



**APPROVED**

By *CHernandez* at 5:14 pm, Aug 28, 2018

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**DELINEATION WORKPLAN**  
**COG – HARRIER 35 FED COM 1H**  
**(Leak Date: 6/17/18)**

**RP # 1RP-5105**

NMOCD approves the completed delineation and proposed remediation for **1RP-5105**. Approval is also conditional based on the following: 1) Sidewall confirmation samples from all delineation sample locations at no greater than 50 ft. intervals. 2) BTEX, TPH extended, and chlorides laboratory analyses for all confirmation samples. 3) Marked confirmation sample locations in relation to delineation sample locations on a scaled map. 4) Dated photo documentation of the remediation process.

This delineation workplan and remediation proposal addresses the release associated with RP # 1RP-5105.

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:***

***COG will excavate the spill area as depicted on the following site diagram. The entire leak area will be excavated to a depth of 4 feet with an impermeable liner placed in the bottom of the excavation.***

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.

# COG, Harrier 35 Fed Com 1H

Leak date: 06/17/2018

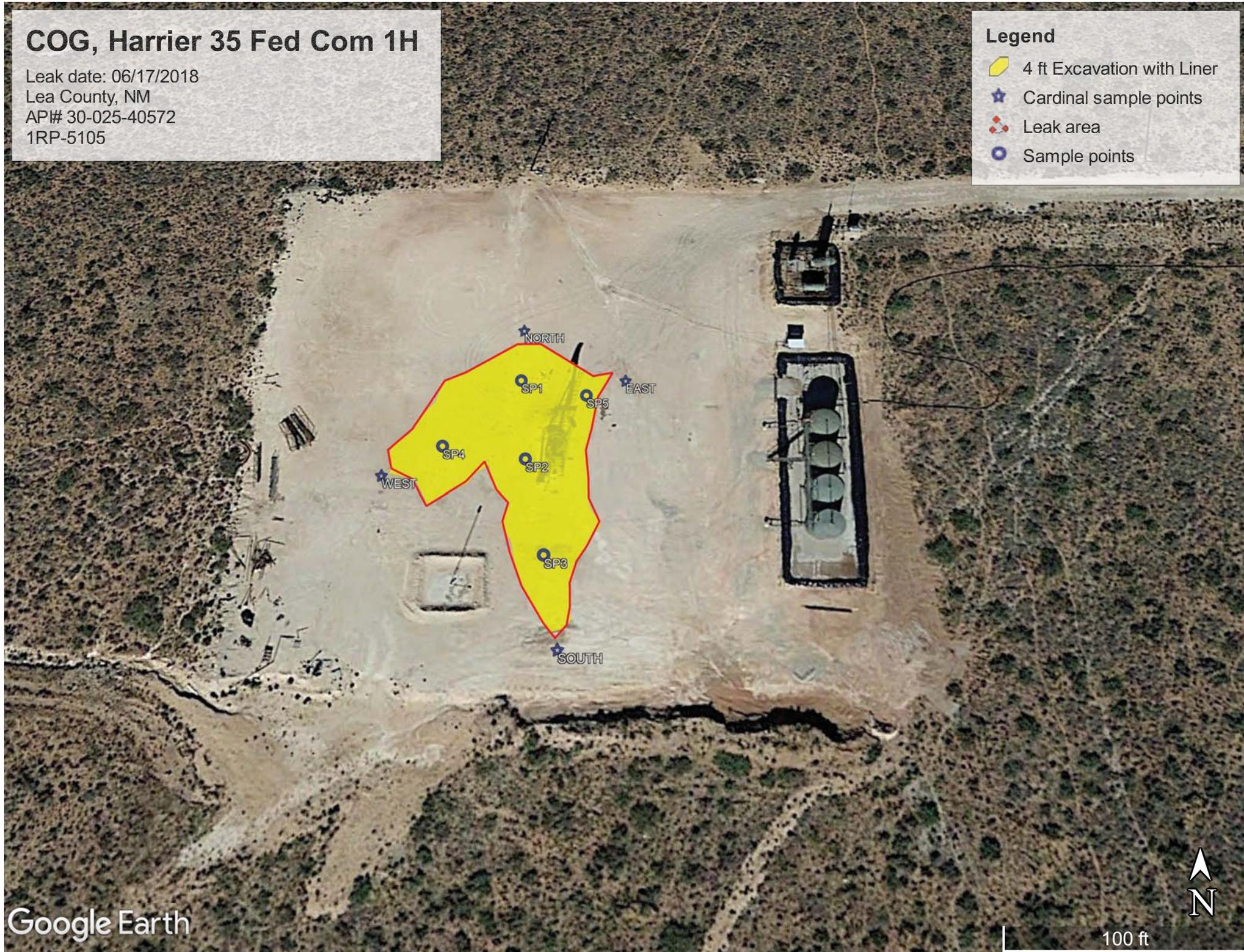
Lea County, NM

AP# 30-025-40572

1RP-5105

## Legend

-  4 ft Excavation with Liner
-  Cardinal sample points
-  Leak area
-  Sample points



COG, Harrier 35 Fed Com 1H

Sample points

SP1, N 32.08883 W-103.64207

SP2, N 32.08870 W-103.64206

SP3, N 32.08856 W-103.64202

SP4, N 32.08873 W-103.64219

SP5, N 32.08881 W-103.64196

NORTH, N 32.08892 W-103.64207

SOUTH, N 32.08842 W-103.64200

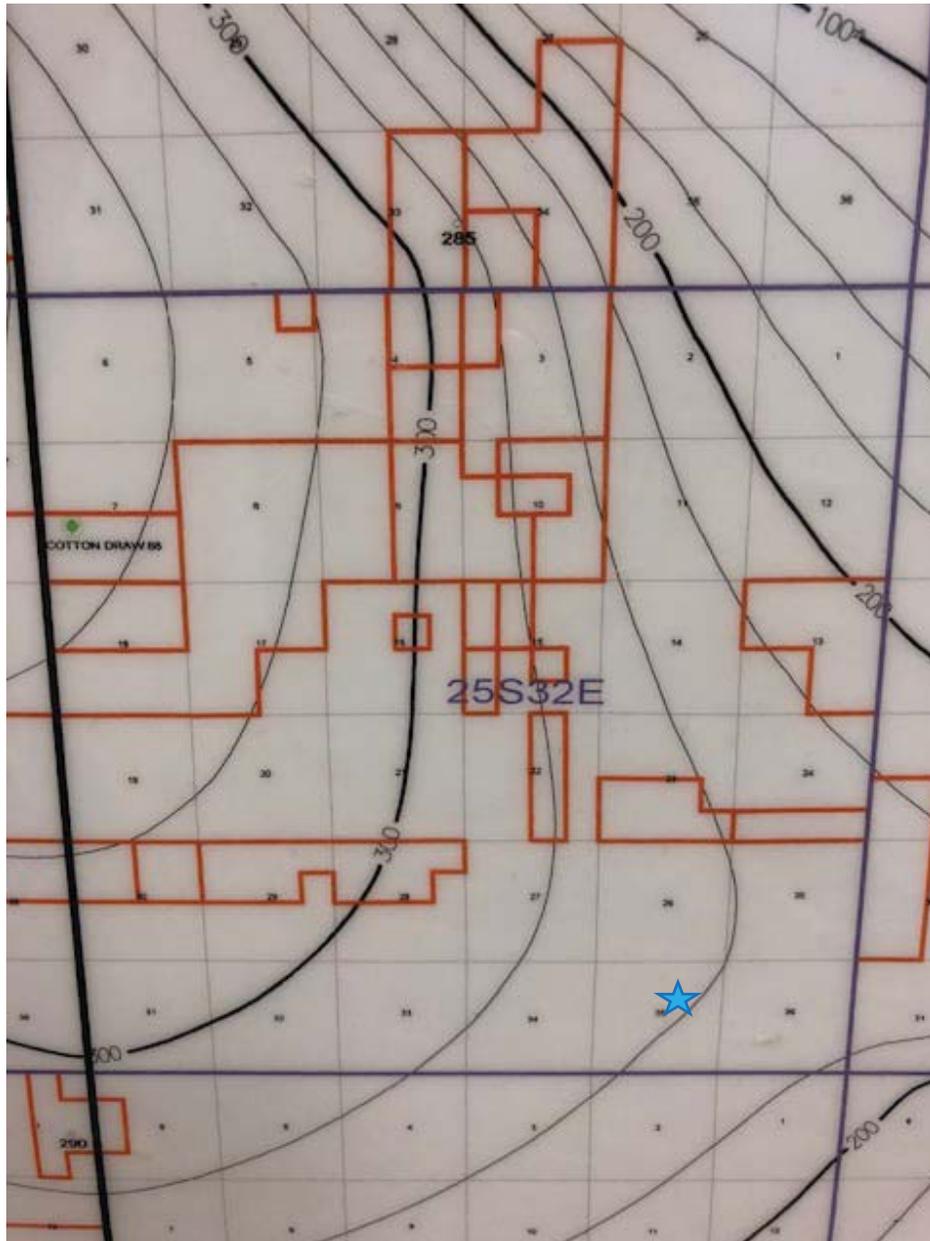
EAST, N 32.08883 W-103.64190

WEST, N 32.08868 W-103.64228

**COG, Harrier 35 Fed Com #001H**

**U/L G, Section 35, T25S, R32E**

**Groundwater: 250'**





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# New Mexico Office of the State Engineer

## Water Column/Average Depth to Water

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No records found.

**UTMNAD83 Radius Search (in meters):**

**Easting (X):** 628009

**Northing (Y):** 3551075

**Radius:** 1700

**Public Land Survey System (PLSS)**

Q64:  Q16:  Q4:  Sec:  Tws:  Rng:

**State Plane Coordinate System - NAD27**

X:  ft Y:  ft Zone:

**State Plane Coordinate System - NAD83**

X:  ft Y:  ft Zone:

**Degrees/Minutes/Seconds**

Longitude (X): Degrees:  ° Minutes:  ' Seconds:  "  
Latitude (Y): Degrees:  ° Minutes:  ' Seconds:  "

**UTM - NAD27**

Easting (X):  mtrs Northing (Y):  mtrs Zone:

**SUBMIT**

**All Conversion Results are displayed as NAD 1983 UTM Zone 13**

Easting (X):  mtrs Northing (Y):  mtrs

~~ Please keep screen open to copy UTM values for Reports. ~~

Laboratory Analytical Results Summary  
Harrier 35 Fed Com #001H (6/17/18)

Analyte	Method	Sample ID	SP1 @	SP1 @ 1'	SP1 @ 2'	SP1 @ 4'	SP1 @ 6'	SP1 @ 8'	SP1 @ 10'
			SURFACE	7/10/18	7/10/18	7/10/18	7/10/18	7/10/18	7/10/18
			mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Benzene	BTEX 8021B		<0.100	<0.050	n/a	n/a	n/a	n/a	n/a
Toluene	BTEX 8021B		0.165	<0.050	n/a	n/a	n/a	n/a	n/a
Ethylbenzene	BTEX 8021B		0.477	<0.050	n/a	n/a	n/a	n/a	n/a
Total Xylenes	BTEX 8021B		4.09	<0.150	n/a	n/a	n/a	n/a	n/a
Total BTEX	BTEX 8021B		4.73	<0.300	n/a	n/a	n/a	n/a	n/a
Chloride	SM4500Cl-B		10700	2240	5840	7760	2600	2120	512
GRO	TPH 8015M		190	<10.0	n/a	n/a	n/a	n/a	n/a
DRO	TPH 8015M		20900	220	n/a	n/a	n/a	n/a	n/a
EXT DRO	TPH 8015M		3630	37.5	n/a	n/a	n/a	n/a	n/a

Analyte	Method	Sample ID	SP5 @	SP5 @ 1'	SP5 @ 2'	SP5 @ 4'	SP5 @ 6'	SP5 @ 7'	SP5 @ 8'
			SURFACE	7/11/18	7/11/18	7/11/18	7/11/18	7/11/18	7/11/18
			mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Benzene	BTEX 8021B		<0.050	<0.050	n/a	n/a	n/a	n/a	n/a
Toluene	BTEX 8021B		<0.050	<0.050	n/a	n/a	n/a	n/a	n/a
Ethylbenzene	BTEX 8021B		0.057	<0.050	n/a	n/a	n/a	n/a	n/a
Total Xylenes	BTEX 8021B		0.231	<0.150	n/a	n/a	n/a	n/a	n/a
Total BTEX	BTEX 8021B		<0.300	<0.300	n/a	n/a	n/a	n/a	n/a
Chloride	SM4500Cl-B		2880	5280	8080	3280	3000	896	16
GRO	TPH 8015M		<100	<10.0	n/a	n/a	n/a	n/a	n/a
DRO	TPH 8015M		27800	27.1	n/a	n/a	n/a	n/a	n/a
EXT DRO	TPH 8015M		5690	<10.0	n/a	n/a	n/a	n/a	n/a

Analyte	Method	Sample ID	SP2 @	SP2 @ 1'	SP2 @ 2'	SP2 @ 4'	SP2 @ 6'	SP2 @ 8'	SP2 @ 10'	SP2 @ 12'
			SURFACE	7/10/18	7/10/18	7/10/18	7/10/18	7/10/18	7/10/18	7/10/18
			mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Benzene	BTEX 8021B		<0.050	<0.200	n/a	n/a	n/a	n/a	n/a	n/a
Toluene	BTEX 8021B		<0.050	0.57	n/a	n/a	n/a	n/a	n/a	n/a
Ethylbenzene	BTEX 8021B		<0.050	0.921	n/a	n/a	n/a	n/a	n/a	n/a
Total Xylenes	BTEX 8021B		<0.150	9.24	n/a	n/a	n/a	n/a	n/a	n/a
Total BTEX	BTEX 8021B		<0.300	10.7	n/a	n/a	n/a	n/a	n/a	n/a
Chloride	SM4500Cl-B		2160	26000	8660	7730	2800	2720	1630	496
GRO	TPH 8015M		<50.0	690	n/a	n/a	n/a	n/a	n/a	n/a
DRO	TPH 8015M		13400	62700	n/a	n/a	n/a	n/a	n/a	n/a
EXT DRO	TPH 8015M		2760	9270	n/a	n/a	n/a	n/a	n/a	n/a

Analyte	Method	Sample ID	NORTH @	EAST @	WEST @	SOUTH @	WEST @	SOUTH @
			SURFACE	SURFACE	SURFACE	SURFACE	SURFACE	SURFACE
			7/11/18	7/11/18	7/11/18	7/11/18	7/23/18	7/23/18
			mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Benzene	BTEX 8021B		<0.050	<0.050	<0.050	<0.050	n/a	n/a
Toluene	BTEX 8021B		<0.050	<0.050	<0.050	<0.050	n/a	n/a
Ethylbenzene	BTEX 8021B		<0.050	<0.050	<0.050	<0.050	n/a	n/a
Total Xylenes	BTEX 8021B		<0.150	<0.150	<0.150	<0.150	n/a	n/a
Total BTEX	BTEX 8021B		<0.300	<0.300	<0.300	<0.300	n/a	n/a
Chloride	SM4500Cl-B		464	480	976	1040	16	32
GRO	TPH 8015M		<10.0	<10.0	<10.0	<10.0	n/a	n/a
DRO	TPH 8015M		<10.0	<10.0	<10.0	<10.0	n/a	n/a
EXT DRO	TPH 8015M		<10.0	<10.0	<10.0	<10.0	n/a	n/a

Analyte	Method	Sample ID	SP3 @	SP3 @ 1'	SP3 @ 2'	SP3 @ 3'	SP3 @ 4'	SP3 @ 6'
			SURFACE	7/10/18	7/10/18	7/10/18	7/10/18	7/10/18
			mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Benzene	BTEX 8021B		<0.050	<0.050	n/a	n/a	n/a	n/a
Toluene	BTEX 8021B		<0.050	<0.050	n/a	n/a	n/a	n/a
Ethylbenzene	BTEX 8021B		0.055	<0.050	n/a	n/a	n/a	n/a
Total Xylenes	BTEX 8021B		0.221	<0.150	n/a	n/a	n/a	n/a
Total BTEX	BTEX 8021B		<0.300	<0.300	n/a	n/a	n/a	n/a
Chloride	SM4500Cl-B		42000	736	1840	1500	1090	32
GRO	TPH 8015M		<10.0	10.5	n/a	n/a	n/a	n/a
DRO	TPH 8015M		1980	785	n/a	n/a	n/a	n/a
EXT DRO	TPH 8015M		797	147	n/a	n/a	n/a	n/a

Analyte	Method	Sample ID	SP4 @	SP4 @ 1'	SP4 @ 2'	SP4 @ 4'	SP4 @ 6'	SP4 @ 7'	SP4 @ 8'
			SURFACE	7/11/18	7/11/18	7/11/18	7/11/18	7/11/18	7/23/18
			mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	
Benzene	BTEX 8021B		<0.050	<0.050	n/a	n/a	n/a	n/a	n/a
Toluene	BTEX 8021B		<0.050	<0.050	n/a	n/a	n/a	n/a	n/a
Ethylbenzene	BTEX 8021B		0.064	<0.050	n/a	n/a	n/a	n/a	n/a
Total Xylenes	BTEX 8021B		0.298	<0.150	n/a	n/a	n/a	n/a	n/a
Total BTEX	BTEX 8021B		0.361	<0.300	n/a	n/a	n/a	n/a	n/a
Chloride	SM4500Cl-B		3040	4120	8560	8480	6720	864	<16.0
GRO	TPH 8015M		<100	<10.0	n/a	n/a	n/a	n/a	n/a
DRO	TPH 8015M		24900	16.1	n/a	n/a	n/a	n/a	n/a
EXT DRO	TPH 8015M		5030	<10.0	n/a	n/a	n/a	n/a	n/a

July 18, 2018

Cliff Brunson

BBC International, Inc.

P.O. Box 805

Hobbs, NM 88241

RE: HARRIER 35 FED COM #1H

Enclosed are the results of analyses for samples received by the laboratory on 07/13/18 13:45.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-18-11. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (\*). For a complete list of accredited analytes and matrices visit the TCEQ website at [www.tceq.texas.gov/field/qa/lab\\_accred\\_certif.html](http://www.tceq.texas.gov/field/qa/lab_accred_certif.html).

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

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

Accreditation applies to public drinking water matrices.

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

Sincerely,



Celey D. Keene

Lab Director/Quality Manager

**Analytical Results For:**

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

Received:	07/13/2018	Sampling Date:	07/10/2018
Reported:	07/18/2018	Sampling Type:	Soil
Project Name:	HARRIER 35 FED COM #1H	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	NOT GIVEN		

**Sample ID: SP 1 @ SURFACE (H801915-01)**

BTEX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.100	0.100	07/17/2018	ND	1.89	94.4	2.00	0.871	
<b>Toluene*</b>	<b>0.165</b>	0.100	07/17/2018	ND	1.83	91.7	2.00	0.206	
<b>Ethylbenzene*</b>	<b>0.477</b>	0.100	07/17/2018	ND	1.84	92.2	2.00	1.52	
<b>Total Xylenes*</b>	<b>4.09</b>	0.300	07/17/2018	ND	5.72	95.3	6.00	1.24	
<b>Total BTEX</b>	<b>4.73</b>	0.600	07/17/2018	ND					

Surrogate: 4-Bromofluorobenzene (PID) 140 % 69.8-142

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>Chloride</b>	<b>10700</b>	16.0	07/16/2018	ND	416	104	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS						S-06
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
<b>GRO C6-C10*</b>	<b>190</b>	100	07/17/2018	ND	200	100	200	4.52		
<b>DRO &gt;C10-C28*</b>	<b>20900</b>	100	07/17/2018	ND	174	86.8	200	19.0	QM-07, QR-03	
<b>EXT DRO &gt;C28-C36</b>	<b>3630</b>	100	07/17/2018	ND						

Surrogate: 1-Chlorooctane 127 % 41-142

Surrogate: 1-Chlorooctadecane 1080 % 37.6-147

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

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

Received:	07/13/2018	Sampling Date:	07/10/2018
Reported:	07/18/2018	Sampling Type:	Soil
Project Name:	HARRIER 35 FED COM #1H	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	NOT GIVEN		

**Sample ID: SP 1 @ 1' (H801915-02)**

BTEX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	07/17/2018	ND	1.89	94.4	2.00	0.871	
Toluene*	<0.050	0.050	07/17/2018	ND	1.83	91.7	2.00	0.206	
Ethylbenzene*	<0.050	0.050	07/17/2018	ND	1.84	92.2	2.00	1.52	
Total Xylenes*	<0.150	0.150	07/17/2018	ND	5.72	95.3	6.00	1.24	
Total BTEX	<0.300	0.300	07/17/2018	ND					

Surrogate: 4-Bromofluorobenzene (PID) 118 % 69.8-142

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>Chloride</b>	<b>2240</b>	16.0	07/16/2018	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	07/17/2018	ND	200	100	200	4.52	
<b>DRO &gt;C10-C28*</b>	<b>220</b>	10.0	07/17/2018	ND	174	86.8	200	19.0	
<b>EXT DRO &gt;C28-C36</b>	<b>37.5</b>	10.0	07/17/2018	ND					

Surrogate: 1-Chlorooctane 93.5 % 41-142

Surrogate: 1-Chlorooctadecane 98.2 % 37.6-147

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

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

Received:	07/13/2018	Sampling Date:	07/10/2018
Reported:	07/18/2018	Sampling Type:	Soil
Project Name:	HARRIER 35 FED COM #1H	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	NOT GIVEN		

**Sample ID: SP 1 @ 2' (H801915-03)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	5840	16.0	07/16/2018	ND	416	104	400	0.00	

**Sample ID: SP 1 @ 4' (H801915-04)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	7760	16.0	07/16/2018	ND	416	104	400	0.00	

**Sample ID: SP 1 @ 6' (H801915-05)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	2600	16.0	07/16/2018	ND	416	104	400	0.00	

**Sample ID: SP 1 @ 8' (H801915-06)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	2120	16.0	07/16/2018	ND	416	104	400	0.00	

**Sample ID: SP 1 @ 10' (H801915-07)**

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	07/16/2018	ND	416	104	400	0.00	

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\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

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 Cliff Brunson  
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Received:	07/13/2018	Sampling Date:	07/10/2018
Reported:	07/18/2018	Sampling Type:	Soil
Project Name:	HARRIER 35 FED COM #1H	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	NOT GIVEN		

**Sample ID: SP 2 @ SURFACE (H801915-08)**

BTEX 8021B		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	07/17/2018	ND	1.89	94.4	2.00	0.871		
Toluene*	<0.050	0.050	07/17/2018	ND	1.83	91.7	2.00	0.206		
Ethylbenzene*	<0.050	0.050	07/17/2018	ND	1.84	92.2	2.00	1.52		
Total Xylenes*	<0.150	0.150	07/17/2018	ND	5.72	95.3	6.00	1.24		
Total BTEX	<0.300	0.300	07/17/2018	ND						

Surrogate: 4-Bromofluorobenzene (PID) 123 % 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	
<b>Chloride</b>	<b>2160</b>	16.0	07/16/2018	ND	416	104	400	0.00		

TPH 8015M		mg/kg		Analyzed By: MS							S-06
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier		
GRO C6-C10*	<50.0	50.0	07/17/2018	ND	200	100	200	4.52			
<b>DRO &gt;C10-C28*</b>	<b>13400</b>	50.0	07/17/2018	ND	174	86.8	200	19.0			
<b>EXT DRO &gt;C28-C36</b>	<b>2760</b>	50.0	07/17/2018	ND							

Surrogate: 1-Chlorooctane 120 % 41-142

Surrogate: 1-Chlorooctadecane 841 % 37.6-147

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\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

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

Received:	07/13/2018	Sampling Date:	07/10/2018
Reported:	07/18/2018	Sampling Type:	Soil
Project Name:	HARRIER 35 FED COM #1H	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	NOT GIVEN		

**Sample ID: SP 2 @ 1' (H801915-09)**

BTEX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.200	0.200	07/17/2018	ND	1.89	94.4	2.00	0.871	
<b>Toluene*</b>	<b>0.570</b>	0.200	07/17/2018	ND	1.83	91.7	2.00	0.206	
<b>Ethylbenzene*</b>	<b>0.921</b>	0.200	07/17/2018	ND	1.84	92.2	2.00	1.52	
<b>Total Xylenes*</b>	<b>9.24</b>	0.600	07/17/2018	ND	5.72	95.3	6.00	1.24	
<b>Total BTEX</b>	<b>10.7</b>	1.20	07/17/2018	ND					

Surrogate: 4-Bromofluorobenzene (PID) 134 % 69.8-142

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>Chloride</b>	<b>26000</b>	16.0	07/16/2018	ND	416	104	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS						S-06
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
<b>GRO C6-C10*</b>	<b>690</b>	100	07/17/2018	ND	200	100	200	4.52		
<b>DRO &gt;C10-C28*</b>	<b>62700</b>	100	07/17/2018	ND	174	86.8	200	19.0		
<b>EXT DRO &gt;C28-C36</b>	<b>9270</b>	100	07/17/2018	ND						

Surrogate: 1-Chlorooctane 82.5 % 41-142

Surrogate: 1-Chlorooctadecane 2930 % 37.6-147

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Celey D. Keene, Lab Director/Quality Manager

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

Received:	07/13/2018	Sampling Date:	07/10/2018
Reported:	07/18/2018	Sampling Type:	Soil
Project Name:	HARRIER 35 FED COM #1H	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	NOT GIVEN		

**Sample ID: SP 2 @ 2' (H801915-10)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	8660	16.0	07/16/2018	ND	400	100	400	3.92	QM-07

**Sample ID: SP 2 @ 4' (H801915-11)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	7730	16.0	07/16/2018	ND	400	100	400	3.92	

**Sample ID: SP 2 @ 6' (H801915-12)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	2800	16.0	07/16/2018	ND	400	100	400	3.92	

**Sample ID: SP 2 @ 8' (H801915-13)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	2720	16.0	07/16/2018	ND	400	100	400	3.92	

**Sample ID: SP 2 @ 10' (H801915-14)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	1630	16.0	07/16/2018	ND	400	100	400	3.92	

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**Analytical Results For:**

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

Received:	07/13/2018	Sampling Date:	07/10/2018
Reported:	07/18/2018	Sampling Type:	Soil
Project Name:	HARRIER 35 FED COM #1H	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	NOT GIVEN		

**Sample ID: SP 2 @ 12' (H801915-15)**
**Chloride, SM4500Cl-B**
**mg/kg**
**Analyzed By: AC**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>Chloride</b>	<b>496</b>	16.0	07/16/2018	ND	400	100	400	3.92	

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 Fax To: (575) 397-0397

Received:	07/13/2018	Sampling Date:	07/10/2018
Reported:	07/18/2018	Sampling Type:	Soil
Project Name:	HARRIER 35 FED COM #1H	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	NOT GIVEN		

**Sample ID: SP 3 @ SURFACE (H801915-16)**

BTEX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	07/17/2018	ND	1.89	94.4	2.00	0.871	
Toluene*	<0.050	0.050	07/17/2018	ND	1.83	91.7	2.00	0.206	
<b>Ethylbenzene*</b>	<b>0.055</b>	0.050	07/17/2018	ND	1.84	92.2	2.00	1.52	
<b>Total Xylenes*</b>	<b>0.221</b>	0.150	07/17/2018	ND	5.72	95.3	6.00	1.24	
Total BTEX	<0.300	0.300	07/17/2018	ND					

Surrogate: 4-Bromofluorobenzene (PID) 113 % 69.8-142

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>Chloride</b>	<b>42000</b>	16.0	07/16/2018	ND	400	100	400	3.92	

TPH 8015M		mg/kg		Analyzed By: MS						S-04
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
GRO C6-C10*	<10.0	10.0	07/16/2018	ND	200	100	200	4.52		
<b>DRO &gt;C10-C28*</b>	<b>1980</b>	10.0	07/16/2018	ND	174	86.8	200	19.0		
<b>EXT DRO &gt;C28-C36</b>	<b>797</b>	10.0	07/16/2018	ND						

Surrogate: 1-Chlorooctane 96.8 % 41-142

Surrogate: 1-Chlorooctadecane 195 % 37.6-147

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

Received:	07/13/2018	Sampling Date:	07/10/2018
Reported:	07/18/2018	Sampling Type:	Soil
Project Name:	HARRIER 35 FED COM #1H	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	NOT GIVEN		

**Sample ID: SP 3 @ 1' (H801915-17)**

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	07/17/2018	ND	1.89	94.4	2.00	0.871		
Toluene*	<0.050	0.050	07/17/2018	ND	1.83	91.7	2.00	0.206		
Ethylbenzene*	<0.050	0.050	07/17/2018	ND	1.84	92.2	2.00	1.52		
Total Xylenes*	<0.150	0.150	07/17/2018	ND	5.72	95.3	6.00	1.24		
Total BTEX	<0.300	0.300	07/17/2018	ND						

Surrogate: 4-Bromofluorobenzene (PID) 116 % 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	
<b>Chloride</b>	<b>736</b>	16.0	07/16/2018	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	
<b>GRO C6-C10*</b>	<b>10.5</b>	10.0	07/16/2018	ND	200	100	200	4.52		
<b>DRO &gt;C10-C28*</b>	<b>785</b>	10.0	07/16/2018	ND	174	86.8	200	19.0		
<b>EXT DRO &gt;C28-C36</b>	<b>147</b>	10.0	07/16/2018	ND						

Surrogate: 1-Chlorooctane 99.8 % 41-142

Surrogate: 1-Chlorooctadecane 129 % 37.6-147

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

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

Received:	07/13/2018	Sampling Date:	07/10/2018
Reported:	07/18/2018	Sampling Type:	Soil
Project Name:	HARRIER 35 FED COM #1H	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	NOT GIVEN		

**Sample ID: SP 3 @ 2' (H801915-18)**

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>Chloride</b>	<b>1840</b>	16.0	07/16/2018	ND	400	100	400	3.92	

**Sample ID: SP 3 @ 3' (H801915-19)**

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>Chloride</b>	<b>1500</b>	16.0	07/16/2018	ND	400	100	400	3.92	

**Sample ID: SP 3 @ 4' (H801915-20)**

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>Chloride</b>	<b>1090</b>	16.0	07/16/2018	ND	400	100	400	3.92	

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

Received:	07/13/2018	Sampling Date:	07/11/2018
Reported:	07/18/2018	Sampling Type:	Soil
Project Name:	HARRIER 35 FED COM #1H	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	NOT GIVEN		

**Sample ID: SP 4 @ SURFACE (H801915-21)**

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	07/17/2018	ND	1.89	94.4	2.00	0.871		
Toluene*	<0.050	0.050	07/17/2018	ND	1.83	91.7	2.00	0.206		
<b>Ethylbenzene*</b>	<b>0.064</b>	0.050	07/17/2018	ND	1.84	92.2	2.00	1.52		
<b>Total Xylenes*</b>	<b>0.298</b>	0.150	07/17/2018	ND	5.72	95.3	6.00	1.24		
<b>Total BTEX</b>	<b>0.361</b>	0.300	07/17/2018	ND						

Surrogate: 4-Bromofluorobenzene (PID) 119 % 69.8-142

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
<b>Chloride</b>	<b>3040</b>	16.0	07/16/2018	ND	400	100	400	3.92		

TPH 8015M		mg/kg		Analyzed By: MS							S-06
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier		
GRO C6-C10*	<100	100	07/17/2018	ND	200	100	200	4.52			
<b>DRO &gt;C10-C28*</b>	<b>24900</b>	100	07/17/2018	ND	174	86.8	200	19.0			
<b>EXT DRO &gt;C28-C36</b>	<b>5030</b>	100	07/17/2018	ND							

Surrogate: 1-Chlorooctane 122 % 41-142

Surrogate: 1-Chlorooctadecane 1380 % 37.6-147

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

Received:	07/13/2018	Sampling Date:	07/11/2018
Reported:	07/18/2018	Sampling Type:	Soil
Project Name:	HARRIER 35 FED COM #1H	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	NOT GIVEN		

**Sample ID: SP 4 @ 1' (H801915-22)**

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	07/17/2018	ND	1.89	94.4	2.00	0.871		
Toluene*	<0.050	0.050	07/17/2018	ND	1.83	91.7	2.00	0.206		
Ethylbenzene*	<0.050	0.050	07/17/2018	ND	1.84	92.2	2.00	1.52		
Total Xylenes*	<0.150	0.150	07/17/2018	ND	5.72	95.3	6.00	1.24		
Total BTEX	<0.300	0.300	07/17/2018	ND						

Surrogate: 4-Bromofluorobenzene (PID) 117 % 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	
<b>Chloride</b>	<b>4120</b>	16.0	07/16/2018	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	07/17/2018	ND	200	100	200	4.52		
<b>DRO &gt;C10-C28*</b>	<b>16.1</b>	10.0	07/17/2018	ND	174	86.8	200	19.0		
EXT DRO >C28-C36	<10.0	10.0	07/17/2018	ND						

Surrogate: 1-Chlorooctane 103 % 41-142

Surrogate: 1-Chlorooctadecane 96.6 % 37.6-147

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 Fax To: (575) 397-0397

Received:	07/13/2018	Sampling Date:	07/11/2018
Reported:	07/18/2018	Sampling Type:	Soil
Project Name:	HARRIER 35 FED COM #1H	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	NOT GIVEN		

**Sample ID: SP 4 @ 2' (H801915-23)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>Chloride</b>	<b>8560</b>	16.0	07/16/2018	ND	400	100	400	3.92	

**Sample ID: SP 4 @ 4' (H801915-24)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>Chloride</b>	<b>8480</b>	16.0	07/16/2018	ND	400	100	400	3.92	

**Sample ID: SP 4 @ 6' (H801915-25)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>Chloride</b>	<b>6720</b>	16.0	07/16/2018	ND	400	100	400	3.92	

**Sample ID: SP 4 @ 7' (H801915-26)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>Chloride</b>	<b>864</b>	16.0	07/16/2018	ND	400	100	400	3.92	

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 Fax To: (575) 397-0397

Received:	07/13/2018	Sampling Date:	07/11/2018
Reported:	07/18/2018	Sampling Type:	Soil
Project Name:	HARRIER 35 FED COM #1H	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	NOT GIVEN		

**Sample ID: SP 5 @ SURFACE (H801915-27)**

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	07/17/2018	ND	1.89	94.4	2.00	0.871	
Toluene*	<0.050	0.050	07/17/2018	ND	1.83	91.7	2.00	0.206	
<b>Ethylbenzene*</b>	<b>0.057</b>	0.050	07/17/2018	ND	1.84	92.2	2.00	1.52	
<b>Total Xylenes*</b>	<b>0.231</b>	0.150	07/17/2018	ND	5.72	95.3	6.00	1.24	
Total BTEX	<0.300	0.300	07/17/2018	ND					

Surrogate: 4-Bromofluorobenzene (PID) 121 % 69.8-142

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>Chloride</b>	<b>2880</b>	16.0	07/16/2018	ND	400	100	400	3.92	

TPH 8015M		mg/kg		Analyzed By: MS						S-06
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
GRO C6-C10*	<100	100	07/17/2018	ND	200	100	200	4.52		
<b>DRO &gt;C10-C28*</b>	<b>27800</b>	100	07/17/2018	ND	174	86.8	200	19.0		
<b>EXT DRO &gt;C28-C36</b>	<b>5690</b>	100	07/17/2018	ND						

Surrogate: 1-Chlorooctane 123 % 41-142

Surrogate: 1-Chlorooctadecane 1550 % 37.6-147

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

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

Received:	07/13/2018	Sampling Date:	07/11/2018
Reported:	07/18/2018	Sampling Type:	Soil
Project Name:	HARRIER 35 FED COM #1H	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	NOT GIVEN		

**Sample ID: SP 5 @ 1' (H801915-28)**

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	07/17/2018	ND	1.89	94.4	2.00	0.871	
Toluene*	<0.050	0.050	07/17/2018	ND	1.83	91.7	2.00	0.206	
Ethylbenzene*	<0.050	0.050	07/17/2018	ND	1.84	92.2	2.00	1.52	
Total Xylenes*	<0.150	0.150	07/17/2018	ND	5.72	95.3	6.00	1.24	
Total BTEX	<0.300	0.300	07/17/2018	ND					

Surrogate: 4-Bromofluorobenzene (PID) 116 % 69.8-142

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>Chloride</b>	<b>5280</b>	16.0	07/16/2018	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	07/17/2018	ND	200	100	200	4.52	
<b>DRO &gt;C10-C28*</b>	<b>27.1</b>	10.0	07/17/2018	ND	174	86.8	200	19.0	
EXT DRO >C28-C36	<10.0	10.0	07/17/2018	ND					

Surrogate: 1-Chlorooctane 104 % 41-142

Surrogate: 1-Chlorooctadecane 99.4 % 37.6-147

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

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

Received:	07/13/2018	Sampling Date:	07/11/2018
Reported:	07/18/2018	Sampling Type:	Soil
Project Name:	HARRIER 35 FED COM #1H	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	NOT GIVEN		

**Sample ID: SP 5 @ 2' (H801915-29)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>Chloride</b>	<b>8080</b>	16.0	07/16/2018	ND	400	100	400	3.92	

**Sample ID: SP 5 @ 4' (H801915-30)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>Chloride</b>	<b>3280</b>	16.0	07/16/2018	ND	400	100	400	3.92	

**Sample ID: SP 5 @ 6' (H801915-31)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>Chloride</b>	<b>3000</b>	16.0	07/16/2018	ND	400	100	400	3.92	

**Sample ID: SP 5 @ 7' (H801915-32)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>Chloride</b>	<b>896</b>	16.0	07/16/2018	ND	400	100	400	3.92	

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

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

Received:	07/13/2018	Sampling Date:	07/11/2018
Reported:	07/18/2018	Sampling Type:	Soil
Project Name:	HARRIER 35 FED COM #1H	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	NOT GIVEN		

**Sample ID: NORTH @ SURFACE (H801915-33)**

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	07/17/2018	ND	1.89	94.4	2.00	0.871		
Toluene*	<0.050	0.050	07/17/2018	ND	1.83	91.7	2.00	0.206		
Ethylbenzene*	<0.050	0.050	07/17/2018	ND	1.84	92.2	2.00	1.52		
Total Xylenes*	<0.150	0.150	07/17/2018	ND	5.72	95.3	6.00	1.24		
Total BTEX	<0.300	0.300	07/17/2018	ND						

Surrogate: 4-Bromofluorobenzene (PID) 116 % 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	464	16.0	07/16/2018	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	07/16/2018	ND	200	100	200	4.52		
DRO >C10-C28*	<10.0	10.0	07/16/2018	ND	174	86.8	200	19.0		
EXT DRO >C28-C36	<10.0	10.0	07/16/2018	ND						

Surrogate: 1-Chlorooctane 82.7 % 41-142

Surrogate: 1-Chlorooctadecane 75.7 % 37.6-147

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

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

Received:	07/13/2018	Sampling Date:	07/11/2018
Reported:	07/18/2018	Sampling Type:	Soil
Project Name:	HARRIER 35 FED COM #1H	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	NOT GIVEN		

**Sample ID: EAST @ SURFACE (H801915-34)**

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	07/17/2018	ND	1.89	94.4	2.00	0.871		
Toluene*	<0.050	0.050	07/17/2018	ND	1.83	91.7	2.00	0.206		
Ethylbenzene*	<0.050	0.050	07/17/2018	ND	1.84	92.2	2.00	1.52		
Total Xylenes*	<0.150	0.150	07/17/2018	ND	5.72	95.3	6.00	1.24		
Total BTEX	<0.300	0.300	07/17/2018	ND						

*Surrogate: 4-Bromofluorobenzene (PID) 118 % 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	
<b>Chloride</b>	<b>480</b>	16.0	07/16/2018	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	07/16/2018	ND	200	100	200	4.52		
DRO >C10-C28*	<10.0	10.0	07/16/2018	ND	174	86.8	200	19.0		
EXT DRO >C28-C36	<10.0	10.0	07/16/2018	ND						

*Surrogate: 1-Chlorooctane 89.6 % 41-142*
*Surrogate: 1-Chlorooctadecane 81.1 % 37.6-147*

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

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

Received:	07/13/2018	Sampling Date:	07/11/2018
Reported:	07/18/2018	Sampling Type:	Soil
Project Name:	HARRIER 35 FED COM #1H	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	NOT GIVEN		

**Sample ID: WEST @ SURFACE (H801915-35)**

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	07/17/2018	ND	1.89	94.4	2.00	0.871		
Toluene*	<0.050	0.050	07/17/2018	ND	1.83	91.7	2.00	0.206		
Ethylbenzene*	<0.050	0.050	07/17/2018	ND	1.84	92.2	2.00	1.52		
Total Xylenes*	<0.150	0.150	07/17/2018	ND	5.72	95.3	6.00	1.24		
Total BTEX	<0.300	0.300	07/17/2018	ND						

Surrogate: 4-Bromofluorobenzene (PID) 116 % 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	976	16.0	07/16/2018	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	07/16/2018	ND	200	100	200	4.52		
DRO >C10-C28*	<10.0	10.0	07/16/2018	ND	174	86.8	200	19.0		
EXT DRO >C28-C36	<10.0	10.0	07/16/2018	ND						

Surrogate: 1-Chlorooctane 95.9 % 41-142

Surrogate: 1-Chlorooctadecane 88.0 % 37.6-147

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\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

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

Received:	07/13/2018	Sampling Date:	07/11/2018
Reported:	07/18/2018	Sampling Type:	Soil
Project Name:	HARRIER 35 FED COM #1H	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	NOT GIVEN		

**Sample ID: SOUTH @ SURFACE (H801915-36)**

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	07/17/2018	ND	1.89	94.4	2.00	0.871		
Toluene*	<0.050	0.050	07/17/2018	ND	1.83	91.7	2.00	0.206		
Ethylbenzene*	<0.050	0.050	07/17/2018	ND	1.84	92.2	2.00	1.52		
Total Xylenes*	<0.150	0.150	07/17/2018	ND	5.72	95.3	6.00	1.24		
Total BTEX	<0.300	0.300	07/17/2018	ND						

Surrogate: 4-Bromofluorobenzene (PID) 116 % 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	1040	16.0	07/16/2018	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	07/16/2018	ND	200	100	200	4.52		
DRO >C10-C28*	<10.0	10.0	07/16/2018	ND	174	86.8	200	19.0		
EXT DRO >C28-C36	<10.0	10.0	07/16/2018	ND						

Surrogate: 1-Chlorooctane 95.7 % 41-142

Surrogate: 1-Chlorooctadecane 87.2 % 37.6-147

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\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Notes and Definitions**

- S-06 The recovery of this surrogate is outside control limits due to sample dilution required from high analyte concentration and/or matrix interference's.
- S-04 The surrogate recovery for this sample is outside of established control limits due to a sample matrix effect.
- QR-03 The RPD value for the sample duplicate or MS/MSD was outside of QC acceptance limits due to matrix interference. QC batch accepted based on LCS and/or LCSD recovery and/or RPD values.
- 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



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Celey D. Keene, Lab Director/Quality Manager







**CARDINAL LABORATORIES**

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

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

3 of 4

Company Name: BBC International, Inc.		<b>BILL TO</b>		<b>ANALYSIS REQUEST</b>											
Project Manager: Cliff Brunson		P.O. #:		TPH EXT. BTEX CL-											
Address: P.O. Box 805		Company:													
City: Hobbs State: NM Zip: 88241		Attn:													
Phone #: 575-397-6388 Fax #: 575-397-0397		Address:													
Project #:		City:													
Project Name:		State: Zip:													
Project Location:		Phone #:													
Sampler Name:		Fax #:													

FOR LAB USE ONLY	Lab I.D.	Sample I.D.	(GRAB OR C)OMP. # CONTAINERS	MATRIX						PRESERV.			SAMPLING		DATE	TIME	TPH	EXT.	BTEX	CL-
				GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER	ACID/BASE	ICE / COOL	OTHER								
	H801915	SP4 @ SURFACE	G 1			✓					✓			7-11-18	945	✓	✓	✓		
		@ 1'	G 1			✓					✓			7-11-18	855	✓	✓	✓		
		@ 2'	G 1			✓					✓			7-11-18	911			✓		
		@ 4'	G 1			✓					✓			7-11-18	945			✓		
		@ 6'	G 1			✓					✓			7-11-18	1033			✓		
		@ 7'	G 1			✓					✓			7-11-18	1055			✓		
		SP5 @ SURFACE	G 1			✓					✓			7-11-18	1111	✓	✓	✓		
		@ 1'	G 1			✓					✓			7-11-18	1122	✓	✓	✓		
		@ 2'	G 1			✓					✓			7-11-18	1133			✓		
		@ 4'	G 1			✓					✓			7-11-18	115			✓		

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Relinquished By: <i>Roger Hernandez</i>	Date: <i>7-13-18</i>	Received By: <i>Jamara Paddock</i>	Phone Result: <input type="checkbox"/> Yes <input type="checkbox"/> No	Add'l Phone #:
	Time: <i>1:45</i>		Fax Result: <input type="checkbox"/> Yes <input type="checkbox"/> No	Add'l Fax #:
Relinquished By:	Date:	Received By:	REMARKS:	
	Time:			
Delivered By: (Circle One) <i>-3.32</i>	Sample Condition	CHECKED BY:		
Sampler - UPS - Bus - Other: <i>Corrected - 3.35</i>	Cool <input type="checkbox"/> Yes <input type="checkbox"/> No Intact <input type="checkbox"/> Yes <input type="checkbox"/> No	(Initials) <i>TO-#75</i>	<i>Has some head space</i>	

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



August 03, 2018

Cliff Brunson

BBC International, Inc.

P.O. Box 805

Hobbs, NM 88241

RE: HARRIER 35 FED COM #1H

Enclosed are the results of analyses for samples received by the laboratory on 07/31/18 15:40.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-18-11. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (\*). For a complete list of accredited analytes and matrices visit the TCEQ website at [www.tceq.texas.gov/field/qa/lab\\_accred\\_certif.html](http://www.tceq.texas.gov/field/qa/lab_accred_certif.html).

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

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

Accreditation applies to public drinking water matrices.

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

Sincerely,



Mike Snyder For 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:	07/31/2018	Sampling Date:	07/23/2018
Reported:	08/03/2018	Sampling Type:	Soil
Project Name:	HARRIER 35 FED COM #1H	Sampling Condition:	Cool & Intact
Project Number:	( 6/17/18 )	Sample Received By:	Tamara Oldaker
Project Location:	NOT GIVEN		

**Sample ID: SP 3 @ 6' (H802085-01)**

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	08/01/2018	ND	416	104	400	0.00	

**Sample ID: SP 4 @ 8' (H802085-02)**

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	08/01/2018	ND	416	104	400	0.00	

**Sample ID: SP 5 @ 8' (H802085-03)**

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	08/01/2018	ND	416	104	400	0.00	

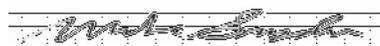
**Sample ID: WEST @ SURFACE (H802085-04)**

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	08/01/2018	ND	416	104	400	0.00	

Cardinal Laboratories

\*=Accredited Analyte

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Mike Snyder For 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:	07/31/2018	Sampling Date:	07/23/2018
Reported:	08/03/2018	Sampling Type:	Soil
Project Name:	HARRIER 35 FED COM #1H	Sampling Condition:	Cool & Intact
Project Number:	( 6/17/18 )	Sample Received By:	Tamara Oldaker
Project Location:	NOT GIVEN		

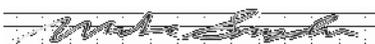
**Sample ID: SOUTH @ SURFACE (H802085-05)**

Chloride, SM4500Cl-B	mg/kg	Analyzed By: AC							
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>Chloride</b>	<b>32.0</b>	16.0	08/01/2018	ND	416	104	400	0.00	

Cardinal Laboratories

\*=Accredited Analyte

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Mike Snyder For Celey D. Keene, Lab Director/Quality Manager

**Notes and Definitions**

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

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\*=Accredited Analyte

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Mike Snyder For Celey D. Keene, Lab Director/Quality Manager



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

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

CAF 1

Company Name: BBC International, Inc.				<b>BILL TO</b>				<b>ANALYSIS REQUEST</b>															
Project Manager: Cliff Brunson				P.O. #:																			
Address: P.O. Box 805				Company: <i>COG</i>																			
City: Hobbs		State: NM		Zip: 88241		Attn:																	
Phone #: 575-397-6388		Fax #: 575-397-0397		Address:																			
Project #:		Project Owner: <i>COG</i>		City:																			
Project Name: <i>HARRIS 35 FED Com #1H (6/17/18)</i>				State:																Zip:			
Project Location:				Phone #:																			
Sampler Name: <i>Jeff Ornelas</i>				Fax #:																			
FOR LAB USE ONLY																							
Lab I.D.	Sample I.D.	(G)RABOR (C)OMP.	# CONTAINERS	MATRIX				PRESERV.			SAMPLING		Chloride										
				GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER:	ACID/BASE:	ICE / COOL	OTHER:					DATE	TIME					
<i>H802085</i>						<input checked="" type="checkbox"/>				<input checked="" type="checkbox"/>							<i>7/23/18</i>	<i>1:00pm</i>					
	<i>1 SP3 @ 6'</i>	<i>G</i>	<i>1</i>			<input checked="" type="checkbox"/>				<input checked="" type="checkbox"/>							<i>7/23/18</i>	<i>2:03pm</i>					
	<i>2 SP4 @ 8'</i>	<i>G</i>	<i>1</i>			<input checked="" type="checkbox"/>				<input checked="" type="checkbox"/>							<i>7/23/18</i>	<i>3:15pm</i>					
	<i>3 SP5 @ 8'</i>	<i>G</i>	<i>1</i>			<input checked="" type="checkbox"/>				<input checked="" type="checkbox"/>							<i>7/23/18</i>	<i>3:25pm</i>					
	<i>4 West e surface</i>	<i>G</i>	<i>1</i>			<input checked="" type="checkbox"/>				<input checked="" type="checkbox"/>							<i>7/23/18</i>	<i>3:30pm</i>					
	<i>5 South e surface</i>	<i>G</i>	<i>1</i>			<input checked="" type="checkbox"/>				<input checked="" type="checkbox"/>							<i>7/23/18</i>	<i>3:30pm</i>					
<i>7/31/18</i>																							

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Relinquished By: <i>Jeff Ornelas</i>	Date: <i>7/31/18</i>	Received By: <i>[Signature]</i>	Phone Result: <input type="checkbox"/> Yes <input type="checkbox"/> No	Add'l Phone #:
	Time: <i>8:00am</i>		Fax Result: <input type="checkbox"/> Yes <input type="checkbox"/> No	Add'l Fax #:
Relinquished By: <i>[Signature]</i>	Date: <i>7-31-18</i>	Received By: <i>Jamara [Signature]</i>	REMARKS:	
	Time: <i>15:40</i>			
Delivered By: (Circle One) <i>2.7c</i>	Sample Condition	CHECKED BY: (Initials)		
Sampler - UPS - Bus - Other: <i>Corrected 2.65c</i>	Cool <input type="checkbox"/> Intact <input type="checkbox"/>	<i>TO-#75</i>		
	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No			
	<input type="checkbox"/> No <input type="checkbox"/> No			

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

District I  
1625 N. French Dr., Hobbs, NM 88240  
District II  
811 S. First St., Artesia, NM 88210  
District III  
1000 Rio Brazos Road, Aztec, NM 87410  
District IV  
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico  
Energy Minerals and Natural Resources

Form C-141  
Revised April 3, 2017

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

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

**Release Notification and Corrective Action**

**OPERATOR**

Initial Report  Final Report

Name of Company: COG Operating LLC (OGRID #229137)	Contact: Robert McNeill
Address: 600 West Illinois Avenue, Midland TX 79701	Telephone No. 432-683-7443
Facility Name: <b>Harrier 35 Federal Com #001H</b>	Facility Type: Flowline

Surface Owner: Federal	Mineral Owner: Federal	API No. 30-025-40572
------------------------	------------------------	----------------------

**LOCATION OF RELEASE**

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
G	35	25S	32E	1,980	North	1,500	East	Lea

Latitude 32.0888481 Longitude -103.6419449 NAD83

**NATURE OF RELEASE**

Type of Release: Oil & Produced Water	Volume of Release: 0.5 bbl. Oil 15 bbl. Produced Water	Volume Recovered: 0 bbl. Oil 0 bbl. Produced Water
Source of Release: Flowline Leak	Date and Hour of Occurrence: June 17, 2018 3:30pm	Date and Hour of Discovery: June 17, 2018 3:30pm
Was Immediate Notice Given? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input checked="" type="checkbox"/> Not Required	If YES, To Whom?	
By Whom?	Date and Hour:	
Was a Watercourse Reached? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If YES, Volume Impacting the Watercourse.	

If a Watercourse was Impacted, Describe Fully.\*

**RECEIVED**  
By Olivia Yu at 9:48 am, Jun 21, 2018

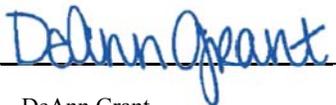
Describe Cause of Problem and Remedial Action Taken.\*

The release was caused by a flowline leak. The flowline is being replaced.

Describe Area Affected and Cleanup Action Taken.\*

The release was on location. A vacuum truck was dispatched to remove all freestanding fluids. Concho will have the spill area sampled to delineate any possible impact from the release and we will present a remediation work plan to the NMOCD for approval prior to any significant remediation activities.

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to NMOCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the NMOCD marked as "Final Report" does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to ground water, surface water, human health or the environment. In addition, NMOCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.

Signature: 	<b>OIL CONSERVATION DIVISION</b>	
Printed Name: DeAnn Grant	Approved by Environmental Specialist: 	
Title: HSE Administrative Assistant	Approval Date: <b>6/21/2018</b>	Expiration Date:
E-mail Address: agrant@concho.com	Conditions of Approval: <b>see attached directive</b>	Attached <input checked="" type="checkbox"/>
Date: June 18, 2018	Phone: (432) 253-4513	

\* Attach Additional Sheets If Necessary

1RP-5105

nOY1817237904

pOY1817238188

Operator/Responsible Party,

The OCD has received the form C-141 you provided on 6/19/2018 regarding an unauthorized release. The information contained on that form has been entered into our incident database and remediation case number 1RP-5105 has been assigned. **Please refer to this case number in all future correspondence.**

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

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

Release characterization is the first phase of corrective action unless the release is ongoing or is of limited volume and all impacts can be immediately addressed. Proper and cost-effective remediation typically cannot occur without adequate characterization of the impacts of any release. Furthermore, the Division has the ability to impose reasonable conditions upon the efforts it oversees. **As such, the Division is requiring a workplan for the characterization of impacts associated with this release be submitted to the OCD District 1 office in Hobbs on or before 7/21/2018. If and when the release characterization workplan is approved, there will be an associated deadline for submittal of the resultant investigation report. Modest extensions of time to these deadlines may be granted, but only with acceptable justification.**

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

- Horizontal delineation of soil impacts in each of the four cardinal compass directions. Adsorbed soil contamination must be characterized for the following constituents using the associated laboratory methods: benzene, toluene, ethylbenzene, and total xylenes by either Method 8260 or 8021, total petroleum hydrocarbons by Method 8015 extended range (GRO+DRO+MRO; C<sub>6</sub> thru C<sub>36</sub>), and for chloride by Method 300. This is not an exclusive list of potential contaminants. Analyzed parameters should be modified based on the nature of the released substance(s). Soil sampling must be both within the impacted area and beyond.
- Vertical delineation of soil impacts. Adsorbed soil contamination must be characterized for the following constituents using the associated laboratory methods: benzene, toluene, ethylbenzene, and total xylenes by either Method 8260 or 8021, total petroleum hydrocarbons by Method 8015 extended range (GRO+DRO+MRO; C<sub>6</sub> thru C<sub>36</sub>), and for chloride by Method 300. As above, this is not an exclusive list of potential contaminants and can be modified. Vertical characterization samples should be taken at depth intervals no greater than five feet apart. Lithologic description of encountered soils must also be provided. At least ten vertical feet of soils with contaminant concentrations at or below these values must be demonstrated as existing above the water table.
- Nominal detection limits for field and laboratory analyses must be provided.
- Composite sampling is not generally allowed.
- Field screening and assessment techniques are acceptable (headspace, titration, EC [include algorithm for validation purposes], EM, etc.), but the sampling and assay procedures must be clearly defined. Copies of field notes are highly desirable. A statistically significant set of split samples must be submitted for confirmatory laboratory analysis, including the laterally farthest and vertically deepest sets of soil samples. Make sure there are at least two soil samples submitted

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

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

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

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

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

**Jim Griswold**

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