

AP - 82

**STAGE 1
ABATEMENT
PLAN**

**YEAR(S):
APRIL 2007**



AP-82
Stage 1 Abatement Plan
April 2007

TEXACO MATTERN BATTERY No.26

SECTION 20, TOWNSHIP 19 SOUTH, RANGE 37 EAST
LEA COUNTY, NEW MEXICO

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Environmental
Oil Conservation Division

STAGE 1 ABATEMENT PLAN

APRIL 2007

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L,
Please return
Thanks, E

HESS CORPORATION

MONUMENT, NM

PREPARED BY:

BBC INTERNATIONAL, INC.
WORLD-WIDE ENVIRONMENTAL SPECIALISTS
1324 W. MARLAND BLVD.
HOBBS, NEW MEXICO 88240
(505)397-6388 • FAX (505)397-0397
EMAIL: amy@bbcinternational.com



PHONE (505) 397-6388 • FAX (505) 397-0397 • 1324 W. MARLAND • P.O. BOX 805 • HOBBS, NM 88241-0805
E-MAIL: bbc@bbcinternational.com

VIA FEDERAL EXPRESS
AIRBILL NUMBER: 7923 1854 3327

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

SUBJECT: STAGE 1 ABATEMENT PLAN
TEXACO MATTERN BATTERY #26

Oil Conservation Division
Environmental Bureau

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Environmental Bureau
Oil Conservation Division

Dear Mr. Price:

On behalf of Hess Corporation, BBC International, Inc. respectfully submits the enclosed Stage 1 Abatement Plan.

If you have any questions, please do not hesitate to contact Cliff P. Brunson at (505) 397-6388 or via e-mail at cbrunson@bbcinternational.com or Amy C. Ruth at (505) 397-6388 or Amy@bbcinternational.com.

Sincerely,

BBC International, Inc.

A handwritten signature in black ink, appearing to read "Amy Ruth", is written over the typed name and title.

Amy Ruth
Environmental Scientist

cc: Hess Corporation (3)

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Environmental Bureau
Oil Conservation Division

Notice of Publication

State of New Mexico
Energy, Minerals, and Natural Resources Department
Oil Conservation Division

Notice is hereby given that pursuant to New Mexico Oil Conservation Division Regulations, the following Stage I Abatement Plan Proposal has been submitted to the Director of the Oil Conservation Division, 1220 St. Francis Dr., Santa Fe, New Mexico 87505, Telephone (505) 476-3440:

Hess Corporation (formerly Amerada Hess Corporation), Drew Hall, Senior Environmental Specialist, Telephone (432) 758-6713, P.O. Box 840, Seminole, Texas 79360, has submitted a Stage I Abatement Plan Proposal for the North Monument Grayburg San Andres Unit (NMGSAU) Texaco Mattern Battery No. 26 site located near Monument, New Mexico in Section 20, Township 19 South, Range 37 East, NMPM, Lea County, New Mexico. The site is an abandoned tank battery and an associated pit that was operated by Texaco Corporation from the late 1930's to 1991. The contamination at the Site is due to historical operation of the battery and associated pit, which occurred prior to unitization of the NMGSAU in 1991, when the battery was decommissioned by Hess Corporation. The pit at the location was decommissioned by the historical operator at an unknown time prior to 1991. The Stage I Abatement Plan Proposal Presents the following activities: designates a responsible person relative to plan submittal, describes and maps the site, provides historical information on the site including previous investigations, characterizes the site geology and hydrogeology of the site, provides an inventory of water wells in the vicinity of the site, proposes determining the aerial extent and magnitude of contamination at the site, proposes a ground water monitoring program, establishes a Quality Assurance and Quality Control Plan, and presents groundwater investigation strategies.

Any interested person may obtain further information from the Oil Conservation Division and may submit to the Director of the Oil Conservation Division, at the address given above, written comments or a written request for a public hearing that include reasons why a hearing should be held. The Stage I Abatement Plan Proposal may be viewed at the above address or at the Oil Conservation Division Hobbs District Office, 1925 N. French Dr., Hobbs, New Mexico 88240, Telephone (505) 393-6161 between 8:00 am and 4:00 pm, Monday through Friday. Prior to ruling on the proposed Stage I Abatement Plan Proposal, the Director of the Oil Conservation Division shall allow at least thirty (30) days after the date of publication of this notice during which time written comments or a written request for a hearing may be submitted.

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1.0 INTRODUCTION

The subject site is located northwest of Monument, New Mexico in Lea County. The legal description of the site is the southwest quarter of Section 20, Township 19 South, and Range 37 East. The site is an abandoned tank battery and an associated pit, Texaco Mattern Battery No. 26 (herein referred to as the Site or Site), that was operated by Texaco from the late 1930's to 1991. The contamination at the Site is due to historical operation of the battery and associated pit, which occurred prior to unitization of the North Monument Grayburg San Andres Unit (NMGSAU) in 1991, when the battery was decommissioned by Hess Corporation (Hess), formerly Amerada Hess Corporation. The pit at the location was decommissioned by Texaco at an unknown time prior to 1991.

Site assessment and remediation activities were conducted at the abandoned battery beginning in December 2006. Hess developed a generic plan to investigate and remediate locations within the NMGSAU that have historical contamination in the Monument area. The New Mexico Oil Conservation Division (NMOCD) approved this generic work plan on December 5, 2005. Site investigation and remediation at the site was conducted in accordance with this plan.

Hess retained BBC International, Inc. (BBC) to investigate, remediate, and manage the site activities at the Site.

2.0 SITE DESCRIPTION

The Site is located in southern Lea County in the southeastern corner of New Mexico. The area is in the Pecos River Valley section of the Great Plains physiographic province and is located in the southern margin of the Llano Estacado. The region is generally a treeless, gently sloping plain, with shallow playa lakes, sand dunes and covered with short prairie grass. The climate of the area is classified as semi-arid to arid and is characterized by low annual rainfall, low humidity, and a high average annual temperature. Local precipitation averages approximately 15 inches per year (Nicholson and Clebsch). Depth to groundwater at the Site is less than 50 feet below ground surface (bgs) (NMOSE).

Currently, the site is situated on and surrounded by fee land owned by Jim T. Cooper.

3.0 SITE INVESTIGATION AND EXCAVATION ACTIVITIES

Site investigation and remediation at the location began on December 19, 2006 with a scan for naturally occurring radioactive material (NORM). Results of the

scan were negative for the detection of NORM. Site photographs can be viewed in **Appendix II**.

Excavation began with the tank pad at the northeast corner of the site in late December 2006 and proceeded to the south. Excavation of the associated pit at the south end of the battery began in January 2007. Soil samples were collected throughout excavation activities. The soil samples were submitted to a laboratory and analyzed for total petroleum hydrocarbons (TPH), including speciation of gasoline range organics (GRO) and diesel range organics (DRO), chloride, benzene, toluene, ethylbenzene, and xylene (BTEX). Please see **Table 1** for summaries of all analytical data and **Appendix I** for all laboratory analytical reports.

On January 3, 2007, BBC collected five (5) samples from the bottom of the battery excavation at which time the excavation of the associated pit was eight (8) feet deep as shown in the Site Diagram (**Figure 1**). The soil samples were collected along the floor of the excavation toward the pit. The samples were positioned to determine the extent of hydrocarbon impacts within the area of the tank pad and determine the near surface hydrocarbon impacts between the tank pad and the associated pit. All samples showed non-detect for TPH (GRO/DRO). The four (4) southernmost samples collected from four (4) feet bgs showed non-detect for BTEX. The northernmost sample, Mattern 5 @ 2', collected from two (2) feet bgs contained 0.017 ppm xylene, however the remaining BTEX constituents showed non-detect in this sample. Chloride was present in concentrations below 250 ppm with the exception of two (2) samples located nearest the former tank pad. The sample entitled Mattern 3 @ 4' contained 512 ppm chloride, and the sample entitled Mattern 4 @ 4' contained 320 ppm chloride.

The associated pit was further excavated and widened. On January 10, 2007, two samples were collected from the pit in areas of observable hydrocarbon impacted soil to determine concentrations of constituents of concern (COC) as shown in the Site Diagram (**Figure 2**). The sample entitled West Wall 10' was collected from the west wall of the pit at a depth of ten (10) feet bgs. The results of the sample showed TPH above the recommended action level of 100 ppm (GRO of 129 ppm and DRO of 1,690 ppm), as well as detections of toluene (0.044 ppm) and total xylenes (0.731 ppm); however, chlorides (16 ppm) were detected below the recommend action level (250 ppm). The sample entitled Trench 15' was collected from a test hole placed in the west central side of the pit floor at a depth of fifteen (15) feet bgs. Sample results showed non-detect for GRO, DRO (537 ppm) exceeded the recommend action level, as well as low level detections of toluene (0.003 ppm) and total xylenes (0.121 ppm), and chloride (96 ppm) was below the recommended action level.

Based on these sample results the associated pit was further excavated to fifteen (15) feet bgs. On January 22, 2007, a two foot test hole was placed in the

western floor of the excavation where hydrocarbon stained soils extended deeper. Water was encountered at seventeen (17) feet bgs. On January 22, 2007 Hess notified Wayne Price of the NMOCD via email of potential groundwater impacts at the Texaco Mattern Battery No. 26. On January 29, 2007, NMOCD issued a directive requiring Hess to submit a Stage I Abatement Plan for the Site. Please review copies of these correspondences located in **Appendix III**.

4.0 PROPOSED SITE INVESTIGATION

Hess is submitting this Stage 1 Abatement Plan in accordance with the NMOCD's Rule 19 (19.15.1.19 NMAC) to investigate potential ground water contamination at Hess' Texaco Mattern Battery No. 26 site located in the southwest quarter of Section 20, Township 19 South, Range 37 East, Lea County, New Mexico.

Hess proposes the following to investigate and delineate the site utilizing soil boring, completion of ground water monitoring wells, and the associated analytical data collected from soil and ground water samples.

4.1 Ground Water

A minimum of four (4) soil borings will be drilled at the site to delineate the vertical and horizontal extent of potential contamination present in the vadose zone. In the case where the four initial soil borings adequately delineate the aerial extent of the soil and ground water contamination they will be converted to ground water monitoring wells. In the event that ground water or soil contamination is present in the soil or first water from the boring, an additional set-out delineation soil boring will be drilled to define the aerial extent of vadose and saturated zone contamination; and if contamination is not present in soil or first water from the boring it will be converted to a ground water monitoring well. The proposed locations of the four initial soil borings and potential ground water monitoring wells are depicted on **Figure 3**.

Based on the current understanding and data from the site, the proposed locations of the initial soil borings are needed to confirm the aerial extent of the vadose zone contamination. Should these borings confirm the boundary of the vadose zone contamination, they will be completed as ground water monitoring wells. A minimum of four ground water monitoring wells is required at the site to define the aerial extent of the any free-phase or dissolved-phase hydrocarbon plume that may be present at the site.

As depicted in **Figure 3**, soil borings (and associated ground water monitoring wells) will be drilled in a semi-diamond pattern, with:

- One soil boring completed up gradient from the site in an uncontaminated location to confirm the back ground concentrations of COCs entering the site, and aid in the development of site specific parameters detailed below;
- One soil boring in the center of the potential down gradient plume (if it exists) to delineate the leading edge of the down gradient dissolved-phase and/or free-phase plume;
- One soil boring on the eastern edge of the down gradient plume (if it exists) to delineate the eastern boundary of the down gradient dissolved-phase and/or free-phase plume; and
- One soil boring on the western edge of the down gradient plume (if it exists) to delineate the western edge of the down gradient dissolved-phase and/or free-phase plume.

Data collected from the soil borings and associated ground water monitoring wells at these locations will be used confirm the site geology and develop hydrogeology and fate and transport of contaminants at the site. This will include the determination of the hydraulic conductivity, transmissivity, storativity, and rate and direction of contaminant migration for the aquifer on a localized scale. If site conditions warrant the collection of additional data concerning the aquifer characteristics, additional soil borings and ground water monitoring wells may be completed.

A hollow stem auger rig equipped with a continuous core sampling tool will be used to drill soil borings, collect soil samples, and complete ground water monitoring wells. The soil borings drilled at the site will be sampled initially near the surface (0-3 feet below ground surface (bgs)), and sampled every five feet there after until the boring reaches the saturated zone.

4.2 QA/QC Sampling Procedures-Soil (Soil Borings)

The soil samples will be obtained by personnel utilizing appropriate sampling tools and wearing clean disposable gloves. The soil samples will be collected using sampling tools that will be decontaminated using an Alconox detergent solution and rinsed with distilled water between sample collections. The drilling equipment will be decontaminated prior to being brought on the site as well as decontaminated in between soil borings.

Each soil sampling interval will be split into two equal portions and placed in separate containers. The first portion of the sample will be placed into a container to field screen the soil using chloride titration analysis and head space sampling for volatile organic carbons. The second portion of the sample will be placed in a new, clean, and sterile glass container equipped with a Teflon-lined lid furnished by the analytical laboratory. Each container will be filled to capacity with soil. All containers will be labeled, individually bagged, and placed on ice in an insulated cooler, and chilled to a temperature of approximately 40⁰F (4⁰C). The cooler will be custody sealed for delivery to the laboratory for laboratory testing utilizing

proper chain of custody documentation throughout the sampling process. The samples will be delivered for analysis to e-Lab Analytical, Inc. in Houston, Texas.

The laboratory will be responsible for proper QA/QC procedures utilized during the analytical process. These procedures are either transmitted with the laboratory reports or are on file at the laboratory.

4.3 Laboratory Analysis-Soil (Soil Borings)

The soil samples will be analyzed for all constituents contained in the following analytical methods for initial site characterization according to NMOCD requirements:

- Metals – EPA Method SW-846 6020
- Total Mercury – EPA Method SW-846 7471A
- Total Petroleum Hydrocarbons (TPH) – EPA Method SW-846 8015C Modified (DRO/GRO)
- Volatile Organic Compounds (VOCs (including BTEX)) – EPA Method SW-846 8260B
- Semi-volatile Organic Compounds (SVOCs) – EPA Method SW-846 8270C
- Chloride – EPA Method 300.0
- Cyanide – EPA Method 335.3
- Nitrogen, Nitrite – EPA Method 354.1
- pH – EPA Method 150.1

4.4 Ground Water Monitor Well Construction and Development

The proposed ground water monitor wells will be completed in the locations as depicted in **Figure 3**. The monitor wells should be drilled to ten (10) feet below the top of the local ground water aquifer. The monitor wells will be constructed of a minimum of fifteen (15) feet of two-inch (2") PVC well screen with ten (10) feet of well screen below the water table. Blank schedule 40 PVC riser will be extended to a minimum of two (2) feet above the ground surface. The monitor wells shall be drilled and completed with two-inch schedule 40 PVC, and gravel packed with a minimum of two inches of 8/16 Brady gravel or equivalent between the annulus of the drilled hole and the outside of the casing. The well screen should be 0.040-inch, mill-slot PVC, extending through the entire saturated portion of the drilled hole. The gravel pack should extend at least 3 feet above the top of the screen with a minimum of three feet of bentonite on top of the gravel. A steel locking sleeve should be centered around the PVC casing and set approximately 2 feet below land surface. The annulus of the hole between the drilled hole and the casing should then be grouted with neat cement to ground level. The remaining annulus between the steel sleeve and the casing should be grouted with neat cement to ground level. The surface of the well should contain a 4' X 4' X 1.5' concrete slab, with approximately 12 inches below grade and encasing the steel locking sleeve. The bentonite seal on top of the

gravel pack, the annulus cement grout, steel locking sleeve, and concrete slab shall not be placed until the well has been fully developed and the gravel pack has been brought up to the proper level above the screen following completion of the well development to account for any gravel settlement.

The monitor wells shall be developed by bailing or pumping after placement of the well screen, casing and gravel pack. After the well has started clearing, the well shall be developed by jetting or by pump until the water being removed is clear and free of sand.

Following development, the wells will be gauged for depth to ground water and to determine if any free-phase hydrocarbons are present. A minimum of twenty-four (24) hours after development, the wells will be gauged, purged, and sampled for the required constituents.

4.5 QA/QC Sampling Procedures-Ground Water

The ground water monitor wells will be developed and purged prior to sampling. A minimum of twenty-four (24) hours after development, monitoring wells with a sufficient recharge will be purged prior to sampling by removing a minimum of three well bore and gravel pack volumes. Monitoring wells that do not recharge sufficiently to allow for the removal of three well bore and gravel pack volumes, will be purged until no additional ground water can be obtained.

Ground water samples will be collected with a clean, new disposable Teflon sampler and polyethylene line by personnel wearing clean, disposable gloves or by low-flow sampling via a submersible bladder-type pump following EPA Method 540/S-95-504. Groundwater sample containers will be filled in the order of decreasing volatilization sensitivity (i.e., BTEX containers filled first, PAH containers second, etc.).

Groundwater samples collected for BTEX analysis will be placed in 40 ml glass VOA vials, with the appropriate preservative, equipped with Teflon lined caps that will be provided by the analytical laboratory. The vials will be filled to a positive meniscus, sealed, and visually checked to ensure the absence of air bubbles.

Ground water samples collected for PAH analysis will be filled to capacity in sterile, one (1) liter glass containers equipped with Teflon lined caps. Ground water samples collected for metals analysis will be filled to capacity in sterile, one (1) liter plastic containers, including the appropriate preservative, equipped with Teflon lined caps, as provided by the analytical laboratory.

All containers will be labeled, individually bagged, and placed on ice in an insulated cooler, and chilled to a temperature of approximately 40⁰F (4⁰C). The cooler will be custody sealed for delivery to the laboratory for testing utilizing

proper chain of custody documentation throughout the sampling process. The samples will be delivered for analysis to e-Lab Analytical, Inc. in Houston, Texas.

The laboratory will be responsible for proper QA/QC procedures utilized during the analytical process. These procedures are either transmitted with the laboratory reports or are on file at the laboratory.

4.6 Laboratory Analysis-Ground Water Monitoring Wells

The ground water samples will be analyzed for all constituents contained in the following analytical methods for initial site characterization according to NMOCD requirements:

- Metals – EPA Method SW-846 6020
- Total Mercury – EPA Method SW-846 7470A
- Total Petroleum Hydrocarbons (TPH) – EPA Method SW-846 8015C Modified (DRO/GRO)
- Volatile Organic Compounds (VOCs (including BTEX)) – EPA Method SW-846 8260B
- Semi-volatile Organic Compounds (SVOCs) – EPA Method SW-846 8270C
- Chloride – EPA Method 300.0
- Cyanide – EPA Method 335.3
- Nitrogen, Nitrite – EPA Method 354.1
- pH – EPA Method 150.1

5.0 MONITORING PLAN

All site ground water monitoring wells will be gauged and sampled on a quarterly basis during the life of the abatement process. The constituents analyzed will be determined in consultation with the NMOCD after the initial characterization of the site conducted during the first sampling event after the installation of the ground water monitoring wells.

6.0 AQUIFER DESCRIPTION

Several aquifers are located in the Monument and surrounding area, the Quaternary alluvium, the Ogallala formation, and the Triassic Dockum Group which is composed of the Chinle formation and the Santa Rosa Sandstone (Nicholson and Clebsch). The City of Hobbs obtains ground water for domestic use from the Ogallala formation which is the major fresh water aquifer in the area. According to the New Mexico Office of the State Engineer (NMOSE), current depth to water in the site vicinity is approximately 20 to 30 feet and ground water flow direction in the Ogallala aquifer is towards the east southeast.

7.0 INVENTORY OF WATER WELLS WITHIN ONE MILE

An inventory of water wells located within one mile of the site can be found in **Appendix IV**. These well locations were obtained from the website of the New Mexico Office of the State Engineer.

8.0 SURFACE OWNERSHIP

Hess will conduct a one-mile radius search from the site of all known and registered surface owners. A review of the public tax rolls of Lea County, NM will identify the name and addresses of the surface owners within one mile of the site and a list will be generated. A diagram depicting the one-mile radius search will be furnished.

9.0 SCHEDULE OF ACTIVITIES

All Stage 1 Abatement Plan activities will commence within 30 days of the final approval of the Stage 1 Abatement Plan following the public notice period and approval from the NMOCD. A schedule of site activities will be submitted to the NMOCD upon final approval of the Stage 1 Abatement Plan along with follow up quarterly progress reports then a final report upon completion of investigative Stage 1 Abatement activities.

10.0 DELIVERABLES

A Stage 1 Abatement Plan Site Investigation Report will be submitted within 60 days upon completion of investigative activities which will include, but not limited to, a description and history of the site, site map, a description of site investigative activities, summary data tables, laboratory analytical data, ground water gradient map, isoconcentration maps and cross sections that depict any identified contamination that may have been released at the former tank battery, and any data necessary to select and design an effective abatement option under NMOCD Rule 19 Stage 2 Abatement requirements.

A paper and electronic copy of all work plans and/or reports will be submitted to both the Santa Fe, New Mexico and Hobbs, New Mexico offices of the NMOCD.

11.0 ABATEMENT PROCESS

On behalf of Hess Corporation, BBC has submitted this Stage 1 Abatement Plan in accordance with NMOCD Rule 19 NMAC 15.1.19.

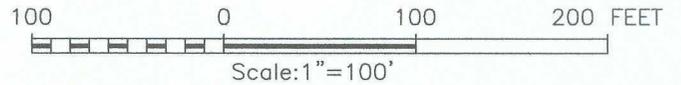
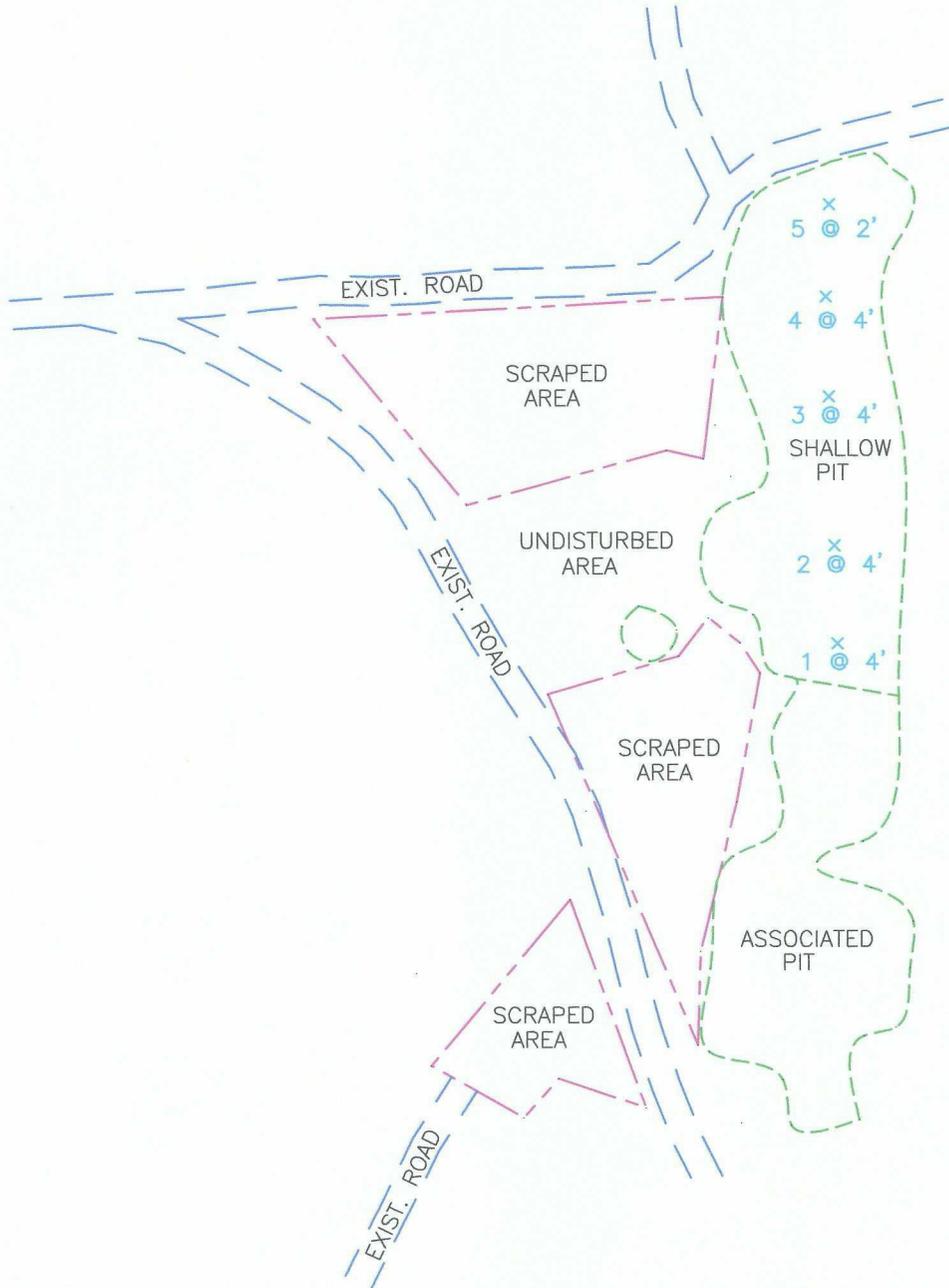
Upon NMOCD approval of the Stage 1 Abatement Plan, all public notice and participation requirements under Rule 19 (19.15.1.19 NMAC), specifically Rule 19G, will be followed.

12.0 REFERENCES

Nicholson, Jr., Alexander and Clebsch, Jr. Alfred, 1961, *Geology and Ground-Water Conditions in Southern Lea County, New Mexico, Ground-Water Report 6*, New Mexico Bureau of Mines and Mineral Resources, Socorro, New Mexico, 120pp.

NMOSE – New Mexico Office of the State Engineer, iWaters website:
<http://iwaters.ose.state.nm.us:7001/iWATERS/>

SECTION 20, TOWNSHIP 19 SOUTH, RANGE 37 EAST, N.M.P.M.,
LEA COUNTY, NEW MEXICO.



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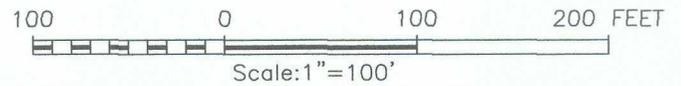
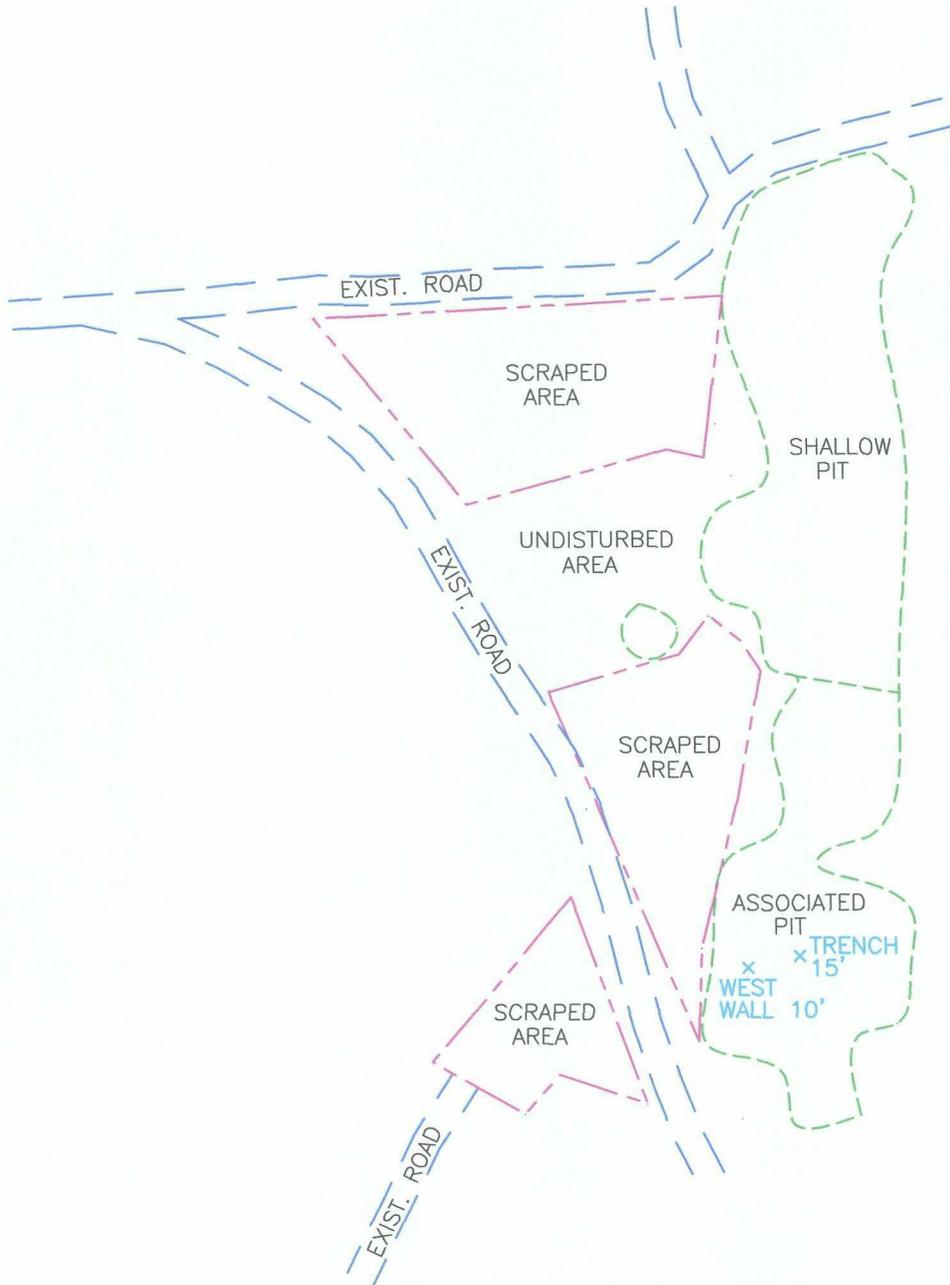
SAMPLE EVENT 1/3/07

SITE MAP FIGURE 1 EXCAVATION AREA
AT THE TEXACO MATTERN BATTER 26 IN
SECTION 20, TOWNSHIP 19 SOUTH, RANGE 37 EAST,
N.M.P.M., LEA COUNTY, NEW MEXICO

Survey Date: 2/27/07	Sheet 1 of 1 Sheets
W.O. Number: 07.11.0246	Drawn By: L.A.
Date: 3/1/07	DISK: CD#6 07110246

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SINCE 1946
JOHN WEST SURVEYING COMPANY
412 N. DAL PASO
HOBBS, N.M. 88240
(505) 383-3117

SECTION 20, TOWNSHIP 19 SOUTH, RANGE 37 EAST, N.M.P.M.,
LEA COUNTY, NEW MEXICO.



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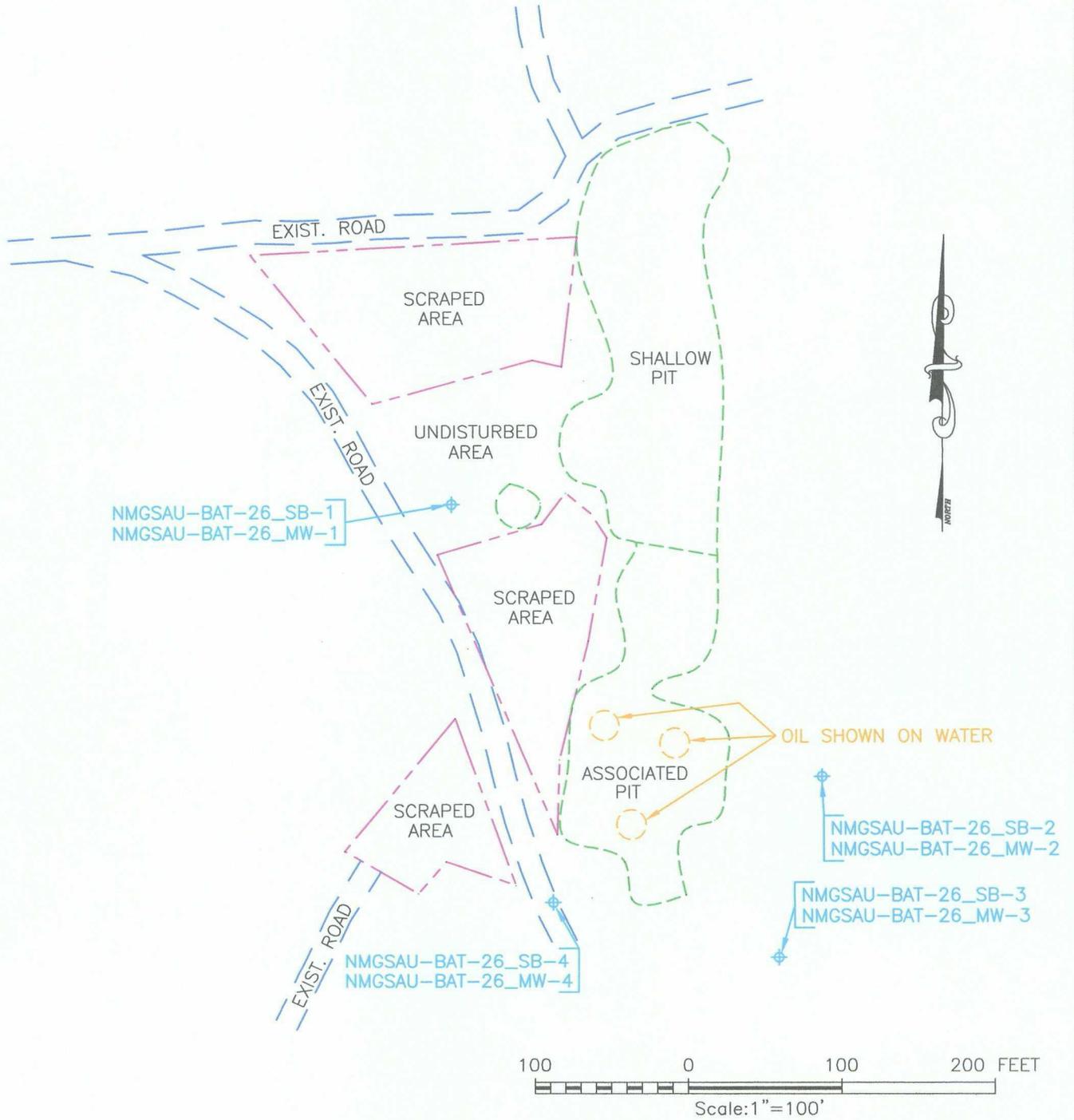
SAMPLE EVENT 1/10/07

SITE MAP FIGURE 2 EXCAVATION AREA
AT THE TEXACO MATERN BATTER 26 IN
SECTION 20, TOWNSHIP 19 SOUTH, RANGE 37 EAST,
N.M.P.M., LEA COUNTY, NEW MEXICO

Survey Date: 2/27/07	Sheet 1 of 1 Sheets
W.O. Number: 07.11.0246	Drawn By: L.A.
Date: 3/1/07	DISK: CD#6
	07110246

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JOHN WEST SURVEYING COMPANY
412 N. DAL PASO
HOBBS, N.M. 88240
(505) 393-3117

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LEA COUNTY, NEW MEXICO.



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PROPOSED MONITOR WELL LOCATIONS

SITE MAP FIGURE 3 EXCAVATION AREA
AT THE TEXACO MATTERN BATTER 26 IN
SECTION 20, TOWNSHIP 19 SOUTH, RANGE 37 EAST,
N.M.P.M., LEA COUNTY, NEW MEXICO

Survey Date: 2/27/07	Sheet 1 of 1 Sheets
W.O. Number: 07.11.0246	Drawn By: L.A.
Date: 3/1/07	DISK: CD#6
	07110246

PROVIDING SURVEYING SERVICES
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412 N. DAL PASO
HOBBS, N.M. 88240
(505) 393-3117

TABLE 1

Soil Laboratory Analytical Results Summary

Texaco Mattern Battery #26
Monument, New Mexico

Prepared for:
Hess Corporation
Seminole, Texas

April, 2007

Prepared by:
BBC International, Inc.

Table 1. Soil Laboratory Analytical Results Summary

		Sample	Mattern 1 @ 4'	Mattern 2 @ 4'	Mattern 3 @ 4'	Mattern 4 @ 4'	Mattern 5 @ 4'
Analyte	Method	Date					
			mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg
Benzene	S 8021B	01/03/07	<0.005	<0.005	<0.005	<0.005	<0.005
Toluene	S 8021B	01/03/07	<0.005	<0.005	<0.005	<0.005	<0.005
Ethylbenzene	S 8021B	01/03/07	<0.005	<0.005	<0.005	<0.005	<0.005
Total Xylenes	S 8021B	01/03/07	<0.015	<0.015	<0.015	<0.015	0.017
Chloride	4500-ClB	01/03/07	16	160	512	320	144
GRO	SW-846 8015 M	01/03/07	<10.0	<10.0	<10.0	<10.0	<10.0
DRO	SW-846 8015 M	01/03/07	<10.0	<10.0	<10.0	<10.0	<10.0

		Sample	West Wall 10'	Trench 15'
Analyte	Method	Date		
			mg/Kg	mg/Kg
Benzene	S 8021B	01/10/07	<0.002	<0.002
Toluene	S 8021B	01/10/07	0.044	0.003
Ethylbenzene	S 8021B	01/10/07	<0.002	<0.002
Total Xylenes	S 8021B	01/10/07	0.731	0.121
Chloride	4500-ClB	01/10/07	16	96
GRO	SW-846 8015 M	01/10/07	129	<10.0
DRO	SW-846 8015 M	01/10/07	1690	537

		Sample	Spoil Composite
Analyte	Method	Date	
			mg/Kg
Benzene	S 8021B	01/17/07	<0.020*
Toluene	S 8021B	01/17/07	0.055*
Ethylbenzene	S 8021B	01/17/07	<0.020*
Total Xylenes	S 8021B	01/17/07	0.565*
Chloride	4500-ClB	01/17/07	96
GRO	SW-846 8015 M	01/17/07	<10.0
DRO	SW-846 8015 M	01/17/07	168

*Matrix interference, dilution required

APPENDIX I

Soil Laboratory Analytical Results

Texaco Mattern Battery #26
Monument, New Mexico

Prepared for:
Hess Corporation
Seminole, Texas

April, 2007

Prepared by:
BBC International, Inc.



PHONE (325) 673-7001 • 2111 BEECHWOOD • ABILENE, TX 79603

PHONE (505) 393-2326 • 101 E. MARLAND • HOBBS, NM 88240

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

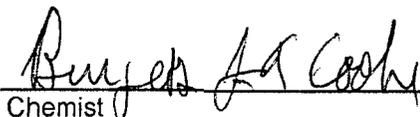
Receiving Date: 01/03/07
Reporting Date: 01/04/07
Project Owner: HESS
Project Name: TEXACO MATTERN BATTERY 26
Project Location: MONUMENT, NM

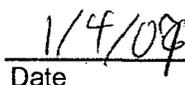
Sampling Date: 01/03/07
Sample Type: SOIL
Sample Condition: COOL & INTACT
Sample Received By: HM
Analyzed By: BC/HM

LAB NO.	SAMPLE ID	GRO (C ₆ -C ₁₀) (mg/Kg)	DRO (>C ₁₀ -C ₂₈) (mg/Kg)	Cl* (mg/Kg)
	ANALYSIS DATE	01/04/07	01/04/07	01/03/07
H11962-1	MATTERN 1 @ 4'	<10.0	<10.0	16
H11962-2	MATTERN 2 @ 4'	<10.0	<10.0	160
H11962-3	MATTERN 3 @ 4'	<10.0	<10.0	512
H11962-4	MATTERN 4 @ 4'	<10.0	<10.0	320
H11962-5	MATTERN 5 @ 2'	<10.0	<10.0	144
	Quality Control	781	740	490
	True Value QC	800	800	500
	% Recovery	97.6	92.3	98.0
	Relative Percent Difference	3.6	2.2	1.2

METHODS: TPH GRO & DRO: EPA SW-846 8015 M; Cl: Std. Methods 4500-ClB

*Analyses performed on 1:4 w:v aqueous extracts.


Chemist


Date

H11962A

PLEASE NOTE: **Liability and Damages.** Cardinal's liability and client's exclusive remedy for any claim arising, whether based in contract or tort, shall be limited to the amount paid by client for analyses. All claims, including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within thirty (30) days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of services hereunder by Cardinal, regardless of whether such claim is based upon any of the above-stated reasons or otherwise.



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PHONE (505) 393-2326 • 101 E. MARLAND • HOBBS, NM 88240

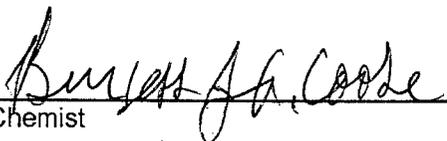
ANALYTICAL RESULTS FOR
 BBC INTERNATIONAL, INC.
 ATTN: CLIFF BRUNSON
 P.O. BOX 805
 HOBBS, NM 88241
 FAX TO: (505) 397-0397

Receiving Date: 01/03/07
 Reporting Date: 01/05/07
 Project Owner: HESS
 Project Name: TEXACO MATTERN BATTERY 26
 Project Location: MONUMENT, NM

Sampling Date: 01/03/07
 Sample Type: SOIL
 Sample Condition: COOL & INTACT
 Sample Received By: HM
 Analyzed By: BC

LAB NUMBER	SAMPLE ID	BENZENE (mg/Kg)	TOLUENE (mg/Kg)	ETHYL BENZENE (mg/Kg)	TOTAL XYLENES (mg/Kg)
	ANALYSIS DATE	01/04/07	01/04/07	01/04/07	01/04/07
H11962-1	MATTERN 1 @ 4'	<0.005	<0.005	<0.005	<0.015
H11962-2	MATTERN 2 @ 4'	<0.005	<0.005	<0.005	<0.015
H11962-3	MATTERN 3 @ 4'	<0.005	<0.005	<0.005	<0.015
H11962-4	MATTERN 4 @ 4'	<0.005	<0.005	<0.005	<0.015
H11962-5	MATTERN 5 @ 2'	<0.005	<0.005	<0.005	0.017
	Quality Control	0.096	0.096	0.099	0.296
	True Value QC	0.100	0.100	0.100	0.300
	% Recovery	95.7	96.1	99.4	98.7
	Relative Percent Difference	6.1	4.9	4.5	1.0

METHOD: EPA SW-846 8260


 Chemist

1/5/07
 Date

PLEASE NOTE: **Liability and Damages.** Cardinal's liability and client's exclusive remedy for any claim arising, whether based in contract or tort, shall be limited to the amount paid by client for analyses. All claims, including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within thirty (30) days after completion of the applicable service. **H11962B** All Cardinal be liable for incidental or consequential damages, including, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of services hereunder by Cardinal, regardless of whether such claim is based upon any of the above-stated reasons or otherwise.



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

Receiving Date: 01/11/07
Reporting Date: 01/12/07
Project Owner: HESS
Project Name: TEXACO MATTERN BATTERY 26
Project Location: MONUMENT, NM

Sampling Date: 01/10/07
Sample Type: SOIL
Sample Condition: COOL & INTACT
Sample Received By: NF
Analyzed By: BC/AB

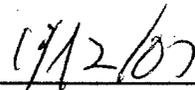
LAB NO.	SAMPLE ID	GRO (C ₆ -C ₁₀) (mg/Kg)	DRO (>C ₁₀ -C ₂₈) (mg/Kg)	Cl* (mg/Kg)
	ANALYSIS DATE	01/11/07	01/11/07	01/11/07
H12014-1	WEST WALL 10'	129	1690	16
H12014-2	TRENCH 15'	<10.0	537	96
	Quality Control	745	789	480
	True Value QC	800	800	500
	% Recovery	93.2	98.7	96.0
	Relative Percent Difference	3.4	2.2	0.0

METHODS: TPH GRO & DRO: EPA SW-846 8015 M; Cl: Std. Methods 4500-ClB

*Analyses performed on 1:4 w:v aqueous extracts.



Chemist



Date

H12014A

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ARDINAL LABORATORIES

PHONE (325) 673-7001 • 2111 BEECHWOOD • ABILENE, TX 79603

PHONE (505) 393-2326 • 101 E. MARLAND • HOBBS, NM 88240

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

Receiving Date: 01/11/07
Reporting Date: 01/15/07
Project Owner: HESS
Project Name: TEXACO MATTERN BATTERY 26
Project Location: MONUMENT, NM

Sampling Date: 01/10/07
Sample Type: SOIL
Sample Condition: COOL & INTACT
Sample Received By: NF
Analyzed By: AB

LAB NUMBER	SAMPLE ID	BENZENE (mg/Kg)	TOLUENE (mg/Kg)	ETHYL BENZENE (mg/Kg)	TOTAL XYLENES (mg/Kg)
	ANALYSIS DATE	01/13/07	01/13/07	01/13/07	01/13/07
H12014-1	WEST WALL 10'	<0.002	0.044	<0.002	0.731
H12014-2	TRENCH 15'	<0.002	0.003	<0.002	0.121
	Quality Control	0.084	0.090	0.088	0.282
	True Value QC	0.100	0.100	0.100	0.300
	% Recovery	83.7	90.1	87.8	94.2
	Relative Percent Difference	11.8	5.7	7.0	6.9

METHOD: EPA SW-846 8021 B


Chemist

1/15/07
Date

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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

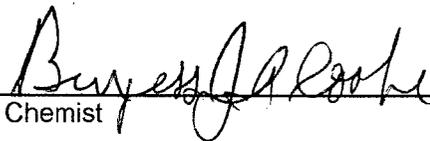
Receiving Date: 01/18/07
Reporting Date: 01/19/07
Project Owner: HESS
Project Name: TEXACO MATTERN BATTERY
Project Location: NMGSAU MONUMENT, NM

Sampling Date: 01/17/07
Sample Type: SOIL
Sample Condition: COOL & INTACT
Sample Received By: AB
Analyzed By: BC/HM

LAB NUMBER	SAMPLE ID	GRO (C ₆ -C ₁₀) (mg/Kg)	DRO (>C ₁₀ -C ₂₈) (mg/Kg)	Cl* (mg/Kg)
ANALYSIS DATE		01/19/07	01/19/07	01/18/07
H12054-1	SPOIL COMPOSITE	<10.0	168	96
Quality Control		776	772	500
True Value QC		800	800	500
% Recovery		97.0	96.5	100
Relative Percent Difference		1.8	0.6	6.2

METHODS: TPH GRO & DRO: EPA SW-846 8015 M; Cl: Std. Methods 4500-Cl'B

*Analysis performed on a 1:4 w:v aqueous extract.


Chemist

1/19/07
Date

H12054A

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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: 01/18/07
 Reporting Date: 01/18/07
 Project Owner: HESS
 Project Name: TEXACO MATTERN BATTERY
 Project Location: NMGSAU MONUMENT, NM

Sampling Date: 01/17/07
 Sample Type: SOIL
 Sample Condition: COOL & INTACT
 Sample Received By: AB
 Analyzed By: LB

LAB NUMBER	SAMPLE ID	BENZENE (mg/Kg)	TOLUENE (mg/Kg)	ETHYL BENZENE (mg/Kg)	TOTAL XYLENES (mg/Kg)
ANALYSIS DATE		01/18/07	01/18/07	01/18/07	01/18/07
H12054-1	SPOIL COMPOSITE	<0.020 *	0.055 *	<0.020 *	0.565 *
Quality Control		0.090	0.097	0.098	0.319
True Value QC		0.100	0.100	0.100	0.300
% Recovery		90.9	97	98.6	106.5
Relative Percent Difference		1.4	8.6	3.9	8.7

*Matrix interference, dilution required.

METHOD: EPA SW-846 8021 B


 Chemist

1/19/07
 Date

PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising, whether based in contract or tort, shall be limited to the amount paid by client for analyses. Including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within thirty (30) days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of services hereunder by Cardinal, regardless of whether such claim is based upon any of the above-stated reasons or otherwise.

APPENDIX II

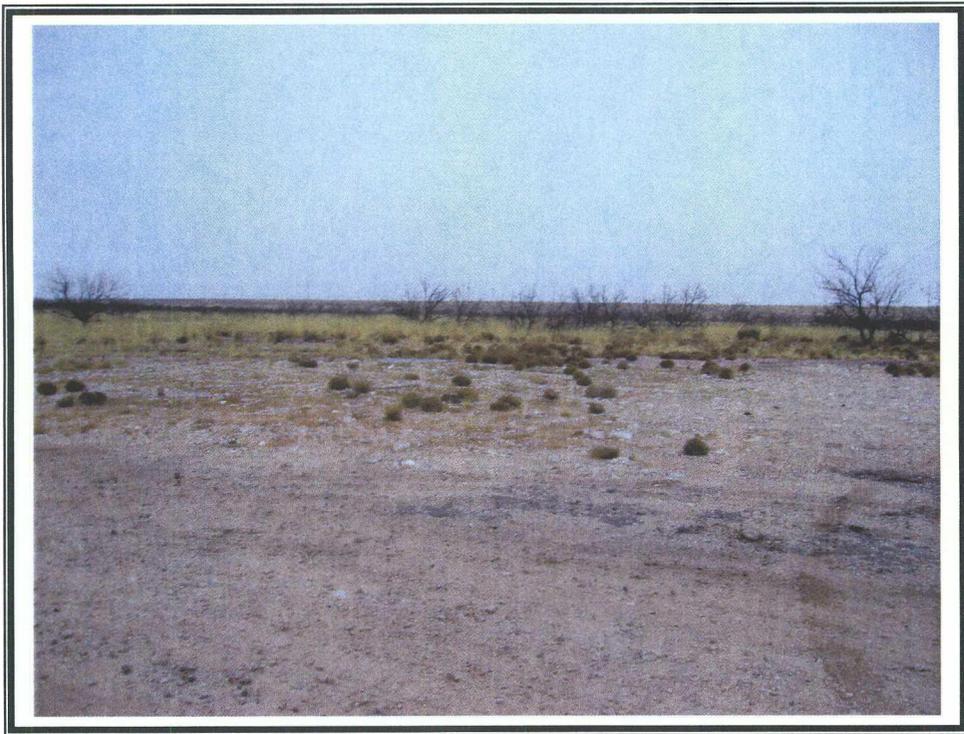
Site Photographs

Texaco Mattern Battery #26 Monument, New Mexico

Prepared for:
Hess Corporation
Seminole, Texas

April, 2007

Prepared by:
BBC International, Inc.



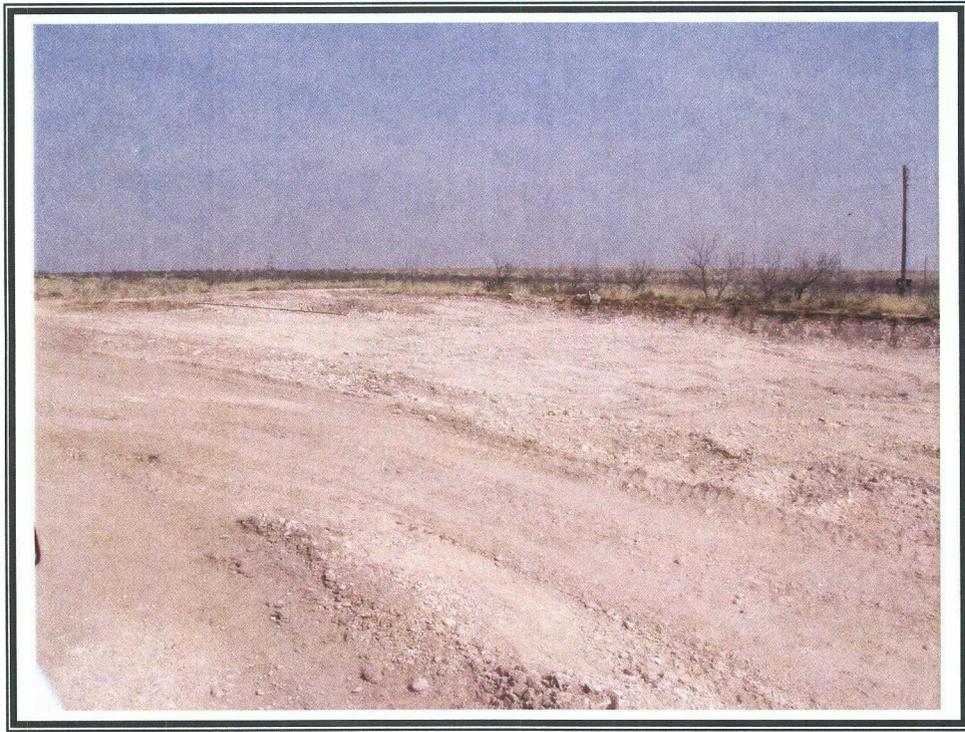
Northeast corner of Texaco Mattern Battery #26



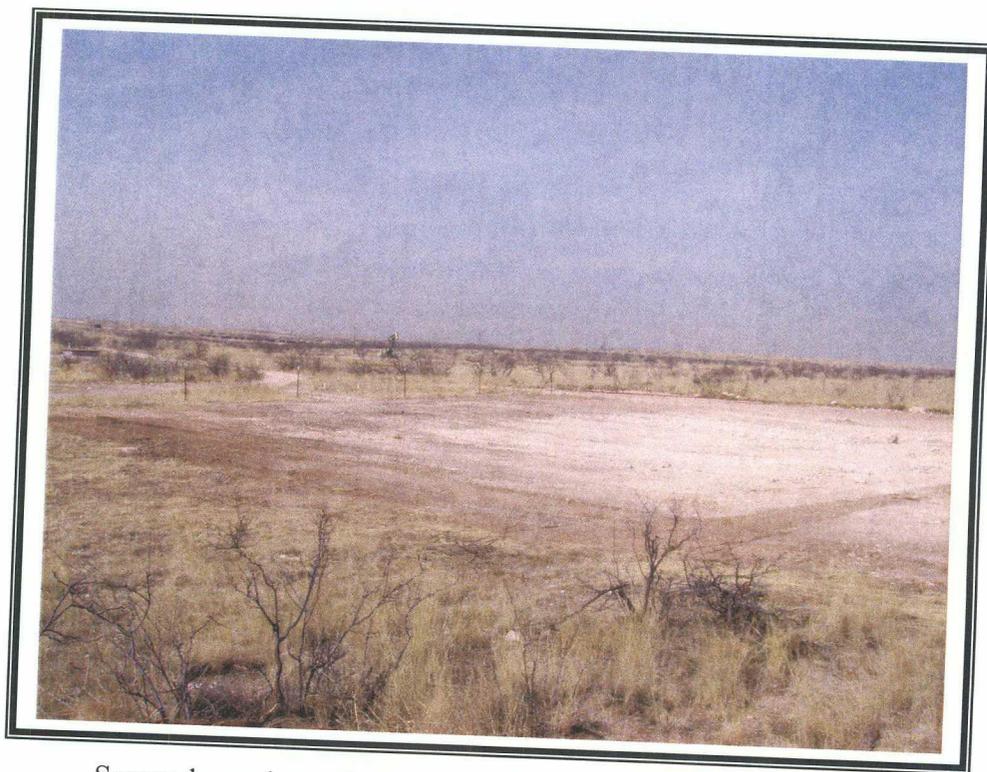
Eastern half of Texaco Mattern Battery #26



Northwest and southwest Texaco Mattern Battery #26



Shallow pit in northeastern part of Texaco Mattern Battery #26. Former location of tanks



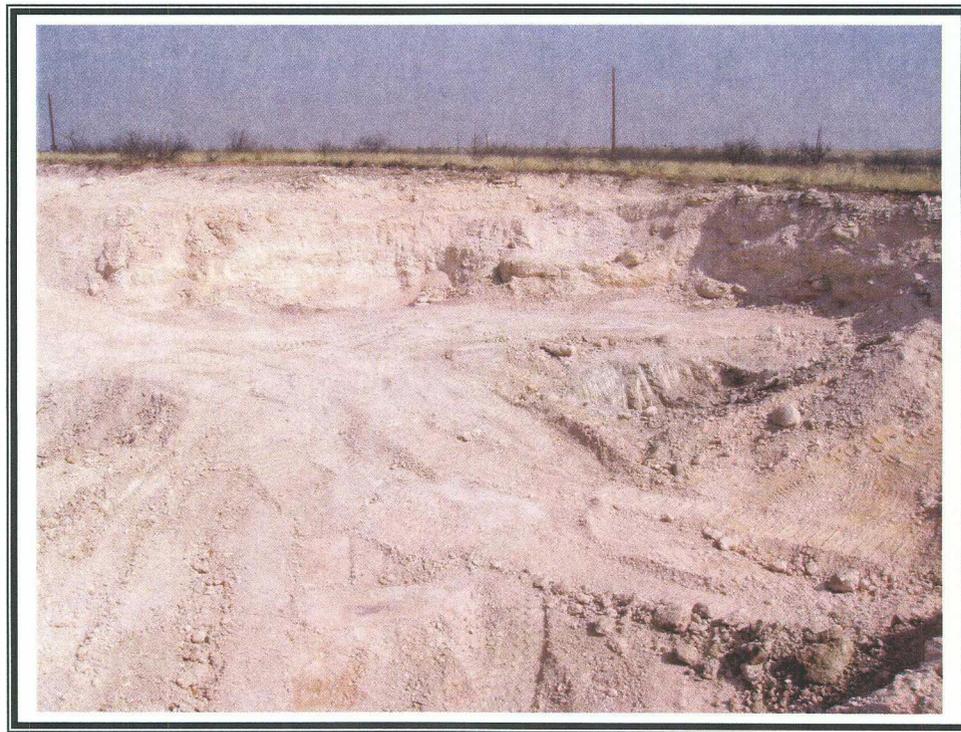
Scraped area in northwest part of Texaco Mattern Battery #26



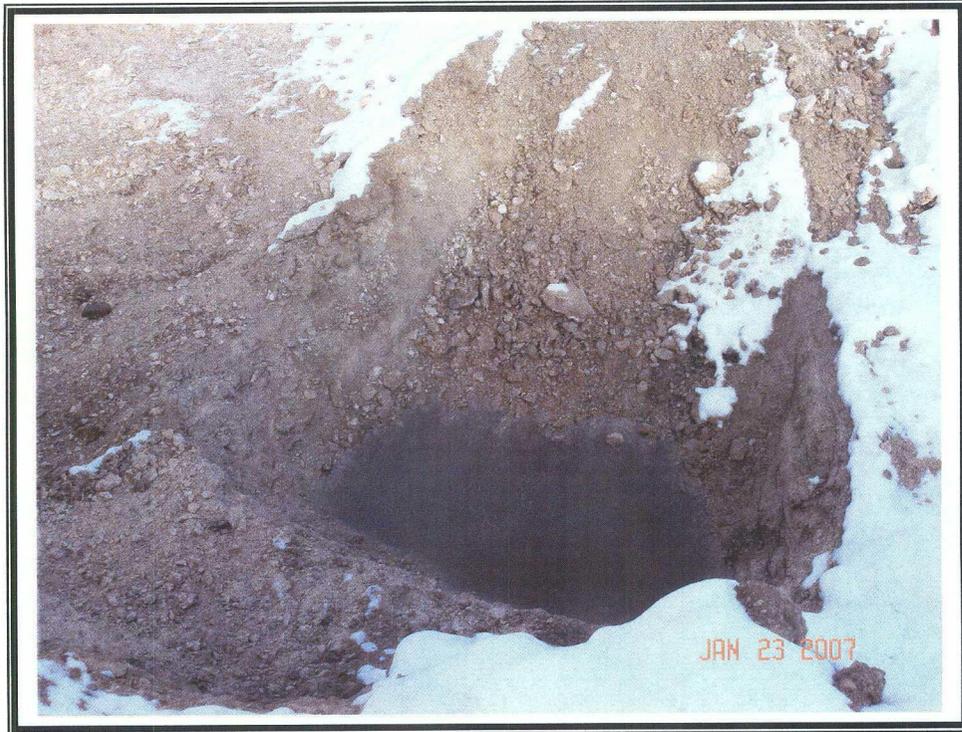
Scraped area in northwest part of Texaco Mattern Battery #26



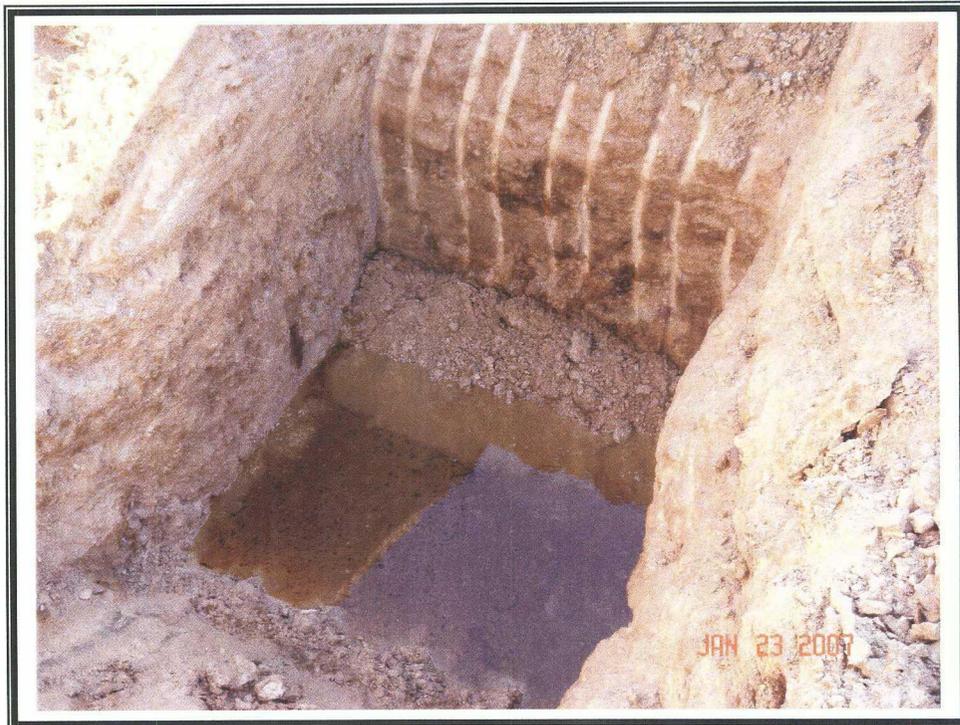
Scraped area in southwest and central part of Texaco Mattern Battery #26



Associated pit area in southeast part of Texaco Mattern Battery #26



Groundwater encountered in western floor of associated pit at Texaco Mattern Battery #26



Groundwater encountered in northern floor of associated pit at Texaco Mattern Battery #26

APPENDIX III

Correspondence

Texaco Mattern Battery #26 Monument, New Mexico

Prepared for:
Hess Corporation
Seminole, Texas

April, 2007

Prepared by:
BBC International, Inc.

Amy C. Ruth

From: Hall, Drew [drewhall@Hess.com]
Sent: Tuesday, January 23, 2007 6:15 PM
To: wayne.price@state.nm.us
Cc: cwilliams@state.nm.us; Barnes, Randy; Baker, Jay; Sagebien, Alex; Castro, David; Peterson, Floyd; amy@bbcinternational.com; cbrunson@bbcinternational.com; Hall, Drew
Subject: Texaco Mattern Battery 26

Mr. Price,

This Email is formal notification that Hess Corporation has encountered a hydrocarbon impacted ground water bearing formation at the Texaco Mattern Battery during excavation of contaminated soils at the site. At approximately 17:00 on 01/22/07 the Hess contracted excavator encountered water in the remediation excavation at 17 feet below ground surface. Two additional areas were dug to 17 feet within the existing 15 foot deep excavation and water was encountered at the same depth in these areas. Water within the excavation appeared to have oil sheen on 1/22/07. Overnight, additional oil has accumulated on the water within the excavation from soils that appear to be weeping small amounts of free oil, and in isolated areas the oil appears to be 1/10th of an inch thick NAPL on the water. The following is general information regards the remediation site:

Name: Texaco Mattern Battery 26;
Operator: Hess Corporation; however, Apache Corporation currently operates the NMGSAU, but Hess has retained liability for this historical site and will be conducting the remedy at the site;

Location: Township 19S, Range 37E, Section 20, SW Quarter Section;
County: Lea County, New Mexico; and
Depth to ground water: 17 feet (based on a measurement from the ground surface to the water encountered in the excavation) and according to regional ground water data taken from the New Mexico State Engineer Office the closest data point located in Township 19S, Range 37E, Section 19, SE Quarter Section is 40.0 feet to ground water.

Hess Corporation suspects that the ground water encountered at the site may be a perched ground water bearing unit and may not be the regional ground water aquifer; however, further investigation will be required to make this determination.

Hess Corporation has ceased excavation at the site, and will proceed as directed by the NMOCD. Hess Corporation will keep the NMOCD informed of any activities at the site. As you are aware Hess Corporation is currently working with Edward Hansen on another remediation site in Lea County and would like to request Edward as our point of contact on this site.

If you have questions, please contact me at (432) 209-4248 (cellular), (432) 209-6713 (office), or via email.

Best regards,
Drew Hall
Sr. Environmental Specialist
Hess Corporation

4/2/2007



NEW MEXICO ENERGY, MINERALS and NATURAL RESOURCES DEPARTMENT

BILL RICHARDSON
Governor
Joanna Prukop
Cabinet Secretary

Mark E. Fesmire, P.E.
Director
Oil Conservation Division

CERTIFIED MAIL
RETURN RECEIPT NO: 3929 4425

January 29, 2007

Hess Corporation
Attn: Drew Hall
P.O. Box 840
Seminole, Texas 79360

RE: REQUIREMENT TO SUBMIT ABATEMENT PLAN

Dear Mr. Hall:

The New Mexico Oil Conservation Division (OCD) has determined after reviewing your Notification of Groundwater Impact (your email of January 24, 2007) for the following site:

Texaco Mattern Battery 26
SW/4, Section 20, T19S, R37E
Lea County, New Mexico

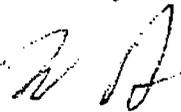
that the Hess Corporation must submit a Stage 1 Abatement Plan in accordance with OCD Rule 19 (19.15.1.19 NMAC) to investigate the ground water contamination at this site. The Stage 1 Abatement Plans must be submitted to the OCD Santa Fe Office with a copy provided to the OCD Hobbs District Office and must meet of all the requirements specified in OCD Rule 19 (19.15.1.19 NMAC), including, but not limited to, the public notice and participation requirements specified in Rule 19G. The Stage 1 Abatement Plan is due sixty (60) days from the receipt by the Hess Corporation of this written notice. In addition, if the release is a recent release (i.e., since Hess Corporation has become the responsible person for this site), then a completed Form C141 must be submitted to the OCD as soon as possible and also included in the Abatement Plan. However, if the release is a "historical" release, then any pertinent information regarding the release must be included in the Abatement Plan as part of the description of the site.

Drew Hall
January 29, 2007
Page 2

The Stage 1 Abatement Plan must specifically meet all of the requirements specified in OCD Rule 19E.3, including, but not limited to, a site investigation work plan and monitoring program that will enable it to characterize the release using an appropriate number of isoconcentration maps and cross sections that depict the contamination that has been released from the sites and to provide the data necessary to select and design an effective abatement option. Hess Corporation may, if it chooses, concurrently submit a Stage 2 Abatement Plan that addresses appropriate proactive abatement options.

The Hess Corporation should submit one paper copy and an electronic copy on CD for the Plan and for all future workplans and/or reports for the Plan. An Abatement Plan # will be assigned once the Plan is submitted to the OCD. If you have any questions, please contact Edward J. Hansen of my staff at (505) 476-3489 or <mailto:edwardj.hansen@state.nm.us>.

Sincerely,



Wayne Price
Environmental Bureau Chief

WP:EJH:ejh

cc: Chris Williams, OCD Hobbs District Supervisor
Larry Johnson, OCD Hobbs

APPENDIX IV

Location of Water Wells in 1 Mile Radius

Texaco Mattern Battery #26 Monument, New Mexico

Prepared for:
Hess Corporation
Seminole, Texas

April, 2007

Prepared by:
BBC International, Inc.

**New Mexico Office of the State Engineer
POD Reports and Downloads**

Township: Range: Sections:

NAD27 X: Y: Zone: Search Radius:

County: Basin: Number: Suffix:

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

WATER COLUMN REPORT 01/04/2007

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

POD Number	Tws	Rng	Sec	q	q	q	Zone	X	Y	Well	Depth Water	Water Column
L 02602	19S	37E	16	1	1					96		
L 03185	19S	37E	16	2	4					86	45 ✓	4
L 03185 APPRO	19S	37E	16	2	4					86	45	4
L 01975 APPRO	19S	37E	16	4	3					50	20 ✓	3
L 03228 APPRO	19S	37E	16	4	4					102	42 ✓	6
L 03228	19S	37E	16	4	4					102	42	6
L 06933 (E)	19S	37E	17	4	2	3				100	65 ✓	3
L 02033	19S	37E	18	1	1	1				134	35 ✓	9
L 10271 EXPL	19S	37E	18	1	1	1				137	70 ✓	6
L 04313 APPRO	19S	37E	19	1	1					116	52 ✓	6
L 04313	19S	37E	19	1	1					116	52	6
L 10277	19S	37E	19	4	2	2				70	40 ✓	3
L 05336	19S	37E	21	1	2	4				71	30 ✓	4
L 09163	19S	37E	21	2	3	2				60	47 ✓	1
L 02621	19S	37E	21	3	2	3				83	40 ✓	4
L 02621 APPRO	19S	37E	21	3	2	3				83	40	4
L 10238	19S	37E	21	3	4	3				60	30 ✓	3
L 10295	19S	37E	21	3	4	3				70	30	4
L 04108 APPRO	19S	37E	21	4	2					70	22 ✓	4
L 04108	19S	37E	21	4	2					70	22	4
L 03885	19S	37E	28							47		
L 03884 APPRO	19S	37E	28							47	30	1
L 03885 APPRO	19S	37E	28							47		
L 03884	19S	37E	28							47	30	1
L 11873 POD1	19S	37E	28	1	2	1				71		
L 03982 APPRO	19S	37E	28	3	3					43	31	1
L 07223	19S	37E	28	3	3	2				60		
L 03956	19S	37E	29							40	20	2

L 03922 APPRO	19S	37E	29		42	22	2
L 03922	19S	37E	29		42	22	2
L 03949 APPRO	19S	37E	29		36	18	1
L 03956 APPRO	19S	37E	29		40	20	2
L 03949	19S	37E	29		36	18	1
L 02596 APPRO	19S	37E	29	3 2	50	20✓	3
L 02596	19S	37E	29	3 2	50	20	3
L 04799	19S	37E	29	4 4	150		
L 04799 REPAR	19S	37E	29	4 4	150		
L 05500	19S	37E	29	4 4 2	55		
L 03954	19S	37E	30	4 4	35	20✓	1
L 03906 APPRO	19S	37E	30	4 4	35	20	1
L 03905 APPRO	19S	37E	30	4 4	35	20	1
L 03954 APPRO	19S	37E	30	4 4	35	20	1
L 03995 APPRO	19S	37E	30	4 4	35	20	1
L 03995	19S	37E	30	4 4	35	20	1
L 03905	19S	37E	30	4 4	35	20	1
L 03906	19S	37E	30	4 4	35	20	1
L 05995	19S	37E	30	4 4 4	40	23✓	1

Record Count: 47

Water Resources

National Water Information System: Web Interface

Data Category:

Ground Water

Geographic Area:

New Mexico

GO

Ground-water levels for New Mexico

Search Results -- 1 sites found

Search Criteria

Agency code = usgs
site_no list = • 323847103174701

[Save file of selected sites to local disk for future upload](#)

USGS 323847103174701 19S.37E.19.113211 /

Lea County, New Mexico
 Latitude 32°38'47", Longitude 103°17'47"
 NAD27
 Land-surface elevation
 3,703.00 feet above sea level NGVD29
 The depth of the well is 116 feet below land surface.

This well is completed in the OGALLALA FORMATION (121OGLL) local aquifer.

Output formats

Table of data
Tab-separated data
Graph of data
Reselect period

Date	Time	Water level, feet below land surface	Status
1961-02-23		54.95	
1966-02-11		56.75	
1971-01-15		57.58	P

Date	Time	Water level, feet below land surface	Status
1976-02-04		57.87	
1981-01-16		56.77	
1986-01-08		57.34	
1991-02-22		55.58	
1996-03-06		57.31	

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Ground water for New Mexico: Water Levels
<http://waterdata.usgs.gov/nm/nwis/gwlevels?>

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