1R - 425-67

WORKPLANS

DATE:
10-5-09

1R425-67

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

October 5, 2009

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 – Vacuum SWD System
Vacuum F-34 Boot UL F, Sect 34, Township 17S, Range 35E

Sent via E-mail & U.S. Certified Mail w/ Return Receipt 7006 0710 0003 0305 3750

Dear Mr. Hansen:

RICE Operating Company (ROC) has retained Texerra to address potential environmental concerns at the above-referenced site located in the Vacuum SWD system. ROC is the service provider (agent) for the Vacuum 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 Parties, who provide all operating capital on a percentage ownership/usage basis. Environmental projects of this magnitude require System Party 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 Termination Request with final documentation will be submitted.

Background and Previous Work

The site is located approximately 2.5 miles east-southeast of Buckeye, New Mexico (Figure 1). The regional topography is gently sloping toward the southeast. Soils on the location are characterized in the Lea County Soil Survey as nearly level and gently sloping, shallow, gravelly loam soils underlain by indurated (hard) caliche. NM OSE records indicate that groundwater is likely to be encountered at a depth of approximately 70+/- feet in unconsolidated Tertiary alluvium of the Ogallala Formation.

This junction box was addressed during the Vacuum SWD System abandonment. Subsequent initial soil evaluation was completed in June of 2008 and NMOCD was notified of potential groundwater impact at the site on July 31, 2008. In March 2009, a Junction Box Disclosure Report was submitted to NMOCD with the 2008 junction box closure and disclosure reports (Figure 2). Soil chloride concentrations (determined by field titration) at 10 ft south of the source ranged from 1,533 ppm at the surface to 4,720 ppm at a depth of 12 ft below ground surface (bgs). PID (hydrocarbon vapor) readings at the source indicated elevated levels. This was confirmed by laboratory measured DRO concentrations of 1,610 ppm in the excavation sidewalls and 748 ppm in the excavation bottom (Figure 2).

The excavated soil was blended on site, backfilled into the excavation and then contoured to the surrounding terrain (Figure 3). The site was subsequently reseeded to a native prairie mixture. An identification plate was placed on the surface to mark this location for future environmental considerations.

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 eliminated and the Vacuum SWD system is no longer operating.

ROC proposes additional investigative work to determine if there is potential for groundwater degradation from residual soil hydrocarbons and/or chlorides which are the *constituents 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 residual soil petroleum hydrocarbons and 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: Larry Johnson, NMOCD Hobbs Office sent U.S. Certified Mail
w/ Return Receipt 7006 0710 0003 0305 3767,
Rice Operating Company

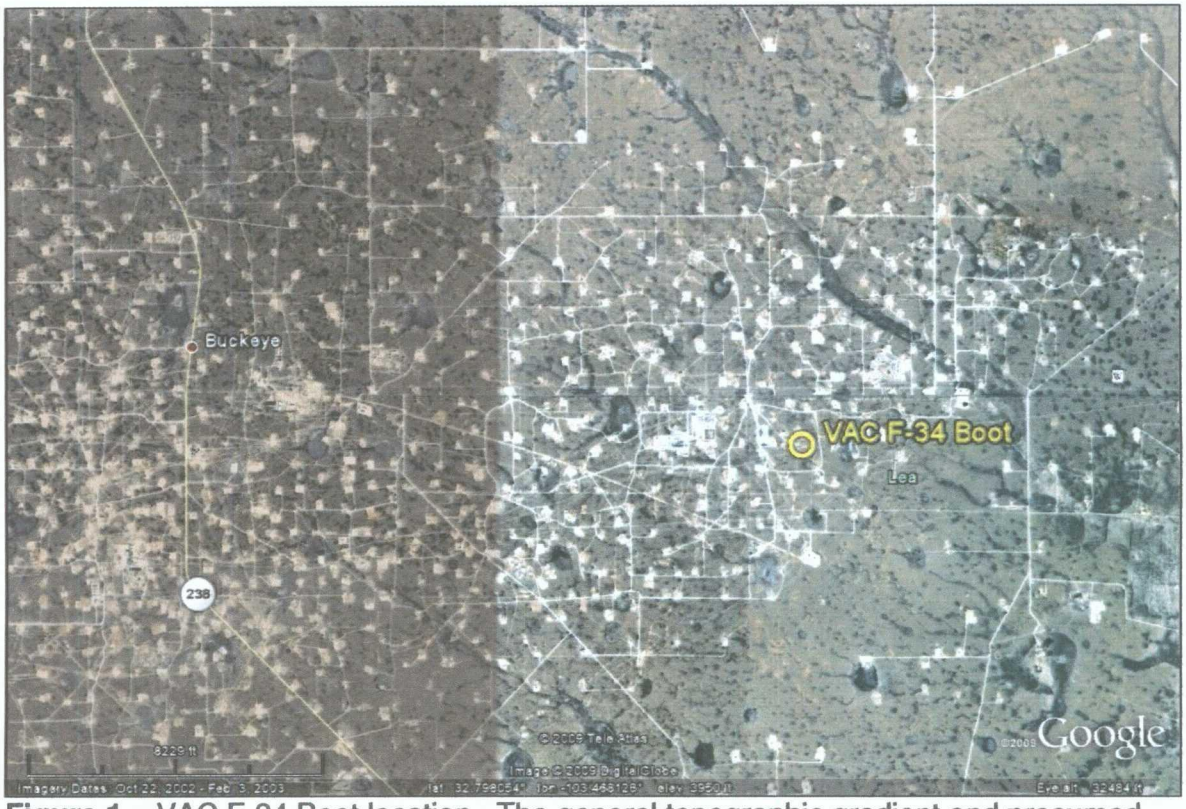

Figure 1 – VAC F-34 Boot location. The general topographic gradient and presumed water table gradient is toward the southeast.

RICE OPERATING COMPANY
JUNCTION BOX DISCLOSURE* REPORT

BOX LOCATION

SWD SYSTEM	JUNCTION	UNIT	SECTION	TOWNSHIP	RANGE	COUNTY	BOX DIMENSIONS - FEET		
							Length	Width	Depth
Vacuum	vent F-34 boot	F	34	17S	35E	Lea	no box; system abandonment		

LAND TYPE: BLM ___ STATE X FEE LANDOWNER _____ OTHER _____

Depth to Groundwater 68 feet NMOCD SITE ASSESSMENT RANKING SCORE: 30

Date Started 2/28/2008 Date Completed 6/8/2008 OCD Witness no

Soil Excavated 177.8 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** 5/30/2008, 6/2/2008 **Sample Depth** 12'

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
4-WALL COMP.	<0.010	<0.010	0.019	0.116	77.8	1610	3120
BOTTOM COMP.	<0.010	<0.010	<0.010	<0.030	<10.0	748	2320
BACKFILL	<0.010	<0.010	0.161	0.350	135	2240	1980

General Description of Remedial Action: This junction was addressed under the Vacuum SWD System abandonment. After this junction was removed, an investigation was conducted using a backhoe to collect soil samples at regular intervals producing a 20x20x12-ft-deep hole. Chloride field tests were performed on each sample yielding elevate chloride levels that did not relent with depth. Organic vapors were measured using a PID, which also yielded elevated levels. Representative composite samples were collected from the excavation bottom, walls, and excavated soil for laboratory confirmation of chloride, TPH, and BTEX concentrations. The excavated soil was blended on-site and returned to the excavation and contoured to the surrounding area. An identification plate was placed on the surface of the backfilled site to mark the location of the former junction for future environmental consideration. NMOCD was notified of potential groundwater impact on 7/31/2008.

ADDITIONAL EVALUATION IS HIGH PRIORITY

enclosures: photos, lab results, BTEX comparison table, chloride curve

CHLORIDE FIELD TESTS

LOCATION	DEPTH	mg/kg
4-wall comp.	n/a	2738
bottom comp.	12'	2186
backfill comp.	n/a	2153
vertical delineation trench 10 ft south of junction (source)	1'	1533
	2'	2749
	3'	2047
	4'	1842
	5'	1780
	6'	1375
	7'	1912
	8'	1049
	9'	1045
	10'	2253
	11'	2592
	12'	4720

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

SITE SUPERVISOR Roy Rascon SIGNATURE not available COMPANY RICE OPERATING COMPANY

REPORT ASSEMBLED BY Katie Jones INITIAL KJ

PROJECT LEADER Larry Bruce Baker Jr. SIGNATURE Larry Bruce Baker Jr DATE 8-4-08

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

Figure 2 – VAC F-34 Boot Junction Box Disclosure Report

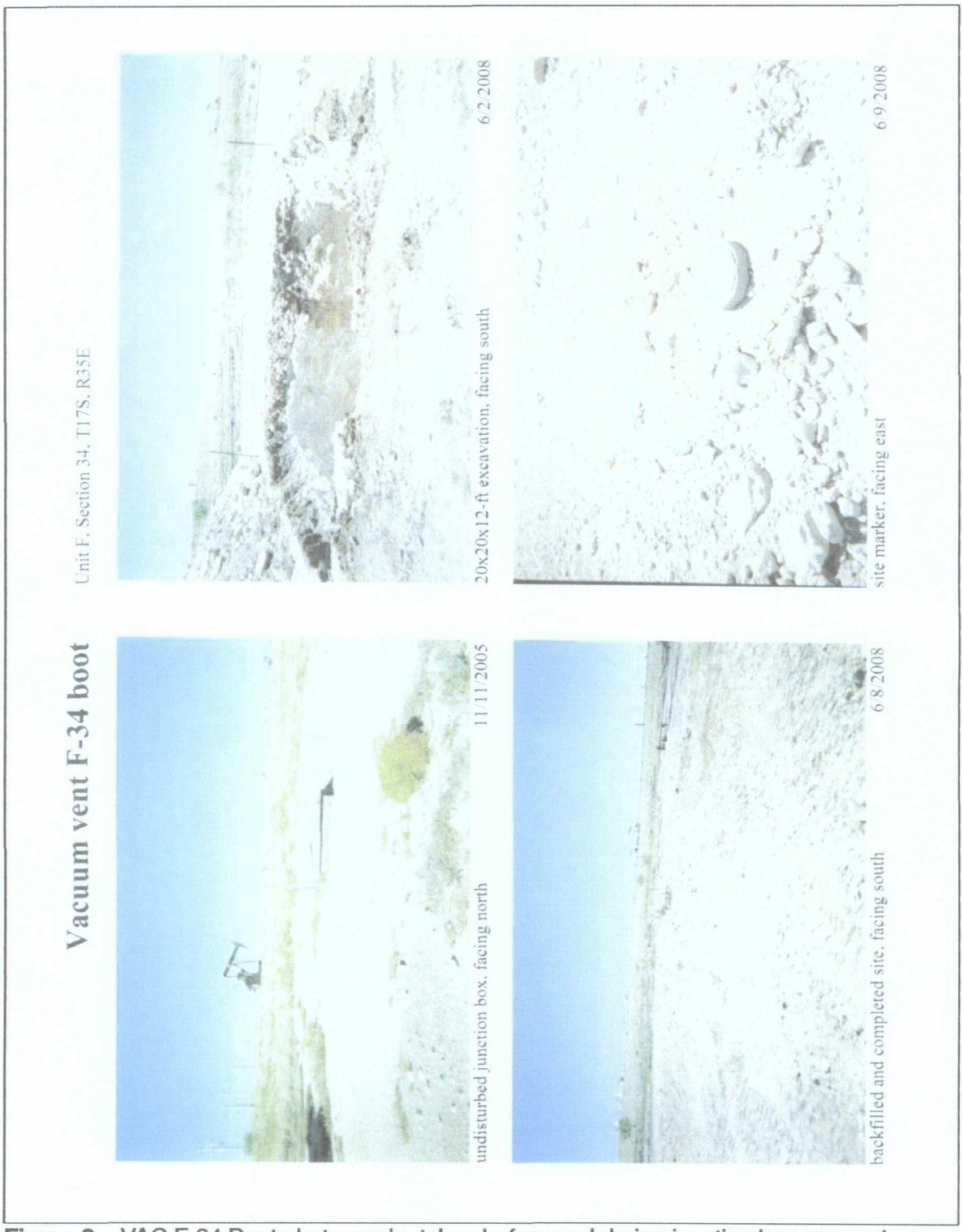

Figure 3 – VAC F-34 Boot photographs taken before and during junction box removal.