



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-4 EOL (Brunson EOL) (1R426-06): UL/P, Sec. 4, 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.

Background and Previous Work

The site is located approximately 1.5 miles south of Eunice, New Mexico at UL/P, Sec. 4, T22S, 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 93 feet below ground surface (bgs). A junction box disclosure report was submitted to NMOCD with all the 2003 junction box closures and disclosures.

In 2003, ROC initiated work on the former P-4 EOL junction box. The site was delineated using a backhoe to form a 30 ft x 30 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 and a bottom composite sample and remediated soils sample were sent to a commercial laboratory for analysis. The 4-wall composite returned a chloride reading of 1,950 mg/kg and a Gasoline Range Organics (GRO) reading non-detect, a Diesel Range Organics (DRO) reading of non-detect, and BTEX readings of non-detect. The bottom composite sample returned a chloride reading of 3,650 mg/kg, a GRO reading of non-detect, a DRO reading of 102 mg/kg, and BTEX readings of non-detect. The remediated soils sample returned a chloride reading of 1,100 mg/kg, a GRO reading of non-detect, a DRO reading of 131 mg/kg, and BTEX readings of non-detect. A 20-mil plastic liner was installed at the bottom of the excavation. The excavation was then backfilled with the excavated soils and contoured to the surrounding area. The disturbed area was then seeded with native vegetation. A new water-tight junction box was installed 40 feet west of 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,

June 14, 2018

- iii. Safety concerns impede further lateral delineation.
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,



Edward J. Hansen
Senior Hydrologist
BEST

enclosures

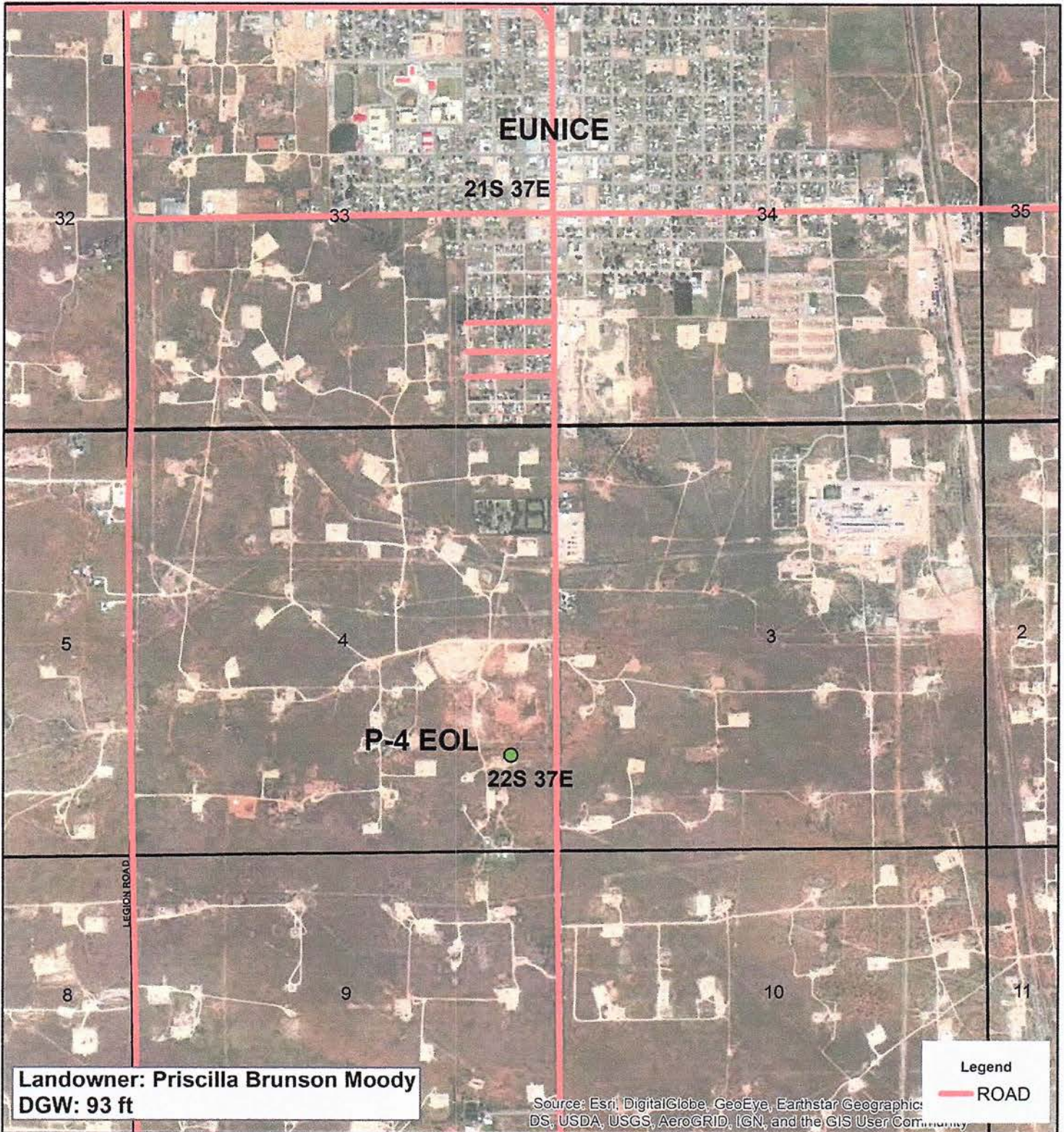
Figures

Basin Environmental Service Technologies (BEST)

P.O. Box 2948, Hobbs, NM 88241

Phone: 575-393-2967

Geographic Location



BD
P-4 EOL
1R426-06

UL P SECTION 4
T-22-S R-37-E
LEA COUNTY, NM

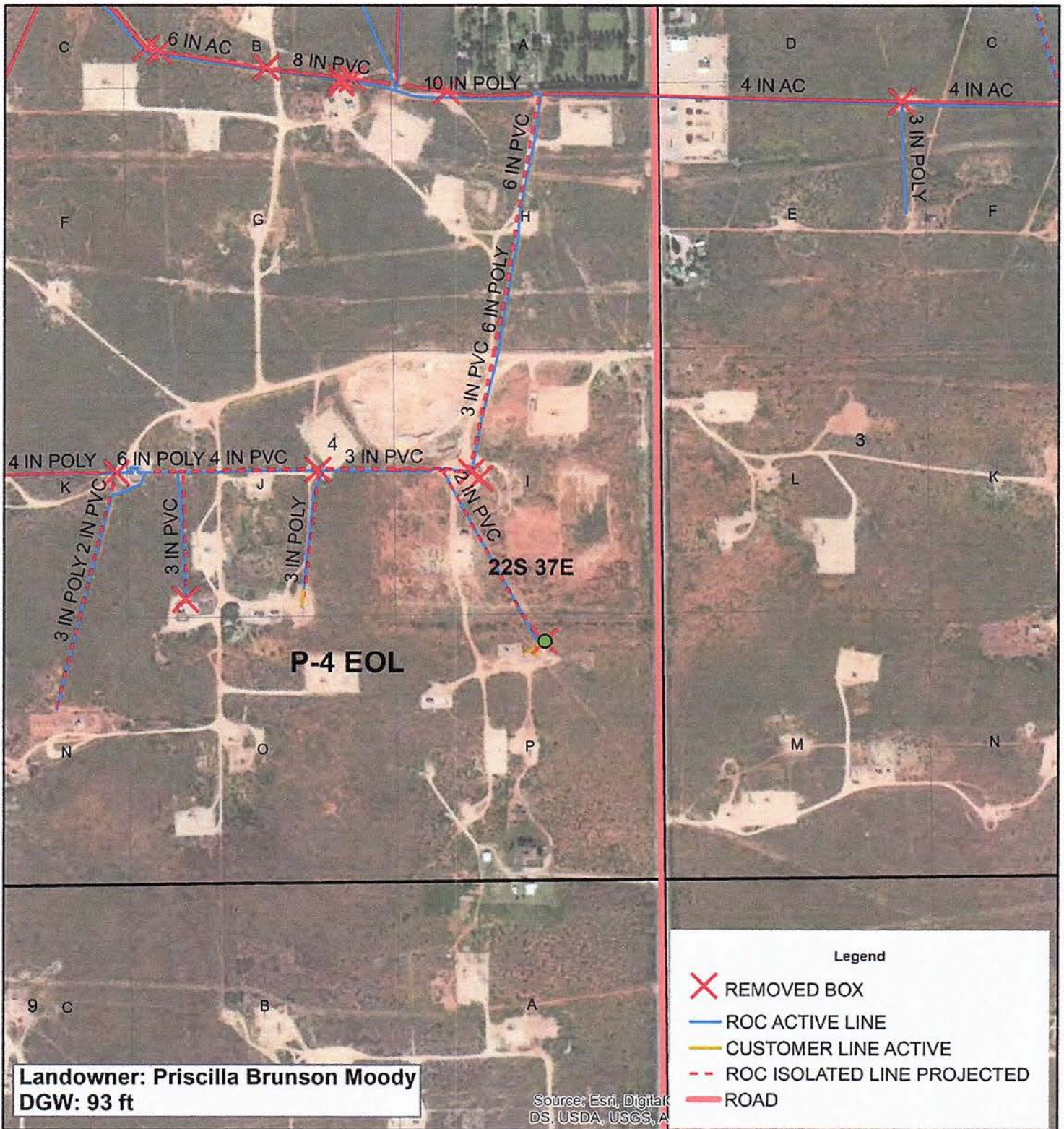
GPS: 32.416894 -103.161316



0 1,000 2,000
Feet

Drawing date: 5/3/18
Drafted by: T. Grieco

Area Map



Landowner: Priscilla Brunson Moody
DGW: 93 ft

Source: Esri, DigitalGlobe, GeoEye, IGN, Aerimagery, USDA, USGS, AeroGRID, IGN, SIA, Airphoto, Navteq, Swire



BD
P-4 EOL
1R426-06

**UL P SECTION 4
T-22-S R-37-E
LEA COUNTY, NM**

GPS: 32.416894 -103.161316



0 500 1,000

Feet

Drawing date: 5/3/18
Drafted by: T. Grieco



BD
P-4 EOL
1R426-06

UL P SECTION 4
T-22-S R-37-E
LEA COUNTY, NM

GPS: 32.416894 -103.161316



0 10 20
HHH Feet

GPS date: 5/7/18 TG
Drawing date: 5/8/18
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	BOX DIMENSIONS - FEET		
Blinebry-Drinkard	Brunson EOL	P	4	22 S	37 E	Lea	Length	Width	Depth
							Moved 40' west		

LAND TYPE: BLM _____ STATE _____ FEE LANDOWNER _____ Priscilla West _____ OTHER _____

Depth to Groundwater _____ 93 _____ feet NMOC SITE ASSESSMENT RANKING SCORE: _____ 10 _____

Date Started _____ 4/14/2003 _____ Date Completed _____ 4/23/2003 _____ 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 _____ 4/21/2003 _____ Sample Depth _____ 12' bgs _____

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 NMOC guidelines.

Sample Location	Benzene mg/kg	Toluene mg/kg	Ethyl Benzene mg/kg	Total Xylenes mg/kg	GRO mg/kg	DRO mg/kg	Chlorides mg/kg
SIDEWALLS	<0.025	<0.025	<0.025	<0.025	<10.0	<10.0	1950
BOTTOM	<0.025	<0.025	<0.025	<0.025	<10.0	102	3650
REMEDIED	<0.025	<0.025	<0.025	<0.025	<10.0	131	1100

General Description of Remedial Action: The junction box location was delineated vertically and laterally producing a 30' x 30' x 12' bgs excavation. TPH was well below NMOC guidelines, while chloride concentrations were relatively consistent. A 20 mil poly liner was installed at the bottom of the excavation and extended up the walls to impede impact migration. The hole was then backfilled with the excavated soil that was landfarmed onsite. A new watertight junction box has been built about 40' west of this location. The disturbed area has been re-seeded with native vegetation and will be monitored for growth.

cc: lab results, photos, diagrams

CHLORIDE FIELD TESTS

LOCATION	DEPTH (ft)	ppm
Vertical	5	2200
	9	2750
	12	3500
15' N	12	3300
15'S	12	2450
15'E	12	2800
15'W	12	1700
Wall Comp.	n/a	1700
Bottom Comp.	12	3000
Remed. Comp.	n/a	1100

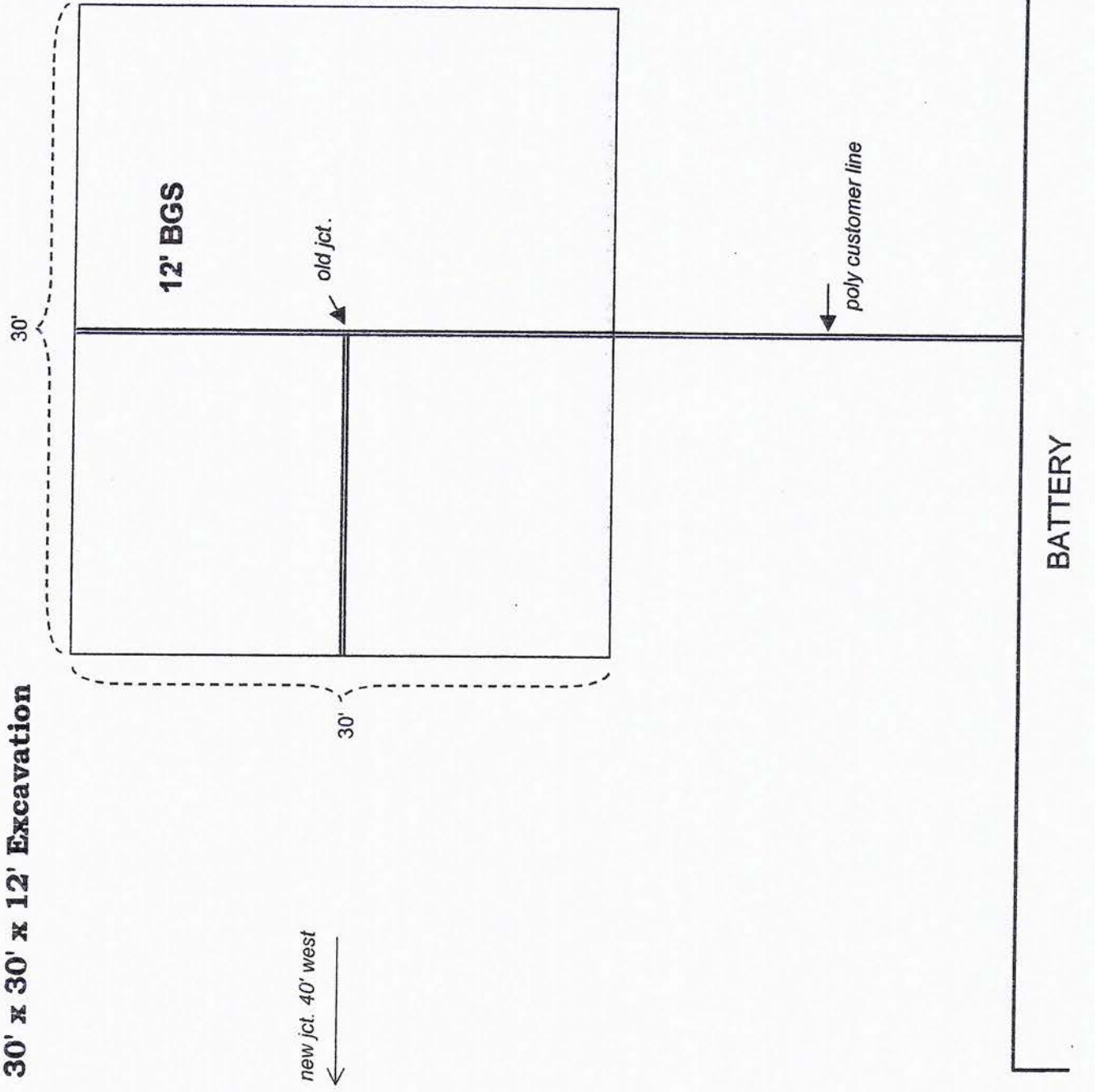
I HEREBY CERTIFY THAT THE INFORMATION ABOVE IS TRUE AND COMPLETE TO THE BEST OF MY KNOWLEDGE AND BELIEF.

DATE _____ 6/2/2003 _____ PRINTED NAME _____ Kristin Farris _____

SIGNATURE _____ *Kristin Farris* _____ TITLE _____ Project Scientist _____

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

BD Brunson EOL
30' x 30' x 12' Excavation



**BD Brunson EOL
Impact Excavation
Cross-Section**

Excavation
Boundary
Poly Liner



SURFACE HAS BEEN RE-SEEDED WITH NATIVE VEGETATION

* New junction is located 40 ft west

CHLORIDE CONCENTRATION CURVE

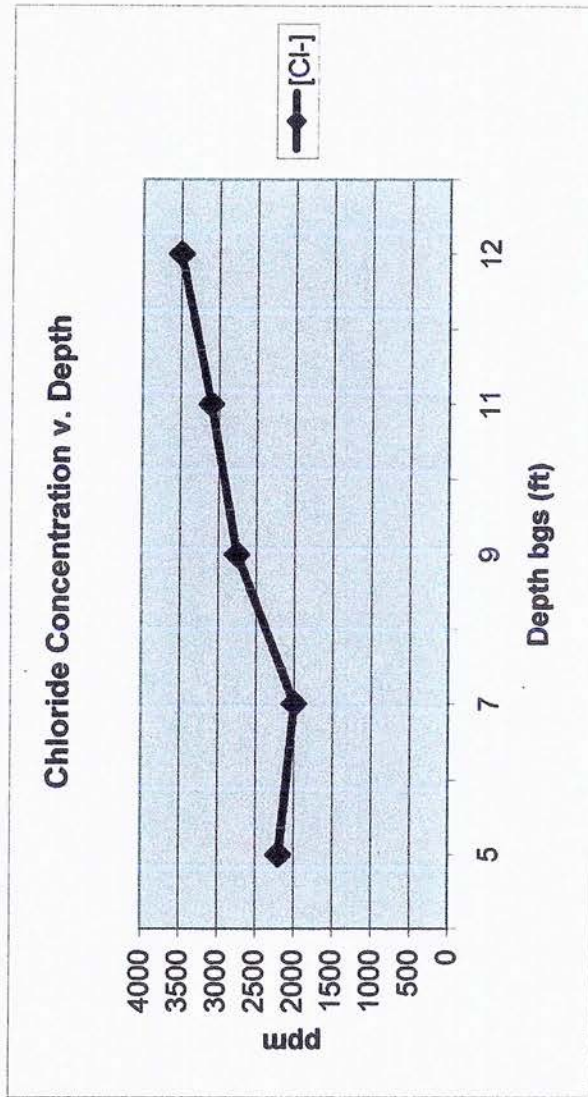
RICE Operating Company

BD Brunson EOL

UL 'P', Sec. 4, T22S, R37E

Depth bgs (ft)	[Cl-] ppm
5	2200
7	2000
9	2750
11	3100
12	3500

Groundwater = 93 ft



ANALYTICAL REPORT

Prepared for:

Kristin Farris
Rice Operating
122 W. Taylor
Hobbs, NM 88240

Project: Texaco Brunson EOL

PO#:

Order#: G0306330

Report Date: 04/29/2003

Certificates

US EPA Laboratory Code TX00158

ENVIRONMENTAL LAB OF TEXAS

SAMPLE WORK LIST

Rice Operating
122 W. Taylor
Hobbs, NM 88240
505-397-1471

Order#: G0306330
Project:
Project Name: Texaco Brunson EOL
Location: BD

The samples listed below were submitted to Environmental Lab of Texas and were received under chain of custody. Environmental Lab of Texas makes no representation or certification as to the method of sample collection, sample identification, or transportation/handling procedures used prior to the receipt of samples by Environmental Lab of Texas, unless otherwise noted.

<u>Lab ID:</u>	<u>Sample :</u>	<u>Matrix:</u>	<u>Date / Time</u> <u>Collected</u>	<u>Date / Time</u> <u>Received</u>	<u>Container</u>	<u>Preservative</u>
0306330-01	Rem. Pile Comp.	SOIL	4/23/03 12:00	4/24/03 10:20	4 oz glass	Ice
	<u>Lab Testing:</u>	Rejected: No		Temp: 3.0 C		
	8015M					
	8021B/5030 BTEX					
	Chloride					

ENVIRONMENTAL LAB OF TEXAS

ANALYTICAL REPORT

Kristin Farris
Rice Operating
122 W. Taylor
Hobbs, NM 88240

Order#: G0306330
Project:
Project Name: Texaco Brunson EOL
Location: BD

Lab ID: 0306330-01
Sample ID: Rcm. File Comp.

8015M

Method Blank	Date Prepared	Date Analyzed	Sample Amount	Dilution Factor	Analyst	Method
		4/24/03	1	1	CK	8015M

Parameter	Result mg/kg	RL
GRO, C6-C12	<10.0	10.0
DRO, >C12-C35	131	10.0
TOTAL, C6-C35	131	10.0

Surrogates	% Recovered	QC Limits (%)	
1-Chlorooctane	97%	70	130
1-Chlorooctadecane	86%	70	130

8021B/5030 BTEX

Method Blank	Date Prepared	Date Analyzed	Sample Amount	Dilution Factor	Analyst	Method
0005320-02		4/24/03 19:38	1	25	CK	8021B

Parameter	Result mg/kg	RL
Benzene	<0.025	0.025
Toluene	<0.025	0.025
Ethylbenzene	<0.025	0.025
p/m-Xylene	<0.025	0.025
o-Xylene	<0.025	0.025

Surrogates	% Recovered	QC Limits (%)	
aaa-Toluene	93%	80	120
Bromofluorobenzene	99%	80	120

Approval: Raland K. Tuttle 4-29-03
 Raland K. Tuttle, Lab Director, QA Officer Date
 Celey D. Keene, Org. Tech. Director
 Jeanne McMurrey, Inorg. Tech. Director
 Sandra Biezugbe, Lab Tech.
 Sara Molina, Lab Tech.

DL = Diluted out N/A = Not Applicable RL = Reporting Limit

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ENVIRONMENTAL LAB OF TEXAS

ANALYTICAL REPORT

Kristin Farris
Rice Operating
122 W. Taylor
Hobbs, NM 88240

Order#: G0306330
Project:
Project Name: Texaco Brunson EOL
Location: BD

Lab ID: 0306330-01
Sample ID: Rem. Pile Comp.

Test Parameters

<u>Parameter</u>	<u>Result</u>	<u>Units</u>	<u>Dilution Factor</u>	<u>RL</u>	<u>Method</u>	<u>Date Analyzed</u>	<u>Analyst</u>
Chloride	1100	mg/kg	1	20	9253	4/28/03	SB

Approval:

Raland K. Tuttle 4-29-03

Raland K. Tuttle, Lab Director, QA Officer

Date

Celey D. Keene, Org. Tech. Director

Jeanne McMurrey, Inorg. Tech. Director

Sandra Biezugbe, Lab Tech.

Sara Molina, Lab Tech.

ENVIRONMENTAL LAB OF TEXAS

QUALITY CONTROL REPORT

8015M

Order#: G0306330

BLANK	SOIL	LAB-ID #	Sample Concentr.	Spike Concentr.	QC Test Result	Pct (%) Recovery	RPD
TOTAL, C6-C35-mg/kg		0005326-02			<10.0		
MS	SOIL	LAB-ID #	Sample Concentr.	Spike Concentr.	QC Test Result	Pct (%) Recovery	RPD
TOTAL, C6-C35-mg/kg		0306328-04	0	952	796	83.6%	
MSD	SOIL	LAB-ID #	Sample Concentr.	Spike Concentr.	QC Test Result	Pct (%) Recovery	RPD
TOTAL, C6-C35-mg/kg		0306328-04	0	952	786	82.6%	1.3%
SRM	SOIL	LAB-ID #	Sample Concentr.	Spike Concentr.	QC Test Result	Pct (%) Recovery	RPD
TOTAL, C6-C35-mg/kg		0005326-05		1000	815	81.5%	

ENVIRONMENTAL LAB OF TEXAS

QUALITY CONTROL REPORT

8021B/5030 BTEX
Order#: G0306330

BLANK	SOIL	LAB-ID #	Sample Concentr.	Spike Concentr.	QC Test Result	Pct (%) Recovery	RPD
Benzene-mg/kg		0005320-02			<0.025		
Toluene-mg/kg		0005320-02			<0.025		
Ethylbenzene-mg/kg		0005320-02			<0.025		
p/m-Xylene-mg/kg		0005320-02			<0.025		
o-Xylene-mg/kg		0005320-02			<0.025		
MS	SOIL	LAB-ID #	Sample Concentr.	Spike Concentr.	QC Test Result	Pct (%) Recovery	RPD
Benzene-mg/kg		0306328-04	0	0.1	0.096	96.0%	
Toluene-mg/kg		0306328-04	0	0.1	0.093	93.0%	
Ethylbenzene-mg/kg		0306328-04	0	0.1	0.091	91.0%	
p/m-Xylene-mg/kg		0306328-04	0	0.2	0.186	93.0%	
o-Xylene-mg/kg		0306328-04	0	0.1	0.088	88.0%	
MSD	SOIL	LAB-ID #	Sample Concentr.	Spike Concentr.	QC Test Result	Pct (%) Recovery	RPD
Benzene-mg/kg		0306328-04	0	0.1	0.102	102.0%	6.1%
Toluene-mg/kg		0306328-04	0	0.1	0.099	99.0%	6.3%
Ethylbenzene-mg/kg		0306328-04	0	0.1	0.097	97.0%	6.4%
p/m-Xylene-mg/kg		0306328-04	0	0.2	0.199	99.5%	6.8%
o-Xylene-mg/kg		0306328-04	0	0.1	0.095	95.0%	7.7%
SRM	SOIL	LAB-ID #	Sample Concentr.	Spike Concentr.	QC Test Result	Pct (%) Recovery	RPD
Benzene-mg/kg		0005320-05		0.1	0.107	107.0%	
Toluene-mg/kg		0005320-05		0.1	0.105	105.0%	
Ethylbenzene-mg/kg		0005320-05		0.1	0.100	100.0%	
p/m-Xylene-mg/kg		0005320-05		0.2	0.205	102.5%	
o-Xylene-mg/kg		0005320-05		0.1	0.095	95.0%	

ENVIRONMENTAL LAB OF TEXAS

QUALITY CONTROL REPORT

Test Parameters

Order#: G0306330

BLANK	SOIL	LAB-ID #	Sample Concentr.	Spike Concentr.	QC Test Result	Pct (%) Recovery	RPD
Chloride-mg/kg		0005346-01			<20.0		
MS	SOIL	LAB-ID #	Sample Concentr.	Spike Concentr.	QC Test Result	Pct (%) Recovery	RPD
Chloride-mg/kg		0306331-01	372	500	851	95.8%	
MSD	SOIL	LAB-ID #	Sample Concentr.	Spike Concentr.	QC Test Result	Pct (%) Recovery	RPD
Chloride-mg/kg		0306331-01	372	500	868	99.2%	2 %
SRM	SOIL	LAB-ID #	Sample Concentr.	Spike Concentr.	QC Test Result	Pct (%) Recovery	RPD
Chloride-mg/kg		0005346-04		5000	4960	99.2%	

12600 West I-20 East
Odessa, Texas 79763
Phone: 915-563-1800
Fax: 915-563-1713

Phone: 915-563-1800
Fax: 915-563-1713

fax: 915-863-1713
Kristin Harris
Rice

Kire

122 W Taylor

16.665, NW88240

2000



CHAIN OF CUSTODY RECORD AND ANALYSIS REQUEST

~~Exercising~~ EOL

Project #:

BA

PO 44

20

[illegible]

Special Instructions

Fax to Rice

Relinquished by:

Date 4.23-02

Received by:

Received by: Karim Jarrar
Received by: LOT: 1.1.1.1

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
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Laboratory Comments:

3.0.4

	Y	N
Sample Containers Intact?		

Temperature Upon Receipt:

Laboratory Comments:

3.0.4

1

67

1

Received by:

Time

Date _____

by

Apr 29 03 11:50a

Current Photodocumentation

Basin Environmental Service Technologies (BEST)

P.O. Box 2948, Hobbs, NM 88241

Phone: 575-393-2967



Facing south

5-7-18



Facing east

5-7-18