1R - 425-66

WORKPLANS

DATE:
9-30-09

R. T. HICKS CONSULTANTS, LTD. IR425-66

901 Rio Grande Blvd NW ▲ Suite F-142 ▲ Albuquerque, NM 87104 ▲ 505.266.5004 ▲ Fax: 505.266-0745

September 30, 2009

Mr. Edward Hansen
New Mexico Oil Conservation Division
1220 South St. Francis Drive
Santa Fe, New Mexico 87505

RE: Investigation Characterization Plan
Vacuum Salt Water Disposal System: F-25 EOL, L-26 Vent
NMOCD Case #s: Not Yet Assigned
T17S, R35E, Section 25 and 26

Dear Mr. Hansen:

On behalf of Rice Operating Company (ROC), R.T. Hicks Consultants, Ltd. is pleased to submit this Investigation Characterization Plan (ICP) for the above- referenced sites within the Vacuum Salt Water Disposal System. Plate 1 is a map showing the sites relative to major roads in the area, nearby ROC sites and nearby USGS monitoring wells. GPS coordinates for the site are approximately: N32° 48.479, W103° 24.917 (F-25 EOL) and N32° 48.199, W103° 25.945 (L-26).

Background and Previous Work
Both sites were initially assessed as part of Vacuum System abandonment. At F-25 EOL, the former junction box was removed along with 40 cubic yards of soil which was disposed of at a NMOCD-approved facility. Three sampling trenches were advanced to 12' below ground surface (bgs) to characterize impact (at the source, 5 ft north and 5 ft west of the former junction box). The site was graded with blended material.

At L-26 Vent, site work included:
- Excavation to 30L x 30W x 12D feet,
- Backfilling with blended soil,
- A geosynthetic liner was installed over a cushioning layer of blow sand and
- The remainder of the excavation was backfilled with blended dirt to the surface.

In both cases, the surface was contoured to the surrounding area and an identification plate was placed at the site to mark the location of the former junction box. The initial disclosure reports for these sites are attached.

Proposed Work Elements
The following work elements are either complete or proposed to characterize this site sufficiently to develop an appropriate path forward:

1. ROC has identified and documented the location of all current and historic equipment and pipelines associated with the site.
2. ROC has conducted initial trench sampling adjacent to the former junction boxes.
3. ROC and Hicks Consultants will conduct vertical and lateral delineation of soil chlorides.

4. If warranted, we will install one monitor well to evaluate possible ground water impact. Plate 2 presents a potentiometric surface map for the site area.

ROC is the service provider (agent) for the Vacuum Salt Water Disposal System and has no ownership of any portion of pipeline, well or facility. The Vacuum SWD System is owned by a consortium of oil producers, System Parties, who provide all operating capital on a percentage ownership/usage basis. The Vacuum SWD system is in abandonment.

For all environmental projects, ROC will choose a path forward that:

1. Protects public health.
2. Provides the greatest net environmental benefit.
3. Complies with NMOCD Rules.
4. Is supported by good science.

Each site shall have three submissions or a combination of:

1. This Investigation and Characterization Plan (ICP), which is a proposal for data gathering, and site characterization and assessment (this submission).
2. Upon evaluation of the data and results from the ICP, a recommended remedy will be submitted in a Corrective Action Plan (CAP).
3. Finally, after implementing the remedy, a Termination Request with final documentation will be submitted.

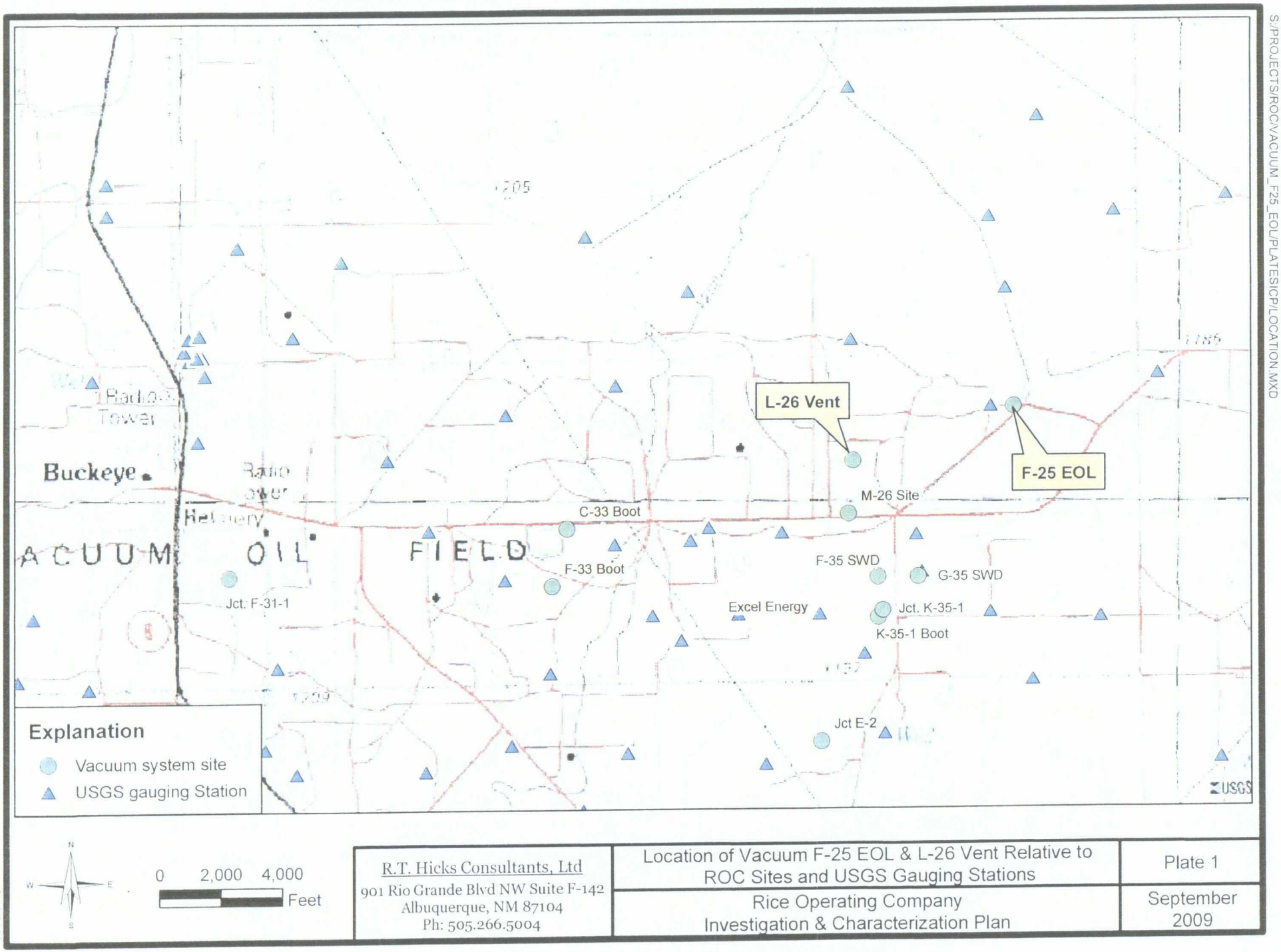
If you have any questions or comments regarding this ICP, please feel free to contact me or Hack Conder of Rice Operating Company.

Sincerely,
R.T. Hicks Consultants, Ltd.

Katie Lee

Katie Lee
Project Scientist

Copy: Rice Operating Company



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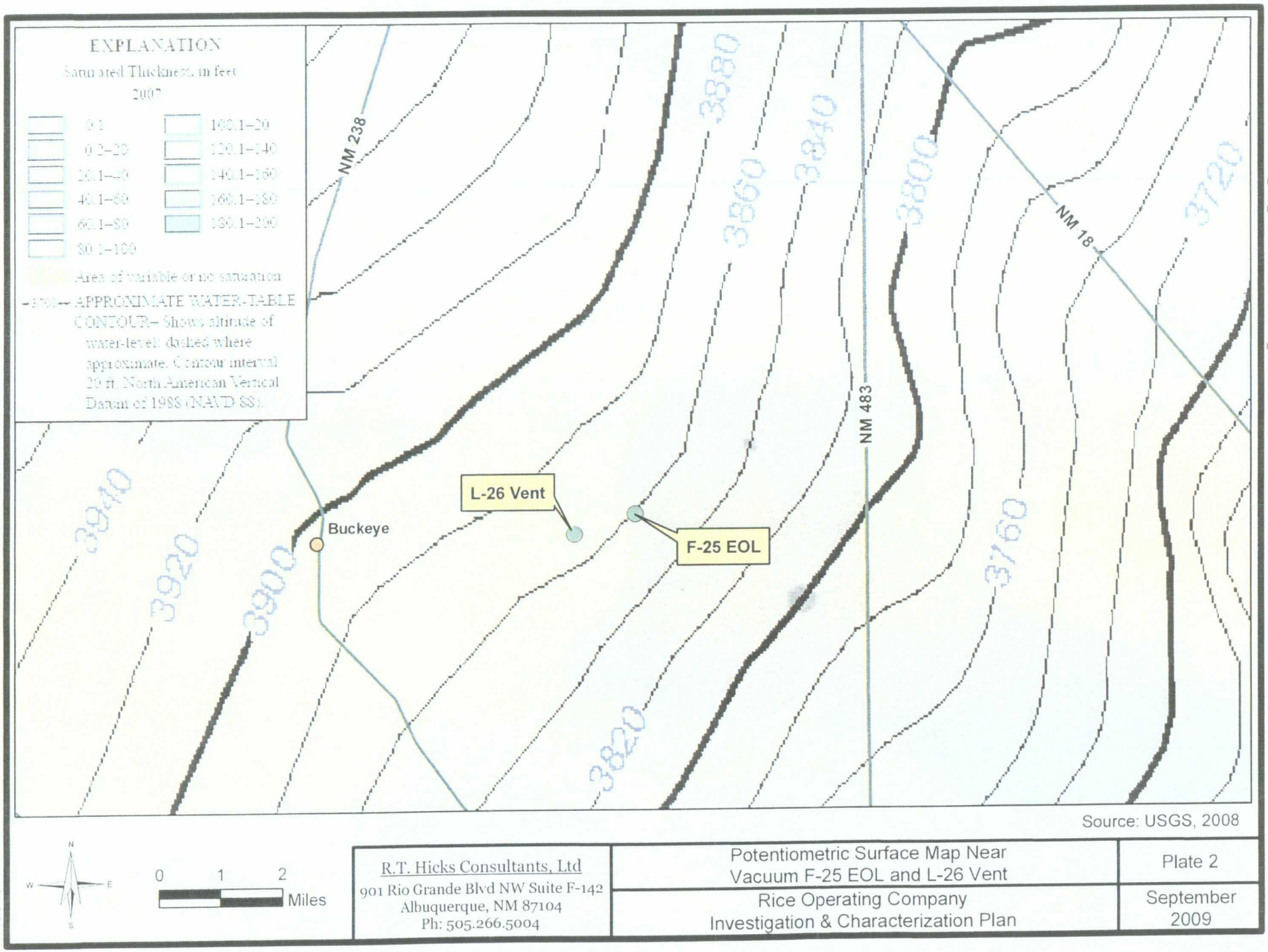
9/18/2009

R.T. Hicks Consultants, Ltd 901 Rio Grande Blvd NW Suite F-142 Albuquerque, NM 87104 Ph: 505.266.5004	Location of Vacuum F-25 EOL & L-26 Vent Relative to ROC Sites and USGS Gauging Stations	Plate 1
	Rice Operating Company Investigation & Characterization Plan	September 2009



R.T. Hicks Consultants, Ltd 901 Rio Grande Blvd NW Suite F-142 Albuquerque, NM 87104 Ph: 505.266.5004	Potentiometric Surface Map Near Vacuum F-25 EOL and L-26 Vent	Plate 2
	Rice Operating Company Investigation & Characterization Plan	September 2009

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9/18/2009

RICE OPERATING COMPANY
JUNCTION BOX DISCLOSURE* REPORT

BOX LOCATION

SWD SYSTEM	JUNCTION	UNIT	SECTION	TOWNSHIP	RANGE	COUNTY	BOX DIMENSIONS - FEET		
							Length 8'	Width 4'	Depth 2'
Vacuum	Bustamante EOL	F	25	17S	35E	Lea	no box; system abandonment		

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

Depth to Groundwater 60 feet NMOCD SITE ASSESSMENT RANKING SCORE: 20

Date Started 7/8/2005 Date Completed 9/12/2005 OCD Witness no

Soil Excavated 80 cubic yards Excavation Length *3 trenches* Width ___ Depth 12 feet

Soil Disposed 40 cubic yards Offsite Facility Sundance Location Eunice, NM

FINAL ANALYTICAL RESULTS: **Sample Date** 8/9/2005 **Sample Depth** 12 ft

TPH and Chloride laboratory test results completed by using an approved lab and testing procedures pursuant to NMOCD guidelines.

Sample Location	PID (field) ppm	GRO mg/kg	DRO mg/kg	Chlorides mg/kg
BOTTOM 12' GRAB	13.8	<10.0	<10.0	1850

General Description of Remedial Action: This junction was eliminated during the Vacuum SWD system abandonment. After the former junction box was removed, an investigation was conducted using a trackhoe to excavated three trenches to 12 ft BGS. Soil samples were taken at regular intervals and field tested for chloride, which yielded elevated concentrations that did not relent with depth. Organic vapors were measured using a PID, which yielded low concentrations. A 12 ft bottom grab sample was sent a commercial laboratory for analysis of chloride and TPH, which confirmed elevated chloride concentrations. Clean soil was imported to backfill the excavation to ground surface and to contour the site to the surrounding area. NMOCD was notified of potential groundwater impact on 12/8/2008.

ADDITIONAL EVALUATION IS HIGH PRIORITY

enclosures, photos, lab results, PID field screenings, chloride curve

CHLORIDE FIELD TESTS

LOCATION	DEPTH	mg/kg
background	3"	98
vertical delineation trench at the junction (source)	1'	5585
	2'	484
	3'	371
	4'	442
	5'	551
	6'	613
	7'	655
	8'	1167
	9'	1199
	10'	1118
	11'	1468
	12'	2335

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 12-16-08

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

RICE OPERATING COMPANY
JUNCTION BOX DISCLOSURE* REPORT

BOX LOCATION

SWD SYSTEM	JUNCTION	UNIT	SECTION	TOWNSHIP	RANGE	COUNTY	BOX DIMENSIONS - FEET		
							Length	Width	Depth
Vacuum	west L-26	L	26	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: 10

Date Started 2/7/2008 Date Completed 5/21/2008 OCD Witness no

Soil Excavated 400 cubic yards Excavation Length 30 Width 30 Depth 12 feet

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

FINAL ANALYTICAL RESULTS: Sample Date 5/9/2008 Sample Depth 12 ft

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	EthylBenzene mg/kg	Total Xylenes mg/kg	GRO mg/kg	DRO mg/kg	Chlorides mg/kg
4-WALL COMP.	<0.010	<0.010	0.026	0.084	88.5	869	3,000
BOTTOM COMP.	PID = 31.2 (field reading)				<10.0	214	1,140
BACKFILL COMP.	PID = 25.7 (field reading)				<10.0	436	2,560

General Description of Remedial Action: This junction was eliminated during the Vacuum SWD system abandonment. After the former junction box was removed, an investigation was conducted using a backhoe to collect soil samples at regular intervals producing a 30x30x12-ft deep excavation. Chloride field tests were performed on each sample, which yielded elevated concentrations that did not relent with depth. Organic vapors were measured using a PID. Representative composite samples were sent to a commercial laboratory for analysis of chloride, TPH, and BTEX. The excavated soil was blended on-site and returned to the excavation up to 4 ft below ground surface (BGS). At 4 ft BGS, a geosynthetic liner was installed with 6 inches of clean, imported soil above and below the liner to serve as padding. The remaining fill was returned to the excavation to ground surface and contoured to the surrounding area. An identification plate was place on the surface at the former junction site to mark the presence of the geosynthetic liner below. NMOCD was notified of potential groundwater on 12/1/2008.

ADDITIONAL EVALUATION IS MEDIUM PRIORITY

enclosures: photos, lab results, PID field screenings, cross-section, BTEX study, chloride curve

CHLORIDE FIELD TESTS

LOCATION	DEPTH	mg/kg
background	6"	107
4-wall comp.	n/a	3,537
bottom comp.	12'	1,556
backfill comp	n/a	2,999
vertical delineation trench at 5 ft north of the junction (source)	1'	1,075
	2'	988
	3'	876
	4'	748
	5'	862
	6'	766
	7'	780
	8'	593
	9'	906
	10'	1,395
	11'	1,269
	12'	1,795

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 Kelly Jones INITIAL KJ

PROJECT LEADER Larry Bruce Baker Jr. SIGNATURE Larry Bruce Baker Jr DATE 12-2-08

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