



DELINEATION WORKPLAN

CHEVRON – HH NM FRAC PAD 6 PKG 4 WTC

(Leak Date: 09/15/18)

RP # 2RP-5046

This delineation workplan and remediation proposal addresses the release associated with RP # 2RP-5046.

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:

Chevron will remediate the spill area as depicted on the following site diagram. The leak area near SP1 – SP3 and SP6 (GREEN shade on diagram) will be excavated to a depth of 1 foot. The leak area near SP4, SP7 – SP10 and SP12 (PINK shade on diagram) will be excavated to a depth of 2 feet. The leak area near SP5 and SP13 (YELLOW shade on diagram) will be excavated to a depth of 4 feet.

Sidewall confirmation samples will be collected at no greater than 50 ft. intervals. Estimated volume of material to be removed is 1,500 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-5046
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?	9 (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 type="checkbox"/> Yes <input checked="" 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 type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within a 100-year floodplain?	<input type="checkbox"/> Yes <input checked="" 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-5046
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: Amy Barnhill Title: Waste & Water Specialist
Signature:  Date: 11-26-18
email: abarnhill@chevron.com Telephone: (432) 687-7108

OCD Only

Received by: _____ Date: _____

Incident ID	
District RP	2RP-5046
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: **Amy Barnhill**

Title: **Waste & Water Specialist**

Signature: 

Date: **11-26-18**

email: **abarnhill@chevron.com**

Telephone: **(432) 687-7108**

OCD Only

Received by: _____ Date: _____

☐ Approved

☐ Approved with Attached Conditions of Approval

☐ Denied

☐ Deferral Approved

Signature: _____

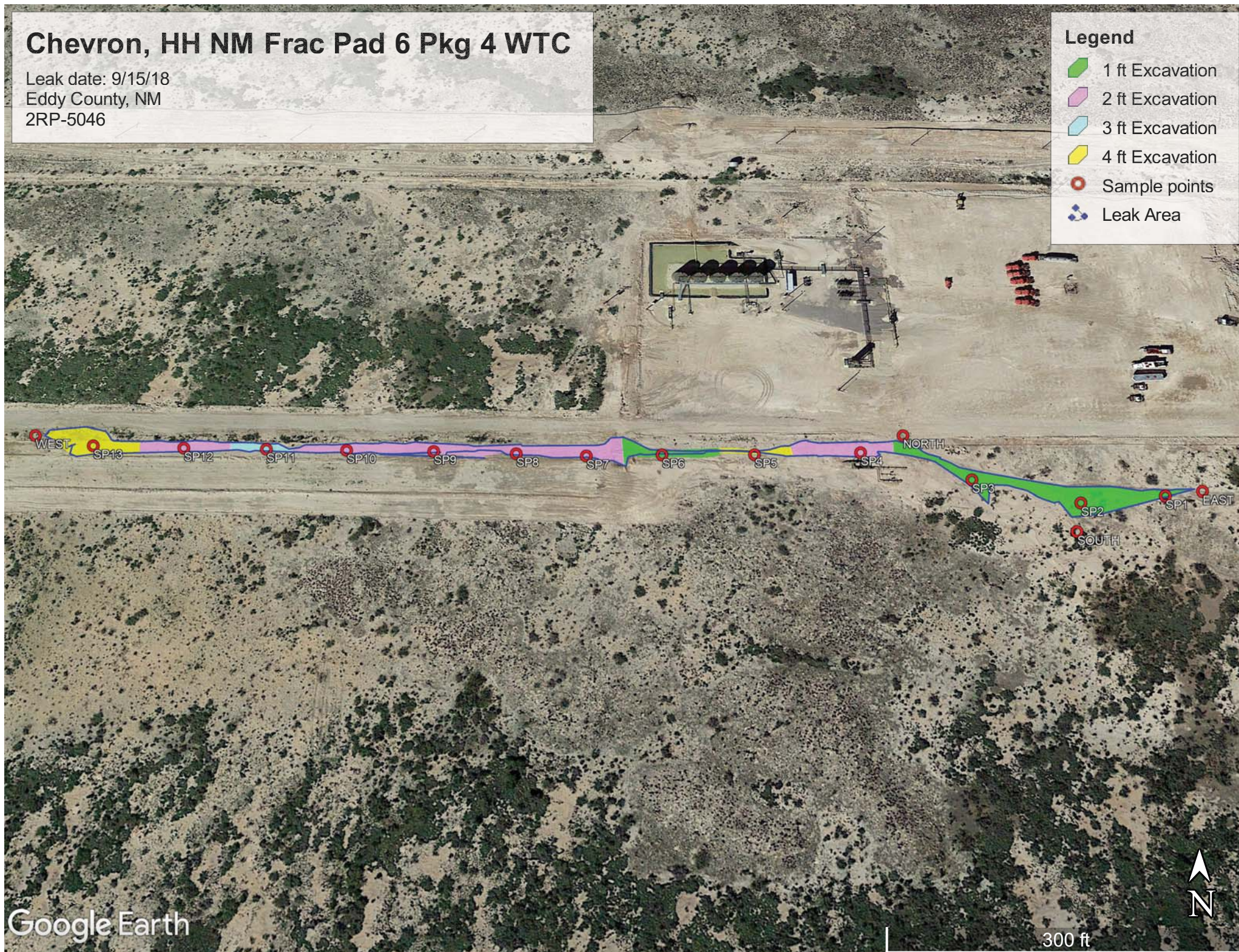
Date: _____

Chevron, HH NM Frac Pad 6 Pkg 4 WTC

Leak date: 9/15/18
Eddy County, NM
2RP-5046

Legend

- 1 ft Excavation
- 2 ft Excavation
- 3 ft Excavation
- 4 ft Excavation
- Sample points
- Leak Area



Chevron, HH NM Frac Pad 6

Sample points

SP1, N 32.07772 W-104.16302

SP2, N 32.07770 W-104.16330

SP3, N 32.07777 W-104.16364

SP4, N 32.07786 W-104.16399

SP5, N 32.07785 W-104.16434

SP6, N 32.07784 W-104.16465

SP7, N 32.07784 W-104.16489

SP8, N 32.07784 W-104.16512

SP9, N 32.07785 W-104.16539

SP10, N 32.07785 W-104.16568

SP11, N 32.07785 W-104.16594

SP12, N 32.07785 W-104.16621

SP13, N 32.07786 W-104.16650

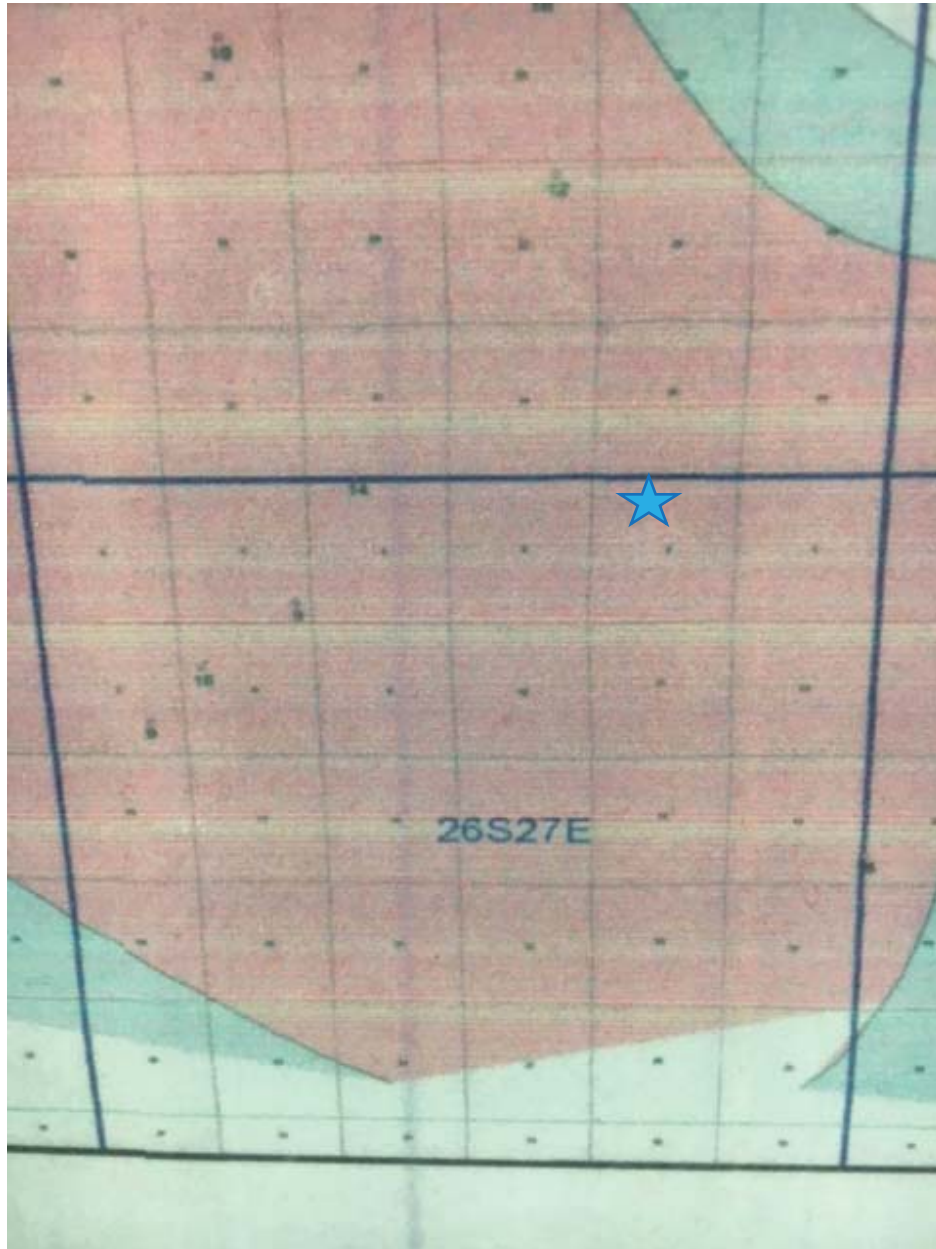
NORTH, N 32.07792 W-104.16385

SOUTH, N 32.07761 W-104.16333

EAST, N 32.07740 W-104.16290

WEST, N 32.07789 W-104.16670

Chevron, HH NM Frac Pad 6
U/L C, Section 2, T26S, R27E
Groundwater: <50'






[USGS Home](#)
[Contact USGS](#)
[Search USGS](#)

National Water Information System: Web Interface

[USGS Water Resources](#)

Data Category: Geographic Area:

Click to hideNews Bulletins

- [Please see news on new formats](#)
- **Oct 24, 2018 - The USGS is working to restore approximately 14 percent of streamgages that are offline due to an issue with the telemetry system that records and transmits the streamgage data. The USGS has identified and placed highest priority on getting back online gages in areas expected to receive significant rainfall over the next few days. 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 =

- 320409104102001

Minimum number of levels = 1

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

USGS 320409104102001 26S.27E.05.44233

Eddy County, New Mexico

Latitude 32°04'09", Longitude 104°10'20" NAD27

Land-surface elevation 3,245 feet above NAVD88

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 measurment
1948-12-03		D	12.47			2				U
1978-01-03		D	14.05			2				U
1983-01-25		D	10.75			2				U
1987-10-08		D	9.13			2				U

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	U	Unknown method.
Measuring agency		Not determined
Source of measurement	U	Source is unknown.
Water-level approval status	A	Approved for publication -- Processing and review completed.



[Questions about sites/data?](#)
[Feedback on this web site](#)
[Automated retrievals](#)
[Help](#)
[Data Tips](#)
[Explanation of terms](#)
[Subscribe for system changes](#)
[News](#)

[Accessibility](#) [Plug-Ins](#) [FOIA](#) [Privacy](#) [Policies and Notices](#)

[U.S. Department of the Interior](#) | [U.S. Geological Survey](#)

Title: Groundwater for New Mexico: Water Levels

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

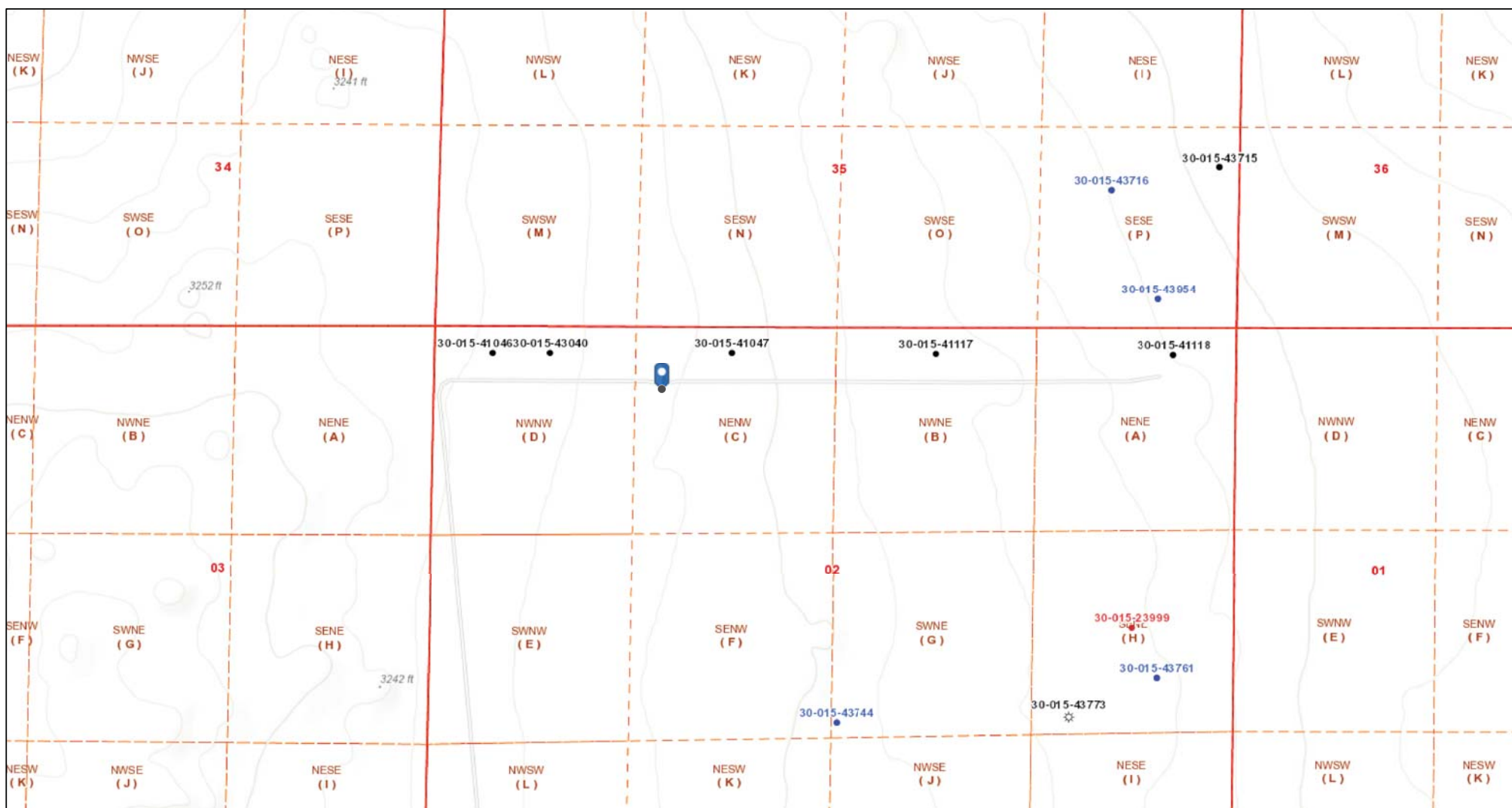


Page Contact Information: [New Mexico Water Data Maintainer](#)

Page Last Modified: 2018-10-25 13:19:27 EDT

39.68 0.49 nadww01

HH NM Frac Pad 6, TOPO Map with Water Features



12/5/2018 8:34:36 AM

1:9,028

Well Locations - Small Scale

- Active
- New
- Plugged
- Cancelled
- Temporarily Abandoned

Well Locations - Large Scale

- 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

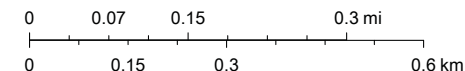
- Injection, New
- Injection, Plugged
- Injection, Temporarily Abandoned
- Oil, Active
- Oil, Cancelled

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

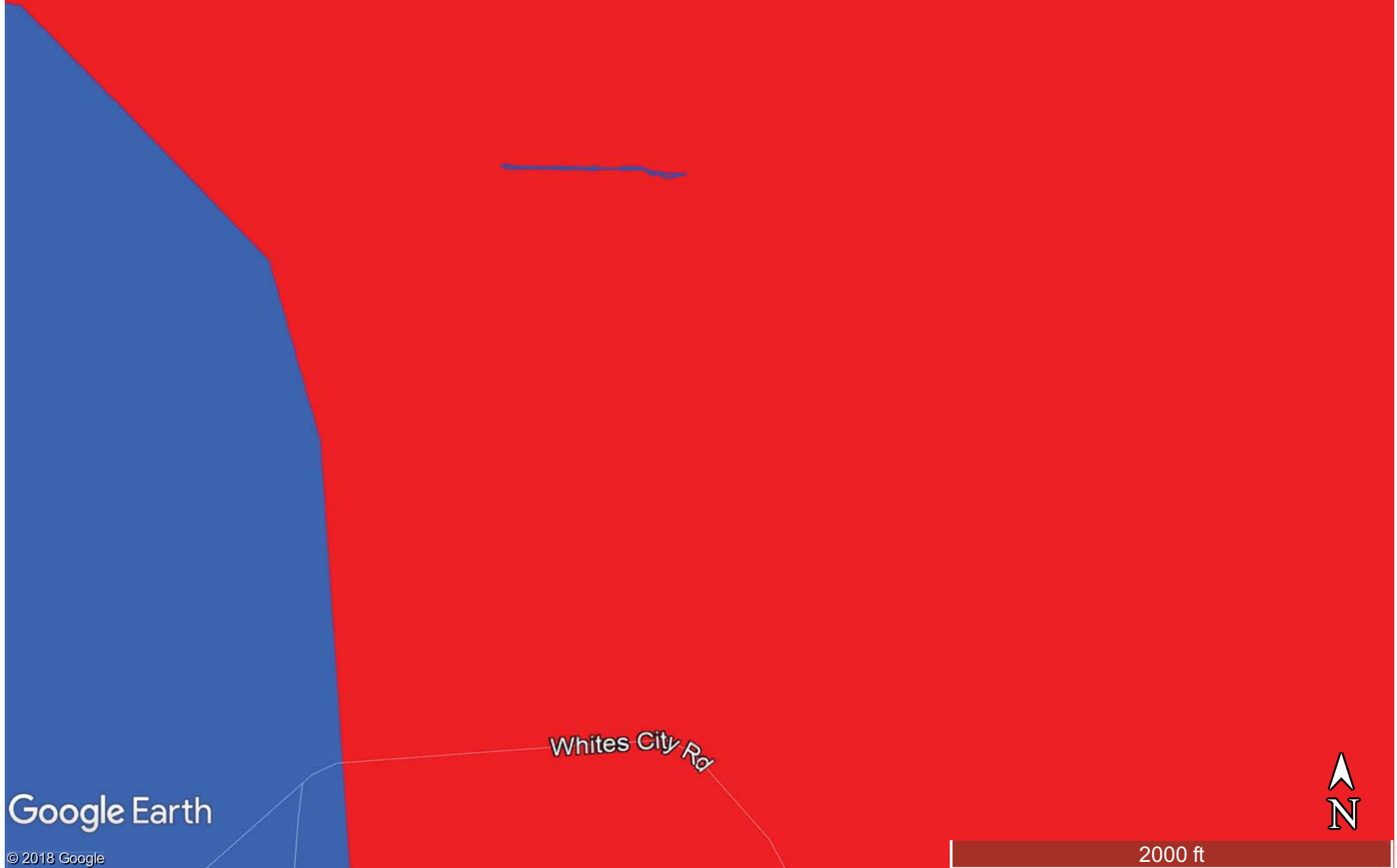
Chevron, HH NM Frac Pad 6

Leak date: 9/15/18
Eddy County, NM
2RP-5046

BLM CAVE KARST MAP

Legend

-  High potential
-  Leak Area
-  Medium potential



National Flood Hazard Layer FIRMette



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
		17.5 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



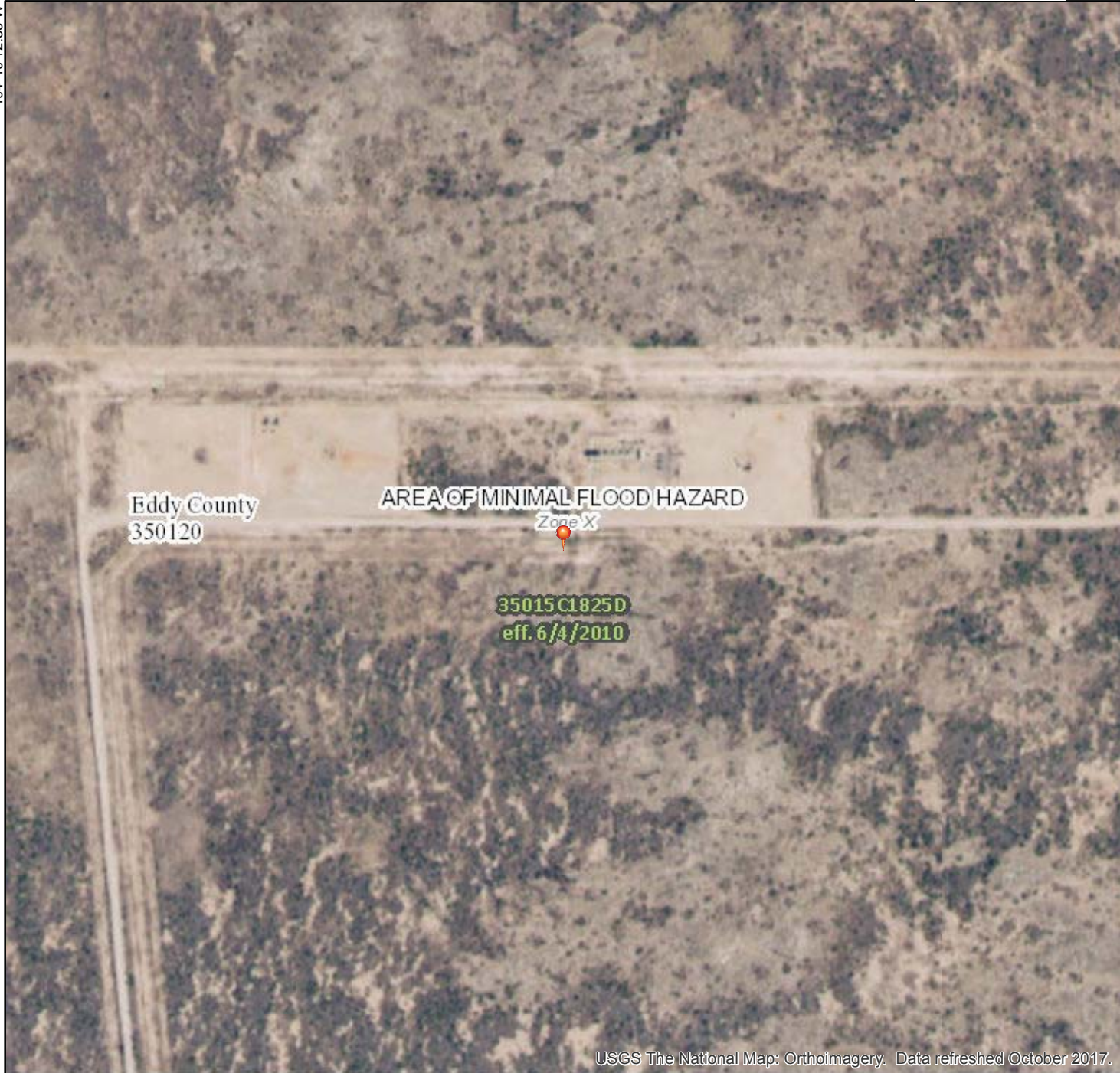
The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

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 **10/25/2018 at 1:26:34 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°4'55.47"N



0 250 500 1,000 1,500 2,000 Feet 1:6,000

32°4'24.98"N

Laboratory Analytical Results Summary
HH NM Frac Pad 6

		Sample ID	SP1 @ SURFACE	SP1 @ 1'	SP1 @ 2'
Analyte	Method	Date	10/12/18	10/12/18	10/12/18
			mg/kg	mg/kg	mg/kg
Benzene	BTEX 8021B		<0.050	n/a	n/a
Toluene	BTEX 8021B		<0.050	n/a	n/a
Ethylbenzene	BTEX 8021B		<0.050	n/a	n/a
Total Xylenes	BTEX 8021B		<0.150	n/a	n/a
Total BTEX	BTEX 8021B		<0.300	n/a	n/a
Chloride	SM4500Cl-B		5040	48	32
GRO	TPH 8015M		<10.0	n/a	n/a
DRO	TPH 8015M		<10.0	n/a	n/a
EXT DRO	TPH 8015M		<10.0	n/a	n/a

		Sample ID	SP2 @ SURFACE	SP2 @ 1'	SP2 @ 2'
Analyte	Method	Date	10/12/18	10/12/18	10/12/18
			mg/kg	mg/kg	mg/kg
Benzene	BTEX 8021B		<0.050	n/a	n/a
Toluene	BTEX 8021B		<0.050	n/a	n/a
Ethylbenzene	BTEX 8021B		<0.050	n/a	n/a
Total Xylenes	BTEX 8021B		<0.150	n/a	n/a
Total BTEX	BTEX 8021B		<0.300	n/a	n/a
Chloride	SM4500Cl-B		4640	32	16
GRO	TPH 8015M		<10.0	n/a	n/a
DRO	TPH 8015M		<10.0	n/a	n/a
EXT DRO	TPH 8015M		<10.0	n/a	n/a

		Sample ID	SP3 @ SURFACE	SP3 @ 1'	SP3 @ 2'
Analyte	Method	Date	10/12/18	10/12/18	10/12/18
			mg/kg	mg/kg	mg/kg
Benzene	BTEX 8021B		<0.050	n/a	n/a
Toluene	BTEX 8021B		<0.050	n/a	n/a
Ethylbenzene	BTEX 8021B		<0.050	n/a	n/a
Total Xylenes	BTEX 8021B		<0.150	n/a	n/a
Total BTEX	BTEX 8021B		<0.300	n/a	n/a
Chloride	SM4500Cl-B		5760	32	112
GRO	TPH 8015M		<10.0	n/a	n/a
DRO	TPH 8015M		<10.0	n/a	n/a
EXT DRO	TPH 8015M		<10.0	n/a	n/a

		Sample ID	SP4 @ SURFACE	SP4 @ 1'	SP4 @ 2'
Analyte	Method	Date	10/12/18	10/12/18	10/12/18
			mg/kg	mg/kg	mg/kg
Benzene	BTEX 8021B		<0.050	n/a	n/a
Toluene	BTEX 8021B		<0.050	n/a	n/a
Ethylbenzene	BTEX 8021B		<0.050	n/a	n/a
Total Xylenes	BTEX 8021B		<0.150	n/a	n/a
Total BTEX	BTEX 8021B		<0.300	n/a	n/a
Chloride	SM4500Cl-B		10800	3400	640
GRO	TPH 8015M		<10.0	n/a	n/a
DRO	TPH 8015M		<10.0	n/a	n/a
EXT DRO	TPH 8015M		<10.0	n/a	n/a

		Sample ID	SP5 @ SURFACE	SP5 @ 1'	SP5 @ 2'	SP5 @ 3'	SP5 @ 4'
Analyte	Method	Date	10/12/18	10/12/18	10/12/18	10/12/18	10/12/18
			mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Benzene	BTEX 8021B		<0.050	n/a	n/a	n/a	n/a
Toluene	BTEX 8021B		<0.050	n/a	n/a	n/a	n/a
Ethylbenzene	BTEX 8021B		<0.050	n/a	n/a	n/a	n/a
Total Xylenes	BTEX 8021B		<0.150	n/a	n/a	n/a	n/a
Total BTEX	BTEX 8021B		<0.300	n/a	n/a	n/a	n/a
Chloride	SM4500Cl-B		10800	4880	672	304	864
GRO	TPH 8015M		<10.0	n/a	n/a	n/a	n/a
DRO	TPH 8015M		<10.0	n/a	n/a	n/a	n/a
EXT DRO	TPH 8015M		<10.0	n/a	n/a	n/a	n/a

		Sample ID	SP6 @ SURFACE	SP6 @ 1'	SP6 @ 2'
Analyte	Method	Date	10/12/18	10/15/18	10/15/18
			mg/kg	mg/kg	mg/kg
Benzene	BTEX 8021B		<0.050	n/a	n/a
Toluene	BTEX 8021B		<0.050	n/a	n/a
Ethylbenzene	BTEX 8021B		<0.050	n/a	n/a
Total Xylenes	BTEX 8021B		<0.150	n/a	n/a
Total BTEX	BTEX 8021B		<0.300	n/a	n/a
Chloride	SM4500Cl-B		11500	80	128
GRO	TPH 8015M		<10.0	n/a	n/a
DRO	TPH 8015M		<10.0	n/a	n/a
EXT DRO	TPH 8015M		<10.0	n/a	n/a

		Sample ID	SP7 @ SURFACE	SP7 @ 1'	SP7 @ 2'	SP7 @ 3'	SP7 @ 4'
Analyte	Method	Date	10/15/18	10/15/18	10/15/18	10/15/18	10/15/18
			mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Benzene	BTEX 8021B		<0.050	n/a	n/a	n/a	n/a
Toluene	BTEX 8021B		<0.050	n/a	n/a	n/a	n/a
Ethylbenzene	BTEX 8021B		<0.050	n/a	n/a	n/a	n/a
Total Xylenes	BTEX 8021B		<0.150	n/a	n/a	n/a	n/a
Total BTEX	BTEX 8021B		<0.300	n/a	n/a	n/a	n/a
Chloride	SM4500Cl-B		140	1310	256	176	112
GRO	TPH 8015M		<10.0	n/a	n/a	n/a	n/a
DRO	TPH 8015M		<10.0	n/a	n/a	n/a	n/a
EXT DRO	TPH 8015M		<10.0	n/a	n/a	n/a	n/a

		Sample ID	SP8 @ SURFACE	SP8 @ 1'	SP8 @ 2'	SP8 @ 3'	SP8 @ 4'
Analyte	Method	Date	10/15/18	10/16/18	10/16/18	10/16/18	10/16/18
			mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Benzene	BTEX 8021B		<0.050	n/a	n/a	n/a	n/a
Toluene	BTEX 8021B		<0.050	n/a	n/a	n/a	n/a
Ethylbenzene	BTEX 8021B		<0.050	n/a	n/a	n/a	n/a
Total Xylenes	BTEX 8021B		<0.150	n/a	n/a	n/a	n/a
Total BTEX	BTEX 8021B		<0.300	n/a	n/a	n/a	n/a
Chloride	SM4500Cl-B		1230	2040	512	496	160
GRO	TPH 8015M		<10.0	n/a	n/a	n/a	n/a
DRO	TPH 8015M		<10.0	n/a	n/a	n/a	n/a
EXT DRO	TPH 8015M		<10.0	n/a	n/a	n/a	n/a

Laboratory Analytical Results Summary
HH NM Frac Pad 6

		Sample ID	SP9 @ SURFACE	SP9 @ 1'	SP9 @ 2'	SP9 @ 3'	SP9 @ 4'
Analyte	Method	Date	10/16/18	10/16/18	10/16/18	10/16/18	10/16/18
			mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Benzene	BTEX 8021B		<0.050	n/a	n/a	n/a	n/a
Toluene	BTEX 8021B		<0.050	n/a	n/a	n/a	n/a
Ethylbenzene	BTEX 8021B		<0.050	n/a	n/a	n/a	n/a
Total Xylenes	BTEX 8021B		<0.150	n/a	n/a	n/a	n/a
Total BTEX	BTEX 8021B		<0.300	n/a	n/a	n/a	n/a
Chloride	SM4500Cl-B		5730	1340	480	448	144
GRO	TPH 8015M		<10.0	n/a	n/a	n/a	n/a
DRO	TPH 8015M		<10.0	n/a	n/a	n/a	n/a
EXT DRO	TPH 8015M		<10.0	n/a	n/a	n/a	n/a

		Sample ID	SP10 @ SURFACE	SP10 @ 1'	SP10 @ 2'	SP10 @ 3'	SP10 @ 4'
Analyte	Method	Date	10/16/18	10/16/18	10/16/18	10/16/18	10/16/18
			mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Benzene	BTEX 8021B		<0.050	n/a	n/a	n/a	n/a
Toluene	BTEX 8021B		<0.050	n/a	n/a	n/a	n/a
Ethylbenzene	BTEX 8021B		<0.050	n/a	n/a	n/a	n/a
Total Xylenes	BTEX 8021B		<0.150	n/a	n/a	n/a	n/a
Total BTEX	BTEX 8021B		<0.300	n/a	n/a	n/a	n/a
Chloride	SM4500Cl-B		9600	1800	592	160	160
GRO	TPH 8015M		<10.0	n/a	n/a	n/a	n/a
DRO	TPH 8015M		<10.0	n/a	n/a	n/a	n/a
EXT DRO	TPH 8015M		<10.0	n/a	n/a	n/a	n/a

		Sample ID	SP11 @ SURFACE	SP11 @ 1'	SP11 @ 2'	SP11 @ 3'	SP11 @ 4'
Analyte	Method	Date	10/16/18	10/16/18	10/16/18	10/16/18	10/16/18
			mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Benzene	BTEX 8021B		<0.050	n/a	n/a	n/a	n/a
Toluene	BTEX 8021B		<0.050	n/a	n/a	n/a	n/a
Ethylbenzene	BTEX 8021B		<0.050	n/a	n/a	n/a	n/a
Total Xylenes	BTEX 8021B		<0.150	n/a	n/a	n/a	n/a
Total BTEX	BTEX 8021B		<0.300	n/a	n/a	n/a	n/a
Chloride	SM4500Cl-B		9060	1600	720	144	160
GRO	TPH 8015M		<10.0	n/a	n/a	n/a	n/a
DRO	TPH 8015M		<10.0	n/a	n/a	n/a	n/a
EXT DRO	TPH 8015M		<10.0	n/a	n/a	n/a	n/a

		Sample ID	SP12 @ SURFACE	SP12 @ 1'	SP12 @ 2'	SP12 @ 3'	SP12 @ 4'
Analyte	Method	Date	10/16/18	10/16/18	10/16/18	10/16/18	10/16/18
			mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Benzene	BTEX 8021B		<0.050	n/a	n/a	n/a	n/a
Toluene	BTEX 8021B		<0.050	n/a	n/a	n/a	n/a
Ethylbenzene	BTEX 8021B		<0.050	n/a	n/a	n/a	n/a
Total Xylenes	BTEX 8021B		<0.150	n/a	n/a	n/a	n/a
Total BTEX	BTEX 8021B		<0.300	n/a	n/a	n/a	n/a
Chloride	SM4500Cl-B		8260	1180	432	144	176
GRO	TPH 8015M		<10.0	n/a	n/a	n/a	n/a
DRO	TPH 8015M		<10.0	n/a	n/a	n/a	n/a
EXT DRO	TPH 8015M		<10.0	n/a	n/a	n/a	n/a

		Sample ID	SP13 @ SURFACE	SP13 @ 1'	SP13 @ 2'	SP13 @ 3'	SP13 @ 4'	SP13 @ 5'
Analyte	Method	Date	10/16/18	10/16/18	10/16/18	10/16/18	10/16/18	10/16/18
			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
Toluene	BTEX 8021B		<0.050	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
Total Xylenes	BTEX 8021B		<0.150	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
Chloride	SM4500Cl-B		14000	2320	1620	848	192	160
GRO	TPH 8015M		<10.0	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
EXT DRO	TPH 8015M		<10.0	n/a	n/a	n/a	n/a	n/a

		Sample ID	NORTH @ SURFACE	EAST @ SURFACE	WEST @ SURFACE	SOUTH @ SURFACE
Analyte	Method	Date	10/16/18	10/16/18	10/16/18	10/16/18
			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		160	128	160	112
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 24, 2018

Cliff Brunson

BBC International, Inc.

P.O. Box 805

Hobbs, NM 88241

RE: HH NM FRAC PAD 6

Enclosed are the results of analyses for samples received by the laboratory on 10/19/18 11:15.

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: 10/19/2018
Reported: 10/24/2018
Project Name: HH NM FRAC PAD 6
Project Number: NOT GIVEN
Project Location: EDDY COUNTY, NM

Sampling Date: 10/12/2018
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Tamara Oldaker

Sample ID: SP 1 @ SURFACE (H803012-01)

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	10/19/2018	ND	1.90	95.1	2.00	2.08	
Toluene*	<0.050	0.050	10/19/2018	ND	1.80	89.9	2.00	1.83	
Ethylbenzene*	<0.050	0.050	10/19/2018	ND	1.79	89.7	2.00	1.75	
Total Xylenes*	<0.150	0.150	10/19/2018	ND	5.42	90.3	6.00	2.05	
Total BTEx	<0.300	0.300	10/19/2018	ND					

Surrogate: 4-Bromofluorobenzene (PID) 89.2 % 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	5040	16.0	10/23/2018	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	10/19/2018	ND	209	105	200	0.565	
DRO >C10-C28*	<10.0	10.0	10/19/2018	ND	203	102	200	1.07	
EXT DRO >C28-C36	<10.0	10.0	10/19/2018	ND					

Surrogate: 1-Chlorooctane 85.8 % 41-142

Surrogate: 1-Chlorooctadecane 87.9 % 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: 10/19/2018
Reported: 10/24/2018
Project Name: HH NM FRAC PAD 6
Project Number: NOT GIVEN
Project Location: EDDY COUNTY, NM

Sampling Date: 10/12/2018
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Tamara Oldaker

Sample ID: SP 1 @ 1' (H803012-02)

Chloride, SM4500Cl-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	10/23/2018	ND	432	108	400	0.00		

Sample ID: SP 1 @ 2' (H803012-03)

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	10/23/2018	ND	432	108	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: 10/19/2018
Reported: 10/24/2018
Project Name: HH NM FRAC PAD 6
Project Number: NOT GIVEN
Project Location: EDDY COUNTY, NM

Sampling Date: 10/12/2018
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Tamara Oldaker

Sample ID: SP 2 @ SURFACE (H803012-04)

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	10/19/2018	ND	1.90	95.1	2.00	2.08		
Toluene*	<0.050	0.050	10/19/2018	ND	1.80	89.9	2.00	1.83		
Ethylbenzene*	<0.050	0.050	10/19/2018	ND	1.79	89.7	2.00	1.75		
Total Xylenes*	<0.150	0.150	10/19/2018	ND	5.42	90.3	6.00	2.05		
Total BTEX	<0.300	0.300	10/19/2018	ND						

Surrogate: 4-Bromofluorobenzene (PID) 89.8 % 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	4640	16.0	10/23/2018	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	10/24/2018	ND	209	105	200	0.565	
DRO >C10-C28*	<10.0	10.0	10/24/2018	ND	203	102	200	1.07	
EXT DRO >C28-C36	<10.0	10.0	10/24/2018	ND					

Surrogate: 1-Chlorooctane 86.2 % 41-142

Surrogate: 1-Chlorooctadecane 92.7 % 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: 10/19/2018
Reported: 10/24/2018
Project Name: HH NM FRAC PAD 6
Project Number: NOT GIVEN
Project Location: EDDY COUNTY, NM

Sampling Date: 10/12/2018
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Tamara Oldaker

Sample ID: SP 2 @ 1' (H803012-05)

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	10/23/2018	ND	432	108	400	0.00		

Sample ID: SP 2 @ 2' (H803012-06)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	16.0	16.0	10/23/2018	ND	432	108	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: 10/19/2018
Reported: 10/24/2018
Project Name: HH NM FRAC PAD 6
Project Number: NOT GIVEN
Project Location: EDDY COUNTY, NM

Sampling Date: 10/12/2018
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Tamara Oldaker

Sample ID: SP 3 @ SURFACE (H803012-07)

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	10/19/2018	ND	1.90	95.1	2.00	2.08		
Toluene*	<0.050	0.050	10/19/2018	ND	1.80	89.9	2.00	1.83		
Ethylbenzene*	<0.050	0.050	10/19/2018	ND	1.79	89.7	2.00	1.75		
Total Xylenes*	<0.150	0.150	10/19/2018	ND	5.42	90.3	6.00	2.05		
Total BTX	<0.300	0.300	10/19/2018	ND						

Surrogate: 4-Bromofluorobenzene (PID) 89.3 % 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	5760	16.0	10/23/2018	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	10/19/2018	ND	209	105	200	0.565	
DRO >C10-C28*	<10.0	10.0	10/19/2018	ND	203	102	200	1.07	
EXT DRO >C28-C36	<10.0	10.0	10/19/2018	ND					

Surrogate: 1-Chlorooctane 89.4 % 41-142

Surrogate: 1-Chlorooctadecane 90.7 % 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: 10/19/2018
Reported: 10/24/2018
Project Name: HH NM FRAC PAD 6
Project Number: NOT GIVEN
Project Location: EDDY COUNTY, NM

Sampling Date: 10/12/2018
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Tamara Oldaker

Sample ID: SP 3 @ 1' (H803012-08)

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	10/23/2018	ND	432	108	400	0.00		

Sample ID: SP 3 @ 2' (H803012-09)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	112	16.0	10/23/2018	ND	432	108	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: 10/19/2018
Reported: 10/24/2018
Project Name: HH NM FRAC PAD 6
Project Number: NOT GIVEN
Project Location: EDDY COUNTY, NM

Sampling Date: 10/12/2018
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Tamara Oldaker

Sample ID: SP 4 @ SURFACE (H803012-10)

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	10/19/2018	ND	1.90	95.1	2.00	2.08		
Toluene*	<0.050	0.050	10/19/2018	ND	1.80	89.9	2.00	1.83		
Ethylbenzene*	<0.050	0.050	10/19/2018	ND	1.79	89.7	2.00	1.75		
Total Xylenes*	<0.150	0.150	10/19/2018	ND	5.42	90.3	6.00	2.05		
Total BTX	<0.300	0.300	10/19/2018	ND						

Surrogate: 4-Bromofluorobenzene (PID) 90.2 % 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	10800	16.0	10/23/2018	ND	400	100	400	3.92	QM-07

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	10/19/2018	ND	209	105	200	0.565	
DRO >C10-C28*	<10.0	10.0	10/19/2018	ND	203	102	200	1.07	
EXT DRO >C28-C36	<10.0	10.0	10/19/2018	ND					

Surrogate: 1-Chlorooctane 96.0 % 41-142

Surrogate: 1-Chlorooctadecane 96.8 % 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: 10/19/2018
Reported: 10/24/2018
Project Name: HH NM FRAC PAD 6
Project Number: NOT GIVEN
Project Location: EDDY COUNTY, NM

Sampling Date: 10/12/2018
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Tamara Oldaker

Sample ID: SP 4 @ 1' (H803012-11)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	3400	16.0	10/23/2018	ND	400	100	400	3.92		

Sample ID: SP 4 @ 2' (H803012-12)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	640	16.0	10/23/2018	ND	400	100	400	3.92	

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: 10/19/2018
Reported: 10/24/2018
Project Name: HH NM FRAC PAD 6
Project Number: NOT GIVEN
Project Location: EDDY COUNTY, NM

Sampling Date: 10/12/2018
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Tamara Oldaker

Sample ID: SP 5 @ SURFACE (H803012-13)

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	10/19/2018	ND	1.90	95.1	2.00	2.08		
Toluene*	<0.050	0.050	10/19/2018	ND	1.80	89.9	2.00	1.83		
Ethylbenzene*	<0.050	0.050	10/19/2018	ND	1.79	89.7	2.00	1.75		
Total Xylenes*	<0.150	0.150	10/19/2018	ND	5.42	90.3	6.00	2.05		
Total BTX	<0.300	0.300	10/19/2018	ND						

Surrogate: 4-Bromofluorobenzene (PID) 89.6 % 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	10800	16.0	10/23/2018	ND	400	100	400	3.92		

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	10/19/2018	ND	209	105	200	0.565	
DRO >C10-C28*	<10.0	10.0	10/19/2018	ND	203	102	200	1.07	
EXT DRO >C28-C36	<10.0	10.0	10/19/2018	ND					

Surrogate: 1-Chlorooctane 84.4 % 41-142

Surrogate: 1-Chlorooctadecane 88.8 % 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: 10/19/2018
Reported: 10/24/2018
Project Name: HH NM FRAC PAD 6
Project Number: NOT GIVEN
Project Location: EDDY COUNTY, NM

Sampling Date: 10/12/2018
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Tamara Oldaker

Sample ID: SP 5 @ 1' (H803012-14)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	4880	16.0	10/23/2018	ND	400	100	400	3.92	

Sample ID: SP 5 @ 2' (H803012-15)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	672	16.0	10/23/2018	ND	400	100	400	3.92	

Sample ID: SP 5 @ 3' (H803012-16)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	304	16.0	10/23/2018	ND	400	100	400	3.92	

Sample ID: SP 5 @ 4' (H803012-17)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	864	16.0	10/23/2018	ND	400	100	400	3.92	

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: 10/19/2018
Reported: 10/24/2018
Project Name: HH NM FRAC PAD 6
Project Number: NOT GIVEN
Project Location: EDDY COUNTY, NM

Sampling Date: 10/12/2018
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Tamara Oldaker

Sample ID: SP 6 @ SURFACE (H803012-18)

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	10/19/2018	ND	1.90	95.1	2.00	2.08	
Toluene*	<0.050	0.050	10/19/2018	ND	1.80	89.9	2.00	1.83	
Ethylbenzene*	<0.050	0.050	10/19/2018	ND	1.79	89.7	2.00	1.75	
Total Xylenes*	<0.150	0.150	10/19/2018	ND	5.42	90.3	6.00	2.05	
Total BTX	<0.300	0.300	10/19/2018	ND					

Surrogate: 4-Bromofluorobenzene (PID) 89.8 % 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	11500	16.0	10/23/2018	ND	400	100	400	3.92		

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	10/19/2018	ND	209	105	200	0.565	
DRO >C10-C28*	<10.0	10.0	10/19/2018	ND	203	102	200	1.07	
EXT DRO >C28-C36	<10.0	10.0	10/19/2018	ND					

Surrogate: 1-Chlorooctane 93.3 % 41-142

Surrogate: 1-Chlorooctadecane 95.0 % 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: 10/19/2018
Reported: 10/24/2018
Project Name: HH NM FRAC PAD 6
Project Number: NOT GIVEN
Project Location: EDDY COUNTY, NM

Sampling Date: 10/15/2018
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Tamara Oldaker

Sample ID: SP 6 @ 1' (H803012-19)

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	10/23/2018	ND	400	100	400	3.92		

Sample ID: SP 6 @ 2' (H803012-20)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	128	16.0	10/23/2018	ND	400	100	400	3.92	

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: 10/19/2018
Reported: 10/24/2018
Project Name: HH NM FRAC PAD 6
Project Number: NOT GIVEN
Project Location: EDDY COUNTY, NM

Sampling Date: 10/15/2018
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Tamara Oldaker

Sample ID: SP 7 @ SURFACE (H803012-21)

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	10/19/2018	ND	1.90	95.1	2.00	2.08		
Toluene*	<0.050	0.050	10/19/2018	ND	1.80	89.9	2.00	1.83		
Ethylbenzene*	<0.050	0.050	10/19/2018	ND	1.79	89.7	2.00	1.75		
Total Xylenes*	<0.150	0.150	10/19/2018	ND	5.42	90.3	6.00	2.05		
Total BTX	<0.300	0.300	10/19/2018	ND						

Surrogate: 4-Bromofluorobenzene (PID) 90.2 % 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	1140	16.0	10/23/2018	ND	400	100	400	3.92		

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	10/19/2018	ND	209	105	200	0.565	
DRO >C10-C28*	<10.0	10.0	10/19/2018	ND	203	102	200	1.07	
EXT DRO >C28-C36	<10.0	10.0	10/19/2018	ND					

Surrogate: 1-Chlorooctane 91.5 % 41-142

Surrogate: 1-Chlorooctadecane 91.4 % 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: 10/19/2018
Reported: 10/24/2018
Project Name: HH NM FRAC PAD 6
Project Number: NOT GIVEN
Project Location: EDDY COUNTY, NM

Sampling Date: 10/15/2018
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Tamara Oldaker

Sample ID: SP 7 @ 1' (H803012-22)

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	10/23/2018	ND	400	100	400	3.92	

Sample ID: SP 7 @ 2' (H803012-23)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	256	16.0	10/23/2018	ND	400	100	400	3.92	

Sample ID: SP 7 @ 3' (H803012-24)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	176	16.0	10/23/2018	ND	400	100	400	3.92	

Sample ID: SP 7 @ 4' (H803012-25)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	112	16.0	10/23/2018	ND	400	100	400	3.92	

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: 10/19/2018
Reported: 10/24/2018
Project Name: HH NM FRAC PAD 6
Project Number: NOT GIVEN
Project Location: EDDY COUNTY, NM

Sampling Date: 10/15/2018
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Tamara Oldaker

Sample ID: SP 8 @ SURFACE (H803012-26)

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	10/19/2018	ND	1.90	95.1	2.00	2.08	
Toluene*	<0.050	0.050	10/19/2018	ND	1.80	89.9	2.00	1.83	
Ethylbenzene*	<0.050	0.050	10/19/2018	ND	1.79	89.7	2.00	1.75	
Total Xylenes*	<0.150	0.150	10/19/2018	ND	5.42	90.3	6.00	2.05	
Total BTEx	<0.300	0.300	10/19/2018	ND					

Surrogate: 4-Bromofluorobenzene (PID) 90.6 % 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	1230	16.0	10/23/2018	ND	400	100	400	3.92	

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	10/19/2018	ND	209	105	200	0.565	
DRO >C10-C28*	<10.0	10.0	10/19/2018	ND	203	102	200	1.07	
EXT DRO >C28-C36	<10.0	10.0	10/19/2018	ND					

Surrogate: 1-Chlorooctane 92.2 % 41-142

Surrogate: 1-Chlorooctadecane 93.3 % 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: 10/19/2018
Reported: 10/24/2018
Project Name: HH NM FRAC PAD 6
Project Number: NOT GIVEN
Project Location: EDDY COUNTY, NM

Sampling Date: 10/16/2018
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Tamara Oldaker

Sample ID: SP 8 @ 1' (H803012-27)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	2040	16.0	10/23/2018	ND	400	100	400	3.92		

Sample ID: SP 8 @ 2' (H803012-28)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	512	16.0	10/23/2018	ND	400	100	400	3.92		

Sample ID: SP 8 @ 3' (H803012-29)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	496	16.0	10/23/2018	ND	400	100	400	3.92	

Sample ID: SP 8 @ 4' (H803012-30)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	160	16.0	10/23/2018	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: 10/19/2018
Reported: 10/24/2018
Project Name: HH NM FRAC PAD 6
Project Number: NOT GIVEN
Project Location: EDDY COUNTY, NM

Sampling Date: 10/16/2018
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Tamara Oldaker

Sample ID: SP 9 @ SURFACE (H803012-31)

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	10/19/2018	ND	1.90	95.1	2.00	2.08		
Toluene*	<0.050	0.050	10/19/2018	ND	1.80	89.9	2.00	1.83		
Ethylbenzene*	<0.050	0.050	10/19/2018	ND	1.79	89.7	2.00	1.75		
Total Xylenes*	<0.150	0.150	10/19/2018	ND	5.42	90.3	6.00	2.05		
Total BTEx	<0.300	0.300	10/19/2018	ND						

Surrogate: 4-Bromofluorobenzene (PID) 89.3 % 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	5730	16.0	10/23/2018	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	10/19/2018	ND	209	105	200	0.565	
DRO >C10-C28*	<10.0	10.0	10/19/2018	ND	203	102	200	1.07	
EXT DRO >C28-C36	<10.0	10.0	10/19/2018	ND					

Surrogate: 1-Chlorooctane 97.1 % 41-142

Surrogate: 1-Chlorooctadecane 99.4 % 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: 10/19/2018
Reported: 10/24/2018
Project Name: HH NM FRAC PAD 6
Project Number: NOT GIVEN
Project Location: EDDY COUNTY, NM

Sampling Date: 10/16/2018
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Tamara Oldaker

Sample ID: SP 9 @ 1' (H803012-32)

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	10/23/2018	ND	416	104	400	0.00		

Sample ID: SP 9 @ 2' (H803012-33)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	480	16.0	10/23/2018	ND	416	104	400	0.00	

Sample ID: SP 9 @ 3' (H803012-34)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	448	16.0	10/23/2018	ND	416	104	400	0.00		

Sample ID: SP 9 @ 4' (H803012-35)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	144	16.0	10/23/2018	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: 10/19/2018
Reported: 10/24/2018
Project Name: HH NM FRAC PAD 6
Project Number: NOT GIVEN
Project Location: EDDY COUNTY, NM

Sampling Date: 10/16/2018
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Tamara Oldaker

Sample ID: SP 10 @ SURFACE (H803012-36)

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	10/19/2018	ND	1.90	95.1	2.00	2.08		
Toluene*	<0.050	0.050	10/19/2018	ND	1.80	89.9	2.00	1.83		
Ethylbenzene*	<0.050	0.050	10/19/2018	ND	1.79	89.7	2.00	1.75		
Total Xylenes*	<0.150	0.150	10/19/2018	ND	5.42	90.3	6.00	2.05		
Total BTEx	<0.300	0.300	10/19/2018	ND						

Surrogate: 4-Bromofluorobenzene (PID) 90.9 % 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	9600	16.0	10/23/2018	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	10/19/2018	ND	209	105	200	0.565	
DRO >C10-C28*	<10.0	10.0	10/19/2018	ND	203	102	200	1.07	
EXT DRO >C28-C36	<10.0	10.0	10/19/2018	ND					

Surrogate: 1-Chlorooctane 90.3 % 41-142

Surrogate: 1-Chlorooctadecane 90.3 % 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: 10/19/2018
Reported: 10/24/2018
Project Name: HH NM FRAC PAD 6
Project Number: NOT GIVEN
Project Location: EDDY COUNTY, NM

Sampling Date: 10/16/2018
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Tamara Oldaker

Sample ID: SP 10 @ 1' (H803012-37)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	1800	16.0	10/23/2018	ND	416	104	400	0.00		

Sample ID: SP 10 @ 2' (H803012-38)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	592	16.0	10/23/2018	ND	416	104	400	0.00	

Sample ID: SP 10 @ 3' (H803012-39)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	160	16.0	10/23/2018	ND	416	104	400	0.00		

Sample ID: SP 10 @ 4' (H803012-40)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	160	16.0	10/23/2018	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: 10/19/2018
Reported: 10/24/2018
Project Name: HH NM FRAC PAD 6
Project Number: NOT GIVEN
Project Location: EDDY COUNTY, NM

Sampling Date: 10/16/2018
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Tamara Oldaker

Sample ID: SP 11 @ SURFACE (H803012-41)

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	10/19/2018	ND	1.90	95.1	2.00	2.08		
Toluene*	<0.050	0.050	10/19/2018	ND	1.80	89.9	2.00	1.83		
Ethylbenzene*	<0.050	0.050	10/19/2018	ND	1.79	89.7	2.00	1.75		
Total Xylenes*	<0.150	0.150	10/19/2018	ND	5.42	90.3	6.00	2.05		
Total BTEx	<0.300	0.300	10/19/2018	ND						

Surrogate: 4-Bromofluorobenzene (PID) 91.4 % 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	9060	16.0	10/23/2018	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	10/19/2018	ND	209	105	200	0.565	
DRO >C10-C28*	<10.0	10.0	10/19/2018	ND	203	102	200	1.07	
EXT DRO >C28-C36	<10.0	10.0	10/19/2018	ND					

Surrogate: 1-Chlorooctane 90.5 % 41-142

Surrogate: 1-Chlorooctadecane 90.0 % 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: 10/19/2018
Reported: 10/24/2018
Project Name: HH NM FRAC PAD 6
Project Number: NOT GIVEN
Project Location: EDDY COUNTY, NM

Sampling Date: 10/16/2018
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Tamara Oldaker

Sample ID: SP 11 @ 1' (H803012-42)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	1600	16.0	10/23/2018	ND	416	104	400	0.00		

Sample ID: SP 11 @ 2' (H803012-43)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	720	16.0	10/23/2018	ND	416	104	400	0.00	

Sample ID: SP 11 @ 3' (H803012-44)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	144	16.0	10/23/2018	ND	416	104	400	0.00		

Sample ID: SP 11 @ 4' (H803012-45)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	160	16.0	10/23/2018	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: 10/19/2018
Reported: 10/24/2018
Project Name: HH NM FRAC PAD 6
Project Number: NOT GIVEN
Project Location: EDDY COUNTY, NM

Sampling Date: 10/16/2018
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Tamara Oldaker

Sample ID: SP 12 @ SURFACE (H803012-46)

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	10/20/2018	ND	1.90	95.1	2.00	2.08		
Toluene*	<0.050	0.050	10/20/2018	ND	1.80	89.9	2.00	1.83		
Ethylbenzene*	<0.050	0.050	10/20/2018	ND	1.79	89.7	2.00	1.75		
Total Xylenes*	<0.150	0.150	10/20/2018	ND	5.42	90.3	6.00	2.05		
Total BTX	<0.300	0.300	10/20/2018	ND						

Surrogate: 4-Bromofluorobenzene (PID) 89.7 % 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	10/23/2018	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	10/19/2018	ND	209	105	200	0.565	
DRO >C10-C28*	<10.0	10.0	10/19/2018	ND	203	102	200	1.07	
EXT DRO >C28-C36	<10.0	10.0	10/19/2018	ND					

Surrogate: 1-Chlorooctane 94.2 % 41-142

Surrogate: 1-Chlorooctadecane 92.5 % 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: 10/19/2018
Reported: 10/24/2018
Project Name: HH NM FRAC PAD 6
Project Number: NOT GIVEN
Project Location: EDDY COUNTY, NM

Sampling Date: 10/16/2018
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Tamara Oldaker

Sample ID: SP 12 @ 1' (H803012-47)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	1180	16.0	10/23/2018	ND	416	104	400	0.00		

Sample ID: SP 12 @ 2' (H803012-48)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	432	16.0	10/23/2018	ND	416	104	400	0.00	

Sample ID: SP 12 @ 3' (H803012-49)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	144	16.0	10/23/2018	ND	416	104	400	0.00		

Sample ID: SP 12 @ 4' (H803012-50)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	176	16.0	10/23/2018	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: 10/19/2018
Reported: 10/24/2018
Project Name: HH NM FRAC PAD 6
Project Number: NOT GIVEN
Project Location: EDDY COUNTY, NM

Sampling Date: 10/16/2018
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Tamara Oldaker

Sample ID: SP 13 @ SURFACE (H803012-51)

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	10/20/2018	ND	1.90	95.1	2.00	2.08		
Toluene*	<0.050	0.050	10/20/2018	ND	1.80	89.9	2.00	1.83		
Ethylbenzene*	<0.050	0.050	10/20/2018	ND	1.79	89.7	2.00	1.75		
Total Xylenes*	<0.150	0.150	10/20/2018	ND	5.42	90.3	6.00	2.05		
Total BTEx	<0.300	0.300	10/20/2018	ND						

Surrogate: 4-Bromofluorobenzene (PID) 89.2 % 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	14000	16.0	10/23/2018	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	10/19/2018	ND	209	105	200	0.565	
DRO >C10-C28*	<10.0	10.0	10/19/2018	ND	203	102	200	1.07	
EXT DRO >C28-C36	<10.0	10.0	10/19/2018	ND					

Surrogate: 1-Chlorooctane 95.5 % 41-142

Surrogate: 1-Chlorooctadecane 94.1 % 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: 10/19/2018
Reported: 10/24/2018
Project Name: HH NM FRAC PAD 6
Project Number: NOT GIVEN
Project Location: EDDY COUNTY, NM

Sampling Date: 10/16/2018
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Tamara Oldaker

Sample ID: SP 13 @ 1' (H803012-52)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	2320	16.0	10/23/2018	ND	416	104	400	0.00	

Sample ID: SP 13 @ 2' (H803012-53)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	1620	16.0	10/23/2018	ND	416	104	400	0.00	

Sample ID: SP 13 @ 3' (H803012-54)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	848	16.0	10/23/2018	ND	416	104	400	0.00	

Sample ID: SP 13 @ 4' (H803012-55)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	192	16.0	10/23/2018	ND	416	104	400	0.00	

Sample ID: SP 13 @ 5' (H803012-56)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	160	16.0	10/23/2018	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: 10/19/2018
Reported: 10/24/2018
Project Name: HH NM FRAC PAD 6
Project Number: NOT GIVEN
Project Location: EDDY COUNTY, NM

Sampling Date: 10/16/2018
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Tamara Oldaker

Sample ID: NORTH @ SURFACE (H803012-57)

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	10/20/2018	ND	1.90	95.1	2.00	2.08		
Toluene*	<0.050	0.050	10/20/2018	ND	1.80	89.9	2.00	1.83		
Ethylbenzene*	<0.050	0.050	10/20/2018	ND	1.79	89.7	2.00	1.75		
Total Xylenes*	<0.150	0.150	10/20/2018	ND	5.42	90.3	6.00	2.05		
Total BTEx	<0.300	0.300	10/20/2018	ND						

Surrogate: 4-Bromofluorobenzene (PID) 89.6 % 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	160	16.0	10/23/2018	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	10/19/2018	ND	209	105	200	0.565	
DRO >C10-C28*	<10.0	10.0	10/19/2018	ND	203	102	200	1.07	
EXT DRO >C28-C36	<10.0	10.0	10/19/2018	ND					

Surrogate: 1-Chlorooctane 96.2 % 41-142

Surrogate: 1-Chlorooctadecane 91.1 % 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: 10/19/2018
Reported: 10/24/2018
Project Name: HH NM FRAC PAD 6
Project Number: NOT GIVEN
Project Location: EDDY COUNTY, NM

Sampling Date: 10/16/2018
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Tamara Oldaker

Sample ID: EAST @ SURFACE (H803012-58)

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	10/22/2018	ND	2.34	117	2.00	2.12	
Toluene*	<0.050	0.050	10/22/2018	ND	2.22	111	2.00	0.802	
Ethylbenzene*	<0.050	0.050	10/22/2018	ND	2.18	109	2.00	2.88	
Total Xylenes*	<0.150	0.150	10/22/2018	ND	6.66	111	6.00	2.30	
Total BTEx	<0.300	0.300	10/22/2018	ND					

Surrogate: 4-Bromofluorobenzene (PID) 91.8 % 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	128	16.0	10/23/2018	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	10/19/2018	ND	209	105	200	0.565	
DRO >C10-C28*	<10.0	10.0	10/19/2018	ND	203	102	200	1.07	
EXT DRO >C28-C36	<10.0	10.0	10/19/2018	ND					

Surrogate: 1-Chlorooctane 91.9 % 41-142

Surrogate: 1-Chlorooctadecane 92.5 % 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: 10/19/2018
Reported: 10/24/2018
Project Name: HH NM FRAC PAD 6
Project Number: NOT GIVEN
Project Location: EDDY COUNTY, NM

Sampling Date: 10/16/2018
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Tamara Oldaker

Sample ID: WEST @ SURFACE (H803012-59)

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	10/22/2018	ND	2.34	117	2.00	2.12		
Toluene*	<0.050	0.050	10/22/2018	ND	2.22	111	2.00	0.802		
Ethylbenzene*	<0.050	0.050	10/22/2018	ND	2.18	109	2.00	2.88		
Total Xylenes*	<0.150	0.150	10/22/2018	ND	6.66	111	6.00	2.30		
Total BTEx	<0.300	0.300	10/22/2018	ND						

Surrogate: 4-Bromofluorobenzene (PID) 92.3 % 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	160	16.0	10/23/2018	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	10/19/2018	ND	209	105	200	0.565	
DRO >C10-C28*	<10.0	10.0	10/19/2018	ND	203	102	200	1.07	
EXT DRO >C28-C36	<10.0	10.0	10/19/2018	ND					

Surrogate: 1-Chlorooctane 94.5 % 41-142

Surrogate: 1-Chlorooctadecane 95.1 % 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: 10/19/2018
Reported: 10/24/2018
Project Name: HH NM FRAC PAD 6
Project Number: NOT GIVEN
Project Location: EDDY COUNTY, NM

Sampling Date: 10/16/2018
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Tamara Oldaker

Sample ID: SOUTH @ SURFACE (H803012-60)

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	10/22/2018	ND	2.34	117	2.00	2.12	
Toluene*	<0.050	0.050	10/22/2018	ND	2.22	111	2.00	0.802	
Ethylbenzene*	<0.050	0.050	10/22/2018	ND	2.18	109	2.00	2.88	
Total Xylenes*	<0.150	0.150	10/22/2018	ND	6.66	111	6.00	2.30	
Total BTEx	<0.300	0.300	10/22/2018	ND					

Surrogate: 4-Bromofluorobenzene (PID) 93.5 % 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	112	16.0	10/23/2018	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	10/19/2018	ND	209	105	200	0.565	
DRO >C10-C28*	<10.0	10.0	10/19/2018	ND	203	102	200	1.07	
EXT DRO >C28-C36	<10.0	10.0	10/19/2018	ND					

Surrogate: 1-Chlorooctane 86.8 % 41-142

Surrogate: 1-Chlorooctadecane 88.0 % 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

Notes and Definitions

QM-07	The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS recovery.
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

*=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



1084

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



101 East Marland, Hobbs, NM 88240

(505) 393-2326 FAX (505) 393-2476

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

Page 34 of 38

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



3086

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:		Received By:		Phone Result: <input type="checkbox"/> Yes <input type="checkbox"/> No		Add'l Phone #:	
Veff Omelas		Date: 10/16/18		Fax Result: <input type="checkbox"/> Yes <input type="checkbox"/> No		Add'l Fax #:	
Time: 5:30pm				REMARKS:			
Relinquished By:		Received By:					
S. [Signature]		Date: 10-19-18					
Time: 11:15		[Signature]					
Delivered By: (Circle One)		Sample Condition		CHECKED BY:			
Sampler - UPS - Bus - Other:		Cool Intact		(Initials)			
1.7i #97		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		T.O.			

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

**CARDINAL LABORATORIES**

101 East Marland, Hobbs, NM 88240

(505) 393-2326 FAX (505) 393-2476

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

4086

Page 36 of 38

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);">CL</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">BTEX</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">TPH EXT</div> </div>											
Address: P.O. Box 805				Company: BBC															
City: Hobbs State: NM Zip: 88241				Attn: Jennifer															
Phone #: 575-397-6388 Fax #: 575-397-0397				Address:															
Project #: Project Owner: Chevron				City:															
Project Name: HH NM Frac Pad 6				State: Zip:															
Project Location: Eddy County, NM				Phone #:															
Sampler Name: Jeff Ornelas				Fax #:															
FOR LAB USE ONLY																			
Lab I.D.	Sample I.D.	G/RAB OR (C)OMP.	# CONTAINERS	MATRIX				PRESERV.		SAMPLING									
				GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER :	ACID/BASE:	ICE / COOL	OTHER :	DATE	TIME					
H803012																			
31	SP9 @ SURFACE					✓				✓			10/16/18	9:35 AM	✓	✓	✓		
32	SP9 @ 1'												10/16/18	9:40 AM	✓				
33	SP9 @ 2'												10/16/18	9:45 AM	✓				
34	SP9 @ 3'												10/16/18	9:51 AM	✓				
35	SP9 @ 4'												10/16/18	9:58 AM	✓				
36	SP10 @ SURFACE												10/16/18	10:11 AM	✓	✓	✓		
37	SP10 @ 1'												10/16/18	10:15 AM	✓				
38	SP10 @ 2'												10/16/18	10:20 AM	✓				
39	SP10 @ 3'												10/16/18	10:30 AM	✓				
40	SP10 @ 4'												10/16/18	10:55 AM	✓				

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:	Date: 10/16/18	Received By:	Phone Result: <input type="checkbox"/> Yes <input type="checkbox"/> No	Add'l Phone #:
Relinquished By:	Date: 10-19-18	Received By:	Fax Result: <input type="checkbox"/> Yes <input type="checkbox"/> No	Add'l Fax #:
Delivered By: (Circle One)	Time: 5:30pm	Time: 11:15	REMARKS:	
Sampler - UPS - Bus - Other:	1.7c #97	Sample Condition Cool Intact <input type="checkbox"/> Yes <input type="checkbox"/> No	CHECKED BY: (Initials) TO.	

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

**CARDINAL LABORATORIES**

101 East Marland, Hobbs, NM 88240

(505) 393-2326 FAX (505) 393-2476

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

5084

Page 37 of 38

Company Name: BBC International, Inc.				BILL TO				ANALYSIS REQUEST																									
Project Manager: Cliff Brunson				P.O. #:																													
Address: P.O. Box 805				Company: BBC																													
City: Hobbs State: NM Zip: 88241				Attn: Jennifer																													
Phone #: 575-397-6388 Fax #: 575-397-0397				Address:																													
Project #: Project Owner: Chevron				City:																													
Project Name: HH NM Frac Pad 6				State: Zip:																													
Project Location: Eddy County, NM				Phone #:																													
Sampler Name: Jeff Ornelas				Fax #:																													
FOR LAB USE ONLY				MATRIX		PRESERV.		SAMPLING																									
Lab I.D.	Sample I.D.	GRAB OR (C)OMP.	# CONTAINERS	GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER :	ACID/BASE:	ICE / COOL	OTHER :	DATE	TIME																			
H803012																																	
41	SP11 @ SURFACE												10/16/18	11:11 AM	✓	✓	✓																
42	SP11 @ 1'												10/16/18	11:15 AM	✓																		
43	SP11 @ 2'												10/16/18	11:22 AM	✓																		
44	SP11 @ 3'												10/16/18	11:39 AM	✓																		
45	SP11 @ 4'												10/16/18	11:57 AM	✓																		
46	SP12 @ SURFACE												10/16/18	12:01 PM	✓	✓	✓																
47	SP12 @ 1'												10/16/18	12:50 PM	✓																		
48	SP12 @ 2'												10/16/18	12:55 PM	✓																		
49	SP12 @ 3'												10/16/18	1:05 PM	✓																		
50	SP12 @ 4'												10/16/18	1:11 PM	✓																		

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: Jeff Ornelas	Date: 10/16/18	Received By:	Phone Result: <input type="checkbox"/> Yes <input type="checkbox"/> No	Add'l Phone #:
	Time: 5:30pm		Fax Result: <input type="checkbox"/> Yes <input type="checkbox"/> No	Add'l Fax #:
Relinquished By: [Signature]	Date: 10-19-18	Received By: Samara P. [Signature]	REMARKS:	
	Time: 11:15			
Delivered By: (Circle One)	Sample Condition	CHECKED BY: (Initials)		
Sampler - UPS - Bus - Other:	Cool Intact			
	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No			
	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			

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

**CARDINAL LABORATORIES**

101 East Marland, Hobbs, NM 88240

(505) 393-2326 FAX (505) 393-2476

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

6 of 4

Page 38 of 38

Company Name: BBC International, Inc.				BILL TO				ANALYSIS REQUEST											
Project Manager: Cliff Brunson				P.O. #:															
Address: P.O. Box 805				Company: BBC															
City: Hobbs State: NM Zip: 88241				Attn: Jennifer															
Phone #: 575-397-6388 Fax #: 575-397-0397				Address:															
Project #: Project Owner: Chevron				City:															
Project Name: HH NM Frac Pad 6				State: Zip:															
Project Location: Eddy County, NM				Phone #:															
Sampler Name: Jeff Ornelas				Fax #:															
FOR LAB USE ONLY																			
Lab I.D.	Sample I.D.	G/RAB OR (C)OMP.	# CONTAINERS	MATRIX					PRESERV.	SAMPLING		CI BTEX TPH EXT							
				GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER:	ACID/BASE:	ICE / COOL					OTHER:	DATE	TIME	
480302																			
51	SP13 @ SURFACE	G	1			✓				✓							10/16/18	1:15 PM	
52	SP13 @ 1'																10/16/18	1:22 PM	
53	SP13 @ 2'																10/16/18	1:33 PM	
54	SP13 @ 3'																10/16/18	1:44 PM	
55	SP13 @ 4'												10/16/18	1:55 PM					
56	SP13 @ 5'												10/16/18	2:07 PM					
57	NORTH @ SURFACE												10/16/18	2:15 PM					
58	EAST @ SURFACE												10/16/18	2:22 PM					
59	WEST @ SURFACE												10/16/18	2:39 PM					
60	SOUTH @ SURFACE												10/16/18	3:01 PM					

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:	Date: 10/16/18	Received By:	Phone Result: <input type="checkbox"/> Yes <input type="checkbox"/> No	Add'l Phone #:
Jeff Ornelas	Time: 5:30p		Fax Result: <input type="checkbox"/> Yes <input type="checkbox"/> No	Add'l Fax #:
Relinquished By:	Date: 10-19-18	Received By:	REMARKS:	
Samuel	Time: 11:15	Jamora		
Delivered By: (Circle One)	Sample Condition	CHECKED BY:		
Sampler - UPS - Bus - Other:	Cool Intact	(Initials)		
1.7C #97	<input type="checkbox"/> Yes <input type="checkbox"/> No	TO		

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