

Americo Energy State T Battery Work Plan Unit K, Section 2, Township 15S, Range 37E Lea County, New Mexico

June 17, 2005



Prepared for:

Americo Energy Resources 10940 Old Katy Road Houston, Texas 77043



By:

Safety & Environmental Solutions, Inc. 703 E. Clinton Suite 102 Hobbs, New Mexico 88240 (505) 397-0510

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I. Company Contacts

| Oscar Nosrati | Americo | 713-984-9700 | oscar.nosrati@americoenergy.com |
|---------------|---------|--------------|---------------------------------|
| Bob Allen | SESI | 505-397-0510 | ballen@sesi-nm.com |

II. Purpose

The purpose of this work plan is to propose a plan for the cleanup of the area identified as the State T Battery. The site is located in Section 2, Township 15S, Range 37E, Lea County, New Mexico. The site is situated on a relatively level site.

III. Background

Merit Energy received a Notice of Violation in mid-2004 regarding the condition of the battery inside the berm. SESI visited the site on July 28, 2004 and recorded visible hydrocarbon staining and 6 -10" of fluid covering the entire battery area. A oil sheen was visible on top of the fluid. At some time a previous release had overflowed the battery to the west. (See Photos) The area is now dry with visible staining. The battery is currently in use and owned by Americo Energy.

IV. Contaminant and Size of Area

The suspected contaminant is produced fluids. The area inside the berm is approximately 22,000 square feet. No evidence of a current release is evident.

V. Vertical and Horizontal Extent of Contamination

As reported in the Site investigation Report for Merit Energy dated April 28, 2005 SESI installed 7 test trenches at the State T Battery. The results of the analyses indicate the hydrocarbon contamination to be above the NMOCD guidelines in Test Trenches 1, 3, 4 and 6. The chloride concentrations are slightly elevated but should not present a threat to groundwater.

VI. Groundwater



The following water level information was obtained from a database provided by the United State Geological Survey (USGS).

| 15S.37E.02.324214 | 19660218 42.09 | 15S.37E.04.113311 | 19930106 73.58 |
|-------------------|----------------|-------------------|----------------|
| 15S.37E.05.311334 | 19910308 72.54 | 15S.37E.06.211134 | 19960321 74.80 |
| 15S.37E.07.111324 | 19940106 75.84 | 15S.37E.08.211 | 19960105 69.41 |
| 15S.37E.08.21333 | 19910308 70.28 | 15S.37E.09.21112 | 19910308 68.80 |
| 15S.37E.09.431211 | 19960103 67.01 | 15S.37E.10.111332 | 19801003 62.34 |
| 15S.37E.11.333324 | 19910313 57.17 | 15S.37E.12.313221 | 19960110 52.48 |
| 15S.37E.14.232342 | 19860204 49.28 | 15S.37E.15.143423 | 19910313 63.76 |

In addition, there is a monitor well installed in Section 11 to the southeast of the subject site where groundwater was measured to be 68.27' from the top of casing on April 7, 2005.

VII. Action Plan

Based on the characterization of the site, the cleanup level reached by the application of the "**Guidelines for Remediation of Leaks, Spills and Releases**" *New Mexico Oil Conservation Division (NMOCD)* – August 13, 1993 (Guidelines) to this site is 1000 parts per million (ppm) Total Petroleum Hydrocarbons (TPH). Application of the New Mexico Oil Conservation Division's ranking criteria for contaminated soils at this site is presented below:

| Depth to Ground Water: | 10 points |
|--|-----------|
| Distance to Well Head or Water Source: | 0 points |
| Distance to Surface Water/Waterways: | 0 points |
| Total Score: | 10 points |

SESI proposes the north end of the battery to be excavated to the point where a representative sample of the bottom and sidewalls indicate the TPH levels are no greater than 1000 ppm. The excavated soils will be transported off-site to an NMOCD approved facility. The remainder of the battery will be excavated to remove the highly contaminated/saturated soils to a depth no greater than 3' or 1000 ppm whichever is first encountered. The remainder will be delineated to document vertical extent. The excavated areas will then be backfilled with clean soil from off-site and contoured to grade.

The appropriate reports will be filed with the NMOCD upon completion.

VIII. Figures & Appendices

Figure 1. - Vicinity Map Figure 2. - Site Plan Appendix A – Site Investigation Figure 1 Vicinity Map



.









Appendix A Site Investigation

Merit Energy State T Battery Site Investigation Unit K, Section 2, Township 15S, Range 37E Lea County, New Mexico

April 28, 2005



Prepared for:

Merit Energy 13727 Noel Road, Suite 500 Dallas, Texas 75240

By:

Safety & Environmental Solutions, Inc. 703 E. Clinton Suite 102 Hobbs, New Mexico 88240 (505) 397-0510

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I. Company Contacts

| Chad Brister | Merit | 972-628-1564 | chad.brister@meritenergy.com |
|--------------|-------|--------------|------------------------------|
| Bob Allen | SESI | 505-397-0510 | ballen@sesi-nm.com |

II. Purpose

The purpose of this site investigation is to identify the vertical and horizontal extent of contamination inside the bermed area at the State T Battery. The site is located in Section 2, Township 15S, Range 37E, Lea County, New Mexico. The site is situated on a relatively level site.

III. Background

Merit Energy received a Notice of Violation in mid-2004 regarding the condition of the battery inside the berm. SESI visited the site on July 28, 2004 and recorded visible hydrocarbon staining and 6 -10" of fluid covering the entire battery area. An oil sheen was visible on top of the fluid. At some time a previous release had overflowed the battery to the west. (See Photos) The area is now dry with visible staining. The battery is currently in use and owned by Americo Energy.

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| 15S.37E.14.232342 | 19860204 49.28 | 15S.37E.15.143423 | 19910313 63.76 |

In addition, there is a monitor well installed in Section 11 to the southeast of the subject site where groundwater was measured to be 68.27' from the top of casing on April 7, 2005.

VI. Work Performed

On April 25, 2005 Safety & Environmental Solutions, Inc. (SESI) installed 7 test trenches

inside the bermed area at the site. Test Trenches 1 - 4 were installed on the north end of the battery site to the following depths:

| Test Trench # 1 | 7' |
|-----------------------|----|
| Test Trench # 2 and 3 | 5' |
| Test Trench # 4 | 4' |

Test Trench # 5 was installed on the west side of the battery and excavated to a depth of 1' where an electric line was cut. This trench was abandoned at that time.

Test Trench # 6 was installed on the east side of the battery near the center and excavated to a depth of 8'.

Test Trench # 7 was installed on the southeast end of the battery and excavated to a depth of 3'. No sample was retrieved from this trench. White caliche was encountered at a depth of 3'.

Samples were taken from the bottom of each trench with the exception of trench # 5. The samples were properly packaged and transported under a chain of custody to Cardinal Laboratories in Hobbs, New Mexico for analysis. All samples were analyzed for Chlorides (EPA Method 4500-CI⁻B) ,TPH (EPA Method 418.1) and BTEX (EPA Method SW-846-8260). The results of the analysis are presented below:

| Date | Sample ID | CI. |
|---------|-----------|-----|
| 4-26-05 | TT 1 @ 7' | 432 |
| 4-26-05 | TT 2 @ 5' | 416 |
| 4-26-05 | TT 3 @ 5' | 432 |
| 4-26-05 | TT 4 @ 4' | 96 |
| 4-26-05 | TT 6 @ 8' | 640 |

| Date | Sample ID | ТРН | Benzene | Toluene | Ethyl Benzene | Total Xylene |
|---------|-----------|-------|---------|---------|------------------|-----------------|
| 4-27-05 | TT 1 @ 7' | 2040 | <0.005 | <0.005 | < 0.005 | <0.015 |
| 4-27-05 | TT 2 @ 5' | 98.2 | < 0.005 | < 0.005 | < 0.005 | <0.015 |
| 4-27-05 | TT 3 @ 5' | 1610 | < 0.005 | < 0.005 | <0.005 | <0.015 |
| 4-27-05 | TT 4 @ 4' | 10900 | <0.005 | < 0.005 | 0.524 | 3.16 |
| 4-27-05 | TT 6 @ 8' | 3930 | <0.005 | <0.005 | 0.715 | 0.016 |

VII. Conclusions

Based on the characterization of the site, the cleanup level reached by the application of the "Guidelines for Remediation of Leaks, Spills and Releases" New Mexico Oil Conservation Division (NMOCD) – August 13, 1993 (Guidelines) to this site is 1000 parts per million (ppm) Total Petroleum Hydrocarbons (TPH). Application of the New Mexico Oil Conservation Division's ranking criteria for contaminated soils at this site is presented below:

| Depth to Ground Water: | 10 points |
|--|-----------|
| Distance to Well Head or Water Source: | 0 points |
| Distance to Surface Water/Waterways: | 0 points |
| Total Score: | 10 points |

The results of the analyses indicate the hydrocarbon contamination to be above the NMOCD guidelines in Test Trenches 1, 3, 4 and 6. The chloride concentrations are slightly elevated but should not present a threat to groundwater.

VIII. Figures & Appendices

Figure 1 - Vicinity Map Figure 2 - Site Plan Appendix A - C-141 Appendix B - Analytical Results Figure 1 Vicinity Map















Receiving Date: 04/26/05

Reporting Date: 04/29/04

Project Number: MER-04-015 Project Name: STATE T

Project Location: NOT GIVEN

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

ANALYTICAL RESULTS FOR SAFETY & ENVIRONMENTAL SOLUTIONS, INC. ATTN: BOB ALLEN 703 E. CLINTON, #102 HOBBS, NM 88240 FAX TO: (505) 393-4388

Sampling Date: 04/25/05 Sample Type: SOIL Sample Condition: COOL & INTACT Sample Received By: NF Analyzed By: BC/AH

| LAB NUMBER | SAMPLE ID | TPH (mg/Kg) | CI* (mg/Kg) | BENZENE (mg/Kg) | TOLUENE (mg/Kg) | ETHYL BENZENE (mg/Kg) | TOTAL XYLENES (mg/Kg) |
|-----------------------------|-----------|-----------------|----------------|--------------------|--------------------|-----------------------------|-----------------------------|
| ANALYSIS DATE: | | 04/27/05 | 04/26/05 | 04/27/05 | 04/27/05 | 04/27/05 | 04/27/05 |
| H9748-1 | TT-1 7' | 2040 | 432 | <0.005 | <0.005 | <0.005 | < 0.015 |
| H9748-2 | TT-2 5' | 98.2 | 416 | <0.005 | <0.005 | <0.005 | <0.015 |
| H9748-3 | TT-3 5' | 1610 | 432 | <0.005 | <0.005 | <0.005 | <0.015 |
| H9748-4 | TT-4 4' | 10900 | 96 | <0.005 | <0.005 | 0.524 | 3.16 |
| H9748-5 | TT-6 8' | 3930 | 640 | <0.005 | <0.005 | 0.715 | 0.016 |
| | | · · · · · · · · | | | | | |
| Quality Control | | 234 | 998 | 0.090 | 0.089 | 0.094 | 0.293 |
| Truo Value QC | | 240 | 1000 | 0.100 | 0.100 | 0.100 | 0.300 |
| % Recovery | | 97.6 | 99.8 | 89.8 | 88.7 | 94.4 | 97.7 |
| Relative Percent Difference | | 5.4 | 0.2 | 3.2 | 7.3 | 2.9 | 6.1 |

METHODS:

TRPHC-EPA 600/4-79-020 418.1;CI-Std. Methods 4500-CI'B; BTEX-EPA SW-846 8260 *Analyses performed on 1:4 w:v aqueous extracts.

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PLEASE NOTE: Liability and Damages. Cardina's tablity and client's exclusive romedy for any claim ansing, whether bared in contract or text, shall be limited to the amount paid by clent for straigestall All damage including those for necligence and any other cause whatsoever shall be demaded withed million and received by Cardinat within thirty (30) days after completion of the upplicable service. This Section 2019, without immation, business interruptions, base of use, or toss of profits incurred by clent, its sublications admatches or successors arising out of or related to incertained on services hereunder by Cardinat, regardless of whether such claim is based upon any of the above-stated reasons of otherwise.

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

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| ARDINAL | LABO | RATORIES, | INC. |

2111 Beschwood, Abliene, TX 79603 101 East Marland, Hobbs, NM 88240 (915) 673-7001 Fax (915) 673-7020 (505) 393-2326 Fax (605) 393-2476

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| City: HOBBS |)) | State: NM Zip: 88240 | | | | | | | | n: | | | | | | · · | | | [' | | 1 ' | ' |
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† Cardinal cannot accept verbal changes. Please fax written changes to (915) 673-7020.

Appendix B Site Photos



Backhoe excavating trench #1



Backhoe excavating trench # 1 foreground typical material on N. side of battery



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Undisturbed material on N. Side of battery



N. side of battery



Test trench # 1



Test trench #2



Test trench #3



Test trench # 4



West side of 1,000 barrel tank



Test trenches # 3 (upper) & #4 (lower)



Test trenches # 1 (lower) & #2 (upper)



Test trenches #1 (lower) & #2 (upper)



Test trench #1 and surrounding area





Test trench #4



Test trench #6



Test trench #6



Test trench #7



Test trench #7



Location of test trench #6



Location of test trench #7 (behind water tank)