1R - 426-153

REPORTS

DATE:

9-22-09

ARCADIS

Infrastructure, buildings, environment, communications

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2009 SEP 25 AM 11 41

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

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

Certified Mail Receipt No. 7002 2410 0001 5812 9770

Subject:
MONITOR WELL REPORT/SAMPLING SUMMARY
NMOCD Case # 1R426-153
Blinebry-Drinkard (BD) Jct. N-32 Vent
T21S, R37E, Section 32, Unit N, Lea County, New Mexico

Date:
September 22, 2009

Contact:
Sharon Hall

Phone:
432 687-5400

Email:
shall@arcadis-us.com

Dear Mr. Hansen,

On behalf of Rice Operating Company (ROC), ARCADIS respectfully submits this Monitor Well Report for the BD Jct. N-32 Vent site located in the Blinebry-Drinkard (BD) Salt Water Disposal (SWD) System.

An Investigation Characterization Plan (ICP) was submitted to New Mexico Oil Conservation Division (NMOCD) on May 21, 2008 and was approved by NMOCD on May 28, 2008. Per the approved ICP, four soil borings and one monitoring well were drilled at the site on October 6 and 7, 2008. A groundwater sample collected from the monitoring well on November 13, 2008 exhibited elevated chloride and total dissolved solids concentrations.

An ICP Report was submitted to NMOCD on April 22, 2009. The report recommended that based on the fact that elevated chloride concentrations in groundwater have been reported in the area since the early 1950s, one upgradient and one downgradient monitoring well be drilled at the site to assess groundwater quality. NMOCD approved the drilling of the two monitoring wells on June 24, 2009.

The monitoring wells were drilled on July 9, 2009 and sampled on July 24, 2009. The attached table summarizes the analytical results from groundwater samples collected from the monitor wells at the site. Groundwater laboratory reports are also attached.

Groundwater samples collected from each of the three monitoring wells exhibit elevated chloride concentrations. In order to further delineate elevated chloride concentrations in groundwater, ROC will drill two additional monitor wells. The

wells will be drilled approximately 50 feet downgradient (southeast) of MW#2 and upgradient of a pit located upgradient of the site (see attached figure). The well locations will be selected in the field based on access and site conditions.

ROC is the service provider (agent) for the BD Salt Water Disposal System and has no ownership of any portion of the pipelines, wells or facilities. The BD System is owned by a consortium of oil producers, System Parties, who provide all operating capital on a percentage ownership/usage basis.

Thank you for your consideration concerning this summary of groundwater monitoring information and additional work to be performed at the site. If you have any questions please do not hesitate to contact me.

Best Regards,

ARCADIS U.S, Inc.

Sharon E. Hall

Sharon E. Hall
Associate Vice President

Copies: Hack Conder- ROC

Attachments:

Monitor Well Summary Table

Monitor Well Location Figure

Monitor Well logs

Laboratory Analytical Results

ROC BD N-32 vent

MW	Depth to Water	Total Depth	Well Volume	Volume Purged	Sample Date	Cl	TDS	Benzene	Toluene	Ethyl Benzene	Total Xylenes	Sulfate
1	97.17	102.6	3.5	15	11/13/2008	2500	4970	<0.001	<0.001	<0.001	<0.003	187
1	97.18	102.68	3.6	15	1/21/2009	1540	3010	<0.001	<0.001	<0.001	<0.003	130
1	97.13	102.58	3.5	15	4/22/2009	1020	2210	<0.001	<0.001	<0.001	<0.003	119
1	97.1	102.58	3.6	15	7/24/2009	930	2090	<0.001	<0.001	<0.001	<0.003	112
2	99.78	105.96	1	4	7/24/2009	800	1920	<0.001	<0.001	<0.001	<0.003	190
3	99.74	138.48	25.2	150	7/24/2009	2340	5220	<0.001	<0.001	<0.001	<0.003	106


new 4 inch monitor well
MW-3
BD N-32 boot
MW-1
MW-2
new 2 inch monitor well
Image © 2009 DigitalGlobe
© 2009 Tele Atlas
©2008 Google
32°25'55.23" N 103°11'20.13" W
elev 1056 m
May 28, 2004
Eye alt 1.31 km

ARCADIS U.S., Inc.
8725 Rosehill
Suite 350
Lenexa, Kansas 66215

MONITORING WELL LOG

WELL IDENTIFICATION: MW-01

WELL DEPTH: 101 ft

PROJECT INFORMATION

PROJECT: Rice Operating
SITE LOCATION: BD-N-32 Vent
PROJECT NUMBER: MT000834.0001
GEOLOGIST: Lara Weinheimer
DATE STARTED: 10/7/08
DATE COMPLETED: 10/7/08
SAMPLE METHOD: Split spoon and air rotary
DRILLING CO.: Harrison & Cooper, Inc. Drilling
DRILLER:
DRILLING METHOD: Rotary

LOCATION INFORMATION

TOC ELEVATION:
DATUM CP:
CP ELEVATION.:
NORTHING:
EASTING:
DEPTH TO WATER: 95 ft bgs
GW ELEVATION:
DATE MEASURED: 10/7/08
BORING DIAMETER: 7 3/8 inches
BORING DEPTH: 100 feet

WELL CONSTRUCTION

WELL CASING
Casing Material: Sch 40 PVC
Casing Diameter: 4 inch

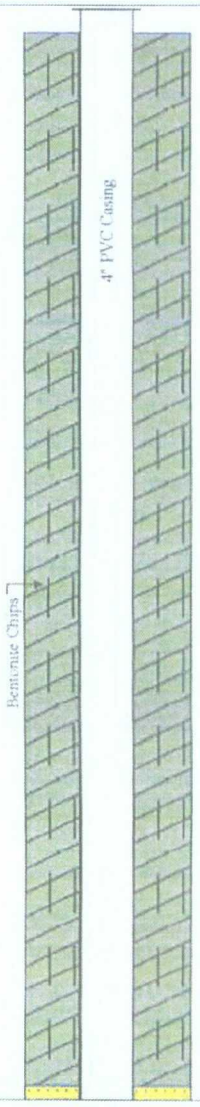
ANNULUS SEAL
Seal Material: Bentonite

GROUT
Grout Material: Portland Cement

SAND PACK
Filter Material: Silica Sand

WELL SCREEN
Screen Material: Sch 40 PVC
Screen Diameter: 4 inches
Screen Opening: 0.010 inches
Screened Interval: 80 - 100

DEPTH (ft bgs)	RECOVERY (ft)	LITHOLOGY: USCS	LITHOLOGY: SYMBOL	LITHOLOGY: SOIL DESCRIPTION	SAMPLING DETAIL: SAMPLE COLLECTED	SAMPLING DETAIL: ANALYTES	SAMPLING DETAIL: PID (ppm)	SAMPLING DETAIL: DEPTH (ft bgs)	WELL CONSTRUCTION
0		SP		**Fine Sand** Reddish-orange, very fine to fine sand, slightly clayey, dry		Field Chlorides			
5		SP		**Fine Sand** Light brown, very fine to fine sand, caliche, dry		317	0	5	
10		SP		**Fine Sand** Light brown, very fine to fine sand, dry		Lab 928 1085	0	10	
15		SP		**Fine Sand** Light brown, very fine to fine sand, caliche, dry		676	0	15	
20		SP		**Fine Sand** Light brown, very fine to fine sand, rocky, dry		672	0	20	
25		SP				632		25	
30		SP				545		30	
35		SP		**Fine Sand** Orangey-brown, very fine to fine sand, slightly moist		458		35	
40		SP				491		40	
45		SP		**Fine Sand** Orangey-brown, very fine to fine sand, rocky, slightly moist		526		45	
50		SP				478		50	
55		SP				471		55	
60		SS		**Sandstone** Orangey-brown, very fine to fine sandstone, slightly moist		520		60	
65		SP		**Fine Sand** Orangey-brown, very fine to fine sand, rocky, slightly moist		453		65	
70		SP				483		70	
75		SP				503		75	



Notes: in - inches, ft bgs - feet below ground surface, ppm - parts per million
USCS - United Soil Classification System Datum
CP - Datum Control Point, GW - Groundwater

Monitoring Well: MW-01

Monitoring Well Log Prepared By: Jasmin Talbert

ARCADIS U.S., Inc.
8725 Rosehill
Suite 350
Lenexa, Kansas 66215

MONITORING WELL LOG

WELL IDENTIFICATION: MW-01

WELL DEPTH: 101 ft

PROJECT INFORMATION

PROJECT: Rice Operating
SITE LOCATION: BD-N-32 Vent
PROJECT NUMBER: MT000834.0001
GEOLOGIST: Lara Weintheimer
DATE STARTED: 10/7/08
DATE COMPLETED: 10/7/08
SAMPLE METHOD: Split spoon and air rotary
DRILLING CO.: Harrison & Cooper, Inc. Drilling
DRILLER:
DRILLING METHOD: Rotary

LOCATION INFORMATION

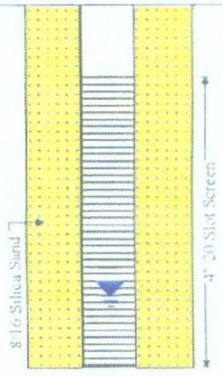
TOC ELEVATION:
DATUM CP:
CP ELEVATION.:
NORTHING:
EASTING:
DEPTH TO WATER: 95 ft bgs
GW ELEVATION:
DATE MEASURED: 10/7/08
BORING DIAMETER: 7 3/8 inches
BORING DEPTH: 100 feet

WELL CONSTRUCTION

WELL CASING
Casing Material: Sch 40 PVC
Casing Diameter: 4 inch
ANNULUS SEAL
Seal Material: Bentonite
GROUT
Grout Material: Portland Cement
SAND PACK
Filter Material: Silica Sand

WELL SCREEN
Screen Material: Sch 40 PVC
Screen Diameter: 4 inches
Screen Opening: 0.010 inches
Screened Interval: 80 - 100

DEPTH (ft bgs)	RECOVERY (ft)	LITHOLOGY: USCS	LITHOLOGY: SYMBOL	LITHOLOGY: SOIL DESCRIPTION	SAMPLING DETAIL: SAMPLE COLLECTED	SAMPLING DETAIL: ANALYTES	SAMPLING DETAIL: PID (ppm)	SAMPLING DETAIL: DEPTH (ft bgs)	WELL CONSTRUCTION
80				Not Logged		Lab: 384 450		80	
85							0	85	
90							0	90	
95							0	95	
100							0	100	
105								105	
110								110	
115								115	
120								120	
125								125	
130								130	
135								135	
140								140	
145								145	
150								150	



Notes: in - inches, ft bgs - feet below ground surface, ppm - parts per million
USCS - United Soil Classification System Datum
CP - Datum Control Point, GW - Groundwater

Monitoring Well: MW-01

Monitoring Well Log Prepared By: Jasmin Talbert

ARCADIS U.S., Inc.
8725 Rosehill
Suite 350
Lenexa, Kansas 66215

MONITORING WELL LOG

WELL IDENTIFICATION: MW-02

WELL DEPTH: 104 ft

PROJECT INFORMATION

PROJECT: Rice Operating
SITE LOCATION: BD-N-32 Vent
PROJECT NUMBER: MT000834.0001
GEOLOGIST: Lara Weinheimer
DATE STARTED: 7/9/09
DATE COMPLETED: 7/9/09
SAMPLE METHOD: Splitspoon and Rotary cuttings
DRILLING CO.: Harrison Cooper Inc.
DRILLER:
DRILLING METHOD: Air Rotary

LOCATION INFORMATION

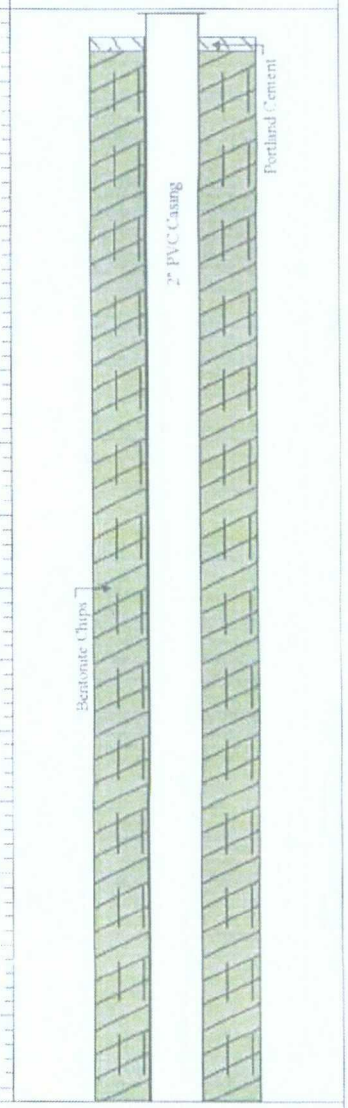
TOC ELEVATION:
DATUM CP:
CP ELEVATION.:
NORTHING: N32 25.877'
EASTING: W103 11.286'
DEPTH TO WATER: 90 ft bgs
GW ELEVATION:
DATE MEASURED: 7/9/09
BORING DIAMETER: 7 3/8 inches
BORING DEPTH: 104 feet

WELL CONSTRUCTION

WELL CASING
Casing Material: Sch 40 PVC
Casing Diameter: 2 inch
ANNULUS SEAL
Seal Material: Bentonite
GROUT
Grout Material: Portland Cement
SAND PACK
Filter Material: Silica Sand 8/16

WELL SCREEN
Screen Material: Sch 40 PVC
Screen Diameter: 2 inches
Screen Opening: 0.010 inches
Screened Interval: 84-104

DEPTH (ft bgs)	RECOVERY (ft)	LITHOLOGY: USCS	LITHOLOGY: SYMBOL	LITHOLOGY: SOIL DESCRIPTION	SAMPLING DETAIL: SAMPLE COLLECTED	SAMPLING DETAIL: ANALYTES	SAMPLING DETAIL: PID (ppm)	SAMPLING DETAIL: DEPTH (ft bgs)	WELL CONSTRUCTION
0-10		SP		**Fine Sand** Reddish-orange, very fine to fine sand, dry, no odor		Field Chlorides 87	0.1	5	
10-40		SP		**Fine Sand** Reddish-tan, very fine to fine sand with caliche, dry, no odor		Lab 272 315 146 179 144 149 147 144	0 0 0	10 15 20 25 30 35 40	
40-75		SP		**Fine Sand** Reddish-brown, very fine to fine sand with consolidated rock, dry, no odor		114 156 88 84 112 87 93		45 50 55 60 65 70 75	



Notes: in - inches, ft bgs - feet below ground surface, ppm - parts per million
USCS - United Soil Classification System Datum
CP - Datum Control Point, GW - Groundwater

Monitoring Well: K27-MW-05

Monitoring Well Log Prepared By: Jasmin Talbert

ARCADIS U.S., Inc.
8725 Rosehill
Suite 350
Lenexa, Kansas 66215

MONITORING WELL LOG

WELL IDENTIFICATION: MW-02

WELL DEPTH: 104 ft

PROJECT INFORMATION

PROJECT: Rice Operating
SITE LOCATION: BD-N-32 Vent
PROJECT NUMBER: MT000834.0001
GEOLOGIST: Lara Weinheimer
DATE STARTED: 7/9/09
DATE COMPLETED: 7/9/09
SAMPLE METHOD: Splitspoon and Rotary cuttings
DRILLING CO.: Harrison Cooper Inc.
DRILLER:
DRILLING METHOD: Air Rotary

LOCATION INFORMATION

TOC ELEVATION:
DATUM CP:
CP ELEVATION.:
NORTHING: N32 25.877'
EASTING: W103 11.286'
DEPTH TO WATER: 90 ft bgs
GW ELEVATION:
DATE MEASURED: 7/9/09
BORING DIAMETER: 7 3/8 inches
BORING DEPTH: 104 feet

WELL CONSTRUCTION

WELL CASING
Casing Material: Sch 40 PVC
Casing Diameter: 2 inch

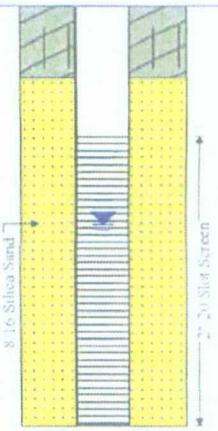
ANNULUS SEAL
Seal Material: Bentonite

GROUT
Grout Material: Portland Cement

SAND PACK
Filter Material: Silica Sand 8/16

WELL SCREEN
Screen Material: Sch 40 PVC
Screen Diameter: 2 inches
Screen Opening: 0.010 inches
Screened Interval: 84-104

DEPTH (ft bgs)	RECOVERY (ft)	LITHOLOGY: USCS	LITHOLOGY: SYMBOL	LITHOLOGY: SOIL DESCRIPTION	SAMPLING DETAIL: SAMPLE COLLECTED	SAMPLING DETAIL: ANALYTES	SAMPLING DETAIL: PID (ppm)	SAMPLING DETAIL: DEPTH (ft bgs)	WELL CONSTRUCTION
80						115		80	
85		SP		**Fine Sand** Orangey-brown, very fine to fine sand, slightly moist, no oder		89		85	
90				**No Recovery**		Lab - 16 86		90	
95								95	
100								100	
105								105	
110								110	
115								115	
120								120	
125								125	
130								130	
135								135	
140								140	
145								145	
150								150	



Notes: in - inches, ft bgs - feet below ground surface, ppm - parts per million
USCS - United Soil Classification System Datum
CP - Datum Control Point, GW - Groundwater

Monitoring Well: K27-MW-05

Monitoring Well Log Prepared By: Jasmin Talbert

ARCADIS U.S., Inc.
8725 Rosehill
Suite 350
Lenexa, Kansas 66215

MONITORING WELL LOG

WELL IDENTIFICATION: MW-03

WELL DEPTH: 135 ft

PROJECT INFORMATION

PROJECT: Rice Operating
SITE LOCATION: BD-N-32 Vent
PROJECT NUMBER: MT000834.0001
GEOLOGIST: Lara Weinheimer
DATE STARTED: 7/9/09
DATE COMPLETED: 7/9/09
SAMPLE METHOD: Split Spoon and Air Rotary
DRILLING CO.: Harrison & Cooper, Inc. Drilling
DRILLER:
DRILLING METHOD: Rotary

LOCATION INFORMATION

TOC ELEVATION:
DATUM CP:
CP ELEVATION.:
NORTHING: N32 25.915
EASTING: W103 11.302
DEPTH TO WATER: 90 ft bgs
GW ELEVATION:
DATE MEASURED: 7/9/09
BORING DIAMETER: 7 3/8 inches
BORING DEPTH: 135 feet

WELL CONSTRUCTION

WELL CASING
Casing Material: Sch 40 PVC
Casing Diameter: 4 inch

WELL SCREEN
Screen Material: Sch 40 PVC
Screen Diameter: 4 inches
Screen Opening: 0.030 inches
Screened Interval: 85-125

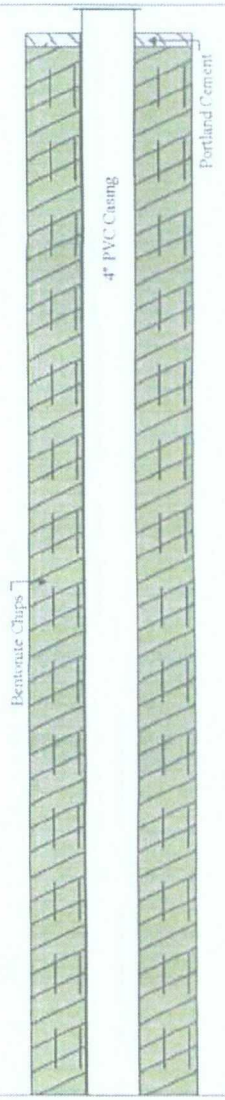
ANNULUS SEAL
Seal Material: Bentonite

GROUT
Grout Material: Portland Cement

SAND PACK
Filter Material: Silica Sand

DEPTH (ft bgs)	RECOVERY (ft)	LITHOLOGY: USCS	LITHOLOGY: SYMBOL	LITHOLOGY: SOIL DESCRIPTION	SAMPLING DETAIL: SAMPLE COLLECTED	SAMPLING DETAIL: ANALYTES	SAMPLING DETAIL: PID (ppm)	SAMPLING DETAIL: DEPTH (ft bgs)
0						Field Chlorides		
5		SP		**Fine Sand** Reddish-orange, very fine to fine sand, dry, no odor		120	0.5	5
10						112	0.1	10
15		SP		**Fine Sand** Orangey-tan very fine to fine sand with caliche, dry, no odor		114	0.1	15
20						183	0	20
25		SP		**Fine Sand** Tan, very fine to fine sand with caliche, dry, no odor		148	0	25
30						183	0	30
35						Lab 48 183	0	35
40		SP		**Fine Sand** Reddish-brown, very fine to fine sand with consolidated rock, dry, no odor		183	0	40
45						142		45
50						123		50
55						89		55
60						88		60
65						84		65
70						84		70
75						91		75

WELL CONSTRUCTION



Notes: in - inches, ft bgs - feet below ground surface, ppm - parts per million
USCS - United Soil Classification System Datum
CP - Datum Control Point, GW - Groundwater

Monitoring Well: MW-03

Monitoring Well Log Prepared By: Jasmin Talbert

ARCADIS U.S., Inc.
8725 Rosehill
Suite 350
Lenexa, Kansas 66215

MONITORING WELL LOG

WELL IDENTIFICATION: MW-03

WELL DEPTH: 135 ft

PROJECT INFORMATION

PROJECT: Rice Operating
SITE LOCATION: BD-N-32 Vent
PROJECT NUMBER: MT000834.0001
GEOLOGIST: Lara Weinheimer
DATE STARTED: 7/9/09
DATE COMPLETED: 7/9/09
SAMPLE METHOD: Split Spoon and Air Rotary
DRILLING CO.: Harrison & Cooper, Inc. Drilling
DRILLER:
DRILLING METHOD: Rotary

LOCATION INFORMATION

TOC ELEVATION:
DATUM CP:
CP ELEVATION.:
NORTHING: N32 25.915
EASTING: W103 11.302
DEPTH TO WATER: 90 ft bgs
GW ELEVATION:
DATE MEASURED: 7/9/09
BORING DIAMETER: 7 3/8 inches
BORING DEPTH: 135 feet

WELL CONSTRUCTION

WELL CASING
Casing Material: Sch 40 PVC
Casing Diameter: 4 inch
ANNULUS SEAL
Seal Material: Bentonite
GROUT
Grout Material: Portland Cement
SAND PACK
Filter Material: Silica Sand

WELL SCREEN
Screen Material: Sch 40 PVC
Screen Diameter: 4 inches
Screen Opening: 0.030 inches
Screened Interval: 85-125

DEPTH (ft bgs)	RECOVERY (ft)	LITHOLOGY: USCS	LITHOLOGY: SYMBOL	LITHOLOGY: SOIL DESCRIPTION	SAMPLING DETAIL: SAMPLE COLLECTED	SAMPLING DETAIL: ANALYTES	SAMPLING DETAIL: PID (ppm)	SAMPLING DETAIL: DEPTH (ft bgs)	WELL CONSTRUCTION
80						87		80	
85				No Recovery		Lab 16 58		85	
90								90	Silica Sand
95								95	
100								100	
105								105	
110								110	
115								115	
120								120	
125								125	4" 30 Slot Screen
130								130	
135								135	
140								140	
145								145	
150								150	

Notes: in - inches, ft bgs - feet below ground surface, ppm - parts per million
USCS - United Soil Classification System Datum
CP - Datum Control Point, GW - Groundwater

Monitoring Well: MW-03

Monitoring Well Log Prepared By: Jasmin Talbert

CARDINAL LABORATORIES

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

ANALYTICAL RESULTS FOR
RICE OPERATING COMPANY
ATTN: HACK CONDER
122 W. TAYLOR
HOBBS, NM 88240
FAX TO: (575) 397-1471

Receiving Date: 07/29/09
Reporting Date: 08/04/09
Project Number: NOT GIVEN
Project Name: BD N-32 VENT
Project Location: T21S-R37E-SEC32 N~ LEA CO., NM

Sampling Date: 07/24/09
Sample Type: WATER
Sample Condition: COOL & INTACT
Sample Received By: ML
Analyzed By: ZL

LAB NUMBER	SAMPLE ID	BENZENE (mg/L)	TOLUENE (mg/L)	ETHYL BENZENE (mg/L)	TOTAL XYLENES (mg/L)
ANALYSIS DATE		08/03/09	08/03/09	08/03/09	08/03/09
H17891-1	MONITOR WELL #1	<0.001	<0.001	<0.001	<0.003
H17891-2	MONITOR WELL #2	<0.001	<0.001	<0.001	<0.003
H17891-3	RECOVERY WELL #1	<0.001	<0.001	<0.001	<0.003
Quality Control		0.049	0.050	0.050	0.151
True Value QC		0.050	0.050	0.050	0.150
% Recovery		98.0	100	100	101
Relative Percent Difference		8.3	18.2	6.1	16.6

METHOD: EPA SW-846 8021 B

TEXAS NELAP ACCREDITATION T104704398-08-TX FOR BENZENE, TOLUENE, ETHYL BENZENE, AND TOTAL XYLENES.

Chemist

08/05/09
Date

CARDINAL LABORATORIES

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

ANALYTICAL RESULTS FOR
RICE OPERATING COMPANY
ATTN: HACK CONDER
122 WEST TAYLOR
HOBBS, NM 88240
FAX TO: (575) 397-1471

Receiving Date: 07/29/09
Reporting Date: 07/31/09
Project Number: NOT GIVEN
Project Name: BD N-32 VENT
Project Location: T21S R37E SEC32 N ~ LEA CO., NM

Sampling Date: 07/24/09
Sample Type: WATER
Sample Condition: COOL & INTACT
Sample Received By: ML
Analyzed By: HM

LAB NO.	SAMPLE ID	Cl^- (mg/L)	SO_4 (mg/L)	TDS (mg/L)
Analysis Date:		07/30/09	07/30/09	07/30/09
H17891-1	MONITOR WELL #1	930	112	2,090
H17891-2	MONITOR WELL #2	800	190	1,920
H17891-3	RECOVERY WELL #1	2,340	106	5,220
Quality Control		500	38.5	NR
True Value QC		500	40.0	NR
% Recovery		100	96.3	NR
Relative Percent Difference		2.0	3.7	9.0
METHOD: Standard Methods, EPA		4500-Cl'B	375.4	160.1

Not accredited for chloride, sulfate and TDS.

Chemist

08/05/09
Date

H17891 RICE

101 East Marland - Hobbs, New Mexico 88240
Tel (575) 393-2326
Fax (575) 393-2476

Cardinal Laboratories, Inc.

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

LAB Order ID # _____

Company Name:	BILL TO Company:	PO#
RICE Operating Company	RICE Operating Company	
Project Manager:	**Address:** (Street, City, Zip)	
Hack Conder	122 W Taylor Street ~ Hobbs, New Mexico 88240	
Address: (Street, City, Zip)	**Phone#:**	**Fax#:**
122 W Taylor Street ~ Hobbs, New Mexico 88240	(575) 393-9174	(575)397-1471
Phone #:	**Fax #:**	
(575) 393-9174	(575) 397-1471	
Project #:	**Project Name:**	
	BD N-32 Vent	
Project Location:	**Sampler Signature:**	Rozanne Johnson (575)631-9310
T21S R37E Sec32 N ~ Lea County New Mexico		rozanne@valornet.com

LAB # (LAB USE ONLY)	FIELD CODE	(G)rab or (C)omp	# CONTAINERS	MATRIX: WATER	SOIL	AIR	SLUDGE	PRESERVATIVE METHOD: HCL (2 40ml VOA)	HNO_3	$NaHSO_4$	H_2SO_4	ICE (1-1Liter HDPE)	NONE	SAMPLING: DATE (2009)	TIME
H17891-1	Monitor Well #1	G	3	X				2				1		7-24	9:40
-2	Monitor Well #2	G	3	X				2				1		7-24	8:00
-3	Recovery Well #1	G	3	X				2				1		7-24	12:40

ANALYSIS REQUEST
(Circle or Specify Method No.)

MTBE 8021B/602	BTEX 8021B/602	TPH 418.1/TX1005 / TX1005 Extended (C35)	PAH 8270C	Total Metals Ag As Ba Cd Cr Pb Se Hg 6010B/200.7	TCLP Metals Ag As Ba Cd Cr Pb Se Hg	TCLP Volatiles	TCLP Semi Volatiles	TCLP Pesticides	RCI	GC/MS Vol. 8260B/624	GC/MS Semi. Vol. 8270C/625	PCB's 8082/608	Pesticides 8081A/608	BOD, TSS, pH	Moisture Content	Cations (Ca, Mg, Na, K)	Anions (Cl, SO4, CO3, HCO3)	Sulfates	Total Dissolved Solids	Chlorides	Turn Around Time ~ 24 Hours
	X																	X	X	X	
	X																	X	X	X	
	X																	X	X	X	

Relinquished by:	Date:	Time:	Received by:	Date: Time:
Cathy Whitlow	7/29/09	15:09	Vicki LaBeat	7/29/09 3:10
Relinquished by:	Date:	Time:	Received By: (Laboratory Staff)	Date: Time:

Phone Results	Yes	No	
Fax Results	Yes	No	Additional Fax Number:

REMARKS:

Email Results to: hconder@riceswd.com
tweinheimer@riceswd.com
rozanne@valornet.com

Delivered By: (Circle One)	Sample Condition	CHECKED BY:
Sampler - UPS - Bus - Other:	Cool: Yes ☑ No ☐ Intact: Yes ☑ No ☐	(Initials) MCB

CARDINAL LABORATORIES

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

ANALYTICAL RESULTS FOR
RICE OPERATING COMPANY
ATTN: HACK CONDER
122 WEST TAYLOR
HOBBS, NM 88240
FAX TO: (575) 397-1471

Receiving Date: 04/23/09
Reporting Date: 04/27/09
Project Number: NOT GIVEN
Project Name: BD N-32 VENT
Project Location: T21S R37E SEC32 N ~ LEA CO., NM

Sampling Date: 04/22/09
Sample Type: WATER
Sample Condition: COOL & INTACT
Sample Received By: ML
Analyzed By: TR

LAB NO.	SAMPLE ID	Cl^- (mg/L)	SO_4 (mg/L)	TDS (mg/L)
Analysis Date:		04/24/09	04/24/09	04/24/09
H17300-1	MONITOR WELL #1	1,020	119	2,210
Quality Control		490	40.8	NR
True Value QC		500	40.0	NR
% Recovery		98.0	102	NR
Relative Percent Difference		2.0	0.7	1.9
METHOD: Standard Methods, EPA		4500-ClB	375.4	160.1

Chemist

Date 04/28/09

H17300 RICE

CARDINAL LABORATORIES

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

ANALYTICAL RESULTS FOR
RICE OPERATING COMPANY
ATTN: HACK CONDER
122 W. TAYLOR
HOBBS, NM 88240
FAX TO: (575) 397-1471

Receiving Date: 04/23/09
Reporting Date: 04/27/09
Project Number: NOT GIVEN
Project Name: BD N-32 VENT
Project Location: T21S-R37E-SEC32 N~ LEA CO., NM

Sampling Date: 04/22/09
Sample Type: WATER
Sample Condition: COOL & INTACT
Sample Received By: ML
Analyzed By: ZL

LAB NUMBEF SAMPLE ID	BENZENE (mg/L)	TOLUENE (mg/L)	ETHYL BENZENE (mg/L)	TOTAL XYLENES (mg/L)
ANALYSIS DATE	04/24/09	04/24/09	04/24/09	04/24/09
H17300-1 MONITOR WELL #1	<0.001	<0.001	<0.001	<0.003
Quality Control	0.050	0.047	0.054	0.165
True Value QC	0.050	0.050	0.050	0.150
% Recovery	100	94.0	108	110
Relative Percent Difference	<1.0	1.3	6.2	1.8

METHOD: EPA SW-846 8021 B

TEXAS NELAP ACCREDITATION T104704398-08-TX FOR BENZENE, TOLUENE, ETHYL BENZENE, AND TOTAL XYLENES.

Chemist

04/27/09
Date

H17300 VB RICE

101 East Marland - Hobbs, New Mexico 88240
Tel (575) 393-2326
Fax (575) 393-2476

Cardinal Laboratories, Inc.

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

LAB Order ID # _____

Company Name: RICE Operating Company	BILL TO Company: RICE Operating Company — PO#
Project Manager: Hack Conder	Address: (Street, City, Zip) 122 W Taylor Street ~ Hobbs, New Mexico 88240
Address: (Street, City, Zip) 122 W Taylor Street ~ Hobbs, New Mexico 88240	Phone#: (575) 393-9174 — Fax#: (575)397-1471
Phone #: (575) 393-9174	Fax #: (575) 397-1471
Project #:	Project Name: BD N-32 Vent
Project Location: T21S R37E Sec32 N ~ Lea County New Mexico	Sampler Signature: Rozanne Johnson (575)631-9310 rozanne@valornet.com

LAB # (LAB USE ONLY)	FIELD CODE	(G)rab or (C)omp	# CONTAINERS	MATRIX: WATER	SOIL	AIR	SLUDGE	PRESERVATIVE METHOD: HCL (2 40ml VOA)	HNO_3	$NaHSO_4$	H_2SO_4	ICE (1-1Liter HDPE)	NONE	SAMPLING: DATE (2009)	TIME
H17300-1	Monitor Well #1	G	3	X				2				1		4-22	9:50

ANALYSIS REQUEST (Circle or Specify Method No.)

MTBE 8021B/602	BTEX 8021B/602	TPH 418.1/TX1005 / TX1005 Extended (C35)	PAH 8270C	Total Metals Ag As Ba Cd Cr Pb Se Hg 6010B/200.7	TCLP Metals Ag As Ba Cd Cr Pb Se Hg	TCLP Volatiles	TCLP Semi Volatiles	TCLP Pesticides	RCI	GC/MS Vol. 8260B/624	GC/MS Semi. Vol. 8270C/625	PCB's 8082/608	Pesticides 8081A/608	BOD, TSS, pH	Moisture Content	Cations (Ca, Mg, Na, K)	Anions (Cl, SO4, CO3, HCO3)	Sulfates	Total Dissolved Solids	Chlorides	Turn Around Time ~ 24 Hours
	X																	X	X	X	

Relinquished by: Rozanne Johnson	Date: 4-23-2009	Time: 12:03	Received by: Misty LeBeau — Date: 4-23-2009 — Time: 12:04
Relinquished by:	Date:	Time:	Received By: (Laboratory Staff) — Date: — Time:

Phone Results: Yes / No
Fax Results: Yes / No — Additional Fax Number:

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

Sample Condition: Cool: Yes / No; Intact: Yes / No

CHECKED BY: (Initials) MCBB

REMARKS:

Email Results to: hconder@riceswd.com, lweinheimer@riceswd.com, rozanne@valornet.com

CARDINAL LABORATORIES

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

ANALYTICAL RESULTS FOR
RICE OPERATING COMPANY
ATTN: HACK CONDER
122 W. TAYLOR
HOBBS, NM 88240
FAX TO: (575) 397-1471

Receiving Date: 01/23/09
Reporting Date: 01/29/09
Project Number: NOT GIVEN
Project Name: BD N-32 VENT
Project Location: T21S-R37E-SEC32 N~ LEA CO., NM

Sampling Date: 01/21/09
Sample Type: WATER
Sample Condition: COOL & INTACT
Sample Received By: ML
Analyzed By: ZL

LAB NUMBER	SAMPLE ID	BENZENE (mg/L)	TOLUENE (mg/L)	ETHYL BENZENE (mg/L)	TOTAL XYLENES (mg/L)
ANALYSIS DATE		01/28/09	01/28/09	01/28/09	01/28/09
H16750-1	MONITOR WELL #1	<0.001	<0.001	<0.001	<0.003
Quality Control		0.055	0.056	0.055	0.167
True Value QC		0.050	0.050	0.050	0.150
% Recovery		110	112	110	111
Relative Percent Difference		1.7	1.7	<1.0	<1.0

METHOD: EPA SW-846 8021B

TEXAS NELAP CERTIFICATION T104704398-08-TX FOR BENZENE, TOLUENE, ETHYL BENZENE, AND TOTAL XYLENES.

Chemist

01/29/09
Date

H16750WBRICE

CARDINAL LABORATORIES

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

ANALYTICAL RESULTS FOR
RICE OPERATING COMPANY
ATTN: HACK CONDER
122 W. TAYLOR STREET
HOBBS, NM 88240
FAX TO: (575) 397-1471

Receiving Date: 01/23/09
Reporting Date: 01/27/09
Project Number: NOT GIVEN
Project Name: BD N-32 VENT
Project Location: T21S-R37E-SEC32 N ~ LEA CO., NM

Sampling Date: 01/21/09
Sample Type: WATER
Sample Condition: COOL & INTACT
Sample Received By: ML
Analyzed By: TR

LAB NUMBER	SAMPLE ID	Na (mg/L)	Ca (mg/L)	Mg (mg/L)	K (mg/L)	Conductivity (uS/cm)	T-Alkalinity ($mgCaCO_3$/L)
ANALYSIS DATE:		01/27/09	01/27/09	01/27/09	01/27/09	01/26/09	01/26/09
H16750-1	MONITOR WELL #1	931	116	43.7	20.9	4,540	216
Quality Control		NR	48.1	51.0	2.78	1,429	NR
True Value QC		NR	50.0	50.0	3.00	1,413	NR
% Recovery		NR	96.2	102	92.6	101	NR
Relative Percent Difference		NR	<0.1	<0.1	7.3	0.1	NR
METHODS:			SM3500-Ca-D	3500-Mg E	8049	120.1	310.1

LAB NUMBER	SAMPLE ID	Cl (mg/L)	SO_4 (mg/L)	CO_3 (mg/L)	HCO_3 (mg/L)	pH (s.u.)	TDS (mg/L)
ANALYSIS DATE:		01/26/09	01/26/09	01/26/09	01/26/09	01/26/09	01/26/09
H16750-1	MONITOR WELL #1	1,540	130	0	264	7.16	3,010
Quality Control		490	42.1	NR	1000	7.00	NR
True Value QC		500	40.0	NR	1000	7.00	NR
% Recovery		98.0	105	NR	100	100	NR
Relative Percent Difference		2.0	3.1	NR	<0.1	0.1	NR
METHODS:		SM4500-Cl-B	375.4	310.1	310.1	150.1	160.1

Chemist

01/28/09
Date

H16750 RICE

101 East Marland - Hobbs, New Mexico 88240
Tel (575) 393-2326
Fax (575) 393-2476

Cardinal Laboratories, Inc.

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

LAB Order ID # _____

Company Name: RICE Operating Company	BILL TO Company: RICE Operating Company — PO#
Project Manager: Hack Conder	Address: (Street, City, Zip) 122 W Taylor Street ~ Hobbs, New Mexico 88240
Address: (Street, City, Zip) 122 W Taylor Street ~ Hobbs, New Mexico 88240	Phone#: (575) 393-9174 — Fax#: (575)397-1471
Phone #: (575) 393-9174	Fax #: (575) 397-1471
Project #:	Project Name: BD N-32 Vent
Project Location: T21S R37E Sec32 N ~ Lea County New Mexico	Sampler Signature: Rozanne Johnson (575)631-9310 rozanne@valornet.com

LAB # (LAB USE ONLY)	FIELD CODE	(G)rab or (C)omp	# CONTAINERS	MATRIX: WATER	SOIL	AIR	SLUDGE	PRESERVATIVE METHOD: HCL (2 40ml VOA)	HNO_3	$NaHSO_4$	H_2SO_4	ICE (1-1Liter HDPE)	NONE	SAMPLING: DATE (2009)	TIME
H16750-1	Monitor Well #1	G	3	X				2				1		1-21	9:50

ANALYSIS REQUEST (Circle or Specify Method No.)

MTBE 8021B/602	BTEX 8021B/602	TPH 418.1/TX1005 / TX1005 Extended (C35)	PAH 8270C	Total Metals Ag As Ba Cd Cr Pb Se Hg 6010B/200.7	TCLP Metals Ag As Ba Cd Cr Pb Se Hg	TCLP Volatiles	TCLP Semi Volatiles	TCLP Pesticides	RCI	GC/MS Vol. 8260B/624	GC/MS Semi. Vol. 8270C/625	PCB's 8082/608	Pesticides 8081A/608	BOD, TSS, pH	Moisture Content	Cations (Ca, Mg, Na, K)	Anions (Cl, SO4, CO3, HCO3)	Total Dissolved Solids	Chlorides	Turn Around Time ~ 24 Hours
	X															X	X	X		

Relinquished by:	Date:	Time:	Received by:	Date:	Time:
Rozanne Johnson	1-23-2009	15:48	Cathy Watkins	1-23-2009	15:41
Relinquished by:	Date:	Time:	Received By: (Laboratory Staff)	Date:	Time:
Cathy Watkins	1-23-09	16:25	Christy Le Bert	1-23-09	4:24

Phone Results: Yes / No
Fax Results: Yes / No — Additional Fax Number:

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

Sample Condition: Cool: Yes ✓ / No — Intact: Yes ✓ / No

CHECKED BY: (Initials) MCB

REMARKS:

Email Results to: hconder@riceswd.com
lweinheimer@riceswd.com
rozanne@valornet.com

CARDINAL LABORATORIES

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

ANALYTICAL RESULTS FOR
RICE OPERATING COMPANY
ATTN: HACK CONDER
122 W. TAYLOR
HOBBS, NM 88240
FAX TO: (575) 397-1471

Receiving Date: 11/17/08
Reporting Date: 11/21/08
Project Number: NOT GIVEN
Project Name: BD N-32 VENT
Project Location: T21S-R37E-SEC32 N~ LEA CO., NM

Sampling Date: 11/13/08
Sample Type: WATER
Sample Condition: COOL & INTACT
Sample Received By: ML
Analyzed By: ZL

LAB NUMBER SAMPLE ID	BENZENE (mg/L)	TOLUENE (mg/L)	ETHYL BENZENE (mg/L)	TOTAL XYLENES (mg/L)
ANALYSIS DATE	11/20/08	11/20/08	11/20/08	11/20/08
H16348-1 MONITOR WELL #1	<0.001	<0.001	<0.001	<0.003
Quality Control	0.060	0.051	0.055	0.154
True Value QC	0.050	0.050	0.050	0.150
% Recovery	120	102	110	103
Relative Percent Difference	1.7	10.1	5.2	3.3

METHOD: EPA SW-846 8260B

TEXAS NELAP CERTIFICATION T104704398-08-TX FOR BENZENE, TOLUENE, ETHYL BENZENE, AND TOTAL XYLENES.

Chemist

11/21/08
Date

H16348WB RICE

CARDINAL LABORATORIES

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

ANALYTICAL RESULTS FOR
RICE OPERATING COMPANY
ATTN: HACK CONDER
122 W. TAYLOR STREET
HOBBS, NM 88240
FAX TO: (575) 397-1471

Receiving Date: 11/17/08
Reporting Date: 11/20/08
Project Number: NOT GIVEN
Project Name: BD N-32 VENT
Project Location: T21S-R37E-SEC32 N ~ LEA CO., NM

Sampling Date: 11/13/08
Sample Type: WATER
Sample Condition: COOL & INTACT
Sample Received By: ML
Analyzed By: TR

LAB NUMBE SAMPLE ID	Na (mg/L)	Ca (mg/L)	Mg (mg/L)	K (mg/L)	Conductivity (uS/cm)	T-Alkalinity ($mgCaCO_3/L$)
ANALYSIS DATE:	11/19/08	11/19/08	11/19/08	11/19/08	11/18/08	11/18/08
H16348-1 MONITOR WELL #1	1,240	281	117	32.2	7,280	204
Quality Control	NR	48.1	48.6	3.07	1,429	NR
True Value QC	NR	50.0	50.0	3.00	1,413	NR
% Recovery	NR	96.2	97.2	102	101	NR
Relative Percent Difference	NR	8.0	<0.1	5.7	0.4	NR
METHODS:		SM3500-Ca-D	3500-Mg E	8049	120.1	310.1

LAB NUMBE SAMPLE ID	Cl (mg/L)	SO_4 (mg/L)	CO_3 (mg/L)	HCO_3 (mg/L)	pH (s.u.)	TDS (mg/L)
ANALYSIS DATE:	11/18/08	11/19/08	11/18/08	11/18/08	11/18/08	11/19/08
H16348-1 MONITOR WELL #1	2,500	187	0	249	7.17	4,970
Quality Control	500	44.8	NR	1000	7.02	NR
True Value QC	500	40.0	NR	1000	7.00	NR
% Recovery	100	112	NR	100	100	NR
Relative Percent Difference	<0.1	0.7	NR	<0.1	0.1	NR
METHODS:	SM4500-Cl-B	375.4	310.1	310.1	150.1	160.1

Chemist

11-20-08
Date

H16348 RICE

101 East Marland - Hobbs, New Mexico 88240
Tel (575) 393-2326
Fax (575) 393-2476

Cardinal Laboratories, Inc.

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

LAB Order ID # _____

Company Name: RICE Operating Company	BILL TO Company: RICE Operating Company PO#
Project Manager: Hack Conder	Address: (Street, City, Zip) 122 W Taylor Street ~ Hobbs, New Mexico 88240
Address: (Street, City, Zip) 122 W Taylor Street ~ Hobbs, New Mexico 88240	Phone#: (575) 393-9174 Fax#: (575)397-1471
Phone #: (575) 393-9174	Fax #: (575) 397-1471
Project #:	Project Name: BD N-32 Vent
Project Location: T21S R37E Sec32 N ~ Lea County New Mexico	Sampler Signature: Rozanne Johnson (575)631-9310 rozanne@valornet.com

LAB # (LAB USE ONLY)	FIELD CODE	(G)rab or (C)omp	# CONTAINERS	MATRIX: WATER	SOIL	AIR	SLUDGE	PRESERVATIVE METHOD: HCL (2 40ml VOA)	HNO_3	$NaHSO_4$	H_2SO_4	ICE (1-1Liter HDPE)	NONE	SAMPLING: DATE (2008)	TIME
H16348-1	Monitor Well #1	G	3	X				2				1		11-13	8:30

ANALYSIS REQUEST (Circle or Specify Method No.)

MTBE 8021B/602	BTEX 8021B/602	TPH 418.1/TX1005 / TX1005 Extended (C35)	PAH 8270C	Total Metals Ag As Ba Cd Cr Pb Se Hg 6010B/200.7	TCLP Metals Ag As Ba Cd Cr Pb Se Hg	TCLP Volatiles	TCLP Semi Volatiles	TCLP Pesticides	RCI	GC/MS Vol. 8260B/624	GC/MS Semi. Vol. 8270C/625	PCB's 8082/608	Pesticides 8081A/608	BOD, TSS, pH	Moisture Content		Cations (Ca, Mg, Na, K)	Anions (Cl, SO4, CO3, HCO3)	Total Dissolved Solids	Chlorides	Turn Around Time ~ 24 Hours
	X																X	X	X		

Relinquished by: Rozanne Johnson	Date: 11-17-08	Time: 9:00	Received by: [signature] Date: 11-17-08 Time: 9:01
Relinquished by: [signature]	Date: 11-17-08	Time: 16:12	Received By: (Laboratory Staff) [signature] Date: 11-17-08 Time: 4:10

Phone Results: Yes / No
Fax Results: Yes / No Additional Fax Number:

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

Sample Condition: Cool: Yes / No; Intact: Yes / No

CHECKED BY: (Initials) MCRB

REMARKS:

Email Results to: hconder@riceswd.com
lweinheimer@riceswd.com
rozanne@valornet.com