1R - 425-26

REPORTS

DATE:

5-1-08

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

RECEIVED
2008 MAY 6 PM 2 02

May 1st, 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 Report**
Rice Operating Company – Vacuum SWD System
State P EOL: T 17S R 35E Section 26 Unit A
OCD Case No.: 1R425-26

Sent via E-mail and U.S. Mail, Certified Return Receipt No. 7002 2410 0001 5818 8906

Dear Mr. Hansen:

My company completed a soils evaluation for the above-referenced site per the approved Investigation and Characterization Plan dated May 4th of 2007.

A soil boring was advanced at the former junction box location using an air rotary bit on February 22nd of this year (Figure 1). Samples were analyzed at five foot increments and field titrated for chlorides (Table 1). Two sub-samples were sent to Cardinal Laboratories for a quality-check of the field results (Figures 2a & 2b). Soil chlorides concentrations dropped quickly from above 1,000 ppm (parts per million) at 20 and 25 ft bgs (below ground surface), to below 1,000 ppm at 30 ft bgs and then below 200 ppm from 40 ft bgs to the limit of drilling at 55 ft, where the capillary fringe was encountered.

The relatively low levels of chlorides found in the twenty feet of unsaturated material above the water table and the impedance against downward movement of chlorides provided by the compacted clay barrier (installed following the removal of the former junction box) indicate that the former junction box at this location does not pose a threat to groundwater; (see middle photo on page 12 and cross section on page 14). On behalf of my client, Rice Operating Company, I therefore request that this project be considered "closed" and dropped from OCD's list of potentially impacted sites.

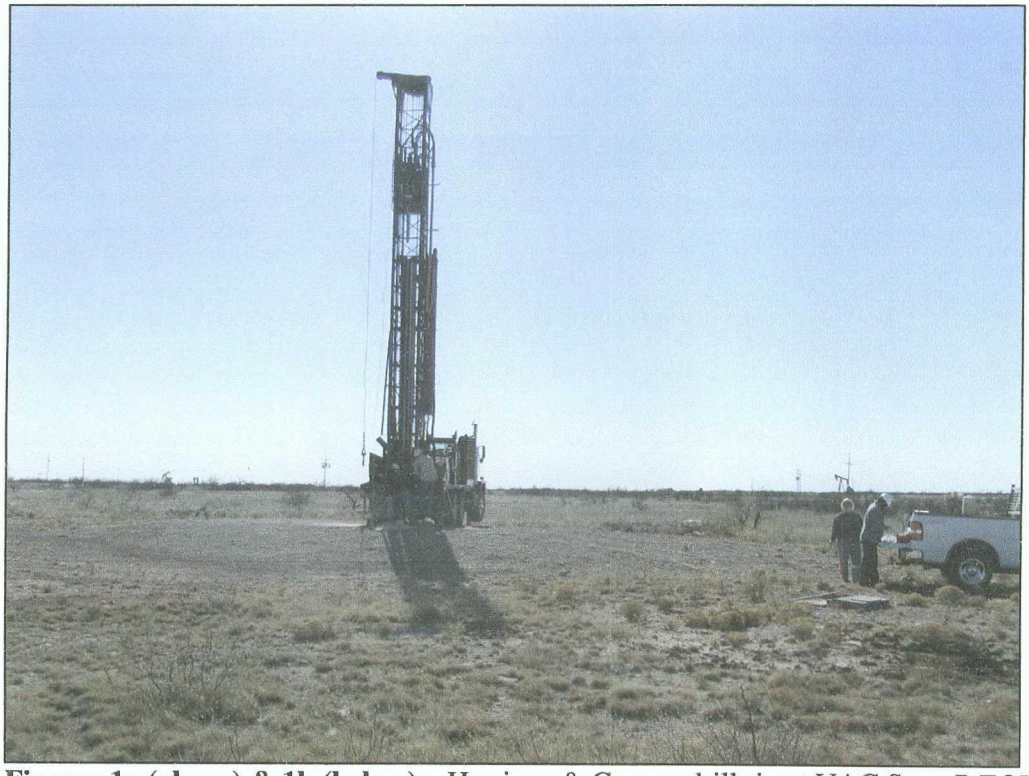
I welcome your thoughts on this matter, and would be pleased to discuss any details with you at your convenience.

Thank you for your consideration.

Sincerely,

L. Peter Galusky, Jr. Ph.D.
Principal

Enclosures: Investigation and Characterization Plan of May 4th, 2007
Copies: Kristin Pope, Rice Operating Company



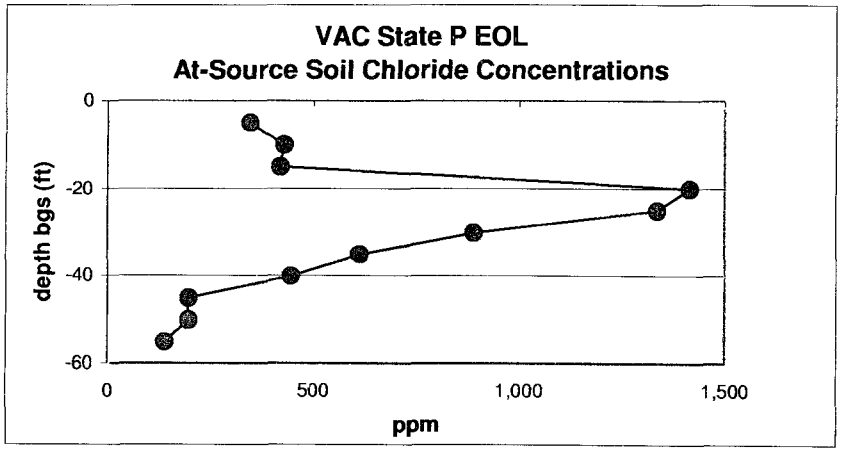
Figures 1a (above) & 1b (below) – Harrison & Cooper drill rig at VAC State P EOL on February 22nd, 2008.

Table 1 – Soil boring log and chemical parameters at the site of the former junction box at EME L-15-1.

VAC State P EOL

Identification:	**SB-1**
Location:	At former junction box location.
Date:	2/22/2008
Driller:	Harrison & Cooper, Inc. (Leonard supervising)
Drill method:	Air rotary
Logged by:	L. Peter Galusky, Jr., Texerra
Total depth:	55 ft below ground surface
Screened interval:	n/a (no well installed)
Pipe diameter:	"

Depth (ft below ground surface)	Field Chloride Test (ppm)	Lab Chloride Test (ppm)	Field PID test (ppm)	Lab GRO test (ppm)	Lab DRO test (ppm)	Cutting Description
-5	346		n/a			tan caliche backfill
-10	429		"	15	1,190	"
-15	419		"			"
-20	1,414	1,440	"			"
-25	1,336		"			light tan caliche
-30	889		"			light brown sand
-35	612		"			light brown fine gravelly sand
-40	445		"			light brown fine sand
-45	197		"	70	288	"
-50	196		"			brown loamy sand
-55	139	128	"			brown loamy sand, damp



CARDINAL LABORATORIES

PHONE (575) 393-2326 • 101 E. MARLAND • HOBBS, NM 88240

ANALYTICAL RESULTS FOR
RICE OPERATING CO.
ATTN: KRISTIN FARRIS-POPE
122 WEST TAYLOR
HOBBS, NM 88240
FAX TO: (575) 397 1471

Receiving Date: 02/22/08
Reporting Date: 02/25/08
Project Number: NOT GIVEN
Project Name: VACUUM STATE 'P' EOL
Project Location: VACUUM STATE 'P' EOL

Analysis Date: 02/22/08
Sampling Date: 02/22/08
Sample Type: SOIL
Sample Condition: INTACT
Sample Received By: ML
Analyzed By: KS

LAB NO.	SAMPLE ID	Cl (mg/kg)
H14306-1	SB #1 @ 20'	1,440
H14306-2	SB #1 @ 55'	126
Quality Control		500
True Value QC		500
% Recovery		100
Relative Percent Difference		< 0.1
METHOD: Standard Methods		4500-Cl B

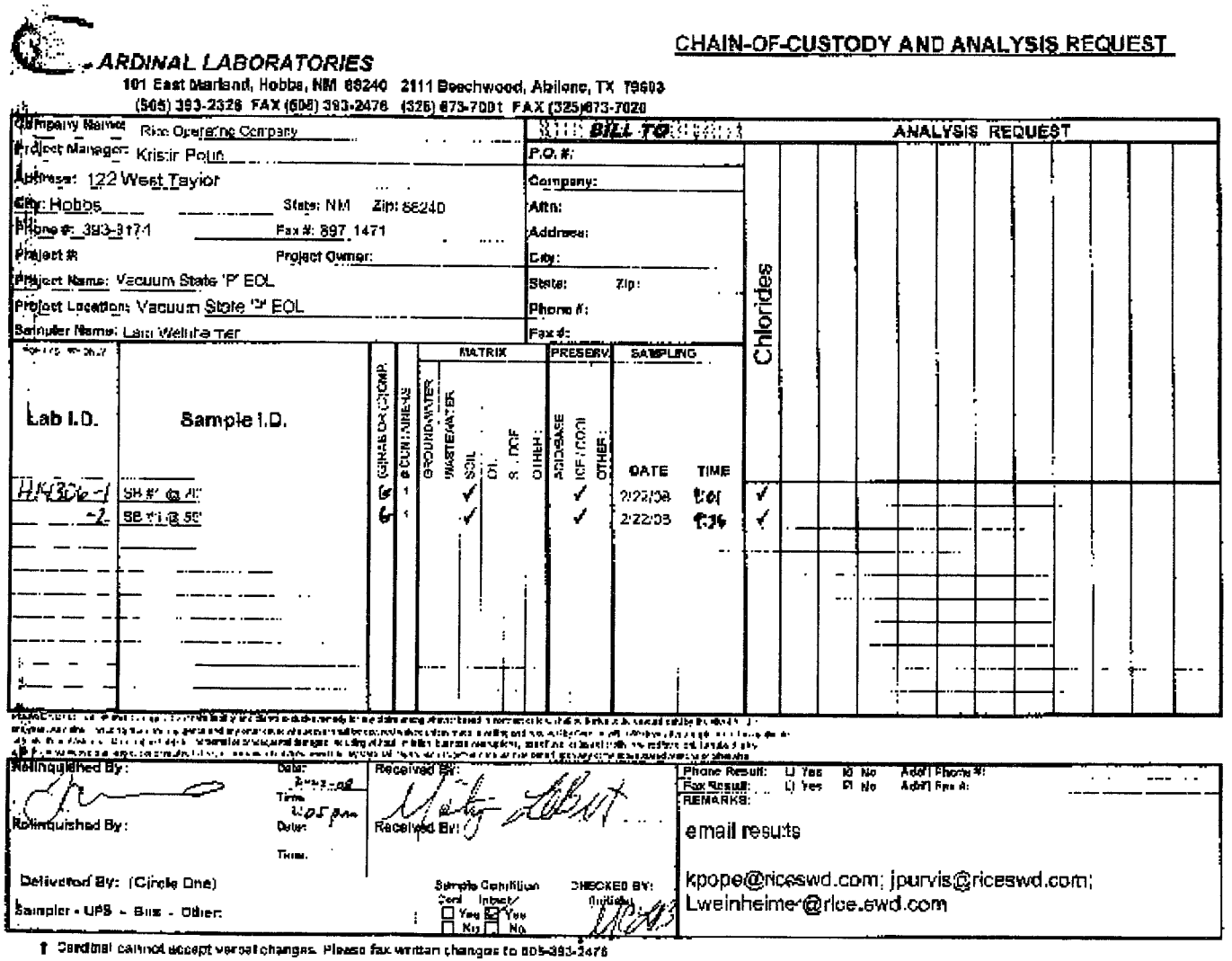
Note: Anaylses performed on 1:4 w:v aqueous extracts.

Chemist

Date

H14306 RICE

Figure 2a – Laboratory analyses.



CARDINAL LABORATORIES

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

101 East Marland, Hobbs, NM 88240 2111 Beechwood, Abilene, TX 79603
(505) 393-2326 FAX (505) 393-2476 (325) 673-7001 FAX (325)673-7020

Company Name: Rice Operating Company
Project Manager: Kristin Pope
Address: 122 West Taylor
City: Hobbs State: NM Zip: 88240
Phone #: 393-3171 Fax #: 397-1471
Project #: Project Owner:
Project Name: Vacuum State 'P' EOL
Project Location: Vacuum State 'P' EOL
Sampler Name: Lani Weinheimer

BILL TO
P.O. #:
Company:
Attn:
Address:
City:
State: Zip:
Phone #:
Fax #:

ANALYSIS REQUEST
Chlorides

Lab I.D.	Sample I.D.	# CONTAINERS	GRAB/COMP	MATRIX: GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER:	PRESERV: ACID/BASE	ICE/COOL	OTHER:	SAMPLING: DATE	TIME	Chlorides
H4306-1	SB #1 @ 4'	1	G			✓				✓			2/22/05	10:01	✓
-2	SB #1 @ 55'	1	G			✓				✓			2/22/05	10:34	✓

Relinquished By: Date: 2-22-05 Time: 1:05 pm
Received By:
Relinquished By: Date: Time:
Received By:
Delivered By: (Circle One)
Sampler - UPS - Bus - Other:
Sample Condition: Cool: Yes / No; Intact: Yes / No
CHECKED BY: (Initials)

Phone Result: Yes / No Add'l Phone #:
Fax Result: Yes / No Add'l Fax #:
REMARKS:
email results

kpope@riceswd.com; jpurvis@riceswd.com; Lweinheimer@rice.swd.com

† Cardinal cannot accept verbal changes. Please fax written changes to 505-393-2476

Figure 2b – Laboratory chain-of-custody form.

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

May 4th, 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

RE: **Investigation and Characterization Plan**
Rice Operating Company – Vacuum SWD
State P EOL T 17S R 35E Section 26 Unit A

Sent via E-mail and U.S. Certified Mail w/ Return Receipt 7006 0100 0001 2438 3838

Dear Mr. Hansen:

RICE Operating Company (ROC) has retained L. Peter Galusky, Jr. Ph.D. to address potential environmental concerns at the above-referenced site. 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 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. An 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 one mile north/northeast of the intersection of Lea County Roads 50 and 53, approximately 4 miles east of Buckeye (Figure 1). The topography is gently sloping toward the southeast. Soils on the site are mapped (as KO) in the Lea County Soil Survey as belonging to the Kimbrough gravelly loam soil series. These are characterized by gravelly loam to a depth of approximately 6 inches, and this is underlain by several feet of calcium indurated caliche. Groundwater is estimated to occur at a depth of approximately 55+/- feet, occurring in unconsolidated Tertiary alluvium of the Ogallala Formation .

As part of the abandonment and closure of the Vacuum SWD system, Rice Operating Company (ROC) investigated soils beneath the former wood junction box at the Mobil P EOL location; (See Appendix A: Rice Junction Box Disclosure Report). Beginning on August 2nd, 2005, the wood junction box was removed and soils were sampled using a trackhoe, creating a 30 by 20 by 12 ft deep excavation. Potential organic contaminants were ruled out, based upon low (< 10 ppm) PID readings throughout the sampled area and depth. However, chloride concentrations increased with depth from 290 ppm at the surface to 2189 ppm at 12 ft. The excavated soil was blended on site and then returned to the hole up to 6 ft below ground surface, where a one foot thick clay barrier was installed. The remaining fill was then placed on top of the clay. Some additional, clean fill was imported to provide enough material to fill the excavation to the ground surface (allowing some overage for settling). The disturbed surface was seeded with a native vegetation mix on April 24th, 2006. A photographic chronology of these activities is provided in Appendix B. OCD was notified that this site has potential for groundwater impacts.

The surface (ecological) impact of this release was relatively small. However, as the potential for groundwater contamination exists, 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. There is no longer a threat of continued, compounded impact at this site as the former junction box has been removed and the Vacuum SWD system closed.

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.

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].
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 produced water leak 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

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: CDH, KFP, file
Attachments: site location map

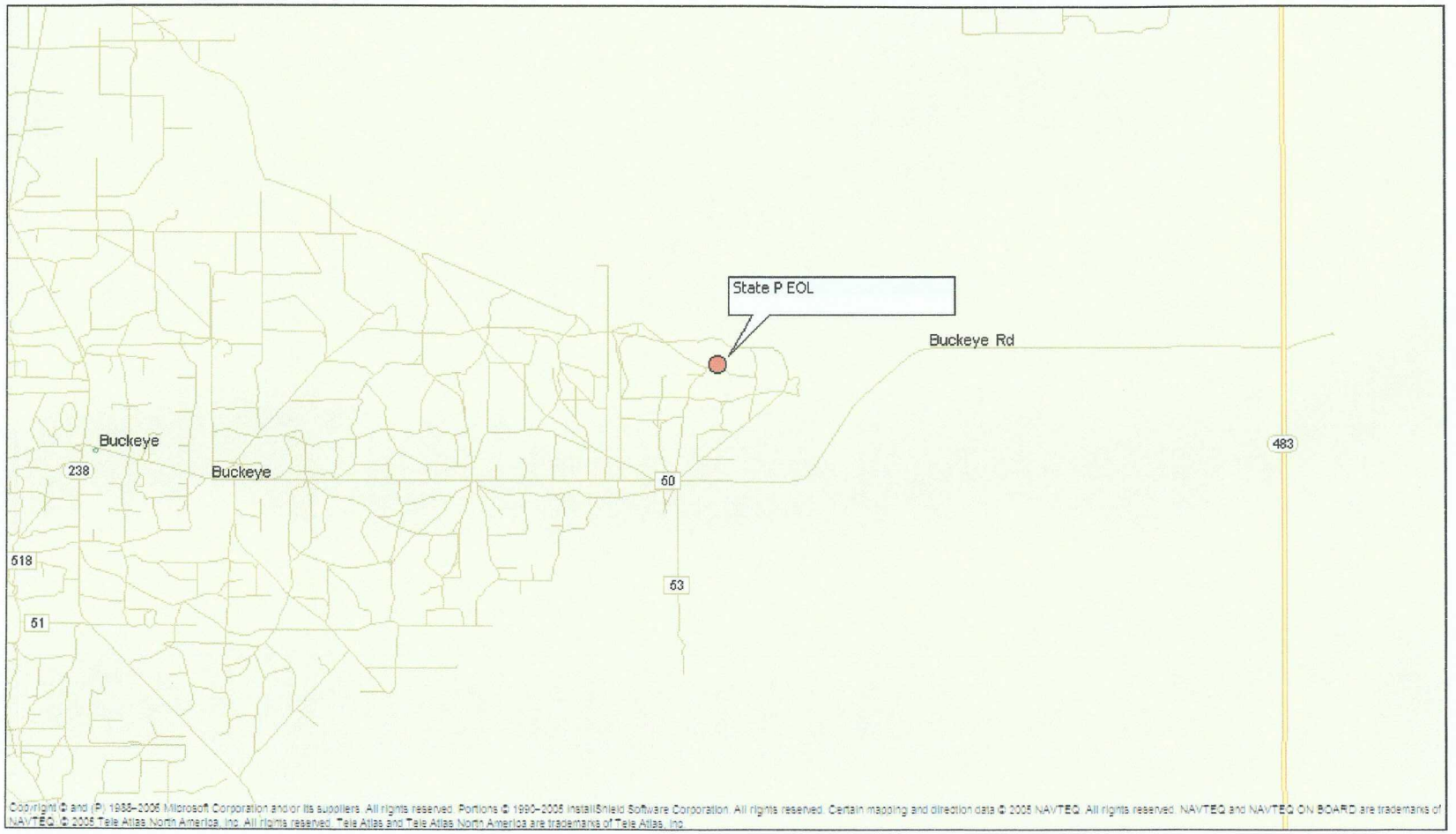


Figure 1 – Site Location Map. Scale: 1 inch = approx. 1 mile. North is "up".

Appendix A – Junction Box Disclosure Report

RICE OPERATING COMPANY
JUNCTION BOX **DISCLOSURE*** REPORT

BOX LOCATION

SWD SYSTEM	JUNCTION	UNIT	SECTION	TOWNSHIP	RANGE	COUNTY	BOX DIMENSIONS - FEET		
							Length	Width	Depth
Vacuum	Mobil 'P' EOL	A	26	17S	35E	Lea	System Abandoned--no box		

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

Depth to Groundwater 50 feet NMOCD SITE ASSESSMENT RANKING SCORE: 20

Date Started 8/2/2005 Date Completed 4/20/2006 NMOCD Witness no

Soil Excavated 267 cubic yards Excavation Length 30 Width 20 Depth 12 feet

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

FINAL ANALYTICAL RESULTS: **Sample Date** 3/27/2006 **Sample Depth** 12 ft

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.	0.1	<10.0	<10.0	1480
BOTTOM COMP.	0.1	<10.0	<10.0	1750
REMED. BACKFILL	0.1	<10.0	<10.0	1950

CHLORIDE FIELD TESTS

LOCATION	DEPTH (ft)	ppm
delineation trench at junction	3	290
	4	299
	5	686
	6	709
	7	872
	8	1286
	9	1601
	10	1733
	11	1999
	12	2189
4-wall comp.	n/a	1050
bottom comp.	12	1554
backfill comp.	n/a	1404

General Description of Remedial Action: This junction box was addressed as part of the abandonment of the Vacuum SWD system. After the box lumber was removed, the site was delineated using a trackhoe to collect soil samples at regular intervals, producing a 30 x 20 x 12-ft-deep excavation. Chloride and organic vapors were measured in the field for each sample. All PID readings yielded very low concentrations (<10 ppm), however, chloride concentrations increased with depth. The excavated soil was blended on site and then returned to the hole up to 6 ft BGS where a 1-ft-thick clay barrier was installed. The remaining fill was placed on top of the clay. Additional fill was needed so clean, imported fill was used to backfill the remainder of the excavation. An identification plate was placed on the surface of the site to mark the location of the former junction for future environmental consideration and the presence of the clay below. The disturbed surface was seeded with a blend of native vegetation on 4/24/2006 and is expected to return to productive capacity at a normal rate. On 4/3/2006, OCD was notified of potential groundwater impact at this site. ROC has retained the consultant, L. Peter Galusky Jr., Ph.D. to address environmental concerns at this site.

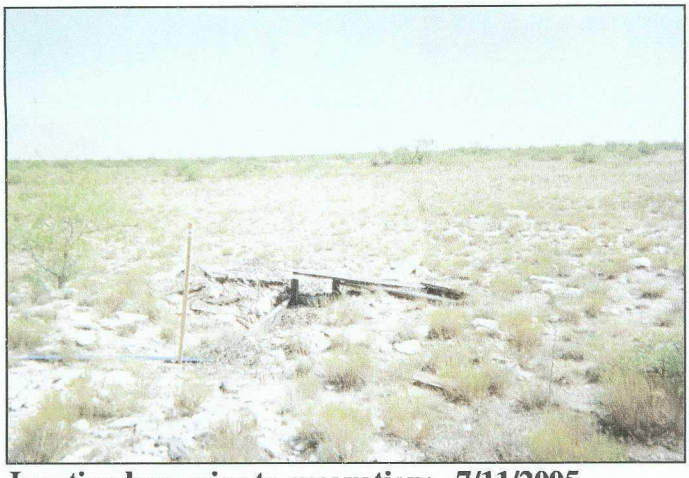
enclosures: photos, lab results, PID field screenings, cl- graph, excavation cross-section

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

SITE SUPERVISOR Jorge Hernandez SIGNATURE not available COMPANY RICE Operating Company

REPORT ASSEMBLED BY Kristin Farris Pope SIGNATURE ____

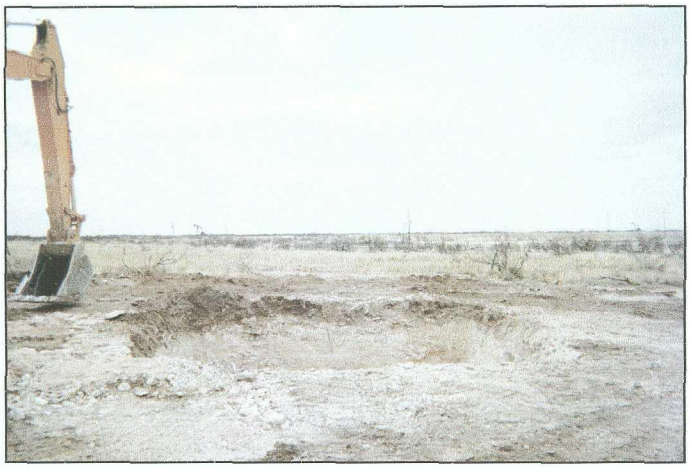
Appendix B – Photo chronology.



Junction box prior to excavation: 7/11/2005

Beginning delineation with trackhoe: 8/2/2005

Collecting soil samples from excavation: 3/23/2006



Final 30 x 20 x 12 ft deep excavation

Installing clay barrier at 6 ft: 4/13/2006

Identification plate to mark former junction site and clay barrier below.

Seeding disturbed area at backfilled site: 4/24/2006

Vacuum Mobil 'P' EOL

30 x 20 x 12-ft-deep

Excavation Cross-Section