1R - 427-169

WORKPLANS

DATE:
3-10-09

1R427-169

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

March 10th, 2009

Mr. Brad Jones
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 N-18 Boot: UL N Sec 18 T 20S R 37E

Sent via E-mail & U.S. Certified Mail w/ Return Receipt 7006 0100 0001 2438 3913

Dear Mr. Jones:

RICE Operating Company (ROC) has retained Texerra to address potential environmental concerns at the above-referenced site located in the EME 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.

Background and Previous Work

The site is located approximately 3.7 miles south of Monument, New Mexico (Figure 1). The topography is gently sloping toward the southeast. Soils on the location are characterized in the Lea County Soil Survey as moderately deep to deep sandy soils that are underlain by hard caliche. NM OSE records indicate that groundwater is likely to be encountered at a depth of 35+/- feet in unconsolidated Tertiary alluvium of the Ogallala Formation.

ROC removed a wooden junction box at this location in August of 2004 as part of its facility maintenance and upgrade program. (See Figure 2: 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 to a depth of 6 ft bgs where a one foot thick compacted clay barrier was installed (Figure 3). The remaining excavated soil material was backfilled into the excavation above the clay barrier to the existing ground surface. The disturbed surface was then seeded with a native vegetation mix.

It should be noted that 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 impede the downward migration of chlorides.

Chloride concentrations exceeded 1,000 ppm adjacent to the former junction box at 12 ft bgs (Figure 4). Insignificant concentrations (< 100 ppm) of gasoline (GRO) and diesel range organics (DRO) were encountered in the excavated soil and in the sidewalls and bottom of the excavation (Figure 5). Petroleum hydrocarbons were therefore ruled out as a potential constituent of concern. Photographs before, during and after junction box removal are given in Figures 6 through 10.

ROC proposes additional investigative work to determine if there is the potential for groundwater degradation from residual soil chlorides, which are the constituent of concern, as outlined below.

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 a monitor well 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.

I appreciate the opportunity to work with you and your staff on these projects. Please call either myself, at the number below, or Hack Conder (ROC) at 575-393-9174, 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, Ed Hansen (NMOCD)

Attachments: Site Maps, Junction Box Disclosure Reports as noted

Figure 1 – EME N-18 Boot 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	N-18 boot	N	18	20S	37E	Lea	no box--dimension		

LAND TYPE: BLM ____ STATE ____ FEE LANDOWNER Jimmy T. Cooper OTHER ____

Depth to Groundwater 35 feet NMOCD SITE ASSESSMENT RANKING SCORE: 20

Date Started ____ Date Completed 8/31/2004 OCD Witness No

Soil Excavated 178 cubic yards Excavation length 20 Width 20 Depth 12 feet

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

FINAL ANALYTICAL RESULTS: **Sample Date** 8/21/2004 **Sample Depth** 12 ft

Pristine 5-point composite sample of bottom and 4-point composite sample of excavation 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	147
BOTTOM COMP	0.0	<10.0	<10.0	207
REMED. BACKFILL	0.0	<10.0	<10.0	85.1

CHLORIDE FIELD TESTS

LOCATION	DEPTH ft	ppm
vertical trench at junction	6	80
	7	120
	8	179
	9	480
	10	359
	11	259
	12	309
10 ft EAST of junction	6	760
	7	960
	8	1019
	9	1140
	10	1589
	11	1409
	12	1165
4 wall comp.	n/a	288
bottom comp	12	268
remed. backfill	n/a	300

General Description of Remedial Action: This junction box contained a boot and was located directly south of an active production battery. The junction was eliminated and re-plumbed with a new poly pipeline. The box lumber was removed and the site was delineated using a backhoe while PID screenings and chloride field tests were conducted at regular intervals. Chloride ranges increased with depth to 12 ft BGS. PID readings were generally minimal and lab results revealed TPH concentrations well below NMOCD guidelines. Chloride impact was concentrated in a small area locally 5-10 ft east of the junction. The excavated soils from the 20 x 23 x 12 ft deep excavation were stockpiled on site and then backfilled up to ft BGS. An 8 ft x 1-ft thick compaction clay barrier was installed to inhibit further downward chloride migration. The remaining spoils were backfilled on top of the clay and contoured to the surrounding surface. The disturbed surface was seeded with a blend of native vegetation on 10/18/2004 and an identification plate was placed on the surface to mark the junction site for future environmental considerations and the clay barrier below. NMOCD has been notified of potential groundwater impacts at this site.

ADDITIONAL EVALUATION IS *HIGH* PRIORITY

enclosures: chloride graph, pictures, lab results, clay test, diagram

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

SITE SUPERVISOR Rob Elam SIGNATURE [illegible] COMPANY Curtis Environmental - Odessa, TX

REPORT ASSEMBLED BY Kristin Lamb Pope SIGNATURE Kristin Lamb Pope

DATE 12/9/2004 TITLE Project Scientist

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

Figure 2 – EME N-18 Boot Disclosure Report

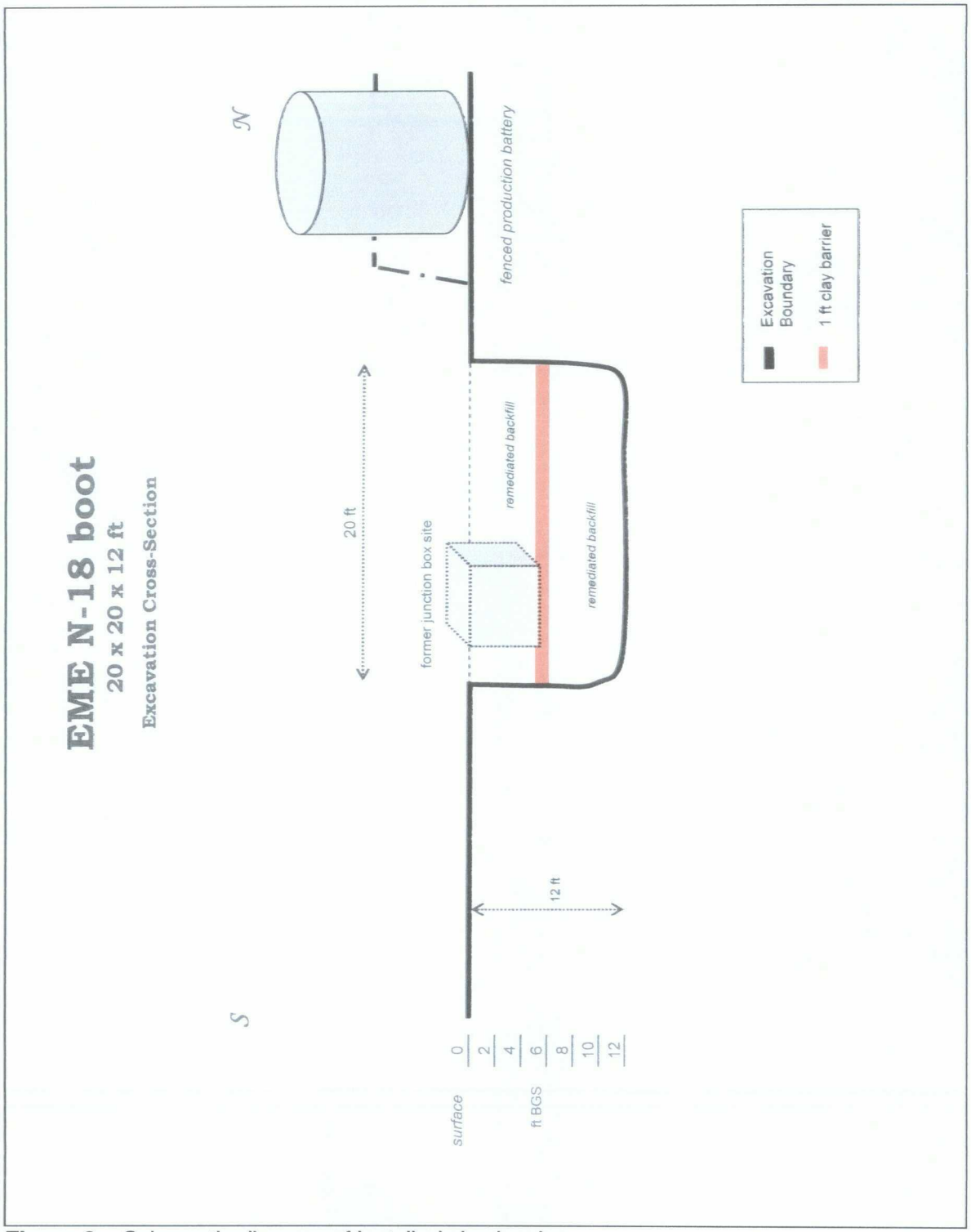

Figure 3 – Schematic diagram of installed clay barrier.

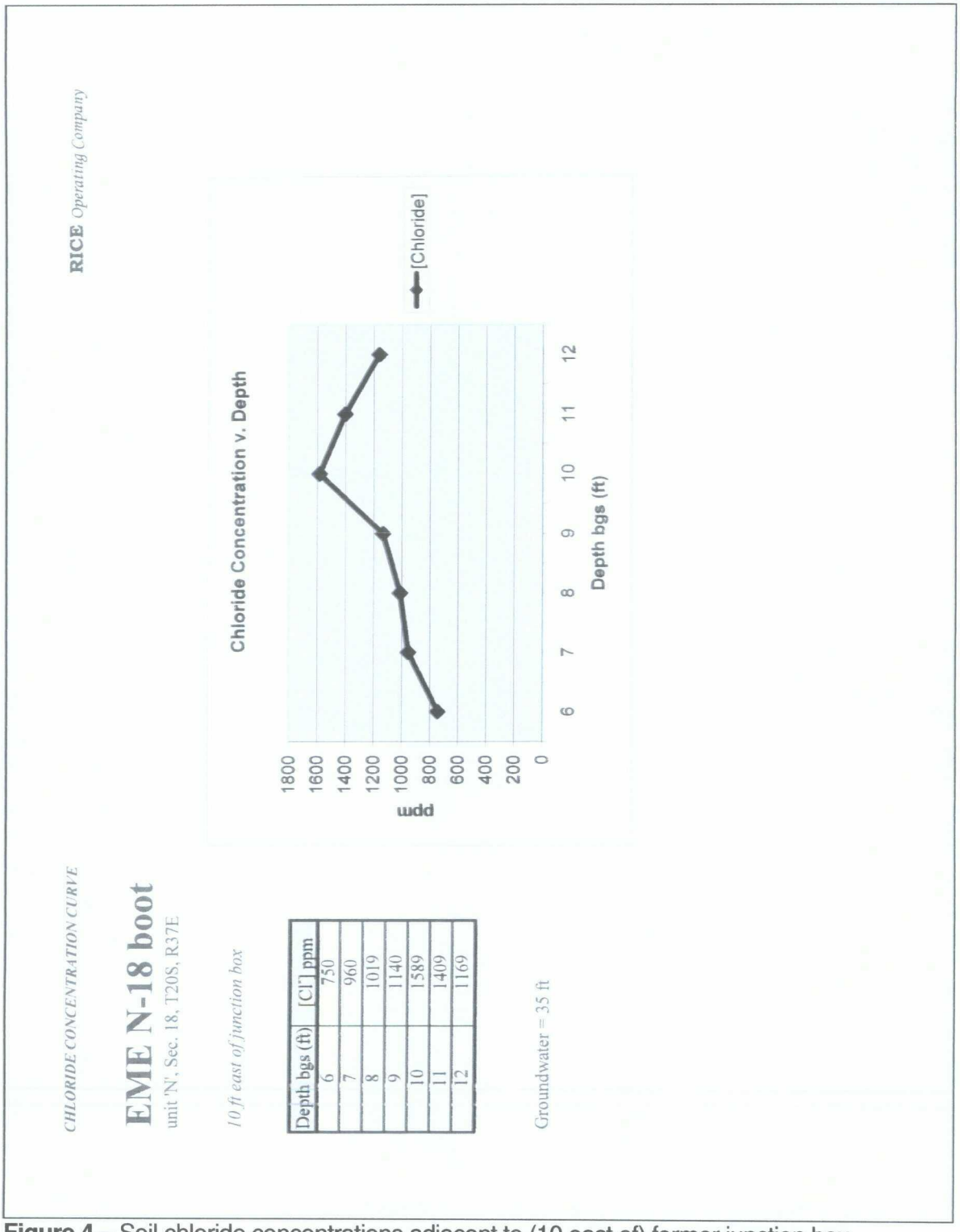

Figure 4 – Soil chloride concentrations adjacent to (10 east of) former junction box.

Rice Operating Co.	Project: N-18 Boot	Fax: (505) 397-1471
122 W. Taylor	Project Number: None Given	Reported:
Hobbs NM, 88240	Project Manager: Roy Rascon	09/01/04 08:26

Organics by GC

Environmental Lab of Texas

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
12' Bottom Composite (4H26002-01) Soil									
Gasoline Range Organics C6-C12	ND	10.0	mg/kg dry	1	EH42629	08/26/04	08/26/04	EPA 8015M	
Diesel Range Organics >C12-C35	ND	10.0	"	"	"	"	"	"	
Total Hydrocarbon C6-C35	ND	10.0	"	"	"	"	"	"	
Surrogate: 1-Chlorooctane		*99.6 %*	*70-130*		"	"	"	"	
Surrogate: 1-Chlorooctadecane		*75.2 %*	*70-130*		"	"	"	"	
Wall Composite (4H26002-02) Soil									
Gasoline Range Organics C6-C12	ND	10.0	mg/kg dry	1	EH42629	08/26/04	08/26/04	EPA 8015M	
Diesel Range Organics >C12-C35	ND	10.0	"	"	"	"	"	"	
Total Hydrocarbon C6-C35	ND	10.0	"	"	"	"	"	"	
Surrogate: 1-Chlorooctane		*89.8 %*	*70-130*		"	"	"	"	
Surrogate: 1-Chlorooctadecane		*72.6 %*	*70-130*		"	"	"	"	
Backfill Composite (4H26002-03) Soil									
Gasoline Range Organics C6-C12	ND	10.0	mg/kg dry	1	EH42629	08/26/04	08/26/04	EPA 8015M	
Diesel Range Organics >C12-C35	ND	10.0	"	"	"	"	"	"	
Total Hydrocarbon C6-C35	ND	10.0	"	"	"	"	"	"	
Surrogate: 1-Chlorooctane		*86.4 %*	*70-130*		"	"	"	"	
Surrogate: 1-Chlorooctadecane		*76.8 %*	*70-130*		"	"	"	"	

12600 West I-20 East - Odessa, Texas 79705 - (432) 563-1800 - Fax (432) 563-1713

Figure 5 – Laboratory confirmation of DRO and GRO soil samples.

Figure 6 – Former junction box before removal.

Figure 7 – Former junction box before removal, close-up view.

Figure 8 – Excavation following removal of former junction box.

Figure 9 – Compaction testing of installed clay barrier.

Figure 10 – Raking and seeding of reclaimed site.