1R - 426-117

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
IR 726 117
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.

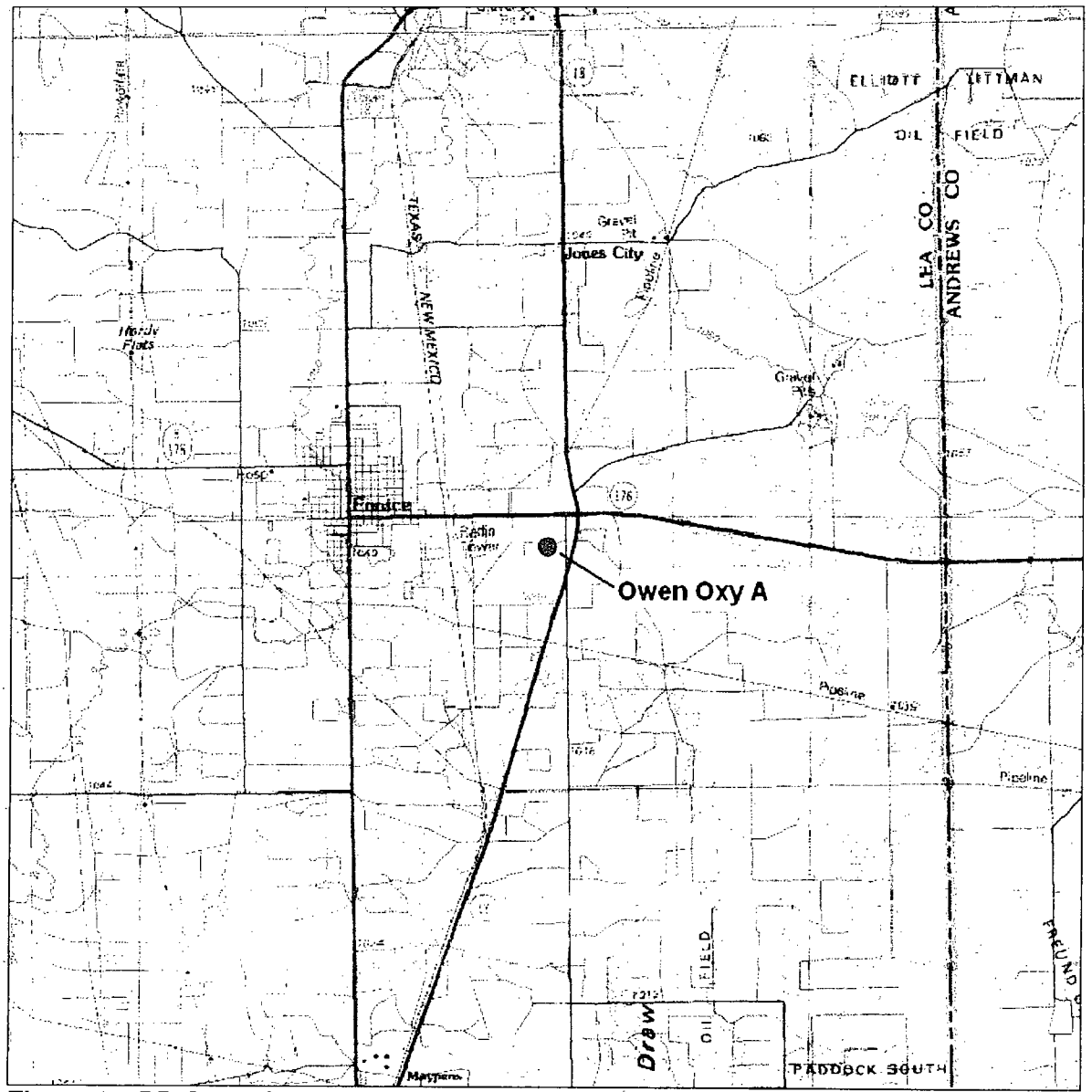


Figure 1 – BD Owen Oxy A location on USGS 1:100,000 topographic base map.

RICE OPERATING COMPANY
JUNCTION BOX DISCLOSURE REPORT

BOX LOCATION

SWD SYSTEM	JUNCTION	UNIT	SECTION	TOWNSHIP	RANGE	COUNTY	BOX DIMENSIONS - FEET		
							Length	Width	Depth
[illegible]	[illegible]	[illegible]	35	21S	[illegible]	[illegible]	all boxes eliminated		

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

Depth to Groundwater [illegible] feet NMOCD SITE ASSESSMENT RANKING SCORE [illegible]

Date Started [illegible] Date Completed [illegible] NMOCD Witness no

Soil Excavated 721 cubic yards Excavation Length 47 Width [illegible] Depth 12 feet

Soil Disposed [illegible] cubic yards Offsite Facility n/a Location n/a

FINAL ANALYTICAL RESULTS: Sample Date 4/10/2008 Sample Depth 12 ft

[illegible]-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	[illegible]	1870	[illegible]
BOTTOM COMP	[illegible]	2220	818
BACKFILL	[illegible]	4190	443

CHLORIDE FIELD TESTS

SAMPLE LOCATION	DEPTH	CHLORIDE mg/kg
4-wall comp	n/a	[illegible]
bottom comp	12	[illegible]
backfill comp	n/a	902

General Description of Remedial Action: This area included 3 junction boxes [illegible] approx. [illegible] ... [illegible] ... All three boxes in this area have been eliminated with the [illegible] program.

ADDITIONAL EVALUATION IS *HIGH* PRIORITY

[illegible] ... All nearby homes are on City water.

[illegible] photos, 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 [illegible] SIGNATURE [signature] COMPANY RICE Operating Company

REPORT ASSEMBLED BY [illegible] SIGNATURE [signature]
DATE [illegible] 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.

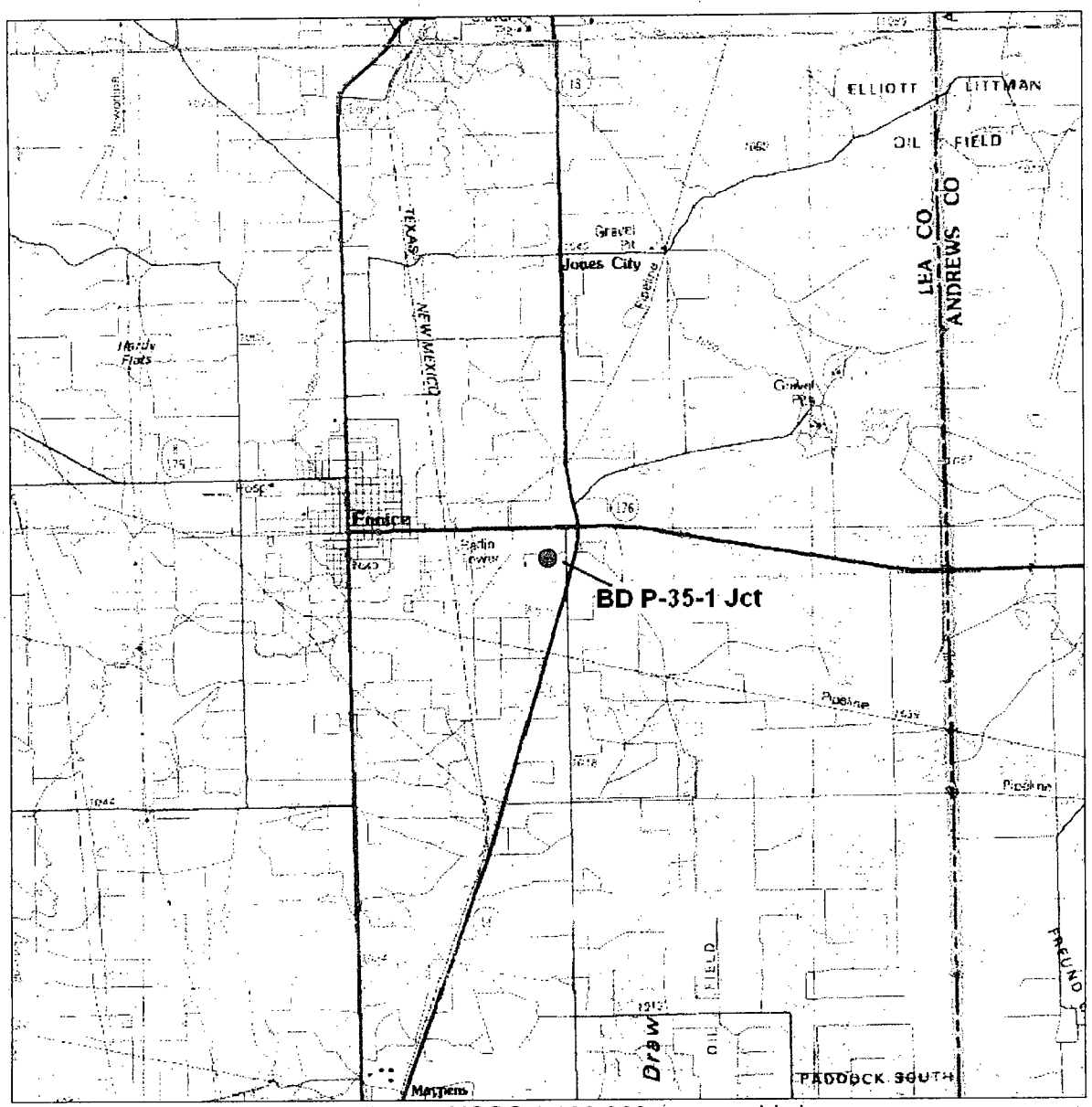


Figure 3 – BD P-35-1 Jct location on USGS 1:100,000 topographic base map.

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	[illegible]	35	22S	38E	Lea	moved 33 ft southwest		

LAND TYPE: BLM ______ STATE ______ FEE LANDOWNER Geraldine Graves ______ OTHER ______

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

Date Started [illegible] Date Completed 7-27/2006 NMOCD Witness YES

Soil Excavated 353 cubic yards Excavation Length 30 Width 25 Depth 12 feet

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

FINAL ANALYTICAL RESULTS Sample Date [illegible] Sample Depth 11 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 (head) ppm	TPH 8015 (GRO) mg/kg	Chloride mg/kg
4-WALL COMP	1.5	<10.0	960
BOTTOM COMP	0.0	<10.0	1472
BACKFILL	2.1	[illegible]	[illegible]

CHLORIDE FIELD TESTS

LOCATION	DEPTH ft	ppm
33 ft SOUTH of former junction	4	397
	5	173
	6	277
	7	395
	8	1950
	9	1919
	10	1447
	11	1536
	12	2135

General Description of Remedial Action: This junction was moved 33 ft south [illegible] program. Once the old box was removed, [illegible]

ADDITIONAL EVALUATION IS HIGH PRIORITY

[illegible]

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

[illegible] SIGNATURE [signature] [illegible] Rice Operating Company

REPORT ASSEMBLED BY [illegible] SIGNATURE [signature]

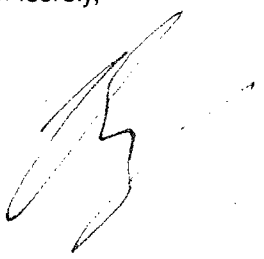
* This site is a "DISCLOSURE." It will be placed on a prioritized list of similar sites for further consideration.

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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cc: Rice Operating Company

Attachments: Site Maps, Junction Box Disclosure Reports as noted