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1000 Rio Brazos Rd., Aztec, NM 87410
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1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy, Minerals and Natural Resources

Form C-103
Revised July 18, 2013

OIL CONSERVATION DIVISION
1220 South St. Francis Dr.
Santa Fe, NM 87505

SUNDRY NOTICES AND REPORTS ON WELLS (DO NOT USE THIS FORM FOR PROPOSALS TO DRILL OR TO DEEPEN OR PLUG BACK TO A DIFFERENT RESERVOIR. USE "APPLICATION FOR PERMIT" (FORM C-101) FOR SUCH PROPOSALS.)		WELL API NO. 30-045-35747
1. Type of Well: Oil Well ☐ Gas Well ☐ Other Waste Water Disposal Well		5. Indicate Type of Lease STATE ☐ FEE ☒
2. Name of Operator Western Refining, Southwest, Inc.		6. State Oil & Gas Lease No.
3. Address of Operator #50 County Road 4990 (PO Box 159), Bloomfield, NM 87413		7. Lease Name or Unit Agreement Name
4. Well Location Unit Letter <u>H</u> : <u>2028</u> feet from the <u>North</u> line and <u>111'</u> feet from the <u>East</u> line Section <u>27</u> Township <u>29N</u> Range <u>11W</u> NMPM San Juan County		8. Well Number WDW #2
11. Elevation (Show whether DR, RKB, RT, GR, etc.) 5535' GL		9. OGRID Number 267595
		10. Pool name or Wildcat SWD; Entrada

12. Check Appropriate Box to Indicate Nature of Notice, Report or Other Data

NOTICE OF INTENTION TO:

PERFORM REMEDIAL WORK ☐ PLUG AND ABANDON ☐
TEMPORARILY ABANDON ☐ CHANGE PLANS ☐
PULL OR ALTER CASING ☐ MULTIPLE COMPL ☐
DOWNHOLE COMMINGLE ☐
CLOSED-LOOP SYSTEM ☐
OTHER: ☐

SUBSEQUENT REPORT OF:

REMEDIAL WORK ☐ ALTERING CASING ☐
COMMENCE DRILLING OPNS.X P AND A ☐
CASING/CEMENT JOB
OTHER: Entrada Water Analysis ☒

13. Describe proposed or completed operations. (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work). SEE RULE 19.15.7.14 NMAC. For Multiple Completions: Attach wellbore diagram of proposed completion or recompletion.

As per Discharge Permit (UICI-011), Western Refining, Southwest is submitting this water analysis of the water sample from the Entrada formation.

OIL CONS. DIV DIST. 3

DEC 05 2016

Spud Date:

8/15/2016

Rig Release Date:

9/9/2016

I hereby certify that the information above is true and complete to the best of my knowledge and belief.

SIGNATURE

Engineer/Agent

DATE 11/19/2016

Type or print name
For State Use

DENIED

john@walsheng.net

PHONE: 505-320-1748

APPROVED E

E

DATE

Conditions of Approval (if any)

Does not meet COA, Retest & Resubmit for
APPROVAL PRIOR TO INJECTION 12-13-2016



Analytical Report

Report Summary

Client: Western Refining Southwest, Inc.
Chain Of Custody Number:
Samples Received: 11/16/2016 11:00:00AM
Job Number: 96012-0115
Work Order: P611024
Project Name/Location: Bloomfield WDW #2
Injection Well

Report Reviewed By:

A handwritten signature in blue ink, appearing to read 'Walter Hinchman', is written over a horizontal line.

Walter Hinchman, Laboratory Director

Date: 11/18/16

A handwritten signature in blue ink, appearing to read 'Tim Cain', is written over a horizontal line.

Tim Cain, Quality Assurance Officer

Date: 11/18/16

The results in this report apply to the samples submitted to Envirotech's Analytical Laboratory and were analyzed in accordance with the chain of custody document supplied by you, the client, and as such are for your exclusive use only. The results in this report are based on the sample as received unless otherwise noted. Partial or incomplete reproduction of this report is prohibited, unless approved by Envirotech, Inc. If you have any questions regarding this analytical report, please don't hesitate to contact Envirotech's Laboratory Staff.



Western Refining Southwest, Inc.
PO Box 159
Bloomfield NM, 87413

Project Name: Bloomfield WDW #2 Injection Well
Project Number: 96012-0115
Project Manager: Kelly Robinson

Reported:
18-Nov-16 10:58

Analytical Report for Samples

Client Sample ID	Lab Sample ID	Matrix	Sampled	Received	Container
WDW #2 - 1	P611024-01A	Water	10/08/16	11/16/16	Poly, 1000mL

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laboratory@envirotech-inc.com



Western Refining Southwest, Inc.	Project Name:	Bloomfield WDW #2 Injection Well	Reported: 18-Nov-16 10:58
PO Box 159	Project Number:	96012-0115	
Bloomfield NM, 87413	Project Manager:	Kelly Robinson	

WDW #2 - 1
P611024-01 (Water)

Reporting									
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Wet Chem/Gravimetric									
Total Dissolved Solids	46900	10.0	mg/L	1	1647013	11/16/16	11/16/16	SM2540C	H1
Cation/Anion Analysis									
pH @25°C	6.59		pH Units	1	1647016	11/16/16 13:33	11/16/16 15:24	9040C/4500 H	H1
Electrical Conductivity	6110		umhos/cm	1	1647015	11/16/16	11/16/16	9050A/2510	H1
Sodium Absorption Ratio	109		N/A	1	1647020	11/17/16	11/17/16	[CALC]	
Total Alkalinity as CaCO3	800	10.0	mg/L	1	1647018	11/17/16	11/17/16	Hach Method 8203	H1
Bicarbonate as CaCO3	800	10.0	mg/L	1	1647018	11/17/16	11/17/16	Hach Method 8203	H1
Carbonate as CaCO3	ND	10.0	mg/L	1	1647018	11/17/16	11/17/16	Hach Method 8203	H1
Hydroxide as CaCO3	ND	10.0	mg/L	1	1647018	11/17/16	11/17/16	Hach Method 8203	H1
Fluoride	ND	5.00	mg/L	20	1647017	11/16/16	11/16/16	EPA 300.0	H1
Chloride	28400	400	mg/L	200	1647019	11/17/16	11/17/16	EPA 300.0	H1
Nitrite-N	ND	5.00	mg/L	20	1647017	11/16/16 14:36	11/16/16 16:47	EPA 300.0	H1
Nitrate-N	ND	5.00	mg/L	20	1647017	11/16/16 14:36	11/16/16 16:47	EPA 300.0	H1
o-Phosphate-P	ND	5.00	mg/L	20	1647017	11/16/16 14:36	11/16/16 16:47	EPA 300.0	H1
Sulfate	1270	40.0	mg/L	20	1647017	11/16/16	11/16/16	EPA 300.0	H1
Iron	22.4	0.50	mg/L	1	1647012	11/16/16	11/17/16	EPA 6010C	
Calcium	1250	50.0	mg/L	100	1647012	11/16/16	11/17/16	EPA 6010C	
Magnesium	167	20.0	mg/L	100	1647012	11/16/16	11/17/16	EPA 6010C	
Potassium	245	50.0	mg/L	100	1647012	11/16/16	11/17/16	EPA 6010C	
Sodium	15500	200	mg/L	100	1647012	11/16/16	11/17/16	EPA 6010C	

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Western Refining Southwest, Inc.
PO Box 159
Bloomfield NM, 87413

Project Name: Bloomfield WDW #2 Injection Well
Project Number: 96012-0115
Project Manager: Kelly Robinson

Reported:
18-Nov-16 10:58

Wet Chem/Gravimetric - Quality Control

Envirotech Analytical Laboratory

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 1647013 - No Prep Wet Chem

Blank (1647013-BLK1)

Prepared & Analyzed: 16-Nov-16

Total Dissolved Solids ND 10.0 mg/L

Duplicate (1647013-DUP1)

Source: P611022-01

Prepared & Analyzed: 16-Nov-16

Total Dissolved Solids 270 10.0 mg/L 289 6.80 5 D1

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PO Box 159
Bloomfield NM, 87413

Project Name: Bloomfield WDW #2 Injection Well
Project Number: 96012-0115
Project Manager: Kelly Robinson

Reported:
18-Nov-16 10:58

Cation/Anion Analysis - Quality Control

Envirotech Analytical Laboratory

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1647012 - Metal Water Digestion EPA 3015A										
Blank (1647012-BLK1)										
				Prepared: 16-Nov-16 Analyzed: 17-Nov-16						
Iron	ND	0.50	mg/L							
Calcium	ND	0.50	"							
Magnesium	ND	0.20	"							
Potassium	ND	0.50	"							
Sodium	ND	2.00	"							
LCS (1647012-BS1)										
				Prepared: 16-Nov-16 Analyzed: 17-Nov-16						
Iron	100	0.50	mg/L	100		100	80-120			
Calcium	99.7	0.50	"	100		99.7	80-120			
Magnesium	97.2	0.20	"	100		97.2	80-120			
Potassium	1.03	0.50	"	1.00		103	80-120			
Sodium	95.8	2.00	"	100		95.8	80-120			
Matrix Spike (1647012-MS1)										
			Source: P611022-01		Prepared: 16-Nov-16 Analyzed: 17-Nov-16					
Iron	101	0.50	mg/L	100	1.29	99.8	75-125			
Calcium	103	0.50	"	100	5.78	97.4	75-125			
Magnesium	97.9	0.20	"	100	1.84	96.1	75-125			
Potassium	1.43	0.50	"	1.00	ND	143	75-125			SPK1
Sodium	99.1	2.00	"	100	12.9	86.3	75-125			
Matrix Spike Dup (1647012-MSD1)										
			Source: P611022-01		Prepared: 16-Nov-16 Analyzed: 17-Nov-16					
Iron	94.1	0.50	mg/L	100	1.29	92.8	75-125	7.20	20	
Calcium	97.6	0.50	"	100	5.78	91.8	75-125	5.59	20	
Magnesium	91.6	0.20	"	100	1.84	89.8	75-125	6.61	20	
Potassium	2.13	0.50	"	1.00	ND	213	75-125	39.0	20	D1, SPK1
Sodium	110	2.00	"	100	12.9	97.3	75-125	10.6	20	

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Western Refining Southwest, Inc.
PO Box 159
Bloomfield NM, 87413

Project Name: Bloomfield WDW #2 Injection Well
Project Number: 96012-0115
Project Manager: Kelly Robinson

Reported:
18-Nov-16 10:58

Cation/Anion Analysis - Quality Control

Envirotech Analytical Laboratory

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 1647015 - No Prep Wet Chem

Duplicate (1647015-DUP1)

Source: P611024-01

Prepared & Analyzed: 16-Nov-16

Electrical Conductivity	6220		umhos/cm		6110			1.78	20	
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Project Name: Bloomfield WDW #2 Injection Well
Project Number: 96012-0115
Project Manager: Kelly Robinson

Reported:
18-Nov-16 10:58

Cation/Anion Analysis - Quality Control

Envirotech Analytical Laboratory

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1647016 - No Prep Wet Chem										
LCS (1647016-BS1)				Prepared & Analyzed: 16-Nov-16						
pH	7.98		pH Units	8.00		99.9	±8.75-101.25			
Duplicate (1647016-DUP1)				Source: P611024-01 Prepared & Analyzed: 16-Nov-16						
pH	6.62		pH Units	6.59				0.454	20	

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Western Refining Southwest, Inc.	Project Name:	Bloomfield WDW #2 Injection Well	Reported:
PO Box 159	Project Number:	96012-0115	18-Nov-16 10:58
Bloomfield NM, 87413	Project Manager:	Kelly Robinson	

Cation/Anion Analysis - Quality Control

Envirotech Analytical Laboratory

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 1647017 - Anion Extraction EPA 300.0

Blank (1647017-BLK1)

Prepared & Analyzed: 16-Nov-16

Fluoride	ND	0.25	mg/L
Nitrite-N	ND	0.25	"
Nitrate-N	ND	0.25	"
o-Phosphate-P	ND	0.25	"
Sulfate	ND	2.00	"

LCS (1647017-BS1)

Prepared & Analyzed: 16-Nov-16

Fluoride	5.08	0.25	mg/L	5.00	102	90-110
Nitrite-N	4.98	0.25	"	5.00	99.6	90-110
Nitrate-N	5.12	0.25	"	5.00	102	90-110
o-Phosphate-P	8.24	0.25	"	8.15	101	90-110
Sulfate	50.3	2.00	"	50.0	101	90-110

Matrix Spike (1647017-MS1)

Source: P611024-01

Prepared & Analyzed: 16-Nov-16

Fluoride	102	5.00	mg/L	100	ND	102	80-120
Nitrite-N	104	5.00	"	100	ND	104	80-120
Nitrate-N	104	5.00	"	100	ND	104	80-120
o-Phosphate-P	10.8	5.00	"	163	ND	6.60	80-120
Sulfate	2340	40.0	"	1000	1270	107	80-120

SPK1

Matrix Spike Dup (1647017-MSD1)

Source: P611024-01

Prepared & Analyzed: 16-Nov-16

Fluoride	103	5.00	mg/L	100	ND	103	80-120	0.819	20
Nitrite-N	104	5.00	"	100	ND	104	80-120	0.405	20
Nitrate-N	104	5.00	"	100	ND	104	80-120	0.885	20
o-Phosphate-P	10.8	5.00	"	163	ND	6.62	80-120	0.371	20
Sulfate	2360	40.0	"	1000	1270	109	80-120	0.625	20

SPK1

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Western Refining Southwest, Inc.
PO Box 159
Bloomfield NM, 87413

Project Name: Bloomfield WDW #2 Injection Well
Project Number: 96012-0115
Project Manager: Kelly Robinson

Reported:
18-Nov-16 10:58

Cation/Anion Analysis - Quality Control

Envirotech Analytical Laboratory

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC Limits	RPD Limit	Notes
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Batch 1647018 - No Prep Wet Chem

Duplicate (1647018-DUP1)	Source: P611024-01			Prepared & Analyzed: 17-Nov-16				
Total Alkalinity as CaCO ₃	700	10.0	mg/L		800		13.3	30
Bicarbonate as CaCO ₃	700	10.0	"		800		13.3	30
Carbonate as CaCO ₃	ND	10.0	"		ND			30
Hydroxide as CaCO ₃	ND	10.0	"		ND			30

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Western Refining Southwest, Inc. PO Box 159 Bloomfield NM, 87413	Project Name: Bloomfield WDW #2 Injection Well Project Number: 96012-0115 Project Manager: Kelly Robinson	Reported: 18-Nov-16 10:58
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Cation/Anion Analysis - Quality Control

Envirotech Analytical Laboratory

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1647019 - Anion Extraction EPA 300.0										
Blank (1647019-BLK1)				Prepared & Analyzed: 17-Nov-16						
Chloride	ND	2.00	mg/L							
LCS (1647019-BS1)				Prepared & Analyzed: 17-Nov-16						
Chloride	50.3	2.00	mg/L	50.0		101	90-110			
Matrix Spike (1647019-MS1)				Source: P611024-01RE1 Prepared & Analyzed: 17-Nov-16						
Chloride	38300	400	mg/L	10000	28400	99.5	80-120			
Matrix Spike Dup (1647019-MSD1)				Source: P611024-01RE1 Prepared & Analyzed: 17-Nov-16						
Chloride	38400	400	mg/L	10000	28400	101	80-120	0.288	20	

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Project Name: Bloomfield WDW #2 Injection Well
Project Number: 96012-0115
Project Manager: Kelly Robinson

Reported:
18-Nov-16 10:58

Notes and Definitions

SPK1 The spike recovery is outside of quality control limits.
H1 Sample was received after regulatory hold-time exceeded for target analyte.
D1 Duplicates or Matrix Spike Duplicates Relative Percent Difference is outside of control limits.
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

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CHAIN OF CUSTODY RECORD

16166

Client: WESTERN REFINING SOUTHWEST, INC.			Project Name / Location: BLOOMFIELD WDW #2 INJECTION WELL			ANALYSIS / PARAMETERS													
Email results to: Kelly.Robinson@wnr.com			Sampler Name: John Thompson <i>1 day RUSH</i>			TPH (Method 8015)	BTEX (Method 8021)	VOC (Method 8260)	RCRA 8 Metals	Cation / Anion	RCI	TCLP with H/P	CO Table 910-1	TPH (418.1)	CHLORIDE	TDS	Sample Cool	Sample Intact	
Client Phone No.: (505) 632-4166			Client No.: 96012-0115 WESTERN P.O. # 12617199																
Sample No./ Identification	Sample Date	Sample Time	Lab No.	No./Volume of Containers	Preservative														
					HNO ₃	HCl													
WDW #2 - 1	10/6/16	11:15AM		1-3000 Poly							X					X		1	Y
Relinquished by: (Signature) <i>[Signature]</i>				Date	Time	Received by: (Signature) <i>[Signature]</i>				Date	Time								
Relinquished by: (Signature) <i>[Signature]</i>				11/6/16	9:18am	Received by: (Signature) <i>[Signature]</i>				11/6/16	9:18AM								
Sample Matrix:																			
Soil ☐ Solid ☐ Sludge ☐ Aqueous ☒ Other ☐																			
☐ Sample(s) dropped off after hours to secure drop off area.																			



envirotech
Analytical Laboratory

T = 19.9°C