



PO Box 2948 | Hobbs, NM 88241 | Phone 575.393.2967

June 14, 2018

Bradford Billings

Environmental Bureau, Oil Conservation Division
New Mexico Energy, Minerals, & Natural Resources Department
1220 S. St. Francis Drive
Santa Fe, New Mexico 87505

**RE: Investigation and Characterization Plan (ICP)
Rice Operating Company – BD SWD System
BD P-17 Vent (1R426-132): UL/P, Sec. 17, T21S, R37E**

Mr. Billings:

RICE Operating Company (ROC) has retained Basin Environmental Service Technologies (BEST) to address potential environmental concerns at the above-referenced site in the BD Salt Water Disposal (SWD) system.

ROC is the service provider (agent) for the BD 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.

For all such environmental projects, ROC will choose the 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:

1. This Investigation and Characterization Plan (ICP) is proposed for gathering data 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 warranted.
3. Finally, after implementing the remedy, a Termination Request with final documentation will be submitted.

June 14, 2018

Background and Previous Work

The site is located approximately 2.5 miles northwest of Eunice, New Mexico at UL/P, Sec. 17, T21S, R37E as shown on the Geographical Location Map and the Area Map. NM OSE records indicate that groundwater will likely be encountered at a depth of approximately 70 feet below ground surface (bgs). A junction box disclosure report was submitted to NMOCD with all the 2005 junction box closures and disclosures.

In 2005, ROC initiated work on the former P-17 Vent junction box. The site was delineated using a backhoe to form a 30 ft x 20 ft x 12 ft deep excavation and soil samples were screened at regular intervals for hydrocarbons and chlorides. From the excavation, a 4-wall composite sample, a bottom composite sample, and a backfill composite sample were sent to a commercial laboratory for analysis. The 4-wall composite returned a chloride reading of 837 mg/kg and a Gasoline Range Organics (GRO) reading non-detect and a Diesel Range Organics (DRO) reading of non-detect. The bottom composite sample returned a chloride reading of 1,600 mg/kg, a GRO reading of non-detect and a DRO reading of non-detect. The backfill sample returned a chloride reading of 894 mg/kg, a GRO reading of 7.12 mg/kg and a DRO reading of 121 mg/kg. A one-foot compacted clay liner was installed at 6 feet bgs. The excavation was then backfilled with blended soils and contoured to the surrounding area. On 9/7/2006, the site was seeded with a blend of native vegetation. A junction box is no longer required at the site.

ROC proposes additional investigative work at the site to determine if there is potential for groundwater degradation from residual constituents at the site.

Proposed Work Elements

1. Conduct vertical and lateral delineation of residual chlorides and hydrocarbons from samples taken using a drill rig, hand augur and/or backhoe.
 - a. Vertical sampling will be conducted until the following criteria are met in the field.
 - i. Three samples in which the chloride concentration decreases, and the third sample has a chloride concentration of ≤ 600 ppm; and,
 - ii. Three samples in which PID readings decrease and the third sample has a PID reading of ≤ 100 ppm; or,
 - iii. The sampling reaches the capillary fringe.
 - b. Lateral sampling will be conducted until the following criteria are met in the field.
 - i. A decrease is observed in chloride concentrations between lateral bores at similar depths; and,
 - ii. A chloride concentration of ≤ 600 ppm is observed in a lateral surface sample; or,
 - iii. Safety concerns impede further lateral delineation.

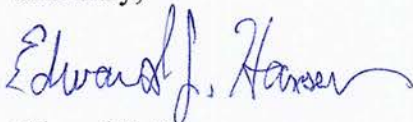
June 14, 2018

2. If warranted, install a monitor well to provide direct measurement of the potential groundwater impact at the site. (All monitor wells will be installed by EPA, NMOCD, and industry standards.)
3. Evaluate the risk of groundwater impact based on the information obtained.

If the evaluation of the site shows no threat to groundwater from residual constituents, then only a vadose zone remedy will be undertaken. However, if groundwater shows impact from residual chlorides, a CAP will be developed to address these concerns.

Please contact me at (505) 920-4965 or Katie Jones Davis at (575) 393-9174 if you have any questions or wish to discuss this site. Thank you for your time and consideration.

Sincerely,

A handwritten signature in blue ink that reads "Edward J. Hansen". The signature is fluid and cursive, with a long horizontal flourish at the end.

Edward J. Hansen
Senior Hydrologist
BEST

enclosures

Figures

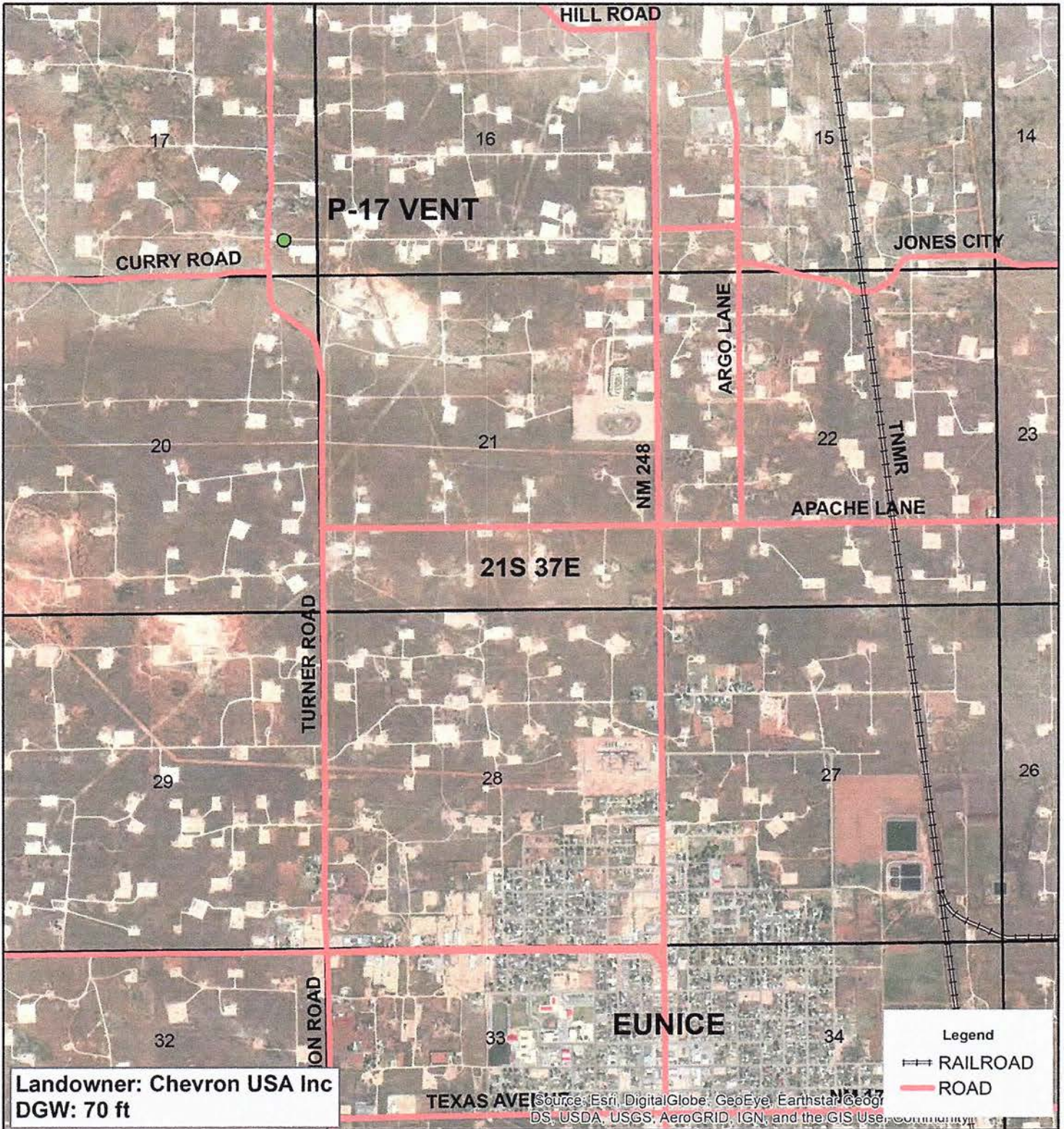
Basin Environmental Service Technologies (BEST)

P.O. Box 2948, Hobbs, NM 88241

Phone: 575-393-2967



Geographic Location



BD
P-17 VENT
1R426-132

UL P SECTION 17
T-21-S R-37-E
LEA COUNTY, NM

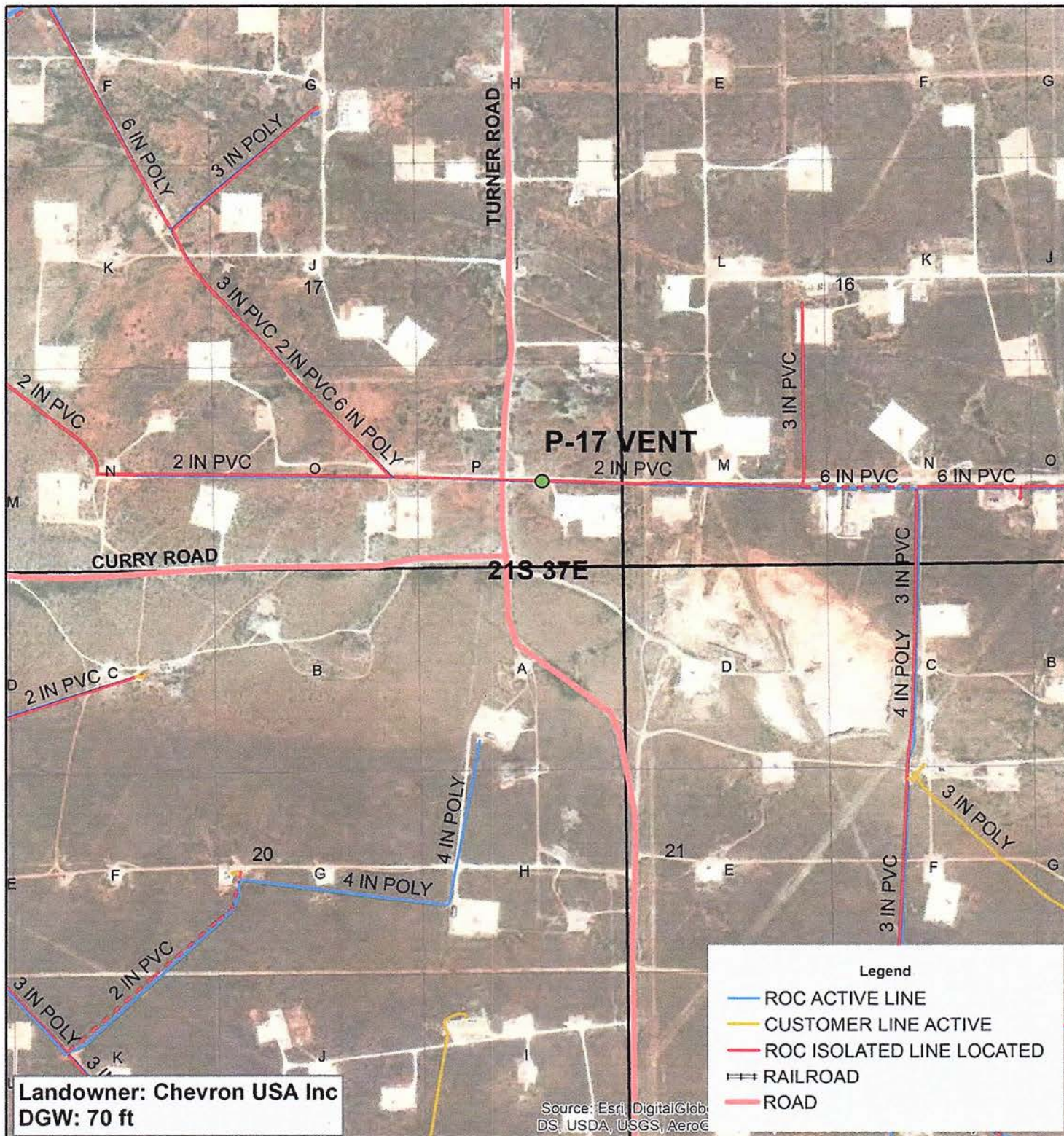
GPS: 32.473216 -103.178274

0 1,000 2,000

 Feet

Drawing date: 5/29/18
Drafted by: T. Grieco

Area Map



Legend

- ROC ACTIVE LINE
- CUSTOMER LINE ACTIVE
- ROC ISOLATED LINE LOCATED
- RAILROAD
- ROAD

Landowner: Chevron USA Inc
DGW: 70 ft

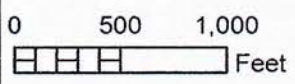
Source: Esri, DigitalGlobe, GeoEye, USDA, USGS, AeroC



BD
P-17 VENT
1R426-132

UL P SECTION 17
T-21-S R-37-E
LEA COUNTY, NM

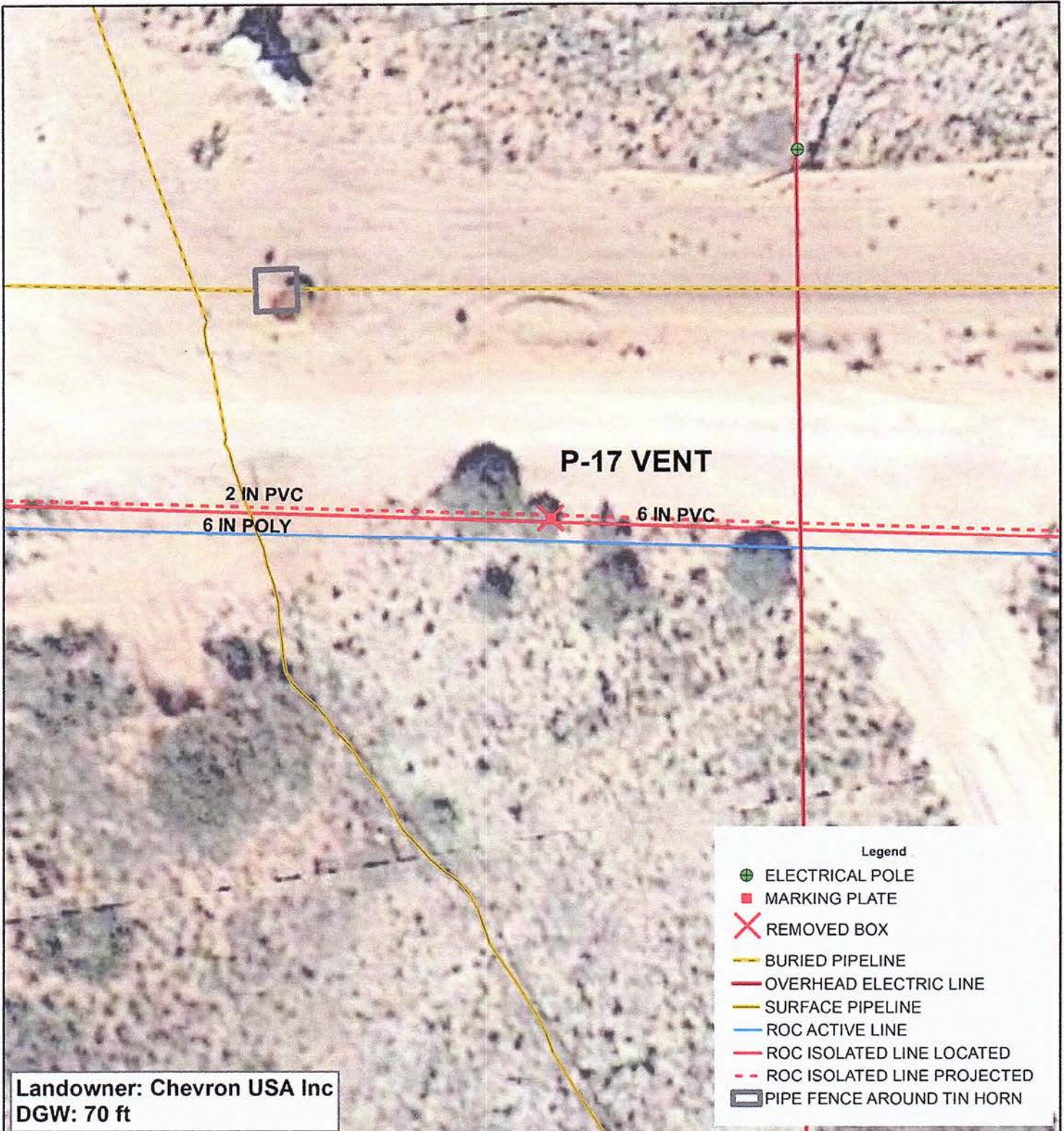
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Drawing date: 5/29/18
Drafted by: T. Grieco



Base Map



Landowner: Chevron USA Inc
DGW: 70 ft



BD
P-17 VENT
1R426-132

UL P SECTION 17
T-21-S R-37-E
LEA COUNTY, NM

GPS: 32.473216 -103.178274

0 10 20
HHH Feet

GPS date: 6/1/18 TG
Drawing date: 6/4/18
Drafted by: T. Grieco



Disclosure Report

Basin Environmental Service Technologies (BEST)

P.O. Box 2948, Hobbs, NM 88241

Phone: 575-393-2967

**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	P-17 vent	P	17	21S	37E	Lea	no box--jct. eliminated		

LAND TYPE: BLM _____ STATE _____ FEE LANDOWNER Millard Deck OTHER _____

Depth to Groundwater 70 feet NMOCD SITE ASSESSMENT RANKING SCORE: 10

Date Started 4/19/2005 Date Completed 7/7/2006 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 5/20/2005 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.

CHLORIDE FIELD TESTS

Sample Location	PID (field) ppm	GRO mg/kg	DRO mg/kg	Chloride mg/kg
4-WALL COMP.	3.7	<10.0	<10.0	837
BOTTOM COMP.	3.1	<10.0	<10.0	1600
BACKFILL	18.7	7.12	121	894

LOCATION	DEPTH (ft)	ppm
vertical trench at former junction site	7	264
	8	116
	9	246
	10	521
	11	1121
	12	1377
4-wall comp.	n/a	602
bottom comp.	12	1279
backfill comp.	n/a	581

General Description of Remedial Action:

This junction was eliminated with the pipeline replacement/upgrade program. After the box lumber was removed, the site was delineated using a backhoe to collect soil samples at regular intervals, producing a 30 x 20 x 12-ft excavation. Headspace vapor was measured using a PID and all readings were generally low throughout. Chloride field tests yielded concentrations that increased with depth. Confirmation samples from the final excavation were collected for laboratory analysis. The excavated soil was blended on site and then returned to the hole to 6 ft BGS where a 1-ft-thick clay barrier was installed. The remainder of the fill was returned to the excavation on top of the clay and contoured to the surrounding surface. An identification plate was placed on the surface to mark the location of the former junction and the presence of clay below. The disturbed surface was seeded with a blend of native vegetation on 9/7/2006 and is expected to return to productive capacity at a normal rate. OCD was notified of potential groundwater impact at this site on 2/26/2006.

ADDITIONAL EVALUATION IS MEDIUM PRIORITY

enclosures: photos, lab results, PID field screenings, chloride graph, excavation profile

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

SITE SUPERVISOR Israel Juarez SIGNATURE *Israel Juarez* COMPANY RICE Operating Company

REPORT ASSEMBLED BY Kristin Farris Pope SIGNATURE *Kristin Farris Pope*
DATE 2/26/2007 TITLE Project Scientist

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

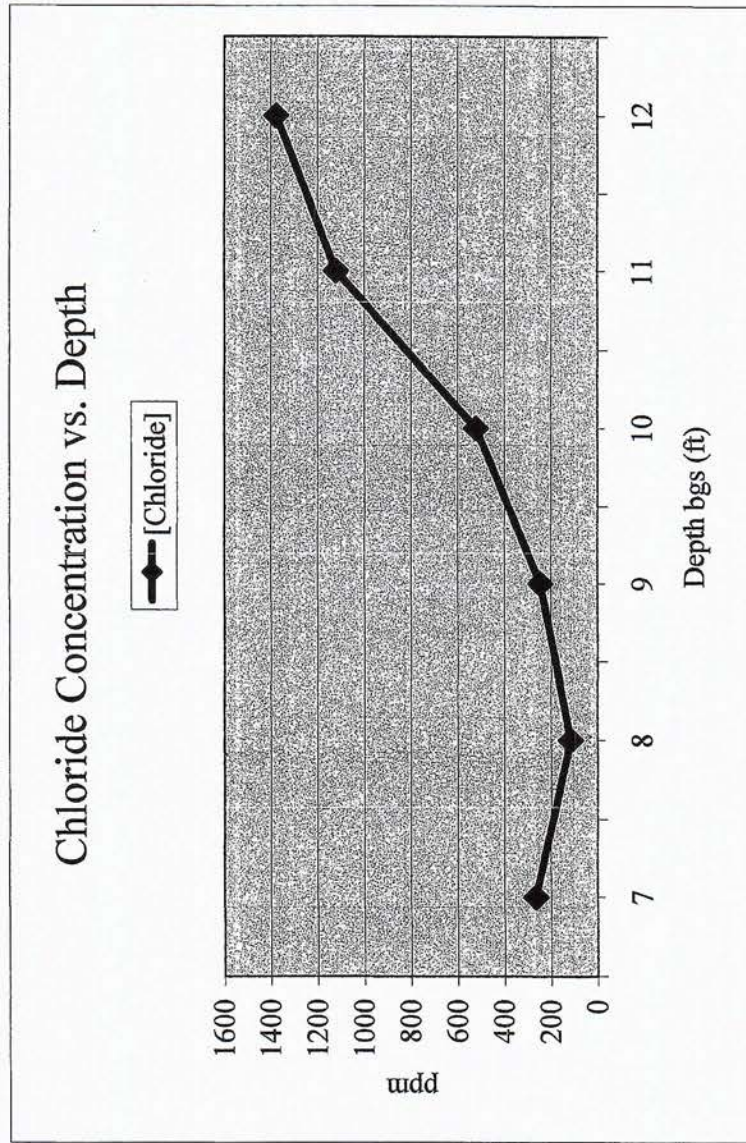
BD P-17 vent

unit P', Sec. 17, T21S, R37E

Vertical delineation at jct.

Depth bgs (ft)	[Cl] ppm
7	264
8	116
9	246
10	521
11	1121
12	1377

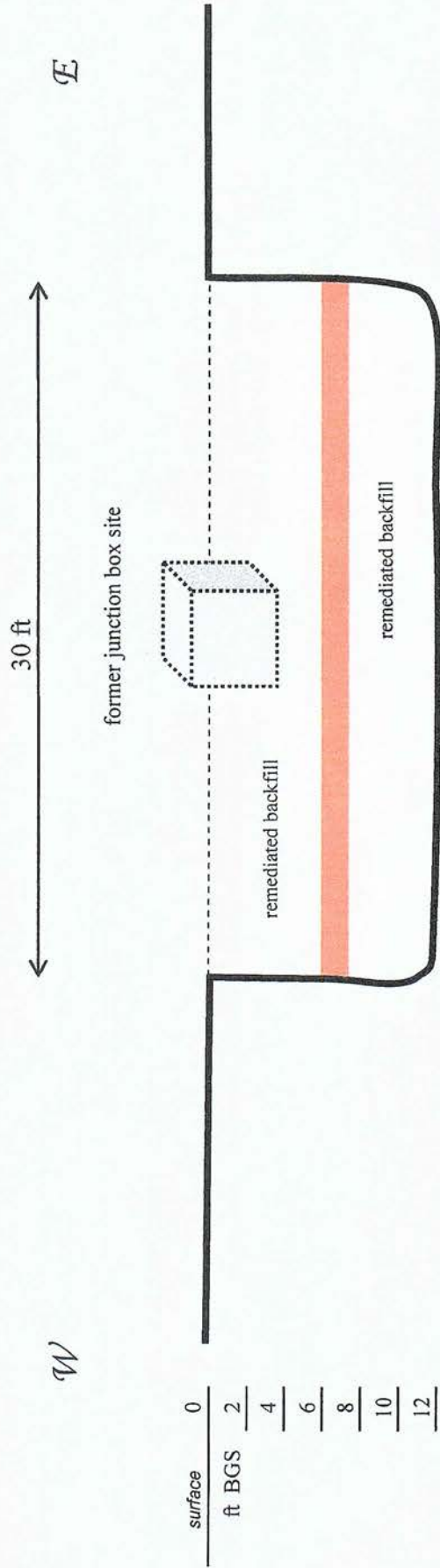
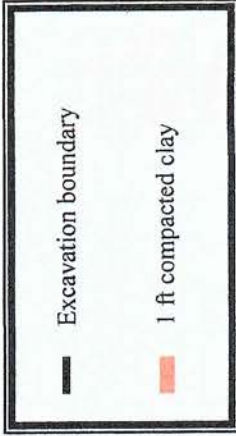
Groundwater = 70 ft



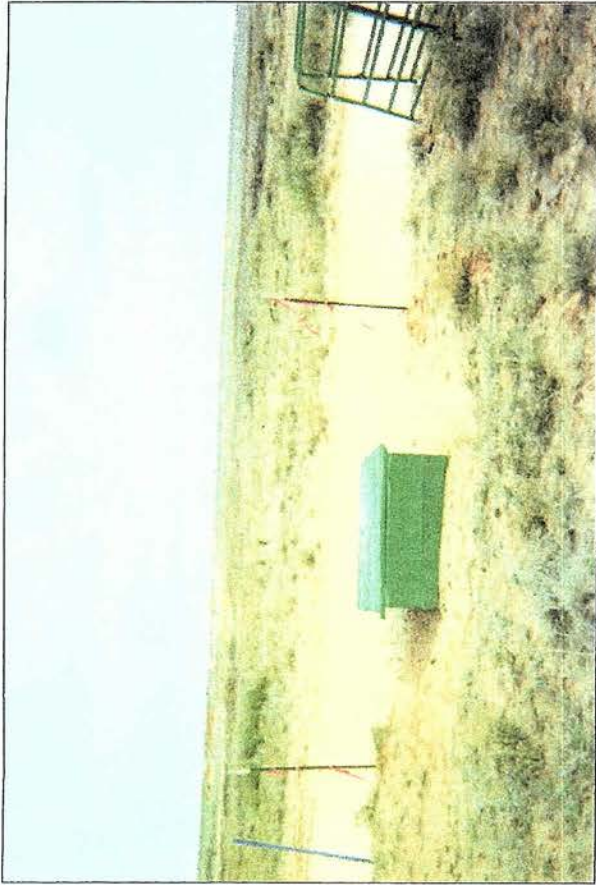
BD P-17 vent

30 x 20 x 12-ft-deep

Excavation Cross-Section



BD P-17 vent



undisturbed junction box

2/24/2003

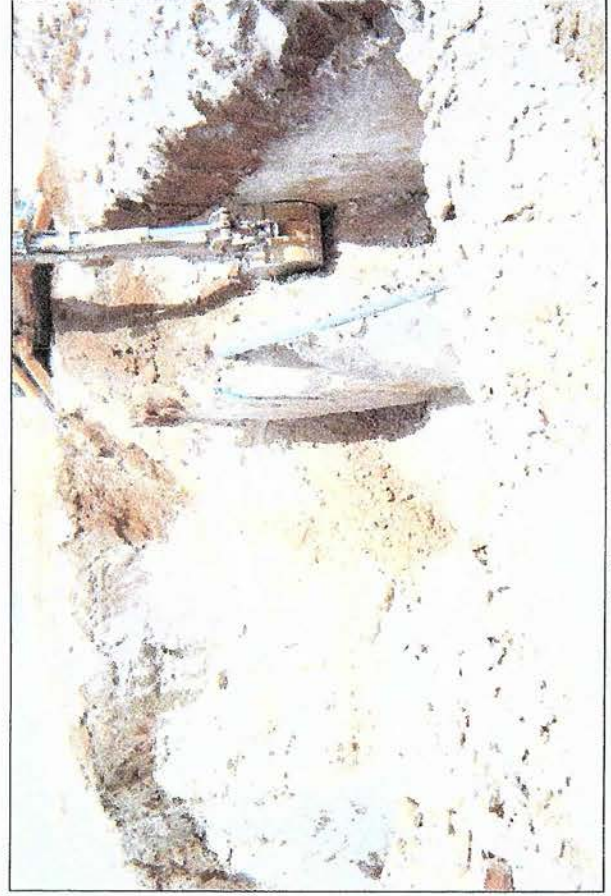


delineation trenches

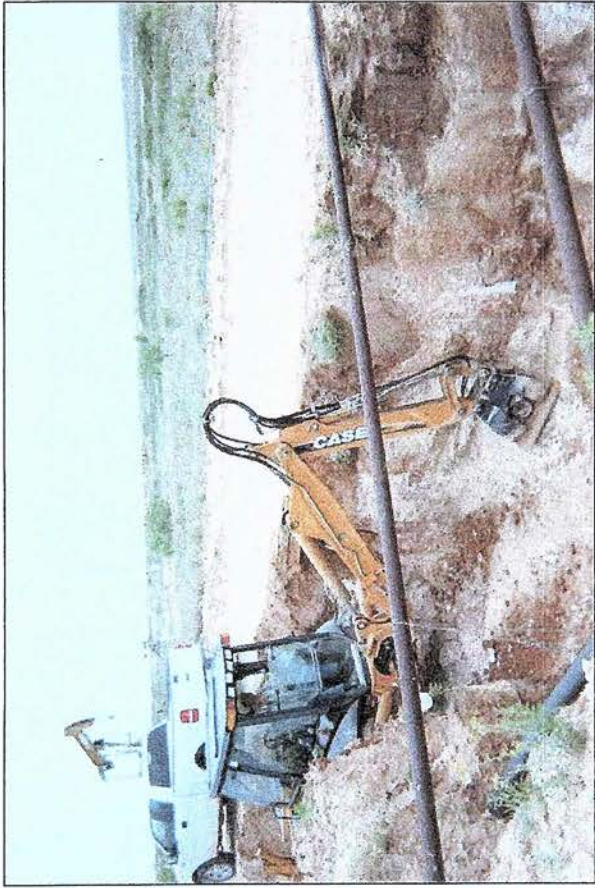
4/20/2005



delineation & excavation



delineation & excavation



compacting backfill

June 2006



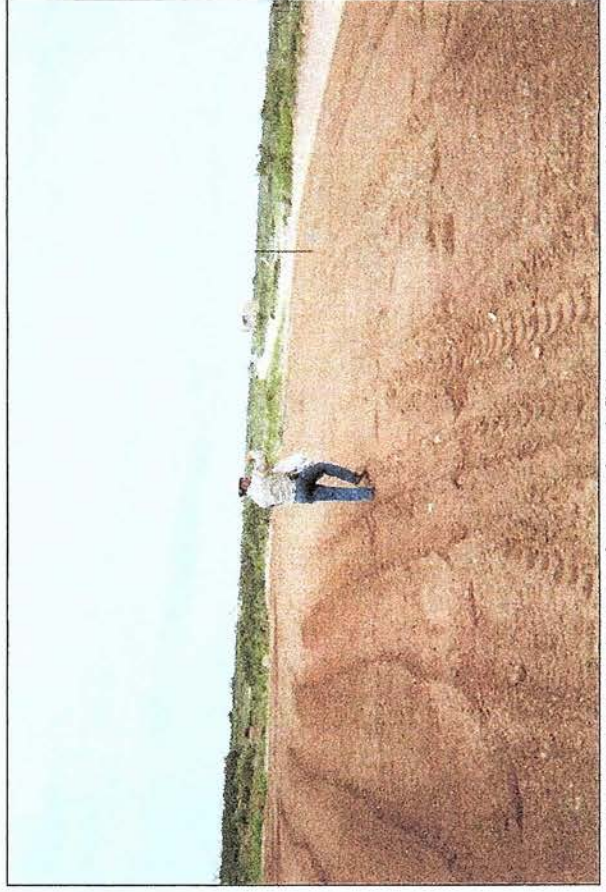
compacting clay

7/5/2006



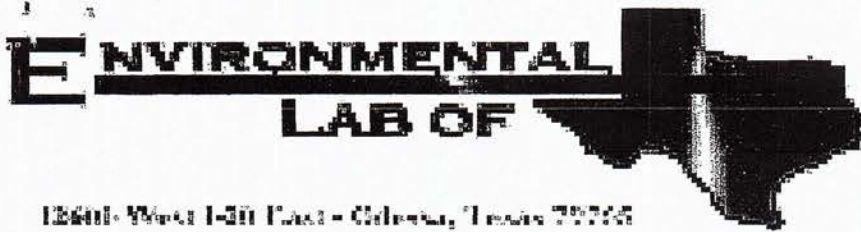
testing clay barrier at 6 ft

7/5/2006



seeding disturbed surface at backfilled site

9/7/2006



Analytical Report

Prepared for:

Roy Rascon
Rice Operating Co.
122 W. Taylor
Hobbs, NM 88240

Project: BD Vent P-17
Project Number: None Given
Location: None Given

Lab Order Number: 5E23003

Report Date: 05/26/05

Rice Operating Co.
122 W. Taylor
Hobbs NM, 88240

Project: BD Vent P-17
Project Number: None Given
Project Manager: Roy Rascon

Fax: (505) 397-1471

Reported:
05/26/05 14:33

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
BD Vent P-17 Bottom Comp. @12'	5E23003-01	Soil	05/20/05 09:35	05/20/05 18:00
4 Wall Comp	5E23003-02	Soil	05/20/05 10:18	05/20/05 18:00
Remediated Backfill	5E23003-03	Soil	05/20/05 10:42	05/20/05 18:00

Rice Operating Co.
122 W. Taylor
Hobbs NM, 88240

Project: BD Vent P-17
Project Number: None Given
Project Manager: Roy Rascon

Fax: (505) 397-1471

Reported:
05/26/05 14:33

Organics by GC
Environmental Lab of Texas

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
BD Vent P-17 Bottom Comp. @12' (5E23003-01) Soil									
Gasoline Range Organics C6-C12	ND	10.0	mg/kg dry	1	EE52302	05/23/05	05/23/05	EPA 8015M	
Diesel Range Organics >C12-C35	ND	10.0	"	"	"	"	"	"	
Total Hydrocarbon C6-C35	ND	10.0	"	"	"	"	"	"	
<i>Surrogate: 1-Chlorooctane</i>		90.8 %	70-130		"	"	"	"	
<i>Surrogate: 1-Chlorooctadecane</i>		80.8 %	70-130		"	"	"	"	
4 Wall Comp (5E23003-02) Soil									
Gasoline Range Organics C6-C12	ND	10.0	mg/kg dry	1	EE52302	05/23/05	05/23/05	EPA 8015M	
Diesel Range Organics >C12-C35	ND	10.0	"	"	"	"	"	"	
Total Hydrocarbon C6-C35	ND	10.0	"	"	"	"	"	"	
<i>Surrogate: 1-Chlorooctane</i>		77.2 %	70-130		"	"	"	"	
<i>Surrogate: 1-Chlorooctadecane</i>		74.0 %	70-130		"	"	"	"	
Remediated Backfill (5E23003-03) Soil									
Gasoline Range Organics C6-C12	J [7.12]	10.0	mg/kg dry	1	EE52302	05/23/05	05/23/05	EPA 8015M	J
Diesel Range Organics >C12-C35	121	10.0	"	"	"	"	"	"	
Total Hydrocarbon C6-C35	121	10.0	"	"	"	"	"	"	
<i>Surrogate: 1-Chlorooctane</i>		81.8 %	70-130		"	"	"	"	
<i>Surrogate: 1-Chlorooctadecane</i>		78.0 %	70-130		"	"	"	"	

Rice Operating Co.
122 W. Taylor
Hobbs NM, 88240

Project: BD Vent P-17
Project Number: None Given
Project Manager: Roy Rascon

Fax: (505) 397-1471

Reported:
05/26/05 14:33

General Chemistry Parameters by EPA / Standard Methods
Environmental Lab of Texas

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
BD Vent P-17 Bottom Comp. @12' (5E23003-01) Soil									
Chloride	1600	50.0	mg/kg	100	EE52411	05/23/05	05/23/05	EPA 300.0	
% Moisture	5.5	0.1	%	1	EE52311	05/24/05	05/24/05	% calculation	
4 Wall Comp (5E23003-02) Soil									
Chloride	837	25.0	mg/kg	50	EE52411	05/23/05	05/23/05	EPA 300.0	
% Moisture	3.3	0.1	%	1	EE52311	05/24/05	05/24/05	% calculation	
Remediated Backfill (5E23003-03) Soil									
Chloride	894	25.0	mg/kg	50	EE52411	05/23/05	05/23/05	EPA 300.0	
% Moisture	2.8	0.1	%	1	EE52311	05/24/05	05/24/05	% calculation	

Rice Operating Co.
122 W. Taylor
Hobbs NM, 88240

Project: BD Vent P-17
Project Number: None Given
Project Manager: Roy Rascon

Fax: (505) 397-1471

Reported:
05/26/05 14:33

Organics by GC - Quality Control
Environmental Lab of Texas

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch EE52302 - Solvent Extraction (GC)										
Blank (EE52302-BLK1) Prepared & Analyzed: 05/23/05										
Gasoline Range Organics C6-C12	ND	10.0	mg/kg wet							
Diesel Range Organics >C12-C35	ND	10.0	"							
Total Hydrocarbon C6-C35	ND	10.0	"							
Surrogate: 1-Chlorooctane	42.9		mg/kg	50.0		85.8	70-130			
Surrogate: 1-Chlorooctadecane	36.9		"	50.0		73.8	70-130			
LCS (EE52302-BS1) Prepared & Analyzed: 05/23/05										
Gasoline Range Organics C6-C12	460	10.0	mg/kg wet	500		92.0	75-125			
Diesel Range Organics >C12-C35	484	10.0	"	500		96.8	75-125			
Total Hydrocarbon C6-C35	944	10.0	"	1000		94.4	75-125			
Surrogate: 1-Chlorooctane	39.2		mg/kg	50.0		78.4	70-130			
Surrogate: 1-Chlorooctadecane	39.5		"	50.0		79.0	70-130			
Calibration Check (EE52302-CCV1) Prepared & Analyzed: 05/23/05										
Gasoline Range Organics C6-C12	463		mg/kg	500		92.6	80-120			
Diesel Range Organics >C12-C35	510		"	500		102	80-120			
Total Hydrocarbon C6-C35	973		"	1000		97.3	80-120			
Surrogate: 1-Chlorooctane	46.6		"	50.0		93.2	70-130			
Surrogate: 1-Chlorooctadecane	38.4		"	50.0		76.8	70-130			
Matrix Spike (EE52302-MS1) Source: 5E23003-01 Prepared & Analyzed: 05/23/05										
Gasoline Range Organics C6-C12	490	10.0	mg/kg dry	529	ND	92.6	75-125			
Diesel Range Organics >C12-C35	546	10.0	"	529	ND	103	75-125			
Total Hydrocarbon C6-C35	1040	10.0	"	1060	ND	98.1	75-125			
Surrogate: 1-Chlorooctane	48.2		mg/kg	50.0		96.4	70-130			
Surrogate: 1-Chlorooctadecane	40.4		"	50.0		80.8	70-130			
Matrix Spike Dup (EE52302-MSD1) Source: 5E23003-01 Prepared & Analyzed: 05/23/05										
Gasoline Range Organics C6-C12	455	10.0	mg/kg dry	529	ND	86.0	75-125	7.41	20	
Diesel Range Organics >C12-C35	556	10.0	"	529	ND	105	75-125	1.81	20	
Total Hydrocarbon C6-C35	1010	10.0	"	1060	ND	95.3	75-125	2.93	20	
Surrogate: 1-Chlorooctane	48.1		mg/kg	50.0		96.2	70-130			
Surrogate: 1-Chlorooctadecane	38.3		"	50.0		76.6	70-130			

Environmental Lab of Texas

The results in this report apply to the samples analyzed in accordance with the samples received in the laboratory. This analytical report must be reproduced in its entirety, with written approval of Environmental Lab of Texas.

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Rice Operating Co.
122 W. Taylor
Hobbs NM, 88240

Project: BD Vent P-17
Project Number: None Given
Project Manager: Roy Rascon

Fax: (505) 397-1471

Reported:
05/26/05 14:33

General Chemistry Parameters by EPA / Standard Methods - Quality Control
Environmental Lab of Texas

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch EE52311 - General Preparation (Prep)										
Blank (EE52311-BLK1)					Prepared & Analyzed: 05/24/05					
% Moisture	ND	0.1	%							
Duplicate (EE52311-DUP1)					Source: 5E20009-01 Prepared & Analyzed: 05/24/05					
% Moisture	3.1	0.1	%		2.8			10.2	20	
Batch EE52411 - Water Extraction										
Blank (EE52411-BLK1)					Prepared & Analyzed: 05/23/05					
Chloride	ND	0.500	mg/kg							
LCS (EE52411-BS1)					Prepared & Analyzed: 05/23/05					
Chloride	10.8		mg/L	10.0		108	80-120			
Calibration Check (EE52411-CCV1)					Prepared & Analyzed: 05/23/05					
Chloride	11.0		mg/L	10.0		110	80-120			
Duplicate (EE52411-DUP1)					Source: 5E23003-01 Prepared & Analyzed: 05/23/05					
Chloride	1520	50.0	mg/kg		1600			5.13	20	

Rice Operating Co.
122 W. Taylor
Hobbs NM, 88240

Project: BD Vent P-17
Project Number: None Given
Project Manager: Roy Rascon

Fax: (505) 397-1471

Reported:
05/26/05 14:33

Notes and Definitions

J Detected but below the Reporting Limit; therefore, result is an estimated concentration (CLP J-Flag).

DET Analyte DETECTED

ND Analyte NOT DETECTED at or above the reporting limit

NR Not Reported

dry Sample results reported on a dry weight basis

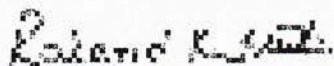
RPD Relative Percent Difference

LCS Laboratory Control Spike

MS Matrix Spike

Dup Duplicate

Report Approved By:



Date:

5/26/2005

Raland K. Tuttle, Lab Manager
Celey D. Keene, Lab Director, Org. Tech Director
Peggy Allen, QA Officer

Jeanne Mc Murrey, Inorg. Tech Director
James L. Hawkins, Chemist/Geologist
Sandra Sanchez, Lab Tech.

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If you have received this material in error, please notify us immediately at 432-563-1800.

Environmental Lab of Texas

The results in this report apply to the samples analyzed in accordance with the samples received in the laboratory. This analytical report must be reproduced in its entirety, with written approval of Environmental Lab of Texas.

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Environmental Lab of Texas
Variance / Corrective Action Report – Sample Log-In

Client: PICO Operating
 Date/Time: 5/20/05 18:00
 Order #: 5E23003
 Initials: CR

Sample Receipt Checklist

Temperature of container/cooler?	Yes	No	7.5 C
Shipping container/cooler in good condition?	<input checked="" type="checkbox"/>	No	
Custody Seals intact on shipping container/cooler?	<input checked="" type="checkbox"/>	No	Not present
Custody Seals intact on sample bottles?	<input checked="" type="checkbox"/>	No	Not present
Chain of custody present?	<input checked="" type="checkbox"/>	No	
Sample Instructions complete on Chain of Custody?	<input checked="" type="checkbox"/>	No	
Chain of Custody signed when relinquished and received?	<input checked="" type="checkbox"/>	No	
Chain of custody agrees with sample label(s)	<input checked="" type="checkbox"/>	No	
Container labels legible and intact?	<input checked="" type="checkbox"/>	No	
Sample Matrix and properties same as on chain of custody?	<input checked="" type="checkbox"/>	No	
Samples in proper container/bottle?	<input checked="" type="checkbox"/>	No	
Samples properly preserved?	<input checked="" type="checkbox"/>	No	
Sample bottles intact?	<input checked="" type="checkbox"/>	No	
Preservations documented on Chain of Custody?	<input checked="" type="checkbox"/>	No	
Containers documented on Chain of Custody?	<input checked="" type="checkbox"/>	No	
Sufficient sample amount for indicated test?	<input checked="" type="checkbox"/>	No	
All samples received within sufficient hold time?	<input checked="" type="checkbox"/>	No	
VOC samples have zero headspace?	<input checked="" type="checkbox"/>	No	Not Applicable

Other observations:

Variance Documentation:

Contact Person: - _____ Date/Time: _____ Contacted by: _____
 Regarding: _____

Corrective Action Taken:

Rice Operating Company

HOBBS, NEW MEXICO 88240
 PHONE: (505) 393-9174 FAX: (505) 397-1471

VOC FIELD TEST REPORT FORM

MODEL NO: PGM 761S
 CALIBRATION GAS
 GAS COMPOSITION: ISOBUTYLENE AIR

SERIAL NO: 104412

100 PPM
 BALANCE
 FILL DATE: 11-19-05
 ACCURACY: ± 2%

LOT NO: 04-2747
 EXP. DATE: 5-19-05
 METER READING
 ACCURACY: 100.2

SYSTEM	JUNCION	UNIT	SECTION	TOWNSHIP	RANGE
BD	Vent P-17	P	17	21	37

SAMPLE	PID RESULT	SAMPLE	PID RESULT
Bottoms Comp @ 12'	3.1		
15' West Wall Comp	3.2		
5' North Wall Comp	2.5		
15' East Wall Comp	5.7		
15' South Wall Comp	3.3		
4 Wall Comp	3.7		
Remediated Backfill	18.7		

I certify that I have calibrated the above instrument in accordance to the manufacture operation manual.

Signature: *Israel Garcia*

Date: 5/20/05

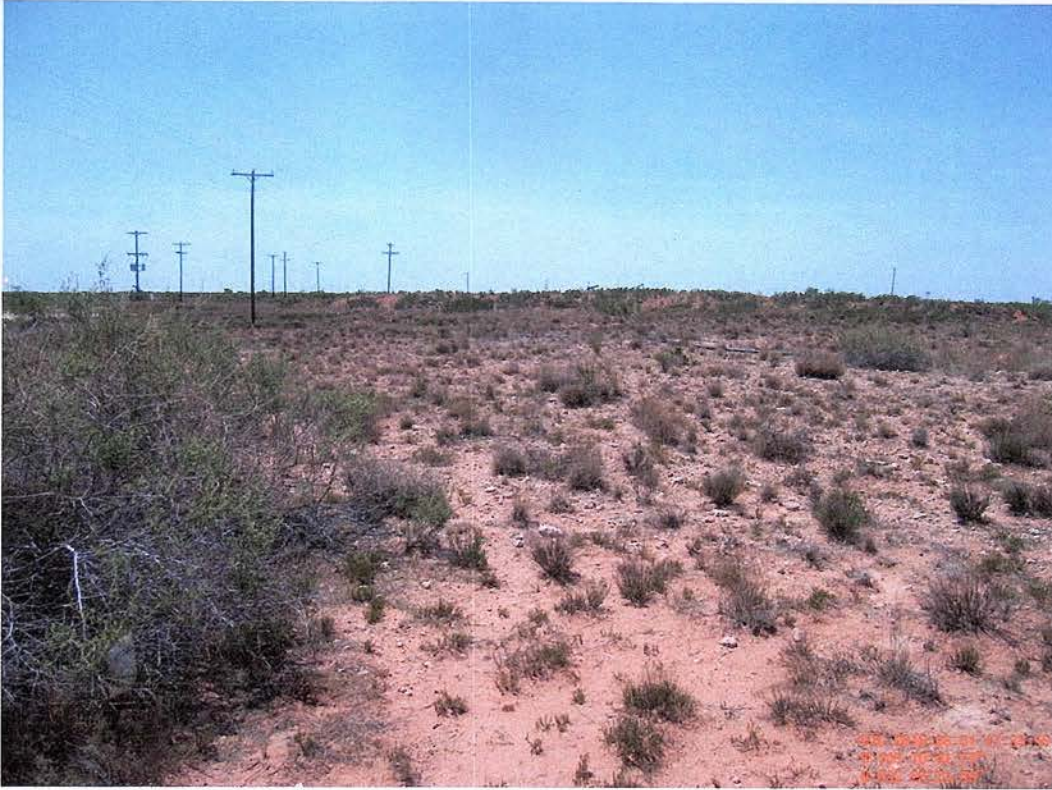
Current Photodocumentation

Basin Environmental Service Technologies (BEST)

P.O. Box 2948, Hobbs, NM 88241

Phone: 575-393-2967

BD P-17 Vent (1R426-132): UL/P, Sec. 17, T21S, R37E



Facing south

6-1-18



Facing east

6-1-18