropropane, Solid	ND	5	ug/Kg	02/24/97	dmj
	Vinyl chloride, Solid	ND	10	ug/Kg	02/24/97	dmj
	Xylenes (total), Solid	ND	5	ug/Kg	02/24/97	dmj
SW-846 1311	TCLP Nonvolatile Physical Characterizat.					
	% Solids	100	0.5	%	04/09/97	maw
	% Liquid	<0.5	0.5	%	04/09/97	maw
	% Aqueous - Extract	100	0.5	%	04/09/97	maw
	% Non-aqueous - Extract	<0.5	0.5	%	04/09/97	maw
	Density Of Extract	1.0	0.1	Kg/L	04/09/97	maw

CORE LABORATORIES

LABORATORY TEST RESULTS

Job Number: 970333 Date: 04/14/97

CUSTOMER: Fugro Environmental PROJECT: 0561-0137 HOBBS, NM ATTN: Bob Huck

Customer Sample ID: B-1B
Date Sampled.....: 02/04/97
Time Sampled.....: 16:15
Sample Matrix.....: Soil

Laboratory Sample ID: 970333-2
Date Received.....: 02/06/97
Time Received.....: 09:15

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	REPORTING LIMIT	UNITS	DATE	TECH
EPA 418.1	Total Recoverable Petroleum Hydrocarbons, Solid	65	10.	mg/Kg	02/11/97	jbd

CORE LABORATORIES

LABORATORY TEST RESULTS

Job Number: 970333 Date: 04/14/97

CUSTOMER: Fugro Environmental PROJECT: 0561-0137 HOBBS, NM ATTN: Bob Huck

Customer Sample ID: B-2A
Date Sampled.....: 02/04/97
Time Sampled.....: 16:35
Sample Matrix.....: Soil

Laboratory Sample ID: 970333-3
Date Received.....: 02/06/97
Time Received.....: 09:15

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	REPORTING LIMIT	UNITS	DATE	TECH
EPA 418.1	Total Recoverable Petroleum Hydrocarbons, Solid	57	10.	mg/Kg	02/11/97	jbd

CORE LABORATORIES

LABORATORY TEST RESULTS

Job Number: 970333 Date: 04/14/97

CUSTOMER: Fugro Environmental PROJECT: 0561-0137 HOBBS, NM ATTN: Bob Huck

Customer Sample ID: B-28
Date Sampled.....: 02/04/97
Time Sampled.....: 16:40
Sample Matrix.....: Soil

Laboratory Sample ID: 970333-4
Date Received.....: 02/06/97
Time Received.....: 09:15

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	REPORTING LIMIT	UNITS	DATE	TECH
EPA 418.1	Total Recoverable Petroleum Hydrocarbons, Solid	190	10.	mg/Kg	02/11/97	jbd

CORE LABORATORIES

LABORATORY TEST RESULTS

Job Number: 970333 Date: 04/14/97

CUSTOMER: Fugro Environmental PROJECT: 0561-0137 HOBBS, NM ATTN: Bob Huck

Customer Sample ID: B-3A
Date Sampled.....: 02/04/97
Time Sampled.....: 16:50
Sample Matrix.....: Soil

Laboratory Sample ID: 970333-5
Date Received.....: 02/06/97
Time Received.....: 09:15

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	REPORTING LIMIT	UNITS	DATE	TECH
EPA 418.1	Total Recoverable Petroleum Hydrocarbons, Solid	24	10.	mg/Kg	02/11/97	jbd

CORE LABORATORIES

LABORATORY TEST RESULTS

Job Number: 970333 Date: 04/14/97

CUSTOMER: Fugro Environmental PROJECT: 0561-0137 HOBBS, NM ATTN: Bob Huck

Customer Sample ID: B-3B
Date Sampled.....: 02/04/97
Time Sampled.....: 16:55
Sample Matrix.....: Soil

Laboratory Sample ID: 970333-6
Date Received.....: 02/06/97
Time Received.....: 09:15

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	REPORTING LIMIT	UNITS	DATE	TECH
EPA 418.1	Total Recoverable Petroleum Hydrocarbons, Solid	27	10.	mg/Kg	02/11/97	jbd

CORE LABORATORIES

LABORATORY TEST RESULTS

Job Number: 970333 Date: 04/14/97

CUSTOMER: Fugro Environmental PROJECT: 0561-0137 HOBBS, NM ATTN: Bob Huck

Customer Sample ID: B-4A
Date Sampled.....: 02/04/97
Time Sampled.....: 17:05
Sample Matrix.....: Soil

Laboratory Sample ID: 970333-7
Date Received.....: 02/06/97
Time Received.....: 09:15

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	REPORTING LIMIT	UNITS	DATE	TECH
EPA 418.1	Total Recoverable Petroleum Hydrocarbons, Solid	570	20	mg/Kg	02/11/97	jbd

CORE LABORATORIES

QUALITY CONTROL RESULTS

Job Number: 970333 Date: 04/14/97

CUSTOMER: Fugro Environmental PROJECT: 0561-0137 HOBBS, NM ATTN: Bob Huck

Test Method.....: EPA 418.1 Batch.....: 18675 Analyst...: jbd
Method Description.: Total Recoverable Petroleum Hydrocarbons Reporting Limit...: 1.
Parameter.....: Total Recoverable Petroleum Hydrocarbons Units.....: mg/L

QC	Lab ID	Reagent	QC Result	QC Result	True Value	Orig. Value	Calc. Result	Units	Date/Time
ICB		R020397M	0						02/11/97 0830
MB		R020397M	0						02/11/97 0830
CCB		R020397M	0						02/11/97 0830
ICV		940114A	46		43		107.0	% REC	02/11/97 0830
CCV		X970205C	50		50		100.0	% REC	02/11/97 0830
MS	970333-1	H961009A	704.5275		246.850629	479.8996	91.0	% REC	02/11/97 0830
MSD	970333-1	H961009A	727.8540	704.5275	246.850629	479.8996	100.4	% REC	02/11/97 0830
							3.3	RPD	
MD	970333-7		270.3988			284.4255	5.1	RPD	02/11/97 0830

Test Method.....: SW-846 8015Mod Batch.....: 18908 Analyst...: vdt
Method Description.: Total Volatile Petroleum Hydrocarbons Reporting Limit...: 0.3
Parameter.....: Total Volatile Petroleum Hydrocarbons Units.....: mg/L

QC	Lab ID	Reagent	QC Result	QC Result	True Value	Orig. Value	Calc. Result	Units	Date/Time
MB			0.0						02/21/97 0954
MS	970407-2	T970221B	1.676		2.0050	0.0	83.6	% REC	02/21/97 1227
MSD	970407-2	T970221B	1.706	1.676	2.0050	0.0	85.1	% REC	02/21/97 1302
							1.8	RPD	

Test Method.....: SW-846 7471 Batch.....: 18999 Analyst...: lmt
Method Description.: Mercury (CVAA) Reporting Limit...: 0.0002
Parameter.....: Mercury (Hg) Units.....: mg/L

QC	Lab ID	Reagent	QC Result	QC Result	True Value	Orig. Value	Calc. Result	Units	Date/Time
ICV		961007G	0.004123		0.004000		103.1	% REC	02/25/97 0958
ICB		02257	-0.000011						02/25/97 1000
MB		0224	-0.000119						02/25/97 1015
SB		970129B	0.005854		0.005000		117.1	% REC	02/25/97 1017
SBD		970129B	0.005697		0.005000	0.005854	113.9	% REC	02/25/97 1019
LCS		970018	0.010044		0.010010		100.3	% REC	02/25/97 1021
LCD		970018	0.010098		0.008580		117.7	% REC	02/25/97 1022
MD	970333-1		-0.000000			0.000113	0.00011	ABS Diff.	02/25/97 1026
MS	970437-1	970129B	0.006613		0.005000	0.001199	108.3	% REC	02/25/97 1031
CCV		960930N	0.004979		0.005000		99.6	% REC	02/25/97 1034
CCB		02257	0.000019						02/25/97 1036
CCV		960930N	0.005026		0.005000		100.5	% REC	02/25/97 1058
CCB		02257	0.000015						02/25/97 1100
MB		0224	-0.000036						02/25/97 1104
SB		970129B	0.005499		0.005000		110.0	% REC	02/25/97 1106
SBD		970129B	0.005542		0.005000		110.9	% REC	02/25/97 1108
MD	970469-1		-0.000096			-0.000060	0.00003	ABS Diff.	02/25/97 1120
CCV		960930N	0.004951		0.005000		99.0	% REC	02/25/97 1122
CCB		02257	0.000037						02/25/97 1124
MS	970469-4	970129B	0.005385		0.005000	-0.000091	109.5	% REC	02/25/97 1131
MSD	970469-4	970129B	0.005419	0.00538	0.005000	-0.000091	110.2	% REC	02/25/97 1133
							0.6	RPD	
CCV		960930N	0.004890		0.005000		97.8	% REC	02/25/97 1145
CCB		02257	0.000054						02/25/97 1147

CORE LAB

CORE LABORATORIES

QUALITY CONTROL RESULTS

Job Number: 970333 Date: 04/14/97

CUSTOMER: Fugro Environmental PROJECT: 0561-0137 HOBBS, NM ATTN: Bob Huck

Test Method.....: SW-846 7471 Batch.....: 18999 Analyst...: lmt
Method Description.: Mercury (CVAA) Reporting Limit...: 0.0002
Parameter.....: Mercury (Hg) Units.....: mg/L

QC	Lab ID	Reagent	QC Result	QC Result	True Value	Orig. Value	Calc. Result	Units	Date/Time
CCV		960930N	0.005015		0.005000		100.3	% REC	02/25/97 1159
CCB		02257	0.000048						02/25/97 1201
CCV		960930N	0.004879		0.005000		97.6	% REC	02/25/97 1209
CCB		02257	0.000064						02/25/97 1211

Test Method.....: SW-846 6010A Batch.....: 19010 Analyst...: smh
Method Description.: Metals Analysis (ICAP) Reporting Limit...: 0.05
Parameter.....: Arsenic (As) Units.....: mg/L

QC	Lab ID	Reagent	QC Result	QC Result	True Value	Orig. Value	Calc. Result	Units	Date/Time
ICV		961104S	1.93370		2.0		96.7	% REC	02/25/97 1927
ICB		970130S	0.00102						02/25/97 1943
ISB		970210V	0.95921		1.000		95.9	% REC	02/25/97 1953
CRI		970203W	0.00369		0.002500		147.6	% REC	02/25/97 2104
MB		0224	0.00009						02/25/97 2108
LCS		970018	0.97737		1.084210		90.1	% REC	02/25/97 2112
MD	970407-1		0.10148			0.08730	0.01418	ABS Diff.	02/25/97 2131
CCV		970218S	2.36303		2.5		94.5	% REC	02/25/97 2150
CCB		970130S	0.00110						02/25/97 2200
MS	970432-1	970126Y	0.95232		1.000	0.02427	92.8	% REC	02/25/97 2232
CCV		970218S	2.35265		2.5		94.1	% REC	02/25/97 2255
CCB		970130S	0.00072						02/25/97 2300
CCV		970218S	2.34001		2.5		93.6	% REC	02/25/97 2340
CCB		970130S	0.00102						02/25/97 2349
CCV		970218S	2.34153		2.5		93.7	% REC	02/26/97 0025
CCB		970130S	-0.00036						02/26/97 0031
CRI		970203W	0.00304		0.002500		121.6	% REC	02/26/97 0034
ISB		970210V	0.92496		1.000		92.5	% REC	02/26/97 0040
CCV		970218S	2.34157		2.5		93.7	% REC	02/26/97 0048
CCB		970130S	0.00064						02/26/97 0053

Test Method.....: SW-846 6010A Batch.....: 19010 Analyst...: smh
Method Description.: Metals Analysis (ICAP) Reporting Limit...: 0.01
Parameter.....: Barium (Ba) Units.....: mg/L

QC	Lab ID	Reagent	QC Result	QC Result	True Value	Orig. Value	Calc. Result	Units	Date/Time
ICV		960725M	1.03296		1.00		103.3	% REC	02/25/97 1931
ICB		970130S	-0.00002						02/25/97 1943
ISB		970210V	0.44633		0.5000		89.3	% REC	02/25/97 1953
CRI		970203W	0.00544		0.005000		108.8	% REC	02/25/97 2104
MB		0224	0.00016						02/25/97 2108
LCS		970018	1.66502		1.789473		93.0	% REC	02/25/97 2112
MD	970407-1		0.30618			0.29468	3.8	RPD	02/25/97 2131
CCV		970218S	4.91519		5.0		98.3	% REC	02/25/97 2150
CCB		970130S	0.00019						02/25/97 2200
MS	970432-1	970126Y	1.39061		1.000	0.43247	95.8	% REC	02/25/97 2232
CCV		970218S	4.87209		5.0		97.4	% REC	02/25/97 2255
CCB		970130S	0.00025						02/25/97 2300
CCV		970218S	4.86256		5.0		97.3	% REC	02/25/97 2340

CORE LABORATORIES

QUALITY CONTROL RESULTS

Job Number: 970333 Date: 04/14/97

CUSTOMER: Fugro Environmental PROJECT: 0561-0137 HOBBS, NM ATTN: Bob Huck

Test Method.....: SW-846 6010A
Method Description.: Metals Analysis (ICAP)
Parameter.....: Barium (Ba)
Batch.....: 19010
Reporting Limit...: 0.01
Units.....: mg/L
Analyst...: smh

QC	Lab ID	Reagent	QC Result	QC Result	True Value	Orig. Value	Calc. Result	Units	Date/Time
CCB		970130S	0.00016						02/25/97 2349
CCV		970218S	4.84157		5.0		96.8	% REC	02/26/97 0025
CCB		970130S	0.00022						02/26/97 0031
CRI		970203W	0.00550		0.005000		110.0	% REC	02/26/97 0034
ISB		970210V	0.42492		0.5000		85.0	% REC	02/26/97 0040
CCV		970218S	4.81922		5.0		96.4	% REC	02/26/97 0048
CCB		970130S	0.00022						02/26/97 0053

Test Method.....: SW-846 6010A
Method Description.: Metals Analysis (ICAP)
Parameter.....: Cadmium (Cd)
Batch.....: 19010
Reporting Limit...: 0.005
Units.....: mg/L
Analyst...: smh

QC	Lab ID	Reagent	QC Result	QC Result	True Value	Orig. Value	Calc. Result	Units	Date/Time
ICV		961104S	1.99032		2.0		99.5	% REC	02/25/97 1927
ICB		970130S	-0.00023						02/25/97 1943
ISB		970210V	0.87938		1.000		87.9	% REC	02/25/97 1953
CRI		970203W	0.00040		0.000500		80.0	% REC	02/25/97 2104
MB		0224	0.00027						02/25/97 2108
LCS		970018	0.83229		0.934736		89.0	% REC	02/25/97 2112
MD	970407-1		0.00019			0.00034	0.00015	ABS Diff.	02/25/97 2131
CCV		970218S	0.97372		1.0		97.4	% REC	02/25/97 2150
CCB		970130S	0.00004						02/25/97 2200
MS	970432-1	970126Y	0.94817		1.000	0.00004	94.8	% REC	02/25/97 2232
CCV		970218S	0.96535		1.0		96.5	% REC	02/25/97 2255
CCB		970130S	-0.00020						02/25/97 2300
CCV		970218S	0.96301		1.0		96.3	% REC	02/25/97 2340
CCB		970130S	-0.00020						02/25/97 2349
CCV		970218S	0.96052		1.0		96.1	% REC	02/26/97 0025
CCB		970130S	-0.00014						02/26/97 0031
CRI		970203W	0.00041		0.000500		82.0	% REC	02/26/97 0034
ISB		970210V	0.84635		1.000		84.6	% REC	02/26/97 0040
CCV		970218S	0.96061		1.0		96.1	% REC	02/26/97 0048
CCB		970130S	-0.00018						02/26/97 0053

Test Method.....: SW-846 6010A
Method Description.: Metals Analysis (ICAP)
Parameter.....: Chromium (Cr)
Batch.....: 19010
Reporting Limit...: 0.01
Units.....: mg/L
Analyst...: smh

QC	Lab ID	Reagent	QC Result	QC Result	True Value	Orig. Value	Calc. Result	Units	Date/Time
ICV		961104S	2.01849		2.0		100.9	% REC	02/25/97 1927
ICB		970130S	-0.00011						02/25/97 1943
ISB		970210V	0.45372		0.5000		90.7	% REC	02/25/97 1953
CRI		970203W	0.00294		0.002500		117.6	% REC	02/25/97 2104
MB		0224	0.00158						02/25/97 2108
LCS		970018	1.34579		1.400000		96.1	% REC	02/25/97 2112
MD	970407-1		0.11171			0.09427	16.9	RPD	02/25/97 2131
CCV		970218S	2.49728		2.5		99.9	% REC	02/25/97 2150
CCB		970130S	-0.00022						02/25/97 2200
MS	970432-1	970126Y	1.12166		1.000	0.09778	102.4	% REC	02/25/97 2232

CORE LABORATORIES

QUALITY CONTROL RESULTS

Job Number: 970333 Date: 04/14/97

CUSTOMER: Fugro Environmental PROJECT: 0561-0137 HOBBS, NM ATTN: Bob Huck

Test Method.....: SW-846 6010A
Method Description.: Metals Analysis (ICAP)
Parameter.....: Chromium (Cr)
Batch.....: 19010
Reporting Limit...: 0.01
Units.....: mg/L
Analyst...: smh

QC	Lab ID	Reagent	QC Result	QC Result	True Value	Orig. Value	Calc. Result	Units	Date/Time
CCV		970218S	2.48044		2.5		99.2	% REC	02/25/97 2255
CCB		970130S	-0.00034						02/25/97 2300
CCV		970218S	2.47755		2.5		99.1	% REC	02/25/97 2340
CCB		970130S	-0.00045						02/25/97 2349
CCV		970218S	2.47375		2.5		99.0	% REC	02/26/97 0025
CCB		970130S	-0.00005						02/26/97 0031
CRI		970203W	0.00203		0.002500		81.2	% REC	02/26/97 0034
ISB		970210V	0.44041		0.5000		88.1	% REC	02/26/97 0040
CCV		970218S	2.46814		2.5		98.7	% REC	02/26/97 0048
CCB		970130S	0.00011						02/26/97 0053

Test Method.....: SW-846 6010A
Method Description.: Metals Analysis (ICAP)
Parameter.....: Lead (Pb)
Batch.....: 19010
Reporting Limit...: 0.05
Units.....: mg/L
Analyst...: smh

QC	Lab ID	Reagent	QC Result	QC Result	True Value	Orig. Value	Calc. Result	Units	Date/Time
ICV		961104S	2.00625		2.0		100.3	% REC	02/25/97 1927
ICB		970130S	0.00038						02/25/97 1943
ISB		970210V	0.89033		1.000		89.0	% REC	02/25/97 1953
CRI		970203W	0.00228		0.002500		91.2	% REC	02/25/97 2104
MB		0224	0.00155						02/25/97 2108
LCS		970018	0.80669		0.909473		88.7	% REC	02/25/97 2112
MD	970407-1		0.04515			0.04981	0.00466	ABS Diff.	02/25/97 2131
CCV		970218S	0.97735		1.0		97.7	% REC	02/25/97 2150
CCB		970130S	-0.00045						02/25/97 2200
MS	970432-1	970126Y	0.98712		1.000	0.03479	95.2	% REC	02/25/97 2232
CCV		970218S	0.96975		1.0		97.0	% REC	02/25/97 2255
CCB		970130S	0.00068						02/25/97 2300
CCV		970218S	0.96632		1.0		96.6	% REC	02/25/97 2340
CCB		970130S	0.00009						02/25/97 2349
CCV		970218S	0.96324		1.0		96.3	% REC	02/26/97 0025
CCB		970130S	0.00078						02/26/97 0031
CRI		970203W	0.00287		0.002500		114.8	% REC	02/26/97 0034
ISB		970210V	0.85406		1.000		85.4	% REC	02/26/97 0040
CCV		970218S	0.96621		1.0		96.6	% REC	02/26/97 0048
CCB		970130S	0.00083						02/26/97 0053

Test Method.....: SW-846 6010A
Method Description.: Metals Analysis (ICAP)
Parameter.....: Selenium (Se)
Batch.....: 19010
Reporting Limit...: 0.1
Units.....: mg/L
Analyst...: smh

QC	Lab ID	Reagent	QC Result	QC Result	True Value	Orig. Value	Calc. Result	Units	Date/Time
ICV		961104S	1.82867		2.0		91.4	% REC	02/25/97 1927
ICB		970130S	-0.00669						02/25/97 1943
ISB		970210V	0.93248		1.000		93.2	% REC	02/25/97 1953
CRI		970203W	-0.00277		0.002500		-110.8	% REC	02/25/97 2104
MB		0224	-0.00054						02/25/97 2108
LCS		970018	1.16437		1.357894		85.7	% REC	02/25/97 2112
MD	970407-1		0.02807			0.03036	0.00229	ABS Diff.	02/25/97 2131

CORE LABORATORIES

QUALITY CONTROL RESULTS

Job Number: 970333 Date: 04/14/97

CUSTOMER: Fugro Environmental PROJECT: 0561-0137 HOBBS, NM ATTN: Bob Huck

Test Method.....: SW-846 6010A
Method Description.: Metals Analysis (ICAP)
Parameter.....: Selenium (Se)
Batch.....: 19010
Reporting Limit...: 0.1
Units.....: mg/L
Analyst...: smh

QC	Lab ID	Reagent	QC Result	QC Result	True Value	Orig. Value	Calc. Result	Units	Date/Time
CCV		970218S	2.61128		2.5		104.5	% REC	02/25/97 2150
CCB		970130S	-0.00841						02/25/97 2200
MS	970432-1	970126Y	1.01512		1.000	-0.00628	102.1	% REC	02/25/97 2232
CCV		970218S	2.58053		2.5		103.2	% REC	02/25/97 2255
CCB		970130S	-0.00590						02/25/97 2300
CCV		970218S	2.57865		2.5		103.1	% REC	02/25/97 2340
CCB		970130S	0.00705						02/25/97 2349
CCV		970218S	2.57432		2.5		103.0	% REC	02/26/97 0025
CCB		970130S	0.00793						02/26/97 0031
CRI		970203W	0.01204		0.002500		481.6	% REC	02/26/97 0034
ISB		970210V	1.06723		1.000		106.7	% REC	02/26/97 0040
CCV		970218S	2.57989		2.5		103.2	% REC	02/26/97 0048
CCB		970130S	0.00686						02/26/97 0053

Test Method.....: SW-846 6010A
Method Description.: Metals Analysis (ICAP)
Parameter.....: Silver (Ag)
Batch.....: 19010
Reporting Limit...: 0.01
Units.....: mg/L
Analyst...: smh

QC	Lab ID	Reagent	QC Result	QC Result	True Value	Orig. Value	Calc. Result	Units	Date/Time
ICV		960725M	1.06485		1.00		106.5	% REC	02/25/97 1931
ICB		970130S	-0.00003						02/25/97 1943
ISB		970210V	0.85781		1.000		85.8	% REC	02/25/97 1953
CRI		970203W	0.00252		0.005000		50.4	% REC	02/25/97 2104
MB		0224	0.00130						02/25/97 2108
LCS		970018	1.34598		1.231578		109.3	% REC	02/25/97 2112
MD	970407-1		0.00200			0.00025	0.00175	ABS Diff.	02/25/97 2131
CCV		970222S	2.52890		2.500		101.2	% REC	02/25/97 2144
CCB		970130S	-0.00024						02/25/97 2200
MS	970432-1	970126Y	0.99244		1.000	0.00159	99.1	% REC	02/25/97 2232
CCV		970222S	2.50932		2.500		100.4	% REC	02/25/97 2252
CCB		970130S	-0.00001						02/25/97 2300
CCV		970222S	2.48282		2.500		99.3	% REC	02/25/97 2337
CCB		970130S	-0.00013						02/25/97 2349
CCV		970222S	2.49223		2.500		99.7	% REC	02/26/97 0022
CCB		970130S	-0.00068						02/26/97 0031
CRI		970203W	0.00053		0.005000		10.6	% REC	02/26/97 0034
ISB		970210V	0.99870		1.000		99.9	% REC	02/26/97 0040
CCV		970222S	2.49506		2.500		99.8	% REC	02/26/97 0045
CCB		970130S	-0.00017						02/26/97 0053

Test Method.....: SW-846 8015Mod.
Method Description.: Total Extractable Petroleum Hydrocarbons
Parameter.....: TEPH - as Diesel
Batch.....: 19019
Reporting Limit...: 0.5
Units.....: mg/L
Analyst...: rwm

QC	Lab ID	Reagent	QC Result	QC Result	True Value	Orig. Value	Calc. Result	Units	Date/Time
MB		MB2495	0						02/24/97 1136
SB		F970107F	111.007		125.125000		88.7	% REC	02/24/97 1223
SBD		F970107F	122.522		125.125000		97.9	% REC	02/24/97 1310

QUALITY CONTROL RESULTS

Job Number: 970333 Date: 04/14/97

CUSTOMER: Fugro Environmental PROJECT: 0561-0137 HOBBS, NM ATTN: Bob Huck

Test Method.....: SW-846 6010A Batch.....: 20586 Analyst...: smh
Method Description.: TCLP Metals Analysis (ICAP) Reporting Limit...: 0.5
Parameter.....: Barium (Ba) Units.....: mg/L

QC	Lab ID	Reagent	QC Result	QC Result	True Value	Orig. Value	Calc. Result	Units	Date/Time
ICV		961213T	1.04413		1.00		104.4	% REC	04/09/97 1025
ICB		970303T	0.00002						04/09/97 1151
ISB		970316V	0.43562		0.5000		87.1	% REC	04/09/97 1216
CRI		970324W	0.00550		0.005000		110.0	% REC	04/09/97 1247
CCV		970222T	5.12610		5.0		102.5	% REC	04/09/97 1335
CCB		970303T	-0.00050						04/09/97 1417
CCV		970222T	4.90994		5.0		98.2	% REC	04/09/97 1638
CCB		970303T	-0.00000						04/09/97 1716
CCV		970222T	5.01550		5.0		100.3	% REC	04/09/97 1917
CCB		970303T	0.00003						04/09/97 2016
CCV		970222T	4.98987		5.0		99.8	% REC	04/10/97 0003
CCB		970303T	0.00038						04/10/97 0020
CCV		970222T	5.04781		5.0		101.0	% REC	04/10/97 0228
CCB		970303T	0.00000						04/10/97 0259
MB		0409	0.00018						04/10/97 0312
EB		0408	0.01495						04/10/97 0317
SB		970403Y	1.09300		1.000		109.3	% REC	04/10/97 0320
SBD		970403Y	1.10004	1.09300	1.000		110.0	% REC	04/10/97 0326
							0.6	RPD	
MD	970883-1		0.14448			0.14991	0.00543	ABS Diff.	04/10/97 0347
ED	970883-1		0.15674			0.14991	0.00683	ABS Diff.	04/10/97 0350
CCV		970222T	5.02372		5.0		100.5	% REC	04/10/97 0412
CCB		970303T	0.00040						04/10/97 0429
MS	970895-2	970403Y	1.01591		1.000	0.12001	89.6	% REC	04/10/97 0446
CRI		970324W	0.00612		0.005000		122.4	% REC	04/10/97 0457
ISB		970316V	0.43962		0.5000		87.9	% REC	04/10/97 0504
CCV		970222T	4.79486		5.0		95.9	% REC	04/10/97 0525
CCB		970303T	0.00040						04/10/97 0535

Test Method.....: SW-846 6010A Batch.....: 20586 Analyst...: smh
Method Description.: TCLP Metals Analysis (ICAP) Reporting Limit...: 0.01
Parameter.....: Cadmium (Cd) Units.....: mg/L

QC	Lab ID	Reagent	QC Result	QC Result	True Value	Orig. Value	Calc. Result	Units	Date/Time
ICV		961024T	2.03387		2.00		101.7	% REC	04/09/97 0959
ICB		970303T	-0.00003						04/09/97 1151
ISB		970316V	0.82901		1.000		82.9	% REC	04/09/97 1216
CRI		970324W	0.00091		0.000500		182.0	% REC	04/09/97 1247
CCV		970222T	1.02153		1.0		102.2	% REC	04/09/97 1335
CCB		970303T	0.00005						04/09/97 1417
CCV		970222T	0.98166		1.0		98.2	% REC	04/09/97 1638
CCB		970303T	-0.00034						04/09/97 1716
CCV		970222T	1.01344		1.0		101.3	% REC	04/09/97 1917
CCB		970303T	0.00004						04/09/97 2016
CCV		970222T	0.99699		1.0		99.7	% REC	04/10/97 0003
CCB		970303T	0.00001						04/10/97 0020
CCV		970222T	1.00877		1.0		100.9	% REC	04/10/97 0228
CCB		970303T	-0.00034						04/10/97 0259
MB		0409	-0.00011						04/10/97 0312
EB		0408	0.00031						04/10/97 0317
SB		970403Y	1.05434		1.000		105.4	% REC	04/10/97 0320

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CORE LABORATORIES

QUALITY CONTROL RESULTS

Job Number: 970333 Date: 04/14/97

CUSTOMER: Fugro Environmental PROJECT: 0561-0137 HOBBS, NM ATTN: Bob Huck

Test Method.....: SW-846 6010A
Method Description.: TCLP Metals Analysis (ICAP)
Parameter.....: Cadmium (Cd)
Batch.....: 20586
Reporting Limit...: 0.01
Units.....: mg/L
Analyst...: smh

QC	Lab ID	Reagent	QC Result	QC Result	True Value	Orig. Value	Calc. Result	Units	Date/Time
SBD		970403Y	1.05753	1.05434	1.000		105.8	% REC	04/10/97 0326
							0.3	RPD	
MD	970883-1		0.32049			0.31775	0.9	RPD	04/10/97 0347
ED	970883-1		0.34556			0.31775	8.4	RPD	04/10/97 0350
CCV		970222T	1.00812		1.0		100.8	% REC	04/10/97 0412
CCB		970303T	0.00012						04/10/97 0429
MS	970895-2	970403Y	0.86040		1.000	0.00238	85.8	% REC	04/10/97 0446
CRI		970324W	0.00064		0.000500		128.0	% REC	04/10/97 0457
ISB		970316V	0.93346		1.000		93.3	% REC	04/10/97 0504
CCV		970222T	1.01594		1.0		101.6	% REC	04/10/97 0525
CCB		970303T	-0.00002						04/10/97 0535

Test Method.....: SW-846 6010A
Method Description.: TCLP Metals Analysis (ICAP)
Parameter.....: Chromium (Cr)
Batch.....: 20586
Reporting Limit...: 0.01
Units.....: mg/L
Analyst...: smh

QC	Lab ID	Reagent	QC Result	QC Result	True Value	Orig. Value	Calc. Result	Units	Date/Time
ICV		961024T	2.03993		2.00		102.0	% REC	04/09/97 0959
ICB		970303T	-0.00019						04/09/97 1151
ISB		970316V	0.44474		0.5000		88.9	% REC	04/09/97 1216
CRI		970324W	0.00281		0.002500		112.4	% REC	04/09/97 1247
CCV		970222T	2.55303		2.5		102.1	% REC	04/09/97 1335
CCB		970303T	-0.00053						04/09/97 1417
CCV		970222T	2.46884		2.5		98.8	% REC	04/09/97 1638
CCB		970303T	0.00044						04/09/97 1716
CCV		970222T	2.56015		2.5		102.4	% REC	04/09/97 1917
CCB		970303T	0.00008						04/09/97 2016
CCV		970222T	2.50949		2.5		100.4	% REC	04/10/97 0003
CCB		970303T	0.00032						04/10/97 0020
CCV		970222T	2.52439		2.5		101.0	% REC	04/10/97 0228
CCB		970303T	0.00033						04/10/97 0259
MB		0409	0.00066						04/10/97 0312
EB		0408	-0.00147						04/10/97 0317
SB		970403Y	1.06904		1.000		106.9	% REC	04/10/97 0320
SBD		970403Y	1.07586	1.06904	1.000		107.6	% REC	04/10/97 0326
							0.6	RPD	
MD	970883-1		0.06462			0.06840	5.7	RPD	04/10/97 0347
ED	970883-1		0.07078			0.06840	3.4	RPD	04/10/97 0350
CCV		970222T	2.52175		2.5		100.9	% REC	04/10/97 0412
CCB		970303T	0.00022						04/10/97 0429
MS	970895-2	970403Y	0.89202		1.000	0.01323	87.9	% REC	04/10/97 0446
CRI		970324W	0.00345		0.002500		138.0	% REC	04/10/97 0457
ISB		970316V	0.47774		0.5000		95.5	% REC	04/10/97 0504
CCV		970222T	2.50837		2.5		100.3	% REC	04/10/97 0525
CCB		970303T	0.00007						04/10/97 0535

CORE LABORATORIES

QUALITY CONTROL RESULTS

Job Number: 970333 Date: 04/14/97

CUSTOMER: Fugro Environmental PROJECT: 0561-0137 HOBBS, NM ATTN: Bob Huck

Test Method.....: SW-846 6010A Batch.....: 20586 Analyst...: smh
Method Description.: TCLP Metals Analysis (ICAP) Reporting Limit...: 0.05
Parameter.....: Lead (Pb) Units.....: mg/L

QC	Lab ID	Reagent	QC Result	QC Result	True Value	Orig. Value	Calc. Result	Units	Date/Time
ICV		961024T	2.03779		2.00		101.9	% REC	04/09/97 0959
ICB		970303T	0.00069						04/09/97 1151
ISB		970316V	0.82053		1.000		82.1	% REC	04/09/97 1216
CRI		970324W	0.00480		0.002500		192.0	% REC	04/09/97 1247
CCV		970222T	1.01702		1.0		101.7	% REC	04/09/97 1335
CCB		970303T	0.00069						04/09/97 1417
CCV		970222T	0.97769		1.0		97.8	% REC	04/09/97 1638
CCB		970303T	0.00070						04/09/97 1716
CCV		970222T	1.00020		1.0		100.0	% REC	04/09/97 1917
CCB		970303T	0.00068						04/09/97 2016
CCV		970222T	0.99545		1.0		99.5	% REC	04/10/97 0003
CCB		970303T	-0.00186						04/10/97 0020
CCV		970222T	1.00346		1.0		100.3	% REC	04/10/97 0228
CCB		970303T	0.00067						04/10/97 0259
MB		0409	0.00035						04/10/97 0312
EB		0408	-0.00878						04/10/97 0317
SB		970403Y	1.06769		1.000		106.8	% REC	04/10/97 0320
SBD		970403Y	1.07463	1.06769	1.000		107.5	% REC	04/10/97 0326
							0.6	RPD	
MD	970883-1		0.03664			0.03700	0.00036	ABS Diff.	04/10/97 0347
ED	970883-1		0.05111			0.03700	0.01411	ABS Diff.	04/10/97 0350
CCV		970222T	1.00178		1.0		100.2	% REC	04/10/97 0412
CCB		970303T	-0.00262						04/10/97 0429
MS	970895-2	970403Y	0.92681		1.000	0.02982	89.7	% REC	04/10/97 0446
CRI		970324W	0.00157		0.002500		62.8	% REC	04/10/97 0457
ISB		970316V	0.91371		1.000		91.4	% REC	04/10/97 0504
CCV		970222T	1.00437		1.0		100.4	% REC	04/10/97 0525
CCB		970303T	-0.00230						04/10/97 0535

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CORE LABORATORIES

QUALITY CONTROL RESULTS

Job Number: 970333 Date: 04/14/97

CUSTOMER: Fugro Environmental PROJECT: 0561-0137 HOBBS, NM ATTN: Bob Huck

QC Type	Description	Reag. Code	Lab ID	Dilution Factor	Date	Time

Test Method.....: SW-846 8260 Batch.....: 18988 Analyst ...: dmj
Method Description.: Volatile Organics Units.....: ug/L

RS	Reference Standard	V970224C			02/24/97	1323

Parameter/Test Description	QC Result	QC Result	Rep. Limit	True Value	Orig. Value	Calc. Result	Units
Benzene	49.51		1	50.3		98.4	% REC
Bromodichloromethane	49.99		5	50.3		99.4	% REC
Bromoform	45.80		5	50.2		91.2	% REC
Carbon tetrachloride	49.87		5	50.3		99.1	% REC
Chlorobenzene	47.80		5	50.3		95.0	% REC
Chloroform	52.13		5	50.2		103.8	% REC
Dibromochloromethane	47.64		5	50.2		94.9	% REC
1,2-Dichlorobenzene	48.28		5	50.2		96.2	% REC
1,3-Dichlorobenzene	49.34		5	50.2		98.3	% REC
1,4-Dichlorobenzene	49.18		5	50.2		98.0	% REC
1,1-Dichloroethane	54.34		5	50.2		108.2	% REC
1,2-Dichloroethane	49.86		5	50.3		99.1	% REC
1,1-Dichloroethene	47.35		5	50.3		94.1	% REC
trans-1,2-Dichloroethene	48.63		5	50.3		96.7	% REC
1,2-Dichloropropane	47.91		5	50.3		95.2	% REC
Ethylbenzene	47.32		5	50.3		94.1	% REC
Methylene chloride	50.40		5	50.2		100.4	% REC
1,1,2,2-Tetrachloroethane	49.65		5	50.3		98.7	% REC
Tetrachloroethene	44.51		5	50.3		88.5	% REC
Toluene	49.30		5	50.2		98.2	% REC
1,1,1-Trichloroethane	51.10		5	50.2		101.8	% REC
1,1,2-Trichloroethane	49.13		5	50.3		97.7	% REC
Trichloroethene	50.12		5	50.2		99.8	% REC

MB	Method Blank	ABN11			02/24/97	1423

Parameter/Test Description	QC Result	QC Result	Rep. Limit	True Value	Orig. Value	Calc. Result	Units
Benzene	ND		1				
Bromobenzene	ND		5				
Bromochloromethane	ND		5				
Bromodichloromethane	ND		5				
Bromoform	ND		5				
Bromomethane	ND		10				
n-Butylbenzene	ND		5				
sec-Butylbenzene	ND		5				
tert-Butylbenzene	ND		5				
Carbon tetrachloride	ND		5				
Chlorobenzene	ND		5				
Chloroethane	ND		10				
Chloroform	ND		5				
Chloromethane	ND		10				
o-Chlorotoluene	ND		5				
p-Chlorotoluene	ND		5				
Dibromochloromethane	ND		5				
1,2-Dibromo-3-chloropropane	ND		5				
1,2-Dibromoethane (EDB)	ND		5				

CORE LABORATORIES

QUALITY CONTROL RESULTS

Job Number: 970333 Date: 04/14/97

CUSTOMER: Fugro Environmental PROJECT: 0561-0137 HOBBS, NM ATTN: Bob Huck

QC Type	Description	Reag. Code	Lab ID	Dilution Factor	Date	Time
MB	Method Blank	ABN11			02/24/97	1423

Parameter/Test Description	QC Result	QC Result	Rep. Limit	True Value	Orig. Value	Calc. Result	Units
Dibromomethane	ND		5				
1,2-Dichlorobenzene	ND		5				
1,3-Dichlorobenzene	ND		5				
1,4-Dichlorobenzene	ND		5				
Dichlorodifluoromethane	ND		5				
1,1-Dichloroethane	ND		5				
1,2-Dichloroethane	ND		5				
1,1-Dichloroethene	ND		5				
cis-1,2-Dichloroethene	ND		5				
trans-1,2-Dichloroethene	ND		5				
1,2-Dichloropropane	ND		5				
1,3-Dichloropropane	ND		5				
2,2-Dichloropropane	ND		5				
1,1-Dichloropropene	ND		5				
Ethylbenzene	ND		5				
Hexachlorobutadiene	ND		5				
Isopropylbenzene	ND		5				
p-Isopropyltoluene	ND		5				
Methylene chloride	2.08		5				
Naphthalene	ND		5				
n-Propylbenzene	ND		5				
Styrene	ND		5				
1,1,1,2-Tetrachloroethane	ND		5				
1,1,2,2-Tetrachloroethane	ND		5				
Tetrachloroethene	ND		5				
Toluene	ND		5				
1,2,3-Trichlorobenzene	ND		5				
1,2,4-Trichlorobenzene	ND		5				
1,1,1-Trichloroethane	ND		5				
1,1,2-Trichloroethane	ND		5				
Trichloroethene	ND		5				
Trichlorofluoromethane	ND		5				
1,2,4-Trimethylbenzene	ND		5				
1,3,5-Trimethylbenzene	ND		5				
1,2,3-Trichloropropane	ND		5				
Vinyl chloride	ND		10				
Xylenes (total)	ND		5				

MS	Matrix Spike	V970224D	970417-4		02/24/97	1709

Parameter/Test Description	QC Result	QC Result	Rep. Limit	True Value	Orig. Value	Calc. Result	Units
Benzene	50.97		1	49.30	ND	103.4	% REC
Chlorobenzene	40.64		5	50.200	ND	81.0	% REC
1,1-Dichloroethene	53.13		5	48.95	ND	108.5	% REC
Toluene	45.67		5	50.100	ND	91.2	% REC
Trichloroethene	45.35		5	49.75	ND	91.2	% REC

QUALITY CONTROL RESULTS

Job Number: 970333 Date: 04/14/97

CUSTOMER: Fugro Environmental PROJECT: 0561-0137 HOBBS, NM ATTN: Bob Huck

QC Type	Description	Reag. Code	Lab ID	Dilution Factor	Date	Time
MSD	Matrix Spike Duplicate	V970224D	970417-4		02/24/97	1739

Parameter/Test Description	QC Result	QC Result	Rep. Limit	True Value	Orig. Value	Calc. Result	Units	F
Benzene	51.61	50.97	1	49.30	ND	104.7	% REC	
						1.2	RPD	
Chlorobenzene	40.56	40.64	5	50.200	ND	80.8	% REC	
						0.2	RPD	
1,1-Dichloroethene	52.91	53.13	5	48.95	ND	108.1	% REC	
						0.4	RPD	
Toluene	45.83	45.67	5	50.100	ND	91.5	% REC	
						0.3	RPD	
Trichloroethene	46.43	45.35	5	49.75	ND	93.3	% REC	
						2.4	RPD	

Test Method.....: SW-846 8270 Batch.....: 19181 Analyst ...: mla
Method Description.: Semivolatile Or Units.....: ug/L

MB	Method Blank	MB2498			02/25/97 • 1605

Parameter/Test Description	QC Result	QC Result	Rep. Limit	True Value	Orig. Value	Calc. Result	Units	F
Acenaphthene	ND		10					
Acenaphthylene	ND		10					
Anthracene	ND		10					
Benzidine	ND		50					
Benzo(a)anthracene	ND		10					
Benzo(b)fluoranthene	ND		10					
Benzo(k)fluoranthene	ND		10					
Benzo(ghi)perylene	ND		10					
Benzo(a)pyrene	ND		10					
Benzyl alcohol	ND		10					
Butyl benzyl phthalate	ND		10					
Bis(2-chloroethoxy)methane	ND		10					
Bis(2-chloroethyl)ether	ND		10					
Bis(2-chloroisopropyl)ether	ND		10					
Bis(2-ethylhexyl)phthalate	ND		10					
4-Bromophenyl phenyl ether	ND		10					
4-Chloroaniline	ND		10					
2-Chloronaphthalene	ND		10					
4-Chlorophenyl phenyl ether	ND		10					
Chrysene	ND		10					
Dibenzo(a,h)anthracene	ND		10					
Dibenzofuran	ND		10					
1,2-Dichlorobenzene	ND		10					
1,3-Dichlorobenzene	ND		10					
1,4-Dichlorobenzene	ND		10					
3,3-Dichlorobenzidine	ND		20					
Diethyl phthalate	ND		10					
Dimethyl phthalate	ND		10					
Di-n-butyl phthalate	ND		10					
Di-n-octyl phthalate	ND		10					
2,4-Dinitrotoluene	ND		10					
2,6-Dinitrotoluene	ND		10					

QUALITY CONTROL RESULTS

Job Number: 970333 Date: 04/14/97

CUSTOMER: Fugro Environmental PROJECT: 0561-0137 HOBBS, NM ATTN: Bob Huck

QC Type	Description	Reag. Code	Lab ID	Dilution Factor	Date	Time
MB	Method Blank	MB2498			02/25/97	1605

Parameter/Test Description	QC Result	QC Result	Rep. Limit	True Value	Orig. Value	Calc. Result	Units
Fluoranthene	ND		10				
Fluorene	ND		10				
Hexachlorobenzene	ND		10				
Hexachlorobutadiene	ND		10				
Hexachlorocyclopentadiene	ND		10				
Hexachloroethane	ND		10				
Indeno(1,2,3-cd)pyrene	ND		10				
Isophorone	ND		10				
2-Methylnaphthalene	ND		10				
Naphthalene	ND		10				
o-Nitroaniline	ND		50				
m-Nitroaniline	ND		50				
p-Nitroaniline	ND		50				
Nitrobenzene	ND		10				
n-Nitrosodi-n-propylamine	ND		10				
n-Nitrosodiphenylamine	ND		10				
Phenanthrene	ND		10				
Pyrene	ND		10				
1,2,4-Trichlorobenzene	ND		10				
Benzoic acid	ND		50				
4-Chloro-3-methylphenol	ND		10				
2-Chlorophenol	ND		10				
2,4-Dichlorophenol	ND		10				
2,4-Dimethylphenol	ND		10				
2,4-Dinitrophenol	ND		50				
2-Methyl-4,6-dinitrophenol	ND		50				
2-Methylphenol (o-cresol)	ND		10				
4-Methylphenol (p-cresol)	ND		10				
2-Nitrophenol	ND		10				
4-Nitrophenol	ND		50				
Pentachlorophenol	ND		50				
Phenol	ND		10				
2,4,5-Trichlorophenol	ND		10				
2,4,6-Trichlorophenol	ND		10				

LCS	Laboratory Control Sample	970054			02/25/97	1702

Parameter/Test Description	QC Result	QC Result	Rep. Limit	True Value	Orig. Value	Calc. Result	Units
Acenaphthene	88.90		10	100		88.9	% REC
Acenaphthylene	82.45		10	99		83.3	% REC
Anthracene	92.43		10	100		92.4	% REC
Benzidine	ND		50	100		0.0	% REC
Benzo(a)anthracene	98.43		10	100		98.4	% REC
Benzo(b)fluoranthene	116.73		10	100		116.7	% REC
Benzo(k)fluoranthene	86.48		10	100		86.5	% REC
Benzo(ghi)perylene	99.19		10	100		99.2	% REC
Benzo(a)pyrene	100.83		10	100		100.8	% REC
Benzyl alcohol	86.98		10	100		87.0	% REC
Butyl benzyl phthalate	103.10		10	100		103.1	% REC
Bis(2-chloroethoxy)methane	79.74		10	100		79.7	% REC
Bis(2-chloroethyl)ether	86.67		10	100		86.7	% REC

QUALITY CONTROL RESULTS

Job Number: 970333 Date: 04/14/97

CUSTOMER: Fugro Environmental PROJECT: 0561-0137 HOBBS, NM ATTN: Bob Huck

QC Type	Description	Reag. Code	Lab ID	Dilution Factor	Date	Time
LCS	Laboratory Control Sample	970054			02/25/97	1702

Parameter/Test Description	QC Result	QC Result	Rep. Limit	True Value	Orig. Value	Calc. Result	Units
Bis(2-chloroisopropyl)ether	73.72		10	100		73.7	% REC
Bis(2-ethylhexyl)phthalate	93.11		10	100		93.1	% REC
4-Bromophenyl phenyl ether	84.58		10	100		84.6	% REC
4-Chloroaniline	5.59		10	101		5.5	% REC
2-Chloronaphthalene	85.62		10	100		85.6	% REC
4-Chlorophenyl phenyl ether	76.22		10	100		76.2	% REC
Chrysene	98.68		10	100		98.7	% REC
Dibenzo(a,h)anthracene	68.32		10	100		68.3	% REC
Dibenzofuran	87.32		10	100		87.3	% REC
1,2-Dichlorobenzene	81.17		10	100		81.2	% REC
1,3-Dichlorobenzene	78.74		10	100		78.7	% REC
1,4-Dichlorobenzene	77.89		10	100		77.9	% REC
3,3-Dichlorobenzidine	35.22		20	100		35.2	% REC
Diethyl phthalate	83.74		10	100		83.7	% REC
Dimethyl phthalate	85.02		10	100		85.0	% REC
Di-n-butyl phthalate	79.40		10	100		79.4	% REC
Di-n-octyl phthalate	108.50		10	100		108.5	% REC
2,4-Dinitrotoluene	91.50		10	100		91.5	% REC
2,6-Dinitrotoluene	87.72		10	100		87.7	% REC
Fluoranthene	76.71		10	101		76.0	% REC
Fluorene	86.90		10	100		86.9	% REC
Hexachlorobenzene	84.09		10	100		84.1	% REC
Hexachlorobutadiene	74.28		10	100		74.3	% REC
Hexachlorocyclopentadiene	70.17		10	100		70.2	% REC
Hexachloroethane	78.56		10	100		78.6	% REC
Indeno(1,2,3-cd)pyrene	94.45		10	100		94.5	% REC
Isophorone	84.18		10	100		84.2	% REC
2-Methylnaphthalene	143.68		10	100		143.7	% REC
Naphthalene	84.59		10	101		83.8	% REC
o-Nitroaniline	77.63		50	100		77.6	% REC
m-Nitroaniline	51.51		50	100		51.5	% REC
p-Nitroaniline	72.59		50	100		72.6	% REC
Nitrobenzene	74.73		10	100		74.7	% REC
n-Nitrosodi-n-propylamine	77.87		10	100		77.9	% REC
n-Nitrosodiphenylamine	85.50		10	96		89.1	% REC
Phenanthrene	90.42		10	100		90.4	% REC
Pyrene	105.41		10	101		104.4	% REC
1,2,4-Trichlorobenzene	82.68		10	100		82.7	% REC
Benzoic acid	150.16		50	100		150.2	% REC
4-Chloro-3-methylphenol	94.46		10	100		94.5	% REC
2-Chlorophenol	92.17		10	100		92.2	% REC
2,4-Dichlorophenol	91.98		10	100		92.0	% REC
2,4-Dimethylphenol	88.14		10	100		88.1	% REC
2,4-Dinitrophenol	76.78		50	100		76.8	% REC
2-Methyl-4,6-dinitrophenol	63.27		50	100		63.3	% REC
2-Methylphenol (o-cresol)	92.73		10	100		92.7	% REC
4-Methylphenol (p-cresol)	93.80		10	100		93.8	% REC
2-Nitrophenol	83.84		10	100		83.8	% REC
4-Nitrophenol	85.04		50	100		85.0	% REC
Pentachlorophenol	63.95		50	100		64.0	% REC
Phenol	92.38		10	100		92.4	% REC
2,4,5-Trichlorophenol	87.03		10	100		87.0	% REC
2,4,6-Trichlorophenol	82.49		10	101		81.7	% REC

CORE LABORATORIES

SURROGATE RECOVERIES REPORT

Job Number.: 970333 Report Date: 04/14/97

CUSTOMER: Fugro Environmental PROJECT: 0561-0137 HOBBS, NM ATTN: Bob Huck

Method.....: SW-846 8260 Batch.....: 18988
Method Code.....: 8260 Analyst.....: dmj

Surrogate	Units
4-Bromofluorobenzene	ug/L

Lab ID	Matrix	QC Type	Dilution	Result	True Value	Percent Recovery	Flag	Date	Time
	Solid	RS		48.67	50.179	97.0		02/24/97	1323
	Solid	MB		48.11	50.179	95.9		02/24/97	1423
970417-4	Solid			47.58	50.179	94.8		02/24/97	1639
970417-4	Solid	MS		48.36	50.179	96.4		02/24/97	1709
970417-4	Solid	MSD		46.74	50.179	93.1		02/24/97	1739
970417-5	Solid			48.04	50.179	95.7		02/24/97	1809
970417-6	Solid			48.24	50.179	96.1		02/24/97	1839
970333-1	Solid			48.22	50.179	96.1		02/24/97	2010

Surrogate	Units
Dibromofluoromethane	ug/L

Lab ID	Matrix	QC Type	Dilution	Result	True Value	Percent Recovery	Flag	Date	Time
	Solid	RS		51.29	50.219	102.1		02/24/97	1323
	Solid	MB		51.39	50.219	102.3		02/24/97	1423
970417-4	Solid			53.91	50.219	107.3		02/24/97	1639
970417-4	Solid	MS		54.59	50.219	108.7		02/24/97	1709
970417-4	Solid	MSD		54.21	50.219	107.9		02/24/97	1739
970417-5	Solid			53.98	50.219	107.5		02/24/97	1809
970417-6	Solid			54.86	50.219	109.2		02/24/97	1839
970333-1	Solid			53.26	50.219	106.1		02/24/97	2010

Surrogate	Units
Toluene-d8	ug/L

Lab ID	Matrix	QC Type	Dilution	Result	True Value	Percent Recovery	Flag	Date	Time
	Solid	RS		50.44	50.204	100.5		02/24/97	1323
	Solid	MB		49.99	50.204	99.6		02/24/97	1423
970417-4	Solid			49.05	50.204	97.7		02/24/97	1639
970417-4	Solid	MS		49.75	50.204	99.1		02/24/97	1709
970417-4	Solid	MSD		49.70	50.204	99.0		02/24/97	1739
970417-5	Solid			48.95	50.204	97.5		02/24/97	1809
970417-6	Solid			49.70	50.204	99.0		02/24/97	1839
970333-1	Solid			49.49	50.204	98.6		02/24/97	2010

CORE LABORATORIES

SURROGATE RECOVERIES REPORT

Job Number.: 970333 Report Date: 04/14/97

CUSTOMER: Fugro Environmental PROJECT: 0561-0137 HOBBS, NM ATTN: Bob Huck

Method.....: SW-846 8270 Batch.....: 19181
Method Code.....: 8270C Analyst.....: mla

Surrogate	Units
2,4,6-Tribromophenol	ug/L

Lab ID	Matrix	QC Type	Dilution	Result	True Value	Percent Recovery	Flag	Date	Time
	Solid	MB	1.00	96.37	100.01	96		02/25/97	1605
	Solid	LCS	1.00	89.69	100.01	90		02/25/97	1702
970333-1	Solid		1.00	85.08	100.01	85		02/25/97	1758
970432-1	Solid		1.00	82.32	100.01	82		02/25/97	1855
970437-8	Solid		1.00	83.91	100.01	84		02/25/97	1952
970437-13	Solid		1.00	75.95	100.01	76		02/25/97	2048
970438-1	Solid		1.00	78.36	100.01	78		02/25/97	2144
970452-1	Solid		1.00	99.88	100.01	100		02/25/97	2241
970438-2	Solid		5.00	17.22	100.01	86		02/27/97	2006
970333-1	Solid		1.00	87.73	100.01	88		02/27/97	1214
970452-1	Solid		1.00	96.33	100.01	96		02/27/97	0206

Surrogate	Units
2-Fluorobiphenyl	ug/L

Lab ID	Matrix	QC Type	Dilution	Result	True Value	Percent Recovery	Flag	Date	Time
	Solid	MB	1.00	40.33	50.01	81		02/25/97	1605
	Solid	LCS	1.00	40.57	50.01	81		02/25/97	1702
970333-1	Solid		1.00	41.24	50.01	82		02/25/97	1758
970432-1	Solid		1.00	39.59	50.01	79		02/25/97	1855
970437-8	Solid		1.00	40.37	50.01	81		02/25/97	1952
970437-13	Solid		1.00	38.20	50.01	76		02/25/97	2048
970438-1	Solid		1.00	37.74	50.01	75		02/25/97	2144
970452-1	Solid		1.00	43.80	50.01	88		02/25/97	2241
970438-2	Solid		5.00	7.81	50.01	78		02/27/97	2006
970333-1	Solid		1.00	41.96	50.01	84		02/27/97	1214
970452-1	Solid		1.00	40.17	50.01	80		02/27/97	0206

Surrogate	Units
2-Fluorophenol	ug/L

Lab ID	Matrix	QC Type	Dilution	Result	True Value	Percent Recovery	Flag	Date	Time
	Solid	MB	1.00	103.26	100.00	103		02/25/97	1605
	Solid	LCS	1.00	106.19	100.00	106		02/25/97	1702
970333-1	Solid		1.00	93.02	100.00	93		02/25/97	1758
970432-1	Solid		1.00	68.89	100.00	69		02/25/97	1855
970437-8	Solid		1.00	93.41	100.00	93		02/25/97	1952
970437-13	Solid		1.00	85.61	100.00	86		02/25/97	2048
970438-1	Solid		1.00	83.55	100.00	84		02/25/97	2144
970452-1	Solid		1.00	91.07	100.00	91		02/25/97	2241

CORE LABORATORIES

SURROGATE RECOVERIES REPORT

Job Number.: 970333 Report Date: 04/14/97

CUSTOMER: Fugro Environmental PROJECT: 0561-0137 HOBBS, NM ATTN: Bob Huck

Surrogate	Units
2-Fluorophenol	ug/L

Lab ID	Matrix	QC Type	Dilution	Result	True Value	Percent Recovery	Flag	Date	Time
970438-2	Solid		5.00	17.78	100.00	89		02/27/97	2006
970333-1	Solid		1.00	81.71	100.00	82		02/27/97	1214
970452-1	Solid		1.00	91.00	100.00	91		02/27/97	0206

Surrogate	Units
Nitrobenzene-d5	ug/L

Lab ID	Matrix	QC Type	Dilution	Result	True Value	Percent Recovery	Flag	Date	Time
	Solid	MB	1.00	37.68	50.04	75		02/25/97	1605
	Solid	LCS	1.00	37.71	50.04	75		02/25/97	1702
970333-1	Solid		1.00	36.29	50.04	73		02/25/97	1758
970432-1	Solid		1.00	34.72	50.04	69		02/25/97	1855
970437-8	Solid		1.00	37.29	50.04	75		02/25/97	1952
970437-13	Solid		1.00	33.95	50.04	68		02/25/97	2048
970438-1	Solid		1.00	32.38	50.04	65		02/25/97	2144
970452-1	Solid		1.00	60.50	50.04	121	X	02/25/97	2241
970438-2	Solid		5.00	7.62	50.04	76		02/27/97	2006
970333-1	Solid		1.00	34.48	50.04	69		02/27/97	1214
970452-1	Solid		1.00	57.12	50.04	114		02/27/97	0206

Surrogate	Units
Phenol-d6	ug/L

Lab ID	Matrix	QC Type	Dilution	Result	True Value	Percent Recovery	Flag	Date	Time
	Solid	MB	1.00	99.75	100.02	100		02/25/97	1605
	Solid	LCS	1.00	103.66	100.02	104		02/25/97	1702
970333-1	Solid		1.00	92.76	100.02	93		02/25/97	1758
970432-1	Solid		1.00	82.14	100.02	82		02/25/97	1855
970437-8	Solid		1.00	91.97	100.02	92		02/25/97	1952
970437-13	Solid		1.00	86.26	100.02	86		02/25/97	2048
970438-1	Solid		1.00	84.39	100.02	84		02/25/97	2144
970452-1	Solid		1.00	76.91	100.02	77		02/25/97	2241
970438-2	Solid		5.00	17.23	100.02	86		02/27/97	2006
970333-1	Solid		1.00	91.68	100.02	92		02/27/97	1214
970452-1	Solid		1.00	74.76	100.02	75		02/27/97	0206

CORE LABORATORIES

SURROGATE RECOVERIES REPORT

Job Number.: 970333 Report Date: 04/14/97

CUSTOMER: Fugro Environmental PROJECT: 0561-0137 HOBBS, NM ATTN: Bob Huck

Surrogate	Units
Terphenyl-d14	ug/L

Lab ID	Matrix	QC Type	Dilution	Result	True Value	Percent Recovery	Flag	Date	Time
	Solid	MB	1.00	48.08	50.01	96		02/25/97	1605
	Solid	LCS	1.00	50.55	50.01	101		02/25/97	1702
970333-1	Solid		1.00	68.88	50.01	138	X	02/25/97	1758
970432-1	Solid		1.00	51.23	50.01	102		02/25/97	1855
970437-8	Solid		1.00	51.98	50.01	104		02/25/97	1952
970437-13	Solid		1.00	51.28	50.01	103		02/25/97	2048
970438-1	Solid		1.00	52.93	50.01	106		02/25/97	2144
970452-1	Solid		1.00	49.70	50.01	99		02/25/97	2241
970438-2	Solid		5.00	10.06	50.01	101		02/27/97	2006
970333-1	Solid		1.00	64.54	50.01	129		02/27/97	1214
970452-1	Solid		1.00	52.85	50.01	106		02/27/97	0206

CORE LABORATORIES

QUALITY ASSURANCE METHODS

REFERENCES AND NOTES

Report Date: 04/14/97

	WATER LIMITS Recovery	RPD	SOIL LIMITS Recovery	RPD
VOLATILE ORGANICS				
Methods 602/8020 Surrogate				
Bromofluorobenzene	89-110%		78-123%	
Methods 602/8020 Spike/Spike Duplicate				
Benzene	39-150%	25	75-125%	25
Ethylbenzene	32-160%	25	60-140%	25
Toluene	46-148%	25	70-130%	25
Xylenes	75-125%	25	61-139%	25
Method 8015 Mod. Spike/Spike Duplicate				
TVPH	75-125%	20	48-152%	20
TEPH	54-135%	20	54-135%	20
Methods 624/8240/8260 Surrogates				
Dibromofluoromethane	86-118%		80-120%	
Toluene-(d8)	88-110%		81-117%	
4-Bromofluorobenzene	86-115%		74-121%	
Method 524.2 Surrogates				
4-Bromofluorobenzene	80-120%			
1,4-Dichlorobenzene-d4	80-120%			
Methods 624/8240 Spike/Spike Duplicate				
1,1-Dichloroethene	61-145%	14	59-172%	22
Trichloroethene	71-120%	14	62-137%	24
Benzene	76-127%	11	66-142%	21
Toluene	76-125%	13	59-139%	21
Chlorobenzene	75-130%	13	60-133%	21
Method 8260 Spike/Spike Duplicate				
1,1-Dichloroethene	70-130%	14	70-130%	22
Trichloroethene	71-120%	14	70-130%	24
Benzene	76-127%	11	70-130%	21
Toluene	76-125%	13	70-130%	21
Chlorobenzene	75-130%	13	70-130%	21
Method 524.2 Spike/Spike Duplicate				
1,1-Dichloroethene	80-120%	14		
Trichloroethene	80-120%	14		
Benzene	80-120%	11		
Toluene	80-120%	13		
Chlorobenzene	80-120%	13		
PESTICIDES AND PCB'S				
Methods 608/8080 Surrogates				
Tetrachloro-m-xylene	60-150%		60-150%	
4,4'-Dichlorobiphenyl	60-150%		60-150%	
Decachlorobiphenyl	60-150%		60-150%	
Method 8140 Surrogates				
Tributylphosphate	36-152%		36-152%	
Triphenylphosphate	36-152%		36-152%	

QUALITY ASSURANCE METHODS

REFERENCES AND NOTES

Report Date: 04/14/97

	WATER LIMITS Recovery	RPD	SOIL LIMITS Recovery	RPD
SEMIVOLATILE ORGANICS				
Methods 625/8270 Surrogates				
Nitrobenzene-d5	35-114%		23-120%	
2-Fluorobiphenyl	43-116%		30-115%	
4-Terphenyl-d14	33-141%		18-137%	
Phenol-d6	10-94%		24-113%	
2-Fluorophenol	21-100%		25-121%	
2,4,6-Tribromophenol	10-123%		19-122%	
Methods 625/8270 Spike/Spike Duplicate				
Phenol	12-110%	42	26-90%	35
2-Chlorophenol	27-123%	40	25-102%	50
1,4-Dichlorobenzene	36-97%	28	28-104%	27
N-Nitroso-di-n-propylamine	41-116%	38	41-126%	38
1,2,4-Trichlorobenzene	39-98%	28	38-107%	23
4-Chloro-3-methylphenol	23-97%	42	26-103%	33
Acenaphthene	46-118%	31	31-137%	19
4-Nitrophenol	10-80%	50	11-114%	50
2,4-Dintrotoluene	24-96%	38	28-89%	47
Pentachlorophenol	9-103%	50	17-109%	47
Pyrene	26-127%	31	35-142%	36
HERBICIDES				
Method 8150 Surrogate				
2,4-Dichlorophenylacetic acid	50-150%		50-150%	
Method 8150 Spike/Spike Duplicate				
2,4-D	41-126%	25	41-126%	25
2,4,5-T	45-119%	25	45-119%	25

QUALITY ASSURANCE METHODS

REFERENCES AND NOTES

Report Date: 04/14/97

TOXICITY CHARACTERISTIC LEACHING PROCEDURE

METALS	RCRA Regulatory Level (mg/L)
Arsenic (As)	5.0
Barium (Ba)	100.0
Cadmium (Cd)	1.0
Chromium (Cr)	5.0
Lead (Pb)	5.0
Mercury (Hg)	0.2
Selenium (Se)	1.0
Silver (Ag)	5.0

VOLATILE ORGANIC COMPOUNDS	RCRA Regulatory Level (ug/L)
Benzene	500
Carbon Tetrachloride	500
Chlorobenzene	100000
Chloroform	6000
1,2-Dichloroethane	500
1,1-Dichloroethene	700
Methyl ethyl ketone (2-Butanone)	200000
Tetrachloroethene	700
Trichloroethene	500
Vinyl chloride	200

SEMIVOLATILE ORGANIC COMPOUNDS	RCRA Regulatory Level (ug/L)
o-Cresol (2-Methylphenol)	200000 *
m & p-Cresol (3 & 4-Methylphenol)	200000 *
1,4-Dichlorobenzene	7500
2,4-Dinitrotoluene	130 **
Hexachlorobenzene	130 **
Hexachlorobutadiene	500
Hexachloroethane	3000
Nitrobenzene	2000
Pentachlorophenol	100000
Pyridine	5000 **
2,4,5-Trichlorophenol	400000
2,4,6-Trichlorophenol	2000

PESTICIDE COMPOUNDS	RCRA Regulatory Level (ug/L)
Chlordane	30
Endrin	20
Heptachlor	8
Heptachlor epoxide	8
gamma-BHC (Lindane)	400
Methoxychlor	10000
Toxaphene	500

HERBICIDE COMPOUNDS	RCRA Regulatory Level (ug/L)
2,4-D	10000
2,4,5-TP (Silvex)	1000

* Total Cresol (2, 3 & 4-Cresol) RCRA regulatory level is 200000 ug/L.

** Method quantitation limit becomes the RCRA regulatory level.

QUALITY ASSURANCE METHODS

REFERENCES AND NOTES

Report Date: 04/14/97

(1) EPA 600/4-79-020 Methods for Chemical Analysis of Water and Wastes, March 1983

(2) EPA SW846 Test Methods for Evaluating Solid Waste, Third Edition, September 1986

(3) EPA SW846 Test Methods for Evaluating Solid Waste, Final Update I, July 1992

(4) EPA SW846 Test Methods for Evaluating Solid Waste, Final Update II, September 1994

(5) EPA SW846 Test Methods for Evaluating Solid Waste, Final Update IIA, August 1993

(6) EPA SW846 Test Methods for Evaluating Solid Waste, Final Update IIB, January 1995

(7) Standard Methods for the Examination of Water and Wastewater, 16th Edition, 1985

(8) Standard Methods for the Examination of Water and Wastewater, 17th Edition, 1989

(9) Standard Methods for the Examination of Water and Wastewater, 18th Edition, 1992

(10) EPA 600/4-80-032 Prescribed Procedures For Measurement Of Radioactivity in Drinking Water, August 1980

(11) EPA 600/8-78-017 Microbiological Methods For Monitoring The Environment, December 1978

(12) Federal Register, July 1, 1990 (40 CFR Part 136)

(13) EPA 600/4-88-03 Methods For The Determination of Organics Compounds in Drinking Water, December 1988

(14) U.S.G.S. Methods For Determination of Inorganic Substances In Water And Fluvial Sediments, Book 5, Chapter A1, 1985

(15) Federal Register, June 7, 1991 (40 CFR Parts 141 & 142)

(16) ASTM Section 11 Water and Environmental Technology, Volume 11.01 Water (1), 1991

(17) Methods of Soil Analysis, American Society of Agronomy, Agronomy No. 9, 1965

(18) ASTM Section 5, Petroleum Products, Lubricants, and Fossil Fuels, Volume 05.05, Gaseous Fuels, Coal, and Coke

(19) EPA 600/2-78-054 Field and Laboratory Methods Applicable To Overburdens and Mine Soils, March 1978

(20) ASTM Part 19, Soils and Rocks; Building Stones, 1981

QUALITY ASSURANCE METHODS

REFERENCES AND NOTES

Report Date: 04/14/97

COMMENTS

a) ND = Not detected. NC = Not calculable due to value(s) lower than the detection limit.

b) Data in the QA report may differ from final results due to digestion and/or dilution of samples into analytical ranges. Quality control results are reported "as analyzed" within the instruments established calibration range.

c) The "Time Analyzed" in the QA report refers to the start time of the analytical batch which may not reflect the actual time of each analysis. The "Date Analyzed" is the actual date of analysis.

d) Results for soil and sludge samples are reported on a wet weight basis (i.e. not corrected for percent moisture) unless otherwise indicated.

BLANK QC SAMPLE IDENTIFICATION

MB	Method Blank
EB	Extraction Blank
ICB	Initial Calibration Blank
CCB	Continuing Calibration Blank

SPIKE QC SAMPLE IDENTIFICATION

MS	Method (Matrix) Spike
MSD	Method (Matrix) Spike Duplicate
PDS	Post-Digestion Spike
SB	Spike Blank
SBD	Spike Blank Duplicate

REFERENCE STANDARD QC SAMPLE IDENTIFICATION

LCS	Laboratory Control Standard
RS	Reference Standard
ICV	Initial Calibration Verification Standard
CCV	Continuing Calibration Verification Standard
ISA/ISB	ICP Interference Check Sample
ICL	Initial Calibration/Laboratory Control Sample
DSC	Distilled Standard Check

DUPLICATE QC SAMPLE IDENTIFICATION

MD	Method (Matrix) Duplicate
ED	Extraction Duplicate

Analyses performed by a subcontract laboratory are indicated on the analytical and/or quality control reports under "Technician" using the following codes:

SUBCONTRACT LABORATORY	CODE
Core Laboratories - Anaheim, CA	* AN
Core Laboratories - Casper, WY	* CA
Core Laboratories - Corpus Christi, TX	* CC
Core Laboratories - Edison, NJ	* ED
Core Laboratories - Gulf States - Houston, TX	* HE
Core Laboratories - Houston, TX	* HP
Core Laboratories - Indianapolis, IN	* IN

QUALITY ASSURANCE METHODS

REFERENCES AND NOTES

Report Date: 04/14/97

Core Laboratories - Lake Charles, LA	* LC
Core Laboratories - Long Beach, CA	* LB
Core Laboratories - Tampa, FL	* TP
Core Laboratories - Valparaiso, IN	* VP
Other Subcontract Laboratories	* XX

EXPLANATION OF DATA QUALIFIERS - ORGANIC PARAMETERS

U - This qualifier indicates that the analyte was analyzed for but not detected.
J - This qualifier indicates that the value is an estimate. It is used when a compound is determined to be present based on the mass spectral data but at a concentration less than the practical quantitation limit of the method.
E - This qualifier indicates that a sample result is an estimate because the concentration exceeded the upper calibration range of the instrument.

EXPLANATION OF DATA QUALIFIERS - METALS & INORGANIC PARAMETERS

U - This qualifier indicates that the analyte was analyzed for but not detected.
B - This qualifier indicates that the analyte was detected at a level below the reporting limit but greater than or equal to the instrument detection limit.

EXPLANATION OF DATA FLAGS - ALL PARAMETERS

B - This flag indicates that an analyte is present in the method blank as well as in the sample. The client should consider this when evaluating the data.
E - This flag indicates the reported value is estimated due to sample matrix interference.
W - This flag indicates that a post-digestion spike for GFAA analysis is outside quality control limits.
X - This flag indicates that a surrogate recovery is outside quality control limits.
Y - This flag indicates a spike or spike duplicate recovery is outside quality control limits.
Z - This flag indicates a relative percent difference for a spike and spike duplicate is outside quality control limits.
* - This flag indicates a relative percent difference for a duplicate analysis is outside quality control limits.
^ - This flag indicates a percent recovery for a standard is outside quality control limits.

Verification Samples

ANALYTICAL RESULTS

PREPARED FOR:

ROGER GREEN

OF

ENSR CORPORATION

3000 Richmond
Suite 400
Houston, Texas 77098

PRESENTED BY:

ENVIRON EXPRESS LABORATORIES
401 N. 11th ST.
LA PORTE, TEXAS 77571-3115

1-281-471-0951 1-800-880-0156 (FAX): 1-281-471-5821

Express Laboratories, Inc.

401 North 11th • La Porte, Texas 77571

(281) 471-0951 • 1 (800) 880-0156 • FAX (281) 471-5821

Customer: **ENSR**
Project ID:
Project No: **0077-013-411**
Sampled: **11-18-97**

Sample ID: **S-1**
Received: **11-19-97**

Environ ID: **71636.01**
Matrix: **SOIL**
Reported: **11-20-97**

TEST DESCRIPTION	RESULTS	UNITS	DETECT. LIMIT	EPA TEST METHOD	ANALYST	DATE
TOT. PET. HYDROCARBON TPH	36	mg/kg	10	600.418.1	JM	11-19-97

John Keller

John Keller, Ph.D
Laboratory Director

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Customer: **ENSR**
Project ID:
Project No: **0077-013-411**
Sampled: **11-18-97**

Sample ID: **S-2**
Received: **11-19-97**

Environ ID: **71636.02**
Matrix: **SOIL**
Reported: **11-20-97**

TEST DESCRIPTION	RESULTS	UNITS	DETECT. LIMIT	EPA TEST METHOD	ANALYST	DATE
TOT. PET. HYDROCARBON TPH	13,300	mg/kg	200	600.418.1	JM	11-19-97

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Laboratory Director

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Customer: **ENSR** Sample ID: **S-2** Environ ID: **71636.02**

Project: **Bowen Tools** **proj # 0077013-411** Matrix: **Soil**

Date Sampled: **11/18/97** Date Received: **11/19/97** Date/Time Analyzed: **12/3/97 13:30**

EPA SW-846 Method 8260 - Total Volatiles

COMPOUND	CONCENTRATION (ug/Kg)	PQL (ug/Kg)	CAS #
Acetone	< 500	500	67-64-1
Benzene	< 50	50	71-43-2
Bromodichloromethane	< 50	50	75-27-4
Bromoform (Tribromomethane)	< 50	50	75-25-2
Bromomethane (Methyl bromide)	< 100	100	74-83-9
2-Butanone (MEK)	< 250	250	78-93-3
Carbon disulfide	< 50	50	75-15-0
Carbon tetrachloride	< 50	50	56-23-5
Chlorobenzene	< 50	50	108-90-7
Chloroethane (Ethyl chloride)	< 100	100	75-00-3
2-Chloroethyl vinyl ether	< 100	100	110-75-8
Chloroform (Trichloromethane)	< 50	50	67-66-3
Chloromethane (Methyl chloride)	< 100	100	74-87-3
Dibromochloromethane	< 50	50	124-48-1
1,1-Dichloroethane	< 50	50	75-34-3
1,2-Dichloroethane (EDC)	< 50	50	107-06-2
1,1-Dichloroethene	< 50	50	75-35-4
cis-1,2-Dichloroethene	< 50	50	156-59-2
trans-1,2-Dichloroethene	< 50	50	156-60-5
1,2-Dichloropropane	< 50	50	78-87-5
cis-1,3-Dichloropropene	< 50	50	10061-01-5
trans-1,3-Dichloropropene	< 50	50	10061-02-6
Ethyl benzene	1200	50	100-41-4
2-Hexanone	< 250	250	591-78-6
Methylene chloride (Dichloromethane)	< 500	500	75-09-2
4-Methyl-2-pentanone (MIBK)	< 250	250	108-10-1
Styrene	< 50	50	100-42-5
1,1,2,2-Tetrachloroethane	< 100	100	79-34-5
Tetrachloroethene	< 50	50	127-18-4
Toluene	70	50	108-88-3
1,1,1-Trichloroethane	< 50	50	71-55-6
1,1,2-Trichloroethane	< 50	50	79-00-5
Trichloroethene	< 50	50	79-01-6
Vinyl acetate	< 100	100	108-05-4
Vinyl chloride	< 100	100	75-01-4
m&p-Xylene	*	*	108-38-3 & 106-42-3
o-Xylene	*	*	95-47-6

SURROGATE RECOVERIES

SURROGATE	CONCENTRATION	% RECOVERY	RANGE
1,2-Dichloroethane-d4 (SS)	52.1	104	70-121
Toluene-d8 (SS)	43.5	87	81-117
4-Bromofluorobenzene (SS)	50.7	101	74-121

* Analyte concentration exceeded calibration range; reported separately.

Mike Ball, GC/MS Analyst

John Keller, Laboratory Director

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Express Laboratories, Inc. (281) 471-0951 • 1 (800) 880-0156 • FAX (281) 471-5821

Customer: **ENSR** Sample ID: **S-2** Environ ID: **71636.02**

Project: **Bowen Tools** **proj # 0077013-411** Matrix: **Soil**

Date Sampled: **11/18/97** Date Received: **11/19/97** Date/Time Analyzed: **12/3/97 14:26**

EPA SW-846 Method 8260 - Total Volatiles

COMPOUND	CONCENTRATION (ug/Kg)	PQL (ug/Kg)	CAS #
m&p-Xylene	5800	500	108-38-3 & 106-42-3
o-Xylene	2700	250	95-47-6
SURROGATE RECOVERIES			
SURROGATE	**CONCENTRATION**	**% RECOVERY**	**RANGE**
1,2-Dichloroethane-d4 (SS)	51.1	102	70-121
Toluene-d8 (SS)	47.0	94	81-117
4-Bromofluorobenzene (SS)	43.9	88	74-121

Mike Ball, GC/MS Analyst

John Keller, Laboratory Director

Express Laboratories, Inc.

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Customer: **ENSR** Sample ID: **S - 2** Environ ID: **71636-02**

Project: **Bowen Tools, Hobbs, NM, Proj. #** Matrix: **Solid**

Date Sampled: **11/18/97** Date Received: **11/19/97** Date Extracted: **12/12/97**

Concentration Factor: **6/1** Date/Time Analyzed: **12/18/97 14:12**

EPA SW-846 Method 8270 - Semivolatiles

GCMS # 3

COMPOUNDS	CONCENTRATION (ug/kg)	PQL (ug/kg)	CAS #
Acenaphthene	< 1700	1700	83-32-9
Acenaphthylene	< 1700	1700	208-96-8
Anthracene	< 1700	1700	120-12-7
Benzo[a]anthracene	< 1700	1700	56-55-3
Benzo[b]fluoranthene	< 1700	1700	205-99-2
Benzo[k]fluoranthene	< 1700	1700	207-08-9
Benzo[g,h,i]perylene	< 1700	1700	191-24-2
Benzo[a]pyrene	< 1700	1700	50-32-8
bis(2-Chloroethoxy)methane	< 1700	1700	111-91-1
bis(2-Chloroethyl)ether	< 1700	1700	111-44-4
bis(2-chloroisopropyl)ether	< 1700	1700	108-60-1
bis(2-Ethylhexyl)phthalate	< 8300	8300	117-81-7
4-Bromophenyl phenyl ether	< 1700	1700	101-55-3
Butylbenzylphthalate	< 3300	3300	85-68-7
4-Chloroaniline	< 3300	3300	106-47-8
4-Chloro-3-methylphenol	< 3300	3300	59-50-7
2-Chloronaphthalene	< 1700	1700	91-58-7
2-Chlorophenol	< 1700	1700	95-57-8
4-Chlorophenyl phenyl ether	< 1700	1700	7005-72-3
Chrysene	< 1700	1700	218-01-9
Dibenz[a,h]anthracene	< 1700	1700	53-70-3
Dibenzofuran	< 1700	1700	132-64-9
Di-n-butylphthalate	< 1700	1700	84-74-2
1,2-Dichlorobenzene	< 1700	1700	95-50-1
1,3-Dichlorobenzene	< 1700	1700	541-73-1
1,4-Dichlorobenzene	< 1700	1700	106-46-7
3,3'-Dichlorobenzidine	< 3300	3300	91-94-1
2,4-Dichlorophenol	< 1700	1700	120-83-2
Diethylphthalate	< 1700	1700	84-66-2
2,4-Dimethylphenol	< 1700	1700	105-67-9
Dimethylphthalate	< 1700	1700	99-65-0
4,6-Dinitro-2-methylphenol	< 8300	8300	534-52-1
2,4-Dinitrophenol	< 3300	3300	51-28-5
2,4-Dinitrotoluene	< 3300	3300	121-14-2
2,6-Dinitrotoluene	< 1700	1700	606-20-2
Di-n-octylphthalate	< 1700	1700	117-84-0
Fluoranthene	< 1700	1700	206-44-0

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Customer: **ENSR** Sample ID: **S - 2** Environ ID: **71636-02**

Project: **Bowen Tools, Hobbs, NM, Proj. #** Matrix: **Solid**

Date Sampled: **11/18/97** Date Received: **11/19/97** Date Extracted: **12/12/97**

Concentration Factor: **6/1** Date/Time Analyzed: **12/18/97 14:12**

EPA SW-846 Method 8270 - Semivolatiles

GCMS # 3

COMPOUNDS	CONCENTRATION (ug/kg)	PQL (ug/kg)	CAS #
Fluorene	< 1700	1700	86-73-7
Hexachlorobenzene	< 1700	1700	118-74-1
Hexachloroethane	< 1700	1700	67-72-1
Hexachlorocyclopentadiene	< 1700	1700	77-47-4
Indeno[1,2,3-cd]pyrene	< 1700	1700	193-39-5
Isophorone	< 1700	1700	78-59-1
2-Methylnaphthalene	1900	1700	91-57-6
2-Methylphenol	< 1700	1700	95-48-7
4-Methylphenol	< 1700	1700	106-44-5
Naphthalene	3500	1700	91-20-3
2-Nitroaniline	< 8300	8300	88-74-4
3-Nitroaniline	< 8300	8300	99-09-2
4-Nitroaniline	< 8300	8300	100-01-6
Nitrobenzene	< 1700	1700	98-95-3
2-Nitrophenol	< 1700	1700	88-75-5
4-Nitrophenol	< 8300	8300	100-02-7
n-Nitrosodiphenylamine	< 1700	1700	86-30-6
n-Nitroso-di-n-propylamine	< 1700	1700	621-64-7
Pentachlorophenol	< 8300	8300	87-86-5
Phenanthrene	< 1700	1700	85-01-8
Phenol	< 1700	1700	108-95-2
Pyrene	< 1700	1700	129-00-0
1,2,4-Trichlorobenzene	< 1700	1700	120-82-1
2,4,5-Trichlorophenol	< 1700	1700	95-95-4
2,4,6-Trichlorophenol	< 1700	1700	88-06-2

	SURROGATE RECOVERIES		
SURROGATE	CONCENTRATION	% RECOVERY	RANGE
Nitrobenzene-d5	*	*	23-120
2-Fluorobiphenyl	*	*	30-115
Terphenyl-d14	13	130	18-137
Phenol-d5	18	90	24-113
2-Fluorophenol	13	65	25-121
2,4,6-Tribromophenol	11	55	19-122

* - Surrogate diluted below range. Internal standard recovery low. Matrix effects confirmed by reanalysis.

Carl Degner, GC/MS Analyst

John Keller, Laboratory Director

Express Laboratories, Inc.

401 North 11th • La Porte, Texas 77571

(281) 471-0951 • 1 (800) 880-0156 • FAX (281) 471-5821

Customer: **ENSR**
Project ID:
Project No: **0077-013-411**
Sampled: **11-18-97**

Sample ID: **S-2**
Received: **11-19-97**

Environ ID: **71636.02**
Matrix: **SOIL**
Reported: **12-09-97**

TEST DESCRIPTION	RESULTS	UNITS	DETECT. LIMIT	EPA TEST METHOD	ANALYST	DATE
METALS						
ARSENIC	< 0.06	mg/kg	0.06	SW846.6010B	JR	12-02-97
BARIUM	123	mg/kg	1	SW846.6010B	JR	12-02-97
CADMIUM	< 0.06	mg/kg	0.06	SW846.6010B	JR	12-02-97
CHROMIUM	1.79	mg/kg	0.06	SW846.6010B	JR	12-02-97
LEAD	2.33	mg/kg	0.06	SW846.6010B	JR	12-02-97
MERCURY	< 0.025	mg/kg	0.025	SW846.7471A	MN	12-03-97
SELENIUM	< 0.1	mg/kg	0.1	SW846.6010B	JR	12-02-97
SILVER	< 0.1	mg/kg	0.1	SW846.6010B	JR	12-02-97

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Laboratory Director

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Customer: **ENSR** Sample ID: **S-2** Environ ID: **71636.02**
Project ID: Matrix: **SOIL**
Project No: **0077-013-411**
Sampled: **11-18-97** Received: **11-19-97** Reported: **12-30-97**

TPH RANGE METHOD: MASS. DEP	CONCENTRATION IN SOIL (mg/kg)
Alkanes/Cycloalkanes	
C5-C8	188
C9-C18	1,320
C19-C32	8,150
Alkenes/Aromatics	
C9-C32	631
TOTAL	10,290

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Customer: **ENSR**
Project ID:
Project No: **0077-013-411**
Sampled: **11-18-97**

Sample ID: **S-3**
Received: **11-19-97**

Environ ID: **71636.03**
Matrix: **SOIL**
Reported: **11-20-97**

TEST DESCRIPTION	RESULTS	UNITS	DETECT. LIMIT	EPA TEST METHOD	ANALYST	DATE
TOT. PET. HYDROCARBON TPH	4,350	mg/kg	100	600.418.1	JM	11-19-97

John Keller

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Customer: **ENSR**
Project ID:
Project No: **0077-013-411**
Sampled: **11-18-97**

Sample ID: **S-4**
Received: **11-19-97**

Environ ID: **71636.04**
Matrix: **SOIL**
Reported: **11-20-97**

TEST DESCRIPTION	RESULTS	UNITS	DETECT. LIMIT	EPA TEST METHOD	ANALYST	DATE
TOT. PET. HYDROCARBON TPH	4,590	mg/kg	100	600.418.1	JM	11-19-97

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Customer: **ENSR**
Project ID:
Project No: **0077-013-411**
Sampled: **11-19-97**

Sample ID: **S-5**
Received: **11-20-97**

Environ ID: **71636.15**
Matrix: **SOIL**
Reported: **11-25-97**

TEST DESCRIPTION	RESULTS	UNITS	DETECT. LIMIT	EPA TEST METHOD	ANALYST	DATE
TOT. PET. HYDROCARBON TPH	95	mg/kg	10	600.418.1	JM	11-24-97

John Keller

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Customer: **ENSR**
Project ID:
Project No: **0077-013-411**
Sampled: **11-18-97**

Sample ID: **S-6**
Received: **11-19-97**

Environ ID: **71636.05**
Matrix: **SOIL**
Reported: **11-20-97**

TEST DESCRIPTION	RESULTS	UNITS	DETECT. LIMIT	EPA TEST METHOD	ANALYST	DATE
TOT. PET. HYDROCARBON TPH	1,050	mg/kg	10	600.418.1	JM	11-19-97

John Keller

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Customer: **ENSR**
Project ID:
Project No: **0077-013-411**
Sampled: **11-18-97**

Sample ID: **S-7**
Received: **11-19-97**

Environ ID: **71636.06**
Matrix: **SOIL**
Reported: **11-20-97**

TEST DESCRIPTION	RESULTS	UNITS	DETECT. LIMIT	EPA TEST METHOD	ANALYST	DATE
TOT. PET. HYDROCARBON TPH	1,450	mg/kg	10	600.418.1	JM	11-19-97

John Keller

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Laboratory Director

ENVIRON EXPRESS QUALITY CONTROL REPORT

ANALYSIS: TPH	METHOD: EPA 600/418.1	MATRIX: SOIL

ANALYSTS: JM	DATE: 11.19.97	UNITS: mg/kg	NO.SAMPLES: 19

SAMPLES:	71621.01	71621.02	71621.03	71621.04	71627.01	71627.02	71627.03	71627.04
	71627.05	71627.06	71627.07	71622.01	71632.01	71636.01	71636.02	71636.03
	71636.04	71636.05	71636.06					

MATRIX SPIKE & MATRIX SPIKE DUPLICATE ANALYSIS

SAMPLE 71621.03	SAMPLE RESULTS	SPIKE ADDED	SPIKE RESULTS	RECOV. %	RECOV. DUP. %	REL. DIF. (%)	CCV %	MB mg/kg	QC LIMITS (%) RECOV.	QC LIMITS (%) REL. DIF.
TPH	21	487	501	99	93	5	100	0	60 - 120	20

John Keller

JOHN KELLER, Ph.D
Laboratory Director

ENVIRON EXPRESS QUALITY CONTROL REPORT

ANALYSIS: TPH	METHOD: EPA 600/418.1	MATRIX: SOIL

ANALYSTS: JM	DATE: 11.24.97	UNITS: mg/kg	NO.SAMPLES: 15

SAMPLES:	71636.15	71642.01	71642.02	71642.03	71642.04	71653.01	71653.02	71647.01
	71647.03	71647.05	71647.07	71647.09	71647.11	71647.14	71648.01	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE ANALYSIS

SAMPLE 71636.15	SAMPLE RESULTS	SPIKE ADDED	SPIKE RESULTS	RECOV. %	RECOV. DUP. %	REL. DIF. (%)	CCV %	MB mg/kg	QC LIMITS (%) RECOV.	QC LIMITS (%) REL. DIF.
TPH	95	508	650	109	104	5	102	0	60 - 120	20

John Keller

JOHN KELLER, Ph.D
Laboratory Director

ENVIRON EXPRESS QUALITY CONTROL REPORT

ANALYSIS:	METALS	METHOD:	EPA SW846/6010	MATRIX:	SOLID

ANALYST:	JR	DATE:	12.02.97	UNITS:	PPM (mg/kg)	NO.SAMPLES:	15

SAMPLES:	71419.12	71419.15	71419.16	71419.20	71642.01	71642.02	71642.03	71642.04
	71653.01	71653.02	71646.01	71660.21	71660.22	71660.23	71636.02	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE ANALYSIS — BATCH ID: ICP

SAMPLE Matrix	SAMPLE RESULTS	SPIKE ADDED	SPIKE RESULTS	RECOV. %	RECOV. DUP. %	REL. DIFF. %	CONT. CALIB.	METHOD BLANK	QC LIMITS RECOV.	QC LIMITS DIFF.
Arsenic	0.00	100	108	108	104	4	94	0	75 - 125	20
Barium	0.00	100	110	110	104	6	105	0	75 - 125	20
Cadmium	0.00	100	111	111	105	5	105	0	75 - 125	20
Chromium	0.00	100	111	111	104	6	96	0	75 - 125	20
Lead	0.00	100	108	108	103	5	104	0	75 - 125	20
Selenium	0.00	100	108	108	103	4	95	0	75 - 125	20
Silver	0.00	100	81	81	83	2	102	0	75 - 125	20

John Keller

JOHN KELLER, Ph.D
Laboratory Director

ENVIRON EXPRESS QUALITY CONTROL REPORT

ANALYSIS:	MERCURY	METHOD: EPA SW846/7471A	MATRIX:	SOIL

ANALYSTS:	JR	DATE:	12.03.97	UNITS:	mg/kg	NO.SAMPLES:	1

SAMPLES:	71636.02							

MATRIX SPIKE & MATRIX SPIKE DUPLICATE ANALYSIS

SAMPLE Matrix	SAMPLE RESULTS	SPIKE ADDED	SPIKE RESULTS	RECOV. %	RECOV. DUP. %	REL. DIFF.	CONT. CALIB.	METH. BLANK	CORR. COEFF	QC LIMITS RECOV.	QC LIMITS DIFF.
MERCURY	0.00	0.056	0.059	106	106	0	106	0	1	60 - 120	20

John Keller

JOHN KELLER, Ph.D
Laboratory Director

CHAIN OF CUSTODY RECORD
ENVIRON EXPRESS LABORATORIES, INC.

401 North 11th, La Porte, Texas 77571
(281) 471-0951 / (800) 880-0156
Fax No. (281) 471-5821

Project No.	Project Name	Project Location	Turn Around Time: Check One
007013 - 411	Bowen Tools	Hobbs, NM	☑ 1 day ☐ 2 days ☐ 3 days ☐ 5 days

Contractor: ENSR

Sampler: (PRINT) Christi Kiker
(SIGN) Christi Kiker

Results To: Roger Green ph: (713) 807-6504 fax: (713) 520-6802

Sampler Remarks:

Address: 3000 Richmond Ave. Suite 400

City: Houston State: TX Zip: 77098

Lab Remarks: DUE 11-20-97 Inv# 716360

Invoice To: No. ( )

LABORATORY ANALYSIS
Reference EPA Method #

Lab Number	Field Sample No./ Identification	Date and Time	Grab	Comp	Sample Container (Size/Mat'l)	Sample Type (Liquid, Sludge, Etc.)	Preservative	BTEX	TPH 418.1	RCRA METALS	VOLATILES	SEMI-VOLATILES	Mass TPH	TCLP/SPLP METALS	TCLP/SPLP VOLATILES	TCLP/SPLP SEMI-VOLATILES	Lead, Cadmium		
716360.01	S-1	11/18/97	✓		4oz glass	Soil	ice		✓								✓		
.02	S-2	11/18/97 2:30	✓						✓	X	X	X	X				✓		
.03	S-3	11/18/97 2:30	✓						✓								✓		
.04	S-4	11/18/97 2:30	✓						✓								✓		
	[illegible]	[illegible]																	
.05	S-6	11/18/97	✓						✓								✓		
.06	S-7	11/18/97	✓						✓								✓		
.07	BG-1	11/18/97 1:45	✓		1oz. glass												✓		
.08	BG-2	11/18/97 1:45	✓														✓		
.09	BG-3	11/18/97 1:45	✓														✓		

Relinquished by: (Signature) Christi Kiker	Date: 11/18/97 Time: 5:00	Received by: (Signature) Fed Ex	Date: Time:	Intact	
Relinquished by: (Signature) Fed Ex	Date: Time:	Received by: (Signature) Kendy Camp	Date: 11-19-97 Time: 1030am	Intact	
Relinquished by: (Signature)	Date: Time:	Received by: (Signature)	Date: Time:	Intact	

CHAIN OF CUSTODY RECORD
ENVIRON EXPRESS LABORATORIES, INC.

401 North 11th, La Porte, Texas 77571
(281) 471-0951 / (800) 880-0156
Fax No. (281) 471-5821

Project No.	Project Name	Project Location	Turn Around Time: Check One
0077013-411	Bowen Tools	Hobbs, NM	☑ 1 day ☐ 2 days ☐ 3 days ☐ 5 days

Contractor: ENSR

Sampler: (PRINT) Christi Kiker
(SIGN) Christi Kiker

Results To: Roger Green ph: (713) 807-6504 fax: (713) 520-6802

Address: 3000 Richmond Ave. Suite 400

City: Houston State: TX Zip: 77098

Invoice To: No. ( )

Sampler Remarks:

Lab Remarks:

LABORATORY ANALYSIS
Reference EPA Method #

Lab Number	Field Sample No./ Identification	Date and Time	Grab	Comp	Sample Container (Size/Mat'l)	Sample Type (Liquid, Sludge, Etc.)	Preservative	BTEX	TPH 418.1	RCRA METALS	VOLATILES	SEMI-VOLATILES	TCLP / SPLP: METALS	TCLP / SPLP: VOLATILES	TCLP / SPLP: SEMI-VOLATILES	Lead, Cadmium
711360	BG-4	11/18/97 1:45	✓		1oz glass	Soil	ice									✓
11	BG-5	11/18/97 1:45	✓		↓	↓	↓									✓
12	BG-6	11/18/97 1:45	✓		↓	↓	↓									✓
13	BG-7	11/18/97 1:45	✓		↓	↓	↓									✓
14	BG-8	11/18/97 1:45	✓		↓	↓	↓									✓

Relinquished by: (Signature) Christi Kiker	Date: 11/18/97 Time: 5:00	Received by: (Signature) Fed Ex	Date: Time:	Intact
Relinquished by: (Signature) Fed Ex	Date: Time:	Received by: (Signature) klendyCamp	Date: 11-1997 Time: 1030am	Intact
Relinquished by: (Signature)	Date: Time:	Received by: (Signature)	Date: Time:	Intact

CHAIN OF CUSTODY RECORD
ENVIRON EXPRESS LABORATORIES, INC.

401 North 11th, La Porte, Texas 77571
(281) 471-0951 / (800) 880-0156
Fax No. (281) 471-5821

Page 1 of 1

Project No.	Project Name	Project Location	Turn Around Time: Check One
077013-411	Bowen Tools	Hobbs, NM	☑ 1 day ☐ 2 days ☐ 3 days ☐ 5 days

Contractor: ENSR

Sampler: (PRINT) Christi Kiker
(SIGN) Christi Kiker

Results To: Roger Green ph: (713)807-6504 fax: (713)520-6802

Address: 3000 Richmond

City: Houston State: TX Zip: 77098

Invoice To: No. ( )

Sampler Remarks:

Lab Remarks: Due 11-21-97 INV# 71636

LABORATORY ANALYSIS
Reference EPA Method #

Lab Number	Field Sample No./ Identification	Date and Time	Grab	Comp	Sample Container (Size/Mat'l)	Sample Type (Liquid, Sludge, Etc.)	Preservative	BTEX	TPH 418.1	RCRA METALS	VOLATILES	SEMI-VOLATILES	Lead, Cadmium	TCLP/SPLP METALS	TCLP/SPLP VOLATILES	TCLP/SPLP SEMI-VOLATILES
71636.15	S-5	11/19/97 9:30	✓		4oz glass	Soil	ice		✓				✓			

Relinquished by: (Signature) Christi Kiker	Date: 11-18-97 Time: 11:13	Received by: (Signature)	Date: 11-18-97 Time: 11:15	Intact
Relinquished by: (Signature)	Date: 11-18-97 Time: 1:10	Received by: (Signature)	Date: 11-18-97 Time: 1:10pm	Intact
Relinquished by: (Signature)	Date: Time:	Received by: (Signature)	Date: Time:	Intact

APPENDIX C

Limited Phase III ESA Workplan

Limited Phase III ESA Work Plan
Bowen Tools Facility
Hobbs, New Mexico

The corrective actions conducted in November 1997 resulted in recommendations for additional assessment of soil and possibly groundwater quality in the area of the former oil/water separator and shallow well. The objective of this limited Phase III ESA is to characterize the horizontal and vertical extent of TPH-affected soils, and assess groundwater quality below the affected area (if necessary). The assessment data will be used to either provide a technical basis for closure or develop additional corrective action recommendations. The proposed limited Phase III ESA scope of work involves:

- preparation of a site-specific health and safety plan;
- collection of soil samples from within and around the area of the former oil/water separator and shallow well;
- analytical testing of selected soil samples for TPH by EPA Method 418.1, EPH and VPH as specified by the Massachusetts Department of Environmental Protection (MDEP) method, and the synthetic precipitation leaching procedure for TPH;
- collection of a groundwater sample from the area of the former shallow well, if groundwater is at a depth of less than 70 ft; and
- analytical testing of the groundwater sample (if soil TPH results indicate that TPH-affected soils extend to near the groundwater surface) for VOCs, SVOCs, RCRA metals, and TPH.

Health and Safety Plan

A site-specific health and safety plan will be prepared for the sampling activities. The plan will follow OSHA regulations/guidance. Personnel working on site will have completed 40 hr OSHA training (29 CFR 1910.120). The health and safety plan will be kept on site during the field activities and be accessible to on-site assessment personnel.

Soil Assessment

Soil samples will be collected from nine soil boring locations (Figure 3). One of these borings will be advanced in the area of the former shallow well, and a temporary well will be installed at that location if groundwater is encountered. The soil borings will be completed as follows.

- The soil borings will be advanced using truck-mounted equipment.
- Samples from up to eight borings around the former oil/water separator will be collected at 3 to 4-ft intervals from the ground surface or bottom of fill to a depth of about 25 ft.
- Samples from one boring at the location of the former shallow well will be collected at about 5 ft intervals from the bottom of fill to 5 ft below groundwater or to a depth of 70 ft, whichever is less.

- A flame-ionization detector (FID) will be used in the field as a screening tool for the soil samples and as an air monitoring tool.
- A portion of each sample will be placed in a glass jar, sealed with a Teflon-lined lid, labeled, and placed in an insulated cooler with the ice.
- The borings will be backfilled with bentonite chips (the boring in the former area of the shallow well area may be converted to a temporary well).

Selected samples from proposed Boring B-5 (within the former shallow well area) will be analyzed for TPH (EPA SW 846 Method 418.1) to estimate the vertical extent of impact. The samples from remaining proposed borings will be analyzed for TPH to assess the horizontal extent of impact to the soil. The results of FID screening will be used to select the samples for analyses.

Up to two samples containing elevated concentrations of TPH will be analyzed by the MDEP procedure for alkenes/cycloalkanes and alkenes/aromatics measured by VPH and EPH analyses. These samples will also be analyzed by the Synthetic Precipitation Leaching Procedure (SPLP) for TPH.

If soil TPH concentrations are in excess of 13,300 mg/kg (the highest concentration detected in the verification samples), the soil sample with the highest TPH concentration will also be analyzed for VOCs, SVOCs, and RCRA metals.

Groundwater Sampling and Analyses

A temporary monitor well (if groundwater is encountered at a depth of less than 70 ft) will be installed and sampled in the area of the former shallow well at the proposed location for B-5. The groundwater sample will be analyzed if TPH analyses indicate affected soils extend to near the groundwater surface.

Well Installation. Details of the well installation follow:

- Monitoring well materials will be 2-in. diameter PVC.
- A 10-ft long screen with 0.01-in. slots will be placed to intersect the groundwater surface.
- At least a 2-in. annular space will be left between the casing and the borehole wall.
- The filter material will consist of 20-40 sand placed 6 in. under the bottom of the well screen and extending at least 2 ft above the top of the well screen.
- An approximately 2-ft long, hydrated-bentonite pellet seal will be placed over the top of the filter pack material.
- Soil cuttings will be placed from the top of the bentonite seal to within about 2 ft of the ground surface.
- A hydrated-bentonite pellet seal will be placed in the upper 2 ft of the boring.

Purging and Sampling. The temporary monitoring well will be developed after completion using a bailer. The following morning, at least three well volumes will be purged using a bailer. The samples will then be collected using a dedicated bailer tied to a nylon rope, placed in laboratory-supplied jars with proper preservative, and placed on ice. The samples will be shipped to the laboratory under chain-of-custody documentation.

Well Abandonment. Well abandonment will be accomplished by pulling the PVC screen and riser, while pumping bentonite grout through the riser. The bottom of the screen will be equipped with a PVC slip-on cap that will be disconnected prior to pulling the screen. Removal of the cap will be accomplished using a metal rod placed down the riser.

Analytical Testing. If affected soils extend to near the groundwater surface, samples submitted to the laboratory will be analyzed for the following:

- VOCs (EPA SW 846 Method 8260),
- SVOCs (EPA SW 846 Method 8270C),
- RCRA metals (EPA SW 846 methods as required for comparison to drinking water standards), and
- TPH (EPA SW 846 Method 8015M).

A trip blank and a duplicate sample will be collected for quality control/quality assurance. The QA/QC samples will be analyzed for VOCs.

Equipment Washing

A wash pad for drilling field equipment will be established at the site. The drilling equipment (augers, rods, and samplers) will be washed using a high-pressure steam cleaner. Other sampling equipment will be washed with a phosphate-free laboratory detergent (Liquinox) and brush. The equipment will be rinsed with tap water, followed by a rinse with deionized water. Equipment will be washed before it is removed from the site.

Waste Management

The disposable PPE, soil cuttings, purged groundwater, and washwater will be containerized in 55-gal. drums with tight-fitting lids. The 55-gal. drums will be identified and left on site with permission of the site manager and later transported and disposed of at a location approved by the NMOCD. The waste will be transported under appropriate manifest that will be signed by Air Liquide or their appointed representative.

Report Preparation

Following the completion and review of analytical results, ENSR will prepare a site assessment report for submittal to the NMOCD. The report will include documentation of additional assessment activities, analytical results, and recommended corrective actions, if necessary.