1R - 406

REPORTS

DATE:

2003

AMERADA HESS CORPORATION

SAMUEL W. SMALL, PE
OFFICE 432/758-6741
FAX 432/758-6768
Email: ssmall@hess.com

P.O. BOX 840
SEMINOLE, TEXAS 79360
432/758-6700

August 11, 2003

CERTIFIED MAIL
RETURN RECEIPT REQUESTED
7001 0360 0003 1887 7865

Mr. Roger Anderson
New Mexico Oil Conservation Division
1220 South St. Francis Drive
Santa Fe, New Mexico 87505

RE: **ENV – STUDIES, SURVEYS & REPORTS**
Site Assessment (Groundwater)
Monument Field
NMGSAU Battery No. 63
Unit L, Sec 31, T-19S, R-37E, Lea County

Dear Mr. Anderson:

Pursuant to the Amerada Hess Corporation (AHC) correspondence with Mr. Randolph Bayliss on March 7, 2003 regarding the subject site assessment and his response on March 11, 2003, the attached report is being submitted along with a proposal for closing the existing excavation at the site.

On June 11, 2003 three monitor wells were drilled to the top of the Triassic red-bed formation in the immediate vicinity of the existing excavation at the referenced site. Samples from the vadose zone and groundwater were collected for analysis and a hydraulic gradient was established across the site. Recharge tests were conducted on the monitor wells. The onsite geologist provided by BBC International made the determination that three monitor wells, in lieu of the four monitor wells proposed in the AHC letter of March 7, 2003, were sufficient to garner the required information. Prior to drilling the monitor wells, a bore-hole was drilled in the center of the excavation on August 21, 2002. The results of the analyses conducted on samples collected from the vadose zone and groundwater in the bore-hole are included with the BBC International report.

The results of water analyses conducted on the groundwater sample collected from the bore-hole indicate the presence of a benzene concentration above NMWQCC standards. The bore-hole sample, as well as all three monitor well samples, exhibited chloride contaminations above the NMWQCC standards, see Table 1. Analyses of vadose zone samples, collected immediately above the groundwater from the bore-hole and the monitor wells, were within the NMOCD guideline thresholds for BTEX and TPH, except for MW #2 which exceded the guideline threshold for TPH, see Table 2. The recharge tests indicated that recharge occurred in all three of the

monitor wells. Pump out rates and volumes coupled with the hydraulic gradient and "aquifer" bed thickness indicate that a limited quantity of groundwater exists in the area of the excavation.

In view of the limited volume of groundwater in the area and the apparent area-wide chloride concentration in the groundwater, AHC proposes to close the excavation at the site as follows:

- line the bottom of the excavation with two feet of compacted red-bed clay,
- backfill the excavation with material meeting the NMOCD TPH and BTEX guideline thresholds, and
- revegetate the location with grasses acceptable to the land owner.

An attempt will be made to remove the surficial vadose zone contamination observed in the area of MW #3, however, a pipeline in the immediate vicinity may impede efforts to remove all of the contaminated material. Groundwater from the monitor wells will be sampled quarterly for eight consecutive quarters with the water analyzed for BTEX. The analyses will be submitted to the NMOCD. Upon approval of the NMOCD the monitor wells will be plugged in accordance with accepted procedures at the end of the sampling period.

AHC is requesting approval of the above excavation closure plan so that arrangements can be made with the landowner to expedite the work. If you have any questions, please contact the undersigned at 432-758-6741 or at the letterhead address.

Sincerely,

Samuel Small, PE
Environmental Coordinator

Xc: NMOCD District 1 w/enclosure
Houston Environmental File w/enclosure
PB Environmental File w/enclosure
Monument Files w/o enclosure

TABLE 1
WATER ANALYSES
(PPM)

SAMPLE POINT	SAMPLE DATE	BENZENE	TOLUENE	ETHYL-BENZENE	XYLENE	CHLORIDE
SB-3	08/21/2002	0.064	0.002	0.014	0.023	12200
MW #1	06/19/2003	< 0.002	< 0.002	< 0.002	< 0.002	15395
MW #2	06/19/2003	0.003	< 0.002	< 0.002	< 0.002	14895
MW #3	06/19/2003	< 0.002	< 0.002	< 0.002	< 0.002	14096

TABLE 2
VADOSE ZONE ANALYSES
IMMEDIATELY ABOVE WATER
(PPM)

SAMPLE POINT	SAMPLE DATE	BENZENE	TOLUENE	ETHYL-BENZENE	XYLENE	GRO	DRO	CHLORIDE
SB-3	08/21/2002	< 0.025	< 0.025	< 0.025	< 0.025	11.7	38.4	1080
MW #1	06/19/2003	< 0.002	< 0.002	< 0.002	< 0.002	< 10.0	< 10.0	1390
MW #2	06/19/2003	0.003	< 0.002	< 0.002	< 0.002	< 10.0	153	1010
MW #3	06/19/2003	< 0.002	< 0.002	< 0.002	< 0.002	< 10.0	<10.0	1260

COPY

Bore-hole Sample Analyses

ANALYTICAL REPORT

Prepared for:

Camille Reynolds
Environmental Technology Group, Inc.
2540 W. Marland
Hobbs, NM 88240

Project:	TB-63
PO#:	AHC 1200
Order#:	G0204304
Report Date:	08/27/2002

Certificates
US EPA Laboratory Code TX00158

Sample reference SB-3, 25' & SB-3, 29' indicate samples collected at 25' below the bottom of the excavation and 29' below the bottom of the excavation. The bottom of the excavation is approximately 17' below ground level.

ENVIRONMENTAL LAB OF TEXAS

SAMPLE WORK LIST

Environmental Technology Group, Inc.
2540 W. Marland
Hobbs, NM 88240
505/397/4701

Order#: G0204304
Project:
Project Name: TB-63
Location: MONUMENT, NM

The samples listed below were submitted to Environmental Lab of Texas and were received under chain of custody. Environmental Lab of Texas makes no representation or certification as to the method of sample collection, sample identification, or transportation/handling procedures used prior to the receipt of samples by Environmental Lab of Texas, unless otherwise noted.

Lab ID:	Sample :	Matrix:	Date / Time Collected	Date / Time Received	Container	Preservative
0204304-01	SB-3 25'	SOIL	8/21/02 13:27	8/22/02 13:29	4 oz glass	ice
	Lab Testing:	Rejected: No		Temp: -1.0C		
	8015M 8021B/5030 BTEX Chloride					
0204304-02	SB-3 29'	SOIL	8/21/02 13:45	8/22/02 13:29	4 oz glass	ice
	Lab Testing:	Rejected: No		Temp: -1.0C		
	8015M 8021B/5030 BTEX Chloride					
0204304-03	SB-3	WATER	8/21/02 15:05	8/22/02 13:29	40 ml vial	ice
	Lab Testing:	Rejected: No		Temp: -1.0C		
	8021B/5030 BTEX Chloride					

ENVIRONMENTAL LAB OF TEXAS

ANALYTICAL REPORT

Camille Reynolds		Order#:	G0204304
Environmental Technology Group, Inc.		Project:	
2540 W. Marland		Project Name:	TB-63
Hobbs, NM 88240		Location:	MONUMENT, NM

Lab ID: 0204304-01
Sample ID: SB-3 25'

8015M

Method Blank	Date Prepared	Date Analyzed	Sample Amount	Dilution Factor	Analyst	Method
		8/23/02	1	1	CK	8015M

Parameter	Result mg/kg	RL
GRO, C6-C12	<10.0	10.0
DRO, >C12-C35	12.2	10.0
TOTAL, C6-C35	12.2	10.0

8021B/5030 BTEX

Method Blank	Date Prepared	Date Analyzed	Sample Amount	Dilution Factor	Analyst	Method
0002968-02		8/23/02 17:05	1	25	CK	8021B

Parameter	Result mg/kg	RL
Benzene	<0.025	0.025
Ethylbenzene	<0.025	0.025
Toluene	<0.025	0.025
p/m-Xylene	<0.025	0.025
o-Xylene	<0.025	0.025

Surrogates	% Recovered	QC Limits (%)	
aaa-Toluene	108%	73	115
Bromofluorobenzene	112%	72	110

DL = Diluted out N/A = Not Applicable RL = Reporting Limit

ENVIRONMENTAL LAB OF TEXAS

ANALYTICAL REPORT

Camille Reynolds		Order#:	G0204304
Environmental Technology Group, Inc.		Project:	
2540 W. Marland		Project Name:	TB-63
Hobbs, NM 88240		Location:	MONUMENT, NM

Lab ID: 0204304-02
Sample ID: SB-3 29'

8015M

Method Blank	Date Prepared	Date Analyzed	Sample Amount	Dilution Factor	Analyst	Method
		8/23/02	1	1	CK	8015M

Parameter	Result mg/kg	RL
GRO, C6-C12	11.7	10.0
DRO, >C12-C35	38.4	10.0
TOTAL, C6-C35	50.1	10.0

8021B/5030 BTEX

Method Blank	Date Prepared	Date Analyzed	Sample Amount	Dilution Factor	Analyst	Method
0002968-02		8/26/02 16:03	1	25	CK	8021B

Parameter	Result mg/kg	RL
Benzene	<0.025	0.025
Ethylbenzene	<0.025	0.025
Toluene	<0.025	0.025
p/m-Xylene	<0.025	0.025
o-Xylene	<0.025	0.025

Surrogates	% Recovered	QC Limits (%)	
a,a,a-Toluene	97%	80	120
Bromofluorobenzene	106%	80	120

DL = Diluted out N/A = Not Applicable RL = Reporting Limit

ENVIRONMENTAL LAB OF TEXAS

ANALYTICAL REPORT

Camille Reynolds	Order#: G0204304
Environmental Technology Group, Inc.	Project:
2540 W. Marland	Project Name: TB-63
Hobbs, NM 88240	Location: MONUMENT, NM

Lab ID: 0204304-03
Sample ID: SB-3

8021B/5030 BTEX

Method Blank	Date Prepared	Date Analyzed	Sample Amount	Dilution Factor	Analyst	Method
0002969-02		8/27/02 10:36	1	1	CK	8021B

Parameter	Result mg/L	RL
Benzene	0.064	0.001
Ethylbenzene	0.014	0.001
Toluene	0.002	0.001
p/m-Xylene	0.017	0.001
o-Xylene	0.006	0.001

Surrogates	% Recovered	QC Limits (%)	
aaa-Toluene	115%	73	115
Bromofluorobenzene	109%	72	110

Approval: Roland K Tuttle 8-28-02
Roland K. Tuttle, Lab Director, QA Officer — Date
Celey D. Keene, Org. Tech. Director
Jeanne McMurrey, Inorg. Tech. Director
Sandra Biezugbe, Lab Tech.
Sara Molina, Lab Tech.

DL = Diluted out N/A = Not Applicable RL = Reporting Limit

ENVIRONMENTAL LAB OF TEXAS

ANALYTICAL REPORT

Camille Reynolds		Order#:	G0204304
Environmental Technology Group, Inc.		Project:	
2540 W. Marland		Project Name:	TB-63
Hobbs, NM 88240		Location:	MONUMENT, NM

Lab ID: 0204304-01
Sample ID: SB-3 25'

Test Parameters

Parameter	Result	Units	Dilution Factor	RL	Method	Date Analyzed	Analyst
Chloride	1560	mg/kg	1	20.0	9253	8/23/02	SB

Lab ID: 0204304-02
Sample ID: SB-3 29'

Test Parameters

Parameter	Result	Units	Dilution Factor	RL	Method	Date Analyzed	Analyst
Chloride	1080	mg/kg	1	20.0	9253	8/23/02	SB

Lab ID: 0204304-03
Sample ID: SB-3

Test Parameters

Parameter	Result	Units	Dilution Factor	RL	Method	Date Analyzed	Analyst
Chloride	12200	mg/L	1	5.00	9253	8/23/02	SB

Approval: Raland K Tuttle 8-30-02
Raland K. Tuttle, Lab Director, QA Officer — Date
Celey D. Keene, Org. Tech. Director
Jeanne McMurrey, Inorg. Tech. Director
Sandra Biezugbe, Lab Tech.
Sara Molina, Lab Tech.

RL = Reporting Limit N/A = Not Applicable

ENVIRONMENTAL LAB OF TEXAS

QUALITY CONTROL REPORT

8015M

Order#: G0204304

BLANK SOIL	LAB-ID #	Sample Concentr.	Spike Concentr.	QC Test Result	Pct (%) Recovery	RPD
TOTAL, C6-C35-mg/kg	0002953-02			<10.0		
MS SOIL	**LAB-ID #**	**Sample Concentr.**	**Spike Concentr.**	**QC Test Result**	**Pct (%) Recovery**	**RPD**
TOTAL, C6-C35-mg/kg	0204304-01	12.2	1130.98	1150	100.6%	
MSD SOIL	**LAB-ID #**	**Sample Concentr.**	**Spike Concentr.**	**QC Test Result**	**Pct (%) Recovery**	**RPD**
TOTAL, C6-C35-mg/kg	0204304-01	12.2	1130 98	1080	94.4%	6.3%
SRM SOIL	**LAB-ID #**	**Sample Concentr.**	**Spike Concentr.**	**QC Test Result**	**Pct (%) Recovery**	**RPD**
TOTAL, C6-C35-mg/kg	0002953-05		952	1120	117.6%	

ENVIRONMENTAL LAB OF TEXAS

QUALITY CONTROL REPORT

8021B/5030 BTEX

Order#: G0204304

BLANK SOIL	LAB-ID #	Sample Concentr.	Spike Concentr.	QC Test Result	Pct (%) Recovery	RPD
Benzene-mg/kg	0002968-02			<0.025		
Benzene-mg/L	0002969-02			<0.001		
Ethylbenzene-mg/kg	0002968-02			<0.025		
Ethylbenzene-mg/L	0002969-02			<0.001		
Toluene-mg/kg	0002968-02			<0.025		
Toluene-mg/L	0002969-02			<0.001		
p/m-Xylene-mg/kg	0002968-02			<0.025		
p/m-Xylene-mg/L	0002969-02			<0.001		
o-Xylene-mg/kg	0002968-02			<0.025		
o-Xylene-mg/L	0002969-02			<0.001		
MS WATER	LAB-ID #	Sample Concentr.	Spike Concentr.	QC Test Result	Pct (%) Recovery	RPD
Benzene-mg/L	0204252-01	0	0.1	0.097	97.%	
Benzene-mg/kg	0204304-02	0	0.1	0.103	103.%	
Ethylbenzene-mg/L	0204252-01	0	0.1	0.098	98.%	
Ethylbenzene-mg/kg	0204304-02	0	0.1	0.106	106.%	
Toluene-mg/L	0204252-01	0	0.1	0.099	99.%	
Toluene-mg/kg	0204304-02	0	0.1	0.106	106.%	
p/m-Xylene-mg/L	0204252-01	0	0.2	0.205	102.5%	
p/m-Xylene-mg/kg	0204304-02	0	0.2	0.222	111.%	
o-Xylene-mg/L	0204252-01	0	0.1	0.098	98.%	
o-Xylene-mg/kg	0204304-02	0	0.1	0.106	106.%	
MSD WATER	LAB-ID #	Sample Concentr.	Spike Concentr.	QC Test Result	Pct (%) Recovery	RPD
Benzene-mg/L	0204252-01	0	0.1	0.091	91.%	6.4%
Benzene-mg/kg	0204304-02	0	0.1	0.109	109.%	5.7%
Ethylbenzene-mg/L	0204252-01	0	0.1	0.092	92.%	6.3%
Ethylbenzene-mg/kg	0204304-02	0	0.1	0.111	111.%	4.6%
Toluene-mg/L	0204252-01	0	0.1	0.093	93.%	6.3%
Toluene-mg/kg	0204304-02	0	0.1	0.110	110.%	3.7%
p/m-Xylene-mg/L	0204252-01	0	0.2	0.192	96.%	6.5%
p/m-Xylene-mg/kg	0204304-02	0	0.2	0.225	112.5%	1.3%
o-Xylene-mg/L	0204252-01	0	0.1	0.092	92.%	6.3%
o-Xylene-mg/kg	0204304-02	0	0.1	0.110	110.%	3.7%
SRM SOIL	LAB-ID #	Sample Concentr.	Spike Concentr.	QC Test Result	Pct (%) Recovery	RPD
Benzene-mg/kg	0002968-05		0.1	0.115	115.%	
Benzene-mg/L	0002969-05		0.1	0.094	94.%	
Ethylbenzene-mg/kg	0002968-05		0.1	0.110	110.%	
Ethylbenzene-mg/L	0002969-05		0.1	0.094	94.%	
Toluene-mg/kg	0002968-05		0.1	0.114	114.%	

ENVIRONMENTAL LAB OF TEXAS

QUALITY CONTROL REPORT

SRM SOIL	LAB-ID #	Sample Concentr.	Spike Concentr.	QC Test Result	Pct (%) Recovery	RPD
Toluene-mg/L	0002969-05		0.1	0.095	95.%	
p/m-Xylene-mg/kg	0002968-05		0.2	0.229	114.5%	
p/m-Xylene-mg/L	0002969-05		0.2	0.196	98.%	
o-Xylene-mg/kg	0002968-05		0.1	0.114	114.%	
o-Xylene-mg/L	0002969-05		0.1	0.094	94.%	

ENVIRONMENT. . LAB OF TEXAS

QUALITY CO' 'OL REPORT

Test Pa ieters

Order#: G0204304

BLANK WATER	LAB-ID #	Sample Concentr.	Spike Concentr.	QC Test Result	Pct (%) Recovery	RPD
Chloride-mg/L	0002961-01			<5.00		
Chloride-mg/kg	0002962-01			<20.0		
MS WATER	**LAB-ID #**	**Sample Concentr.**	**Spike Concentr.**	**QC Test Result**	**Pct (%) Recovery**	**RPD**
Chloride-mg/L	0204280-01	230	500	727	99.4%	
Chloride-mg/kg	0204282-05	0	1031	1050	101.8%	
MSD WATER	**LAB-ID #**	**Sample Concentr.**	**Spike Concentr.**	**QC Test Result**	**Pct (%) Recovery**	**RPD**
Chloride-mg/L	0204280-01	230	500	718	97.6%	1.2%
Chloride-mg/kg	0204282-05	1050	1031	1030	99.9%	1.9%
SRM WATER	**LAB-ID #**	**Sample Concentr.**	**Spike Concentr.**	**QC Test Result**	**Pct (%) Recovery**	**RPD**
Chloride-mg/L	0002961-04		5000	4960	99.2%	
Chloride-mg/kg	0002962-04		5000	4960	99.2%	

Environmental Lab of Texas I, Ltd.

COC# 135

600 West I-20 East
Odessa, Texas 79763
Phone: 915-563-1800
Fax: 915-563-1713

CHAIN OF CUSTODY RECORD AND ANALYSIS REQUEST

Project Manager: Camille Reynolds
Company Name: ETGI
Company Address: 2540 West Marland
City/State/Zip: Hobbs, New Mexico, 88240
Telephone No: (505) 397-4888 Fax No: (505) 397-4701
Sampler Signature: Camille Reynolds

Project Name: TB-63
Project #: AHC 1200
Project Loc: Monument, NM
PO #:

LAB # (lab use only)	FIELD CODE	Date Sampled	Time Sampled	No. of Containers	Preservative: Ice	Preservative: HNO3	Preservative: HCl, 4pk / vials	Preservative: NaOH	Preservative: H2SO4	Preservative: None Sugar / none	Preservative: Other (Specify)	Matrix: Water	Matrix: Sludge	Matrix: Soil	Matrix: Other (specify)	Analyze For: TPH 418.1 (8015M) 1005 1006	Cations (Ca, Mg, Na, K)	Anions (Cl, SO4, CO3, HCO3)	SAR / ESP / CEC	Metals: As Ag Ba Cd Cr Pb Hg Se	Volatiles	Semivolatiles	BTEX 8021B/5030	RCI	RUSH TAT (Pre-Schedule)	Standard TAT
02024304-01	SB-3 25'	8-21	1327	1	X									X		X		X					X			X
02	SB-3 29'		1345	1	X									X		X		X					X			X
03	SB-3	↓	1505	3	X		X			X		X						X					X			X

Special Instructions:

Sample Containers Intact? Y N
Temperature Upon Receipt:
Laboratory Comments:
Ice -1.0 °C

Relinquished by:	Date	Time	Received by:	Date	Time
Camille Reynolds	8-21-02	1710		8-21-02	1710
Relinquished by:	Date	Time	Received by ELOT:	Date	Time
	8-22-02	12:20	Rolandk	8-22-02	1220

Aug 30 02 11:54a Feb 25 03 04:41p

P. 11

P. 12

TABLE 2

GROUND WATER CHEMISTRY

AMERADA HESS
TB - 63
MONUMENT, NEW MEXICO
ETGI PROJECT # AM-1200

SAMPLE LOCATION	SAMPLE DATE	METHODS: EPA SW 846-8021B, 5030				METHOD: SW 846-9253
		BENZENE (mg/kg)	TOLUENE (mg/kg)	ETHYL-BENZENE (mg/kg)	TOTAL XYLENES (mg/kg)	CHLORIDE (mg/L)
SB - 3	08/21/02	0.064	0.002	0.014	0.023	12200

TABLE 1

SOIL CHEMISTRY

AMERADA HESS
TB - 63
MONUMENT, NEW MEXICO
ETGI PROJECT # AM-1200

SAMPLE LOCATION	SAMPLE DATE	METHOD: EPA SW 846-8021B, 5030				METHOD: 8015M		METHOD: 9253
		BENZENE (mg/kg)	TOLUENE (mg/kg)	ETHYL-BENZENE (mg/kg)	TOTAL XYLENES (mg/kg)	GRO (mg/kg)	DRO (mg/kg)	CHLORIDES (mg/kg)
SB 3 - 25'	08/21/02	<0.025	<0.025	<0.025	<0.025	<10.0	12.2	1560
SB 3 - 29'	08/21/02	<0.025	<0.025	<0.025	<0.025	11.7	38.4	1080

AMERADA HESS

NMGSAU BATTERY No. 63

MONITOR WELL INSTALLATION, SAMPLING EVENT, AND MONITOR WELL RECHARGE TEST

PERFORMED BY:

BBC INTERNATIONAL, INC.
WORLD-WIDE ENVIRONMENTAL SPECIALISTS
1324 W. MARLAND BLVD.
P. O. BOX 805
HOBBS, NEW MEXICO 88240
(505)397-6388 • FAX (505)397-0397
EMAIL: bbc@bbcinternational.com
WEBSITE: www.bbcinternational.com

JULY 16, 2003

PREPARED FOR:

MR. SAM SMALL
AMERADA HESS
600 NW AVENUE B
SEMINOLE, TEXAS 79360

1.0 MONITOR WELL INSTALLATION

On June 11, 2003, BBC International, Inc. (BBC) installed three groundwater monitoring wells at Amerada Hess NMGSAU Battery No. 63 located southwest of Monument New Mexico, in Section 31, Township 19 South, Range 37 East. White Drilling Company of Clyde, Texas provided the rig to drill, sample, and construct the monitor wells. The locations of the wells were selected to evaluate groundwater quality and the gradient of groundwater flow in the area of an excavation for soil remediation at Battery No. 63. Well MW-1 is the up-gradient monitoring well and wells MW-2 and MW-3 are the down-gradient wells.

Each well was drilled using the air-rotary method. Samples were collected at approximately 5-foot intervals. A split-spoon sampler was used to collect soil samples where possible. The samples collected at the 5- and 10-foot intervals were recovered using this method. Below the 10-foot interval, the soil was indurated to the extent that the split-spoon sampler would not penetrate. Consequently, samples were collected from cuttings from the boring.

A representative portion of the soil sample collected at 5-foot intervals in each boring was placed in a plastic bag and sealed. After ten minutes in the sealed bag, a Photoionization Detector (PID), calibrated for benzene, was introduced into the bag and the organic vapor concentration measured and recorded. A lithologic description of each sample was recorded. A log of the borings and PID readings are included in Appendix IV. Two soil samples from each boring were submitted to Cardinal Laboratories in Hobbs, New Mexico for analysis. Laboratory analysis of the submitted soil samples included TPH 8015M, BTEX, and chlorides. In each boring, the sample immediately above the saturated zone and the sample with the highest PID reading were submitted for laboratory analysis. One additional sample from MW-3 at a depth of 4' was also submitted due to visual hydrocarbon impact. Laboratory analysis data can be found in the Cardinal Laboratory Analytical results are located in Appendix II of this report.

Upon completion of soil sampling, each monitor well was constructed using 2-inch, flush-joint-threaded, Schedule 40 PVC casing and screen. The screen was mill slotted with 0.020-inch opening. Fifteen feet of the mill slotted PCV screen was installed in each well. A filter pack consisting of 8-16 sand was placed in the annulus of the well from the bottom of the screen to about two feet above the top of the screen. Approximately two feet of 3/8-inch bentonite well seal chips were placed in the annulus above the filter pack and hydrated with potable water. The remainder of the annulus was filled with concrete to the surface. Well construction diagrams and additional information is included in Appendix IV.

Each well was completed at the surface with a 2-foot by 2-foot concrete pad and a lockable protective steel casing. The concrete pad was constructed so the pad slopes away from the casing to prevent surface water contamination.

On June 12, 2003, the water level of each monitor well was measured. Based on the water level elevation measured, an isopleth map illustrating the contour of the water table and the direction of groundwater movement at NMGSAU Battery No. 63 was created and is in Appendix III.

2.0 MONITOR WELL DEVELOPMENT

On June 16, 2003, BBC personnel conducted activities to develop the monitor wells at the NMGSAU Battery No. 63 site. Following EPA protocols for monitor well development, the water temperature, pH, and conductivity were monitored during well purging. An Oakton pH tester was used to monitor pH and an Oakton EC tester was used to monitor conductivity. Due to the chloride content of the fluids, all conductivity readings were out of range of the Oakton EC tester. A laboratory grade thermometer was used for measuring water temperature. Depth measurement data, instrument readings, and temperature measurements are located in Appendix I of this report.

3.0 MONITOR WELL SAMPLING ACTIVITIES

On June 19, 2003, BBC personnel conducted a groundwater sampling event at the NMGSAU Battery No. 63 site. Total depth (TD) and depth to groundwater was measured in each monitor well using an electronic oil/water interface probe. All depths were normalized to subsurface depths using top of casing elevations obtained from the well survey performed on June 18, 2003. Well survey data can be viewed on the Groundwater Gradient Map located in Appendix III of this report. No Phase Separate Hydrocarbons (PSH) were detected in any of the wells. Each monitor well was then purged of three wetted casing volumes and samples were collected for BTEX and Chloride analysis. Depth measurement data, the amount of fluid purged from each well, and the times of sample collection are located in Appendix I of this report. The samples were preserved with HCl and ice, then delivered to Cardinal Laboratories in Hobbs, New Mexico for analysis. The laboratory results for MW-1 are non-detect for BTEX and 15,395 mg/L for chlorides. The laboratory results for MW-2 are 0.003 mg/L for benzene, non-detect for toluene, ethylbenzene, and total xylenes, and 14,895 mg/L for chlorides. The results for MW-3 are non-detect for BTEX and 14,096 mg/L for chlorides. The laboratory data can be found on the Groundwater Concentration Map located in Appendix III and in the Cardinal Laboratory Analytical results located in Appendix II of this report.

4.0 MONITOR WELL RECHARGE TEST

On June 25, 2003, BBC personnel began the recharge tests for the NMGSAU Battery No. 63 monitor wells. First, depth to groundwater was measured, then the pump-down of the well was performed, after which the depth to groundwater was measured again. This sequence was performed on each well beginning with well MW-1 followed by MW-2 and MW-3.

The fluid level measurement before pump-down on MW-1 was 40.50 feet. The well was pumped dry after 2 gallons of fluid was removed. The measured TD was 48.70 feet which is a change of 8.20 feet. The fluid level measurement before pump-down on MW-2 was 40.57 feet. The well was pumped dry after 5 gallons of fluid was removed. The measured TD was 51.23 which is a change of 10.66 feet. The fluid level measurement before pump-down on well MW-3 was 39.56 feet. The well was pumped dry after 4 gallons of fluid was removed. The measured TD of 48.80 which is a change was 8.94 feet. All fluid level measurements before and after pump down and their respective measurement times are located in Appendix I of this report. Fluid level measurements were subsequently taken on each well after 1 hour, 24 hours, and 48 hours. These measurements and measurement times are located in Appendix I of this report.

The total fluid removed from each well is located in Appendix I of this report. Fluid level data shows that MW-2 and MW-3 had fully recovered within 1hour of the pump down event. MW-1 did not fully recover within 1 hour of the pump down event, but had fully recovered within 24 hours of the pump down event. All well depths remained static after they had fully recovered. A Groundwater Gradient Map of the NMGSAU Battery No. 63 site is included in Appendix III of this report. All produced fluids and decontamination waste water was disposed of at Sundance Services Disposal Facility in Eunice, New Mexico, an OCD-approved disposal facility.

5.0 FINDINGS AND CONCLUSIONS

Listed below are BBC's findings and conclusions drawn from the monitor well installation, soil and groundwater sampling, and the monitor well recharge tests conducted at the Amerada Hess NMGSAU Battery No. 63 excavation site. The dates these activities were performed were June 11-12, 18-19, and June 25-27, 2003.

5.01 MONITOR WELL SOIL SAMPLING FINDINGS

1. Lab analysis indicated BTEX components to be non-detect or below New Mexico OCD cleanup guidelines in all samples submitted for analysis.
2. Lab analysis indicated GRO (C_6-C_{10}) components to be non-detect or below New Mexico OCD cleanup guidelines in all samples submitted for analysis.
3. Lab analysis detected DRO (C_{10}-C_{22}) components in three of the samples submitted for analysis. Sample MW-2 32'-35' had a DRO analysis of 502 mg/L, sample MW-2 – 35'- 37' had a DRO analysis of 153 mg/L, and sample MW-3 – 4' had a DRO analysis of 35,300 mg/L.
4. Lab analysis detected varying levels of chlorides in all submitted samples. The chloride levels ranged from a low of 32 mg/L in sample MW-3 -4' to a high of 1440 mg/L in sample MW-1 – 25' – 26'.

5.02 MONITOR WELL GROUNDWATER SAMPLING EVENT FINDINGS

1. No Phase Separate Hydrocarbons (PSH) were detected in any of the three monitor wells.
2. Lab analysis indicated BTEX components to be non-detect or below New Mexico OCD cleanup guidelines in all samples.
3. Lab analysis indicated chlorides to be above New Mexico WQCC Standards in all samples. The chloride concentration in MW-1 is 15,395 mg/L, in MW-2 it is 14,895 mg/L, and in MW-3 it is 14,096 mg/L.

5.03 MONITOR WELL RECHARGE TEST CONCLUSIONS

1. Monitor wells MW-2 and MW-3 recharge within 1 hour of being pumped dry.
2. Monitor well MW-1 recharged to 80% within 1 hour and fully recharged within 24 hours.
3. The local hydraulic gradient at the site is 0.004 ft/ft to the southeast.

APPENDIX I

Data Tables

Well Development,
Sampling Event Data,
Recharge Test
June 2003

NMGSAU Battery No. 63

Monument, New Mexico

Prepared for:
Amerada Hess
Seminole, Texas

June 2003

Prepared by:
BBC International, Inc.

NMGSAU Battery 63
Well Development

Monitoring Well	Date	Time	Top of Casing Elevation	Depth to Groundwater	Groundwater Elevation (Normalized)	Total Depth	Total Depth Elevation (Normalized)	pH	Conductivity	Temperature °F
MW-1	6/18/2003	10:23 AM	3573.79	40.48	3533.31	48.70	3525.09	7.2	OR	80
	6/18/2003	11:11 AM						7.2	OR	70
	6/18/2003	11:44 AM						7.2	OR	70
	6/18/2003	12:33 PM						7.2	OR	70
MW-2	6/18/2003	1:02 PM	3573.27	40.52	3532.75	51.23	3522.04	7.1	OR	72
	6/18/2003	1:30 PM						7.2	OR	72
	6/18/2003	2:00 PM						7.2	OR	72
	6/18/2003	2:40 PM						7.2	OR	72
MW-3	6/18/2003	3:00 PM	3572.78	39.83	3532.95	48.80	3523.98	7.2	OR	76
	6/18/2003	3:10 PM						7.2	OR	72
	6/18/2003	3:25 PM						7.2	OR	72
	6/18/2003	3:45 PM						7.2	OR	72

OR = Out of Range of Instrument

NMGSAU Battery 63
Sampling Event Data

Monitoring Well	Date	Sample Time	Top of Casing Elevation	Depth to Groundwater	Groundwater Elevation (Normalized)	Total Depth	Total Depth Elevation (Normalized)	Depth to LNAPL	LNAPL Thickness	Amount of Fluid Purged
MW-1	6/19/2003	2:30 PM	3573.79	40.48	3533.31	48.70	3525.09	ND	ND	4 gallons
MW-2	6/19/2003	2:50 PM	3573.27	40.55	3532.72	51.23	3522.04	ND	ND	5.2 gallons
MW-3	6/19/2003	3:45 PM	3572.78	39.84	3532.94	48.80	3523.98	ND	ND	4.5 gallons

ND = Non-Detect

NMGSAU Battery 63
Recharge Test

Fluid Level Before Pump Down

Monitoring Well	Date	Time	Top of Casing Elevation	Depth to Groundwater	Groundwater Elevation (Normalized)	Total Depth	Total Depth Elevation (Normalized)	Amount of Fluid Pumped	Pump Rate
MW-1	6/25/2003	9:10 AM	3573.79	40.50	3533.29	48.70	3525.09	2 gallons	2 gal/min
MW-2	6/25/2003	9:30 AM	3573.27	40.57	3532.70	51.23	3522.04	5 gallons	2 gal/min
MW-3	6/25/2003	9:46 AM	3572.78	39.86	3532.92	48.80	3523.98	4 gallons	2 gal/min

Fluid Level After Pump Down

Monitoring Well	Date	Time	Top of Casing Elevation	Depth to Groundwater	Groundwater Elevation (Normalized)
MW-1	6/25/2003	9:19 AM	3573.79	Dry	NA
MW-2	6/25/2003	9:38 AM	3573.27	Dry	NA
MW-3	6/25/2003	9:52 AM	3572.78	Dry	NA

Fluid Level After 1 Hour

Monitoring Well	Date	Time	Top of Casing Elevation	Depth to Groundwater	Groundwater Elevation (Normalized)
MW-1	6/25/2003	10:19 AM	3573.79	41.36	3532.43
MW-2	6/25/2003	10:38 AM	3573.27	40.57	3532.70
MW-3	6/25/2003	10:52 AM	3572.78	39.86	3532.92

Fluid Level After 24 Hours

Monitoring Well	Date	Time	Top of Casing Elevation	Depth to Groundwater	Groundwater Elevation (Normalized)
MW-1	6/26/2003	9:19 AM	3573.79	40.50	3533.29
MW-2	6/26/2003	9:38 AM	3573.27	40.57	3532.70
MW-3	6/26/2003	9:52 AM	3572.78	39.86	3532.92

Fluid Level After 48 Hours

Monitoring Well	Date	Time	Top of Casing Elevation	Depth to Groundwater	Groundwater Elevation (Normalized)
MW-1	6/27/2003	9:19 AM	3573.79	40.50	3533.29
MW-2	6/27/2003	9:38 AM	3573.27	40.57	3532.70
MW-3	6/27/2003	9:52 AM	3572.78	39.86	3532.92

APPENDIX II

Analytical Data

Soil and Groundwater Samples

June 2003

NMGSAU Battery No. 63

Monument, New Mexico

Prepared for:
Amerada Hess
Seminole, Texas

June 2003

Prepared by:
BBC International, Inc.

CARDINAL LABORATORIES

PHONE (915) 673-7001 • 2111 BEECHWOOD • ABILENE, TX 79603
PHONE (505) 393-2326 • 101 E. MARLAND • HOBBS, NM 88240

ANALYTICAL RESULTS FOR
BBC INTERNATIONAL, INC.
ATTN: CLIFF BRUNSON
P.O. BOX 805
HOBBS, NM 88241
FAX TO: (505) 397-0397

Receiving Date: 06/19/03
Reporting Date: 06/20/03
Project Owner: AMERADA HESS
Project Name: NMGSAU BATTERY 63
Project Location: MONUMENT, NM

Analysis Date: 06/20/03
Sampling Date: 06/19/03
Sample Type: GROUNDWATER
Sample Condition: COOL & INTACT
Sample Received By: BC
Analyzed By: AH

LAB NUMBER	SAMPLE ID	Cl^- (mg/L)
H7747-1	MW 1	15395
H7747-2	MW 2	14895
H7747-3	MW 3	14096
Quality Control		930
True Value QC		1000
% Recovery		93.0
Relative Percent Difference		1.1

METHOD: Standard Methods	4500-ClB

Amy Hill
Chemist

6/20/03
Date

H7747

CARDINAL LABORATORIES

PHONE (915) 673-7001 • 2111 BEECHWOOD • ABILENE, TX 79603
PHONE (505) 393-2326 • 101 E. MARLAND • HOBBS, NM 88240

ANALYTICAL RESULTS FOR
BBC INTERNATIONAL, INC.
ATTN: CLIFF BRUNSON
P.O. BOX 805
HOBBS, NM 88241
FAX TO: (505) 397-0397

Receiving Date: 06/19/03
Reporting Date: 06/23/03
Project Owner: AMERADA HESS
Project Name: NMGSAU BATTERY 63
Project Location: MONUMENT, NM

Sampling Date: 06/19/03
Sample Type: GROUNDWATER
Sample Condition: COOL & INTACT
Sample Received By: BC
Analyzed By: BC

LAB NO. SAMPLE ID	BENZENE (mg/L)	TOLUENE (mg/L)	ETHYL BENZENE (mg/L)	TOTAL XYLENES (mg/L)
ANALYSIS DATE	06/20/03	06/20/03	06/20/03	06/20/03
H7747-1 MW 1	<0.002	<0.002	<0.002	<0.006
H7747-2 MW 2	0.003	<0.002	<0.002	<0.006
H7747-3 MW 3	<0.002	<0.002	<0.002	<0.006
Quality Control	0.108	0.104	0.097	0.28
True Value QC	0.100	0.100	0.100	0.300
% Recovery	108	104	96.9	93.2
Relative Percent Difference	11.9	5.2	3.7	1.9

METHOD: EPA SW-846 8260

Chemist

6/23/03
Date

H7747B.XLS

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

CARDINAL LABORATORIES, INC.
2111 Beechwood, Abilene, TX 79603 101 East Marland, Hobbs, NM 88240
(915) 673-7001 Fax (915) 673-7020 (505) 393-2326 Fax (505) 393-2476

Company Name: BBC International, Inc.	BILL TO
Project Manager: Cliff Brunson	P.O. #:
Address: 1324 W. Marland	Company:
City: Hobbs State: N.M. Zip: 88240	Attn:
Phone #: (505) 397-6388 Fax #: (505) 397-0397	Address: SAME
Project #: — Project Owner: Amerada Hess	City:
Project Name: NMCSAV Battery 63	State: Zip:
Project Location: Monument N.M.	Phone #:
Sampler Name: Gabriel Trevizo	Fax #:

FOR LAB USE ONLY Lab I.D.	Sample I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	MATRIX: GROUNDWATER	WASTEWATER	SOIL	CRUDE OIL	SLUDGE	OTHER :	PRESERV.: ACID/BASE: HCl	ICE / COOL	OTHER :	SAMPLING: DATE	TIME	ANALYSIS REQUEST: BTEX	Chloride
H7747-1	MW1		3	✓							✓		6-19-03	2:30		✓
-1	MW1		3	✓						✓	✓		6-19-03	2:30	✓	
H7747-2	MW2		3	✓							✓		6-19-03	2:50		✓
-2	MW2		3	✓						✓	✓		6-19-03	2:50	✓	
H7747-3	MW3		3	✓							✓		6-19-03	3:45		✓
-3	MW3		2	✓						✓	✓		6-19-03	3:45	✓	

Sampler Relinquished:	Date: 6-19-03	Received By:	Phone Result: ☐ Yes ☐ No Add'l Phone #:
	Time: 4:45		Fax Result: ☐ Yes ☐ No Add'l Fax #:
Relinquished By:	Date:	Received By: (Lab Staff)	REMARKS:
	Time:	Burgess J.R. Cook	
Delivered By: (Circle One) Sampler - UPS - Bus - Other:		Sample Condition: Cool ☑ Yes ☐ No; Intact ☑ Yes ☐ No	CHECKED BY: (Initials)

† Cardinal cannot accept verbal changes. Please fax written changes to 505-393-2476.

CARDINAL LABORATORIES

PHONE (915) 673-7001 • 2111 BEECHWOOD • ABILENE, TX 79603
PHONE (505) 393-2326 • 101 E. MARLAND • HOBBS, NM 88240

ANALYTICAL RESULTS FOR
BBC INTERNATIONAL, INC.
ATTN: C. BRUNSON
P.O. BOX 805
HOBBS, NM 88241
FAX TO: (505) 397-0397

Receiving Date: 06/12/03
Reporting Date: 06/13/03
Project Owner: AMERADA HESS
Project Name: NMGSAU BATTERY 63
Project Location: MONUMENT, NM

Sampling Date: 06/11/03
Sample Type: SOIL
Sample Condition: COOL & INTACT
Sample Received By: GP
Analyzed By: BC/HM

LAB NUMBER	SAMPLE ID	GRO (C_6-C_{10}) (mg/Kg)	DRO (>C_{10}-C_{28}) (mg/Kg)	Cl* (mg/Kg)
ANALYSIS DATE		06/12/03	06/12/03	06/13/03
H7719-1	MW 1-25'-26'	<10.0	<10.0	1440
H7719-2	MW 1-35'-36'	<10.0	<10.0	1390
H7719-3	MW 2-32'-35'	<10.0	502	1040
H7719-4	MW 2-35'-37'	<10.0	153	1010
H7719-5	MW 3-4'	<10.0	34300**	32
H7719-6	MW 3-28'	<10.0	<10.0	816
H7719-7	MW 3-35'-37'	<10.0	<10.0	1260
Quality Control		711	799	1040
True Value QC		800	800	1000
% Recovery		88.9	99.8	104
Relative Percent Difference		2.2	0.6	4.0

METHODS: TPH GRO & DRO: EPA SW-846 8015 M; Cl^-: Std. Methods 4500-Cl^-B
*Analyses performed on 1:4 w:v aqueous extracts.
**Significant amounts of hydrocarbons >C_{28} also detected.

Chemist

6/13/03
Date

H7719A.XLS

CARDINAL LABORATORIES

PHONE (915) 673-7001 • 2111 BEECHWOOD • ABILENE, TX 79603
PHONE (505) 393-2326 • 101 E. MARLAND • HOBBS, NM 88240

ANALYTICAL RESULTS FOR
BBC INTERNATIONAL, INC.
ATTN: C. BRUNSON
P.O. BOX 805
HOBBS, NM 88241
FAX TO: (505) 397-0397

Receiving Date: 06/12/03
Reporting Date: 06/16/03
Project Owner: AMERADA HESS
Project Name: NMGSAU BATTERY 63
Project Location: MONUMENT, NM

Sampling Date: 06/11/03
Sample Type: SOIL
Sample Condition: COOL & INTACT
Sample Received By: GP
Analyzed By: BC

LAB NUMBER	SAMPLE ID	BENZENE (mg/Kg)	TOLUENE (mg/Kg)	ETHYL BENZENE (mg/Kg)	TOTAL XYLENES (mg/Kg)
ANALYSIS DATE		06/13/03	06/13/03	06/13/03	06/13/03
H7719-1	MW 1-25'-26'	<0.005	<0.005	<0.005	<0.015
H7719-2	MW 1-35'-36'	<0.005	<0.005	<0.005	<0.015
H7719-3	MW 2-32'-35'	<0.005	<0.005	<0.005	<0.015
H7719-4	MW 2-35'-37'	<0.005	<0.005	<0.005	<0.015
H7719-5	MW 3-4'	<0.005	<0.005	<0.005	<0.015
H7719-6	MW 3-28'	<0.005	<0.005	<0.005	<0.015
H7719-7	MW 3-35'-37'	<0.005	<0.005	<0.005	<0.015
Quality Control		0.095	0.099	0.095	0.277
True Value QC		0.100	0.100	0.100	0.300
% Recovery		94.9	99.4	94.7	92.0
Relative Percent Difference		<0.1	4.7	1.8	<0.1

METHOD: EPA SW-846 8260

Chemist

6/16/03
Date

CARDINAL LABORATORIES, INC.

2111 Beechwood, Abilene, TX 79603 101 East Marland, Hobbs, NM 88240
(915) 673-7001 Fax (915) 673-7020 (505) 393-2326 Fax (505) 393-2476

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

Company Name: BBC International, Inc.	**BILL TO**
Project Manager: C. Bruton	P.O. #:
Address: 1324 W. Marland	Company:
City: Hobbs State: NM Zip: 88240	Attn:
Phone #: (505) 397-6388 Fax #: (505) 397-0397	Address:
Project #: — Project Owner: Amerada Hess	City:
Project Name: NMGSAU Battery 63	State: Zip:
Project Location: Monument N. M.	Phone #:
Sampler Name: Ken Swinney	Fax #:

FOR LAB USE ONLY				MATRIX						PRESERV			SAMPLING		ANALYSIS REQUEST		
Lab I.D.	Sample I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	GROUNDWATER	WASTEWATER	SOIL	CRUDE OIL	SLUDGE	OTHER :	ACID/BASE:	ICE / COOL	OTHER :	DATE	TIME	TPH 8015M	BTEX	Chloride
H7719-1	MW1 - 25'-26'	G	1			✓					✓		6-11-03	8:21	✓	✓	✓
-2	MW1 - 35'-36'	G	1			✓					✓		6-11-03	8:39	✓	✓	✓
-3	MW2 - 32'-35'	G	1			✓					✓		6-11-03	9:50	✓	✓	✓
-4	MW2 - 35'-37'	G	1			✓					✓		6-11-03	9:52	✓	✓	✓
-5	MW3 - 4'	G	1			✓					✓		6-11-03	12:04	✓	✓	✓
-6	MW3 - 28'	G	1			✓					✓		6-11-03	12:38	✓	✓	✓
-7	MW3 - 35'-37'	G	1			✓					✓		6-11-03	12:48	✓	✓	✓

Sampler Relinquished: Ken Swinney	Date: 6-12-03 Time: 4:47 PM	Received By: Roger Hernandez	
Relinquished By: Roger Hernandez	Date: 6-12-03 Time: 4:45PM	Received By: (Lab Staff)	
Delivered By: (Circle One) Sampler - UPS - Bus - Other:	Sample Condition Cool: ☒ Yes ☐ No Intact: ☒ Yes ☐ No	CHECKED BY: (Initials)	

Phone Result:	☐ Yes	☐ No	Add'l Phone #:
Fax Result:	☐ Yes	☐ No	Add'l Fax #:
REMARKS:			

† Cardinal cannot accept verbal changes. Please fax written changes to 505-393-2476.

APPENDIX III

Survey Maps

Groundwater Gradient Map &
Groundwater Concentration Map
June 2003

NMGSAU Battery No. 63

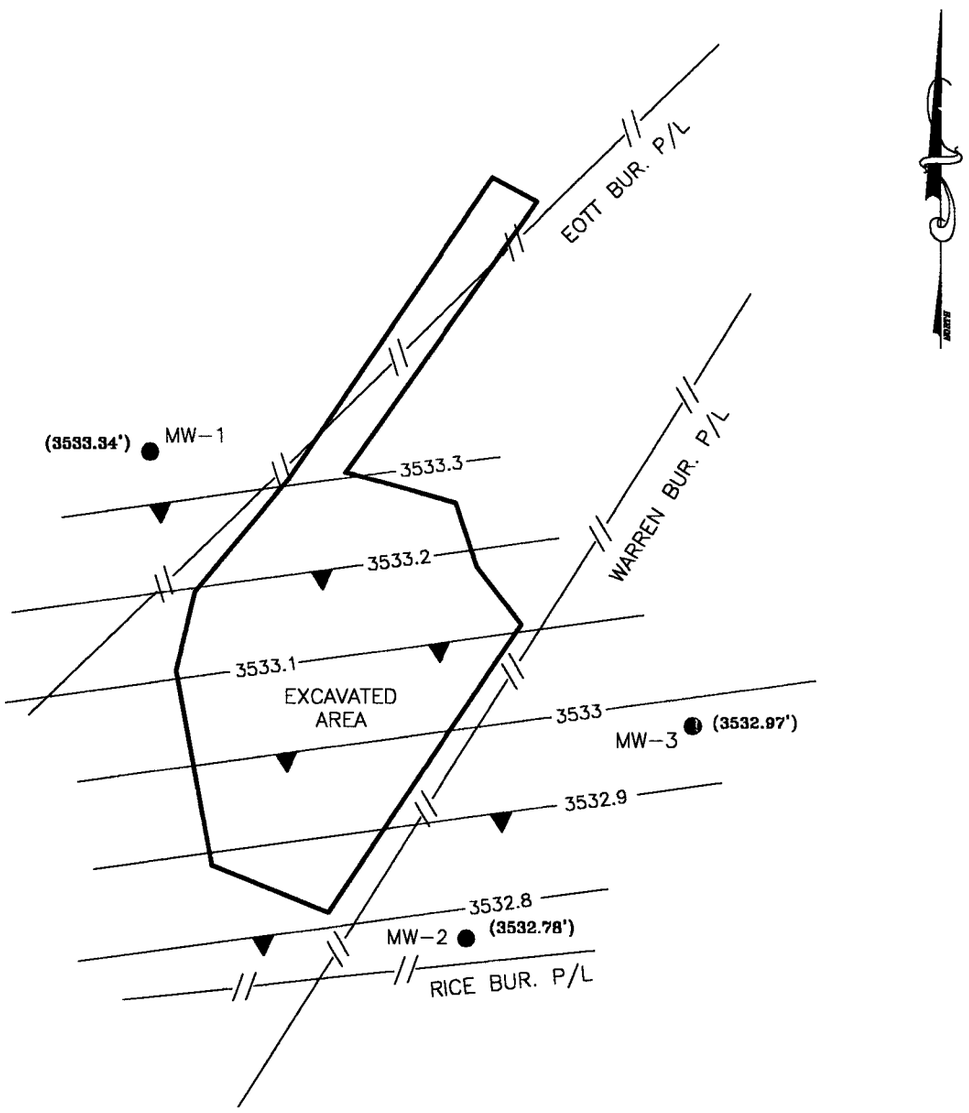
Monument, New Mexico

Prepared for:
Amerada Hess
Seminole, Texas

June 2003

Prepared by:
BBC International, Inc.

SECTION 31, TOWNSHIP 19 SOUTH, RANGE 37 EAST, N.M.P.M.,
LEA COUNTY, NEW MEXICO



MONITOR WELL #	STATE PLANE COORDINATE	NORTH SIDE ELEVATIONS
MW-1	Y=588465.9 X=861463.7	3571.06 NAT. GRND. 3571.19 CONC SLAB 3573.79 TOP 2" PVC
MW-2	Y=588328.4 X=861553.4	3570.43 NAT. GRND. 3570.65 CONC SLAB 3573.27 TOP 2" PVC
MW-3	Y=588387.9 X=861618.1	3569.96 NAT. GRND. 3570.16 CONC SLAB 3572.78 TOP 2" PVC

NOTE:

(1) COORDINATE VALUES SHOWN HEREON ARE TRANSVERSE MERCATOR GRID AND CONFORM TO THE NEW MEXICO COORDINATE SYSTEM "NEW MEXICO EAST ZONE" NORTH AMERICAN DATUM OF 1983.

SITE SPECIFIC GROUNDWATER GRADIENT IS 0.004 FT/FT TO THE SOUTH, SOUTHEAST

50 0 50 100 FEET

Scale:1"=50'

I HEREBY CERTIFY THAT I DIRECTED AND AM RESPONSIBLE FOR THIS SURVEY, THAT THIS SURVEY IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF AND THAT THIS SURVEY AND PLAT MEET THE MINIMUM STANDARDS FOR SURVEYING IN NEW MEXICO.

NEW MEXICO 3239 REGISTERED PROFESSIONAL SURVEYOR

7/18/03

RONALD J. EIDSON, N.M. P.S. No. 3239
GARY G. EIDSON, N.M. P.S. No. 12641

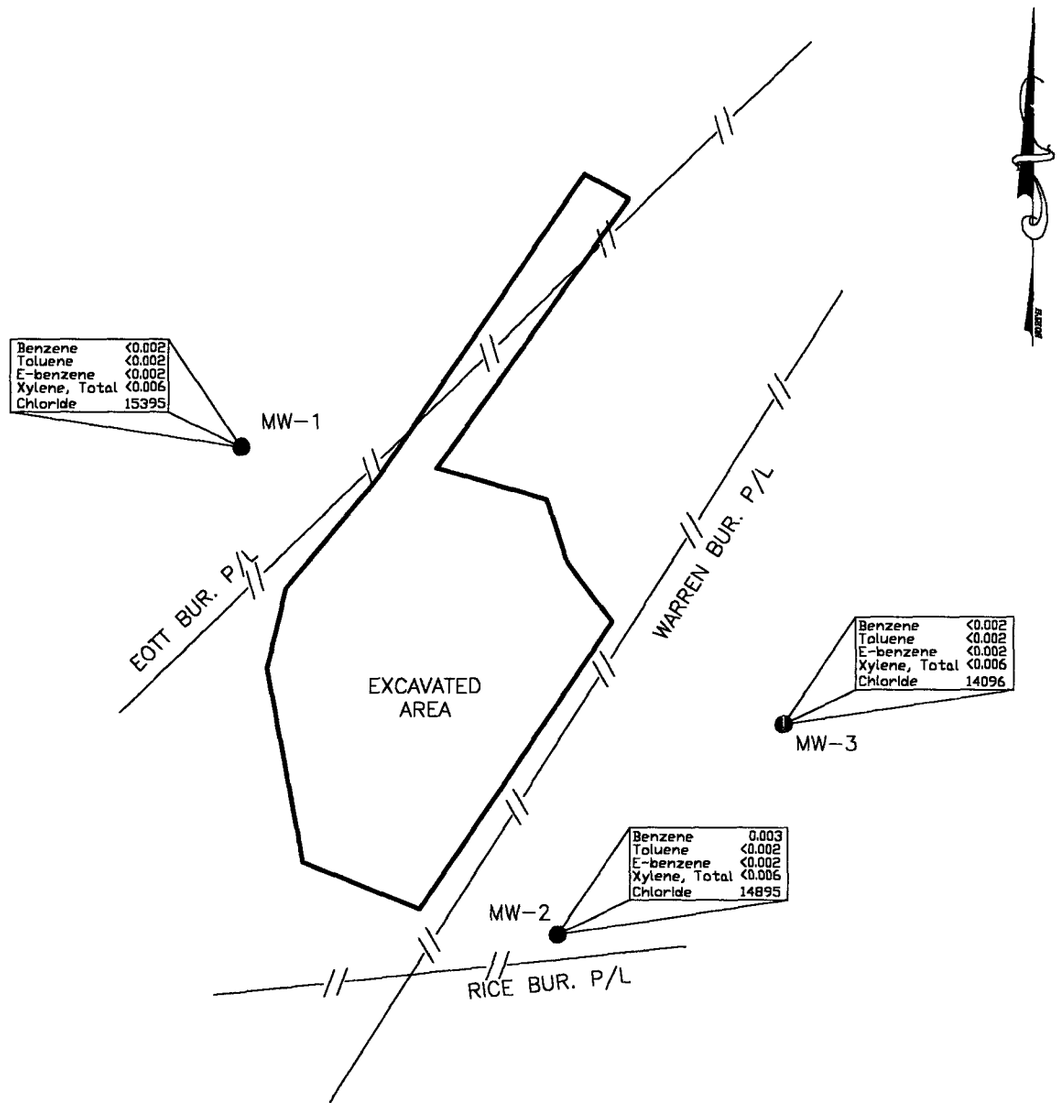
JOHN WEST SURVEYING COMPANY
412 N. DAL PASO – HOBBS, NEW MEXICO – 505-393-3117

BBC INTERNATIONAL

GROUND WATER GRADIANT MAP AND
SURVEY TO LOCATE MONITOR WELLS & PIT AT
THE AMERADA HESS NMGSAU BATTERY #63
IN SECTION 31, TOWNSHIP 19 SOUTH, RANGE 37 EAST,
N.M.P.M., LEA COUNTY, NEW MEXICO

Survey Date: 2/21/03		Sheet 1 of 1 Sheets	
W.O. Number: 03.11.0601		Drawn By: L. PERALES	
Date: 7/02/03	Disk: CD '03	03110601	Scale: 1"= 50'

SECTION 31, TOWNSHIP 19 SOUTH, RANGE 37 EAST, N.M.P.M.,
LEA COUNTY, NEW MEXICO



MONITOR WELL #	STATE PLANE COORDINATE	NORTH SIDE ELEVATIONS
MW-1	Y=588465.9 X=861463.7	3571.06 NAT. GRND. 3571.19 CONC SLAB 3573.79 TOP 2" PVC
MW-2	Y=588328.4 X=861553.4	3570.43 NAT. GRND. 3570.65 CONC SLAB 3573.27 TOP 2" PVC
MW-3	Y=588387.9 X=861618.1	3569.96 NAT. GRND. 3570.16 CONC SLAB 3572.78 TOP 2" PVC

NOTE:

(1) COORDINATE VALUES SHOWN HEREON ARE TRANSVERSE MERCATOR GRID AND CONFORM TO THE NEW MEXICO COORDINATE SYSTEM "NEW MEXICO EAST ZONE" NORTH AMERICAN DATUM OF 1983.

50 0 50 100 FEET

Scale:1"=50'

I HEREBY CERTIFY THAT I DIRECTED AND AM RESPONSIBLE FOR THIS SURVEY, THAT THIS SURVEY IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF AND THAT THIS SURVEY AND PLAT MEET THE MINIMUM STANDARDS FOR SURVEYING IN NEW MEXICO.

NEW MEXICO 3239 REGISTERED PROFESSIONAL SURVEYOR

7/18/03

RONALD J. EIDSON, N.M. P.S. No. 3239
GARY G. EIDSON, N.M. P.S. No. 12641

JOHN WEST SURVEYING COMPANY
412 N. DAL PASO – HOBBS, NEW MEXICO – 505-393-3117

BBC INTERNATIONAL

GROUND WATER CONCENTRATION MAP AND SURVEY TO LOCATE MONITOR WELLS & PIT AT THE AMERADA HESS NMGSAU BATTERY #63 IN SECTION 31, TOWNSHIP 19 SOUTH, RANGE 37 EAST, N.M.P.M., LEA COUNTY, NEW MEXICO

Survey Date: 2/21/03		Sheet 1 of 1 Sheets	
W.O. Number: 03.11.0601		Drawn By: L. PERALES	
Date: 7/02/03	Disk: CD '03	03110601	Scale: 1"= 50'

APPENDIX IV

Well Construction & Subsurface Exploration

MW-1, MW-2, & MW-3

June 2003

NMGSAU Battery No. 63

Monument, New Mexico

Prepared for:
Amerada Hess
Seminole, Texas

June 2003

Prepared by:
BBC International, Inc.

BBC INTERNATIONAL INCORPORATED

RECORD OF SUBSURFACE EXPLORATION

Project Name: NMGSAU Battery #63 **Project No.:**

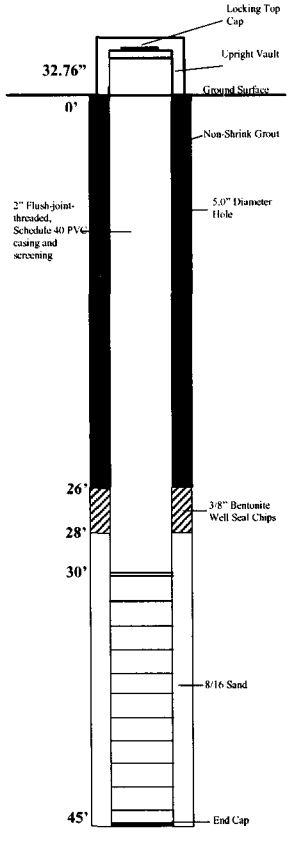
Borehold Number: MW-1 **Logged by:** Steven Bond

Drilled by: White Drilling Co. **Drilling/Rig Method(s):** Air Rotary

Date/Time Started: 6/11/03 08:00 **Date/Time Completed:** 6/11/03 08:50

Air Monitoring Type: **GWL Depth:**

Depth (feet)	Sample Number	Sample Interval	Sample Type	Sample Description	PID Readings (ppm)	USCS Symbol	Comments	Monitor Well Construction Detail
--0				0' - 3' dark brown top soil				
-- 5	0802	5' -7'	Shelby tube	Pale brown to buff silty fine sand, poorly cemented with $CaCo_3$	0.5	SW/M		
--10	0804	10' – 12'	Shelby tube	Pale brown, fine grain silty sand poorly cemented w/ $CaCo_3$	0.2	SW/M	Recovered 0.5'	
--15	0816	15' – 17'	Cuttings	Pale brown, fine to medium grain, well cemented, poorly sorted sand	0.4	SW	Very hard	
--20	0820	20' – 22'	Cuttings	Pale brown, fine to medium grain, well cemented, poorly sorted sand	0.2	SW		
--25	0821	25' - 26	Cuttings	Pale brown, fine to medium grain, well cemented, poorly sorted sand	0.7	SW		
--30	0836	30' – 32'	Cuttings	Pale brown, fine grain, well cemented, mod. well sorted sand	0.5	SP		
--35	0839	35' -36'	Cuttings	Pale brown, fine grain, mod. well cemented, mod. well sorted sand, sl. moist	1.0	SP	Saturated at approx. 40' bgl	



Comments:

Technician Signature:

BBC INTERNATIONAL INCORPORATED

RECORD OF SUBSURFACE EXPLORATION

Project Name: NMGSAU Battery #63 **Project No.:**

Borehold Number: MW-1 **Logged by:** Steven Bond

Drilled by: White Drilling Co. **Drilling/Rig Method(s):** Air Rotary

Date/Time Started: 6/11/03 08:00 **Date/Time Completed:** 6/11/03 08:50

Air Monitoring Type: **GWL Depth:**

Depth (feet)	Sample Number	Sample Interval	Sample Type	Sample Description	PID Readings (ppm)	USCS Symbol	Comments
--40							
-	0845	40' – 42'	Cuttings	Pale brown to red, fine to med grain, poorly cemented, poorly sorted, w/ silt content inc. to base	0.9	SW/M	
-							
-	0899	44' – 45'	Cuttings	Dark red/ brown clayey silt	0.9	CL/ML	TD – 45'
-- 45							
-							
-							
-							
--50							
-							
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--70							
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-							
--75							
-							
-							
-							

Comments:

Technician Signature:

BBC INTERNATIONAL
INCORPORATED

RECORD OF SUBSURFACE EXPLORATION

Project Name: NMGSAU Battery #63 **Project No.:**

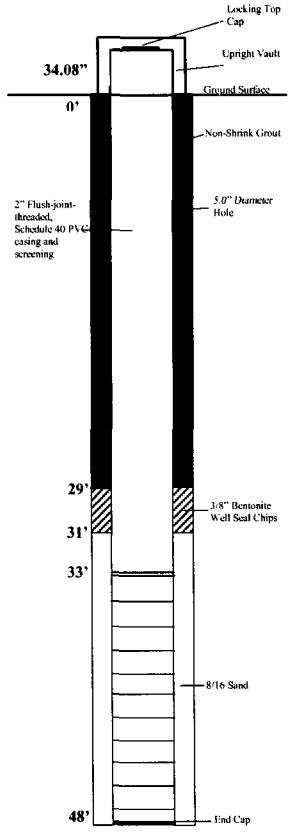
Borehold Number: MW-2 **Logged by:** Steven Bond

Drilled by: White Drilling Co. **Drilling/Rig Method(s):** Air Rotary

Date/Time Started: 6/11/03 09:15 **Date/Time Completed:** 6/11/03 10:05

Air Monitoring Type: **GWL Depth:**

Depth (feet)	Sample Number	Sample Interval	Sample Type	Sample Description	PID Readings (ppm)	USCS Symbol	Comments	Monitor Well Construction Detail
--0				0' – 2' dark brown top soil 2' – 5' buff, indurated caliche				
-- 5	0920	5' -7'	Shelby tube	Pale brown to pink, very fine gr., poorly cemented, silty sand	5.6	SP		
--10	0925	10' – 11'	Shelby tube	Pale brown , fine grain, well sorted, mod. well cemented sand	3.2	SP		
--15	0930	15' – 17'	Cuttings	Pale brown , fine grain, well sorted, mod. well cemented sand	3.7	SP		
--20	0937	20' – 22'	Cuttings	Pale brown , fine grain, well sorted, mod. well cemented sand	3.6	SP		
--25	0941	25' – 27	Cuttings	Pale brown, fine to medium grain, well cemented, poorly sorted sand	5.1	SW		
--30	0948	30' – 32'	Cuttings	Pale brown, fine to medium grain, well cemented, poorly sorted sand	6.7	SW	Odor at 32.5' of hydrocarbon	
	0950	32' - 35'	Cuttings	Pale brown, fine to medium grain, well cemented, poorly sorted sand	77.1	SW		
--35	0952	35' -37'	Cuttings	Pale brown, fine to medium grain, well cemented, poorly sorted sand	52.4	SW		



Comments:

Technician Signature:

BBC INTERNATIONAL
INCORPORATED

RECORD OF SUBSURFACE EXPLORATION

Project Name: NMGSAU Battery #63 **Project No.:**

Borehold Number: MW-2 **Logged by:** Steven Bond

Drilled by: White Drilling Co. **Drilling/Rig Method(s):** Air Rotary

Date/Time Started: 6/11/03 09:15 **Date/Time Completed:** 6/11/03 10:05

Air Monitoring Type: **GWL Depth:**

Depth (feet)	Sample Number	Sample Interval	Sample Type	Sample Description	PID Readings (ppm)	USCS Symbol	Comments
--40							Moisture at approx. 40' – saturated
-	0955	40' – 42'	Cuttings	Brown-red, fine grain sand with Minor gravel at base	9.3	SW	
-							
-	1005	44' – 45'	Cuttings	Dark red-brown silt with clay and very fine sand	7.7	CL	TD – 48'
-- 45							
-							
-							
-							
--50							
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Comments:

Technician Signature:

BBC INTERNATIONAL INCORPORATED

RECORD OF SUBSURFACE EXPLORATION

Project Name: NMGSAU Battery #63 **Project No.:**

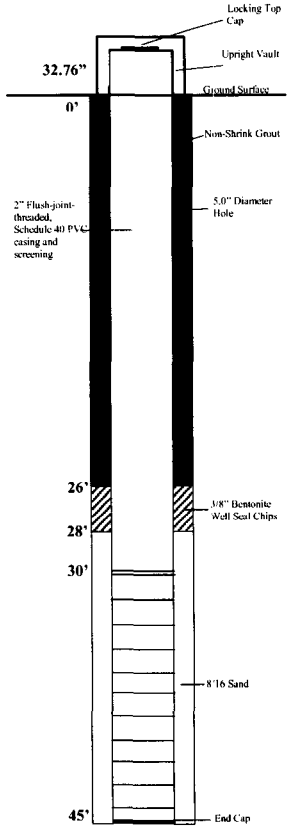
Borehold Number: MW-3 **Logged by:** Steven Bond

Drilled by: White Drilling Co. **Drilling/Rig Method(s):** Air Rotary

Date/Time Started: 6/11/03 12:05 **Date/Time Completed:** 6/11/03 13:05

Air Monitoring Type: **GWL Depth:**

Depth (feet)	Sample Number	Sample Interval	Sample Type	Sample Description	PID Readings (ppm)	USCS Symbol	Comments	Monitor Well Construction Detail
--0								
-	1208	4'	Cuttings	0' – 2' dark brown top soil 2' – 4' Black, hydrocarbon stained caliche	11.1	ML	Hydrocarbin appears to be tar	
-- 5								
-	1212	5'-7'	Shelby tube	Buff, fine grain, well sorted, poorly cemented sand, hydrocarbon stain at top	2.2	SP		
--10	1220	10'-10.5'	Shelby tube	Very pale brown to yellow , fine grain, well sorted, poorly cemented sand	2.7	SP		
--15								
-	1224	15'-16'	Shelby tube	Very pale brown to yellow , fine grain, well sorted, poorly cemented sand	1.3	SP		
--20								
-	1228	20'-22'	Cuttings	Very pale brown to buff, fine grain, mod. well sorted to poorly sorted, well cemented sand	4.1	SW		
--25								
-	1232	25'-27'	Cuttings	Very pale brown to buff, fine grain, mod. well sorted to poorly sorted, well cemented sand	3.6	SW		
-	1238	28'	Cuttings	Pale green/gray , fine grain, mod. well sorted to poorly sorted, well cemented sand	10.1	SW	Color change at 28 feet green-gray, possible hydrocarbon contamination	
--30								
-	1240	30'-32'	Cuttings	Pale green/gray, fine grain, poorly sorted, cemented sand, Dark gray at base	5.7	SW		
--35								
-	1248	35'-37'	Cuttings	Light gray, fine to medium grain, Well cemented, cemented sand	13.0	SP	Moist at 38' -39' saturated at 40'	



Comments:

Technician Signature:

BBC INTERNATIONAL INCORPORATED

RECORD OF SUBSURFACE EXPLORATION

Project Name: NMGSAU Battery #63 **Project No.:**

Borehold Number: MW-3 **Logged by:** Steven Bond

Drilled by: White Drilling Co. **Drilling/Rig Method(s):** Air Rotary

Date/Time Started: 6/11/03 12:05 **Date/Time Completed:** 6/11/03 13:05

Air Monitoring Type: **GWL Depth:**

Depth (feet)	Sample Number	Sample Interval	Sample Type	Sample Description	PID Readings (ppm)	USCS Symbol	Comments
--40							Moisture at approx. 40' – saturated
-	1255	40' – 42'	Cuttings	Red/Brown, very fine to medium grain poorly sorted sand, silt and clay at base	6.4	SW	
-							
-							
-	1302	44' – 45'	Cuttings	Red brown clayey silt	5.9	CL/ML	TD – 45'
-- 45							
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--50							
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Comments:

Technician Signature:

File Number: _____

NEW MEXICO OFFICE OF THE STATE ENGINEER
WELL RECORD

1. OWNER OF WELL

Name: Amerada Hess Work Phone: _____
Contact: _____ Home Phone: _____
Address: P.O. Drawer D
City: Monument State: NM Zip: 88265-0052

2. LOCATION OF WELL (A, B, C, or D required, E or F if known)

A. SW 1/4 ____1/4 ____1/4 Section: 31 Township: 19S Range: 37E N.M.P.M.
in _____ County.

B. X = _____ feet, Y = _____ feet, N.M. Coordinate System
_____ Zone in the _____ Grant.
U.S.G.S. Quad Map _____

C. Latitude: 32 d 36 m 40.8 s Longitude: 103 d 17 m 26.0 s

D. East _____ (m), North _____ (m), UTM Zone 13, NAD __ (27 or 83)

E. Tract No. _____, Map No. _____ of the _____ Hydrographic Survey

F. Lot No. _____, Block No. _____ of Unit/Tract _____ of the
_____ Subdivision recorded in _____ County.

G. Other: NMGSAU Battery #63 Site

H. Give State Engineer File Number if existing well: _____

I. On land owned by (required): Amerada Hess

3. DRILLING CONTRACTOR

License Number: WD-1456
Name: White Drilling Co., Inc Work Phone: (325) 893-2950
Agent: John W. White Home Phone: (325) 893-2950
Mailing Address: P.O. Box 906
City: Clyde State: TX Zip: 79510

4. DRILLING RECORD MW-1

Drilling began: 6/11/03 ; Completed: 6/11/03 ; Type tools: _____;
Size of hole: 5.0 in.; Total depth of well: 45.0 ft.;
Completed well is: shallow (shallow, artesian);
Depth to water upon completion of well: 37.5 ft.

File Number: _____

NEW MEXICO OFFICE OF THE STATE ENGINEER
WELL RECORD

MW-1

5. PRINCIPAL WATER-BEARING STRATA

Depth in Feet From	To	Thickness in feet	Description of water-bearing formation	Estimated Yield (GPM)

6. RECORD OF CASING

Diameter (inches)	Pounds per ft.	Threads per in.	Depth in Feet Top	Bottom	Length (feet)	Type of Shoe	Perforations From	To
2.0	PVC Sch	40	0.0	30.0	30.0	pvc riser		
2.0	PVC Sch	40	30.0	45.0	15.0	pvc screen	30.0	45.0

7. RECORD OF MUDDING AND CEMENTING

Depth in Feet From	To	Hole Diameter	Sacks of mud	Cubic Feet of Cement	Method of Placement
45.0	28.0	5.0	8/16 sand		4 sx - pour
28.0	26.0	5.0	Bent. Pellets		1 sx - pour
26.0	0.0	5.0	Cement		5.5sx - hand mix

8. PLUGGING RECORD

Plugging Contractor: _____

Address: _____

Plugging Method: _____

Date Well Plugged: _____

Plugging approved by: _____

State Engineer Representative

No.	Depth in Feet Top	Bottom	Cubic Feetof Cement
1			
2			
3			
4			
5			

File Number: _____

NEW MEXICO OFFICE OF THE STATE ENGINEER
WELL RECORD

MW-1

9. LOG OF HOLE

Depth in Feet From	To	Thickness in feet	Color and Type of Material Encountered
0.0	2.0	2.0	Brown sand.
2.0	41.5	39.5	Pale brown fine grain sand.
41.5	45.0	3.5	Red silty clay.

File Number: _____

NEW MEXICO OFFICE OF THE STATE ENGINEER
WELL RECORD

MW-1

10. ADDITIONAL STATEMENTS OR EXPLANATIONS:

The undersigned hereby certifies that, to the best of his knowledge and belief, the foregoing is a true and correct record of the above described hole.

_____ Driller

6/20/03 (mm/dd/year)

==========

FOR STATE ENGINEER USE ONLY

Quad _____; FWL _____; FSL _____; Use _____; Location No. _____

File Number: _____

NEW MEXICO OFFICE OF THE STATE ENGINEER
WELL RECORD

1. OWNER OF WELL

Name: Amerada Hess Work Phone: _____
Contact: _____ Home Phone: _____
Address: P.O. Drawer D
_____
City: Monument State: NM Zip: 88265-0052

2. LOCATION OF WELL (A, B, C, or D required, E or F if known)

A. SW 1/4 ____ 1/4 ____ 1/4 Section: 31 Township: 19S Range: 37E N.M.P.M.
in _____ County.

B. X = _____ feet, Y = _____ feet, N.M. Coordinate System
_____ Zone in the _____ Grant.
U.S.G.S. Quad Map _____

C. Latitude: 32 d 36 m 40.8 s Longitude: 103 d 17 m 26.0 s

D. East _____ (m), North _____ (m), UTM Zone 13, NAD __ (27 or 83)

E. Tract No. _____, Map No. _____ of the _____ Hydrographic Survey

F. Lot No. _____, Block No. _____ of Unit/Tract _____ of the
_____ Subdivision recorded in _____ County.

G. Other: NMGSAU Battery #63 Site

H. Give State Engineer File Number if existing well: _____

I. On land owned by (required): Amerada Hess

3. DRILLING CONTRACTOR

License Number: WD-1456
Name: White Drilling Co., Inc Work Phone: (325) 893-2950
Agent: John W. White Home Phone: (325) 893-2950
Mailing Address: P.O. Box 906
_____
City: Clyde State: TX Zip: 79510

4. DRILLING RECORD MW-2

Drilling began: 6/11/03 ; Completed: 6/11/03 ; Type tools: _____ ;
Size of hole: 5.0 in.; Total depth of well: 47.0 ft.;
Completed well is: shallow (shallow, artesian);
Depth to water upon completion of well: 39.0 ft.

File Number: _____

NEW MEXICO OFFICE OF THE STATE ENGINEER
WELL RECORD

MW-2

5. PRINCIPAL WATER-BEARING STRATA

Depth in Feet From	To	Thickness in feet	Description of water-bearing formation	Estimated Yield (GPM)

6. RECORD OF CASING

Diameter (inches)	Pounds per ft.	Threads per in.	Depth in Feet Top	Bottom	Length (feet)	Type of Shoe	Perforations From	To
2.0	PVC Sch	40	0.0	32.0	32.0	pvc riser		
2.0	PVC Sch	40	32.0	47.0	15.0	pvc screen	32.0	47.0

7. RECORD OF MUDDING AND CEMENTING

Depth in Feet From	To	Hole Diameter	Sacks of mud	Cubic Feet of Cement	Method of Placement
47.0	31.0	5.0	8/16 sand		6 sx - pour
31.0	30.0	5.0	Bent. pellets		1 sx - pour
30.0	0.0	5.0	Cement		6.5 sx - hand mix

8. PLUGGING RECORD

Plugging Contractor: _____

Address: _____

Plugging Method: _____

Date Well Plugged: _____

Plugging approved by: _____

State Engineer Representative

No.	Depth in Feet Top	Bottom	Cubic Feetof Cement
1			
2			
3			
4			
5			

File Number: _____

NEW MEXICO OFFICE OF THE STATE ENGINEER
WELL RECORD

MW-2

9. LOG OF HOLE

Depth in Feet From	To	Thickness in feet	Color and Type of Material Encountered
0.0	3.5	3.5	Brown sand.
3.5	4.5	1.0	Caliche.
4.5	42.0	37.5	Pale brown fine grain sand.
42.0	43.0	1.0	Gravel.
43.0	47.0	4.0	Red silty clay.

File Number: _____

NEW MEXICO OFFICE OF THE STATE ENGINEER
WELL RECORD

MW-2

10. ADDITIONAL STATEMENTS OR EXPLANATIONS:

The undersigned hereby certifies that, to the best of his knowledge and belief, the foregoing is a true and correct record of the above described hole.

_____ Driller

6/20/03
(mm/dd/year)

==========

FOR STATE ENGINEER USE ONLY

Quad ____; FWL ____; FSL ____; Use _____; Location No. _____

File Number: _____

NEW MEXICO OFFICE OF THE STATE ENGINEER
WELL RECORD

1. OWNER OF WELL

Name: Amerada Hess Work Phone: _____
Contact: _____ Home Phone: _____
Address: P.O. Drawer D
City: Monument State: NM Zip: 88265-0052

2. LOCATION OF WELL (A, B, C, or D required, E or F if known)

A. SW 1/4 ____1/4 ____1/4 Section: 31 Township: 19S Range: 37E N.M.P.M.
in _____ County.

B. X = _____ feet, Y = _____ feet, N.M. Coordinate System
_____ Zone in the _____ Grant.
U.S.G.S. Quad Map _____

C. Latitude: 32 d 36 m 40.8 s Longitude: 103 d 17 m 26.0 s

D. East _____ (m), North _____ (m), UTM Zone 13, NAD __ (27 or 83)

E. Tract No. _____, Map No. _____ of the _____ Hydrographic Survey

F. Lot No. _____, Block No. _____ of Unit/Tract _____ of the
_____ Subdivision recorded in _____ County.

G. Other: NMGSAU Battery #63 Site

H. Give State Engineer File Number if existing well: _____

I. On land owned by (required): Amerada Hess

3. DRILLING CONTRACTOR

License Number: WD-1456
Name: White Drilling Co., Inc Work Phone: (325) 893-2950
Agent: John W. White Home Phone: (325) 893-2950
Mailing Address: P.O. Box 906
City: Clyde State: TX Zip: 79510

4. DRILLING RECORD MW-3

Drilling began: 6/11/03 ; Completed: 6/11/03 ; Type tools: _____ ;
Size of hole: 5.0 in.; Total depth of well: 45.0 ft.;
Completed well is: shallow (shallow, artesian);
Depth to water upon completion of well: 39.0 ft.

File Number: _____

NEW MEXICO OFFICE OF THE STATE ENGINEER
WELL RECORD

MW-3

5. PRINCIPAL WATER-BEARING STRATA

Depth in Feet From	To	Thickness in feet	Description of water-bearing formation	Estimated Yield (GPM)

6. RECORD OF CASING

Diameter (inches)	Pounds per ft.	Threads per in.	Depth in Feet Top	Bottom	Length (feet)	Type of Shoe	Perforations From	To
2.0	PVC Sch	40	0.0	30.0	30.0	pvc riser		
2.0	PVC Sch	40	30.0	45.0	15.0	pvc screen	30.0	45.0

7. RECORD OF MUDDING AND CEMENTING

Depth in Feet From	To	Hole Diameter	Sacks of mud	Cubic Feet of Cement	Method of Placement
45.0	28.0	5.0	8/16 sand		4.5 sx - pour
28.0	26.0	5.0	Bent. pellets		1.0 sx - pour
26.0	0.0	5.0	Cement		5.5 sx - hand mix

8. PLUGGING RECORD

Plugging Contractor: _____
Address: _____
Plugging Method: _____
Date Well Plugged: _____

Plugging approved by: _____
State Engineer Representative

No.	Depth in Feet Top	Bottom	Cubic Feetof Cement
1			
2			
3			
4			
5			

File Number: _____

NEW MEXICO OFFICE OF THE STATE ENGINEER
WELL RECORD

MW-3

9. LOG OF HOLE

Depth in Feet From	To	Thickness in feet	Color and Type of Material Encountered
0.0	2.0	2.0	Brown sand.
2.0	4.5	2.5	Caliche
4.5	28.0	23.5	Pale brown fine grain sand.
28.0	38.0	10.0	Gray green sand.
38.0	42.0	4.0	Dark reddish brown sand.
42.0	45.0	3.0	Red silty clay.

File Number: _____

NEW MEXICO OFFICE OF THE STATE ENGINEER
WELL RECORD

MW-3

10. ADDITIONAL STATEMENTS OR EXPLANATIONS:

The undersigned hereby certifies that, to the best of his knowledge and belief, the foregoing is a true and correct record of the above described hole.

_____ 6/20/03
Driller (mm/dd/year)

==========

FOR STATE ENGINEER USE ONLY

Quad ____; FWL ____; FSL ____; Use _____; Location No. _____

AMERADA HESS CORPORATION

SAMUEL W. SMALL, PE
OFFICE 915/758-6741
FAX 915/758-6768

P.O. BOX 840
SEMINOLE, TEXAS 79360
915/758-6700

June 30, 2003

Mr. Ed Martin
New Mexico Oil Conservation Division
1220 South St. Francis Drive
Santa Fe, New Mexico 87505

RE: ENV – STUDIES, SURVEYS &REPORTS
Site Assessment
NMGSAU Battery #63
Monument Field

Dear Mr. Martin:

Bill Olson indicated to me that you are temporarily handling some of Randy Bayliss' projects. The enclosed report is a status report for work being performed at the Amerada Hess Corporation operated NMGSAU Battery #63 remediation project. The report describes the work performed at the site current to August, 2002. Additional work has been performed during the month of June, 2003 and a report on this activity will be forth coming. The recent work involved an assessment of groundwater underlying the site. Mr. Bayliss was sent and approved the work plan.

If you have any questions, please contact the undersigned at 915-758-6741 or at the letterhead address.

Sincerely,

Samuel Small, PE
Environmental Coordinator

Xc: NMOCD – District 1
Houston Environmental File
PB Environmental File
Monument File

PRELIMINARY SITE INVESTIGATION REPORT
AND
REMEDIATION WORK PLAN

Amerada Hess Corporation
NMGSAU Tank Battery 63
NW ¼, SW ¼ Section 31, Township 19 South, Range 37 East
Lea County, New Mexico

Prepared For:

Amerada Hess Corporation
P. O. Box 840
Seminole, Texas 79360

ETGI Project # AM 1200

Prepared By:

Environmental Technology Group, Inc.
2540 W. Marland
Hobbs, New Mexico 88240

June 2003

Camille Reynolds for
Ken Dutton
Project Manager

Table of Contents

Tables

Figures

Appendices

1.0 INTRODUCTION

On behalf of Amerada Hess Corporation, Environmental Technology Group, Inc. (ETGI) is pleased to submit this *Preliminary Site Investigation and Remediation Work Plan* as a summary of activities completed to date at the NMGSAU Tank Battery 63 in Lea County, New Mexico. The site is located south of New Mexico Highway 322 approximately 1.5 miles southwest of the city of Monument, New Mexico, in the NW ¼, SW ¼ of Section 31, Township 19 South, Range 37 East, in Lea County, New Mexico. For reference, a site location and site map, are provided as Figures 1 and 2, respectively. Site investigation activities completed to date were conducted to complete delineation of the vertical and lateral extent of possible soil and groundwater impaction at the site.

2.0 SUMMARY OF FIELD ACTIVITIES

On July 30, 2001 ETGI began remediation activities at the NMGSAU Tank Battery 63. ETGI personnel began scrapping the asphaltene and excavating the former tank battery. The suspected Naturally Occurring Radioactive Material (NORM) impacted soil was scrapped and stockpiled on a plastic barrier to the east of the location. Amerada Hess personnel collected a soil sample of the NORM stockpile on July 31, 2001. Excavation continued on the west pit of the former tank battery to an approximate depth of eighteen feet below ground surface (bgs). The flare area was scrapped to approximately two feet bgs. Soil samples were collected from the west and east stockpiles on August 1, 2001. On August 3, 2001 soil samples were collected from the west pit and flare area to ascertain if further excavation was necessary. The east pit was excavated to approximately sixteen feet bgs, at which time bottom and sidewall samples were collected to determine if target levels of Total Petroleum Hydrocarbons (TPH) and Benzene, Toluene, Ethylbenzene and total Xylene (BTEX) had been achieved. A review of the analytical results indicated further excavation was required. An additional two feet was excavated and confirmation samples from the bottom of the excavation were collected. Analytical results indicated that the target levels had been achieved and backfilling began on August 13, 2001 with approximately 250 cubic yards of clay transported to the site. This clay was utilized for installing a one-foot clay barrier on the east and west pit excavation bottom. Once installed, the clay layer was compacted for maximum effectiveness. The east and west pits were backfilled utilizing blended soil from the excavation. Five feet step layers were utilized in backfilling with samples collected at each interval ensuring target levels were met. Approximately 270 cubic yards of asphaltenes were transported to the C & L Landfarm located in Monument, New Mexico. On August 17, 2001, ETGI mobilized a Geo-Probe unit operated by ECO Drilling, Midland, Texas, to locate a suspected pit to the east of the former tank battery. The eastern most pit was excavated to a depth of approximately 12 feet bgs and soil samples collected. Analytical results indicated soil samples were above target levels. Excavation of the far east pit continued to a maximum depth of 23 feet bgs and soil samples were collected. Analytical results indicated soil samples were above target levels for TPH. All analytical results are indicated on Table 1, Soil Chemistry.

On October 11, 2001 ETGI mobilized an air-rotary drilling rig operated by Eades Drilling of Hobbs, New Mexico to delineate the lateral and vertical extent of subsurface impact. ETGI completed 2 soil borings at this location. The locations of the soil borings are depicted on

Figure 2, and the boring logs are provided as Appendix A. As indicated on Figure 2, soil boring SB-1 and soil boring SB-2 were positioned to define the lateral and vertical extent of the subsurface impact to the area northwest and southeast of the former tank battery area. The soil borings were completed to a maximum depth of approximately 45 feet bgs. During the boring process, soil samples were collected at five-foot intervals utilizing either a split spoon or grab sampling methods. The soil samples collected during the boring process were field screened with a photoionization detector (PID). Each sample collected was visually inspected and described as to soil type, grain size, sorting characteristics, odor and staining present. Soil samples collected from soil borings SB-1 and SB-2 did not exhibit any visual signs of staining, olfactory evidence or elevated PID readings during installation. Groundwater was not encountered in soil borings SB-1 or SB-2. Following completion of the soil borings each boring was filled to the surface with bentonite pellets as required by NMOCD guidelines.

On August 21, 2002 ETGI mobilized and air-rotary drilling rig operated by ECO Drilling of Midland, Texas to delineate the vertical extent of subsurface impact in the area of the far east pit. ETGI completed one soil boring in the approximate middle of the excavated far east pit, the bottom was approximately 16.5 feet bgs. The soil boring was completed to a maximum depth of approximately 45 feet bgs. During the boring process, soil samples were collected at five-foot intervals utilizing a split spoon sampling method. The soil samples collected during the boring process were field screened with a PID. Each sample colleted was visually inspected and described at to soil type, grain size, sorting characteristics, odor and staining present. The soil sample collected from the surface of the excavation, 16.5 feet bgs, of soil boring SB-3 exhibited moderate staining and moderate odor with no elevated PID reading. Soil samples collected at depths of 21.5 and 26.5 feet bgs exhibited heavy staining and heavy odor with no elevated PID readings. The soil sample colleted at a depth of 31.5 feet bgs exhibited heavy staining, heavy odor and a PID reading of 139 ppm. The soil sample collected at the depth of 36.5 feet bgs exhibited heavy staining, heavy odor and a PID reading of 178 ppm. The soil sample collected at 41.5 feet bgs exhibited heavy staining, moderate odor and no elevated PID reading. The soil sample collected at 45 feet bgs exhibited no staining, no odor and no elevated PID reading. Groundwater was encountered at a depth of 45 feet bgs. A groundwater sample was collected from the boring and the results are indicated on Table 2. Following completion of the soil boring the boring was filled to the surface with bentonite pellets as required by NMOCD guidelines.

All soil samples that were submitted to Environmental Lab of Texas, Odessa, Texas were analyzed for Total Petroleum Hydrocarbons-gasoline range organics/diesel range organics (TPH-GRO/DRO) utilizing EPA Method SW 846-8015M; Benzene, Toluene, Ethylbenzene, and Total Xylenes (BTEX), utilizing EPA Method SW 846-8021B/5030; and Total Chloride concentrations using EPA Method SW 846-9253. Groundwater samples were also submitted to Environmental Lab of Texas, and tested for BTEX using EPA Method SW 846-8021B/5030, and Total Chloride concentrations utilizing EPA Method SW 846-9253. The soil and groundwater analytical results are summarized in Tables 1 and 2, respectively and the laboratory results are provided as Appendix B.

Research was conducted on the New Mexico Office of the State Engineer's (NMOSE) Water Well Database for information on well locations and the average depth to groundwater in the

area. The database indicated that there are 7 registered water wells within Section 31. The average depth to groundwater as determined from these wells are 24 feet bgs. A copy of the NMOSE Water Well Report is provided in Appendix C. Based on local knowledge, the prevailing gradient of the groundwater in the release area trends to the southeast.

3.0 SITE DESCRIPTION

3.1 Regional Geology/Hydrogeology

In the site vicinity, the surface is composed of unconsolidated, wind blown sands and finer materials associated with the Tertiary Ogallala Formation, which serves as a major aquifer for southeastern New Mexico and several high plains states. Unconfined groundwater is typically present in these sands at varying depths and generally flows from the northwest to the southeast. This aquifer is typically characterized by relatively high hydraulic conductivity and transmissivity.

The Ogallala is underlain by the Triassic Dockum Formation, locally referred to as the "red beds". While there are sand lenses within the Dockum Formation, it is more typically characterized by red silt and micaceous shale in which detectable groundwater is often absent or limited in extent. Where groundwater is present, the aquiclude is usually characterized by relatively low hydraulic conductivity and transmissivity.

The site is located in the Southern Desertic Basins, Plains, and Mountains physiographic feature as classified in the Lea County Soil Survey by the U.S. Department of Agriculture Soil Conservation Service, January 1974. The average surface elevation in the area ranges between 3,000 to 4,000 feet above sea level with the average surface topography sloping to the south and southeast at approximately 10 feet per mile. The groundwater gradient in the region appears to reflect the topography with a similar slope to the south and southeast with some local variations. The site is located on Berino-Cacique Association type soils. This soil complex is about 35 percent Berino soils and 25 percent Cacique soils. Maljamar, Midessa, Pyote, Simona, Jal, Tonuco, and Wink soils make up the remaining 40 percent. This association consists of nearly level and gently sloping, well-drained soils on uplands in the southern part of Lea County. The soils generally have a loamy fine sand surface layer and a sandy clay loam subsoil. Berino-Cacique Loamy Fine Sand is moderately permeable and runoff is very slow. It has a rapid water intake and the available water holding capacity is 7 to 10 inches. Soil blowing is a severe hazard in this region.

Data collected by the United States Weather Bureau indicate that the average annual precipitation in the site vicinity is approximately 10 to 13 inches. This amount occurs primarily as storm events during the period between June and October. Infiltration and evaporation rates are generally high resulting in limited surface flow from these events. The primary utilization of these lands consists of range, wildlife habitat, and recreational areas.

3.2 Site Geology/Hydrogeology

At the site, the subsurface is composed primarily of unconsolidated sands, which vary in color from tan to white to red. The sands are very fine grained, well-sorted and interspersed with

calcareous nodules. The sand was dry to a depth of approximately 36 to 41 feet bgs. Groundwater was detected at a depth of approximately 44 to 45 feet bgs as depicted on the soil boring logs in Appendix A.

3.3 Distribution of Hydrocarbons in the Unsaturated Zone

Field screening of soil samples utilizing a PID from soil borings SB-1 and SB-2 resulted in 0.0-ppm readings from all soil samples collected. There was no apparent evidence of hydrocarbon impaction in either soil boring SB-1 or SB-2. Review of laboratory analysis of the soil samples collected from soil boring SB-3 indicate that the soil has been impacted by oil and gas production activities. Analytical results are shown on Table 1.

The distribution of hydrocarbons in the unsaturated zone has been estimated by utilizing the following techniques:

- Visual observation of surface staining
- Visual observation of subsurface soil samples, and
- Review of laboratory analyses of selected soil samples.

3.4 Distribution of Hydrocarbons in the Saturated Zone

Groundwater was encountered at depths varying from 44 to 45 feet bgs in soil boring SB-3. Reviews of the analytical results from the groundwater samples collected indicate groundwater may have been impacted at the location, as shown on Table 2.

4.0 QA/QC PROCEDURES

4.1 Soil Sampling

Samples of subsurface soils were obtained utilizing a split spoon sampler. Representative soil samples were divided into two separate portions using clean, disposable gloves and clean sampling tools. One portion of the soil sample was placed in a disposable sample bag. The bag was labeled and sealed for headspace analysis using a PID calibrated to a 100 ppm isobutylene standard. Each sample was allowed to volatilize for approximately thirty minutes at ambient temperature prior to conducting the analysis.

The other portion of the soil sample was placed in a sterile glass container equipped with a Teflon-lined lid furnished by the analytical laboratory. The container was filled to capacity to limit the amount of headspace present. Each container was labeled and placed on ice in an insulated cooler. Upon selection of samples for analysis, the cooler was sealed for shipment to the laboratory. Proper chain-of-custody documentation was maintained throughout the sampling process.

Soil samples were delivered to Environmental Lab of Texas, Inc., in Odessa, Texas for BTEX, TPH, and Total Chloride analyses using the methods described below. Samples were

analyzed for BTEX, TPH-GRO/DRO, and Total Chloride concentration within fourteen days following the collection date.

The soil samples were analyzed as follows:

- BTEX concentrations in accordance with EPA Method 8260B/5030
- TPH concentrations in accordance with modified EPA Method 8015M GRO/DRO
- Total Chloride concentrations in accordance with EPA Method 9253

4.2 Groundwater Sampling

Groundwater samples were collected from the soil boring annulus. The groundwater samples were collected using a disposable Telfon sampler. Water samples were stored in clean, glass containers provided by the laboratory and placed on ice in the field. Groundwater samples were delivered to Environmental Lab of Texas, Odessa, Texas for analysis of BTEX, and Chlorides using the methods described below. All samples were analyzed within approved holding times following the collection date.

The groundwater samples were analyzed as follows:

- BTEX concentrations in accordance with EPA Method 8260B/5030;
- Total Chlorides concentrations in accordance with EPA Method 9253

4.3 Decontamination Of Equipment

The drilling crew utilized a high-pressure steam cleaning machine to wash the drilling and sampling equipment prior to drilling and prior to starting successive hole. Prior to use, the sampling equipment was cleaned with Liqui-Nox® detergent and rinsed with distilled water. A single-use, clear, poly-liner was utilized for collection of each sample.

4.4 Laboratory Protocol

The laboratory was responsible for proper QA/QC procedures after signing the chain-of-custody form. These procedures were either transmitted with the laboratory reports or are on file at the laboratory.

5.0 LIMITATIONS

Environmental Technology Group, Inc. has prepared this Preliminary Site Investigation Report to the best of its ability. No other warranty, expressed or implied, is made or intended. Environmental Technology Group, Inc. has examined and relied upon documents referenced in the report and has relied on oral statements made by certain individuals. Environmental Technology Group, Inc. has not conducted an independent examination of the facts contained in referenced materials and statements. We have presumed the genuineness of the documents and that the information provided in documents or statements is true and accurate. Environmental Technology Group, Inc. has prepared this report in a professional manner,

using the degree of skill and care exercised by similar environmental consultants. Environmental Technology Group, Inc. also notes that the facts and conditions referenced in this report may change over time and the conclusions and recommendations set forth herein are applicable only to the facts and conditions as described at the time of this report.

This report has been prepared for the benefit of Amerada Hess Corporation. The information contained in this report, including all exhibits and attachments, may not be used by any other party without the express consent of Environmental Technology Group, Inc. and/or Amerada Hess Corp.

TABLES

TABLE 1

SOIL CHEMISTRY

AMERADA HESS
TB - 63
MONUMENT, NEW MEXICO
ETGI PROJECT # AM-1200

SAMPLE LOCATION	SAMPLE DATE	METHOD: EPA SW 846-8021B, 5030				METHOD: 8015M		METHOD: 9253
		BENZENE (mg/kg)	TOLUENE (mg/kg)	ETHYL-BENZENE (mg/kg)	TOTAL XYLENES (mg/kg)	GRO (mg/kg)	DRO (mg/kg)	CHLORIDES (mg/kg)
West Stockpile	08/01/01					<10	489	
East Stockpile	08/01/01					<10	5410	
West Wall Comp.	08/03/01	<0.025	0.099	0.033	0.329	<10	<10	71
Bottom Comp.	08/03/01	<0.025	0.524	0.301	2.166	292	3760	89
South Slope Comp.	08/03/01	<0.025	0.087	0.094	0.247	<10	11	328
North Slope Comp.	08/03/01	<0.025	<0.025	<0.025	<0.025	<10	<10	186
Comp. Flare	08/03/01	<0.025	<0.025	<0.025	<0.025	21	1180	35
East Wall Comp.	08/03/01	<0.025	<0.025	<0.025	<0.025	71	1925	89
NE Pit Wall	08/10/01	<0.025	<0.025	<0.025	<0.025	220	1400	89
Comp. Far West	08/10/01	<0.025	<0.025	<0.025	0.048	88	649	53
East Pit-East Wall	08/13/01	<0.025	<0.025	<0.025	<0.025	<10	<10	204
East Pit-North Slope	08/13/01	<0.025	<0.025	<0.025	<0.025	<10	177	514
East Pit-Bottom	08/13/01	<0.025	<0.025	<0.025	<0.025	<10	43.4	514
East Pit-South Slope	08/13/01	<0.025	<0.025	<0.025	<0.025	<10	<10	89
East Pit-West Wall	08/13/01	<0.025	<0.025	<0.025	<0.025	<10	243	124
Btm W. Pit Backfill	08/14/01	<0.025	<0.025	<0.025	0.372	336	3150	136
Btm Backfill E. Pit	08/16/01	<0.025	<0.025	<0.025	<0.025	71	1260	142
10' Backfill E. Pit	08/17/01	<0.025	<0.025	<0.025	<0.025	<10	667	177
10' Backfill W. Pit	08/17/01	<0.025	<0.025	<0.025	<0.025	127	2280	98
East Pit 15' Backfill	08/22/01	<0.025	<0.025	<0.025	<0.025	<10	796	213
Far East Pit	08/21/01	1.15	2.16	3.38	7.01	953	17700	44
	09/06/01	<0.025	<0.025	<0.025	0.230	252	7600	301
E. Landfarm Comp.	01/21/02	<0.025	<0.025	<0.025	<0.025	<100	7060	204
W. Landfarm Comp.	01/21/02	<0.025	<0.025	<0.025	<0.025	<100	8040	177
SB 3 - 25'	08/21/02	<0.025	<0.025	<0.025	<0.025	<10.0	12.2	1560
SB 3 - 29'	08/21/02	<0.025	<0.025	<0.025	<0.025	11.7	38.4	1080

TABLE 1

GENERAL SOIL CHEMISTRY

AMERADA HESS
TB - 63
MONUMENT, NEW MEXICO
ETGI PROJECT # AM-1200

SAMPLE LOCATION	SAMPLE DATE	Methods: SW846-6010B, 3050				Methods: EPA 353.3, 310.2, 375.4, SW-846-9253					Methods: SW 846-9045, EPA 365.4	
		Ca (mg/kg)	K (mg/kg)	Mg (mg/kg)	Na (mg/kg)	Carbonate (mg/kg)	Bicarbonate (mg/kg)	Sulfate (mg/kg)	Chloride (mg/kg)	Nitrate (mg/kg)	pH (s.u.)	Phosphorus (mg/kg)
General Soil Test - Landfarm - TB-63	08/30/01	7100	454	1210	1540	<0.10	100	2476	124	14.5	8.04	0.66

TABLE 2

GROUNDWATER CHEMISTRY

AMERADA HESS
TB - 63
MONUMENT, NEW MEXICO
ETGI PROJECT # AM-1200

SAMPLE LOCATION	SAMPLE DATE	METHODS: EPA SW 846-8021B, 5030				METHOD: SW 846-9253
		BENZENE (mg/kg)	TOLUENE (mg/kg)	ETHYL-BENZENE (mg/kg)	TOTAL XYLENES (mg/kg)	CHLORIDE (mg/L)
SB - 3	08/21/02	0.064	0.002	0.014	0.023	12200

FIGURES

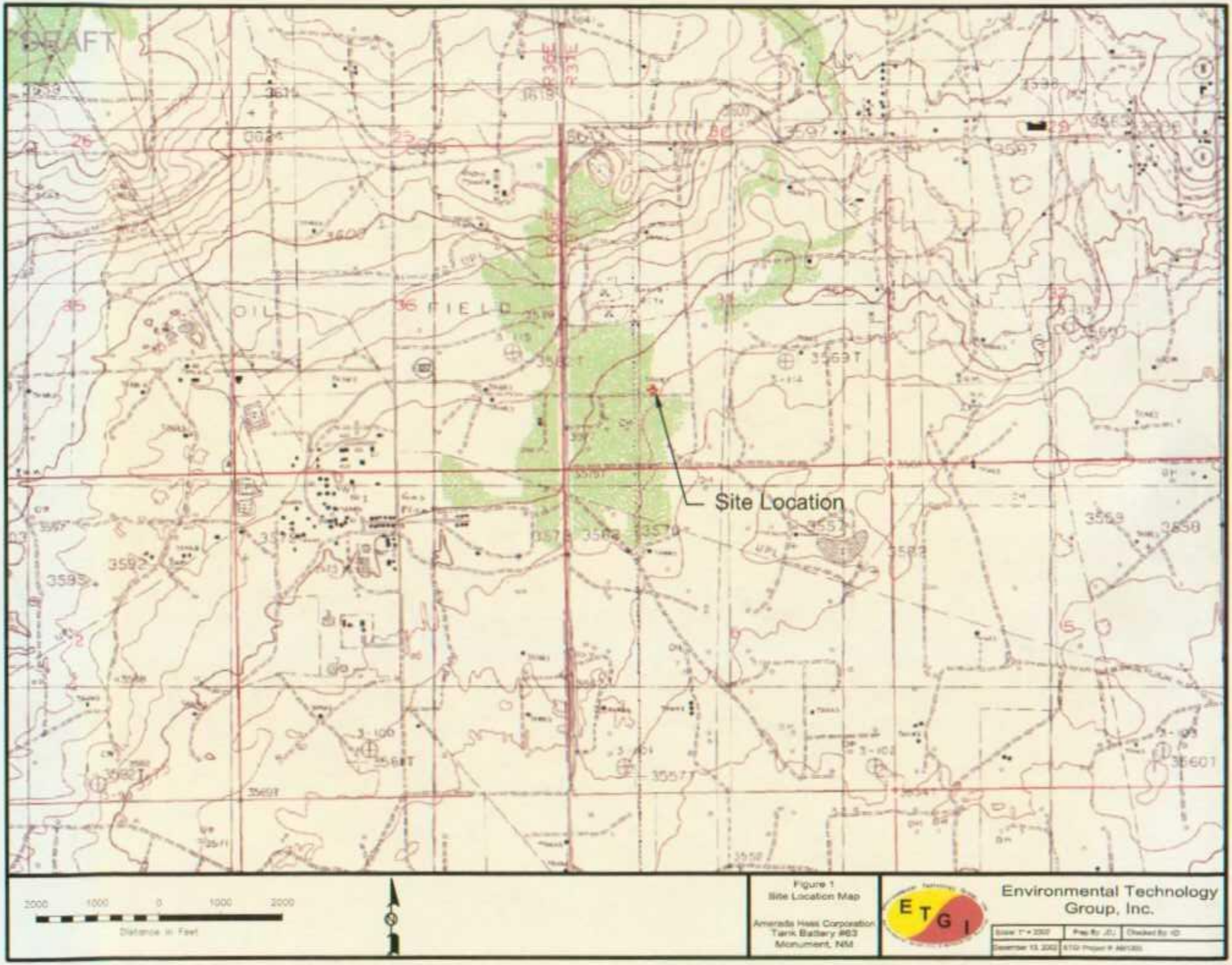


Figure 1
Site Location Map

Amerada Hess Corporation
Tank Battery #63
Monument, NM

Environmental Technology Group, Inc.

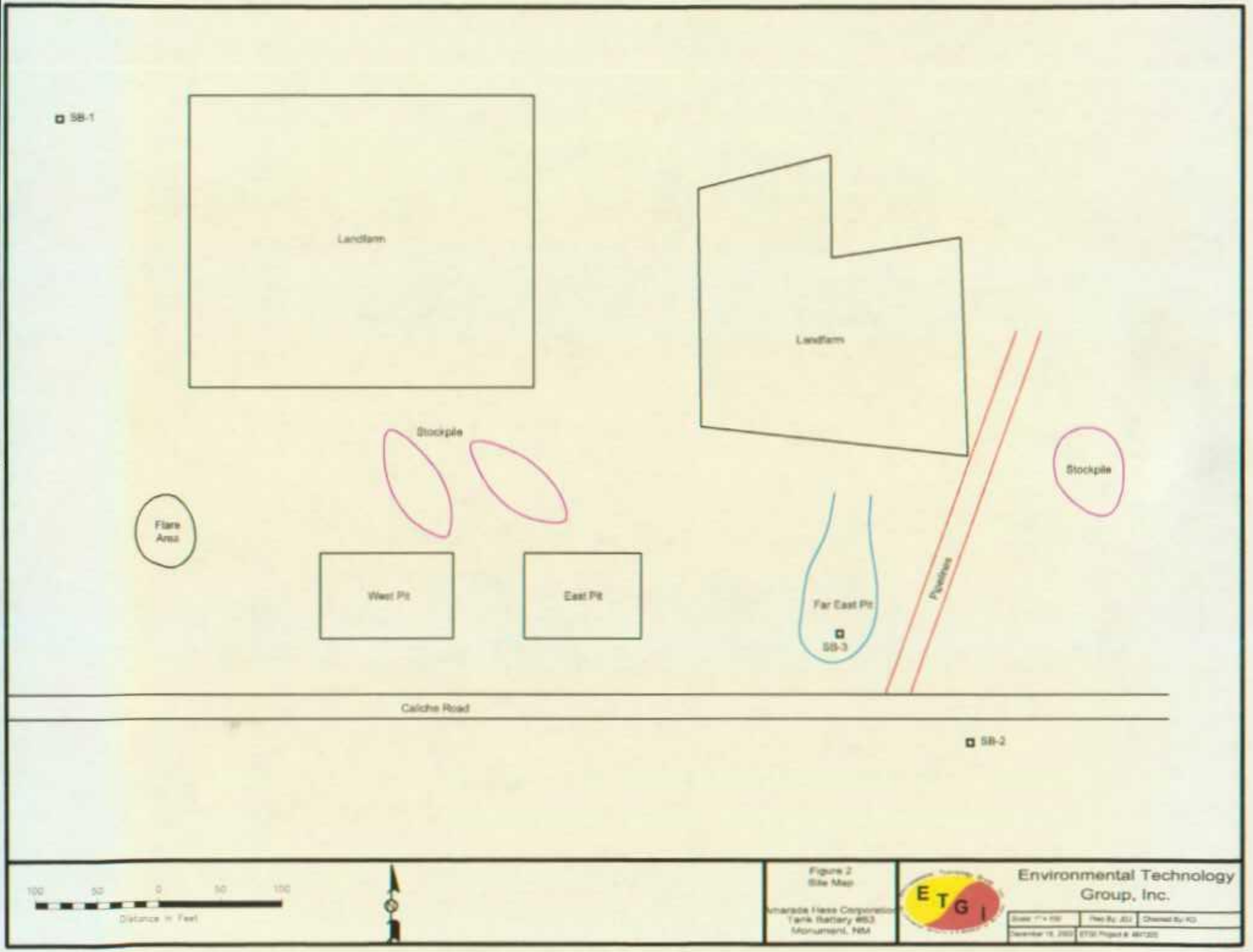


Figure 2
Site Map

Amarada Hess Corporation
Tank Battery #63
Monument, NM

Environmental Technology Group, Inc.

APPENDICES

APPENDIX A

Soil Boring Logs

Soil Boring SB-1

Depth (feet)	Soil Columns	PID Reading	Petroleum Odor	Petroleum Stain	Soil Description
0					Sand - (SP) - Red - Tan, very fine grained, well sorted, imbedded with caliche nodules.
5		0.0	None	None	
10		0.0	None	None	
15		0.0	None	None	
20		0.0	None	None	Sand - (SP) - Red, very fine grained, well sorted, imbedded with caliche nodules.
25		0.0	None	None	
30		0.0	None	None	
35		0.0	None	None	
40		0.0	None	None	
45	TD	0.0	None	None	Red Bed
50					
55					
60					
65					
70					

Legend

PID — Head-space reading in ppm obtained with a photo-ionization detector.

⬭ Indicates samples selected for laboratory analysis.

Soil Boring Details

Date Drilled 10 / 11 / 01

Plugged - Surface to TD with Bentonite and hydrated with deionized water.

Soil Boring Log Details

Soil Boring SB-1

Amerada Hess Corp. NMGSAU Tank Battery #63 Monument, NM

Environmental Technology Group, Inc.

Scale: NTS	Prep By: LGM	Checked By: RE
Oct. 15, 2002	ETGI Project # AM1200	

Soil Boring SB-2

Depth (feet)	Soil Columns	PID Reading	Petroleum Odor	Petroleum Stain	Soil Description
0		0.0	None	None	Sand - (SP) - Tan, very fine grained, well sorted, imbedded with caliche nodules.
5		0.0	None	None	
10		0.0	None	None	Sand - (SP) - Red, very fine grained, well sorted.
15		0.0	None	None	
20		0.0	None	None	
25		0.0	None	None	Sand - (SP) - Red, very fine grained, well sorted, imbedded with caliche nodules.
30		0.0	None	None	
35		0.0	None	None	
40	TD	0.0	None	None	Red Bed
45					
50					
55					
60					
65					
70					

Legend

PID Head-space reading in ppm obtained with a photo-ionization detector.

Indicates samples selected for laboratory analysis.

Soil Boring Details

Date Drilled 10 / 11 / 01

Plugged - Surface to TD with Bentonite and hydrated with deionized water.

Soil Boring Log Details

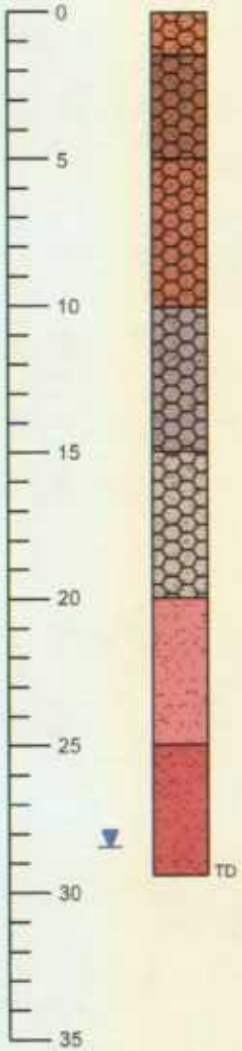
Soil Boring SB-2

Amerada Hess Corp. NMGSAU Tank Battery #63 Monument, NM

Environmental Technology Group, Inc.

Scale: NTS	Prep By: LGM	Checked By: RE
Oct. 15, 2002	ETGI Project # AM1200	

Soil Boring SB-3



Depth (feet)	PID Reading	Petroleum Odor	Petroleum Stain	Soil Description
0	0.0	Moderate	Moderate	Sand - (SP) - Brown, very fine grained, well sorted, imbedded with caliche nodules.
	91.3	Heavy	Heavy	Sand - (SP) - Dark Brown to Black, very fine grained, well sorted, imbedded with caliche nodules.
5	76.2	Heavy	Heavy	Sand - (SP) - Dark Brown, very fine grained, well sorted, imbedded with caliche nodules.
10	139	Heavy	Heavy	Sand - (SP) - Black, very fine grained, well sorted, imbedded with caliche nodules.
15	178	Heavy	Heavy	Sand - (SP) - Black to Gray, very fine grained, well sorted, imbedded with caliche nodules.
20	(7.5)	Moderate	Heavy	Sand - (SP) - Red to Gray, very fine grained, well sorted.
25	(5.7)	None	Slight	Sand - (SP) - Red, very fine grained, well sorted,
30				
35				

Legend

PID Head-space reading in ppm obtained with a photo-ionization detector.

(oval) Indicates samples selected for laboratory analysis.

▼ Indicates the ground water level measured on date.

Soil Boring Details

Date Drilled 6 / 21 / 01

Plugged - Surface to TD with Bentonite and hydrated with deionized water.

Soil Boring Log Details

Soil Boring SB-3

Amerada Hess Corp. NMGSAU Tank Battery #63 Monument, NM

Environmental Technology Group, Inc.

Scale: NTS	Prep By: LGM	Checked By: RE
Oct. 15, 2002	ETGI Project # AM1200	

APPENDIX B

Laboratory Reports

ENVIRONMENTAL LAB OF , INC.

"Don't Treat Your Soil Like Dirt!"

ENVIRONMENTAL TECHNOLOGY GROUP, INC.
ATTN: MR. KEN DUTTON
2540 W. MARLAND
HOBBS, NM 88240
FAX: 505-397-4701

Sample Type: Soil
Sample Condition: Intact/ Iced/ -2.5 deg C
Project #: 1200R
Project Name: Amerada Hess
Project Location: Monument, NM

Sampling Date: 08/01/01
Receiving Date: 08/03/01
Analysis Date: 08/03/01

ELT#	FIELD CODE	GRO C6-C10 mg/kg	DRO >C10-C28 mg/kg
0101273-01	West Stockpile	<10	489
0101273-02	East Stockpile	<10	5410
	QUALITY CONTROL	439	428
	TRUE VALUE	500	500
	% INSTRUMENT ACCURACY	88	86
	SPIKED AMOUNT	476	476
	ORIGINAL SAMPLE	<10	<10
	SPIKE	447	430
	SPIKE DUP	439	424
	% EXTRACTION ACCURACY	94	89
	BLANK	<10	<10
	RPD	1.8	1.4

Methods: EPA SW 846-8015M GRO/DRO

Raland K. Tuttle

8-3-01
Date

COC 095

Environmental Lab of Texas, Inc.

12600 West I-20 East
Odessa, Texas 79763
Phone: 915-563-1800
Fax: 915-563-1713

CHAIN OF CUSTODY RECORD AND ANALYSIS REQUEST

Project Manager: Ken Dutton
Company Name: ETGT
Company Address: 2540 W. Marland
City/State/Zip: Hobbs, NM 88240
Telephone No: (505) 397-4882 Fax No: (505) 397-4701
Sampler Signature: Camille Reynolds

Project Name: Ameracda Hess
Project #: 1200 R
Project Loc: Monument, NM
PO #:

LAB # (lab use only)	FIELD CODE	Date Sampled	Time Sampled	No. of Containers	Preservative: Ice	Preservative: HNO_3	Preservative: HCl	Preservative: NaOH	Preservative: H_2SO_4	Preservative: None	Preservative: Other (Specify)	Matrix: Water	Matrix: Sludge	Matrix: Soil	Matrix: Other (specify)	Analyze For: TDS / CL / SAR / EC	TPH 418.1	TPH TX 1005/1006	TPH 8015M GRO/DRO	Metals As Ag Ba Cd Cr Pb Hg Se	Volatiles	Semivolatiles	BTEX 8021B/5030	RUSH TAT (Pre-Scheduled)	Standard TAT
101273-01	West Stockpile	8/1/01	1055	1	X									X					X						
101273-02	East Stockpile	↓	1050	1	X									X					X						

Special Instructions:

Sample Containers Intact? (Y) N
Temperature Upon Receipt:
Laboratory Comments: -2.5°C

Relinquished by:	Date	Time	Received by:	Date	Time
Camille Reynolds	8/2/01	1600	Larry Keith		
Relinquished by:	Date	Time	Received by ELOT:	Date	Time
Larry Keith	8/3/01	9:10AM	Jeanne McMurrey	8-3-01	0910

ENVIRONMENTAL LAB OF , INC.

"Don't Treat Your Soil Like Dirt!"

ENVIRONMENTAL TECHNOLOGY GROUP, INC.
ATTN: MR. KEN DUTTON
2540 W. MARLAND
HOBBS, NM 88240
FAX: 505-397-4701

Sample Type: Soil
Sample Condition: Intact/ Iced/ 1.5 deg C
Project #: AHC 1200 R
Project Name: Amerada Hess
Project Location: Lea County

Sampling Date: 08/03/01
Receiving Date: 08/06/01
Analysis Date: 08/07/01

ELT#	FIELD CODE	Chloride mg/kg
0101282-01	West Wall Comp.	71
0101282-02	Bottom Comp.	89
0101282-03	South Slope Comp.	328
0101282-04	North Slope Comp.	186
0101282-05	Comp. Flare	35
0101282-06	East Wall Comp.	89

QUALITY CONTROL
TRUE VALUE
% INSTRUMENT ACCURACY
SPIKED AMOUNT
ORIGINAL SAMPLE
SPIKE
SPIKE DUP
% EXTRACTION ACCURACY
BLANK
RPD

Methods: EPA SW 846-9253

Raland K. Tuttle

8-7-01
Date

ENVIRONMENTAL
LAB OF TEXAS, INC.
"Don't Treat Your Soil Like Dirt!"

ENVIRONMENTAL TECHNOLOGY GROUP, INC
ATTN: MR. KEN DUTTON
2540 W. MARLAND
HOBBS, NM 88240
FAX: 505-397-4701

Sample Type: Soil
Sample Condition: Intact/ Iced/ 1.5 deg C
Project #: AHC 1220 R
Project Name: Amerada Hess
Project Location: Lea County

Sampling Date: 08/03/01
Receiving Date: 08/06/01
Analysis Date: 08/06/01

ELT#	FIELD CODE	BENZENE mg/kg	TOLUENE mg/kg	ETHYLBENZENE mg/kg	m,p-XYLENE mg/kg	o-XYLENE mg/kg
0101282-01	West Wall Comp.	<0.025	0.099	0.033	0.188	0.141
0101282-02	Bottom Comp.	<0.025	0.524	0.301	1.31	0.856
0101282-03	South Slope Com	<0.025	0.087	0.094	0.247	<0.025
0101282-04	North Slope Com	<0.025	<0.025	<0.025	<0.025	<0.025
0101282-05	Comp. Flare	<0.025	<0.025	<0.025	<0.025	<0.025
0101282-06	East Wall Comp.	<0.025	<0.025	<0.025	<0.025	<0.025

QUALITY CONTROL	0.088	0.090	0.093	0.202	0.094
TRUE VALUE	0.100	0.100	0.100	0.200	0.100
% INSTRUMENT ACCURACY	88	90	93	101	94
SPIKED AMOUNT	0.100	0.100	0.100	0.200	0.100
ORIGINAL SAMPLE	<0.025	0.063	<0.025	<0.025	<0.025
SPIKE	0.105	0.110	0.109	0.218	0.111
SPIKE DUP	0.101	0.105	0.105	0.224	0.107
% EXTRACTION ACCURACY	101	102	105	112	107
BLANK	<0.025	<0.025	<0.025	<0.025	<0.025
RPD	4	5	4	3	4

METHODS: EPA SW 846-8021B ,5030

Raland K. Tuttle

8-7-01
Date

ENVIRONMENTAL LAB OF , INC.

"Don't Treat Your Soil Like Dirt!"

ENVIRONMENTAL TECHNOLOGY GROUP, INC.
ATTN: MR. KEN DUTTON
2540 W. MARLAND
HOBBS, NM 88240
FAX: 505-397-4701

Sample Type: Soil
Sample Condition: Intact/ Iced/ 1.5 deg C
Project #: AHC 1200 R
Project Name: Amerada Hess
Project Location: Lea County

Sampling Date: 08/03/01
Receiving Date: 08/06/01
Analysis Date: 08/06/01

ELT#	FIELD CODE	GRO C6-C10 mg/kg	DRO >C10-C28 mg/kg
0101282-01	West Wall Comp.	<10	<10
0101282-02	Bottom Comp.	292	3760
0101282-03	South Slope Comp.	<10	11
0101282-04	North Slope Comp.	<10	<10
0101282-05	Comp. Flare	21	1180
0101282-06	East Wall Comp.	71	1925

QUALITY CONTROL	531	502
TRUE VALUE	500	500
% INSTRUMENT ACCURACY	106	100
SPIKED AMOUNT	476	476
ORIGINAL SAMPLE	<10	<10
SPIKE	541	502
SPIKE DUP	542	503
% EXTRACTION ACCURACY	114	105
BLANK	<10	<10
RPD	0.2	0.2

Methods: EPA SW 846-8015M GRO/DRO

Raland K. Tuttle

8-7-01
Date

Environmental Lab of Texas, Inc.

COC 098

CHAIN OF CUSTODY RECORD AND ANALYSIS REQUEST

12600 West I-20 East
Odessa, Texas 79763
Phone: 915-563-1800
Fax: 915-563-1713

Project Manager: Ken Dutton
Company Name: ETGI
Company Address: 2540 W. Marland
City/State/Zip: Hobbs, NM $8240
Telephone No: (505) 397-4882 Fax No: (505) 397-4701
Sampler Signature: Camille Reynolds

Project Name: Ameracla Wess
Project #: AHC 1200 R
Project Loc: Lea County
PO #:

LAB # (lab use only)	FIELD CODE	Date Sampled	Time Sampled	No. of Containers	Preservative: Ice	HNO3	HCl	NaOH	H2SO4	None	Other (Specify)	Matrix: Water	Sludge	Soil	Other (specify)	Analyze For: TCLP: TDS (Cl) EARLISE *	TOTAL: TPH 418.1	TPH TX 1005/1006	TPH 8015M GRO/DRO	Metals: As Ag Ba Cd Cr Pb Hg Se	Volatiles	Semivolatiles	BTEX 8021B/5030	RUSH TAT (Pre-Schedule)	Standard TAT
010128-01	West Wall Comp	8-3-01	0700	1	X									X		X			X				X		
02	Bottom Comp		0715																						
03	South slope Comp		0730																						
04	North slope Com		0745																						
05	Comp. Flare		0815																						
06	East Wall Comp		0830																						

Special Instructions:

Sample Containers Intact? (Y) N
Temperature Upon Receipt: 1.5 °C
Laboratory Comments: * Add Cl⁻ as per Ken 8-6-01 @1550

Relinquished by:	Date	Time	Received by:	Date	Time
Camille Reynolds	8-6-01	1510			
Relinquished by:	Date	Time	Received by ELOT:	Date	Time
			Jeanne McMurray	8-6-01	1510

ENVIRONMENTAL LAB OF , INC.

"Don't Treat Your Soil Like Dirt!"

ENVIRONMENTAL TECHNOLOGY GROUP, INC.
ATTN: MR. KEN DUTTON
2540 WEST MARLAND
HOBBS, NM 88242
FAX: 505-397-4882

Sample Type: Soil
Sample Condition: Intact/ Iced/ 3 deg C
Project #: AHC 1200R
Project Name: Amerada Hess
Project Location: Monument, NM

Sampling Date: 08/10/01
Receiving Date: 08/11/01
Analysis Date: 08/13/01

ELT#	FIELD CODE	BENZENE mg/kg	TOLUENE mg/kg	ETHYLBENZENE mg/kg	m,p-XYLENE mg/kg	o-XYLENE mg/kg
0101329-01	NE Pit Wall	<0.025	<0.025	<0.025	<0.025	<0.025
0101329-02	Comp. Far West	<0.025	<0.025	<0.025	0.048	<0.025

QUALITY CONTROL	0.100	0.104	0.105	0.215	0.106
TRUE VALUE	0.100	0.100	0.100	0.200	0.100
% INSTRUMENT ACCURACY	100	104	105	108	106
SPIKED AMOUNT	0.100	0.100	0.100	0.200	0.100
ORIGINAL SAMPLE	<0.025	0.052	<0.025	<0.025	<0.025
SPIKE	0.095	0.097	0.098	0.197	0.099
SPIKE DUP	0.090	0.091	0.093	0.188	0.097
% EXTRACTION ACCURACY	95	97	98	99	99
BLANK	<0.025	<0.025	<0.025	<0.025	<0.025
RPD	5	6	5	5	2

METHODS: EPA SW 846-8021B ,5030

Raland K. Tuttle

8-14-01
Date

ENVIRONMENTAL LAB OF , INC.

"Don't Treat Your Soil Like Dirt!"

ENVIRONMENTAL TECHNOLOGY GROUP, INC.
ATTN: MR. KEN DUTTON
2540 WEST MARLAND
HOBBS, NM 88242
FAX: 505-397-4701

Sample Type: Soil
Sample Condition: Intact/ Iced/ 3 deg C
Project #: AHC 1200R
Project Name: Amerada Hess
Project Location: Monument, NM

Sampling Date: 08/10/01
Receiving Date: 08/11/01
Analysis Date: 08/13/01

ELT#	FIELD CODE	GRO C6-C10 mg/kg	DRO >C10-C28 mg/kg
0101329-01	NE Pit Wall	220	1400
0101329-02	Comp Far West	88	649
	QUALITY CONTROL	531	550
	TRUE VALUE	500	500
	% INSTRUMENT ACCURACY	106	110
	SPIKED AMOUNT	476	476
	ORIGINAL SAMPLE	<10	<10
	SPIKE	474	427
	SPIKE DUP	460	438
	% EXTRACTION ACCURACY	97	92
	BLANK	<10	<10
	RPD	3	2

Methods: EPA SW 846-8015M GRO/DRO

Raland K. Tuttle

8-14-01
Date

ENVIRONMENTAL LAB OF , INC.

"Don't Treat Your Soil Like Dirt!"

ENVIRONMENTAL TECHNOLOGY GROUP, INC.
ATTN: MR. KEN DUTTON
2540 WEST MARLAND
HOBBS, NM 88242
FAX: 505-397-4701

Sample Type: Soil
Sample Condition: Intact/ Iced/ 3 deg C
Project #: AHC 1200R
Project Name: Amerada Hess
Project Location: Monument, NM

Sampling Date: 08/10/01
Receiving Date: 08/11/01
Analysis Date: 08/14/01

ELT#	FIELD CODE	Chloride mg/kg
0101329-01	NE Pit Wall	89
0101329-02	Comp Far West	53

QUALITY CONTROL	5140
TRUE VALUE	5000
% INSTRUMENT ACCURACY	103
SPIKED AMOUNT	500
ORIGINAL SAMPLE	89
SPIKE	620
SPIKE DUP	585
% EXTRACTION ACCURACY	99
BLANK	<5.00
RPD	5.81

Methods: EPA SW 846-9253

Raland K. Tuttle

8-24-01
Date

12600 West I-20 East • Odessa, Texas 79765 • (915) 563-1800 • Fax (915) 563-1713

COC: 899

Environmental Technology Group, Inc.
Environmental Consulting & Remediation Services

4600 West Wall
Midland, TX 79703
Tel (915) 522-1139
Fax(915) 520-4310

1766 Woodstead Court, Ste. 117
The Woodlands, TX 77380
Tel (281) 362-8571
Fax (281) 362-8932

2540 West Marland
Hobbs, NM 88242
Tel (505) 397-4882
Fax (505) 397-4701

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

ANALYSIS REQUEST
(Circle or Specify Method No.)

Project Manager: KEN DUTTON 505-370-0677

Project Name: ETHERIDA WEST

Project Number: AHC120DR

Project Location: HOBBS NM

Sampler Signature: Ken Dutton

LAB # (Lab Use Only)	FIELD CODE	# CONTAINERS	Volume/Amount	MATRIX: WATER	SOIL	AIR	SLUDGE	PRESERVATION METHOD: HCL	HNO_3	$NaHSO_4$	ICE	NONE	SAMPLING: DATE (2001)	TIME	BTEX 8021B/5030	TPH 418.1/TX 1005	TPH 8015M GRO/DRO	PAH 8270C (8100 New Mexico only)	Total Metals Ag As Ba Cd Cr Pb Se Hg 6010B/7470	TCLP Metals Ag As Ba Cd Cr Pb Se Hg	TCLP Volatiles	TCLP Semi Volatiles	Volatiles 8260B	Semi Volatiles 8270C	TDS 160.1	Cations/Anions 375.4/325.3	CHLORIDES
2101329-01	NE PIT WALL	1	4oz		X						X		10AUG	1010	X		X										X
-02	COMP FAR WEST	1	4oz		X						X		10AUG	1000	X		X										X

Relinquished by: K. Dutton Date: 10AUG Time: 1500

Received by: Date: Time:

Relinquished by: Date: Time:

Received at Lab by: Date: 8-10-01 Time: 1500

REMARKS: TEMP: 3°C
ASAP.

ENVIRONMENTAL LAB OF , INC.

"Don't Treat Your Soil Like Dirt!"

ENVIRONMENTAL TECHNOLOGY GROUP, INC.
ATTN: MR. KEN DUTTON
2540 WEST MARLAND
HOBBS, NM 88242
FAX: 505-397-4701

Sample Type: Soil
Sample Condition: Intact/ Iced/ 1.0 deg C
Project #: AHC 1200R
Project Name: Amerada Hess
Project Location: Monument, NM

Sampling Date: 08/13/01
Receiving Date: 08/14/01
Analysis Date: 08/14/01

ELT#	FIELD CODE	Chloride mg/kg
0101343-01	East Pit-East Wall	204
0101343-02	East Pit-North Slope	514
0101343-03	East Pit-Bottom	514
0101343-04	East Pit-South Slope	89
0101343-05	East Pit-West Wall	124

QUALITY CONTROL	5140
TRUE VALUE	5000
% INSTRUMENT ACCURACY	103
SPIKED AMOUNT	500
ORIGINAL SAMPLE	89
SPIKE	620
SPIKE DUP	585
% EXTRACTION ACCURACY	99
BLANK	<5.00
RPD	5.81

Methods: EPA SW 846-9253

Raland K. Tuttle

8-15-01
Date

ENVIRONMENTAL LAB OF , INC.

"Don't Treat Your Soil Like Dirt!"

ENVIRONMENTAL TECHNOLOGY GROUP, INC.
ATTN: MR. KEN DUTTON
1540 WEST MARLAND
HOBBS, NM 88240
FAX: 505-397-47001

Sample Type: Soil
Sample Condition: Intact/ Iced/ 1.0 deg C
Project #: AHC 1200R
Project Name: Amerada Hess
Project Location: Monument, NM

Sampling Date: 08/13/01
Receiving Date: 08/14/01
Analysis Date: 08/14/01

ELT#	FIELD CODE	BENZENE mg/kg	TOLUENE mg/kg	ETHYLBENZENE mg/kg	m,p-XYLENE mg/kg	o-XYLENE mg/kg
0101343-01	East Pit-East Wall	<0.025	<0.025	<0.025	<0.025	<0.025
0101343-02	East Pit-North Slope	<0.025	<0.025	<0.025	<0.025	<0.025
0101343-03	East Pit-Bottom	<0.025	<0.025	<0.025	<0.025	<0.025
0101343-04	East Pit-South Slope	<0.025	<0.025	<0.025	<0.025	<0.025
0101343-05	East Pit-West Wall	<0.025	<0.025	<0.025	<0.025	<0.025
QUALITY CONTROL		0.101	0.101	0.104	0.103	0.101
TRUE VALUE		0.100	0.100	0.100	0.200	0.100
% INSTRUMENT ACCURACY		101	101	104	103	101
SPIKED AMOUNT		0.100	0.100	0.100	0.200	0.100
ORIGINAL SAMPLE		<0.025	<0.025	<0.025	<0.025	<0.025
SPIKE		0.108	0.107	0.106	0.210	0.106
SPIKE DUP		0.102	0.102	0.101	0.200	0.101
% EXTRACTION ACCURACY		102	102	101	100	101
BLANK		<0.025	<0.025	<0.025	<0.025	<0.025
RPD		6	5	5	5	5

METHODS: EPA SW 846-8021B ,5030

Raland K. Tuttle

8-15-01
Date

ENVIRONMENTAL LAB OF , INC.

"Don't Treat Your Soil Like Dirt!"

ENVIRONMENTAL TECHNOLOGY GROUP, INC.
ATTN: MR. KEN DUTTON
2540 W. MARLAND
HOBBS, NM 88240
FAX: 505-397-4701

Sample Type: Soil
Sample Condition: Intact/ Iced/ 1.0 deg C
Project #: AHC 1200R
Project Name: Amerada Hess
Project Location: Monument, NM

Sampling Date: 08/13/01
Receiving Date: 08/14/01
Analysis Date: 08/14/01

ELT#	FIELD CODE	GRO C6-C10 mg/kg	DRO >C10-C28 mg/kg
0101343-01	East Pit-East Wall	<10	<10
0101343-02	East Pit-North Slope	<10	177
0101343-03	East Pit-Bottom	<10	43.4
0101343-04	East Pit-South Slope	<10	<10
0101343-05	East Pit-West Wall	<10	243

QUALITY CONTROL	486	451
TRUE VALUE	500	500
% INSTRUMENT ACCURACY	97	90
SPIKED AMOUNT	476	476
ORIGINAL SAMPLE	<10	<10
SPIKE	474	427
SPIKE DUP	491	437
% EXTRACTION ACCURACY	491	438
BLANK	<10	<10
RPD	0	0

Methods: TNRCC 1005

Raland K. Tuttle

8-15-01
Date

Environmental Lab of Texas, Inc.

12600 West I-20 East
Odessa, Texas 79763
Phone: 915-563-1800
Fax: 915-563-1713

CHAIN OF CUSTODY RECORD AND ANALYSIS REQUEST

COC: 101

Project Manager: KEN DUTTON
Company Name: ETGI
Company Address: 2540 W. MARLAND
City/State/Zip: HOBBS NM 88240-
Telephone No: (505) 397-4882
Fax No: (505) 397-4701
Sampler Signature: Ken Dutton

Project Name: AMERADA HESS
Project #: AHC 1200R
Project Loc: MONUMENT, NM
PO #: —

LAB # (lab use only)	FIELD CODE	Date Sampled	Time Sampled	No. of Containers	Preservative: Ice	Preservative: HNO_3	Preservative: HCl	Preservative: NaOH	Preservative: H_2SO_4	Preservative: None	Preservative: Other (Specify)	Matrix: Water	Matrix: Sludge	Matrix: Soil	Matrix: Other (specify)	Analyze For: TDS (CL) SAR / EC	TPH 418.1	TPH TX 1005/1006	TPH 8015M GRO/DRO	Metals: As Ag Ba Cd Cr Pb Hg Se	Volatiles	Semivolatiles	BTEX 8021B/5030	RUSH TAT (Pre-Schedule)	Standard TAT
0101345-01	EAST PIT - EAST WALL	13 AUG 2001	1500		X									X		X			X				X		✓
02	EAST PIT - NORTH SLOPE		1450																						
03	EAST PIT - BOTTOM		1510																						
04	EAST PIT - SOUTH SLOPE		1520																						
05	EAST PIT - WEST WALL		1545																						

Special Instructions: CALL KD w/Verbal Results - (505) 370-0674

Sample Containers Intact? (Y) N
Temperature Upon Receipt:
Laboratory Comments: 1.0 °C

Relinquished by:	Date	Time	Received by:	Date	Time
Ken Dutton	14 Aug 01	0505	Jimmy Casey	8/14/01	0600
Relinquished by:	Date	Time	Received by ELOT:	Date	Time
Jimmy Casey	8/14/01	0830	Jeanne McMurrey	8-14-01	0830

ENVIRONMENTAL
LAB OF , INC.
"Don't Treat Your Soil Like Dirt!"

ENVIRONMENTAL TECHNOLOGY GROUP, INC.
ATTN: MR. KEN DUTTON
1540 WEST MARLAND
HOBBS, NM 88240
FAX: 505-397-47001

Sample Type: Soil
Sample Condition: Intact/ Iced/ 0.5 deg C
Project #: AHC 1200R
Project Name: Amerada Hess
Project Location: Monument, NM

Sampling Date: 08/14/01
Receiving Date: 08/15/01
Analysis Date: 08/15/01

ELT#	FIELD CODE	BENZENE mg/kg	TOLUENE mg/kg	ETHYLBENZENE mg/kg	m,p-XYLENE mg/kg	o-XYLENE mg/kg
0101351-01	Bottom-West Pit Backfill	<0.025	<0.025	<0.025	0.372	<0.025
QUALITY CONTROL		0.101	0.098	0.100	0.193	0.098
TRUE VALUE		0.100	0.100	0.100	0.200	0.100
% INSTRUMENT ACCURACY		101	98	100	97	98
SPIKED AMOUNT		0.100	0.100	0.100	0.200	0.100
ORIGINAL SAMPLE		<0.025	<0.025	<0.025	0.372	<0.025
SPIKE		0.113	0.108	0.113	0.232	0.114
SPIKE DUP		0.106	0.102	0.107	0.221	0.109
% EXTRACTION ACCURACY		106	102	107	103	109
BLANK		<0.025	<0.025	<0.025	<0.025	<0.025
RPD		7	6	6	6	5

METHODS: EPA SW 846-8021B ,5030

Raland K. Tuttle

8-17-01
Date

ENVIRONMENTAL LAB OF , INC.

"Don't Treat Your Soil Like Dirt!"

ENVIRONMENTAL TECHNOLOGY GROUP, INC.
ATTN: MR. KEN DUTTON
2540 W. MARLAND
HOBBS, NM 88240
FAX: 505-397-4701

Sample Type: Soil
Sample Condition: Intact/ Iced/ 0.5 deg C
Project #: AHC 1200R
Project Name: Amerada Hess
Project Location: Monument, NM

Sampling Date: 08/14/01
Receiving Date: 08/15/01
Analysis Date: 08/15/01

ELT#	FIELD CODE	GRO C6-C10 mg/kg	DRO >C10-C28 mg/kg
0101351-01	Bottom-West Pit Backfill	336	3150
	QUALITY CONTROL	512	471
	TRUE VALUE	500	500
	% INSTRUMENT ACCURACY	102	94
	SPIKED AMOUNT	476	476
	ORIGINAL SAMPLE	<10	<10
	SPIKE	489	558
	SPIKE DUP	522	579
	% EXTRACTION ACCURACY	103	117
	BLANK	<10	<10
	RPD	6	4

Methods: SW 846-8015M

Raland K. Tuttle

8-17-01
Date

ENVIRONMENTAL LAB OF , INC.

"Don't Treat Your Soil Like Dirt!"

ENVIRONMENTAL TECHNOLOGY GROUP, INC.
ATTN: MR. KEN DUTTON
2540 WEST MARLAND
HOBBS, NM 88242
FAX: 505-397-4701

Sample Type: Soil
Sample Condition: Intact/ Iced/ 0.5 deg C
Project #: AHC 1200R
Project Name: Amerada Hess
Project Location: Monument, NM

Sampling Date: 08/14/01
Receiving Date: 08/15/01
Analysis Date: 08/15/01

ELT#	FIELD CODE	Chloride mg/kg
0101351-01	Bottom-West Pit Backfill	136

QUALITY CONTROL	5050
TRUE VALUE	5000
% INSTRUMENT ACCURACY	101
SPIKED AMOUNT	588
ORIGINAL SAMPLE	136
SPIKE	730
SPIKE DUP	719
% EXTRACTION ACCURACY	99
BLANK	<5.00
RPD	1.52

Methods: EPA SW 846-9253

Raland K. Tuttle

8-17-01
Date

COC: 106 Page 1 of 1

Environmental Technology Group, Inc.
Consulting & Remediation Services

4600 West Wall
Midland, TX 79703
Tel (915) 522-1139
Fax(915) 520-4310

1766 Woodstead Court, Ste. 117
The Woodlands, TX 77380
Tel (281) 362-8571
Fax (281) 362-8932

2540 West Marland
Hobbs, NM 88242
Tel (505) 397-4882
Fax (505) 397-4701

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

Project Manager: KEN DUTTON

Project Name: AMERADA HESS

Project Number: AHC 1200R

Project Location: MONUMENT, NM

Sampler Signature: Ken Dutton

LAB # (Lab Use Only)	FIELD CODE	# CONTAINERS	Volume/Amount	MATRIX: WATER	MATRIX: SOIL	MATRIX: AIR	MATRIX: SLUDGE	PRESERVATION METHOD: HCL	PRESERVATION METHOD: HNO_3	PRESERVATION METHOD: $NaHSO_4$	PRESERVATION METHOD: ICE	PRESERVATION METHOD: NONE	SAMPLING: DATE (01)	SAMPLING: TIME	BTEX 8021B/5030	TPH 418.1/TX 1005	TPH 8015M GRO/DRO	PAH 8270C (8100 New Mexico only)	Total Metals Ag As Ba Cd Cr Pb Se Hg 6010B/7470	TCLP Metals Ag As Ba Cd Cr Pb Se Hg	TCLP Volatiles	TCLP Semi Volatiles	Volatiles 8260B	Semi Volatiles 8270C	TDS 160.1	Cations/Anions 375.4/325.3	CHLORIDES
21013351-01	BOTTOM-WEST PIT BACKFILL	1	4oz		X						X		14AUG	1432	X		X										X

Relinquished by: Ken Dutton Date: 15AUG01 Time: 0435

Relinquished by: Lemon Casas Date: 8/15/01 Time: 0850

Received by: Lemon Casas Date: 8/15/01 Time: 0600

Received at Lab by: Joann McMurrey Date: 8-15-01 Time: 0850

REMARKS:
CALL W/VERBAC RESULTS
(505) 370-0677
0.5°C

ENVIRONMENTAL LAB OF , INC.

"Don't Treat Your Soil Like Dirt!"

ENVIRONMENTAL TECHNOLOGY GROUP, INC.
ATTN: MR. KEN DUTTON
2540 W. MARLAND
HOBBS, NM 88240
FAX: 505-397-4701

Sample Type: Soil
Sample Condition: Intact/ Iced/ 1 deg C
Project #: AHC 1200R
Project Name: Amerada Hess Corp.
Project Location: Monument, NM

Sampling Date: 08/16/01
Receiving Date: 08/16/01
Analysis Date: 08/16/01

ELT#	FIELD CODE	GRO C6-C10 mg/kg	DRO >C10-C28 mg/kg
0101359-01	Bottom-Backfill-East Pit	71	1260
	QUALITY CONTROL	495	471
	TRUE VALUE	500	500
	% INSTRUMENT ACCURACY	99	94
	SPIKED AMOUNT	476	476
	ORIGINAL SAMPLE	<10	<10
	SPIKE	507	506
	SPIKE DUP	519	534
	% EXTRACTION ACCURACY	106	106
	BLANK	<10	<10
	RPD	2	5

Methods: SW846-8015M

Raland K. Tuttle

8-17-01
Date

ENVIRONMENTAL LAB OF , INC.

"Don't Treat Your Soil Like Dirt!"

ENVIRONMENTAL TECHNOLOGY GROUP, INC.
ATTN: MR. KEN DUTTON
1540 WEST MARLAND
HOBBS, NM 88240
FAX: 505-397-47001

Sample Type: Soil
Sample Condition: Intact/ Iced/ 1 deg C
Project #: AHC 1200R
Project Name: Amerada Hess Corp.
Project Location: Monument, NM

Sampling Date: 08/16/01
Receiving Date: 08/16/01
Analysis Date: 08/16/01

ELT#	FIELD CODE	BENZENE mg/kg	TOLUENE mg/kg	ETHYLBENZENE mg/kg	m,p-XYLENE mg/kg	o-XYLENE mg/kg
0101359-01	Bottom-Backfill-East Pit	<0.025	<0.025	<0.025	<0.025	<0.025

QUALITY CONTROL	0.106	0.106	0.107	0.209	0.104
TRUE VALUE	0.100	0.100	0.100	0.200	0.100
% INSTRUMENT ACCURACY	106	106	107	105	104
SPIKED AMOUNT	0.100	0.100	0.100	0.200	0.100
ORIGINAL SAMPLE	<0.025	<0.025	<0.025	0.372	<0.025
SPIKE	0.114	0.114	0.115	0.228	0.114
SPIKE DUP	0.112	0.114	0.115	0.228	0.114
% EXTRACTION ACCURACY	112	114	115	114	114
BLANK	<0.025	<0.025	<0.025	<0.025	<0.025
RPD	2	0	0	0	0

METHODS: EPA SW 846-8021B ,5030

Raland K. Tuttle

8-17-01
Date

ENVIRONMENTAL LAB OF , INC.

"Don't Treat Your Soil Like Dirt!"

ENVIRONMENTAL TECHNOLOGY GROUP, INC.
ATTN: MR. KEN DUTTON
2540 WEST MARLAND
HOBBS, NM 88242
FAX: 505-397-4701

Sample Type: Soil
Sample Condition: Intact/ Iced/ 1 deg C
Project #: AHC 1200R
Project Name: Amerada Hess Corp.
Project Location: Monument, NM

Sampling Date: 08/16/01
Receiving Date: 08/16/01
Analysis Date: 08/17/01

ELT#	FIELD CODE	Chloride mg/kg
0101359-01	Bottom-Backfill-East Pit	142

QUALITY CONTROL	5050
TRUE VALUE	5000
% INSTRUMENT ACCURACY	101
SPIKED AMOUNT	500
ORIGINAL SAMPLE	142
SPIKE	674
SPIKE DUP	682
% EXTRACTION ACCURACY	106
BLANK	<5.00
RPD	1.18

Methods: EPA SW 846-9253

Raland K. Tuttle

8-17-01
Date

Environmental Lab of Texas, Inc.

COC: 107

12600 West I-20 East
Odessa, Texas 79763
Phone: 915-563-1800
Fax: 915-563-1713

CHAIN OF CUSTODY RECORD AND ANALYSIS REQUEST

Project Manager: KEN DUTTON
Company Name: ETGI
Company Address: 2540 W. MARLAND
City/State/Zip: HOBBS NM 88240
Telephone No: (505) 397-4882 505-370-0677
Sampler Signature: Ken Dutton
Fax No: (505) 397-4701

Project Name: AMERADA HESS CORP
Project #: AHC 1200R
Project Loc: MONUMENT, NM
PO #: —

LAB # (lab use only)	FIELD CODE	Date Sampled	Time Sampled	No. of Containers	Preservative: Ice	Preservative: HNO_3	Preservative: HCl	Preservative: NaOH	Preservative: H_2SO_4	Preservative: None	Preservative: Other (Specify)	Matrix: Water	Matrix: Sludge	Matrix: Soil	Matrix: Other (specify)	Analyze For: TCLP/TOTAL: TDS / Cl / SAR / EC	TPH 418.1	TPH TX 1005/1006	TPH 8015M GRO/DRO	Metals: As Ag Ba Cd Cr Pb Hg Se	Volatiles	Semivolatiles	BTEX 8021B/5030	RUSH TAT (Pre-Schedule)	Standard TAT
0101359-01	BOTTOM-BACKFILL-EAST PIT	16 AUG 2001	1630	1	X									X		X			X				X		X

Special Instructions:
VERBAL RESULTS REQUESTED (505) 370-0677

Relinquished by:	Date	Time	Received by:	Date	Time
Ken Dutton	16/08/01	1300	Jim Weldon	8/16/01	2:00 pm
Jim Weldon	16/08/01	4:00 pm	Received by ELOT:	8/16/01	1600

Sample Containers Intact? Y N
Temperature Upon Receipt:
Laboratory Comments:
Rec 1°C

ENVIRONMENTAL LAB OF , INC.

"Don't Treat Your Soil Like Dirt!"

ENVIRONMENTAL TECHNOLOGY GROUP, INC.
ATTN: MR. KEN DUTTON
1540 WEST MARLAND
HOBBS, NM 88240
FAX: 505-397-47001

Sample Type: Soil
Sample Condition: Intact/ Iced/ 4 deg C
Project #: AHC 1200R
Project Name: Amerada Hess Corp.
Project Location: Monument, NM

Sampling Date: 08/17/01
Receiving Date: 08/18/01
Analysis Date: 08/20/01

ELT#	FIELD CODE	BENZENE mg/kg	TOLUENE mg/kg	ETHYLBENZENE mg/kg	m,p-XYLENE mg/kg	o-XYLENE mg/kg
0101376-01	10' Backfill-West Pit	<0.025	<0.025	<0.025	<0.025	<0.025
0101376-02	10' Backfill-East Pit	<0.025	<0.025	<0.025	<0.025	<0.025

QUALITY CONTROL	0.088	0.085	0.087	0.170	0.086
TRUE VALUE	0.100	0.100	0.100	0.200	0.100
% INSTRUMENT ACCURACY	88	85	87	85	86
SPIKED AMOUNT	0.100	0.100	0.100	0.200	0.100
ORIGINAL SAMPLE	<0.025	<0.025	<0.025	0.372	<0.025
SPIKE	0.088	0.086	0.087	0.170	0.088
SPIKE DUP	0.086	0.090	0.089	0.177	0.088
% EXTRACTION ACCURACY	86	90	89	89	88
BLANK	<0.025	<0.025	<0.025	<0.025	<0.025
RPD	2	4	2	4	0

METHODS: EPA SW 846-8021B ,5030

Raland K. Tuttle

9-20-01
Date

ENVIRONMENTAL LAB OF , INC.

"Don't Treat Your Soil Like Dirt!"

ENVIRONMENTAL TECHNOLOGY GROUP, INC.
ATTN: MR. KEN DUTTON
2540 W. MARLAND
HOBBS, NM 88240
FAX: 505-397-4701

Sample Type: Soil
Sample Condition: Intact/ Iced/ 4 deg C
Project #: AHC 1200R
Project Name: Amerada Hess Corp.
Project Location: Monument, NM

Sampling Date: 08/17/01
Receiving Date: 08/18/01
Analysis Date: 08/20/01

ELT#	FIELD CODE	GRO C6-C10 mg/kg	DRO >C10-C28 mg/kg
0101376-01	10' Backfill-West Pit	127	2280
0101376-02	10' Backfill-East Pit	<10	667
	QUALITY CONTROL	556	519
	TRUE VALUE	500	500
	% INSTRUMENT ACCURACY	111	104
	SPIKED AMOUNT	476	476
	ORIGINAL SAMPLE	<10	667
	SPIKE	472	1090
	SPIKE DUP	469	1060
	% EXTRACTION ACCURACY	99	89
	BLANK	<10	<10
	RPD	1	3

Methods: SW 846-8015M

Raland K. Tuttle

8-20-01
Date

ENVIRONMENTAL LAB OF , INC.

"Don't Treat Your Soil Like Dirt!"

ENVIRONMENTAL TECHNOLOGY GROUP, INC.
ATTN: MR. KEN DUTTON
2540 WEST MARLAND
HOBBS, NM 88242
FAX: 505-397-4701

Sample Type: Soil
Sample Condition: Intact/ Iced/ 4 deg C
Project #: AHC 1200R
Project Name: Amerada Hess Corp.
Project Location: Monument, NM

Sampling Date: 08/17/01
Receiving Date: 08/18/01
Analysis Date: 08/20/01

ELT#	FIELD CODE	Chloride mg/kg
0101376-01	10' Backfill-West Pit	98
0101376-02	10' Backfill-East Pit	177

QUALITY CONTROL	5320
TRUE VALUE	5000
% INSTRUMENT ACCURACY	106
SPIKED AMOUNT	556
ORIGINAL SAMPLE	98
SPIKE	670
SPIKE DUP	591
% EXTRACTION ACCURACY	103
BLANK	<5.00
RPD	12.5

Methods: EPA SW 846-9253

Raland K. Tuttle

8-20-01
Date

CCC: 108

Environmental Lab of Texas, Inc.

12600 West I-20 East
Odessa, Texas 79763
Phone: 915-563-1800
Fax: 915-563-1713

CHAIN OF CUSTODY RECORD AND ANALYSIS REQUEST

Project Manager: KEN DUTTON
Company Name: ETGI
Company Address: 2540 W. MARLAND
City/State/Zip: HOBBS NM 88240
Telephone No: (505) 397-4882
Fax No: (505) 397-4701
Sampler Signature: Ken Dutton

Project Name: AMERADA HESS CORP
Project #: AHC 1200R
Project Loc: MONUMENT NM
PO #:

LAB # (lab use only)	FIELD CODE	Date Sampled (2001)	Time Sampled	No. of Containers	Preservative: Ice	Preservative: HNO_3	Preservative: HCl	Preservative: NaOH	Preservative: H_2SO_4	Preservative: None	Preservative: Other (Specify)	Matrix: Water	Matrix: Sludge	Matrix: Soil	Matrix: Other (specify)	Analyze For: TCLP/TOTAL: TDS/Cl/SAR/EC	TPH 418.1	TPH TX 1005/1006	TPH 8015M GRO/DRO	Metals: As Ag Ba Cd Cr Pb Hg Se	Volatiles	Semivolatiles	BTEX 8021B/5030	RUSH TAT (Pre-Schedule)	Standard TAT
31013 7c-01	10' BACKFILL-WEST PIT	17 AUG	1520	1	X									X		X			X				X		✓
↓ 02	10' BACKFILL - EAST PIT	17 AUG	1500	1	X									X		X			X				X		✓

Special Instructions:
VERBAL ANALYSIS - (505) 370-0677

Sample Containers Intact? Y N
Temperature Upon Receipt:
Laboratory Comments:
Rec. 4°C.

Relinquished by:	Date	Time	Received by:	Date	Time
Ken Dutton	18AUG01	1145			
Relinquished by:	Date	Time	Received by ELOT:	Date	Time
			Rachel Jones	8/18/01	1140

ENVIRONMENTAL LAB OF , INC.

"Don't Treat Your Soil Like Dirt!"

ENVIRONMENTAL TECHNOLOGY GROUP, INC.
ATTN: MR. KEN DUTTON
2540 W. MARLAND
HOBBS, NM 88240
FAX: 505-397-4701

Sample Type: Soil
Sample Condition: Intact/ Iced/ 0 deg C
Project #: AHC 1200R
Project Name: Amerada Hess Corp.
Project Location: Monument, NM

Sampling Date: 08/21/01
Receiving Date: 08/21/01
Analysis Date: 08/21/01

ELT#	FIELD CODE	GRO C6-C10 mg/kg	DRO >C10-C28 mg/kg
0101396-01	Far East Pit	953	17700

QUALITY CONTROL	500	498
TRUE VALUE	500	500
% INSTRUMENT ACCURACY	100	100
SPIKED AMOUNT	476	476
ORIGINAL SAMPLE	<10	123
SPIKE	520	549
SPIKE DUP	526	569
% EXTRACTION ACCURACY	109	89
BLANK	<10	<10
RPD	1	4

Methods: SW 846-8015M

Raland K. Tuttle

8-22-01
Date

ENVIRONMENTAL LAB OF , INC.

"Don't Treat Your Soil Like Dirt!"

ENVIRONMENTAL TECHNOLOGY GROUP, INC.
ATTN: MR. KEN DUTTON
1540 WEST MARLAND
HOBBS, NM 88240
FAX: 505-397-47001

Sample Type: Soil
Sample Condition: Intact/ Iced/ 0 deg C
Project #: AHC 1200R
Project Name: Amerada Hess Corp.
Project Location: Monument, NM

Sampling Date: 08/21/01
Receiving Date: 08/21/01
Analysis Date: 08/21/01

ELT#	FIELD CODE	BENZENE mg/kg	TOLUENE mg/kg	ETHYLBENZENE mg/kg	m,p-XYLENE mg/kg	o-XYLENE mg/kg
0101396-01	Far East Pit	1.15	2.16	3.38	5.67	1.34

QUALITY CONTROL	0.095	0.095	0.097	0.188	0.094
TRUE VALUE	0.100	0.100	0.100	0.200	0.100
% INSTRUMENT ACCURACY	95	95	97	94	94
SPIKED AMOUNT	0.100	0.100	0.100	0.200	0.100
ORIGINAL SAMPLE	<0.025	<0.025	<0.025	<0.025	<0.025
SPIKE	0.098	0.099	0.100	0.195	0.098
SPIKE DUP	0.106	0.110	0.109	0.215	0.107
% EXTRACTION ACCURACY	98	99	100	98	98
BLANK	<0.025	<0.025	<0.025	<0.025	<0.025
RPD	8	10	9	10	9

METHODS: EPA SW 846-8021B ,5030

Raland K. Tuttle

8-22-01
Date

ENVIRONMENTAL LAB OF , INC.

"Don't Treat Your Soil Like Dirt!"

ENVIRONMENTAL TECHNOLOGY GROUP, INC.
ATTN: MR. KEN DUTTON
2540 WEST MARLAND
HOBBS, NM 88242
FAX: 505-397-4701

Sample Type: Soil
Sample Condition: Intact/ Iced/ 0 deg C
Project #: AHC 1200R
Project Name: Amerada Hess Corp.
Project Location: Monument, NM

Sampling Date: 08/21/01
Receiving Date: 08/21/01
Analysis Date: 08/22/01

ELT#	FIELD CODE	Chloride mg/kg
0101396-01	Far East Pit	44

QUALITY CONTROL	5050
TRUE VALUE	5000
% INSTRUMENT ACCURACY	101
SPIKED AMOUNT	500
ORIGINAL SAMPLE	44
SPIKE	541
SPIKE DUP	532
% EXTRACTION ACCURACY	99
BLANK	<5.00
RPD	1.68

Methods: EPA SW 846-9253

Raland K. Tuttle

8-22-01
Date

1200 West I-20 East • Odessa, Texas 79765 • (915) 563-1800 • Fax (915) 563-1713

COC: 110

Environmental Lab of Texas, Inc.

12600 West I-20 East
Odessa, Texas 79763
Phone: 915-563-1800
Fax: 915-563-1713

CHAIN OF CUSTODY RECORD AND ANALYSIS REQUEST

Project Manager: KEN DUTTON
Company Name: ETGI
Company Address: 2540 W. MARLAND
City/State/Zip: HOBBS NM 88240
Telephone No: (505) 397-4882 Fax No: (505) 397-4701
Sampler Signature: Ken Dutton

Project Name: AMERADA HESS CORP
Project #: AHC1200R
Project Loc: MONUMENT NM
PO #: ——

LAB # (lab use only)	FIELD CODE	Date Sampled (2001)	Time Sampled	No. of Containers	Preservative: Ice	HNO3	HCl	NaOH	H2SO4	None	Other (Specify)	Matrix: Water	Sludge	Soil	Other (specify)	Analyze For: TCLP/TOTAL: TDS (CL) SAR / EC	TPH 418.1	TPH TX 1005/1006	TPH 8015M GRO/DRO	Metals As Ag Ba Cd Cr Pb Hg Se	Volatiles	Semivolatiles	BTEX 8021B/5030	RUSH TAT (Pre-Schedule)	Standard TAT
101396-01	FAR EAST PIT	21AUG	1408	1	X									X		X			X				X		✓

Special Instructions: VERBAL RESULTS - 370-0677

Sample Containers Intact? Y N
Temperature Upon Receipt:
Laboratory Comments: Rec 0°C

Relinquished by:	Date	Time	Received by:	Date	Time
Ken Dutton	21AUG01	1415	Jim Walding	8/21/01	0315
Relinquished by:	Date	Time	Received by ELOT:	Date	Time
E.A. Walding	8/21/01	5:00 pm	E.A. C/C	8/21/01	1700

ENVIRONMENTAL LAB OF , INC.

"Don't Treat Your Soil Like Dirt!"

ENVIRONMENTAL TECHNOLOGY GROUP, INC.
ATTN: MR. KEN DUTTON
2540 WEST MARLAND
HOBBS, NM 88242
FAX: 505-397-4701

Sample Type: Soil
Sample Condition: Intact/ Iced/ -0.5 deg C
Project #: AHC 1200R
Project Name: Amerada Hess Corp.
Project Location: Monument, NM

Sampling Date: 08/22/01
Receiving Date: 08/23/01
Analysis Date: 08/23/01

ELT#	FIELD CODE	Chloride mg/kg
0101406-01	East Pit 15' Backfill	213

QUALITY CONTROL	5140
TRUE VALUE	5000
% INSTRUMENT ACCURACY	103
SPIKED AMOUNT	625
ORIGINAL SAMPLE	111
SPIKE	742
SPIKE DUP	753
% EXTRACTION ACCURACY	101
BLANK	<5.00
RPD	1.47

Methods: EPA SW 846-9253

Raland K. Tuttle

8-24-01
Date

ENVIRONMENTAL LAB OF , INC.

"Don't Treat Your Soil Like Dirt!"

ENVIRONMENTAL TECHNOLOGY GROUP, INC.
ATTN: MR. KEN DUTTON
2540 W. MARLAND
HOBBS, NM 88240
FAX: 505-397-4701

Sample Type: Soil
Sample Condition: Intact/ Iced/ -0.5 deg C
Project #: AHC 1200R
Project Name: Amerada Hess Corp.
Project Location: Monument, NM

Sampling Date: 08/22/01
Receiving Date: 08/23/01
Analysis Date: 08/23/01

ELT#	FIELD CODE	GRO C6-C10 mg/kg	DRO >C10-C28 mg/kg
0101406-01	East Pit 15' Backfill	<10	796
	QUALITY CONTROL	518	551
	TRUE VALUE	500	500
	% INSTRUMENT ACCURACY	104	110
	SPIKED AMOUNT	476	476
	ORIGINAL SAMPLE	<10	<10
	SPIKE	518	472
	SPIKE DUP	538	493
	% EXTRACTION ACCURACY	109	99
	BLANK	<10	<10
	RPD	4	4

Methods: SW 846-8015M

Raland K. Tuttle

8-24-01
Date

ENVIRONMENTAL LAB OF , INC.

"Don't Treat Your Soil Like Dirt!"

ENVIRONMENTAL TECHNOLOGY GROUP, INC.
ATTN: MR. KEN DUTTON
1540 WEST MARLAND
HOBBS, NM 88240
FAX: 505-397-47001

Sample Type: Soil
Sample Condition: Intact/ Iced/ -0.5 deg C
Project #: AHC 1200R
Project Name: Amerada Hess Corp.
Project Location: Monument, NM

Sampling Date: 08/22/01
Receiving Date: 08/23/01
Analysis Date: 08/23/01

ELT#	FIELD CODE	BENZENE mg/kg	TOLUENE mg/kg	ETHYLBENZENE mg/kg	m,p-XYLENE mg/kg	o-XYLENE mg/kg
0101406-01	East Pit 15' Backfill	<0.025	<0.025	<0.025	<0.025	<0.025
QUALITY CONTROL		0.089	0.089	0.090	0.177	0.088
TRUE VALUE		0.100	0.100	0.100	0.200	0.100
% INSTRUMENT ACCURACY		89	89	90	89	88
SPIKED AMOUNT		0.100	0.100	0.100	0.200	0.100
ORIGINAL SAMPLE		<0.025	<0.025	<0.025	<0.025	<0.025
SPIKE		0.108	0.108	0.109	0.213	0.108
SPIKE DUP		0.105	0.106	0.107	0.209	0.107
% EXTRACTION ACCURACY		105	106	107	105	107
BLANK		<0.025	<0.025	<0.025	<0.025	<0.025
RPD		3	2	2	2	1

METHODS: EPA SW 846-8021B ,5030

Raland K. Tuttle

8-24-01
Date

COC#113

Environmental Lab of Texas, Inc.

12600 West I-20 East
Odessa, Texas 79763
Phone: 915-563-1800
Fax: 915-563-1713

CHAIN OF CUSTODY RECORD AND ANALYSIS REQUEST

Project Manager: KEN DUTTON
Company Name: ETGI
Company Address: 2540 W. MARLAND
City/State/Zip: HOBBS NM 88240
Telephone No: (505) 397-4882
Fax No: (505) 397-4701
Sampler Signature: Ken Dutton

Project Name: AMERADA HESS CORP
Project #: AHC 1200R
Project Loc: MONUMENT NM
PO #: —

LAB # (lab use only)	FIELD CODE	Date Sampled 2001	Time Sampled	No. of Containers	Preservative: Ice	HNO3	HCl	NaOH	H2SO4	None	Other (Specify)	Matrix: Water	Sludge	Soil	Other (specify)	Analyze For: TDS (Cl) SAR / EC	TPH 418.1	TPH TX 1005/1006	TPH 8015M GRO/DRO	Metals As Ag Ba Cd Cr Pb Hg Se	Volatiles	Semivolatiles	BTEX 8021B/5030							RUSH TAT (Pre-Schedule)	Standard TAT
0101406 01	EAST PIT 15' BACKFILL	22Aug	0930	1	X									X		X			X				X								

Special Instructions: VERBAL RESULTS REQUESTED - (505) 370-0677

Relinquished by:	Date	Time	Received by:	Date	Time
Ken Dutton	23Aug01	0430	Camille Reynolds	8-23-01	0431
Relinquished by: Camille Reynolds	8-23-01	1050	Received by ELOT: [illegible signature]	8/23/01	11:00

Sample Containers Intact? (Y) N
Temperature Upon Receipt:
Laboratory Comments: -0.5°C

ENVIRONMENTAL LAB OF , INC.

"Don't Treat Your Soil Like Dirt!"

ENVIRONMENTAL TECHNOLOGY GROUP, INC.
ATTN: MR. KEN DUTTON
2540 WEST MARLAND
HOBBS, NM 88240
FAX: 505-397-4701

Sample Type: Soil
Sample Condition: Intact/ Iced/ 4 deg C
Project #: AHC 1200R
Project Name: Amerada Hess Corp.
Project Location: Monument, NM

Sampling Date: 08/30/01
Receiving Date: 08/31/01
Analysis Date: 09/06/01

ELT#	FIELD CODE	Ca mg/kg	K mg/kg	Mg mg/kg	Na mg/kg
0101477-01	General Soil Test-Landfarm-TB 63	71000	454	1210	1540
	REPORT LIMIT	1.00	5.00	0.100	1.00
	QUALITY CONTROL	5.03	5.08	5.11	4.80
	TRUE VALUE	5.00	5.00	5.00	5.00
	% INSTRUMENT ACCURACY	100	102	102	96
	SPIKED AMOUNT	1.00	1.00	1.00	1.00
	ORIGINAL SAMPLE	<1.00	<5.00	<0.100	<1.00
	SPIKE	0.965	0.930	1.02	0.876
	SPIKE DUP	0.975	0.930	1.02	0.882
	% EXTRACTION ACCURACY	96	93	102	88
	BLANK	<1.00	<5.00	<0.100	<1.00
	RPD	2.06	0.00	0.00	0.00

METHODS: SW846-6010B, 3050

Raland K. Tuttle

9-7-01
Date

ENVIRONMENTAL LAB OF , INC.

"Don't Treat Your Soil Like Dirt!"

ENVIRONMENTAL TECHNOLOGY GROUP, INC.
ATTN: MR. KEN DUTTON
2540 W. MARLAND
HOBBS, NM 88240
FAX: 505-397-4701

Sample Type: Soil
Sample Condition: Intact/ Iced/ 4 deg. C
Project #: AHC 1200R
Project Name: Amerada Hess Corp.
Project Location: Monument, NM

Sampling Date: 08/30/01
Receiving Date: 08/31/01
Analysis Date: See Below

ELT#	FIELD CODE	Carbonate mg/kg	Bicarbonate mg/kg	Sulfate mg/kg	Chloride mg/kg	Nitrate mg/kg
0101477-01	General Soil Test-Landfarm-TB 63	<0.10	100	2476	124	14.5
	REPORT LIMIT	0.10	2.00	0.5	5.00	0.5
	QUALITY CONTROL	0.021	0.021	53.8	5050	9.9
	TRUE VALUE	0.020	0.020	50.0	5000	10.0
	% IA	103	103	108	101	99
	SPIKED AMOUNT	N/A	N/A	N/A	556	N/A
	ORIGINAL SAMPLE	N/A	N/A	N/A	1200	N/A
	SPIKE	N/A	N/A	N/A	1720	N/A
	% EA	N/A	N/A	N/A	95	N/A
	BLANK	<0.10	<2.00	<0.5	<5.00	<0.5
	RPD	2.02	2.02	1.78	0.58	3.51
	ANALYSIS DATE	9/04/01	9/04/01	9/05/01	9/04/01	9/05/01

METHODS: EPA 353.3, 310.2, 375.4, SW-846-9253

Raland K. Tuttle

9-7-01
Date

ENVIRONMENTAL LAB OF , INC.

"Don't Treat Your Soil Like Dirt!"

ENVIRONMENTAL TECHNOLOGY GROUP, INC.
ATTN: MR. KEN DUTTON
2540 W. MARLAND
HOBBS, NM 88240
FAX: 505-397-4701

Sample Type: Soil
Sample Condition: Intact/ Iced/ 4 deg. C
Project #: AHC 1200R
Project Name: Amerada Hess Corp.
Project Location: Monument, NM

Sampling Date: 08/30/01
Receiving Date: 08/31/01
Analysis Date: See Below

ELT#	FIELD CODE	pH s.u	Phosphorus mg/kg
0101477-01	General Soil Test-Landfarm-TB 63	8.04	0.66
	REPORT LIMIT	N/A	0.06
	QUALITY CONTROL	10.07	1.77
	TRUE VALUE	10.00	2.00
	% IA	101	88
	SPIKED AMOUNT	N/A	2.5
	ORIGINAL SAMPLE	N/A	0.66
	SPIKE	N/A	5.58
	% EA	N/A	104
	BLANK	N/A	<0.06
	RPD	0.37	0.00
	ANALYSIS DATE	8/31/01	9/05/01

METHODS: SW 846-9045, EPA 365.4

Raland K. Tuttle

9-7-01
Date

Environmental Lab of Texas, Inc.

COC: 114

12600 West I-20 East
Odessa, Texas 79763
Phone: 915-563-1800
Fax: 915-563-1713

CHAIN OF CUSTODY RECORD AND ANALYSIS REQUEST

Project Manager: KEN DUTTON
Company Name: ETGI
Company Address: 2540 W. MARLAND
City/State/Zip: HOBBS NM 88240
Telephone No: (505) 397-4882
Fax No: (505) 397-4701
Sampler Signature: Ken Dutton

Project Name: AMERADA HESS CORP
Project #: AHC 1200R
Project Loc: MONUMENT, NM
PO #: —

LAB # (lab use only)	FIELD CODE	Date Sampled	Time Sampled	No. of Containers	Preservative: Ice	HNO3	HCl	NaOH	H2SO4	None	Other (Specify)	Matrix: Water	Sludge	Soil	Other (specify)	Analyze For: TDS / CL / SAR / EC	TPH 418.1	TPH TX 1005/1006	TPH 8015M GRO/DRO	Metals: As Ag Ba Cd Cr Pb Hg Se	Volatiles	Semivolatiles	BTEX 8021B/5030	TCLP	TOTAL	X GENERAL SOIL TEST	Cation, NO3, P, pH	RUSH TAT (Pre-Schedule)	Standard TAT
0101477-01	GENERAL SOIL TEST-LANDFARM-TB G3	30 AUG	1013	1	X									X												X	X		

Special Instructions:

Sample Containers Intact? Y N
Temperature Upon Receipt:
Laboratory Comments: Ice 4°C

Relinquished by:	Date	Time	Received by:	Date	Time
Ken Dutton	30 AUG 01	1414	Jami Walden	8/30/01	3:15 pm
Relinquished by:	Date	Time	Received by ELOT:	Date	Time
Jami Walden	8/31/01	10:57 am		8/31/01	1057

ENVIRONMENTAL LAB OF , INC.

"Don't Treat Your Soil Like Dirt!"

ENVIRONMENTAL TECHNOLOGY GROUP, INC.
ATTN: MR. KEN DUTTON
2540 W. MARLAND
HOBBS, NM 88240
FAX: 505-397-4701

Sample Type: Soil
Sample Condition: Intact/ Iced/ -0.5 deg C
Project #: AHC-1200R
Project Name: TB-63
Project Location: Monument, NM

Sampling Date: 09/06/01
Receiving Date: 09/07/01
Analysis Date:09/10/01

ELT#	FIELD CODE	BENZENE mg/kg	TOLUENE mg/kg	ETHYLBENZENE mg/kg	m,p-XYLENE mg/kg	o-XYLENE mg/kg
0101519-01	Far East Pit	<0.025	<0.025	<0.025	0.230	<0.025

QUALITY CONTROL	0.098	0.095	0.094	0.199	0.096
TRUE VALUE	0.100	0.100	0.100	0.200	0.100
% IA	98	95	94	100	96
SPIKED AMOUNT	0.100	0.100	0.100	0.200	0.100
ORIGINAL SAMPLE	<0.025	<0.025	<0.025	<0.025	<0.025
SPIKE	0.104	0.100	0.099	0.211	0.102
SPIKE DUP	0.102	0.099	0.098	0.210	0.101
%EA	104	100	99	106	102
BLANK	<0.025	<0.025	<0.025	<0.025	<0.025
RPD	2	1	1	1	1

METHODS: EPA SW 846-8021B ,5030

Raland K. Tuttle

9-10-01
Date

ENVIRONMENTAL LAB OF , INC.

"Don't Treat Your Soil Like Dirt!"

ENVIRONMENTAL TECHNOLOGY GROUP INC.
ATTN: MR. KEN DUTTON
2540 W. MARLAND
HOBBS, NM 88240
FAX: 505-397-4701

Sample Type: Soil
Sample Condition: Intact/ Iced/ -0.5 deg C
Project #: AHC-1200R
Project Name: TB-63
Project Location: Monument, NM

Sampling Date: 09/06/01
Receiving Date: 09/07/01
Analysis Date: 09/08/01

ELT#	FIELD CODE	GRO C6-C10 mg/kg	DRO >C10-C28 mg/kg
0101519-01	Far East Pit	252	7600

QUALITY CONTROL	451	504
TRUE VALUE	500	500
% INSTRUMENT ACCURACY	90	101
SPIKED AMOUNT	476	476
ORIGINAL SAMPLE	<10	<10
SPIKE	502	539
SPIKE DUP	499	532
% EXTRACTION ACCURACY	105	112
BLANK	<10	<10
RPD	1	1

Methods: SW 846-8015M

Raland K. Tuttle

9-10-01
Date

ENVIRONMENTAL LAB OF , INC.

"Don't Treat Your Soil Like Dirt!"

ENVIRONMENTAL TECHNOLOGY GROUP INC.
ATTN: MR. KEN DUTTON
2540 W. MARLAND
HOBBS, NM 88240
FAX: 505-397-4701

Sample Type: Soil
Sample Condition: Intact/ Iced/ -0.5 deg C
Project #: AHC-1200R
Project Name: TB-63
Project Location: Monument, NM

Sampling Date: 09/06/01
Receiving Date: 09/07/01
Analysis Date: 09/10/01

ELT#	FIELD CODE	Chloride mg/kg
0101519-01	Far East Pit	301

QUALITY CONTROL	5140
TRUE VALUE	5000
% INSTRUMENT ACCURACY	103
SPIKED AMOUNT	500
ORIGINAL SAMPLE	44
SPIKE	558
SPIKE DUP	549
% EXTRACTION ACCURACY	101
BLANK	<10
RPD	1.63

Methods: SW 846-9253

Raland K. Tuttle

9-10-01
Date

CoC #122

Environmental Lab of Texas, Inc.

12600 West I-20 East
Odessa, Texas 79763
Phone: 915-563-1800
Fax: 915-563-1713

CHAIN OF CUSTODY RECORD AND ANALYSIS REQUEST

Project Manager: Ken Dutton
Company Name: ETGI
Company Address: 2540 W. Marland
City/State/Zip: Hobbs, NM 88240
Telephone No: (505)397-4882
Fax No: (505)397-4701
Sampler Signature: Ken Dutton

Project Name: TB-63
Project #: AHC 1200R
Project Loc: Monument, NM
PO #:

LAB # (lab use only)	FIELD CODE	Date Sampled	Time Sampled	No. of Containers	Preservative: Ice	HNO_3	HCl	NaOH	H_2SO_4	None	Other (Specify)	Matrix: Water	Sludge	Soil	Other (specify)	Analyze For: TCLP/TOTAL: TDS / SAR / EC	TPH 418.1	TPH TX 1005/1006	TPH 8015M GRO/DRO	Metals As Ag Ba Cd Cr Pb Hg Se	Volatiles	Semivolatiles	BTEX 8021B/5030	RUSH TAT (Pre-Schedule)	Standard TAT
010519-01	FAR EAST Pit	9-6-01	1000	1	X									X		X			X				X		

Special Instructions: VERBALS PLZ

Sample Containers Intact? (Y) N
Temperature Upon Receipt: 0.5 °C
Laboratory Comments:

Relinquished by:	Date	Time	Received by:	Date	Time
Ken Dutton	7Sep01	1342	Angel Sanchez	7Sep01	1342
Relinquished by:	Date	Time	Received by ELOT:	Date	Time
Angel Sanchez			Cely Kent	9/7/01	16:20

ENVIRONMENTAL LAB OF , INC.

"Don't Treat Your Soil Like Dirt!"

E.T.G.I.
ATTN: KEN DUTTON
2540 WEST MARLAND
HOBBS, NM 88240
FAX: 505-397-4701

Sample Type: Soil
Sample Condition: Intact/ Iced/ -1.0 deg. C
Project Name: TB-63
Project #: AHC 1200R
Project Location: Monument, NM

Sampling Date: 01/21/02
Receiving Date: 01/22/02
Analysis Date: 01/23/02

ELT#	FIELD CODE	BENZENE mg/kg	TOLUENE mg/kg	ETHYLBENZENE mg/kg	m,p-XYLENE mg/kg	o-XYLENE mg/kg
0202454-01	Eastside Landfarm Comp.	<0.025	<0.025	<0.025	<0.025	<0.025
0202454-02	Westside Landfarm Comp.	<0.025	<0.025	<0.025	<0.025	<0.025
	QUALITY CONTROL	0.103	0.102	0.093	0.197	0.091
	TRUE VALUE	0.100	0.100	0.100	0.200	0.100
	% IA	103	102	93	98	91
	SPIKED AMOUNT	0.100	0.100	0.100	0.200	0.100
	ORIGINAL SAMPLE	<0.025	<0.025	<0.025	<0.025	<0.025
	SPIKE	0.105	0.107	0.102	0.218	0.100
	SPIKE DUP	0.105	0.107	0.102	0.220	0.102
	%EA	105	107	102	109	100
	BLANK	<0.025	<0.025	<0.025	<0.025	<0.025
	RPD	0.00	0.00	0.00	0.91	1.98

METHODS: EPA SW 846-8021B ,5030

Raland K Tuttle

Celey D. Keene
Raland K. Tuttle

1-25-02
Date

12600 West I-20 East • Odessa, Texas 79765 • (915) 563-1800 • Fax (915) 563-1713

ENVIRONMENTAL LAB OF , INC.

"Don't Treat Your Soil Like Dirt!"

E.T.G.I.
ATTN: KEN DUTTON
2540 WEST MARLAND
HOBBS, NM 88240
FAX: 505-397-4701

Sample Type: Soil
Sample Condition: Intact/ Iced/ -1.0 deg C
Project Name: TB-63
Project #: AHC 1200R
Project Location: Monument, NM

Sampling Date: 01/21/02
Receiving Date: 01/22/02
Analysis Date: 01/23/02

ELT#	FIELD CODE	Chloride mg/kg
0202454-01	Eastside Landfarm Comp.	204
0202454-02	Westside Landfarm Comp.	177

REPORT LIMIT	5.00
QUALITY CONTROL	5050
TRUE VALUE	5000
% INSTRUMENT ACCURACY	101
SPIKED AMOUNT	714
ORIGINAL SAMPLE	76
SPIKE	785
SPIKE DUP	785
% EXTRACTION ACCURACY	99
BLANK	<5.00
RPD	0.0

METHODS: SW846-9253

Raland K Tuttle

Celey D. Keene
Raland K. Tuttle

1-25-02
Date

ENVIRONMENTAL LAB OF , INC.

"Don't Treat Your Soil Like Dirt!"

E.T.G.I.
ATTN: KEN DUTTON
2540 W. MARLAND
HOBBS, NM 88240
FAX: 505-397-4701

Sample Type: Soil
Sample Condition: Intact/ Iced/ -1.0 deg C
Project Name: TB-63
Project #: AHC 1200R
Project Location: Monuemnt, NM

Sampling Date: 01/21/02
Receiving Date: 01/22/02
Analysis Date: 01/23/02

ELT#	FIELD CODE	GRO C6-C10 mg/kg	DRO >C10-C28 mg/kg
0202454-01	Eastside Landfarm Comp.	<100	7060
0202454-02	Westside Landfarm Comp.	<100	8040

QUALITY CONTROL	524	551
TRUE VALUE	500	500
% INSTRUMENT ACCURACY	105	110
SPIKED AMOUNT	476	476
ORIGINAL SAMPLE	<10	<10
SPIKE	505	494
SPIKE DUP	516	518
% EXTRACTION ACCURACY	106	104
BLANK	<10	<10
RPD	2.15	4.74

Methods: SW 846-8015M

Raland K. Tuttle

Celey D. Keene
Raland K. Tuttle

1-25-02
Date

COC # 008

Environmental Lab of Texas, Inc.

12600 West I-20 East
Odessa, Texas 79763
Phone: 915-563-1800
Fax: 915-563-1713

CHAIN OF CUSTODY RECORD AND ANALYSIS REQUEST

Project Manager: Ken Dutton
Company Name: ETGI
Company Address: 2540 W. Marland
City/State/Zip: Hobbs, NM 88240
Telephone No: (505) 397-4982 Fax No: (505) 397-4701
Sampler Signature: Camille Reynolds

Project Name: TB-63
Project #: AHC. 1200R
Project Loc: Monument, NM
PO #:

LAB # (lab use only)	FIELD CODE	Date Sampled	Time Sampled	No. of Containers	Preservative: Ice	HNO3	HCl	NaOH	H2SO4	None	Other (Specify)	Matrix: Water	Sludge	Soil	Other (specify)	Analyze For: TDS (Cl) SAR / EC	TPH 418.1	TPH TX 1005/1006	TPH 8015M GRO/DRO	Metals As Ag Ba Cd Cr Pb Hg Se	Volatiles	Semivolatiles	BTEX 8021B/5030	RUSH TAT (Pre-Schedule)	Standard TAT
0202454-01	Eastside Landfarm Comp.	1-21	1115	1	X									X		X			X				X		X
02	Westside Landfarm Comp	1-21	1125	1	X									X		X			X				X		X

Special Instructions:

Sample Containers Intact? Y N
Temperature Upon Receipt:
Laboratory Comments:
AHC -1.0 °C

Relinquished by:	Date	Time	Received by:	Date	Time
Camille Reynolds	1-22-02	1305	Lemon Cases	1/24/02	1305
Relinquished by:	Date	Time	Received by ELOT:	Date	Time
Lemon Cases	1/24/02	1600	[illegible]	1/24/02	1600

Order
Same as table 1

ANALYTICAL REPORT

Prepared for:

Camille Reynolds
Environmental Technology Group, Inc.
2540 W. Marland
Hobbs, NM 88240

Project:	TB-63
PO#:	AHC 1200
Order#:	G0204304
Report Date:	08/27/2002

Certificates
US EPA Laboratory Code TX00158

ENVIRONMENTAL LAB OF TEXAS

SAMPLE WORK LIST

Environmental Technology Group, Inc.
2540 W. Marland
Hobbs, NM 88240
505/397/4701

Order#: G0204304
Project:
Project Name: TB-63
Location: MONUMENT, NM

The samples listed below were submitted to Environmental Lab of Texas and were received under chain of custody. Environmental Lab of Texas makes no representation or certification as to the method of sample collection, sample identification, or transportation/handling procedures used prior to the receipt of samples by Environmental Lab of Texas, unless otherwise noted.

Lab ID:	Sample :	Matrix:	Date / Time Collected	Date / Time Received	Container	Preservative
0204304-01	SB-3 25'	SOIL	8/21/02 13:27	8/22/02 13:29	4 oz glass	ice
	Lab Testing:	**Rejected:** No		**Temp:** -1.0C		
	8015M					
	8021B/5030 BTEX					
	Chloride					
0204304-02	SB-3 29'	SOIL	8/21/02 13:45	8/22/02 13:29	4 oz glass	ice
	Lab Testing:	**Rejected:** No		**Temp:** -1.0C		
	8015M					
	8021B/5030 BTEX					
	Chloride					
0204304-03	SB-3	WATER	8/21/02 15:05	8/22/02 13:29	40 ml vial	ice
	Lab Testing:	**Rejected:** No		**Temp:** -1.0C		
	8021B/5030 BTEX					
	Chloride					

ENVIRONMENTAL LAB OF TEXAS

ANALYTICAL REPORT

Camille Reynolds
Environmental Technology Group, Inc.
2540 W. Marland
Hobbs, NM 88240

Order#: G0204304
Project:
Project Name: TB-63
Location: MONUMENT, NM

Lab ID: 0204304-01
Sample ID: SB-3 25'

8015M

Method Blank	Date Prepared	Date Analyzed	Sample Amount	Dilution Factor	Analyst	Method
		8/23/02	1	1	CK	8015M

Parameter	Result mg/kg	RL
GRO, C6-C12	<10.0	10.0
DRO, >C12-C35	12.2	10.0
TOTAL, C6-C35	12.2	10.0

8021B/5030 BTEX

Method Blank	Date Prepared	Date Analyzed	Sample Amount	Dilution Factor	Analyst	Method
0002968-02		8/23/02 17:05	1	25	CK	8021B

Parameter	Result mg/kg	RL
Benzene	<0.025	0.025
Ethylbenzene	<0.025	0.025
Toluene	<0.025	0.025
p/m-Xylene	<0.025	0.025
o-Xylene	<0.025	0.025

Surrogates	% Recovered	QC Limits (%)	
aaa-Toluene	106%	73	115
Bromofluorobenzene	112%	72	110

DL = Diluted out N/A = Not Applicable RL = Reporting Limit

ENVIRONMENTAL LAB OF TEXAS

ANALYTICAL REPORT

Camille Reynolds
Environmental Technology Group, Inc.
2540 W. Marland
Hobbs, NM 88240

Order#: G0204304
Project:
Project Name: TB-63
Location: MONUMENT, NM

Lab ID: 0204304-02
Sample ID: SB-3 29'

8015M

Method Blank	Date Prepared	Date Analyzed	Sample Amount	Dilution Factor	Analyst	Method
		8/23/02	1	1	CK	8015M

Parameter	Result mg/kg	RL
GRO, C6-C12	**11.7**	10.0
DRO, >C12-C35	**38.4**	10.0
TOTAL, C6-C35	**50.1**	10.0

8021B/5030 BTEX

Method Blank	Date Prepared	Date Analyzed	Sample Amount	Dilution Factor	Analyst	Method
0002968-02		8/26/02 16:03	1	25	CK	8021B

Parameter	Result mg/kg	RL
Benzene	**<0.025**	0.025
Ethylbenzene	**<0.025**	0.025
Toluene	**<0.025**	0.025
p/m-Xylene	**<0.025**	0.025
o-Xylene	**<0.025**	0.025

Surrogates	% Recovered	QC Limits (%)	
aaa-Toluene	**97%**	**80**	**120**
Bromofluorobenzene	**106%**	**80**	**120**

DL = Diluted out N/A = Not Applicable RL = Reporting Limit

ENVIRONMENTAL LAB OF TEXAS

ANALYTICAL REPORT

Camille Reynolds
Environmental Technology Group, Inc.
2540 W. Marland
Hobbs, NM 88240

Order#: G0204304
Project:
Project Name: TB-63
Location: MONUMENT, NM

Lab ID: 0204304-03
Sample ID: SB-3

8021B/5030 BTEX

Method Blank	Date Prepared	Date Analyzed	Sample Amount	Dilution Factor	Analyst	Method
0002969-02		8/27/02 10:36	1	1	CK	8021B

Parameter	Result mg/L	RL
Benzene	**0.064**	0.001
Ethylbenzene	**0.014**	0.001
Toluene	**0.002**	0.001
p/m-Xylene	**0.017**	0.001
o-Xylene	**0.006**	0.001

Surrogates	% Recovered	QC Limits (%)	
aaa-Toluene	115%	73	115
Bromofluorobenzene	109%	72	110

Approval: Raland K Tuttle 8-28-02
Raland K. Tuttle, Lab Director, QA Officer Date
Celey D. Keene, Org. Tech. Director
Jeanne McMurrey, Inorg. Tech. Director
Sandra Biezugbe, Lab Tech.
Sara Molina, Lab Tech.

DL = Diluted out N/A = Not Applicable RL = Reporting Limit

ENVIRONMENTAL LAB OF TEXAS

ANALYTICAL REPORT

Camille Reynolds
Environmental Technology Group, Inc.
2540 W. Marland
Hobbs, NM 88240

Order#: G0204304
Project:
Project Name: TB-63
Location: MONUMENT, NM

Lab ID: 0204304-01
Sample ID: SB-3 25'

Test Parameters

Parameter	Result	Units	Dilution Factor	RL	Method	Date Analyzed	Analyst
Chloride	1560	mg/kg	1	20.0	9253	8/23/02	SB

Lab ID: 0204304-02
Sample ID: SB-3 29'

Test Parameters

Parameter	Result	Units	Dilution Factor	RL	Method	Date Analyzed	Analyst
Chloride	1080	mg/kg	1	20.0	9253	8/23/02	SB

Lab ID: 0204304-03
Sample ID: SB-3

Test Parameters

Parameter	Result	Units	Dilution Factor	RL	Method	Date Analyzed	Analyst
Chloride	12200	mg/L	1	5.00	9253	8/23/02	SB

Approval: Raland K Tuttle 8-30-02
Raland K. Tuttle, Lab Director, QA Officer — Date
Celey D. Keene, Org. Tech. Director
Jeanne McMurrey, Inorg. Tech. Director
Sandra Biezugbe, Lab Tech.
Sara Molina, Lab Tech.

RL = Reporting Limit N/A = Not Applicable

ENVIRONMENTAL LAB OF TEXAS

QUALITY CONTROL REPORT

8015M

Order#: G0204304

BLANK SOIL	LAB-ID #	Sample Concentr.	Spike Concentr.	QC Test Result	Pct (%) Recovery	RPD
TOTAL, C6-C35-mg/kg	0002953-02			<10.0		
MS SOIL	LAB-ID #	Sample Concentr.	Spike Concentr.	QC Test Result	Pct (%) Recovery	RPD
TOTAL, C6-C35-mg/kg	0204304-01	12.2	1130.98	1150	100.6%	
MSD SOIL	LAB-ID #	Sample Concentr.	Spike Concentr.	QC Test Result	Pct (%) Recovery	RPD
TOTAL, C6-C35-mg/kg	0204304-01	12.2	1130.98	1080	94.4%	6.3%
SRM SOIL	LAB-ID #	Sample Concentr.	Spike Concentr.	QC Test Result	Pct (%) Recovery	RPD
TOTAL, C6-C35-mg/kg	0002953-05		952	1120	117.6%	

ENVIRONMENTAL LAB OF TEXAS

QUALITY CONTROL REPORT

8021B/5030 BTEX

Order#: G0204304

BLANK SOIL	LAB-ID #	Sample Concentr.	Spike Concentr.	QC Test Result	Pct (%) Recovery	RPD
Benzene-mg/kg	0002968-02			<0.025		
Benzene-mg/L	0002969-02			<0.001		
Ethylbenzene-mg/kg	0002968-02			<0.025		
Ethylbenzene-mg/L	0002969-02			<0.001		
Toluene-mg/kg	0002968-02			<0.025		
Toluene-mg/L	0002969-02			<0.001		
p/m-Xylene-mg/kg	0002968-02			<0.025		
p/m-Xylene-mg/L	0002969-02			<0.001		
o-Xylene-mg/kg	0002968-02			<0.025		
o-Xylene-mg/L	0002969-02			<0.001		
MS WATER	**LAB-ID #**	**Sample Concentr.**	**Spike Concentr.**	**QC Test Result**	**Pct (%) Recovery**	**RPD**
Benzene-mg/L	0204252-01	0	0.1	0.097	97.%	
Benzene-mg/kg	0204304-02	0	0.1	0.103	103.%	
Ethylbenzene-mg/L	0204252-01	0	0.1	0.098	98.%	
Ethylbenzene-mg/kg	0204304-02	0	0.1	0.106	106.%	
Toluene-mg/L	0204252-01	0	0.1	0.099	99.%	
Toluene-mg/kg	0204304-02	0	0.1	0.106	106.%	
p/m-Xylene-mg/L	0204252-01	0	0.2	0.205	102.5%	
p/m-Xylene-mg/kg	0204304-02	0	0.2	0.222	111.%	
o-Xylene-mg/L	0204252-01	0	0.1	0.098	98.%	
o-Xylene-mg/kg	0204304-02	0	0.1	0.106	106.%	
MSD WATER	**LAB-ID #**	**Sample Concentr.**	**Spike Concentr.**	**QC Test Result**	**Pct (%) Recovery**	**RPD**
Benzene-mg/L	0204252-01	0	0.1	0.091	91.%	6.4%
Benzene-mg/kg	0204304-02	0	0.1	0.109	109.%	5.7%
Ethylbenzene-mg/L	0204252-01	0	0.1	0.092	92.%	6.3%
Ethylbenzene-mg/kg	0204304-02	0	0.1	0.111	111.%	4.6%
Toluene-mg/L	0204252-01	0	0.1	0.093	93.%	6.3%
Toluene-mg/kg	0204304-02	0	0.1	0.110	110.%	3.7%
p/m-Xylene-mg/L	0204252-01	0	0.2	0.192	96.%	6.5%
p/m-Xylene-mg/kg	0204304-02	0	0.2	0.225	112.5%	1.3%
o-Xylene-mg/L	0204252-01	0	0.1	0.092	92.%	6.3%
o-Xylene-mg/kg	0204304-02	0	0.1	0.110	110.%	3.7%
SRM SOIL	**LAB-ID #**	**Sample Concentr.**	**Spike Concentr.**	**QC Test Result**	**Pct (%) Recovery**	**RPD**
Benzene-mg/kg	0002968-05		0.1	0.115	115.%	
Benzene-mg/L	0002969-05		0.1	0.094	94.%	
Ethylbenzene-mg/kg	0002968-05		0.1	0.110	110.%	
Ethylbenzene-mg/L	0002969-05		0.1	0.094	94.%	
Toluene-mg/kg	0002968-05		0.1	0.114	114.%	

ENVIRONMENTAL LAB OF TEXAS

QUALITY CONTROL REPORT

SRM SOIL	LAB-ID #	Sample Concentr.	Spike Concentr.	QC Test Result	Pct (%) Recovery	RPD
Toluene-mg/L	0002969-05		0.1	0.095	95.%	
p/m-Xylene-mg/kg	0002968-05		0.2	0.229	114.5%	
p/m-Xylene-mg/L	0002969-05		0.2	0.196	98.%	
o-Xylene-mg/kg	0002968-05		0.1	0.114	114.%	
o-Xylene-mg/L	0002969-05		0.1	0.094	94.%	

ENVIRONMENTAL LAB OF TEXAS

QUALITY CONTROL REPORT

Test Parameters

Order#: G0204304

BLANK WATER	LAB-ID #	Sample Concentr.	Spike Concentr.	QC Test Result	Pct (%) Recovery	RPD
Chloride-mg/L	0002961-01			<5.00		
Chloride-mg/kg	0002962-01			<20.0		
MS WATER	**LAB-ID #**	**Sample Concentr.**	**Spike Concentr.**	**QC Test Result**	**Pct (%) Recovery**	**RPD**
Chloride-mg/L	0204280-01	230	500	727	99.4%	
Chloride-mg/kg	0204282-05	0	1031	1050	101.8%	
MSD WATER	**LAB-ID #**	**Sample Concentr.**	**Spike Concentr.**	**QC Test Result**	**Pct (%) Recovery**	**RPD**
Chloride-mg/L	0204280-01	230	500	718	97.6%	1.2%
Chloride-mg/kg	0204282-05	1050	1031	1030	99.9%	1.9%
SRM WATER	**LAB-ID #**	**Sample Concentr.**	**Spike Concentr.**	**QC Test Result**	**Pct (%) Recovery**	**RPD**
Chloride-mg/L	0002961-04		5000	4960	99.2%	
Chloride-mg/kg	0002962-04		5000	4960	99.2%	

Environmental Lab of Texas I, Ltd.

Coc# 135

12600 West I-20 East
Odessa, Texas 79763

Phone: 915-563-1800
Fax: 915-563-1713

CHAIN OF CUSTODY RECORD AND ANALYSIS REQUEST

Project Manager: Camille Reynolds
Company Name: ETGI
Company Address: 2540 West Marland
City/State/Zip: Hobbs, New Mexico, 88240
Telephone No: (505) 397-4882
Fax No: (505) 397-4701
Sampler Signature: Camille Reynolds

Project Name: TB-63
Project #: AHC 1200
Project Loc: Monument, NM
PO #:

LAB # (lab use only)	FIELD CODE	Date Sampled (2002)	Time Sampled	No. of Containers	Preservative: Ice	HNO_3	HCl [illegible]	NaOH	H_2SO_4	None [illegible]	Other (Specify)	Matrix: Water	Sludge	Soil	Other (specify)	Analyze For: TPH: 418.1 (8015M) 1005 1006	Cations (Ca, Mg, Na, K)	Anions (Cl) SO4, CO3, HCO3)	SAR / ESP / CEC	Metals: As Ag Ba Cd Cr Pb Hg Se	Volatiles	Semivolatiles	BTEX 8021B/5030	RCI	RUSH TAT (Pre-Schedule)	Standard TAT
C204304-01	SB-3 25'	8-21	1327	1	X									X		X		X					X			X
02	SB-3 29'	↓	1345	1	X									X		X		X					X			X
03	SB-3	↓	1505	3	X		X			X		X						X					X			X

TCLP:
TOTAL:

Special Instructions:

Sample Containers Intact? Y N
Temperature Upon Receipt:
Laboratory Comments:
Rec. -1.0°C

Relinquished by:	Date	Time	Received by:	Date	Time
Camille Reynolds	8-21-02	1710	[illegible signature]	8-21-02	1710

Relinquished by:	Date	Time	Received by ELOT:	Date	Time
[illegible]	8-22-02	12:20	Roland K Tuttle	8-22-02	1220

APPENDIX C

Water Well Search

New Mexico Office of the State Engineer
Well Reports and Downloads

Township: 19S Range: 37E Sections: 31

NAD27 X: Y: Zone: Search Radius:

County: Basin: Number: Suffix:

Owner Name: (First) (Last) Non-Domestic Domestic All

Well / Surface Data Report Avg Depth to Water Report Water Column Report

Clear Form WATERS Menu Help

WELL / SURFACE DATA REPORT 02/25/2003

(acre ft per annum)

DB File Nbr	Use	Diversion	Owner
L 01271	DOM	3	OSCAR E. GROVE
L 03815	DOM	3	W.C. BYRD
L 04804	DOM	3	W.C. BYRD
L 05296	DOM		C.R. JORDAN
L 05579	DOM	3	C.R. JORDAN
L 06497	DOM		C. R. JORDAN
L 10031	STK	3	JIMMY B. COOPER

(quarters are 1=NW 2=NE 3=SW 4=SE)
(quarters are biggest to smallest

Well Number	Source	Tws	Rng	Sec	q	q	q
L 01271 EXP		19S	37E	31	2	2	4
L 03815		19S	37E	31	1	1	1
L 04804		19S	37E	31	1	1	1
L 05296 EXP		19S	37E	31	2	4	
L 05579		19S	37E	31	2	4	
L 06497 EXP		19S	37E	31	2	4	
L 10031	Shallow	19S	37E	31	2	4	

Record Count: 7

New Mexico Office of the State Engineer
Well Reports and Downloads

Township: 19S Range: 37E Sections: 31

NAD27 X: Y: Zone: Search Radius:

County: Basin: Number: Suffix:

Owner Name: (First) (Last) Non-Domestic Domestic All

Well / Surface Data Report Avg Depth to Water Report Water Column Report

Clear Form WATERS Menu Help

AVERAGE DEPTH OF WATER REPORT 02/25/2003

								(Depth Water in Feet)		
Bsn	**Tws**	**Rng**	**Sec**	**Zone**	**X**	**Y**	**Wells**	**Min**	**Max**	**Avg**
L	19S	37E	31				2	20	27	24

Record Count: 2

NMGSAU Battery 63 AssessmentFrom: Small, Sam [SSmall@Hess.com]
Sent: Friday, June 06, 2003 9:26 AM
To: Randy Bayliss; cwilliams@state.nm.us
Cc: lwjohnson@state.nm.us; Baker, Jay; kswinney@bbcinternational.com
Subject: NMGSAU Battery 63 Assessment

Amerada Hess is scheduled to start work on the NMGSAU Battery 63 (L-31-19S-37E) groundwater assessment on Wed. June 11th. BBC International is the contractor and will advise the Hobbs District on June 10th of the schedule for work to be performed. If you have any questions, please contact Jay Baker at 393-2144 ext 103 or Ken Swinney @ BBC 397-6388.

Sam Small

915-758-6741

NEW MEXICO ENERGY, MINERALS and NATURAL RESOURCES DEPARTMENT

BILL RICHARDSON
Governor
Joanna Prukop
Cabinet Secretary

Lori Wrotenbery
Director
Oil Conservation Division

March 11, 2003

1R-406

Mr. Samuel W. Small, P.E.
Amerada Hess Corporation
P.O. Box 840
Seminole, Texas 79360

RE: NMGSAU BATTERY NO. 63 OCD FILE NO.
GROUND WATER SITE ASSESSMENT

Dear Mr. Small:

The New Mexico Oil Conservation Division (OCD) has reviewed your March 7, 2003 proposal for drilling four monitor wells to find the hydraulic gradient and test for the presence of ground water contamination at this site in Unit L, Sec 31, T19S, R37E, Lea County New Mexico, in the Monument Field.

OCD finds this proposal to be satisfactory.

Please insure that the monitoring wells are located so that the potential for contamination near the source of the leak can be evaluated. For a situation such as this, OCD would probably recommend a well in the center of the pit, if possible.

In your August 22, 2002 letter, you mentioned that lab analyses are pending. Can you send me the results of that testing?

Thanks. If you have questions, please call or email. Please continue to keep our Hobbs OCD office up to date with information.

Sincerely,

Randolph Bayliss

Randolph Bayliss, P.E.
Hydrologist,
Environmental Bureau

Cc: Chris Williams, Larry Johnson

From: Johnson, Larry
Sent: Thursday, August 22, 2002 11:32 AM
To: Bayliss, Randy
Subject: FYI

Randy,
Received call from Sam Small w/Amarada - he has called last week and told me they were going to drill a monitor well @ former Arco-Phillips 'A' Tank Battery - Now NMGAU Btry #63 SW 1/4 Sec 31 19S 37E. He called yesterday pm to advise that the well was drilled and water encountered @ 48'. Appears that water has contamination and he will follow up with a letter. His phone # 915/758-6741 if you have a need or desire to discuss anything prior to the letter.
Larry