1RP-3025

CAP approval

Dated: 10.30.14

Approved
December 2014

CONOCOPHILLIPS
P.O. Box 2197
Houston, TX 77252-2197
Phone 281.293.1000

MCA Well #357

(1RP-3025)

Corrective Action Plan

API No. 30-025-25849

Release Date: December 17th, 2013

Unit Letter M, Section 28, Township 17S, Range 32E

From: Lowe, Leonard, EMNRD
To: "Kyle Norman"
Cc: "Hack Conder"; "Wright, Justin K"; Oberding, Tomas, EMNRD
Subject: APPROVED Conoco Phillips MCA Well #357 (2) CAP
Date: Thursday, December 11, 2014 1:03:00 PM

Mr. Kyle Norman,

OCD approves the CAP, dated **October 30th, 2014**, for ConocoPhillips **MCA Well # 357 (1R – 3025).**

Please be advised that OCD approval of this plan does not relieve the owner/operator of responsibility should operations pose a threat to ground water, surface water, human health or the environment. In addition, OCD approval does not relieve the owner/operator of responsibility for compliance with any OCD, federal, state, or local laws and/or regulations.

Leonard Lowe

Environmental Engineer
[Environmental Bureau]
Oil **C**onservation **D**ivision
Energy **M**inerals and **N**atural **R**esources **D**epartment
1220 South St. Frances
Santa Fe, New Mexico 87004
Office: 505-476-3492
Fax: 505-476-3462
E-mail: leonard.lowe@state.nm.us
Website: http://www.emnrd.state.nm.us/ocd/

From: Kyle Norman [mailto:knorman@rice-ecs.com]
Sent: Tuesday, November 25, 2014 4:15 PM
To: Lowe, Leonard, EMNRD
Cc: 'Hack Conder'; 'Wright, Justin K'
Subject: FW: Conoco Phillips MCA Well #357 (2) CAP

Mr. Lowe, Attached is the Corrective Action Plan for the Conoco Phillips MCA Well #357 (1RP-3025). Tomas at the District #1 office approved the Vadose Zone on 10/31/14. We are requesting the approval to install a near-source monitor well (MW-1). If you have any questions, please let us know. Otherwise, we await your approval.

Kyle Norman
Project Lead
419 W. Cain
Hobbs NM 88240
Cell # (575)942-8542
Fax # (575)393-0293

RECS RICE ENVIRONMENTAL CONSULTING & SAFETY

PO Box 2948 | Hobbs, NM 88241 | Phone 575.393.2967

October 30th, 2014

Dr. Tomáš Oberding, PhD
Environmental Specialist – New Mexico Oil Conservation Division
Energy, Minerals and Natural Resources Department
1625 N. French Dr.
Hobbs, NM 88240

RE: **Corrective Action Plan**
ConocoPhillips MCA Well #357 (1RP-3025)
UL/M sec. 28 T17S R32E
API No. 3002525849

Dr. Oberding:

ConocoPhillips (CoP) has retained Rice Environmental Consulting and Safety (RECS) to address potential environmental concerns at the above-referenced site.

Background and Previous Work

The site is located approximately 3.7 miles south of Maljamar, New Mexico. The initial C-141 states that the release is located in UL/M; however, GPS mapping shows that the release is located in UL/J&K sec. 28 T17S R32E. NM OSE and USGS records indicate that groundwater will likely be encountered at a depth of approximately 65 +/- feet.

On December 17th, 2013, CoP discovered a release from a 2 inch flow line. The line degraded due to corrosion and released 24 barrels of produced water over 5,602 square feet of pasture land. None of this fluid was recovered. NMOCD and BLM were notified of the release on December 10th, 2013, and an initial C-141 was approved by NMOCD on August 18th, 2014 (Appendix A).

RECS personnel were on site beginning on January 7th, 2014. The wet material from the release, for a total of 324 cubic yards, was scraped up and sent to a NMOCD approved facility for disposal. The release area was sampled, first by hand augur and then by backhoe. Based on the sampling data from these events, it was evident that the release had moved deeper through the vadose zone than these two sampling techniques could assess. Therefore, three soil bores were installed at the site on June 18th and 19th, 2014 (Figure 1). The soil bores were advanced to the depth of 65 ft bgs, and soil samples from each bore were taken at regular intervals. The samples were field tested for chlorides and organic vapors, and representative samples were taken to a commercial laboratory for analysis (Appendix B). At 65 ft bgs, all three bores showed elevated laboratory chloride readings, Gasoline Range Organics (GRO), Diesel Range Organics (DRO) and BTEX readings of non-detect, except in SB-3, where there DRO reading was 11.4 mg/kg.

Corrective Action Plan

Based on the soil bore installation data, it is evident that chlorides may have infiltrated the vadose zone to groundwater. Therefore, the site will need a vadose zone remediation phase and a groundwater remedy phase. In order to remediate the vadose zone, the release area will be excavated to 4 ft bgs. At the base of the excavation, a 20-mil reinforced poly liner will be installed and properly seated.

All excavated soil will be taken to a NMOCD approved facility for disposal, and clean soil will be imported to the site to serve as backfill. A sample of this imported soil will be taken to a commercial laboratory to confirm that the chloride value is below regulatory standards. The site will be backfilled with the imported soil and contoured to the surrounding location. The site will then be seeded with a blend of native vegetation.

Once the excavation is completed, a near-source monitor well (MW-1) will be installed down-gradient from the site (Figure 2). The monitor well will be installed per EPA and NMOCD standards. The monitor well will be sampled quarterly and once appropriate groundwater analysis data has been obtained, a remedy for groundwater will be proposed to NMOCD. Additional monitoring wells may be required to fully delineate groundwater quality.

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 – Soil Bore Installation
- Figure 2 – Proposed MW Installation
- Appendix A – Initial C-141
- Appendix B – Soil Bore Installation Documentation
- Appendix C – Photo Documentation

Figures

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

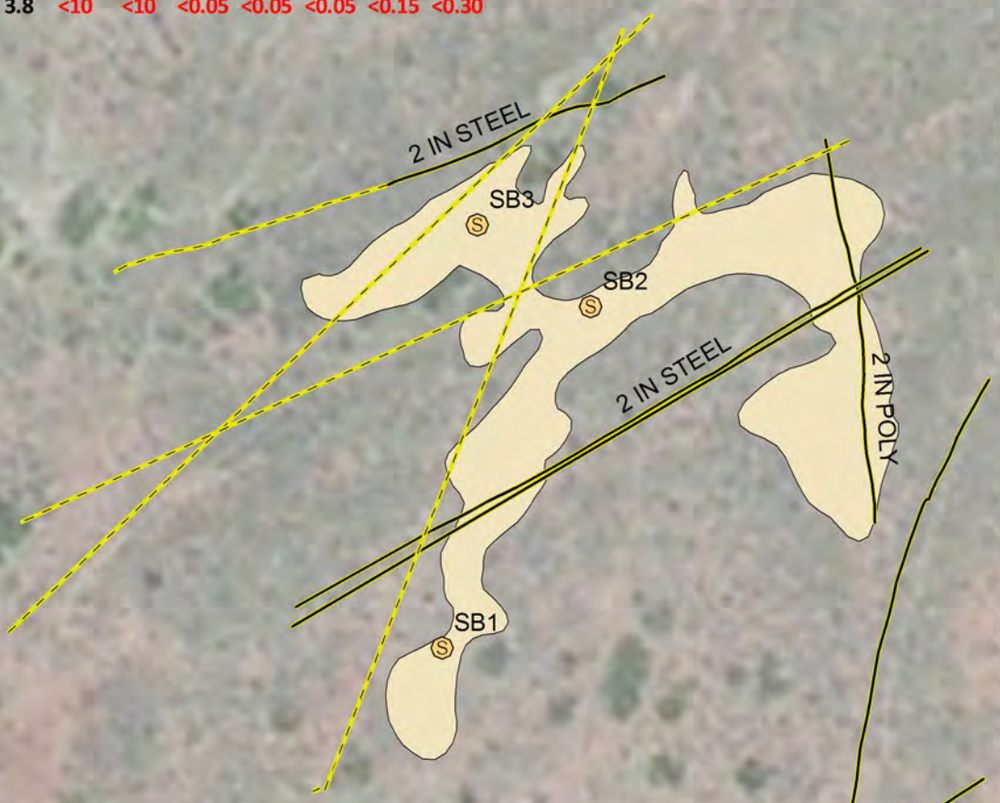
Soil Bore Installation

SB-1

	Cl-	PID	GRO	DRO	B	T	E	X	BTEX
1'	7200	2.6	<10	<10	<0.05	<0.05	<0.05	<0.15	<0.30
5'	8133	2.6							
10'	7110	3.3							
15'	5912	2.7							
20'	7694	2.7							
25'	9000	2.5	<10	131	<0.05	<0.05	<0.05	<0.15	<0.30
30'	7694	2.6							
35'	4954	2.8							
40'	5576	3.5							
45'	8218	4.1							
50'	4725	2.6							
55'	6724	2.7							
60'	6776	3.1							
65'	6000	3.8	<10	<10	<0.05	<0.05	<0.05	<0.15	<0.30

SB-2

	Cl-	PID	GRO	DRO	B	T	E	X	BTEX
5'	12400	1.4	<10	<10	<0.05	<0.05	<0.05	<0.15	<0.30
10'	5192	2.1							
15'	5452	0.8							
20'	5611	3.1							
25'	5867	1.2							
30'	7760	1.3	<10	14	<0.05	<0.05	<0.05	<0.15	<0.30
35'	6386	2.4							
40'	6802	2.3							
45'	7360	1.2							
50'	3729	2.1							
55'	6858	2.1							
60'	6155	2.6							
65'	8400	3.1	<10	<10	<0.05	<0.05	<0.05	<0.15	<0.30



SB-3

	Cl-	PID	GRO	DRO	B	T	E	X	BTEX
5'	8400	1	<10	<10	<0.05	<0.05	<0.05	<0.15	<0.30
10'	7110	1.7							
15'	7030	1.6							
20'	8600	1.6	<10	<10	<0.05	<0.05	<0.05	<0.15	<0.30
25'	6157	2.6							
30'	7480	1.5							
35'	7522	1.7							
40'	5959	2.4							
45'	6613	4.1							
50'	5320	3.9							
55'	5885	2.2							
60'	7424	1.6							
65'	5800	1.9	<10	11.4	<0.05	<0.05	<0.05	<0.15	<0.30

Legend

- SOIL BORE
- BURIED LINE
- SURFACE LINE
- STAIN (5,602 sq ft)

Cl- FIELD DATA

Cl- LAB DATA

Landowner: BLM
DGW: 65 ft

Source: Esri, DigitalGlobe, GeoEye, i-cubed, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

RECS
RICE ENVIRONMENTAL
CONSULTING & SAFETY

CONOCOPHILLIPS MCA WELL #357

LEGALS: UL/J&K sec. 28
T-17-S R-32-E
LEA COUNTY, NM

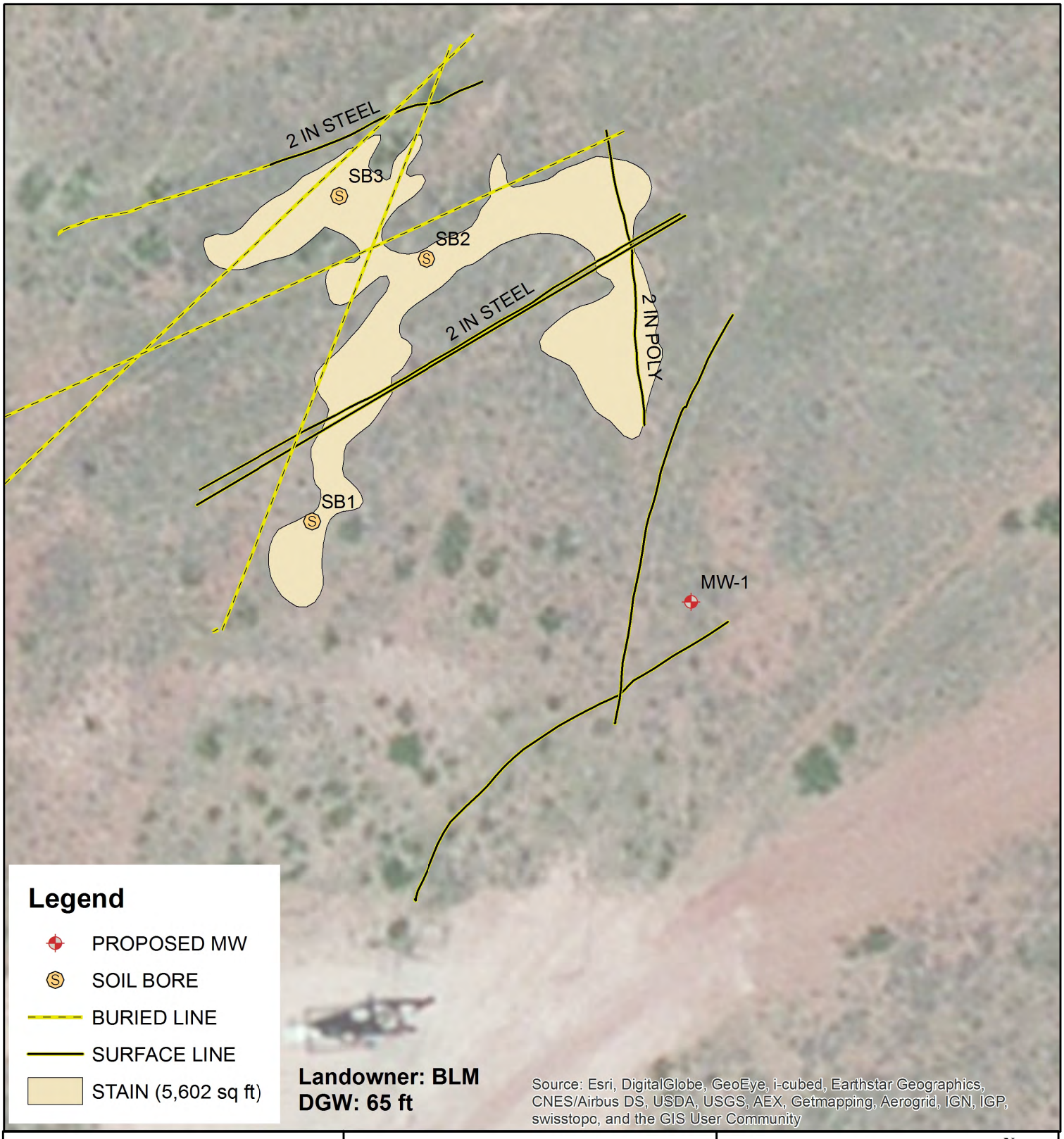
Figure 1

N W E S

0 40 80 Feet

GPS date: 1/9/14 CF, 6/18-19/14 KS
Drawing date: 6/19/14
Drafted by: T. Grieco

Proposed MW Installation



RECS
RICE ENVIRONMENTAL
CONSULTING & SAFETY

CONOCOPHILLIPS
MCA WELL #357

LEGALS: UL/J&K sec. 28
T-17-S R-32-E
LEA COUNTY, NM

Figure 2

N
W E
S

0 40 80
Feet

GPS date: 1/9/14 CF, 6/18-19/14 KS
Drawing date: 8/19/14
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
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: ConocoPhillips	Contact: David May
Address: 29 Vacuum Complex Lane	Telephone No. 575-391-3106
Facility Name: MCA Well #357	Facility Type: Oil Well

Surface Owner: BLM	Mineral Owner BLM	API No. 3002525849

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
M	28	17S	32E	420	South	450	west	LEA

Latitude 32.7995616258031 Longitude - 103.778563506449

NATURE OF RELEASE

Type of Release: Spill	Volume of Release: 24 BBLS	Volume Recovered: 0 BBLS
Source of Release: 2 inch steel flow line	Date and Hour of Occurrence 12/7/13 11:00 am	Date and Hour of Discovery SAME
Was Immediate Notice Given? ☒ Yes ☐ No ☐ Not Required	If YES, To Whom? Jim Amos/Geoffrey Leking	
By Whom? David May	Date and Hour: 12/10/13 10:00 am	
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.*
MCA well #357 2" flow line (15 + yrs) release due to external corrosion. Release amount was 24 BPW with 0 BPW recovered. MSO shut in and isolated well and installed emergency clamp.

Describe Area Affected and Cleanup Action Taken.*
Spill area was 35 Ft X 150 Ft and will be remediated according to BLM requirements..

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: David May

Printed Name: David May

Title: LEAD HSE

E-mail Address: david.d.may@conocophillips.com

Date: 12/10/2013 Phone:575-391-3106

OIL CONSERVATION DIVISION

Approved by Environmental Specialist:

Approval Date: 8-18-14 Expiration Date: 10-20-14

Conditions of Approval:
Site Supervisor required
Delineate & remediate as per NMOCD guidelines.
Submit final C-141 by 10-20-14

Attached ☐

IRP-3025
ogrid 217817
nTo 1423 043689
pTo 1423 043818

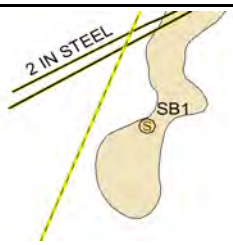
AUG 18 2014

* Attach Additional Sheets If Necessary

Appendix B

Soil Bore Installation Documentation

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

Logger:	Amber Groves		RECS RICE ENVIRONMENTAL CONSULTING & SAFETY
Driller:	White Drilling		**Project Name:** CoP MCA Well #357 **Well ID:** SB-1
Drilling Method:	Air Rotary		**Project Consultant:** RECS
Start Date:	6/18/2014		
End Date:	6/18/2014		

Comments: Split spoon until 30'. All other samples were taken from cuttings.

DRAFTED BY: C. Uršanić

TD = 65' GW = 65'

Location: U/L K Sec 28 T-17-S R-32-E

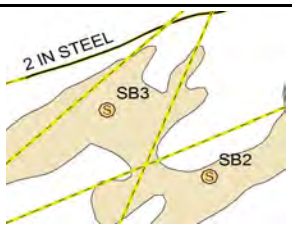
Lat: 32°48'9.457"N **Long:** 103°46'17.657"W

County:Lea **State**:NM

Depth (feet)	Chloride field tests	LAB	PID	Description	Lithology	Well Construction
				Red Sand		
1 ft	7662	Cl- 7200	2.6			
	B <0.05 T <0.05	GRO <10				
	E <0.05 X <0.15	DRO <10				
5 ft	8133		2.6			
10 ft	7110		3.3			
15 ft	5912		2.7			
				Red Sand/Sandstone		
20 ft	7694		2.7			
				Red Sand		
25 ft	8883	Cl- 9000	2.5			
	B <0.05 T <0.05	GRO <10				
	E <0.05 X <0.15	DRO 131				
30 ft	7649		2.6			
				Red Sand/Sandstone		
35 ft	4954		2.8			

Bentonite Seal

Depth (feet)	Chloride field tests	LAB	PID	Description	Lithology	Well Construction
				Red Sand/Clay		Bentonite Seal
40 ft	5576		3.5			
45 ft	8218		4.1			
50 ft	4725		2.6			
				Red Sand/Clay/Pea Gravel		
55 ft	6724		2.7			
				Red Sand/Clay		
60 ft	6776		3.1			
65 ft	5519	**Cl- 6000**	3.8			
	B <0.05 T <0.05	**GRO <10**				
	E <0.05 X <0.15	**DRO <10**				

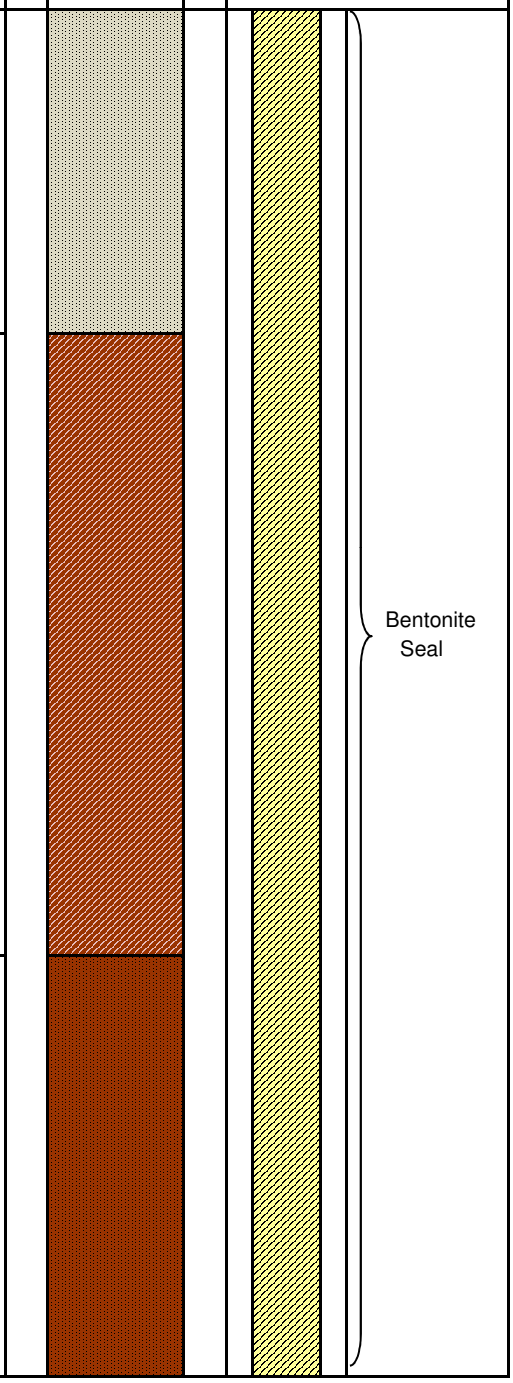
Logger:	Amber Groves		RECS RICE ENVIRONMENTAL
Driller:	White Drilling		**Project Name:** CoP MCA Well #357 **Well ID:** SB-2
Drilling Method:	Air Rotary		**Project Consultant:** RECS
Start Date:	6/18/2014		**Location:** U/L K Sec 28 T-17-S R-32-E
End Date:	6/18/2014		**Lat:** 32°48'10.269"N **Long:**103°46'17.225"W **County**:Lea **State**:NM

Comments: All samples were taken from cuttings.

DRAFTED BY: C. Uršanić

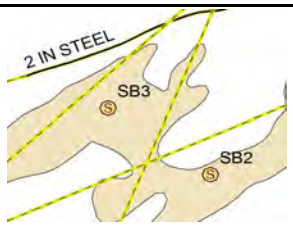
TD = 65' GW = 65'

Depth (feet)	Chloride field tests	LAB	PID	Description
				Tan Sand
5 ft	10589	**Cl- 12400**	1.4	
	B <0.05 T <0.05	**GRO <10**		
	E <0.05 X <0.15	**DRO <10**		
10 ft	5192		2.1	
				Red Sand/Caliche/Sandstone
15 ft	5452		0.8	
20 ft	5611		3.1	
25 ft	5867		1.2	
30 ft	7942	**Cl- 7760**	1.3	
	B <0.05 T <0.05	**GRO <10**		Red Sand
	E <0.05 X <0.15	**DRO 14**		
35 ft	6386		2.4	
40 ft	6802		2.3	



Depth (feet)	Chloride field tests	LAB	PID	Description	Lithology	Well Construction
45 ft	7360		1.2	Red Sand		
50 ft	3729		2.1			
				Red Sand/Clay		
55 ft	6858		2.1			
				Greenish Sand		
60 ft	6155		2.6			
65 ft	7385	**Cl- 8400**	3.1			
	B <0.05 T <0.05	**GRO <10**		Red Sand		
	E <0.05 X <0.15	**DRO <10**				

Bentonite Seal

Logger:	Amber Groves		RECS RICE ENVIRONMENTAL CONSULTING & SAFETY
Driller:	White Drilling		**Project Name:** CoP MCA Well #357 **Well ID:** SB-3
Drilling Method:	Air Rotary		**Project Consultant:** RECS
Start Date:	6/19/2014		**Location:** U/L K Sec 28 T-17-S R-32-E
End Date:	6/19/2014		**Lat:** 32°48'10.457"N **County**:Lea
Comments: All samples were taken from cuttings.			**Long:** 103°46'17.545"W **State**:NM
DRAFTED BY: C. Uršanić			
TD = 65'	GW = 65'		

Depth (feet)	Chloride field tests	LAB	PID	Description
				Red Sand
5 ft	8,260	**Cl- 8400**	1	
	B <0.05 T <0.05	**GRO <10**		
	E <0.05 X <0.15	**DRO <10**		
10 ft	7,110		1.7	
15 ft	7,030		1.6	
20 ft	8,032	**Cl- 8600**	1.6	
	B <0.05 T <0.05	**GRO <10**		Red Sand/Sand Stone
	E <0.05 X <0.15	**DRO <10**		
25 ft	6,157		2.6	
30 ft	7,480		1.5	
35 ft	7,522		1.7	
				Red Sand
40 ft	5,959		2.4	

Lithology

Well Construction

Bentonite Seal

Depth (feet)	Chloride field tests	LAB	PID	Description	Lithology	Well Construction
45 ft	6,613		4.1	Red Sand		Bentonite Seal
50 ft	5,320		3.9			
55 ft	5,885		2.2			
				Greenish Sand		
60 ft	7,424		1.6			
65 ft	8,127	**Cl- 5800**	1.9			
	B <0.05 T <0.05	**GRO <10**				
	E <0.05 X <0.15	**DRO 11.4**				

CARDINAL Laboratories

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

June 25, 2014

KYLE NORMAN

RICE ENVIRONMENTAL CONSULTING & SAFETY LLC

419 W. CAIN

HOBBS, NM 88240

RE: COP MCA WELL #357 (2)

Enclosed are the results of analyses for samples received by the laboratory on 06/19/14 14:15.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-13-5. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (*). For a complete list of accredited analytes and matrices visit the TCEQ website at www.tceq.texas.gov/field/qa/lab_accred_certif.html.

Cardinal Laboratories is accreditated through the State of Colorado Department of Public Health and Environment for:

Method EPA 552.2	Haloacetic Acids (HAA-5)
Method EPA 524.2	Total Trihalomethanes (TTHM)
Method EPA 524.4	Regulated VOCs (V1, V2, V3)

Accreditation applies to public drinking water matrices.

This report meets NELAP requirements and is made up of a cover page, analytical results, and a copy of the original chain-of-custody. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Celey D. Keene

Celey D. Keene

Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

RICE ENVIRONMENTAL CONSULTING & SAFETY
KYLE NORMAN
419 W. CAIN
HOBBS NM, 88240
Fax To: (575) 397-1471

Received:	06/19/2014	Sampling Date:	06/18/2014
Reported:	06/25/2014	Sampling Type:	Soil
Project Name:	COP MCA WELL #357 (2)	Sampling Condition:	Cool & Intact
Project Number:	NOT GIVEN	Sample Received By:	Kathy Perez
Project Location:	NOT GIVEN		

Sample ID: SB1@1 FT (H401849-01)

BTEX 8021B mg/kg **Analyzed By: CK**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	06/19/2014	ND	2.12	106	2.00	0.456	
Toluene*	<0.050	0.050	06/19/2014	ND	2.26	113	2.00	0.332	
Ethylbenzene*	<0.050	0.050	06/19/2014	ND	2.04	102	2.00	1.48	
Total Xylenes*	<0.150	0.150	06/19/2014	ND	6.39	106	6.00	1.76	
Total BTEX	<0.300	0.300	06/19/2014	ND					

Surrogate: 4-Bromofluorobenzene (PID *113 %* *89.4-126*

Chloride, SM4500Cl-B mg/kg **Analyzed By: HM**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**7200**	16.0	06/20/2014	ND	416	104	400	0.00	

TPH 8015M mg/kg **Analyzed By: MS**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	06/21/2014	ND	161	80.6	200	0.473	
DRO >C10-C28	<10.0	10.0	06/21/2014	ND	185	92.3	200	0.868	

Surrogate: 1-Chlorooctane *92.8 %* *65.2-140*

Surrogate: 1-Chlorooctadecane *105 %* *63.6-154*

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

RICE ENVIRONMENTAL CONSULTING & SAFETY
KYLE NORMAN
419 W. CAIN
HOBBS NM, 88240
Fax To: (575) 397-1471

Received:	06/19/2014	Sampling Date:	06/18/2014
Reported:	06/25/2014	Sampling Type:	Soil
Project Name:	COP MCA WELL #357 (2)	Sampling Condition:	Cool & Intact
Project Number:	NOT GIVEN	Sample Received By:	Kathy Perez
Project Location:	NOT GIVEN		

Sample ID: SB1@ 25 FT (H401849-02)

BTEX 8021B mg/kg Analyzed By: CK

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	06/19/2014	ND	2.12	106	2.00	0.456	
Toluene*	<0.050	0.050	06/19/2014	ND	2.26	113	2.00	0.332	
Ethylbenzene*	<0.050	0.050	06/19/2014	ND	2.04	102	2.00	1.48	
Total Xylenes*	<0.150	0.150	06/19/2014	ND	6.39	106	6.00	1.76	
Total BTEX	<0.300	0.300	06/19/2014	ND					

Surrogate: 4-Bromofluorobenzene (PID *113 %* *89.4-126*

Chloride, SM4500Cl-B mg/kg Analyzed By: HM

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**9000**	16.0	06/20/2014	ND	416	104	400	0.00	

TPH 8015M mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	06/21/2014	ND	161	80.6	200	0.473	
DRO >C10-C28	**131**	10.0	06/21/2014	ND	185	92.3	200	0.868	

Surrogate: 1-Chlorooctane *99.8 %* *65.2-140*

Surrogate: 1-Chlorooctadecane *116 %* *63.6-154*

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

RICE ENVIRONMENTAL CONSULTING & SAFETY
KYLE NORMAN
419 W. CAIN
HOBBS NM, 88240
Fax To: (575) 397-1471

Received:	06/19/2014	Sampling Date:	06/18/2014
Reported:	06/25/2014	Sampling Type:	Soil
Project Name:	COP MCA WELL #357 (2)	Sampling Condition:	Cool & Intact
Project Number:	NOT GIVEN	Sample Received By:	Kathy Perez
Project Location:	NOT GIVEN		

Sample ID: SB1@65 FT (H401849-03)

BTEX 8021B mg/kg Analyzed By: CK

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	06/19/2014	ND	2.12	106	2.00	0.456	
Toluene*	<0.050	0.050	06/19/2014	ND	2.26	113	2.00	0.332	
Ethylbenzene*	<0.050	0.050	06/19/2014	ND	2.04	102	2.00	1.48	
Total Xylenes*	<0.150	0.150	06/19/2014	ND	6.39	106	6.00	1.76	
Total BTEX	<0.300	0.300	06/19/2014	ND					

Surrogate: 4-Bromofluorobenzene (PID *113 %* *89.4-126*

Chloride, SM4500Cl-B mg/kg Analyzed By: HM

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**6000**	16.0	06/20/2014	ND	416	104	400	0.00	

TPH 8015M mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	06/21/2014	ND	161	80.6	200	0.473	
DRO >C10-C28	<10.0	10.0	06/21/2014	ND	185	92.3	200	0.868	

Surrogate: 1-Chlorooctane *98.7 %* *65.2-140*

Surrogate: 1-Chlorooctadecane *110 %* *63.6-154*

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

RICE ENVIRONMENTAL CONSULTING & SAFETY
KYLE NORMAN
419 W. CAIN
HOBBS NM, 88240
Fax To: (575) 397-1471

Received:	06/19/2014	Sampling Date:	06/19/2014
Reported:	06/25/2014	Sampling Type:	Soil
Project Name:	COP MCA WELL #357 (2)	Sampling Condition:	Cool & Intact
Project Number:	NOT GIVEN	Sample Received By:	Kathy Perez
Project Location:	NOT GIVEN		

Sample ID: SB2@5 FT (H401849-04)

BTEX 8021B mg/kg Analyzed By: CK

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	06/19/2014	ND	2.12	106	2.00	0.456	
Toluene*	<0.050	0.050	06/19/2014	ND	2.26	113	2.00	0.332	
Ethylbenzene*	<0.050	0.050	06/19/2014	ND	2.04	102	2.00	1.48	
Total Xylenes*	<0.150	0.150	06/19/2014	ND	6.39	106	6.00	1.76	
Total BTEX	<0.300	0.300	06/19/2014	ND					

Surrogate: 4-Bromofluorobenzene (PID *114 %* *89.4-126*

Chloride, SM4500Cl-B mg/kg Analyzed By: HM

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**12400**	16.0	06/20/2014	ND	416	104	400	0.00	

TPH 8015M mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	06/21/2014	ND	161	80.6	200	0.473	
DRO >C10-C28	<10.0	10.0	06/21/2014	ND	185	92.3	200	0.868	

Surrogate: 1-Chlorooctane *89.8 %* *65.2-140*

Surrogate: 1-Chlorooctadecane *99.3 %* *63.6-154*

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

RICE ENVIRONMENTAL CONSULTING & SAFETY
KYLE NORMAN
419 W. CAIN
HOBBS NM, 88240
Fax To: (575) 397-1471

Received:	06/19/2014	Sampling Date:	06/19/2014
Reported:	06/25/2014	Sampling Type:	Soil
Project Name:	COP MCA WELL #357 (2)	Sampling Condition:	Cool & Intact
Project Number:	NOT GIVEN	Sample Received By:	Kathy Perez
Project Location:	NOT GIVEN		

Sample ID: SB2@30 FT (H401849-05)

BTEX 8021B mg/kg Analyzed By: CK

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	06/19/2014	ND	2.12	106	2.00	0.456	
Toluene*	<0.050	0.050	06/19/2014	ND	2.26	113	2.00	0.332	
Ethylbenzene*	<0.050	0.050	06/19/2014	ND	2.04	102	2.00	1.48	
Total Xylenes*	<0.150	0.150	06/19/2014	ND	6.39	106	6.00	1.76	
Total BTEX	<0.300	0.300	06/19/2014	ND					

Surrogate: 4-Bromofluorobenzene (PID *113 %* *89.4-126*

Chloride, SM4500Cl-B mg/kg Analyzed By: HM

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**7760**	16.0	06/20/2014	ND	416	104	400	0.00	

TPH 8015M mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	06/21/2014	ND	161	80.6	200	0.473	
DRO >C10-C28	**14.0**	10.0	06/21/2014	ND	185	92.3	200	0.868	

Surrogate: 1-Chlorooctane *107 %* *65.2-140*

Surrogate: 1-Chlorooctadecane *113 %* *63.6-154*

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

RICE ENVIRONMENTAL CONSULTING & SAFETY
KYLE NORMAN
419 W. CAIN
HOBBS NM, 88240
Fax To: (575) 397-1471

Received:	06/19/2014	Sampling Date:	06/19/2014
Reported:	06/25/2014	Sampling Type:	Soil
Project Name:	COP MCA WELL #357 (2)	Sampling Condition:	Cool & Intact
Project Number:	NOT GIVEN	Sample Received By:	Kathy Perez
Project Location:	NOT GIVEN		

Sample ID: SB2@65 FT (H401849-06)

BTEX 8021B mg/kg Analyzed By: CK

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	06/19/2014	ND	2.12	106	2.00	0.456	
Toluene*	<0.050	0.050	06/19/2014	ND	2.26	113	2.00	0.332	
Ethylbenzene*	<0.050	0.050	06/19/2014	ND	2.04	102	2.00	1.48	
Total Xylenes*	<0.150	0.150	06/19/2014	ND	6.39	106	6.00	1.76	
Total BTEX	<0.300	0.300	06/19/2014	ND					

Surrogate: 4-Bromofluorobenzene (PID *113 %* *89.4-126*

Chloride, SM4500Cl-B mg/kg Analyzed By: HM

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**8400**	16.0	06/20/2014	ND	416	104	400	0.00	

TPH 8015M mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	06/21/2014	ND	161	80.6	200	0.473	
DRO >C10-C28	<10.0	10.0	06/21/2014	ND	185	92.3	200	0.868	

Surrogate: 1-Chlorooctane *94.8 %* *65.2-140*

Surrogate: 1-Chlorooctadecane *101 %* *63.6-154*

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

RICE ENVIRONMENTAL CONSULTING & SAFETY
KYLE NORMAN
419 W. CAIN
HOBBS NM, 88240
Fax To: (575) 397-1471

Received:	06/19/2014	Sampling Date:	06/19/2014
Reported:	06/25/2014	Sampling Type:	Soil
Project Name:	COP MCA WELL #357 (2)	Sampling Condition:	Cool & Intact
Project Number:	NOT GIVEN	Sample Received By:	Kathy Perez
Project Location:	NOT GIVEN		

Sample ID: SB3@5 FT (H401849-07)

BTEX 8021B mg/kg Analyzed By: CK

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	06/19/2014	ND	2.12	106	2.00	0.456	
Toluene*	<0.050	0.050	06/19/2014	ND	2.26	113	2.00	0.332	
Ethylbenzene*	<0.050	0.050	06/19/2014	ND	2.04	102	2.00	1.48	
Total Xylenes*	<0.150	0.150	06/19/2014	ND	6.39	106	6.00	1.76	
Total BTEX	<0.300	0.300	06/19/2014	ND					

Surrogate: 4-Bromofluorobenzene (PID *114 %* *89.4-126*

Chloride, SM4500Cl-B mg/kg Analyzed By: HM

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**8400**	16.0	06/20/2014	ND	416	104	400	0.00	

TPH 8015M mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	06/21/2014	ND	161	80.6	200	0.473	
DRO >C10-C28	<10.0	10.0	06/21/2014	ND	185	92.3	200	0.868	

Surrogate: 1-Chlorooctane *104 %* *65.2-140*

Surrogate: 1-Chlorooctadecane *112 %* *63.6-154*

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

RICE ENVIRONMENTAL CONSULTING & SAFETY
KYLE NORMAN
419 W. CAIN
HOBBS NM, 88240
Fax To: (575) 397-1471

Received:	06/19/2014	Sampling Date:	06/19/2014
Reported:	06/25/2014	Sampling Type:	Soil
Project Name:	COP MCA WELL #357 (2)	Sampling Condition:	Cool & Intact
Project Number:	NOT GIVEN	Sample Received By:	Kathy Perez
Project Location:	NOT GIVEN		

Sample ID: SB3@ 20 FT (H401849-08)

BTEX 8021B mg/kg Analyzed By: CK

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	06/19/2014	ND	2.12	106	2.00	0.456	
Toluene*	<0.050	0.050	06/19/2014	ND	2.26	113	2.00	0.332	
Ethylbenzene*	<0.050	0.050	06/19/2014	ND	2.04	102	2.00	1.48	
Total Xylenes*	<0.150	0.150	06/19/2014	ND	6.39	106	6.00	1.76	
Total BTEX	<0.300	0.300	06/19/2014	ND					

Surrogate: 4-Bromofluorobenzene (PID *113 %* *89.4-126*

Chloride, SM4500Cl-B mg/kg Analyzed By: HM

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**8600**	16.0	06/20/2014	ND	416	104	400	0.00	

TPH 8015M mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	06/21/2014	ND	161	80.6	200	0.473	
DRO >C10-C28	<10.0	10.0	06/21/2014	ND	185	92.3	200	0.868	

Surrogate: 1-Chlorooctane *87.6 %* *65.2-140*

Surrogate: 1-Chlorooctadecane *90.6 %* *63.6-154*

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

RICE ENVIRONMENTAL CONSULTING & SAFETY
KYLE NORMAN
419 W. CAIN
HOBBS NM, 88240
Fax To: (575) 397-1471

Received:	06/19/2014	Sampling Date:	06/19/2014
Reported:	06/25/2014	Sampling Type:	Soil
Project Name:	COP MCA WELL #357 (2)	Sampling Condition:	Cool & Intact
Project Number:	NOT GIVEN	Sample Received By:	Kathy Perez
Project Location:	NOT GIVEN		

Sample ID: SB3@ 65 FT (H401849-09)

BTEX 8021B mg/kg Analyzed By: CK

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	06/19/2014	ND	2.12	106	2.00	0.456	
Toluene*	<0.050	0.050	06/19/2014	ND	2.26	113	2.00	0.332	
Ethylbenzene*	<0.050	0.050	06/19/2014	ND	2.04	102	2.00	1.48	
Total Xylenes*	<0.150	0.150	06/19/2014	ND	6.39	106	6.00	1.76	
Total BTEX	<0.300	0.300	06/19/2014	ND					

Surrogate: 4-Bromofluorobenzene (PID *113 %* *89.4-126*

Chloride, SM4500Cl-B mg/kg Analyzed By: HM

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**5800**	16.0	06/20/2014	ND	416	104	400	0.00	

TPH 8015M mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	06/20/2014	ND	159	79.6	200	2.07	
DRO >C10-C28	**11.4**	10.0	06/20/2014	ND	178	89.2	200	1.49	

Surrogate: 1-Chlorooctane *104 %* *65.2-140*

Surrogate: 1-Chlorooctadecane *111 %* *63.6-154*

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

Notes and Definitions

ND	Analyte NOT DETECTED at or above the reporting limit
RPD	Relative Percent Difference
**	Samples not received at proper temperature of 6°C or below.
***	Insufficient time to reach temperature.
-	Chloride by SM4500Cl-B does not require samples be received at or below 6°C
	Samples reported on an as received basis (wet) unless otherwise noted on report

Celey D. Keene

Celey D. Keene, Lab Director/Quality Manager

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

CARDINAL LABORATORIES
101 East Marland, Hobbs, NM 88240 2111 Beechwood, Abilene, TX 79603
(505) 393-2326 FAX (505) 393-2476 (325) 673-7001 FAX (325)673-7020

Company Name: RECS	BILL TO
Project Manager: Kyle Norman	P.O. #:
Address:	Company:
City: Hobbs State: NM Zip: 88240	Attn:
Phone #: Fax #:	Address:
Project #: Project Owner:	City:
Project Name: CoP MCA well #357 (2)	State: Zip:
Project Location:	Phone #:
Sampler Name: Amber Groves	Fax #:

FOR LAB USE ONLY Lab I.D.	Sample I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	MATRIX: GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER :	PRESERV.: ACID/BASE:	ICE / COOL	OTHER :	SAMPLING: DATE	TIME	ANALYSIS REQUEST: Chlorides	TPH 8015 M	BTEX	Texas TPH	Complete Cations/Anions	TDS
H401849																				
1	SB1@1ft	G	1			✓							6-18-14	1:30	✓	✓	✓			
2	SB1@25ft	G	1			✓							6-18-14	2:30	✓	✓	✓			
3	SB1@10.5ft	G	1			✓							6-18-14	3:30	✓	✓	✓			
4	SB2@5ft	G	1			✓							6-19-14	9:00	✓	✓	✓			
5	SB2@30ft	G	1			✓							6-19-14	9:30	✓	✓	✓			
6	SB2@10.5ft	G	1			✓							6-19-14	10:00	✓	✓	✓			
7	SB3@5ft	G	1			✓							6-19-14	10:15	✓	✓	✓			
8	SB3@20ft	G	1			✓							6-19-14	10:30	✓	✓	✓			
9	SB3@10.5ft	G	1			✓							6-19-14	10:45	✓	✓	✓			

Relinquished By: Amber Groves	Date: 6/19/14 Time: 2:15	Received By: Kathy Ferris	Phone Result: ☐ Yes ☑ No Add'l Phone #:
Relinquished By:	Date: Time:	Received By:	Fax Result: ☐ Yes ☑ No Add'l Fax #:
Delivered By: (Circle One) Sampler - UPS - Bus - Other: -0.8°C #54	Sample Condition Cool: ☐ Yes ☐ No Intact: ☑ Yes ☐ No	CHECKED BY: (Initials) KP	REMARKS: email results knorman@rice-ecs.com hconder@rice-ecs.com; Lweinheimer@rice-ecs.com; kjones@riceswd.com; Lpena@riceswd.com; sedwards@rice-ecs.com agroves@rice-ecs.com

† Cardinal cannot accept verbal changes. Please fax written changes to 505-393-2476

Appendix C
Photo Documentation

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

ConocoPhillips MCA Well #357

Unit Letter J&K, Section 28, T17S, R32E

Initial release area, facing east 1/7/14

Initial release area, facing northeast 1/7/14

Initial release area, facing west 1/7/14

Initial release area, facing west 1/7/14

Collecting surface sample, facing south 1/7/14

Scraping release, facing northeast 1/7/14

Auguring for depth, facing east 1/9/14

Exporting soil, facing west 1/9/14

Continue scraping release, facing west 1/13/14

Installing vertical, facing southwest 1/13/14

Installing SB-1, facing northwest 6/18/14

Split spoon sample, facing southwest 6/18/14

Plugging SB-1 with a cement/bentonite slurry, facing southeast 6/19/14

Installing SB-2, facing east 6/19/14

Plugging SB-2 with a cement/bentonite slurry, facing east 6/19/14

Installing SB-3, facing northeast 6/19/14

Plugging SB-3 with a cement/bentonite slurry, facing northeast 6/19/14

Initial scrape completed, facing north 6/25/14

Initial scrape completed, facing west 6/25/14

Initial scrape completed, facing southeast 6/25/14