



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 ½-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 DittrichTitle: Environmental CoordinatorSignature: Date: 2-7-99email: wade_dittrich@oxy.comTelephone: (575) 390-2828**OCD Only**

Received by: _____

Date: _____

State of New Mexico
Oil Conservation Division

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: _____

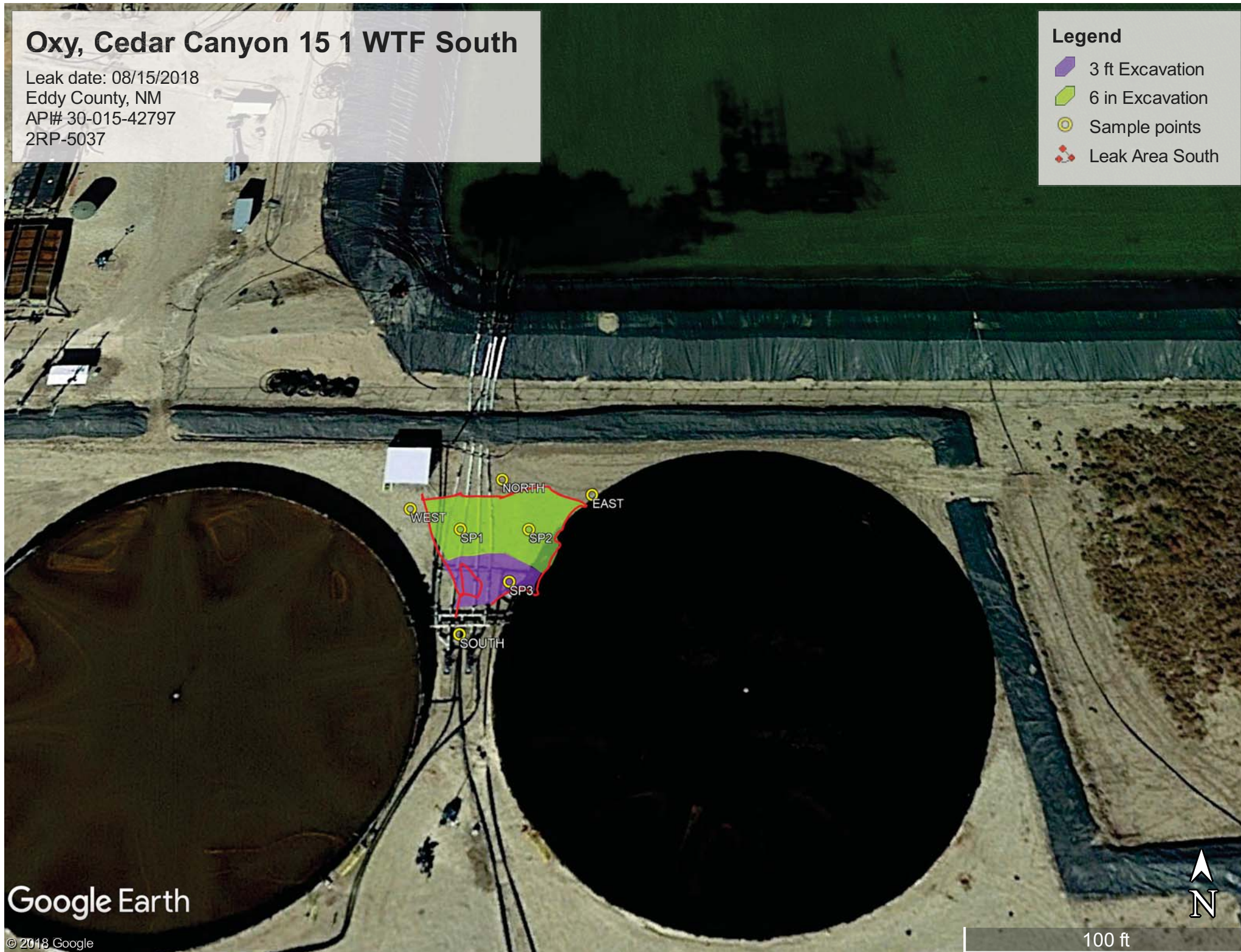
Date: _____

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'





USGS Home
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National Water Information System: Web Interface

[USGS Water Resources](#)

Data Category: Geographic Area:

Click to hideNews 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

Table of data
Tab-separated data
Graph of data
Reselect period

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 measurem
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
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.

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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





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



Google Earth

© 2018 Google



1000 ft

National Flood Hazard Layer FIRMMette



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
		Area with Flood Risk due to Levee Zone D
OTHER AREAS		NO SCREEN Area of Minimal Flood Hazard Zone X
		Effective LOMRs
		Area of Undetermined Flood Hazard Zone D
GENERAL STRUCTURES		Channel, Culvert, or Storm Sewer
		Levee, Dike, or Floodwall
OTHER FEATURES		20.2 Cross Sections with 1% Annual Chance Water Surface Elevation
		17.5 Cross Sections with 1% Annual Chance Water Surface Elevation
		Coastal Transect
		Base Flood Elevation Line (BFE)
		Limit of Study
		Jurisdiction Boundary
		Coastal Transect 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.

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"W

103°58'11.78"W

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

		Sample ID	SP1 @ SURFACE	SP1 @ 1'	SP1 @ 2'
Analyte	Method	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		8260	80	32
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

		Sample ID	SP2 @ SURFACE	SP2 @ 1'	SP2 @ 2'
Analyte	Method	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		6930	96	96
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

		Sample ID	SP3 @ SURFACE	SP3 @ 1'	SP3 @ 2'	SP3 @ 3'	SP3 @ 4'	SP3 @ 5'
Analyte	Method	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		10300	2480	832	736	96	80
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

		Sample ID	NORTH @ SURFACE	EAST @ SURFACE	WEST @ SURFACE	SOUTH @ SURFACE
Analyte	Method	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		32	48	64	48
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.

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	8260	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

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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 @ 1' (H802834-02)

BTX 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 BTX	<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

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: 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	
Chloride	32.0	16.0	10/09/2018	ND	432	108	400	0.00		

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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 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, SM4500CI-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	6930	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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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
Chloride	96.0	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 82.1 % 41-142

Surrogate: 1-Chlorooctadecane 77.7 % 37.6-147

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Cliff Brunson
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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	
Chloride	96.0	16.0	10/09/2018	ND	432	108	400	0.00		

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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)

BTX 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 BTX	<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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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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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, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	832	16.0	10/09/2018	ND	432	108	400	0.00		

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

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	736	16.0	10/09/2018	ND	432	108	400	0.00		

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

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

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

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	432	108	400	0.00		

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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)

BTX 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 BTX	<0.300	0.300	10/10/2018	ND					

Surrogate: 4-Bromofluorobenzene (PID) 108 % 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	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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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, 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 90.0 % 41-142

Surrogate: 1-Chlorooctadecane 86.3 % 37.6-147

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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, SM4500Cl-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

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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

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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

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Celey D. Keene, Lab Director/Quality Manager



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Relinquished By: <i>Jeff Ornelas</i>		Date: <i>10/1/18</i>	Received By: <i>Israel Kuna</i>	Phone Result: <input type="checkbox"/> Yes <input type="checkbox"/> No	Add'l Phone #: <i></i>
		Time: <i>5:30pm</i>		Fax Result: <input type="checkbox"/> Yes <input type="checkbox"/> No	Add'l Fax #: <i></i>
Relinquished By:		Date: <i>10-5-18</i>	Received By: <i>Jamara Olden</i>	REMARKS:	
		Time: <i>4:35</i>			
Delivered By: (Circle One)			Sample Condition	CHECKED BY:	
Sampler - UPS - Bus - Other: <i>6.0c #47</i>			Cool <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Intact <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
				<i>TJ</i>	

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



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Relinquished By: <i>Vett Andrus</i>		Date: <i>10/1/18</i>	Received By: <i>Isaac Pena</i>	Phone Result: <input type="checkbox"/> Yes <input type="checkbox"/> No	Add'l Phone #:
		Time: <i>5:30p</i>		Fax Result: <input type="checkbox"/> Yes <input type="checkbox"/> No	Add'l Fax #:
Relinquished By: <i>Isaac Pena</i>		Date: <i>10-5-18</i>	Received By: <i>Isaac Pena</i>	REMARKS:	
		Time: <i>4:35</i>			
Delivered By: (Circle One) Sampler - UPS - Bus - Other:		Sample Condition Cool Intact <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	CHECKED BY: (Initials) <i>TP</i>		

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