

REPORTS

DATE:



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 borehole 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 OCD Letter 8-11-03.doc

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Alifi **1 3 2003** Environmental Bureau Oil Conservation Division monitor wells. Pump on 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)	
------------------------------------	--

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

NMGSAU BATTERY 63 (ARCO PHILLIPS A)

NMGSAU BATTERY 63 WTR ANALYSES.xIs

08/08/2003

TABLE 2 VADOSE ZONE ANALYSES IMMEDIATELY ABOVE WATER (PPM)

SAMPLE	SAMPLE			ЕТНҮС-				
POINT	DATE	BENZENE	TOLUENE	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

NMGSAU BATTERY 63 VZ ANALYSES.xis

08/08/2003

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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

<u>Certificates</u> US EPA Laboratory Code TX00158 Sample reference 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.

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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.

				Date / Tim	e l	Date / Time		
Lab ID:	Sample :	Matrix:		Collected		Received	Container	Prescrvative
0204304-01	SB-3 25'	SOIL	·	8/21/02 13.27		8/22/02 13:29	4 oz glass	ice
Le	tb 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
La	ib Testing:	Rejected:	No	1	Femp:	-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
<u>La</u>	a <u>b Testing:</u> 8021B/5030 BTEX Chloride	Rejected:	No	۲ 	l'emp:	•}.0C		

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ANALYTICAL REPORT

Camille Reynolds	Order#:	(10204304
Environmental Technology Group, Inc.	Project:	
2540 W. Marland	Project Name:	TB-63
Hobbs, NM 88240	Location:	MONUMENT, NM
	· ·	

8015M

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

Method <u>Blank</u>	Date <u>Prepared</u>	Date <u>Analyzed</u> 8/23/02	Sampic <u>Amount</u> I	Dilution <u>Factor</u> I	<u>Analyst</u> CK
ſ	Parameter		Resu	alt	RL

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

		8021B	x/5030 BTEX	7		
Method <u>Blank</u> 0002968-02	Date <u>Propåred</u>	Date <u>Analyzed</u> 8/23/02 17:05	Sample <u>Ainounf</u> J	Dilution <u>Factor</u> 25	<u>Analyst</u> CK	<u>Method</u> 8021B
	Parameter		Resul mg/kg	t 3	RL	
	Benzene		<0.02	5	0.025	
	Ethylbenzene		<0.02	5	0.025	
	Tolucne		<0.02	5	0.025	
	p/m-Xylene		<0.02	5	0.025	
	o-Xylenc		<0.02	5	0.025	

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

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

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Method

8015M

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ANALYTICAL REPORT

A STREAM AND THE ACTOR	LITTLATS	C0204384	
Environmental Technology Group, Inc.	Project:		
2540 W. Marland	Project Name:	ТВ-63	
Hobbs, NM 88240	Location:	MONUMENT, NM	

Sample ID:

58-3 29'

	Date
1	Analyzed

8015M Samel

Method Blank	Date Prepared	Date Analyzed	Sample <u>Amount</u>	Dilution <u>Factor</u>	<u>Analysi</u>	Method
		8/23/02	1	L	СК	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 <u>Blank</u> 0002968-02	Date Prepared	Date <u>Analyzed</u> 8/26/02 16:03	Sample <u>Amount</u> 1	Dilution <u>Factor</u> 25	<u>Analyst</u> CX	<u>Method</u> 8021B
	Parameter	<u></u>	Resul	i	RL	
	Benzenc		<0.02	5	0.025	
	Ethylbenzene		<0.02	5	0.025	

0.025 Toluene <0.025 0.025 p/m-Xylene <0.025 <0.025 0.025 o-Xylene

Surrogates	% Recovered	QC Li	mits (%)
asa-Toluene	97%	80	120
Bromolluornbenzene	106%	80	120

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

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ANALYTICAL REPORT

Camille Reynolds	Order#:	G0204304
Luvironmental Technology Group, Inc.	Project:	
1540 W. Marland	Project Name:	TB-63
Hobbs, NM 88240	Location:	MONUMENT, NM

Lab ID: 0204304-03 Sample ID:

SB-3

8021B/5030 BTEX

Method <u>Blank</u> 0002969-02	Date <u>Prepared</u>	Date <u>Ansivzed</u> 8/27/02	Sample <u>Amount</u> J	Dilution <u>Factor</u> 1	<u>Agaivst</u> CK	<u>Method</u> 8021B
		10:30				
	Parameter		Result mg/L		RL.	
	Benzene		0,064		0.001	
	Ethylbenzenc		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 Li	nits (%)
aaa-Toluene	115%	73	115
Bromofluorobenzene	109%	72	110

802 Approval:

Raland K. Tuttle, Lab Director, QA Officer Date Celey D. Keene, Org. Tech. Director Jeanne McMurrey, Inorg. Tech. Director Sandra Biczugbe, Lab Tech. Sura Molina, Lab Tech.

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ANALYTICAL REPORT

Camille Reynol Environmental 2540 W. Marla Hobbs, NM 88	ids i Technology Group, Inc. 10d 8240		Orden Projec Projec Locati	¥: t: (Nome: on:	G0204304 TB-63 Monumen	it, nm		
Lab ID: Sample ID:	U2U4304-V1 SB-J 25'							·
Test Parar	meters	<u>Result</u>	Units	Dilutio <u>Factor</u>	n <u>RL</u>	Method	Date Analyzed	Analyst
Chloride		1560	ing/kg	1	20.0	9253	8/23/02	SB
Lab ID: Sampic ID;	0204304-02 SB-3 29'	·······						·
Test Paran Parameter	neters	<u>Result</u>	Units	Dilution Factor	n <u>RL</u>	Method	Date Analyzed	Analyst
Chloride		1080	mg/kg	i	20.0	9253	8/23/02	SB
Lab ID: Sample ID:	0204304-03 SB-3						., ,	· _ · _ · _ · · · · · · · · · · · · · ·
Test Paran Parameter	neters	<u>Result</u>	<u>Units</u>	Dilution Factor	1 <u>RL</u>	Method	Date Analyzed	Analyst
Chloride		12200	mg/L	1	5.00	9253	8/23/02	SB
·····				_ 	<u> </u>	<u> </u>	- <u></u>	

-30-02 Approval: Raland K. Tuttle, Lab Director, QA Officer Date

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Ratand K. futtle, Lab Director, QA Officer Celey D. Keene, Org. Tech. Director Jeanne McMurrey, Inorg. Tech. Director Sandra Blezugbe, Lab Tech. Sara Mulina, Lab Tech.

RL = Reporting Limit N/A = Not Applicable

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ENVIRONMENTAL LAB OF TEXAS QUALITY CONTROL REPORT

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Order#: G0204304

BLANK	SOIL	1.AB-1D#	Sample Concentr.	Spike Concentr.	QC Test Result	Pct (%) Recovery	RPD
TOTAL, C6-C35-mg/kg		0002953-02		•	<10.0		
MS	SOIL	LAB-1D#	Sample Concentr.	Spike Concentr.	QC Tesi 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-ing/kg		0002953-05		952	1120	117.6%	

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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		
Ethylbonzene-mg/L	0002969-02	- <u>i</u>	1	<0.001		
Toluene-mg/kg	0002968-02		- 1	<0.025		
Toluene-mg/L	0002969-02			<0.001		
p/m-Xyleno mg/kg	0002968-02			<0.025		
jp/m-Xylene-mg/L	0002969-02	*		. <0.001		
o-Xylenc-mg/kg	0002968-02		·	i <0.025	i	
o-Xylene-mg/L	0002969-02	L	1	<0.001	<u> </u>	······
MS w	ATER 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-ing/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	v	0.1	0.098	98.%	
o-Xylene-mg/kg	0204304-02	0	0.1	0.106	106.%	
MSD w	ATER LAB-ID #	Sample Concentr.	Spike Concentr.	QC Test Result	Pct (%) Recovery	RPD
Benzent-mg/L	0204252-01	j O	0.1	0.091	91.%	6.4%
Benzene-mg/kg	0204304-02	0	01	0.109	109.%	5.7%
Ethylbenzene-mg/L	0204252-01	0	0.1	0.092	92.%	6.3%
Ethylbenzene-ing/kg	0204304-02	i 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-Xylcne-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 s	OIL LAB-ID #	Sampie Concentr.	Spike Concentr.	QC Test Result	Pet (%) 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		U.1	0.094	94.%	
Toluene-mg/kg	0002968-05		: 0.1	0.114	1 114.%	

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QUALITY CONTROL REPORT

SRM	SOIL	LAB-1D #	Sample Concentr,	Spike Concentr.	QC Test Result	Pct (%) Recovery	RPD
Toluene-mg/L		0002969-05	· · · · · · · · · · · · · · · · · · ·	0.1	0.095	95.%	
p/m-Xylenc-mg/kg		0002968-05		0.2	0.229	114.5%	
p/m-Xylene-mg/L		0002969-05		0.2	0.196	98.%	
v-Xyleuc-mg/kg	······································	U002968-05		0.1	0.114	114.%	
o-Xylene-mg/L		0002969-05		0.1	0.094	94.%	

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Order#: G0204304

BLANK	WATER	LAB-ID #	Sample Concentr.
Chloride-mg/L	• ••• ••••	0002961-01	
Chloride-mg/kg		0002962-01	
MS	WATER	LAB-1D #	Sampie Coucentr.
Chloride-mg/L		0204280-01	230
Chloride-mg/kg		0204282-05	0
MSD	WATER	LAB-ID #	Sample Concentr.
Chloride-mg/L		0204280-01	230
Chloride-mg/kg		0204282-05	1050
SRM	WATER	LAB-ID#	Sample Conceatr.
Chlorids-mg/1_		0002961-04	
Chloride-mg/kg	····	1 0002962-04	

Spike Concentr.	QC Test Result	Pct (%) Recovery	RPD
	<5.00	i	<u></u>
	<20.0		
Spike Concentr.	QC Test Result	Pet (%) Recovery	RPD
500 .	727	99.4%	
1031	1050	101.8%	
Spike Concentr.	QC Test Result	Pct (%) Recovery	RPD
500	718	97.6%	1.2%
1031	1030	99.9%	1.9%
Spike Concentr.	QC Test Result	Pct (%) Recovery	RPD
5000	4960	99.2%	
5000	4960	99.2%	

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TABLE 2

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GROUND WATER CHEMISTRY

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

SAMPLE LOCATION	SAMPLE	METHO	DS: EPA	SW 846-802	1B, 5030	METHOD:
	DATE	BENZENE	TOLUENE	ETHYL-	TOTAL	SW 846-9253
				BENZENE	XYLENES	CHLORIDE
		(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/L)
SB - 3	08/21/02	0.064	0.002	0.014	0.023	12200

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TABLE 1

SOIL CHEMISTRY

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

		67 0 00	SR 3 _ 20'		SB 3 - 25'								SAMPLE DOATIO
-		08/21/02		08/21/02									
	10.020					(ma/ka)							
	\0.020 m	20025	0.020	260 02	(Bullin)	(mn/km)						HOO: EPA SV	
				10 0.25	I (Gw/Burl		BENZENE					V 846_8021R	
10.020	AD 035				(mg/kg)	•	XYLENES			70721		2020	
11./	1 4 4 4	- 0.0		(e. e.	(ma/ka)			(GRO				
38.4	22	12.2	1 0 0	(Euristica)	(mm/km)				כפכ		1: 8015M		
1080		Daci	500	(Bu /Bun)	(man firm)						METHOD: 9253		

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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 Amerada Hess NMGSAU Battery No. 63



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 5foot 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-jointthreaded, 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.

Amerada Hess NMGSAU Battery No. 63



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 nondetect 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 and measurement times are located in Appendix I of this report.

Amerada Hess NMGSAU Battery No. 63



or Well Installation, Sampling Event, and Monitor Well Recharge Test

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 1 hour 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.

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Monitoring Well	Date	Time	Top of Casing Elevation	Depth to Groundwater	Groundwater Elevation (Normalized)	Total Depth	Total Depth Elevation (Normalized)	Hd	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
										1
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	RO	72

OR = Out of Range of Instrument

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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	QN	QN	4 gallons
MW-2	6/19/2003	2:50 PM	3573.27	40.55	3532.72	51.23	3522.04	QN	Q	5.2 gailons
MW-3	6/19/2003	3:45 PM	3572.78	39.84	3532.94	48.80	3523.98	QN	QN	4.5 gallons

ND = Non-Detect

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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	AA
MW-2	6/25/2003	9:38 AM	3573.27	Dry	AN
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

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

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

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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.





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		020
		930
True Value QC		1000
% Recovery		93.0
Relative Percent Dif	ference	1.1
		· · · · · · · · · · · · · · · · · · ·
METHOD: Standard M	lethods	4500-CI ⁻ B

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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

			ETHYL	TOTAL
	BENZENE	TOLUENE	BENZENE	XYLENES
LAB NO. SAMPLE ID	(mg/L)	(mg/L)	(mg/L)	(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

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6/23 Date

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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

		GRO	DRO	
		(C ₆ -C ₁₀)	(>C ₁₀ -C ₂₈)	Cl*
LAB NUMBE	ER SAMPLE ID	(mg/Kg)	(mg/Kg)	(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 Cont	trol	711	799	1040
True Value	QC	800	800	1000
% Recovery	·	88.9	99.8	104
Relative Per	rcent Difference	2.2	0.6	4.0

METHODS: TPH GRO & DRO: EPA SW-846 8015 M; CI⁻: Std. Methods 4500-CI⁻B *Analyses performed on 1:4 w:v aqueous extracts. **Significant amounts of hydrocarbons >C₂₈ also detected.

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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

				ETHYL	TOTAL
		BENZENE	TOLUENE	BENZENE	XYLENES
LAB NUMBER	SAMPLE ID	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)
ANALYSIS DA	TE	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 Perce	nt Difference	<0.1	4.7	1.8	<0.1

METHOD: EPA SW-846 8260

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6/16/07

Date

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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.





(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.



3570.43 NAT. GRND. 3570.65 CONC SLAB 3573.27 TOP 2" PVC

3569.96 NAT. GRND. 3570.16 CONC SLAB 3572.78 TOP 2" PVC

Y=588328.4 X=861553.4

Y=588387.9 X=861618.1

MW-2

MW - 3
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.





NMGSAU Battery #63 Project Name:___ Borehold Number: MW-1 Drilled by: White Drilling Co.

Air Monitoring Type:

Project	No.:
---------	------

Steven Bond Logged by:____ Drilling/Rig Method(s): <u>Air Rotary</u> Date/Time Completed: 6/11/03 08:50

GWL Depth:_____

 Image: Constraint of the second of the second	Depth (feet)	Sample Number	Sample Interval	Sample Type	Sample Description	PID Readings (ppm)	USCS Symbol	Comments	Monitor Well Construction Detail
0 0802 5' - 7' Shelby ube Pale brown to p soil poorly cemented with CaCop 0.5 SW/M Recovered 0.5' 0 0804 10' - 12' Shelby ube Pale brown, fine grain sily snad poorly cemented w/ CaCop 0.2 SW/M Recovered 0.5' 0 0816 15' - 17' Cuttings Pale brown, fine to medium grain, well cemented, poorly sorted sand 0.4 SW Very hard 0 0820 20' - 22' Cuttings Pale brown, fine to medium grain, well cemented, poorly sorted sand 0.2 SW Very hard 0 0820 20' - 22' Cuttings Pale brown, fine to medium grain, well cemented, poorly sorted sand 0.2 SW 0 0820 20' - 22' Cuttings Pale brown, fine to medium grain, well cemented, poorly sorted sand 0.7 SW 0 0836 30' - 32' Cuttings Pale brown, fine grain, well semented, mod. well sorted sand 0.5 SP 0 0839 35' - 36' Cuttings Pale brown, fine grain, well semented, mod. well sorted sand, sl. moist 1.0 SP Saturated at approx. 40' bgl									
 5 0802 5'-7 0802 5'-7 0804 10'-12' 0804 10'-12' 0804 10'-12' 0816 15'-17' 0817 0820 01'-22' 01'-22'	0 -				0' - 3' dark brown top soil				Locking Top
5 0802 5' -7' Shelby tube Pale brown to buff silty fine sand, poorly cemented with CaCos 0.5 SW/M Image: Single state st	-								Upright Vault
- 0802 5' -7' Shelby ube Pale brown to buff sity fine sand poorly cemented with CaCoy 0.5 SW/M Recovered 0.5'	- 5								32.76" Ground Surface
$\begin{array}{c c c c c c c c c c c c c c c c c c c $		0802	5' -7'	Shelby	Pale brown to buff silty fine sand,	0.5	SW/M		∩' Non-Shrink Grout
-10080410' - 12'Shelby tubePale brown, fine grain silty sand poorly cemented w/ CaCo30.2SW/MRecovered 0.5'*********************************	-			tube	poorly cemented with CaCo ₃				
-10 -10 -12 Shelby tube Pale brown, fine grain silty sand poorly cemented w/ CaCo3 0.2 SW/M Recovered 0.5' -15 -15 -15 -17 Cuttings Pale brown, fine to medium grain, well cemented, poorly sorted sand well cemented, poorly sorted sand 0.4 SW Very hard -20 -20 -22 Cuttings Pale brown, fine to medium grain, well cemented, poorly sorted sand 0.2 SW Very hard -20 -20 -22' Cuttings Pale brown, fine to medium grain, well cemented, poorly sorted sand 0.2 SW Very hard -23 0820 20' - 22' Cuttings Pale brown, fine to medium grain, well cemented, poorly sorted sand 0.7 SW SW -30 -31 -32' - 26 Cuttings Pale brown, fine grain, well cemented, mod. well sorted sand 0.5 SP -33 -33 -33' - 36' Cuttings Pale brown, fine grain, mod. well sorted sand, sl. moist 1.0 SP Saturated at approx. 40' bgl -35 0839 35' - 36' Cuttings Pale brown, fine grain, mod. well sorted sand, sl. moist 1.0 SP Saturated at approx. 40' bgl <td>-</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>2" Flush-joint-</td>	-								2" Flush-joint-
- 0804 10' - 12' Shelby tube Pale brown, fine grain sily sand poorly cemented w/ CaCo ₃ 0.2 SW/M Recovered 0.5' Image 15 15 0816 15' - 17' Cuttings Pale brown, fine to medium grain, well cemented, poorly sorted sand 0.4 SW Very hard Image 20 -20 -20	- 10								Schedule 40 PVC
-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 Very hard -20 0820 20' - 22' Cuttings Pale brown, fine to medium grain, well cemented, poorly sorted sand 0.2 SW SW -25 0821 25' - 26 Cuttings Pale brown, fine to medium grain, well cemented, poorly sorted sand 0.7 SW -30 -30 -30 -30' 20' - 32' Cuttings Pale brown, fine grain, well cemented, mod. well sorted sand 0.5 SP -30 -30 -30' -31' Cuttings Pale brown, fine grain, well cemented, mod. well sorted sand 0.5 SP -30 -30' -31' Cuttings Pale brown, fine grain, well cemented, mod. well sorted sand 1.0 SP Saturated at approx. 40' bgl -31' -32' Cuttings Pale brown, fine grain, mod. well sorted sand, sl. moist 1.0 SP Saturated at approx. 40' bgl	-	0804	10' – 12'	Shelby	Pale brown, fine grain silty sand	0.2	SW/M	Recovered 0.5'	screening
-15 - 15081615' - 17'CuttingsPale brown, fine to medium grain, well cemented, poorly sorted sand0.4SWVery hard-20 - 20082020' - 22'CuttingsPale brown, fine to medium grain, well cemented, poorly sorted sand0.2SWSWVery hard-20 - 20082020' - 22'CuttingsPale brown, fine to medium grain, well cemented, poorly sorted sand0.2SWSWVery hard-25 - 30 - 30083630' - 32'CuttingsPale brown, fine grain, well cemented, mod. well sorted sand0.7SW-30 - 30 - 30083630' - 32'CuttingsPale brown, fine grain, well cemented, mod. well sorted sand0.5SP-31 - 32 - 33083935' - 36'CuttingsPale brown, fine grain, mod. well cemented, sorted sand1.0SPSaturated at approx. 40' bgl	-			tube	poorly cemented w/ CaCo ₃				
-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 Very hard -25 0821 25' - 26 Cuttings Pale brown, fine to medium grain, well cemented, poorly sorted sand 0.7 SW SW SW -25 0821 25' - 26 Cuttings Pale brown, fine to medium grain, well cemented, poorly sorted sand 0.7 SW SW SW -30 0836 30' - 32' Cuttings Pale brown, fine grain, well cemented, mod. well sorted sand 0.5 SP Saturated at approx. 40' bgl -35 0839 35' - 36' Cuttings Pale brown, fine grain, mod. well sorted sand, sl. moist 1.0 SP Saturated at approx. 40' bgl	-								
- 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 Very hard 25 0821 25' - 26 Cuttings Pale brown, fine to medium grain, well cemented, poorly sorted sand 0.7 SW SW SW 25 0821 25' - 26 Cuttings Pale brown, fine to medium grain, well cemented, poorly sorted sand 0.7 SW SW SW 25 0821 25' - 26 Cuttings Pale brown, fine grain, well cemented, poorly sorted sand 0.7 SW SW SW 30 0836 30' - 32' Cuttings Pale brown, fine grain, well cemented, mod. well sorted sand, sl. moist 0.5 SP Saturated at approx. 40' bgl 35 0839 35' - 36' Cuttings Pale brown, fine grain, mod. well sorted sand, sl. moist 1.0 SP Saturated at approx. 40' bgl	- 15								
 -20 -20 -20 -21 -22 -23 -25 -25 -26 -21 -25 -26 -21 -26 -26	_	0816	15' - 17'	Cuttings	Pale brown, fine to medium grain,	0.4	sw	Very hard	
 -20 -20 -20 -20 -21 -22 -23 -23 -25 -26 -26	-			U	well cemented, poorly sorted sand				
-20 -20 -20 -22 0820 20'-22' Cuttings Pale brown, fine to medium grain, well cemented, poorly sorted sand -25 -25 -25 -25 0821 25'-26 Cuttings Pale brown, fine to medium grain, well cemented, poorly sorted sand -30 -30 -30 -30 -30 -30 -30 -30	-								26'3/8" Bentonite Well Seal Chips
- 0820 20' - 22' Cuttings Pale brown, fine to medium grain, well cemented, poorly sorted sand 0.2 SW SW SW 25 0821 25' - 26 Cuttings Pale brown, fine to medium grain, well cemented, poorly sorted sand 0.7 SW SW 25 0821 25' - 26 Cuttings Pale brown, fine to medium grain, well cemented, poorly sorted sand 0.7 SW SW 30 30	- 20								28, 22
 -25 0821 25' - 26 Cuttings Pale brown, fine to medium grain, well cemented, poorly sorted sand well cemented, poorly sorted sand -25 0836 30' - 32' Cuttings Pale brown, fine grain, well cemented, mod. well sorted sand -30 0836 30' - 32' Cuttings Pale brown, fine grain, mod. -35 0839 35' - 36' Cuttings Pale brown, fine grain, mod. well sorted sand, sl. moist -35 0839 35' - 36' Cuttings Pale brown, fine grain, mod. -35 0839 35' - 36' Cuttings Pale brown, fine grain, mod. well sorted sand, sl. moist -35 0839 35' - 36' Cuttings Pale brown, fine grain, mod. 	-	0820	20' – 22'	Cuttings	Pale brown, fine to medium grain,	0.2	sw		30'
25 0821 25' - 26 Cuttings Pale brown, fine to medium grain, well cemented, poorly sorted sand 0.7 SW 30 30	-				well cemented, poorly sorted sand		-		
25 0821 25'-26 Cuttings Pale brown, fine to medium grain, well cemented, poorly sorted sand 303030303030303	-								
-25 0821 25'-26 Cuttings Induced and an event and grain, well cemented, poorly sorted sand - -30 -30 -30 -30 -30 -30 -30 -30 -30 -30	-				Pale brown, fine to medium grain.				
-30 -30 -30 -32' Cuttings Pale brown, fine grain, well cemented, mod. well sorted sand -35 -35' 0839 -35' -36' Cuttings Pale brown, fine grain, mod. well cemented, mod. well sorted sand, sl. moist -35' 1.0 SP Saturated at approx. 40' bgl	25	0821	25' - 26	Cuttings	well cemented, poorly sorted sand	0.7	sw		
- 30 - 30' - 32' Cuttings Pale brown, fine grain, well cemented, mod. well sorted sand - 35 0839 35' - 36' Cuttings Cuttings Pale brown, fine grain, mod. well - 35 0839 35' - 36' Cuttings Pale brown, fine grain, mod. well - 35 0839 35' - 36' Cuttings Pale brown, fine grain, mod. well - 45' - 40' bgl - 45' - 40' bgl									
- 0836 30' - 32' Cuttings Pale brown, fine grain, well cemented, mod. well sorted sand 	-								45' End Cap
- 0836 30' - 32' Cuttings Pale brown, fine grain, well cemented, mod. well sorted sand 									
- 0836 30° - 32° Cuttings cemented, mod. well sorted sand 	Ĩ				Pale brown, fine grain, well				
35 0839 35' -36' Cuttings Cuttings Cuttings SI. moist Solution and SP Saturated at approx. 40' bgl	-	0836	30' - 32'	Cuttings	cemented, mod well sorted sand	0.5	SP		
35 0839 35'-36' Cuttings Pale brown, fine grain, mod. well 35 0839 35'-36' Cuttings Pale brown, fine grain, mod. well 					mod. won bortod build				
35 0839 35'-36' Cuttings Pale brown, fine grain, mod. well 35 0839 35'-36' Cuttings Cuttings Selected, mod. well sorted sand, 	-	1							
35 0839 35'-36' Cuttings cemented, mod. well sorted sand, sl. moist approx. 40' bgl					Pale brown, fine grain, mod. well			Saturated at	
	35	0839	35'-36'	Cuttings	cemented, mod. well sorted sand, sl. moist	1.0	SP	approx. 40' bgl	
	-								
	1.								
	<u> </u>								

Technician Signature: _____



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	
- 45 -	0899	44' – 45'	Cuttings	Dark red/ brown clayey silt	0.9	CL/ML	TD – 45'
- - 50 -							
- - 55 -							
- - 60 -							
- - - 65							
- - - 70							
- - - 75							
-							

Comments: _____

Technician Signature: _





Project Name:	NMGSAU Battery #63
Borehold Number <u>:</u>	MW-2
Drilled by:	White Drilling Co.
Date/Time Started:	6/11/03 09:15
Air Monitoring Type	<u></u>

Project	No.:
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Logged by: Steven Bond

Drilling/Rig Method(s): <u>Air Rotary</u>

Date/Time Completed: 6/11/03 10:05

GWL Depth:_____

Depth (feet)	Sample Number	Sample Interval	Sample Type	Sample Description	PID Readings (nom)	USCS Symbol	Comments	Monitor Well Construction Detail
0 - -				0' – 2' dark brown top soil 2' – 5' buff, indurated caliche				Lasking Top Cap
5 - -	0920	5' -7'	Shelby tube	Pale brown to pink, very fine gr., poorly cemented, silty sand	5.6	SP		34.08" Upright Vault Ground Surface O' Non-Shrink Grout
- 10 -	0925	10' – 11'	Shelby tube	Pale brown , fine grain, well sorted, mod. well cemented sand	3.2	SP		2" Fluch-joint- threaded. Schedule 40 PV-G easing and servening
- 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		29' 31' 33'
- 25 - -	0941	25' – 27	Cuttings	Pale brown, fine to medium grain, well cemented, poorly sorted sand	5.1	SW		8/16 Sand
- - 30								48' Ind Cap
-	0948	30' - 32'	Cuttings	Pale brown, fine to medium grain, well cemented, poorly sorted sand	6.7	sw	Odor at 32.5' of	
-	0950	32' - 35'	Cuttings	Pale brown, fine to medium grain, well cemented, poorly sorted sand	77. 1	SW	hydrocarbon	
35	0952	35' -37'	Cuttings	Pale brown, fine to medium grain, well cemented, poorly sorted sand	52. 4	sw		

Comments:





Project No.:____

Logged by: Steven Bond
Drilling/Rig Method(s): Air Rotary

Date/Time Completed: <u>6/11/03 10:05</u> GWL Depth:_____

Depth (feet)	Sample Number	Sample Interval	Sample Type	Sample Description	PID Readings (ppm)	USCS Symbol	Comments
40 - -	0955	40' - 42'	Cuttings	Brown-red, fine grain sand with Minor gravel at base	9.3	sw	Moisture at approx. 40' – saturated
- - 45 -	1005	44' – 45'	Cuttings	Dark red-brown silt with clay and very fine sand	7.7	CL	TD – 48'
- - 50 -							
- - 55 -							
- - 60 -							
- - 65 - -	1						
- - 70 -							
- 75 -							

Comments: ____

Technician Signature: ____





Project Name: NMGSAU Battery #63

Borehold Number: MW-3

 Drilled by:
 White Drilling Co.

 Date/Time Started:
 6/11/03
 12:05

Air Monitoring Type:

Project No.:

Logged by: Steven Bond

Drilling/Rig Method(s): Air Rotary

Date/Time Completed: 6/11/03 13:05

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	Locking Top Cap
5 - -	1212	5'-7'	Shelby tube	Buff, fine grain, well sorted, poorly cemented sand, hydrocarbon stain at top	2.2	SP		32.76" Ground Surface
- - 10 -	1220	10'-10.5'	Shelby tube	Very pale brown to yellow , fine grain, well sorted, poorly cemented sand	2.7	SP		2" Flush-joint- fhreaded, Schodalche PVC casing and screening
- 15 - -	1224	15'-16'	Shelby tube	Very pale brown to yellow , fine grain, well sorted, poorly cemented sand	1.3	SP		26' 7 . Ut ^{er} Remonitor
- 20 - -	1228	20'-22'	Cuttings	Very pale brown to buff, fine grain, mod. well sorted to poorly sorted, well cemented sand	4.1	SW		28' Well Scal Chips
- 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	43 End Cap
30 - -	1240	30'-32'	Cuttings	Pale green/gray, fine grain, poorly sorted, cemented sand, Dark gray at base	5.7	sw		
	1248	35'-37'	Cuttings	Light gray, fine to medium grain, Well cemented, cemented sand	13.0	SP	Moist at 38' -39' saturated at 40'	
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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 - -	1255	40' - 42'	Cuttings	Red/Brown, very fine to medium grain poorly sorted sand, silt and clay at base	6.4	sw	Moisture at approx. 40' – saturated
- - 45 -	1302	44' – 45'	Cuttings	Red brown clayey silt	5.9	CL/ML	TD – 45'
- - 50 -							
- 55 - -		x					
- 60 -							
- 65 -							
70 - -							
- 75 - -							

Comments: ____

Technician Signature: ____

File Number:

NEW MEXICO OFFICE OF THE STATE ENGINEER WELL RECORD

1. OWNER OF V	VELL	
Name:	Amerada Hess	Work Phone:
Contact:		Home Phone:
Address:	P.O. Drawer D	
City:	Monument	
2. LOCATION C	DF WELL (A, B, C, or D required, E or F if known)	
A. <u>SW</u> 1/ in	41/41/4 Section: <u>31</u> Townsh:	ip: <u>195</u> Range: <u>37E</u> N.M.P.M. County.
B. $X = $	feet, Y = 1	feet, N.M. Coordinate System Grant.
C. Latitu	de: <u>32</u> d <u>36</u> m <u>40.8</u> s Longitude	e: <u>103 d 17 m 26.0</u> s
D. East _	(m), North (m), UTh	M Zone 13, NAD (27 or 83)
E. Tract	No, Map No of the	Hydrographic Survey
F. Lot No	D, Block No of Unit/Tract Subdivision recorded in	of the County.
G. Other:	NMGSAU Battery #63 Site	
H. Give S	state Engineer File Number if existing we	ell:
I. On lar	d owned by (required):Amerada Hess	
3. DRILLING C	ONTRACTOR	
License	Number: WD-1456	
	Name: White Drilling Co., Inc	Work Phone: (325) 893-2950
	Agent: John W. White	Home Phone: (325) 893-2950
Mailing A	ddress: P.O. Box 906	
	City: Clyde	
4. DRILLING R	ECORD MW-1	
Drilling Size of r Completed Depth to	began: <u>6/11/03</u> ; Completed: <u>6/11/03</u> nole: <u>5.0</u> in.; Total depth of well: <u>45</u> well is: <u>shallow</u> (shallow, ar water upon completion of well: <u>37.5</u>	_; Type tools:; 5.0 ft.; tesian); ft.

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5. PRINCIPAL WATER-BEARING STRATA

Depth From	in Feet To	Thickness in feet	Description of water-bearing formation	Estimated Yield (GPM)
				······································
<u> </u>	<u> </u>			

6. RECORD OF CASING

Diameter	Pounds	Threads	Depth :	in Feet	Length	Туре	of Shoe	Perfo	rations
(inches)	per ft.	per in.	Тор	Bottom	(feet)			From	То
2.0	PVC Sch	40	0.0	30.0	30.0	_pvc	<u>riser</u>		
2.0	PVC Sch	40	30.0	45.0	15.0	pyc	screen	30.0	45.0
<u> </u>	<u> </u>	<u></u>			···				
<u> </u>						·			

7. RECORD OF MUDDING AND CEMENTING

Depth in Feet	Hole	Sacks	Cubic Feet	Method of Placement
From To	Diameter	of mud	of Cement	
45.0 28.0	5.0	8/16 sa:	nd	<u>4 sx - pour</u>
28.0 26.0	5.0	Bent. P	ellets	<u>1 sx - pour</u>
26.0 0.0	5.0	Cement		<u>5.5sx - hand mix</u>

- --8. PLUGGING RECORD

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

Plugging approved by: ________State Engineer Representative

	No.	Depth	in	Feet	Cubic	Feetof	Cement
	Т	p	Bo	ottom			
1							
2							
3					<u></u>		
4							
5							

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9. LOG OF HOLE

Depth i	n Feet	Thickness	Color and Type of Material Encountered
From	То	in feet	
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.
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NEW MEXICO OFFICE OF THE STATE ENGINEER WELL RECORD

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10. ADDITIONAL STATEMENTS OR EXPLANATIONS:

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<u> </u>	
The undersigned l	hereby certifies that, to the best of his knowledge and
The undersigned h belief, the fore hole.	hereby certifies that, to the best of his knowledge and going is a true and correct record of the above described
The undersigned h belief, the fore hole.	hereby certifies that, to the best of his knowledge and going is a true and correct record of the above described
The undersigned h belief, the fore hole.	hereby certifies that, to the best of his knowledge and coing is a true and correct record of the above described
The undersigned h belief, the fore hole.	hereby certifies that, to the best of his knowledge and poing is a true and correct record of the above described 6/20/03
The undersigned h belief, the fore hole.	hereby certifies that, to the best of his knowledge and going is a true and correct record of the above described $\frac{6/20/03}{(n-1)^{1/2}}$
The undersigned h belief, the fore hole.	hereby certifies that, to the best of his knowledge and toing is a true and correct record of the above described $\frac{6/20/03}{(mm/dd/year)}$
The undersigned l belief, the fore hole.	hereby certifies that, to the best of his knowledge and poing is a true and correct record of the above described $\frac{6/20/03}{(mm/dd/year)}$
The undersigned h belief, the fore hole.	hereby certifies that, to the best of his knowledge and going is a true and correct record of the above described $\frac{6/20/03}{(mm/dd/year)}$
The undersigned helief, the fore hole.	hereby certifies that, to the best of his knowledge and toing is a true and correct record of the above described $\frac{6/20/03}{(mm/dd/year)}$
The undersigned h belief, the fore hole.	hereby certifies that, to the best of his knowledge and poing is a true and correct record of the above described $\frac{6/20/03}{(mm/dd/year)}$
The undersigned h belief, the fore hole.	hereby certifies that, to the best of his knowledge and going is a true and correct record of the above described $\frac{6/20/03}{(mm/dd/year)}$
The undersigned helief, the fore hole.	hereby certifies that, to the best of his knowledge and toing is a true and correct record of the above described $\frac{6/20/03}{(mm/dd/year)}$
The undersigned h belief, the fore hole.	hereby certifies that, to the best of his knowledge and poing is a true and correct record of the above described $\frac{6/20/03}{(mm/dd/year)}$
The undersigned h belief, the fore hole.	hereby certifies that, to the best of his knowledge and going is a true and correct record of the above described $\frac{6/20/03}{(mm/dd/year)}$
The undersigned helief, the fore hole.	hereby certifies that, to the best of his knowledge and poing is a true and correct record of the above described $\frac{6/20/03}{(mm/dd/year)}$
The undersigned h belief, the fore hole.	hereby certifies that, to the best of his knowledge and poing is a true and correct record of the above described $\frac{6/20/03}{(mm/dd/year)}$
The undersigned h belief, the fore hole.	hereby certifies that, to the best of his knowledge and boing is a true and correct record of the above described $\frac{6/20/03}{(mm/dd/year)}$
The undersigned h belief, the fore hole.	hereby certifies that, to the best of his knowledge and poing is a true and correct record of the above described $\frac{6/20/03}{(mm/dd/year)}$
The undersigned h belief, the fore hole.	hereby certifies that, to the best of his knowledge and poing is a true and correct record of the above described $\frac{6/20/03}{(mm/dd/year)}$ FOR STATE ENGINEER USE ONLY
The undersigned h belief, the fore hole.	hereby certifies that, to the best of his knowledge and oing is a true and correct record of the above described Driller <u>6/20/03</u> (mm/dd/year) FOR STATE ENGINEER USE ONLY
The undersigned h belief, the fore hole.	FOR STATE ENGINEER USE ONLY
The undersigned h belief, the fore hole.	hereby certifies that, to the best of his knowledge and poing is a true and correct record of the above described $\frac{6/20/03}{(mm/dd/year)}$ FOR STATE ENGINEER USE ONLY
The undersigned h belief, the fore hole.	hereby certifies that, to the best of his knowledge and poing is a true and correct record of the above described $\frac{6/20/03}{(mm/dd/year)}$ FOR STATE ENGINEER USE ONLY
The undersigned h belief, the fore hole.	hereby certifies that, to the best of his knowledge and poing is a true and correct record of the above described Driller <u>6/20/03</u> (mm/dd/year) FOR STATE ENGINEER USE ONLY _; FSL; Use; Location No
The undersigned h belief, the fore hole.	hereby certifies that, to the best of his knowledge and poing is a true and correct record of the above described
The undersigned h belief, the fore hole.	hereby certifies that, to the best of his knowledge and poing is a true and correct record of the above described
The undersigned h belief, the fore hole.	hereby certifies that, to the best of his knowledge and correct record of the above described big is a true and correct record of the above described <
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The undersigned h belief, the fore hole.	hereby certifies that, to the best of his knowledge and oing is a true and correct record of the above described
The undersigned h belief, the fore hole.	<pre>pereby certifies that, to the best of his knowledge and coing is a true and correct record of the above described Driller</pre>
The undersigned h belief, the fore hole.	<pre>pereby certifies that, to the best of his knowledge and oing is a true and correct record of the above described Driller</pre>
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The undersigned h belief, the fore hole.	<pre>pereby certifies that, to the best of his knowledge and oing is a true and correct record of the above described Driller</pre>
The undersigned h belief, the fore hole. Quad; FWL File Number:	<pre>pereby certifies that, to the best of his knowledge and poing is a true and correct record of the above described Driller</pre>
The undersigned h belief, the fore hole. Quad; FWL File Number:20	<pre>pereby certifies that, to the best of his knowledge and poing is a true and correct record of the above described Driller <u>6/20/03</u> (mm/dd/year) FOR STATE ENGINEER USE ONLY _; FSL; Use; Location No Trn Number:</pre>

File Number: _____

NEW MEXICO OFFICE OF THE STATE ENGINEER WELL RECORD

1. OWNER OF V	WELL	
Name:	Amerada Hess	Work Phone:
Contact:		Home Phone:
Address:	P.O. Drawer D	
City:	Monument	State:NM_ Zip:88265-0052
2. LOCATION C	DF WELL (A, B, C, or D required, E or F if known	n)
A. <u>SW</u> 1/ in	41/41/4 Section: <u>31</u> To	wnship: <u>19S</u> Range: <u>37E</u> N.M.P.M. County.
B. X = U.S.G.	feet, Y = Zone in the S. Quad Map	feet, N.M. Coordinate System Grant.
C. Latitu	nde: <u>32</u> d <u>36</u> m <u>40.8</u> s Long.	itude: <u>103</u> d <u>17</u> m <u>26.0</u> 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 	D, Block No of Unit/Tra Subdivision recorded	of the of the of the County.
G. Other:	NMGSAU Battery #63 Site	
H. Give S	state Engineer File Number if existing	ng well:
I. On lan	nd owned by (required):Amerada He	255
3. DRILLING C	ONTRACTOR	
License	Number: WD-1456	
	Name: White Drilling Co., Inc	Work Phone: (325) 893-2950
	Agent: John W. White	Home Phone: (325) 893-2950
Mailing A	Address: P.O. Box 906	
	City: Clyde	State: <u>TX</u> Zip: <u>79510</u>
4. DRILLING R	ECORD MW-2	
		(
Drilling Size of h Completed Depth to	began: <u>6/11/03</u> ; Completed: <u>6/11/</u> hole: <u>5.0</u> in.; Total depth of well well is: <u>shallow</u> (shallow water upon completion of well: <u>3</u>	<pre>/03 ; Type tools:; : <u>47.0</u> ft.; , artesian); 9.0 ft.</pre>

File Number: Form: wr-20

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Trn Number: _____ page l of 4

File Number: _____

NEW MEXICO OFFICE OF THE STATE ENGINEER WELL RECORD

MW-2

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5. PRINCIPAL WATER-BEARING STRATA

Depth From	in Feet To	Thickness in feet	Description of water-bearing formation	Estimated Yield (GPM)
		<u></u>		
				•

6. RECORD OF CASING

Diameter (inches) 2.0	Pounds per ft. PVC Sch	Threads per in. 40	Depth Top 0.0	in Feet Bottom 32.0	Length (feet) 32.0	Type of Shoe pvc riser	Perfor From	ations To
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	Hole	Sacks	Cubic Feet	Method of Placement
From	То	Diameter	of mud	of Cement	
47.0	31.0	5.0	8/16 sam	nđ	6 sx - pour
31.0	30.0	5.0	Bent. p	ellets	<u>1 sx - pour</u>
30.0	0.0	5.0	Cement		6.5 sx - hand mix

8. PLUGGING RECORD

Plugging Contractor:	
Plugging Method:	
Date Well Plugged:	
Plugging approved by:	
	State Engineer Representative

	No. Depth	in Feet	Cubic Feetof Cement
	Тор	Bottom	
1		<u></u>	
2			
3			
4		<u> </u>	
5	<u></u>		

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NEW MEXICO OFFICE OF THE STATE ENGINEER WELL RECORD

MW-2

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9. LOG OF HOLE

Depth	in Feet	Thickness	Color and Type of Material Encountered
From	То	in feet	
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,
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File Number:

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NEW MEXICO OFFICE OF THE STATE ENGINEER WELL RECORD

MW-2

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10. ADDITIONAL STATEMENTS OR EXPLANATIONS:

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belief, the foregoing is a true and correct record of the above described hole. Driller $\frac{6/20/03}{(mm/dd/year)}$
FOR STATE ENGINEER USE ONLY Quad; FWL; FSL; Use; Location No
File Number: Trn Number: Form: wr-20 page 4 of 4

File Number: ____ _____

NEW MEXICO OFFICE OF THE STATE ENGINEER WELL RECORD

1. OWNER OF W	VELL	
Name:	Amerada Hess	Work Phone:
Contact:		Home Phone:
Address:	P.O. Drawer D	
City:	Monument	State:NM_ Zip:88265-0052
2. LOCATION C)F WELL (A, B, C, or D required, E or F if k	nown)
A. <u>SW</u> 1/ in	41/41/4 Section:31	Township: <u>195</u> Range: <u>37E</u> N.M.P.M. County.
B. X =	feet, Y = Zone in the	feet, N.M. Coordinate System Grant.
U.S.G.	S. Quad Map	
C. Latitu	de: <u>32</u> d <u>36</u> m <u>40.8</u> s L	ongitude: <u>103</u> d <u>17</u> m <u>26.0</u> 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 ded in County.
G. Other:	NMGSAU Battery #63 Site	
H. Give S	tate Engineer File Number if exi	sting well:
I. On lan	d owned by (required):Amerada	Hess
3. DRILLING C	ONTRACTOR	
License	Number: WD-1456	
Mailing A	Name: White Drilling Co., 1 Agent: John W. White Address: P.O. Box 906	Inc Work Phone: (325) 893-2950 Home Phone: (325) 893-2950
	City: Clyde	State: <u>T</u> X Zip: <u>79510</u>
4. DRILLING R	ECORD MW-3	
Drilling Size of h Completed Depth to	began: <u>6/11/03</u> ; Completed: <u>6/</u> ole: <u>5.0</u> in.; Total depth of w well is: <u>shallow</u> (shal water upon completion of well: _	<pre>(11/03 ; Type tools:; ell: 45.0 ft.; low, artesian); 39.0 ft.</pre>

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NEW MEXICO OFFICE OF THE STATE ENGINEER WELL RECORD

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5. PRINCIPAL WATER-BEARING STRATA

Depth From	in Feet 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 : Top	in Feet Bottom	Length (feet)	Type of Shoe	Perforations From To
2.0	PVC Sch PVC Sch	<u>40</u> 40	0.0	<u> 30.0</u> <u> 45.0</u>	<u>30.0</u> 15.0	pvc riser	30.0 45.0
					·····		

7. RECORD OF MUDDING AND CEMENTING

Deben in icer word prove erere up in interest in interest in iterations	
From To Diameter of mud of Cement	
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 <u>5.5 sx - hand mix</u>	

_ ____

_ ___

8. PLUGGING RECORD

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

Plugging approved by: _

State Engineer Representative

	No. Depth	in Feet	Cubic Feetof Cement
	Тор	Bottom	
1			
2			
3			
4	<u> </u>		······································
5	·	s	······

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NEW MEXICO OFFICE OF THE STATE ENGINEER WELL RECORD

MW-3

9. LOG OF HOLE

Depth is From 0.0 2.0 4.5 28.0 38.0 42.0	n Feet To 2.0 4.5 28.0 38.0 42.0 45.0	Thickness in feet 2.0 2.5 23.5 10.0 4.0 3.0	Color and Type of Material Encountered Brown sand. Caliche Pale brown fine grain sand. Gray green sand. Dark reddish brown sand. Red silty clay.
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NEW MEXICO OFFICE OF THE STATE ENGINEER WELL RECORD

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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. Driller <u>6/20/03</u> (mm/dd/year)
FOR STATE ENGINEER USE ONLY
Quad; FWL; FSL; Use; Location No
File Number: Trn Number: Form: wr-20 page 4 of 4

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.

Sincerelv.

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

ids for Ken Dutton

Project Manager

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FIGURE 1:Site Location MapFIGURE 2:Site Map

Appendices

APPENDIX A:	Soil Boring Logs
APPENDIX B:	Laboratory Reports
APPENDIX C:	New Mexico Office of the State Engineer Water Well Database
	Report and Record of Communication

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 846-9253. 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-ofcustody 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	SAMPLE	ME	THOD: EPA S	N 846-8021B,	5030	METHOD	D: 8015M	METHOD: 9253
LOCATION	DATE	BENZENE	TOLUENE	ETHYL-	TOTAL	GRO	DRO	CHLORIDES
				BENZENE	XYLENES			
		(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(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
		L						
	l	1	<u> </u>		l			l

TABLE 1

GENERAL SOIL CHEMISTRY

.

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

SAMPLE	SAMPLE	Meth	ods: SW84	6-6010B, 3	050	V	ethods: EPA 353.3,	, 310.2, 375.4,	SW-846-9253		Methods: SW	846-9045, EPA 365.4
LOCATION	DATE	Ca	¥	Mg	Na	Carbonate	Bicarbonate	Sulfate	Chloride	Nitrate	Hq	Phosphorus
		(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(s.u.)	(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

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GROUNDWATER CHEMISTRY

.

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

SAMPLE LOCATION	SAMPLE	METHC	DDS: EPA	SW 846-802	1B, 5030	METHOD:
	DATE	BENZENE	TOLUENE	ЕТНУС-	TOTAL	SW 846-9253
-				BENZENE	XYLENES	CHLORIDE
		(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/L)
SB - 3	08/21/02	0.064	0.002	0.014	0.023	12200

i

FIGURES





APPENDICES
APPENDIX A

Soil Boring Logs



Legend	PID Head-space reading in ppm obtained with a photo-ionization detector.	 Indicates samples selected for leboratory analysis. 					bd.							Soil Boring Details	Date Dotted 10/11/01 Plugged - Surface to TD with Bentantie and hydrated with described water		Environmental i econology Group, Inc.	tunie NTR Prus Nr LON Orected fly NE On, til, 2000 ETTS Pruject # ANY200
SB-2	Soil Description	Sand - (SP) - Tan, very fine grained, well	sorted, imbedded with caliche nodules.	Sand - (SP) - Red, very fine grained, well sorted.			Sand - (SP) - Red, very fine grained, well sorts imbedded with caliche nodules.			Red Bed						a second a	E TG	nument, NM
il Boring	etroleum Stain	None	None	None	None	None	None	None	None	None						ils		ery #63 Mo
So	Detroleum P	None	None	None	None	None	None	None	None	None						ng Log Deta	Joring SB-2	U Tank Batte
	PID Reading	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0						Soil Bori	Soil E	D. NMGSA
	Soil Columns			# 30	1000	0000 0000 0000				e M								a Hess Corp
	(feet)	لْسيناً	, L	۽ است	g 1	R Luur	8 1	8 1	8 1	9 ¥	2 8 b	3 1111	8		2 2 2			Amerad

Legend	PID Head-space reading in ppm obtained with a photo-ionization detector.	 Indicates samples selected for laboratory analysis. 	 Indicates the ground water level measured on date. 						Soil Boring Details Date Drilled 8/21/01 Plugged - Surface to TD with Bentonite and hydrated with delonized water.	nvironmental Technology	Group, Inc.	2002 ETGI Project # AM1200
c)	Description	SP) - Brown, very fine grained, well mbedded with caliche nodules.	SP) - Dark Brown to Black, very fine grained, ed, imbedded with caliche nodules.	P) - Dark Brown, very fine grained, d, imbedded with caliche nodules.	SP) - Black, very fine grained, well mbedded with caliche nodules.	SP) - Black to Gray, very fine grained, ed, imbedded with caliche nodules.	SP) - Red to Gray, very fine grained, ed.	SP) - Red, very fine grained, well sorted,				nt, NM 04.14
ing SB-	Soil	e Sand - (S sorted, ir	Sand - (S well sorte	Sand - (Si well sorte	Sand - (S sorted, in	Sand - (S well sorte	Sand - (5 well sort	Sand - (S				Monumer
Soil Bor	Petroleun Stain	Moderat	Heavy	Heavy	Heavy	Heavy	Heavy	Slight		etails	9	attery #63
0)	Petroleum Odor	Moderate	Heavy	Heavy	Heavy	Heavy	Moderate	None		pring Log D	Boring SB-	SAU Tank B
	PID Reading	0.0	91.3	76.2	139	178	ED	6		Soil Bo	Soil	p. NMGS
	Soil							94 1				a Hess Corp
	(feet)	Ĺ	шľ	, ş	2 2				8 1111			Amerad

APPENDIX B

Laboratory Reports

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

ENVIRONMENTAL

LAB OF

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	

, Inc.

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
SPIKE DUP	439	424
% EXTRACTION ACCURACY	94	89
BLANK	<10	<10
RPD	1.8	1.4

Methods: EPA SW 846-8015M GRO/DRO

CK Jul Raland K. Tuttle

Date





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

<u>ELT#</u>	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	
			i de la companya de l

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

Raland K. Tuttle

-01 Date

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 1220 R Project Name: Amerada Hess Project Location: Lea County

ENVIRONMENTAL

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	<i>PQ</i> 0 0	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	

0.101	01200	0.100	0.224	0.107
0.105	0.110	0.109	0.210	0.111
<0.025	0.063	< 0.025	< 0.025	< 0.025
0.100	0.100	0.100	0.200	0.100
88	90	93	101	94
0.100	0.100	0.100	0.200	0.100
0.088	0.090	0.093	0.202	0.094
	0.088 0.100 88 0.100 <0.025 0.105 0.101	0.088 0.090 0.100 0.100 88 90 0.100 0.100 <0.025 0.063 0.105 0.110 0.101 0.105	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	0.088 0.090 0.093 0.202 0.100 0.100 0.100 0.200 88 90 93 101 0.100 0.100 0.200 0.200 <0.025

METHODS: EPA SW 846-8021B ,5030

Raland K. Tuttle

7-01 Date



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	

	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.

-7-01 Date





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

	0 1 0 0	0 1 0 4	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

Tuttle

4-01 Date



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 🗸

14-01 Date



, 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	•	 <u> </u>	
0101329-01 0101329-02	NE Pit Wall Comp Far West	89 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

Raland K. Tuttle

Date

Technol ogy	Gr.										HO	CUS	TOD'	ANI	AN	ALYS	IS R	Eoul	IST ST	
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LAB#	FIELD CODE	mount INERS					2 KD			090/090	wan 0018	sð sA gA	ve volatiles	80	20228 S	6/4.876 an	T2/0			
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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	

5140
5000
103
500
89
620
585
99
<5.00
5.81

-15-01 Date



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

de hi

5-01 Date

Raland K. Tuttle



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

<u>ELT#</u>	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

-15-01 Date

TAT brebnet2 (elubeda2-eig) TAT HRUA Project Name: HMEENDA HESS z 7.0°C CHAIN OF CUSTODY RECORD AND ANALYSIS REQUEST Å Project #: HHC 12 ØØR Project Loc: HONUMED Temperature Upon Receipt: Sample Containers Infact? Laboratory Comments: Analyze Foi BTEX 80218/5030 selltslovime2 volatiles Metals: As Ag Ba Cd Cr Pb Hg Se TCLP: CRO/ORD Mör08 HAT イ TOTAL PO #: 1PH TX 1005/1006 1814 H9T 8 14-01 0830 9600 Time TDS CL SAR / EC Other (specify): \times 6/14/21 Matrix lioS apbulz Date Vater Fax No: [505] 337-97-04 Other (Specify) anoN 00: 10 Preservative 'os⁼H HOBN ЮH Acres monteres ^îONH w/VER has Results- (505) 390-4699 əci No. of Containers 1500 aden 222 1450 1510 54 belqms2 emiT Recaived by ELOT 2001 BUG Received by: cityIstate/Zip: AOBBS NH 88240belqms2 etsO Environmental Lab of Texas, Inc. 3 Company Address: 25 40 W. MARIAND C65 0 010 Time NORTH SLOPE JINN Phone: 915-563-1800 Fax: 915-563-1713 397-4882 OU EAST PIT- SOUTH SLOPE LIKI Project Manager: KEN DUTTON R 14 Busp BOTTON 874-01 ENST Date WEST FIELD CODE Company Name ETGL PIT-P27-PET-CALL KD 120 Telephone No: 505 EAST EAST ENST LAST Sampler Signature: 6.14.3 Odessa, Texas 79763 Special Instructions: 5 5 12600 West I-20 East 30 22 .AB # (lab use only) 0101243-01 shed by our Relinquis Belingy



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

dK Raland K. Tuttle

7-01

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

LAB OF

ENVIRONMENTAL

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	

, Inc.

•		
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

dKhu Raland K. Tuttle

 ${\cal C}$ 7-0/ Date



, 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

OUALITY 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

Tuttle

10-71 Date

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		1766 Woodstead (The Woodlands Tel (281) 31 Fax (281) 31	*	Project Number:	Sampler Signature:	MATRIX	35	HCC SCNDG VIK ZOIC	λ								Regeived by:	Limon (ar	Received at Lab	Dane W
		4600 West Wail Midland, TX 79703 Tal (915) 522-1139 Fax(915) 520-4310		ESS			RAINERS	WGTEE	PZT 14								Time:	0435	Time:	C125C
	6, u.		1)utton	H D U H	HENT, NY		FIELD CODE		OM- BUEST	KEDIL							Date:	15Augot	Date:	5114161
	Nutur Technolog			Project Name: HnEN	Project Lecution:		LAB#		2101351-01 ROTT	BAC							Relinquished by:	A . Ditta	Relinquished by:	Lineir leider



, 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 TRUE VALUE	495 500	471 500
% INSTRUMENT ACCURACY SPIKED AMOUNT	99 476	94 476
ORIGINAL SAMPLE	<10	<10
SPIKE	507	506
SPIKE DUP	519	534
% EXTRACTION ACCURACY	106	106
BLANK	<10	<10
RPD	2	5

Methods: SW846-8015M

17-0/ Date



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

u Raland K. Tuttle

8-17-01 Date

LAB OF

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

ENVIRONMENTAL

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

, INC.

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

Tuttle

-(7-01 Date

CHAIN OF CUSTODY RECORD AND ANALYSIS REQUEST	Project Name: HNERADA NESS CORD	Project #: PHC 12\$ Ø Ø R	Project Loc: MONWHENT, NM	P0#	ø1	Analyze For:	TOTAL:	Matrix	Other (Specify) Sludge Sludge TDS (C) SkR / EC Metals: As Ag Ba Cd Cr Pb Hg Volatiles BTEX 8021B/5030 BTEX 8021B/5030 Metals: As Ag Ba Cd Cr Pb Hg Semivolatiles Semivolatiles Stendard Th TPH 418.1 Colore Standard Th TPH 418.1 Standard TPH 418.1 Standard TPH 418.1 Standard TPH 418.1 Standard TPH 418.1 Standard TPH 418.1 Standard 418	X X X X					Sample Containers Intact? Y N Terminers Intact? Y N Terminers Union Records	Laboratory Comments:	S/16/01 20 min Rec 1 oc	Date Time Emeral Date Time Education (Construction)	
exas, inc. 2.107 33-1800 33-1713	rod		PRLAND	ØX288	82 505 -370-0677 Fax No: (545) 397-470			Preservative	Date Sampled Vano, of Containers HuO ₃ Ho NaOH Nane Nane	16 Auc 1636 1 X						sted (5 øs) 37 p- p67	1 = received by:	4.0.10 K any ODY ELOT	at sant in and in the
Environmental Lab of Te 12600 West 1-20 East Outessa, Texas 79763 Fax: 915-56	Project Manager: KEN DUTT	Company Name ETGI	Company Address: ス54<i>体 い、</i>H 石	City/State/Zip: HOBBS NH	Telephone No: $(50) 397 - 48$ Sampler Signature:				FIELD CODE	MINI354-01 Rollon- APERELI -	EAST PIT				Special Instructions:	VERBAL RESULTS REQUE	Reinnuising Date	Relipquished by:	Amen is the 1 and 1 and 1 and 1



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	Ò.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

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Raland K. Tuttle



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 TRUE VALUE % INSTRUMENT ACCURACY	556 500 111	519 500 104
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

Culudri

バフノ Date



, 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

Raland K. Tuttle

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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 DRO C6-C10 >C10-C28 mg/kg 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

Tuttle

-22-01 Date



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	FOLUENE mg/kg	ETHYLBENZENE I mg/kg	m,p-XYLENE c mg/kg	-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

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Raland K. Tuttle

8 -22-0/ Date



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

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8-22-01 Date

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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
RUE VALUE	5000
% INSTRUMENT ACCURACY	103
SPIKED AMOUNT	625
DRIGINAL 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

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


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

LAB OF

ENVIRONMENTAL

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

ELT#	FIELD CODE	GRO DRO C6-C10 >C10-C28 mg/kg mg/kg
0101406-01	East Pit 15' Backfill	<10 796

, Inc.

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

24-01



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

d 10 Tuttle

<u>8-24-0</u>1 Date

S CHAIN OF CUSTODY RECORD AND ANALYSIS REQUEST	Project Name: ANEZADA ALES (DRP)	Project #: AHE 1200R	Project Loc: HONULAENT NH	PO#:	17	Apalyze For:	TCLP TCLP TOTAL	Matrix	Vater Vater Siudge Soil Diher (Specify) Diher (specify) Diher (specify) Diher (specify) Differ (specify) Dif					Sample Containers Infact? (Y N Temperature Upon Receipt	Date Time	1-330 043 - 00.5°C	Date 1 me 8/23/6/1/1/64	
「exas, Inc.」 -563-1800	-563-1713 77 BN		YARLAND	NN 88340	4882 Fax No: (505) 397-476			Preservative	Date Sampled	40KETU 22 Aur 169 26 1 2		· · · · · · · · · · · · · · · · · · ·			1 - (SdC) 372 - KG 7 7	1 0430 CUMULLI LEMERICIS 9	Time Received by ELOT	
Environmental Lab of T	Odessa, Texas 79763 Fax: 916 Project Manager:	Company Name ETGI	Cumpany Address: 2540 10.	City/State/Zip: HOBBS	Telephone No: (50) 397	Sampler Signature:				LAB # (lab use only) A 1 Mail 1 Mail 1 March 0 March 0 March 0				Special Instructions:	VERBAR RESULTS REDUESTE Retinguished by Deter	Ton Mutton 3364	Leinucher Date	



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

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

-7-01 9 Date

Sampling Date: 08/30/01

Receiving Date: 08/31/01

Analysis Date: 09/06/01

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

ENVIRONMENTAL

LAB OF

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

, Inc.

REPORT LIMIT	0.10	2.00	0.5	5.00	0.5
	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

dk Raland K.

-7-0/ Date

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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

		pH	Phosphorus	
ELT#	FIELD CODE	s.u	mg/kg	
0101477-01	General Soil Test-Landfarm-TB 63	8.04	0.66	

REPORT LIMIT	N/A	0.06
QUALITY CONTROL TRUE VALUE % IA SPIKED AMOUNT ORIGINAL SAMPLE SPIKE % EA BLANK RPD	10.07 10.00 101 N/A N/A N/A N/A N/A 0.37	1.77 2.00 88 2.5 0.66 5.58 104 <0.06 0.00
ANALYSIS DATE	8/31/01	9/05/01

METHODS: SW 846-9045, EPA 365.4

Raland K. Tuttle

7-01 Date

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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 846-80218,5030

JK Raland K.

10-01 Date



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	

	451	504
	401	504
TRUE VALUE	500	500
% INSTRUMENT ACCURACY	90	101
SPIKED AMOUNT	476	476
ORIGINAL SAMPLE	<10	<10
SPIKE	502	5391
SPIKE DUP	499	532
% EXTRACTION ACCURACY	105	112
BLANK	<10	<10
RPD	1	1

Methods: SW 846-8015M

Ril-ck/w

9-10-01



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

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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

dic Celey D. Keene

Raland K. Tuttle

-25-02 Date

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

ENVIRONMENT

LAB OF

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

	. t	Chloride	
ELT#	FIELD CODE	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

 \downarrow , Inc.

METHODS: SW846-9253

Kalu dC

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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 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	

524	551
500	500
105	110
476	476
<10	<10
505	494
516	518
106	104
. <10	<10
2.15	4.74
	524 500 105 476 <10 505 516 106 <10 2.15

Methods: SW 846-8015M

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

COC# 008	V OF CUSTODY RECORD AND ANALYSIS REQUEST	Project Name: TB- 63	Project # AHC. 12002	Project Loc: Monument, nm	PO #:			Analyze For:	TOTAL	6) 2) 266	ο ο Η σ Η σ Η σ Η σ Η σ Η σ Η σ Η σ Η σ Η σ	105-00 00 00 00 00 00 00 00 00 00 00 00 00	ГАТ 1 (Рте 1 (Рте 2 25 2 2 2 2	itoaqe) 2 (1) 1 (2) 2 (1) 1 (2) 2 (1) 2 (1)	19410 1941 100 100 100 100 100 100 100 100 100 1	X X X X X X X	X X X X					calingle containers mader. Temperature Upon Receipt. Laboratory Comments:	Time	1305- Kic -1.0 C	Time Activity of the Activity	
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Environmental I ah of Tayas	LITVILUIIIIGILLALLAUUIICON 2017 2000 12600 West 1-20 East Phone: 915-563-1800 Odessa. Texas 79763 Fax: 915-563-1713	Project Manager, Ken Outher	Company Name ETGL	Company Address: 2540 W. MAY	City/State/Zip: Nobb, nm	Telephone No (505) 397-4582	Sampler Signature:										Amon multiplice (all a free (1) ()					Special Instructions:	Relinquished by: Date Time	relater land	actingation by Date Time	Alman (adar) VI24BL 1000

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ANALYTICAL REPORT

Prepared for:

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

Order table

A Standard

 Project:
 TB-63

 PO#:
 AHC 1200

 Order#:
 G0204304

 Report Date:
 08/27/2002

<u>Certificates</u> US EPA Laboratory Code TX00158

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.

			Date / Time	D	ate / Time			
Sample :	Matrix:		Collected		Received	Container		Preservative
SB-3 25'	SOIL		8/21/02 13:27		8/22/02 13:29	4 oz glass		ice
b Testing:	Rejected:	No	Ť	emp:	-1.0C			
8015M								
8021B/5030 BTEX								
Chloride								
SB-3 29'	SOIL		8/21/02 13:45		8/22/02 13:29	4 oz glass		ice
<u>b Testing:</u>	Rejected:	No	Т	emp:	-1.0C			
8015M								
8021B/5030 BTEX								
Chloride								
SB-3	WATER		8/21/02 15:05		8/22/02 13:29	40 ml vial		ice
ib Testing:	Rejected:	No	T	emp:	-1.0C			
8021B/5030 BTEX								
Chloride		····						
	<u>Sample :</u> SB-3 25' <u>b Testing:</u> 8015M 8021B/5030 BTEX Chloride SB-3 29' <u>b Testing:</u> 8015M 8021B/5030 BTEX Chloride SB-3 <u>b Testing:</u> 8021B/5030 BTEX Chloride	Sample :Matrix:SB-3 25'SOILb Testing:Rejected:8015M8021B/5030 BTEXChlorideSB-3 29'SB-3 29'SOILb Testing:Rejected:8015M8021B/5030 BTEXChlorideSB-3WATERSB-3Kb Testing:Rejected:8021B/5030 BTEXChlorideChlorideSB-3Kb Testing:Rejected:8021B/5030 BTEXChloride	Sample : SB-3 25'Matrix: SOILb Testing: 8015M 8021B/5030 BTEX ChlorideRejected: NoSB-3 29'SOILb Testing: 8015M 8021B/5030 BTEX ChlorideRejected: Nob Testing: 8015M 8021B/5030 BTEX ChlorideRejected: NoSB-3WATERkb Testing: SB-3Rejected: NoSB-3WATERkb Testing: ChlorideRejected: No	Sample : Matrix: Collected SB-3 25' SOIL 8/21/02 b Testing: Rejected: No To 8015M 8021B/5030 BTEX To SOIL 8/21/02 SB-3 29' SOIL 8/21/02 13:45 SOIL 8/21/02 SB-3 29' SOIL 8/21/02 13:45 SOIL 8/21/02 13:45 b Testing: Rejected: No To SOIL 8/21/02 13:45 b Testing: Rejected: No To SOIL S/21/02 13:45 b Testing: Rejected: No To S/21/02 15:05 SOIL S/21/02 15:05 SOIL S/21/02 15:05 SOIL S/21/02 SOIL S/21/02 15:05 SOIL S/21/02 SOIL S/21/02	Sample :Matrix:CollectedSB-3 25'SOIL8/21/0213:278/21/02b Testing:Rejected:No8015M8021B/5030 BTEXChlorideSOIL8/21/02SB-3 29'SOIL8/21/0213:45Bb Testing:Rejected:NoS015M8021B/5030 BTEXChlorideSB-3WATERSB-3WATER8/21/0215:0515:05b Testing:Rejected:NoTemp:8021B/5030 BTEXChlorideNoTemp:8021B/5030 BTEXChlorideChlorideNoTemp:	Sample : Matrix: Collected Received SB-3 25' SOIL 8/21/02 8/22/02 13:27 13:29 13:27 13:29 b Testing: Rejected: No Temp: -1.0C 8015M 8021B/5030 BTEX Temp: -1.0C SB-3 29' SOIL 8/21/02 8/22/02 13:45 13:29 13:45 13:29 b Testing: Rejected: No Temp: -1.0C 8015M SOIL 8/21/02 8/22/02 13:45 13:29 b Testing: Rejected: No Temp: -1.0C 8015M 8021B/5030 BTEX Chloride	Date / TimeDate / TimeSample :Matrix:CollectedReceivedContainerSB-3 25'SOIL8/21/028/22/024 oz glassb Testing:Rejected:NoTemp:-1.0C8015M8021B/5030 BTEXChloride8/21/028/22/024 oz glassSB-3 29'SOIL8/21/028/22/024 oz glassb Testing:Rejected:NoTemp:-1.0C8015M8021B/5030 BTEXNoTemp:-1.0C8015M8021B/5030 BTEXNoTemp:-1.0C8015M8021B/5030 BTEXChloride40 ml vial15:0513:2913:2940 ml vialb Testing:Rejected:NoTemp:-1.0C8015M8021B/5030 BTEXRejected:NoTemp:-1.0CSB-3WATER8/21/028/22/0240 ml vial15:0513:2913:2913:2940 ml vial15:0513:2913:2913:2913:29b Testing:Rejected:NoTemp:-1.0C8021B/5030 BTEXRejected:NoTemp:-1.0C8021B/5030 BTEXChlorideNoTemp:-1.0C	Date / Time Date / Time Sample : Matrix: Collected Received Container 1 SB-3 25' SOIL 8/21/02 8/22/02 4 oz glass 1 <t< td=""></t<>

ENVOONMENTAL LAB CT TEXAS ANALYTICAL REPORT

G0204304

MONUMENT, NM

TB-63

Camille ReynoldsOrder#:Environmental Technology Group, Inc.Project:2540 W. MarlandProject Name:Hobbs, NM 88240Location:

Lab ID: Sample ID:

0204304-01 SB-3 25'

			8015M			
Method <u>Blank</u>	Date <u>Prepared</u>	Date <u>Analyzed</u> 8/23/02	Sample <u>Amount</u> 1	Dilution <u>Factor</u> 1	<u>Analyst</u> CK	<u>Method</u> 8015M
	Parameter		Resu mg/k	ılt «g	RL	

ralameter	mg/kg	KL
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 <u>Blank</u>	Date <u>Prepared</u>	Date <u>Analyzed</u>	Sample <u>Amount</u>	Dilution <u>Factor</u>	Analyst	Method
0002968-02		8/23/02	1	25	CK	8021B
		17:05				

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

12600 West 1-20 East, Odessa, TX 79765 Ph: 915-563-1800

ANALYTICAL REPORT

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

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

			8015M			
Method <u>Blank</u>	Date <u>Prepared</u>	Date <u>Analyzed</u> 8/23/02	Sample <u>Amount</u> 1	Dilution <u>Factor</u> 1	<u>Analyst</u> CK	<u>Method</u> 8015M
	Parameter		Res mg/	ult kg	RL	
	GRO, C6-C12		11	.7	10.0	
	DRO, >C12-C35		38	.4:	10.0	

8021B/5030 BTEX

50.1

10.0

Blank Prepared	Analyzed	<u>Amount</u>	<u>Factor</u>	<u>Analyst</u>	Method
0002968-02	8/26/02	1	25	СК	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 Li	mits (%)
aaa-Toluene	97%	80	120
Bromofluorobenzene	106%	80	120

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

TOTAL, C6-C35

ENVIRONMENTAL LAB OF TEXAS I. LTD.

ANALYTICAL REPORT

iille Reynolds	Order#:	G0204304
ronmental Technology Group, Inc.	Project:	
W. Mariand	Project Name:	TB-63
bs, NM 88240	Location:	MONUMENT, NM
ronmental Technology Group, Inc. W. Marland bs, NM 88240	Project: Project Name: Location:	TB-63 MONUMENT, NM

Lab ID:

Sample ID:

SB-3

0204304-03

		8021B	8/5030 BTEX			
Method <u>Blank</u> 0002969-02	Date <u>Prepared</u>	Date <u>Analyzed</u> 8/27/02 10:36	Sample <u>Amount</u> 1	Dilution <u>Factor</u> 1	<u>Analvst</u> CK	<u>Method</u> 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 Li	mits (%)
aaa-Toluene	115%	73	115
Bromofluorobenzene	109%	72	110

15 8-28-02 Approval: Date

Raland K. Tuttle, Lab Director, QA Officer 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

Page 3 of 3

ENVIRONMENTAL LAB OF TEXAS ANALYTICAL REPORT

Camille Reynol Environmental 2540 W. Marlan Hobbs, NM 88	ds Technology Group, Inc. nd i240		Order# Project Project Locatio	: (: Name: 7 n: N	G0204304 FB-63 MONUMEN	T, NM		
Lab ID: Sample ID:	0204304-01 SB-3 25'							
Test Parameter	neters	Result	Units	Dilution <u>Factor</u>	<u>RL</u>	Method	Date Analyzed	Analyst
		1300	mg/kg	1	20.0	9255	8/23/02	28
Lab ID:	0204304-02							
Sample ID:	SB-3 29'							
Test Parar	neters		TT '4	Dilution			Date	.
Chloride		1080	mg/kg	<u>ractor</u> 1	<u>RL</u> 20.0	9253	8/23/02	<u>Analyst</u> SB
Lab ID:	0204304-03						<u> </u>	
Sample ID:	SB-3							
Test Parai	meters			Dilution	1		Date	
Parameter		Result	Units	Factor	<u>RL</u>	Method	Analyzed	Analyst
Chloride		12200	mg/L	1	5.00	9253	8/23/02	SB

-30-02 Approval: Date

Raland K. Tuttle, Lab Director, QA Officer 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

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ENVIRONMENTAL LAB OF TEXAS I, LTD.

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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%	

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.%	

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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.%	

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	RPÐ
Chloride-mg/L	•_,	0002961-04		5000	4960	99.2%	
Chloride-mg/kg		0002962-04		5000	4960	99.2%	

1, Ltd.	CHAIN OF CUSTODY RECORD AND ANALYSIS REQUEST	Project # AHC 1200	Marland Project Loc: Monument, NM	Mexico Sbaydo PO#	Fax No(505) 397.4761	malds	Analyze For	TOTAL		Date Sampled Time Sampled HO ₅ HO ₅ HO ₅ HO ₆ HO ₆ HO ₆ HO ₆ HO ₆ HO ₆ HO ₆ HO ₆ HO ₆ H ₂ SO, Uher (Specity): Calions (Ca, Mg, h Volatiles Salions (Ca, Mg, h Calions (Ca, Mg, h Volatiles Standard TAT (Pr Standard TAT (Pr TAT HZU	8-31 1337 1 X X X X X X X X X X		Los JX X X X X X X X X X X X X X X X X X X			Sample Containers Intact? Y N Temperature Upon Receipt: Laboratory Comments:	Received by: Received by: Received by ETDT: Date Time
Environmental Lab of Texas I, Ltd.	12600 West 1-20 East Phone: 915-563-1800 Odessa, Texas 79763 Fax: 915-563-1713 Project Manager: CAM, 11P. ZAUDACS	Company Name ETGT	Company Address: 254D West Marland	CitylState/Zip: Nolobs, New Mexico S?	Tulephone No (205) 397-4883	Sampler Signature: Comillar Lumeles			2001	LAB # (Lab use only) FIELD CODR FIELD CODR	(21,23,304-01,53-3,25' S-31 1327	02 58-3 29' 1345	03 50-3 1505 1			Special Instructions:	Relinquisticad by, Date Time Received by: Computer Augusts ball 02 1710 2000 0000000 000000000000000000

APPENDIX C

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Water Well Search

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 Arg Depth to Water Report Water Column Report All Well/ Surface Data Report Arg Depth to Water Report Water Column Report All Well / Surface Data Report Arg Depth to Water Report Water Column Report All Well / Surface Data Report Arg Depth Water Column Report All Mater Column Report Arg Depth Mater Column Report All Mater Column Report Arg Depth Mater Report Mater Column Report Mater Column Report Arg Depth Mater Report Mater Column Report All Mater Column Report Arg Depth Mater Report Mater Report All All Mater Column Report Arg Depth Mater Report Mater Report All				K .	Vew Mexi Well	co Office of th Reports and	<i>te State E</i> Downloa	ingineer ids					, , , , , , , , , , , , , , , , , , ,
NAD27 X. Y. Zone: Search Radius: County: Basin: Number: Suffix: Owner Name: (First) (Last) Non-Domestic Domestic All Owner Name: (First) (Last) Non-Domestic Domestic All Owner Name: (First) (Last) Non-Domestic Domestic All Well/Surface Data Report Avg Depth to Water Report Water Column Report Mater Column Report All Mar Care Et per annun Clear Form WATERS Menu Help Atter Column Report All Mar Use Diversion Owner Optimizer Source Tawar Sons Tawar Sons Ta		Tow	nship:	19S	Range: 3	7E Sectior	ns: 31						
County: Downer Name: (First) (Last) Non-Domestic All Well / Surface Data Report Water Report Water Column Report Water Column Report Well / Surface Data Report Avg Depth to Water Report Water Column Report Same Science Well / Surface Data Report Avg Depth to Water Report Water Column Report Same Science Well / Surface Data Report Avg Depth to Water Report Water Column Report Same Science Water Column Report Clear Form WATERS Meinu Help Water Column Report Clear Form WATERS Meinu Help Mare Same Science Davaers are Jany 2-878 Same Science Mare Same Science Same Science Davaers are Jany 2-878 Same Science Mare Same Science Same Science Same Science Same Science Same Science Mare Same Science Same Science Same Science Same Science Same Science Same Science Mare Same Science Mare Same Science Same Science Same Science Same Science Same Science Same Science Same Science		NAD2	7 X:		Y:	Zone:		Search	Radius:				
Owner Name: (First) (Last) Mon-Domestic Domestic All Well / Surface Data Report Avg Depth to Water Report Water Column Report Water Column Report Well / Surface Data Report Clear Form WATERS Menu Help Help WELL / SURFACE DATA REPORT Old are report Clear Form Water Report Water Column Report Well / Surface Data Report Clear Form WATERS Menu Help Help WELL / SURFACE DATA REPORT Old are report Clear Form Water Report Servate Report Mbr Clear form WATERS Menu Help Help Help Mbr Clear form WATERS Menu Help Help Help Mbr User for manual (quarters are liggest to smalles Help Help Mbr User for manual (quarters are liggest to smalles Help Help Mbr User Barran Mell Number Source Trae Barran Help Mbr User Barran Mell Number Source Trae Barran Help Mbr User Barran Mell Number Source Trae Barran Help Mbr User Barran Mell Number Source Trae Barran Help		County:		Bas	sin:		Nu	mber:	Suf	fix:			
Well / Surface Data Report Avg Depth to Water Report Water Column Report Clear Form WATERS Menu Help Clear Form WATERS Menu Help WELL / SURFACE DATA REPORT 02/25/2003 Water Column Report Marce fram (quarters are layw 2-MB 3-SW 4-SI Marce fram (quarters are layw 2-MB 3-SW 4-SI Marce fram (quarters are layer to smalles) Marce fram (quarters are layer to smalles) Marce fram Source 195 37E 31 Marce fram Number Source 195 37E 31 2 Marce fram Source 10271 Exp 195 37E 31 2 Marce fram Source 1033 1 195 37E 31 2 4 Marce fram Source 1031 1903 195 37E 31 2 4 Marce fram Source 193 1031 195 37E 31 2 4 Marce fram 10031 10031 193 193 193 2 4 Marce fram 10031 1031 193	Ó	wner Name: (Fi	rst)		(L	ast)		Non-Don	nestic	Domestic	AI	_	
WELL / SURFACE DATA REPORT 02/25/2003 WELL / SURFACE DATA REPORT 02/25/2003 MEL / SURFACE DATA REPORT 02/25/2003 (quarters are 1=WW 2-WB 3-SW 4=SI Nbr (quarters are 1=WW 2-WB 3-SW 4=SI Nbr (quarters are 1=WW 2-MB 3-SW 4=SI Nbr SURFACE DATA REPORT 02/25/2003 (quarters are 1=WW 2-MB 3-SW 4=SI (quarters are biggest to smalles) 012/1 EXP SOURCE TWS RUG 3078 312 31 2 4 I 012/1 EXP SOURCE TWS RUG 378 31 1 1 I 012/1 EXP SOURCE TWS RUG 378 31 2 4 I 012/1 EXP I 012/1 EXP I 1 1 I 012/1 EXP I 1 1 I 012/1 EXP I 1 1 I I 1 I 1 1 I I 1 I 1 I I I 1 I 1 I I I 1 I I I 1 I I I I I I I I I I I I I I I I I I I I I		Well / Surfac	e Data I	Report	Clear Form	Avg Depth to \ WATEF	Water Reg 3S Menu	oort Help	Water	Column Rep	ort		
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11 DOM 3 OSCAR E. GROVE L 01271 EXP 195 37E 31 2 15 DOM 3 W.C. BYRD L 02315 195 37E 31 1 96 DOM 3 W.C. BYRD L 02804 195 37E 31 1 96 DOM 3 W.C. BYRD L 03045 E 195 37E 31 1 17 DOM 3 C.R. JORDAN L 05296 EXP 195 37E 31 2 4 197 DOM 3 C.R. JORDAN L 06497 EXP 195 37F 31 2 4 131 STK 3 JIMMY B. COOPER L 10031 Shallow 195 37E 31 2 4 1001 STK 3 JIMMY B. COOPER L 10031 Shallow 195 37E 31 2 4 1001 State L 10031 $Shabbbbbb<$	Nbr I	Use Diversi	on Ow	ner			Well	Number	•	Source	SML	Rng Se	c d d
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	l Count: 7												

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2/25/2003

 $http://seowaters.ose.state.nm.us/awdProd/awd.html?email address=kdutton@etgi.cc&tws=19S&rng=37E&sec=31&X=&Y=&\dots$

NMGSAU Battery 63 Assessment.txt 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.

I.

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

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

IR-406

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,

Pandoepu Bufis

Randolph Bayliss, P.E. Hydrologist, Environmental Bureau

Cc: Chris Williams, Larry Johnson

From:Johnson, LarrySent:Thursday, August 22, 2002 11:32 AMTo:Bayliss, RandySubject:FYIRandy,

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