1R - 426-150

WORKPLANS

DATE:
6-3-08

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

June 3rd, 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
BD Oxy Owen "A" and BD P-35-1 Jct
IR426-150
Sent via E-mail & U.S. Certified Mail w/ Return Receipt 7007 0710 0003 0305 3927

Dear Mr. Hansen:

RICE Operating Company (ROC) has retained Texerra to address potential environmental concerns at the two above-referenced sites located in the BD 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 nearby sites within the BD SWD system, where the proposed scopes of work are tailored to the respective projects.

BD Oxy Owen "A"

Background and Previous Work

The site is located approximately one mile east/southeast of Eunice, 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 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 50+/- feet in unconsolidated Tertiary alluvium of the Ogallala Formation.

ROC removed three junction boxes from this site, all located within close proximity of each other, in March of 2006 as part of its facility maintenance and upgrade program. (See Figure 2: Rice Junction Box Disclosure Report). The wood junction boxes were removed and soils were sampled using a backhoe, creating a 45 by 35 by 12 ft deep excavation. The excavation bottom and sidewalls were sampled for chlorides and petroleum hydrocarbons, and the excavated soil was then backfilled to ground level.

Significant concentrations (approx. 4,000 +/- ppm) of total hydrocarbons were encountered in the excavated soil with a lower concentration found (394 ppm) at 12 ft below ground surface (bgs). Chloride concentrations were 818 ppm at the bottom of the excavation. 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.

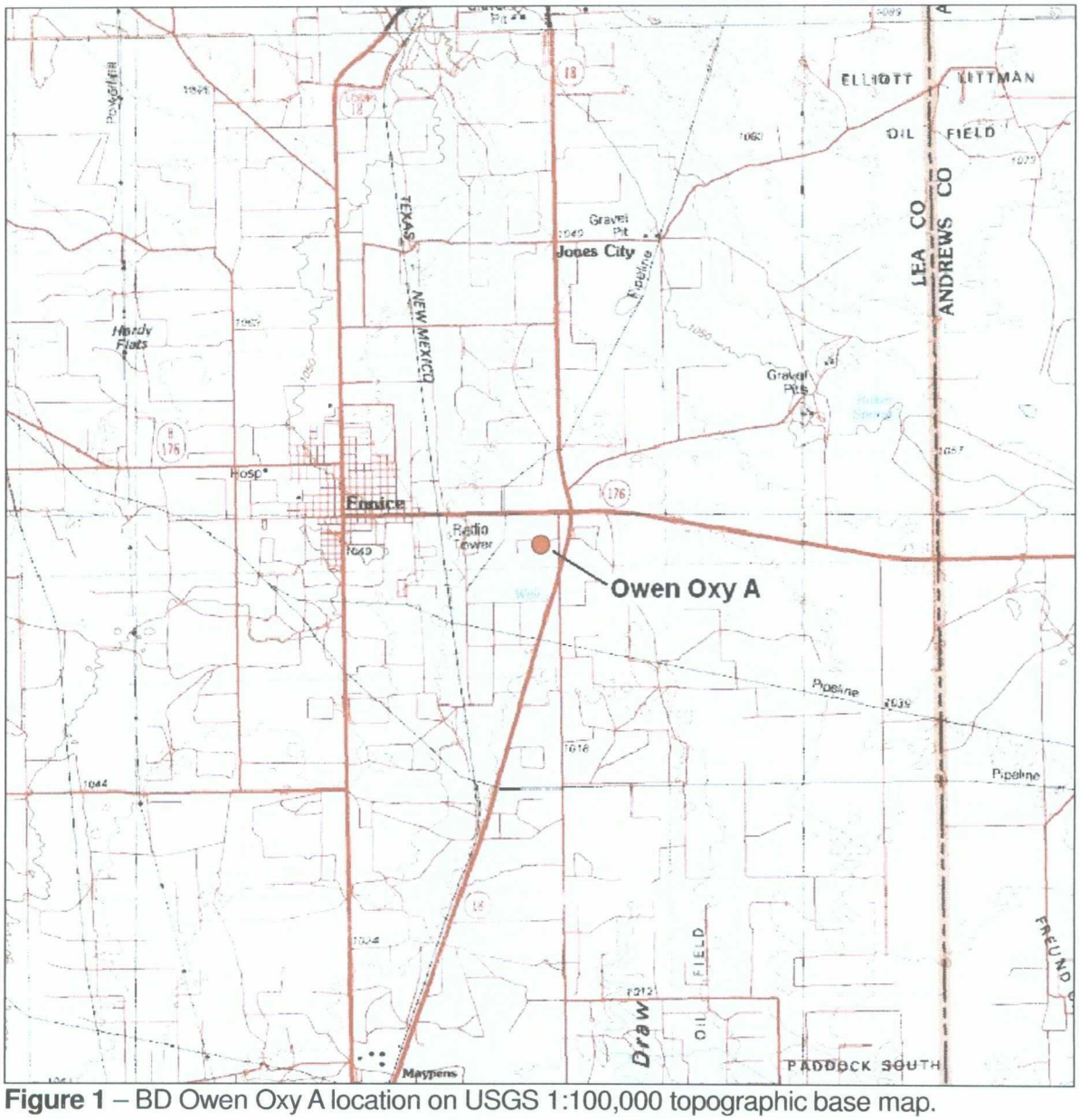


Figure 1 – BD Owen Oxy A location on USGS 1:100,000 topographic base map.

RICE OPERATING COMPANY
JUNCTION BOX DISCLOSURE REPORT

SWD SYSTEM	JUNCTION	UNIT	SECTION	TOWNSHIP	RANGE	COUNTY	BOX DIMENSIONS FEET Length	Width	Depth
BD	Owen Oxy A Jct Box (S Loop)	B	35	21S	34E	Lea	all boxes eliminated		

LAND TYPE: BLM ____ STATE ____ FEE: ANDOWNER Geraldine Osborn OTHER ____

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

Date Started 3/30/2006 Date Completed 5/ 2/2006 NMOCD Witness no

Soil Excavated 731 cubic yards Excavation Length 47 Width 35 Depth 12 feet

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

FINAL ANALYTICAL RESULTS: **Sample Date** 4/16/2006 **Sample Depth** 12 ft

6-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	Total Hydrocarbon (C6-C35) mg/kg	Chloride mg/kg
4-WALL COMP	0.1	1870	317
BOTTOM COMP	0.1	2220	618
BACKFILL	0.7	4190	443

CHLORIDE FIELD TESTS

SAMPLE LOCATION	DEPTH ft	CHLORIDE mg/kg
4-wall comp:	n/a	308
bottom comp	12	384
backfill comp	n/a	902

General Description of Remedial Action:

This area included 3 junction boxes within very close proximity and approx. 12 ft east of the fence of a production battery. These boxes were detected for chloride and hydrocarbon using a backhoe which collected samples at regular intervals producing a 47 x 35 x 12 ft-deep excavation that encompassed the former locations of the 3 boxes. Chloride concentrations varied throughout the excavation from a low of 24* to a maximum of 2000 ppm using a titration method. PID field screenings also yielded a wide range of concentrations. 12-ft bottom, 4-wall, and backfill composite samples were collected for laboratory analysis. NMOCD TPH concentration guidelines were not met. The excavated soils were blended on site and then backfilled back into the excavation and contoured to the surrounding terrain. An identification plate was placed on the surface of this site to mark the location for future environmental considerations. NMOCD was notified of potential groundwater impact at this site on 5/2/2006. All three boxes in this area have been eliminated with the pipeline realignment program.

ADDITIONAL EVALUATION IS *HIGH* PRIORITY

* There are some water wells within 1000', of this site, however, all are inactive. All nearby homes are on City water

enclosures: plat plan, lab results, PID field screenings, chloride graphs

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

SITE SUPERVISOR: Daniel Millsap1 SIGNATURE: Daniel Millsap COMPANY: RICE Operating Company

REPORT ASSEMBLED BY: Kristin Farris Pope SIGNATURE: Kristin Farris Pope

DATE: 6/6/2006 TITLE: Project Scientist

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

Figure 2 – Owen Oxy A Junction Box Disclosure Report

BD P-35-1 Jct

Background and Previous Work

The site is located approximately one mile east/southeast of Eunice, 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 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 50+/- feet in unconsolidated Tertiary alluvium of the Ogallala Formation.

ROC removed a wooden junction box at this location, replacing it with a new, water-tight junction box (located approx. 33 ft southwest of the original location) in May of 2006 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 30 by 25 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.

Low concentrations (30 ppm) of petroleum hydrocarbons (TPH) were encountered in the excavated soil. TPH concentrations were below detection (< 10.0 ppm) in the sidewalls and bottom of the excavation. Petroleum hydrocarbons were therefore ruled out as a potential constituent of concern. In contrast, chloride concentrations increased with depth to 2,185 ppm at 12 ft below ground surface. 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.

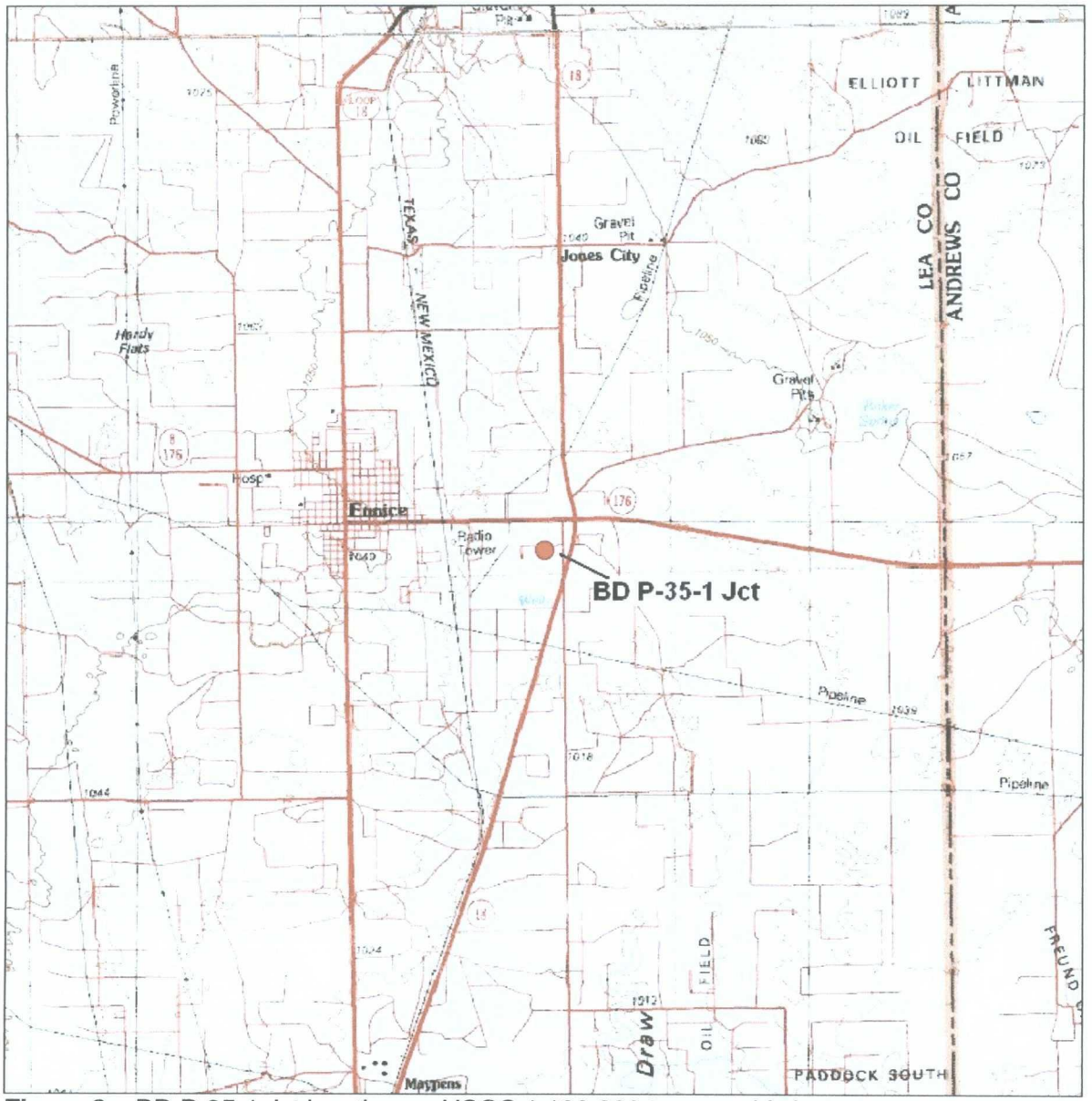


Figure 3 – BD P-35-1 Jct location on USGS 1:100,000 topographic base map.

RICE OPERATING COMPANY
JUNCTION BOX DISCLOSURE* REPORT

BOX LOCATION

SWD SYSTEM	JUNCTION	UNIT	SECTION	TOWNSHIP	RANGE	COUNTY	NEW BOX DIMENSIONS - FEET		
							Length	Width	Depth
BD	jct. P 35 1	P	35	22S	38E	Lea	moved 33 ft southwest		

LAND TYPE: BLM _____ STATE ___ FEE LANDOWNER ___ Geraldine Quenon ___ OTHER _____

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

Date Started 6/23/2006 Date Completed 7/27/2006 NMOCD Witness YES

Soil Excavated 353 cubic yards Excavation Length 50 Width 25 Depth 12 --

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

FINAL ANALYTICAL RESULTS: Sample Date 6/7/2006 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 laboratory and testing procedures pursuant to NMOCD guidelines.

Sample Location	PID Headspace ppm	TPH (GRO/DRO/ORO) mg/kg	Chloride mg/kg
4-WALL COMP	1.9	<10.0	960
BOTTOM COMP.	0.9	<10.0	1472
BACKFILL	2.1	30.0	3047

CHLORIDE FIELD TESTS

LOCATION	DEPTH ft	ppm
5 ft SOUTH of corner junction	4	897
	5	1128
	6	977
	7	896
	8	1850
	9	1949
	10	1447
	11	1558
	12	2156

General Description of Remedial Action: This location was moved 33 ft south of the original junction box location. Once the box was removed, the site was delineated using a backhoe to collect soil samples, approximately 20 ft x 20 ft [illegible] ADDITIONAL EVALUATION IS HIGH PRIORITY

Attachments: photos, lab results, PID field screening, chloride graph

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

FIELD SUPERVISOR Roy Rogers SIGNATURE Gayle Rogers DISTRICT SUPERVISOR [illegible]

REPORT ASSEMBLED BY Kristin Farris Pope SIGNATURE Kristin Farris Pope

TITLE Project Scientist

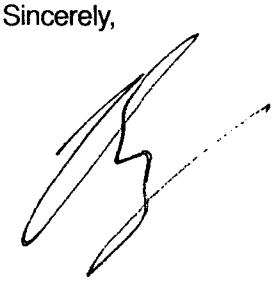
* This site is a "DISCLOSURE." It will be placed on a prioritized list of similar sites for further consideration.

Figure 4 – BD P-35-1 Jct 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

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

cc: Rice Operating Company

Attachments: Site Maps, Junction Box Disclosure Reports as noted