



DELINEATION WORKPLAN
OXY – CEDAR CANYON 28 FEDERAL #4
(Leak Date: 08/17/17)

RP # 2RP-4363

This delineation workplan and remediation proposal addresses the releases associated with RP # 2RP-4363.

The following information includes:

1. Scaled digital site map with spill area demarcated and leak point identified along with sample point locations and areas of remediation at appropriate depths.
2. GPS information for sample points and sample methodology
3. Depth to groundwater information (i.e., pdf of OSE search results and/or copy of Chevron groundwater trend map).
4. Laboratory analysis results summary table and original laboratory analysis reports
5. A copy of the initial C-141
6. Potentially other pertinent information as necessary for site specific purposes.

Based on the information included in this package and the NMOCD guidelines, the following remediation is proposed:

OXY will excavate the spill areas as depicted on the following site diagram. The entire leak area (yellow shade on diagram) will be excavated to a depth of 2 feet.

The entire site will then be backfilled with clean soil and revegetated (if warranted) to the standards of the appropriate regulatory agency or private surface owner.

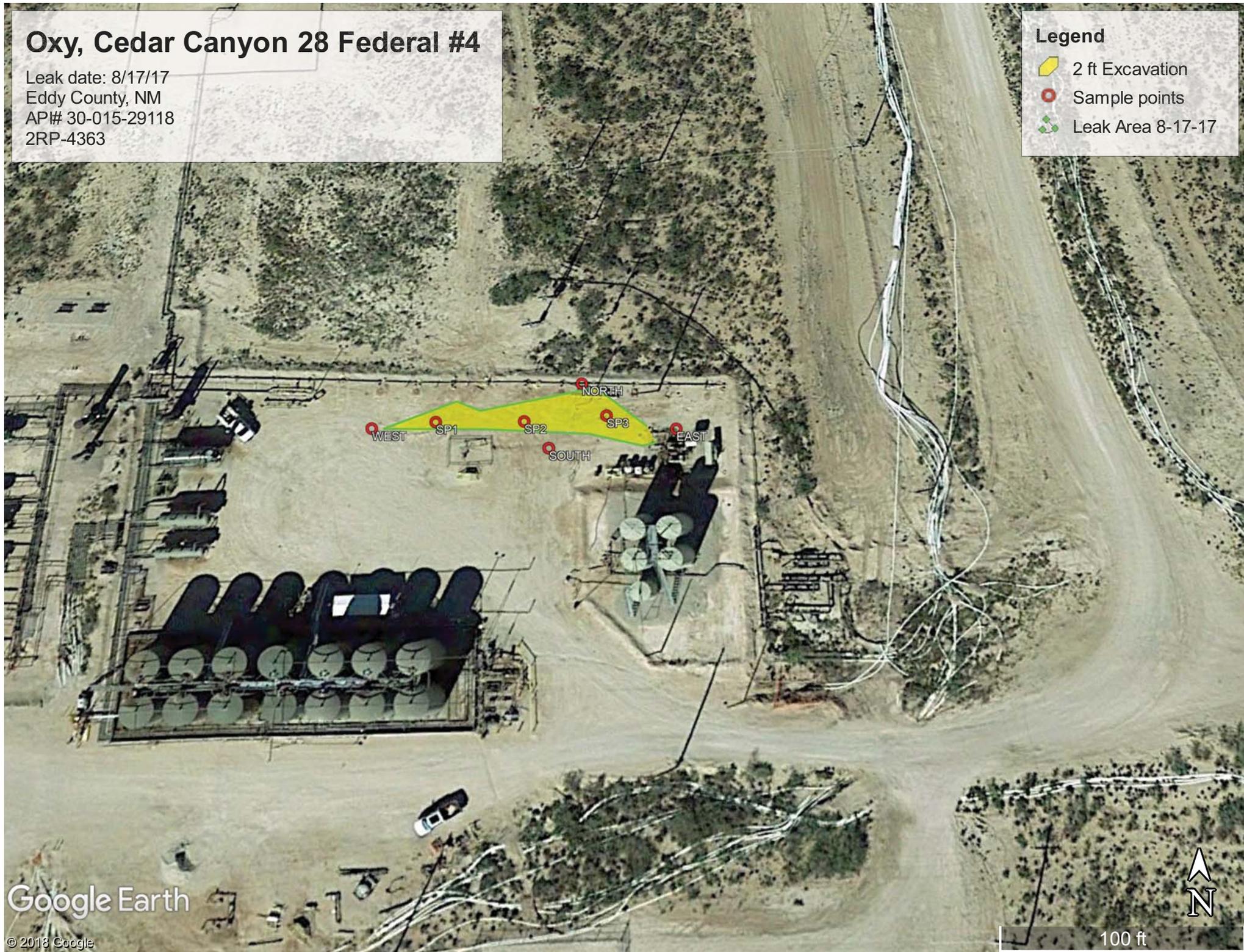
All excavated materials will be disposed of at an NMOCD-approved disposal facility.

Oxy, Cedar Canyon 28 Federal #4

Leak date: 8/17/17
Eddy County, NM
AP# 30-015-29118
2RP-4363

Legend

-  2 ft Excavation
-  Sample points
-  Leak Area 8-17-17



Oxy, Cedar Canyon 28 Federal #4

Sample points, hand auger

SP1, N 32.18657 W-103.99175

SP2, N 32.18657 W-103.99161

SP3, N 32.18658 W-103.99148

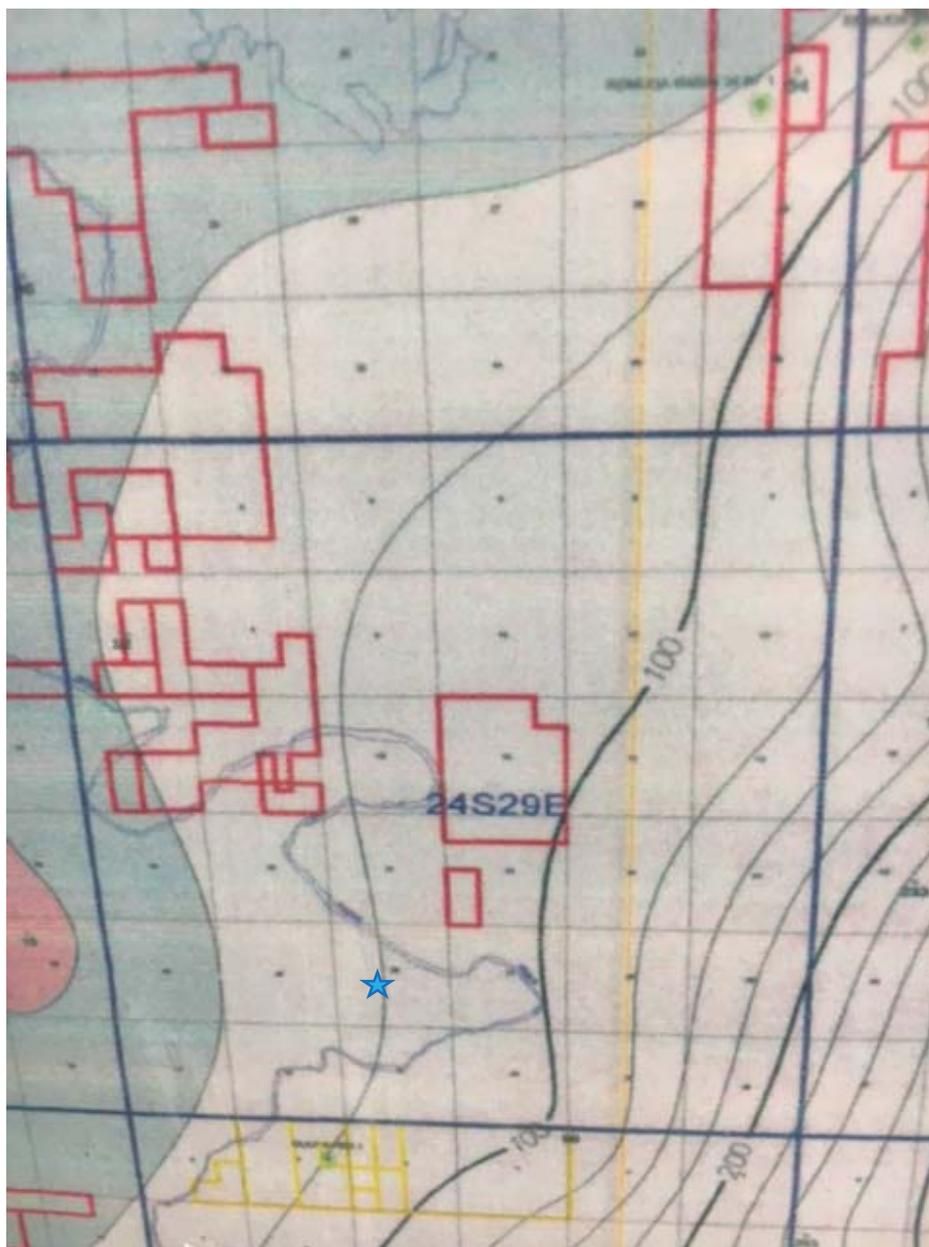
NORTH, N 32.18663 W-103.99152

SOUTH, N 32.18653 W-103.99157

EAST, N 32.18656 W-103.99137

WEST, N 32.18656 W-103.99185

Oxy, Cedar Canyon 28 Federal #4
U/L K, Section 28, T24S, R29E
Groundwater: 75'



Laboratory Analytical Results Summary
Cedar Canyon 28 Fed Com #4H

		Sample ID	SP1 @ 1'	SP1 @ 4'	SP1 @ 7'	SP1 @ 10'	SP1 @ 13'	SP1 @ 16'	SP1 @ 18'
Analyte	Method	Date	9/21/17	9/21/17	9/21/17	9/21/17	9/21/17	9/21/17	9/21/17
			mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Benzene	BTEX 8021B		<0.050	n/a	n/a	n/a	n/a	n/a	n/a
Toluene	BTEX 8021B		<0.050	n/a	n/a	n/a	n/a	n/a	n/a
Ethylbenzene	BTEX 8021B		<0.050	n/a	n/a	n/a	n/a	n/a	n/a
Total Xylenes	BTEX 8021B		<0.150	n/a	n/a	n/a	n/a	n/a	n/a
Total BTEX	BTEX 8021B		<0.300	n/a	n/a	n/a	n/a	n/a	n/a
Chloride	SM4500CI-B		1760	2080	2120	752	3240	2520	3200
GRO	TPH 8015M		<10.0	n/a	n/a	n/a	n/a	n/a	n/a
DRO	TPH 8015M		<10.0	n/a	n/a	n/a	n/a	n/a	n/a
EXT DRO	TPH 8015M		<10.0	n/a	n/a	n/a	n/a	n/a	n/a

		Sample ID	SP2 @ 1'	SP2 @ 4'	SP2 @ 7'	SP2 @ 10'	SP2 @ 13'	SP2 @ 16'	SP2 @ 18'
Analyte	Method	Date	9/21/17	9/21/17	9/22/17	9/22/17	9/22/17	9/22/17	9/22/17
			mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Benzene	BTEX 8021B		<0.050	n/a	n/a	n/a	n/a	n/a	n/a
Toluene	BTEX 8021B		<0.050	n/a	n/a	n/a	n/a	n/a	n/a
Ethylbenzene	BTEX 8021B		<0.050	n/a	n/a	n/a	n/a	n/a	n/a
Total Xylenes	BTEX 8021B		<0.150	n/a	n/a	n/a	n/a	n/a	n/a
Total BTEX	BTEX 8021B		<0.300	n/a	n/a	n/a	n/a	n/a	n/a
Chloride	SM4500CI-B		560	1340	1310	1120	5600	1650	1550
GRO	TPH 8015M		<10.0	n/a	n/a	n/a	n/a	n/a	n/a
DRO	TPH 8015M		<10.0	n/a	n/a	n/a	n/a	n/a	n/a
EXT DRO	TPH 8015M		<10.0	n/a	n/a	n/a	n/a	n/a	n/a

		Sample ID	SP3 @ 1'	SP3 @ 4'	SP3 @ 7'	SP3 @ 10'	SP3 @ 13'	SP3 @ 16'	SP3 @ 18'
Analyte	Method	Date	9/22/17	9/22/17	9/22/17	9/22/17	9/22/17	9/22/17	9/22/17
			mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Benzene	BTEX 8021B		<0.050	n/a	n/a	n/a	n/a	n/a	n/a
Toluene	BTEX 8021B		<0.050	n/a	n/a	n/a	n/a	n/a	n/a
Ethylbenzene	BTEX 8021B		<0.050	n/a	n/a	n/a	n/a	n/a	n/a
Total Xylenes	BTEX 8021B		<0.150	n/a	n/a	n/a	n/a	n/a	n/a
Total BTEX	BTEX 8021B		<0.300	n/a	n/a	n/a	n/a	n/a	n/a
Chloride	SM4500CI-B		624	1460	1310	1150	5120	2080	1520
GRO	TPH 8015M		<10.0	n/a	n/a	n/a	n/a	n/a	n/a
DRO	TPH 8015M		<10.0	n/a	n/a	n/a	n/a	n/a	n/a
EXT DRO	TPH 8015M		<10.0	n/a	n/a	n/a	n/a	n/a	n/a

CARDINAL POINTS		Sample ID	NORTH @ SURFACE	EAST @ SURFACE	WEST @ SURFACE	SOUTH @ SURFACE
Analyte	Method	Date	9/22/17	9/22/17	9/22/17	9/22/17
			mg/kg	mg/kg	mg/kg	mg/kg
Chloride	SM4500CI-B		304	336	256	288

October 04, 2017

Cliff Brunson

BBC International, Inc.

P.O. Box 805

Hobbs, NM 88241

RE: CEDAR CANYON 28 FED #4

Enclosed are the results of analyses for samples received by the laboratory on 09/27/17 13:25.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-16-8. 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 accredited 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

Lab Director/Quality Manager

Analytical Results For:

 BBC International, Inc.
 Cliff Brunson
 P.O. Box 805
 Hobbs NM, 88241
 Fax To: (575) 397-0397

Received:	09/27/2017	Sampling Date:	09/21/2017
Reported:	10/04/2017	Sampling Type:	Soil
Project Name:	CEDAR CANYON 28 FED #4	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	MALAGA		

Sample ID: SP 1 @ 1' (H702624-01)

BTEX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	09/29/2017	ND	1.90	94.9	2.00	1.10	
Toluene*	<0.050	0.050	09/29/2017	ND	1.72	86.2	2.00	0.640	
Ethylbenzene*	<0.050	0.050	09/29/2017	ND	1.75	87.7	2.00	0.365	
Total Xylenes*	<0.150	0.150	09/29/2017	ND	5.36	89.4	6.00	0.0283	
Total BTEX	<0.300	0.300	09/29/2017	ND					

Surrogate: 4-Bromofluorobenzene (PID) 103 % 72-148

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	1760	16.0	10/02/2017	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	09/28/2017	ND	221	111	200	0.394	
DRO >C10-C28	<10.0	10.0	09/28/2017	ND	224	112	200	1.47	
EXT DRO >C28-C36	<10.0	10.0	09/28/2017	ND					

Surrogate: 1-Chlorooctane 69.1 % 28.3-164
Surrogate: 1-Chlorooctadecane 71.6 % 34.7-157

Cardinal Laboratories

*=Accredited Analyte

PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising, whether based in contract or tort, shall be limited to the amount paid by client for analyses. All claims, including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within thirty (30) days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of the services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.



Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

 BBC International, Inc.
 Cliff Brunson
 P.O. Box 805
 Hobbs NM, 88241
 Fax To: (575) 397-0397

Received:	09/27/2017	Sampling Date:	09/21/2017
Reported:	10/04/2017	Sampling Type:	Soil
Project Name:	CEDAR CANYON 28 FED #4	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	MALAGA		

Sample ID: SP 1 @ 4' (H702624-02)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	2080	16.0	10/02/2017	ND	416	104	400	0.00	

Sample ID: SP 1 @ 7' (H702624-03)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	2120	16.0	10/02/2017	ND	416	104	400	0.00	

Sample ID: SP 1 @ 10' (H702624-04)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	752	16.0	10/02/2017	ND	416	104	400	0.00	

Sample ID: SP 1 @ 13' (H702624-05)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	3240	16.0	10/02/2017	ND	416	104	400	0.00	

Sample ID: SP 1 @ 16' (H702624-06)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	2520	16.0	10/02/2017	ND	416	104	400	0.00	

Cardinal Laboratories

*=Accredited Analyte

PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising, whether based in contract or tort, shall be limited to the amount paid by client for analyses. All claims, including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within thirty (30) days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of the services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.



Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

 BBC International, Inc.
 Cliff Brunson
 P.O. Box 805
 Hobbs NM, 88241
 Fax To: (575) 397-0397

Received:	09/27/2017	Sampling Date:	09/21/2017
Reported:	10/04/2017	Sampling Type:	Soil
Project Name:	CEDAR CANYON 28 FED #4	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	MALAGA		

Sample ID: SP 1 @ 18' (H702624-07)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	3200	16.0	10/02/2017	ND	416	104	400	0.00	

Cardinal Laboratories

*=Accredited Analyte

PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising, whether based in contract or tort, shall be limited to the amount paid by client for analyses. All claims, including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within thirty (30) days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of the services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.



Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

 BBC International, Inc.
 Cliff Brunson
 P.O. Box 805
 Hobbs NM, 88241
 Fax To: (575) 397-0397

Received:	09/27/2017	Sampling Date:	09/21/2017
Reported:	10/04/2017	Sampling Type:	Soil
Project Name:	CEDAR CANYON 28 FED #4	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	MALAGA		

Sample ID: SP 2 @ 1' (H702624-08)

BTEX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	09/29/2017	ND	1.90	94.9	2.00	1.10	
Toluene*	<0.050	0.050	09/29/2017	ND	1.72	86.2	2.00	0.640	
Ethylbenzene*	<0.050	0.050	09/29/2017	ND	1.75	87.7	2.00	0.365	
Total Xylenes*	<0.150	0.150	09/29/2017	ND	5.36	89.4	6.00	0.0283	
Total BTEX	<0.300	0.300	09/29/2017	ND					

Surrogate: 4-Bromofluorobenzene (PID) 105 % 72-148

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	560	16.0	10/02/2017	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	09/28/2017	ND	221	111	200	0.394	
DRO >C10-C28	<10.0	10.0	09/28/2017	ND	224	112	200	1.47	
EXT DRO >C28-C36	<10.0	10.0	09/28/2017	ND					

Surrogate: 1-Chlorooctane 77.3 % 28.3-164

Surrogate: 1-Chlorooctadecane 78.7 % 34.7-157

Cardinal Laboratories

*=Accredited Analyte

PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising, whether based in contract or tort, shall be limited to the amount paid by client for analyses. All claims, including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within thirty (30) days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of the services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.



Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

 BBC International, Inc.
 Cliff Brunson
 P.O. Box 805
 Hobbs NM, 88241
 Fax To: (575) 397-0397

Received:	09/27/2017	Sampling Date:	09/21/2017
Reported:	10/04/2017	Sampling Type:	Soil
Project Name:	CEDAR CANYON 28 FED #4	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	MALAGA		

Sample ID: SP 2 @ 4' (H702624-09)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	1340	16.0	10/02/2017	ND	416	104	400	0.00	

Sample ID: SP 2 @ 7' (H702624-10)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	1310	16.0	10/02/2017	ND	416	104	400	0.00	

Sample ID: SP 2 @ 10' (H702624-11)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	1120	16.0	10/02/2017	ND	416	104	400	0.00	

Sample ID: SP 2 @ 13' (H702624-12)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	5600	16.0	10/02/2017	ND	416	104	400	0.00	

Sample ID: SP 2 @ 16' (H702624-13)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	1650	16.0	10/02/2017	ND	416	104	400	0.00	

Cardinal Laboratories

*=Accredited Analyte

PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising, whether based in contract or tort, shall be limited to the amount paid by client for analyses. All claims, including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within thirty (30) days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of the services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.



Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

 BBC International, Inc.
 Cliff Brunson
 P.O. Box 805
 Hobbs NM, 88241
 Fax To: (575) 397-0397

Received:	09/27/2017	Sampling Date:	09/22/2017
Reported:	10/04/2017	Sampling Type:	Soil
Project Name:	CEDAR CANYON 28 FED #4	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	MALAGA		

Sample ID: SP 2 @ 18' (H702624-14)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	1550	16.0	10/02/2017	ND	416	104	400	0.00	

Cardinal Laboratories

*=Accredited Analyte

PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising, whether based in contract or tort, shall be limited to the amount paid by client for analyses. All claims, including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within thirty (30) days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of the services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.



Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

 BBC International, Inc.
 Cliff Brunson
 P.O. Box 805
 Hobbs NM, 88241
 Fax To: (575) 397-0397

Received:	09/27/2017	Sampling Date:	09/22/2017
Reported:	10/04/2017	Sampling Type:	Soil
Project Name:	CEDAR CANYON 28 FED #4	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	MALAGA		

Sample ID: SP 3 @ 1' (H702624-15)

BTEX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	09/29/2017	ND	1.90	94.9	2.00	1.10	
Toluene*	<0.050	0.050	09/29/2017	ND	1.72	86.2	2.00	0.640	
Ethylbenzene*	<0.050	0.050	09/29/2017	ND	1.75	87.7	2.00	0.365	
Total Xylenes*	<0.150	0.150	09/29/2017	ND	5.36	89.4	6.00	0.0283	
Total BTEX	<0.300	0.300	09/29/2017	ND					

Surrogate: 4-Bromofluorobenzene (PID) 105 % 72-148

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	624	16.0	10/02/2017	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	09/28/2017	ND	221	111	200	0.394	
DRO >C10-C28	<10.0	10.0	09/28/2017	ND	224	112	200	1.47	
EXT DRO >C28-C36	<10.0	10.0	09/28/2017	ND					

Surrogate: 1-Chlorooctane 83.7 % 28.3-164
Surrogate: 1-Chlorooctadecane 85.1 % 34.7-157

Cardinal Laboratories

*=Accredited Analyte

PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising, whether based in contract or tort, shall be limited to the amount paid by client for analyses. All claims, including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within thirty (30) days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of the services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.



Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

 BBC International, Inc.
 Cliff Brunson
 P.O. Box 805
 Hobbs NM, 88241
 Fax To: (575) 397-0397

Received:	09/27/2017	Sampling Date:	09/22/2017
Reported:	10/04/2017	Sampling Type:	Soil
Project Name:	CEDAR CANYON 28 FED #4	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	MALAGA		

Sample ID: SP 3 @ 4' (H702624-16)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	1460	16.0	10/02/2017	ND	416	104	400	0.00	

Sample ID: SP 3 @ 7' (H702624-17)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	1310	16.0	10/02/2017	ND	416	104	400	0.00	

Sample ID: SP 3 @ 10' (H702624-18)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	1150	16.0	10/02/2017	ND	416	104	400	0.00	

Sample ID: SP 3 @ 13' (H702624-19)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	5120	16.0	10/02/2017	ND	416	104	400	0.00	

Sample ID: SP 3 @ 16' (H702624-20)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	2080	16.0	10/02/2017	ND	416	104	400	0.00	

Cardinal Laboratories

*=Accredited Analyte

PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising, whether based in contract or tort, shall be limited to the amount paid by client for analyses. All claims, including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within thirty (30) days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of the services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.



Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

 BBC International, Inc.
 Cliff Brunson
 P.O. Box 805
 Hobbs NM, 88241
 Fax To: (575) 397-0397

Received:	09/27/2017	Sampling Date:	09/22/2017
Reported:	10/04/2017	Sampling Type:	Soil
Project Name:	CEDAR CANYON 28 FED #4	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	MALAGA		

Sample ID: SP 3 @ 18' (H702624-21)

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	1520	16.0	10/02/2017	ND	416	104	400	0.00	

Sample ID: NORTH @ SURFACE (H702624-22)

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	304	16.0	10/02/2017	ND	416	104	400	0.00	

Sample ID: EAST @ SURFACE (H702624-23)

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	336	16.0	10/02/2017	ND	416	104	400	0.00	

Sample ID: WEST @ SURFACE (H702624-24)

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	256	16.0	10/02/2017	ND	416	104	400	0.00	

Sample ID: SOUTH @ SURFACE (H702624-25)

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	288	16.0	10/02/2017	ND	416	104	400	0.00	

Cardinal Laboratories

*=Accredited Analyte

PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising, whether based in contract or tort, shall be limited to the amount paid by client for analyses. All claims, including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within thirty (30) days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of the services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.



Celey D. Keene, Lab Director/Quality Manager

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, Lab Director/Quality Manager



CARDINAL LABORATORIES

101 East Marland, Hobbs, NM 88240
(505) 393-2326 FAX (505) 393-2476

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

2/3
Page 13 of 14

Company Name: BBC International, Inc.		BILL TO		ANALYSIS REQUEST											
Project Manager: Cliff Brunson		P.O. #:		<div style="display: flex; flex-direction: column; align-items: center;"> <div style="writing-mode: vertical-rl; transform: rotate(180deg); font-size: 2em; font-weight: bold;">TPH Extended</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg); font-size: 2em; font-weight: bold;">BTEX</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg); font-size: 2em; font-weight: bold;">CL</div> </div>											
Address: P.O. Box 805		Company:													
City: Hobbs State: NM Zip: 88241		Attn:													
Phone #: 575-397-6388 Fax #: 575-397-0397		Address:													
Project #: Project Owner: OXY		City:													
Project Name: Cedar Canyon 28-9-1		State: Zip:													
Project Location: M2652		Phone #:													
Sampler Name: V.0		Fax #:													

Lab I.D.	Sample I.D.	GRAB OR (COMP. # CONTAINERS)	MATRIX					PRESERV.		SAMPLING		DATE	TIME	TPH Extended	BTEX	CL
			GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER	ACID/BASE	ICE / COOL	OTHER					
H702624																
11	SP20/10	G			X				X		9:22	9:51				X
12	13	G			X				X			10:33				X
13	16	G			X				X			11:25				X
14	18	G			X				X			11:55				X
15	SP30/1	G			X				X			12:50	X	X	X	X
16	4	G			X				X			12:22				X
17	4	G			X				X			1:15				X
18	10	G			X				X			2:09				X
19	13	G			X				X			2:30				X
20	16	G			X				X			2:55				X

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

Relinquished By: <i>V.0</i>	Date: 7-27-17	Received By: <i>Hally Curbow</i>	Phone Result: <input type="checkbox"/> Yes <input type="checkbox"/> No	Add'l Phone #:
Time: 1:25			Fax Result: <input type="checkbox"/> Yes <input type="checkbox"/> No	Add'l Fax #:
Relinquished By:	Date:	Received By:	REMARKS:	
Time:				
Delivered By: (Circle One) <i>-3.5°C #25</i>	Sample Condition	CHECKED BY: (Initials)		
Sampler - UPS - Bus - Other: <i>-3.25°C</i>	Cool Intact <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<i>HC</i>		

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

Corrected to .25°C

NM OIL CONSERVATION
ARTESIA DISTRICT

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 **AUG 28 2017**

Form C-141
Revised August 8, 2011

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

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

Release Notification and Corrective Action

NAB1724042769

OPERATOR

Initial Report Final Report

Name of Company	Oxy Permian Ltd. <i>100496</i>	Contact	Wade Dittrich
Address	PO Box 4294; Houston, TX 77210	Telephone No.	(575) 390-2828
Facility Name	Cedar Canyon 28 Federal #4	Facility Type	Injection line
Surface Owner	BLM	Mineral Owner	API No. 30-015-29118

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
K	28	24S	29E					Eddy County, NM

Latitude N 32.18655° Longitude W 103.99142°

NATURE OF RELEASE

Type of Release	Produced water	Volume of Release	12 bbls	Volume Recovered	5 bbls
Source of Release	Compromised 4" steel injection line	Date and Hour of Occurrence	08/17/2017	Date and Hour of Discovery	
Was Immediate Notice Given?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Required	If YES, To Whom?	Mike Bratcher, Crystal Weaver-NMOCD; Shelly Tucker- BLM		
By Whom?	Wade Dittrich @ Oxy Permian	Date and Hour	08/17/2017 @ 4:05 pm		
Was a Watercourse Reached?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If YES, Volume Impacting the Watercourse.			
If a Watercourse was Impacted, Describe Fully.*					

Describe Cause of Problem and Remedial Action Taken.*

A compromised 4" steel injection line leaked 12 bbls of produced water on location. A vacuum truck recovered 5 bbls of produced water and the line was repaired.

Describe Area Affected and Cleanup Action Taken.*

The affected area is approximately 6' x 125' on location. Remediation will be completed in accordance with an approved remediation plan from NMOCD and the BLM.

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.

OIL CONSERVATION DIVISION

Signature: <i>Wade Dittrich</i>	Approved by Environmental Specialist: <i>Crystal Weaver</i>	
Printed Name: Wade Dittrich	Approval Date: <i>8/28/17</i>	Expiration Date: <i>N/A</i>
Title: Environmental Coordinator	Conditions of Approval: <i>see attached</i>	
E-mail Address: Wade.Dittrich@oxy.com	Attached <input checked="" type="checkbox"/> <i>2RP43603</i>	
Date: <i>8-28-17</i> Phone: (575) 390-2828		

* Attach Additional Sheets If Necessary

82nd. n. n.

Operator/Responsible Party,

The OCD has received the form C-141 you provided on **8/28/17** regarding an unauthorized release. The information contained on that form has been entered into our incident database and remediation case number ARP-4363 has been assigned. **Please refer to this case number in all future correspondence.**

It is the Division's obligation under both the Oil & Gas Act and Water Quality Act to provide for the protection of public health and the environment. Our regulations (19.15.29.11 NMAC) state the following,

The responsible person shall complete division-approved corrective action for releases that endanger public health or the environment. The responsible person shall address releases in accordance with a remediation plan submitted to and approved by the division or with an abatement plan submitted in accordance with 19.15.30 NMAC. [emphasis added]

Release characterization is the first phase of corrective action unless the release is ongoing or is of limited volume and all impacts can be immediately addressed. Proper and cost-effective remediation typically cannot occur without adequate characterization of the impacts of any release. Furthermore, the Division has the ability to impose reasonable conditions upon the efforts it oversees. **As such, the Division is requiring a workplan for the characterization of impacts associated with this release be submitted to the OCD District II office in Artesia on or before 9/28/17. If and when the release characterization workplan is approved, there will be an associated deadline for submittal of the resultant investigation report. Modest extensions of time to these deadlines may be granted, but only with acceptable justification.**

The goals of a characterization effort are: 1) determination of the lateral and vertical extents along with the magnitude of soil contamination. 2) determine if groundwater or surface waters have been impacted. 3) If groundwater or surface waters have been impacted, what are the extents and magnitude of that impact. 4) The characterization of any other adverse impacts that may have occurred (examples: impacts on vegetation, impacts on wildlife, air quality, loss of use of property, etc.). To meet these goals as quickly as possible, the following items must, at a minimum, be addressed in the release characterization workplan and subsequent reporting:

- Horizontal delineation of soil impacts in each of the four cardinal compass directions. Adsorbed soil contamination must be characterized for the following constituents using the associated laboratory methods: benzene, toluene, ethylbenzene, and total xylenes by either Method 8260 or 8021, total petroleum hydrocarbons by Method 8015 extended range (GRO+DRO+MRO; C₆ thru C₃₆), and for chloride by Method 300. This is not an exclusive list of potential contaminants. Analyzed parameters should be modified based on the nature of the released substance(s). Soil sampling must be both within the impacted area and beyond.
- Vertical delineation of soil impacts. Adsorbed soil contamination must be characterized for the following constituents using the associated laboratory methods: benzene, toluene, ethylbenzene, and total xylenes by either Method 8260 or 8021, total petroleum hydrocarbons by Method 8015 extended range (GRO+DRO+MRO; C₆ thru C₃₆), and for chloride by Method 300. As above, this is not an exclusive list of potential contaminants and can be modified. Vertical characterization samples should be taken at depth intervals no greater than five feet apart. Lithologic description of encountered soils must also be provided. At least ten vertical feet of soils with contaminant concentrations at or below these values must be demonstrated as existing above the water table.
- Nominal detection limits for field and laboratory analyses must be provided.
- Composite sampling is not generally allowed.
- Field screening and assessment techniques are acceptable (headspace, titration, EC [include algorithm for validation purposes], EM, etc.), but the sampling and assay procedures must be clearly defined. Copies of field notes are highly desirable. A statistically significant set of split samples must be submitted for confirmatory laboratory analysis, including the laterally farthest and vertically deepest sets of soil samples. Make sure there are at least two soil samples submitted

for laboratory analysis from each borehole or test pit (highest observed contamination and deepest depth investigated). Copies of the actual laboratory results must be provided including chain of custody documentation.

- Probable depth to shallowest protectable groundwater and lateral distance to nearest surface water. If there is an estimate of groundwater depth, the information used to arrive at that estimate must be provided. If there is a reasonable assumption that the depth to protectable water is 50 feet or less, the responsible party should anticipate the need for at least one groundwater monitoring well to be installed in the area of likely maximum contamination.

- If groundwater contamination is encountered, an additional investigation workplan may be required to determine the extents of that contamination. Groundwater and/or surface water samples, if any, must be analyzed by a competent laboratory for volatile organic hydrocarbons (typically Method 8260 full list), total dissolved solids, pH, major anions and cations including chloride and sulfate, dissolved iron, and dissolved manganese. The investigation workplan must provide the groundwater sampling method(s) and sample handling protocols. To the fullest extent possible, aqueous analyses must be undertaken using nominal method detection limits. As with the soil analyses, copies of the actual laboratory results must be provided including chain of custody documentation.

- Accurately scaled and well-drafted site maps must be provided providing the location of borings, test pits, monitoring wells, potentially impacted areas, and significant surface features including roads and site infrastructure that might limit either the release characterization or remedial efforts. Field sketches may be included in subsequent reporting, but should not be considered stand-alone documentation of the site's layout. Digital photographic documentation of the location and fieldwork is recommended, especially if unusual circumstances are encountered.

Nothing herein should be interpreted to preclude emergency response actions or to imply immediate remediation by removal cannot proceed as warranted. Nonetheless, characterization of impacts and confirmation of the effectiveness of remedial efforts must still be provided to the OCD before any release incident will be closed.

Jim Griswold

OCD Environmental Bureau Chief
1220 South St. Francis Drive
Santa Fe, New Mexico 87505
505-476-3465
jim.griswold@state.nm.us

Weaver, Crystal, EMNRD

From: Wade_Dittrich@oxy.com
Sent: Monday, August 28, 2017 11:04 AM
To: Bratcher, Mike, EMNRD; Weaver, Crystal, EMNRD
Cc: stucker@blm.gov; Jennifer_Smith@oxy.com; cbrunson@bbcinternational.com; kathy@bbcinternational.com; jgilkey@bbcinternational.com
Subject: Cedar Canyon 28 Fed. #4
Attachments: Initial C-141-Signed.pdf

All,

Attached is the **Initial C-141**. Please review and let me know if there any questions. Thank you.

Wade Dittrich
Environmental Coordinator
Oxy Permian-New Mexico
575.390.2828 cell
Wade_Dittrich@Oxy.com

Weaver, Crystal, EMNRD

From: Wade_Dittrich@oxy.com
Sent: Thursday, August 17, 2017 4:05 PM
To: Bratcher, Mike, EMNRD; Weaver, Crystal, EMNRD
Cc: cbrunson@bbcinternational.com; kswinney@bbcinternational.com;
kathy@bbcinternational.com; jgilkey@bbcinternational.com; Jennifer_Smith@oxy.com;
stucker@blm.gov
Subject: Cedar Canyon 28 Fed 0004

All,

This is to inform you that Oxy Permian had a **Reportable** release in **Eddy County** at the **Cedar Canyon 28 Fed. Com #0004H** on 8/17/2017.

- **Release Location:** Legal -28-24S-29E, API: 30-015-29118
- **Release Volume:** 0 bbls of Oil and 12 bbls of Produced Water.
- **Recovered:** 5 bbls recovered
- **Cause of Release:** 4 inch steel injection line
- **Approximate Area impacted by release:** 6x125 FT, Leak did not leave the location- (measurements are subject to change with GPS tracking)
- **GPS Coordinates and Driving Direction:** **32.1865654 -103.991684**- FROM CARLSBAD NM TAKE HWY 285 SOUTH TO MALAGA NM TURN LEFT ON DUARTE ROAD GO 3 MILES TO MCDONALD ROAD GO 6 MILES TURN RIGHT ON LEASE ROAD TO THE LOCATION

Please let me know if you have any questions

Wade Dittrich
Environmental Coordinator
Oxy Permian-New Mexico
575.390.2828 cell
Wade_Dittrich@Oxy.com

Bratcher, Mike, EMNRD

From: Wade_Dittrich@oxy.com
Sent: Thursday, August 17, 2017 4:05 PM
To: Bratcher, Mike, EMNRD; Weaver, Crystal, EMNRD
Cc: cbrunson@bbcinternational.com; kswinney@bbcinternational.com;
kathy@bbcinternational.com; jgilkey@bbcinternational.com; Jennifer_Smith@oxy.com;
stucker@blm.gov
Subject: Cedar Canyon 28 Fed 0004

All,
This is to inform you that Oxy Permian had a **Reportable** release in **Eddy County** at the **Cedar Canyon 28 Fed. Com #0004H** on 8/17/2017.

- **Release Location:** Legal -28-24S-29E, API: 30-015-29118
- **Release Volume:** 0 bbls of Oil and 12 bbls of Produced Water.
- **Recovered:** 5 bbls recovered
- **Cause of Release:** 4 inch steel injection line
- **Approximate Area impacted by release:** 6x125 FT, Leak did not leave the location- (measurements are subject to change with GPS tracking)
- **GPS Coordinates and Driving Direction:** **32.1865654 -103.991684-** FROM CARLSBAD NM TAKE HWY 285 SOUTH TO MALAGA NM TURN LEFT ON DUARTE ROAD GO 3 MILES TO MCDONALD ROAD GO 6 MILES TURN RIGHT ON LEASE ROAD TO THE LOCATION

Please let me know if you have any questions

Wade Dittrich
Environmental Coordinator
Oxy Permian-New Mexico
575.390.2828 cell
Wade_Dittrich@Oxy.com