1R - 427-06

WORKPLANS

DATE:

5-30-08

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

May 30th, 2008

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

RE: **Investigation and Characterization Plan**
Rice Operating Company – EME SWD System
EME Jct O-19 and EME Phillips B EOL
IR427-06
Sent via E-mail & U.S. Certified Mail w/ Return Receipt 7007 0710 0305 3743

Dear Mr. Hansen:

RICE Operating Company (ROC) has retained Texerra to address potential environmental concerns at the two above-referenced sites located in the EMS SWD system. 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 proposed 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.

This ICP is intended to encompass two sites within the EME SWD system, where the proposed scopes of work are tailored to the respective projects.

EME O-19 Junction Box

Background and Previous Work

The site is located approximately five miles south/southwest of Monument, New Mexico (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 the Pyote-Maljamar-Kermit association, which are characterized ad gently undulating and rolling, deep, sand soils. NM OSE records indicate that groundwater is likely to be encountered at a depth of 23+/- feet in unconsolidated Tertiary alluvium of the Ogallala Formation.

ROC removed this junction box in March of 2003 as part of its facility maintenance and upgrade program. (See Figure 2: Rice Junction Box Disclosure Report). The wood junction box was removed and soils were sampled using a trackhoe, creating a 10 by 10 by 12 ft deep excavation. A one foot thick compacted clay barrier was installed at the bottom of the excavation which was backfilled with the excavated soil to ground level. The disturbed surface was then seeded with a native vegetation mix.

Significant concentrations (approx. 2,000 +/- ppm) of diesel range organics (DRO) were encountered in the excavated soil with a lower concentration found (334 ppm) at 12 ft below ground surface (bgs). Chloride concentrations increased with depth to a value of 1,150 ppm at 12 ft bgs. Petroleum hydrocarbons and chlorides thus represent the constituents of concern. The surface (ecological) impact of this release was relatively small.

ROC proposes additional investigative work, as outlined below, to more definitively evaluate the extent of residual petroleum hydrocarbons and chlorides, and to then evaluate the potential for groundwater degradation. Yet, it should be noted that the source of this impact is historical. There is no longer a threat of continued, compounded impact at this site as the former junction box has been removed and a clay barrier installed to impeded downward migration of potential contaminants.

Proposed Work Elements

1. Summarize information and data collected by ROC to date.
2. Summarize additional, publicly available regional and local hydrological information.
3. Conduct vertical and lateral delineation of soil chlorides and petroleum hydrocarbons. If warranted, install one or more monitor wells to provide a direct measurement of potential groundwater impact. [All monitoring wells will be constructed per NM Dept. Environment standards].
4. 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 this work indicates that there is a present or future risk of impacting groundwater quality from past operations at this location, then a corrective action plan (CAP) will be developed and proposed to OCD.

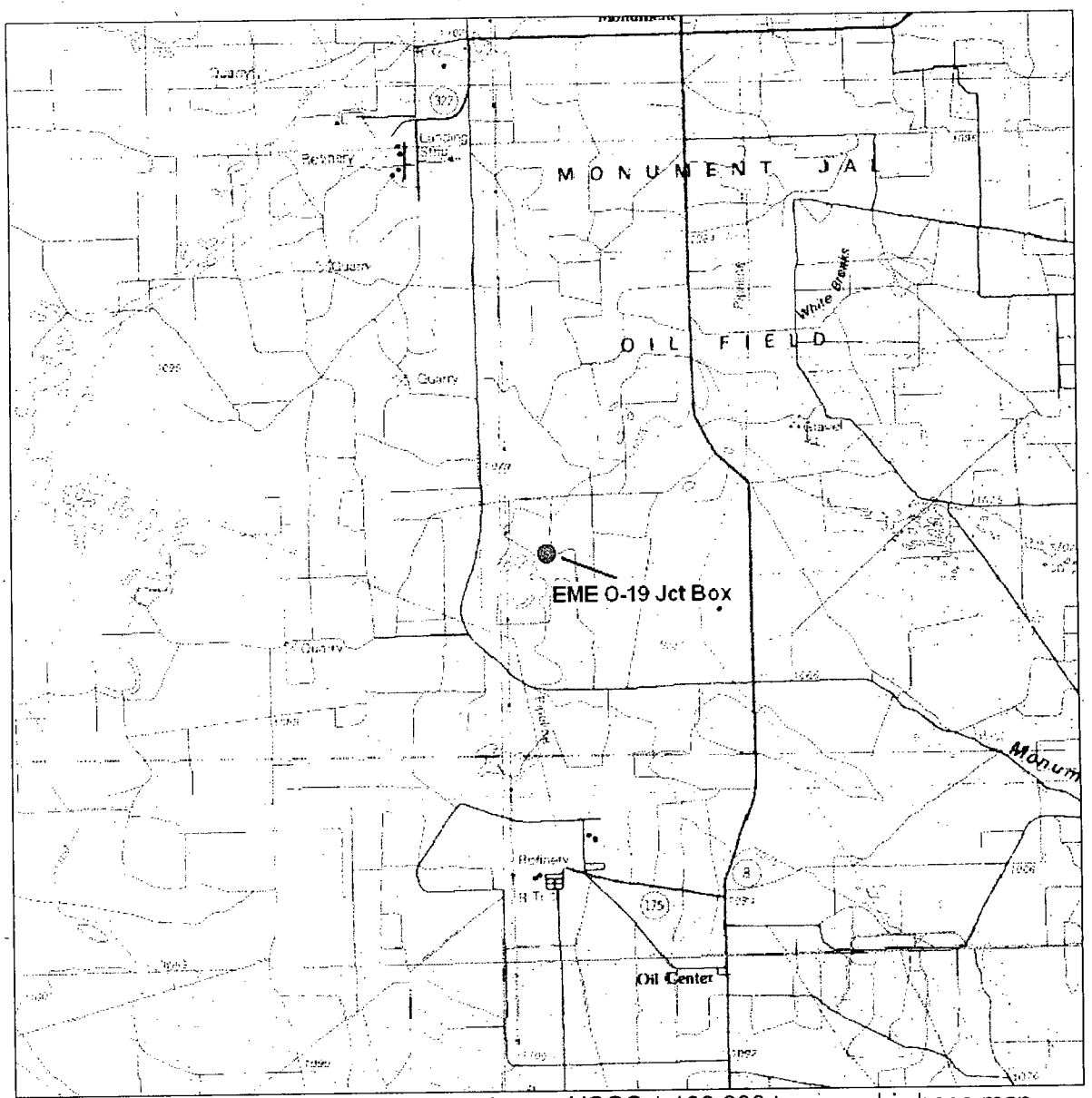

Figure 1 – EME O-18 Junction Box location on USGS 1:100,000 topographic base map.

RICE OPERATING COMPANY
JUNCTION BOX DISCLOSURE REPORT

BOX LOCATION

SWD SYSTEM	JUNCTION	UNIT	SECTION	TOWNSHIP	RANGE	COUNTY	BOX DIMENSIONS - FEET		
							Length	Width	Depth
EME	O-18	O	18	20 S	37 E	Lea	No Box		

LAND TYPE: BLM ____ STATE X FEE LANDOWNER ____ OTHER ____

Depth to Groundwater 23 feet NMOCD SITE ASSESSMENT RANKING SCORE: 20

Date Started 3/24/2003 Date Completed 3/26/2003 OCD Witness No

Soil Excavated 44 cubic yards Excavation Length 10 Width 10 Depth 12 feet

Soil Disposed 0 cubic yards Offsite Facility n/a Location n/a

FINAL ANALYTICAL RESULTS: **Sample Date** 3/26/2003 **Sample Depth** 12' bgs

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.

Sample Location	Benzene mg/kg	Toluene mg/kg	Ethyl Benzene mg/kg	Total Xylenes mg/kg	GRO mg/kg	DRO mg/kg	Chlorides mg/kg
SIDEWALLS	<0.025	<0.025	<0.025	<0.025	<50.0	2120	160
BOTTOM	<0.025	<0.025	<0.025	<0.025	18.1	334	1560
REMEDIATED	<0.025	0.025	0.070	0.270	168	1930	266

General Description of Remedial Action: To maintain the integrity of the fragile asbestos/cement pipeline and to avoid disturbance of established vegetation, a 10' x 10' area was excavated to 12' bgs. Chloride impact increased with depth through the loose sand. TPH impact decreased significantly with depth although OCD guidelines were not met at the wall composite samples. A 1' compacted clay barrier was installed at the bottom of the excavation at 12' bgs to inhibit further vertical migration of impact. The excavated soil was blended and then backfilled on top of the clay. The asbestos/cement pipeline has since been replaced with PVC. A junction box is no longer required at this location. The disturbed surface has will be re-seeded with native vegetation and is expected to return to productive capacity at a normal rate.

cc: lab results, photos

CHLORIDE FIELD TESTS

LOCATION	DEPTH in	ppm
vertical	2	220
	4	170
	6	275
	8	320
	10	1100
	12	1150

I HEREBY CERTIFY THAT THE INFORMATION ABOVE IS TRUE AND COMPLETE TO THE BEST OF MY KNOWLEDGE AND BELIEF.

DATE 4/25/2003 PRINTED NAME Kristin Farris

SIGNATURE Kristin Farris TITLE Projects Scientist

Figure 2 – EME O-18 Junction Box Disclosure Report

EME Phillips B EOL

Background and Previous Work

The site is located approximately 2.7 miles southeast of Monument, New Mexico (Figure 3) in the rolling sandy hills (the "White Breaks") that characterize this area. Soils on the site are mapped in the Lea County Soil Survey as belonging to the Berino-Cacique association, which are characterized as nearly level and gently sloping, sandy soils that are deep and moderately deep to soft or indurated caliche. NM OSE records indicate that groundwater is likely to be encountered at a depth of 20+/- feet in unconsolidated Tertiary alluvium of the Ogallala Formation.

ROC replaced a wooden junction box at this location with a new, water-tight junction in July of 2004 as part of its facility maintenance and upgrade program. (See Figure 4: Rice Junction Box Disclosure Report). As the original wood junction box was removed soils were sampled using a backhoe, creating a 20 by 10 by 12 ft deep excavation. The excavated soils were blended and then backfilled into the excavation. The disturbed surface was then seeded with a native vegetation mix.

Insignificant concentrations (< 100 ppm) of gasoline and diesel range organics (DRO) were encountered in the excavated soil and in the sidewalls and bottom of the excavation. Petroleum hydrocarbons were therefore ruled out as a potential constituent of concern. Chloride concentrations exceeded 2,000 ppm at adjacent sampling locations at depths of 11 ft below ground surface (bgs). The surface (ecological) impact of this release was relatively small.

ROC proposes additional investigative work, as outlined below, to more definitively evaluate the extent of residual chlorides (the constituent of concern), and to then evaluate the potential for groundwater degradation. Yet, it should be noted that the source of this impact is historical. There is no longer a threat of continued, compounded impact at this site as the former junction box has been removed.

Proposed Work Elements

1. Summarize information and data collected by ROC to date.
2. Summarize additional, publicly available regional and local hydrological information.
3. Conduct vertical and lateral delineation of soil chlorides. If warranted, install one or more monitor wells to provide a direct measurement of potential groundwater impact. [All monitoring wells will be constructed per NM Dept. Environment standards].
4. 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 this work indicates that there is a present or future risk of impacting groundwater quality from past operations at this location, then a corrective action plan (CAP) will be developed and proposed to OCD.

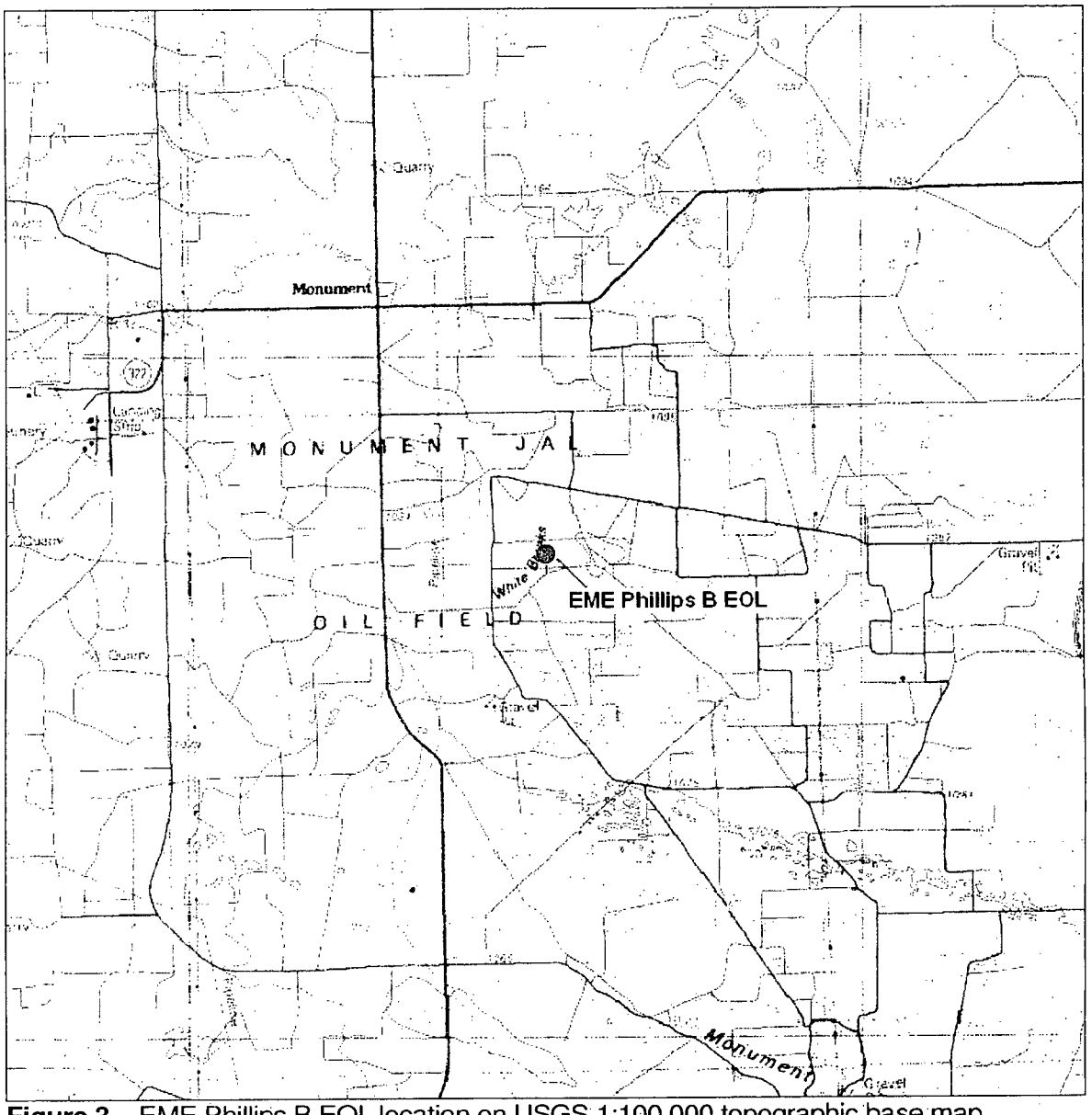

Figure 3 – EME Phillips B EOL location on USGS 1:100,000 topographic base map.

RICE OPERATING COMPANY
JUNCTION BOX DISCLOSURE* REPORT

BOX LOCATION

FACILITY	JUNCTION	UNIT	SECTION	TOWNSHIP	RANGE	COUNTY	BOX DIMENSIONS - FEET (Length / Width / Depth)
EME	Phillips 'B' EOL	F	10	20S	37E	Lea	moved 25 ft south

LAND TYPE: BLM ____ STATE ____ FEE LANDOWNER S & W Cattle Company OTHER ____

Depth to Groundwater 20 feet NMOCD SITE ASSESSMENT RANKING SCORE 20

Date Started 7/21/2004 Date Completed 8/4/2004 OCD Witness No

Soil Excavated 89 cubic yards Excavation Length 20 Width 10 Depth 12 feet

Soil Disposed 0 cubic yards Offsite Facility n/a Location n/a

FINAL ANALYTICAL RESULTS: Sample Date 7/22/2004 Sample Depth 12 ft

Procure 5-point composite sample of bottom and 4-point composite sample of sidewalls. TPH and Chloride laboratory test results completed by using an approved lab and testing procedures pursuant to NMOCD guidelines.

Sample Location	PID ppm	GRO mg/kg	DRO mg/kg	Chloride mg/kg
4 WALL COMP	0.0	<10.0	<10.0	1360
BOTTOM COMP	0.0	<10.0	84.1	651
REMED. BACKFILL	0.0	<10.0	<10.0	372

CHLORIDE FIELD TESTS

LOCATION	DEPTH (ft)	ppm
5 ft north of junction	5	300
	7	1340
	9	1709
	9	1589
	10	1349
	11	1850
	12	2469
10 ft south of junction	5	1680
	7	1739
	8	2039
	9	1819
	10	1349
	11	2039
	12	1649
4-wall comp.	n/a	1589
bottom comp.	12	750
remed. backfill	n/a	1290

General Description of Remedial Action: The junction was moved approx. 25 ft south with the poly pipeline replacement. A new lined, watertight junction box was built at that site. The bunker was removed from the former site and the location was delineated using a backhoe while chloride field tests and PID screenings were conducted at regular intervals. All PID readings were relatively low and NMOCD TPH guidelines were met. Chloride concentrations did not decline with depth or sidewall encroachment. The 20 x 10 x 12 ft deep excavation. The excavation was backfilled with the spoils soil that was blended on site. The disturbed surface was seeded with a blend of native vegetation on 9/17/2004. An identification plate has been placed on the surface at the site of the former junction to monitor the location for future environmental considerations. NMOCD was notified of potential groundwater impact at this site.

ADDITIONAL EVALUATION IS *HIGH* PRIORITY.

Attachments: chloride graphs, photos, lab results, PID screenings

I HEREBY CERTIFY THAT THE INFORMATION ABOVE IS TRUE AND COMPLETE TO THE BEST OF MY KNOWLEDGE AND BELIEF

SUPERVISOR: Ron Elam SIGNATURE: not available COMPANY: Duke Environmental, Odessa, TX

REPORT ASSEMBLED BY: Kevin Farris Pope SIGNATURE: Kevin Farris Pope

DATE: 8/24/2004 TITLE: Project Scientist

** This site is a "DISCLOSURE." It will be placed on a prioritized list of similar sites for further consideration.*

Figure 4 – EME Phillips B EOL Disclosure Report

I appreciate the opportunity to work with you and your staff on these projects. Please call either myself, at the number below, or Marvin Burrows (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

Texerra
505 N. Big Spring, Suite 404
Midland, Texas 70701
Tel: 432-634-9257
E-mail: lpg@texerra.com
Web site: www.texerra.com

cc: Rice Operating Company

Attachments: Site Maps, Junction Box Disclosure Reports as noted