AP - 27

STAGE 2 REPORT

Date 11-19-13

Rice Environmental Consulting & Safety
P.O. Box 2948, Hobbs, NM 88241
Phone 575.393.2967

CERTIFIED MAIL
RETURN RECEIPT NO. 7007 2560 0003 0323 8981

November 19th, 2013

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

Oil Conservation Division
1220 S. St. Francis Drive
Santa Fe, NM 87505

RE: **Termination Request**
Rice Operating Company – BD SWD System
BD E-15 Release Site (AP-27): UL/D&E sec. 15 T22S R37E

Mr. Hansen:

RICE Operating Company (ROC) has retained Rice Environmental Consulting and Safety (RECS) 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.

Background and Previous Work

The site is located approximately 2.5 miles south of Eunice, New Mexico at UL/D&E sec. 15 T22S R37E as shown on the Site Location Map and Geographical Location Map (Figure 1 and 2). Monitor well sampling at the site shows that groundwater is located at approximately 76 +/- feet.

On March 29th, 2000, a release was discovered on the pipeline adjacent to the E-15 junction box. A rupture occurred in the steel dresser sleeve releasing unknown amount of produced water. 300 barrels of produced water were recovered. NMOCD was notified on March 29th, 2000 and an initial C-141 was sent to NMOCD (Appendix A).

During March 2000, approximately 2,000 cubic yards of soil were excavated and transported off-site for disposal. The site was backfilled with clean soil and brought up to grade. Initial characterization of soil impacts was conducted at the site. In order to delineate the site, between January 22nd, 2001 and February 11th, 2005, six monitor wells, two recovery wells and six borings were installed at the site.

A Stage 1/Stage 2 Abatement Plan was requested by the NMOCD and was submitted on June 5th, 2001. The abatement plan requested addition soil borings and monitor wells at the site to complete vertical and horizontal delineation.

In January 2002, the release area was excavated to a depth of 35 ft bgs and a 140 ft x 160 ft clay liner was installed in the bottom of the excavation. Sidewall samples were collected and tested for chloride, TPH, and BTEX concentrations, resulting in low concentrations of each. A clay compaction test was performed and a 20-mil plastic liner was installed over the clay and brought up the sides of the excavation to the surface. The excavated soils were used to backfill the excavation up to a depth of 5 feet bgs. A second 140 ft x 160 ft, 20-mil liner was installed and the remainder of the excavation was backfilled with clean topsoil and contoured to the surrounding surface.

In September 2006, the NMOCD requested further expansion of the abatement plan to encompass a larger area. The amended Stage 1/Stage 2 plan was resubmitted in November 2006.

In 2005, a groundwater remediation system was installed at the site to address the chloride impacts to the groundwater and was discontinued in 2007 due to low volumes, silting, and equipment problems. Several of the silted or dry monitor wells were permanently abandoned (MW-5, MW-6 and RW-2). Since 2005, the four active monitor wells (MW-1 through MW-4) have been sampled on a quarterly basis. A work plan was submitted, and approved by NMOCD on February 17th, 2011, proposing to install three additional monitor wells to further delineate groundwater quality and to determine if groundwater exists throughout the entire site. In March 2011, three monitor wells MW-6R, MW-7 and MW-8 were installed.

A Project Status Report was submitted to the NMOCD on June 17th, 2011 with proposed replacement of MW-2 with a 4-inch recovery well. NMOCD approved the plan on August 22nd, 2011. MW-2 was plugged and replaced with a 4-inch well (MW-2R) in October 2011. Monitor well MW-2R has been sampled since January 2012.

In the Proposed Groundwater Remediation report submitted to the NMOCD on April 17th, 2012, ROC proposed to remove 335,104 gallons of chloride impacted groundwater from MW-2R. NMOCD approved the report on July 12th, 2012, and groundwater recovery began from MW-2R on June 28th, 2012.

A Soil Closure Request was sent to NMOCD on October 11th, 2012. The Soil Closure Request detailed the vadose zone activities conducted at the site. Since the abatement actions performed on the soil would prevent the migration of any residual constituents in the soil to groundwater, NMOCD approved the Soil Closure Request on October 11th, 2012.

On June 19th, 2013, ROC submitted a Groundwater Recovery Request to NMOCD. Groundwater recovery began from MW-2R on June 28th, 2012. A total of 1,332 bbls or 55,944 gallons of water had been recovered from the site. ROC has tried several types of

pump, which have all failed due to the fine silt and clay and lack of underground water flow to recharge the well. Due to the inability to pump from the wells located on this site, ROC requested to remove the remaining volume of water, approximately 279,160 gallons, from the existing recovery systems located at BD O-23 vent and O-23-1 vent. This would equate to the total volume of 335,104 gallons. NMOCD approved this request on July 1st, 2013.

Beginning on June 24th, 2013, groundwater removal began at the BD O-23 vent and O-23-1 vent and continued pumping until November 7th, 2013 (Appendix B). During that time, the BD O-23 vent site extracted 2,870 barrels of groundwater, which equates to 120,540 gallons removed from the site. The BD O-23-1 vent site extracted 4,020 barrels of groundwater, which equates to 168,840 gallons removed from the site. Together the two sites extracted a total of 8,222 barrels, which equates to 345,324 gallons removed from the site.

ROC extracted the requisite 335,104 gallons of chloride impacted water from the groundwater as approved by NMOCD in the Proposed Groundwater Remediation Report. Given that the site was already received soil closure, ROC respectfully requests 'remediation termination' of the regulatory file. The final C-141 will be found in Appendix C.

Once the Termination Request has been approved, ROC will plug and abandon all monitor well at the site (MW-1, MW-2R, MW-3, MW-4, MW-6R, MW-7 and MW-8) with a 1-3% bentonite/concrete slurry and a three foot concrete cap. A report detailing the plug and abandonment activities will be sent to NMOCD for approval.

RECS appreciates the opportunity to work with you on this project. Please call Hack Conder at (575) 393-2967 or me if you have any questions or wish to discuss the site.

Sincerely,

Lara Weinheimer
Project Scientist
RECS
(575) 441-0431

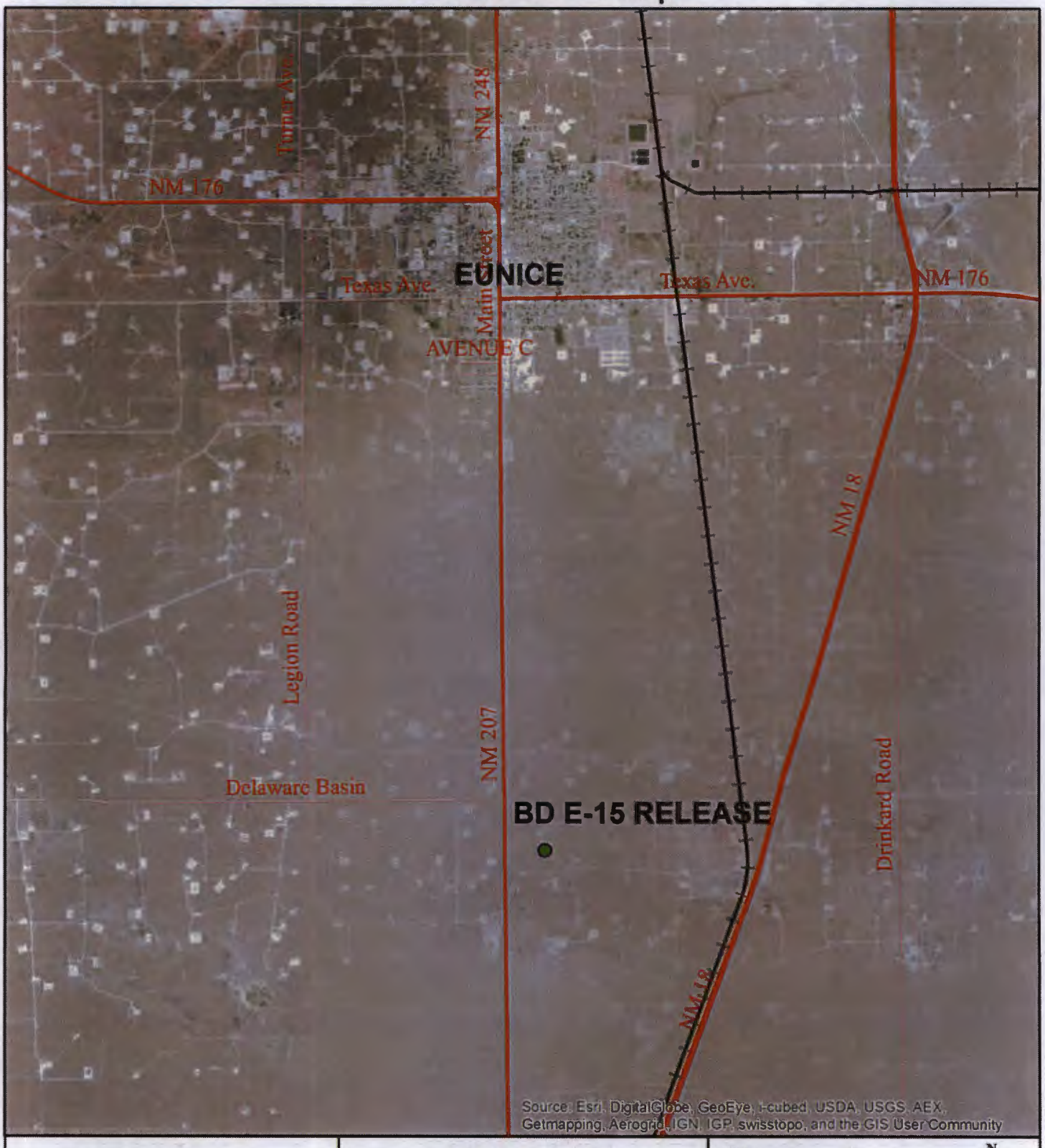
Attachments:

- Figure 1 – Site Location Map
- Figure 2 – Geographical Location Map
- Appendix A – Initial C-141
- Appendix B – Groundwater Removal Documentation
- Appendix C – Final C-141

Figures

RICE Environmental Consulting and Safety (RECS)
P.O. Box 2948, Hobbs, NM 88241
Phone 575.393.2967

Site Location Map



RICE ENVIRONMENTAL RECS CONSULTING & SAFETY, LLC

BD E-15 RELEASE SITE

LEGALS: UL/D&E sec. 15
T-22-S R-37-E
LEA COUNTY, NM
Case #: AP-027

Figure 1

N W E S

0 0.6 1.2 Miles

Drawing date: 6/5/12
Drafted by: L. Weinheimer

Geographical Location Map

RICE ENVIRONMENTAL RECS CONSULTING & SAFETY, LLC

BD E-15 RELEASE SITE

LEGALS: UL/D&E sec. 15
T-22-S R-37-E
LEA COUNTY, NM
Case #: AP-027

Figure 2

N W E S

0 0.08 0.16 Miles

Drawing date: 6/5/12
Drafted by: L. Weinheimer

Appendix A

Initial C-141

RICE Environmental Consulting and Safety (RECS)
P.O. Box 2948 Hobbs, NM 88241
Phone 575.393.2967

District I
P.O. Box 1980, Hobbs, NM 88241-1980
District II
811 South First, Artesia, NM 88210
District III
1000 Rio Brazos, Aztec, NM 87410
District IV
2040 South Pacheco, Santa Fe, NM 87505

State of New Mexico
Energy, Minerals & Natural Resources Department
OIL CONSERVATION DIVISION
2040 South Pacheco
Santa Fe, NM 87505
OPERATOR'S MONTHLY REPORT

Form C-141
Originated 2/13/97

Submit 2 copies to Appropriate District Office in accordance with Rule 116 on back side of form

Exhibit 3

Release Notification and Corrective Action

OPERATOR X Initial Report Final Report

Name	Contact
Rice Operating Company	John L. Moody Jr.
Address 122 West Taylor Hobbs, NM 88240	**Telephone No.** 505-393-9174
Facility Name B.D. SWD	**Facility Type** PRODUCED WATER PIPELINE

Surface Owner	Mineral Owner	Lease No.
IRVIN BOYD & ROBERT CUETO		

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South line	Feet from the	East/West Line	County
E &D	15	T22S	R37E					LEA

NATURE OF RELEASE

Type of Release	Volume of Release	Volume Recovered
Production Water	UNKOWN	300BBLS
Source of Release ELINE	**Date and Hour of Occurrence** 1:00PM 3-29-00	**Date and Hour of Discovery** SAME
Was Immediate Notice Given? [X] YES No Not Required	**If YES, To Whom?** SLYVIA	
By Whom? JOHN L. MOODY	**Date and Hour** 3:55 3-29-00	
Was a Watercourse Reached? ☐ Yes ☒ No	**If YES, Volume Impacting the Watercourse.**	

If a Watercourse was Impacted, Describe Fully. (Attach Additional Sheets If Necessary)

N/A

Describe Cause of Problem and Remedial Action Taken. (Attach Additional Sheets If Necessary)

STEEL DRESSER SLEEVE RUSTED OUT, TAKE DRESSER SLEEVE OUT AND REPLACE WITH JOINT OF PVC PIPE

Describe Area Affected and Cleanup Action Taken. (Attach Additional Sheets If Necessary)

Area affected: 1512 SQUARE FEET IN UNIT LTR. "D". 10,450 SQUARE FEET IN UNIT LTR."E". IRVIN BOYD IS THE SURFACE OWNER IN UNIT LTR. "E" AND HE WANTS ALL IMPACTED SOIL DUG OUT AND REPLACED WITH CLEAN AND WE HAVE STARTED HAULING 3-30-00. WE WILL DO THE SAME FOR ROBERT CUETO IN UNIT LTR. "D"

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to NMOCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the NMOCD marked as "Final Report" does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to ground water, human health or the environment. In addition, NMOCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.

Signature:	OIL CONSERVATION DIVISION	
Printed Name: John L. Moody Jr.	Approved by District Supervisor:	
Title: Regulatory Compliance Coordinator	Approval Date:	Expiration Date:
Date3-30-00 Phone: 505-393-9174	Conditions of Approval:	Attached ☐

Appendix B

Groundwater Removal Documentation

RICE Environmental Consulting and Safety (RECS)
P.O. Box 2948 Hobbs, NM 88241
Phone 575.393.2967

Record of Groundwater Withdrawal
Site Name: BD E-15 (AP-27)

Remove 335,104 gals

BD E-15 MW-2R				
Date	Fluid Hauled (bbls)		Lab	Comments
6/28/2012			5,700	Pumping Began
6/29/2012	5			
Total for June	5	bbls		
	210	gals		
7/6/2012	78			
7/11/2012	48			
7/18/2012	84			
7/24/2012	72		4,900	MW-2R
7/26/2012	24			
7/30/2012	48			
Total for July	354	bbls		
	14,868	gals		
8/3/2012	48			
8/16/2012			4,900	MW-2R
8/17/2012	35			
8/23/2012	70			
8/30/2012	90			
Total for August	243	bbls		
	10,206	gals		
9/4/2012	80			
9/10/2012	60			
9/13/2012	60			
9/17/2012	70			
9/19/2012			5,000	MW-2R
9/21/2012	60			
9/27/2012	80			
Total for September	410	bbls		
	17,220	gals		
10/1/2012	40			
10/5/2012	70			
10/15/2012	70			
10/19/2012	70			
10/22/2012			2,140	MW-2R
10/25/2012	70			
Total for October	320	bbls		
	13,440	gals		
Total for 2012	*1,332*	*bbls*		
	55,944	*gals*		

BD O-23-1				
Date	Fluid Hauled (bbls)		Lab	Comments
6/14/2013			3,750	MW-1R
			4,500	RW-2
6/24/2013	130			
6/27/2013	130			
7/1/2013	130			
7/4/2013	130			
7/8/2013	130			
7/11/2013	130			
7/15/2013	130			
7/18/2013			4,800	RW-2
7/19/2013	80		3,750	MW-1R
7/22/2013	130			
7/25/2013	120			
7/29/2013	130			
Total for July	1,370	bbls		
	57,540	gals		
8/1/2013	130			
8/5/2013	130			
8/8/2013	130			
8/12/2013	130			
8/16/2013	130			
8/19/2013	70			
8/23/2013	110			
8/30/2013	100			
Total for August	930	bbls		
	39,060	gals		
9/5/2013	130			
9/9/2013	100		4,950	MW-1R
			4,750	RW-2
9/13/2013	70			
9/16/2013			4,250	MW-1R
			4,700	RW-2
9/19/2013	110			
9/23/2013	130			
9/27/2013	130			
9/30/2013				
Total for September	670	bbls		
	28,140	gals		

10/4/2013	130			
10/10/2013	130			
10/14/2013	130			
10/18/2013	70			
10/21/2013	130			
10/23/2013			3,450	MW-1R
			4,700	RW-2
10/24/2013	130			
10/28/2013	130			
Total for October	850	bbls		
	35,700	gals		
11/1/2013	70			
11/7/2013	130			
Total for November	200	bbls		
	8,400	gals		
Total for 2013	4,020	bbls		
	168,840	gals		

BD O-23				
Date	Fluid Hauled (bbls)		Lab	Comments
6/14/2013			6,600 9,000	MW-1R RW-2
6/24/2013				
6/27/2013	130			
7/1/2013	130			
7/4/2013				
7/8/2013	130			
7/11/2013	130			
7/15/2013	130			
7/18/2013			5,900 8,700	MW-1R RW-2
7/19/2013	80			
7/22/2013				
7/25/2013	130			
7/29/2013				
Total for July	860	bbls		
	36,120	gals		
8/1/2013	130			
8/5/2013	130			
8/8/2013	100			
8/12/2013	100			
8/16/2013				
8/19/2013	80			
8/23/2013	40			
8/30/2013	40			
Total for August	620	bbls		
	26,040	gals		
9/5/2013	80		6,600 9,200	MW-1R RW-2
9/9/2013	60			
9/13/2013	40			
9/16/2013			7,300 8,600	MW-1R RW-2
9/20/2013	80			
9/23/2013	100			
9/27/2013	130			
9/30/2013	100			
Total for September	590	bbls		
	24,780	gals		

10/4/2013	130			
10/10/2013	130			
10/14/2013				
10/18/2013	130			
10/21/2013	130			
10/23/2013			6,100	MW-1R
			9,000	RW-2
10/24/2013				
10/28/2013	130			
Total for October	650	bbls		
	27,300	gals		
11/1/2013	70			
11/7/2013	80			
Total for November	150	bbls		
	6,300	gals		
Total for 2013	2,870	bbls		
	120,540	gals		
Combined for 2013	*6,890*	*bbls*		
	289,380	*gals*		
Combined Totals	***8,222***	***bbls***		
	345,324	***gals***		

Appendix C

Final C-141

RICE Environmental Consulting and Safety (RECS)
P.O. Box 2948 Hobbs, NM 88241
Phone 575.393.2967

District I
1625 N. French Dr., Hobbs, NM 88240
District II
811 S. First St., Artesia, NM 88210
District III
1000 Rio Brazos Road, Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy Minerals and Natural Resources

Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-141
Revised August 8, 2011

Submit 1 Copy to appropriate District Office in accordance with 19.15.29 NMAC.

Release Notification and Corrective Action

OPERATOR

☐ Initial Report ☒ Final Report

Name of Company Rice Operating Company	Contact Hack Conder
Address 112 West Taylor, Hobbs, NM 88240	Telephone No. (575) 631-6432
Facility Name BD E-15 Release Site	Facility Type Produced Water Pipeline

Surface Owner Irvin Boyd & Robert Cueto	Mineral Owner	API No.

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
E&D	15	22S	37E					Lea

Latitude_____ **Longitude**_____

NATURE OF RELEASE

Type of Release Production Water	Volume of Release Unknown	Volume Recovered 300 bbls
Source of Release Pipeline	Date and Hour of Occurrence 1:00 pm 3-29-00	Date and Hour of Discovery SAME
Was Immediate Notice Given? ☒ Yes ☐ No ☐ Not Required	If YES, To Whom? Sylvia	
By Whom? John Moody	Date and Hour 3:55 pm 3-29-00	
Was a Watercourse Reached? ☐ Yes ☒ No	If YES, Volume Impacting the Watercourse.	

If a Watercourse was Impacted, Describe Fully.*

Describe Cause of Problem and Remedial Action Taken.* Steel dresser sleeve rusted out, take dresser sleeve out and replace with joint of PVC Pipe.

Describe Area Affected and Cleanup Action Taken.* 1,512 sq ft was affected is UL/D. 10,450 sq ft was affected in UL/E. During March 2000, approximately 2,000 cubic yards of soil were excavated and transported off-site for disposal. The site was backfilled with clean soil and brought up to grade. In order to delineate the site, between January 22nd, 2001 and February 11th, 2005, six monitor wells, two recovery wells and six borings were installed at the site. A Stage 1/Stage 2 Abatement Plan was requested by the NMOCD and was submitted on June 5th, 2001. The abatement plan requested addition soil borings and monitor wells at the site to complete vertical and horizontal delineation. In January 2002, the release area was excavated to a depth of 35 ft bgs and a 140 ft x 160 ft clay liner was installed in the bottom of the excavation. A clay compaction test was performed and a 20-mil plastic liner was installed over the clay and brought up the sides of the excavation to the surface. The excavated soils were used to backfill the excavation up to a depth of 5 feet bgs. A second 140 ft x 160 ft, 20-mil liner was installed and the remainder of the excavation was backfilled with clean topsoil and contoured to the surrounding surface. In September 2006, the NMOCD requested further expansion of the abatement plan to encompass a larger area. The amended Stage 1/Stage 2 plan was resubmitted in November 2006. In 2005, a groundwater remediation system was installed at the site to address the chloride impacts to the groundwater and was discontinued in 2007 due to low volumes, silting, and equipment problems. Several of the silted or dry monitor wells were permanently abandoned (MW-5, MW-6 and RW-2). Since 2005, the four active monitor wells (MW-1 through MW-4) have been sampled on a quarterly basis. A work plan was submitted, and approved by NMOCD on February 17th, 2011, proposing to install three additional monitor wells to further delineate groundwater quality. In March 2011, three monitor wells MW-6R, MW-7 and MW-8 were installed. A Project Status Report was submitted to the NMOCD on June 17th, 2011 with proposed replacement of MW-2 with a 4-inch recovery well. NMOCD approved the plan on August 22nd, 2011. MW-2 was plugged and replaced with a 4-inch well (MW-2R) in October 2011. Monitor well MW-2R has been sampled since January 2012. In the Proposed Groundwater Remediation report submitted to the NMOCD on April 17th, 2012, ROC proposed to remove 335,104 gallons of chloride impacted groundwater from MW-2R. Groundwater recovery began from MW-2R on June 28th, 2012. A Soil Closure Request was sent to NMOCD on October 11th, 2012. The Soil Closure Request detailed the vadose zone activities conducted at the site. Since the abatement actions performed on the soil would prevent the migration of any residual constituents in the soil to groundwater, NMOCD approved the Soil Closure Request on October 11th, 2012. On June 19th, 2013, ROC submitted a Groundwater Recovery Request to NMOCD. Groundwater recovery began from MW-2R on June 28th, 2012. A total of 1,332 bbls or 55,944 gallons of water had been recovered from the site. ROC has tried several types of pump, which have all failed due to the fine silt and clay and lack of underground water flow to recharge the well. Due to the inability to pump from the wells located on this site, ROC requested to remove the remaining volume of water, approximately 279,160 gallons, from the existing recovery systems located at BD O-23 vent and O-23-1 vent. This would equate to the total volume of 335,104 gallons. NMOCD approved this request on July 1st, 2013. Beginning on June 24th, 2013, groundwater removal began at the BD O-23 vent and O-23-1 vent and continued pumping until November 7th, 2013. During that time, the BD O-23 vent site extracted 2,870 barrels of groundwater, which equates to 120,540 gallons removed from the site. The BD O-23-1 vent site extracted 4,020 barrels of groundwater, which equates to 168,840 gallons removed from the site. Together the two sites extracted a total of 8,222 barrels, which equates to 345,324 gallons removed from the site.

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to NMOCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the NMOCD marked as "Final Report" does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to ground water, surface water, human health or the environment. In addition, NMOCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.

Signature:	OIL CONSERVATION DIVISION	
Printed Name: Hack Conder	Approved by Environmental Specialist:	
Title: Environmental Manager	Approval Date: 11-21-13	Expiration Date:
E-mail Address: hconder@riceswd.com	Conditions of Approval:	Attached ☐
Date: 11-19-13 Phone: (575) 631-6432		