

1R - 427-15

**GENERAL
CORRESPONDENCE**

**YEAR(S):
2007**

L. Peter Galusky, Jr. Ph.D., P.G.

Texerra

May 1st, 2007

Mr. Edward Hansen

New Mexico Energy, Minerals, & Natural Resources
Oil Conservation Division, Environmental Bureau
1220 S. St. Francis Drive
Santa Fe, New Mexico 87504

2007 MAY 7 PM 12:03

**RE: Investigation and Characterization Plan
Rice Operating Company – EME SWD
State H EOL: Unit E Sec 17 T 20S R 37E**

Sent via E-mail and U.S. Certified Mail: Return Receipt No. 7005 0390 0002 9898 2730

Dear Mr. Hansen:

RICE Operating Company (RICE) has retained my company to address potential environmental concerns at the above-referenced site. ROC is the service provider (agent) for the EME SWD System and has no ownership of any portion of the pipeline, well, or facility. The System is owned by a consortium of oil producers, System Partners, who provide all operating capital on a percentage ownership/usage basis. Environmental projects of this magnitude require System Partner AFE approval, and work begins as funds are received. In general, project funding is not forthcoming until NMOCD approves the work plan. Therefore, your timely review of this submission would be greatly appreciated.

For all such environmental projects, ROC will choose a path forward that:

- protects public health,
- provides the greatest net environmental benefit,
- complies with NMOCD Rules, and
- is supported by good science.

Each site shall generally have three submissions, as described below:

1. This Investigation and Characterization Plan (ICP) is a proposal for data gathering and site characterization and assessment.
2. Upon evaluating the data and results from the ICP, a recommended remedy will be submitted in a Corrective Action Plan (CAP) if this is warranted.
3. Finally, after implementing the remedy, a Closure Report with final documentation will be submitted.

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Background and Previous Work

The site is located approximately 3.5 miles south/southeast of Monument in Lea County (Figure 1). The topography is gently sloping toward the southeast. Soils on the site are mapped in the Lea County Soil Survey as belonging to Pyote-Maljamar-Kermit soil association. These are characterized as gently undulating and rolling, sandy soils of six feet or more depth overlying caliche. Groundwater is estimated to occur at a depth of approximately 27+/- feet, occurring in unconsolidated Tertiary alluvium of the Ogallala Formation, and is believed to flow toward the southeast in the direction of the surface topographic gradient.

As part of their on-going SWD facility upgrades, Rice replaced two junction boxes at this site, located approximately 5 ft apart, with a new, concrete-lined box in October, 2003. Rice subsequently delineated soils beneath the former junction boxes for chloride and hydrocarbon levels. PID readings indicated that hydrocarbons were not present in significant concentrations to the limit of vertical delineation, 14 ft below ground surface. However, chloride concentrations did not exhibit significant decline with depth, and ranged from 1,775 ppm at the surface to approximately 1,325 ppm at 14 ft below ground surface. OCD was then notified that this site has potential for groundwater impacts, and subsequent site investigation was then planned. (See: Appendix A – Junction Box Disclosure Report).

Rice removed soils from beneath the two former junction boxes in a 20 ft by 20 ft by 14 ft deep excavation. A 1.5 ft thick clay barrier was then installed to preclude potential for further downward chloride migration. The excavated soil was backfilled into the excavation and contoured to the surrounding terrain. The disturbed area was then seeded with a blend of native vegetation. A photographic chronology of these activities is provided in Appendix B.

The surface (ecological) impact of this release was relatively small. However, as some potential for groundwater contamination may exist, further evaluation is warranted for chlorides, the constituent of concern. Therefore, ROC proposes additional investigative work, as outlined in the Investigation and Characterization Plan (ICP) below, to more definitively evaluate the extent of contamination caused by the release, and to then evaluate the potential for groundwater degradation. Yet, it should be noted that the source of this impact is historical, since the older junction boxes have been replaced with a new, concrete water-tight junction box.

Proposed Work Elements

1. Summarize information and data collected by ROC to date.
2. Summarize additional, publicly available regional and local hydrological information.
3. Complete vertical and lateral delineation of soil chloride concentrations, and prepare graphics to illustrate the horizontal and vertical extent of contamination.

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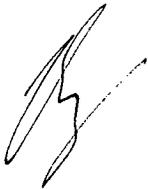
4. If warranted, install monitor wells sufficient to determine up-gradient, zone-of-release and down-gradient groundwater chloride concentrations. [All monitoring wells will be constructed (with the annular space sealed with a cement/bentonite mix) per NM Dept. Environment standards]. It should be noted, however, that the presence of active production facilities nearby may constrain the placement of borings and monitor wells.
5. Evaluate the risk of groundwater impact in light of the information obtained.

If the evaluation demonstrates that residual constituents pose no threat to ground water quality, then only a surface restoration plan will be proposed to OCD. If, as a result of this work, it is believed that this junction box site does pose a present or future risk of impacting groundwater quality, then a corrective action plan (CAP) will be developed and proposed to OCD.

I appreciate the opportunity to work with you and your staff on this project. Please call either myself, at the number below, or Kristin Farris Pope (ROC) at 505-393-9174, if you have any questions or wish to discuss these matters.

Thank you for your consideration.

Sincerely,



L. Peter (**Pete**) Galusky, Jr. Ph.D., P.G.
Principal

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E-mail: lpg@texerra.com
Web site: www.texerra.com

cc: CDH, KFP, file
Attachments: site location map

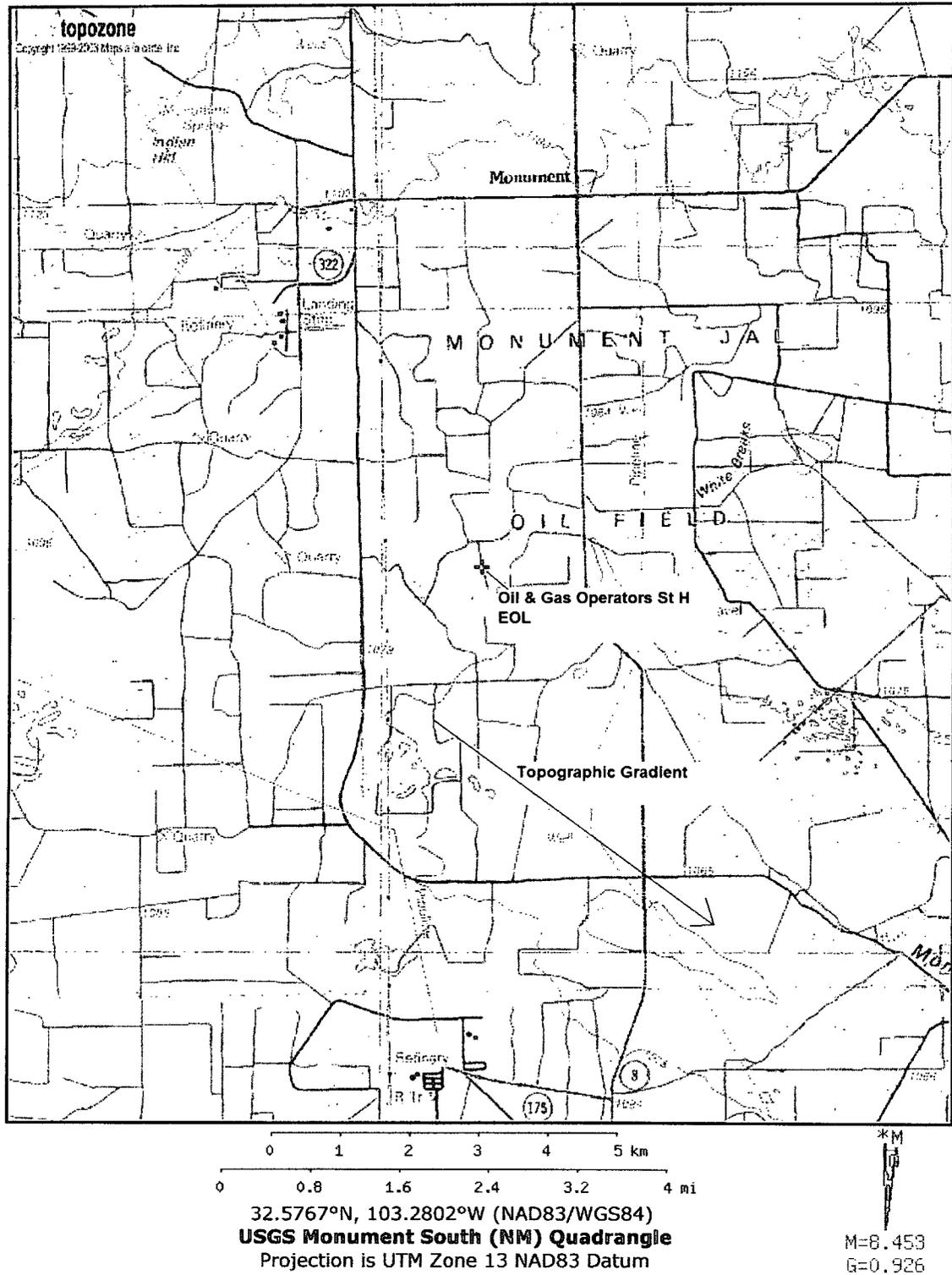


Figure 1 – Site Location Map.

Appendix A – Junction Box Disclosure Report

RICE OPERATING COMPANY JUNCTION BOX DISCLOSURE* REPORT																																																										
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SWD SYSTEM	JUNCTION	UNIT	SECTION	TOWNSHIP	RANGE	COUNTY	BOX DIMENSIONS - FEET																																																			
							Length	Width	Depth																																																	
EME	Oil & Gas State 'H' (north)	E	17	20S	37E	Lea	moved 50 ft South																																																			
LAND TYPE: BLM _____ STATE <u>X</u> FEE LANDOWNER _____ OTHER _____																																																										
Depth to Groundwater <u>27</u> feet NMOCD SITE ASSESSMENT RANKING SCORE: <u>20</u>																																																										
Date Started <u>11/6/2003</u> Date Completed <u>11/21/2003</u> OCD Witness <u>No</u>																																																										
Soil Excavated <u>59</u> cubic yards Excavation Length <u>20</u> Width <u>20</u> Depth <u>4</u> feet																																																										
Soil Disposed <u>0</u> cubic yards Offsite Facility <u>n/a</u> Location <u>n/a</u>																																																										
FINAL ANALYTICAL RESULTS: Sample Date <u>11/7/2003</u> Sample Depth <u>4 ft bgs</u>																																																										
Procure 5-point composite sample of bottom and 4-point composite sample of sidewalls. TPH, BTEX and Chloride laboratory test results completed by using an approved lab and testing procedures pursuant to NMOCD guidelines.																																																										
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Sample Location</th> <th>PID ppm</th> <th>GRO mg/kg</th> <th>DRO mg/kg</th> <th>Chloride mg/kg</th> </tr> </thead> <tbody> <tr> <td>SIDEWALLS</td> <td>0.0</td> <td><10.0</td> <td><10.0</td> <td>416</td> </tr> <tr> <td>BOTTOM</td> <td>0.0</td> <td><10.0</td> <td><10.0</td> <td>848</td> </tr> <tr> <td>REMIEDIATED</td> <td>0.0</td> <td><10.0</td> <td><10.0</td> <td>1180</td> </tr> </tbody> </table>					Sample Location	PID ppm	GRO mg/kg	DRO mg/kg	Chloride mg/kg	SIDEWALLS	0.0	<10.0	<10.0	416	BOTTOM	0.0	<10.0	<10.0	848	REMIEDIATED	0.0	<10.0	<10.0	1180	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="3" style="text-align: center;">CHLORIDE FIELD TESTS</th> </tr> <tr> <th>LOCATION</th> <th>DEPTH (ft)</th> <th>ppm</th> </tr> </thead> <tbody> <tr> <td rowspan="5" style="text-align: center;">Vertical</td> <td style="text-align: center;">4</td> <td style="text-align: center;">1633</td> </tr> <tr> <td style="text-align: center;">6</td> <td style="text-align: center;">2699</td> </tr> <tr> <td style="text-align: center;">8</td> <td style="text-align: center;">1845</td> </tr> <tr> <td style="text-align: center;">10</td> <td style="text-align: center;">661</td> </tr> <tr> <td style="text-align: center;">12</td> <td style="text-align: center;">1157</td> </tr> <tr> <td></td> <td style="text-align: center;">14</td> <td style="text-align: center;">2182</td> </tr> <tr> <td>4-wall comp.</td> <td style="text-align: center;">n/a</td> <td style="text-align: center;">308</td> </tr> <tr> <td>bottom comp.</td> <td style="text-align: center;">4</td> <td style="text-align: center;">848</td> </tr> <tr> <td>remed. comp.</td> <td style="text-align: center;">n/a</td> <td style="text-align: center;">1025</td> </tr> </tbody> </table>					CHLORIDE FIELD TESTS			LOCATION	DEPTH (ft)	ppm	Vertical	4	1633	6	2699	8	1845	10	661	12	1157		14	2182	4-wall comp.	n/a	308	bottom comp.	4	848	remed. comp.	n/a	1025
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<p>General Description of Remedial Action: This site was composed of two boxes that were approximately 5 ft apart. Vertical delineation at each box did not result in a conclusive decline of chloride impact (see graph). All PID readings were 0.0 ppm and TPH concentrations were well below NMOCD guidelines. A 20 x 20 x 4-ft deep excavation was made around the boxes and at 4 ft bgs, a 1.5 ft compacted clay barrier was installed to inhibit further chloride migration. The excavated soil was landfarmed on site and then backfilled on top of the clay and the surface was contoured to the surrounding terrain. The disturbed surface has been seeded with a blend of native vegetation. A new EOL box has been built approximately 50 ft south of this location.</p> <p style="text-align: center;">ADDITIONAL EVALUATION IS HIGH PRIORITY.</p> <p>enclosures: chloride graph, photos, lab results, PID readings</p>																																																										
I HEREBY CERTIFY THAT THE INFORMATION ABOVE IS TRUE AND COMPLETE TO THE BEST OF MY KNOWLEDGE AND BELIEF.																																																										
DATE <u>1/28/2004</u> PRINTED NAME <u>Kristin Farris</u>																																																										
SIGNATURE _____ TITLE <u>Project Scientist</u>																																																										
<i>* This site is a "DISCLOSURE." It will be placed on a prioritized list of similar sites for further consideration.</i>																																																										

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Appendix B – Photo chronology.



Figure 1 - Undisturbed north and south boxes: 08-06-2003.



Figure 2 - Completed new box 50 ft south of old boxes in background: 10-15-2003.

Appendix B – Photo chronology (continued)



Figure 3 - Beginning excavation and delineation: 11-06-2003,



Figure 4 - Testing compacted clay: 11-20-2003.

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Appendix B – Photo chronology (continued)



Figure 5 - Seeding disturbed surface.



Figure 6 - Identification plate marking clay liner.