

1R - 426-170

# REPORTS

DATE:

July 31, 2009

RECEIVED OGD

2009 AUG -3 P 1:03

ARCADIS U.S., Inc.  
1004 N. Big Spring Street  
Suite 300  
Midland Texas 79701  
Tel 432.687.5400  
Fax 432.687.5401  
www.arcadis-us.com

Edward Hansen  
New Mexico Oil Conservation Division  
1220 So. Saint Francis Drive  
Santa Fe, New Mexico 87505

Certified Mail Receipt No. 7002 2410 0001 5813 0042

Subject:  
Termination Request  
Blinebry-Drinkard (BD) L-32-2 Vent  
T22S, R38E, Section 32, Unit L, Eunice, Lea County, New Mexico

Dear Mr. Hansen,

RICE Operating Company (ROC) has retained ARCADIS U.S., Inc. (ARCADIS) to address potential environmental concerns at the above-referenced site. ROC is the service provider (agent) for the Blinebry-Drinkard (BD) SWD System and has no ownership of any portion of the pipeline, well, or facility. The BD System is owned by a consortium of oil producers, System Parties, who provide all operating capital on a percentage ownership/usage basis.

On behalf of ROC, ARCADIS respectfully submits this Termination Request for the above-referenced site.

Date:  
July 31, 2009

Contact:  
Sharon Hall

Phone:  
432 687-5400

Email:  
shall@arcadis-us.com

## SITE HISTORY AND BACKGROUND

The site is located east of the town of Eunice, New Mexico (figure attached).

The junction was eliminated and replaced with a new junction box located approximately 100 feet northwest of the former junction box location. A backhoe was used to collect soil samples 5, 10 and 15 feet north, south, east and west of the junction box location to a depth of 12 feet below ground surface (bgs). Soil samples were analyzed in the field for chlorides using field-adapted Method 9253 and screened in the field using a photoionization detector (PID). Field results are shown in the attached table.

A backhoe was used to excavate soils from an excavation measuring 30 feet by 30 feet by 12 feet deep around the former junction box. A wall composite sample was collected from each of the four walls and five-point composite sample was collected from the bottom of the excavation and submitted to Cardinal Laboratories for gasoline range organics (GRO), diesel range organics (DRO) and chloride analysis. DRO and GRO were not detected. Elevated chlorides were detected in both the samples submitted to the lab and the samples analyzed in the field.

Part of a bigger picture

A backhoe was used to excavate a 6 foot deep shelf extending 5 feet from the east and west walls of the excavation. A one-foot thick clay barrier with dimensions of 40 feet by 30 feet by 1 foot thick was installed at a depth of 5 to 6 feet bgs to inhibit downward chloride migration. The excavated soils were blended on-site and returned to the excavation to backfill the excavation to ground surface and to contour the surrounding area. Topsoil was then placed over the former area of excavation. A diagram of the backfill, clay layer and surface restoration showing the dimensions and design is attached.

Based on United States Geological Survey and New Mexico Office of the State Engineer (NMOSE) reports there are no reported wells in the subject section or adjacent sections. NMOSE Water Column/Average Depth to Water records are attached. In order to investigate if groundwater is present at the site a soil boring was installed nine feet north of the former junction box location on September 10, 2008.

Soil samples were collected at five-foot intervals and analyzed for chlorides using field-adapted Method 9253. Elevated chloride concentrations decreased with depth to a concentration of 181 milligrams per kilogram (mg/kg) at 60 feet bgs as shown in the attached boring log. The boring was installed to a depth of 115 feet bgs. No moist soils were encountered and the boring was left open for 24 hours to determine whether or not a saturated interval exists. After the 24-hour period no moisture was detected in the borehole. A letter to that effect from the driller is attached.

## **RECOMMENDATIONS**

Based on the following site conditions, ARCADIS recommends termination of this site:

- a boring was installed to a depth of 115 feet bgs and no moisture was detected;
- there are no reported water wells in the Sections adjacent to this site;
- a clay barrier was installed at the former junction box location; and
- impacted surface soils have been excavated and the site restored with topsoil and native seed.

Your approval to terminate this site is requested.

If you have any questions or need additional information please contact Hack Conder at 575 393-9174 or me.

ARCADIS

Edward Hansen  
July 31, 2009

Very truly yours,

ARCADIS U.S, Inc.

*Sharon E. Hall*

Sharon E. Hall  
Associate Vice President

Copies:

Hack Conder- Rice Operating Company  
Brad Jones- NMOCD, email

Attachments:

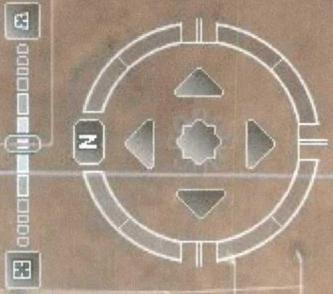
Boring Log  
Site Location Map  
Clay Layer Diagram  
Driller's No Groundwater Letter  
Delineation Summary Report Table  
Laboratory Report  
New Mexico State Engineer Office Water Column/Depth to Water reports

<b>Logger:</b>	Lara Weinheimer	<b>Client:</b>	RICE Operating Company	<b>Well ID:</b>  SB - 1
<b>Driller:</b>	Harrison & Cooper Drilling	<b>Project Name:</b>	BD L-32-2 vent	
<b>Drilling Method:</b>	Air rotary	<b>Location:</b>	BD SWD System	
<b>Start Date:</b>	9-10-08		unit 'L' Sec.32 T22S, R38E	
<b>End Date:</b>	9-10-08		Lea County, NM	
<b>Comments:</b> Located 9 ft north of the former jct. box site  TD = 115 ft      GW = none				

Depth (feet)	chloride field tests	PID	Description	Lithology	Soil Bore Construction
			0 - 5 ft CLAY LINER some caliche, dry		 bentonite seal
5	478				
			5 - 15 ft VERY FINE TO FINE SAND caliche, orangy-brown, dry		
10	3194				
15	1410				
LAB	4000				
DRO	<25				
GRO	<25				
20	2839		15 - 25 ft VERY FINE TO FINE SAND rocky, light orangy-brown, dry		
25	2456				
			25 - 30 ft VERY FINE TO FINE SAND rocky, orangy-brown, dry		
30	1336				
			30 - 40 ft VERY FINE TO FINE SAND rocky, orangy-brown, slightly moist		
35	1134				
40	757				
			40 - 60 ft VERY FINE TO FINE SAND light orangy-brown, dry		
45	193				
50	229				
55	173				
60	181				
LAB	32				
DRO	<25				
GRO	<25				



+ [Scale Bar] -



Hwy 18

Drinkard Rd.

Vivian Rd.

BD Jct. L-32-2

© 2008 Tele Atlas  
© 2008 Europa Technologies  
Image © 2008 DigitalGlobe

Google™

Eye alt 30890 ft

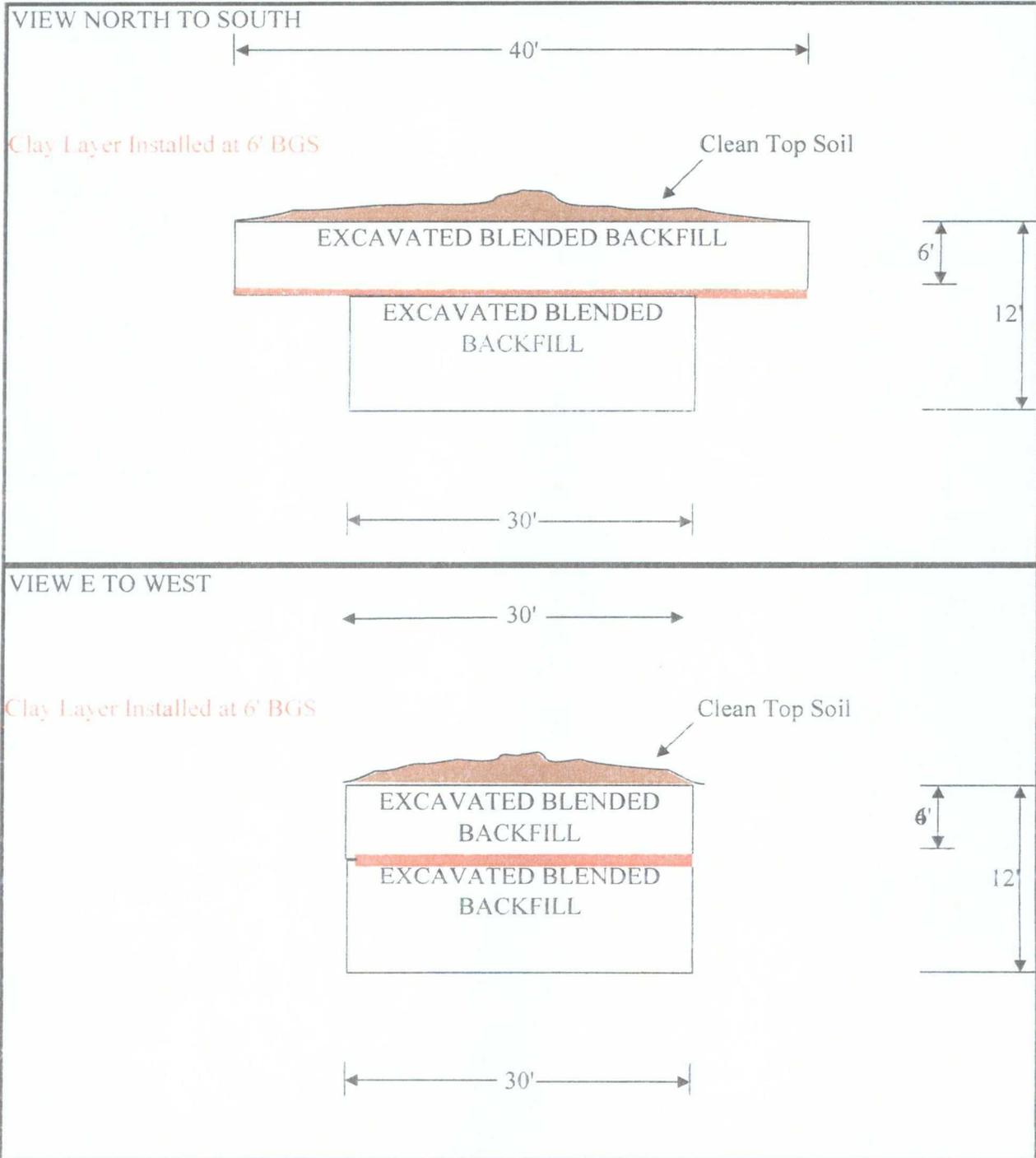
Pointer 32°21'38.28" N 103°06'06.30" W elev 3337 ft Streaming 100%

# Clay Layer Installation

BD L-32-2 Vent

UL/L Sec 32, (T22S-R38E)

DIMINISION OF EXCAVATION: 30'L X 30'W X 12'D / Clay Layer 30'L X 30'W X 6'D



# HARRISON & COOPER, INC.

*Drilling & Pump Professionals*

7414 85<sup>th</sup> Street, Lubbock, Texas 79424-4951

P.O. Box 96, Wolfforth, Texas 79382-0096

Ph: (806) 866-4026

Fax: (806) 866-4044

[harrisoncooper-drilling.com](http://harrisoncooper-drilling.com)

June 25, 2009

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

Attn: Lara Weinheimer

**RE: BD L-32-2 Vent, Eunice, NM  
Bore Hole Condition**

To whom it may concern:

On September 10, 2008, Harrison and Cooper were contracted by Rice Operating to drill and sample a soil boring at the subject site. The soil boring was drilled to approximately 115 feet in an effort to determine whether or not a saturated interval existed. After a twenty-four hour holdover time the moisture content at that depth was NON-detectable.

If any questions arise from this issue, do not hesitate to contact a representative with Harrison and Cooper.

Sincerely,

Kenny R. Cooper  
Operations Manager

Copies: File  
Mail (Rice, Hobbs)  
Email (Lara Weinheimer)

Regulated by: Texas Dept. of Licensing & Regulation, Water Well Division, P.O. Box 12157, Austin, TX 78711, (800) 803-9202

Table 1 - JCT BOX DELINEATION SUMMARY REPORT

Vert. @ Source			
Depth	CL	PID	
1'			
2'			
3'			
4'	638.8	99.7	
5'	395	34.4	
6'	1320	13.6	
7'	2189	7.5	
8'	1709	5	
9'	1840	0.2	
10'	1895	1.9	
11'	2003	0.6	
12'	1951	0.1	

Vert. 5' NW.			
Depth	CL	PID	
1'			
2'			
3'			
4'	1628	61.4	
5'	2983	37.0	
6'	2006	158	
7'	6235	64.9	
8'	1689	50.7	
9'	588.2	44.2	
10'	3116	34.5	
11'	4304	30.2	
12'	3418	22.3	

Vert. 5' S.			
Depth	CL	PID	
1'			
2'			
3'			
4'	2444	0.5	
5'	1608	0	
6'	959	0.5	
7'	1674	0.1	
8'	1921	0	
9'	1852	0	
10'	1904	0.1	
11'	1299	0	
12'	1776	0	

Vert. 5' E.			
Depth	CL	PID	
1'			
2'			
3'			
4'	2444	0.5	
5'	1608	0	
6'	959.3	0.5	
7'	1674	0.1	
8'	1921	0	
9'	1852	0	
10'	1904	0.1	
11'	1299	0	
12'	1776	0	

Vert. 5' W.			
Depth	CL	PID	
1'			
2'			
3'			
4'	1007	0	
5'	1008	0	
6'	1009	0	
7'	1010	0	
8'	1011	0	
9'	1012	0	
10'	1013	0	
11'	1014	0	
12'	1015	0	

Vert. 10' N.			
Depth	CL	PID	
1'	1944	1	
2'	1721	0.5	
3'	434	1.7	
4'	786	1	
5'	1290	1.6	
6'	2891	1.5	
7'	3423	1.7	
8'	3656	0.9	
9'	3031	1.5	
10'	3578	1.9	
11'	2479	1.7	
12'	2250	1.2	

Vert. 10' S.			
Depth	CL	PID	
1'	175	0.1	
2'	171	0	
3'	232	0	
4'	202	0	
5'	295	0	
6'	719	0	
7'	355	0	
8'	407	0.2	
9'	823	0.2	
10'	1057	0	
11'	943	0	
12'	882	0.4	

Vert. 10' E.			
Depth	CL	PID	
1'	167	0.1	
2'	299	0.1	
3'	312	0	
4'	673	0	
5'	2811	0	
6'	3079	0	
7'	2141	0	
8'	1154	0	
9'	1987	0	
10'	1188	0	
11'	2438	0	
12'	1939	0	

Vert. 10' W.			
Depth	CL	PID	
1'	322	0	
2'	348	0	
3'	385	0	
4'	1586	0	
5'	2238	0	
6'	2659	0	
7'	1631	0	
8'	1685	0	
9'	1734	0	
10'	2199	0	
11'	2429	0	
12'	1999	0	

Vert. 15' N.			
Depth	CL	PID	
1'	450	0	
2'	337	0	
3'	283	0	
4'	755	0	
5'	1898	0	
6'	2113	0	
7'	3157	0	
8'	3796	0	
9'	2502	0	
10'	1625	0	
11'	1805	0	
12'	2783	0	

Vert. 15' S.			
Depth	CL	PID	
1'	264	0	
2'	331	0.1	
3'	261	0.1	
4'	285	0.2	
5'	252	2.9	
6'	234	2.4	
7'	284	2.6	
8'	253	4.8	
9'	193	2.7	
10'	258	3	
11'	283	3	
12'	298	1.9	

Vert. 15' E.			
Depth	CL	PID	
1'	300	0	
2'	172	0	
3'	282	0	
4'	944	0	
5'	471	0	
6'	280	0	
7'	355	0	
8'	577	0	
9'	1065	0	
10'	985	0	
11'	1214	0	
12'	724	0	

Vert. 15' W.			
Depth	CL	PID	
1'	253	1.2	
2'	302	2.1	
3'	363	1.3	
4'	2046	2.9	
5'	1421	2.2	
6'	2264	2.1	
7'	2176	1.9	
8'	2414	1.9	
9'	2571	1.6	
10'	2019	1.9	
11'	1295	2.4	
12'	1235	2.2	



**ARDINAL  
LABORATORIES**

PHONE (325) 673-7001 • 2111 BEECHWOOD • ABILENE, TX 79603

PHONE (505) 393-2326 • 101 E. MARLAND • HOBBS, NM 88240

RECEIVED

ANALYTICAL RESULTS FOR  
RICE OPERATING CO.  
ATTN: ROY R. RASCON  
122 W. TAYLOR  
HOBBS, NM 88240  
FAX TO: (505) 397-1471

JUN 05 2007

RICE OPERATING  
HOBBS NM

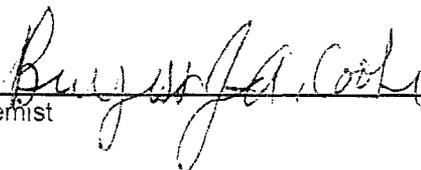
Receiving Date: 05/29/07  
Reporting Date: 05/30/07  
Project Number: NOT GIVEN  
Project Name: B.D. VENT L-32-2  
Project Location: NOT GIVEN

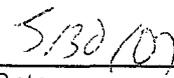
Sampling Date: 05/29/07  
Sample Type: SOIL  
Sample Condition: COOL & INTACT  
Sample Received By: LB  
Analyzed By: BC/HM

LAB NUMBER	SAMPLE ID	GRO	DRO	Cl*
		(C <sub>6</sub> -C <sub>10</sub> ) (mg/Kg)	(>C <sub>10</sub> -C <sub>28</sub> ) (mg/Kg)	(mg/Kg)
ANALYSIS DATE		05/29/07	05/29/07	05/30/07
H12657-1	5PT BOTTOM COMPOSITE	<10.0	<10.0	2130
H12657-2	4 WALL COMP.	<10.0	<10.0	1230
H12657-3	BLENDED BACKFILL	<10.0	<10.0	1330
Quality Control		791	767	500
True Value QC		800	800	500
% Recovery		99.3	95.9	100
Relative Percent Difference		0.6	4.2	0.0

METHODS: TPH GRO & DRO: EPA SW-846 8015 M; Cl: Std. Methods 4500-ClB

\*Analyses performed on 1:4 w:v aqueous extracts.

  
Chemist

  
Date

H12657 RICE

PLEASE NOTE: **Liability and Damages.** Cardinal's liability and client's exclusive remedy for any claim arising, whether based in contract or tort, shall be limited to the amount paid by client for analyses. All claims, including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within thirty (30) days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of services hereunder by Cardinal, regardless of whether such claim is based upon any of the above-stated reasons or otherwise.



# CARDINAL LABORATORIES, INC.

2111 Beachwood, Abilene, TX 79603 101 East Marland, Hobbs, NM 88240  
 (325) 673-7001 Fax (325) 673-7020 (505) 393-2326 Fax (505) 393-2476

## CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

Company Name: <b>Blue Operations, Inc.</b>		P.O. #: <b>70.</b>		BILL TO		ANALYSIS REQUEST	
Project Manager: <b>ROY PASCOCCO</b>		Company:					
Address: <b>101 East Marland</b>		City: <b>Hobbs</b>		State: <b>NM</b>		Zip: <b>88240</b>	
City: <b>Hobbs</b>		State: <b>NM</b>		Zip: <b>88240</b>			
Phone #: <b>393-2326</b>		Fax #: <b>393-2476</b>		Address:			
Project #:		Project Owner:		City:			
Project Name: <b>B.D. Vent L-32-A</b>		State:		Zip:			
Project Location:		Phone #:					
Sampler Name: <b>Donnell Mitchell</b>		Fax #:					
FOR LAB USE ONLY							

Lab I.D.	Sample I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	MATRIX					PRESERV.		SAMPLING		ANALYSIS REQUEST	
				GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER :	ACID/BASE:	ICE / COOL	OTHER :		DATE
112657-1	Spr Bottom Composit	C	1			✓						5/29/07	11:45am	80ISM
-2	4 Well Comp	C	1			✓							11:50pm	TPH
-3	Blended Backfill	C	1			✓							2:00pm	CL

**NOTE:** Timing and Damages Cardinal's ability and client's reliance remedy for any claim arising whether passed in contract or tort, shall be limited to the amount paid by the client for the analysis. All claims arising from, for, or because of any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within 30 days after completion of the applicable service. In no event shall Cardinal be held liable for negligent, reckless, or intentional damages, including without limitation, punitive damages, fees of law, or loss of profits. Cardinal, its subsidiaries, affiliates, and agents shall not be held liable for the performance or non-performance of services rendered by Cardinal, its subsidiaries, affiliates, or agents, or the liability, loss, or damage of any kind, in whole or in part, arising out of or from the use of any of the above listed services or equipment.

Received By: **[Signature]** Date: **5/29/07** Time: **1:55**

Delivered By: (Circle One)  
 Sampler - UPS - Bus - Other: **UPS**

Phone Result:  Yes  No  
 Fax Result:  Yes  No

REMARKS:  
 E mail to Roy Pascooco @ RLSWD.com

† Cardinal cannot accept verbal changes. Please fax written changes to (325) 673-7020.



# ARDINAL LABORATORIES

PHONE (575) 393-2326 • 101 E. MARLAND • HOBBS, NM 88240

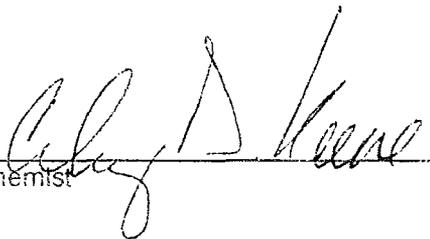
ANALYTICAL RESULTS FOR  
RICE OPERATING COMPANY  
ATTN: JORDAN WOODFIN  
122 W. TAYLOR  
HOBBS, NM 88240

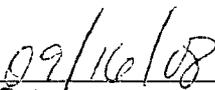
Receiving Date: 09/12/08  
Reporting Date: 09/16/08  
Project Number: NOT GIVEN  
Project Name: BD JCT L-32-2  
Project Location: BD JCT L-32-2

Sampling Date: 09/10/08  
Sample Type: SOIL  
Sample Condition: COOL & INTACT  
Sample Received By: ML  
Analyzed By: AB/HM

LAB NUMBER	SAMPLE ID	GRO (C <sub>6</sub> -C <sub>10</sub> ) (mg/kg)	DRO (>C <sub>10</sub> -C <sub>28</sub> ) (mg/kg)	Cl <sup>-</sup> (mg/kg)
ANALYSIS DATE		09/15/08	09/15/08	09/15/08
H15920-1	SB #1 @ 15'	<25.0	<25.0	4,000
H15920-2	SB #1 @ 60'	<25.0	<25.0	32
Quality Control		570	527	490
True Value QC		500	500	500
% Recovery		114	105	98.0
Relative Percent Difference		4.8	4.3	< 0.1

METHODS: TPH GRO & DRO: EPA SW-846 8015 M; Cl<sup>-</sup>: Std. Methods 4500-Cl<sup>-</sup>B  
\*Analyses performed on 1:4 w:v aqueous extracts.

  
\_\_\_\_\_  
Chemist

  
\_\_\_\_\_  
Date

H15920 TCL RICE

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# New Mexico Office of the State Engineer

## Water Column/Average Depth to Water

---

No records found.

**Basin/County Search:**

County: Lea

**PLSS Search:**

Section(s): 28

Township: 22S

Range: 38E



# New Mexico Office of the State Engineer

## Water Column/Average Depth to Water

No records found.

**Basin/County Search:**

County: Lea

**PLSS Search:**

Section(s): 31

Township: 22S

Range: 38E

The data is furnished by the NMOSE/ISC and is accepted by the recipient with the expressed understanding that the OSE/ISC make no warranties, expressed or implied, concerning the accuracy, completeness, reliability, usability, or suitability for any particular purpose of the data.



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*New Mexico Office of the State Engineer*  
**Water Column/Average Depth to Water**

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No records found.

**Basin/County Search:**

County: Lea

**PLSS Search:**

Section(s): 30

Township: 22S

Range: 38E

---

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# New Mexico Office of the State Engineer

## Water Column/Average Depth to Water

---

No records found.

**Basin/County Search:**

County: Lea

**PLSS Search:**

Section(s): 4

Township: 23S

Range: 38E



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# New Mexico Office of the State Engineer

## Water Column/Average Depth to Water

---

No records found.

**Basin/County Search:**

County: Lea

**PLSS Search:**

Section(s): 5

Township: 23S

Range: 38E

---

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*New Mexico Office of the State Engineer*  
**Water Column/Average Depth to Water**

---

No records found.

**Basin/County Search:**

County: Lea

**PLSS Search:**

Section(s): 6

Township: 23S

Range: 38E

---

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*New Mexico Office of the State Engineer*  
**Water Column/Average Depth to Water**

---

No records found.

**Basin/County Search:**

County: Lea

**PLSS Search:**

Section(s): 29

Township: 22S

Range: 38E

---

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# New Mexico Office of the State Engineer

## Water Column/Average Depth to Water

No records found.

**Basin/County Search:**

County: Lea

**PLSS Search:**

Section(s): 32

Township: 22S

Range: 38E

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# New Mexico Office of the State Engineer

## Water Column/Average Depth to Water

No records found.

**Basin/County Search:**

County: Lea

**PLSS Search:**

Section(s): 33

Township: 22S

Range: 38E

---

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