



## DELINEATION WORKPLAN

### OXY – CEDAR CANYON 15 1 WTF SOUTH (Leak Date: 8/15/18)

#### RP # 2RP-5037

This delineation workplan and remediation proposal addresses the releases associated with RP # 2RP-5037.

The following information includes:

1. Appropriate completed and signed C-141 pages.
2. Scaled digital site map with spill area demarcated and leak point identified along with sample point locations and areas of remediation at appropriate depths.
3. GPS information for sample points and sample methodology.
4. Depth to groundwater information (i.e., pdf of OSE search results, USGS search results, and/or copy of Chevron groundwater trend map).
5. Watercourse/features map within 1000 feet.
6. BLM Cave Karst map.
7. FEMA National Flood map.
8. Laboratory analysis results summary table and original laboratory analysis reports.
9. Potentially other pertinent information as necessary for site specific purposes.

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

***OXY will excavate the spill area as depicted on the following site diagram. The leak area near SP1 and SP2 (GREEN shade on diagram) will be excavated to a depth of 6 inches. The leak area near SP3 (PURPLE shade on diagram) will be excavated to a depth of 3 feet.***

***Bottom confirmation samples will be collected at no greater than 50 ft. intervals. Estimated volume of material to be removed is 108 cubic yards. The remediation will be completed within 90 days of plan approval.***

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.

Incident ID	
District RP	2RP-5037
Facility ID	
Application ID	

### Site Assessment/Characterization

*This information must be provided to the appropriate district office no later than 90 days after the release discovery date.*

What is the shallowest depth to groundwater beneath the area affected by the release?	51 (ft bgs)
Did this release impact groundwater or surface water?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 300 feet of a continuously flowing watercourse or any other significant watercourse?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 200 feet of any lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark)?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 300 feet of an occupied permanent residence, school, hospital, institution, or church?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 500 horizontal feet of a spring or a private domestic fresh water well used by less than five households for domestic or stock watering purposes?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 1000 feet of any other fresh water well or spring?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Are the lateral extents of the release within incorporated municipal boundaries or within a defined municipal fresh water well field?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 300 feet of a wetland?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release overlying a subsurface mine?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release overlying an unstable area such as karst geology?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Are the lateral extents of the release within a 100-year floodplain?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Did the release impact areas not on an exploration, development, production, or storage site?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

Attach a comprehensive report (electronic submittals in .pdf format are preferred) demonstrating the lateral and vertical extents of soil contamination associated with the release have been determined. Refer to 19.15.29.11 NMAC for specifics.

**Characterization Report Checklist:** *Each of the following items must be included in the report.*

- Scaled site map showing impacted area, surface features, subsurface features, delineation points, and monitoring wells.
- Field data
- Data table of soil contaminant concentration data
- Depth to water determination
- Determination of water sources and significant watercourses within 1/2-mile of the lateral extents of the release
- Boring or excavation logs
- Photographs including date and GIS information
- Topographic/Aerial maps
- Laboratory data including chain of custody

If the site characterization report does not include completed efforts at remediation of the release, the report must include a proposed remediation plan. That plan must include the estimated volume of material to be remediated, the proposed remediation technique, proposed sampling plan and methods, anticipated timelines for beginning and completing the remediation. The closure criteria for a release are contained in Table 1 of 19.15.29.12 NMAC, however, use of the table is modified by site- and release-specific parameters.

State of New Mexico  
Oil Conservation Division

Incident ID	
District RP	2RP-5037
Facility ID	
Application ID	

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD 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 OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD 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.

Printed Name: Wade Dittrich Title: Environmental Coordinator

Signature:  Date: 2-7-99

email: wade\_dittrich@oxy.com Telephone: (575) 390-2828

**OCD Only**

Received by: \_\_\_\_\_ Date: \_\_\_\_\_

Incident ID	
District RP	2RP-5037
Facility ID	
Application ID	

## Remediation Plan

**Remediation Plan Checklist:** Each of the following items must be included in the plan.

- Detailed description of proposed remediation technique
- Scaled sitemap with GPS coordinates showing delineation points
- Estimated volume of material to be remediated
- Closure criteria is to Table 1 specifications subject to 19.15.29.12(C)(4) NMAC
- Proposed schedule for remediation (note if remediation plan timeline is more than 90 days OCD approval is required)

**Deferral Requests Only:** Each of the following items must be confirmed as part of any request for deferral of remediation.

- Contamination must be in areas immediately under or around production equipment where remediation could cause a major facility deconstruction.
- Extents of contamination must be fully delineated.
- Contamination does not cause an imminent risk to human health, the environment, or groundwater.

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD 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 OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD 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.

Printed Name: Wade Dittrich Title: Environmental Coordinator  
Signature:  Date: 2-7-17  
email: wade\_dittrich@oxy.com Telephone: (575) 390-2828

**OCD Only**

Received by: \_\_\_\_\_ Date: \_\_\_\_\_

- Approved       Approved with Attached Conditions of Approval       Denied       Deferral Approved

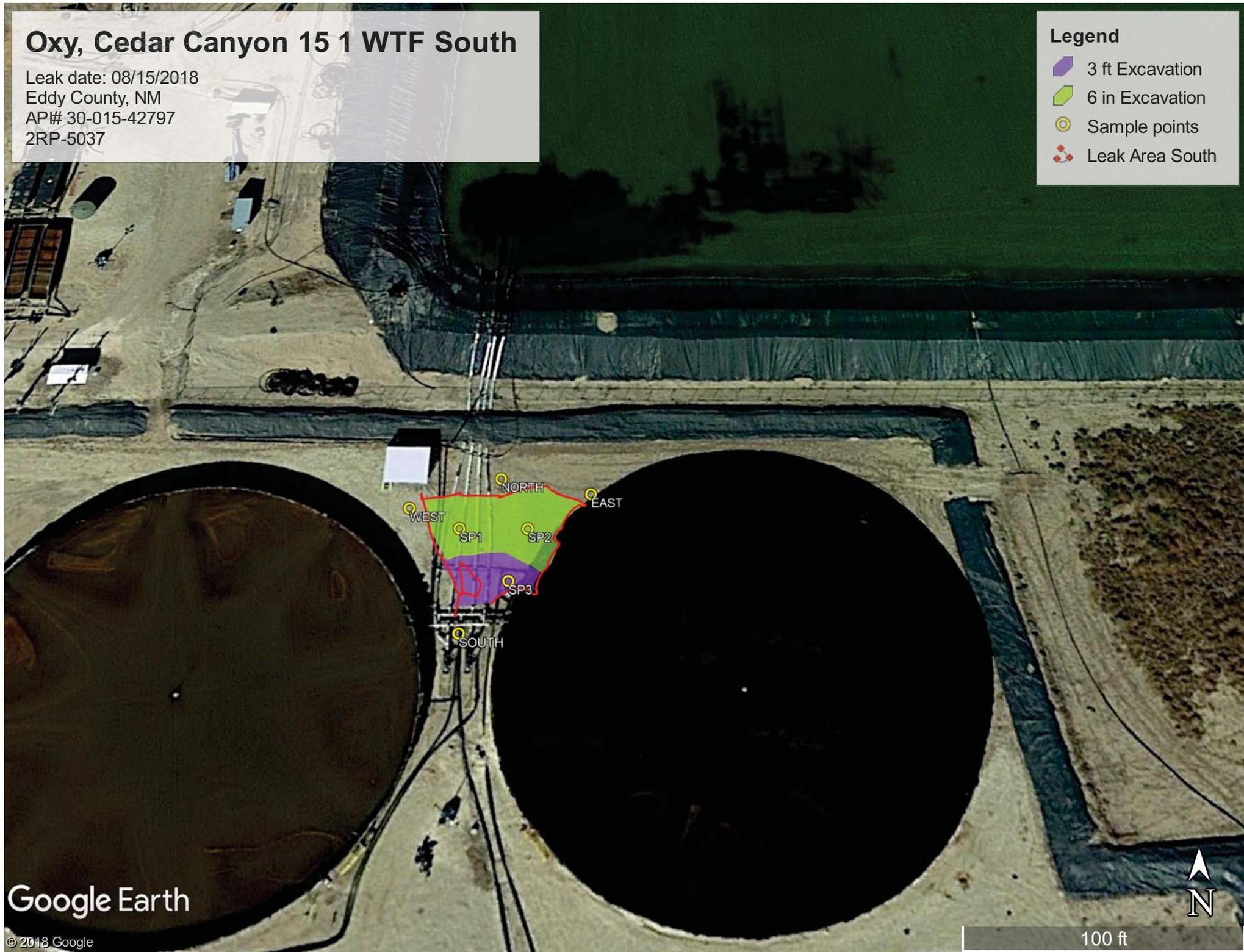
Signature: \_\_\_\_\_ Date: \_\_\_\_\_

# Oxy, Cedar Canyon 15 1 WTF South

Leak date: 08/15/2018  
Eddy County, NM  
AP# 30-015-42797  
2RP-5037

## Legend

-  3 ft Excavation
-  6 in Excavation
-  Sample points
-  Leak Area South



Google Earth

© 2018 Google

100 ft

Oxy, Cedar Canyon 15 1 WTF South

Sample points

SP1, N 32.21554 W-103.97517

SP2, N 32.21554 W-103.97508

SP3, N 32.21547 W-103.97510

NORTH, N 32.21560 W-103.97512

SOUTH, N 32.21540 W-103.97516

EAST, N 32.21558 W-103.97500

WEST, N 32.21556 W-103.97524

**Oxy, Cedar Canyon 15-1 WTF**  
**U/L K, Section 15, T24S, R29E**  
**Groundwater: 75'-100'**





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National Water Information System: Web Interface

[USGS Water Resources](#)

Data Category:  Geographic Area:

Click to hide News Bulletins

- [Please see news on new formats](#)
- **UPDATE, 10/31: The USGS continues to make progress on restoring all of the gages. As of noon Wednesday, October 31, approximately 6 percent of USGS streamgages are still not transmitting due to an issue with the telemetry system that records and transmits streamgage data. Read [more](#)**
- [Full News](#)

Groundwater levels for New Mexico

Click to hide state-specific text

**Search Results -- 1 sites found**

Agency code = usgs  
 site\_no list = 

- 321355104012001

Minimum number of levels = 1

[Save file of selected sites](#) to local disk for future upload

**USGS 321355104012001 24S.29E.07.14444**

Eddy County, New Mexico  
 Latitude 32°13'55", Longitude 104°01'20" NAD27  
 Land-surface elevation 2,983 feet above NAVD88  
 The depth of the well is 160 feet below land surface.  
 This well is completed in the Castile Formation (312CSTL) local aquifer.

**Output formats**

<a href="#">Table of data</a>
<a href="#">Tab-separated data</a>
<a href="#">Graph of data</a>
<a href="#">Reselect period</a>

Date	Time	? Water-level date-time accuracy	Water level, feet below land surface	Water level, feet above specific vertical datum	Referenced vertical datum	? Water-level accuracy	? Status	? Method of measurement	? Measuring agency	? Source of measurement
1983-02-01		D	47.14				2		U	
1987-10-16		D	51.84				2		U	
1988-02-11		D	52.19				2		U	
1992-10-20		D	51.78				2		S	

**Explanation**

Section	Code	Description
Water-level date-time accuracy	D	Date is accurate to the Day
Water-level accuracy	2	Water level accuracy to nearest hundredth of a foot
Status		The reported water-level measurement represents a static level
Method of measurement	S	Steel-tape measurement.
Method of measurement	U	Unknown method.
Measuring agency		Not determined
Source of measurement	U	Source is unknown.

Section	Code	Description
Water-level approval status	A	Approved for publication -- Processing and review completed.

[Questions about sites/data?](#)

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**Title: Groundwater for New Mexico: Water Levels**

**URL: <https://nwis.waterdata.usgs.gov/nm/nwis/gwlevels?>**

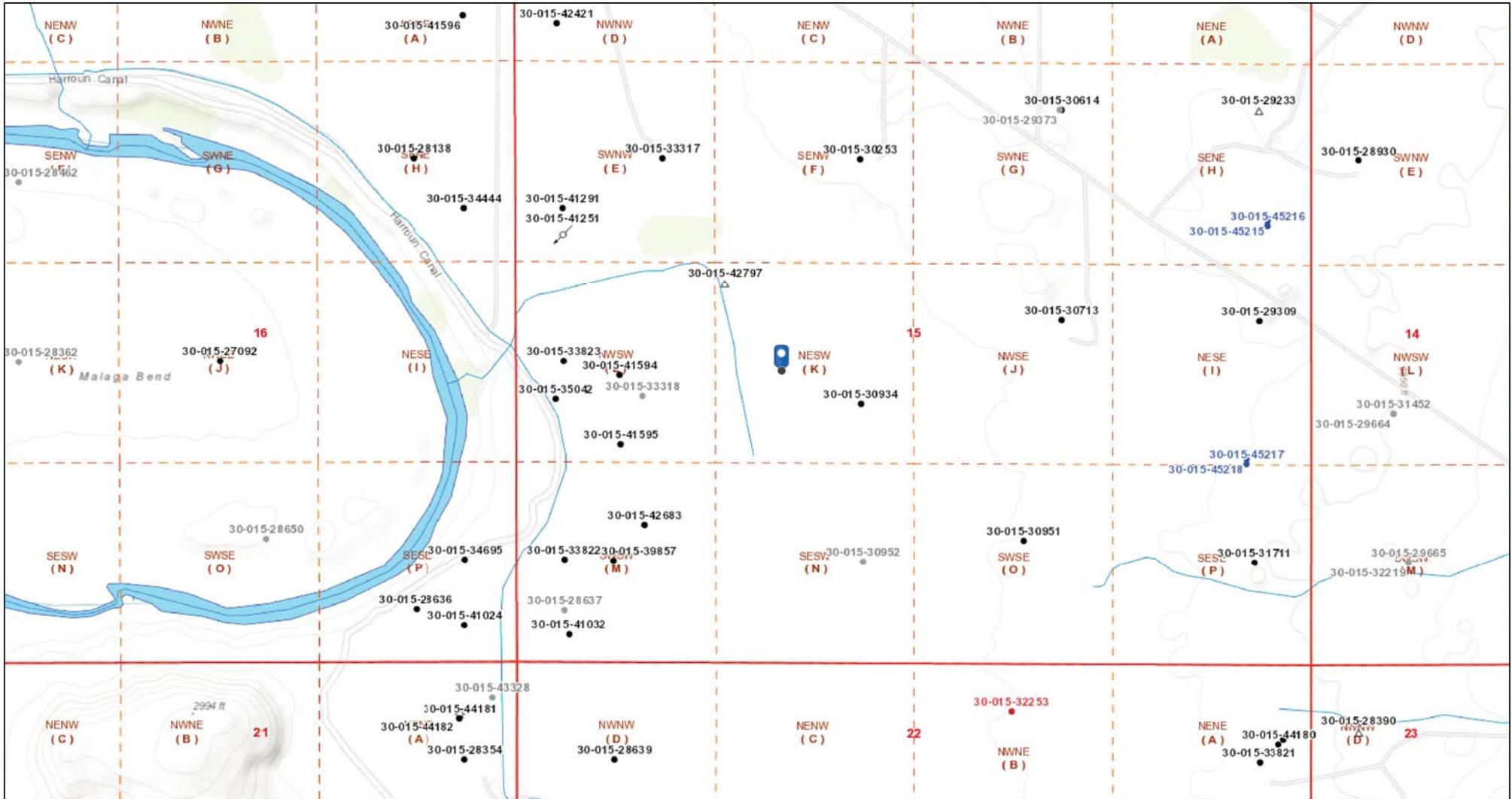
Page Contact Information: [New Mexico Water Data Maintainer](#)

Page Last Modified: 2018-11-01 11:37:36 EDT

0.49 0.43 nadww01



# Cedar Canyon 15 1 WTF South, TOPO w/ Water Feature Map



11/1/2018 9:44:52 AM

1:9,028

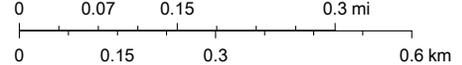
Well Locations - Small Scale

Well Locations - Large Scale

- Active
- New
- Plugged
- Cancelled
- Temporarily Abandoned
- Miscellaneous
- CO2 Active
- CO2 Cancelled
- CO2 New
- CO2 Plugged
- CO2 Temporarily Abandoned

- ☆ Gas Active
- ☆ Gas, Cancelled, Never Drilled
- ☆ Gas, New
- ☆ Gas, Plugged
- ☆ Gas, Temporarily Abandoned
- ⚡ Injection, Active
- ⚡ Injection, Cancelled
- ⚡ Injection, New
- ⚡ Injection, Plugged
- ⚡ Injection, Temporarily Abandoned
- Oil, Active
- Oil, Cancelled

- Oil, New
- Oil, Plugged
- Oil, Temporarily Abandoned
- △ Salt Water Injection, Active
- △ Salt Water Injection, Cancelled
- △ Salt Water Injection, New
- △ Salt Water Injection, Plugged
- △ Salt Water Injection Temporarily Abandoned
- Water, Active
- Water, Cancelled
- Water, New
- Water, Plugged



Bureau of Land Management, Texas Parks & Wildlife, Esri, HERE, Garmin, INCREMENT P, Intermap, USGS, METI/NASA, EPA, USDA, OCD, BLM

# Oxy, Cedar Canyon 15 1 WTF South

Leak date: 08/15/2018  
Eddy County, NM  
AP# 30-015-42797  
2RP-5037

## BLM CAVE KARST MAP

### Legend

-  Leak Area South
-  Medium potential



# National Flood Hazard Layer FIRMMette



32°13'11.38"N



USGS The National Map: Orthoimagery. Data refreshed October 2017. 0 250 500 1,000 1,500 2,000 Feet 1:6,000 32°12'40.94"N

## Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS		Without Base Flood Elevation (BFE) Zone A, V, A99
		With BFE or Depth Zone AE, AO, AH, VE, AR
		Regulatory Floodway

OTHER AREAS OF FLOOD HAZARD		0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile Zone X
		Future Conditions 1% Annual Chance Flood Hazard Zone X
		Area with Reduced Flood Risk due to Levee. See Notes. Zone X

OTHER AREAS OF FLOOD HAZARD		Area with Flood Risk due to Levee Zone D
		Area of Minimal Flood Hazard Zone X

OTHER AREAS		Effective LOMRs
		Area of Undetermined Flood Hazard Zone D

GENERAL STRUCTURES		Channel, Culvert, or Storm Sewer
		Levee, Dike, or Floodwall

OTHER FEATURES		Cross Sections with 1% Annual Chance Water Surface Elevation
		Coastal Transect
		Base Flood Elevation Line (BFE)

OTHER FEATURES		Limit of Study
		Jurisdiction Boundary
		Coastal Transect Baseline
		Profile Baseline

MAP PANELS		Digital Data Available
		No Digital Data Available
		Unmapped

The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 9/26/2018 at 6:59:23 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

103°58'49.23"W

103°58'11.78"W



Laboratory Analytical Results Summary  
Cedar Canyon 15 1 WTF South (8/15/18)

Analyte	Method	Sample ID	SP1 @	SP1 @ 1'	SP1 @ 2'
			SURFACE		
Date			10/1/18	10/1/18	10/1/18
			mg/kg	mg/kg	mg/kg
Benzene	BTEX 8021B		<0.050	<0.050	n/a
Toluene	BTEX 8021B		<0.050	<0.050	n/a
Ethylbenzene	BTEX 8021B		<0.050	<0.050	n/a
Total Xylenes	BTEX 8021B		<0.150	<0.150	n/a
Total BTEX	BTEX 8021B		<0.300	<0.300	n/a
Chloride	SM4500Cl-B		<b>8260</b>	<b>80</b>	<b>32</b>
GRO	TPH 8015M		<10.0	<10.0	n/a
DRO	TPH 8015M		<10.0	<10.0	n/a
EXT DRO	TPH 8015M		<10.0	<10.0	n/a

Analyte	Method	Sample ID	SP2 @	SP2 @ 1'	SP2 @ 2'
			SURFACE		
Date			10/1/18	10/1/18	10/1/18
			mg/kg	mg/kg	mg/kg
Benzene	BTEX 8021B		<0.050	<0.050	n/a
Toluene	BTEX 8021B		<0.050	<0.050	n/a
Ethylbenzene	BTEX 8021B		<0.050	<0.050	n/a
Total Xylenes	BTEX 8021B		<0.150	<0.150	n/a
Total BTEX	BTEX 8021B		<0.300	<0.300	n/a
Chloride	SM4500Cl-B		<b>6930</b>	<b>96</b>	<b>96</b>
GRO	TPH 8015M		<10.0	<10.0	n/a
DRO	TPH 8015M		<10.0	<10.0	n/a
EXT DRO	TPH 8015M		<10.0	<10.0	n/a

Analyte	Method	Sample ID	SP3 @	SP3 @ 1'	SP3 @ 2'	SP3 @ 3'	SP3 @ 4'	SP3 @ 5'
			SURFACE					
Date			10/1/18	10/1/18	10/1/18	10/1/18	10/1/18	10/1/18
			mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Benzene	BTEX 8021B		<0.050	<0.050	n/a	n/a	n/a	n/a
Toluene	BTEX 8021B		<0.050	<0.050	n/a	n/a	n/a	n/a
Ethylbenzene	BTEX 8021B		<0.050	<0.050	n/a	n/a	n/a	n/a
Total Xylenes	BTEX 8021B		<0.150	<0.150	n/a	n/a	n/a	n/a
Total BTEX	BTEX 8021B		<0.300	<0.300	n/a	n/a	n/a	n/a
Chloride	SM4500Cl-B		<b>10300</b>	<b>2480</b>	<b>832</b>	<b>736</b>	<b>96</b>	<b>80</b>
GRO	TPH 8015M		<10.0	<10.0	n/a	n/a	n/a	n/a
DRO	TPH 8015M		<10.0	<10.0	n/a	n/a	n/a	n/a
EXT DRO	TPH 8015M		<10.0	<10.0	n/a	n/a	n/a	n/a

Analyte	Method	Sample ID	NORTH @	EAST @	WEST @	SOUTH @
			SURFACE	SURFACE	SURFACE	SURFACE
Date			10/1/18	10/1/18	10/1/18	10/1/18
			mg/kg	mg/kg	mg/kg	mg/kg
Benzene	BTEX 8021B		<0.050	<0.050	<0.050	<0.050
Toluene	BTEX 8021B		<0.050	<0.050	<0.050	<0.050
Ethylbenzene	BTEX 8021B		<0.050	<0.050	<0.050	<0.050
Total Xylenes	BTEX 8021B		<0.150	<0.150	<0.150	<0.150
Total BTEX	BTEX 8021B		<0.300	<0.300	<0.300	<0.300
Chloride	SM4500Cl-B		<b>32</b>	<b>48</b>	<b>64</b>	<b>48</b>
GRO	TPH 8015M		<10.0	<10.0	<10.0	<10.0
DRO	TPH 8015M		<10.0	<10.0	<10.0	<10.0
EXT DRO	TPH 8015M		<10.0	<10.0	<10.0	<10.0

October 11, 2018

Cliff Brunson

BBC International, Inc.

P.O. Box 805

Hobbs, NM 88241

RE: CEDAR CANYON 15-1 WTF SOUTH

Enclosed are the results of analyses for samples received by the laboratory on 10/05/18 9:35.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-18-11. 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](http://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:	10/05/2018	Sampling Date:	10/01/2018
Reported:	10/11/2018	Sampling Type:	Soil
Project Name:	CEDAR CANYON 15-1 WTF SOUTH	Sampling Condition:	Cool & Intact
Project Number:	8/15/18	Sample Received By:	Tamara Oldaker
Project Location:	EDDY COUNTY, NM		

**Sample ID: SP 1 @ SURFACE (H802834-01)**

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	10/10/2018	ND	2.11	106	2.00	3.67		
Toluene*	<0.050	0.050	10/10/2018	ND	2.07	104	2.00	3.42		
Ethylbenzene*	<0.050	0.050	10/10/2018	ND	2.10	105	2.00	2.81		
Total Xylenes*	<0.150	0.150	10/10/2018	ND	6.08	101	6.00	2.41		
Total BTEX	<0.300	0.300	10/10/2018	ND						

Surrogate: 4-Bromofluorobenzene (PID) 108 % 69.8-142

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	<b>8260</b>	16.0	10/09/2018	ND	448	112	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	10/08/2018	ND	213	106	200	3.74		
DRO >C10-C28*	<10.0	10.0	10/08/2018	ND	206	103	200	7.77		
EXT DRO >C28-C36	<10.0	10.0	10/08/2018	ND						

Surrogate: 1-Chlorooctane 89.0 % 41-142

Surrogate: 1-Chlorooctadecane 81.9 % 37.6-147

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:	10/05/2018	Sampling Date:	10/01/2018
Reported:	10/11/2018	Sampling Type:	Soil
Project Name:	CEDAR CANYON 15-1 WTF SOUTH	Sampling Condition:	Cool & Intact
Project Number:	8/15/18	Sample Received By:	Tamara Oldaker
Project Location:	EDDY COUNTY, NM		

**Sample ID: SP 1 @ 1' (H802834-02)**

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	10/10/2018	ND	2.11	106	2.00	3.67		
Toluene*	<0.050	0.050	10/10/2018	ND	2.07	104	2.00	3.42		
Ethylbenzene*	<0.050	0.050	10/10/2018	ND	2.10	105	2.00	2.81		
Total Xylenes*	<0.150	0.150	10/10/2018	ND	6.08	101	6.00	2.41		
Total BTEX	<0.300	0.300	10/10/2018	ND						

Surrogate: 4-Bromofluorobenzene (PID) 109 % 69.8-142

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	80.0	16.0	10/09/2018	ND	448	112	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	10/08/2018	ND	213	106	200	3.74		
DRO >C10-C28*	<10.0	10.0	10/08/2018	ND	206	103	200	7.77		
EXT DRO >C28-C36	<10.0	10.0	10/08/2018	ND						

Surrogate: 1-Chlorooctane 84.9 % 41-142

Surrogate: 1-Chlorooctadecane 78.6 % 37.6-147

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\*=Accredited Analyte

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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:	10/05/2018	Sampling Date:	10/01/2018
Reported:	10/11/2018	Sampling Type:	Soil
Project Name:	CEDAR CANYON 15-1 WTF SOUTH	Sampling Condition:	Cool & Intact
Project Number:	8/15/18	Sample Received By:	Tamara Oldaker
Project Location:	EDDY COUNTY, NM		

**Sample ID: SP 1 @ 2' (H802834-03)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>Chloride</b>	<b>32.0</b>	16.0	10/09/2018	ND	432	108	400	0.00	

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**Analytical Results For:**

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

Received:	10/05/2018	Sampling Date:	10/01/2018
Reported:	10/11/2018	Sampling Type:	Soil
Project Name:	CEDAR CANYON 15-1 WTF SOUTH	Sampling Condition:	Cool & Intact
Project Number:	8/15/18	Sample Received By:	Tamara Oldaker
Project Location:	EDDY COUNTY, NM		

**Sample ID: SP 2 @ SURFACE (H802834-04)**

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	10/10/2018	ND	2.11	106	2.00	3.67		
Toluene*	<0.050	0.050	10/10/2018	ND	2.07	104	2.00	3.42		
Ethylbenzene*	<0.050	0.050	10/10/2018	ND	2.10	105	2.00	2.81		
Total Xylenes*	<0.150	0.150	10/10/2018	ND	6.08	101	6.00	2.41		
Total BTEX	<0.300	0.300	10/10/2018	ND						

Surrogate: 4-Bromofluorobenzene (PID) 109 % 69.8-142

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
<b>Chloride</b>	<b>6930</b>	16.0	10/09/2018	ND	432	108	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	10/08/2018	ND	213	106	200	3.74		
DRO >C10-C28*	<10.0	10.0	10/08/2018	ND	206	103	200	7.77		
EXT DRO >C28-C36	<10.0	10.0	10/08/2018	ND						

Surrogate: 1-Chlorooctane 89.3 % 41-142

Surrogate: 1-Chlorooctadecane 82.3 % 37.6-147

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

Received:	10/05/2018	Sampling Date:	10/01/2018
Reported:	10/11/2018	Sampling Type:	Soil
Project Name:	CEDAR CANYON 15-1 WTF SOUTH	Sampling Condition:	Cool & Intact
Project Number:	8/15/18	Sample Received By:	Tamara Oldaker
Project Location:	EDDY COUNTY, NM		

**Sample ID: SP 2 @ 1' (H802834-05)**

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	10/10/2018	ND	2.11	106	2.00	3.67		
Toluene*	<0.050	0.050	10/10/2018	ND	2.07	104	2.00	3.42		
Ethylbenzene*	<0.050	0.050	10/10/2018	ND	2.10	105	2.00	2.81		
Total Xylenes*	<0.150	0.150	10/10/2018	ND	6.08	101	6.00	2.41		
Total BTEX	<0.300	0.300	10/10/2018	ND						

Surrogate: 4-Bromofluorobenzene (PID) 109 % 69.8-142

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
<b>Chloride</b>	<b>96.0</b>	16.0	10/09/2018	ND	432	108	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	10/08/2018	ND	213	106	200	3.74		
DRO >C10-C28*	<10.0	10.0	10/08/2018	ND	206	103	200	7.77		
EXT DRO >C28-C36	<10.0	10.0	10/08/2018	ND						

Surrogate: 1-Chlorooctane 82.1 % 41-142

Surrogate: 1-Chlorooctadecane 77.7 % 37.6-147

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

Received:	10/05/2018	Sampling Date:	10/01/2018
Reported:	10/11/2018	Sampling Type:	Soil
Project Name:	CEDAR CANYON 15-1 WTF SOUTH	Sampling Condition:	Cool & Intact
Project Number:	8/15/18	Sample Received By:	Tamara Oldaker
Project Location:	EDDY COUNTY, NM		

**Sample ID: SP 2 @ 2' (H802834-06)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>Chloride</b>	<b>96.0</b>	16.0	10/09/2018	ND	432	108	400	0.00	

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

Received:	10/05/2018	Sampling Date:	10/01/2018
Reported:	10/11/2018	Sampling Type:	Soil
Project Name:	CEDAR CANYON 15-1 WTF SOUTH	Sampling Condition:	Cool & Intact
Project Number:	8/15/18	Sample Received By:	Tamara Oldaker
Project Location:	EDDY COUNTY, NM		

**Sample ID: SP 3 @ SURFACE (H802834-07)**

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	10/10/2018	ND	2.11	106	2.00	3.67		
Toluene*	<0.050	0.050	10/10/2018	ND	2.07	104	2.00	3.42		
Ethylbenzene*	<0.050	0.050	10/10/2018	ND	2.10	105	2.00	2.81		
Total Xylenes*	<0.150	0.150	10/10/2018	ND	6.08	101	6.00	2.41		
Total BTEX	<0.300	0.300	10/10/2018	ND						

Surrogate: 4-Bromofluorobenzene (PID) 109 % 69.8-142

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	10300	16.0	10/09/2018	ND	432	108	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	10/08/2018	ND	213	106	200	3.74		
DRO >C10-C28*	<10.0	10.0	10/08/2018	ND	206	103	200	7.77		
EXT DRO >C28-C36	<10.0	10.0	10/08/2018	ND						

Surrogate: 1-Chlorooctane 75.7 % 41-142

Surrogate: 1-Chlorooctadecane 71.2 % 37.6-147

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

Received:	10/05/2018	Sampling Date:	10/01/2018
Reported:	10/11/2018	Sampling Type:	Soil
Project Name:	CEDAR CANYON 15-1 WTF SOUTH	Sampling Condition:	Cool & Intact
Project Number:	8/15/18	Sample Received By:	Tamara Oldaker
Project Location:	EDDY COUNTY, NM		

**Sample ID: SP 3 @ 1' (H802834-08)**

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	10/10/2018	ND	2.11	106	2.00	3.67		
Toluene*	<0.050	0.050	10/10/2018	ND	2.07	104	2.00	3.42		
Ethylbenzene*	<0.050	0.050	10/10/2018	ND	2.10	105	2.00	2.81		
Total Xylenes*	<0.150	0.150	10/10/2018	ND	6.08	101	6.00	2.41		
Total BTEX	<0.300	0.300	10/10/2018	ND						

Surrogate: 4-Bromofluorobenzene (PID) 109 % 69.8-142

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	2480	16.0	10/09/2018	ND	432	108	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	10/08/2018	ND	213	106	200	3.74		
DRO >C10-C28*	<10.0	10.0	10/08/2018	ND	206	103	200	7.77		
EXT DRO >C28-C36	<10.0	10.0	10/08/2018	ND						

Surrogate: 1-Chlorooctane 87.2 % 41-142

Surrogate: 1-Chlorooctadecane 83.8 % 37.6-147

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**Analytical Results For:**

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

Received:	10/05/2018	Sampling Date:	10/01/2018
Reported:	10/11/2018	Sampling Type:	Soil
Project Name:	CEDAR CANYON 15-1 WTF SOUTH	Sampling Condition:	Cool & Intact
Project Number:	8/15/18	Sample Received By:	Tamara Oldaker
Project Location:	EDDY COUNTY, NM		

**Sample ID: SP 3 @ 2' (H802834-09)**

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>Chloride</b>	<b>832</b>	16.0	10/09/2018	ND	432	108	400	0.00	

**Sample ID: SP 3 @ 3' (H802834-10)**

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>Chloride</b>	<b>736</b>	16.0	10/09/2018	ND	432	108	400	0.00	

**Sample ID: SP 3 @ 4' (H802834-11)**

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>Chloride</b>	<b>96.0</b>	16.0	10/09/2018	ND	432	108	400	0.00	

**Sample ID: SP 3 @ 5' (H802834-12)**

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>Chloride</b>	<b>80.0</b>	16.0	10/09/2018	ND	432	108	400	0.00	

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 P.O. Box 805  
 Hobbs NM, 88241  
 Fax To: (575) 397-0397

Received:	10/05/2018	Sampling Date:	10/01/2018
Reported:	10/11/2018	Sampling Type:	Soil
Project Name:	CEDAR CANYON 15-1 WTF SOUTH	Sampling Condition:	Cool & Intact
Project Number:	8/15/18	Sample Received By:	Tamara Oldaker
Project Location:	EDDY COUNTY, NM		

**Sample ID: NORTH @ SURFACE (H802834-13)**

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	10/10/2018	ND	2.11	106	2.00	3.67		
Toluene*	<0.050	0.050	10/10/2018	ND	2.07	104	2.00	3.42		
Ethylbenzene*	<0.050	0.050	10/10/2018	ND	2.10	105	2.00	2.81		
Total Xylenes*	<0.150	0.150	10/10/2018	ND	6.08	101	6.00	2.41		
Total BTEX	<0.300	0.300	10/10/2018	ND						

Surrogate: 4-Bromofluorobenzene (PID) 108 % 69.8-142

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	32.0	16.0	10/09/2018	ND	432	108	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	10/08/2018	ND	213	106	200	3.74		
DRO >C10-C28*	<10.0	10.0	10/08/2018	ND	206	103	200	7.77		
EXT DRO >C28-C36	<10.0	10.0	10/08/2018	ND						

Surrogate: 1-Chlorooctane 90.4 % 41-142

Surrogate: 1-Chlorooctadecane 83.8 % 37.6-147

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

Received:	10/05/2018	Sampling Date:	10/01/2018
Reported:	10/11/2018	Sampling Type:	Soil
Project Name:	CEDAR CANYON 15-1 WTF SOUTH	Sampling Condition:	Cool & Intact
Project Number:	8/15/18	Sample Received By:	Tamara Oldaker
Project Location:	EDDY COUNTY, NM		

**Sample ID: EAST @ SURFACE (H802834-14)**

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	10/10/2018	ND	2.11	106	2.00	3.67	
Toluene*	<0.050	0.050	10/10/2018	ND	2.07	104	2.00	3.42	
Ethylbenzene*	<0.050	0.050	10/10/2018	ND	2.10	105	2.00	2.81	
Total Xylenes*	<0.150	0.150	10/10/2018	ND	6.08	101	6.00	2.41	
Total BTEX	<0.300	0.300	10/10/2018	ND					

Surrogate: 4-Bromofluorobenzene (PID) 107 % 69.8-142

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>Chloride</b>	<b>48.0</b>	16.0	10/09/2018	ND	432	108	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	10/09/2018	ND	196	97.9	200	2.16	
DRO >C10-C28*	<10.0	10.0	10/09/2018	ND	216	108	200	7.67	
EXT DRO >C28-C36	<10.0	10.0	10/09/2018	ND					

Surrogate: 1-Chlorooctane 90.0 % 41-142

Surrogate: 1-Chlorooctadecane 86.3 % 37.6-147

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

Received:	10/05/2018	Sampling Date:	10/01/2018
Reported:	10/11/2018	Sampling Type:	Soil
Project Name:	CEDAR CANYON 15-1 WTF SOUTH	Sampling Condition:	Cool & Intact
Project Number:	8/15/18	Sample Received By:	Tamara Oldaker
Project Location:	EDDY COUNTY, NM		

**Sample ID: WEST @ SURFACE (H802834-15)**

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	10/10/2018	ND	2.11	106	2.00	3.67		
Toluene*	<0.050	0.050	10/10/2018	ND	2.07	104	2.00	3.42		
Ethylbenzene*	<0.050	0.050	10/10/2018	ND	2.10	105	2.00	2.81		
Total Xylenes*	<0.150	0.150	10/10/2018	ND	6.08	101	6.00	2.41		
Total BTEX	<0.300	0.300	10/10/2018	ND						

Surrogate: 4-Bromofluorobenzene (PID) 107 % 69.8-142

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	64.0	16.0	10/09/2018	ND	432	108	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	10/09/2018	ND	196	97.9	200	2.16		
DRO >C10-C28*	<10.0	10.0	10/09/2018	ND	216	108	200	7.67		
EXT DRO >C28-C36	<10.0	10.0	10/09/2018	ND						

Surrogate: 1-Chlorooctane 75.0 % 41-142

Surrogate: 1-Chlorooctadecane 69.7 % 37.6-147

Cardinal Laboratories

\*=Accredited Analyte

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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:	10/05/2018	Sampling Date:	10/01/2018
Reported:	10/11/2018	Sampling Type:	Soil
Project Name:	CEDAR CANYON 15-1 WTF SOUTH	Sampling Condition:	Cool & Intact
Project Number:	8/15/18	Sample Received By:	Tamara Oldaker
Project Location:	EDDY COUNTY, NM		

**Sample ID: SOUTH @ SURFACE (H802834-16)**

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	10/10/2018	ND	2.11	106	2.00	3.67	
Toluene*	<0.050	0.050	10/10/2018	ND	2.07	104	2.00	3.42	
Ethylbenzene*	<0.050	0.050	10/10/2018	ND	2.10	105	2.00	2.81	
Total Xylenes*	<0.150	0.150	10/10/2018	ND	6.08	101	6.00	2.41	
Total BTEX	<0.300	0.300	10/10/2018	ND					

Surrogate: 4-Bromofluorobenzene (PID) 109 % 69.8-142

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	48.0	16.0	10/09/2018	ND	432	108	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	10/09/2018	ND	196	97.9	200	2.16	
DRO >C10-C28*	<10.0	10.0	10/09/2018	ND	216	108	200	7.67	
EXT DRO >C28-C36	<10.0	10.0	10/09/2018	ND					

Surrogate: 1-Chlorooctane 78.1 % 41-142

Surrogate: 1-Chlorooctadecane 72.0 % 37.6-147

Cardinal Laboratories

\*=Accredited Analyte

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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







**CARDINAL LABORATORIES**

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

**CHAIN-OF-CUSTODY AND ANALYSIS REQUEST**

2 of 2

Company Name: BBC International, Inc.		<b>BILL TO</b>		<b>ANALYSIS REQUEST</b>											
Project Manager: Cliff Brunson		P.O. #:													
Address: P.O. Box 805		Company: OXY STATION													
City: Hobbs State: NM Zip: 88241		Attn: [Signature]													
Phone #: 575-397-6388 Fax #: 575-397-0397		Address:													
Project #: Project Owner: Oxy		City:													
Project Name: Cedar Canyon 15 1 WTF South (8/15/18)		State: Zip:													
Project Location: Eddy County, NM		Phone #:													
Sampler Name: Jeff Ornelas		Fax #:													

FOR LAB USE ONLY		(GRAB OR (COMP. # CONTAINERS	MATRIX					PRESERV.			SAMPLING		DATE	TIME	CL	BTEX	THAEXT
Lab I.D.	Sample I.D.		GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER :	ACID/BASE:	ICE / COOL	OTHER :						
H802834																	
11	SP3 @ 4'	G			✓				✓			10/1/18		✓			
12	SP3 @ 5'	G			✓				✓			10/1/18		✓			
13	NORTH @ SURFACE	G			✓				✓			10/1/18		✓	✓	✓	
14	EAST @ SURFACE	G			✓				✓			10/1/18		✓	✓	✓	
15	WEST @ SURFACE	G			✓				✓			10/1/18		✓	✓	✓	
16	SOUTH @ SURFACE	G			✓				✓			10/1/18		✓	✓	✓	
EXP 10/1/18																	

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Relinquished By: [Signature]	Date: 10/1/18 Time: 5:30p	Received By: [Signature]	Phone Result: <input type="checkbox"/> Yes <input type="checkbox"/> No	Add'l Phone #:
Relinquished By: [Signature]	Date: 10-5-18 Time: 9:35	Received By: [Signature]	Fax Result: <input type="checkbox"/> Yes <input type="checkbox"/> No	Add'l Fax #:
Delivered By: (Circle One) Sampler - UPS - Bus - Other: 6.0i H97		Sample Condition Cool Intact <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> No	CHECKED BY: (Initials) TO	
REMARKS:				

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